

## LAW

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E-mails: <sup>1</sup>vitacherev@ukr.net; <sup>2</sup>v.zueva@bigmir.net**Abstract**

**Purpose:** to reveal directions of optimization of the legal adjusting of certification of air ships of general aviation, by realization of analysis of rules, procedure and subjects of registration of civil air ships and permissive system in Ukraine, USA, and also in the countries of the European concord. Exposure of factors that restrain development of general aviation in Ukraine and grant to suggestion in relation to the improvement of the legal adjusting of certification of air ships of general aviation. **Methods:** the use of approach of the systems allowed to reveal basic directions of optimization of the legal adjusting of certification of air ships of general aviation of Ukraine, being base on experience of leading countries of the world. **Results:** in the article attention is accented on the lacks of the legal adjusting of Ukrainian general aviation, in particular, to the legislative vagueness of concept of general aviation that limits her development in direction of realization as commercial and substantially narrows the spectrum of possibilities for her subjects, and also does this sector of aviation economically unattractive. Substantially absence of the ramified classification of air ships complicates the legal adjusting, what took into account sizes of air ship, engine, condition of take off the plane and landings, distance of flights, carrying capacity and other. The questions of optimization of the legal adjusting of certification of air ships of general aviation touch simplification of procedure of certification for ultralight, being base on experience of the USA, Canada, and also some countries of Europe. **Discussion:** authors offer the ways of optimization of the legal adjustment of certification of air ships of general aviation of Ukraine.

**Keywords:** air ship; certification; general aviation; legal adjusting of general aviation; small aviation; ultralight.

**1. Introduction**

The present day the aviation industry of Ukraine experiences the challenging times. The data provided by the State Air Service of Ukraine support this statement. A headlong fall in demand for air carriage in 2016 became a continuation of the negative tendencies of the years 2014-2015, which the State Air Service links to unstable political and military situation in the country and with cessation of air connection between Ukraine and the Russian Federation from 5 October 2015.

The gravity of the above said factors becomes also enhanced by virtue of deficient state and legal basis applying to the aviation sector of the State. The above stated issue manifests at its most with regard to the general aviation (GA). The latter is rapidly developing in the contemporary globalized world. The data according to which the general-purpose aviation fleet covers more than 75% of the overall aeronautical equipment nowadays used in the world have now been made public. In particular, in the USA, GA ensures more than 500 thous. workplaces. Understandably,

this powerful aviation sector is able to both influence on domestic economy and boost its development positively. In order to achieve this, it is worth seeing into the causes of the underdevelopment of GA in Ukraine, with taking into account of the foreign experience not only of the leading countries but also of the states that appeared in all of what was the USSR.

Actuality of select theme increases in connection with those processes that take place now in the world aviation of the general setting. On the exhibition of «AERO- 2017» European Agency of Aviation safety (EASA) presented the new flexible aviation rules of CS - 23, that open enormous prospects for development of general aviation. In particular, in the context of the declared subjects, the special interest presents one of the declared aims of EASA, that touches simplification of procedure of certification.

## 2. Analysis of the research and publications

In Ukraine, this problem is presented by some private publications of practitioners: V. Lagutokina, S. Araslanova, G. Karpyuk, A.Zubenko, I.Nikitina and others. Among the foreign scientists should note the research: AA Batalova, V.D. Bordunova, A.N. Vereshchagin, M.N. Kopylova, Yu.N. Maleev, M. Bazargan, V.S. Guzhva, T. H. Kister, R.Raffel, J. Ramsay in whose works a complex of problems of legal regulation of civil aviation is considered.

## 3. Research tasks

Objective and tasks of the study is to elucidate the directions of optimization of the legal regulation for certification of the general aviation by carrying out the comparative analysis of the rules (procedures) for registration of civil aircrafts and of the authorization systems in Ukraine, the USA and in the European Community countries. It also focuses on the factors hampering the development of GA and brings forward the proposals on improvement of legal regulation of certification of the general aviation.

## 4. Research results

As far as it has been already stated, it can be alleged as a fact that GA is a promising aviation sector and an attractive scope of economic activity. The said

idea is proved by rapid development of GA in the USA, Europe and some of the ex-USSR countries.

One of the problem points, in view of the authors, is legal uncertainty of the general aviation notion. [1] The importance of this definition is stressed by the fact that it is used not only within the framework of legislation but also in the executive authorities' normative documents, in the technical and specialized literature, in various documents related to the activity carried out by the aircraft developers, producers, operators, etc.

The Air Code shapes the ideas about general aviation based on those functions, which, in view of a legislator, should be imposed on this type of civil aviation. The Air Code sets forth the activities for which GA does not apply to: commercial air carriage and performance of aviation works [2]. Notwithstanding that the referred rule does not imply direct prohibition for GA to carry out any commercial activity, it should be noted that the above stated wording challenges the question of eligibility for GA to perform any charged aviation works. This is caused by its twofold and, in most cases, limited construction, which in its turn requires from the authorized executive authority to give additional explanations. In practice, it is impossible to have recourse to public bodies in each specific situation.

It is necessary to address to other regulatory act. Particularly, the Law of Ukraine "On the State Program of Aviation Security of Civil Aviation" specifies the definition to certain extent. In this context, the general aviation shall form the part of the civil aviation, which activity does not imply regular air carriage and air-express operations performed for a fee or at a contract [3]. The Order of the State Service of Ukraine on Surveillance of Aviation Security Assurance does not provide an insight into the subject matter of the general aviation regulation either so far as it is only limited to indication that this is the civil aviation used free of charge" [4].

The definitions laid down herein restrict development of GA in terms of its usage as commercial aviation, which significantly narrows the range of opportunities for its subjects and makes this aviation sector less attractive from economical point of view.

In order to specify the definition of the general aviation, it is also necessary to draw attention to the way by which the respective perception is being shaped in society and to the way of how it is represented by mass media. There is quite a widespread belief that GA mostly consists of single

engined aircrafts, the use of which is limited to agricultural purposes or entertainment sector.

Within this line of thinking, another issue in relation to the notion of “small aircraft” should be emphasized. The studies of small aircraft are not represented in the Air Code at all, giving rise to ambiguity of the notions. That problem can be solved due to establishment of the more branched classification of aircrafts, which will take into account the dimensions of an aircraft, engine power, take-off and landing conditions, flying range, weight-lifting ability, etc. Nowadays, the annexes to the Procedure for registration of the general aviation aircrafts of the light, very light, and ultralight categories contain the classification of the general aviation aircrafts according to the categories. There shall be distinguished 5 categories: planes, helicopters, motor-glidors, gliders, and trikes. The category of planes includes only three groups: light, including the planes with allowable takeoff weight up to 5 700 kg, very light (up to 750 kg), and ultralight (up to 450), which, as a matter of fact, does not provide full understanding of an aircraft, its purpose and ways of further operation [5].

It must be noted that in some accounts the understanding is based on the idea that aviation always presupposes planes, airfields, and a range of organizational structures providing maintenance of them [6]. Such views significantly narrow the possibility to regulate legally the specified field. In the world of aviation practice, the functional approach was shaped, according to which aviation shall be understood as flights and aviation works performed for certain purpose [7]. It should be noted herein that the purposes are very diverse, they implement the tasks of various activities: agricultural, medical, educational, geographic, etc. The subjects may be both corporate and private persons.

The reference manual on the ICAO (Doc 9060) statistical program provides for schematic representation of the classification of the civil aviation activities, in which the GA activity includes several directions: 1) noncommercial business aviation, 2) training flights, 3) barnstorming, 4) other types of flights, and 5) aerial works. The latter in its turn includes such types of works as agricultural, photography, construction, contour mapping, observation and patrolling, aerial advertisement, search and rescue service, and other types of aerial works. In the light of the above stated, it becomes clear, why ICAO provides for the definition of GA

by means of exclusion save for commercial air carriage. The direction, which refers to other types of flights and, other types of aerial works, is predetermined by rapid development of the aviation area and by detection of new centers of its application.

Needless to say that if the flight is performed by the general aviation aircraft, the overall responsibility shall be imposed on the owner and commander of the aircraft performing the flight. In order to perform flights and aerial works, an aircraft shall have relevant certification and authorization documents. In the field of civil aviation, special services are responsible for the issues of certification of an aircraft and its airworthiness. As far as GA is concerned, the situation is somewhat different. In this case, the owner of an aircraft is the first one who is responsible. The rules for issuance of the Permits for performance of flights on the civil aircrafts of Ukraine of the general aviation set out that the flights of the GA aircrafts carried out without the current permit for performance of flights are forbidden. The Permit to perform the flights shall be the document which determines airworthiness of an aircraft, the latter must be recorded in the state register of the civil aircrafts of Ukraine and must have the registration certificate.

In order to optimize the legal regulation of certification of general aviation aircraft it is necessary to refer to international experience. It is known that, in accordance with the provisions of the Chicago Convention, an aircraft operating international flights must have a airworthiness certificate issued by the state in which the aircraft is registered. Regarding the general aviation (GA), it should be noted that this requirement does not apply to aircrafts with a take-off weight of less than 750 kg, as well as aircrafts that do not have a type certificate. Legal regulation, in particular, the certification procedure, as well as the establishment of any additional restrictions for this category of aircraft, remains at the discretion of the state, which defines both the procedure and the range of authorized entities. Currently, in international practice you can distinguish five approaches to certification and admission to the operation of different categories of civilian aircrafts, among which [8]:

- Aircrafts, which have a type certificate and production of which is certified by the state-authorized body;
- Aircrafts, which have a type certificate, the production of which is not certified by the state-authorized body;
- Aircrafts, which do not have a type certificate;

- light aircrafts with a take-off weight of less than 750 kg;
- ultra-light aircrafts.

In all categories, except for ultra-light aircrafts, the basis for the admission of the aircraft to operation is an airworthiness certificate issued by the state-authorized body. The last category of aircraft receives a type or instance certificate of ultra-light aircraft from a state-authorized public organization or national air club.

Such a simplified approach to certification of aircraft with a take-off weight of up to 750 kg is based on an understanding of the level of danger that the category of aircraft represents [9]. Particularly interesting is the experience of the legal regulation of ultra-light aircrafts (ULA). In terms of the danger they present to individuals and the environment, the ULA can be compared to bicycles [10]. Proceeding from the above, in a number of countries a number of powers on legal regulation of certification of this GA category relies on public organizations, associations, unions and federations.

Interesting in this context is the experience of European countries. For example, in Germany, the Federal Ministry of Transport gave authority to assess the airworthiness and certification of ultra-light aircraft to ultralight aircraft federation (abbreviated in German as DULV). DULV has the authority to issue: type certificates and airworthiness certificates for ULA on a paid basis. A similar directive is also used in the Czech Republic and in a number of other countries.

There are also many examples of a simplified approach to the legal regulation of the GA in the United States [11]. A striking example is the issuance of airworthiness certificates for LSA (Light-Sport Aircraft). For this category of aircrafts, special requirements are used, which are called Consensus Standards in the United States.

The tests related to the compliance of the LSA with the established standards are carried out by the developer on his own. The authority to issue airworthiness certificates for this category of aircraft is vested in the Federal Aviation Administration of the United States [8]. In order to make a positive decision on issuing a certificate, the following is required: the manufacturer's declaration on the compliance of the light-sport aircrafts with the requirements and findings of the airworthiness expert [12]. For this category of GA, a type certificate is not required, and a airworthiness certificate for an LSA instance is

issued by the Federal Aviation Administration (FAA). It is interesting that the responsibilities associated with the inspection, testing and inspection of parts of aircraft or airplanes, with the purpose of granting flying permits FAA gives to private individuals - experts, such as the FAA DAR (Designated Airworthiness Representative), and FAA DER (Designated Engineering Representative) [8]. Experts have been granted permission not only to perform certain certification functions on behalf of the FAA, but also to issue airworthiness certificates for certain aircrafts [13]. These permits are granted on the basis of the knowledge and experience of people in a particular field of aviation, such as airplanes, aircraft engineering, or aircraft operation.

This practice is also the case in European countries, where task for assessing airworthiness is solved by involving expert organizations in civil aviation institutions. For example, in Germany to assess the airworthiness of a aircraft of light category of an independent building as an expert organization involved the "Association of Oscar Ursinus" (Oskar Ursinus Vereinigung: OUV) [8]. The association includes more than 1000 members from all over Germany, most of them are flying on homemade airplanes. Evaluation and issuance procedure of the certificate of airworthiness for a single instance of general aviation includes several stages: expert assessment, conducting ground and flight tests to assess compliance with the requirements, verification and clarification of operational documentation, etc. In a number of other European countries there is a similar practice.

It is also useful to refer to the experience of Canada, where there is also a practice of a simplified approach. In this country there are two categories of ultra-light aeroplanes: basic ultra-light aeroplane (BULA) and advanced ultra-light aeroplane (AULA). BULA is sometimes called the base ultra-light aircraft, and AULA - progressive or advanced, based on the English term "advanced" [14]. AULA is a serial production aircraft with a maximum take-off weight of not more than 560 kg. In Canada, advanced ultra-light aeroplane (AULA) does not require a type certificate, and may even be allowed for commercial operation after being included in the AULA list officially endorsed by the Canadian Ministry of Transport [14]. At the beginning of 2016, more than 7,000 GA aircrafts were registered in the country, including 1,200 AULA [15].

The airworthiness certification process in the US is clear and transparent. The said certificate, as well

as in Ukraine, gives permission to operate the aircraft in flight. An application for a certificate may be filed by both the registered owner of the aircraft and his agent. In the United States, airplanes with a standard or special certificate of airworthiness are permitted to perform flights. The standard certificate is issued only on the basis of a type certificate, and a special one can be issued on the basis of individual assessment of the aircraft. Such airplanes, unlike Canadian, are not allowed for the commercial transportation of passengers. A special certificate of airworthiness gives the right to operate in the USA to aircrafts, which have or do not have a type certificate for a range of categories: Primary, Restricted, Multiple, Provisional, Special Flight Permit, Limited [13]. The conditions for obtaining a special airworthiness certificate are different and depend on the category of aircraft.

## 5. Discussion of results

Consequently, the analysis of the leading aviation states suggests that there is a direct link between the existence of a simplified approach to the certification of the GA aircraft and the development of this type of aviation. The experience of the US, Canada in certifying the GA aircraft is based on a simplified approach which is substantiated by the low level of danger of the specified aircraft category. Also, the positive point is the involvement of experts in the issuance of airworthiness certificates on certain categories of aircraft. In Ukraine, there are a lot of organizations whose members have the relevant knowledge and experience in a particular field of aviation. Currently, Ukraine, which wants to be a part of Europe, unfortunately puts unreasonably high requirements for the certification of the GA aircraft that hinders the development of this type of aircraft and does not contribute to increasing the safety of its operation.

## 6. Conclusion

The certification procedure of GA aircraft in Ukraine needs to be optimized and based on the experience of the leading countries of the world. Indeed, unlike in Europe and the USA, the certification procedure of GA aircraft in Ukraine is too complicated and confusing, unreasonably exaggerated requirements are applied to the assessment of airworthiness. Especially,

certification of GA aircraft by the volume of performed work is close to the certification of commercial aircrafts. It is clear that such an approach does not contribute to the development of a GA and to support its safe operation. The experience of the leading countries of the world confirms that this powerful aviation sector can also influence the domestic economy and accelerate its development in a positive direction.

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**Питання оптимізації правового регулювання сертифікації повітряних суден авіації загального призначення: вітчизняний та зарубіжний досвід**

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**Мета:** виявити напрямки оптимізації правового регулювання сертифікації повітряних суден авіації загального призначення, шляхом проведення компаративного аналізу правил, процедури та суб'єктів реєстрації цивільних повітряних суден та дозвільної системи в Україні, США, а також у країнах Європейського співтовариства. Виявлення чинників, що стримують розвиток АЗП в Україні та надання пропозиції щодо удосконалення правового регулювання сертифікації повітряних суден авіації загального призначення. **Методи дослідження:** використання системного підходу та компаративного методу дозволило виявити основні напрямки оптимізації правового регулювання сертифікації повітряних суден авіації загального призначення України, ґрунтуючись на досвіді провідних країн світу. **Результати:** в статті увага акцентується на недоліках правового регулювання вітчизняної авіації загального призначення, зокрема, законодавчій невизначеності поняття авіації загального призначення, що обмежує її розвиток у напрямку реалізації як комерційної та суттєво звужує спектр можливостей для її суб'єктів, а також робить цей сектор авіації економічно непривабливим. Суттєво ускладнює правове регулювання відсутність розгалуженої класифікації повітряних суден, яка б враховувала розміри повітряного судна, потужність двигуна, умови злету та посадки, дальність польотів, вантажопідйомність та інше. Питання оптимізації правового регулювання сертифікації повітряних суден авіації загального призначення стосуються спрощення процедури сертифікації для надлегких повітряних суден, ґрунтуючись на досвіді США, Канади, а також деяких країн Європи. **Обговорення:** автори пропонують шляхи оптимізації правового регулювання сертифікації повітряних суден авіації загального призначення України.

**Ключові слова:** авіація загального призначення; мала авіація; повітряне судно; надлегке повітряне судно; правове регулювання авіації загального призначення; сертифікація; ультралайт.

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**Вопросы оптимизации правового регулирования сертификации воздушных судов авиации общего назначения: отечественный и зарубежный опыт**

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**Цель:** выявить направления оптимизации правового регулирования сертификации воздушных судов авиации общего назначения путем проведения сравнительного анализа правил, процедуры и субъектов регистрации гражданских воздушных судов и разрешительной системы в Украине, США, а также в странах Европейского сообщества. Выявление факторов, сдерживающих развитие АЗП в Украине и внесение предложений по совершенствованию правового регулирования сертификации воздушных судов авиации общего назначения. **Методы исследования:** использование системного подхода и сравнительного метода позволило выявить основные направления оптимизации правового регулирования сертификации воздушных судов авиации общего назначения Украины, основываясь на опыте ведущих стран мира. **Результаты:** в статье внимание акцентируется на недостатках правового регулирования отечественной авиации общего назначения, в частности, законодательной неопределенности понятия авиации общего назначения, что ограничивает ее развитие в направлении реализации как коммерческой и существенно сужает спектр возможностей для ее субъектов, а также делает этот сектор авиации экономически непривлекательным. Существенно усложняет правовое регулирование отсутствие разветвленной классификации воздушных судов, которая бы учитывала размеры воздушного судна, мощность двигателя, условия взлета и посадки, дальность полетов, грузоподъемность и прочее. Вопросы оптимизации правового регулирования сертификации воздушных судов авиации общего назначения касаются упрощения процедуры сертификации для сверхлегких воздушных судов, основываясь на опыте США, Канады, а также некоторых стран Европы. **Обсуждение:** авторы предлагают пути оптимизации правового регулирования сертификации воздушных судов авиации общего назначения Украины.

**Ключевые слова:** авиация общего назначения; воздушное судно; малая авиация; правовое регулирование авиации общего назначения; сверхлегкое воздушное судно; сертификация; ультралайт.

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