Together, CAE and Aviation Performance Solutions (APS) provide comprehensive Upset Prevention & Recovery Training (UPRT) for business and commercial aircraft pilots

Two trusted training leaders have joined forces to provide an unprecedented UPRT experience. The CAE-APS partnership delivers the most comprehensive web-based academic, in-flight, and full-flight simulator program designed to teach aviation professionals how to recognize, avoid and effectively recover from emergency and unusual attitude situations, as well as enhance overall flying skills to improve safety of flight.

THE THREAT: LOSS OF CONTROL IN-FLIGHT (LOC-I)

Loss of Control In-Flight (LOC-I) is indisputably one of the leading causes of aircraft crashes and crash-related fatalities worldwide. Rivaled only by Controlled Flight Into Terrain (CFIT), LOC-I presents a unique challenge to professional aviation; it highlights a serious deficiency in a pilot’s ability to deal with a variety of unusual flight attitudes and flight envelope excursions. Regrettably, current pilot training regulatory standards and certification requirements do not address this skill deficiency.

In a report issued by Boeing in July 2012, LOC-I represents the most severe cause factor in commercial aviation over the past 10 years, resulting in the most crash-related fatalities from 2002 through 2011 – even more than CFIT.

Unfortunately, technology does not offer a “quick fix” to LOC-I. Short of re-equipping commercial aircraft around the world with fly-by wire flight control systems with (yet-to-be programmed) all-attitude all-envelope flight control laws, an industry-wide technological solution to LOC-I is unlikely in the foreseeable future.

[Original Source: CAST/ICAO Common Taxonomy Team (CICTT), http://www.intlaviationstandards.org/]

\(^1\)Vahid Motevalli and Christian M. Salmon, Developing Greater Flexibility and Resolution in Aviation Accident Analyses, Aviation Institute - School of Engineering and Applied Sciences


WHY CAE & APS FOR YOUR UPRT TRAINING

In partnership, CAE and APS offer at locations in North America and Europe, a diversity of turnkey solutions to help mitigate the LOC-I threat. Our team is committed to providing the highest-quality upset recovery training available at the best value for your training investment. All UPRT trainings are provided by highly qualified APS instructors in both in-flight and full-flight simulator environment. Pilots pursuing initial or recurrent training program at CAE training centers can incorporate the UPRT component into their curriculum. Each instructor has professional flight experience spanning a highly specialized spectrum of aviation uniquely qualifying them as UPRT training providers. Each instructor has extensive experience in all-attitude all-envelope maneuvering in jet aircraft, military instruction, technologically advanced aircraft and commercial aviation flight operations. All training provided is in compliance with the Airplane Upset Recovery Training Aid and APS Emergency Maneuver Training is the only Part 141 Flight School in the US certified in the delivery of complete upset recovery, stall-spin and instrument recovery training courses.

Our staff excels in quality customer service and world-class training in leading-edge equipment. Our training services are delivered in strict adherence to contracted performance standards.

UPRT TRAINING PROGRAMS AVAILABLE

**Academic-only Upset Recovery Training (web-based)**
- Self-paced Computer-based Training (CBT) to Establish Threshold LOC-I Knowledge
- Core Training: Airplane Upset Recovery Training Aid
- Partial Mitigation of LOC-I

**Simulator-based Upset Recovery Training**
- Comprehensive Scenario-based Training in a Full-Flight Simulator
- 1-2 Day Courses Available
- Optional Self-paced CBT
- Comprehensive Mitigation LOC-I

**On Aircraft-only Upset Recovery Training**
- Training Completed in Commercially Certified Safe Aerobatic-capable airplanes
- 1-4 Day Courses Available
- Optional Self-paced CBT
- More Comprehensive Mitigation of LOC-I

**Integrated Simulator / On Aircraft Upset Recovery Training**
- Comprehensive Scenario-based Training in a Full-Flight Simulator and Safe Aerobatic-capable airplanes
- 2-4 Day Courses Available
- Optional Self-paced CBT
- Most Comprehensive Mitigation of LOC-I

These programs have been proven effective in developing the skills necessary to enhance the professional pilot's survival in the time-critical aircraft upset arena. Each of our training programs will challenge professional pilots of all experience levels in a rewarding atmosphere of learning and accomplishment.
Research Data:
Total Data Points (Pilots Trained at APS) Included in Research: 115 Pilots
Data Includes All Pilots Meeting these Criteria (total of 75 pilots)
• Pilots Flying Turbo Prop and/or Turbo Jet Aircraft

Group Demographic (Including Initial and Recurrent Participants):
• 88.0 % had greater than 1500 hours of flight experience
• 91.6 % were between 25 and 59 years of age
• 51.4 % were certified flight instructors
• 81.3 % had less than 10 hours of aerobatic experience

Retention of Skill:
Of the overall test group of 115 pilots, 35 pilots were repeat customers attending a recurrent upset recovery course at APS. Recurrent participants demonstrated 76.4% retention of skill returning after an average of 19 months between Initial and Recurrent Training programs. Skills are expected to atrophy at a greater rate the longer pilots delay time between Recurrent training courses.

Post-Training Participant Evaluation Summary:
Course Components Evaluated:
• Ground Training: 90.7% Excellent, 9.3% Above Average
• Flight Training: 97.3% Excellent, 2.7% Above Average
• Recovery Technique Effectiveness: 98.7% Excellent, 1.3% Above Average
• Quality of Instructors: 100.0 % Excellent

• VALUE TO PILOTS: 100% of the participants indicated that LOC-I training as provided by APS was valuable to all pilots; 64.0 % of those indicating that APS LOC-I training should be mandatory in pilot certification.
• SKILL & KNOWLEDGE: 100% indicated they learned quite a bit and developed life-saving skills with 76.0% of those votes indicating their understanding and pilot skill-set had grown dramatically related to upset recovery training.
• FACILITY: 73.3% evaluated the APS facility excellent with an additional 25.0% assessing the APS Facility above average.
• OVERALL EXPERIENCE: 96.0% of the participants evaluated the overall experience as excellent with the remainder indicating it was above average.
• MANUAL: 68.0% of participants rated the APS Training Manual as excellent with an additional 26.7% ranking the manual above average.

<table>
<thead>
<tr>
<th>Upset Scenario Assessed*</th>
<th>Before Training</th>
<th>After Training</th>
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<tbody>
<tr>
<td>Over-Bank Nose Low Upset</td>
<td>34.8%</td>
<td>97.9%</td>
</tr>
<tr>
<td>Cross-Controlled Stall to Over-Bank</td>
<td>41.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Severe Wake Turbulence Encounter</td>
<td>42.9%</td>
<td>97.8%</td>
</tr>
<tr>
<td>Nose High Upset / Pitch Mis-Trim</td>
<td>47.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Control Failure: Rudder Hard-Over</td>
<td>40.6%</td>
<td>92.3%</td>
</tr>
</tbody>
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*Scenarios are designed to reflect statistically life-threatening conditions; typically flight attitudes beyond 60 degrees angle of bank and/or 30 degrees of pitch. (Note: Many more scenarios than those listed in this chart are taught during the course. These particular maneuvers are evaluated to give representative indications of training effectiveness)
“Professional training dedicated to helping pilots acquire the skills necessary to cope with an unexpected upset is essential. Having flown with APS Emergency Maneuver Training, it is clear their training meets the need. By blending academic, simulation, and on-aircraft flight training into an effective syllabus, I think they have one of the best, if not the best, programs for upset recovery training in the world...”

- Captain John M. Cox: FRAeS President & CEO Safety Operating Systems

“APS’s Emergency Maneuver Training Program has become the standard for upset training and flight safety worldwide.”

- Patty Wagstaff: Aerobatic Champion and Airshow Pilot

“The curriculum, structure, presentation, and application of the upset training course is nothing short of amazing. The course is not simply about how to correct an aircraft upset, but understanding of forces, aerodynamics, and situations that can lead to an upset. The knowledge and confidence gained was the most productive three days of my career thus far. The ERJ sim at the end of the course provided an exceptional tie-in to transport category aircraft. Overall, I feel pilots will come away from this course with an increased level of awareness as the structure focuses on not only on recovery, but recognition of situations and actions that can lead to an upset. Since my initial upset training, I find that during recurrent training for normal line operations to have better situational awareness. Tremendous value all around and should be a requirement for ALL pilot certificates.”

- Chris Vedo, Captain/Jet Aviation: ATP, CFI, CRJ/GLEX/DA900/DA-EASY, 7500 Flight Hours

“This is by far one of the best training courses I have ever had in my whole career. The training materials - both web and paper-based, top notch professional instructors, and helpful and supportive ground personnel make APS a real must for the professional pilot...”

- Massimiliano ‘Max’ Salvador: 7500 Flight Hours, ATP, B-767, MD80, A320F
CAE is a global leader in modelling, simulation and training for civil aviation and defence. The company employs approximately 8,000 people at more than 100 sites and training locations in approximately 30 countries. CAE offers civil aviation, military, and helicopter training services in more than 45 locations worldwide and trains approximately 100,000 crewmembers yearly. In addition, the CAE Oxford Aviation Academy offers training to aspiring pilot cadets in 11 CAE-operated flight schools. CAE’s business is diversified, ranging from the sale of simulation products to providing comprehensive services such as training and aviation services, integrated enterprise solutions, in-service support and crew sourcing. The company applies simulation expertise and operational experience to help customers enhance safety, improve efficiency, maintain readiness and solve challenging problems. CAE is leveraging its simulation capabilities in new markets such as healthcare and mining.  

www.cae.com

TOLL FREE: +1-800-527-2463  |  TEL: +1-972-456-8000  |  Email: aviationtraining@cae.com

Headquartered at the Phoenix-Mesa Gateway Airport in Mesa, Arizona USA, Aviation Performance Solutions’ (APS) Emergency Maneuver Training has trained thousands of pilots in fully comprehensive upset prevention and recovery skill development, more than any other training organization. For over 15 years, APS has been committed to giving professional pilots of all skill levels the highest quality upset recovery training available. APS offers comprehensive LOC-I solutions via industry-leading web-based, tablet, on-aircraft, and full-flight simulator upset recovery training programs. APS is the only Part 141 Flight School currently certified in the delivery of complete upset prevention and recovery, stall / spin and instrument recovery training courses worldwide. All APS upset recovery training courses are in full compliance with the Airplane Upset Recovery Training Aid with US locations in Arizona and Texas and European location in the Netherlands.  

www.apstraining.com

TOLL FREE: +1-866-359-4273  |  TEL: +1-480-279-1881  |  Email: info@apstraining.com