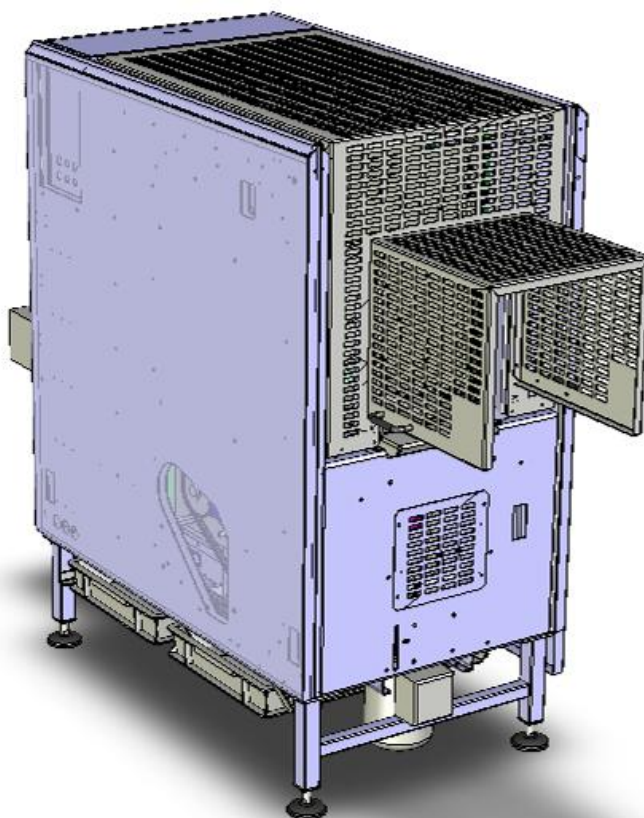




SERVICE MANUAL PS4 TRAY STACKER

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INTRODUCTION

**CAUTION:**

This manual must be read by each person, before that person adjusts the machine. Using this service manual is at your own risk. Prinzen cannot be held responsible for any consequential damages to the system caused after using this service manual.

ATTENCION:

Cualquier persona que ajusta esta máquina, debe leer este manual de manejo antes de ajustar.
El uso de este manual de manejo es por su propio riesgo.
Prinzen no puede ser responsable por daños al sistema a causa del uso de este manual de manejo.

ATTENTION:

Chacun qui règle cette machine doit lire le manuel en avant.
L'usage de ce manuel est à ses propres risques et périls.
Prinzen n'est pas responsable pour dommages sur le système à cause d'usage de manuel.

VORSICHT:

Jeder, der diese Maschine einstellen soll, muß vorher diese Hinweise lesen.
Benutzung dieser Hinweise ist auf eigene Rechnung und Gefahr.
Prinzen ist nicht verantwortlich für Folgschaden ans System nach Benutzung dieser Hinweise.

ATTENTIE:

Een ieder, die deze machine afstelt dient vooraf deze handleiding te lezen.
Gebruik van deze service handleiding is voor uw eigen risico.
Prinzen kan niet verantwoordelijk worden gesteld voor enige schade aan het systeem veroorzaakt door het gebruiken van deze service handleiding.

LIABILITY

Prinzen BV cannot be held responsible for any costs, damage or personal injury if its system is not used in accordance with the instructions as described in this manual.

The information provided in this manual is valid for the standard design of the system. Parts of your system may differ from this standard design.

Since Prinzen BV is constantly improving its systems it may be possible that there are small differences between your system and this manual.

Though this manual has been put together with the utmost care, Prinzen BV cannot accept any responsibility for costs, damage or personal injury arising from any fault and/or incompleteness in the content of this document.

GENERAL

This manual is intended to be used by service engineers of Prinzen and its official dealers. It contains important information concerning safety and adjustment of the Prinzen BV system. For uncomplicated functioning of the system, read this manual carefully and adjust according to the directions in this manual.

Beside the design and the used materials also the correct adjustment of the system has great impact on the functioning, the life span and the operational costs of the system.

This manual will help you to gain knowledge for correct adjustment of the system.

A Prinzen BV system meets the demands, mentioned in the European machine guideline (CE).



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All rights rest with Prinzen BV, Aalten, The Netherlands.

Written by Visser Machine Services.

GENERAL

This manual contains important information concerning:

- Safety
- Installation
- Adjustments

Read and understand this total service manual before starting to adjust the system. Beside this manual also knowledge about the operating, maintaining and cleaning of the system is necessary for a safe and correct adjustment of the system. Also read and understand the complete user manual of the system before starting to adjust it.

Never change the sequence of procedures as described in this manual.

SAFETY REGULATIONS

Before starting to adjust the system first read this chapter and chapter **Safety**.

LEGAL REGULATIONS

- All safety directions stated in this manual must be observed.
- Along with the safety regulations in this chapter the instructions of the qualified trade organization of your country must be observed to avoid accidents.
- Before starting to adjust the machine always consult the safety manager of the company to discuss if a work permit is required for this job.
- All safety devices, installed in the machine by the manufacturer and the indications mentioned in the manuals are conditions to control the machine safely.
- Technical changes, which influence the safety working of the machine, may only be executed by the service department of Prinzen.
- Do not change controls, and/or PLC programs, without written permission from Prinzen because this may affect the safety of the machine.
- Only use genuine Prinzen parts or CE-certified parts for replacement.
- Prinzen cannot be held responsible for any consequential damages to the system or other installations that were caused by technical changes, unprofessional maintenance and repairs on our system, which were executed by the dealer or the owner of the system.
- Warranty becomes invalid when consequential damages to the system, caused by technical changes, unprofessional maintenance and repairs, were executed by the dealer or the owner of the system.



DANGER!

Failure to obey legal regulations may result in permanent personal injury or death.



ATTENTION!

Failure to obey legal regulations may result in damage to the system.

HOW TO USE THIS MANUAL?

The manual is constructed to provide a maximum amount of information with a minimum amount of searching. The key to easy reference is the **Table of contents**.

WHO SHOULD USE THIS MANUAL?

Dealer:

The dealer is the person (concern) that represents Prinzen BV. The dealer must take care that its service engineers will read this manual.

Professional:

A professional is someone who can assess the duties appointed to him on account of his education, knowledge and experience and who can assess the dangers attached, thereby avoiding these dangers.

Service engineer:

The service engineer is a professional employed by Prinzen or its official dealers. The service engineer must read the total manual.

Owner:

The owner (contractor, concern) is the person that owns or hires the machine and puts this machine into production. The owner must be aware that this service manual is intended to be used by service engineers from Prinzen and its official dealers. Since this manual contains valuable information for communication with the Prinzen service department or dealer it is delivered as a part of the system. Be aware that using this service manual for adjusting your system is at your own risk. Prinzen cannot be held responsible for any consequential damages to the system caused after using this service manual.

MANUAL INFORMATION

Machine type: PS4 Tray stacker
Manual revision: 01 (October 2012)

SERIAL NUMBER

Each machine has a unique serial number printed on its machine tag. Note down this serial number to have it available when contacting the Prinzen service department.

Type	Tray Stacker
Serial No.	PS4-0098
D.O.M.	2012
Capacity	40000 eph
Voltage	380v 50Hz

THIS MACHINE IS MANUFACTURED UNDER THE FOLLOWING PATENTS GRANTED

UK 2404909
UK 2335177
US 09/146774
EP 0 937 668



Type	Tray Stacker
Serial No.	PS4-0106 SM
D.O.M.	2012
Capacity	40000 eph
Voltage	380v 50Hz

THIS MACHINE IS MANUFACTURED UNDER THE FOLLOWING PATENTS GRANTED

UK 2404909
UK 2335177
US 09/146774
EP 0 937 668



Type	Tray Stacker
Serial No.	PS4C-0152
D.O.M.	2012
Capacity	35000 eph
Voltage	380v 50Hz

THIS MACHINE IS MANUFACTURED UNDER THE FOLLOWING PATENTS GRANTED

UK 2404909
UK 2335177
US 09/146774
EP 0 937 668



SYMBOLS

Symbols are used in the manual when special attention/caution is required while working on the system. The special symbols and their meaning are depicted in the below table.

Symbol:	Meaning:
	DANGER! This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury or death.
	CAUTION! This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury.
	ATTENTION! This symbol is used when instructions should be followed to the letter. If not they may cause damage to the system.
	NOTE! This symbol advises to use edible products and to work in a hygienically way. Disregarding this advice may cause illness.
	TIP! This symbol is used as a helpful hint to simplify the execution of certain tasks.

ADDRESS PRINZEN

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1. SAFETY

GENERAL

Only persons meeting the following requirements are authorized to work with the system. These persons should be:

- Skilled and specifically trained for their duties.
- Familiar with the contents of this manual.
- Familiar with the locations of the emergency stop buttons and other safety devices.
- 18 years old or above.
- Familiar with the national and regional regulations regarding safety.

These persons should have reached the minimum legal age required to perform this work.

These persons are NOT under influence of any drug, medicine or alcoholic drink.



DANGER!

Keep children and incompetent persons away from the system!

The system is designed for packing eggs into specific packaging. Any other use of the system is not permitted.

SAFETY REGULATIONS

Do not use the system when safety devices have been removed. This system may contain sharp edged parts, moving parts and rotating parts.

When protective covers are removed, sharp edges and pinch points may be exposed. Use extreme caution and avoid touching or striking these areas with your hands or body because they may cause injuries.

Do not enter parts of your body or objects into openings in the system. This may lead to serious physical injury or damage to the system. It is dangerous to be in, on or under the system while it is operational.

Loosely hanging clothing, wide sleeved clothing, ties, chains or rings are prohibited. Long hair should be worn tied back.

Make sure that there is sufficient light around the machine.

Do not touch or come near moving or rotating parts. Physical contact with these parts is dangerous.

Do not stand or walk on any of the system parts.

Do not work alone on the system. At least one other person should be present

Before starting to adjust the machine follow the steps mentioned below:

- Switch off the machine and secure it against accidental switching on.
- Post "Do not switch on" warning sign on the main switch:
- Operate the nearest emergency stop button.
- Make sure that no components are moving.

Before switching on the machine, you must check the following:

- All safety devices are in place and are functioning.
- No other persons are in, underneath or above the system.
- No tools or objects are in the system.
- No other persons are at risk.

Do not use water to clean electricity cabinets and other electronic components.

For save and easy adjustment keep the machine and the area and floor around the machine clean, free of oil, grease or obstacles.

When an extension cable is used for power supply, make sure that the cable diameter in relation to the length of the cable is correct. Make sure the cable is completely unrolled

When the safety devices are put out of operation, the machine must first be switched off and secured against accidental switching on.

Work inside the electrical cabinet may only be undertaken by skilled personnel like Prinzen service engineers or its dealer's service engineers.

Always switch off the main switch before opening electrical cabinets.

After switching off the main switch, parts inside the electrical cabinet remain live for approximately 1 minute. The frequency inverters may hold a high voltage charge during this time. Do not touch parts inside the electrical cabinet as long as displays of frequency inverters are on.

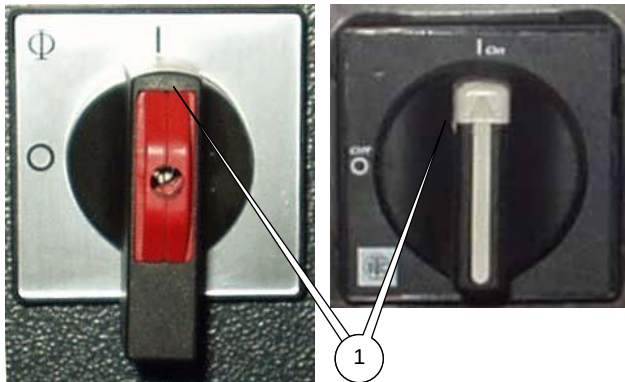
Several parts inside the electrical cabinet maintain voltage even when the main switch is turned off (main switch, main power supply, terminals for egg collecting belts, etcetera).

**DANGER!**

Failure to obey safety regulations may result in permanent personal injury or death.

**ATTENTION!**

Failure to obey safety regulations may result in damage to the system.



SAFETY PROVISIONS

Before operating the machine the safety devices must be checked for correct functioning.

Repair or replace safety devices before using the system if they do not work properly. Never rely solely on safety devices. Always switch off the system and lock up the power source (1) before working on the machine.

Safety devices are:

2. Emergency stop buttons
3. Lockable doors
4. Protective covers
5. Safety switches

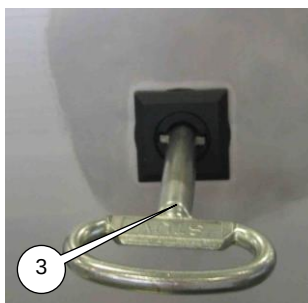


EMERGENCY STOP BUTTON

To stop the machine in case of an emergency, the system has one or more emergency stop buttons (2).

Only use the emergency stop button in case of an emergency. When the emergency stop button is pressed, the system stops immediately. The button stays mechanically locked so the machine cannot start until it is considered safe to do so. Release the emergency stop button by turning it clockwise. Do not release the emergency stop button when it is not certain why and by whom it was pressed.

Personnel working with the system must know the positions of the emergency stop buttons.



LOCKABLE DOOR

Lockable doors are doors that can only be opened with a key (3). The key should only be in possession of a supervisor.



DANGER!

Lockable doors safeguard dangerous machine areas. These doors are of utmost importance to operate the machine safely. Never operate the machine when doors are open or not locked because serious injury or death may occur!



PROTECTIVE COVER

Protective covers (4) shield off dangerous moving parts. These covers cannot be removed without tools and should be attached to the system before starting to use it.



DANGER!

Protective covers safeguard dangerous machine areas. These covers are of utmost importance to operate the machine safely. Never operate the machine when protective covers are removed because serious injury or death may occur!



5



SAFETY SWITCH

Safety switches (5) are provided on safety doors or safety covers to prevent the operation of the machine or to stop the machine immediately when this door or cover is opened.



DANGER!

Make sure the safety door or safety cover remains open and make sure the system is not able to start when you are inside the system.

SAFETY INSPECTION PROCEDURE

Before starting the machine all protective covers must be in place and doors should be locked. The emergency stop buttons and safety switches should be operating. Trained personnel must check safety devices on a daily basis to assure proper operation.

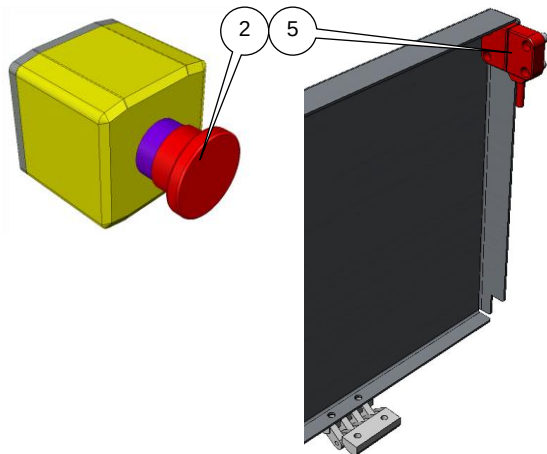
Check emergency stop buttons (2):

1. Start and stop the system.
2. Wait until the system has completely stopped and push an emergency stop button.
3. Push the start button, the machine should not start.
4. Release the emergency stop button and reset the emergency circuit.
5. Repeat the above steps 2, 3 and 4 for all emergency stop buttons.
6. Make sure that the machine does not start when any emergency stop button is pressed.

Check safety switches (5):

1. Start and stop the system.
2. Wait until the system has completely stopped and open a safety door or safety cover.
3. Push the start button, the machine should not start.
4. Close the door or cover and reset the emergency circuit.
5. Repeat the above steps 2, 3 and 4 for all doors and covers.
6. Make sure that the machine does not start when a door or a cover is opened.

If the machine operates when an emergency stop button is pressed, a door is opened, a safety screen is interrupted or a trolley is removed, this machine is not safe to operate. Immediately call a qualified technician to repair this defective safety device.



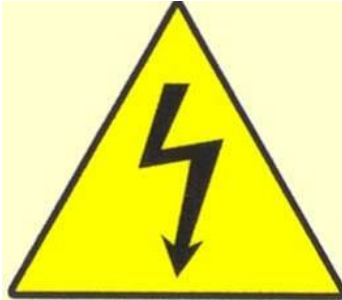
WARNING LABELS

The Prinzen system makes dangerous movements. The system also contains dangerous parts when they contact the body. The following labels are posted as a warning. Understand and remember the meaning of the warning labels.



DANGER!

Keep the warning labels clean. When labels become unclear, replace them.



The flashlight label is used to warn for dangerous voltage inside a cabinet. Contacting parts inside this cabinet may result in permanent personal injury or death.



This sign is used to warn for dangerous movements. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.



These signs are used to warn for the danger of limbs being pulled in. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.



These signs are used to warn for crushing danger. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.



This sign is used to warn for dangerous movements of a lift. Keep a safe distance to the lift. Before entering the lift area, lock the lift movement mechanically. Disregarding this warning may result in permanent personal injury.

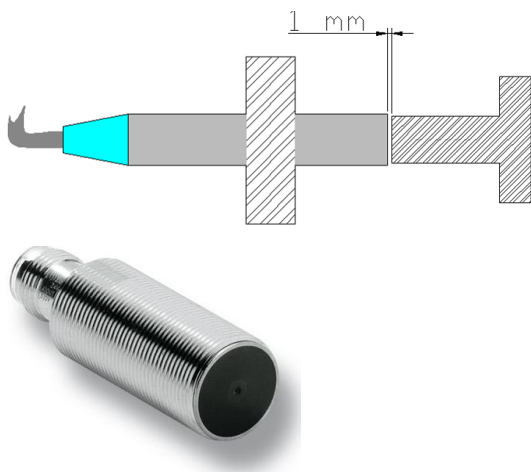


2. COMPONENT ADJUSTMENTS

GENERAL ADJUSTMENTS

SAFETY REGULATIONS

Before starting to adjust the system first read the chapters [Introduction](#) and [Safety](#).



PROXIMITY SWITCHES

In the Prinzen systems, often Omron inductive sensors are used for controlling the positioning of moving parts.

The distance between the tip of the sensor and the detectable parts must be 1 mm.

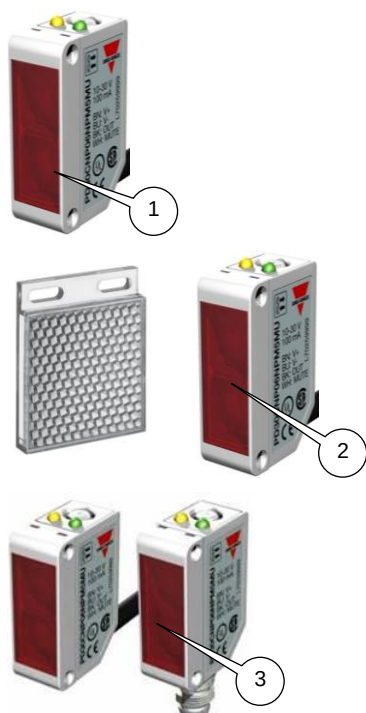


PHOTO SWITCHES

There are 3 types of photo switches:

Diffuse reflective photo switch (1):

This is a photo switch which transmits a light beam. An object is detected when the photo switch receives the light beam back because it reflects on the object.

Retro reflective photo switch (2):

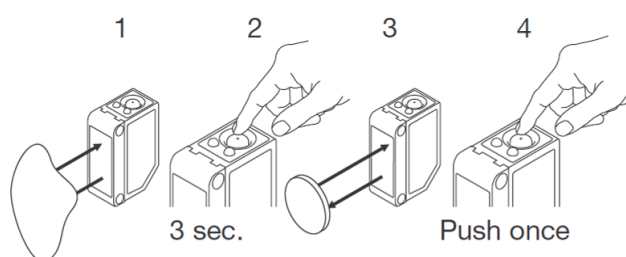
This is a photo switch which uses a reflector to receive its transmitted light beam back. An object is detected when it interrupts the light beam.

Through beam photo switch (3):

This photo switch consists of a transmitter and a receiver part. The transmitter sends a light beam to the receiver. An object is detected when it interrupts the light beam.

PD30 DIFFUSE REFLECTIVE

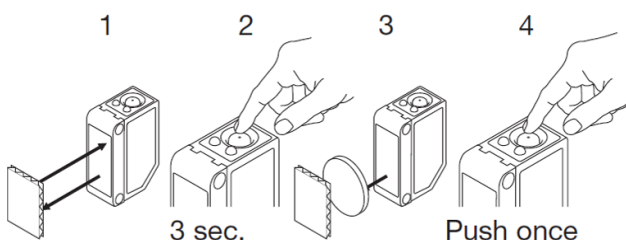
Adjust the sensor according the below procedure:



1. Align the sensor to its correct position without the object it has to detect. The green LED should be ON.
2. Press and hold the teach button for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in front of the photo switch.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns ON when an object is detected.

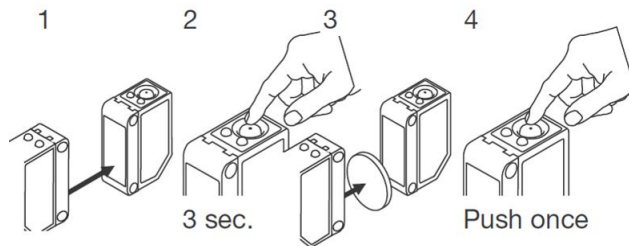
PD30 RETRO REFLECTIVE

Adjust the sensor according the below procedure:



1. Align the sensor and the reflector to their correct positions without the object it has to detect. Both LEDs should be ON.
2. Press and hold the teach button for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in between the sensor and the reflector.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns OFF when an object is detected.

PD30 THROUGH-BEAM



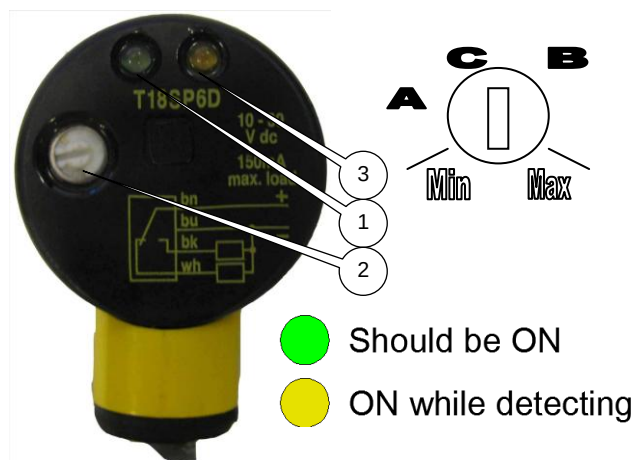
Adjust the sensor according the below procedure:

1. Align the transmitter and the receiver to their correct positions without the object it has to detect. Both LEDs on the receiver should be ON.
2. Press and hold the teach button on the receiver for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in between the transmitter and the receiver.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns OFF when an object is detected.



TIP!

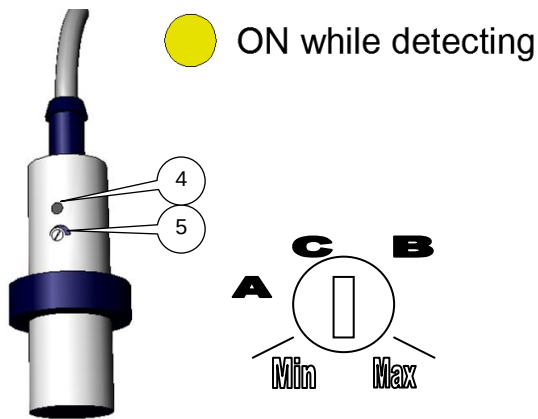
Prinzen uses these through beam sensors with the supplier's factory settings. Normally it is not necessary to teach new through beam sensors.



T18 DIFFUSE REFLECTIVE

Follow below procedure to adjust the sensor:

- Align the sensor to its correct position without the object it has to detect. The green LED (1) should be ON.
- Turn the potentiometer (2) clockwise until the yellow LED (3) goes ON (B).
- Place the object you need to detect in front of the photo switch, yellow LED should remain ON.
- Turn the potentiometer counter clock wise until the yellow LED goes OFF (A).
- Set the potentiometer in between A and B position (C). Now the sensor is adjusted. The yellow LED turns ON when an object is detected.



PA18 DIFFUSE REFLECTIVE

Follow below procedure to adjust the sensor:

- Align the sensor to its correct position without the object it has to detect. The LED (4) should be OFF.
- Turn the potentiometer (5) clockwise until the LED goes ON (B).
- Place the object you need to detect in front of the photo switch, LED should remain ON.
- Turn the potentiometer counter clock wise until the LED goes OFF (A).
- Set the potentiometer in between A and B position (C). Now the sensor is adjusted. The LED turns ON when an object is detected.



FREQUENCY INVERTERS

Changing parameter values:

Follow below procedure to change parameters values:

- Press the up (1) or down (2) button until PAr is visualized on the display.
- Press the enter key (3) to display the parameters.
- Use the Reset button (4) to select a parameter digit. Repeat this step and next step until the parameter you want to view is displayed.
- Press the up (1) or down arrows (2) to change the parameter digit. Repeat this step and previous step until the parameter you want to view is displayed.
- Press the enter key (3) to display the parameter value.
- Use the Reset button (4) to select a parameter digit. Repeat this step and next step until the parameter value is changed.
- Press the up (1) or down (2) button to change the parameter digit. Repeat this step and previous step until the parameter is completely changed.
- Confirm the change with the enter key (3).
- Press the escape key (5) until the DRV LED (6) is ON and F.... is visible on the display.



ATTENTION!

The parameters of the frequency inverters are factory set. We advise you to consult Prinzen before changing these parameters.



CAUTION!

Before manually controlling frequency inverters, make sure no persons are in danger. Motors immediately start to move.



ATTENTION!

When frequency inverters are manually controlled, parts of the system immediately start to move. This may result in collision of parts which may damage the system.



TIP!

After a frequency inverter has been controlled manually, the system may have lost its sequence and a reboot of the system may be necessary (power OFF and power ON).



TIP!

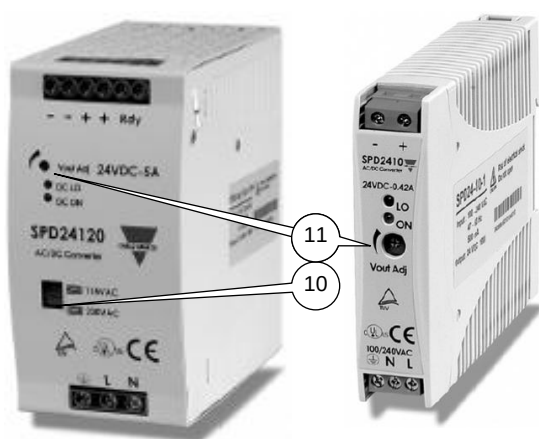
See the OMRON V1000 User manual for details about this frequency inverter.

Manually controlling the inverter:

In some situations it is easy to be able to run one of the motors by directly controlling it with its frequency inverter.

Follow below procedure to manually control the inverter:

- Make sure the system is stopped and no trays or eggs are on the part of the system that you want to control manually.
- Set the inverter in the local controlled mode by pressing the LO/RE button (7) until the LED inside this button turns ON.
- Press the RUN button (8) to start the inverter. The connected motor starts running now.
- Press the STOP button (9) to stop the motor.
- Set the inverter back in the remote controlled mode by pressing the LO/RE button (7) until the LED inside this button turns OFF.



POWER SUPPLIES

The power supply switch (10) must always be set to 230 Vac, even when your local power supply has a different voltage.

The power supplies are factory set. Do not change this setting (11).



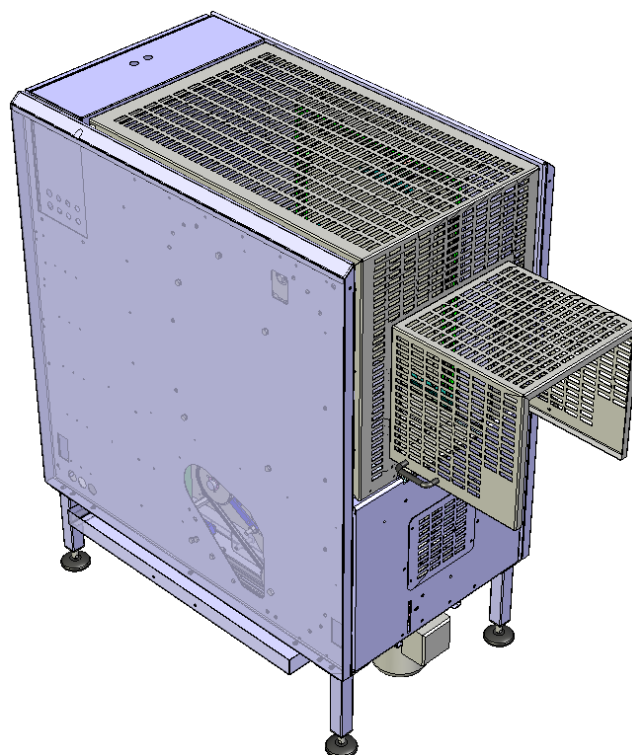
ATTENTION!

The power supplies are factory set. Do not change the power supply switch and do not change setting of the potentiometer.



3. TRAY STACKER

DESCRIPTION TRAY STACKER



Use:

The automatic tray stacker receives full 30 cell trays from the packer and automatically stacks those trays.

Construction:

The tray stacker consists of a transfer lift, a turn table, and a pusher.

Safety:

The tray stacker is equipped with protective covers and safety doors. The entry for the trays and the exit of the stacks is protected by a cover. The conveyors supplying the trays and removing the stacks are not completely protected. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the entry and the exit of the tray stacker and do not touch it when the system is running production.

The door above the entry and the cover above the exit of the tray stacker have safety switches. Opening this door or cover stops the tray stacker immediately.



CAUTION!

Do not enter objects or body parts into the entry or the exit of the tray stacker when it is running production. Keep distant to the tray stacker! It makes unexpected fast and powerful movements!



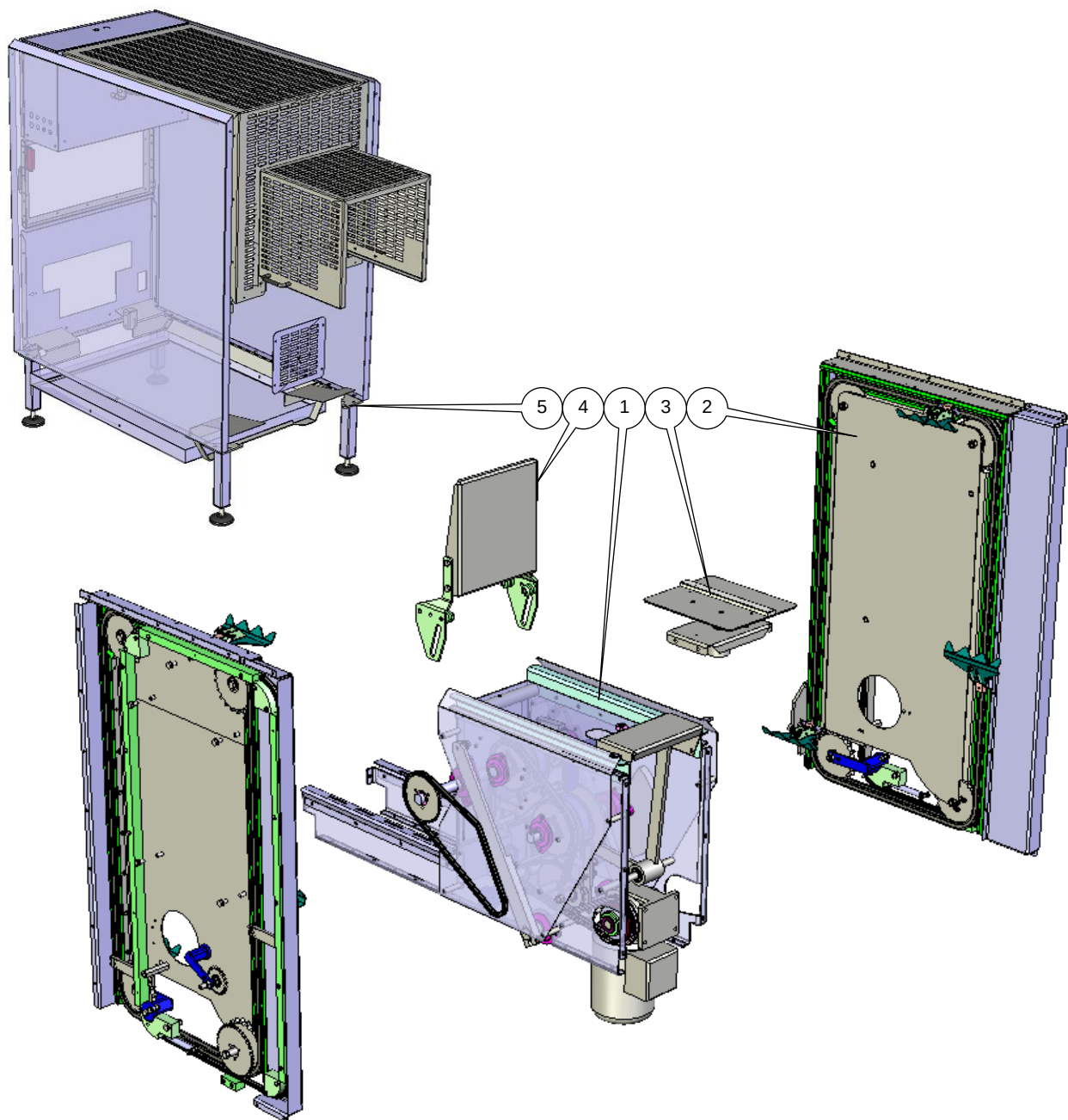
ATTENTION!

Do not enter objects or body parts into the entry or exit of the tray stacker when it is running production.

Executions:

There are 3 types of tray stackers available, for stacking the trays coming from a PSPC (PS4C), a Smartpack (PS4SM) and a Speedpack (PS4). In general the design is the same for all 3 types of tray stacker. Below table shows the differences.

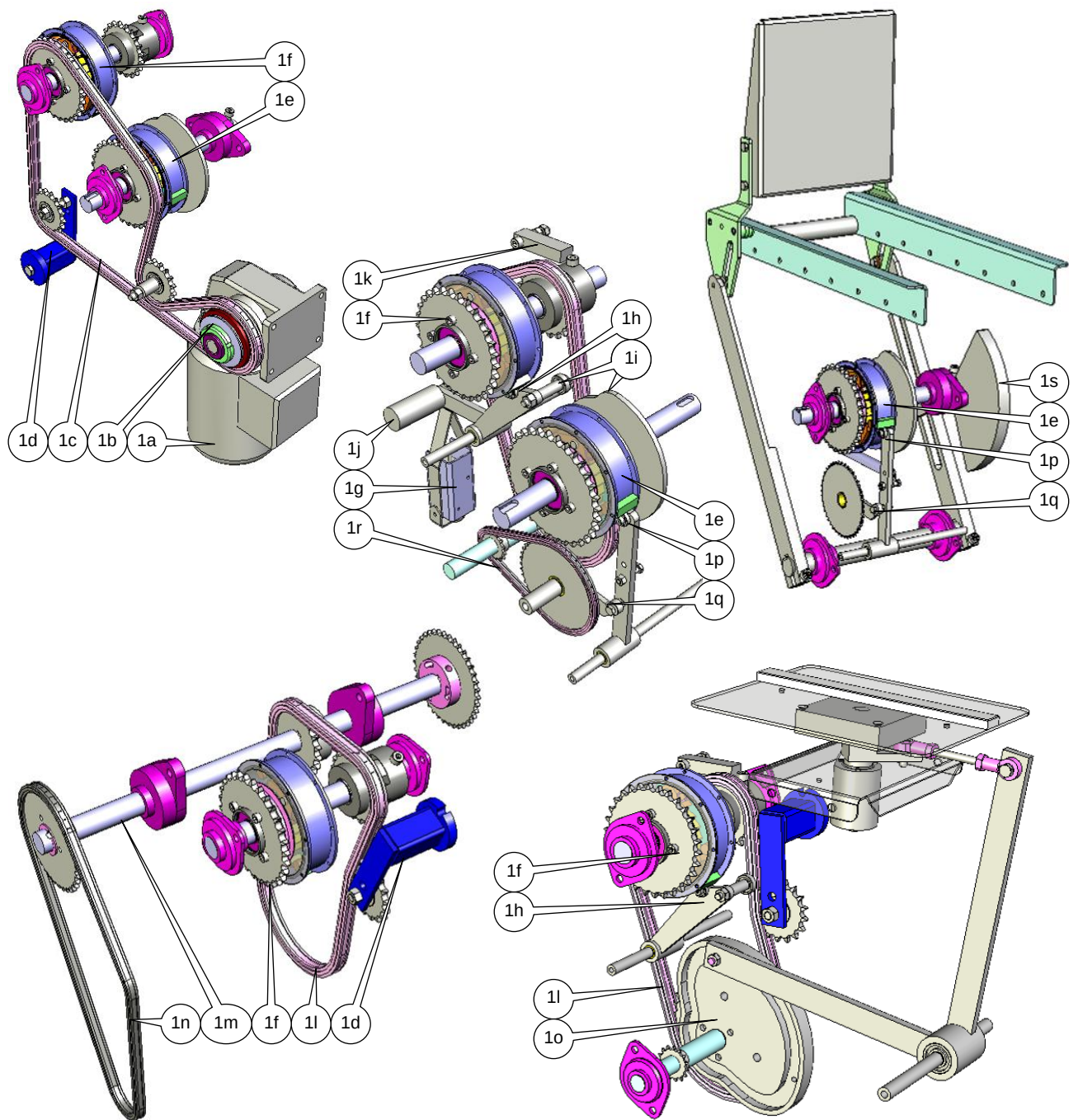
	PS4	PS4SM	PS4C
Upstream system	Speedpack	Smartpack	PSPC
Capacity (eggs/hour)	40.000	40.000	35.000
Electrical cabinet	Yes	No	No
Amount of grippers in transfer lift	4	3	3
Infeed conveyor position	Low	High	High
Tray detection	Retro reflective sensor	Diffuse reflective sensor	Flap
Activate tray stacker	Solenoid	Solenoid	Lever construction

**Construction:**

The tray stacker consists of:

1. Drive mechanism
2. Transfer lift
3. Turn table

4. Pusher
5. Frame



1 The drive mechanism consists of:

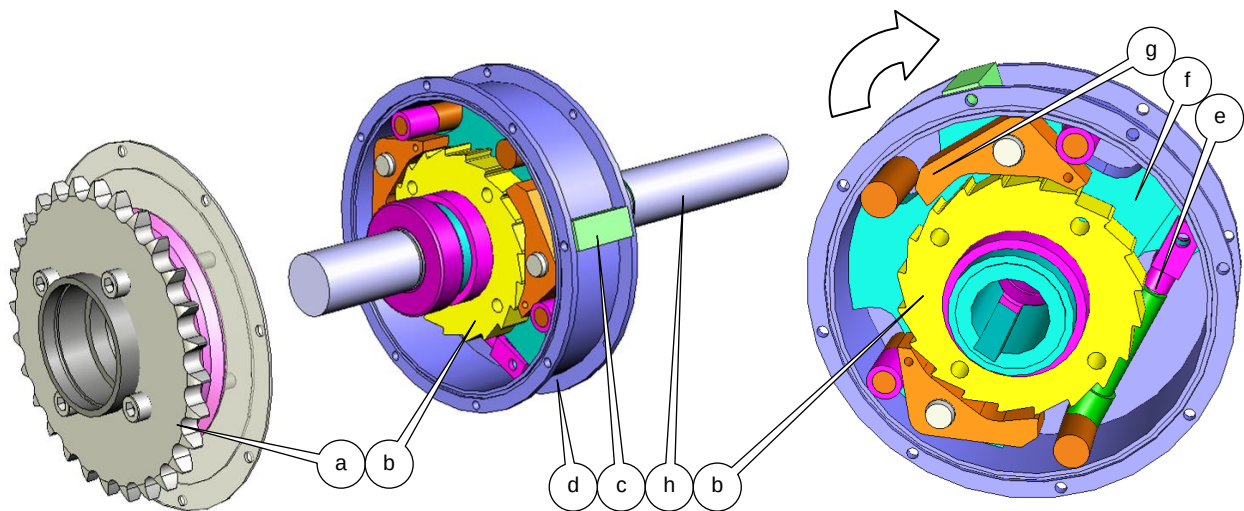
- | | |
|---|---|
| a. Frequency controlled drive motor | k. Back stopper |
| b. Safety slipping clutch | l. Turn table / transfer lift drive chain |
| c. Main drive chain | m. Transfer lift drive shaft |
| d. Chain tensioners | n. Transfer lift drive chain |
| e. Clutch pusher | o. Turn table disk cam |
| f. Clutch turn table / transfer lift | p. Pusher activator |
| g. Start solenoid | q. Pusher cam |
| h. Turn table / transfer lift activator | r. Pusher cam drive chain |
| i. Collision protection disk cam | s. Pusher crankshaft / flywheel |
| j. Contra weight | |

The drive motor runs continuously. The safety slipping clutch prevents damaging the tray stacker when, for whatever reason, parts of the tray stacker jam or when a tray is blocking the mechanism. When the solenoid is activated it will release the turn table / transfer lift clutch via a lever. The contra weight moves the activator up again, to stop the clutch after 1 revolution. The back stopper stops the reverse rotation of the clutch to prevent continuous decoupling of the clutch.

During the revolution, the turntable / transfer lift drive chain starts running. Thereby the transfer lift makes 1 step and the turn table disk cam a $\frac{1}{2}$ revolution resulting in a 90° rotation of the turn plate. At the same time, the pusher cam is driven making a $\frac{1}{6}$ revolution.

After 6 revolutions of the turn table / transfer lift clutch, the pusher cam made 1 revolution and releases the pusher clutch. Because the activator is spring loaded it is pulled backwards again and stops the clutch after 1 revolution. Here the flywheel prevents the reverse rotation of the clutch. During the revolution, the crankshaft with flywheel starts rotating resulting in the forward and backward movement of the pusher plate.

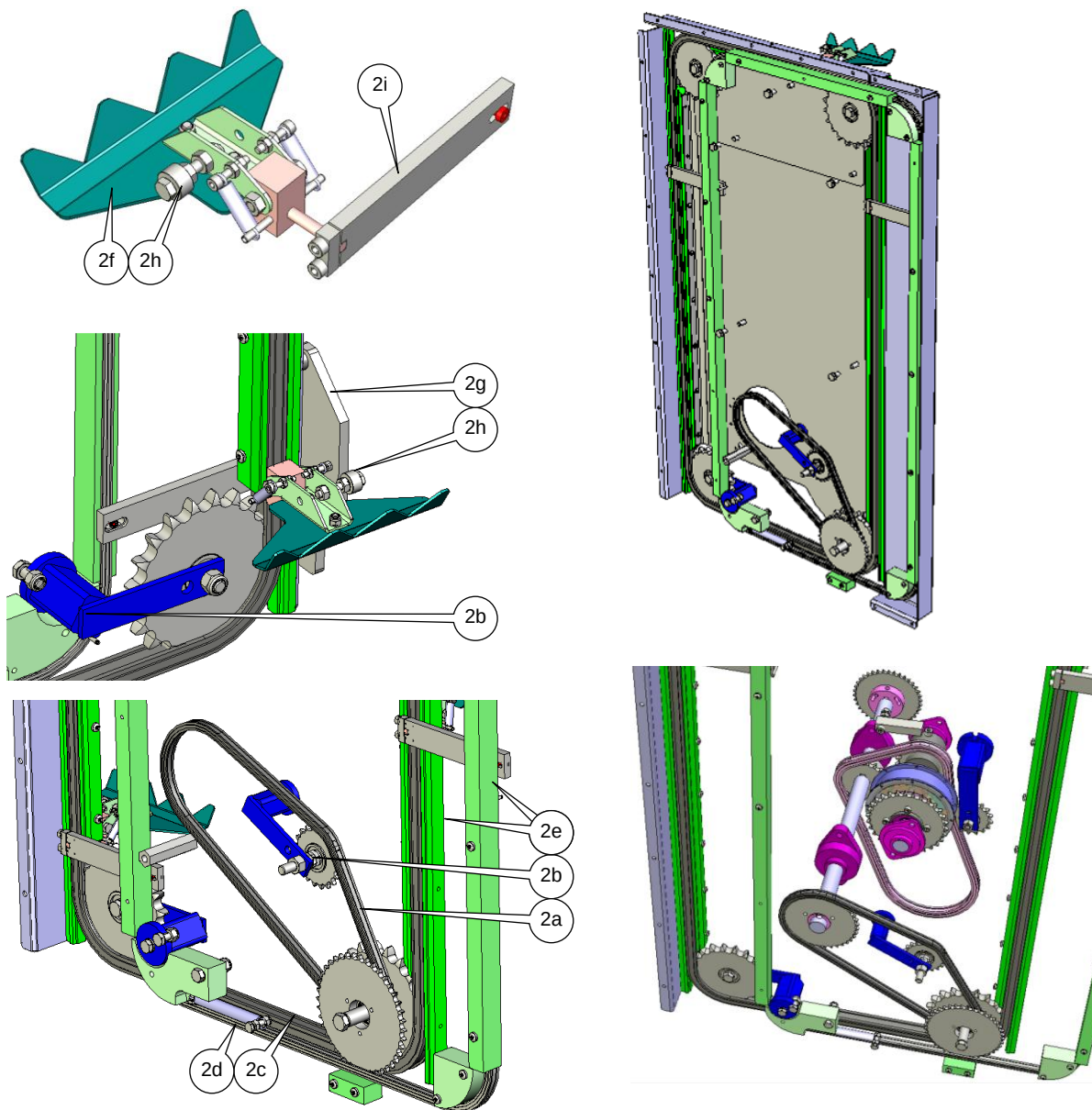
During the revolution of the pusher clutch, the collision protection disk cam disables the turn table transfer lift activator to prevent the possibility to start the turn table / transfer lift clutch.



The clutch:

The sprocket (a) is driven by the main drive chain. The toothed ratchet (b) is attached to this sprocket. As long as the cam (c) on the clutch housing (d) is stopped, the ratchet runs free. When the cam is released, the pressure spring (e) pushes the clutch plate (f) against the rotation direction of the clutch housing, forcing the 2 pawls (g) outwards into the ratchet. The ratchet "catches" the pawls and as a result the clutch plate and thus the shaft (h) starts rotating.

As soon as the cam, and thus the clutch housing is stopped again, the ratchet pushes the clutch plate against the force of the pressure spring. Now the pawls run against dowels and release the ratchet which starts to run free again. The shaft stops rotating.

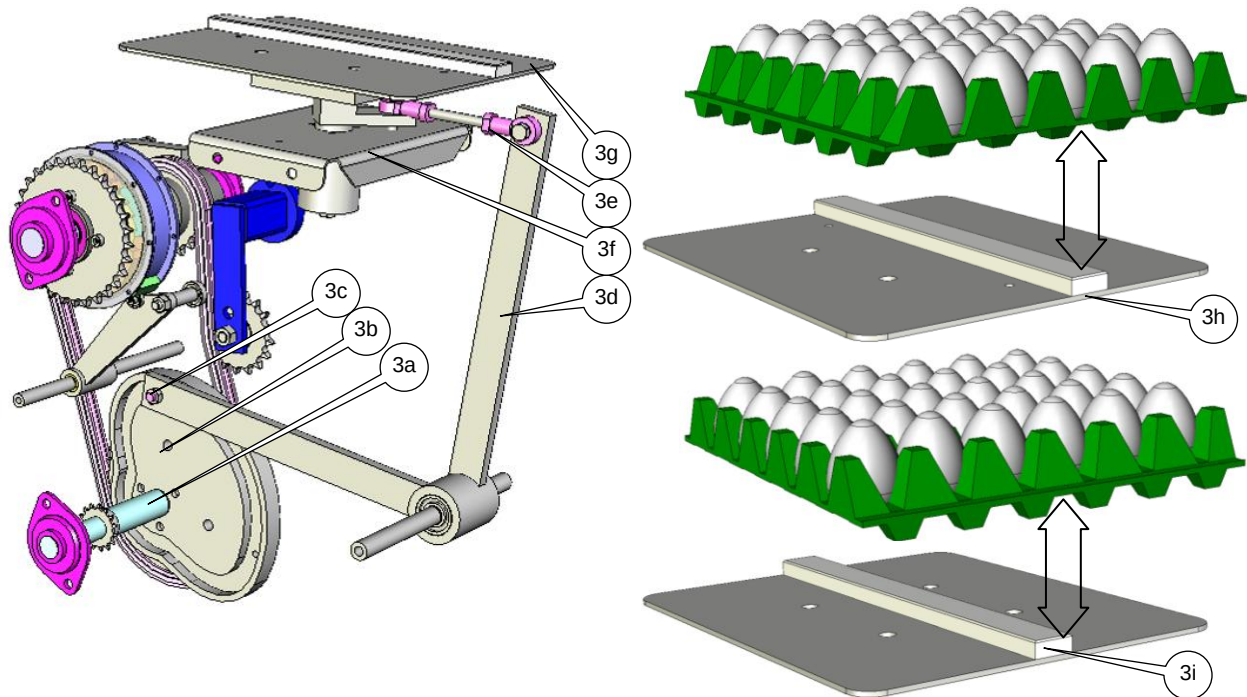


2 The transfer lift consists of:

- a. Transfer lift drive chain
- b. Chain tensioner
- c. Grippers transport chain
- d. Grippers leveling chain
- e. Chain guides
- f. Gripper
- g. Grippers down cam plate
- h. Gripper down cam follower
- i. Gripper leveling arm

When the turn table / transfer lift clutch is released, its shaft makes 1 revolution. The turn table / transfer lift drive chain starts running, driving the transfer lift drive shaft. Via transfer lift drive chains on both sides of this shaft, the gripper transport chains and the gripper leveling chains are driven.

Grippers are attached to the transport chains and via leveling arms to the leveling chains. After placing the tray on the turn table, during the downward movement, the grippers run against the frame and fold in. Before picking up trays from the infeed conveyor, during the upward movement, the cam follower on the grippers run against the cam plate and as a result fold out again.

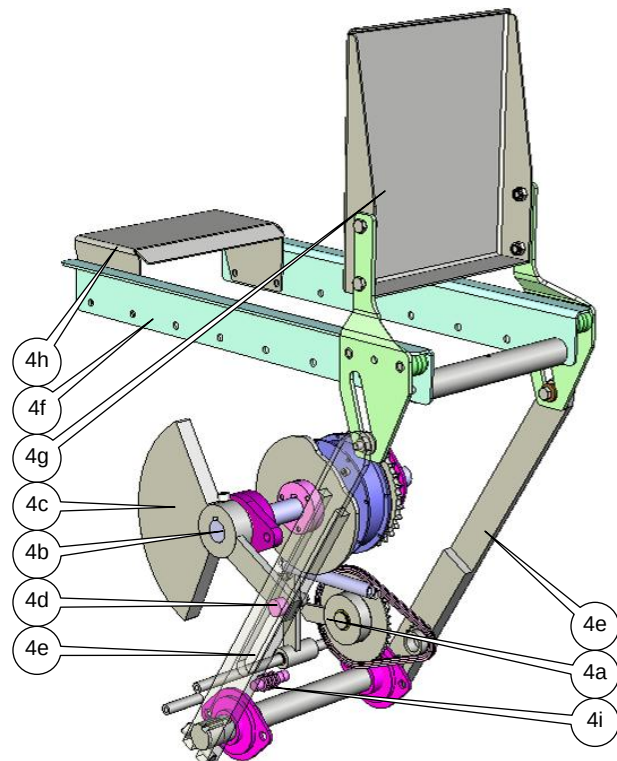
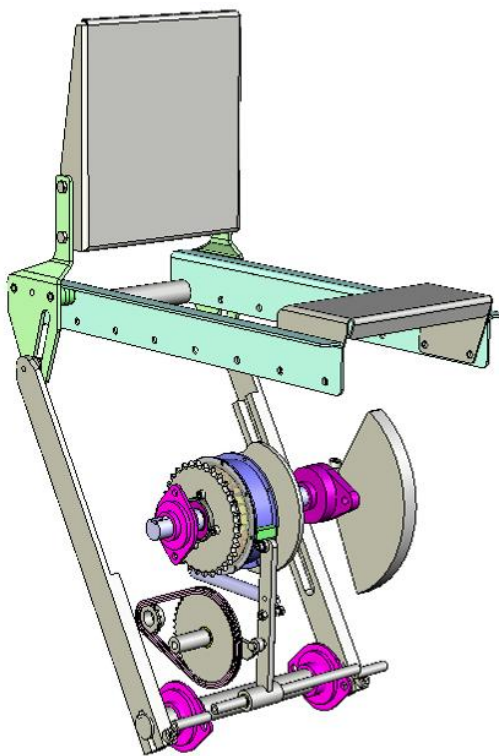


3 The turn table consists of:

- | | |
|---------------------------|------------------------------------|
| a. Turn table drive shaft | f. Table base plate |
| b. Turn table disk cam | g. Turn plate |
| c. Cam follower | h. Tray guide 5 eggs wide position |
| d. Drive arm | i. Tray guide 6 eggs wide position |
| e. Connection rod | |

When the turn table / transfer lift clutch is released, its shaft makes 1 revolution. The turn table / transfer lift drive chain starts running, driving the turn table drive shaft. As a result the turn table disk cam makes a $\frac{1}{2}$ revolution. Via the cam follower, this rotating movement is transferred into a forwards / backwards movement of the drive arm. Each time the drive arm moves forwards or backwards, via the connection rod the turn plate turns 90° back and forth.

The tray guide avoids overturning the stack of trays on the turn plate during its rotating movements. Its position is adjustable for pushing out the stack with a 5 eggs wide bottom tray or a 6 eggs wide bottom tray.



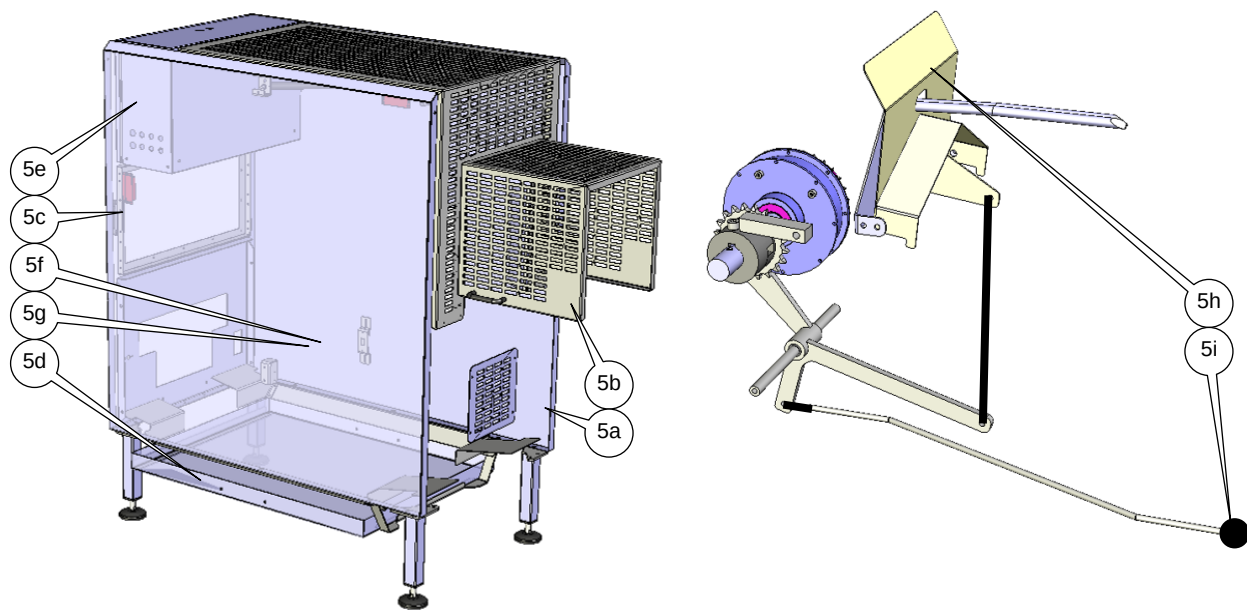
4 The pusher consists of:

- | | |
|--------------------------|----------------------------|
| a. Pusher cam | f. Pusher guide |
| b. Pusher drive shaft | g. Pusher plate |
| c. Crankshaft / flywheel | h. Tray transfer plate |
| d. Cam follower | i. Pusher drive arm sensor |
| e. Pusher drive arms | |

When the turn table / transfer lift clutch is released, its shaft makes 1 revolution. The turn table / transfer lift drive chain starts running, driving the turn table drive shaft. As a result the pusher cam makes a 1/6 revolution. After 6 revolutions of the turn table / transfer lift clutch, the pusher cam made 1 revolution and releases the pusher clutch. Now the pusher drive shaft makes 1 revolution. Via the crankshaft this rotating movement is transferred into a forward and backward movement of the pusher drive arms and thus the pusher plate.

When the downstream system is full with stacks and a signal is received from the downstream system to stop the supply of trays, the tray stacker stops immediately after the pusher arm moves forward and the pusher drive arm sensor (proximity switch) turns OFF.

Besides this, for the speedpack and smartpack systems, this sensor is used to disable the start solenoid when this sensor is OFF.



5 The frame consists of:

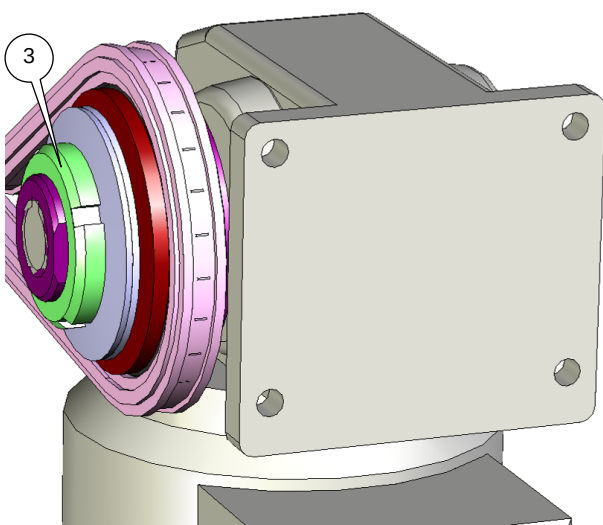
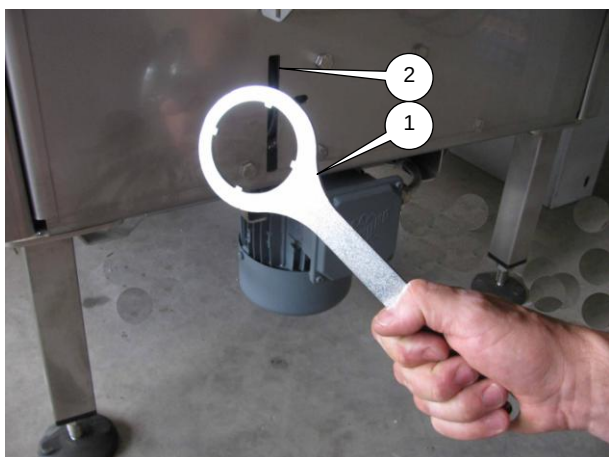
- | | |
|-----------------------------|----------------------------------|
| a. Covers | f. Tray at infeed sensor (PS4) |
| b. Safety cover | g. Tray at infeed sensor (PS4SM) |
| c. Safety door | h. Tray at infeed flap (PS4C) |
| d. Drip tray | i. Manual activator (PS4C). |
| e. Electrical cabinet (PS4) | |

The electrical cabinet is only present in the speedpack tray stacker.

The infeed sensor detects the tray. The controller of the speedpack or smartpack subsequently controls the solenoid that starts the tray stacker to remove the tray from the infeed conveyor.

When a tray pushes against the infeed flap of the PSPC tray stacker, via a lever construction the tray stacker is started to remove the tray from the infeed conveyor.

In the PSPC tray stacker, with the manual activator it is possible to start the trays stacker manually.



ADJUSTMENTS TRAY STACKER



DANGER!

Before starting to adjust the tray stacker make sure the tray stacker is switched OFF and protected against switching it on.



ATTENTION!

Before starting to adjust any part of the tray stacker, first contact the Prinzen service department!

SAFETY SLIPPING CLUTCH



ATTENTION!

The safety slipping clutch is factory set. We advise you to consult Prinzen before starting to adjust this clutch.

A hook spanner is delivered with the tray stacker for adjusting the slipping force of the safety clutch.

In case all the parts of the tray stacker are no longer moving, but the drive motor is running, it may be necessary to raise the slipping force of the safety clutch. Before doing this, first contact Prinzen!

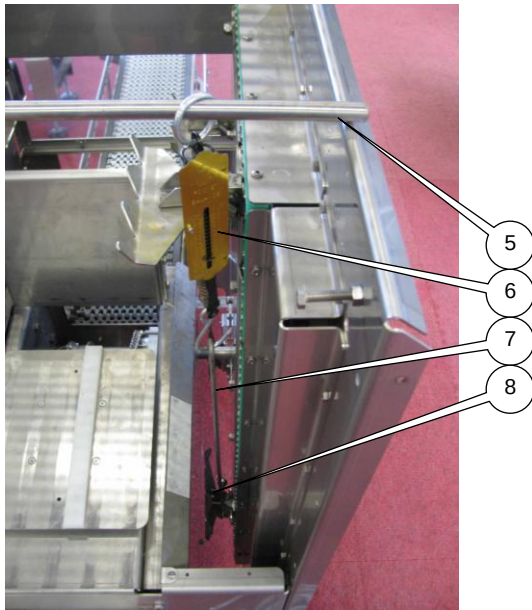
Place the hook spanner (1) through the opening (2) on the slotted nut (3).



TIP!

When it is not possible to place the hook spanner on the slotted nut, start and stop the tray stacker to change the position of the slotted nut.

Turn the slotted nut clockwise (4) to raise the slipping force. Always do this in small steps (only turn the slotted nut for a few mm) and check if parts of the tray stacker are moving again when the motor is running.



Prinzen advised to set the slipping force at approximately 22 kilo's. You can use a spring balance to check this.

First place a metal bar (5) on the frame of the tray stacker. Hang a spring balance (6) to the bar and connect it with a long S-hook (7) to a gripper (8). Use a gripper that is moving downwards at the turn table position.

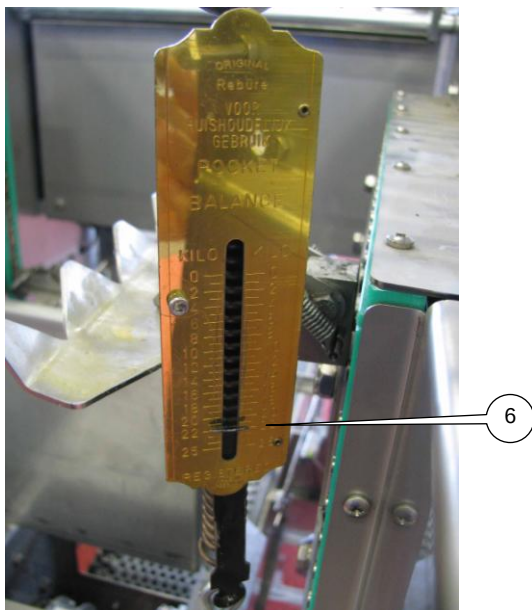


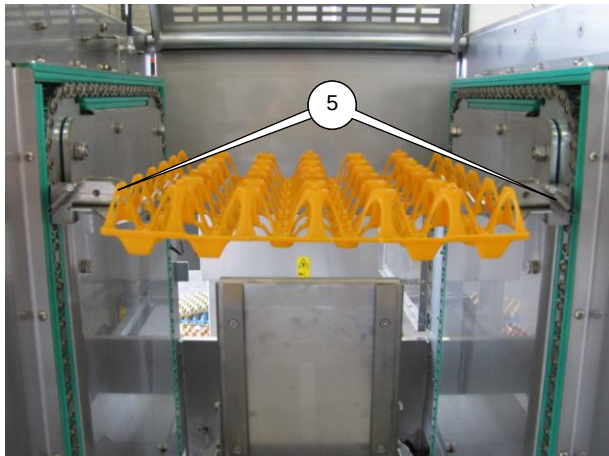
DANGER!

Make sure the safety cover and safety door are closed before starting the tray stacker.

Start the tray stacker. When the gripper is moving down, the slipping clutch should start slipping when the spring balance indicates approximately 22 kilo's.

When the coupling starts slipping at a lower indication, raise the slipping force. When the coupling starts slipping at a higher indication, lower the slipping force.





GRIPPERS



CAUTION!

Before starting to adjust the grippers make sure the tray stacker is switched OFF and protected against switching it on.



ATTENTION!

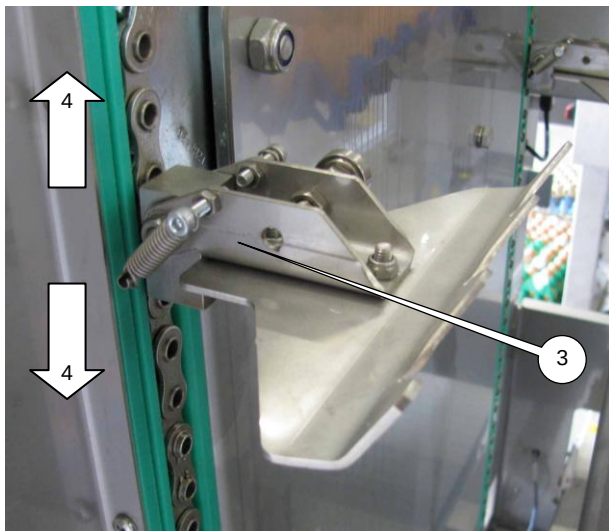
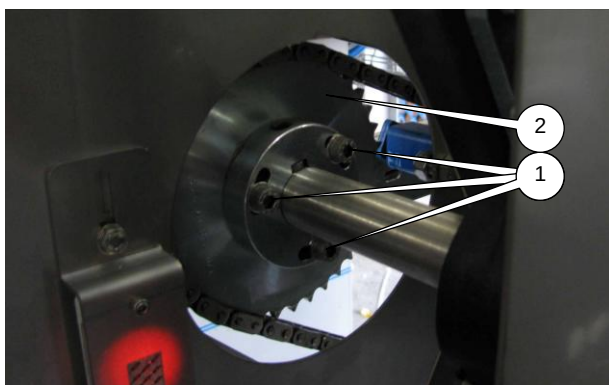
The grippers are factory set. We advise you to consult Prinzen before starting to adjust the grippers.

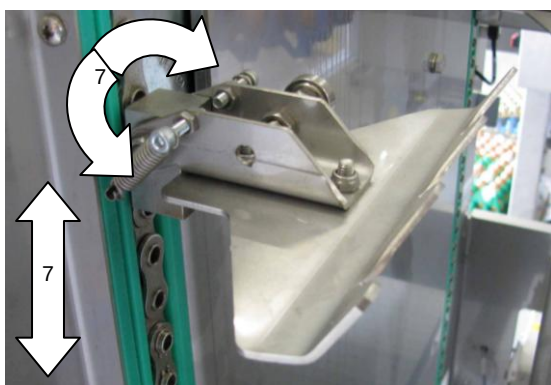
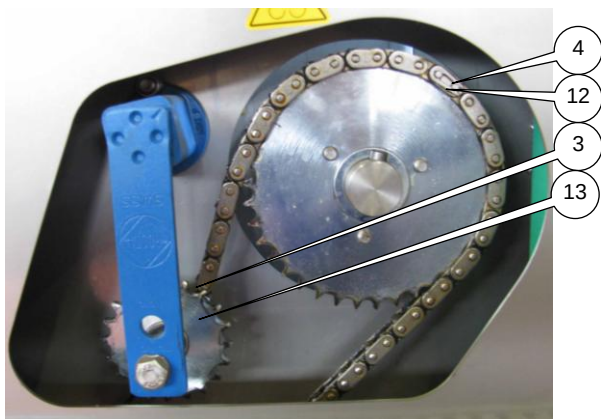
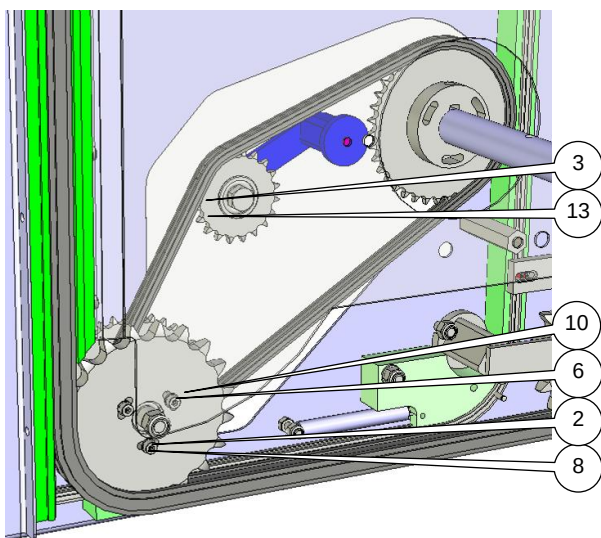
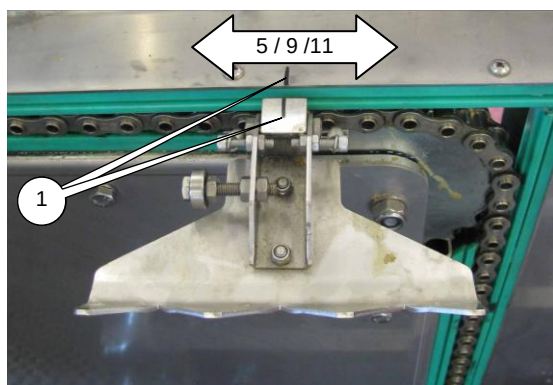
SYNCHRONIZE GRIPPERS

In case the grippers on both sides of the tray stacker are not running synchronized, the tray is hanging skew in between both grippers, it may be necessary to synchronize the grippers. Before doing this, first contact Prinzen!

Loosen up all 3 bolts (1) of one of the transfer lift drive chain sprocket (2).

Now manually move the connected gripper (3) up or down (4) to change its position until it is at the same height as the corresponding gripper on the other side of the tray stacker (5).



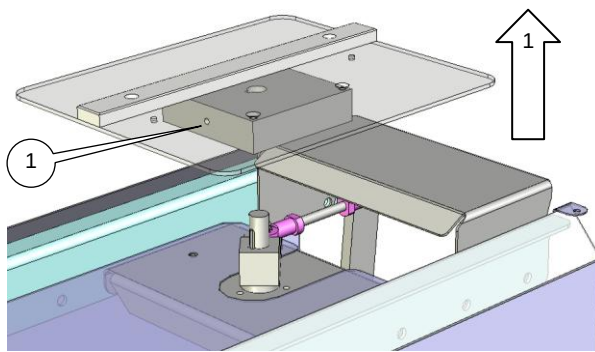


LEVEL GRIPPERS

In case the grippers on one side of the tray stacker are not leveled on their vertical movement, probably the 3 sprockets (of the level chain, the drive chain and the transport chain) came loose from each other. In that case it is necessary to level the grippers. Before doing this, first contact Prinzen!

Follow below steps to level the grippers:

1. Mark a gripper and the position of this gripper.
2. Loosen up the accessible fixing bolts of the 3 sprockets.
3. Remove the drive chain from its tensioner.
4. Remove the drive chain its link and detach the drive chain.
5. Move the grippers until the other fixing bolts are accessible.
6. Loosen up these fixing bolts.
7. Level the grippers.
8. Tighten up the accessible fixing bolts of the 3 sprockets firmly.
9. Carefully move the grippers until the other fixing bolts are accessible.
10. Tighten up these fixing bolts.
11. Move the marked gripper back to its marked position.
12. Attach the drive chain and replace its link.
13. Place the drive chain back on its tensioner.



TURN TABLE



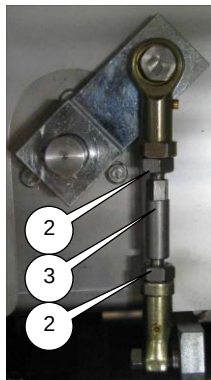
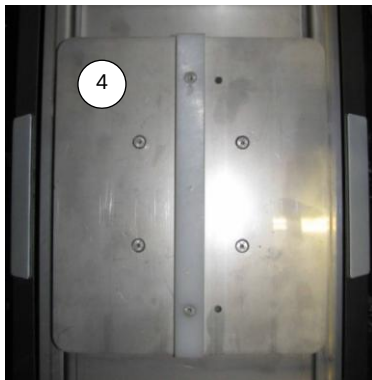
CAUTION!

Before starting to adjust the turn table make sure the tray stacker is switched OFF and protected against switching it on.



ATTENTION!

The turn table is factory set. We advise you to consult Prinzen before starting to adjust the turn table.

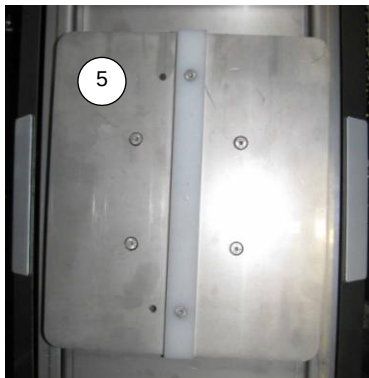


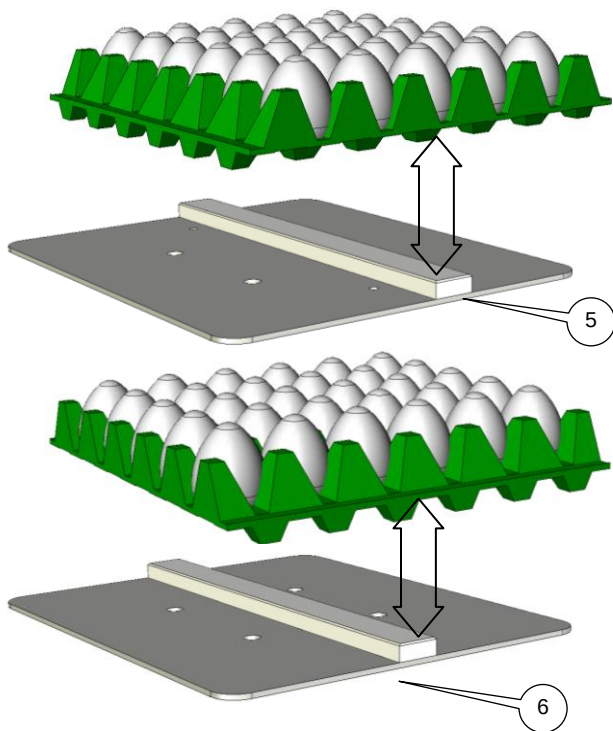
TURN PLATE POSITION

When the tray stacker is stopped, the turn plate should be in line with the transport direction of the tray stacker.

Follow below steps to adjust this initial position:

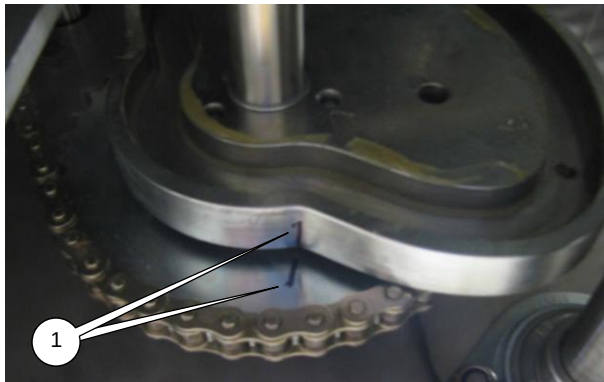
1. Loosen up the setscrew and remove the turn plate from its shaft.
2. Loosen up both lock nuts.
3. Turn the turnbuckle to change the shaft position.
4. Replace the turn plate. But do not yet tighten the setscrew. Make sure the turn plate is in line to the transport direction of the tray stacker.
5. When the turn plate is not in line to the transport direction of the tray stacker, repeat the above step 3 until it is in line!
6. When the turn plate is in line with the transport direction of the tray stacker, first tighten up the lock nuts. Then place the turn plate on its shaft and tighten the setscrew.





TRAY GUIDE

There are 2 positions on the turn plate available for the tray guide. A position for pushing out a stack with a 5 eggs wide bottom tray (5) and a position for pushing out a stack with a 6 eggs wide bottom tray (6).



FINE TUNE DRIVE MECHANISM TIMING



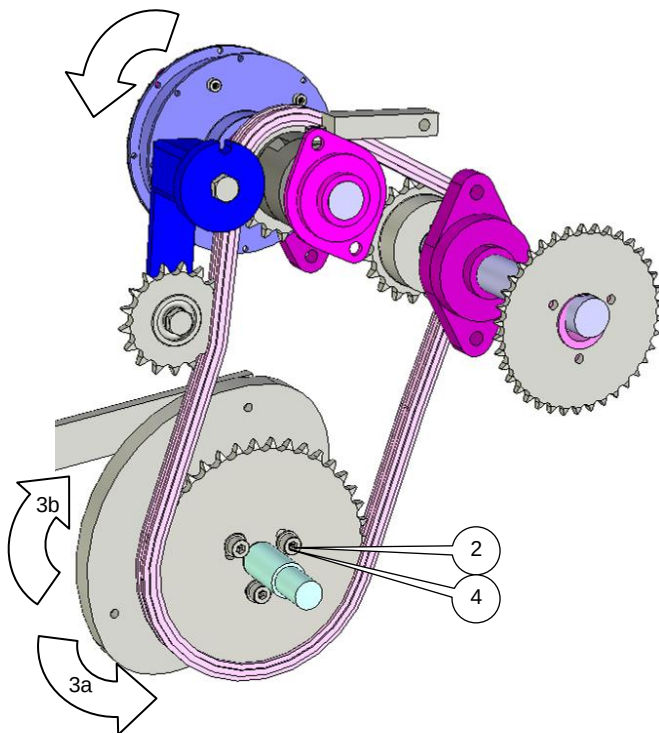
DANGER!

Before starting to fine tune the driving mechanism make sure the tray stacker is switched OFF and protected against switching it on.



ATTENTION!

The drive mechanism is factory set. We advise you to consult Prinzen before starting to adjust the drive mechanism.



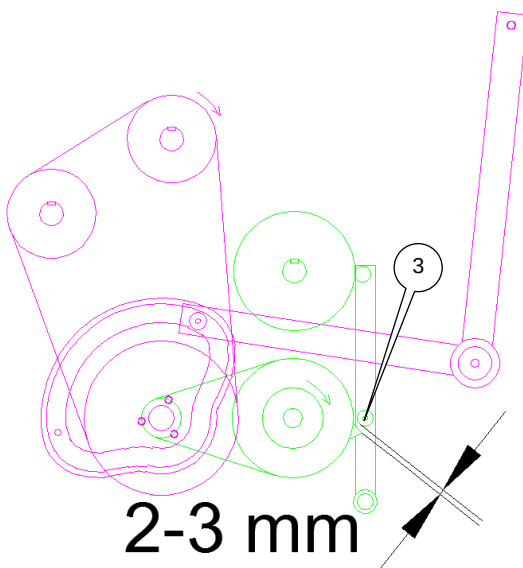
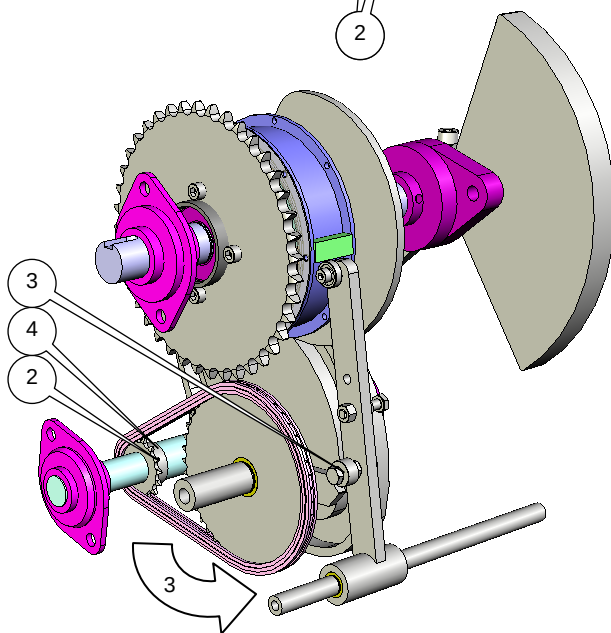
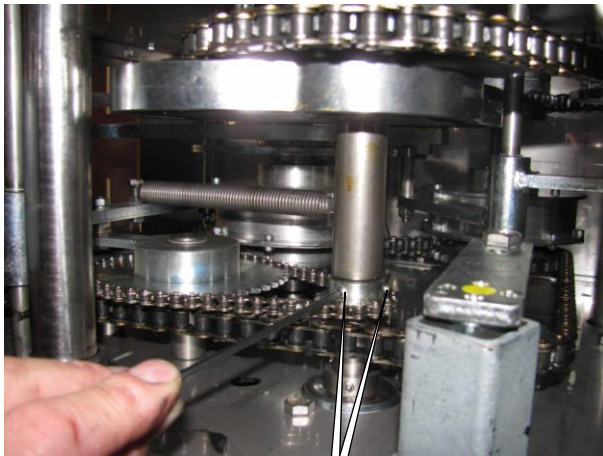
In case the several movements of the drive mechanism are not properly synchronized, it is possible to fine tune this easily.

When the drive mechanism is not properly synchronized the following occurs:

- Pusher starts while the turn table is still rotating.
- Turn table starts while the grippers are not yet completely underneath the turn table plate.

Follow below steps to fine tune the drive mechanism timing:

1. Mark the turn table disk cam and its drive sprocket before starting to loosen this connection. This is just a precaution to know the initial positions.
2. Loosen up all 3 bolts of the turn table disk cam drive sprocket.
3. Turn the turn table disk cam:
 - a. When the pusher starts while the turn table is still rotating, turn the disk cam a little bit with the direction of rotation.
 - b. When the turn table starts while the grippers are not completely underneath the turn table plate, turn the disk cam a little bit against the direction of rotation.
4. Tighten up all 3 bolts of the turn table disk cam drive sprocket again.



PUSHER TIMING



DANGER!

Before starting to adjust the pusher timing make sure the tray stacker is switched OFF and protected against switching it on.



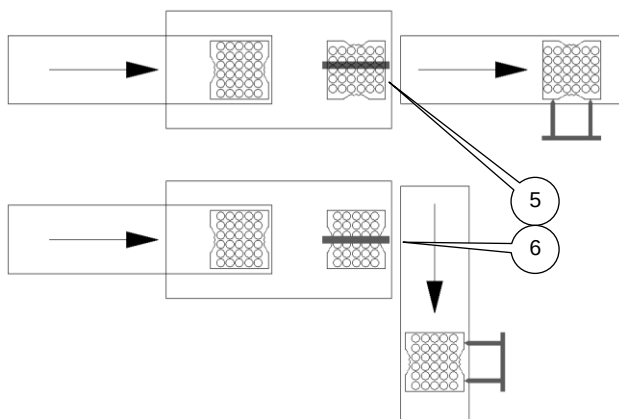
ATTENTION!

The drive mechanism is factory set. We advise you to consult Prinzen before starting to adjust the drive mechanism.

Normally this adjustment is only necessary after changing the push out method or after a broken chain or a loosened sprocket. Occasionally this adjustment may be necessary after replacement of a broken pusher cam drive chain or its loosened sprocket.

Follow below steps to adjust the pusher timing:

1. First make sure the turn plate tray guide is parallel with the transport direction of the tray stacker.
When this is not the case make a step. Do this by manual control or by entering an empty tray into the tray stacker.
2. Loosen up both setscrews of the pusher cam drive chain sprocket.
3. Turn the pusher cam drive chain until the distance between the pusher cam and the pusher activator is approximately 2 mm.
4. Tighten up the setscrews of the pusher cam drive chain sprocket again.
5. Check and make sure that the pusher moves forwards and backwards when the tray guide on the turn plate is in line with the transport direction of the tray stacker.



CONVERT TRAY STACKER



DANGER!

Before starting to convert the tray stacker make sure the tray stacker is switched OFF and protected against switching it on.



TIP!

For easier and faster conversion, perform the conversion activities with 2 people.

With the tray stacker it is possible to push out the stack of trays with the bottom tray on the 5 eggs wide position or with the bottom tray on the 6 eggs wide position.

Bottom tray 5 eggs wide:

When the bottom tray of the stack should be 5 eggs wide, the sequence of the tray stacker is:

- Rotate the turn plate.
- Receive the 1st (bottom) tray.

Bottom tray 6 eggs wide:

When the bottom tray of the stack should be 6 eggs wide, the sequence of the tray stacker is:

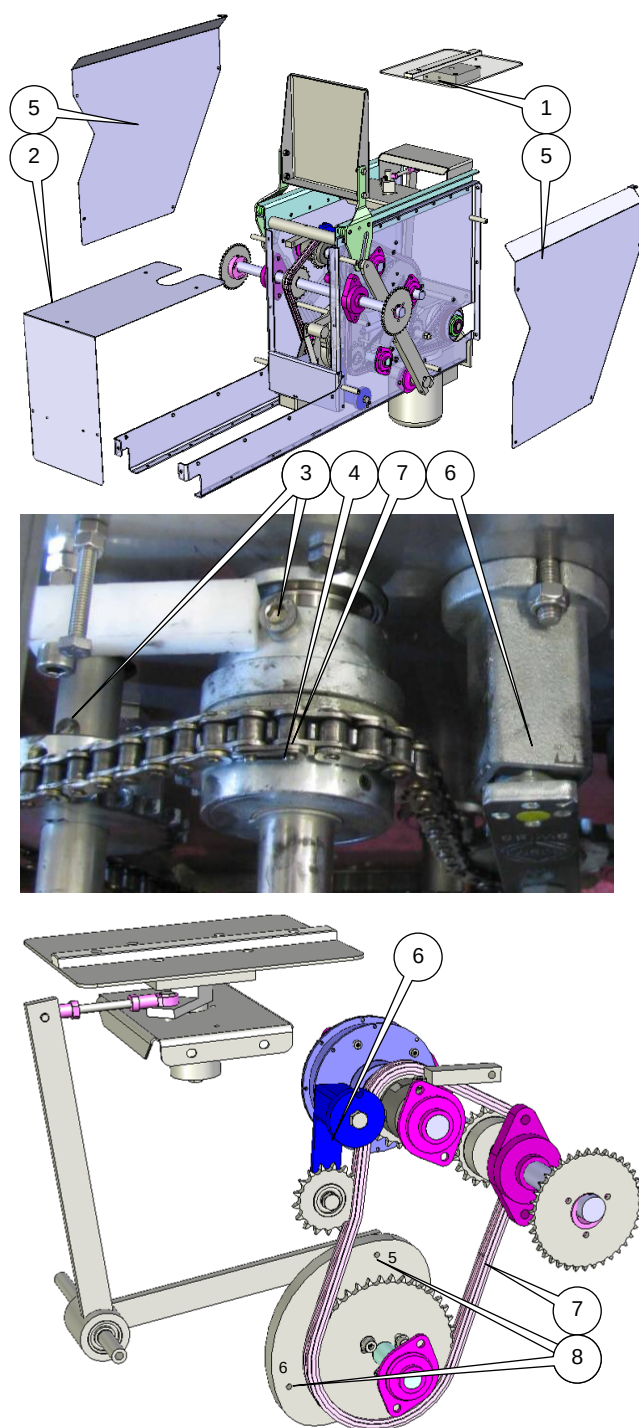
- Receive the 1st (bottom) tray
- Rotate the turn plate.

Since the tray stacker has 1 mechanical drive for all movements, to change the push out method the mechanical connection between the turn table and the drive mechanism needs to be transposed.

Besides this, also the mechanical connection between the transfer lift and the drive mechanism needs to be transposed.

In addition, also the mechanical connection between the pusher cam and the drive mechanism needs to be transposed.

See the next pages for the adjustment procedure to change the push out method.



CONVERT PUSH OUT METHOD

Follow below steps to change the push out method:

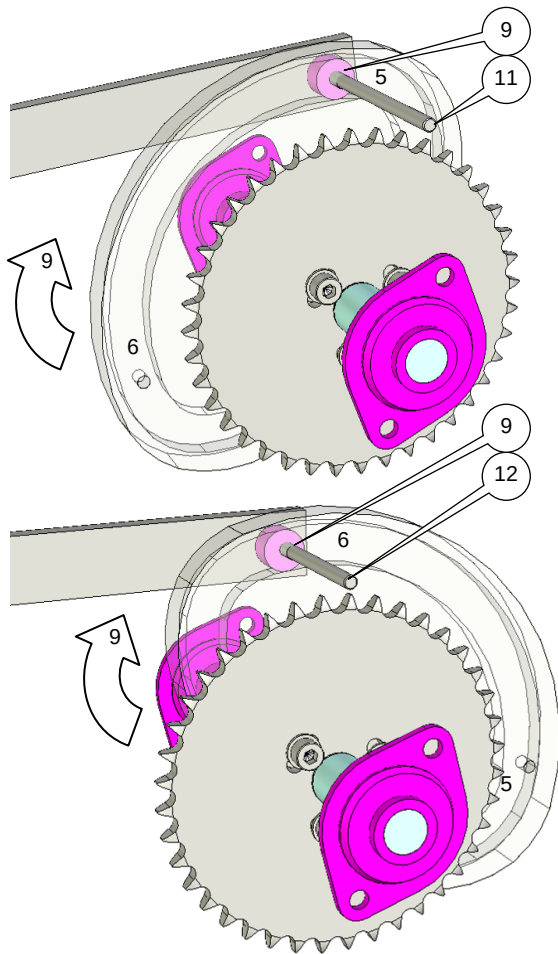
1. Loosen up the setscrew and remove the turn plate from its shaft.
2. Remove the drive mechanism cover.
3. Check if the trays stacker made a normal stop. The key of the transfer lift shaft and the key of the turntable transfer lift shaft should both on 12 o'clock.
4. Make sure the chain link is reachable, close to the shafts.
When this is not the case make a few steps. Do this by manual control or by entering some empty trays into the tray stacker.
5. Remove the side covers. Do not run the tray stacker anymore. Switch it OFF and protect it against switching ON.



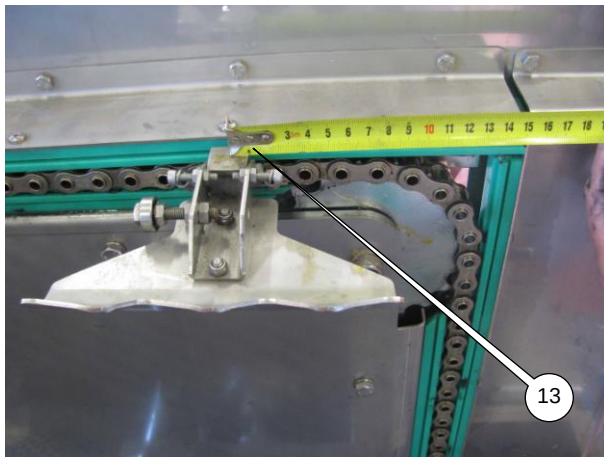
ATTENTION!

Running the system without the side covers will damage the grippers!

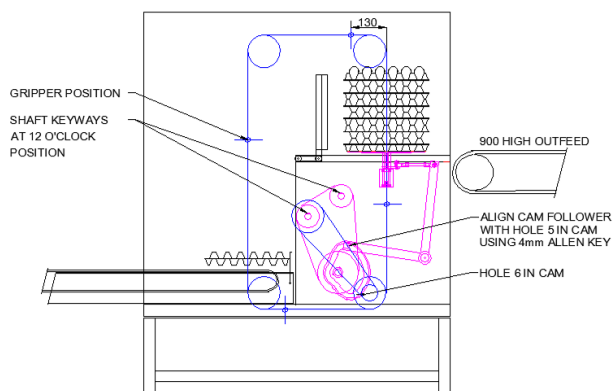
6. Remove the chain tensioner.
7. Remove the turn table / transfer lift drive chain its link and detach the drive chain.
8. In the turn table disk cam, 2 holes are present, one with a 5 engraved near the hole and one with a 6 engraved near the hole. Depending on the push out method position the cam follower of the turn table drive arm in front of one of the holes.
In front of hole 5 when the bottom tray should be pushed out 5 eggs wide.
In front of hole 6 when the bottom tray should be pushed out 6 eggs wide.



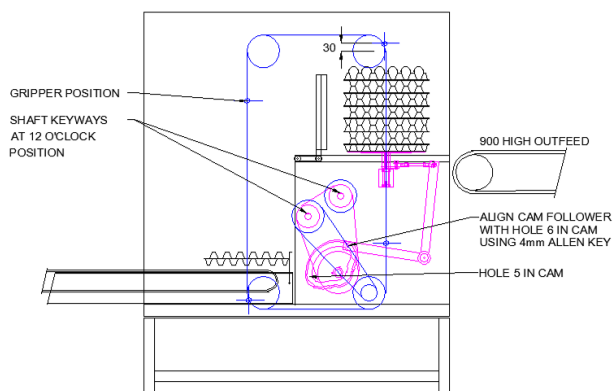
9. Rotate the turn table index cam disk until one of the holes in the cam disk is in front of the turn table drive arm.
In front of hole 5 when the bottom tray should be pushed out 5 eggs wide.
In front of hole 6 when the bottom tray should be pushed out 6 eggs wide
10. Push a 4 mm Allen key through the hole and by doing this secure the turn table drive arm to the turn table cam disk.
11. When the 5 eggs wide push out method should be used, push the Allen key through the hole with the 5 engraved.
12. When the 6 eggs wide push out method should be used, push the Allen key through the hole with the 6 engraved.
13. Move the grippers to the correct position.
This depends on the required push out method and your tray stacker type.
See the picture on the next page for your specific gripper position.



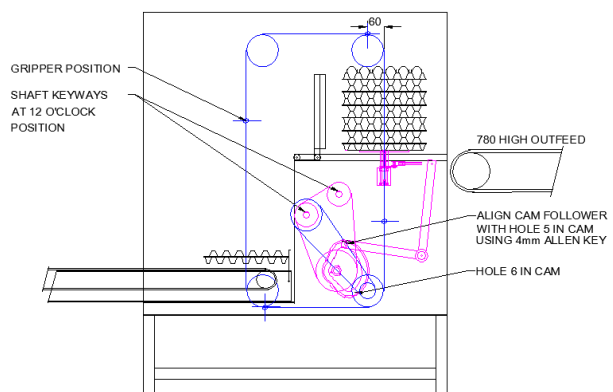
TRAYSTACKER PS4 SPEEDPACK
CAM TIMING FOR 5 EGGS WIDE DISCHARGE
FOR SERIAL NOS UP TO PS4-0040 (900mm OUTFEED)



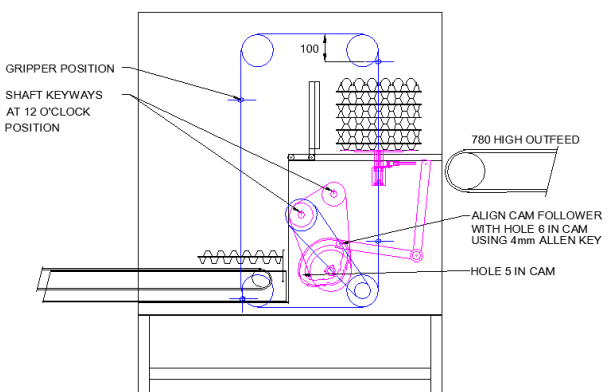
TRAYSTACKER PS4 SPEEDPACK
CAM TIMING FOR 6 EGGS WIDE DISCHARGE
FOR SERIAL NOS UP TO PS4-0040 (900mm OUTFEED)



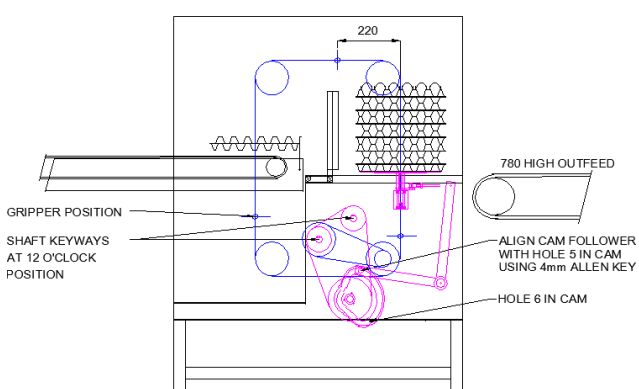
TRAYSTACKER PS4 SPEEDPACK
CAM TIMING FOR 5 EGGS WIDE DISCHARGE
FOR SERIAL NOS PS4-0040 & UP (780mm OUTFEED)



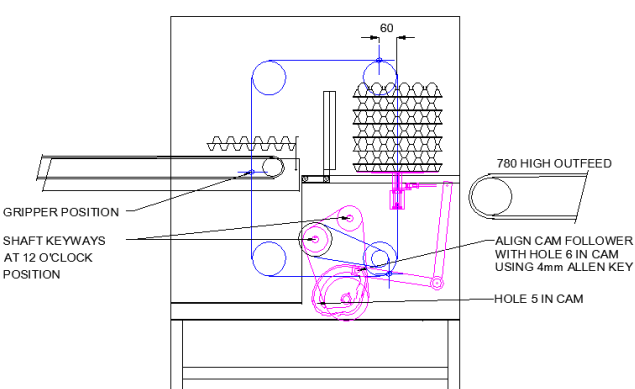
TRAYSTACKER PS4 SPEEDPACK
CAM TIMING FOR 6 EGGS WIDE DISCHARGE
FOR SERIAL NOS PS4-0040 & UP (780mm OUTFEED)



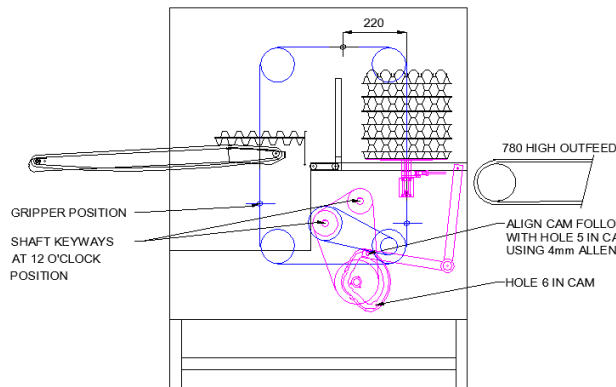
TRAYSTACKER PS4SM SMARTPACK
CAM TIMING FOR 5 EGGS WIDE DISCHARGE
FOR ALL SERIAL NOS



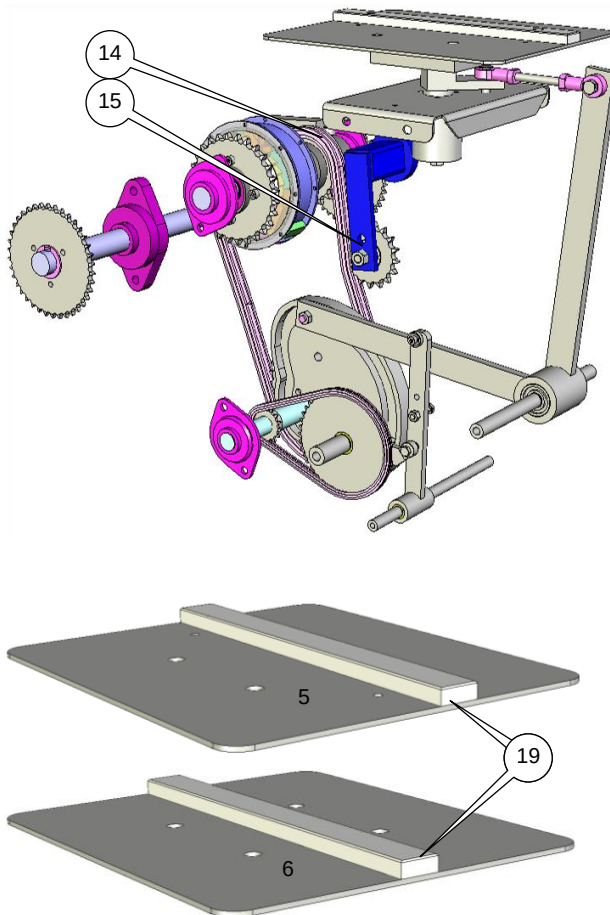
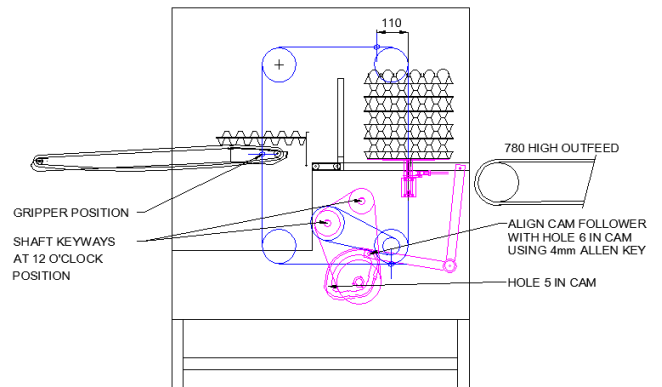
TRAYSTACKER PS4SM SMARTPACK
CAM TIMING FOR 6 EGGS WIDE DISCHARGE
FOR ALL SERIAL NOS



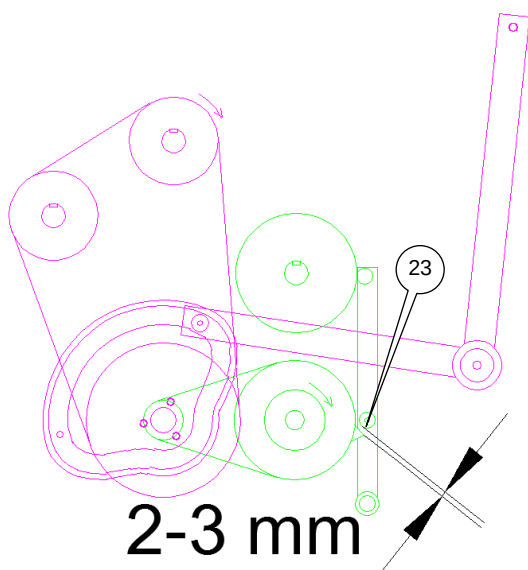
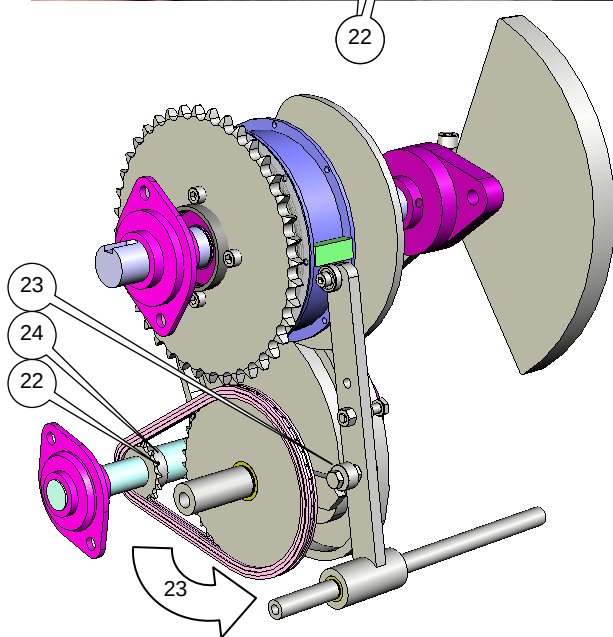
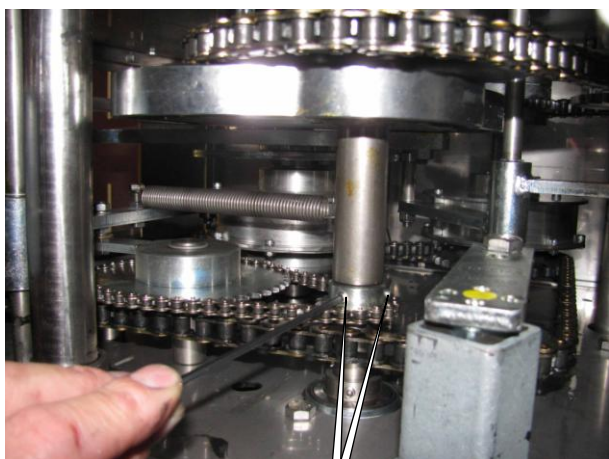
TRAYSTACKER PS4C PSPC
CAM TIMING FOR 5 EGGS WIDE DISCHARGE
FOR ALL SERIAL NOS



TRAYSTACKER PS4C PSPC
CAM TIMING FOR 6 EGGS WIDE DISCHARGE
FOR ALL SERIAL NOS



14. Attach the turn table / transfer lift drive chain and replace its link.
15. Replace the chain tensioner and tens up the turn table / transfer lift drive chain.
16. Remove the Allen key.
17. Place the side covers back.
18. Replace drive mechanism cover.
19. Place the tray guide on the correct position on the turn table.
20. Replace turn plate.



21. First make sure the turn plate tray guide is parallel with the transport direction of the tray stacker.
When this is not the case make a step. Do this by manual control or by entering an empty tray into the tray stacker.
22. Loosen up both setscrews of the pusher cam drive chain sprocket.
23. Turn the pusher cam drive chain until the distance between the pusher cam and the pusher activator is approximately 2 mm.
24. Tighten up the setscrews of the pusher cam drive chain sprocket again
25. Make a test run.
26. In case of small sequence issues, fine tune the start pusher timing or start turn table timing.
See **fine tune drive mechanism timing** to fine tune the synchronization of the drive mechanism.

REPLACEMENTS



DANGER!

Before starting to replace parts of the tray stacker make sure the tray stacker is switched OFF and protected against switching it on.



ATTENTION!

Before starting to replace any part of the tray stacker, first contact the Prinzen service department!



TIP!

For easier and faster replacement of parts, perform the replacement of parts with 2 people.

Before starting to replace the turn table transfer lift clutch or the pusher clutch (2), first contact the Prinzen service department. Only replace a clutch after approval of the Prinzen service department.

Turn table transfer lift clutch (1):

To replace the turn table transfer lift clutch Prinzen delivers a complete new turntable transfer lift shaft. This shaft includes:

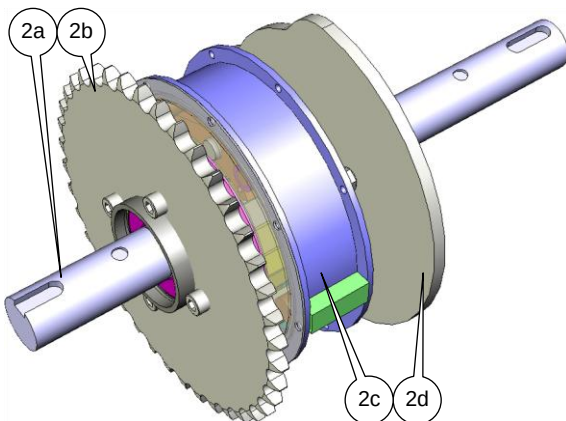
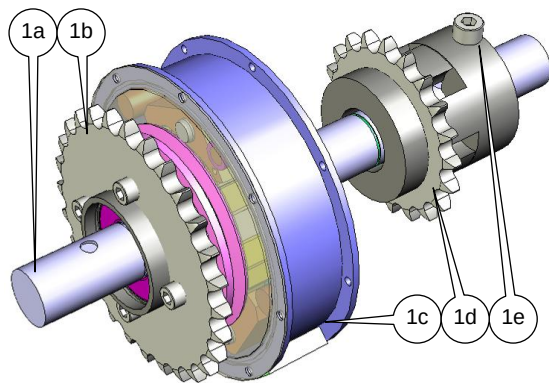
- a. Shaft.
- b. Main drive chain sprocket.
- c. Clutch.
- d. Turn table transfer lift drive chain sprocket.
- e. Back stopper bolt with flexible coupling.

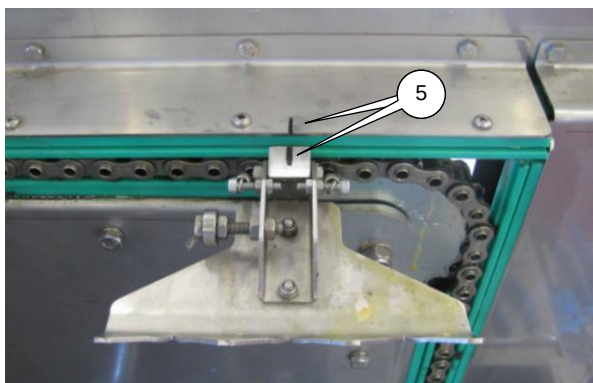
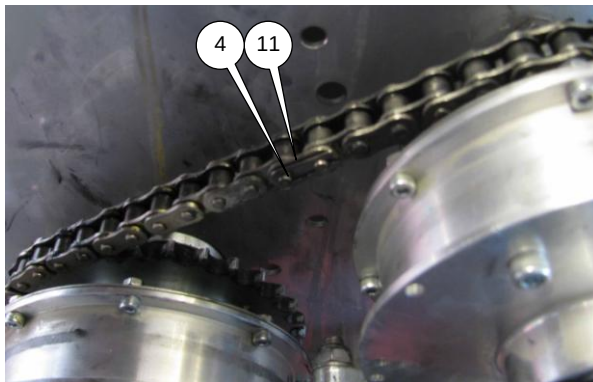
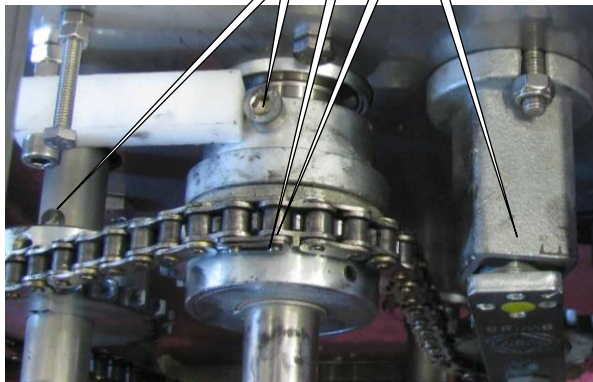
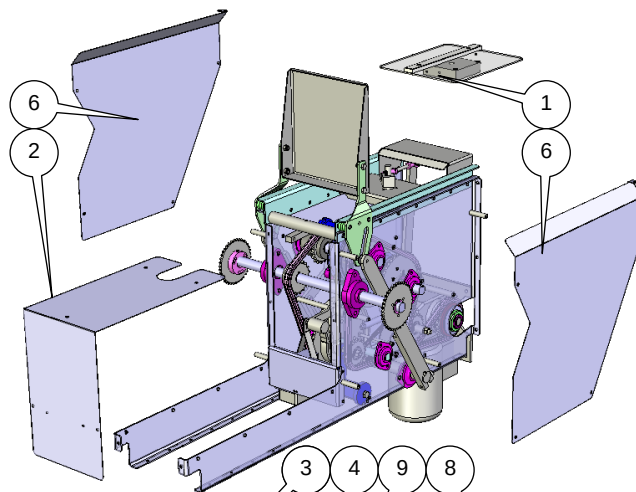
Pusher clutch (2):

To replace the turn table transfer lift clutch Prinzen delivers a complete new turntable transfer lift shaft. This shaft includes:

- a. Shaft.
- b. Main drive chain sprocket.
- c. Clutch.
- d. Collision protection cam disk.

See the next pages for the replacement procedure of the **turn table transfer lift clutch** and the **pusher clutch**.





TURN TABLE TRANSFER LIFT CLUTCH

For replacement of the turntable transfer lift clutch, we deliver a complete new turntable transfer lift shaft including sprockets for the main drive chain and the turn table / transfer lift drive chain.

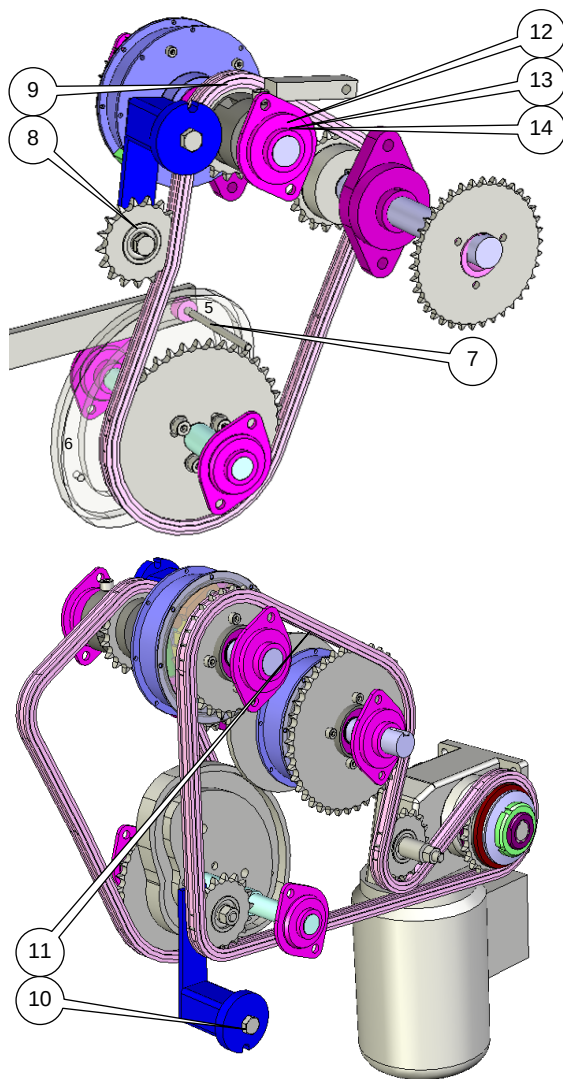
Follow below steps to replace the turn table transfer lift clutch:

1. Loosen up the setscrew and remove the turn plate from its shaft.
2. Remove the drive mechanism cover.
3. Check if the trays stacker made a normal stop. The key of the transfer lift shaft and the key of the turntable transfer lift shaft should both on 12 o'clock.
4. Make sure the chain links of both chains (turn table / transfer lift drive chain and main drive chain) are reachable, close to the shafts.
When this is not the case make a few steps. Do this by manual control or by entering some empty trays into the tray stacker.
5. Mark the position of one of the grippers before starting to loosen the connection between the turn table / transfer lift shaft and the transfer lift drive shaft. This is necessary for easy reconnection of the turn table / transfer lift drive chain at the end of this procedure.
6. Remove the side covers. Do not run the tray stacker anymore. Switch it OFF and protect it against switching ON.



ATTENTION!

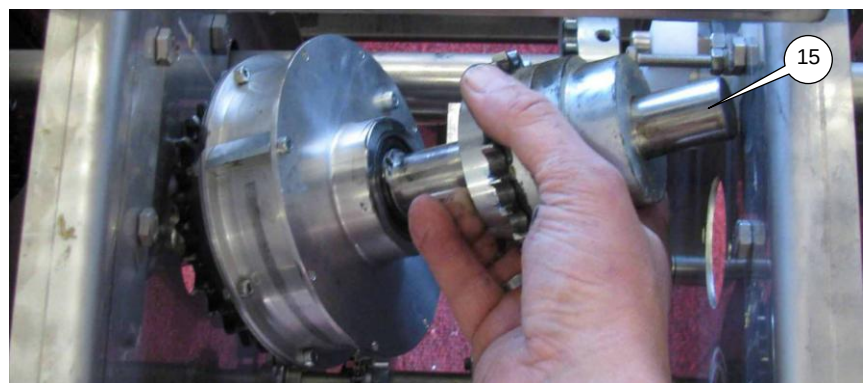
Running the system without the side covers will damage the grippers!

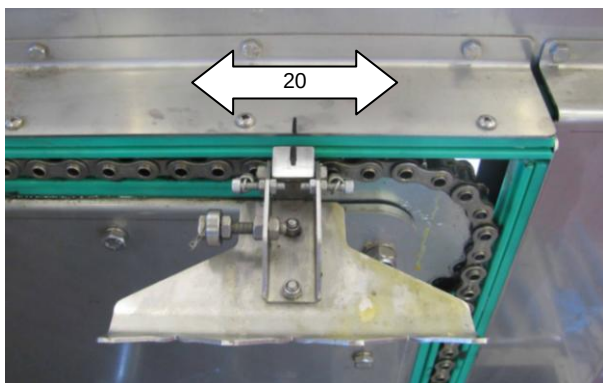
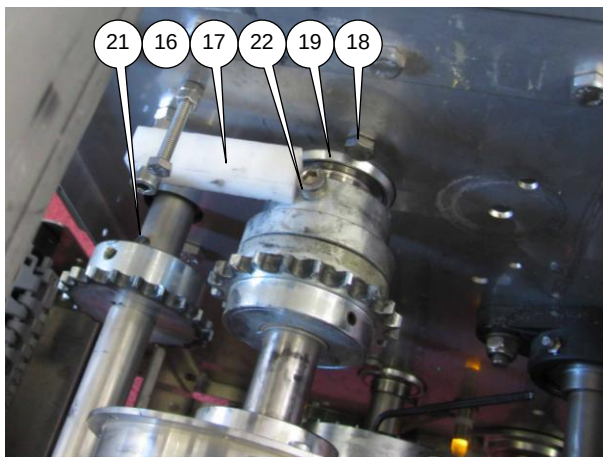


7. In the turn table disk cam, 2 holes are present, one with a 5 engraved near the hole and one with a 6 engraved near the hole. Depending on the push out method the cam follower of the turn table drive arm is in front of one of the holes.

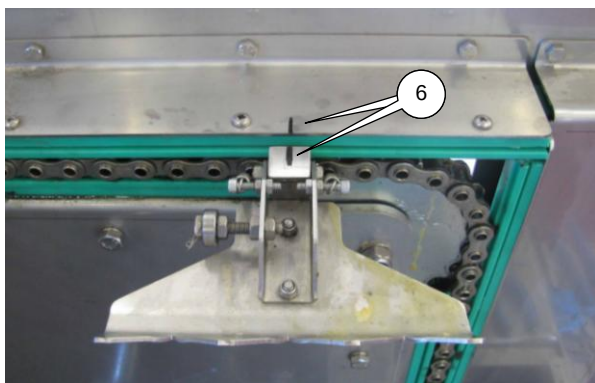
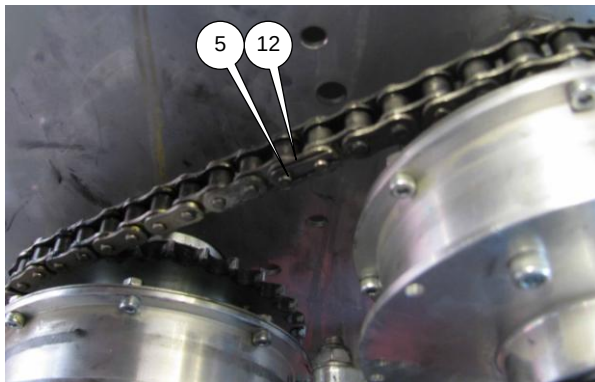
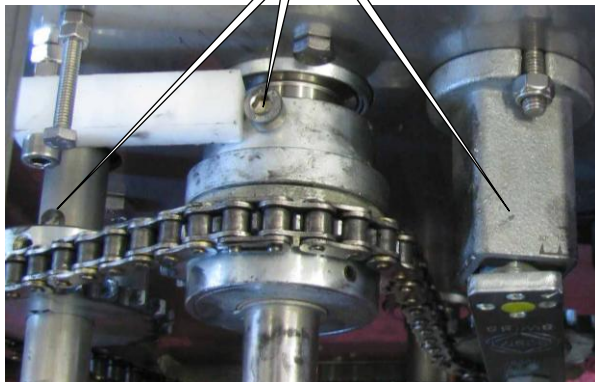
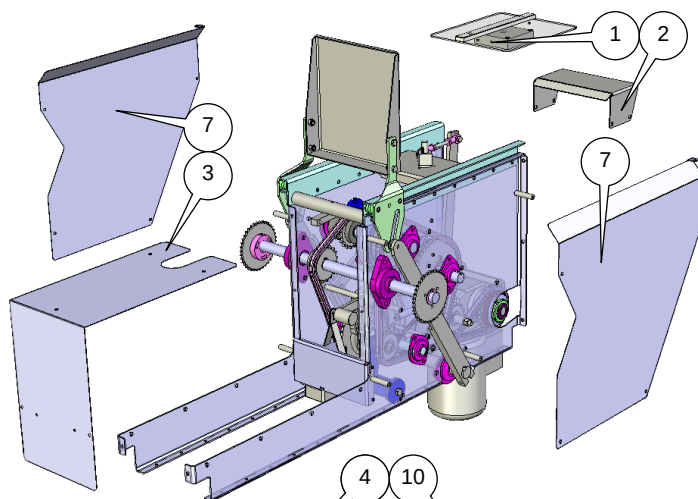
Push a 4 mm Allen key through the hole and by doing this secure the turn table drive arm to the turn table cam disk.

8. Remove the turn table / transfer lift drive chain its tensioner.
9. Remove the turn table / transfer lift drive chain its link and detach the chain.
10. Release the main drive chain its tensioner.
11. Remove the main drive chain its link and detach the chain.
12. Loosen up the setscrews that attach the bearings to the turntable transfer lift shaft.
13. Remove the mounting bolts of both bearings.
14. Remove the bearings from the side plates.
15. Remove the complete shaft with clutch.





16. Place the new turntable transfer lift shaft in between the side plates.
17. While placing it, make sure the back stopper lies on the shaft before replacing the bearings.
18. Replace the bearings and tighten them to the side plates.
19. Lock the shaft to the bearings with the setscrews. Take note to tighten one setscrew into the notch in the shaft.
20. Move the marked gripper back to its marked position.
21. Make sure the key of the transfer lift shaft is on 12 o'clock.
22. Rotate the turn table transfer lift shaft until its key is also on 12 o'clock.
23. Attach the turn table / transfer lift drive chain and replace its link.
24. Replace the chain tensioner and tens up the turn table / transfer lift drive chain.
25. Attach the main drive chain and replace its link.
26. Replace the chain tensioner and tens up the main drive chain.
27. Remove the Allen key.
28. Place the side covers back.
29. Replace drive mechanism cover.
30. Replace turn plate.
31. Make a test run.
32. In case of small sequence issues, fine tune the start pusher timing or start turn table timing.
See **fine tune drive mechanism timing** to fine tune the synchronization of the drive mechanism.



PUSHER CLUTCH

For replacement of the pusher clutch, we deliver a complete new pusher shaft including the sprocket for the main drive chain and the collision protection cam disk.

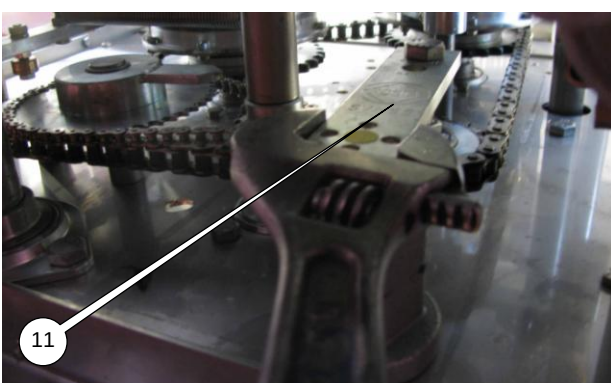
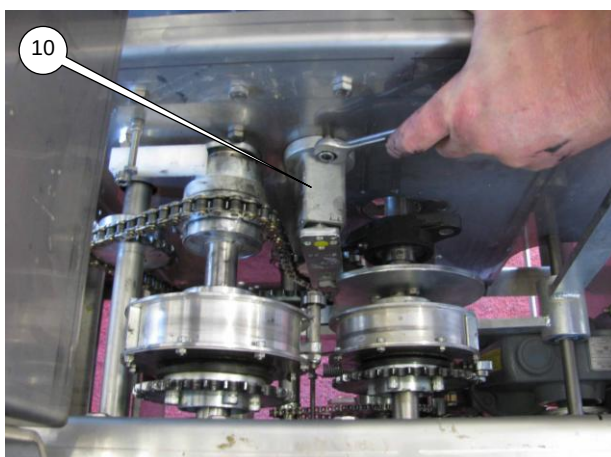
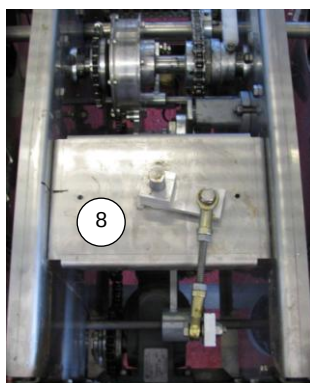
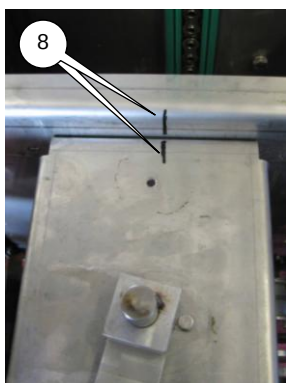
Follow below steps to replace the pusher clutch:

1. Loosen up the setscrew and remove the turn plate from its shaft.
2. Remove the tray transfer plate.
3. Remove the drive mechanism cover.
4. Check if the trays stacker made a normal stop. The key of the transfer lift shaft and the key of the turntable transfer lift shaft should both on 12 o'clock
5. Make sure the chain links of the main drive chain is reachable, close to 2 clutches. When this is not the case make a few steps. Do this by manual control or by entering some empty trays into the tray stacker.
6. Mark the position of one of the grippers before starting to loosen the connection between the turn table / transfer lift shaft and the pusher shaft. This is necessary for easy reconnection of the main drive chain at the end of this procedure.
7. Remove the side covers. Do not run the tray stacker anymore. Switch it OFF and protect it against switching ON.

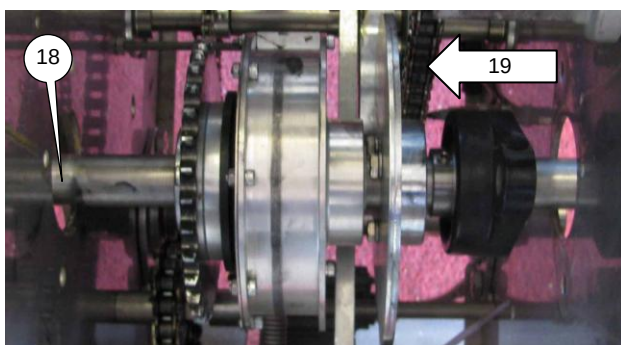
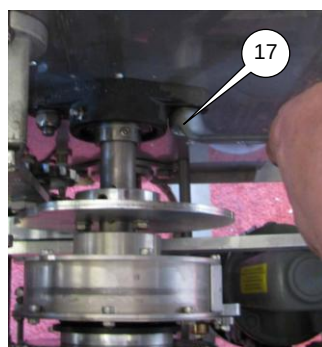
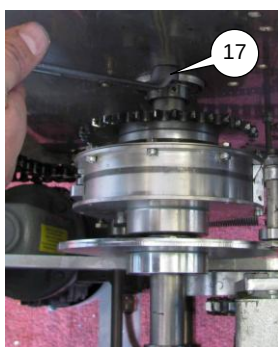
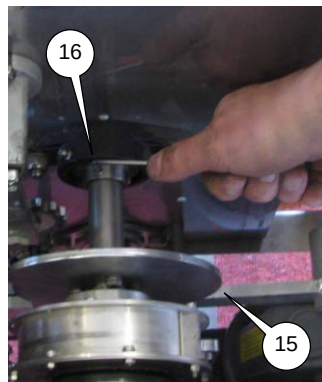
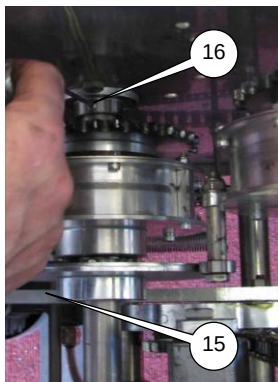
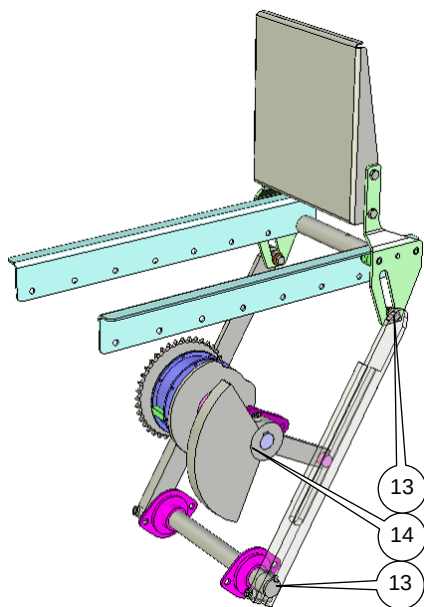


ATTENTION!

Running the system without the side covers will damage the grippers!

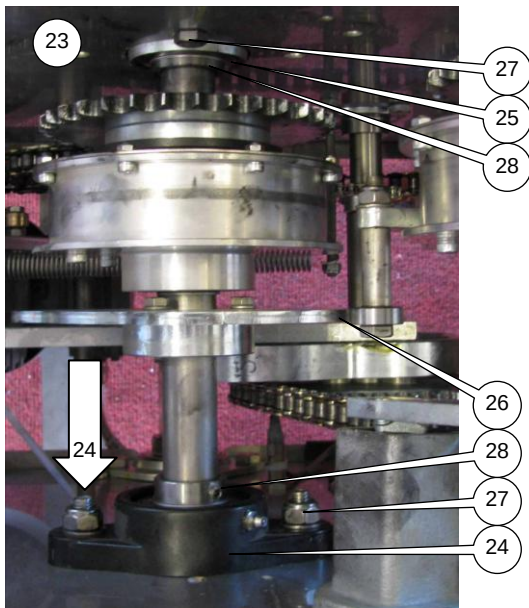


8. Mark the turn table base plate and remove it. This is necessary to create more space for removing the pusher shaft later on in this procedure.
9. Pull the spring loaded pusher activator towards the drive motor (away from the pusher shaft with clutch) and temporarily tighten it there with a tie rap. This is necessary to create enough space for removing the pusher shaft later on in this procedure.
10. Remove the turn table / transfer lift drive chain tensioner. Again this is necessary for enough space to remove the pusher shaft later on in this procedure.
11. Release the main drive chain its tensioner.
12. Remove the main drive chain its link and detach the chain.

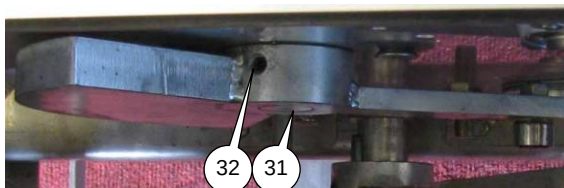
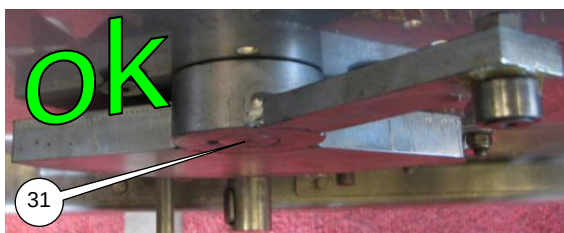
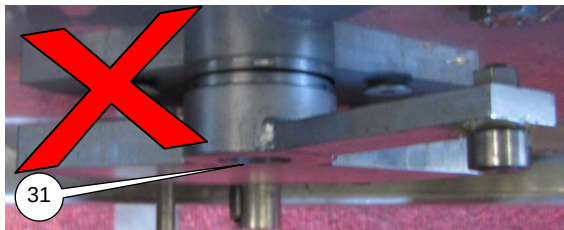


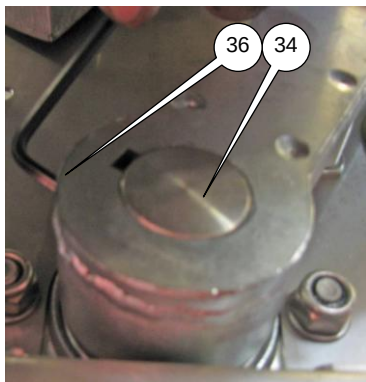
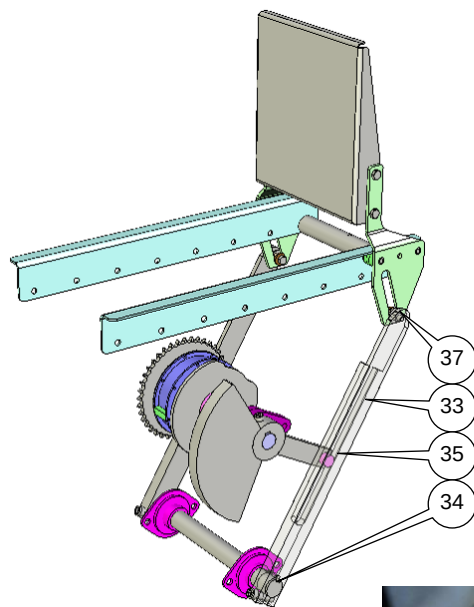
13. Remove the pusher drive arm which is attached to the flywheel / crankshaft. Loosen the bottom setscrew and top bolt and nut.
14. Remove the flywheel / crankshaft. Loosen up its set screw and slide it from the pusher shaft.
15. Manually move the grippers to a position where the turn table drive arm is in its bottom position. This is necessary to create enough space for removing the pusher shaft (otherwise the turn table drive arm blocks the collision protection cam disk during removal of the pusher shaft).
16. Loosen up the setscrews that attach the bearings to the pusher shaft.
17. Remove the mounting bolts of both bearings.
18. Remove the rimmed bearing from the side plate.
19. Slide the bearing block as far as possible on the pusher shaft towards the collision protection cam disk.
20. Now move the pusher shaft as far as possible to the bearing block side and remove the complete pusher shaft including the bearing block.





21. Remove the bearing block and its key from the "old" shaft.
22. Place the key in the notch of the new shaft and slide the bearing block on it.
23. Place the new pusher shaft in between the side plates.
24. Slide the bearing block back against the side plate.
25. Replace the rimmed bearing.
26. Align the shaft to the correct position. The collision protection cam disk should be in line with the turn table / transfer lift activator.
27. Tighten both bearings to the side plates.
28. Lock the shaft to the bearings with the setscrews. Take note to tighten one setscrew into the notch in the shaft.
29. Replace the turn table / transfer lift chain tensioner and tens up its drive chain.
30. Remove the tie rap to release the pusher activator.
31. Replace the flywheel crankshaft. Make sure it is completely on the pusher shaft. The face side of the pusher shaft should be aligned with the face side of the flywheel / crankshaft.
If this is not possible, loosen up the bearing block, push the flywheel / crankshaft completely on the shaft and tighten the bearing block again.
32. Lock the flywheel / crankshaft to the pusher shaft with the set screw.





33. Replace the pusher arm.
34. Make sure the bottom side is completely on the shaft. The face side of the shaft should be aligned with the face side of the pusher arm.
35. Make sure the cam follower slides in the guide of the pusher arm.
36. Manually move the grippers to a position where you have easy access to the set screw at the bottom side of the pusher arm and the bolt on the topside of the pusher arm.
37. Lock the pusher arm to its shaft with the set screw.
38. Tighten the top side pusher plate.
39. Manually move the grippers until both the key of the transfer lift shaft and the key of the turntable transfer lift shaft are on 12 o'clock.
Probably this is the marked gripper position.
40. Attach the main drive chain and replace its link.
41. Replace the chain tensioner and tens up the main drive chain.
42. Replace the turn table base plate on its marked position.
43. Replace the tray transfer plate.
44. Place the side covers back.
45. Replace drive mechanism cover.
46. Replace turn plate.
47. Make a test run.
48. In case of small sequence issues, fine tune the start pusher timing or start turn table timing.
See **fine tune drive mechanism timing** to fine tune the synchronization of the drive mechanism