

AN EXPERT IN THE FIELD

Equipping a helicopter for HEMS operations is a complex task. Spectrum Aeromed has designed and developed air ambulance medical interiors for more than 30 years. Having completed projects for customers ranging from hospital programmes and private operators to military services, its expertise is known throughout the industry. But this work does not come without challenges, particularly when trying to adapt a commercial helicopter's interior into a 'temporary flying hospital', as RotorHub discovered.

"One of the main challenges is the limited space in a helicopter where we can install our medical kit," explains the company. "We have to pay careful attention to protecting the equipment from any liquids like water or different body fluids, plus all of the equipment needs to be easy to disinfect. In addition, if night flights are being conducted, the monitoring screens have to be compatible with NVIS lighting.

"We make it a practice to listen to our customers prior to any work and understand the different requirements and mission profile, be it mountain rescue or coast guard. The differing demands can relate simply to the number of patients that they plan to carry at any one time."

The complex work involved in the cabin conversion can require a lengthy recertification process, but Spectrum has learnt from experience. "In order to reduce the time for certification, a number of different configurations are pre-approved and already have supplemental type certificates," it notes.

As one of the few companies to offer a medical configuration for the Sikorsky S-92, Spectrum currently holds FAA, EASA and ANAC certifications for work on the type. "We've provided this specialist model to different heads of state, military and state organisations, coast guards, and ministry of health groups – it has proved to be extremely popular," reports the company.

developed a website to share medical experiences of dealing with suspected and confirmed COVID-19 patients.

The pandemic has impacted the use of equipment that is carried on board helicopters, something that is likely to continue looking forward, according to UC Health's Hinckley. As an example, he points to the use of viral filters for patients who are intubated via an endotracheal tube, ensuring that everything they exhale is adequately filtered to protect crew members and medical equipment. Prior to COVID-19, UC Health's ventilator circuit set-up had one such filter: now there are three.

Additionally, Hinckley says that for endotracheal intubation, in order to limit exposure to potentially aerosolised virus, the operator is using a plastic sheet to separate the patient's face from the clinician who is placing the endotracheal tube, something it had not done previously.

Room to manoeuvre

Air Ambulance Kent Surrey Sussex (KSS) uses two AW169s and one MD 902, the latter being deployed if either of the AW169s is undergoing maintenance or servicing. The AW169s have strong speed and range characteristics well suited to HEMS operations, while their large cabin size allows KSS teams to conduct procedures like anaesthesia and blood transfusions inside the cabin while on the ground, explains the organisation's associate medical director, Professor Richard Lyon. KSS has been working to expand this capability, he says, which allows

crews to be protected from adverse weather conditions or to be in a lit environment at night. He adds that KSS is also exploring the potential of performing advanced medical procedures while in flight.

Carrying out such work under the shadow of COVID-19 has been particularly challenging, Lyon notes, with crews having to wear personal protective equipment (PPE) when conducting the procedures. To maintain the safety of the entire crew, including pilots, KSS is looking to use a special curtain between the rear cabin and the cockpit, and is working to isolate the air conditioning systems at either end of the helicopter from one another to prevent any risk of infection when flying with COVID-19 patients on board.

The lockdown has also impacted the operations of London's Air Ambulance, says a spokesperson for the service. Pilots would usually refuel at the London Heliport in Battersea, but this was temporarily closed at the end of March. This means the service's two MD 902 Explorers have instead been flying to the aircraft's overnight base at RAF Northolt to refuel, which can make for a 45-minute round trip.

However, in early May, the service was granted permission by the Royal Household to land and refuel at Kensington Palace, the spokesperson reports, an option that saves considerable time.

The MD 902 was selected for its sustainability in an urban environment. It is small, with no tail rotor, "which allows us to operate safely in an area as complicated as London", the spokesperson observes.



Air Methods operates about 400 aircraft across the US, including this EC135. (Photo: Air Methods)