



Kanban in the Lean Maintenance Storeroom: A Case Study

A supervisor in a large company was directed by his manager to achieve at least a 10% reduction in the storeroom inventory within the next six months. To accomplish this task, the supervisor decided to “expense” fasteners and other consumables. This meant that these parts were no longer on the “books”, which resulted in an immediate drop of 11% in his inventory dollars. This goal was accomplished in very short period of time. There were no thoughts of future reductions in the inventory level; nor did his management question his decision, as they also met their immediate goal.

On the other hand, another storeroom supervisor was also directed to reduce his inventory by 10%. However, a different approach was taken. This supervisor decided to implement Kanban and other lean practices in his storeroom. The plan was to begin with a pilot project, consisting of 100 part numbers. The pilot project was conducted as follows:

- Kanban Cards were printed and distributed for each part number. Each Kanban card represented a container quantity.
- A lot size was determined from past data, economic order quantity (EOQ), and current forecasts. This lot size, combined with the container size quantity, determined the number of Kanban Cards required.
- Along with that determination, the minimum number of Kanban Cards and maximum number of Kanban Cards were established.
- A 4’ x 4’ pegboard was hung in the storeroom. Hooks were placed in the pegboard and each hook was assigned a part number.
- Blanket Purchase Orders were established for each part number in the pilot project.
- Bearings were selected for the pilot project.

One bearing part number had a minimum inventory of 20 pieces and a maximum of 100 pieces. Ten Bearings were packaged in each box from the supplier. The supervisor set out 10 cards, put a hole in the top of the card, and set up a 4’ x 4’ pegboard on the wall behind him with a series of cup holder hooks. He marked each hook with a part number in his pilot project. He then placed the cards on the hook and began the process. Whenever the storeroom issued a bearing through a work order, the number of cards for each package unit (10 pieces) used was removed from the hook and discarded. The card was not removed until all ten pieces were used. The inventory was adjusted only when the card was turned into the storeroom after being used. When the hook had two cards left, a different color card with the Purchase Order information, the lot size to be ordered from the vendor (In this case 8 cards or 80 pieces), and an expected due date was faxed to the supplier to release the material against the blanket purchase order. Since the lot size was 10, the vendor shipped 80 pieces (or 8 containers or packaged units) with each having a Kanban card on it supplied by the vendor. (Industry practice is to have a two-part bar coded tag as a

shipping label. That way, the information for part identification, quantity, and purchase order is on the box, when the other tag is removed as a Kanban Card.)

When the material was received, the Kanban cards were removed and placed back on the hook. This process is on going and continuous. Six weeks into this project, the storeroom supervisor was able to reduce the inventory on the pilot project of 100 bearings by 27%. He felt that in six months, the pilot project parts would be reduced by 50% from his initial success. He then began to expand the project into other repetitious parts for his maintenance storeroom. Since he purchased over \$75,000 of bearings in a year in his pilot project, he expected his savings on just this project to be \$30,375 for the first year. With expenditures on all bearings for his maintenance organization approaching \$400,000 per year, the storeroom supervisor projected that potential savings could approach nearly \$200,000 per year in bearings alone by adapting the Kanban concept.

The second part of establishing Kanban was to begin a two-bin system. The storeroom supervisor started another 100 item pilot project. He focused his attention on O-rings. Each part number was assigned two small plastic bins. Each bin had a set lot size and marked by a bar coded label for the part number, description, and location. The lot size quantity was also on the label. The pickers were instructed to pick from the top bin. When it was empty, the pickers would bring the empty bin back to the storeroom supervisor. These were then placed on a pallet and returned to the vendor for replenishment. The vendor would then release material on a blanket purchase order and ship the required container and lot size quantity back to storeroom. Upon receipt, the bin was place on the bottom of the two-bin system so that the oldest parts were picked first. In six weeks, the storeroom supervisor reviewed his results. From the pilot project of 100 Part Numbers of O-rings, he had to replenish 35 parts, or a quantity used of 3500 O-rings at an average price of \$.07 each. Therefore, he spent \$245 in material cost for that period. In a corresponding period of six weeks using a min/max by the computer system, the cost of replenishment on the same 100 parts showed a usage of 4800 O-rings or \$336. The storeroom manager started expanding his use of plastic bins and two-bin system in his storeroom.

The storeroom supervisor was ecstatic over the preliminary results of his Kanban pilot project and persuaded his manager to continue to expand and develop the process. The savings achieved far exceeded the 10% reduction. In fact, in this particular case a savings of 31% inventory reduction was achieved in the first year. It requires more attention than currently required as the number of Kanban cards needs to be monitored frequently, as well as keeping track of empty bins. The achievement of this was done without an outside vendor contract to “manage” the storeroom stock, without a computer on-hand inventory utilizing min/max (by setting container quantities, the computer quantity on hand and the actual counted quantity were 99.9% accurate), and without major capital expenditures. To achieve these results takes management commitment and resolve, a detailed plan to succeed, and a determination to complete a task that requires daily diligence.

For questions or concerns or how to implement Kanban in your storeroom:

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