CRAFTSMAN'S CORNER

BY BEN OWEN

FIRE SAFETY

A father and his college age son were saved from a fire that completely destroyed the cockpit of their single engine airplane when it crashed in a ditch in Santa Barbara, CA recently. The airplane's engine lost power on short final and the airplane hit a chain link fence, then bounced across a public road into a ditch beside the road where it then caught fire. A heroic passerby pulled the father and son from the damaged airplane as flames engulfed the fuselage. The two men were not seriously hurt, thanks to the hero who saved them. There was no fire extinguisher in the airplane.

If they had crashed elsewhere, such as on the other side of the airport perimeter fence, they would have been out of luck, because even though airport fire trucks arrived at the crash scene within five minutes, the aircraft fuselage was completely destroyed by flames in that short period.

Many pilots and passengers are not as lucky and do not crash where someone can pull them out of burning airplanes. And they do not have easy access to fire extinguishers that may be mounted in cargo compartments or otherwise out of easy reach.

Engine failure could happen to anyone, at any point in the flight. The solution is to have one or more fire extinguishers handy for every flight. The pilot should be able to reach the fire extinguisher even if he or she is unable to exit the aircraft. This means that the extinguisher should be mounted on the floor under the pilot's seat, onto the center console where it is in easy reach or permanently mounted and plumbed in.

DRY CHEMICAL EXTINGUISHERS

Before you consider the least expensive dry chemical fire extinguisher for your airplane, try one out by using it to put out a fire in your barbecue grill. You won't like what it does to your charcoal cooker. The dry powder fire extinguishers put out fires by smothering them with a thick cloud of white powder that covers everything. And you surely don't want to breathe that powder. If you were trapped in a burning airplane cockpit and if you used a dry chemical extinguisher to douse the flames, you would not be able to breathe in the dust cloud. And the dry powder is extremely hard to clean up afterward, even with a vacuum cleaner. The dry chemical is corrosive and would likely do extensive damage to your interior and to your airplane instrument panel.

HALON 1211 AND 1301 EXTINGUISHERS

The only fire extinguishers that won't choke you and won't damage your aircraft are the liquid Halon extinguishers. They are more expensive than dry chemicals, costing about $100 for a 2-1/2 pound unit, compared to $20 for a 2-1/2 pound dry chemical extinguisher, but the results are worth the difference in price. Halon works to extinguish fires by using a liquid that turns to a gas when it is sprayed into a fire. The gas displaces oxygen to rob the fire of oxygen and cause it to go out. If you spray Halon into the air, it disappears almost as soon as it is sprayed, but it is highly effective in closed area.

OZONE LAYER DEPLETION

For a number of years, Halon was in danger of being outlawed because it could contribute to depleting the Earth's ozone layer. But, in fact, when it is used to extinguish fires, it is neutralized by the fire as it extinguishes it. The approved way to dispose of unwanted Halon is to release the gas into a furnace which neutralizes the chemistry of the Halon. Also, if there is no fire, there will be no need to spray the Halon. As the Environmental Protection Agency now concedes, Halon is a highly effective agent for fire fighting in closed passenger carrying areas. Even if it is not needed for fire extinguishing, it is the best fire insurance policy you can buy.

BUILT-IN HALON SYSTEMS

One supplier of race car fire extinguishing systems that include on-board, driver/pilot operated systems, also sells the same systems for airplanes. In these installations, the Halon bottle is semi-permanently mounted in a convenient place in the race car or airplane, Halon is dispensed through 1/4" diameter aluminum tubing to selected places in the cockpit. A pull-cable or even a solenoid switch operated by the driver/pilot activates the Halon when needed.

EXPLOSION SUPPRESSING FUEL TANKS

Builders of experimental aircraft should also investigate the possibility of incorporating explosion suppressing foam in the fuel tanks of their aircraft. Race car fuel cells could be fitted to aircraft in many instances and are actually less expensive than welded aluminum tanks which offer no fire or explosion protection.

Explosion suppressing foam for fuel tanks is made to be installed in the entire tank, save for cutouts for fuel quality senders, filler neck openings and outlet areas. This foam is about 2% to 3% density, meaning that in a 10 gallon fuel tank, it displaces .2 to .3 of a gallon. In appearance, it resembles a very open weave Scotchbrite™ pad. The life expectancy of this reticulated polyurethane foam is 50 years. The cost of the foam is about $1 per gallon of fuel tank size. It can be retrofitted to existing fuel tanks if the tank has a hand access opening. Talk to race car mechanics if you are considering this protection for your aircraft fuel system.

SOURCES OF HALON FIRE EXTINGUISHERS

- Phoenix Fire Suppression, 3040 B St., NW, #16, Auburn, WA 98001, 1-800/426-1611, Fax 206/939-2614
- Superflite, 2149 E. Pratt Blvd., Elk Grove Village, IL 60007, 708/364-0858
- Aircraft Spruce & Specialty Co., 201 W. Truslow Ave., Fullerton, CA 92632, 1-800/824-1930, Fax 714/871-7289
- Truesports, Inc., 4180 Weaver Ct., Hilliard, OH 43206, 1-800/388-8783
- McMaster Carr Supply, PO Box 54960, Los Angeles, CA 90054-0960, 310/692-5911

SOURCES OF EXPLOSIVE PROOF FUEL CELLS (TANKS)

- Summit Racing Equipment, PO Box 909, Akron, OH 44309-0909, 216/630-1515
- Jaz Products, 1212 E. Santa Paula St., Santa Paula, CA 93060, 805/525-8800, Fax 805/525-8808

(This article was submitted by Richard Finch, EAA 102503, Technical Counselor 1143, Santa Barbara, CA)