English version of " Ersatzteil-Rendezvous" , JapanMarkt, July. 2013 edition of the magazine of the German Chamber of Commerce and Industry in Japan

Japanese customers want fast and efficient service; that requires service engineers to have spare parts available immediately. This article in a series explains the influence of spare parts' stock, location and logistics on service management. It demonstrates that costs can be reduced, and customer satisfaction can be increased to achieve higher revenues in Service and Sales.

by Reinhold Stapf

Spare Parts Rendezvous

In each industry, company, and for each machine, spare parts vary in size, weight, value, need, and other factors. When it comes to the enhancement of spare parts stock and logistics, company, machine and spare parts, specific parameters must be considered. However, the principles described here are the bases for any enhancement project, which includes all company specific features in the end.

The typical work pattern of engineers is as follows: identify the necessary spare parts; check the stock availability in the car, or in one or more stock points in the country; order the spare parts; and travel often an hour or more to pick them up at a company's office or service station of the logistics company. Additionally, engineers often ask colleagues if they can lend and send the necessary spare parts, or they just remove spare parts from the machines, which are in stock. Returning unused spare parts is typically a very slow process that results to "dead" stock and costs. This means losses in time-to-solution; and consequently, results to customer dissatisfaction and financial losses in the form of additional travel expenses, usually 150–200 percent higher for urgent deliveries, as well as losses through bound capital, requests for free-of-charge service, and lost sales opportunities. Most often key performance indicators (KPI) are missing, and these losses are even unrecorded. All of these inefficiencies and losses can be avoided and the excellent service required by Japanese customers can be delivered.

On the other hand, it is possible to fully integrate all the spare parts related activities tightly into the service process. In such an optimized integrated process, an engineer identifies only the necessary spare parts, and orders them to call management. Call management ensures that the engineer receives the spare parts at the right time and in the right place, which requires

absolutely minimal travel time or no travel at all. Additionally, the spare parts availability in Japan is raised to slightly above 98 percent, often combined with a reduction of stock value. Unused spare parts are returned quickly.

The need for spare parts has the same characteristic like the decay of radioactive isotopes. One never knows when a radioactive decay of a single isotope actually occurs, as well as when a part in a single machine breaks. However, the greater the number of machines and failure rate, the more constant the stream of necessary spare parts from the headquarter into the machines will become in the domestic market. Thus, mathematics is needed. Understanding this matter is the basis of spare parts supply optimization for engineers.

Spare Parts Stock Optimization

The spare parts stock in a country may not be more than a security buffer to make the spare parts available if a sudden demand arises before the next delivery from the headquarters arrives. Today, spare parts can be delivered in a consolidated shipment within three to four days from Europe to a main warehouse in Japan.

IT systems are important for the optimization of spare parts stock. There are very few excellent systems available worldwide. They optimize the global and local stock down to the level of the stock in the car of an engineer. The implementation and roll-out of such a system are decisions to be made by the headquarters. Such systems require perfectly integrated spare parts-related processes consolidated into the service flow to utilize their power in matching the requirements of engineers and customers.

However, much can be achieved with less than these perfect systems! Whatever system and data are available, they can be used as the starting point for service improvement. And, even without available data at all, stock optimization can also be implemented right away. It is only a question of experience.

The replenishment rate and speed from the headquarters are the first parameters to be considered in service enhancement. Next is the number of installed machines in the field. Then, finally, the consumption of spare parts per time unit, which must be taken into account. Here, sometimes, terms like "fast mover," "middle mover," and "slow mover" are used. Their definitions vary from company to company. Such a classification can be used as a first step in the spare parts stock optimization. Thereafter, the classification must be made finer until the machine and spare parts specific data are used, and the stock reaches the lowest possible value while keeping spare parts availability as high as necessary. The high spare parts availability ensures that time-to-solution is not extended by missing spare parts; thus, customer satisfaction will increase, and the cost for urgent orders will decrease closely to zero.

"Rendezvous Points"

The distribution of stock locations in a country is only needed to ensure that the delivery time and frequency of the spare parts are in the range by which an engineer can be supplied with requested spare parts to match the agreement with the customer.

Therefore, the most suitable stock locations need to be searched, and "rendezvous points" need to be identified. "Rendezvous points" are points where engineers meet the spare parts. The ideal "rendezvous point" is directly within the customer's premises. If this point cannot be located, other points need to be identified according to the probability by which spare parts are needed and must be located along the roads where the engineer typically travels.

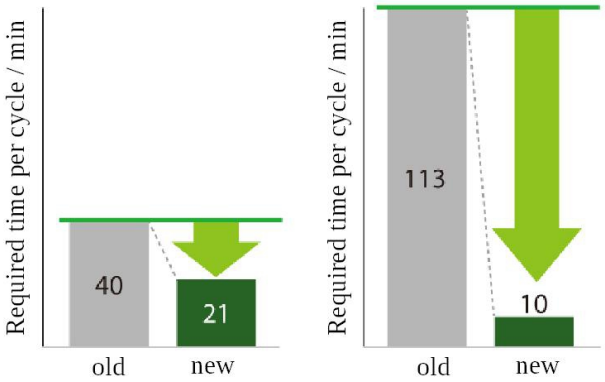
The spare parts stock locations must be adjusted as described in "Spare Parts Stock Optimization;" thus, more stock points will not increase the stock value.

Outsourcing

An alternative to owning spare parts warehousing and physical stock-keeping activities is outsourcing. Specialized companies are experts in handling stock based on service level agreements. They have many warehouses distributed throughout Japan, and provide high quality data for stock optimization. However, initial and continuous stock optimization cannot be outsourced; thus, this procedure must be done inhouse. Fixed costs will become variable costs. Stock optimization and identification of rendezvous points will have to be carried out.

The Ultimate Spare Parts Delivery

In Japan, Schenker-Seino Co. offers the possibility to deliver spare parts during nighttime directly into the engineers' cars. At the same time, the spare parts that need to be returned will also be picked up. This flow is the ultimate way of delivering and returning spare parts because the engineer does not waste time for traveling for spare parts delivery.



Spare Parts Order
(for each spare parts request)

Return of Spare Parts
(once a week per engineer)

▲*Left: Workload for each spare parts order of an engineer could be reduced by 50%. Right: Workload for the weekly return of unused spare parts could be reduced by 90%*

Process Integration

The process and the workflow connect the passage of information with the delivery pattern of the spare parts. Thus, as explained above, it is essential that the entire spare parts logistic processes and procedures be perfectly integrated into the service process. Only if this is done will the full benefits be realized. This process enables further definition of KPIs to ensure a continuous supervision of the operation, and provides the chance to react quickly to changes in customer and market requirements.

When all the procedures are implemented, the cost and stock value decrease quickly to their lowest possible levels. The spare parts availability rises to the defined percentage, deliveries to engineers will be carried out to carefully determined "rendezvous points," or will be dispatched overnight into the car of an engineer. In this way, the engineers gain maximum time for working at the customer's site, the control of the time-to-solution will be significantly improved, and customer satisfaction will increase for more better product sales.

Is such a service operation enhancement worth implementing?

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