CERTALERT

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AIRPORT SAFETY AND OPERATIONS DIVISION AAS-300

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DATE:	**April 30, 2009**	**No. 09-08**
TO:	**Airport Operators, FAA Airport Certification Safety Inspectors, all ARFF Departments**	
TOPIC:	**Composites Training and Information**	

SUMMARY

To enhance the ability of ARFF crews to effectively respond to composite aircraft mishaps the United States Air Force Civil Engineer Support Agency (AFCESA) has made available information and training through a publicly available website. The Composite Awareness course offers a summary of many years of Air Force research into composites that is tailored specifically for the airport fire service and other fire services that may deal with composite aircraft mishaps. These same basic principles for composite aircraft can however be applied for ground transportation vehicles composed of composite materials. The same hazards apply: toxic off gassing, fiber release, deep seated fire, and soot.

BACKGROUND

Composite materials have found an increasing place in the construction of civilian aircraft. From the 1970's commercial passenger aircraft manufacturers began using composites in limited applications; today, composites will constitute up to 50% by weight of Boeing's 787-8 and Airbus' A350XWB. These two aircraft will be the first in history in the commercial passenger market that will use that amount of composites. Though this new expanded use in large commercial aircraft has made composites one of the most discussed issues in aircraft rescue and fire fighting circles, their use can be widely found in the broader aviation community. Composites have been used for several years in general aviation, military and space aircraft before they found their way into the commercial passenger market.

Training for ARFF personnel as required by 14 CFR part 139.319(i)(2) (i) through (xi) does not specifically address composites as their own area. In practice composite hazards may have been addressed under one or more of the following topics; (ii) aircraft familiarization, (iii) rescue and firefighting personnel safety, possibly (viii) firefighting operations, or even (x) aircraft cargo hazards, including hazardous materials/dangerous goods incidents; but there has been no stand alone composite training required. To date, training on how composites react in fire or any additional fire fighting difficulties they might create for the fire service community has been mainly limited to potential health concerns for responders. Validated information on how composites react in fire,

extinguishing issues if any, effectiveness of current ARFF rescue tools on composites, or how to handle the mishap site after fire extinguishment have not yet filtered into mainstream ARFF training. In this void of official training much of what ARFF crews believe to be true about composites has come from speculation, anecdotes, or sometimes a misunderstanding.

The United States Air Force (USAF) is considered worldwide to be one of, if not the, most experienced organization on aircraft composites through years of research, testing, and real mishap experience. They have worked with composites in their aircraft since at least the 1970's. Advisory Circular 150/5210-17A, *Programs for Training of Aircraft Rescue and Firefighting Personnel*, recommends USAF Technical Order (TO) 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*, as a related reading material source that contains information on aircraft characteristics and response procedures. This guide is a useful tool for aircraft familiarization but it also contains valuable composite information that can answer common questions and help responders respond to composite aircraft mishaps and understand the differences they present over aluminum aircraft.

ACTION

USAF TO 00-105E-9

USAF TO 00-105E-9 provides an entire chapter entitled Hazardous Materials and Mishap Hazards; of which composites make up a large portion. United States Air Force Technical Order 00-105E-9 is available for download by the Air Force Civil Engineer Support Agency (AFCESA) at http://www.dodffcert.com/00-105E-9/ **free of charge**. You will however be required to register before downloading any of the segments. Once registered, download **Segment 1**, which includes **Chapter 3, Hazardous Materials and Mishap Hazards**. This chapter should be utilized by Training Officers to prepare recurrent composites training while also made available for self-paced study and review by all personnel.

To register:

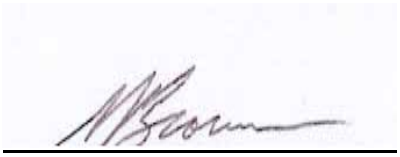
1. Click the "register" button in the center of the screen.
2. Enter all requested registration information.
3. Click the box to check that you agree to the Terms of Agreement.
4. Click "signs me up".
5. A validation email will be sent to the email address you provided.

Composites Awareness Course

Through the same website mentioned above AFCESA offers two self-paced composite courses; Composite Awareness and Basics of Composites. These courses were actually written by the USAF Advanced Composites Office and provided as a courtesy to AFCESA in order to make them available to all emergency responders. These courses enhance the information detailed in Chapter 3. Of the two, the Composites Awareness course efficiently covers essential information needed by emergency responders to better handle composite aircraft mishaps while sufficiently protecting themselves and others. The Composites Awareness course can be used as a self-

paced training tool. A certificate is available to print at the completion of the course, and brief test, which can be kept in the individual's training file.

For guidance on how to access the course click the link "Install Instructions" below the course link on the website. Unlike T.O. 105E-9, registration is not required to access the course. If further help or guidance is needed there is a link at the bottom of the webpage for problems or questions.



4/30/2009
DATE

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