



INTERNATIONAL COUNCIL OF AIRCRAFT OWNER AND PILOT ASSOCIATIONS

POLICY MANUAL and POSITION PAPERS

Foreword

The diversity of interests existing within IAOPA affiliates combined with the wide range of issues confronting those organizations makes it imperative that a method of forming and maintaining policies be adhered to. Without well-formed and documented policies the representatives of IAOPA and its affiliated organizations have little foundation from which to develop policy statements that concern either regions or of the entire body of IAOPA affiliates.

Speaking with one voice on critical issues confronting general aviation is an essential element of the coherence and credibility for the council of associations. While specific issues may be difficult to link to a detailed policy, well-formed basic policies will enable representatives to develop statements that are well founded in broad policy statements that have been agreed upon by a majority of members.

Resolutions generated at IAOPA World Assemblies form the principal source of the statements that follow. Additionally, the IAOPA Secretariat develops policy documents for use in ICAO conferences and other international meetings; these documents are developed with the advice and counsel of subject-matter experts and leaders within the IAOPA community.

The origin of each of the policy statements, where known, is noted at the end of each statement. For instance, the notation (24/6) indicates that the statement was derived from resolution number 6 generated at the 24th IAOPA World Assembly. The notation (Secretariat 4-05) indicates that the IAOPA Secretariat developed the statement in April 2005 for use in response to an ICAO proposal or in conjunction with an international conference.

These statements may be updated, cancelled or added to at any time by input from IAOPA Board members, consultation with the Secretariat and vetting by all Board members.

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BASIC POLICIES

Affiliates

- >> Each affiliate organization must exert its best efforts to provide suitable volunteer delegates for IAOPA delegations to ICAO and other international meetings that consider matters of interest to general aviation and aerial work. (2/2)(updated 2-09)
- >> The President of IAOPA should make every effort to acquire representation on all ICAO panels, which deal with operational requirements of international civil aviation. (3/6)
- >> Each member organization is encouraged to maintain liaison and work with their national authorities to support and foster accomplishment of the objectives of IAOPA.
- >> Affiliates should strive to encourage national authorities to adhere to the provisions set forth by ICAO for the facilitation of general aviation and aerial work.
- >> Affiliates should provide facts to national authorities that demonstrate general aviation and aerial work's capabilities in achieving superior fuel economies over other forms of transportation. (5/6)
- >> Each national AOPA organization should appoint an individual to develop and disseminate information regarding the value of general aviation to the public. (12/4)
- >> Efforts to stimulate the growth of the pilot population should be undertaken by individual affiliates and by the Secretariat. (12/11)
- >> National AOPAs are encouraged to develop cooperative alliances and agreements within IAOPA to mutually expand services and membership, as well as to strengthen the AOPA concept rather than strengthen competing associations or businesses. (18/19)
- >> Affiliates should actively promote membership development for their organizations in order to strengthen the voice of general aviation within their country. (10/8)
- >> IAOPA affiliates will support and foster aviation safety within their respective countries and internationally. (10/9)

Regulatory/External Issues

- >> State aviation regulations should not impose restrictions more stringent than those stated within the ICAO annexes, except to meet reasonable local considerations. (13/9)
- >> Privatization of aeronautical facilities will not be supported unless it can be conclusively shown that such privatization will result in an overall decrease of all user charges presently imposed on general aviation operators. (16/16)

>> Every State should encourage the growth and development of general aviation and aerial work by providing public support for its general aviation community to the same extent it does for its national airlines. (17/14)

Security

>> States should develop security measures that do not impede the movement of general aviation and aerial work pilots and passengers at airports serving both general aviation and airline traffic. This should be accomplished by dividing airport security restricted areas into airline and non-airline areas where appropriate and achievable security measures apply, commensurate with the size and operational requirements of aircraft in each area. (22/3)

>> States that adopt security measures that could lead to the suspension or revocation of flying privileges or the denial of access to flight-training, should also adopt as an integral part of these proposals appeal and review procedures for the protection of an individual's rights. (22/7)

>> States should not to take unwarranted prohibitory or restrictive actions, such as the closure of the airports serving entire regions, in absence of well-evaluated and confirmed threats. (22/10)

>> Security guidance: (Secretariat 6/03)

States should:

- Provide names/descriptions of persons known or suspected to be associated with terrorist organizations to the operators of flight schools with the intent of denying these individuals of service
- Develop lists of characteristics (profiles) of persons who are also to be denied training and reported
- Maintain accurate registries of airmen and aircraft owners, check the registries against the databases of national security agencies, investigate questionable individuals and, when appropriate, revoke their licenses
- Require airmen to possess valid, counterfeit-proof licenses and identity media
- Maintain, and distribute appropriately, descriptions of all stolen aircraft
- Staff a center or centers to receive reports of stolen aircraft and relevant general aviation/aerial work incidents and direct immediate response by security agencies.

Owners and operators of general aviation/aerial work aircraft should:

- Take appropriate steps to prevent the theft of their aircraft by locking the cabin and using anti-theft devices, as needed.
- Verify the identity of an individual seeking pilot training, renting or purchasing an aircraft by checking a government-issued photo identification card.
- Verify the identity of all passengers, and ensure that those passengers know what is in their baggage and cargo.

- Be on the lookout for any suspicious activity on or near a landing site, and reporting that activity to the appropriate authorities

Landing site operators should:

- Install signs warning against tampering with or unauthorized use of aircraft
- Conduct a security threat assessment of the landing site and take appropriate steps to correct deficiencies
- Work with local law enforcement personnel to secure and patrol the site
- Separate general aviation and airline passengers using physical barriers and/or security procedures without additional cost.

>> States should not use deadly force against civilian aircraft that are not an immediate threat to State security. (Secretariat 7/03 and ICAO Convention Article 5)

>>ICAO, States and responsible authorities should:

- conduct threat analyses prior to imposing security restrictions on general aviation activities
- continually evaluate the effectiveness of security measures
- consider the operational and financial impact on general aviation activities prior to initiating security measures
- recognize the value of voluntary security measures used by pilots, aircraft owners, and airport operators. (23/4)

>>National security and aerodrome authorities should:

- ensure general aviation aircraft are parked in non-security restricted areas on aerodromes.
- provide access to general aviation aircraft through non-security sensitive perimeter access points.
- abolish mandatory handling requirements for general aviation aircraft.
- ensure that if mandatory handling is required, the cost of such handling should not be passed onto the general aviation operator.
- absorb or otherwise fund the cost of handling charges if mandatory handling cannot be eliminated. (24/9)

AERODROMES

General

>> All aircraft have the right of access to public-use aerodromes on fair and reasonable terms. (17/4)

>> IAOPA will foster the designation of an adequate number of aerodromes to serve international general aviation and aerial work traffic, including the provision of necessary clearance services.

>> IAOPA and its affiliates will guard against loss or reduction of aerodromes and facilities and, where possible, encourage the development of new general aviation aerodromes and the joint use of military aerodromes. (18/9)

>> Affiliates should urge their state authorities to implement the provisions of ICAO Annex 9 (Facilitation), that state, in part:

Adequate measures should be taken to ensure convenient parking and servicing of aircraft of all types and categories — regular, non-scheduled and general aviation aircraft — in order to expedite clearance and operations on the apron and to reduce aircraft ground stop time. (2/3) (update 02/09)

>> States and aerodrome operators should be encouraged to reduce all costs and fees relating to the operation of non-commercial aircraft. (9/4)

>> Any aerodrome that accepts international civil air traffic should be listed in the appropriate ICAO Regional Air Navigation Plan. (19/7)

>> Each national AOPA should, if found necessary:

- Undertake a study of restrictions placed on general aviation at aerodromes
- Make formal proposals to eliminate unjustified restrictions by promoting general aviation friendly policies used in other States
- Establish a yearly updated “General Aviation Aerodrome Improvement Plan” designed to promote the infrastructure needs of general aviation with national and local planning authorities
- Make sure that the needs of general aviation are duly taken into account in the various “Transportation White Papers” issued at local, regional and national levels
- Make efforts to provide airport policies both in national and English languages and make them available to the general public. (21/11)

Land Use

>> ICAO and member States should develop a policy and model legislation to regulate residential development in the vicinity of aerodromes. (17/10)

>> The sale of aerodrome property for non-aviation purposes to realize short-term financial gains should be discontinued. (19/3)

>> Publicly owned aerodromes should not be sold to private operators without a government-sponsored hearing on the issue. The desired result of the hearing would be a written agreement for the aerodrome to continue as a public use facility. (19/4) (revised 2-09)

>> States should:

- Protect the environment of general aviation landing sites from unwarranted intrusions by non-aeronautical activities
- Carefully regulate these non-aeronautical activities
- Ensure that fees derived from authorized activities are used for the benefit of the landing site being used. (21/9)

>>States and responsible authorities should:

- recognize the value of general aviation aerodromes as an essential part of their transportation infrastructure; and
- develop and enforce national and local land use policies and statutes designed to preserve and protect aerodromes. (23/3)

Operations

>> ATC procedures at aerodromes should be arranged so that separate paths between slow and fast aircraft are utilized during arrivals and departures. (19/2)

>> Short and/or parallel runways at major airports and reliever aerodromes should be provided to alleviate capacity constraints for general aviation in major terminal areas. Further, each capacity constrained aerodrome should have a capacity enhancement plan in effect. (13/6)

>> ICAO standards should permit only truly omni-directional runway lights for use at aerodromes so that they may be easily seen from any viewing angle. Further, airport associations should encourage members to replace existing bi-directional lights with the more visible omni-directional type. (21/4)

>> States should request their aviation authorities to require fuel providers to make AVGAS readily available to aerodromes that permit general aviation operations. (22/8)

>> Governments and public authorities should:

- require private companies authorized to operate government-owned public use aerodromes to provide general aviation fueling facilities.

- develop and enforce policies that will simplify regulatory and procedural requirements to provide fuel at aerodromes serving general aviation operations. (23/9)

AIRSPACE

>>Eliminate barriers that unduly impede or restrict the use of airspace by international general aviation and aerial work flights, such as restricted areas and closely controlled airspace not necessary for the safe and efficient control of air traffic. (update 02/09)

>>Simplify airspace structure and reduce controlled airspace to minimum amounts needed for the safe and efficient flow of air traffic. (3/5)

>>Provide a maximum amount of uncontrolled airspace, particularly at lower altitudes, for VFR traffic. (3/5)

>>Better liaison between civil and military air traffic systems must be achieved. (19/6)

>>General aviation aircraft should be equipped so that the capacity of the ATC system is increased and facilitated (within reasonable cost vs. benefit limits). (19/9)

>> Privatized or corporative airport or air navigation services must incorporate:

- Safety, service and accessibility features of the services should be carefully evaluated.
- Strong control and oversight should be exercised over entities selected to provide services, with regard to levels of safety and equity to system users.
- Equitable access to airport and air navigation facilities should be assured for all classes of users.
- Cost/benefit analyses for each class of user should be conducted when changes to the means of service delivery are contemplated. (20/3)

>> ICAO, State and military regulatory authorities responsible for classifying airspace should:

- Classify airspace at the lowest possible level commensurate with the type of operations conducted
- Involve stakeholders and use their input when developing airspace classification policies, standards and locations
- Coordinate airspace classification policy with nearby States and regional groups
- Design airspace using risk assessment and cost benefit analysis techniques. (24/3)

COMMUNICATIONS/NAVIGATION/SURVEILLANCE

General

>> IAOPA fosters the provision of air navigation and communications facilities adequate to the needs of international general aviation.

>> Requirements for additional/new equipment necessary to operate in the airspace system should not be imposed with less than seven years lead time. (19/10)

>> Encourage development of a multipurpose satellite system that will provide navigation, communications, surveillance, collision avoidance and search and rescue information. Multiple satellites/systems should be avoided to preclude investing in multiple systems/receivers. Satellite systems should be shared with other users to achieve maximum economy for general aviation users. (10/5)

>> IAOPA supports a navigation technology transition period of 10 years as well as a communications and surveillance transition over a 20 year period that will be affordable (that will present a favorable cost-benefit ratio) for general aviation aircraft owners and pilots worldwide. (18/8) (update 02/09)

>> Priority should be given by regulatory authorities to accelerated standardization and experimental evaluation by general aviation and aerial work users of such technologies to allow early use of enhanced navigation and communications techniques that will provide efficiency and safety benefits. (18/10)

>> The integrity of the aeronautical frequency spectrum must be protected. IAOPA affiliates should work with their national aviation and communications authorities to ensure positions are fostered at World Radio Conferences that will ensure adequate spectrum protection. (19/11)(update 02/09)

>> State regulatory authorities should conduct proper cost vs. benefit analysis and/or regulatory impact assessments before for any change to aviation services or equipment is required to access those services. These analyses must be carefully segmented to ensure that the interests of all classes of users are considered. (20/6)

>> There are a number of guiding principles that form an essential structure when contemplating CNS/ATM features for general aviation and aerial work. While these are not our only concerns these issues are of critical importance for current and future operations: (Secretariat 04/05)

- *Safety of the air traffic system must be the principal concern.* Safe operations for commercial air transport, State and GA/AW aviation communities must take precedence over any other consideration. To do less would invalidate any solution or system devised.
- *The costs for general aviation users to access and operate in a global ATM system should be equal or less than it is today.* With a single ATM system, duplicative infrastructure costs

and service provider overhead are minimized, thus reducing operating costs in all regions of the world.

- *With a new ATM system, general aviation aircraft operating under VFR should have increased access to all airspace areas.* Because of the air traffic management system's efficiencies and performance gains, more airspace should be available for VFR general aviation operations. Increasing the access and flexibility of general aviation operations in all airspace areas generates incentives for acceptance of a global ATM system.
- *A global ATM system should be capable of providing equal or better levels of service without expensive avionics upgrades or training.* An ATM system should result in improved safety, access and efficiency without costly equipment and training mandates. Any proposed equipment, system or procedure must be subject to segmented cost-benefit analyses that adequately accommodate GA/AW operations.

Communications

>>International and national authorities should implement regulations regarding aircraft in distress that permit affordable and practical alternatives to Emergency Locator Transmitters for general aviation, including devices and/or monitoring systems that do not have to survive a crash in order to provide a reasonable alerting and locating function, and to permit aircraft owners to select an alerting and locating option that is appropriate for their type and area of operations. (24/6)

>> IAOPA affiliates should work cooperatively in advancing the interests of general aviation/aerial work by developing strategy and consensus on new data link requirements and to combine the strength of the United States of America and Europe in order to influence government regulatory decisions. IAOPA affiliates should urge service providers and regulators to:

- Provide multiple channels of communications, surveillance and information to users through data-link technology
- Demonstrate that one or more methods contain clear advantages for general aviation/aerial work
- Conduct segmented cost-benefit analyses to prove data-link viable
- Not require data-link as mandatory equipment to participate in any class of airspace
- Provide significant benefits for data link usage that encourages voluntary equipage. (21/6)

>> Urge regulatory authorities to implement more efficient frequency management techniques that make best use of the given frequency resources in the 25 kHz VHF aeronautical channel spacing to prevent adopting 8.33 kHz spacing. (22/9)

Navigation

>> Urge all States to adopt GNSS as an approved navigation system for IFR and VFR operations. (16/5)

>> The 108-112 Mhz frequency spectrum currently used for ILS localizer signals should be retained for aeronautical use regardless of the ILS service termination dates. (Secretariat 02/05)

>> FM Broadcast Interference:

- Oppose ICAO action that would mandate new avionics as a consequence of FM broadcast interference.
- Establish FM broadcast power limits to preclude interference with ILS receivers.
- Coordinate implementation of aeronautical and FM broadcast frequencies to reduce interference effects.
- Develop alternatives that would require FM broadcasters use advanced technology equipment that would reduce interference with aviation frequencies.

>> Future satellite air navigation systems must be integrated and coupled to another separate and independent long-range navigation system to permit a backup for the primary system. (14/6)

>> Governments of all States in which LORAN-C transmitter chains are now operated, should continue to support such operation until it has been determined that LORAN-C will have no role in providing backup navigational capability for GPS/GNSS operations. (Secretariat 19/12)

>> Protection of frequencies required to implement the next generation GNSS must be assured; this is a safety of flight issue. (19/13)

>> Encourage testing to demonstrate that space-based augmentation systems will meet the requirements for general aviation operations before terrestrial navigation systems are decommissioned. Furthermore, that there should be transparently produced cost-benefit studies to ensure that the replacement of terrestrial systems by SBAS is economically sound. (20/15)

>> Global Navigation Satellite Systems (GNSS) used for aeronautical applications should be backed-up by a terrestrial back-up system compatible with and equally suitable for aeronautical, maritime, and land side applications. (21/12)

Surveillance

>> The voluntary installation and use of transponders is encouraged where it can be demonstrated that their use will contribute significantly to flight safety and will benefit the user through increased ATC flows. (14/10)

>> Priority shall be given to the development of standards for GNSS transponders with inter-communications capabilities [Automatic Dependent Surveillance]. (17/13)

>> ACAS should not be required for small general aviation or aerial work aircraft. (10/98)

>> *Mode S transponders have not proved their value for general aviation aircraft. Any efforts by ICAO, regions or States to mandate use of Mode S transponders should be subject to realistic cost-benefit analyses and public hearings to determine the potential value of these devices:*

- for aircraft with a take off mass up to but not more than 5700 kgs operating under IFR a Mode-C transponder may be required (ACAS is capable of interrogating Mode-C signals).
- only aircraft operating in Class A, B or C airspace should be required to equip with Mode C transponders (19/14) (update 02/09)

>> State regulatory authorities should not require the installation of Mode S transponders in general aviation aircraft, except for aircraft requiring the installation of TAWS equipment. (20/5)

ENVIRONMENT

>> Affiliates must be sensitive to the environmental concerns of the public and take steps to educate both the public and their members about the relative merits of their mutual concerns. (10/98)

>> Change ICAO Annex 16 Aircraft Noise standards to reflect a more realistic power setting than the “maximum continuous power” setting now imposed for the measurement of normal level flight conditions. (7/9)

>> In view of safety considerations, noise abatement procedures should be designed in view of the normal operating limitations of general aviation aircraft, taking into account high cockpit workload during the arrival and departure phases of flight. (7/10)

>> Aircraft owners and pilots should do their utmost to be good neighbors to the non-flying public by implementing all reasonable technical improvements enabling them to reduce noise pollution. Noise reduction equipment certified to international standards should be accepted without any supplementary national requirements and costs. (16/18)

>> States should not enact aircraft noise standards that are more stringent than those listed in ICAO Annex 16. (19/18)

>> IAOPA affiliates and States should invest more in getting the good news of general aviation progress into the public domain. This is needed to inform the public about our technical achievements and operational procedures designed to reduce aircraft noise impact. (20/14)
(update 02-09)

>> Leaded aviation gasoline:

- States and international organizations should exempt general aviation and aerial work aircraft from lead compound fuel additive bans until an economical and practical solution is found
- Encourage general aviation aircraft engine manufacturers and refiners of 100LL fuel to develop suitable alternative fuels compatible with environmental and public health mandates
- Urge states, as well as aircraft and engine manufactures, to permit the use of existing supplemental type certificates (STC's) for alternative general aviation engine fuels, and
- Encourage general aviation aircraft users, whenever available, to use suitable unleaded alternative fuels compatible with environmental and public health mandates. (20/7)

>>Although the effect of general aviation aircraft engine exhaust emissions on atmospheric pollution is minimal, IAOPA strongly supports the enhanced production of aviation gasoline and jet fuel containing environmentally friendly materials of biological origin that will meet aviation fuel standards. (23/6)

FACILITATION

>> There should be no discrimination with regard to the type of international flight operation concerning the use of international airports. (7/11)

>> An adequate number of airports should be designated to serve international general aviation and aerial work traffic, including the provision of necessary clearance services.

>> Affiliates should work for the establishment of national facilitation committees as well as local facilitation groups. (7/12)

>> Efforts should be made to reduce excessive charges for customs and immigration clearance services and to eliminate overtime charges for those services.

>> National inspection authorities should allow inbound clearance on international flights based solely on flight plan notification and to clear such aircraft using a single inspection provided by a single authority. (2/6)

>> Provide facilities at general aviation airports that will enable pilots to acquire necessary meteorological information and to file flight plans. (3/5)

>> Free transportation should be provided to crew and passengers between any remote aircraft parking area and the clearance and flight planning facilities. (12/14)

>> Pilot certificates should be accepted in lieu of a passport for non-commercial flights as is the case for flight crew members on flights operated for compensation or hire under ICAO Annex 9, Facilitation. (12/14)

>> Fuel and other services should be available to general aviation aircraft as they are for other types of civil aircraft operations. (12/14)

>> Major credit cards should be accepted for all governmental airport charges and fees. (12/14)

>> States and airport authorities should take no longer than 15 minutes for the completion of all required normal departure/arrival formalities or 60 minutes for aviation security measures. (Secretariat 4-05)

>> Equip the parking spaces designated for facilitation with the necessary means for rapid, convenient and safe performance of all aircraft servicing operations, including equipment for secure tie downs. (Secretariat 4-05)

>> Airport authorities should provide at any time access to parked aircraft for its crew or authorized agent. (Secretariat 4-05)

>> States are encouraged to issue ICAO Crew Member Certificates to private pilots to facilitate immigration processing at international airports (Secretariat 12-07)

METEOROLOGY

>> IAOPA promotes the provision of adequate weather reporting and forecasting services in those areas used by international general aviation and aerial work, including the necessary communications facilities to make this information available to pilots for preflight briefing and in-flight information purposes.

>> Affiliates and the Secretariat work with the World Meteorological Organization (WMO) and other international organizations to obtain meteorological services that fully meet general aviation and aerial work requirements. (2/4)

>> Basic meteorological reports and forecasts should be available for airports used by international general aviation, in accordance with existing ICAO standards for this information. (8/3)

>> Essential meteorological information should be made available free of charge to all pilots via electronic means. (Secretariat 11-05)

MISCELLANEOUS

General

>> IAOPA shall abstain from patronage [sponsorship, support, endorsement] of national aviation events; where appropriate, the Secretariat will give regional or world publicity to such events. (3/8) However, IAOPA will not discourage events such as proficiency competition, navigational rallies or demonstrations of pilot proficiency. (8/6)

>> IAOPA will not support or encourage over-ocean air racing. (8/6)

>> IAOPA publicly condemns aircraft hijacking. Urge all authorities having jurisdiction in the matter to expend every effort to prevent aircraft hijacking. (3/9)

>> Affiliates should embark on anti-drug smuggling projects and cooperate with law enforcement agencies on this issue within in their countries. (14/4)

>> States should adhere strictly to the ICAO Standards and Recommended Practices for that region. (4/10) (update 02/09)

>> States should be urged to recognize the validity of insurance underwritten in the country of aircraft registration. (5/9)

>> States should publish their Aeronautical Information Publications in an easily accessible and readable manner. Further, AIP change dates should be reduced to the minimum number practicable -- preferably not more than once monthly. (7/4)

>> National AOPAs should incorporate the fast growing categories of ultralight/microlight/very light aircraft into their membership, and promote training in them to international and national aviation standards in order to enhance safety in the air. IAOPA should support national AOPA's on an international level to represent the interests of those categories. (22/6)

>> Biennially, no later than 60 days prior to each World Assembly, each affiliated national organization shall provide the Secretariat with statistics regarding its national organization and general aviation in its country using a format set forth by IAOPA. The Secretariat shall compile these statistics and provide World Assemblies with this information. (7/5)

>> All States should permit the carriage and use of cameras onboard civil aircraft. (12/5)

>> Aerial survey and aerial photography, outside of restricted areas, for research and leisure purposes should not be denied or otherwise restricted by State regulatory authorities. (21/10)

>> State regulatory authorities, including European Commission, should encourage the collection and publication of meaningful general aviation data so that in the future proportionality decisions can be reached more readily. (24/7)

Aircraft/Airworthiness

>> States should create an aircraft certification procedure and standard specifically for light aircraft and engines that will yield a standard airworthiness certificate; this should include a means for the owner to complete final assembly of a new aircraft or to convert an existing standard category aircraft to the new category. (10/13)

>> General aviation aircraft certification and continuing airworthiness standards should not impose unrealistic or excessive measures beyond those required for the safe and economical operation of aircraft. (19/17)

>> Encourage aircraft piston engine manufacturers and governments to research, develop and authorize aircraft engines for general aviation aircraft that will function safely and economically on automotive fuel. (6/3, 9/8)

>> Aircraft maintenance issues:

- Maintenance schedules should be appropriate to the operation and not be unduly restrictive.
- Owner/operator maintenance should be permitted to the maximum extent possible for non-commercial aircraft operations.
- All maintenance programs should be designed to achieve safety at a reasonable cost. (19/13) (Update 2-09)

>> Urge State regulatory authorities to adopt as mandatory requirements for non-commercial aircraft only the provisions specified in the airworthiness limitations of the approved maintenance manual, Type Certificate Data Sheets (TCDS), or an Airworthiness Directive (AD), and not any other manufacturers' recommendations contained in Service Bulletins, Service Instructions and Service Letters relating to power plants, their accessories and airframes and their components. (22/4)

>> IAOPA affiliates should urge their State aviation authorities to widen the acceptance, on a bilateral basis, for non-type certificated aircraft to operate in each other's States. (22/5)

Secretariat

>> The Secretariat will regularly publish a newsletter for IAOPA affiliates, providing news of affiliate and Secretariat activities, ICAO actions and articles of general interest.

OPERATIONS

>> The necessity for, and the validity of the “see and avoid” concept is reaffirmed; IAOPA is dedicated to continue use of this concept as the basic mode of flight operation. (8/8)

>> To enhance the viability of see-and-avoid in the lower airspace, a speed limit of 250 knots on all flights below 12,500 feet should be imposed, except where all traffic is controlled.

>> Airspace where ATC services are denied due to unavailability of ATC personnel as a consequence of a work action or strike should remain open to uncontrolled flights. Any requirement for a clearance or mandatory flight plan shall be suspended and restored by NOTAM. (8/10)

VFR

>> Provide procedures that permit properly qualified pilots flying properly equipped aircraft to operate under VFR in controlled airspace.

>> National authorities should accept the provisions of other States’ pilot certificates that enable those pilots to operate under VFR in controlled airspace. (3/11)

>> Simplify and standardize regulations and information pertaining to VFR operations. (6/6)

>> Urge all States to permit night VFR operations in general aviation aircraft. (6/14, 8/9)

>> Minimum VFR visibility requirements where an aircraft speed limit exists should be not greater than 3 statute miles. (10/98)

>> Permit VFR over-the-top operations where the pilot is qualified and the aircraft is equipped for IFR flight. (10/98)

IFR

>> IFR operations should be allowed with the minimum amount of equipment and aircraft and pilot certification requirements necessary for a particular type of operation. (19/16)

>> Free-flight operations (direct, off-route legs with a minimum amount of control imposed) are endorsed only if reasonable equipment and certification requirements are imposed. (19/15)

Unmanned Aerial Vehicles (UAV)/Unmanned Aerial Systems (UAS)

>> ICAO should develop, and its member States adopt, uniform standards and recommended practices addressing UAS issues including the following:

- system reliability and safety
- temporary or permanent airspace restrictions that restrict general aviation
- sense and avoid standards
- communications with ATC facilities and piloted aircraft
- operational control
- operator qualifications, proficiency and liability
- coordination with conventional aeronautical activities
- abnormal operations (failure modes)
- recognition of UAVs as aircraft, meeting the same standards as other aircraft and aircrew; this will minimize airspace restrictions *and* safety impact on general aviation. (23/5) (Update 2-09)

PILOTS

- >> States should permit foreign pilots who have licenses issued by States that meet ICAO standards to fly under VFR conditions as pilot-in-command of non-commercial aircraft registered in any ICAO state without further demonstration of knowledge or proficiency. (5/8, 10/9) (Update 2-09)
- >> States should use only the requirements for issuance of an instrument rating listed in ICAO Annex 1 in an effort to promote universal acceptance of instrument ratings and pilot certificates by all contracting States. (7/7)
- >> The provisions of ICAO Annex 1 should be written as a minimum standard only, allowing for innovation and more effective training. (8/11)
- >> Private pilot privileges should specifically include sharing of costs of the flight with passengers, provided the pilot is making the flight for his own purposes and not solely to provide transportation to his passengers. (10/11)
- >> States should establish a national pilot certificate not valid for international operations to permit easier entry in to aviation. (12/6) (Update 2-09)
- >> Recognize flight training as an educational activity that produces jobs and eliminate heavy taxation often associated with it that discourages this vital form of occupational training. (18/13)
- >> Private pilot licenses should not be denied persons who can demonstrate flight proficiency, regardless of an individual's age. (13/7)
- >> Color vision requirements should be deleted from medical requirements for all grades of pilot licenses restricted to VFR daylight flight. However, in the event that the distinguishing of various colors becomes a necessity for pilots to operate aircraft under conditions, which require accurate color perception, that visual ability should be made an operational (rather than a certification) requirement. (18/5)
- >> Hearing impaired pilots should be permitted to act as pilots in command of aircraft operating in airspace not requiring two-way radio communication. (19/10)
- >> States should recognize and validate pilot licenses issued by ICAO contracting States without undue formality or background checks, in the spirit of ICAO Convention Article 33. (21/3)
- >> Encourage States to streamline government administrative and security processes that will facilitate the validation of foreign pilot licenses. (23/7)
- >> Medical certification requirements must be based on sound scientifically or medically derived evidence that clearly indicates the efficacy of each test, procedure and requirement specified in pilot medical certification examinations. (Secretariat 9-04)

>>ICAO Language Proficiency Requirements. IAOPA strongly recommends the following:

- Reevaluate the proficiency level requirements for pilots operating both VFR and outside major TMAs.
- Establish a system to standardize language proficiency testing agencies to a uniform level of competency.
- Simplify the testing procedures as much as possible.
- Encourage bilateral agreements among States that will reduce the impact of the language proficiency requirement for VFR operations. (Secretariat 5/05) (Update 2-09)

USER CHARGES/TAXATION

>> General aviation users are prepared to pay only those reasonable charges needed to cover efficient provision of facilities specifically required for the safe operation of general aviation aircraft on aerodromes and in the airspace through which transit is required. These fees and charges must only be enacted after consultation with the user/beneficiary of these services. (13/12)

>> Fees should not be levied to constrain or ration general aviation growth or demand. Further, general aviation should not be charged for services, which primarily benefit the public interest or other classes of users. (14/9)

>> Taxes collected from general aviation should be expended on general aviation projects. (8/4)

>> National authorities should remove or refund the automobile or highway portion of the tax on aviation fuel products. Further domestic aviation fuel taxes should be set at the same levels imposed for international use. (2/5)

>> Full cost recovery of enroute, aerodrome and facility user charges have retarded or reversed the growth of general aviation activity; these charges should be replaced by State-provided facilities and services, where broad public interest can be shown. Further, general aviation activities should be exempted from any special fees, charges or taxes in the nature of user charges imposed by States. (5/12)

>> User fees should be kept as low as possible and imposed fairly with due credit given to all fees and taxes paid by general aviation. Further, general aviation representation must be provided an active voice when determining fees and taxes. (12/8)

>> Fuel taxes should be imposed in a uniform manner, regardless of an aircraft's state of registry. (12/9)

>> Head taxes should not be imposed on international general aviation passengers. (12/13)

>> ICAO should recommend to its European member States that they adopt a structure of airport user charges including landing fees based on aircraft weight that do not discriminate against general aviation. (15/9)

>> Policies should be adopted by ICAO and contracting States opposing air traffic control charges for VFR flights. (17/9)

>> *The charges [airport and air navigation service provider] levied on international general aviation, including business aviation, should be assessed in a reasonable manner, having regard to the cost of the facilities needed and used and the goal of promoting the sound development of international civil aviation as a whole.*

(ICAO'S Policies on Charges for Airports and Air Navigation Services, Doc 9082/8, 2009)

>> States should give due recognition to the fact that general aviation users already pay for it's environmental impact through the burden of taxation and/or fees. (23/8)

>>Appropriate regulatory authorities should require air navigation service providers and airport operators to:

- fully disclose the financial components of proposed projects or added charges.
- prepare and publish a segmented cost-benefit analysis for each project/charging scheme. The segmentation is required to evaluate the effect and efficacy of charges/fees on each segment of the user community.
- provide a formal and effective means of redress for disputed charges/fees should be available and clearly spelled out in any proposal.
- charge users only for services actually required and received.
- and, consult all user groups regarding changes to existing charges. (24/4)



**POLICY PAPERS
ISSUED BY THE SECRETARIAT**

What is general aviation? What does it need?

General aviation and aerial work operations
What are they and how do they work?

General aviation fits into the system

Global CNS/ATM policy -- general aviation and aerial work requirements

IAOPA input for ICAO Security Manual (doc 8973)

Economics of airports and air navigation services

ICAO top safety items -- IAOPA input

General aviation safety improving but state support required

IAOPA Comments to ICAO Consultation Regarding Unmanned Aerial Vehicles (UAV)

IAOPA Comments on ICAO Language Proficiency



What is General Aviation? What Does It Need?

When the name "general aviation" is mentioned most members of the public conjure up a mental image of a small single-engine piston-powered aircraft, operating for recreation out of a small rural aerodrome. This image is correct for only about one-quarter of worldwide general aviation and aerial work activities. The other three-quarters of the roughly 40 million annual GA/AW flight hours are occupied with flight instruction, business travel, agricultural application, emergency medical services and other gainful pursuits. In fact, the diversity of GA/AW is so great that ICAO defines general aviation operation by exception: those flight activities not involving commercial air transportation or aerial work. Similarly, aerial work may only be generally defined as operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development, etc.¹

In sheer numbers GA/AW is impressive: Approximately 350,000 aircraft and one million pilots are involved in these activities worldwide. On balance, roughly 60,000 aircraft and 500,000 pilots are employed in commercial air transportation (including cargo and charter).

The significance of GA/AW becomes greater when it is realized that every airline and military pilot must begin their journey to professional competence in the cockpit of a general aviation aircraft. Further, the essential services provided to the public by GA/AW for police, emergency medical services and search and rescue make all of our lives safer and more productive. Aerial survey, agricultural application and pipeline/power line patrol add significantly to many aspects of the economy. And, for the many remote areas of the world, life and civilization would not be possible without the benefits provided by GA/AW operations.

GA/AW activities globally create hundreds of thousands of jobs and tens of billions of dollars for the countries these activities serve. Without this activity essential transportation functions would be eliminated and the opportunities associated with them would be lost to the economies they potentially serve. Therefore, GA/AW needs and desires should be taken seriously as a worldwide economic engine.

Evolution

General aviation has come a long way since the first GA airplane, the Wright Brothers Flyer. From the fragile creations of old movies and photographs the general aviation aircraft has made

¹ ICAO Annex 6, *Operation of Aircraft, Definitions*.

great strides over the past century. While post-WW I aviation was limited to daredevil exhibitions and avid amateurs, the post-WW II era established general aviation's position as a legitimate form of transportation. The major technological strides brought by war paved the way for safe and reliable small aircraft and stimulated the interest of a generation of young men and women returning from war.

The late '40s and '50s saw great growth in general aviation worldwide. The good economic times in the decades following the war permitted a new generation of aviation enthusiasts to seek their fortune in the skies. Single-engine aircraft production soared worldwide to meet the requirements of the new breed of aviator; flying schools and airports struggled to meet demand.

Aeronautical advancements of the 60's and 70's enabled GA/AW to become an all-weather, utilitarian form of transportation. The growth of affordable communications and navigation radios along with a more capable air traffic control structure gave rise to an increasing number of business ventures built around light aircraft operations. Finally, GA/AW could effectively compete with the airlines on trips under 500 miles.

The final decades of the twentieth century saw a consolidation and strengthening of the earlier post-war gains in GA/AW. More pilots became instrument rated to take advantage of the utilitarian benefits of all-weather transportation and flight training organizations rose to meet the increased levels of sophistication required to provide that level of training. GA/AW had finally arrived as a desirable alternative to airline travel now fraught with delays, cancellations and poor service.

Larger and developing countries have reaped the greatest benefits from GA/AW because of their dependence on a small aircraft's ability to rapidly access remote or lightly traveled areas. Yet, smaller, well-established countries also benefit from the efficiencies and flexibility arising from GA/AW activities. All gain from the public safety and utilitarian aspects provided by small aircraft.

Sharing the System

The world's aviation infrastructure was put into place principally to support the airlines and military aviation. GA/AW requires very little unique infrastructure and is a minority user of those facilities and services provided for larger commercial activities. The single exception to this statement is that GA/AW thrives through the use of local and regional airports. Indeed, it is through these smaller airports that general aviation derives its greatest advantage.

The majority of airline travelers begin and end their journeys at a small fraction of available airports, as few as one percent of available airports in some countries. In doing so airline travelers are subjected to lengthy ground trips to access major hub airports; lengthy delays are often associated with operations at these airports. Conversely, GA/AW operators enjoy a variety of conveniently located small airports from which to operate.

But, if GA/AW operations are to take advantage of their unique utility and flexibility they must occasionally use metropolitan area airports. In doing so they share the increasingly scarce

resources of available runways and overlying airspace. The complexity of operations in these areas also requires a variety of expensive equipment to be installed in all aircraft, not just airliners. The combination of scarce runways and airspace combine with expensive equipment to create access barriers for GA/AW.

In reality, the special performance characteristics of GA/AW aircraft and their ability to stay beneath tightly controlled airspace allow these aircraft to avoid constraints imposed on larger, higher performance aircraft. For instance, a single-engine piston-powered aircraft can easily operate out of a 1,000 by 15 meter runway, one-third the size required by airliners. And, by staying low and within carefully designed corridors expensive surveillance and navigation equipment may be omitted from small aircraft.

In essence, GA/AW operates at the margins of an infrastructure designed specifically for the airlines. The smaller aircraft take advantage of the unused capacity of the larger system, effectively increasing the overall efficiency of a complex infrastructure.

Principles of fairness and equity should govern use of the aviation infrastructure within each State. Efforts must be made to accommodate all types of operators.

Paying the Way

Many countries of the world fund their aviation infrastructure development through user charges. While airlines pass these costs through to passengers, GA/AW must bear this burden as a direct operating cost. More importantly, most countries levy taxes associated with fuel consumed; yet few of these monies flow back to the aviation infrastructure. Therefore, GA/AW is often double-charged for the services they receive. Additionally, a hidden “tax” is imposed on small aircraft in the form of expensive equipment mandated for operations in increasingly complex airspace.

Financing basic aviation infrastructure should be accomplished by the State, using excise taxes derived from either fuel tax revenues or passenger ticket taxes. Where privatized or corporatized providers are involved, conventional private or subsidized capitalization schemes may be employed. And, since basic civil safety and order functions are involved in providing aviation services, a portion of the State's general revenues should also be used to create a safe and efficient infrastructure.

Once the capital, research and development and future improvement costs of operational services have been accommodated, operational costs may be recovered through similar methods or a system of graduated user charges. The use of excise taxes and other levies to fund system operations and maintenance are preferable due to the ease of collection of revenues and the lack of need for a complicated accounting system. Yet, operators who do not use certain services should not be charged for those services.

If direct user charges are employed, a graduated system of fees should be used that recognizes value for services received. Since the infrastructure is designed primarily for airline and military interests, general aviation and aerial work activities should be viewed as marginal users of the

system and charged accordingly. Ideally, very marginal users such as gliders, ultralights and light-weight homebuilts with little or no avionics and that typically only fly locally should be exempt from any charges.

Charges for services must not discourage use of the system, as this would encourage unsafe practices. For instance, requiring a private pilot to pay a significant fee for meteorological and NOTAM briefings and for filing a visual flight rules (VFR) flight plan may actually contribute to unsafe operations. This is because pilots may choose to omit these essential safety services in an effort to avoid the associated charges. Therefore, consideration must be given to providing essential services using general government funds in support of safe operating practices.

The existing guidance provided for Air navigation services charging systems contained in ICAO Document 9082/5 provides succinct and appropriate counsel:

The charges levied on international general aviation should be assessed in a reasonable manner, having regard to the cost of the facilities needed and used and the goal of promoting the sound development of international civil aviation as a whole.

All taxes, fees and charges associated with airport and air navigation services must be established as a cooperative effort between government regulator, service provider and service user. Only a joint effort of this nature will yield a workable, safe and effective aviation infrastructure and avoid the “double taxation” that can occur if the service provider and the government collect fees and taxes from users. Dictated funding systems or those biased for or against any user segment may cause users to subvert the system in an effort to avoid unwanted charges. Finally, once planning and use mechanisms are put into place an ongoing dialog is necessary to preserve the system.

The Future

As the world economy broadens and becomes increasingly intertwined, safe, rapid and accessible transportation will become more important than ever. For, while improvements in communications technology bring us closer together, the need to be face-to-face is increasing, too – witness the recent rapid growth of airline travel. Air travel has become an accepted feature of the modern world; this acceptance insures its future growth.

While commercial air carriers have not reached their capacity limits, each additional flight, especially in or near major cities, meets with increasing uncertainty about its on-time performance or viability. Delays at hub airports have become a way of life and will likely be aggravated as air travel growth continues.

General aviation and aerial work offer an alternative to this bleak picture of future airline travel. The ability of small aircraft to operate at suburban and rural airports in airspace not used by the airlines presents enticing alternatives. The promise of future intercity transportation lies in alternative forms of transportation; general aviation operations open a door to but one form of fast and efficient transportation.

For this to become a reality enlightened governments must accept and embrace general aviation as a credible and attractive transportation alternative. In doing so they must enact fee structures favorable to small aircraft operations, ensure that smaller airfields are protected and encouraged and provide for fair and equitable access to airspace and infrastructure resources, recognizing that GA/AW are marginal users of a system developed for and primarily serving the airlines.

The extraordinary advantages provided by GA/AW place it in a category that defies the adjectives “general” and “aerial.” Because these unique forms of transportation contribute significantly to national economies and provide much needed flexible transportation, they deserve a more descriptive term – how about “special” or “utility” aviation? ³⁻⁰¹

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General Aviation and Aerial Work Operations

What are they and how do they work?

General aviation comprises virtually all civilian flights except those involving compensation or hire. A small segment of aviation called aerial work is officially different from general aviation (see ICAO definitions), but general aviation essentially flies everything that the airlines and air charter operators don't.

As simple as that?

Yes. And as complex as that. General aviation and aerial work (GA/AW) include flying as diverse as aerial photo mapping and a weekend visit back home; as different as emergency medical evacuation and inspection trips to remote construction sites; as complementary as aerial application to keep crops healthy and airborne law enforcement to keep the peace. Just for starters.

General aviation benefits the community in so many ways it's hard to cover them all. We scan a few on the following pages.

An estimated two-thirds of GA/AW flights are conducted for business and public services that need transportation more flexible than the airlines can offer. That flexibility can be a hometown businessman flying his own small airplane to see four clients on a one-day, 700-mile circuit, or it can be a CEO and five staff members working at 30,000 feet while en route to a major meeting. By scheduled airline, the first could take four days and three hotel bills; the second would be impossible.

Like the family automobile, the family airplane (owned or rented) can provide mobility and pleasure, and it's almost always a more enjoyable trip by air. The family airplane can triple the comfortable range of vacation travel while avoiding the stress and frustrations of heavy traffic. And, of course, the family breadwinners can use the same airplane to great advantage in business by virtue of its speed and flexibility.

A common misperception leads some to think of personal or small business aircraft as only for the extremely wealthy. In fact, many people of middle-class means fly airplanes less costly to acquire than a new family car.

And learning to fly general aviation aircraft is well within the capabilities of the average person, intellectually and physically. Even some disabilities – deafness, for instance – need not keep a person who really wants to fly out of the cockpit.

GA/AW has an excellent and steadily improving safety record. Since the big surge in private and business flying that followed WWII, the total accident rate has decreased by 90%.

More than 90% of the estimated 400,000 world civil aircraft belong to GA/AW. And of the world's one million pilots, an estimated two-thirds fly GA/AW aircraft (many airline pilots also fly general aviation aircraft for their leisure).

The great fleet of GA/AW aircraft is the mainspring of a multi-billion dollar industry, which generates even more economic activity. Thousands of communities benefit as their airports create a positive ripple effect in the local economy. Their business people take advantage of rapid, on-demand air transportation, and the airports help attract corporations that would never locate a plant, headquarters or distribution center in a town without an airport.

In these and so many other ways, general aviation serves the people

General Aviation and Aerial Work Flights Save Lives

Every day, general aviation transports blood supplies, vital transplant organs, and other time-critical, life-saving elements. Air ambulances carry out medical evacuation rescues and provide urgent transportation to trauma and other emergency centers. Many pilots volunteer their services (and often the use of their own aircraft) to transport patients who cannot endure land travel to distant specialized treatment centers. Local volunteer pilot organizations provide such services at no cost to needy patients. Helicopter emergency medical evacuation is nearly doubling survival rates by getting accident victims to hospitals within the first critical "Golden Hour."

For Business And Personal Transportation, General Aviation Offers Speed And Flexibility

More and more people are discovering that general aviation is fast, efficient and safe, opening a whole new vista of travel opportunities. For both business and personal travel, general aviation means going where one wants to go (not just where the airlines go), when one wants to go (free from airline schedules), and in whatever degree of privacy and security one desires.

The payoff is greater transportation flexibility and productivity than any other mode of travel can provide. But even those who never seize these advantages benefit, because general aviation works for the community, fostering the economy and providing essential services.

GA/AW Protects Our Environment

The most efficient and cost-effective way to conduct wildlife surveys, map wetland losses and soil erosion, follow bird migrations, patrol parklands and detect pipeline spills is with general aviation aircraft. Specially equipped government and private aircraft gather information vital to the work of wildlife specialists, park rangers, prospectors, environmentalists and others.

Aerial work has long been our forward line in fighting forest fires. Helicopter and fixed-wing water bombers save millions of acres of woodlands each year, protecting homes, national parks and the nation's precious forests.

GA/AW Makes Your Driving Safer, Smoother

Airborne traffic reporters broadcasting on radio and television help millions of Americans in their daily commute, reporting accidents and other tie-ups to drivers and to the police. On a trip, you'll use maps drawn and updated from aerial photo data. That basic information is also used by urban planners, engineers and government agencies to plan street and highway construction and improvements in the infrastructure.

GA/AW Works While You Sleep

All night long, aerial work aircraft expedite financial transactions by transporting canceled checks and other documents throughout the international banking system. By cutting down the cost of "float" until checks clear, general aviation plays a vital role in banking and commerce.

Aerial Work Aids Agriculture

Agricultural pilots treat more than million of acres of cropland each year, boosting production of the world's agricultural bounty. The majority of all commercially employed crop protection is applied by air. Planting, too, can often be done more efficiently by air. Ranchers use general aviation aircraft to manage herds and grazing land. Agriculture and general aviation are longtime partners in progress.

Aerial Work Facilitates Law Enforcement

General aviation aircraft have revolutionized law enforcement in federal, state and local jurisdictions. Police use light airplanes and helicopters to patrol highways, apprehend suspects, back up ground units, monitor national borders and locate lost children.

General Aviation: The People's Air Carrier

If scheduled airlines are the world's air transport arteries, general aviation is its equally important capillary system. GA/AW flights carry passengers to and from smaller cities, tens of thousands of which have no airline service. Business, cargo and personal flights reach anywhere, any time – on the traveler's or shipper's schedule, not the airlines.

Most major airline flights operate out of just a few hundred of the world's big city airports. Approximately half of those flights merely shuttle passengers among other large international airports. But general aviation serves tens of thousands of landing facilities throughout the world.

General aviation and aerial work have a long and flexible reach. Take advantage of it. ⁹⁻⁰¹

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International Civil Aviation Organization Definitions (ICAO Annex 6)

Aerial Work – An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Commercial Air Transport Operation – An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

General Aviation Operation – An aircraft operation other than a commercial air transport operation or an aerial work operation.



General Aviation Fits Into The System

A State delegate to the International Civil Aviation Organization recently expressed the view that air traffic management should be designed to move a maximum number of passengers with a minimum number of aircraft movements. This individual further stated that airline operations place fewer requirements on air traffic services (ATS) organizations than do smaller aircraft.

This is not a new contention, rather it has been discussed and re-discussed many times since the first forms of air traffic control emerged during the second decade of the twentieth century. Truly, the fledgling air traffic control systems were designed specifically to serve the needs of the airlines. The reason was simple: the airlines were practically the sole users of a system designed to separate aircraft operating in instrument meteorological conditions. Thus, the system catered to its majority users.

As general aviation (GA) aircraft began to take advantage of ATS their integration was facilitated by the fact that their performance characteristics and aircraft equipment closely matched that of their larger brethren. And, since the system contained excess capacity, rationing ATS was considered unnecessary.

After World War II a gap in performance and equipment characteristics of airliners vs. general aviation aircraft began to emerge. Multiple large radial engines, then turboprops, then turbojets placed an order of magnitude between airliners and GA. Similarly, higher quality radios, digital tuning, flight computers and multi-function displays made life easier and more certain for the flying bus trade.

Along with these developments came privileges for the airlines. These occurred more because of an increase in capability instead of a political or economic decision to provide the aircraft containing the most bodies with special privileges. High climb rates, jet speeds and high service ceilings gave rise to special standard instrument departures, jet routes and separate standard terminal arrival routes that put airliners, and some corporate aircraft, into a class of their own. Flight management computers, area navigation, satellite and inertial navigation and higher performance avionics facilitated these ATS advantages and promoted additional routing and altitude strata advantages.

The gate-to-gate and free routing concepts are truly designed with the airliner in mind (remember, GA doesn't have gates and little comes for free!). Notably, terminal maneuvering areas are designed to facilitate the transition of high-performance aircraft between the terminal and enroute system. Principal airways, SIDs and STARS and vectoring patterns all favor the high performer.

This leaves the lower-performance GA aircraft to operate at the periphery of the terminal area system, being fit in where possible between and below the high flyers. Because of the speed differential and ability to easily navigate complex routings, airliners are naturally brought to the front of the line while GA is accommodated when possible.

Yet, GA has not objected to this form of control and prioritization. This is because we understand for whom the system was designed and the attendant realities. The wonder of this is that GA traditionally operates with ease and little delay under these circumstances. In fact, GA is proud of the fact that, in effect, it readily operates using the excess capacity left by the airlines. Since the ATC system is designed to operate during periods of peak demand during most the day excess capacity exists; since GA doesn't like delays most of their major TMA operations occur during non-peak times.

The greatest advantage of GA operations is that they seldom use the major air carrier airports as a chosen destination. GA operators possess and prefer the flexibility to use a variety of airports that surround major metropolitan areas, allowing them to pinpoint their area of interest and not be tied to major airline hubs. This means that they normally operate at the fringes of city areas and in so doing avoid major airline aircraft air traffic routes. Therefore, GA seldom needs priority since, in effect, they utilize the "secondary roads" of the air, avoiding the major motorways. Stansted instead of Heathrow, Le Bourget rather than Charles de Gaulle and Teterboro over La Guardia usually make more sense than attempting to compete with our larger brethren for scarce airspace and concrete.

From a broader economic and public interest standpoint it is useful to compare the GA aircraft to the private motorcar and the airliner to either the intercity bus or cargo carrying truck. All of these forms of transportation pay fuel and other excise taxes for the privilege of utilizing the roadways. While most of these taxes directly fund the function of providing safe and efficient roadways some countries choose to divert GA fuel taxes into general revenues, enabling them to claim that GA does not pay for the services it receives.

Using the ICAO delegate's rationale, it would make more sense to provide higher priority to the intercity bus or truck since they are arguably more efficient in moving the most people or goods while occupying the least amount of space during the process. Such a form of prioritization is seldom employed for intercity transport. In fact, the opposite is true in many cases, with priority being given to the private motorcar in the form of restricted lanes during peak transit times.

While this analogy is useful in demonstrating relative equity in public and private transportation routing, the more important point is that GA seldom interferes with air traffic flows to the point where prioritization is required. GA would rather take advantage of non-hub airports where congestion exists and airport fees are likely to be higher than smaller airports. Regional airlines and some air cargo operators have discovered this, often preferring to bypass the major airports in favor of lower traffic density airfields.

The bottom line is that GA would rather operate in such a manner as not to compete with the airlines for scarce resources. Rather, the GA operator normally wishes to take advantage of their inherent operational flexibility to avoid air traffic and airport congestion. But in so doing, air traffic management plans must acknowledge and accommodate GA needs by providing access to and procedures for operations at the periphery of busy airspace areas. This can be easily done in most cases with foresight and an acknowledgement that sharing the sky makes good business sense for all.



Global CNS/ATM Policy

General Aviation and Aerial Work Requirements

Prepared by the

International Council of Aircraft Owner and Pilot Associations

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BACKGROUND

When the name *general aviation* is mentioned most members of the public conjure up a mental image of a small single-engine piston-powered aircraft, operating for recreation out of a small rural aerodrome. This image is correct for only about one-quarter of worldwide general aviation and aerial work activities. The other three-quarters of the roughly 40 million annual GA/AW flight hours are occupied with flight instruction, business travel, agricultural application, emergency medical services and other gainful pursuits. In fact, the diversity of GA/AW is so great that ICAO defines general aviation operation by exception: *those flight activities not involving commercial air transportation (CAT) or aerial work*. Similarly, aerial work may only be generally defined as *operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development, etc.*²

In sheer numbers GA/AW is impressive: Approximately 350,000 aircraft and 1,000,000 pilots are involved in these activities worldwide. On balance, roughly 60,000 aircraft and 500,000 pilots are employed in commercial air transportation (including cargo and charter). The significance of GA/AW becomes greater when it is realized that every airline and most military pilots must begin their journey to professional competence in the cockpit of a general aviation aircraft. Further, the essential services provided to the public by GA/AW for police, emergency medical services and search and rescue make all of our lives safer and more productive. Aerial survey, agricultural application and pipeline/power line patrol add significantly to many aspects of the economy. And, for the many remote areas of the world, life and civilization would not be possible without the benefits provided by GA/AW operations.

² ICAO Annex 6, *Operation of Aircraft, Definitions*.

GA/AW activities globally create hundreds of thousands of jobs and tens of billions of dollars for the countries and small business enterprises these activities serve. Without this activity essential transportation functions would be eliminated and the opportunities associated with them would be lost to the economies they potentially serve. Therefore, GA/AW needs and desires should be taken seriously as a worldwide economic engine.

GENERAL AVIATION AND AERIAL WORK OPERATIONAL NEEDS

The Secretariat's principal working paper for the 11th ICAO Air Navigation Conference, entitled "The Global ATM Operational Concept," states:

The ATM operational concept seeks to bring benefits to the international civil aviation community. From an airspace user perspective, greater equity in airspace access, greater access to timely and meaningful information for decision support and more autonomy in decision-making including conflict management, will provide the opportunity to better deliver business and personal outcomes, within an appropriate safety framework. In particular, system harmonization and integration will provide high levels of assurance of predictability to airline operators and their customers.

While the omission of GA/AW operations from the assurances afforded the airline community may have been an oversight, it must be emphasized that we too desire these assurances. While we acknowledge that the ATM system was designed principally to accommodate the needs of the airlines and military, a significant amount of GA/AW traffic regularly participates in this system worldwide. Therefore, the system must "bring benefits to the *entire* civil aviation community."

Overview

CNS/ATM requirements for GA/AW are similar to those of commercial air transport: safe and reliable on-demand access to the air traffic system and efficient routings and handling by air traffic service providers, all at the lowest possible cost. Yet, there are differences.

The majority of the world's GA/AW operations are conducted under visual flight rules (VFR) and in visual meteorological conditions. This provides us with great flexibility and a variety of options not available to those operating under instrument flight rules (IFR). Yet, our activities still need large portions of the airspace in which to operate, particularly in the low altitude structure, and to be able to gain access to airports located in closely controlled airspace.

The point being that while closely controlled airspace, especially in busy terminal areas, is designed primarily for high speed IFR air traffic, slower VFR traffic also requires access to or *around or under* these areas, either to operate into major airports or to peripheral reliever airports. As control constraints escalate in airspace along busy routes and equipment requirements to operate in that airspace grow, VFR operations are effectively eliminated in favor of well-equipped IFR operators.

GA/AW IFR traffic constitutes approximately 20 percent of the total in North America and less than 10 percent in Europe. While these percentages will probably not grow appreciably in the near future, access to the IFR system *is* increasingly important to those who use this service. General aviation IFR users are those who employ their aircraft in pursuit of legitimate business and personal goals, making access to the system vital. And, this category of user incorporates an increasing number of turbine-powered aircraft, currently more than 29,000 worldwide or about half the size of commercial air transport fleet.

Because of the diversity of GA/AW operations and the differing capabilities of their diverse elements, it is important not to consider this segment of aviation as a homogenous group; the intercontinental Gulfstream 550 has very different needs than the Robinson R22 helicopter employed to muster cattle. Yet, each of these lay a legitimate claim to CNS/ATM facilities and services.

Communications, Navigation and Surveillance

VHF Data Link (VDL), Global Navigation Satellite Systems (GNSS) and Automatic Dependent Surveillance (ADS) systems offer great promise for civil aviation, yet with that promise comes two considerations:

1. as use of this equipment becomes the price of access to the system, will the benefits provided be adequate to offset the costs, and,
2. will those who cannot equip be excluded or delayed from entry into vital airspace and airports?

GA/AW operators readily embrace new technology when a clear benefit is apparent. For instance, it is estimated that more than two-thirds of the world's GA/AW fleet uses a GPS receiver of some sort, either panel-mounted or hand-held. No one mandated these devices; it was the clear benefit available to the user that led them to embrace this technology. However, GPS receivers requiring a sophisticated Technical Standard Order (TSO) pedigree to be used for IFR enroute and approach applications bring a less certain and well defined cost-benefit ratio.

An IFR-capable single-engine Raytheon (Beechcraft) Bonanza valued at \$100,000 can ill-afford to install \$50,000 worth of Space Based Augmentation System (SBAS), certified GPS, enhanced Mode S transponder, PRNAV and VDL equipment that may be required to operate in some locations within the near future. Similarly, it may require as much as \$500,000 of equipment to properly equip and configure an older million-dollar Learjet. Moreover, even if this equipment is not mandated, will access to desired routes, altitudes and terminal areas continue to be available without it?

As the transition to space-based navigation systems some backup system is envisioned for IFR operations within the foreseeable future. Airlines will be able to employ already installed inertial navigation systems (INS) or multiple distance measuring equipment (DME/DME) sensors. GA/AW will be forced to use the existing VHF omni directional radio range (VOR) ground stations for as long as they exist. However, these stations may begin to be phased out as early as 2006 in some parts of the world, leaving GA/AW with no effective backup means for comprehensive IFR enroute or approach guidance. Either ground or space-based backup

navigation systems, developed with economy in mind, must be designed to accommodate GA/AW needs.

The timing of required equipment changes is an important consideration for GA/AW operations. For instance, does it make sense for an IFR operator to install a Mode S transponder that may be eclipsed by ADS-B just a few years later? That is, will existing Mode C transponders provide adequate surveillance signals until ADS becomes a mature technology? Therefore, *single-step solutions are preferable* to costly and disruptive multi-step solutions.

Air Traffic Management

While ATM is designed to accommodate and direct IFR traffic flows, it also indirectly affects VFR traffic, as well. In order to safely control IFR traffic ATM designers must designate certain portions of the airspace for varying degrees of access and control. In doing so, VFR traffic, especially in busy terminal areas, is constrained and restricted from access to increasingly valuable portions of the airspace. Airspace and procedures designers must become familiar with the unique performance characteristics and capabilities of light aircraft if efficient and effective integration of GA/AW into the air traffic system is to take place.

Over-classification of airspace segments appears to be a natural tendency for ATM specialists seeking the most suitable conditions for controllers. Yet, in doing so access to valuable airspace is lost to the VFR trained and equipped pilot. More importantly, in over-classifying airspace designers may unintentionally overload both surveillance equipment and the controller's ability to accommodate additional traffic generated by excessive amounts of closely controlled airspace.

It is clear that increasing amounts of managed airspace will be required as more flights continue to crowd into a finite amount of sky. However, compromises are available to the ATM specialist to properly classify airspace segments, providing VFR entry points and routes in terminal areas and imposing less-controlled airspace segments where possible. Importantly, the equipment required as a precondition for access to managed airspace should be carefully evaluated and minimized for IFR operators. VFR operators can accommodate the detail required to navigate in terminal airspace through the use of elementary GPS units.

Perhaps the most important consideration for air traffic managers to acknowledge that non-airline and non-scheduled traffic exists that have legitimate requirements to use the air traffic system. This is particularly important when devising airspace structures, rules and procedures that impose constraints on the system. GA/AW cannot claim access equal to the mass flow of airline traffic, yet their needs must be acknowledged and accommodated *fairly and equitably*.

It is useful to note that a principal constraint of on air traffic systems is airport capacity. Unless the runway launch and acceptance rate at key airports can be enhanced airborne capacity improvement efforts may prove to be of little value. Therefore, ATM efforts should be directed at solving airport capacity problems as well as the airborne capacity component. Land-long and land-and-hold-short techniques can provide short-term improvements but a longer view is needed for ultimate solutions. In the medium-term, short off-axis runways installed at major

terminals will accommodate both GA/AW and regional CAT. In the long-term, additional major runways and, ideally, airports to relieve terminal area congestion hold the ultimate solution.

PRINCIPLES

There are a number of guiding principles that form an essential structure when contemplating CNS/ATM features for GA/AW. While these are not our only concerns these issues are of critical importance for current and future operations:

- **Safety of the air traffic system must be the principal concern.** Safe operations for CAT, State and GA/AW aviation communities takes precedence over any other consideration. To do less would invalidate any solution or system devised.
- **The costs for general aviation users to access and operate in a global ATM system should be equal or less than it is today.** With a single ATM system, duplicative infrastructure costs and service provider overhead are minimized, thus reducing operating costs in all regions of the world.
- **With a new ATM system, general aviation aircraft operating under VFR should have increased access to all airspace areas.** Because of the ATM system's efficiencies and performance gains, more airspace should be available for VFR general aviation operations. Increasing the access and flexibility of general aviation operations in all airspace areas generates incentives for acceptance of a global ATM system.
- **A global ATM system should be capable of providing equal or better levels of service without expensive avionics upgrades or training.** An ATM system should result in improved safety, access and efficiency without costly equipment and training mandates. Any proposed equipment, system or procedure must be subject to segmented cost-benefit analyses that adequately accommodate GA/AW operations.

While a number of these principles may appear to conflict with features prized by air traffic service providers or other airspace users, these principles may be accommodated through the use of early coordination and planning. After safety, these principles may be further distilled to the dual concepts of access and equity -- *access* to airspace and airports and *equity* in equipment requirements and sharing system resources.

SPECIFIC REQUIREMENTS

Communications/Navigation/Surveillance

Communications

- Voice communications -- only 760 channel VHF needed for the foreseeable future for both VFR and IFR traffic
- Datalink –
 - Communications – when economically feasible
 - Data – an *option* for GA users
 - Method of delivery – VDL, Mode S extended squitter, UAT – less important than how it is used/imposed
 - Requirements for datalink should be carefully coordinated with the introduction of ADS-B

Navigation

- Global navigation satellite system (GNSS) – considered primary means for all users, enroute and terminal
- IFR – if backup to GNSS required, retain skeletal VOR system until GNSS reliability is assured
- Minimize precision navigation and sub-RNP-1 requirements -- provide alternatives for those not so equipped
- Remove existing VOR and NDB only after regional feasibility studies have been conducted, including user inputs

Surveillance

- Provisions for Mode A/C transponder should remain valid as long as possible, pending transition to ADS-B
- Institute ADS-B for IFR traffic ASAP; establish a permissive transition period for VFR users, as required

Air Traffic Management

- Provide fair and equitable access to the airspace and airports
- Provide guidelines for and implement airspace designs that provide maximum access for GA/AW, providing optimized flows VFR and IFR operations
- Integrate GA/AW IFR traffic into enroute and terminal flows
- Provide maximum access to terminal airspace for VFR operations
- Accommodate GA/AW airspace requirements for specialize operations, e.g., flight training, glider operations, sport parachuting, etc. ⁴⁻⁰⁵

IAOPA was founded in 1962 to provide a voice for general aviation and aerial work activities in the international aviation arena. Since that time it has been working with ICAO and regional aviation authorities to present and promote GA/AW needs and requirements. IAOPA represents the interests of affiliate organizations in 67 ICAO States, incorporating more than 470,000 pilots and aircraft operators. Each affiliate regularly works with State regulatory authorities to accomplish the goals stated above.



IAOPA input for ICAO Security Manual (Doc 8973)

General Aviation And Aerial Work

Much of the attention of security forces is focused on worldwide scheduled commercial air transport (CAT) services, primarily because of the concentrations of people and aircraft size involved in this type of service. Yet, many more aircraft and flight crew members participate in general aviation and aerial work.

When the name *general aviation* is mentioned most members of the public conjure up a mental image of a small, single-engine piston-powered aircraft, operating out of a small rural aerodrome for recreation. This image is correct for only about one-third of worldwide general aviation/aerial work (GA/AW) activities. The remaining majority is occupied with personal transportation, flight instruction, business travel, agricultural application and other gainful pursuits. In fact, this diversity is so great that ICAO defines general aviation operations by exception: *those flight activities not involving commercial air transportation or aerial work*. Similarly, aerial work may only be generally defined as *operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development, etc.*³

In sheer numbers GA/AW is impressive: Approximately 350,000 aircraft and one million pilots are involved in these activities worldwide; they fly approximately 40 flight hours per year. On balance, roughly 60,000 aircraft and 500,000 pilots are employed in commercial air transportation, including cargo and charter.

The significance of GA/AW is increased when it is realized that every airline and military pilot must begin his or her journey to professional competence in the cockpit of a general aviation aircraft. Further, the essential services provided to the public by GA/AW for police, emergency medical services and search and rescue make all of our lives safer and more productive. And, for the many remote areas of the world, life and civilization would not be possible without the benefits provided by GA/AW operations.

GA/AW activities globally create hundreds of thousands of jobs and billions of dollars for the countries these activities serve. Without this activity essential transportation functions would be eliminated and the opportunities associated with them would be lost to the economies they potentially serve. Therefore, GA/AW needs and desires should be taken seriously as a worldwide economic engine.

³ ICAO Annex 6, *Operation of Aircraft, Definitions*.

The theft, hijacking or criminal misuse of a GA/AW aircraft is of great concern to pilots, owners and operators of these aircraft. The threat of personal hazard and financial loss provides a strong motivation to ensure that these illegal acts are prevented. Therefore, it is in the best interest of GA/AW owner/operators to devise measures that will prevent misuse of their aircraft. While governments may wish to supplement these measures to further protect the public, the diverse and far-reaching nature of GA/AW must be accounted for in devising these supplements. As well, any supplements must take into account the relatively small potential for damage that GA/AW aircraft possess as opposed to their much larger air transport counterparts.

Security Issues

Scheduled CAT generally operates from major airports that provide a significant security control and screening infrastructure. GA/AW operations tend to avoid these airports, preferring to operate from the many small aerodromes or even off-airport locations, providing one of the many advantages when compared to CAT. Yet, GA/AW aircraft frequently operate from airline airports to take advantage of either location or the ability to connect with scheduled CAT.

GA/AW operations at the estimated 100,000 official and unofficial landing sites worldwide make it difficult, if not impossible, to provide full screening and physical security services. Importantly, many GA/AW aircraft do not need a prepared surface from which to operate; 300 meters of road or pasture provide adequate takeoff and landing area for many light aircraft. Further, helicopters and amphibious or float-equipped aircraft specialize in off-airport operations.

In the past GA/AW operations at airline-served airports were technically subject to the same security and screening requirements required of the airlines. These measures were deemed impractical and prohibitively expensive for small aircraft at airline airports; therefore ICAO Annex 17 was revised in 2005 to accommodate GA/AW.

Threat Assessment for GA/AW Aircraft

There are three principal security objectives for general aviation:

- Protecting the aircraft from theft
- Protecting the aircraft, crew and passengers from attack
- Preventing aircraft from being used as a weapon

GA/AW must be protected from two types of threats: (1) the possibility of the aircraft being turned into a weapon, either by the authorized pilot or by someone who takes over the aircraft; and (2) deliberate sabotage, including the potential that a bomb or explosive device might be placed on an aircraft.

The majority of general aviation aircraft have significantly less mass, payload and speed than commercial airliners and all-cargo aircraft, making them unsuitable for use as high kinetic energy weapons or "guided missiles." While the threat posed by most GA/AW aircraft may be small a threat assessment should be performed by States to determine potential risks associated

with specific targets. Once a specific threat associated with a specific event or location has been identified the severity of the threat should be evaluated to determine severity. Then, the probability that such an act could occur must be sought to arrive at a risk assessment (risk = severity of threat x probability of occurrence). Once the level of risk has been determined mitigating factors can be devised to counter the threat. Each State should conduct its own independent assessment to determine relative threat/risk levels and appropriate mitigation factors.

Elements of these analyses may include:

- Threat
 - Targets
 - Activities
 - Events
 - Structures
 - Unauthorized activity
 - Theft
 - Modification
 - Hijacking/weapon
 - Dependent elements
 - Aircraft operational capability
 - Aircraft location (distance from target, airport requirement, etc.)
 - Flight crew qualifications/skills
- Risk
 - Target attractiveness
 - Successive successful steps required to accomplish unauthorized activity
 - Existing security precautions

Industry groups have examined potential threats associated with GA/AW and subjected them to risk assessment techniques. The findings of these studies indicate that due to the numerous and successively dependent steps required to accomplish various unauthorized activities, the resulting probabilities were quite low. However, the threat from large fire suppression and agricultural aircraft were higher than GA aircraft, given their load carrying and special operational capabilities.

In determining these factors several general conclusions form a basis regarding potential threats from GA/AW operations:

- The threat is not globally uniform yet is generally considered to be low for most GA/AW operations.
- Vulnerability, in States containing large numbers of GA/AW aircraft, in the absence of security precautions, is moderate.
- For terrorists contemplating an attack using explosives, the disadvantages of GA/AW aircraft, compared to other means of delivery, such as trucks and boats, probably outweigh the advantages.
- Because large fire suppression and agricultural aircraft are potentially more hazardous, these categories of AW aircraft need more stringent protection and monitoring than GA and smaller AW aircraft.

- Effective security precautions for GA/AW operations have proved to be uncomplicated and in the realm of common sense. Importantly, in regions where significant GA/AW activity exist, States, aircraft owners and operators voluntarily have adopted simple precautions to prevent theft of and tampering with aircraft. These precautions will also prove effective in reducing vulnerability to the use of GA/AW aircraft by terrorists.
- If State security agencies, as well as aircraft owners, pilots and operators, implement practical security precautions, the risk of terrorists misusing GA/AW aircraft will be low.

Security Controls for General Aviation and Aerial Work

Because of the diversity and frequency of GA/AW operations it is difficult to classify and establish security programs that fit all types of operations. More significantly, the level of activity and geographic dispersion of these activities make effective enforcement by State forces very difficult. Therefore, States with large numbers of GA/AW operations have formed partnerships with those operators that draw upon the security objectives of both State and operator to achieve common goals. For instance, the desire of the operator to protect aircraft and flight crew from harm or misuse closely matches the State's desire to prevent misuse of the aircraft for more sinister purposes. Therefore, working together the State and operators can establish common procedures that meet mutual objectives.

Security measures for GA/AW must be based on a continuing assessment of the threat posed by their activities. As threats emerge and change appropriate security measures may be imposed. Classes of security measures include:

- Identification and registration
- Local controls
- Operational controls

Identification of pilots and aircraft form the basis of security controls for GA/AW. The ability to correctly identify a flight crewmember and aircraft should lower potential threats to easily manageable levels. All pilots and student pilots authorized to independently operate (solo) an aircraft are required to be licensed by the State.⁴ The pilot license, when linked to a government issued identification containing a photograph (such as a driving license), will permit authorized personnel to positively identify pilot personnel. Similarly, the aircraft registration certificate (required to be carried on board the aircraft⁵) will both establish the authenticity of the aircraft registration markings and its ownership.

State intelligence and security agencies can assist aircraft and airport operators and handling facilities⁶ by providing them with relevant and appropriate security information. Such information may include changing threat levels or specific information about personnel or techniques that may increase operational threats. Importantly, GA/AW personnel may

⁴ ICAO Annex 1

⁵ ICAO Convention, Article 29

⁶ Aircraft handlers and Fixed Base Operators (FBO) are companies that fuel, service or park GA/AW aircraft or provide transient facilities for pilots and passengers.

complement this type of information by providing information to security forces regarding suspicious or clandestine activities at airports and handlers. Formal procedures should be established to facilitate this information flow. (See Airport Community Watch Program)

Local controls are normally associated with access to airports and airport operating areas. The ability to control access to aircraft parking areas, hangars and handling facilities will normally prevent most unlawful acts associated with aircraft. GA aircraft based at or operating on airports serving scheduled CAT will be subject to relevant State requirements and the airport operating authority's security program. However, these controls normally are not as restrictive as those for scheduled CAT since GA operating areas are not located within designated security restricted areas.

GA operations at non-commercial service airports will normally have fewer security controls applied due to the lower threat levels associated with those activities. Notably, access restrictions to aircraft operating areas are more difficult to impose and enforce due to the lack of security infrastructure and personnel. The expense associated with perimeter fencing, ramp lighting, operating and storage area surveillance and access control are prohibitive for most GA/AW airports; importantly, the potential threat does not justify such measures. Yet, existing controls imposed at these airports to deter theft and vandalism are normally adequate to prevent misuse of the aircraft. (See General Aviation Airport Security Procedures)

Operational control refers to airspace restrictions imposed by the State to prevent operation of aircraft in the vicinity of sensitive areas or activities. These controls are normally applied sparingly to small areas to protect only the most important ground activities; enforcement of restrictions associated with large or numerous restricted areas is difficult. Further, excessive use of restricted airspace unnecessarily denies aircraft operator's operational flexibility and freedom of transit. Temporary flight restrictions associated with specific activities or events are normally considered more effective than permanent or large area prohibitions.

It should be emphasized that the imposition of security controls on GA/AW without conducting segmented threat/risk assessments may unnecessarily restrict those operations while depriving more legitimate security concerns of appropriate levels of emphasis and resources. GA/AW activities have historically shown little reason for major security concerns when compared to other forms of aeronautical activity or transportation modes. Consequently, a number of States with active GA activity have imposed few security controls for small GA aircraft due their low threat levels, choosing to rely on the self-interest of the aircraft owner/operator to protect them from theft or misuse.

Recommended Procedures for General Aviation and Aerial Work Security

While the diversity of GA/AW makes it difficult to form a single set of security precautions that will fit every possible activity, the following represent a compilation of practices in use by a number of States to prevent misuse for a variety of aircraft operations: (Specific programs are provided (below) for larger aircraft, on-demand CAT (air taxi) and aerial work operations)

State

- Institute ongoing threat and risk assessment measures for GA/AW operations
- Ensure proper licensing and identification procedures for aircraft owners, pilots, mechanics and other personnel authorized access to aircraft and aircraft operating areas
- Maintain accurate pilot licensing and aircraft registration records
- Initiate communications channels between the intelligence community and GA/AW organizations and businesses and airport operators to ensure effective exchange of security information. This should include a system to disseminate reports of stolen aircraft and a watch list for known or suspected terrorists.
- Ensure law enforcement personnel are familiar with GA/AW operations and their security needs

Aviation Personnel

- Carry valid licensing and identification documents while at airports
- Report suspicious or clandestine aviation activities to law enforcement agencies
- Ensure the security of owned or operated aircraft
- Pilots-in-command must properly identify passengers, baggage and cargo to be carried on their aircraft

Aircraft

- Equip with effective anti-theft devices. (Aircraft cabin and ignition locks will normally accomplish this objective. Where assessments indicate higher risk levels devices to immobilize the aircraft may be warranted.)

Aircraft Handlers/Repair Facilities/Businesses

- Develop and implement a written security program that includes:
 - Personnel qualifications
 - Security procedures
 - Preventative measures
 - Contingency/response measures
 - Reporting procedures
- Conduct ongoing security threat assessments of areas of responsibility
- Conduct background investigations of employees performing critical functions
- Maintain contacts with law enforcement and State security personnel to ensure the security of their areas of responsibility
- Separate GA/AW passengers and flight crew from CAT operations
- Institute measures to ensure the security of aircraft in their custody
- Control pedestrian and vehicular access to aircraft operating areas

Security Precautions for Aerial Work Operations

Because of the size, payload and special characteristics of certain types of AW operations special precautions may be necessary to prevent their misuse. Aerial work operations are defined by ICAO as *operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development, etc.* Of particular security concern are aircraft that can carry large, bulky or heavy loads such as those used for fire suppression, construction or sky diving operations. Additionally, specialty aircraft such as those used for agricultural application and insect control are of concern because of their potential for dispensing harmful aerosols.

All AW operations should be subjected to a State conducted threat assessment process to determine whether additional precautions are necessary. AW operations deemed to pose a significant threat should be required to establish and maintain a State approved written security program, incorporating the following provisions:

- Facility and aircraft security measures and procedures
- Background checks for certain types of employees
- Security training and knowledge requirements for employees
- Compliance with security directives and information circulars
- Designation of a security coordinator
- Contingency and response plans

Note: All AW aircraft with a maximum certified takeoff mass (MCTOM) exceeding 5,700 kgs. should also be subject to the provisions of the Large Aircraft Security Procedures.

General Aviation Airport Security Procedures

The diverse size and configuration of GA airports makes the establishment of a single set of security precautions difficult. By definition these facilities do not serve scheduled commercial air transportation yet may accommodate occasional air taxi operations. But, the great majority of GA airports are used for aerial work or personal transportation purposes.

GA airports may be as small as a 300 meter grass runway and have no based aircraft, hangars, buildings or other infrastructure. At the other end of the spectrum a GA airport may have multiple paved runways exceeding 2000 meters in length, hundreds of based aircraft and large complexes of hangars, buildings and business facilities. Because of this diversity a single security formula is inappropriate for all GA airports.

Threat and Risk Assessment

The first step in devising a security program for a GA airport is to determine the type and size of threats facing the facility. Small, remote airports obviously face different threats and levels of

threats than large airports located close to major metropolitan areas. Threat assessment should consider the following factors:

- Size and configuration of the airport
- Proximity to major metropolitan areas
- Number and type of based aircraft
- Number of aircraft operations

Before any threat assessment is undertaken the actual capability of a GA aircraft to cause damage to persons or ground infrastructure should be understood. Most GA aircraft are too small to pose a significant threat due to their inability to carry a sufficiently large quantity of explosives. Further, in order for a small aircraft to have any impact careful loading and fusing of the explosives must be accomplished; these actions take time and expertise. Therefore, lengthy clandestine preparations must be made, often difficult at active airports.

Small remote airports pose a significantly lower threat than do larger more capable ones. But, any moderate sized airport, located within 50 km of a major metropolitan area may constitute an elevated threat due to the proximity of potential terrorist targets. Yet, size alone does not constitute an appreciable threat; if there are few based aircraft or annual operations, the threat will likely be small. Size and capability of based or transient aircraft will help determine relative threat, as well. Finally, busy airports with a mixture of large and small aircraft operations may require several levels of analysis.

The risk assessment should consider the following questions:

- What are the potential aircraft misuses?
- What possible targets are available?
- What is the probability of the action being accomplished?
- What aircraft/operational capabilities are required to accomplish this misuse?

Because the local knowledge of the above factors is probably incomplete, assistance in conducting an airport threat assessment should be provided by State and local intelligence and law enforcement agencies. Ideally, a master aviation threat assessment should be conducted by State authorities on an ongoing basis to provide all concerned with current information.

Once the risk assessment has been completed measures to mitigate those threats can be devised through policy, procedural and physical security precautions.

Security Precautions

The principal method of preventing the misuse of GA/AW aircraft is to prevent the unauthorized access to the aircraft itself. The primary means of preventing unauthorized use is to lock cabin and/or cockpit access doors. In high threat/risk areas additional precautions may be necessary, usually involving measures to immobilize the aircraft.

The next method of preventing misuse is to deny access to aircraft itself. This is done through perimeter security controls. Security fences, locked hangars and operating area access controls

serve as credible deterrents. However, the majority of GA airports are too small to warrant (through threat assessment) or justify (economic viability) these measures. Some States with large numbers of GA/AW aircraft have successfully implemented programs in which airport operators and other interested personnel actively look for unusual or suspicious activity that may constitute a security threat and report these events to law enforcement agencies. (See Airport Community Watch Program)

Security precautions for GA airports should be viewed as an increasingly restrictive set of measures to meet threats determined through ongoing threat assessments. Examples of these measures include:

All airports

- Conduct an informal security evaluation, based on local conditions
- Install signs warning trespassers of legal consequences
- Develop an appropriate surveillance schedule
- Establish liaison with local law enforcement agencies

Medium Size GA Airports (Paved runway longer than 1000 meters and/or more than 50,000 annual aircraft operations)

- Conduct regular security evaluations
- Establish and maintain appropriate security measures and procedures
- Develop and implement a written security program that includes:
 - Personnel qualifications
 - Facility and aircraft security measures and procedures
 - Preventative measures
 - Contingency/response measures
 - Reporting procedures

Large GA Airports (Runways longer than 2000 meters and/or more than 100,000 annual aircraft operations)

- Designate a security coordinator
- Implement airside access controls
- Provide appropriate perimeter physical security for ramp and parking areas (fences, surveillance cameras, etc.)
- Enhance existing written security program to include:
 - Access controls
 - Procedures for handling bomb or air piracy threats
 - Background checks for certain types of employees
 - Security training and knowledge requirements for employees
 - Compliance with security directives and information circulars
 - Security drills/exercises

Security Breach Response

Response to a suspected or actual security breach should be a part of all airport security programs. The ability for all personnel to react positively and rapidly may make the difference between a major security event and a minor administrative issue. Plans, coordinated with local and State law enforcement agencies should be developed for at least the following events:

- Access control breach
- Theft or attempted theft of an aircraft
- Assault on an airport employee, tenant or transient persons
- Bomb threat
-

Airport Community Watch Program

The vigilance of airport users is one of the most prevalent methods of enhancing security at GA airports. Typically, the user population is familiar with those individuals who have a valid purpose for being on the airport property. Consequently, new faces are quickly noticed. Teaching an airport's users and tenants what to look for with regard to unauthorized and potentially illegal activities is essential to effectively utilizing this resource.

Airport managers can either utilize an existing airport watch program or establish their own airport specific plan. A watch program should include elements similar to those listed below. These recommendations are not all-inclusive. Additional measures that are specific to each airport should be added as appropriate, including:

- Coordinate the program with all appropriate stakeholders including airport officials, pilots, businesses and/or other airport users.
- Work with local law enforcement agencies to develop a program that involves them from its inception.
- Hold periodic meetings with the airport community.
- Develop and circulate reporting procedures to all who have a regular presence on the airport.
- Encourage proactive participation in aircraft and facility security and heightened awareness measures. This should include encouraging airport and line staff to 'query' unknowns on ramps, near aircraft, etc.
- Post signs promoting the program, warning that the airport is watched. Include appropriate emergency phone numbers on the sign.
- Install a bulletin board for posting security information and meeting notices.
- Provide training to all involved for recognizing suspicious activity and appropriate response tactics. This could include the use of a video or other media for training. The following are some recommended training topics:
 - Aircraft with unusual or unauthorized modifications.
 - Persons loitering for extended periods in the vicinity of parked aircraft, in pilot lounges, or other areas deemed inappropriate.

- Pilots who appear to be under the control of another person.
- Persons wishing to rent aircraft without presenting proper credentials or identification.
- Persons who present apparently valid credentials but who do not display a corresponding level of aviation knowledge.
- Any pilot who makes threats or statements inconsistent with normal uses of aircraft.
- Events or circumstances that do not fit the pattern of lawful, normal activity at an airport.
- Utilize local law enforcement for airport security community education.
- Encourage tenants to make their staff aware of the airport watch programs.

It is essential that every airport employee, tenant, and user is familiar with reporting unusual or suspicious circumstances on airport property. There are three basic ways that persons can report suspect activities. First is to airport management. Oftentimes questions regarding the legitimacy of an activity can be quickly and easily resolved by bringing it to the attention of an airport employee. The second is through a national or wide-area toll-free central telephone reporting number, connecting to a law enforcement or intelligence agency. Finally, direct contact with a local law enforcement agency may provide the most responsive and effective means of reporting.

1-05



IAOPA Statement Regarding Economics of Airports and Air Navigation Services

Background

General aviation and aerial work (GA/AW) operations form the foundation of the world's air transportation system. Airline pilots are created through its training, critical care is provided to the populace through emergency medical service aircraft and business aviation supports national and international commerce; GA/AW forms an essential and significant force in the world of air transportation. The more than one million pilots and 370,000 aircraft engaged in general aviation and aerial work operations throughout the world comprise a majority of aviation operations; they contribute significantly to national and international economies. Their needs must be accommodated when planning and operating the aviation infrastructure.

The great majority of worldwide aviation facilities and systems are designed and operated for the benefit of the airlines. GA/AW generally operate at the margins of this system, taking advantage of capacity unused by air carriers. Therefore, any discussion of funding the aviation infrastructure must realize that GA/AW operations command only a small fraction of all services provided in the total system. Further, the majority of GA/AW operations are able to operate safely without using many air navigation or traffic services.

Airports

Organization. While the organization and control of international airports means little to the general aviation/aerial work operator, several features of that organization tend to have a significant impact. If the airport is a government owned/operated entity, the operations are usually stable and predictable. Yet, these operations may be rigidly structured and unable to respond to user demand. Conversely, while private ownership may lead to more flexible and user-oriented operations, user fees and charges will probably be higher than at a government-run facility. And, as airport operation becomes fully privatized the ability for users to receive funding support from government excise taxes fades rapidly. Therefore, the ability of an organization to adequately support user needs at a reasonable cost is the key to an effective and efficient airport operation.

Capacity Management. As capacity demands increase airports should first look to operational efficiency and innovative solutions before any artificial allocation or queuing schemes are imposed. Additional runways and taxiways, more efficient air traffic management, land-and-hold-short provisions and land-long techniques for smaller aircraft are examples of what can be done to improve airport capacity without imposing artificial restrictions.

Only after all of these operational enhancements have been explored should artificial capacity constraints be attempted. Of all the economic mechanisms used to control capacity, slot allocations are the least desirable for GA/AW. This is because the concept of equal access is often biased in favor of the air carrier. High minimum fees are also used to effectively restrict GA/AW access to busy international airports, yet these fees tend to exclude both GA/AW and smaller air carrier aircraft even when excess capacity exists. But, peak-hour access fees, if applied equitably, often control demand during an airport's busiest periods.

The ultimate and ideal capacity enhancement tool is additional airports. Strategically located reliever airports with ready access to major metropolitan areas not only relieve capacity pressure on principal international airports; they also create additional economic centers and reduce ground transportation congestion within metropolitan areas. While many governments have effectively discarded the idea of constructing reliever airports because of environmental and land use pressures, others have succeeded in placing additional airports at the periphery of heavy populated areas. To succeed, these new facilities are located near public transportation that provide easy access to city centers.

Financing. The fact that an airport is government owned and/or operated implies that its operation is being provided for the public good or advantage. In this case capital financing should be principally accomplished through the use of excise taxes tied to the operation of the aircraft using the facility. Fuel excise and passenger ticket taxes are an example of this type of tax. Additionally, landing and facility use fees may also be applied to individual aircraft operations to pay for operational expenses.

Privately owned and operated airports may receive capital grants or loans from States in recognition of the value and economic advantage provided by a healthy national and international air transportation system. However, much of the capitalization will be accomplished through facility improvement set- asides derived from the full range of airport revenues. Finally, airport corporations issuing equities and bonds may provide the ideal means of raising funds for capital improvements.

Assigning aircraft and passenger use fees at airports must recognize that GA/AW operations use but a small fraction of the infrastructure and cause little maintenance-related expense. Essentially, GA/AW operations operate at the *margins* of the air transportation environment and effectively use only *excess capacity and services*. Therefore, allocation of airport access and use fees for GA/AW should reflect only the marginal costs for their operations.

The existing guidance provided for Airport Charging Systems contained in ICAO Document 9082 provides succinct and appropriate counsel: *Airport charges levied on international general aviation should be assessed in a reasonable manner, having regard to the cost of the facilities needed and used and the goal of promoting the sound development of international civil aviation as a whole.*

Air Navigation Services

Organization. Governments have an obligation to their citizens and foreign visitors to provide basic services that bring order and safety to the polity in pursuit of legitimate goals. Among these are provisions for air navigation services (ANS) that provide for the safe, orderly and efficient flow of air traffic. Whether the government or a private enterprise provides these services is irrelevant; however, the provision for and oversight of these services is the responsibility of the government. (ANS associated services include: Navigation and communications infrastructure, air traffic services, meteorological services, search and rescue and aeronautical information services.)

Capacity Management. Again, artificial metering mechanisms, like slot allocation, peak-hour charges and high minimum charges, are viewed as last-resort actions when considering management of air traffic capacity. Innovations such as direct routing through area navigation (RNAV) processes, reduced vertical separation minimums (RVSM and intelligent structuring of airspace to accommodate both VFR and IFR users are examples of creative capacity management. Only when the absolute capacity of a route segment or terminal sector is reached should queuing methods be used. But, the method used to determine system and segment absolute capacity should be subject to review by both government regulators and users.

Principles of fairness and equity should govern ATM within a State. Efforts to accommodate all types of operators must be made.

Financing. Financing the basic ANS infrastructure should be accomplished by the State, using excise taxes derived from either fuel tax revenues or passenger ticket taxes. And, since basic civic safety and order functions are involved in providing ANS, a portion of the State's general revenues should also be used to create a safe and efficient infrastructure.

Once the capital, research and development and future improvement costs of operating an ANS system have been accommodated through tax revenues, operational costs may be recovered through similar methods or a system of graduated user charges. The use of tax revenues to fund system operations and maintenance is preferable due to the ease of collection of revenues and the lack of need for a complicated accounting system.

However, if direct user charges are employed a graduated system of fees should be used that recognizes both value for services received and the obligation for a state to provide basic safety services to the traveling public. For instance, requiring a private pilot to pay a significant fee for a meteorological and notam briefing and for filing a VFR flight plan prior to flight may subvert safe operations. This is because the pilot may choose to avoid these essential safety services in an effort to avoid the charges associated with the services. Therefore, consideration must be given to providing essential services using tax revenues in support of safe operating practices.

Again, the existing guidance provided for Air navigation services charging systems contained in ICAO Document 9082 provides succinct and appropriate counsel: *The charges levied on international general aviation should be assessed in a reasonable manner, having regard to the*

cost of the facilities needed and used and the goal of promoting the sound development of international civil aviation as a whole.

Regulatory Aspects

All taxes, fees and charges associated with airport and ANS must be established as a cooperative effort between government regulator, service provider and service user. Only a joint effort of this nature will yield a workable, safe and effective aviation infrastructure. Dictated funding systems or those biased for or against any user segment will cause users and providers to subvert the system in an effort to achieve perceived equity. Finally, once planning and use mechanisms are put into place an ongoing dialog is necessary to preserve the system.

Conclusion

Provision for an ideal aviation infrastructure should adhere to international standards and recommended practices, be responsive to user needs and employ cost recovery methods that realistically reflect an equitable assignment to both user and the polity ultimately benefiting from the air transportation system. ³⁻⁰⁵

IAOPA was founded in 1962 to provide a voice for general aviation and aerial work activities in the international aviation arena. Since that time it has been working with ICAO and regional aviation authorities to present and promote GA/AW needs and requirements. IAOPA represents the interests of affiliate organizations in 67 ICAO States, incorporating more than 470,000 pilots and aircraft operators.



ICAO Top Safety Items

-- IAOPA Input --

Problem	Proposed Solution
Accurate and detailed accident/incident data for general aviation (GA) are not available in most States. Without this information effective safety solutions, education and training are difficult to develop.	Devise methods and mandates within States that will ensure adequate GA accident/incident data collection, analysis and publication.
Terminal airspace design often creates unsafe conditions for GA VFR operations by forcing aircraft to fly too low or close to obstacles and by bunching aircraft into limited airspace areas.	Provide standards and recommended practices (SARPS) to ensure terminal airspace design considers its effects on GA VFR operations. (User consultation is an important method of avoiding unsafe design practices.)
Regulatory standards may make safe VFR operations hazardous. Airspace misclassification and placement, operational rules and air traffic control procedures are examples.	Devise guidance to promote safe standards for VFR flight. Proper airspace classification and ATM procedures should be made priorities in this effort.
Excessive costs associated with weather briefings, aeronautical information, flight plan handling and enroute communications may cause pilots to avoid using these services, thereby contributing to unsafe operations.	Provide aviation safety-related information and operational services at no or low cost to encourage safe operations for general aviation, especially while flying VFR.
Controlled airports sometimes fail to provide separate GA and large aircraft traffic patterns and takeoff and landing intervals.	Revise/emphasize airport traffic separation standards to ensure adequate separation between large and small aircraft.
Costs associated with training, pilot currency, required equipment, airworthiness, air traffic routings and facilitation are all borne by the individual GA pilot or operator. Pilots/owners often fly less and may become less proficient as costs increase, thereby impacting safety.	Carefully consider the cost impact of each new or revised SARP by using cost-benefit analysis techniques to determine the potential safety implications for the worldwide GA community.
Runway incursions continue to be a significant hazard in airport operations	Continue runway incursion research and promulgate appropriate SARPS.
Aviation safety education and training for GA operations is not readily available in many parts of the world.	Devise and distribute aviation safety materials for GA operations.

10-08

The International Council of Aircraft Owner and Pilot Associations (IAOPA) represents the interests of its 67 worldwide affiliates and their 470,000 members who are either general aviation pilots, aircraft owners or both.



General aviation safety improving but State support required

*A working paper delivered at the ICAO Directors General of Civil Aviation Conference
on a Global Strategy for Aviation Safety, Montreal, 20 to 22 March 2006*

Background

General aviation comprises all worldwide non-commercial civil aviation, representing four-fifths of all civil aircraft and two-thirds of all pilots. This segment of the aviation market has enjoyed a significant increase in aircraft produced since the economic downturn early in this decade. Importantly, more than 3,000 general aviation aircraft were produced worldwide in 2005, approximately 20 percent more than the previous year. Fully 70 percent of these new units were light piston-engine aircraft.

State data and estimates supplied by the International Council of Aircraft Owner and Pilot Associations (IAOPA) indicate that world civil aviation consists of approximately 370,000 aircraft and 1.3 million pilots flying some 39 million hours during 2004. These totals remain relatively stable compared to 2003.

A majority of these aircraft are used for personal transportation and occasional recreation, however specific types may be used for more utilitarian roles and business transportation. Significantly, the economic impact of general aviation on the economy exceeds \$70 billion annually in North America, the only region for which data is available.

A separate aviation segment not normally included in general aviation (because of non-uniform certification and pilot licencing standards) is the ultralight, microlight and very light aircraft community. This segment of general aviation is growing at a rate of 10 percent in some parts of the world due to lower purchase and operating costs and reduced certification/licencing requirements. It is estimated that in excess of 100,000 of these aircraft and 250,000 pilots for this segment exist worldwide. (Note that these are in addition to the numbers stated above.) While these aircraft have limited performance characteristics they will provide an entry level for those seeking the greater utility value of more traditional general aviation aircraft.

Safety

Given the less stringent regulatory levels afforded general aviation, less capable aircraft and lower experience levels of the pilots, accident statistics for general aviation are generally higher than those experienced in commercial air transportation. Importantly, the general aviation operating environment is more hostile than that of the air carrier, featuring small aerodromes

without air traffic services, little or no meteorological information available and unreliable airport condition data available. Yet, private pilots have traditionally accepted these limitations, curtailing their activities to accommodate their personal, aircraft and environmental limitations.

In general, accident rates for light general aviation activities (aircraft with a maximum takeoff mass of less than 2,250 kg.) average approximately 10 accidents per 100,000 flight hours, depending on operating environment and flight purpose. At the upper end of general aviation there are dramatically lower rates, especially for turbine-powered corporate aircraft operations which typically experience accident rates comparable to of the airlines. It is sometimes difficult to equate accident levels due to variations in accident reporting standards and requirements among states. Moreover, few states publish general aviation activity levels, making it impossible to calculate accident rates.

Fortunately, the great majority of light general aviation accidents do not involve fatalities. Rather, they mainly involve light to moderate damage to the aircraft and little or no harm to its occupants.

Causes

Sadly, the principal cause for aircraft accidents worldwide is similar, whether they involve a light aircraft or airliner: pilot error. This error can stem from insufficient training, lack of experience, faulty judgment or inadequate support. While it is easy to blame the pilot for the accident, underlying factors may have contributed significantly. These contributing causes often put a pilot into an untenable position from which recovery is difficult or impossible.

Statements such as “pilot failed to accommodate weather conditions,” “aerodrome conditions were not suitable” or “pilot did not react properly to deteriorating weather conditions” clearly indict the pilot but fail to examine underlying causes. Insufficient, nonexistent or delayed meteorological reporting, unavailable NOTAM information and out-of-date aeronautical information references are examples that make the pilot’s job more difficult under the dynamic conditions that accompany every flight. Without timely support from government agencies the pilot’s job becomes quite difficult; the partnership between pilot and ground-based information systems is of critical importance to flight safety.

Airlines usually avoid this information vacuum by generating their own data and a means of transmitting it to the flight crew, regardless of the level of information provided by the state. In some parts of the world meteorological, AIP and NOTAM information is either not readily available or prohibitively expensive for general aviation operations. The lack of this information contributes to a significant number of worldwide general aviation accidents.

Experience in a broad range of operating environments, proficiency and recency of experience are proven antidotes to aviation mishaps. This is especially true for the private pilots who normally have fewer flying hours in their logbooks and in a limited number of operating environments. Yet, to an increasing degree rising aircraft operating costs and regulatory restrictions serve as a disincentive for pilots to gain additional experience. Regulatory, air traffic service and aerodrome fees have significantly increased the costs associated with general

aviation operations over the past decade in many parts of the world. So, increased fees work against aviation safety for the private pilot who must pay for these services out of pocket. Ironically, these pilots all pay high aviation fuel taxes that seldom are used to amortize the operating fees.

Safety Measures

A number of states provide safety programs that actively support the general aviation community. Safety seminars, training programs, free publications and internet exercises are all useful for pilots to serve as ongoing reminders to the need to adhere to good operating practices and to strive for higher levels of achievement and awareness in aeronautical practice. Yet, the majority of states do not provide such inducements to higher levels of performance for pilots.

A majority of the 62 IAOPA affiliates produce a number of safety seminars and materials to serve as a reminder for their members to fly safely. These range from week-long training camps in Germany to a series of one-night safety seminars in New Zealand. Our premier aviation safety arm, the AOPA Air Safety Foundation (ASF), has produced a series of internet-based training programs that cover issues from weather interpretation to runway incursion avoidance specifically designed for private pilots. The ASF programs are available free of charge to any pilot worldwide. (See www.asf.org)

Additional state safety awareness support will be important since increasing numbers of light sport aircraft and ultralight/microlights are now entering the general aviation community. Pilots and owners of these often lightly regulated aircraft generally have less training and experience than do operators of more conventional aircraft. Therefore, the safety of these new groups will require continuing education and mentoring.

Action by the Conference

The Conference is invited to:

- Ensure that timely and affordable meteorological, AIP and NOTAM information are available to general aviation operators.
- Consider the potential negative effects of added regulation and increased fees on general aviation safety.
- Accommodate emerging forms of general aviation activity with appropriate levels of regulation and assistance.
- Provide safety information and programs for general aviation operators. (3/06)



IAOPA Comments to ICAO Consultation Regarding Unmanned Aerial Vehicles (UAV)

The International Council of Aircraft Owner and Pilot Associations (IAOPA) appreciates the opportunity to provide input regarding this important subject. IAOPA represents the interests of more than 470,000 aircraft owners and pilots who are members in 67 worldwide affiliate organizations.

The proliferation of UAVs in both the civil and military sectors and their wide range of potential applications have captured the interest of the aeronautical world. The hundreds of UAV projects worldwide have sprung up just within the past few years, often outstripping the ability of national authorities to fully regulate and cope with the unique operational capabilities and requirements embodied in the concept. More important, the anticipated grow rate of this segment of aviation creates a pressing need for ICAO to address the issue and generate standards and recommended practices designed to ensure the safety of all aeronautical activities. This is an urgent requirement.

General aviation is especially impacted by the UAV revolution since many of its operations occur in the low altitude airspace structure, away from major hubs of aeronautical activity. The see-and-avoid principle is the primary and often only means of separating aircraft in low altitude and remote environment; it requires the active attention of pilots in *both* aircraft of effectively ensure separation. Without the vigilance of both parties the possibility of a collision increases dramatically.

Even in the IFR operating environment the hazard of collision exists despite modern transponder and collision avoidance technology. Constant human visual surveillance provides the ultimate avoidance backup, regardless of the best intended CNS/ATM schemes.

While segregating UAV and manned aircraft operations offers a measure of mutual protection, two issues emerge: is the UAV *system* sufficiently reliable to remain within its assigned airspace and will UAV airspace deny operational areas to the manned aircraft? The latter issue is of great importance to the general aviation community that constantly faces the erosion of available airspace in the name of military, national security and commercial aviation “necessity.”

The issue of UAV reliability is key to the entire discussion of their operation. Not only must the UAV adhere to its assigned flight path to avoid other aircraft, it must be sufficiently reliable so that it will not create a hazard to structures and personnel on the ground.

Because of the above issues, the existing provisions of ICAO Annex 11 and Doc 9554 are inadequate to encompass UAV operational concepts.

Therefore, ICAO must consider and issue SARPs, where applicable, on the following UAV issues:

- System reliability
- System safety
- Operational concepts/scenarios
- Areas of operation and airspace allocation
- Operational control
- Operator qualifications and proficiency
- Coordination with conventional aeronautical activities
- Abnormal operations (failure modes)

Again, IAOPA considers that ICAO should assign a very high priority to addressing these issues.

Ultimately, UAVs must prove their ability to operate in any desired mode while providing the same level of safety afforded by manned aircraft operations. ⁽⁹⁻⁰⁵⁾

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IAOPA Comments on ICAO Language Proficiency

Amendment 164 to ICAO Annex 1 created language proficiency standards that will be required for all pilots operating internationally and air traffic controllers by March 2008. These standards hold the promise of increased safety and efficiency for international air transportation by facilitating communication within the air traffic control system. Although there are exceptions more than one million pilots and air traffic controllers will be required to demonstrate a high level of English language proficiency.

General Aviation

General aviation and aerial work comprise approximately 370 000 aircraft flown by more than one million pilots. Some of these operations are flown for work and business reasons but the majority are associated with personal use in much the same manner as automobiles are used. Importantly, the costs associated with the operation of these aircraft primarily are borne by the owner/operator. This includes purchase of the aircraft, continuing maintenance, fuel, insurance, pilot training, medical certification and proficiency demonstration required by State regulatory authorities, all adding up to a considerable financial burden. Conversely, it is States and airline companies who fund continuing training and certification requirements for air traffic controllers, aeronautical station operators and pilots in their employ.

The Need for Language Proficiency

Air traffic that operates under instrument flight rules (IFR) is under positive control of air traffic controllers. These controllers and pilots follow and respond to verbal radio communications to ensure the precise levels of control, separation and separation of aircraft. Because of this a high level of proficiency in a common language is essential for efficient and safe of operations.

There is another type of flying, visual flight rules (VFR), conducted largely in airspace where less control is required; general aviation predominantly operates in this fashion. Little or no control is exercised from the ground in this type of flying, rather pilots conform to basic rules of the air and depend on their ability to visually detect other aircraft to avoid conflicts. Occasionally, general aviation aircraft pass through or operate within the same closely airspace normally reserved for IFR operations; in this case communications with air traffic control is required.

Impact on General Aviation

More than one million pilots worldwide potentially will be affected by this standard. Compliance will involve months of training and thousands of dollars for each individual attempting to achieve level 4 language proficiency. Then, testing of individuals by the State will be required to confirm proficiency and ultimately to certify qualification.

The great majority of pilots, regardless of licence level, perhaps as much as 80 percent, will never fly under IFR nor penetrate closely controlled airspace.

The impact on general aviation operations will be most acute in areas where a number of contiguous States make trans-border operations normal and inviting. Europe is an excellent example of this phenomenon, in which 50 000 aircraft and 300 000 pilots are based within 100 miles of an international boundary. Desiring to maximize the effectiveness of their investment and take advantage of travel opportunities, a thirty minute or one hour flight to a neighboring state for business, personal or sport reasons has been a reality for more than a century.

Importantly, border crossings in which communications with air traffic control are required are rare, perhaps 5 – 6 times per year. Thus, requiring months of effort and expenditure of thousands of dollars for a few annual trips makes little sense, especially when the communications required do not normally involve areas in which high density IFR traffic flows exist. Therefore, the blanket requirement to impose a language proficiency requirement for all pilots is unnecessary.

The potential consequences of imposing a new requirement of questionable efficacy on general aviation are dire. General aviation operations have been shrinking significantly in recent years due to excessive restrictions and rising costs. High levels of language proficiency will become significant means of discouraging entry to or continuation of general aviation activities.

Discussion

Language proficiency specifying “grammatical structure is used creatively,” “handle successfully and with relative ease the linguistic challenges presented by a complication or unexpected turn of events” and “can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances” is unnecessary for the majority of VFR operations, even when occasionally operating in closely controlled airspace.

However, busy terminal areas in which the majority of traffic is operating under IFR may require a higher level of language proficiency for VFR operations. But, this requirement is time, traffic and sector dependent and should not be made a blanket requirement for occasional VFR users. Proficiency in phonetically speaking and understanding basic air traffic control phraseology should be adequate for most VFR operations.

Recommendation

Modify ICAO Annex 1, §1.2.9 to require a lower level of language proficiency for VFR operations conducted in airspace in which high-density IFR operations are not being conducted. Proficiency level 3 should prove adequate for these applications. ⁽⁸⁻⁰⁷⁾

The International Council of Aircraft Owner and Pilot Associations represents the interests of more than 470,000 aircraft operators and pilots in 68 States. The organization has served as a recognized observer in ICAO since 1964.