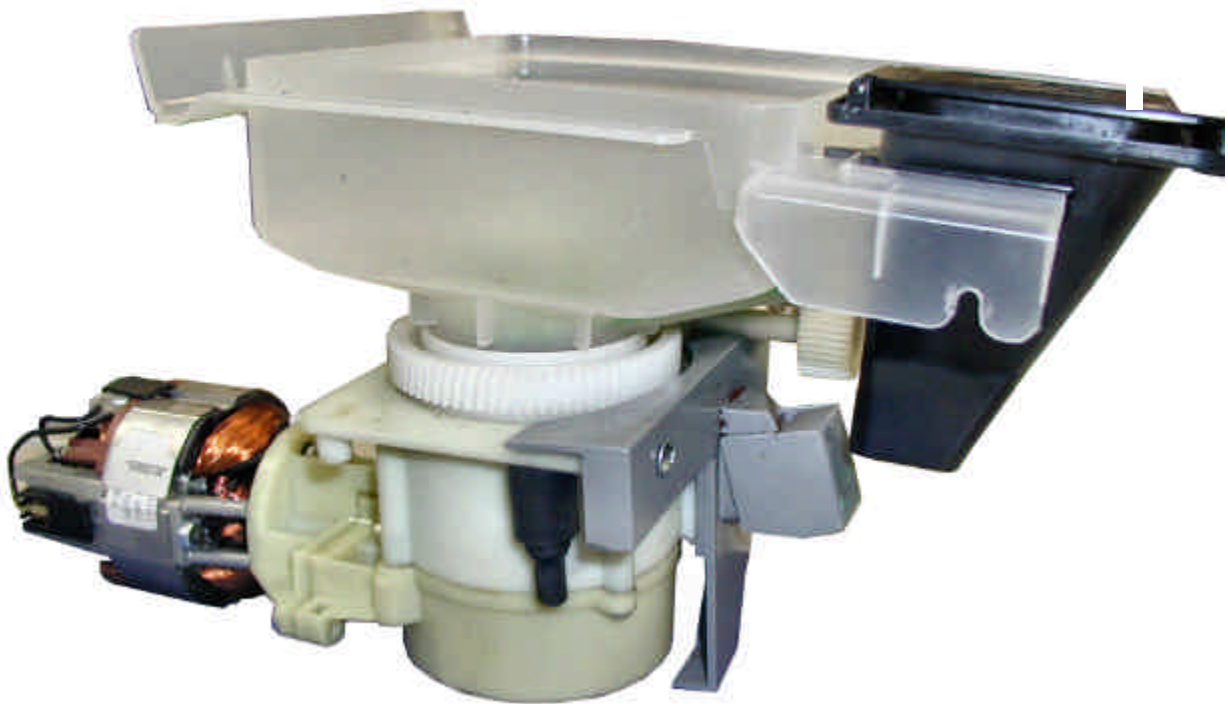


AFTER-SALES SERVICE



SERVICE MANUAL

"COFFEE GRINDER UNIT FOR THE KORO"

COFFEE GRINDER UNIT (KORO)

The coffee grinder unit was specifically designed for the KORO vending machine.

The main feature is the reduced height for easy positioning and for taking up less space because of the smaller size of the KORO machine. In addition, the coffee dose is determined by means of a special sensor (FIG ...) based on two parameters: the time and number of revolutions of the grinding wheels.

The vending machine software determines the coffee amount needed for the required selection according to preset algorithms.

The system is driven by a very efficient and reliable commutator motor. The motor was tested according to the reliability and duration to allow at least 100,000 selections before servicing the commutator and the brushes. The motor is coupled to the grinder-doser by means of a reduction system with bevel gear made of high strength thermoplastic material.

The grinder was designed with high efficiency flat grinding wheels.

The solution of flat grinding wheels was determined by the need of having greater grinding velocity with low pick-up torque.

On the other hand, conical grinding wheels produce a higher quality of ground coffee at a lower velocity, but the motor must have a higher pick-up torque, and the time will increase and thus increase the selection time.

Such grinder allows ground coffee doses of 7 grams in a maximum time of 5 seconds with "default" grade of grinding.

In addition, it is possible to set selections with different coffee doses simply by changing the software setting.

The system with sensors permits accurate doses with a maximum variation of +/-01 grams, as long as the distance between the grinding wheels is kept constant to compensate wear and settling.

The special coffee bean hopper allows also the dispensing of decaffeinated coffee by inserting a single dose of ground coffee in the special compartment (FIG. 3). The compartment door is fitted with a sensor that, when it is opened for inserting the single dose, will cause a message to be shown on the display and at the same time switch off the grinding.

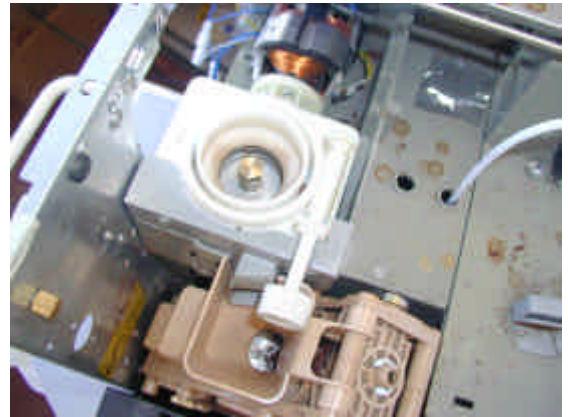


FIG. 1
VIEW OF COFFEE GRINDER IN OPERATING POSITION INSIDE THE KORO (from above without casing)



FIG. 2
VIEW OF COFFEE GRINDER IN OPERATING POSITION INSIDE THE KORO (View from the side without casing)

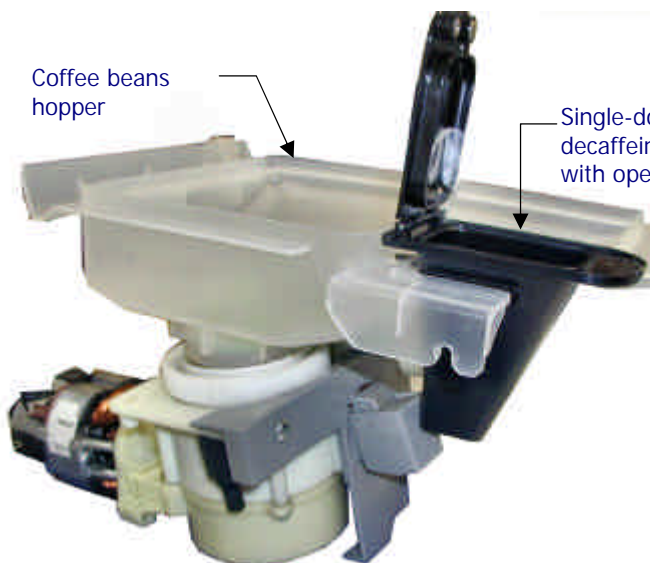


FIG. 3
COFFEE GRINDER COMPLETELY REMOVED FROM THE MACHINE

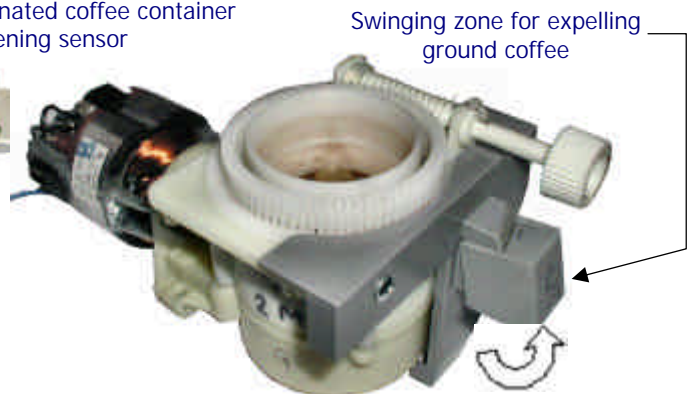


FIG. 4
COFFEE GRINDER WITHOUT COFFEE CONTAINERS

SAFETY DEVICES:

The motor is protected from overheating with a special self-reset klixon fitted on the winding.

In the event of blockage caused by foreign matter between the grinding wheels, the klixon upon reaching a temperature of 120°C is tripped, thus disconnecting the power supply to the motor. The system is self-resetting and is reactivated automatically when the correct temperature condition is restored.

It is therefore important, in the event of blockage and tripping of the overheating protection, to remove the power supply cable and manually free the grinding wheels.

In the event of a blockage the sensor does not detect any rotation, and therefore it informs the software of the event and the selections based on the coffee to be ground are disabled, while the selections based on the single-dose decaffeinated coffee, manually inserted in the special compartment, remain enabled.

POSSIBLE FAULTS:

- The system can ensure a long operating life of approximately 100,000 grinding cycles before needing any maintenance on the motor and reducer unit.

- **THE GRINDING WHEELS** have an operating life of approximately 50,000 cycles, using high quality coffee. However, some low quality coffee may contain bits of wood or pebbles, which could cause anomalous wear or damage to the blade teeth.

In this case the duration could change considerably.

- **IN THE EVENT** of excessively fine grinding, over time coffee dust could penetrate in the reducer bearing and gear compartment, causing anomalous noise. Disassemble, clean and lubricate the affected areas with specific products.

- **WITH WEAR** and settling the distance between the grinding wheels increases, therefore it is necessary to check the grade of grinding periodically to avoid the production of non-conforming coffee quality, considering that the sensor can assess the number of revolution and the time related to quantity parameters but not the quality directly.

- **FAILURE** to the sensor if the display indicates lack of coffee or blocked motor but in effect all is correct. Check the functioning of the dose sensor (FIG. 6).

(The correct disassembly operations for periodic maintenance are described at page 5).



FIG 5
COFFEE GRINDER UNIT
Front view without feeder

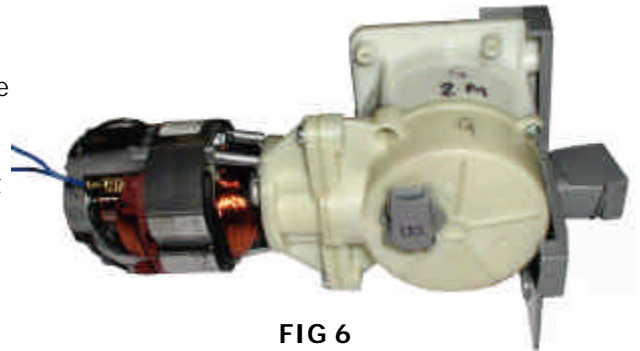
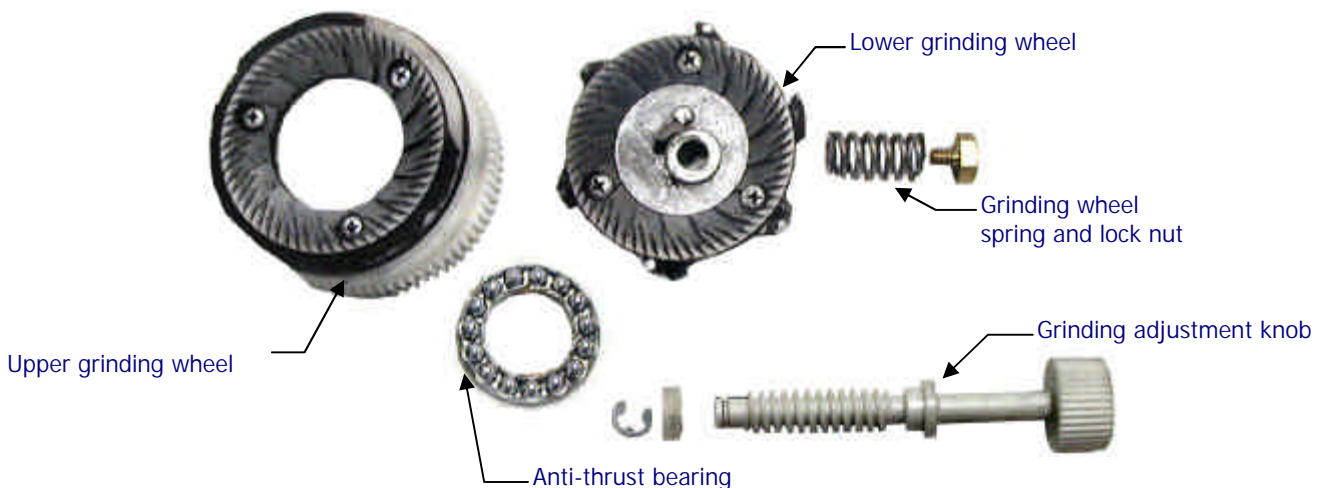


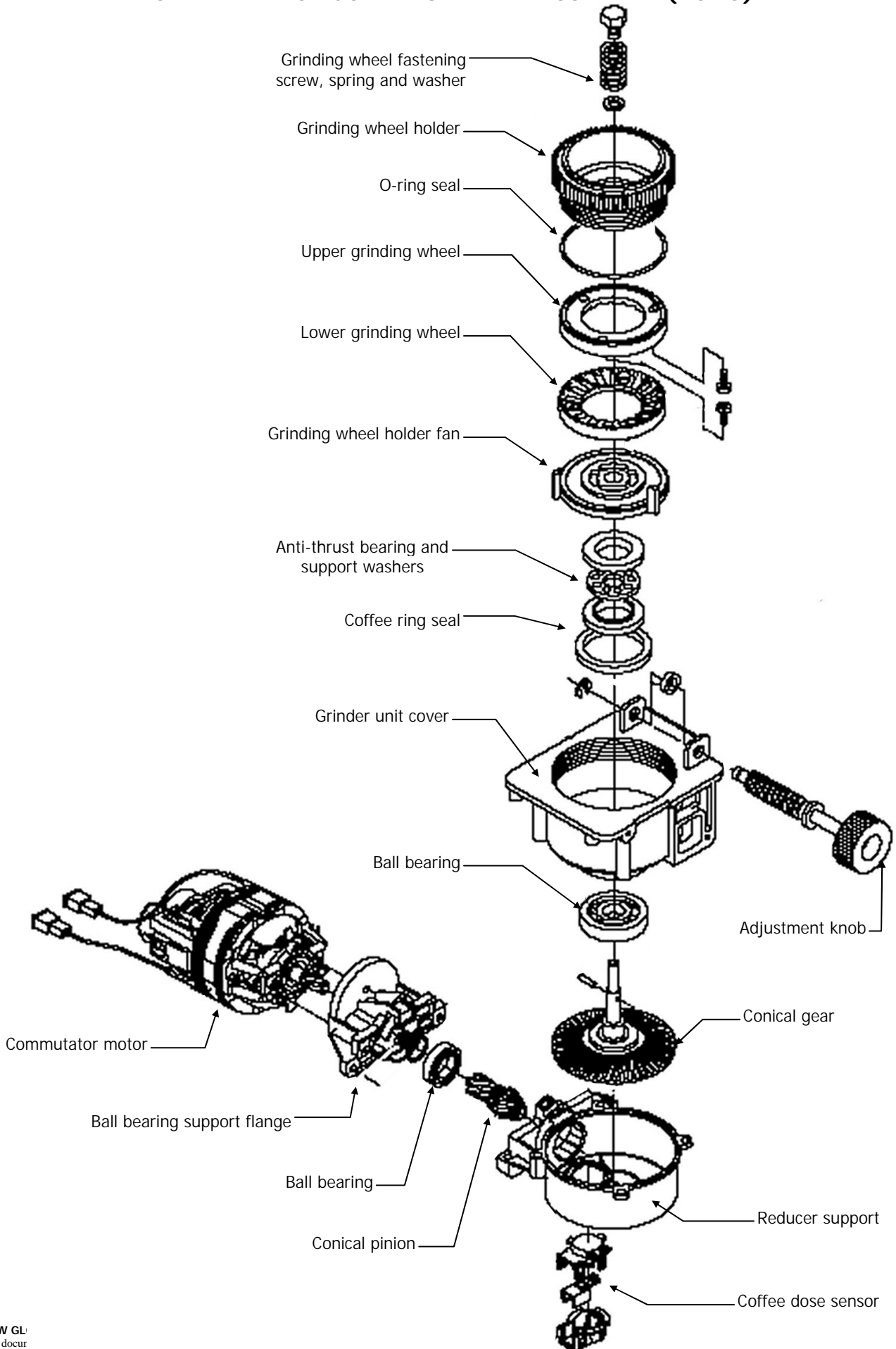
FIG 6
COFFEE GRINDER UNIT
Front view without dose sensor

GRINDING WHEELS AND OTHER ACCESSORIES



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EXPLODED VIEW OF COFFEE GRINDER ASSEMBLY (KORO)



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DISASSEMBLY PROCEDURE FOR PERIODIC MAINTENANCE



Remove the unit from the machine after removing the side and upper casing; undo the front fastening screw and slide out upwards (FIG 1 – 2)



Remove the ground coffee feeder. Slide out the seeger ring and completely unscrew the knurled knob until removing it



Completely unscrew the upper grinding wheel until removing it completely. Check the state of wear of the O-ring



Undo the brass hexagonal screw clockwise, holding the spring and the clearance washer



Pulling upwards, completely remove the lower grinding wheel



Detail of grinding wheel components completely disassembled for checking wear and replacement



Detail of grinding wheel seat with view of anti-thrust bearing



Undo the 4 lower self-tapping screws fastening the grinding wheel seat. Slightly forcing, remove the grinding wheel seat to access the lower bearing.



Coffee grinder without grinding wheels; view of the reducer conical gear and pinion.



NOTE: After the scheduled maintenance and/or replacements, clean all parts, replace the seal rings that are worn and/or damaged.

Lubricate with specific grease and reassemble all parts following the reverse order.

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