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It's Time to Go Metric

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The reasons for not designing to the metric standard of measurement are dwindling.

The U.S. is a multi-lingual country, in its measurement units as well as its language. The rest of the world, however, uses one language for measurement, and that is metric. This makes the U.S. the only industrialized country that has not standardized on this system, even though it has had over 200 years in which to join the rest of the world. And this presents a few problems.

For example, in 1999, NASA engineers launched their Mars Climate Orbiter, a $125 million spacecraft designed to explore the surface of the red planet. For nine months, engineers monitored the spacecraft's flight and altered its trajectory as needed. The engineers knew that two crucial programs spoke in different units of measure. However, the conversion algorithm that was to address this difference was accidentally omitted. After months of analysis engineers discovered the conversion problem and concluded that the Climate Orbiter either flew too low and crashed into the planet or it glanced off into outer space. Either way, they have not heard from it since.

This is not an isolated example, simply a reported one. In our increasingly global marketplace, isn't it time to go metric?

The U.S. system is a hodgepodge of units, where names can apply to unrelated units. One example is a unit called "ton." There's short ton, displacement ton, refrigeration ton, nuclear ton, freight ton, register ton, metric ton, assay ton, and ton of coal, and none are equivalent to each other. According to the U.S. Metric Association, the U.S.'s chaotic collection of confusing units means Americans don't really understand the quantitative information they encounter. Another problem caused by maintaining a mix of units: No manufacturer wants to have two production lines, one English and one metric. This setup means that tools, machinery and parts must be stored and inventoried separately, increasing the burden on record keeping and warehouse space. Procedures must be instituted to prevent accidentally shipping metric parts with units built to inches and feet. All of this costs business money.

A related problem involves overseas customers. Every other country is demanding that more U.S. products be built and labeled to metric standards. Even European Union countries, that have long been good U.S. customers, no longer want our non-metric products. In turn, they don't want to supply the U.S. with non-metric products anymore because of the additional cost.

Then, there's the problem of competitiveness. U.S. businesses can produce more product than can be consumed within the fifty states. Companies must sell overseas to stay in business. But as the only hold out for the non-metric system, U.S. corporations face stiff competition from others already standardized on metric.

The metric system offers benefits. For one, thinking in metric units allows a company to communicate with the rest of the world without hindrance, a fact such high tech industries as semiconductor and medical know well. Plus, use of metric implies greater technical sophistication.

People avoid using metric because of familiarity with inches and pounds, and the confusion that comes from converting back and forth between the systems. Until people can build a similar familiarity with metric, reluctance to use it may continue.

With laws in place, and with most engineers having some familiarity with metric, the only obstacles left to overcome is a lack of component availability and our own resistance to change. The first obstacle is being overcome with the increasing number of metric products. The rest is up to engineers.