Asprova's "Pocket manual" series No.5

Organizing orders

Add data

Here we introduce a method that uses the auto-replenishment production function to generate medium-term product orders in one-to-one format and then has workers make decisions and organize those replenishment orders.

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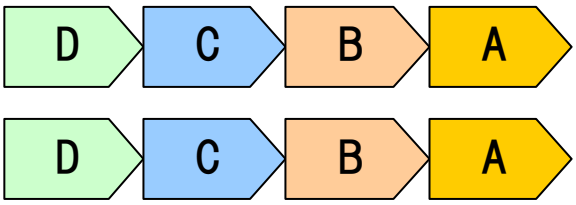
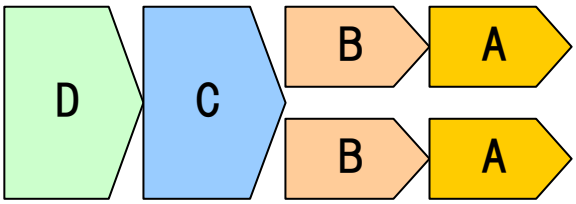
Requirements

Here we present an example of the master for four processes (A, B, C and D). Auto-replenishment will be set up for each of the processes. If there are two orders (registered orders) in process A, an auto-replenishment orders will issued for each and six auto-replenishment orderswill be issued, two each for B, C and D.



▲Fig. 1 An illustration of eight orders in four processes. The four are indicated as A, B, C and D.

Human employees then decide and organize the intermediate process based on such facts as order delivery date, product and assigned position for the order. They will organize process C for example. When they do that they will want to recursively organize the previous process line from systematized data.



▲Fig. 2 The orders in processes C and D are organized as shown here.

After organization, orders can be obtained as they are even if rescheduled.

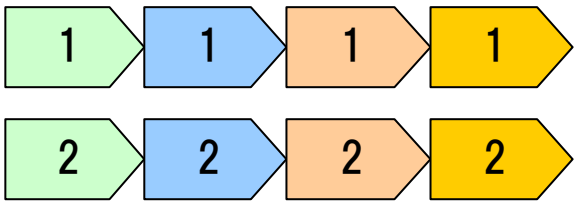
What kind of guidelines do we setup?

To replenish the order shown in Fig. 1 using the auto-replenish production function, **we have to first consider** whether to set the product class's "auto-replenish flag" to **which** auto-replenish production function; either "Yes (one-to-one production)", "Yes (inventory + one-to-one production)" or "Yes (supply-demand adjustment one-to-one production)". However, these settings make auto-replenishment difficult to achieve when we consider the subsequent organization shown in Fig. 2. That is almost enough to make us give up on auto-replenishment production and to test what can be done with a plug-in. However, there is a way we can achieve auto-replenishment with "auto-replenish flag" set to "Yes".

If we simply set the auto-replenish flag to Yes, then we have to set "Production lot size MAX," and we would then be unable to replenish an order one-to-one as Fig. 1 shows. To overcome this, we devise a small contrivance in which we use the product class's "Pegging condition."

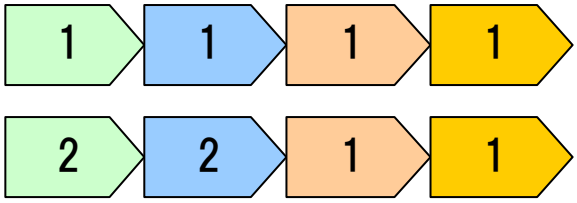
Help
"Auto-replenishment production"(HelpNo.:774000)
"One-to-one production"(HelpNo.:776050)
"Sample J"(HelpNo.:915000)
"Sample R"(HelpNo.:923000)

Attaching a flag to an order is another way of providing settings that can be used for organization. For example, if two separate flags [1] and [2] are attached to two orders, those flags will be copied in automatically replenished orders. The situation after rescheduling will then be as shown below.



▲Fig. 3 Eight orders and their order flags

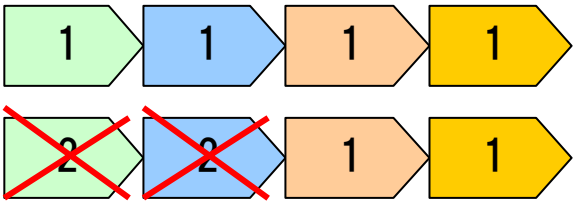
When process C is organized as shown Fig. 2 shows, subsequent order flags will be adjusted as shown in Fig. 4.



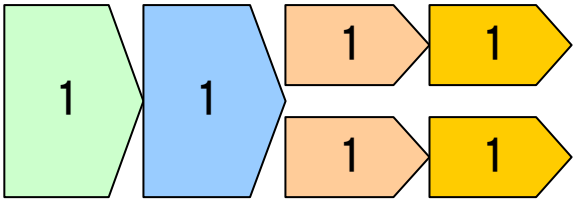
▲ Fig. 4 Flags for orders on one side of process A and B are all changed to 1

In auto replenishing after rescheduling, orders with flag 1 are organized by "pegging condition." However, the pegging destinations (demand-side orders) for replenished orders under flag

2 cannot be found and are deleted (see Fig. 5). Then, finally, the orders are organized as in Fig. 6. This is the same format as in Fig. 2.



▲Fig. 5 Flags for orders on one side of process A and B are changed to 1.



▲Fig. 6 Orders after being unified

Basic setting method

First add to the order class the properties used for flags which assign whether or not organization or unification will take place (see Fig. 3) Give the property the name "GroupID." The concluded order will be seen as one group. The pattern may be either character string or integer type. Use of the GroupID aids the decision as to whether the order will be unified.

	Order code	GroupID	Order type	Order class	Item
1	⊞01	1	Manufacturing order	Register	A
2	⊞02	2	Manufacturing order	Register	A

▲Fig. 5 Order table with the property "GroupID" added

Help "Adding new property definition"(Help No. 743210)

The "Auto-replenish flag" in the product item table is set to "Yes" and rather than setting nothing for lot size, the expression shown below is assigned to "Pegging condition."

ME.Order.GroupID==OTHER.Order.GroupID

	Item code	Auto-replenish flag	Pegging condition		Production lot size MAX	Production lot size MIN	Production lot size UNIT
1	⊞A	No	ME.Order.GroupID==OTHER.Order.GroupID	F			1
2	⊞B	Yes	ME.Order.GroupID==OTHER.Order.GroupID	F			1
3	⊞C	Yes	ME.Order.GroupID==OTHER.Order.GroupID	F			1
4	⊞D	Yes	ME.Order.GroupID==OTHER.Order.GroupID	F			1
5	E	No		F			1

▲ Fig. 6 Product item table

The pegging for each product item in this way means that only those with the same GroupID will be pegged. Next the GroupID for replenished orders is copied from the replenished order that was originally sourced. The expression shown below is assigned to "Replenishment manufacturing order property assign expressions" in Project Settings (see Fig. 7).

ME.GroupID=OTHER.GroupID

OTHER is the order in the replenishment source (on the demand side) and ME is the replenished order.

That ends assignment settings. The "Pegging condition" setup prevents organization when GroupIDs are different even when "Production lot size MAX" is not used. The the order in the one-to-one format shown in Fig. 1 will be replenished.

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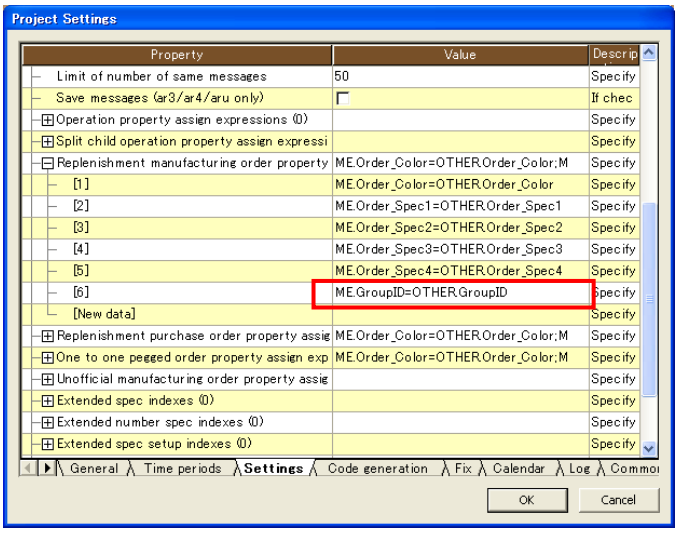


▲Fig. 7 The GroupID is copied into "Replenishment manufacturing order property assign expressions" in the "Project Settings" plan assignments

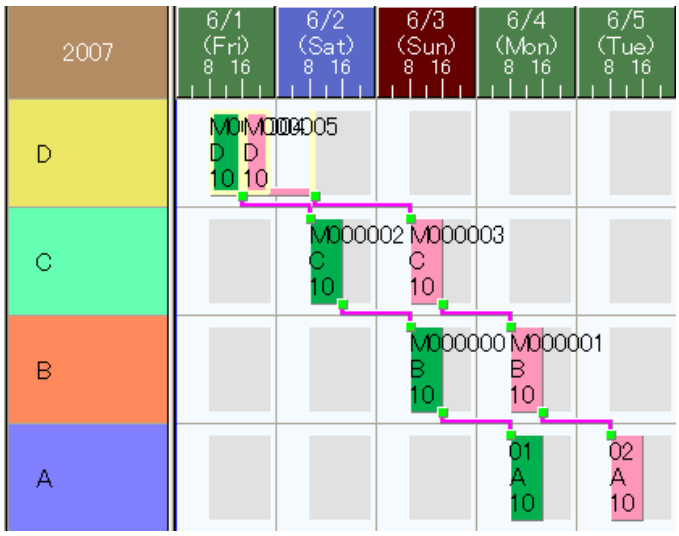
Let's try it

When rescheduling from the status shown in Fig. 5, the auto-replenishment production functions replenishes the order and "Replenishment manufacturing order property assign expressions" copies the GroupID (see Fig. 8)

	Order code	GroupID	Order type	Order class	Item
1	⊞01	1	Manufacturing order	Register	A
2	⊞02	2	Manufacturing order	Register	A
3	⊞M000000	1	Manufacturing order	Replenis	B
4	⊞M000001	2	Manufacturing order	Replenis	B
5	⊞M000002	1	Manufacturing order	Replenis	C
6	⊞M000003	2	Manufacturing order	Replenis	C
7	⊞M000004	1	Manufacturing order	Replenis	D
8	⊞M000005	2	Manufacturing order	Replenis	D

▲Fig. 8 Order table after rescheduling

The rescheduled order table and the pegging conditions expression determine that only items with the same GroupID can be pegged (see Fig. 9).



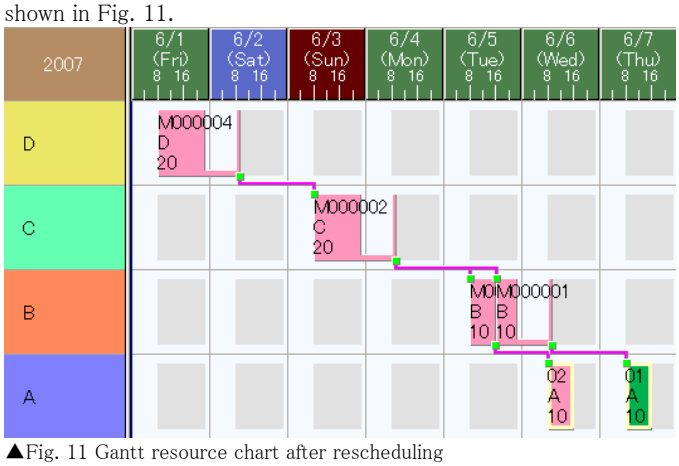
▲Fig. 9 Gantt resource chart after rescheduling

Now unify the processes prior to process C as shown in Fig. 2. At this time, orders in process A and process B have the same GroupID as shown in Fig. 10. When changing the GroupID for replenished orders make the order section registered orders so that the orders themselves will not be deleted.

	Order code	GroupID	Order type	Order class	Item
1	⊞01	1	Manufacturing order	Register	A
2	⊞02	1	Manufacturing order	Register	A
3	⊞M000000	1	Manufacturing order	Replenis	B
4	⊞M000001	1	Manufacturing order	Register	B
5	⊞M000002	1	Manufacturing order	Replenis	C
6	⊞M000003	2	Manufacturing order	Replenis	C
7	⊞M000004	1	Manufacturing order	Replenis	D
8	⊞M000005	2	Manufacturing order	Replenis	D

▲Fig. 10 Gantt resource chart after rescheduling

The results obtained after rescheduling will fit the requirements as shown in Fig. 11.



▲Fig. 11 Gantt resource chart after rescheduling

The order table at this time will be as shown below.

	Order code	GroupID	Order type	Order class	Item
1	⊞01	1	Manufacturi	Register	A
2	⊞02	1	Manufacturi	Register	A
3	⊞M000000	1	Manufacturi	Replenis	B
4	⊞M000001	1	Manufacturi	Register	B
5	⊞M000002	1	Manufacturi	Replenis	C
6	⊞M000004	1	Manufacturi	Replenis	D

▲Fig. 12 Gantt resource chart after rescheduling

Fig. 6 Product item table

If done by hand, the processing in Fig. 10 may present an impediment to operations. If such an obstacle occurs, it would be better to either automate using the "Virtual property inverse expression" or with a plug-in, to build a dedicated editing menu.

In conclusion

The methods discussed here for organizing and unifying orders are only examples. The methods do not have to be adopted, and you may consider them as mere references.

For more information

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