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ROUNDTABLE DISCUSSION:

FIRE ONBOARD!
Are you preprared?

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BUS FIRE!

Are you prepared?

BUSRide Maintenance gathered representatives from two leading fire-suppression system manufacturers to discuss the ever-present threat of bus fires, and the recommended technologies and best practices to detect, suppress and extinguish bus operators' worst nightmare.

The panelists for this discussion are:

Ed Ruggles – *director of marketing and sales* – Fireaway Inc. / Stat-X
Scott Starr – *director of marketing* – Firetrace International

Describe the technology and mechanisms at work in your proprietary fire suppression system and associated products.

Ed Ruggles: For buses and coaches, Stat-X technology is a bit different than most. The current trend in the motorcoach industry is to move away from dry chemicals.

Our technology is neither a dry chemical nor a clean gas; rather an alternative to a clean gas. We use a proprietary blend of micron-sized particulates of potassium housed in an unpressurized stainless container for suppression. Upon activation, an ultra-fine suspension of highly-ionized potassium fire-fighting particles will fill the protected area and suppress the fire. Stat-X is extremely affective on suppressing fires in engines, battery and electrical compartments.

Scott Starr: Firetrace systems originated from a growing need for reliable effective fire protection in harsh engine enclosures. These systems employ our proprietary pressurized polymer Firetrace Detection Tubing, which is excellent at quickly detecting a small, growing fire.

One noticeable feature is how it remains resilient even when covered in road grime. This tubing tolerates vibration, fluctuating temperatures and engine cleaning operations without any false activations.

Can you cite a recent event that exemplifies the constant threat of bus fires and validates your product?

Ruggles: A recent fire event reported by various news outlets describes a bus fire on Sydney Harbour that was initiated by an electrical malfunction in the engine bay at the back of the vehicle. In a final report into the incident, the investigators said it was likely that the fire was sparked by a short-circuit of auxiliary alternator cables where they crossed the edge of a rear-chassis rail. This bus did not have an integrated fire-suppression system.

Starr: The threat of fire onboard a bus is very real and ever present. A quick search of the news, or better yet Twitter (which offers almost real-time monitoring), shows bus and school bus fires occur almost daily.

What is your loudest, most emphatic message to bus and coach operators concerning fire safety and onboard fire suppression systems?

Ruggles: We encourage owner-operators and municipalities to expand their view on procuring suppression systems that meet the hazards present and steer clear of low cost alternatives based on budgetary constraints. As more data becomes available regarding root causes of fires in buses and motorcoaches, I believe these folks are starting to see that the inexpensive alternatives might not deliver the results and benefit they really need or require. Selection of the solution to meet the hazard and not the budget is always the best path forward.

Starr: We know bus and coach operators face a lot of priorities that compete for budget dollars. We also know that a fire-suppression system certainly is not one that carries immediate visible value. Nonetheless, ask any operator who has endured a bus fire to name the greatest incurred loss. In most cases the answer will be the company's loss of customer confidence, which in the long term may far exceed any immediate financial loss.

What do bus and coach operators need to know and understand to be compliant in fire safety, protection and suppression?

Ruggles: Operators are not only protecting their assets, but also the people who rely on them to get from point A to point B safely, as well as the transportation network they are a part of. Do your homework on suppression options. Understand what potential fire hazards exist and look for the best solution for your platform or fleet. Once you have a solution integrated on the vehicle, it is extremely important that you keep it maintained and in proper working condition.

Starr: New approvals are now coming out of Europe specific to buses known as UNECE r107 and the RISE Institute's P Mark. It is important to note that there are no such bus-specific approvals in the US. Nonetheless, while these approvals may not be enforceable in this country, they do provide an excellent framework for everyone as to the effectiveness of the assorted options in vehicular fire suppression.

These approvals also spell out the limitations for the systems, such as size, nozzle count and design limitations for an engine compartment's volume and certify that the systems are effective in real-world bus fire scenarios and are evaluated not only against fire types and location, but also with varying airflow to ensure the systems will function as intended in the event of a fire.

How does optimum fire protection differ from one mode of bus transportation to the next, i.e., transit buses, motorcoaches, small and midsize shuttles, and paratransit vehicles?

Ruggles: With new technological advances, there is an expansion of fleet configurations and power options that include small and midsize shuttles, extended articulated buses and motor coaches, hybrid and all-electric vehicles and any vehicle in between.

Each new platform or integrated technology comes with its unique hazards and the potential for fire, which operators must address. Selecting the best fire suppression solution must be part of the initial build process; determined only by performing a thorough hazard analysis.

Suppression systems should incorporate both automatic and manual means for system actuation.

Detection is a critical function of any automatic suppression system.

The best way to determine the correct fire suppression solution for your platform is to begin the selection process with an extensive hazard analysis.

Starr: Fire protection has far more to with system design that will accommodate the many different environments in the engine compartment – accounting for air flow and demonstrated hazard areas.

ABC is by far the most common fire suppression agent. It has shown in approval testing to be the most applicable against the range of fires found in an engine compartment on any type or size of bus.

Firetrace Technologies recommends ABC for its effectiveness against all three fire classes: A - common combustibles; B - flammable liquids; and C - electrical fires.

What is the difference between a standard installation and a fully-customized fit? How far can a fire-suppression provider take a custom install?

Ruggles: Some platforms will have a one-size-fits-all suppression system. The systems are designed and tested to fit a fleet that has limited configuration options. This type of system would fit into the standard installation definition.

Custom installations are those that have expanded functionality or options. This could include both internal (occupied areas, engine bay, battery compartment and similar zones) and external fire suppression (tires, fuel tanks, under chassis, anything outside of the enclosed compartments).

Starr: To operate effectively, nearly every different model of bus deserves a custom fitting. While manufacturers provide a design and installation manual that presents design limitations, each bus has different challenges that need addressing in the design and installation to offset airflows and ensure the areas of highest risk receive adequate protection for the task.

What are some of the tell-tale signs that a potential vehicle fire is breaking out?

Ruggles: Some tell-tale signs for potential vehicle fires are from illuminated operating warning light sensors — specifically tires, breaks and engine or smoke. Maintenance techs are advised to address and correct any obvious lubricant or fuel leak. The old saw, where there's smoke, there's fire certainly comes to mind as well.

Starr: Not following suggested maintenance and cleaning are some of the most frequent causes. However, the reality is that we are talking about a mechanical environment where a fire can be both the result of long-term visible developments as well as instantaneous non-visible failures.

What preventative steps must drivers and maintenance techs take to further mitigate the dangers of a fire onboard?

Ruggles: A fire-suppression system will only perform to its optimum level with proper maintenance. Fire suppression manufacturers provide inspection and maintenance instructions for their respective systems. Drivers and maintenance technicians use these to confirm the system will perform as needed during a fire event. It is extremely important they address and correct any defect discovered during a system inspection or routine maintenance — no matter how minor — before the bus returns to service. Never skip or delay scheduled maintenance and system inspections.

Starr: Again, following the prescribed maintenance of all bus systems is a critical first step. For drivers, be familiar with the proper fire response, including manual activation of the systems and the necessary steps to quickly and safely evacuate the bus. BRM

ABOUT

FIRETRACE®

simple, reliable and cost-effective fire suppression for buses

The global leader in special hazard fire protection, Firetrace International currently protects over 15,000 buses and transit vehicles worldwide, resulting in frequent fire saves.

The Firetrace automatic fire suppression system, using its linear pneumatic detection tubing, is the most reliable vehicle suppression solution on the market today.

It requires no electricity to function and therefore offers 24/7 protection, providing immediate detection at the heart of the fire and therefore giving passengers plenty of time to safely exit the vehicle. Its tolerance of dirt, debris, temperature extremes and engine cleaning means that false discharges are virtually eliminated. Offering simple installation to current or future fleets, it can be used to easily replace costly and unreliable systems, and requires only minimal annual maintenance.

Most complete line-up of internationally approved bus fire protection systems

In addition to its extensive line-up of internationally recognized P-Mark approved systems, Firetrace recently announced its complete family of UNECE (United Nations Economic Commission for Europe) R107 approved fire suppression systems for buses and coaches.

It's the only manufacturer to offer the mass transit industry a wide choice of approved systems specifically designed for their sector.

A significant development for the bus industry, this collection of systems affords manufacturers the total flexibility they have been looking for in system placement.

Firetrace's UNECE R107 was granted by the Swedish Transport Agency after a thorough evaluation of various Firetrace systems by the RISE research institute in Sweden.

The process to achieve UNECE R107 status is rigorous and methodical, with the technical requirements based on internationally accepted standards and the testing of systems against multiple worst-case scenario incidents.

Firetrace also offers proven single cylinder solutions that can accommodate engine enclosures of up to 6m3, the maximum upscale allowed under SPCR 183.

Firetrace systems are the smallest, lightest and simplest systems to achieve UNECE R107. With a smaller footprint than other systems, they enable easier installation within the confines of a bus engine compartment. In addition, Firetrace provides enhanced design flexibility, with approved 20lb and 22lb systems that allow extended options in cylinder placement and discharge network design.

The Firetrace systems also qualified at the bus manufacturer preferred -40C, which none of the liquid mist or foam-based fire suppression systems have achieved.

Firetrace has always featured best-in-industry lead times to ensure customers' schedules are met. All of the Firetrace UNECE system variants and components are available for immediate shipment.

Leading the way in special hazard fire protection

A proud innovator, Firetrace is the first to adapt to new technologies, supplying powerful, flexible fire management solutions worldwide.

Headquartered in Scottsdale, Arizona since its inception in 2000, Firetrace has expanded from its initial 2,000sq ft (185sq m) facility to over 80,000sq ft (7,500sq m).

As one of the largest global installers of fire suppression systems, Firetrace has an established product division. Skilled engineers in electrical, electronic and mechanical engineering are dedicated to the ongoing research and development of all kinds of fire suppression systems.

It is this focus on innovation, flexibility and adaptability that sets Firetrace apart from its competitors. If a customer comes to Firetrace with fire suppression needs that aren't fulfilled – or aren't optimally fulfilled – by the company's current range, the team works with them to make the necessary changes.

For more information visit www.firetrace.com or email info@firetrace.com

You can also call +1 888 607 1218 from the USA & Canada or +1 480 607 1218 for international enquiries.

Firetrace International UNECE R107 approved systems:

Size	Agent	No of Nozzles	US Dept of Transportation approved	CE (Europe) approved
10lbs	ABC	4	√	√
20lbs	ABC	4	√	√
22lbs horizontal	ABC	4	√	√

FIRETRACE®

POWER TO INNOVATE. FLEXIBILITY TO ADAPT.

The cost effective automatic fire suppression solution.

SIMPLE. RELIABLE. FIRETRACE.

The Firetrace system:

- Provides immediate detection at the heart of the fire
- Requires no power for activation
- Eliminates false discharges
- Offers simple installation on current and future vehicle purchases
- Requires minimal annual maintenance
- Eliminates need for costly replacement parts
- P - P Mark approved system

UL LISTED · FM APPROVED · LPCB · Lloyd's Register · CE · P · E5 107 R - 06004

Listings and approvals vary by agent and system type

CALL NOW: **(480) 607-1218** OR LEARN MORE AT: **www.firetrace.com**

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A HALMA COMPANY

ABOUT

Stat-X® Aerosol Fire Suppression

The Stat-X® product line is manufactured by Fireaway Inc. Fireaway was founded in 2005 in Minnetonka, Minnesota. Since then, the company has evolved and grown as sales continue to increase. Our continued efforts to educate fire professionals and safety directors on the technical and performance capabilities of the product line have proven to be beneficial. We are also enhancing our brand awareness with our marketing efforts.

With all the above, we have further developed our facilities in Minnetonka just last fall by relocating our offices and expanding the production area. We have a second manufacturing facility in Minden, Louisiana as well. We recently built a new fire research and R&D test facility near our existing facility in Minden. This new facility reinforces our commitment to innovation in fire extinguishing.

Our product line consists of our portable unit, the Stat-X First Responder®, which is an innovative and effective fire-fighting tool currently used by bus companies to protect bus passenger compartments, as well as utility underground service workers, emergency personnel throughout the world, especially volunteer and professional fire-fighters, police, ambulance and EMS first-responders, and military personnel.

Our Stat-X® fixed SYSTEMS provides superior fire suppression with reductions in weight, space, and maintenance. Stat-X protects **enclosed special hazards** such as diesel generator rooms, switch gear rooms, vehicle engine compartments, machinery spaces, flammable liquid storage, electric rooms & cabinets, pharmaceutical plants, and industrial areas.

We have the following product options:

Electrically activated generators are used as a total flooding system to protect a wide range of industrial applications. The systems are designed by our distributors based on the unique characteristics of the area to be protected. This is a basic fire protection systems with detection, alarm, and activation just like you are familiar with.

Thermal/manually activated generators are used for smaller applications such as electrical cabinets. Either method of activation, thermal or manual, can be utilized with our unique patented activation head.

Manually ONLY activated generators are used in applications with personnel on site to manually activate (pull) the systems in case of fire.

The advantages of the Stat-X product line are its performance, adaptable design, and low-cost due to easy installation (no costly labor-intensive piping).

Aerosols are an effective new alternative in the arsenal of traditional special hazard fire protection to be considered when evaluating use of halon substitute, CO^2, inert gas, dry chemical, or water mist.

Stat-X is made in the USA and approved for normally occupied spaces.

Contact a distributor near you at:
http://www.statx.com/distributors/

Your Choice for Special Hazard Fire Protection

Stat-X® devices are different. Unlike conventional water mist or pressurized agent systems, each compact unit generates an ultrafine fire suppressing aerosol on activation.

This cutting edge technology is more effective on a weight basis than any other fire suppression agent.

And since Stat-X systems are modular with no need for a piping network, advantages include flexibility in design, easier and economical installation, and lower lifecycle costs.

Choose performance.
Choose made in the USA.
Choose approved for normally occupied spaces.
Choose Stat-X aerosol fire suppression.

Manual, thermal or electrical actuation using UL® listed fire panels

Stat-X® Aerosol Fire Suppression

Made in USA

Visit **www.statx.com** for more information.

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www.busride.com