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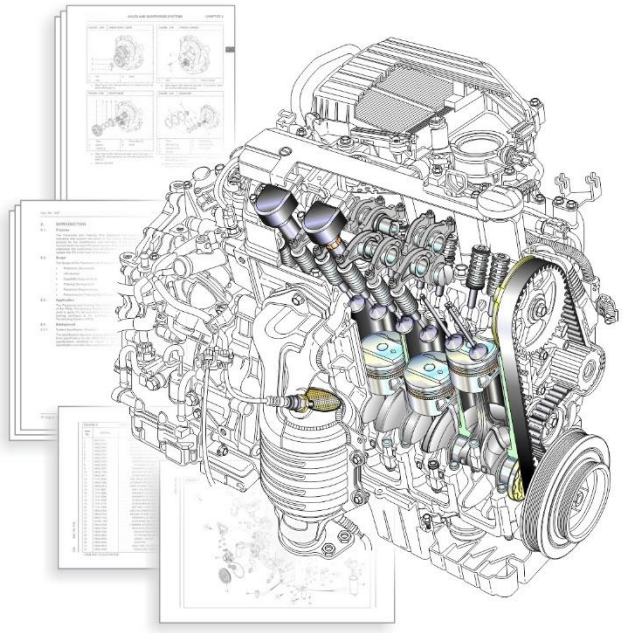
Press Release

The Importance of Having Good Technical Manuals

"Why do we need manuals when, no one reads them anyway?"

What's It All About?



Technical manuals have been around since the invention of the first complex piece of equipment. These books were motivated by the need to instruct operators on the safe and correct operation of the equipment and for technicians to know how to maintain and repair it. The military expanded and developed the idea of maintenance intensively through the concept of Integrated Logistic Support (ILS), which brought together support elements, such as availability, spare parts, scheduled maintenance intervals and tasks, repair tasks, inspection cycles, and training in both operation and repair.

Manuals come in all different shapes, sizes, and levels of complexity; from installation manuals to user manuals; and from maintenance manuals to parts manuals; with many others too. Regardless of the type of manual, it's probably a fair assumption that very few people actually have anything good to say about them. People always tend to complain about the manuals. But why is this? Lack of content, poor writing style, poor illustrations, inconsistent terminology, etc. - the list is endless. In an ideal world, the support manuals should be as good as the product they accompany but they usually aren't. The reasons for this are many and complex but usually hinge around cost, time, and the level of importance attached to them.

Many manufacturers get their engineers to write the manuals – the logic being that the engineers and designers know the product best, regardless of whether the subject is software or a hydraulic pump. This is a common approach but one that misses the point that engineers are far removed from the end-user, and often don't take into account the end-user's skill levels, training, capabilities, and even their home language. There are also other issues to be considered such as the type of workshop facilities available and the availability of tools and special tools.

A trained specialist technical author takes all of the above into account. In addition, they take into account inputs from a logistic support analysis and/or the manufacturer in terms of the level of supportability, the scheduled and non-scheduled maintenance activities, suitable in-text warnings and cautions, and the optimum use of illustrations to accompany the text.

Preparing the manuals properly results in benefits all round – operators are properly trained in the use and daily operation of the equipment, and technical staff are able to maintain the equipment throughout its life cycle and to procure and replace spare parts correctly and safely. All of this leads to cost savings and availability for the end-user and reputation enhancement and repeat sales for the manufacturer.

The Next Step

Although paper-based manuals are still with us nearly 40 years after the creation of the desktop computer, on-screen technical manuals offer huge benefits to both the end-user and the manufacturer. From simple PDF (Portable Document Format) documents to full IETPs (Interactive Electronic Technical Publications), computer-based manuals allow the interlinking or hyperlinking of separate manuals (e.g. parts manuals with workshop repair manuals) and the use of active content such as video and animated material in training and maintenance manuals.

IETPs also allow manuals to leave the workshop environment, allowing technicians to take an entire suite of manuals to the equipment in the field via laptop computers, tablets, and hand-held devices. The US military took this step many years ago to support their wide-range of complex equipment. Their technical manuals are kept up to date by allowing globally-dispersed forces to access a cloud-based portal where the latest amendments and revisions are available for download or direct access.

Global Interaction and Support

More than 20 years ago, the S1000D specification was developed by major European aircraft manufacturers as a means of standardising the interchange of technical information for use in technical manuals. The concept was to create support information (descriptive, procedural, operational, maintenance, parts, fault-finding, and training etc.) in data modules and to locate these in a Common Source Database (CSDB) that would allow the modules to be compiled as required into a variety of different manuals. Each data module was allocated a unique item identifier code that was specific not only to the equipment type but also to any model variations.

The benefits of this approach were numerous and represented a paradigm shift in the way that technical manuals were produced for those using S1000D. Among the benefits for suppliers and sub-suppliers were the following:

- The standardisation of document creation software
- The creation of small, individual data modules instead of entire manuals
- The ability to amend individual data modules as required, instead of entire books
- Having a clear template for the type of support information required per product/system
- The concept of “write once – use many” meaning that once a data module was created, it could be reused many times across many different types of manuals.

For the main equipment suppliers such as Airbus, the benefits were even greater. They no longer had to attempt to integrate different types of information, in different formats, from different suppliers, produced on different software platforms into individual books with consistent formatting and content. Each data module received from a supplier was entered into the CSDB using its unique number. This information would then be extracted from the CSDB according to the specific requirements for the relevant manual (e.g. Operator Manual, Maintenance Manual, Parts Manual, Wiring Diagrams Manual etc.) and then be automatically formatted according to a stylesheet or Document Type Definition (DTD) into an on-screen manual for distribution electronically or by printing on paper.

S1000D has been so successful that it has been adopted not only by major military and commercial system suppliers such as Airbus and Boeing but also by many armed forces such as those of the UK, US, and most of Europe. The specification now accommodates virtually all land, sea, and air product/systems.

The Final Word

In an increasingly complex world where equipment is becoming more and more high-tech, the importance of the safe and correct operation of equipment, and the implementation of cost-effective maintenance to ensure reliability and good service, are of critical importance.

To this end, technical manuals should not be viewed as a "necessary evil" or something to be "thrown together" at the last minute but should rather be seen as an essential part of the design, manufacturing, and support process. Top quality products should have top quality manuals, and those manuals should form an integral part of the product throughout its entire life cycle.

It is not necessary to implement a system such as S1000D where more simple products are concerned but taking a structured, professional approach to supporting such a product, and keeping in mind the needs of the end-user, is the responsible approach that results in benefits for everyone.

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