



## COMMITTEE ON AERONAUTICS NEWSLETTER

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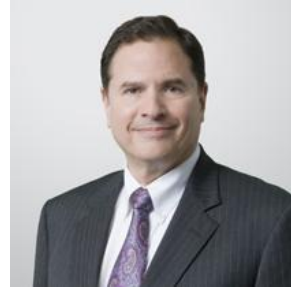
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*The views and opinions expressed in these articles are that of the authors and do not necessarily reflect that of the New York City Bar Association.*

**From the Committee Chair:**

Alan D. Reitzfeld<sup>1</sup>  
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Committee Chair



Our October 2017 “roll-out” issue of the Aeronautical Committee Newsletter received a very warm welcome, and we are therefore pleased to return with this issue No. 2. I hope that our Committee Members and alumni (and, of course, other readers accessing this newsletter on the New York City Bar’s website) find this issue very interesting.

The Committee continues to meet on a monthly basis. Our meeting this month will be held on November 16th, and, among other Committee business, it will feature a presentation by Albert Pucciarelli (Chair, General Aviation Subcommittee, and a former Chair of this Committee) on: “I Hit a Deer! – What to Do When You Have an Aviation Accident.”

Plans are in the works for our December meeting, which will be held in conjunction with the Committee’s Holiday Lunch or Dinner.

We have updated the Committee’s section of the Bar’s website (<http://www.nycbar.org/member-and-career-services/committees/aeronautics-committee>). In addition, we have been adding materials to the Committee’s members-only section of the “City Bar Central” area of the Bar’s website. <https://central.nycbar.org/groups/home/34>

Please stay tuned for more information about upcoming Committee activities.

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**From the Committee Secretary:**

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Committee Secretary



Many thanks to those Committee members who have already submitted their dues payment. The Invoice for Committee Dues was distributed on September 17, 2017. It is also available on the Aeronautical Committee's section of the "City Bar Central" area of the Bar's website (<https://central.nycbar.org/groups/files/34>).

If you have not yet submitted your dues payment, please bring it to the November meeting or send it to me by mail at:

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31 West 52nd Street  
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Thank you very much.

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## SPECIAL FEATURE

### Farewell to the Queen – United Airlines’ Last Boeing 747 Flight

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On November 7, 2017, your correspondent had an opportunity to join nearly three hundred aviation professionals, journalists, self-professed “AvGeeks” and well-wishers on the ceremonial last flight of United’s Boeing 747-400. As such, I will take the liberty of departing from the regularly-scheduled programming in this corner of our law-oriented newsletter to offer my account of that unique aviation experience and wax nostalgic for the 747, affectionately known as “The Whale,” “Fat Albert” or, perhaps most elegantly, the “Queen of the Skies.”



After 47 years of service, United is retiring the last of its Boeing 747s and hosted a special flight, appropriately assigned UA747, from San Francisco to Honolulu, recreating the inaugural passenger journey of the first United 747-100 “Friend Ship” in 1970. To celebrate the occasion, United encouraged guests to don their finest 1970s attire, and when I arrived at SFO’s Gate 86 in advance of our 11:00am departure, it was clear that many embraced the “retro” vibe. For its part, United planned a special throwback in-flight service program, with multi-course meal services using resurrected Trader Vic’s recipes from its Royal Hawaiian Service, ice cream sundae carts, classic films on the entertainment system, several

obligatory rounds of Mai-Tais and a number of other surprises. The vintage motif was rounded out by a dozen United stewardesses (the dated nomenclature was revived for just one day!) decked out in the company’s orange and black 1970 uniforms. Although the dawn of the 747 came a bit before my time, this seemed, by all accounts, to be a faithful reimagining of the day.

After welcoming remarks from local dignitaries, executives from Boeing and Pratt & Whitney, as well as United’s CEO, Oscar Munoz, passengers



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were welcomed aboard into an exceptionally festive atmosphere. Professional photographers and videographers were on hand to capture the experience, but nearly everyone had camera phones at the ready to document every aspect of the journey. I settled into my seat and struck up conversation with the passengers around me, which included a current United flight attendant who won an employee lottery for a seat on the flight, a Global Services member with over four million miles to his credit, and a retired United reservations agent who could not pass up the opportunity to see off her beloved 747. Other guests included the daughter of the late Captain of United's inaugural 747 flight in 1970, a retired Pan Am flight attendant in her full 1970s powder blue uniform (and hat), and a couple who, a few hours later, would provide a bit of unexpected in-flight entertainment with a well-executed marriage proposal!



As we pushed back from the gate and started each of the four Pratt & Whitney engines slung under the 747's massive wings, ramp agents left their positions and lined up along the taxiways to wave goodbye to the Queen. We could see pilots taking pictures of our airplane from their cockpits as we rolled along, no doubt due to chatter on the ground frequency recognizing the significance of the occasion. United has long stated that rising maintenance costs and declining reliability of the aging 747-400s were chief factors in their decision to retire the fleet, and so it was poetic justice that we undertook a brief mechanical delay to troubleshoot an issue with one of the air conditioning packs. Unlike other flights, however, nobody seemed to care, and in fact welcomed the chance to spend more time on board!



Twenty minutes later, with the issue resolved, paperwork filed and signoffs complete, N118UA began its takeoff roll down San Francisco's runway 28R, with Captain Dave Smith commanding an especially majestic rotation to the delight of the dozens holding cameras to capture the moment. Frequent SFO passengers know the standard westbound departure from the "two-eights" consists of a leisurely climb along runway heading straight out toward the Pacific Ocean, so it came as a bit of a surprise when we leveled off and began a rather aggressive turn to the north, with the city of San Francisco coming into view. At minimum vectoring altitude on a perfect, fog-free morning over the San Francisco Bay, we began a sweeping left turn, treating the passengers on the port side of the airplane to a once-in-a-lifetime close-up view of the Golden Gate Bridge from above. It was a magnificent start to a superlative flight.

After coasting out to start our transpacific journey, the crew attempted to deliver the special service while passengers occupying the aisles were far more concerned with mingling, trading favorite 747 stories and enjoying their last ride on the type with United. The flight consisted of nearly five hours of revelry; easily the "fastest" flight I've ever taken. Before long, Captain Smith came on the public address system with the customary announcement of our descent, but with one last surprise. Instead of the standard approach to Honolulu, we'd take a more southerly course to permit a scenic tour of the Big Island, Molokai and Maui. Our Honolulu-based purser

narrated the brief diversion as we passed Mauna Loa, Mauna Kea and Haleakala, closing with a traditional Hawaiian farewell blessing, which was remarkably poignant given the circumstances of the flight.

Several minutes later, with a small rain shower in the vicinity, we touched down on Honolulu's runway 8L and taxied to Gate 33 where yet another reception was planned for our arrival. All passengers enjoyed a classic lei greeting, and our 747 was no exception, as ground crew strung a massive orange lei over and around the airplane's trademark upper-deck "hump." It was a fitting end to the storied career of the 747 at United, and I was fortunate to be a very small part of it.

While air travelers can still enjoy the Boeing 747 for a few more weeks with Delta Air Lines, and into the foreseeable future at carriers such as British Airways, Qantas, Lufthansa and Korean Air, there is little question that the 747 is in the twilight of its passenger-carrying career. Still, I am of the opinion that few machines in the history of mankind can rival the engineering, cultural or societal impact of the Boeing 747. I've told others that calling the airplane "iconic" simply does not do it justice... transformative, or even transcendent seem more appropriate adjectives. The 747 marked the beginning of the era of widespread, economical global mobility, with influence even reaching to pop culture. It is therefore unsurprising that it remains, to this day, among the most instantly-recognizable aircraft ever.

Time marches on, and other models have since surpassed the 747 in virtually every meaningful metric. Still, it is unlikely we will ever again witness a period of such rapid aeronautical advancement comparable to the post-WWII era, which culminated in the 1969 first flight of the Boeing 747. As it leaves the fleet of United Airlines, one of the operators with which it has become synonymous, I wish the 747 a warm farewell, and close with this... Long live the Queen!

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## RECENT DECISIONS

### **Recent UK Court Of Appeal Decision on Regulation EC261/2004**

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A recent UK court of appeal decision ruled that Emirates Airline was liable to pay compensation damages for delay to two series of passengers under EU regulation EC261/2004(EC261), despite the fact that the airline was not an EU Member carrier and the further fact that both delays ultimately occurred on flights which originated from and arrived in non-EU Member states. Both groups of passengers departed the UK with connections through either Bangkok or Dubai to Dubai or Sydney, respectively. Because the first legs were late by 2 and 3 hours, the connections were missed and the arrivals at the ultimate destinations were late by 13 hours and 16 hours, respectively. The airline argued that only the first legs, originating from a member EU state “counted” for delay compensation. The court of appeal rejected that argument and held that the operating carrier’s liability for compensation was dependent on the passenger’s delay in arriving at the “final destination,” not the intermediate one, even if the delayed flight, as in this case, took off from and landed in a non EU Member state, and even if the flight is operated by a non EU-member carrier. Thus it appears that both EU and non EU Member carriers are bound to the same standard with regard to delay compensation under EC261, where the first leg of the flight originated in a member state, regardless of where the directly connecting flight departs or arrives. Additionally the decision rejected the carrier’s argument that the non-EU portion of the journey should be governed by the Montreal Convention, not EC261, holding that the Montreal Convention compensation scheme and EC261’s compensation regime are not mutually exclusive. This decision, according to the authors of the articles cited below, appears to be a significant expansion of the territorial reach of EC 261. *Gahan v. Emirates and Buckley and ors v. Emirates* [2017] EWCA Civ 1530.

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## ARTICLES

### **FAA Noise Regulations: Spurring Innovation in Supersonic Flight**

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Subcommittee



The Concorde, which was retired in 2003, was a technological marvel of its time, allowing civilians (with \$6,000 to spare) to make a transatlantic flight at supersonic speeds.<sup>2</sup> There has been a recent push for the return of supersonic civilian planes, with numerous startups and established players entering the fray. However, current FAA regulations prohibit supersonic flight over the continental United States due to the noise created by the sonic boom as a plane travels faster than the speed of sound. This limitation has spurred a great deal of innovation as developers attempt to design around the problem and create quieter supersonic aircraft.

The sonic “boom” is caused by a buildup of air pressure as a supersonic plane breaks the sound barrier.<sup>3</sup> The boom can be very disruptive to those on the ground and—while it doesn’t often happen—the noise can be so powerful that it could damage structures<sup>4</sup> or cause the feeling of seismic activity on the ground.<sup>5</sup> Because of these noise issues, civilian supersonic planes have been prohibited from flying over the continental United States since March of 1973.<sup>6</sup>

The FAA has significant noise limitations for civilian aircraft. Per 14 C.F.R. § 91.821, the operational noise limit for a civilian supersonic aircraft flyover is set at 93-108 EPNdB: the requirements for a Stage 2 subsonic aircraft.<sup>7</sup> The Concorde exceeded this regulation, producing

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<sup>2</sup> Steven Overly, *The Concorde failed to change how we fly, but it still could*, THE WASHINGTON POST, Feb. 13, 2017, [https://www.washingtonpost.com/news/innovations/wp/2017/02/13/the-supersonic-flight-that-never-really-took-off-has-landed-for-good/?utm\\_term=.0de694de0edc](https://www.washingtonpost.com/news/innovations/wp/2017/02/13/the-supersonic-flight-that-never-really-took-off-has-landed-for-good/?utm_term=.0de694de0edc).

<sup>3</sup> Helen Burchell, *Sonic booms: Who foots the bill when buildings go bang?*, BBC, Aug. 1, 2014, <http://www.bbc.com/news/uk-england-28524705>.

<sup>4</sup> Burchell, *supra* note 3.

<sup>5</sup> Elliot Hannon, *Military Test Flight Sonic Booms Cause New Jersey Earthquake Scare*, SLATE, Jan. 28, 2016, [http://www.slate.com/blogs/the\\_slatest/2016/01/28/navy\\_test\\_flight\\_sonic\\_booms\\_cause\\_new\\_jersey\\_earthquake\\_s\\_care.html](http://www.slate.com/blogs/the_slatest/2016/01/28/navy_test_flight_sonic_booms_cause_new_jersey_earthquake_s_care.html).

<sup>6</sup> 23,976 FEDERAL AVIATION ADMINISTRATION—STATEMENT OF POLICY ON CIVIL SUPERSONIC AIRPLANE NOISE TYPE CERTIFICATION STANDARDS AND OPERATING RULES; OCTOBER 22, 2008 (73 FR 62871), Av. L. Rep. P 23976, [https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/noise\\_emissions/supersonic\\_aircraft\\_noise/media/noise\\_policy\\_on\\_supersonics.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/supersonic_aircraft_noise/media/noise_policy_on_supersonics.pdf) [hereinafter “FAA Statement”].

<sup>7</sup> 14 C.F.R. pt. 36, App. B.



112-119.5 EPNdB of noise.<sup>8</sup> It is unlikely that the FAA will ease aircraft noise limitations in the future. Rather, the FAA has significantly increased limitations on aircraft noise since the time of the Concorde—totally phasing out Stage 2 noise limits for new subsonic aircraft. As of December 31, 2015, all civilian jet aircraft must meet the quieter Stage 3 or Stage 4 noise regulations to fly over the United States.<sup>9</sup> While none of the current regulations specifically alter the requirements for supersonic aircraft, the FAA has made clear that it will reduce permissible supersonic noise levels in the future. Indeed, the FAA has issued guidance that future rulemaking would require supersonic aircraft to meet the same, lower noise limits which currently apply to subsonic aircraft (although the FAA did reserve the right to modify regulations for supersonic aircraft should they be shown to have “acceptable” noise impact).<sup>10</sup>

Rather than act as a detriment to developing future supersonic civilian aircraft, the regulations are spurring innovation to make quieter supersonic planes which will comply with noise requirements. To be allowed to fly over the continental United States at supersonic speeds, companies are attempting to engineer around the issue by reducing the noise emitted by supersonic aircraft so they comply with FAA standards. For instance, Lockheed Martin is developing a “Quiet Supersonic Technology X-plane” which will use greater streamlining to enable the plane to travel at Mach 1.4 while producing little more than a “mild thump” of noise on the ground.<sup>11</sup> Not all companies are waiting for the technology to advance to reduce noise levels before offering supersonic flights, for instance Boom Technology, Inc. is developing a supersonic plane which can travel faster than the Concorde, and because of increased efficiency, do so at a quarter of the price.<sup>12</sup>

The aptly named “Boom” is not waiting for quiet supersonic planes to begin flying; rather it intends for its planes to make trans-oceanic flights so as to circumvent current noise regulations.<sup>13</sup> However, if companies wish to fly from JFK to LAX in record time, they will need to innovate and develop quieter supersonic planes which comply with FAA regulations.

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<sup>8</sup> *Airframe Performance*, HERITAGE CONCORDE, 2014, <https://www.heritageconcorde.com/airframe-performance>.  
<https://www.heritageconcorde.com/airframe-performance>.

<sup>9</sup> *Aircraft Noise Issues*, FEDERAL AVIATION ADMINISTRATION, Nov. 29, 2016, [https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/noise\\_emissions/airport\\_aircraft\\_noise\\_issues/](https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/airport_aircraft_noise_issues/); 14 C.F.R. Appendix B to Part 36 (limiting the noise for Stage 3 aircraft at flyover to 89-106 EPNdB for planes with more than 3 engines, and affixing the Stage 4 limit as the maximum noise levels “prescribed in Chapter 4, Paragraph 4.4, Maximum Noise Levels, and Chapter 3, Paragraph 3.4, Maximum Noise Levels, of the International Civil Aviation Organization (ICAO) Annex 16, Environmental Protection, Volume I, Aircraft Noise, Third Edition, July 1993, Amendment 7, effective March 21, 2002.”).

<sup>10</sup> FAA Statement, *supra* note 6.

<sup>11</sup> Eric Adams, *Supersonic Planes Are Mounting A Comeback—Without That Earth-Shaking Boom*, WIRED, Mar. 15, 2017, <https://www.wired.com/2017/03/supersonic-planes-mounting-comeback-without-earth-shaking-boom/>.

<sup>12</sup> Maureen O’Hare, *Boom: A plane faster than Concorde with fares a quarter of the price?*, CNN, Mar. 24, 2016, <http://www.cnn.com/travel/article/boom-supersonic-plane-virgin-space-company/index.html>.

<sup>13</sup> Adams, *supra* note 11.

## MLB Star Roy Halladay Perishes In Florida Plane Crash

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Former Major League Baseball pitcher Roy Halladay was tragically killed in a plane crash over the Gulf of Mexico on the afternoon of Tuesday, November 7th. Halladay was piloting his own single-engine ICON A5 aircraft when the plane went down off the coast of Pasco County, Florida.<sup>2</sup> Video taken by nearby boaters immediately beforehand shows Halladay's plane flying through clear sunny skies, then dipping dangerously low over the water before crashing. Witnesses reported that Halladay had been flying "aggressively" all week and had been "showboating" for several minutes before the crash, dramatically increasing and decreasing the plane's elevation.<sup>3</sup>

The two-time Cy Young Award winner became a licensed pilot after retiring from baseball in 2013, recalling in a video posted on the ICON Aviation website that he had "been dreaming about flying since [he] was a boy." The son of a commercial pilot, Halladay was widely known among friends for his passion for flying and refurbishing planes.

The ICON A5 is a newer-model "light sport aircraft" capable of landing on water, with only 20 or so planes currently in existence.<sup>4</sup> Halladay was one of the first people to fly in the A5 and had owned the doomed aircraft for less than a month.

Halladay's death is the second fatal accident involving the A5 since May of this year, when ICON's director of engineering and the company's lead test pilot were killed while flying in Napa County, California. According to the NTSB report from the California crash, the accident was likely caused by the pilot's "failure to maintain clearance from terrain while maneuvering at a low altitude." The cause of Halladay's crash has not yet been determined as the NTSB begins its preliminary investigation into the incident.

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<sup>1</sup> Erin Applebaum is a plaintiff's personal injury attorney in Manhattan representing passengers injured or killed during the course of commercial air travel.

<sup>2</sup> ESPN. (8 Nov. 2017). "Roy Halladay, 40, Dies in Plane Crash in Gulf of Mexico." Retrieved from: [http://www.espn.com/mlb/story/\\_/id/21331438/roy-halladay-40-dies-plane-crash-gulf-mexico](http://www.espn.com/mlb/story/_/id/21331438/roy-halladay-40-dies-plane-crash-gulf-mexico)

<sup>3</sup> TMZ Sports (8 Nov. 2017) "Roy Halladay Plane Crash Video." Retrieved from: <http://www.tMZ.com/2017/11/08/roy-halladay-plane-crash-video-witnesses-showboating/>

<sup>4</sup> Icon Aviation. (9 Nov. 2017). Retrieved from: [www.iconaircraft.com/a5](http://www.iconaircraft.com/a5)

## Unmanned Aircraft Systems - Recent Developments And News

Michael G. Davies<sup>1</sup>

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Chair, Subcommittee on UAS/Drone Operations and Regulation



A number of noteworthy developments relating to unmanned aircraft systems occurred in September and October: CNN was granted a first of its kind waiver by the FAA to operate drones over the general public, the White House announced a plan to involve state and local governments in UAS integration in the national airspace, and safety authorities in the U.S. and Canada launched investigations of two recent collisions between drones and manned aircraft.<sup>2</sup>

### **FAA Grants CNN Waiver to Operate Drones Over the General Public**

On October 13 the FAA granted CNN a first of its kind waiver allowing the news network to operate drones over the general public.<sup>3</sup>

UAS operations over people not involved in the UAS operation are generally prohibited by 14 CFR 107.39. Similarly, UAS operations at night, above 400 feet AGL or beyond the remote pilot's visual line of sight are also generally prohibited. However, each of these prohibitions is waivable by the FAA in specific cases under 14 CFR 107.200 if the applicant can establish that the proposed operation can safely be conducted. The FAA has granted over 1300 waivers since the regulatory scheme was adopted in 2016. The vast majority of these waivers allow drone operations at night that would otherwise be prohibited by 14 CFR 107.29.

To make out a safety case for operations over people, FAA guidelines require the applicant to “provide data that demonstrates that when the small unmanned aircraft impacts a human being for any reason, whether due to an accident, incident, small UAS failure or malfunction, or remote pilot error, that the small unmanned aircraft will not cause a serious injury or worse.”<sup>4</sup> CNN notes that its application was based on a “reasonableness approach” under which its ability to

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<sup>2</sup> In addition, as reported in Preemption Subcommittee Chair Philip Weissman's article elsewhere in this newsletter, a federal district court in Massachusetts recently found a local UAS ordinance to be preempted by federal law.

<sup>3</sup> [https://www.faa.gov/uas/request\\_waiver/waivers\\_granted/media/107W-2017-04544\\_Greg\\_Agvent\\_CoW.pdf](https://www.faa.gov/uas/request_waiver/waivers_granted/media/107W-2017-04544_Greg_Agvent_CoW.pdf)

<sup>4</sup> [https://www.faa.gov/uas/request\\_waiver/waiver\\_safety\\_explanation\\_guidelines/](https://www.faa.gov/uas/request_waiver/waiver_safety_explanation_guidelines/)

operate a UAS safely over people was determined on the totality of circumstances, including its safe history of operations, the UAS' safety features and safety test data.<sup>5</sup>

CNN had previously obtained a much more limited FAA waiver allowing it to operate UAS over human beings for the purpose of closed-set television filming and production where all participants had consented to the potential risks and all operations were conducted within a closed or restricted-access site.

The October 2017 waiver is much broader. It generally allows CNN to operate UAS over the general public, including over crowds, up to an altitude of 150 feet AGL. There is no consent requirement or requirement that operations be conducted in restricted-access locations.

An important factor in gaining FAA approval appears to have been CNN's proposal that its "over people" operations be conducted by a specific UAS, the "Snap," manufactured by Vantage Robotics. While CFR Part 107 allows commercial users to operate drones weighing 55 lbs. or less, the "Snap" weighs less than 1.4 lbs., has enclosed rotors and is held together by magnetic connectors.<sup>6</sup> If it collides with an object - - or a person - - it breaks apart, thus reducing the force of any impact and lessening the chance of serious physical injury. According to the manufacturer, the magnetic connectors allow the fragmented "Snap" to be reassembled within seconds.

The FAA waiver allows CNN to conduct UAS flights over people only with the "Snap." No other UAS may be used and the "Snap's" design may not be modified without FAA approval. In addition, operations may only be conducted in Class G airspace unless the FAA grants CNN additional airspace authorization in accordance with 14 CFR 107.41.

### **White House Announces UAS Integration Program**

On October 25 the White House directed the Secretary of Transportation to establish a UAS Integration Pilot Program to accelerate the integration of UAS into the national airspace.<sup>7</sup> The program seeks to establish partnerships between state and local governments and private industry to gather data from advanced operational concepts, such as flights over people and package delivery. It will also enable state and local governments to determine what kind of pilot program activities, subject to FAA safety oversight, will occur in their respective jurisdictions.

According to the Department of Transportation, the program "will help tackle the most significant challenges in integrating drones into the national airspace while reducing the risks to public safety and security... The program will help the USDOT and FAA develop a regulatory framework that will allow more complex low-altitude operations; identify ways to balance local and national interests; improve communications with local, state and tribal jurisdictions; address

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<sup>5</sup> <http://cnnpressroom.blogs.cnn.com/2017/10/18/cnn-receives-breakthrough-part-107-waiver-for-operations-over-people/>

<sup>6</sup> <https://vantagerobotics.com/snap/specs>

<sup>7</sup> <https://www.transportation.gov/UAS-integration-pilot-program>

security and privacy risks; and accelerate the approval of operations that currently require special authorizations.”<sup>8</sup>

More specifically, the program is intended to evaluate night operations, flights over people, flights beyond the pilot’s visual line of sight, package delivery, detect-and-avoid technologies, counter-UAS security operations and the reliability and security of data links between pilot and aircraft. According to the FAA, industries that could see immediate opportunities from the program include commerce, photography, emergency management, precision agriculture, and infrastructure inspections and monitoring.<sup>9</sup>

The program calls for the formation of program teams led by state, local or tribal governmental entities. Team members can be private sector companies or organizations, UAS operators, other stakeholders or governmental entities. The FAA plans to award at least five public-private partnerships under the program.

Program details such as deadlines, registration requirements, and procedures for potential applicants can be found at the FAA’s website [here](#).

### ***Safety Authorities Investigate Two Collisions Between Drones and Manned Aircraft***

Two recent collisions between UAS and manned aircraft have been reported in the U.S. and Canada.

The first collision occurred east of Staten Island, New York on September 21.<sup>10</sup> According to the National Transportation Safety Board, a DJI Phantom 4 drone and a U.S. Army UH-60 (“Black Hawk”) helicopter collided, causing damage to the helicopter’s main rotor blade, window frame and transmission deck. A motor and arm from the drone, which is widely available to the general public, were recovered from the Black Hawk. The NTSB was able to identify and interview the drone operator and is currently reviewing air traffic control data, helicopter flight data, drone flight data logs and FAA airspace and temporary flight restriction documents.

The second collision occurred in Quebec City, Quebec on October 12. The Transportation Safety Board of Canada reported that a Beech King Air A100 with 2 crew members and 6 passengers on board collided with a drone while on final approach to Jean Lesage International Airport at an altitude of 1500 feet, causing the crew to declare an emergency.<sup>11</sup> Aircraft rescue and firefighting services were deployed but the aircraft landed safely without significant damage. No one was injured.

Possible collisions between UAS and manned aircraft have been of serious concern to the FAA. U.S. commercial, military and private pilots are reporting at a rate of over 100 instances per

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<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> <https://www.nts.gov/news/press-releases/Pages/PR20171005.aspx>

<sup>11</sup> <http://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2017/a17q0162/a17q0162.asp>

month sightings of drones operating at unauthorized altitudes and in unauthorized areas. For example:

- A Boeing 737 pilot on final approach to San Juan reported a drone flying within 10-15 feet of the airliner;
- A Boeing 757 and an Airbus 320 landing at Miami reported a drone operating at 500 feet “in very close proximity” to the aircraft;
- A U.S. Air Force pilot flying a Boeing C-17 reported that a drone “passed just under their nose” slightly right of the aircraft as the C-17 was descending at 5000 feet;
- A Boeing 737 pilot flying at 6000 feet over Southern California reported a drone passing 20 to 100 feet above the airliner;
- A Cessna Citation pilot flying at 5000 feet near Miami reported a drone in front of him that was close enough “to see a person’s face had he been taking a picture with a camera.”<sup>12</sup>

Although reported UAS sightings by manned aircraft are in the thousands, the FAA has yet to verify any collisions between civil aircraft and civil drones. The NTSB investigation of the Staten Island collision is continuing.

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<sup>12</sup> [https://www.faa.gov/uas/media/UAS\\_Sightings\\_report\\_1Jul-30Sep16.xlsx](https://www.faa.gov/uas/media/UAS_Sightings_report_1Jul-30Sep16.xlsx) (report nos. 223, 251, 280, 370, 371).

## Fuel Trends: Rising Jet Fuel Prices to Squeeze Airline Profits; DOJ Files Anti-Trust in CLARCOR Transaction; Ticket Prices Set to Rise as Fuel Costs Bite Into Profits

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The rising cost of jet aviation fuel has started to bite into airline earnings. Companies like American Airlines Group (AAL), Southwest Airlines (LUV), Spirit Airlines (SAVE) and Allegiant Travel Company (ALGT) recently reported their third-quarter 2017 earnings.<sup>2</sup> The general trend is that earnings are lower year-over-year due to higher labor and fuel costs.<sup>3</sup>

While the trend for most airlines is negative, for the quarter, sector participants reported better-than-expected earnings per share in Q3.<sup>4</sup> But the cost of fuel is set to squeeze airline profitability with higher ticket prices set to follow. Among the major US carriers, American, Delta, JetBlue, Southwest and United Airlines have all announced 8 – 27% increases in fuel and related tax increases over the past quarter.<sup>5</sup>

Despite recent increases in costs, during the period of April-through-June, the average domestic airfare in the United States dropped to \$356, the lowest level for that period since 2009.<sup>6</sup> Several factors contributed to lower prices including reduced fuel consumption, higher load factors, and low crude oil prices.<sup>7</sup>

While the amount of jet fuel consumed by U.S. airlines increased in recent years, overall 2016-2017 consumption remained 11% lower compared to 2007.<sup>8</sup> Higher load factors have contributed to the decline in fuel consumption. The number of passengers traveling on U.S. carriers in 2016

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<sup>1</sup> Patrick Morris has 21 years of experience in finance and investment research, energy services and exploration and production. Mr. Morris is the President of All American Oil and Gas. He holds a JD, magna cum laude, from New York Law School, an MA from Emerson College and a BA from Syracuse University. Mr. Morris is a member of the Association of Certified Fraud Examiners and a founding member of the Society for Financial Econometrics.

<sup>2</sup> “Airline Stock Roundup: Q3 Earnings at AAL, LUV & Others, Bullish Thanksgiving View.” Zacks Equity Research, Zacks.com, Nov. 1, 2017. <http://www.nasdaq.com/article/airline-stock-roundup-q3-earnings-at-aal-luv-others-bullish-thanksgiving-view-cm870015>.

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> Airlines cope with higher fuel prices, and that could mean higher fares, Jansen, Bart, USA Today, Oct. 26, 2017. <https://www.usatoday.com/story/news/2017/10/26/airlines-cope-higher-fuel-prices-and-could-mean-higher-fares/804686001/>.

<sup>6</sup> *Id.*

<sup>7</sup> “As U.S. airlines carry more passengers, jet fuel use remains well below its previous peak.” Mark Schipper, U.S. Energy Information Administration. June 6, 2017. <https://www.eia.gov/todayinenergy/detail.php?id=31512#>.

<sup>8</sup> *Id.*

was 7% higher than in 2007,<sup>9</sup> but total capacity has remained flat as load factors on domestic routes increased from 80% in 2007 to 85% in 2016.<sup>10</sup>

But savings from reduced consumption and higher efficiency cannot fully offset increases in fuel prices and the major driver of fuel cost is the price of Brent and WTI crude. Since 3Q, 2014, crude oil prices have declined from \$100 per barrel to a 2015 – 2017 average of \$38.<sup>11</sup> But both commodities, which bottomed at \$43.52 in June, have risen to nearly \$55 in early November – an almost 25% increase. Jet aviation fuel prices have also increased over the same period from \$1.36 - \$1.62.<sup>12</sup>

Based on current price trends in aviation fuel prices, to maintain 1H, 2017 profitability, the average US domestic ticket price will have to rise to \$400-455 per seat.<sup>13</sup> While a dramatic price hike is unlikely in the near-term due to the industry practice of fuel price hedging,<sup>14</sup> based on current trends, passengers may be waving goodbye to low ticket prices in 2018.

### **CLARCOR Merger Hits a Major Roadblock**

The Justice Department filed a legal challenge over Parker-Hannifin Corp.'s (PH) acquisition of Clarcor, Inc.<sup>15</sup> The complaint, filed in Delaware, argues that Parker Hannifin has created an unlawful monopoly in its Energy Institute (EI) qualified aviation fuel filtration systems and filter elements in the United States through the acquisition of its only competitor.<sup>16</sup>

Before the announced acquisition, Parker-Hannifin and Clarcor were the only two companies in the United States that supplied technology for EI fuel filtration. According to the DOJ complaint, PH and Clarcor, “engaged in vigorous head-to-head competition. That competition enabled customers to negotiate better pricing and to receive more innovative products and better terms of service. The transaction eliminated this competition.”<sup>17</sup>

While it is not unusual for the U.S. antitrust agencies to challenge consummated transactions, what is unusual in this case is that the transaction had been filed with the agencies pursuant to the Hart-Scott-Rodino Act, and the agency had taken no action during the required waiting period. Following the December 1, 2016, transaction announcement, PH announced that the transaction

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<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> [https://inflationdata.com/Inflation/Inflation\\_Rate/Historical\\_Oil\\_Prices\\_Table.asp](https://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp)

<sup>12</sup> “Airfares have been dropping, but are they about to jump because of higher fuel costs?” Los Angeles Times, Martin, H, Oct. 18, 2017. <http://www.latimes.com/business/la-fi-airfares-20171018-story.html>.

<sup>13</sup> Calculation based on domestic airfare price of \$356 April - June x (times) 1.25%, the increase in crude oil prices from June – Nov. 2017.

<sup>14</sup> “Analysis: Airlines bet oil will correct; stay away from hedging,” Reuters, Francis Kan and Seng Li Peng, Jan. 6, 2011. <http://www.reuters.com/article/us-jet-fuel-hedging/analysis-airlines-bet-oil-will-correct-stay-away-from-hedging-idUSTRE70510G20110106>.

<sup>15</sup> <https://www.justice.gov/opa/pr/justice-department-files-antitrust-lawsuit-against-parker-hannifin-regarding-company-s>

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*



was reportable under the Hart-Scott-Rodino Act.<sup>18</sup> PH's public filings indicated that the statutory waiting period under the Act expired on January 17 and that the DOJ had not issued a Request for "Additional Information and Documentary Materials."<sup>19</sup> The parties completed their transaction on February 28, 2017.<sup>20</sup> The DOJ filed its complaint on September 26.<sup>21</sup> The complaint alleges that the transaction was effectively a merger to monopoly.<sup>22</sup>

The Department of Justice press release announcing the lawsuit claimed that Parker-Hannifin failed to provide certain documents and data concerning the fuel filtration business. The release also claims that Parker-Hannifin refused to enter into a hold separate agreement covering the fuel filtration assets while the DOJ concluded its investigation.

The U.S. airline industry mandates the use of aviation fuel filtration systems and filtration elements that have been subjected to rigorous testing and qualification requirements.<sup>23</sup> Only aviation fuel filtration products qualified by the Energy Institute may be used to filter aviation fuel for use in U.S. commercial and military planes.<sup>24</sup> The DOJ contends that the transaction "substantially lessened competition in markets for aviation fuel filtration products in the United States, which threatens to result in higher prices, less innovation, and less favorable terms of service."<sup>25</sup> Contaminated jet fuel can cause severe damage to turbine powered aircraft.<sup>26</sup> The major contaminants that plague jet fuel products are water and microbial growth.<sup>27</sup>

Due to the composition of jet fuel, water is easily absorbed by jet aviation fuel.<sup>28</sup> At low temperatures water "falls-out" of suspension and accumulates in the bottom of fuel tanks. As the temperature of the fuel rises it draws additional water from the air. The continuous accumulation of water can result in accelerated corrosion and the formation of ice crystals in fuel lines. The presence of water also promotes the growth of hydrocarbon consuming microbes.

The most common and destructive form of microbial growth in fuel tanks is the fungus *Hormoconis resinae*.<sup>29</sup> The resulting sludge-like material that forms when quantities of *H.*

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<sup>18</sup> "U.S. Challenges Parker Hannifin's Acquisition of Clarcor -- 2nd Update." Dow Jones Newswire, Brett Kendall, Sept. 26, 2017. <http://www.foxbusiness.com/features/2017/09/26/u-s-seeks-to-undo-parker-hannifins-acquisition-clarcor-on-antitrust-grounds.html>.

<sup>19</sup> *Id.*

<sup>20</sup> William Blumenthal, Karen Kazmerzak and James W. Lowe, Merger Filers Beware: Department of Justice Challenges a Transaction That Cleared Hart-Scott-Rodino <https://www.lexology.com/library/detail.aspx?g=878645be-a4cb-43a5-9340-ca91e4737016>

<sup>21</sup> <https://www.justice.gov/opa/pr/justice-department-files-antitrust-lawsuit-against-parker-hannifin-regarding-company-s>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> "Fuel Contamination: Increasing awareness on factors that lead to jet fuel contamination." AviationPros.com, Joe Escobar, Apr. 1, 2002. <http://www.aviationpros.com/article/10387588/fuel-contamination-increasing-awareness-on-factors-that-lead-to-jet-fuel-contamination>.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

*resinae* are present is a major source of aircraft fuel tank corrosion as well as fuel line and filter clogging.<sup>30</sup>

The DOJ complaint “seeks to restore the competition that this transaction eliminated by asking the U.S. District Court for the District of Delaware to order Parker-Hannifin to divest an aviation fuel filtration business sufficient to replace CLARCOR’s competitive significance in the marketplace.”

UPDATE: According to an article appearing in Law360 on November 2, 2017, “the U.S. Department of Justice has received an offer from industrial equipment manufacturer Parker Hannifin to sell the aviation fuel filtration business at the center of the agency’s post-closing challenge to its \$4.3 billion Clarcor acquisition.”<sup>31</sup>

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<sup>30</sup> *Id.*

<sup>31</sup> “Parker Hannifin Offers DOJ Concessions Over \$4.3B Deal.” Law360, Matthew Perlman. Nov. 2, 2017. <https://www.law360.com/articles/981371/parker-hannifin-offers-doj-concessions-over-4-3b-deal> (last visited, Nov. 2, 2017 at 4:42 PM).

## General Aviation – Meeting the “ADS-B” Mandate by January 1, 2020

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**October 31, 2017**

As of January 1, 2020, all aircraft operating in controlled airspace – just about everywhere east of the Mississippi River and almost everywhere in the Continental U.S. - must comply with the “ADS-B” mandate. (See 14 CFR Secs. 91-225 and 91-227.) ADS-B stands for “Automatic Dependent Surveillance – Broadcast”. While “ADS-B” technology provides for the automatic transmission of critical data **from** properly equipped aircraft without the need for radar interrogation (“ADS-B ‘out’”), that same technology allows for the transmission of weather and traffic data **to** properly equipped aircraft (“ADS-B ‘in’”). The regulatory mandate applies to ADS-B “out” only. ADS-B “in” capability is optional.

There has been much discussion in the GA community about the cost to GA aircraft owners to comply with the “ADS-B” mandate versus the need for ADS-B for smaller GA aircraft, especially those flown under Part 91 of the FARs (non-commercial, private operations). Having flown now for almost a year with both ADS-B “out” and “in” technology in my aircraft, I think all pilots have to concede that the ADS-B technology is an enhancement, especially for safety of flight. It is time for the air traffic control technology to move on from radar and ground-based radio beacons. GPS and the availability of new digital technology within all cockpits, from Piper Cubs to Boeing Dreamliners, has made it possible for all pilots to fly more safely and efficiently.

I complied with the ADS-B mandate in November, 2016. I own a Piper PA32 (a six-seat Piper low-wing piston airplane) known as the “Cherokee Six”. When it was manufactured in 1978, it was equipped exclusively with ground-based navigation aids. My position was known to Air Traffic Control (“ATC”) thanks to a Mode C Transponder that broadcast my assigned squawk code, altitude and position and ATC tracked my aircraft on radar. That “old technology” had been upgraded in my aircraft over the years and in 2001 was replaced with a panel-mounted GPS system that featured a moving map and drove my autopilot. That “Garmin 530” was upgraded in 2007 to a “Garmin 530 WAAS” (for “wide area augmentation system”) that enhanced the GPS signal to a degree of precision that allows me to use GPS not only for lateral, but also for vertical guidance. It is enormously helpful. The Garmin 530 WAAS has made possible much lower approaches in instrument conditions into airports without “Instrument Landing Systems” or

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“ILSs” that are too costly for most smaller airports that make up the vast majority of airports used by GA aircraft.

In the last decade, all pilots – GA pilots and air transport pilots as well – have come to use I-Pads and even I-Phones, enhanced by special receivers in the cockpit as additional navigational aids and to display real time weather and current en-route and airport (terminal) charts and instrument approach plates. The signal to these devices from ground-based broadcast stations was the precursor to ADS-B “in.”

Last November, I thought I would “take the plunge” and commit to an ADS-B “out” and “in” transponder. By then I was satisfied that the technology that would be available for GA aircraft had stabilized and the prices were not likely to come down as the January 1, 2020 deadline approached. In addition, I was concerned about a last minute rush that would mean a long wait for a shop to have available time for my installation. Finally, I was motivated by an FAA rebate program that has been developed to lessen the cost impact to private aircraft owners. A payment of \$500 would be forthcoming from the FAA, but the equipment had to be test flown after installation in a test monitored by the FAA in order to qualify. I welcomed the test flight to confirm that my equipment was functioning properly.

I purchased and Lincoln Park Aviation installed a Garmin 345 Transponder and a Garmin Flightstream 210. The Garmin 345 serves as a Mode S transponder that provides a wealth of information to ATC (and the FAA) about my aircraft and its owner – most importantly, very accurate positioning data. The ADS-B “out” feature projects these data to ATC ground facilities and my position is broadcast to other aircraft with ADS-B “in” capability. My Garmin 345 also has the optional ADS-B “in” capability that provides access to the position and movement of other aircraft as well as weather data. I also have a Sirius NEXRAD weather receiver and a storm scope that provide alternative sources of weather. The Flightstream 210 allows my I-Pad and I-Phone to link directly with my Garmin 530W so that the traffic and weather information is projected not only on the Garmin 530, but also on my I-Pad and I-Phone. When I prepare flight plans on the ground at home or in my office, I may now send them directly from my I-Pad into my Garmin 530, thereby avoiding the laborious task before takeoff of inputting waypoints into the Garmin 530 in order to build my in-air route. The entire ADS-B “out” and “in” and Flightstream 210 system purchase and installation costs around \$7,000. Within days of installation, I flew the FAA test maneuvers with the new system and qualified for and within a week received my \$500 rebate check.

While I recognize that the cost of compliance seems high, I have been flying long enough to remember when the last weather report a GA pilot had is the obtained on the ground before departure that could be updated in the air only by a call to a ground-based weather watcher (“Flight Watch”). In addition, the old-technology storm scope showed lightning strikes and cells. Only the airlines had more than that. Now I have real-time weather displays and data, (admittedly with some time lag in the minutes range), traffic, terrain, airport information and current digital charts of all kinds, with approach plates that display my aircraft as it moves down the approach. The entire system is integrated with an aviation I-Pad/I-Phone application – in my case, Foreflight – that allows flight planning and so much more on any I-Pad or I-Phone. In short, I have systems on board – and some of my fellow pilots have even more, such as “head-up

displays” that project images with flight data and terrain onto the aircraft windscreen – that were not available even in 747s when I began flying in the early 1990s.

For the FAA, the imposition of the requirement for ADS-B “out” – ADS-B “in” is optional – is part of its “NextGen” initiative. NextGen is short for Next Generation Air Transportation System. It is designed to modernize today's [national airspace system](#) and consists of a series of programs designed to make the airspace system more efficient through the reliance on new technology. While I understand the concern of aircraft owners over the forced expenditure necessary to modernize our aircraft to accommodate NextGen, most of us do not fly low and slow over the cow pastures of Nebraska, but instead are integrated into a very busy air traffic control system as we fly to places like Nantucket or Charleston or The Bahamas. To exercise the privilege of flying is not free. And it cannot be done without spending the time and money to do it safely. Thanks to the new technologies available to GA pilots, we can fly within the national air space better aware than ever of the weather, traffic and other conditions that we must take into account for every flight.

Summary of ADS-B from the FAA’s Website: <https://www.faa.gov/nextgen/programs/adsb/>

## **What Rules Govern ADS-B?**

The FAA published Federal Regulation [14 CFR § 91.225](#) and [14 CFR § 91.227](#) in May 2010. The final rule dictates that effective January 1, 2020, aircraft operating in airspace defined in 91.225 are required to have an Automatic Dependent Surveillance – Broadcast (ADS-B) system that includes a certified position source capable of meeting requirements defined in 91.227. These regulations set a minimum performance standard for both ADS-B Transmitter and the position sources integrated with the ADS-B equipment your aircraft.

## **What is ADS-B?**

ADS-B is an environmentally friendly technology that enhances safety and efficiency, and directly benefits pilots, controllers, airports, airlines, and the public. It forms the foundation for NextGen by moving from ground radar and navigational aids to precise tracking using satellite signals.

With ADS-B, pilots for the first time see what controllers see: displays showing other aircraft in the sky. Cockpit displays also pinpoint hazardous weather and terrain, and give pilots important flight information, such as temporary flight restrictions.

ADS-B reduces the risk of runway incursions with cockpit and controller displays that show the location of aircraft and equipped ground vehicles on airport surfaces – even at night or during heavy rainfall. ADS-B applications being developed now will give pilots indications or alerts of potential collisions.

ADS-B also provides greater coverage since ground stations are so much easier to place than radar. Remote areas without radar coverage, like the Gulf of Mexico and parts of Alaska, now have surveillance with ADS-B.

Relying on satellites instead of ground navigational aids also means aircraft will be able to fly more directly from Point A to B, saving time and money, and reducing fuel burn and emissions.

The improved accuracy, integrity and reliability of satellite signals over radar means controllers eventually will be able to safely reduce the minimum separation distance between aircraft and increase capacity in the nation's skies.

### **What is the difference between ADS-B Out and ADS-B In?**

ADS-B Out refers to an aircraft broadcasting its position and other information. ADS-B In refers to an aircraft receiving the broadcasts and messages from the ground network such as TIS-B and FIS-B. ADS-B In is not mandated by the ADS-B Out rule. If an operator chooses to voluntarily equip an aircraft with ADS-B In avionics, a compatible display is also necessary to see the information. Refer to [AC 20-165B](#) for information on ADS-B OUT and [AC 20-172B](#) on ADS-B IN installation and certification.

### **Does the final rule mandate ADS-B Out only?**

Yes, only ADS-B Out is mandated, and only within certain airspace. Title [14 CFR § 91.225](#) defines the airspace within which these requirements apply.

### **How will the new ADS-B Out rule affect aircraft operators?**

On January 1, 2020, when operating in the airspace designated in [14 CFR § 91.225](#) (outlined below) you must be equipped with ADS-B Out avionics that meet the performance requirements of [14 CFR § 91.227](#). Aircraft not complying with the requirements may be denied access to this airspace.

Under the rule, ADS-B Out performance will be required to operate in:

1. Class A, B, and C airspace.
2. Class E airspace within the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface.
3. Class E airspace at and above 3,000 feet MSL over the Gulf of Mexico from the coastline of the United States out to 12 nautical miles.
4. Around those airports identified in 14 CFR part 91, Appendix D.

The ADS-B Out rule does not apply in the airspace defined in items 2 and 4 above for any aircraft not originally certificated with an electrical system or that has not subsequently been certified with such a system installed, including balloons and gliders. For additional requirements for using the exception for item 4, please refer to [CFR 91.225](#) section (d) for the requirements.

## New Hot-Air Balloon Safety Program

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The Federal Aviation Administration (FAA), working with the Balloon Federation of America (BFA) has proposed a new “Envelope of Safety” program as a way to promote greater safety in the hot air balloon industry. This new program was inspired by a July 2016 crash in Lockhart, Texas that unfortunately resulted in 16 fatalities.

Presently hot air balloons are regulated by the FAA in three main sets of regulations:  
Part 31, Airworthiness Standards: Manned Free Balloons  
Part 43, Maintenance, Preventive Maintenance, Rebuilding, and Alteration  
Part 91, General Operating and Flight Rules

The Envelope of Safety program sits atop these existing regulations, and is divided into two parts: pilot requirements, and ride company requirements. Pilot requirements apply to all pilots taking paying passengers. There are three levels of company requirements: Silver, Gold, and Platinum. While any size company can achieve the highest level, the tiered structure was designed with different size companies in mind. The different levels of certification correspond to the amount of seniority of pilots, pilot willingness to undergo regular drug and alcohol testing, company safety policies, a track record of no accidents, and pilot enrollment in the FAA Wings program (a pilot proficiency program).<sup>2</sup>

The Envelope of Safety Program is voluntary; the FAA is not forcing balloon operators to enroll in this safety program. However, the program, as developed with the hot air balloon industry, is meant to aid consumers when choosing balloon operators, enabling them to have the comfort of knowing that their balloon operator meets the highest level of safety standard available.

It should be noted that the voluntary nature of the Envelope of Safety Program may be temporary if Congress is able to pass a new bill requiring mandatory medical testing of balloon pilots. A trio of Texas lawmakers on both sides of the aisle filed a bill this summer that would force the Federal Aviation Administration to require medical certificates for commercial balloon pilots. Joining forces to push for the regulatory change are U.S. Reps. Lloyd Doggett, D-Austin; Blake Farenthold, R-Corpus Christi; and Will Hurd, R-Helotes.<sup>3</sup> The bill has moved through committee but has not been yet introduced to the floor. As background, the National

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<sup>1</sup> Racquel Reinstein is an attorney working for the Port Authority of New York and New Jersey. She also is a new mom to an adorable infant named Zoe, and enjoys reading about aviation regulations in her spare time.

<sup>2</sup> See: <https://www.bfa.net/index.php/envelope-of-safety-program>

<sup>3</sup> See: <https://www.govtrack.us/congress/bills/115/hr4102/text>

Transportation Safety Board (NTSB) determined after the Lockhart crash that lax FAA standards contributed to the crash. Specifically, the NTSB determined that the balloon pilot's mix of sedatives and opioids was cognitive impairing, and he would not have cleared a medical exam had he been a commercial airline pilot, rather than a commercial air balloon pilot. The NTSB requested that the FAA start requiring balloon pilots to obtain medical certificates and reevaluate its policies for conducting oversight of commercial balloon operators who "pose the most significant safety risks to the public."<sup>4</sup> The FAA has 90 days to respond to the recommendations.

This is not the first time that the NTSB has warned the FAA to more closely regulate the hot air balloon industry. The NTSB sent a letter to the FAA in 2014 after a balloon crash in Egypt, urging additional oversight of the industry.<sup>5</sup> FAA Administrator Michael Huerta at the time responded that such additional oversight is not necessary, as the risks were low.<sup>6</sup> The NTSB kept the matter as "OPEN-UNACCEPTABLE" until the time of the Lockhart crash. The Envelope of Safety Program is the answer to the NTSB's call for additional oversight, but as noted, Congress may soon require the FAA to enact stronger regulations.

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<sup>4</sup> See: <https://www.nts.gov/news/press-releases/Pages/PR-20171017.aspx>

<sup>5</sup> See: <https://www.nts.gov/safety/safety-recs/reclatters/A-14-011-012.pdf>

<sup>6</sup> See: [https://www.nts.gov/\\_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-011](https://www.nts.gov/_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-011)



## Gulfstream Delivered its 550<sup>th</sup> G550 and G600 on Track for 2018

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This past July Gulfstream Aerospace delivered its 550<sup>th</sup> G550 ultra-long range jet, making it the most successful model in the plane maker's history. The G550 model was rolled out in 2001 as the SP (Special Performance) version of the GV and received FAA certification in 2003. The aircraft has a maximum range of 6,750 nm and an MMO of Mach 0.885. It can seat up to 19 passengers and sleeps up to eight. "This milestone delivery affirms the continued demand for the G550, one of the most dependable and sought after aircraft in the world today." Gulfstream President Mark Burns said. "The G550's best-in-class range and payload have earned it a lasting reputation as a versatile aircraft for business aviation and an ideal platform for special missions." The \$61.5 million aircraft is powered by two Rolls-Royce BR710 C4-11 engines. It has set more than 50 city-pair speed records, including London to Tokyo in a little more than 11 hr. and Beijing to New York in just less than 14 hr.<sup>2</sup>

### **Gulfstream G600**

Gulfstream's development of the G600, the eventual successor to the G550, is months ahead of schedule and Gulfstream officials believe they'll be delivering the aircraft by the end of next year. The G600 capitalizes on G500 design and development work, as the two aircraft share the same engines, Symmetry flight-deck layout and systems. Pratt & Whitney Canada earned type certification for the PW814GA aboard the G500 and PW815GA that powers the G600 in February 2017. The two engines are virtually identical. The 15,680-lb thrust PW815GA is the baseline engine. The 15,144-lb-thrust PW814GA powerplant simply is a derated version of the same engine. Both engines have 10,000-hr TBO's and no midlife inspections. The main airframe differences between the G600 and G500 include a 4.9-ft fuselage stretch that increases cabin volume by 169 cu.ft., and a larger wing with a 7.8-ft. longer span and 12,910 lb. more fuel capacity. The extra fuel boosts the G600's range by 1,200 nm over the G500's at Mach 0.85 cruise. The G600 also will be able to fly 4,800 nm at Mach 0.90, which is 1,000 nm more than the G500 cruising at the same speed. Both aircraft capitalize on the G650's wing aerodynamics.

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<sup>2</sup> "Intelligence," Business & Commercial Aviation, September 2017.

Both aircraft redline at Mach 0.925, the same speed as the G650/G650ER. G650 operators typically cruise at Mach 0.88 eastbound and Mach 0.90 westbound. They only slow down to Mach 0.85 if they have to stretch range to the limits. Such high cruise speeds will enable the aircraft to fly from Paris to Los Angeles or New York to Cairo in less than 10 hr., Hong Kong to San Diego or Sao Paulo to Seattle in under 13.hr.<sup>3</sup>

## **Passenger Comfort Improvements**

Similar to the G650, the G500 and G600 have non-circular fuselages with larger radius sections in the cabin and smaller radius sections below the floor. The design features relatively flat side-walls, providing 7 in. more cabin width and 8 in. more floor width, plus 2 in more center-aisle headroom compared to the G550. The cabin also is more than 1 ft. longer. Cabin volume is increased almost 13%. The increased cabin width accommodates 27-in.-wide passenger seats and increases legroom by up to 7 to 9 in. Cabin pressurization is increased to 10.7 psi, providing a maximum cabin altitude of 4,850 ft. at the aircraft's 51,000-ft. certified ceiling. At typical cruise altitudes, cabin altitude will be less than 4,000 ft. Interior sound levels promise to be well under those of the G550. Gulfstream is taking full advantage of General Dynamics' Electric Boat nuclear submarine acoustical engineering expertise to identify, isolate and eliminate noise hot spots to achieve low cabin sound levels at the lowest practical acoustical insulation weight. More seated shoulder room and headroom with redesigned overhead passenger service units. Improved cabin lighting, more comfortable chairs, and more galley cabinet and counter space. The cabin management system was improved enabling passengers to control interior lighting and window shades, cabin temperature and inflight entertainment systems using touchscreen PDAs. Gulfstream is also working with Honeywell to install an optional Jet ConneX satcom system that will offer 15 MB download and 1MB upload speed via Inmarsat's new \$1.6 billion Global Express, Ka-band network – which will provide up to three times the connection speeds of current Ku-band sitcom systems.<sup>4</sup>

Cabin systems are much more integrated with the aircraft systems and avionics than older Gulfstreams. Dual high-speed local area networks link cockpit, cabin and aft equipment bay units, resulting in more robust reliability, fewer wires, lower weight and electrical power loads, and smaller equipment racks. All components on the dual networks are linked to Gulfstream's PlaneConnect maintenance connectivity system with more than 15,000 parameters being monitored. Data automatically is transmitted to the operator's home base, with the option of copying Gulfstream's tech support department. The data can help maintenance technicians spot malfunctions and ward off problems before they ground aircraft.<sup>5</sup>

The G600 is a little more than a year away from replacing it in Gulfstream's line-up. It offers a quieter, more comfortable cabin with larger windows, bigger chairs, more legroom and a lower cabin altitude, along with better optional internet connectivity. No production business aircraft has higher cabin pressurization. The G600 uses less runway, climbs faster and achieves better fuel economy at Mach 0.85 and above than G550. Although it gives up 500 mi. of range to its predecessor at long range cruise "range without speed is futile" – as the G600 has considerably

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<sup>3</sup> Fred George, "Gulfstream G600 – On Track for 2018," Business & Commercial Aviation, September 2017.

<sup>4</sup> Fred George, "Gulfstream G600 – On Track for 2018", Business & Commercial Aviation, September 2017

<sup>5</sup> Fred George, "Gulfstream G600 – On Track for 2018", Business & Commercial Aviation, September 2017

more range than the G550 at Mach 0.85. The G600 and G500 embrace a raft of new technologies, including fly-by-wire flight controls adapted from the G650, active side-stick control inceptors and Gulfstream's signature Symmetry cockpit with 10 touch screens.<sup>6</sup>

Pilots, though are in for a bit of a learning curve in the cockpit. While the G550's PlaneView flight deck was a significant evolution of the GV's SPZ 8500 cockpit, featuring large-format displays, it retained mostly conventional multifunction control display units. In contrast, Symmetry, powered by Honeywell Primus Epic avionics, uses multiple touch screens that replace FMS control display units, radio tuning units, audio control panels and a bevy of cockpit switches. The touch screens also provide light dimming, secondary electrical power distribution, cabin power, TAWS alert inhibit, secondary flight guidance system and checklist functions, among many other features. Symmetry also provides a step change improvement in situational awareness, offering 3-D synthetic vision airport imagery that includes ramps, runways, taxiways, buildings, obstacles, signage and pavement markings. Other standard safety features include autobraking, over-wing exits on each side of the aircraft and electrically actuated main entry door.<sup>7</sup>

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<sup>6</sup> Fred George, "Gulfstream G600 – On Track for 2018", Business & Commercial Aviation, September 2017

<sup>7</sup> Fred George, "Gulfstream G600 – On Track for 2018", Business & Commercial Aviation, September 2017

## ***Singer v. City of Newton and the Future of Drone Regulation***

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Due to recent technological innovations, drones have become increasingly popular.<sup>2</sup> Countless uses have been found for these small flying objects – from taking breathtaking photographs to conducting scientific research to even performing at the 2017 Super Bowl halftime show. What's more, this is only the tip of the iceberg. The Federal Aviation Administration (“FAA”) expects the number of commercial drones in the United States to increase tenfold within the next five years as commercial uses for drone technology continue to grow.<sup>3</sup> In fact, companies like Amazon and Google continue to explore ways to incorporate drone technology into their everyday business.<sup>4</sup>

However, with the excitement surrounding this technology, there are several understandable concerns regarding safety and privacy leading to questions about government regulation of this developing technology. One such major issue is the role of federal and state/local government in regulating the operation of drones.

The United States Government has exclusive sovereignty over United States airspace.<sup>5</sup> The Federal Aviation Administration (“FAA”) has the authority to “develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of airspace necessary to ensure the safety of aircraft and the efficient use of airspace.”<sup>6</sup> Moreover, the FAA possesses authority to regulate air traffic to ensure, among other things, the efficient use of airspace, the safety of individuals and property in the air and on the ground.<sup>7</sup>

Under the 2012 FAA Modernization and Reform Act, Congress directed the FAA to “develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft system into the

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<sup>2</sup> *Civilian Drones*, The Economist, June 8, 2017, <http://www.economist.com/technology-quarterly/2017-06-08/civilian-drones>.

<sup>3</sup> David Shepardson, *U.S. Commercial Drone Use to Expand Tenfold by 2021: Government Agency*, Reuters, March 21, 2017, <https://www.reuters.com/article/us-usa-drones/u-s-commercial-drone-use-to-expand-tenfold-by-2021-government-agency-idUSKBN16S2NM>; *Commercial drones are the fastest-growing part of the market*, June 10, 2017, <https://www.economist.com/news/technology-quarterly/21723003-most-drones-today-are-either-cheap-toys-or-expensive-weapons-interesting>.

<sup>4</sup> Nick Wingfield and Mark Scott, *In Major Step for Drone Delivery, Amazon Flies Package to Customer in England*, New York Times, Dec. 14, 2016, [https://www.nytimes.com/2016/12/14/technology/amazon-drone-england-delivery.html?\\_r=0](https://www.nytimes.com/2016/12/14/technology/amazon-drone-england-delivery.html?_r=0).

<sup>5</sup> 49 U.S.C. § 40103(a)(1).

<sup>6</sup> 49 U.S.C. § 40103(b)(1).

<sup>7</sup> 49 U.S.C. § 40103(b)(2).

national airspace system.”<sup>8</sup> Subsequently, the FAA promulgated rules requiring registration of drones with the FAA as well as operating such aircraft within the visual line of sight of an operator or visual observer and below an altitude of 400 feet above ground level.<sup>9</sup>

The operation of drones, however, raises several significant concerns that have traditionally been addressed by state and local government. On December 17, 2015, the FAA Office of the Chief Counsel issued a document entitled “State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet” (the “Fact Sheet”).<sup>10</sup> In discussing the regulation of drone operations, the Fact Sheet addresses the potential conflict between federal and state/local government regulation of drones by noting examples of issues falling within the FAA's purview – such as regulations on drone flight altitude, navigation, equipment and training – as well as issues traditionally addressed on the state and local level – such as privacy and trespass.<sup>11</sup> The Fact Sheet further notes potential issues that could arise when state or local governments regulate the operation of drones in navigable airspace stating that a potential “patchwork quilt” of differing restrictions could severely limit the flexibility of FAA in controlling the airspace and flight patterns, and ensuring safety and an efficient air traffic flow.”<sup>12</sup>

The recent Massachusetts District Court decision, *Singer v. City of Newton*, 2017 WL 4176477 (D. Mass. Sept. 21, 2017) is a significant first step towards clarifying the role of federal and state/local governments in regulating drone technology. *Singer* addressed an ordinance enacted by the City of Newton, Massachusetts regulating drone use with the intention of protecting the privacy, public safety and welfare of its residents.<sup>13</sup> The ordinance required, among other things, that owners register their drones with the city and prohibited drone operations: (1) below 400 feet over private property without express permission of the private property owner; (2) “beyond the visual line of sight of the Operator”; (3) “in a manner that interferes with any manned aircraft”; (4) over city property without obtaining the city's permission; and (5) to surveil or invade a place where there are reasonable privacy expectations.<sup>14</sup> The plaintiff, *Singer* – a Newton resident and FAA certified small unmanned aircraft pilot – brought an action challenging the ordinance with respect to its registration requirement and its restrictions on flying drones over private and public property and beyond the operator's visual line of sight. *Singer* argued that such ordinance provisions were preempted by federal law.<sup>15</sup>

The Court found the challenged ordinance provisions to be preempted by federal law under the doctrine of conflict preemption.<sup>16</sup> With respect to the city's drone registration requirement, the Court held the requirement to be in derogation of FAA's intended authority to be the exclusive means for registering drones for the operation of aircraft in navigable airspace.<sup>17</sup> Second, with respect to the city's restriction on the operation of drones over private and public property

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<sup>8</sup> FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 332, 126 Stat. 11, 73 (212)(codified at 49 U.S.C. § 40101 note).

<sup>9</sup> See 14 C.F.R. part 107.

<sup>10</sup> FAA Office of the Chief Counsel, *State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet*, FAA 1 (Dec. 17, 2015), [https://www.faa.gov/uas/resources/uas\\_regulations\\_policy/media/uas\\_fact\\_sheet\\_final.pdf](https://www.faa.gov/uas/resources/uas_regulations_policy/media/uas_fact_sheet_final.pdf)

<sup>11</sup> *Id.* at 3.

<sup>12</sup> *Id.* at 2.

<sup>13</sup> *Singer v. City of Newton*, 2017 WL 4176477 at \*2 (D. Mass. Sept. 21, 2017)

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at \*4-6

<sup>17</sup> *Id.* at \*4.

without prior permission, the Court held that such a restriction – effectively banning drone operations in the city absent prior permission – “thwart[ed] not only the FAA's objectives, but also those of Congress for the FAA to integrate drones into the national airspace.”<sup>18</sup> Last, the Court concluded that the city's line of sight regulations intervened with the FAA's own regulations on drone operation, which, unlike the city, allow for drone operations in the line of sight of a visual observer and allow for a waiver of the visual observer rule.<sup>19</sup> The City of Newton has appealed this decision.

It will be interesting to see how the First Circuit and other courts address issues concerning the regulation of this technology as its use continues to expand.

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<sup>18</sup> *Id.* at \*5.

<sup>19</sup> *Id.* at \*5-6.

## **FUN PAGES**

Readers are encouraged to please submit (via email to [alan.reitzfeld@hklaw.com](mailto:alan.reitzfeld@hklaw.com)) aviation-related original cartoons, other works of art (especially airplane doodles), poems, photographs, crossword puzzles, etc. for the Newsletter Fun Pages.

### **Photos**

Thanks go to General Aviation Subcommittee Chair Albert J. Pucciarelli for submitting the in-flight photo, to Fuel Subcommittee Chair Patrick Ryan Morris for submitting the Lufthansa in Frankfurt in the Rain photo, and to Corporate/Private Jet Charter Subcommittee Chair Susan Sullivan-Bisceglia for submitting the National Business Aircraft Association Conference photo.





Susan Sullivan-Bisceglia, General Counsel, Sullivan Aviation, NY LLC  
Sharlene Sullivan, Director of Marketing and Sales, Sullivan Aviation, NY LLC  
National Business Aircraft Association Conference, Las Vegas, NV

## Did you know?

**Aviation History:** Fifty years ago this month: Pan American World Airways becomes the first airline to receive approval from the FAA for full Category II operations, allowing it to land in weather having only a 100-foot decision height and 1,200-foot runway visibility range.

<http://aireform.com/resources/faa-history-pages/faa-history-1967/>

**Aviation Vocabulary Builder:** Excerpts from 14 CFR 1.2 – Abbreviations and Symbols

$V_R$  means rotation speed.

$V_1$  means the maximum speed in the takeoff at which the pilot must take the first action (e.g., apply brakes, reduce thrust, deploy speed brakes) to stop the airplane within the accelerate-stop distance.  $V_1$  also means the minimum speed in the takeoff, following a failure of the critical engine at  $V_{EF}$ , at which the pilot can continue the takeoff and achieve the required height above the takeoff surface within the takeoff distance.

$V_2$  means takeoff safety speed.

$V_2$  min means minimum takeoff safety speed.

<https://www.gpo.gov/fdsys/granule/CFR-2002-title14-vol1/CFR-2002-title14-vol1-sec1-2>