

REACHING FLIGHT LEVEL

Viele Flugzeugunglücke sind auf sprachliche Missverständnisse zurückzuführen, wie Untersuchungen ergeben haben. Seit März diesen Jahres müssen international zugelassene Piloten und Fluglotsen den Nachweis guter Englischkenntnisse erbringen. CAROL SCHEUNEMANN berichtet. medium US

Inside a room-sized simulator at the Oxford Aviation Academy, two student pilots sit at the instrument panel of a B737-400. During the two-hour “flight,” the simulator provides the cockpit functions of a commercial airliner, complete with engine noises, radio communication, and bumps. Steve Green, who is the manager of pilot programs at the academy, points to a large monitor where visitors can watch the students as they choose between what must be a hundred gauges, levers, and switches. “They’re flying six miles a minute,” Green explains. After a short pause, he smiles: “But one thing’s for sure. They aren’t going to end up where they thought they would.”

The instructors have a good reason for making life difficult for their students: they are helping the young crews develop the technical skills needed for handling unexpected situations. Making sure aviation professionals also have the necessary language skills is the purpose of a new regulation from the International Civil Aviation Organization (ICAO), an agency of the United Nations based in Montreal, Canada. From March 2008, all licensed pilots and air traffic controllers operating internationally have to prove that they can understand and speak plain English, a version that is defined as “specific, explicit, and direct.”

Pilots and controllers have long used English in international aviation. More precisely, they use the ICAO phraseology, or radiotelephony, which contains a few hundred very specific phrases. This coded language, sometimes called “Airspeak,” allows flight crews and controllers from all over the world to understand each other. It excludes complex grammar, syntax, and even questions, because these could be misunderstood. Sentences are kept short, and the information is always given in a specific order.

A large part of the dialogue consists of describing coordinates such as flight number, flight level, heading, or runway designations. Another key aspect is “read back,” repeating a message to make sure it has been understood. In the following example, the pilot of flight AB345 is waiting at the position “A1” and wants to cross runway number 24. The request is turned down by air traffic control, which the pilot then confirms: **Pilot:** BigBird AB345, holding point A1 runway 24 request cross.

Controller: BigBird AB345 negative. Hold position.
Pilot: Holding AB345.

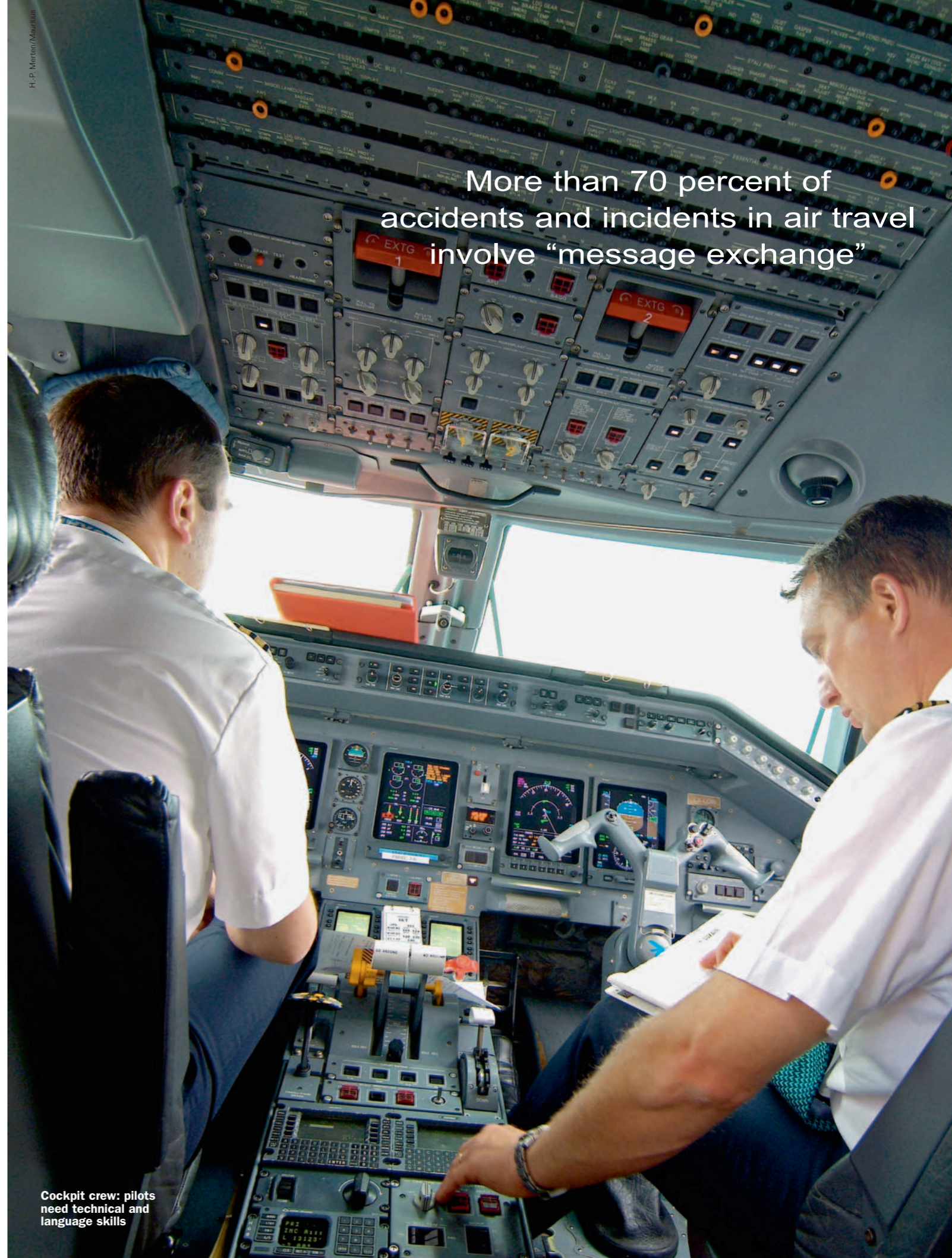
Radiotelephony numbers and letters are also spoken in a specific manner to avoid confusion. Letters are given as words — A is “alpha,” B is “bravo,” and so on — while “three” is pronounced as “tree,” “four” as “fower,” and “five” as “fife.” So the flight in the example would identify itself as “BigBird alpha bravo tree fower fife.” This highly structured communication works well, with remarkably few misunderstandings.

Still, incidents and accidents do happen, and communication is often a factor. The worst aviation accident was the collision of two Boeing 747s on the runway on Tenerife in 1977. A Dutch pilot did not use standard radiotelephony to tell the controller he was taking off. He said he was “at take off,” which the Spanish controller mistook to mean that the pilot was waiting for takeoff clearance. So the controller didn’t warn the pilot that another plane was taxiing toward him on the same runway. The crash killed 583 people.

Following the accident, the ICAO and aviation authorities worldwide began to look at their use of radiotelephony and at what could be done to improve communication and safety. A 1995 study by the US National Aeronautics and Space Administration of 28,000 problem reports showed that more than 70 percent of accidents and incidents in air travel involved “message exchange.”

air traffic controller [ˌeɪr ˈtræfɪk kənˈtrəʊlə]	Fluglotse, -lotsin
aviation [ˌeɪvɪˈeɪʃən]	Luftfahrt
aviation authority [ˌeɪvɪˈeɪʃən əˌθɔːrəti]	Luftfahrtbehörde
based [beɪst]	mit Sitz
bump [bʌmp]	Stoß
commercial airliner [kəmˈɜːʃl ˈerlaɪnər]	Linienmaschine, Verkehrsflugzeug
engine [ˈendʒɪn]	Triebwerk
explicit [ɪkˈspɪsɪt]	deutlich
flight level [ˈflaɪt ˈlevəl]	Flughöhe, Flugfläche
gauge [ɡeɪdʒ]	Messgerät
heading [ˈhedɪŋ]	Steuerkurs, Richtung
holding point [ˈhoʊldɪŋ pɔɪnt]	Wartepunkt
incident [ˈɪnsɪdənt]	Zwischenfall
instrument panel [ˈɪnstɹəmənt ˈpæni]	Instrumentenbrett
lever [ˈlevər]	Hebel
phraseology [ˌfreɪziˈɔːlədʒi]	Sprachgebrauch
radio [ˈreɪdiəʊ]	Funk-
radiotelephony [ˌreɪdiəʊtəˈleɪfəni]	Sprechfunk
runway designation [ˈrʌnweɪ deɪzɪɡˌneɪʃən]	Start- bzw. Landebahnbezeichnung
take off [ˈteɪk ˈɔːf]	starten
takeoff clearance [ˈteɪkɔːf ˌklɪərəns]	Startfreigabe, -erlaubnis
taxi [ˈtæksi]	(Luftfahrt) rollen
turn sth. down [ˌtɜːn ˈdaʊn]	etw. ablehnen

More than 70 percent of accidents and incidents in air travel involve “message exchange”



Cockpit crew: pilots need technical and language skills

Bird's-eye view: controllers direct both arriving and departing flights

“You’re always talking about the same thing, and you know what they’re talking about”

In the years that followed, ICAO developed a language-proficiency scale from Level 1 up to Level 6. To keep their licenses valid, pilots and air traffic controllers must prove operational proficiency (Level 4), extended proficiency (Level 5), or expert proficiency (Level 6). The skills tested include pronunciation, structure, vocabulary, fluency, comprehension, and interactions (see box, page 25). The ICAO also recommends that all candidates whose proficiency is lower than Level 6 be assessed every three to six years.

Adrian Enright is a trained air traffic controller at Eurocontrol, the European Organisation for the Safety of Air Navigation. He has developed aviation tests for 20 years, and worked with the ICAO to create their language-proficiency scale. He says both native and non-native speakers of English must improve their communication. Expert users, for example, should not use idioms, or language that is too informal. “The Americans were the initiators of the ICAO requirements,” Enright explains. “They realized that their flight crews were having communication problems while dealing with some Asian controllers.”

Despite the efforts of the aviation authorities, spoken language remains difficult to regulate, particularly in an emergency. “When under stress and communicating in a non-native language, speakers tend to revert to their native language,” wrote Brian Day, former technical officer in air traffic management at the ICAO, in the organization’s journal in April 2002. “This resembles the well-known Freudian slip, an uncontrolled moment of verbal expression never consciously intended.”

A more careless language use, Day warns, is when pilots and controllers chat informally to others from their home country, or when this level of familiarity leads to the use of idioms. Such “feel-good” exchanges may seem friendly, but they can confuse other users who hear the transmission.

The ICAO has consistently insisted that operators use the standard phraseology. “This seems to be a simple directive to follow, but it is violated more frequently than we can imagine,” said a report by the organization in 2005. The aim of the new regulation and language-proficiency scale is to make sure that listeners can understand the message if the speaker switches from radiotelephony to natural language.

Pilots share phraseology with controllers, but use natural language when they speak with ground crews, flight attendants, and passengers. Controllers use ra-

accuracy [ˈækjərəsi]	Genauigkeit
air traffic controller	Fluglotse, -lotsin
[ˌeɪˌtræfɪk kənˈtrɒləʃr]	
appropriate [əˈprəʊpriət]	angemessen
assess sb. [əˈses]	jmdn. beurteilen
behind the scenes [biˈhaɪnd ðəˈsiːnz]	hinter den Kulissen
check [tʃek]	Kontrolle
clarify sth. [ˈklærəfaɪ]	etw. klären
comprehension [ˌkɒmpriˈhenʃən]	Verständnis
confirm sth. [kənˈfɜːm]	etw. bestätigen
double-check [ˈdʌbəlˌtʃek]	nochmalige Kontrolle
emergency [ɪˈmɜːdʒənsi]	Notfall
extend to sth. [ɪkˈstend tu]	sich auf etw. erstrecken
fluency [ˈfluːənsi]	Sprachfluss
Freudian slip [ˈfrɔɪdiənˈslɪp]	Freud'scher Versprecher
incredible [ɪnˈkredəbəl]	unvorstellbar
interfere with sth. [ˌɪntərˈfɪər wɪθ]	etw. beeinträchtigen
language-proficiency scale	Referenzrahmen für die
[ˈlæŋgwɪdʒprəˌfɪʃnsiˈskeɪl]	Sprachbeherrschung
operational proficiency	für den Einsatz
[ɒpəˌreɪʃənəl prəˈfɪʃnsi]	ausreichende Kenntnisse
paraphrase sth. [ˈpærəˈfrɑːz]	etw. umschreiben
professional organization	Berufsvereinigung
[prəˈfeʃənəl ɔːrgənəˌzeɪʃən]	
pronunciation [prəˌnʌnsiˈeɪʃən]	Aussprache
resemble sth. [rɪˈzeɪmbəl]	etw. ähneln
revert to sth. [rɪˈvɜːt]	in etw. zurückfallen
sample [ˈsæmpəl]	Musterbeispiel
transmission [trænzˈmɪʃən]	Übermittlung; hier: Funkspruch
violate sth. [ˈvaɪəleɪt]	etw. verletzen; etw. nicht befolgen

Everything under control?

From March 2008, all pilots and air traffic controllers have to prove that they can speak plain English. The ICAO describes the minimum acceptable language level as follows:

Pronunciation: Speech is influenced by the first language, but only sometimes interferes with understanding. The dialect or accent is understandable to the aeronautical community.

Structure: Basic grammatical structures are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.

Vocabulary: Range and accuracy are usually sufficient to communicate effectively on common and work-related topics. Speaker can often paraphrase successfully in unusual circumstances.

Fluency: Produces stretches of language at a suitable tempo. There may be occasional loss of fluency when switching to spontaneous interaction, but this does not prevent communication.

Comprehension: Mostly accurate on common, concrete, and work-related topics. When the speaker is confronted with a complication, comprehension may be slower.

Interactions: Responses are usually immediate, appropriate, and informative. Deals adequately with possible misunderstandings by checking, confirming, or clarifying.

Source (descriptions simplified): International Civil Aviation Organization, www.icao.int

diotelephony almost exclusively. They get similar requests and give very similar instructions all day, says Rolf Aberle, head of the Deutsche Flugsicherung (DFS) at the Munich Airport Tower. This routine provides a high degree of security and is essential considering the number of flights at major airports.

At Munich, for example, up to 90 planes take off and land per hour, adding up to 1,300 flights per day. That means controllers talk to tens of thousands of pilots per year. Yet the language is not a problem, says Peter Roth, an air traffic controller with the DFS. "You're always talking about the same thing, and you always know what they're talking about."

One key aspect of clear communication is talking at an appropriate speed. Richard Cauldwell is a partner at Speech in Action in Birmingham, England, which offers online courses that use real speech recordings. He has done extensive work on speech and listening, and became interested in the new ICAO regulation because "this is an example of a professional organization publishing what it believes its standard should be." In his study "Defining Fluency for Air Traffic Control" (see box, this page), Cauldwell says the ICAO's recommendation of not more than 100 words per minute is "an uncomfortable, unrealistically slow speed of speech."


Cauldwell compared recordings at the Frankfurt air traffic control tower with samples produced by the ICAO. He found that controllers and pilots on the job spoke much faster than the recommended speed: pilots on average spoke at 150 words per minute, and controllers at 190. This may point to a level of spoken Eng-

lish in Europe's aeronautical community that is higher than Level 4. Some language and aviation experts say the new ICAO regulation is mainly intended for pilots and controllers who come from countries where English is less widely spoken, such as Russia.

The aviation industry welcomes proposals that improve safety, but is having difficulties implementing the ICAO regulation. Faced with evaluating thousands of pilots and air traffic controllers, many national authorities have said they need more time. The ICAO has therefore given an extension for testing to 2011, on condition that countries have created implementation plans.

One problem is that the ICAO does not recommend any specific language course or test. "There are currently many language tests claiming to assess language proficiency according to the ICAO scale, but unfortunately, this is not always the case," says Andy Roberts, co-author of *Aviation English* and a partner at the Emery-Roberts language school. The school's training for English teachers and examiners of aviation English takes place at Oxford Aviation, so that language experts get a behind-the-scenes look at pilot training.

Currently, too few teachers and examiners have aviation or radiotelephony experience. Yet without these skills, it is difficult to gain the trust of your students, says Terence Gerighty, co-author of another new course book, *English for Aviation*.

Despite the difficulties, Andy Roberts has trust in the high safety standards the industry has set itself. "In pilot training, there is an incredible amount of effort — of checks, and double-checks. And we hope that's going to extend to the language as well." 

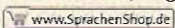
For more information

BOOKS AND ARTICLE

Aviation English, Henry Emery, Andy Roberts, Hueber/Macmillan (with 2 CD-ROMs / A2-B2), ISBN 978-3-19-032884-0, €39.*

English for Aviation, Sue Ellis, Terence Gerighty (with multi-CD-ROM and CD / B1-B2), Cornelsen/OUP, ISBN 978-3-06-801263-5, €27.95.*


"Defining Fluency for Air Traffic Control," Richard Cauldwell, *Speak Out!*, IATEFL newsletter, August 2007.


* Available from 

ORGANIZATIONS

- International Civil Aviation Organization (ICAO) www.icao.int
- International Civil Aviation English Association (ICAEA) www.icaea.pata.pl
- European Organisation for the Safety of Air Navigation (Eurocontrol) www.eurocontrol.int
- Oxford Aviation Academy www.oaa.com

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