



# Fire Apparatus & Emergency Equipment

## Tool Time

by Raul Angulo

### Gear Keeper Protects Your Mic Lifeline

On February 19, 2005 at 06:01 hours, firefighters from Houston, Texas, responded to a reported fire in an abandoned house.

It was known by neighbors to be a "crack house" at the time of the fire, which was later determined to be arson. A department captain died in the fire and portable radios lost during the battle were deemed to be factors in the death.

According to the National Institute for Occupational Safety and Health (NIOSH) report and the Houston Fire Department Web site, the captain of Engine 46 was the first arriving officer and reported to the dispatch OEC that fire was showing from a one-story house and E46 was initiating a "fast attack."

The District Chief (DC46) arrived within seconds after E46, assumed command and reported to OEC that heavy fire was visible from the house. The E46 crew took 1.75- inch hand line through the front door and worked their way toward the kitchen. Visibility was good upon entry, but quickly deteriorated as the crew advanced toward the rear of the house.

E55 laid a backup line to E46, E35 was assigned to RIT, and L46 was assigned search and rescue. At 06:11, DC46, who was now on the A side of the house, saw that conditions were quickly deteriorating. The district chief called E46 on his radio and asked for an interior report, but there was no response from inside the structure. Just then, the roof at the rear of the house collapsed.

At some point prior to the collapse, the E46 captain had dropped his radio while advancing the initial attack line. He was either unaware that he had lost his radio or he was unable to retrieve it. The radio was later found during the post-fire investigation in the living room, the first room past the front door.

As the roof collapsed, it trapped the E46 captain and created a fireball that pushed through the structure toward the A side, engulfing the interior crews in flames.

#### A Dropped Radio

The L46 captain radioed that firefighters were trapped and requested help. Then, while trying to adjust his radio, he dropped it and was unable to find it. Since he didn't have his radio, he was not able to call a MAYDAY or request assistance. The L46 officer's radio was found during the post-fire investigation in the dining room.

Of the six firefighters who were inside at the time of the collapse, five were able to get out with thermal burns. E46 Captain Grady Burke was killed.

This graphic, tragic case study painfully illustrates the importance and care that must be taken in fastening your portable radio securely to your turnout coat. It's your lifeline for safety and survival, and should be treated as such.

Not a lot of attention is paid to how we wear our portable radios or where we clip our microphones (mic). If you're a company officer, don't tolerate any sloppiness in the manner in which your firefighters carry their radios.

### **Problems You Encounter**

Consider the problems you can encounter. If, for whatever reason, you become separated from your radio, you are unable to:

- Communicate with your crew without lifting your face piece.
- Communicate with the second due engine company or the ladder company performing search and rescue.
- Coordinate ventilation with the ladder company.
- Report interior conditions or give progress reports to the incident commander (IC).
- Request additional resources.
- Give a PAR or air management report to the IC.
- Hear safety announcements from the IC or the safety officer.
- Most importantly, activate your emergency button or call a MAYDAY.

Lack of effective fireground communications consistently shows up in the top five contributing factors in non-cardiac line of duty deaths.

In a live fire training exercise, these problems became very apparent to me. I used to clip my radio mic to the tab on my coat above the radio pocket as most firefighters do.

Ideally, the officer should have a thermal imaging camera (TIC) and be second on the hose line behind the firefighter on the nozzle. However, if you're a crew of four, the two firefighters in the back are masked up and ready to go. By the time you get off the rig, don your SCBA and give a size-up, that team has already laid the line, grabbed the TIC and is making entry into the structure.

I found myself in the number three position. I had a pike pole in my right hand – my tool of choice because I always wear an axe – and followed the hose line with my left hand. After a few minutes, the IC asked for a progress report. In order to grab my mic, I had to either let go of the pike pole or the hose. Since the line was still advancing, I let go of the hose. After transmitting the progress report, I tried to clip the mic back on to my coat, but couldn't. I had to let go of the pike pole because clipping the mic required two hands to do it quickly.

### **A Better Way To Wear A Mic**

A few minutes later, I was asked to give an air management report. Again I had to let go of the hose, and again I had trouble clipping my mic back on the coat. I decided to just hold on to the mic. With the pike pole in my other hand, I continued to advance, following the hose with the edge of my hand.

When I needed my hand, I let the mic dangle from the cord. I ended up crawling over it with my knee and it snapped back, smacking my face piece. The whole evolution was very frustrating. Knowing I was the one who would be doing the talking from the interior, I had to come up with a better way to wear my mic.

I started asking other officers how they carried their mics and Chief Brent Batla of Training Division.com introduced me to Gear Keeper. Gear Keeper is manufactured by Ken Collin and John Salentine of Hammerhead Industries Inc. in Ventura, Calif. The concept of the retractable gear attachment system was developed based on the key chain holder idea, but originally engineered for SCUBA diving gear, tools, flashlights and consoles.

The Gear Keeper is a rugged, retractable system designed to utilize and protect gear in severe environments with maximum break strength and durability. The Mic Keeper RT2 Series is the most popular for portable radios and has a break strength of 60 pounds. It was developed as an offshoot of the RT3 Series right angle flashlight tethers, which have a break strength of 80 pounds. It was based on the needs and comments of firefighters complaining about the lapel mic being a nuisance, always becoming dislodged and dangling, causing firefighters to step on or drag their mics.



The RT2 Series is well suited to the task. It has a high-temperature, high-impact housing, a stainless steel cable with nylon coating, a 12-ounce retraction force and a 20-inch extension.

The Mic Keeper RT3 Series has a nylon/Kevlar line, 36-inch extension, 24-ounce retraction force with an 80-pound break strength. It is a larger unit for heavier tools like flashlights, TICs and seatbelt cutters.

Ladder Company 6 in Seattle, Wash., (my rig) uses a carabiner and a Gear Keeper RT3 on our thermal imaging camera.

The benefits of using a Mic Keeper are many:

- Holding the mic securely so it doesn't dangle or become detached.
- Allowing the mic to be extended for speaking or listening.
- Minimizing the potential for entanglement since the mic is close to the body.
- Making the lapel mic user-friendly and allowing the portable radio to remain protected in the pocket.



Since the Mic Keeper is a removable accessory from the turnout coat, it has not required any National Fire Protection Association (NFPA) certification, but, according to Hammerhead Industries, it is designed to withstand high temperatures.

All bunking coats have a bellowed radio pocket with a small tab to clip on the mic. There are no specs on where the tab goes; sometimes it's above the pocket, on the flap or on the pocket itself. Wherever the tab is, that is where the firefighter will clip on the microphone.

The mic can easily get knocked off the tab without the firefighter being aware of it. The microphone and the speaker are at chest level pointing away from the firefighter, making transmissions from a firefighter speaking through an SCBA face piece difficult to hear by the IC. Firefighters working in a loud environment find messages from the IC are difficult to hear when the speaker isn't next to the firefighter's ear.

This is critical when the IC is transmitting, "All units back out" or "Abandon the building." As I started noticing dangling mic cords on the fireground, I brought it to the attention of the members.

### **Boston Leather Radio Belt**

Many firefighters prefer to use the Boston Leather radio belt that's worn diagonally across the chest. I wear my radio on this type of belt, but not in fires. The practice is to wear the strap with the radio inside your turnout coat and run the mic cord out the collar of the coat.

One problem I see here is – how do you hit your emergency button without opening your coat? And what happens if, while working in the fire, your arm movements, twisting, bending and reaching, cause your radio button to inadvertently change channels? You can't see what channel you're on or change it back unless you open your coat.

What happens if you become trapped or pinned? Reaching for your radio may be hard enough, and having it inside your coat makes it more difficult.

Firefighters who recognize the importance of having the mic securely fastened to their coat sometimes use carabiners or hose gaskets for a mic clip. But you should avoid running the mic cord over the back of your shoulders and neck. If you're caught in a fireball or flashover like the Houston firefighters, you're going to be crawling or staying low. The area of your body most exposed to the heat and flames will be your back, neck and shoulders. SCBA straps and turnout coats have been known to burn through in these type of close-call incidents. That's no place for your mic cord. Protect your lifeline.

The issue of properly securing your radio and microphone to your turnout coat has become such a vital part of firefighter safety and survival that Dr. Burton Clark of the National Fire Academy (NFA) and I have decided to include it in the NFA "Calling the MAYDAY" curriculum.

This course uses a series of hands-on entrapment props where firefighters fall or become trapped and must call for a MAYDAY. In this component, the radio mic is unclipped and left dangling without the students' knowledge as they are blindfolded. When students fall through the prop simulating a floor collapse, they reach for the mic to call a MAYDAY only to discover it's not where they expect it to be. Some students remain calm and trace the cord from the radio; others become frantic and frustrated because they realize they can't call for help.

### **Don't Panic**

If you remember nothing else from reading this, please remember one thing: if for any reason you have a firefighter emergency and you reach for your mic and it's not where you expect it to be, don't panic. Immediately key the radio unit itself. They all have a large transmit button. This can be done right through the radio pocket.

Depress the button through the pocket, aim your voice towards the radio pocket and loudly call for a MAYDAY. This is a quick and easy technique that can be mastered with practice. Your radio stays protected and secure inside the pocket.

You should inspect the flap of your radio pocket to make sure the Velcro fastening material seals the radio snugly. If you use a different type of fastener, make sure it works properly. Make immediate arrangements if your members need their radio pockets repaired or replaced. If you become injured, trapped, lost or disoriented, no tool is going to be more valuable to you than your portable radio. Change the batteries at least twice during the shift. A dead battery turns your radio into a brick. As for the mic, your lifeline to safety and survival, I have found no better accessory than the retractable tether system of Gear Keeper. When I need it, I reach to my left shoulder and there it is, every time. I grab it, pull it to the voice amplifier of my SCBA, transmit my message and let it go. It smoothly retracts with a 12-ounce force.

For information on Boston Leather go to [www.bostonleather.com](http://www.bostonleather.com).

**Editor's Note:** *Raul A. Angulo is a 27-year veteran of the Seattle Fire Department and captain of Ladder Company 6. He is on the Board of Directors for the Fellowship of Christian Firefighters. He lectures on fire service leadership, company officer development and fireground strategy and accountability throughout the U.S., Canada and Mexico.*