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PROCUREMENT, STORAGE, AND DISTRIBUTION OF SPARE PARTS

by

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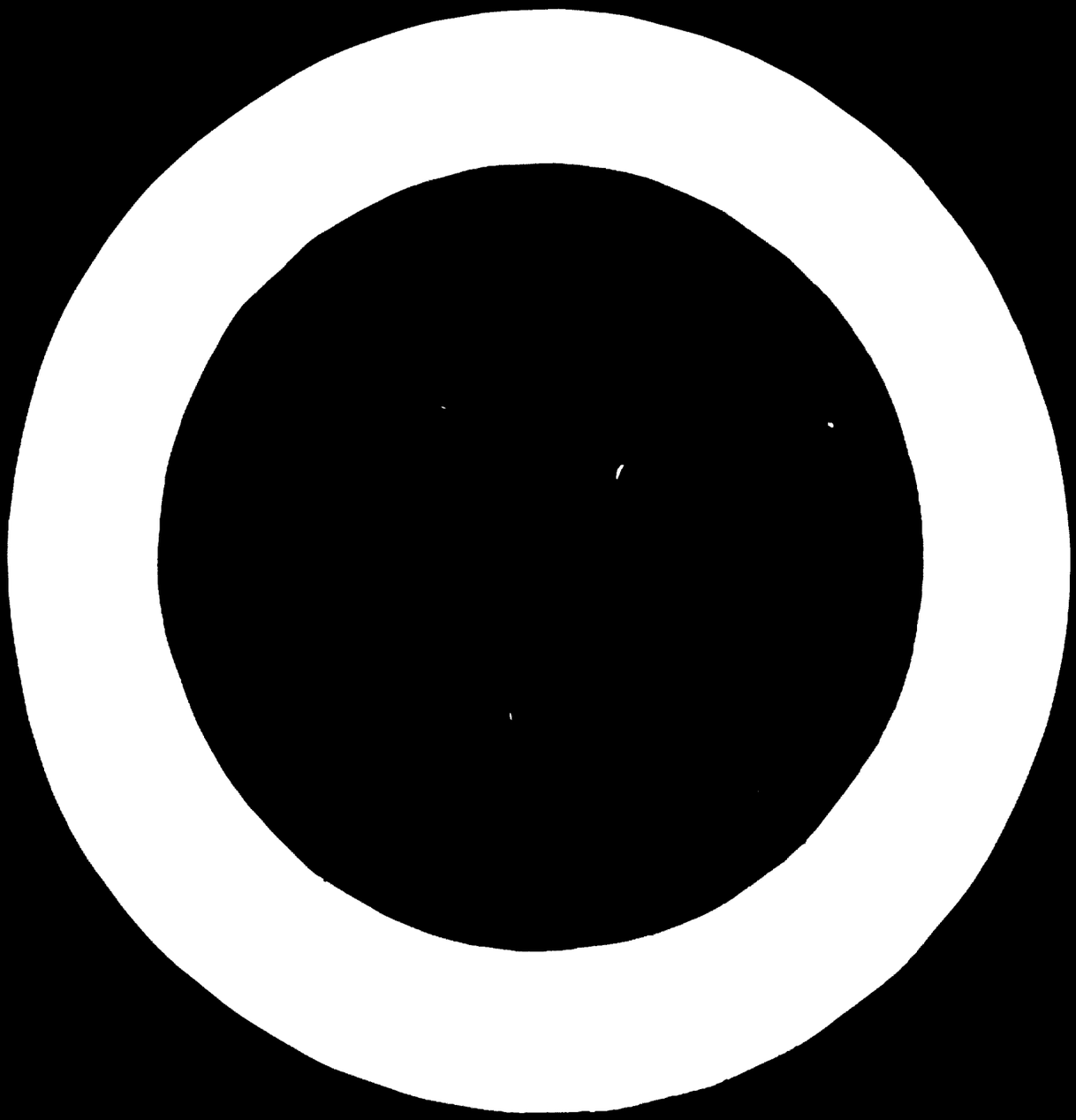

This paper is mainly concerned about the subject "Procurement, Storage, and Distribution of Spare Parts" and shall deal with it from the points of view of management, as it is the aim of this Symposium. As an expert I speak about practical solutions.

My contribution is made from the view of a world-wide manufacturing and world-wide supplying manufacturer of machines. We are producing highly qualified machines which are not manufactured as single units but as optimum series production on progressive assembly lines.

Within this company I am managing the whole spare parts disposition and supply for the benefit of the users of our machines.

Due to the limited time I should like to restrict myself to a sketchy discription, to a few statements which seem to me to be important.

There is hardly a general applicable solution for spare parts supply problems. In a definite case of need we have firstly to ask whether the object for which these spare parts are required is a sturdy standard machine or a more sensitive special machine, whether it is a question of a product of single-part production or series production.

We have to ask whether it is a question of problems of short-sight spare parts supply or problems of long-term spare parts supply.

By means of further questions we are trying to find out what are the problems which oppose a smooth-running spare parts supply. These are large distances between the machine manufacturers and the user; consequently communication problems and transport problems. In addition to that there are specific geographical and climatic obstacles, not to forget economical barriers.

You can see already from this brief specification how problematic the spare part supply is and which factors play a decisive roll.

We don't want to see only the difficulties, but the main points are:

What does the machine user want?
What are his ideas and wishes
and how can the machine manufacturer come
up to these ideas?

With the spare parts business it is the same as with any other problem in the world. With a good co-operation from both sides there is a good solution to any complex of questions.

As I said before we want to see the subject from the view of a world-wide manufacturing and world-wide supplying manufacturer of highly-qualified special machines who supplies to all five continents. It goes without saying that such a manufacturer can rely on very comprehensive experiences.

Based on this experience there is only one motto for a good and for both sides effective spare parts policy:

The right parts
in the appropriate quantity
at the right time
in the right place.

This single sentence contains the requirements and demands of the machine users as well as the tasks of the machine manufacturer.

Converting this principle into practical work means:

The right parts - First of all only such parts which are subject to more or less rapid wear, and which for this reason are required at short notice and for the mayor part of the machines in the respective country.

In the appropriate quantity - Not too much and not too little.

too much - Large binding of capital

too little - Breakdown of machines, loss to the machine user, partly complete loss in value of the respective machine.

At the right time - Not a birthday and not at Christmas, but always in that very moment when the spare parts are necessary, that means at the peak of work, during the time of highest stress or in case of a breakdown of a machine.

In the right place - The most beautiful and completely filled central depot is of no use if the machine user has to wait for days or weeks until he gets his parts.

The primary wearing parts must be available in that place where the machines are operating and where they have suffered a breakdown due to a damage.

These are the vital aspects of a quick, effective but also economical spare parts conception.

All we have to do now is to speak about the ways that guarantee the realisation of the motto:

The right parts
in the appropriate quantity
at the right time
in the right place.

This demand applies to Africa just as to Australia or South America and, of course, also to the European countries.

We know that not anyone of the machines in the world runs for 10 years without any repair, and the higher the working value and the price of a machine the more important is it to ensure its function and operational reliability.

That is a fact which applies to all machines, and it is at the same time the tribute we all have to pay to the technical development.

The engineers of all important manufacturers are trying hard during their designing work to obtain a far-reaching freedom of maintenance. This ideal cannot be realised to a 100%, and above all the operation under particular difficult climatic working conditions causes additional problems which can only be overcome by a good spare parts policy and an effective service.

Procurement

An economical procurement policy which at the same time takes into account the necessaries of praxis in the respective country is not so quite easy.

These thoughts are influenced quite considerably by

the information flow,
the delay of procurement,
the way of transport,
the import licenses,
various customs regulations,
the import problems,
the foreign exchange problems,
and, of course, also by the
distribution problems in the country.

These thoughts already make it clear to everybody who is somewhat familiar with this subject that from the very moment when the purchase of machines is being discussed it is absolutely necessary to handle the spare parts problem with the same importance and precedency.

But it is also clear to the same extent that reasonable considerations can only be made if one can dispose of the necessary advice by manufacturer's experts regarding the procurement of the basic spare parts stock.

These experts know the wearing parts, they are who know best which parts are particularly affected by which conditions, and if the importer points out clearly the problems of his cases of requirements, that means

the conditions of operation,
his special demands,
and his possibilities
regarding organisation

it will always be possible to create by mutual efforts the basis for a satisfactory spare parts supply.

For the building-up of such a reliable Spare Parts Supply Organisation both parts have to clarify the following presuppositions:

1) What are the conditions under which the machines are operating?
2) Number of hours of operation per year?
3) Will the machines be spread all over the country or will they be put to work only in areas of main efforts during the initial period?
4) What number of machines will be imported during the first year?

5) Place of central depot?
6) Where are wearing part stores (regional depots) necessary and how many?
7) Area of a) the cental store,
b) the regional depots?
8) What kind of shelves are at disposal in these stores?
9) How many m^2 are a) the total shelve area,
b) the available shelve area for the considered parts?
10) How are the ways and possibilities of transport?
11) What is the situation regarding specialists
a) in the central store,
b) in the regional depots?
12) State of training of these collaborators?
13) Training of the collaborators in the factory with regard to organization, investigation of requirements, and storage system.
14) After clarification of these questions setting up of stock order for the basic spare part stock adjusted to the mentioned conditions and the number of machines.

Such check lists, may they ever be so rough or simple during the initial phase of co-operation, are the best basis for a successful co-operation.

Although a part of these questions belongs to the field of spare parts storage it is necessary and useful to have these questions clarified as far as possible already during the phase of procurement, so that the procurement of the basic spare parts stock can already be adjusted to the special requirements and possibilities of the respective country.

For finding out the required quantity we use a rough calculation from my fields:

10 - 20 machines of the same model = 20 % of the machine value for the basic spare parts stock

more than 20 machines = 10 % of the machine value for the basic spare parts stock.

This quota for the basic stock has to be adjusted to the climatic conditions in the country as well as the conditions of operation, and according to the experiences of the machine manufacturer it must include not only the fast moving parts but also the normally moving parts.

To a certain extent it is also necessary to make arrangements for an accident, paying special attention to the availability of such parts which cannot be made locally by craftsmen.

When making up this order for the basic spare part stock it is, of course, necessary that beside those points already mentioned before also the number of the corresponding regional depots is taken into account as well as the distribution schedule indicating in which districts the machines are considered to operate.

This order has to be made up and placed so early that

the procurement time by the manufacturer,
the transport and importation regulartions

are settled at least two months prior to the actual requirements, leaving two months for the ordinary stocking in the central store and the distribution in the country itself as well as to the regional depots.

To ensure such a working procedure the appreciation and co-operation of the importing country and the importer respectively is also necessary to the full extent so that the whole complex of questions including timely financing can be settled carefully.

For future procurement it is of vital importance that by means of a reasonable requirement investigation the actual demand is found out and recorded so that subsequent orders can be worked out in time and above all only those parts are subsequently disposed which are actually required.

These aspects are often not noticed or not considered and cause in such a case increased demand of capital and foreign exchange which is completely uselessly employed if parts are re-ordered which are not frequently used; in other words:

The whole spare parts business in the respective importing country must be transparent after two working periods at the latest.

In the central store of my company which manufactures special machines in series production and supplies them world-wide are stored more than 36.000 items.

With only 2,8% of these 36.000 items, that means with only 100 items, we covered 50,9 % of the total demand during the past financial year.

55,4 % are so-called intermediate parts which are only required on older models or in case of mayor repairs, as for instance for general overhandling actions.

41,8 % of these 36.000 items are available for very old or completely new models with actually no demand during the current year.

Owing to a positive attitude of the manufacturing company and for reasons of loyalty to products the parts for the very old models are stored in small numbers.

As soon as in the respective country this transparency of the spare parts business is achieved and ensured to a certain degree a rational, early, and economical procurement is not a problem anymore.

This vital transparency of the spare parts policy can only be created if the spare parts supply is built up as a system from the side of the supplier as well as the machine user and operates effectfully by close co-operation from both sides.

And now we are reaching the second basic point:

Storage of spare parts

When procuring the basic spare parts stock respectively when setting up the first order and when establishing the storage system, very often it is economized too much and exactly on the wrong place.

To recognise the full range of this problem there is no other choice but to put the clear question and to figure it out with a pencil:

What does it cost for example to have parts for 1.000 $ more on stock than being needed?

In the end it only will cost the interest of the capital; and even with the interest rates today being comperatively high all over the world that is after all ten times cheaper than a situation

where machines are stopped in one country due to spare parts shortage,
where machines can not be used 2, 3, 4 weeks or longer
where spare parts have to be reordered by costly telephone calls from continent to continent and to be flown in.

Out of my own experience I would like to say: Here we are touching an essential problem of spare parts supply. At the wrong time it always is economised too much and then during the period of operation the above mentioned spare parts for 1.000 $ have to be flown in, the air freight charges for these parts amounting to 1.500 $.

And where remain economy and the obligation to guarantee a good service to the machine user in this case, where remains common sense?

A real example that occurred just recently in Europe:

A larger combine harvester, value 10 to 12.000$, can only be used 6 to 8 weeks every year, because the harvest period is not any longer.

If this machine comes to a standstill for only one day due to just one spare part that probably has a value of 2 or 5 $, the owner will suffer a loss of 480 to 600 $.

What difference does it make if the concerned spare part costs 5 instead of 4 $, but can be supplied from the regional depot within 3 minutes; and how enormous will be the losses if a machine for production comes to a standstill, if the necessary spare part is not available and the whole production of may be 300, 400, 500 employees or more has to be interrupted?

Every customer will confirm to us that not the price of a spare part but the quickness of delivery is the decisive factor.

A good spare parts service requires a lot of money from all of us.

These costs are already occurring when procuring spare parts and by using fast procurement - quick service by aeroplane in emergency cases - the graph of costs is climbing up rapidly.

For the machine user it is therefore much better and cheaper to pay one dollar more and to avoid a loss of 480 to 600 $ (notice real example) by getting the genuine spare part that is guaranteeing him the correct functioning of the machine in a fraction of time.

With such a larger price of 1 to 2 $ the interest, the storage costs, the organisation, and the necessary personnel can be paid for and spare parts keeping becomes interesting to both partners. A really dependable spare parts service can only be obtained and guaranteed on this basis.

Apart from the questions already dealt about (on page 6 and 7) the following problems, too, do have an importance in connection with storage and distribution of spare parts.

a) a reasonable, dry building serving as a warehouse,
b) sufficient storage possibilities,
c) an appropriate shelf system,
d) a carefully planned system for storing spare parts (locater system) by which the whole spare parts policy in the country itself can be made and can be kept transparent.

A further presupposition for reaching this goal and for the functioning of every organisation is a minimum of orderliness and a reasonable and faultless functioning collection of all requirement datas.

To reach this aim the machine manufacturer will advise his partners in all countries and will train their personnal, so that with a minimum of capital a maximum of good organisation, proper functioning, and security of procurement can be achieved.

Presuppositions for this, however, also is the willingness of these partners to accept such proposals and to overcome existing problems of mentality so that the common aim can be converted into reality by joint efforts.

A simple way and a simple system are - at least in the beginning, in the run-in period - for sure more economical and functioning more expedient than a hypermodern, complicated system for which, may be, various presuppositions are missing.

Distribution in the country

In connection with procurement and storage various problems already have been discussed that also have an essential influence on the distribution in the country itself.
No difference what economical system is used in a country, when setting up a spare parts organization it is important that the partners who themselves are storing spare parts in regional depots or in work shops keeping them ready, and supplying them quickly are only then willing to do this in time, carefully, and properly when their means of livelihood are guaranteed.

Law regulations differ very much from one country to the other so that a general guideline cannot be dealt with here.

Based on habits, regulations, and laws in the country concerned both partners have to select and use the right way.

Goal of these efforts, however, has to remain to set up spare parts bases or regional depots in a country.

The more bases there are in one country, the better the customer supply and the lighter the load on the central store will be, avoiding many small part orders, back orders, and resulting of this air-requirements from the machine supplier.

Furthermore this way a safety stock is built up all over the country exceeding the normal urgent need, so a continuous, reliable supply is guaranteed.

When such a spare parts supply system exists the whole load of supplying does not only hit the central base, but the first phase of requirements is absorbed by the regional depots, the central base is not cleaned out right away, the supply base stays stable, and within two periods of operation the central base is gaining the necessary, many times already mentioned transparency for economical dispositions in the future.

This transparency is of decisive importance for procurement, storage and distribution. It only is gained

by a sufficient stock keeping during the starting period,
by a spacial and organizational adequate central base,
by the regional depots modified to the countrie's requirements
by an exact requirement investigation
an by a simple order processing

The circle is closing itself.

I have pointed out many times that the transparency

in procurement
in storage and
in distribution

produces the general view so that

the right parts
in the appropriate quantity
at the right time
in the right place

can be supplied.

Good will and understanding on both sides for the problems of both partners are the best guarantee and the best presupposition to solve properly even the most difficult spare parts problems.

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