UDC 378+629.7.07

O.V.Kovtun, doctor of pedagogical sciences,
A.G.Gudmanian, doctor of philological sciences
(National Aviation University, Ukraine, Kyiv)
A.V.Mikhaylov, candidate of philological sciences
(Siberian State Aerospace University named after academician M.F. Reshetnev,
Russian Federation, Krasnoyarsk)

REQUIREMENTS TO PILOTS AND AIR TRAFFIC CONTROLLERS' PROFICIENCY IN AERONAUTICAL COMMUNICATION

The article outlines main requirements to pilots' proficiency in aeronautical communication. The most frequently reported air-ground communication problems and their consequences for safety are analyzed. The importance of both ICAO phraseologies and plain language for safe radiotelephony communications is revealed.

Aviation is a fast developing branch of international transportation. Safety experts are constantly seeking to identify means of improving safety in order to reduce accident rates. With mechanical failures featuring less prominently in aircraft accidents, more attention has been focused in recent years on human factors that contribute to accidents. Communication is one human element that is receiving renewed attention.

Among the most frequently reported air-ground communication problems aviation experts state the following: loss of communication, readback/hearback error, communication equipment problems, hearback error, no pilot readback. The linguistic and psychological factors contributing to air-ground communication problems are as follows: content of message inaccurate/incomplete, pilot/controller distraction, pilot expectation, pilot/controller workload, garbled message, language problems, untimely transmission, controller/pilot non-standard phraseology, ambiguous phraseology, partial readback, controller/pilot accent/non-native, long message, controller/pilot high speech rate.

The research "Air-Ground Communication Safety Study: Causes and Recommendations", made by Eurocontrol, showed that 64 % of communication problem occurrences have some safety consequences. They may result in a prolonged loss of communication, altitude deviation, loss of separation, wrong aircraft accepted clearance, instruction issued to wrong aircraft, heading / track deviation, runway transgression and some others [1].

The International Civil Aviation Organisation's (ICAO), taking note of several accidents and incidents where the language proficiency of pilot and air traffic

controller (ATCOs) were causal or contributory factors, formulated Assembly Resolution A32-16 in which the ICAO Council was urged to direct the Air Navigation Commission to consider, with a high level of priority, the matter of English language proficiency. Although English has always been the official language of aviation, the new and strengthened requirements state that every pilot flying internationally and every air traffic control officer (ATCO) managing international traffic must demonstrate a minimum 'operational' level of proficiency in English language. For the benefit of aviation safety, a truly global industry has adopted a truly global language.

In order to support States' efforts to comply with the strengthened provisions for language proficiency, the development and publication of guidance material compiling comprehensive information on a range of aspects related to language proficiency training and testing were seen as necessary. In order to conform to ICAO Language Proficiency Requirements, pilots, ATCOs and all others who use English in radiotelephony (RTF) communication on international routes must be at ICAO English Language Level 4 (Operational) or above. This must be confirmed by successful completion of an airline industry approved test. Those who are assessed at ICAO Level 4 must be re-tested every three years. Those who fail may not be licensed to operate on international routes.

According to ICAO Language Proficiency RATING SCALE Pilots, Air Traffic Controllers and all others who use English in RTF communication on international routes must demonstrate the following abilities and speech competences (ICAO Level 4):

PRONUNCIATION (Assumes a dialect and/or accent intelligible to the aeronautical communication): Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.

STRUCTURE (Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task): Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.

VOCABULARY: Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.

FLUENCY: Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.

COMPREHENSION: Comprehension is mostly accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.

INTERACTIONS: Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected

turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying [2].

'Aviation English' in its broadest sense covers language use in a wide variety of aviation-related contexts, from maintenance to cabin crew, customs to security, dispatchers to pilots and ATCOs. The ICAO language proficiency requirements specifically address ground–air communications between ATCOs and pilots.

Both ICAO phraseologies and plain language are required for safe radiotelephony communications. The need for clear and unambiguous communication between pilots and ATCOs is vital in assisting the safe and expeditious operation of aircraft. It is important, therefore, that due regard is given to the use of standard words and phrases and that all involved ensure that they maintain the highest professional standards when using radiotelephony phrases. This is especially important when operating within busy sectors with congested frequencies where any time wasted with verbosity and nonstandard, ambiguous phrases could lead to flight safety incidents.

Of the many factors involved in the process of communication, *phraseology* is perhaps the most important, because it enables us to communicate quickly and effectively despite differences in language and reduces the opportunity for misunderstanding. Phraseology is designed to be: 'as clear and concise as possible and designed to avoid possible confusion by those persons using a language other than one of their national languages' [4]. Phraseology has evolved over time and has been carefully developed to provide maximum clarity and brevity in communications while ensuring that phrases are unambiguous.

Standard phraseology reduces the risk that a message will be misunderstood and aids the read-back/hear-back process so that any error is quickly detected. Ambiguous or non-standard phraseology is a frequent causal or contributory factor in aircraft accidents and incidents. International standards of phraseology are laid down in ICAO Annex 10 Volume II Chapter 5 [3] and in ICAO Doc 9432 – Manual of Radiotelephony [7]. Many national authorities also publish radiotelephony manuals which amplify ICAO provisions, and in some cases modify them to suit local conditions. Failure to use standard phraseology can lead to misunderstanding and breakdown of the communication process.

Non-standard phraseology, which is sometimes adopted unilaterally by national or local air traffic services in an attempt to alleviate problems and is introduced after careful consideration to address a particular problem, can make a positive contribution to flight safety; however, this must be balanced with the possibility of confusion for pilots or ATCOs not familiar with the phraseology used.

Although standardized ICAO phraseologies [6] have been developed to cover many circumstances (essentially routine events, but also including some predictable emergencies or non-routine events), no set of phraseologies can fully describe all possible circumstances and responses. RTF users should be prepared to use *plain language* when necessary following the principle of keeping phrases clear and concise.

Plain English proficiency is the ability to communicate in non-routine and emergency situations during flight – for example, when a passenger suffers a medical problem on board. It is crucial that pilots can convey these sorts of messages

clearly and effectively and that they are received and understood by air traffic control so the appropriate actions can be taken. Therefore, plain English in aeronautical communications needs to be clear, unambiguous, free of colloquialisms, slang and idiomatic speech, and accessible to the international community of users [5].

The ICAO Language Proficiency Requirements are about oral communication. The holistic descriptors in Annex 1 state that: "Proficient speakers shall: a) communicate effectively in voice-only (telephone/radiotelephone) and in face-to-face situations; b) communicate on common, concrete and work-related topics with accuracy and clarity; c) use appropriate communicative strategies to exchange messages and to recognize and resolve misunderstandings (e.g. to check, confirm or clarify information) in a general or work-related context" The primary objective of any aviation English training curriculum must be to build and enhance these communicative skills and strategies.

Conclusion

Aviation English is taught ultimately for safety, in the context of aviation communications, for safe and efficient radiotelephony communications. Flight crews and air traffic controllers need to acquire phraseologies as part of the professional language, but aviation language training should not be limited to phraseologies only. This is the language required to deal effectively with all the non-standard, abnormal or emergency situations which pilots and controllers encounter and for which standardized phraseology is insufficient. Any valid aviation English training must contain activities that are designed to address all six language skill areas specified in the ICAO Rating Scale and holistic descriptors: pronunciation, structure, vocabulary, fluency, comprehension and interactions. Training objectives and activities should always be relevant to real-life operational requirements, with the main focus on speaking, listening and interactive skills. Although grammar, syntax, vocabulary and reading underlie oral communications, the primary objective of aviation English training is voice-only communication.

References

1. Air-Ground Communication Safety Study : Causes and Recommendations. - Retrieved from : http://www.skybrary.aero/bookshelf/books/162.pdf

2. Annex 1 to the Convention on International Civil Aviation "Personnel Licensing" - Retrieved from : http://dcaa.slv.dk:8000/icaodocs/Annex1.pdf

3. Annex 10 to the Convention on International Civil Aviation "Aeronautical Telecommunications" Volume II "Communication Procedures including those with PANS status" - Retrieved from : http://dcaa.slv.dk:8000/icaodocs/Annex10.pdf

4. Doc 4444 Air Traffic Management. - Retrieved from : http://dcaa.slv.dk:8000/icaodocs/

5. Emery Henry. Plane English, plain English. - Retrieved from : http://www.emery-roberts.co.uk/assets/Downloadables/Plane-English-Plain-English.pdf

6. ICAO Standard Phraseology: A Quick Reference Guide for Commercial Air Transport Pilots. - Retrieved from : http://www.skybrary.aero/bookshelf/books/115.pdf

7. Manual of Radiotelephony (ICAO Doc 9432). - Retrieved from : http://dcaa.slv.dk:8000/icaodocs/Doc9432.pdf