

FDNY Tools and Equipment in the 20th Century

by Battalion Chief Raymond M. Downey, SOC

As we look back at the firefighters of the early and mid-1900s, we often wonder how they accomplished some of the most difficult firefighting tasks with the tools and equipment available to them in those days. Modern technology seems to have given the firefighters of the late 1900s an advantage with the capability and resources available to meet most challenges.

One common trait of firefighters—regardless of what decade they were members of the FDNY—is their unique, innovative ability to design and produce or adapt commercial and industrial tools and equipment for use in the fire service. This capability still exists as we enter the 21st century. Names such as Sunila (Forcible Entry Tool), Lorenzo (Lorenzo Ladder) and Kelly (Kelly Kart) are familiar and have been with us in the second half of the 20th century. But a name that has been around even longer is Halligan (Halligan Tool).

Here, then, are some of the most useful or important tools of the century used by the FDNY:

Halligan Tool In an article that appeared in both the April 1950 and 1st/97 (reprinted) issues of *WNYF*, Hugh A. Halligan, who was a Deputy Chief and then First Deputy Fire Commissioner (he served with the FDNY from 1916 to 1959), wrote that during a cellar fire in a frame building that extended to the upper floors, the disadvantages of using the heavy claw tool (the forcible entry tool at that time) to open walls and



The Halligan Tool has myriad uses and provides firefighters with a lightweight, strong tool with a solid feel.

*photo by FDNY Photo Unit
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Battalion Chief Raymond M. Downey*

partitions was the impetus for him to find another tool that could do the same work as the claw tool, but be lighter, more effective and induce less fatigue in the firefighters.

The design of the tool enabled the ladderman (aka “truckie”) to have three driving heads (the adz, hook and fork, referred to by Halligan as the claw), compared to the off-center hitting capability of the claw tool. All of the design features provided firefighters with a lighter, yet stronger, tool, with a solid feel that permitted long operations without fatigue and in comparative safety.

The tool is used for forcible entry, leverage in lifting and moving, prying, as a shut-off key and more. A list of its possible uses would fill this page. The versatile Halligan Tool is carried by Engine, Ladder, Squad and Rescue Companies. A favorite tool of firefighters, it should be with us for many a year into the 21st century. (See Forcible Entry Notebook by Captain Robert Morris (4th/98 and 1st/, 2nd/, 3rd/ and 4th/99 issues of *WNYF*.)

Thermal Imaging Camera Since the early 1980s, the FDNY has had thermal imaging capability. A thermal imaging camera is a device that translates a thermal picture into an electrical picture and then converts it to a visual image for the human eye. Thermal imagers provide vision capability with zero light present and thermal energy allows it to travel through smoke and mist. Only in the past decade has its value fully been recognized.

The Department originally purchased thermal imaging cameras for the Rescue Companies and Haz-Mat Co. 1. The first model purchased was the EEV, which the Navy had purchased in mass quantities for ship-board firefighting. As expected, they proved very helpful in locating fire

(Right) Model EEV thermal imaging camera, now being phased out of use by FDNY. (Below) Firefighter demonstrates the newer, ARGUS 2 camera. The camera permits firefighters to view images through smoke and mist.



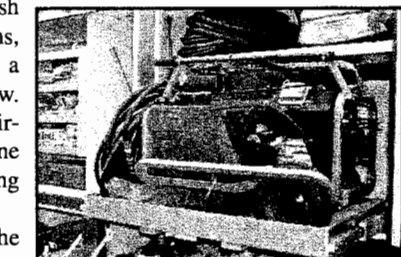
and heat sources in our daily operations. Gradually, the EEV is being phased out. However, the Department counts the ARGUS 2 and Lifesight Cameras among its resources. Additionally, the Department is testing four other model cameras for future use.

The Stanley Hydraulic System This hydraulically operated, multi-function, versatile tool is capable of doing everything from pumping 800 gallons per minute using a trash pump during flooded conditions, to penetrating concrete using a 15-inch diamond chain saw. Powered by a single- or dual-circuit system, it can supply one tool at a time or two when using the dual system.

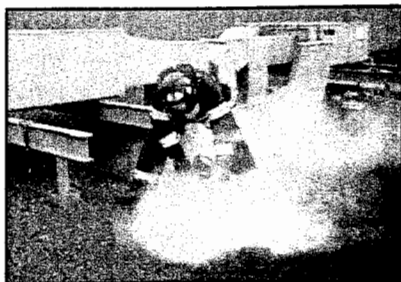
Small enough to fit in the back of a Suburban, its complement of tools includes a 70-lb. breaker (demolition hammer), hammer drill—capable of drilling up to two-inch holes in concrete or rock, 800-gallon trash pump, 500-gpm dewatering pump, 14-inch cut-off saw, diamond chain saw and other components. The Stanley Hydraulic System is carried on TAC 1 and 2, Rescue 1 and 3, Squad 1, Technical Response vehicle and the dewatering unit.

Portable power saws In the early '70s, the Department initiated a program to find the most efficient power saw for fire operations. The original

(Right) The Partner saw has become the power saw of choice for the FDNY.



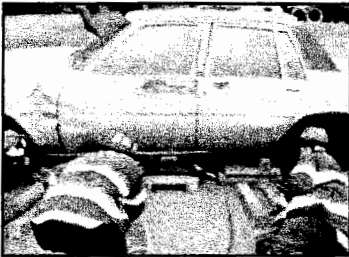
See the 3rd/99 issue of *WNYF* for an in-depth article on The Stanley Hydraulic System by Battalion Chief Raymond M. Downey.



program tested four different saws--the Partner, Master (McCulloch), Homelite and Target-Quickie saws. All four came equipped with three blades--a carbide tip for wood, roof tar, etc., aluminum oxide tip for steel, heavy metal, etc., and silicon carbide tip for concrete and masonry.

Eventually, the Partner saw was selected as the Department's choice. Over the years, the saws have been used in numerous kinds of operations. A second saw was issued for use with the aluminum oxide blade and is employed very effectively for cutting locks, bars, etc. As we enter the 21st century, most Trucks, Rescues and Squads have three saws as part of their tool complement.

Air Bags For the FDNY, the early '80s began with another unique and versatile piece of equipment that has become an important part of our specialized equipment. Air bags are constructed of neoprene rubber, reinforced with steel. In this respect, they are similar to a steel-belted radial tire. When inflated with air, they are designed to lift and move heavy loads. They can be used in a variety of ways--lifting collapsed floors, moving and lifting cylindrical and odd-shaped objects, on elevator doors and in subway trains and vehicle operations.



Air bags have proved their usefulness many times, lifting odd-shaped objects, to effect rescues.

ranging in size from six- by six-inches to 36- by 36-inches. Additionally, special hi-lift, low-pressure bags are carried by Haz-Mat Co. 1 and some Rescue Companies.



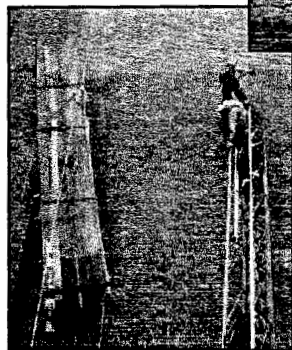
Firefighter employs Hurst Tool to spread car doors to rescue a trapped victim.

incidents and accidents. All Ladder, Rescue and Squad Companies carry these tools.

Lifesaving and High-Angle Rope Rope always has been an important lifesaving piece of equipment carried by FDNY units. The changeover from manila to nylon rope made for an easier, lighter, more compact system with backpack carrying case that members use on a daily basis. Each year on Medal Day, our members are honored with medals for heroic acts involving rope rescue.

In addition to the 150-foot lifesaving rope, which is carried by all units, kernmantle high-angle rope is carried by all Rescue and Squad Companies. This rope

(Photos right) Rope has played a major role in some of the more dramatic rescues made by FDNY members.



is used for rescues that exceed the capabilities of the manila rope, as well as for more difficult lowering or raising operations or reaching victims below or above grade.

Forcible Entry Tools The evolution of forcible entry tools has come a long way from the time of brute strength to modern technology. We are familiar with the Kelly Tool, the claw tool, the Sunila Tool, the K-tool and the Rabbit Tool. Currently, FDNY issues all units the Hydra-Ram,



The Hydra-Ram is a one-piece, integrated, hydraulic forcible entry tool. It is issued to all units.

a one-piece, integrated hydraulic forcible entry tool. Engine Companies have been issued the tool for forcible entry during CFR-D runs. The tool weighs only 12 pounds and is 13 inches long. With no hoses or auxiliary pumps, the tool can be placed in any position--even upside down--with no adverse effect on its operation. Ten thousand pounds of force are presented at 138 pounds of pumping to acquire 3/4-inch per stroke to a maximum thrust opening of four inches. The tool is carried in a bag with shoulder strap, freeing the hands for other uses.

Haz-Mat Equipment Gone are the days when members of Rescue Companies donned butyl rubber suits and operated at "chemical incidents." In 1984, Hazardous Material Co. 1 was organized and charged with the responsibility for the mitigation of all hazardous materials incidents in the City of New York...not an easy task.

Fortunately, they are equipped with some of the most sophisticated equipment necessary to perform this function. Chemical Protective Clothing, state-of-the-art metering equipment, leak kits, sampling devices, overpacking equipment and chlorine kits are but a few pieces of equipment carried. Most recently, the Company has acquired a fully portable gas chromatograph/mass spectrometer, which will be extremely helpful in identifying the presence of nerve agents in the air, among its many other unique capabilities. Two apparatus carry this enormous amount of specialized equipment.



Chemical Protective Clothing is but one piece of the specialized equipment carried by Haz-Mat Co. 1.

When surveying FDNY members regarding some of the most important tools/equipment of the 20th century, the answers were wide and varied. I would be remiss if I didn't mention them: self-contained breathing apparatus (SCBA), handie-talkies, 1 3/4-inch hose, bunker gear, motorized apparatus, tower-ladders, aerials, foam, individual flashlights and facepieces, air struts, air cart, manning levels, battery-operated tools

and the search cam.

About the Author...

Battalion Chief Raymond M. Downey is a 37-year veteran with the FDNY and heads up the Special Operations Command. He is a Contributing Editor for Fire Engineering, the author of The Rescue Company, a regular contributor to WNYF and a frequently requested speaker and instructor throughout the country. He holds an AAS degree in Fire Science.

