



Lean Manufacturing

From Supplier to Tool Crib: Mastering On-Time Delivery of MRO

George Krauter | May 02, 2018

Workers lose time to a lack of MRO parts, inventories are not updated enough and the overwhelming majority of work orders do not have all parts delivered on time.

When the storeroom does not have the proper MRO control, you can and should expect inventory duplications and the potential for failure of on-time delivery across the board.

The solution to on-time delivery rests with an agreement to have the supplier inventory on-site to control designated SKU's in the quantity required to eliminate downtime and idle workers.

The optimum MRO supply situation is to have a mutually-profitable agreement with all plant disciplines and with all members of the supply chain to provide needed parts in the location where they are consumed.

The obstacles to on-time delivery are real and embedded in the fabric of traditional supply chain movements. To overcome them, learn how to take control of MRO where it matters most: At the point of need, managed outside of procurement departments or hoarding by those on the shop floor. MRO expert and author George Krauter weighs in with real-world scenario examples.

When addressing the true value of on-time MRO delivery, it is necessary to define, "delivery to where?" Traditionally, on-time delivery is measured by comparing the promised delivery time to the actual time the shipment arrived onto the plant's receiving dock. It sounds easy enough—but it's absolutely not. Let's explore how and why.

To help ground the understanding of MRO chaos, here are some key statistics to consider from a 2017 "MRO Best Practices" report by *Reliabilityweb.com*:

- 40 percent of lost worker time is due to lack of parts.
- 80 percent of work orders do not have all parts needed delivered on time.
- 48 percent of companies reported that inventories are not updated which causes stock outs, rush orders at higher prices and increased production downtime costs.

In other words, a storeroom can often have little reliability to support the MRO supplies needed in the plant. When the traditional MRO supply chain is left alone, it can and does affect plant reliability and profitability.

Without proper MRO control, there is considerable time consumed in the movement of parts through receiving, into MRO inventory in store rooms, into sub stocks and finally into the hands of the actual parts' users. But there's more: When the storeroom does not have the proper MRO control, you can and should expect inventory duplications and the potential for failure of on-time delivery across the board.

Want to get a handle on MRO costs and spending? Learn how by reading "Better Supply Chain Management: Take Control of MRO Spending."

A Real World Example: Sub Stocks to the Extreme

A vehicle manufacturing plant decided to move some of their operations from the Northeast to the South and moved some of its manufacturing to Mexico in order to remain competitive. After the move took place, the company found \$985,000 in high speed and carbide cutting tools in uncontrolled sub stocks throughout the facility.

Plant operations' engineers recognize the lack of reliability from store rooms, so they take the following actions to ensure that they have the correct tools to do their job and ensure plant reliability:

- Requisition tools in quantities in excess over what is needed to do the current job.
- Squirrel away tools in uncontrolled inventories (known as sub stocks) in order to make sure needed parts are on hand further duplicating inventory and cost.
- Set up new SKU numbers for the same part and do so under arcane descriptions so only that engineer will know to have access to that part number to ensure availability.
- Although this action is taken to deter downtime and guarantee needed parts and supplies are always in hand, it still constitutes increases in inventory and has a cost.

This situation could have been corrected by innovative and reliable MRO control.

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An MRO Scenario: Duplications, Inventory Hoarding and Mismanaged Costs

Let's pretend there is a supplier that is a major cutting tool manufacturer with high quality acceptance in the metal removing industry. The supplier produces their products, has finished-goods inventory and sales, general and administrative costs. They move the inventory to their distribution centers or distributor partners who add the cost of inventory. The authorized supplier's distributor orders SKU's for stock and adds inventory costs and profit to the net price they paid the supplier to determine the price in the market.

Then, imagine the distributor receives an order for cutting tools from their manufacturing client. The

distributor ships the parts ordered to the customer's receiving dock. The customer receives the shipment from the distributor into receiving where it stays for an average of two to three days. Finally, the SKU's get into the customer's MRO storeroom where it assumes the cost of the materials, freight, paper processing and storage operating expenses.

Take Stock of the MRO Situation and On-Time Delivery

What does this all mean? Let's review the duplications in MRO:

- There are six places where inventory exists before it gets to the using areas.
- There are three levels of SG&A that are added to the price of the parts during the supply chain cycle.
- There are three freight charges added to the cost at consumption.

Here, the customer has placed an order with the distributor for cutting tools critical to production schedules. The customer has placed a delivery date requirement for the distributor. The distributor delivers on time to the customer's dock and gets accolades for achieving "on-time delivery." However, the user does not have the needed tools; the SKU's are missing from the MRO stock room (perhaps they are hiding in someone's sub stock on the plant floor) and had to be ordered from the distributor.

So is it really on-time? The user still does not have the parts and is facing downtime.

Are you warming up to the idea of a continuous-improvement program? See how you can. Read "To Optimize MRO, Get Smart With Lean Supply Chain Manufacturing."

The solution to real on-time delivery rests with an agreement to have the **supplier inventory on-site** to control designated SKU's in the quantity required to eliminate downtime and idle workers. The customer, in the scenario, must provide space and commit to using what is predicted to be used and the distributor must have the SKU's as described in the quantity required 100 percent of the time.

With direct supply to the point of use, there are three supply chain functions and inventory duplications eliminated for the customer. For the distributor, competition is eliminated, inventory turns are guaranteed and there are lower costs for everyone.

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Real-World MRO and On-Time Delivery Success Stories—And What to Avoid

Can a supply on-site model work? Here are some real success stories that eliminated the duplications and achieved real on-time delivery benefits.

A Midwest Auto Manufacturer

Ceramic inserts are paramount in removing metal in the manufacturing process. Inventory of the ceramic SKU's existed in the general MRO storeroom. Because of their value in various markets, major slippage [stealing] caused out of stock SKUs which in turn caused production downtime.

Although the supplier met on-time delivery requirements to the receiving dock, the parts were not at the machine when needed. The supplier was asked for ideas to solve the problem. The supplier and the manufacturer moved the ceramic SKU's to a separate secure area; the supplier agreed to own the

inventory on-site and invoice weekly for parts removed from the secure area. Withdraws from stock were limited to usage history per work station. Downtime was eliminated.

A Southeast Power Train Manufacturer

High-speed cutting tools are the largest category of MRO consumption and require 100% availability of parts on hand when needed. The MRO storeroom was unreliable because the "fill rate" for the needed SKU's was less than 74 percent. This was caused by excess stock found in sub stocks in the plant and a lack of on-time delivery from the cutting tool suppliers. The problem was solved by consolidating the cutting tool supply base to one, and instituting a direct-to-use area delivery process requirement for that supplier. Inventory of critical backup SKU's was established in the MRO storeroom and 100% on-time delivery goals were met.

A Heavy Truck Manufacturer

Cabinets are stocked with parts indigenous to each station and replenished daily by the supplier. MRO inventory is eliminated, worker time is increased when there is no need to leave the job for supplies, and all necessary parts are on hand when needed. Throughput runs at optimum levels.

Becoming True Partners for On-Time Delivery

The optimum MRO supply situation is to have a mutually-profitable agreement with all plant disciplines and with all members of the supply chain to provide needed parts in the location where they are consumed.

Depending on the group you are in, the outlook on MRO can be very different. When procurement is in charge of selecting the supplier, they often measure MRO by reducing price. They generally will choose the low price bidder and assume all suppliers will provide equal service—which is not necessarily how it really works out.

If finance is in charge, cash flow and inventory is the determinate and goal achievement is rewarded with money. Total cost of ownership can suffer.

Engineering will want all the inventory possible to make sure parts are on hand when needed to reduce downtime costs. Total inventory cost is secondary for them to be successful.

All must recognize the duplications that exist in the existing supply chain and take actions, in unison, to eliminate them. All need to be profitable to sustain the effort.