AIR LINE PILOTS ASSOCIATION, INT'L

WE KEEP AMERICA FLYING

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International Issues

One Level of Safety and Security

WE KEEP AMERICA FLYING

A strong and sustainable airline industry plays an essential role in the United States as an economic driver with an expansive reach that is felt across the country and around the globe. It is the mission of the Air Line Pilots Association, International (ALPA) to ensure that each and every one of these flights is safe and that the U.S. aviation industry remains a leader in global transportation.

Commercial aviation accounts for more than 5 percent of our gross national product every year. Commercial aircraft, flown by professional airline pilots, will safely carry more than 900 million passengers and 66 million ton-miles of cargo in 2017. The result is that 900,000 jobs accounting for $1.5 trillion in economic activity each year depend upon the success of the U.S. airline industry and the skill and professionalism of its pilots.

ALPA is the world's largest nongovernmental aviation safety organization. We are also the world's largest pilots union, representing more than 55,000 airline pilots in North America. ALPA's safety agenda, which has helped create and maintain North American airlines' record as the safest mode of transportation, could not exist were it not for ALPA's dedication to supporting our members' interests.

On a daily basis, U.S. airlines and the traveling and shipping public benefit from sense-and-avoid technology, runway and taxiway visual aids, passenger airline pilot fatigue rules, and many other important advances that ALPA has both pioneered and championed as a safety-focused labor organization.

Hard-earned safety accomplishments made possible by our forward-thinking union have benefitted the entire air transportation system. ALPA is equally committed to advancing aviation security and pilot health, and promoting the future of the profession as we work to safely and efficiently meet growing passenger and cargo demand.

As a labor union, we advocate for our industry, often working hand in hand with management, regulators, and other stakeholders. ALPA has supported Open Skies agreements, **provided they are enforced,** where they have allowed U.S. airlines to compete successfully in the international marketplace. Additionally, we have advocated for tax reforms on behalf of our industry because U.S. tax policy should encourage airline travel, not discourage it. It is as a union—with rights and obligations codified in law—that we work on behalf of every pilot, airline passenger, and cargo shipper in our skies.

Today, the U.S. airline industry faces many threats, two of them critical: unfair international competition due to a lack of enforcement of U.S. trade agreements and a potential degradation of aviation safety.

The following pages document these threats and offer concrete policy solutions. The actions recommended here will enable the U.S. airline industry and the trillions of dollars of economic activity it creates to safely, securely, and efficiently soar into the future with qualified pilots at the helm because We Keep America Flying.

OPEN AND FAIR SKIES

The State Department, with the support of the Department of Transportation, has now negotiated 120 Open Skies agreements. These agreements provide for open access for U.S. carriers to foreign commercial airports and for foreign carriers to U.S. airports, provided that "[e]ach party . . . allow[s] a fair and equal opportunity for the airlines of both parties to compete in providing international air transportation governed by the Agreement[s]."

Trade is an essential part of our economy; however, poor trade policies or unenforced trade rules can cripple our workforce and undermine the very purpose of international competition and cooperation. As President Trump has noted, "We [as a country] allowed foreign countries to subsidize their goods, devalue their currencies, violate their agreements, and cheat in every way imaginable. Trillions of our dollars and millions of our jobs flowed overseas as a result." U.S. airlines and their workers have not been immune to these types of bad trade policies. While the Open Skies program has resulted in many successes for the U.S. economy, failure to fully enforce these agreements is having a negative impact on our economy.

The administration has an immediate opportunity to demonstrate its commitment to fixing our trade policy by taking action on two enforcement actions within the first 100 days: (1) reversing the bad decision from the previous administration by moving to revoke Norwegian Air's subsidiaries' foreign air carrier permit; and (2) terminating the Qatar and United Arab Emirates bilateral air transport agreement unless Qatar and the United Arab Emirates end the market-distorting subsidies being provided to their state-owned air carriers (Emirates Airline, Etihad Airways, and Qatar Airways).

We understand that the airline industry is one part of the global trade network. However, unlike other industries, air service has traditionally been excluded from the General Agreement on Trade in Services and other international trade pacts. Thus, unlike with respect to most other industrial sectors, the locus of our expertise in negotiating trade involving air service is in the Departments of Transportation and State, rather than at the U.S. Trade Representative's office. In order to ensure that our best policy experts are making trade decisions for air transport, this arrangement should continue.

ACTION:

- → The United States must enforce our Open Skies agreements.
- → The U.S. Trade Representative must continue to oppose the inclusion of air service in general trade deals.

FLAGS OF CONVENIENCE: NORWEGIAN AIR

Norwegian Air International (NAI) and Norwegian Air United Kingdom (NAUK), two subsidiaries of Norwegian Air Shuttle (NAS), have applied for foreign air carrier permits from the Department of Transportation (DOT). NAI's application was granted in the last days of the Obama administration. While NAS is headquartered in Norway, it has established NAI and NAUK in Ireland and the UK, respectively, in order to take advantage of these countries' less-restrictive labor and regulatory laws. By flagging aircraft in Ireland, for instance, NAI expects to be able to use flight crews employed under contracts governed by the laws of various Asian countries, including Singapore and Thailand. This scheme runs counter to the letter and spirit of the U.S.-EU Open Skies Agreement and should be rejected.

NAI is an example of a flag-of-convenience airline. This business model has been responsible for the destruction of the American maritime shipping industry. In 1955, U.S.-flagged vessels carried 25 percent of the world's tonnage with 1,072 ships. Today, U.S. carriers account for just 2 percent of world tonnage with 167 ships. That falloff is a direct result of forum shopping, a process where ship owners opt to register and "flag" their vessels in a country that offers the most business-favorable laws governing their crews, taxes, and other aspects of their business. The U.S. airline industry employs more than 151,000 workers who support its international operations. Collectively, these workers earned $11.3 billion in wages in 2015. Together, U.S. airlines' international operations contribute about $95 billion per year to the U.S. economy. Foreign flag-of-convenience carriers put those jobs and their economic benefits at risk.

The record shows that NAS's clear goal in setting up these subsidiaries is to avoid Norway's labor laws. Article 17 *bis* of the U.S.-EU Air Transport Agreement was designed to prevent exactly this kind of degradation of labor standards. The preceding two Republican-led Congresses have opposed NAI's scheme, seeing the threat it poses to U.S. airlines and their employees. More than 220 members of the House and Senate weighed in with the Obama administration in opposition to these applications. The DOT chose to ignore NAI's flag-of-convenience structure when it approved the carrier's application in December 2016.

ACTION:

- → The new administration should immediately move to reverse the DOT's decision regarding Norwegian Air International and revoke or suspend the foreign air carrier permit.

- → Congress should clarify that it is not in the public interest to award foreign air carrier permits to flag-of-convenience carriers.

STATE-OWNED/SUPPORTED ENTERPRISES

Per the U.S. Trade Representative, "SOEs [state-owned enterprises] are increasingly competing with U.S. businesses and workers . . . in some cases distorting global markets . . . and undercutting U.S. workers with subsidies . . . " The U.S. airline business is no exception to this rule. Airlines and their workers face increasing competition from SOEs. The resulting loss of market share is costing the United States thousands of good airline jobs. The largest and most threatening of these SOE air carriers are located in China, Qatar, and the United Arab Emirates (UAE).

The Chinese government's support for their national industries is well known. The Chinese government owns and financially backs Air China, China Southern, and China Eastern, all of which do business across the globe. Until Chinese carriers operate without any government support, we must not allow them access to the whole U.S. market via an Open Skies agreement.

As referenced above, the United States has signed bilateral Open Skies agreements with Qatar and the UAE. These two countries have given their three national airlines (i.e., Emirates Airline, Etihad Airways, and Qatar Airways) more than $50 billion in documented subsidies since 2004. Subsidies on this scale clearly violate the Open Skies agreements' provisions regarding the fair and equal opportunity to compete.

The harm to the U.S. economy from these subsidies is evident, and it is increasing. Every widebody route lost or forgone because of this illegal competition costs the United States more than 800 jobs. Delta and United both recently had to cut their service to Dubai from the United States because of this subsidized competition. Over the past year, the Gulf carriers have increased their capacity to the United States by more than 40 percent, putting further pressure on U.S. airlines and their workers. In fact, as a direct affront to President Trump and his fair trade agenda, Emirates Airline announced a new Athens-to-Newark flight on the first day of the new administration.

ACTION:

- In order to uphold the principles of our Open Skies agreements, the U.S. government should immediately terminate the bilateral Open Skies agreements with Qatar and the UAE until they end all government subsidies going to carriers of Qatar and the UAE.

- The U.S. government should not negotiate any Open Skies agreements with China until their airlines are operating without government subsidies.

FLY AMERICA

Since 1974, passengers and cargo whose travel is paid for by the U.S. government have generally been required to obtain transportation provided by a U.S. airline; this provision is known as the Fly America Act. The General Services Administration (GSA) implements this provision through the City-Pairs Program. Every year, the GSA awards more than 12,000 city-pairs at a government rate to airlines who bid for the privilege of carrying taxpayer-funded travel.

Up until 2015, the GSA required that, if an air carrier intended to serve a city-pair through a code share, the U.S. carrier must still be responsible for the service, receive a "substantial portion of the revenue," and "not act as a mere booking agent on behalf of" a foreign partner. Recently, however, the GSA overturned this long-standing precedent by effectively awarding government contracts to Emirates Airline through a code share with JetBlue. For FY2017, JetBlue was awarded seven routes between the United States and Dubai, UAE, as well as the traffic between New York City and Milan, Italy. Unlike other code shares in which the United States and the foreign partners could operate the service but, for business reasons, one does not do so, JetBlue does not have aircraft economically capable of flying these routes, rendering JetBlue "a mere booking agent" that is renting the use of its code to the foreign airline.

This reinterpretation of Fly America, which allows companies to bid on routes without any ability or intention to fly them, specifically excludes the airline employees whose income taxes support the cost of this travel. While the company might make a profit

off these deals as a booking agent, the pilots, flight attendants, gate agents, and others are not paid if these passengers are not flying on their planes.

ACTION:

- The GSA should immediately correct its policy and regulations to ensure that no U.S. airline be allowed to rent its code to a foreign airline to win a Fly America contract.

- Congress should clarify the existing Fly America statute to give meaning to its original intent: government-funded travel should place maximum reliance on using U.S. flag carriers staffed by U.S. flight crews.

FOREIGN OWNERSHIP & CONTROL AND CABOTAGE

Limits on foreign ownership and foreign control and a prohibition on cabotage operation by foreign airlines are core components of the regulatory structure that applies to the U.S. airline market. These regulations ensure the national security of our country and the integrity of our airline industry.

By regulation, U.S. airlines must be at least 75 percent owned (as a percentage of shares) and effectively controlled (as a percentage of voting-stock) by U.S. citizens. Additionally, two-thirds of an airline's governing board and its lead executive officer must be U.S. citizens. A key objective of these requirements is the maintenance of our national defense, and the Department of Defense has long been a strong supporter of the foreign ownership and control rules. U.S. airlines, especially those involved with the Civil Reserve Air Fleet, have obligations to our military in times of crisis. Our carriers provide essential airlift for military personnel and cargo. Should ownership or actual control of an airline drift outside of U.S. control, so would these resources.

Cabotage, a term of art in the international aviation and maritime industries, refers to commercial operations wholly between two domestic points. Foreign carriers are prohibited from conducting cabotage services in the United States. For example, Air France may not carry paying passengers between New York and Chicago.

If cabotage were to become legal, it would be the *only* instance where a foreign company could operate under foreign laws and regulations 100 percent inside of the United States. Cabotage protections are designed to apply to the aviation industry the same standard that every other U.S. industry enjoys.

ACTION:

→ The U.S. government should maintain all foreign ownership & control regulations, as well as all cabotage laws.

SAFE SHIPMENTS OF HAZARDOUS MATERIALS/DANGEROUS GOODS

Improving the Safety of Lithium Batteries Shipped by Air

ALPA has long advocated for improved transport requirements for dangerous goods. As witnessed in 2015 with hoverboards, and again in 2016 with the Samsung Galaxy Note 7, lithium batteries and other dangerous goods (aka hazardous materials) can create real safety threats in the absence of proper regulation. Mitigating the risk to aviation safety from dangerous goods requires a focus on two specific areas: improving dangerous goods regulations and eliminating shipments of undeclared dangerous goods.

The significant consumer demand for this high-density power source has resulted in rapid expansion in lithium battery production, supply, and proliferation (knockoff batteries). Consequently, this hazard is increasing exponentially. While 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 dangerous goods regulations for the carriage of lithium batteries as cargo onboard commercial aircraft, both passenger and cargo, continue to pose risks to air transportation.

New standards implemented by the International Civil Aviation Organization (ICAO) on April 1, 2016, made significant improvements to provisions under which lithium batteries are shipped as cargo by air around the globe. The Department of Transportation has begun the process of harmonizing these into the U.S. regulations; however, no final rule has been issued. Additionally, these new standards do 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.

In the FAA Modernization and Reform Act of 2012 (P.L. 112-95), Section 828, Congress directed the DOT not to regulate lithium batteries carried as cargo on aircraft stricter than the ICAO standards unless a fire onboard an aircraft could be proven to have substantially contributed to a fire involving lithium batteries in the cargo hold. There have now been three such accidents (UPS 1307, UPS 6, and Asiana 991), two of which were fatal to the pilots on board and all three of which destroyed the aircraft. The facts attribute lithium batteries as a large factor in all of these accidents.

The National Transportation Safety Board (NTSB), following the last accident involving Asiana Airlines Flight 991, issued a safety recommendation stating that it "believes that the circumstances and findings in the Asiana Flight 991 accident constitutes such credible evidence that demonstrates a deficiency in cargo-segregation requirements that would permit the HMR [hazardous materials regulations] to be changed to be more stringent than the current ICAO requirements."

ALPA agrees with the NTSB that the threshold set by legislation has been met and it is time to move forward on comprehensive regulations governing cargo shipments of lithium batteries.

Eliminating Shipments of Undeclared Hazmat

Hazardous materials (liquids, flammables, and other materials) shipped as cargo without being identified by the shipper are considered "undeclared" dangerous goods. There are no official estimates of what percent of parcel shipments contain undisclosed dangerous goods; 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 2015, the FAA received 1,129 reports of such events, and 564 of the incidents involved undeclared dangerous goods.

ALPA's research indicates that the biggest weakness in the shipment of dangerous goods by air is the reliance on an "honor system" approach by the airlines and regulators. Increased attention to and accurate data is needed to eliminate undeclared dangerous goods shipments by air.

ACTION:

→ DOT should immediately harmonize U.S. Hazardous Materials Regulations to conform to the international

dangerous goods technical instructions implemented by ICAO on April 1, 2016.

- To improve the Hazardous Materials Regulations, these regulations should at a minimum:
  - Provide lithium batteries with the full range of safety protections afforded other dangerous goods transported by air; and
  - Define special packaging requirements for lithium batteries when shipped as cargo by air.
- DOT should initiate a public awareness and education campaign outlining what materials are considered dangerous goods when shipped as cargo by air and improve hazmat training for employees who handle or ship packages.
- DOT should require shipper verification that the package, cargo, or freight being submitted for transport does not contain dangerous goods or hazardous materials.
- FAA and PHMSA should implement a pilot program that provides for the random screening of a small percentage of cargo packages transported by air.

MAINTAINING THE CURRENT MINIMUM FIRST OFFICER QUALIFICATIONS

The best and most important safety feature of any airline operation is a well-trained, highly experienced, and qualified professional pilot. 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 (P.L. 111-216) and regulatory changes that significantly improved aviation 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 is now viewed as a watershed event for the airline industry and aviation safety.

The U.S. Congress acted decisively and forcefully on the identified safety deficiencies by sending legislation to the president that addressed the documented shortcomings. P.L. 111-216, the "Airline Safety and Federal Aviation Administration Extension Act of 2010," was signed into law on August 1, 2010.

Following the establishment of the law, and based on industry recommendations on how best to implement it, the Federal Aviation Administration (FAA), citing 31 accidents over a nine-year period, issued regulations to establish minimum first officer training and qualification requirements. The regulations became effective August 1, 2013.

The regulations require that all airline pilots flying under 14 Code of Federal Regulations (CFR) Part 121 must hold the air transport pilot (ATP) certificate, instead of

only the commercial pilot certificate, and it created a new restricted ATP (R-ATP), which could be gained with fewer flight hours than the ATP if the pilot applicant receives aviation and flight training from the military or an accredited aviation college or university.

The new rules also emphasize significantly greater focus on academics and instruction, areas of knowledge, and flight experience in various weather and operational situations and also required a type rating in the aircraft to be flown for the airline employer, among other numerous safety improvements.

Some industry representatives who had initially been very supportive of the new regulations have since become critical of the new rules, arguing that they have created a pilot shortage. There is no reliable data to support this position. In fact, there is an adequate supply of qualified pilots and a robust pipeline of pilots to meet the needs of commercial aviation. In 2015, the FAA issued 6,430 ATP certificates, and in the first eight months of 2016, the FAA reported that they had issued 6,530 ATP certificates, including 599 R-ATP certificates. Regional airlines that report a shortage of pilots typically offer lower salaries, poor work-life balance, and fewer opportunities for career progression. Qualified pilots have many employment opportunities and some regional airlines have realized that to attract qualified candidates, they have to make competitive offers and invest in their pilots. Safety regulations should not be driven by the economic decisions of airlines.

Some are urging Congress to take action that would weaken, or eliminate altogether, many of the key components of the first officer qualification and training rules issued in 2013—reverting back to the environment that contributed to the 31 airline accidents cited by FAA. That is not in the public's interest.

ACTION:

- → Maintain both P.L. 111-216 and the associated FAA regulations. The regulations establishing minimum first officer qualifications were based on safety and risk analysis and have proven to have significant safety benefits.

- → Do not modify or alter either the law or the regulations. This includes any attempts to weaken or roll back minimum first officer qualification requirements.

FUTURE OF THE PILOT PROFESSION

Highly skilled and well-trained airline pilots play a critical role in the safe completion of every passenger and cargo airline flight. Attracting the best and the brightest to join the ranks of today's professional airline pilots continues to be a priority ALPA initiative. Based on all indications, it remains an outstanding time to choose the airline pilot profession.

For more than 30 years, ALPA has promoted the pilot profession as a career of choice. Through a multipronged approach, ALPA members conduct outreach in schools and universities throughout the United States and Canada. Dedicated volunteers have visited schools to educate students in elementary, middle, and high school about the joys and rewards of piloting commercial aircraft—in 2016, ALPA reached an estimated 10,000 students. We strive to inspire the next generation of pilots through discussion of technology, innovation, and the myriad of benefits of choosing this career.

Our efforts to promote the profession also extend to colleges and universities throughout North America. ALPA pilots regularly interact with college students who are enrolled in university flight-training programs. At the invitation of the university, ALPA pilots share insights into what the students can expect after they graduate and begin their commercial flying career. The students are encouraged to embrace the safety culture and professional behaviors early, so that they develop habits and skills that ensure they are well equipped to perform at their maximum potential when hired.

In 2016, ALPA initiated an effort with other aviation industry organizations to jointly promote aviation professions, including air traffic controller, aircraft dispatcher, flight attendant, and aircraft maintenance technician. We view the pilot profession as one of many viable options for those selecting a career, and the aviation industry should not be overlooked as an industry of choice.

Meanwhile, as stated above, certain segments of the airline industry claim there is a pilot shortage, and they often blame the shortage on a law passed by Congress in 2010 (P.L. 111-219). As a result of the law, the FAA implemented key safety enhancements to minimum first officer qualifications. The changes were implemented due to safety deficiencies identified in the aftermath of several fatal airline accidents. ALPA's perspectives on the importance of these safety enhancements are discussed in greater detail in other sections of this document.

The facts are clear—there is no pilot shortage in the United States. The annual number of airline transport pilot certificates issued remains strong. In fact, more than 25,500 certificates have been issued since July 2013. This rate of issuance continues to exceed the most optimistic pilot forecast.

Many airlines have recognized that hiring qualified pilots becomes easier when they increase pay and benefits and create career-advancement opportunities. Regional airlines that have added flow-through programs to mainline carriers have seen their hiring improve significantly. Many of these programs provide a path for employment through their code-share partners.

While the airlines that have increased pay, benefits, and quality of life have had no difficulty hiring qualified pilots, many regional airlines still have first-year salaries below $30,000. Basic economics should drive up these salaries if these airlines want to remain competitive in the U.S. market.

An airline pilot shortage is not responsible for small community air service challenges. Air service to small communities is impacted by economics, not pilot supply. In fact, access to and from many small communities has increased since 2012. Newer and larger aircraft have also increased the number of seats available in many small communities.

ACTION:

- → The United States must maintain current Federal Aviation Administration (FAA) regulations that set minimum standards for flight experience and qualifications to serve as a first officer that were prompted in part by several fatal airline accidents and resulted from an industry-wide effort that was led by representatives of the regional airlines.

- → All U.S. regional airlines should follow the example of those that have improved pay, benefits, quality of life, and flow-through programs and have as a result experienced greater success in hiring and retaining qualified pilots.

- → The industry should enhance efforts such as the collaborative "Aviation Works for You" website to promote aviation-industry professions and inspire new audiences to consider an aviation industry career.

SAFE INTEGRATION OF UNMANNED AIRCRAFT SYSTEMS

Unmanned aircraft systems (UAS), aka remotely piloted aircraft (RPA), or the popular term "drones" are flown autonomously and/or without a pilot on board the aircraft. UAS will eventually be integrated into the national airspace system (NAS), interacting with other aircraft in a manner similar to "pilot on board" aircraft today. This integration must not introduce any risk that could negatively impact the airline industry safety record.

The technology that supports these autonomous or remotely piloted operations is developing rapidly, and the number of commercial uses envisioned or already being employed is similarly expanding. Regulators, both in the United States and abroad, are struggling to keep pace. But they must not allow pressure to rapidly integrate UAS into the NAS to rush a process that must be solely focused on safety. Safety and technology standards 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. If UAS share our airspace, airline pilots need to be able to see them on cockpit displays, and air traffic controllers need to see them on their displays to safely separate air traffic. Further, the UAS must be equipped with active collision-avoidance technology.

If the UAS is not intended to be operated in the same airspace as airliners, then those restrictions must be programed into the UAS in a way that cannot be overridden. Licensed pilots with experience operating in the NAS have a better understanding of and ability to plan ahead for contingencies involving weather, system malfunctions, and operations around other aircraft or near critical infrastructures such as airports. They understand the role and mission of ATC and know where to go for help should an unforeseen circumstance arise.

The FAA has already produced rules to integrate small UAS (under 55 pounds) into our airspace system. These vehicles must operate below 500 feet above the surface, be flown within sight of the pilot, cannot be flown at night, and cannot be flown within five miles of an airport. This is a functional rule; however, Congress has forbidden it to be applied to "hobbyists." Section 336 of P.L. 112-95, the FAA Modernization and Reform Act of 2012, specifically exempts hobby and recreational use of drones.

FAA has slated rulemaking to govern large (over 55 pounds) UAS and, in the distant future, potential rules governing autonomously operated aircraft. For all of these rulemakings, it is essential that the FAA hold these new entrants to the same standards as existing commercial aircraft operations, both technical and operational.

ACTION:

- → Congress must eliminate the hobbyist exemption, Section 336 of P.L. 112-95, the FAA Reauthorization Act of 2012.
- → Any operator of small or large UAS used in commercial service should be subject to the same operation approval and oversight as a commercial airline.
- → If a UAS has the capability to or is intended to operate in the airspace shared by air carrier aircraft, then it must be designed to the same standards as air carrier aircraft and it must be equipped with the same "safety enhancing equipment" as air carrier aircraft, including an active collision-avoidance system, and must have the technology to allow it to be clearly shown on pilot and controller displays.
- → Altitude-limiting and geographic-avoidance features must be included if the aircraft is not

intended to operate in airspace occupied by "pilot on board" aircraft.

- Lost link must be addressed in the rulemaking procedures to ensure UAS are capable of safely landing without endangering other aircraft or persons on the ground though features such as "land immediately" or "return to home."

- Any person(s) in direct control of a UAS must be limited to the control of a single aircraft.

AIR TRAFFIC CONTROL MODERNIZATION AND REFORM

U.S. airlines account for 5 percent of the U.S. Gross Domestic Product. This statistic is particularly impressive given that, across much of the country, our aircraft continue to fly with 1950s air traffic infrastructure components. While these components are still safe, the aging infrastructure was not designed to accommodate advancements that we are seeing throughout the industry.

Technology that is commonplace in other areas of our lives, such as global positioning system (GPS), is not fully utilized in our aircraft due to a long-term lack of investment in the FAA's modernization initiative, called the Next Generation Air Transportation System (NextGen).

Upgrading the infrastructure allows airlines to build more efficient networks, which saves air travelers time and reduces aviation's environmental impact. Satellite-based navigation and aircraft tracking will greatly reduce the maintenance costs for the system as a whole, saving taxpayers money in the long run. Most importantly, these upgrades will enhance the safety of our system.

Unless continued investment in air traffic control modernization continues, future demands will jeopardize the high degree of safety and reliability that Americans rely on for transportation and shipment of cargo. The lack of investment has come in several forms: chronic underfunding of multiyear projects and unreliable federal authorizations.

As a result of these ongoing challenges, considerable discussion has ensued on how to best address the lack of consistent, reliable funding that enables the ATC upgrades to keep pace with the demands.

ACTION:

- Federal revenues raised through user fees or taxes on aviation should be dedicated to aviation.

- NextGen investments and funding for FAA should be provided guaranteed funding for multiyear projects.

- Appreciating the challenges inherent in modernization, ALPA believes a different construct for ATC could provide system efficiencies and operations benefits if implemented safely and according to certain characteristics. These should include, as a minimum, the following:

  - The ATC system economic model should be a not-for-profit entity. The financing method of that entity should be fair and equitable based on use of the system and take into account commercial aviation's benefit to the nation's economy.

  - Funding for the ATC system must ensure that reliable, predictable, and sufficient long-term funding is available for the sustained development and continuous modernization of an extremely complex system.

  - To ensure safety and optimal operability, the ATC system governance should be structured in a way that includes involvement in decision making by operators of the system: pilots and controllers; ALPA and NATCA.

  - The ATC system must be agile enough to adapt to technological advancement in a timely manner and robust enough to ensure that thorough, timely safety analyses of key programs and procedures are completed.

- The ATC system must ensure staffing is sufficient to maintain safe operations in any airspace or airport used by air carriers and other aviation system users.

- Any shift in responsibilities for providing ATC services from a government agency to another not-for-profit model (e.g., private, corporate, or federal corporation) must not disrupt or disturb the employer-employee relationship in an adverse way. Any shift must continue to provide a stable and secure working environment for all employees of the agency, including the continuity of the collective bargaining relationships and processes for the employees represented..

STRENGTHENING VOLUNTARY SAFETY REPORTING PROGRAMS

Voluntary safety reporting programs such as the Aviation Safety Action Program (ASAP) and the 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 nonstabilized 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. The safety programs triggered these studies, which ultimately led to the discovery that improvements to airspace and procedures design would reduce the false alarms. These examples prove that the underlying safety program reporting by the operators is the best source to identify potential risk areas to investigate and ultimately mitigate.

Automatic Acceptance

We can improve and increase the safety benefit of ASAP and voluntarily submitted aviation safety information by automatic acceptance of ASAP reports. Several ASAPs already have automatic acceptance protocols built in (at American and Delta Air Lines, for example). 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 and review the reports. Under an automatic-acceptance scenario, the safety benefit of the information would be realized immediately. However, a report could be excluded when the ERC convenes and it is determined to meet established exclusionary criteria. The automatic acceptance model works and should be universal to ASAP.

FOIA Protection for Security ASAP Reports Submitted to TSA

While these safety reporting programs have proven to be a significant benefit to the improved safety of our industry, we do not yet have similar programs in place for “frontline” employees to confidentially report security-related events and incident encounters. Airline pilots and other frontline aviation employees are well suited to serve as the “eyes and ears” of the industry. They know their workplace very well, will recognize something that is out of place or suspicious because of their intimate knowledge of the aviation domain, and want to help make aviation more secure. Developing and implementing a security-focused enhancement to ASAP would provide TSA and FAA with near real-time data that could be used to identify security risks to our aviation system and enhancements to mitigate those risks.

One of the impediments to developing and

implementing confidential reporting programs for security is the lack of protections from Freedom of Information Act (FOIA) disclosure by TSA of voluntarily submitted information. For FAA safety ASAP reports, the confidential data submitted is exempted from FOIA disclosure per legislation in the Federal Aviation Reauthorization Act of 1996 (P.L. 104-264). That exemption should be extended to TSA for confidential security-reporting programs.

ACTION:

- ASAP reports should be automatically accepted into the program, allowing reports that do not meet the criteria to be excluded after review, if necessary.
- Congress should expand the FOIA exemption already in force for ASAP reports submitted to the FAA per the Federal Aviation Reauthorization Act of 1996 (P.L. 104-264) to security-related reports submitted to the TSA.
- TSA, in collaboration with the FAA and industry partners, should expand the use of the ASAP reporting process—along with its enforcement protections for the reporting employee—to specifically include security-related information from frontline employees.

ADDRESSING CARGO SAFETY AND SECURITY

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, take off 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 cargo operations to the same standards as passenger operations. Cargo airline operations currently experience an accident rate that is seven times higher than passenger airline operations worldwide.

Security Standards Should Be Equal

Perimeter security is one of the largest differences between passenger and cargo security practices. Employees at passenger airlines and around passenger terminals must go through an extensive security process as well as security screening in many instances to be granted authority to enter security identification display areas (SIDA) unescorted. Flight ramps and gates for passenger operations all fall within the SIDA. In contrast, ramp areas used by cargo aircraft may not be required to be included in an airport operator's SIDA, and they are more easily accessible. In some cases, they are protected solely by a locked door or a chain-link fence, neither of which may be monitored. All Part 121 all-cargo operations should be conducted within the SIDA and protected in the same manner as passenger airline operations.

Anti-hijacking procedures referred to as the "common strategy" were created in the early 1970s by the FBI, the FAA, airlines, and ALPA, and revised after 9/11. It is intended to address all types of security threats encountered during passenger and all-cargo operations, and is based on the premise that there will be aircraft equipped with intrusion-resistant cockpit doors, properly trained people, and procedures for handling direct security incidents and threats.

This approach is sound and provides for needed layers of security, *if* all three measures are available. Unfortunately, for cargo aircraft not equipped with these intrusion-resistant cockpit doors, the tactics, techniques, and procedures designed to provide crews

with sufficient time to react to threats to the cockpit are meaningless. In addition, all-cargo flight crews are not required to be trained in the common strategy to the same degree as passenger crews, which defeats the purpose of the common strategy, which is intended to be used by crews during line operations. If the crew is not properly trained and required to utilize the strategy, there is no way it can be implemented effectively.

All-cargo operations face security threats that aren't always immediately apparent. For example, all-cargo aircraft often carry live animals, and animal handlers accompany them on the flight. In many circumstances these handlers carry tranquilizing drugs for use on the animals during flight. Most of the animal handlers are not airline employees, and many are foreign nationals, which limits the ability to conduct a criminal history records check on these individuals. This creates a significant risk to the cargo flight and crew when they are not protected from these potential threats by a cockpit door. We believe that any individual traveling on an all-cargo flight should be subject to the same level of security vetting and screening as flightcrew members.

Safety Gaps Must Be Addressed

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

One example of this safety double standard between cargo and passenger operations is pilot flight, duty, and rest regulations. While new flight- and duty-time regulations for passenger operations were issued in 2011 and implemented in 2014, those rules apply only to flightcrew members at passenger airlines and do not include all-cargo pilots. The FAA's original rule included all pilots, passenger, and cargo operations, but the cargo sector was removed by the Office of Management and Budget due to a flawed cost-benefit methodology. We believe that science-based flight, duty, and rest regulations must be developed for flightcrew members of all-cargo operations.

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

Further, cargo aircraft carry some very dangerous cargo such as blood-borne pathogen, chemical, and even radioactive material. Not only should ARFF be staffed during cargo operations, but ARFF personnel must be trained for dealing with fires on 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 money they need for staffing, equipment, training, and developing strategy for cargo-specific events.

ACTION:

- → Cargo operations should be required to be conducted within a SIDA.
- → Congress should require all-cargo airlines to implement all-cargo common strategy training and procedures
- → The FAA should mandate the installation of intrusion-resistant flight deck doors on Part 121 all-cargo aircraft manufactured after January 1, 2018, or the date of an FAA bill's enactment.
- → All animal handlers, escorts, or couriers traveling on all-cargo aircraft must be subject to the same screening and security procedures as flight deck crewmembers, including a criminal history records check, or be restricted to aircraft equipped with intrusion-resistant doors.
- → Ensure one level of safety and security for all cargo and passenger airline operations.

SECONDARY BARRIERS ON COMMERCIAL AIRCRAFT

The downing of four commercial airplanes and loss of nearly 3,000 lives on 9/11 was due, in part, to inadequate protection of the aircraft flight deck. Shortly after 9/11, Congress and the FAA required the installation of hardened flight deck doors on most commercial airline aircraft as one of many new layers of security. The hardened flight deck doors are an important improvement to security, but they are not a complete solution to preventing unauthorized individuals from entering the flight deck. The flight deck door must be opened during flight to provide for pilots' biological needs and for operational requirements related to safety.

As events have demonstrated, Americans still remain vulnerable to terrorist attacks. There have been at least 52 hijacking attempts around the world since 9/11. The U.S. government has repeatedly and recently confirmed that aviation, in particular, is still a target of radical terrorists and the threat of hijackings is real.

Since 2003, two major airlines have voluntarily installed a lightweight, inexpensive wire mesh, called a flight deck secondary barrier, on hundreds of their aircraft, which is permanently mounted between the flight deck door and the cabin. Boeing and Airbus offer the secondary barrier as equipment on new aircraft. Installation of retrofitted secondary barriers on aircraft already in the fleet represents a minimal cost, as they can be added at a cost of approximately $5,000 per aircraft or even less.

During the 114th Congress, legislation was introduced in both the House and Senate (i.e., H.R. 911 and S. 911) to address this issue by mandating secondary barriers for all commercial passenger operations. A version of these bills, which mandated secondary barriers on all new aircraft, was included in both the FAA reauthorization bill that passed the full Senate and the House counterpart that passed out of committee.[1]

ACTION:

- → Congress should include a secondary barrier requirement in any FAA reauthorization legislation that is considered in the 115th Congress.
- → The FAA should require secondary barriers on passenger aircraft.

IMPROVED SUPPORT FOR THE FEDERAL FLIGHT DECK OFFICER (FFDO) PROGRAM

In November 2001, the Aviation and Transportation Security Act (P.L. 107-71) was passed into law, which included provisions to allow vetted and trained pilots to be armed as law enforcement officers in the cockpit. Those provisions became the FFDO program, overseen by the TSA. Pilots who meet the qualifications are trained by TSA security professionals to be the last line of defense on an aircraft against a potential terrorist hijacking attempt. Today, FFDOs protect thousands of flights each day and serve as a cost-effective complement to our federal air marshals (FAM).

Since its first Congressional appropriation in 2002, funding for the FFDO program has failed to keep pace with the potential growth of the program.

The FFDO program is an essential security layer for our aviation system and should grow to fulfill its mission and goals. There needs to be a top-level vision for this program from TSA leadership which recognizes its essential mission and federal funding that is commensurate with that vision.

ACTION:

- → The TSA should include at least $25 million per year for the Federal Flight Deck Officer program for FY2018–FY2021.

1 *The House never voted on a full FAA reauthorization on the floor during the 114th Congress.*

CYBERSECURITY ON AIRCRAFT

At the beginning of commercial aviation, the associated risks encountered in flying were mitigated by the knowledge, training, and experience of the professional pilot. As new safety issues were discovered, sometimes through tragedy, regulators and the aviation community became more involved in overcoming these safety deficiencies through such advances as improved air traffic services, airport environment improvements, aircraft design, and increased aeronautical knowledge and training of the flight and cabin crew. The results speak for themselves as evidenced by the fact that airline travel is experiencing unprecedented safety levels.

Now more than ever, commercial airlines utilize highly advanced information technology (IT) systems to optimize their businesses. The airline IT systems of highest concern to ALPA are those that directly interact with or are components of the aircraft.

Aircraft design has also transformed significantly. Onboard networks are used to manage aircraft-operation systems including flight control and navigation systems. The aircraft systems are regularly updated with both software enhancements as well as updates to databases or other information that requires routine updates. Some onboard systems are routinely connected to communications systems for the exchange of information at various times both in-flight and on the ground.

Cybersecurity policies, procedures, and risk mitigations are increasingly needed to ensure aircraft do not become the victims of cyber-related accidents or incidents.

In order to further understand the risks associated with information security onboard aircraft, the FAA established the Aircraft System Information Security/ Protection (ASISP) working group within the Aviation Rulemaking Advisory Committee (ARAC). The ARAC sent the ASISP report to the FAA in August 2016, with 30 recommendations that address rulemaking, airworthiness standards, industry consensus standards, and technical standards orders. The ASISP also identified the need to conduct ongoing research to address cybersecurity-related concerns going forward.

It has become clear that a well-coordinated strategy developed by a greater level of stakeholder involvement is needed. The strategy development should result in the use of advanced aircraft cybersecurity systems, procedures, and protocols. Aviation has a strong history of addressing risks and ensuring that they do not lead to accidents, and as a result our system is the safest it has ever been. That is due to the commitments that government and industry have made together. That same commitment must now be equally applied to cybersecurity, as highly advanced technologies continue to enter every aspect of aviation.

While most would agree that the mitigations to maintain aircraft security should address hardware and software systems, ALPA believes that focus and attention is also needed on resilience. A well-trained and qualified professional pilot is a critical element for ensuring that aircraft security and the associated mitigations can be deployed, especially if a cybersecurity threat is identified during flight. In order to maintain a strong cybersecurity posture for safety and security of flight, a comprehensive strategy that includes the roles of pilots is required.

ACTION:

- The FAA should enlist the assistance of other federal agencies and industry stakeholders, including ALPA, to formulate strategies that mitigate the risks of harmful cyber-related attacks on airline aircraft.
    - Airline pilots should be considered one of the primary mitigation elements when developing resilience planning for events that occur in-flight. Include pilot education and training to meet normal and abnormal system conditions to maintain safety and security of flight.
    - Command capabilities and functionalities for monitoring cybersecurity health and the tools needed for the mitigation of real-time cyber events should be located on the flight deck.
- Physical access to any accessible aircraft system, IT hardware, and software must be secured at all times.

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