

Fire Suppression

SPECIALISTS

RECOIL SUPPRESSION SYSTEMS, A DIVISION OF RECOIL AEROSPACE, IS INTRODUCING A NEW FIRE SUPPRESSION TANK THAT IS NOT ONLY EXTREMELY LIGHTWEIGHT BUT IS SAFE, CUSTOMIZABLE AND REQUIRES NO AIRFRAME MODIFICATIONS. **BY DAYNA FEDY**



For aerial firefighting operators, a fire suppression tank should meet specific requirements: it should boost safety and efficiency, have the ability to hold a large volume of water, and weigh as little as possible. Recoil Suppression Systems of Grants Pass, Oregon, has developed a new wildland fire suppression tank, in partnership with Composite Approach, that exceeds each of these expectations, and more.

Following the development of its proven 850-gallon (3,218-liter), 650-pound (295-kilogram) R60-I internal composite tank for the Sikorsky UH-60 Black Hawk—which requires no airframe modifications—Recoil has been working with Composite Approach on an enhanced, external version. The external version is not only extremely lightweight, but it's also safe, easy to operate and can be tailored to customer requirements.

The new tank, the R60-E, is built with lightweight carbon-fiber composite material, weighing in at just 300 pounds. Switching from the typical aluminum concept to composite material has provided both weight savings and flexibility in design.

"Composite is stronger than steel, and it gives you the ability to mold products with compound curves and angles in any shape you can imagine," said Recoil's managing director and owner, Joseph Rice.

Composite Approach's owner, Brian Harris, combined his "excellent design team, good engineers, and fantastic fabricators and technicians" with Recoil's 10-plus years of fire suppression expertise to bring the new tank to market.

Rice said the two companies took a different approach to the R60-E tank by offering options on it to meet the needs of the customer. One of these options is a snorkel system that can be attached on either the left or right side of the tank, depending on which seat the pilot flies in. Another is the tank's hand controller—either basic or mid-range—which gives pilots the ability to activate the snorkel to fill it, or to dump the tank using a thumb switch.

The mid-range hand controller features the Onboard Systems load cell, so crews know in real-time how much weight is coming on board the aircraft.

The main features of the tank have a fail-safe design. "We really designed safety first into the system," said Rice. "Power is required to keep our hydraulic valves closed; when we remove power, either by simply turning

the system off, unplugging it or when a circuit breaker pops, it will automatically default to open, dumping the water. It's a fail-safe system."

When an aircraft finishes a dump cycle, Rice said the tank will automatically retract back into the housing. "We have dual independency retraction systems—again, another fail-safe method. If one were to fail, the other would still retract the system up into the housing."

Additionally, the snorkel is installed with breakaway/shear bolts in case of a snag hazard.

Although the weight of the R60-E tank has been significantly reduced compared to other standard fire suppression tanks, its capacity has not been compromised. "The tank is a true 1,000 [US] gallon capacity," said Rice. And best of all, it can be integrated into standard commercial aircraft without making any structural modifications to the airframe.

"A lot of operators don't want to set up their helicopter for firefighting all the time," said Composite Approach's Harris. "And with this tank system, it's on and off the aircraft in an hour or two on average. So, an operator can firefight this week with their aircraft and go logging with it next week."

Rice said his company's technicians regularly travel to customers to ensure the tank is installed correctly on the aircraft. They also train clients on how to put the tank on, how to troubleshoot it, and how to take it off and winterize it. "If we sell a tank to Korea, Portugal, Spain or Indonesia, the technicians are prepared to travel to that customer to do that same type of service," said Rice. "We're really supporting a global market with our customers."

The target airframes for the R60-E

tank currently are the Airbus H225 and AS332L1 Super Pumas, Sikorsky UH-60 Black Hawk, and Kamov models. However, the tank has been engineered in a way that allows the structure to be changed slightly to fit other airframes while maintaining its 1,000-gallon capacity.

"We've got hardpoints and reinforcement in the basic tank structure that allow us to bolt different sets of external brackets on, which allows us to configure the tank to these different airframes," said Harris.

While most heavy helicopters have a cargo hook point to lift weight, Recoil and Composite decided to use this existing part of the aircraft to handle the weight of the tank system—allowing for installation without airframe modifications.

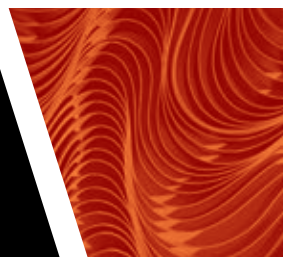
Recoil is currently in the process

of obtaining supplemental type certificates (STCs) in the United States and Canada for all of its tank systems.

Even without STCs, the systems are still attracting a lot of attention. "So far, we've had a huge amount of response," said Rice.

Going into the Heli-Expo 2020 conference in Anaheim, California, Recoil is aiming to launch the R60-E tank system on multiple airframes, some of which will be on static display at the show. The airframes include an H225 from Air Center Helicopters, an AS332L1 from Coldstream Helicopters and a UH-60 from XP Services.

Rice concluded: "Our company's success is based on our customers' success. We want them to have confidence in the system and the quality of the system. We stand behind our product completely." 🚀



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