Tetra Laval Food
Hoyer

Hoyer Hoywrap SL 80 TS

HOYWRAP SL 80 TS

Index

INSTALLATION MANUAL

Technical data

Shipping data, Hoywrap SL80TS:	Net weight: 1050 kg Gross weight: 1350 kg Dimension of wooden crate: 3120 x 1160 x 2150 mm
Shipping data, Packing table:	Net weight: 125 kg Gross weight: 225 kg Dimension of wooden crate: 2130 x 820 x 1240 mm

Voltage:	380 Volt / 3 phase, 50 Hz.
Load:	4.4 kW.
Capacity:	Max. 8.000 products per hour.
Min. speed:	2.000 products per hour.
Max. packing length:	230 mm.
Min packing lenght:	180 mm
Highest product:	48 mm
Max. roll diameter:	350 mm
Hole diameter/roll:	70-75 mm
Deliver unit:	2 paper/film rolls
Sealing rolls/ cutting unit:	Electronic heat control.
Conveyor:	Intermittent running.

Wrapping materials:

The following materials can be used for Hoywrap SL 80 TS:

- Paper.
- Film
- Hot and cold sealing paper.

Note 1: All with hot or cold sealing glue coating on one side of the web.

Note 2: Other wrapping materials may be used **but then** Tetra Laval Food Hoyer A/S is to be consulted in each case.

Note 3: Sealing with **hot melt** glue coating **cannot** be used.

Reception

The Hoywrap SL 80 TS machine is designed as a self-contained unit and as such is shipped secured to a wooden bottom plate and packed in a sealed wooden crate or in armoured plastic film.

The bottom plate is suitable for transport on a truck or forklift, and it is recommended that upon reception the machine is to be moved as close as possible to the erection site before unpacking starts.

Unpacking/inspection
If the machine comes in a sealed wooden crate, the unpacking is done most easily by first removing the crate's lid and then the side boards, one by one.

If, during the unpacking operation, any transport damage is found on the machine and/or the equipment supplied with it, immediate steps must be taken to hold the haulier or the shipping agent, respectively responsible for any such damage, i.e. they must be informed of the damage and made aware that a claim for damages may be made. At the same time, Tetra Laval Food Hoyer A/S and possibly the insurance agent should be contacted.

Equally, Tetra Laval Food Hoyer A/S must be informed immediately if the machine is found to be defective or any parts appear to be missing.
When all packing material has been removed from the machine, the machine can be lifted free of the bottom plate by means of a truck or a forklift :

Lifting directions
See Fig. 1 before starting the lifting operation :

1. Insert the lifting legs under the machine as indicated by the arrow a in Fig.1.
2. Place the lifting legs, always keeping in mind that the machine's centre of gravity is placed in relation to the centre line.
3. Do not lift the machine higher than absolutely necessary because of the risk that it may tip over.
4. Mount (i.e. when the machine is still lifted) the supplied legs (4 pcs).
   See Fig 1. Pos.3.
5. Final mounting will take place on the supplied vibration damper (4 pcs).
   See Fig. 1. Pos 4.

Installation

Mounting

See Fig. 1

Note: Installation of the Hoywrap SL 80 TS must be carried out on the basis of the layout drawing accompanying the system.

- Carry out the levelling of the Hoywrap machine correctly placed on the legs/ vibration dampers.
- Mount the support, Pos. 5., at the Rollo machinery on the conveyor, Pos. 2.
- Attach the conveyor to the Hoywrap machine.
- Mount the coupling chain.
- Level the conveyor.

Power, connection:
Lead the electrical cables and control cables of the conveyor system to the electrical cabinet of the wrapping machine.
Installation: Cf. wiring diagram.

Compressed air, connection:
Connect the air system to the internal supply of compressed air system in the plant.

NOTE: The connections to power and compressed air should be carried out by authorized personnel in accordance with local rules and regulations.
This work are paid by customer, if nothing else is agreed upon.

HOYWRAP SL 80 TS

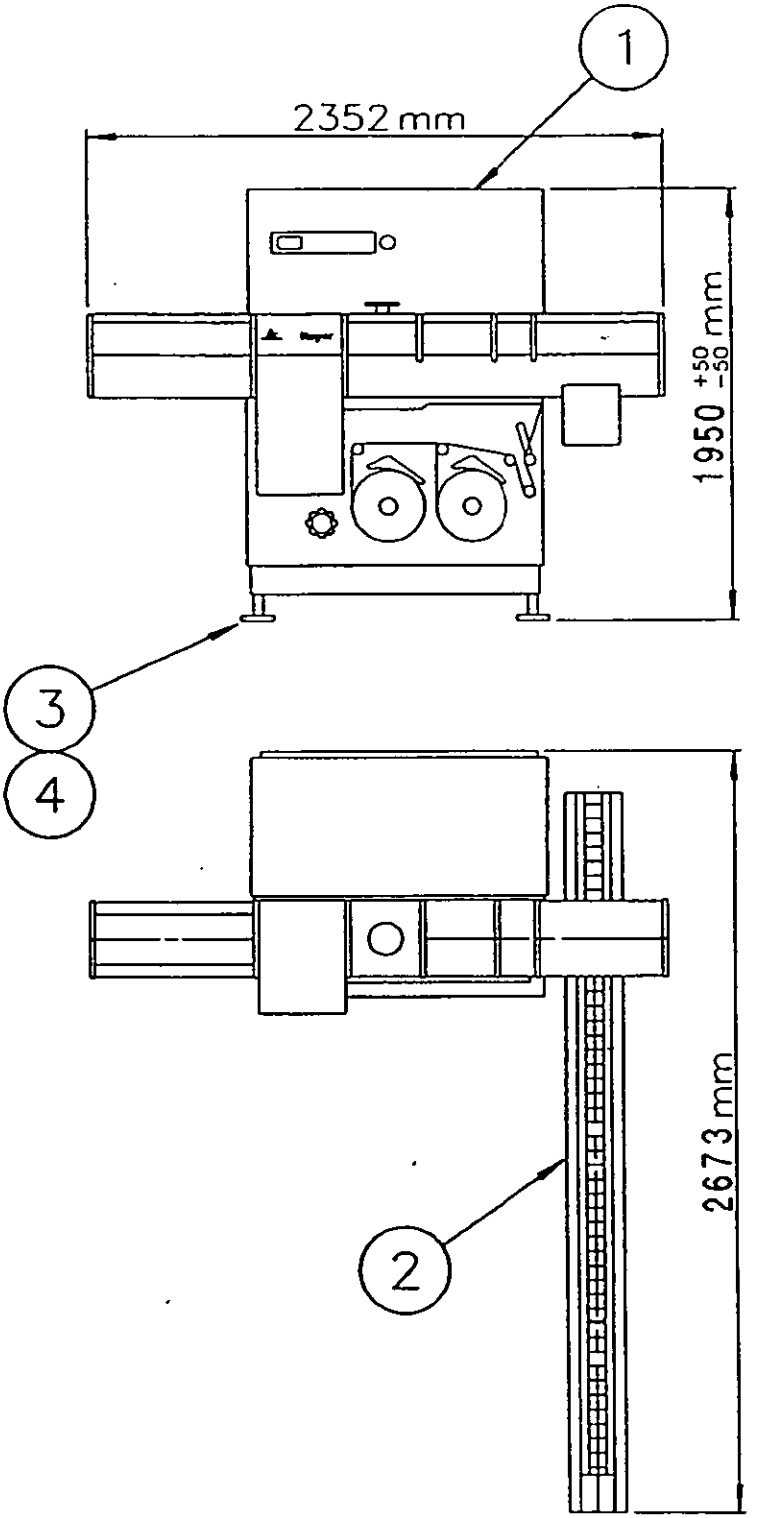

Fig. 1

Diagrams

- Wiring diagrams.

OPERATORS MANUAL

Safety instructions

The Hoywrap SL 80 TS machine is especially designed to meet high demands for reliability and safety of operation.

⚠ **Warning**
When the machine is running it must only be operated by educated personnel placed in the correct position at the various operating sections.

Exclusively, the personnel must only work with the machine by means of the respective handles, buttons, knobs etc.

Never

- bring parts of the body in contact with moveable parts or products while the machine is running.
- correct the product flow in case of irregularities before the machine's external connections have been switched off.
- remove safety guards and come in contact with internal workable parts unless the machine has been completely switched off.

Note

- All operating personnel should be thoroughly instructed and given full information about possible faults arisen either during working or servicing.
- All operators must be acquainted with the emergency switch and other precautions.
- All machine parts must only be used as specified in the manual.

Safety guards' function:

The machine will stop immediately if one of the two safety guards of the machine and/or the door on the backside is opened.

The "RESET" button must be activated after closing of the safety guards/door. The machine can then be started by activating the "START" button.

Control panel

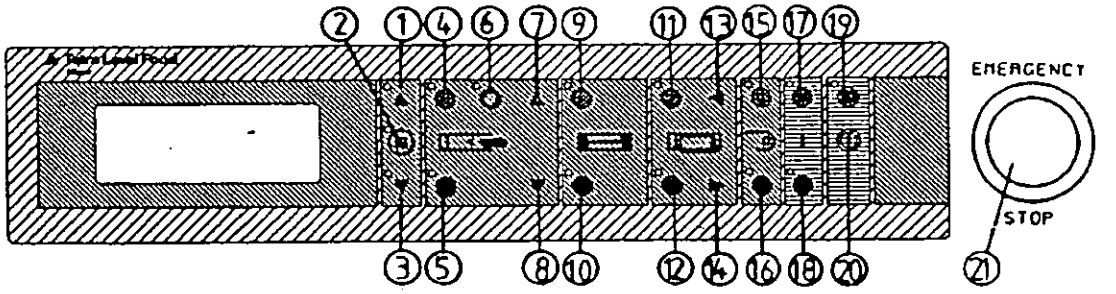

Fig. 2

Pos. 1. "UP" key:
Key used in conjunction with the OP94 text display.
LED indicates keying.

Pos. 2. "MENU" / "DATA" mode:
Key used in conjunction with the OP94 text display.
LED indicates current mode.

Pos. 3. "DOWN" key:
Key used in conjunction with the OP94 text display.
LED indicates keying.

Pos. 4/5 "START/STOP" of the wrapping machine:
LED's indicate current status.

Pos. 6 "JOG":
On activating the wrapper will run at jog speed as long as the button is kept down.

Pos. 7/8 "SPEED UP/DOWN".
During manual operation (program 0) it is possible to change the speed from minimum speed to maximum speed = 100% in steps of 1%.

Pos. 9/10 Heat seal, "ON/OFF".
LED's indicate current status.
Note: The length and cross sealing have separate controls and the temperature setting points can be modified by the OP94 panel.

Pos. 11/12 Photo registration, "ON/OFF".
LED's indicate current status.

Pos. 13/14 Photo mark, "FORWARD/BACKWARD"

Pos. 15/16 Outlet conveyor, "ON/OFF".

Pos. 17/18 Option I, "ON/OFF"

Note: Not used.

Pos. 19/20 "RESET ALARM". By pressing one of these keys, the alarm showed in the text display are reset. As long as the LED is on, there is an alarm present.

Pos. 21 Push/pull switch "EMERGENCY STOP". When the "EMERGENCY STOP" switch is activated, both the wrapping machine and the entire production line will stop immediately (line EMERGENCY STOP). Similarly, the wrapping machine will stop if another of the line's "EMERGENCY STOP" switches is activated.

OP 94 panel

The following describes the Hoyer OP 94 panel in connection with normal operation of the HOYWRAP SL 80 TS wrapping machine.

The OP 94 panel comprises a keyboard and a text display.

The OP94 text display is a vacuum fluorescent display with 4 lines each 20 characters wide.

The text display is controlled by the following 3 keys:

"UP" key: Text line or set point value +1

"DATA" key: Select MENU-mode or DATA-mode.

"DOWN" key: Text line or set point value -1.

MENU-mode
In the MENU-mode the LED at the "DATA" key is switched off. By activating the "UP" and "DOWN" key the text in the display will move one text line up and down respectively.

DATA-mode:
The OP94 panel can be brought in data mode by activating the "DATA" key. The LED at the "DATA" key will be switched on and values may be changed by means of the "UP"/"DOWN" keys.

Note: *If* the "UP"/"DOWN" keys are **not** activated for 3 seconds, the OP94 panel will automatically go back to the MENU-mode.

DATA-mode:

- A value may be changed by "1" by activating the "UP" and "DOWN" keys respectively.
- If the "UP" or "DOWN" keys are kept pressed down for a longer period of time, the actual value will be changed by "5".

Display texts

1. --HOYER OP94--

   HOYWRAP SL 80 TS

   -

2. Program Number ###

   The computer of the Hoywrap SL 80 TS wrapper can store up to 5 different production programs (program 1-5). Program 0 is a program for manual operation.
   Setting value: 0-5.

3. Wrapper Speed ###%

   #### Cuts/Min

   Display of actual wrapper speed in % of max. speed (line 1) and in number of cuts/min. (line 2).

4. Wrapper Counter ###

   Display of actual encoder value of the Hoywrap wrapper.
   Encoder value: 0-360.

5. Wrapper Sync ###

   Setting point ###

   Display of actual encoder value (line 1) for synchronization between the Rollo ("master" machine) and Hoywrap ("slave" machine) and (in line 2) display of value set for the synchronization.
   Setting range: 0-360.

6. Wrapper Stop Pos ###

   Setting of the Hoywrap wrapper's stop position.
   Setting range: 0-360.

7. Fin Seal Temp ### C

   Setting point ### C

   Display of actual length sealing temperature in folding rollers (line 1) and setting of this temperature (line 2).
   Setting range: 0-250° Celsius.

8. End Seal Temp ### C

   Setting point ### C

   Display of actual cross sealing temperature in sealing jaws (line 1) and setting of this temperature (line 2).
   Setting range: 0-250 ° Celsius.

9. Photo mark position ###
   Setpoint ###

   -Display of the actual photo mark position (line 1) and setting of this position (line 2).

Alarm texts

- "Heat Supply Overload"
- "Fin supply Overload"
- "End Supply Overload"
- "Fin Temp-Sensor Err."
- "End Temp-Sensor Err."
- "Encoder Error 11EC14"
- "Zero Pulse Missing"
- "No Interrupt Pulse"
- "Battery Low PLC"
- "Main motor Overload"
- "Main Motor VLT Error"
- "Main Motor Overheat"
- "Shield Switch Open"
- "EMERG.STOP ROLLO"
- "EMERG.STOP CONVEYOR"
- "EMERG.STOP WRAPPER"
- "EMERG.STOP ERROR"

Operating

Mounting and adjustment of wrapping material:

See Fig 3:

The distance from the centre line of the wrapping machine to the rectangle tube is 175 mm.

As the wrapping material has to be mounted symmetrically around the centre line the hub (A) must be placed correctly for the film/paper roll (D).

In order to find the distance from the rectangular tube to where the hub has been attached, half of the material width (b) is to be deducted from the centre line distance.

x = 175 mm - b/2.

The hub (A) is attached as shown on Fig. 3 along with pointed screw. After that the wrapping material and the front hub (B) can be mounted.

When the wrapping material has been mounted, check and if necessary fine adjust the setting in axial direction by means of the adjusting screw (C).

When replacing a new roll of film/paper the empty roll is just pulled out and replaced by the new one without changing of the hub (A).
Fine adjustment may be required.

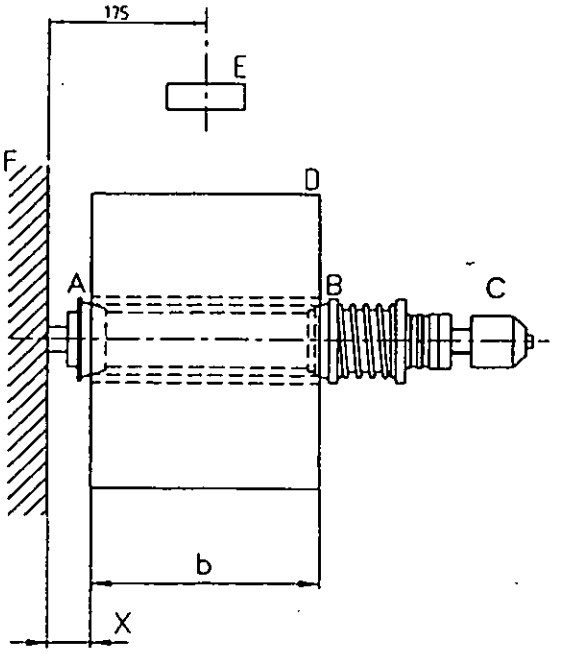

Fig. 3

Guidance of the wrapping material into the machine:

The wrapping material is guided through the machine as shown on Fig.4. and attached to the first set of sealing rollers.

Open by pulling the handle, pos. 4, Fig. 20.

On closing the safety guards the wrapping material can be guided through the machine by activating the "JOG" switch.

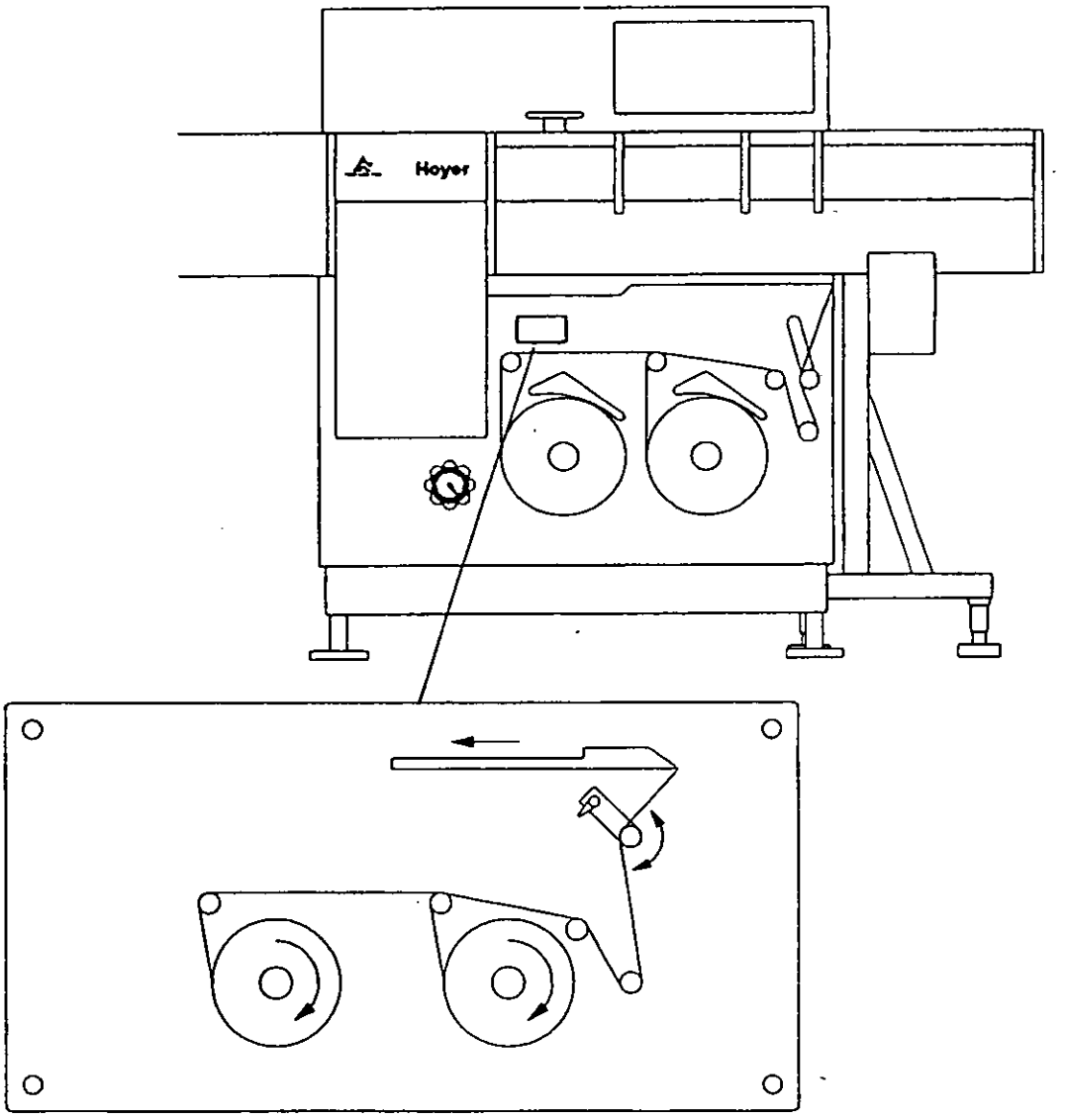

Fig. 4

Before start:
- Switch on the machine on the control panel (control current).

Note: The machine must be switched on at least half an hour before production with heat sealing.

- Control of synchronization:
  Activate the "JOG"- switch until all the conveyor pockets have passed the driving conveyor.

Note: The machine is not ready for operation at normal speed until this control has been carried out satisfactorily.

Note: Always start the machine at lowest possible speed.

Start/Operation:
- Switch on the machine for heating.
  Switch on the photocell control system.
- Insert the wrapping material.
- "Feed" the machine
  (as shown in Fig 4).

The machine is now ready for testing with empty packs and tests for wrapping speed and sealing temperature can be made.

Therefore the following should be verified:
- Bag length
- Cutting speed
- Time of cutting

Etc.

For further information see section "Adjustment of cross sealing" and "Adjustment of bag length".

Note: For adjustment of cutting speed and time of cutting call for service personnel.

When the machine is adjusted for a particular product, testing can be made with only few filled pockets. Further adjustments may be necessary.

When above mentioned procedure is carried out with success, the test can continue.

If the test is accomplished satisfactorily the actual production can start.

Stop

Switch off the machine for heating and control current.

Product flow through the machine

The product is placed in the pocket conveyor for machine wrapping.

At the transfer point the product is transferred from the conveyor to film/paper web which then takes care of the further transport by means of the sealing section rollers.

The guidance of products from pocket to sealing frame takes place by means of the packing lane. On their way from sealing frame to transverse knife the products are supported by a belt.

The sealing section serves to move the film/paper and product through the wrapping machine and to form the material into a tube shape.

From the sealing section the already wrapped product is moved by a conveyor belt and a revolving brush. This brush also serves to keep the top sealing jaw clean of sealing remnants.

Adjustments

1. Length sealing:

Adjustment of the height of the folding rack:

The height (B) is adjusted by means of the hand wheel (A), which is placed on top of the sealing section, see Fig 5.

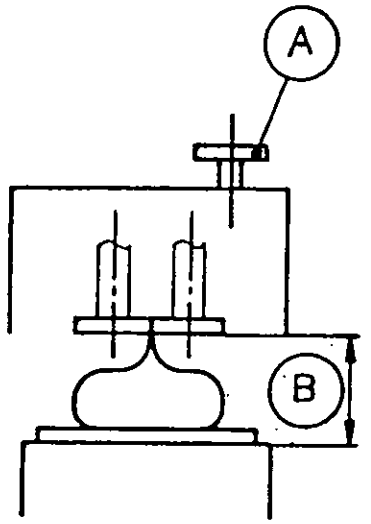

Fig. 5

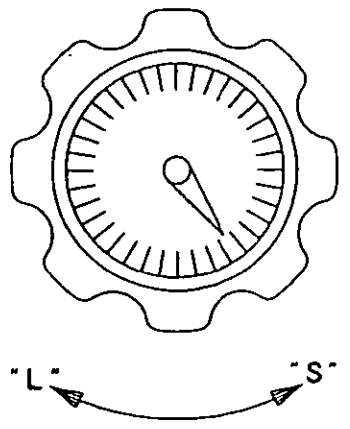

Fig. 6

"L" for longer bag.
"S" for shorter bag.

2. Bag length:

The length of the bags can be adjusted by means of the hand wheel, see Fig 6.

- If the hands are turned towards a larger number on the indicating dial this will result in a longer bag.
- If the hands are turned towards a smaller number on the indicating dial this will result in a shorter bag.

3. Temperature:

Adjustment of temperature is carried out via the electronic temperature controllers of the PLC unit.

- Adjustment of temperature on the length sealing rollers:

The sealing rollers serve the purpose of fusing together the two sides of the material to a sealing.

- If the heat is insufficient, sealing will not take place.
- With too much heat the two sides of the wrapping material will be melted apart.

- Adjustment of temperature on the end sealing jaws:

The jaws serve the purpose of sealing the wrapping material into bags around the products. Due to the temperature of the middle heating element in each knife the wrapping material shields and melts apart. If the temperature of the heating element is too low cutting will not take place.

4. Photocell control mode:

When using wrapping material in connection with photocell control, the wrapping material is supplied with a photo mark with a contrast colour in proportion to the wrapping material's primary colour.

It is important that there is not any print or colour (only primary colour) between the imprinted photo marks on the wrapping material, as these are registered by the photocell as photo marks, otherwise it will cause a breakdown.

Before start:

- Check the bag length by measuring the distance from **front edge to front edge** of the photo marks, Fig. 5.

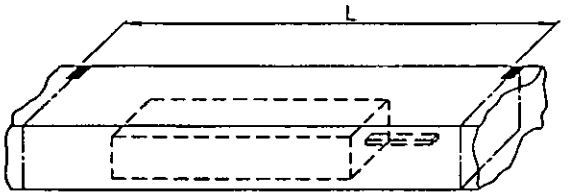

Fig. 7.

Start:

- Adjust the wrapping machine for required bag length:
  - Switch off the photocell control.
  - Start the wrapping machine.
  - Adjust the bag length by activating the hand wheel, Fig. 5, for shorter/longer bag.

Note 1: The machine **must** be running.

Note 2: The production can start if previous bag length is within the range of ± 1-2 mm of the desired bag length. Notify service personnel in case of larger fluctuations.

- Insert the wrapping material into the wrapping machine and fine-adjust the bag length as accurate as possible.
  - Adjust the wrapping machine for the required production speed.

Operation:

- Check the photo marks' travelling. The mark **must only** travel forwards. The travelling may surpass 5 mm from bag to bag. See Fig. 8 & Fig. 9.

5. Photo marks'travelling:

Forwards

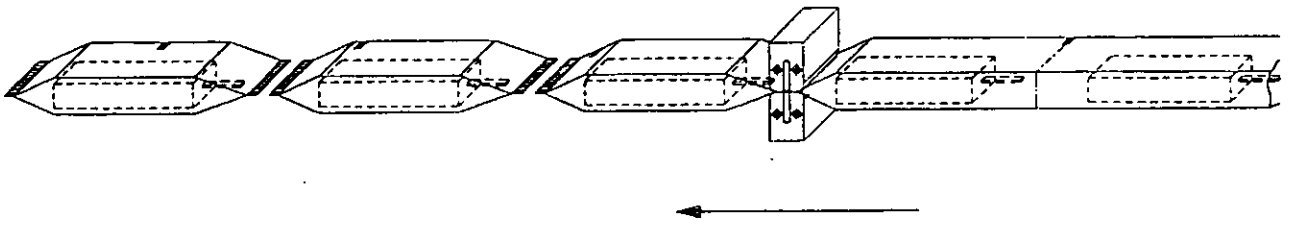

Fig. 8

- **The photo mark travels <u>more</u> than 5 mm forwards**
  The bag length is too long - the cross sealing rollers are running too quickly, see Fig.8.

  -Remedy: The bag length should be adjusted for shorter bags.

- **The photo mark travels forward <u>with a distance of 1-2 mm from bag to bag</u>**
  The bag length setting **is now correct,** -the cross sealing rollers are running with correct speed, see Fig.8.

Backwards

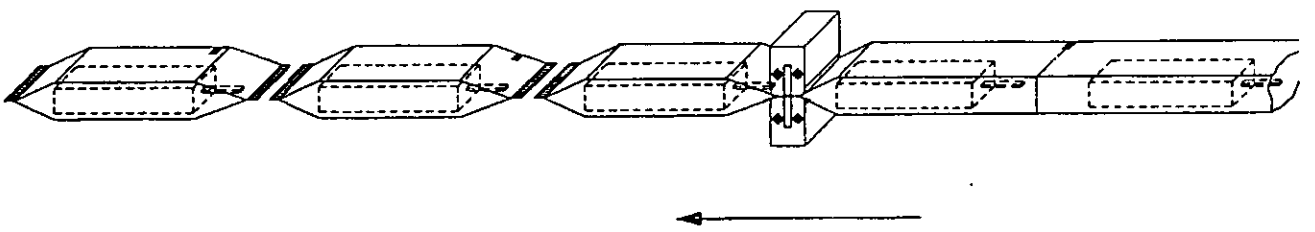

Fig.9.

- **The photo mark is travelling backwards**:
  The bag length is too short - the cross sealing rollers are running too slowly, see Fig. 9.

  -Remedy: The bag length should be adjusted for longer bags.

6. Registration control scanner:
See Fig. 10.

Check the placement and the adjustment of registration control scanner:

- The Photo eye on the registration unit is placed above the middle of the photo mark and with a distance of 7-10 mm.

- Check the contrasting colour of the photo mark in relation to the back ground.

- If the photo mark is dark in relation to the back ground the switch on the registration control scanner is adjusted on the dark mark in either red or green light area (Pos. 1.).

- A potentiometer is placed close to the switch. By means of the potentiometer the sensitivity can be adjusted,(Pos. 2.).

- At the moment the photocontrol eye registers the photo mark, the light-emitting diode on the scanner will give a short flash.
  Flash missing: Adjust sensitivity.

- A lamp,(Pos. 3.) will light when the photo mark is displaced (-in relation to the cutting position) by adjusting the photo eye.

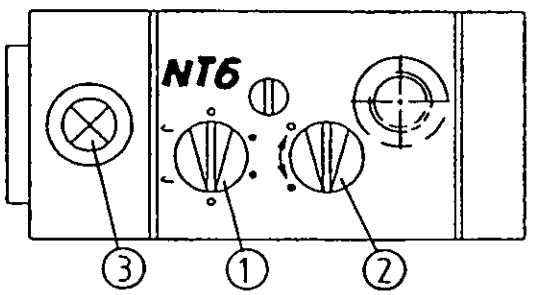

Fig. 10

- Connect the photocell control. The control system will adjust the photo mark in register automatically.

  - If the photo mark is light in relation to the background the reverser on the registration control scanner is adjusted on the light mark either in red or green light area (switch, Pos. 1.).

  - A potentiometer is placed close to the switch. By means of the potentiometer the sensitivity is adjusted (pos. 2).

  - At the moment the registration control scanner registers the photo mark, the light-emitting diode will give a short flash. Should it not be the case the sensitivity is adjusted.

  - A lamp, pos. 3, will light when the photo mark is displaced in relation to the cutting position by adjusting the photocell controller.

- When the machine is running "in register" it is possible to move the photo mark in proportion to the time of cutting.

  - This can be done by means of adjusting keys.See section "Control panel".

  - Adjustment can only be carried out when the photocell control is running "in register".

Cleaning

Daily cleaning:
Lift/remove the conveyor system, guards and the conveyor belt and clean all parts in contact with the products in warm (max. 80 °C) or cold water.

Important: Out of consideration for bearings, control panel and other electrical parts we must dissuade you from using a high pressure cleaner to clean the machine.

Avoid flushing where the water can reach the inner parts of the machine.

Weekly cleaning
Cleaning and control of slip rings and coal brush holders (approx. 40 working hours). Cleaning of centre and end sealing and removal of paper and bits of polyethylene (approx. 40 working hours).

Water separator
The water separator of the machine placed behind the electrical cabinet on the back plate must be emptied once a week.

Trouble Shooting

Note: If malfunction occurs e.g. wrapping material breaks or similar **call for service personnel.**

Service personnel can find the section "Trouble shooting" in the "Maintenance and Repair Manual".

Supplementary

Packing table
After cutting the wrapped products are led via a short belt to the packing table.

The packing table which is mounted perpendicularly to the wrapping machine, is on both sides equipped with adjustable shelves, to be adjusted for the applied box type.

When stopping the wrapping machine normally, both the inlet belt and the belt of the packing table will continue to run approx. 1 minute so that all the finished products are led out of the wrapping machine.

⚠ **Note, safety:**

-An "EMERGENCY SWITCH" is supplied with the packing table.
-Make sure that the "EMERGENCY SWITCH" is placed appropriately in relation to the operation personnel.

Guidance of products

Synchronization of pocket conveyor and inlet

By means of a flange of hub, Fig. 11 Pos. A, in the pinion for the pocket conveyor, it is possible to synchronize the pocket conveyor and the inlet conveyor.

The pinion unit with flange of hub is situated behind the sheet at the end of the machine under the pocket conveyor.

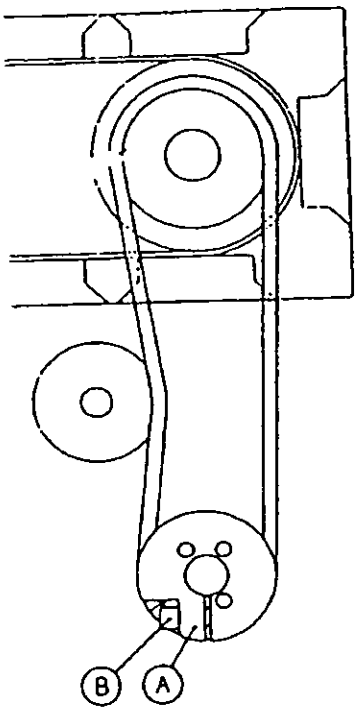

Fig. 11

Procedure:

- Loosen the screw,Fig. 11, Pos. B. Now the connection between the wrapping machine and the pocket conveyor is disconnected.
- Press the JOG-button until one of the register spades is placed in front of the pocket conveyor, Fig. 12, Pos C.
- Pull the pocket conveyor and place a pocket just in front of the register spade as shown, Fig. 12, Pos D.
- Tighten the lock screw, Fig.11, Pos.B. and the connection between the wrapping machine and pocket conveyor is re-established.

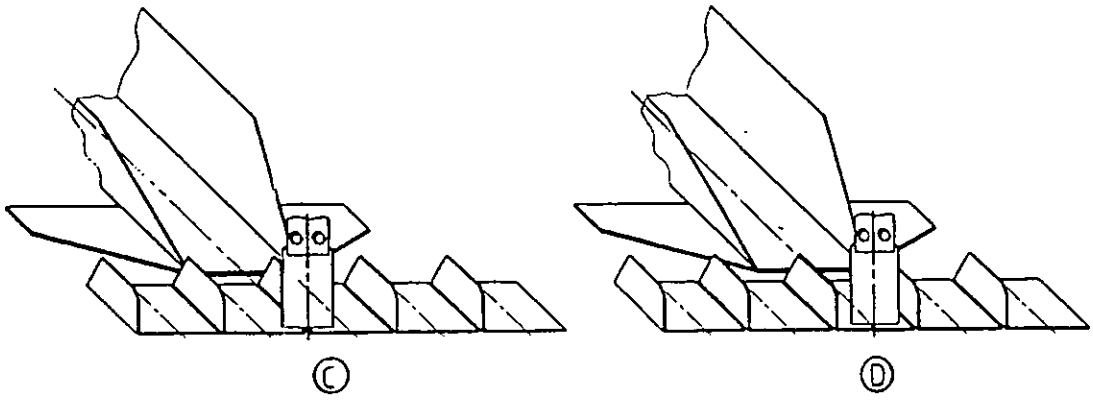

Fig 12

Height of pocket conveyor.
The pocket conveyor is mounted on a conveyor suspension.

The suspension block is provided with oblong mounting holes, Fig. 13, and can thereby be adjusted up and down 15 mm.

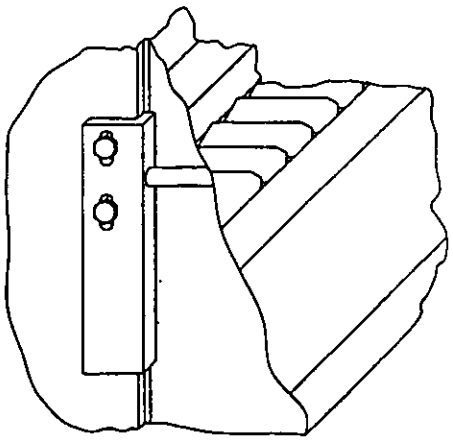

Fig. 13.

The ideal height of the pocket conveyor is determined by the register spades. The distance from the bottom of the pockets should be 3 to 5 mm, see Fig.14.

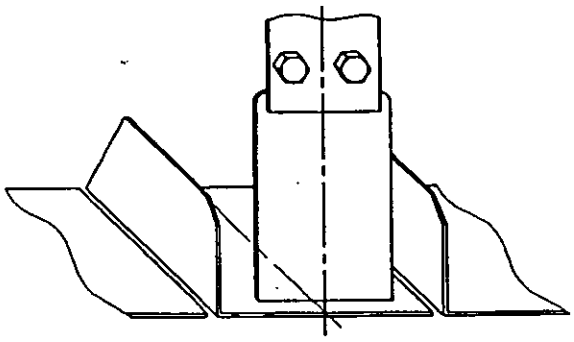

Fig.14.

Adjustment of belts
The wrapping machine is provided with an infeed belt and an outlet belt.
In both ends the belts can be adjusted in vertical direction.

- Vertical adjustment of the paper former at the pocket conveyor. See Fig. 15.

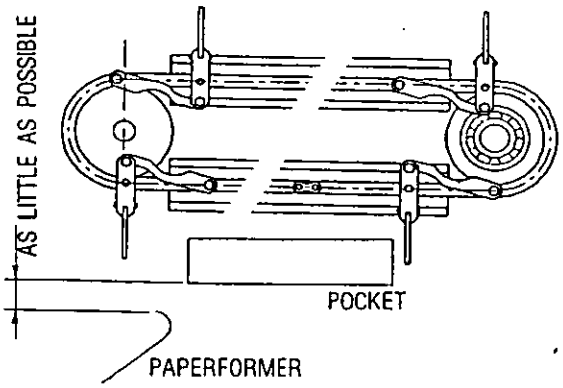

Fig. 15

The distance from the bottom of the pockets and down to the paper former should be as little as possible.

- Vertical adjustment of the infeed belt at the cross sealing. See Fig 16:

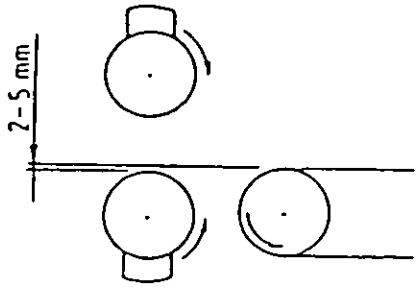

Fig. 16

The ideal distance from the surface of the infeed belt and down to lower knife shaft depends on the thickness of the product and is initially adjusted to 2-5 mm.

The thicker the products are - the smaller the distance should be, as in order to obtain a smooth product flow through the end sealing unit, the centre line of the product should be merging with the centre line of the cutting level of the knives. If not, further adjustment may be necessary.

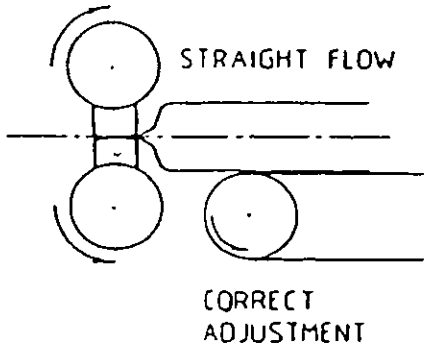

Fig. 17.

- Vertical adjustment of the outlet belt at the cross sealing. See Fig 18:

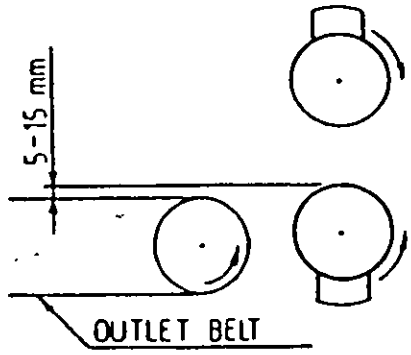

Fig. 18

The distance from the lower knife shaft and down to the surface of the outlet belt will normally be from 5 to 15 mm.
The ideal distance depends on the product.

Length sealing

Folding rack
Length sealing, See Fig 19 & 20.

The sealing is a combination of heat and pressure. Too much pressure will force the wrapping material out of the rollers. With too little pressure sealing will not take place.
The folding rack consists of 3 pairs of rollers, Pos. A, Pos. B and Pos. C (Fig. 19.).

Pos. A., Driving rollers:
The pressure between these two rollers should be just so high that it is possible - by hand - to pull the wrapping material backwards between the rollers without breaking it.

Pos. B., Sealing rollers
The sealing is a combination of heat and pressure. The ideal pressure is - like the required temperature - individual for each type of wrapping material and therefore difficult to state generally.

Pos. C., Fold-down rollers.
The purpose of this pair of rollers is to fold down the centre sealing and guide the film/paper out of the folding rack.

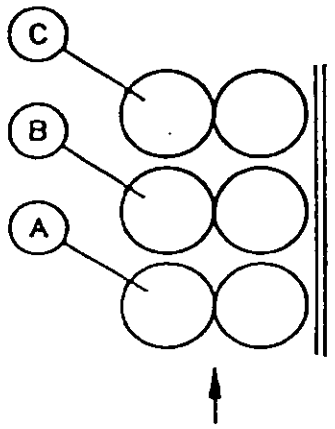

Fig. 19.

Adjustment of pressure between driving and fold-down rollers.
See Fig. 20

Adjustment of the pressure between the driving rollers and between the fold down rollers is carried out by 2 adjusting screws, Pos. 3. - one for each pair of rollers - placed on the front of the folding rack.
The more the screws are tightened the more pressure will be added to the springs, Pos 1. and thus also the rollers. Remember to tighten the counter nut, Pos. 2. after adjustment.

Adjustment of pressure between sealing rollers.
See Fig. 20.

The sealing rollers are mounted in a pivotal bearing housing fitted with an air cylinder which in case of breakdown pulls the one sealing roller away from the other. This to avoid melting the foil lane between the rollers.

On restarting, the air cylinder will be activated so that the rollers are brought back to the sealing position.

The sealing pressure between the sealing rollers can be adjusted by means of an air valve fitted with a manometer placed on the right side of the folding rack.

Note: This pressure **can** only be adjusted with open safety screen, i.e. machine is stopped.
The required pressure for a sealing depends on the quality of wrapping material. For that reason a certain running-in period is to be expected.

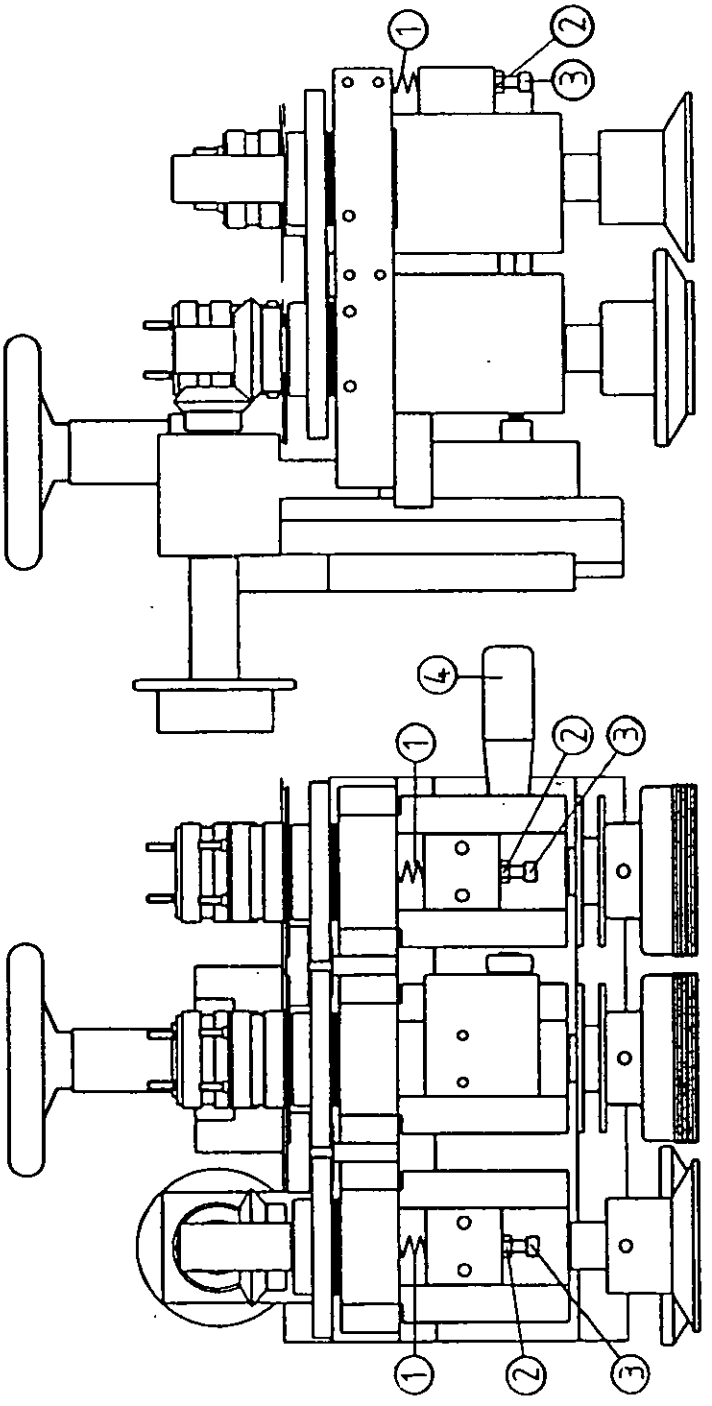

Fig. 20

Cross sealing and cutting

Adjustment of cross sealing speed
Speed of cross sealing and cutting is determined by the position of the top oval gear wheel, Fig 20, Pos. C, in proportion to the cross sealing jaws.

The speed of the cross sealing should be similar to the speed of the wrapping material. If not, adjustment of the speed of the cross sealing is necessary.

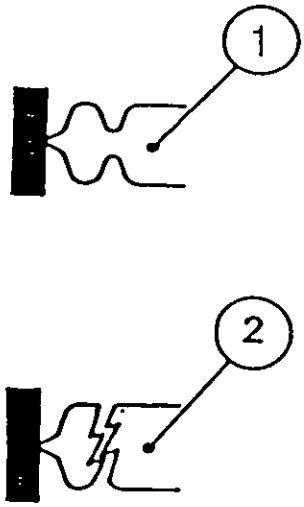

Fig. 21

Adjustment/example 1:
If the wrapping material crumples, Fig. 21, Pos. 1, the speed of the cross sealing is too slow.

Adjustment, see Fig. 22:
Loosen the 4 screws, Pos. B, on the upper oval gear wheel, Pos. C.
Turn the mark, pos. "M", Fig. 23, on the end of the shaft of the upper oval gear wheel in direction towards a larger number on the upper oval gear wheel.
Do this for instance by turning the gear wheel, Pos. A, mounted on the end of the top knife.

Tighten the 4 screws and test the cross sealing again.

Note: This adjustment of the speed of the cross sealing also moves the time of cutting. So this may have to be readjusted.

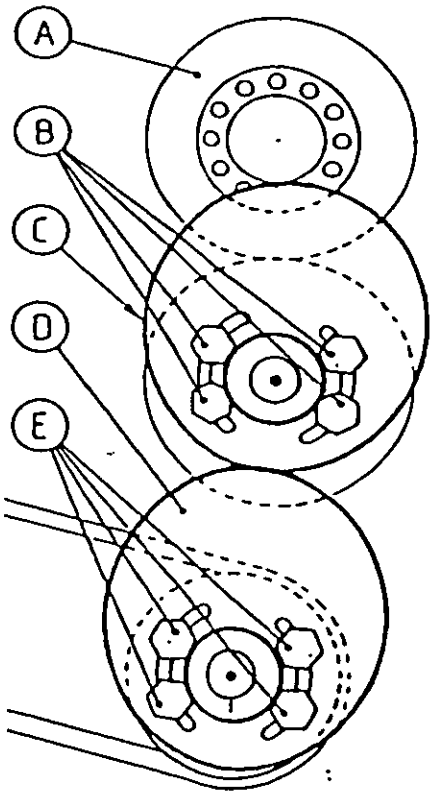

Fig. 22

Adjustment/example 2:
If the wrapping material breaks or is just exposed to too much strain, Fig. 21, Pos. 2., the speed of the cross sealing is too high.

Adjustment, see Fig. 22:
Loosen the 4 screws, Pos. B, on the upper oval gear wheel, Pos. C.

Turn the mark, pos. "M", Fig. 20 on the end of the shaft of the upper oval gear wheel in direction towards a smaller number on the upper oval gear wheel.
Do this by turning the gear wheel, Pos. A, mounted on the end of the top knife.

Tighten the 4 screws and test the cross sealing again.

Note: This adjustment of the speed of the cross sealing also moves the time of cutting. So this may have to be readjusted.

The upper oval gear wheel is divided into two halves, one marked "P" for paper and one marked "F" for film referring to the type of wrapping material used.

Also the gear wheel is provided with two sets of numbers, one on each half of the gear wheel. These numbers refer to the length of the bag.

So the first thing to do when starting up is to determine on which side of the wheel the indication shall take place.
Next thing to do is to set the mark "M", Fig. 23 by the actual bag length.

Adjustment of the time of cutting and sealing
See Fig 22 and 24.

It is desired to place the product approx. in the centre of the bag, Pos. G.

Adjustment/example 3.
Wrapping material: Film (optional)
Length of bag: 210 mm

The wrapping material is film so the mark "M" is on the "F"-side of the wheel.
The mark is set by the number 210 because this gives the jaws a speed in the moment of sealing which is **approximately** equal to the speed of the wrapping material.
Fine adjustment may be necessary.

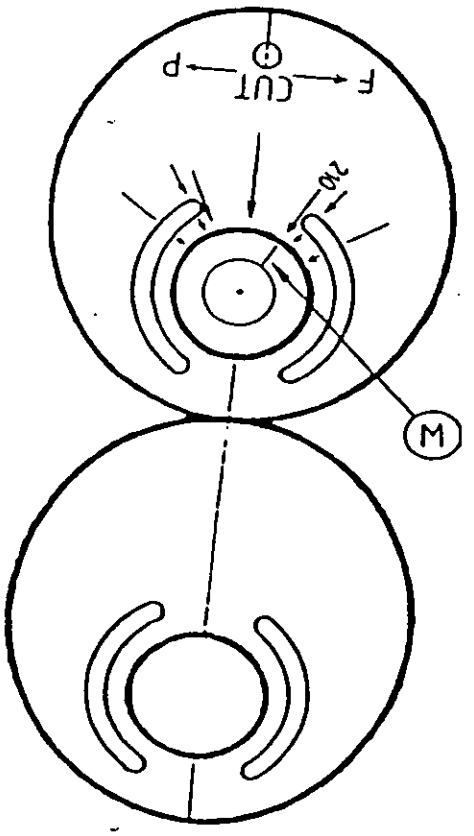

Fig. 23

Adjustment/example 1:

- If the product is placed in the front end of the bag, Pos. F, Fig. 24, the cutting will be be positioned incorrectly ("the cut comes to late").

Adjustment:
Loosen the 4 screws, Pos. E, on the lower oval gear wheel, Pos. D. Turn the sealing jaws forward to hasten the cut as much as you find necessary. Tighten the 4 screws, Pos. E, and test the placement of the product in the bag.

Adjustment/example 2:

- If the product is placed in the back of the bag, Pos. H, the cutting will be positioned incorrectly ("the cut comes too early").

Adjustment:
Loosen the 4 screws, Pos. E, on the lower oval gear wheel. Turn the sealing jaws backwards to delay the cut as much as you find necessary.
Tighten the 4 screws, Pos. E, again and test the placement of the products in the bag.

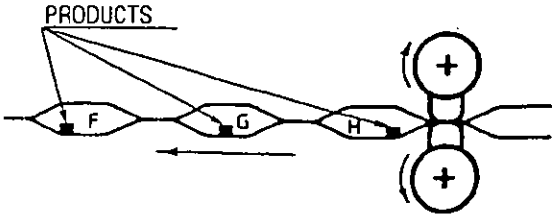

Fig. 24

Adjustment of cutting and sealing

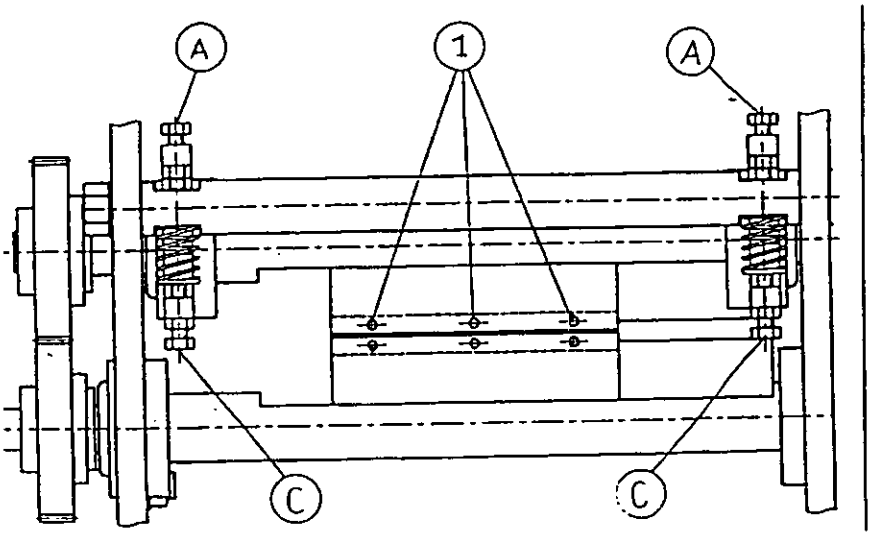

Fig. 25

When adjusting the parallelism on the end sealing the following procedure can be used:

1. The upper knife is removed by loosening the 3 fixing screws, Fig. 25. Pos. 1.

2. The electronic heat adjustment is adjusted for the required temperature.

3. In order to obtain correct and complete end sealing it is necessary that the two sealing jaws are completely parallel. This can be adjusted by means of the two adjusting bolts, Fig. 25, Pos. A. Adjustment of the pressure between the two jaws in the end sealing is done by means of the two adjusting bolts shown on Fig. 25, Pos. C. The ideal pressure is individual for each type of wrapping material.

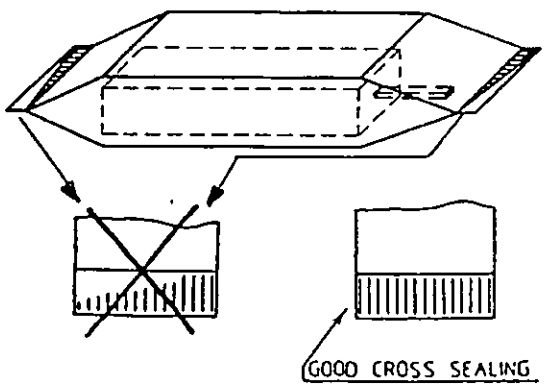

Fig. 26, cross sealing

4. The upper knife is mounted in the cross sealing jaws again and by means of a shim (metal / various sizes), the knife is adjusted for correct cutting of the wrapping material, Fig. 27, Pos. 1. Too much support under the knife will make the upper sealing jaw lift itself at the time of cutting which again will result in poor sealing.

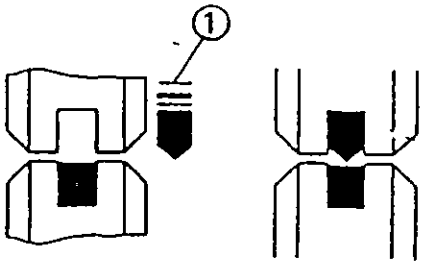

Fig. 27

Trouble shooting

1. **The wrapping material falls out of the sealing rollers:**

- Check that the brakes are intact (Fig. 27, Pos. 1).

- Make sure that the pressure between the two lanes of rollers is strong enough to counteract wrapping material outfall.

- Check the register spades on the infeed conveyor. They should be correctly positioned and firmly fixed.

- Check all rollers. Do they run smoothly?

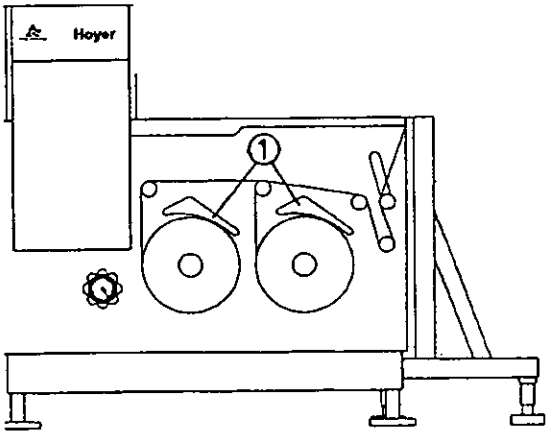

Fig. 28.

2. **The wrapping material breaks between rollers and cross sealing jaws.**

- The cross sealing jaws rotate too quickly at the moment of cutting, Fig. 28A.

  For adjustment, see section "Adjustment of cross sealing speed".

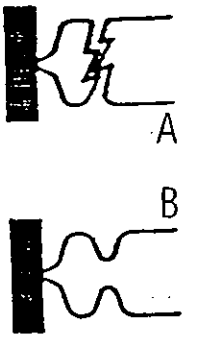

Fig. 29.

3. **The wrapping material jumps up between sealing rollers and jaws.**

- The crimping jaws rotate too slowly at the moment of cutting, Fig. 28B.

  For adjustment, see section "Adjustment of cross sealing speed".

4. **The sealing rollers do not seal longitudinally:**

- Check that the sealing rollers have reached their operating/set temperature. At the speed of approx. 6-8,000 / hour the temperature should be 130-160° Celsius for film and 180-220 ° Celsius for paper.

- Check that the circuit breaker is intact.

- Check that the carbon brushes are in good contact with the slip rings and that they are clean of dust, grease etc..

5. **The cross sealing jaws do not seal:**

- Check that the cross sealing jaws have reached their operating temperature.

  At the speed of approx. 6-8,000 / hour the temperature should be 130-160 ° C for film and 180-220 ° C for paper.

- Check that the circuit breaker is intact.

- Check that the carbon brushes are in contact with the slip rings and that they are free of dirt and grease.

6. **The cross sealing is insufficient:**
See Fig. 29

- The sealing jaws are not paralleled.

  This can be adjusted by means of the two adjusting screws, Pos. 1.

  If the sealing is still insufficient it may be because the pressure is too low. More pressure can be added by screwing in the screws, Pos. 3.

7. **Insufficient cut of wrapping material:**
See Fig. 30

- Check the edge of the knife. If it is dull it should be replaced.

  If the knife is sharp enough it probably lies too low in the sealing jaw.

  Remedy: Loosen the 3 fixing screws, Pos. 2. and remove the knife.

  Place a metal shim in the knife groove and put the knife back again.

  Tighten the 3 fixing screws.

  Pay attention to the thickness of the metal shim. Too much support under the knife will make the upper sealing jaw lift itself at the time of cutting which again will result in poor sealing.

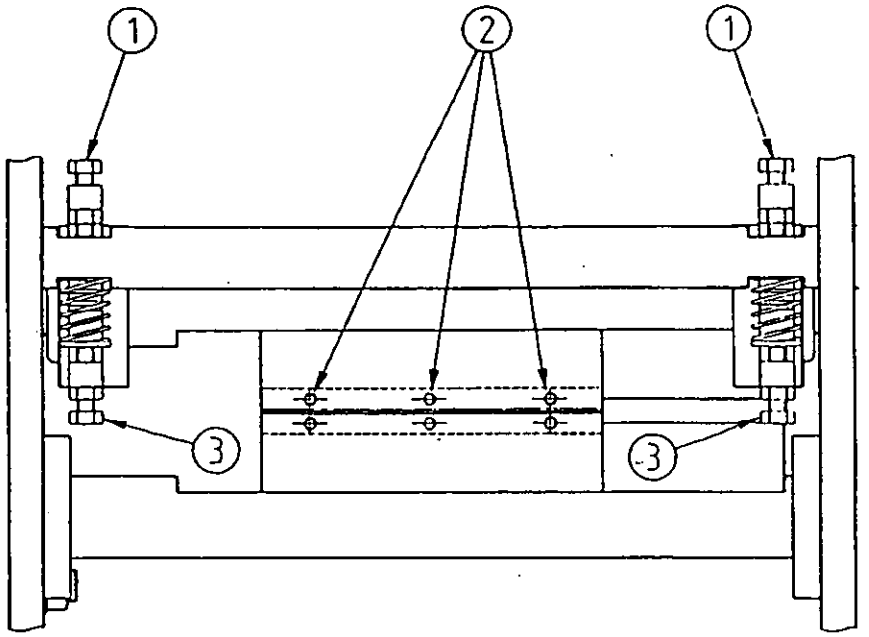

Fig. 30

8. **The two sides of folding are staggered in relation to each other:**
See Fig. 31

Cause: There is a deviation between centre of the folding rack and the centre of the roll of wrapping material.

Remedy: Move the roll in axial direction. This is done by turning the hand wheel C. 1 revolution on the hand wheel corresponds to an axial displacement of 2.5 mm on the roll of wrapping material.

If the deviation on the fold is for instance 6 mm, the roll should be displaced the half of this, that is 3 mm. The problem shown on the picture would be solved by turning the handwheel 1 1/5 revolution in clockwise direction.

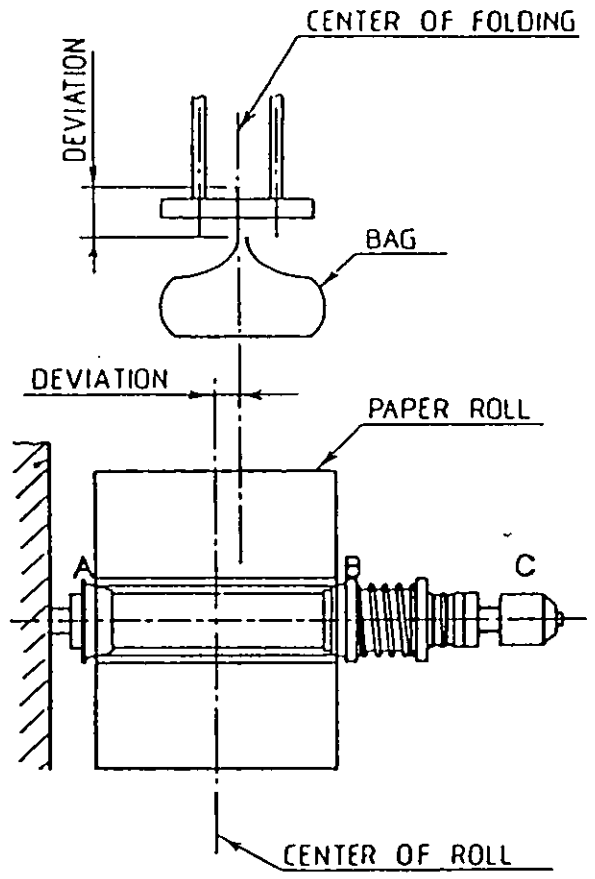

Fig. 31

Lubrication Table

See also table "Lubricants".

Lubrication	40 hours operation	100 hours operation
Cutting unit (nipples):		
Knife shaft bracket (2 pcs)		13
Knife shaft, upper (2 pcs)	13	
Knife shaft, lower (2 pcs)	13	
Fly wheel shaft (2 pcs.)		13
Open chains:		12
Closed chains:		12
Open gear wheels:	6	
Closed gear wheels:		6
Retightener (1 pcs), nipple (conveyor)		12
Bearing (1 pcs), nipple (stepping gear bracket)		12

Lubricants

Index	Shell	Gulf	Q8	Kluber Isolflex	Various	Molub Alloy Tribol	Wynn's
1.	Tellus Oil T-15	Harmony 15 AW	Haydn 15				
2.	Tellus Oil S-100	Harmony Haydn	Haydn 100				
3.	Clavus Oil 32	Harmony 32 AW	Haydn 32				
4.	Omala Oil 320	Harmony 320 E	Goya 320				
5.	Omala Oil 150	EP Lubricant HD 150	Goya 150				
6.****	Malleus Fluid B/C	Lubcote Molly	Giotto				
7.	Aeroshell Grease 7	Low temp. grease		LSD 18 special A	Alfalub LGLT *)		
8.	Alvania EP Grease 2	Gluflex MP Grease	Rembrandt EP 2				
9.					Rocol **)		
10.***)	Tivela Oil WA		Schumann 150				
11.				NBU 15/15F			
12.						940	
13.	Liplex Grease EP2						
14.	FDA Grease NLGI 2 OGH nr. 7613,9003						Agro G2 NLGI 2

*) Fa. SKF Sweden
**) Fa. Rocol Ltd. Leeds -U.K.
***) Synthetic gear oil
****) Malleus Fluid B (-25°C → +5° C)
Malleus Fluid C (+5°C → -25° C)