

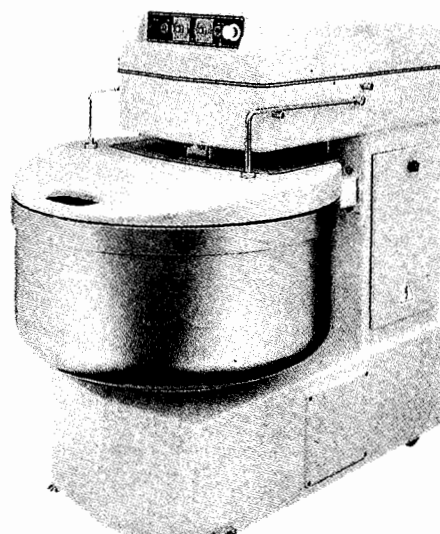
**THUNDERBIRD
SPIRAL MIXER.**

MODEL : ASP-

SPIRAL KNEADING MACHINE WITH FIXED BOWL

Serial number

INSTRUCTION AND MAINTENANCE HANDBOOK



Importer:

**Manufacturer : AROMA TAIWAN MACHINERY COMPANY.
P.O. BOX 5-888, TAICHUNG, TAIWAN
FAX: 886-4-6916338 , 6914338**

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1 INSTRUCTIONS TO USE THE MANUAL

1.1 SCOPE OF THE MANUAL

Use of the manual

The manual of use and maintenance, together with the Technical Booklet is part of the machine. It must be kept during the whole life of the machine, or delivered to its following users.

The structure of this manual permits to easily find the chapters and the topics of each chapter.

Care

The user must keep this manual with care, to avoid any damage of it. The user should provide for filing it in a suitable place for best conservation and easy consultation.

Notes and data should be only written in foreseen cases in the blank spaces provided.

Consultation

The manual begins with a summary of the various chapters and their topics.

It is necessary to respect strictly both the indicated precautions, before switching on the machine, and the dispositions about safety measures.

1.2 MANUAL UPDATING

In case of modifications or acquisition of optional equipment by the user, the manufacturer will send every time a new complete manual, or only the parts to be added or replaced.

In case of replacement will be given the instructions to complete and substitute correctly:

- documentation;
- index;
- enclosures.

2 GENERAL INFORMATION

2.1 MANUFACTURER AND MACHINE SPECIFICATIONS

Basic information

Manufacturer: **AROMA TAIWAN MACHINERY COMPANY.**
P.O. BOX 5 - 888, TAICHUNG, TAIWAN
FAX : 886 - 4 - 6916338 , 6914338

Model: ASP - Spiral mixer with fixed bowl.

Serial number:

Date of construction:

Voltage:

Frequency

Number of phases

Other technical specifications

Kneading capacity: Kg. 80

Flour maximum quantity: Kg. 50

Bowl volume : litres 127

Bowl diameter: mm 680

Bowl-edge height: mm 900

Dimensions:

- Length: mm 1174

- Width: mm 710

- Height: mm 1390

Weight: Kg 390

<u>External dimensions</u> <u>(package included)</u>	<u>Weight</u> <u>(package included)</u>
• Carton on pallet: mm 1350 x 850 x 1580 h	Kg. 405
• Crate in wood: mm 1450 x 950 x 1630 h	Kg. 430
• Box in wood: mm 1450 x 950 1630 h	Kg. 460

Power

- Engine of the spiral: kW 2/4

- Engine of the bowl: kW 0,55

- Total power: kW 4,55

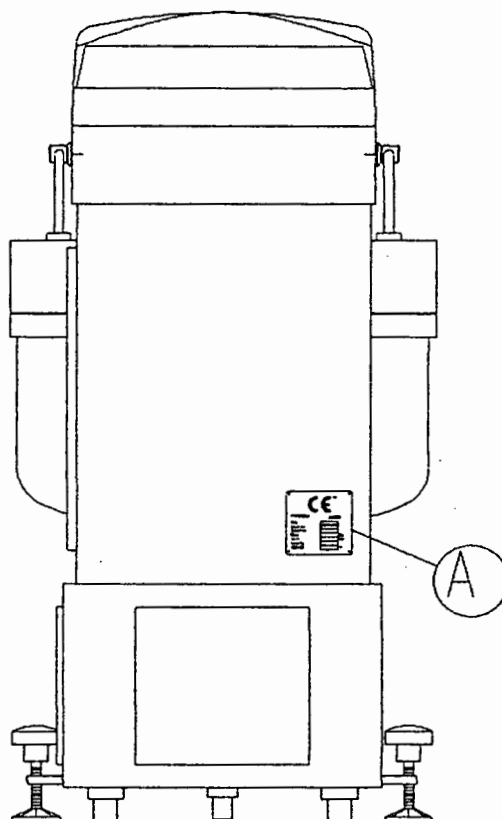
Spiral tool speed: r.p.m. 97/195

Speed of the bowl: r.p.m. 13

Additional information

We enclose a picture showing the point of the machine where the “CE” plate is located.

Figure 1



A : Plate with CE brand (see this detail in chapter 3.2, figure 7)

2.2 WARRANTY CONDITIONS

Validity

The warranty period begins from the delivery date.

The period length is:

- six months for electric parts and engines;
- twelve months for mechanic parts and other components.

In agreement with the indications of chapter 10, the manufacturer can recognise the warranty periods mentioned above only if an ordinary maintenance is carried on by the user.

Conditions for warranty services

The manufacturer delivers the warranty for the defective pieces. They must be returned with no transport charges.

The manufacturer will send the spare parts in substitution, after verifying the real defectiveness: the payment of transport costs will be charged to the consignee.

The manufacturer responsibility can be avoided in case of:

- faults or operations of the user which could compromise the safety of the machine.

Examples:

- the omission of maintenance operation;
- the installation of tools not allowed.

2.3 TECHNICAL SERVICES

During the warranty period

If some technical repairs are necessary as sira maintenance or due to possible faults and failures, you must contact the manufacturer before the aforesaid maintenance.

Technical services in general

In addition to the ordinary maintenance, it is useful to recommend a programmed maintenance performed by skilled technicians, as described in chapter 10.

The request of spare parts will be made following the instructions in paragraph 10.4.

2.4 GENERAL WARNINGS ABOUT SAFETY

User safety and prevention measures.

The personnel in charge of the operation must be able to develop the necessary actions to run the machine:

- knowledge of working cycle and safety devices;
- loading of ingredients and unloading of the dough
- cleaning of the machine and the working station.

It is necessary not to exceed the maximum quantities of the dough during the processing.

These quantities could change depending on the respective ingredients percentage.

On this topic, see additional information in chapter 8.

Other safety rules

The personnel in charge must not work when the safety protections are not installed.

It is forbidden to tamper or modify the safety devices and circuits.

2.5 SCHEDULE OF RUNNING FUNCTIONS

* See on page 13 the picture of the control panel with the indication of scheduled functions.

MANUAL CYCLE	ACTION	RESULT
selection of the manual cycle	selector in "manual cycle" position, see figure 2	<u>exclusion of timers</u>

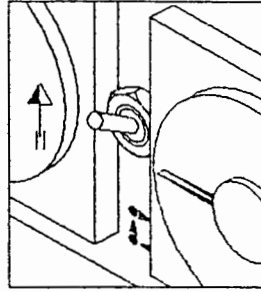


Figure 2

starting first speed	push-button "first speed" on the control panel	amalgamate and pre-mix the ingredients
bowl reversal rotation (possible only in the first speed)	selector with automatic return, maintained in the desired position	acceleration of ingredients mixture
insertion second speed	push-button "second speed" on the control panel	final mixture
end of manual cycle	"emergency and stop" push-button	stop

REMARKS: in order to make the bowl empty easily, it is possible to move the dough obtained to the extraction zone, by using the "bowl reversal rotation" selector.

This operation, which allows to rotate only the bowl, will be possible even if the protection of the bowl is open: for safety reasons, the selector which controls the rotation of the bowl has an automatic return, so that the action will be performed only if the selector is maintained in the desired position.

AUTOMATIC CYCLE FUNCTION

* See on page 8 the picture of the control panel with the indication of scheduled functions.

AUTOMATIC CYCLE	ACTION	RESULT
selection of the automatic cycle	set the selector in the position "automatic cycle", see figure	<u>turn on the timers</u>

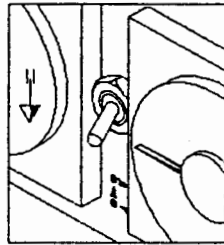


Figure 3

programme the time of processing	programme the two timers of the "first and second speed"	prearrange of pre-mixture and final mixture work-time
starting of processing (first speed)	push-button "automatic cycle" (first speed)	processing in automatic cycle, with cycle-end decided by timer of the second speed
bowl reversal rotation (possible only in the first speed)	selector with automatic return, maintained in the desired position	acceleration of ingredients mixture

REMARKS: in order to make the bowl empty easily, it is possible to move the dough obtained to the extraction zone, by using the "bowl reversal rotation" selector.

This operation, which allows to rotate only the bowl, will be possible even if the protection of the bowl is open: for safety reasons, the selector which controls the rotation of the bowl has an automatic return, so that the action will be performed only if the selector is maintained in the desired position.

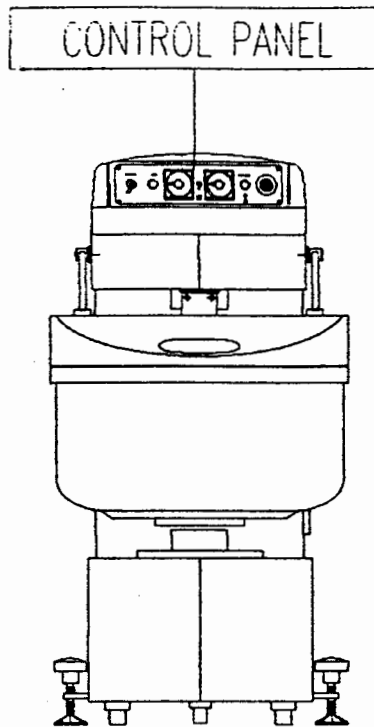


Figure 4

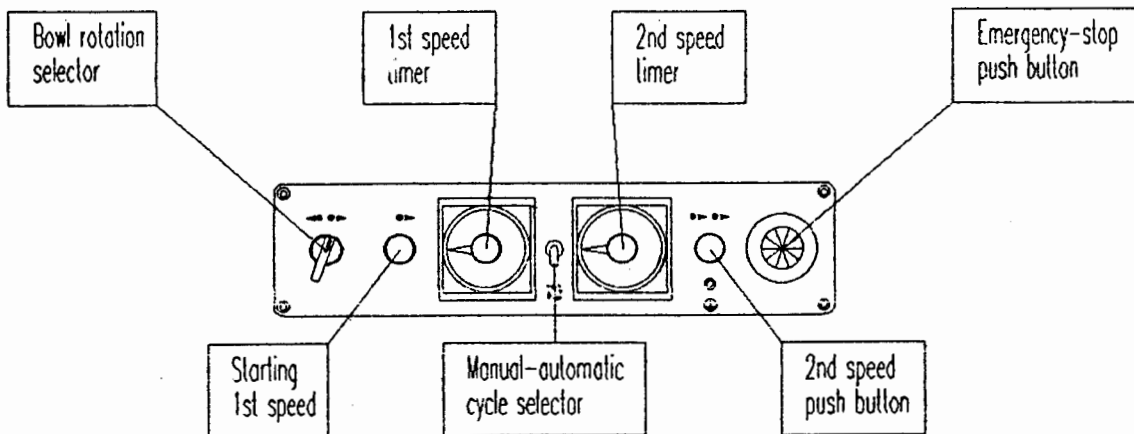


Figure 5

3 TYPE OF MACHINE

3.1 GENERAL DESCRIPTION

The machine purpose

The machine and all its parts are produced to process foodstuffs (bread dough and confectionery). This machine permits to obtain an homogeneous mixture of water, flour and other ingredients for bread dough (yeast, salt...), or confectionery.

Schematic machine structure and its dimensions

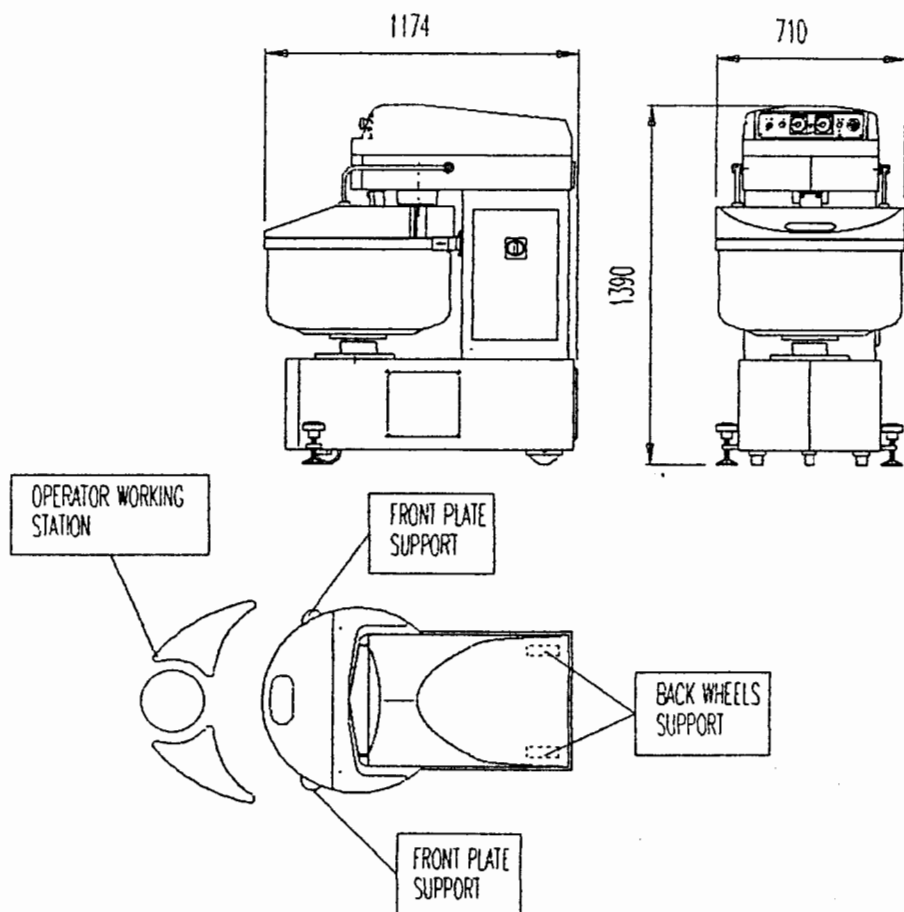


Figure 6

3.2 PLATE

Model	<input type="text"/>	
Serial number	<input type="text"/>	
Date of construction	<input type="text"/>	
Voltage	<input type="text"/>	Volts
Frequency	<input type="text"/>	Hertz
Number of phases	<input type="text"/>	
Total power	<input type="text"/>	kW

4 DESTINATION OF THE MACHINE

The machine has been studied and built with the purpose to produce bread dough or confectionery.

4.1 WORK ENVIRONMENT

The obligation to use the machine in foodstuffs suitable environment must be followed also under the operative point of view, such as:

- absence of ventilation during the loading and starting sequence of operations
- use of containers and tools which could have to do with foodstuffs;
- possibility to perform the cleaning and the ordinary maintenance.

4.2 MATERIALS TO BE USED

Description of foodstuffs

Every kind of flour

Water

Yeast

Fats- butter

Sugar

Flavourings

Salt

Spirits and other ingredients for bread dough and confectioneries.

Percentages of the ingredients

The maximum quantity of ingredients which can be introduced into the bowl depends on their mixture.

The machine is produced to work Kg ____ of dough with the following percentages:

- ____ Kg of flour;
- ____ litres of water.

4.3 INSTRUCTIONS TO AVOID AN IMPROPER USE

- Loading in excess compared to the above standards
- Removal or shifting of safety systems, such as: fixed and mobile protections, limit microswitches
- Use of unsuitable ingredients
- Cleaning with tools which can scratch the bowl
- Use of the machine in unsuitable environments.

5 TRANSPORT-HANDLING

5.1 WARNING

To lift and transport the machine, it is necessary to follow the instructions of this chapter carefully and, in addition, those regarding the safety (see chapter 9).

5.2 PACKING AND UNPACKING

Figure 8 shows the machine laying on a wood pallet (detail A).

The fixing is made with two vertical threaded bars (pos. B) and one diagonal bar (pos. C).

The support is always a pallet and the packing can be made:

- winding the machine with stuffed nylon film
- with thick carton box;
- with wood crate;
- with wood box.

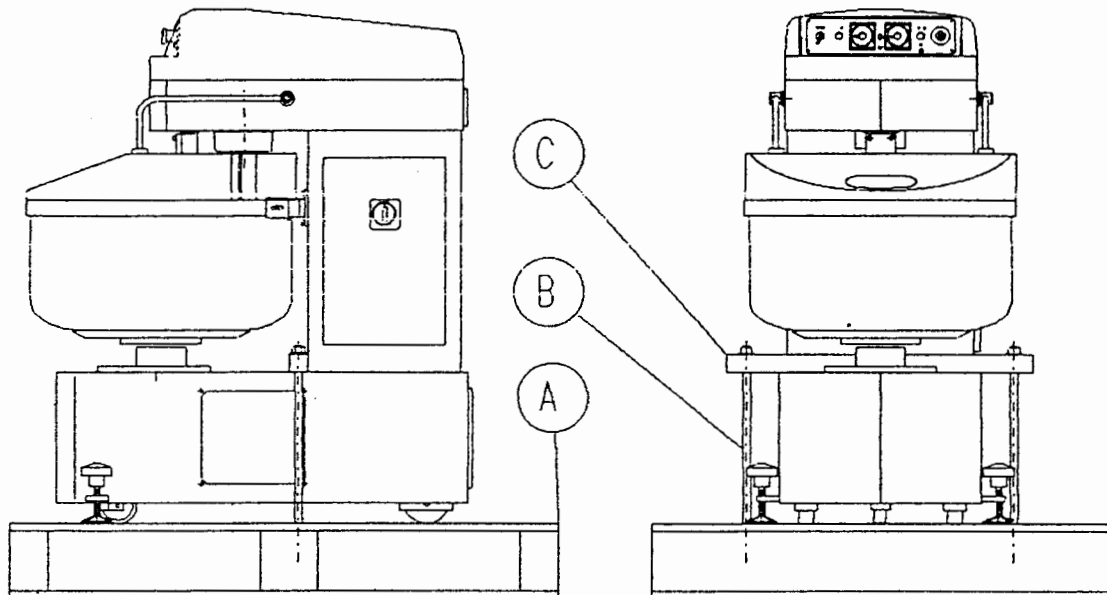


Figure 8

Outside the packing, net and gross weight will be indicated.

Once the upper casing has been removed, to unpack the machine the operator has to release the two vertical threaded bars and to remove the diagonal bar.

To lift the machine from the pallet use:

1. a lift truck, inserting the forks under the machine in the position shown in paragraph 5.3, fig. 11 ;
2. a band passing under the head and close to the column of the machine (paragraph 5.3, fig. 12).

The material used for packing, except the vertical threaded and diagonal bars, can be recycled or disposed as waste.

5.3 TRANSPORT, LIFTING AND SHIFTING

With packed machine

Check the total weight first and use an adequate means for lifting: in case of use of transpallet or lift truck, act in the indicated points of the pallet (see figures 9-10).

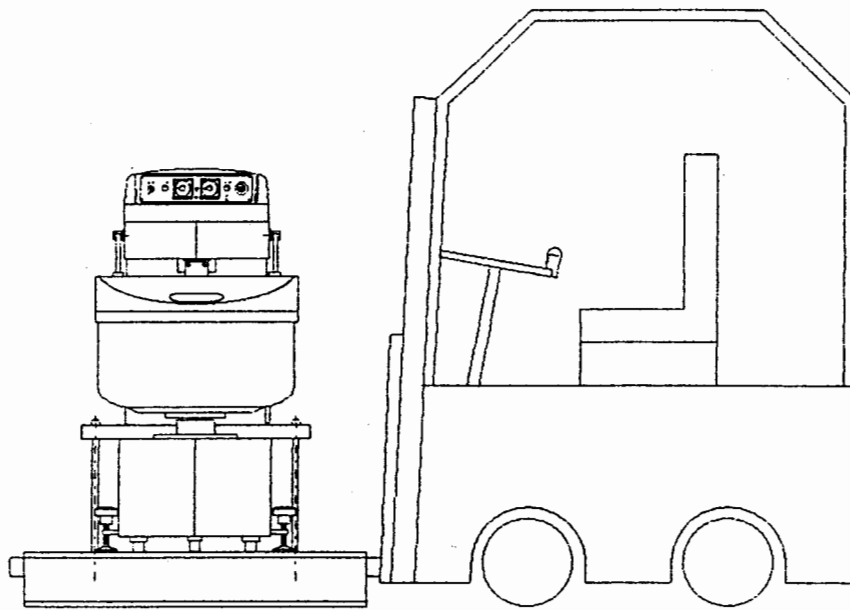


Figure 9

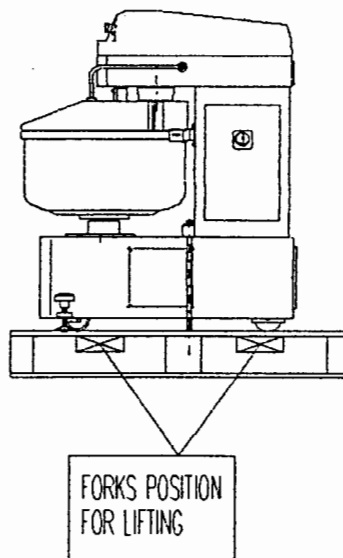


Figure 10

With unpacked machine

The lifting of the unpacked machine can be made with lift truck, as shown in figure 11, or with a band positioned under the head, between the column and the tool (see figure 12). During the lifting, the machine is placed in inclined position without affecting the safety of people or of the machine. This is due to the changing position of the barycentre. Avoid oscillations during this operation.

Figure 11

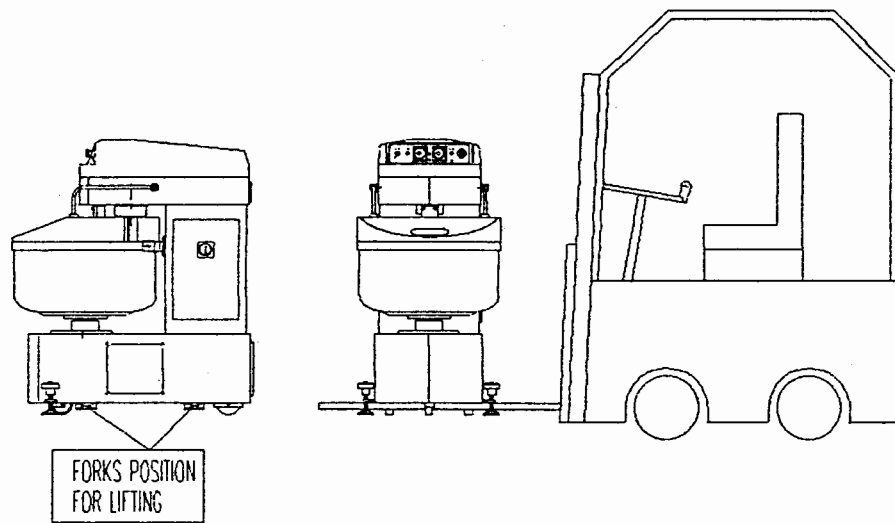
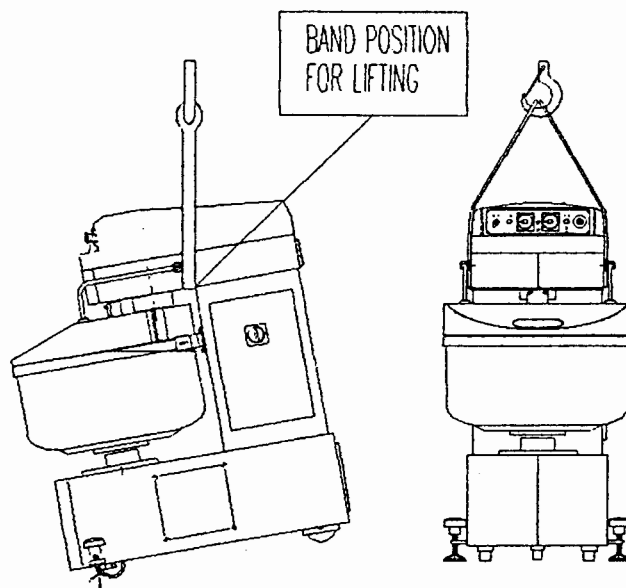


Figure 12



Shifting

The shifting allows to clear the floor below the machine, which is supported by three wheels, two of them fixed in the back (A) and one turning wheel in the front(B).

It is sufficient to lift the front plates (C) and push the machine in the desired place, taking care to remove the power cable from its outlet (D).

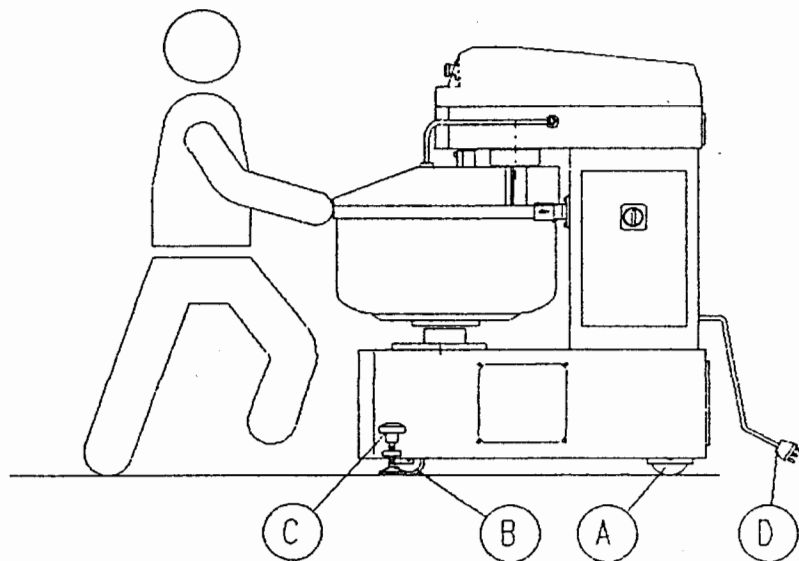


Figure 13

6 INSTALLATION AND SET-UP

6.1 WARNING

Dispose the machine in the workshop so that the loading of ingredients and the removing of dough are easier. The surrounding area must be clear to permit the maintenance and the cleaning (see figure).

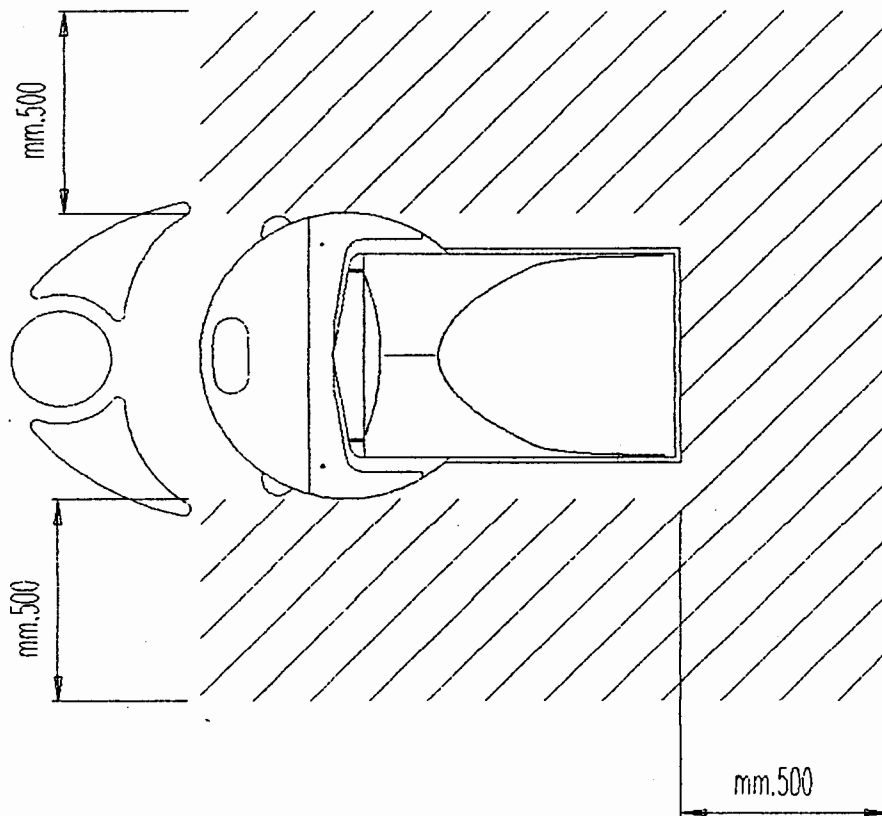


Figure 14

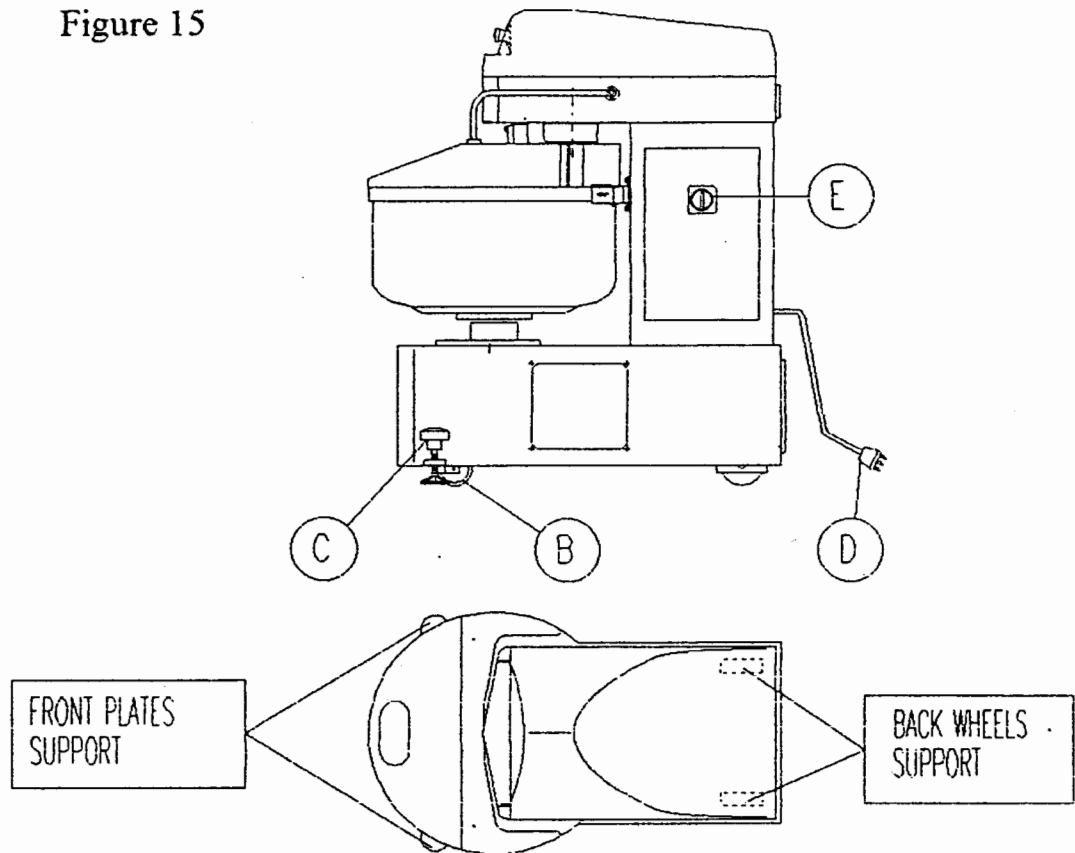
6.2 ENVIRONMENT CONDITIONS

The machine is developed to be used in environments with humidity and much variable temperature such as bakeries or confectioneries. Also an excessive ventilation should be avoided because it could cause flour-dust loss from the bowl.

6.3 POSITIONING AND FIXING

When the machine is placed in the chosen position, it must be fixed regulating the front plates (C), until the front turning wheel (B) does not touch the floor

Figure 15



6.4 CONNECTION TO THE ELECTRICITY

Verify the voltage indicated in the plate because the guarantee will fail if the connection is not correct. Then, connect the power cable (pos. D, figure 15, paragraph 6.3) to a outlet. Turn on the main switch (position E figure 15 , par. 6.3.)

7 STARTING OPERATIONS

7.1 WARNING

The thorough observance of the safety rules is necessary to perform the starting operations.

7.2 WORKING DESCRIPTION

Loading of the ingredients to be kneaded

When the machine is off, the access to the bowl can be obtained just lifting the moving protection (A).

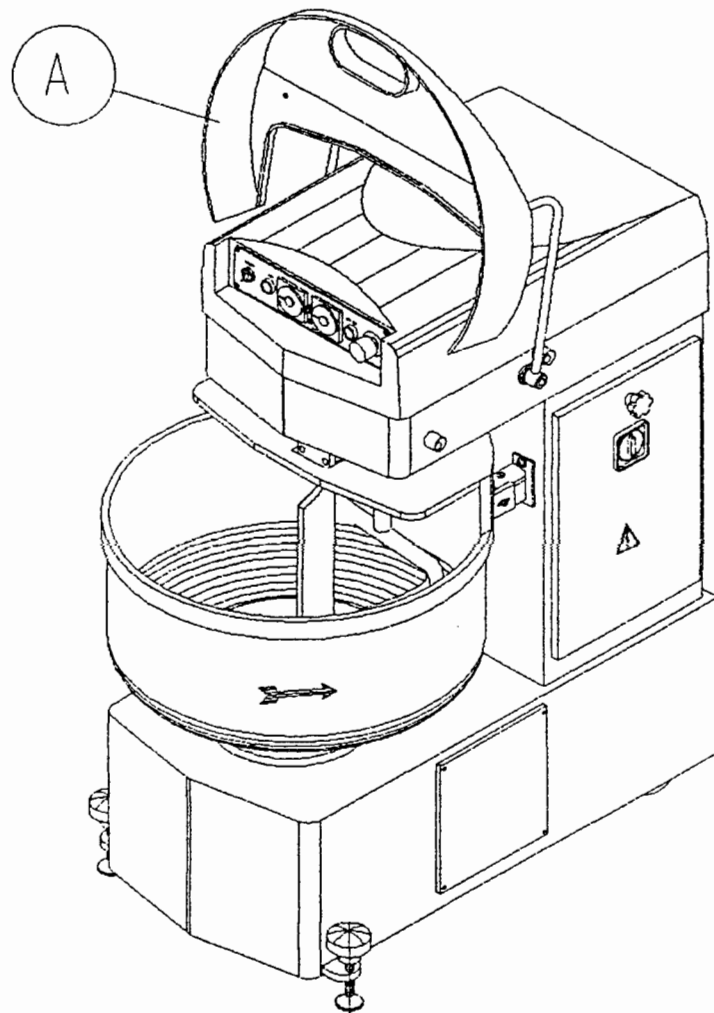


Figure 16

Only the ingredients exclusively suited to the bread and cakes production can be loaded in the desired quantities, but without exceeding the maximum quantities prescribed (see paragraph 4.2).

Starting operation

Only after lowering the moving protection it is possible to operate the machine.

Choosing the manual cycle it is possible to start, to select the two speeds and to arrest the machine manually pushing the buttons on the control panel (see paragraph 2.5).

To use the automatic cycle it is necessary to input pre-mixture and mixture timing in the two timers: then start the cycle pushing the first speed button (see paragraph 2.5).

During the whole working cycle, the window (A) located on the moving protection allows a visual control of the dough. Furthermore, it is possible to take out some dough samples and to adjust the mixture by adding small quantities of ingredients.

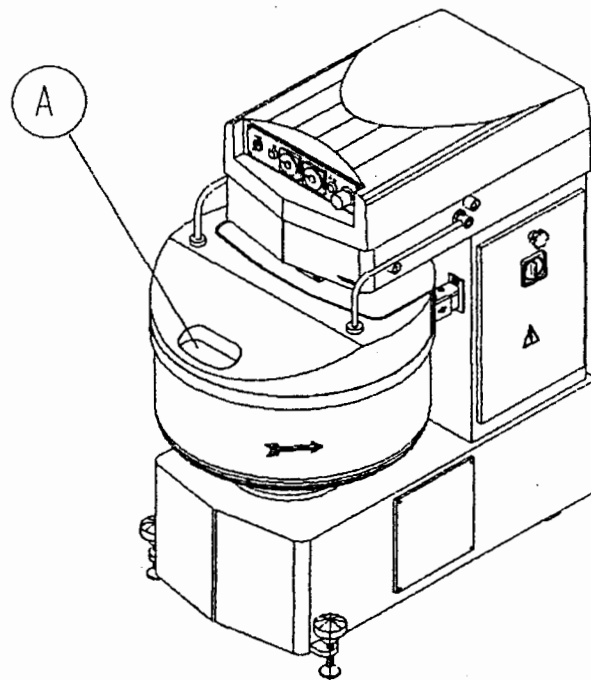


Figure 17

Unloading

At the end of the cycle it is possible to take out the dough from the bowl after lifting the moving protection.

7.3 CONTROL PANEL

As shown in the following figure, on the control panel there are the buttons for all the functions that the machine can develop.

Every button and selector has a graphic symbol regarding its specific function.

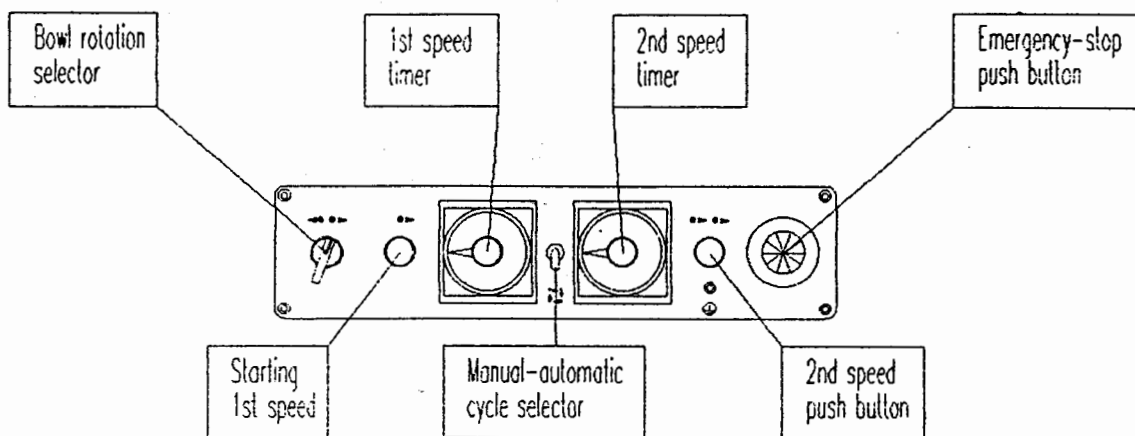


Figure 18

7.4 NORMAL STOP

When the machine is working in manual cycle, a normal stop can be obtained pushing the emergency-stop button.

On the contrary, if the machine is working in automatic cycle, the timer of the second speed stops the machine at the end of the programmed time.

7.5 EMERGENCY STOP

Bowl and spiral rotation can be stopped pushing the emergency-stop button.

To start again either the manual or the automatic cycle it is necessary to remove the emergency condition, rotating clockwise the same push-button until unlock it.

Start again the machine pushing the button of first speed.

7.6 SET-UP INSTRUCTIONS

Manual cycle

To operate with the manual cycle the selector must be set in the position shown in figure 19.

This operation excludes the timers.

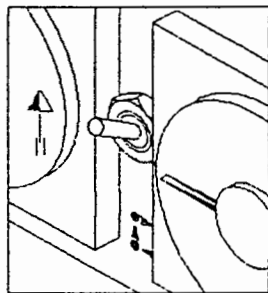


Figure 19

When the ingredients are loaded into the bowl, the machine can be started pushing the first speed button. To invert the bowl rotation it is necessary to maintain the special selector in the suitable position. This operation allows to reduce the time of the ingredients mixture. When this action is finished, the above mentioned selector must be released to go back (anticlockwise) to the normal position.

To perform the final mixture, the second speed must be selected pushing the special button.

The window located on the moving protection allows a visual control of the dough. Furthermore, it is possible to take out some dough samples and to adjust the mixture by adding small quantities of ingredients.

At the end of the cycle it is possible to stop the bowl rotation pushing the emergency-stop button. Now the dough can be taken out from the bowl after lifting the moving protection.

REMARKS: in order to make the bowl empty easily, it is possible to move the dough obtained to the extraction zone, by using the "bowl reversal rotation" selector.

This operation, which allows to rotate only the bowl, will be possible even if the protection of the bowl is open: for safety reasons, the selector which controls the rotation of the bowl has an automatic return, so that the action will be performed only if the selector is maintained in the desired position.

Automatic cycle

Select the automatic cycle on the control panel (see figure) and set in the two timers the time for the pre-mixture and mixture.

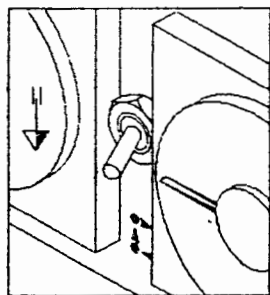


Figure 20

Load the ingredients and run the machine with the first speed pushing the suitable button. To invert the bowl rotation it is necessary to maintain the special selector in the suitable position. This operation allows to reduce the time of the ingredients mixture. When this action is finished, the above mentioned selector must be released to go back (anticlockwise) to the normal position.

The shift from the pre-mixture to the mixture is obtained by the first speed timer automatically. The second speed timer controls the mixture time and stops the machine at the end.

The window located on the moving protection allows a visual control of the dough. Furthermore, it is possible to take out some dough samples and to adjust the mixture by adding small quantities of ingredients.

REMARKS: in order to make the bowl empty easily, it is possible to move the dough obtained to the extraction zone, by using the "bowl reversal rotation" selector.

This operation, which allows to rotate only the bowl, will be possible even if the protection of the bowl is open: for safety reasons, the selector which controls the rotation of the bowl has an automatic return, so that the action will be performed only if the selector is maintained in the desired position.

7.7 SAFETY SYSTEMS DESCRIPTION

Moving protection

In any case if the protection (A) is lifted a microswitch (B) will stop the machine.

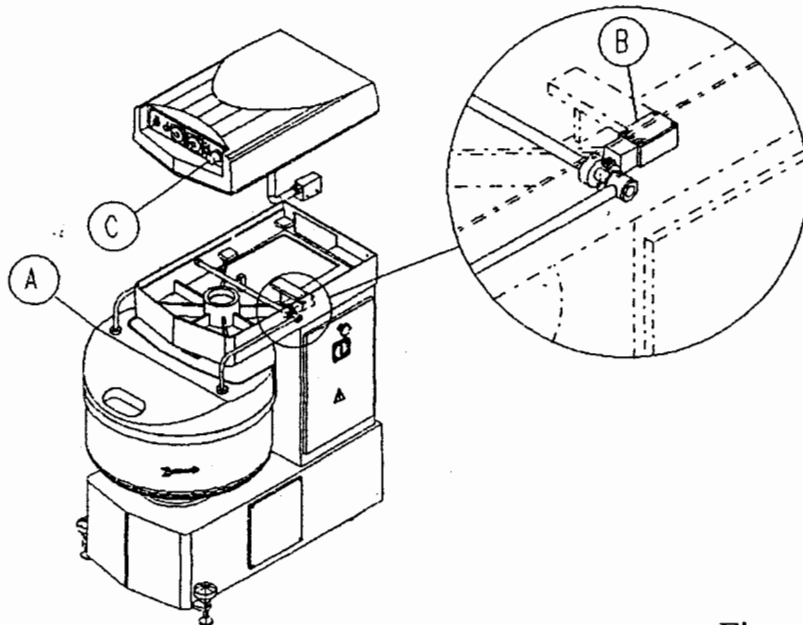


Figure 21

Emergency

The emergency button (C) located on the control panel of the machine, can be used to stop immediately the bowl and the spiral rotation.

7.8 SAFETY SYSTEMS EFFICIENCY

If one of the safety systems is connected, the stop of spiral and bowl rotation will not be instantaneous but gradual. This action is due to the system inertia and it does not take more than 4 seconds.

A rapid stop would cause stresses and fatigue failures.

7.9 CHECKS BEFORE WORKING

Before working, check:

- the machine stability;
- the connection to the electric outlet;
- the cleaning of the parts.

8 USE OF THE MACHINE

8.1 WARNING

A correct use of the machine needs to control the kind of the ingredients to knead and their quantity, which would not have to exceed the maximum allowed.

8.2 ADJUSTMENT

Stability

To regulate the machine stability adjust the front plates (C) taking care that the front rotating-wheel (B) does not lay on the floor.

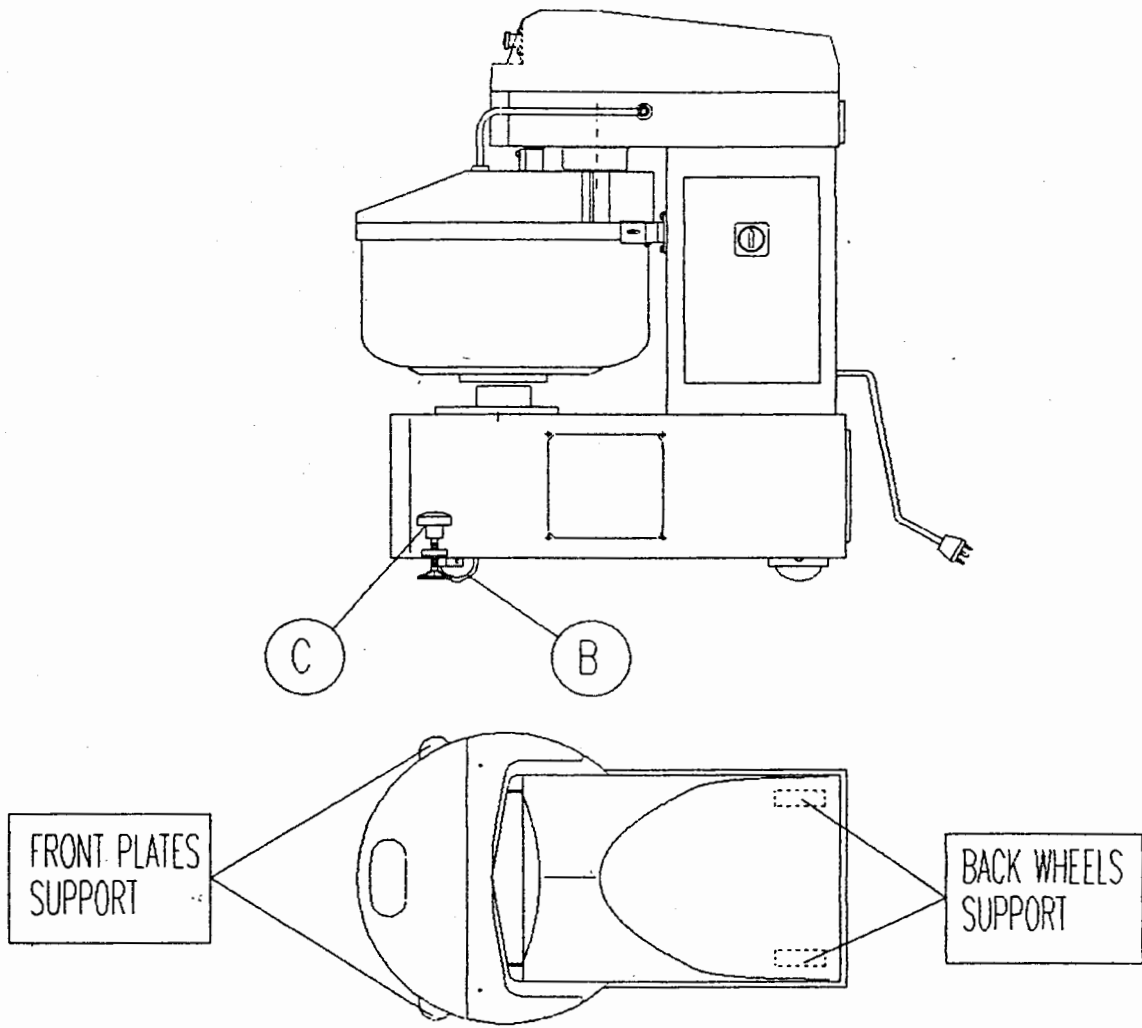


Figure 22

Lifting of the moving protection

The regulation of the lifting is done during the tests in the constructor's workshop.

If the moving protection (A) is lifted while the machine is running, the cam (B), positioned inside of the machine head, will turn on a microswitch (C) which will transmit the stop input.

The cam is regulated so that it turns on the microswitch as soon as the moving protection is lifting.

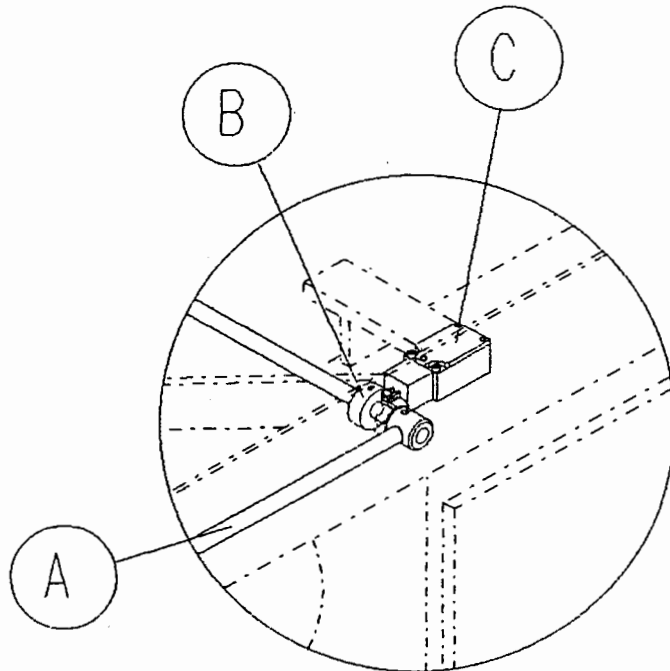


Figure 23

8.3 CLEANING

The machine has been made to work foodstuffs, so a thorough daily cleaning is necessary.

Body of the machine

It must be cleaned only with a soaked sponge in water.

Bowl

To remove the waste of dough, use only water and a suitable plastic paddle.

Floor under the machine

To clean this zone it is necessary to move the machine, obviously after having unplugged the cable (D) and unlocked the front fastening plates (C).

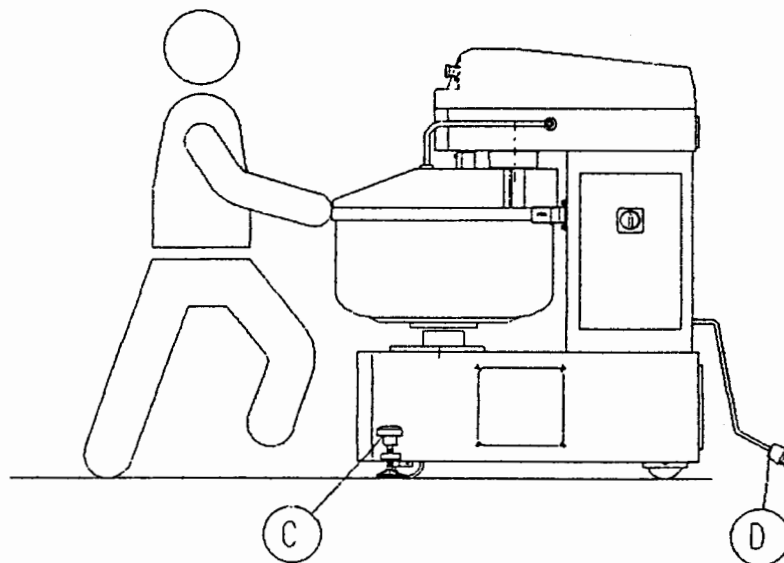


Figure 24

9 SAFETY INSTRUCTIONS

9.1 WARNING

The machine has been designed and produced to guarantee the largest safety.

The protections and the safety systems do not restrict in any way the functional capacity and the easy use of the machine.

9.2 GENERAL CRITERIA

The mechanic parts and above all the moving members have been designed for a safe running reliable in the long periods.

The electric components guarantee safety for every single component and connection.

9.3 REFERENCE STANDARDS

The model of machine herein described follows the 89/392 EC directive and its subsequent changes and takes reference from the following standards:

- UNI EN 292-1; UNI EN 292-2 Basic concepts for the safety of machines and general concepts for their design
- UNI EN 294 Safety distances
- UNI EN 349 Minimal change in order to prevent crashing
- EN 60204-1 Electrotechnic aspects
- Pr EN 453 Machines for the foodstuffs production, Kneading-machines

9.4 PEOPLE RISKS

There will not be risks for operators if the machine is used correctly with the suitable ingredients.

Maintenance

Maintenance and repairs have to be made respecting the prescriptions given in chapter 10.

Both of them can be executed by trained and authorised personnel only.

9.5 ENVIRONMENTAL CONDITIONS AND NOISE

As explained in chapter 6, there are not any particular limits for the machine placing.

In the worst operative conditions the noise does not exceed 75 dB.

The records of noise survey are reported in the Technical Booklet.

10 MAINTENANCE AND REPAIR

10.1 WARNING

For every kind of maintenance it is necessary first to disconnect the machine from the electric source.

Clean daily.

A good cleaning prevents to pile up materials and dust, which can damage the moving parts.

10.2 MAINTENANCE

A preventive maintenance can be done controlling the wear and the tension of the belts monthly.

The substitution of the driving belts will have to be done in case of fraying or excessive tension, even if there are no failures in the belts yet.

In this case it is necessary to substitute the whole set of belts.

The wearing out of the bearings also may be possible, so their substitution can be required: this service has to be performed by a technician with a proper equipment.

10.3 INSTRUCTIONS FOR THE ADJUSTMENT OF BELTS TENSION AND THEIR REPLACEMENT

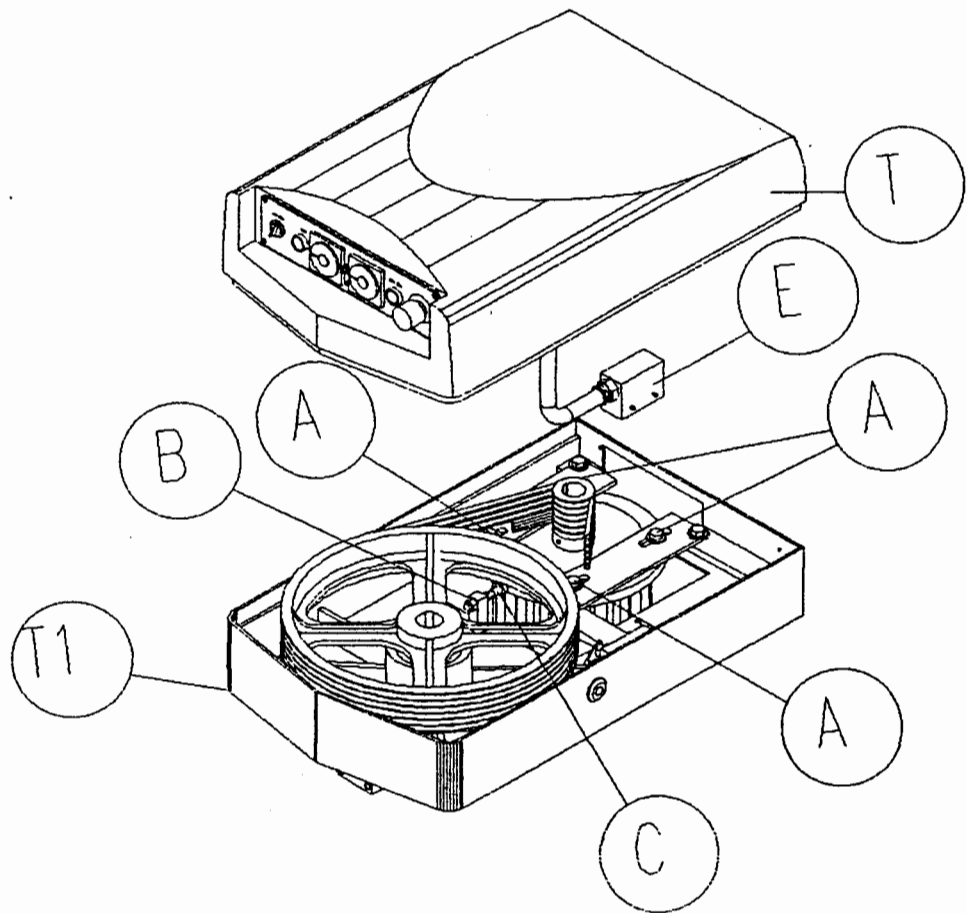


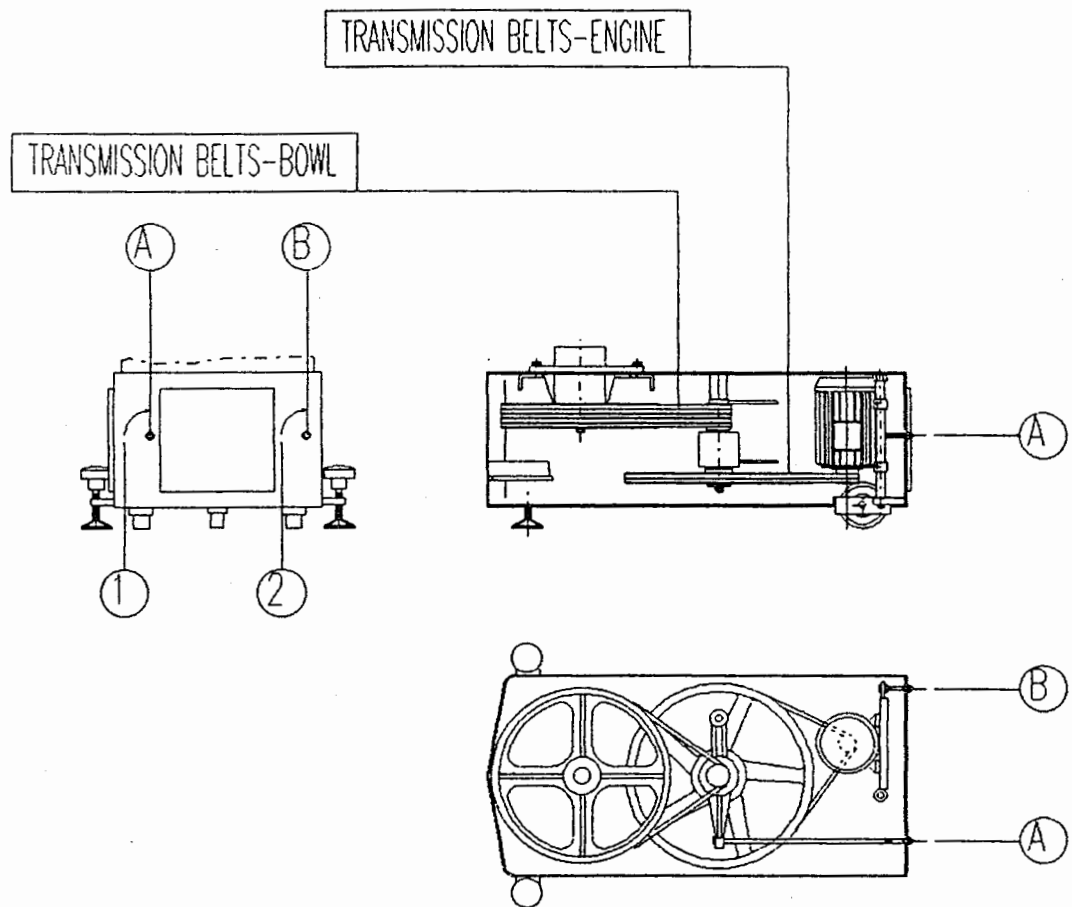
Figure 25: mechanism of spiral driving belts, in the head of the machine

Adjustment of spiral tool driving belts tension and their replacement.

The adjustment of the belts tension will have to be done if, some slowing down of the spiral tool rotation is noticed during the working cycle.

Follow the steps given below:

- 1- lift the guard of the head (part. T) and disconnect the connector (part. E);
- 2- unloosen the four screws (pos. A) which support the engine, without unscrewing them completely;
- 3- screw out the nut (part. B)
 - as a result of these actions, the belts are slack and it is possible to replace them: before replacing them, it is necessary to make sure that the new belts have the same characteristics as the ones installed by the constructor
- 4- set the belts tension by the screw (part. C);
- 5- lock the nut (part. B);
- 6- lock the four screws (pos. A) which support the engine;
- 7- reconnect the connector (part. E);
- 8- reset the guard (part. T) in the right position closing the head(part.T1).



pos. 1: DIRECTION OF ROTATION FOR THE SCREW WHICH
ADJUST THE TENSION OF THE TRANSMISSION BELTS -
BOWL PULLEY

pos. 2: DIRECTION OF ROTATION FOR THE SCREW WHICH
ADJUST THE TENSION OF THE TRANSMISSION BELTS -
ENGINE

Figure 26: mechanism of the bowl driving belts, in the machine bed.

Adjustment of the bowl driving belts tension and their replacement.

If during the working of the dough a slowing down is noticed in the bowl rotation, follow the steps below:

- 1- to stretch the belts transmission - bowl pulley, turn clockwise the nut with the spanner (part. A);
- 2- to stretch the belts transmission - engine, turn clockwise the nut with the spanner (part. B).

To replace the belts it is necessary first to turn anticlockwise the nut (part. B) and then in the same direction (anticlockwise) the nut (part. A).

After these actions the belts are slack and it is possible to replace them, only if the new belts have the same characteristics as the ones set up by the constructor.

10.4 ASSEMBLY DRAWINGS FOR SPARE PARTS

Drawings and their technical data

1st Table: exploded view of the head group;

2nd Table: exploded view of the base group;

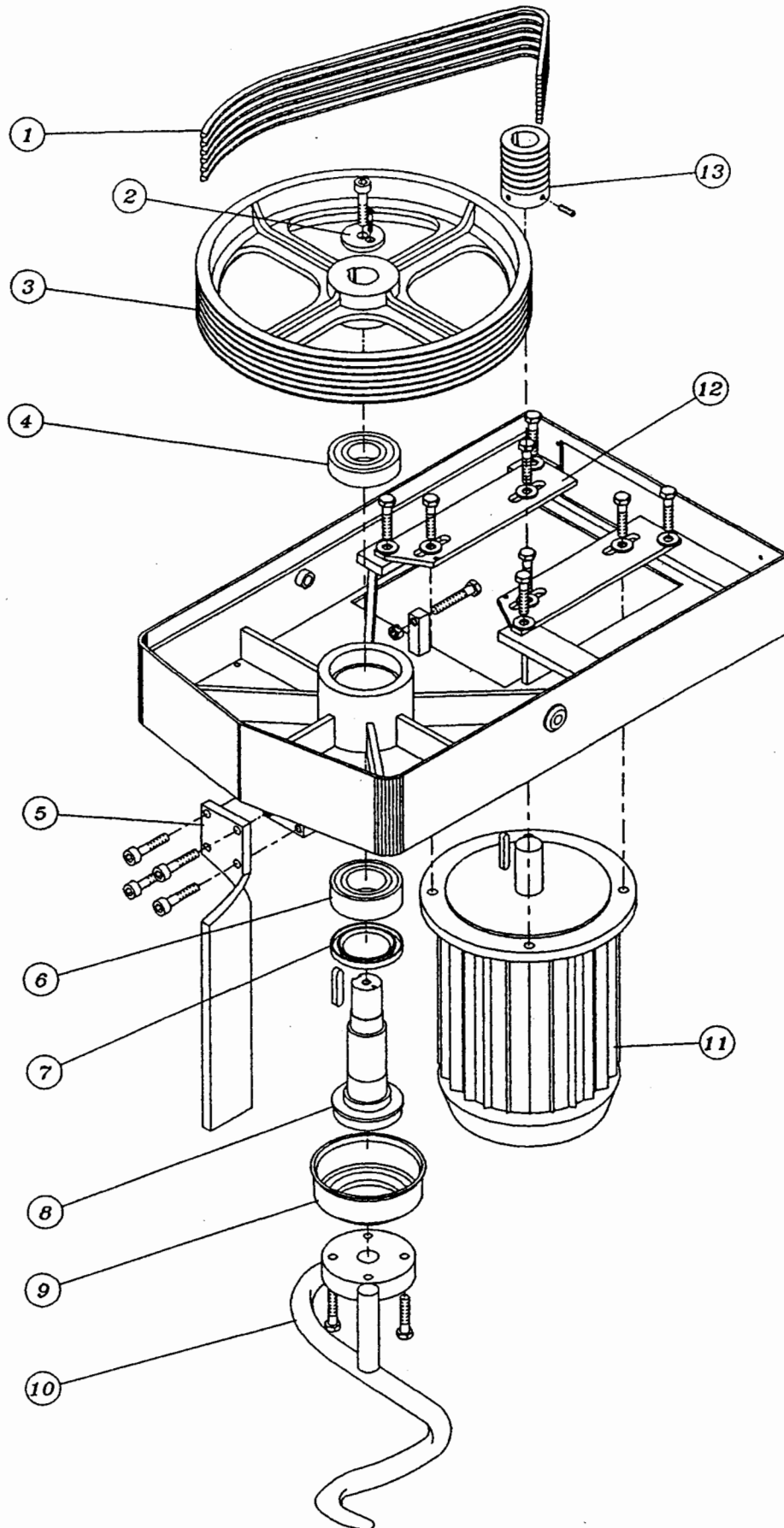
3rd Table: exploded view of the structure group.

Instructions to request spare parts

To request the spare parts it is necessary to indicate the following detailed list:

- model;
- serial number;
- table;
- position;
- description;
- quantity;
- code.

1st Table: exploded view of the head group

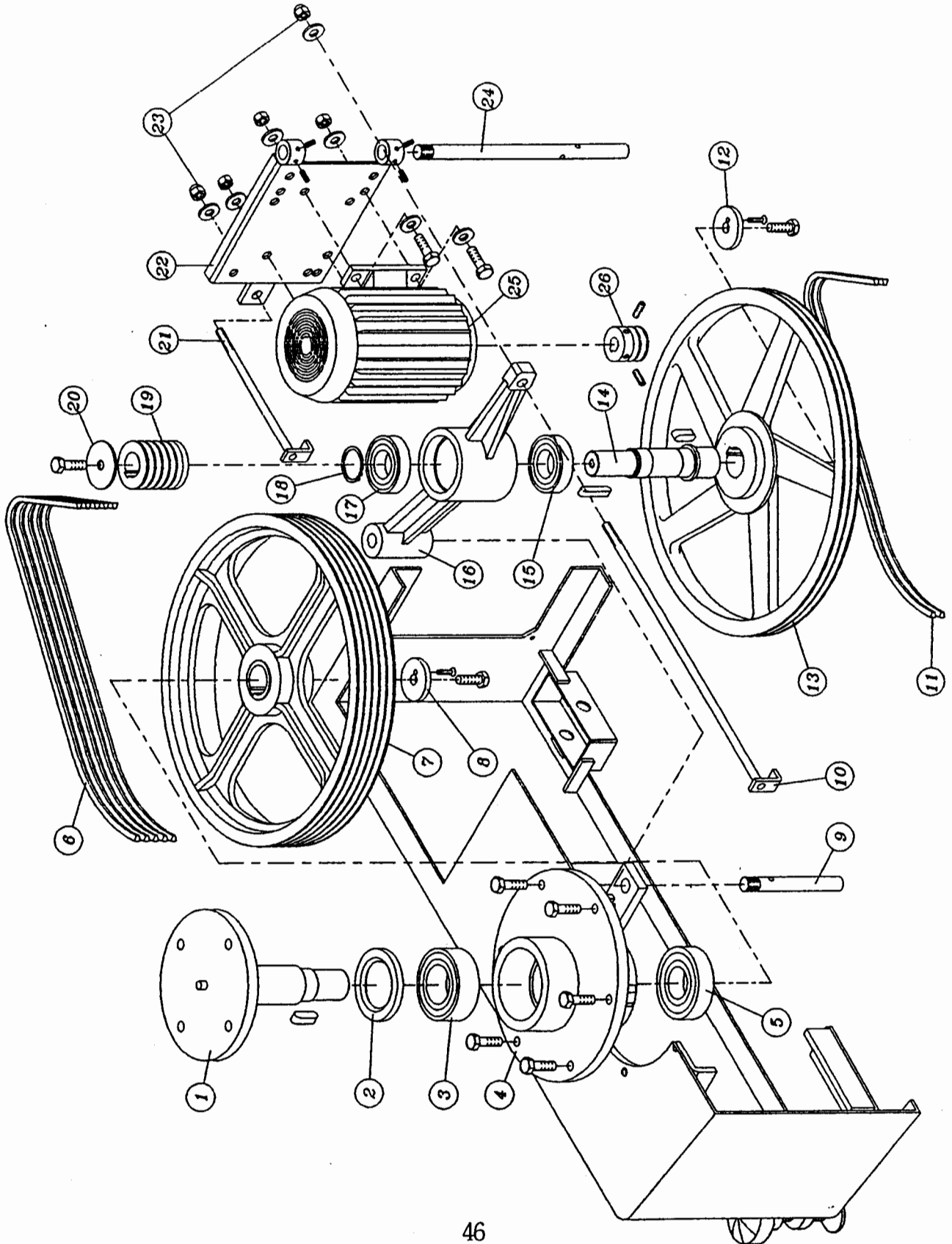


MODEL ASP-

1st TABLE

POSITION	DESCRIPTION	QUANTITY	CODE
1	Belts SPZ 1637	6	
2	Washer	1	16.00.00
3	Spiral pulley p.d.430 with 6 races	1	40.00.01
4	Bearing 6309 2RS	1	
5	Column	1	37.00.00
6	Bearing 3211	1	
7	Seal 65/100/12	1	
8	Spiral supporting shaft	1	20.00.00
9	Cup	1	26.00.00
10	Spiral with hub	1	29.00.00
11	Spiral engine 132 4/8 poles kW 2/4 B5	1	
12	Spiral engine frame	2	25.00.00
13	Spiral pulley of engine p.d. 62.5 with 6 races	1	09.00.01

2nd Table: exploded view of the base group

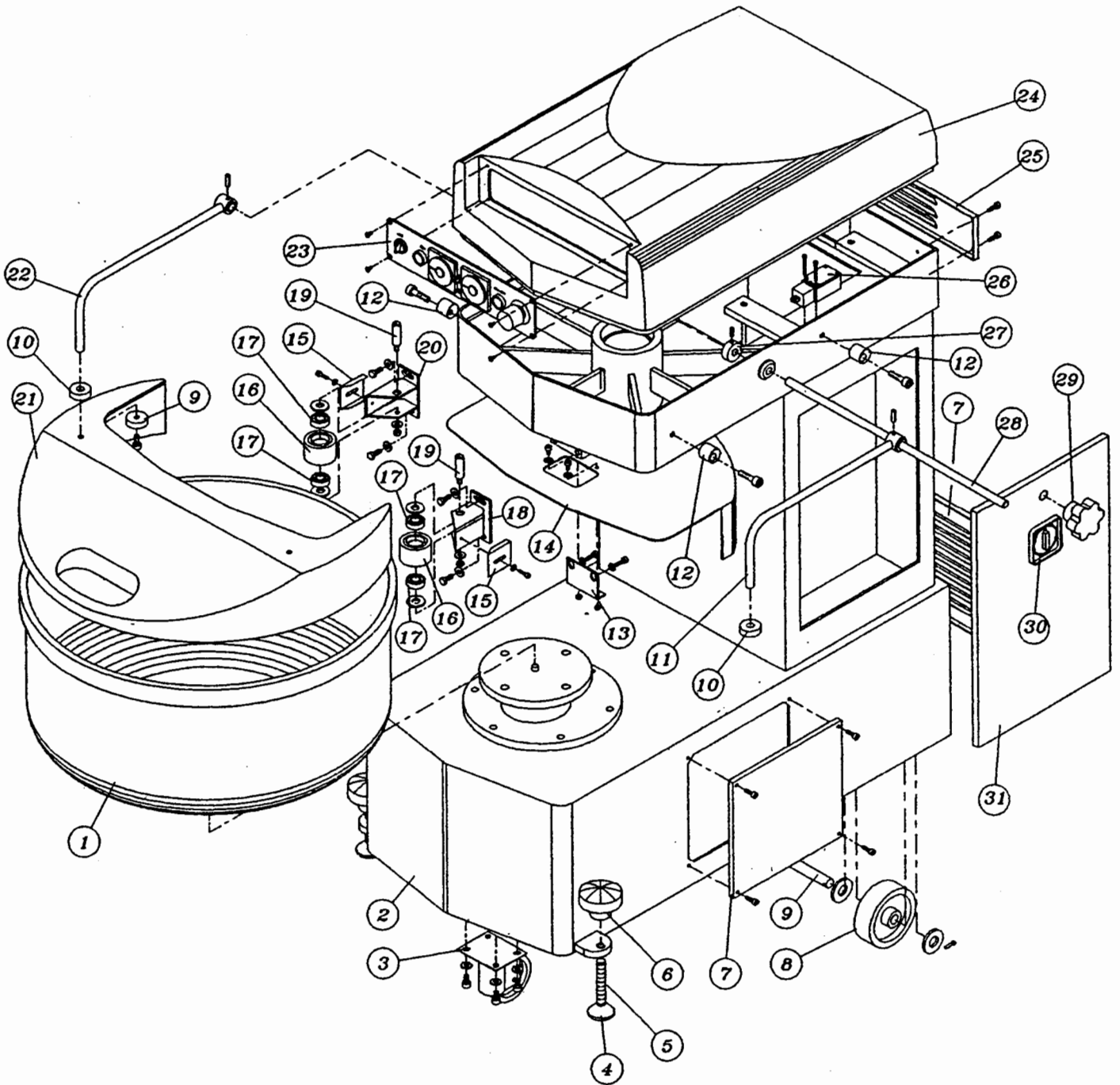


MODEL ASP-

2nd TABLE

POSITION	DESCRIPTION	QUANTITY	CODE
1	Bowl supporting shaft	1	18.00.00
2	Seal 65/100/12	1	
3	Bearing 3211	1	
4	Bowl supporting shaft	1	39.00.00
5	Bearing 6309 2RS	1	
6	Belts SPZ 1412	5	
7	Bowl pulley p.d. 430 with 5 races	1	41.00.04
8	Washer	1	16.00.00
9	Clutch pin of the transmission support	1	15.00.00
10	Belt tightening pulley	1	33.00.00
11	Belts SPZ 1637	2	
12	Washer	1	16.00.00
13	Snub pipe pulley p.d.480	1	42.00.00
14	Transmission shaft	1	19.00.00
15	Bearing 6208 2RS	1	
16	Transmission support	1	38.00.00
17	Bearing 6208 2RS	1	
18	Seeger ring E 39 UNI	1	
19	Bowl driving pulley p.d.56 with 5 races	1	11.00.04
20	Washer	1	16.00.00
21	Belt tightening pulley	1	33.00.00
22	Engine frame	1	12.00.00
23	Nut for the belt tightening pulley	2	
24	Clutch pin of the engine frame	1	13.00.00
25	Bowl engine 80 6 poles kW 0,55	1	
26	Pulley of the bowl engine p.d. 45 with 2 races	1	10.00.00

3rd Table: exploded view of the structure group



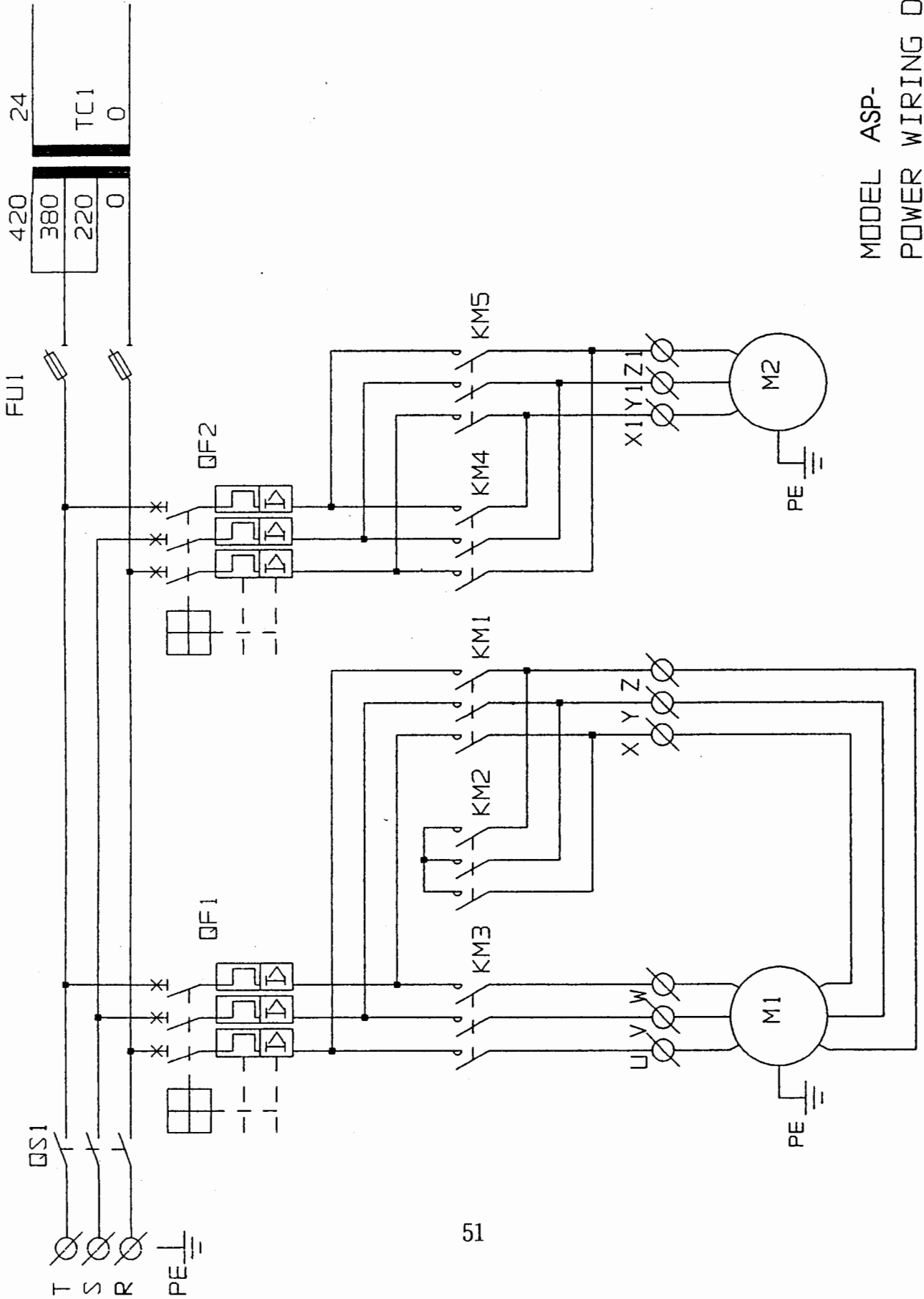
MODEL ASP-

3rd TABLE

POSITION	DESCRIPTION	QUANTITY	CODE
1	Bowl D.680	1	35.00.01
2	Machine frame	1	01.00.00
3	Front revolving wheel	1	
4	Base of the front foot	2	60.00.00
5	Pin of the front foot	2	59.00.00
6	Handwheel of the front foot	2	58.00.00
7	Base guard	2	04.00.00
8	Back wheel	2	
9	Wheels clutch pin	2	14.00.00
10	Bush for the connection of the guard	4	23.00.00
11	Right arm	1	30.00.00
12	Guard regulating eccentric pin	4	21.00.00
13	Guard fastening bracket	1	53.00.00
14	Stationery guard	1	43.00.01
15	Thrust roller support guard	2	52.00.00
16	Thrust roller	2	08.00.00
17	Bearing 6202 2RS	4	
18	Right thrust roller support	1	24.00.00
19	Thrust roller clutch pin	2	07.00.00
20	Left thrust roller support	1	06.00.00
21	Mobile guard	1	44.00.01
22	Left arm	1	31.00.00
23	Control panel	1	36.00.03
24	Cover head	1	45.00.00
25	Guard head	1	04.00.03
26	Microswitch safety guard	1	
27	Cam microswitch	1	17.00.00
28	Clutch pin safety guard	1	22.00.00
29	Closing handwheel guard	1	
30	Main switch	1	
31	Column closing guard	1	05.00.00

11 . WIRING DIAGRAMS AND ELECTRIC COMPONENTS LIST

TABLE 4

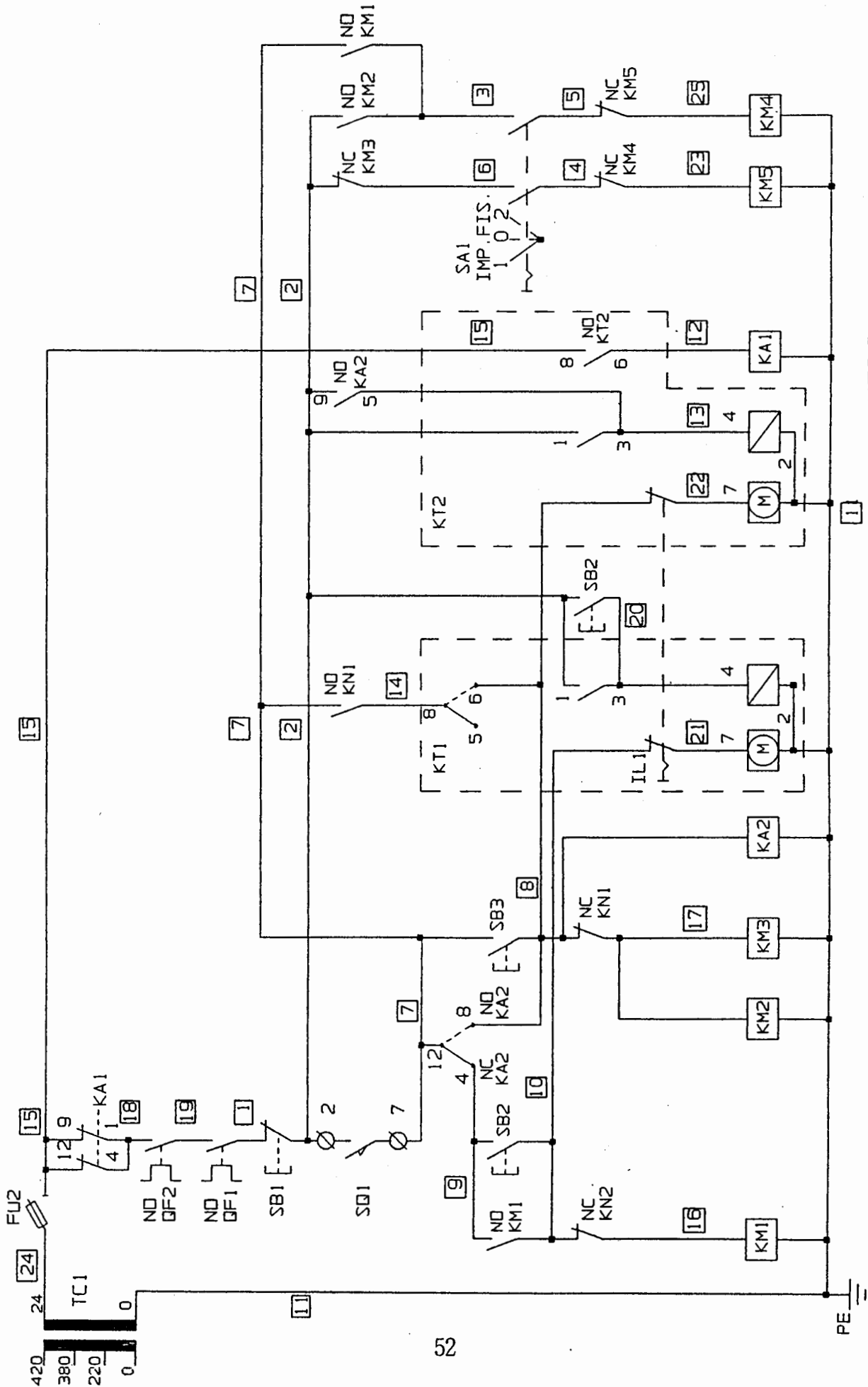


MODEL ASP-
POWER WIRING DIAGRAM

BOWL ENGINE

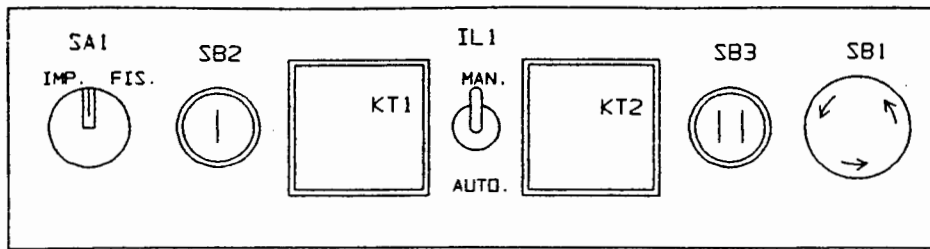
ENGINE OF THE SPIRAL

TABLE 5

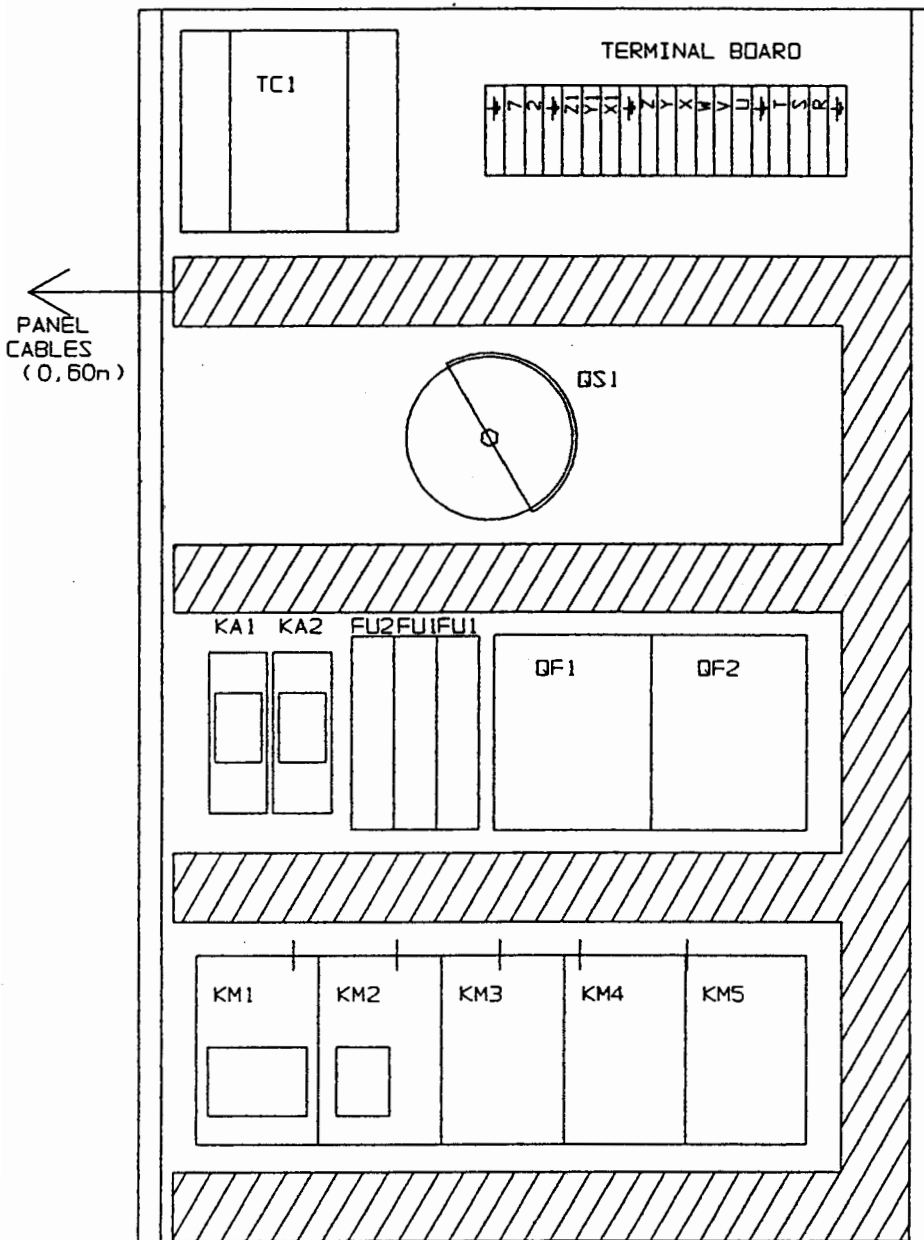


MODEL ASP-
CONTROL WIRING DIAGRAM

TABLE 6



CABLES TO THE ELECTRIC PANEL PASSING THROUGH THE CONNECTOR J1 (1,20n)



MODEL ASP- WIRING COMPONENTS ARRANGEMENT

TABLES 4 - 5 - 6
ELECTRIC MATERIALS LEGEND FOR ASP- 220V 50/60 Hz STSTEM

1.	M1	Spiral tool Motor		
2.	M2	Bowl Motor		
3.	PT	Transformer	TRANS	200VA
4.	MF1	Magnert thermal	Allen - Bradley	140 - MN - 2000
5.	MF2	Magnert thermal	Allen - Bradley	140 - MN - 1000
6.	MC1	Contactor	Allen - Bradley	100A24NL3
7.	MC2	Contactor	Allen - Bradley	100A24NL31
8.	MC3	Contactor	Allen - Bradley	100A24NL31
9.	MC4	Contactor	Allen - Bradley	100A09NL31
10.	MC5	Contactor	Allen - Bradley	100A09NL31
11.	F1	Fuse	HAGER	10.3 × 38 2A
12.	F2	Fuse	HAGER	10.23 × 38 2A
13.	KA1	Auxiliary realy	IDEC	MY4S - U
14.	KA2	Auxiliary realy	IDEC	MY4S - U
15.	KA3	Auxiliary realy	IDEC	MY4S - U
16.	TM1	#1 speed timer	OMRON	H3BA
17.	TM2	#2 speed timer	OMRON	H3BA
18.	LS	Limit switch	Moujen	MEA - 9122G
19.	PB1	#1 Speed Push button	Allen - Bradley	800EP - F3 + 800E - 3X10
20.	PB2	Emergency push button	Allen - Bradley	800EP - MT4 + 800E - 3X01
21.	PB3	#2 speed push button	Allen - Bradley	800EP - F3 + 800E - 3X10
22.	SW1	3 postiion selector	Allen - Bradley	800EP - SM32 + 800E - 3X10
23.	SA2	A/M selector	TEND	DPDT 6A 250VAC
24.	J1	16 pole connector	WIELAND	70 - 350 - 1628

TABLES 4 - 5 - 6
ELECTRIC MATERIALS LEGEND FOR ASP- 380V 50Hz STSTEM

1.	M1	Spiral tool Motor		
2.	M2	Bowl Motor		
3.	PT	Transformer	TRANS	200VA
4.	MF1	Magnert thermal	Allen - Bradley	140 - MN - 2000
5.	MF2	Magnert thermal	Allen - Bradley	140 - MN - 1000
6.	MC1	Contactora	Allen - Bradley	100A24NL3
7.	MC2	Contactora	Allen - Bradley	100A24NL31
8.	MC3	Contactora	Allen - Bradley	100A24NL31
9.	MC4	Contactora	Allen - Bradley	100A09NL31
10.	MC5	Contactora	Allen - Bradley	100A09NL31
11.	F1	Fuse	HAGER	10.3 × 38 2A
12.	F2	Fuse	HAGER	10.23 × 38 2A
13.	KA1	Auxiliary realy	IDEC	MY4S - U
14.	KA2	Auxiliary realy	IDEC	MY4S - U
15.	KA3	Auxiliary realy	IDEC	MY4S - U
16.	TM1	#1 speed timer	OMRON	H3BA
17.	TM2	#2 speed timer	OMRON	H3BA
18.	LS	Limit switch	Moujen	MEA - 9122G
19.	PB1	#1 Speed Push button	Allen - Bradley	800EP - F3 + 800E - 3X10
20.	PB2	Emergency push button	Allen - Bradley	800EP - MT4 + 800E - 3X01
21.	PB3	#2 speed push button	Allen - Bradley	800EP - F3 + 800E - 3X10
22.	SW1	3 postiion selector	Allen - Bradley	800EP - SM32 + 800E - 3X10
23.	SA2	A / M selector	TEND	DPDT 6A 250VAC
24.	J1	16 pole connector	WIELAND	70 - 350 - 1628

12 TRAINING OF THE PERSONNEL

12.1 WARNING

The operator must know all the functions of the control panel and every protections and safety systems installed.

12.2 PERSONNEL IN CHARGE

Operator

The operator must know: all the functions installed on the control panel, the safety systems, the working cycles, the ingredients which can be used, and the quantities allowed.

Maintenance engineer

The maintenance and repair actions must be performed by skilled personnel provided with suitable equipment (follow the instructions in chapter 10).

13 OTHER IMPORTANT WARNING FOR THE USE

- Before working:

the connection to the main power network must comply with the voltage, the frequency and the number of phases data , which are indicated in the plate.

Check the levelling and the steadiness of the machine (see chapter 6).

Do not remove or damage any protections or safety device.

- Loading of the ingredients:

the machine is able to knead a maximum quantity of ingredients as showed in paragraph 4.2.

- During the running:

If the machine is working, all the safety and protection systems will be connected..

The duration of the bowl reversal rotation can be chosen by the operator during the first speed running.

Repeated breakdowns during the working phase may overheat the engine and reduce its functionality.