



Pennsylvania State Fire Academy

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Minimum Standard for Accreditation (MSA)

Date: July 1992

Last Revision: 1/2006

Course Title: Aircraft Crash Rescue Short Course

SFA Course Code: ACFR

Course Length: 16 hours

Lecture/Lab Breakdown: 10/6

Prerequisites: ELIF or EBM or FF I certification (BVRC Also Suggested) Or member of an airport ARFF department

Referenced Text(s): Latest edition IFSTA *Aircraft Rescue and Fire Fighting*

Course Goal: Completion of this course will introduce the structural fire fighter to the knowledge and skills needed to successfully deal with an aircraft incident.

Course Description: Designed for the experienced structural fire fighter, this course will deal with those conditions that make an aircraft incident different from the 'normal' fire incident and demonstrate effective ways to deal with aircraft incidents using typical municipal fire department resources.

Description of Methodology: Combination of lecture, demonstration, discussion, and drill. Drill may be mock 'set-ups' or live fire exercises where facilities permit.

Student Equipment & Supplies: Structural PPE and SCBA; pen/pencil and notebook

Equipment/Audiovisual/Facility/Supply Requirements:

1. Classroom w/ customary equipment; AV equipment dependent on media selected by instructor.
2. Sufficient apparatus for drill 'set-ups'; a minimum of 2 engines and one rescue vehicle. More may be needed for live fire evolutions.
3. Air resupply capability for SCBA.
4. If live fire training facilities are not available:
 - a. Area where an actual or simulated aircraft can be placed to allow for 'set-up' drills that will involve demonstration and supervised practice of all skills short of actual suppression of a live fire.

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Equipment/Audiovisual/Facility/Supply Requirements (continued):

- b. EMS standby during drills
 - c. Assistant instructors (ACFR accredited) for the drill period in a minimum ratio of 1 assistant for every 5 students *actually engaged in the exercise*. One assistant should be adequate in most cases.
5. If live fire training is used:
- a. Adequate 'live fire' facility with necessary environmental approval. Spill pit size will be at least 400 square feet of fire area; larger (up to 2500 – 3000 square feet) is preferred. Fixed or mobile propane-fired simulators designed specifically for ARFF training are permitted where available.
 - b. Sufficient water and appropriate foam concentrate. Amount will depend on type of foam used, proportioning ranges and equipment, size of fire, and number of exercises contemplated. Use of computer foam simulation and training foam are acceptable.
 - c. Exercises will be staffed and conducted IAW all provisions of Chapter 5 of the 1997 edition of NFPA # 1403, *Standard on Live Fire Training Evolutions* and the PSFA Live Burn policy
 - d. EMS standby during drills

Special Notes and Conditions: Maximum class size 30 students.

Course Outline

| <u>Time</u> | <u>Topic</u> | <u>Notes</u> |
|--------------------|--|---------------------|
| 1:00 | Airport Operations and On-Airport Safety | |
| 1:00 | Aircraft Types and Identification | |
| 2:00 | Aircraft Construction and Systems | |
| 1:00 | Typical Incidents | |
| 1:00 | Agents and Application | |
| 1:00 | Disaster Planning; Response Options; Resource Needs | |
| 1:00 | Recovery; CISD | |
| 1:00 | Pre-drill review and briefing | |
| 6:00 | Set-up or live-fire drills | |
| 1:00 | Drill recovery, post-drill review, summary, and conclusion | |

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Learning Outcomes (Behavioral Objectives):

Upon completion of this course, the student shall be able to:

1. Compare and contrast aircraft incidents with 'normal' emergencies encountered by municipal fire departments.
 - 1.1. Identify and explain at least three similarities
 - 1.2. Identify and explain at least three differences
2. Identify at least 5 major safety concerns inherent in aircraft incidents
3. Given an aircraft incident scenario, establish a workable command structure for the incident.
4. Name the major sub-assemblies of an aircraft and describe the basic function and safety issues of each.
5. Given an aircraft (or photo of same), describe the propulsion system of the aircraft.
 - 5.1. Identify the type of propulsion system in question.
 - 5.2. Identify the fuel used
 - 5.3. Identify the personnel hazards posed by the propulsion system in question under both routine and emergency conditions.
6. Explain the differences, from an emergency response perspective, between general aviation, commercial aviation, and military aviation.
7. Given a photo or actual aircraft, correctly identify it as a general aviation, commercial aviation, or military aircraft from its construction, external markings, and other features.
8. Identify, by distinguishing characteristics and hazards, the following:
 - 8.1. Rotary-wing aircraft (helicopters)
 - 8.2. lighter-than-air craft
 - 8.3. ultra-lights
 - 8.4. sailplanes
9. Given a photo or actual aircraft, correctly identify:
 - 9.1. the probable passenger, crew, and fuel capacity;
 - 9.2. routine and emergency ingress/egress points;
 - 9.3. advantageous forcible entry points

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Learning Outcomes (Behavioral Objectives) (continued):

- 9.4. specific safety hazards of the aircraft shown
10. Identify two hazards peculiar to military aircraft and the safety precautions needed to cope with each.
11. Assess the survivability and key strategic considerations of the following types of aircraft crashes:
 - 11.1. Low Impact (Low and High Speed)
 - 11.2. High Impact (Low and High Speed)
 - 11.3. Mid Air Collision
 - 11.4. Incident complicated by involvement of a structure.
 - 11.5. Off-Airport Emergency Landing
12. Describe the basic strategic, tactical, and safety considerations for an aircraft cabin fire.
13. Identify key safety and security considerations (both structural and airfield) necessary when operating on airport property.
14. Describe the procedure for handling the following on-airport emergencies:
 - 14.1. Precautionary Landing
 - 14.2. Hot Brakes
 - 14.3. Wheel/Tire Fire
 - 14.4. Fuel Spill
 - 14.5. Engine Fire
15. Name the benefits of disaster pre-planning in handling aircraft emergencies and the basic areas that should be covered by such a plan.
16. Given a simulated aircraft incident, determine the strategic priorities, the resources needed to address those priorities, and outline a basic operations plan for the incident in question.
17. Given a simulated aircraft post-crash fire and rescue scenario and operating as a member of a team, demonstrate the ability to select and apply the proper agent, conduct an initial attack, maintain egress paths, stabilize the aircraft, and assist with and perform rescue, all while using the resources typically available to a municipal structural fire department.
 - 17.1. Where live fire training facilities are provided, attack, control, and extinguish a post-crash fire as part of this objective.