

About the Commentary: The Commentary addresses selected issues within the AVIATORS' MODEL CODE OF CONDUCT (AMCC) to elaborate on their meaning, provide interpretive guidance, and suggest ways of adopting the AMCC. It is intended primarily for implementers, policy administrators, aviation association management, and pilots who wish to explore the AMCC in greater depth. Please send your edits, errata, and comments to <PEB@secureav.com>. Terms of Use are available at <<http://secureav.com/terms.pdf>>.

COMMENTARY TO AMCC I.b – GENERAL RESPONSIBILITIES

I.b Seek excellence in airmanship,

“Airmanship is the key.”

Neil Van Sickle¹

The Concept of Airmanship – Although the concept of *airmanship* is of critical importance to GA and encompasses many principles advanced by the AMCC,² there is no consensus within GA community on the exact meaning of the term.³ It is defined neither in the FAR/AIM, the FAA's *Practical Test Standards*, nor the FAA's PILOTS HANDBOOK OF AERONAUTICAL KNOWLEDGE.⁴ To many aviators, the definition remains “somewhat indistinct”⁵ and characterized by an “elusive quality.”⁶ Indeed, defining the term has been called “very difficult”⁷ and “an art and a science, and a complex one at that.”⁸

The FAA's AIRPLANE FLYING HANDBOOK (Handbook) asserts that the “overall purpose of primary and intermediate flight training . . . is the acquisition and honing of basic airmanship skills.”⁹ It goes on to define airmanship as:

- A sound acquaintance with the principles of flight,
- The ability to operate an airplane with competence and precision both on the ground and in the air, and
- The exercise of sound judgment that results in optimal operational safety and efficiency.”¹⁰

In other words, the FAA acknowledges three principal components of airmanship: knowledge, skill, and judgment. Nonetheless, other FAA sources suggest a more narrow definition. For example, the Handbook and the FAA's Advisory Circular on Aeronautical Decision Making suggest that *airmanship skills* are analogous (and limited) to traditional stick and rudder skills—excluding judgment.¹¹

Some consider airmanship “the consistent use of good judgment and well-developed skills to accomplish flight objectives.”¹² The International Civil Aviation Organization (ICAO) has defined airmanship as “[t]he consistent use of good judgment and well-developed knowledge, skills and attitudes to accomplish flight objectives.”¹³ It has also been defined as “an integration of discipline, skill, proficiency, yourself [pilot], aircraft, team, and environment, to understand, assess, and manage risks,”¹⁴ and a combination of “not only piloting skills but also common sense, academic knowledge, awareness, experience, correct reaction to emergencies, etc.”¹⁵

Frequently, “good airmanship” is understood to mean piloting practices that provide a margin of safety to flight operations.¹⁶ “True airmen,” writes Tony Kern in *Redefining Airmanship*, “strive

for control, predictability, and precision.”¹⁷ “Airmanship requires that every pilot personally accept the responsibility and determination to strive for perfection on every flight.”¹⁸

Pilots demonstrate airmanship by “exercising good judgment, maintaining situational awareness, and having the ability to cope safely with changing and challenging conditions.”¹⁹ “Lack of airmanship” has been cited as the cause of catastrophic accidents²⁰ and “remarkable airmanship” as the predominant factor in preventing disasters.²¹

Airmanship, in many respects, defines the essence of being a good pilot, “pulls it all together,”²² and “is the “ultimate synthesis.”²³ It has even been called “a way of life.”²⁴ As Neil Van Sickle writes in *Modern Airmanship*, “Airmanship is the key.”²⁵

It is widely accepted within aviation circles that *airmanship is key* to modern aviation, yet there is considerable confusion as to what airmanship actually comprises. To some it is the “stick and rudder” skills associated with manual flying; to others it is the cognitive skills associated with decision-making and judgment. There is also a common belief that airmanship cannot formally be trained and is simply acquired through experience. None of these is completely true on its own. Instead, airmanship is a mixture of all of these attributes and much more besides.²⁶

Indeed, airmanship can be viewed as an integration of the core attributes that underlie a good, safe, and fulfilling experience for the pilot. In this regard, airmanship is a function of the strength and interaction of the following qualities:

- *sensitivity* – pilot perception of factors important to effective decision-making,
- *judgment* – effective decision-making, especially in ambiguous situations,
- *commitment* – the ability to carry-out good decisions in the face of temptation to do otherwise, and
- *competence* – the skills to execute decisions reliably.²⁷

Other conditions or qualities may be important, too.²⁸ Further research should help identify and substantiate them.

Transport Canada has defined airmanship as “the application of flying knowledge, skill and experience, which fosters safe and efficient flying operations.”²⁹ Doug Stewart, FAA’s 2004 CFI of the Year, defines airmanship as “the art of flying; a pilot’s oneness with his airplane in the environment with which he operates it; and a heightened sense of awareness of what is occurring within that environment.”³⁰ Rich Stowell, FAA’s 2006 CFI of the Year, asserts that “airmanship [has] four prongs: a skill-based prong, a knowledge-based prong, a decision-making prong, and a judgment prong. They are all interrelated and sort of ‘feed off’ of each other.”³¹

Finally, it has been suggested that “all pilots understand what airmanship is, even if they cannot define it in words.”³²

Airmanship is that strange powerful combination of skill, knowledge and discipline in action that is the difference between passengers and pilots. It is our common heritage with birds and sailors [and has been characterized as analogous to seamanship]. It links captains of 500-seat airliners with students in single-seat gliders, it links pilots of spaceships and Piper Cubs, fighter jets and helicopters. It is the sweet central essence of piloting.³³

To the extent that the romantic language of this remark resonates with pilots more than ordinary prose, it may suggest that there is a strong aesthetic component of airmanship—indeed, it could be that for many GA pilots it is this attraction to a form of beauty that motivates everything else

they do in aviation. In this sense, an important element of airmanship is related to commitment, which encourages identification with the core attributes presented above.³⁴

Discipline – Discipline is a fundamental component of airmanship, and can be viewed as a product of commitment to airmanship.³⁵ In *Redefining Airmanship*, Tony Kern calls discipline “the cornerstone of effective airmanship.”³⁶ “Flight discipline,” he explains, “is the strength of will required to systematically develop all areas of airmanship and execute sound judgment in the presence of temptations to do otherwise, as well as to safely plan and employ an aircraft within all operational, regulatory, organizational, and common sense guidelines.”³⁷

As John Sheehan points out, “The discipline involved in accomplishing operational tasks the same way every time provides a safety buffer to all types of operations.”³⁸ Consider, for example, how the *lack* of such discipline, such as described in the following historical account, can potentially undermine safety:

Flying in controlled airspace demanded a discipline and self-control that the pilot of the mid-1930's was unaccustomed to. Some carefree spirits simply refused to follow procedures and take orders from Federal ground personnel. Frequently, pilots refused or neglected to report their time over check points, dispatchers failed to relay instructions from ATC to pilots in the air; pilots took off before receiving clearances Some [pilots] even refused to file a flight plan. Matters eventually got so out of hand that [certain pilots] were temporarily restricted to visual flight rule operations until [they] fell in line with ATC procedures.³⁹

Excellence – AMCC I.b urges *excellence* in airmanship. Airmanship connotes a personal commitment to excellence, ongoing learning, and continuous self-improvement. Excellence in airmanship includes mindfully adhering to applicable rules, while having the attitude, experience, judgment, and confidence to deviate from rules when required by an emergency situation. The same attributes are required when encountering situations for which there is no adequate regulatory guidance.⁴⁰

Excellence includes superior or outstanding performance.⁴¹ The Air Line Pilots Association, for example, presents annual *Superior Airmanship Awards*. Recipients have been described as demonstrating superior piloting skills, fine teamwork, and calm, professional response under pressure; treating no flight as routine; and expecting and “responding to the unexpected to get the job done where there is no checklist.”⁴² A U.S. Air Force Academy airmanship award is issued for “sustained superior performance” or for actions that “set [recipients] apart from contemporaries.”⁴³ As many civilian and military awards programs demonstrate, excellence in airmanship underlies flight safety and implies a highly coveted status and outstanding performance as a pilot. Nonetheless, these awards generally fail to define airmanship.⁴⁴

Airmanship and Professionalism – Airmanship requires adherence to specific principles in decision-making – behavior consistent with the definition of a professional. Correspondingly, “airmanship is the core of the airman's professionalism.”⁴⁵ As Christopher Parker explains, a “pilot with good airmanship is a true professional, regardless of whether or not he makes his living by flying. He takes pride in his piloting ability. He has the skills, knowledge, and judgment to fly competently and safely. He has the presence, confidence, and manners that inspire trust in his passengers. He is responsible to his passengers, his aircraft, and himself.”⁴⁶ Thinking about and discussing an aspiration to professionalism helps aviators surpass mere government standards and approach the ideal of excellence in airmanship. Airmanship requires a commitment to ongoing skill development: “Ultimately if our objective is professional airmanship, our objective becomes one of learning, maintaining, and enhancing our airman skills.”⁴⁷ (Aspiring to professionalism is the subject of [AMCC I.f](#) and complements AMCC I.b on airmanship.)

Training – Many flight instructors, aviation education programs, and others concerned with aviation training do stress airmanship without acknowledging a specific definition. The *NBAA Guidelines for Business Aviation Pilot Training* states that “[t]raining programs should build upon the principles of good airmanship.”⁴⁸ *Pilot’sWeb* stresses that “[a]ttention to airmanship should begin from the first day of the aviator’s ground and flight instruction.”⁴⁹ “Improvements must not only focus on flight technical skills but also on the development of total airmanship.”⁵⁰ *The Journal of Air Transportation Worldwide* has asserted that “especially those who teach new pilots have a moral obligation to not talk the talk about good airmanship but to walk the walk and provide the standards for others to emulate.”⁵¹ Airmanship has even been called a “unifying ethos” in aviation training.⁵² Some question whether extant training methodologies are well suited to developing good judgment. The U.S. Army extols, “Train for certainty; educate for uncertainty.”⁵³

Despite wide-spread consensus that teaching airmanship is essential, some educators and regulators have found that airmanship “is not readily capable of being evaluated or measured.”⁵⁴ This perspective coupled with an international movement towards “competency based” training and evaluation⁵⁵ have caused the term *airmanship* to be de-emphasized or removed from some training syllabi and testing standards.⁵⁶ One standards official from the Australian Government explained:

In the first generation of competency standards . . . airmanship was highlighted throughout the document (we had a high emphasis on it), but we found it very hard to measure accurately in many cases. For example you could argue that you cannot measure a persons attitude (beliefs, conscientiousness etc), but you can measure a persons behaviour (man management, discipline, leadership) by using behavioural markers. That is why we moved away from ‘airmanship’. . . . [Nonetheless, the] concept of good airmanship (whatever it is) is good and should not be disregarded.⁵⁷

FAA Practical Test Standards do not reference airmanship.⁵⁸ While government agencies must adhere to objective testing criteria, the AMCC recognizes that precise measurement is not applicable to everything real or meaningful. Indeed, the AMCC embraces and advances practices gleaned from the results of qualitative and non-empirical research.⁵⁹ Moreover, as a *living* document, the AMCC has the freedom to experiment, and its mission supports its advocacy and use as an aspirational resource.

Technology and Airmanship – Advanced aviation technologies, both in the cockpit and on the ground, have precipitated both accolades and cautions. Glass panels, flight management systems, flight simulators, and computer-based flight planning invoke new training paradigms as those technologies interface with traditional airmanship.

There is great concern that the intensive use of technology will diminish proficient stick and rudder skills because pilots will become excessively dependent on automated systems to do the flying, to the detriment of proficiency. An Army warrant officer urged:

When all we had were simple single-engine aircraft, we were all better aviators. Sure, this statement may be the result of a ‘Wooden ships and iron men’ attitude on my part, but I honestly feel that we took our craft more seriously back then. Today we count on the . . . computer and the navigation systems to do the tasks we used to perform on our knowledge of ballistics and navigation. I would be willing to put almost any mid-80’s Cobra pilot up against almost any of today’s Apache pilots. There are whole areas of aviation knowledge that are gone forever⁶⁰

Another pilot asserted, “[w]e are relying on our ‘protected’ aircraft to look after us rather than good airmanship and adherence to standard operating procedures.”⁶¹ Some claim that, as pilots interface with greater and more sophisticated technologies, they necessarily must shift their focus

from piloting to systems management. A better view holds that airmanship requires the pilot to develop the knowledge, skills, and judgment necessary to use attendant technologies effectively.⁶² The Flight Safety Foundation has developed “Golden Rules” to “assist trainees [and experienced pilots] in maintaining basic airmanship even as they progress to highly automated aircraft.”⁶³

Gender-Neutral Terminology – The AMCC’s [Introductory Commentary](#) stresses that “[a]ll [gender specific] references should be interpreted as gender neutral unless otherwise stated.” That Commentary’s annotation states: “[t]he legacy of male-oriented terms is acknowledged (for example, *airman*, and *airmanship*).⁶⁴ Because of such terms’ legal status and extensive use as terms of art, they are used herein.”⁶⁵

Historically, government aviation agencies and regulations have used such terms. Consider such examples as the FAA’s “Notices to *Airmen*,”⁶⁶ certification of “*Airmen*,” and official use of terms such as “*Unmanned Aerial Vehicles*” (UAVs).⁶⁷ One aviation dictionary defines *airman* as a “generic term for one who flies; an aviator; an aircrew member, a pilot, or a navigator.”⁶⁸ And, of course, the term *man* has been defined as a “human regardless of sex or age; a person.”⁶⁹ Consider also Astronaut Neal Armstrong’s timeless quote, “One small step for [a] man, one giant leap for mankind.”⁷⁰ *Mankind* has been defined as “the human race; human beings collectively *without* reference to sex; humankind.”⁷¹ In this regard, the term *airmanship* is no more gender-specific than the term *humanity*.

Some pilots nonetheless urge that retaining traditional terms such as *airmanship* and *airman* reinforces gender stereotypes and exacerbates sexist attitudes.⁷² In response, the FAA has considered and taken some responsive action, most notably in 1995 by changing the *AIRMAN’S INFORMATION MANUAL* to the *AERONAUTICAL INFORMATION MANUAL*.⁷³ Finally, an ethical approach to flying, as underscored in [AMCC VII.e](#) (*promote ethical behavior within the GA community*) may further encourage consideration of gender neutrality.⁷⁴ The AMCC accommodates the substitution of alternative terms at the implementer’s discretion (see Drafting Considerations, below).⁷⁵

Conclusion – *Airmanship* is a broad-based, and sometimes ill-defined term that denotes a wide range of skills and practices from diverse disciplines. It encompasses technical skill, decision making ability, ethical responsibility, and exemplary personal conduct among pilots—attributes that in combination promote effective and safe flight. Despite its importance to flight safety, however, the concept of airmanship has not historically received consistent, formal emphasis in general aviation. Therefore, to help address this deficit, the AMCC highlights the concept of airmanship by positioning the principle *seek excellence in airmanship* as AMCC I.b. As an umbrella provision in the AMCC, airmanship represents a broad embodiment of the Code’s principles. One AMCC implementer exclaimed, “You want to know what the meaning of Airmanship is to me? The AMCC. That’s it. Now, try to put that in one word”⁷⁶

CODE EXAMPLES:

- ❑ “[P]ilots shall at all times display exemplary airmanship.” *Code of Conduct*, British Aerobatic Association⁷⁷
- ❑ “[E]xhibit[] a high level of airmanship.” *Code of Conduct*, Ardmore Airport⁷⁸

DRAFTING CONSIDERATIONS:

- ✓ *Prioritization of Principles*: Some reviewers urged that AMCC Principle I.b (*seek excellence in airmanship*) is the essence of the AMCC and therefore should be positioned as the first principle therein. Other reviewers urged that safety was

more appropriately presented first – as a core goal. As a *model* code of conduct, implementers may prioritize the principles at their discretion.

- ✓ *Gender-Neutral Terminology:* Implementers may substitute an alternative term for airmanship. Or, implementers may insert introductory text in their AMCC implementations underscoring that any references that are considered gender-specific should be interpreted as gender-neutral, unless otherwise stated.

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¹ NEIL D. VAN SICKLE, MAJ. GEN, USAF (RET.), *MODERN AIRMANSHIP Preface* (McGraw-Hill Professional 4th ed. 1971).

² Airmanship can be viewed as the distillation of AMCC Principles I.a-I.h, if not the entire AMCC. If safety is a key *goal* of the AMCC, airmanship is the key *approach* by which safety (in AMCC I.a) is achieved.

³ The ambiguity of the term *airmanship* is shared by many specialized functions in any culture. Analytic approaches to this ambiguity break into two general types: description of the professional's jurisdiction and its definition/limitations, and description of the professional's function/value added for a set of clients. This issue is treated in more depth below in *Airmanship and Professionalism*.

⁴ FAA-H-8083-25 (2003), available at <http://www.faa.gov/library/manuals/aviation/pilot_handbook/>.

⁵ Recreational Aviation Australia Inc., *Airmanship and Flight Discipline*, § 7.1, available at <<http://www.auf.asn.au/students/airmanship.html>>.

⁶ Christopher L. Parker, *Instructor Tips*, AOPA Website, at <http://www.aopa.org/asf/publications/inst_reports2.cfm?article=3298>.

⁷ Email from Barry Schiff (Sept. 30, 2006) (“[Airmanship] is a very difficult word to define. It is sort of like trying to describe the differences between a pilot and an aviator (they are not the same.)”)

⁸ TONY KERN, *FLIGHT DISCIPLINE 4* (McGraw-Hill 1998). (*Ed.* - This is a common problem. Upon further exploration, we may find that some professionals will acknowledge that these types of challenges are common in many specialized domains.)

⁹ FAA, *AIRPLANE FLYING HANDBOOK 1-1*, FAA-H-8083-3A (2004), available at <http://www.faa.gov/library/manuals/aircraft/airplane_handbook/media/faa-h-8083-3a-2of7.pdf>; *Id.* at p. G-1, available at <http://www.faa.gov/library/manuals/aircraft/airplane_handbook/media/faa-h-8083-3a-7of7.pdf>.

¹⁰ *Id.*; Telephone Interview with Robert J. Dippi, FAA (Oct. 4, 2006).

¹¹ *HANDBOOK*, at p. G-1 (defining “Airmanship Skills” as “The skills of coordination, timing, control touch, and speed sense in addition to the motor skills required to fly an aircraft.”); FAA, AC 60-22, *Aeronautical Decision Making* (Dec. 13, 1991), available at <<http://ntl.bts.gov/DOCS/Ac60-22.html>> (“1. Skills and Procedures are the procedural, psychomotor, and perceptual skills used to control a specific aircraft or its systems. They are the *stick and rudder or airmanship abilities* that are gained through conventional training, are perfected, and become almost automatic through experience.”) (emphasis added).

¹² TONY KERN, *REDEFINING AIRMANSHIP 22* (McGraw-Hill 1997).

¹³ ICAO, Annex 1 to the Convention on Int'l Civil Aviation—*Personnel Licensing*, Ch. 1-1, *Definitions* (Amdt 167), available at <<http://www.icao.int/icdb/HTML/English/Representative%20Bodies/Council/Working%20Papers%20by%20Session/177/C.177.wp.12615.en/C.177.wp.12615.app.en.pdf>> [Adopted at the Flight Crew Licensing and Training Panel (FCLTP/2) meeting (Montreal Jan. 31-Feb. 10, 2005), at

<<http://www.icao.int/ICDB/HTML/English/Representative%20Bodies/Air%20Navigation%20Commission/Working%20Papers%20by%20Year/2005/AN.2005.WP.8021.EN/AN.2005.WP.8021.EN.HTM>>.]

TRANSLATIONS AND INTERPRETATIONS – For the purpose of comparative analysis (both linguistically and culturally), consider the following national and language treatments of *airmanship*. (Ed. - The following materials are presented in comparatively unabridged form so that they can better assist implementers):

- *Bulgarian*: “pilotiran vazdyshen korab”. Email from Ivaylo Dermendjiev, AOPA-Bulgaria (Sept. 2, 2006).
- *Canadian*: “[T]he application of flying knowledge, skill and experience which fosters safe and efficient flying operations. Airmanship is acquired through experience and knowledge.” TRANSPORT CANADA, AERONAUTICAL INFORMATION MANUAL, TP 14371, available at <<http://www.tc.gc.ca/CivilAviation/publications/tp14371/AIR/1-1.htm#1-1>>.
- *Danish*: “flyvefærdighederne”. “Flyvefærdighederne does not appear in the Danish aviation regulations.” Email from Claus Bak Petersen, Pres., AOPA-Denmark (Aug. 28, 2006).
- *Dutch*: “‘vliegerschap’ (vlieger is airman, schap is ship). The definition is: ‘Het geheel aan eigenschappen (kennis, instelling en vaardigheid) dat de vlieger in staat stelt om, met inachtneming van de regels en voorschriften, met zijn luchtvaartuig onder alle omstandigheden veilig te kunnen omgaan, zowel op de grond als in de lucht.’ The whole of the qualities (knowledge, attitude, and skill) which enable the airman to safely handle his aircraft under all circumstances both on the ground and in the air, while observing the rules and regulations.

The notion of airmanship is known for different forms of aviation (glider, balloon, aircraft). It is a common notion, often referred to in regulations, as ‘showing good airmanship’. This definition is from glider exam regulations: [STATTS COURANT]

<http://www.zweefvliegopleiding.nl/wegwijzer/opleiding/opleiding_bestanden/examenreglement_zweefvliegen.htm>. I have seen the same one for balloons. Have not yet found the definition in regulations for general aviation, but I have seen references to the notion of airmanship. Such as <http://www.aopa.nl/Documents/AIC-B_0805_EHEH.pdf>.” Email from Janjaap Bos (Aug. 28, 2006).

- *French*: “faire preuve de qualités d’aviateur.” ICAO, *Vocabulary 2001*, Doc. 9713, available at <<http://www.icao.int/anb/panels/atmrpp/Documents/voc2001.pdf>>. The French translation of the AMCC defines airmanship as “Rechercher l’excellence dans le domaine de l’aviation.” LE MODELE DE CODE DE CONDUITE DE L’AVIATEUR, available at <<http://www.secureav.com/AMCC-French-v1.1.doc>>. The AMCC adopted the latter translation, in part, “because ‘faire preuve de qualités d’aviateur’ does not necessarily encompass the excellence part—it connotes only basic knowledge about aviation. Instead, airmanship should convey a sense of excellence.” Email from Dominique Marais, Chief Pilot, West Valley Flying Club (Aug. 31, 2006). (Ed. - Marais spearheaded the French translation of the AMCC).
- *German*: “*Airmanship* is not listed in the [German] dictionary. The noun in the English language, *airmanship*, has no equivalent NOUN in the German language. To circumvent this problem, we’ll need to look for a different, i.e. descriptive way of expressing the essence of what you want to say here. For example, if you want to use *airmanship* in a context of, say, attempting to describe a generally accepted code of good conduct in air traffic, consider that a good motor vehicle operator would be called *guter Autofahrer* or *vorbildlicher Autofahrer*. Accordingly, in an air traffic context, may I propose *vorbildliches Pilotenverhalten*, or *vorbildliches Verhalten im Luftverkehr*, or *Erwartung an vorbildliche Piloten / Was von vorbildlichen Piloten erwartet wird*. Depending on your various contexts, some further translations might be *kameradschaftliches Verhalten im Luftverkehr*, *gute Regeln für gegenseitiges kameradschaftliches Verhalten im Luftverkehr*. Even *beruflicher Ehrenkodex* or *Fliegerehre* could come into play.

Accordingly, if *airmanship* is being used in a context in which it is to describe the qualification level or echelon of a trained pilot, you would then much rather use terms like *fachliche Qualifikation* or *Zertifizierung*.” Email from Georges Fabricius (Aug. 31, 2006).

“If you want to underline the professional knowledge in airmanship, you can use *Luftfahrerkwissen*; if you want to underline the art of flying it would be *Luftfahrerkunst*. *Pilotenwissen* or *Pilotenkunst* do sound a little better but still not convincing.” Email from Timm Preusser (Aug. 30, 2006). (Ed. - Preusser spearheaded the German translation of the AMCC).

- *Italian*: “There is no legal or administrative official translation for the word airmanship, that is normally translated in Italian as: skills in piloting, or similar.” Email from Carlo Golda, Esq. AOPA-Italy (Aug. 27, 2006). See <<http://www.airmanship.it/>> (Italian website entitled *Airmanship*).
- *Russian*: “квалифицированно осуществлять контроль и наблюдение в полёте.” ICAO, *Vocabulary 2001*, Doc. 9713, available at <<http://www.icao.int/anb/panels/atmrpp/Documents/voc2001.pdf>>.
- *Spanish*: “Aptitud para el vuelo.” ICAO, *Id.* “It’s a difficult word to translate because as with many English nouns there is no one single word to describe the meaning in Spanish. . . . (Websters’ definition) ‘The art of flying airplanes’. And Websters’ translation: ‘Maestría en Aviación’, meaning basically: ‘PhD in aviation’. Talk about confusing. That can have several meanings depending again on how you use it. So, as a result of my research, to me, airmanship is not only knowing how to properly fly (anything), is also knowing how to do it politely, conscientiously, righteously, respectfully and humbly; keeping in mind ‘I am not the only one’ operating aircraft, in the air or on the ground.” Email from Tony Alvarez (Aug. 28, 2006). (Ed. - Alvarez spearheaded the Spanish translation and Venezuelan implementation of the AMCC).
- *Swedish*: “Befälhavarskap.” “Taking responsibility and exercising the authority as the captain of the ship.” Email from Lars Hjelmberg, AOPA-Sweden (Sept. 11, 2006). It does not appear in Swedish aviation regulations “but it should.” *Id.*
- *Swiss*: The Swiss *Application for Type Rating / ATPL* (English version), FOCA Form 60.530 - 07.2006 AMD4, contains many instances of *airmanship*. Swiss Federal Office of Civil Aviation, available at <<http://www.aviation.admin.ch/fachleute/flugpersonal/00318/00758/index.html?lang=en&download=M3wBPgDB/8ull6Du36WcnojN14in3qSbnpWVZGiZnU6p1rJgsYfhyt3NhqbdqIV+bau5bKbXrZ6lhuDZz8mMps2go6fo&.pdf&.pdf>> (Each page of the application states: “Use of checklists, *airmanship* A/C must be respected in all sections.” *Id.*) (emphasis added).

¹⁴ TONY KERN, REDEFINING AIRMANSHIP 199 (McGraw-Hill 1997). See *What is Airmanship?*, FLIGHT SAFETY AUSTRALIA (May-June 2005), p. 23, at <<http://www.casa.gov.au/fsa/2005/jun/22-23.pdf>> (Interview of Steve Tizzard urging that Kern’s model of airmanship is “a little academic”; and recounting his instructor’s assertion that airmanship is “[c]ommon bloody sense around aeroplanes” and “born of logic and experience: both the passing on of hard-learned lessons from an experienced group to a younger generation, and through continuous development of skills and ability” *Id.*).

¹⁵ AN ILLUSTRATED DICTIONARY OF AVIATION 45 (Bharat Kumar, Dale DeRemer, Ph.D., et al., Eds., McGraw-Hill 2005).

¹⁶ See, e.g., Australian Civil Aviation Safety Authority, *Day VFR Syllabus – Aeroplanes*, §1.1, at p. 2-4 (June 17, 2005), available at <http://www.casa.gov.au/fcl/download/vfra_s02.rtf> (“Simply defined, airmanship is the ability to fly safely.”).

¹⁷ TONY KERN, REDEFINING AIRMANSHIP 313 (McGraw-Hill 1997).

¹⁸ Frederick Hansen, *JOUR. OF AIR TRANSPORTATION WORLD WIDE* (1998), available at <http://ntl.bts.gov/data/letter_am/jatww3-2hansen.pdf>.

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- ¹⁹ Barry Schiff, *Airmanship – Proficient Pilot*, AOPA PILOT 46 (Oct. 2003), available at <<http://www.aopa.org>>. See Mica R. Endsley, Todd C. Farley, et al., *Situation Awareness Information Requirements For Commercial Airline Pilots*, Int'l Center for Air Transportation, Dept. of Aeronautics & Astronautics, MIT (Sept. 1998), available at <<http://www.satechnologies.com/Papers/pdf/SACommpilots.pdf>> (situational awareness presented as a fundamental requirement for good airmanship).
- ²⁰ David Kaminski-Morrow, *Lack of 'Airmanship' doomed 737*, Flight Website, at <<http://62.189.48.33/Articles/2006/08/01/Navigation/195/208177/'Lack+of+airmanship'+doomed+737.htm>>.
- ²¹ Yannick Malinge, VP, Flight Safety, Airbus, *A300B4 Loss of All Hydraulics, Baghdad: A Remarkable Example of Airmanship*, ISASI 2004 (Nov. 22, 2003), available at <http://www.asasi.org/papers/2004/Malinge_Airbus%20Baghdad_ISASI04.pdf>; Air Line Pilots Ass'n, Canadian pilot awarded for 'dead-stick' landing (Aug. 23, 2002), available at <<http://xmb.stuffcanuse.com/xmb/viewthread.php?tid=14>> (“The spirit of airmanship that is involved here is the amazing feat of taking [an] airplane that lost both its engines at 35,000 feet and piloting it . . . 70 miles and making a precision pinpoint landing on a tiny speckled island.”).
- ²² KERN, REDEFINING AIRMANSHIP 313 (McGraw-Hill 1997).
- ²³ Telephone Interview with Richard D. Marks, Esq., ATP (Sept. 8, 2006).
- ²⁴ (Nov 14, 2005), at <<http://www.avcom.co.za/phpBB2/viewtopic.php?t=1628>>.
- ²⁵ NEIL D. VAN SICKLE, MAJ. GEN, USAF (RET.), *MODERN AIRMANSHIP Preface* (McGraw-Hill Professional 4th ed. 1971).
- ²⁶ Louise Ebbage and Phil D. Spencer, *Airmanship Training for Modern Aircrew*, BAE Systems, RTO-MP-HFM-101 (Apr. 2004), Paper presented at the RTO HFM Symposium on “Advanced Technologies for Military Training,” held in Genoa, Italy 13 – 15 Oct. 2003, available at <<http://stinet.dtic.mil/oai/oai?&verb=getRecord&metadataPrefix=html&identifier=ADA428471>>.
- ²⁷ See POSTCONVENTIONAL MORAL THINKING: A NEO-KOHLBERGIAN APPROACH 100 (Darcia Narvaez, Muriel J. Bebeau, et al, Eds. Lawrence Erlbaum Asso. 1999); Email from Bill Rhodes, Ph.D. (Aug. 25, 2006) (adding “at least some sort of account of *virtuosity*” to Kohlberg’s list).
- ²⁸ For example, airmanship has an important cultural aspect. See Patrick R. Veillette, Ph.D., *Cowboy Pilots*, BUSINESS & COMMERCIAL AVIATION (June 2006). See also [AMCC VII.d](#), advance a general aviation *culture . . .*” (emphasis added).
- ²⁹ Transport Canada, *Aviation Safety Letter* (Mar. 2004), at p. 3, available at <http://www.tc.gc.ca/CivilAviation/SystemSafety/Newsletters/tp185/pdf/3_2004.pdf#search=%22airmansh ip%20and%20sms%22>.
- ³⁰ Telephone Interview with Doug Stewart (Aug. 24, 2006).
- ³¹ Telephone Interview with Rich Stowell (Aug. 22, 2006).
- ³² The author’s solicitation of a definition of *airmanship* from many pilots resulted in a surprising number of “Justice Potter Stewart-like” responses: “I know it when I see it.”
- ³³ David English, *The Inner Art of Airmanship*, at <<http://www.hikoudo.com>>.
- ³⁴ Email from Bill Rhodes, Ph.D. (Sept. 1, 2006).
- ³⁵ A commitment to airmanship includes a commitment to understanding one’s strengths and weaknesses, and disciplining oneself accordingly.

³⁶ TONY KERN, REDEFINING AIRMANSHIP 7 (McGraw-Hill 1997). See Michel Treskin, *Transport Canada, Debrief – Airmanship: Dead or Alive?*, TP-185 Aviation Safety Letter, available at <<http://www.tc.gc.ca/CivilAviation/publications/tp185/3-05/debrief.htm>>.

³⁷ TONY KERN, REDEFINING AIRMANSHIP 9 (McGraw-Hill 1997).

³⁸ John J. Sheehan, *A LARming Findings*, AOPA PILOT 105, 108 (May 2003) (emphasis added), available at <<http://www.aopa.org>>.

³⁹ NICK A. KOMONS, BONFIRES TO BEACONS 318-319 (Smithsonian Institution Press 1989). This quote helps illuminate early challenges to airmanship.

⁴⁰ Consider that *mindful adherence* is distinct from being *mindful of*. To adhere mindfully means to be able to interpret the rules appropriately under any given circumstance to help frame the best possible decision. It suggests that the pilot understands the rules based upon how those principles might bear on the organic process of flying. Mindful adherence implies understanding of the purpose of the rule, while being mindful of them suggests that knowing the rules is enough.

⁴¹ See, e.g., Order of Daedalian, *Lieutenant General Harold L. George Civilian Airmanship Award*, available at <<http://www.daedalians.org/about/about.htm>> (ability, judgment and/or heroism above and beyond normal operational requirements). See U.S. Air Force Order, § 4.2.2.1 (Oct. 2005), available at <http://www.e-publishing.af.mil/pubfiles/419fw/11/afi11-418_419fwsup1_i/afi11-418_419fwsup1_i.pdf> (*sound airmanship*). The literature also contains the notion of *basic airmanship*. Query whether the display of basic airmanship is the norm or, in fact, something beyond the norm. See, e.g., ICAO, at <http://www.icao.int/anb/humanfactors/Dublin_2003_Proceedings.pdf>.

⁴² Air Line Pilots Ass'n, *ALPA Honors Award Recipients at Air Safety Forum*, 51st ALPA Air Safety Forum 2005, at <<http://www.alpa.org/Default.aspx?tabid=483>> (includes video reenactments and speeches).

⁴³ U.S. Air Force Academy, *Col. James Jabara Award for Airmanship* (May 12, 2005), available at <<http://www.afrc.af.mil/news/story.asp?storyID=123012490>> (presented to an Air Force Academy graduate, living or deceased, whose actions, directly associated with an aerospace vehicle, set him or her apart from contemporaries.) Other military awards for airmanship include, for example: an Air National Guard Unit Award for outstanding airmanship, at <<http://www.afa.org/AboutUs/nawards.asp>>; the U.S. Army's, Air Medal, available at <<http://www.armyawards.com/am.shtml>>; and an Air Mobility Command's *Excellence in Airmanship Award* (Nov./Dec. 2002), available at <<http://permanent.access.gpo.gov/lps1390/Nov-Dec%2002.pdf#search=%22air%20award%20-%20airmanship%22>>.

⁴⁴ For example, The Federation International Aéronautique (FIA) provides *The Diploma for Outstanding Airmanship*. Its eligibility requirement states, "It shall be awarded to a person or a group of persons for a feat of outstanding airmanship in sub-orbital flight during one of the previous two years which resulted in the saving of life of others or was carried out with that objective" yet fails to define airmanship. Available at <<http://www.fai.org/awards/>>. Email to the FIA soliciting their definition for airmanship precipitated the following response, "I regret we don't have anything more about this." Email from Christine Rousson, FIA (Aug. 21, 2006). Perhaps the criteria for these rewards rely on a relatively narrow conception of airmanship – focused primarily on stick and rudder skills.

⁴⁵ Pilots' Web, at <<http://www.pilotsweb.com/article/airman.htm>>.

⁴⁶ Christopher L. Parker, *Instructors Tips*, AOPA Website, Aug. 2002, at <http://www.aopa.org/asf/publications/inst_reports2.cfm?article=3298>. Inspiring trust in passengers is important, but subject to manipulation. Inspiring trust in fellow pilots is likely a superior measure of airmanship.

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Last Updated: November 7, 2006

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⁴⁷ Ron L. Daniels, *Airmanship*, at <<http://airmanship.blogspot.com/2005/03/conclusion-what-is-airmanship.html>>.

⁴⁸ Nat'l Business Aviation Ass'n, *NBAA Guidelines for Business Aviation Pilot Training*, Ver. 1 (Sept. 1, 2002), available at <www.nbaa.org/conventions/2002/articles/doc/nbaa2002_trainforsuccess.doc>.

⁴⁹ *Airmanship, Who Needs It?*, Pilot'sWeb, at <<http://www.pilotsweb.com/article/airman.htm>>.

⁵⁰ Frans M. Verheijen, *Flight Training and Pilot Employment*, Report, City University, London (July 17, 2002), at p. iii, available at <http://airwork.nl/kennisbank/Flight_Training_and_Pilot_Employment.pdf>.

⁵¹ Frederick Hansen, *JOUR. OF AIR TRANSP. WORLD WIDE* (1998), available at <http://ntl.bts.gov/data/letter_am/jatww3-2hansen.pdf>.

⁵² Lt. Col. John M. Fawcett Jr., USAF (Ret.), *Training - The Foundation for Air and Space Power Transformation*, *AIR & SPACE POWER JOUR.* (Summer 2003), available at <<http://www.airpower.maxwell.af.mil/airchronicles/apj/apj03/sum03/fawcett.html>>.

⁵³ Command and General Staff College, U.S. Army, available at <<http://www-cgsc.army.mil/principles.asp>>.

⁵⁴ Email from Phil Astley, Civil Aviation Safety Auth., Australian Gov't (Aug. 29, 2006). "The old throw away line 'now that was poor airmanship' would have to be backed up by observable evidence e.g., 'that was poor airmanship because your decision was incorrect/late/not made' or 'that was good airmanship because you turned around and returned to an aerodrome because flight visibility reduced below 5 km'." Email from Phil Astley (Sept. 20, 2006).

⁵⁵ ICAO, Annex 1 to the Convention on Int'l Civil Aviation—*Personnel Licensing*, Ch. 1-1, *Definitions* [Amdt 167], available at <<http://www.icao.int/icdb/HTML/English/Representative%20Bodies/Council/Working%20Papers%20by%20Session/177/C.177.wp.12615.en/C.177.wp.12615.app.en.pdf>>.

⁵⁶ This reductionism is true in many fields other than airmanship. Arguably time will tell us how successful it will be.

⁵⁷ Email from Phil Astley, Civil Aviation Safety Auth., Australian Gov't (Aug. 29, 2006).

⁵⁸ "Clearly the PTS evaluates a pilot's skill in piloting and navigating an aircraft, so if one accepts this definition, then airmanship is evaluated. If you have a different definition i.e., head work while flying, then that is embedded in the evaluation of other TASKS, since it is central to every TASK evaluated during each practical test. It is not evaluated as a stand alone item." Email from Mark Aldridge, Airman Testing Standards Branch, FAA (Sept. 26, 2006).

⁵⁹ See *Introduction to the Commentary*, § 11, Research Methodology, SecureAv (2005), at <<http://www.secureav.com/Comment-AMCC-Introduction.pdf>>.

⁶⁰ *An Army aviator's final words - they may apply to airline technology and practices*, AIR SAFETY WEEK (Apr. 10, 2000), available at <http://findarticles.com/p/articles/mi_m0UBT/is_15_14/ai_61433673>.

⁶¹ Victoria Button, *Airbus pilots 'too reliant on technology'*, PPRuNe (Aug. 30, 2002), available at <<http://www.pprune.org/forums/showthread.php?t=65332>>.

⁶² There is even a commercial product called "Automation Airmanship" which claims to "define[] the future of cockpit excellence." See Convergent Knowledge Solutions, LLC, available at <<http://www.convergent-knowledge.com/Products/Convergent%20Cockpit/Automation%20Airmanship/index.html>> ("This research based, flight-deck-proven program unifies the many diverse skills that advanced technology requires – beyond those traditionally recognized by most organizations. It specifically decodes, teaches and

in turn allows organizations to evaluate the skills which the very best pilots and crewmembers exhibit on the advanced technology flight deck.”)

⁶³ *ALAR Briefing Note*, § 1.3 – *Golden Rules*, FLIGHT SAFETY DIGEST (Aug.-Nov. 2000), available at <http://www.flightsafety.org/alar/alar_bn1-3-goldrules.pdf#search=%22airmanship%20and%20technology%22> (“With the development of technology in modern aircraft and with research on human-machine interface and crew coordination, the golden rules have been broadened to include the principles of interaction with automation and crew resource management (CRM).” *Id.* at 1.).

⁶⁴ Sect. 9 (2005), at <<http://www.secureav.com/Comment-AMCC-Introduction.pdf>>.

⁶⁵ *Id.* Nonetheless, an analysis of why the term *airmanship* may not have enjoyed greater formal usage should consider the acceptability of the term among women. Some female pilots have revealed an acute awareness of the non-gender-neutral terminology commonly used in this field—stressing that aviation is “male dominated” and “driven by the male-oriented military.” One female pilot explained, “there is still an expectation or a widely spread feeling that aviation is reserved to men. Some men are still having a difficult time seeing a woman at the controls of an airplane . . .” Email from Dominique Marais, Chief Pilot, West Valley Flying Club (Sept. 6, 2006). Another female pilot explained that “flying airplanes has always been thought of as ‘man’s work’.” This is a sexist stereotype that generations of women have had to fight against from the very birth of powered flight a century ago.” Cap Mason, FlightSim.Com Flight Simulator Editor, at <[http://www.flightsim.com/cgi/kds?\\$_=main/feature/wia1.htm](http://www.flightsim.com/cgi/kds?$_=main/feature/wia1.htm)>.

Indeed, there is a rich history of women in aviation that gained little attention. By way of example: “[t]he Wright brothers’ sister, Katherine, was the first woman to fly an airplane. In 1911, Harriet Quimby became the first American woman to obtain a pilot’s license. During World War II, the all-female ‘WASPs’ flew over sixty million miles. Yet at every turn, sexism and institutional resistance conspired to keep female pilots from gaining too much ground.” *Id.*

One pilot urged that “we need to constantly strive for the ‘we’ not the ‘he’ versus ‘she’.” It’s just getting worse. *The vocabulary words need to change.*” Telephone Interview with Sandra Clifford, CFI (Aug. 19, 2006) (emphasis added). If the term *airman* suggests historical sexism in aviation, should we then consider using a single alternative term, or, by way of example, should we embrace the use of both *airmen* and *airwomen*?

Airwomen appeared only once in a search of the FAA Website (appearing within *The FAA General Orientation Briefing* (2003)), available at <http://www.faa.gov/ahr/policy/hrpm/ld/ld_ref/orientation.doc> (last visited on Oct. 20, 2006), although the term is well-represented in the general literature. See, e.g., <<http://www.google.com/search?q=airwomen&hl=en&hs=xGU&lr=&client=firefox-a&rls=org.mozilla:en-US:official&start=10&sa=N>>. The Royal Australian Air Force states, “In the Air Force Reserves you can choose to become an Officer or an Airman/*Airwoman*.” At <<http://www.defence.gov.au/RAAF/reserves/join/beingpart.htm>> (emphasis added). Another Australian aviation source likewise seeks gender neutrality in a discussion of airmanship: “Good airmanship . . . separates the superior airman/*airwoman* from the average: it is not a measure of skill or technique, rather it is a measure of a person’s awareness of the aircraft and its environment and of *her*/his own capabilities, combined with wise decision making and a high sense of self-discipline.” Recreational Aviation Australia, Inc., at <<http://www.auf.asn.au/students/airmanship.html>> (emphasis added).

⁶⁶ Available at <<http://www.faa.gov/NTAP/>> (emphasis added). And yet, the FAA has made some noteworthy changes.

⁶⁷ (rather than, e.g., “pilotless aerial vehicles”) (emphasis added). One view holds that such language in aviation may not necessarily indicate sexism among pilots. That is, these traditional terms may simply reflect the lexicon of the English language generally.

File: <<http://www.secureav.com/Comment-AMCC-I.b-General-Responsibilities.pdf>>

Last Updated: November 7, 2006

THE AVIATORS' MODEL CODE OF CONDUCT (AMCC) is available at <<http://www.secureav.com>>.

⁶⁸ AN ILLUSTRATED DICTIONARY OF AVIATION 44 (Bharat Kumar, Dale DeRemer, Ph.D., et al., Eds., McGraw-Hill 2005).

Note that “aviator” has a female form: “aviatrix”. See, e.g., TheFreeDictionary, at <<http://www.thefreedictionary.com/aviatrix>>.

⁶⁹ Answers.com, at <<http://www.answers.com/topic/man>>.

⁷⁰ Neal Armstrong (July 16, 1969), Dictionary.com, at <<http://dictionary.reference.com/browse/man>> (defining “man”).

⁷¹ Dictionary.com, at <<http://dictionary.reference.com/browse/mankind>>.

⁷² For example, one pilot defined “airwomanship” as “not expecting guys to let you taxi out before them.” AvCom (Nov. 10, 2005), at <<http://www.avcom.co.za/phpBB2/viewtopic.php?p=63359&sid=2414080ae32215db1e47106bf5a561c3>>. Another opined, “I reckon airmanship goes with being a gentleman.” AvCom (Nov. 14, 2005), at <<http://www.avcom.co.za/phpBB2/viewtopic.php?p=63359&sid=2414080ae32215db1e47106bf5a561c3>>.

⁷³ (emphasis added). The FAA’s Change Order explained:

Women have entered all careers, including all facets of aviation. As women continue to expand their role in the world of aviation, fundamental changes in attitude have resulted since the early days of flying. This proposed name change both acknowledges and recognizes the significant contributions made by, and continuing to be made by, women in the field of aviation. The time is appropriate for a title change which would encompass and recognize all persons, eliminate any gender connotations, yet not lose the intent or impact of the documents.

We consider the term aeronautical as most appropriate for this change. It allows us to continue the use of the common vernacular “AIM”, and parallels the name for the international companion document – the “Aeronautical Information Publication.”

FAA, Order Change Proposal: *Change the name of the “Airman’s Information Manual” (AIM) to the non-gender “Aeronautical Information Manual”* (1995) (copy on file with author). It further stated that “gender specific terms were not an issue [in 1964 –when the AIM was first published] as they are today.”

The Order Change Proposal was marshaled in the early 1990s by “a FAR/AIM Partnership Working Group Committee. One of their goals was to remove gender specific language from government aviation publications [hoping] to encourage women to consider aviation as an achievable means of transportation, career alternative, etc. By encouraging women to enter aviation, the committee also hopes to increase the total number of women in aviation. By increasing the number of women in aviation, the resources of general aviation will be increased.” Email from Mary Ann Webb, Air Traffic Publications, FAA (Sept. 8, 2006).

⁷⁴ As a practical matter, such efforts may benefit the entire aviation community. “It is possible that incorporating ‘women’s ways of knowing’ into the GA culture will improve airmanship. Indeed, it may go farther than that. One tanker pilot I know tells me that she could diagnose emergencies ahead of her crew just because her nose was more sensitive and she could smell the airplane better. If it is true that women, generally, have sharper senses than men, generally, then we may find that women have a biological advantage in the ‘sensitivity’ aspect.” Email from Bill Rhodes, Ph.D. (Sept. 8, 2006).

⁷⁵ Additionally, the fact that accident causation may vary by gender suggests that studying how women approach airmanship differs from men’s (in the aggregate) may have real value to assessing whether to retain the term. Consequently, it is important not to discount the importance of understanding whatever it is about GA that is off-putting to women. Armed with this information, perhaps we will be better able to understand the relevance of sexist terms to GA’s health. *Id.*

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Last Updated: November 7, 2006

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⁷⁶ Email from Tony Alvarez (Aug. 28, 2006).

⁷⁷ Available at <http://www.aerobatics.org.uk/code_of_conduct.htm>.

⁷⁸ Operations Manual, § 1.3, available at
<<http://www.ardair.co.nz/documents/Ops%20Manual%2010906.pdf>>.
