INVENTORY RECORD ACCURACY

Unleashing the Power of Cycle Counting

2nd Edition

ROGER B. BROOKS
LARRY W. WILSON

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John Wiley & Sons, Inc.

Praise for
Inventory Record Accuracy, 2nd Edition

"This updated version of *Inventory Record Accuracy* preserved its humorous and easy-to-read style. Supply chain practitioners, in traditional or lean manufacturing, will find it a helpful guide. Cleverly outlined, the rigorous yet simple inventorying process for both on-hand and on-order inventory provides accuracy levels required for real-time data systems."

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"*Inventory Record Accuracy* is truly a practitioner's guide. The book's collection of anecdotes provides real-life insight into the potential challenges of achieving IRA… and the combination of an easy-to-read text and simple drawings make this book an easy road map to follow in the proven path to higher inventory record accuracy."

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The Darden School, University of Virginia

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To the women of my life, you wonderful people who have made me old, fat, and grey before my time. May you always remain as fastidious and intriguing in life as you are in my memory. Linda, Louise, Barbara, Charlie as and HeeBee GeeBee, I love you all.

RBB
Portland, Oregon

This book is dedicated to my family.
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sometimes not-so-gentle nudges, this book would not
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Roger and Larry

Introduction

Someone had to write this book. Inventory remains an important part of our manufacturing, distribution, and retail infrastructure. And yet, no one wants to talk or write about it. Managing this critical resource starts with creating and maintaining accurate inventory records. But inventory and inventory record accuracy are not subjects that demand profound reflection in our business schools. However, when this investment goes afoul, it is often the subject of board meetings, executive councils, financial crises, and marketing strategy meetings. It seems inventory and inventory record accuracy only become important when they aren't working properly, much like our critical bodily functions.

Too many times, the authors have visited companies that didn't understand the purpose of inventory or how to track it. It was simply something that was "out there" in manufacturing, distribution, and in the stores—a necessary evil. But the fact remains that manufacturing must have inventory, distribution must have inventory, and retailing must have inventory. The notion of *zero inventory* will never be achieved as long as products are made, distributed, and sold. Even in the best cases of lean manufacturing, some inventory exists in the manufacturing conversion process; it must be tracked one way or another. Thus, inventory in manufacturing, distribution, and retailing is as necessary an evil as money. That is, you must have it to do business. More isn't always better, nor is less. However, knowing how much you have and need to operate your business is *always* better.

Knowing what you have is what this book is all about. It is as basic to business as marketing, sales, manufacturing, purchasing, and accounting. Doing it right is a joy. Doing it wrong is unacceptable.

Roger B. Brooks
Portland, Oregon

Chapter 1

The Company Bank

Where did it go? You open your wallet and discover that the $100 you withdrew from the bank just two days earlier is now a mere $3—not enough walking-around money for the rest of the day. A quick glance at the checkbook register indicates that there are still a few hundred dollars in your account, so at lunchtime you rush to the bank, write another check for $100, and enter the amount in the check register. The bank teller takes your check and keys your account number into his terminal. Yes, your balance will accommodate the amount of the check. Carefully, the teller counts the cash. When you ask for your computerized balance, the teller writes it down. Miraculously, the figure before you matches the balance in your register. With the cash tucked into your wallet, and the balance of your assets safely stored in the bank, you are once again ready to get on with your business.

Both you and your bank have been scrupulous in maintaining an accurate accounting of your personal assets. Why would we want to treat the inventory of our companies any differently? Shouldn't the records we keep for that inventory be as accurate and complete as those kept for our own bank accounts? For most companies, inventory is their greatest short-term asset. Yet few treat it that way. A careful examination of inventories for American manufacturing companies would find more than half of them inaccurate. In some companies, this is a real paradox. A company that carries $15 million in inventory may easily be off in its accounting by half a million. The same company will proudly boast that its $500 petty cash account is accurate to the penny. For some mysterious reason, business executives track currency closely, but as soon as that currency is converted into material, parts, or products, their interest or ability to account for them breaks down.

If a company's inventory records are inaccurate, that company cannot really know the state of its inventory assets. Without that knowledge, its ability to schedule or deliver what its customers want is significantly impaired. That impairment translates into a number of different costs, each of which reduces profits and negatively impacts operations. Individuals who do not maintain accurate checking records pay for their negligence in the form of excess cash balances (to guard against overdrafts), periodic overdraft penalties, and time spent straightening out the mess they invariably make of their financial affairs. Firms that treat inventory records casually likewise pay a price: large buffer stocks, periodic production interruptions, premiums paid for rush reorders, and wasted management time. Finally, as we will see, the MRP[1] and lean programs adopted by so many firms in recent years cannot hope to achieve their full potential when inventory records are unreliable.

■ WHAT ARE INVENTORY RECORDS?

Inventory records are hard copy or electronic documents that reflect how much and what kind of inventories a company has on hand, committed (allocated) to work-in-process, and on order. Just as a checkbook register is kept to tell us our balance at any given time without the necessity of going to the bank, these inventory records take the place of a laborious physical count every time we need to know our inventory status. Like a checking account, inventory levels are continually altered by purchases (deposits), allocations (checks outstanding), and sales (withdrawals and cashed checks written). The process is the same, but in the modern manufacturing firm, thousands of transactions may take place each day.

THE CASE OF THE VANISHING BEST-SELLER

A manager of a major New York book publisher was stunned by the reprint notice on his desk. It implied that he was almost out of stock on one of the firm's best-selling books. "Can't be," he thought. The monthly sales report indicated that there were 65,000 copies still in the warehouse. The firm used the *order point* inventory system to signal reorders of existing titles; that is, a reprint notice was generated and sent to the printer when the on-hand inventory balance

(continued)

[1]MRP: a set of techniques that uses bills of material, inventory data, and the master production schedule to calculate requirements for materials. For additional sources of information, see Darryl Landvater, *World Class Production and Inventory Management* (Essex Junction, VT: Oliver Wight Publications, 1993).

(Continued)

reached a specified level—in the case of this book, 5,000 copies. The reprint quantity for this high-volume title was a whopping 100,000 units—not something you'd want to pile on top of an existing 65,000!

The publisher in question had a sophisticated and effective financial accounting system. With over 800 titles in print at any one time, and a continuous stream of individual books being shipped to and periodically returned from retail bookstores, it very effectively managed a complex burden of billings, credits, payments, and royalty statements. Errors were rare. Inventory accounting at the firm's several warehouses, however, did not operate with the same high level of precision: stock-outs of some titles and overstock of others were common, which made the manager immediately suspicious of the reprint order.

Sixty-five thousand books represented roughly 60 skids of packed cartons. The manager immediately called the warehouse manager, who responded, "All I have is 5,000. There's no way in hell there's an extra 60 skids of that title around here."

The manager insisted that they must be somewhere in the warehouse, and the next day he showed up at the warehouse door. The warehouse manager recruited two workers, and they all started combing the cavernous facility, which was about the size of a football field. Sometime around noon they found the missing 60 skids, which had been misidentified and placed in the back corner of the warehouse.

Had the manager not been so persistent, the firm would have generated an extra $300,000 worth of inventory.

Material is received in the stockroom and its receipt is recorded. The material is moved to its proper place in the stockroom, and this, too, is recorded. The next day, the same material is moved to work center #1 for its first work-in-process step, and then on to work center #2, and so forth. When all work centers have finished with the material, it comes back to the stockroom. Each movement represents a transaction that is duly recorded. The following day, parts and materials are taken from the stockroom and sent to the assembly department, and those moves are recorded. When the assembly department has completed its work, the parts are moved back into stock, from which they are shipped to a customer, and the sales order is closed.

By keeping accurate and complete records of each transaction, we know where and how much we have at every point in the process.