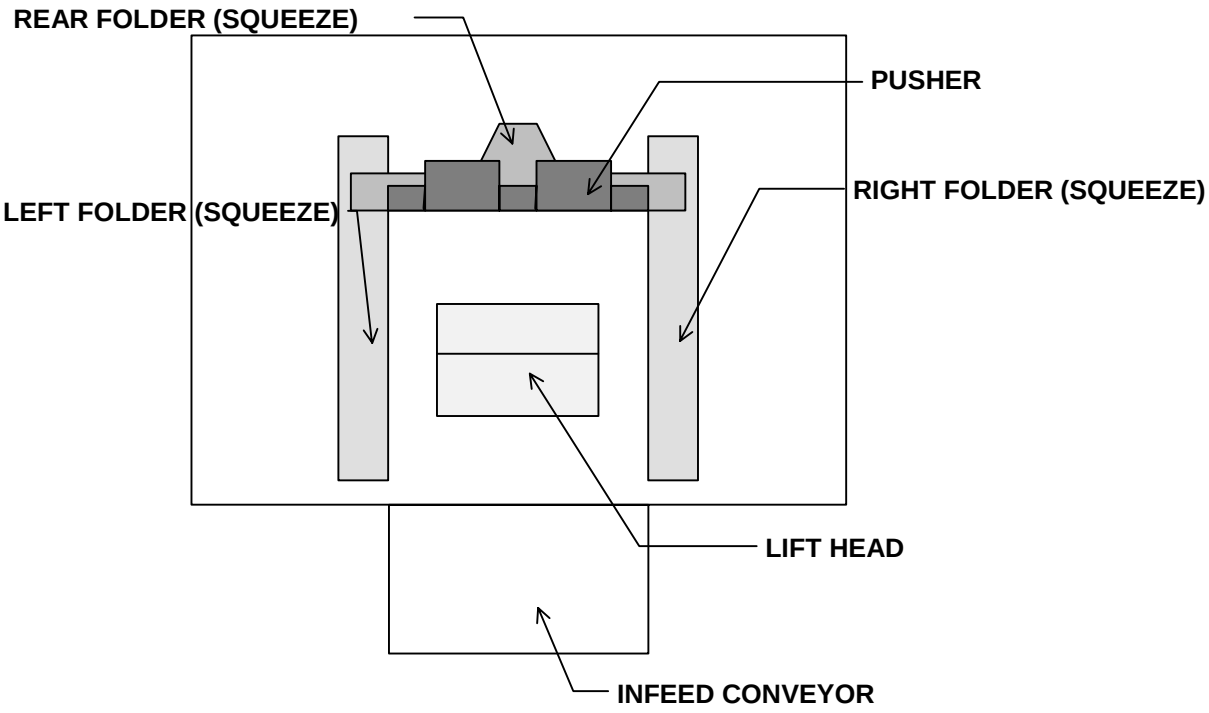
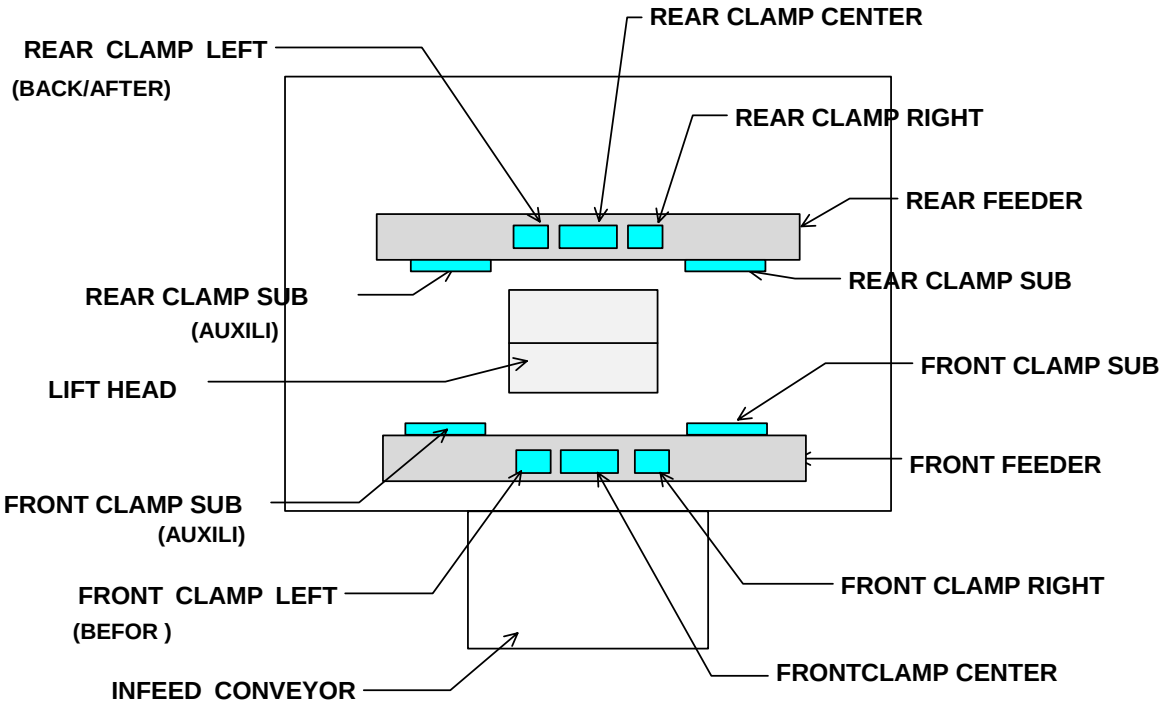
1 Explanation about machine movement to wrap.

1.1 The name of each part



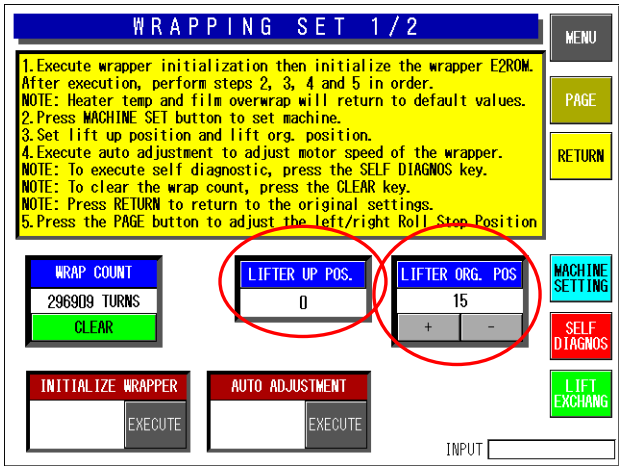


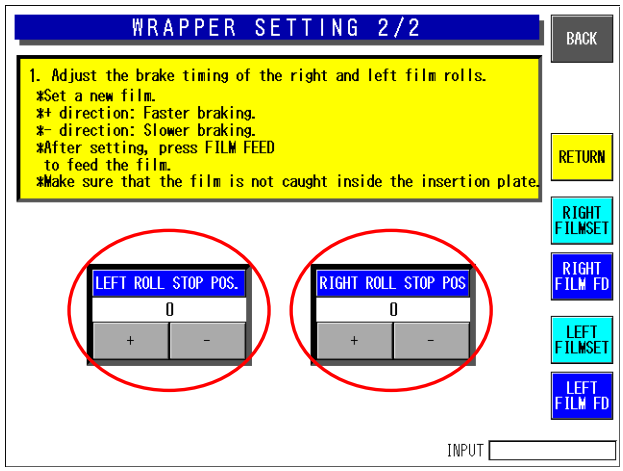
FEEDER

1.2 The conditions before Tray adjusting

Basic state

TEST MODE >> WRAPPER SETUP

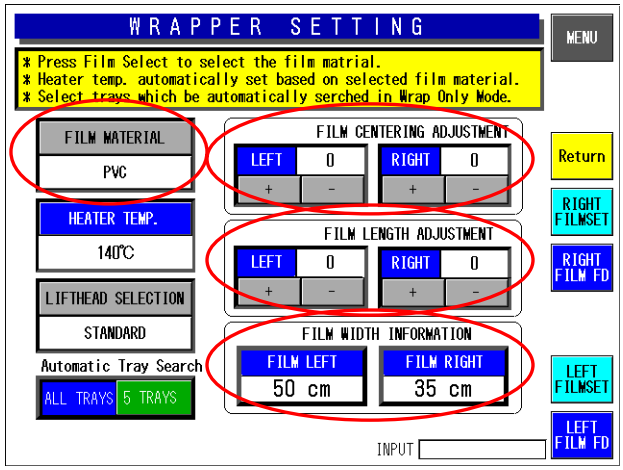




LIFT Original Position
LIFT UP Position

LEFT ROLL STOP Position
RIGHT ROLL STOP Position

SYSTEM MODE >> WRAP MACHINE



FILM Centering

FILM Length

FILM Width

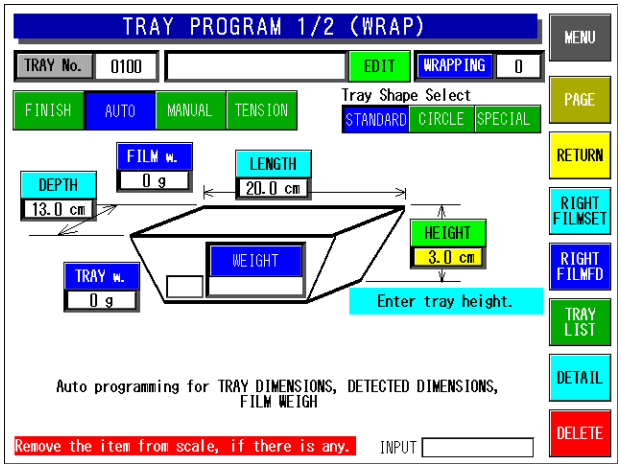
FILM MATERIAL

PVC	
Polyethlene 1	
Polyethlene 2	

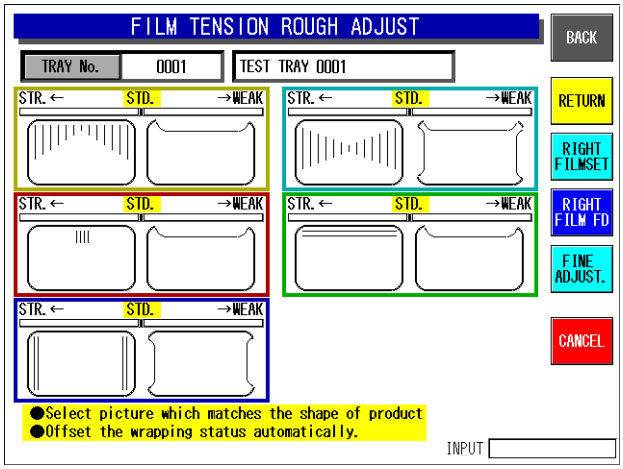
PVC: polyvinyl chloride
Polyethylene 1: The film of the extended characteristic.
Polyethylene 2: The film of the non-extended characteristic.

1.3 About a tray adjustment screen

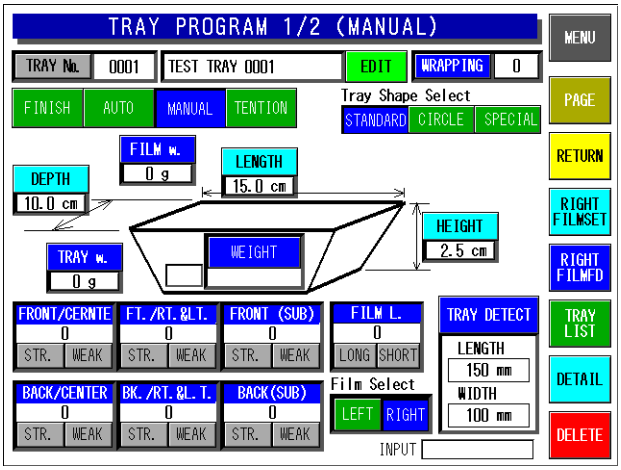
PROGRAMMING MODE >> TRAY MESSAGE



TRAY PROGRAM 1/2 (WRAP)



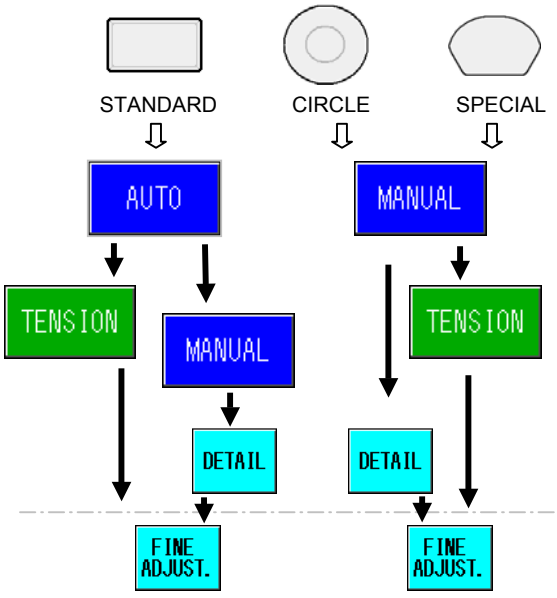
FILM TENSION ROUGH ADJUST



TRAY PROGRAM 1/2 (MANUAL)

Tray Shape Select:

STANDARD: Rectangular tray. Select Automatic mode when registering newly.
CIRCLE and SPECIAL: Even if new, registering by a Manual mode.



Note:
Camera detects a size of rectangle tray only.

In usual, it can process by the method of ROUGH ADJUSTMENT.
Exceptionally, it may process by the method of DETAIL and FINE ADJUSTMENT.

Note:
FINE ADJUSTMENT mode is only for maker.

AUTO Mode:

Rectangular tray only

Auto mode is setting the optimal data of machine motion corresponding to a tray size.
Conditions are the following.

Film material.
Film width.
Tray size (Height and Depth and Length).

The following element is machine motion to wrap.

The shift amount and timing of FEEDER
Releases timing of each FILM CLAMP
The amount of movements and timing of PLATE RIGHT LEFT FOLDER and PLATE LEFT FOLDER.
Timing which presses down, and its time of TRAY.

In auto mode, the following machine operation is also chosen automatically.

Film Select (LEFT or RIGHT)
Lift Change (SMALL or LARGE)

FINISH Mode:

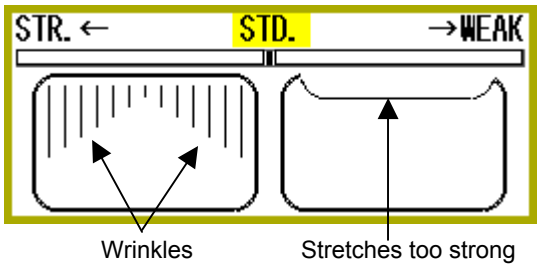
The tray which registration finished.
When adjusting, it carries out by the method of a MANUAL mode, FILM TENSION ROUGH ADJUST, and DETALL mode.

MANUAL Mode:

It carries out, when tray shape is CIRCLE or SPECIAL.
And the tray which registration finished.
Besides a tray size, also Enter the tare weight, film weight, and Film-Select.

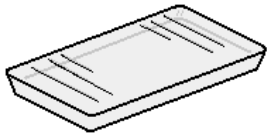
TENSION:

Adjustment of the tension condition of film can be performed.
When there are wrinkles, Push the「STR.」.
Stretches too strong, Push the「WEAK」.

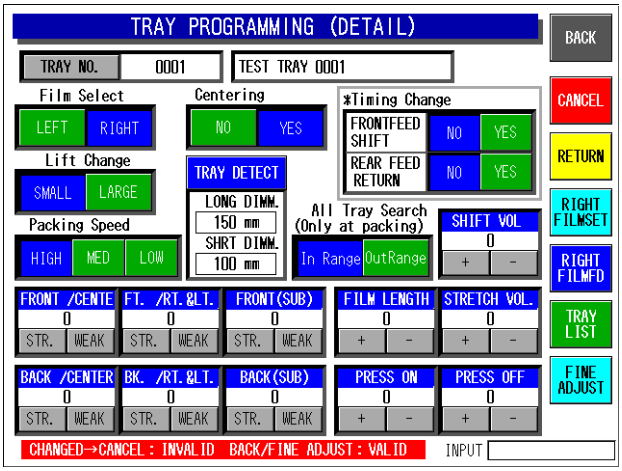


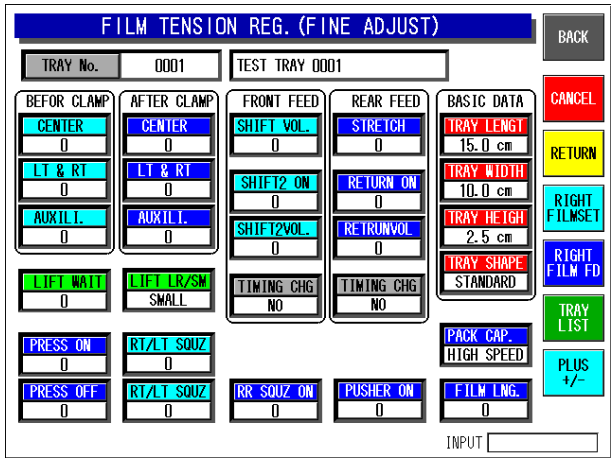
Note:
It becomes a reverse phenomenon when a tray is soft.

The state at the time of wrapping



In order that distortion of a tray may return after wrapping, the wrinkles of a film appear.





TRAY PROGRAMMING (DETAIL)

Operation to FINE TENSION REG (FINE ADJUST).

Enter “495344” using the numeric keys and press the [FINE ADJUST] button.

FILM TENSION REGISTRATION (FAINE ADJUSTMENT)

●Each item specifies the relative value over a default value.
The best numerical value is set to each item. However, all the numerical values displayed in early stages are transposed to 0.

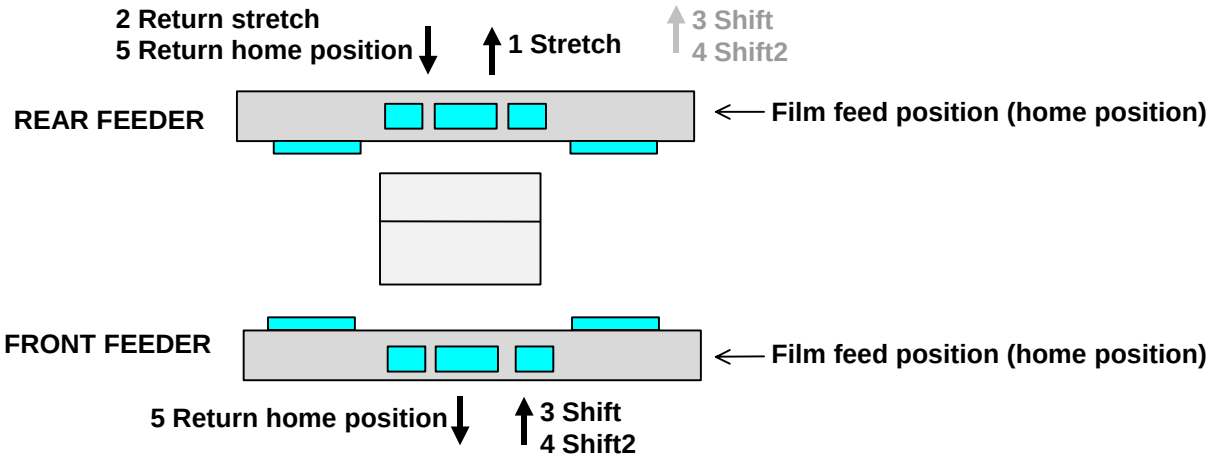
●The common item in TRAY PROGRAM (MANUAL), TRAY PROGRAMMING (DETAIL), FILM TENSION ROUGH ADJUST, and FAINE ADJUSTMENT is linked.

●The numerical value of each item can be inputted from -99 to +99. Even if it inputs the value exceeding the full limits of each item, operation by the full limits of the item is performed.
Full limits differ for every item. Moreover, it changes with tray size, film width, etc.

●Warning is displayed to input the setting value for which only the amount of stretches exceeds 20% of film width, and the setting value beyond a marginal value cannot be inputted.

Note:
FINE ADJUSTMENT mode is only for maker.
Machine may be damaged if a mistaken setup is carried out.
Therefore, don't operate it other than those with detailed knowledge.

1.4 About feeder movement



1) Stretch

After the conveyance of a film, only REAR FEEDER moves to the rear side. As a result, a film is lengthened.

The amount of stretches changes with tray size and film width.

The maximum of the amount of stretches is 20% of film width.

LIFT carries out a rise start after stretch completion.

Stretch is not performed when film material selection is [Polyethylene 2].

2) Return Stretch

It is the motion which returns a rear feeder in the direction of origin from the position which carried out the stretch.

The timing to which a rear feeder begins to move is a time of a rear clamp releasing a film. (Timing Change mode: Rear Feeder Return [NO])

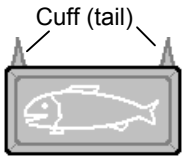
When tray form is [SPECIAL] or film material selection [Polyethylene 2], Return stretch is started before a film falls out from a REAR FEEDER.

3) Shift

As for a tray of depth 11cm or less, a cuff (tail) of the film by the side of a front feeder will overflow a tray.

A front feeder is moved to the rear side after the conveyance of a film. and film is reduce.

Shift is not performed when tray form is a circle and a special (fan) tray.



4) Shift2

Since the film of Hazama of a front feeder and a tray will become short if a lift is raised the long and slender tray and tall tray, a tray may be crushed.

Shift2 is in the middle of a lift rise, is moved to the rear side and reduces the amount of a front film, and the tension of a film.

Shift2 is not performed when tray form is a circle and a special (fan) tray. And film material selection [Polyethylene 2] is same.

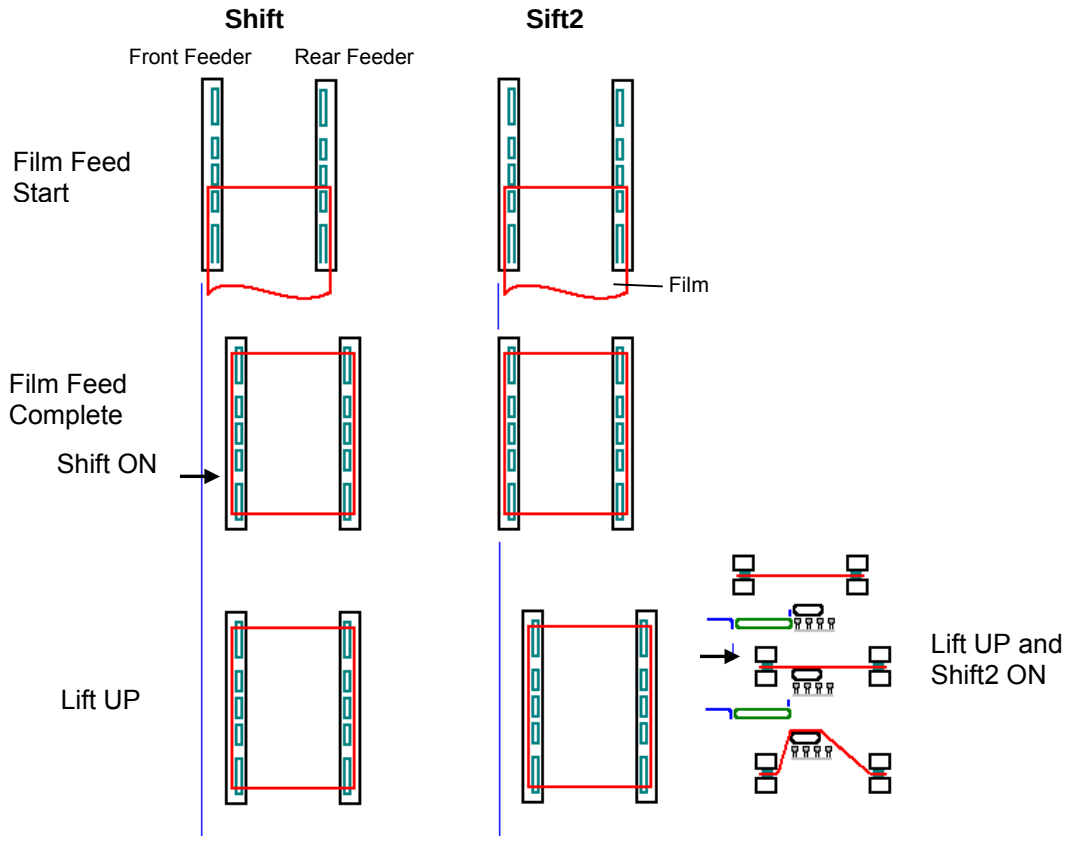
The amount of reduction of the amount of cuffs of a film has few shifts 2 than a shift.

Domain of Shift and Shift2

Standard Tray Length / Height (cm)	1.5	2.0	2.5	3.0
150	Shift	Shift	Shift 2	Shift 2
220	Shift 2	Shift 2	Shift 2	Shift 2
300	Shift 2	Shift 2	Shift 2	Shift 2

By a default, a Shift and Shift2 do not perform a tray with a depth of 12cm or more.

Timing of Shift and Shift2.



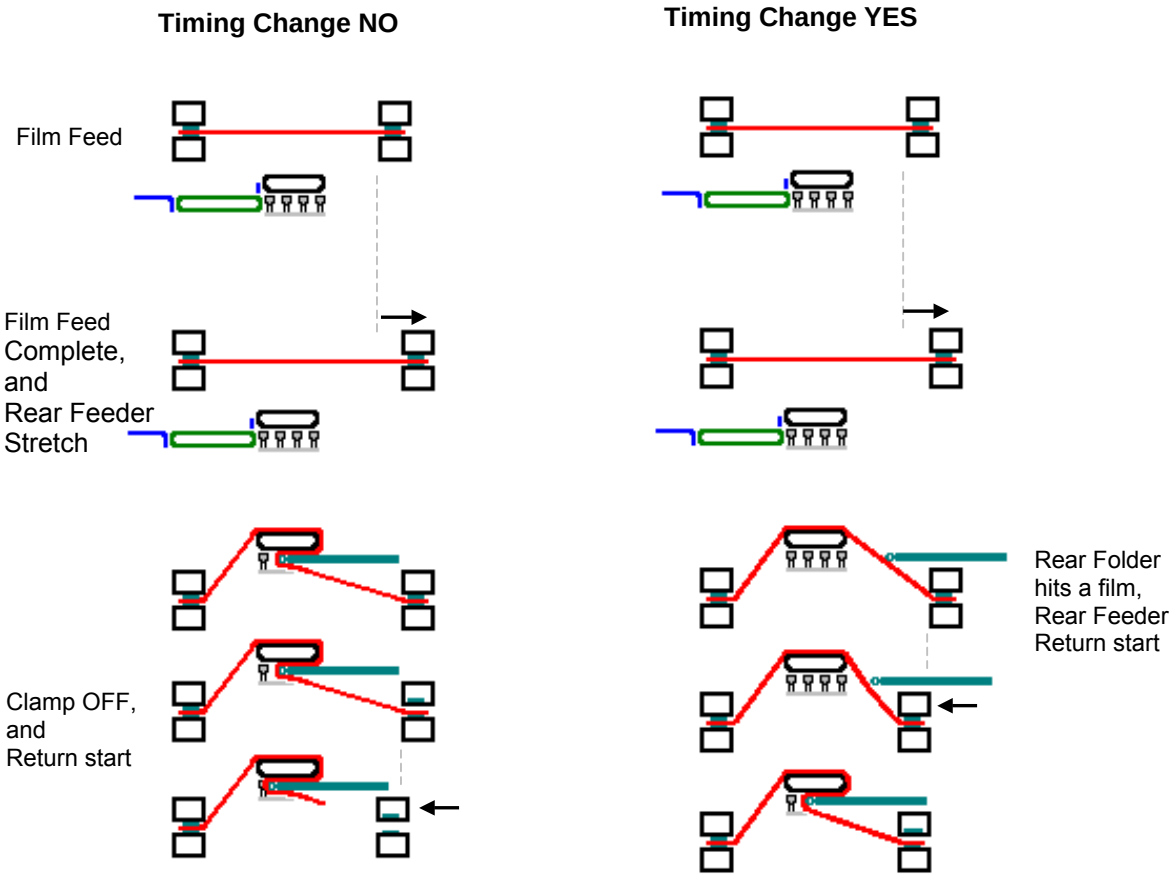
1.5 About Timing Change

1) Rear Feeder Return

It is used, when a tray jumps out or a tray is crushed, even if it carries out clamp adjustment.

It realizes by carrying out motion start timing of Return Stretch early.

A rear feeder is moved to which the Rear Folder hits a film about, the tension of a film is weakened, and a possibility that a tray will be pushed out or a tray will change by back iris diaphragm is made low.



2) Front Feeder Shift

It is used, when the front side of a tray breaks at the time of a lift rise or it is crushed.

A front feeder moves to the rear side at the time of a lift rise, and the tension of the film concerning a tray is weakened.

Although shift2 has the purpose which reduces the amount of cuffs of a film, since it is only the purpose for which timing change weakens the tension of a film, the timing which starts a motion differs from the timing of shift2.

1.6 About film tension adjustment

The tension of a film is adjusted by adjusting the grip time of a clamp.

If the value of (-) is inputted, grip time will become short and the tension of a film will become weaker. If the value of (+) is inputted, grip time will become long and the tension of a film will become strong.

1.7 Tray Pressure

A tray is pressed down when a tray passes through a heater top, in order to paste up certainly.

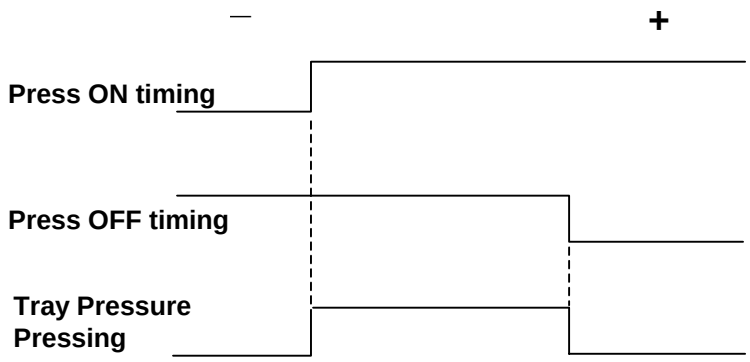
If the timing of ON of tray press is set up too early, Then tray may be jumped out or tray is crushed.

If too late is not pressing down.

If the timing of OFF of tray press is set up too early, Then tray may be not pressing down.

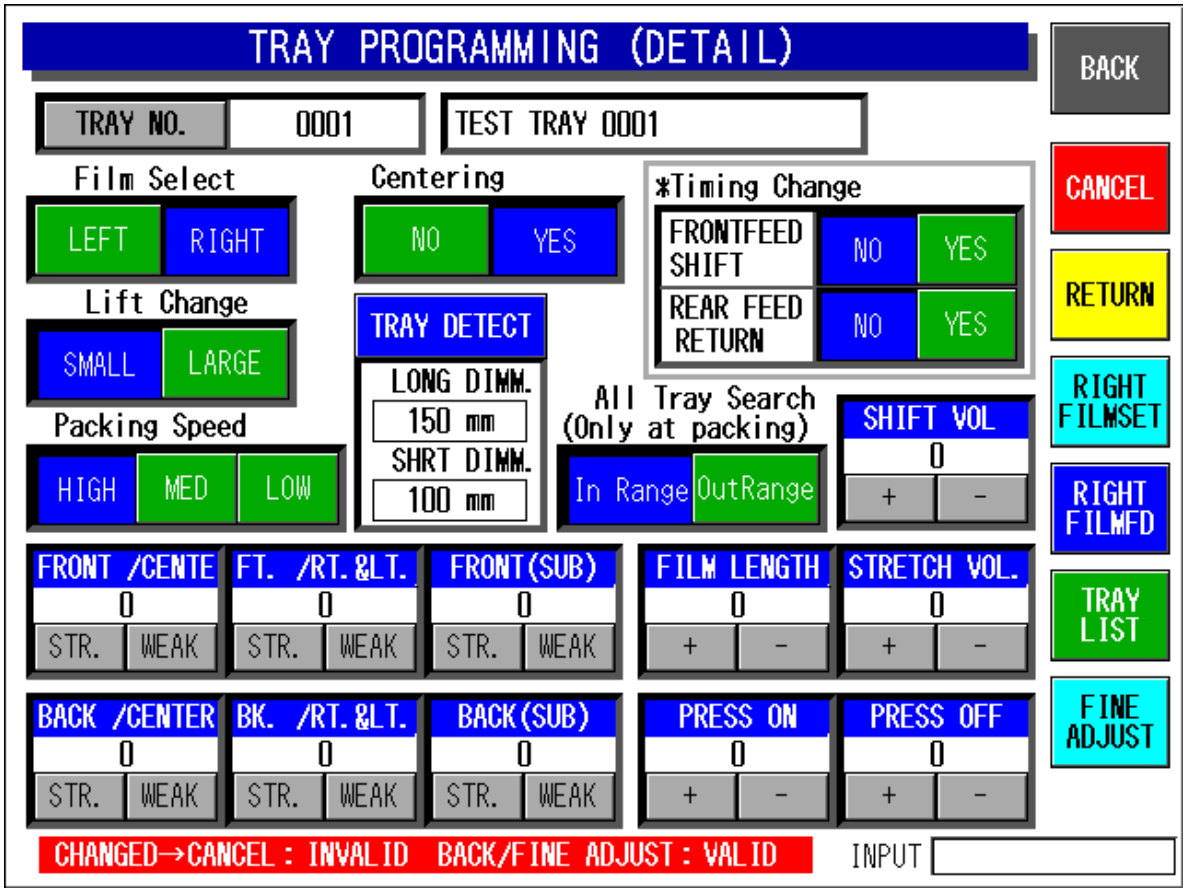
Since on-timing and off-timing will be reversed if TRAY PRESS ON=+99 and TRAY PRESS OFF=-99 are inputted, it does not press down.

This operation is effective in a bridge tray and a tray with a lid.



1.8 TRAY PROGRAMMING (DETAIL)

1) Screen



2) Function Keys

Item	Contents	Details and Notes	Selection and value	Remarks
Film Select	Select the film left or right	●In automatic registration, film width chooses the narrower one which can be packed to tray size. ●Refer [About the tray size which can be Wrapping]	Left/Right	2
Lift Change	Lift size small or large	●Automatic registration, when the size of depth is a tray of 20cm or more, a lift chooses large size.	Small/Large	2
Packing Speed	Packing speed	●Speed of LEFT/RIGHT SQUEEZE (FOLDER), and REAR SQUEEZE (FOLDER) and PUSHER can be changed. Speed of a lift is the same as a high speed and medium speed. ●If a circle and a fan are chosen in tray form, even when a display is high-speed, it will be changed into the working speed of medium speed inside.	High/Medium/Low	2
Centering	Tray centering conveyor	Select the "YES" is not concerned with the existence of tray detection , but centering is performed at the time of tray supply.	NO/YES	
Tray Detect	The detected size is inputted.	●A push of the frame of "TRAY DETECT" once will change the back of a character to yellow from blue. The detected size will be inputted, if a tray is put on the weight platter in the state of yellow and the frame of "TRAY DETECT" is pushed once again. ●In the case of detected tray size at 0, use by [tray Manual] only.	Tray size	
Timing Change Front Feeder Shift	The motion of Shift2 is carried out. But the start timing of a motion differs from Shift2. Front feeder moves to rear side at the time of a lift rise. A possibility that a tray will break is made low.	●It is not concerned with tray size. ●The tray which Shift by a default does not perform a Shift action. And the amount of movements of a Shift is moved at the time of a Lift rise. As for the tray which performs Shift2 by a default, the start timing of Shift2 of operation is changed. ●As for the tray on which a film adheres easily, since the tension of the film by a stretch becomes weaker before wrapping, the film on the surface of a tray may slacken. ●An overlap of the film at the bottom of a tray decreases.	NO/YES	2

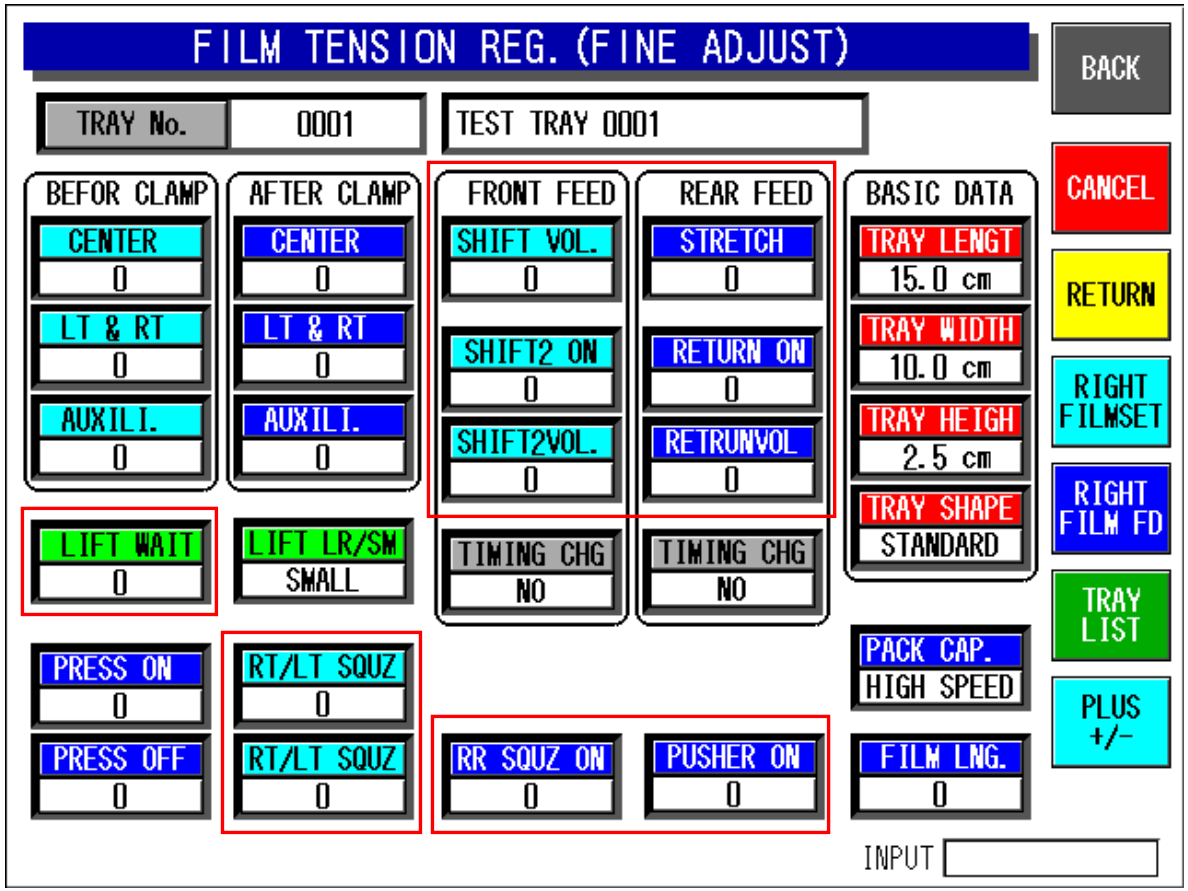
Item	Contents	Details and Notes	Selection and value	Remarks
Timing Change Rear Feeder Return	Start timing from which a rear feeder returns is carried out early. Before REAR ER reaches a tray, a Rear Feeder is moved to this front side, the tension of a film is weakened, and a possibility that a tray will be pushed out by REAR FOLDER is made low.	●As for the tray on which a film adheres easily, since the tension of the film by a stretch becomes weaker before wrapping, the film on the surface of a tray may slacken. ●An overlap of the film at the bottom of a tray decreases.	NO/YES	2
Clamp Front Center	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●If grip time is too long, the rear side of a tray will come floating greatly, and if too short, a tray will be pushed out by REAR FOLDERER diaphragm.	+1 : +10msec	1
Clamp Front Right/left	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●When it is a tray with narrow width, it cancels to the timing near an auxiliary clamp, and when it is a tray with wide width, it cancels to the timing near a central clamp.	+1 : +10msec	1
Sub Clamp Front	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●If grip time is too long, the film on the tray back side will be torn. If too short, wrinkles will occur.	+1 : +10msec	1
Clamp Rear Center	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●If grip time is too long, a tray will be pushed out by REAR FOLDER diaphragm. If too short, wrinkles will occur.	+1 : +10msec	1
Clamp Rear Right/left	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●When it is a tray with narrow width, it cancels to the timing near an auxiliary clamp, and when it is a tray with wide width, it cancels to the timing near a central clamp.	+1 : +10msec	1

Item	Contents	Details and Notes	Selection and value	Remarks
Sub Clamp Rear	The tension of a film is adjusted.	●If grip time is lengthened (the input value of + is enlarged), the tension of a film will become strong, and tension will become weak if it shortens (the input value of - is enlarged). ●If grip time is too long, the film on the tray back side will be torn. If too short, wrinkles will occur.	+1 : +10msec	1
Film Length	Adjustment of the cut length of a film can be performed.	●The minimum film cut length is 250mm. The maximum film cut length is 600mm.	+1 : +10mm	
Stretch Volume	Adjustment of quantity which carries out a stretch can be performed.	●The maximum amount of stretches is 20% of film width. ●The maximum of the film width after a stretch is 520mm.	+1 : +1mm	
Shift Volume	Adjustment of the quantity to Shift can be performed. The amount of cuffs of the film by the side of a front feeder is reduced.	●The maximum amount of movements is 25mm. (Shift + Shift2) ●Priority is given to Shift when Shift + Shift2 exceeds 25mm. ●If a shift amount is increased, the amount of stretches will also increase so that a film may not slacken automatically.	+1 : +1mm	
Press ON	The timing which it begins to press down is adjusted.	●The timing uses the counter which a PUSHER moves.(1cnt:1.067mm) ●The timing which it will begin to press down if the value of (-) is inputted becomes early. It will become late if the value of (+) is inputted. ●When the timing to turn on is too early, a tray jumps out. Or it may be crushed. Moreover, if too late, a film may not paste up.	+1 : +1cnt	
Press OFF	The timing which stops is adjusted.	●The timing uses the counter which a PUSHER moves.(1cnt:1.067mm) ●The timing which it will begin to press down if the value of (-) is inputted becomes ●early. It will become late if the value of (+) is inputted. If the timing of OFF is too early, a film may not paste up. Moreover, if too late, this front side of a tray may come floating and the film by the side of the back of a tray may melt. ●Since on-timing and off-timing will be reversed if TRAY PRESS ON=+99 and TRAY PRESS OFF=-99 are inputted, it does not press down. This operation is effective in a bridge tray and a tray with a lid.	+1 : +1cnt	

Remarks 1: The starting point of a timer is a same time with lift up. A start of motion cannot be carried out before a lift rise start.
Remarks 2: A default value is changed. The value on a screen does not change. Adjustment is changes to the default value.

1.9 FILM TENSION (FINEADJUST)

1) Screen



Except a red frame, it is the same as DETAIL.

2) Function Keys

Note:
FINE ADJUSTMENT mode is only for maker.
Machine may be damaged if a mistaken setup is carried out.
Therefore, don't operate it other than those with detailed knowledge.

Item		Contents	Details and Notes	Selection and value	Remarks
Front Feeder	Shift Volume	A Shift amount is adjusted. The amount of cuffs of the film by the side of a front feeder is reduced.	●The quantity of Shift can be adjusted by setting of [Timing Change ON]. ●The amount of limit movements is 25mm (Shift Volume + Shift2 Volume). Priority is given to a Shift Volume when shift Volume t + shift2 Volume exceeds 25mm. ●If the tall tray and the long and slender tray increase the shift amount, a tray may be crushed by tension of a film when a tray hits a film. ●If a shift amount is increased, the amount of stretches will also increase so that a film may not slacken automatically.	+1：+1mm	
	Shift2 ON	The start timing of motion of Shift2 is adjusted.	●A default is 120msec from a lift rise start. Operation is started before a tray hits a film. ●Also in the time of timing change selection, if the value of shift 2ON is made to fluctuate, the move start timing of a front feeder will change.	+1 : +10msec	1
	Shift2 ON Volume	A Shift2 amount is adjusted.	●The quantity of Shift can be adjusted by setting of [Timing Change ON]. ●The amount of limit movements is 25mm (Shift Volume + Shift2 Volume). Priority is given to a Shift Volume when shift Volume t + shift2 Volume exceeds 25mm. ●If Shift2 is inputted on the tray which performs Shift, Shift2 will be performed after Shift. ●Shift2 will be performed if the tray which does not perform Shift2 by a default also inputs the value of (+) into Shift2 quantity. ●Also in the time of timing change selection, if the value of Shift2 quantity is made to fluctuate, the amount of movements of a front feeder will change.	+1：+1mm	
	Timing Change	The motion of Shift2 is carried out. But the start timing of a motion differs from Shift2. Front feeder moves to rear side at the time of a lift rise. A possibility that a tray will break is made low.	This function is same, [Timing change Front Feeder Shift] of [Tray Programming (Detail)] mode.	ON/YES	2

Item		Contents	Details and Notes	Selection and value	Remarks
Rear Feeder	Stretch Volume	The amount of stretches is adjusted.	●The maximum amount of stretches is 20% of film width. ●The maximum of the film width after a stretch is 520mm. ●The part and Return Volume which fluctuated the amount of stretches are also fluctuated. Since an internal calculated value is changed, But does not appear on a screen.	+1：+1mm	
	Return ON	The motion start timing of return is adjusted.	●In a default value, after Rear Folder hits a film and a film releases from a rear feeder, operation is started. ●When tray form is a fan tray or film material selection Polyethylene 2, return operation is started before a film releases from a Rear Feeder. ●Since the tension of the film by a stretch will become weaker before packing if the value of (-) is inputted, a tray stops crushing.	+1 : +10msec	1
	Return Volume	The amount of movements of return is adjusted.	●Adjustment of the tension of a film can be performed with the quantity to return. When a tray is crushed, the quantity is mainly increased.	+1：+1mm	
	Timing Change	Return timing becomes early. Before Rear Folder reaches a tray, a rear feeder is moved to this front side. The tension of a film is weakened and a possibility that a tray will be pushed out by Rear Folder is made low.	This function is same, [Timing change Rear Feeder Return] of [Tray Programming (Detail)] mode.	ON/YES	2
Lift Waite		The standby time in the upper position from the completion of a Lift rise to a downward start is adjusted.	As for Wrapping, the direction which maintained the default value is stabilized.	+1 : +10msec	
Right/left SQUEEZE (Folder) ON		Right/left SQUEEZE (Folder) adjusts the timing which starts operation.	As for Wrapping, the direction which maintained the default value is stabilized.	+1 : +10msec	1
Right/left SQUEEZE (Folder) Volume		The amount of movements of Right/left SQUEEZE (Folder) is adjust ed.	When wrinkles do not decrease by adjustment of a clamp, it may cancel by changing quantity.	+1：+1cnt	

Item	Contents	Details and Notes	Selection and value	Remarks
RR SQUEEZE (Rear Folder) ON	Rear Folder adjusts the timing which starts operation.	●If the input value of (-) is enlarged, a possibility that a film will contact a lift head will occur. ●If the input value of (+) is enlarged, a tray will be pushed out by the discharge pusher before REAR ER completes narrowing down. An overlap of the film at the bottom of a tray may decrease.	+1 : +10msec	1
Pusher ON	Pusher adjusts the timing which starts operation.	●If the input value of (-) is enlarged, a tray will be pushed out by the discharge pusher before REAR FOLDER completes narrowing down. An overlap of the film at the bottom of a tray may decrease.	+1 : +10msec	1

Remarks 1: The starting point of a timer is a same time with lift up. A start of motion cannot be carried out before a lift rise start.
Remarks 2: A default value is changed. The value on a screen does not change. Adjustment is changes to the default value.

1.10 About the tray size which can be Wrapping

- Film material: PVC (MS-I), Packing Speed: High Speed, Tray Shape Select: STANDARD
- The range which can be packed is almost the same also about [Film material: Polyethylene 1].
- The range which can be packed is almost the same also about [Packing Speed: MIDIUM].

In fact, the adjustment value in various tray height is saved in software as a data table.

Standard Tray, High Speed, Film (MS-I), Film Width 250mm, Tray Height 25mm

●: Good ○: No Good Range which can be packed

Tray Length [mm]

Tray Depth	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
250																												
240																						○						○
230																									○			
220																												
210															○					○		○						
200												○		○	○		○					○						
190											○																	
180										○							○											
170												○		○		○	○											
160								○																			○	
150												○		○			○	○				○						
140												○					○					○				○		○
130					●		●		○			○				○	○				○	○				○		
120							●	●	●			●					○									○		
110						●	●					●			●				●									
100				●	●		●					●					●					●			●			●
90				●		●	●																					
80					●																							

Standard Tray, High Speed, Film (MS-I), Film Width 300mm, Tray Height 25mm

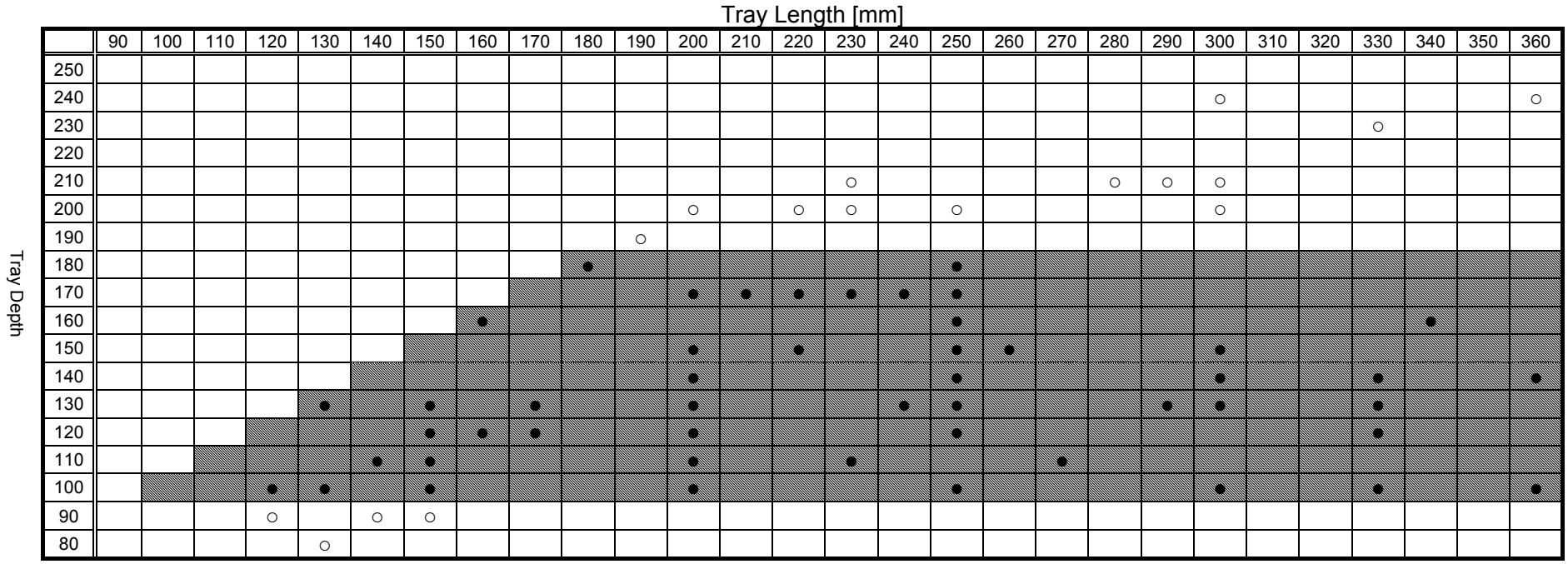
●: Good ○: No Good Range which can be packed

Tray Length [mm]

Tray Depth	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
250																												
240																						○						○
230																									○			
220																												
210															○					○		○						
200												○		○	○		○					○						
190											○																	
180										○							○											
170												○		○		○	○											
160								○																		○		
150							●	●	●	●	●	●		○			○	○				○						
140						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
130					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
120				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
110			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
100		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
90	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Standard Tray, High Speed, Film (MS-I), Film Width 350mm, Tray Height 25mm

●: Good ○: No Good Range which can be packed



Standard Tray, High Speed, Film (MS-I), Film Width 400mm, Tray Height 25mm

●: Good ○: No Good Range which can be packed

Tray Length [mm]

Tray Depth	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
250																												
240																						○						○
230																									○			
220																												
210															●					●		○						
200												●		●	●		●					●						
190											●																	
180										●							●											
170												●		●		●	●											
160								●																		●		
150												●		●			●	●				●						
140												●					●					●			●			●
130					●		●		●			●				●	●				●	●			●			
120							●	●	●			●					●								●			
110						●	●					●			●				●									
100				○	○		○					○					○					○			○			○
90				○		○	○																					
80					○																							

Standard Tray, High Speed, Film (MS-I), Film Width 450mm, Tray Height 25mm

●: Good ○: No Good Range which can be packed

Tray Length [mm]

Tray Depth	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
250																												
240																						○						○
230																									●			
220																												
210															●					●		●						
200												●		●	●		●					●						
190											●																	
180										●							●											
170												●		●		●	●											
160								●																		●		
150												●		●			●	●				●						
140												●					●					●			●			●
130					●		●		●			●				●	●				●	●			●			
120							○	○	○			○					○								○			
110						○	○					○			○				○									
100				○	○		○					○					○					○			○			○
90				○		○	○																					
80					○																							

Standard Tray, High Speed, Film (MS-I), Film Width 500mm, Tray Height 25mm

●: Good ○: No Good Range which can be packed

Tray Length [mm]

Tray Depth

	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
250																												
240																						●						●
230																									●			
220																												
210															●					●		●						
200												●		●	●		●					●						
190											●																	
180										●							●											
170												●		●		●	●											
160								●																		●		
150												●		●			●	●				●						
140												●					●					●			●			●
130					○		○		○			○				○	○				○	○			○			
120							○	○	○			○					○								○			
110						○	○					○			○				○									
100				○	○		○					○					○					○			○			○
90				○		○	○																					
80					○																							