

# DO-200B

## SYNOPSIS – SHORT VERSION

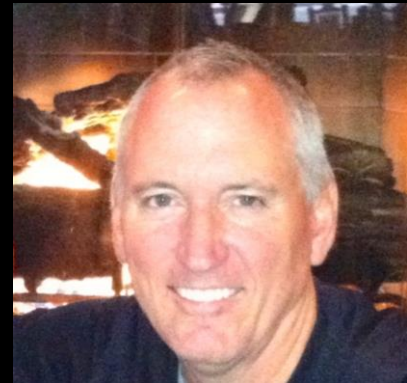
Do you ever wonder where your daily aeronautical data comes from and whether you can trust it? We should: terrain, obstacles, aerodromes, frequencies, precision navigation, and approach patterns comprise just a small portion of this important set of data. The data has one thing in common: it increasingly must comply with the new DO-200B, “Standards for Processing Aeronautical Data. While DO-178C and DO-278A garner a greater portion of mindshare, DO-200B is the workhorse upon which modern aviation relies, both directly and indirectly. Why? Because DO-200B governs the means by which data necessary for safe aircraft operations is prepared, updated, utilized, and maintained. Consider the following statements and assess whether they are true or false; answers and explanations are provided within this paper:

1. **T / F:** *DO-200B applies to Terrain Data, Navigation Data and Engine Data.*
2. **T / F:** *DO-200B is a major rewrite of DO-200A.*
3. **T / F:** *The three basic DO-200B processes are Data Quality Requirements, Data Processing Requirements, and Quality Management.*
4. **T / F:** *The Supplier is primarily responsible for ensuring data usage integrity.*
5. **T / F:** *: A Type 1 Letter of Acceptance requires testing on the specified avionics end-item.*
6. **T / F:** *All Data Processing tools need to be qualified for DPAL 1 data but not DPAL 2.*
7. **T / F:** *DO-200B is 50% or more similar to DO-178C.*

If the above questions were truly easy, congratulate yourself on your genuine expertise. If they simply seemed easy, then this information that follows is for you. In fact, answering the above without understanding the overall data chain and quality assurance role in DO-200B is like understanding Fourier transforms without first understanding The Calculus: impossible for mere mortals ...

The following data is a small extract of the new “Understanding DO-200B”, a free whitepaper made available to the aviation community by AFuzion, the largest author and publisher of aviation safety papers and the world’s largest certification training & services corporation. (A full copy of this paper (containing the other 80% of this information) is freely available at [www.afuzion.com](http://www.afuzion.com)).

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- **Founder of three of the world’s largest avionics certification services companies**
- **Developer of the world’s first training in DO-178 and trainer of over 13,000 engineers in 35 countries for DO-178, DO-254, DO-278A, and DO-200B**
- **Primary author of the world’s first, and best-selling, book on DO-178 and DO-254 (available at most major bookstores worldwide)**

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To succinctly summarize, DO-200B provides guidance for the following aeronautical aspects:

- Minimum standards and guidance for processing aeronautical data;
- “Aeronautical Data” = data used for navigation, flight planning, terrain awareness, flight simulators, etc.;
- Criteria for developing, changing, and supporting aeronautical data;
- Ultimately providing the user with assurance of data quality.

### **Aeronautical Definition:**

First, what is the meaning of the term “aeronautical”? “Aeronautical” applies to more than just aircraft, air traffic control, training aids, and navigation. The term “aeronautical” was chosen accordingly because it is a superset of “aircraft.” Whereas DO-178 and DO-254 are intended for airborne software, DO-200B applies to data which may never be present in an aircraft but in some way influences aviation-related safety. This includes aircraft operations, simulation, training, planning, etc. Hence the term “Aeronautical.”

### **Minimum Standards:**

DO-200B is a modest upgrade to DO-200A, with increased focus on the overall aeronautical data (200A was somewhat more “navigation” oriented), data security, aeronautical data chain, increased scope/definition of tool qualification and DO-330, and expanded definitions/clarity. DO-200B provides the “minimum” standards. The user is encouraged to, and often must, do more than the “minimum” guidance provided within DO-200B. Since aeronautical data can take on so many different forms, and the future of aviation will assuredly include data forms unknown today, DO-200B cannot possibly include sufficient details for each data type. A similar situation exists for software and hardware via DO-178 and DO-254: those standards apply to virtually all airborne avionics, from bathroom lights to thrust reversers to navigation systems; the added requirements for each system type are not addressed within them. However, for airborne avionics additional system-specific requirements are contained within other required certification documents such as Technical Standard Orders (TSO’s). Unlike those airborne systems, additional data-specific aeronautical data requirements are largely unaddressed within supporting documents, with the notable exception of Advisory Circular (AC) 20-153A, “*Acceptance of Aeronautical Data Processes and Associated Databases*” which is a must-read for all DO-200B practitioners. It is therefore imperative for users of DO-200B to remember the “minimum” standards are almost certainly insufficient for most projects: it is incumbent on the user to further elucidate additional standards specific to their data and processes.

DO-200B’s provides “recommended standards” as opposed to strict requirements. The document was developed by 245+ persons from around the world, principally from aviation product development companies but also inclusive of key certification authorities and military personnel. As with nearly all committee-based standards committees, DO-200B’s authors had to reconcile conflicting interests with an all-too-common desire to develop the impossibly perfect document, e.g. “all things to all people”. Thus DO-200B’s 77 pages apply to both large and small aeronautical data sets, different criticality levels, and different users. The prevailing concern is that “provable quality systems” outweigh “strict process steps” where aeronautical data is concerned. Each user must carefully consider then analyze their contribution to safety by asking the following questions for each step within their data chain:

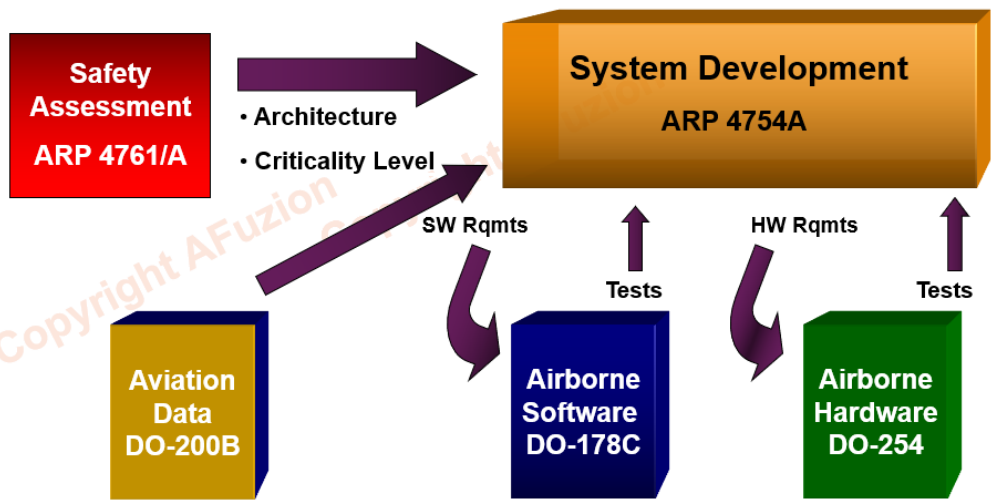
- “*Could their data usage fail to detect an error?*”
- “*Could their data usage insert an error?*”
- “*Could their data usage propagate an error?*”



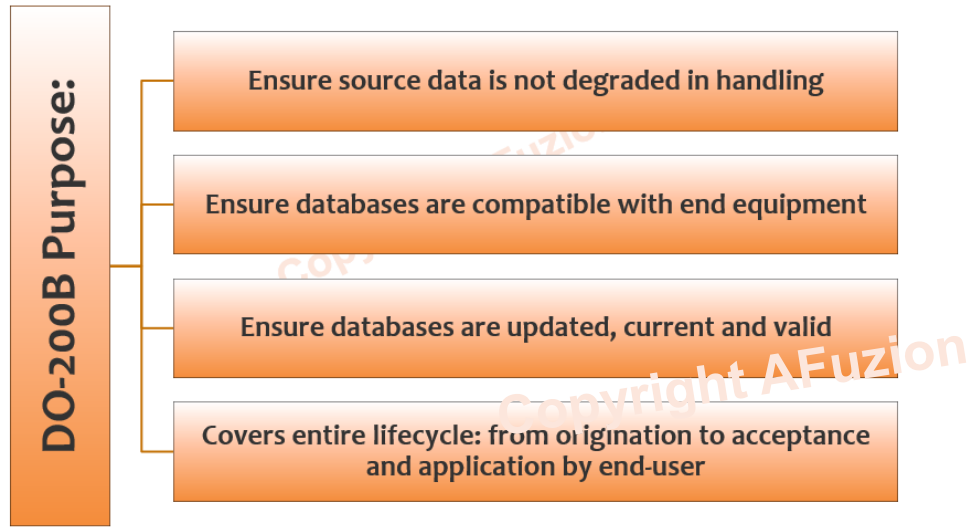
- “What are answers to the above questions considering the data development and usage ecosystem and tool-chain?”

### Aviation Ecosystem

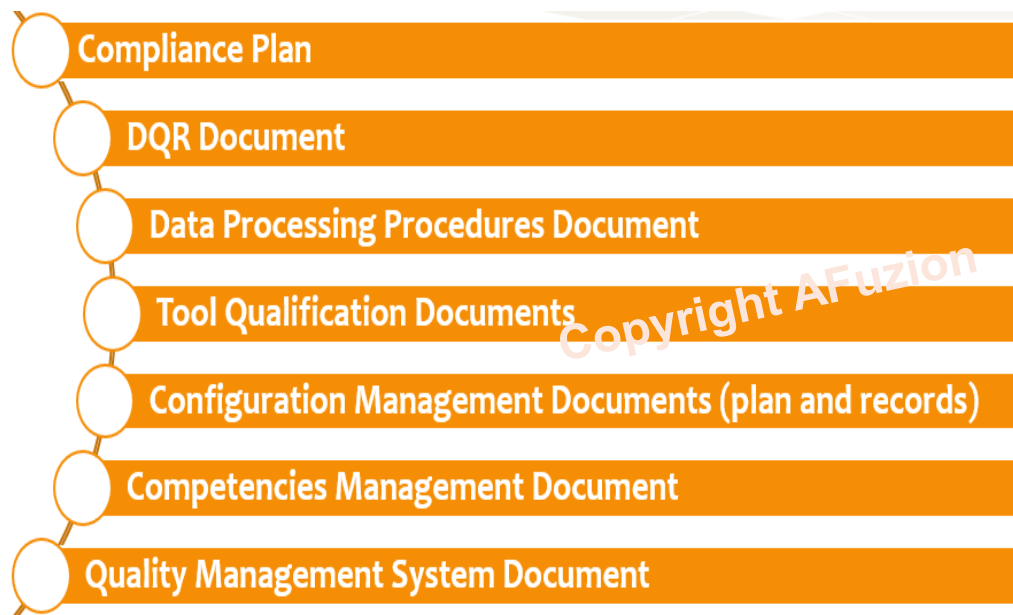
DO-200B is part of the overall Aviation Development Ecosystem (a term coined by AFuzion), which includes airborne and ground-based software/systems combined with formalized Safety processes. The following graphic depicts these relationships:



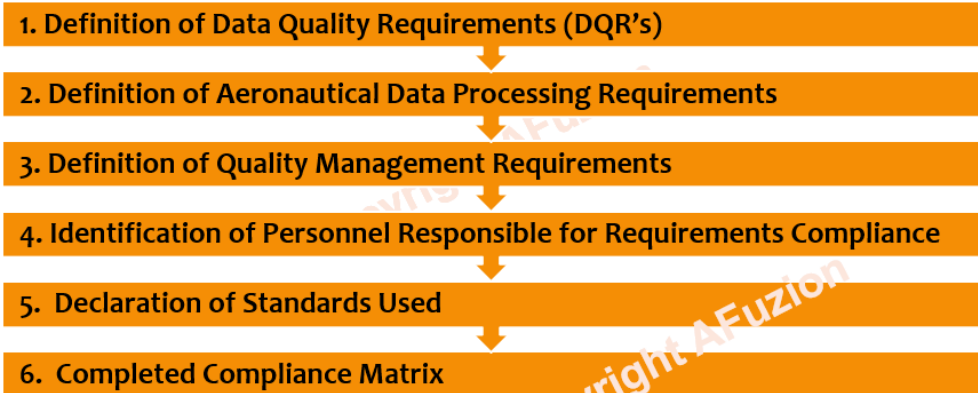
The top four purposes of DO-200B are summarized in the following graphic:



DO-200B requires planning, data requirements, processing requirements and proof of related processes; these items must then be validated and verified throughout the data-chain, beginning with data receipt and ending with data transmission. Both data Supplier and User share responsibility for ensuring data integrity. Required documents for a typical DO-200B project are depicted below:

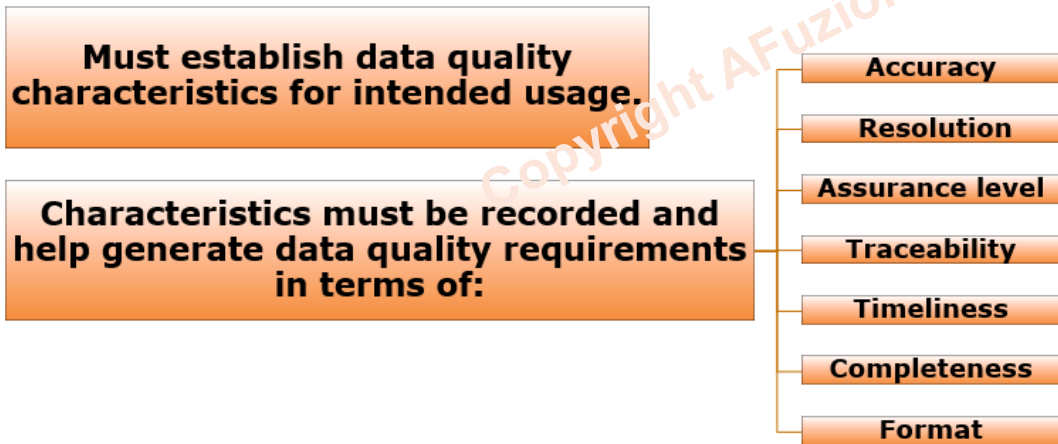


DO-200B's compliance planning process must ensure key data integrity assurance activities are planned, performed, assessed, and recorded as summarized below:



**Aeronautical Data Quality Attributes**

Aeronautical data has the following quality attributes, generally applicable for each data item or set:



**Data Accuracy and Relationship to DO-201:**

Prior to applying DO-200B, it is important to understand applicable data requirements and data origination; that is the purpose of DO-201, “*Industry Requirements for Aeronautical Information*”. DO-201 ensures quantified data accuracy, resolution, criticality, calculation, and procedures. Data accuracy requirements must be specified when applicable. For example, consider a VOR. Each ...

(The full paper, including the remaining 8 pages of this paper not included here, is available for free download at [www.afuzion.com](http://www.afuzion.com) ) .

For the world’s most popular and #1-rated DO-200B classes, see: <http://afuzion.com/training/>



For DO-200B Gap Analysis & consulting information, see: <http://afuzion.com/gap-analysis/>

What is AFuzion? Fun One-Minute Video: <https://www.youtube.com/watch?v=RMzLRzcahJE>

