City of Flagler Beach AGENDA ITEM # 4

Item Summary and Recommendation

SUBJECT: Discussion with Fire Professionals about fire truck options.

ATTACHMENTS: Various items Mayor Provencher found during Internet research.

SUBMITTED BY: Mayor Linda Provencher

Five Questions for Harold Boer, President of Rosenbauer America

05/01/2013

Chris Mc Loone

CM: What do you think has led to the success of the Commander chassis?

HB: I think some of it is the background work we did in the design and engineering of it. We spent a full year going around to fire departments, getting their input on it, and showing them some preliminary designs. Also, we worked with our own in-house engineers and we contracted to some outside engineering specialists, who had engineers who had come from other chassis manufacturers. So, they had the do's and the donts and the "best of" types of things from different chassis and they incorporated a lot of those into our design. And also the commitment of our dealers when they had their own chassis to sell and promote-our dealers were a very big part of the success of this. We also had large order from Saudi Arabia, which saw the design and bought into it right away.

CM: What's next for Rosenbauer America?

HB: We don't have any major projects on the horizon. Right now we want to just focus on efficiencies and enhance and improve some of the current features we have. In Europe, they introduce new products about every five years at Interschutz. In the United States, the Americans try to introduce new products at FDIC and a lot of times, Americans end up designing something just so they can introduce something. Right now we're going to hold off on any new major introductions for a few years and really fine tune what we have, become more efficient at it, take some cost out of things, and hopefully reduce costs for the fire departments.

CM: What do you think is the most important innovation in the fire service during the past five years?

HB: I think in the past five years it's the introduction of electronics throughout the fire industry, primarily in fire apparatus. Everything is electronic. The emissions on the chassis are controlled by electronics, electronic governors, the foam systems have electronics, the aerials have electronics. LED lighting even has electronics-you can program different flash patterns. The advent of all the electronics and LED lighting that are introduced on fire apparatus today, to me, is the biggest thing that's come.

The National Fire Protection Association (NFPA) standards are updated about every five years. Those standards were written around all the analog systems and dial gauges. With technology in electronics moving so fast, it's hard to adapt the electronics to meet the old NFPA standards-when you talk about size of numbers, size of gauges, things like that. We can make the control panels a lot smaller now with electronics. But, the old NFPA standards still say that the access panel has to be so big, for example. It is difficult for the NFPA standards to keep up with the electronics because they move so fast. By the time a standard is written, the technology may already be obsolete.

CM: What do you think is the biggest issue facing the fire service today, and how should we address it?

HB: There are a few issues that are facing the fire service. One, obviously, is funding. The federal and local budgets are being cut and are really being held back. So, that's an issue all the way around. I'm not sure how to address that. The volunteers always have their fundraisers, but volunteers get tired of holding fundraisers so they can buy themselves protective clothing.

In some areas, the luster of being a firefighter has worn off a little bit. They're not seen as the heroes like they once were-like after 9/11. That has changed a little bit. I'm not real sure how to get that back. Maybe more visibility by the fire service, doing good public service type of things in the community. To me, that's the biggest thing.

CM: What keeps you up at night?

HB: Probably the biggest thing that keeps me up at night is the electronics and how to service them out in the field. The electronics we are introducing today, like computers, in five years may be obsolete. Will the software people continue to support them? It's like having a computer on your desk and you learn the program real well, and all of a sudden they come out with a new program and they're not supporting the old one. We put electronics on trucks that are designed to last 20-plus years. So in 10 or 15 years, will we be able to get support for the electronics or will we just have to replace them with the next-generation electronics? And also out in the field, especially in the more isolated areas. Can you get service on electronics? They can do a lot, but when they're not functioning correctly, how do you service them out in the field?

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This is a 46 page document only printed out a small amount. Please look at whole paper.

TRADITIONAL AERIAL TRUCK VERSUS A QUINT WHERE DO WE GO FROM HERE?

FIRE SERVICE FINANCIAL MANAGEMENT

BY: Robert John VanSolkema
Grand Rapids Fire Department
Grand Rapids, Michigan

An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

August 18, 2000

The second research question asked, "What are the advantages of quints"?

The advantages of quints revealed by this research include:

1. Quints functionality:
    - Establish a water supply.
    - Attack the fire with sufficient hose lines and master stream capability.
    - Ability to carry out ventilation procedures.
    - Equipment to perform search and rescue operations.
    - Conduct salvage and overhaul operations.
2. Quints versatility.
    - If arrive first at fire scene, can begin firefighting operations.
    - Carry equipment found on both engine and aerial trucks.
    - Can be used as either engine or truck or both if staffed adequately.
    - Self-supporting. (no need for engine to supply water).
    - Improved aerial coverage (i.e. St Louis).
    - Can handle minor fires without an engine. (car fires, trash fires, etc,).
    - Work well in apartment and condominium environments when access is limited.
    - Require additional training and standard operating procedures.

The third research question asked, "What are the disadvantages of quints"?

The disadvantages of quints revealed by this research include:

1. Quint functionality.
    - Reduces compartment space and ground ladder capabilities.
    - Add additional weight to a piece of apparatus that is already too heavy.
    - Poor maneuverability, require large area to make turns.

- Increased maintenance costs.

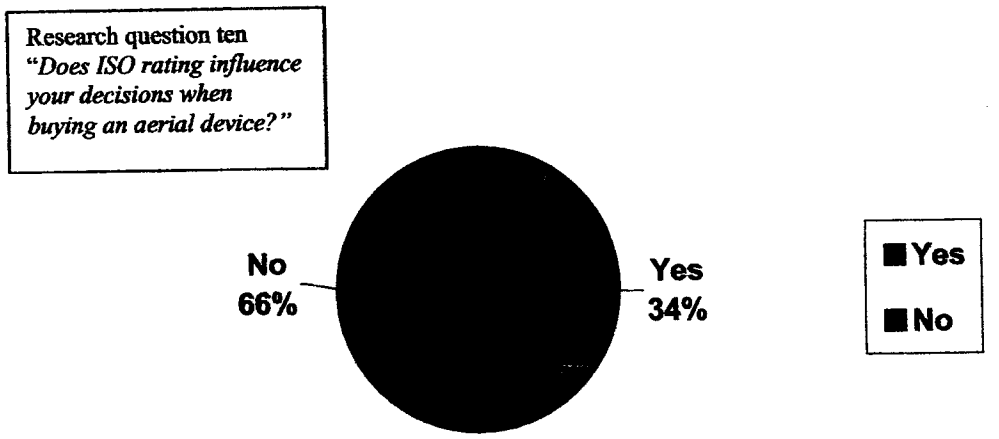
2. Quint Versatility.
   - Causes operational confusion on the fireground between engine and truck work.
   - Requires additional training, strategies, and standard operating procedures.
   - Sufficient manpower is required to accomplish its mission.
   - Causes labor unrest (quints are used for staffing reductions).

The research did reveal many advantages and disadvantages for quints. In 1989, Loeb revealed that one main advantage of the quint is it's a multi-purpose unit. The quint provides different options depending on the situation. These options don't come without costs. The costs include ensuring crews are properly trained and have solid standard operating procedures.

The fourth research question asked, "Is the current trend for or against the quints"? The survey first attempted to find out how many aerial trucks each department had in service (see Figure 5). The breakdown was that 48 out of 68 (72 %) had six or more, in their fleet. Of those who responded to the survey, the department with the most aerial devices had 27, only three were quints.

When Loeb (1989) conducted his survey, it went out to over 100 fire departments that were using quints at that time. The response for the survey was less than 50 %. This authors survey was sent out to 85 departments with a response of 80 %. The survey was also designed to find out if larger departments are moving toward or away from the quint concept.

Figure 11



When ISO does an audit on a fire department, they take a look at its apparatus, how it is designed and equipped. An unsuspecting fire chief can look bad for buying apparatus that will negatively affect the community's fire insurance for the next 15 years. How do you explain away a $750,000 aerial device that did not count as one-and-a-half fire truck? Especially, if that is why the piece of apparatus was approved.

It doesn't really matter if the fire service likes ISO. You will be graded against it any way. Ignore the ISO list, and your citizens and businesses will pay the price for your decisions (outcomes) in the form of higher insurance rates (Stevens, 2000).

DISCUSSION

The results of this research compared positively with the findings of the authors reviewed in the literature review process. The study also proved how valuable needs assessments are in the purchasing process. It is very important for a department to know how each piece of apparatus will fit in your community before it arrives. Knowing the expectations of the apparatus before purchasing will assist in knowing the outcomes expected from the apparatus.

The literature and survey instrument did show consensus on the advantages and disadvantages of the quint. The study showed two major advantages. The first was the quint's versatility to be able to pump its own requirements during ladder pipe operations without calling for or relying on another pumper. The second was the ability of the quint, which is first considered a ladder truck, to convert and replace a pumper.

The disadvantages were also clearly outlined by the literature and the survey instrument. They included poor maneuverability, too large, difficult to keep engine and truck company operations separate, limited credit by ISO, and maintenance issues.

Comments from the survey instrument included, "no advantages to a quint without staffing", "When duties are combined, it loses in one way or another", and "Past experience with dual purpose apparatus provided conflicting operation procedures. The benefit of pumps and water do not out weigh lost space for equipment needed for truck work".

The literature covered ways to overcome many of the disadvantages by training, officer experience, location, staffing, and solid standard operating procedures.

The literature also told of *The Power of Predictability*, and how the authors discuss the need to help the organizations predict the outcomes of its actions. We as fire service leaders must make these decisions with the community as the focus. "The leaders of today's organizations

(1)

Fire Engineering

THE 75-FOOT QUINT: KNOW WHAT IT CAN DO

02/01/2009

BY BILL ADAMS

Quint debates can be partial, biased, and downright emotional. Traditionalists cannot accept the idea that the traditional *pumpless* ladder truck, equipped with large amounts of ancillary equipment, an aerial device, and numerous ground ladders, may be a thing of the past. They cannot understand why today's firefighters and administrators believe that multitasking apparatus with fewer personnel is the cure-all on the fireground. This article does not discredit the quint or pit the old against the new. Instead, it objectively illustrates the diminishing capabilities of the traditional ladder company and limitations that purchasing a quint—and, in particular, a small one—imposes on fireground operations. The quintuple apparatus may not be the cure-all for budget cuts, consolidation, downsizing, and inadequate staffing.

The basic quint concept has remained the same over the years. The Miami-Dade (FL) Fire

Department purchased this 2007 quint (and 14 others) as "pumpers equipped with master streams."
(Photo by Bob Milnes.)

Click here to enlarge image

A *big* quint has an aerial device, fire pump, booster tank, hose, and ground ladders mounted on a tandem rear axle. A *small* quint has similar features mounted on a single rear axle. Big quints carry large amounts of equipment and are usually Insurance Services Office (ISO)-rated ladder trucks. Quints may have rear-mounted or mid-mounted aerial devices. Although each has similar limitations, this discussion concerns only the rear-mount quint with a single rear axle.

Many departments use this small quint with a 75-foot ladder as a first-out engine with ladder truck capabilities. But it may unintentionally reduce fireground efficiency, jeopardize firefighters assigned to it, and convey a false sense of security. Although it carries and does a little of everything, can it carry enough of any one thing to safely and proficiently accomplish the tasks assigned to it? The discussion below considers a typical Smalltown USA fire department, *without* an ISO-rated ladder truck, opting to run a small quint *first due* from a single company station with a couple of engines responding from different locations. It also reflects one that may combine engine and ladder company capabilities into a *small* quint.

POPULARITY

In a questionnaire, *all* the aerial manufacturers responding were favorable to the small quint, noting widespread acceptance and increasing sales. One commented that the small quint was its most popular aerial (Ferrara Fire); another noted that, in some cases, the 75-foot quint was actually replacing pumpers (Rosenbauer America); yet another said that sales of the small quint increased dramatically with the availability of an aluminum ladder (Pierce/Oshkosh Truck). Manufacturers opined that the small quint is popular because of its compact design and short wheelbase (KME); one cited increased maneuverability and versatility among the reasons for the steady increase in its 75-foot quint sales (Smeal). Crimson observed that although the 75-foot, single-axle quint was still popular, there was a trend toward tandem-axle versions.

SIZE AND WEIGHT LIMITATIONS

Small quints may not have the room or axle ratings to carry all ISO-required ground ladders *and* ladder company equipment, in addition to a full complement of engine company equipment. The manufacturers reported the overall length of the 75-foot quint ranges from 34 to 38 feet with

wheelbases between 200 and 230 inches. Rear-mount apparatus travel heights are usually higher than mid-mounts because the aerial device nests above the cab.

Small quints are usually limited to 31,000-pound rear axle and 21,000- to 23,000-pound front axle ratings. Weight distribution is crucial to ensure axles are not overloaded. *In-service* weights may be very close to the quint's maximum gross vehicle weight rating (GVWR). Limited space and axle ratings usually determine what options are available and the amount of equipment carried. Departments should be objective with equipment wish lists. The question no longer is "What else can we put on our new truck?" but rather "What else do we have to leave off?" Less equipment means fewer tools with which to work.

TANK SIZE

Pumper booster tank capacities average between 750 and 1,000 gallons. The smallest size that the ISO and the National Fire Protection Association (NFPA) acknowledge is 300 gallons, which is common on big quints. The manufacturers stated small quints feature tanks in the 400- to 500-gallon range. If you have a 750-gallon tank on your first-due engine and reduce this to a 500-gallon tank on a quint, you are responding with *one-third less* water. If you use a 400-gallon tank to make room for additional hose capacity, ground ladders, or compartmentation, you respond with *46 percent less* water. Less water means less extinguishing capability, a consideration when the first-due apparatus arrives with fire showing and must decide to establish a water supply. Rosenbauer America said half its quint purchasers specify Class A or compressed air foam systems, noting that a larger tank is not a necessity, and they are "using the quint for typical *pumper type* attack vehicles." Jim Salmi, chief operating officer of Crimson Fire, says, "Since these trucks are often operating as pumpers, the increased use of foam follows the industry trend."

CUSTOMIZATION

Everything is relevant in size and space but not in weight or priority of use. A three-section, 35-foot aluminum ladder weighs 129 pounds and occupies approximately 28 cubic feet. Where do you store it on the quint—in the area available for compartmentation or that of the hosebed or of the water tank? That 28 cubic feet can also accommodate 550 feet of five-inch hose weighing about 600 pounds or 200 gallons of water weighing 1,668 pounds. The same *space* can be filled with 129,600 or 1,668 pounds of equipment. Exercise caution in what you carry and where it is carried.

According to KME Aerial Product Manager Pete Hoherchak, "When designing 75-foot quints,

everything we do is based on proper weight distribution and axle loads"; he adds that the tank size can be restricted depending on the options chosen. Salmi from Crimson elaborates, "Customization is common, but axle weight limits reduce the number of options, especially with the 500-gallon tank. Careful weight analysis of the truck is essential to stay within axle ratings and weight distribution." He also notes that customization can increase when tank size is reduced. Salmi continues, "This particular truck configuration (from all manufacturers) is prone to problems with brake wear and life. Stopping distances increase as weight increases, so understanding this characteristic is important for drivers."

The various materials used in apparatus construction (e.g., steel or aluminum for the aerial; aluminum, steel, polymer, or composite materials for the body and the cab) present inherent weight differences and advantages/disadvantages. The pros, cons, and selling features of each are not addressed here and are left to the salespeople. However, regardless of the materials used, exercise caution and do not overload the unit.

GROUND LADDERS

For a fire department to receive full credit for possessing a ladder truck, the ISO requires that the apparatus include 16- and 20-foot roof ladders; 14-, 28-, 35-, and 40-foot extension ladders; and a 10-foot collapsible ladder. The ISO does allow the following alternatives: a second 35-foot extension ladder instead of the 40 foot; a 24-foot extension ladder instead of the 28 foot; another 16-foot roof ladder instead of the 20 foot; and a *folding* or *attic* ladder instead of the *collapsible* ladder. According to NFPA 1901, *Standard for Automotive Fire Apparatus*, the ground ladder requirement for a ladder truck is two roof ladders of any size, two extension ladders of any size, and a single attic ladder; the combined length of these ladders should total at least 115 feet. The NFPA 1901 requirement is less than and does not meet the ISO's requirement. As strange as it is, you *should* comply with the NFPA to be *compliant*, but you *must* comply with the ISO to get a *rating*.

Although the ISO has no standard for quints, the NFPA does, requiring quints to carry a minimum of 85 feet of ground ladders. Any combination, size, or quantity will suffice as long as it includes at least one roof, one extension, and one attic ladder, the combined lengths of which must total at least 85 feet.

Several manufacturers state that their 75-foot quints provide a 115-foot ground ladder complement, including a 35-foot, three-section extension; a 24-foot, two-section extension; two 16-foot roof ladders; a 14-foot combination ladder; and a 10-foot attic ladder. (A two-section, 35-

foot ladder is seldom carried, since it is five feet longer than the three-section when stowed). That 115-foot ground ladder complement meets the NFPA's ground ladder requirement for a ladder company!

But lettering your quint as a "Ladder Company" or "Truck Company" does not necessarily mean it really is one. An NFPA-compliant quint with a minimum NFPA-compliant ground ladder complement may give a false sense of security. Besides not meeting ISO requirements, a 75-foot quint that has fewer and shorter ground ladders cannot physically accomplish the same tasks as an ISO-rated ladder company. Paul Stephenson, director of aerial sales for Ferrara Fire Apparatus, notes, "The ISO is looking for a ladder to the roof of the tallest building or a 100-foot aerial—whichever is less. 75s by design may get less points."

When writing apparatus specifications, some purchasing committees and occasionally apparatus salespeople consider only *minimum* NFPA requirements; ISO ratings are not always mentioned. Purchasers "very rarely" require small quints to meet the ISO's ladder truck requirements, responds Chuck Glagola, aerial products specialist for Smeal. In taking delivery of what could be a half-million-dollar piece of equipment, you would likely feel uncomfortable explaining to City Hall about the ISO's not giving you 100-percent credit for it.

It is even less comfortable to respond to a working fire in an occupied 2½- or three-story structure and be unable to use your new quint because of overhead obstructions or a long setback. It would be embarrassing to have only one or two small to midsized extension ladders available to accomplish roof ventilation and simultaneously attempt rescues from the top floor. Fireground operations and safety may be compromised when fire departments are forced to purchase equipment to fit an undersized rig rather than purchase the proper equipment to efficiently accomplish a mission.

SUPPLY HOSE

The NFPA requires engines to carry a minimum of 800 feet of 2½-inch or larger hose with a minimum cubic footage of space required. The ISO requires 1,200 feet of hose, at least 800 feet of which must be 2½-inch or larger. Most engines are delivered with main hosebed capacities ranging from 1,200 to 1,500 feet; larger capacities are common in suburban and rural areas. The manufacturers state that, on the 75-foot quints, a 1,000-foot main hosebed capacity is the average requested (and probably all that is offered or will fit). *Caution:* When replacing an engine with 1,500 feet of supply hose with a quint carrying 1,000 feet, you lose *one-third* of your supply hose *before* you leave the station. The officer should consider this when arriving first due

in areas with extended hydrant spacing.

In single-engine and ladder operations, usually the engine arrives first, doing size-up and (hopefully) leaving room for the ladder company. When a quint responds first due, however, it does not have that first-arriving engine doing size-up. It must accomplish size-up, aerial placement, and initial attack in addition to possibly establishing a water supply, which may necessitate forward laying a supply line. It is not safe or practical to jockey the quint around to position the aerial device with a supply line hanging off the back. Purchasing committees should be aware of operational differences when running a small quint first due in place of an engine.

ATTACK HOSE (1½-, 1¾-, or 2-inch)

NFPA 1901 requires two storage areas of 3½ cubic feet each for preconnected attack hose and a minimum of 400 feet of hose carried. The ISO requires 400 feet of attack hose, plus 200 feet of booster hose; however, 200 feet of preconnected attack hose can be substituted for the booster. Multiple preconnects are commonplace; many suburban companies carry more than a half dozen, including multiple attack and backup lines, blitz lines with portable monitors, short supply lines for standpipes or with leader line wyes, and even *long* lines.

The flexibility in choosing multiple sizes, lengths, and task-oriented preconnects is *not* an option with the 75-foot quints—there isn't enough room. Discounting the safety aspect of having hoselines pulled off and hanging over the pump operator's head, there are only so many crosslays that can physically fit over a midship pump house. Electric cord reels, generators, long-handled tool storage, the hydraulic oil tank for the aerial device, and a myriad of other stuff may also be in the way. Front bumpers can handle a couple of preconnects, provided the angle of approach and wall-to-wall turning radius are not compromised. Urban and metropolitan companies carry large amounts of nonpreconnected hose; consequently, storage for extra hose is another concern. The 75-foot quint with limited preconnects and only 1,000 feet of supply hose may not have the room. How do you extend lines or stretch two 200-foot lines of 2½-inch—one around each side of a building? Do you wait for the next-due company?

Again, lettering your quint "Engine Company" does not guarantee the *same level of performance* traditional engines provide. As an engine company, it might be ISO and NFPA compliant, but will it really work well? The 75-foot quint, carrying less hose, offers fewer options—fireground flexibility is lost.

COMPARTMENTATION

Small quints have large pumper bodies into which manufacturers, at the request of customers, cram in as much as possible without overloading axles. Most have 140 to 160 cubic feet of enclosed equipment compartments, far exceeding the NFPA requirement of 40 cubic feet (which also applies to engines and ladder trucks).

If planning to carry all the equipment normally carried on an engine and a ladder truck, plan well. Everything may not fit in one oversized pumper body. Granted, some equipment is duplicated and may not be required. To determine compartment acceptability, have a manufacturer back a demonstrator quint into your quarters between the pumper and ladder truck you want to replace or combine. Load the 75-foot quint with the equipment you *must* carry; then attempt to load what you *want* to carry. Then decide what equipment you may have to *leave behind*.

Pierce and Ferrara state 90 percent of their quints have generators; KME confirms their popularity. Crimson, Smeal, and Rosenbauer note that PTO/hydraulic onboard generators are popular, since they are compact, lightweight, and sensible for quint applications. Some 75-foot quints are equipped with hydraulic auto extrication equipment. What necessary ladder or engine company equipment was omitted to accommodate the auto extrication equipment? How much does the equipment weigh? Does it impact axle weights? Responding with a limited amount of ancillary equipment can be equally as dangerous as running with inadequate staffing.

STAFFING

Mixing topics of staffing and quints incites biased and emotional opinions from career and volunteer personnel. Regardless of whether deployed in a career, volunteer, or combination department, quints do not extinguish fires. Nor do engines, ladders, or squads. *Firefighters* put out fires. If there are not enough of them responding on or with the apparatus, jobs will not get done efficiently—if at all. For simplicity, only the firefighters riding on the rigs are addressed—regardless of their vocation.

With four people per apparatus, a response from a station housing an engine and a ladder company provide eight firefighters on location ready to work with all the equipment normally carried on each piece. Responding a little quint with only six seating positions, you arrive with 25 percent fewer firefighters—even when running *fully staffed*. Respond with five, and you have 38 percent less. Respond with just four people, and you have 50 percent less personnel. This all occurs before the alarm rings and the doors open.

Regardless of the financial benefits of combining companies, running with fewer people is inefficient and means less work can get done. The quint's crew, responding first due, will have its hands full until help arrives. Do we ventilate? Do we limit search and rescue? Can we effectively advance the first line? Can we afford to lose someone at the hydrant—even temporarily when laying in? Can we afford an aerial operator and pump operator at the same time? Running shorthanded and trying to accomplish multiple tasks can be an invitation to disaster and injury.

AWARENESS

Declining numbers of volunteers and shrinking budgets in career sectors are forcing companies to consolidate or close and fire departments to merge. Multifunction apparatus are the standard today. Automatic mutual aid is commonplace for specific apparatus and personnel as departments struggle to accomplish more with less.

Small quints will never accomplish what fully equipped ISO-rated ladder trucks accomplish with 100-percent efficiency; nor can they achieve the same results as fully equipped engines. It is not physically possible to carry enough equipment and people. Bill Peters, a known industry expert and author in fire apparatus specifications and purchasing, refers to the small quint as a good Swiss Army knife. "It does a lot of things, but none of them really well. Sometimes a 75-foot quint is perfect for an outlying area where the arrival of an [ISO-rated] aerial might be delayed."

The small quint's merits cannot be ignored. Shorter and, in most cases, more maneuverable than full-sized ladder trucks, it may fit into places where its larger counterparts cannot. Prior to a designated ladder company's arrival, a first-arriving quint could make rescues from upper floors. It has an elevated waterway, and, according to Ann Stawski, Oshkosh's vice-president of marketing communications, "[Pierce] has found departments are looking for apparatus that have front-line capabilities with the ability to have an elevated master stream with some ladder rescue capabilities."

The 75-foot quint has those attributes. Being acceptable to many, it has rightfully earned a place in the front row. Someday, the quint may evolve into a two-piece company similar to the ladder/tender concept in the Southwest United States. A tender carrying all the *stuff* that can't fit on the quint could possibly handle EMS and service calls while keeping the primary rig in service, albeit with a limited crew.

As long as the authority having jurisdiction, department officers, and the firefighters riding the load are aware of its limitations as well as its merits, the quint can be, as it has been in the past and will continue to be in the future, a good resource tool. It is no different than an ax, a nozzle, or an SCBA. If used properly within its operating parameters, the quint will continue to do good service. The solution is awareness of those parameters.

BILL ADAMS, a 40-year veteran of the fire service, is a former fire apparatus salesman. He is a past chief of the East Rochester (NY) Fire Department.

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Quint Operations – Does "One Size Fit All"?

Lt. Mike Daley

A fire department is comprised of many functional units, referred to as companies. At the basic level, most departments consist of mainly *Engine Companies* and *Truck Companies*. ***Engine Companies*** are responsible for securing water at the fire scene, putting initial hand lines in position, protecting exposures, operating master streams, and extinguishing the fire. ***Truck Companies*** specialize in other supporting operations, such as forcible entry, laddering, utility control, ventilation, and search and rescue. There are some departments that provide their firefighters with an apparatus and equipment that can accomplish most of these tasks with one unit. These apparatus are referred to as ***Quints.***

Many an argument has been had at town halls and firehouse kitchen tables throughout the country about the true capabilities of the ***Quint Company***. The question most ask is, "do those who support the Quint concept truly believe that this vehicle is the "fix-all" apparatus for the Fire Service?

Quint Capabilities

A ***Quint*** is a motorized fire apparatus that has a permanently mounted fire pump, an on-board water tank, an area for hose storage, an aerial/elevated platform with a permanently affixed waterway, and an ample supply of ground ladders (fig. 1). These five basic components are what define the Quint's capabilities. In the era of tough economic times, some have argued that having an apparatus that is equipped to handle multiple functions on the fireground is a good thing.

This flexibility allows the first arriving units to be adaptable to the needs of the incident, depending on when they arrive. Should they wind up being first on the scene, the crew may be required to establish a water supply and stretch in to extinguish the fire. In the event the Quint arrives after the first engine, the crew may need to begin the primary search and ventilation of the fire, as an example.

The Quint has become more user-friendly throughout the years. There have been great advancements in reach and stability, shorter wheelbases, and higher powered diesel engines, which have made these units more capable of any task on the fireground that is required. This apparatus can combat structure fires, provide continued elevated egress, and serve as an elevated master stream all within one unit.

Fig 1. A Quint is a motorized fire apparatus that has a permanently mounted fire pump, an on-board water tank, an area for hose storage, an aerial/elevated platform with a permanently affixed waterway, and an ample supply of ground ladders.

Quint Shortfalls

While the deployment of these units definitely has its merit, there are operational deficits that must be identified as well. First and foremost (and this goes for any piece of apparatus), fire apparatus do not put out fires: COMPETENT, TRAINED FIREFIGHTERS DO. The common misconception that many departments make during the purchase of these units is that the crew is equipped to handle both engine company and ladder company responsibilities on the fire ground. To some extent, they are correct; however, the crew cannot handle BOTH responsibilities at the same time (Fig 2). So, for those who think that a quint staffed with 4 firefighters can take the place of two 4 member companies are in for a surprise. Combining companies to run with fewer personnel is unsafe and inefficient. This practice ultimately means less work on the fireground is getting done. Any type of firefighting apparatus that is "equipped" with less than four firefighters is unsafe and inefficient, no matter what the incident.

Fig 2. The Quint operating at the scene of this fire is operating at the full potential, based upon the amount of personnel that responded with it. While it may have multiple capabilities, multiple operations require a larger pool of manpower on scene.

Additionally, upgrades and advancements in apparatus technology come with some limitations. Smaller vehicles come with smaller capabilities, whether it is related to aerial reach, compartment size and location, or water tank and hose carrying capabilities. Trying to get all of the equipment necessary to function as two different companies onto the boundaries of one vehicle can be troublesome, requiring departments to make tough decisions on what tools and equipment are more important that other necessities.

A Quint – Informed Decision

There are many conditions that will weigh heavily on a department's decision to purchase new apparatus. As most departments are facing financial hardship and are being forced to "do more with less", the "Quint Concept" seems like an acceptable choice. But, before signing on the dotted line, department leaders would be wise to consider these three points:

1. Know your geographic area. It is not enough to know about the borders and response jurisdictions in your town. You need to know how the apparatus will arrive and operate at every location within your community. Many apparatus dealers have access to demo models that departments can look at prior to deciding on a unit. It would be wise to take the apparatus for a tour of the potential response areas, and see how it stands up to the needs of the department. Take the unit to the tallest structures in your area and "spot the turntable". The goal of spotting the turntable is to get the turntable into a position that will allow the device to be used most effectively, usually in an area where the turntable is perpendicular to the objective in question. Does it reach all of the areas it needs to? Can it make it around tight areas to the rear of the structure when it needs to? How much total room is needed to set up for elevated operations? Most people that test a Quint before purchasing do not take into consideration how much room the unit requires when it is being set up for aerial operations.

Next, take it to the "set back" areas of the community, and observe how much aerial capabilities are exhausted just getting from the curb to the upper floor or roof. If the area is known for having large landscapes in front of the residences, what options does the unit have to compensate for reach? Can it make it up the drive way before setting up? Are there alternative angles/streets where you can position to compensate for the set back?

2. Know your options. There are many different apparatus manufacturers that can boast of the capabilities and options of the vehicles that they construct. Even after diligent note taking and research, departments can still find themselves at odds over certain options and potential that each vehicle offers. One of the best ways to determine which one offers the most value for the department's dollar is to invite them all to bring their vehicles down to fire headquarters for a side-by-side comparison. Perhaps one manufacturer provides an option that another does not, but can come close to what is important to the department's needs. Members of the department can also compare road handling and driving issues with each vehicle, and can make a more educated decision when compared side-by-side, or within days of each other.

3. Know your firefighter's capabilities. Investing in the education and training of department personnel is one of the best ways to prepare for this transition. The combination of both engine and ladder company functions onto one piece of apparatus will require your staff members to take on more responsibilities, which will require more training in these areas. From a training officer's point of view, it would be beneficial to know well in advance that the department was heading in a direction that will combine these duties onto one unit. This would allow the focus for preparation of staff members to be competent and cross trained in multiple responsibilities prior to when these vehicles arrive in their jurisdiction (Fig 3). This may be a difficult task for larger fire departments; having to provide this cross training for hundreds of staff members can be a logistical nightmare and a pricey undertaking, but it's worth the trouble.

Because of the increase of capabilities a quint provides, the increase of needed personnel on the apparatus will help ensure you can maximize its benefits. For example, should this unit arrive first and have to perform multiple tasks upon arrival (i.e., stretch a line through the front door, and ladder the upper floors for rescue or ventilation), a minimum of 7-8 firefighters would be needed to effectively and safely operate and accomplish those tasks. If this unit will truly be responsible to "multi-task" at an incident, it will still require an adequate number of competent firefighters on-scene to perform these tasks.

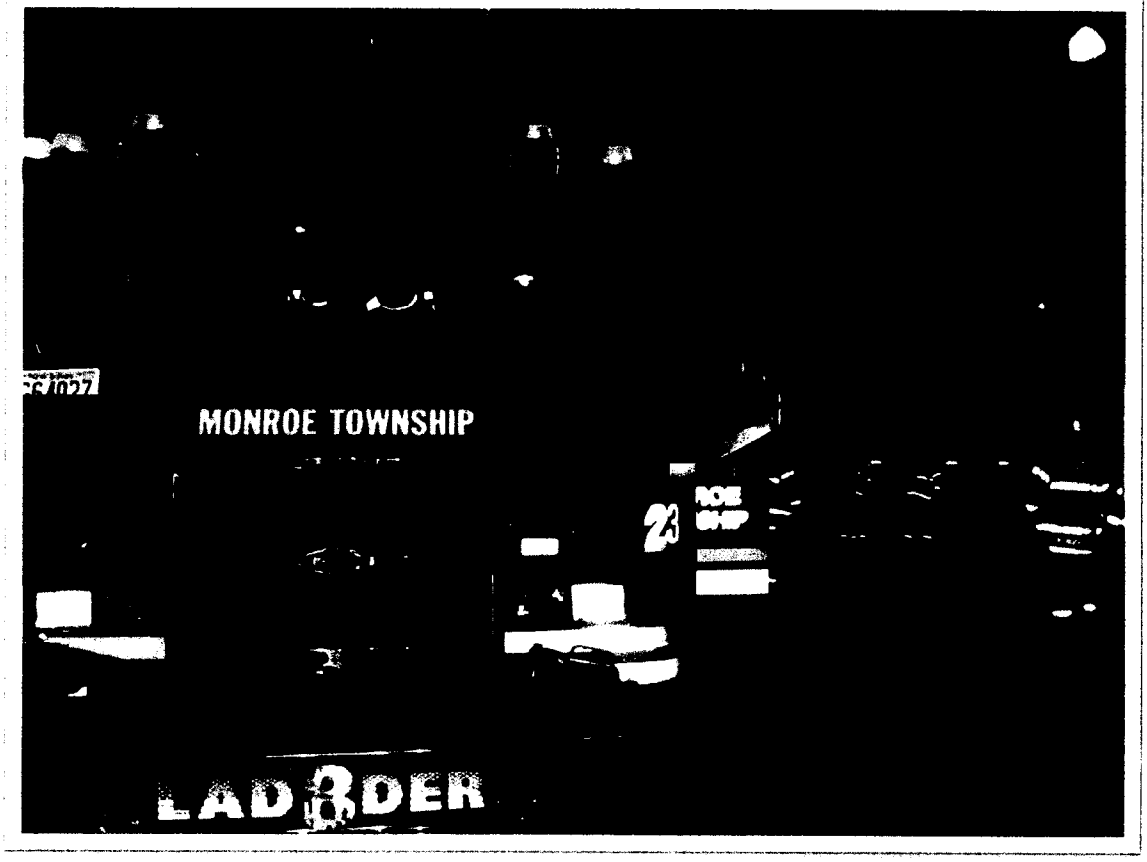

Fig 3. Firefighters assigned to the Quint must be cross trained to be proficient in both Engine and Ladder Company functions; they may be required to do either when they first arrive.

Conclusion

Multiple functioning fire apparatus is becoming the standard today, as volunteer companies struggle with dwindling membership recruitment and retention, and career departments are coping with shrinking budgets and higher operational costs. The use of the Quint in these departments can be a successful solution, so long as there is a clear understanding of their limitations. These units can indeed function as both an engine company and a ladder company. They just cannot do it at the same time without the proper amount of competent, trained firefighters on scene.

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