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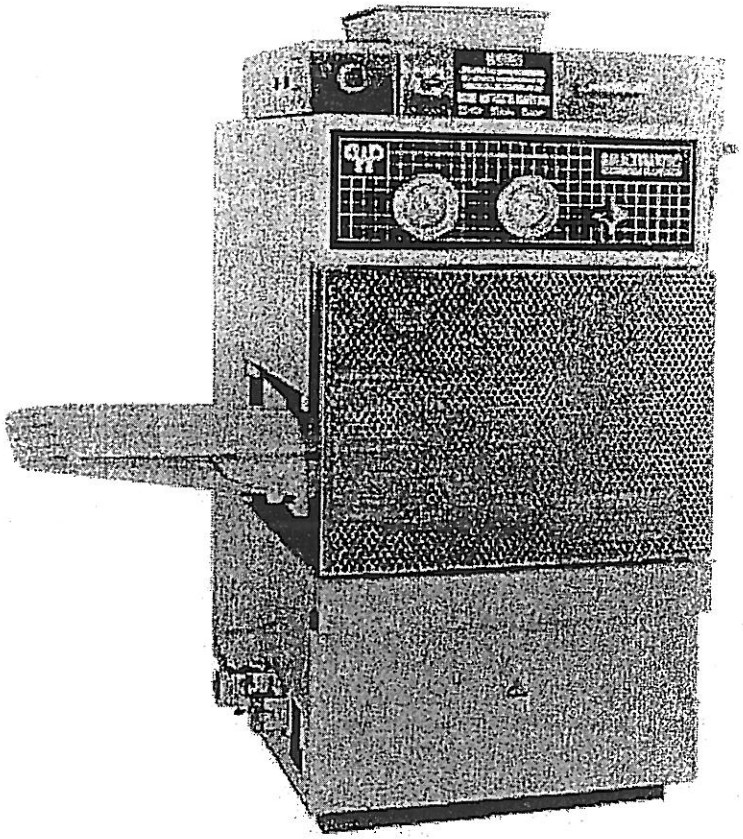
Dough-Dividing and moulding machine MULTIMATIC MU-C Operating instructions



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Preface

This manual was compiled to assist you and your staff in the use and operation of your newly purchased MULTIMATIC roll dough dividing and moulding machine.

You are requested to see to it that all safety rules, indications of hazards and regulations for the prevention of accidents are meticulously observed. This is a vital condition for accurate function and safe operation of the equipment.

By always observing the information contained in this manual you will ensure a troublefree operation of your MULTIMATIC roll dough dividing and moulding machine.

This manual is subject to the protective clause according to the DIN 34 standard which does not allow the passing on of such information to third parties.

Working of DIN 34:
Strictly confidential. The passing on or reproduction of this manual, use or communication of its contents to third parties is prohibited unless expressly permitted.

Offenders will be liable to damage claims. All rights for the event of the issue of a patent or a utility patent are reserved".

Caution:
Prior to starting the machine carefully read and observe the safety rules and information on hazards!

Contents

1. Safety instructions and information on dangers

1.1 Basic safety instructions

Warning instructions and symbols

Danger:
This safety symbol indicates potential dangers for life and limbs.
Such danger may in particular be incurred by noncompliance to instructions marked with this symbol.
In addition, the generally applicable rules and stipulations for the prevention of accidents must be complied with.

This symbol indicates all points where safety rules have to be observed. Please pass on all such safety warnings to other users.

Caution:
This symbol indicates that it is mandatory to observe:

- Rules,
- Stipulations,
- Notices and
- Working sequences

of the machine.

Nonobservance may cause:

- damage or
- destruction

of the machine, the equipment and/or the oven.

Note:

This symbol gives hints

- for better understanding of this manual and
- for easy operation of the equipment.

1.2 General information

The machine, the oven and/or the equipment have been designed in accordance with the present state of the art. Inexpert handling can involve dangers for life and limbs of operators or of third persons or may damage the machine, the oven or the equipment and of other material assets.

The machine, the oven and/or the equipment should not be operated unless in technically perfect order, observing all rules for the prevention of accidents and all instructions fo this manual. Any defects which could impair the safe operation of the equipment must be repaired without delay by qualified persons.

Even so, there remain hazards which may be incurred by the use of the machine, the oven or the equipment:

- by inexpert handling through insufficiently trained personnal,
- by using the equipment for other purposes, i.e. not coinciding with the intended purpose.
- by nonobservance of the rules and indications of this manual.

1.3 Use in accordance with the intended purpose

Use in accordance with the intended purpose

The fully automatic MULTIMATIC roll dividing and moulding machine is exclusively suited for dividing of roll and white-bread doughs. In addition, it can be used for processing of doughs needing a long floor time, high dough yield, fruit doughs and Graham doughs.

Any other use, for instance the production of rissole doughs, is not regarded as use in accordance with the intended purpose. The manufacturer/supplier rejects all liabilities for damages due to a failure to use the equipment in accordance with the intended purpose.

Included within the scope of "use in accordance with the intended purpose" are:

- the observation of instructions given in the manual,
- the compliance to inspection periods and servicing measures,
- the use of indicated operating materials and auxiliaries in accordance with rules for the prevention of accidents.

1.4 Safety

Design and acceptance at the works of the maker are performed in accordance with the Act concerning the safety of appliances and machines.

During operation, maintenance and cleaning of the machine, the equipment and/or the oven, the relevant rules for the prevention of accidents (VBG) of the social insurance for the prevention of accidents, technical committee for occupational accidents, commitee for foodstuff machines, are to be observed.

We especially refer to:

VBG 1 .....General rules

VBG 4 .....Electrical appliances and machines

VBG 5 .....Power-operated appliances

VBG 77 .....Foodstuff machines

Note:
In addition we refer to the safety rules for bakeries "ZH 1/40".

Danger:
The rules concerning safety and the special indications for hazards that can be incurred by the operation of the machine, the equipment and/or the oven should be carefully read before starting the machine.

Safety warnings and indications must always be observed to prevent danger to life, limbs and property.

Operators and operating instructions

Any person operating the machine should know the operation instructions and should observe them.

The works manager is expected to instruct his staff of the stipulations of the operating instructions and to see to it that all rules and instructions are carefully observed.

Auxiliary hands and/or trainees should only operate the machine if duly supervised by qualified persons.

Wetness and moisture

All parts of the electrical system must be protected against effects of wetness, moisture and dust.

Important functions, such as safety circuits, could fail, persons and/or parts of the equipment could be damaged.

Guards

All guards must stay in place.
They ought to be only removed for the time of maintenance and repair work.

Safety limit switches must **not** be bridged.

Sound-absorbing devices

Operators are required to wear personal ear muffs.
Sound-absorbing devices must be mounted on the machine during operation.

Technical data

Technical performance data must **not** be exceeded.

Maintenance and repair work

Such work should be left to qualified persons, observing all safety precautions.

A suitable workshop for this work must be available.

Hydraulic system

Prior to starting work at the hydraulic system it is imperative to depressurize the machine.

Hydraulic piping must be regularly checked for possible damagesd (such as ageing). If necessary, the hoses are to be replaced. Only the orginal hydraulic piping supplied by the maker is to be used.

Prescribed periods for regular maintenance and servicing checks must be observed!

Work at the hydraulic system must be left to qualified personnel with special experience.

Special appliances and personal protectional outfit must be used during search for and work at the hydraulic system.

Gas/oil firing system

Work and inspections of the gas- and/or fuel oil-technical systems (for instance installationof a gas meter or burner) must be left to qualified persons with special experience. Any such work must be recorded in writing.

Gas installations liable to allow an accumulation of gas in a hazardous manner and gas-operated equipment operating without open flames (for instance baking ovens) and the appertaining safety appliances must be regularly checked as follows:

- Gas-operated equipment **not** using open flames:

  every two years

- Equipment operated **with** liquefied gas using open flames:

  every four years

Arbitrary alterations

Modifications of the machine design must observe the state of the art. Alterations involving the safe operation must not be performed without written assent of the manufacturer.

The applies in particular to:

- Welding at supporting components
- safety devices and valves (electrical, hydraulic, pneumatic).
- mechanical modifications.

Only original spare parts are to be used which meet technical requirements.

1.5 Hazards

Electrical hazards

DANGER:
PRIOR TO OPENING THE CONTROL CABINET TURN THE MAIN CIRCUIT BREAKER TO THE "OFF" POSITION OR DRAW THE MAINS PLUG!

- Electrical systems and stationary electrical appliances should be checked by a qualified electrician at least every four years.
- Non-stationary electrical appliances, connection lines with plugs as well as extension and appliance cords should, if in use, be checked by a skilled electrician or by a person having been duly trained, at least every six months using suitable testing equipment. Non-stationary appliances are devices which are usually moved when connected to the mains, such as electrical floor cleaning equipment.
- The control cabinet and the electrical system have been manufactured in accordance with VDE regulations.
- Work performed after such a check must comply to VDE stipulations.
- Work at the control cabinet and at the electrical system of the machine, the equipment and/or the oven must be performed by a qualified specialist - for instance by the works electrician.
- All safety devices of the plant are to be checked for proper function at regular intervals.
- Only original fuses are to be employed.
- General rules for the prevention of accidents issued by the local authorities are to be observed.

Flour dust and sugar

Plant-internal measures to largely eliminate hazards caused by the formation of flour dust should be taken.

- Flour dust concentrations exceeding 10 mg/m^3 air during a shift of eight hours must be prevented.
- Fine-dust masks must be worn.
- Flour dust deposits must be removed at regular intervals.
- Smoking and the use of open fire in flour stores and flour silos is prohibited.
- Flour tank vehicles must be duly earthed during the filling operation to prevent electrostatic charges.
- Wood strewing flours of oak and beech wood must not be used (TRgS 900 threshold value limits paragraph III A1).

Preventive health protection

- Make sure to reduce contact with flour and dough to a minimum.
- Frequent washing of hands and drying with a dry towel can prevent baker's eczema.
- Clean teeth daily.

Hazardous substances

Hazadous substances are toxic, slightly toxic, irritating, cauterizing and easily inflammable substances and preparations. See paragraphs 15 and 24 of the Act Concerning the Handling of Hazardous Materials, and paragraph 48 of the Rules for the Prevention of Accidents, General Rules (VBG).

Hazardous substances can, for instance, be contained or used in pretzel lye, floor cleaning agents, cleaning agents for dishes, appliances or machines.

Where it is not possible to prevent the formation of harmful gases, vapours, mists or dusts, work must be

- performed in closed equipment or, if this is technically impossible,
- the harmful gases, vapours, mists or dusts must be extracted at the point of formation or discharged in a harmless manner.

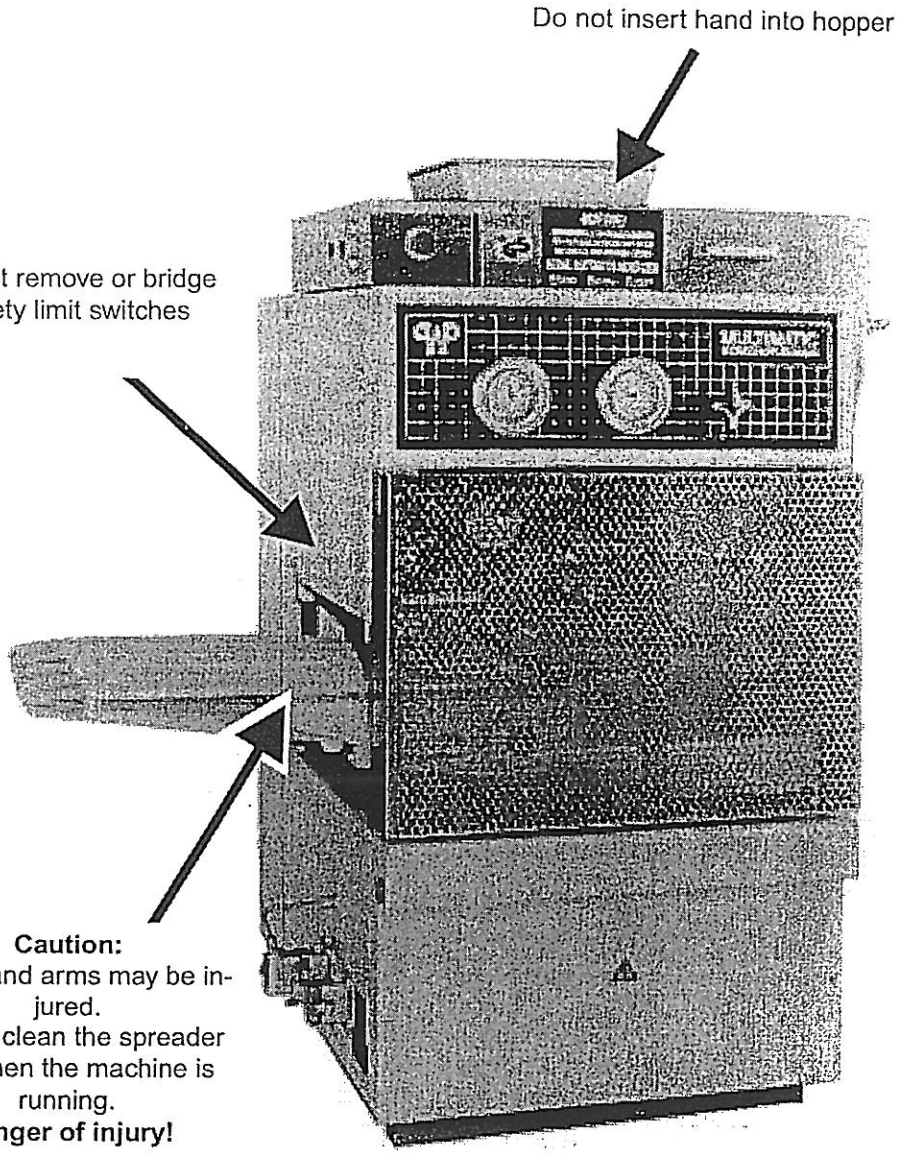
The usual precautions for the handling of hazardous substances of this type must be taken, including:

- use of technical appliances (such as decanting and/or metering devices),
- avoidance of excessive skin contact,
- use in well ventilated rooms,
- taking necessary precautions to avoid hazards of fire and/or explosions,
- wearing of personal protective clothing.

1.6 Special hazards to be considered when operating the MULTIMATIC

Apart from the general rules for the prevention of accidents, we point out to particular hazards which may be incurred by the operation of the MULTIMATIC machine.

Caution:
Check safety devices of the machine for proper functioning before starting the unit for the first time.



Danger:
Reciprocating delivery plungers can squeeze fingers and hands. Do not insert hands into the machine hopper!

Danger:
Rotating drive parts can catch fingers and hands. Do not operate the machine when guards are not fixed in place.

Danger:
Moving parts can catch fingers and hands. Do not clean spreader belt when the machine is running.

Danger:
Moving parts can catch fingers or hands.Never bridge safety limit switches (for instance protecting flour duster, swivel hopper, doors and flaps).

Caution:
Do not climb on the machine for cleaning the hopper. There is a slipping hazard by flour and dough residues and functional parts may be damaged. Do not use pedestals.

Caution:
Mechanical damage of the hopper coat. This can lead to corrosion at the hopper and can contaminate the dough. Exclusively use plastic scraper for cleaning the hopper.

Caution:
Mechanical damage to machine by objects scattered around. Do not leave objects on panels or on the hopper of the machine (such as dough scrapers) after finishing cleaning work.

2. Technical data

2.1 Performance data

	Mu-C 4 rows	Mu-C 5 rows	Mu-C 6 rows
Dividing range (g) d=50 mm	35-95	35-95	35-95
Dividing range (g) (d=40 mm special execution)	25-65	25-65	25-65
Dividing range (g) d=44 mm	30-75	30-75	30-75

2.2 Mechanical

	Mu-C/ 4 rows	Mu-C/ 5 rows	Mu-C/ 6 rows
Width (mm)	1360	1360	1360
Height (mm)	1640	1640	1640
Hopper volume	appr. 35 kg	appr. 35 kg	appr. 35 kg
Length mm (with spreader belt 300)	1300	1300	1300
Length mm (with spreader belt 500)	1500	1500	1500
Length mm (with spreader belt 900)	1900	1900	1900
Length mm (with spreader belt 1250)	2200	2200	2200

Designs of spreader belts

Spreader belt 300 long	90-100	90-100	90-100
Spreader belt 500 mm long	90-125	90-125	90-125
Spreader belt 900 mm long	90-140	90-140	90-130
Spreader belt 1250 mm long	90-180	90-160	90-150
Spreader belt 1800 mm long	90-180	90-180	90-180
Weight (net) (kg)	700	700	700

2.3 Electrical data

Driving motor (kW)	1.5	1.5	1.5
Step-by-Step motor (kW)	0.75	0.75	0.75
Connected loads (kVA)			
without cardan drive	2.2	2.2	2.2
with cardan drive	3.2	3.2	3.2
Fuse protection at 400 V(A)	16	16	16

2.4 Noise level to DIN 45635

Sound power level (L wA)	75	dB (A)
Threshhold limit value L_{pAeq}	60	dB (A)

2.5 Hydraulical data

Maximum pressure	..220	bar
Filling volume	...0.6	Litres
Oil quality .....ISO.VG 46 Shell Tellus C 46 (see oil chart)		

2.6 Services to be provided by the customer

- The feeding cable and the main circuit breaker are to be installed by the customer.
- Feeding cables must be installed by a skilled electrician.

2.7 Dimension sheet

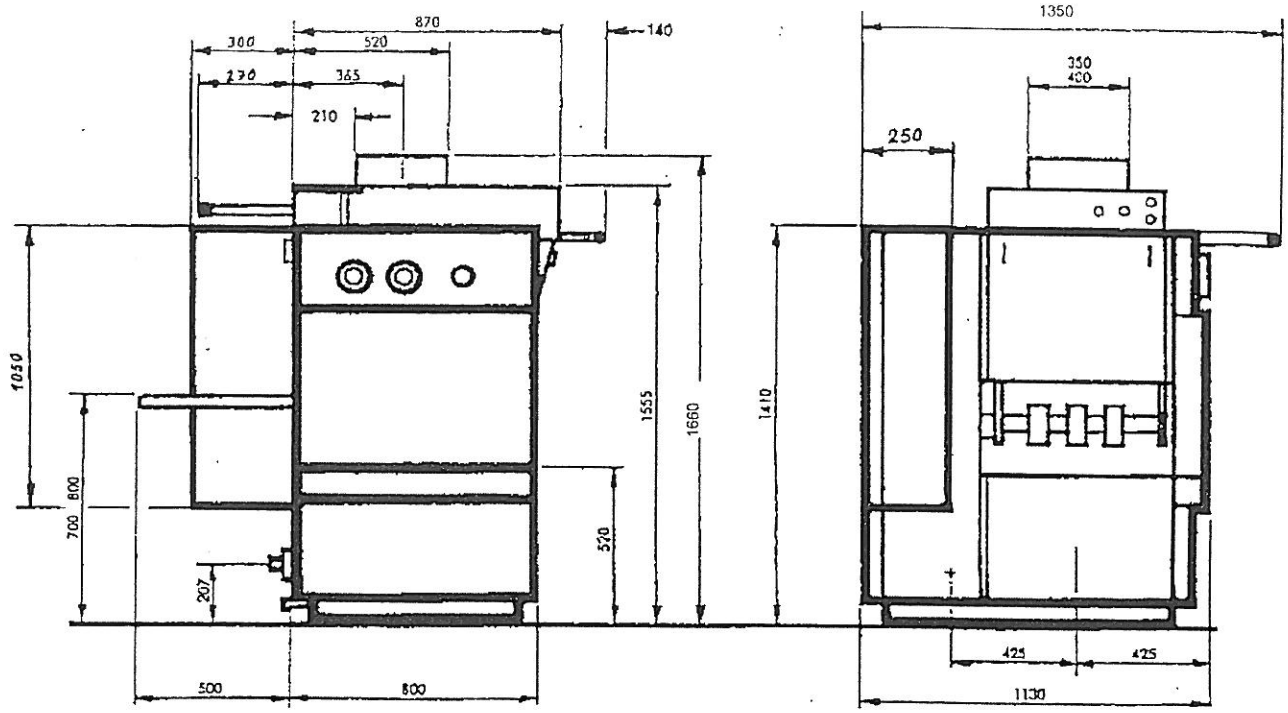


Fig.: 2-1

3. Description

3.1. Safety interlocks

Note:
Interlocks are safety appliances and must not be inactivated.

The following machine elements are electrically interlocked with the drive:

- Cleanout door above the spreader belt
- Door at the tending side
- Top cover
- Flour box
- Dough hopper
- Flour duster

Danger:
Reciprocating delivery plunger. Fingers and hands can be caught or separated.
Do not insert hands into the machine hopper from above.

3.2. Range of application

The fully automatic dough dividing and moulding machine, model MULTIMATIC, is designed for processing of common roll doughs (for instance doughs with a long floor time, Graham and Alsatian doughs). As pilot machine of a roll line it can be combined with several other machines (for instance Super B, Super BN, Modula or cut-roll plants).

3.3. Mode of operation

The dough is filled in to the hopper or apportioning device by hand or via a suitable dough feeding appliance.

The dough is aspirated into the dough box via the delivery plungers.

The rotary slide gate with the measuring plunger swivels by 90° and the dough pieces are ejected by the measuring plunger. A rapidly rotating discarding roller supplies the divided dough pieces to the continuously running rotary moulding device. Following the round-moulding process, the dough pieces are deposited onto individual conveyors belts (spreader belts) and leave the machine with their moulded end downwards.

3.4. Design of the machine

The machine comprises the following subassemblies:

- Driving elements
- Dough feeding device
- Dough divider
- Drum-type rotary moulder
- Spreader belt

The machine is mounted on feet.

3.4.1. Dividing device

The dividing device works in accordance with the suction chamber principle. It essentially comprises delivery chambers, rotary slide gate and measuring pistons.

The dough weight is adjusted by limiting the stroke of the measuring pistons.

After the rotary slide gate has turned, the measuring pistons will eject the dough pieces. The sliding components of the dividing device are automatically lubricated with oils permitted for use with foodstuffs.

3.4.2. Drum-type rotary moulder

A rapidly rotating discarding roller supplies the divided dough pieces to the continuously running rotary moulding device. The drum-type rotary divider consists of a chamber cylinder, the dividing cylinder and the moulding conveyor. The moulding rate can be steplessly adjusted and can be adapted to the dough consistency.

An adjustabple flour duster prevents a sticky surface of the moulding conveyor.

A spraying brush is used for dusting with flour prevents the sticking up of the moulding and chamber cylinders. It can be applied and removed as required.

For the overall dividing range

- for MULTIMATIC-S: 25-95 g

different sizes of chamber cylinders are required.

Special moulding cylinders may be used to process different types of dough and different dough consistencies.

3.4.3. Transportation of dough pieces

Following the round-moulding process, the dough pieces are deposited on individual conveyors (spreader belts).

The spreader belts can be steplessly adjusted to suit spaces between rows.

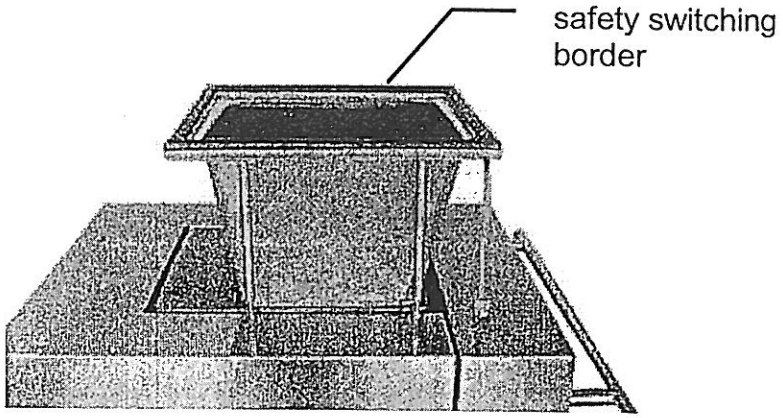
3.4.4. Electrical system/control cabinet

The control cabinet is designed for a connected load of 0.75 kW, thereof 0.5 kW are available for the drive of downstream aggregates such as intermediate proving chamber, long-moulding machine, depositing device etc.

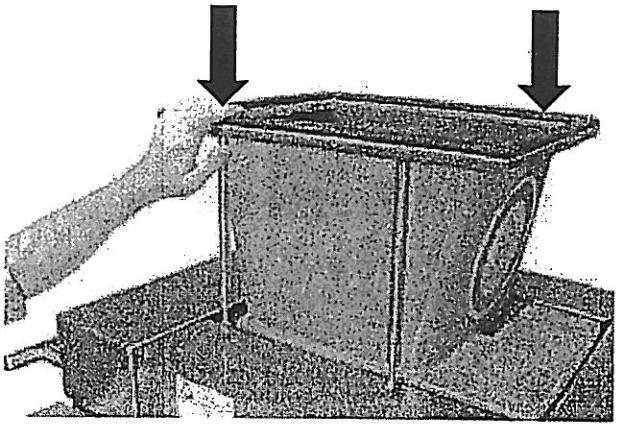
Danger:
Live components: By touching live components, there is a hazard of an electrical shock. Prior to working at the control cabinet, remove machine from the mains.
The control cabinet should only be opened and repaired by skilled electricians.
Installed within the control cabinet are the electric controls.
A wiring diagram is found in the cabinet.

3.5 Intervention protection

Around the hopper of the machine a safety switching border is installed. This serves as intervention protection into the hopper.



If the safety switching border with the finger or with the hand is pressed, the machine stops immediately. With small paste and flour remainders, the safety switching border does not react.

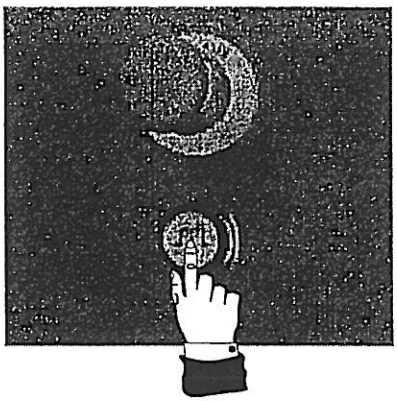


Machine again start

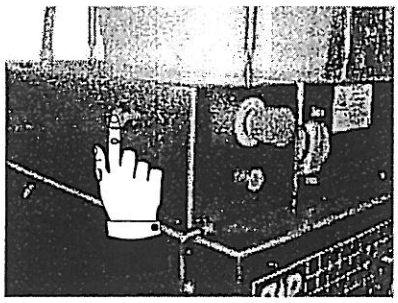
Important:

Examine before starting the machine that no articles are in the hopper upper section

Examine before starting the machine that no articles are in the hopper upper section.



1) Press „Disturbance key".



2) Press „Start key".

The interrupted procedure is again started.

4. Transportation and Assembly

4.1. Transportation

The MULTIMATIC will be delivered packed in a carton or in seaworthy packing (wooden case).

On arriving at the destination, the machine must be checked for transit damages which are to be immediately reported to

- the carrier,

or

- the railway authorities,

or

- any other transport operator

or

- WERNER & PFLEIDERER.

4.1.1. Erection of the machine

The MULTIMATIC machine does **not** need a special foundation. It is to be erected at an accurately horizontal level.

Note:
Make sure to observe necessary lateral clearances!

- Align the machine to downstream aggregates.
- Install required mechanical or electrical connections to downstream aggregates (chain or cardan drives).
- Elements for anchoring the machine are located at the socle below the spreader belt.

4.2. Electrical connections

Caution:
Observe connected loads. Electrical connection work should only be performed by a skilled electrician.

Prior to connecting the machine, check whether the mains voltage coincides with the specification on the nameplate.

4.2.1. Checking the sense of rotation

Caution:
The protective door at the tending side must be kept closed.

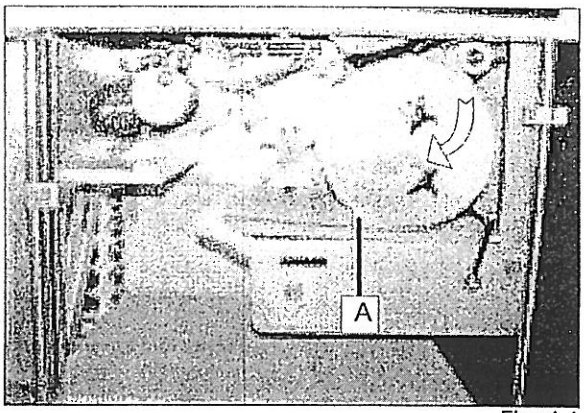


Fig.: 4-1

- Shortly start the machine. The chamber cylinder (A) must turn in the clockwise direction.

4.2.2. Changing the sense of rotation

- If the sense of rotation is found to be wrong, call an electrician to change two phase of the mains plug.

5. Control description

5.1 Control elements

1 Key ON
2 Key OFF

6 Door to control cabinet
7 Door to moulding station
8 Cover to the enslosure of driving elements
9 Door, access to delivery plunger
10 Cover with cellecting vessel. retractable
11 Cover panel
12 Hopper top

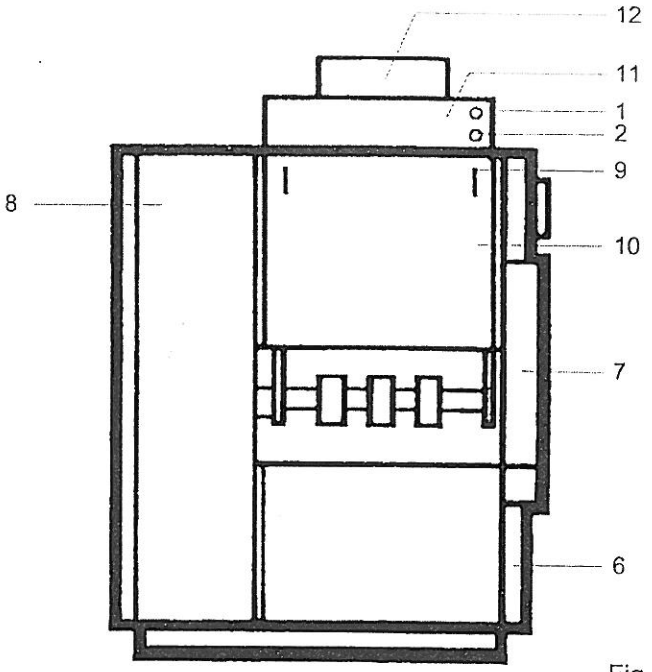


Fig. 1

3 Hand wheel to adjust the moulding rate
4 Hand wheel for weight adjustment
5 Locking device for weight adjustment

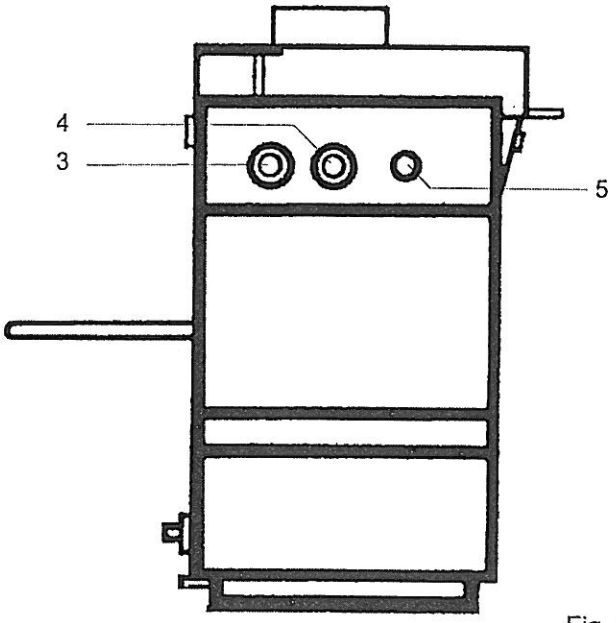


Fig. 2

6. Functional groups

6.1. Disassembly and installation of the moulding belt

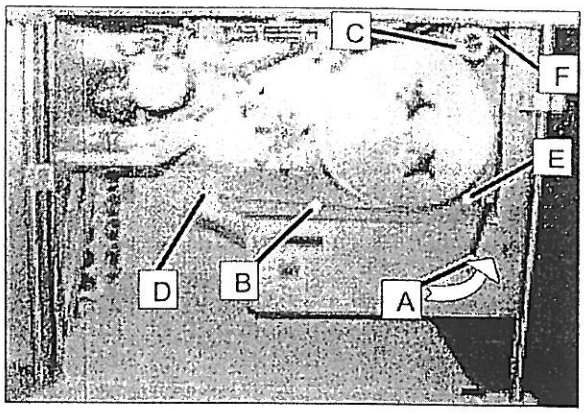


Fig. 6-1

6.1.1. Removal

1) Reducing tension of the moulding belt.
   - Turn lever (A) counterclockwise
2) Withdraw moulding belt (B) from the drive roller (C).
3) Remove 3 reversing rolls (D,E,F) from their seats and from the moulding belt loops.

6.1.2. Installation

4) Slip moulding belt (B) over the belt driving roller (C).
5) Push 3 reversing rolls (D,E,F) through the moulding belt loops and insert into their seats.
6) Increase tension of the moulding belt (B).
   - Turn lever (A) clockwise.
7) The moulding belt tension is changed during standstill of the machine by means of the knurled screw of the moulding belt adjusting device (see item 6.2).

6.2. Adjustment at the transfer point from the moulding belt to the spreader belt

1) Relax belt tensioning device by means of lever (A) (see item 6.1.1).

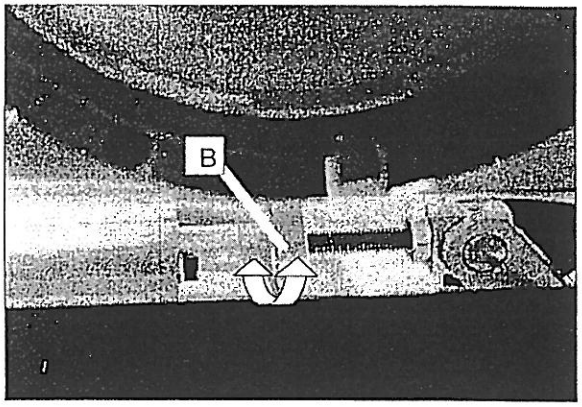


Fig. 6-2

2) Adjust the reversing roll by means of knurled nuts (B) of the moulding belt adjusting device.

6.3. Height adjustment of the moulding belt

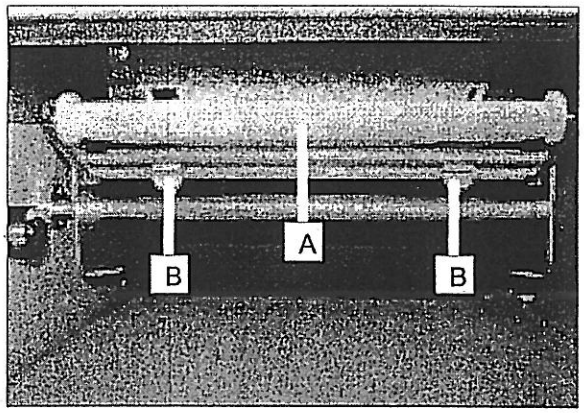


Fig. 6-3

1) Relaxing of the moulding belt.

   ■ see item 6.1.1

2) Remove front reversing roll (A). Adjust height of the reversion roll support via two clamping levers (B).

6.4. Pocket drum

6.4.1. Removing/installing the pocket drum

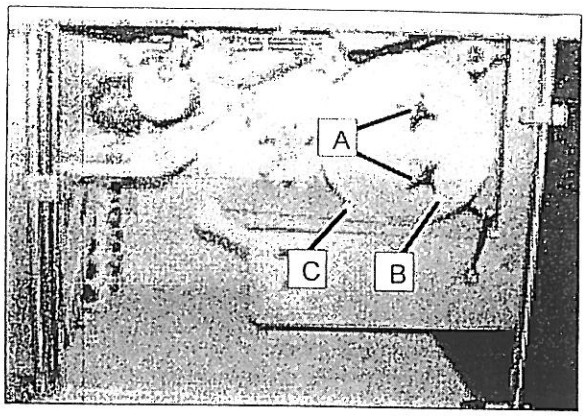


Fig. 6-4

1) Relax moulding belt
   - see item 6.1.1
2) Simultaneously loosen both star handles (A) and remove lid (B).
3) Pull down cpocket drum (C).

6.4.2. Installation

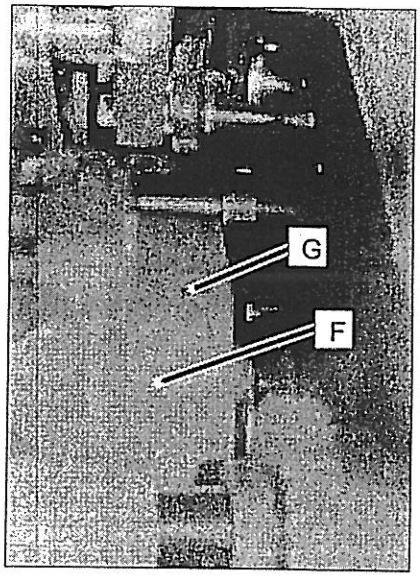


Fig. 6-5

1) Install in reverse order.

Caution:
A not properly centered pocket drum (F) can cause mechanical damage. During installation, see to it that the alignment pins of the centering flange (G) engage into both sides of the pocket drum (F).

2) Install and lock the pocket drum.

3) Stretch the moulding belt by means of the notch lever.

4) Adjusting the moulding belt tension.

5) Change the transit point between moulding belt and spreader belt.

6.5. Installation and removal of the moulding cylinder

6.5.1. Removal

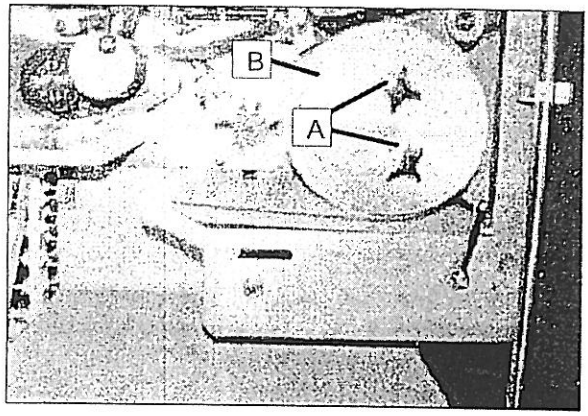


Fig. 6-6

1) Relax the moulding belt
   - see item 6.1.1

2) Simultaneously loosen both star handles (A) and remove lid (B).

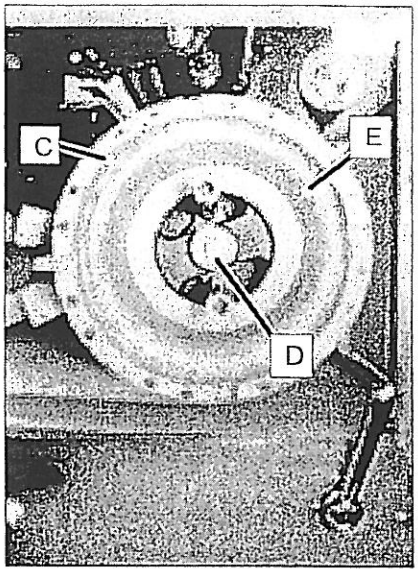


Fig. 6-7

3) Pull down pocket drum (C).

   Loosen fixing screws (D) and pull down the moulding cylinder (E).

4) Reinstall in reserve order.

6.6. Adjustment of the moulding cylinder

When both the moulding cylinder and the pocket drum are mounted, the moulding groove should be positioned under the opening of the pocket drum during the entire moulding process.

The retraced image of the moulding movement should be symmetric towards the opening of the pocket drum, otherwise the moulding cylinder may be maladjusted.

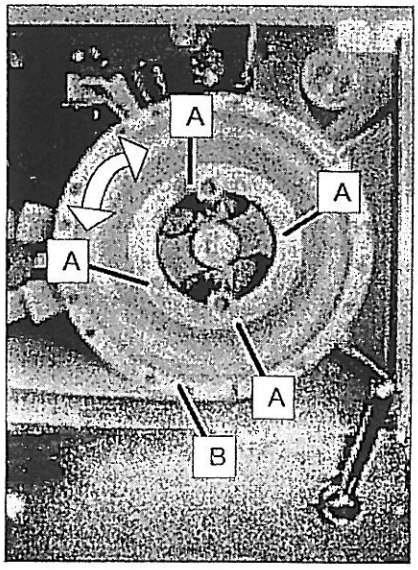


Fig. 6-8

1) Loosen screws (A) at the interior cross-section of the moulding cylinder (B).

2) Twist moulding cylinder accordingly. Lightly tighten screws (A).

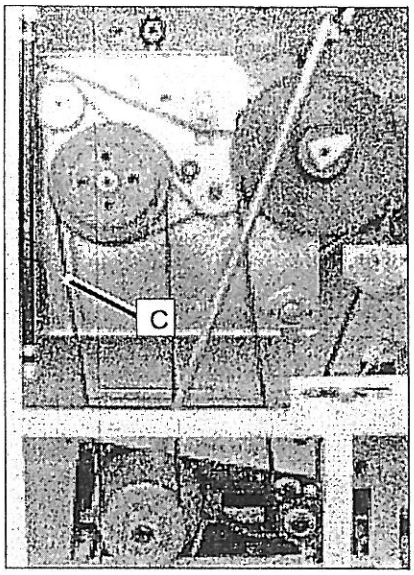


Fig. 6-9

3) Loosen hexagon socket screw of the drive cover and remove it.

4) Use wide V-belt (C) to turn the moulding cylinder (B) and check the position of the moulding groove in relation to the opening of the pocket drum.

5) Tightly drive in the screw (A) and mount drive covering.

6.7. Scraper/ejector shaft

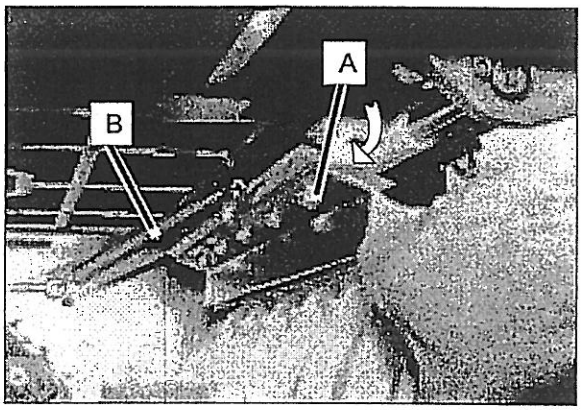


Fig. 6-10

Caution:
Mind sharp-edge of the scraper. Hazard of injuries of hands and fingers. Take care when handling the scraper.

1) Swivel scraper downwards and clean with a rag.

6.7.1. Removal

1) Unhinge tension spring (B) at the scraper and pull scraper out of its fixture.

2) Assemble in reverse order.

6.7.2. Brush roller

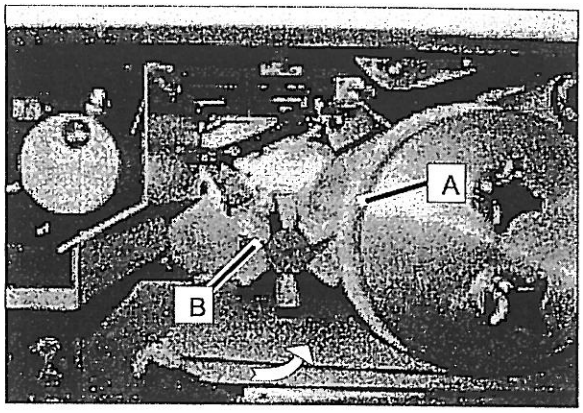


Fig. 6-11

1) Pocket drum (A) is cleaned by means of a brush roller (B).

   The brush roller (B) can be easily removed by turning (bayonet catch).

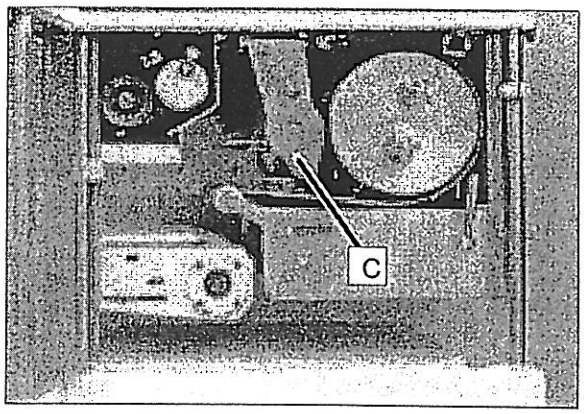


Fig. 6-12

2) For soft doughs, the brush roller (C) can be replaced by an additional flour duster.

6.8. Installation and removal of the spreader belt

Caution:
After loosening of the fixing screws, the spreader belt frame easily swivels towards the front and laterally. There is a hazard of injuries to hands and fingers.
It is imperative to have two persons remove the spreader belt from.

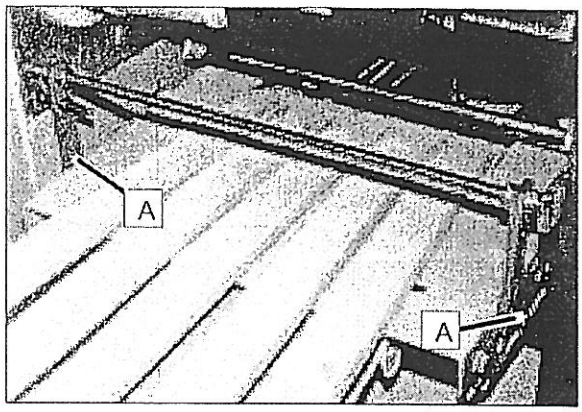


Fig. 6-13

1) Loosen screws (A) at the left and right sides of the spreader belt.

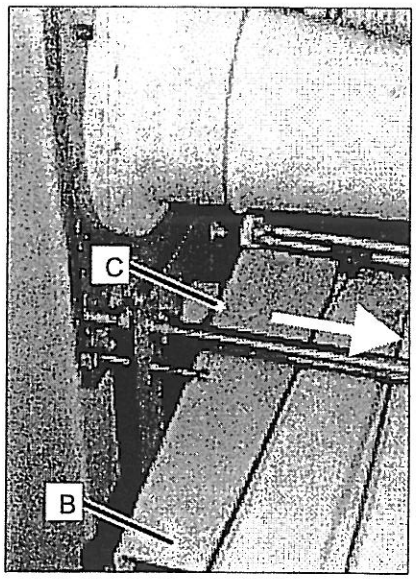


Fig. 6-14

2) Lift the spreader belt (B) out at the right side of the driving hub (C).

3) Lift the spreader belt frame out towards the front side of the machine.

6.9. Hydraulic system

6.9.1. Hydraulic system - filling and deaerating

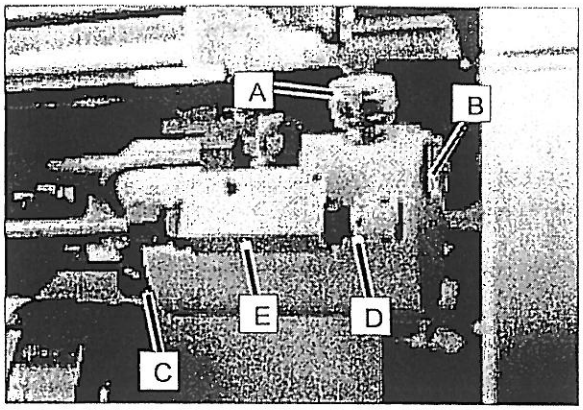


Fig. 6-15

6.9.2. Filling

1) Remove wet air filter (A).
2) Pour in oil.

The oil should cover three quarters of the oil level (B).

Note:
Oil quality Tellus C46 (Shell) or equivalent.
Oil tank (C) must not be filled up to the overflow point.
Filling capacity: approx. 0.6 litres.
Space must be left in the oil tank for a plunger stroke.

3) Install wet air filter (A).

6.9.3. Deaeration

1) Fill up the machine hopper with approx. 10 kg of solid trough (TA 148)[1]
2) Open handle (D) clockwise and run machine for approx. 5 minutes.
3) Deaeration is automatically effected via the wet air filter (A).
4) Close handle (D) and secure with lock nut.

[1] TA 148 = 100 kg flour, 48 kg water and other additions (such as sugar).

6.10. Delivery plunger

6.10.1. Installation and removal of the delivery plunger

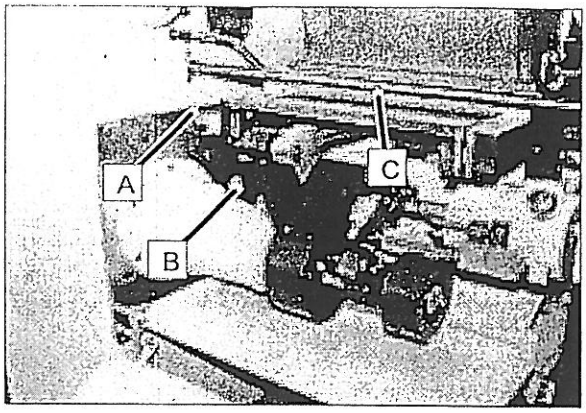


Fig. 6-16

1) Open the cleaning door above the spreader belt.

Caution:
The fixing screw (A) ought to only be loosened when the delivery plunger (C) is in ist hindmost position.

2) Screw out fixing screw (A) - type with bearing bolt - from the lever (B) which moves the delivery plunger (C).
3) Pull out the delivery plunger.

Caution:
Observe rules for the processing of foodstuffs and hygienic requirements when cleaning and oiling the delivery plunger.
Use lukewarm water for cleaning the delivery plunger.
Lubricate the delivery plunger with a resin-free oil (such as Wesrtfalia ST 35).

4) Clean delivery plunger (C) and lightly rub with oil.
5) Install in reverse order.

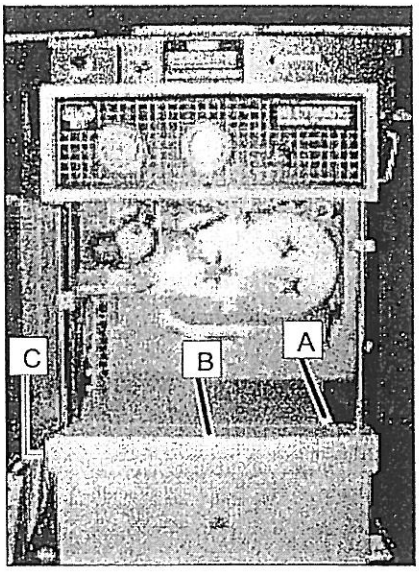


Fig. 6-17

Filling of oil

Note:
Use resin-free edible oil for bakery equipment such as Westfalia ST 35.

1) Open protective door at the tending side. The filler neck (A) of oil tank (B) will thus become accessible.
2) The oil ought to cover three quarters of the oil level eye (C).

Caution:
To prevent mechanical damage to the delivery plunger and the rotary sliding gate, it is necessary that the machine withdraws oil.

6.11. Rotary slide gate

6.11.1. Installation and removal of the delivery plunger

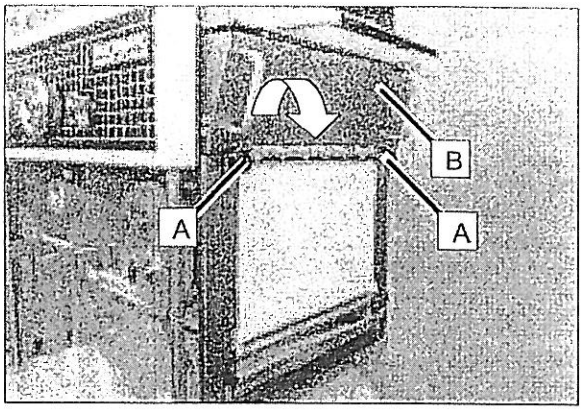


Fig. 6-18

1) Loosen cross handles (A), open cover (B) and lift out flour duster.

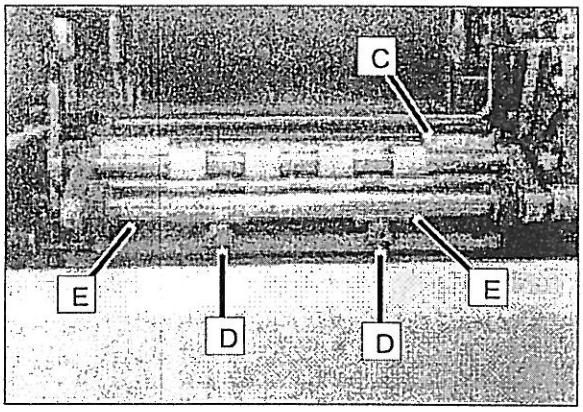


Fig. 6-19

2) The rotary slide gate (C) must be in a position that the two knurled nuts (D) of the measuring piston strip (E) become accessible.
3) Loosen knurled nuts (D) and screw out right to the stop.
4) The measuring poston strip (E) is depressed by springs.

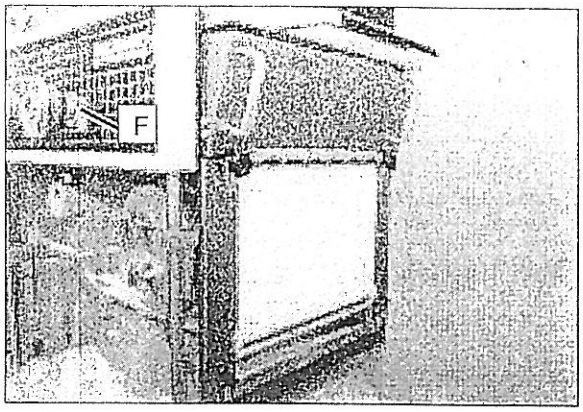


Fig. 6-20

5) Turn hand wheel (F) for weight adjustment to the cleaning position "R".

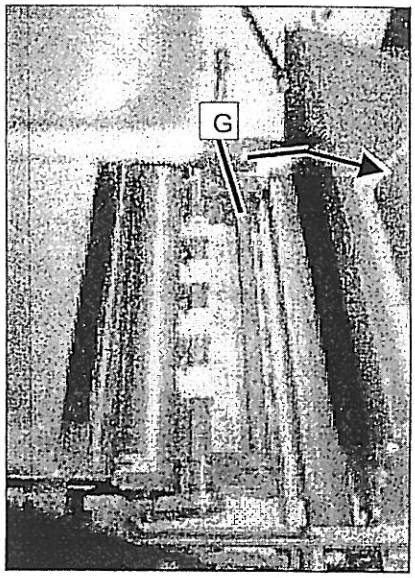


Fig. 6-21

6) The piston actuating unit (G) can only be swivelled back to a point where the measuring piston can be removed from the rotary slide gate.

7) The measuring pistons have a piston guiding surface at their circumference and are provided with a groove opposite to this surface.

Caution:
A measuring piston strip (E) which has worked loose can lead to mechanical damage to both measuring piston and rotary slide gate. After installation of the measuring pistons firmly tighten the knurled nuts (D) (see Fig. 6-19).

8) Assemble in reverse order.

6.11.2. Function of all measuring pistons

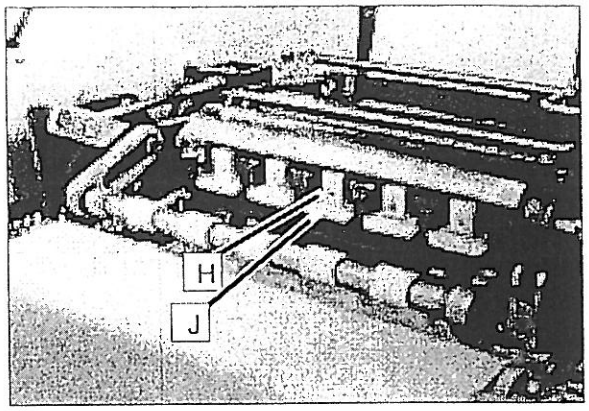


Fig. 6-22

1) Of all measuring pistons are required to function during a dividing process, the measuring pistons will have to be mounted in a manner to ensure that the measuring piston guiding surfaces (H) stand opposite to the measuring piston strip (J).

Caution:
A measuring piston strip (E) which has worked loose can lead to mechanical damage to both measuring piston and rotary slide gate. After installation of the measuring pistons firmly tighten the knurled nuts (D) (see Fig. 6-19).

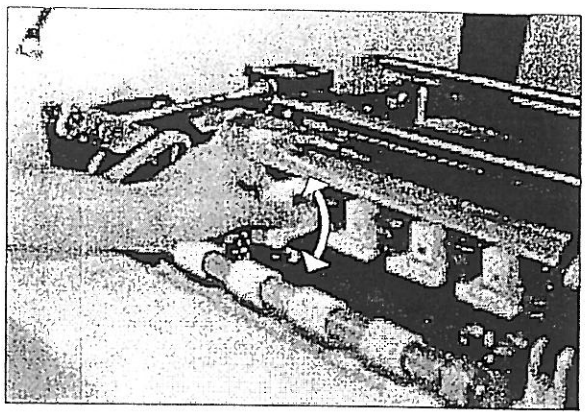


Fig. 6-23

1) Turn the measuring piston by 180°.
2) The measuring piston strip will engage into a groove of the measuring piston.
3) The piston is no longer able to move.

Caution:
A measuring piston strip (E) which has worked loose can lead to mechanical damage to both measuring piston and rotary slide gate. After installation of the measuring pistons firmly tighten the knurled nuts (D) (see Fig. 6-19).

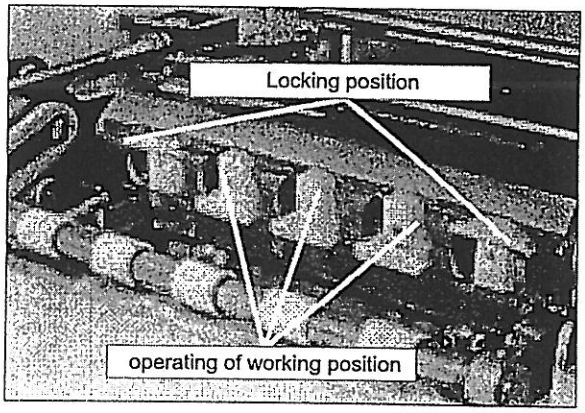


Fig. 6-24

6.12. Flour duster

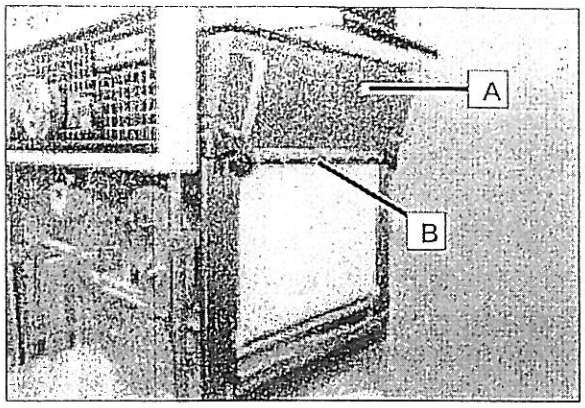


Fig. 6-25

1) The flour duster (A) serves to dust the moulding belt with flour.

The flour volume can be metered by means of slides.

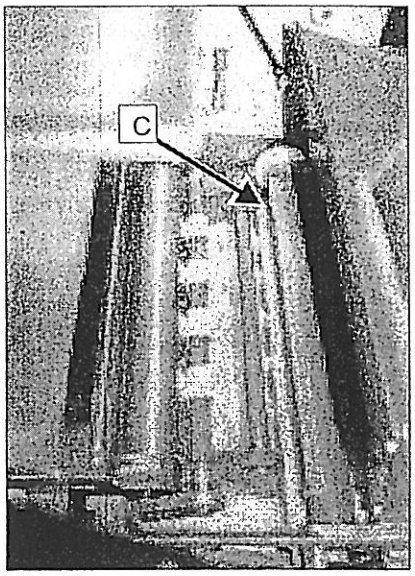


Fig. 6-26

2) The moulding cylinder and pocket drum can be dusted with flour by means of an additional spraying brush (C).

Note:
The bearings of the flour duster are permanently lubricated.

6.13. Spreader belts

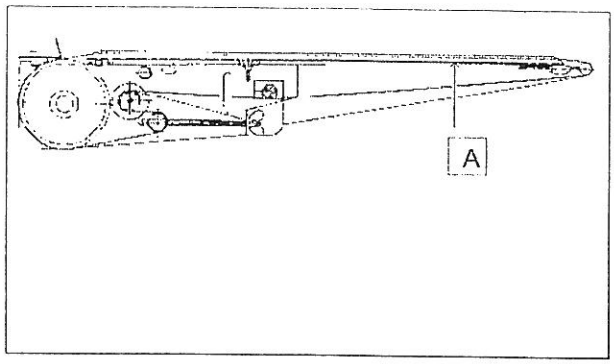


Abb. 6-27

1) The spacing between rows of spreader belts (A) isare adjusted as required.
2) The tension of belts can be adjusted.

7. Start-up

7.1. Initial start-up

The following criteria must be checked/fulfilled prior to initial start-up:

- Compare power supply data (nameplate) with mains connection data.
- Remove panel at the gear drive side.
- Turn wide V-belt at the gear side by hand until der delivery plunger lever has reached ist hindmost position (see item 6.6, Fig. 6-9).
- Remove delivery plunger, clean divider section (see cleaning instructions), oil[1)] and install again.
  (See item 6.10.)
- Move rotary slide gate to the filling position by turning the wide V-belt at the gear.
- Remove measuring piston and clean (see cleaning instructions), oil [1)] and install again (see item 6.11.1.).
- Check sense of rotation (see item 4.2.1).

[1)] Resinfree edible oil for bakery equipment, such as Westfalia ST 35

7.2. Preparation of start-up.

7.2.1. Check oil levels, if necessary, replenish oil.

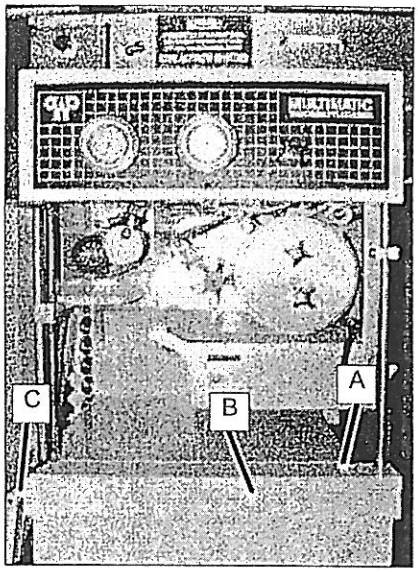


Fig. 7-1

Pour in oil.

Note:
Use resinfree edible oil for bakery equipment, such as Westfalia ST 25.

1) Open protective door at tending side. Filling neck (A) of the tank for edible oil will thus become accessible.
2) The oil should cover three quarters of the oil level eye (C).

Note:
To avoid mechanical damage to delivery plunger and rotary slide gate the running machine must withdraw oil.

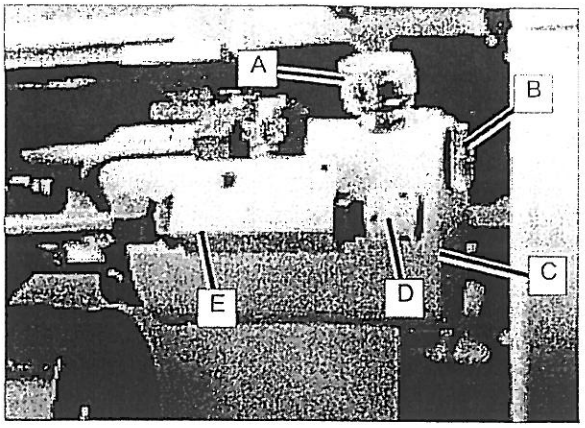


Fig. 7-2

Hydraulic oil

1) Open protective panel.
2) Remove wet air filter (A).
3) Replenish oil.

The oil should cover three quarters of the oil level eye (C).

Note:
Use standard oil quality such as Tellus C46 (Shell) or equivalent.
The oil tank (R) must not be filled up to the overflow.
The filling volume is approx. 0.6. l.
There must be enough space for the oil quantity flowing back during a stroke of the piston.

4) Install wet air filter.
5) Close guard again.

7.3. Start-up.

Requirements:

- The moulding cylinder must be installed.
- The pocket drum for the desired range must be installed.
- It must be stretched.

The MULTIMATIC ist now ready for operation.

7.3.1. Operation of the machine

1) Fill in dough.

When filling the hopper per hand, make sure dough quantities are uniform, the dough is not dusted with flour and has not been subjected to previous treatments.

See to it that the hopper is uniformly filled. Even in the case of direct charging from a dough reservoir the MULTIMATIC hopper should only be filled up to its upper edge.

7.3.2. Dividing/dough weight

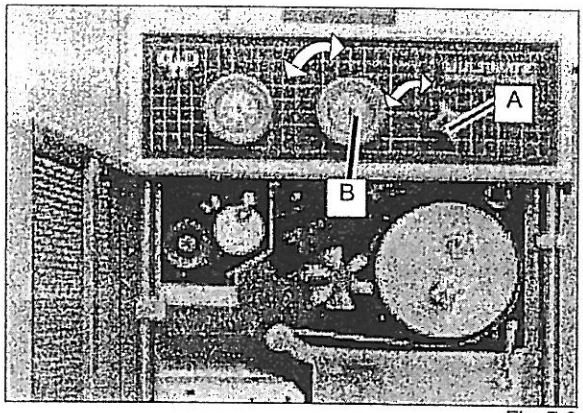


Fig. 7-3

Adjust the dough weight as follows:

1) Loosen locking lever (A).

2) Adjust dough weight with hand wheel (B).

3) Tighten locking lever (A).

4) Check dough pieces. If necessary, readjust with hand wheel (B).

5) Tighten locking lever (A) again.

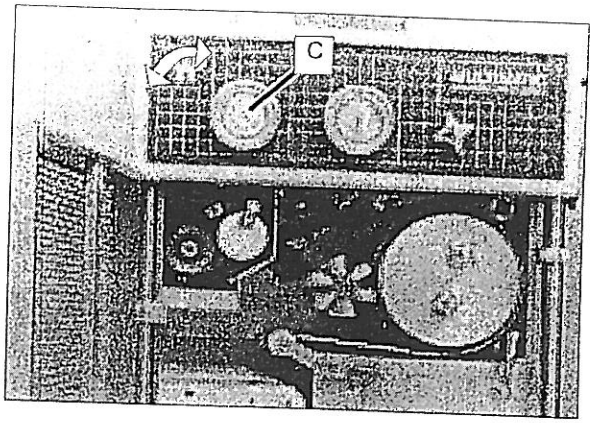


Fig. 7-4

Caution:
Adjust the moulding rate only if the machine is running. Otherwise, there is a hazard of damage to motor and bearings.

Note:
Type of dough and consistency govern the moulding effect.

Press the key (C) to adjust the moulding rate and thus the number of moulding rotations. In addition, the dough quality can be influenced by changing the tension of the moulding belt.

The moulding process is also governed by the chamber cylinder. Chamber size, chamber configuration, diameter of the chamber cylinder and the width of the root face of the chamber have an influence on the moulding result.

7.3.4. Flour dusting

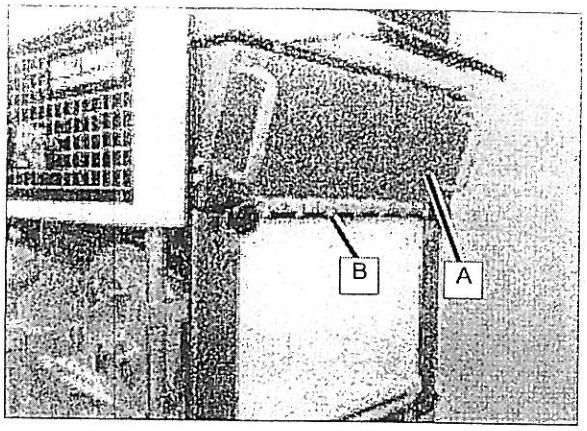


Fig: 7-5

1) The moulding belt is dusted with flour by means of the flour duster (A). the quantity of flour can be metered by means of slides (B). Close the slides (B) when the machine is running idle.

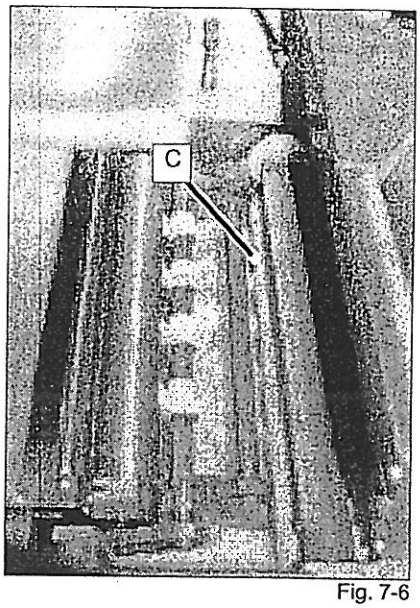


Fig. 7-6

The moulding and chamber cylinders can be dusted with flour by means of an additional spraying brush (C).

7.3.5. Discharge conveyor

Adjust the required height of the spreader belt! If the dough pieces are not correctly placed on the spreader belt, the falling height from the moulding belt onto the spreader belt must be changed.

7.3.6. Oiling

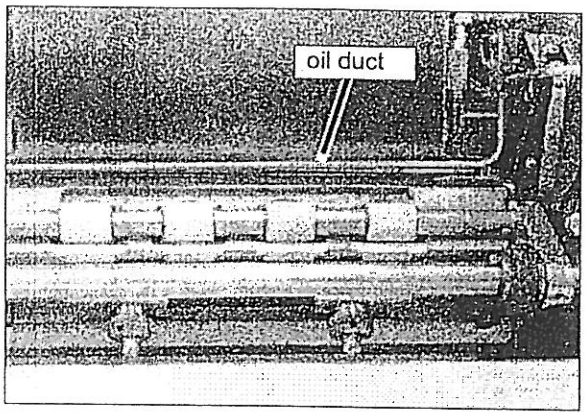


Fig. 7-7

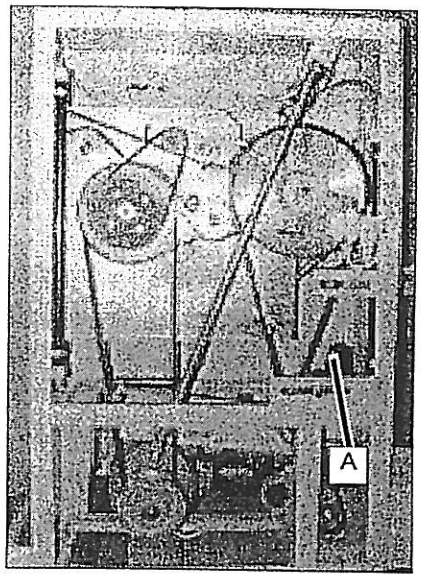


Fig. 7-8

To achieve an exact dough weight, the oil supply must work well. The oil is conveyed by the oil pump (A) from the oil tank to the lubricating points (see Fig. 7-1) For three to four working cycles 1 drop of oil at each lubricating line will suffice. The oil quantity can be individuallly adjusted for each line.

Note:
Exclusively use edible oil for bakery equipment such as Westfalia ST 35.

8. Maintenance

- Maintenance work covers all measures taken with a view to maintain the operational safety of the machine, the equipment or the device at the highest possible standard.
- The regular and appropriate maintenance is of utmost importance.
- Make sure only the indicated or equivalent lubricants are used.
- Servicing intervals indicated in the maintenance table are to be observed and are to be adapted to local circumstances of operation.
- Data sheets for products of other manufacturers are to be considered.
- Electrical wiring diagrams are in the control panel.
- Prior to beginning maintenance work, switch off and lock the main circuit breaker.

Caution:
Hazards of corrosion caused by splash water. Do not clean the machine with a steam or water jet cleaning device.

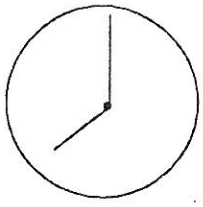
8.1. Maintenance table

- The maintenance table is based on an eight-hour one-shift operation.

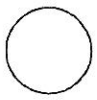
Note:
The machine must be cleaned (when working with standard roll dough) after 8 hours at the latest. Depending on the type of dough, for instance in case of a high fruit of sugar content, machine must already be cleaned at an earlier time.

Nr.	Maintenance table	Lubricant/Cleaning agent	Remarks
A	every 5-6 or 8 hours of operation/daily		
A1	Whole machine.	Use plastic scraper or dusting brush. Do *not* clean with steam jet or compressed-air device.	Remove dough and flour residues. Clean measuring piston delivery piston, pocket drum and moulding cylinder with lukewarm water and a soft brush. Clean delivery chamber and yoke-type hopper.
		Resin-free edible oil suited for bakery equipment such as Westfalia ST 35.	During neassembly slightly sub measuring piston, delivery plunger and pocket drum with oil.
	Ejector shaft	Use soft brush, dusting brush or vacuum.	Clean scraper at the ejector shaft. Clean moulding belt. Clean interior of machine.
B	**every 400 hours of operation**		
B 1	Roller chains.		Rub with grease check chain tension.
B 2	Expanding pulley.	Ball-bearing grease (e.g. Calypsol WIA)	Lubricate.
B 3	Belt tension.		Restretch if necessary.
B 4	Oil stock.	Resin-free edible oil for bakery equipment such as Westfalia ST 35	Replenish
B 5	Hydraulical system.	Tellus C 46 (Shell).	Replenish if necessary. Filling volume 0.6 l.
C	**every 4,000 hours of operation**		
C1	Divider gear.	SO VG 220 Shell Omala 220.	l Oil change. Filling volume 6.5 l.
	Moulding gear.	Macoma 75. Oil change.	Filling volume 0.4 l.

8.2. Maintenance plan

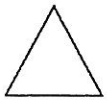


Betriebsstunden
Operating hours
Heures de service

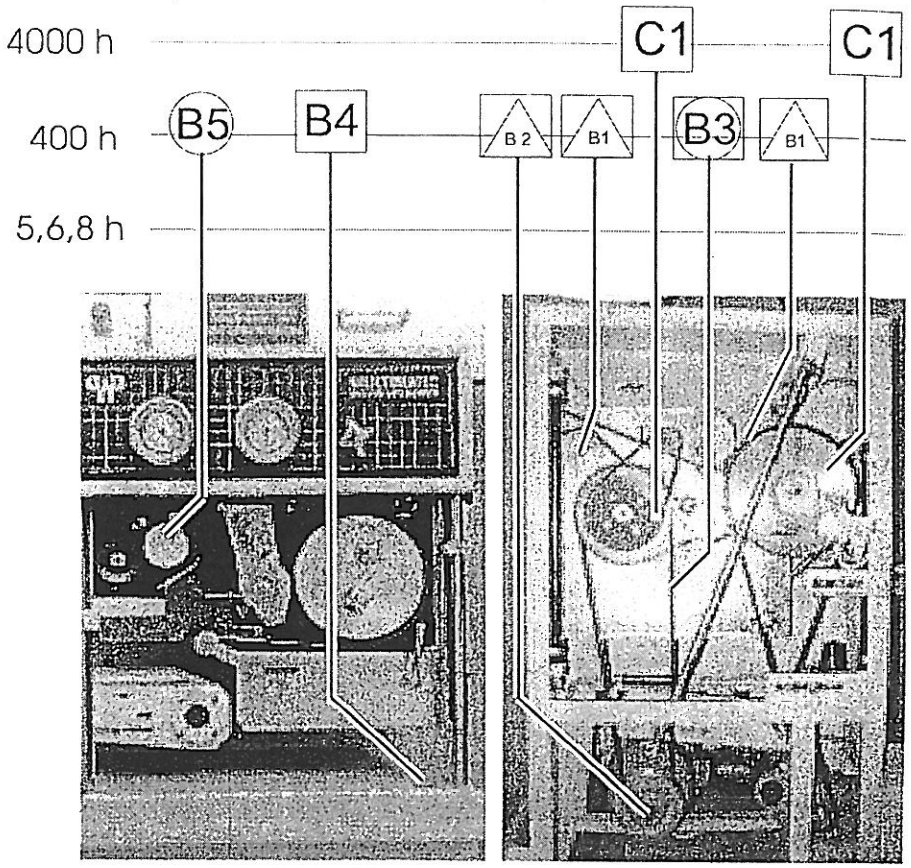


Wartungsarbeit
Maitrance work
Travail d' entretien

Öl
Oil
Huile



Fett
Grease
Graisse



8.3. Cleaning plan

What	How
Delivery hopper and yoke-type hopper.	Clean. [1]
Delivery plunger.	Remove delivery plunger (see item 6.10.1) [1], Rub with oil [2].
Delivery chamber.	Remove dough residues[1] and rub lightly with oil[2].
Measuring piston.	Remove dough residues[1] and oil prior to reinstallation[2].
Rotary sliding gate.	Clean[1].
Pocket drum.	Clean[1].
Moulding cylinder.	Clean[1].
Scraper/ejector shaft.	Clean [1].
Moulding belt.	Clean[3].
Spreader belt.	Clean[3].
Waste drawer.	Empty.
Complete machine.	Clean with a moist rag.

[1] with lukewarm water

[2] resin-free edible oil suitable for bakery equipment such as Westfalia ST 35.

[3] with a soft brush, dusting brush or vacuum cleaner

8.3.1. Cleaning sequence

1) Make sure the piston is in the correct position.

2) Open lateral cleaning doors.

3) Reduce belt tension (see item 6.1).

4) Unscrew cover (pocket drum) (see item 6.5).

5) Remove pocket drum.

6) Disassemble moulding cylinder.

7) Open hood.

8) Remove flour duster (see item 6.12).

9) Remove reversing rolls (moulding belt).

10) Remove moulding belt.

11) Loosen weight locking device (see chapter 5).

12) Raise weight control up to the stop (maximum weight).

13) Loosen locking strip.

14) Remove piston.

15) Clean scraper (see item 6.7).

16) After reassembly in reverse order, move piston to cleaning position.

17) Check oil level.

8.4. Cleaning of the machine

- The machine is to be cleaned daily, removing flour and dough residues.
- *Do NOT* wash down with water.
- Nonobservance of this rule will cause the dough to harden between moving components and will lead to breakdowns of the machine.
- Daily clean the flour duster.

8.4.1. Cleaning of the delivery plunger

1) Disassemble the delivery plunger as described in item 6.10.1.

Danger:
Do not climb the machine for cleaning work. There is a slipping hazard by flour and dough residues, and importan components could be damaged. Do not use pedestals.

Caution:
Do not use steel scrapers or similar sharp tools for cleaning work. Take special care not to scratch components which are coated with teflon or other plastics.

2) Begin by cleaning the upper section of the hopper.

3) Remove dough residues from the delivery chamber.

4) Install delivery plunger in reverse order as described in item 6.10.1.

8.4.2. Cleaning of measuring pistons

1) Disassemble measuring piston as described in item 6.11.1.

Note:
After performance of cleaning work, the rotary sliding gates must be readily movable.

Caution!
When oiling the measuring pistons observe rules for health and hygienic handling. Rub measuring piston with a resin-free oil for bakery equipment such as Westfalia ST 35.

2) Install the measuring pistons in reverse order as described in item 6.11.1.

Note:
Prior to restarting the machine readjust the dough weight.

8.4.3. Cleaning of the moulding cylinder, the pocket drum and the moulding belt

1) Prior to disassembly relax the moulding belt (see item 6.1.1).

2) Reversing rolls and moulding belt can now be readily removed. Remove dough residues from individual parts and thoroughly brush the moulding belt.

3) After removal of the pocket drum cover (see item 6.5) pull out the pocket drum.

4) By loosening the fixing screws at the shaft the moulding cylinder is released and can also be pulled out.

5) Clean both cylinders with a soft brush.

Note:
The pocket drum and the moulding cylinder must not be rubbed with grease.

8.4.4. Assembly after cleaning work

1) When reassembling the moulding cylinder make sure the fitting and driving elements are properly seated.

Note:
Adequately screw down the fixing elements of the moulding cylinder.

2) When installing the pocket drum make sure the fitting and driving elements are properly seated.

   After reassembly of the machine check whether all components have been properly fitted and secured.

Caution:
Shortly start the machine for a test run.

9. Trouble-shooting

Trouble	Cause	Remedy
Machine does not run.	Door on the tending side, cleaning door or hopper panel *not* closed.	Check door , hopper and limit switches
	Fuses at the control panel defective or bimetallic release has tripped.	Check fuses and replace if necessary. Check bimetallic release, if necessary adjust it to correspond to the rated current of the driving motor.
Machine running by fits and starts.	Driving chain or V-belt loose.	Increase tension of chains/V-belts.
Moulding cylinder does not run.	Wide V-belt has jumped off the pulley or is defective.	Reinstall V-belt or install new one.
Ejector shaft does not run.	V-belt too loose or broken.	Reinstall or replace V-belt.
Moulding belt slips on driving roll.	Belt too loose.	Increase belt tension. If the dropping point must not be changed, retension at the rear reversing roll.
Dough pieces do not fall into the pocket drum.	Rotary sliding gate or chamber cylinder are maladjusted.	Check setting of rotary sliding gate if necessary readjust.
Transfer of dough pieces from the moulding to the spreader belt maladjusted.	Too high dropping level or dropping position not correclty adjusted.	Change dropping height. Change dropping position.
Measuring pistons do not eject dough.	Ejector maladjusted.	Check ejector, if necessary readjust.
	Delivery plunger maladjusted.	Check delivery plunger for correct installation.
	Measuring pistons are stuck.	Clean measuring pistons and check for easy running.

Trouble	Cause	Remedy
Machine does not divide correctly.	Measuring pistons sluggish.	Clean measuring pistons, check for easy running.
	Rotary sliding gate maladjusted.	Correct setting of rotary slide gate (clamping lever).
	Ejector maladjusted.	Correct setting of ejector (clamping lever).
	Delivery shaft sluggish.	Clean delivery shaft and check for easy running.
	Stop valve not closed tightly.	Turn knurled screw clockwise up to the stop.
	Hydraulic system leaking.	Remove leakage, replenish oil, deaerate.
Spreader belts do not run.	Spreader belt not properly engaged. Belt tension!.	Loosen locking screw and engage spreader belt properly.
Spreader belts running unevenly.	Belt tension too slack.	Increase belt tension.
	Old dough stuck on driving rolls, reversing rolls or tension rolls.	Clean rolls.
	Belt reversing rolls stuck.	Dismount rolls and make running well.
Dough pieces not moulded round.	Insufficient belt tension.	Increase tension of moulding belt.
	pocket drum too large.	Check chamber cylinder if necessary install right type of chamber cylinder.
	Moulding rate too low.	Adjust proper moulding rate with hand wheel.
	Moulding belt over- or underdusted.	Replenish flour at flour duster and correct slide setting.

10. Appendix

Electrical wiring diagram, Instructions for operation and the frequency converter of the machine are deposited in the control cabinet.

11. Spare parts list