



Ray Downey's The Rescue Company

Rescue Apparatus

When we think of a rescue company, a variety of hydraulic, air, and electric- and gasoline-powered tools come to mind. Often overlooked is the apparatus, the piece of equipment that's the key to any rescue operation. It not only carries the specialized tools and equipment, but, more importantly, it's the means of transporting the personnel with the know-how. Apparatus purchase, selection, equipping, and design is the first step toward the successful completion of any rescue operation.

If you've recently attended an apparatus exposition or show, you've probably seen that the many apparatus varied not only in size, but in design. These apparatus are capable of being customized or adapted to the individual needs of a department. Recently, the Chicago fire department purchased two new rescue apparatus, each equipped with a 55-foot snorkel. And a number of departments are ordering rescue apparatus with the necessary specialized equipment to meet the needs of a hazardous-materials unit.

What are the needs of your unit? Who should be involved in the purchasing, selection, and design of the

apparatus for your department?

I'm sure most of us in the fire service have heard about the department that, after many months of planning, design, and selection of a special piece of apparatus, finally reached the day of delivery. The rig was set to be placed in its new home, but it didn't fit. The department was unaware that the street on which this unit was stationed had been badly damaged by floods. Between the date of apparatus purchase and delivery, the street was torn up and repaved. Because of this, the apron to the firehouse had to be resloped to conform to the street. The new height of the apron didn't affect the apparatus that was already stationed within, but when the shiny new apparatus tried to back in, it didn't fit.

Another apparatus was designed with a very modern, customized bench seat with a great amount of storage space beneath the seating area. What was thought to be a neatly designed and very efficient idea turned out to be a disaster. Forgotten was the remaining area, the walking aisle space for the members. Members learned quickly to walk in and out of the rig on a slight angle. Passing each other within the cab was impossible. The enticement of the large storage area overshadowed the day-to-day necessity of having a somewhat comfortable but (more importantly) functional area.

Members' voices

These are but two examples that bring home an important point: enlisting the help of department members in the selection and design of apparatus makes good sense and could save ma-

ior headaches. What better way to come up with ideas than to use the expertise of the members who drive and ride these rigs?

In one of my first experiences with having input into the design of a new apparatus, I was totally unaware of what to expect. My first action was to enlist the advice and ideas of the members of the unit. Surprisingly, their concern dealt first with the chassis. The apparatus assigned to the unit had a history of breaking rear springs; the weight of apparatus and equipment was just too much on the chassis. The unit's veteran chauffeur had experience with purchasing heavy trucking for a commercial firm and suggested a heavy duty rear end for the proposed apparatus. His suggestion was well-received, and everyone prided themselves on the fact that due to our involvement we would help to eliminate "down time."

When the new apparatus was delivered, however, it was found that a smaller rear end had been installed by the manufacturer. When the powers that be were questioned, their response was that federal guidelines were used to spec out the new apparatus. Unfortunately, the creators of these guidelines had never taken into consideration the condition of the streets or the length, type, and frequency of this unit's responses.

Whether it's a formal apparatus selection committee that's set up or an informal group composed of members solicited for ideas and input, a list should be drawn up to define clearly the needs of that unit for a new apparatus. Career and volunteer departments

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Photo by Jim Regan.

The design of a rescue apparatus should meet the needs of the unit and the department. Traditional compartmentation of a vehicle from the Boston Fire Department (below) contrasts with the snorkel-equipped rescue vehicle from the Chicago Fire Department.



Photo by John Cetrino.

can use the lessons learned from earlier purchases or from other departments. Those responsible for drawing up specifications on the new vehicle must be somewhat familiar with the daily operation of the unit; the building in which the new apparatus will be housed; and most importantly, the unit's needs.

Major needs

What would be considered a major need for the members? Would it be the size and style of the gold leafing adorning the sides of the apparatus, or would it be type and size of the unit used to heat the crew areas? Just ask any firefighter who has worked all night in sub-zero-degree temperatures. What may appear to be an item of small concern for the designer may be just the opposite for the members.

Bench or seating areas often aren't given the attention they deserve. A seating area must not only supply some comfort, but incorporate the provisions for self-contained breathing apparatus. An apparatus delivered to a department had a comfortable backrest for the officers, but because of the lack of room in the cab, provisions for SCBA were left out. The officers of this unit couldn't afford to take the time to go to a compartment on the side of the rig while the members were masked up and waiting to go. The backrest was removed and replaced with two small pads, and a SCBA bracket was installed. The officer then had a way of being masked and equipped in proper fashion. This unit's policy dictated that all members respond in mask equipment, another need that the designer hadn't considered.

Many departments are using the crew cab design for rescue unit apparatus, which has either the walk-through design or a separate cab design. Mask brackets can be incorporated into both. Some planning can help create the system most appropriate for your department.

Compartments

The size and shape of the cab influences the overall length and compartment spacing and size. The more compartments, the greater amount of equipment that can be carried. Let's look at some compartment space specially designed for that equipment.

Generator compartments with built-in generators are capable of supplying not only power for portable lighting or electric tools, but ample power to supply electricity during blackouts or pow-

er shortages. These compartments generally carry a various assortment of lights, electrical connections, and extension lines. Power is supplied from the apparatus, and a large area can be illuminated from the lighting attached to the apparatus.

Accommodations can be made to handle the power unit if it's on a handcart, with the side walls of the compartment equipped with mounting brackets for hoses, chains, rams, and slings. Or a power unit can be permanently mounted within the compartment, receiving its power from the

apparatus.

A complete set of extrication tools can be carried in another compartment. Air bags can be placed in compartments mounted to the underside of the flooring or bottom of the compartments. A compartment for air bags of different sizes and shapes can be specially manufactured.

Cascade systems, compressors, and spare cylinder storage are common to many new apparatus being designed for specialized equipment. By combining these features into part of a rescue apparatus and eliminating another

piece of equipment with a singular purpose, cost efficiency is realized.

The equipment carried for primary types of responses normally sets the pattern for individual compartment design. Adjustable shelving and slide-out trays may lend flexibility. However, any problems that your department deals with more frequently than others may indicate the need for a specially designed compartment and layout for your apparatus. For example, a department that responds to many water-related incidents would want life-saving equipment together with first aid equipment so that access is available to anyone assisting in the rescue operation. The time saved looking for the needed equipment could be the time needed to save a life.

Here is a partial list of some other individualized compartments:

- Saw compartment — all power saws, chain, electric, circular, sawsall and handsaws.
- Torch and burning equipment — large burning outfit, portable hand-carried backpack kit, asbestos blankets and gloves, goggles, and wrench tips.
- Rope and rigging — various size ropes, rigging equipment, blocks, and tackle. Some consideration must be given to the compartment location, so that the rope is protected against the elements.
- Extinguishers — designed to carry the various type and sizes of extinguishing appliances and powders.
- Meters and testing equipment — O₂, CO, combustible gas detector, explosimeters, heat detectors, etc.
- Collapse equipment — jacks, chocking and shoring equipment, shovels.
- SCUBA equipment.
- Haz-mat equipment.

New customized or specialized apparatus is not purchased every day, nor is it built or delivered in a day, so let those who are going to have to work with it provide the suggestions, ideas, and input that will provide your department with the most efficient and functional apparatus.

Fire apparatus is unique and can be compared to a firefighter: Both are often awakened in the middle of the night, started quickly and out the door without a warm-up; both race to the scene, expend lots of energy in a short period of time, and then go back to the firehouse to await the next "quick start." This type of life takes its toll on apparatus. Careful consideration is often given to the hiring of firefighters. The same consideration must be also be used in apparatus design and purchase. ■

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