

Patient Air Lift Services

Fuel Reimbursement Training Element:

The PALS FAA Fuel Exemption Letter additional requirements,
Determining aircraft weight and balance & performance data for takeoff and landing runways

Revision: January 2021



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Welcome to the PALS Fuel Reimbursement Training Course!

- This training program is specifically required by the FAA Exemption Letter, reference Condition and Limitation numbers (13) and (14).
- The Pilot in Command (PIC) is also responsible for maintaining other training requirements specified in the exemption for currency.
- It is also required that pilots complete the AOPA's "Public Benefit Flying" course.

In the matter of the petition of
Patient AirLift Services

Exemption No. 10294D
Regulatory Docket No. FAA-20


For an exemption from § 61.113(c) of
Title 14, Code of Federal Regulations



PARTIAL GRANT OF EXEMPTION

By letter dated February 14, 2019, you petitioned the Federal Aviation Administration (FAA) on behalf of Patient AirLift Services (PALS) for an extension and amendment to Exemption No. 10294C, as amended. That exemption from § 61.113(c) of Title 14, Code of Federal Regulations (14 CFR) allows PALS to reimburse its volunteer pilots for fuel costs incurred in conducting charitable flights. The amendment you request would:

1. Amend Condition and Limitation No. 1 (a), to include flights for humanitarian purposes. Such humanitarian flights include transporting emergency personnel, equipment, and supplies in time of emergency or public need.
2. Change the language of Condition and Limitation No. 13 (b) and (c). The current language specifies completion of the online Aircraft Owners and Pilots Association (AOPA) Foundation Air Safety Institute Courses: "Public Benefit Flying, Balancing Safety and Compassion, and Single Pilot IFR". According to the petition, sometime during 2019, the course "Single Pilot IFR" will no longer be available. PALS request an amendment to the language of Condition and Limitation 13 No. (b) and (c) as follows:



your freedom to fly



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Welcome to the PALS Fuel Reimbursement Training Course!

- Each pilot must read and be familiar with the FAA exemption letter to participate in the fuel reimbursement program.
- If any condition or limitation of the FAA exemption is not met for any flight, the pilot must not accept reimbursement for that flight! Acceptance of reimbursement for any flight that does not specifically meet each requirement could be considered a violation of FAA commercial air law.
- This course is only one of the required training elements, each pilot must complete all required training to participate in the fuel reimbursement program.



IMPORTANT



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Welcome to the PALS Fuel Reimbursement Training Course!

- This training course is created and made available to PALS by Empire Aerosport. For more information about Empire Aerosport, please visit: empireaerosport.com
- Empire Aerosport created and maintains this training course at no cost to PALS and keeps it available free of charge to PALS pilots.
- Please direct any questions, comments, concerns, or suggestions regarding this course to:
 - Michael Bellenir (owner Empire Aerosport) via email: mike.Bellenir@gmail.com or
 - Kirk Thorvaldsen (PALS pilot coordinator) via email: kirk.thorvaldsen@palservices.org



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Welcome to the PALS Fuel Reimbursement Training Course!

- This training course is required by the FAA Exemption Letter and must be completed as part of a pilot's initial training and then recurrently each year thereafter.
- The FAA can (and does) periodically change the exemption and training requirements, the current exemption will expire on June 30, 2021. Be sure to review the reissuance of the exemption after that date to become familiar with any changes in exemption or training requirements should they occur.
- This training includes three primary sections:
 1. PALS operational policies and procedures and the PALS FAA Exemption
 2. Determining aircraft weight and balance and performance data for takeoff and landing runways
 3. Passenger handling and special equipment
 4. Principles and methods of professionalism, decision making, and risk management



PALS Fuel Reimbursement Training
The PALS FAA Fuel Exemption Letter

Revision: January 2021



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Reasons for the FAA Exemption Letter: PALS

- While PALS and its pilot volunteers only offer air transportation to qualified individuals in need, the FAA may still consider such operations as a demonstration of willingness to provide air transportation services to the general public; usually only air carriers with an operating certificate issued by the FAA may advertise air transportation services.
- The exemption clarifies that PALS is allowed to conduct operations for its stated purpose without formally obtaining an air carrier certificate.



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Reasons for the FAA Exemption Letter: Volunteer Pilots

- The FAA considers fuel reimbursement to be a form of compensation, which would normally require a pilot to hold at least a commercial pilot certificate. Additionally, a pilot accepting compensation while flying their own aircraft would normally be further required to obtain an air carrier operating certificate before engaging in what the FAA considers a commercial operation.
- The exemption relieves volunteer pilots of the requirements to hold a commercial pilot certificate and allows them to use their own aircraft without obtaining an FAA air carrier certificate.



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Important Legal Reminder

- Normally, regulations would require the pilot to hold a commercial pilot certificate and conduct operations under an air carrier certificate in order to accept any form of compensation, including reimbursement. The FAA Exemption to PALS provides relief from these requirements, however, ALL of the requirements of the entire exemption must be met in order for it to apply.
- Failure to meet any of the exemption requirements could place a pilot in violation of commercial air law; it is important for pilots to be familiar with the FAA exemption and ensure compliance prior to accepting any reimbursement (compensation).



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Exemption Letter Location

- The FAA has granted this exemption to PALS and its pilots on the basis that PALS is only conducting operations as a charitable organization for the public benefit. The FAA has issued a letter stating the regulatory exemption is authorized and the associated requirements for that exemption to be valid.
- A hard copy of the FAA Exemption Letter is kept in the PALS office.
- A copy of the FAA Exemption Letter is available for review and download on the PALS website in the “fuel reimbursement” section:
 - <http://www.palservices.org/for-pilots/fuel-reimbursement>



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Exemption Letter Duration

- The FAA Exemption for PALS does expire. PALS must petition the FAA every 2 years for an extension of the exemption. The current exemption will expire on June 30, 2021.
- The FAA further reserves the right to amend or suspend the exemption at any time, if this occurs prior to June 30, 2021, PALS will be notified and will relay this information to its pilot volunteers.
- If the current exemption is further extended beyond June 2021, it is important for pilots to check the new exemption as soon as it is issued as it may contain changes or revisions to the requirements of the program.



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Exemption Letter Familiarization

- All pilots are required to read, become familiar with, and comply with all requirements of the FAA exemption prior to accepting fuel reimbursement.
- It is important that a pilot must not accept fuel reimbursement unless all of the requirements of the exemption have been met.
- Remember failure to comply with all exemption requirements prior to accepting reimbursement will be considered a violation of federal air law by the FAA.



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PALS Fuel Reimbursement Training

Fuel Exemption Additional Requirements

Revision: January 2021



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Policies and Procedures

- PALS mission pilots receive basic indoctrination training as part of their initial qualification when flying for PALS. This training includes the process for accepting and completing PALS flights and familiarization with the required paperwork and documentation. All of these administrative requirements remain in place for reimbursed flights.
- Participation in the fuel reimbursement program requires enhanced certification, qualification, and experience requirements above and beyond the basic requirements for PALS pilots.



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Reimbursement Pilot: Additional Qualifications & Currency

- An instrument rating or Airline Transport Pilot (ATP) certificate that is appropriate to the aircraft being flown
- A minimum total flight time of 500 hours, with no less than 400 hours as PIC, and a minimum of 50 hours in the specific make and model of the aircraft being flown;
- A minimum of 50 hours as PIC must have been logged within the preceding 12 calendar months immediately preceding the month of the flight;
(continued)



Reimbursement Pilot: Additional Qualifications & Currency

- A minimum of 12 hours flown and logged within the preceding 3 calendar months prior to the month of flight. In lieu of this requirement, a pilot may have logged 2 hours of flight training with a certificated flight instructor within the preceding 3 calendar months prior to the month of the flight;
- A second-class medical certificate (per 14 CFR 61.23(a)(2)(ii) and 61.2);
- A current flight review (per 14 CFR 61.56(a)) in the same aircraft category, class, and type (if a type rating is required) being flown;
(continued)



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Reimbursement Pilot: Additional Qualifications & Currency

- Within the preceding 12 calendar months, an instrument proficiency check (IPC) meeting the requirements of 14 CFR 61.57(d). The IPC must be conducted in accordance with the Instrument Rating - Airplane Airman Certification Standards, as applicable. This requirement can be substituted by a FAA practical test for an ATP certificate or instrument rating.
 - Note: The IPC must be completed within 12 calendar months independently of maintaining IFR currency. This is meant to mirror the frequent training requirements for pilots at commercial operators.

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Reimbursement Pilot: Additional Qualifications & Currency

- In addition to meeting the IPC requirement of 14 CFR 61.57(d) as specified in Condition and Limitation No. 5 (g), the pilot must meet the recent flight experience requirements of 14 CFR 61.57(c), in the same aircraft category, class, and type (if a type rating is required) being flown; (instrument currency: 6 approaches, holding, intercepting and tracking courses within previous 6 months) and
- For all operations under this exemption, the pilot must meet the recent flight experience requirements for night operations (per 14 CFR 61.57 (b)) in an aircraft of the same category, class, and type (if a type rating is required). (Night landing currency: 3 takeoffs and 3 landings to a full stop between 1 hour after sunset until 1 hour before sunrise within the previous 90 days)



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Flight Duty, Rest, and Flight Time Limitation

- All operations under this exemption must be in compliance with the following flight duty, rest, and flight time limitations (a duty day starts when the pilot arrives at the airport and begins preparation for the flight and terminates upon completion of the post flight inspection of the aircraft):
 - No pilot may fly more than 8 hours of flight time (per 14 CFR 61.1) within any 24-consecutive-hour duty day period;
 - No pilot may perform a duty day in excess of 12 consecutive hours; and
 - Once the pilot has performed 12 consecutive hours of duty, the pilot must rest a period of at least 12 hours before conducting any other CMF (charitable medical flight).



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Reimbursement Aircraft Additional Requirements

- Each aircraft used for reimbursement flights must meet the following requirements:
 - Each aircraft operated under this exemption must have a standard airworthiness certificate.
 - The aircraft must be maintained and inspected in accordance with 14 CFR part 91 Subpart E, 14 CFR part 43, or other inspection programs approved by the FAA.



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Reimbursement Operational Additional Requirements

- All flights operated under this exemption must activate an IFR flight plan. The earliest the flight plan may be canceled is upon visual contact with the destination airport;
- For flights in instrument meteorological conditions (IMC), each pilot may only use airports that have a functioning, published, precision approach procedure;
- Each pilot must add 100 feet and ½ mile to all instrument approach minimums;

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Reimbursement Operational Additional Requirements

- Each pilot must add 50 percent to pilot operating handbook (POH) runway length performance for obstacle clearance on takeoff and landing under ambient conditions;
- For IMC takeoff minimums, the PIC must ensure that the weather meets approach landing minimums with the additional margin noted in Condition and Limitation No. 11 (c) (Example: If the Baltimore-Washington International Airport minimums are 200 & 1/2, then the takeoff minimums will be at least 300 feet and 1 statute-mile visibility)



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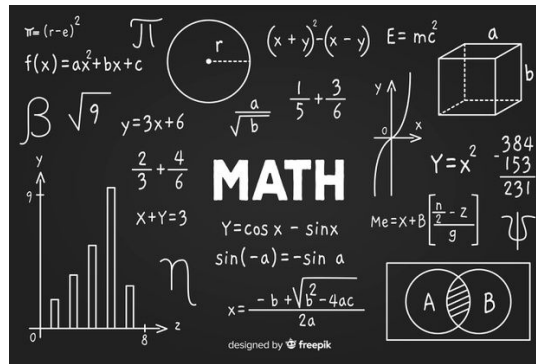
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PALS Fuel Reimbursement Training

Determining Aircraft Weight and Balance

FAA Exemption 10294D Condition 13(b)

Revision: January 2021



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Weight and Balance

- Determination of loaded aircraft weight and balance is critical to flight safety.
- A properly loaded aircraft ensures that the aircraft remains within structural design limitations and that the aircraft performance and handling characteristics are not adversely affected.
- Pilots must respect the maximum weight as a limitation.



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Determining the Moment Force

- Determining the loaded weight and balance of an aircraft can be calculated mathematically.
- To locate the aircraft loaded center of gravity, calculate the moment of each added weight such as pilots, passengers, baggage, and fuel.
- The moment can be determined by multiplying the weight of each item by the arm of its location.
- $\text{Weight} \times \text{Arm} = \text{Moment}$



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Determining CG Location Mathematically

- Sum all added weight
- Sum all added weight moments
- Divide the total weight moment by the total weight to determine the Arm location of the CG.
- $\text{Total Moment} / \text{Total Weight} = \text{CG location}$



Other Methods of Determining Weight and Balance

- Many aircraft manufacturers create tables, charts, or graphs to assist the pilot with determining weight and balance.
- These aids vary considerably by manufacturer.
- Consult the FAA approved limitations section of the Pilot's Operating Handbook for the aircraft you intend to operate to determine the weight and balance limits for that aircraft.



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Determining Weight and Balance

- Each aircraft has a unique weight and balance. Each aircraft manufacturer specifies limitations and a recommended means to calculate center of gravity location.
- Each pilot should review the weight and balance data for their particular aircraft and the method used to determine weight and balance as part of their recurrent training.
- If you have any questions about weight and balance or would like more training or a more detailed review of weight and balance procedures, please contact me (Michael Bellenir) via email: mike.bellenir@gmail.com. I would be happy to assist you.

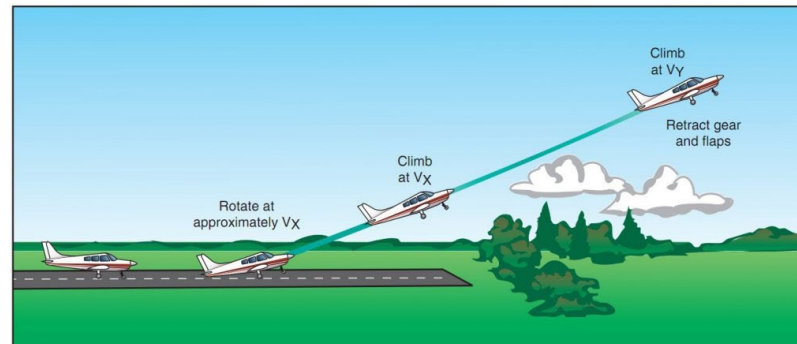


PALS Fuel Reimbursement Training

Runway Limitations for Takeoffs & Landings

FAA Exemption 10294D Condition 13(b)

Revision: January 2021



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Legal Obligation

- Each pilot has a legal obligation to determine the runway length at each airport of intended use and to determine the required distance for each takeoff and landing in accordance with 14 CFR Part 91.103(b).



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Importance of Performance Data

- Accurately calculated performance data is critical to flight safety. While this performance calculation is potentially time consuming, it is important to understand how several variables will affect performance.
- Some variables are directly controlled by the pilot, such as flap settings, power settings, and technique.
- Some variables are not directly controlled by the pilot, such as environmental and runway conditions.
- It is critical that the pilot accurately considers each variable in the performance calculation and verifies that the aircraft is in the proper configuration and predicted conditions for each takeoff and landing. Variations in configuration, technique, and conditions can drastically change aircraft performance.



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Determining the Takeoff Distance

- Each aircraft manufacturer provides methods to determine takeoff distance performance.
- These can include charts, tables, and graphs.
- Ensure that conditions and configuration variables are properly accounted for and that the proper takeoff technique, conditions, and aircraft configuration are verified prior to takeoff. A change in conditions or configuration warrants recalculation of takeoff distance data prior to takeoff.
- Remember that instrument departure procedures and obstacle departure procedures may require additional calculations to ensure adequate climb performance after takeoff.



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Determining the Landing Distance

- Each aircraft manufacturer provides methods to determine landing distance performance.
- These are usually similar to the methods provided for takeoff distance calculation and can include charts, tables, and graphs.
- Ensure that conditions and configuration variables are properly accounted for and that the proper landing technique, conditions, and aircraft configuration are verified prior to landing. A change in conditions or configuration warrants recalculation of landing distance data prior to landing.



PALS Exemption Runway Requirements

- The PALS FAA Exemption requires that each runway used for each takeoff and landing must be 50% greater than the calculated takeoff or landing distance under ambient conditions.
- Multiply the book value takeoff or landing distance by 1.5 to determine the minimum runway length.



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Density Altitude

- Remember that density altitude has a significant effect on aircraft performance.
- Higher density altitudes result in a decrease in aircraft performance.



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Other Factors that affect Runway Performance

- Pilot technique
 - Improper pilot technique, such as improper rotation speed or failure to achieve proper climb speed before attempting to clear an obstacle, can result in significant loss of performance.
 - Pilots should accurately plan each flight and use techniques such as checklist usage and performance monitoring to make sure that expected performance will be achieved and that errors in planning are detected as soon as possible.
- Runway composition, conditions, & contamination
 - The presence of snow or ice on a runway and other factors like runway composition and slope can also affect predicted performance.



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PALS Fuel Reimbursement Training

Passenger Needs & Handling Special Equipment

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Passenger Briefing

- Prior to each takeoff, the PIC must ensure that all occupants have been orally briefed on the following:
 - The flight is being permitted under this grant of exemption and that the operator is not a certificated commercial operator;
 - When, where, and under what conditions smoking is allowed;
 - Use of safety belts, shoulder harnesses, and child restraint systems: When, where, and under what conditions it is necessary to fasten passenger safety belts and, if installed, shoulder harnesses;

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Passenger Briefing (continued)

- The placement of seat backs in an upright position before takeoff and landing;
- Location and means for opening the passenger entry door and emergency exits;
- Location of survival equipment;
- Use of normal and emergency oxygen installed; and
- Location and operation of fire extinguishers.



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Passenger Briefing: Emergency Evacuation

- Prior to each takeoff, the PIC must ensure that patients, who may need the assistance of another person to exit the aircraft if an emergency occurs, have received a briefing as to the procedures to be followed if an evacuation occurs.
 - Note: Make sure that assistive devices such as wheelchairs or walkers and medical equipment are not blocking any aircraft exits. Seats with access to emergency exits and doors should be occupied by able-bodied adults who will be able to open the exit and assist with an evacuation if necessary.



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Passenger Briefing: “Sterile Cockpit” Procedures

- Each pilot will utilize and brief passengers about sterile cockpit procedures as defined under 14 CFR 135.100
- This means that during taxi, take off, initial climb up to cruise altitude, only safety of flight items should be discussed, no casual conversation. The same applies from descent from cruise altitude, through the approach, landing, and taxi to parking. This is to minimize distractions and allow the pilot sufficient opportunity to review departure, arrival, and approaches prior to flying them.
- Minimizing distractions during critical phases of flight is critically important, many errors are the result of simple distractions.



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Passenger Needs: Special Equipment

- It may be necessary to transport medical assistive devices such as wheelchairs, walkers, canes, crutches, etc. When this is necessary, those items should be properly secured so that they do not block any exit or get in the way of a potential evacuation. Also keep in mind some devices may have additional requirements, for example, an electric wheelchair battery may need to be stowed in a specific orientation.
- Other special equipment like medical oxygen or oxygen concentrators should be secured so that the patient or their care-taker has access to the necessary controls, however these devices must also not block any exit or interfere with a potential evacuation.



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Passenger Needs: In-Flight Medical Assistance

- The PIC has the primary responsibility of the safety of flight. If a patient has a medical issue or emergency while in flight, the PIC must give priority to the safety of flight. While it may be tempting to attempt to provide assistance to a passenger, the best course of action is usually to declare a medical emergency and safely land the aircraft prior to rendering medical aid. The PIC must not abandon flying duties or in any way jeopardize the safety of flight by attempting to assist a passenger.



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PALS Fuel Reimbursement Training

Aviation Professionalism, ADM, & Personal Minimums

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Professionalism

- The PIC has an obligation to conduct all flights in a “professional” manner. While a volunteer, PALS pilots should strive to conduct operations in a way that mirrors professional aviation.
- PALS Pilots should consider themselves not only volunteers, but ambassadors of aviation with a great responsibility to public trust. While the FAA additional requirements for participation in the fuel reimbursement program may seem cumbersome or excessive, they are specifically intended to foster an environment that emulates professional commercial operations. As a PALS pilot, you represent not only yourself, but the organization and the entire volunteer pilot community. It is in the best interests of everyone that the volunteer pilot conducts their operations as an aviation professional with a disciplined approach to flying safely.



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Professionalism

- Professional aviation emphasizes practices and procedures that are specifically designed to enhance safety. Here are some examples:
 - Checklists: use an appropriate checklist for each phase of flight.
 - Standards: establish a method of completion for each critical task and do it the same way every time.
 - Communication: use standard phraseology and communicate clearly.
 - Training: train and practice frequently, especially procedures that you don't use often (like emergency procedures)
 - Organization: be neat and organized so that you can easily find and use all of your resources
 - Planning: Make sure each flight is thoroughly planned and remember that each flight has a unique set of circumstances that need to be considered and evaluated



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Aeronautical Decision Making (ADM)

- Aeronautical decision making (ADM) is a critical skill. ADM is a systematic approach to ensure pilots make good decisions. An important first step of good ADM is recognizing hazardous attitudes and personal biases to make sure that decisions are made objectively with the goal of safety. Other important parts of good ADM include:
 - learning behavior modification techniques,
 - learning how to recognize and cope with stress,
 - developing risk assessment skills,
 - using all resources and
 - evaluating the effectiveness of a decision.
- More information about ADM can be found in FAA Advisory Circular Number 60-22 (AC-60-22)



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Risk Management & Mitigation

- Every flight incurs some level of risk. Recognizing risks and developing mitigation strategies for each risk is an important skill. Risk mitigation is often most effective in the planning stages of each flight and proper planning is critical for flight safety. When a risk is identified, the PIC must evaluate how to mitigate that risk. A common risk mitigation strategy is to simply minimize exposure to known risks by modifying the route, changing altitudes, and/or delaying or rescheduling a flight. It is appropriate to cancel a flight when risks cannot be satisfactorily mitigated.
- Public benefit flying often leaves pilots feeling pressure to complete a flight regardless of risk; pilots must realize this pressure is often self-induced and that the safety of the flight is the primary concern. Do not let the perception that the flight is important cause you to accept more risk than you normally would.



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Risk Management & Mitigation

- Pilots are required to complete the PALS preflight risk assessment prior to each PALS flight. This tool is designed to help pilots identify areas of potentially elevated risk prior to each operation and to help identify when a particular flight carries too much risk to be conducted safely.
- Pilots need to complete the risk assessment as objectively as possible and if a flight carries an unacceptable level of risk, it should be cancelled or postponed until the risk can be mitigated to an acceptable level.



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Determining Personal Minimums

- Personal minimums are established by each pilot to ensure that they remain well inside their abilities for each flight. Personal minimums must be established objectively and should be based on recent personal experience. It is often helpful to establish personal minimums with the assistance of a flight instructor while conducting practice flights. By dealing with simulated challenges on practice flights, pilots can have a better understanding of their own limitations and comfort levels while dealing with different scenarios. Once a pilot objectively determines their own personal limitations, they need to be strictly adhered to. It is important to note that personal minimums need to be adjusted frequently to account for external factors like stress and fatigue levels. Your personal minimums should give you an extra margin of safety and keep you within your personal comfort zone; do not allow a flight to occur outside of your personal abilities to handle accumulated challenges.



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Conclusion

- Thank you for your participation and support of PALS!
- If you have any questions, please feel free to contact Michael Bellenir mike.Bellenir@gmail.com or Kirk Thorvaldsen at the PALS office.
- Make sure you meet all of the additional training and currency requirements specified by the Exemption, contact the PALS office if you are unsure about any of these requirements.
- Please send an email to mike.Bellenir@gmail.com confirming that you have read and understood this training.



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