

*OPERATING
AND MAINTENANCE MANUAL*

SPIRAL KNEADING MACHINE

- ZSP10
- ZSP20
- ZSP25
- ZSP30
- ZSP40

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Thank you for choosing this machine. We are sure that its performance will meet your requirements.

It is in your interest to keep the machine in perfect running order. In this handbook you will find the necessary instructions on how to use and service it.

SAFETY STANDARDS

Throughout the manual this symbol indicates important information warning you of any hazardous operation. Always read the message that follows it.



GENERAL WARNINGS

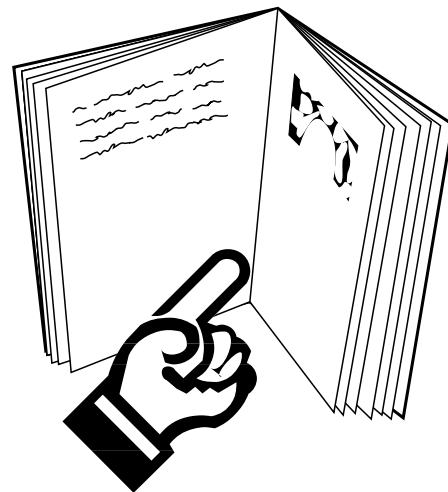


*This machine has been manufactured to make your work as safe as possible. **Caution is, nevertheless, the golden rule to follow to prevent accidents.***

KNOWING YOUR MACHINE



Caution: Store this manual in a safe place, near the machine, and disclose its storage location to all involved personnel.



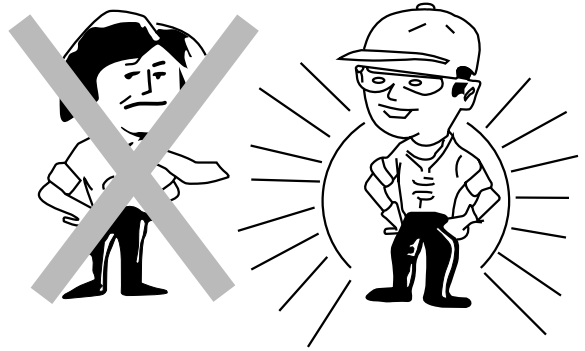
Do not put this manual away without having first read it, regardless of any previous personal experience. A little time spent in reading will save time and extra work.

Read this handbook thoroughly before proceeding with start-up, use, maintenance and other operations. Read and rigorously follow the herein contained instructions and recommendations:

- read all **warning labels** applied to any part of the machine, and promptly replace them when they become worn or illegible;
- only trained and **authorised personnel** should operate the machine;
- **if any part jams or locks up**, before clearing make sure you first switch off the motor. **DO NOT clean, oil or grease** by hand any moving parts of the machine. In addition, **all repair and setting operations** of any moving parts with the motor running, are prohibited, unless the necessary precautions to prevent any accidents have been taken beforehand;
- **all moving parts are fitted with adequate guards and protections.** Always remount them after removal for servicing.

WEAR ADEQUATE CLOTHING

Be sure to wear tight-fitting clothing without any loose parts. Never wear open or unfastened jackets, shirts or overalls.



IMPORTANT



To prevent accidents and ensure best performance **the machine must not be modified or altered** unless authorised by the manufacturer. Nor must it be used in conditions or for purposes other than those for which it has been expressly designed. Any arbitrary modification implemented in this machine will automatically **exempt the manufacturer from any liabilities** for ensuing damage or injury.

This machine has been designed and engineered in conformity to European directives 89/392 EC, 91/368 EC, 93/44 EC and 93/68 EC.

BE SURE TO READ “IMPORTANT” MESSAGES

Information highlighted as “**Important**” in the Operator’s Manual and/or machine indicate specific **instructions about settings, maintenance** and so on. Failure to comply with these instructions may lead to damage to the machine.

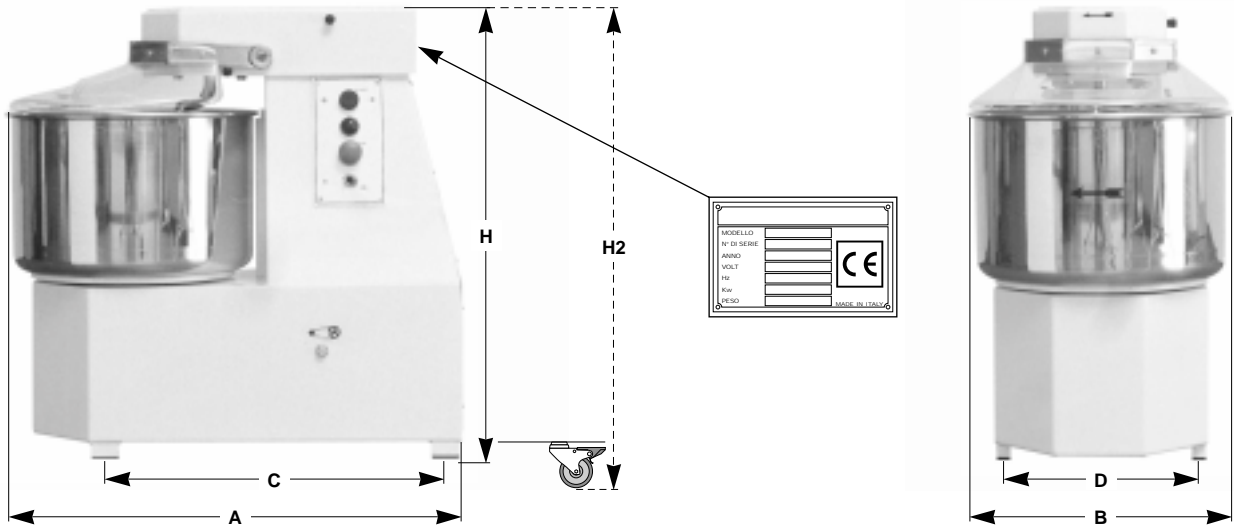
ELECTRICAL SHOCK

For your own personal safety, before connecting the machine to mains:

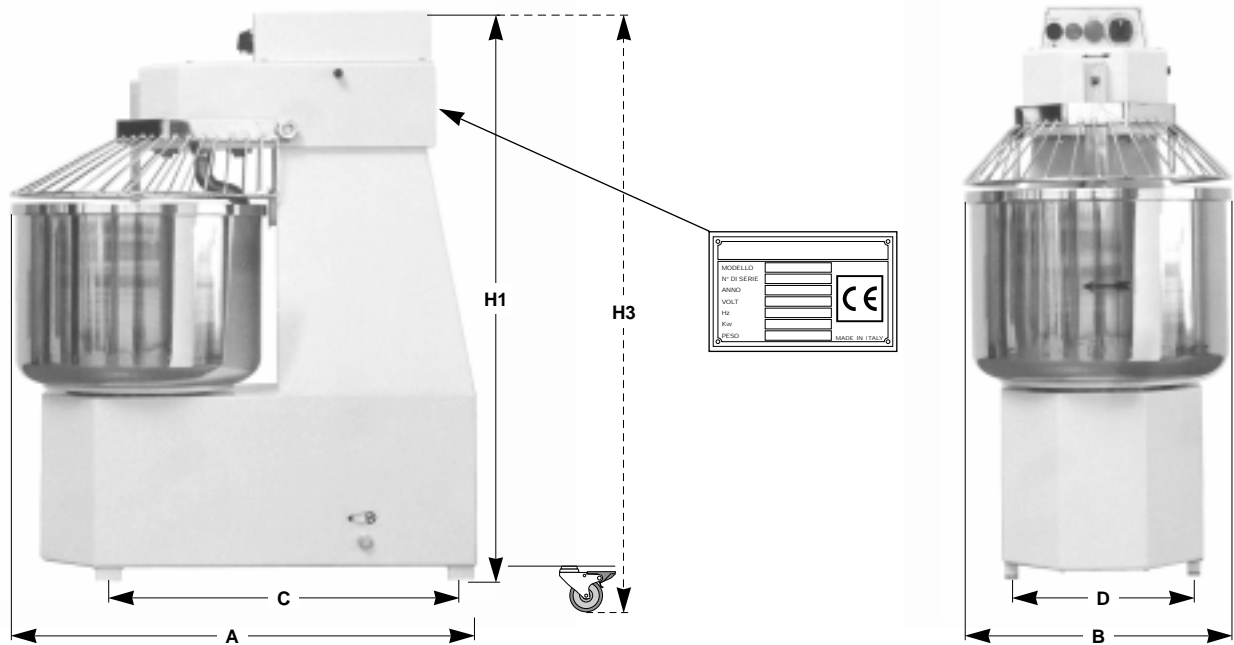
- check that power mains leading to distribution socket is fitted with an appropriate multipolar switch protected against overloads and shortcircuits.
- carry out all phase connections, as well as any neutral and ground connections (compulsory) with a standard plug compatible with the above mentioned socket. The protection lead (ground) is the one with the yellow/green insulating sheath; make sure that the power supply cable is appropriate to its use, according to length, mains voltage and machine consumption.
- unless adequate protections against electrical shock are fitted, do not operate the machine in damp or wet environments.

Strictly do not start up the machine without the protective panelling. This may jeopardise personnel safety and machine serviceability.

TECHNICAL SPECIFICATIONS OF MODELS ZSP10 - ZSP20 - ZSP25



TECHNICAL SPECIFICATIONS OF MODELS ZSP30 - ZSP40



SPECIFICATIONS TABLE OF MODELS ZSP10 - ZSP40

Model	A Length mm.	B Width mm.	C Feet dist. mm.	D Foot width mm.	H mm.	H1 mm.	H2 mm.	H3 mm.	Mass N (1 Kg)	Motor power 1 speed KW	Motor power 2 speeds KW	Kneading capacity N
ZSP10	520	280	320	210	580	/	670	/	47	0.55	0.45/0.3	10
ZSP20	690	390	495	265	670	/	760	/	73	0.75	1.1/0.75	20
ZSP25	720	420	510	285	670	/	750	/	72	0.75	0.75/0.5	25
ZSP30	760	420	555	280	/	910	/	1000	112	1.10	1.4/1.1	30
ZSP40	810	480	575	300	/	950	/	1040	124	1.10	1.4/1.1	40

FIXED BOWL SPIRAL KNEADING MACHINE

for pizzerias, bakeries and confectioneries

- Stainless steel bowl with high resistance stainless steel spiral tool.
 - Moving parts mounted on ball bearings with long-life sealing gaskets.
 - Safety device for complete locking of moving parts and controls.
 - Facility to tension belts externally.
 - Electrical circuit with control parts in low voltage 24 V for more safety.
 - Connection by flameproof power cable according to necessary supply voltage, standard length L = 3 m, without terminal plug.
 - Protection of iron parts by furnace coating with epoxy powders.
- Power supply voltages:
STANDARD: V = 220 V Single-phase 50 Hz
220 V Three-phase 50 Hz
380 V Three-phase 50 Hz
ON REQUEST: V = 220 V Single-phase 60 Hz
220 V Three-phase 60 Hz
240 V Single-phase 50 Hz
415 V Three-phase 50 Hz

SPECIFICATIONS FOR MODELS ZSP10 - ZSP40:

- Belt drive system with reduction mechanism by maintenance-free worm screw transmission and/or with chains.
- Machine fitted with support feet with elastic damper, or optionally with wheels, with or without brake, for easy maintenance and cleaning.
- Standard accessories include control timer and automatic “stop process” feature (only for models ZSP30, ZSP40).
- Facility to actuate with two-speed motor on request in models ZSP10 and ZSP40.

MACHINE APPLICATIONS

The machine is a processor of cereal flour doughs and pastries for pizzahouses, bakeries and confectioneries.

WARNING



For reasons of hygiene, health and warranty, it is strictly prohibited to use the machine for the processing of substances other than foods. Any other uses are contrary to the applications as originally intended by the manufacturer, who shall consequently not be held liable for any damage to the machine itself or to other objects, or for any injuries to persons that may arise thereof. In taking the risk of misuse, the user will be held responsible for any consequences.

1. OPERATING PRINCIPLE

The process consists in mixing flour, water, salt, yeast and any other food ingredient to the desired consistency.

This is performed by a stainless steel spiral (Fig. 1 A) synchronised with bowl rotation (Fig. 1 B).

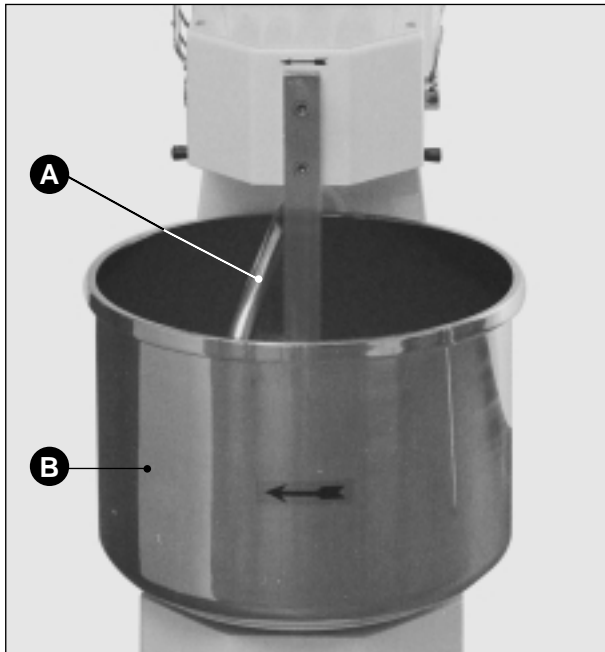


Fig. 1

2. PREPARING THE MACHINE

Prepare the machine before every process cycle.

BE SURE that the machine, especially parts which come in contact with food products (spiral, bowl and column when present) are perfectly clean; where necessary clean with hot water and spirit (see chapter 6 CLEANING on page 9).

 **Clean with machine off.**

3. OPERATING THE MACHINE

After having ensured perfect cleanliness of the machine, proceed with dough-making operations as required.

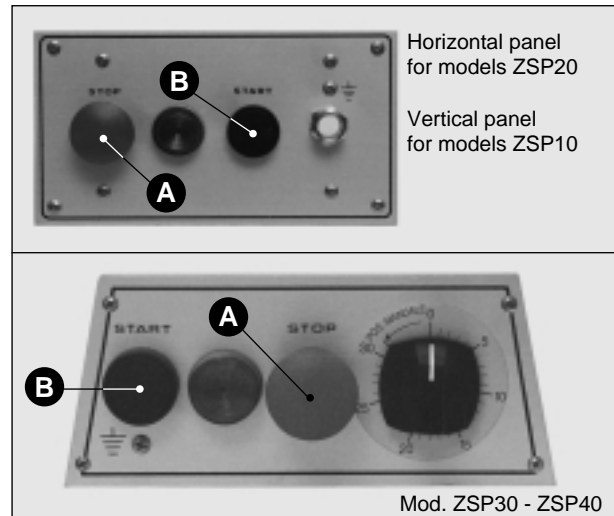


Fig. 2

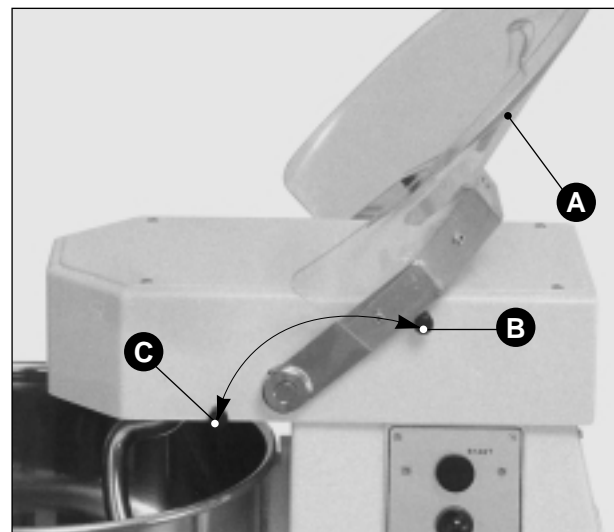


Fig. 3

3.1 LOADING AND STARTING


Press the stop pushbutton (Fig. 2 A) to make sure the machine is off.

Raise the bowl guard (Fig. 3 A) until it stops against the rubber rest (Fig. 3 B).

Load the machine with ingredients of the type and quantity required.

Lower the bowl guard on its rest (Fig. 3 C).

Press the start pushbutton (Fig. 2 B).

 **CAUTION:** the machine will run only if the safety microswitch is serviceable and perfectly positioned.

3.2 MACHINES EQUIPPED WITH TIMER

For machines equipped with control timer, before pressing the start pushbutton, set the required time (Fig. 5 A).

When set time runs out the machine stops automatically. When set time runs out the machine stops automatically.

In the event that you need to use manual controls, eliminate timer operation by setting to "SER.CONT" or "POS.MAN." (Fig. 4 A).

3.3 TWO-SPEED MACHINES

To start the machine set the commutator to the required speed (Fig. 5 B).

Depress the start pushbutton (Fig. 5 C).

If you want to change speed with the machine in operation, first set the commutator to "0" then set the new speed (Fig. 5 B).

Subsequently press the start pushbutton (Fig. 5 C).

Caution: if the commutator remains in position "0" it is impossible to start the machine.

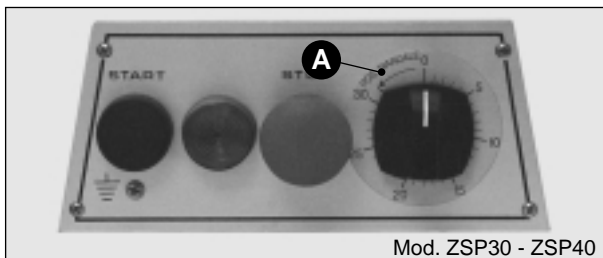


Fig. 4

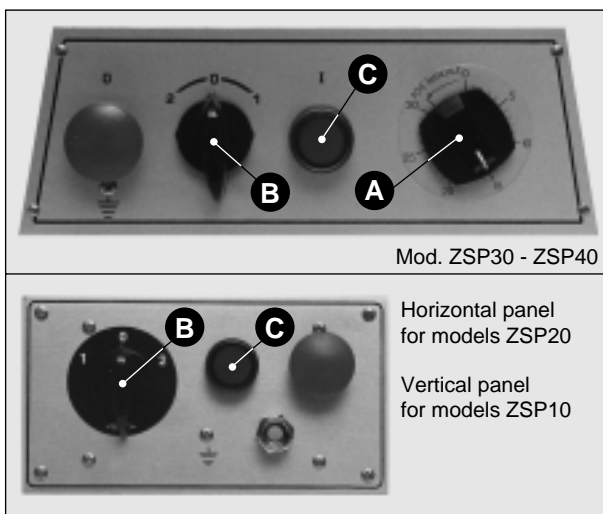


Fig. 5

3.4 UNLOADING THE MACHINE

At the end of the time period set for the process, press the stop pushbutton (Fig. 6 A).

Note: machines equipped with timer (Fig. 6 B) will stop automatically.

Raise the bowl guard, remove the dough, and thoroughly clean all parts affected by the process immediately after (see chapter 6 CLEANING on page 9).

At the end of the operation, close the guard.

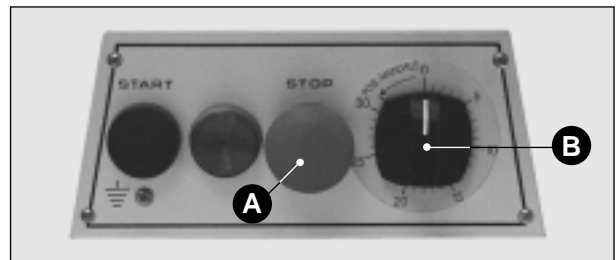


Fig. 6

3.5 VARYING INITIAL MIXTURE DOSES

If you need to vary the initial mixture doses by adding or changing the percentage of the ingredients, use the food slots without stopping the machine or raising the guard.

4. TRANSPORT AND HANDLING

The machine, pallet-mounted at origin, is shipped enclosed in an appropriate packing and strapped to the wooden pallet itself (Fig. 9).

Machine packing also encloses an instructions handbook and statement of conformity to EC directive 89/392 EC.

When unloading the machine from the transport vehicle, lift from the points marked on the packing using suitable equipment.

Unless you need to check its contents, you are recommended not to open the packing until the moment of installation.

To transport the machine to the installation site, use a trolley of adequate carrying capacity.

The machine is shipped packed in a closed crate, secured by wooden cross bars and enclosed by a plastic cover.

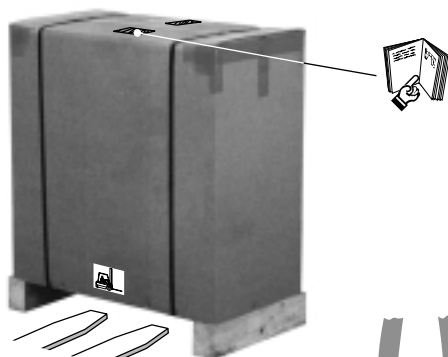


Fig. 9



Fig. 10 Mod. ZSP10 - ZSP20




Fig. 11 Mod. ZSP30 - ZSP40

ZSP10 - ZSP60 models (Fig. 10-11)

Remove straps, packing and polystyrene strips. Dispose of this material according to the regulations in force. Lift the machine and place on the installation site.

Remove the supporting pallet using straps of suitable carrying capacity (approx. 6 times the weight of the machine). These will have to be slipped under the spiral holder head. The whole operation is to be controlled by adequate manual or power-driven lifting equipment.

5. INSTALLATION, CONNECTIONS AND SET-UP

 *Install and use the machine in a room that can be efficiently ventilated, and where the floor is level, compact and easy to clean.*

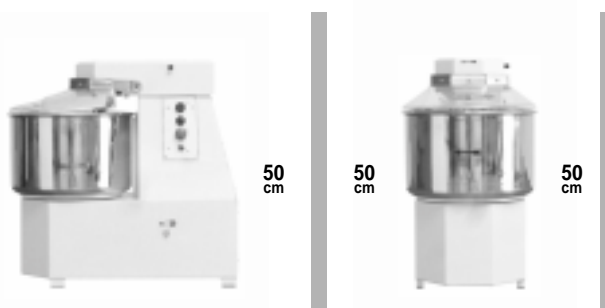


Fig. 14

If floor is uneven, to prevent instability and machine movements, shim feet with strips of hard rubber. Position the machine as preferred, leaving a free space of approx. 50 cm all round (Fig. 14).

This will enable unhindered access for actual operation, as well as for cleaning and maintenance. In machines equipped with wheels, be sure to apply brakes by pressing the lever down (Fig. 15 A).



Fig. 15

Be sure that machine voltage is the same as that distributed by power mains (see rating plate in machine rear, page 4).

For connection to electrical system, fit a suitable plug to the machine power supply cable.


 **Warning:** have the plug fitted to the power supply by qualified personnel. Take the necessary precautions to prevent the cable from being crimped or damaged.




Fig. 16

After mating the plug to the mains socket, the machine is ready for use.


First, however, **check out proper operation** of all moving parts and components of the machine. Thus, check:

- **rotation direction of bowl** (compare with arrow on bowl) **and spiral**;
- **safety device serviceability:** device is serviceable when machine stops the moment the guard is lifted by 10-15 mm (Fig. 16 **A**);
- **operation of pushbuttons and pilot lamp.**

 **Important:** If the machine or some of its parts fail, **call your local authorised dealer or concessionaire for repairs.**

Note: for machines with three-phase power supply: in case of counter rotation, invert two phases of the power supply plug. Check bowl rotation each time you replace the power supply plug or change power mains socket.

6. CLEANING

 **Warning:** For healthy and hygienic processing of nutritional products, be sure to keep your machine and the surrounding environment clean. Always cut off power supply before cleaning.

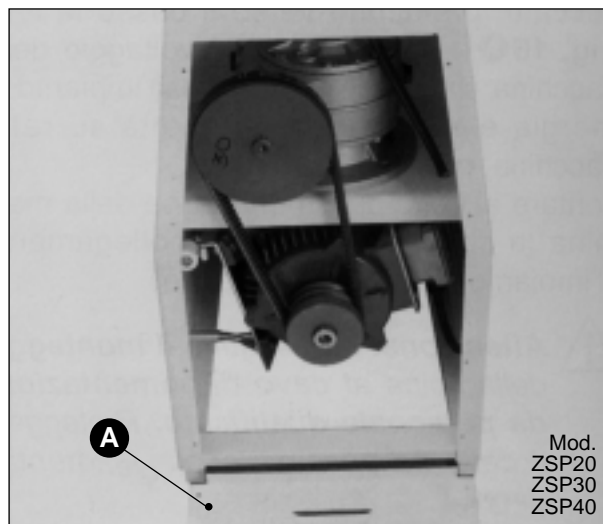



Fig. 19

After use, especially since processed material is still soft, always thoroughly clean guard, bowl, spiral and column. Inspect and, if necessary, clean the process tools again before a fresh kneading operation.

Use hot water to remove and rinse off any residual dough. Dry with nutritional absorbent paper and disinfect with a soft cloth dabbed in alcohol.

 **Warning:** never use non-nutritional, abrasive or corrosive chemicals to clean. Also never use coarse or abrasive objects such as steel wool, abrasive sponges and so on.

To clean machine internal and external parts:

- remove power supply plug from power mains socket;
- clean coated surfaces with soft cloth and disinfect with alcohol;
- to clean internal parts of machine, first dismantle the rear panel (Fig. 19 **A**, previous page); remove any grease and pow-

der from the food products processed; then reassemble the panels.

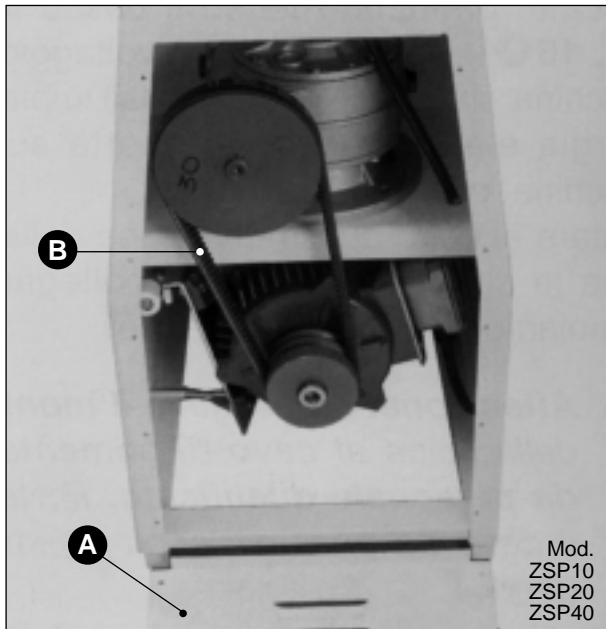


Fig. 21

To do this, disassemble machine rear panel (Fig. 19 A); be sure that the belt (Fig. 21 B) is taut enough and, if necessary, turn screw (Fig. 22 A) and knobs (Fig. 23 A) marked by the appropriate symbol, without exaggerating when tightening the belt. Reassemble the rear panel.

! *Never use the machine with any missing, disassembled or open guards and shields.*

! *If servicing operations require repairs to electrical system and/or replacement of bearings or mechanical components, call an expert technician or your local dealer.*

7. MAINTENANCE AND ADJUSTMENT

! **Warning:** Remember that **all maintenance operations are hazardous** if you do not first disconnect the plug from power mains.

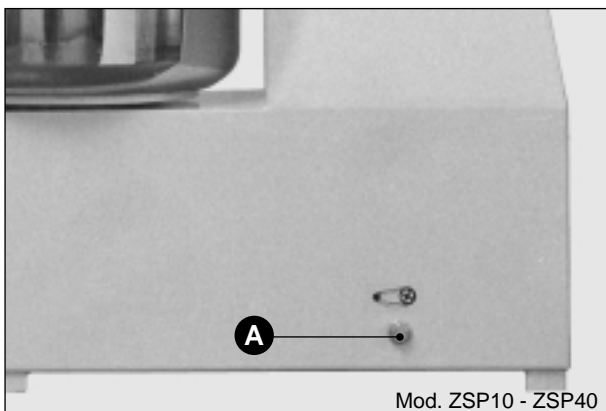


Fig. 22

To maintain machine safety, serviceability and stated performance, service the following parts:

- **Belt tension:** once yearly, or in case of irregular machine operation (r.p.m. loss), check belt drive tension.

Model ZSP10 - ZSP60

- **Chain maintenance (Fig. 25 A):** chains do not need tensioning; they do, however, need greasing once a year. To do this disassemble the rear panel and top cover.



Fig. 25

Model ZSP30 - ZSP40

Together with the top control panel (Fig. 26 A), remove all the fixing screws of the panel except one, which should be loosened to allow the panel to rotate while still remaining attached to the machine (this allows you not to detach the electrical cable from the panel).

Use MR3 type grease in sufficient quantities that allow lubrication of all chain links (Fig. 26 B). Do not apply too much grease because during chain motion it will tend to

spatter against the machine walls and gum up with dust and food products (e.g. flour) making it harder for you to clean. Finally, reassemble all panelling taking care not to damage the control electrical cable in machines with the top control panel.

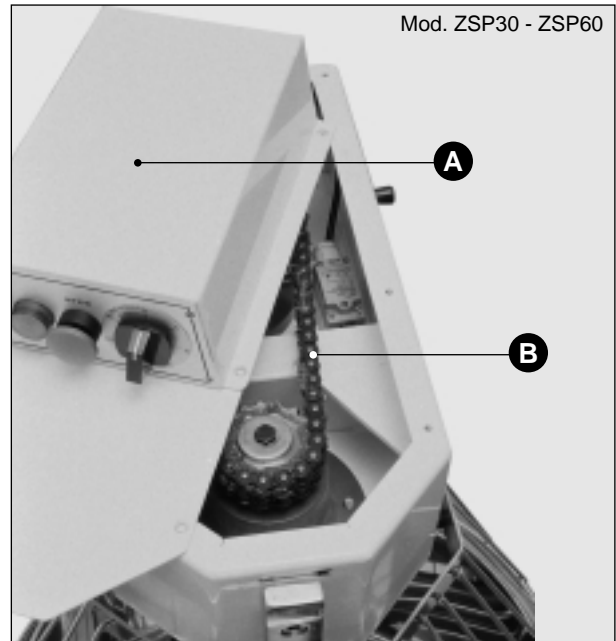


Fig. 26

8. WHIRRING NOISE

The whirring noise emitted by the machine has been measured on an identical sample machine in compliance with standard DIN 45635. A constant value not exceeding 70 dB(A) was measured as stated in the manufacturer's test report.

9. DISMANTLING AND DEMOLISHING THE MACHINE

If machine needs to be dismantled and/or demolished, its components do not entail a degree of danger that requires any particular precaution.

Remember, however, that to facilitate material recycling operations, it is a good rule to remove electrical system components from the machine.

10. INCONVENIENCES AND THEIR REMEDIES

INCONVENIENCES

1) Machine operation failure

CAUSES

- disconnected plug
- plug leads not correctly connected
- trip switch adjusted for insufficient values
- unsuitable trip switch
- board fuses blown out
- timer not set

REMEDIES

- connect plug
- check lead connections
- adjust trip switch accordingly
- replace trip switch
- replace blown fuse
- set timer to required time