

# Evisceration system Nu-Tech Nuova

## Service Training

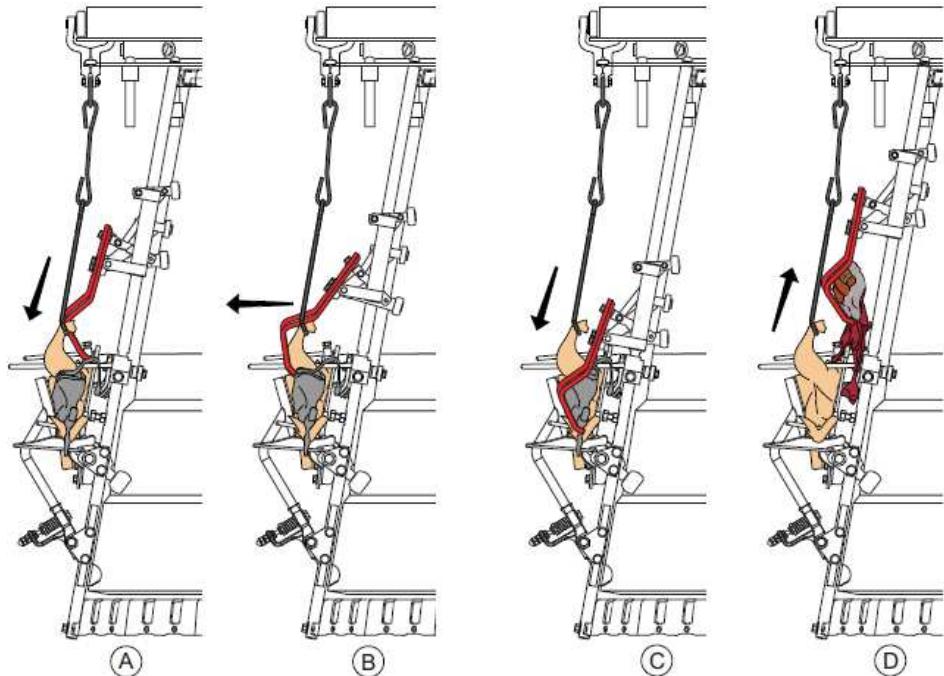
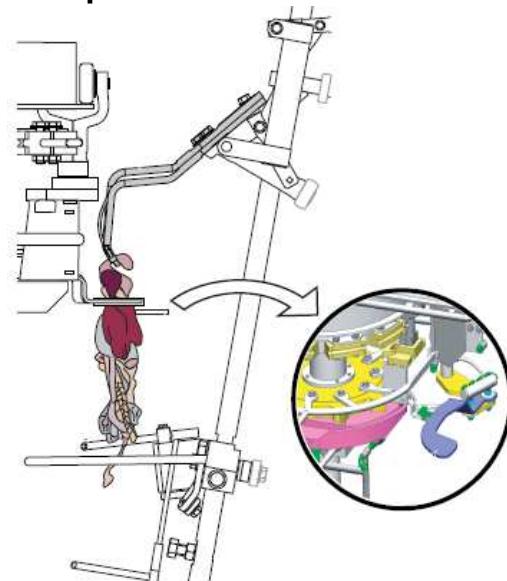


- Function
- Names
- Process
- Settings
- Operation
- Performance
- Maintenance



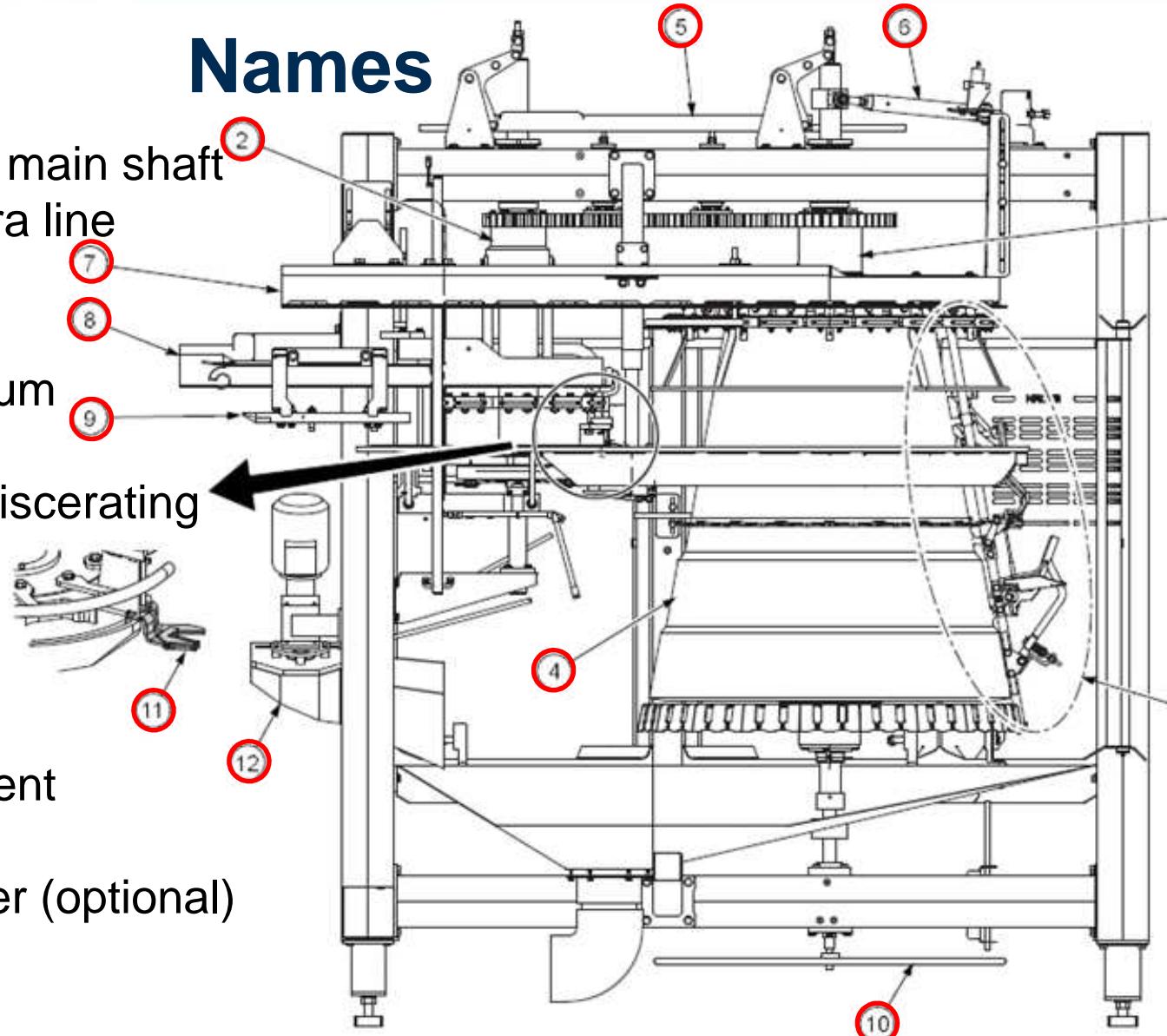
# Function

- The function of the Nu-Tech Nuova eviscerating system
- Is the automatic separation of the viscera pack from the product and the rehanging of the viscera pack in the pack shackle.



## Names

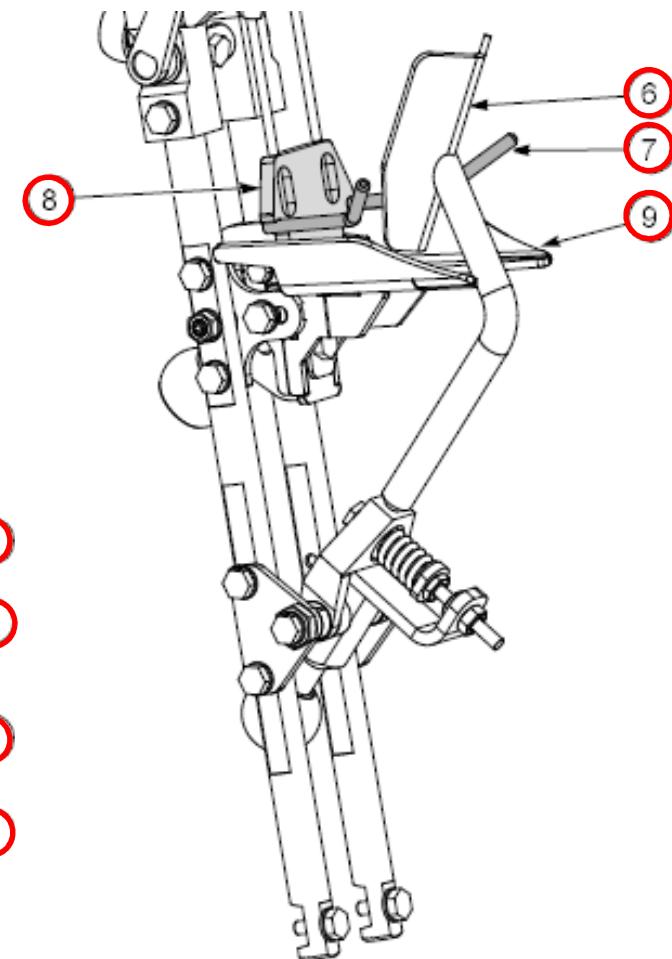
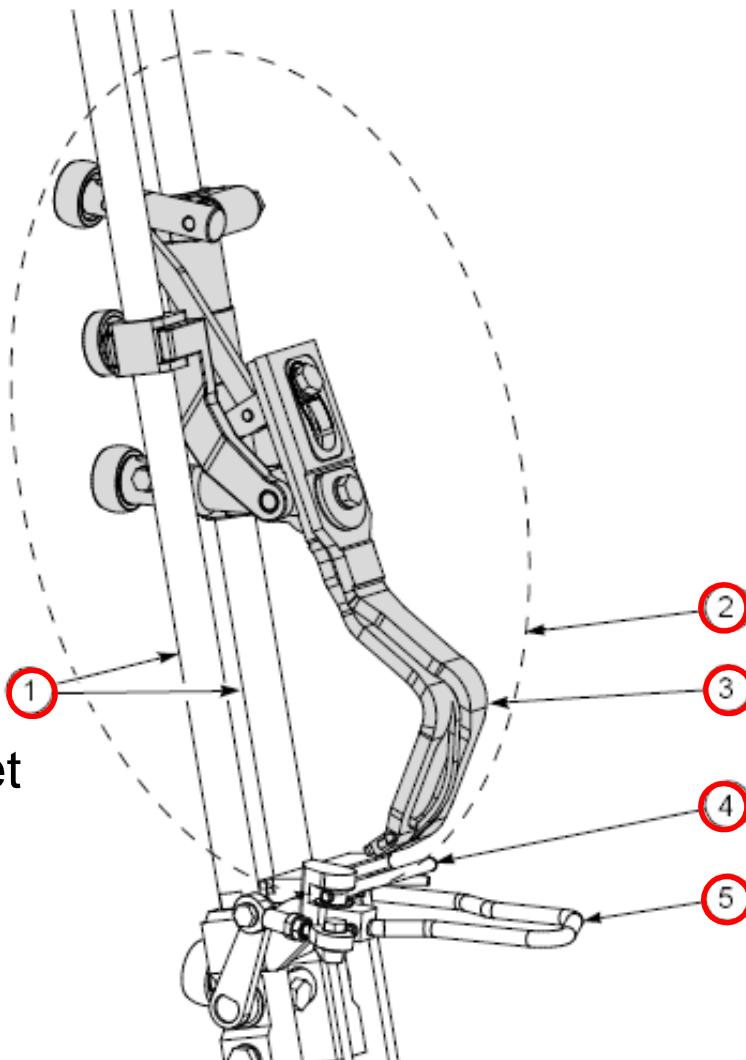
1. Eviscerating line main shaft
2. Main shaft viscera line (viscera shaft)
3. Processing unit
4. Conical curve drum
5. Synchronizer
6. Safeguard for eviscerating line main shaft
7. Eviscerating line
8. Pack line
9. Control station
10. Height adjustment
11. Pack clamp
12. Intestine trimmer (optional)



# Names

## Processing unit

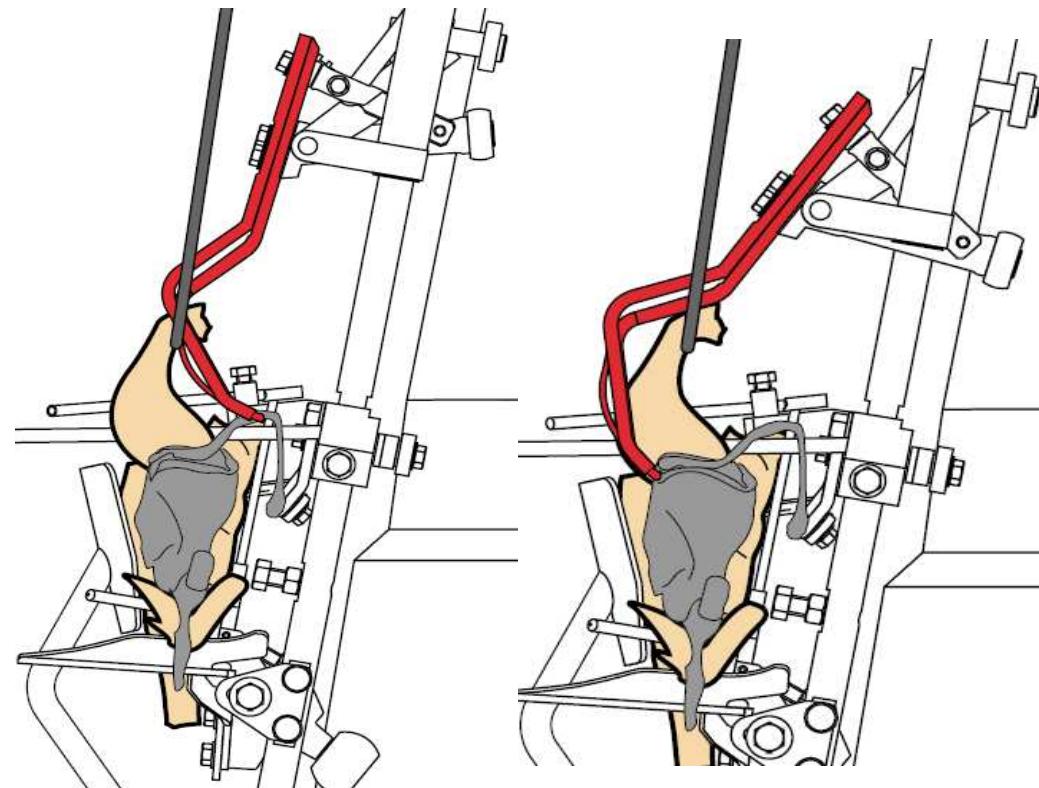
1. Unit frame
2. Top unit
3. Drawing arm
4. Intestine clamp
5. Spreader bracket
6. Breast presser
7. Wing holder
8. Backplate
9. Shoulder lifter



# Process

## Extraction of the viscera pack

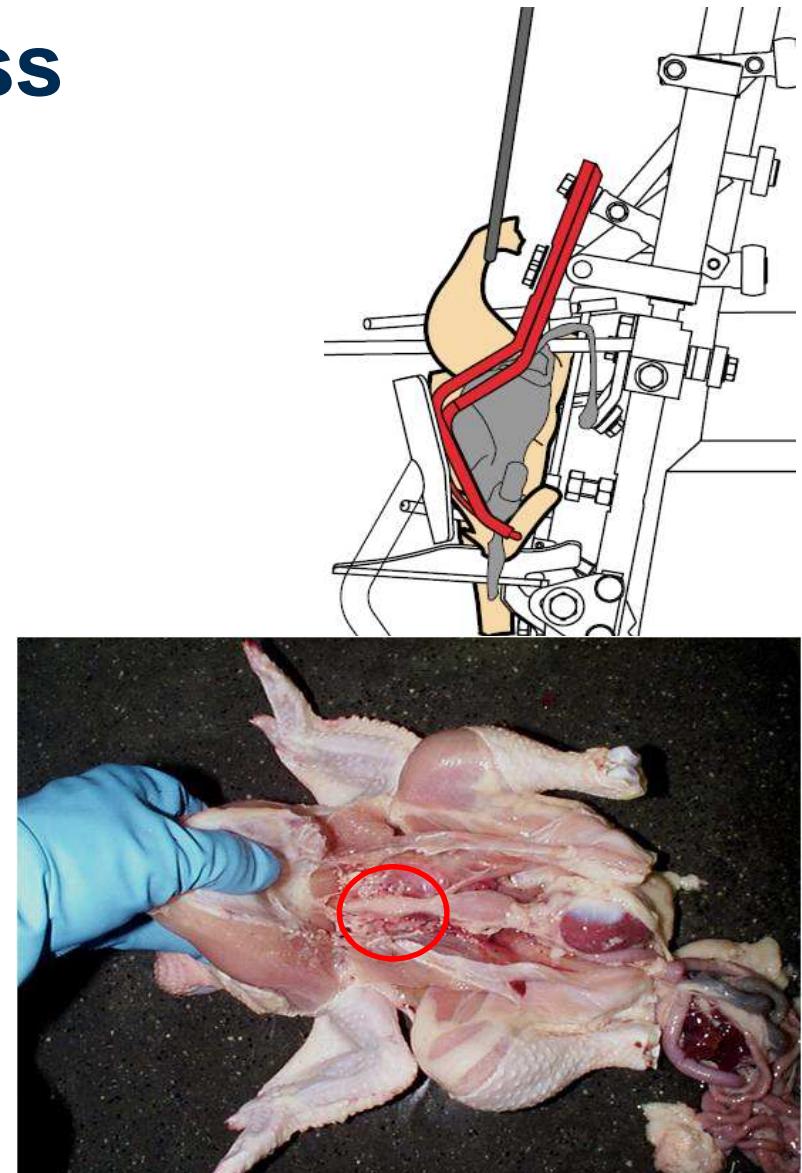
- Eviscerating arm (spoon).  
Enters the body cavity



# Process

## Location of the esophagus

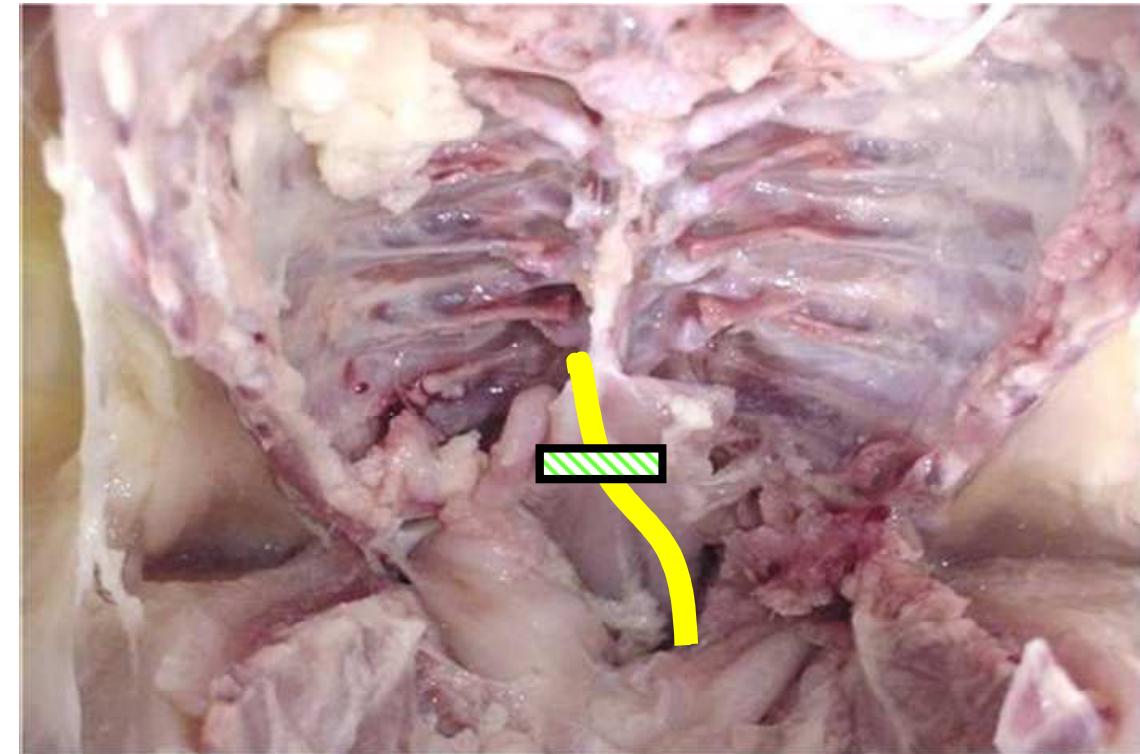
- Evisceration Arm (Spoon) proceeds down around the pack along the keel bone stopping at the correct height set by the Shoulder Presser (Lifter).
- Evisceration arm opens, captures the esophagus and then closes.
- Esophagus is located at the base of the neck



# Process

## Esophagus clamping

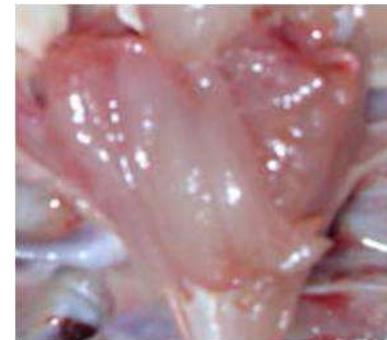
- Path of the esophagus
- Clamping area



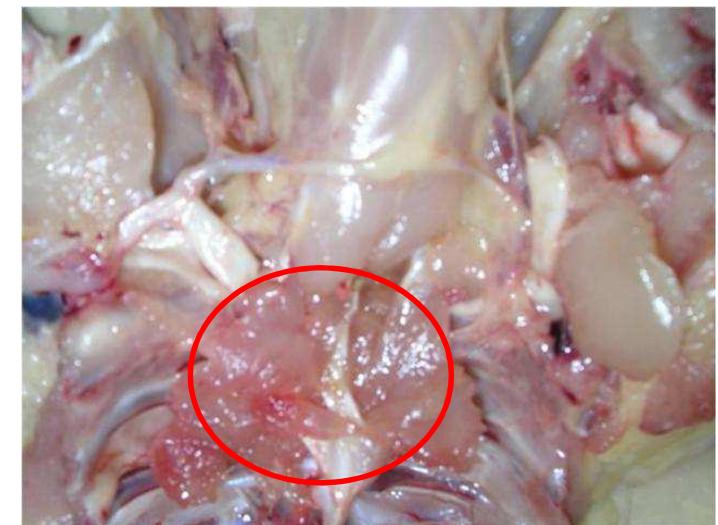
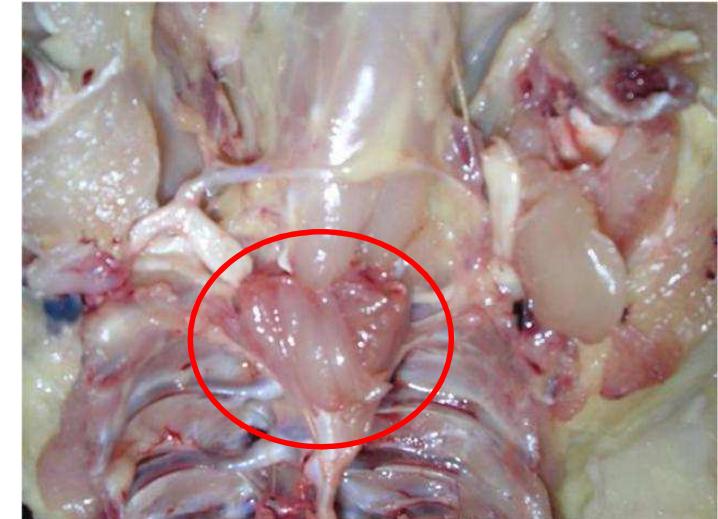
# Process

## Esophagus clamping

- Neck meat not effected by clamping process



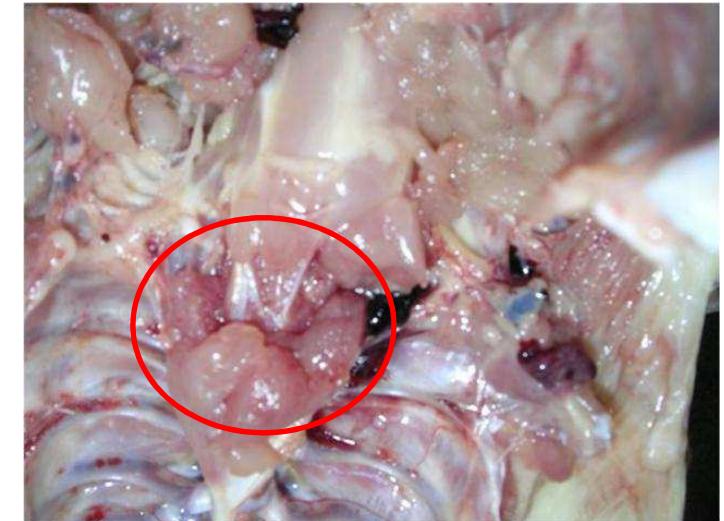
- Need to narrow the “Spoon to Back Plate” setting
- Neck meat affected by clamping process
- Good clamping



# Process

## Esophagus clamping

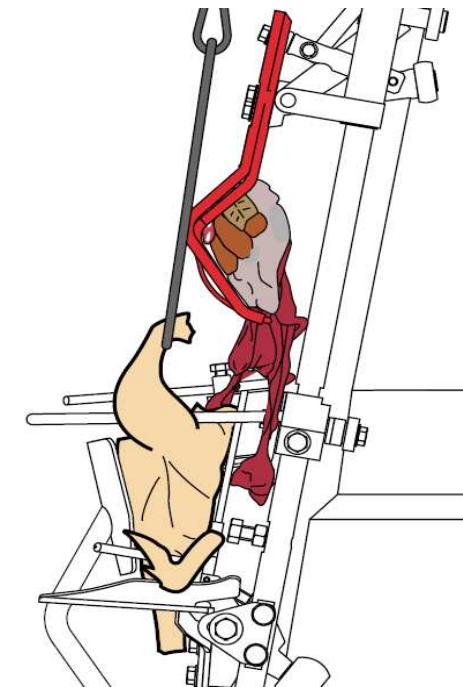
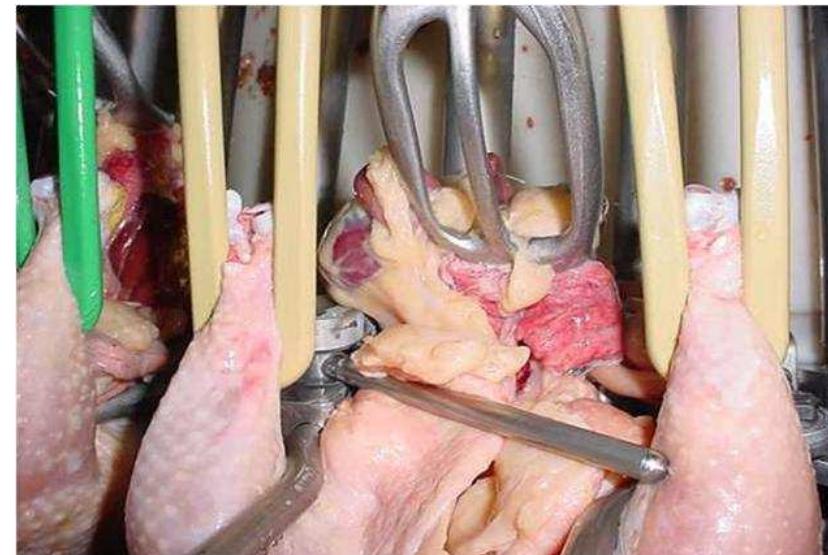
- Neck meat affected by clamping process
  - Good clamping
- 
- If you have this, the clamping process is too deep.
  - Widen the “Spoon to Back Plate” setting.



# Process

## Drawing the eviscera pack

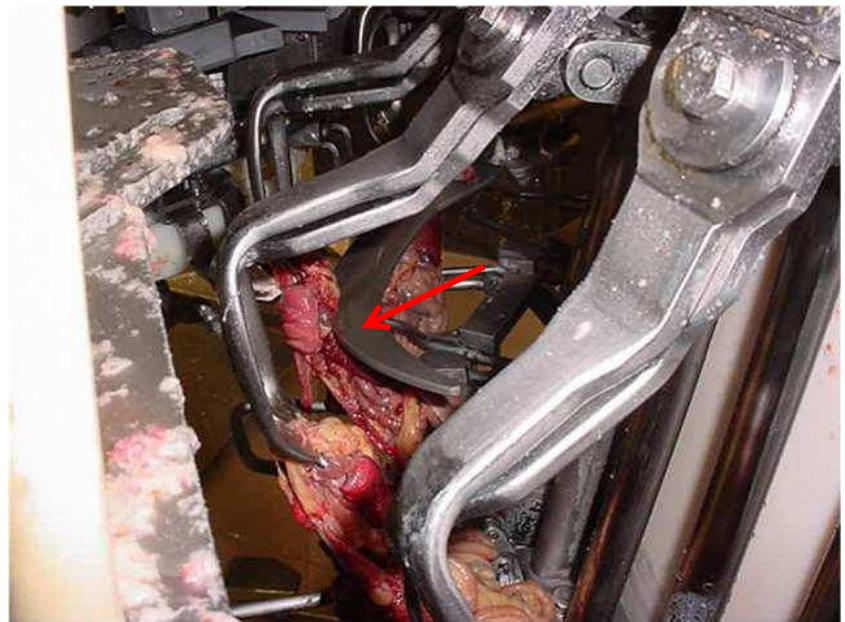
- Evisceration arm (Spoon) draws the eviscera pack out of the product and then prepares it for transfer.



# Process

## Viscera prepared for transfer

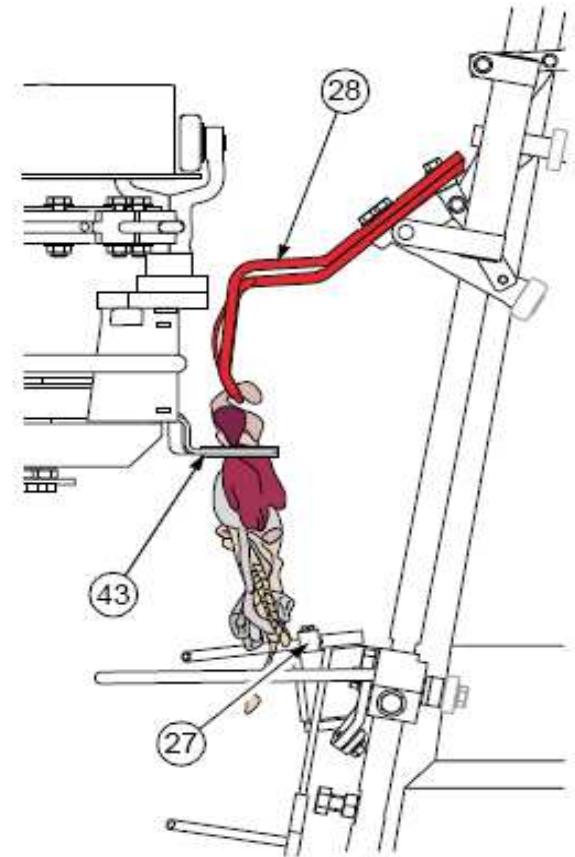
- Guide pushes pack into shackle



# Process

## Viscera pack transfer

- Arm moves pack with Viscera out away from the main cam body into the pack shackle.
- And then is clamped in place by the cam action of the pack transfer unit.



# Settings

## Objective

- Train personnel on the machine settings and adjustments to achieve maximum performance and to maintain optimum cost of ownership.
- Required gauges



# Settings

## Required tools

- 10 mm Combination wrench \*
- 13 mm Combination wrench \*
- 17 mm Combination wrench \*
- 19 mm Combination wrench \*
- 24 mm Combination wrench
- 5 mm L shaped -Allen key
- 8 mm Ball end T-handle
- Thread locker (542 red, 270 green)

\* (45° Off-Set box end wrenches recommended)



**Most Important tool?**



# Settings

- Settings are starting points based on a specific product size. These dimensions may change with product size. These changes should be annotated (in the notes section of users manual). As wear in the units and the machine occur these settings will seem to move. Monitoring settings and adjusting accordingly will help maintain consistency in the performance of the machine.

## Unit play

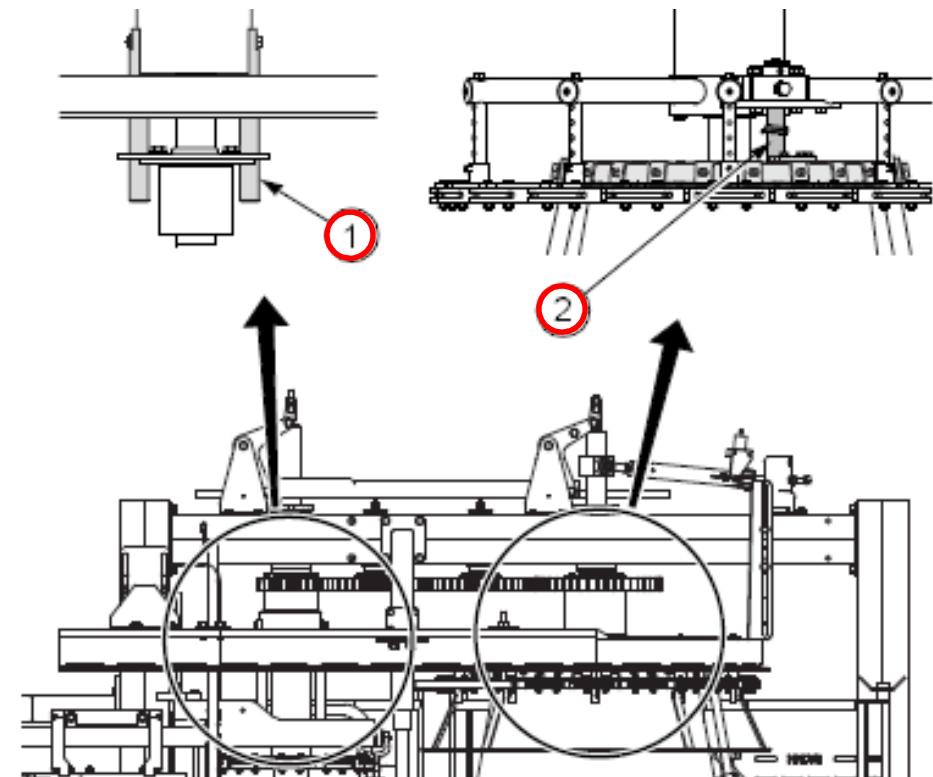
- While adjusting the machine you will be told to take the slack out of unit.
- As the arm enters the bird, it meets resistance from the intestines. This takes the slack out of unit mechanically. While setting up the machine you have to imitate that resistance.



# Settings

## Coupling and de-coupling the machine

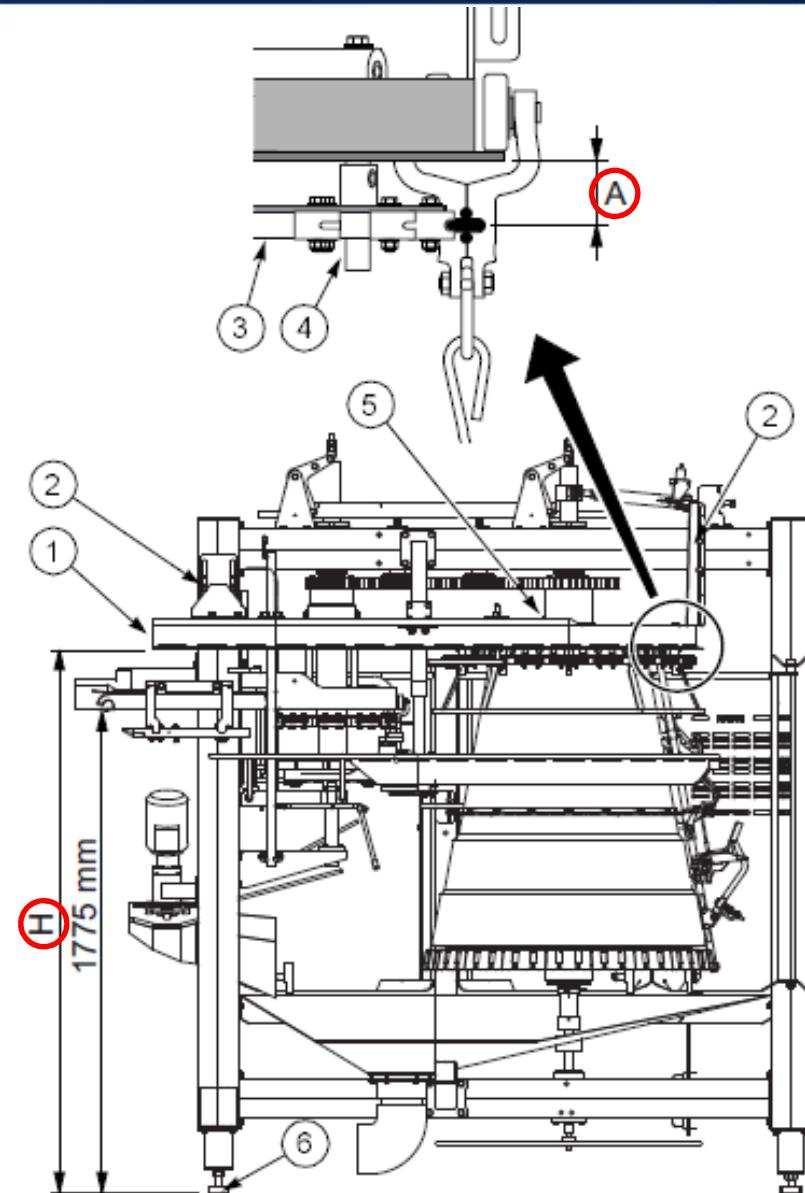
- Decouple the pack line from the eviscerating line by removing carrier pins 1. **(Only during chain replacement).**
- Decouple the carousel from the eviscerating line by removing carrier pin 2. **(Do not remove while line is running)!**



# Settings

## Adjust track height

- Measurements A and H depend on the type of track profile and shackle.
- For Stork Poultry Processing open shackles and T-profile or Sigma :
- A = 45 mm , H = 2100 mm



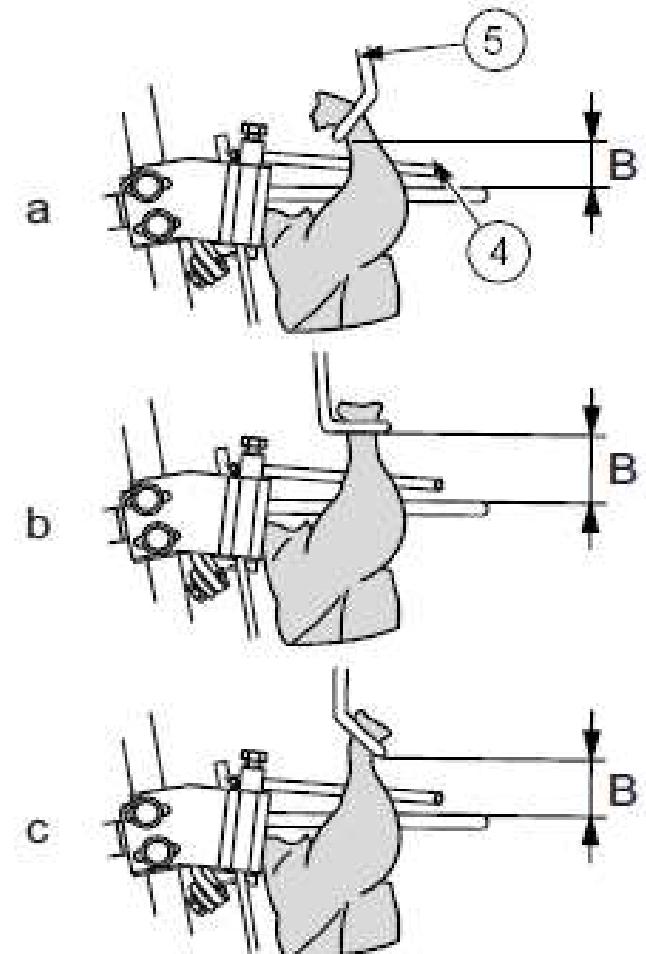
# Settings

## Adjust height of the main shaft

- Set according the type of shackle and or products produced

Type of shackle	B (mm)
a. Stork Poultry Processing open shackle	10
b. 90° offset shackle	30
c. 30°offset shackle	30

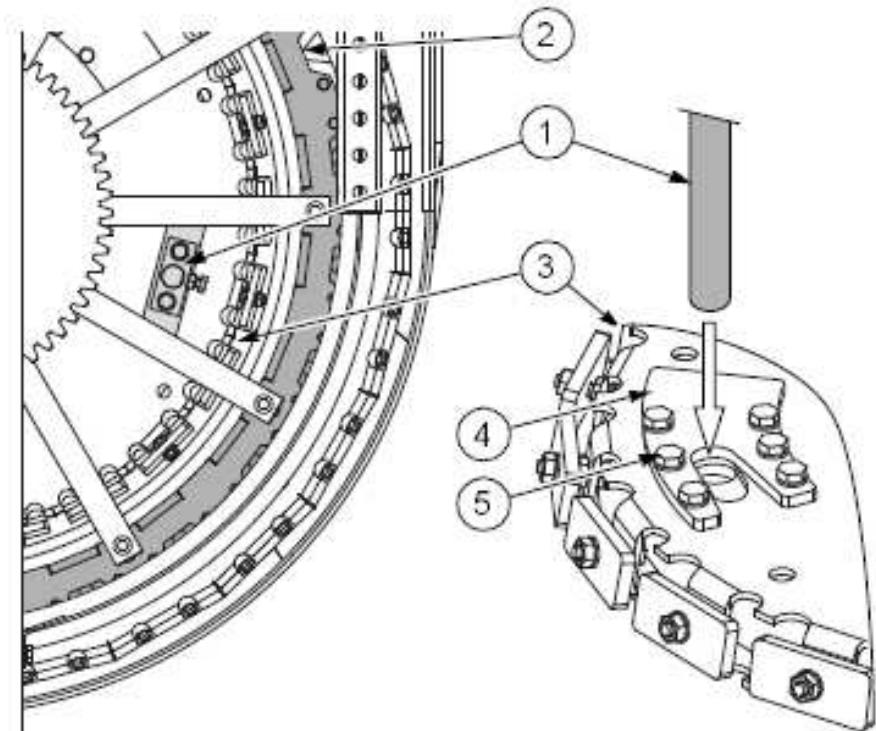
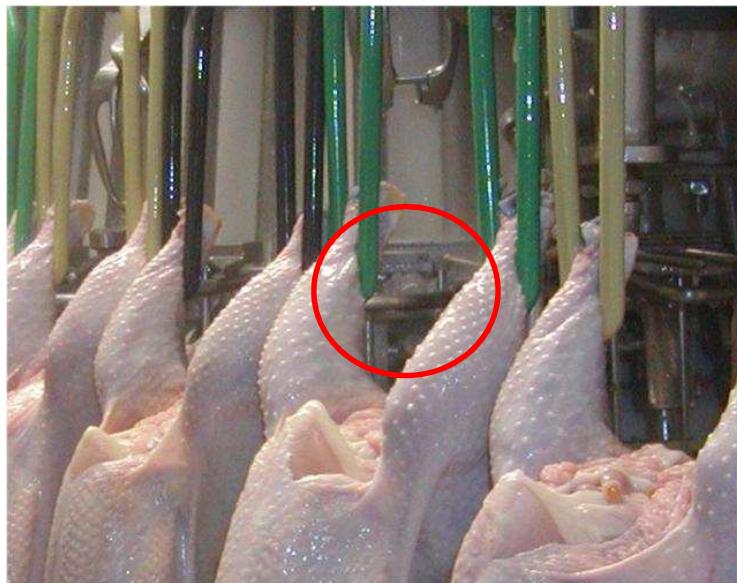
- Machine height can be influenced when different sort of products are produced on the same machine.
- Polyvalent! Spring chicken!



# Settings

## Timing machine to shackle

- Turn the carousel until the eviscerating shackles are positioned precisely opposite the processing units.

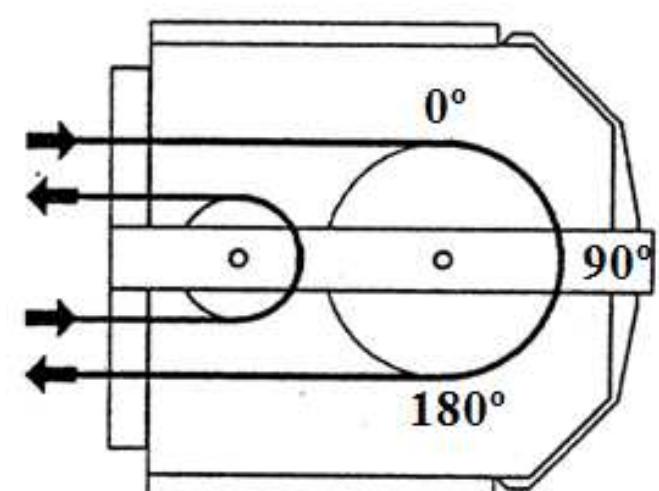
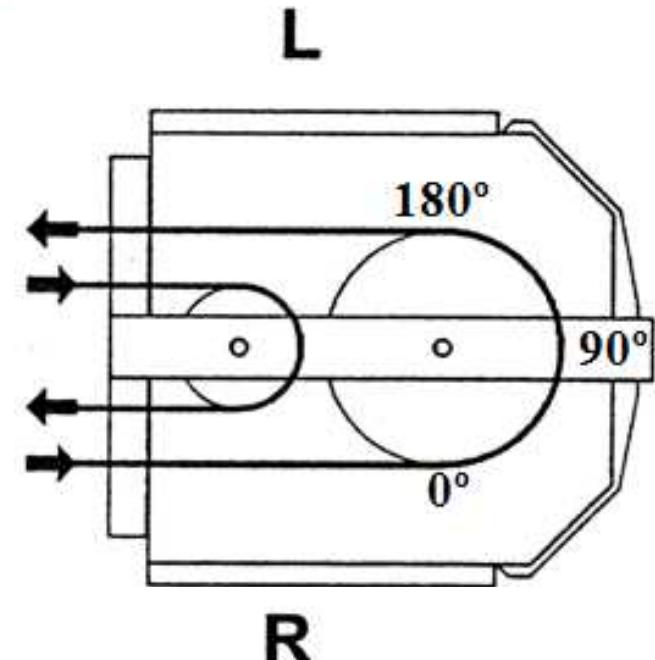
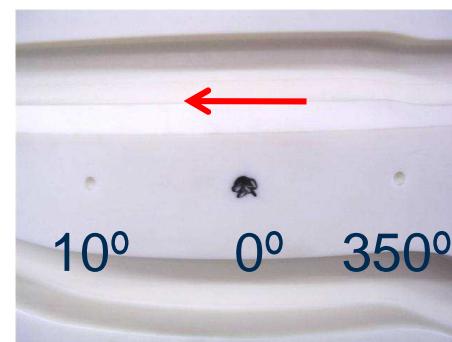
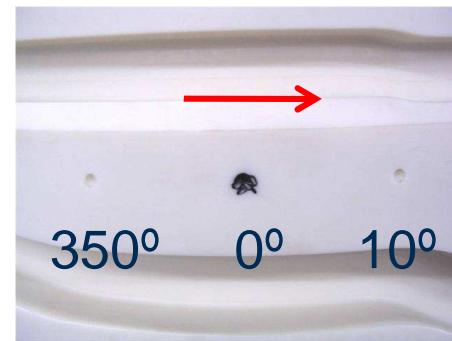


- To ensure that the legs of the product drop properly and easily into the spreader brackets, it is advisable to alter the guide settings to enable this.

# Settings

## Machine lay-out and cam markings

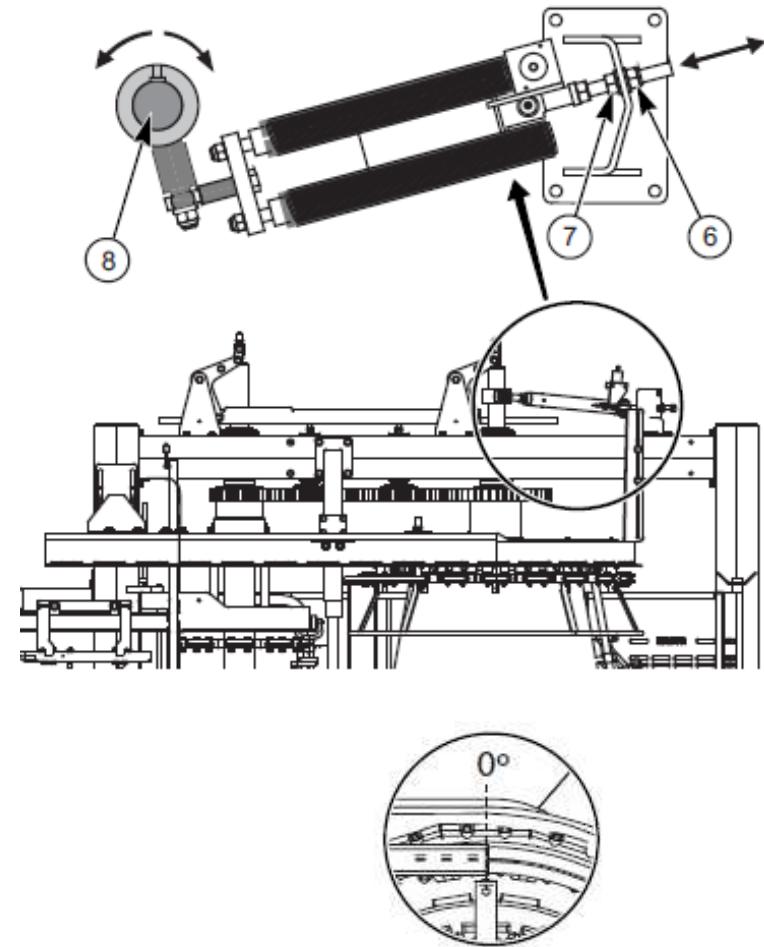
- Left handed Nuova units do not have rotating pack shackles
- Larger dimple is  $0^\circ$
- Small dimple every  $10^\circ$
- Right handed Nuova units have rotating pack shackles.



# Settings

## Set zero point for conical cam

- By changing the length of the safety arm, you can adjust the position of the “0”point.



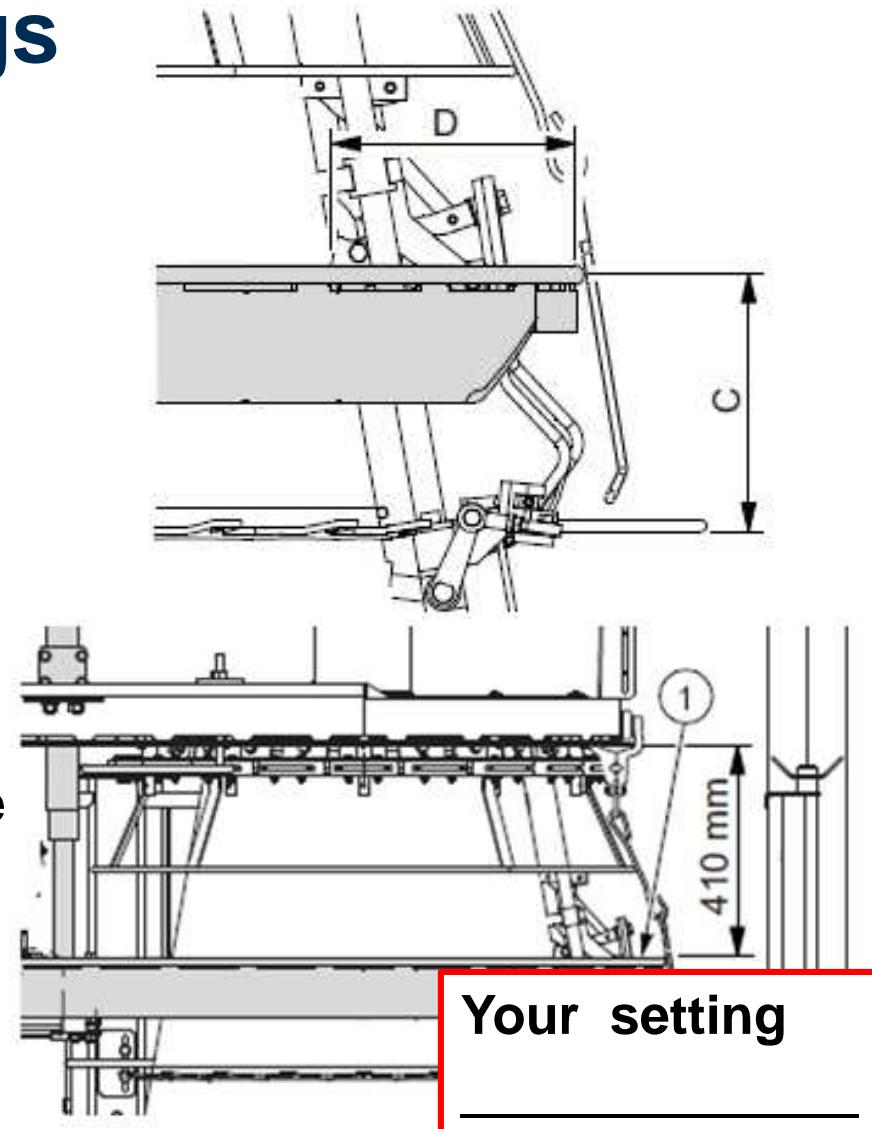
# Settings

## Adjust shackle guide

- Adjust setting C

Cam position	0°	90°	180°
C	270	270	270
D	220	200	240

- Check the distance to the track!
- 410 mm for the standard Stork shackle
- Adjust setting D



# Settings

## Adjust shackle guide

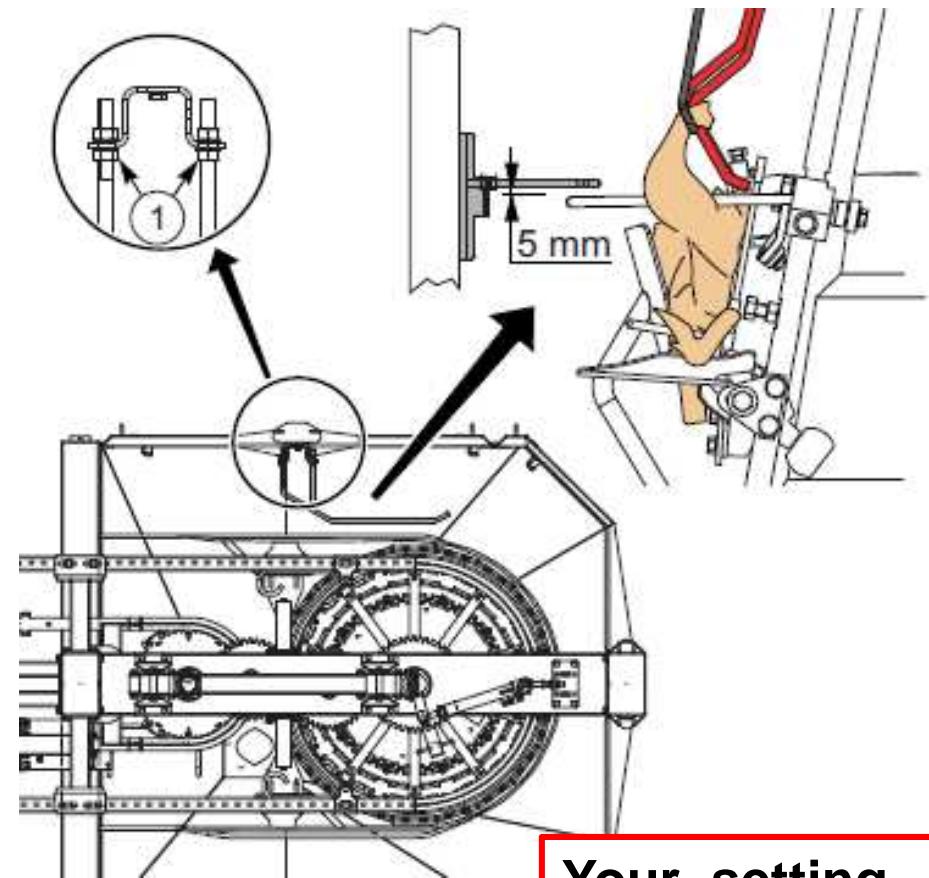
- Check @ 180°
- Allow the arm to just pass by the guide bar without hitting



# Settings

## Infeed guide

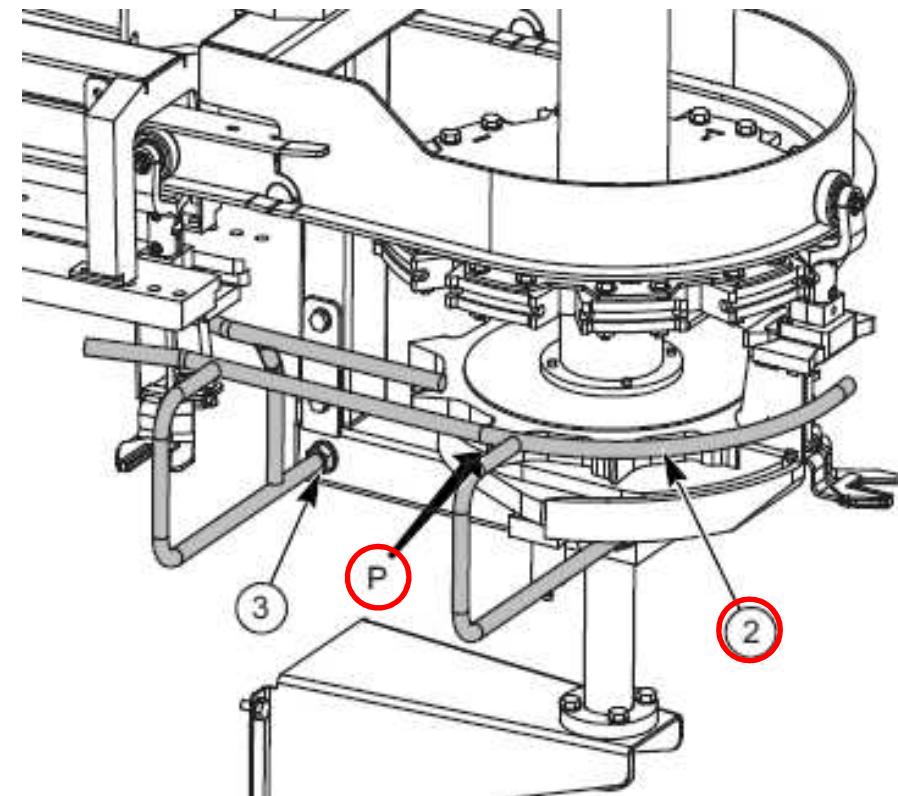
- The infeed guide is suspended 5 mm above the spreader clamp



# Settings

## Adjust pack shackle guide

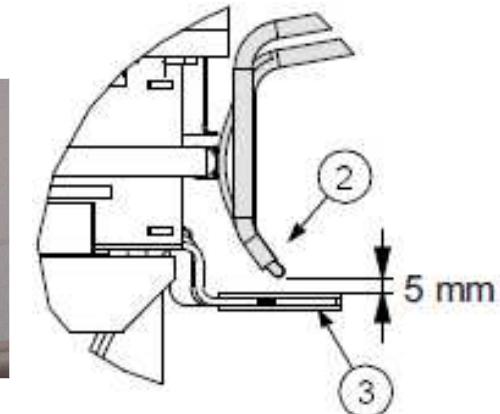
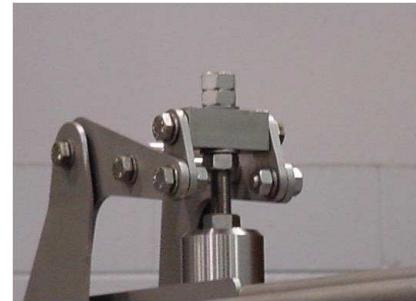
- The pack shackles feed in easily, fully controlled and without juddering.
- From point P the pack shackles must just touch guide 2.



# Settings

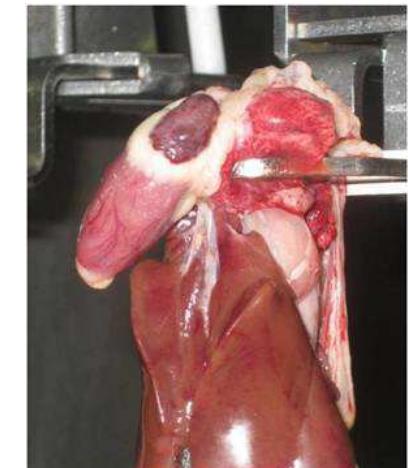
## Adjust pack shackle height

- Set the distance between the underside of drawing arm 2 and the top side of pack clamp 3 to 5 mm.
  - Raise or lower the pack transfer unit to achieve optimal clamping position.
  - 5 mm puts the heart on top of the pack shackle.
- 
- Properly transferred for PLH →
  - Properly transferred for manual harvest →



Your setting

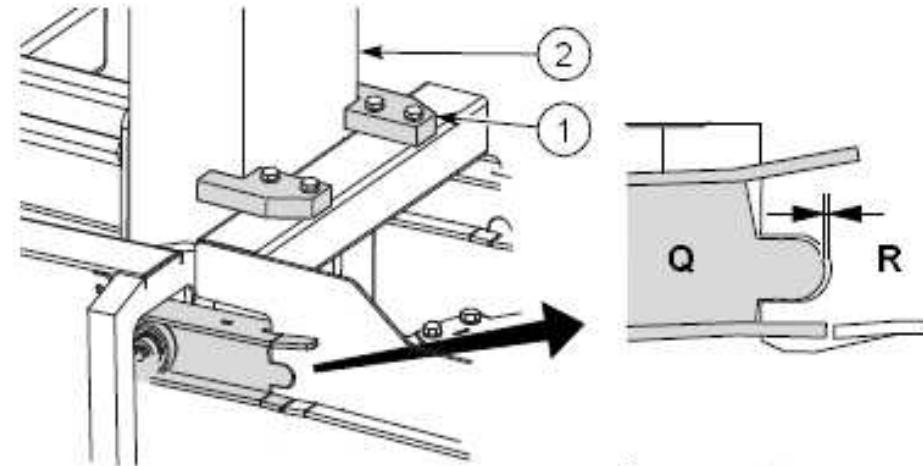
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# Settings

## Adjust pack shaft guide blocks

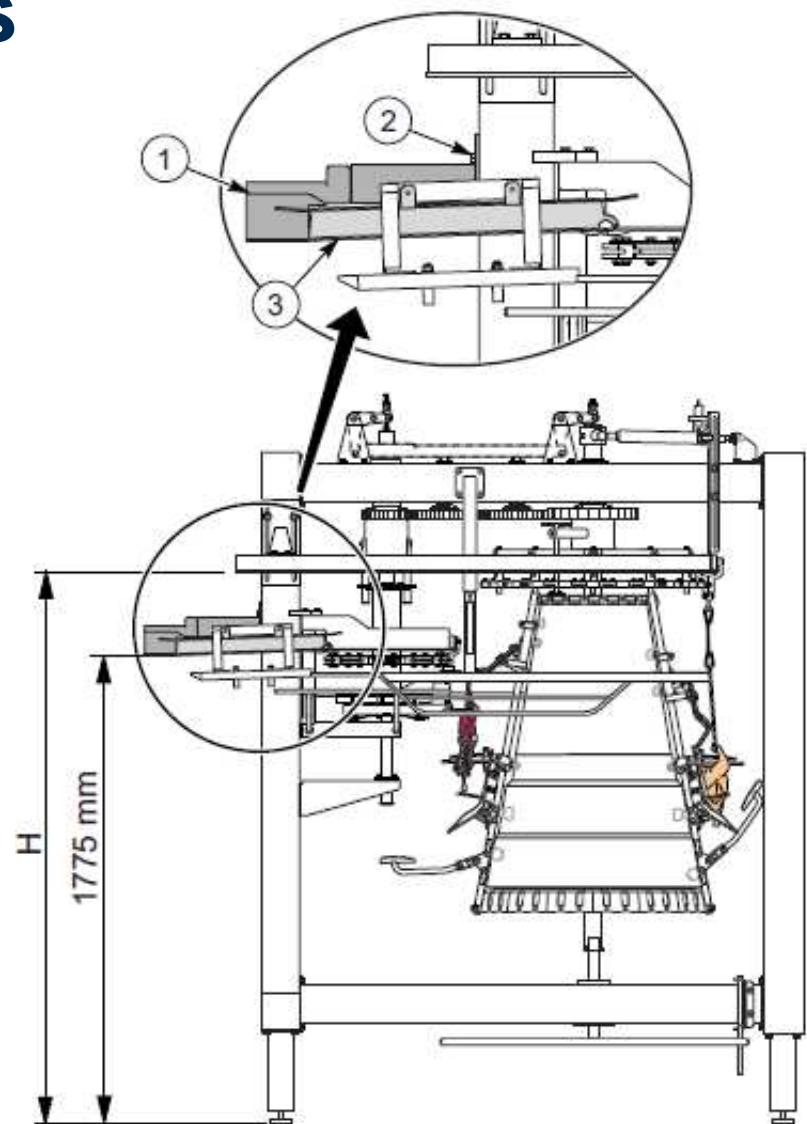
- Adjust the guide blocks 1 so that the pack shaft can slide steadily along frame profile 2. that the connection between track sections Q and R is the same on both sides.



# Settings

## Adjust the height of the pack shaft connecting block

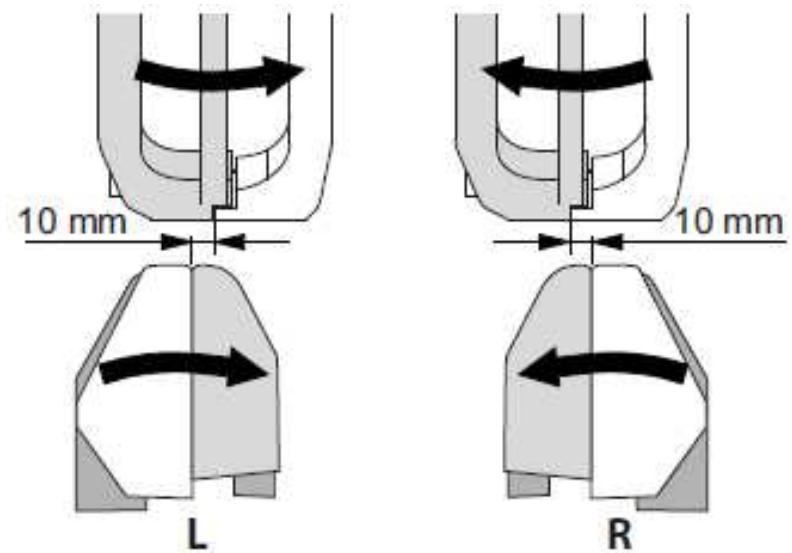
- After adjusting the machine, the connecting block 1 must be adjusted horizontally.
- Position the underside of connecting block 1 to a height of 1775 mm from the surface on which the machine is positioned.



# Settings

## Pack transfer timing

- The carousel and eviscerating line must be coupled !
- Rotate the pack line so that there is the indicated measurement of 10 mm for both left-handed L and right-handed R machine models.

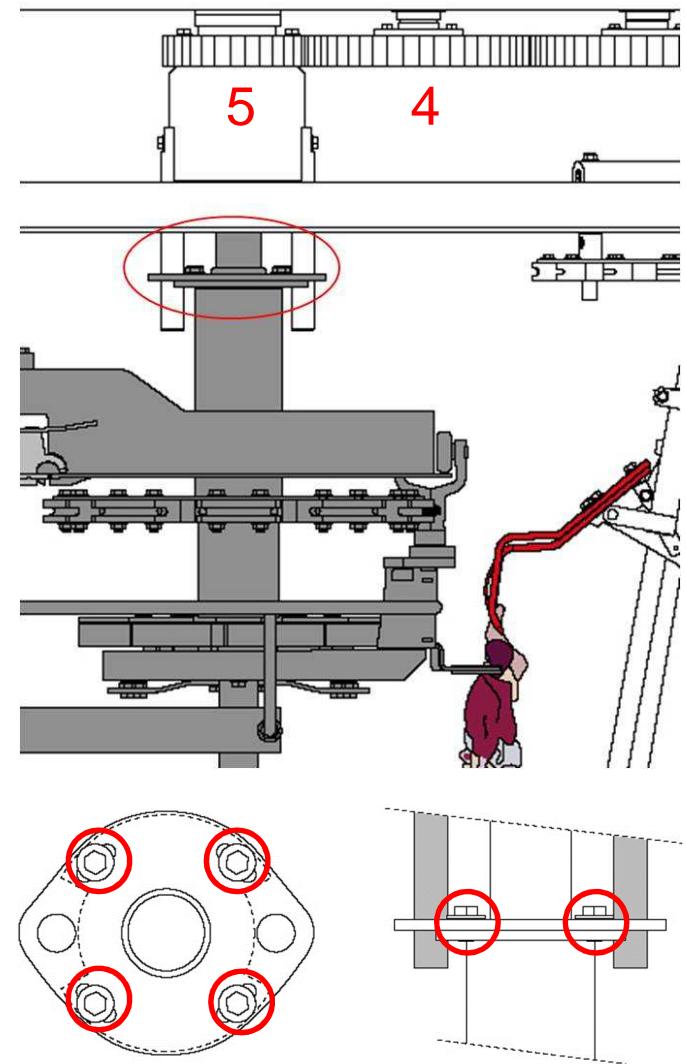
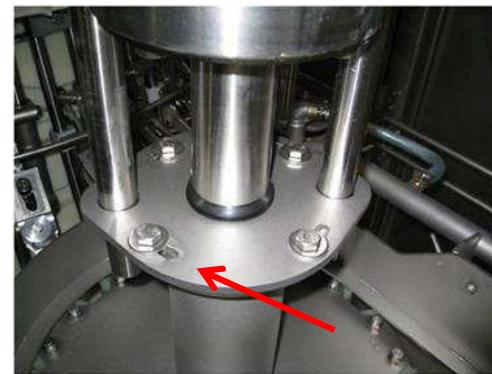


Your setting  
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# Settings

## Pack transfer timing

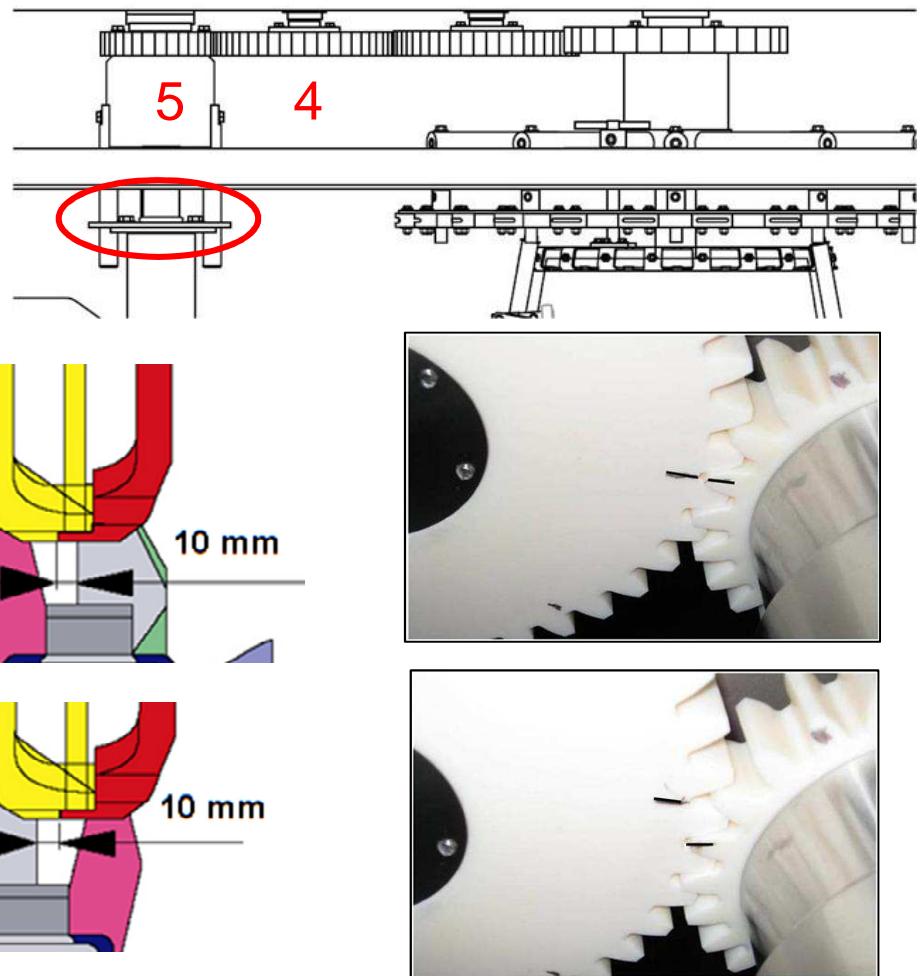
- To rotate loosen the four bolts indicated
- If the pack line can not be rotated far enough, gear wheel **4** must be slackened and pack shaft transfer gear **5** needs to be moved on by one tooth!



# Settings

## Pack transfer timing

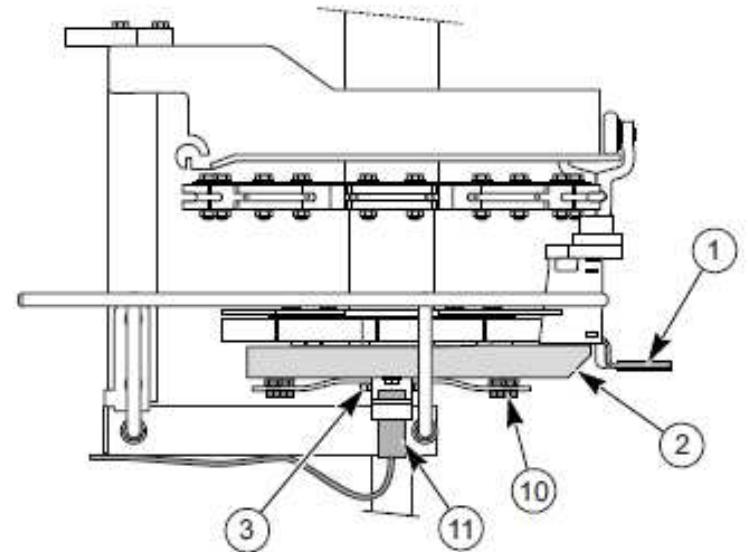
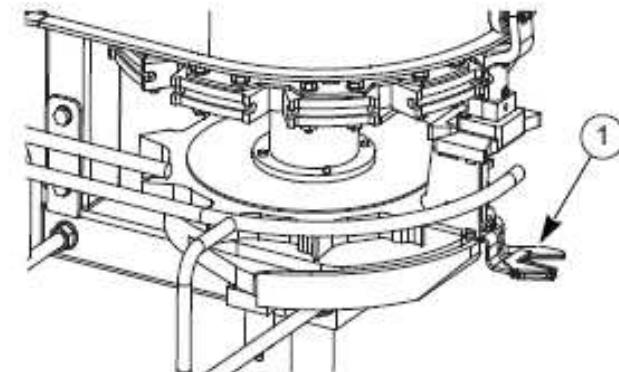
- With the four bolts loosened up
- Mark pack transfer and idler gear
- Drop idler gear 4
- Move pack shaft gear 1 tooth
- Set the 10 mm as indicated



# Settings

## Adjust pack line cam disc

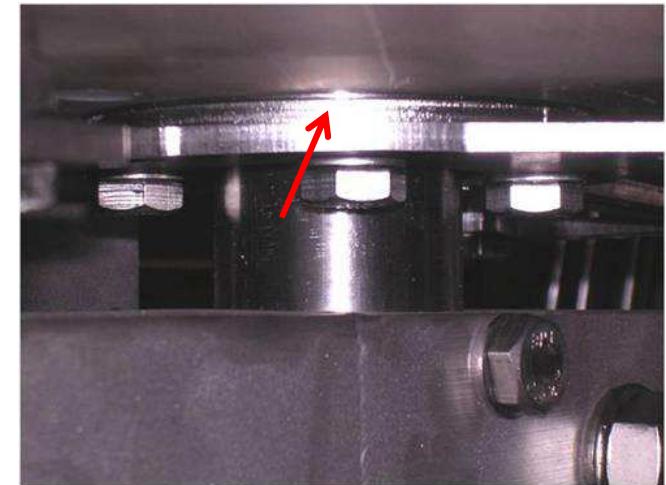
- 1. Decouple the carousel from the eviscerating line!
- 2. Loosen bolts 3 (4x) a number of turns.
- 3. Turn cam disc 2 so that it closes the pack shackle just before the drawing arm opens.



# Settings

## Set pack transfer torque tension

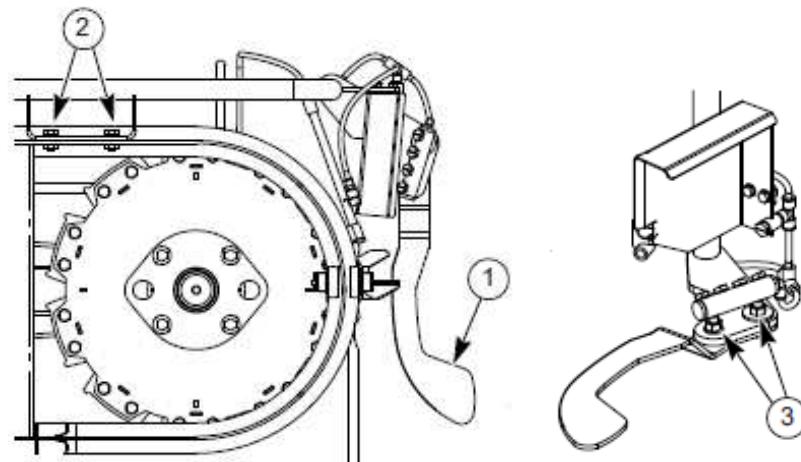
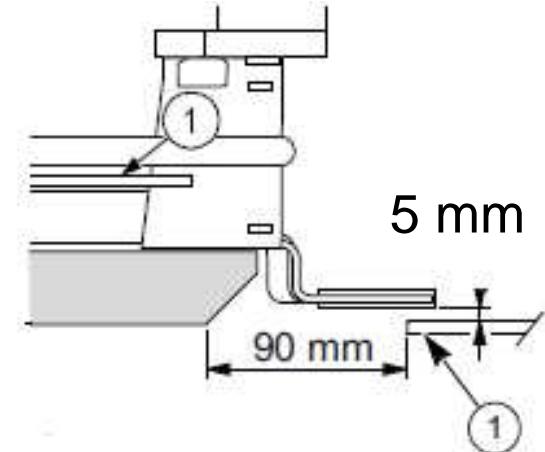
- 25 Nm +/- 25 Nm (10 – 15 kg).
- Use the amount of spacers needed to achieve proper tension without nuisance torque trips.
- Each spacer is about 1,5 kg



# Settings

## Adjust the viscera pack guide

- Adjust the guide 5mm under the pack shackle
- Adjust the distance between guide 1 and the cam disc to 90 mm.



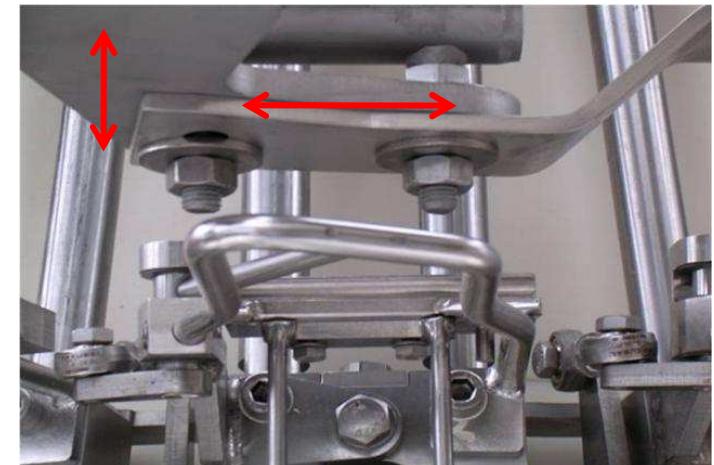
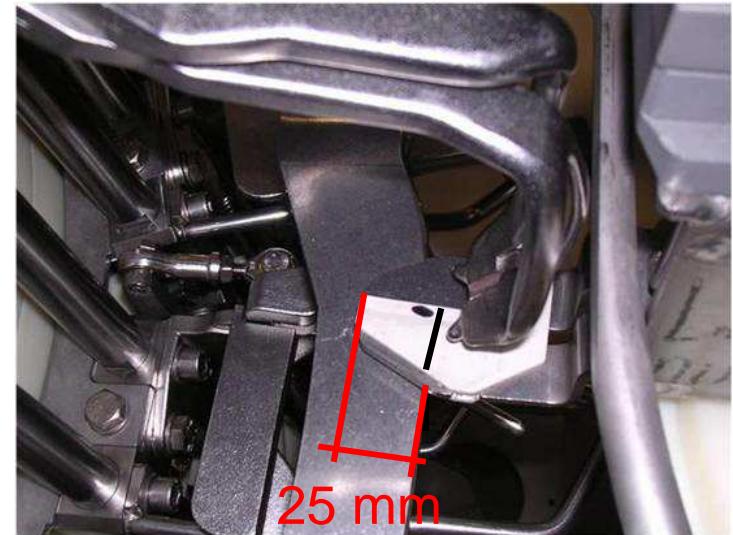
Your setting

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# Settings

## Adjust the viscera pack guide

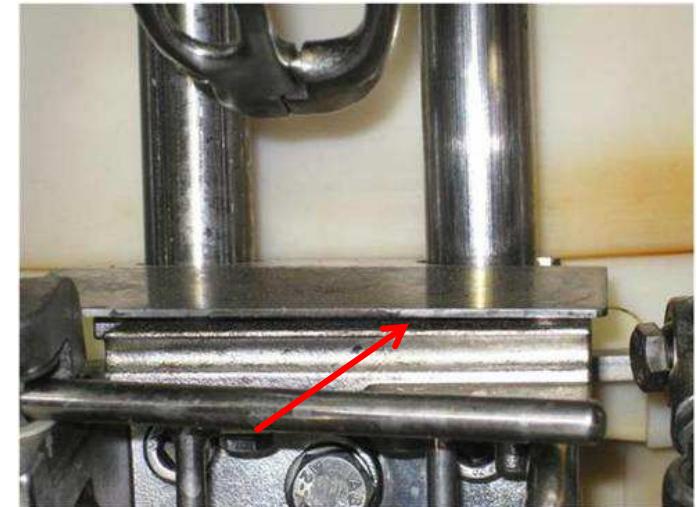
- It is easier to mark a pack shackle at 25 mm, rather than measuring the 90 mm underneath.
- Adjust by loosening nuts and pivoting arm.



# Settings

## Top unit plate

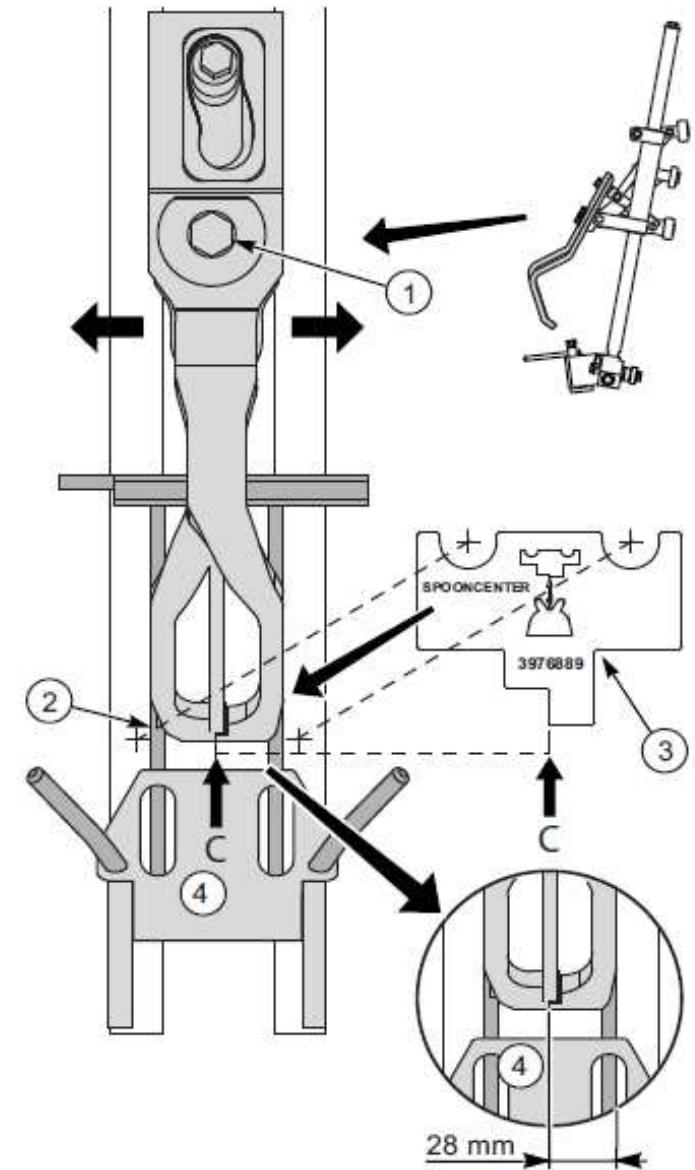
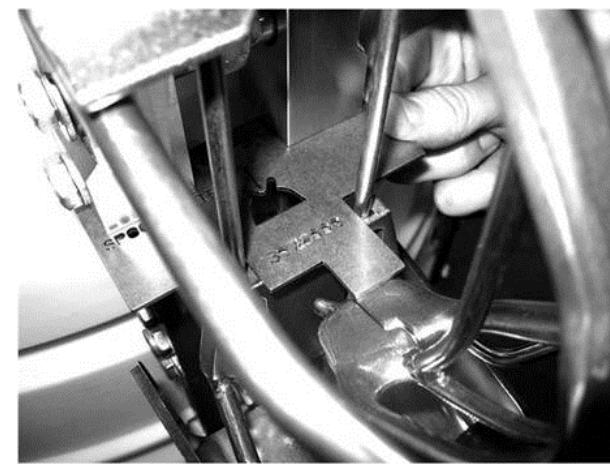
- Leave 1-2 mm gap between plate and block.
- Insure plate doesn't hit block anytime during its full stroke.



# Settings

**Centre the drawing arm @ 115-120°**

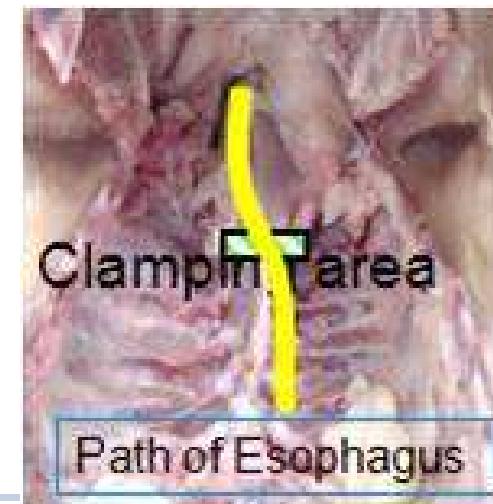
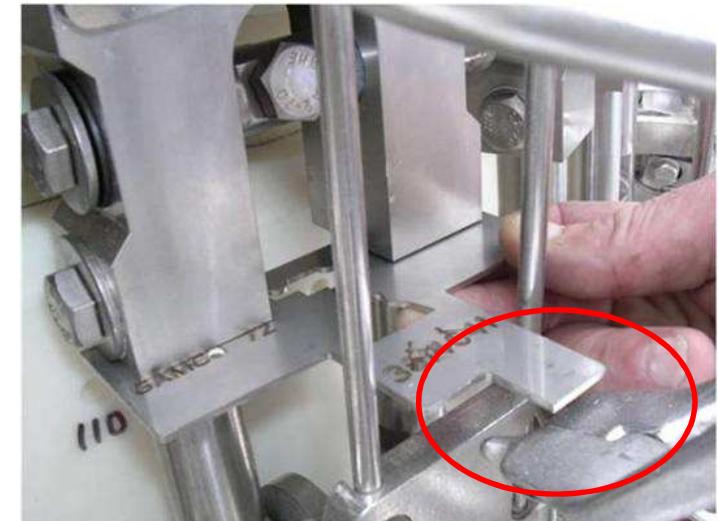
- Drawing arm in lowest position
- Move the drawing arm so that it is centred (drawing arm centre line is in line with the flank "C" of jig 3)
- With respect to shafts 2 of the backplate. (28 mm  $\pm 0.5$  mm.)



# Settings

**Centre the drawing arm @ 115-120°**

- Gauge can be used on top or the bottom of the spoon !
- This setting is needed to capture the esophagus as it crosses over the spine



# Settings

**Centre the drawing arm @ 115-120°**

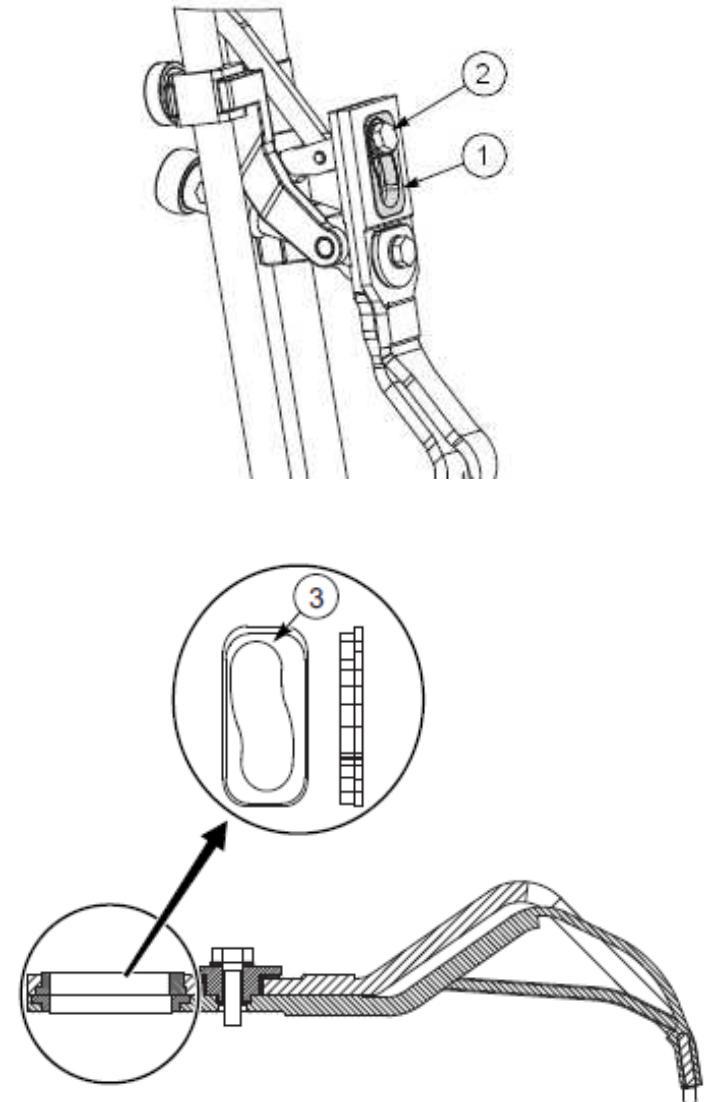
- Loosen attachment
- Backside of spoon is notched
- Adjust spoon by sliding back and forth
- Tighten bolt



# Settings

## Check the clamping force @ 310°

- The clamping force is determined by the form on the cam plate 3 on the upper drawing arm.
- If the shaft falls down of its own accord, this indicates wear on the cam plate.
- The drawing arm consists of two halves which are marked with the same number.
- Note this number in Appendix 3:  
DRAWING ARMS DATA.
- Arm halves are not interchangeable!



# Settings

## Leg loop adjustment @ 35°

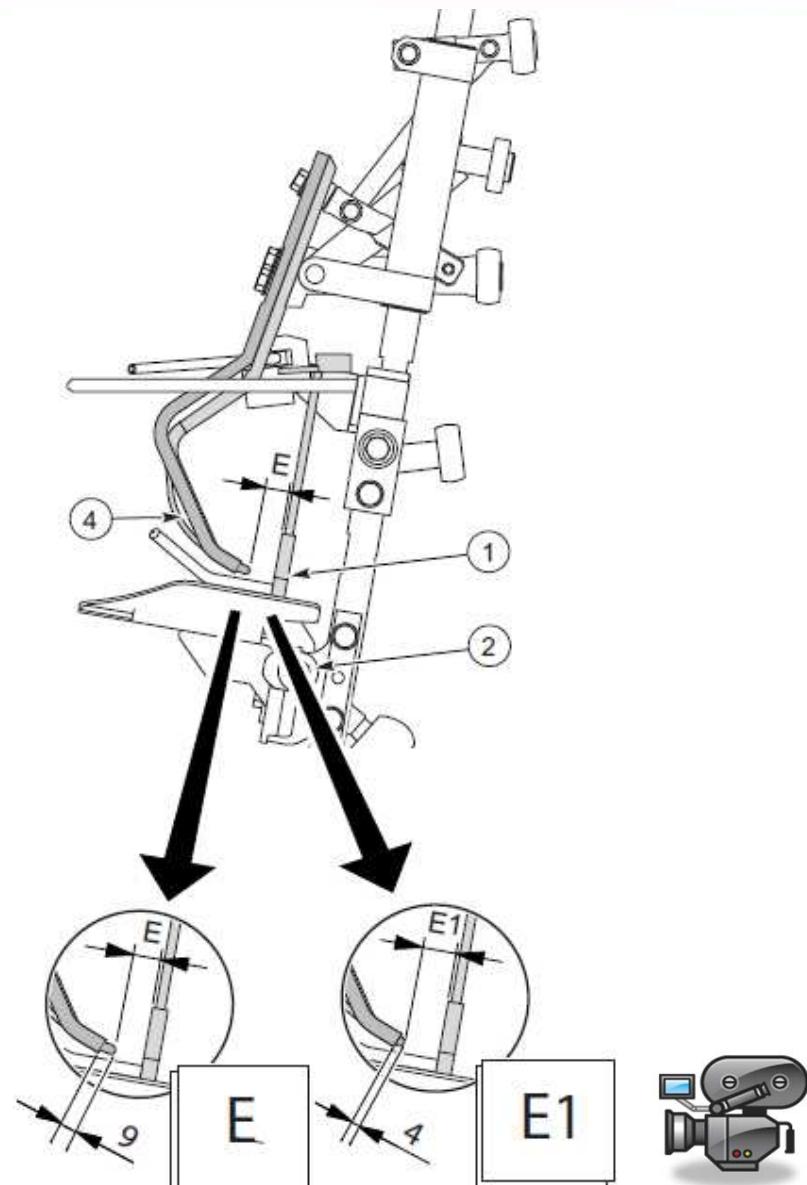
- 2 mm Clearance needed between spoon and arm
- Adjust leg loop if necessary



# Settings

## Adjust bottom back plate @ 93°

- The standard drawing arm with tip length 9 mm, E
- The optional drawing arm with tip length 4 mm, E1
- Rotate the carousel to 90° until the drawing arm just closes. (Video)

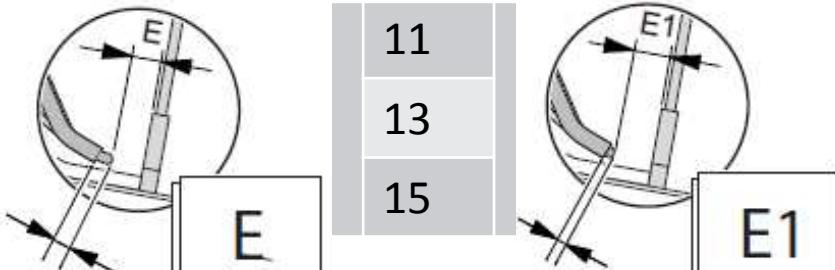


# Settings

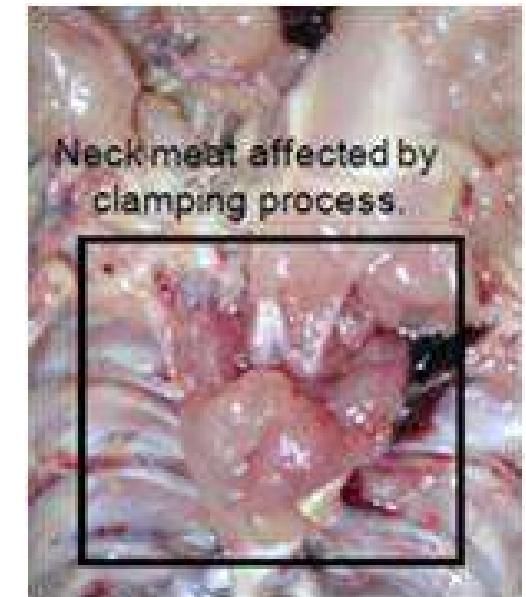
## Adjust bottom back plate @ 93°

- Set measurement E/E1, depending on the machine LD, ND or HD, with the jig supplied.

Machine	Measurement E (mm)	Measurement E1 (mm)
LD	6	11 13 15
ND	8	E1
HD	10	E



- This setting is needed to gauge the depth the spoon goes into the spine to capture the esophagus
- Setting can be influenced by product size



Your setting

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# Settings

## Adjust bottom back plate @ 93°

- The back plate and shoulder presser moves forward and back via the slot in the bracket.
- Bolt head is locked in slot
- Loosen back plate adjustment bolt by loosening nut.
- Insert the jig between the point of the drawing arm and back plate



# Settings

## Adjust bottom back plate @ 93°

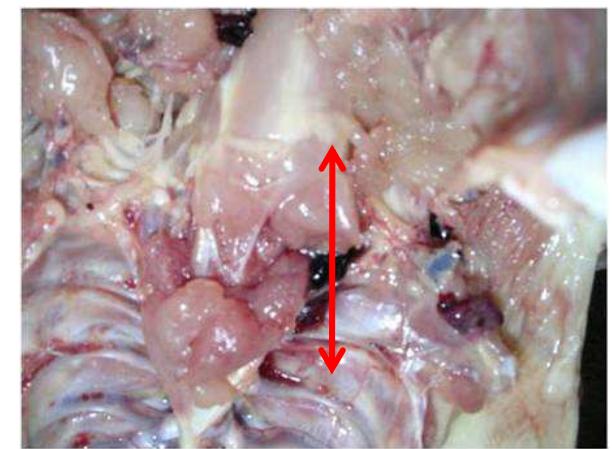
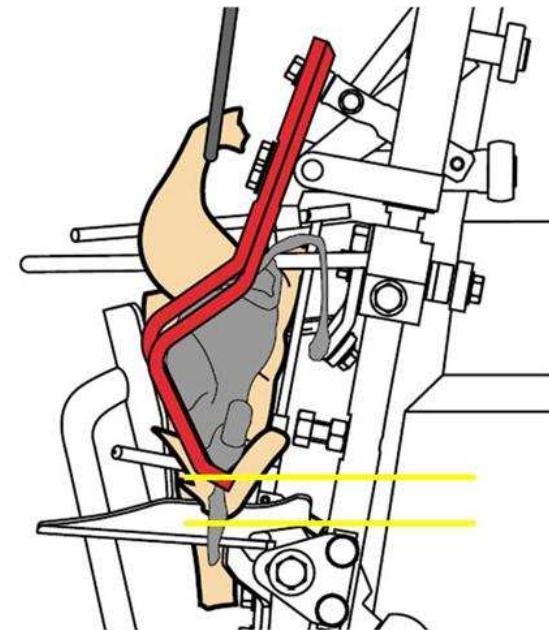
- Pull back plate forward in slot to engage the spoon against the gauge tightly
- (just take the play out of the arm), hold in place, then tighten bolt.



# Settings

## Adjust shoulder lifter @ 93°

- This setting positions the bird height properly to locate the esophagus for clamping.
- Leaving the gauge in place from last setting, insert lifter gauge below the spoon.

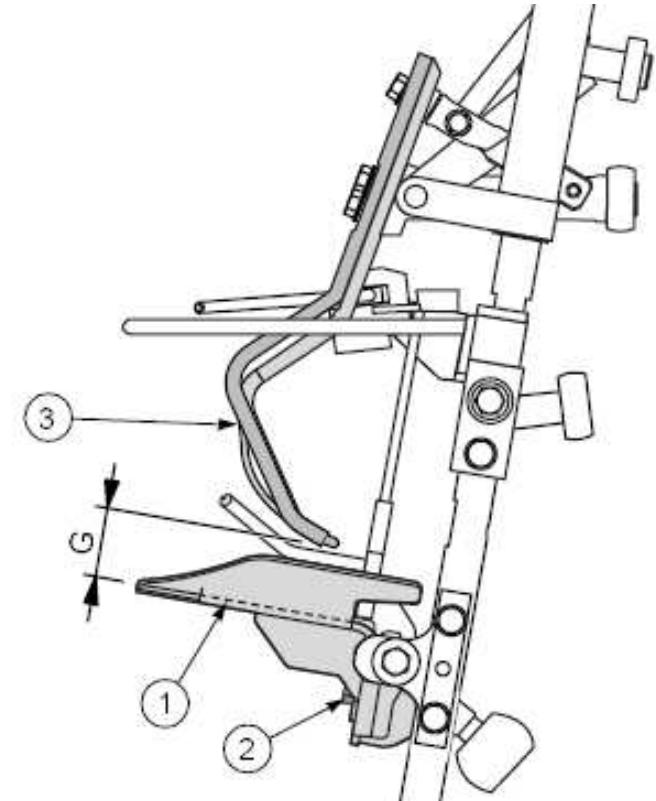


# Settings

## Adjust shoulder lifter @ 93°

- Settings are just starting points.
- Final settings will be dependent upon your actual product size.
- Gauge starting points:
- For US machine
- Small product: Up to 2 Kg (4.5 lbs)- 24 mm
- Big product: Above 2 Kg (4.5 lbs)- 26 mm

Machine	Measurement G	Jig
LD	18 mm	3849501
Norm	22 mm	3976892
HD	25 mm	



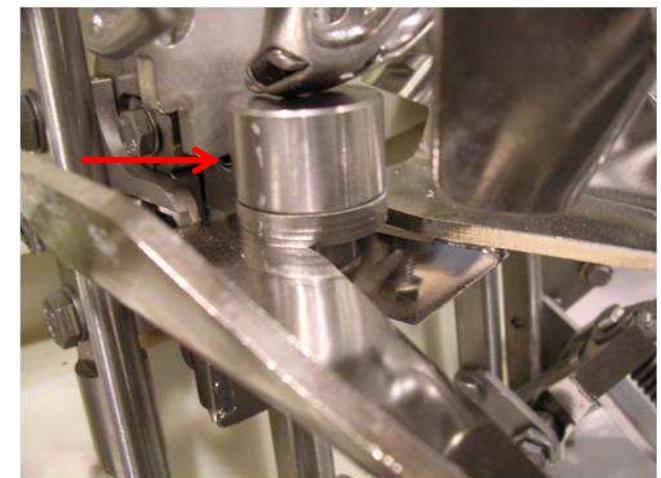
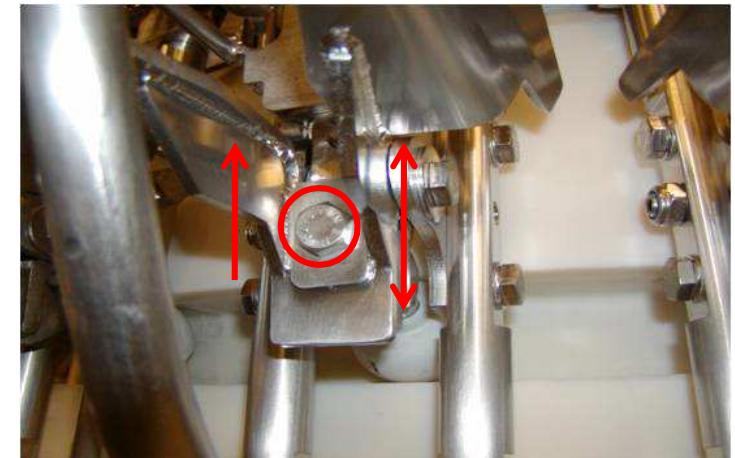
Your setting

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# Settings

## Adjust shoulder lifter @ 93°

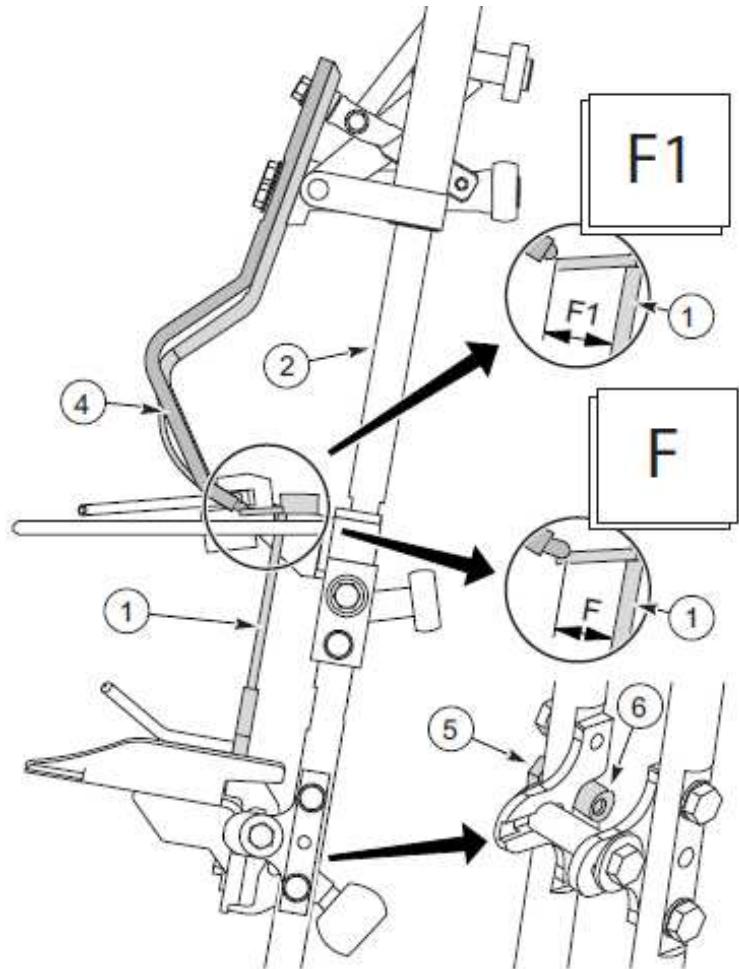
- 1. Loosen bolt so lifter moves up and down
- 2. Insert gauge between spoon and top edge of lifter plate
- 3. Push up lifter, secure bolt and re-check measurement



# Settings

## Adjust top back plate @ 140°

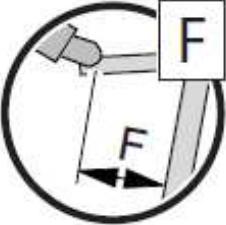
- Check measurement on the top!
- The adjustment of the bottom can influence the measurement on the top
- The standard drawing arm with tip length 9 mm, F
- The optional drawing arm with tip length 4 mm, F1
- Turn the carousel until the drawing arm 4 is at the same height as the spreader clamp.



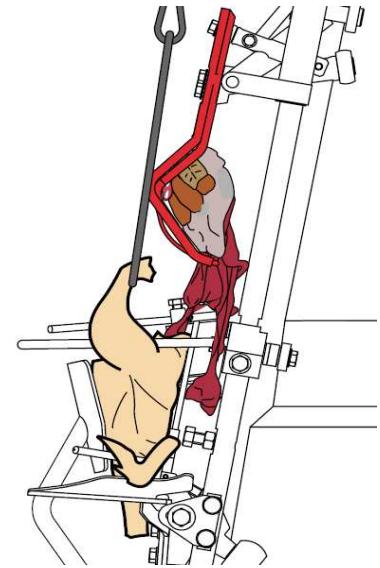
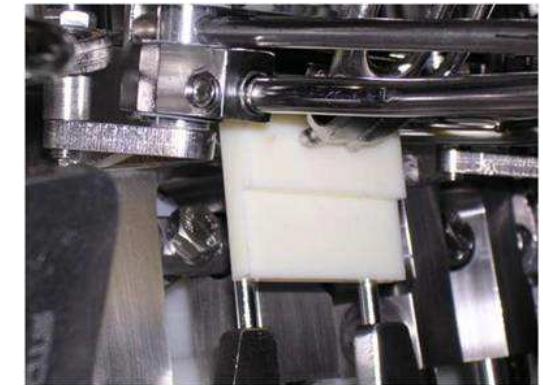
# Settings

**Adjust top back plate @ 140°**

- Set measurement F/F1, depending on the machine LD, ND or HD, with the jig supplied.

Machine	Measurement F (mm)	Measurement F1 (mm)
LD	10	
ND	12	
HD	16	

- This setting is needed to provide a constant pressure against the spine of the product as you draw the pack out of the body cavity.
- Setting can be influenced by product size



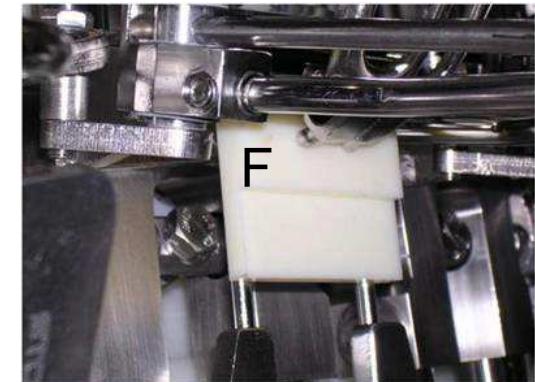
**Your setting**

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# Settings

## Adjust top back plate @ 140°

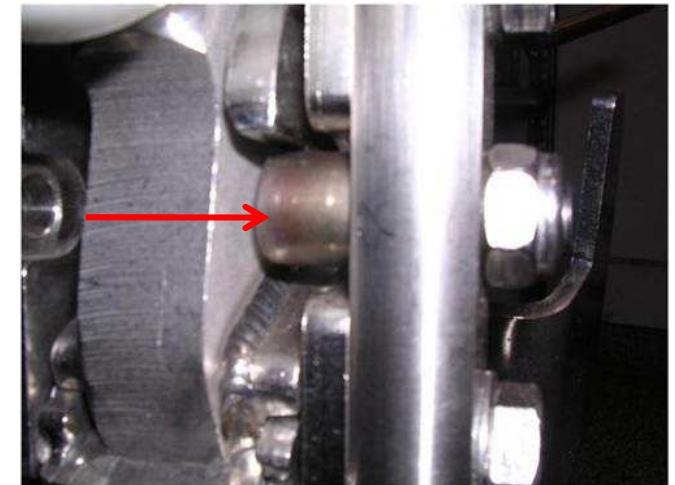
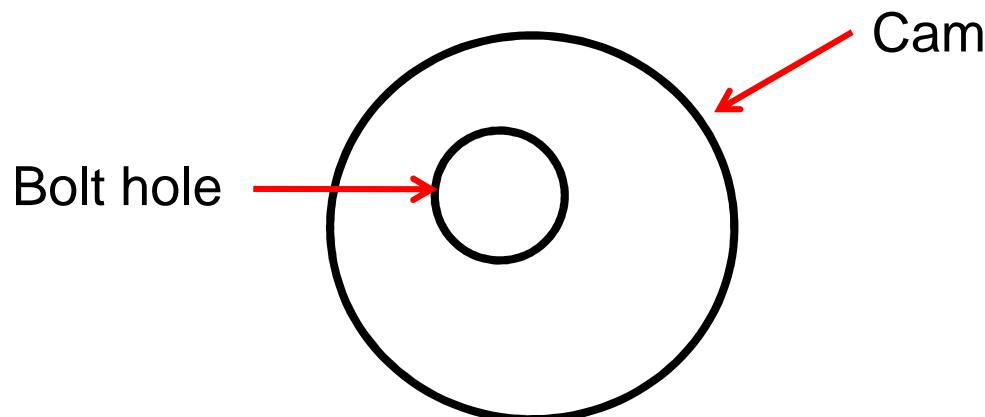
- Check with spoon in its natural position.  
DO NOT pull spoon back. Allow the weight of the spoon to hold gauge.
- To adjust, loosen locknut and turn inner screw with a 5mm L-Allen key/wrench



# Settings

## Adjust top back plate @ 140°

- By turning inner screw, eccentric cam rotates against back plate stop, moving the back plate in and out.



# Settings

## Adjust top back plate @ 140°

- Tighten lock nut while holding inner screw w/ L-Allen key/wrench
- Re-check setting



# Settings

## Adjust top back plate @ 140°

- **Note:** After rechecking the setting and if it moved, turn both the wrench and the allen key at the same time (up or down) to fine tune the setting adjustment
- If you can move the back plate freely from the back to the front and back, you need to take out the movement.

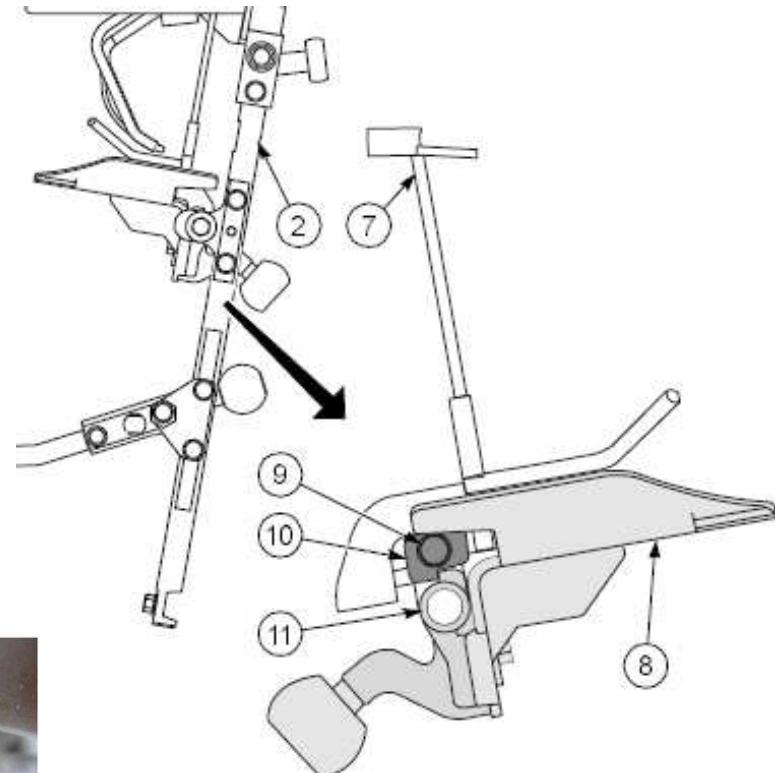


# Settings

## Adjust shoulder lifter stop

- Turn the carousel to the point where shoulder lifter 8 reaches its highest position after running in.
- Loosen bolt 9 a number of turns.

Back plate is in the forward position

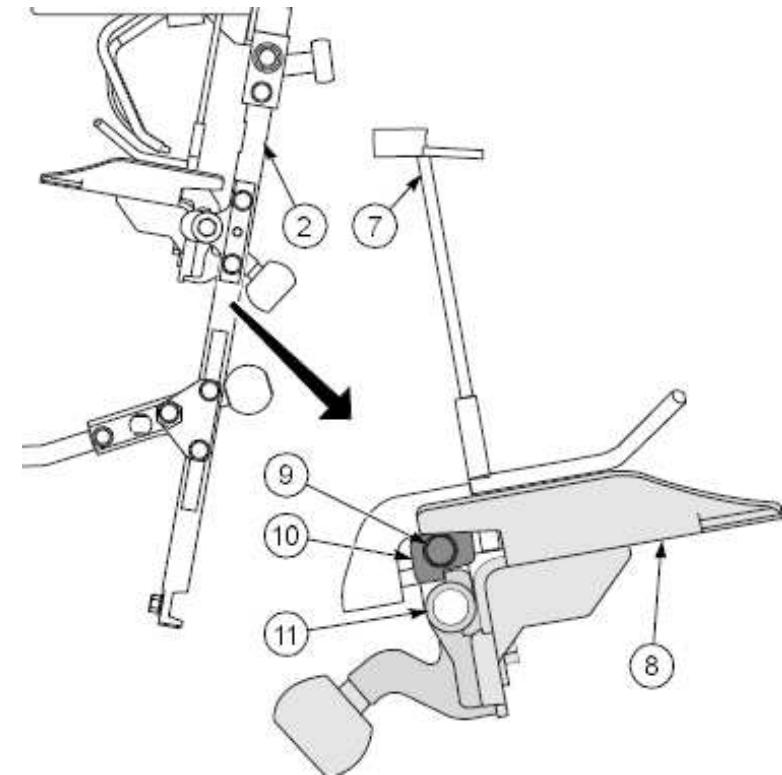


Back plate is in the back position

# Settings

## Adjust shoulder lifter stop

- Press backplate 7 in the direction of unit frame 2.
- Slide stop 10 with its cam against the cam of holder (back plate is in the back position!)



## Check @ 140°

- Tighten bolt and insure there is some play in the back plate.
- Tight and rigid causes premature bushing wear



# Settings

## Check back plate spoon clearance

- Move machine back and forth to insure lung rakes pass freely by gut clamp backing plate



## Re-check Arm (spoon) to back plate (@ 93°)

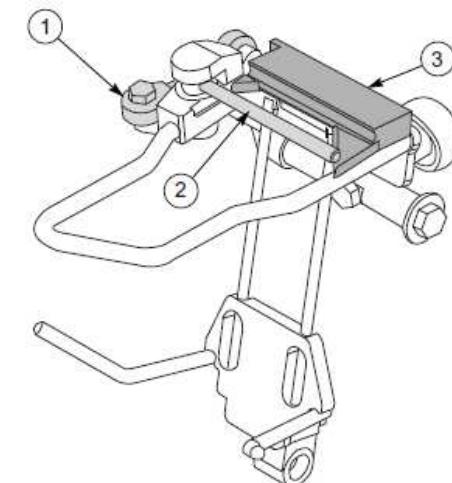
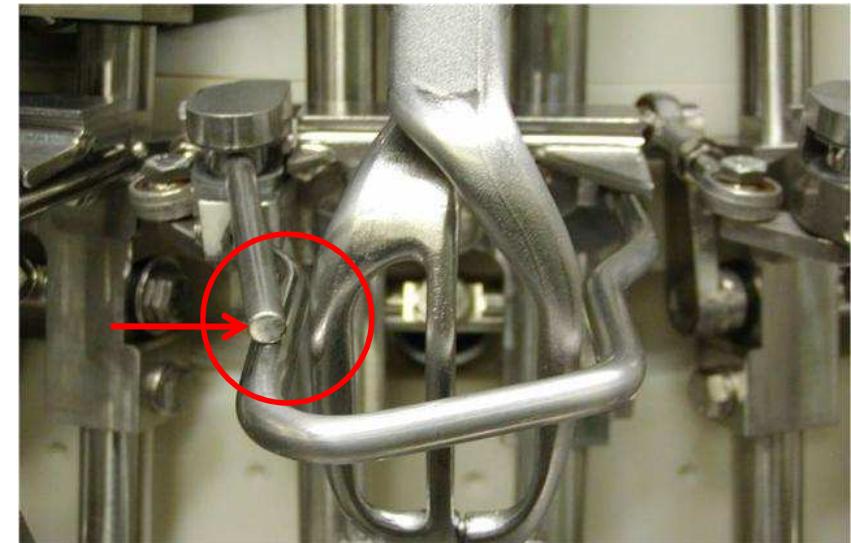
- Turn machine until spoon just closes.
- Recheck setting to insure it hasn't moved. Rotating the back plate in the previous setting could cause this setting to change.
- Gauge spoon with the gauge used in the back plate setting



# Settings

## Adjust intestine clamp @ 40°

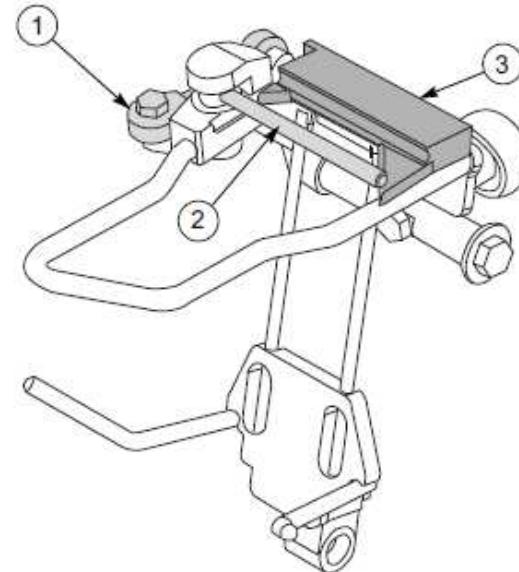
- To insure bar doesn't go into leg loop opening
- Put finger pressure on gut clamp.
- Bar should not go past inside edge of leg loop



# Settings

## Adjust intestine clamp @ 40°

- 1. Loosen jam nut



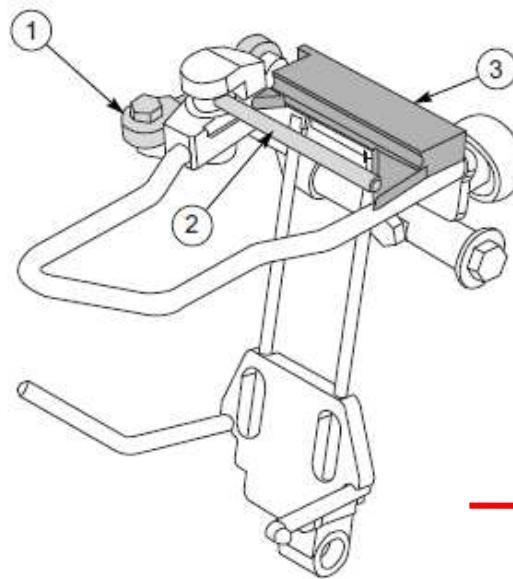
- 2. Remove rod end securing bolt



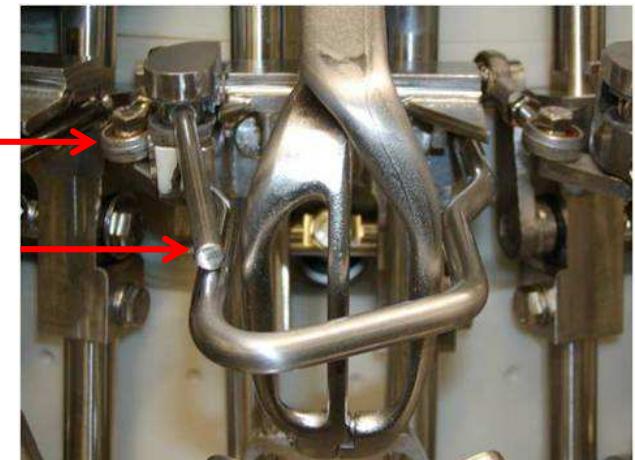
# Settings

## Adjust intestine clamp @ 40°

- 3. Adjust rod end length
  - Shorten to open
  - Lengthen to close



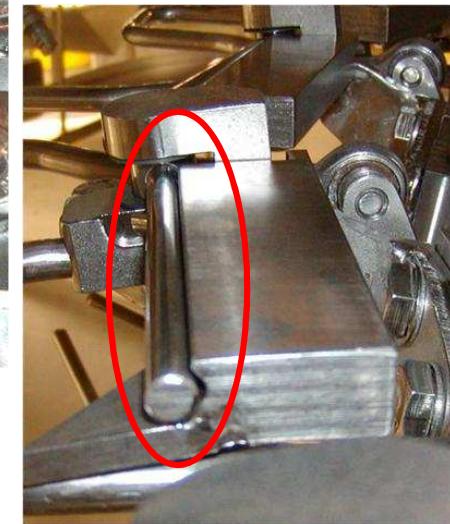
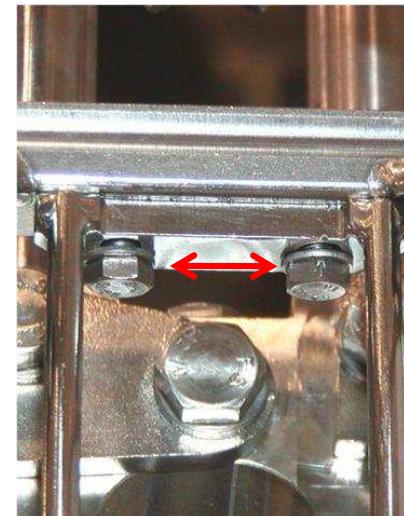
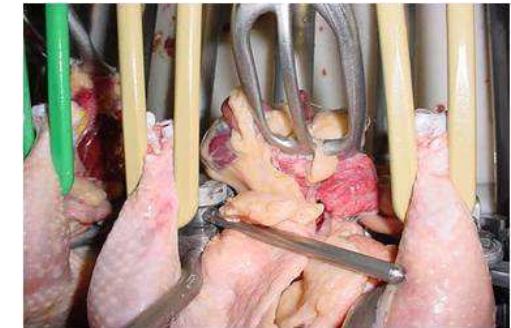
- 4. Put pressure on gut clamp and secure rod end bolt and jam nut



# Settings

## Align intestine clamp @ 210°

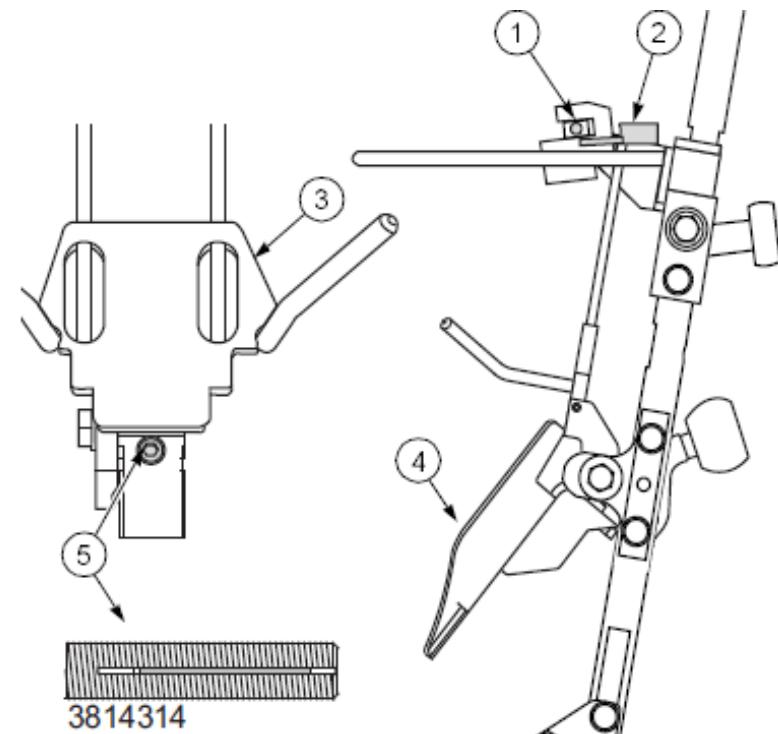
- This setting insures all of the membranes and sinew are detached from the intestines as the pack is removed from the body cavity.
- Initial step: Loosen bolts and push clamping plate all the way back
- Pull back plate forward to keep plate and clamp even and tighten bolts



# Settings

## Adjust force of the intestine clamp @ 210°

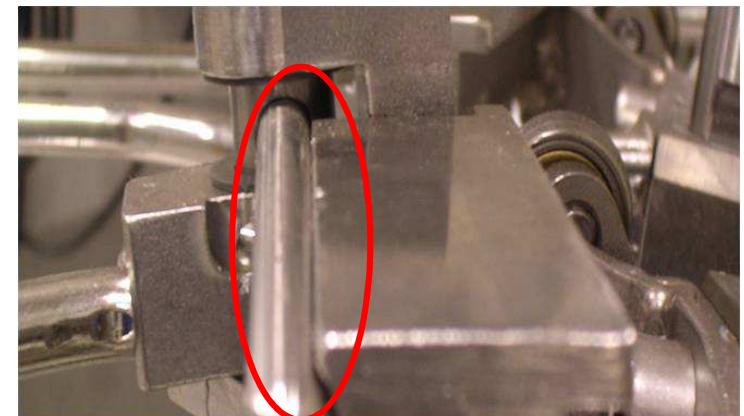
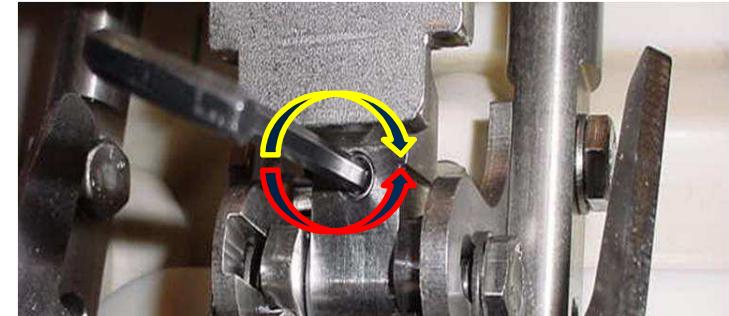
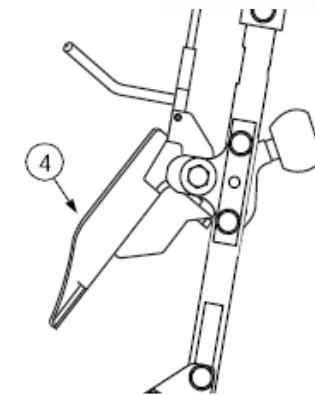
- This setting insures enough pressure is placed against the intestines to properly hold them without crushing or breaking them.
- Too little pressure will allow them to come out of the clamp.
- When this is too tight it can hold the belly fat and break the legs on the exit of the machine.
- The insert can be changed over to clamp release earlier or later!



# Settings

## Adjust force of the intestine clamp @ 210°

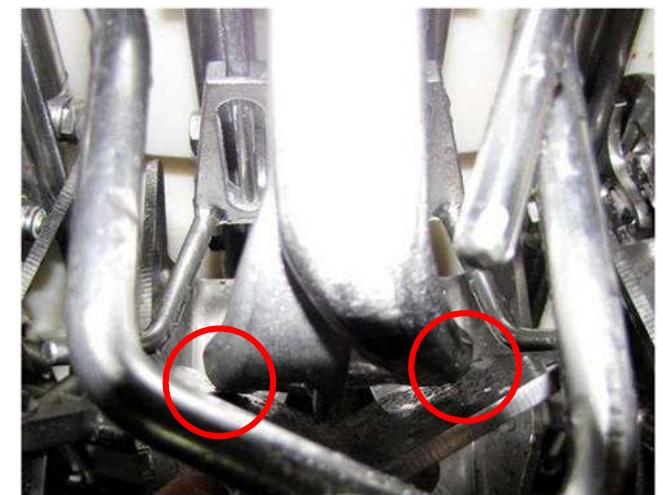
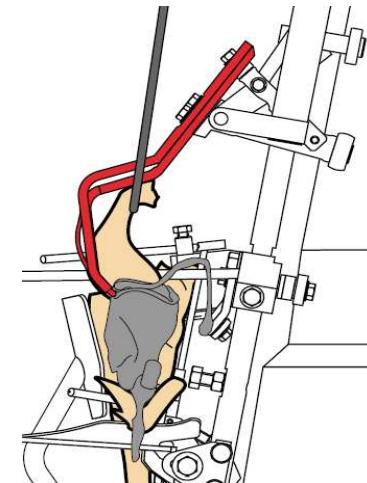
- Rotate the carousel until the shoulder lifter 4 is tipped fully downwards.
- 1. Loosen set screw until clamp rod disengages block
- 2. Turn set screw until clamp rod engages block
- 3. Adjust correct pressure by tightening set screw 1/8 turn more



# Settings

## Center breast presser @ 60°

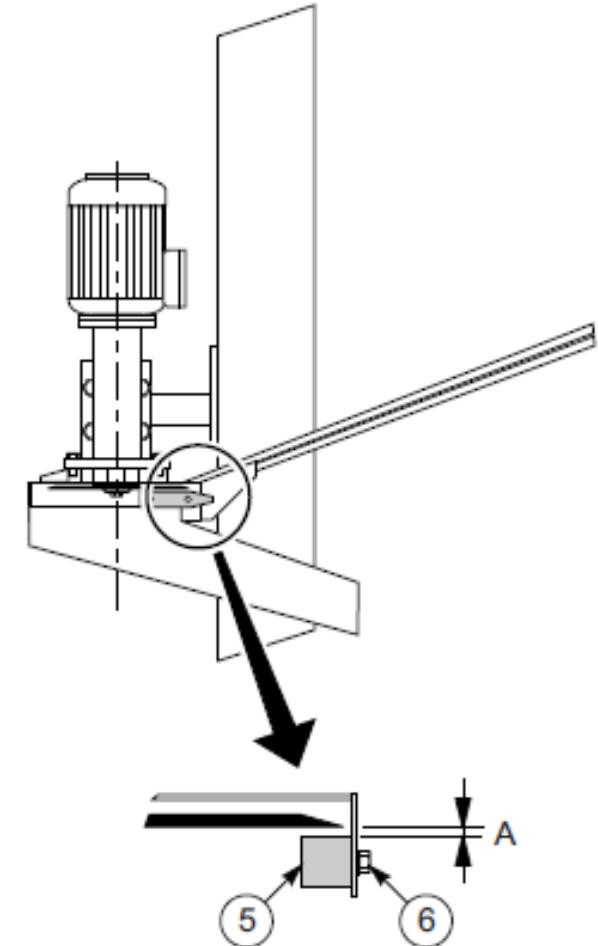
- This setting insures the bird is held in the proper position while the spoon enters the body cavity.
- And to insure that even pressure is applied to the product.
- Make sure breast presser touches drawing arm evenly.



# Settings

## Adjust intestine trimmer scraper (optional)

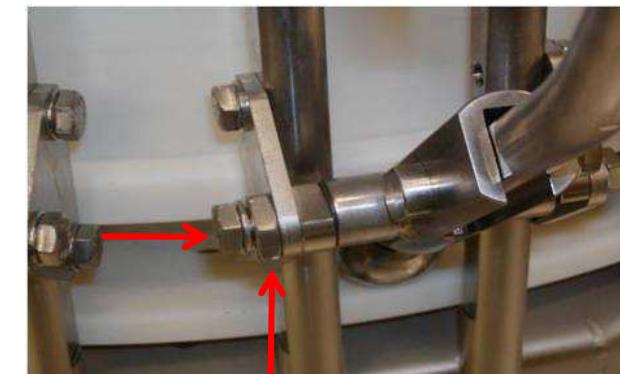
- Adjust scraper 5 so that distance A between the top of the scraper and the bottom of the rotating knife is 0.5 mm.



# Settings

## Center breast presser @ 60°

- 1. Check breast presser for centering spoon
- 2. Loosen both bolt and jam nut
- 3. Adjust eccentric cam
- Tighten both bolt and jam nut

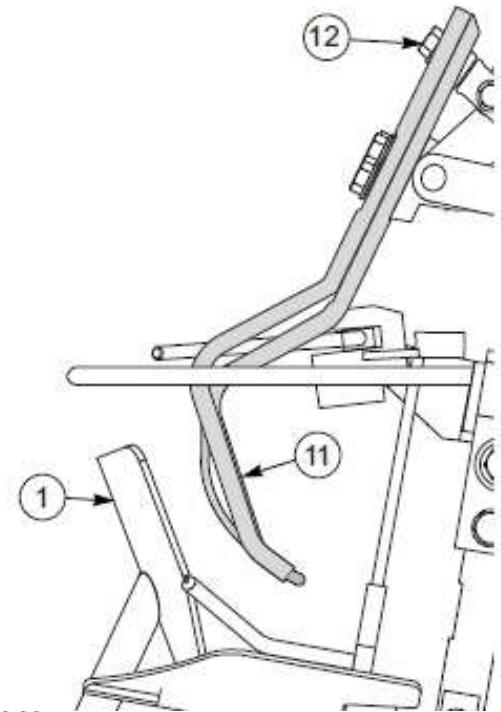
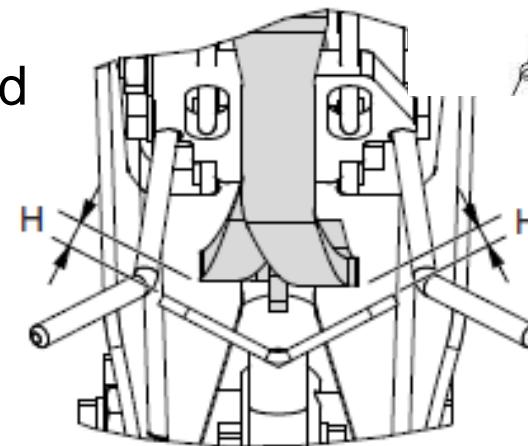


# Settings

Adjust the distance of the breast presser @ 60°

- Rotate the carousel so that drawing arm 11 is in the lowest possible position and until bolt 12 goes down in order to open the drawing arm.
- Set measurement H to the required measurement

Machine	Measurment H	Jig
LD + ND	6 mm	3976893
HD	10 mm	



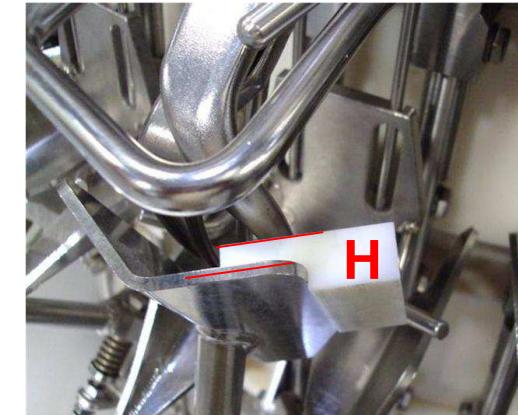
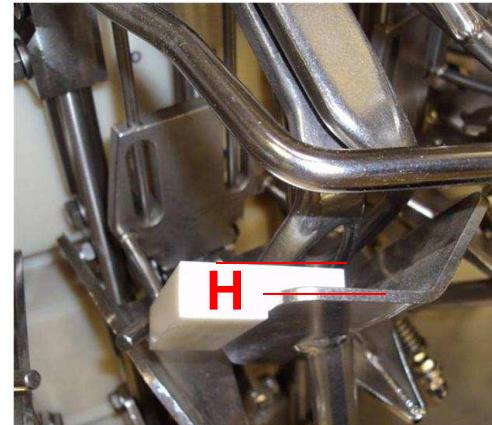
Your setting

---

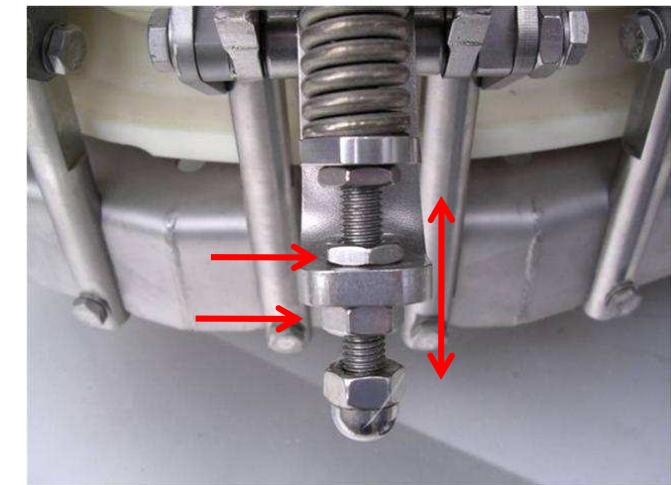
# Settings

## Adjust the distance of the breast presser @ 60°

- Insert gauge on both sides of the breast presser



- Use the two nuts to bring rod up or down to adjust measurement H to required setting

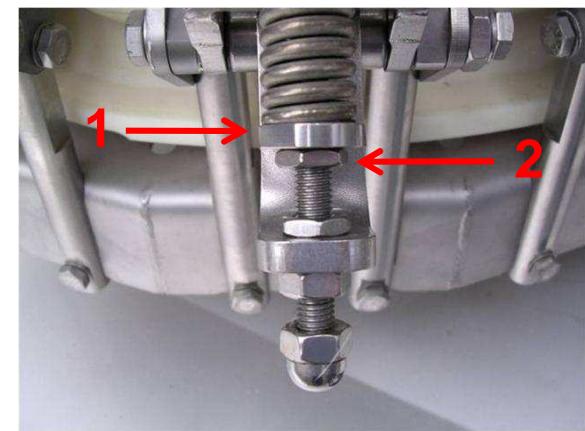
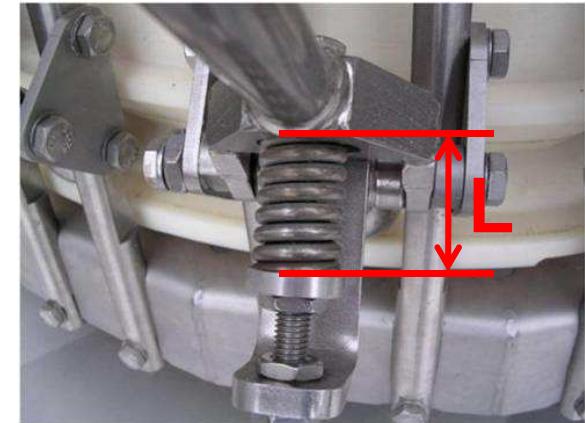


# Settings

## Adjust breast presser spring pressure

- This setting controls the amount of pressure the presser places on the product. (Distance L)
- You should see the breast presser moving into the spring when the spoon is entering the product cavity
- Adjust spring length with nut 1
- Secure with locknut 2

Machine	Distance L
LD	45 mm
ND	42 mm
HD	40 mm

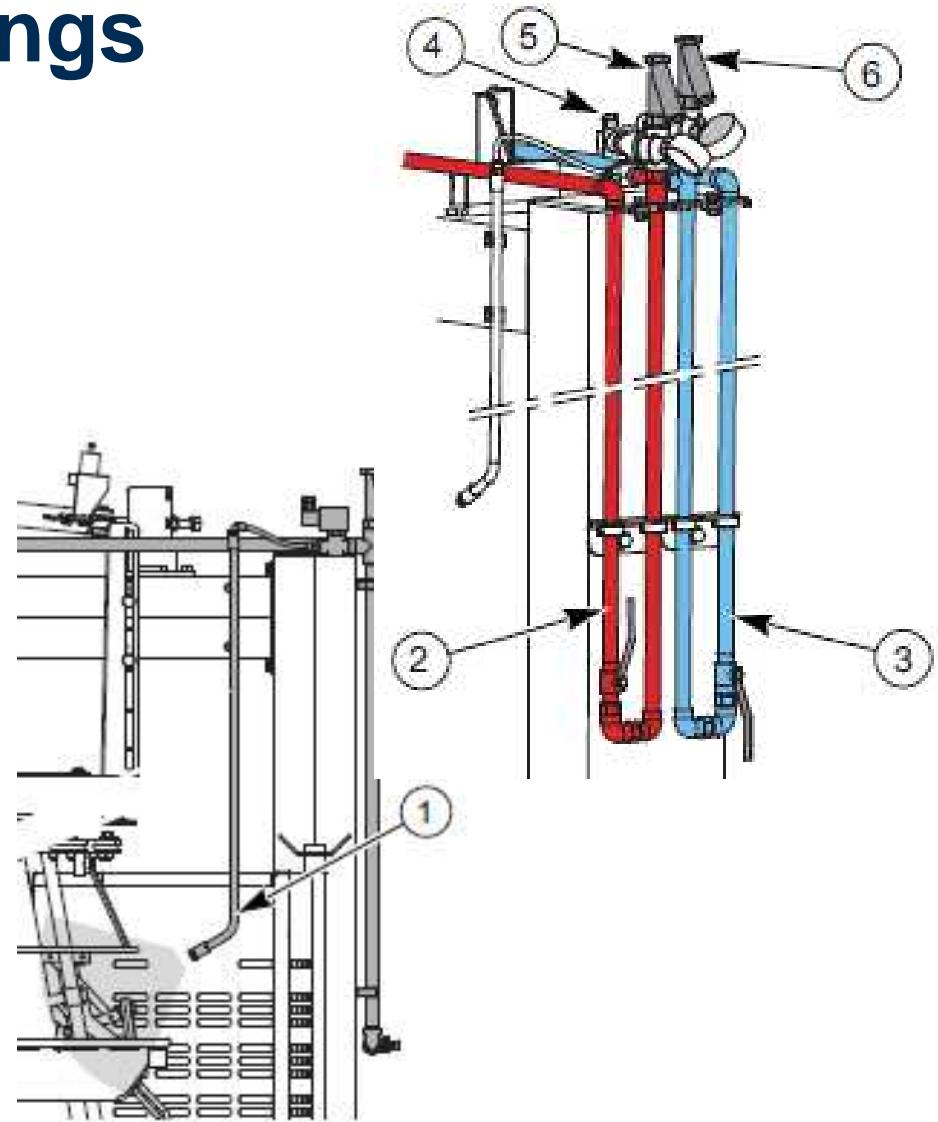


Your setting \_\_\_\_\_

# Settings

## Water connection

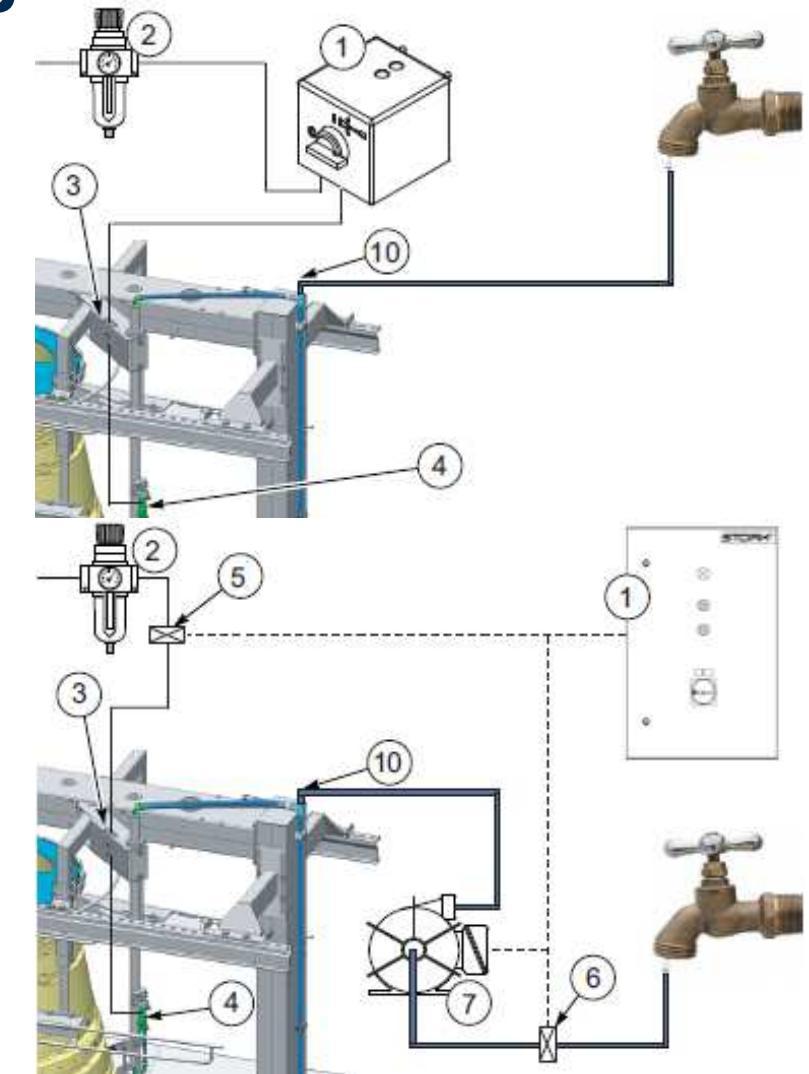
- High-pressure spray system **2**
  - Connect the high-pressure water supply to water connection 5.
  - Low-pressure spray system **3**
  - Connect the low-pressure water supply to water connection 6.
- 
- 1. Lubrication of the guide shafts



# Settings

## Carousel cleaning system (optional)

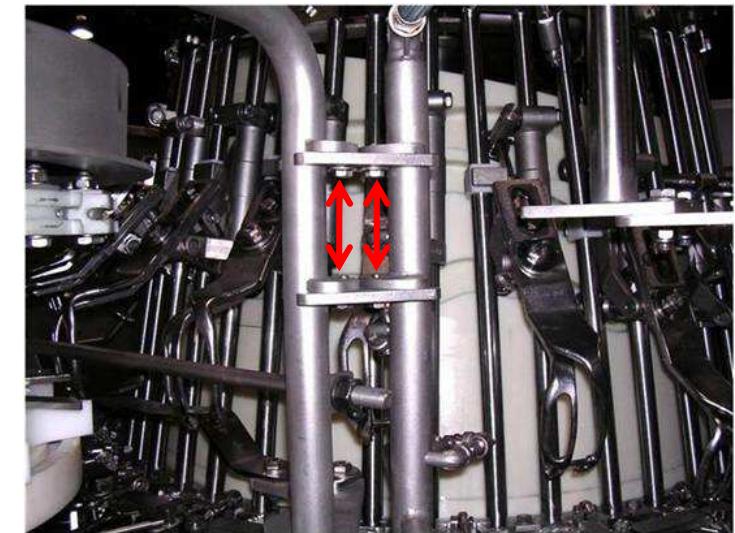
- System without pump connection
- System with pump connection



# Settings

## Adjust spray nozzles

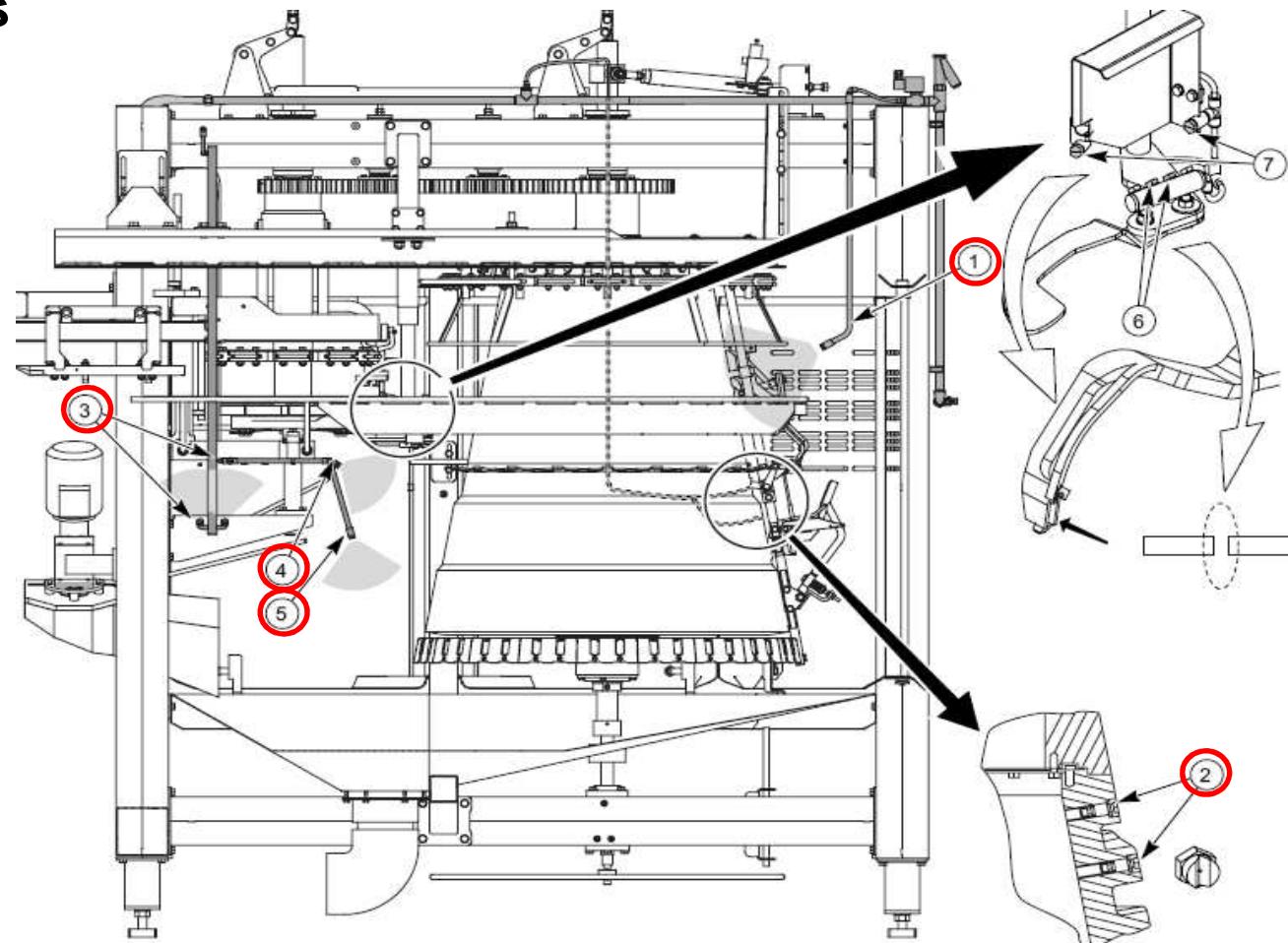
- Sprayer shafts pivot independently of each other



# Settings

## Adjust spray nozzles

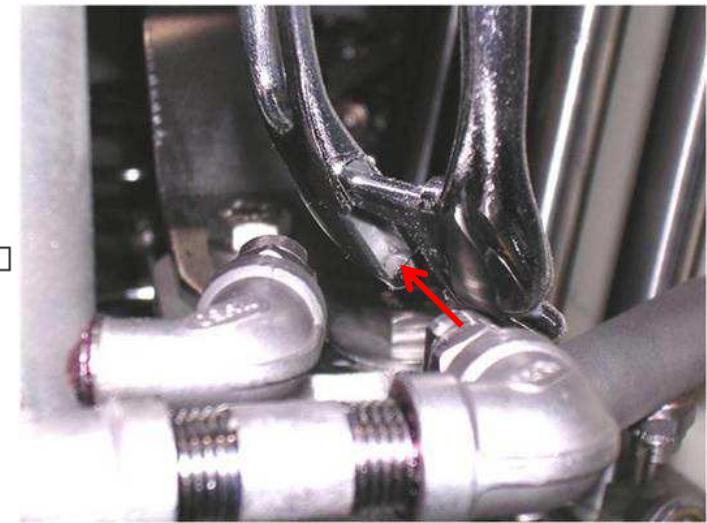
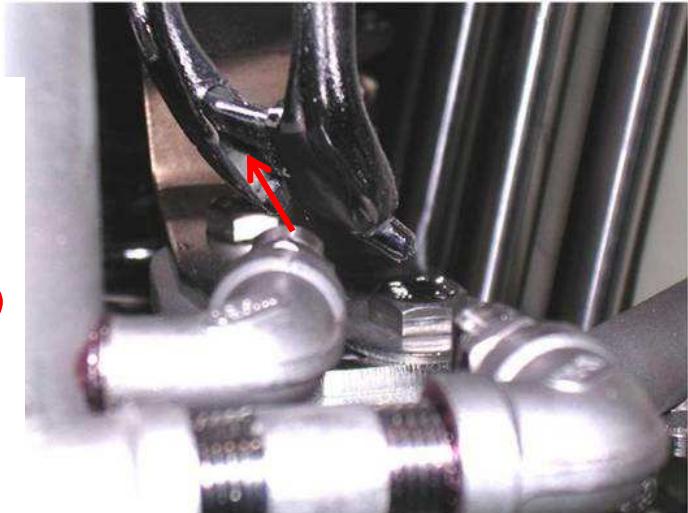
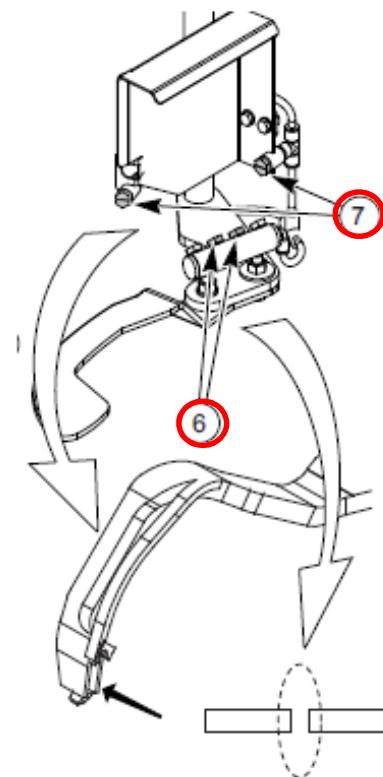
- 1. Lubrication of the guide shafts.
- 2. Cleans the back of the product.
- 3. Cleans the product when leaving the machine.
- 4. Cleans the shoulder lifter.
- 5. Cleans the breast presser.



# Settings

## Adjust spray nozzles

- 6.Cleans the drawing arm.
- At right angles to the opening in the drawing arm.
- 7. Aim jet spray nozzles correctly into the opening of the drawing arm.



# Settings

## Adjust the scrapers (optional)

- The scrapers are intended to position the heart and lungs under the pack shackle.

## Adjust inner scraper support

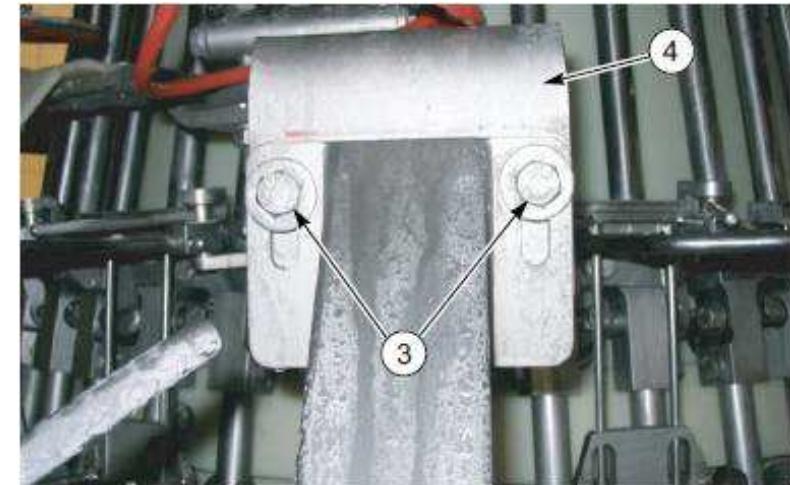
- 1. Adjust the support of the inner scraper so that it is fully at the top (1) and there is no play (0 mm).
- 2. Split 2 must be the same on both sides.



# Settings

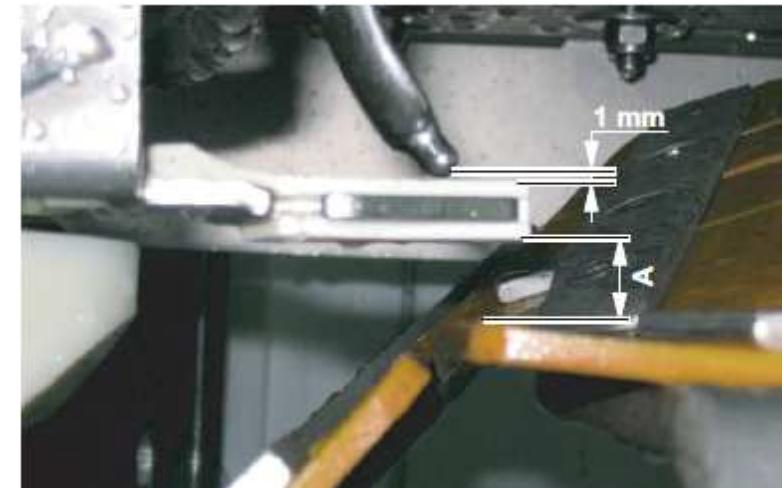
## Adjust inner scraper height

- Lightly tighten bolts 3 so that bracket 4 can still be adjusted in height



## Pack transfer timing

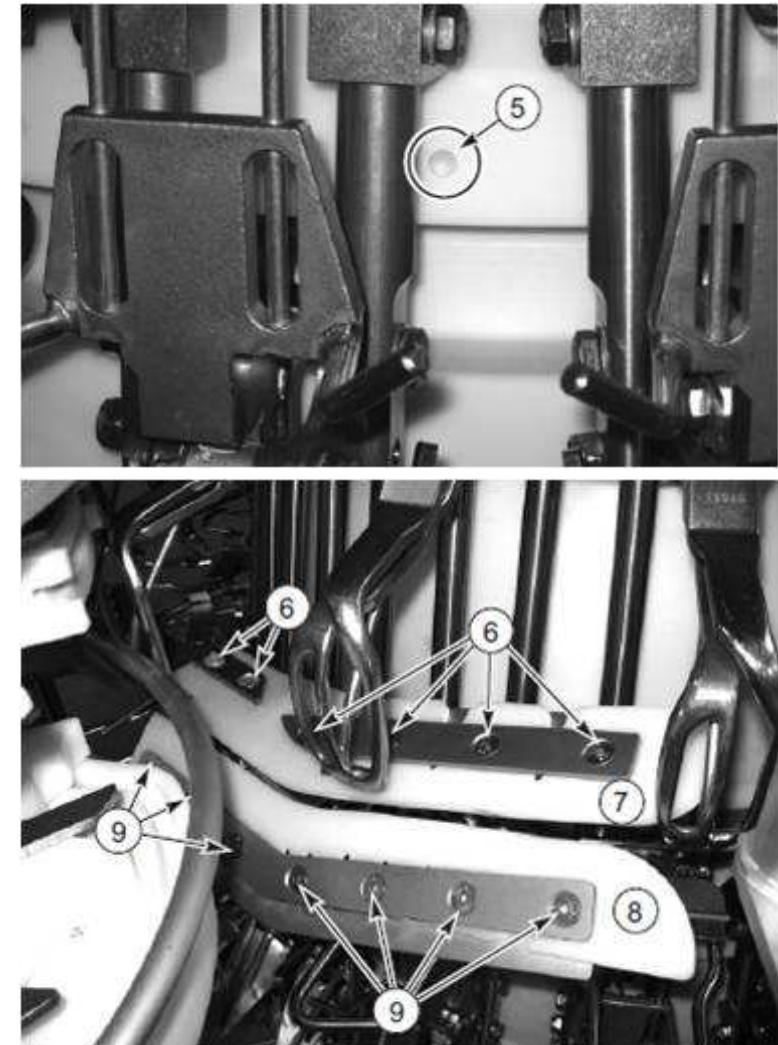
- At the time of pack transfer, distance A between the plastic scraper and the pack shackle should be about 15 mm.
- The greater distance A becomes above 15 mm, the more loosely the hearts and lungs hang.



# Settings

**Adjust scrapers to the incoming drawing arm @ 230°**

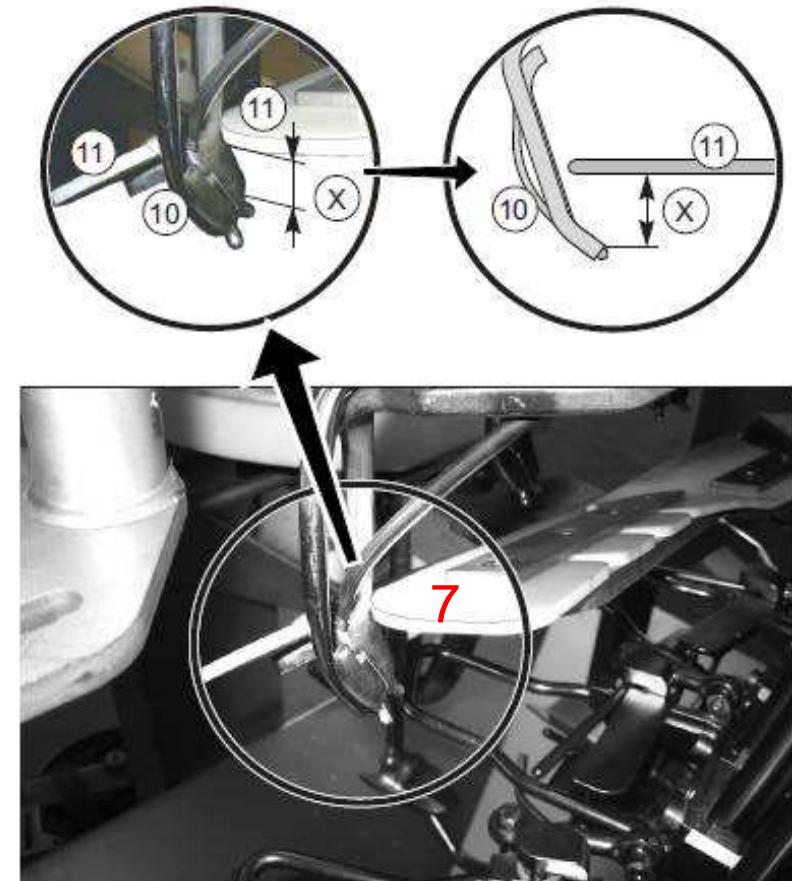
- Rotate the carousel until the drawing arm guide has passed marking point 5 (230°)
- Undo bolts 6 a number of turns



# Settings

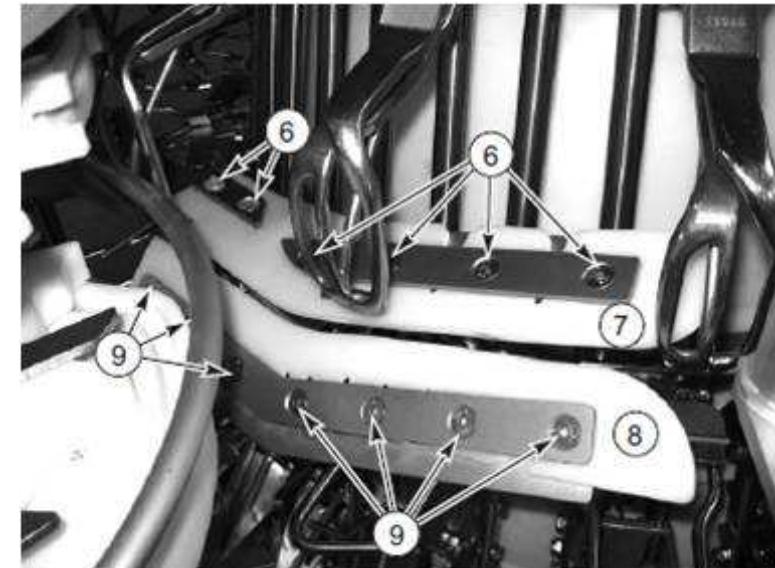
## Adjust the position of the inner scraper

- Height X is 30 mm ( $\pm 1$  mm)
- Adjust the height by sliding scraper 7 so that the the scraper just touches the drawing arm.
- Measure distance x between the underside of the scraper and the underside of the drawing spoon (next to the projection)



# Settings

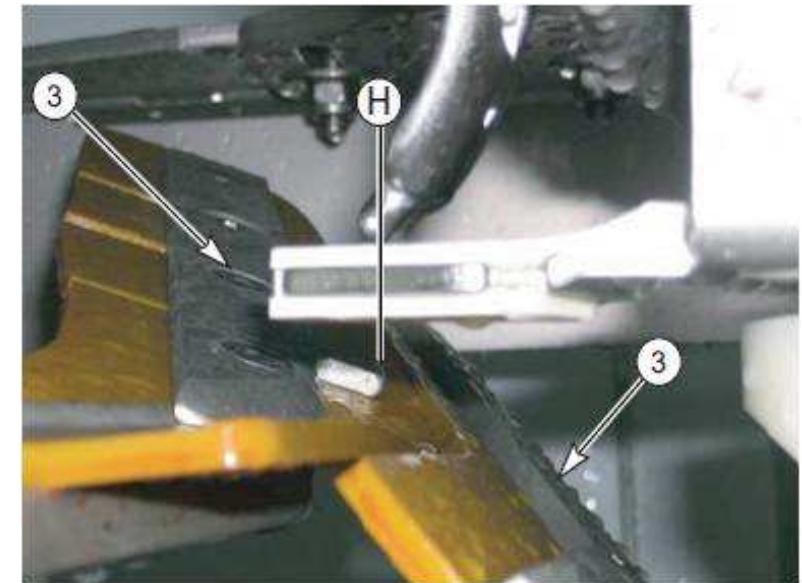
- Rotate the carousel manually to the point where the drawing arm is positioned between the scrapers.
- Adjust the scraper without influencing the above setting so that it just touches the drawing arm.
- Adjust the outer scraper so that the drawing arm touches the scraper at every position.
- The split between the rear part of the two scrapers should be 4 - 5 mm.



# Settings

## Adjust inner scraper horizontally

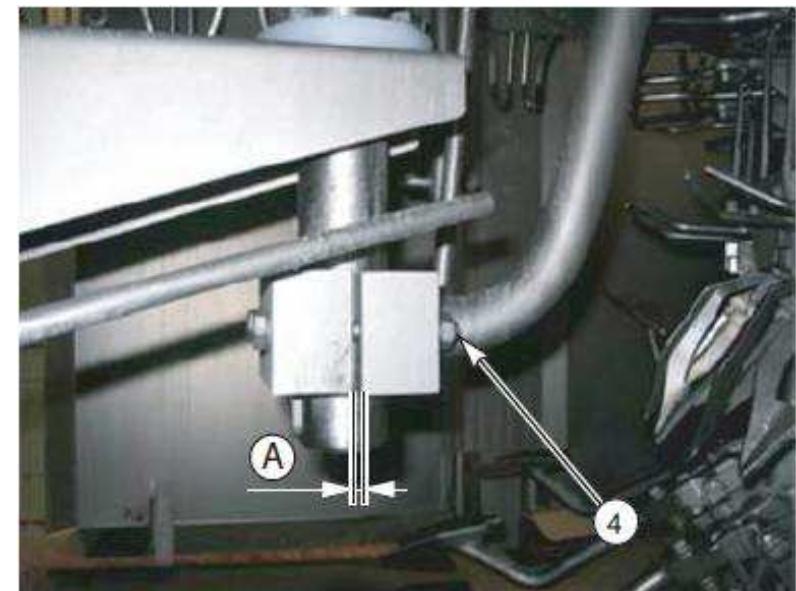
- When pack transfer occurs, centre point H of the pack shackle must be level with the centre of the opening between the scrapers.



# Settings

## Adjust inner scraper support

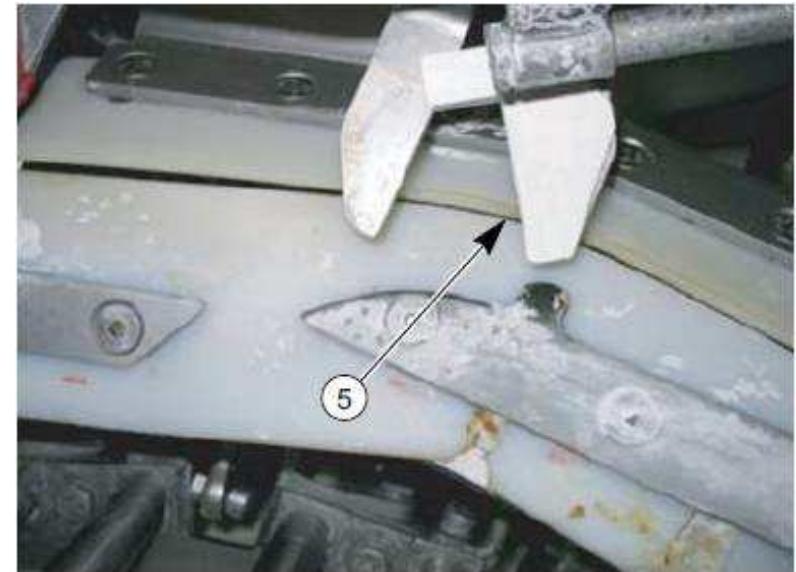
- Tighten the mounting support so that the inner and outer scrapers are set at the same height.
- Tighten one of the two fastening bolts 4 a little more in order to slightly adjust the timing of the outside scraper.



# Settings

## Adjust inner scraper support

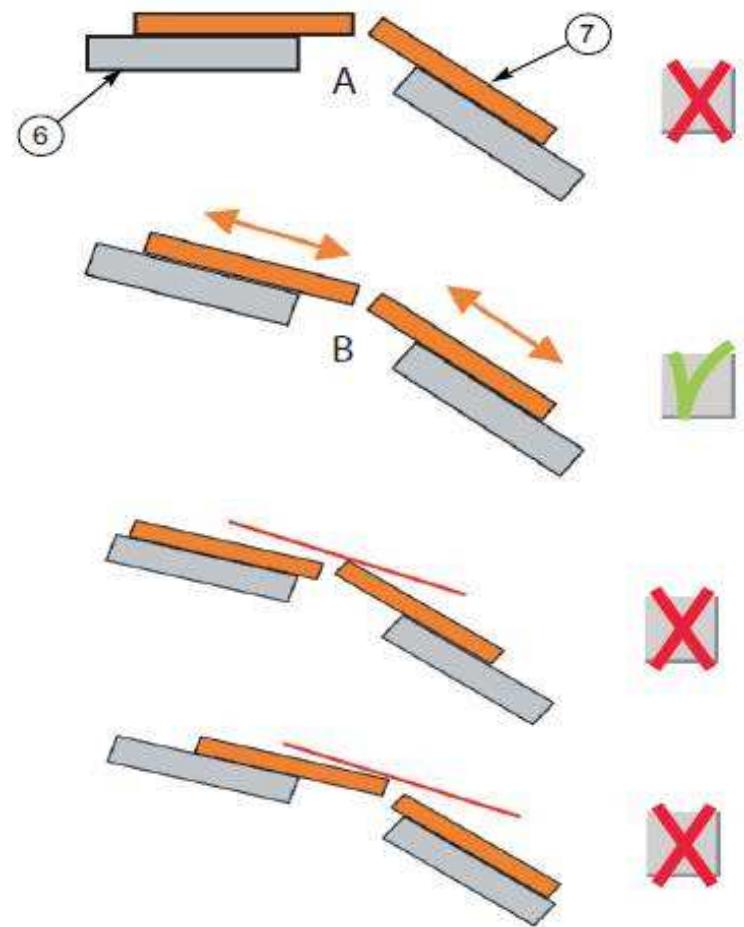
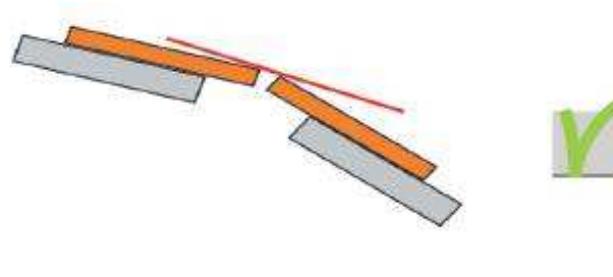
- This will make space A a little larger or smaller so that bends 5 can be set in both scrapers exactly opposite one another.
- Adjust the scraper so that it just runs against the drawing arm during the run-in.
- The drawing arm then comes out between the scrapers.
- It is important that:
  - The opening between the scrapers is 4 - 5 mm.
  - The scrapers are aligned with each other over the whole length.



# Settings

## Point of pack transfer

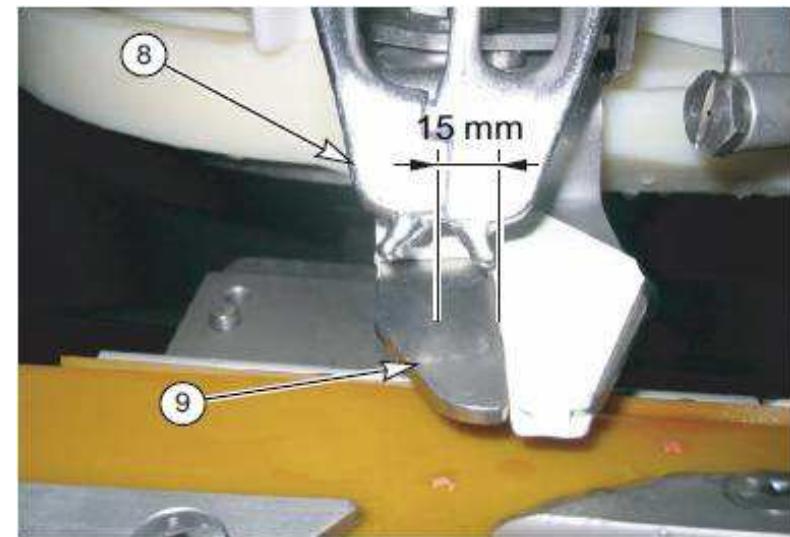
- A: Point of pack transfer
- B: First part of the scraping
- If supports 6 are not properly aligned (A), then moving scrapers 7 can line them up better (B).
- Adjust scrapers correctly



# Settings

## Adjust pack transfer timing

- During scraping the pack remains somewhat after with respect to the pack shackle.
- Therefore when transfer occurs (clamps open) clamp 8 should be running 15 mm ahead of the pack shackle 9.



# Operation

## Safety



**Insure you follow all recommended Safety and Lockout procedures before you work on this or any other piece of equipment that Marel/Stork Food Systems manufactures.**

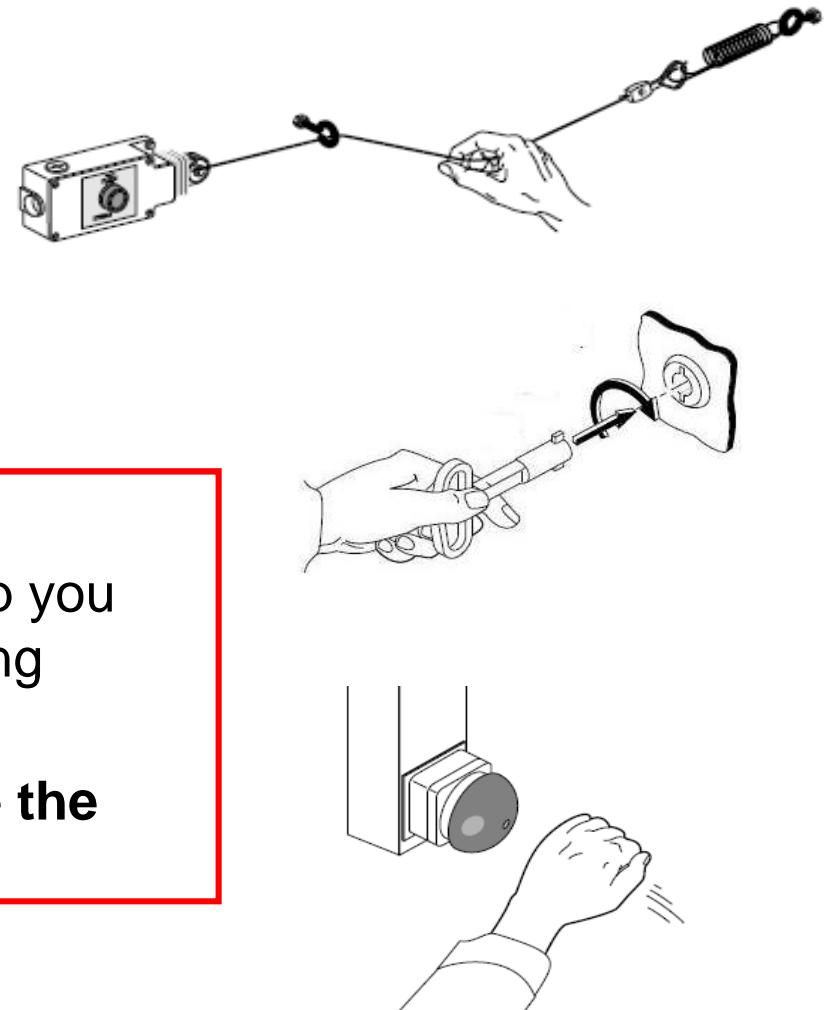
- Replace if signs are missing or illegible



# Operation

## Safety

- **In an emergency you must:**
  - pull the emergency stop cord.
  - press the emergency stop button.



### Mortal Danger

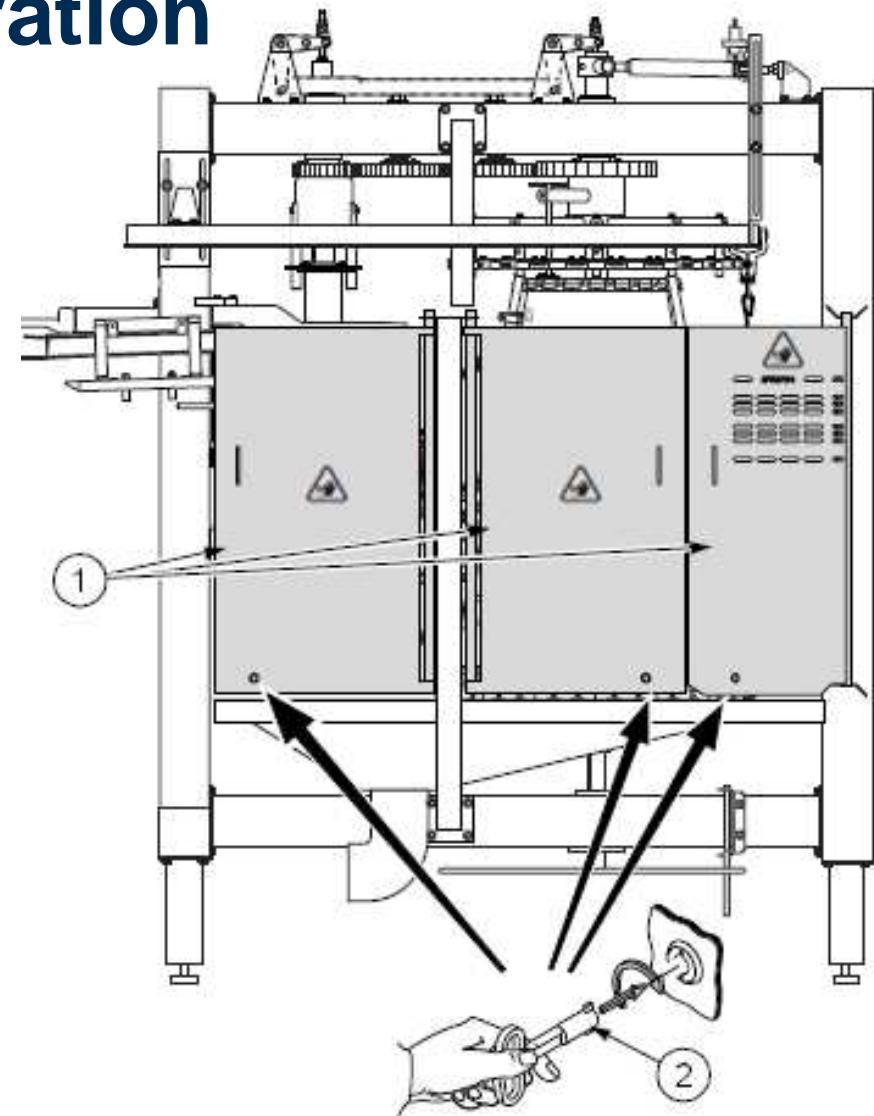
Before you de-block the emergency stop you must be sure that no operations are being carried out on the machine

**Warn everybody in the vicinity before the machine is started again**

# Operation

## Safety

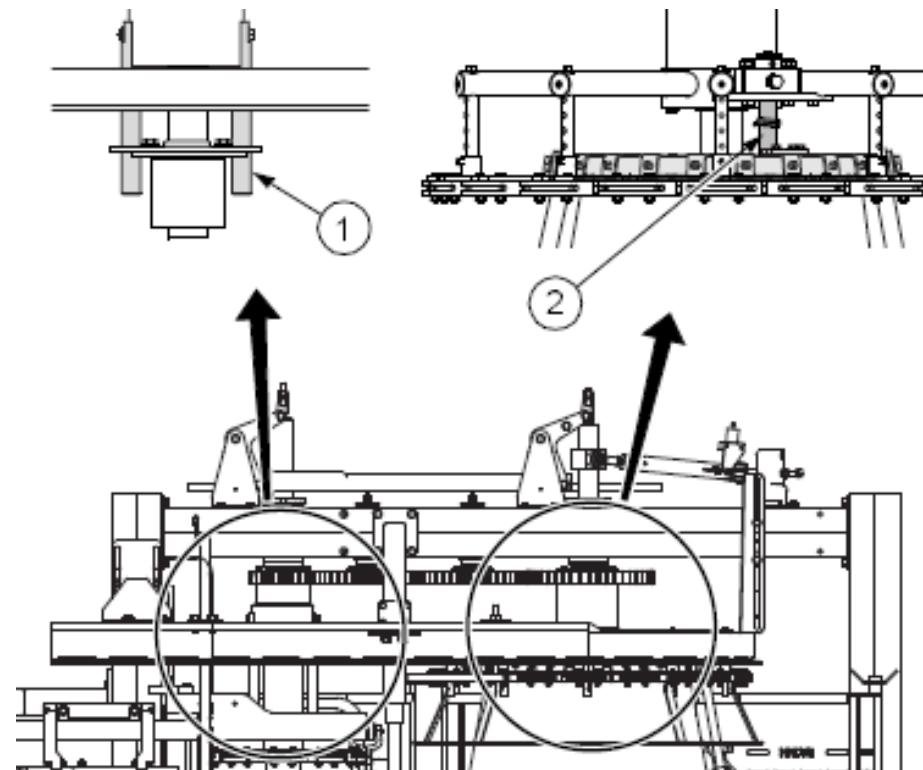
- Lock the doors



# Operation

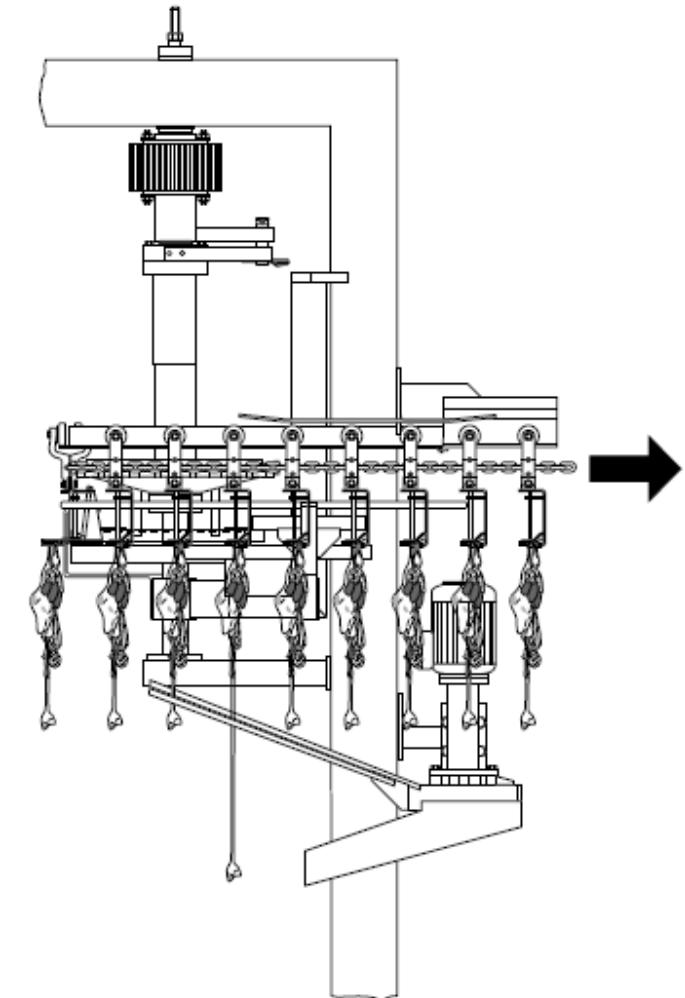
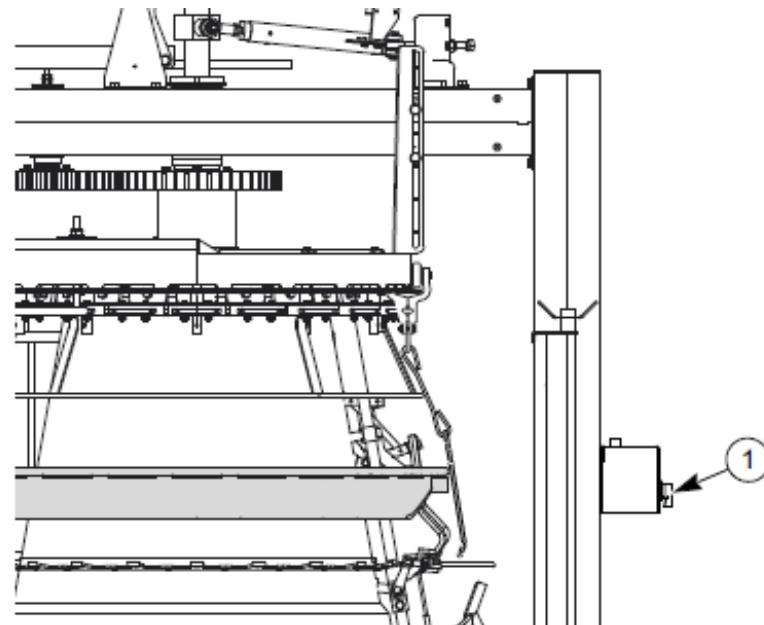
## Coupling and de-coupling

- Make sure coupling pin is in position



# Operation

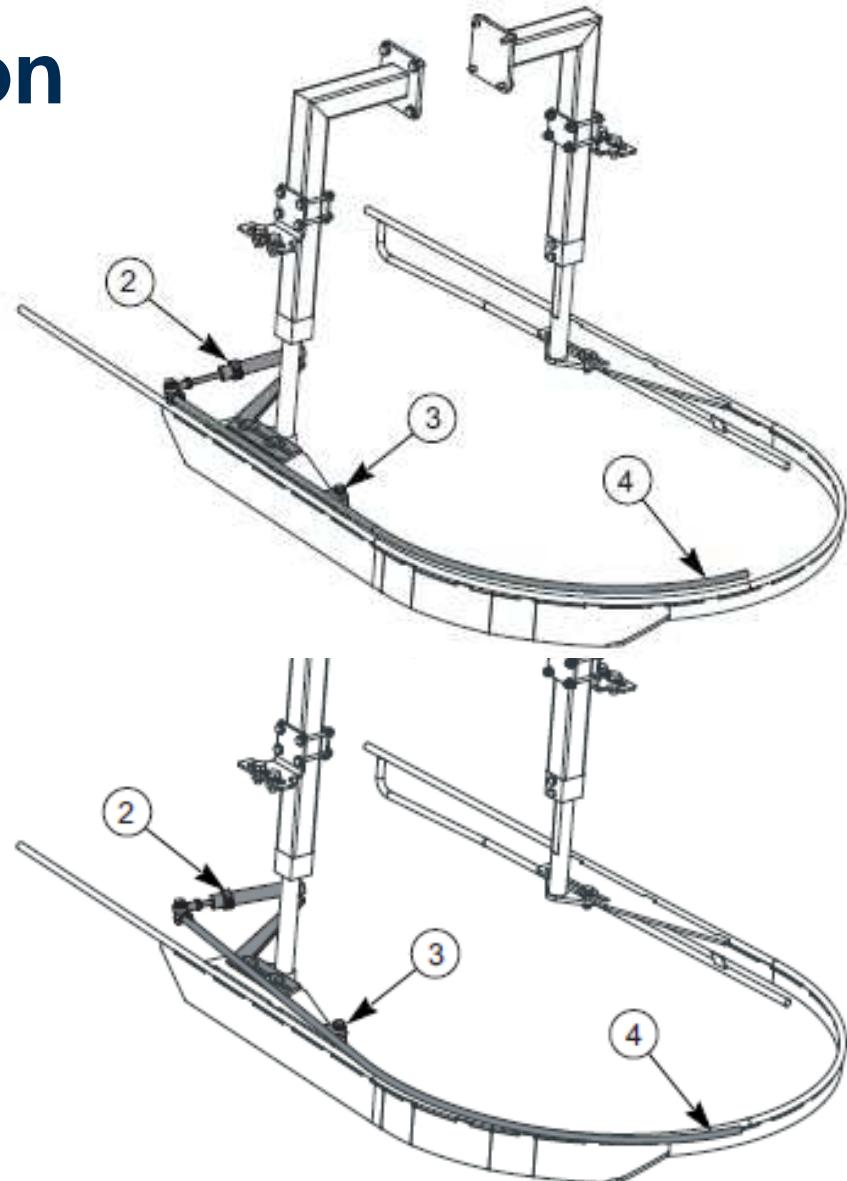
- Switch on the Intestine trimmer  
(optional)



- Switchable guide on the polyvalent machine (optional)

# Operation

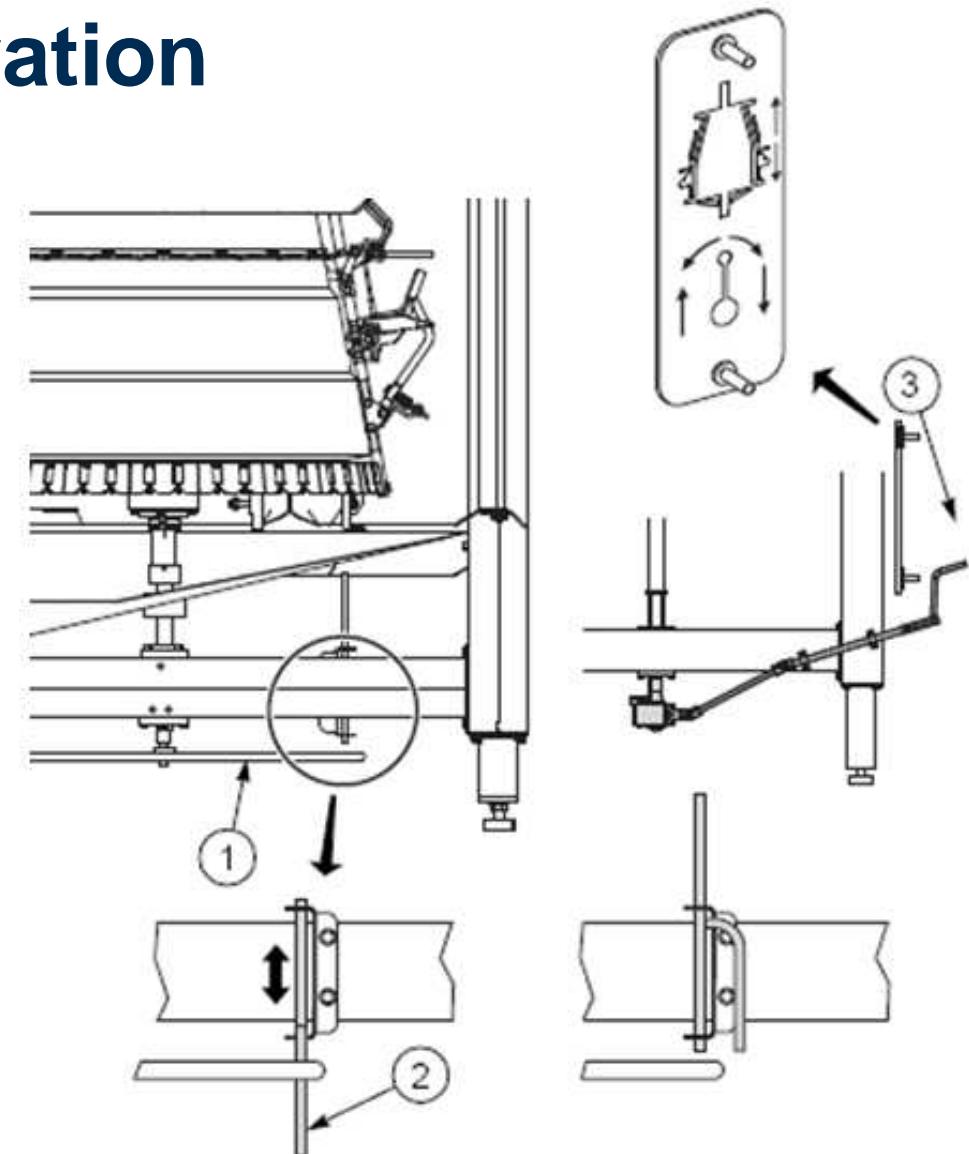
- Switching guide off  
Do as follows:
  - Set rotary switch 1 to position “0”
  - Guide is switched off.
  
- Switching guide on  
Do as follows:
  - Set rotary switch 1 to position “I”.
  - The guide is switched on.
  - Products are better positioned.



# Operation

## Adjust height of the main shaft

- Height setting can be done by:
- Handwheel
- Crank handle (optional)



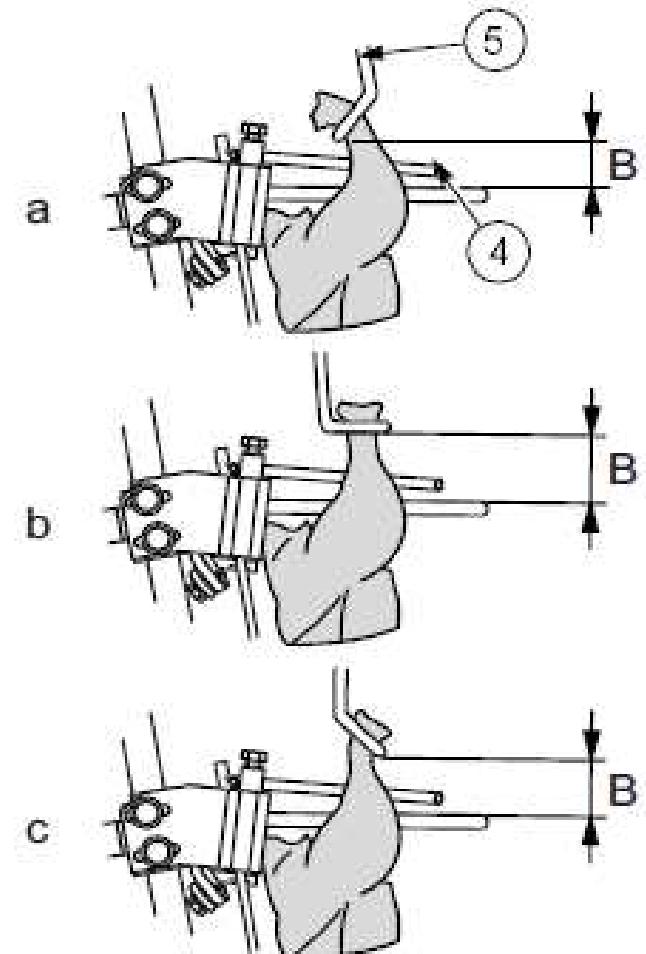
# Operation

## Adjust height of the main shaft

- Set according the type of shackle and or products produced

Type of shackle	B (mm)
a. Stork Poultry Processing open shackle	10
b. 90° offset shackle	30
c. 30°offset shackle	30

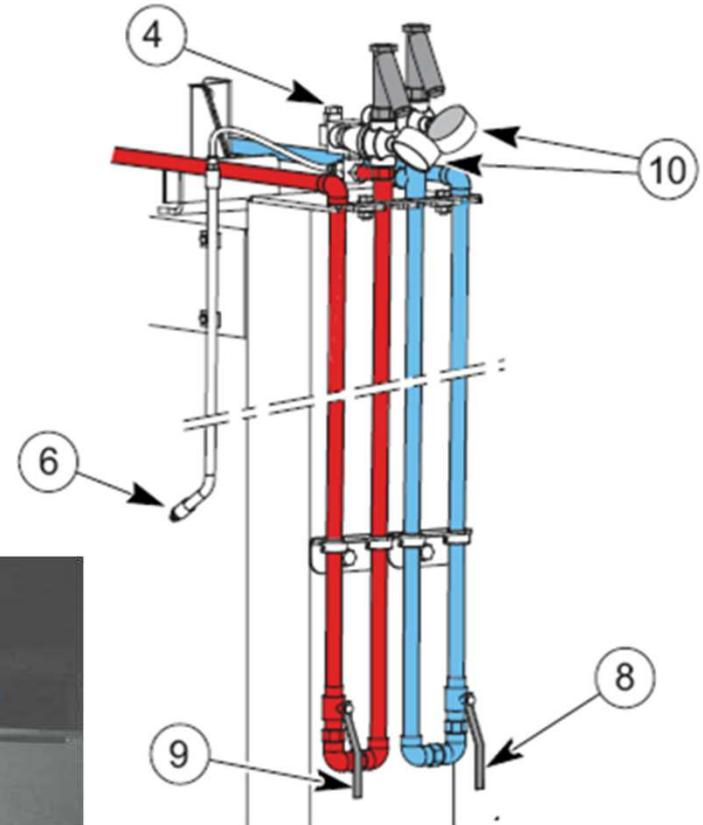
- Machine height can be influenced when different sort of products are produced on the same machine.
- Polyvalent! Spring chicken!



# Operation

Turn on water

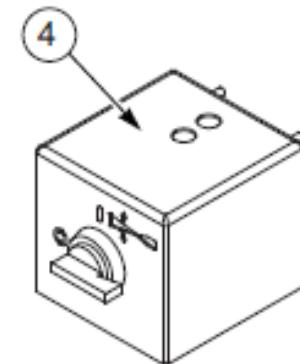
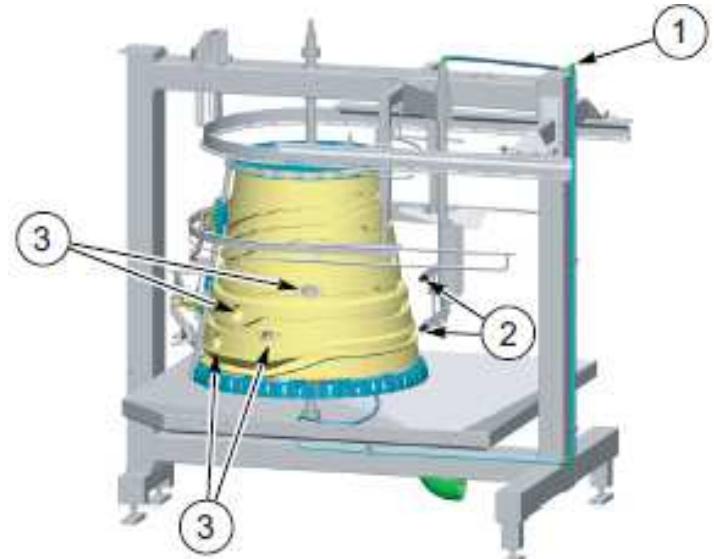
- Is high pressure pump running?



# Operation

## Switching carousel cleaning system (optional) off and on.

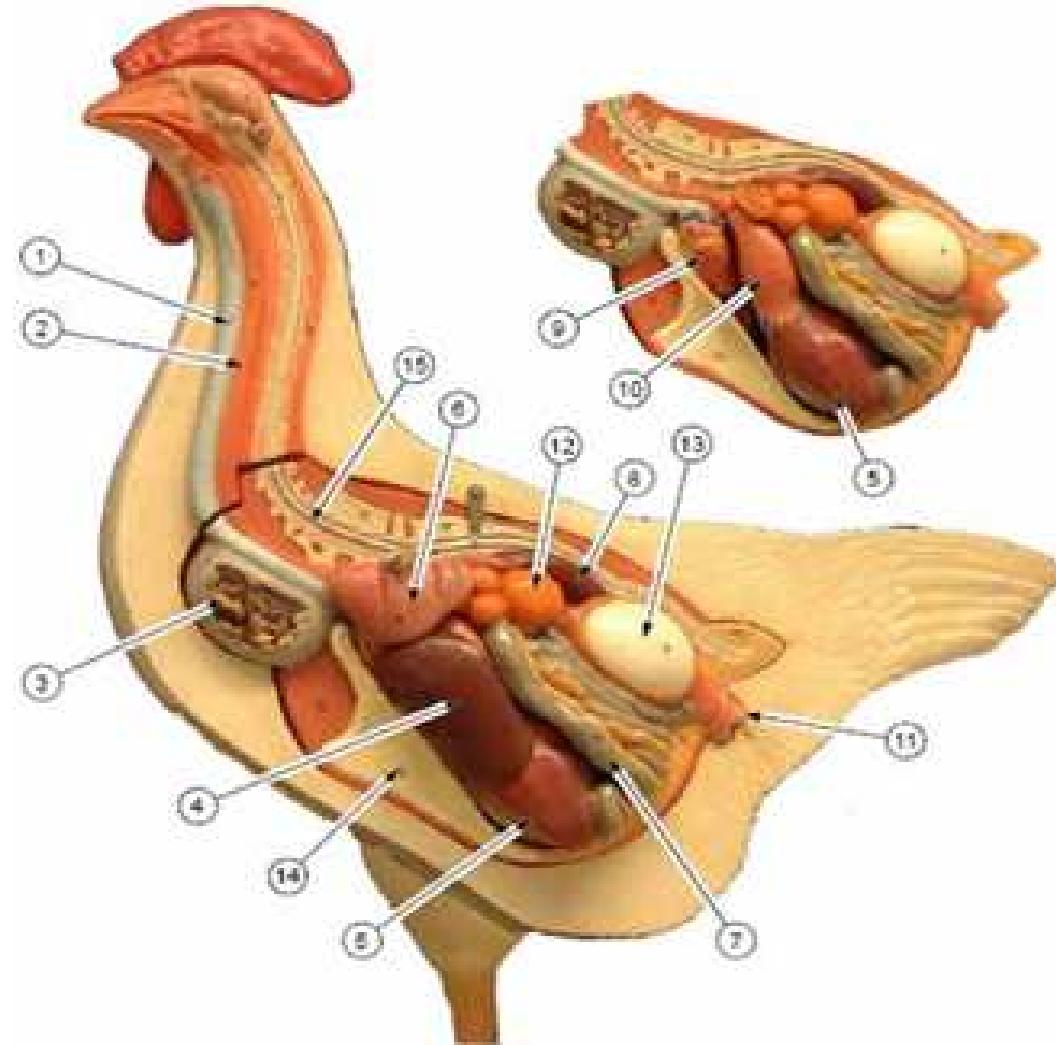
- Switch the machine on as follows:
  - 1. Allow machine to run without products.
  - 2. Put the knob on the control box 1 to position 'I'. The outer sprayers move back and forth.
  - 3. Turn on the water supply going to the sprayer system.
  - 4. Spray until all visible contamination is removed ( $\pm$  5 minutes).



# Performance

## Product knowledge

1. Trachea
2. Esophagus
3. Crop
4. Liver
5. Gizzard
6. Lungs
7. Intestines
8. Kidneys
9. Heart
10. Proventriculus
11. Vent
12. Oviduct
13. Egg
14. Keel bone
15. Spinal column



# Performance

## Product infeed

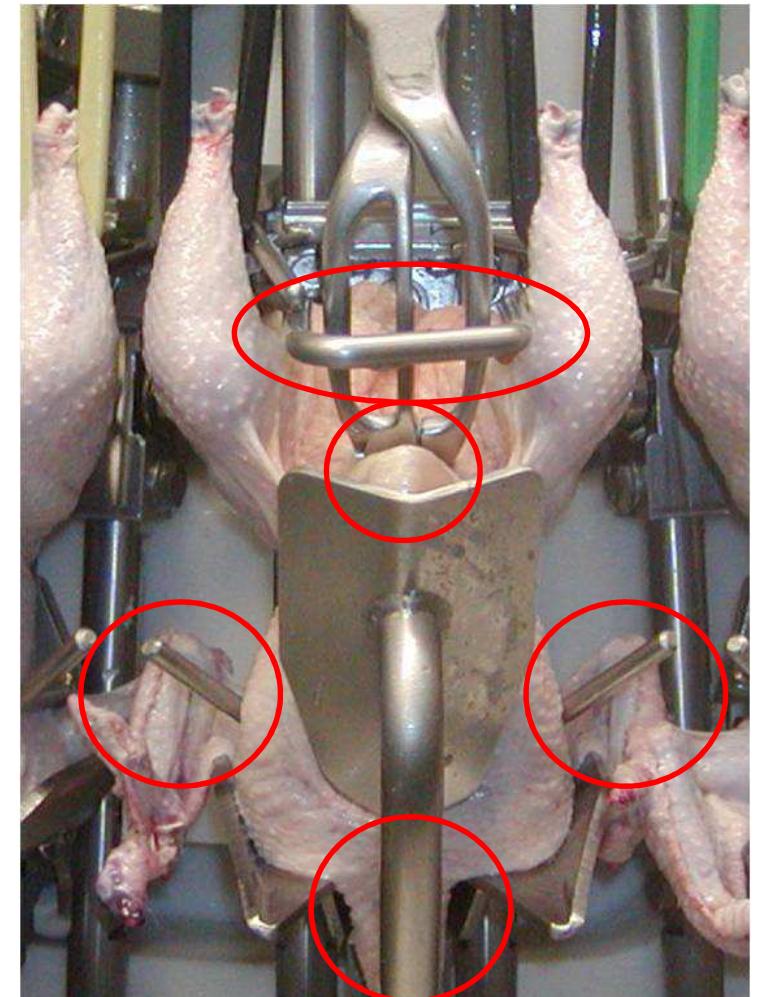
- Product in every shackle
- Both hocks **must** be in stirrups
- No one legged products (may cause machine damage)



# Performance

## Product positioning

- Product centered in unit.
- Legs positioned around leg loop.
- Wings underneath wing holders.
- Neck straight down in the shoulder presser opening.



# Performance

## Why check performance?

- Provide production and maintenance personnel with a evaluation tool by which the performance of the machine can be monitored and maintained.
- Improve troubleshooting capability for maintenance personnel by connecting performance parameters (where it should perform) with technical execution of the machine (where it is performing now).
- Machine performance tells you, or the settings are correct for the products produced.

# Performance

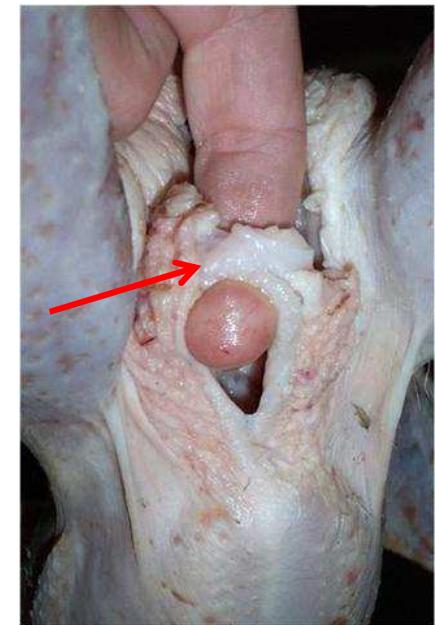
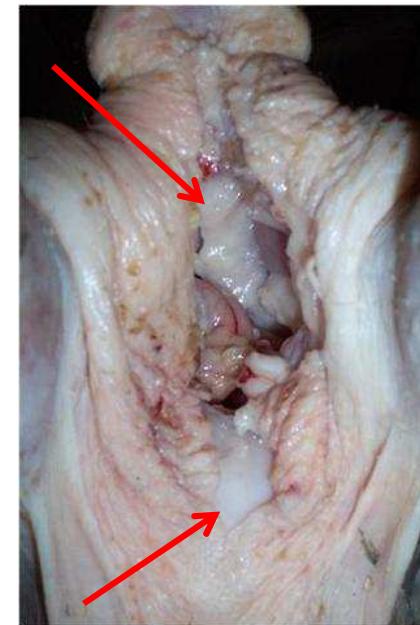
## What and how

- Line speed (Birds per minute) Bpm
- Avg weight: (Live Weight/Eviscerated Weight)
- (EV weight(TRDE)=80% LW?!)
- Weight deviation (minimum/maximum)
- General Flock Comments: (Bird conditions, disease)
  
- Required tools
  - Stopwatch
  - Counter
- Counts consist of 10 minute intervals.
- Count one defect/error at a time.

# Performance

## Bird pre-conditions

- The venting and opening performance mainly determines the eviscerating performance of the Nu-tech Nuova
- One Legged Birds
- Birds not vented
- Vents not on back
- Birds not opened
- Abdominal skin is opened, but the abdominal membrane is untouched
- Bridge in Opening cut (Skin or membrane) will cause liver damage and less correct pack transfer.
- If it takes a lot of force to pull out the vent (due to connections from abdominal membranes, fat and urethra), the chances are very likely to get broken off vents left on the carcass after eviscerating.



## Performance

- Line speed: ..... b/pm
- Av weight: (L.W.) ..... g
- Weight deviation ..... g
- Comment on flock: .....
  
.....

Make 10 minute counts to determine basic performance

For the incoming products:

- One leg bird: ..... prod ..... %
- Vent on back: ..... prod ..... %
- No opening cut: ..... prod ..... %

Nuova performance:

- Pack not in shackle: ..... prod ..... %
- Pack on back of bird: ..... prod ..... %
- Pack not eviscerated: (Still in bird) ..... prod ..... %
- Pack not transferred: (Lost in pan) ..... prod ..... %

## Performance

- Line speed: ..... b/pm
- Av weight: (L.W. ) ..... gr/lbs
- Weight deviation ..... gr/lbs
- Comment on flock: .....

Make 10 minute counts to determine basic performance

For the incoming products:

- Packs not positioned properly: ..... # prod ..... %

For processed products:

- Pack with intestines not removed: ..... # prod ..... %

Make 100 Pack counts to determine basic performance

- Pack with gall removed: ..... # prod. .... %

General remarks: .....

# Maintenance

Frequency	Component	Activity	Maintenance
Daily	Safety features.		Check the safety features and the presence of the pictograms.
Daily	Intestine clamps.		Check that the rods of the intestine clamps are not bent.
Daily	Drawing arms.		Check for blockages and clean if necessary.
			Check for play between the arm halves.
Weekly	Spray nozzles.		Check/clean. Replace sprayers.
	Monthly	Whole machine.	 Check for wear, breakages and the free running of moving parts.
	Every 500 operating hours.	Curve rollers.	 Check for wear.

# Maintenance

## Daily standard operations

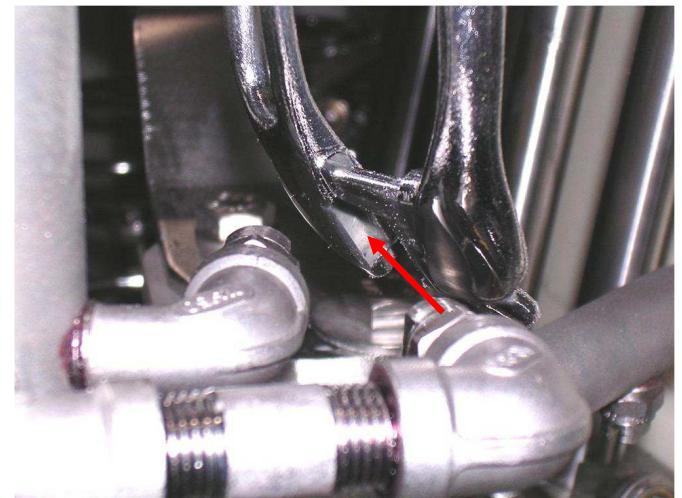
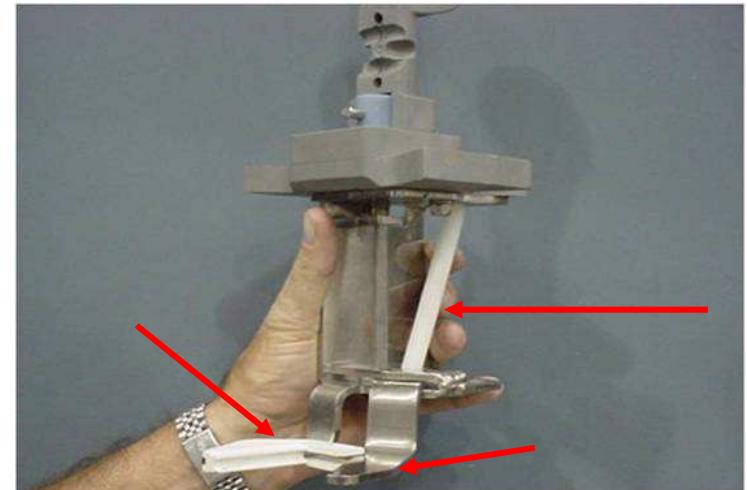
- Check synchronization
  
- Check spoons
  
- Check spoon gap and hole for foreign objects



# Maintenance

## Daily standard operations

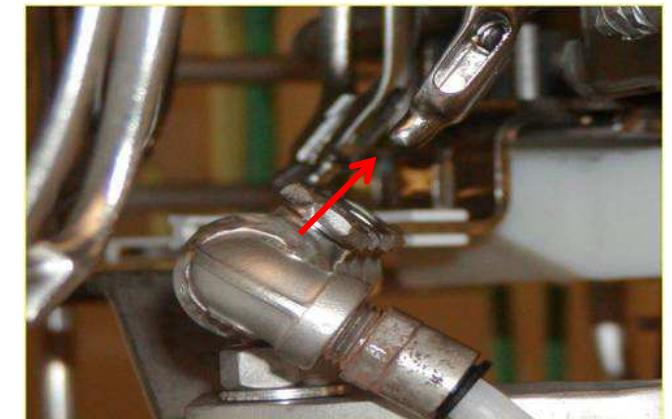
- Check pack shackles
- Check for broken/worn latching pins
- Check plastic jaw covers
- Check for bent and broken jaws
- Check for sprayers proper alignment



# Maintenance

## Daily standard operations

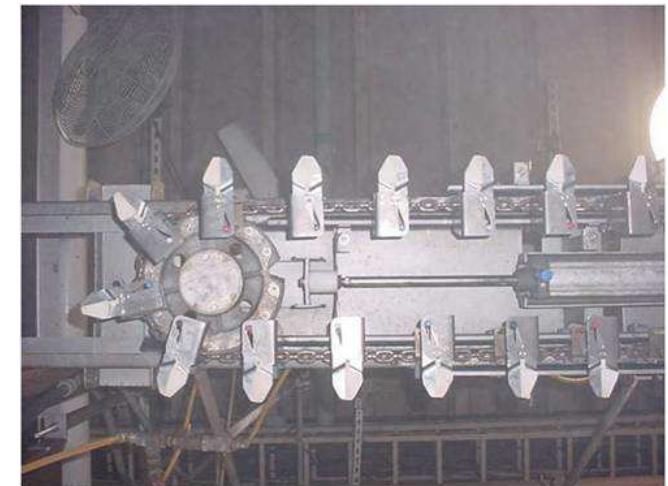
- Check water system
- Lubricate units
- Spray main shafts and upper units with food grade oil



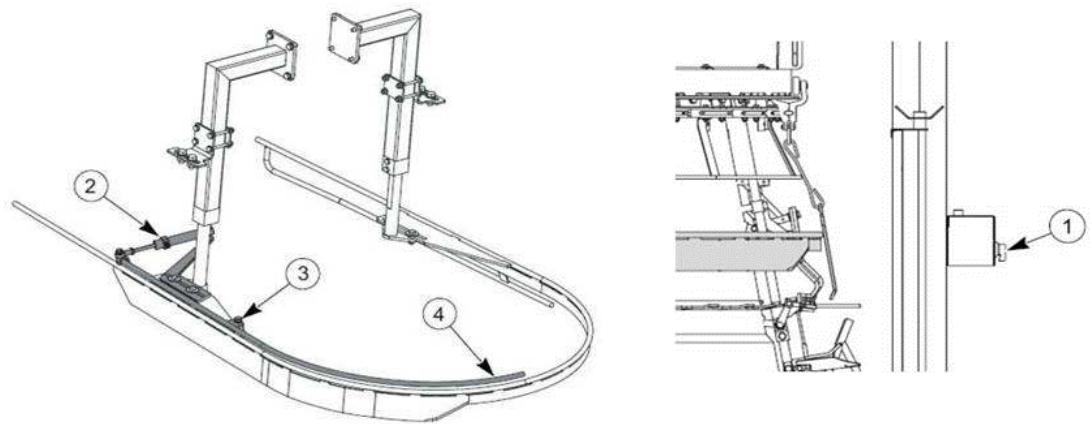
# Maintenance

## Daily standard operations

- Check pneumatic system
- Insure that you have air pressure (65 PSI) on all pneumatic take-ups



- Optional polyvalent guide



# Maintenance

## Weekly standard operations

- Check machine settings



# Maintenance

## Weekly standard operations

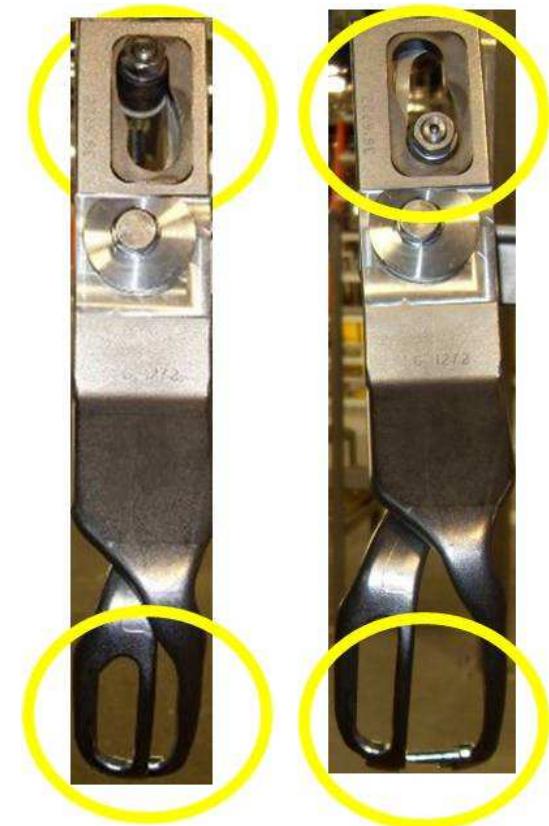
- Check spoons for correct operation  
@ 310°
- Push down on roller pin
- Spoon opens up
- Push up on roller pin
- Spoon closes



# Maintenance

## Weekly standard operations

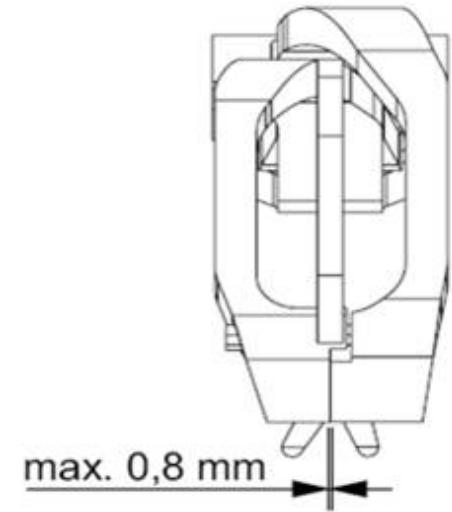
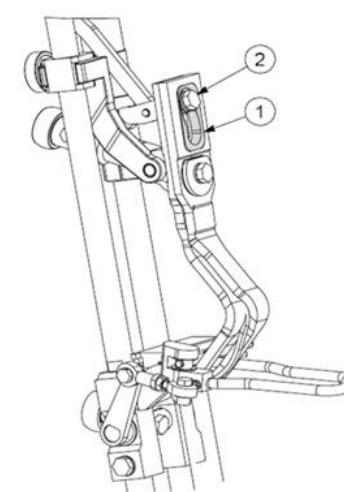
- Check spoon functioning arm @310°
- This setting is needed to ensure the spoon opens and closes properly when capturing the esophagus.
- Use finger pressure to operate the spoon action



# Maintenance

## Weekly standard operations

- Check opening of the spoon @ 310°
- This is needed to make sure the spoon opens wide enough to capture the esophagus as the spoon closes over the spine.
- Check clamping force @ 310°



# Maintenance

## Weekly standard operations

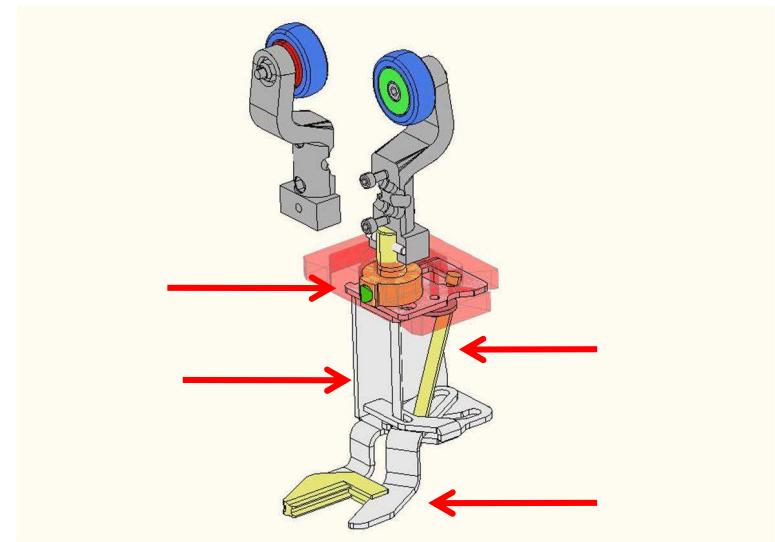
- Check spoons for fracturing @ 160°
  - Not keeping the spoon clean and products without the opening cut will put extra force on the spoon
- 
- Check spoons for clamping @ 160°
  - Pull on spoon to check for clamping play
  - If play occurs (loss of pretension .2 mm), monitor performance, evaluate the cause and correct deficiencies. (Rollers, Bushings or Curve Plate or a combination of above)



# Maintenance

## Weekly standard operations

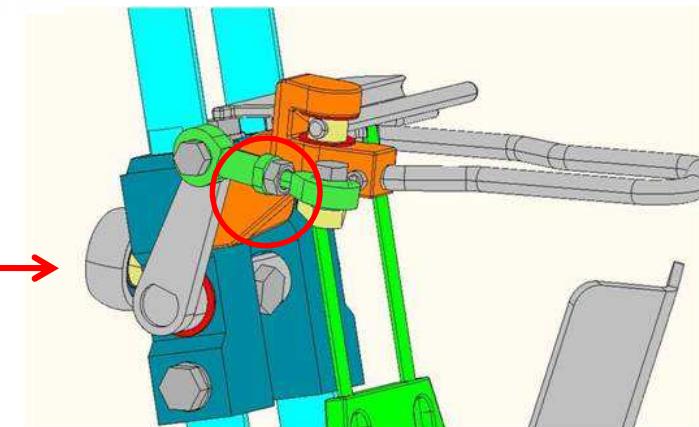
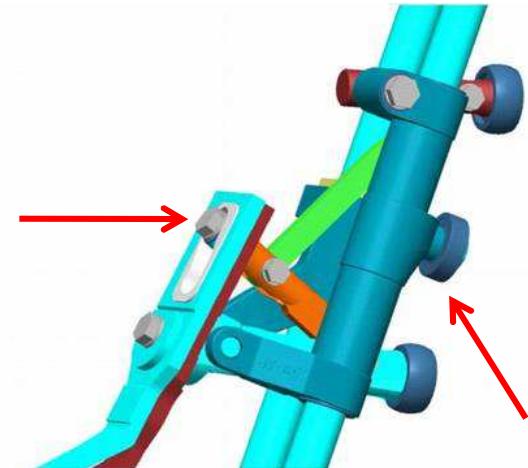
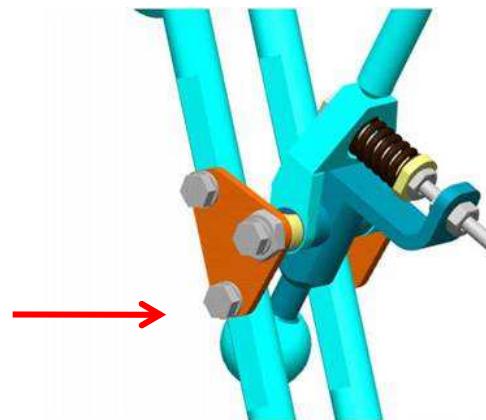
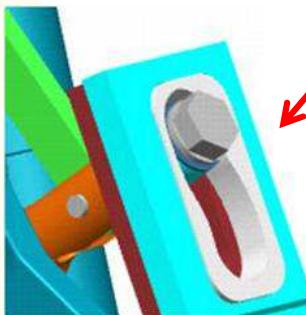
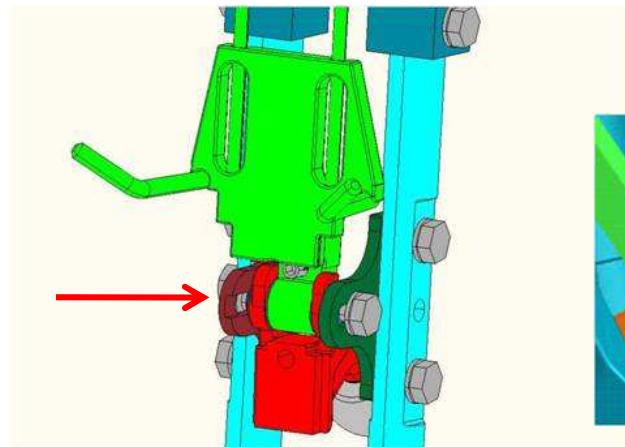
- Check for loose nuts and bolts
- Insure all nuts and bolts remain tight on machine and track
  
- Check pack shackles
- Check for weak detent pins on rotating shackles
- Check frames for straightness and welds
- Check latching pins for breakage and wear
- Check plastic jaw covers and for bent and broken jaws



# Maintenance

## Weekly standard operations

- Check machine units
- Bushing and bearings
- Rod end bearings



# Maintenance

## Weekly standard operations

- Water system integrity
- Check hoses for breaks, kinks and connections
- Plant filter
- Machine filters



# Maintenance

## Weekly standard operations

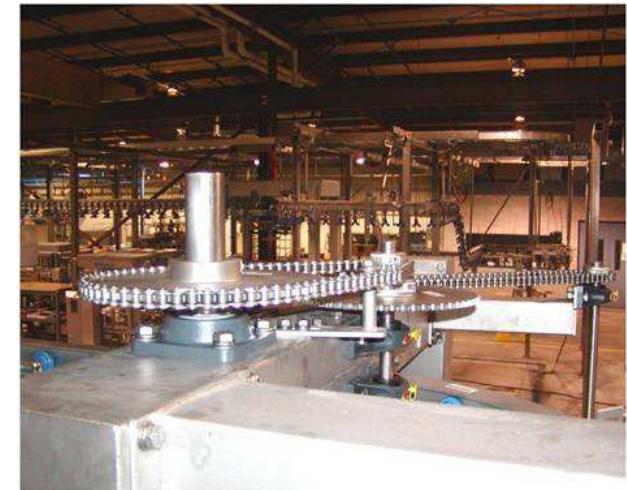
- Check safety devices for position, breaks and cuts



# Maintenance

## Weekly standard operations

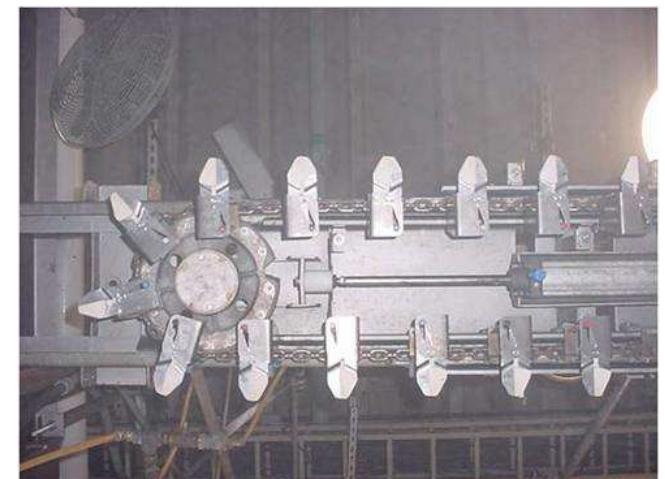
- Check chain drives for alignment and tension
- Use chain lubricant



# Maintenance

## Weekly standard operations

- Check pneumatic system
- Inspection stands
- Take-ups
  
- Insure air cylinders move freely
- Check all regulators and cylinders
- Disconnect airlines and fully collapse cylinders to remove any accumulated water



# Maintenance

## Weekly standard operations

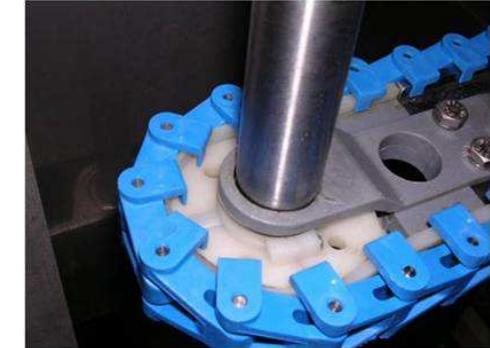
- Grease Bearings
- Pillow blocks and Flanged



# Maintenance

## Weekly standard operations

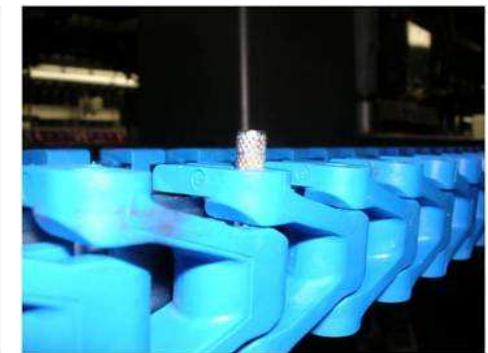
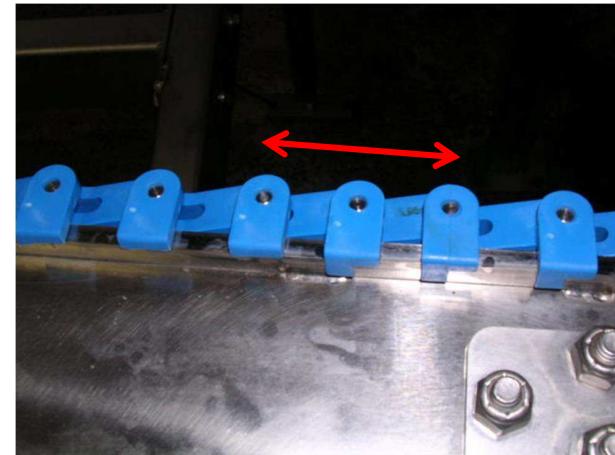
- Presentation guide chain
- Drive end
- Idler end
- Check plastic guide and gear teeth



# Maintenance

## Weekly standard operations

- Presentation guide chain
- Check for wear and broken teeth
- Check chain for proper length
- Don't pull chain tight (Bunch three links)
  
- Repair chain with correct tool
- Remove pin on nurled end



# Maintenance

## Monthly standard operations

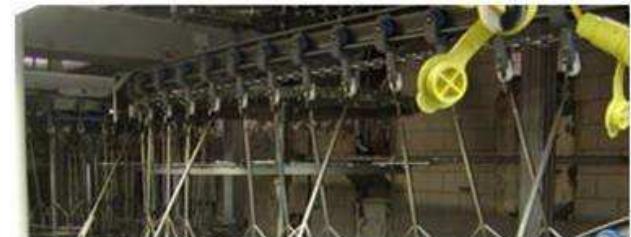
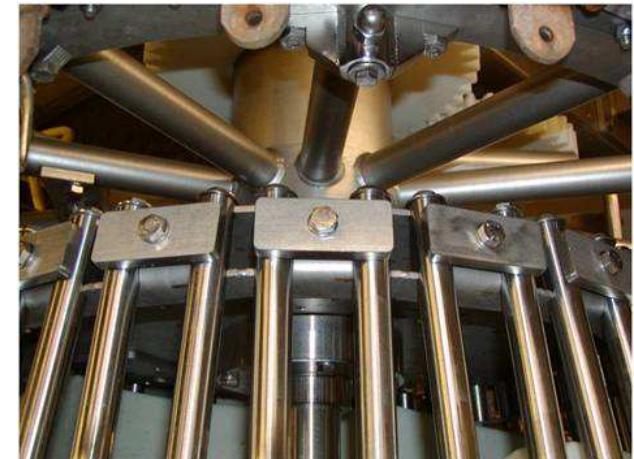
- Overhead line gear boxes
- Check for oil level and water intrusion
- Check torque arm nuts



# Maintenance

## Monthly standard operations

- Overhead conveyor
- Check and register the chain stretch
- Take tension off the overhead conveyor chain
- Check drive wheels on all round machines for bearing wear



- Function
- Names
- Process
- Settings
- Operation
- Performance
- Maintenance

## Any Questions?



Thank you / Dank u wel / Mange tak / Takk fyrir

Evisceration system Nu-Tech Nuova

