



Mayday! Mayday! Mayday! **Do firefighters know when to call it?**

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These must be the most frightening three words that can be heard over the fire ground radio. Everyone who hears the call knows that what was a public emergency, which we the fire department came to solve, has now become an emergency for us. Something has gone wrong and one of our own needs help.

Every fire department in the country has detailed SOPs explaining who on the fire ground will do what, when a firefighter calls MAYDAY. The RIT is activated, radio channels are changed, additional chiefs and units are dispatched. We have all trained extensively on these procedures. We have developed special techniques on how to get downed firefighters out of tight spaces or up through holes. And we carry an RIT bag on the apparatus.

All this is important, but it is the easy part of the process. We have almost completely ignored the most important first step, getting the firefighter to recognize they are in trouble and need to get help, to call MAYDAY.

What mayday decision parameters have we given firefighters? How do we teach the cognitive and affective mayday decision-making process? How do we teach the psychomotor skill to execute the decision?

We have not answered these questions satisfactorily. Our standards and training are woefully lacking for this critical firefighter personal life saving competency.

The NFPA 1001 Standards for Fire Fighter Professional Qualifications (1997) does not definitively address the concept of mayday. The word mayday is not used in the standard. There is a mayday inference in the Firefighter I Standard 3-2.3 that reads, "transmit and receive via fire department radio". The firefighter is to know "Departmental radio procedures and etiquette for routine traffic, emergency traffic". The skill is "the ability to operate radio equipment and distinguish between routine and emergency traffic" (p.1001-1).

Mayday is again alluded to in Standard 3-3.4. It reads, "Exit a hazardous area as a team"; knowledge "elements that create or indicate a hazard"; skill "evaluate area for hazard" (p. 1001-7).

There is more verbiage on auto extraction than mayday in the standard. In Firefighter II the only standard that comes close to mayday is 4-2.3. It reads, communicate the need for team assistance; knowledge ;fire department radio communications procedures; skill; the ability to operate fire department communications equipment. This standard seems to be about routine assistance not mayday conditions.

The Firefighter's Handbook (2000), chapter 23, has a section titled: Firefighter's Emergencies. The opening paragraph reads in part, To help understand the actions to be taken during an actual or potential firefighter emergency, the firefighter must study procedures for rapid escape and declaring a mayday for lost or trapped situations. (p. 690). Under entrapments it reads, "The first step a firefighter should take in an entrapment is to get assistance. Activation of a PASS device is warranted and the declaration of a 'mayday' should be made over the radio. (p. 692). Under the heading of "Lost firefighter" it reads, "We cannot overemphasize that a fighter or team lost in an IDLH atmosphere is in fact experiencing a firefighter emergency" (p. 692). "First, the firefighter or team must report the fact they are lost. This is also a mayday situation and should be transmitted as such over the radio (p. 693).

Essentials of Fire Fighting (1998) does not refer to the word mayday. In the "Rescue and Extrication" chapter there is a section titled "Trapped or Disoriented Firefighters". In regard to disoriented firefighters it states, "If they are not having any success finding their way out, they should find a place of relative safety and activate their PASS devices" (p. 181).

For trapped firefighters it states, "These firefighters should immediately activate their PASS devices. If either trapped or disoriented firefighters have radios, they should try to make radio contact as quickly as possible with other personnel on the emergency scene" (p. 182). Our mayday standards and training doctrine clearly

indicates that we have not researched the concept of a firefighter-calling mayday scientifically.

To study the concept of a person recognizing they are in trouble and need help, I tried to do some benchmarking by looking to others who have addressed similar issues. The place I started with was Navy fighter pilots and the concept of ejection from their aircraft.

In terms of macho, firefighters and Navy pilots are about equal. This is the first assumption I made. Next, the decision to pull the ejection cord is similar to the firefighter making the decision to call mayday. Both the pilot and the firefighter are using their last resort to save their life. The ejection mechanism and our system to save downed firefighters are useless until the individual in trouble cognitively and effectively recognize this fact and act accordingly.

When the pilot punches out, the aircraft is lost. There is the potential for injury to people and property on the ground, and the pilot may be injured or killed. When a firefighter calls mayday, other firefighters are put at risk to save him or her. The mayday decision for the fire service must be considered extremely consequential.

The ejection doctrine for pilots begins as follows. "The first and absolutely most important factor in the ejection process is the decision to eject" (Ejection seat training operations and maintains manual. p 3-1, Environmental Tectonics Corp. Southampton PA 1999). "You should understand that the decision to eject or bailout must be made by the pilot on the ground before flying.

You should establish firmly and clearly in your mind under which circumstances you will abandon the aircraft" (Ejection seat trainer. p2. Environmental Tectonics Corp. Southampton, PA).

A key source of Navy ejection doctrine is the NATOPS manual for each aircraft. The Naval Air Training and Operating Procedures Standardization Program (NATOPS) is a positive approach toward improving combat readiness and achieving a substantial reduction in the aircraft accident rate.

Standardization, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The standardization program is not planned to stifle individual initiative, but rather to aid the Commanding Officer in increasing his units' combat potential without reducing his command prestige or responsibility. (W.D. Houser, Vice Admiral, USN. Letter of Promulgation. May 1, 1975).

The U.S. Navy F-4J jet fighter NATOPS flight manual (1995) contains the following ejection parameters:

- If conditions for no-flap carrier landing are not optimum, eject.
- If neither engine can be restarted, eject.
- If a fire exists after catapult launch, should control be lost and not regained immediately, eject.
- If control speed/gross weight combinations exceed available arresting gear limits, eject.
- If field landing cannot be made, eject.
- If hydraulic pressure does not recover, eject.
- If carrier landing and all landing gear is up, eject.
- If carrier landing and one main plus nose gear up, eject.
- If the combination of weather, landing facilities and pilot experience is less than ideal, consideration should be given to a controlled ejection.
- It is recommended that a landing on unprepared terrain not be attempted with this airplane, the crew should eject.
- If still out of control by 10,000 feet above terrain, eject.
- If the flap and or BLS failure occur during the catapult stroke or shortly thereafter, eject immediately.

It is important to remember that each different type of aircraft has its own ejection parameters. Pilot ejection training consists of classroom and flight simulator to develop cognitive and effective skill. Then the ejection seat trainer is used to imprint the psychomotor skill. Ejection retraining occurs every 6 to 12 months.

The failure or delay to eject can be attributed to 10 reasons that must be addressed in ejection training according to Richard Leland, Director Aeromedical Training Institute Environmental Tectonics Corp.

1. Temporal Distortion (time seems to speedup or slow down).
2. Reluctance to relinquish control of ones situation.
3. Channeled attention (i.e. continuing with a previously selected course of action because other more significant information is not perceived).
4. Loss of situational awareness (i.e. controlled flight into terrain).

5. Fear of the unknown (i.e. reluctance to leave the security of the cockpit).
6. Fear of retribution (for losing the aircraft).
7. Lack of procedural knowledge.
8. Attempting to fix the problem.
9. Pride (ego).
10. Denial (i.e. This isn't happening to me).

By now some readers are thinking fighter pilots have it easy because the instruments in the cockpit do not change. The positions of the needles move and when enough gages are in the red it is time to eject.

Firefighters do not have gages to read or clearly defined input data and the critical information is dynamic throughout the emergency event. Each type of structure we enter, i.e. single family, duplex, garden apartment, triple-decker, high-rise, commercial, industrial, taxpayer, etc., may require specific mayday decision parameters. Once we determine the parameters we need to recognize them and act correctly. Will we?

Over a year ago the Chesterfield, VA Fire Department conducted a lieutenant's test. Part of the testing included a field activity. Seventeen candidates for lieutenant were taken to a large abandoned building, 80 x 120 with an open floor plan. One at a time, in full turnouts, SCBA with less the 700psi, portable radio, and Nomex hood on backwards covering their face mask, each candidate was taken into the building and told the following. "You are the OIC of the first engine operating at a fire in a Shopping Mall.

You and your crew are stretching a 1 3/4 hand line at the top of the escalator on the second floor and you encounter "cold" smoke and zero visibility. While maintaining voice contact with your crew, you have been searching for the fire. You no longer have voice contact with your crew and are now lost and disoriented. This is not a training scenario, your life depends on your actions!" (By Heather Casey. Test asks: Can you Survive? Firehouse.Com News, Sept. 28, 2000). The correct actions to take were:

- Declare an emergency on the radio
- Activate the emergency button
- Announce ?Mayday, Mayday, Mayday, Emergency Traffic?
- Activate the PASS device
- Successfully merge with the RIT

Of the 17 candidates, only four took the correct action immediately. The fastest times to complete the tasks were four to five minutes. Some of the candidates never called Mayday (Personal communications Capt. Dave Daniels, Chesterfield FD Sept. 25, 2001).

This outcome should raise concern for all of us because the candidates were put into the Mayday decision parameters and most did not make the correct decision immediately. In other words they were told the gages are in the red and still did not react correctly. Remember, on the real fire ground each firefighter must read the gages, determine the meaning, and then make the Mayday decision. Again I ask. What are the Mayday decision parameters for firefighters? How do we teach the Mayday decision-making process to firefighters? How much Mayday practice do firefighters need? I don't have the answers to these questions. The military aviation method of creating ejection doctrine may serve as a model for us to use in answering these questions. We need to get our best minds researching the questions to create firefighter Mayday doctrine. I do know this. A firefighter's decision to declare a Mayday is made in the fire station before they get on the apparatus. So, at your next company drill, ask this question. When would you call Mayday?

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