

# SERVICE MANUAL for Colenta<sup>®</sup> INDX AUTO FILM FEEDER

Warnung: Diese Anleitung ist nur für qualifizierte Service Techniker bestimmt.  
Warning: For the use of qualified service personnel only.  
Avertissement: Réservé au personnel de service qualifié.



## Colenta

FEEDER V3.1 r02 and up

03/2003 AN

## **Function:**

When replacing the standard feed table of the COLENTA INDX-NDT Film Processors, the fully compatible feeder can be interfaced to the processor. (feeder and standard feed tray of the INDX units are fully exchangeable). The feeder is gear driven from the processor and will automatically synchronise the speed of the feed rollers in the feeder to the processor speed. The feeder and processor are connected by an electronic interface. The feeder is activated as soon as the signal “No Error in the Processor” and “Processor Sensorbar Free” is transferred to the feeder controller and the automatic mode push button is pressed.

A vacuum operated “sucker” system lifts the staked films in the magazine between the feed rollers of the feeder, which then transfer the film to the entrance rollers of the processor. The feeder can operate in two different modes:

## **Automatic mode:**

This mode is activated by pressing a push button. When the processor is “Ready” and no error is sent to the feeder, the automatic, sensor controlled, film feeding sequence starts. The feeder will stop automatically as soon as all films are removed from the magazine by the “suckers”, or if an error occurs in the processor which signals a stop instruction to the feeder controller, or the operator presses the manual mode push button.

## **Manual mode:**

**a) With the feeder working in automatic mode and then selecting the manual mode by the action of a push button switch, the automatic feeding of film from the magazine will stop (no further film will be supplied by the vacuum suckers to the feed rollers). This action releases the manual film feed slot and as soon as the last automatically fed film has entered the processor. The release of the manual film feed slot is indicated by a green LED (the automatic feed mode is signalled to the operator by a red LED)**

After the operator has finished manually loading films and then wants to return to the automatic mode to continue the feeding of films from the magazine, he selects automatic mode by the action of a push button switch and once the last manually fed film has entered the processor, the feeder will switch to automatic mode.

**b) After the feeder, when working in automatic mode, has completely emptied the magazine it will automatically switch from automatic mode into manual mode, thereby releasing the manual film feed slot – the feeder can now be used in the same way as the Standard feed tray of the COLENTA INDX 43 I.**

The various steps for the automatic film feeding as well as all eventual errors in the feeder are indicated on the display of the feeder unit. As well as the before mentioned red and green LED indication, the manual mode conditions are also indicated on the display.

The capacity of the feeder is mainly determined by the processing cycle of the processor (in-feed speed of the processor). When small films are to be fed via the magazine, the whole width of the feeder / processor can be utilised by using multi track feeding / processing.

### **Film magazine specification:**

- # Max. Film size 43x48cm
- # Min. film size 6x12cm
- # Film magazine designed to take all common film sizes from 6x12 to 43x48cm.
- # Film width: 6 cm up to 43cm
- # Film length: 12 cm up to 48 cm
- # The magazine will take film of various sizes, utilising the full width of the magazine, providing film-stacking facilities for approx. 60 films per stack.
- # Max. capacity of the magazine: approx. 6 stacks (6x12cm, 6x24cm or 6x48cm) of 60 films each, total 360 films

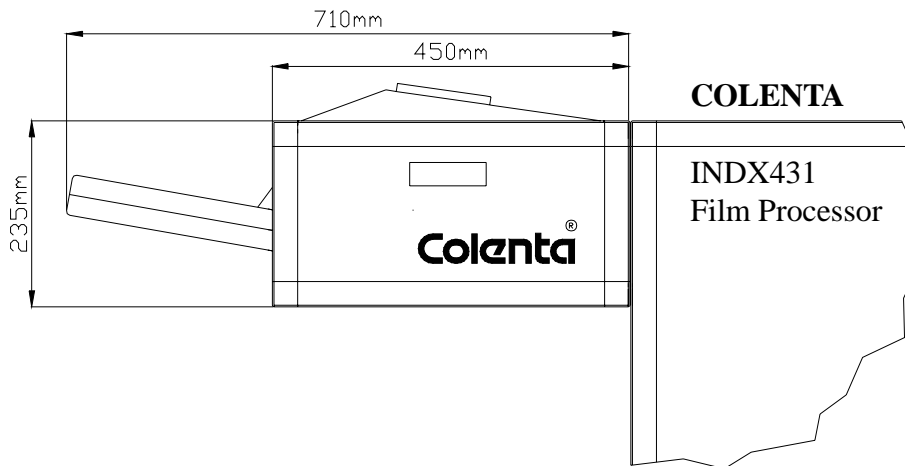


Film magazine

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## **Dimensions:**



Voltage – 230V AC 50 Hz  
(supplied from the Film Processor)

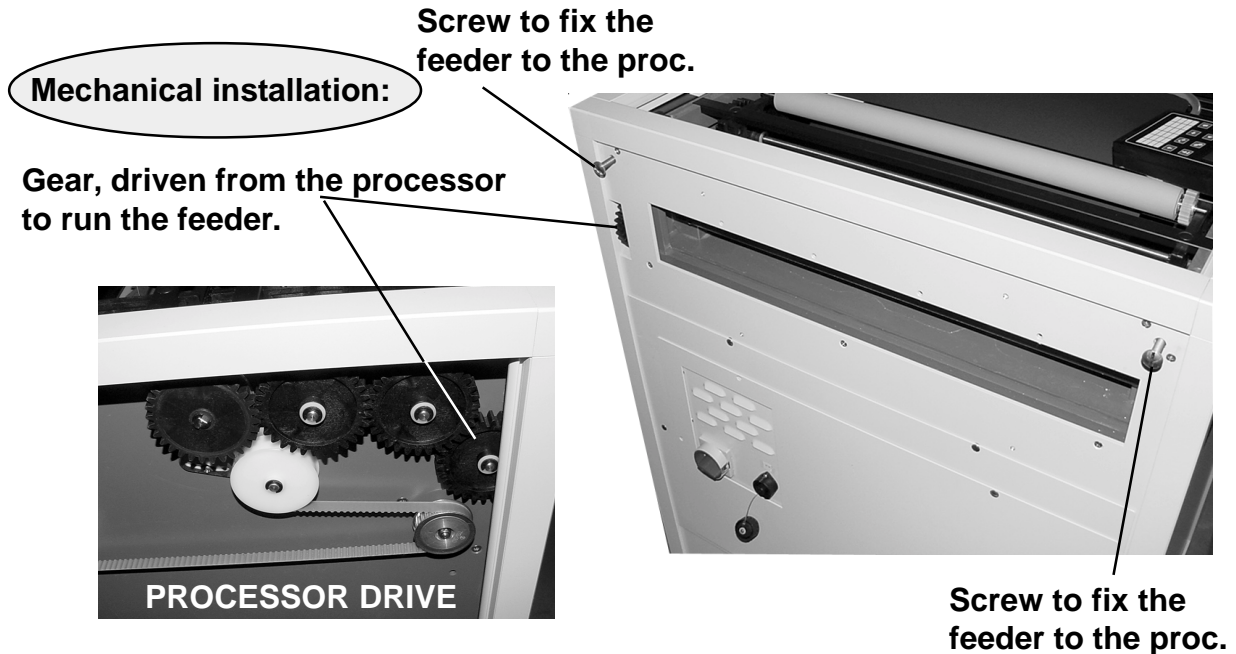
Weight approx. 25 – 30 kg  
(without magazine)

## AUTO NDT FEEDER

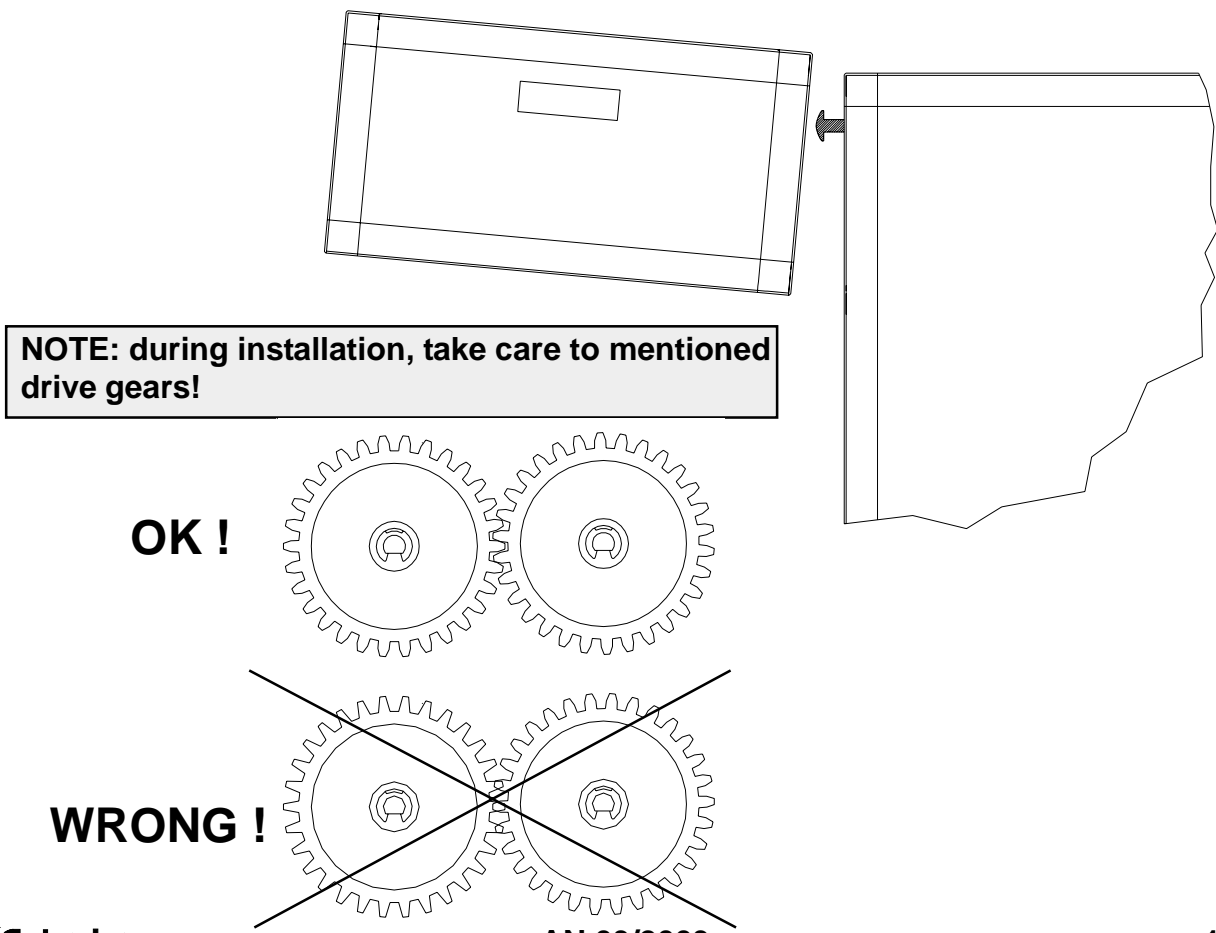
# 1. INSTALLATION OF THE FEEDER

Due to safety reasons during transport, the feeder is not installed directly from the factory. This has to be done at the customer side from qualified service personnel. See the illustrations below which explain the procedure:

Firstly, place the Film Processor (without the Feeder) on site and level the unit as mentioned in the processor installation manual.



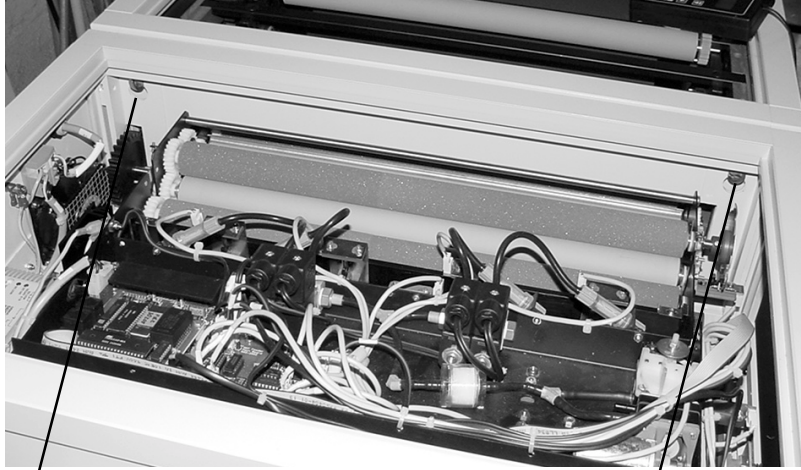
Place the feeder on the processor as shown:





## AUTO NDT FEEDER

When the feeder is installed, fix the screws!



Screw to fix the feeder to the proc.

Screw to fix the feeder to the proc.



Gear, driven from the processor to run the feeder.



### Electrical installation:

Power cord, the electrical power needed from the feeder is supplied from the processor



Interface cable (RS232)

## AUTO NDT FEEDER

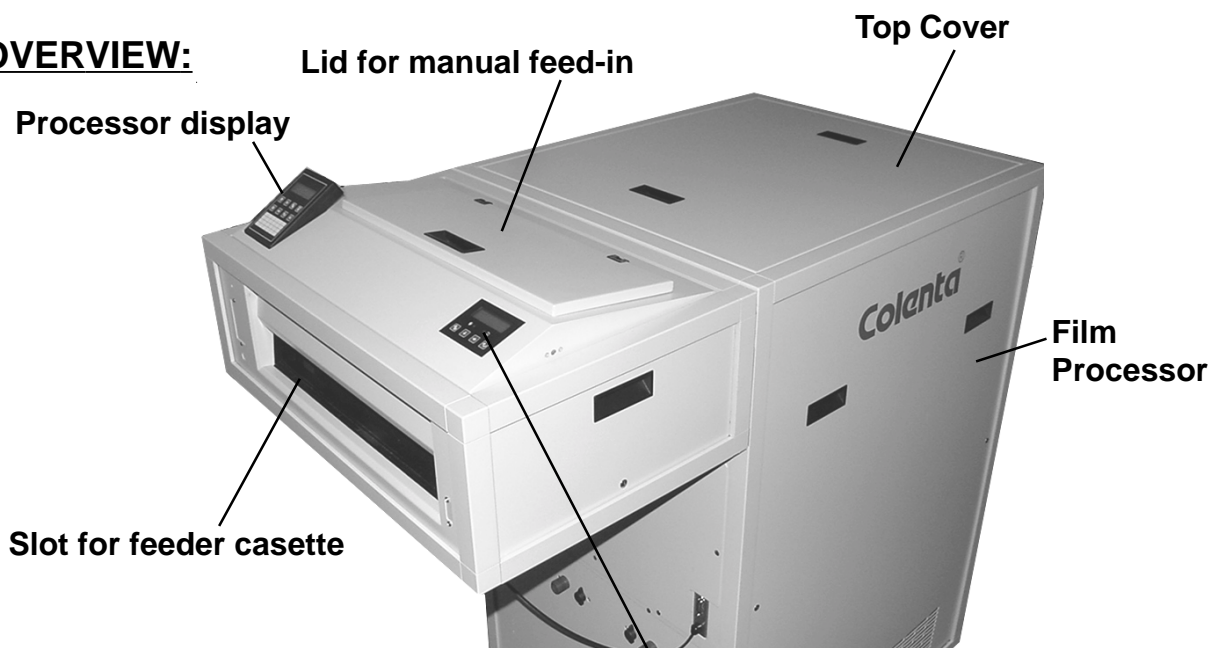
### 2.WORKING WITH THE FEEDER

The **COLENTA AUTO NDT FEEDER** is designed for use with most types of NDT-Xray films currently available (as per the specifications mentioned previously). A vacuum sucker lift assembly automatically positions each film from the cassette into the infeedrollers of the Feeder transport system. The FEEDER is completely driven by the processor, that means the processor provides both electrical and gear drive to the out feed rollers (this prevents speed synchronisation problems).

The FEEDER has its own electronic controller, which also monitor signals from the processor to control system workflow (Interface Handshake).

The FEEDER itself is using a separate installed control electronic, signals from the processor are provided for better workflow (Interface Handshake).

#### OVERVIEW:



**Main switch**  
For the FILM PROCESSOR  
and the FEEDER!

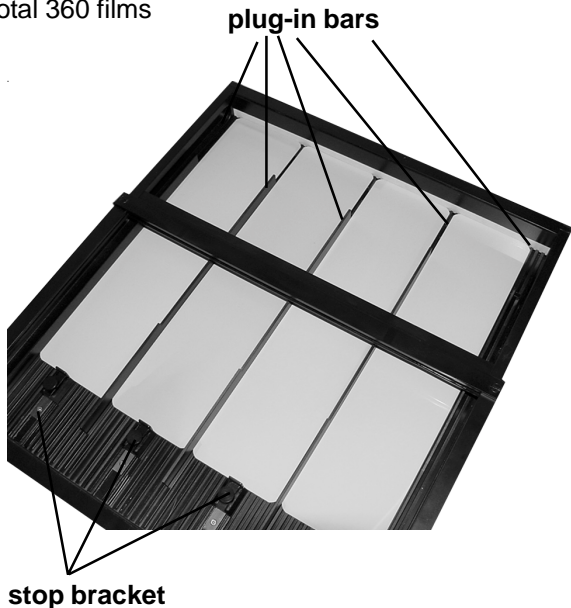
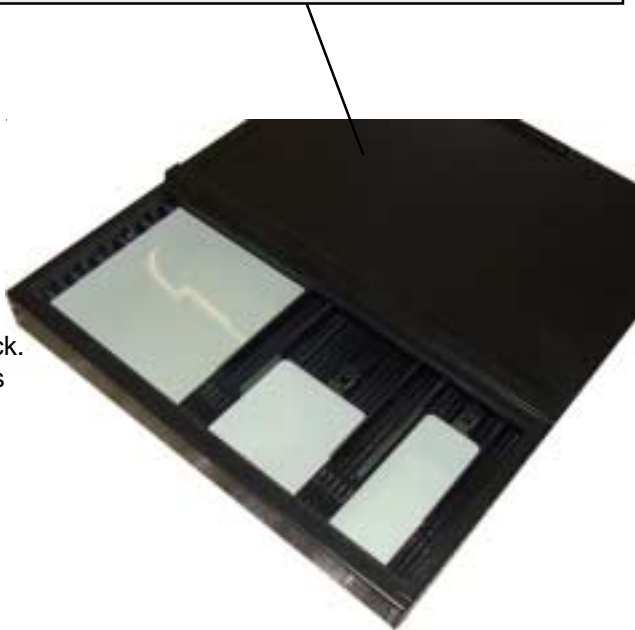
### 3.LOADING THE CASSETTE

The Film magazine must be loaded in the right way, to prevent possible film jam problems. Follow the steps below:

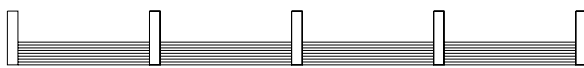
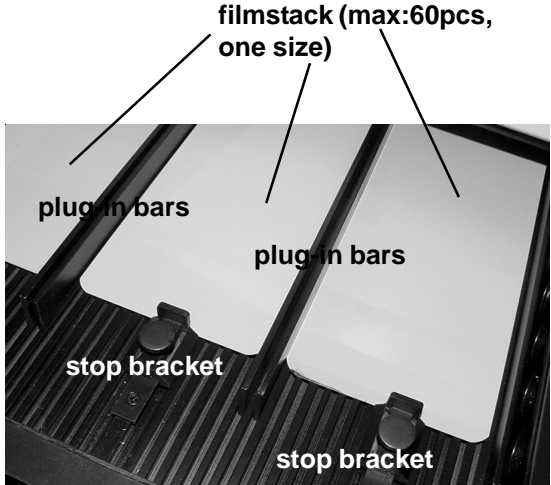
- # Load only in darkroom.
- # The smallest film size is 6x12cm.
- # Fix the plug-in bars according to the film sizes.
- # Centre the films per track between 2 plug-in bars. Position the stop bracket slightly against the filmstack, leaving a space of a few millimeters and tighten the screws. This, to avoid the possibility of film feeding problems.
- # Each stack may contain max. 60 films of the same size.
- # Make sure the magazine is closed properly with a click.
- # Use only one film size per track
- # The widest film size is 43x48cm

**Film magazine specification:**

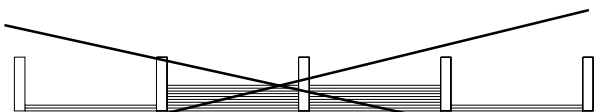
- # Max. Film size 43x48cm
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- # Film magazine designed to take all common film sizes from 6x12 to 43x48cm.
- # Film width: 6 cm up to 43cm
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- # The magazine will take film of various sizes, utilising the full width of the magazine, providing film-stacking facilities for approx. 60 films per stack.
- # Max. capacity of the magazine: approx. 6 stacks (6x12cm, 6x24cm or 6x48cm) of 60 films each, total 360 films



**ATTENTION!**  
Never load films when the feeder is in AUTO MODE!



The cassette should be loaded very even,



not like this!!

### 3.START WORKING

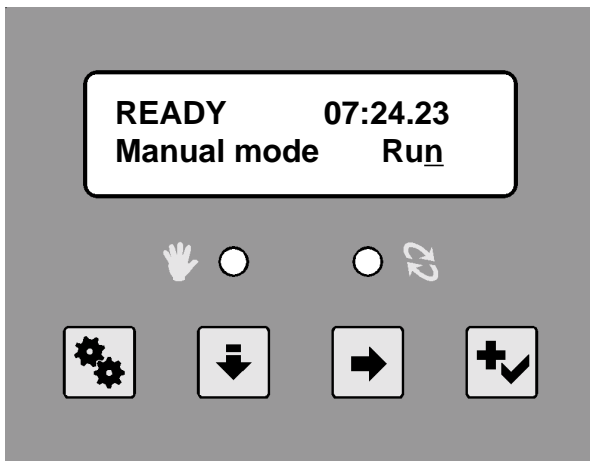
Place the loaded magazine as detailed in the previous page into the magazine slot. Ensure that the magazine is in position and the cover-lid for manual feeding is closed - switch on the processor.



**Main switch**  
For the FEEDER and  
the FILMPROCESSOR!

Obviously the processor must be in READY mode for start working, if any of the critical parameters of the processor are not reached, you can't start the FEEDER. Check the display of the processor (READY has to be shown), when an ERROR is active - refer to the instruction booklet of the processor for further actions.

When the processor is READY, the display of the FEEDER will show:



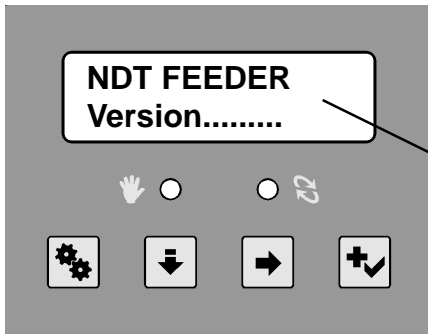
- 3.....Setup\*
- 8.....page down
- 6.....move the cuors
- 7 .....to confirm

*\*Note: The Setup menu is for service and factory setting purposes only. The Setup-menu set processor-specific values. This values should not be changed by the customer. Although you can select these menus, scroll through the data and also make changes, saving the changed data is disabled. Only an authorized service technician can re-programme these values.*

Regarding this, see the informations on page 9....



## 4.USING THE DISPLAY

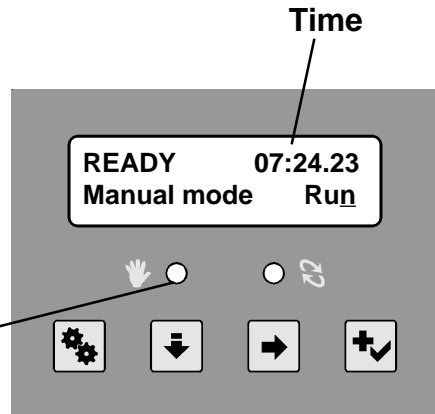


After switching on the main switch, the feeder program first will start an initialization cycle. The software code will be shown for some seconds.

Revision of software

When the initialization cycle is done, the display will show: (first page)

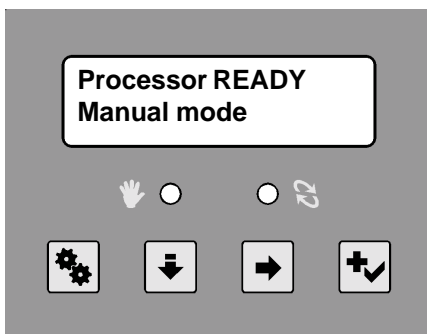
Additional the green LED is blinking, that confirms that the feeder is ready for manual feeding.



Now there are 2 options:

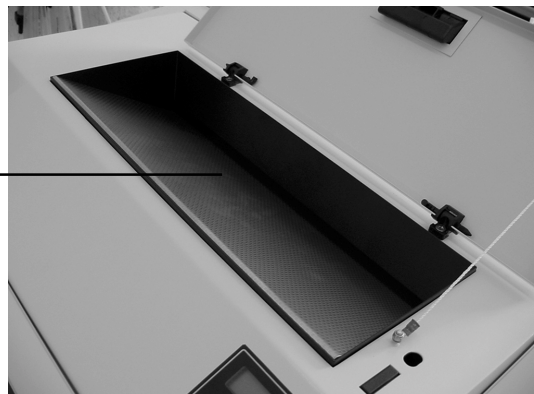
- 1) To use the manual feed option, for feeding sheet by sheet
- 2) To start the automatic mode in order to feed the film from the magazin automatically into the processor

add1) For manual feeding: press 1x **7** , the green LED will be on continually, the display will show:



Now open the cover lead-for manual film feed and start loading films sheet by sheet. Ensure straight loading of the films to prevent any possible film jams. When no films are loaded in time, the display will show the indication „no films“ and after that the controller will jump back to the above mentioned first page menu.

**WARNING:** After the manual feed process is activated, the intake rollers of the feeder are driven by the main motor of the processor. So never put your fingers into the film feed slot!

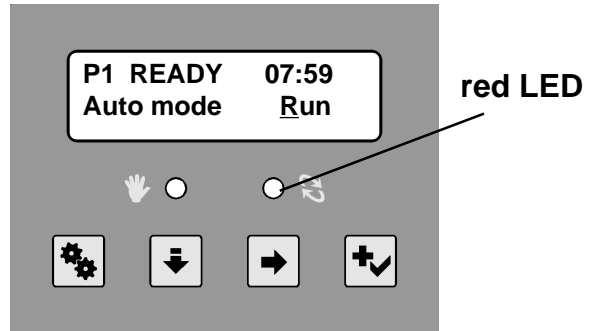


## AUTO NDT FEEDER

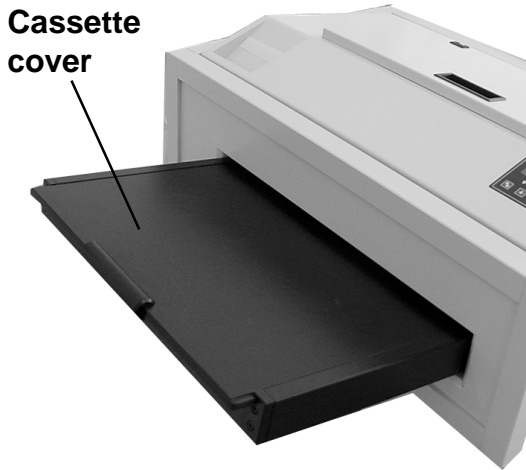
add2)

To start the automatic mode, use 1 time **6** , the green LED will stop blinking and now activate a red blinking light. This confirms that the FEEDER is now ready for auto feed. To start the cycles, press **7** 1 time. The feeder will now start working in auto mode - the red LED will illuminate continually.

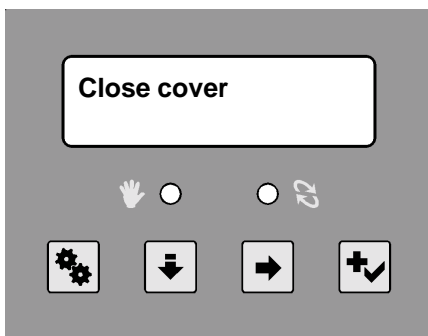
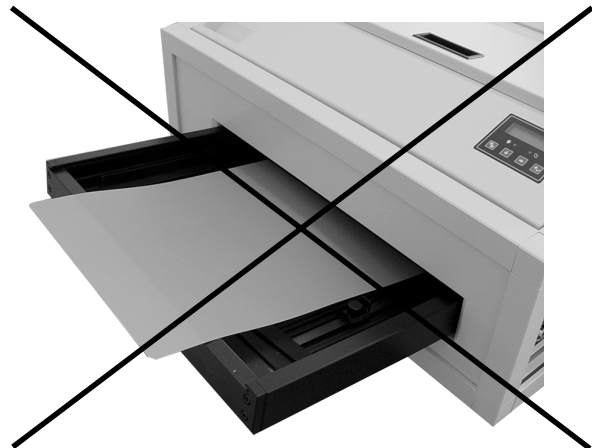
When the auto mode is activated, the display will look like this:



**Important:** Due the fact that the automode of the feeder can be used under normal light condition, ensure that the cover for the film cassette is closed.

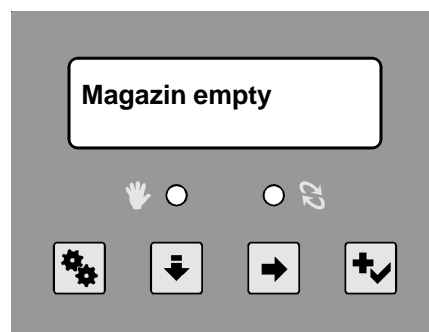


**Important:** Never place any films into the cassette when the feeder is in auto mode. This can cause serious problems in the feeder!



After starting the auto mode, the feeder will first check if there are films in the magazine. In no films have been loaded into the cassette, the display will indicate this as shown. Obviously the same message will also be displayed after the last film is fed from Feeder to processor.

Before starting the auto mode, close the cover of the manual film feed slot. If open, the feeder will not start working until the cover is closed. The following indication will be shown:



## AUTO NDT FEEDER

add2.1)

The COLENTA feeder offers you the possibility to break the current auto feed cycle, in order to process some „important“ films in between using the manual film feed option. To do that follow the steps below:-

During auto feed, the display will show:  
(The red LED is on => Auto mode)



To stop an auto feed cycle, press **8**, display =  
Now you must wait until the last film has exited the feeder to the processor.



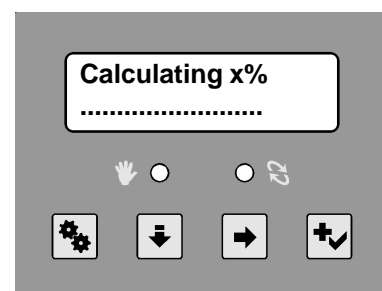
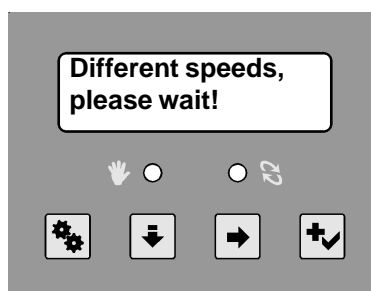
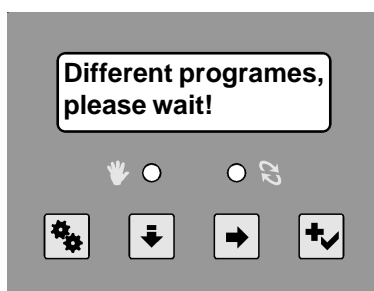
When this is done, the feeder will unlock the cover lid for the manual film feed slot (during auto feed, the lid of the manual feed-in is locked) and the display will show the same indication as mentioned on page 4 Use the described procedure there for feeding manually.

To start again the auto mode, follow the instructions mentioned on page 5.

## 5.Speed synchronization:Feeder& Film Processor

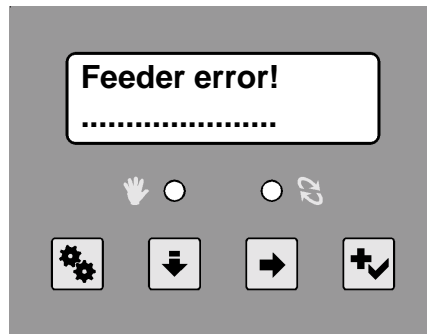
The Filmprocessor (in the following referred to „processor“) has 9 production programme channels available. This feature allows the operator to pre-programme different parameters eg. Temp., Dev-time and Repl.-rates into selected programmes for specific production needs. When changing between processor speeds (Dev Time) the feeder transport speed must also be re-programmed to the processor speed - This is done automatically by the feeder software.

**During a reprogramme cycle.....**



## 6.ERROR CODES of the FEEDER

When an ERROR appears:



If ever an Error appears, compare the message on the display with the listed error codes below and on the next page for corrective actions. When an error is detected in Automode, the feeder will automatically stop the current load cycle. The operator must then acknowledge the message: to do that press 2 x times 3. (this will re-initialize the Feeder software) and then follow the instructions below and on the next page.

Message	Action
<i>Setup invalid</i>	Reprogram the SETUP of the feeder according page7. Especially after a new EPROM was installed.
<i>Motor overrun</i>	-----
<i>Motor overload/ Check magazin</i>	Drive system for M1 is blocked or running hard, check the drive system and the belt tension. The filmmagazin is not in or not in proper position. Check position of magazin.
<i>Magazin open</i>	The filmmagazin is not in, or not in proper position. Check position of magazin.
<i>Cover opened</i>	Close the lid for manual feed-in of the feeder. (cover switch)
<i>Dropped film</i>	-----
<i>Vacuum failure</i>	Apper when the on or more sucker(s) lost vacuum during lifting film. Check position of suckers, check entrance situation of film at input rollers
<i>Can` t catch film</i>	Check the position of the sucker(s) on the film. See page 16 „Sucker adjustment“



## AUTO NDT FEEDER

### Message

### Action

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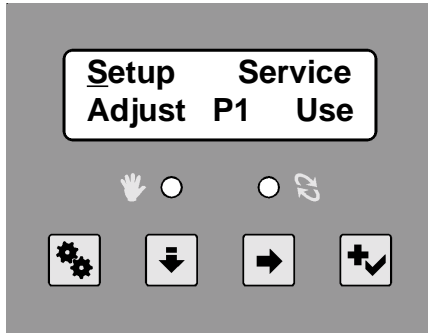
<i>Can not separate films: 1 2 3 4</i>	The Feeder can not separate two or more films on the mentioned position (sticky films) In this case the feeder must stop the current cycle and return the film into the magazin. Open the magazin, check and try to run again.
<i>Proc. off or NC</i>	The processor is switched off (main switch in "0" position or the interface cable is not connected).
<i>Proc. Stand By</i>	The processor is in stand-by mode. The user can feed manually or can start the automatic mode.
<i>Don't feed. BUSY</i>	The user cannot feed films or cannot start the automatic mode. This message appears when the film is under the sensors of the processor.
<i>Processor READY</i>	The processor processes the film but the (input sensor is empty). The operator can feed manually or can start the automatic mode.
<i>Processor ERROR</i>	Some error has occurred in the processor. Refer to the instruction booklet for the processor for further actions.
<i>Low position</i>	Call for Service personnel
<i>Film doesn't delivered</i>	Call for Service personnel

## 7.SETUP of the FEEDER

(only for authorized technicians)

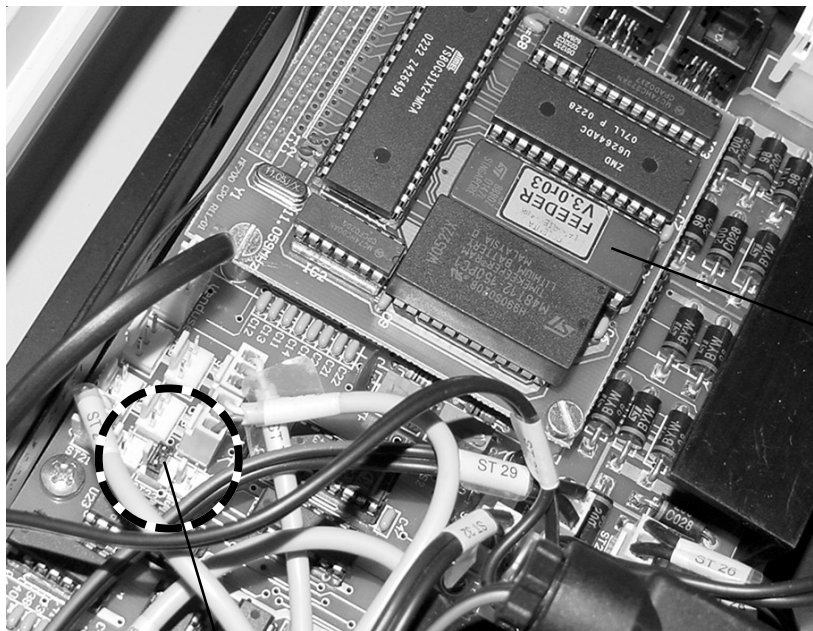
The **SETUP** of the Feeder is used firstly to set and to store the factory setting required for the workflow und the communication with the processor, and secondly to check all the components within the feeder.

To enter the **SETUP**, press **3** continually for 3-4 seconds. You will see:



Use **6** to move the cursor, use **7** to confirm a menu.

**NOTE:** The **SETUP** menu is protect by a jumper placed on the main board. When this jumper is not in place, you can enter and also change values but you cannot store any modifications or changes. For this you must place a jumper as shown below:



Feeder  
Software

Jumper on ST23

Don't forget to remove the jumper when you have finished.

## AUTO NDT FEEDER

### 7.1.SETUP

Scan time 03sec

8

Stop on error 1

(1=yes, 0=no)

8

Make tests 0

(1=yes, 0=no)

8

Sync processor 1

(1=yes, 0=no)

8

Speed calk.

time 180 sec

8

C\_Proport. 08.0

C\_Intergral 0.30

8

C\_Differ. 0.03

Interval 0.3 s

8

Have OLP 1

(1=yes, 0=no)

8

RS232 on 1

(1=yes, 0=no)

8

Baud rate 0-4800

1-9600 2-19200 2

8

Recive timeout

03 sec

8

Opto Sensors 1

(1=yes, 0=no)

8

Jump Time 04

8

G1x G2x G3x G4x

8

Language 0

8

Save Cancel

The SETUP menu shows you the following:

Time were the vakum will be build up for one sucker.

In case there is an error, the feeder has to stop.

Self test cycles during film loading.

Needed to synchronice the feeder and the proc. speeds

Required time for the feeder, to change the speed of the feed rollers, after the processor speed has been changed

Needed for internal calculation for the feeder.

Needed for internal calculation for the feeder.

Needed for internal calculation for the feeder.

Needed for internal calculation for the feeder.

Has to be 1, when a proc. is connected. Has to be 0 when the feeder has to work without a processor (stand alone for testing)

The feeder is communicating with the processor via RS232.

Communication speed for RS232.

Needed for RS232

The sensorbar below the cassette is activated or not.

Used to define the additional movement of the motor when the film was delivered to feed-in rollers. This to prevent that the suckers are touching the film.

Used to deactivate the gate-switches, just in case one of them is not working OK. After replacement the switch should be reactivated again.

Used to change the language used on the display

Use Save to store or Cancel to exit.

## AUTO NDT FEEDER

### 7.1.2 SETUP Vales

**Software: FDR V3.1r04**

FEEDER		Range
<b>Setup (Place the jumper)</b>		
Scan time: [sec]	03	01 - 10
Stop on error: [1=yes, 0=no]	1	0 - 1
Make tests: [1=yes, 0=no]	0	0 - 1
Sync processor: [1=yes, 0=no]	1	0 - 1
Speed calc time: [sec]	180	060 - 240
C_Proport.:	08,0	00,0 - 99,9
C_Integral:	0,30	0,00 - 9,99
C_Differ.:	0,03	0,00 - 9,99
Interval: [s]	0,3	0,1 - 9,9
Have OLP: [1=yes, 0=no]	1	0 - 1
RS232 on: [1=yes, 0=no]	1	0 - 1
Baud rate: [0-4800 1-9600 2-19200]	2	0 - 2
Receive timeout: [sec]	03	01 - 15
Opto sensors [1=yes, 0=no]	1	0 - 1
Jump time	4	0 - 6
G1x G2x G3x G4x (x=1=active / x=0 not active)	4 times 1	0 / 1
Language 0-Eng 1-France	0	0 - 9

**NOTE: to use this software, on the processor must be installed the software MF800 V2.8r05!!**

## AUTO NDT FEEDER

### 7.2.SERVICE

M1 M2 Interface	
Inputs	Outputs

The SERVICE menu shows you the following:

#### 8.2.1 Inputs

Vac	Suc	SP	S1	S2
1	1	1	0	0

1=yes, 0=no

Vac.....Vakum or not  
 Suc.....not in use  
 SP.....Setup protection  
 S1.....opto-switch      see page 15  
 S2.....opto-switch      see page 15

Move1	Move2	HPos
1	0	0

1=yes, 0=no

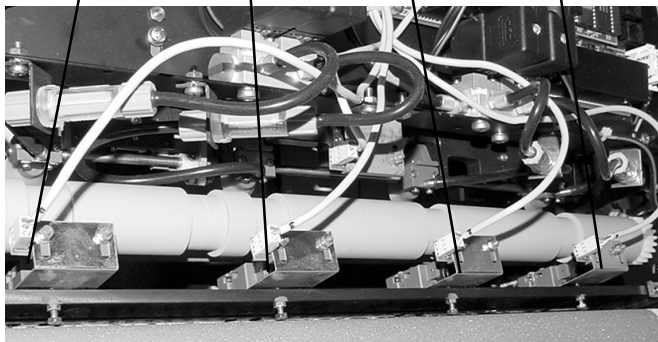
Move1.....opto-switch    see page 15  
 Move2.....opto-switch    see page 15  
 HPos.....opto-switch      see page 15

Mag1	Mag2	Manual
1	1	0

1=yes, 0=no

Mag1.....Magazin in or not  
 Mag2.....not in use  
 Manual....status of lid for manual feed-in

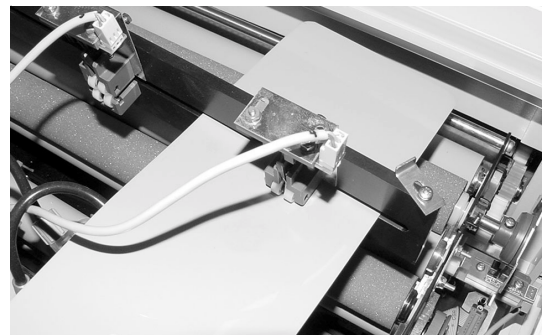
GA1	GA2	GA3	GA4
0	0	0	0



The „Gates 1 to 4“ are used to check if there is one film or two films loading. These gates are measuring the film thickness. To check operation:-  
 0=>0 no film  
 1=>1 film OK to the processor  
 0=>1=>0 2 films, return back to the cassette....“cannot separate film..“

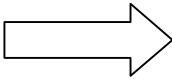
This point has to be used to adjust the gates:  
 Place a film through the gates and follow the corresponding gate signal on the display:

0...no film  
 1=>1 film OK to the processor  
 0=>1=>0 2 films



## AUTO NDT FEEDER

S-bar: \_\_\_\_\_ (S-bar: 0 1 2 3)



**Used to check the optosensorbar below the cassette.**

**IMPORTANT NOTICE:**  
 WHEN TESTING THE FEEDER WITH BLACK TEST FILM THE OPTO SENSOR BAR WITHIN THE CASSETTE MUST BE TURNED OFF.  
 Failure to turn the sensor bar to the off mode will result in no film been seen and therefore the feeder will assume the cassette is empty. The film sensor can be turned off by entering the SET-UP mode of the feeder and setting Optosensor data from 1 to 0 (1=ON, 0=OFF)

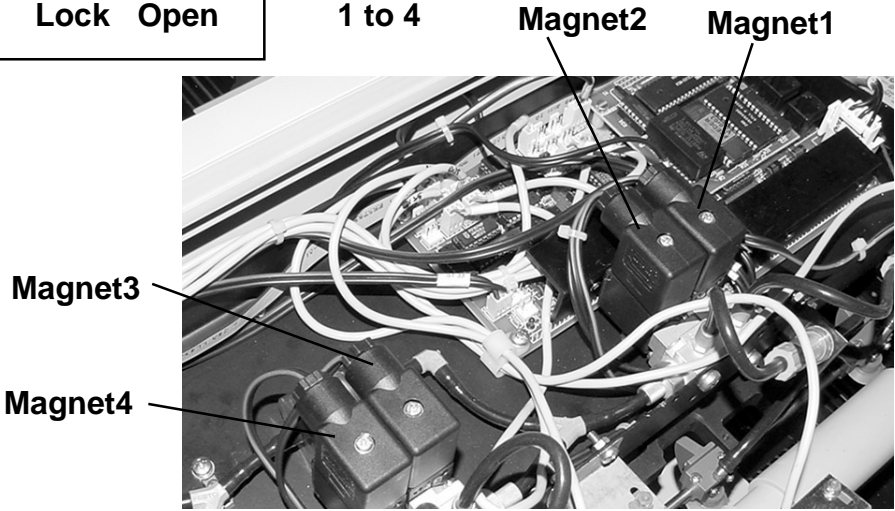
**IMPORTANT: RE-SET OPTOSENSOR BACK TO 1 (ON) WHEN PLACING THE FEEDER INTO NORMAL FILM PRODUCTION MODE.**

### 7.2.2 Outputs

**Magn1 (2,3,4) Open Close**  
**Key 1 (1,2) Lock Open**

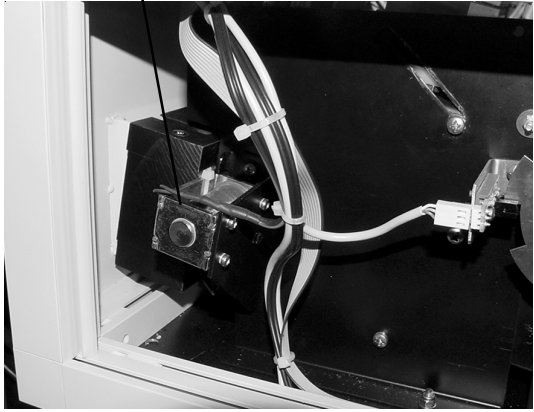
Used to open/close the vakum valves 1 to 4

8



Used to open/close the magnetic switched 1 and 2:

Key1



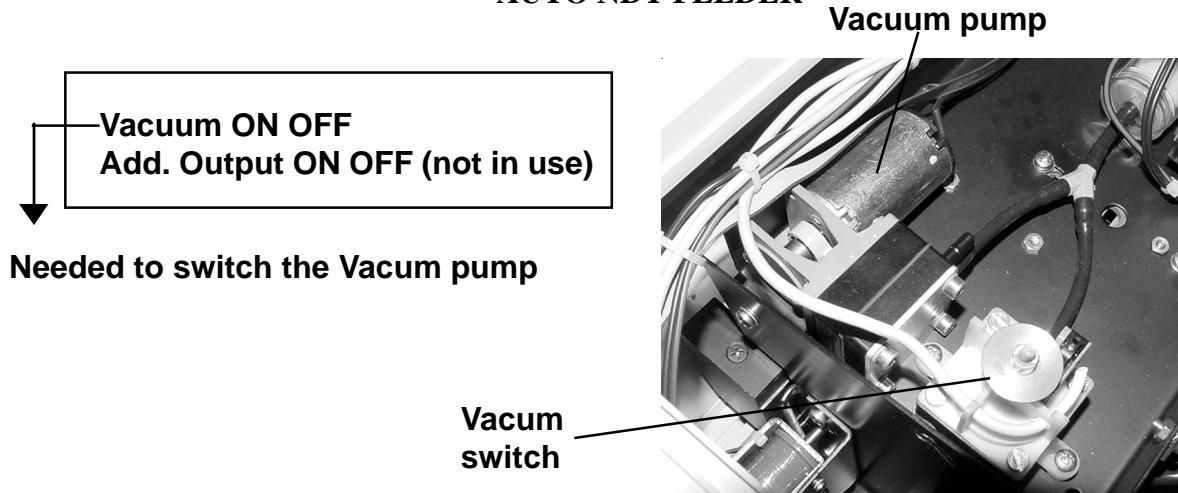
.....for the film magazine



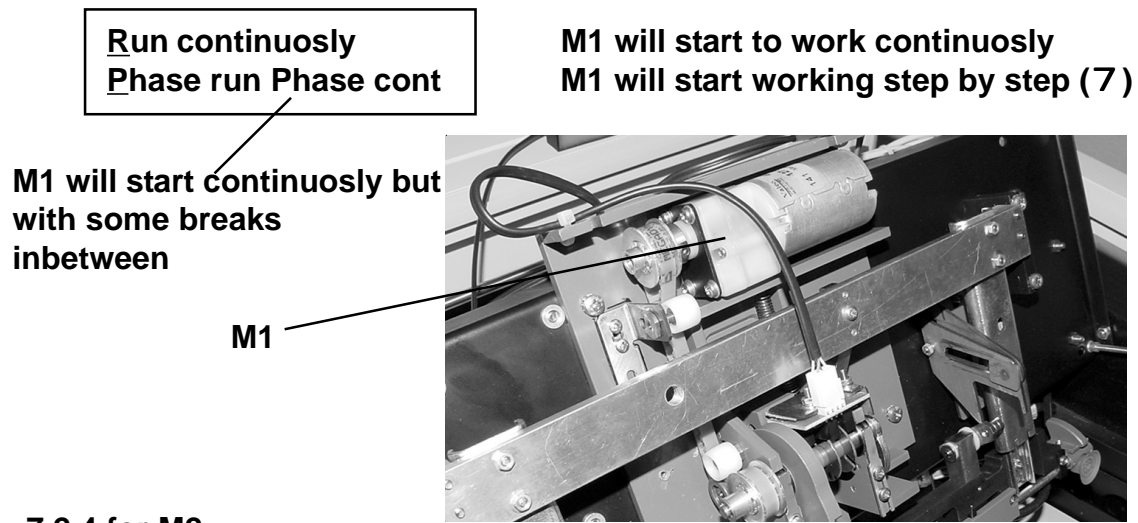
....for the manual film feed cover



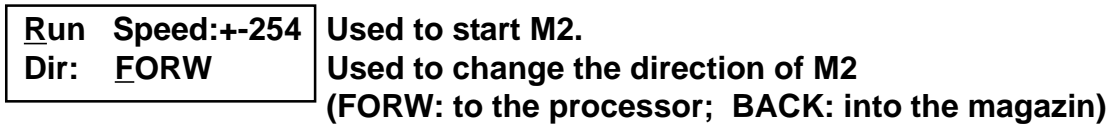
**AUTO NDT FEEDER**



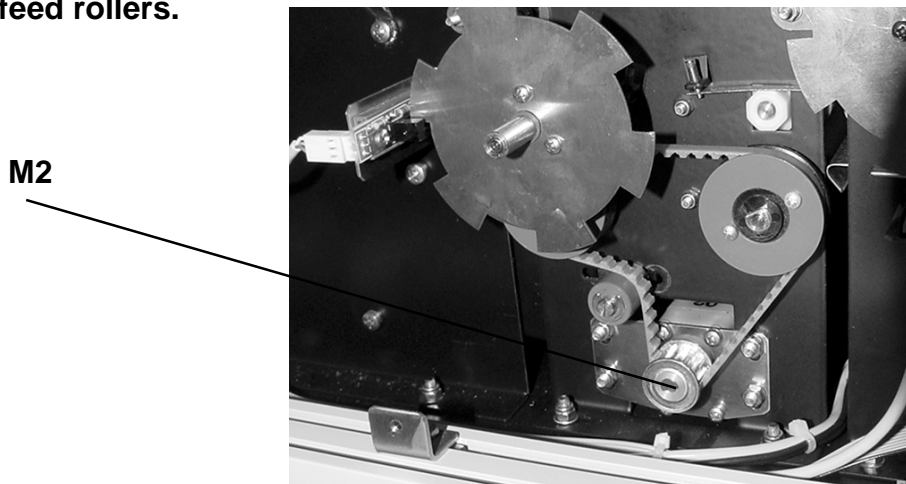
7.2.3 for M1 you will see:



7.2.4 for M2.....



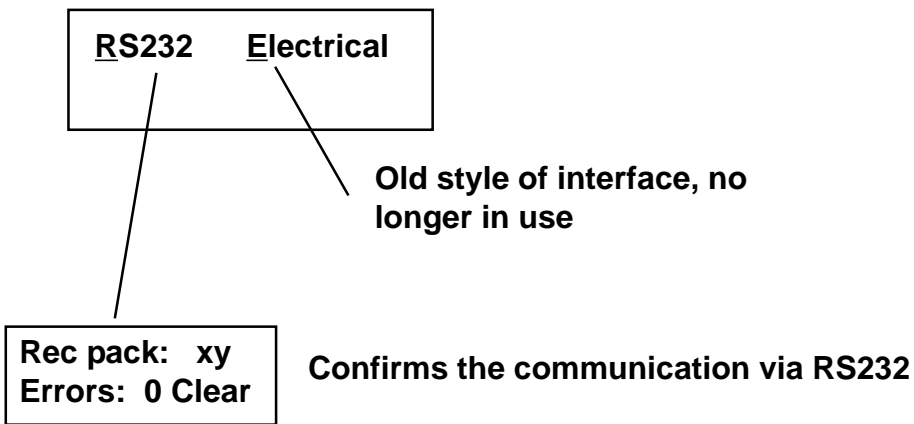
**Note:** This facility should be used if a jam occurs in order to rescue film from the feed rollers.



**Note:** to run M1 or M2, the cover switch has to be in, if not the message : „This point is disabled“ will be displayed

# AUTO NDT FEEDER

## 7.2.5 Interface

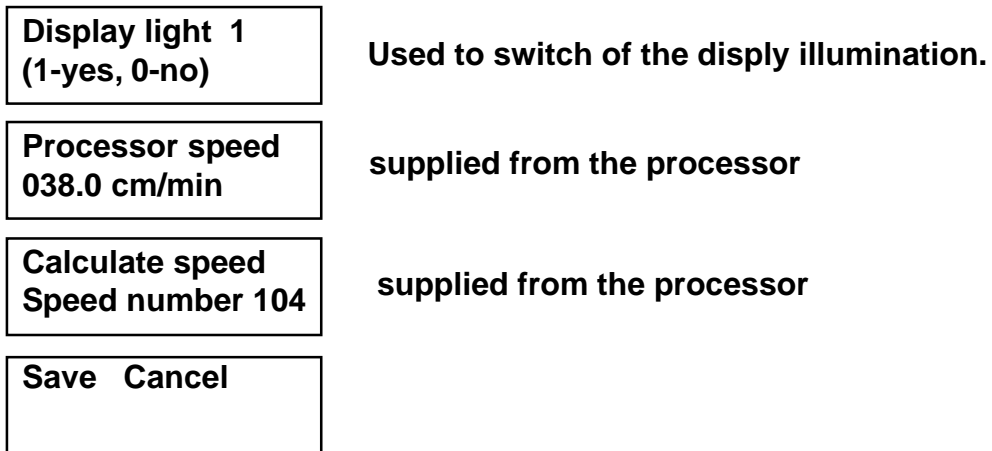


## 7.3. ADJUST

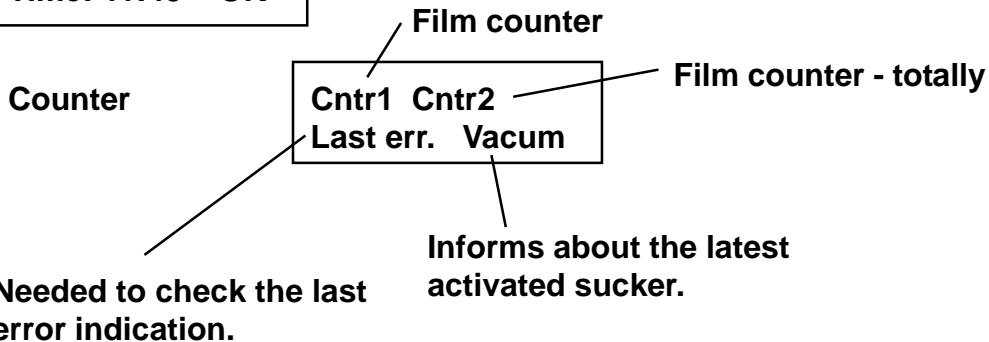
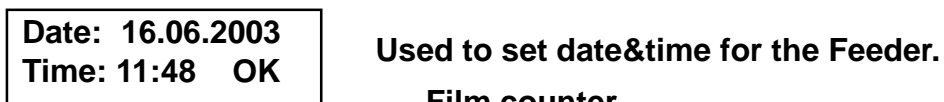
ProgramX Modify  
Set\_time Counter

### ProgramX Modify

As mentioned, the processor parameters are displayed from the processor. Some Feeder specific settings must be set as required:



### Set\_time

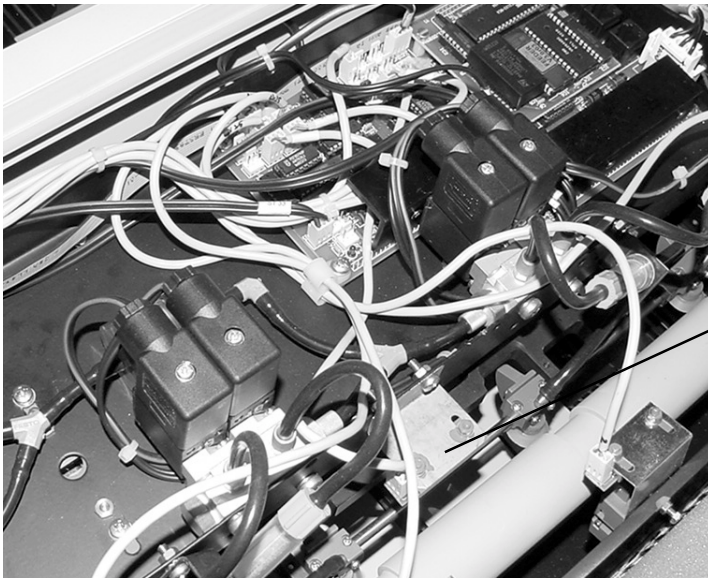
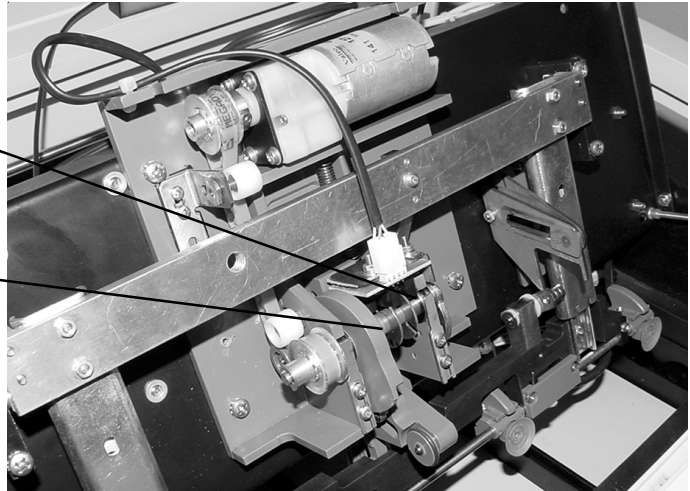




## 8. Opto switch position

opto switch Move1

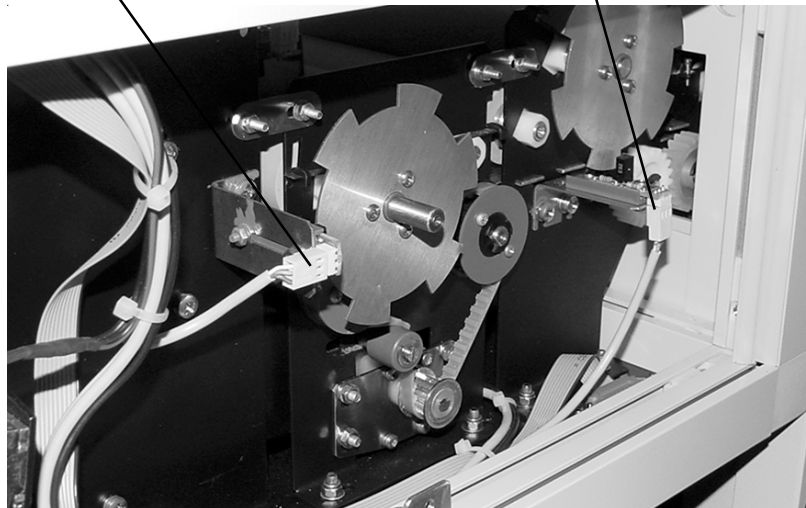
opto switch Move2



opto switch HPos

opto switch S1

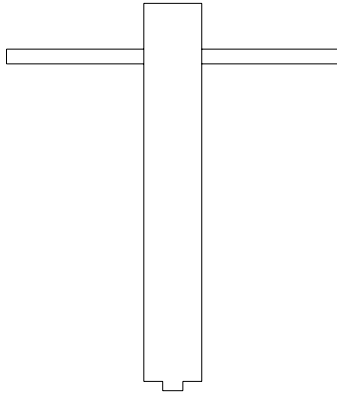
opto switch S2



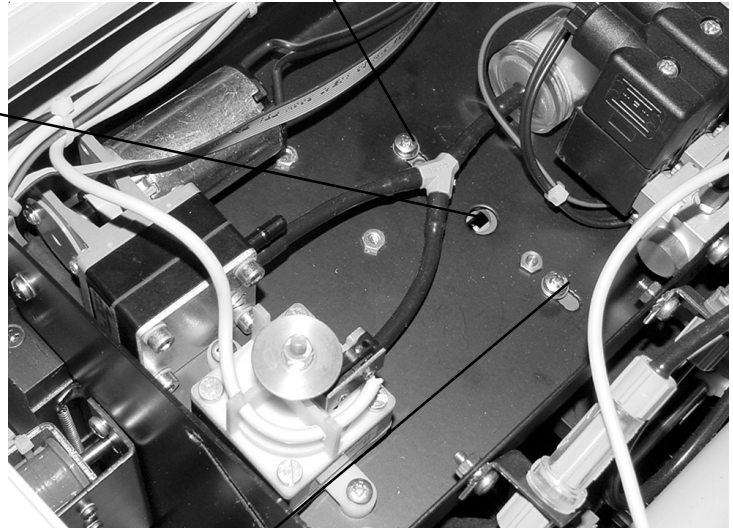
## 9.Sucker adjustment

When the message „Can´t catch film“ is indicated on the display, this means the opto-sensor bar is seeing film, but the sucker cannot „catch“ the film. In this case the sucker MAY HAVE TO be re-adjusted by the following procedure:-

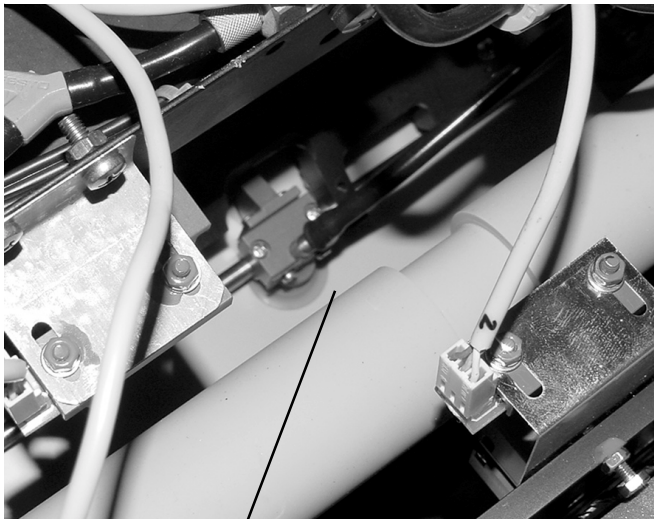
Loose to adjust the sucker



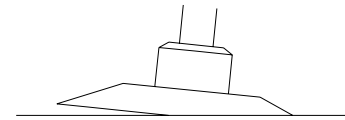
Insert the supplied adjusting tool.



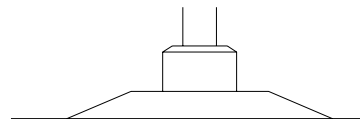
Loosen screw lightly to adjust the sucker



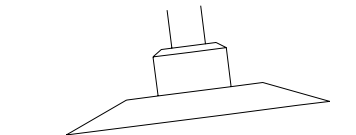
Vacum Sucker on the film



not OK



OK



not OK

Now, run the Lift motor (M1) in Phase mode (see page 13) and observe the position of the suckers on the film very carefully. If not OK use and turn slowly the above mentioned tool - NOTE: turn slowly and in small increments as the adjustment is very very sensitive. After adjusting, check by making a complete cycle of M1 and follow the position of the sucker onto the film - repeat procedure until OK. When the suckers are in the OK position fix the locking screws as mentioned above.

## **10.MAINTENANCE**

The COLENTA AUTO FEEDER is almost user maintenance-free. The surface of the feeder can be cleaned with a slightly moist, soft and non-linting cloth. Any commercial cleaning agent may be used provided it does not contain any solvents and/or acids. The feeder may be disconnected from the processor for maintenance purpose so that film processing does not have to be interrupted.

**IMPORTANT:**

Neither water nor moisture must penetrate into the feeder during cleaning.

COLENTA reserves the right to modify and improve their equipment in order to adapt them to the latest technological developments.

## **NOTES**

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# NOTES

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