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AVIATION ACRONYMS AND ABBREVIATIONS: STRATEGIES FOR ENSURING ACCURACY AND CONSISTENCY IN ENGLISH–UKRAINIAN TECHNICAL TRANSLATION

The high frequency of abbreviated units in aviation discourse requires a systematic approach to translation to ensure operational safety and terminological precision. As English remains the global standard for aviation, the methodology of transferring these units into Ukrainian is a critical task for technical translators.

The study aims to analyze the types of acronyms and abbreviations in English aviation texts and to evaluate specific strategies for their translation into Ukrainian. The research is designed to enhance accuracy, consistency, and pedagogical practices in the field of technical translation. Methods and Results: The core of the study focuses on the application of three primary translation strategies: Direct Equivalent, Retention and Explanation, and Adaptation. The research analyzes how a Direct Equivalent is utilized for standardized international terms, while Retention and Explanation is applied to preserve the original English acronym alongside a Ukrainian gloss for clarity. The Adaptation strategy is explored as a means of aligning specialized terms with the structural and phonetic norms of the Ukrainian language. The selection of these strategies is examined in the context of documentation for digital control systems, UAVs, and satellite navigation.

The findings indicate that a differentiated application of these three strategies minimizes terminological ambiguity. The study provides practical guidelines for technical translators and contributes to the development of more effective training curricula for ESP (English for Specific Purposes) and translation students.

Keywords: professional communication, translation of aviation texts, aviation terminology, abbreviations and acronyms, translation, technical translation.

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АВІАЦІЙНІ АКРОНІМИ І АБРЕВІАТУРИ: СТРАТЕГІЇ ЗАБЕЗПЕЧЕННЯ ТОЧНОСТІ І ПОСЛІДОВНОСТІ В АНГЛО-УКРАЇНСЬКОМУ ТЕХНІЧНОМУ ПЕРЕКЛАДІ



Велика кількість аббревіатурних одиниць в авіаційному дискурсі потребує системного підходу до перекладу для забезпечення безпеки польотів та забезпечення термінологічної точності. Оскільки англійська мова залишається офіційним міжнародним стандартом в авіації, методологія передачі таких одиниць українською мовою є критичним завданням для технічних перекладачів.

Дослідження спрямоване на аналіз типів акронімів та аббревіатур в англомовних авіаційних текстах та оцінку конкретних стратегій їхнього перекладу українською мовою. Робота орієнтована на підвищення точності, послідовності та вдосконалення навчальної практики у сфері технічного перекладу.

Основна увага в дослідженні приділена застосуванню трьох провідних перекладацьких стратегій: використання прямого еквівалента (*Direct Equivalent*), стратегія збереження ініомовного елемента з експлікацією його значення (*Retention and Explanation*), а також адаптації (*Adaptation*). Проаналізовано стратегію використання прямого еквівалента для перекладу стандартизованих міжнародних термінів; реалізацію стратегії збереження та пояснення, що передбачає подання оригінального англомовного акроніма паралельно з його українським тлумаченням; а також роль адаптації у приведенні спеціалізованих термінів у відповідність до структурних і фонетичних норм української мови. Вибір цих стратегій розглянуто на прикладах документації до цифрових систем управління, БПЛА та супутникової навігації.

Результати вказують на те, що диференційоване застосування цих трьох стратегій мінімізує термінологічну неоднозначність. Дослідження пропонує практичні рекомендації для технічних перекладачів та сприяє розробці ефективніших навчальних програм із професійної англійської мови (*ESP*) та перекладу.

Ключові слова: професійне спілкування, переклад авіаційних текстів, авіаційна термінологія, скорочення та акроніми, переклад, технічний переклад.

Introduction. Aviation terminology in the English language emerged alongside the development of aeronautics and aviation, and its evolution has proceeded in parallel with the advancement of these fields of knowledge. The formation of English aviation terminology, which has taken place over more than two centuries, reflects the complex process of development of aviation science and technology. Against the background of general vocabulary, specialized vocabulary is not used in everyday communication and is comprehensible only to professionals engaged in a specific field. Such vocabulary does not belong to the general language, but rather to professional sublanguages, and it is essential for mastering specialized knowledge.

Military and civil aviation texts are characterized by a high density of acronyms and abbreviations used to denote units (e.g. AAE – Aerospace Forces), functions (AO – Airspace Surveillance), systems (ACCS – Airspace Command and Control System), and technical concepts (AAR – Air-to-Air Refueling). In addition, the phonetic alphabet (Alpha, Bravo, etc.) is employed to ensure clarity in radio communication, along with system-specific designations for aircraft types (e.g. A – for attack aircraft, F – for fighter aircraft). In military aviation, the most common acronyms and abbreviations belong to categories related to operations, aircraft systems, air traffic control, and organizational or administrative activities. This specialized language ensures clear, concise, and rapid communication in a high-risk operational environment.

Accurate translation of aviation terms and abbreviations (e.g. ATC, NOTAM, TCAS, MEL) directly affects flight safety. Incorrect interpretation may lead to serious errors in navigation, aircraft maintenance, or air traffic control.

The continuous development of new technologies drives constant change in modern aviation. The introduction of unmanned aerial vehicles, digital control systems, and satellite navigation technologies leads to the emergence of new terminology and abbreviations that require accurate translation and standardization.

International standards and regulatory documents issued by organizations such as ICAO, EASA, and FAA must be accessible to aviation specialists worldwide. Translation plays a crucial role in ensuring the correct implementation of international standards into national legislation and operational practice.

Pilots, air traffic controllers, engineers, and technicians are trained using educational materials that are often translated from English. Accurate translation of aviation terminology therefore contributes directly to the quality of professional education and specialist training.

The relevance of the study is due to the difficulties that arise when translating aviation-related texts, abbreviations and acronyms. The training of translation students involves the formation of skills and abilities necessary for translators, namely, practicing translation skills acquired in the process of studying, annotating, summarizing, deepening knowledge of translation theory, developing a conscious selection of language tools taking into account the structural, semantic, and stylistic features of the text, practicing the skills of using dictionaries (bilingual, explanatory, synonymous, industry, encyclopedic), enriching special vocabulary, mastering terminology and modern computer translation programs.

The aim of the study is to analyze the types of acronyms and abbreviations used in English aviation texts and to identify effective strategies for their translation into Ukrainian in order to improve accuracy, consistency, and teaching practice in technical translation.

Literature review. A large number of research works are devoted to the translation of scientific, technical, and industry texts both in Ukraine and abroad. However, the problem of the specifics of the translation of aviation terminology remains incompletely studied, namely, a system of rules that could be used to achieve adequate translation of specific texts and business documentation has not been developed. The authors agree with the opinion of Tsyganyuk (2021) that the translation of terms is impossible without knowledge of the industry to which the translation relates, a clear understanding of the terminology in both English and Ukrainian. Voloshchuk (2021) studies the terminology formation and standardization from the point of conceptualization of professional terminology by methods of conceptual analysis in combination with frame analysis. Ishchenko and Polycheva (2025) offer the systematic description of the UAV lexical-semantic field in the Ukrainian-language context. Varenko and Dobrovolska (2020) study the problems and peculiarities of the formation and normalization of aviation vocabulary in the Ukrainian language. Byrne (2006) provides a broader perspective on technical translation, noting that it has historically been considered the “poor cousin” of literary translation within academic circles. Technical translation, including aviation, is often undervalued, perceived as a mechanistic exercise in transferring specialized terminology rather than as a cognitively complex communicative task. Byrne’s analysis suggests that the relative neglect of technical translation in translation studies has contributed to the lack of standardized approaches and training materials for translators in this field. The author highlights that technical translation has traditionally been regarded as the poor cousin of “real” translation in the literature is clear. This vocational and industrial type of translation has been largely neglected in the literature on translation theory. This is supported by an enlightening survey by Franco Aixelá who reports that out of 20,495 publications listed in the BITRA1 multilingual bibliography of translation research only 1,905 or 9.3% addressed technical translation. Literary translation, on the other hand, is the subject of some 4,314 entries accounting for 21% of the total number of



entries despite its niche status in professional practice (Aixelá, 2004: 13). Collectively, these studies indicate a clear research gap in aviation-specific translation. While general technical translation principles provide a foundation, aviation texts require specialized strategies for handling abbreviations, acronyms, and context-dependent terminology. This gap justifies the present study, which aims to identify effective strategies for translating English aviation acronyms and abbreviations into Ukrainian, with a view to improving accuracy, standardization, and translator training.

Discussion. In addition to subject-matter specialists, translators and interpreters are also key users of terminology, as they mediate communication between professionals.

When we speak about translation quality, we mean a high degree of adequacy in rendering specialized vocabulary and terminology. Terms are essential for the correct and precise designation of phenomena, as they carry key information. Thus, the term is a basic unit of a specialized text, and its translation often presents certain difficulties. For example, a term in the source language may have a close but not identical meaning in the target language, or the same extralinguistic phenomenon may be perceived differently across languages.

Abbreviations and acronyms are small “concentrates of meaning,” which is why they often cause difficulties, especially in translation. Although abbreviations and acronyms are shortened forms of words or phrases, their interpretation can be challenging, particularly in a cross-linguistic context.

The translation of abbreviations poses particular difficulties for several reasons. First, translation often alters the linguistic structure of a phrase, making it impossible to preserve the original initial letters. Second, some abbreviations denote culture-specific or country-specific realia and therefore lack direct equivalents in another language. Third, a single abbreviation may have multiple meanings, which increases the risk of semantic error. In translation practice, various strategies are employed, including retaining the original abbreviation, providing a full translation with decoding, creating a national equivalent, or offering an explanation at the first occurrence. The choice of strategy depends on the context and the purpose of the document. Let us consider specific examples.

Direct equivalent. Direct equivalence is a translation method in which an abbreviation or acronym from the source language is rendered using an established target-language counterpart that fully coincides in meaning and functional usage. This method is applied when the concept denoted is internationally recognized or institutionally standardized, and its equivalent is fixed in normative, scientific, or official sources. This ensures unambiguous interpretation and eliminates the need for additional explanation.

ICAO (International Civil Aviation Organization) → ІКАО (Міжнародна організація цивільної авіації)

IATA (International Air Transport Association) → ІАТА (Міжнародна асоціація повітряного транспорту)

ATC (Air Traffic Control) → УПІР (управління повітряним рухом)

The RAF has survived regular calls for its dissolution since, and now celebrates an uninterrupted hundred years. (Overy, 2019: 3)

The abbreviation *RAF* has a direct equivalent in the Ukrainian language – *Королівські повітряні сили (Велика Британія)*; however, in academic texts, the abbreviation *RAF* is often retained after the initial explanation. Thus, the sentence can be translated as follows:

Відтоді Королівські повітряні сили (RAF) вистояли попри регулярні заклики до їх розформування і нині відзначають сторіччя своєї безперервної історії.

Retention and explanation. Retention and explanation is a translation strategy in which an abbreviation or acronym from the source language is preserved in its original form, while its meaning is clarified through an explanation or full decoding, usually at its first occurrence. This method is used when there is no direct equivalent in the target language, as well as when translating terms related to national-specific realia, professional vocabulary, or newly introduced concepts. Retaining the original abbreviation helps avoid distortion of meaning and ensures accuracy of information transfer.

If an acronym is internationally recognised or lacks an established equivalent in the target language, it is retained and accompanied by a full explanation upon its first mention.

TCAS – система попередження зіткнень у повітрі (Traffic Collision Avoidance System)

ETOPS – стандарти виконання польотів двомоторних повітряних суден на великих відстанях

RVSM – режим зменшеного вертикального ешелонування

PSS (power scale soaring) allows you to fly model jets without the problems of ducted fans or gas turbine engine.” (Boddington, 2004 : 57)

Абревіатура *PSS* є вузькоспеціалізованим авіамоделельним терміном і не має усталеного українського або міжнародного скороченого еквівалента. Тому доцільно зберегти абревіатуру *PSS* в оригінальній формі і подати розшифрування англійською та пояснення значення:

PSS (power scale soaring) дозволяє виконувати польоти моделей реактивних літаків без проблем, пов'язаних із використанням імпелерів або газотурбінних двигунів.

Adaptation. This strategy means creation of a functional (national) equivalent in a translation. In this method an abbreviation or acronym from the source language is rendered by creating a functionally and semantically comparable counterpart in the target language, taking into account linguistic, cultural, and communicative norms. In this case, the form of the abbreviation may be modified or completely restructured, which allows the content and pragmatic function of the source element to be preserved when a direct equivalent is absent. The abbreviation is thus conveyed through the creation of a functional analogue in the target language.

FDR (Flight Data Recorder) → БРПД (бортовий реєстратор параметрів польоту)

CVR (Cockpit Voice Recorder) → БРМП (бортовий реєстратор мовної інформації)

ADF (Automatic Direction Finder) → АРК (автоматичний радіокомпас)

An alternative would be to use a BEC (battery eliminator circuit), which allows a common battery to be used for both the motor and radio receiver and servos.” (Pooley’s Air Pilot Publishing, 2024)

In this context, the use of the adaptation method is appropriate, whereby the term *BEC* is preserved and provided with an explanatory clarification.

Альтернативним рішенням є використання *BEC (Battery Eliminator Circuit)* – схеми виключення батареї, яка дає змогу забезпечувати живлення двигуна, радіоприймача і сервоприводів від одного спільного акумулятора.

For acronyms highly specific to a culture a full explanation is often necessary.



AMU Audio Management Unit (Airbus&Boeing Acronyms) – Блок керування аудіо AMU (скорочення Airbus та Boeing)

AN Access Node (RMCDE) access Node (RMCDE) – вузол доступу в мережі

ANAC Brazilian National Civil Aviation Agency (Agência Nacional de Aviação Civil – ANAC) – Бразильське агентство цивільної авіації

AND Aircraft Nose Down – команда до від'ємного кута тангажа.

ANI Analog Input – аналоговий вхід (English-Ukrainian Military Dictionary, 2023).

Aviation communication is a specific domain in which standards are strictly regulated and enforced by relevant central authorities (International Civil Aviation Organization, 2026). Aviation English is a highly specialized language. In professional slang, familiar words are often used in completely unexpected meanings, and aviation and the aviation industry are no exception. Moreover, due to the technical complexity of this professional field and the fact that the number of individual aircraft components amounts to thousands, the English language used in aviation and the aviation industry functions as a distinct linguistic system. This system must be mastered by everyone working in aviation and involved in international air transportation.

Pilots, flight engineers, and air traffic controllers are required to know a large number of specialized terms and standardized expressions. Since common English words are frequently used in aviation with meanings that differ significantly from their general-language usage, general fluency in English is insufficient for professional work in this field.

In order to remove any form of ambiguity, it was decided that pilots would henceforth use one language: English. In 2017, the European Union made the use of English mandatory for communication between pilots and air traffic controllers at each of the airports with over 50,000 international flights per year. Now, to become a pilot one needs to get a special certificate of English, Test of English for Aviation (TEA). Therefore, knowledge of English is now required to become an airline pilot.

Aviation uses a fairly clear NATO phonetic alphabet, or International Alpha Code. Developed in the 1950s by the International Civil Aviation Organization, it has since become widespread. Among all the advantages offered by the Alpha Code, the fact that it could easily pronounce and distinguish between the various letters of the English alphabet quickly made it indispensable in aviation communications, which it greatly contributed to. For example, *Alpha, Bravo, Charli, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliett, Kilo, Lima, Mike, November, Oscar, PaPa, Quebec, Romeo, Sierra, Tango, Uniform, Victor, Whiskey, X-ray, Yankee, Zulu* [An a-z of aviation definitions, 2026].

Conclusion. Translation is a process aimed at facilitating communication between speakers of different languages. Multilingual terminology activities support technical translation. Translation involves understanding the source text, which requires knowledge of specific terms in the source and target languages. This, in turn, means that technical translators must have some knowledge of the subject matter they are translating.

The translation of aviation abbreviations and acronyms is a complex task, as they are widely used in professional communication and often have strictly standardized meanings. Analysis shows that there is no universal method for their translation: the choice of strategy depends on the degree of standardization of the term, its level of dissemination, and the context of use. Internationally recognized aviation abbreviations are usually retained in their original form or have established equivalents in the target language (e.g. ICAO – IKAO, ILS – Instrument Landing System). Less common or highly specialized abbreviations require decoding and explanatory clarification to ensure accuracy and unambiguous interpretation. Thus, in translating aviation terminology, priority is given not to the literal reproduction of the form of the abbreviation, but to the preservation of its functional and semantic value, taking into account professional norms and the target audience.

Today, the translation of aviation vocabulary and abbreviations is relevant not only from a linguistic perspective, but also as an important factor in ensuring safety, supporting technological development, and facilitating international cooperation. The findings of this study lay the groundwork for further linguistic and pedagogical inquiry. A promising area of study lies in evaluating the performance of Neural Machine Translation engines in rendering aviation-specific abbreviations. The research should investigate how the identified human translation strategies can be used to "train" or post-edit AI outputs for safety-critical documentation.

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