

# Volvo Group Empowers First Responders

Prioritizing Safety with Augmented Reality



Since implementing safety tests and simulations for over 90 years—and creating the modern seat belt in 1959\*—Volvo Group has built a reputation of safety-focused innovation. This commitment to safety continues with the introduction of electric product lines across Volvo Trucks, Renault Trucks, and Mack Trucks. The global automotive manufacturer's latest innovation is transforming the first responder experience during emergency situations—and saving more lives in the process.

## The Current Limitations of Roadside Emergency Response

With these electric product lines, Volvo Group identified an opportunity to address the current limitations of roadside emergency response. This vision has improved safety not just for drivers, but also for first responders and service technicians interacting with the electric trucks.

Consider that when first responders arrive on the scene, they often encounter hazards such as high-voltage lines and charged batteries. With lives on the line and little time to act, first responders must identify those hazards, disengage high-voltage areas, and disconnect the battery before cutting into the vehicle for quick entry.



Once first responders arrive at the scene, they need to identify the vehicle and find the matching rescue card, costing them valuable time.

\* <https://www.media.volvocars.com/us/en-us/media/pressreleases/18405>

To navigate less obvious dangers, responders have traditionally relied on printed 2D rescue cards. The limitations of these cards can introduce challenges that impede responders in critical moments.

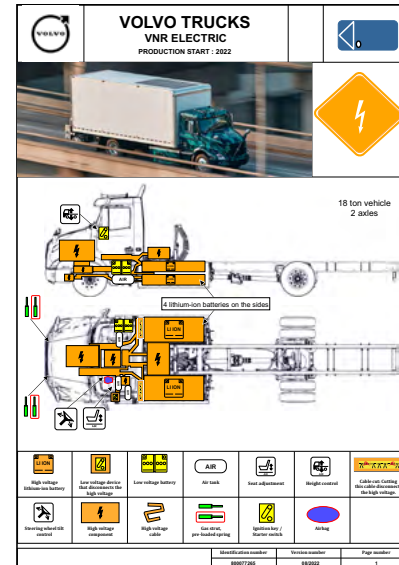
Particularly in the chaos of an emergency scene, the lack of noise in electric vehicles makes it difficult for first responders to determine whether the vehicle is running. And 2D manuals further complicate the rescue by limiting context into the inside of the vehicle. In emergencies where every second matters, first responders have no time to waste hunting through rescue cards for the information they need. And efficiency isn't the only concern. Searching through folders of printed materials introduces opportunities for human error, and oversights could potentially place responders themselves in harm's way.

## Volvo Group Harnesses Augmented Reality to Transform Emergency Response

With long-term goals to be 100% safe as a company, Volvo Group recognized the need to equip first responders with better resources in emergency situations. Since 2019, [Volvo Group's relationship with PTC](#) has shown the value of augmented reality (AR)



AR visualizes all hazardous areas on the physical truck with X-ray vision functionality.



2D rescue cards show all hazardous vehicle components but these can be difficult to identify on the physical truck.

technology to empower the workforce. The latest product of this relationship is **Volvo Group's Emergency Response Guide**: a first responder app that digitizes vehicle data and uses AR to visualize key information in the context of the physical truck.

With the ERG, first responders can quickly identify the electric vehicle based on registration plate or VIN number to view rescue information and schematics and disengage hazards. This is made possible through the power of AR, which overlays digital content on the physical truck with X-ray vision functionality.

Equipped with this powerful technology, responders can quickly pinpoint the right component, visualize it, and pull up the most accurate rescue information in real time. AR content also guides the user to the right place to quickly disable and avoid hazards.





Wayfinding directs first responders to external components to disengage the battery.

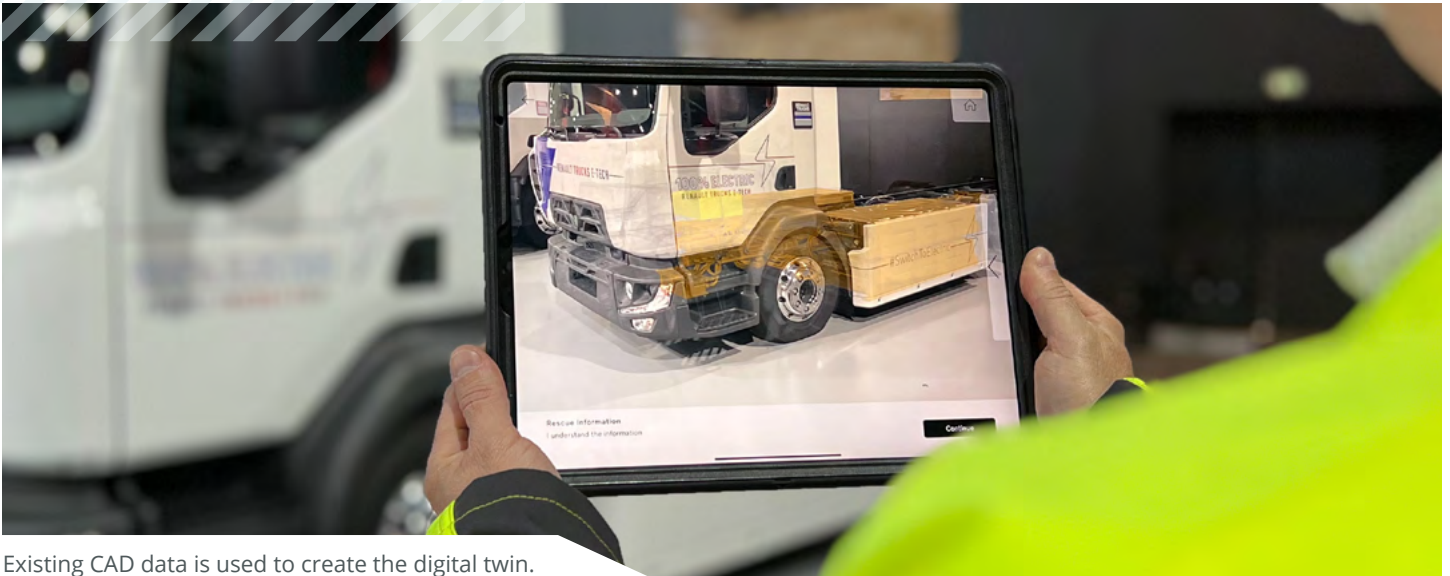
Though first responders are its primary users, service technicians may access the ERG as well. AR enables seamless updates and digital distribution, which also supports Volvo Group's sustainability goals.

## Scaling the Value of the Emergency Response Guide with Digital Twins

With the ERG providing so much value in safety and efficiency, the manufacturer knew there was an opportunity to scale that value. That's why the guide supports the initial electric vehicles that Volvo Group made, with more to follow. To capture all the necessary information for every vehicle, the manufacturer ensured that each one has a [digital twin](#): a virtual copy of the physical product that leverages computer-aided design (CAD) and product lifecycle management (PLM) data. All this key data, taken directly from Volvo Group's engineering and manufacturing processes, comes together to form a digital definition, operational or experiential data, and an informational model.

By connecting with AR and PLM data, Volvo Group created digital twins of all vehicles before the launch of the ERG (and this will continue to grow with every electric truck produced). By connecting AR with existing 3D product data, the manufacturer also creates work instructions at scale. This combination of solutions enables a comprehensive and immersive experience for first responders that improves safety, accelerates their comprehension and training time, and helps to save more lives in case of emergencies.

All this technology working in tandem is a powerful feat, but the real value is in the real world, where responders can react faster, more confidently, and with better guidance. These front-line professionals are better equipped when putting themselves into dangerous situations and the difference between life and death can be measured in seconds.



Existing CAD data is used to create the digital twin.

## Looking to the Future by Extending AR Adoption for Uptime

Through its longstanding relationship with PTC, Volvo Group is already using AR for manufacturing, training, and service use cases, including upgrading training and inspection materials, connecting with the [digital thread](#) to improve quality control and drive workforce efficiency, and further improving vehicle uptime by upscaling diagnostic content through AR. Building on that relationship, Volvo Group is taking a bold stance in harnessing the power of AR technology to improve safety for first responders and drivers.

Safety and innovation are synonymous with the Volvo brand, and Volvo Group is fully immersed in its digital transformation journey. What else does the future hold for AR at Volvo Group? Watch Volvo Group present the vision for the Electric Truck Line, view demos of the Emergency Response Guide, explore opportunities for AR and the digital thread, and more.

[Watch the video](#) >

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