The Experiemental Aircraft Assocation Safety Program:

A Proposal

Presented By

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Executive Summary

The proposed EAA Aviation Safety Program is designed to reduce the number of accidents by encouraging pilots to maintain and expand upon their level of proficiency. Primary in this program will be a study of the accident causes most commonly seen in personal aviation, based on aircraft type, aircraft class, and by operation or maneuver. For each category of cause, a series of articles and lessons will introduce techniques for avoidance.

A secondary goal of the Program is to improve the image of general aviation among the nonflying public. Members will be encouraged to actively educate the public on the realities of personal flight, through contacting the local press, speaking publicly, and participating in programs for youth.

Key to the program is an aviation Code of Ethics, to be adopted as an industry standard and supported or endorsed by EAA. This Code puts in writing standards of acceptable behavior for pilots of light airplanes, concerning maintenance, flight planning, and pilot proficiency. A proposed implementation plan lays out how the program will be developed and managed; appendicies provide samples of program elements and outline my personal qualifications as a presenter.

The Need for an EAA Aviation Safety Program

Personal aviation is at a crossroads. New aircraft deliveries remain at record lows. The number of pilots is dwindling as the surge of aviators trained during World War Two retire from active flying. Although a large percentage of Americans fly the airlines, and nonpilots flock in record numbers to aviation events like the annual EAA Convention, there is still a great deal of public fear and distrust of airplanes. Each flight entails at least as much legal risk as actual danger; every accident, highly publicized by a underinformed press, contributes more to the overregulation and restriction of personal flight.

We the pilots and members of EAA can allow this downturn to continue, slowly eroding our freedoms until personal aviation is but a memory, or we can reverse this trend to preserve the freedom and utility of flight. There's no doubt that, with the declining pilot base and the realities of economics, personal aviation is becoming a smaller, more dedicated band of women and men. What we members of EAA must do is ensure that this group is reduced as little as possible in the short term, and allowed to expand with coming generations in an environment of intelligent regulation. To do this, we need to increase the safety of flight, and brighten general aviation's image in the public mind. We need to adopt a Code of Ethics for personal aviation, policing ourselves so that governments are not forced to impose unreasonable restrictions on us. EAA's role will be to devise and encourage this Code, stressing, in this order, the safety, legality, enjoyment, and image of personal aviation. What's needed to significantly reduce the 80% of all accidents that are the result of human factors is no less than a revolution in the way that owners and pilots approach the topic of aviation education.

Pilot proficiency isn't an event, it's a process. Yet, most training is seen as a one-time event, designed to ensure a minimum standard of proficiency. We need to encourage a philosophy of continuing education, giving pilots regular instruction in topics directly related to accident avoidance. We need to stress the human factors in airplane mishaps, acknowledging that we're all susceptible, and working to avoid the common causes that link most accidents. Nowhere is this more necessary than in the high-performance homebuilt and warbird airplanes, owned and flown more and more by persons with little or no formal aviation background, and often with many years out of the cockpit while building or restoring their prize aircraft. The goal of the EAA Aviation Safety Program, then, is to reduce the human factors aviation accidents by changing the way pilots approach proficiency. This increased safety should contribute to the continuation of enlightened personal aviation regulation by improving its public image, and ensure the interest of future generations in enjoying the benefits of personal flight.

MISSION STATEMENT

The mission of the Experimental Aircraft Association Aviation Safety Program is to protect the lives, property, and priviledges of personal aviators and their passengers. We stress safety above all else, through training, practice, maintenance, and education in and about the specific airplanes we fly as well as the general body of aeronautical knowledge. We strive to enlighten the nonflying public about the safety, utility, and pleasure of personal flight, and perpetuate the freedoms of flight by participating in aviation educational programs for our nation's youth.

To accomplish this, each EAA member is urged to adopt the EAA Aviation Safety Code of Ethics as a personal plan for increasing their own safety and that of their passengers, as well as improve the public image of general aviation to ensure that our priviledges are not taken away.

The EAA Aviation Safety Code of Ethics

The EAA Aviation Safety Code of Ethics should include statements on, but not be limited to, topics like these:

I, as a member of the Experimental Aircraft Association, in order to increase the safety, utility, enjoyment, and future of personal aviation, pledge to uphold this Code of Ethics:

1. I'll always keep my airplane in top operating condition, using required FAA inspections as a minimum standard of airworthiness, and ensure all aircraft maintenance is performed and/or inspected by qualified and legal technicians.

2. I'll maintain and improve my own flying skills by receiving quality instruction in my airplane or one of comparable handling and performance, both before acting as pilot-in-command and at regular intervals as long as I remain an active pilot.

3. I'll receive thorough weather briefings before every flight away from the airport traffic pattern, and set and adhere to personal weather limits based on FAA regulations, my ratings, level of experience, and recency of instruction.

4. I'll always visually check my fuel load prior to flight, and compute expected fuel consumption considering performance and weather factors when determining trip lengths and alternates; I'll monitor fuel status enroute and adhere to all manufacturer's limitations and recommendations about operating the fuel system.

5. I'll try whenever possible to put personal aviation in a positive light, by taking a friend or acquaintance on a personal or business flight, speaking before community or business gatherings about the utility, safety, and economic impact of general aviation, and writing tactful letters to the editor or producer of media products that present a misrepresentation of personal aviation.

6. I'll help ensure the future of personal aviation by participating in aviation programs for youth as sponsored by EAA, the Aviation Explorers, and other organizations.

This is merely the beginning for a stated self-policing program.

IMPLEMENTATION

The key to an Aviation Safety program is, of course, the implementation. In order to develop such a program, I suggest the following steps:

1) Identify the problem: Using accident statistics, determine the most likely causes of mishaps. Categorize these by aircraft type (T-34, Glasair, etc.), class of airplane (single-engine retractable, conventional gear, etc.), and operation (IFR operations, crosswind takeoffs, aerobatics, etc.), to tailor the Program to the individual pilot.

2) Develop lesson plans: Break accident causes down into elements to be taught and devise a presentation and practice schedule.

3) Query knowledgable parties: Enlist the input and support of aircraft type clubs, manufacturers, FAA, and organizations such as AOPA and the National Association of Flight Instructors to further specialize the presentation.

4) Get the word out: Let pilots know what often causes accidents, and how they can avoid repeating accident history, through practical techniques-oriented, EAA-sponsored seminars and articles in Sport Aviation.

5) Provide guidance: Answer individual pilots' questions about increasing safety, and assist in such tasks as determining personal weather minimums.

6) Maintain an instructor referral list: Introduce pilots to qualified instructors in their area, knowledgable in the type of aircraft they fly and briefed on the EAA Aviation Safety Program syllabus.

7) Ally with insurance companies: Work to establish special coverage or rates for regular participants in the Program, and to protect Program instructors when flying covered airplanes.

8) Provide incentives: Develop a way to recognize Program participants through gifts, mention in Sport Aviation, entry into a sweepstakes, or the like.

Accident Avoidance Program by Aircraft Type: Varieze and Long-EZ Aircraft

Accidents by cause: Varieze/Long-EZ airplanes, 1982-88:

Cause	Accidents
Fuel Starvation	8
Crash--Unknown Reason	8
Failure to Abort Takeoff When Required	6
Physical Engine Damage	6
Controlled Flight Into Terrain	4
Stall During VFR Approach to Landing	3
Stall on Takeoff	2
VFR Flight Into IMC	2
Low Pass/High-Speed Pull-up and Stall	2
Hard Landing	2
Landed Short of Runway	2
Lost Control During Landing: Too Fast	2
Landing Gear Overstressed: Collapse	2
Hand-Prop with Throttle Open	1
Taxi in Wind Gusts	1
Improper Use of Carb Heat on Takeoff	1
Carb Heat Failure	1
Fuel Exhaustion	1
Landed Atop Other Aircraft	1
Improper Servicing by Pilot	1
Oil Starvation: Oil Cap Loose	1
Wing Bonding Delamination	1
Loss of Control During Takeoff	1
Attempted Low-Level Aerobatics	1

Source: AOPA Air Safety Foundation

Fully one-third of all Varieze/Long-EZ accidents, historically, occur because of improper takeoff and landing procedures. 11% are due to inadvertant stalls. This may well be because these types represent a great change in techniques for their pilots as compared to the planes they flew previously. In addition to addressing generic maneuvers and safety-of-flight issues, a program tailored to pilots of these aircraft types would stress airspeed control, stall recovery techniques, and takeoffs and landings.

Accident Cause by Maneuver:
Low Altitude High-Speed Pass and Pull-up

The low altitude, high-speed airshow pass, followed by a steep pull-up, is a staple of fly-in arrival. Unfortunately, accident statistics show that, on average, 18 accidents occur each year because a stall and spin out of this maneuver; in most cases the mishap is fatal. It would be easy to simply say that pilots should not attempt this maneuver, but there's always going to be those that will try. Instead, we should teach a technique to accomplish this stunt, putting safe limits on pilots while still allowing them to spectacularly show their airplane to the crowds.

Arriving at a method to teach this maneuver should include these steps:

1. Outlining the specific accident statistics: from 1982-88, 123 airplanes crashed spinning out of an attempt at this maneuver. 111 of those involved single-engine, fixed gear airplanes, 9 were single-engine retractables, and 3 were twin-engine types. Designs involved were as diverse as Piper Cherokees, Pitts Specials, T-28s and Twin Beeches. 84 of these accidents were fatal.

2. Investigation of the legality of this maneuver: We need to determine the official Federal position on the high-speed pull-up, if there is one, so our recommendations confirm with regulations.

3. Breaking the maneuver down into elements: The maneuver consists of an approach or entry phase, the low-altitude pass, and then something approximating a chandelle. Potential adverse outcomes include a descent below safe altitude, an accelerated stall, and a spin.

4. Creating a standardized method for teaching and performing the maneuver. Breaking the maneuver into its elements and adverse outcomes allows the development of a lesson to teach those elements. For instance, the high-speed, low-altitude pass and pull-up requires training in the approach, altitude awareness and visual clearing, chandelles, including precise pitch, bank and airspeed targets, and the recognition of and recovery from incipient accelerated stalls and spins at differing weights and load distruibutions.

5. Publicizing and actively teaching the safe performance of this maneuver. Encourage pilots to attend a short seminar, tailored to the capabilities of his or her aircraft, prior to attempting the maneuver.