

# Recycle, Repurpose, Reuse Making fire trucks new again

Jo Adail Stephenson | DCMA Public Affairs



Firefighters assigned to the 380th Civil Engineer Squadron participate in a joint-training exercise with firefighters from the 3rd Battalion, 4th Air Defense Artillery Regiment in Southwest Asia. (Photo by Air Force Staff Sgt. Patrick Mitchell)

Operational checks of fire suppression systems are performed during final government source inspection of rebuilt fire trucks. (Photos by Jo Adail Stephenson, DCMA Public Affairs)

**T**he emergency call comes in. Firefighters quickly put on their firefighter suits, climb into the fire truck and rush to the scene.

Their minds are focused on responding to the emergency which can mean the

difference between life and death.

They don't want to have to worry about whether the fire truck will get them there or whether the fire suppression systems will work. This is especially true when the fire truck and fire suppression systems have been rebuilt.

It's the same for Air Force firefighters. That's why David Flowers, Defense Contract Management Agency Dallas, performs quality assurance on a contract where the rebuild process requires complete disassembly of the trucks for inspection, rebuild and reassembly of all



Army Col. Calvin Bailey, Defense Contract Management Agency Dallas commander, and David Flowers, quality assurance specialist, check the side compartment of a fire truck during a receiving inspection. (Photos by Jo Adail Stephenson, DCMA Public Affairs)



David Flowers, Defense Contract Management Agency Dallas quality assurance specialist, checks the reassembly and installation of the fire hose in the side compartment of a rebuilt fire truck.

the sub-components, including operational testing to ensure the trucks/equipment meet the original manufacturer's design specifications.

Firefighters rely on the equipment they use because their very lives, and the lives of others, depend on it.

"Both the contractor and DCMA understand that this equipment is for emergency support and ... must be operational and ready to use at a moment's notice," Flowers said. "Therefore, every aspect of the rebuild process is done in a manner to deliver a reliable piece of equipment that can be supported in the field with standard OEM (original equipment manufacturer) manuals and parts."

The contract is a unique blend of government requirements incorporated into the rebuild process using industry best practices such as cell work stations, 100 percent replacement of high failure rate items and workmanship standards to enhance corrosion prevention.

Cell work stations are production work stations with all the special tooling and equipment and trained personnel to perform a particular task or component, making the process as efficient as possible, Flowers explained. At this site, the contractor disassembles the trucks into sub-assemblies which are worked in

the cell work stations (i.e., frames, cabs, engines, fire suppression system, water tanks, etc.).

"These kinds of benefits shorten the rebuild turn-around time, eliminate or reduce rework and provide longer service life," said Flowers, who has worked for DCMA for two years and has more than 17 years of prior quality assurance experience with aircraft and aviation support equipment.

DCMA's role is to ensure the extensive details of the rebuild process are appropriately incorporated by the contractor, Crash Rescue Equipment Service, Inc., into the work instructions and the technicians follow the instructions, or obtain necessary authority, to deviate.

Flowers validates the workmanship of the technicians and the use of proper techniques for non-destructive inspections, correct hardware selection/installation and corrosion prevention. Non-destructive inspections, or NDI, are special inspection tests or techniques performed to discover cracks not visible to the unaided eye. For example, the frames of these trucks are prone to cracking in certain areas, so inspections are performed to ensure no cracks are beginning that will later propagate while in use, he explained.

Correct hardware selection/installation

refers to the type of bolts and screws used to assemble the trucks. High stress locations on the engine and certain frame locations require a special grade of metal that won't shear easily, while other locations, prone to corrosion, will require stainless steel or special plating, Flowers said. Areas like the steering controls require locking features to keep from rattling loose.

When it comes to identifying and resolving quality assurance issues, the contractor uses internal processes to generate corrective actions, he said. "DCMA records the results of the final inspections for trend analysis of recurring/systemic weaknesses."

Part of the work is firm-fixed-price, but some work is subject to over-and-above negotiations, Flowers explained. DCMA validates the costs are appropriate.

"For me, quality assurance is a behind-the-scene activity that applies pressure to make a difference to the final output in a positive way," Flowers said. "My motivation comes from knowing I had a part in delivering a quality product or preventing a non-conforming product from being delivered." 