

*MM binder labels. 30mm Halfwidth No
using the **variable definitions** made in*

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101

Tetra Applicator 46

678547-040V

Issue 9705 Doc No. MM-585321-0101



If the text does not fit; **change the font on "B
TitleHalf"** to min 18 p, and the left indent to 0.5 cm
(on all three components). Make "Update All"

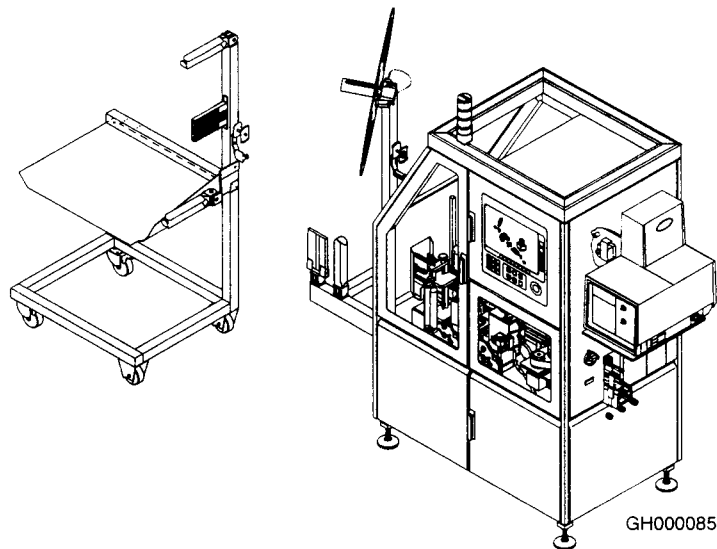


MM

Maintenance Manual

Tetra Applicator 46

678547-040V



2.2585321.fro

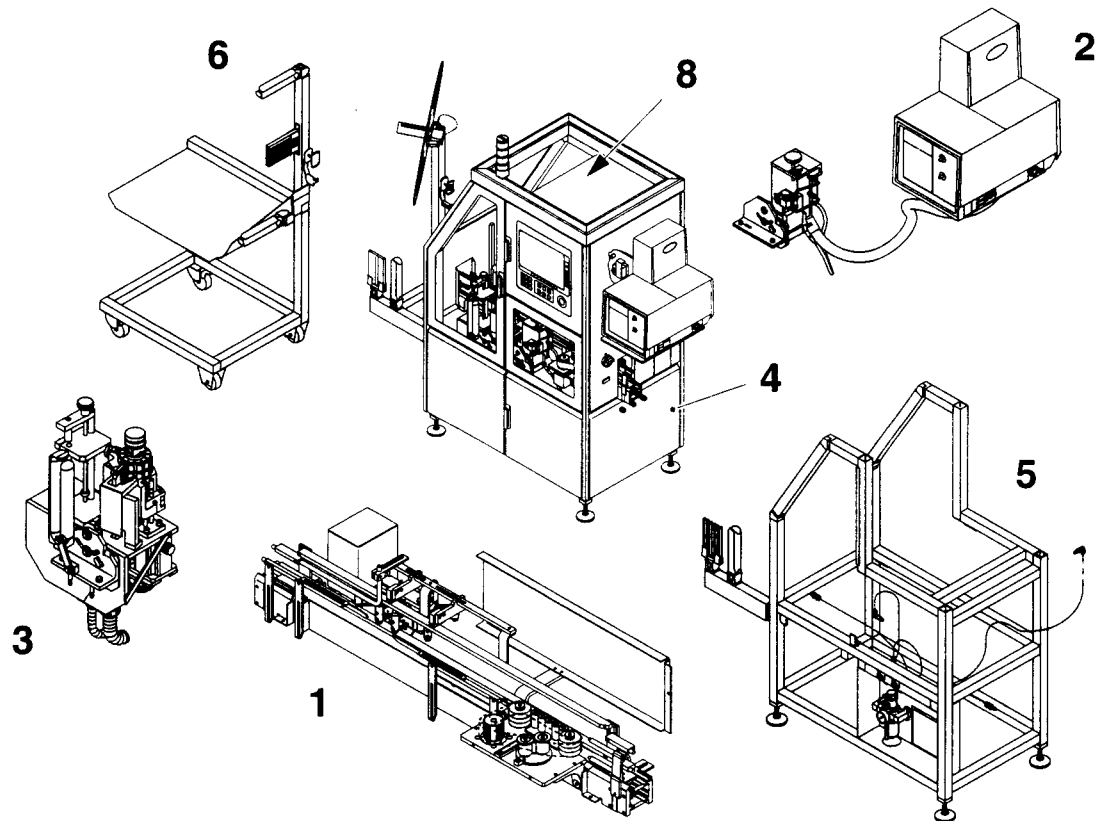
This document is valid for:

Series No/ Machine No

Sign.

Tetra Applicator 46

678547-040V



GH000675.eps

2.2585321.fro

- 1 Conveyor section
- 2 Hot melt equipment
- 3 Applicator unit
- 4 Machine covering (No contents)
- 5 Machine body
- 6 Magazine
- 7 Regular accessoires (No contents)
- 8 Electric equipment
- 9 Extra equipment
- 10 (No contents)
- 11 General (Lubricants)
- 12 Checklist overview

Issue 9705

Doc No. MM-585321-0101

Tetra Pak
Tetra Pak Distribution AB

Introduction

General	2
Document information	2
Machine introduction	4
Machine identification	5
How to use this manual	6
Terminology	7
Machine orientation	8
Synchronization diagram	9

Safety precautions

General	12
Warning signs	12
Prohibition signs	13
Requirements on personnel	14
Emergency stop	16
Main switch	17
Doors and covers	18
Electrical cabinet	19
Hot melt equipment	20
Risk areas	23
Chemical products	23
Noise emission	24
Hearing protection	25

1 Conveyor section

1-0	Conveyor section - description	28
1.1	Infeed brake	29
1.1-1	Infeed brake - check timing belt	29
1.1-2	Infeed brake - check roll, shaft, bearing.	30
1.1-3	Infeed brake - remove	31
1.1-4	Infeed brake - change toothed pulley	32
1.1-5	Infeed brake - set	33

Table of contents

1.2	Packaging conveyor	34
1.2-1	Packaging conveyor - set rail	34
1.2.1	Photocell bracket	36
1.2.1-1	Photocell bracket - set rod	36
1.2.1-2	Photocell bracket - set photocell position	37
1.3	Carrier	39
1.3-1	Carrier - change bearing, seal ring, shaft	39
1.3-2	Carrier - check timing belt	42
1.3-3	Carrier - change timing belt	43
1.3-4	Carrier - set timing belt	44
1.3-5	Carrier - set	45
1.3-6	Carrier - set carrier/applicator pivot point	48
1.3.2	Drive	51
1.3.2-1	Drive - check timing belt	51
1.3.2-2	Drive - change timing belt	52

2 Hot melt equipment

2-0	Hot melt equipment - description	54
2-1	Hot melt equipment - bleed system	56
2.1	Connection hot melt gun	57
2.1-1	Connection hot melt gun - remove unit	57
2.1-2	Connection hot melt gun - set angle	58
2.2	Hot melt equipment Nordson	59
2.2-1	Hot melt equipment Nordson - set hot melt unit	59
2.2-2	Hot melt equipment Nordson - check pump function	62
2.2-3	Hot melt equipment Nordson - change pump	62
2.2-4	Hot melt equipment Nordson - empty tank	63
2.2-5	Hot melt equipment Nordson - clean filter	63
2.2-6	Hot melt equipment Nordson - change filter	63
2.2-7	Hot melt equipment Nordson - check hose	64
2.2-8	Hot melt equipment Nordson - change hose filter	65
2.2-9	Hot melt equipment Nordson - change/clean gun nozzle	66

2.2.1	Hot melt equipment Nordson Standard	67
2.2.1-1	Hot melt equipment Nordson Standard - change gun.	67
2.2.1-2	Hot melt equipment Nordson Standard - set gun .	68
2.2.2	Hot melt equipment Nordson Quick Change	71
2.2.2-1	Hot melt equipment Nordson Quick Change - change gun.	71
2.2.2-2	Hot melt equipment Nordson Quick Change - set gun	73

3 Applicator unit

3-0	Applicator unit - description	76
3-1	Applicator unit - set.	78
3.1	Feed wheel unit.	82
3.1-1	Feed wheel unit - set tracks position	82
3.1-2	Feed wheel unit - set	85
3.2	Applicator head	88
3.2-1	Applicator head - check.	88
3.2-2	Applicator head - dismantle	89
3.2-3	Applicator head - change seal ring, bearing, shaft	91
3.2-4	Applicator head - set	92
3.2.1	Hold down	93
3.2.1-1	Hold down - change springs	93
3.2.1-2	Hold down - set	94
3.2.2	Drive	97
3.2.2-1	Drive - check	97
3.2.2-2	Drive - remove/dismantle	98
3.2.2-3	Drive - set proximity switch	100
3.2.4	Cutting unit.	101
3.2.4-1	Cutting unit - check.	101
3.2.4-2	Cutting unit - change knife	102
3.2.4-3	Cutting unit - change cylindric caps	103
3.2.4-4	Cutting unit - set	104

Table of contents

3.2.5	Squeezer	107
3.2.5-1	Squeezer - remove	107
3.2.5-2	Squeezer - set	108

5 Machine body

5-0	Machine body - description	114
5.2	Compressed air supply	115
5.2-1	Compressed air supply - pneumatic diagram. . . .	115
5.2-2	Compressed air supply - set pressure switch	116
5.2.1	Filter regulator	118
5.2.1-1	Filter regulator - set	118
5.2.1-2	Filter regulator - clean	120

6 Magazine

6-0	Magazine - description	126
6.5	Bobbin holder	127
6.5-1	Bobbin holder - set	127

8 Electrical equipment

8-0	Electric equipment - description	130
8-1	Electric equipment - components	131
8-2	Electric equipment - set photocell	133
8-3	Electric equipment - set step motor	136
8.1	Electrical cabinet	139
8.1.1	Fan	139
8.1.1-1	Fan - check	139
8.1.2	GE Fanuc	140
8.1.2-1	GE Fanuc - change battery	140
8.1.2-2	GE Fanuc - change Input/Output module	141
8.1.2-3	GE Fanuc - change terminal	142

2.258532101.bkTOC

9 Extra equipment

9.1	Extra straw kit	144
9.1.1	Spring clamp	144
9.1.1-1	Spring clamp - change.....	144
9.1.2	Feed wheel unit	145
9.1.2-1	Feed wheel unit - change.....	145
9.2	Outfeed U	146
9.2-0	Outfeed U - description.....	146
9.3	Extra volume kit	147
9.3-1	Extra volume kit - change/set	147
9.3-2	Extra volume kit - set carrier and photocell position	149
9.4	Extra applicator unit	150
9.4-1	Extra applicator unit - change.....	150

11 General

11.1	Lubricants	154
11.1-1	Lubricants - description.....	154

12 Checklist overview

Checklist overview - description.....	158
TPMS - description.....	158
Checklist overview	159

Table of contents

This page intentionally left blank

2.258532101.bkTOC

Introduction

2.2TH000241.en

General



WARNING!

Risk of personal injury!

To ensure maximum safety, always read the chapter Safety precautions before doing any work on the machine or making any adjustments.

Document information

About this Maintenance Manual (MM)

The purpose of this Maintenance Manual is to provide service technicians and electricians with information on the **equipment required for service and maintenance**.

The Maintenance Manual contains:

- All **scheduled maintenance** procedures listed in the checklists.
- Information for **unscheduled maintenance** such as:
 - additional maintenance procedures
 - functional descriptions
 - system descriptions

The same **structure, codes** and **denominations** used in this MM, are used in the Spare Part Catalogue (SPC) and in the checklists.

(Cont'd)

(Cont'd)

Delivered documentation

The technical documentation delivered with this machine is stated in the Machine Specification.

Note! If any document is missing, it must be reported in the document **Start Up Machine Quality Report**. For more information, see chapter 8 Preparation for Commissioning in the Installation Manual.

It is important that you keep these documents for the life of the equipment, and pass the documents 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 a Tetra Pak machine production facility.

Document producer

This document has been produced by:

Tetra Pak Distribution AB
Ruben Rausing's gate
221 86 Lund
Sweden

Additional 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.

Number of pages

This document contains a total of 162 pages.

All chapters have a front page to indicate the chapters beginning, followed by a table of contents (always the second page). To make sure that you have received a complete document, please check that the contents matches the table of contents for each chapter.

Copyright © 1997

Tetra Pak Distribution AB

All rights reserved. No part of this document may be reproduced or copied in any form or by any means without the written permission of Tetra Pak Distribution AB.

(Cont'd)

(Cont'd)

Machine introduction

Intended use of this Tetra Pak equipment

The Tetra Applicator 46 attaches a drinking straw or a UniCap onto Tetra Pak packages.

Service

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

Manufacturer

This Tetra Pak equipment was produced by:

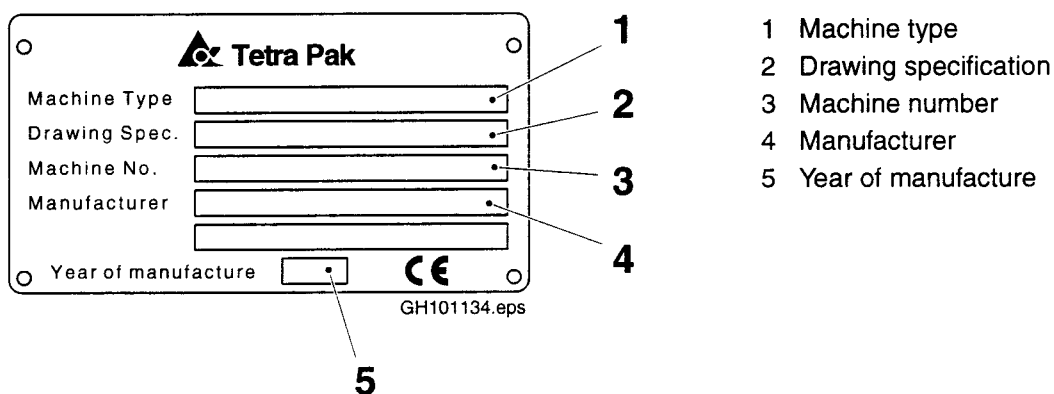
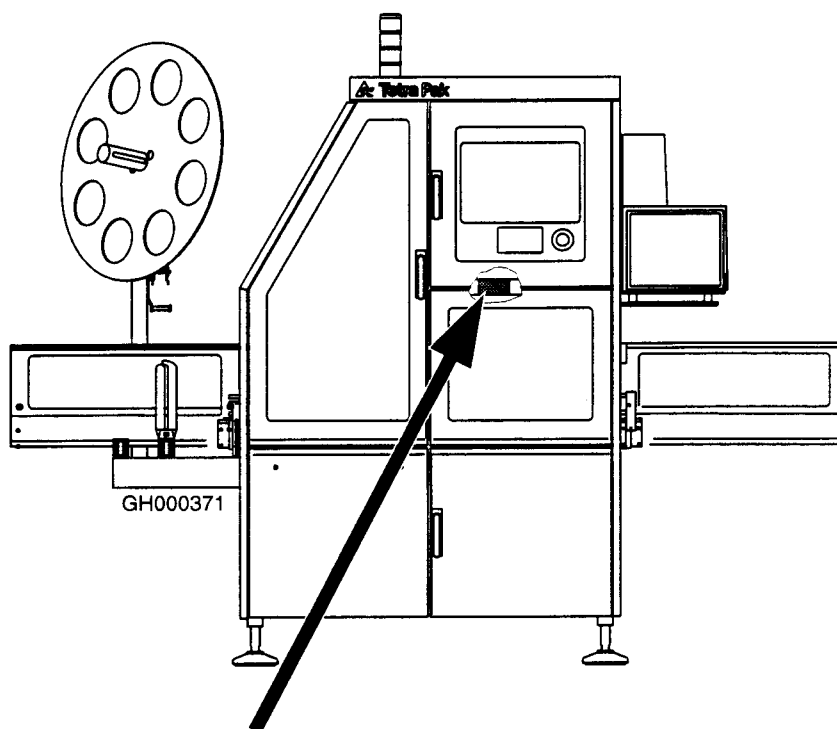
Tetra Pak Distribution AB
Ruben Rausings gata
221 86 Lund
Sweden

2.2TH000241 en

Machine identification

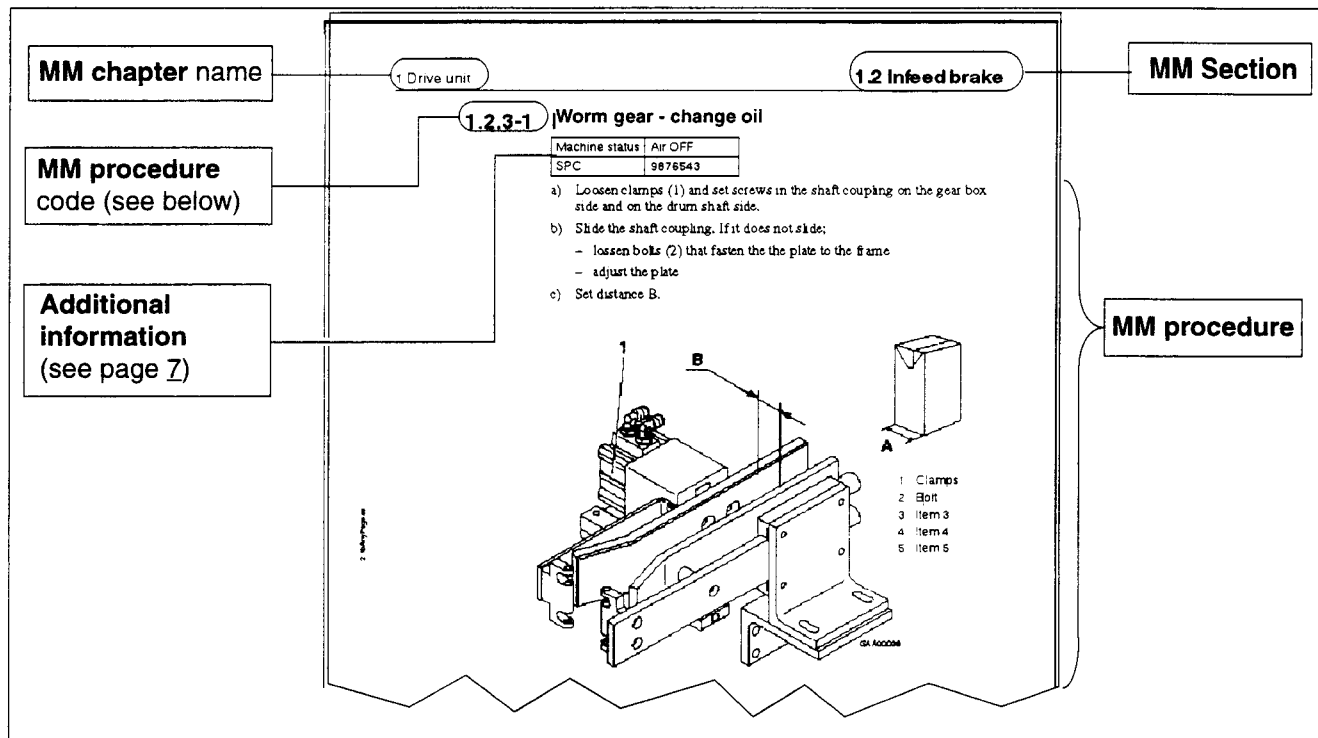
The machine sign below is attached to the machine frame. It carries data needed when contacting Tetra Pak concerning this particular machine.

The machine sign is marked with a CE symbol. It means that this machine complies with the **essential health and safety requirements of the European Economic Area (EEA)**.



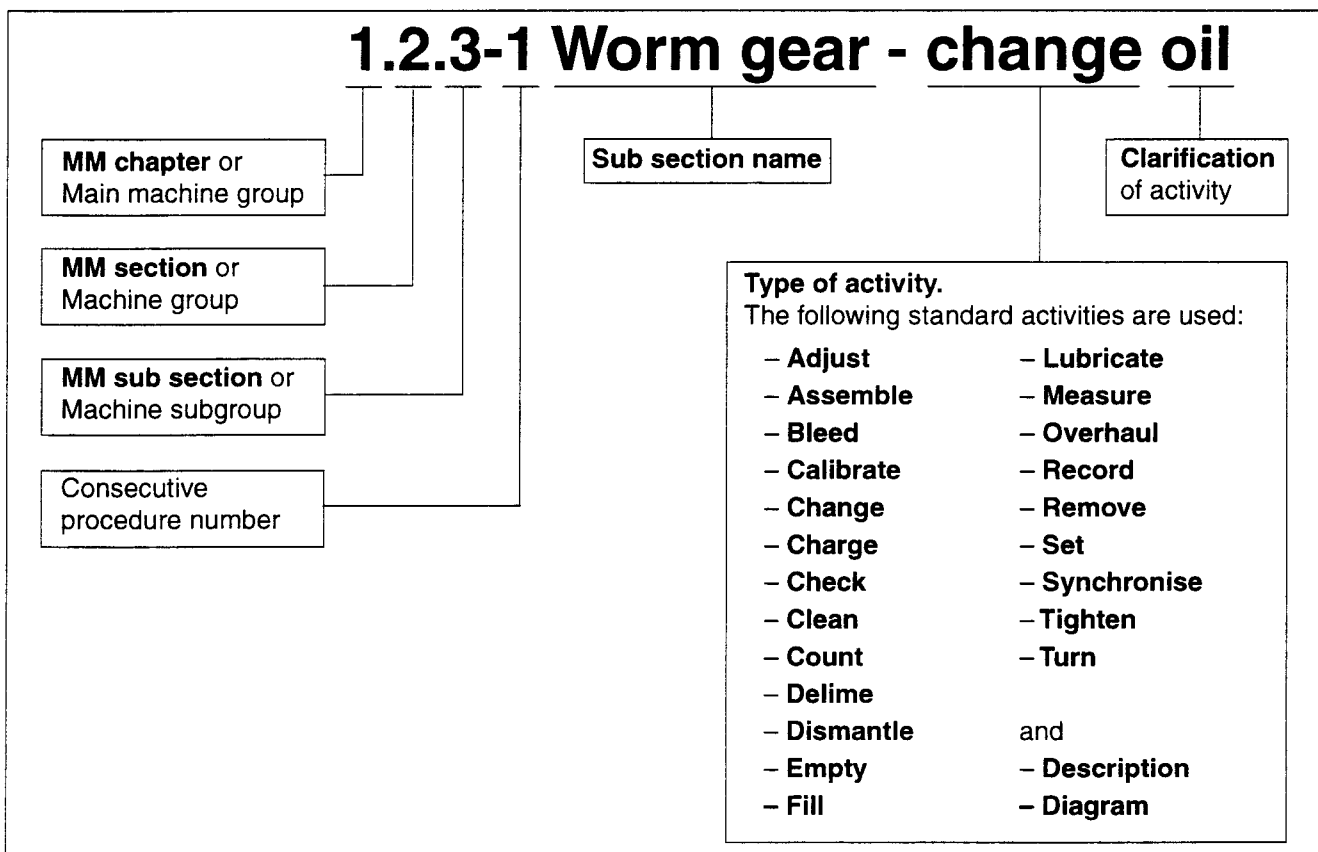
How to use this manual

Page layout



MM procedure codes

The maintenance procedures are indicated as shown by the example below:



Additional information

The following additional information is included in each MM procedure as applicable.

1.2.3-1 Worm gear - change oil

Machine status

Machine status during the procedure. Usually "Main power OFF".

Machine status	Main power ON
Consumables	1 l High pressure oil
Special tools	Template 123456-1
SPC	123456-0101

Consumables

Consumables are items which are needed in addition to replacement parts.

SPC

Reference to the Spare Parts Catalogue (SPC). The number is to be found in the SPC index.

Special tools

Tools needed, that are NOT normally carried by a service technician (for example a template needed in a setting procedure).

Terminology

Abbreviations

Words	Explanation
CE	Communautés Européennes / European Communities
CPU	Central Processing Unit
EEA	European Economic Area
EM	Electrical Manual
IM	Installation Manual
I/O	Input/Output (module)
LED	Light Emitting Diode
LH	Left Hand
MM	Maintenance Manual
OM	Operation Manual
RH	Right Hand
SPC	Spare Parts Catalogue
TPMS	Tetra Pak Maintenance System

Machine orientation

Definition of direction

The illustration below shows the machine from above.

A indicates the **Rear** of the machine.

B indicates the **Front** of the machine.

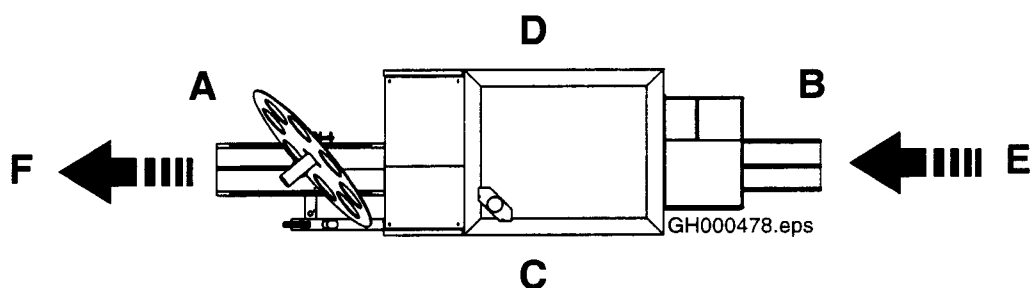
C indicates the **Left** of the machine.

D indicates the **Right** of the machine.

E indicates the **Infeed** of the machine

F indicates the **Discharge** of the machine

Note! The arrows indicate the flow direction in the machine.



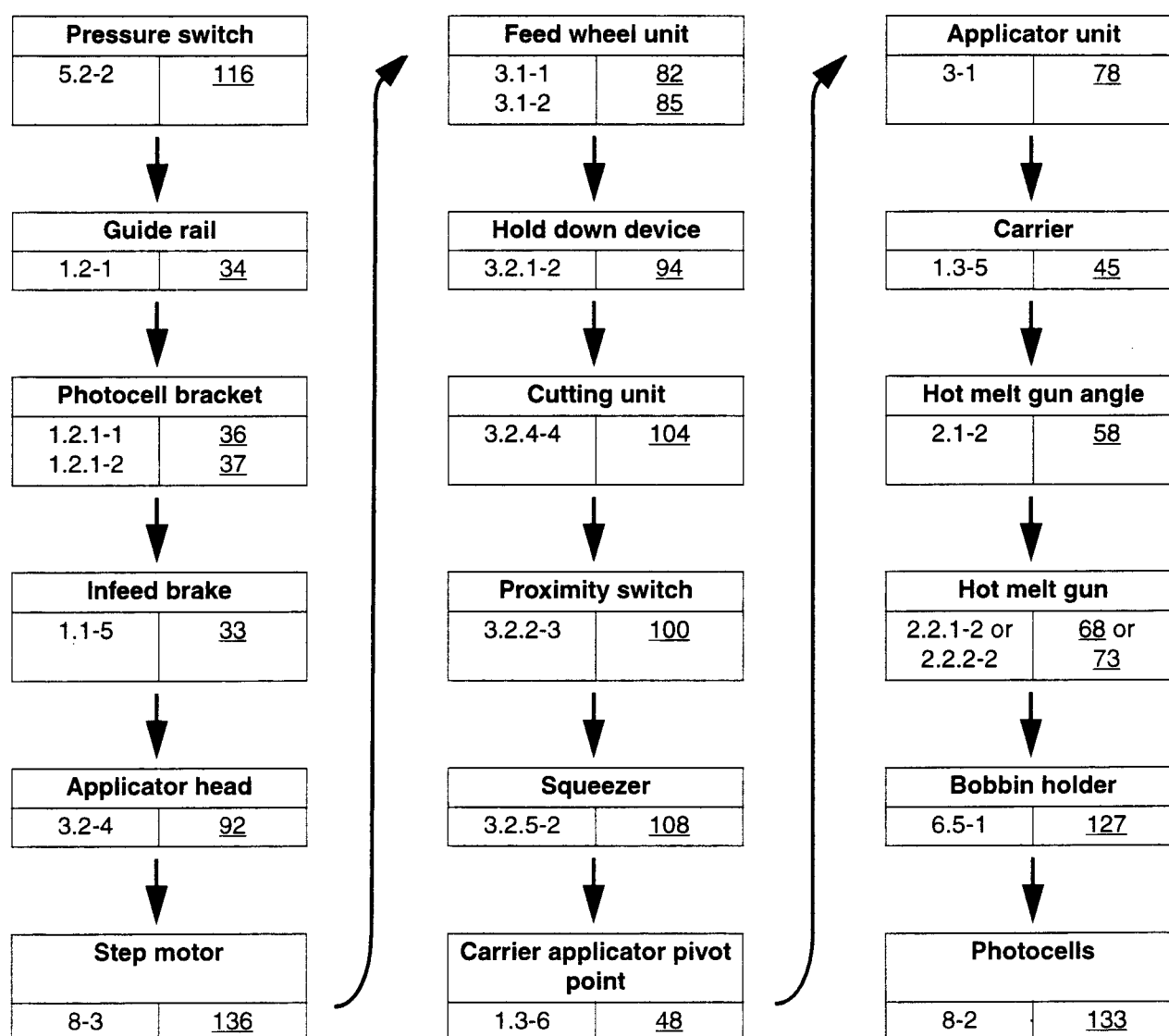
Synchronization diagram

Description

Pressure switch	
5.2-2	<u>116</u>

Procedure

Procedure
code Page
 number



2.2TH000241.en

This page intentionally left blank

Safety precautions

2.2TH000242 en

General



DANGER!

Incorrect use of the equipment may put your life in danger!

Tetra Pak will take no responsibility for any fatal accidents, injuries to personnel or damage to the machine if the Tetra Applicator 46 or associated equipment is serviced without following the instructions in this Maintenance Manual (MM).

Warning levels

This Maintenance Manual (MM) utilises three levels for warnings and an additional level for giving other important information. The following levels and symbols are used to emphasize information.



DANGER!

Immediate danger to life!

Failure to observe this information may result in immediate danger to life!



WARNING!

Risk of serious personal injury or major damage to equipment!

Failure to observe this information may result in serious personal injury or major damage to the equipment!

Caution!

Risk of minor personal injury or damage to equipment!

Failure to observe this information may result in minor personal injury or damage to the equipment!

Note!

Is used to emphasize important information. A **Note** is not to be regarded as hazard information.

Warning signs



DANGER!

Risk of electrical shock!

Failure to observe may result in danger to your life.

Enclosures which do not clearly show that they contain electrical devices are marked with the warning sign below.



GH100784.eps

(Cont'd)

(Cont'd)

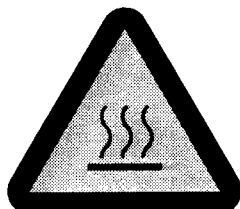


WARNING!

Hot surface!

Failure to observe may result in injuries caused by burning.

Hot surfaces are marked with the warning sign below. The temperature may exceed 60°C.



GH100787.eps



WARNING!

Heat energy!

Failure to observe may result in injuries caused by burning.

The warning sign below indicates entrapped heat energy in the area where the sign is placed. The temperature may exceed 60°C.



GH100788.eps

Prohibition signs



DANGER!

Keep dry!

Failure to observe may result in danger to your life.

Never flush water or any other liquid towards an area with the warning sign below.



GH100785.eps

Requirements on personnel



DANGER!

Risk of immediate danger to life!

Not following the Safety precautions may mean risk of immediate danger to life. All personnel must regard all electrical equipment as live.

The work is to be carried out in such a way that there will be no risk of personnel injury.

General

During maintenance or service work, the technicians are responsible not for the machine only, but for the personnel in the vicinity of the machine as well!

It is also the responsibility of the technicians to assure that the machine safety devices are fully operational before he finishes the maintenance or service work.

Service technician

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

Service technicians may be:

- technicians employed by **Tetra Pak**

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**

Technicians employed by the customer must have the following skills:

- capable of reading (English or native) technical information
- understands technical drawings
- basic knowledge of mechanics and electronics
- basic knowledge of mathematics
- can handle (special) tools

(Cont'd)

(Cont'd)

Electrician

Electricians should:

- be certified according to local regulations
- have experience of similar types of installations
- have proven skills in reading and working from drawings and cable lists
- have knowledge of local safety regulations for power and automation

Work with the electrical equipment in the machine must be performed by **skilled or instructed persons only**.

According to EN 60204-1:1992 clause 3.55 a skilled person is:

- *An individual with technical knowledge or sufficient experience to enable that individual to avoid hazards which electricity can create.*

According to EN 60204-1:1992 clause 3.30 an instructed person is:

- *An individual adequately advised or supervised by a skilled person to enable that individual to avoid hazards which electricity can create (e.g. operating and maintenance staff).*

The use of a key or tool is necessary for access by skilled or instructed technicians to carry out operations for which it may not be appropriate to disconnect the equipment. The supply disconnecting mains may be operated as needed while the door is open.

Examples of such operations are:

- resetting of protective devices
- adjustment of device settings (e.g. preset timers)
- fault finding and diagnostic testing

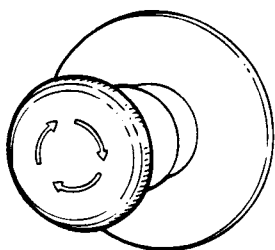
Emergency stop

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

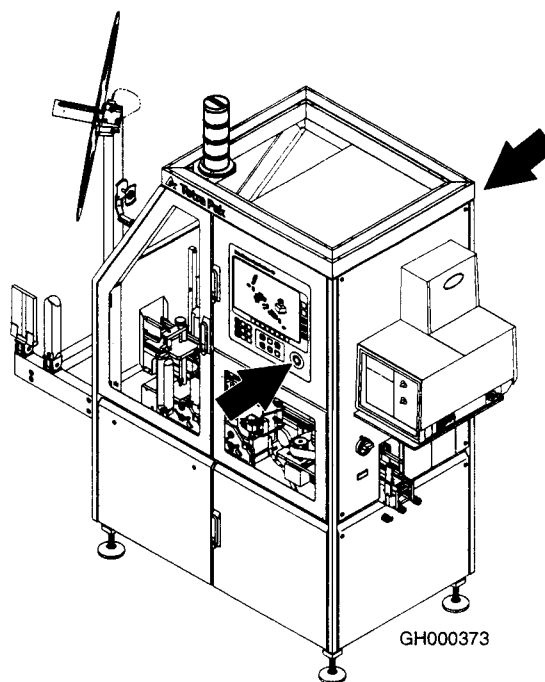
In order to stop the machine immediately in an emergency situation, you must know the exact location of the Emergency stop buttons.

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 Operation Manual.

Note! Emergency stops do not cut the **mains**.



GH100876.eps



Main switch



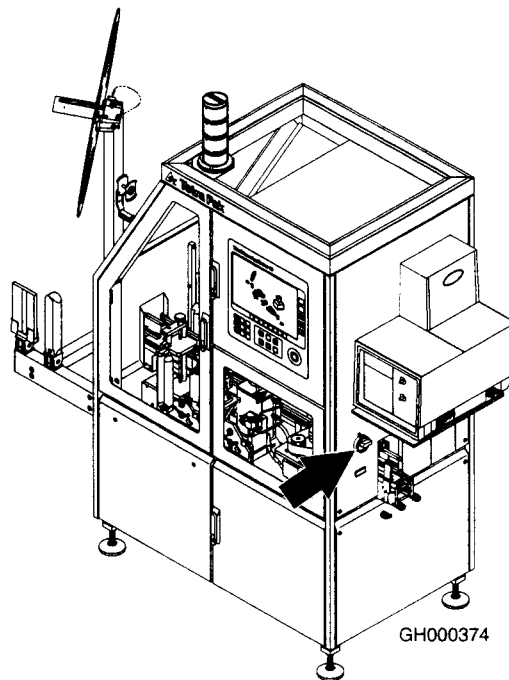
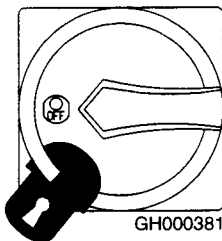
DANGER!

Risk of immediate danger to life!

Before starting service work the machine must be depressurized. The **Main switch** must also be turned OFF (position 0) and locked in this position. The key to the padlock must be removed by the service man and retained in his possession until all work is completed.

Turning the **Main switch** OFF will not cut the power supply to the machine. The cable, the connection and the **Main switch** itself will still be energized.

After the **Main switch** has been turned OFF there still can remain high voltage in the electrical cabinet. Discharge time approximately five minutes.



Doors and covers



WARNING!

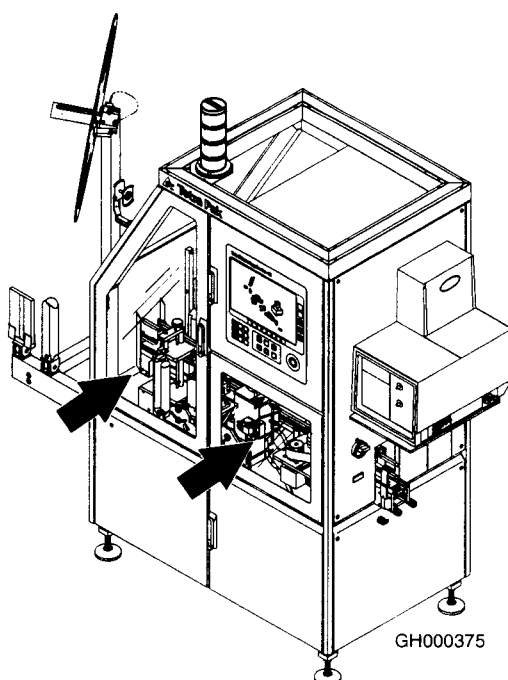
Moving parts and hot surfaces can cause serious injuries!

Never inch or run the machine if any safety switch is non-operational or any cover is not fitted.

Doors

All doors leading to risk areas are fitted with safety switches. These switches are part of the safety system and **must under no circumstances be bridged or by-passed or otherwise made non-operational.**

If any of these doors are opened during operation, the machine will stop immediately. Never use this as a method to stop the machine. The machine may perform a reciprocating movement during the first few seconds after a stop; also some machine parts may still be hot.



2.2TH000242.en

Covers

All covers are screwed on to the machine.

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

Electrical cabinet



DANGER!

Risk of immediate danger to life!

The voltage is 400V inside the electrical cabinet. Risk of immediate danger to life through electrical shock. In case of accident, immediately call for medical attention.

After the **Main switch** has been turned OFF there still can remain high voltage in the electrical cabinet. Discharge time approximately five minutes.

Work inside the electrical cabinet must be performed by skilled or instructed persons only. For more information, see section Requirements on personnel on page 14.



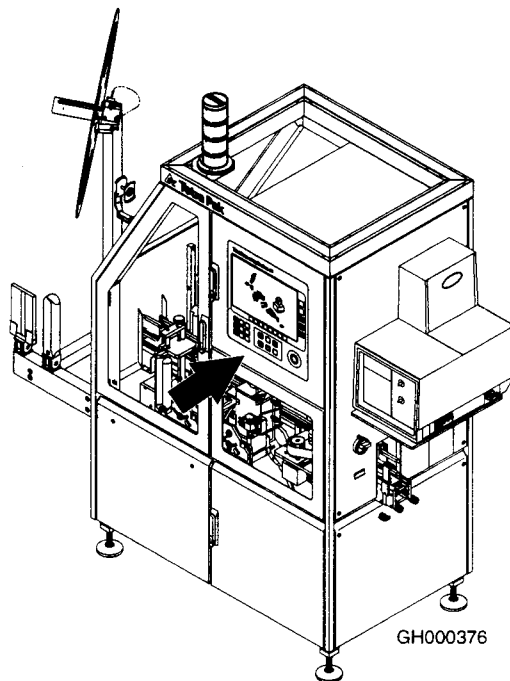
DANGER!

Risk of electrical shock!

Always make sure that the electrical cabinet doors are locked after performing any type of work in the cabinet.



GH100784.eps



Hot melt equipment

General



DANGER!

Risk of immediate danger to life!

The voltage is 400V inside the hot melt unit. Risk of immediate danger to life through electrical shock.



WARNING!

Risk of personal injury!

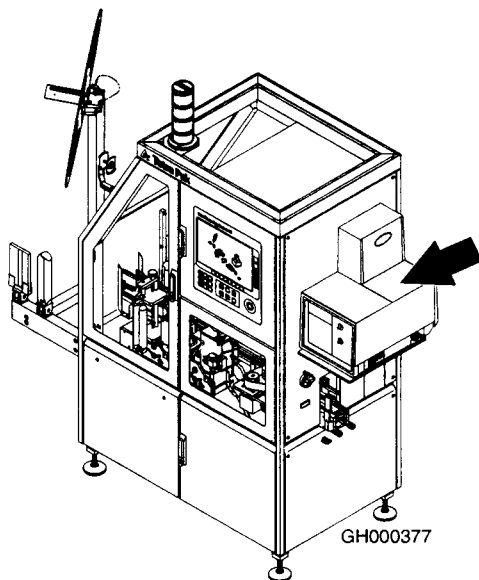
All service work on the hot melt unit must be carried out by authorized personnel.

Always wear safety glasses, protective gloves, and other protective clothing to avoid injuries caused by splashing hot melt material.

Failure to relieve any remaining air or liquid (adhesive) pressure may cause serious injuries through burning when the hot melt filter is detached or flushed.

Never remove any part or component until air and electric power have been disconnected and the pressure of the hot melt in the system has been relieved.

Note! Always refer to the documentation provided from Nordson Corporation before doing any kind of work on the hot melt equipment. The Nordson Series 3000 Technical Manual is included at delivery from Tetra Pak. The **Hot melt equipment** section in this manual only deals with what is specific for this machine.



(Cont'd)

(Cont'd)

Hot melt unit



DANGER!

Risk of electrical shock!

Never flush water or any other liquid towards the hot melt unit when cleaning the machine. Failure to observe may result in danger to your life.



WARNING!

Risk of burning!

During heating and production the hot melt unit gets hot. Do not touch the hot melt unit and beware of the entrapped heat inside the unit when service is performed!



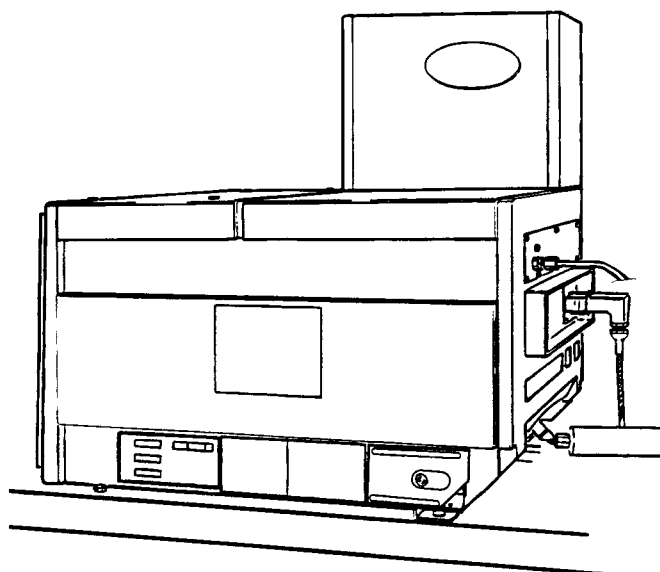
GH100785.eps



GH100784.eps



GH100788.eps



GH100954.eps

2.2TH000242.en

(Cont'd)

Safety precautions

(Cont'd)

Hot melt applicator



Risk of electrical shock!

Never flush water or any other liquid towards the hot melt applicator when cleaning the machine. Failure to observe may result in danger to your life.



Risk of burning!

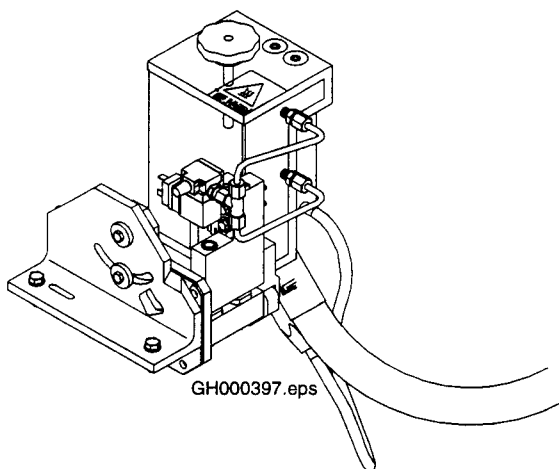
The cover over the hot melt applicator is very hot and there is risk of severe burns. Never touch the cover of the hot melt applicator!



GH100785.eps



GH100787.eps



GH000397.eps

2.2TH000242.en

Risk areas



WARNING!

Risk of crushing or burning injuries!

Do not reach into the machine. Reaching into the machine from the side, top or from below may cause serious injury through crushing or burning.

Only authorized personnel should be allowed in the vicinity of the machine.

Chemical products



WARNING!

Risk of personal injury!

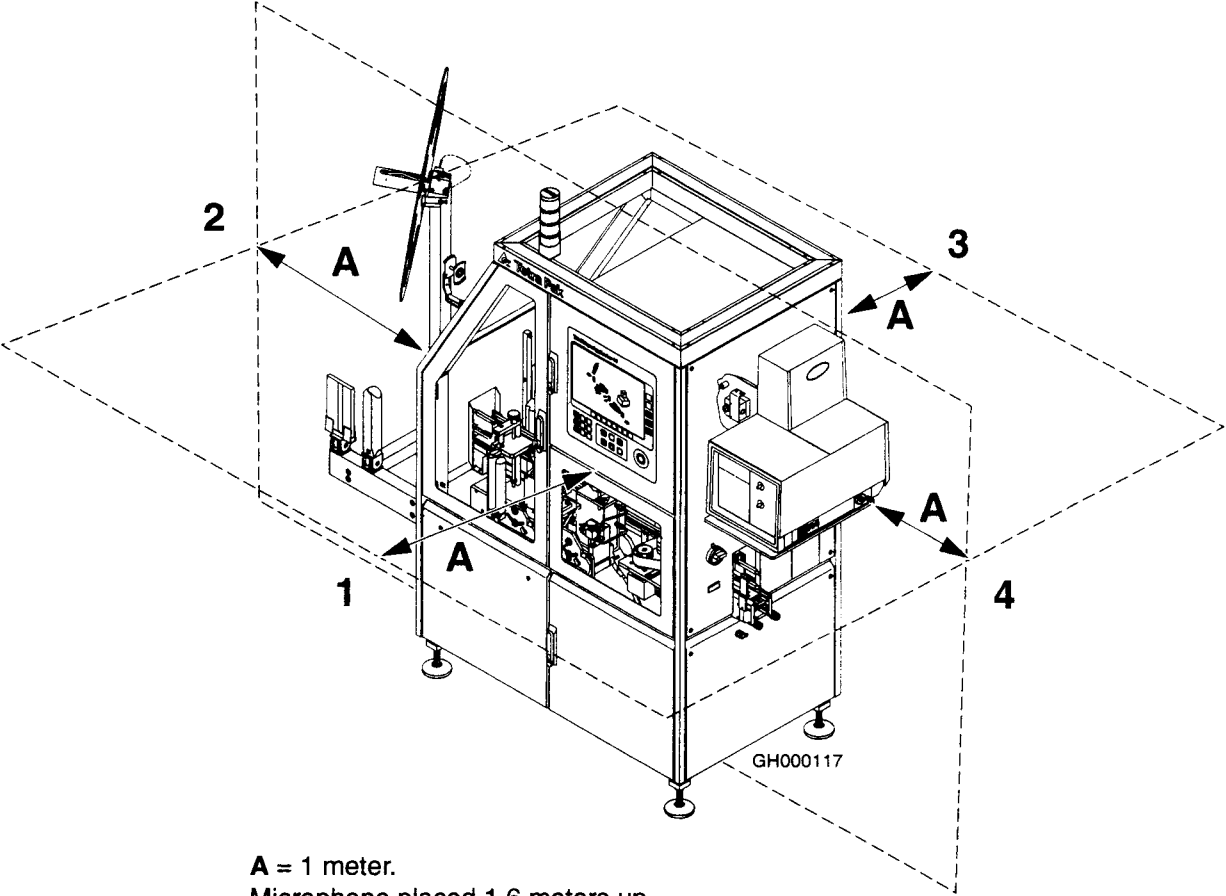
Can be flammable or hazardous to health. Read the warnings!

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 and goggles when handling chemical products.

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

Noise emission



A = 1 meter.
Microphone placed 1.6 meters up

Data

Document	DE 95/147
Date	95-02-13
Machine no	38014-28
Draw. spec.	678547-010V
Mech. ECN	22296
EI. ECN	20909

Noise level in accordance with ISO 11201

Measuring position number	Measured equivalent sound pressure level dB(A) Production	dB(A) Production, no packages
1	65.8	60
2	65.0	-
3	65.6	-
4	66.2	-

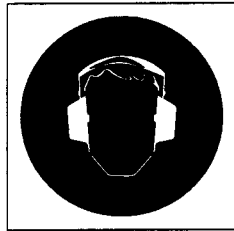
Hearing protection

**WARNING!****Risk of impaired hearing!**

Use hearing protection to minimize the risk of impaired hearing.

Always wear hearing protection while the machine is running.

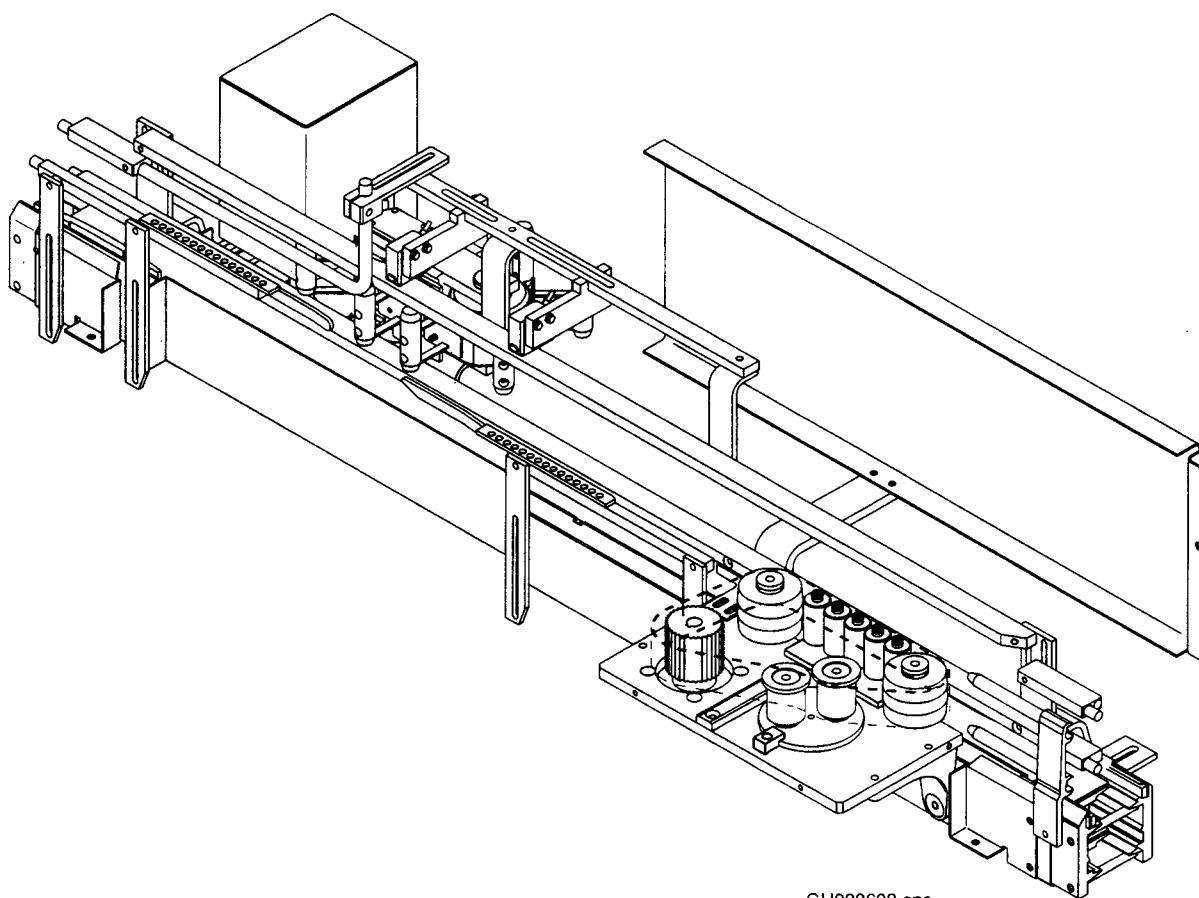
Always keep the hearing protection clean.



GH100855.eps

This page intentionally left blank

1 Conveyor section



2.2TH000243.en

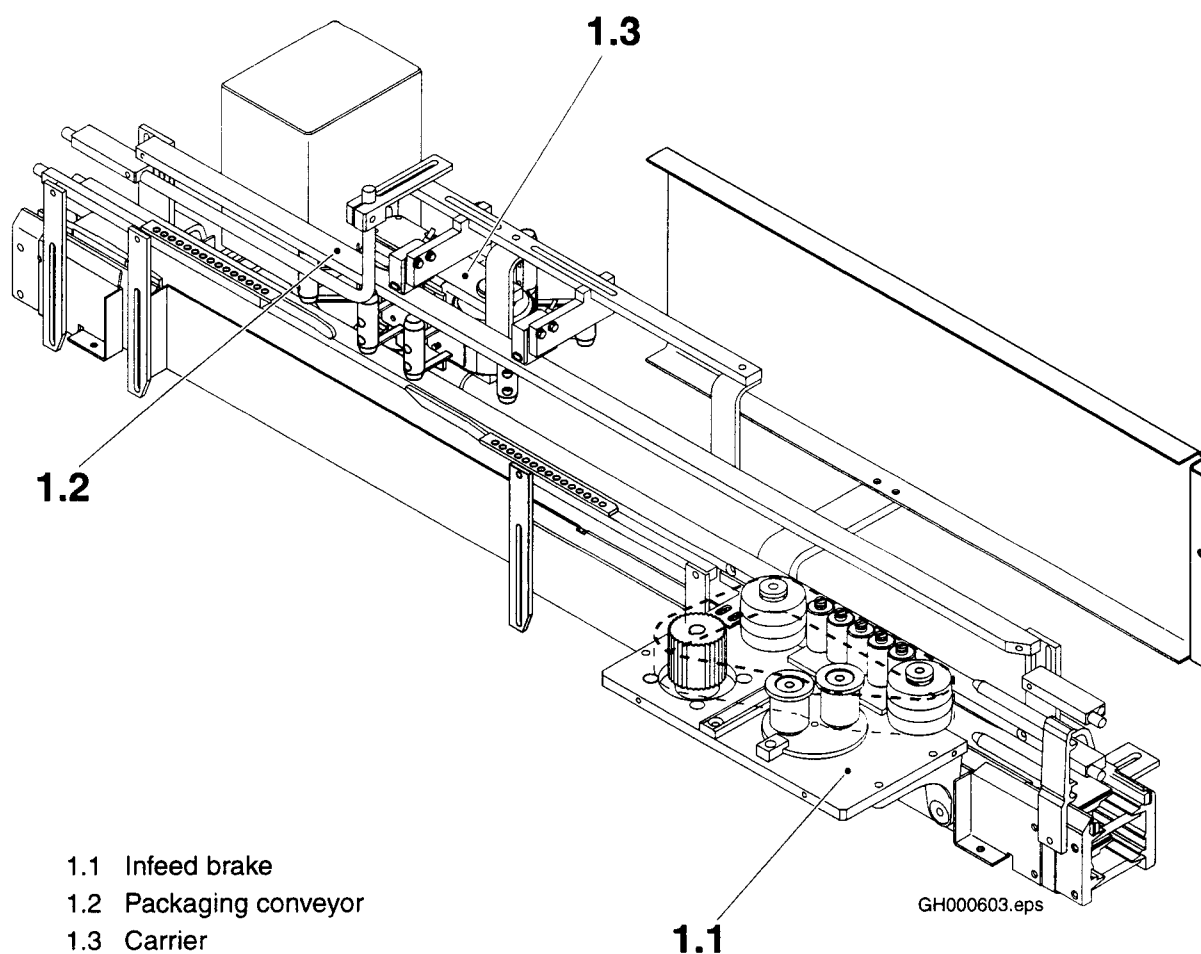
GH000602.eps

1 Conveyor section

1-0 Conveyor section - description

SPC

678583-030V



2.2TH000243.en

1.1 Infeed brake

SPC	1119500-020V
-----	--------------

1.1-1 Infeed brake - check timing belt

Machine status	Mains power OFF Air OFF
SPC	1119500-020V

Check the timing belt (1):

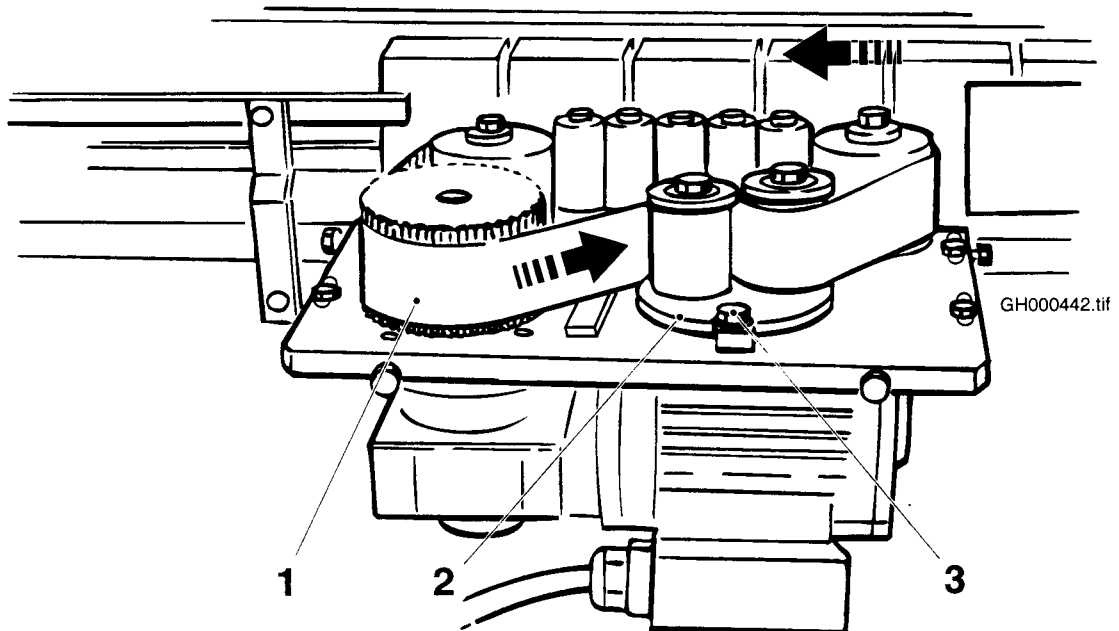
- tension
- for wear and/or damage

Tighten the timing belt by turning the holder (2) clockwise. Tighten the screw (3).

Change as required:

- Loosen the screw (3)
- Slacken and remove the timing belt.
- After changed and fitted the timing belt, tighten it as above.

- Timing belt
- Holder
- Screw



1.1-2 Infeed brake - check roll, shaft, bearing

Machine status	Mains power OFF Air OFF
SPC	1119500-020V

Loosen the screw (6). Slacken and remove the timing belt (4).

Check the following parts for wear and/or damage:

- the rolls (1), (2), (3), and (7)

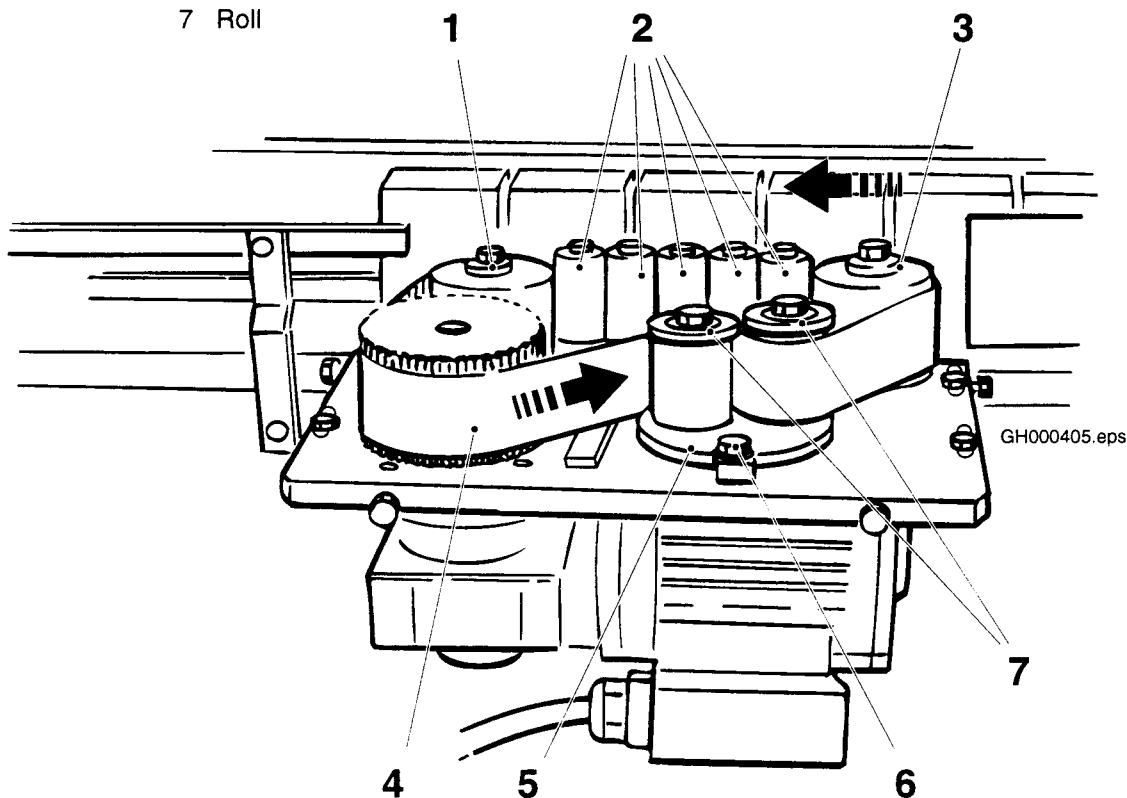
After removed the rolls, check

- all shafts
- the bearings in the rolls (1), (3), and (7)

Change as required.

Assemble the rolls, and the timing belt. Tighten the timing belt by turning the holder (5) clockwise. Tighten the screw (6).

- 1 Roll
- 2 Roll
- 3 Roll
- 4 Timing belt
- 5 Holder
- 6 Screw
- 7 Roll



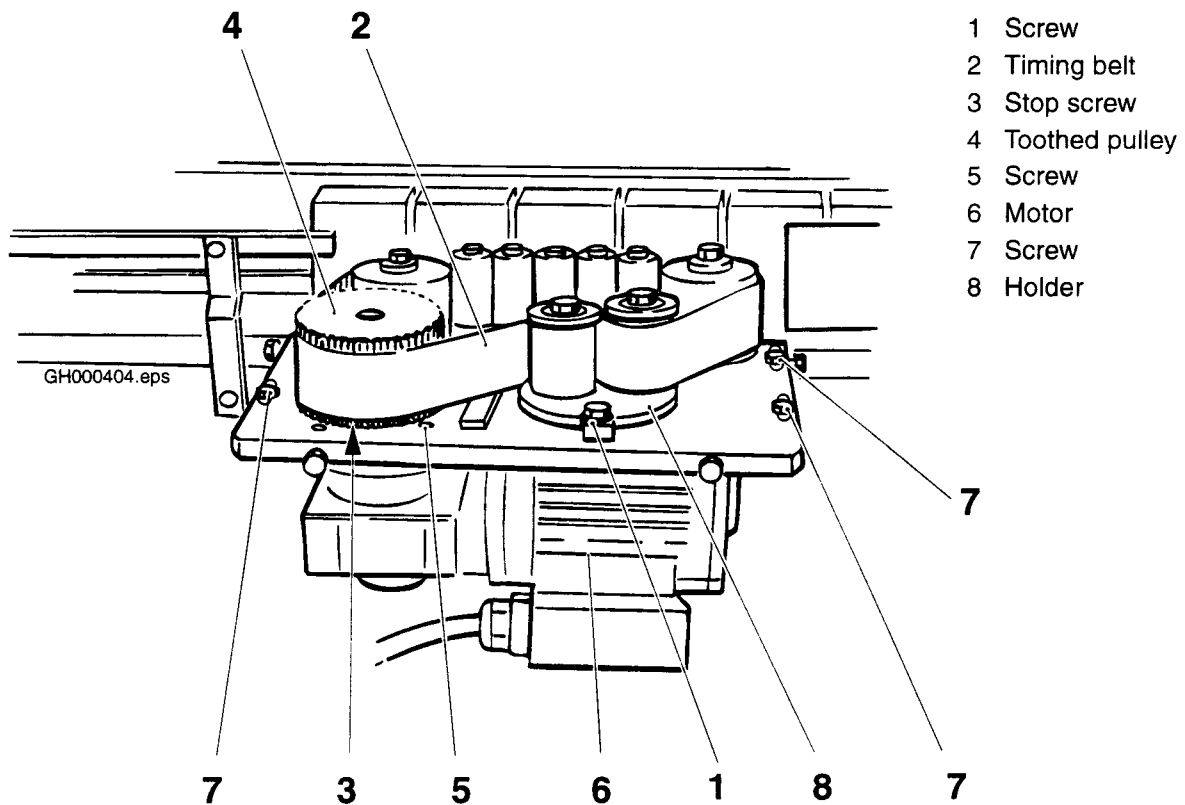
1.1-3 Infeed brake - remove

Machine status	Mains power OFF Air OFF
SPC	1119500-020V

- a) Loosen the screw (1). Slacken and remove the timing belt (2).
- b) Loosen the stop screw (3). Remove the toothed pulley (4).
- c) Remove the four screws (5). Remove the motor (6).
- d) Remove the four screws (7). Lift out the plate with the rolls.

Assemble in the reverse order.

Tighten the timing belt by turning the holder (8) clockwise. Tighten the screw (1).

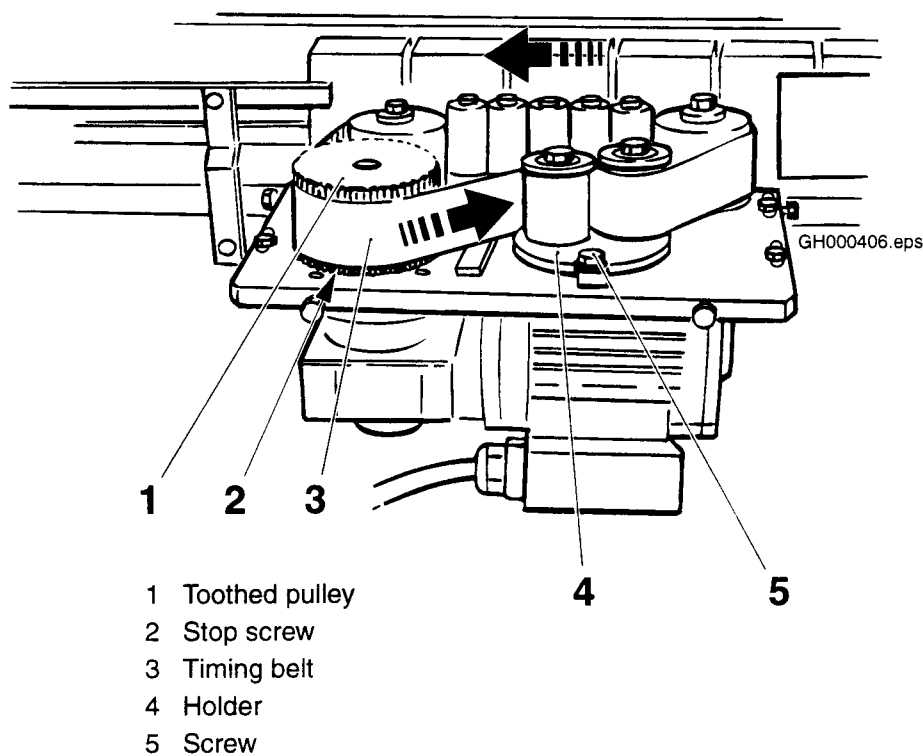


1.1-4 Infeed brake - change toothed pulley

Machine status	Mains power OFF Air OFF
SPC	1119500-020V 1119799-020V

- a) Loosen the screw (5). Slacken and remove the timing belt (3).
- b) Loosen the stop screw (2). Remove the toothed pulley (1).
- c) Change the toothed pulley.
- d) Fit the timing belt back again. Tighten the timing belt by turning the holder (4) clockwise. Tighten the screw (5).

Set the infeed brake, see procedure [1.1-5 Infeed brake - set](#) on page [33](#).



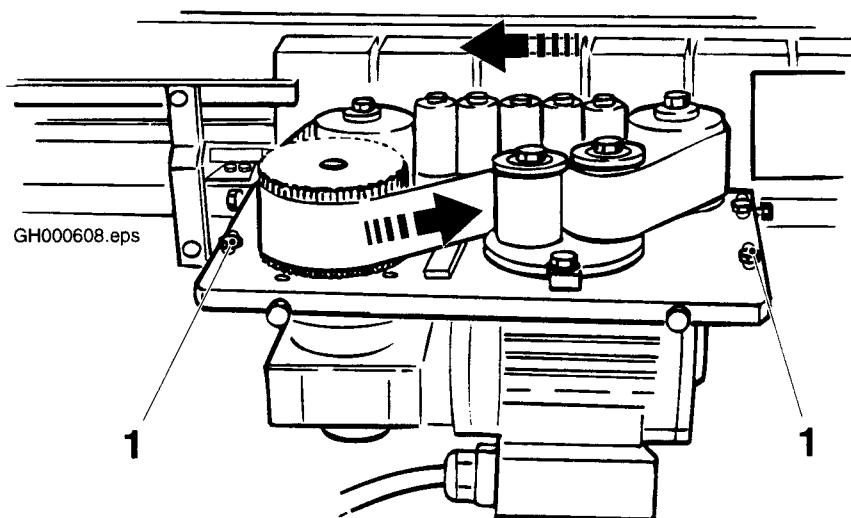
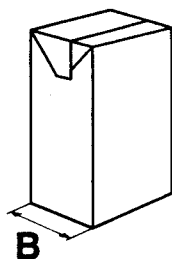
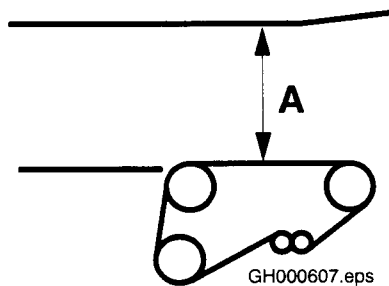
1.1-5 Infeed brake - set

Machine status	Mains power OFF Air OFF
SPC	1119500-020V

Adjust the distance A: Loosen the four screws (1) and move the plate with the infeed brake.

$$A = B - 2 \text{ mm}$$

1 Screw



1.2 Packaging conveyor

SPC	1119503-040V
-----	--------------

1.2-1 Packaging conveyor - set rail

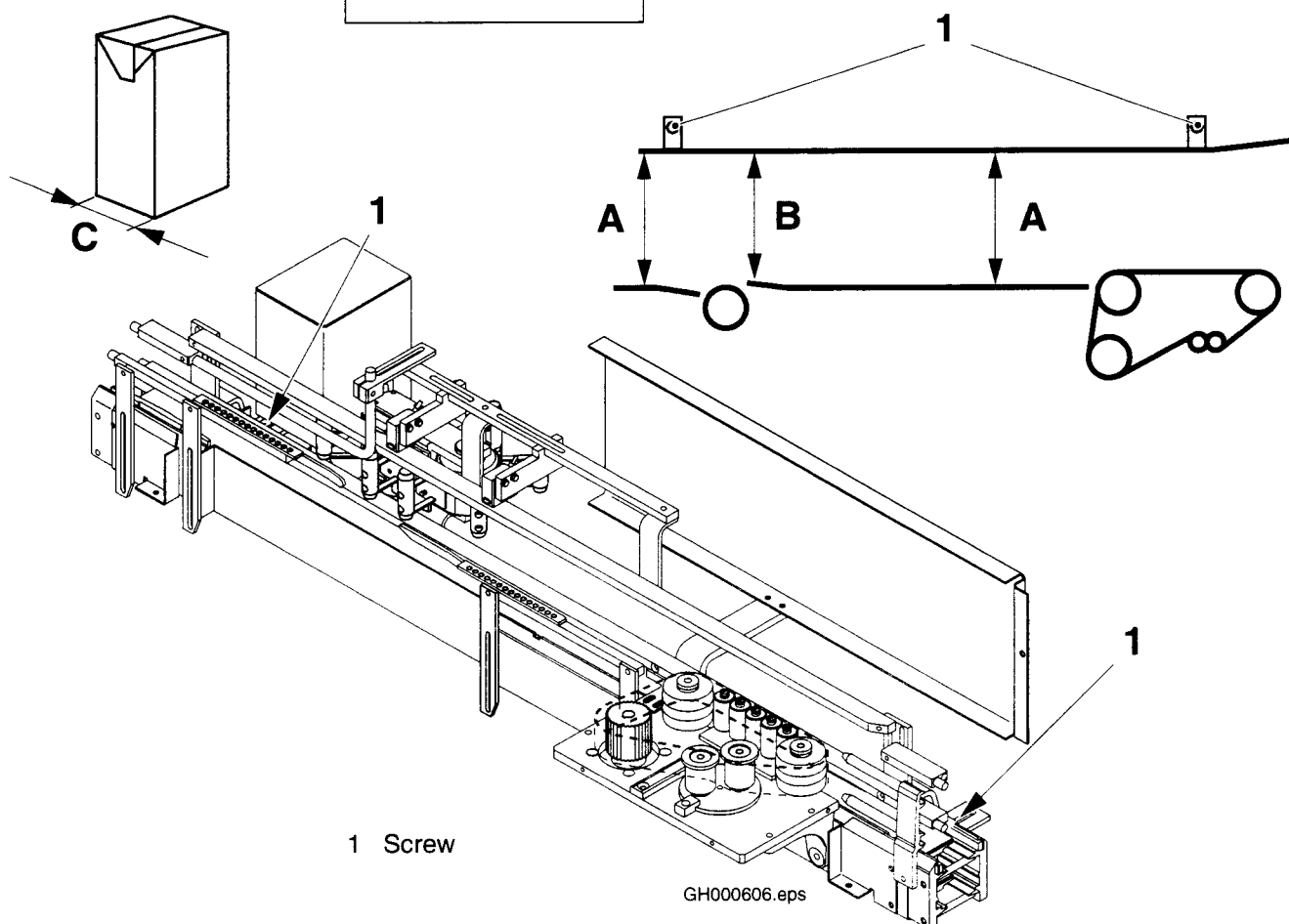
Machine status	Mains power OFF Air OFF
SPC	1119503-040V

Check the distances **A** and **B**.

If required, adjust by loosen the screws (1).

$$A = C + 10 \text{ mm}$$

$$B = C + 2 \text{ mm}$$



(Cont'd)

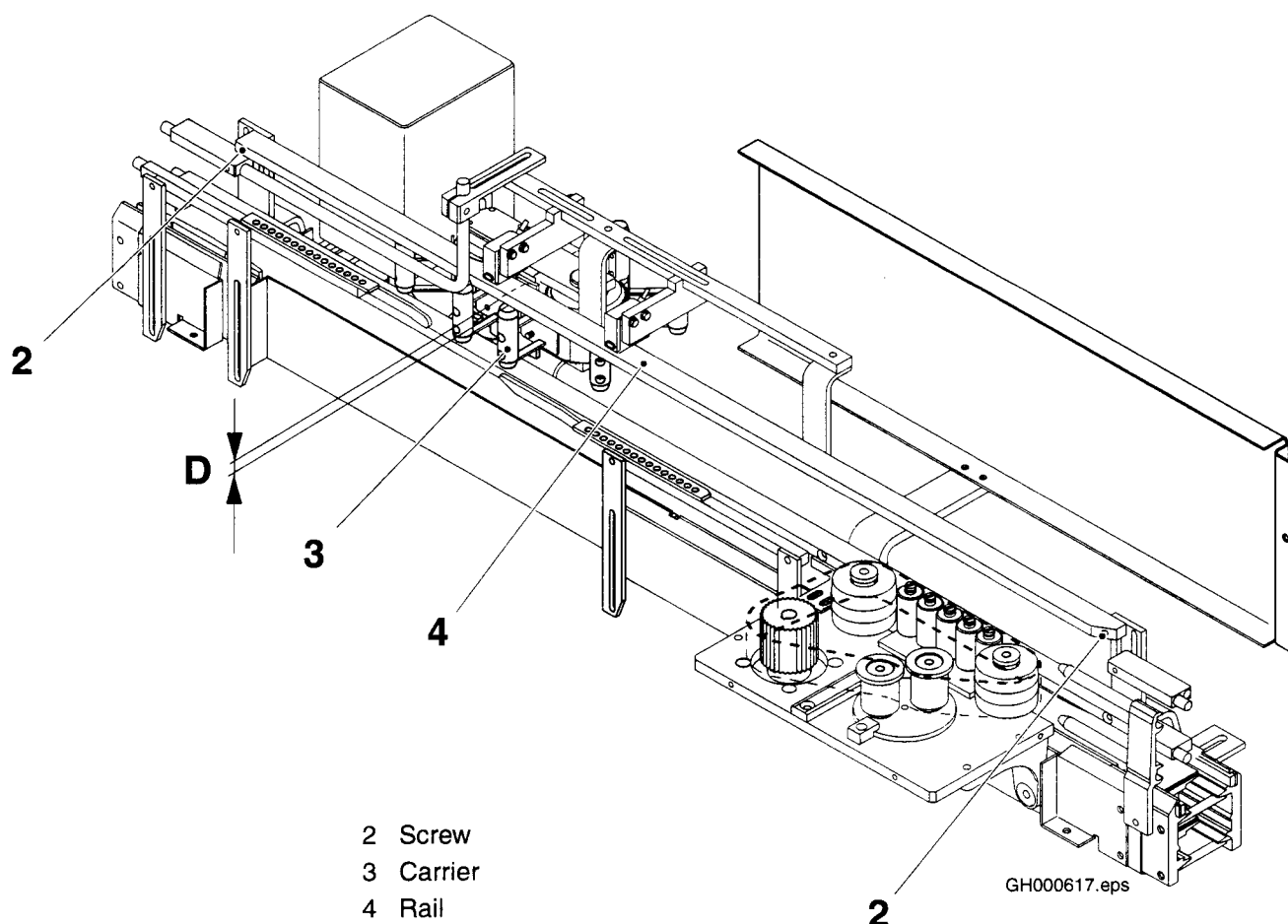
(Cont'd)

For all volumes the upper rail (4) should be positioned distance **D** over the carriers (3).

Adjust with the screws (2).

Check that all carriers go free under the upper rail.

D = 1 mm



2.2TH000245 en

1.2.1 Photocell bracket

1.2.1-1 Photocell bracket - set rod

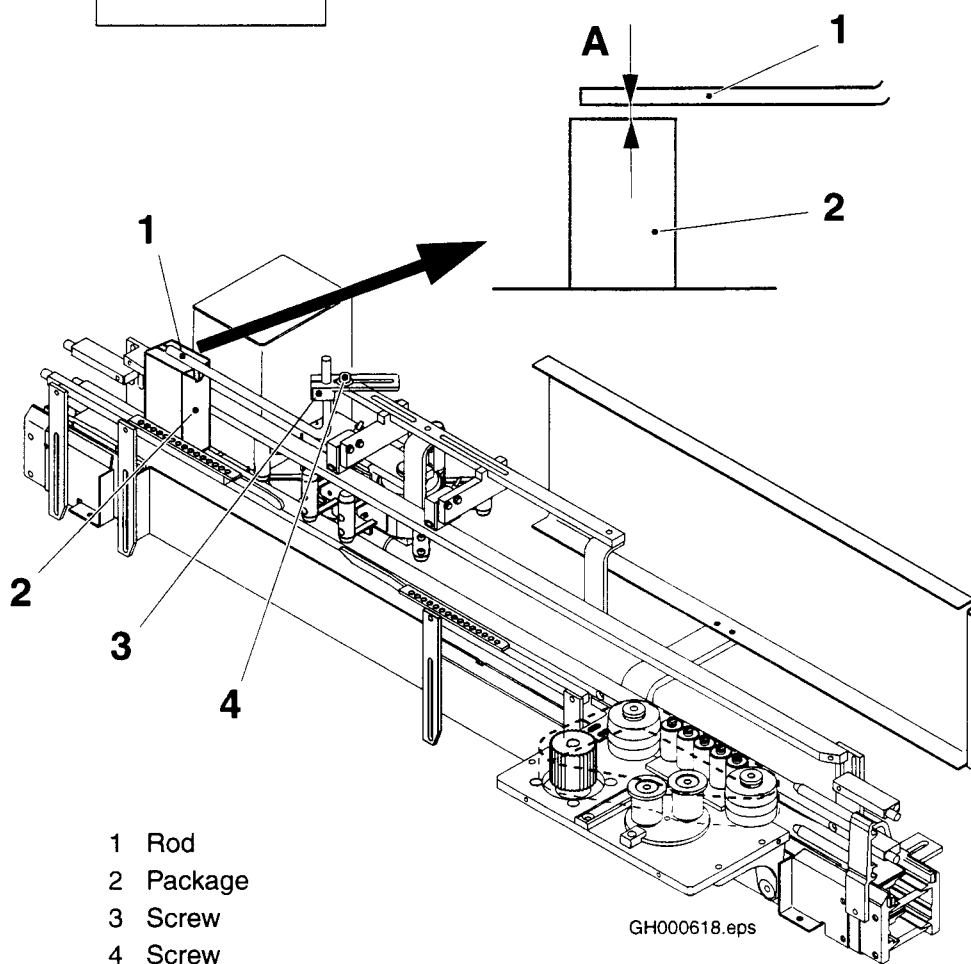
Machine status	Mains power OFF Air OFF
SPC	1119542-040V

Check that the rod (1) is centered over the package

Check the distance **A** between the rod and the top of the package (2).

If necessary, adjust the rod position with the screws (3) and/or (4).

A = 5 mm



1.2.1-2 Photocell bracket - set photocell position

Machine status	Mains power ON Air OFF
SPC	1119542-040V

Set the position of the photocells (3) and (5) by loosen the screws (1) or (2) and move the photocells.

If adjusting as above is not enough, it is possible to move the bracket with the photocells to position **B**.

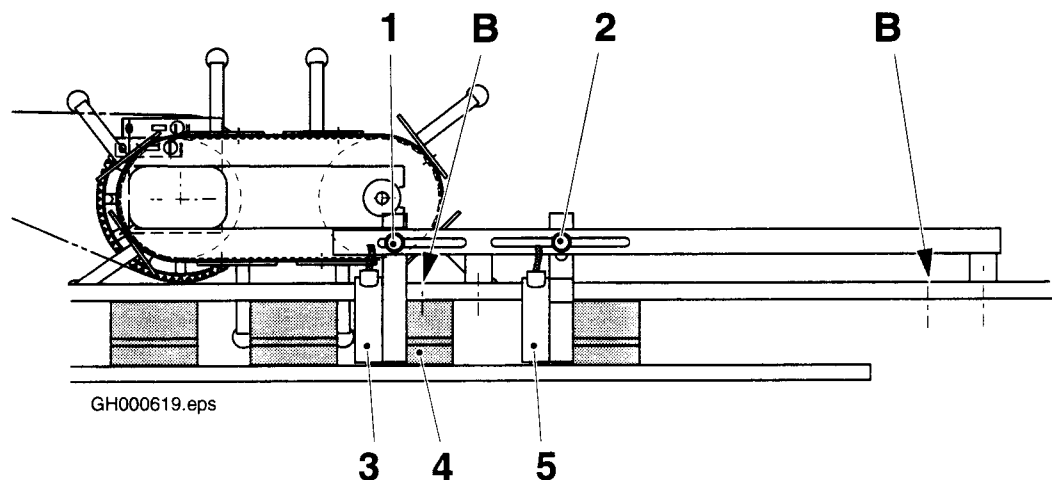
Photocell carrier start

Stop the machine in synchronisation position:

- Step up the machine to **Step 2; Air pressure ON**.
- Push the **Manual straw/UniCap feed** button once.

Set the position of the photocell (3) for carrier start to indicate on the first edge appearing of the package (4), at a distance 5 - 10 mm before the package reaches the carrier (the package should not be slowed down by the carrier).

Check by turning the carrier belt by hand, that the photocell (3) not indicates for any of the carriers.



- 1 Screw
- 2 Screw
- 3 Photocell carrier start
- 4 Package
- 5 Photocell hot melt guns

B Second position of bracket with photocells

(Cont'd)

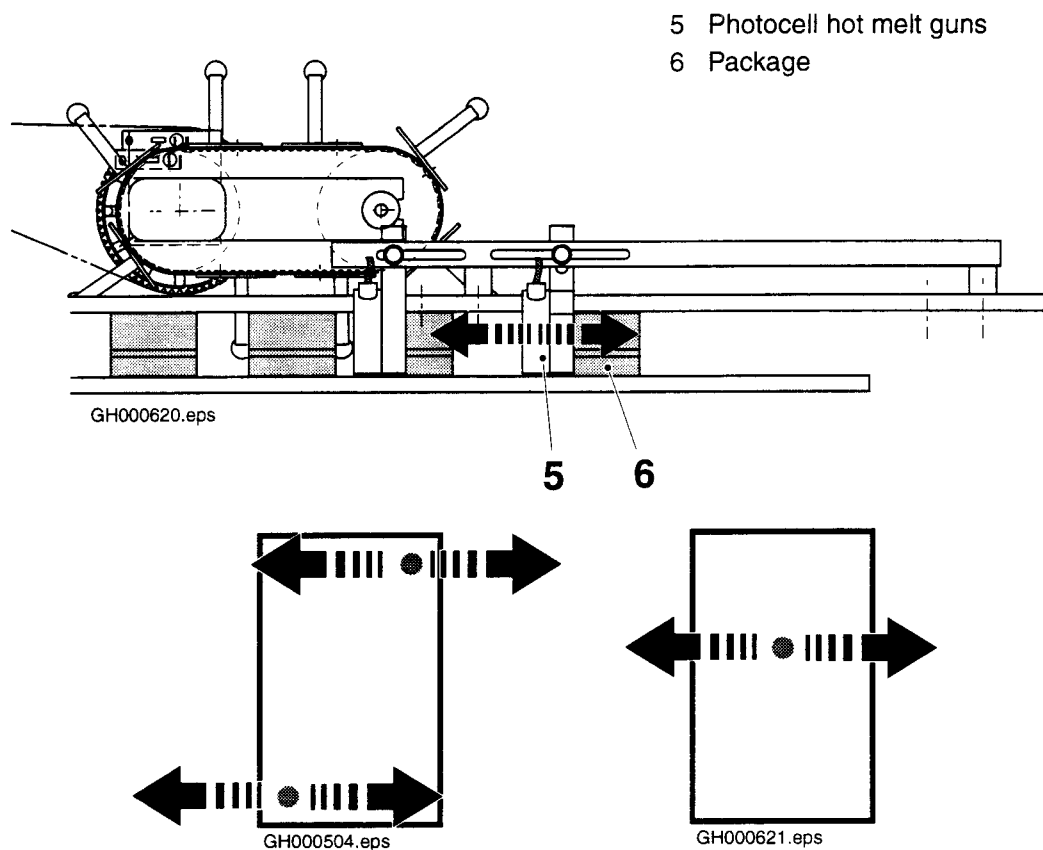
(Cont'd)

Photocell hot melt guns

Put a package (6) in front of the hot melt gun(s).

Set the position of the photocell (5) for hot melt guns to indicate at the first edge of the package (6).

Note! When moving the photocell (5) in longitudinal direction, the hot melt dots are moved in longitudinal position on the package.



2.2TH000245.en

To set the sensitivity of the photocells, see procedure 8-2 Electric equipment - set photocell on page 133.

Position of hot melt dots, see procedure 2.2.1-2 Hot melt equipment Nordson Standard - set gun on page 68, or 2.2.2-2 Hot melt equipment Nordson Quick Change - set gun on page 73.

1.3 Carrier

SPC	1119895-020V
-----	--------------

1.3-1 Carrier - change bearing, seal ring, shaft

Machine status	Mains power OFF Air OFF
SPC	1119895-020V

Slacken the timing belt (1) as follows:

- Remove the cover (2).
- Loosen the three screws (3). To slacken the timing belt, push the motor in direction against the carrier.

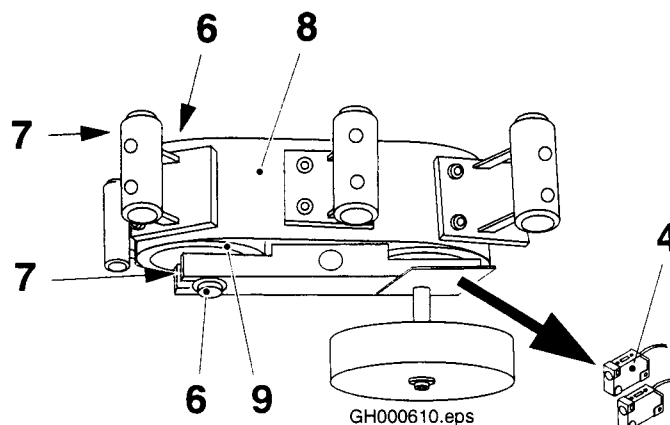
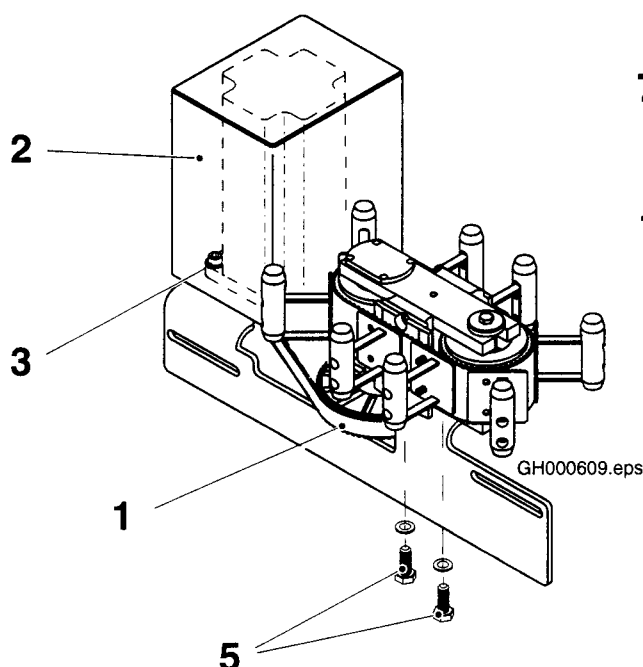
Remove the two proximity switches (4) from the carrier.

Remove the screws (5) in order to remove the carrier unit.

To change bearings and, if necessary, shaft in the adjustable side, do the following:

- Remove the screws (6), one on each side of the toothed pulley (9) and remove the stop screws (7) to slacken, and remove the timing belt (8).
- Remove the toothed pulley (9) with shaft and bearings.

2.2TH000246 en

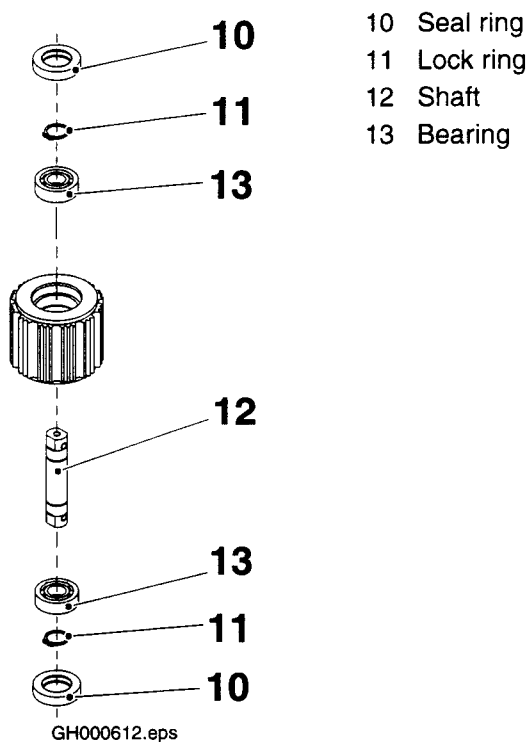


- Timing belt
- Cover
- Screw
- Proximity switch
- Screw
- Screw
- Stop screw
- Timing belt
- Toothed pulley

(Cont'd)

(Cont'd)

- c) Remove seal rings (10), and lock rings (11).
- d) Tap out the shaft (12) and the bearings (13) from the toothed pulley.
- e) Change bearings and seal rings, and if necessary change the shaft (12).
- f) Fit in the reverse order.



2.2TH000246.en

(Cont'd)

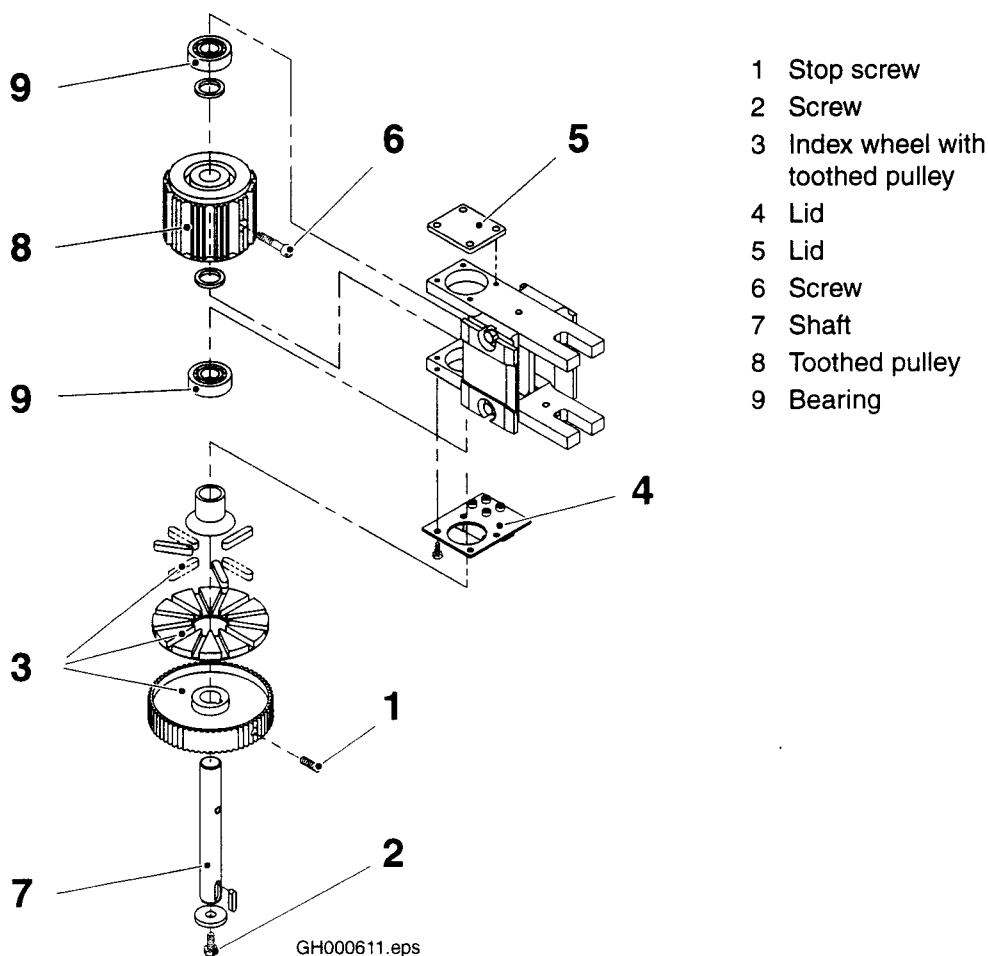
(Cont'd)

To change bearings and, if necessary, shaft in the index wheel side, do the following:

- a) Loosen the stop screw (1). Remove the screw (2) and remove the index wheel with the toothed pulley (3). Remove the lid (4) with the proximity switches, and the lid (5).
- b) Loosen the screw (6).
- c) Tap out the shaft (7).
- d) Take out the toothed pulley (8) from the holder. Remove the bearings (9) from the toothed pulley.
- e) Change bearings (9), and if necessary change the shaft (7).
- f) Fit in the reverse order.

Fit the carrier unit with the timing belt back in position, and fit the timing belt at the motor. To tension the timing belt, push the motor in position and tighten the screws.

Set the carrier, see Set carrier stop position on page 45.



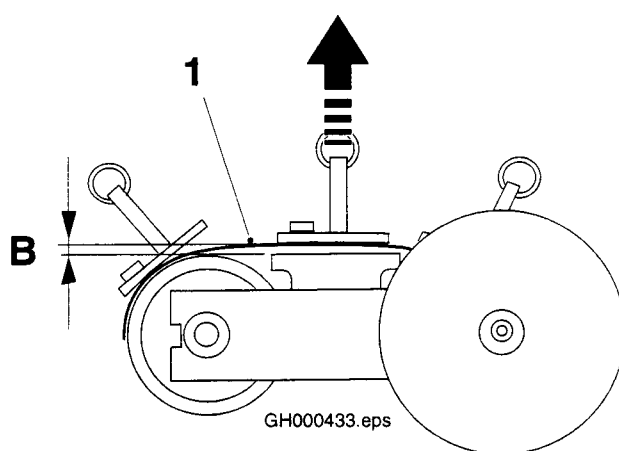
1.3-2 Carrier - check timing belt

Machine status	Mains power OFF Air OFF
SPC	1119895-020V

Check timing belt

- for wear and/or damage
- distance **B**, by pulling out the carrier belt (1) with a force of about 40 Nm.

Adjust/change the timing belt if necessary, see procedures [1.3-3 Carrier - change timing belt](#) on page 43 and/or [1.3-4 Carrier - set timing belt](#) on page 44.



B = 1 - 1.5 mm

1 Timing belt

1.3-3 Carrier - change timing belt

Machine status	Mains power OFF Air OFF
SPC	1119895-020V (1119503-040V)

- Remove the rail (1) inclusive the bracket (2) for photocells.
- Loosen the screws (3), one on each side of the toothed pulley (4), and loosen the stop screws (5) to slacken the timing belt.
- Lift up the timing belt.
- Remove the carriers from the old timing belt, and fit them on the new belt, equally divided. Fit the carriers in the centre of the timing belt, at the same height.

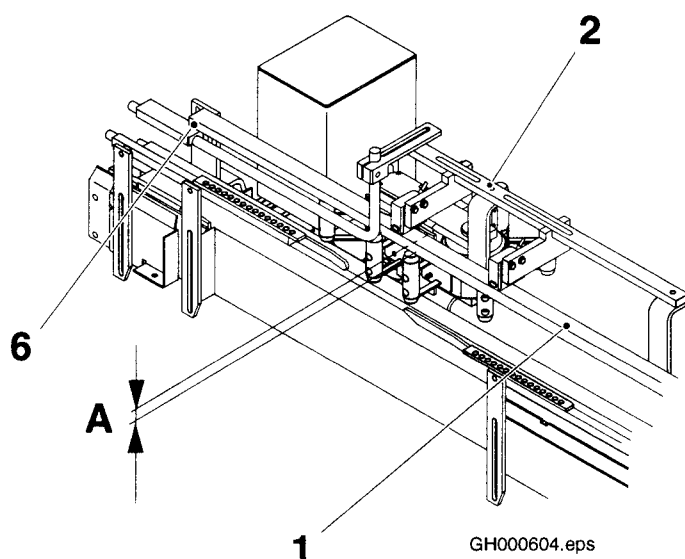
Assemble in the reverse order.

Check that the upper rail (1) is positioned distance **A** over the carriers. If necessary, adjust with the three screws (6) holding the rail.

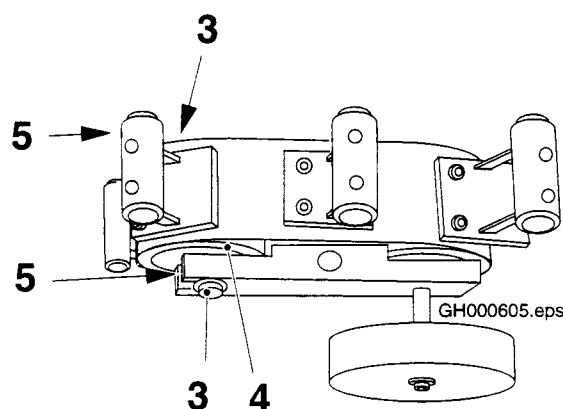
Set the timing belt, see procedure [1.3-4 Carrier - set timing belt](#) on page 44.

Check the carrier stop position, see [Set carrier stop position](#) on page 45.

A = 1 mm



- Rail
- Bracket
- Screw
- Toothed pulley
- Stop screw
- Screw



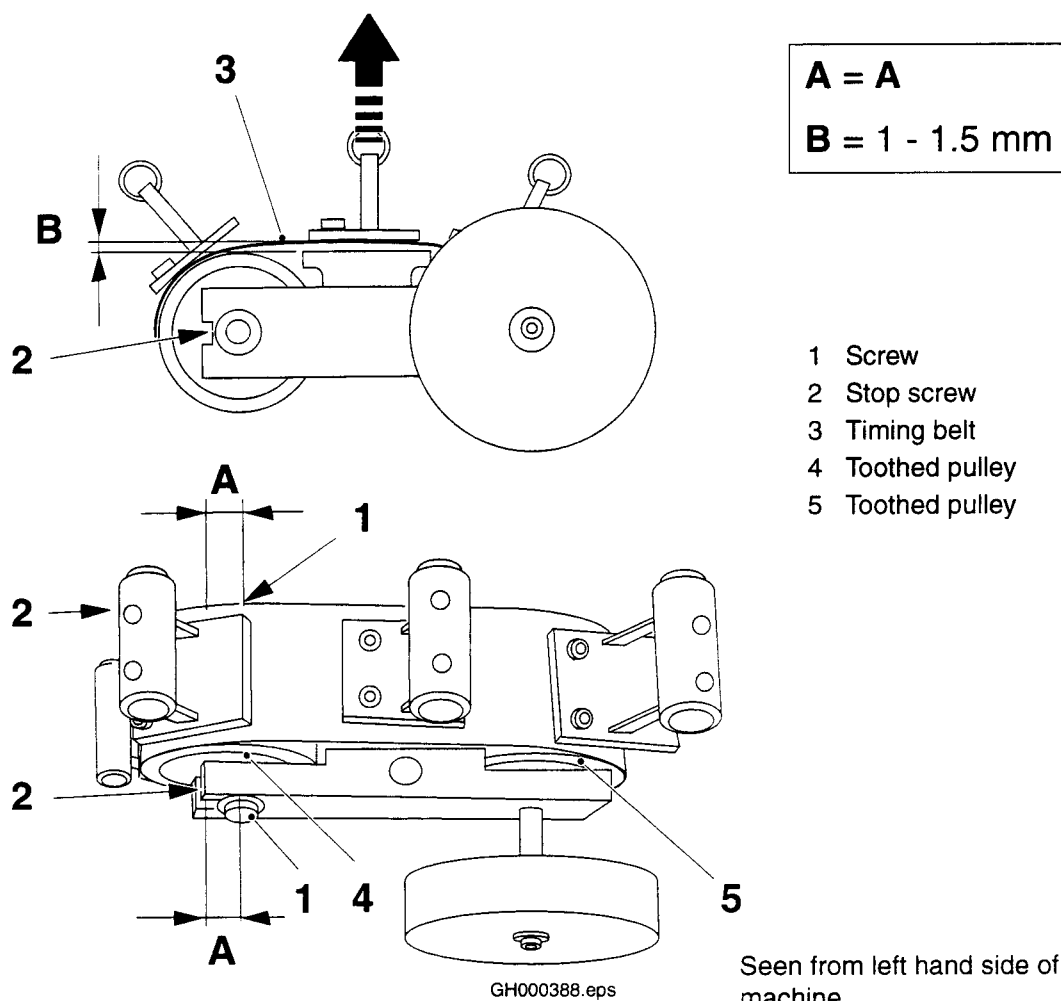
Seen from left hand side of the machine

1.3-4 Carrier - set timing belt

Machine status	Mains power OFF Air OFF
SPC	1119895-020V

- Loosen the screws (1). (One on each side of the toothed pulley (4)).
- Tighten the stop screws (2) to stretch the timing belt (3).
- To get the toothed pulleys (4) and (5) parallel, check that the distance **A** is equal on both sides of the pulley (4). If needed, adjust with the stop screws (2).

After setting, pull out the carrier belt with a force of about 40 Nm and check the distance **B** between the timing belt (3) and the carrier.



1.3-5 Carrier - set

Machine status	Mains power ON Air OFF
SPC	1119895-020V



WARNING!

Risk of personal injury!

Moving machine parts. Never **remove** any part or component until the mains power has been disconnected.

This procedure contains:

- a) set carrier stop position, and
- b) set proximity switches position

Before setting the carrier stop position, and the proximity switches, set the timing belt, see procedure 1.3-4 Carrier - set timing belt on page 44.

Set carrier stop position

With the machine program in **Zero** position, turn the timing belt by hand until the carriers (1) and (2) are positioned according to the picture.

Carrier stop position eight carriers, see Fig.1

Valid for Tetra Brik package types 100 B, 125 B, 160 B, 200 S, 200 M, 250 S.

The carrier (2) should be positioned under the steering rail (5) as shown in the picture (It must not shoot out at the conveyor side of the rail).

Check/adjust the carrier pushing position. see next page, before setting the switches.

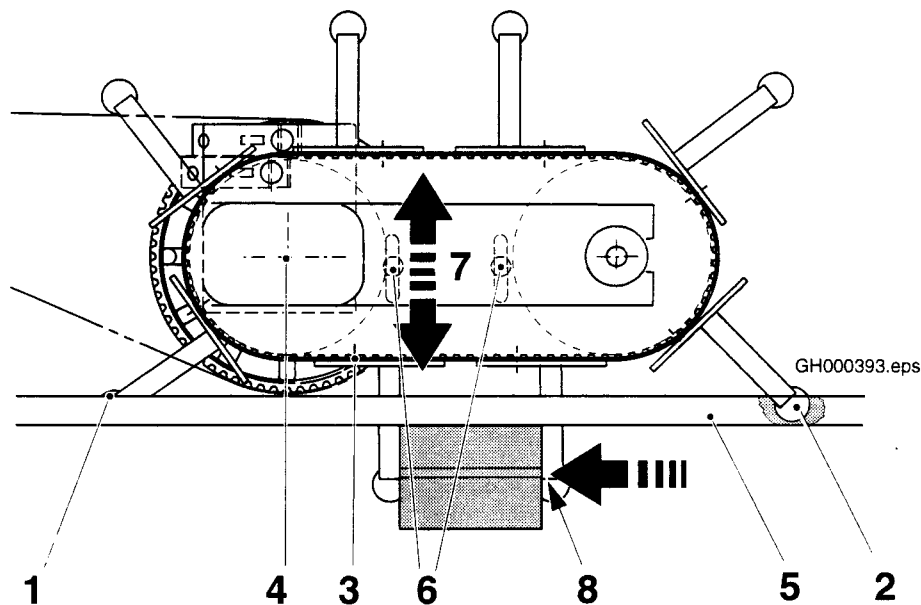


Fig.1 Carrier position eight carriers

(Cont'd)

(Cont'd)

Set proximity switches position

Check that the wedges (1) are in right position in the wedge tracks:

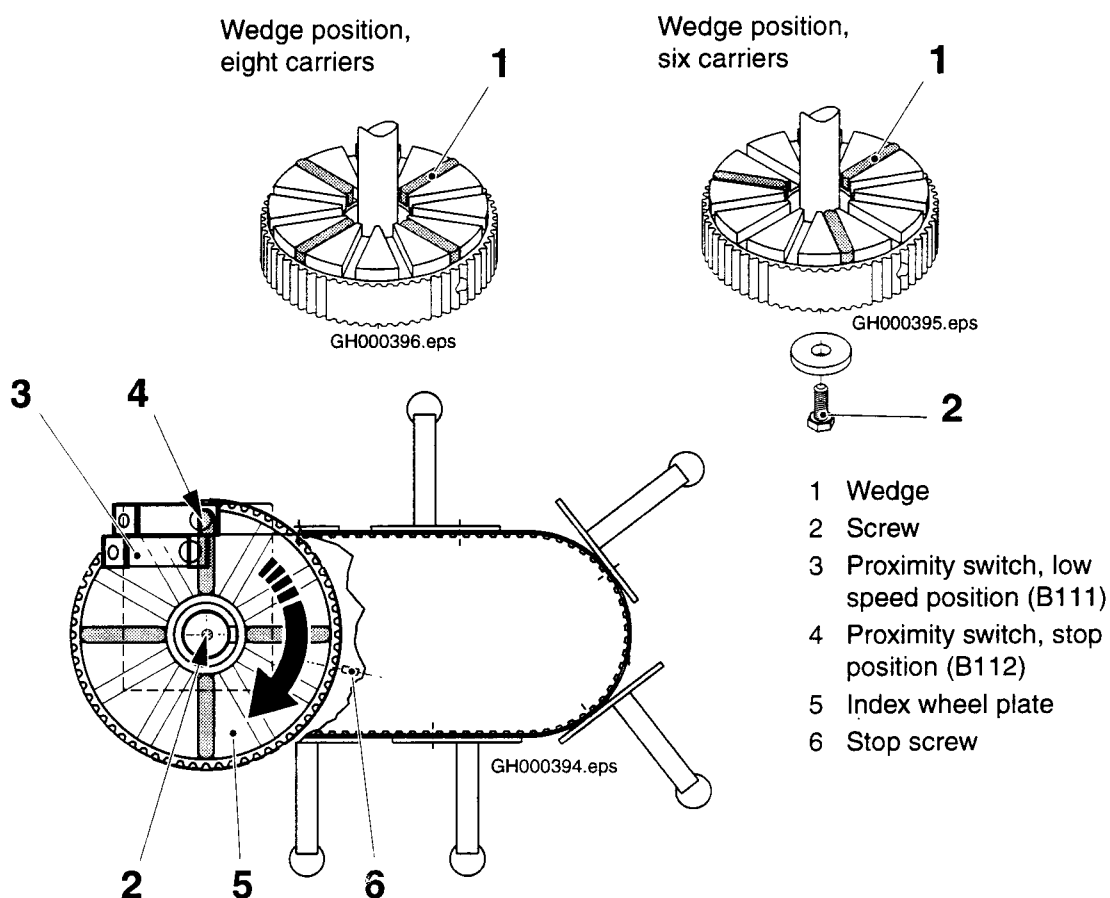
- 3 wedges equally divided, for six carriers
- 4 wedges equally divided, for eight carriers

Set as follows:

Note! When turning the index wheel plate (5), make sure the carrier is not out of **stop position** (that the timing belt stays in the position it was turned to when the stop position was set).

- Loosen the stop screw (6).
- Loosen the screw (2) and turn the index wheel plate (5) clockwise until one wedge on the index wheel activates the proximity switch for stop position (4) (the LED lights up).
- Tighten the screw (2) and the stop screw (6).

To set the speed of the carrier, see procedure 8-2 Electric equipment - set photocell on page 133.



1.3-6 Carrier - set carrier/applicator pivot point

Machine status	Mains power OFF Air OFF
SPC	1119895-020V 1119513-010V

This procedure contains instructions for setting with

- straw application, or
- UniCap application

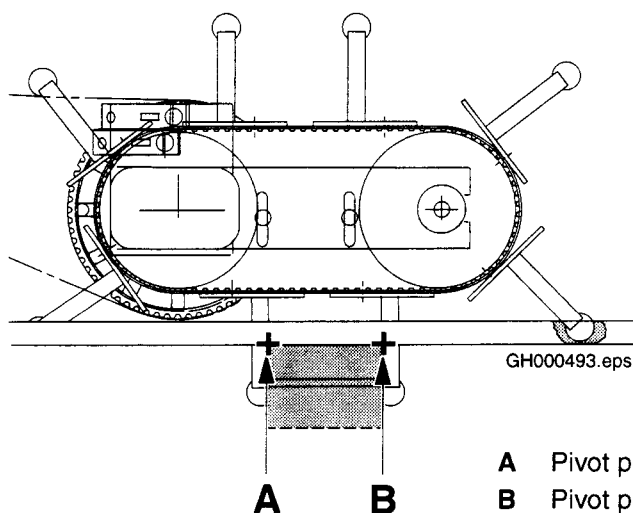
Note! The carrier should be in synchronized stop position.

Straw application

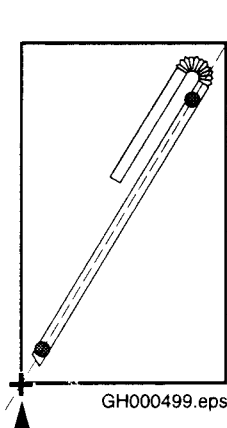
Depending on the straw angle, one of the two pivot points **A** or **B** has to be used when aligning the carrier to the applicator.

Use

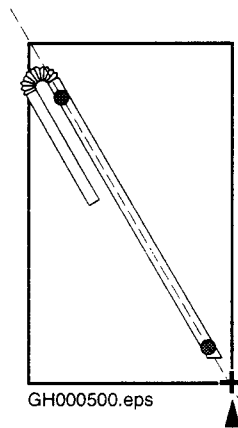
- **A** for straw angle in top right hand position
- **B** for straw angle in top left hand position



- A** Pivot point - straw angle top **right** hand
B Pivot point - straw angle top **left** hand



A Straw Top right hand



B Straw Top left hand

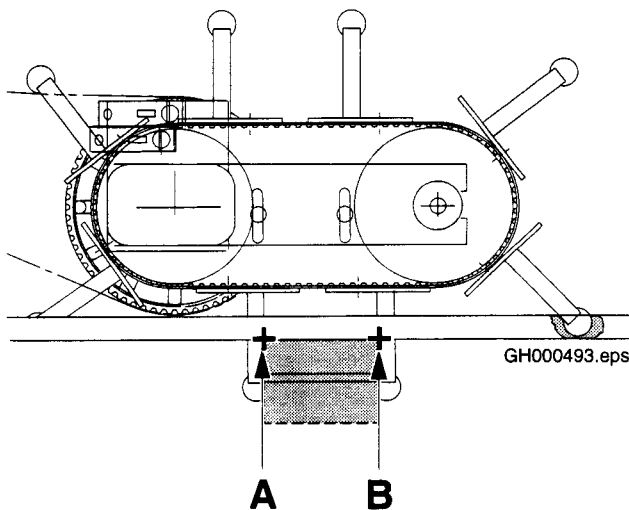
(Cont'd)

(Cont'd)

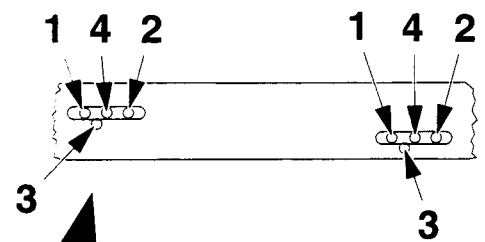
Set as follows:

- Depending on the straw angle, remove the screws (5) and shift carrier position. Use holes (1), (2) or (3), see illustration below.
- Adjust the carrier until the carrier pivot point **A** (or **B**) is in line with the applicator pivot point **C**.
- Tighten the screws (5).

Set the photocell position, see [1.2.1-2 Photocell bracket - set photocell position](#) on page 37.

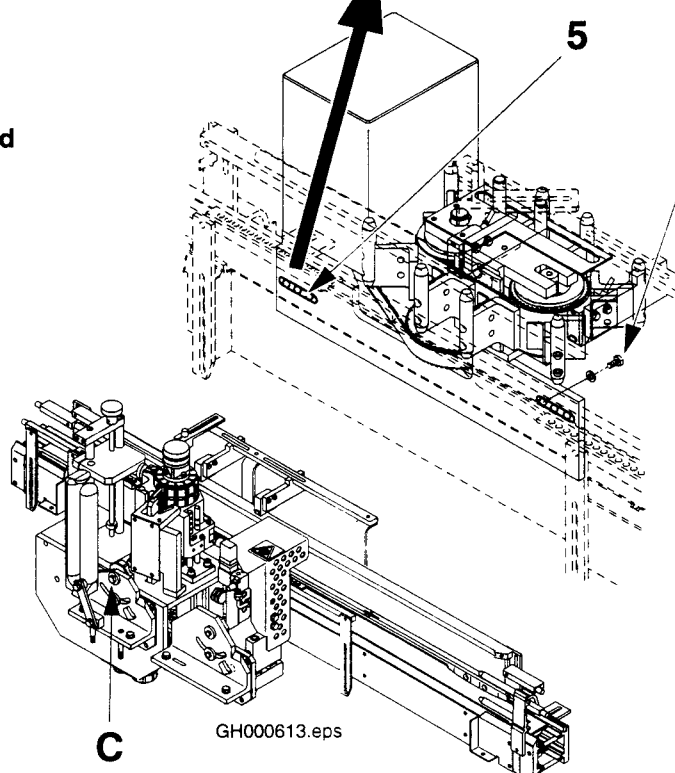


Note! Carrier set screws position seen from machine **left hand side**



- A** Pivot point - straw angle top **right hand**
- B** Pivot point - straw angle top **left hand**
- C** Pivot point - applicator

- 1 Carrier position for straw angle top right hand
- 2 Carrier position for straw angle top left hand
- 3 Carrier position package type 100 B
- 4 Carrier position UniCap, see UniCap application
- 5 Screw



(Cont'd)

(Cont'd)

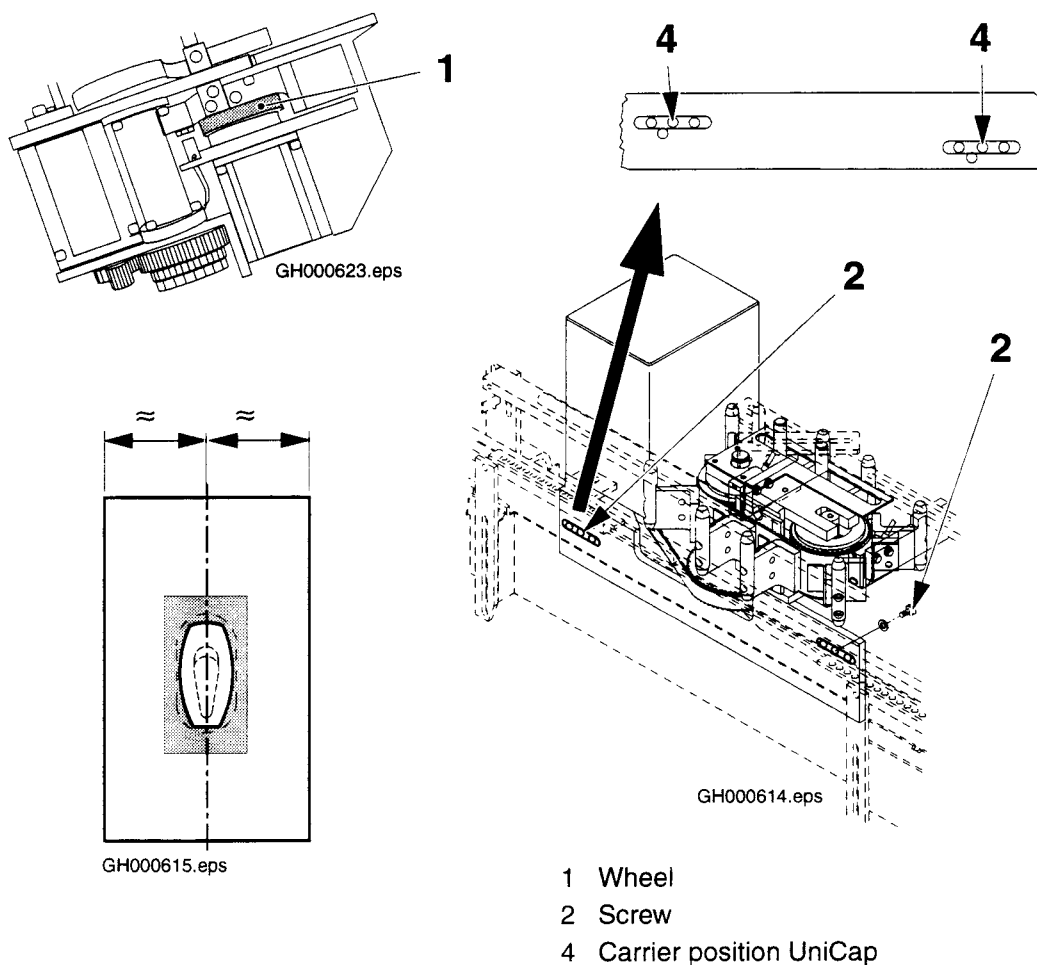
UniCap application

Make sure that the feed wheel and the squeezers are properly set, see [3.1-1 Feed wheel unit - set tracks position](#) on page 82, and [3.2.5-2 Squeezer - set](#) on page 108.

Make sure that the carrier for UniCap application is positioned in hole (4), see illustration.

- Move a package by hand into application position. Turn the wheel (1) to move the squeezer in front position. The cap is then pressed to the package.
- Loosen the screws (2) and adjust the carrier until the cap is centred to the package centre sideways.
- Tighten the screws (2).

Set the photocell position, see [1.2.1-2 Photocell bracket - set photocell position](#) on page 37.



2.2TH000246.en

1.3.2 Drive

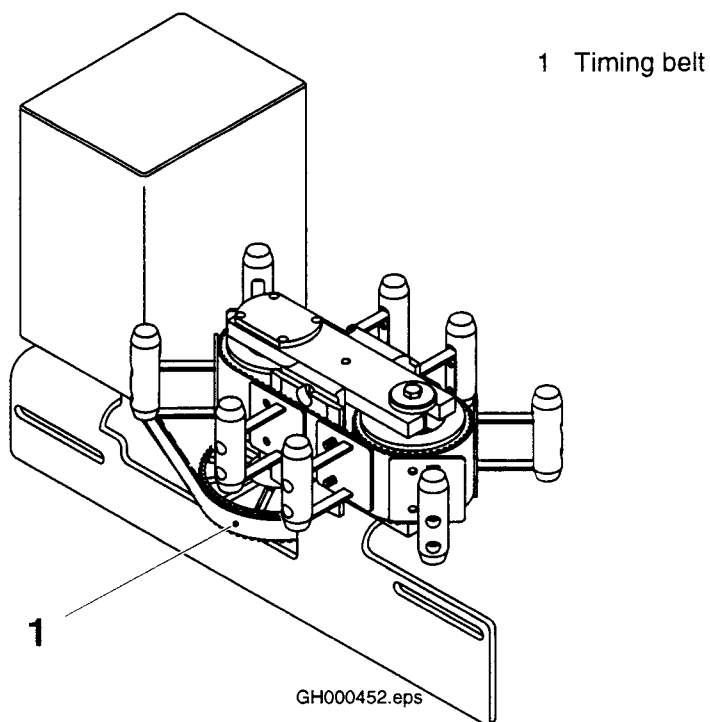
1.3.2-1 Drive - check timing belt

Machine status	Mains power OFF Air OFF
SPC	1119894-010V

Check the timing belt (1)

- for wear and/or damage
- tension

To tension or change the timing belt, see procedure [1.3.2-2 Drive - change timing belt](#) on page 52.

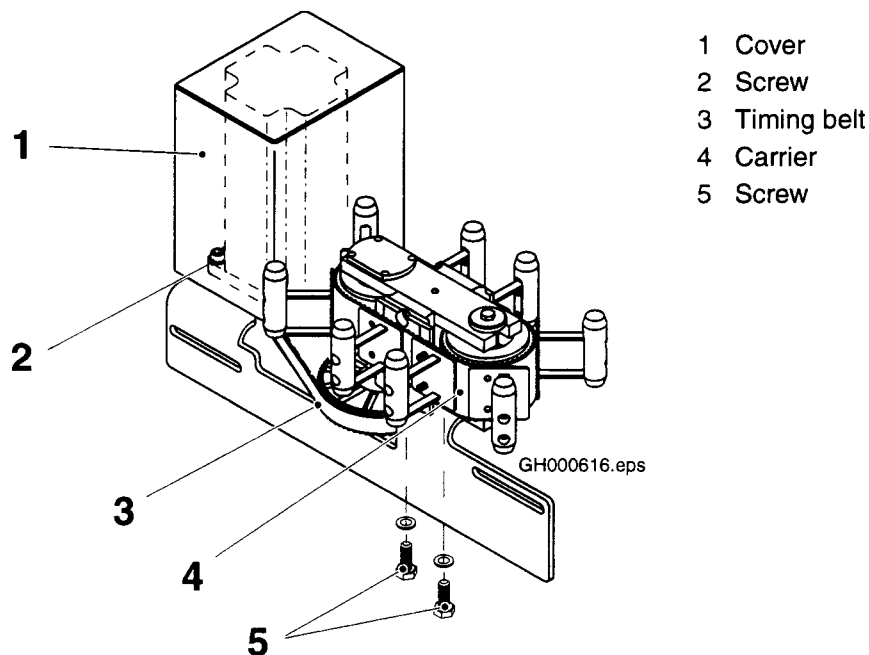


1.3.2-2 Drive - change timing belt

Machine status	Mains power OFF Air OFF
SPC	1119894-010V (1119895-020V)

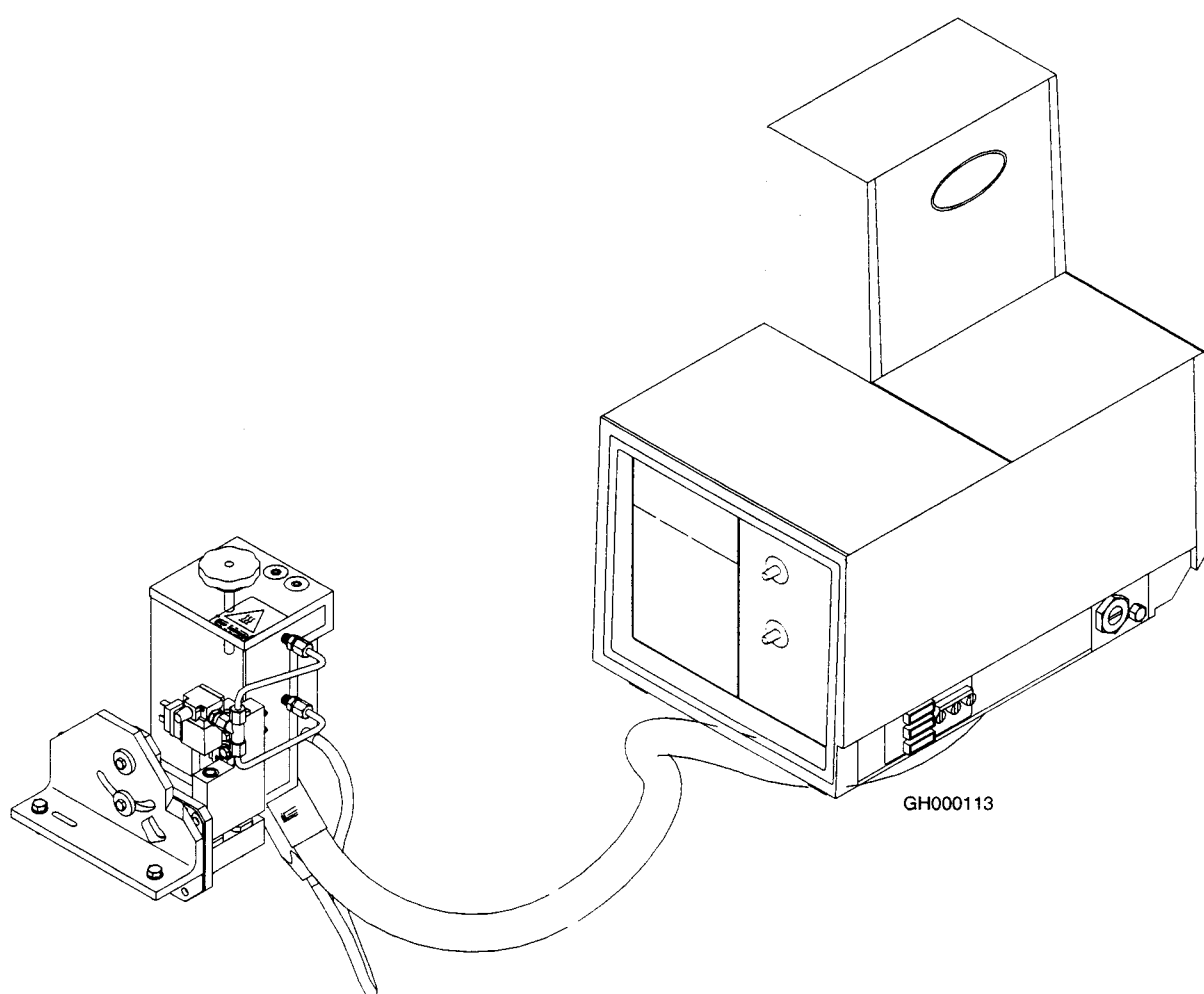
To change the timing belt, do the following:

- a) Remove the cover (1).
- b) Loosen the three screws (2). To slacken the timing belt (3) push the motor in direction against the carrier (4).
- c) Remove the two screws (5). Move the carrier in straight direction from the groove in the bracket, until it is possible to remove the timing belt.
- d) Fit the new timing belt on the carrier and push the carrier back in position. Fit the carrier with the screws (5).
- e) Check, by turning the carrier timing belt by hand, that the carriers are pushing in the centre of a package. If necessary, make fine adjustment by loosen the screws (5) under the carrier and move the carrier unit into the right position.
- f) Fit the timing belt at the motor. To tension the timing belt, push the motor in position and tighten the screws.



- 1 Cover
- 2 Screw
- 3 Timing belt
- 4 Carrier
- 5 Screw

2 Hot melt equipment

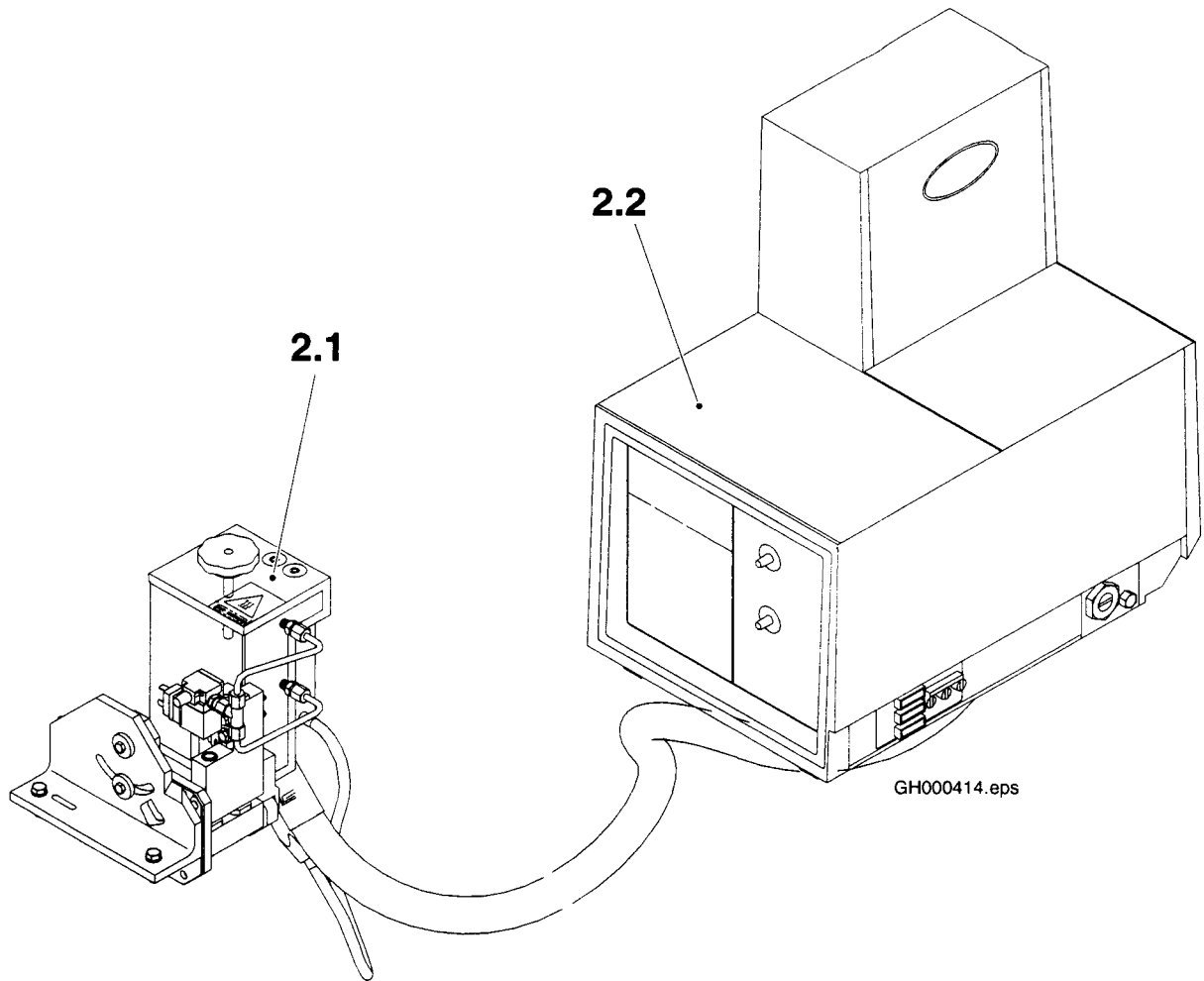


2.2TH000247.en

2-0 Hot melt equipment - description

SPC

678584-020V



2.1 Connection hot melt gun
2.2 Hot melt equipment Nordson

(Cont'd)

2.2TH000247.en

(Cont'd)

Zero pump air pressure

When following the instructions in the procedures in this section, and the instructions in Nordson Manual, always **Zero** the pump air pressure as follows:

- a) Turn the pressure regulator (3) handle, see picture.



WARNING!

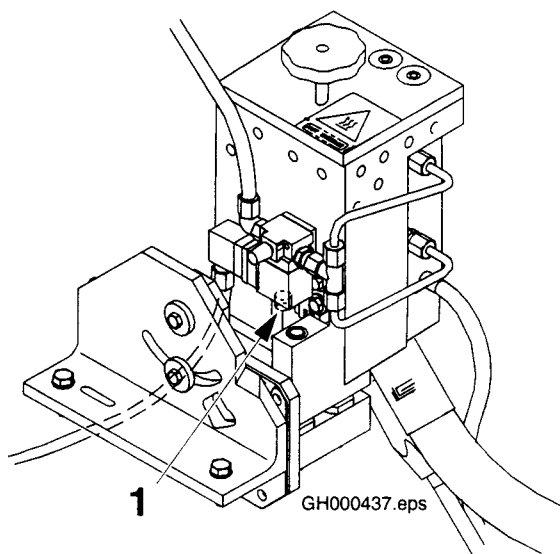
Risk of burns!

Hot adhesive! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from adhesive pouring out through the nozzles.

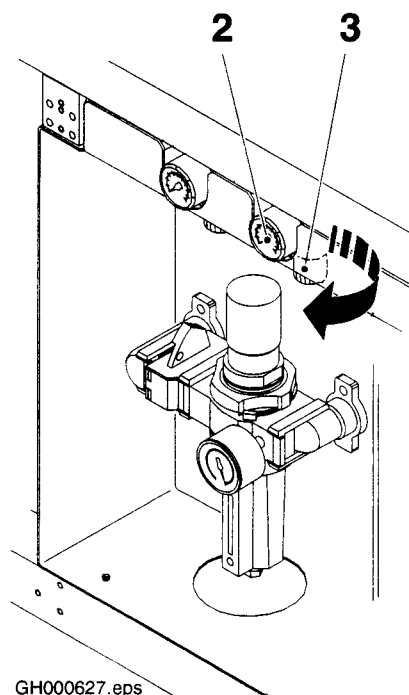
- b) Use a suitable container, placed under the nozzles, to assemble hot melt adhesive, if any.

To release any remaining pressure, press the button (1) on the valve on the hot melt gun unit.

- c) Check on the pressure gauge (2) that the air pressure is zeroed.



- 1 Valve button
- 2 Pressure gauge, hot melt pump
- 3 Pressure regulator handle, hot melt pump



2 Hot melt equipment

2-1 Hot melt equipment - bleed system

Machine status	Mains power ON Air OFF
SPC	1119504-010V 1119520-020V

Note! The machine must be preheated, and the guns have reached operating temperature.

Remove the nozzles, see procedure 2.2-9 Hot melt equipment Nordson - change/clean gun nozzle on page 66.

To bleed the system, do the following:

- a) Turn on the air pressure manually by turning the knob (2) on the valve in the valve cabinet.



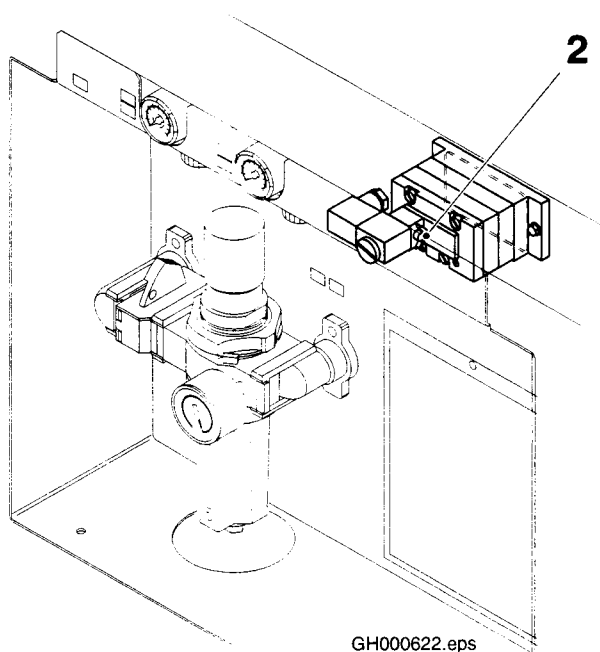
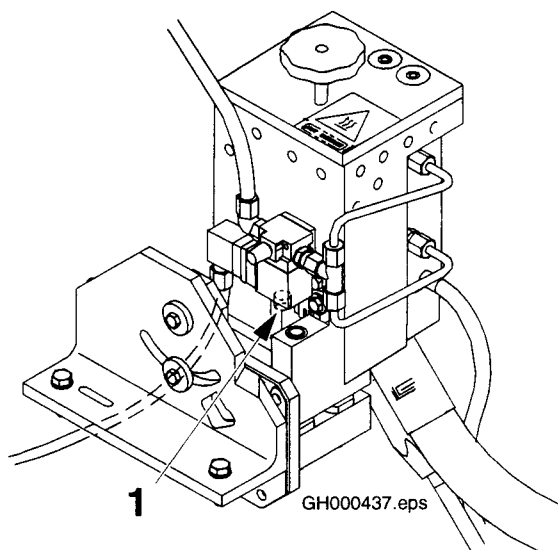
WARNING!

Risk of burns!

Hot adhesive! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from splashing adhesive.

- b) Use a suitable container placed under the nozzle holes, to assemble the hot melt adhesive.
Press the button (1) on the valve on the hot melt gun unit manually, and pump the hot melt out, until pure hot melt without air bubbles is extruded.
- c) Turn the valve button (2) back in position.

Fit the nozzles back.



- 1 Valve Y102
- 2 Valve Y100

2.2TH000247.en

2.1 Connection hot melt gun

SPC	1119504-010V
-----	--------------

2.1-1 Connection hot melt gun - remove unit

Machine status	Mains power OFF Air OFF
SPC	1119504-010V

Zero the pump air pressure, follow the instructions Zero pump air pressure on page 55.

To remove the unit, do the following:

- a) Disconnect the air line (1) with the connections.
- b) Disconnect the cable (2) with the connection.



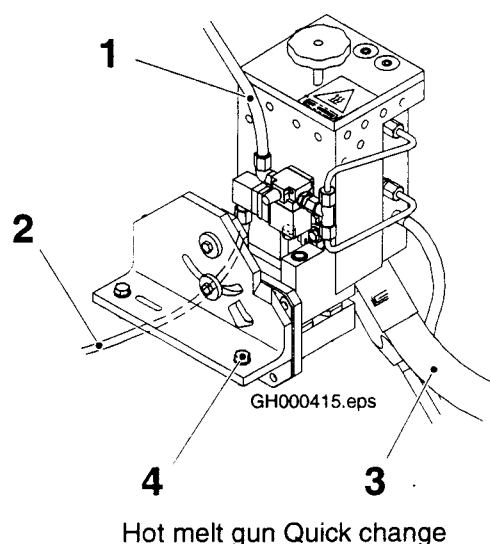
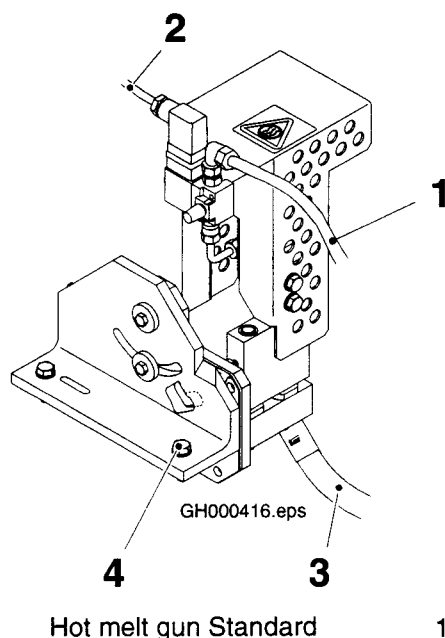
WARNING!

Risk of burns!

There could be remaining adhesive in the hose! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from splashing hot adhesive.

- c) Disconnect the hose (3) from the hot melt gun.
- d) Remove the screws (4). Lift the unit straight up.

After taken the actions required, fit the unit in the reverse order.



- 1 Air line
- 2 Cable
- 3 Hose
- 4 Screw

2.1-2 Connection hot melt gun - set angle

Machine status (Straw application)	Mains power ON Air ON
SPC	1119504-010V

Straw application

Note! The machine must be preheated, and the guns have reached operating temperature.



WARNING!

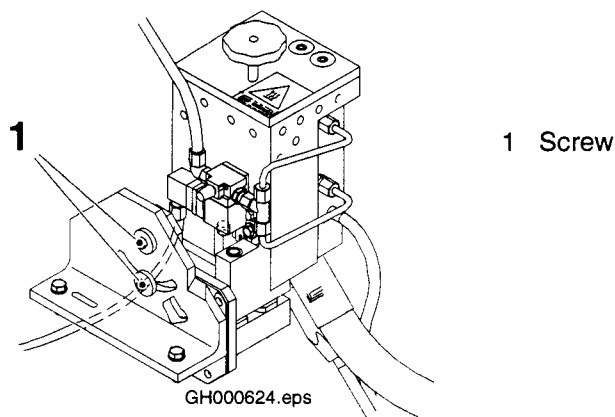
Risk of burns!

The connection hot melt gun could be hot.

Set the connection hot melt gun angle as follows:

- Put a package in front of the connection hot melt gun.
- Loosen the screws (1) and tilt the gun unit until the angle is aligned to the package diagonal. Tighten the screws.
- Operate the machine. Check on a package that the hot melt dots are positioned on the package diagonal. If not, adjust the angle, and run one more package to check again.

To move the hot melt dot positions upwards/downwards or sideways, see procedure [2.2.1-2 Hot melt equipment Nordson Standard - set gun](#) page 68, or [2.2.2-2 Hot melt equipment Nordson Quick Change - set gun](#) page 73.



UniCap application

The UniCap connection hot melt gun shall not be tilted.

2.2 Hot melt equipment Nordson

SPC	1119506-020V
-----	--------------

2.2-1 Hot melt equipment Nordson - set hot melt unit

Machine status	Mains power ON Air ON
Consumables - adhesive	Jowatherm Hotmelt 25700
SPC	1119506-020V (1119520-020V)



WARNING!

Risk of burns!

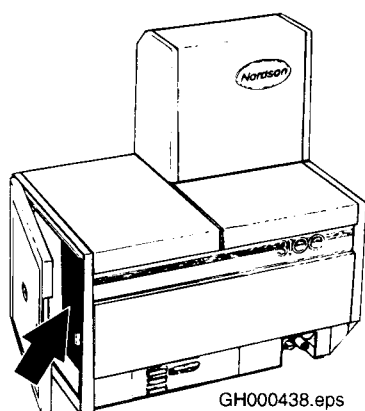
Hot surfaces can cause serious injuries!

To set the hot melt unit do the following:

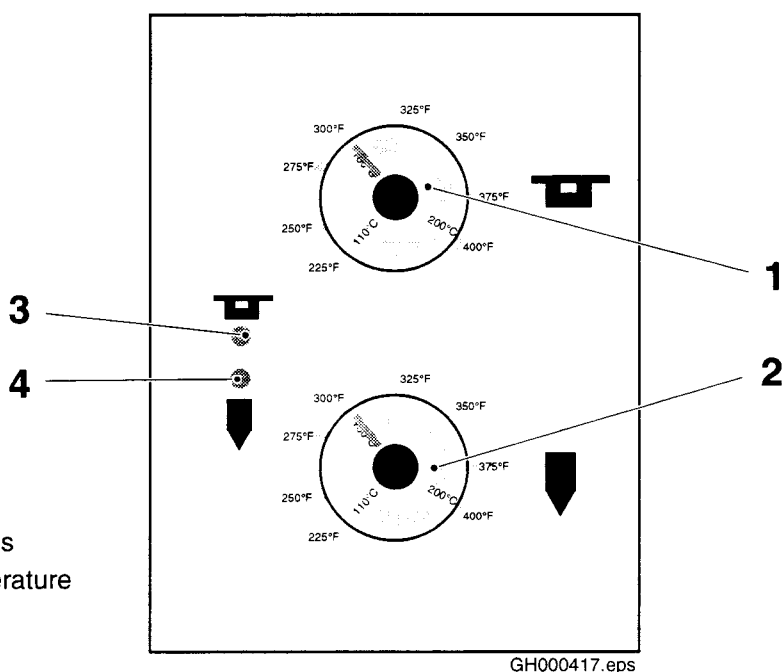
- Set the temperature of tank on regulator (1), and hot melt guns on regulator (2) according to the table below.
The hose temperature is following the tank temperature (the upper lamp (3) is lit).

Note! The temperatures may be different if another type of hot melt is used.

Tank	Hose	Hot melt guns
150 °C	150 °C	165 °C



- Temperature regulator, tank
- Temperature regulator, hot melt guns
- Temperature indication, hose temperature following tank temperature
- Not in use



(Cont'd)

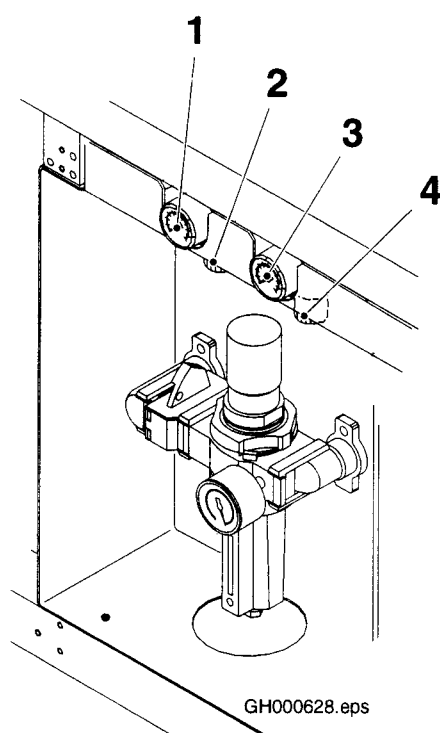
(Cont'd)

- b) Check that there is adhesive in the tank. Switch on the hot melt unit. Recommended type of adhesive, see **Consumables** in the first table, this procedure (2.2-1 Hot melt equipment Nordson - set hot melt unit).

Note! The colour of the hot melt adhesive should be almost white. If the hot melt adhesive has become brown, change it. In order to obtain a prolonged lifetime of the hot melt adhesive, the temperature can be decreased during longer production stops.

- c) Set the air pressure of the hot melt pump, indicated on the pressure gauge (3) by means of the pressure regulator (4). See table below.
- d) Set the gun pressure on the pressure gauge (1) by means of the pressure regulator (2). See table below.

Pump (3)	Gun (1)
0.4 - 0.5 MPa	0.25 - 0.3 MPa



- 1 Pressure gauge, gun
2 Pressure regulator, gun
3 Pressure gauge, hot melt pump
4 Pressure regulator, hot melt pump

GH000628.eps

2.2TH000249.en

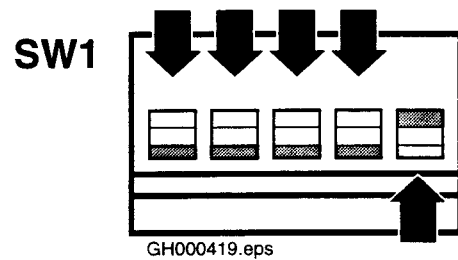
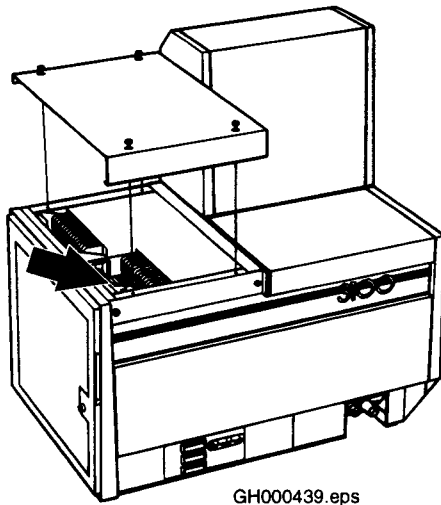
(Cont'd)

(Cont'd)

**DANGER!****Risk of electrical shock!**

Failure to disconnect external power to the hot melt unit presents a serious shock hazard. The input terminal block and input terminals on the circuit breaker are still energized if external power is not disconnected, even though the circuit breaker is off.

Switch SW1 on the main control board sets the delay time for temperature alarm. Set the dip switches according to the picture (as seen from above).



2.2-2 Hot melt equipment Nordson - check pump function

Machine status	Mains power ON Air ON
SPC	1119506-020V

Check the pump function.

If required, see Nordson Manual, section B, for further instructions.

2.2-3 Hot melt equipment Nordson - change pump

Machine status	Mains power, see instruction Air, see instruction
SPC	1119506-020V

See instructions in Nordson Manual, section B.

Note! When zeroing the pump air pressure, follow the instructions Zero pump air pressure on page 55.

2.2-4 Hot melt equipment Nordson - empty tank

Machine status	Mains power ON Air, see instruction
SPC	1119506-020V

See instructions in Nordson Manual, section A.

Note! When zeroing the pump air pressure, follow the instructions Zero pump air pressure on page 55.

2.2-5 Hot melt equipment Nordson - clean filter

Machine status	Mains power ON Air, see instruction
SPC	1119506-020V

See instructions in Nordson Manual, section A.

Note! When zeroing the pump air pressure, follow the instructions Zero pump air pressure on page 55.

2.2-6 Hot melt equipment Nordson - change filter

Machine status	Mains power ON Air, see instruction
SPC	1119506-020V

See instructions in Nordson Manual, section A.

Note! When zeroing the pump air pressure, follow the instructions Zero pump air pressure on page 55.

2.2-7 Hot melt equipment Nordson - check hose

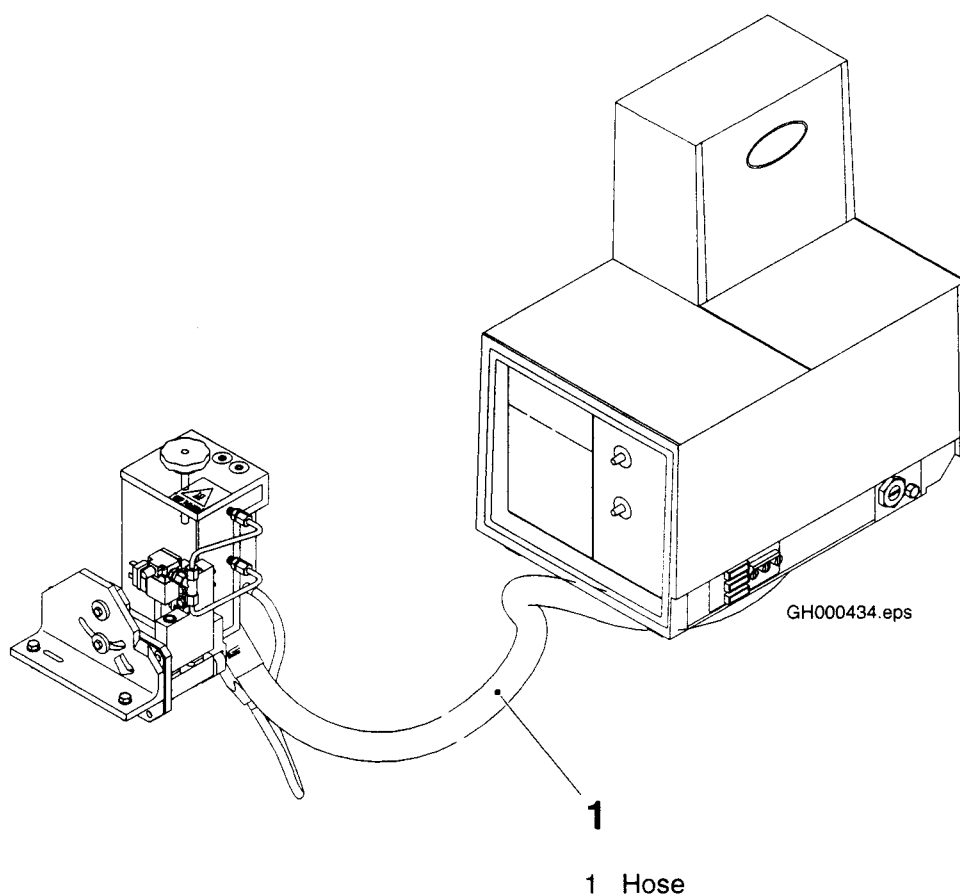
Machine status	Mains power ON Air ON
SPC	1119506-020V

Check the hose (1) for wear, and the connections for leakage.

Replace and/or tighten as required. See the instructions in Nordson Manual; RTD-Style Hot Melt Hose Replacement, section 4.

If problems with the electrical connection appear, see Nordson Manual; RTD-Style Hot Melt Hose Replacement, section 4.

Note! When replacing the hose and/or tightening the hose connections, zero the pump air pressure. Follow the instructions Zero pump air pressure on page 55.



2.2TH000249 en

2.2-8 Hot melt equipment Nordson - change hose filter

Machine status	Mains power OFF Air OFF
SPC	1119506-020V (1119504-010V)

Note! The machine must be preheated, and the guns have reached operating temperature.

Zero the pump air pressure, follow the instructions Zero pump air pressure on page 55.

To change the hose filter, do the following:

- a) Remove the four screws (1). Lift out the connection hot melt gun (with the hose still fit to the hot melt unit).



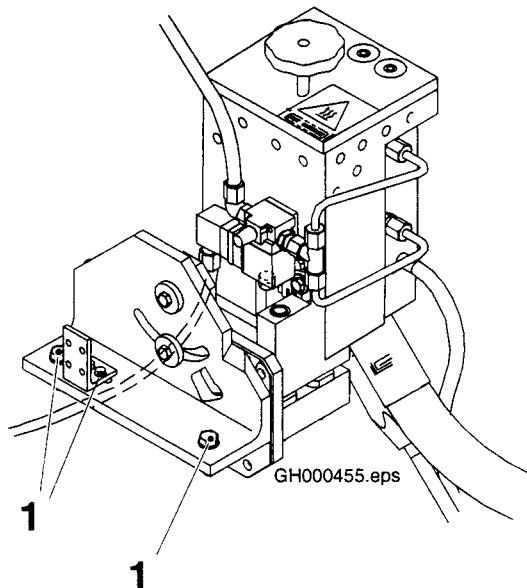
WARNING!

Risk of burns!

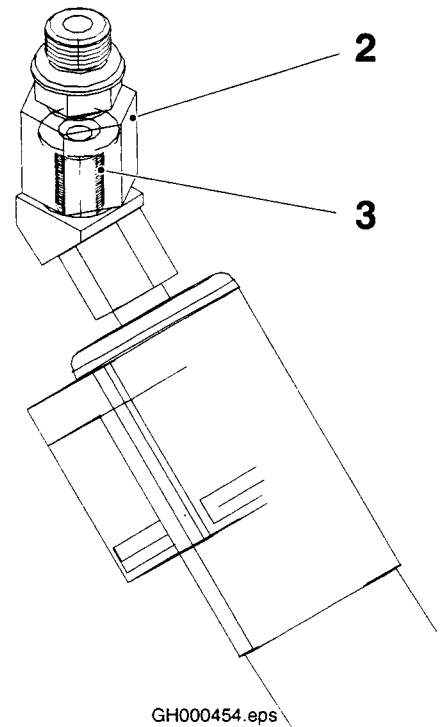
There can remain hot adhesive in the hose! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from splashing adhesive

- b) Unscrew the nut (2) to dismantle the filter.
- c) Change the filter insert (3).

Assemble in the reverse order.



- 1 Screw
- 2 Nut
- 3 Filter insert



2.2-9 Hot melt equipment Nordson - change/ clean gun nozzle

Machine status	Mains power ON Air, see instruction
SPC	1119506-020V

See instructions in Nordson Manual, section A.

Note! When zeroing the pump air pressure, follow the instructions Zero pump air pressure on page 55.

2.2.1 Hot melt equipment Nordson Standard

2.2.1-1 Hot melt equipment Nordson Standard - change gun

Machine status	Mains power OFF Air OFF
SPC	1119506-020V

Note! The machine must be preheated, and the guns have reached operating temperature.

Zero the pump air pressure, follow the instructions Zero pump air pressure on page 55.



WARNING!

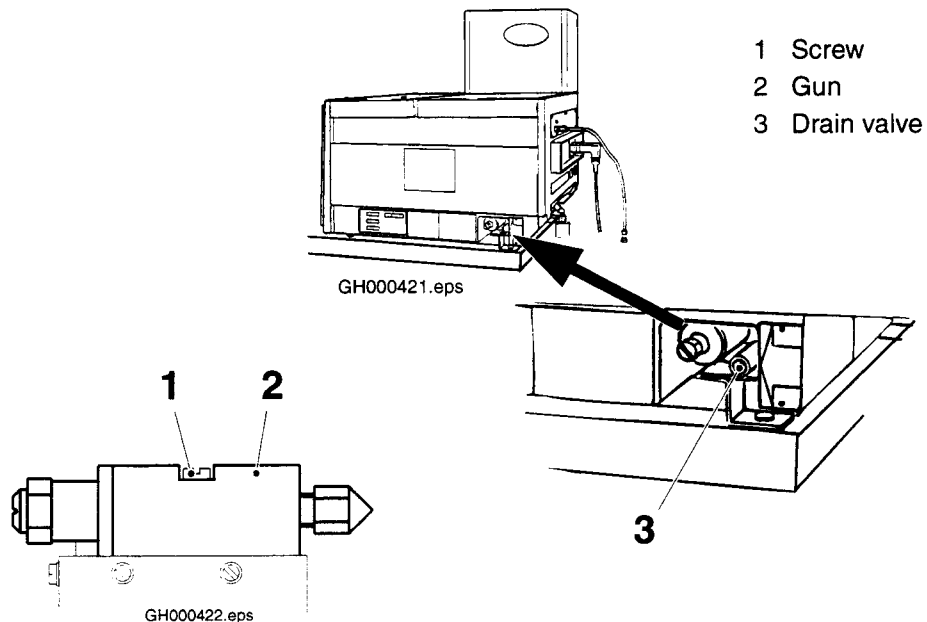
Risk of burns!

Hot adhesive! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from splashing adhesive.

To change gun, do the following:

- Open the drain valve (3) over an open container.
- Undo the screws (1) and remove the gun (2). Replace it.
- Close the drain valve (3).

Set the gun, see procedure 2.2.1-2 Hot melt equipment Nordson Standard - set gun on page 68.

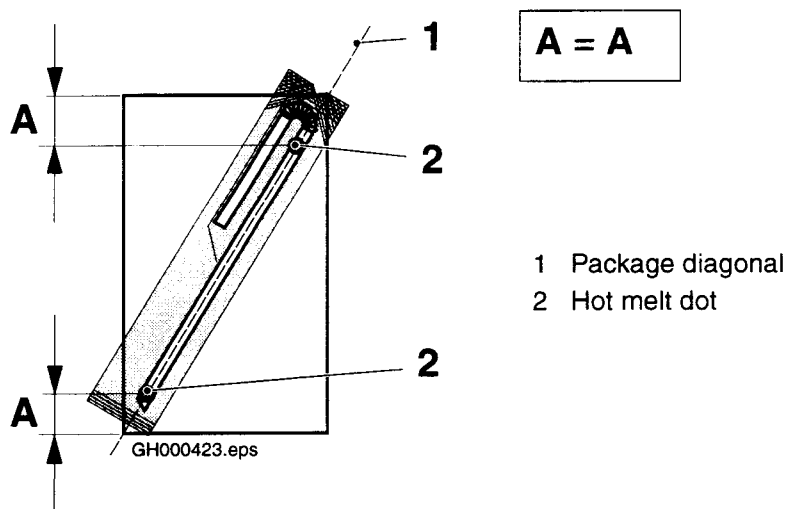


2.2.1-2 Hot melt equipment Nordson Standard - set gun

Machine status	Mains power ON Air ON
SPC	1119504-010V 1119542-040V

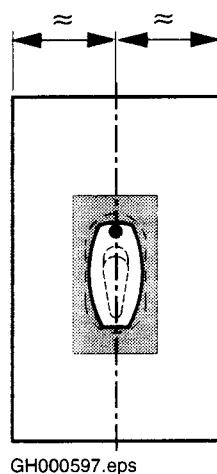
Straw application

Operate the machine. Check on a package that the hot melt dots (2) are deposited on a package as illustrated, on the package diagonal (1). Check the **A** measure. The dots should be equally positioned from the package edges. If not, set according to page 69.



UniCap application

Operate the machine. The hot melt dot should be positioned under the upper end of the cap, approximately in the package centre sideways, see illustration. If not, set according to page 69.



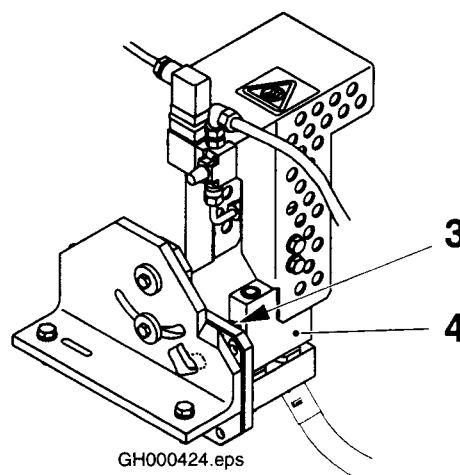
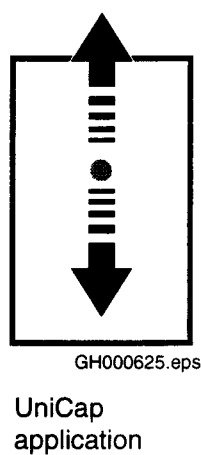
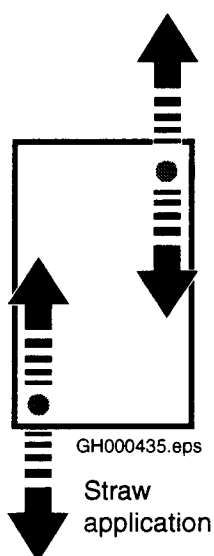
(Cont'd)

*(Cont'd)***Set all applications**

To adjust the hot melt dot positions **upwards/downwards**:

- a) Only straw application:
Set the applicator unit angle, see procedure 3-1 Applicator unit - set on page 78.
- b) Loosen the screw (3) and lift/lower the lifting lug and the cantilever (4).

For straw application the distance between the two dots is fixed.



- 3 Screw
- 4 Lifting lug and cantilever

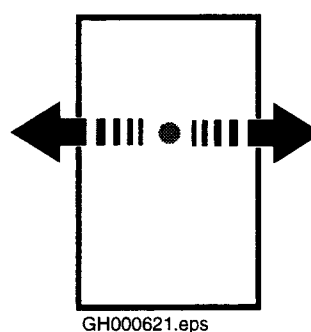
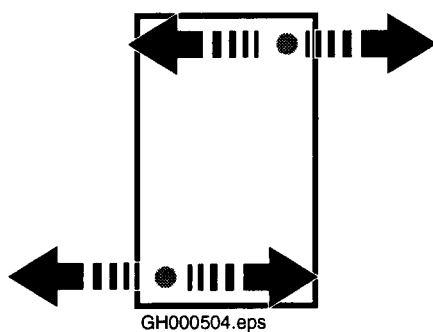
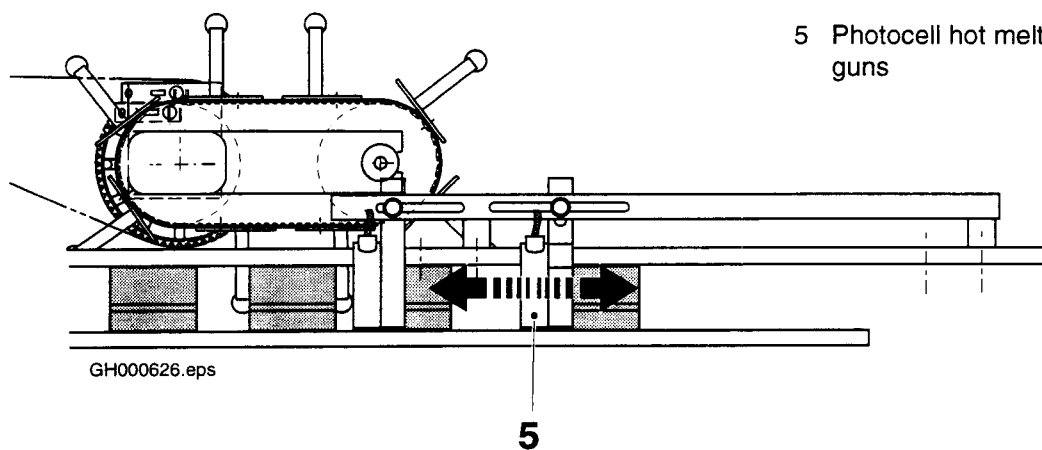
(Cont'd)

(Cont'd)

To adjust the hot melt dot position **sideways**:

Move the photocell (5) in longitudinal direction.

Moving the photocell backwards will move the hot melt dot forwards, and vice versa.



2.2.2 Hot melt equipment Nordson Quick Change

2.2.2-1 Hot melt equipment Nordson Quick Change - change gun

Machine status	Mains power OFF Air OFF
SPC	1119506-020V

Only straw application

Note! The machine must be preheated, and the guns have reached operating temperature.

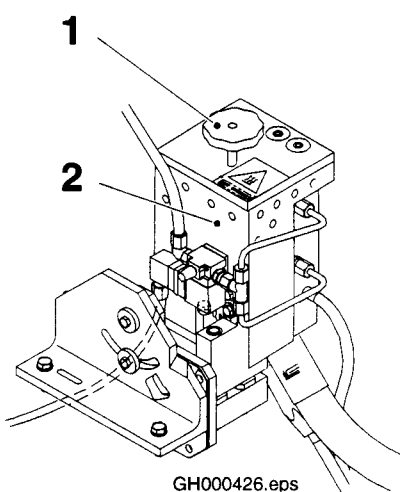
Zero the pump air pressure, follow the instructions Zero pump air pressure on page 55.

**WARNING!****Risk of burns!**

Hot adhesive! Wear safety glasses, protective gloves and other protective clothing to avoid injuries from splashing adhesive.

To change gun, do the following:

- a) Remove the hand wheel (1), and the heat guard (2).



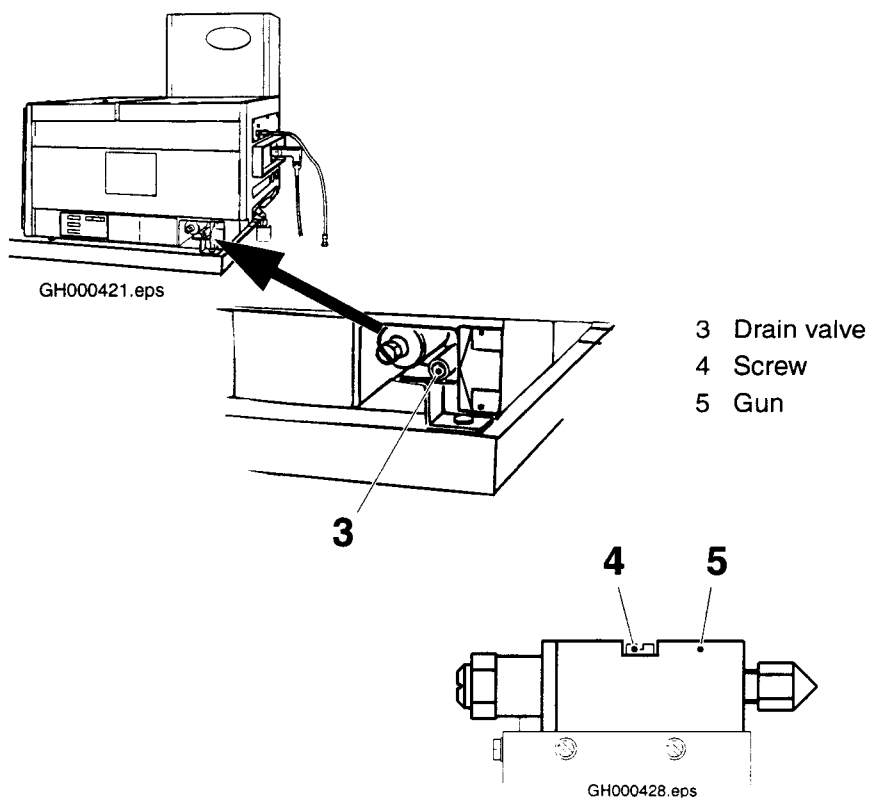
- 1 Hand wheel
2 Heat guard

(Cont'd)

(Cont'd)

- b) Open the drain valve (3) over an open container.
- c) Undo the screws (4) and remove the gun (5). Replace it.
- d) Close the drain valve (3).
- e) Fit the heat guard and the hand wheel on the hot melt gun unit again.

Set gun, see procedure 2.2.2-2 Hot melt equipment Nordson Quick Change - set gun on page 73.



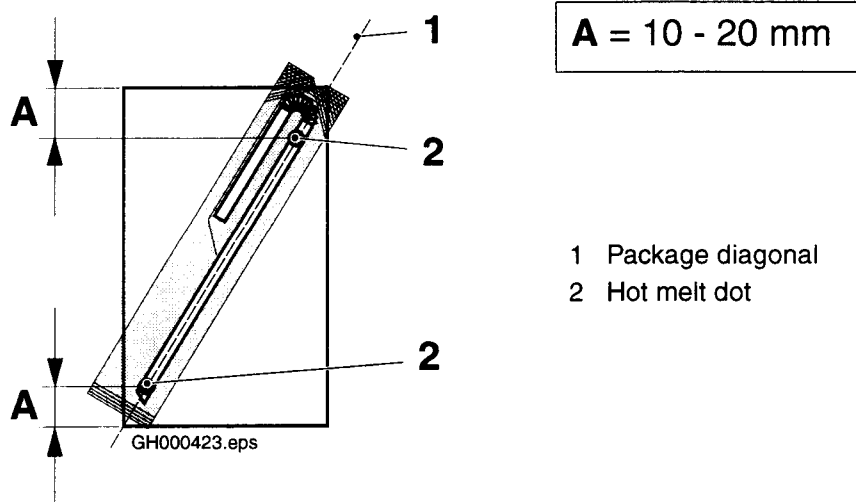
2.2TH000249_en

2.2.2-2 Hot melt equipment Nordson Quick Change - set gun

Machine status	Mains power ON Air ON
SPC	1119504-010V 1119542-040V

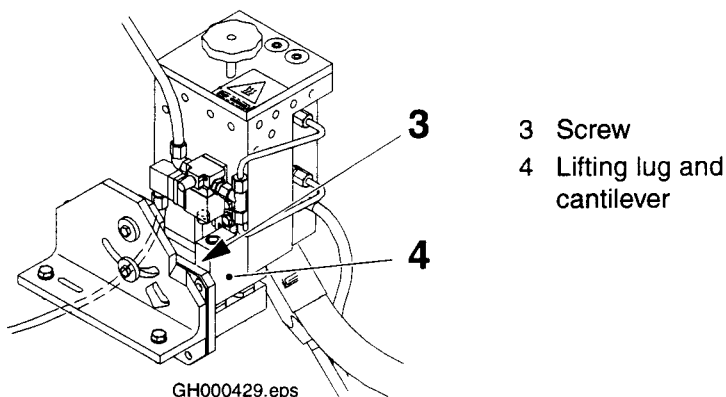
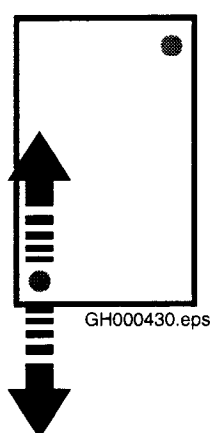
Only straw application

Operate the machine. Check on a package that the hot melt dots (2) are deposited on a package as illustrated, on the package diagonal (1). Check the A measure.



To adjust the **lower** hot melt dot position **upwards/downwards**:

- Set the applicator unit angle, see procedure 3-1 Applicator unit - set on page 78.
- Loosen the screw (3) and lift/lower the lifting lug and the cantilever (4).

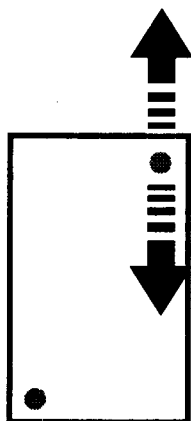


(Cont'd)

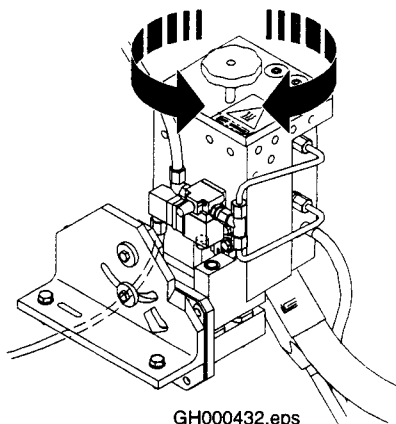
(Cont'd)

To adjust the **upper** hot melt dot position **upwards/downwards**:

Turn the hand wheel clockwise for adjusting the hot melt dot downwards.



GH000431.eps

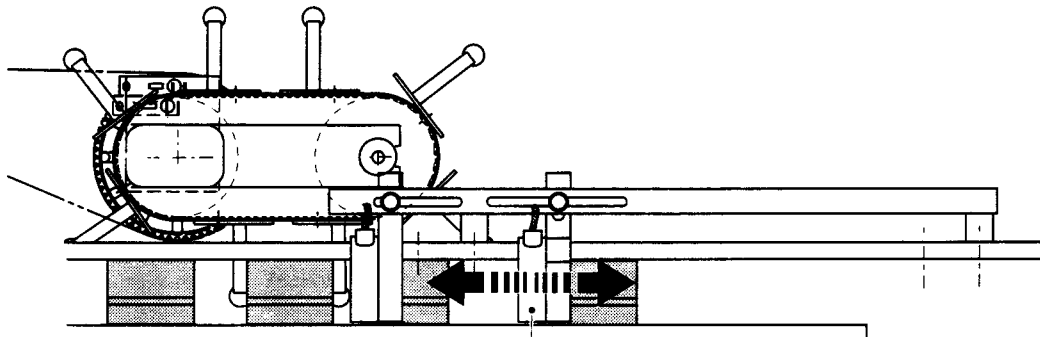


GH000432.eps

To adjust the hot melt dot position **sideways**:

Move the photocell (5) in longitudinal direction.

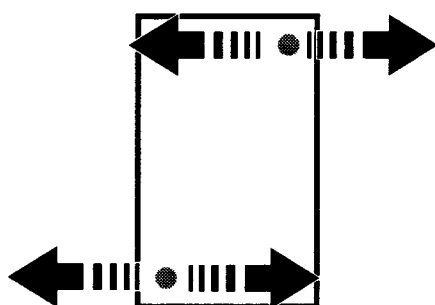
Moving the photocell backwards will move the hot melt dot forwards, and vice versa.



GH000626.eps

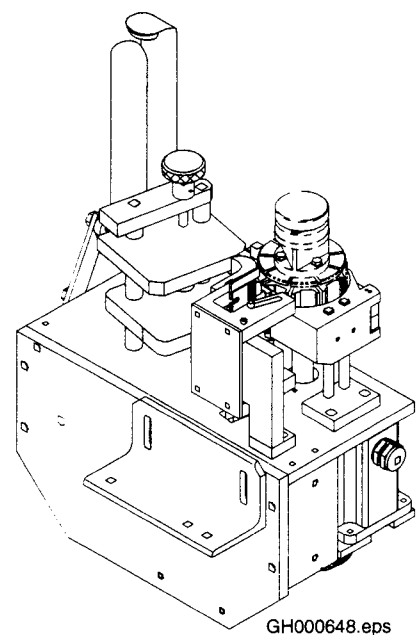
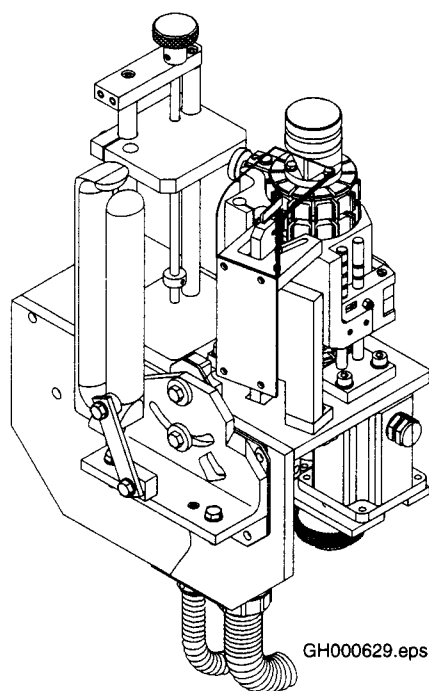
5

5 Photocell hot melt guns



GH000504.eps

3 Applicator unit

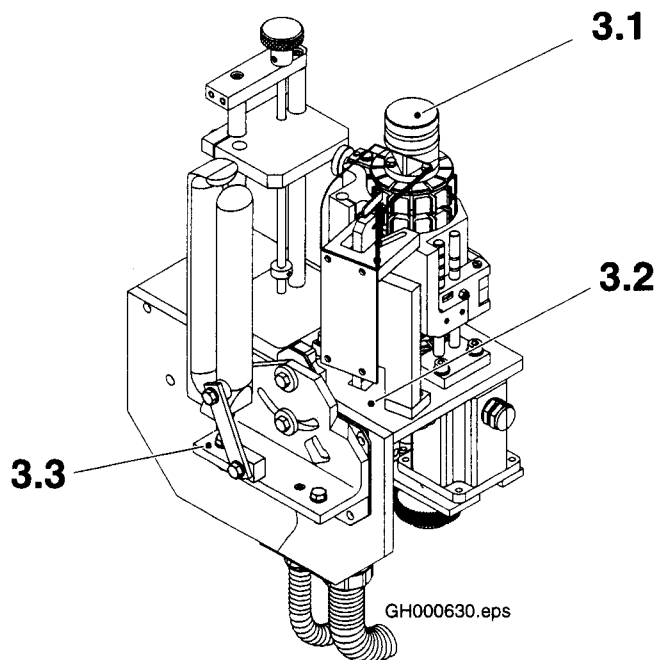


3 Applicator unit

3-0 Applicator unit - description

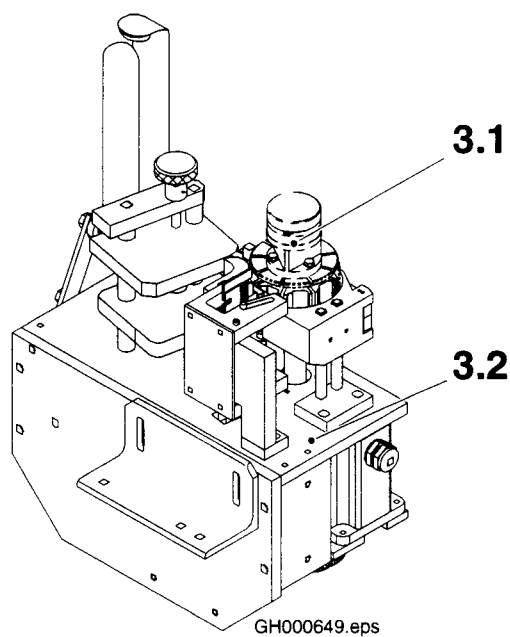
SPC	678585-040V
-----	-------------

Applicator unit straw



- 3.1 Feed wheel unit
- 3.2 Applicator head
 - 3.2.1 Hold down
 - 3.2.2 Drive
 - 3.2.3 Ladder band guide - No procedure is described
 - 3.2.4 Cutting unit
 - 3.2.5 Squeezer
- 3.3 Guide holder - No procedure is described

Applicator unit UniCap



- 3.1 Feed wheel unit
- 3.2 Applicator head
 - 3.2.1 Hold down
 - 3.2.2 Drive
 - 3.2.3 Ladder band guide - No procedure is described
 - 3.2.4 Cutting unit
 - 3.2.5 Squeezer

(Cont'd)

2.2TH000250.en

(Cont'd)

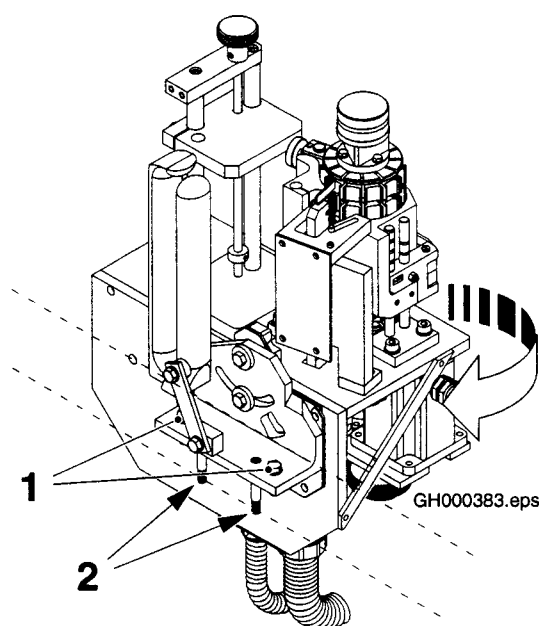
Applicator unit Service position

Machine status	Mains power OFF Air OFF
SPC	678585-040V

The applicator unit can be turned in Service position, to make it easier to perform some of the Overhaul and Set procedures:

- a) Remove the screws (1).
- b) Lift the applicator unit from the guide pins (2).

Turn the applicator unit 180° and steer it down on the guide pins again, outside the frame. Fit it with the screws (1).



- 1 Screw
- 2 Guide pin

3 Applicator unit

3-1 Applicator unit - set

Machine status	Mains power ON Air ON
SPC	678585-040V

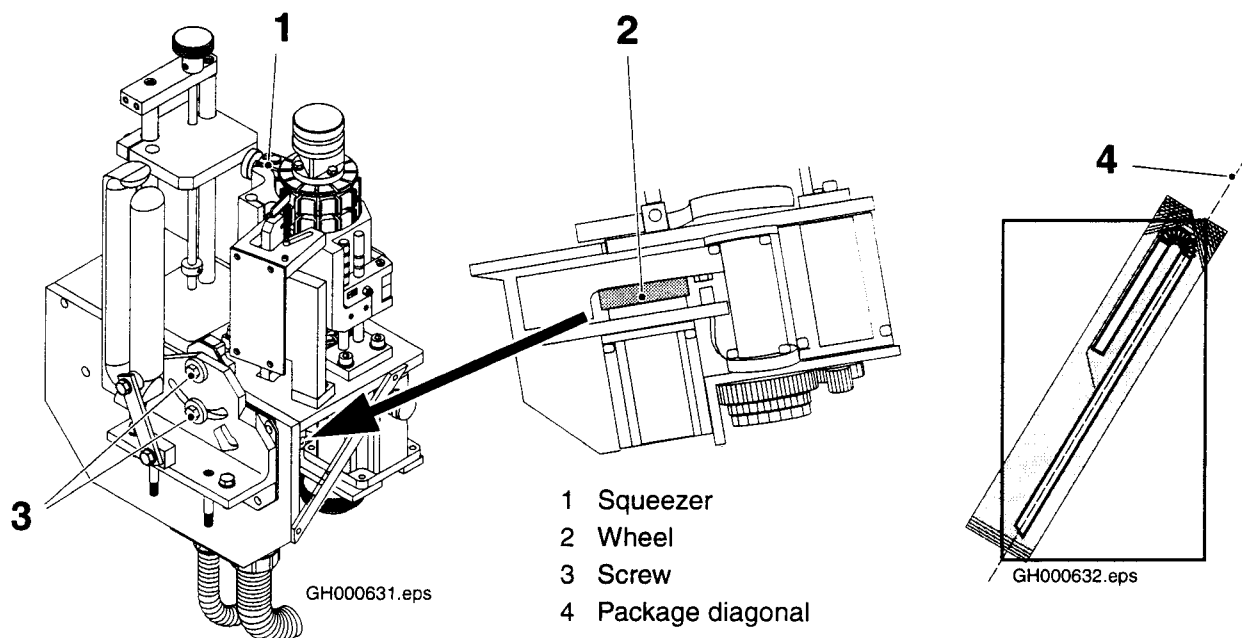
Before setting the applicator unit, stop the machine in synchronisation position:

- Step up the machine to **Step 2: Air pressure ON**.
- Push the **Manual straw/UniCap feed** button once. The machine will stop in synchronisation position.

Straw application

Set the applicator unit as follows:

- Put a package in the carrier.
- Loosen the screws (3) and tilt the applicator unit until the angle of the straw approximately is aligned to the package diagonal. Tighten the screws (3).
- Position a straw between the squeezer (1) and the package. Move the squeezer by hand, by moving the wheel (2), until the straw is fixed to the package.
- Check that the straw is positioned to the package diagonal (4) according to the picture. If necessary, adjust the applicator unit angle with the screws (3) and check again.



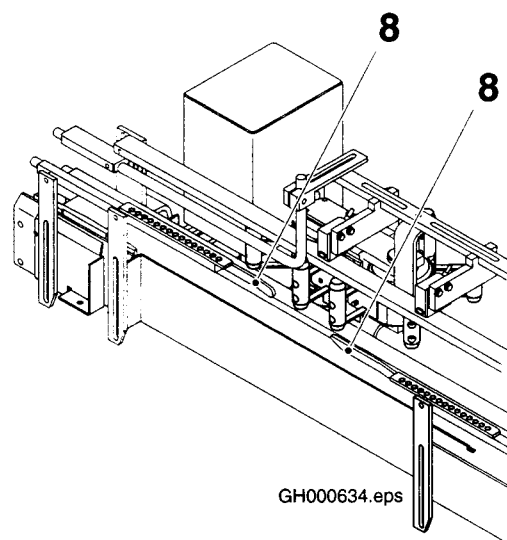
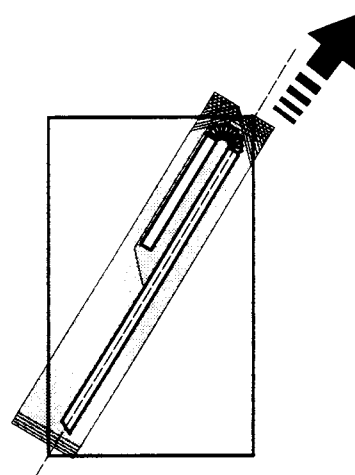
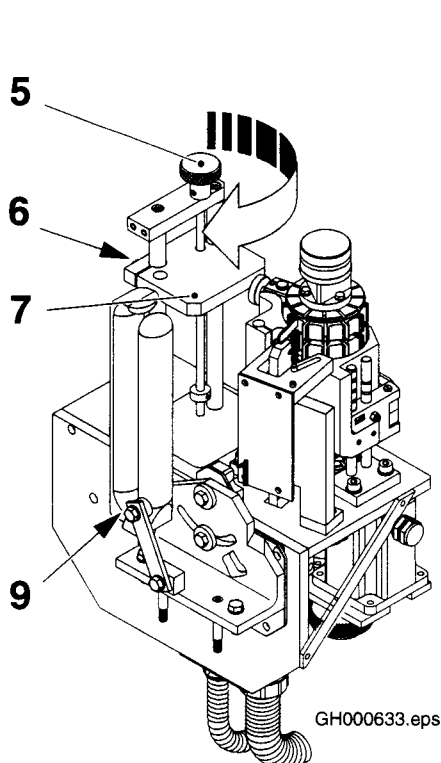
(Cont'd)

(Cont'd)

- e) Adjust the straw upwards/downwards by turning the shifter handle (5). Turning clockwise will move the straw upwards.
(The straw shall be positioned on the package diagonal, as illustrated.)
- f) Loosen the screw (6) and adjust the plate (7) to the height of the ladder band.
- g) Set the steering (9) height to fit the ladder band.

After the setting, set the head plates (8) together as tight as possible without interfering with the movements of the spring clamp arms and the straw application.

Adjust the carrier position, see procedure 1.3-6 Carrier - set carrier/ applicator pivot point on page 48.



- 5 Shifter handle
- 6 Screw
- 7 Plate
- 8 Head plate
- 9 Steering

(Cont'd)

3 Applicator unit

(Cont'd)

UniCap application

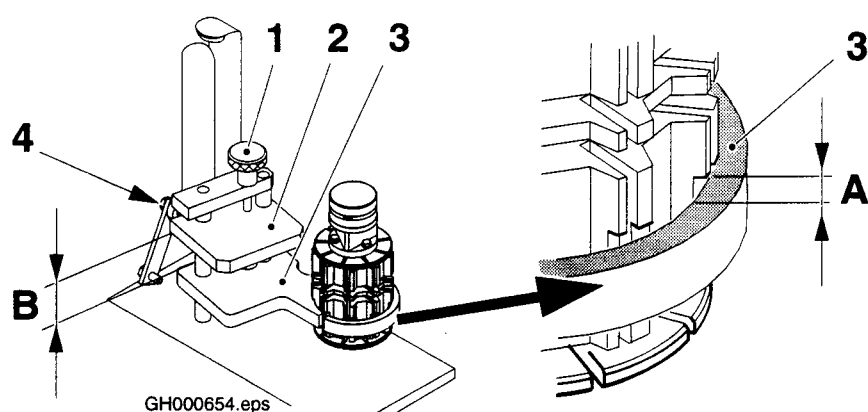
Set the applicator unit as follows:

- Adjust the distance **A** between the lower plate (3) upper side and the feed wheel edge by turning the shifter handle (1).
- Adjust the upper plate (2) to the height of the ladder band (**B**).
- Set the steering (4) height to fit the ladder band.

Note! With the shifter handle (1) it is **not** possible to adjust the UniCap height position. See item d)!

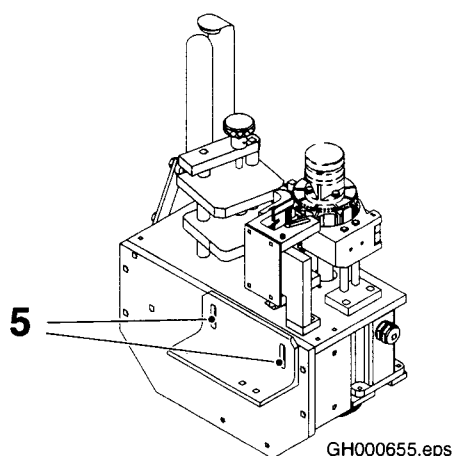
- Put a package in the carrier. Loosen the screws (5) and set the applicator unit height in the performed position to get the right cap height on the package. (Recommended height of cap is approximately in the package centre.)

Note! To avoid rubbing off the caps it could be necessary to readjust the height of the outfeed rail.



A = 0 - 2 mm
B = Ladder band height

- 1 Shifter handle
- 2 Plate
- 3 Plate
- 4 Steering
- 5 Screw



(Cont'd)

(Cont'd)

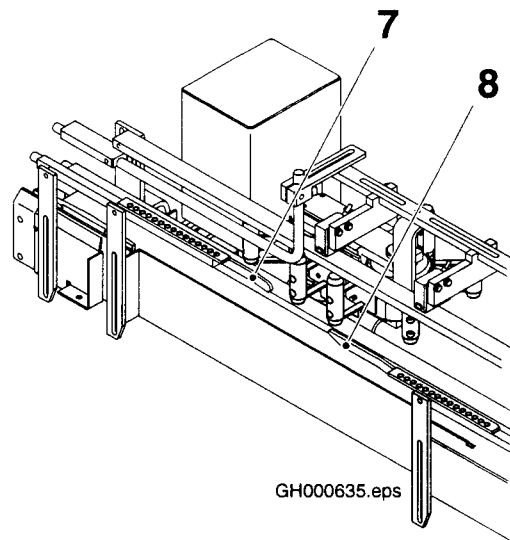
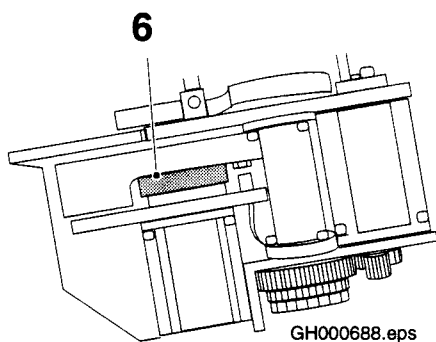
- e) Check that the cap is right positioned by moving the squeezer by hand with the wheel (6), until the cap is fixed to the package. Check the cap position and, if necessary, readjust the height.

After the setting, set the head plate (8) sideways to support the package in application position.

Note! Make sure the head plate is positioned so, that it does not scratch away the hot melt dots.

Then set the head plate (7) as near the head plate (8) as possible without interfering with the movements of the spring clamp arms and the cap application.

Adjust the carrier position, see procedure 1.3-6 Carrier - set carrier/ applicator pivot point on page 48.



- 6 Wheel
- 7 Head plate
- 8 Head plate

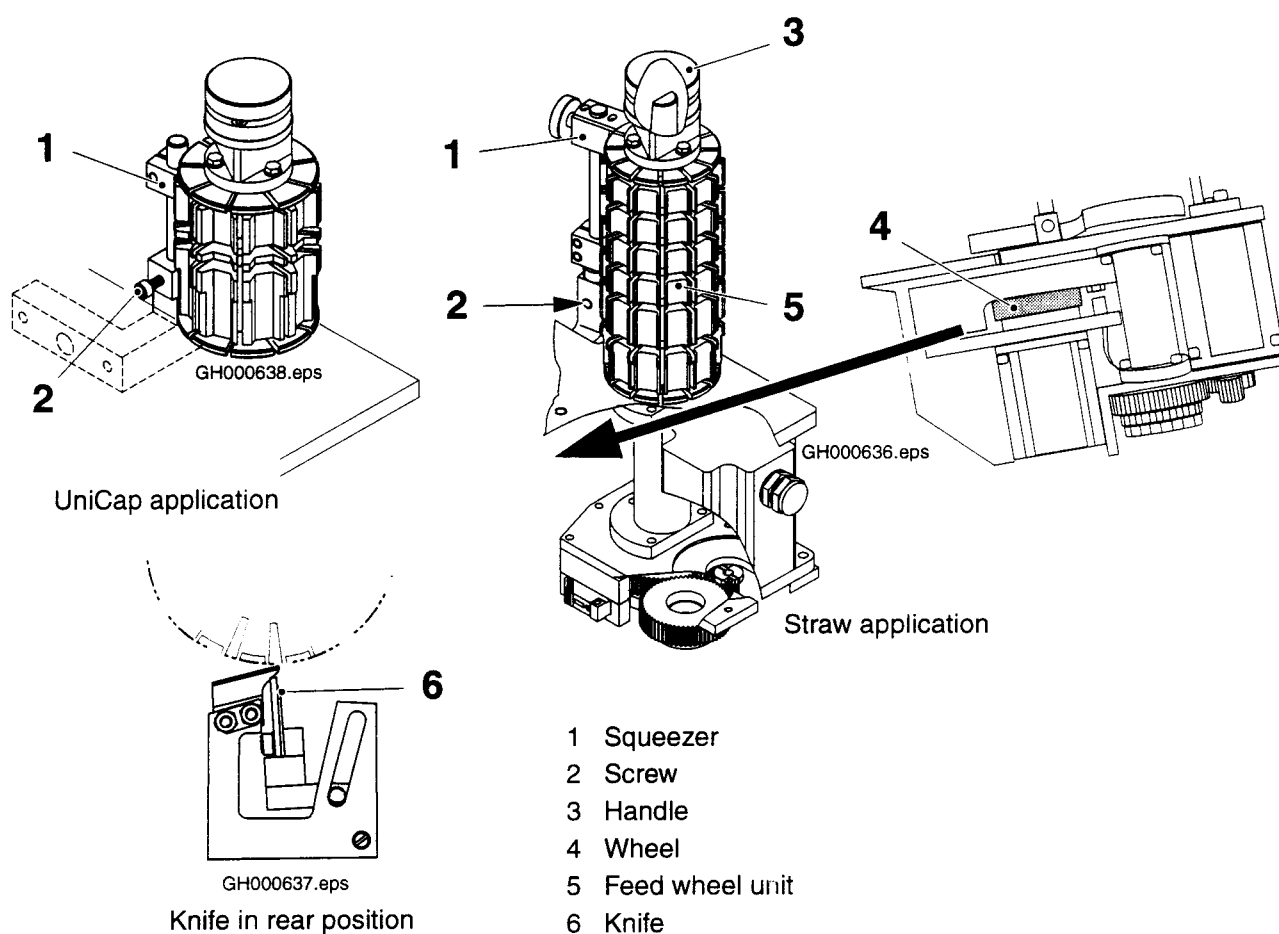
3.1 Feed wheel unit

3.1-1 Feed wheel unit - set tracks position

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
Special tools	Feeler gauge; thickness 1.10 mm	Feeler gauge; thickness 1.25 mm
SPC	1119507-010V (1119508-040V)	1119851-010V (1119850-010V)

Turn the applicator unit in Service position, see [Applicator unit Service position](#) on page 77

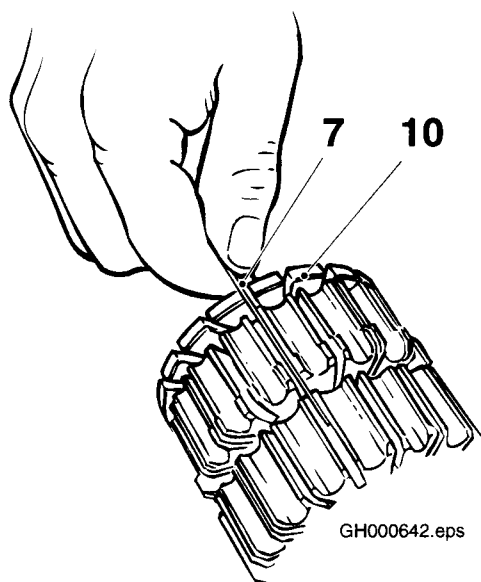
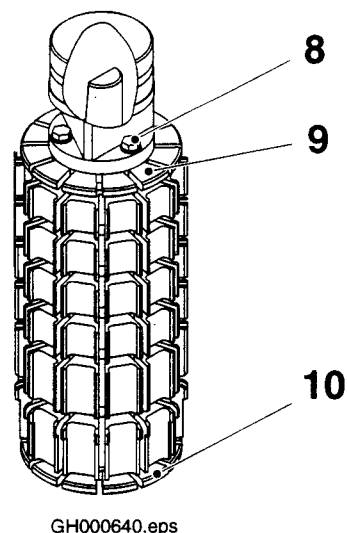
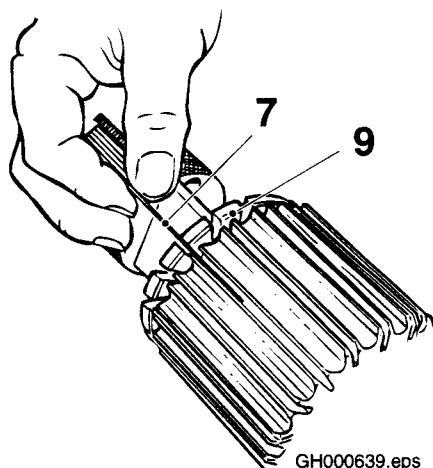
- Loosen the screw (2) and turn out the squeezer (1).
- Position the knife (6) in rear position by turning the wheel (4).
- Turn the handle (3) downwards, until the feed wheel unit (5) comes loose. Remove the feed wheel unit.



(Cont'd)

(Cont'd)

- d) Loosen the screws (8). Place the feeler gauge (7) between the track in the index wheel (9) and the track in the feed wheel. Make this set in one position. Turn the index wheel **clockwise**. Check in two more tracks. Tighten the screws (8).
- e) Loosen the screws for the bottom index wheel (10), and perform the setting with the feeler gauge (7) also in the lower end of the feed wheel unit.
See instructions in previous item. Turn the bottom index wheel **anti-clockwise**.



- 7 Feeler gauge
- 8 Screw
- 9 Upper index wheel
- 10 Bottom index wheel

(Cont'd)

(Cont'd)

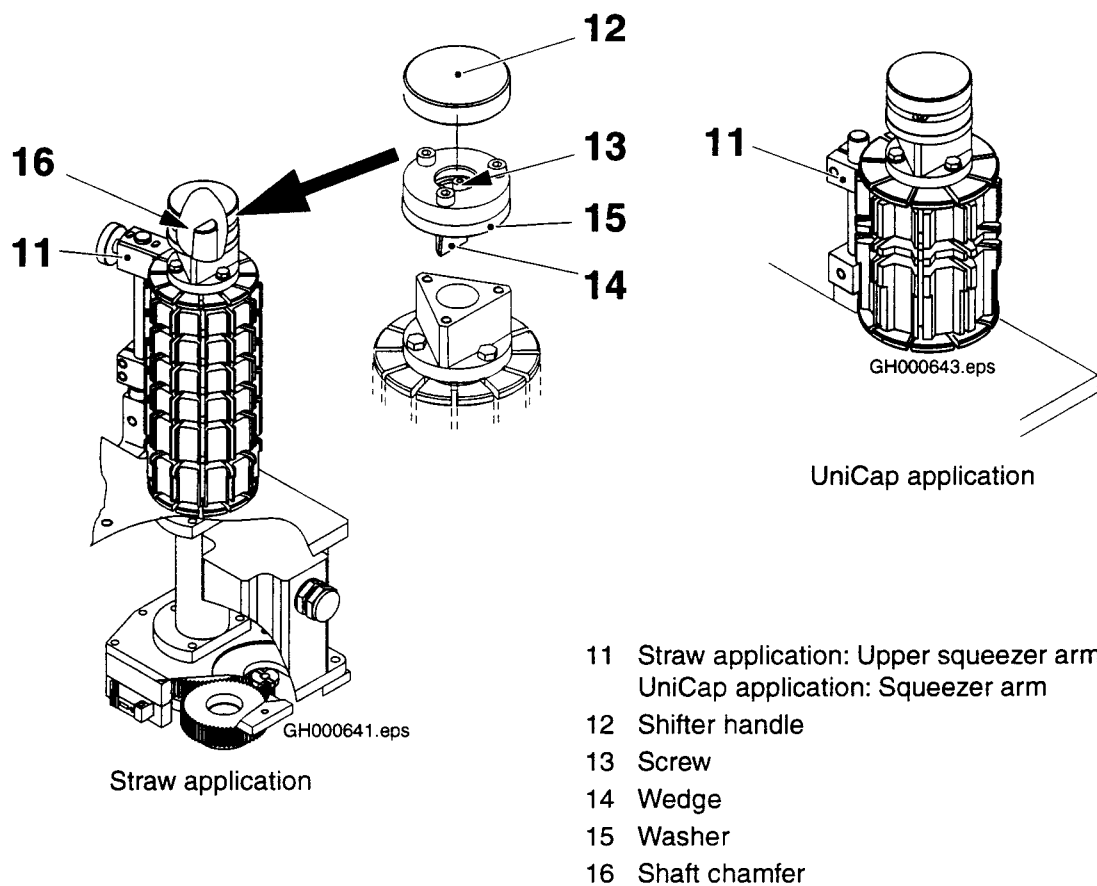
- f) Fit the feed wheel unit on the shaft.
- g) Check that the squeezer arm (11) is centred in the squeezer track in the feed wheel unit.

If not, adjust the squeezer position up/downwards, see procedure 3.2.5-2 Squeezer - set on page 108, or adjust the height of the feed wheel unit as follows: Remove the shifter handle (12), loosen the two screws (13), and move the wedge (14) towards the centre of the washer (15).

Note! Adjusting the wedge (14) as in item g) above is also to be done if the feed wheel has too much play against the shaft chamfer (16) and does not grip, when turning the handle.

Assemble in the reverse order.

Set the feed wheel position, see procedure 3.1-2 Feed wheel unit - set on page 85.



3.1-2 Feed wheel unit - set

	Straw application	UniCap application
Machine status	Mains power ON Air ON	
SPC	1119507-010V	1119851-010V

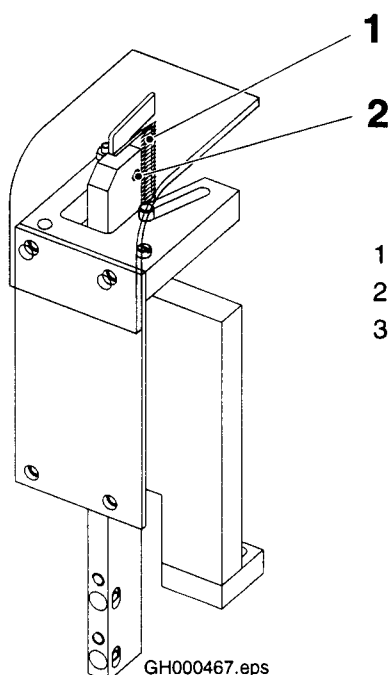
Note! For straw application, perform the set with the S-type of feed wheel unit, if the machine is using more than one type of feed wheel unit.

Before setting the feed wheel unit, stop the machine in synchronisation position:

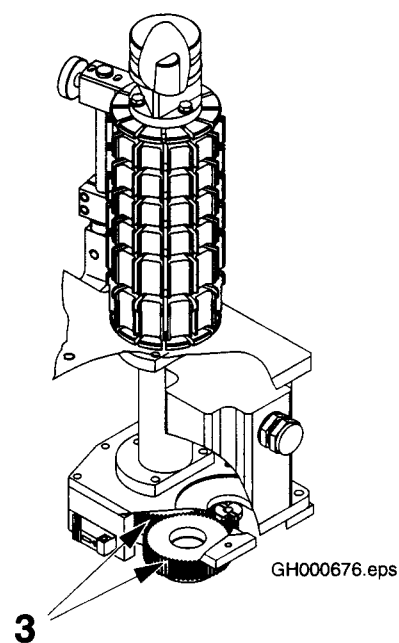
- Remove the two screws (2) to remove the knife (1).
- Step up the machine to **Step 2: Air pressure ON**.
- Push the **Manual straw/UniCap feed** button once. The machine will stop in synchronisation position.

Note! Do **NOT** change the applicator head gear wheels (3) out of position during the following set. If the positions change, repeat from b) above.

Continue with Straw application or UniCap application.



- 1 Knife
- 2 Screw
- 3 Gear wheels



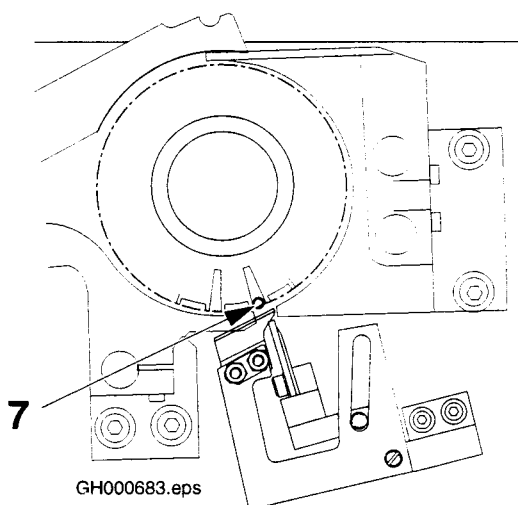
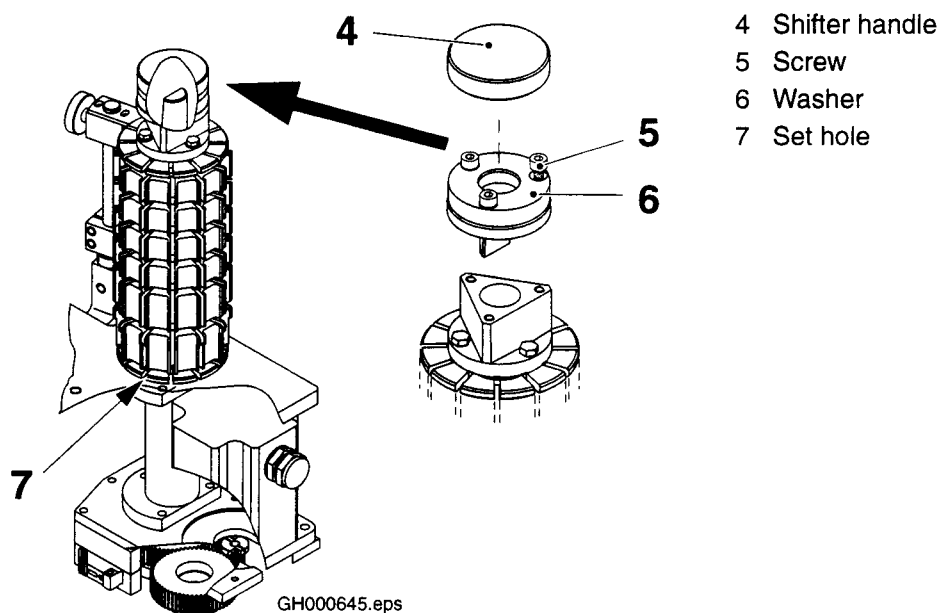
(Cont'd)

*(Cont'd)***Straw application**

- Remove the shifter handle (4). Loosen the screws (5).
- Turn the feed wheel with the washer (6) until one groove in the feed wheel coincides with the hole (7) in the plate.
- Tighten the screws (5). Fit the shifter handle (4). Push the **Manual straw/UniCap feed** button to check that the feed wheel stops in position.
- Assemble the knife on place.

Set the knife, see procedure 3.2.4-4 Cutting unit - set on page 104.

To set the feed wheel speed, see procedure 8-3 Electric equipment - set step motor on page 136.

*(Cont'd)*

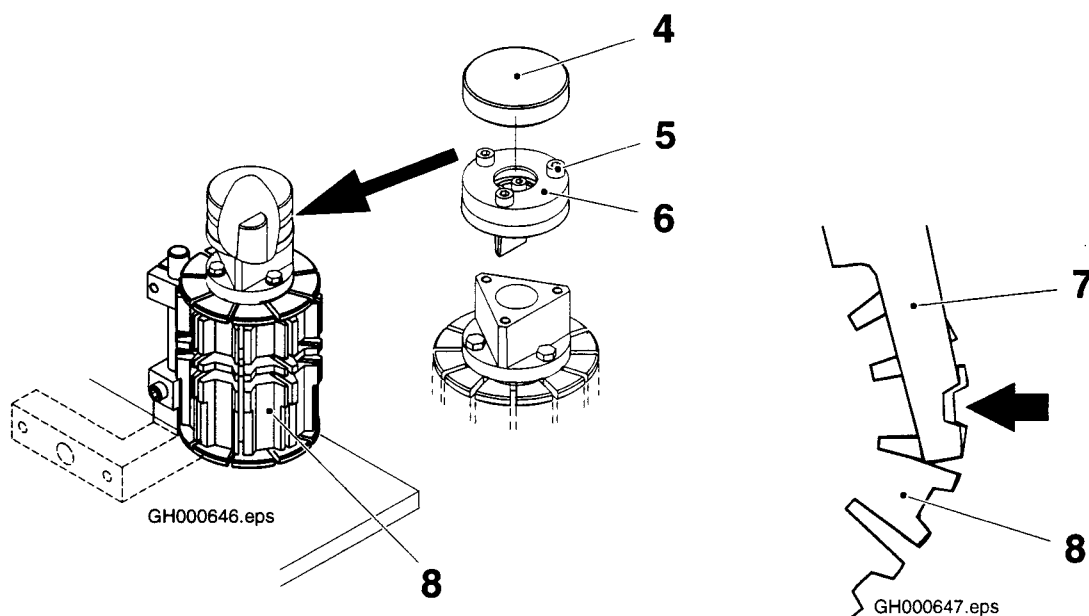
(Cont'd)

UniCap application

- Remove the shifter handle (4). Loosen the screws (5).
- Turn the feed wheel with the washer (6) in order to set the groove in the squeezers (7) to coincide with the groove in the feed wheel unit (8).
- Tighten the screws (5). Fit the shifter handle (4). Push the **Manual straw/UniCap feed** button to check that the feed wheel stops in position.
- Assemble the knife on place.

Set the knife, see procedure 3.2.4-4 Cutting unit - set on page 104.

To set the feed wheel speed, see procedure 8-3 Electric equipment - set step motor on page 136.



- 4 Shifter handle
- 5 Screw
- 6 Washer
- 7 Squeezer
- 8 Feed wheel unit

3.2 Applicator head

	Straw application	UniCap application
SPC	1119508-040V	1119850-010V

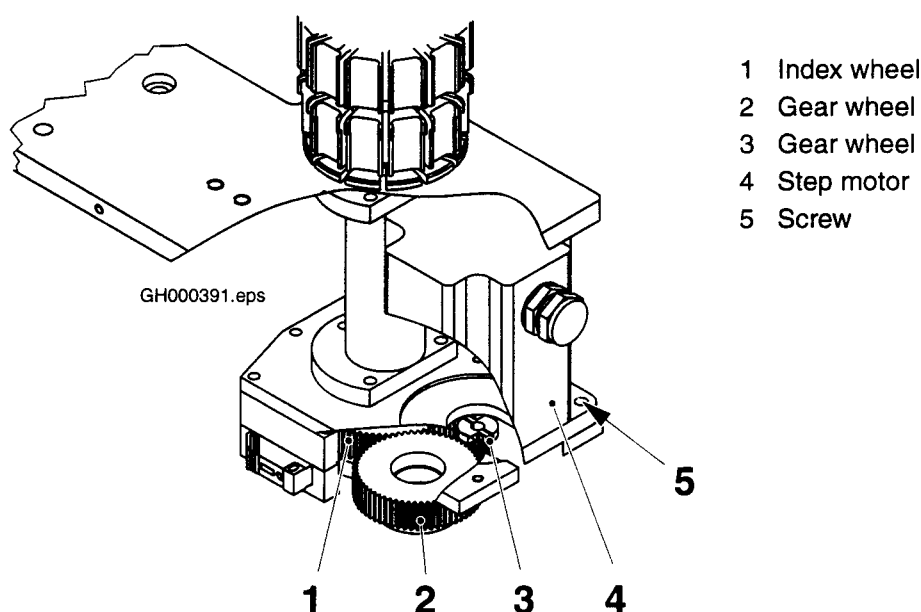
3.2-1 Applicator head - check

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119508-040V	1119850-010V

Check the gear wheel (2) for wear by checking:

- the play between the two gear wheels (2) and (3).
If required adjust by loosen the screws (5) and alter the position of the step motor (4)
- the play between the index wheel (1) and the gear wheel (2).

Replace the gear wheel (2) if required, see procedure [3.2-2 Applicator head - dismantle](#) on page [89](#).



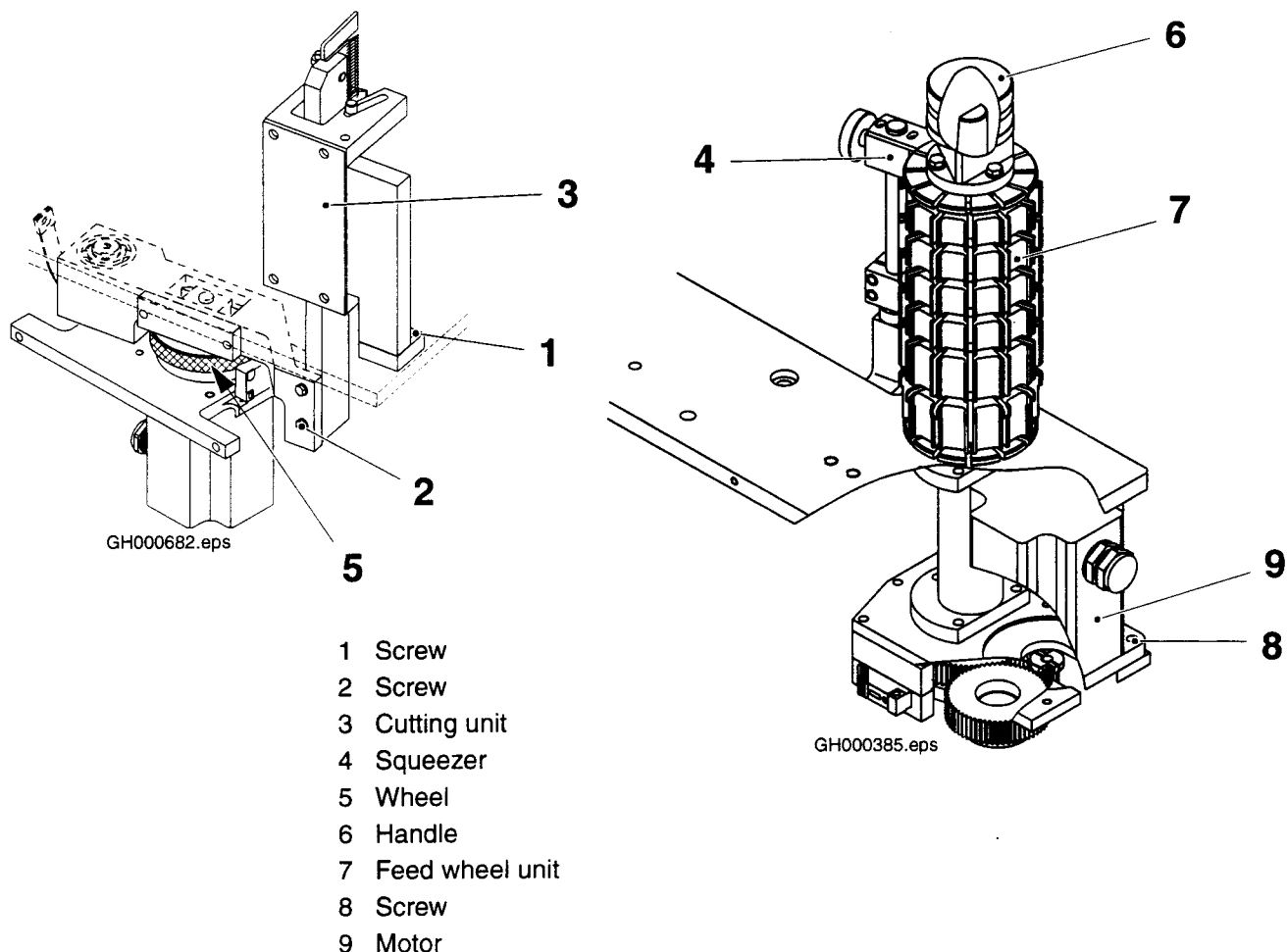
3.2-2 Applicator head - dismantle

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119508-040V (1119507-010V)	1119850-010V (1119851-010V)

Turn the applicator unit in Service position, see [Applicator unit Service position](#) on page 77.

To dismantle the applicator head, do the following:

- Remove the screws (1) and (2). Lift out the cutting unit (3).
- Turn out the squeezer (4) by turning the wheel (5).
- Turn the handle (6) downwards, until the feed wheel unit (7) comes loose. Remove the feed wheel unit.
- Remove the screws (8) and remove the motor (9).



(Cont'd)

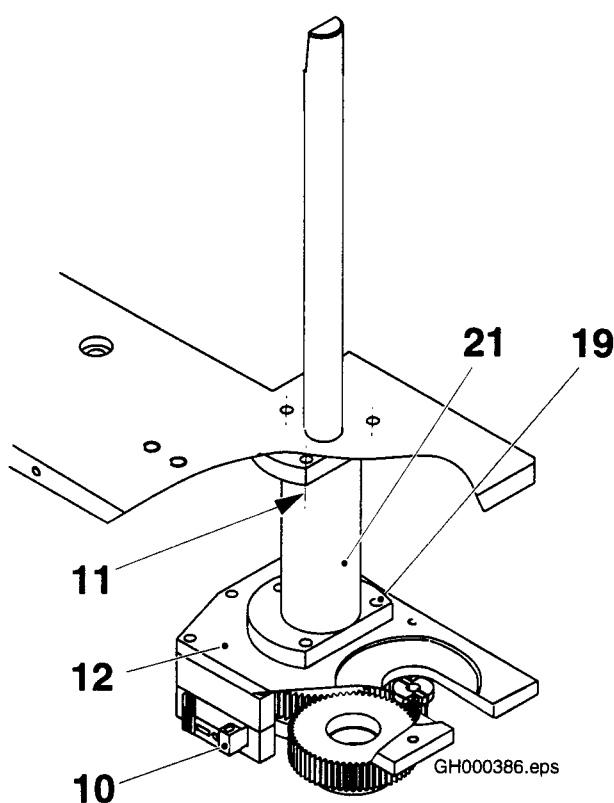
(Cont'd)

- e) Remove the proximity switch (10) (two for straw application, one for UniCap).
- f) Remove the screws (11) and pull downwards to get out the plate (12) with the bracket, shaft and index and gear wheels.
- g) Remove the outer gear wheel (13) by removing the screw (14).
- h) Remove the nut (15) and remove the index wheel (16) and the gear wheel (17).
- i) Remove the circlip (18) and the screws (19).
- j) Pull out the shaft (20) from the bracket (21).

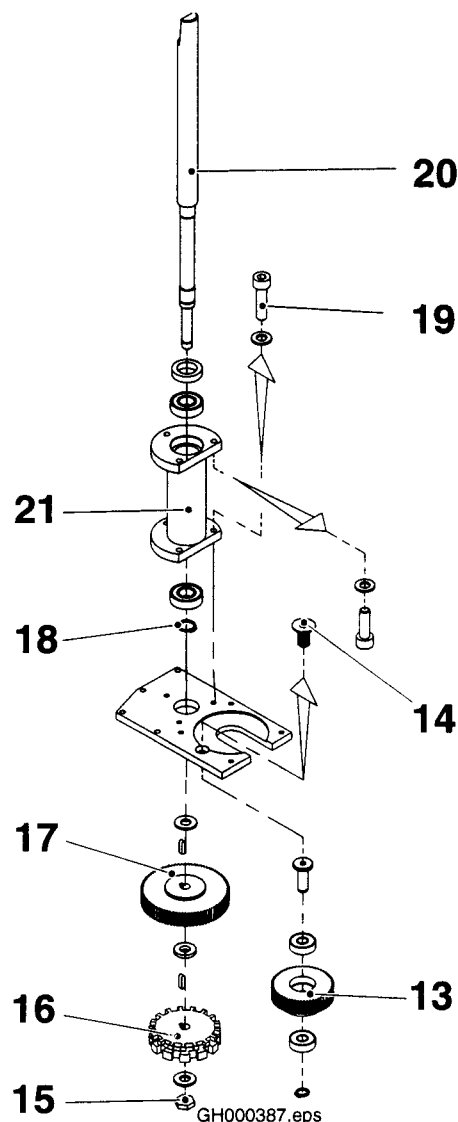
Assemble in the reverse order.

Set the applicator head, see procedure [3.2-4 Applicator head - set](#) on page 92.

Fit the cutting unit and set it, see procedure [3.2.4-4 Cutting unit - set](#) on page 104.



- | | |
|---------------------|----------------|
| 10 Proximity switch | 16 Index wheel |
| 11 Screw | 17 Gear wheel |
| 12 Plate | 18 Circlip |
| 13 Gear wheel | 19 Screw |
| 14 Screw | 20 Shaft |
| 15 Nut | 21 Bracket |



3.2-3 Applicator head - change seal ring, bearing, shaft

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119508-040V	1119850-010V

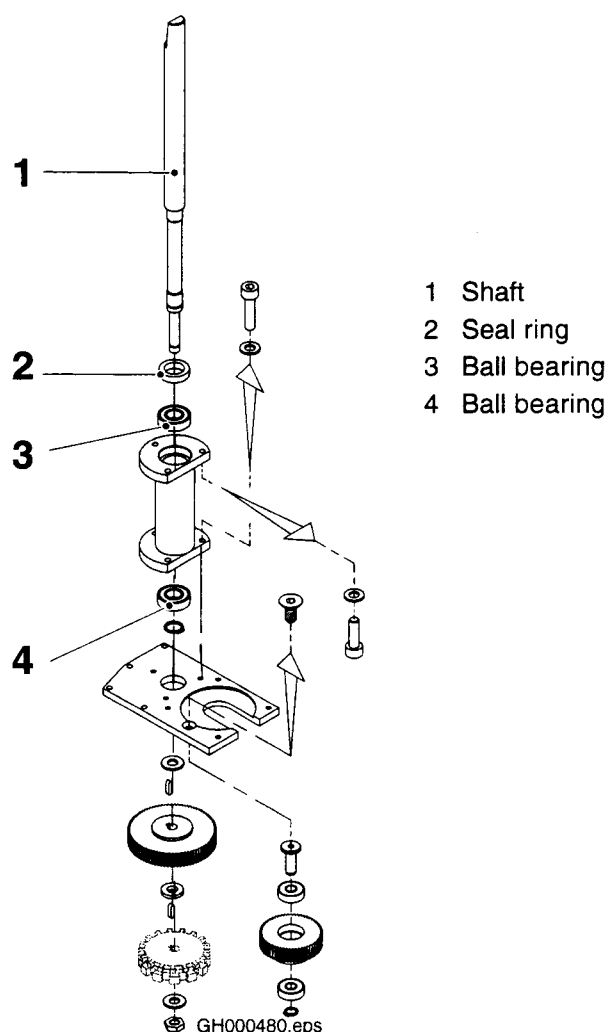
Dismantle the applicator unit, see procedure [3.2-2 Applicator head - dismantle](#) on page 89.

Change:

- the seal ring (2)
- the ball bearings (3) and (4)

Check the shaft (1). Replace if required.

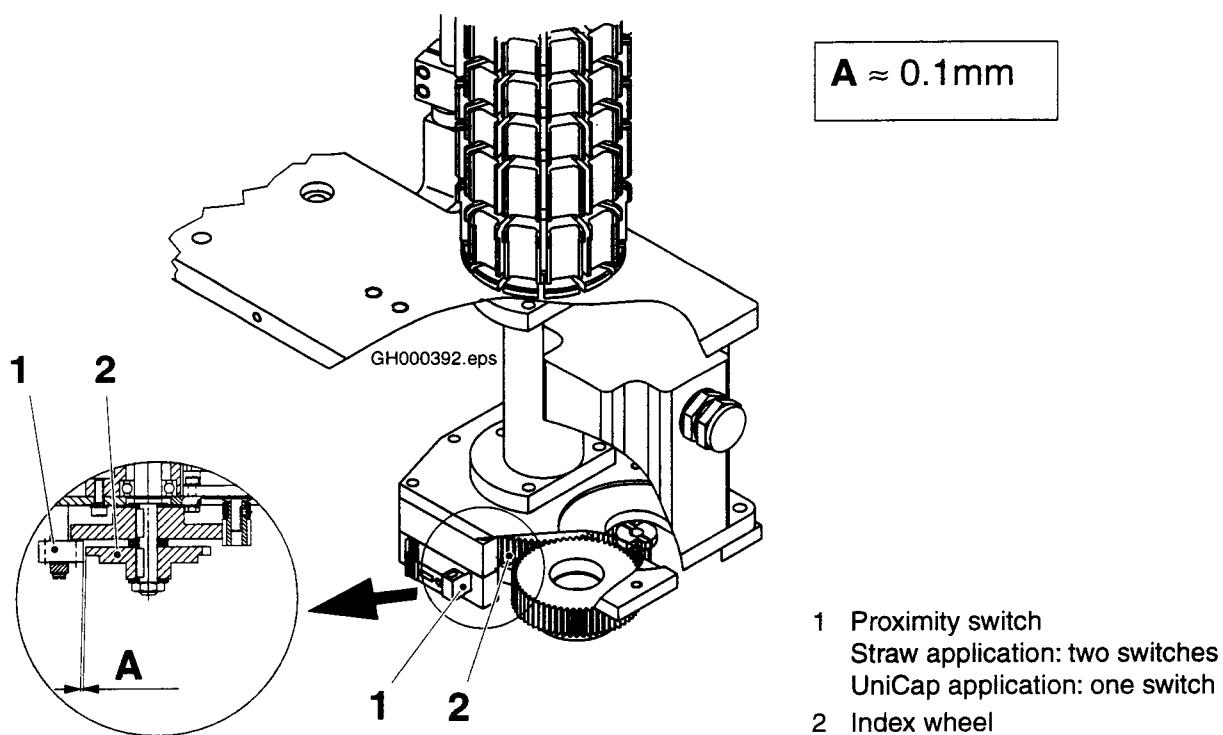
Assemble, see procedure [3.2-2 Applicator head - dismantle](#).



3.2-4 Applicator head - set

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119508-040V	1119850-010V

Check/set the distance A. The proximity switch(es) (1) should be set as close as possible to the index wheel (2) without fouling the wheel rotation.



3.2.1 Hold down

3.2.1-1 Hold down - change springs

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	975795-010V	1119852-010V

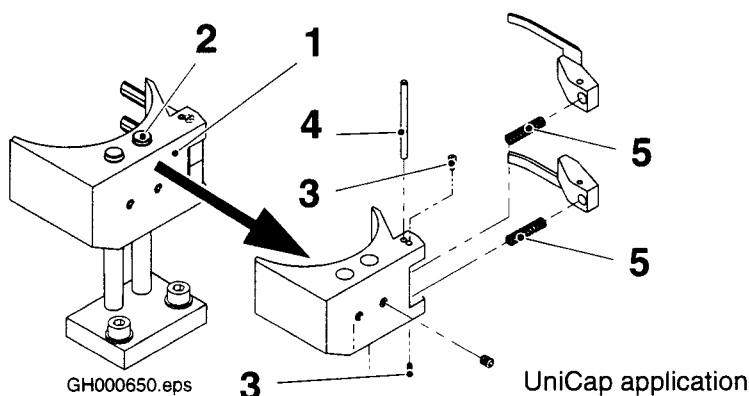
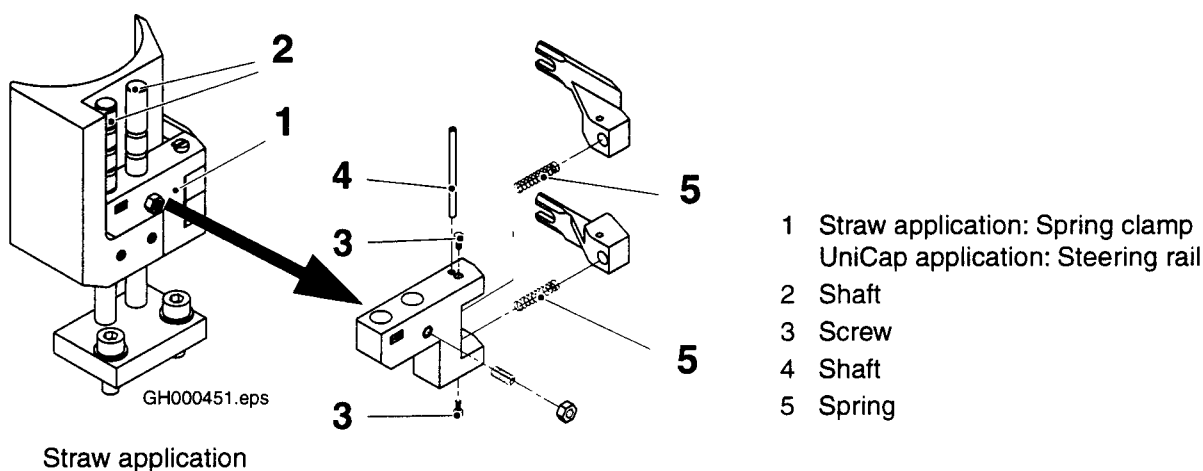
Turn the applicator unit in Service position, see [Applicator unit Service position](#) on page 77.

To change the springs, do as follows:

- For **straw application**: Remove the spring clamp (1) upwards from the shafts (2).
For **UniCap application**: Remove the steering rail (1) upwards from the shafts (2).
- Undo the screws (3) and remove the shaft (4) holding the arms.
- Change the springs (5).

Assemble in the reverse order.

Set the hold down, see [3.2.1-2 Hold down - set](#) on page 94.



3.2.1-2 Hold down - set

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	975795-010V (1119539-020V)	1119852-010V (1119855-010V)

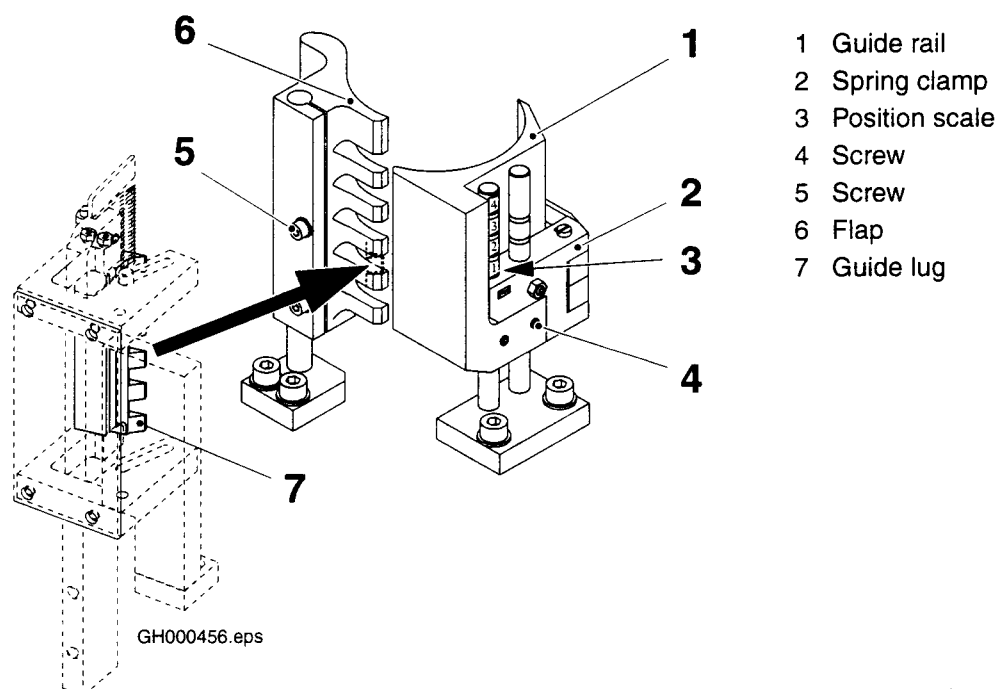
Straw application

The spring clamp (2) arms could be positioned in four different positions depending on the straw length:

Position	Straw (length in mm)
1	≤ 90
2	80 - 120
3	105 - 140
4	≥ 130

To set the hold down, do the following:

- Loosen the two stop screws (4). Let the guide rail (1) down.
- Move the spring clamp (2) upwards/downwards so that the edge of the spring clamp indicates a position (3) as to the table above.
- Move the guide rail up in right position and tighten the screws (4).
- Loosen the screws (5) and adjust the flap (6) upwards/downwards so that the guide lugs (7) are centred in the groove in the flap (6).
- Continue with All applications on page 96.

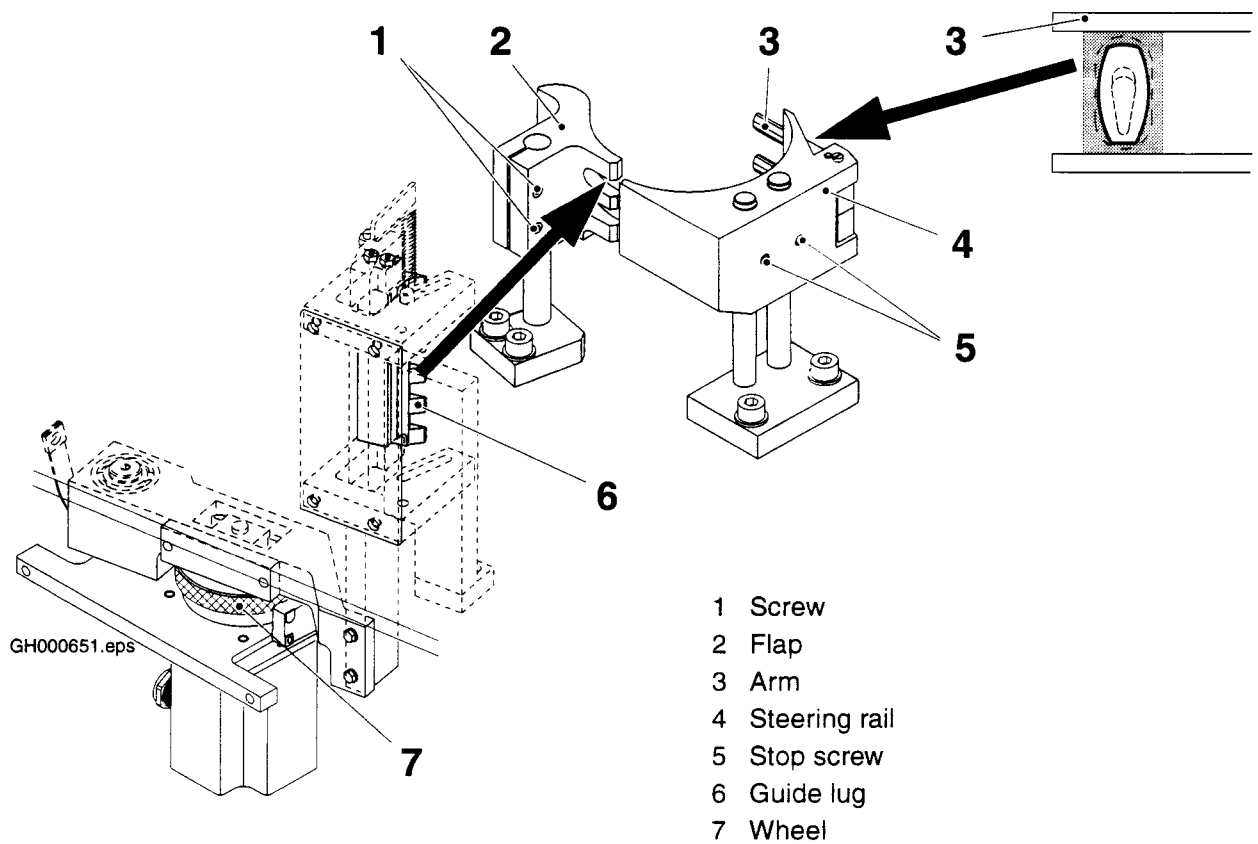


(Cont'd)

*(Cont'd)***UniCap application**

To set the hold down, do the following:

- Move a package by hand into application position. Turn the wheel (7) to move the squeezer in front position to hold the cap.
- Loosen the stop screws (5) and move the steering rail (4) upwards/ downwards until the steering rail arms (3) are placed equally around the cap. Tighten the screws (5).
- Loosen the screws (1) and adjust the flap (2) upwards/downwards so that the guide lugs (6) are centred in the groove in the flap.

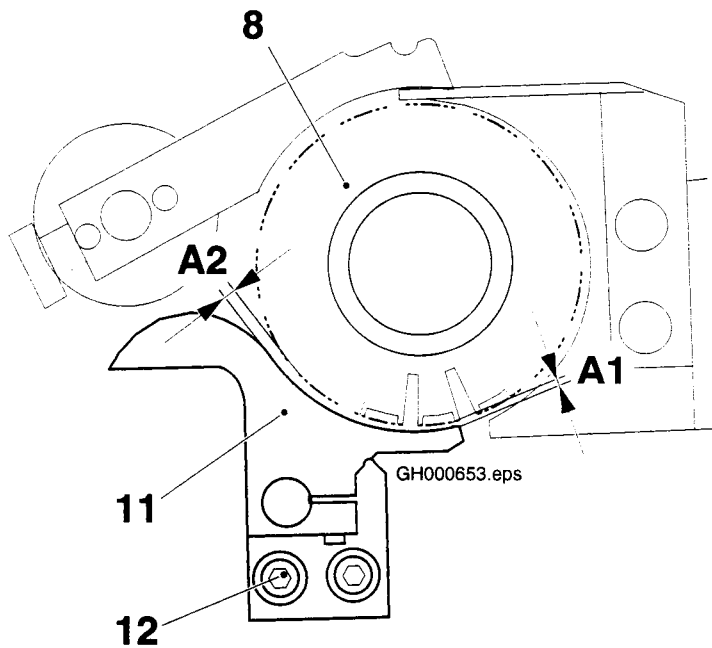
*(Cont'd)*

(Cont'd)

All applications

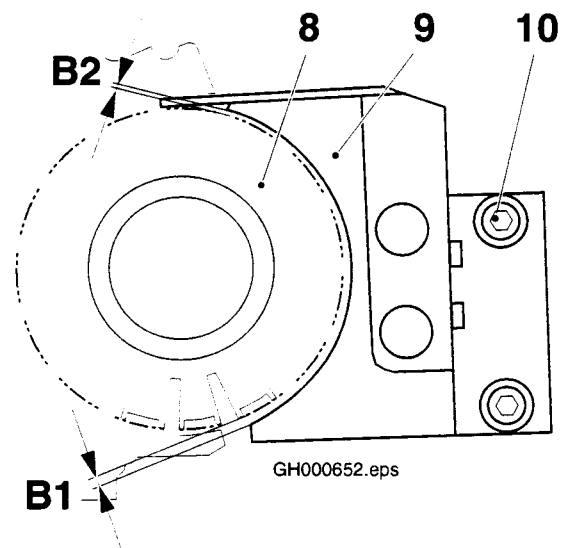
Check the distances **A1** and **A2** between the flap (11) and the feed wheel (8). Adjust with the screws (12) if required.

Check the distances **B1** and **B2** between the guide rail/steering rail (9) and the feed wheel unit (8). Adjust with the screws (10) if required.



$$A1 \leq 1 \text{ mm}$$

$$A2 \approx 3 \text{ mm}$$



$$B1 \geq 2 \text{ mm}$$

$$B2 \leq 1 \text{ mm}$$

- 8 Feed wheel
- 9 Straw application: Guide rail
UniCap application: Steering rail
- 10 Screw
- 11 Flap
- 12 Screw

3.2.2 Drive

3.2.2-1 Drive - check

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119509-030V	1119853-010V

Remove and dismantle the drive, see procedure [3.2.2-2 Drive - remove/dismantle](#) on page 98.

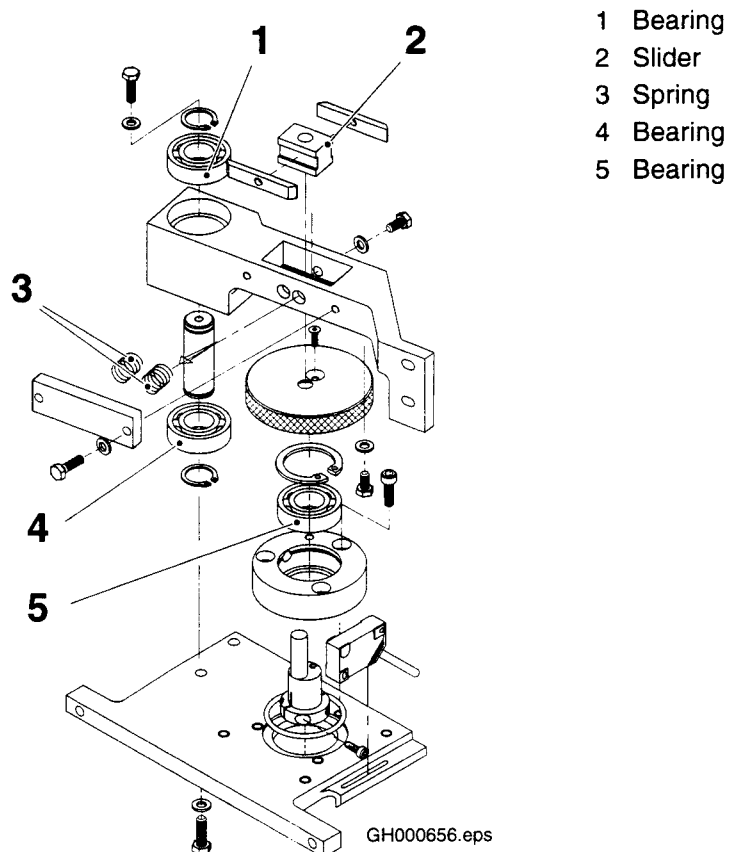
Check:

- bearings (1), (4), and (5)
- springs (3)
- slider (2)

for wear and/or damage.

Change if required.

To assemble follow the instructions in [3.2.2-2 Drive - remove/dismantle](#).



3.2.2-2 Drive - remove/dismantle

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119509-030V	1119853-010V

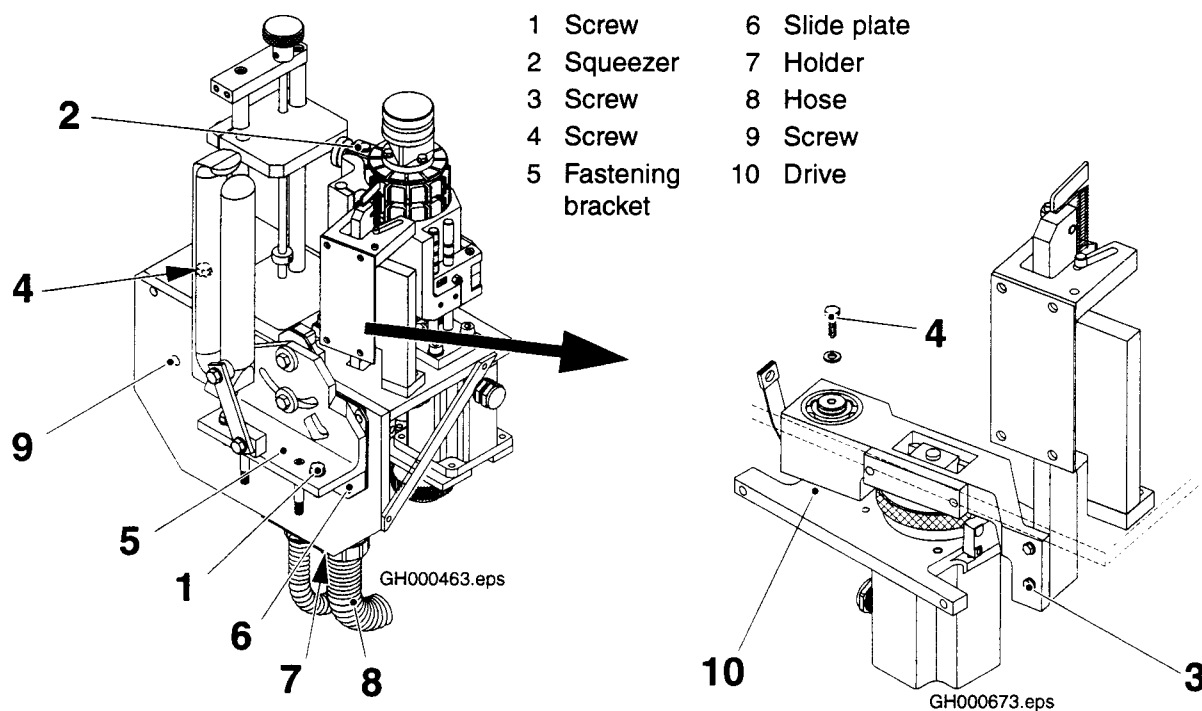
Remove the screws (1) and lift out the applicator unit. Put it on a work bench.

Remove the squeezer (2), see procedure [3.2.5-1 Squeezer - remove](#) on page [107](#).

Remove

To remove the drive from the applicator unit, do as follows:

- Note the applicator head angle.
- Remove the two screws (3) for the knife. Do **not** take the knife away.
- Remove the screw (4).
- Remove the fastening bracket (5). For **straw application**, remove the slide plate (6) with the protractor.
- Remove the holder (7) that holds the hoses (8).
- Remove the two screws (9) and remove the drive (10) (inclusive motor).



(Cont'd)

(Cont'd)

Dismantle

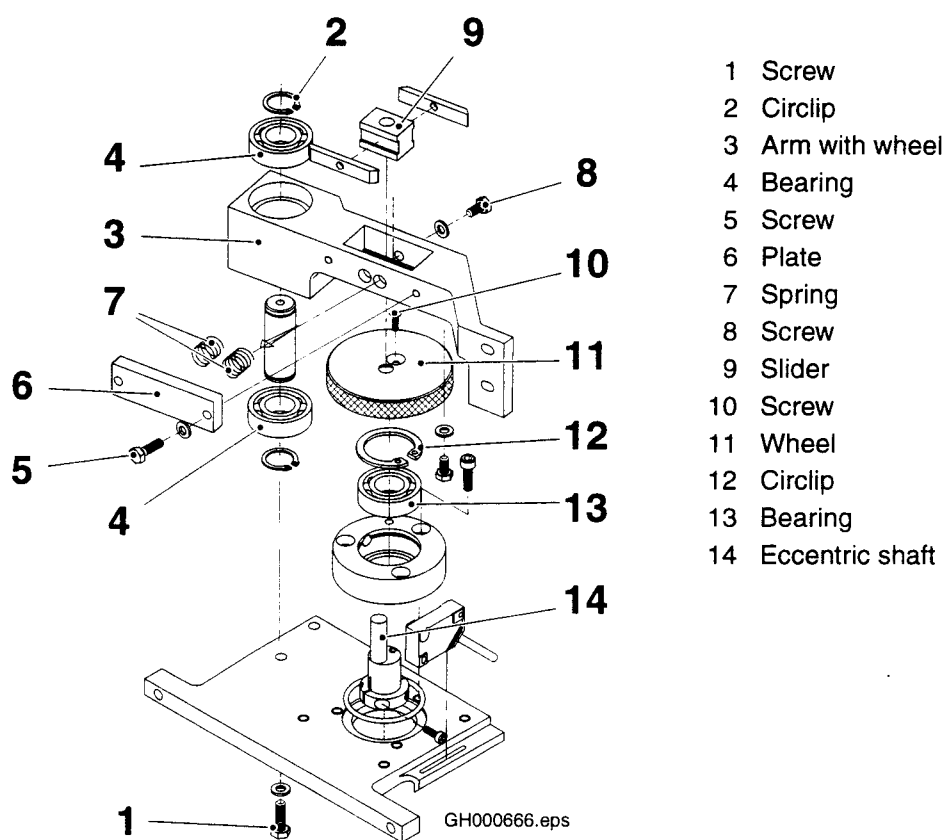
- a) Remove the screw (1). Remove the circlip (2) and the arm (3) with the wheel.
- b) Remove the bearings (4).
- c) Remove the screws (5), the plate (6), and the springs (7).
When assembling, lock the screws (5) with non permanent locking fluid.
- d) Remove the screw (8). Remove the slider (9) with the slide plates.
- e) Remove the screw (10), the wheel (11), the circlip (12), and the bearing (13).
- f) When assembling, grease the slider (9) and the eccentric shaft (14) with silicon grease, see Lubricant code L in section 11.1 Lubricants on page 154.

Assemble in the reverse order.

Fit the squeezer in the reverse order, see procedure 3.2.5-1 Squeezer - remove on page 107.

Check that the squeezer arms are fitting in the tracks in the feed wheel unit.

Set the cutting unit, see procedure 3.2.4-4 Cutting unit - set on page 104.



3.2.2-3 Drive - set proximity switch

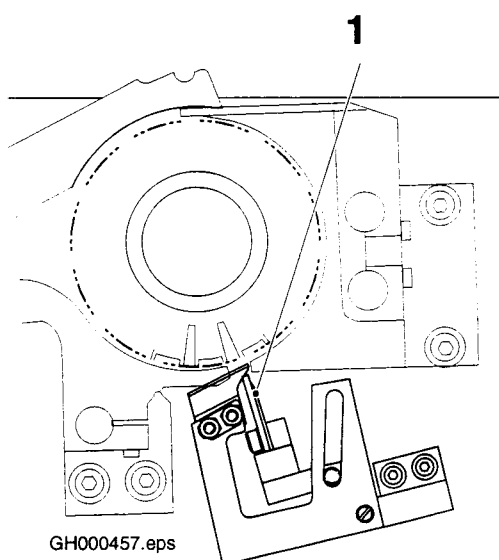
	Straw application	UniCap application
Machine status	Mains power ON Air ON	
SPC	1119509-030V (1119539-020V)	1119853-010V (1119855-010V)

Set the proximity switch height

- Make sure the knife (1) is in rear position by turning the wheel (3) by hand.
- Check the distance **A** between the proximity switch (4) and the screw (2). If required, adjust the screw (2).

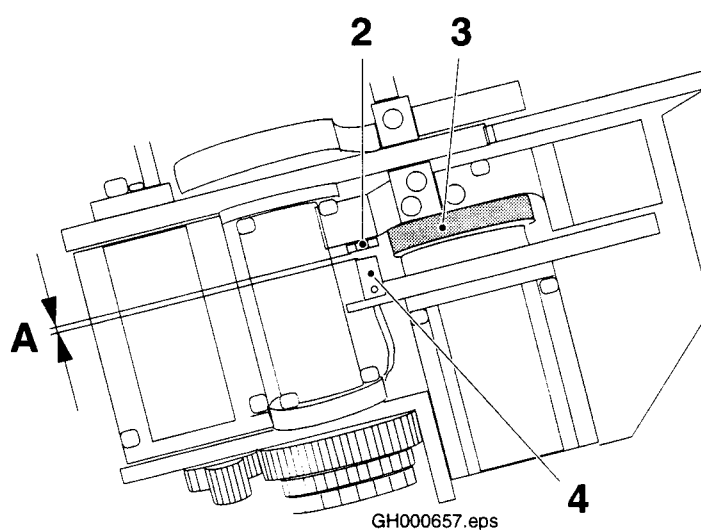
Set the knife absolute rear position

- Step up the machine to **Step 2: Air pressure ON**.
- Press the **Manual straw/UniCap feed** button. Open the door.
- Turn the wheel (3) to make sure that the knife (1) is in **absolute rear position** (= when you turn the wheel (3) the knife won't move).
- If the knife is not in absolute rear position, move the proximity switch (4). Close the door and repeat from b) until absolute rear position is set.
- Check the squeezer position, see [3.2.5-2 Squeezer - set, Positioning in feed wheel groves for straw or UniCap application](#).



A = 0.1 mm

- Knife
- Screw
- Wheel
- Proximity switch



3.2.4 Cutting unit

3.2.4-1 Cutting unit - check

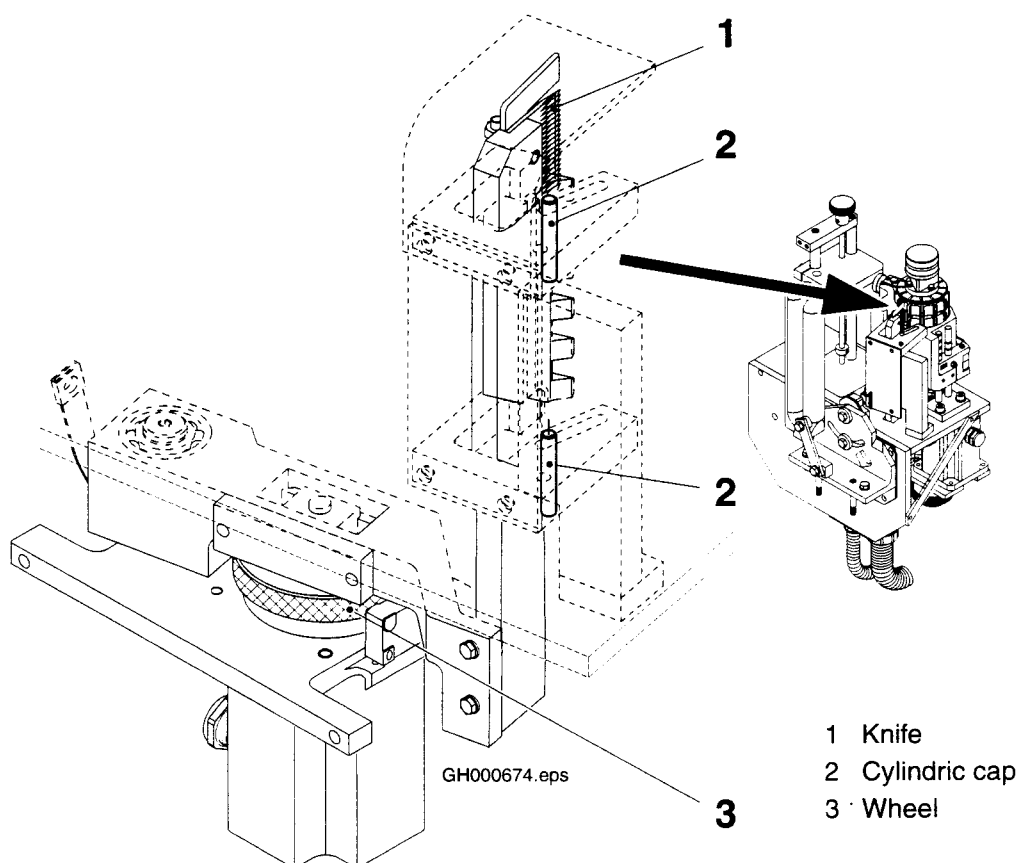
	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119508-040V	1119850-010V

- Check by turning the wheel (3) by hand, that the knife (1) cuts the straws satisfactory.

If not, set the knife, see procedure [3.2.4-4 Cutting unit - set](#) on page 104, or remove the knife and check for wear and/or damage, see procedure [3.2.4-2 Cutting unit - change knife](#) on page 102.

- Check the two cylindric caps (2) for wear.

If necessary, change the cylindric caps, see procedure [3.2.4-3 Cutting unit - change cylindric caps](#) on page 103.



3.2.4-2 Cutting unit - change knife

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119539-020V	1119855-010V

Turn the applicator unit in Service position, see [Applicator unit Service position](#) on page 77.

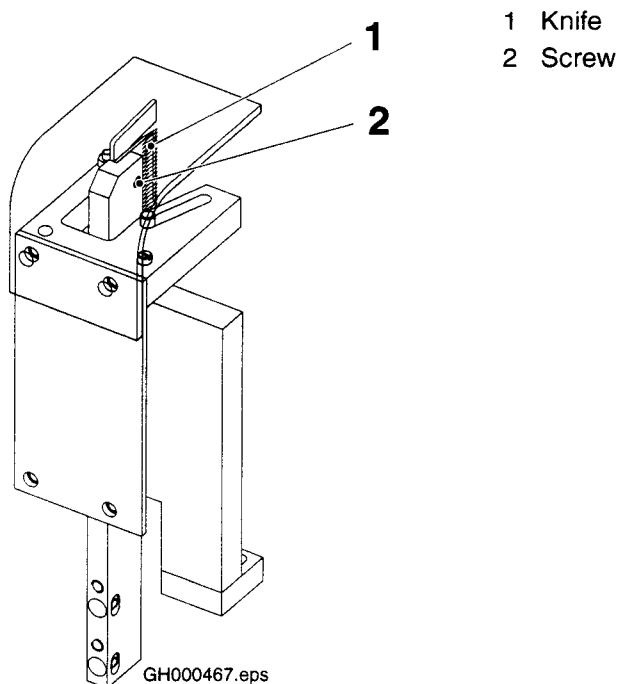
Check the knife for wear and/or damage. If necessary, change knife.

To change knife, do the following:

- a) Remove the two screws (2) to remove the knife (1).
- b) Fit a new knife.

Assemble in the reverse order.

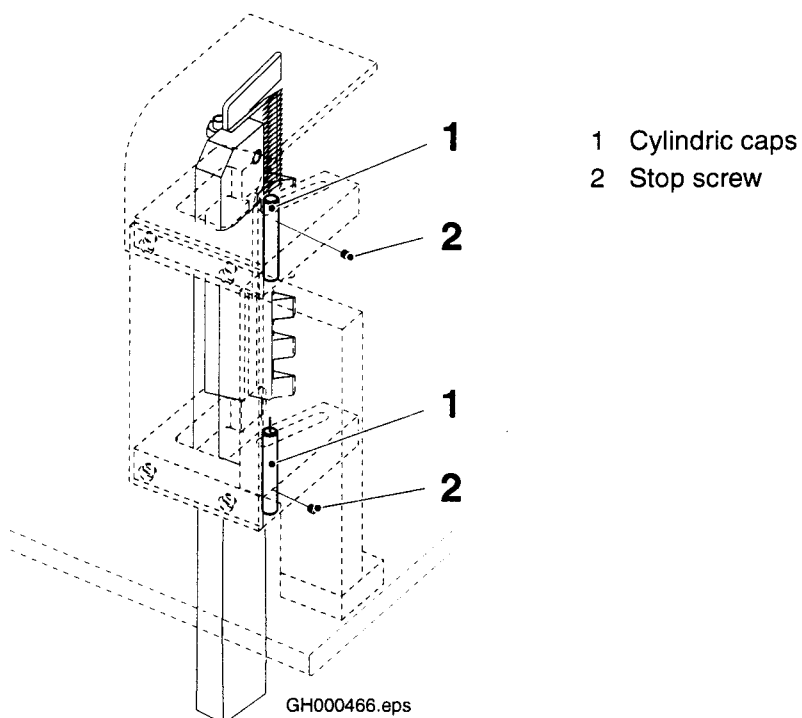
Fit the cutting unit back on the applicator unit.



3.2.4-3 Cutting unit - change cylindric caps

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119539-020V	1119855-010V

Loosen the stop screws (2) and change the cylindric caps (1).
Tighten the stop screws again.



3.2.4-4 Cutting unit - set

	Straw application	UniCap application
Machine status	Mains power ON Air ON	
SPC	1119539-020V	1119855-010V

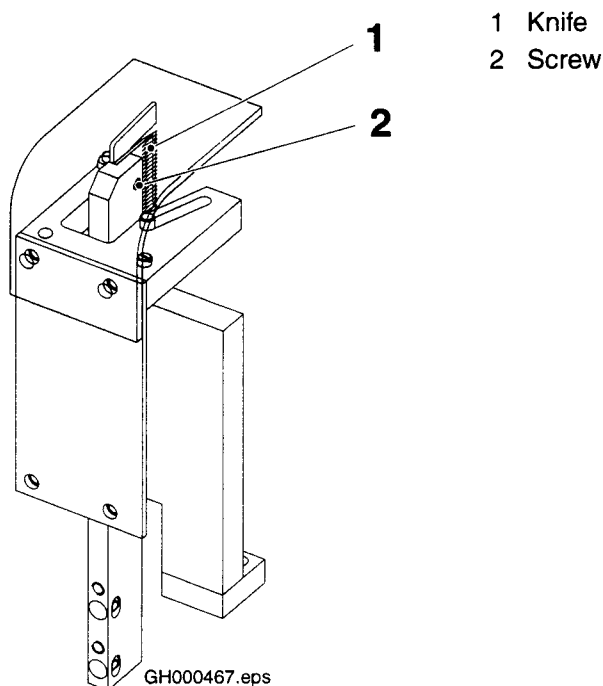
The set is divided into two instructions:

- Set knife front position
- Set knife rear position

Before setting the cutting unit do as follows:

- Remove the two screws (2) to remove the knife (1).
- Step up the machine to **Step 2: Air pressure ON**.
- Push the **Manual straw/UniCap feed** button once. The machine will stop in synchronisation position.
- Assemble the knife on place.

Note! Do **NOT** change the feed wheel out of position during the following sets. If the position changes, repeat from a) above.

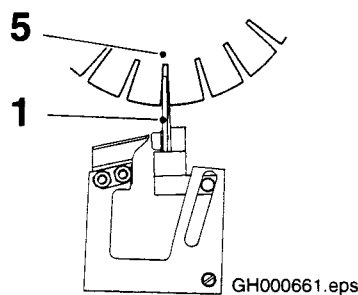
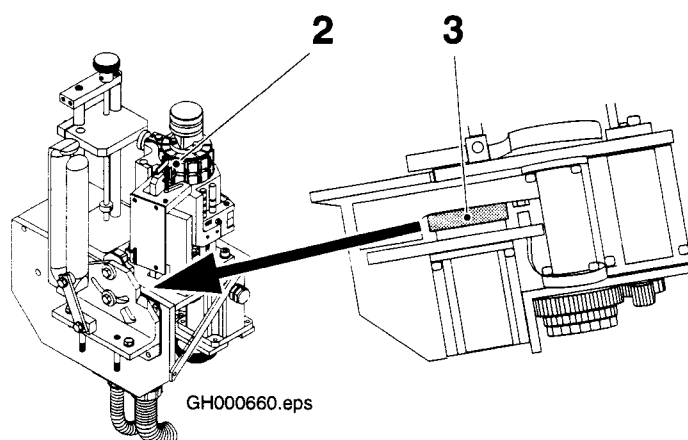
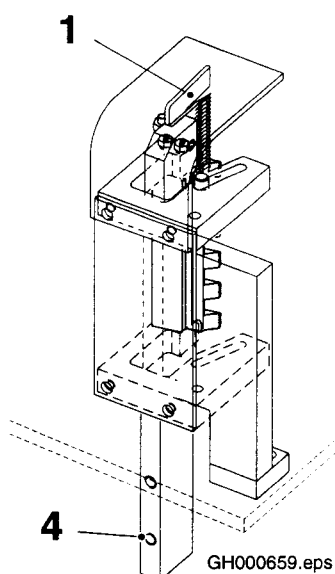


(Cont'd)

(Cont'd)

Set knife front position

- a) Position the knife in front position by turning the wheel (3).
Check that the knife is centred in the feed wheel (2) track. If required, loosen the screws (4) and centre the knife by moving it sideways in the slotted holes.
- b) Check that the head plate (1) is centred in the upper and the lower index wheel (5) tracks.
If not, check that the head plate not is bent, or/and that the index wheels not are out of setting, see procedure 3.1-1 Feed wheel unit - set tracks position on page 82.



- 1 Head plate
- 2 Feed wheel
- 3 Wheel
- 4 Screw
- 5 Index wheel

Knife in front position

(Cont'd)

(Cont'd)

Set knife rear position

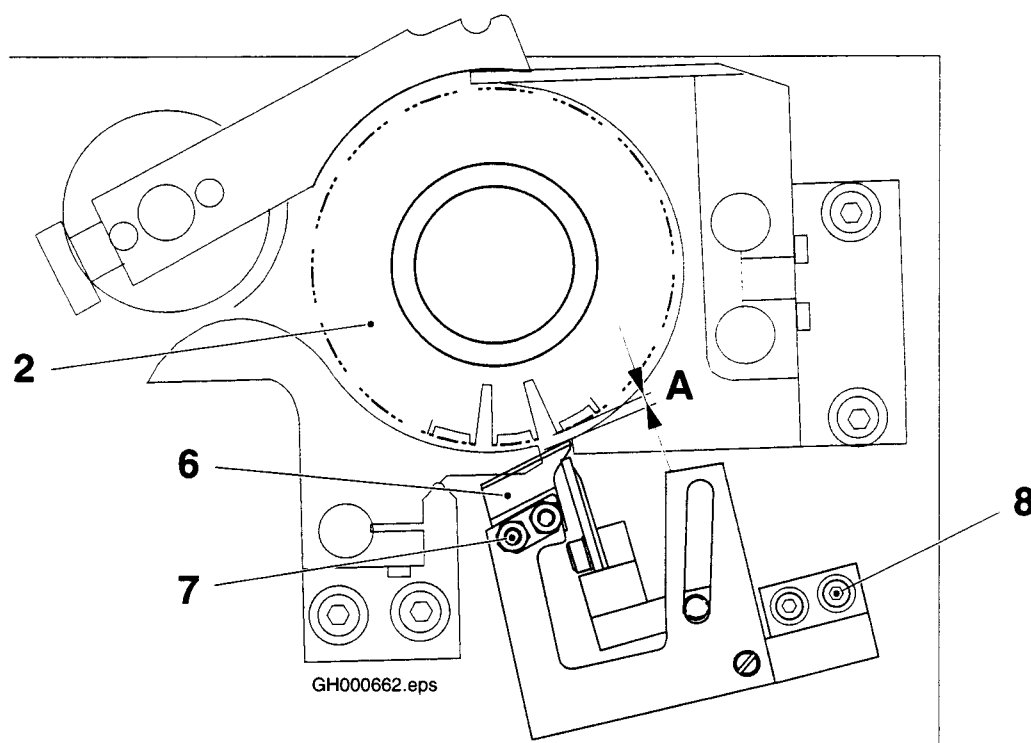
Position the knife in rear position. (See illustration below)

Check the distance **A** between the guide lug (6) and the feed wheel (2).

Adjust with the screws (7) and (8) if required.

A = 1 mm

- 2 Feed wheel unit
- 6 Guide lug
- 7 Screw
- 8 Screw



2.2TH000252 en

Check knife function by stepping up the machine to **Step 2; Air pressure ON**, and push the **Manual straw/UniCap feed** button.

3.2.5 Squeezer

3.2.5-1 Squeezer - remove

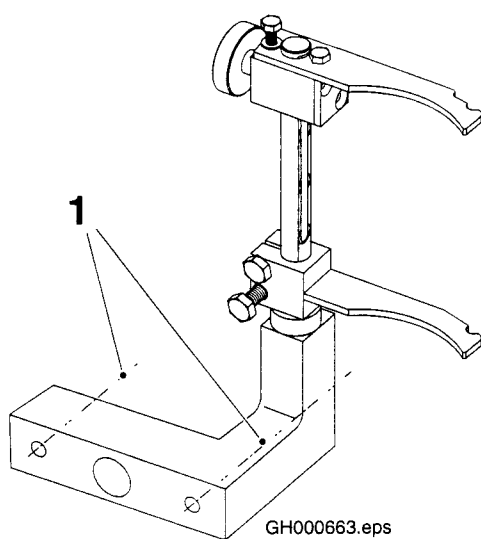
	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119540-020V	1119856-010V

Remove the screws (1).

Remove the squeezer.

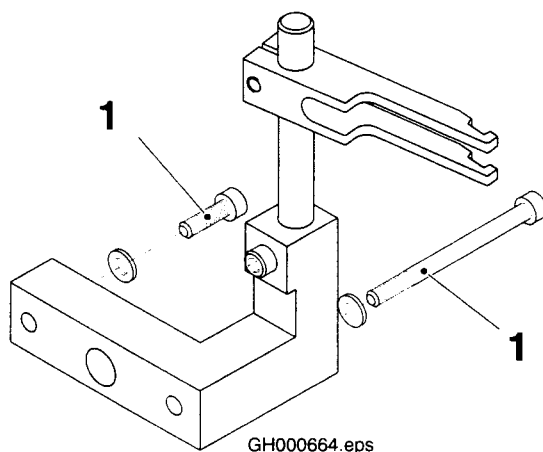
Fit in the reverse order

When fitted the squeezer again, check that the arms are fitting in the tracks in the feed wheel unit. If not, set the squeezer, see procedure [3.2.5-2 Squeezer - set](#) on page [108](#).



Straw application

1 Screw



UniCap application

3.2.5-2 Squeezer - set

	Straw application	UniCap application
Machine status	Mains power OFF Air OFF	
SPC	1119540-020V	1119856-010V

Straw application

The set for straw application consists of two different parts:

- Centring in feed wheel tracks
- Positioning in feed wheel groves

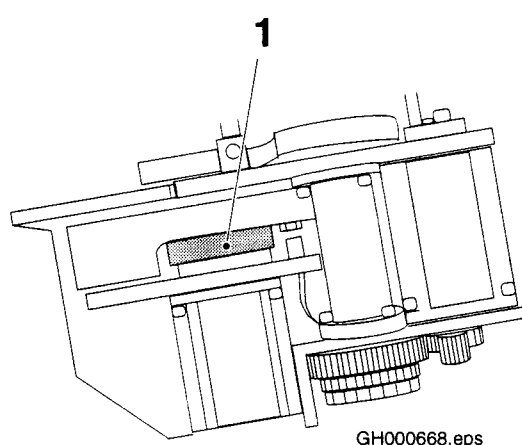
The set must be performed with straws in the feed wheel unit.

Centring in feed wheel tracks

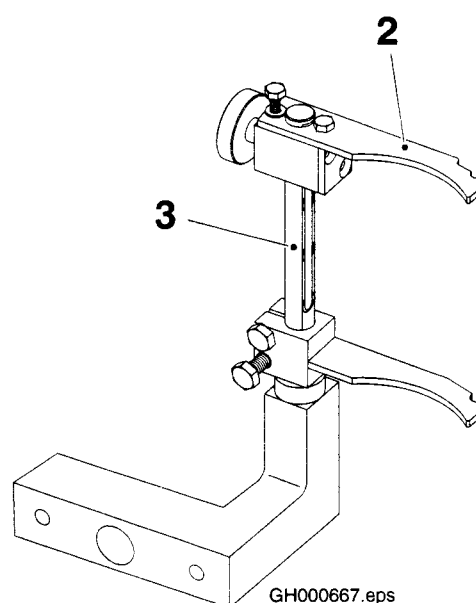
The upper arm (2) could be positioned in four different positions on the shaft (3) depending on the straw length:

Position/groove	Straw (length in mm)
1 /lowest	≤ 90
2 /second lowest	80 - 120
3 /second upper	105 - 140
4 /upper	≥ 130

Move a package by hand into application position. Turn the wheel (1) to move the squeezer in front position without making marks on the straw or the package.



- 1 Wheel
- 2 Arm, upper
- 3 Shaft

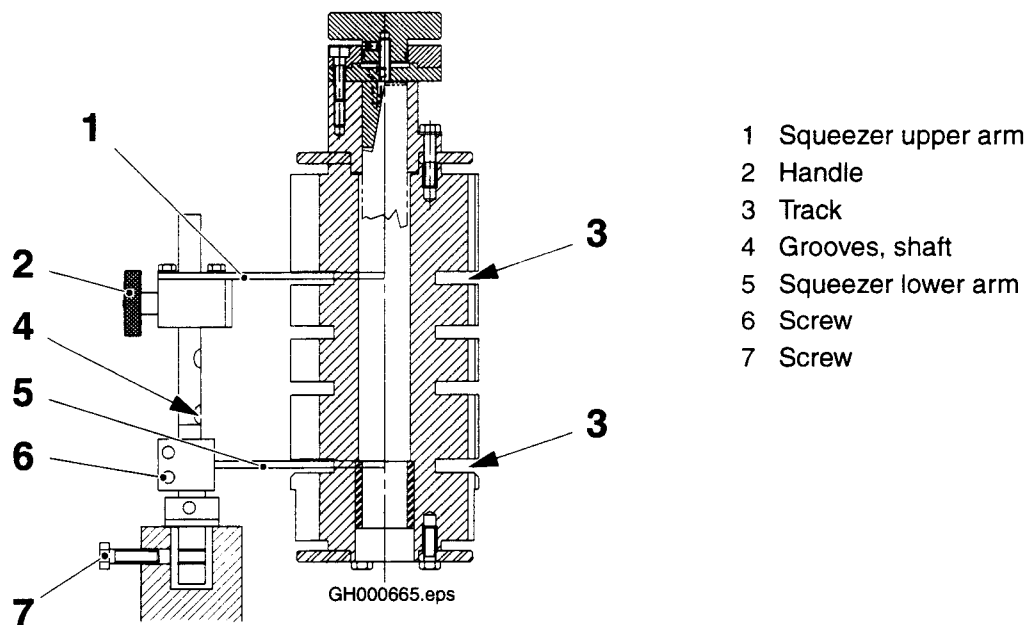


(Cont'd)

(Cont'd)

To centre the squeezer in the feed wheel tracks do as follows:

- a) Position the upper arm (1) as to the table on page 108 by loosen the shifter handle (2) and move the arm upwards/downwards in the grooves (4) in the shaft.
- b) If the squeezer arms do not fit in the tracks (3) adjust the **upper** arm by loosen the screw (7). Centre the upper arm. Tighten the screw.
- c) Then set the **lower** arm (5) by loosen the two screws (6) and centre the arm. Tighten the screws.

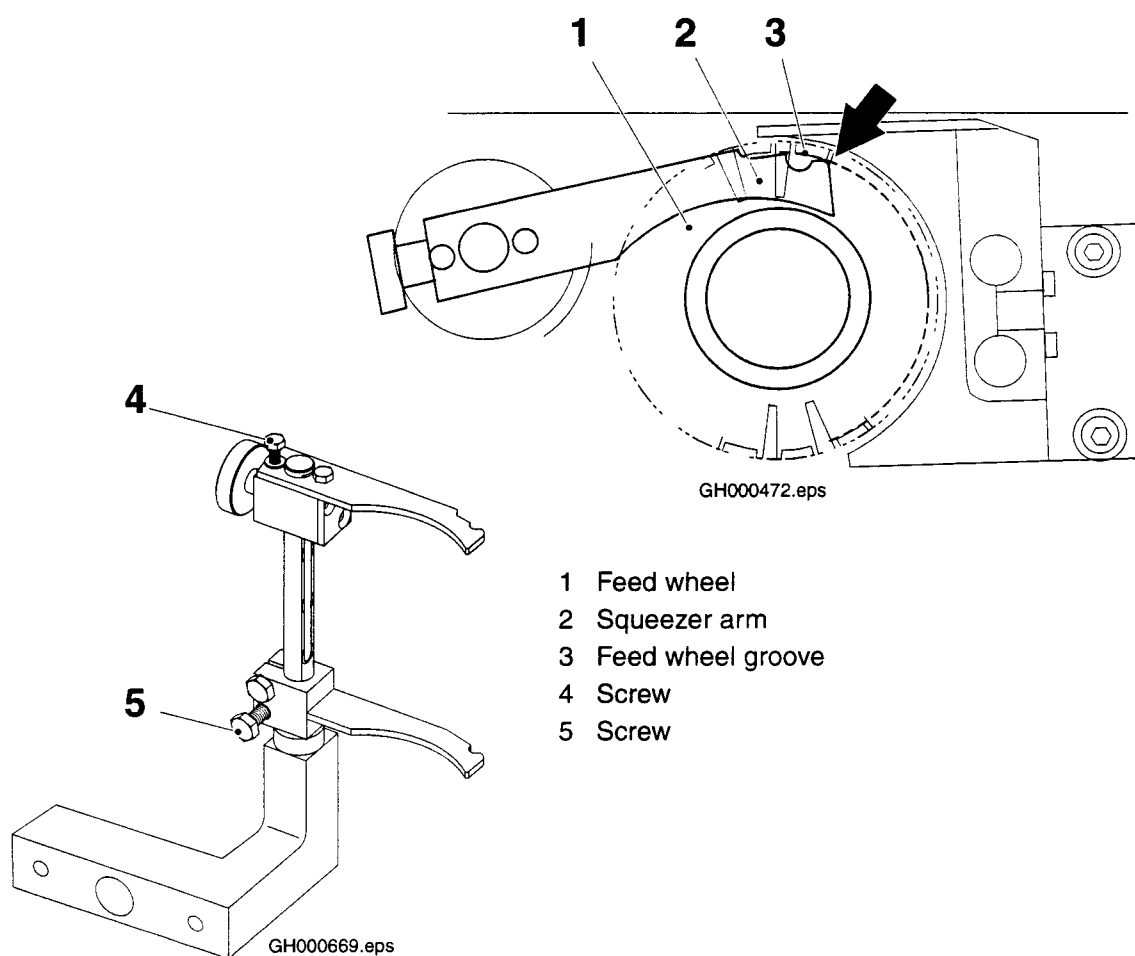
*(Cont'd)*

(Cont'd)

Positioning in feed wheel grooves

To set the squeezer do as follows:

- a) Step up the machine to **Step 2; Air pressure ON**.
- b) Push the **Manual straw/UniCap feed** button.
- c) Turn the feed wheel (1) by hand and check that the edge of the squeezer arms (2) are not positioned outside the groove of the feed wheel (3).
If so, adjust the upper arm by loosen the screws (4) and turn the arm.
Adjust the lower arm by loosen the screws (5) and turn the arm.



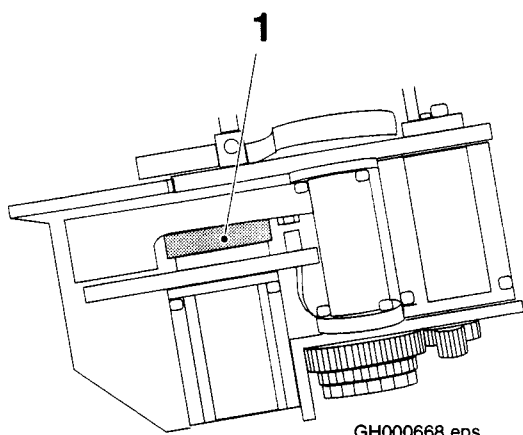
2.2TH000252.en

(Cont'd)

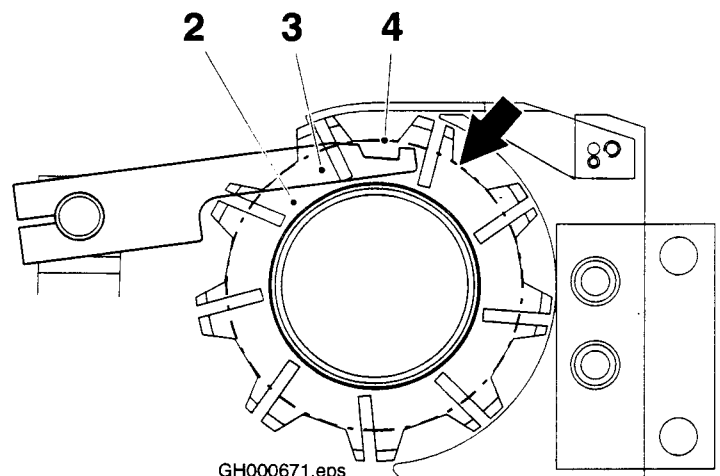
UniCap application

To set the squeezer do as follows:

- a) Step up the machine to **Step 2; Air pressure ON**.
- b) Push the **Manual straw/UniCap feed** button.
- c) Turn the feed wheel (1) by hand and check that the edge of the squeezer arms (3) are not positioned outside the groove of the feed wheel (4). If so, adjust the upper arm by loosen the screw (5).
- d) Check that the squeezer is centred in the feed wheel tracks (6). Tighten the screw (5).

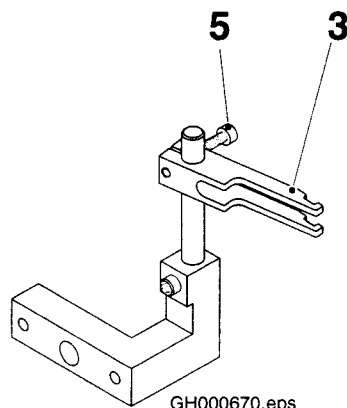


GH000668.eps

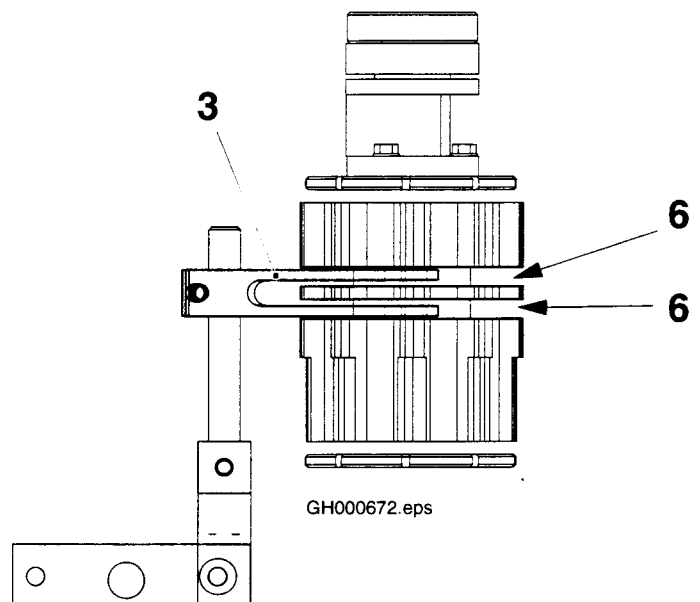


GH000671.eps

- 1 Wheel
- 2 Feed wheel
- 3 Squeezer arm
- 4 Feed wheel groove
- 5 Screw
- 6 Track



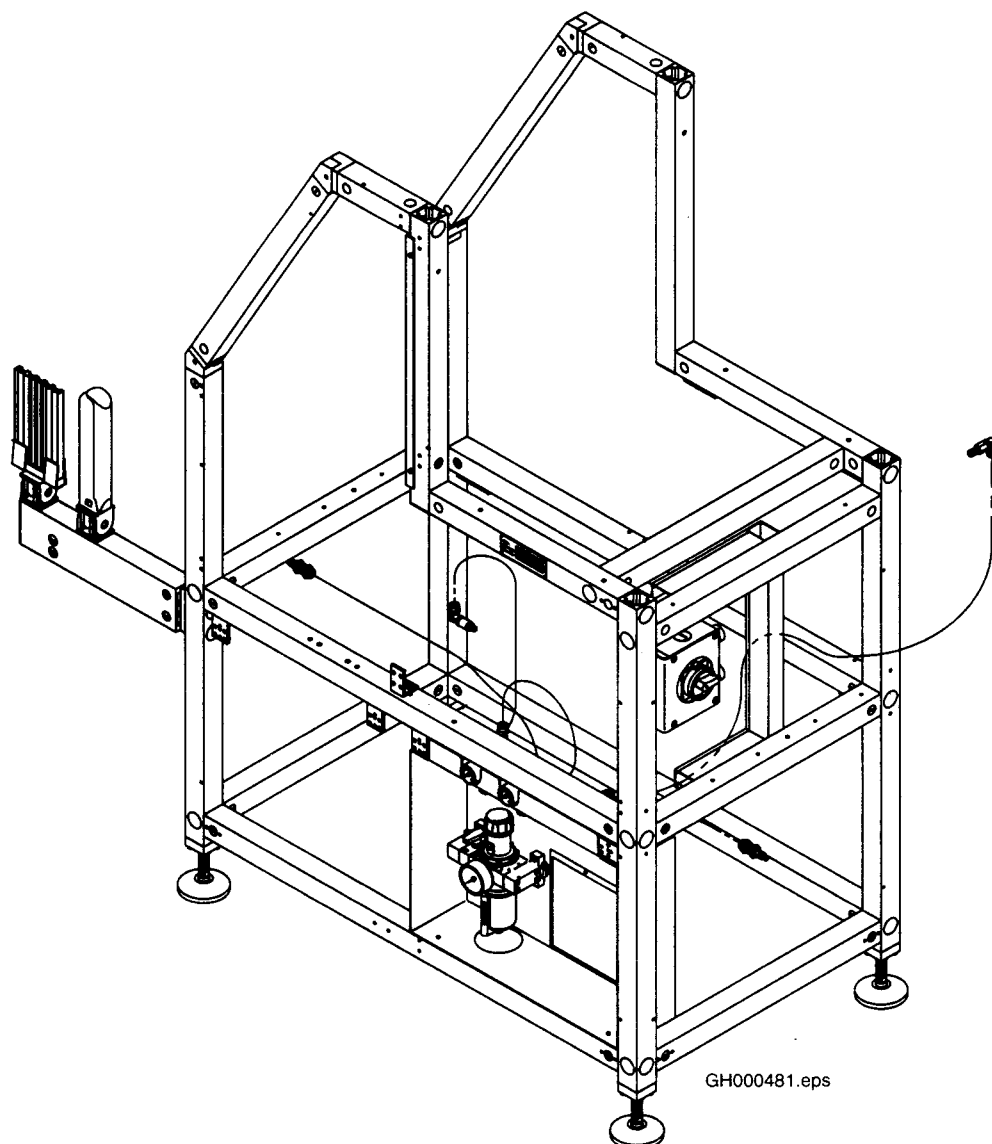
GH000670.eps



GH000672.eps

This page intentionally left blank

5 Machine body

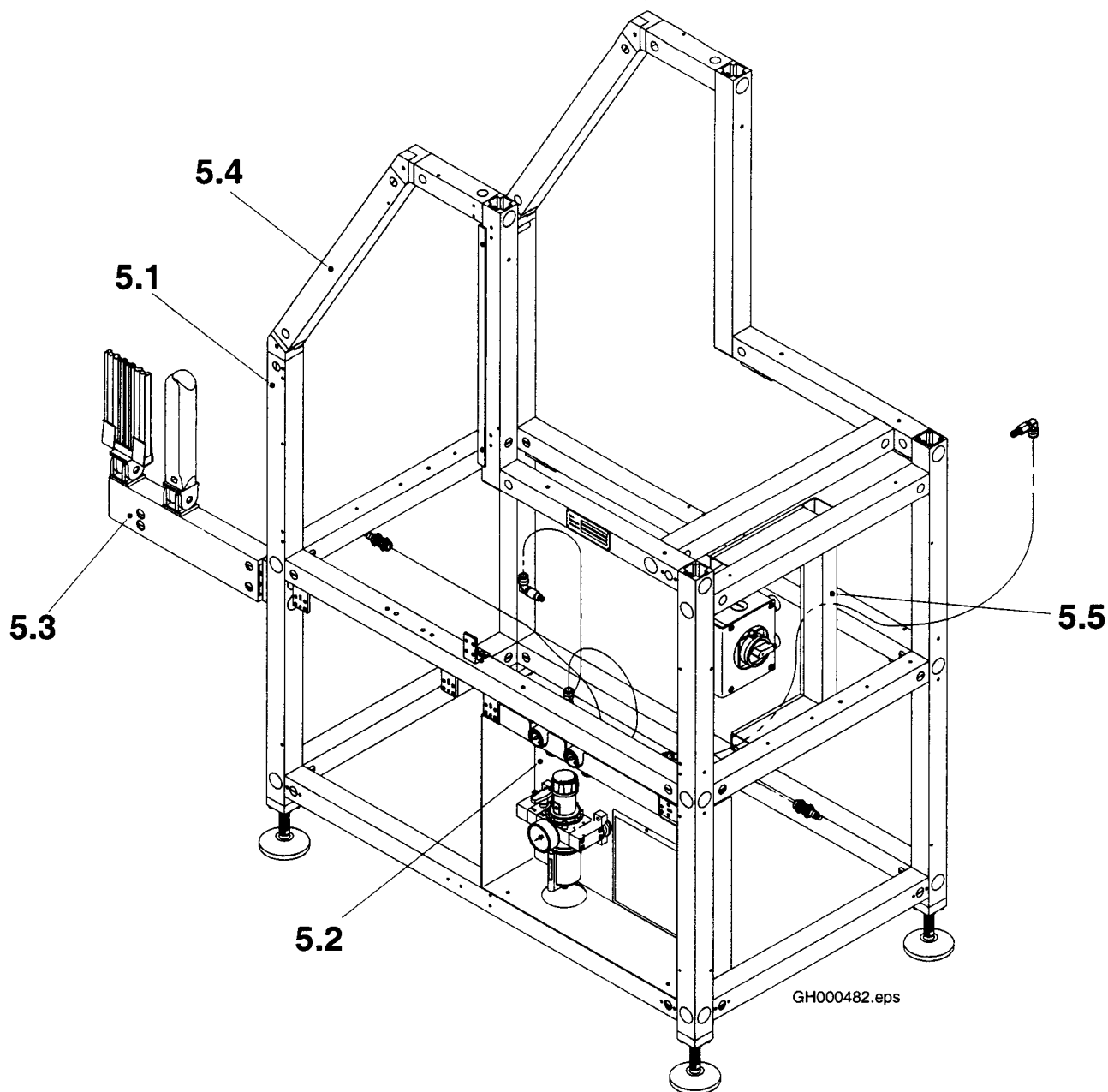


5 Machine body

5-0 Machine body - description

SPC

678587-030V



2.2TH000253.en

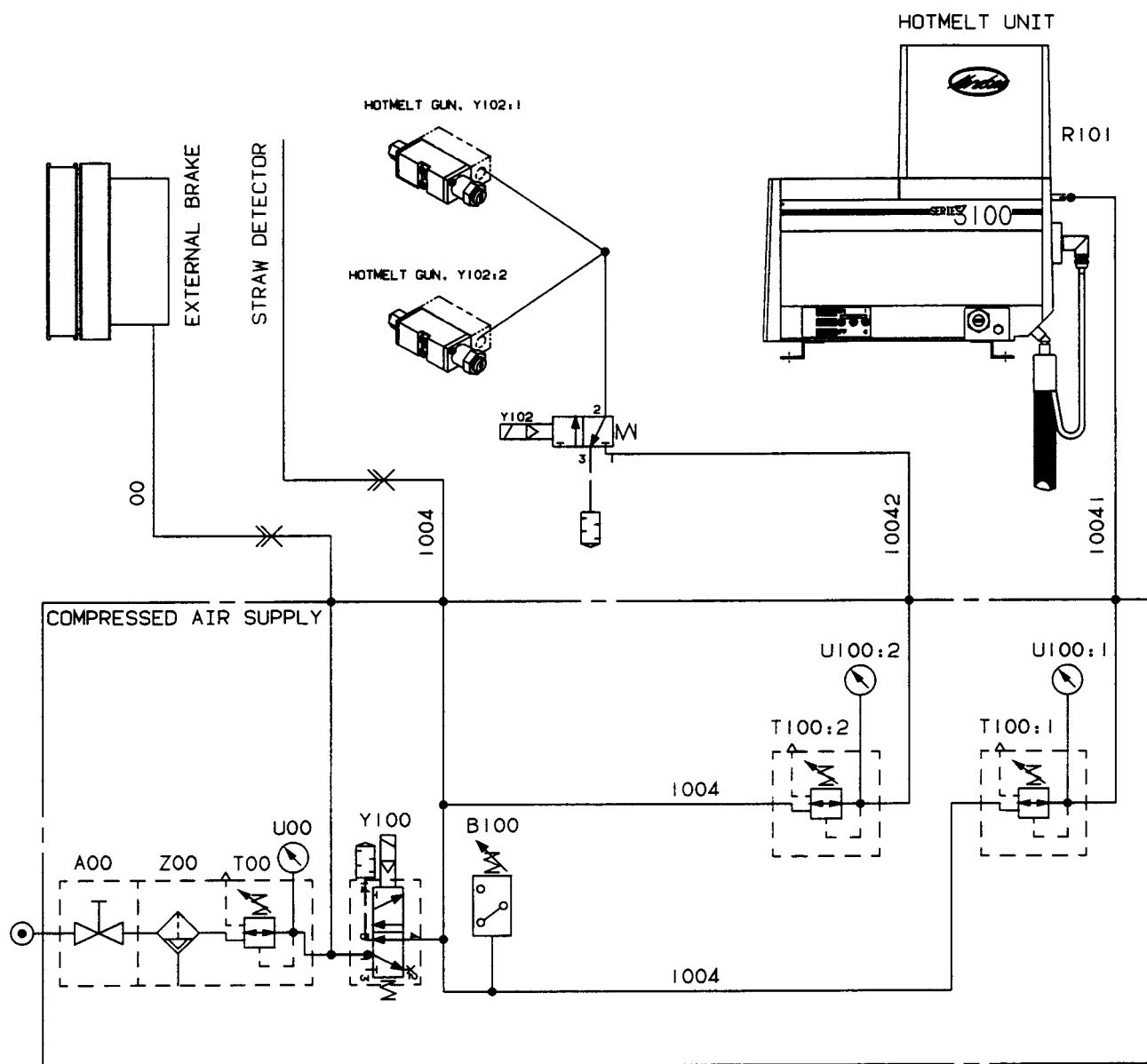
- | | | |
|-----|-----------------------|------------------------------|
| 5.1 | Frame section lower | -- No procedure is described |
| 5.2 | Compressed air supply | |
| 5.3 | Ladderband unit | -- No procedure is described |
| 5.4 | Frame section upper | -- No procedure is described |
| 5.5 | Cable duct | -- No procedure is described |

5.2 Compressed air supply

SPC

1119520-020V

5.2-1 Compressed air supply - pneumatic diagram



GH000125

5.2-2 Compressed air supply - set pressure switch

Machine status	Mains power ON Air ON
SPC	1119520-010V

How to set the pressure switch

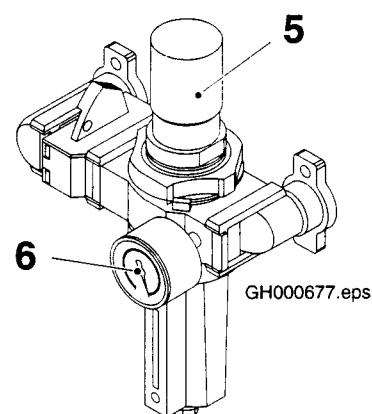
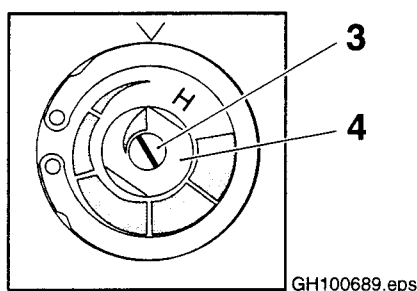
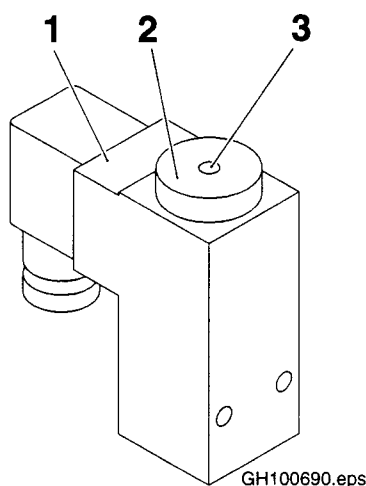
How to set the pressure switch is described under a number of headings. Follow the description under the headings:

- Basic setting
- Check the lower switch point
- Check the pressure gauge setting during production

Basic setting

The basic setting is done as follows:

- Turn the setting screw (3) fully counter clockwise
- Step up the machine to **Step 2; Air pressure ON**.
- Set the pressure regulator (5) to 0.38 MPa (switch point).
- Slowly turn the setting screw (3) clockwise until there is an alarm
- Reset the alarm and set the pressure regulator (5) to approximately 0.5 MPa and make sure that you can step up the machine to **Step 2; Air pressure ON**.
- If not, decrease the hysteresis range of the pressure switch (1) and repeat from item a). To adjust the hysteresis, pop of the rubber cap (2), underneath which the hysteresis setting screw (4) is located.

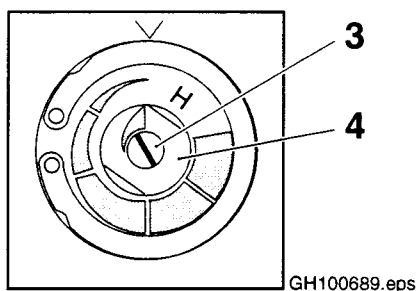


- Pressure switch
- Rubber cap
- Setting screw; switch point
- Hysteresis setting screw
- Pressure regulator
- Pressure gauge

(Cont'd)

(Cont'd)

Note! To decrease the range of the hysteresis, turn the hysteresis setting screw (4) counter clockwise. When the hysteresis setting screw (4) is turned, the setting screw (3) position must not be changed. Therefore the setting screw (3) should be held with a screwdriver while the hysteresis setting screw (4) is turned.



- 3 Setting screw; switch point
- 4 Hysteresis setting screw

GH100689.eps

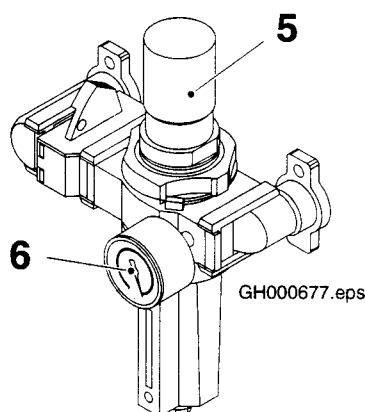
Check the lower switch point

To check the lower switch point, do the following:

- a) Step up the machine to **Step 2; Air pressure ON**.
- b) Slowly decrease the working pressure and notice that the alarm goes on at 0.38 MPa.
- c) If necessary, adjust according to items a) - f) under the heading **Basic setting**.
- d) Set the pressure regulator (5) to 0.55 MPa and reset the alarm.

Check the pressure gauge setting during production

Check the pressure gauge (6) setting during production, it should be 0.55 MPa. If necessary, adjust by means of the pressure regulator (5).



- 5 Pressure regulator
- 6 Pressure gauge

GH000677.eps

5.2.1 Filter regulator

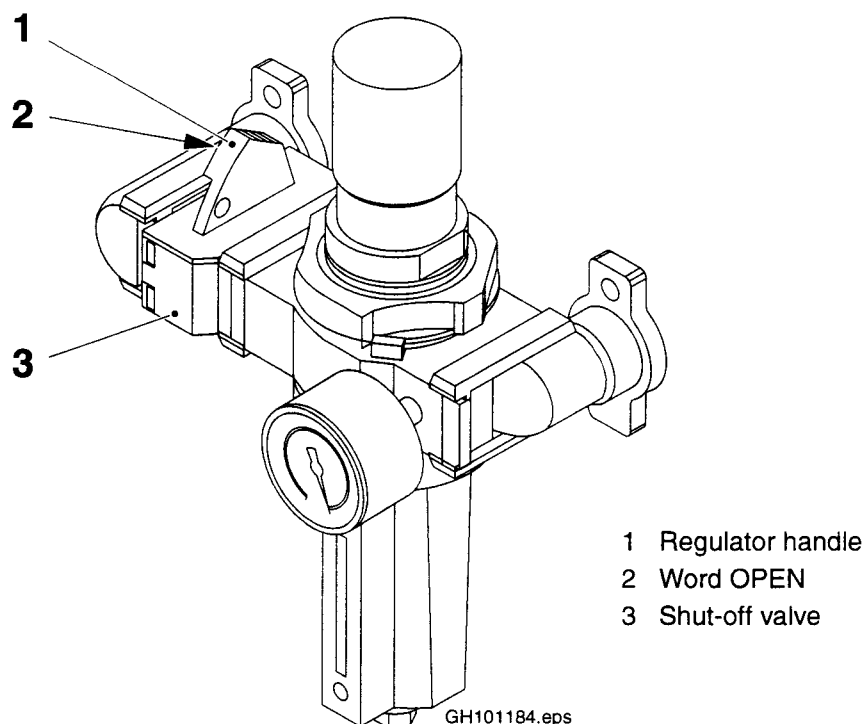
5.2.1-1 Filter regulator - set

SPC	573173-020V
-----	-------------

Shut-off valve

The shut-off valve (3) can be set in two position as follows:

- The shut-off valve (3) is opened when the regulator handle (1) is positioned as illustrated in the picture below. The word OPEN (2) is also stamped and visible on the side of the regulator handle (1).
- The shut-off valve (3) is closed when the regulator handle (1) is pressed down and visible at the underside of the shut-off valve (3). In this position it can be locked by a padlock. The word CLOSED is also stamped and visible on the side of the regulator handle (1).



2.2TH000254.en

(Cont'd)

(Cont'd)

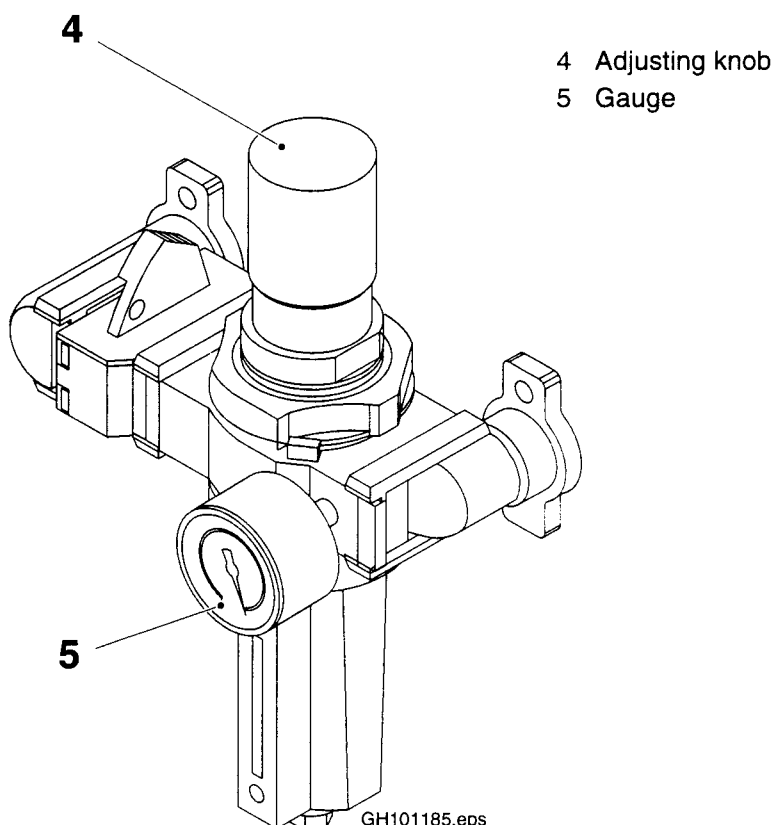
Pressure

Minor adjustments after setting changes can be avoided by always approaching the desired setting from a lower setting. When a lower setting is required, firstly reduce to a lower level and then increase to the desired setting.

Depending on required pressure observed on the gauge (5), you should turn the adjusting knob (4) as follows:

- If you want to increase the pressure observed on the gauge (5), then you should turn the adjusting knob (4) clockwise.
- If you want to decrease the pressure observed on the gauge (5), then you should turn the adjusting knob (4) anti-clockwise.

The adjusting knob (4) includes a locking feature; push adjusting knob (4) in after setting to lock and prevent adjustment. To release, pull adjusting knob (4) out.



5.2.1-2 Filter regulator - clean

SPC	573173-020V
-----	-------------



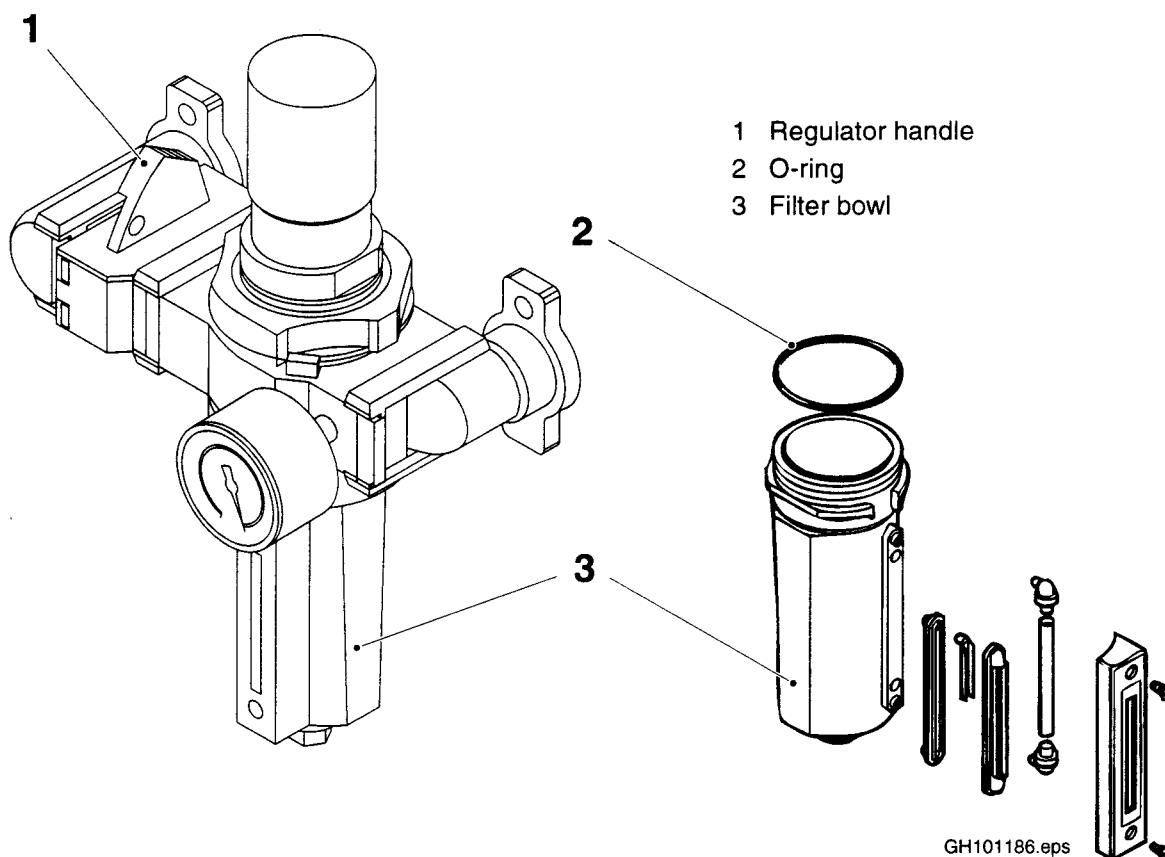
WARNING!

Risk of injuries!

Depressurize the compressed air system before cleaning. The **Shut-off valve** must be locked. The key to the padlock must be removed by the service technician and retained in his possession until all work is completed.

To clean the filter regulator, do the following:

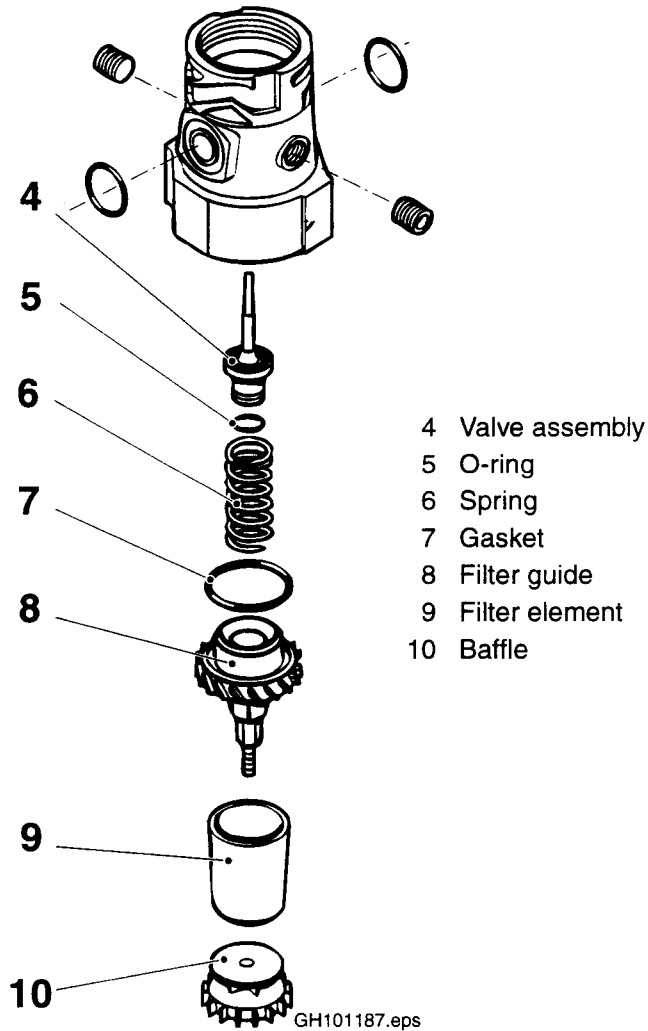
- a) Turn off the air supply by pressing down the regulator handle (1). Lock with a padlock.
- b) Lift and turn the filter bowl (3) anti-clockwise and remove with O-ring (2).



(Cont'd)

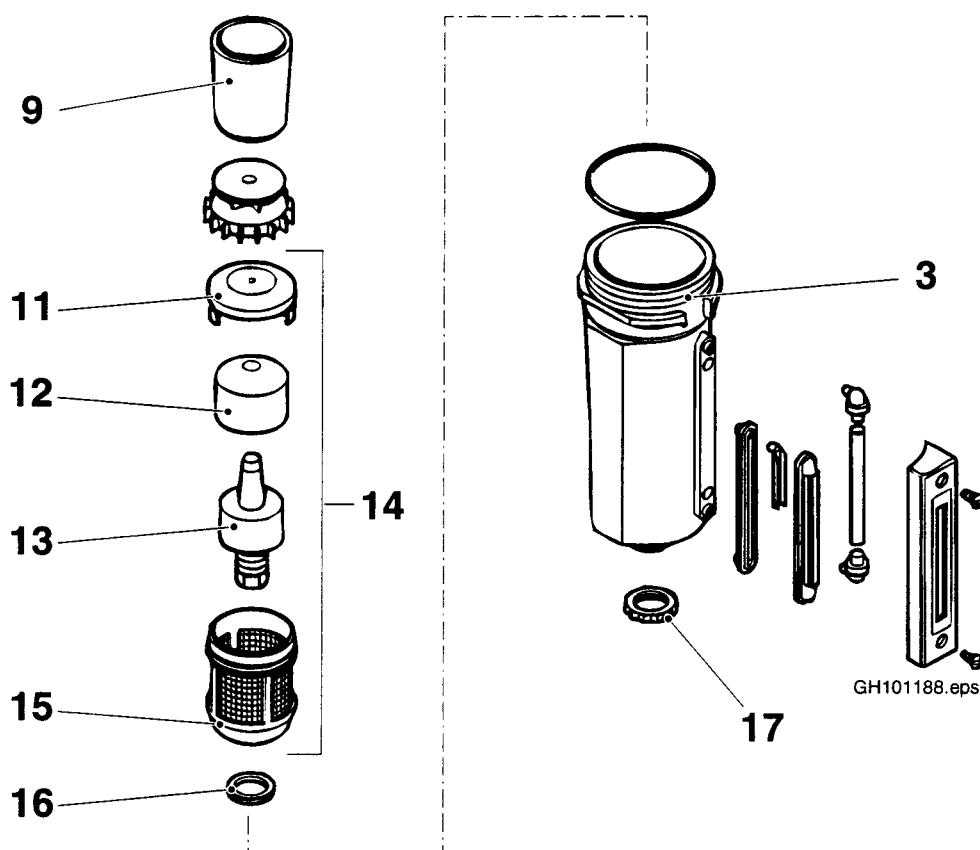
(Cont'd)

- c) Unscrew the baffle (10) and withdraw the filter element (9).
- d) Unscrew the filter guide (8) complete with gasket (7), and remove valve assembly (4) including O-ring (5) and spring (6).

*(Cont'd)*

(Cont'd)

- e) Remove the auto-drain assembly (14) from the filter bowl (3) before cleaning by releasing the retaining nut (17).
- f) The filter bowl (3) should be cleaned using soapy water **only**. (Solvents, etc. can damage or destroy seals, sight glasses, etc.) The filter bowl (3) should be inspected on every unit maintenance. If the filter bowl (3) is showing signs of mechanical damage it should be replaced with a new filter bowl (3).
- g) Partial cleaning of the filter element (9) is possible by washing the filter element (9) in soapy water and blowing out thoroughly with compressed air. Replacement by a clean filter element (9) is recommended.
- h) Dismantle the auto-drain assembly (14) by unclipping the plastic cap (11) from the strainer (15), remove the non-repairable float (12) and drain mechanism (13) and clean the strainer (15) with compressed air.



- | | |
|-------------------------|------------------------|
| 3 Filter bowl | 14 Auto-drain assembly |
| 9 Filter element | 15 Strainer |
| 11 Plastic cap | 16 Gasket |
| 12 Non-repairable float | 17 Retaining nut |
| 13 Drain mechanism | |

(Cont'd)

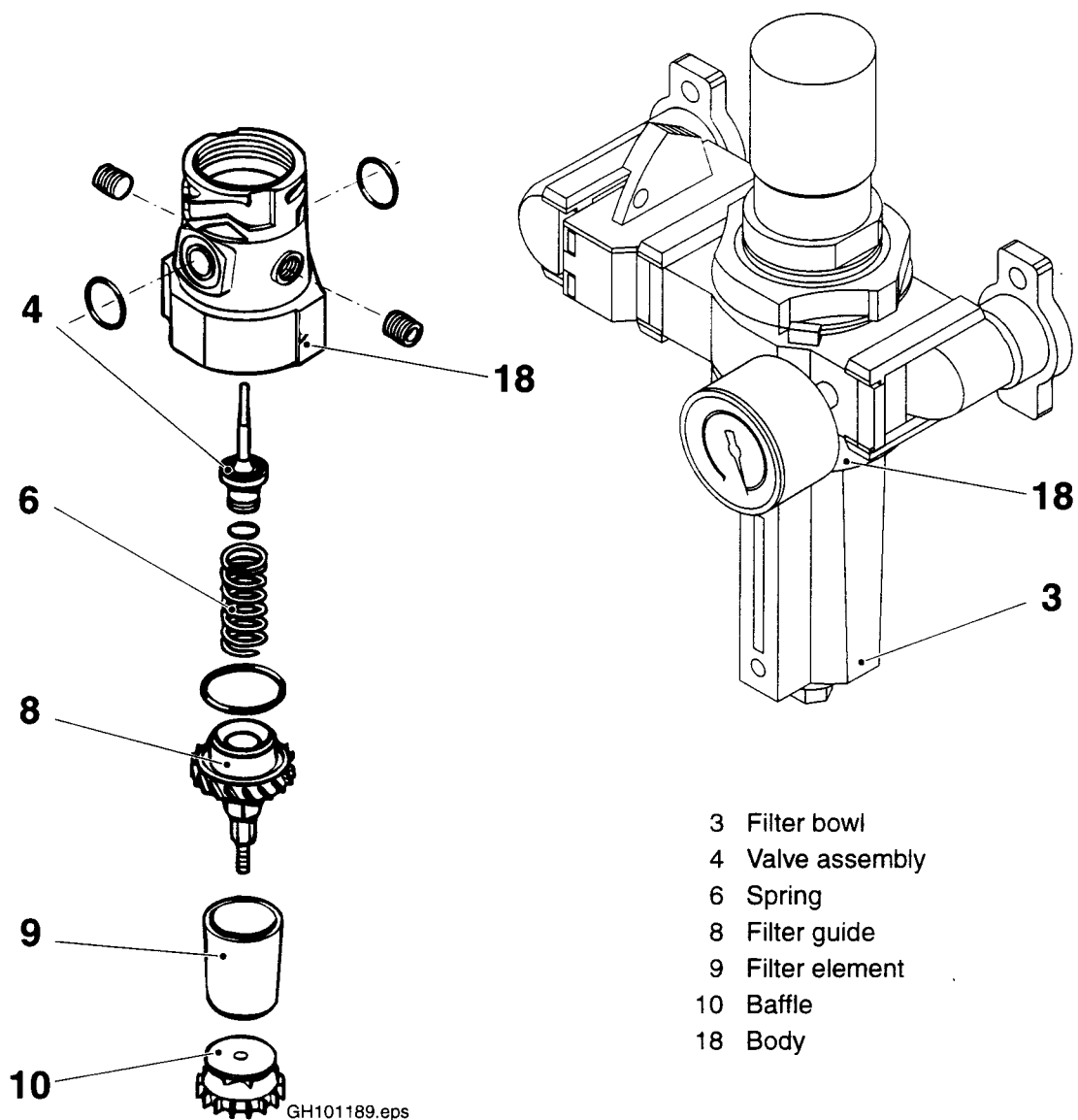
(Cont'd)

Change all worn and damaged parts.

During reassembly all O-rings and gaskets should be lightly smeared with BPLS2 Energrease (or similar) and the valve assembly (4) checked for free movement in the valve guide. Tighten the filter guide (8) with the valve assembly (4) and spring (6), hand tight only (1,4 Nm maximum). The baffle (10) should be tightened carefully to avoid crushing the filter element (9).

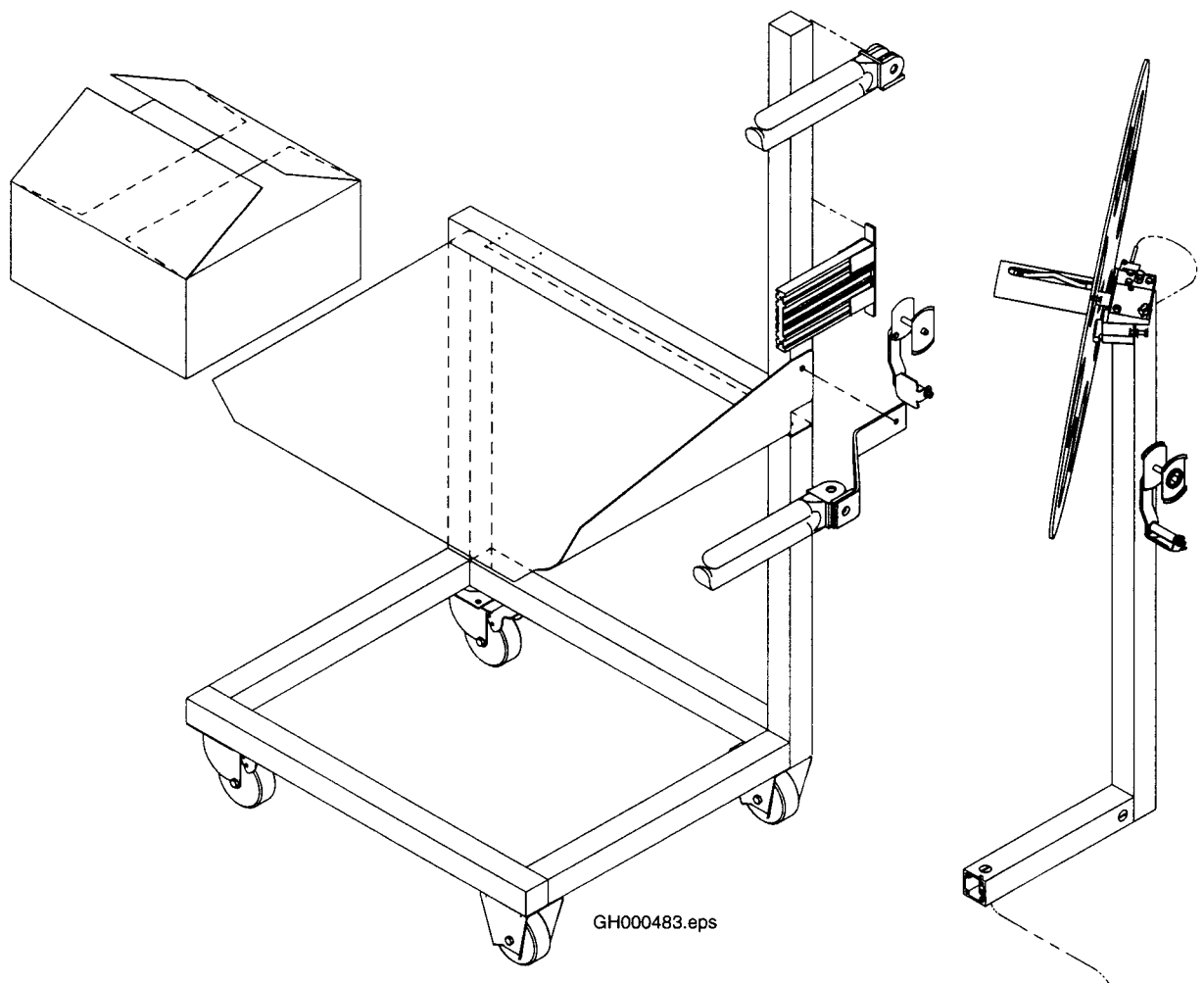
**WARNING!****Risk of personal injury!**

The filter bowl (3) must be turned fully clockwise into body (18) before pressurizing unit.



This page intentionally left blank

6 Magazine

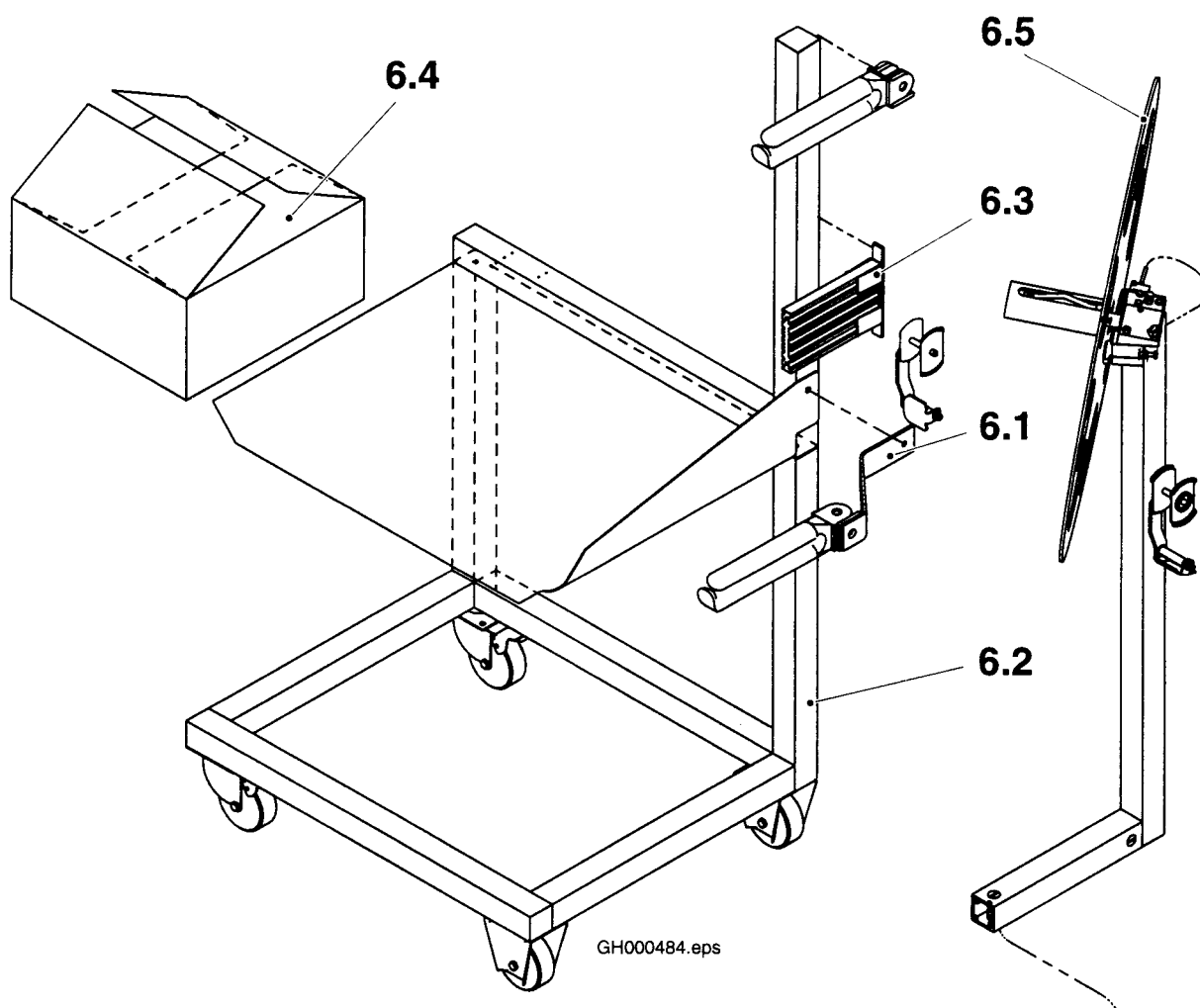


2.2TH000255.en

6-0 Magazine - description

SPC

678588-020V



- | | |
|--------------------------|------------------------------|
| 6.1 Ladder band guide | -- No procedure is described |
| 6.2 Machine body | -- No procedure is described |
| 6.3 Intermediate section | -- No procedure is described |
| 6.4 Packing | -- No procedure is described |
| 6.5 Bobbin holder | |

2.2TH000255.en

6.5 Bobbin holder

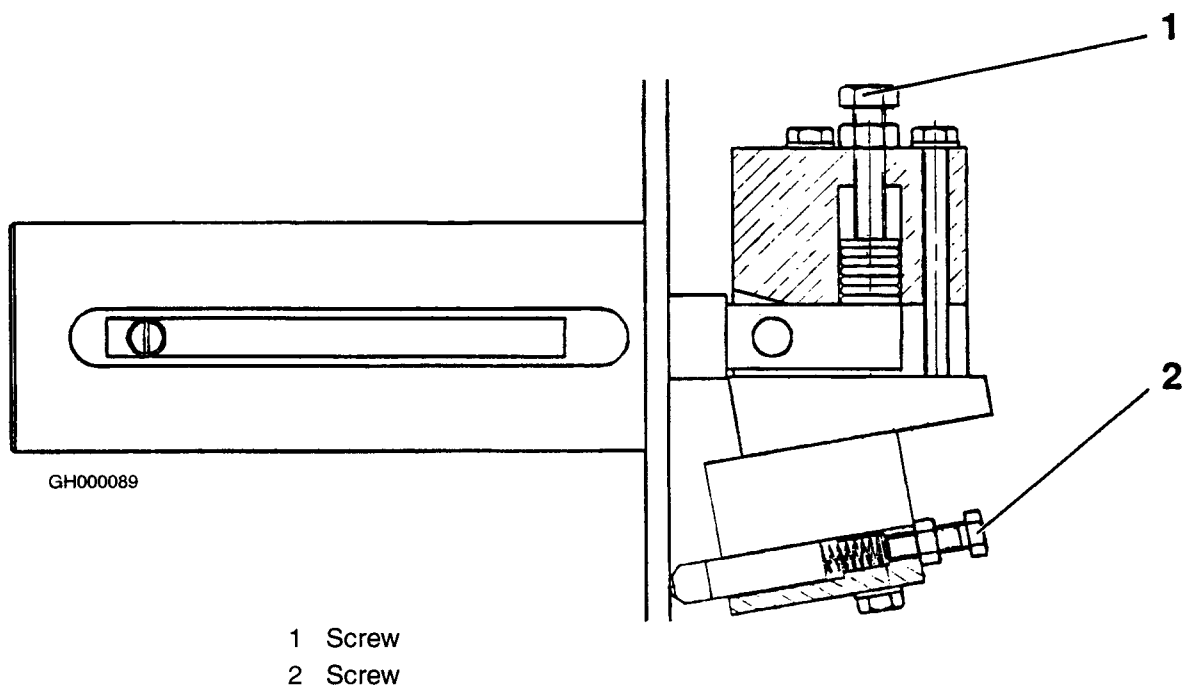
SPC	1119523-020V
-----	--------------

6.5-1 Bobbin holder - set

Machine status	Mains power OFF Air OFF
SPC	1119523-020V

Adjust the screw (1) so that the weight of approximately half a reel just presses the bobbin down.

Adjust the brake power with screw (2) so that a full reel can not be rolled out.



This page intentionally left blank

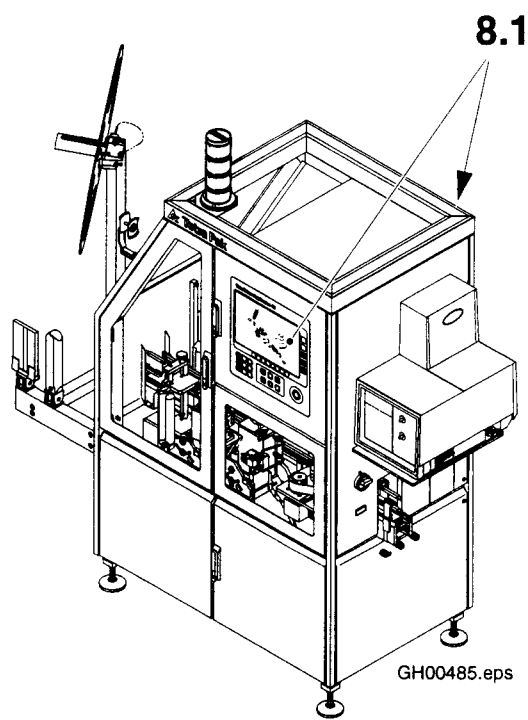
2.2TH000256.en

8 Electrical equipment

2.2TH000257 en

8-0 Electric equipment - description

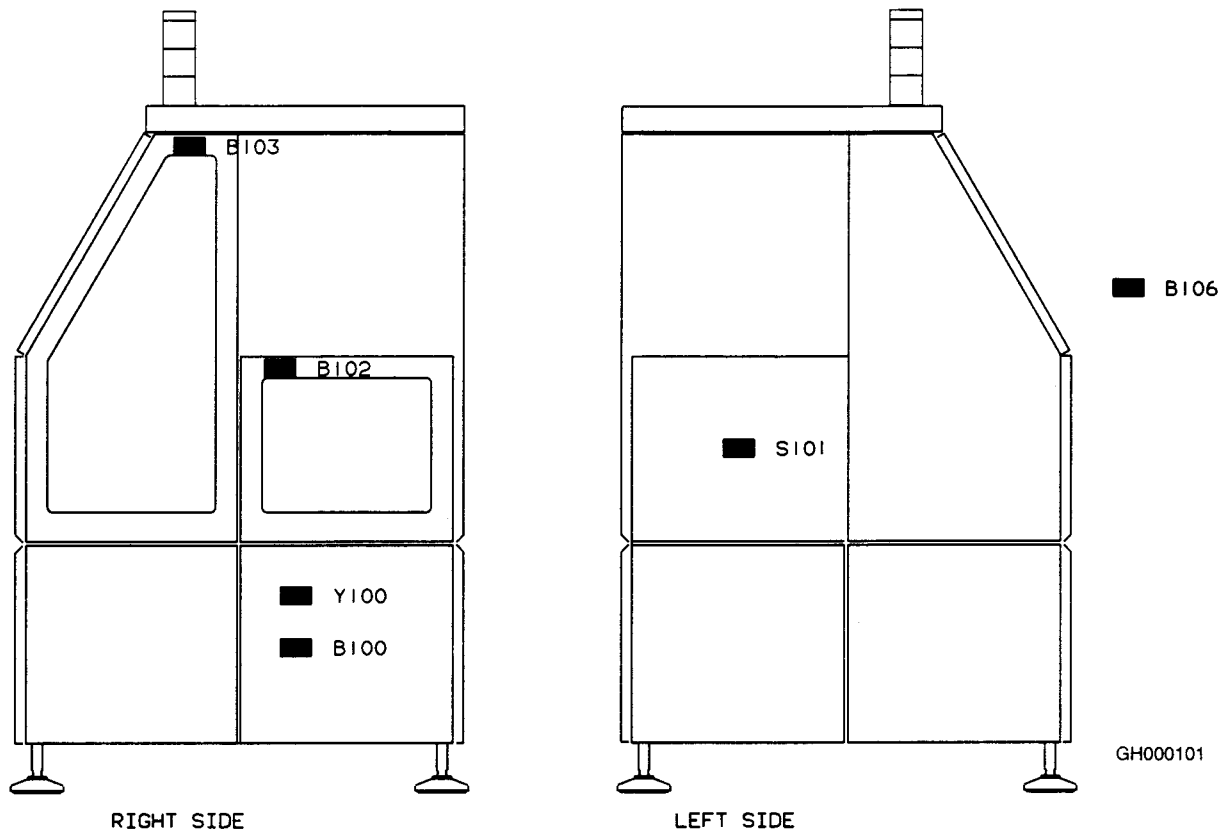
SPC	679256-030V
-----	-------------



- | | | |
|-----|---------------------|------------------------------|
| 8.1 | Electrical cabinet | |
| 8.2 | Machine | -- No procedure is described |
| 8.3 | Electrical document | -- No procedure is described |
| 8.4 | Standard equipment | -- No procedure is described |
| 8.5 | Extra equipment | -- No procedure is described |
| 8.6 | Spare part kit | -- No procedure is described |

2.2TH000257.en

8-1 Electric equipment - components

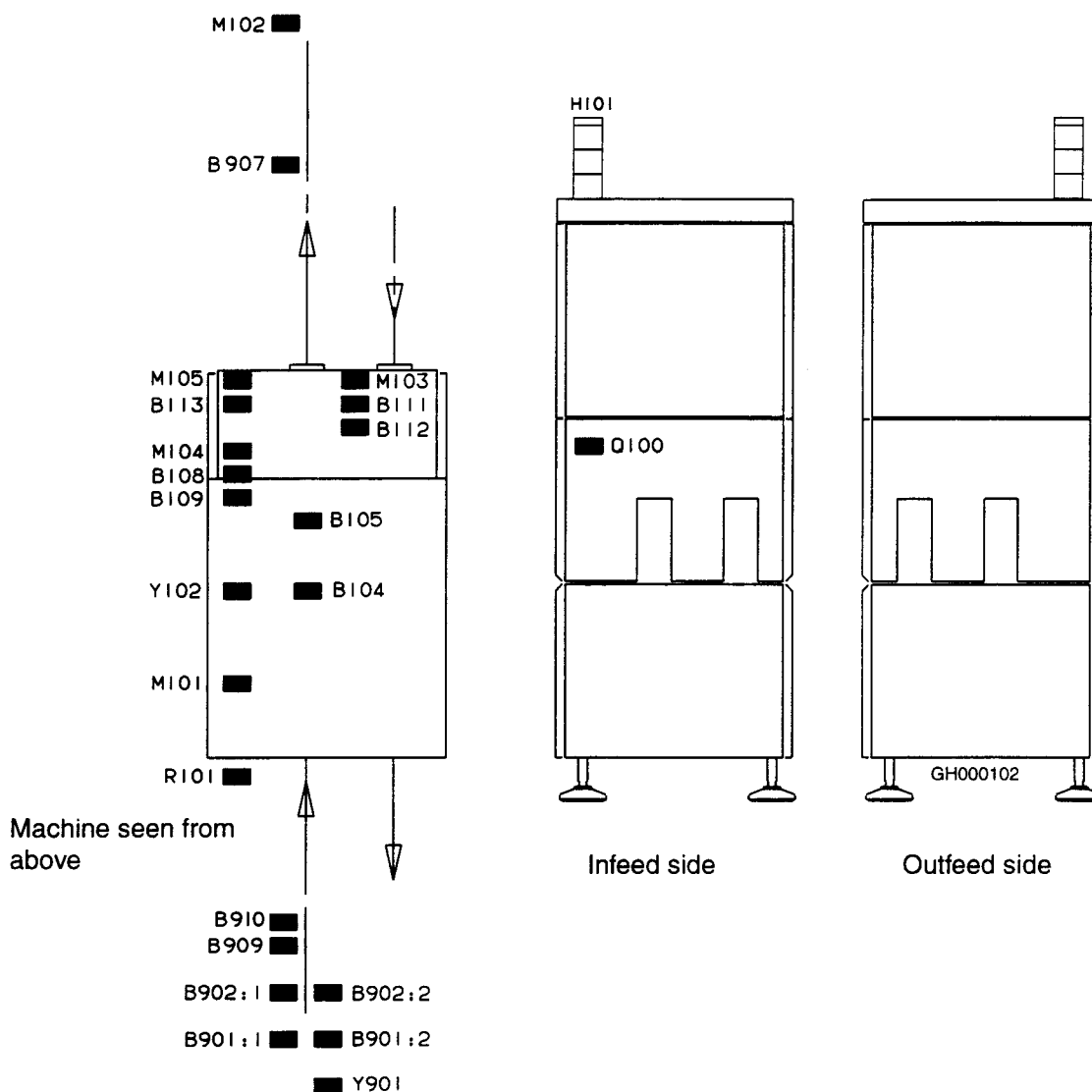


- B100 Air pressure switch
- B102 Door safety switch
- B103 Door safety switch
- B106 Magazine straw photocell
- S101 Emergency stop
- Y100 Main air

(Cont'd)

8 Electrical equipment

(Cont'd)



- B104 Hot melt gun
- B105 Infeed carrier
- B108 Feeding wheel, stop position, S-straw
- B109 Feeding wheel, stop position, U-straw, UniCap
- B111 Step motor carrier, low speed
- B112 Step motor carrier, stop position
- B113 Step motor knife, stop position
- B901:1 External hose brake, sensor 1
- B901:2 External hose brake, sensor 1
- B902:1 External hose brake, sensor 2
- B902:2 External hose brake, sensor 2
- B907 Queue after machine
- B909 Infeed lower
- B910 Infeed upper

- H101 Warning lamp
- M101 Infeed brake
- M102 Infeed conveyor
- M103 Step motor, carrier
- M104 Step motor, feeding wheel
- M105 Step motor, knife
- Q100 Main switch
- R101 Hot melt unit
- Y102 Hot melt gun
- Y901 External hose brake

8-2 Electric equipment - set photocell

Machine status Mains power ON

**WARNING!****Risk of personal injury!**

Moving parts can cause serious injuries!

There are two different types of photocells; reflection type and transmitting/receiving type.

Reflection type

Note! Valid for the photocells in the packaging conveyor:

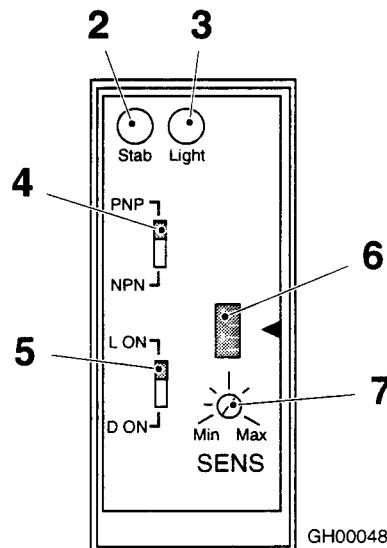
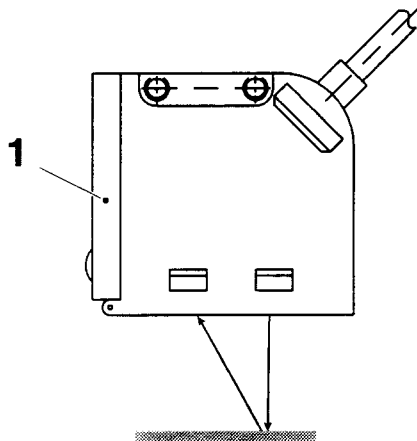
The photocells are fit **above** the object to be detected. The object to be detected in a) **Set distance to object** is a standing package. The object to be detected in b) **Set with background object** is a package lying down.

Open the cap (1) and check that the switch (4) is set to PNP (positive logic) and the switch (5) is set to L ON. (The signal will be sent when the photocell detects the object.)

Adjust the sensitivity as follows:

a) **Set distance to object**

Place the object to be detected at the desired location. Turn the adjustment knob (7) clockwise until the orange LED (3) lights up. Note the value on the distance setting indicator (6).



- 1 Cap
- 2 Light emitting diode (LED), green
- 3 Light emitting diode (LED), orange
- 4 Switch
- 5 Switch
- 6 Distance setting indicator
- 7 Adjustment knob

GH000488.eps

(Cont'd)

8 Electrical equipment

(Cont'd)

- b) Remove the detected object.

Set with background object

Turn the adjustment knob (7) clockwise until the orange LED (3) lights up, detecting the background object.

Then turn the adjustment knob (7) anti-clockwise until the LED (3) goes out. Note the value on the distance setting indicator (6).

Set the adjustment knob to a value halfway between the values measured on the distance setting indicator (6).

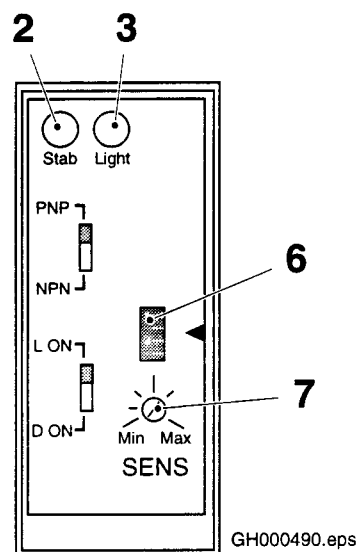
Set without background object

Note the maximum value possible to set on the distance setting indicator (6).

Set the adjustment knob to a value halfway between the value measured in item a), and the maximum value.

- c) Confirm that the green LED (2) remains lit both with or without the detected object present.

Note! Background interference can be a problem if the distance is set near the maximum value (5 to 6) on the distance setting indicator scale.



- 2 Light emitting diode (LED), green
- 3 Light emitting diode (LED), orange
- 6 Distance setting indicator
- 7 Adjustment knob

2.2TH000257 en

(Cont'd)

(Cont'd)

Transmitting/receiving type

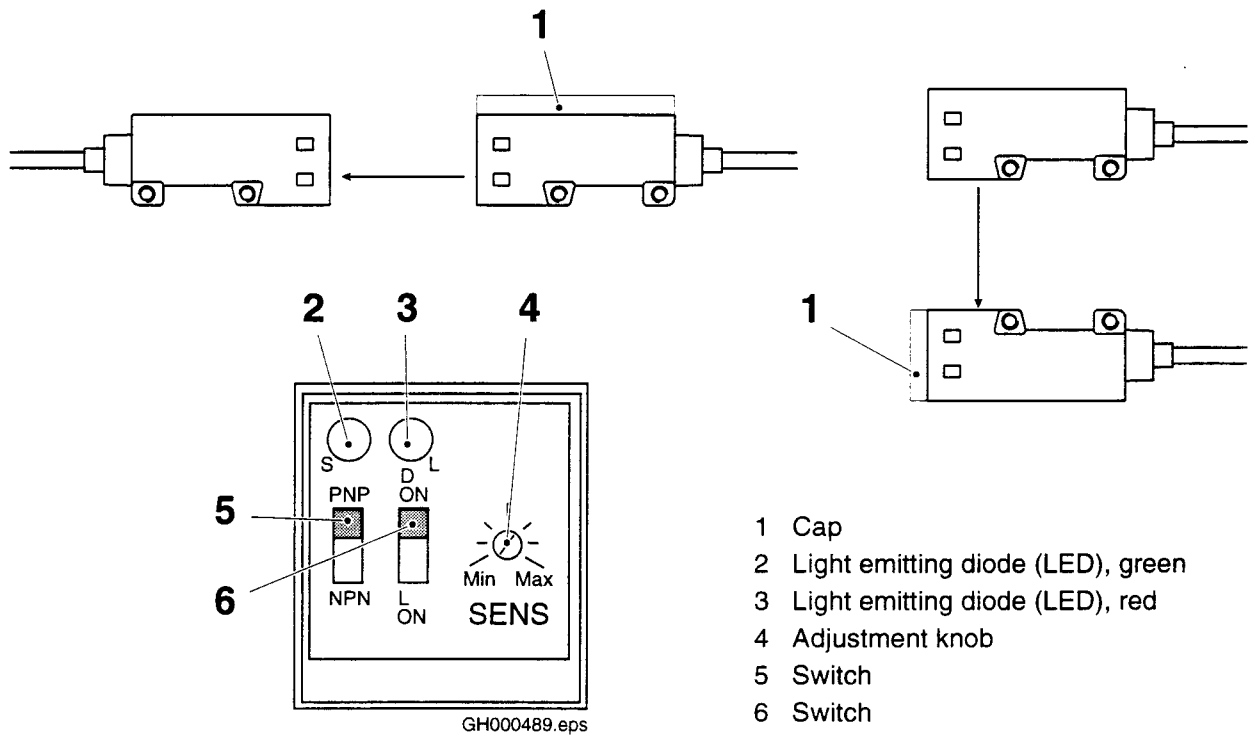
Note! There are two types of photocells; to be positioned besides or in front of each other.

Open the cap (1) and check that the switch (5) is set to PNP (positive logic) and that the switch (6) is set to D ON. (The signal will be sent when the object is detected between the photocells.)

Check the transmitter and the receiver position, see illustration below.

Adjust the sensivity as follows:

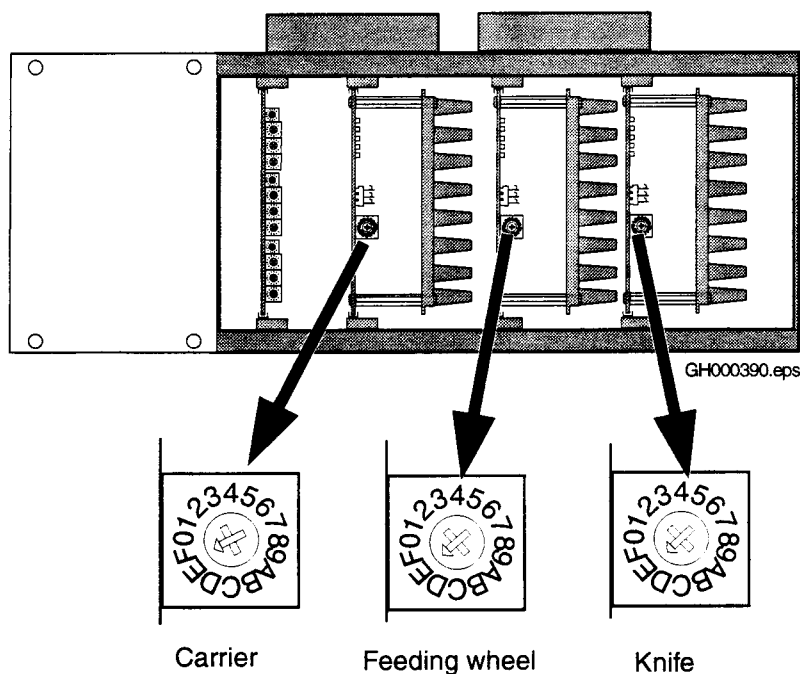
- a) Begin without any object to be detected.
Turn the adjustment knob (4) anti-clockwise to Min, and then clockwise until both the green LED (2) and the red LED (3) light up. To secure the setting, turn the adjustment knob just a little bit more.
- b) Place the object to be detected between the photocells. Confirm that the green LED (2) is lighting.



8-3 Electric equipment - set step motor

SPC	42254-030V
-----	------------

Set the selectors (Carrier/ Feeding wheel/ Knife) on the motor drive control (in the electrical cabinet) according to the figure.

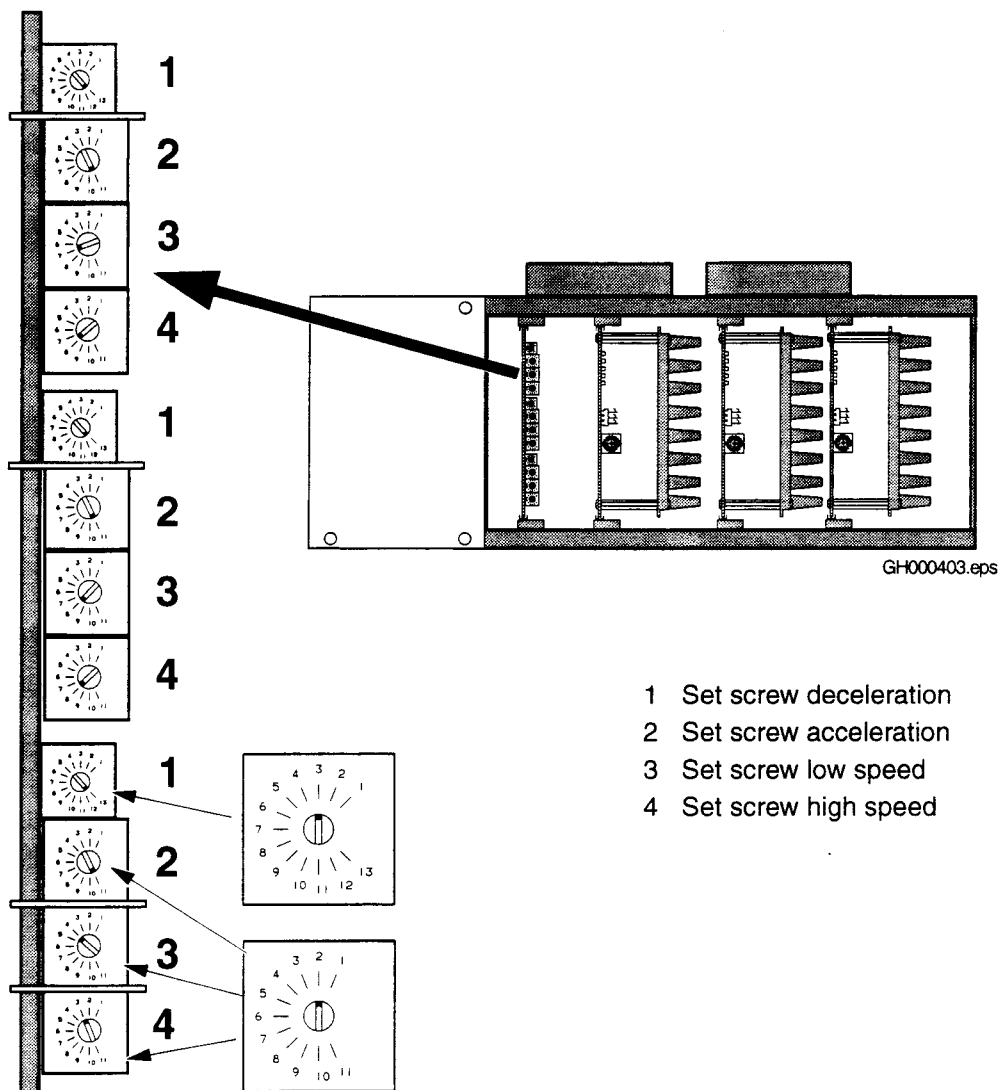


(Cont'd)

(Cont'd)

Set the potentiometers according to the table:

Potentiometer	Set value	
	Straw application	UniCap application
Carrier	13	13
	11	11
	7	7
	8	7
Feeding wheel	13	13
	11	11
	8	8
	8	8
Knife	13	13
	11	11
	4	4
	3	3



(Cont'd)

8 Electrical equipment

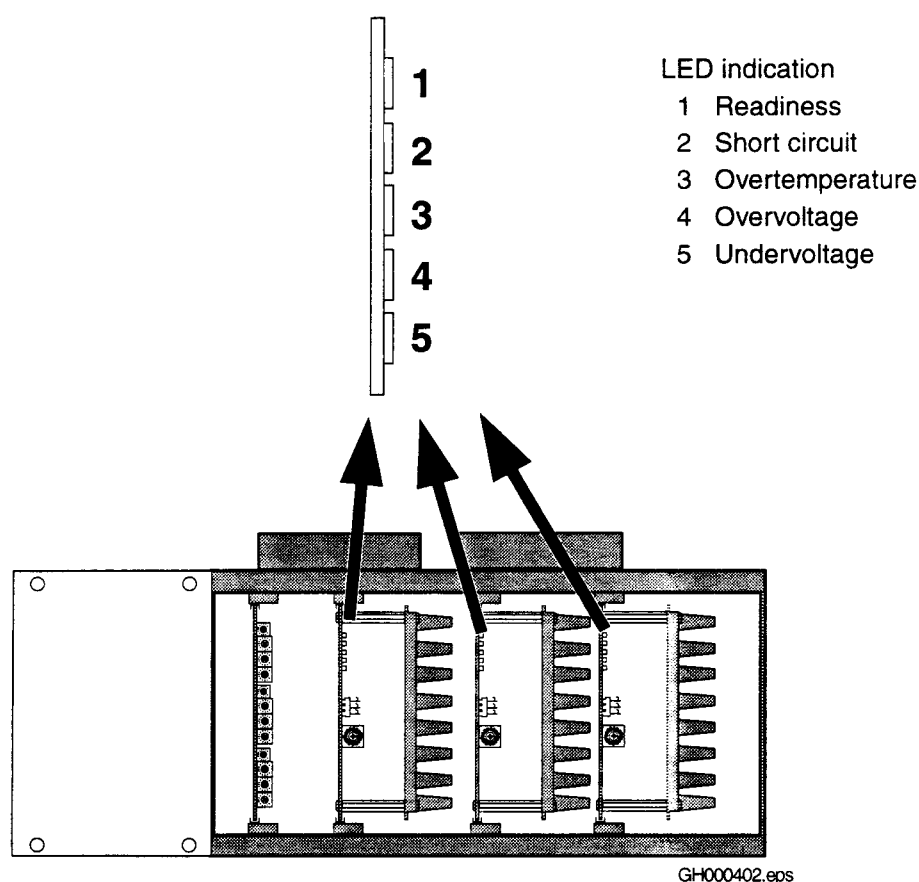
(Cont'd)

Malfunctions

Status indicators

The five LEDs on the card indicate operating states and any malfunctions.

- LED (1) lights up when the card is operating properly (readiness signal is sent via signal connector). The supply voltage exceeds 80VDC
- LED (2) lights up in case of a short circuit between two motor phase leads
- LED (3) lights up in case over temperature ($>75^{\circ}\text{C}$) at the heat sink
- LED (4) lights up in case of overvoltage ($>140\text{ V}$) during operation with brake
- LED (5) lights up in case of undervoltage ($<80\text{ V}$)



Note! If a malfunction occurs (LED (2) to LED (5)), the motor is deenergized and the card status changes to "Not ready" (LED (1) goes out). The fault condition can be cleared after elimination the fault by switching the supply voltage OFF and ON again.

8.1 Electrical cabinet

SPC	42254-030V
-----	------------

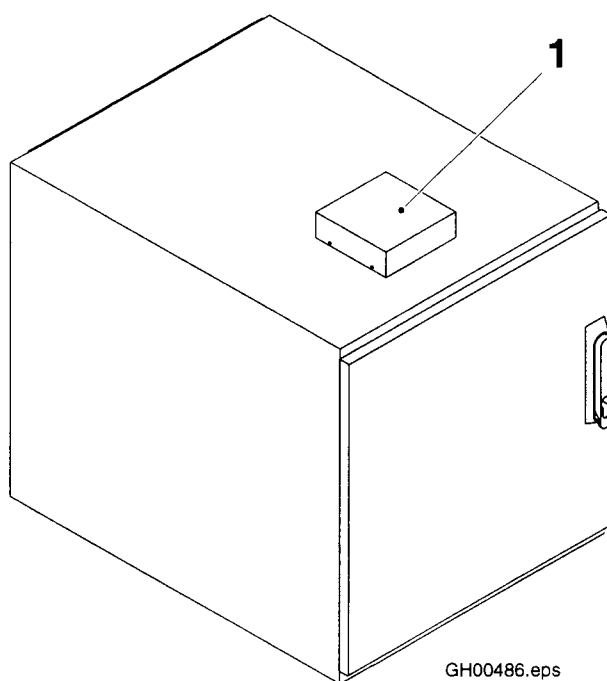
8.1.1 Fan

8.1.1-1 Fan - check

Machine status	Production
----------------	------------

Check while the fan is running, that it is running without any noise from worn parts. Check also the function of the fan.

Replace if necessary.



1 Fan

GH00486.eps

8.1.2 GE Fanuc

8.1.2-1 GE Fanuc - change battery

Machine status	Mains power OFF
----------------	-----------------

When the BATT lamp (1) on the power supply unit (2) lights up, the battery (5) has to be replaced. The base plate may be connected while the battery is being replaced. To replace the battery, perform the following steps:

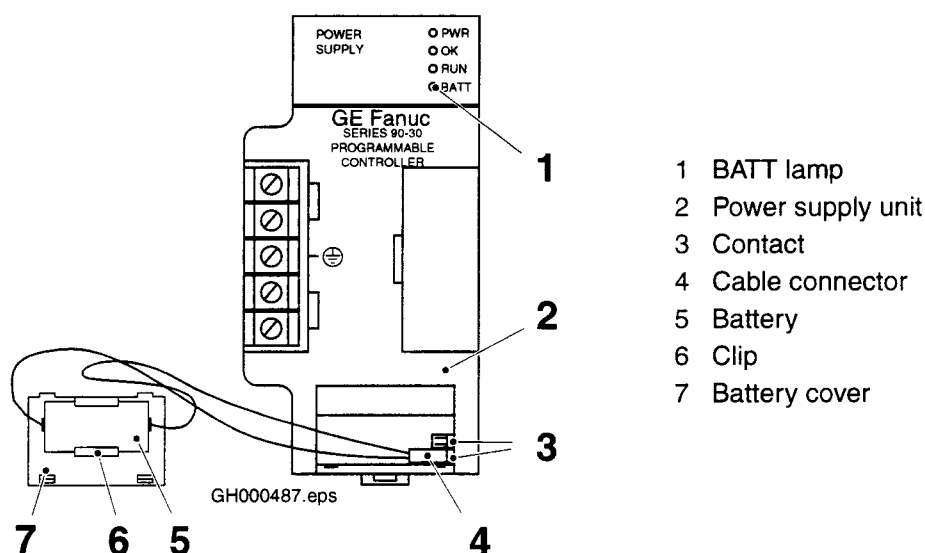
- a) Remove the battery cover (7) located on the lower part of the power supply unit front.
- b) Detach the battery from the clips (6).
- c) Replace the battery and attach the clips to the new battery.

Caution! Handle the old battery in a safe way!

The battery contains harmful substances and must not be thrown away in nature. Bring it to the nearest recycle centre.

- d) Disconnect the cable connector (4) from the old battery.
- e) Carefully connect the connector of the new battery to one of the female contacts (3) on the plate with the aid of needle nozzle pliers.
- f) Assemble the battery cover.

Note! The battery replacement must be completed within 20 minutes, or else the RAM memory might be erased.

**WARNING!****Risk of injuries!**

Do not burn lithium batteries!

Do not try to recharge lithium batteries!

The battery may explode, catch fire or discharge lethal substances.

8.1.2-2 GE Fanuc - change Input/Output module

Machine status	Mains power OFF
----------------	-----------------

To replace the I/O (Input/Output) modules or the CPU (Central Processing Unit), do the following:

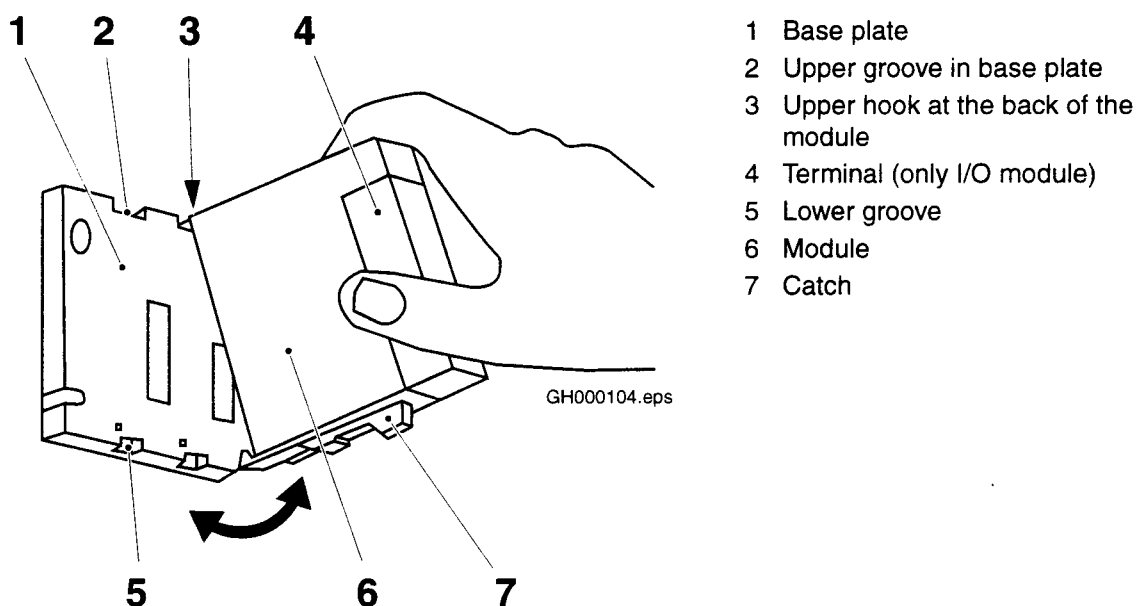
If I/O module: Remove the terminal (4) according to procedure [8.1.2-3 GE Fanuc - change terminal](#) on page 142.

Follow the items [a\)](#) to [h\)](#) below.

If CPU module: Follow the instructions below.

- a) Grip the upper section of the module (6) firmly.
- b) Push the catch (7) on the underside of the module upwards, and tilt the module outwards.
- c) Let go off the catch.
- d) Pull the entire module upwards so that the hook is disengaged from the groove (2) in the base plate (1).
- e) Replace the module with a new one.
- f) Hold the new module with the hooks (3) at the back away from you.
- g) Place the module in front of the contact concerned and tilt it upwards so that the upper hook (3) at the back of the module engages the groove in the base plate (1).
- h) Press the module (6) down, until the catch (7) engages the base plate (1).

On the **I/O module**: Put the terminal (4) back again, see procedure [8.1.2-3 GE Fanuc - change terminal](#).

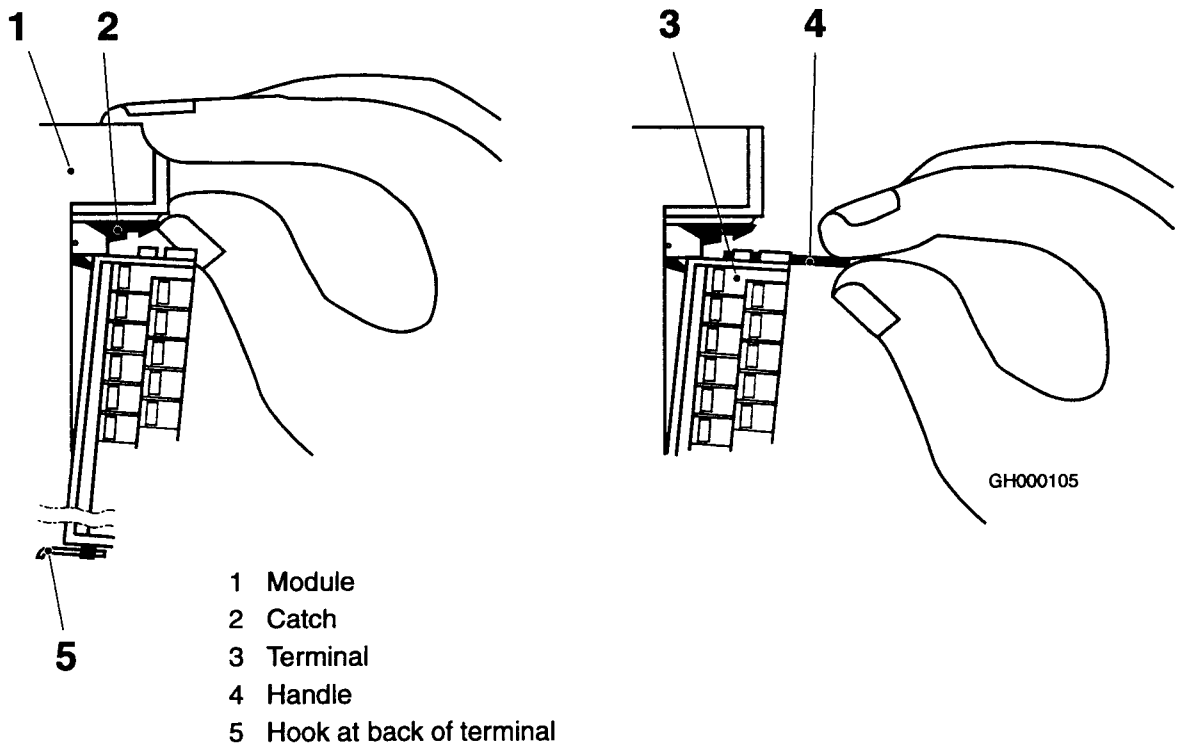


8.1.2-3 GE Fanuc - change terminal

Machine status	Mains power OFF
----------------	-----------------

To replace the terminal, perform the following steps:

- a) Open the terminal (3) hatch.
- b) Push the catch (2) upwards.
- c) The entire terminal block now tilts outwards a little.
- d) Grasp the handle (4) and pull it towards you until the terminal contacts have been disengaged from the module. The catch has now been released and the entire terminal can be removed.
- e) Replace the terminal.
- f) Hold the new terminal with the hatch towards you and the hook (5) on the back of the terminal away from you.
- g) Place the terminal in front of the module concerned and tilt it so that the hook at its back engages the groove in the module.
- h) Press the terminal against the module until the catch looks into the terminal.



2.2TH000258.en

9 Extra equipment

9.1 Extra straw kit

SPC	1119527-010V
-----	--------------

9.1.1 Spring clamp

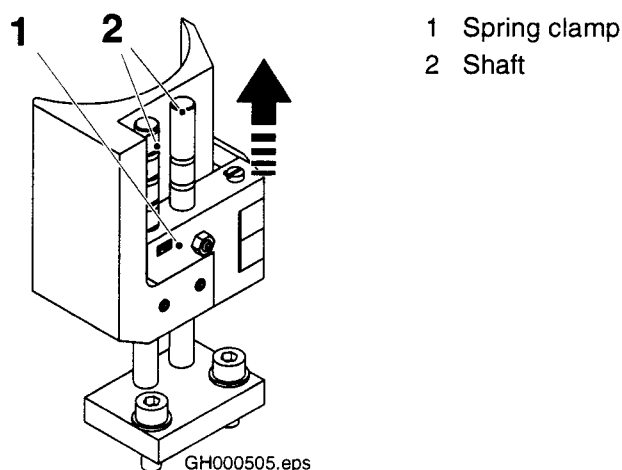
9.1.1-1 Spring clamp - change

Machine status	Mains power OFF Air OFF
SPC	975972-010V

Turn the applicator unit in Service position, see [Applicator unit Service position](#) on page 77.

To change the spring clamp, do as follows:

- a) Lift the spring clamp (1) upwards from the shafts (2).
- b) Replace with a new spring clamp.



9.1.2 Feed wheel unit

9.1.2-1 Feed wheel unit - change

Machine status	Mains power OFF Air OFF
SPC	1119507-010V (1119508-040V)

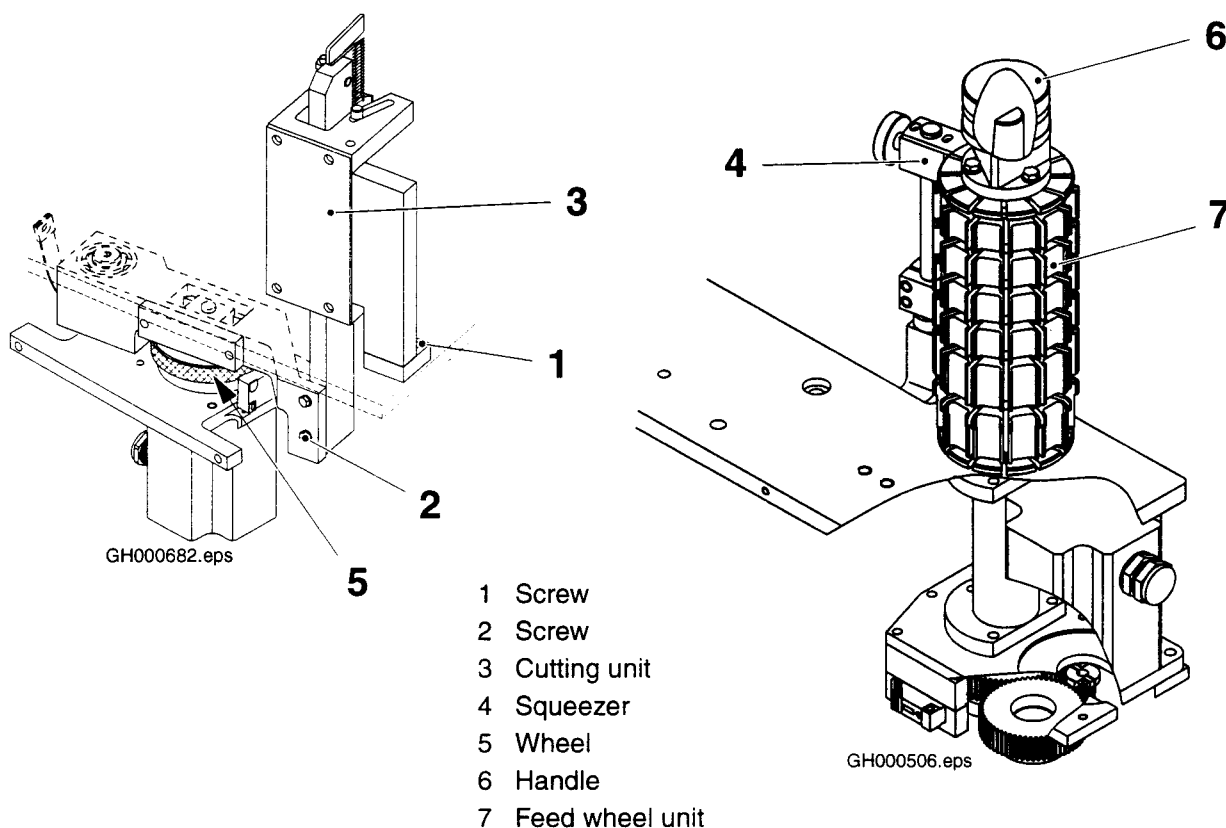
Turn the applicator unit in Service position, see Applicator unit Service position on page 77.

To dismantle the applicator head, do the following:

- Remove the screws (1) and (2). Lift out the cutting unit (3).
- Turn out the squeezer (4) by turning the wheel (5).
- Turn the handle (6) downwards, until the feed wheel unit (7) comes loose. Remove the feed wheel unit.

Replace with a new feed wheel unit. Assemble in the reverse order.

Set the cutting unit, see procedure 3.2.4-4 Cutting unit - set on page 104.



9.2 Outfeed U

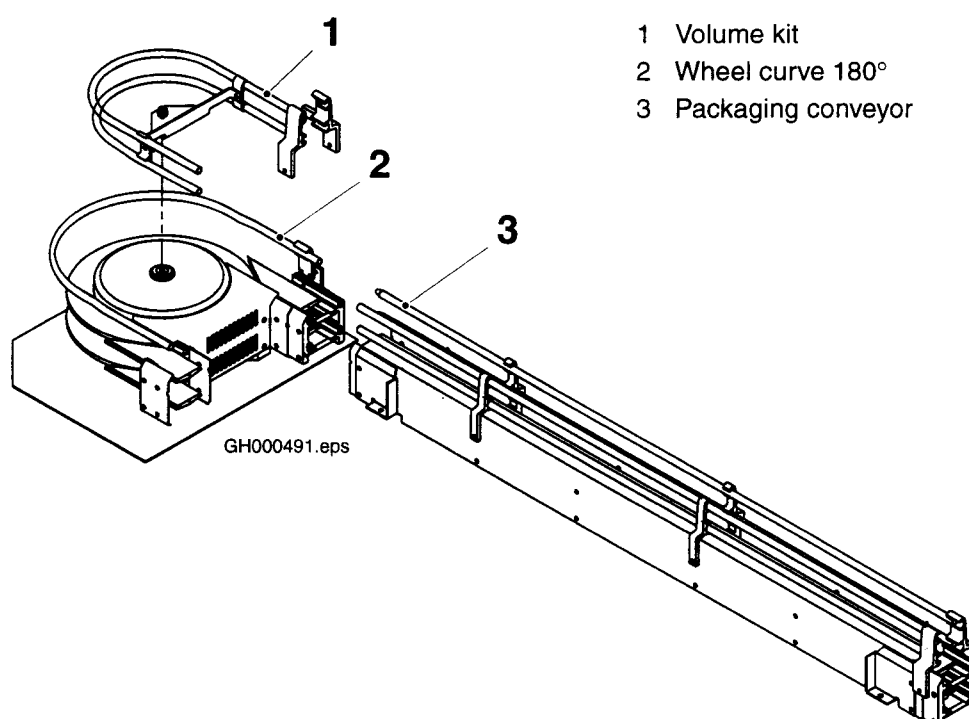
SPC	1119528-010V
-----	--------------

9.2-0 Outfeed U - description

SPC	1119528-010V
-----	--------------

The kit consists of

- packaging conveyor (3)
- wheel curve 180° (2)
- volume kit (1)



2.2TH000261.en

9.3 Extra volume kit

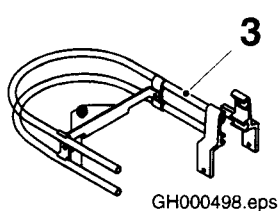
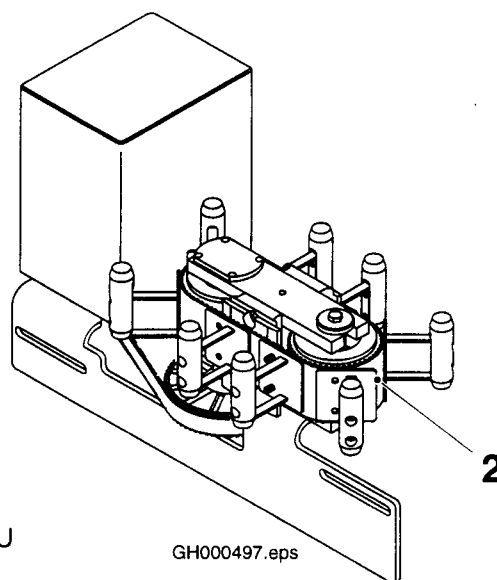
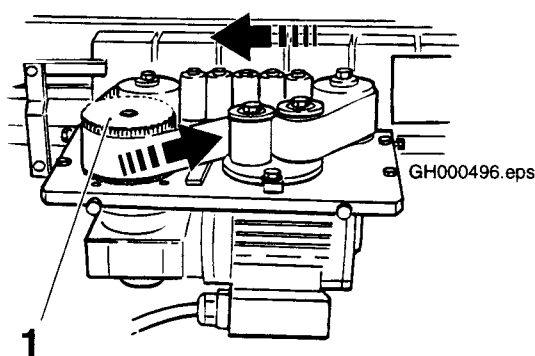
SPC	1119810-020V
-----	--------------

9.3-1 Extra volume kit - change/set

	SPC
Drive wheel infeed	1119799-020V
Carrier belt	1119780-020V
Volume kit	1119811-010V

Rebuild the machine in the following order:

- Toothed pulley (1); drive wheel infeed, see procedure 1.1-4 Infeed brake - change toothed pulley on page 32.
- Timing belt (2); carrier, see procedure 1.3-3 Carrier - change timing belt on page 43.
- Volume kit (3) for outfeed U conveyor



- 1 Toothed pulley
- 2 Timing belt
- 3 Volume kit, outfeed U conveyor

(Cont'd)

(Cont'd)

After the rebuilding, set in the following order:

- a) The applicator unit.
See procedure 3-1 Applicator unit - set on page 78.
- b) The hot melt guns.
See procedure 2.2.1-2 Hot melt equipment Nordson Standard - set gun on page 68, or 2.2.2-2 Hot melt equipment Nordson Quick Change - set gun on page 73.
Set the angle of the connection hot melt gun, see procedure 2.1-2 Connection hot melt gun - set angle on page 58.
- c) The carrier position.
See procedure 9.3-2 Extra volume kit - set carrier and photocell position on page 149.

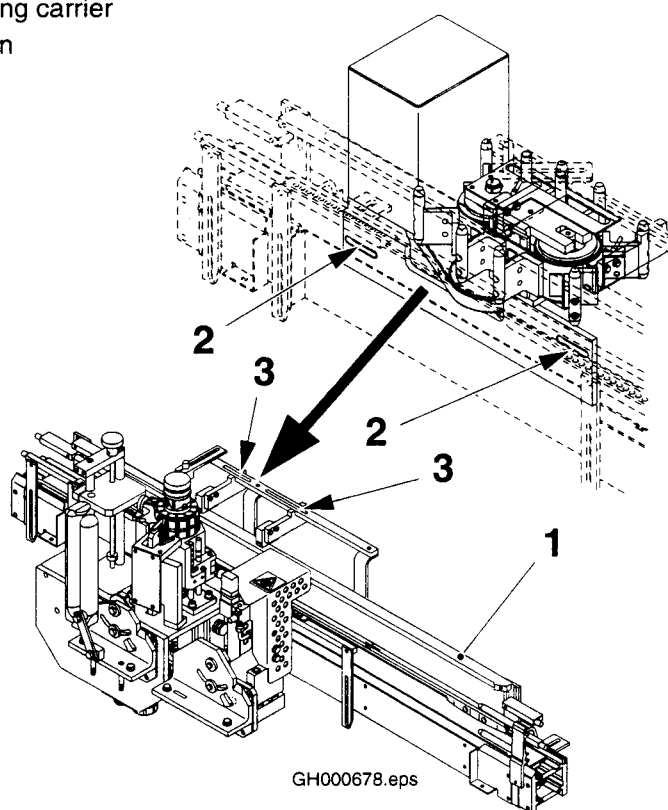
9.3-2 Extra volume kit - set carrier and photocell position

Machine status	Mains power OFF Air OFF
SPC	1119895-020V 1119503-040V

To set the carrier position do the following:

- Set the packaging conveyor rail (1), see procedure [1.2-1 Packaging conveyor - set rail](#) on page 34.
- Align the carrier with the screws (2) to the applicator unit, see procedure [1.3-6 Carrier - set carrier/applicator pivot point](#) on page 48.
- Check/set the photocell position (3), see procedure [1.2.1-2 Photocell bracket - set photocell position](#) on page 37

- Rail
- Screws for aligning carrier
- Photocell position



9.4 Extra applicator unit

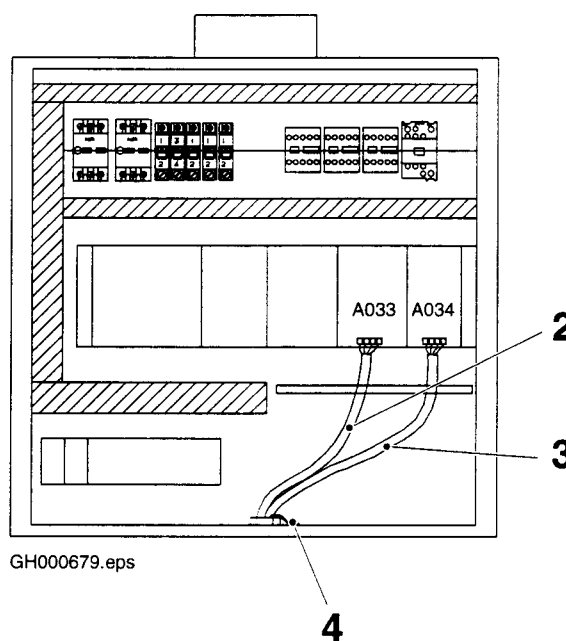
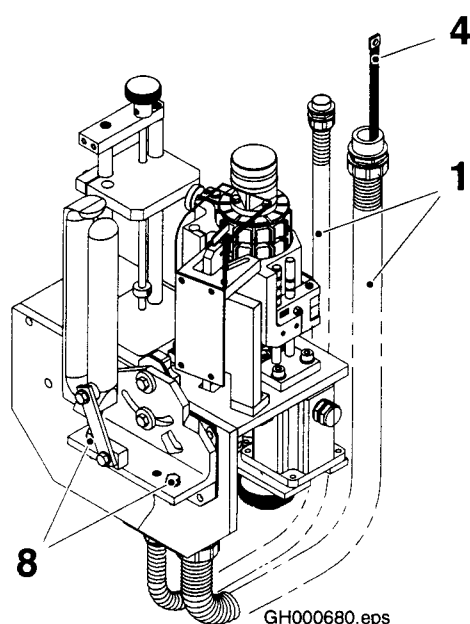
SPC	1119885-010V
-----	--------------

9.4-1 Extra applicator unit - change

Machine status	Mains power OFF Air OFF
SPC	678585-040V 678584-020V

Change applicator unit

- Disconnect the two hoses (1) at the electrical cabinet side.
- Disconnect the cables, pos. (2) and (3) on the motor drive controls A033 and A034, and the cable pos. (4) in the electrical cabinet and pull them out from the electrical cabinet.



- Hose
- Cable No W009
- Cable No W010
- Cable
- Screw

(Cont'd)

(Cont'd)

- c) When rebuilding **from straw to UniCap** application:

- Disconnect the cables pos. (5), (6), and (7)

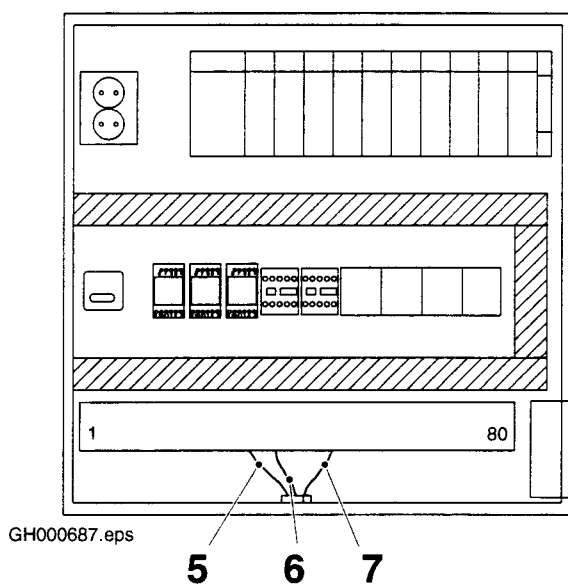
When rebuilding **from UniCap to straw** application:

- Disconnect the cables pos. (6), and (7). (Cable pos. (5) is not used for UniCap.)

Pull the cables out from the electrical cabinet.

- d) Remove the two screws (8) (see previous page) and lift out the applicator unit.
- e) Replace the applicator unit and assemble in the reverse order.

Set the applicator unit, see procedure 3-1 Applicator unit - set on page 78.



- 5 Cable No W022. Not used for UniCap application.
- 6 Cable No W023
- 7 Cable No W027

(Cont'd)

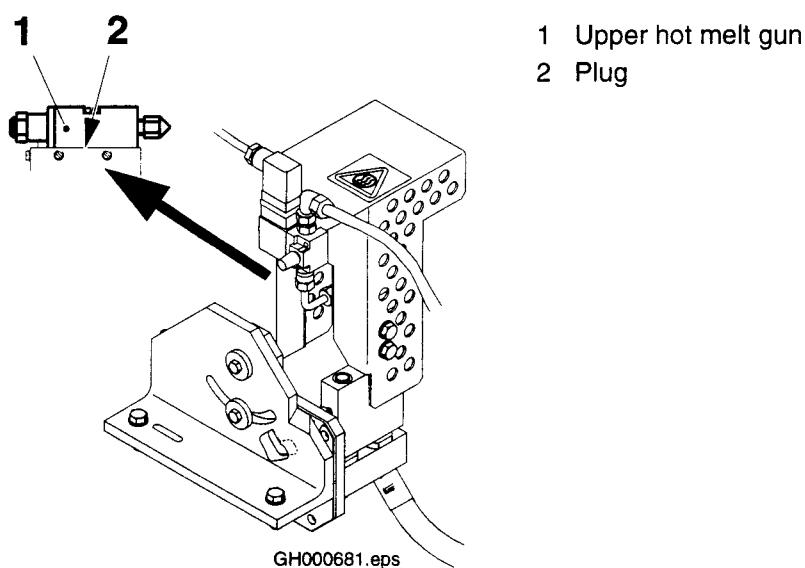
(Cont'd)

Hot melt unit

When rebuilding **from straw to UniCap** application:

- a) Remove the upper hot melt gun (1), follow instructions in procedure 2.2.1-1 Hot melt equipment Nordson Standard - change gun on page 67.
- b) Plug the two open adhesive channels with the plugs (2) delivered with the machine.

Set the lower hot melt gun, see procedure 2.2.1-2 Hot melt equipment Nordson Standard - set gun on page 68.



When rebuilding **from UniCap to straw** application:

- a) When removing the two plugs for assembling the upper hot melt gun, follow the instructions in procedure 2.2.1-1 Hot melt equipment Nordson Standard - change gun on page 67.
- b) Assemble the hot melt gun.

Set the hot melt guns, see procedure 2.2.1-2 Hot melt equipment Nordson Standard - set gun on page 68.

Set machine

When changed the applicator unit it is also necessary to set photocells (for gun and carrier), and the carrier pivot point. If basic settings for the applicator unit not is performed, check all applicator unit sets. For page references see the Synchronization diagram on page 9.

11 General

11.1 Lubricants

11.1-1 Lubricants - description

Note! The table below lists only a selection of lubricants with their respective designations.
Comparable lubricants from other suppliers may be selected with the aid of the lubricant specifications (document No in the table).

Lubricant specifications may be ordered from

Tetra Pak ComTec AB
Document Centre
Ruben Rausings gata
S-221 86 Lund

Lubricant code	Document No	Material No (internal TP designation for material type).	Part No (used when ordering from Tetra Pak).	Example	
				Supplier	Product designation
A Motor oil	M 1251.122	51122-85	90 296-28	BP Esso Statoil Mobil Shell	Energol HD 20W-30 Essolube XD-3 PowerWay D4/ DieselWay D2 HD 20W-30 Shell X-100 20W-30
B High pressure oil	M 1254.322	54322-220	90 296-73 90 296-78	BP Esso Statoil Mobil Shell	Energol GR-XP 220 Spartan EP 220 LoadWay EP 220 Mobilgear 630 Omala oil 220
		54322-150 For use in production plant with start temperature below 5° C.	90 296-72	BP Esso Statoil Mobil Shell	Energol GR-XP 150 Spartan EP 150 LoadWay EP 150 Mobilgear 629 Omala oil 150
C Hydraulic oil	M 1252.122	52122-31	90 296-53	BP Esso Statoil Mobil Shell	Bartran HV 32 Univis N 32 HydraWay HV 32 DTE Oil 113 Tellus T 32
D Mist lubrication oil	M 1251.822	51822-37	90 296-80	BP Esso Statoil Mobil Shell	Autran GM-MP ATF Dexron II TransWay DX II ATF 220 ATF Dexron II
E Com-pounded cylinder oil	M 1254.922	54922-460	90 296-77 90 296-2	BP Esso Statoil Mobil Shell	Energol AC-C460 Cylesso TK 460 CylWay FZ 460 600W Super Cylinder Oil Valvata Oil J460

(Cont'd)

(Cont'd)

Lubricant code	Document No	Material No (internal TP designation for material type).	Part No (used when ordering from Tetra Pak).	Example	
				Supplier	Product designation
F Lithium grease EP type	M 1255.115	55115-20	90 296-68	BP Esso Statoil Mobil Shell	Energrease LS EP 2 Grease XRB 2EP Esso MP Grease/ Beacon EP 2 UniWay EP 2N Mobilux EP 2 Calithia EP Grease T2 Grease 1344 LiEP 2
H High-pressure oil	M 1254.322	54322-320	90 296-75	BP Esso Statoil Mobil Shell	Energol GR-XP 320 Spartan EP 320 LoadWay EP 320 Mobilgear 632 Omala oil 320
		54322-220 For use in production plant with start temperature below 5° C.	90 296-73 90 296-78	BP Esso Statoil Mobil Shell	Energol GR-XP 220 Spartan EP 220 LoadWay EP 220 Mobilgear 630 Omala oil 220
K Circulation oil	M 1254.942	54942-100	90 296-15	BP Esso Statoil Mobil Shell	Energol CS 100 Teresso 100 TurbWay 100 DTE Oil Heavy Tellus Oil 100
L Silicon grease	M 1255.322	55322-30	90 296-9	Dow Klüber	Dow Corning 7 Compound Unisilikon L 250 L
M Lithium grease EP type	M 1255.112	55112-10	90 296-70	BP Esso Statoil Mobil	Energrease LS EP 1 Beacon EP 1 UniWay EP 1 Mobilux EP 1
O Lithium complex grease	M 1255.122	55122-30	90 296-61	BP Esso Statoil Shell	Energrease LS 3 Unirex N3 UniWay HTC3 Alvania Grease R3
P Synthetic compressor oil	M 1254.632	54632-68	90 296-54	BP Esso Statoil Mobil Shell	Energol RC 68 Compressor oil 68 CompWay 68 Rarus 427 Corena Oil P 68
S	M 1255.316	55316-2	90296-10	Mecman Mobil	435-1 Mobilgrease 28

2.2TH000265 en

This page intentionally left blank

2.2TH000265.en

12 Checklist overview

2 21TH000266 en

Checklist overview - description

This section of the MM, is intended for customers who do NOT use the **Tetra Pak Maintenance System (TPMS)**. The checklist overview contains all the check points for a specified machine type or equipment which are needed in order to keep the equipment in good condition. The following items can be found in the checklist:

- **Activity** – shows where you can find more information about the check point.
- **Text** – name of unit and type of activity. For further information, see MM code.
- **Interval** – how often the check item should be performed in production hours.

Note! The checklist overview in this manual **may differ from the TPMS checklists** delivered by your local service station, due to the fact that TPMS checklists are continuously updated and adapted to local demands.

TPMS - description

The maintenance system used for equipment from Tetra Pak is called the **Tetra Pak Maintenance System (TPMS)**. If you are using TPMS, the checklists will be delivered directly from your local Tetra Pak service station.

The TPMS checklists are designed to match and keep pace with the ongoing development of new and existing equipment from Tetra Pak, and to meet the demands set by our customers for even higher efficiency and better economy.

Some of the advantages of TPMS are:

- TPMS maintains complete production lines.
- TPMS reduces down-time to a minimum each time maintenance is carried out.
- Updates of the maintenance schedule based on experience gained, improvements, modifications and specific customer requirements are issued.
- Recommendations regarding spare parts, rotation units, tools and templates, etc. are included.

The service life of each item in the equipment is predicted and all items are checked before they affect the efficiency of the equipment. This leads to different maintenance intervals for each item and the check list is unique for each maintenance occasion.

The results of the maintenance are sent back to the Tetra Pak service station. Statistics are evaluated regularly, giving a continuously updated maintenance system.

Checklist overview

MM code	MM procedure text	Activity	Interval (h)
	PRE-MAINTENANCE CHECKS		
MM 585321-101	WARNING! Before starting any service work, read the safety precaution in the corresponding Maintenance Manual.585321-101	Check	250
MM 585321-101	WARNING! Before starting any service work, read the safety precaution in the corresponding Maintenance Manual.585321-101	Check	1000
	Run machine - Check function. If machine does not function correctly inform supervisor before continuing.	Check	250
	Run machine - Check function. If machine does not function correctly inform supervisor before continuing.	Check	1000
	250 h check lists. Go through the lists carried out since the last 1000 h service. If all checks are not completed carry them out together with this service		
MM 2.2-1 MM 2.2.1-2 MM 2.2.2-2	Hot melt gun - Setting	Check	250
MM 3-1	Applicator unit - Straw Position	Check	250
	CONVEYOR SECTION		
MM 1.1-1	Infeed brake - Tension	Check	250
MM 1.1-2	Infeed brake - Roller / Bearing / Shaft	Check	2000
MM 1.1-3 MM 1.1-2 MM 1.1-1 MM 1.1-4 MM 1.1-5	Infeed brake	Overhaul	6000
MM 1.2-1	Packaging conveyor - Rail	Set	1000
MM 1.3-5	Carrier - Setting	Check	250
MM 1.3-2	Carrier - Timing belt	Check	1000
MM 1.3-1	Carrier - Bearing / Seal ring	Change	2000
MM 1.3-1	Carrier - Shaft	Check	2000
MM 1.3.2-1	Carrier -Timing belt	Check	250
MM 1.3.2-1	Carrier; Timing belt - Setting	Check	1000
	HOT MELT EQUIPMENT		
MM 2.2-7	Hot melt equipment - Connection / Hoses	Check	250
MM 2.2-4	Hot melt unit - Tank	Empty	250
MM 2.2-5	Hot melt unit; Tank - Filter	Clean	250
MM 2.2-6	Hot melt unit - Filter	Change	2000
MM 2.2-8	Hot melt gun; Hose - Filter	Change	2000
MM 2.2.1-1 MM 2.2.2-1	Hot melt gun - Gun	Change	12000
MM 2.2-9	Hot melt gun - Nozzle	Change	4000
MM 2.2-2	Hot melt unit; Pump - Function	Check	1000
MM 2.2-3	Hot melt unit - Pump	Change	10000
	APPLICATOR UNIT		
MM 3.2.4-1	Applicator head; Cutting unit - Cylindric cap	Check	250

12 Checklist overview

MM code	MM procedure text	Activity	Interval (h)
MM 3.2.5-2	Applicator head; Squeezer - Setting	Check	250
MM 3-1	Applicator head	Check	1000
MM 3.1-2	Feed wheel unit - Set	Check	1000
MM 3.2.1-1	Hold-down - Spring	Change	1000
MM 3.2-1	Applicator head	Check	1000
MM 3.2.2-1	Drive - Bearing / Slider / Eccentric shaft	Check	1000
MM 3.2.2-1	Drive - Bearing / Slider / Eccentric shaft	Change	4000
MM 3.2-3	Applicator head - Seal ring / Bearing / (Shaft Replace if required)	Change	2000
	MACHINE BODY		
MM 5.2-1	Pneumatic system - Hose / Connection	Check	1000
MM 5.2.1-2	Pneumatic system; Air regulator - Filter	Clean	1000
	ELECTRICAL EQUIPMENT		
MM 8-2	Photocell / Proximity switch	Check	250
OM Page 21	Alarm panel - Lamp	Check	250
MM 8.1.1-1	Electrical cabinet - Fan	Check	250
MM 8.1.2-1	GE FANUC. Change Battery, Note the date! N.B! Interval must not exceed one year.	Change	2000
	AFTER MAINTENANCE CHECKS		
MM Page 18	Door guards and emergency stops - Check that all switches and emergency stops are intact and operates correctly.	Check	250
MM Page 18	Door guards and emergency stops - Check that all switches and emergency stops are intact and operates correctly.	Check	1000
	Run machine - Check function. If machine does not function correctly inform supervisor before continuing.	Check	250
	Run machine - Check function. If machine does not function correctly inform supervisor before continuing.	Check	1000

2.21TH000266_en

