STEP CHANGE IN JET HYGIENE

How one company is using pure science to make aircraft cabins 'operating theatre clean' while in-flight and on the ground.

Words: Caroline Bye **Photography:** Aviation Clean Air

Jets were either grounded or when in use the vast majority had only HEPA filters, UV light and disinfectant to clean cabins and distance passengers from a deadly virus that was clearly spreading by hopping on planes.

Meet aerospace veteran, Jonathan Saltman, an entrepreneur with three successful aircraft businesses, a trained chemist and pilot who flies his own jet. But, we're talking today about a related passion. It's the brand that he found himself joining at the height of the pandemic: Aviation Clean Air (ACA).

Some know ACA, founded in 2012, for their long-standing connections to neighbouring Gulfstream in stunning Savannah, Georgia, although they work with all the OEMs. Others will have deployed ACA's air purification system with its NeedlePoint Bi-Polar Ionization (NPBI™) technology within their aircraft's environmental control systems. More on that later.

But, for a privileged few, the real story of ACA is in taking the fight to Covid-19 and winning. It's one so compelling it is sure to be made into a movie one day.

Jonathan takes me back to March 2020, a time seared into the memories of those working in aviation. Jets were either grounded or when in use the vast majority had only HEPA filters, UV light and disinfectant to clean cabins and distance passengers from a deadly virus that was clearly spreading by hopping on planes.

The optics for aerospace weren't great at this stage to put it mildly. Some would describe commercial jets as petri dishes with wings. The fear of flying was real.

A top business jet manufacturer put a call into Jonathan. They wanted to know if he could offer anything that might cut the 72 hours their jets were required to sit in quarantine while also protecting the crew and passengers flying from the contagion. The challenge was the Federal Aviation Administration who they knew would object to any change in hygiene protocol that might cause corrosion to an aircraft's fabric such as foggers with chemicals, even ozone.

Of course, Jonathan's businesses were similarly affected. He immediately met with his fellow aviation veterans, the principals at ACA. They set about working the problem in a make-shift war room

Jonathan Saltman

Learning to fly aged 13, Jonathan Saltman received his private pilot's license on his 17th birthday. While at college he started his first business and has since turned his passion for aircraft detailing into a flourishing group of International Aero companies (International Aero Engineering, LLC, International Aero Services, LLC, International Aero Products, LLC, and International Aero Holdings, LLC). With a specialist team of over 200 employees, he has built a client base that includes the most prestigious names in private aviation. Jonathan has personally assisted many with new aircraft acquisitions as well as major outfitting and refurbishment projects on numerous large-cabin and wide-body aircraft.

In March 2020, his Aero Product Companies partnered with Aviation Clean Air to offer the patented airborne ACA Ionization Purification System as a portable Ion Distribution Ground Unit. In July of that year, Jonathan became a Member of ACA's ownership group. »

Left: All surfaces have been sterilised in this hygienic private jet cabin.
Below: Purified air continually circulates within this Gulfstream jet, fitted with ACA's airborne system.

of sorts. By 3am their combined skills had produced the grain of an idea.

As a chemist Jonathan understood the power of ionization in bonding to pathogens and particles for extraction. The problem was making this process portable and getting it onto as many jets as possible in the shortest timeframe.

Later that same day, ACA's NBPI technology was being spliced into the kit used to blow dry carpets. The aim was to blast the purifying ionization process far enough to fill a room. This had nothing to do with drying the air, of course. It was all about fast circulation. As Jonathan says, "We just bootlegged it to get something workable as a prototype."

Whatever the prototype lacked in design aesthetic, it smashed on hygiene. This first solution killed all the pathogens that the ionization could reach – and while switched on, it did this continuously.

That afternoon there was a wider conference call as other executives had heard that ACA was working on something and wanted to learn more. Their questions were all the same. It was not just "can you do this?" It was "can you prove it?"»

Jonathan recalls the conversation. His advice was, "Let's just get inside a jet, swab it, run the prototype and swab again for the lab." 17 sites around the jet were marked and numbered – armrests, tables, galley, cockpit, the list went on. All were tested in the way a forensic scientist might explore a crime scene. 24-hours later, the lab results were back. The second set of swabs were all completely clear.

What ACA had achieved was the Holy Grail in portable cabin cleaning. Overnight, almost any aircraft could be the most sterile and safest space on the planet, and in the anonymous face of a lethal global pandemic. I mean operating theatre clean. And, all in just 30-60 minutes of touchless ionized air circulation.

By the following week they were rolling out the portable solutions to core OEM facilities around the US for jet decontamination. Larger aircraft had two or more sets to face strategically around the cabins reaching every corner, every accessible surface.

The years since have been all about scaling access. Whether it's the original hard-wired systems within a jet's environmental control system - essentially the heating and air conditioning which run continuously - or something portable to carry on-board, ACA's decontamination is reaping health benefits all over the world. Today, the same manufacturer on that original conference call and many more have started to actively market the systems themselves.

The pitch is simple. No-one gets sick from the jets. A sneeze is countered with extraction of both the airborne virus and the particulates that help it travel. Mould spores and allergens are eliminated. Odours are removed before they are even detected. All surfaces including fabrics are sterilized. Importantly, and it seems so counter-intuitive, for those with any respiratory illnesses ACA offers extraordinary relief in the contained cabin.

For Jonathan, however, one of the most gratifying aspects of ACA's adoption is that the pilots and crews of jets with this system onboard are provided with a cleaner, healthier work environment. In fact, crew members are now known to take the portable systems to their hotel rooms for an hour to ensure the space they will sleep in is safe.

I ask Jonathan about his own jet. "Those using my Gulfstream can smoke if they want to and I have a silk carpet. It all gets filtered out as soon as we fire up and the cabin pressurizes."

The easily installed NBPI tech is also ready for any Covid-19 mutations, pathogens or pollutants now and into the future. No wonder then that the military, The White House and other key institutions around the world have adopted it as an enduring line of defence.

Jonathan is keen to point out that the cost, "pennies compared to the asset" is an investment. Talking of those with private jets, he describes the positive material impact on aircraft charter and sales value. "Owners who know of the ACA system want it installed, or the portable version," he adds.

Demand is so high across the spectrum that ACA's range is also expanding: a large capacity unit suitable for warehouses, hangars and other large venues is now available, plus a miniaturized version, the Mini Ground Unit, for those who need it.

"Even the smallest private jets, of the 23,000 flying worldwide, can enjoy a cleaner, safer cabin environment," Jonathan says.

Everyone on-board can now be protected from whatever's out there. Even better though, lurking bacteria and viruses from every corner of the globe can't hitch a lift in the cabin home.

For more contact Aviation Clean Air at ***www.aviationcleanair.com*** or visit the team at the Savannah/Hilton Head International Airport, Georgia or their secondary facility in Los Angeles, California. ■

ACA Ground and Airbourne Systems

Aviation Clean Air's (ACA) air purification system, powered by patented NeedlePoint Bi-Polar Ionization (NPBI™) technology, is built around the proven process of ionization. This is confirmed with the more than 60 FAA supplemental type certificates issued since ACA's 2012 inception and the wide range of aircraft models on which NPBI is installed.

The airborne system sits in the aircraft's existing environmental control system (ECS) and functions automatically whenever the ECS is running. The ground system, developed in 2020 to decontaminate aircraft interiors while down utilizes the same technology. The unit is a 110 or 220 VAC electric-powered ionization and air blower placed on the floor of the cabin and activated for a period of time, ranging from one to two hours.

Laboratory testing is on-going, demonstrating the efficacy of ACA products against known viruses and pathogens. In addition, ACA systems eliminate other threats to the cabin, including bacteria, mould, volatile organic compounds, odours, fumes and so much more.