

# Post-Flight Reports: Unexpected Events

When Things  
Go Wrong  
In Flight

Presented to: **Orlando CFI's**

By: **Robert Jex, FPM, Orlando FSDO**

Date: **Aug 2021**



**Federal Aviation  
Administration**



# WINGS Promotional Video!

- Use MP4 file on Laptop, or...
- [https://drive.google.com/file/d/1uWHgyp\\_xj1A-5F65yFziRGwOVdPrrJmV/view?usp=sharing](https://drive.google.com/file/d/1uWHgyp_xj1A-5F65yFziRGwOVdPrrJmV/view?usp=sharing)

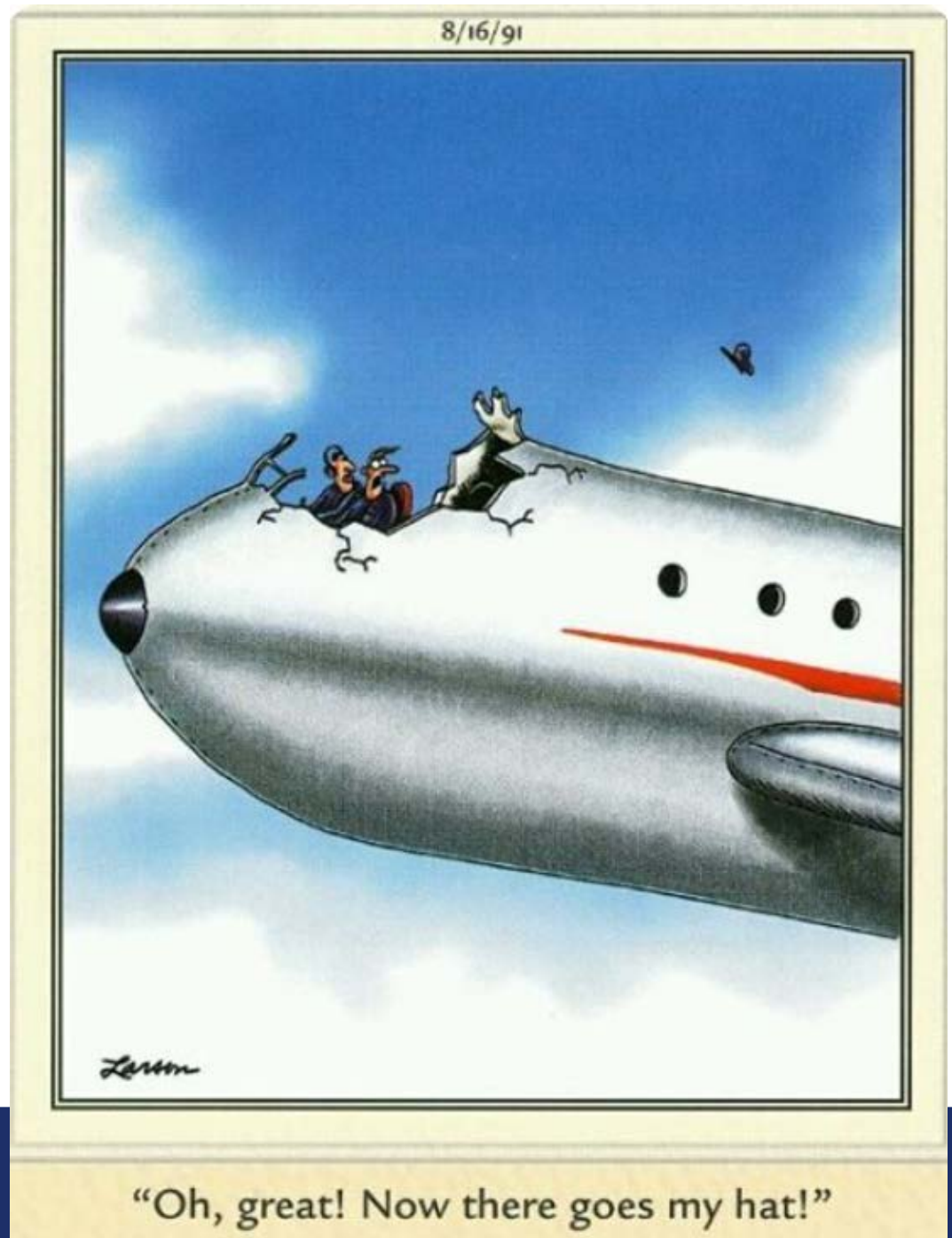


# Objectives

- **Combine several areas in one presentation**
  - Simplify search for documents
- **Regulatory Review**
- **Review existing report infrastructure**
- **Offer resources and downloads**
- **Help others and enhance Safety Culture!**



**Sometimes,  
things  
happen!**





# What we'll cover:

- **General guidance**
- **NASA ASRS**
- **Near Mid-Air Collision (NMAC)**
- **Bird / Wildlife Strike**
- **Laser Illumination**



# What we **won't** cover:

- **Pilot Reports (PIREP's)**
- **Specific emergency procedures**
- **Lost comm procedures**
- **Investigations in detail**
- **How to fill out the forms**



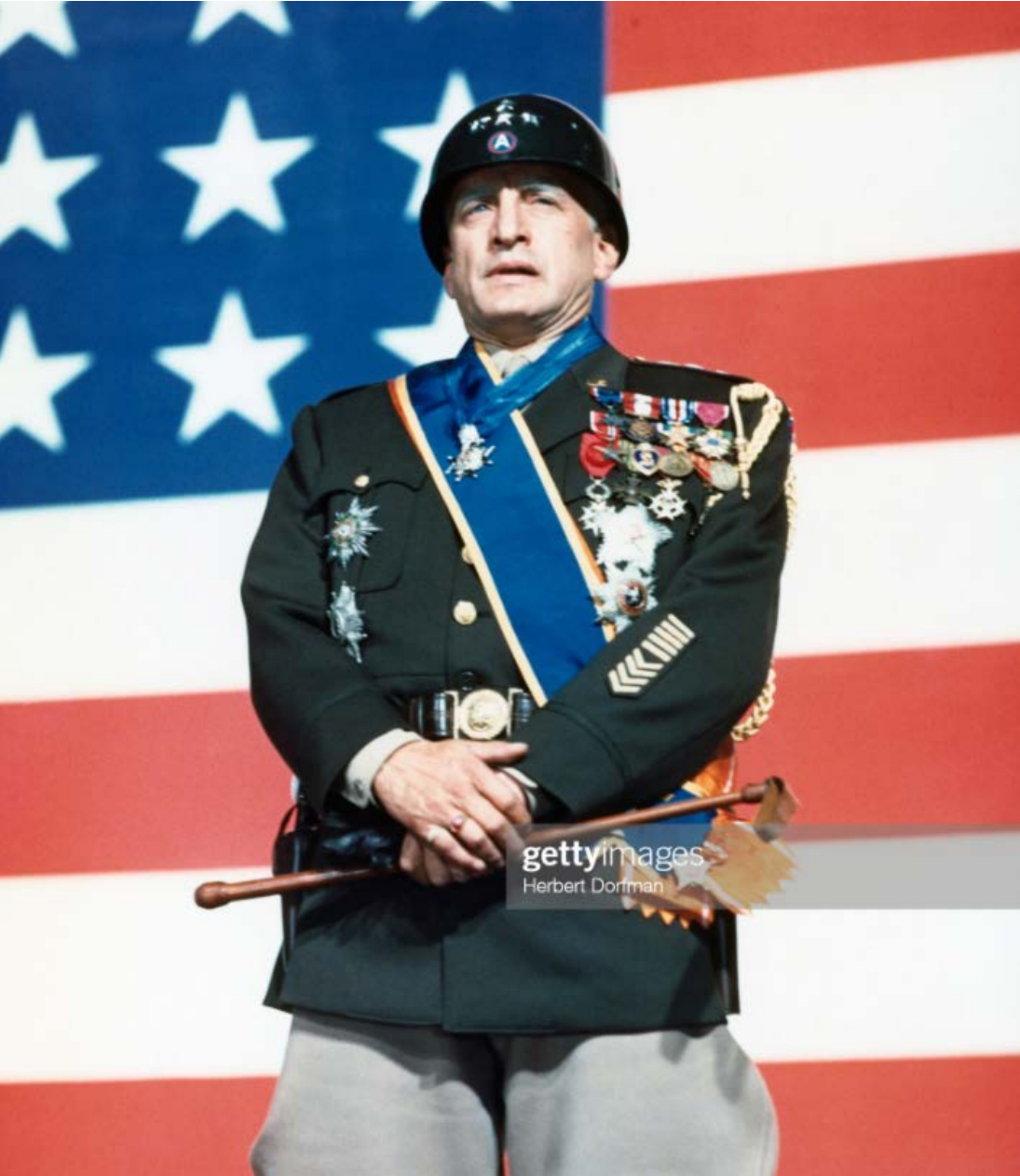


# References

- **14 CFR (FAR) Part 91**
  - 91.3; 91.11; 91.25; 91.111; 91.113, 91.115, 91.123; 91.187 et al
- **AIM**
  - Para's 5-3-3; 6-1-2 et al
- **NASA ASRP: AC 00-46F (New)**
- **49 CFR Part 830.5 (NTSB 830.5 )**
- ***FAA Safety Briefing* mag, July/Aug 2021 ed.**
- **Laser Illumination: AC 70-2B (New)**



# Generally speaking....



# What the Regs say:

- **91.3 - Responsibility and Authority of PIC**
  - PIC may deviate from any rule to the extent required to meet an emergency
  - Furnish written report to FAA **UPON REQUEST**





# What the Regs say (Cont'd):

- **91.123 – Compliance with ATC instructions**
  - Once PIC accepts an ATC clearance, must comply unless emergency arises, including an RA
  - Must notify ATC as soon as possible if deviate
  - If given priority, submit written report to ATC  $\leq$  48 hrs.
- **91.187 – IFR malfunction reports**
  - Covers Nav, Approach, or Comms malf's in IFR flight
  - Report malfunction(s) to ATC as soon as practical
  - Include request for ATC assistance as applicable
  - Post-flight written report not required by this reg.



# What the Regs say (Cont'd):

- **NTSB 830.5(a): Reportable incidents**
  - Certain inflight incidents are reportable, including
    - Flight control malfunctions
    - In-flight fire
    - Aircraft collision in flight
    - Loss, or significant flickering, of certain displays
    - RA response to avoid a collision while IFR
- **Tip: File NASA report after any emergency or incident in which you were PIC or crew.**



# What the AIM says:

- **Para 5-3-3: Additional reports [to ATC]**
  - Unable to climb / descend at least 500 fpm
  - Loss of nav, approach, or comms in controlled airspace
  - Info affecting safety of flight
  - Not in radar contact? Unforecast or adverse weather
- **Para 6-1-2: Emergency condition**
  - Report **urgent** [pre-emergency] conditions without delay, before it develops into an **emergency**!





# Some Best Practices:

- **Brief & practice emergency procedures**
- **If “something happens” in flight...**
  - Aviate, Navigate, Communicate, Checklists as always
  - Declare an emergency, if it’s an emergency
  - Suspend training as appropriate; inform Student
    - This may be an opportunity to train; **safety first.**
  - Work the problem using CRM, including ATC help
  - Terminate the flight as appropriate
  - Keep ATC informed and engaged if needed
  - Take notes for later debrief





# ATC interfaces to consider:

- **Flight following**
- **Vectors to nearest airport**
- **Delay vectors**
- **Limited wx avoidance**
- **Emergency services / MAYDAY**
- **Malfunction reports, PIREPs**
- **Minimum fuel, Emergency fuel**
- **Phone patch assist, if possible**
- **Report active ELT, possibly assist**



# Once you are safe on-deck:

- **Let others know you are safe**
  - Or initiate medical response as applicable
- **Secure the aircraft**
- **Cooperate with First Responders**
- **Write down what happened**
- **Later: Decide what report(s) to file, if any**





# What systems at your school?

- **Personnel injury report**
- **Maintenance discrepancy report**
- **Aviation Safety Action Program (ASAP) form**
- **Other company forms?**



# NASA ASRS



**ASRS slides courtesy of Dr. Rebekah L. Hooey, Ph. D.**

**NASA ASRS Program Director**

**[Becky.l.hooey@nasa.gov](mailto:Becky.l.hooey@nasa.gov)**



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# What the Regs say:

- **91.25 – Aviation safety reporting program**
  - FAA **will not** use info from NASA reports in any enforcement action
  - Exception to the above: **accidents, criminal offenses**
- **Regulatory Guidance: AC 00-46F**



# NASA Aviation Safety Reporting System

- NASA ASRS is a **confidential, voluntary, non-punitive** reporting system that receives safety reports from Pilots, Air Traffic Controllers, Dispatchers, Cabin Crew, Ground Ops, Maintenance Technicians, and UAS Operators.
- ASRS welcomes reports describing close-calls, hazards, violations, and safety-related incidents.

## Sample Report Topics:

- Near-mid air collisions
- Airspace violations
- Runway incursions
- Confusing airport signage
- Charting / navigation issues
- Confusing phraseology
- Aircraft / equipment failures
- Automation failures
- Procedures and training
- Human error/ slips / lapses

- With over 45 years of confidential safety reporting, ASRS has received more than 1,780,000 reports so far (~108,000 reports received annually).

**When in doubt, fill it out!**

Contribute to aviation safety

<http://asrs.arc.nasa.gov>



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# ASRS Principles

## 1. VOLUNTARY

*Aviation personnel voluntarily submit reports concerning events related to safety for the purpose of system alerting, understanding and learning*

## 3. NON-PUNITIVE

*FAA will not use, nor will NASA provide, any qualifying report submitted to ASRS (or information derived therein) for use in disciplinary or other adverse action.*  
(14 CFR 91.25 & AC 00-46F)

## 2. CONFIDENTIAL

*Protection of identity is provided by NASA through de-identification of persons, companies, and any other identifying information*



## 4. INDEPENDENT

*NASA serves as the independent honest-broker; separate from employer / certificate holder / regulator*

# FAA Advisory Circular

## AC 00-46F



# Advisory Circular

Subject: Aviation Safety Reporting Program

Date: 4/2/21

AC No: 00-46F

Initiated by: AFS-200 Change:

**Use Restrictions.** The FAA will not use any reports submitted to NASA under the ASRS (or information derived therefrom) in any enforcement action...except information concerning criminal offenses or accidents which are excluded.

**Waiver of Imposition of Sanction.** The FAA considers the filing of a report with NASA ... to be indicative of a **constructive attitude** towards safety. Such an attitude will tend to prevent future violations. Accordingly, although a finding of violation may be made, neither a civil penalty nor certificate suspension will be imposed if ...

- Inadvertent and not deliberate
- Did not involve a criminal offense, accident or action under 49 U.S.C § 44709, which discloses a lack of qualification or competency
- No finding of any prior FAA enforcement action
- Reported within 10 days of the violation



# New in 2021: ASRS for UAS!

Anyone involved in **UAS Operations** can file a NASA Aviation Safety Reporting System (ASRS) **incident report**.



Recreational Flyers



Part 107 Operators



Part 135 Operators



Public Operators

## Flight Operators

- Remote Pilot-in-Command
- Person manipulating controls
- Visual observer
- GCS operator
- Payload operator
- Mission planner

## Maintenance Personnel

- Repairman
- Technician
- Mechanic
- Inspector

**Launched April 15, 2021**

# CALLBACK and SAFETY IN SIGHT



## NASA ASRS UAS Safety in Sight

**Sign up for UAS Safety in  
Sight email today!**

Stay connected to find out more  
about the new ASRS UAS report form  
and emerging UAS safety topics.

**Subscribe and read past issues  
of CALLBACK at  
<https://asrs.arc.nasa.gov>**



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## CALLBACK

From NASA's Aviation Safety Reporting System



Issue 496

May 2021

### Unmanned Aircraft Systems (UAS)



NASA ASRS is pleased to officially introduce the new ASRS UAS reporting form. We welcome everyone involved in UAS operations into the ranks of a committed, transparent, and professional aviation safety reporting community. Whether you are a recreational drone flyer, a certificated remote pilot or crew member involved in commercial UAS operations, or operating UAS for the Military, public safety, or educational purposes, we invite you to contribute to ASRS.

The ASRS goal of improving aviation safety for all is realized through the guiding principles of voluntary participation, confidential reporting, and non-punitive provisions for those in the aviation community who choose to participate in ASRS. Since its inception in 1976, NASA ASRS has received and processed over 1.75 million safety reports.

Important benefits are realized by honest and open safety reporting. Common problems, complications, and obscure nuances are revealed over time and shared with the community. In so doing, we learn from each other's challenges and mistakes. Examples of reported UAS incidents include events in which wind, weather, or equipment are important factors, conflicts between manned and unmanned aircraft, and operational mistakes that may endanger persons or aircraft. Commencing with knowledge extracted from ASRS reports, solutions or preventive measures can be developed to mitigate hazards and threats. Although Unmanned Aerial Vehicles (UAVs) may be similar or vastly different from other types of aircraft, all must operate together in the National Airspace System. Comprehensive safety reporting will improve flight safety for all as each reporting group learns what is required and expected of the others, particularly as the skies become more densely populated from the increased demand for UAVs and larger numbers of UAS operators.

All reports that ASRS receives are de-identified, and names, dates, and other identifying information are removed or generalized to protect the identities of reporters and third parties. Many of these reports are available in the public ASRS Database Online<sup>1</sup> (DBOL) for interested parties to review or research. More descriptive details about ASRS, the new UAS Reporting Form<sup>2</sup>, and in-depth information about the operation of UAS, including Drone Safety Tips, may be found at the respective ASRS or FAA website.<sup>3</sup>

This month, *CALLBACK* showcases our newest reporters and partners in the aviation safety reporting community. Already, UAS operators have reported a pertinent cross section of UAS incidents. Enjoy the narratives. As always, our intent is to stimulate thought, training, and discussion related to the type of incidents that were reported.

#### Part 107 for the Hobbyist

Although FAR Part 107 had not been emphasized at the hobbyist level, its discovery was unexpected, and its content motivated commitment toward personal growth.

■ *I was testing the live-streaming video using my personal hobby drone. Post proof-of-concept meeting, we had a follow-up with flight services, where I was advised of [FAR] Part 107 regulations. I was unaware of the requirements outlined in Part 107 and unaware of the airspace proximity to [a local airport]. During my test flight, the drone stayed in low altitude [mode] and did not leave line of sight. During setup and test of this drone, no aircraft were visibly present.*

*I have ...the link to the regulations that I was unaware of and will research all unmanned and manned flight regulations for that area prior to any future flights. It is unfortunate that this information is not listed at the hobby level.... This gives me the option to improve my knowledge, moving forward.*

#### Preflight Thoroughly B4UFLY

A better preflight might have prevented confusion for this Part 107 certificated operator when the B4UFLY app indicated that the intended flight area was restricted.

■ *I was operating my drone under Part 107 during an aerial photography mission. On initial setup, I checked the FAA B4UFLY app and noticed that the area I was currently in was restricted.... I checked under the reasons why, and it informed me that it was due to Alert Area A-231. I then checked my terminal area chart on ForeFlight to see what the restrictions were for A-231 and found out that it was from 300 feet AGL to 6,500 feet MSL. The operation I intended to perform was only going to be up to 100 feet AGL, and I quickly glanced to make sure I was not in conflict with any other airspace and [that I was] under the [Class] B shelf. Having done most of my flight training in Phoenix, ...I was certain that it was acceptable to operate my drone.*

# NASA Form 277B and Protections

- Independent from ASAP, other programs
- Pilots can fill out **Form 277B** for any flight
  - **Do NOT** send a copy to FAA!
  - NASA does not divulge eligible ASRS info to FAA!
- **10-day time limit to file**
- **Keep the “Strip” in a safe place!**
- **FAA may investigate; may find violation**
- **If covered by the program, sanction waived**
- **5-year time-out on use for protections**



# Questions on NASA ASRS?



# Near Mid-Air Collision (NMAC)



# What the Regs say

- **91.111: Operating near other aircraft**
  - Don't operate so close as to create a collision hazard
- **91.113, 115: Right of Way**
  - See and avoid
- **NTSB 830.5(a)**
  - Mid-air collision is a reportable incident
  - So is RA response while IFR





# NMAC Report: FAA Form 8020-21

- **Prevention tip: Use Flight Following or file IFR!**
- **Report NMAC, RA to ATC in timely manner**
- **NTSB 830.5(a)(10): RA is reportable to NTSB!**
- **ATC normally initiates the preliminary report**
  - Both crews can furnish info to ATC; usually only 1 does
- **FSDO investigates NMACs involving GA**
  - 8900.1, Volume 7, Chapter 4, Section 1





# Questions on NMAC?



# Bird / Wildlife Strike



**“Miracle on the Hudson”: 15 Jan 2009**



# Some perspective

- **Over 17,000 strikes reported in 2019; 739 caused damage**
- **Problem is rare, but growing**
- **Annual losses: \$196M, 110K hours downtime**
- **Affects pilots, airport management, public**
- **FAA has comprehensive program**
  - Policy and guidance
  - Research
  - Outreach
- **Many other entities are stakeholders**





# Bird / Wildlife Strike

- **On-deck: abort takeoff if able**
- **In flight, immediately assess crew, aircraft**
  - Possible injuries to crew, occupants
  - **You now have a damaged aircraft!**
  - Is it flyable? (performance, controllability)
  - Some scenarios: Acft cannot maintain altitude
  - If altitude and time permit, evaluate handling at slower speeds; find MCA
  - Instrumentation (ASI) may be unreliable
  - Emergency off-field landing may be necessary
  - Let ATC know (MAYDAY as appropriate)



# Once safely on deck...

- **Seek medical attention as applicable**
- **Attempt to ID the species**
  - Collect feathers or remains if able
  - Send samples to Smithsonian for ID
- **Injury / Mx reports as applicable**
- **Complete and mail FAA Form 5200-7**
  - One-page of report data, 3 page form.
  - May need inputs from maintainers, supervisors to complete
  - Mailing label is part of the form!
- **Alternative: [www.wildlife.faa.gov](http://www.wildlife.faa.gov) on-line form**





# Questions on Bird / Wildlife Strike?





# Laser Illumination



# What the Regs say:

- **91.11 – Prohibition on interference with crew**
  - Lasing an aircraft is considered interference with crew
- **18 USC § 39A**
  - Lasing an aircraft is a federal crime
  - Fines, imprisonment, revocations possible
- **NTSB 830.5(a)(2) – Reportable incidents**
  - Inability of any required crew member due to injury
  
- **Regulatory Guidance: AC 70-2B**



# Some perspective

- AOPA: 6000 laser illuminations reported in 2019
- Lasers with power sufficient to damage eyes are widely available. 1-Watt laser can burn thru paper, wood. Office laser pointers and Christmas laser lights are far less powerful, typ 1 – 5 mW. FDA regulates most lasers.
- Likelihood of impairment depends on wavelength and duration of exposure.
- Effects of laser illumination are amplified at night because of dark adaptation
- FAA assists local law enforcement investigating's



# Key resource: AC 70-2B



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

## Advisory Circular

**Subject: REPORTING LASER  
ILLUMINATION OF AIRCRAFT**

**Date: 04/03/2020  
Initiated by: AJR-2**

**AC No: 70-2B**

### 1. PURPOSE.

a. This Advisory Circular (AC) provides information to aircrews, operating within the National Airspace System (NAS), and the broader aviation community on measures taken by the Federal Aviation Administration (FAA) to address incidents of unauthorized illumination of aircraft by lasers. Specifically, this AC provides guidance to aircrews and reflects current guidance for air traffic control (ATC) on the formal reporting of laser illumination incidents. The FAA Modernization and Reform Act of 2012, passed into public law on February 14, 2012, established a prohibition against aiming a laser pointer at an aircraft. Title 18 United States Code (U.S.C.) 39(A) makes it a crime to aim the beam of a laser pointer at an aircraft. The FAA collects laser incident reports to assist law enforcement and provide support for recommended mitigation actions to be taken to ensure continued safe and orderly flight operations.

b. This AC is issued in response to the significant number of unauthorized laser illumination of aircraft incidents, as well as the proliferation and increased sophistication of laser devices



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# Laser illumination actions

- **Crews instinctively divert their eyes!**
- **On-deck: abort, turn away if able**
- **In flight, immediately assess crew**
  - Possible visual injuries to crew, occupants
  - Can you still fly the aircraft?
  - Exit the vicinity
  - Let ATC know. Request delay vectors as approp.



# Once safely on deck...

- **Seek medical attention as needed**
- **File employer's injury form as applicable**
- **Notify NTSB as applicable**
- **Complete and mail Laser Questionnaire**
  - 5 page form
  - Included as handout



# Laser Questionnaire

OMB Control Number: 2120-0698  
Expiration Date: 8/31/2018



**Federal Aviation  
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## **LASER BEAM EXPOSURE QUESTIONNAIRE**

**Complete questionnaire and e-mail to: [laserreports@faa.gov](mailto:laserreports@faa.gov)  
OR send via fax to FAA Washington Operations Center Complex (WOCC) - (202) 267-5289 ATTN: DEN**

### **CONTACT INFORMATION**

Name of pilot/crewmember reporting

E-mail address and phone number (e.g., home, cell, work)

What seat in the cockpit were you occupying at the time of the laser beam exposure?

- Left     Right     Jumpseat     Flight Engineer     Other/Not applicable

How many crewmembers on the flight had laser light shined directly in their eyes?

- None (the laser light beam did not directly enter anyone's eyes)  
 One     Two     Three     Four or more

*Note: If any other crewmember had direct exposure to the laser light in their eyes, each person exposed should complete their own copy of this FAA Laser Beam Exposure Questionnaire*

### **FLIGHT INFORMATION**

Flight number, call sign and aircraft registration number (e.g., SWA572, Southwest, N287WN)

# Questions on Laser Illumination, or anything else?



# Summary

- **Reporting helps others, sets the example**
  - May even help YOU!
- **Common actions in many scenarios**
  - Aviate, Navigate, Communicate, Checklists
  - ATC can be of great help in CRM
  - Make notes for later
- **Systems in use at your school**
- **NASA ASRS – Form 277B**
- **NMAC – FAA Form 8020-21**
- **Wildlife strike – FAA Form 5200-7**
- **Laser illumination - Questionnaire**



# On-line Resources

- **See Outline in the SPANS message for this event**
  - Websites for additional study
  - Forms
  
- **Alternatively, call or e-mail me**
  - My contact info at end!



# Proficiency and Peace of Mind

- Fly regularly with your CFI
- Perfect Practice
- Document in “My WINGS”



# Recognize these???



**Basic, Advanced, and Master SeaWINGS!**





# Questions on Today's Program?

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**Key resource for today's topics:**

[www.faasafety.gov](http://www.faasafety.gov)

**SPANS Select ID: SO15106120**