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Bill Gunston, OBE, FRAeS



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Foreword

Gathering terms for an aerospace dictionary is harder than it looks. I recently studied a list of terms used by the US Air Force to describe the status of each of its component organizations. They explained, ‘These actions are defined in ways that may seem arcane to the non-specialist, but each term has a specific meaning.’ The terms are: Activate, Active list, Assign, Attach, Consolidate, Constitute, Designate, Disband, Disestablish, Establish, Establishment, Inactivate, Inactive list, Organize, Provisional organizations, Re-designate, Re-establish, Relieve from active duty, and Unit. I read their meanings through several times and decided not to include any in these pages.

In a previous edition I was criticised by a reviewer for using words ‘which have no relevance to aerospace’. He cited as an example ‘barrier pattern’, a term which BAe Manchester had asked me to define! *My sole objective is to create a useful product.* To this end I have included brief entries on such words as ‘generic’, ‘oxygen’ and ‘gasoline’, which are not aerospace terms. Incidentally, while ‘gasoline’ is clearly now a preferred spelling, I have had to write quite an essay on ‘kerosene/kerosine’.

I once had to defend myself against an air marshal who was offended by such rubbish (as he saw it) as ‘hardware’ and ‘software’. Today the explosion of home computing has opened up millions to such previously unfamiliar language. Indeed, in recent years the number of software terms has begun to get out of hand. The JSF programme alone involves more than 40 software acronyms, and I have omitted most of them.

Partly for this reason, this dictionary is centred (centered) at least in mid-Atlantic, if not further west, so we have ‘Petrol *Gasoline*’, the brief definition appearing under the latter. Cross-references are italicised. I have used US spellings wherever they are appropriate, and

in this field they tend to predominate. Note: USA means US Army.

I have attempted to include a brief explanation of aerospace materials, even if they are known by a registered tradename. Also included are the names of many organizations, but, with a few exceptions, not armed forces, airlines, museums or flying clubs, and certainly not the names of manufacturers or particular types of aircraft, though such acronyms as TSPJ – Tornado self-protection jammer – are tempting. On the other hand, there is a grey area in which a company product appears to merit inclusion, an example being Zero Reader. I have had particular trouble with the names of spacecraft and their payloads, but this is a dictionary of aviation, not space flight.

Entries are in *strict alphabetical order*; thus MW50 appears in the place for MW-fifty. The exception is where an entry has a single alphabetical character followed by a numeral. In such cases it appears immediately after other entries featuring that single character. With a subject as complicated as aerospace, where one finds C, c, c¹, c̄, c̄̄, (c), C* and a host of C+numeral entries, it is difficult to decide which sequence to adopt. Greek terms are listed in Appendix 1, but some – such as Alpha and Beta – merit a place in the body of the dictionary.

On a lighter note, I read an article by Col. Art Bergman, USAF, explaining how to manage the temperamental F100 engine. I had no difficulty with his EECs, UFCs and Plaps, but I was defeated by ‘The F100 needs a lot more TLC than the J79 . . .’ I asked several certified F-15 drivers, and they were all mystified. I called the 527th TFTS, then the European Aggressor outfit. A charming female voice instantly said, ‘Ever think of tender loving care?’ On reflection, I put this meaning in the dictionary. The criterion is

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whether or not an aerospace person might be confused without it.

One obvious problem area is at what point one should give up trying to include foreign terms. Some may think I have been over-generous to our Gallic friends, while other countries may think themselves harshly treated by being ignored. It is impossible to say ‘Leave out all foreign terms and acronyms’, because many have become part of the English language. Nobody would expect ‘aileron’ to be omitted, and before long ‘Fenestron’ will probably be just as universally accepted as ‘fenestron’.

At a rough count the number of new entries this time is in excess of 15,000. Almost all the additions are acronyms. There is little point in again saying that acronyms are an infectious disease, especially in the world of aerospace. Whilst admitting that the incentive to abbreviate is often strong, it is self-defeating if the reader has a choice of more than 20 interpretations and does not know which one to pick.

Some acronyms, such as Cardsharp, appear contrived. Another is Tiger – Terrifically Insensitive to Ground-Effect Radar; I had to force myself to include it. In general, I have omitted acronyms which include the name of a company, an example being Caps – Collins adaptive processor system. I have attempted to indicate whether the spoken acronym or spelt-out version predominates. Thus, we have Papi before PAPI. The outstanding exception is NATO. This is always spoken as a word, but the hierarchy in Brussels still insists that it is not written Nato.

Some acronyms bear little resemblance to the actual initial letters of the original words, while a few are quite a mouthful. We have been in particular trouble with the Joint Strike Fighter. This soon spawned JSF-E&MD and JSFPO-AEP, whilst Boeing was awarded a \$28,690,212 contract to perform the JSFPICPTD. This means the Joint Strike Fighter Program Integrated Core Processing Technical Demonstration and is something I have omitted. Another non-starter has to be

Direct, which the US Air Force tells me stands for Defense IEMATS Replacement Command and Control Terminal, which would be fine were it not for the fact that IEMATS stands for Improved Emergency MESSage Automated Transmission System. Roger Bacon, the sage of *Flight International*, has drawn attention to Boeing’s ‘no-tail advanced theater transport, tilt-wing super-short takeoff and landing’, which creates the handy name NTATTTW/SSTOL. Clearly, we need acronyms within acronyms.

It is often difficult to decide when the name of a specific item has become a more general term which has to be included. In the 1970s the AAH (Advanced Attack Helicopter) meant the AH-64 Apache. This is a particular type of helicopter, so it had no place in these pages. However, over the years AAH has become a term applied to several of the AH-64’s later competitors, so exclusion is no longer justified. In the same way Awacs is now a class of aircraft, while, even though there is only one type of AABNCP, that designation is so important it would be unhelpful to omit it.

Both the AAH and AABNCP begin with ‘Advanced’. This is merely a pointless buzzword. Presumably it is intended to imply that something is the very latest, ‘state of the art’ and better than the competition, but – in aerospace at least – I have seldom heard of anybody designing something that was not ‘advanced’. Can these items still be ‘advanced’ after 40 years? To me, another *bête noire* is ‘integrated’. Already we have a zillion AIAs (advanced integrated acronyms). This is an advanced integrated dictionary.

There is an obvious need for a body with the clout to decree what things shall be called, because the present situation is ludicrous. Did you know that the acronym ATAC can mean ‘Advanced Target Acquisition and Classification’? Fine, but ATDC stands for ‘Assisted Target Detection and Classification’ and also for ‘Automatic Target Detection and Classification’ and also for ‘Automated Target Detection and Classification’. Clearly that is not enough, because ATRC stands for

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‘Aided Target Recognition and Classification’ and ‘Automatic Target Recognition and Classification’. I did not myself invent these. And I have just noticed that the USAF, the world’s leading offender, has become dissatisfied with the mere ERT (extended-range tank). It has changed it to ERFCS, extended-range fuel-containment system. Feeble! The name could be made *far* more complicated!

In the same way, it should be simple to have an agreed abbreviation for an airspace control zone, but we are now confronted by CTLZ, CTR, CTRZ, and CTZ. In the first edition of this work I included FMEA, for which two elucidations were (and are) current: failure modes and effects analysis and failure-mode effects analysis. I now have to add FMECA – failure-mode effects and criticality analysis – and FMETA – failure-mode effects and task analysis. It is inconceivable that the authors of the two new letter-jumbles were unaware of FMEA, and I cannot comprehend the need for the two new identities. If we go on like this I fear for the sanity of whoever takes over this work when I collapse through exhaustion.

Many of the acronyms in these pages already have more than 20 meanings, and are gathering fresh ones all the time. This trend is leading to texts which, even to most aerospace people, must appear mere gobbledegook. There is no more clearly written periodical than *Aerospace*, published by the august Royal Aeronautical Society, and it strives to remain one of the few bastions of good English. They published an article which told us, ‘Currently, BASE is developing a Terprom SEM-E standard card for use in the H764G, a high-accuracy INS with embedded GPS. It

has two slots, the second being used by an Arinc, MIL-1553A/B or PANIL interface.’ Many readers were doubtless happy with this, and one was impelled to respond with, ‘May I add something to your characterisation of AQP as “an upgrade of CRM” . . . The human factors elements had to be injected into non-jeopardy Loft and LOE . . . With converging developments in CPL NVQ and recurrent CRM, the AQP may be the shape of things to come in the UK.’

A speaker at a recent conference ‘has sat on EUROCONTROL, ICAO, EUROCAE, RTAC and AEEC. In his current position as Programme Manager CNS/ATM he is involved in the CLAIRE and ISATIS using ACARS, a development study of VDL Mode 2 in France. He is evaluation manager of EOLIA and ASD manager in ProATN.’ And an advertisement tells me, ‘Group IV faxes and PCMCIA cards are only supplied with an ISDN S-Bus interface. The ISDN integration provided by the LES means that a SODA is only required at the mobile end.’ I think I need a whisky with my SODA.

Preface to the Cambridge edition

This updated and enlarged new edition is the first to be published by Cambridge University Press. I would like to thank Phoenix Typesetting for doing a masterful job with mathematics and Greek symbols, and everyone at Cambridge for their diligence and infectious enthusiasm – all too rare these days in book publishing.

Bill Gunston, Haslemere, 2004

Foreword to the Second Cambridge Edition

I am grateful to the publisher’s excellent team in New York and Cambridge, not least for agreeing that a new edition is needed. The avalanche of new aerospace terms, and especially acronyms, shows no sign of abating. There is little point in my reiterating the questionable value of inventing new meanings for three-letter acronyms when the same three letters already have more than 30 different meanings relevant to aerospace. Of course, common sense shows that these cannot be presented in any particular order of importance.

One correspondent asked, ‘What’s the point of having so many meanings for the same set of letters? It just clutters up your book.’ In my reply I asked him which ones he would delete. I am still waiting for his reply.

Obviously, it is impossible to include everything. I have given GSP a single brief line, though I have one definition of this seemingly harmless letter-combination which extends over 14 pages of text. My first explanation of EPS is ‘Emergency or [confusing] electrical, power system, or supply, or source’. It was impossible to omit any of these, because all are in current use. The reader can be assured that I am not in the business of myself inventing extra meanings; there are too many already.

As far as possible I have (obviously) tried to avoid including an acronym within the explanation of an acronym. I apologise for the fifth translation of Dars. I have offered ‘Deployable ARS12 (NATO).’ The seeker after enlightenment may, in an ill humour, look up ARS12, where he will find it means ‘Air Control Center, recognised air picture production center sensor-fusion post [ACCS] (NATO).’ Quite a mouthful to be represented by three letters.

I have tried to keep down the number of

entries by combining two or more in one entry. For example, under DSU 1 offer:

- 4 Data-storage unit; R adds receptacle.
- 5 Defensive system upgrade; P adds program.

I hope that no reader seeking DSUR will angrily say that it is not there. I have also agonised over many names and functions, especially in structural analysis where I have often failed to concoct explanations which are both brief and accurate. A dictionary ought not to try to emulate a textbook.

Just as this edition was closing for press, I received a letter from Dick Gunnell, an Englishman living in the south of France. He drew my attention to a passage on page 41 of Annette Carson’s classic history of aerobatics *Flight Fantastic*:

At the very same time, quietly and almost unnoticed, it seems, the word “aerobatics” entered the English language. A certain Mr E. L. Gunston wrote the following amusing letter to *The Aeroplane*, which was published in its edition of 1st January 1914:

“Since boucling and boucle is a feat which has come to stay, and which apparently is as common as sane flying, these feats performed by Pégoud, Chevillard and certain other scientific gentlemen will have to be called by a distinguishing name. Why not ‘aerobatics’?”

Nice one, Mr Gunston!

My correspondent asks whether Mr E.L.G. was my father (“there appears to be a similarity in the genes”). Regretfully I must claim no known close kinship. I wonder if he invented any other terms now to be found between these covers.

Again, I would like to thank Phoenix Typesetting, and everyone concerned at Cambridge University Press, both in Cambridge and New York, for unfailing meticulous attention to detail.

Bill Gunston, Haslemere, 2009