



## **If information is the key to the future of manufacturing inventory control, then Boeing has unlocked the door.**

In the past 18 months, Boeing's Mesa, Ariz., plant has established control and accountability in its toolcribs, drastically cut issue and return time for tools, and created an extensive database of crib transactions that is used in the cribs, as well as in purchasing, receiving, accounting and other departments on the campus where Apache helicopters are assembled.

Boeing accomplished this with CribMaster, a state-of-the-art inventory management system created specifically for managing tools and inventory in the manufacturing environment. At Boeing, the all-inclusive, Windows-based CribMaster system uses bar coding and a collection of manned toolcribs and point-of-use dispensers to monitor tool inventory and usage, track consumption, issue purchase orders and provide numerous reports at the touch of a button. "It's the toolcrib attendant of the future – being able to electronically track and have instant response, keep track of who's got what tool, where it is. You've got access to all that information in a matter of seconds," said Bruce Briggs, who oversees Boeing-Mesa's six staffed toolcribs and its automated tool dispensers.

Boeing, which purchased CribMaster in December 1997, uses the system to tie together its toolcribs and dispensers, as well as the campus's electrical tool recertification group, the tooling receiving group and the buying group. The result has been a faster, more accurate system of keeping track of tools and inventory. "It is a system that maintains traceability and accountability for required tooling – portable perishable tooling – in the plant," said Clay Lonie, tooling coordinator at the Mesa plant.

The system, developed by Marietta, Ga.-based WinWare Inc., has changed the way Boeing's toolcribs operate, making them faster and more dependable than the manual system that had been in place. Machinists in the past signed tools in and out, or attendants entered each tool's number by hand into a computer. Now with barcoding, tools are checked out in a matter of seconds using a wireless handheld scanner, and there's less room for error. "Inventorying things and getting tools in and out was a real pain in the neck," Briggs said. "(CribMaster) has sped it up ten-fold and it's a lot more accurate. We can track things down a lot faster."

The process saves time on the nearly 1,000 issues, returns and counts Boeing averages every day. "You could figure it's probably saving at least 20 to 30 seconds per transaction, and that's if somebody was good on the computer," Briggs said. Additional time is saved tracking down tools that are checked out but are needed by someone else at another machine. Briggs used to spend as much as half a day calling people hoping that information about a tool's location was entered into the computer or scribbled on a piece of paper somewhere. Now he can check all six toolcribs in about 30 seconds. Once he locates the tool, he also can use the barcode scanner to go to where the tool is and check it in, then go to the new machinist and check it out. "It saves me hours of time," Briggs said.

The ability to locate tools quickly is the most remarkable change Briggs has seen with CribMaster – and it's all about information. Knowing where tools are, who's using them and what they're being used for. The information, tied to the bar codes on Boeing-Mesa's 25,000 different types of tools housed in 26,000 bin locations, supplies the plant's buyers with everything they need to know to keep track of what's in the crib and, using order point data, order and receive supplies. "The buyer receives this information directly from CribMaster and places the order in almost a paperless system," Lonie said. CribMaster creates the purchase order using data about suppliers, order numbers, prices, addresses and other necessary information. Not only is the ordering process simpler, but the bin quantities are more accurate because CribMaster's real-time transactions constantly keep track of what's getting used and what needs to be ordered

When a major part of the Apache assembly process had to be moved from one building to another, Boeing administrators didn't know if the toolcrib in the new building would support the new tasks. In the past, no one would have known whether what was in the new building's crib would suffice or how it needed to be stocked. This time, however, Lonie had a CribMaster report in less than half an hour that showed what had been used in the original toolcrib in the last year, what was available in the new building, and where on the Boeing campus any of the other necessary items could be found.

The cribs weren't keeping any of that information in the past because there was no accountability; crib attendants knew how much sandpaper was leaving the toolcrib, but they didn't track who was picking it up or how it was being used.

The accountability has saved Boeing money as well. "We have noticed a decrease in usage due to the subtle accountability of the CribMaster system," Lonie said, explaining that machinists who used to pick up a few extra inserts or a couple more batteries than they needed now have cut out that practice. Boeing can track such changes using some of the more than 150 standard CribMaster reports or by creating their own documents using Crystal Reports, the widely available report program that integrates into CribMaster. Lonie said he asks CribMaster for reports on weekly and monthly spending; about individual jobs, machines or employees; or anything else he needs to know. These reports can be special requests like the changed building, or to ask specific questions like who's using the most safety glasses, where does a certain tool get used, what has a certain employee been working on, or where are all the batteries going in early December. "Through use of Crystal Reports and the database we can just about answer anybody's question," Lonie said. "You ask a question, the system will answer it."

He also relies on CribMaster's scheduled reports, ones the company chooses to run on certain schedules. For instance, each Monday morning Lonie receives a report showing which crimpers and strippers need to be certified that week. The report tells who has the individual tool, where it is being used and when it was issued. The information, which gets passed on to shop floor managers, is useful not only in making sure tools are recertified on schedule, but for meeting the needs of internal and external audits.

It's all about information – and it's all tied to the bar codes on employees' name badges. The bar codes get scanned when employees pick up tools and when they return them. They're used at the manned toolcribs, as well as at each of the automated toolcribs that are stationed strategically around the Boeing shops.

Through a partnership with Remstar International Inc., CribMaster integrates with Remstar automated tool dispensers to

provide secure point-of-use distribution points for tools. Boeing has two shuttles, six sentinels, five vending machines and two vending lockers, all of which are close to certain work areas so machinists don't have to walk to a central crib. Some of the dispensers allow items to be returned, and some are for consumables. Machinists check out tools from the dispensing machines using their barcoded name badges in much the same way as they do at a staffed toolcrib. The system is updated automatically, as if the transaction had occurred in an attended toolcrib. The difference, Lonie said, is that "you're walking maybe 10 feet instead of maybe 300 feet." As with the attended crib, if a tool can't be found in one of the automated dispensers, CribMaster can locate one.

The ability to use automated dispensers as well as attended toolcribs was what drew Boeing to CribMaster. "The reason we went to CribMaster was because it provided a software platform that would operate dispensing and a manual toolcrib," Lonie said. Boeing also knew changes were ahead and that the new system would have to accommodate those changes. "We didn't want to get into a box with anybody who wouldn't let us grow. ... With CribMaster, people are constantly finding different ways to use it."

That flexibility becomes even more important as the Mesa plant changes from assembling aircraft to assembling wire harnesses for aircraft. As those changes occur, Lonie and others are looking at what kinds of tools are being used and where, and seeing if staffed toolcribs or automated vending machines are the best solution.

Either way, Lonie is confident the WinWare team will continue to provide the outstanding support Boeing has received since the company began using CribMaster. Lonie said he's asked for explanations, modifications, and time-sensitive changes, as well as for additional training for CribMaster users. "They have been responsive. They have been accurate," Lonie said about WinWare employees.

WinWare President Larry Harper said WinWare establishes a partnership with each of its customers to make sure toolcribs are managed in the most efficient, cost-effective way. "CribMaster is more than just software, it's a new way of doing business. By managing and controlling your tools we can provide significant cost savings, fewer rush shipments, less machine down time due to out-of-stock inventory, and an overall less stressful environment in the toolcrib," Harper said. "CribMaster tracks all the essential purchasing and usage information, which allows you to better forecast your inventory requirements." CribMaster provides that information quickly and easily, which has Boeing working more efficiently. Whether it's keeping up with where tools are and who has them, tracking tooling costs, cutting down the work involved in purchasing, or answering questions, "(CribMaster) provides the ability to obtain information on the operation in any form we can possibly think of," Lonie said. "None of that stuff was available before."

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