# SAFETY GRAM 4.0

**May 2023**

AIR FORCE SERVICES

AERO CLUB

FLIGHT TRAINING CENTER

Air Force Aero Clubs,

As we begin the summer flying period with better weather and increased opportunities for taking to the sky it would be judicious for everyone to review some of the principles of flight discipline below.

Good flight Discipline is following checklists, rejecting opportunities to take shortcuts, planning and preparing for problems before they arise, and operating in accordance with established procedures and regulations. Aviation statistics have shown that a majority of mishaps have some type of human error as casual factor. From student pilots to the most experienced instructors we need to learn to recognize when we are not practicing good flight discipline and immediately spot correct ourselves from negative and hazardous attitudes like impulsiveness, invulnerability, resignation, and complacency. We also need to be comfortable in recognizing and calling out pilots when they exhibit poor flight discipline. Even the most experienced pilots can have lapses where they may make poor decisions and it is important that that behavior pointed out and corrected.

Flight Discipline is the foundation of airmanship and must be practiced at all times to include preparation, in flight, and in debriefing. Managing hazardous attitudes is a central part of flight discipline and without it can lead to increased stress, higher workloads, and significant human errors. As professional aviators we must continue to strive to exhibit good flight discipline and overall character because the consequences if we don't are dire.

In addition to the principles above I would also like Aero Clubs to review the attached brochures on Practical Risk Management this year. Having a solid method of managing risk is also an important factor in a pilot's ability to exhibit good flight discipline.

Fly Safely,

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## Risk Management Decision Path


**PERCEIVE** HAZARDS associated with:

- Pilot
- Aircraft
- enVironment
- External Factors

**PROCESS** RISK LEVEL by assessing:

- Consequences
- Alternatives
- Reality
- External Factors

**PERFORM** RISK MANAGEMENT by deciding whether to:

- Transfer
- Eliminate
- Accept
- Mitigate

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# Tips for Teaching Practical Risk Management

## PURPOSE

Flying involves risk. To stay safe, you need to know how to judge the level of risk, how to minimize it, and when to accept it. This guide introduces risk management tools that you can use and teach to your flight training clients.

## PROFILE

A hazard is a condition, event, object, or circumstance that could lead to an undesired event -- like an accident. For example:

- Pilot is unfamiliar with local area, procedures, or terrain features.
- Weather encountered in flight is worse than forecast.
- Airport has unusual features, such as high terrain or ongoing construction.
- Flight dispatcher asks you to be sure to return the aircraft on time, because it is needed for someone's practical test later in the day.

Risk is the potential impact of a hazard that you do not control or eliminate. The level of risk is measured by the number of people or resources affected (exposure); the extent of possible loss (severity); and likelihood of loss (probability).

## PRACTICES

A "teachable moment" occurs when a student can clearly see how specific information or skills can be used in the real world. You can find, or create, teachable moments on risk management in every flight training activity: pattern work, airwork in the local practice area, cross-country, flight review, or instrument proficiency check. For example:

*Sample Scenarios*:

1. The pilot appears harried, fatigued, or stressed before a flight. Call attention to the consequences (risk) that can arise when the pilot is distracted, and ask what can be done to lower the risk.

2. Ask "what-if" questions on the risk of a mechanical issue that is not clearly a "no-go" item:

- What do you do if you find fuel stains under a wing?
- What risk arises in a day VFR flight if the vacuum pump is inoperative? (Remember to discuss 14 CFR 91.213!)

3. Take the pilot out of his or her comfort zone by going to a place with unfamiliar airports, procedures, or terrain. Use conditions that you find (e.g., out-of-service equipment) to teach the difference between what is legal and what is safe for this particular pilot and aircraft.

The Perceive-Process-Perform model offers a structured way to manage risk:

**P**erceive hazards by looking at:

- **P**ilot experience, currency, condition
- **A**ircraft performance, fuel
- en**V**ironment (weather, terrain)
- **E**xternal pressures (appointments)

**P**rocess risk level by considering:

- **C**onsequences posed by each hazard
- **A**lternatives that eliminate hazards
- **R**eality (avoid wishful thinking!)
- **E**xternal pressures (get-home-itus)

**P**erform risk management:

- **T**ransfer - can you consult someone?
- **E**liminate - can you remove hazards?
- **A**ccept -- do benefits outweigh risk?
- **M**itigate -- can you reduce the risk?

## POSTFLIGHT

To reinforce the risk management lessons of the flight, ask questions that let the pilot learn by reflecting on his or her actions and decisions at key moments:

- What went well?
- What could have been better?
- What would I do differently?
- What additional knowledge and skills do I need to safely handle (or avoid) this kind of situation?

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# Practical Risk Management for Local VFR Flying

## PURPOSE

Day VFR conditions are a great time to fly for fun and practice. There may not appear to be much risk involved in flying a known aircraft in familiar surroundings, but complacency can be the biggest hazard of all. This guide focuses on teaching ways to manage risk common to recreational flying.

## PROFILE

Accidents that occur with local flying in day VFR conditions often involve poor planning, decision-making, and risk management in areas such as:

- Operating rules & procedures
- Checklist use
- Basic airplane control
- Inadequate preflight inspection
- Fuel management
- No weather briefing
- Poor traffic scan
- "Just this once" mentality
- Fear of disappointing passengers

## PRACTICES

If the pilot you are training is mostly a local flyer, you might structure the flight review as a "$100 hamburger" trip to a nearby airport.

*Sample Scenarios*:

1. Assigning a familiar destination offers insight into how the pilot prepares for an "easy" flight:

- Does the pilot get a weather briefing?
- Is there a VFR flight plan?
- Are the charts current?
- How much fuel is "enough?"
- Did the pilot calculate performance?
- Is terrain a factor?
- Does the pilot recognize hazards?

2. Asking the pilot to file a VFR flight plan or to request flight following will let you evaluate competence in ATC procedures. It is also a good risk management habit.

3. Use a reduced throttle setting to simulate partial power and divert the flight to an unfamiliar airport. Look for a field that highlights the importance of good planning and current charts (e.g., a shorter or narrower runway, or a different traffic pattern. These scenarios will provide a number of "teachable moments" on abnormal procedures, systems knowledge, situational awareness,

For each scenario that you encounter or create, ask the pilot to use the Perceive-Process-Perform decision path to think it through. For instance:

**Perceive:**

- Partial power loss is a hazard.
- What additional hazards arise with respect to pilot (stress); environment (terrain); and external pressures (concern about cost of off-field landing).

**Process:**

- What are the consequences of continuing to the planned destination?
- What are the available alternatives?
- How serious is the problem?

**Perform:**

- How can you mitigate the risk of total engine failure?
- What might let you accept the risk of continuing to the nearest airport?

## POSTFLIGHT

While you are enjoying the $100 hamburger, start the postflight discussion by asking for the pilot's view of the flight. Letting the pilot in training speak first will give you insight on his or her decision-making skills. Also, asking quesitons will help the pilot learn by reflecting on his or her actions. For example:

- What went well?
- What would you do differently if you have a similar problem in the future?

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# Practical Risk Management for VFR XC Flying

## PURPOSE

For many pilots, using an airplane for personal transportation is one of the biggest benefits of being able to fly. However, since flight training and flight reviews tend to focus on basic skills and maneuvers, pilots do not always get opportunities to train for real-world cross-country flying. This guide offers ideas for teaching pilots to recognize and manage risk in VFR cross-country flying.

## PROFILE

VFR cross-country accidents often involve poor planning, decision-making, and risk management in areas such as:

•Flight planning and monitoring

•Interpretation and application of weather briefing information

•Fuel and performance management

•ATC communication procedures

•Basic airplane control

•Operating rules and procedures

•Preflight inspection

## PRACTICES

Teach cross-country risk management by structuring the flight review or a transition training session as a VFR cross-country trip to an unfamilar airport.

*Sample Scenarios*

1. Use the outbound leg to create the kind of dynamic flight environment that a pilot could encounter in the real world.

•If terrain and route of flight permit, simulate an engine problem (partial power or total failure).

•Simulate the hazard of an inoperative VOR beacon or GPS receiver. "Failing" a GPS receiver or VOR beacon provides a lesson on situational awareness.

2. Have the pilot practice high performance takeoffs and landings (including go-arounds) at an unfamiliar airport.

3. Use the return leg to cover maneuvers normally performed for a flight review (e.g., slow flight, steep turns, stalls):

•Transitioning from slow flight into a power-off stall provides a more realistic demonstration of how unintentional stalls can actually occur.

•Have the pilot fly part of the trip by reference to instruments.

Be alert for the "teachable moments" on identifying hazards and managing risk throughout the flight:

**P** ilot — distraction of unfamiliar place

**A** ircraft — effect of density altitude

en**V** ironment — landing illusions

**E** xternal — requests from ATC

## POSTFLIGHT

Ask the pilot to verbally replay the the flight and reflect on these questions:

•What went well?

•What could have been better?

•What should I do differently if I encounter similar conditions in a future flight?

•What are the three most important things I learned from this flight?

•What is the most critical knowledge gap I need to fill?

•What is the skill that I most need to practice and improve?

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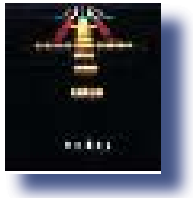
# Practical Risk Management for Night VFR Flying

## PURPOSE



Flying at night can be very enjoyable, if pilots understand the differences of night flying and take the necessary actions to prepare for a safe flight. This guide suggests ways to teach risk management for safe VFR flying at night.

## PROFILE

Factors in night accidents often include errors in planning, decision-making, and risk management. Fatigue can contribute to such errors. Its effects include:

- "Channelized" attention
- Poor judgment
- Slowed reaction time
- Inattention
- Ease of distraction

Other errors common in night VFR accidents include:

- Lack of proper equipment (flashlights, batteries)
- Loss of situational awareness
- Problems with night vision
- Inadequate traffic scan
- Vulnerability to optical illusions

## PRACTICES

Consider structuring a night training or proficiency session as a short cross-country flight, with night takeoff and landing practice at the destination airport. During each phase of the flight, look for (or create) "teachable moment" scenarios that provide an opportunity to teach good risk management practices for night VFR flying.

*Sample Scenarios*

1. Preflight: Ask the pilot to list hazards related to pilot (fatigue, night experience), aircraft (working lights), environment (airport lighting, terrain), and external pressures (closing times). Stress the importance of a thorough preflight that includes checking all essential lights and reviewing the location of key circuit breakers.

2. Taxi/Takeoff: Simulate an electrical failure during taxi to teach the importance of planning the taxi route, knowing the airport layout, and positioning a flashlight to illuminate the panel in case of electrical failure after takeoff. Use the Airport/Facility Directory to obtain the correct frequencies for activating lights.

3. Enroute: Consider diverting the flight due to simulated bad weather. Ask the pilot to select an alternate and explain why it is a safe choice. Encourage use of the Air Safety Foundation's Terrain Avoidance Planning tools, or carry IFR enroute charts to help stay above terrain. A VFR flight plan and VFR flight following are excellent practices for night VFR. If the flight takes place above 5,000 MSL, remind the pilot that oxygen can help night vision.

4. Descent/Approach: Be sure that the pilot understands the destination airport's runway layout and lighting. Where is the rotating beacon in relation to the runway or to terrain?

5. Landing/Parking: A new place can be confusing in darkness, so teach the pilot to keep a taxi diagram close by. During ground operations near other aircraft, do not use strobes or aim landing lights at other pilots.

Throughout the flight, ask the pilot to consider consequences of each decision, list alternative actions, recognize the reality of the situation, and be sensitive to any external pressures that can distract or drive an unsafe decision.

## POSTFLIGHT

Use the postflight discussion to ask questions that let the pilot learn from his or her decisions. For instance:

- What part(s) of the flight made you uncomfortable?

- If you could change something you did, what would it be, and why?