

**WRITTEN STATEMENT OF  
AIR LINE PILOTS ASSOCIATION, INTERNATIONAL (ALPA)  
BEFORE THE  
SUBCOMMITTEE ON AVIATION  
OF THE  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
U.S. HOUSE OF REPRESENTATIVES**

**July 17, 2019**

**“STATE OF AVIATION SAFETY”**

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Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify on the State of Aviation Safety. On behalf of the world's largest non-governmental aviation safety organization, I can report that the view from the flight deck is that the state of safety in our skies remains sound. However, it is our organization's top priority to stay focused on continual improvement and judicious oversight to ensure that air travel is as safe as humanly possible.

The Air Line Pilots Association, International (ALPA), represents more than 62,000 professional airline pilots flying for 35 airlines in the United States and Canada. ALPA is the world's largest pilot union. We are the recognized voice of the airline piloting profession in North America, with a history of safety and security advocacy spanning more than 85 years. As the sole U.S. member of the International Federation of Airline Pilots Associations (IFALPA), ALPA has the unique ability to provide active airline pilot expertise to aviation safety issues worldwide, and to incorporate an international dimension to safety advocacy.

The pilots of ALPA express our deepest condolences to the families and loved ones of the victims of both the Ethiopian Airlines Flight 302 and Lion Air Flight 610 accidents. We cannot know the depth of the grief that they feel, but we can share in their determination to leave a legacy of a safer air transportation system for those they lost.

As a 40-year airline pilot, achieving the highest standards of safety has been a personal commitment throughout my career. As the president of ALPA, the world's largest nongovernment aviation safety organization, I can tell you that all airline pilots share my dedication to advancing aviation safety and that safety has been the foundation of ALPA's work for more than 85 years. In fact, across town this week, we are hosting our 65<sup>th</sup> annual Air Safety Forum where we facilitate discussion between regulators, pilots and other safety experts and stakeholders on critical safety and security issues.

While aviation accidents are increasingly rare, ALPA has advocated and helped develop a forensic approach to accident investigation designed to identify every factor involved in an airline accident and develop corrective actions to address them, with the sole goal of preventing similar accidents from occurring in the future. In the U.S. airline industry, we collect data, evaluate it, identify mitigations, and implement them to make a safe system even safer.

Because of this commitment, ALPA is fully informed and involved in efforts to bring the Boeing 737 MAX safely back into service following the completion of the current U.S. Federal Aviation Administration (FAA) process. I have led our Air Safety Organization pilots and staff in contacting all appropriate regulatory authorities and stakeholders in the United States, Canada, and across the globe.

ALPA has offered our airline pilot perspective on the issues related to the accidents, including the process and procedures used to certify aircraft in the United States. We have been in communication with Boeing, the FAA, the National Transportation Safety Board, airlines, as well as with the U.S. Department of Transportation Special Committee.

So to the families and loved ones who are here today, I can assure you that the 62,000 pilots of ALPA resolve to be vigilant in ensuring that the Department of Transportation and the FAA make any and all changes necessary to enhance the safety of our air transportation system. You have my word.

## **Overview**

Based on current statistics, 14 Code of Federal Regulations (CFR) Part 121 airlines carry approximately 900 million passengers and 18 million tons of cargo annually. U.S. passenger airlines operated under 14 CFR Part 121 have had one passenger fatality resulting from an accident since 2009. This safety record is due to the efforts of the aviation industry and our government partners *but* also due to the efforts of Congress and this Committee, in particular. During the 20 years prior to the passage of the Aviation Safety and Federal Aviation Administration (FAA) Reauthorization Act of 2010, the U.S. passenger airline industry lost approximately 1,100 passengers in aircraft accidents. Since the passage of that bill there has not been a single passenger fatality due to “pilot error.”

Strikingly, since 2009, there have been 93 fatal passenger airline accidents around the rest of world, which includes more than 4,700 fatalities. The United States passenger airline record is truly remarkable. For that reason, we believe that the most important work this Committee can accomplish is to ensure the United States maintains the highest safety levels in the world and continues to lead by example in all areas of aviation including aircraft certification, flight crew training and licensing, crew-duty and rest requirements, airport design standards, the safe introduction of new entrants, safety data analysis, and many other areas. This comprehensive safety mindset allows passengers to board a 14 CFR Part 121 passenger airline and know, with a very high degree of confidence , that they will get there safely. From day one in 1931, ALPA has maintained our motto of “schedule with safety.” It hasn’t changed; safety is still our top priority.

This Committees’ continued focus on safety is to be commended, and we thank you for using your time and resources – including today – to shine a spotlight on safety. Unless we keep airline safety the top priority, we risk digression and an increase in accidents, which impact our ability to make progress on other important aspects of aviation such as investments in increasing airspace capacity and the introduction of new types of aviation and space operations into the National Airspace System.

### **FAA Reauthorization Implementation**

In October 5, 2018, the Federal Aviation Administration Reauthorization Act of 2018 became law (P.L. 115-254). The members of this Committee demonstrated significant leadership to ensure that the legislation ultimately became law, and you are to be commended for your efforts to advance aviation safety. This law, if enacted appropriately and as Congress intended, will improve the air transportation system for years to come.

### **Retention of Congressionally Mandated First Officer Qualifications**

In 2018, Congress retained the current airline pilot training and qualification requirements that are the law of the land. ALPA was pleased with both this Committee and Congress for making this life-saving, and wise decision. The best and most important safety feature of any airline operation is at least two skilled, well trained, fully qualified, highly experienced, and adequately rested professional flight crew members. With a solid foundation of training and experience, pilots are essential in maintaining the safety of our system and ensuring that aviation safety continues to advance. Several regional airline accidents from 2004 to 2009 identified numerous training and qualification deficiencies that ultimately led to Congressional action and regulatory changes that significantly improved airline safety. The last of these accidents occurred February 12, 2009, near Buffalo, N.Y. Fifty lives were lost—49 in the aircraft and one on the ground. This accident was a “watershed event” for the airline industry and aviation safety by resulting in regulations that enhanced pilot

training, qualification, flight experience requirements, and the implementation of science-based flight, duty, and rest requirements.

The pilot training and qualifications regulations specifically require that all airline pilots flying under 14 CFR Part 121 must hold the air transport pilot (ATP) or Restricted ATP (R-ATP) certificate. The restricted R-ATP certificate pathway, can be obtained with fewer flight hours than the ATP, if the pilot applicant receives integrated academic and flight training from the military or an accredited aviation college or university.

Today's training and qualification regulations emphasize significantly greater focus on academics and instruction, areas of knowledge, and flight experience in various weather and operational situations. The rules also require a type rating in the aircraft to be flown for the airline if operated in 14 CFR Part 121 service and increased experience in multi-engine aircraft. among other numerous safety improvements. The FAA made a specific mention of the importance of academic training when it published the final rule, and how the accredited academics along with ground and flight training was necessary to qualify for a reduction in hours. We applaud this Committee for its leadership in preserving the training and qualifications requirements last year and urge you to continue to do so. We are confident that lives have been and are being saved because of your steadfastness on this issue.

## **Safety Regulations vs. Bad Airline Economics**

Despite the clear message sent by Congress in 2018, there are some people and organizations who want to address business-related industry issues by reducing the requirements currently in place to obtain an ATP or a R-ATP. These changes would weaken the First Officer Qualification (FOQ) rules. They believe that rolling back provisions in P.L. 111-216 is the best way to fix their business challenges by widening the employment pool. We do not believe that those who are advocating for such measures are properly representing the issue of pilot availability, which is not pilot qualifications requirements, but an airline's attractiveness to the pilot community as an employer.

It is somewhat ironic that some who originally called for the changes in P.L. 111-216 have since become critical of the rules, arguing that the First Officer Qualifications have created a pilot shortage. Small communities which have experienced changes to the levels of airline services are also citing a pilot shortage. However, in both cases, there is no reliable data to support these positions and, in fact, the data says just the opposite.

In 2018, the FAA reported that it had issued 5,788 ATP certificates, which includes 1,762 R-ATP certificates. Our research revealed that the airlines hired approximately 4,600 pilots in 2018, which is considerably fewer than the number of pilots who became qualified to fly for the airlines that year. In fact, the number of ATP certificates issued by the FAA has been higher than the number of airline pilots hired

for multiple years in a row. Clearly, the supply of pilots is currently keeping up with the demands. But we realize that as the industry expands, more pilots will be needed. ALPA continues to promote the pilot profession far and wide, as a career of choice for men and women who enjoy all the benefits that the career has to offer.

### **Pilot Experience before Airline Flying is Critical**

The length of time from when a pilot obtains his or her commercial pilots license to when they have accumulated the hours and flight experience necessary to qualify for the ATP or R-ATP certificate is measured in months, not years or decades. Pilots who graduate from an accredited, structured university and are qualified for the R-ATP pathway can currently expect to spend 12 months or less flying in entry level commercial operations or flight instruction before transitioning to an airline.

Some regional airlines would like pilots to come pre-programmed directly from a flight training environment that is directly similar to the flying environment of that specific carrier's, without having to make any training adjustments. While accredited universities produce pilots with the fundamental skills and knowledge to obtain a commercial pilot certificate, pilots who bring a more holistic, real-world set of skills, including training in a variety of weather, terrain, and air traffic control environments is beneficial. In our view, this versatility of experience far outweighs a small amount of airline training that is specified to mold the pilot into a single airline's operation.

It is important to note that airlines do not provide training to pilots (or allow them to take aircraft out to practice) so that they can obtain experience in factors such as weather (e.g., thunderstorms, snow, tropical storms), terrain (e.g., high altitude, mountain flying), and high-density air traffic (e.g., New York City and Los Angeles metroplex). Today's flight simulation environment cannot adequately replicate these factors. Therefore, it is critical for pilots to obtain flight time and experience in entry-level commercial operations after they have obtained the commercial pilots license, but before being inserted into the higher demands of 14 CFR Part 121 airline operating environment so they are equipped with real-world flying experience. The FAA wisely recognized that a military pilot background, or the combination of an accredited university, structured FAA approved flight training, and some commercial piloting experience in pre-airline commercial operations was the best and safest training pathway to fully address the shortcomings identified from fatal passenger airline accidents.

### **Taking the First Officer Qualifications Requirements to ICAO**

Soon after Congress passed the FAA Reauthorization Act of 2018 without making changes to the first officer qualifications regulations, ALPA began to take stock of the training and experience requirements beyond our borders. In coordination with IFALPA, we have tracked pilot training and qualifications globally for years. It is clear that in nearly every other country, the training and minimum flight experience requirements to qualify as a flight crew member on a transport category airliner is less than the U.S., and in some cases, much less. And the non-U.S. global accident rate

shows that. Based on the safety record that the U.S. has achieved under the current training and qualifications framework, and knowing that global airline safety levels could be positively impacted by a review of the pilot training and qualification standards, ALPA recently asked ICAO Secretary General Fang Liu to evaluate the need for review of the global minimum training and qualifications.

In response, Secretary Liu called an ad-hoc meeting at ICAO to discuss this topic, which was held this month at ICAO headquarters in Montreal. The IFALPA attendees reported that the discussion was robust, and it is clear this issue will garner additional discussion at ICAO in the near future.

### **Promoting the Profession and Increasing Diversity**

ALPA continues to promote the airline pilot profession. This includes a team of ALPA pilots who promote the profession at several large aviation events including Women in Aviation; the Organization of Black Aerospace Professionals; AirVenture in Oshkosh, Wisconsin and the National Gay Pilots Association. Hundreds of ALPA pilots also promote the profession to students of all ages in thousands of schools nationwide. And for those college students who are in the midst of their flight training activities, we work alongside them, to help prepare them for their future airline career. You can see some of our work at [www.clearedtodream.org](http://www.clearedtodream.org).

All of these activities to promote the profession have included a focused effort to diversify the pilot community. This includes our efforts to reduce barriers to entry

for minorities and women. We believe that there is no shortage of individuals who have the motivation, skills and aptitude to serve as airline pilots for a U.S. airline.

We were pleased to support provisions in the Aviation Safety and FAA Authorization Act of 2018 promoting women in aviation. We wholeheartedly applaud the leadership by this Committee to include that section, and we strongly support the establishment of a board that will be solely focused on women in aviation. We look forward to engaging on this topic with our fellow industry colleagues.

### **Two Pilots Are Needed in Today's Airline Cockpit**

The FAA Reauthorization importantly did *not* include a requirement for the FAA to establish a program related to the concept of single-pilot 14 CFR Part FAR 121 all-cargo airline operations. The program would have created a new multi-year funding obligation for the FAA to run a promotional program—despite, the agency's foundational safety mandate—in support of unsafe, single-piloted commercial operations. Upon learning about the proposal, ALPA took the initiative to measure public perception of the concept of a single pilot at the controls of an airline aircraft. In a public poll in 2018, 80 percent of respondents agreed that at least two pilots working together in the cockpit are best equipped to handle flight emergencies, while 96 percent said federal aviation research dollars should be directed at projects other than those aimed at eliminating pilots from the cockpit.

Even when the proposal for an FAA program was removed from the legislation, we continued to assess the feasibility of single pilot airline operations. In short, we documented many technical, regulatory, and financial barriers that indicate that single pilot operations are a non-starter either financially or due to safety and operational factors. Today, I am pleased to announce that ALPA has released a white-paper on single pilot operations titled “The Dangers of Single-Pilot Operations,” which is available on our website at [www.alpa.org/whitepapers](http://www.alpa.org/whitepapers). We hope this paper will create a foundation from which ALPA can engage with anyone and everyone who would like to discuss this important topic with us.

Maintaining today’s level of safety, security and efficiency is much more important than any dubious benefits of moving a pilot from the cockpit to a remote location. Further, the aviation industry’s collective efforts to focus on higher priorities for the benefit of passengers and shippers, should not be distracted by the establishment of a federal program to evaluate or study this project at any agency or with any federal dollars.

### **Addressing All-Cargo Airline Safety**

Many of the safety and security layers working to protect our passenger airline industry are absent from all-cargo operations. Cargo airlines fly the same aircraft, takeoff and land from the same airports, utilize the same airspace, and fly over the same cities as passenger aircraft. From a safety and security standpoint, there is every reason to hold all-cargo operations to the same safety and security standards as

passenger operations. All-cargo airline operations currently experience an accident rate that is seven times higher than passenger airline operations worldwide.

While many of the same regulations are used for both commercial passenger and all-cargo airlines, there are lesser requirements placed on all-cargo operations in several very important areas, which result in unnecessary safety risk.

One example of this safety double standard between cargo and passenger operations is flight crew flight, duty, and rest regulations. While updated science-based flight- and duty-time regulations for passenger operations were issued in 2011 and implemented in 2014, those rules apply only to flight crew members at passenger airlines and do not include all-cargo pilots. The FAA's original rules were developed to include all pilots, passenger and cargo operations, but the cargo sector was removed at the 11<sup>th</sup> hour, a move that caught many by surprise. We believe that science-based flight, duty, and rest regulations must be developed for flight crew members of all-cargo operations.

Although there are other differences in all-cargo airline and passenger airline operations under 14 CFR Part 121, as discussed below, the correlation of reduced flight- and duty-time regulations and the tarnished safety record cannot be dismissed as a coincidence. With relatively few differences in the regulations between all-cargo and passenger airline operations, the differences in flight- and duty-time regulations are an obvious area that needs to be addressed.

However, unless we make meaningful changes soon, all-cargo airline operations will likely continue to have preventable accidents and fatalities at elevated levels relative to 14 CFR Part 121 passenger operation. Congress has a role to ensure that the disparity between all-cargo airline and passenger airline is eliminated. Accordingly, we request that this Committee take the necessary action to ensure that flight- and duty-time regulations, and other differences between all-cargo and passenger airline operations under 14 CFR Part 121 are resolved.

Another example of a significant safety gap is that all-cargo operations are exempted from Aircraft Rescue and Fire Fighting (ARFF) requirements contained in 14 CFR Part 139. This means that ARFF is not required to be staffed or even present at airports during operations of all-cargo aircraft.

Further, cargo aircraft carry very hazardous cargo, such as blood-borne pathogen, chemical, and radioactive material. Not only should ARFF be staffed during all-cargo operations, but ARFF personnel must be trained for dealing with fires on all-cargo airliners. Measures need to be developed and implemented that will properly prepare firefighters for dealing with a cargo aircraft fire. There is a lack of proper ARFF equipment needed to fight all-cargo aircraft fires at some airports, including nozzle tips designed for penetrating cargo airliner hulls, and a lack of funding, because the exemption of cargo from 14 CFR Part 139 requirements interferes with fire

departments' ability to get the resources they need for staffing, equipment, training, and developing strategy for cargo-specific events.

ALPA has maintained a strong stance that all-cargo operations must have the same level of safety as passenger airlines. The facts, however, speak for themselves. There have been five (5) fatal all-cargo 14 CFR Part 121 accidents in the U.S. in the past decade, with 15 fatalities. This includes the fatal accident on February 23, 2019 of an Atlas Air Boeing 767, not far from Houston, Texas.

### **Missing Cockpit Doors on All-Cargo Aircraft**

After September 11, 2001, the federal government required existing and future passenger airliners and existing all-cargo airliners having cockpit doors, to be equipped with reinforced flight deck doors.

Today, however, a significant number of all-cargo airliners are still operated without the benefits of hardened flight deck doors, leaving them without a means of adequately separating the flight crew from personnel riding aft of the bulkhead, and potential cargo-hold stowaways. In fact, new wide-body cargo airplanes such as the B777 and the B767 are being built and delivered to all-cargo operators without the protections afforded by the reinforced door. The potential for a significant lapse in security due to these conditions is magnified by the fact that all-cargo airliners frequently carry third-party, non-crew personnel (known as "supernumeraries"), such as couriers and animal handlers, who are not subject to criminal history-based

security background checks required of other airline employees. These animal handlers carry strong sedatives and syringes that can be used on the animals if necessary during flight. There is a significant concern by our members that these improperly-vetted individuals are able to use these sedatives or otherwise take hostile actions against the flight crew absent the protections of a primary door. This situation is exacerbated by the fact that all-cargo airliners and their cargo are not afforded the same security protections as their passenger-carrying counterparts while on the ground.

The lack of a mandate for reinforced flight deck doors on cargo aircraft is hard to justify when the TSA has formally stated that it considers the “hostile takeover of an all-cargo aircraft leading to its use as a weapon” to be a critical risk. Events in the post-9/11 era have proven that stowaways represent a very real and significant threat to all-cargo airliners. To deter those persons with malicious intent and impede their ability to attack all-cargo flight crewmembers, gain access to aircraft controls, or otherwise execute a hostile takeover of an all-cargo airliner, physical barriers must be designed and installed to separate the all-cargo airliner’s flight deck from accessible passenger and cargo areas.

In order to ensure one level of security of all 14 CFR Part 121 operations, all-cargo flight decks must be clearly delineated and physically protected in the same fashion as the flight decks of passenger airliners. This includes the provision of reinforced flight deck doors and the associated flight deck access procedures for crewmembers.

## **Secondary Barriers Delayed**

Reinforced flight deck doors, mandated on passenger airliners by the U.S. Congress after the terrorist attacks of Sept. 11, 2001, do not provide a complete solution to the problem they were intended to resolve. There are times when operational necessity requires that the flight deck door be opened in flight. That period, however slight, represents a vulnerability that must be addressed. An installed physical secondary barrier, accompanied by standardized crew procedures for protecting the flight deck when the reinforced door is opened in flight, will significantly augment the intended benefits of the fortified door and other TSA-approved onboard protective measures, and add an important layer of security to prevent hostile takeover of the flight deck. ALPA has been calling for mandated secondary cockpit barriers for more than a decade.

At the behest of this Committee, section 336 of P.L. 115-254 requires “not later than 1 year after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration shall issue an order requiring installation of a secondary cockpit barrier on each new aircraft that is manufactured for delivery to a passenger air carrier in the United States operating under the provisions of part 121 of title 14, Code of Federal Regulations.”

However, with a deadline in 3 months, the FAA has inserted unnecessary roadblocks to stall progress on this important security provision. Last month, the agency tasked

the Aviation Rulemaking Advisory Committee (ARAC), over ALPA's stated objections, with forming a working group to establish recommendations to the agency on the implementation of the Section 336 directive.

Clearly, this is a move to slow down or otherwise not fulfill the obligations Congress placed on the FAA to implement the secondary cockpit barrier mandate. We would note that 110 members of this body, including many members of this Committee, recently transmitted a [letter](#) to the DOT unequivocally reinforcing the statutory intent of Section 336: specifically, the FAA must issue an order, without delay, by October 5, 2019 requiring the installation of secondary barriers on all new manufactured passenger aircraft off the assembly line. Failing to meet this requirement will delay implementation and evade congressional intent.

Some may argue there are questions about how to implement the legislation. However, these questions were answered years ago by request from the FAA to RTCA – a private, not-for-profit corporation – to develop secondary barrier system guidelines containing design characteristics, minimum performance criteria, and installation and certification guidance.

RTCA Special Committee (SC)-221 developed and published these guidelines in September 2011 as DO-329. This document provides the FAA with guidance needed to develop and issue a clear interpretation of 14 CFR Part 121.584 to its principal operations inspectors as they evaluate an airline's security procedures for

compliance. It also provides airlines and manufacturers with approved performance standards that are suitable for meeting FAA aircraft equipment requirements for the production and installation of secondary barriers.

We urge the Committee to continue to monitor this situation, and to ensure that the FAA carries out its requirements under the law and issue the requirement for secondary cockpit barriers by October 5, 2019.

### **Safe Shipments of Hazardous Materials**

ALPA has long advocated for improved transport requirements for hazardous materials both as a member of IFALPA, and here in North America as well. We have worked with this Committee to ensure that the safe transport of lithium batteries can occur with adequate risk mitigation techniques in place and are especially appreciative of Chairman DeFazio's longstanding commitment to improving the safety of lithium battery transport by air.

Although lithium batteries represent a significant technological improvement over older battery technology, their high energy density and flammability make these batteries more prone to failure, resulting in fire and explosion. The lack of comprehensive hazardous materials regulations for the carriage of lithium batteries as cargo onboard commercial aircraft, both passenger and cargo, continues to pose risks to air transportation.

New standards implemented by ICAO on April 1, 2016, made significant improvements to provisions under which lithium batteries are shipped as cargo by air around the globe. We are pleased that Section 333 of the FAA Reauthorization Act of 2018 directed the DOT to harmonize the U.S. regulations with those put in place by ICAO. This important and critical step ensures that until there are technologies that can fully contain a lithium battery induced fire, the shipments are limited.

While the harmonization of the US regulations to ICAO limitations is a good first step, it does not go far enough in addressing the safety risk created by lithium batteries. Work must continue to develop and mandate performance-based packaging standards that will prevent and/or contain a lithium battery fire. These standards must also address the threat from external fires.

### **Undeclared Hazardous Materials Pose a Threat**

We are pleased that undeclared hazardous materials were addressed by Section 583 of the FAA Reauthorization Act of 2018, which directs the Department of Transportation (DOT) to develop an undeclared hazardous materials public awareness campaign. The DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) has developed the 'Check the Box' educational program to begin to address the risks posed by undeclared hazardous materials shipments, as well as the FAA's program on undeclared hazardous materials. This is an important effort that should help raise awareness among shippers.

Hazardous materials, comprised of liquids, flammables, and other materials, shipped as cargo without being identified by the shipper are considered undeclared hazardous materials. There are no official estimates of what percentage of parcel shipments contain undeclared hazardous materials; however, the FAA tracks incidents where hazardous materials shipments create safety hazards for various reasons, such as a leaking package or other type of external evidence that the package is a safety concern. In 2018, the FAA received 1,346 reports of such events, and 644 of the incidents involved undeclared hazardous materials.

### **Training with Simulation - There are Limits**

As is well recognized, the U.S. airline pilot training standard is the gold standard, and significantly more advanced than most other countries. However, there are many airline business leaders who believe that they can manage training costs through innovative training methods. One such example is the expanded use of non-motion aircraft simulators. Ironically, non-motion simulators have been historically viewed as inferior due to their lack of ability to replicate the sense of flight that pilots experience as they operate the aircraft in all flight regimes. But non-movement simulators appear to be making a comeback.

While they may be acceptable to train pilots on checklist execution, or to help pilots learn the basic flow of cockpit procedures, there are some airlines that desire to begin to use non-movement simulators to evaluate pilots in training. The safety benefits of using simulation with full-motion are well documented and the use of motion-based

simulation is mandated for some airline pilot training. We question the viability and benefit of re-introducing non-motion simulators for anything beyond basic initial aircraft cockpit orientation and procedures development.

Conversely, there are others who believe that nearly all the training needed to become an airline pilot can be conducted with motion-based simulation. They argue that a pilot's basic skills can be taught using carefully scripted "real world" scenarios to teach pilots basic knowledge and to leap-frog critical operating experience in the airspace system. An example of this simulation-based licensing scheme is an ICAO licensing option called the multi-crew pilots license, or MPL. Pilots flying for airlines with an MPL do not pass through the individual licensing levels such as the private pilot license, the instrument rating, the commercial pilot license, a multi-engine rating, high-altitude operations endorsement, etc. Instead, MPL pilots "hit the sim" on day number one of their training and within a very short time, without adequate real-world experience, they are placed into a transport category aircraft flying for an airline. They are essentially apprentice pilots, requiring the captain to overcome any training and experience shortcomings that the first officer may have, alone.

From our view, both of these "extremes" need to be carefully monitored. Expanding the motion-based simulation technologies as a replacement for tried-and-true real-world flying is nearly impossible to achieve. And permitting airline pilot training and testing to be conducted with non-motion simulators will not give pilots the added benefits that have long been documented for a suitable training environment. We

urge the committee to engage the FAA on these topics, and we stand at the ready to expand upon our concern in this area.

### **Safe Integration of Unmanned Aircraft Systems and Drones**

ALPA applauds Congress for its clarification of the FAA's authority to fully regulate all Unmanned Aircraft Systems (UAS) operations in the 2018 FAA Reauthorization, to include model and hobby drone operators, who previously were exempted from regulation. We are especially grateful for this Subcommittee and Chairman DeFazio for the dedication to promote safe operations of all unmanned aircraft regardless of size, speed, or their intended purpose.

With the rapidly growing use of UAS for any number of applications and uses, the safety risks to airline operations need to be monitored very closely. We applaud this Committee's commitment to ensure UAS safety, by holding a hearing earlier this year that focused on aviation in 2050. Clearly, at some point in the future, UAS will be integrated into the national airspace system (NAS), interacting with other aircraft in a manner similar to "pilot on board" aircraft today.

Recently, a company approached the FAA to obtain exemptions that would allow them to bypass more than 200 regulations in order to start a commercial UAS package delivery service without any limitations to flying over residential or other populated areas.

Granting this petition for exemption would allow the petitioner to bypass the FAA UAS implementation policy of “crawl, walk, run” for the introduction of new technology, capability, and procedures. The FAA has historically established regulations based on accidents and incidents to establish the current FARs. Aviation regulations represent a safety framework for which commercial for-hire operations are conducted. Issuing exemptions to so many of the requested areas appears to erode the safety levels established by the FAA through regulation, many of which were established as a result of accidents and incidents with injury and loss of life to passengers and people on the ground.

As required under 14 CFR Part 11.35 (b), the FAA withheld proprietary company manuals and related material, including the petitioner’s safety case justification. Therefore, many of the exemptions requested could not be thoroughly evaluated by industry stakeholders. If successful, we can anticipate that other manned and unmanned operators would seek similar exemptions from the same regulations included in this Petition for Exemption, awarding them to others without a clear safety justification. This is not how UAS operations should be implemented in the NAS if the objective is to make UAS a standard participant in routine NAS operations.

FAA appears to be struggling to keep pace with the expansion of the UAS industry. Issuing waivers to a multitude of regulations, with minimal input from existing airspace users, raises concerns about the amount of additional risk being introduced into the airspace system.

We must not allow pressure to rapidly integrate UAS into the NAS without appropriate safeguards in place. This process must be focused on safety as the highest priority. Risk mitigation plans, which have yet to be fully developed, combined with consensus-based technology standards that will ensure interoperability with manned aircraft, must be in place before a UAS can occupy the same airspace as manned aircraft or operate in areas where it might inadvertently stray into airspace occupied by airliners. When UAS operate in the same airspace as airline aircraft, the pilots will need to be able to see them on cockpit displays, and air traffic controllers will also need to see them on their displays to safely separate air traffic. Further, the UAS must be equipped with active collision-avoidance technology. We will oppose any integration that does not include collision avoidance systems that are interoperable with airline collision avoidance systems.

If a UAS operator does not intend to fly in the same airspace as airliners, then limitations that ensure that the UAS stays out of the airspace must be programmed into the UAS in a way that cannot be overridden.

#### *sUAS Identification and Tracking Technologies are Needed*

As has been widely reported, a drone collided with a U.S. Army helicopter in 2016, one mile east of Midland Beach in Staten Island, New York. From the investigation, we know that a Temporary Flight Restriction (TFR) was in effect for the area of the flight, and that the UAS was not equipped with any type of identification or tracking

technology. The National Transportation Safety Board examined pieces of the sUAS that were found lodged in the aircraft, and using the information from these pieces, the hobbyist pilot of the sUAS was identified and located. The individual operating the sUAS routinely operated his hobby aircraft in the vicinity of the collision site, which was beyond his visual line of sight. After losing control of the aircraft, and because it failed to return to his position, he indicated that he simply believed his aircraft had “gone down” and he was unaware that it had been involved in a mid-air collision.

Now that Congress has removed the FAA’s barriers to regulating model and hobby small UAS, the FAA urgently needs to implement mandatory identification and tracking capabilities.

If an identification and tracking system had been in place prior to the October 2016 collision with the Army helicopter, much more information would have been immediately available to accident investigators and law enforcement. Such a system would likely have prevented the collision in the first place, because law enforcement may have observed the sUAS operating on a previous flight, and proactively contacted the hobbyist about the illegal use of the aircraft. Until there is a way for law enforcement to identify and track down the sUAS operators, there is very little incentive for non-conformist hobby operators to operate sUAS safely.

## **Integrating Commercial Space Operations Improves Safety**

Commercial space operations are not new. In fact, it has been more than 30 years since Congress established the Office of Commercial Space Transportation in the DOT, which now resides at the FAA. The industry is mature, and thanks to a series of events over the past decade, it is thriving through an expansion in proposed spaceports and significantly increased operational frequency.

These are truly exciting times for America as we experience innovation and advancements that are literally blasting off before our eyes. However, we must continue to make commercial aviation part of the discussion on commercial space. Future growth and success of U.S. commercial aviation depends upon continued safe, dependable, and efficient access to shared public resources such as the National Airspace System, air traffic management, ground infrastructure, and airport services. The need to integrate commercial space operations and commercial aviation operations into the NAS is an urgent one that requires careful planning and commitment from many different parts of the industry.

One thing is clear: expanded markets and technology advances in space are enabling new commercial companies to access these limited resources, which has become a critical challenge for the aviation community. Air traffic management, airports, and the NAS are regulated and managed according to strict operational and safety regulations, which will not sufficiently accommodate the projected growth and evolution of space transportation, without enhancements to how space flight is accommodated by the NAS. There must be a means to safely integrate with existing

aircraft operations and infrastructure without decreasing the level of safety or efficiency for existing operations. Full integration will allow space operations to plan and execute launches without extensive coordination like they do now, and full integration will also eliminate the need for segregation of space operations from commercial airline flights. Bottom line: commercial space integration improves safety and efficiency of the NAS for all airspace users. A strategy to fully integrate commercial space operations into existing NAS operations is a critical first step to achieving this important goal.

Neither industry would be successful today without the other. Each sector generates hundreds of billions of dollars in annual economic returns for the United States and immeasurable benefits to society. The FAA has coordinated the activities of both airplanes and rockets successfully for more than 60 years. In many ways, there is a false distinction between the two sectors, since several aircraft types travel into outer space, and all space vehicles travel through the atmosphere. As spaceflight becomes more diffuse and routine, both sectors must cooperate to create policies, regulations, and procedures to manage shared national aerospace resources safely and efficiently.

An important reason to keep the commercial space industry a part of the aviation discussion is that there are going to be innovations in safety and efficiency that will likely find their way into commercial aviation. For example, Virgin Galactic plans to utilize a spacecraft for multiple flights with paying passengers (technically speaking, they are “participants”), and this experience will likely help the commercial airlines

better understand the interest in hypersonic travel and the potential issues that would accompany a transition to this type of travel in the future.

ALPA is very interested in supporting the commercial space industry's efforts to advance through the full integration into the NAS. To fully articulate the complementary nature of commercial space and commercial aviation, we published a white paper, "Addressing the Challenges to Aviation from Evolving Space Transportation" that documents the role of the government agencies and industry, both historically as well as today. That whitepaper can also be found at [www.alpa.org/whitepapers](http://www.alpa.org/whitepapers).

### **Safety Data Analysis is Critical to Ensure Risks are Proactively Identified**

When thinking about aviation advancements over the next several years, there is one aspect above all others that needs our full support in order to continue to improve: aviation safety. The efforts of the Commercial Aviation Safety Team (CAST) combined with Aviation Safety Information Analysis and Sharing (ASIAS) have led to dramatic improvements. Data analysis by CAST and ASIAS has resulted in a proactive safety culture that cuts across all airlines and stakeholders with unprecedented levels of collaboration, even when those same stakeholders disagree about many other aspects of industry policy. The predictive risk analysis conducted by the CAST and ASIAS allows the aviation community to collectively reach heightened levels of safety without waiting for a single drop of blood to be shed. We believe that the resource needs for the ASIAS activity are likely going to increase in order to keep up with the

accelerated pace of operations. We urge Congress to closely monitor the resource requirements for this activity to ensure that critical safety risk identification activities are not tabled because of inadequate resources.

### **Necessary Resources to Ensure Safety of our Skies**

A safe airline industry is only possible when the FAA has the resources necessary to carry out its safety mission. The FAA needs to receive consistent and reliable funding for its safety oversight role, as well as its role as an air navigation service provider.

The partial government shutdown earlier this year has perhaps faded from the memories of most Americans. But the shutdown has not faded from the memories of ALPA pilots, who found themselves faced with new and different types of risks than they had experienced in the past. The FAA's rank and file air traffic controllers, ATC system safety specialists, certification engineers/specialists, and FAA safety inspectors as well as the Transportation Security Administration's (TSA) Transportation Security Officers were expected to do the unthinkable for multiple pay periods: work without pay. And while it may be no surprise to the members of this Committee, their service to this country during that period was phenomenal.

But the realities of work without pay started to set in quickly, and our airspace system was put at risk for no good reason whatsoever. Political gamesmanship put our national transportation system at risk. Fortunately, the system's safety net worked, and the shutdown ended without serious ramifications to air travel.

ALPA was pleased to be among the first to support Chairman DeFazio's legislation that will allow the FAA to temporarily use funds from the Airport and Airway Trust Fund during a government shutdown situation. The Aviation Funding Stability Act needs to be passed as soon as possible, and we continue to fully support the legislation.

The FAA is seemingly accustomed to being asked to do more, while not always receiving the funding that they need. The FAA oversight of aircraft certification and manufacturing, maintenance, airline certificate management should not be put in jeopardy because the FAA is now being tasked with the work of approving new types of operations in the NAS such as UAS, small drones, supersonic, hypersonic, and multi-rotor vertical lift operations. All of these "additional types of operations" require resources that are above and beyond those needed for safety oversight. Introduction of these new types of operations safely requires resources that the FAA likely does not yet possess. We urge the Committee to keep a close eye on the agency's needs.

The new types of operations the FAA must operationally approve as a safety regulator will also drive new demands on the air traffic control system. While the Next Generation Air Transportation System (NextGen) establishes a foundation for safely increasing capacity in our skies, the FAA will likely need to develop additional capabilities to support commercial space, UAS, and other new operations. The resources needed by the FAA will likely be significant. However, from the view of

airline pilots, we will want air traffic controllers – as the shepherds of the skies – to have the tools they need to ensure our safe passage. To make sure they have the tools they need, Congress must ensure that the FAA has stable and reliable funding.

### **Strengthening Voluntary Safety Reporting Programs**

Voluntary safety reporting programs such as the Aviation Safety Action Program (ASAP) and Flight Operations Quality Assurance (FOQA) are important, collaborative tools that enhance aviation safety through the analysis of voluntarily reported safety events and discrepancies that lead to the prevention of accidents and incidents. The purpose of ASAP and FOQA is to encourage and use voluntarily reported safety information provided by frontline employees and airlines, respectively, to identify safety risks. Without these valuable safety reports, unidentified risks go unmitigated and remain within the system.

For example, more than a decade ago the implementation of stabilized approach technology and procedures became a top safety priority upon discovering the frequency of non-stabilized approaches being reported by pilots. More recently, data sources have been combined to identify potential risks that are initially identified through the voluntary safety programs. Ground radar data, historical weather information, and other data sources were used to identify instances when aircraft traffic and terrain warning systems were repeatedly alerting to false alarms. These voluntary safety programs triggered studies of these alarms, which ultimately led to the discovery that improvements to airspace and procedures design would reduce

the false alarms. These examples prove that the underlying voluntary safety program reporting by the operators is the best source to identify potential risk areas and to investigate and ultimately mitigate these risks.

### *Automatic Acceptance*

We were pleased to see that Section 320 of the FAA Reauthorization Act of 2018 included the provision that “there shall be a presumption that an individual’s voluntary report of an operational or maintenance issue related to aviation safety under an aviation safety action program meets the criteria for acceptance as a valid report under such program.” Directing the FAA to change ASAP programs to reflect this presumption will improve and increase the safety benefit of ASAP and voluntarily submitted aviation safety information by automatic acceptance of ASAP reports. Several airline ASAP programs already have automatic acceptance protocols built in (e.g., American and Delta Air Lines). However, where ASAP reports are not automatically accepted, the safety benefit is delayed, sometimes by weeks or longer, waiting for an Event Review Committee (ERC) to meet, review, and accept these reports. Under an automatic-acceptance scenario, the safety benefit of the information will be realized immediately. As recognized in Section 320, a report could still be ultimately excluded when the ERC convenes, and it is determined to meet established exclusionary criteria. The automatic-acceptance model works and will now be universal to ASAP, thanks to the work of this committee.

## **Fair and Open Skies – Ensuring that Aviation in America Remains Safe and Strong**

ALPA would like to thank Chairman DeFazio and Chairman Larsen, as well as Representatives Davis, Davids and Ferguson, for their strong leadership on an important issue that threatens thousands of high-quality airline jobs in our country. On July 10<sup>th</sup> they introduced, H.R. 3632, the Fair and Open Skies Act. The legislation provides a bipartisan solution to ensure the enforcement of our Open Skies agreements by bolstering the DOT's oversight of an air carrier when it seeks an operating certificate to conduct service to the United States. Specifically, the Fair and Open Skies Act clarifies in statute that a multi-factor public interest test must be given consideration before the issuance of foreign air carrier permit, revises the public interest test to examine whether a foreign air carrier is a flag of convenience or is otherwise undermining U.S. labor standards, and requires European air carriers abide by the labor chapter of the U.S.-E.U. Open Skies Agreement as ratified by our government, ALPA has traditionally supported the opportunities created by our more than 120 Open Skies agreements. When properly enforced, these agreements promote benefits for U.S. carriers, workers, and passengers. Collectively, the reforms provided in the Fair and Open Skies Act will help ensure these agreements operate as intended and that the liberalization of air services is beneficial to all parties, including nation states, U.S. employees, and air carriers. This legislation will ensure that DOT gives proper consideration of a foreign airline's business practices – including those who may employ businesses practices with questionable safety oversight or regulatory schemes to be fully vetted before granting a permit to fly to the U.S.

## **Conclusion**

We appreciate the Committee's invitation to offer our insights and perspectives on these important aviation safety issues today. More importantly, we appreciate the leadership that continues to be demonstrated by the Committee to advance these high-priority safety issues. The airline industry is best positioned to fully meet the needs of all passengers and shippers when safety levels remain at, or exceed, their current levels. It is in our collective best interest as legislative leaders, labor organizations, companies, and regulators, to ensure the foundation of safety is solid, and continues to lead the rest of the world. We look forward to working on these issues with you in the coming months as we strive to make meaningful safety improvements to aviation.