

PRODUCT MANUALS IN FOCUS

By Erin Earley

Best Practices for Manuals within Your Product Safety Strategy

In one of our last “On Your Mark” columns, we explored the different elements of a product safety and liability prevention strategy – from risk assessment to safety labels. While on-product labels, and the symbols, standards and best practices related to them, are the focus of our columns, they don’t operate all on their own. They need to be developed alongside all of the other safety and risk reduction documents and measures being taken. That includes product manuals. For specific insight on manuals, we turned to Dr. Patricia Robinson, the author of “Writing and Designing Manuals and Warnings” with over 35 years of experience in product safety consulting and training, specializing in warnings and instructions. Read our interview with Dr. Robinson for context on manuals, including the latest standards and best practices for incorporation with your product safety strategy.

When it comes to requirements for product manuals in the U.S., while we don’t have regulations that carry force, we do have the consensus standard, ANSI Z535.6: Product Safety Information in Product Manuals, Instructions and Other Collateral Materials. What are some of its core concepts and best practices for manufacturers to be aware of?

ANSI Z535.6 provides guidance to manufacturers in how to format safety messages in manuals and other “collateral materials” in a way that is consistent with ANSI Z535.4, the standard that addresses on-product labels. The intent is to make it possible for all the parts of the product “package” to work together to convey essential safety information to users. The focus of ANSI Z535.6 is on format. The standard doesn’t tell you what safety messages to include or what any individual safety message should say, but it does provide a variety of options for how to format those messages.

Two key parts of ANSI Z535.6 are recommendations for handling grouped safety messages (the safety pages typically found at the front of a manual) and the use of embedded safety messages.

- 1. Grouped safety messages:** manufacturers often include a great many warnings and safety messages at the beginning of a manual. It’s easy for the user to simply flip past these pages. To avoid that, make this section visually inviting by grouping warnings in logical categories with a heading identifying the content (such as, “Electrical Hazards”) and make it relevant by focusing on hazards specific to the product rather than filling pages with messages describing generic good work practices (such as “Keep the floor clear of debris.”)
- 2. Embedded safety messages** are built right into procedures. They may include some special formatting, such as bold type or the safety-alert symbol, but they are not set apart from the instructions. We used to think that safety messages in a manual should be formatted like on-product labels to make them conspicuous, but research has shown that when warnings interrupt the flow of text too much, people tend to just skip over them. Working the safety message right into the procedure is more effective.

Pivoting to a global perspective, do you have similar guidance related to the international consensus standard, ISO 20607: Safety of Machinery – Instruction Handbook – General Drafting Principles?

This standard offers clear and specific guidance for developing manuals, in line with the principle that instructions for use are an essential component of machine design—not an add-on. The sections cover many aspects of manual creation including identifying your target audience, planning content and structure, and

Most manufacturers engage in continuous improvement of their products, meaning that manuals frequently become out of date. Two strategies can help to make sure your users have access to current information.

principles for writing instructions. While it's all helpful, the guidance on language and style (in the standard and in the annexes) may be particularly useful. Such principles as phrasing instructions positively, using consistent terms, using simple language, and presenting instructions in numbered steps are all vital to making manuals user-friendly. Most people don't like to read manuals, so making them easy to read is essential. The annexes provide recommendations for formatting and examples of well-written instructions. Machine manufacturers know their machines very well and can usually identify needed content. But many manufacturers don't know as much about how best to present that content; this standard offers a concise guide that's in line with the principles of effective communication.

In your experience, what are some of the main pain points that manufacturers have in developing quality manuals that are in line with the best practice ANSI and ISO standards?

Three aspects of developing high-quality manuals consistently cause manufacturers difficulty:

- **Cost:** Producing a high-quality manual costs money, just like producing a high-quality machine. If the manual then must be translated into multiple languages, it costs even more. It's tempting to skimp on quality, by doing such things as reducing white space or using a smaller font size, so there are fewer pages, or using reduced-size CAD drawings rather than illustrations designed specifically for the manual. But that sort of cost cutting may be counter-productive: if a manual never gets read because it looks too difficult, whatever it cost to produce is money lost. Paying a little more to make a manual that's readable and has high-quality illustrations that can carry some of the communication load (resulting in less text!) can save both on translation costs and reduced service calls.
- **Audience analysis:** Knowing who your users are and how much they do (or don't) already know is crucial to developing a manual that works for them. It pays to spend some time with the marketing department


to find out if your user group has changed over time. Doing some informal usability testing of the manual with people who fall into your expected user group can pay major dividends in helping create a manual that actually gets used.

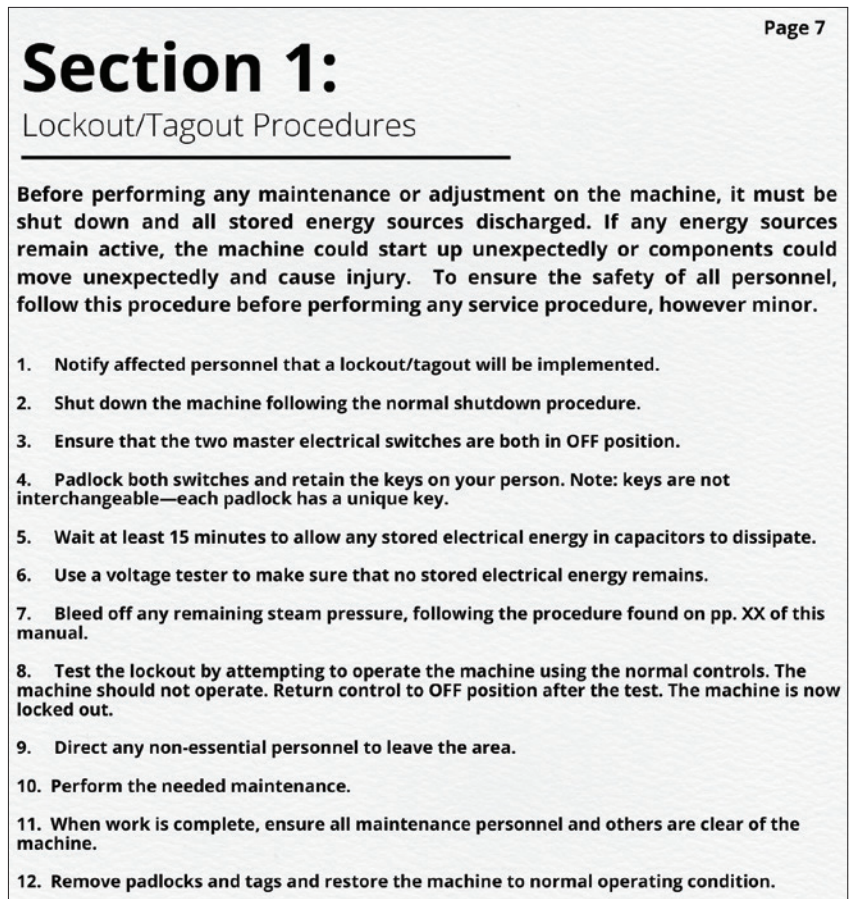
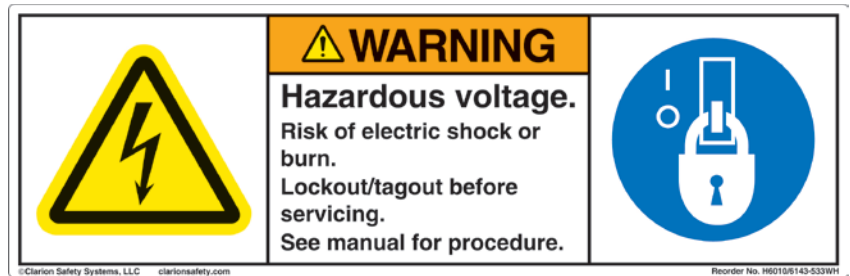
- **Keeping the manual up to date with model changes:** Most manufacturers engage in continuous improvement of their products, meaning that manuals frequently become out of date. Two strategies can help to make sure your users have access to current information. First, posting current manuals in .pdf form on the company website means anyone with an internet connection can see the latest information. Secondly, designing your manuals in modular form, with more-or-less standalone components means that when something changes, you can update just that specific module and assemble an up-to-date manual quickly without having to rewrite everything.

Let's hone in on how on-product labels work together with manuals. Labels need to be concise (while still including the pertinent safety, warning, or informational information), while the product manual can be more explicit. In that way, the product manual can be used as a more comprehensive extension of the on-product labels. What best practices should manufacturers be aware of when it comes to deciding what information to include in the label, what information to include in the manual, and how to make sure that information is given in a cohesive way to the user?

Companies can run into trouble when either they have no consistent process for creating on-product labels and warnings in manuals or when the process is consistent, but the functions are separated. For example, in some companies, the legal department is responsible for creating on-product label content, but technical writers and/or engineers write the manual. When the right hand doesn't know what the left hand is doing, communication will be compromised.

The best approach is three-fold:

1. Establish a product safety team with representation from all relevant parts of the company – legal, technical writing, marketing, engineering, and service – and give that team the authority to make decisions.
2. Develop and implement a comprehensive, rational, and well-documented hazard analysis process. The goal of a hazard analysis is to identify all the ways someone could get hurt or damage could occur, whether the machine is operating properly or not. Once those hazards are identified, categorize them by the severity of potential injury/damage and by the likelihood of occurrence. Use the results to determine what needs an on-product label (most immediate, likely, and severe hazards) and what can be addressed solely in the manual.
3. Coordinate the labels and the manual to ensure that the information presented in the manual is consistent with the label. For example, the signal word used should be the same. If the label says “WARNING”, but the manual says “DANGER”, that inconsistency could pose a problem if the hazard really was a DANGER-level hazard. 



An example of how an on-product label can be coupled with expanded information in the product manual.

Erin Earley, head of communications at Clarion Safety Systems, shares her company’s passion for safer products and workplaces. She’s written extensively about best practices for product safety labels and facility safety signs. Clarion is a member of the ANSI Z535 Committee for Safety Signs and Colors, the U.S. TAG to ISO/TC 145, and the U.S. TAG to ISO 45001. Erin can be reached at earley@clarionsafety.com.

