

Lean Materials Management

Source: “Lean Maintenance” by Ricky Smith and Bruce Hawkins

Spare Parts Inventory Reduction—Reactive maintenance organizations typically have a large inventory of spare parts even while, at the same time, engaging in excessive emergency purchasing activities to address breakdowns. As a business moves toward a proactive

TPM culture with more planned and scheduled work, the need for maintenance is identified early enough to be able to order materials and receive them in a JIT scenario, before failure occurs. In addition, improved organization of the spare parts storage locations helps eliminate duplication of inventory and enables calculation of appropriate minimum and maximum stocking levels and economic order quantities. It also enables the identification of obsolete inventory that can be returned to the vendor or otherwise discarded.

A very useful tool of the Lean storeroom is management of inventory by ABC analysis. ABC analysis is the method of classifying items involved in a decision situation on the basis of their relative importance. Its classification may be on the basis of monetary value, availability of resources, variations in lead time, part criticality to the running of a facility, new customer parts unique to that product and others.

Cycle inventory can be managed through ABC analysis. Once ABC items are coded in the file maintenance system, they are sorted by the ABC code. The CMMS randomly selects *A* items so that all can be processed typically in a two-month period, *B* items typically can all be processed in a six-month period, and *C* items can all be processed in a year period. The daily count would reflect this percentage of parts. A review of this process should take place quarterly to ensure proper ABC codes are issued for the parts. Standard Costs are used to determine the cost of the part. A definition of Standard Cost is the normal expected cost of an operation, process or product, including labor, material and overhead charges. It is computed on the basis of past performance costs, estimates or work measurements.

Another use of ABC is in the management of storage areas by the storeroom manager. A items are needed to be more closely reviewed due to their dollar value and importance to the facility. Normally, “*A*” items are stored at the lower levels of the bin. **B items** are stored in the mid levels and are normally replacement parts that may not have the criticality or dollar value of the *A* items. **C items are stored in all other areas.**

Obsolescence budgeting also takes the management of ABC analysis into consideration. *A* items have the most impact on the budget, if it is determined to be obsolete and scrapped from inventory. *B* items are second, and *C* items are third. The mix of *ABC* affects a monthly budget for obsolescence. The storeroom manager or supervisor ensures the best use of the budget each month to scrap materials that have no added value to the storeroom inventory, with input from maintenance. These parts

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may be a component of equipment that is being replaced. (Each piece of equipment should have a bill of materials developed to identify all parts required to maintain a specific piece of equipment.) They can also be a part of equipment that is no longer going to be used in the next model year. In addition these may no longer be functional parts in the storeroom.

Through slow-moving activity reports, parts analysis and visual methods of the storeroom parts, these can be identified. However, the danger to obsolescence is the fact that A parts may not have a use for several years (shows on the slow-moving activity report); but, due to its critical importance, the parts may be needed at a later date. Because of its criticality, the lack of these parts may shut down the plant. The slow moving activity report would not detect this need. Management and storeroom management need to consider all aspects of the parts before it is scrapped to obsolescence. ABC analysis provides a perspective that enhances this decision-making.

Still another use of ABC analysis is in the reorganization of the storeroom. Yearly, a review of parts storage areas needs to be made by the storeroom manager. In this analysis, ABC should be considered so that the A parts are continually being moved to the lower or easier access areas. Inventory adjustments to A items need to be reviewed more closely and investigated. Recounts typically occur when deviations occur A parts should be located in an area where they can be visibly observed and controlled. Most of the time these parts should be accessible when needed.

By constantly reviewing the storage of parts, the management can continually reorganize to the stores areas so that the best organization can be presented. ABC analysis even affects lot-sizing considerations. ***A plant using EOQ (Economic Order Quantity where a fixed order quantity is established that minimizes the total of carrying and preparation costs under conditions of certainty and independent demand) uses ABC as well, so that inventory levels are minimized with the higher cost part.***

The storeroom manager needs to be aware of the ABC analysis in all of his or her management techniques. It is an important tool in his decision-making for the binning of material, the counting of material on a daily basis, planning and scheduling with lot sizes and his obsolescence review. A world-class storeroom addresses these issues efficiently and effectively.

Companies transitioning to proactive maintenance have significantly reduced the amount of emergency purchasing and costly overnight shipping costs. Independent survey results suggest that inventory levels in maintenance operations that transition

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from reactive to proactive environments can expect at least a 17% reduction and an average of nearly a 50% reduction.

Inventory holding costs typically run between twenty and thirty percent of the inventory value on an annual basis. Reduction in spare parts inventory therefore results in an immediate and recurring cost savings to the business.