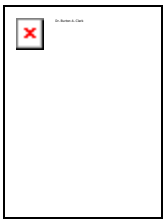

When Would You Call Mayday! Mayday! Mayday?

Dr. BURTON A. CLARK

Hopefully you will never need to call mayday for yourself, or any other firefighter. But you need to be prepared to do so because your life may depend on this single decision.

When firefighters are asked, "When would you call Mayday?" you get some unexpected answers like: "I push the orange button on my radio." or "I don't have to worry about that because I am on the engine company and I have the hose line to find my way out. It is the truckees that go above the fire that need to call mayday." These are actual answers from career firefighters in large metro fire departments.

When you push firefighters to answer the question they will usually rely on the statements in their SOP like "When Lost-Missing-Trapped and their life is in danger firefighters will announce Mayday-Mayday-Mayday." When you ask the firefighter to give an example of Lost, Missing or Trapped they have a difficult time coming up with a specific example. Then they start including statements like "It depends on your experience" even though they have never had the experience of calling mayday.

The problem is that we have not clearly defined lost, missing, or trapped. We leave it up to each firefighter to define these terms. Somehow we think firefighters will intuitively know when to call for help. This is a very dangerous assumption. Presently we do not teach firefighters when and how to call mayday at the cognitive, affective, and psychomotor levels of learning to the Mastery level of performance.

If a firefighter must perform a decision making process and execute a set of skills very rarely or never in their career but the decision and behavior have life or death consequences they must be trained and retrained throughout their career.

We can learn from how the military trains pilots to eject. First, there are very specific ejection decision parameters for each type of aircraft. The ejection decision parameters are a series of IF- THEN logic statements for example: If conditions for no-flap carrier landing are not optimum, eject. If neither engine can be restarted, eject. If hydraulic pressure does not recover, eject. If still out of control by 10,000 feet above terrene, eject (NATOPS flight manual F-4J, US Navy 1995). There can be a dozen or more ejection parameters for a specific aircraft.

Once the trainees have these memorized they will confront these parameters at any time during flight simulator training. One pilot indicated that he had to eject 60% of the time during flight simulator training. Pilot trainees must then train physically on the ejection trainer. This is an ejection seat fixed to a vertical rail that catapults the student up, simulating the ejection process. The student must pass the process at the 100% proficiency level (70% is not a passing score on one chance -- only life and death tasks).

Once the pilot and crew get their wings they still retrain on ejection every 6 months. They are also required to have flight simulator drills 6 times per year, during the training sorties they will be forced to make the ejection decision 3 or 4 times with 100% accuracy. The ejection doctrine is reviewed before every takeoff at the preflight briefing. Finally, each member of the crew realizes that the pilot is in charge of the plane but individuals are in charge of their ejection seat. Any crewmember can make the ejection decision if conditions fall with in the ejection parameters (Capt. William "Stainless" Steele USAF personal interview May 16, 2002 {Stainless is a B1 bomber pilot he and his crew ejected December 12, 2001 over the Indian Ocean}).

In spite of all this training and practice pilots still fail or delay to eject. According to Richard Leland, Director Aeromedical Training Institute Environmental Tectonics Corp., there are 10 reasons for failure or delayed ejection that must be address in ejection training:

1. Temporal Distortion (time seems to speedup or slow down).
2. Reluctance to relinquish control of ones situation.
3. Channeled attention (continuing with a previous selected course of action because other more significant information is not perceived).
4. Loss of situational awareness (controlled flight into terrain).
5. Fear of the unknown (reluctance to leave the security of the cockpit)

6. Fear of retribution (loss of the aircraft)
7. Lack of procedural knowledge
8. Attempting to fix the problem.
9. Pride (ego)
10. Denial (this isn't happening to me.)

The military model of developing ejection doctrine may be useful to the fire service to develop Mayday doctrine for firefighters. 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 you mind under which circumstances you will abandon the aircraft" (Ejection seat trainer. p2 Environmental Tectonics Corp. Southampton, PA).

Based on this assumption we developed a draft Mayday Decision Parameters for a Single Family Dwelling (SFD). The SFD was selected because it is a basic type of structure fire common to many fire departments, it is a high risk to firefighters, and was describable. Keep in mind that we will need a Mayday Decision Parameter for each type of structure we enter. A qualitative method was used that included brain storming (individual and small group) to create the specific parameters (the first research team to help develop these parameters were John Koike, Dennis Culbertson, Tommy Harmon, Linda Pellegrini, and Tom Wiley of the NFA Interpersonal Dynamics Class Dec. 20, 2001 instructors Paul Burkhart and Howard Cross, research advisor Burton Clark). An opinion survey, using convenience sample populations (N=339), was used to determine if firefighters agreed or disagreed that they must call a mayday under specific conditions. This research methodology has significant limitations because it relies on judgment and opinion. The results are not conclusive and have not been field-tested. They are presented only to foster further discussion and study of fire service Mayday doctrine.

Survey Results 339 Respondents

MAYDAY DECISION PARAMETERS: SINGLE FAMILY DWELLING DETACHED, 1 or 2 STORY WITH OR WITHOUT BASEMENT* IDLH ENVIRONMENT SCBA IN USE

A firefighter must call a mayday for themselves under these conditions.	
% said YES	**Possible Mayday Conditions**
98%	Tangled, Pinned, or Stuck; low air alarm activation, Mayday
94%	Fall through roof, Mayday
92%	Tangled, Pinned, or Stuck and do not extricate self in 60 seconds, Mayday
89%	Caught in flashover, Mayday
88%	Fall through floor, Mayday
82%	Zero visibility, no contact with hose or lifeline, do not know direction to exit, Mayday
69%	Primary exit blocked by fire or collapse, not at secondary exit in 30 seconds, Mayday
69%	Low air alarm activation, not at exit (door or window) in 30 seconds, Mayday
58%	Cannot find exit (door or window) in 60 seconds, Mayday

***ASSUMPTIONS:** SFDs usually have a front door and back door. Most rooms, except for bathrooms, have at least one window that could be used as an exit. The exception to door and window assumptions will be the basement, attic, hallways, closets, storage areas, and attached garage. NOTE: SFDs with bared windows or windows too small or too high from floor to use as an exit are excluded from this MDP.
Respondents: this was a convenience sample made up of National Fire Academy students N=181 Executive Fire Office Program graduates N=96, and Fire Department Instructors Conference students N=62 all respondents read the original Mayday article and or were given an oral briefing on its contents before answering the survey. The responders ranged from recruit firefighters to fire chiefs, career and volunteer, small rural to large metro.
A significant challenge to firefighters under IDLH conditions is carbon monoxide affecting their judgment, motor skills, and sensory perception. In addition the environmental conditions smoke, heat, gases, and

structural stability can change very fast and become deadly. The rapid intervention team takes time to rescue a firefighter; the window of survivability can be small.

The same 10 factors that cause pilots to fail or delay ejection may apply to firefighters failing or delaying to call mayday. Is it better for 100 firefighters to call mayday and not need it, then one firefighter not to call mayday and need it? By reacting to decision parameters a firefighters perceived need for help is eliminated from their decision-making process. For example, if you fall through a floor you may not be injured, there may be no fire or smoke, you may be able to get up and walk right out of the building. The condition of falling through the floor is not normal something has gone wrong, your judgment is impacted on and the event may be fatal. Calling mayday immediately is the only 100% correct response and that still does not insure survivability.
The fire service has rules to protect us: wear you seat belt, stop at red lights, wear you SCBA, use BSI, have a backup spotter. We do not rely on the firefighter's perceived need to comply with the rule or experience of the consequences to comply with the rule. Firefighters are expected to follow the rules and we hold them accountable. No one gets in trouble for following the rules. What are the rules for calling Mayday?
The purpose of this article is to generate discussion and research on fire service Mayday doctrine. The questions we need to answer are: 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?
When would you call MAYDAY? That is a good question to ask all the firefighters in your department. Let us know if they all get the answer 100% CORRECT.

Steven Auch, Captain Indianapolis FD & Raul Angulo, Captain Seattle FD contributed their knowledge and expertise to this article

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