

ADVANCE

JUNE – AUGUST 2020

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ALL PULLING TOGETHER

FANTASTIC RESPONSE IN THE FIGHT AGAINST CORONAVIRUS – PAGE 16

AEROSPACE



33: Cargo – will it be boom or bust?

DEFENCE



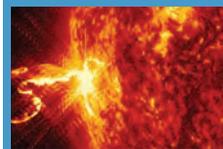
25: F-35 Lightning preparing to strike

SECURITY



41: Award-winner makes a great call

SPACE



42: Solar powers towards the sun

The official magazine of

ADS

WELCOME

Planning for the future in these challenging times

In this issue of *Advance*, we had expected to be able to set out our exciting plans for the 2020 Farnborough International Airshow, featuring the major themes for our industries, such as new environmentally friendly aircraft technology, future combat air systems, and investment in skills.

However, this year has been dominated by the Covid-19 public health crisis, which has brought widespread disruption to economies, events and our everyday lives.

As a result, with great regret, we were forced to take the decision to cancel this year's Farnborough International Airshow.

Despite this, we hope to be able to bring some of the flavour of the show to you this July through virtual events, and we have already begun planning a fantastic 2022 air show, where we look forward to welcoming you as we have before.

The Covid-19 pandemic has had a significant impact in all industries. Government support initiatives, like the job retention scheme and the coronavirus business interruption loan scheme, have provided a much needed safety net for businesses in the short-term. We have worked closely with government to make sure our members have access to the support they need, and we are now working to make sure the right measures and approaches are in place for a strong recovery.

The priorities must be an early restart to

international flights, ensuring defence and security procurement supports UK prosperity, and making sure we maintain investment in innovative and new technology.

A positive note for our industries has been that many of our members have been able to maintain their operations, and have been able to put their capabilities and expertise to use in supporting the NHS. This has included producing ventilators for those most seriously affected by Covid-19, and in helping to equip front-line medical workers with essential PPE.

It has been inspiring to see how you have responded to this crisis.

Elsewhere, negotiations on the UK's future relationship with the EU are continuing.

Working with partners in the UK and the EU, we are making sure everyone in the negotiations is informed of our industries' priorities, and on the importance of making sure we do not reach the end of the transition period in December without a comprehensive deal in place.

At ADS, we are working to make sure we are in touch with all of our members in these challenging times, including through call-backs, our regular webinars, and direct contact with you from our teams. Please stay in touch with us, and I look forward to speaking to you soon.

Paul Everitt,
Chief executive, ADS Group

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COVER: Military personnel, working with an NHS emergency care team, wheel a ventilator from a Royal Navy Merlin HM2. PICTURE: CROWN COPYRIGHT

Advertisers

3CDSE	29
ADS	15
Advanced Engineering	39
AMETEK Specialty Metal Products	32
BAE Systems	OBC
CAA International	IBC
Cranfield University	23, 40
Farsound Aviation	IFC
HighGround	9
IAI	7
Leonardo	2
MBDA	5
Meggitt	13
ODU UK Ltd	28
Righton Blackburns Limited	9
Royal Air Force Museum	35
The Centre for Modelling & Simulation (CFMS)	10
TMD Technologies Limited	37

Companies in this issue

The following companies are covered in this issue of *ADS Advance*. Those marked with an asterisk are members of the ADS organisation.

2G Robotics	4	Cambridge Pixel*	6	Jaguar	44	Renishaw	16
ADS Group	16	Cathay Pacific	34	Kings Cross Central Limited	6	Rheinmetall*	27, 28
Advanced Logistics for Aerospace*	8	Chelsea Technologies	4	Klein Marine Systems	6	Rheinmetall BAE Systems Land *	27, 28, 29
Air Baltic	8	Cobham Aerospace*	6	Korean Air	34	RINA Consulting Defence	20
Air Covers	6	Datadics*	41	Krauss-MaffeiWegmann	28	Rockwood Composites	4
Airbus*	16	Digital Barriers	41	Leidos UK*	44	Roie Menor Research*	20
Airbus Defence and Space*	42	Dnata	33	Leonardo Helicopters (UK)*	8, 24	Rolls-Royce*	16
American Airlines	34	EVA	4	Leonardo UK*	20, 24	Rolls-Royce Submarines*	20
Anvil Group	4	Emirates Airline	17	Living Optics	8	Sabat Wain Aerospace	17
Argon Electronics	41	Evergreen Aviation Technologies Corporation	6	Lockheed Martin*	24, 25	Siemens*	16
Arrow Accature*	16	Farsound Aviation*	8	Lotus	44	Smiths Group	16
Aston Martin	44*	FlightSafe	4	Lufthansa	34	Sonardyne	4
Atlas Elektronik UK*	31	Frazer-Nash Consultancy*	8	MBDA*	20, 22	Sonardyne International	4
Aurora Engineering Partnership	19	Gallagher Security	6	MCLaren	16	Spectra Medical	8
Austrian Airlines	34	General Dynamics UK*	20, 44	MDA UK	21	Standard Aero*	24
Babcock International*	20	GKN Aerospace*	16	Meggitt*	6, 16, 20	Swissport	33
BAE Systems* 4, 6, 16, 20, 26, 27, 44		Healthrow Airport	34	Mercedes	33	Teledyne e2v*	8
BAE Systems Land UK*	27	Hewlett Packard Enterprises	41	Mercedes Aviation	16	Thales*	8, 16, 30, 44
Balfour Ltd	18	Horizon Technologies*	4	MIMIC Technologies	38	The Access Technologies	38
BMT*	4, 19	ICI Labs	8	NATS*	8, 20	Vickers Defence Systems	27
Boeing*	6, 24	Industro GmbH	8	Nissan	4	Wavefront Systems	4
British Airways	17	Intelligent Voice*	41	OnetIQ*	19, 20	Wavefront Systems	36
Brunel Air Cargo Services*	33	iStorage Limited	41	RB Safety Consultants	20	Williams Advanced Engineering*	16, 44
				Renault	16	Worldwide Flight Services	3

Dr Nicola Davies
examines in-flight procedures for managing medical events or emergencies and looks at how advances in technology could transform the process.

The growth of air traffic – coronavirus notwithstanding – as well as a higher number of long-haul flights, brings with it an increased incidence of in-flight medical emergencies (IMEs).

The most common incidents are syncope (a temporary loss of consciousness) or near-syncope, gastrointestinal, respiratory, and cardiovascular symptoms.

When a medical emergency occurs, the cabin crew have primary responsibility for managing that incident.

Since their training is mostly limited to first aid and basic care, sometimes they may request the voluntary assistance of a medical professional, who may be among the passengers.

The policies of airlines differ and some insist that communication must flow from the medical volunteer to the cabin crew, to the captain and ground teams.

Not only is this a time-consuming process, but it can also result in miscommunication regarding vital medical data.

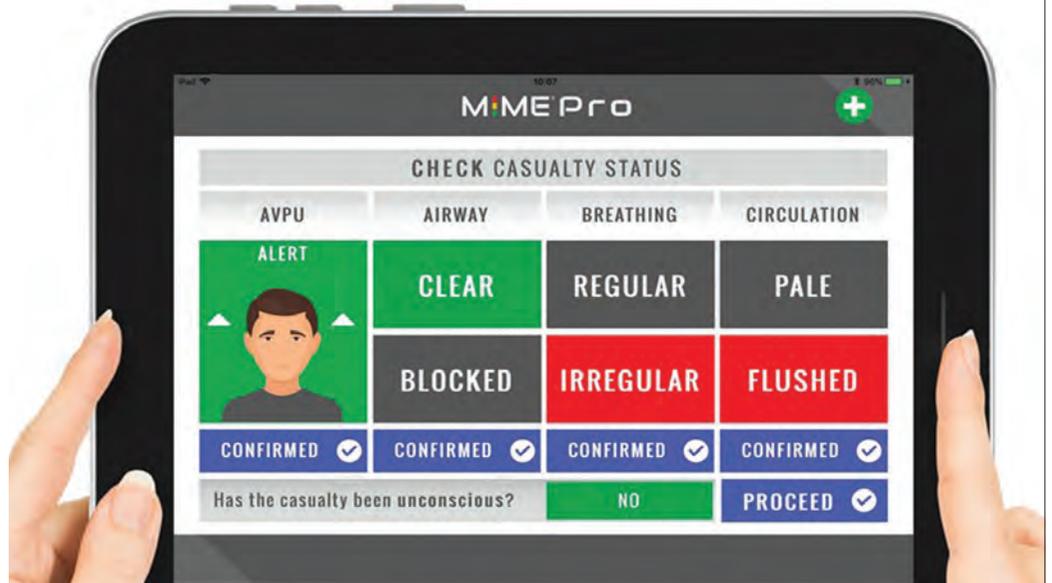


If the IME is sufficiently managed in flight, then the journey continues. If not, a diversion may be considered.

Based on the “review and recommendation” of ground-based medical teams, the captain may divert to land at an airport other than the original destination. This can, obviously, be costly.

A UK company has a team of experts, who have been working to make the management of in-flight medical events and emergencies more streamlined and, thus, safer, with their in-flight medical monitoring technology.

Anne Roberts, co-founder and CEO of Inverness-based MIME Technologies, explained: “We supply a monitoring kit, including a fully charged tablet and state-of-the-art Bluetooth wireless medical sensors. The crew are guided by the app that supports first aid, and the vital signs



Graphic interface: The crew are guided by the app. PICTURE: MIME TECHNOLOGIES.

On-board emergencies can have an Appy ending

data streams directly to decision-makers on the ground. The crew can also communicate via our digital chat functionality to doctors on the ground without leaving the passenger’s side.”

The in-flight monitoring kit is designed to be an easy-to-use, efficient, full-service product that contains everything the crew may need to manage a medical event or emergency. “Our technology collects critical information, including the passenger status, for example if they respond only to voice or pain, or are unconscious,” said Roberts. “It also prompts the crew to check the ABCs of first aid – whether the airways are clear, the passenger is breathing, and there is circulation.

“The kit collects a variety of passenger vital signs, such as heart rate, respiratory rate, and temperature. Most importantly, it can record and share a 12-lead electrocardiogram (ECG) – the gold standard in the industry – to clinicians on the ground in real time. This can help the pilot and clinician decide whether or not a diversion is required.”

Even the preparation of the incident report is easier, added Roberts: “We also automate incident reports, which are very useful for aircrew training and audit. The technology has a unique one-touch system, which means no writing, scrolling or completing text for the crew after the medical event.”

One of the key challenges of using medical-based technology in flight is noise and other disturbances that may induce significant

measurement errors in health monitors.

According to Dr Saif Ahmad, chief scientist at The Access Technologies: “The main sources of noise inside an aircraft include electromagnetic interference, mainly due to communication equipment on board; mechanical vibration due to engines and flight; audible noise due to the engines and cabin air conditioning/pressure control system; and ambient pressure changes due to altitude and the automatic cabin pressure control system.”



Improving accuracy in such situations is critical, and Ahmad believes this can be achieved using special sensors and dedicated algorithms.

“Our work is specially focused on improving accuracy of products like blood pressure monitors in noisy environments,” he said.

An example product being developed is an integrated table-top multiparameter physiological monitor that can measure several types of vital signs using specialised sensors. “This comprehensive vital signs data is crucial to evaluate overall health and detect high blood pressure, respiratory distress, and hypoxemia,” said Ahmad.

Unlike the MIMe kit, The Access Technologies product is not specifically designed for aviation situations but may hold future potential for application in managing IMEs that occur in such challenging environments. ■

Anne Roberts: “Our technology collects critical information, including the passenger status.”

