MM binder labels. Half width

MACHINERY WORLD

TBA/3 600V
Doc. No. IM–80251–1

TBA/3 600V
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TBA/3 600V
Doc. No. IM–80251–1

TBA/3 600V
Doc. No. IM–80251–1

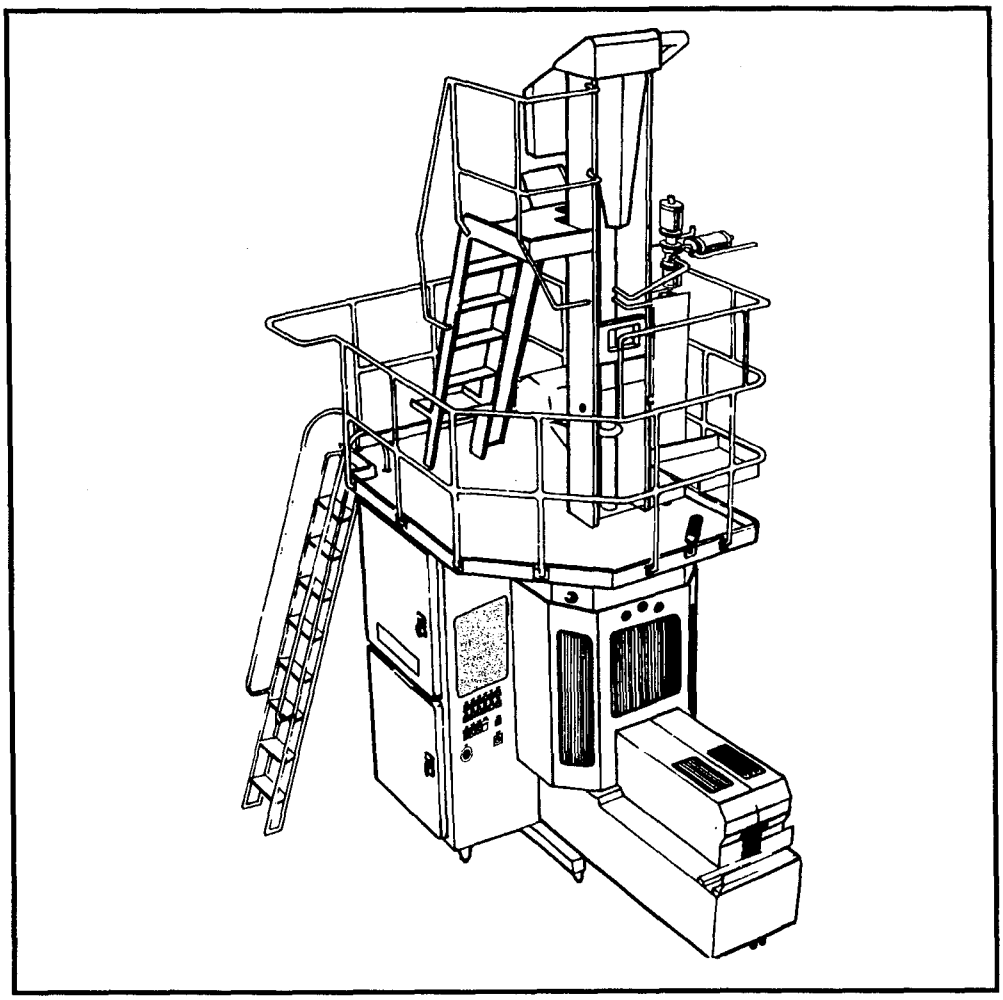
TBA/3 600V
Doc. No. IM–80251–1

IM

Installation Manual

Tetra Brik Aseptic TBA/3

640016-600V



IM1.08025101.fro

Tetra Pak

Doc No. IM-80251-1

This document is valid for:

Series No/ Machine No Sign.

Tetra Brik Aseptic TBA/3 640016-600V

Equipment included:

Issue 9602

Doc No. IM-80251-1

Tetra Pak

Tetra Brik PS AB

1 Introduction

2 Safety precautions

3 Technical data & drawings

4 Site preparation

5 Machine handling

6 Position, assembly & connections

7 Installation check

8 Preparation for commissioning

9 Disassembly and removal

1 Introduction

WARNING! To ensure maximum safety for the technicians, always read the "Safety precautions" pages before doing any work on the machine or making any adjustments.

1.1 Document information

About this Installation Manual (IM)

The purpose of this Installation Manual is to provide technicians with information on **how to safely install** this Tetra Pak equipment.

It is important that you:

- keep the manual for the life of the equipment,
- pass the manual on to any subsequent holder or user of the equipment.

Design modifications

The directives in this document are in accordance with the design and construction of the machine at the time it was released by the Tetra Pak machine production facility.

Document producer

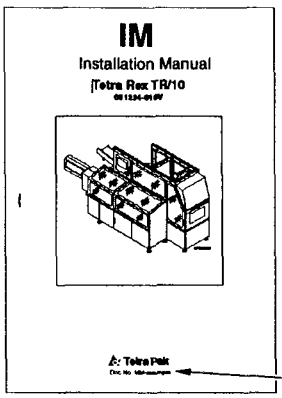
This document has been produced by:

Tetra Brik Packaging Systems AB.
Technical Publications
Ruben Rausings gata
221 86 LUND
SWEDEN

Further copies

Additional copies can be ordered from nearest Tetra Pak service station.

When ordering technical publications, always quote the **document number** printed on the front cover of the document concerned (see fig).



Example of document number

Number of pages

This document contains a total of 74 pages.

1.2 Definition of the user

The principle user of the Installation Manual (IM) is the installation technician.

Installation technicians may be:

- technicians employed by **Tetra Pak**.
- technicians employed by the **customer**.

The Tetra Pak technicians are Tetra Pak employees who have gone through training courses at the Tetra Pak Technical Training Centres or have an equivalent knowledge.

Technicians employed by the customer must have the following skills:

a) Capable of reading (English or native) technical information.
b) Understands technical drawings.
c) Basic knowledge of mechanics and electronics.
d) Basic knowledge of mathematics.
e) Can handle (special) tools.

See also "Section 1.4 - Personnel requirements".

1.3 Machine identification

Intended use of this Tetra Pak equipment

The purpose of this machine is to pak liquid food

Service

In case of problems when operating the machine, contact the nearest Tetra Pak service station.

Manufacturer

This Tetra Pak equipment was produced by:

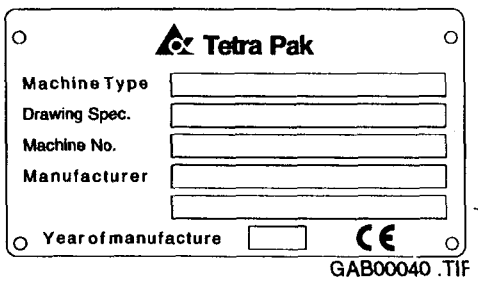
Tetra Brik Packaging Systems AB/Inc.
Ruben Rausings gata
221 86 LUND
SWEDEN

IM1.0bT1Intro.en

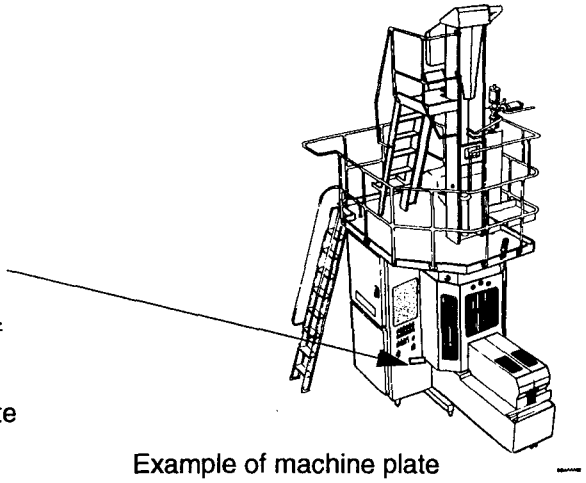
Main machine plate

The machine plate below is an example of the type of machine plate attached to the machine frame. The plate carries data needed when contacting Tetra Pak concerning this particular machine.

The plate displays the **CE mark**. It means that this machine **complies with the basic health and safety regulations of the European Econimic Area (EEA).**



Example of machine plate



Example of machine plate

1.4 Personnel requirements

Skill	Experience level	Function
1 Responsible	- required knowledge about diary installations - experience of supervising personnel	- responsible for the installation work and the safety of the involved personnel and equipment - organize and lead the installation work and the personnel connected to it
2 Mechanics	- certified knowledge of the actual Tetra Pak equipment from a Tetra Pak training centre - experience from previous machine installations	- help to unload and moving the machine crates - unpack and transport the machine parts - carry out the mechanical machine work connected to the installation
1 Electrician	- certification for electrical work with both high and low voltage according to the regulations of the country - experience from previous machine installations	- help to unload and moving the machine crates - help to unpack and transport the machine parts - carry out the electrical machine work connected to the installation
1 TIG welder	- certified and skilled in argon gas welding with stainless, thin wall material according to the regulations of the country - ability to read installation drawings	- weld product line connections
1 Plumber	- certification according to the regulations of the country	- install piping for product, steam, cleaning solution, air and water lines
1 Truck or crane driver	Certified for handling truck or crane according to the regulations of the country - Certified for handling lifting tools and other lifting equipment according to the regulations of the country	- unload and moving the machine crates - help to unpack and transport the machine parts - lift, with truck or crane, machine parts during machine assembly

1.5 Terminology

1.5.1 Abbreviations

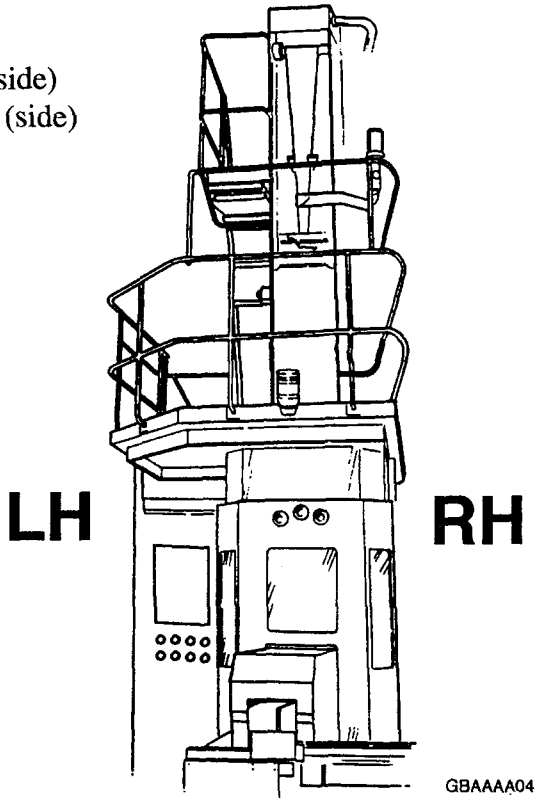
The following abbreviations may be used in this Installation Manual

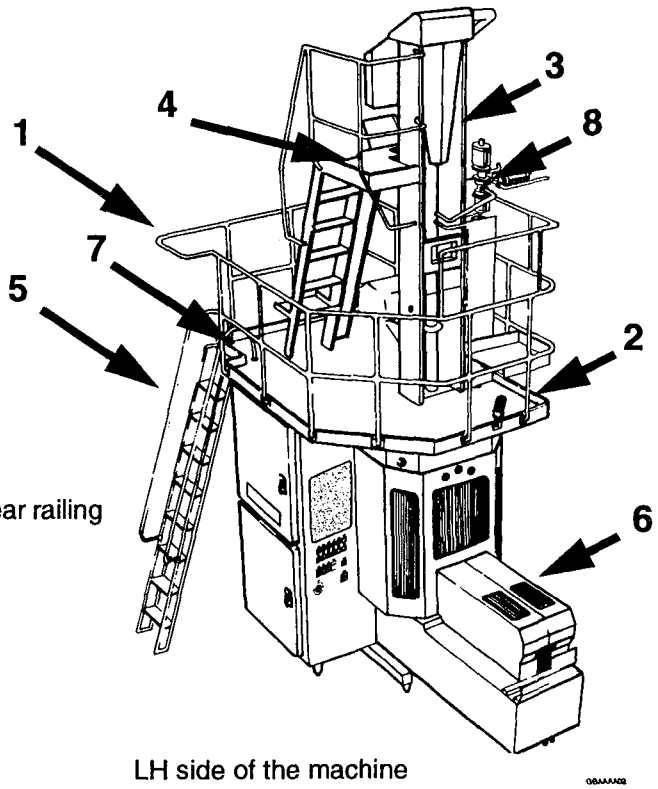
Abbreviation	Meaning
Approx.	Approximately
APV	Aseptic Product Valve
B	Baseline (in connection with volumes)
CIP	Cleaning In Place
EM	Electrical Manual
h	Hour, Hours, Height
IM	Installation Manual
kg	Kilograms
L	Length
LH	Left hand
LS	Longitudinal Seal(ing)
m	Metre
min	Minimum
max	Maximum
MM	Maintenance Manual
mm	Millimetres
OM	Operation Manual
p/h	Packages per Hour
Recirc	Recirculation, Recirculating
RH	Right Hand
SA	Strip Applicator
SASP	Sales Administration Spare Parts
SCU	Separate Cleaning Unit
SPC	Spare Parts Catalogue
TB	Tetra Brik
TBA	Tetra Brik Aseptic
TP	Tetra Pak
IH	Induction Heating
TS	Transversal Seal(ing)

1.5.2 Machine orientation

Front view of the machine

LH = Left hand (side)
RH = Right hand (side)





LH side of the machine

1 Left hand side, side railing and rear railing
2 Front platform
3 Superstructure (RH side)
4 Top railings
5 Ladder
6 Final folder
7 Rear platform
8 AP-Valve

1.6 Other documentation

The technical documentation for this machine includes the following type of documents:

- Electrical Manual (EM)
- Maintenance Manual (MM)
- Operation Manual (OM)
- Spare Parts Catalogue (SPC)

It is important that you keep these manuals for the life of the equipment, and pass the manuals on to any subsequent holder

2 Safety precautions

2.1 Warning levels

Following is an explanation of the three warning levels that are used in the IM:

DANGER! Failure to observe information marked with this symbol, puts **your life in danger!**

WARNING! Failure to observe information marked with this symbol, can result in **personal injury!**

Caution! Failure to observe this information marked with this symbol, can result in **damage** to or **destruction of equipment!**

IM1.0bT2Safety.en

2.1.1 General warnings

Following are some general warnings applicable to this machine or the installation process.

Service technician:

WARNING! **Risk of personal injury!**
If safety precautions are not followed, there is risk of personal injury.

Only trained or instructed service technicians are allowed to work on the machine.

The Installation Manual (IM) describes the authorized way to install the machine, and it may only be installed in accordance with these instructions. Tetra Pak will take no responsibility for injury or damage, if the machine is installed in any other way.

During maintenance or service work, the service technician is responsible for:

- the machine and the working area around the machine,
- the personnel in the vicinity of the machine,
- assuring that the machine safety devices are fully operational before finishing the installation work.

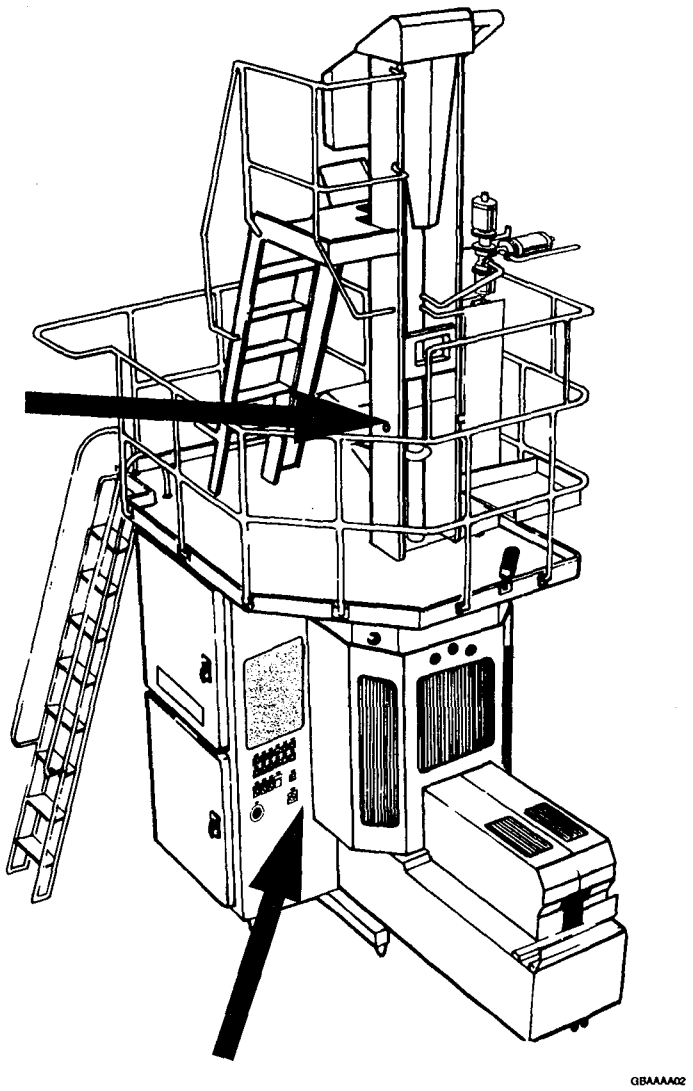
2.1.2 Emergency stop

In case of danger to people or risk of damage to the machine, one of the emergency stop buttons must immediately be depressed.

In order to stop the machine immediately in an emergency situation, you must know the exact location of the emergency stop buttons.

Emergency stop must only be used in case of danger to people or machine. To stop production in the normal way, see the **Stop**-section in the OM-book.

Note! Emergency stops **do not** cut the "Mains Power Switch" OFF:



GBAAAA02

Emergency stop buttons
Left hand side of machine

IM1.0bT2Safety.en

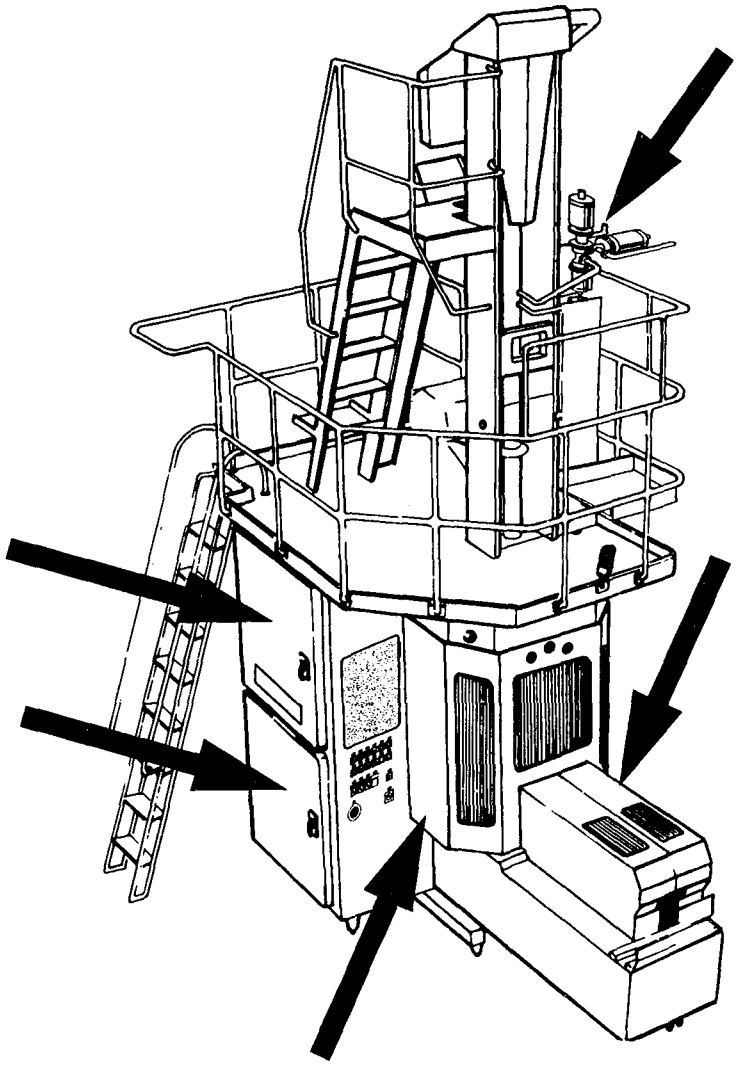
2.1.3 Doors, hatches, and safety covers

WARNING! **Moving parts and hot surfaces can cause serious injuries!**
Never inch or run the machine if any safety switch is non-operational or any safety cover is not fitted.

The doors and hoods shown in the picture are provided with safety switches. These switches form part of the safety system of the machine and **must under no circumstances be bridged or by-passed or otherwise made non-operational.**

Do not open doors or remove covers during production. Never stop the machine by opening a door with a safety switch. The machine may perform a reciprocating movement during the first few seconds after a stop; also some machine parts may still be hot.

After maintenance, check that all safety covers are fitted to the machine before is inched or run.

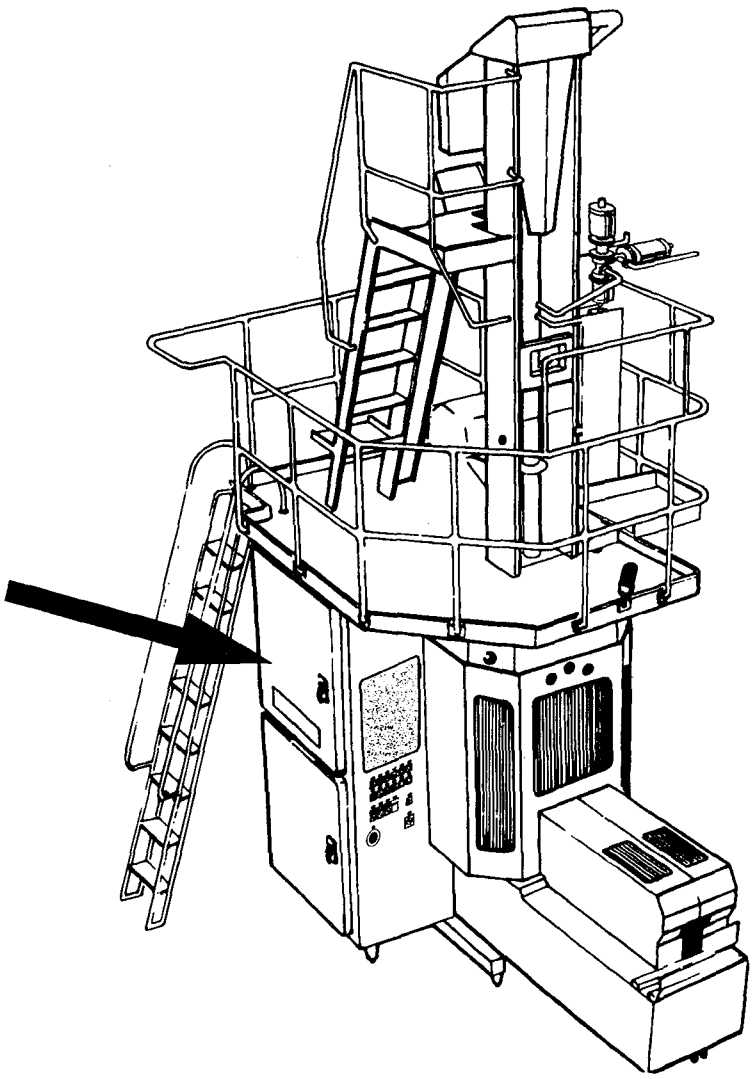


2.1.4 Electrical cabinet

DANGER! **Risk of electrochock!**
The voltage is 400V inside the electrical cabinet. Can cause electroshock or serious injury. In case of accident, immediately call for medical attention.

Work inside the electrical cabinet must be performed by skilled or instructed persons only.

Caution! Always make sure that those electrical cabinet doors, locked with bolts, are closed before you enter the superstructure.



GBAAAA02

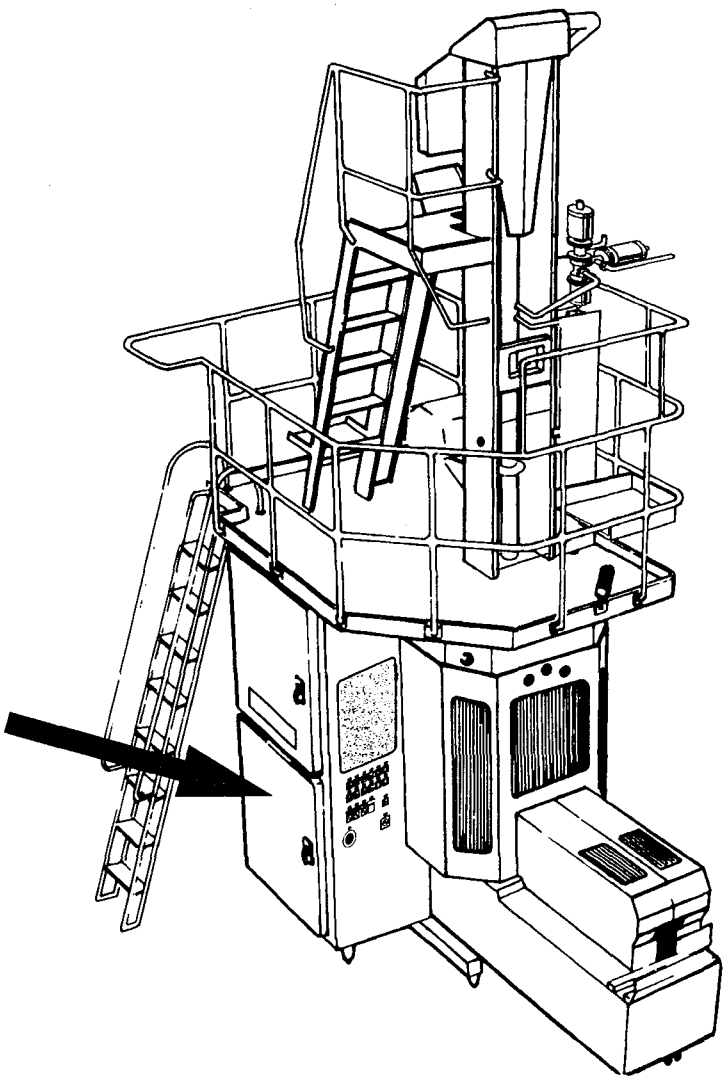
IM1.0bT2Safety.en

2.1.5 TPIH generator

DANGER! **Risk of electroshock.**
The voltage is 400 V inside the generator section. Can cause electroshock or serious injury. In case of accident, immediately call for medical attention.

Work inside the generator section must be performed by skilled or instructed persons only.

Do not open the generator.



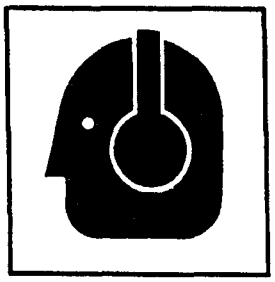
GBAAAA02

2.1.6 Hearing protection

WARNING! **Risk of impaired hearing!**
Use hearing protection to minimize the risk of impaired hearing.

Always wear hearing protection while the machine is running.

Note! Always keep the ear protectors clean.



GAD00051

2.2 Hazardous materials

2.2.1 Hydrogen peroxide - Sterilization liquid

WARNING! **Risk of corrosion injuries!**
In both liquid and gas form, hydrogen peroxide may cause irritation or damage if in contact with skin, mucous membranes, eyes, or clothes.

WARNING! **Risk of fire!**
Causes burns. Contact with combustible materials may cause fire.

The sterilization liquid used for sterilizing the packaging material consists of 35% hydrogen peroxide (H_2O_2).

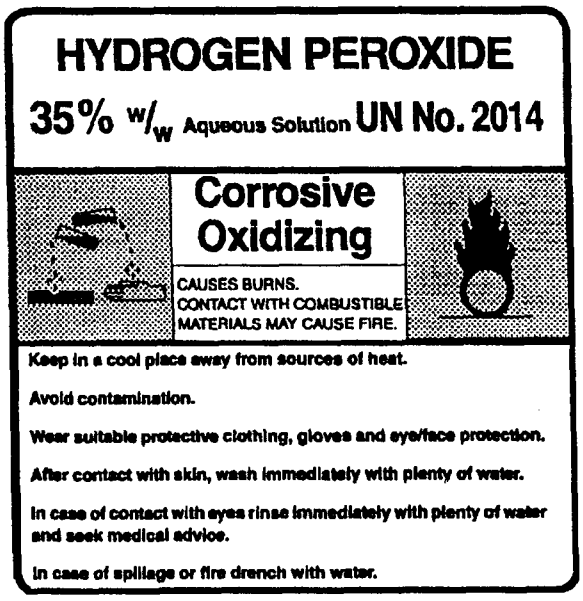
Carefully follow the instructions on the can label (see picture).

Hydrogen peroxide:

- 35% w/w Aqueous Solution UN No 2014
- Corrosive. Oxidizing.
- Causes burns. Contact with combustible materials may cause fire
- Keep in a cool place away from sources of heat.
- Avoid contamination
- Wear suitable protective clothing, gloves, and eye/face protection
- After contact with skin, wash immediately with plenty of water and seek medical advice
- In case of spillage or fire, drench with water.

Reference:

TP document No M 1751.80.



GAD00036

Example of can label

IM1.0bT2Safety.en

2.2.2 Storage of hydrogen peroxide

WARNING! Risk of explosion!
When contaminate, pouring back in original container with fresh peroxide left, or decomposition of hydrogen peroxide, risk of explosion can arise.

The hydrogen peroxide has been stabilized but may nevertheless decompose into oxygen and water, if exposed to heat, pollution, or strong sunlight.

For this reason, the room or area used for storage must be:

- cool, clean, and well ventilated
- shielded from direct sunlight
- kept free from combustible materials

Avoid contamination of hydrogen peroxide. It may react to, or **form explosive products** with many organic substances (for instance acetone, cellulose, and ethanol).

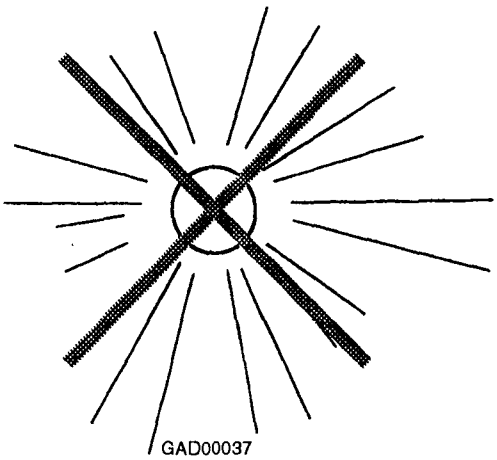
Hydrogen peroxide must be stored only in the **original container** as delivered by the supplier.

Do not pour surplus hydrogen peroxide back into the original container. **Risk of explosion!**

The container must be kept upright and must only be closed with the original ventilation cap (arrow in picture), which allows oxygen to escape. If not, there may be an explosion if decomposition of the peroxide occurs violently.

Always make sure that the container is properly closed.

Pumps or other facilities, used for hydrogen peroxide, must be used for this purpose only.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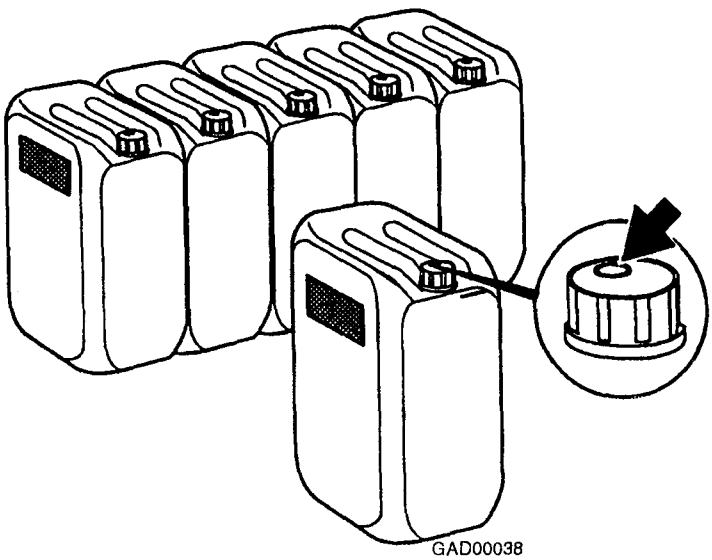

GAD00038

2.2.3 Disposal of hydrogen peroxide

The hydrogen peroxide should be sent for destruction. In some markets it is allowed to dilute it with water to a concentration below 1% and pour it into the drain. Hydrogen peroxide with a concentration below 1% is considered harmless.

Never put used hydrogen peroxide back into storage.

Spillage of sterilization liquid

WARNING! Risk of fire!
Never wipe with combustible material, such as rags or paper, as these may self-ignite.

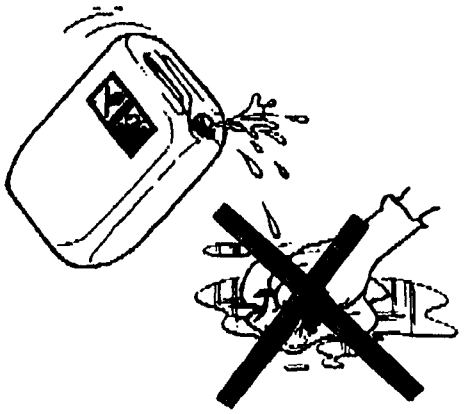
WARNING! Risk of short-circuit!
Do not allow hydrogen peroxide to get in contact with live electrical parts. Risk of short circuit.

If peroxide is spilt on the floor or a table, dilute it with large amounts of water and flush it into the drain.

In case of fire, cool the peroxide containers by hosing with large quantities of water.

Make sure that areas or rooms used for handling or storing hydrogen peroxide are well ventilated.

IM1.0bT2Safety.en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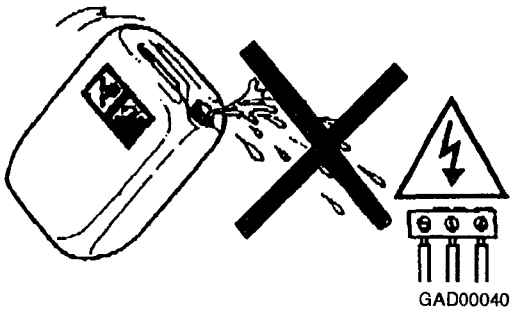
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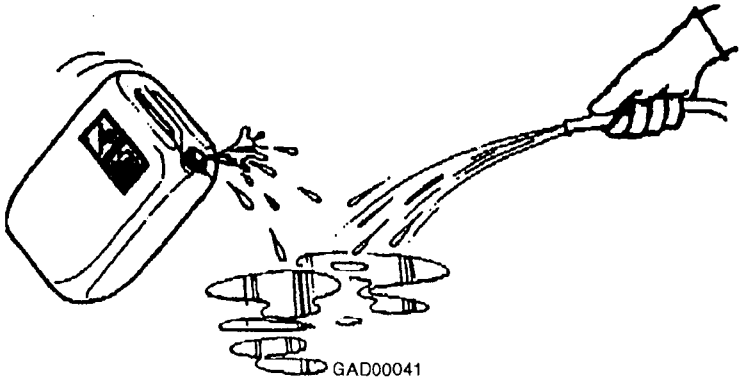
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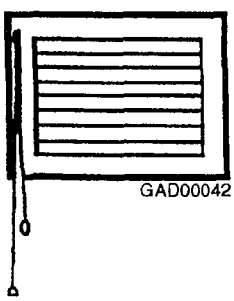

GAD00042

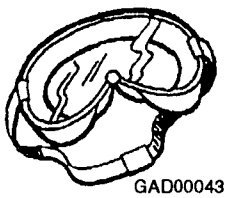
2.2.4 Personal protective equipment – hydrogen peroxide

Whenever there is risk of contact with the sterilization liquid, always wear:

- safety glasses (1)
- protective gloves (2) of neoprene
- shoes (3) made of PVC or PE plastic, or rubber
- apron (4)

In case of accident involving hydrogen peroxide, always make sure that:

- the showers (5) work
- that an eyewash device, movable (6) or wall-mounted (7) is available at or near each machine site
- there are additional washing facilities



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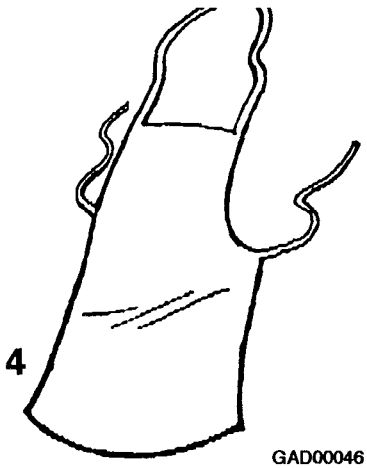

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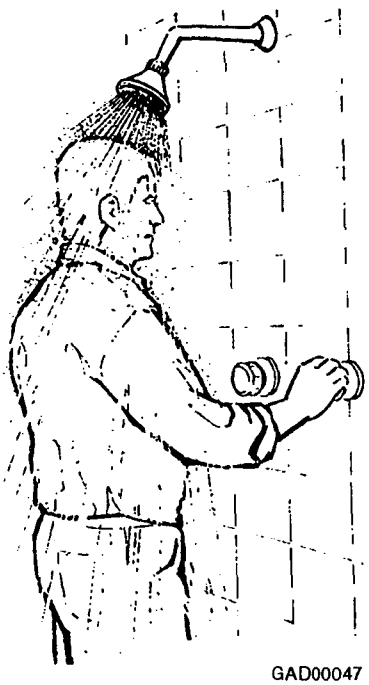

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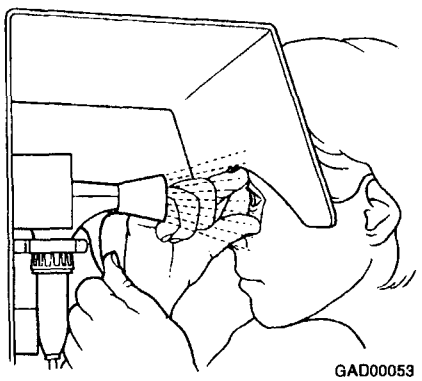


7

1 Safety glasses (TP No 779130-102)
2 Protective gloves (TP No.90303-4)
3 Shoes
4 Apron (TP No. 90303-5)
5 Shower
6 Eyewash device (TP No. 90303-6)
7 Eyewash device

2.2.5 Emergency procedures – hydrogen peroxide

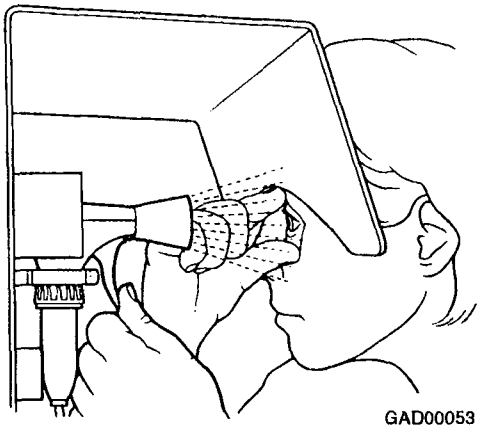
In case of accident involving hydrogen peroxide the basic rule is to rinse as soon as possible with as much water as possible.

If you happen to swallow hydrogen peroxide:

- Drink large amounts of lukewarm water (in order to dilute the peroxide)
- then seek medical attention immediately

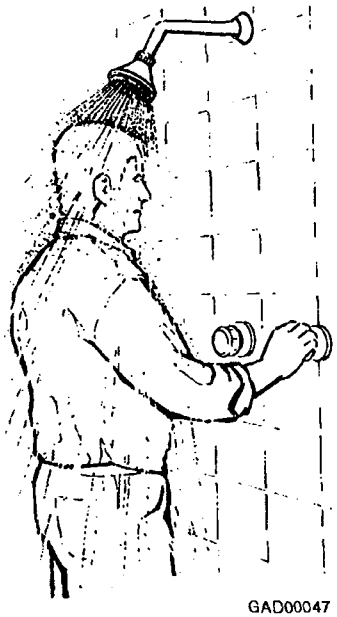
If you get splashes or vapour from hydrogen peroxide in your eyes:

- wash the eyes thoroughly with lukewarm water for 15 minutes (keep eyelids widely apart)
- then seek medical attention immediately!



If hydrogen peroxide gets in contact with skin or clothes:

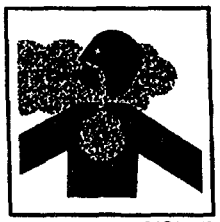
- immediately rinse with plenty of water
- if skin burns appear, seek medical advice immediately
- thoroughly wash the clothes before they are worn again



(Cont'd)

If you experience irritation or pain due to having inhaled peroxide vapour:

- leave the affected area and get some fresh air
- if the symptoms get worse; seek medical advice



GAD00050

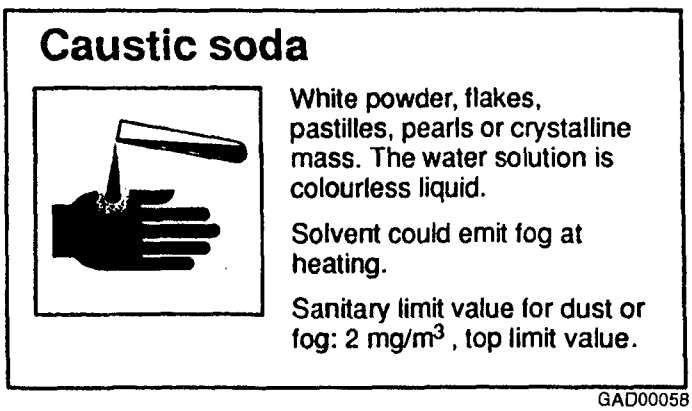
2.2.6 Caustic soda

WARNING! **Risk of personal injury!**
Corrosive. May be harmful to inhale. Can cause shortness of breath. Caustic soda may cause irritation or damage if in contact with skin or eyes.

Handling of caustic soda

Make sure that the areas used for handling the caustic soda are well ventilated. The container should be kept closed.

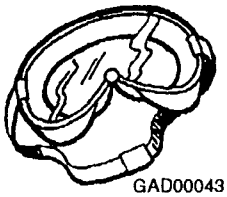
If caustic soda is spilt on the floor, bind it with sand, turf dust or another suitable expedient and gather up. Rinse with water afterwards – **skidding risk**.



GAD00058

2.2.7 Personal protective equipment – caustic soda

- Wear suitable protective clothing, gloves of neoprene, and eye/face protection.
- Shower and eyewash device should be present in the work area.

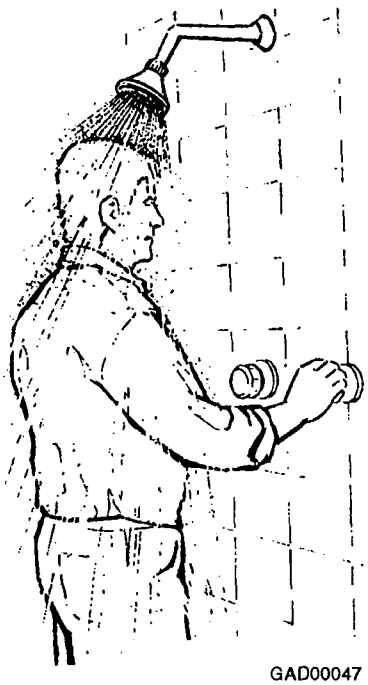


GAD00043

GAD00044

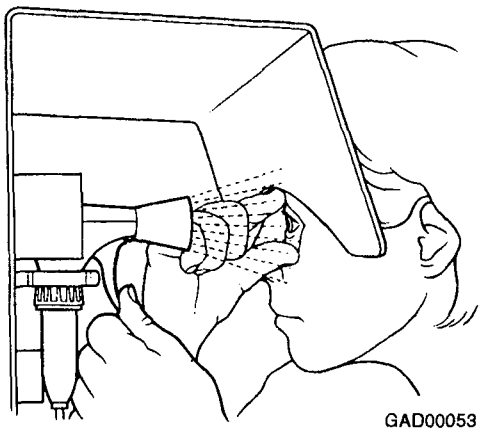
2.2.8 Emergency procedures – caustic soda

- Leave the affected area and get some fresh air. Rinse the nose and mouth with water. Seek medical advice. After contact with skin, wash immediately with plenty of water.


GAD00047

- In case of contact with eyes, rinse immediately with plenty of water for 15–30 minutes (keep eyelids wide apart). Then seek medical advice.


GAD00048


GAD00053

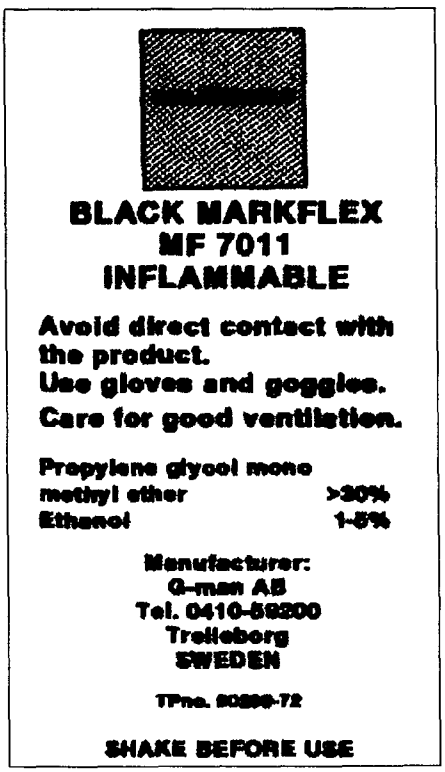
2.2.9 Ink

WARNING! **Flammable and harmful!**
Carefully follow the warnings on the bottle label (see picture).

Warning text on ink bottle
The following warning is written on the ink bottle:

INFLAMMABLE
Avoid direct contact with the product
Use gloves and goggles
Care for good ventilation
Propylene glycol mono methyl
ether >30%
Ethanol1-5%
SHAKE BEFORE USE

Use gloves as the ink can irritate the skin.



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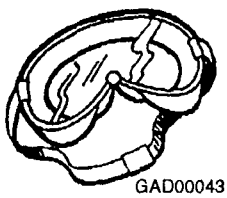
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GAD00044

2.2.14 Emergency procedures – ink


GAD00049

In case of contact with eyes, rinse immediately with plenty of water and seek medical care.

2.2.10 Chemical products

WARNING! **Risk of personal injury!**
Can be flammable or hazardous to health. Read the warnings!

When handling hydraulic oil, lubricants, and cleaning solutions, carefully follow the warnings on the container labels.

Always use safety equipment according to the instructions on the container labels. Always use gloves when handling chemical products.

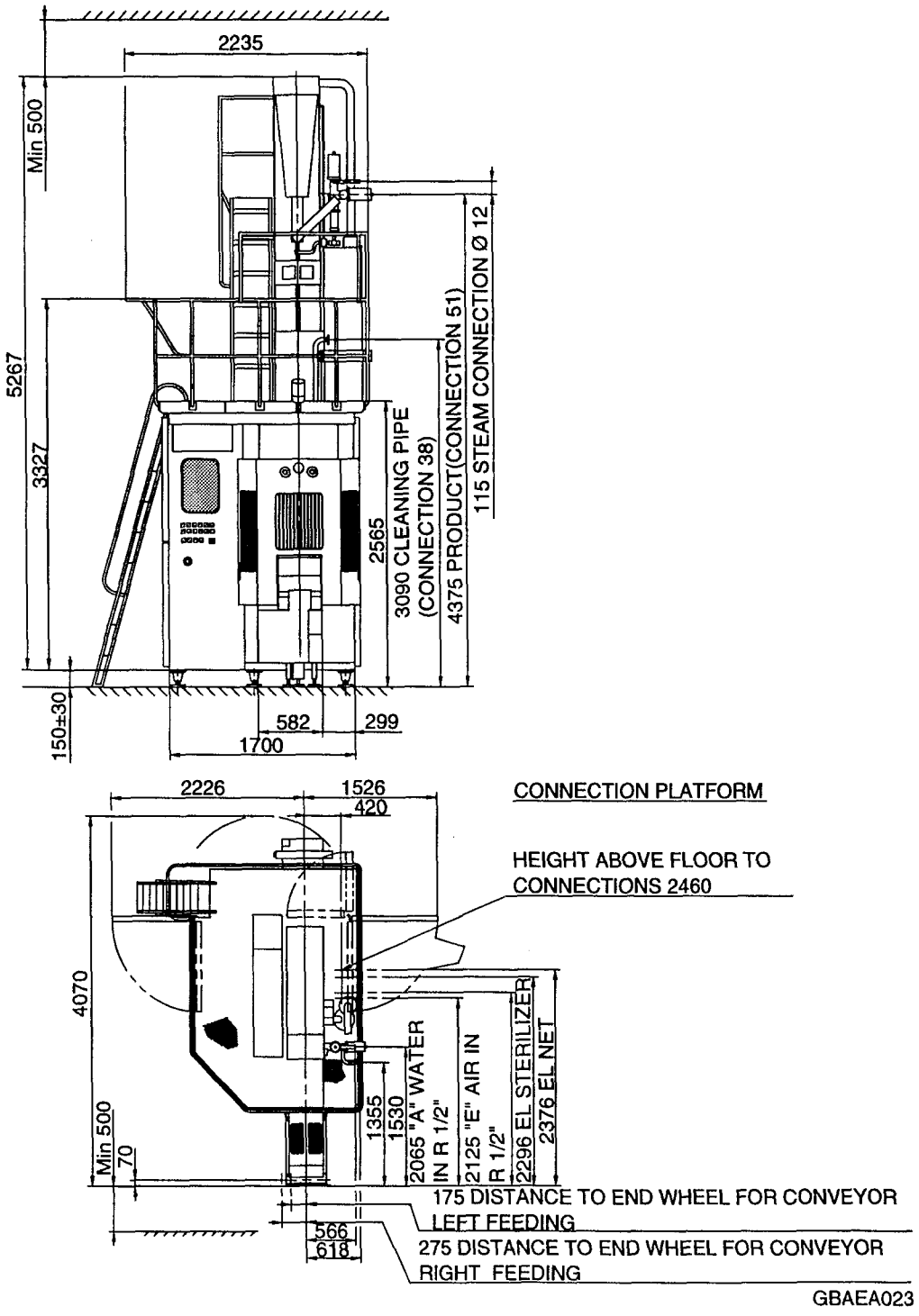
For final handling of solutions, follow the instructions from the supplier

3 Technical data & drawings

3.1 Installation drawings

3.1.1 Dimensional drawings

The following drawings provide the dimensions of the machine and the dimensions for access around the machine. These dimensions must be respected. All dimensions are in millimetres unless otherwise stated.



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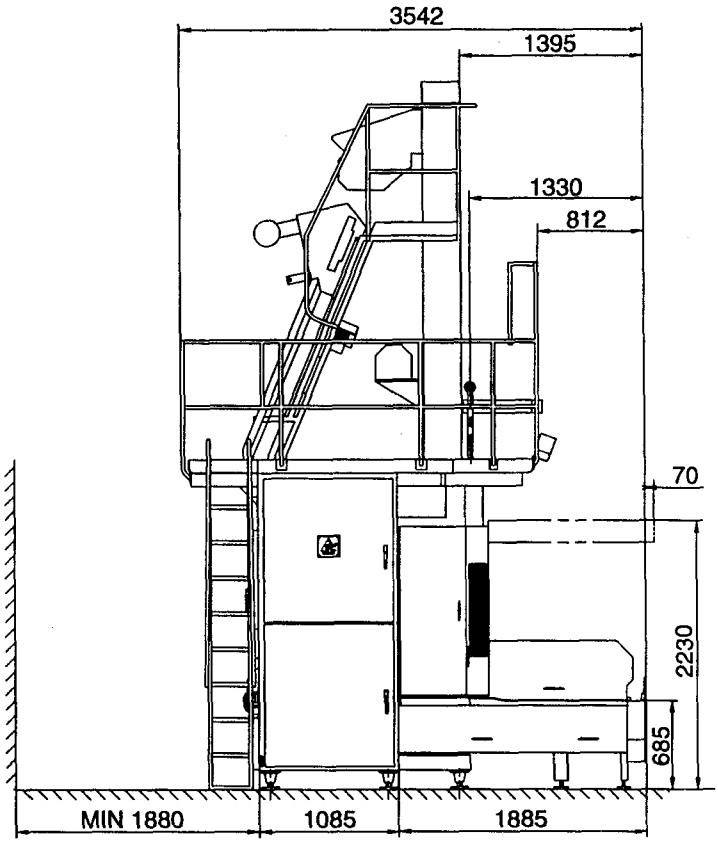

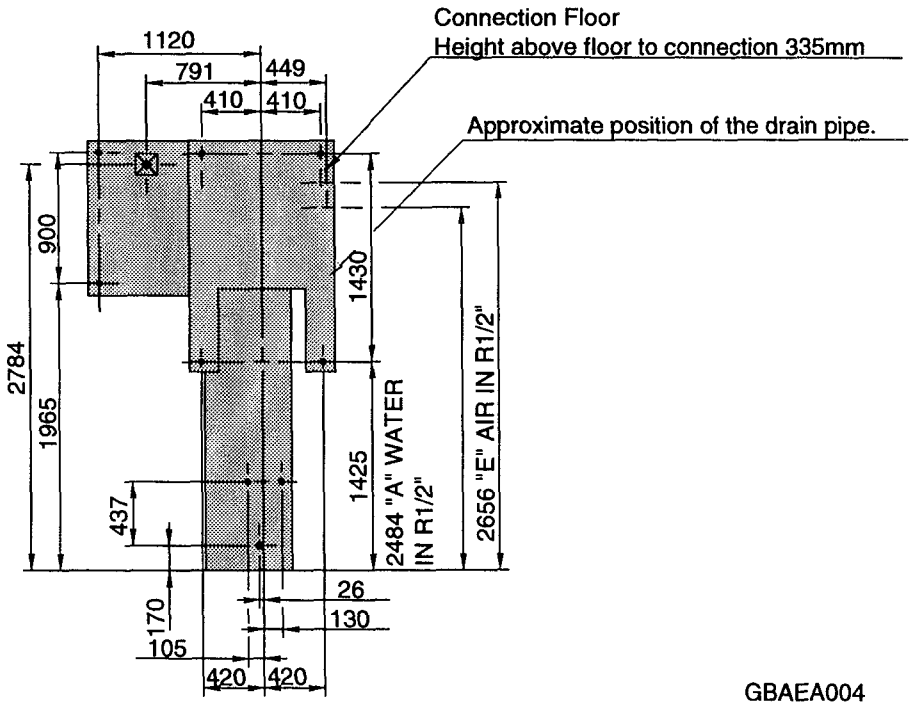

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3.2 Mass / weight

Machine parts

Complete machine	4070	kg
Machine body, platforms and railings	2720	kg
Superstructure	350	kg
Final folder	430	kg

3.3 Noise

Noise level

Measurements and declaration have been made according to the following International Draft standard.

- Measurement of emission sound pressure level accordance to ISO/DIS 11201 (1994)
- Declaration according to ISI/DIS 4871.2 (1994)

Measurements have been performed under normal operating conditions at machines taken from serial production.

Emission sound pressure level, L_{pA}

- Sound emission	79.0	dB
- Individual deviation [a]	3.8	dB

a. The value includes the uncertainty of the measurement with respect to the accuracy of the measurement method and the production variation.

3.4 Utility connection data

Electric power

Voltage (3 phase)	400/230	VAC
Permitted voltage fluctuation	±10%	
Frequency	50/60	Hz
Permitted frequency variation	± 2%	Hz
Recommended main fuse	63	A
Consumption during		
- Pre-heating 1	20	kW/h
- Pre-heating 2	20	kW/h
- Sterilization	20	kW/h
- Cooling	20	kW/h
- Production	20	kW/h
-Stop	17	kW/h
- CIP	0	kW/h

Cold water

Connection pressure	300 - 450 (44-65)	kPa (lbs)
Inlet temperature	Max 20(68)	°C(°F)
Permitted temperature variation	-10 (-50)	°C (°F)
pH	7.5 - 8.5	-
Hardness ($CaCO_3$)	3-5	D°H
Permitted content, organic substances	1	mg/m^3
Consumption, production		-
- cooling system with compressor	8 (2.1)	l/min (gpm)
- cooling system with ice-water	7 (1.8)	l/min (gpm)
- maximum supply during a short duration	19 (5)	l/min (gpm)
Flow rate		-
- nominal	8 (2.1)	l/min (gpm)
- max	19 (5)	l/min (gpm)

Compressed air

Connection pressure	600 - 700 (87-102)	kPa (lbs)
Inlet temperature	20 (68)	°C (°F)
Permitted temperature variation	10±(50)	°C (°F)
Permitted oil content	0.01	mg/m^3
Permitted particle content	25	mg/m^3
Max particle size	20	µm
Dew point	2 (35)	°C (°F)
Consumption		
- nominal (during production)	500(17.7)	l/min (cfm)
- max (during a short duration)	550 (144)	l/min (cfm)
Flow rate		l/min (cfm)
Permitted flow variation		l/min (cfm)

Steam

Connection pressure	170 (25)	kPa (lbs)
Permitted pressure variation	± 30(± 4)	kPa (lbs)
Inlet temperature	130 (266)	°C (°F)
Permitted temperature variation	$^{+0}_{-5}$ ($^{+0}_{-41}$)	°C (°F)
Permitted oil content		mg/m^3
Permitted particle content		mg/m^3
Max particle size	13	µm
Permitted gas/virus/bacteria content		ppm
Consumption		-
- nominal (during production)	2.4	kg/h
- max		

Cleaning data

Characteristic	Value	Notes
Max inlet pressure	350 kPa (3.5 bar) [50.7psi]	
Min flow	8000 l/h	at 220 kPa.

Hydrogen peroxide

Required type	35%	Food grade according to M1282.805.
Consumption		
- during production		
Volume 1000ml	250 - 400	ml/h
Volume 500ml	200 - 230	ml/h
Volume 250, 200ml	130 - 190	ml/h

Central lubrication

Required type	Highpressure oil	According to M1254.322
Consumption		
- during production	0.20	l/8h

3.5 Product connection data

General definitions

- homogeneously, max particle size
- viscosity
- calculated pressure drop CPD
- concentration (Bx°)
- pH

"Aseptic and food technology group" in Modena to be approached regarding the Tetra Brik products.

Product temperature

Max 40°C

Min 5°C

Product pressure

Supply pressure range: 50 - 250 ±10 kPa

Product flow

Volume (ml)	Flow at start-up (first 5 s) (l/min)	Nominal flow (l/min)
1000B		60
1000B HiFin		60
500B		30
250B		18.8
200B		15

4 Site preparation

4.1 General requirements

4.1.1 Introduction aseptic packaging

It must be clearly understood that the aseptic packaging machine should be placed in a working environment compatible with it´s aseptic design and function.

Aseptic packaging has a specific dimension in the sphere of food processing and must be treated according to the following recommendations and requirements.

The degree to which the aseptic packaging room is under environmental control is very much dependent upon the production acceptance level.

4.1.2 Aseptic installation policy

It is Tetra Pak company policy that the aseptic packaging machines should be installed in a separate packaging room.

By doing so gives then an effective possibility to reduce the quantity of airborne bacteria. Especially hazardous areas are:

a) Processing machines for sour milk products or milk powder plants.

b) Washing machines for bottles and crates.

c) Rooms with strong air-currents.

d) Rooms with traffic to and from other plant areas.

e) Rooms with high humidity, such as the processing room where you have discharges of steam and hot water.

f) All unnecessary activity, especially those which creates dust.

g) Under no circumstances should unsterile packages be handled in the filling area.

By following our installation policy, you minimize the risks for infection mentioned above.

4.2 Specific construction details

4.2.1 Packaging room - overpressure

By accepting that aseptic filling machines are installed in a separate packaging room the following conditions should apply:

The filling room, as a whole, shall be maintained in an overpressure condition by filtered air.

To ensure against non-filtered air in-flow. Airborne bacteria are usually well above average where food products are stored and processed.

"Overpressure" is achieved by controlling the air intake and exhaust in the packaging room through forced ventilation incorporating air-conditioning, if necessary.

The exhaust system is basically under-dimensioned in comparison to the air intake system, forcing exhaust air to seal off possible inlets such as doors and hatches.

Whilst dimensioned for overpressure in the packaging room include facilities to filter the incoming air.

Having controlled the packaging room´s air flow, take the natural step to control the temperature and humidity.

Do not forget!
Exhaust system capacity must cover necessary air flow, to carry away the whole of peroxide vapour.

4.2.2 Packaging room - floors

- The floor are best finished in non-slip and acid/alkali resistant tiles. All floor/wall corners should be rounded for easy cleaning. The drain gully should also have a fall to outlet.
- The floor should have a natural "fall" of 1,5% (1:75) preferably from the back to the front of the packaging machine.
- The floor drainage is best served by an open gully along the front wall of the packaging room, passing out of the room and then directly into a covered "hygienic drain". Hygienic drains can be used in the packaging room directly.
  In certain circumstances packaging machines can be in lines facing the centre of the room where an open gully can be located.
- At no times should drains be constructed of corrosive materials. Use tiled or stainless steel gullies, plastic, stone, or ceramic drain pipes. All drain inlets should be easily cleaned by removal of cover plates and traps which should be directly accessible.
  Care should be taken, when selecting floor tiles, that singly, they are of sufficient strength to carry the point loads of our packaging machines.

Floor loading - packaging machines

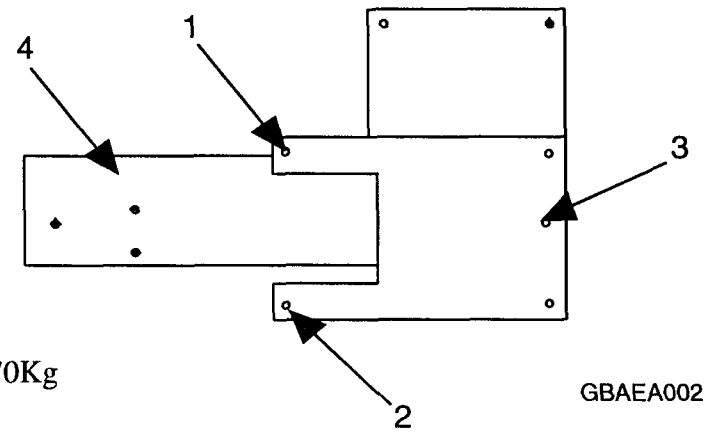
The dampers supplied with the packaging machine are for machine stability and to spread the load. All machine legs should be checked at regular intervals and adjusted according to the compression of the rubber pads.

Point loading

Our packaging machine are considered to have point loading characteristics - the weight being concentrated at several points, each having a small contact area. For structural purposes it is advisable to have customers to check their floors to ensure that the surface is sufficient. And if the floor is of tiles, or a form of concrete, or epoxy, check that the main floor base is designed to carry the kg/m2 of the machinery.

The loads are:

Legs	kg
1. Front	1550
2.Front	1260
3. Hydraulic jack	1260
4.Final folder	0



GBAEA002

Total 4070Kg

4070-1520=2520Kg split on leg 2 and point 3 other legs elevated.
The dynamic load is approx. ± 30N at the leg 1

4.2.3 Packaging room - walls

- Tile to a height of 1 - 2 meters, the tiles must be acid/alkali resistant.
- Above the tile-line obtain such a finish that it can be easily cleaned. Glass panelling in aluminium frames is a good solution, hygienic and allows for visual contact and "borrowed" light.
- All window sills should be sloped for easy cleaning and to prevent their use as storage shelves.

4.2.4 Packaging room - ceilings

- As ceilings are not easily accessible, ensure that you have a very smooth and impervious finish that can be cleaned easily with a long-handled soft brush or mop.
- Maybe some form of air extraction via ceiling trunking and exhaust hoods with self-closing facility has been installed. It must be possible to clean such units.
- If insulation is needed, either for heating or cooling, install over the ceiling or roof.
- Always use noise-absorbing materials/methods to reduce sound levels.

4.2.5 Packaging room - doorways, etc.

- Allowing for the passage of the packaging materials, meaning the normal access being at least the width of a pallet truck. Keep doorways to the minimum in quantity.
- Double air-locks are very suitable. An "air-curtain" can be used as an heat barrier when such climatic conditions prevail.
- At each entry, a mat should be placed to prevent external floor dirt from entering the packaging room.

Hatches and conveyors

- Need only be sufficient to allow easy passage of conveyors and packages.

4.2.6 Packaging room - lighting

- Production staff must have a clear view for operating their machines and controlling packages.
- Borrow as much light as possible from surrounding rooms and through ceilings.
- Avoid lighting that emits a pronounced frequency flicker.
- Ensure that the light illumination exceeds 500 lux on all surfaces situated less than three metres above the floor.
- Reduce dark zones and avoid dazzling and reflective systems.
- All lights must be accessible for maintenance and cleaning and must be safely screened against any glass fragmentation of bulbs and/or covers from dispersing into the food being packaged.
- Quality tube lights with diffusers will give satisfactory results. Do not just install lighting - plan a quality installation.

Note! In some areas FOOT-CANDLE is used as the unit of measure in place of LUX. 500 LUX = 50 foot-candle (at 3 m).

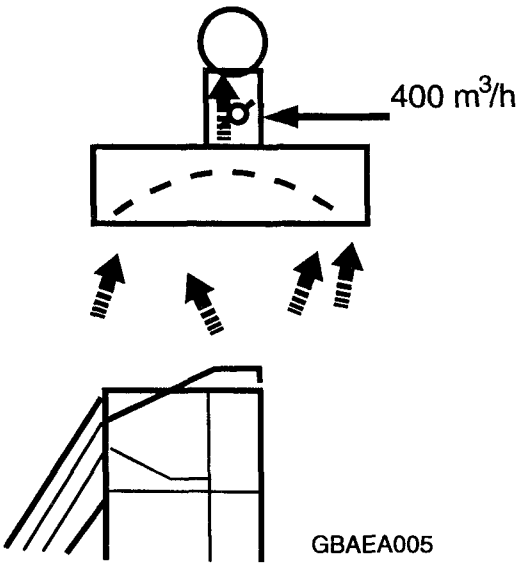
4.2.7 Packaging room - ventilation Intake

At the rear of the packaging machine with the air distributed along the walls.

Intake height at platform level.

Note! Carefully select the location of the air source to your filters. Dust, exhaust gases, sewage vapours, drains, etc., are definitely to be avoided in this area.

An extra exhaust facility above the superstructure may be needed as the d sterilization system is open to the filling atmosphere. This exhaust volume should be included in calculation.



Exhaust

High up on opposite wall to the intake, in front of the packaging machines.

Ventilation data

Airspeed	0,2 - 0,3	m/sec
overpressure	2 - 4	mm water column
Sojourn height	Three metres. For all practical purposes the sojourn height is sufficient to calculate volumes of air movements and is normally the working space for personnel.	
Filtration	ASHRAE 52-76. (Available on request from the service department in Lund) Average arrestance 65% 20% Dust spot Arrested contaminents: 10	 microns
Air changes	10 - 15 Up to 20/hour under exceptional climatic or polluted conditions.	/hour
Thermal load	22 100	W

Note! Ashrae 52 - 76 describes a test method only for air cleaning devices, issued by the; American Society of Heating, Refrigeration, and Air-conditioning Engineers Inc. Known to all qualified air-conditioning and ventilation companies.
The international standard for thermal loads is now expressed in WATTS which has superseded, kcal/h, and BTU (British Thermal Unit).

4.2.8 Packaging room - special notes

Air changes are very much dependent upon the size of the packaging room in relation to the number of packaging machines it contains. The calculation of volume is taken as the square area of the floor by the (x) 3 metres, being the sojourn height, not the total height of the room.

Packaging room temperature should be stable at the local compatible level. Such a comfortable working temperature varies considerably from place to place. Normally this compatible temperature is 15 - 30°C.

Humidity is also a matter of compatibility, an RH of less than 30% is unusual and over 70% can not be considered comfortable.

5 Machine handling

5.1 Crate handling

The standard machine is shipped in two crates.

See the following tables for crate specifications and contents.

5.1.1 Data

Crate specifications

Crate Identifier	Gross weight kg (lb.)	Net weight kg (lb.)	Length mm (ft.-in)	Width mm (ft.-in)	Height mm (ft.-in)
1/2	3 770 (8 304)	3 220 (7 092)	2 880 (9' 5")	2 130 (7')	2 170 (7' 1")
2/2	2 000 (4 405)	1 450 (3 194)	3 900 (12' 10")	2 050 (6' 9")	2 020 (6' 8")

5.1.2 Transport and auxiliary equipment

The following types of equipment can be used to lift and move the crates:

- overhead gantry
- mobile crane
- fork lift.

The most practical equipment is an overhead gantry.

Equipment	Capacity Kg (lb.)	Quantity
Overhead crane	5 000 (11 100)	7 000 kg (15 500 lbs) required if gantry does not have gradual acceleration/deceleration ramps
Mobile crane	5 000 (11 100)	7 000 kg (15 500 lbs) required if gantry does not have gradual acceleration/deceleration ramps
Fork lift	6 000 (11 100)	Higher capacity required to allow for reach to centre of gravity of 1 000 - 1 500 mm (3'3" to 4'10")
Lifting forks	6 000 (11 100)	Minimum length 2 000 mm (6'6") Minimum setting width????mm (?'?")
Lifting chains, cables, ropes or slings	5 000 (11 100)	

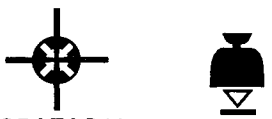
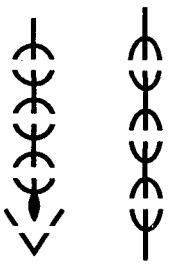
IM1.0bT5Crate.en

5.1.3 Lifting and unloading

Symbols

WARNING! **Risk of serious personal injury and/or damage to the machine.**
Make sure that all personnel assisting understand all the safety symbols and warnings on the crates.

Following symbols are used on the crates.

Name	Symbol
Centre of gravity	 GBAEAO16
Protective plates for lifting tackle (crate 1/2 only)	
Up arrows	
Keep dry	
Fragile warning	FRAGILE
Handle with care warning	HANDLE WITH CARE
Not to be dropped warning	NOT TO BE DROPPED
Gross weight value	GROSS KG.

IM1.0bT5Crate.en

Name	Symbol
Net weight value	
	
	

5.1.4 Procedure for unloading the crates

Examine the outside of the crate for damage before the unloading starts. Damage must be described on the Transport Damage Report. The report is sent out to in advance to a Tetra Pak representative who will see to that the report is present at the unloading.

IM1.0bT5Crate.en

Unloading with crane

WARNING! **Risk of serious personal injury and/or damage to the machine.**
Only a skilled crane driver are allowed to operate the crane in the following operations. See section 1.4 Personnel requirements

See to that the crane driver and the person/persons that will give directions, in situations where the driver can not see clearly, use the correct directions signals.

Unloading with an overhead gantry or mobile crane

If using a fork lift, see section Unloading with fork lift.

The following instructions apply to both crates.

a) Make sure that the tackle has the correct length and lifting capacity for the crate being lifted. See section 5.1.2 Transport and auxiliary equipment.

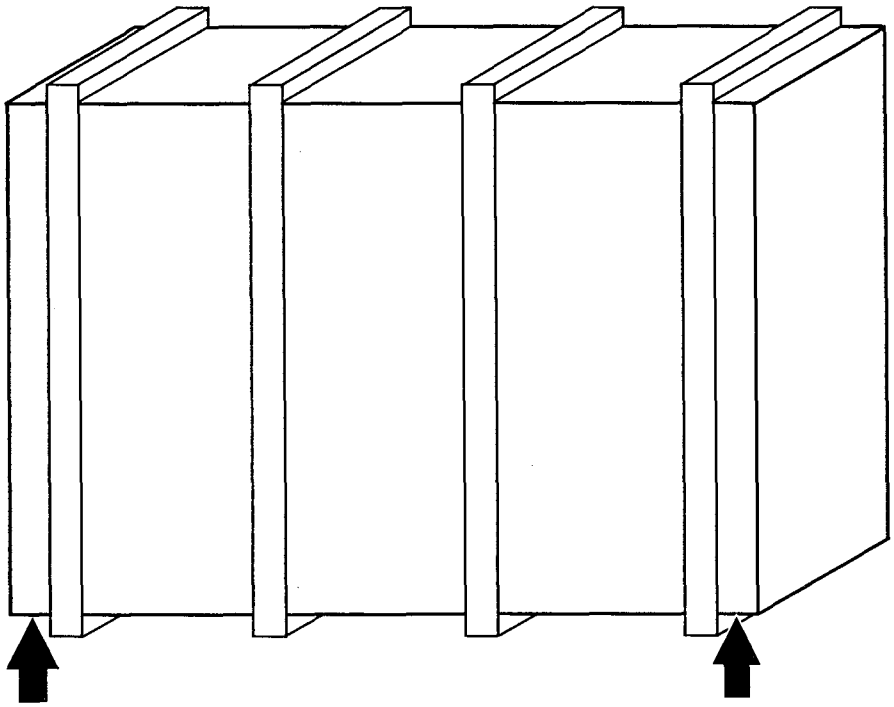
b) If lifting tackle has to be joined to make up the necessary lengths, make sure that the joins are secure and have the same lifting capacity as the rest of the tackle.

c) Manoeuvre the hook to one side of the crate.

(Cont'd)

(Cont'd)

d) Pass the lifting tackle under the crate at the points shown in the figure below



IM1.0bT5Crate.en

e) Have the crate to be unloaded from the delivery vehicle.

f) Secure the tackle to the lifting hook and fit the safety clip on the hook.

g) Manoeuvre the hook over the centre of the crate.

h) Slowly take up the slack in the lifting tackle.
Make sure that the tackle is secure at the crate and hook. If necessary, adjust the tackle to distribute the load evenly.

i) Prepare ropes or poles to steady and manoeuvre the load. Do **not** use hands or feet.

j) Lift the crate **only enough to clear the platform of the vehicle**.

k) Have the vehicle driven away from under the crate.

l) Lower the crate gently to the floor.

m) Make sure that the crate is firmly supported. Place blocks or plates under it if necessary.

n) Lower the lifting hook and remove the lifting tackle.

Caution! Keep well clear. Make sure that others keep clear too. Use ropes or poles to steady and manoeuvre the load. DO NOT use your hands or feet!

Unloading with fork lift

WARNING! **Risk of serious personal injury and/or damage to the machine.**
Only a skilled fork lift driver are allowed to operate the fork lift in the following operations. See section 1.4 Personnel requirements

See to that the fork lift driver and the person/persons that will give directions, in situations where the driver can not see clearly, use the correct directions signals.

If using an overhead gantry or mobile crane, see section Unloading with crane.

The following instructions apply to both crates.

a) Make sure that the forks are of the correct length and lifting capacity for the crate being lifted. See section 5.3.1 Tools and auxiliary equipment.

b) Set the lifting forks to the correct width. See section 5.3.1 Tools and auxiliary equipment.

c) Manoeuvre the fork lift so that the forks engage the crate no further apart than the points shown in the figure below, and at equal distances from the centre of gravity symbol.

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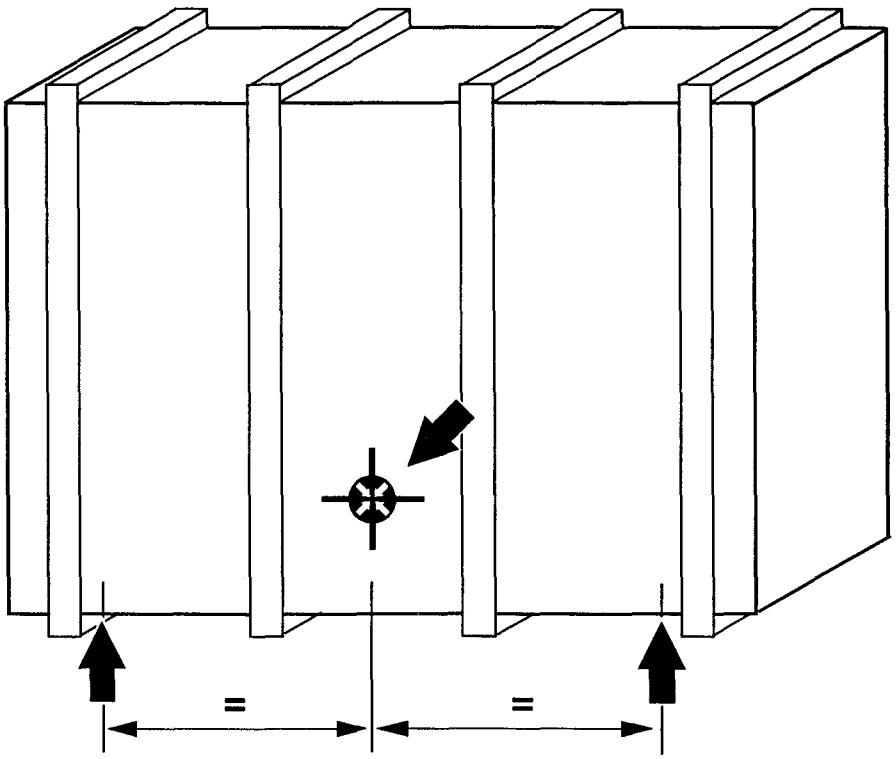


1 Centre of gravity symbol

d) Lift the crate **only enough to clear the platform of the vehicle.**

e) Have the vehicle driven away from under the crate.

f) Lower the crate gently to the floor.

g) Make sure that the crate is firmly supported. Place blocks or plates under it if necessary.

h) Remove the forks from under the crate.

5.2 Storage

5.2.1 Important notes

WARNING! **Risk of serious personal injury and/or damage to the machine.**

Caution! Store the crates indoors. Exposure to rain or to very high or low temperatures may cause damage.

5.2.2 Storage area and environment

Storage area

Storage method	Area required mm (ft.)
Alongside)	7 000 x 7 000 x 4 050 h (23'x 23'x 15')
Stacked	7 000x 4 000x 6 000 (23'x 13'x 20')

These dimensions allow about 1 metre (3 ft.) of free space around and above the crates for access and ventilation.

IM1.0bT5Crate.en

Storage environment

Crate identifier	Minimum and maximum temperatures C (F)	Maximum relative humidity %	Notes
1/2, 2/2,	5°C to 40°C (40°F to 105°F)	80%	Non-condensing

When placing the crates in a storage leave about 1 metre (3 ft.) of free access space around every crate, for inspection and ventilation.

If the floor under the crate is uneven, place blocks or plates under the crate to provide a steady support.

5.3 Unpacking and inspection

5.3.1 Tools and auxiliary equipment

The following tools and materials are needed to unpack the crates:

- Hydraulic jack, minimum capacity 3 tons

5.3.2 Uncrating sequence

Unpacking crate 1/2

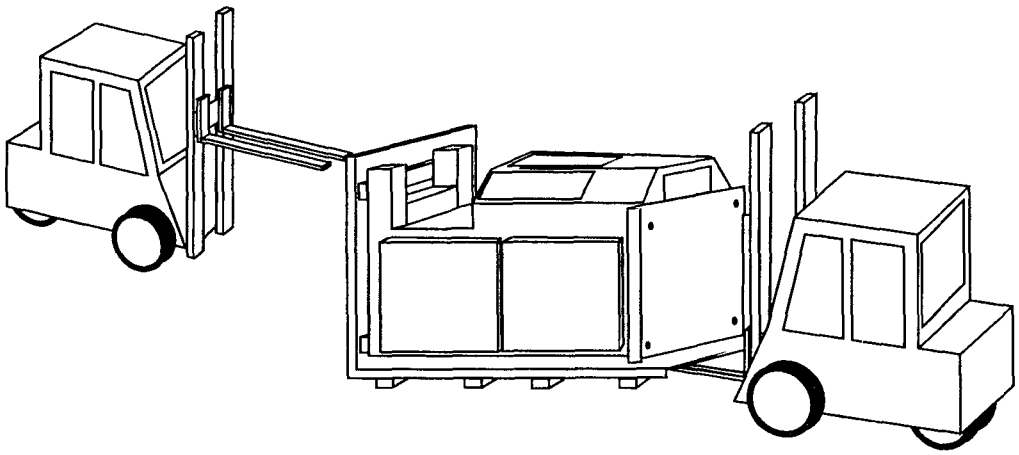
a) Remove the top and long side of crate 1/2 nearest to installation position. remove all the sides of the crate.

b) Remove the inner crate.

Caution! The platform section is placed at the top side of the machine body. It can fall out.

c) Remove the short side on the top side of the machine.

d) Use two fork lifts to rise the machine body in its crate.



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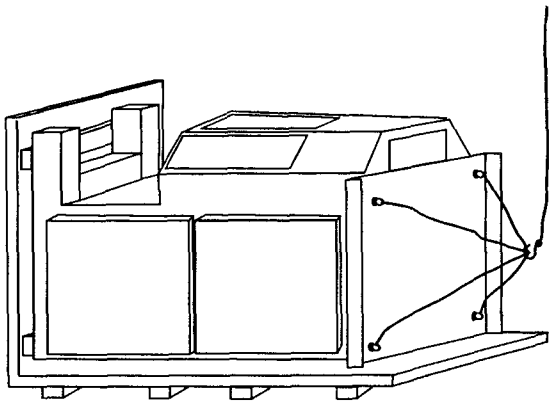
e) Or use a overhead gantry or mobile crane, then fit lines to the four eyebolts on the top of the machine body and rise the machine body.



DANGER! Risk of serious personal injury!

f) When the machine is lifted mount the six structural legs.

Unpacking crate 2/2

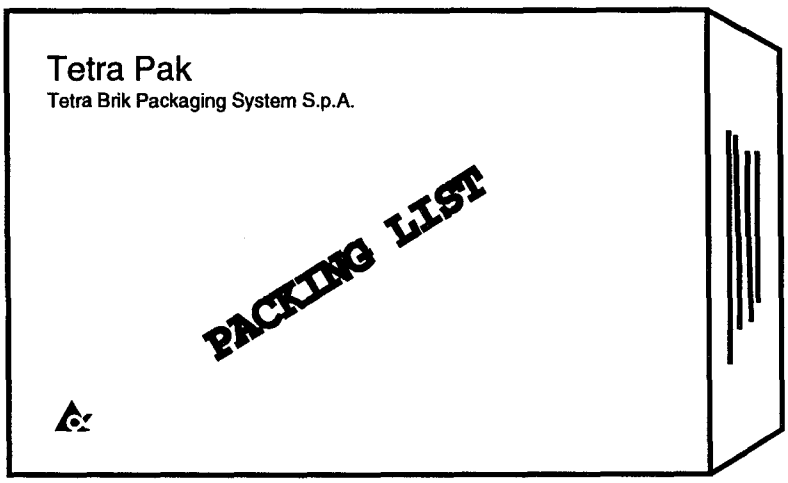
a) Remove the top of the crate. Remove the long sides. Remove the short sides.

b) Unscrew the screws fixing the contents to the floor of the crate

c) Carefully lift out the contents. Leave the superstructure and the final folder until it is time to put them into place.

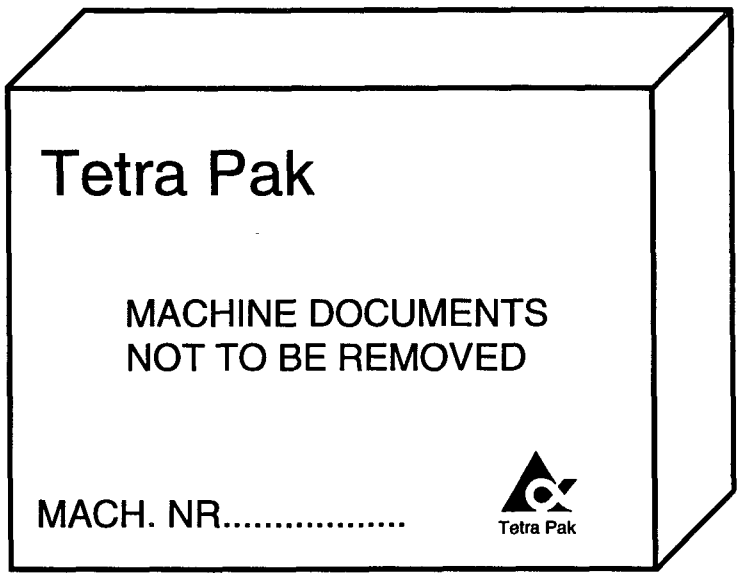
5.3.3 Inspection and documentation

a) Use the packing list to check that nothing is missing from the contents of the crates.



b) Inspect the machine for completeness and damage.

c) Open the technical documentation box and check that the documentation is complete.



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Note! This box is always a different colour to the others.

Documentation

a) Fill out the transport damage report. List all missing components and damages.

b) Return the transport damage report to Tetra Pak in the Pre-addressed envelope received together with the report.

5.3.4 Disposal / reuse

Packing (including the crate, wrapping, and boxes) is not normally returned to Tetra Pak.

If packing is to be returned to Tetra Pak, prepare an area the size of crate 1/4 in which to store the crate floor, walls, and top, and any other returnable packing ready for collection.

a) Check with the customer if there is a special agreement for the return of packing to Tetra Pak.

b) Check with the customer if there is a special arrangement for recycling packing.

c) If packing is not to be returned or recycled, check with the customer how packing is to be separated (wood, plastic, paper, etc.) and disposed of.

WARNING! Risk to health.

When burned, plastics can give off toxic fumes. Respect applicable standards when disposing of plastic materials. Keep clear of fires burning plastics.

d) Dispose of pollutant waste (bubble wrapping, plastic bags, expanded polystyrene, paper, etc.) in accordance with local regulations.

5.4 Machine transport

IM1.0bT5Crate.en

5.4.1 Important notes

If possible, replace the various machine parts in their original packing to move them. Alternatively, wrap them carefully in bubble wrapping or cardboard to prevent scratching.

5.4.2 Moving with lifting equipment

Caution! Keep the machine upright at all times.

a) Move the machine to its new position. See section 5.3 Unpacking and inspection for further details.

b) Make sure that the machine is stable and remove the lifting equipment.

6 Position, assembly & connections

6.1 Space requirements

a) Make sure that the installation site preparations are finished so far that the machine assembly can start.

b) Clear all obstacles away from the installation site and if necessary clean the floor of the site before you start installing the machine.

c) Make sure that the utilities which are to be connected to the machine comply to the specifications. See Section 3.4 Utility connection data

6.2 Positioning

WARNING! Risk of serious injury and damage!.

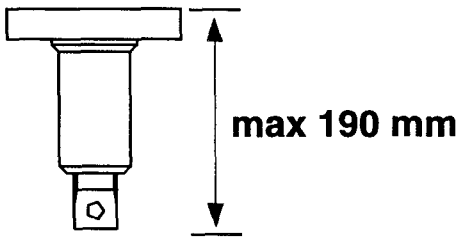
a) Lift the machine as instructed above. See section 5.3 Unpacking and inspection.

b) Slowly manoeuvre the machine to the installation position.

c) Check that the machine is correctly positioned with respect to the customer's plant. See section 3.1 Installation drawings.

IM1.0bT6PosAsC.an

WARNING! **Risk of serious injury and damage!**
Do not unscrew the legs for more than 190 mm. They can come out completely.



d) Screw down the four structural legs and make sure that they engage the recesses in the feet.

e) Remove the lifting equipment.

6.3 Assembly

6.3.1 Packing notes

Caution! Leave the bubble wrapping on parts until you are ready to use them. Wrapping protects parts against damage.

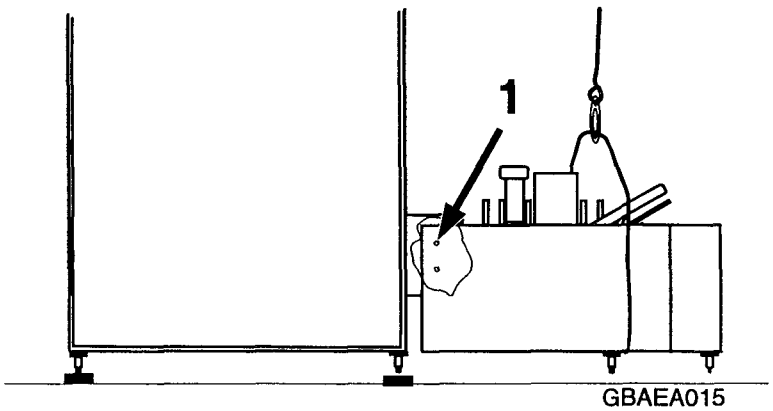
Leave all plastic plugs in their tubes until you are ready to connect up the tube. These plugs prevent dirt and foreign bodies from entering the tube. Remove plugs before you fit the components or pipes affected.

Leave all ties in place until you are ready to use or connect up the parts tied up.

6.3.2 Mounting Final folder

a) Tread the cable trough the cable tube.

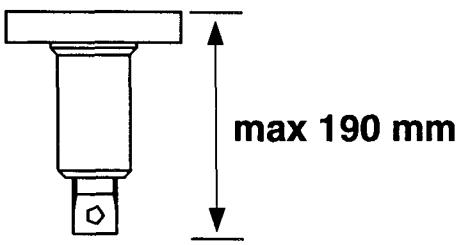
b) Fasten the four screws (1).



c) Mount foot step

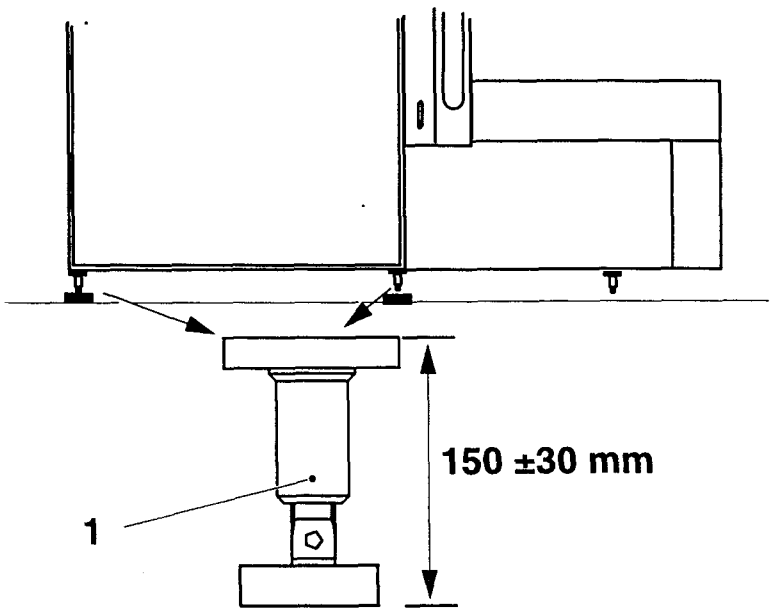
6.3.3 Levelling

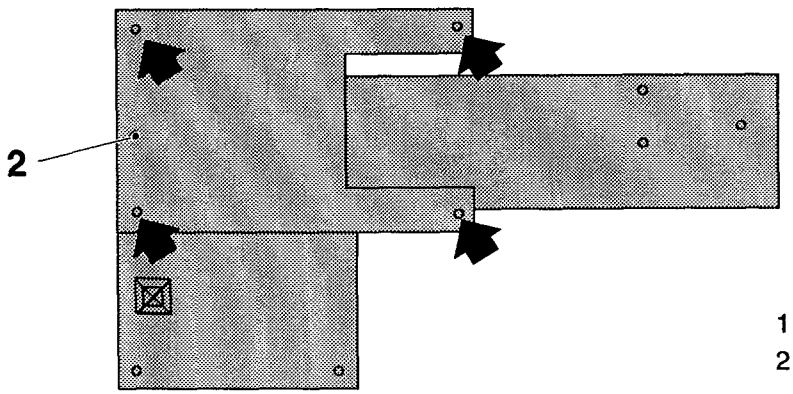
WARNING! **Risk of serious injury and damage!**
Do not unscrew the legs for more than 190 mm. They can come out completely.



Note! Approximate levelling must be performed before assembly to ensure that the machine is stable and that there are no torsional forces on the frame. Precision levelling must be performed when assembly is complete.

a) Screw all four structural legs (1) in or out until the machine, measured at the bottom panel, is 150 mm ±30 mm from the floor.





1 Structural leg
2 Lifting point hydraulic jack

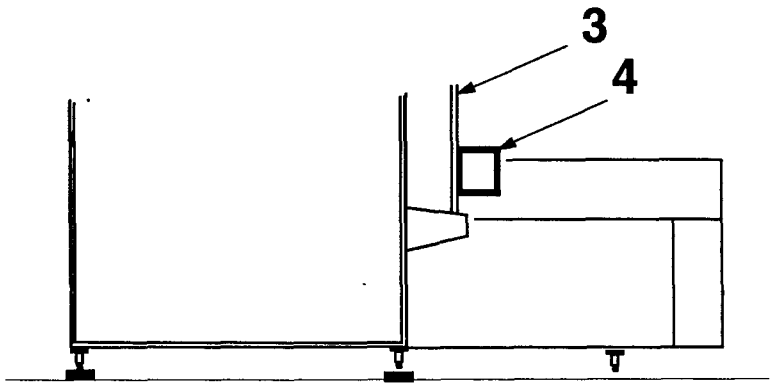
GBAEA006

IM1.0bT6PosAsC.en

Note! If you encounter problems in levelling the machine due to an uneven or sloping floor, place plates under the feet to assist in levelling.

Caution! Never lift under the electrical cabinet.

b) Position the machine body according to the Installation drawings and Levelling.



GBAEA007

3 LH guide
4 Spirit level TP No. 90243-163

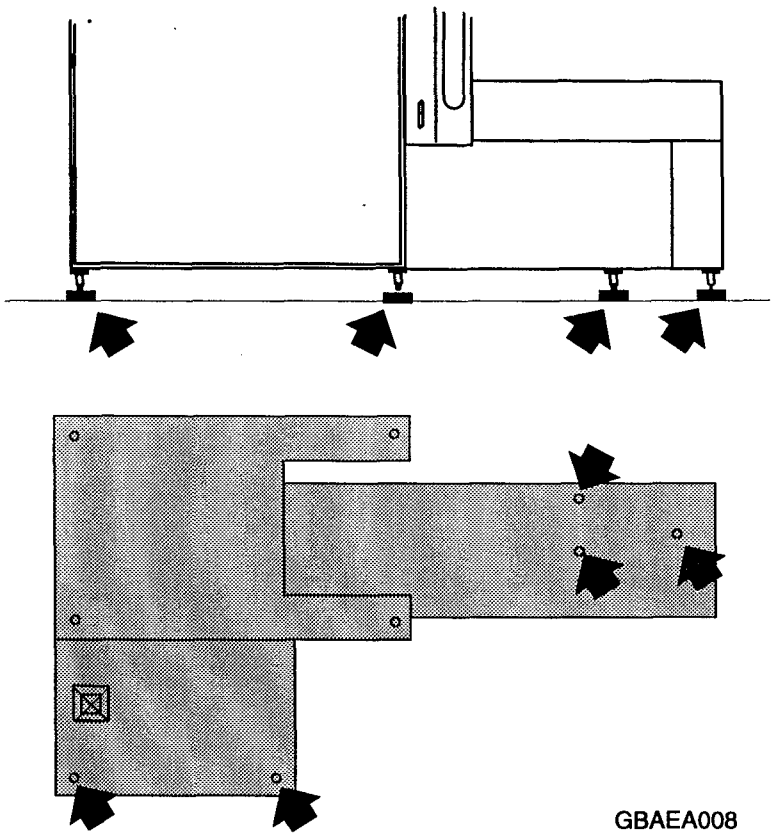
c) Adjust all four structural legs until the machine is approximately level transversely and longitudinally (150 mm ±30 mm from the floor).

d) Place a ruler on top of the final folder stations and level the final folder legs.

e) Connect electrical cables according to connection diagram in EM, and water connection according to water diagram

6.3.4 Machine legs and feet

a) Place feet under the five non-structural legs at the points shown in the figure below.(two under electrical cabinet and three under final folder)



GBAEA008

b) Screw down the five non-structural legs until they just start to take the weight of the machine.

Note! Do not over-tighten. This could alter the levelling of the machine.

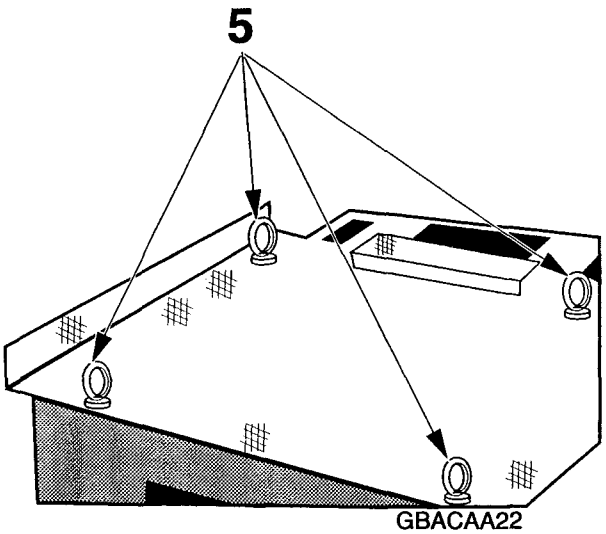
Note! If you encounter problems in adjusting the legs due to an uneven or sloping floor, place plates under the feet to assist in levelling.

c) Make sure that the levelling of the machine has not changed. See section 6.3.3 Levelling.

6.3.5 Lifting eyes

a) Remove the four lifting eyebolts (5).

Note! The eyebolts are machine accessories. Keep them safe.

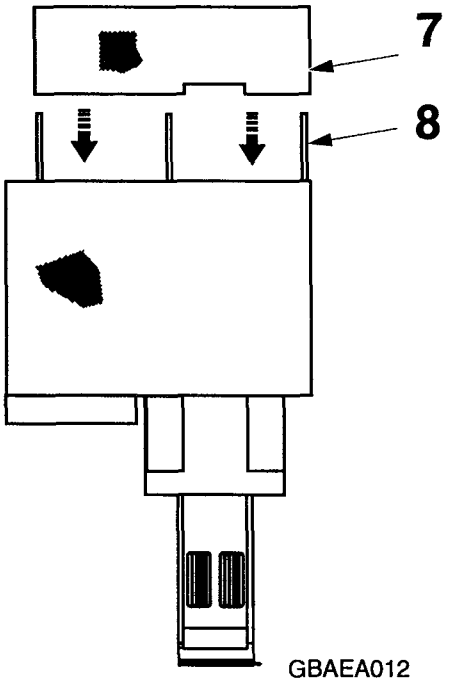


5 Lifting eyebolt

6.3.6 Platform

a) Fit bracket (8) (6 screws (short) and washers)

b) Fit the rear platform panel (7) (6 screws and washers).

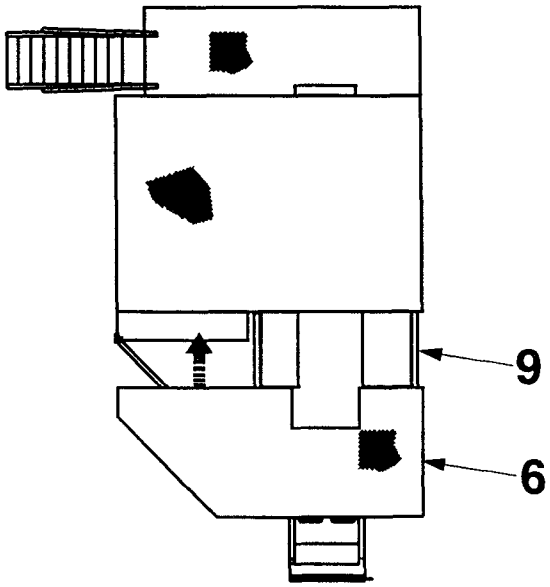


7 Platform panel

8 Bracket

c) Fit the front Bracket (9) (14 screws (long) and washers)

d) Fit the front platform panel (6).



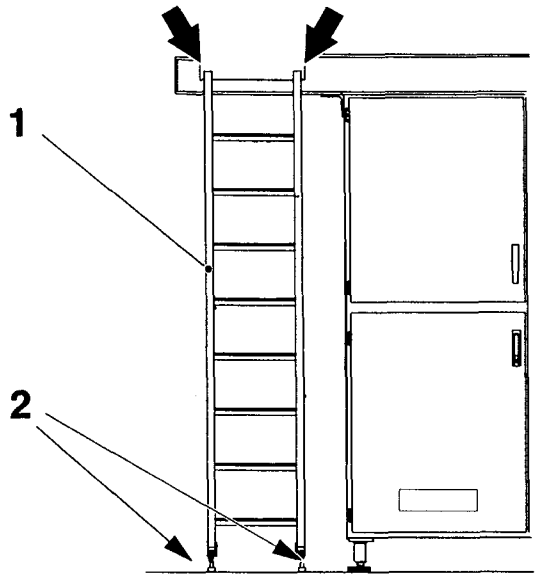
6 Platform panel
9 Bracket

GBAEA013

6.3.7 Stair

a) Fit the top of the ladder (1) to the platform at the two brackets at the points shown in the figure below.

b) Adjust the feet (2) so that the ladder is firmly supported by both of them.



1 Ladder
2 Feet

GBAEA009

Note! If you encounter problems in adjusting the feet of the ladder due to an uneven or sloping floor, place plates under them to assist in levelling.

c) Tighten the foot lock nuts on completion of adjustment.

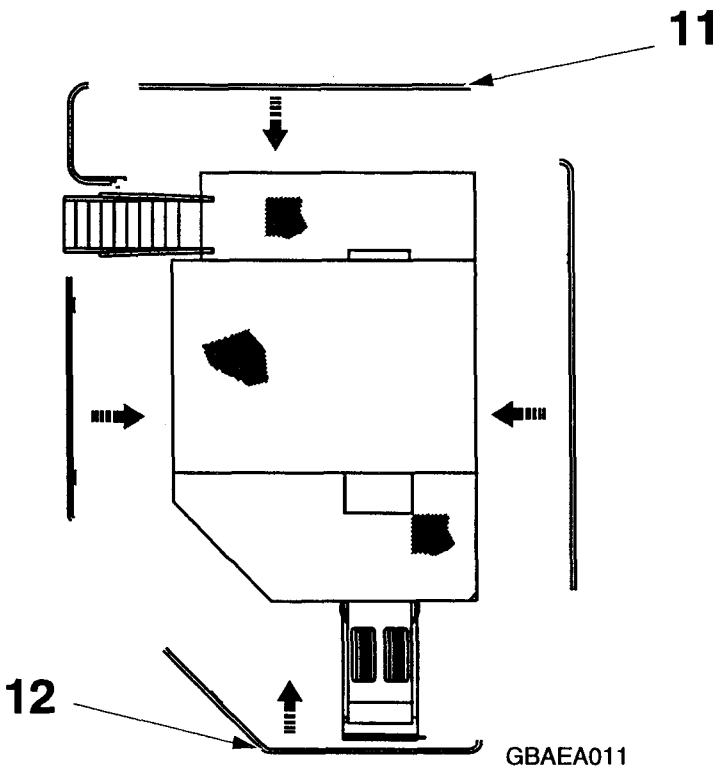
WARNING! **Risk of serious personal injury!**
It is dangerous to work on the platform when the handrail is not in place. Take great care.

6.3.8 Handrail

a) Fit the rear section.(11)

b) Fit the front section (12)

c) Fit right and left handrail section after the superstructure is mounted.



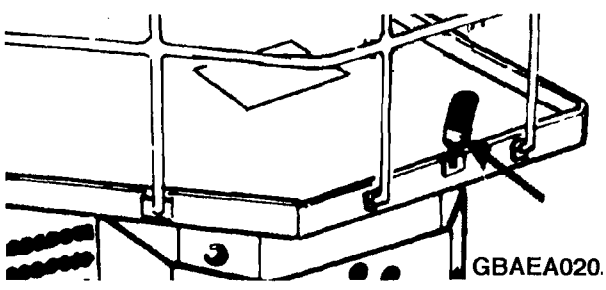
11 Rear Handrail
12Front Handrail

6.3.9 Warning beacon

a) Thread the cables through the support post and connect them to the bulb holder.

Caution! Take care not to jam the electrical cables between the flange and the bracket when tightening the screws.

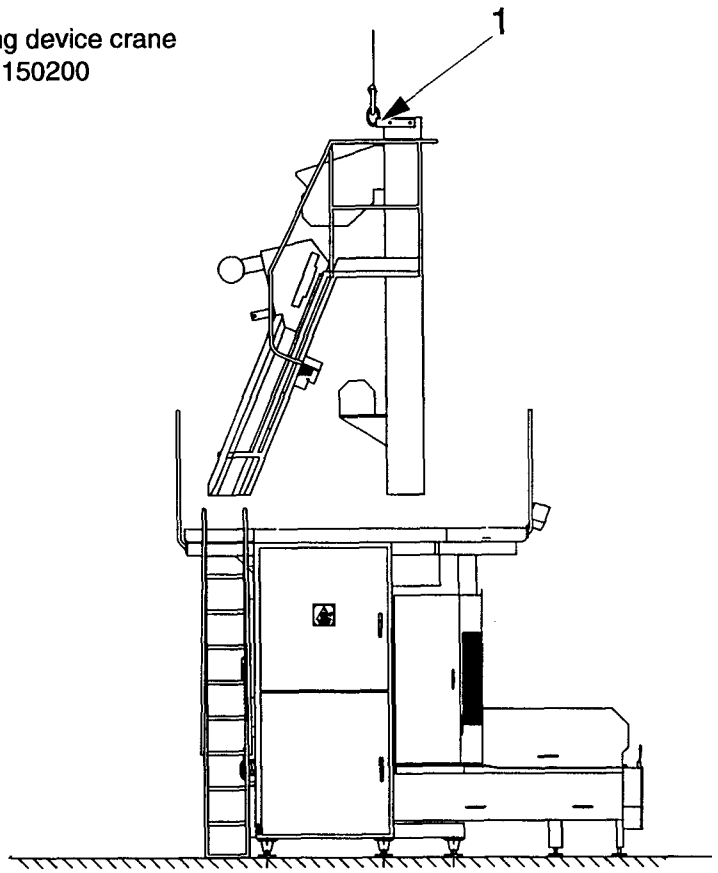
b) Secure the beacon support flange to the bracket under the platform at the front of the machine



6.3.10 Superstructure

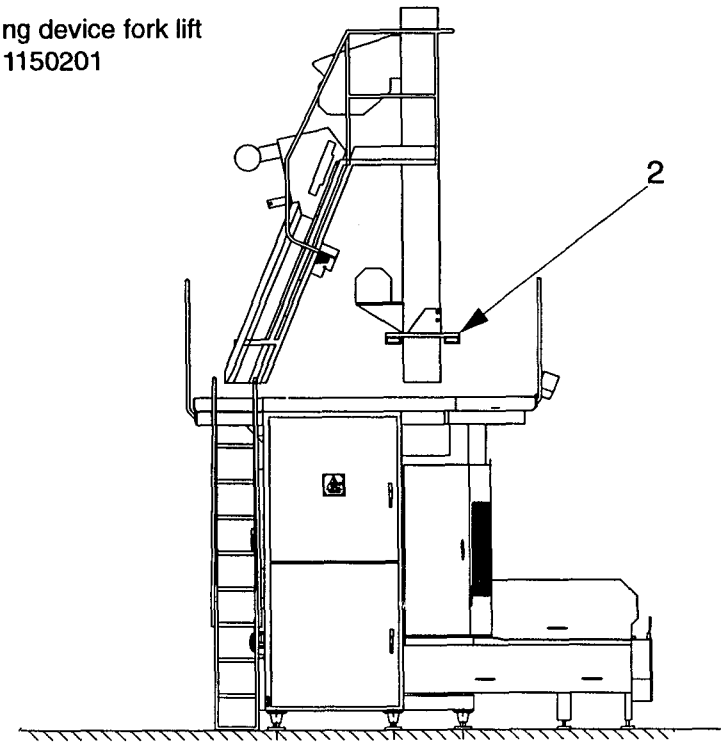
Mount the superstructure if possible use a crane.

1 Lifting device crane
No 1150200



GBAEA014

2 Lifting device fork lift
No 1150201



GBAEA019

IM1.0bT6PosAsC.en

6.3.11 Rear doors and covers

a) Mount rear cover

b) Mount paper supply door.

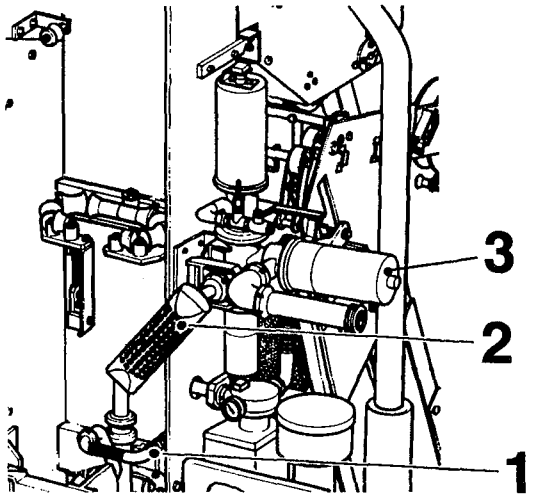
6.3.12 Aseptic product valve

Caution! Remove all sealing plugs before fitting components and pipes.

a) Mount A valve (3)

b) Fit the sterile air pipe (1) with gasket TP No. 90091-0180 at the filling pipe

c) Fit the product pipe (2) with gasket TP No. 315250-0104 and gasket TP No. 315250-0102 (1000ml and 500ml) at the upper filling pipe.



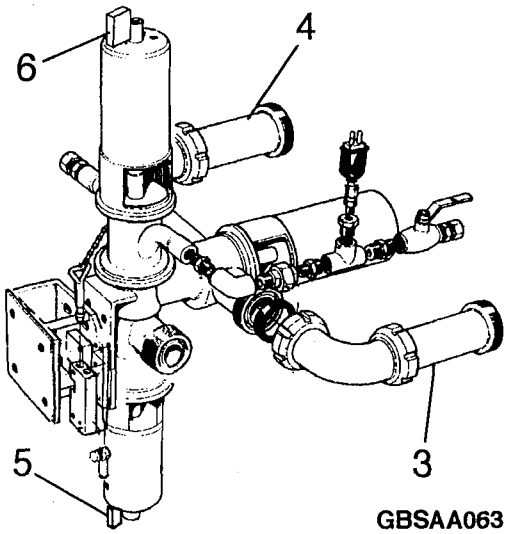
GBAEAA02

1 Sterile air pipe
2 Product pipe
3 A- valve

IM1.0bT6PosAsC.en

Caution! Make sure that the correct gaskets are fitted.

d) Fit the product inlet pipe (3) and product outlet pipe (4) to the AP-valve with gasket TP No. 346800-109 between both pipes and the AP-valve.



GBSAA063

3 Product inlet pipe
4 Product outlet pipe
5 Proximity switch B-valve
6 Proximity switch C-valve

e) Connect B-valve position proximity switch (5), cable No.181

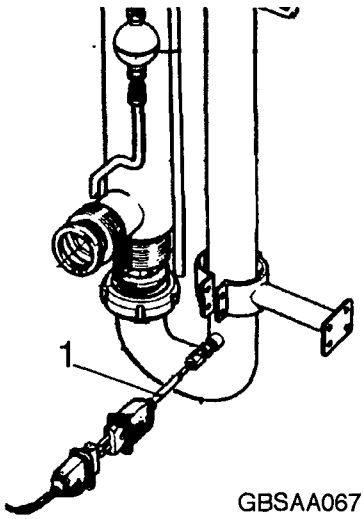
f) Connect C-valve position proximity switch (5), cable No.180

6.3.14 Electrical connections

Note! See the EM for further details on the following operations.

a) Connect all electrical cables between superstructure and machine body according to EM.

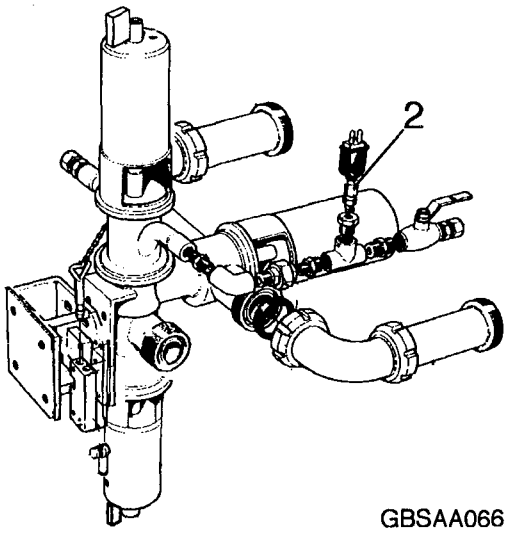
b) Connect the pre-sterilisation thermocouple (1), cable No.161



GBSAA067

1 Thermocouple sterilisation

c) Connect the steam thermocouple (2), cable No.182



GBSAA066

2 Thermocouple steam

6.3.15 TPIH-generator

DANGER! Read Safety precautions before working inside TPIH-generator.

6.3.16 Water and Pneumatic connections

a) Connect water connections according to water diagram

b) Connect pneumatic connections according to pneumatic diagram

6.4 Connections

6.4.1 Conveyor connections

a) Connect the package outfeed conveyor in accordance with the plant installation and connection drawings.

Note! See the package outfeed conveyor's own installation manual for instructions.

b) If the installation has an eject conveyor, connect it in accordance with the plant installation and connection drawings.

Note! See the eject conveyor's own installation manual for instructions.

c) If an eject bin is to be used, position it under the eject chute where it will catch all ejected packages.

6.5 Utility, product, and drain connections

6.5.1 Electrical power connections

DANGER!

Risk of electrocution and short circuits!
Make sure that power is switched off upstream before performing any work on cables and electrical components.

a) Make sure that power is switched off upstream.

b) Pass the power cable through the cable guide.

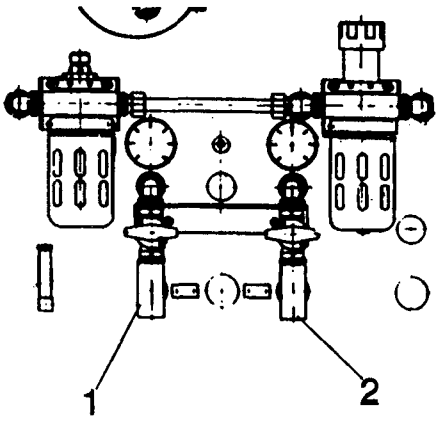
Caution! Leave a loop of cable hanging inside the electrical cabinet. There must be no pull on the cable terminals. A length of slack cable inside the electrical cabinet avoids dangerous disconnections if the cable is accidentally pulled.

c) Connect the wires of the power cable to the power terminal board inside the cabinet. See the EM. section Main Connection Diagram for details.

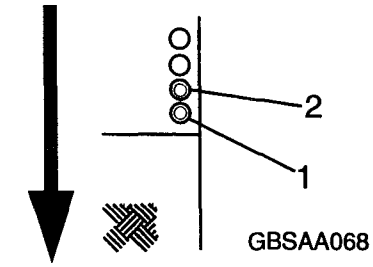
6.5.2 Utility connections

a) Connect the cold water hose to the cold water inlet (1),

b) Connect the compressed air hose to compressed air inlet (2).



GBSAA062

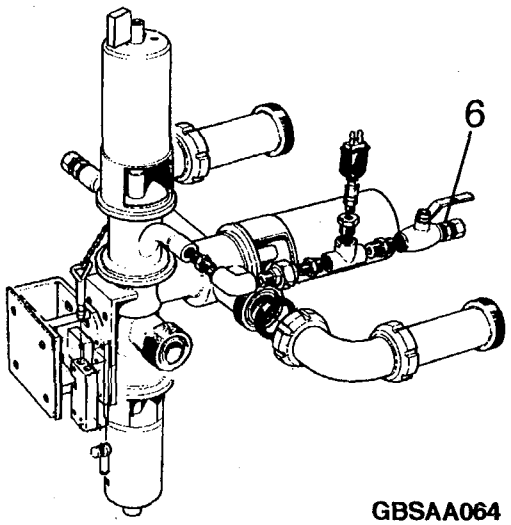


GBSAA068

Front

1 Cold water inlet
2 Compressed air inlet

c) Connect the steam pipe to the connection (6) at the AP-valve.



6 Connection steam

GBSAA064

Caution! Blow the Steam pipe with air before connection the C-valve.

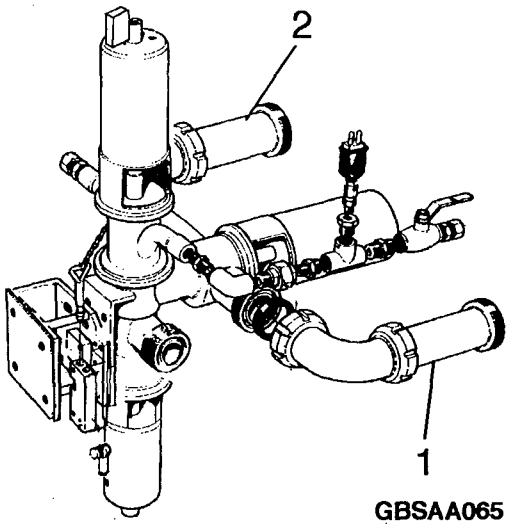
6.5.3 Product connections

Caution! Make sure that the product supply and forwarding lines are connected to the correct connections.

Caution! Make sure that the correct gaskets are fitted.

a) Connect the product supply pipe to the inlet pipe (1), fitting gasket TP No. 315 250- 0104 in the joint.

b) Connect the product forwarding pipe to the product outlet pipe (2), fitting gasket TP No. 315 250- 0104 in the joint.



GBSAA065

1 Inlet pipe
2 Outlet pipe

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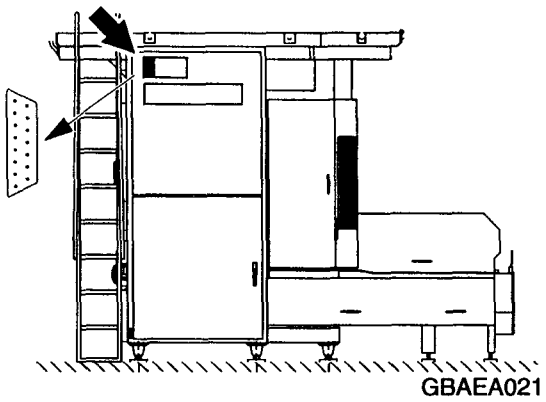
6.5.4 PLC

Note! The following operations are required only if the GE Fanuc or TMCC PLC parameters have to be read, modified, or downloaded. See the EM for further details. The PLC or the TPCC programmes should not be altered or modified without permission from Tetra Pak.

Caution! Make a copy of the existing parameters before modifying them. Also keep a copy of the new parameters for future reference.

a) **If the GE Fanuc PLC parameters have to be read and/or modified:**

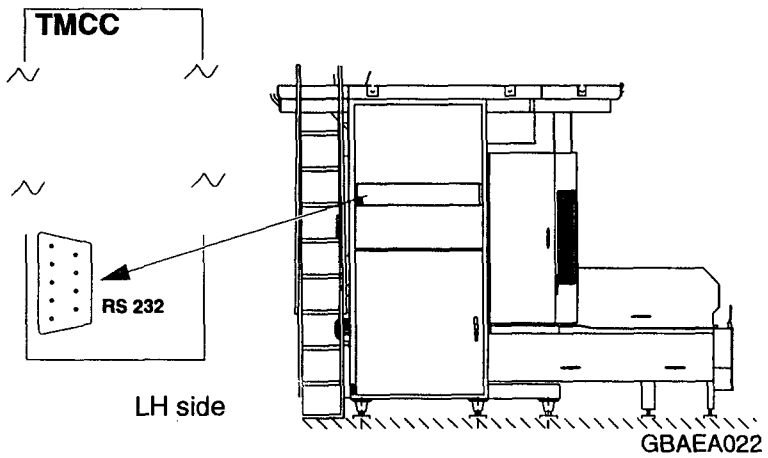
- Connect the GE Fanuc serial cable (TP No. 90031-300) between the portable PC running GE Fanuc LM 90 software (V 6.01 or later) and the 15 pin connector on the PLC.
- Proceed to read and/or modify the parameters.



LH side
View with temperature setting panel open

b) **If the TMCC parameters have to be downloaded:**

- Connect the TMCC PLC serial cable between the portable PC and the RS232 9-pin serial connector on the TMCC.
- Run the program on the TMCC program and communications diskette to download the parameters.



7 Installation check

Work through the following check-lists in the sequence given. If necessary, refer to chapter 6 for instructions on any installation operations which have not been performed or which have to be repeated.

7.1 Installations and connections

No	Check	Done
1	Check that the machine is perfectly level.	
2	If necessary, adjust levelling with the four structural load-bearing feet, then tighten down all the other feet. See section 6.3.	
3	Check that a outfeed conveyor is connected and operational.	
4	Refer installation and maintenance operations on the outfeed conveyor to customer technical staff or see the conveyor's own installation manual.	
5	a.Check that the reject conveyor (if present) is connected and operational. Refer installation and maintenance operations on the outfeed conveyor to customer technical staff or see the conveyor's own installation manual. or b.Check that the reject bin is correctly positioned under the reject chute. If necessary, reposition it correctly.	
6	Check that the air and water connections at the connections panel have been made and are secure: these are: • cold water inlet • compressed air inlet	
7	Check that the steam connection at the aseptic product valve group has been made and is secure.	
8	Check that the product supply hose has been connected to the inlet pipe and is secure.	
9	a. Check that the product forwarding hose has been connected to the product outlet pipe and is secure (machines feeding others downstream only). or b. Check that the product outlet pipe is shut off (single machine installations or machines at end of line).	
10	Check that the electrical power (EMF) cable is held firmly in the cable guide in the side of the electrical cabinets.	
11	Check that the power terminals are connected and secure.	
12	Check that there is enough slack cable inside the cabinets to prevent any pull on the terminals.	
13	Check that there are no air leaks from any of the pneumatic lines and unions when the circuit is pressurised.	

No	Check	Done
14	Check that the water circuit is full and has been bled.	
15	Check that the paper roll has been installed and passed through the machine correctly. See the OM for instructions if necessary.	
16	Check that the strip reels have been installed and that the strips have been passed through the correct path. See the OM for instructions if necessary.	
17	Check that cleaning in pipes has been performed. See the OM for instructions if necessary.	
18	Check that the utility supply valves and/or switches upstream from the machine are set to supply electrical power (EMF), cold water, hot water, compressed air, steam, and recycling water (if present).	
19	Check that the dating unit is filled with ink of the correct type.	

7.2 Supply settings

Refer to section 3.5 of this manual and check the values of the following supplies to the machine. Adjust if necessary or refer any values which are out of tolerance to the customer's technical personnel.

No	Check	Done
1	Check the electrical power supply for: • consumption	
	• voltage	
	• permitted voltage variation	
	• frequency	
	• consumption	
2	Check the water supply for:	
	• connection pressure	
	• permitted pressure variation	
	• inlet temperature	
	• permitted temperature variation	
	• pH	
	• hardness	
	• permitted particle content	
	• nominal and maximum flow rate (consumption)	
	• permitted flow variation	
3	Check the compressed air supply for:	
	• connection pressure	
	• permitted pressure variation	
	• inlet temperature	
	• permitted temperature variation	

No	Check	Done
	• permitted oil content	
	• permitted particle content	
	• maximum particle size	
	• permitted gas content	
	• dew point	
	• nominal and maximum flow rate (consumption)	
	• permitted flow variation	
4	Check the steam supply for:	
	• connection pressure	
	• permitted pressure variation	
	• inlet temperature	
	• permitted temperature variation	
	• permitted oil content	
	• permitted particle content	
	• permitted gas/virus/bacteria content	
	• nominal and maximum flow rate (consumption)	
5	Check the hydrogen peroxide supply for:	
	• required quality	
	• concentration	
	• nominal and maximum consumption	

IM1.0bT7InstChe.en

7.3 Product settings

Refer to section 3.6 of this manual and check that the following values of the product feed to the machine:

No	Check	Done
1	Maximum particle size	
2	Viscosity	
3	Inlet pressure	
4	Permitted pressure variation	
5	Inlet temperature	
6	Permitted temperature variation	
7	Nominal and maximum flow rate	

7.4 Adjustable settings

No	Check	Done
1	Open the doors on the right side of the machine to gain access to the gauges, regulators, and shut-off valves.	
2	Check that all the valves are open.	
3	Check the following settings. Adjust if necessary. See the operating manual (OM) for instructions on values and adjustments.	
4	Main air circuit pressure	
5	Main water circuit pressure	
6	Air and water pressure at the various user groups	
7	Cooling water pressure	
8	Manual lubrication, crank the machine.	

7.5 Safety devices

No	Check	Done
1	Check that all the machine doors open and close correctly	
2	Check that all door opening microswitches are correctly operated by the blades on the doors.	
3	Check that all fixed and removable body panels are secure.	
4	Check that all the emergency stop buttons engage and release correctly	

7.6 Interfaces

No	Check	Done
1	Check that the interfaces between the machine and the plant's sterilizer/cleaning unit are connected and operational.	

7.7 Operating checks

Start up the machine and perform the following checks:

No	Check	No
1	Check that there are no leaks from the air, water, steam or product circuits. Stop and make the necessary repairs if necessary.	
2	Check that the product outfeed conveyor is removing the finished product correctly.	
3	Check that there are no unusual noises. Stop and investigate if necessary.	
4	Check that there are no unusual smells. These could indicate internal leakages or burning of electrical components. Stop and investigate if necessary.	
5	Operate all the emergency stop buttons and check that they stop the machine immediately and activate correct alarms.	

8 Preparation for commissioning

8.1 Mechanical preparation

No	Check	Done
1	Check that all final installation checks have been completed. See chapter 7.	
2	Check that all access and locking keys (if fitted) are on hand (valve, gauge, and regulator panel on left of machine, and operator panel).	
3	Power the machine on and check that the start-up sequence is correct.	
4	Check that the operator control panel is functioning correctly.	
5	Operate all the emergency stop buttons and check that they stop the machine immediately and activate the correct alarms.	
6	Start production and check that the packages are correctly formed and sealed.	
7	Check that the net and gross weights of the filled packages comply with product specifications.	
8	Leave the machine running for a period of time sufficient to stabilise all operating temperatures. Check that all temperatures remain within tolerance.	
9	Check electrical consumption. Excessively high consumption can indicate excessive friction. Investigate the cause and repair if necessary.	
10	After the machine has been running for some time, check inside and under the machine for any fluid leaks. Make any necessary repairs.	

8.2 Supply preparation

No	Check	Done
1	Check that all final installation checks have been completed. See chapter 7.	
2	Check that the supply of product is sufficient or the purposes of commissioning.	
3	Check that the supply of paper, strips, hydrogen peroxide, and ink for the dating unit is sufficient for commissioning.	

8.3 Personnel preparation

No	Check	Done
1	Check that the necessary operating personnel are present and ready to start work.	
2	Check that all operating personnel have read and understood the operating manual (OM) and trained how to operate the machine by a responsible person from Tetra Pak.	

8.4 Document preparation

Check that all the documents relevant to the machine are on hand. These must include:

No	Check	Done
1	This installation manual (IM)	
2	Operating manual (OM)	
3	Electrical, pneumatic, and hydraulic diagrams	
4	Maintenance manual (MM)	
5	Machine acceptance documents, signed by customer	
6	Commissioning check list	
7	Commissioning report or certificate for signature by customer	

9 Disassembly and removal

9.1 Preparation

Follow all the general safety precautions to lift, move, and position the crate. See chapter 2.

Before you start work, note the location of the nearest first aid kit and emergency telephone. Always keep a list of important telephone numbers (first aid station, ambulance, etc.).

Do not leave parts of the crate or packing materials lying around the work area. They can cause accidents! Remove unwanted materials immediately.

Only qualified assembly personnel are authorised to disassemble the machine for moving to other operating positions. See section 1.2.

9.2 Moving to another position

9.2.1 Moving without disassembly

Note! If the route from the machine's current position to its new position allows the passage of the complete machine, no disassembly is needed.

Preparation for moving

a) Close all the utility and drain valves on the machine and switch off electrical power at the main switch:

- electrical power
- compressed air valve
- water valve
- steam valve

b) Shut off all the utility and product supplies upstream from the machine:

- electrical power (EMF)
- cold water
- compressed air
- steam
- product

c) Disconnect the power, utility, drain, and product lines:

- electrical power (disconnect at power terminals and remove cable from electrical cabinet)
- cold water
- compressed air
- steam
- product

d) Disconnect the package outfeed conveyor.

e) Disconnect the reject conveyor or remove the reject bin.

Note! The fully assembled machine can be moved by fork lift. Overhead gantries and mobile cranes cannot be used because the rear lifting eyes cannot be fitted without removing the superstructure.

See sections 5.4, 6.2, and 6.3 for further instructions.

Note! Remove the ladder to avoid damaging it and to reduce the overall dimensions of the machine.

9.2.2 Disassembly prior to moving

If the route from the machine's current position to its new position does not allow the passage of the complete machine, disassemble the machine.

Note! Measure the height of the passages and doors the machine has to go through. It may only be necessary to partly disassemble the machine. Only disassemble the minimum necessary to move the machine.

Disassemble the groups from the machine in the following order.

a) Remove final folder

b) Remove splicing table.

c) Remove dating unit.

d) Remove rear covers.

e) Remove rear piece of hand rail

f) Lift down superstructure with web guard from platform and place it on a pallet.

g) Remove all hand rails.

h) Remove front and rear platform.

9.2.3 Moving the disassembled machine

Follow the instructions given in chapter 5 to move the machine. See section 5.3 Unpacking and inspection See section 5.4 Machine transport

9.3 Storage

9.3.1 Packing and storage conditions

a) Wrap the minor components in bubble wrapping to prevent damage.

b) Pack the machine groups in the original packing. If this is not available, make sure that all groups and components are adequately protected by wrapping. See section 5.3 Unpacking and inspection

c) Make sure that the storage conditions comply with specifications. See section 5.2 Storage

9.3.2 Long term storage

a) Completely drain the water circuit.

b) Lubricate all moving parts.

c) Smear protective grease on all sliding components (rods, cams, etc.).

9.4 Return to Tetra Pak

9.4.1 Disassembly

Disassemble the machine. See section 9.2.2 Disassembly prior to moving

9.4.2 Preparation for shipment

Prepare the machine for shipment. See section 9.3.2 Long term storage

9.4.3 Packing

Pack the machine. See section 9.3.1 Packing and storage conditions

Note! Contact the Tetra Pak shipping department for further instructions on packing and crates.

9.5 Disposal

If you ever need to dispose of the machine permanently, perform the following operations.

a) Drain the water system.

b) Drain the hydraulic system and dispose of the hydraulic fluid in compliance with local regulations.

c) Drain the hydrogen peroxide system and dispose of the hydrogen peroxide in compliance with local regulations.

d) Remove the paper and strips and dispose of in compliance with local regulations.

e) Recycle the machine sub-groups and components if possible (e.g. drying chamber, strip applicator, electrical panels and components).

f) Dismantle the machine as far as possible and separate the following materials:

- stainless steel (panels and doors)
- cast iron (frames)
- rubber (seals, O-rings, etc.)
- nylon and other plastics
- electrical cables
- hydraulic and pneumatic cables
- electrical components

g) Recycle or dispose of all materials, groups, and components in compliance with local regulations.


Tetra Pak