

A Tragic Tally

To reduce the number of maydays, we must track where, how & why they occur.

BY DON ABBOTT

A while ago, I was reading an article in one of the fire journals. The article was about maydays, and it left me with more questions than answers. After speaking to the author, I was left with three major items that continue to confound us as a service. The author and I never came to agreement over these three issues. If a nationally recognized expert can miss the mark on something as critical as a mayday, surely there are others. These three issues are:

1. *All maydays are preventable.* I understand that our goal is zero maydays, but I believe it is unrealistic for a group of workers who respond to life-threatening situations that are mostly caused by some human failure or mistake. Making this zero-mayday philosophy even more challenging is the fact we arrive to the incident scene and take action within minutes of being notified. We can reduce maydays in their numbers and severity, but humans are not perfect. Only perfection will produce zero maydays. However, human perfection would eliminate the need to operate in IDHL hazard zones in the first place, because people cause most fires.
2. *RITs and safety officers should handle maydays, while the IC continues to manage the firefighting operation.* It is difficult, if not impossible, to separate a mayday event occurring to one of the firefighters who happened to be fighting the fire from the fire itself. When you factor in that more than 80 percent of firefighter maydays are resolved by firefighters who were operating prior to mayday, splitting the operation into a firefighter rescue separate from the fire attack produces too much confusion and fragments both operations.
3. *Maintaining the mayday firefighter's personal ego and integrity is paramount to the review process.* The author was adamant about this issue to the point where he thought it was unfair to the member/crew to conduct a department-wide review in certain instances. I agree with this point in principle, but the most important element of the mayday-review process is preventing a similar mayday from occurring in the future. Allowing operational problems to continue—especially ones that can injure and kill firefighters—because someone's feeling might get hurt is negligence.

The issue of firefighter maydays is made more complex by the lack of standardized SOPs. There are about 30,000 different fire departments across North America, and each does things its own way. The NTSB was able to make flying the safest form of travel by standardizing air travel based on accident prevention (investigating accidents and mandating operational and mechanical changes that prevent future occurrences). It is ironic that within the last year a group of fire-service professionals attempted to remove the word "mayday" from fire-service vernacular because it's the same phrase used by airplane pilots to report an emergency. Arguing over the words we use only adds confusion and distracts us from addressing what causes maydays and developing methods to avoid them.



One of the biggest issues, in my opinion: The American Fire Service is under no edict to report maydays when they occur or to describe any prescriptive action taken after a mayday occurs within a department. There is no universal system for reporting mayday incidents, which explains the absence of any agency to receive and catalog this information. NIOSH and NFPA produce line-of-duty-death reports; although many of these LODDs were the result of some type of mayday, these reports tend to be broader in both nature and scope. Any fire department experiencing an LODD must request an investigation from either NIOSH and/or the NFPA. OSHA only investigates work-place infractions covered by OSHA law—none of this directly deals with or focuses on maydays. Closecalls.com is a voluntary website where firefighters can anonymously post a close call. There is nothing that requires or motivates a fire department to report or even address firefighter maydays. I decided to try to do something about it, so I launched what I call the Mayday Project.

I applied for and secured a small private grant to study firefighter maydays. A Ph.D from Northern Arizona University, Dr. Venton Bennett, and a Ph.D from Arizona College, Dr. Jason Bebermeir, both agreed to help develop a set of questions and quantify the responses. The next step was reaching out to fire departments, asking them to share their after-action reports for firefighter maydays. The process involves three components.

Component 1—A 49-question survey of the department: organization, number of personnel, work hours, response type/numbers, SOPs, training, etc.

Component 2—Upon the completion of Component 1, responding departments receive Component 2, which contains 93 questions specific to the mayday: size-up, critical factors, IAP, communications, response, etc. We also request a copy of all radio communications associated with the mayday.

Component 3—Upon completion of Component 2, responding departments receive Component 3. It deals with how the department managed the mayday review-and-recovery process. It includes the critique, post-action response and any subsequent operational changes to SOPs, follow-up training, etc.

The Mayday Project started in November 2014. It is our goal to make this the most complete informational analysis on maydays conducted to this date and to provide proven recommendations on communications, command/operations, response, training and best operational practices that reduce, minimize and eliminate firefighter mayday emergencies. We also hope to institutionalize this process into some type of national/international reporting system to assist fire departments with improving firefighter safety.

The second article in this series will appear in the next issue of *B SHIFTER* and will provide the first quarter's results. This includes 214 mayday reports from 197 departments, representing 39 states. If you would like to share a mayday that occurred within your department, please contact me at donaldeabbott@yahoo.com. Each participating department will receive a complete report on the Mayday Project. The Project respects anonymity, and no names will appear anywhere. **BS**



Donald Abbott retired from the fire service after spending 20 years working in the Indianapolis area. He then spent 10 years traveling the country presenting an interactive fire-service training diorama called Abbottville. Don spent eight years helping to develop and coordinate the Phoenix Fire Department's Command Training Center. Currently, Don is president of CERT (Command Emergency Response Training) and is working on a mayday data-collection project called the Mayday Project. In 2002, he received the ISFSI's Innovator of the Year award, and in 2006, he was named Fire Engineering's Instructor of the Year award. In 2014, the IAFC's Hazardous Materials Committee gave Don the John Eversole Lifetime Achievement Award.

Maydays by the Numbers

Surveys conducted on 293 maydays reveal specific info on where & when these incidents occur.

BY DON ABBOTT

Welcome to the second installment of the Firefighter Mayday Project. To view the first article in this series, [click here](#). The information contained in this article was voluntarily supplied in the form of written reports, incident-history transcripts, actual radio communications and firsthand accounts from the firefighters who experienced the maydays, the crews who worked the mayday and the incidents' ICs. This report includes 293 firefighter maydays, experienced by 264 different fire departments from 43 states. The information was collected between November 2014 and April 2015. Some figures in some categories have been rounded up or down.

Total Number of Maydays

293 maydays experienced by 264 departments. Ten percent of the departments (29) had multiple maydays.

Department Profiles

Paid—243

Volunteer—21

We did not designate "combination" departments. If the department had more volunteer members, we categorized them as volunteer. If they had more paid members, we categorized them as paid.



Size of Departments

1–100:	50
101–500:	64
501–1,500:	47
1,500–3,000+:	103



Shift Schedule When Maydays Occurred

24/48: 50 percent—136 maydays

48/96: 39 percent—106 maydays

On overtime: 11 percent—30 maydays.

Volunteers were not included in the tally as they do not work a set schedule.

Less than 9 percent of participating departments work a 48/96 shift schedule, but this shift accounts for 39 percent of maydays.

Overtime figures only include departments working a 24/48 shift schedule.



Mayday Firefighter Personal Stats

Ages of Mayday Firefighters*

18 – 27:	60 (22 percent)
28 – 37:	108 (39 percent)
38 – 48:	63 (23 percent)
49 – 59:	38 (14 percent)
60 – 65:	3 (1 percent)

Years of Service

1–5:	52 (19 percent)
6–10:	71 (26 percent)
11–15:	60 (22 percent)
16–20:	41 (15 percent)
21–25:	42 (13 percent)
26+:	14 (5 percent)

*Ages of the volunteer firefighters were not included in the tally.



Mayday Incident Details

Times Maydays Occurred*

0600–0900: 21 (7 percent)	1801–2100: 35 (12 percent)
0901–1200: 18 (6 percent)	2101–2400: 50 (17 percent)
1201–1500: 16 (5 percent)	0001–0300: 76 (26 percent)
1501–1800: 26 (9 percent)	0301–0600: 53 (18 percent)

*214 maydays (73 percent) occurred during the evening hours.



Tasks Companies Were Performing

Search, Rescue & Fire Control	146 (50 percent)
Ventilation	70 (24 percent)
Search & Rescue*	46 (16 percent)
Overhaul	26 (9 percent)
Outside Support	3 (1 percent)

*Search & rescue was performed **without** an attack line.



Location/Nature of Maydays

Fall/Trapped in Basement	67 (23 percent)
Fall through Roof	64 (22 percent)
Air Problem	53 (18 percent)
Trapped/Entangled	41 (14 percent)
Lost, Separated from Line	42 (14 percent)
No Communications	18 (6 percent)
Medical	9 (3 percent)

Operating above the fire accounted for 45 percent of maydays.



Occupancy Types Where Maydays Occurred*

Residential	161 (57 percent)
Apartment	79 (28 percent)
Commercial	43 (15 percent)

Becoming lost, separated from the line and running out of air occur more often in commercial buildings. Mobile homes and hotels were not included in data.



Injuries from Maydays

Minor with ER visit	47 (16 percent)
Minor with follow-up medical care	91 (31 percent)
Serious—Hospitalization of 48 hours+	85 (29 percent)
Critical—Hospitalization w/ permanent disability	62 (21 percent)
Fatal	8 (3 percent)

More than 90 percent of the time, the mayday occurred to one of the first three companies to arrive on scene.



Crews Rescuing the Mayday Firefighter

Self Rescue	62 (21 percent)
Mayday Crew	91 (31 percent)
Working Crew	108 (37 percent)
RIC/RIT	32 (11 percent)

A 360 was performed less than 21 percent of the time during the first 5 minutes of the incident.



Time to Resolve/Clear the Mayday

Less than 10 minutes	6 (2 percent)
11–15 minutes	26 (9 percent)
15–20 minutes	97 (33 percent)
20–25 minutes	76 (26 percent)
25–30 minutes	53 (18 percent)
30–35 minutes	21 (7 percent)
36+ minutes	12 (4 percent)

Crews assigned and working prior to the mayday performed the mayday rescue 89 percent of the time.

**Personal Interviews**

This section includes information from the questionnaire's personal interview. A total of 181 mayday firefighters completed the survey as of this reporting. A total of 159 incident commanders have completed the personal survey along with 189 officers that had a primary role in the physical mayday rescue operation.

The personal interview portion of the survey asked all three groups—mayday firefighters, incident commanders and officers—the following questions. Some respondents did not answer.

- 1) Was water applied to the fire prior to the mayday?
Yes—205 (70 percent) No—90 (30 percent)
- 2) Was ventilation performed prior to the mayday?
Yes—204 (70 percent) No—89 (30 percent)
Vertical—126 (62 percent)
Horizontal—78 (38 percent)

Mayday Firefighters Q & A

- 1) Were you in a rescue mode prior to the mayday occurring?
 - 9 respondents (5 percent) had confirmed reports of victims (via dispatch or occupants on arrival).
 - 72 (40 percent) had unconfirmed (via bystanders) reports of victims.
 - 100 (55 percent) had no reports of victims.
36 percent of these maydays occurred in vacant or abandoned buildings.
- 2) Did your crew perform a size up?
Yes—119 (66 percent) No—62 (34 percent)
- 3) Did anyone perform a 360 prior to your making entry?
Yes—74 (41 percent) No—107 (59 percent)
- 4) Did your crew enter standing up?
Yes—119 (66 percent) No—62 (34 percent)
- 5) If yes, estimate the time you moved to your knees and why.
Estimated average time—4 minutes
85 (47 percent)—due to smoke
96 (53 percent)—due to heat
- 6) Did your crew report these changing conditions to the IC?
Yes—60 (33 percent) No—121 (67 percent)
- 7) Did you consider calling the mayday before you did?
Yes—74 (41 percent) No—107 (59 percent)

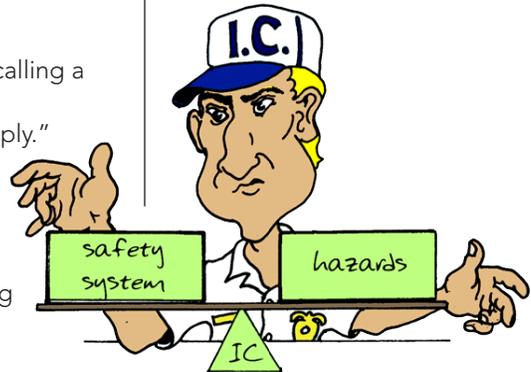
Mayday Firefighters General Observations

After declaring the mayday, 74 (41 percent) of the mayday firefighters could not get radio airtime because too many people talking.

- 121 (67 percent) had confidence in their company officer.
- 80 (44 percent) had confidence in the IC.
- 13 (7 percent) became more worried when hearing who the RIC was.
- 67 (37 percent) report receiving no instructions.
- 56 (31 percent) report confusion due to “yelling and screaming” over the radio.
- 92 (51 percent) report the rescuers didn’t have a plan.

Mayday Firefighters Quotes/Comments

- “I took too long in attempting to fix the problem than [sic] calling a mayday.”
- “Should not have entered without an established water supply.”
- “I overcompensated because I figured I was going to die.”
- “Hose was pulled out of my hands from the outside. No hose, no water equals burns.”
- “Should have used a fire department ladder instead of using makeshift ladder.”
- “I denied this was happening to me.”



Incident Commander Overview

- 148 (93 percent) of the mayday operations were managed by a BC or higher-ranking officer.
- The average on-scene time for the BC was 11 minutes.
- The BC had a partner/FIT in 52 instances (33 percent). 107 (67 percent) responded solo.
- After the mayday was declared, the IC assigned the mayday to another officer 41 percent of the time (65 instances).
- For 88 percent of the incidents (140) the IC reported too much radio traffic due to companies asking for too many reports, poor reporting information and having to repeat radio transmissions.
- 47 percent of departments (75) report they switch radio channels when a mayday is declared.

Incident Commander Quotes/Comments

“The simple truth is nothing in the collective set of experiences in commanding fires translates into commanding a mayday event.”

“Get a second RIC formed as soon as possible.”

“Speak calmly and offer reassurance.”

“Expect mutinies, react to them, control them.”

“There may be ‘phantom’ radio problems.”

“Assign a Support Officer to work and monitor RIT.”

“The overwhelming majority of ICs believe they’re prepared for a mayday event. They are not...”

“More simulation-based, command-level training for maydays.”

“Nobody wanted to listen. Company officers were just as bad as the firefighters. Putting everyone together to regroup was a bad idea. Pick an officer who will do their job, stand their ground and not let anyone go back in!”

Rescue Team/Tactical Boss Overview

- This was the first real mayday operation for 187 (99 percent) of the officers.
- 64 (34 percent) had been the tactical boss of a mayday operation in a training exercise. 62 (97 percent) reported the training experience did not prepare them for the real thing.
- The average weight of a RIC bag is 53 pounds, and the one tool fire fighters wish they had in the bag was a bigger and brighter flashlight.
- 112 (59 percent) of the rescue crews knew the actual location of the mayday firefighter prior to entering the structure. Only 81 (43 percent) of the RICs had a plan prior to entering.

General Comments Pertaining to the Actual Rescue

- Too many hands
- No plan
- Did not have the correct equipment
- Difficult to communicate
- Too many questions over the radio
- Too many people giving instruction
- Interior crews made rescue



"Measure your crew's physical condition and experience."

"Have an escape plan."

"Have enough RIT bags."

"Don't expect much help from an unconscious or disoriented firefighter."

"Too many questions, too much radio traffic."

"Everybody rushed us as we were coming out of the building, making it difficult.."

"We had no regard for our own safety."

"Personally, perhaps the most important issue brought to light through this incident is the realization that my expectations and assumptions concerning the deployment of RIT were both inaccurate and unrealistic. While my previous assumptions were totally borne out of a commonly held perspective from training, they were nonetheless ineffective and tragic."

Our third installment will appear in Volume 6, Issue 1. If you have any questions regarding the Mayday Project, please contact Don Abbott at donaldeabbott@yahoo.com. **BS**



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Hold the Line

This issue's data shows mayday firefighters frequently become lost/separated from their hoselines.

BY DON ABBOTT

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Total Number of Maydays

913 maydays experienced by 902 departments.

Department Profiles

Size of Departments

1–100:	353
101–500:	400
501–1,500:	119
1,500–3,000+:	30



Shift Schedule When Maydays Occurred

24/48: 47 percent—411 maydays
 48/96: 33 percent—297 maydays
 Other schedules: 12 percent—109 maydays
 On overtime: 11 percent—96 maydays.
 88 percent of fire departments work a 24/48 shift schedule.
 11 percent of fire departments work a 48/96 shift schedule.
 1 percent of fire departments work an alternate shift schedule.



Mayday Firefighter Personal Stats

Ages of Mayday Firefighters

18 – 22:	187 (20 percent)
22 – 32:	242 (27 percent)
33 – 42:	246 (27 percent)
43 – 52:	194 (21 percent)
53 – 62:	33 (4 percent)
63+:	11 (1 percent)

Years of Service

1–5:	149 (16 percent)
6–10:	203 (22 percent)
11–15:	195 (21 percent)
16–20:	157 (17 percent)
21–25:	116 (13 percent)
26+:	93 (10 percent)

All figures in all categories have been rounded up or down. Years of Service includes EMS.



Mayday Incident Details

Time Maydays Occurred

0600–0900: 57 (6 percent)	1801–2100: 117 (13 percent)
0901–1200: 45 (5 percent)	2101–2400: 195 (21 percent)
1201–1500: 25 (3 percent)	0001–0300: 235 (26 percent)
1501–1800: 37 (4 percent)	0301–0600: 203 (22 percent)

749 maydays (82 percent) occurred during evening hours.



Location/Nature of Maydays

Fall/Trapped in Basement 165 (18 percent)

Of that 165:

Floor above fire into basement	87 (53 percent)
Basement stairway collapse	44 (27 percent)
Under floor/ceiling collapse	34 (20 percent)

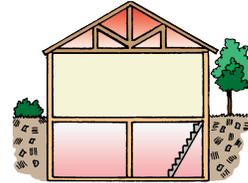
A 360 was completed less than 23 percent of the time. When the initial IC did complete a 360, it caused them to change their original strategy (from offensive to defensive) 27 percent of the time.

The basement was visible on the 360 in 112 of the 165 cases (70 percent)

More than 90 percent of the time the mayday occurred to one of the first three companies to arrive to the scene.

Fall through Roof	176 (19 percent)
Air Problem	122 (14 percent)
Trapped/Entangled	128 (14 percent)
Lost, Separated from Line	214 (23 percent)
No Communications	48 (5 percent)
Medical	39 (4 percent)
Other (violence related)	21 (2 percent)

Operating above the fire accounted for more than one third of maydays.



Lost, Separated from Hoseline Accounted for 214 of the Maydays (23 percent). Of that 214:

Search & Rescue, No Line	103 (48 percent)
Left the line	111 (52 percent)

Search and rescue performed without an attack line.

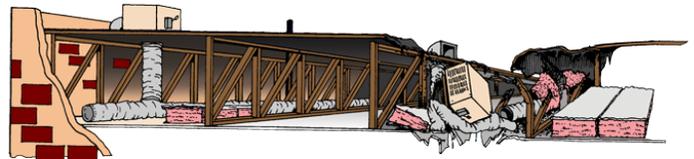
Of the 214 lost/separated from their hoseline, 51 (53 percent) were lost on a line measuring 250'–300'.



Occupancy Types Where Maydays Occurred

Residential	416 (46 percent)
Apartment	213 (23 percent)
Commercial	284 (31 percent)

347 maydays (38 percent) occurred in abandoned or vacant structures. Hoarder houses accounted for 77 of the maydays in the residential category.



Injuries from Maydays

On-scene treatment	230 (25 percent)
Minor with ER visit	293 (32 percent)
Serious—Hospitalization of 48 hours+	208 (23 percent)
Critical—Hospitalization w/ permanent disability	182 (20 percent)

Mayday firefighters report rough handling by the rescuers 58 percent of the time. Only 25 percent of mayday firefighters report being properly packaged before being removed.



Crews Rescuing the Mayday Firefighter

Self Rescue	208 (23 percent)
Mayday Crew	231 (25 percent)
Working Crew	316 (31 percent)
RIC/RIT	93 (10 percent)
Other	65 (7 percent)

Crews assigned and working prior to the mayday performed the rescue 90 percent of the time.

Personal Interviews

This section includes information from the questionnaire’s personal interviews. A total of 641 mayday firefighters completed the survey as of this reporting, as well as 377 incident commanders and 297 officers who had a primary role in the physical mayday rescue operation. Not all respondents answered all questions.



Mayday Firefighters Q & A (641 Interviews)

- 1) Did you wear your seatbelt en route?
 Yes—365 (57 percent) No—276 (43 percent)

- 2) Was there any sign of a confirmed rescue on your arrival?
 Yes—45 (7 percent) No—596 (93 percent)

- 3) Was a water supply established prior to making entry?
 Yes—424 (66 percent) No—217 (34 percent)

- 4) Did your officer stay outside to perform as the IC?
 Yes—455 (71 percent) No—186 (29 percent)

- 5) Was a 360 conducted prior to your making entry?
 Yes—173 (27 percent) No—468 (73 percent)

- 6) Was any fire visible from the exterior knocked down prior to making entry?
 Yes—38 (6 percent) No—603 (94 percent)

- 7) Did you know the location of the fire prior to making entry?
 Yes—301 (47 percent) No—340 (53 percent)

- 8) How often do you leave the line by 10 feet or more in near-zero visibility?
 Most of the time— 558 (87 percent)

- 9) Was the fire over your head?
 Yes—378 (59 percent) No—263 (41 percent)

- 10) Was water applied prior to the mayday?
 Yes—423 (66 percent) No—218 (34 percent)

- 11) Was ventilation performed prior to the mayday?
 Yes— 429 (67 percent) No— 212 (33 percent)

- 12) If yes, was it vertical or horizontal?
 Vertical—240 (56 percent) Horizontal—145 (34 percent)
 Don’t know—44 (10 percent)

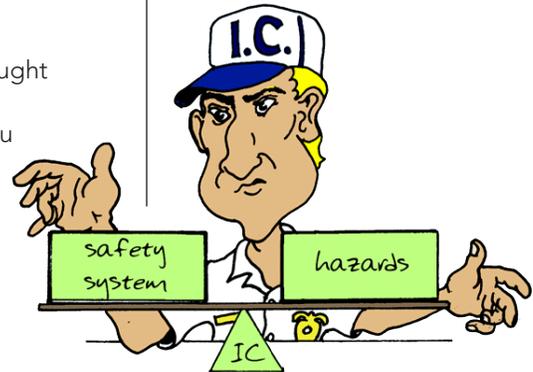
- 13) Did you consider calling the mayday before you did?
 Yes —186 (29 percent) No—455 (71 percent)

Mayday Firefighters General Observations

- After declaring the mayday, 391 of the mayday firefighters (61 percent) could not get radio airtime because too many people were talking.
- 519 of the mayday firefighters (81 percent) had confidence in their company officer.
- 430 of the mayday firefighters (67 percent) had confidence in the IC.
- 224 of the mayday firefighters (35 percent) had confidence in the rapid intervention crew/team.
- 282 of the mayday firefighters (44 percent) report receiving no instructions.

Mayday Firefighters Quotes/Comments

- "There was too much yelling and screaming on the radio."
- "Could not put into order some of the things I had been taught or practiced."
- "When calling a mayday, do NOT give up the radio until you complete the full PCAN report."
- "Never enter a hoarder's house."
- "NEVER leave the hoseline."
- "I received my fire department's 'Firefighter of the Year' award for having a mayday. How does that make sense?"



Incident Commander General Observations (377 ICs responding)

- The average on-scene time for the BC was 11 minutes.
- The BC had a partner/FIT in 136 instances (36 percent). For the other 241 incidents, (64 percent) they responded solo.
- Command was transferred once at 121 incidents (32 percent), twice at 222 incidents (59 percent) and three times at 34 incidents (9 percent).
- This was the first mayday for 369 of the ICs (98 percent.)128 of them (34 percent) believed they should have changed to the defensive strategy earlier (prior to the mayday being declared).
- Only 155 of the ICs (41 percent) were able to track personnel with a tactical worksheet.
- 80 of the ICs (21 percent) predicted major problems with the operation prior to the mayday.
- 215 of the fire departments (57 percent) switch radio channels after declaring a mayday.
- After the mayday was declared, the IC assigned the mayday to another officer 98 times (26 percent). In 124 instances (33 percent), the IC kept the mayday and passed the fire. In 155 instances, (41 percent), the ICs kept both operations.
- 109 of the ICs (29 percent) reported too much radio traffic during the operation.
- 132 of the fire departments (35 percent) conducted a critique of the incident and shared it with the department.
- 83 of fire departments (22 percent) made changes to their SOPs as a result of the incident.

Incident Commander Comments

- "Manage work cycles."
- "Forecast the structure, fire behavior and the resources you have to work with."
- "Expect mutinies, react to them, control them."
- "Think before you speak on the radio; it's impossible to take it back."

- "Had a very difficult time moving from rescue to recovery. Crews and other officers didn't help."
- "The simple truth is nothing in the collective set of experiences in commanding fires translates into commanding a mayday event."
- "Its okay to have lots of firefighters on deck, in reserve or staged. They can bitch all they want. When I need them, they're here. I only hope they are mentally ready."

Rescue Team/Tactical Boss Overview (297 Officers Responding)

- This was the first mayday for 296 of the rescue bosses (99.5 percent).
- 199 of the crews (67 percent) knew the mayday firefighter's location prior to making entry.
- 56 of the crews (19 percent) had difficulty locating the mayday firefighter.
- 33 of the mayday operations (11 percent) included the mayday firefighter being entangled.
- 56 of the mayday operations (19 percent) required packaging the mayday firefighter.
- Departments reported an average of 19 minutes to resolve the mayday.



Rescue Team/Tactical Boss Comments Pertaining to the Actual Rescue

- Don't expect much help from the victim.
- Have a backup plan.
- Know your needs before committing to the interior. Rescue crews were too quick to make entry and did not bring in the needed tools and other equipment.
- We took too many shortcuts and cut corners with no regard for our own safety.
- We need to conduct more realistic training.
- Interior crews made the rescue ahead of the RIT.
- "Smoke detectors made it difficult to locate down firefighter."
- "Too much unnecessary radio traffic."
- "Have a plan before you enter."
- "Had trouble multi-tasking."
- "Know the physical condition of your crew and experience."
- "We had no regard for our own safety."
- "Be aware of the changing environment and be strong enough to stop the rescue operation and evacuate everyone and move into a recovery mode when indicated."

Our fourth installment will appear in Volume 6, Issue 2. If you have any questions regarding the Mayday Project, please contact Don Abbott at donaldeabbott@yahoo.com. **BS**



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Let's Have a Mayday!

Hosting your own mayday isn't fun, but it sure is easy. Just follow these simple steps.

BY NICK BRUNACINI

Our service has been struggling with the balance between taking action at the scene of structure fires and doing so in a manner that keeps everyone safe. Modern efforts to minimize maydays include OSHA's 2 in/2 out, the University of Illinois' Save Our Own program and the IAFF's Fireground Survival program (the most recent incarnation of the Save Our Own program). OSHA's 2 in/2 out requires having at least four firefighters on the scene before making entry into burning buildings. This really is more about staffing levels than it is about firefighter safety and survival, as a pair of firefighters does not represent anything resembling an adequate mayday response. Both the Save Our Own program and the Firefighter Survival program focus on the task-level skills firefighters use once a mayday occurs and includes little to no tactical- and strategic-level training.

One of the main players in the effort to minimize maydays has been and remains Don Abbott. Don used to travel all over North America to deliver simulation training called "Abbottville." Don built tabletop models of firefighter line-of-duty deaths and would conduct simulations of these events in an effort to prevent them from happening in the future. In 2001, after logging more than a million miles on the road with Abbottville, Don came to work for my former department as a project manager who helped to build and manage our command-training center (CTC). It became the hub where our department worked to fix the operational issues that had killed one of us. Recently, Don developed "The Mayday Project," which studies actual firefighter maydays. He has been doing this for the past 18 months and has examined more than 1,500 firefighter maydays. The past three issues of B SHIFTER have reported the ongoing results of Don's Mayday Project.

The information in Don's study has been voluntarily supplied by the fire departments experiencing the maydays via personal interviews, incident transcripts and radio recordings. As you would imagine, much of this data is all over the page. There is zero regulation that applies to structural firefighting, so every fire department not only performs things differently, they also record, review and revise incident outcomes differently. Don's study does show a common element, however: These 1,500 maydays are the result of common trends and practices; we have not found any new ways to get into trouble at the scene of structure fires. In a world where the application of standard actions to standard conditions produces a standard outcome, these maydays are predictable. Keep in mind these statistics are only from fire departments that voluntarily participated in the study. It's a safe bet that 1,500 maydays within a year and half is just the tip of the iceberg.



Abbottville foretold of Godzilla ravaging the Pacific rim.

Despite our best and varied efforts, maydays keep occurring. We know what causes them, but we keep repeating the same mistakes. One of the study's most glaring revelations is that only one in five fire departments made changes to their SOPs after experiencing the mayday. Hell, only a third of reporting fire departments actually performed a post-incident critique of the mayday event to share with the other members of the fire department. Sometimes it helps to look at complex issues from a variety of angles. Instead of looking at ways to prevent maydays, we should look at the strategies that allow us to produce them. If you can't beat 'em, join 'em. Now let's get some!

6 Steps to Making a Mayday

1) Skimp on training.

The Mayday Project's data collection reveals the following information about fire department mayday readiness:

- Only 33 percent of fire departments responding to the study performed mayday training that included the strategic level (IC & command team).
- Just 20 percent of fire departments trained on mayday operations using simulation training.
- Only 10 percent of fire departments trained the officers managing the rescue operation (tactical bosses).
- Less than 5 percent of fire departments trained on managing multiple maydays as part of the same incident operation.

If you want to ensure a mayday situation, go light on appropriate training. Studying what causes maydays and then incorporating this information into strategic-, tactical- and task-level training helps us avoid life-threatening situations. If your members don't understand the factors that lead to maydays, they won't be able to avoid them. This produces situations where the fire chief makes the following statement to the media: "Two hours into the structural firefighting operation, we had an unexpected collapse of the building." (Really? 35 years ago, my generation was taught the 20-minute rule: If the fire isn't under control in 20 minutes, abandon the offensive operation in favor of the defensive strategy because the fire is ready to collapse the structure. The 20-minute benchmark is no longer accurate—if it ever was. Modern structures fall down much faster when exposed to fire. Real pros don't let maydays take them by surprise. There is no place in our service for amateurs running fire departments who don't understand this.)

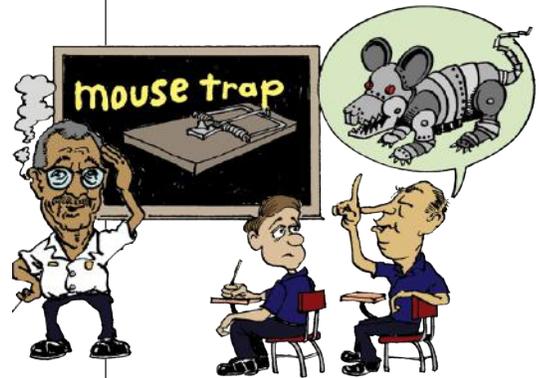
2) Be unfit for response (old, sick, out of shape, tired).

Although the NFPA reports approximately 60 percent of firefighter LODDs are attributed to a medical condition (mostly heart attacks), less than 5 percent of the maydays reported in Don's study were the result of heart attacks, seizures and diabetic emergencies. Still, if you are a fan of maydays resulting from pre-existing medical conditions, make it a point to include 65-year-old firefighters with a history of heart disease as members of the teams that advance 2.5" attack lines into burning buildings. In fact, any firefighter older than 65 should have a turnout jacket prewired with AED leads.

Fatigue is a major contributing factor in making poor decisions. When you are tired, you miss a lot of important information. Waking someone from a sound sleep and placing them in a life-and-death situation 5 minutes later is a recipe for disaster. It comes as no surprise that the majority of maydays occur during the sleeping hours (more than 80 percent of maydays occurred between 1800 and 0600). Forty percent of mayday firefighters participating in



Imagine your day in court when you must explain why you failed to update SOPs after a previous mayday.



Training that connects us to our actual response is the gateway to competence and accountability.



the mayday study reported having their sleep interrupted prior to the mayday incident. We respond 24/7, 365 days a year; there isn't a shift schedule that allows us to always be available round the clock that also eliminates fatigue. This doesn't change the fact that tired firefighters have more maydays than rested ones.

Of the fire departments responding to the survey, approximately 90 percent work a 24/48 shift schedule. These departments account for 45 percent of all reported maydays. Around 10 percent of all reporting departments work a 48/72 hour shift. These departments accounted for 33 percent of all maydays. The one thing we can take away from this: When the responders show up fatigued, we have an 80 percent greater chance of having a mayday.

3) Don't use a strategic or task level.

Connecting and aligning the operational levels (strategic, tactical and task) ensures safe, effective incident operations by allowing the IC to control the position and function of all operating resources. Staging prior to assignment produces safer, more efficient incident operations, greatly reducing the occurrence of maydays. If you want to experience a higher number of maydays, do not waste your time trying to manage the task level. Allow these workers to respond directly to the incident scene and take fast, aggressive, uncoordinated action upon their immediate arrival. This concept is evidenced by the fact that only 40 percent of the incident commanders responding to the study were able to track the task level using a tactical worksheet. To further derail the strategic level, command was transferred two or more times 70 percent of the time during incidents where maydays occurred. After the mayday took place, 60 percent of fire departments fractured the operation further by using two or more radio channels to manage personnel operating within the same hazard zone.

4) Choose unsafe operating positions & other unsafe practices.

Approximately 40 percent of maydays are the result of operating above the fire. This includes operating above basement fires and over burning attics. Eighty-seven percent of mayday firefighters also reported routinely leaving the attack line when operating inside burning buildings, accounting for 23 percent of all reported maydays. (It should come as no surprise that around 50 percent of the mayday firefighters do not wear their seatbelt when traveling to the fire. Crashes in road vehicles accounted for 12 percent of the firefighter LODDs in 2015. This is the second lowest number in the past 39 years—six deaths in four crashes.)

5) Vent and search well before water application.

How many firefighter fatalities include the critical factor wind? Wind and ventilation act like identical twins when applied to structure fires. If you want to prime the environment for a mayday, vent and search early—ahead of water application. This will intensify fire conditions, increase fire damage and escalate search times (occurring in worsening fire conditions). The most recent fire research/science reinforces our oldest tactic: Putting water on the fire generally makes the scene much safer. Almost 95 percent of mayday firefighters report not applying water to visible fire prior to



! We would like to take this opportunity to rebuke a key principle included in the first edition of *Fire Command*, which was produced more than three decades ago. Back then, the fundamental tactical approach for offensive structural firefighting operations was to attack from the unburned side. This approach was suited to improved firefighter protective gear, SCBAs, fighting interior fires in smaller compartments (e.g. houses with low ceilings and smaller rooms) and Class A fuel loads with burn times of 20 minutes or more before flashover. These tactics do not apply today. The concept of attacking from the unburned portion is unsafe and less effective than applying water to the fire as quickly as possible. This includes applying water from exterior positions while operating in the offensive strategy. The offensive strategy can begin (and preferably does) with exterior water application. Attacking from the unburned side oftentimes places these initial attacking crews directly in the flow path. As they make entry, fresh air accompanies them. Introducing fresh air into a ventilation-controlled fire will cause the space the crew is operating in to flashover. It is far preferable to knock down the fire from exterior positions whenever possible to avoid intensifying the fire. The tactic of properly applied water from exterior positions has proven to greatly reduce the size and intensity of the fire, making the entire scene safer for all.

There are two kinds of maydays: strategic- & task-level.

Strategic maydays happen when we operate in offensive positions (in the interior, on the roof or within the building's collapse zone) under defensive fire conditions. When the roof of a large, commercial building falls onto several crews operating underneath it, the outcome is typically quick death. This also includes situations where firefighters operate in large areas when the fire flashes over. Although it might occur during an offensive operation, getting stuck in a flow path when it flashes over falls into the category of strategic mayday because it has the tendency to grievously injure and kill anyone unfortunate enough to get in the way. There is a difference between a rescue operation and body recovery. Strategic maydays kill firefighters in bunches. The only way to alleviate strategic-level maydays is not to have them.

Task-level maydays are localized events that occur to a firefighter or a crew. These mayday situations typically involve becoming lost, trapped or missing. Many mayday SOPs indicate the automatic deployment of safety officers and rapid-intervention crews. The primary goal of safety officers is to ensure firefighters operate safely (a pretty broad goal), eliminating maydays. The purpose of rapid-intervention crews is to perform rescue operations during a firefighter mayday. In many instances, both of these functions are performed by a different organizational unit and on a different radio channel than the tactical channel.

An effective hazard-zone management system simplifies the operation. One IC, one radio channel for all

units assigned to the same hazard zone; tactical bosses are paired with safety officers; and rapid intervention is a capability shared by the entire response (rapid intervention is not an assignment). Out-of-control incident operations produce out-of-control maydays.

These are some of the numbers from the Mayday Project:

- 38 percent of maydays occurred in abandoned or vacant buildings. Almost 10 percent occurred in hoarder houses.
- The strategic-level IC (chief) operated in a mobile position almost 70 percent of the time.
- Water was applied from exterior positions less than 5 percent of the time.
- Forcible entry was required more than 70 percent of the time.
- The mayday firefighter was not able to get back on the radio for almost 4 minutes after declaring the mayday because of too much radio traffic.
- Approximately 90 percent time, crews operating prior to the mayday resolved the mayday.
- One out of four of the maydays (25 percent) that required the use of an exterior crew (RIC, on deck, staged) to physically assist with rescue experienced a second mayday (the rescuers required rescue).
- The average reported time for clearing the mayday when utilizing exterior RICs was 19 minutes vs. 12 minutes for interior crews.

making entry into the structure. Exterior water application in these instances has proven to make the incident safer for everyone (victims, potential victims and firefighters). The best beginning to any structural firefighting operation is the rapid elimination of the fire.

6) Don't perform a 360 (aka abandon situational awareness).

Skipping the 360 is an excellent way to increase mayday potential. According to Mayday Project data, the IC did not perform a 360 in more than two-thirds of incidents where maydays occurred. In 70 percent of the reported maydays, the fast-attacking IC remained outside (not supervising their interior crew). Fewer than half of the mayday firefighters (47 percent) knew the location of the fire prior to making entry. Do any of the following fireground scenarios seem familiar?

- Firefighters on the Alpha Side think they are operating at the scene of a two-level house. Firefighters on the Charlie Side know they are operating at the scene of a three-level house with a working fire in the basement.

- Firefighters with an exterior fire against the Bravo side Discover the fire has extended into the attic some time ago. Firefighters on the inside are asking for more attack lines, while firefighters on the roof are reporting heavy fire conditions in the attic. The building happens to be more than 25,000 square feet, or more than five stories high, or it has two levels below grade—all situations rife for really big mayday operations.
- Firefighters with little to nothing showing on the Alpha Side make entry to investigate (without an attack line) while a company on the Charlie Side uses a ladder to vent an upper floor window. This is the result of independent task-level action taking place in the absence of situational awareness.
- Firefighters checking for extension on the second floor become entangled in electrical wiring. A firefighter, who assumed power had been shut down because he heard the ladder arrive on scene 10 minute before, uses wire-cutters to free his partner. However, the ladder didn't secure power (they encountered a victim in the backyard), and they didn't report it over the radio for any number of reasons (too busy, too much radio traffic, etc.)

None of the preceding problems is solved by immediate water application. They are most rapidly brought under control through situation awareness and by slowing the operation down (taking command and assigning all later arriving units, operating within a single IAP, determining the critical factors and applying coordinated standard actions. These actions are rooted in securing the search and limiting property loss with aggressive fire control actions (i.e the application of water). Safer firefighting operations are one of the standard outcomes of using this approach.

If your department's goal is to not only increase your number of maydays but also to intensify their severity, then use safety officers and RICs rather than true strategic and tactical levels. You can further fragment the operation by requiring that whenever a mayday is declared, everyone on the incident scene must change radio channels. This creates situations where it doesn't matter that no one is in charge, because we can't talk to one another anyway. **BS**



Nick Brunacini joined the Phoenix Fire Department (PFD) in 1980. He served seven years as a firefighter on different engine companies before promoting to captain and working nine years on a ladder company. Nick served as a battalion chief for five years and in 2001, he was promoted to shift commander. He then spent the next five years developing and teaching the Blue Card curriculum at the PFD's Command Training Center. His last assignment with the PFD was South Shift commander; he retired from the department in 2009. Nick is the author of "B-Shifter—A Firefighter's Memoir." He also co-wrote "Command Safety."