BEAR® WHEEL BALANCERS

OPERATION, INSTALLATION, AND MAINTENANCE MANUAL

BALANCER MODEL:

80-2005

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BEAR by M&B Engineering

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BEAR® by M&B Engineering

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GENERAL INFORMATION

WARNINGS

THIS MACHINE IS DESIGNED AND CONSTRUCTED FOR THE BALANCING OF CAR, VAN, AND MOTORCYCLE WHEELS. THIS MACHINE IS DESIGNED TO OPERATE WITHIN THE LIMITS DEFINED IN THIS MANUAL AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

This manual is an integral part of this machine. Carefully study the warnings and instructions contained in this manual. This information is important for safe use and maintenance. Conserve this manual for future consultation.

This machine must be used for the purpose for which expressly designed. Any other use is considered wrong and therefore unacceptable. The manufacturer cannot be held responsible for damage resulting from improper, erroneous, or unacceptable use.

This symbol is used in the present manual to warn the operator of particular risks associated with the use of these machines.

ILLUSTRATIVE MACHINE DRAWING

indicating the main parts relevant to use

A: MAIN SWITCH
B: POWER SUPPLY CABLE
C: WIGHT TRAY
D: MONITOR
E: WHEEL GUARD
F: FLANGE
G: DISTANCE MEASURING GAUGE
H: BRAKE PEDAL
I: WIDTH MEASURING GAUGE
L: CONNECTOR WIDTH GAUGE

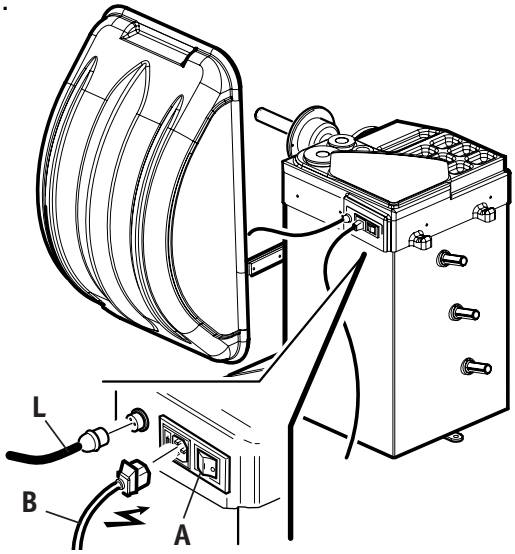
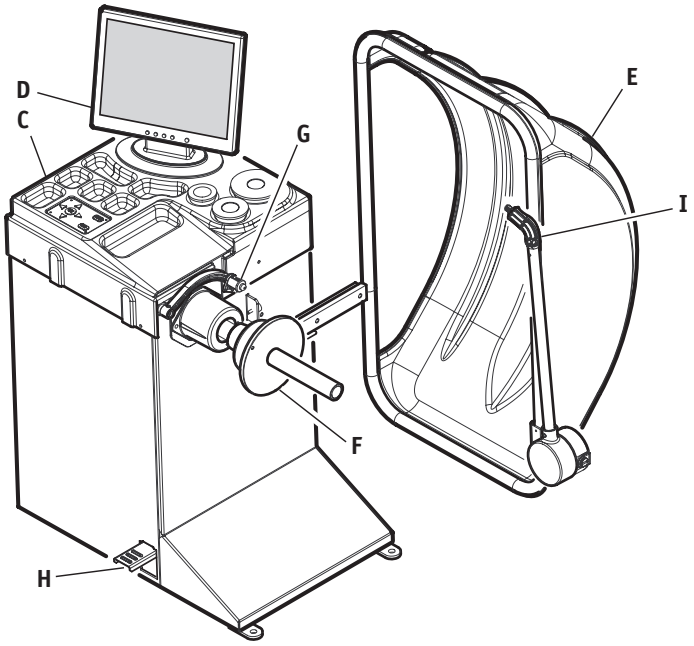


fig.1



ILLUSTRATIVE MACHINE DRAWING

indicating the main features relevant to use

1. High definition color monitor
2. Functions keys
3. STOP: stop key
4. START: start-up key
5. OK: data confirmation key
6. Data programming keys
7. Imbalance figure displays
8. Imbalance point direction indicators
9. Wheel data displays
10. Function key displays

When the wheel is not being driven by the electrical motor, pressing the brake pedal (fig.18c) locks the rotation of the wheel.

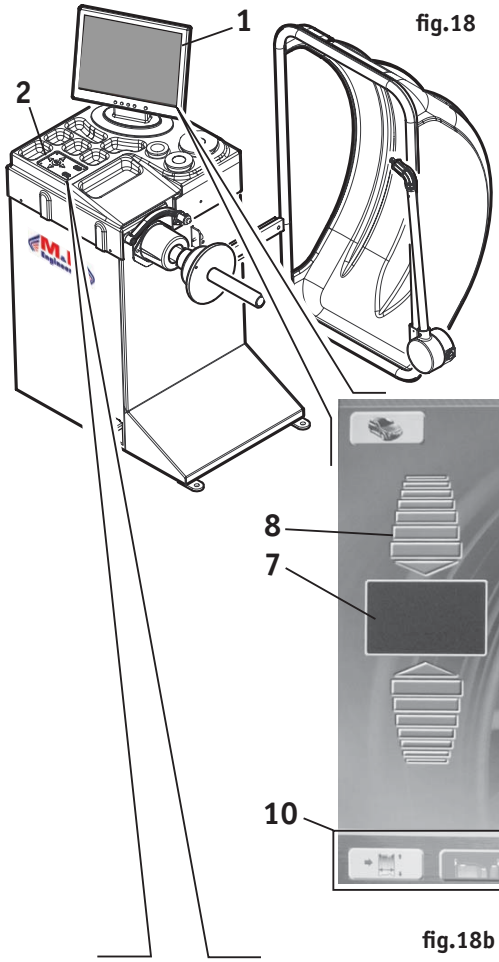


fig.18

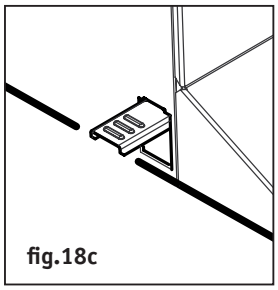


fig.18c

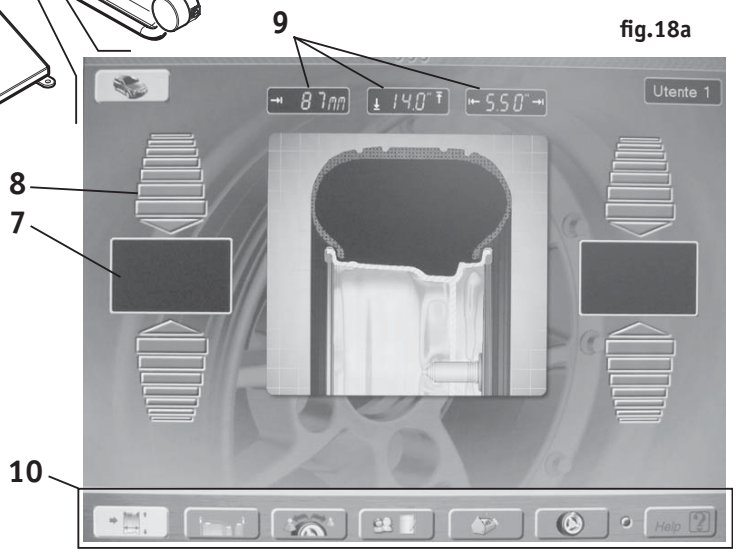


fig.18a

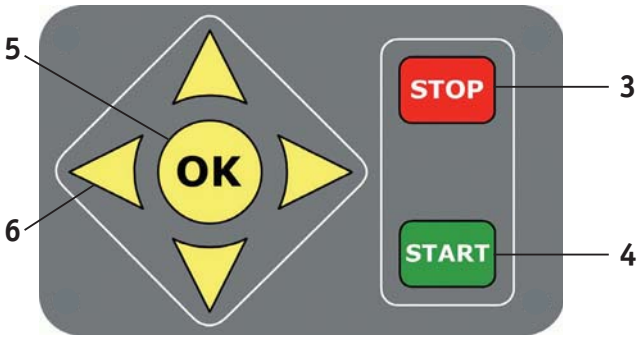


fig.18b

TECHNICAL CHARACTERISTICS

- This machine has a single automatic launch and completely automatic cycle with start-up, measuring, and braking.
- Dynamic imbalance is measured and the weight position of the two correction planes are simultaneously shown on the monitor display.
- The machine allows simultaneous balancing of three wheels for multiple users with special keys for separation of weights and MM measurement setting for simple and rapid machine use.
- Balancing programs: Standard and Dynamic.
- 5 ALU programs.
- 3 Static programs for motorcycle or vehicle wheels that require adhesive or clipped counter wieghts.
- 2 special ALU programs for PAX wheels with weight separation option with static imbalance optimization program.
- Functions of self-diagnosis and self-calibration for extremely simple maintenance.
- Foot brake for locking wheel during counterweight positioning operations.
- Compact wheel guard will handle wheels up to 1120MM or 44" in diameter.
- Standard safety devices: STOP button for emergency shutdown. Wheel guard is equipped with and electronic sensor that prevents the motor from engaging while the guard is up.

RANGE OF APPLICATIONS

- 80-2005 will balance vehicles wheels up to 155 LBS and Motorcycle wheels up to 44 LBS.
- Minimum and maximum measurements given are based on a balance in the two reference planes or to static imbalance alone. Imbalance is indicated in grams up to three decimal places. If measurement in ounces is required, conversion is easily set throught control panel commands.

MODEL	NET WEIGHT	ELECTRICAL CONFIGURATION	BALANCING SPEED	AVERAGE CYCLE SPEED
80-2005	220 LBS	1P: 110 V / 60 HZ 1P: 220 V / 50 HZ	167 RPM AT 110 V 200 RPM AT 220 V	6-8 SECONDS 6-8 SECONDS

MODEL	MAX WHEEL DIAMETER	RIM WIDTH RANGE	RIM DIAMETER RANGE	MAX WHEEL WEIGHT
80-2005	44"	2" - 20"	8" - 30"	155 LBS

MACHINE DIMENSIONS

Max height with wheel guard up.....1270 MM
Max depth with wheel guard down.....980 MM
Width.....1035 MM

ACCESSORIES

STANDARD WHEEL BALANCER ACCESSORIES

CALIPER

85-300104

WEIGHT HAMMER

85-100152

COMPLETE FLANGE KIT WITH 4 CONES

85-300103

OPTIONAL WHEEL BALANCER ACCESSORIES

DISTANCE SPACER & 5TH CONE

85-300107
85-300146

MOTORCYCLE FLANGE

85-300106

REVERSE WELL MOUNTING FLANGE

85-300116

SECTION 2: INSTALLATION AND SET UP

UNPACKING

INSTALLATION AND SET UP

UNPACKING

- After removing the packaging, strapping, seals, cardboard, and the pallet (fig.5) check the machine for missing or damaged parts. In the event of a shortage or damage, do not use the machine and contact your vendor immediately.
- The packaging materias must not be left within the reach of children since they are potentially dangerous and therfore must be disposed of properly.
- The box containing the accessories provided is contained in the packaging of the machine.

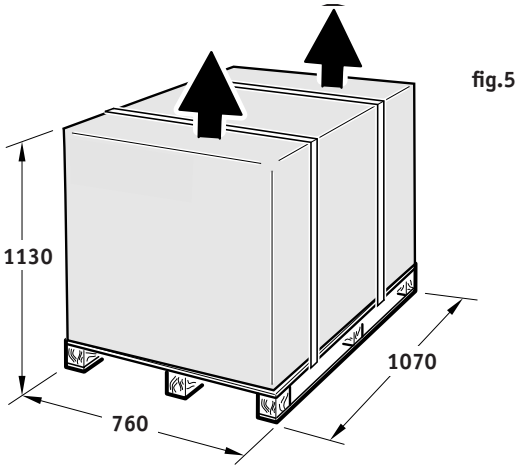


fig.5

LOCATION

- The wheel balancer must be located on a solid floor of concrete or similar material. Any underlying cavity could cause imprecise readings.

OVERALL DIMENSIONS (fig.6)

- Height 1270 MM
- Depth 855 MM
- Width 1035 MM

SAFE DISTANCE

- For safe and ergonomic use of the machine it is reccomended to leave a minimum of 500 MM of working space from surrounding walls.

FIXING INSTRUCTIONS

- The machine base has 3 holes for fixing the chasis to the floor. This is essential to ensure accurate and consistent readings.

Before servicing the control panel, unscrew the panel and disconnect its power.

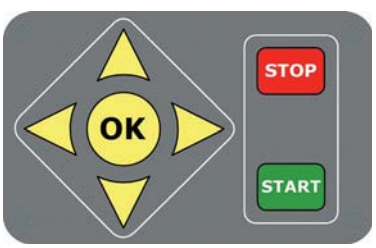


fig.6a

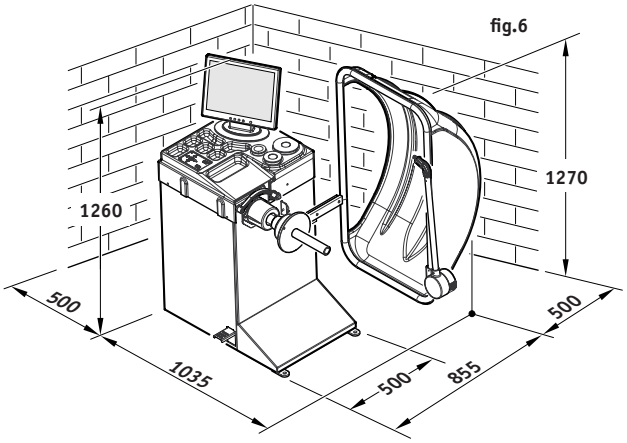


fig.6

INSTALLATION AND SET UP

THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR THE FAILURE TO OBSERVE THE INSTRUCTIONS GIVEN BELOW.

MOUNTING GUARD (fig.7)

- Mount the wheel guard on the support pin, using 3 screws and relative washers. Use a no. 6 hex key to tighten.

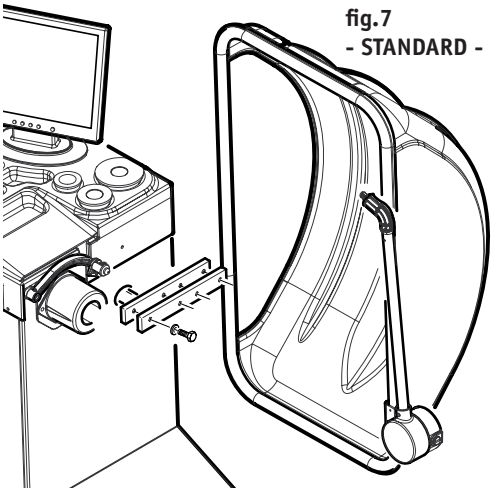


fig.7
- STANDARD -

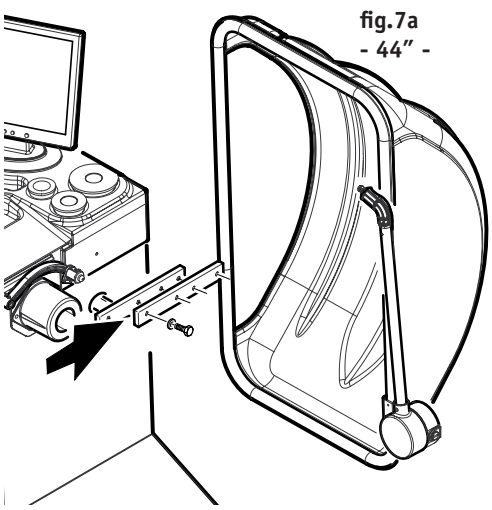


fig.7a
- 44" -

POWER CONNECTION (fig.8)

ELECTRICAL CONNECTION AND OPERATION CHECKS MUST BE CONDUCTED BY AN AUTHORIZED SERVICE TECHNICIAN. (fig.8)

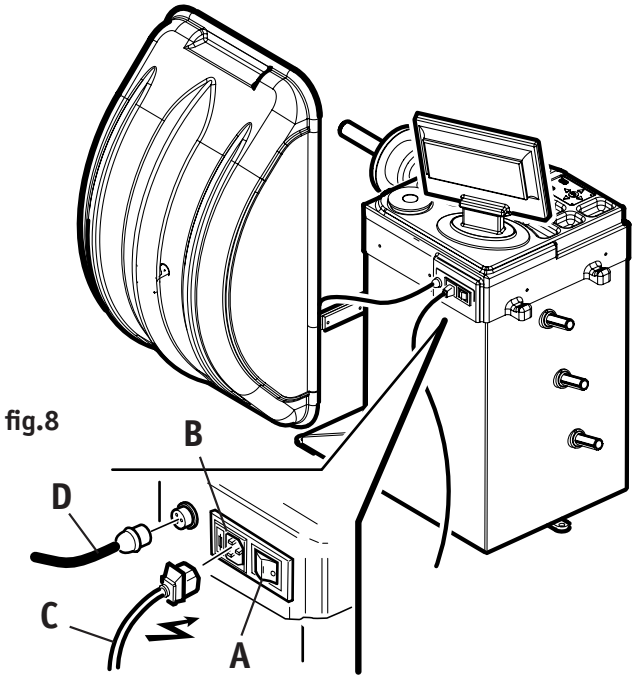


fig.8

- Check that voltage to the machine is the same as on the rating plate. DO NOT connect the machine if the two values are different.
- Check that the provided machine supply cable is outfitted with a CE standard plug.
- Connect supply cable (C fig.8) to connector (B fig.8) located on the back of the machine and insert the plug into the main socket.
- Check ground.
- In line supply protection of the plug and socket connection is the user's responsibility. A fuse or automatic safety switch or cut-off switch with a minimum of a 3 MM contact break in conformity with European standards can be used.
- Connect the width caliber connector (D fig.8).
- After connecting, power on the machine by turning on the main switch (A fig.8).

OPERATING CHECKS (fig.9)

- Press the START button with guard down. The mounted wheel should rotate in a clockwise direction if you are looking from the right side of the machine. The correct rotation direction is indicated by an arrow on the machine body. (fig.9)
- If the wheel rotates in the wrong direction, the machine will shut down immediately.
- Should a fault be observed in machine operation, turn off the main switch immediately (A fig.8) and consult the troubleshooting section in the manual.
- Always pay attention to the SAFETY WARNINGS applied as labels on the machine. (fig.10) Electrical discharge label. If this warning or any other label should deteriorate or dissapear please request replacements from BEAR's spare part listing using the relavant part number.

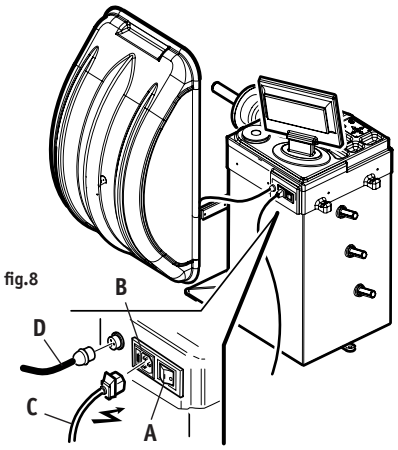


fig.8

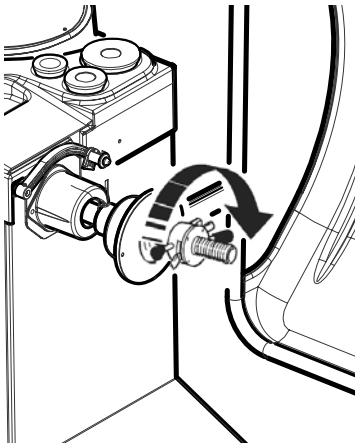


fig.9

fig.10

FLANGE INSTALLATION

- Before mounting the flange, clean the centering cone and the hole in the flange itself. A bad flange fitting will negatively influence the precision of the balancing operations. The illustrations show the flange fastening system.
- Fig. 11 shows the cone flange and mounting system.
- Fig. 12 shows the 3 / 4 / 5 hole universal flange mounting system.
- Fig.13 shows the motorcycle flange and mounting system.

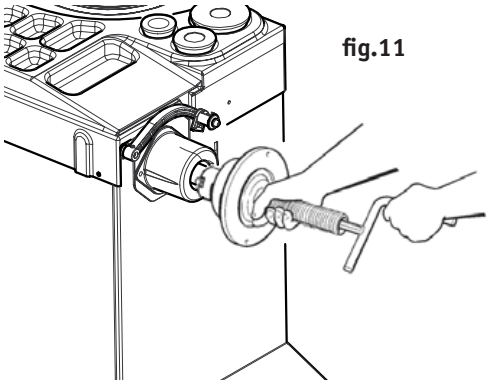


fig.11

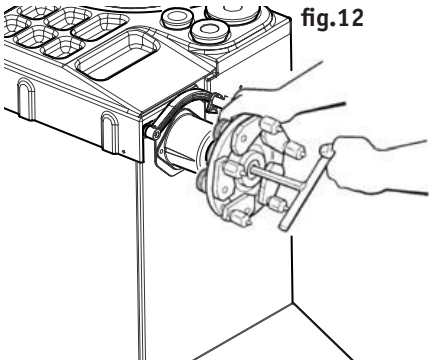
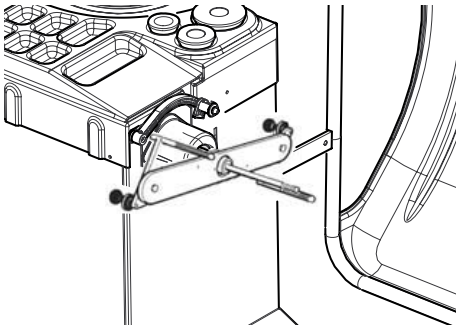


fig.12

fig.13



AUTOMOBILE WHEEL LOCKING

- Figures 14 and 15 show the automobile wheel locking system using the cone flange.
- Figure 16 shows the automobile wheel locking system using the 3 / 4 / 5 hole universal flange.

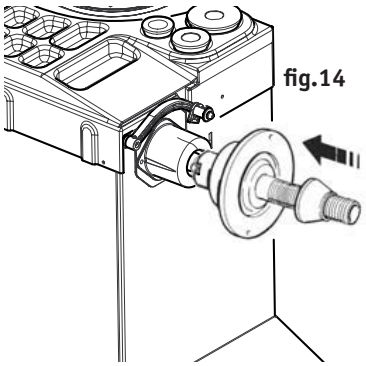


fig.14

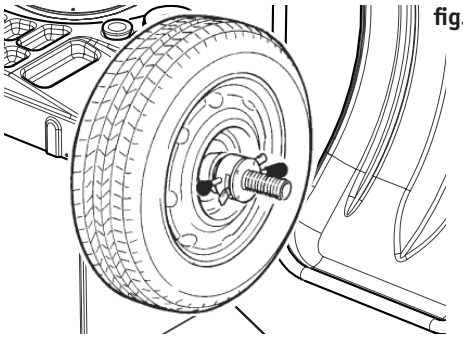


fig.15

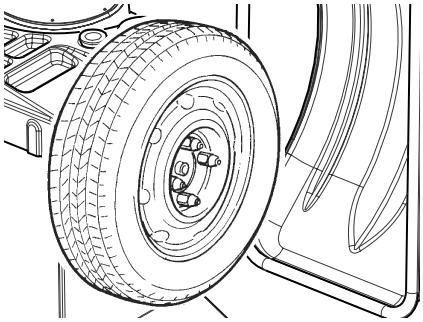


fig.16

MOTORCYCLE WHEEL LOCKING

- Figures 17 shows the motorcycle wheel locking system using the motorcycle flange.

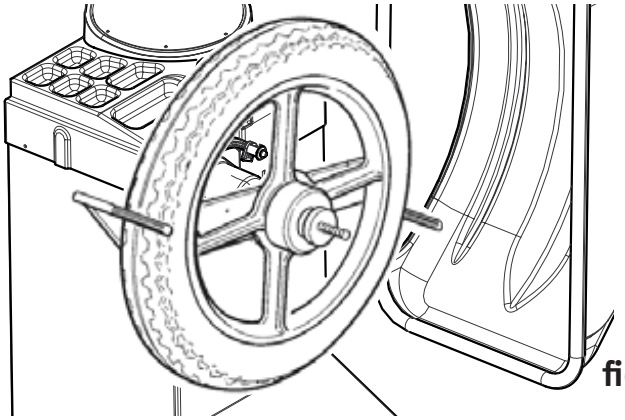


fig.17

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SECTION 3: OPERATION

CONFIGURING THE WHEEL BALANCER

SELECTING THE BALANCING PROGRAM

SETTING WHEEL DATA

WHEEL BALANCING

USING ALU DATA PROGRAMS

WEIGHT SEPERATION PROGRAM

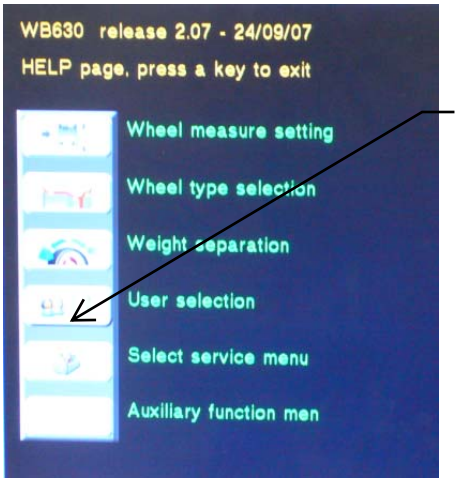
OPTIMIZING WHEEL BALANCE

CONFIGURING THE WHEEL BALANCER

- From the main page press the service menu (Fig 24) to enter the personalization screen (Fig 25).
- The configuration functions enable the user to set the machine according to personal preferences.

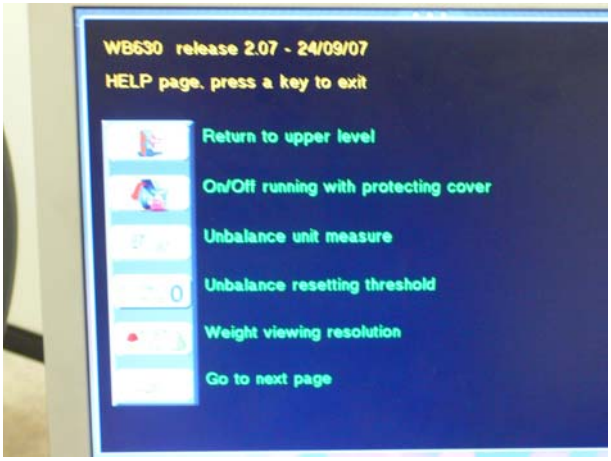
Fig. 24

Fig. 25



- In the first personalization screen (Fig 26), the following parameters can be set. Use the key pad to navigate options and make selections.

Fig 26



Intitiating Balance Cycle

1. Option of starting balancing cycles by lowering guard.
2. Option of starting balancing cycles by lowering gurard and pressing START.

Imbalance unit of measure

1. Display unbalance in grams.
2. Display unbalance in ounces.

Zeroing small gram readings

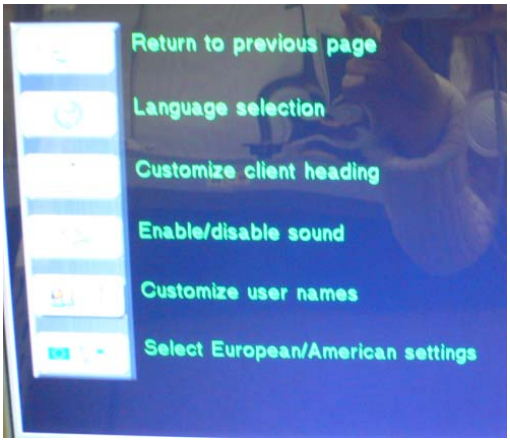
- Activate the screen that displays unbalance measurements. Using the key pad, enter the new weight tolerance you wish to establish as the weight tolerance.

Displaying imbalance

1. Display unbalance figures in fine resolution: intervals of 1 gram (.035oz).
2. Display unbalance figures in standard resolution: intervals of 5 grams (.18oz).

- In the second personalization screen (Fig 27), the following parameters can be set. Use the key pad to navigate options and make selections.

Fig 27



Language Selection
- Possible languages are English, Spanish, Italian, and German

User Name
- Use the arrow pad to select and confim letters by positioning the red cursor and pressing OK
- To change letters selected simply toggle between the keyboard and text.
- To quit without saving press stop.
- To save select name press OK.

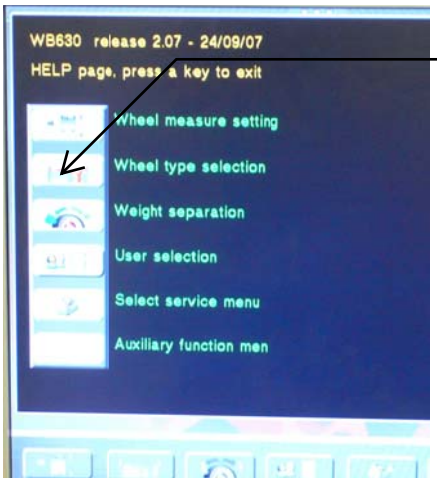
Acoustic Signal
- Acoustic signal can be enabled or dissabled to sound to confirm when actions are entered on the machine.

Configuration Europe / United States
- First select user name to modify if present.
- Configuration Europe:
  Possible settings are:
  - TOLERANCE: 4.5 grams.
  - RESOLUTION: 5 grams.
- Configuration United States:
  Possible settings are:
  - TOLERANCE: 7 grams.
  - RESOLUTION: 5 grams.

SELECTING THE BALANCING PROGRAM

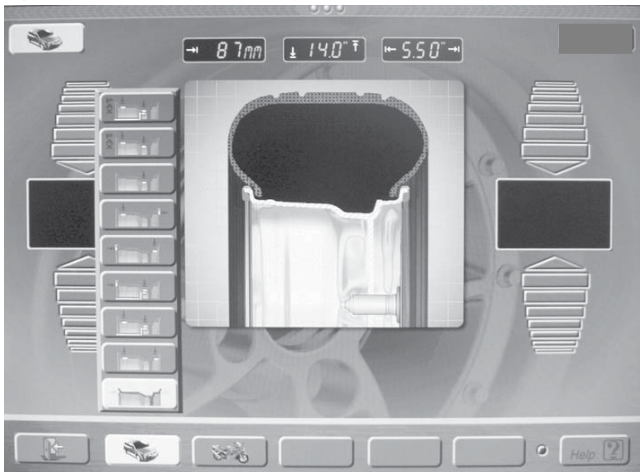
- The use of different types of counterweights for balancing various types of rims (steel or light alloy) produces differences between nominal measurements set for the wheel being balanced and the measurements of the reference planes. Fig 18d shows the different varibles that can be selected.
- The balancer uses various balancing programs to compensate for these differences.
- Enter the Wheel Type Selection screen (fig.18d) to access the various balancing programs available (fig 18e.)
  - Standard dynamic balancing with clip weights.
  - 5 ALU programs for dynamic balancing using adhesive weights.
  - 3 static balancing programs with clip or adhesive weights.
  - 2 special ALU programs for Michelin PAX tire balancing with adhesive weights and MM measurements.
- The monitor display indicates the position of the weights on the rim on the basis of the pre-selected balancing program.
- On start up, the machine automatically defaults to the standard dynamic program.
- Return to the main page by using the exit key.

Fig 18d



Wheel Type Selection

fig.18e



SETTING WHEEL DATA

SETTING WITH THE AUTOMATIC GAUGE

- Setting wheel data is acheived by moving the internal gauge against the rim (fig.19) and the external gauge (fig 21a) against the rim. Wait for the confirmation beep.

fig.19

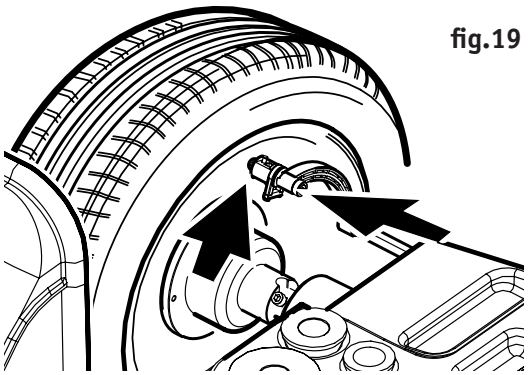
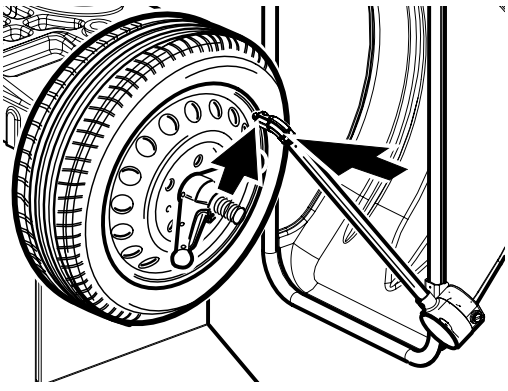


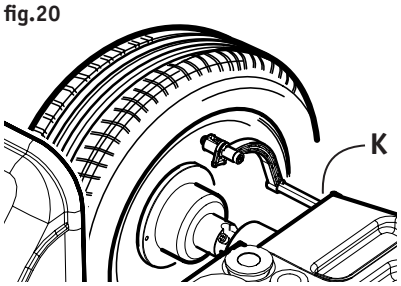
fig.21a



MANUAL SETTING OF WHEEL DATA

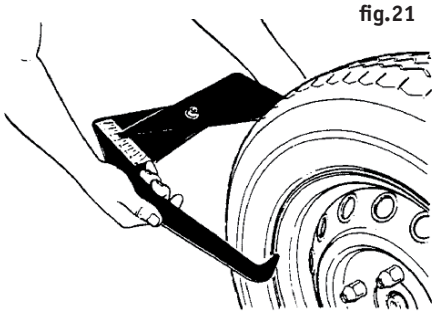
- If the automatic gauge malfunciones or for the aluminum and light alloy programs, manual programming is possible.
- The rim width measurement is generally ethched on the rim itself, or can be obtained using the gauge supplied with the machine (fig.21).
- The rim diameter is generally etched on the rim itself, or is found on the tire.
- The rim distance is measured on the internal side of the rim with the sliding gauge installed on the machine (fig.20).
- Use the scale to read the distance to set.
- For small dimension wheels such as motorcycle wheels, only static imbalance needs to be determined.
- Using the STATIC balancing program and setting the right value for only the rim diameter (key 5 fig.18); the rim distance and width measurements can be set to any value.

fig.20



K = reading point

fig.21



ENTERING MM MEASUREMENTS

- The preset unit of measure for rim width and diameter are inches.
- To set the unit of measure to MM use the user preference options previously described to change the measuring units.
- Use the control pad to enter the measurements in millimeters as etched on the wheel itself.
- For PAX programs, the preset unit of measure for width and diameter is MM.

WHEEL BALANCING

- Power main switch to activate machine.
- The monitor will show the main page (fig. 18d).
- Mount the wheel on the machine, centering it using the special flange and locking it down carefully.
- To balance the wheel input the following data;
  1. Select type of wheel, Car or Motorcycle.
  2. Select balancing program for defining positioning of counterweights on the rim. See section on "Selection of Balancing Programs."
  3. Set wheel measurements. Rated width and rated diameter. See section on "Setting Wheel Data."
  4. Set the distance between the machine and the internal side of the rim. See section on "Setting Wheel Data."
- After closing the wheel safety guard, the machine will automatically start the measuring operation. Without lifting the guard, if you wish to take another measurement, press the START key.
- When measuring is completed, the wheel is braked automatically.
- The guard must not be raised before the balancing cycle is complete. The STOP key (fig. 6a) will stop the machine in an emergency.
- The size and position of the imbalances on the two sides of the wheel are determined in a single measuring operation, and are seperately indicated on the right and left side of the display. While facing the machine, the right display indicates the external unbalance and the left display indicates the internal unbalance.
- The arrows on the right and left hand display indicate the direction the wheel must be turned by hand until the correct position has been reached. (fig 18a)
- Turn the wheel by hand until the arrows become red on the top and bottom scale. Wait for the confirmation beep.
- Press and hold the foot brake.
- The balancing weights can now be applied on either side of the rim in a perpendicular position to 12 o'clock on the main shaft.
- Insert the required weight for balancing into the seat of the measuring arm with the adhesive side facing up. After removing the protective film, move the arm towards the imbalance position and wait for the confirmation beep.
- Now rotate the gauge to bring the arm into contact with the rim and apply the weight.
- The correct position is confirmed with a beep indicating the weight can be applied.
- NOTE: No confirmation beep is heard when the millimeter scale has been moved too little from the last position or the wheel is not in position.
- Repeat operations for external side.
- Once the counterweights have been placed correctly, re-cycle the machine to check that the wheel has been accurately balanced.

fig.18a

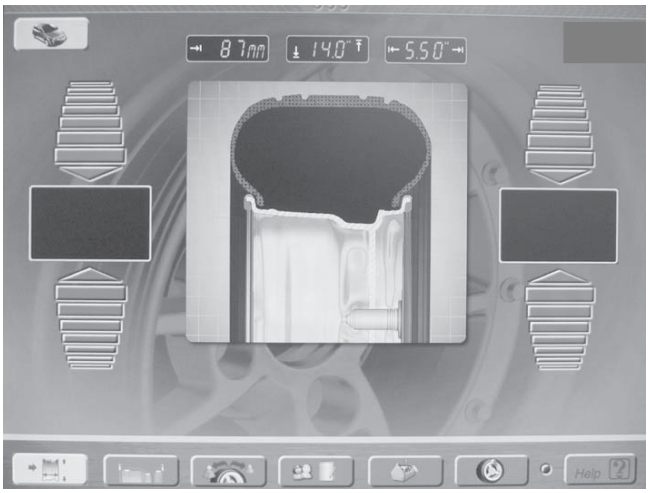


fig. 18d

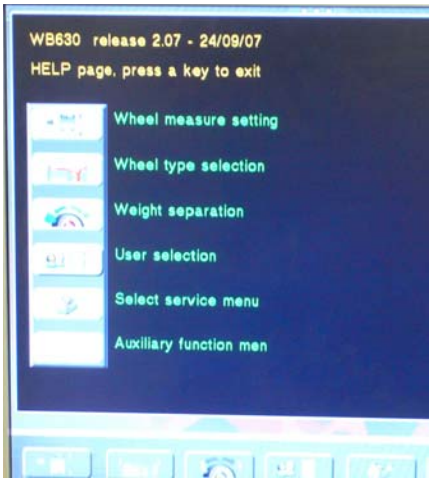
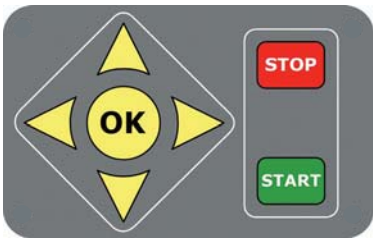


fig.6a



USING ALU DATA PROGRAMS

SELECTING THE BALANCING PROGRAM

- From the MAIN PAGE enter "Wheel Type Selection")
  The ALUDATA programs are:
  3. ALU 2
  4. ALU 3
  9. PAX 2
- Select the most suitable ALUDATA program by pressing OK or STOP to return to the main page.

SETTING WHEEL DATA

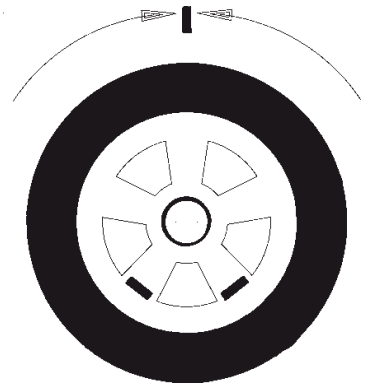
- When the inside gauge is brought in to position, the graphic for the selected position will begin flashing on the monitor.
- Move the gauge forward to the first position selected for balancing and wait for the confirmation beep.
- From the first position without moving the gauge backwards move the gauge forward to the second position selected for balancing and wait for the confirmation beep. The LED corresponding to the chosen position will flash on the monitor.
- Retract the gauge to its neutral position. The display will automatically reconfigure to the main screen.
- For weight separation program the weight placement operation will be conducted twice.

WEIGHT SEPARATION PROGRAM

- The weight separation program is designed for aluminum and light alloy rims and use with programs ALU 2 and ALU 3.
- The weight separation program is used to split and hide corrective adhesive weights behind the spokes of the rim if at the end of a balancing cycle the external weight is visible. If the weight is visible it can be divided in half to be repositioned behind the two nearest spokes on either side. This proceedure is as follows.
- From the MAIN PAGE select the Weight Separation option to enter the program (fig. 22a).
- Enter the number of spokes.
- Rotate the wheel to move a spoke to the 12 O'clock position and press OK(fig 23).
- The program will now change to the weight separation screen where the two separate balancing weights are given for the outside of the rim to be fixed behind the spokes.
- From the weight separation screen press EXIT and the program will return to the main page with a single weight on the external side.

fig 22a

fig.23



OPTIMIZING WHEEL BALANCE

- When an imbalance is found in a wheel greater than 50 grams, it is recommended that the wheel balance optimization program be preformed.
- The overall imbalance of used tires can greatly be reduced with this program by identifying the ideal mounting position of the tire on the rim. This process is refered to as "matching."
- The optimization proceedure is as follows.
- From the Main Screen select the Optimization Program.
- Press start to initiate a balance cycle and begin the optimization proceedure.
- Rotate the wheel by hand to bring the valve stem into the 12 O'clock position. Press the F6 key to memorize the wheel reference position in the first balance cycle.
- With a piece of chaulk, mark the valve stem position on the rim itself.
- Remove the rim from the flange, deflate the tire and rotate it on the rim 180 degrees. Refer to the chaulk mark on the rim to remount the tire with the valve 180 opposite to its original position.
- Inflate the tire and remount the rim on the flange. Reposition the rim so that the valve is again at 12 O'clock and press the F6 key to memorize the new position.
- Press the START key to launch a new balance cycle. Upon completion, the display will show
  - The static rim unbalance figure.
  - The static tire unbalance figure.
  - The current static unbalance figure for the wheel.
  - The minimum residual unbalance figure that can be obtained by performing the optimization proceedure. At this point a decision can be made as to weither or not the wheel can be balanced or discarded.
- To proceed with the imbalance optimization program, rotate the wheel by hand to bring the positioning LEDs onto the display into a central positon and mark on the tire with chaulk where the weight is told to be placed.
- Remove the rim from the flange and rotate the tire on the rim until the mark on tire matches the valve stem position mark on the rim. Remount the wheel on the flange and again position the valve stem at the 12 O'clock position.
- Holding the wheel in this position, press F6 to memorize the new position of the rim on the flange.
- Press the START key to launch the test balane cycle. At the end of this cycle, the wheel imbalance is automatically compared with the value of the minimum residual imbalance. If the difference between the two values is less than the maximum permitted tolerance, the monitor will display that the optimization proceedure has been successfully completed.
- If the first reduction is not satisfactory, the machine will automatically suggest repeating the operations for wheel balance optimization.

SECTION 4: MAINTENANCE

ROUTINE MAINTENANCE

CALIBRATION

SELF DIAGNOSIS

ROUTINE MAINTENANCE

In order to guarantee correct and efficient operation it is essential to carry out periodic routine maintenance. Routine maintenance operations must be conducted by the user in accordance with the manufacturer's instructions given below. Before carrying out any maintenance or cleaning operations, switch off the machine using the mainswitch and remove the plug from the socket.

Before performing any operation involving removal of the weight tray, first unscrew the control pad and disconnect its cable (fig. 35).

MECHANICAL PARTS

- The flange assembly and cones must be kept clean and lightly lubricated with a non-corrosive oil, even when not in use. The quality of the balancing depends significantly on the condition of these parts.

MOVEMENT AND TRANSPORTATION

- Whenever it is necessary to move or transport the machine all necessary precautions must be taken. For the harnessing and lifting, use two 3 meter slings attached at the points indicated by fig.26.

STORAGE

- Whenever the machine is to be stored temporarily and during periods in which it is not in use, remove the electrical plug from the socket. If the decision is taken to stop using the machine it should be made inoperative by detaching the electrical supply cable after removing the plug from the socket.

SCRAPPING

The wheel balancer is categorised as special refuse and it should therefore be divided into homogenous parts and disposed of according to the laws in force.

fig.26

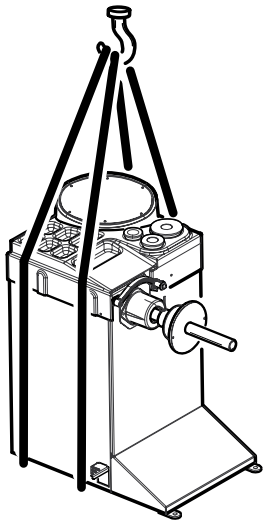
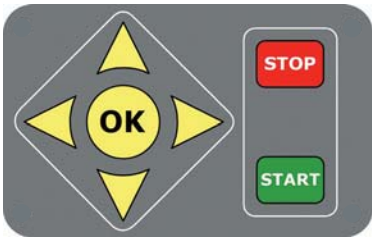


fig.6a



BASIC CALIBRATION OF MACHINE

- From the Main Screen select the Service Menu (fig.18d).
- From this screen, select Calibration Wheel Balancer (fig.29).
- To enter the calibration proceedure enter the "code" by pressing selecting icons 3 and then 5 followed by pressing the up arrow.
- The calibration menu wil now open and display calibration options: (fig.32)

CORRECTING ADAPTOR IMBALANCE

- Fit the cone adapter solidly on the shaft.
- Following the instructions on the monitor, run a cycle with the adapter (without wheel).
- At the end of the cycle the imbalance is memorized. This allows the electronic compensation of any residual imbalance associated with the shaft or the centring adapter.

CALIBRATING THE AUTOMATIC GAUGES

- From the calibration menu, select the option for Calibration of Automatic Guages (fig.32).
- To calibrate the automatic guages it is recommended to work without a wheel on the flange.
- Follow the istructions on the monitor to carry out the following calibration proceedures (fig.33 next page)
  - Setting and measuring neutral distance.
  - Setting and measuring range limit distance.
  - Setting and measuring neutral width.
- To calibrate the automatic gauges using a wheel a 13 or 14 inch rim must be used and the diameter values in inches can be entered with the control pad. To set the diameter move the gauge into contact with the rim and press OK (fig.34 next page)

fig. 18d

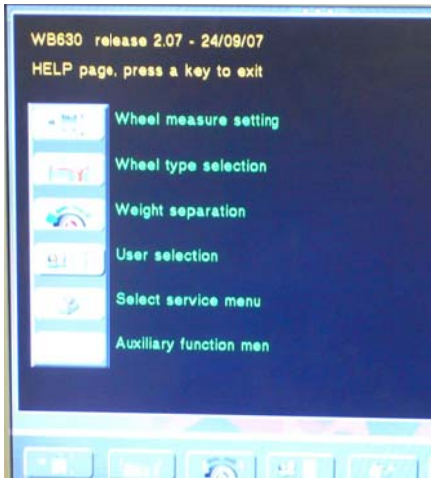


fig.29

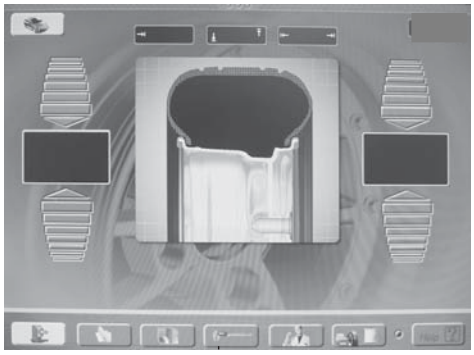


fig.31

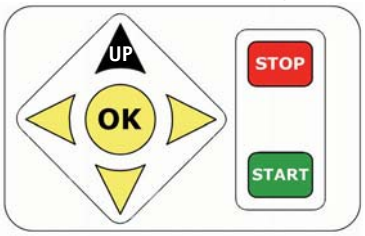


fig.32

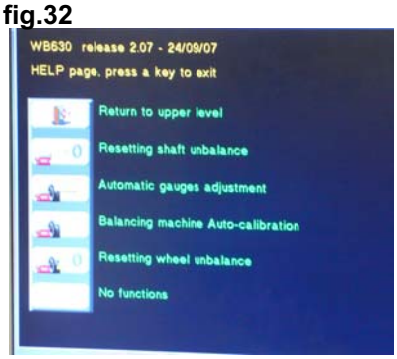
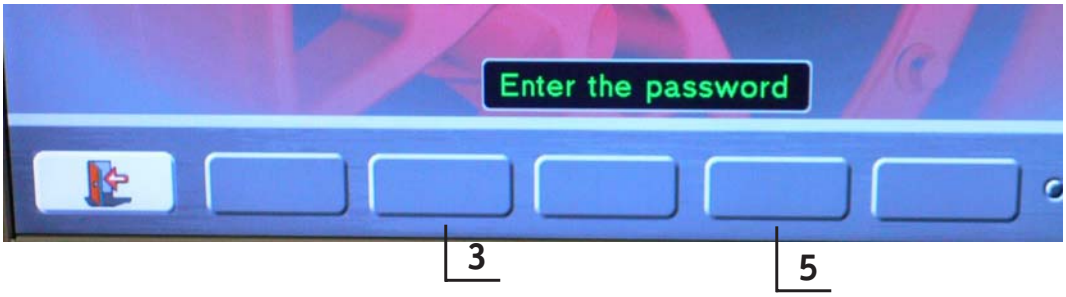


fig.30



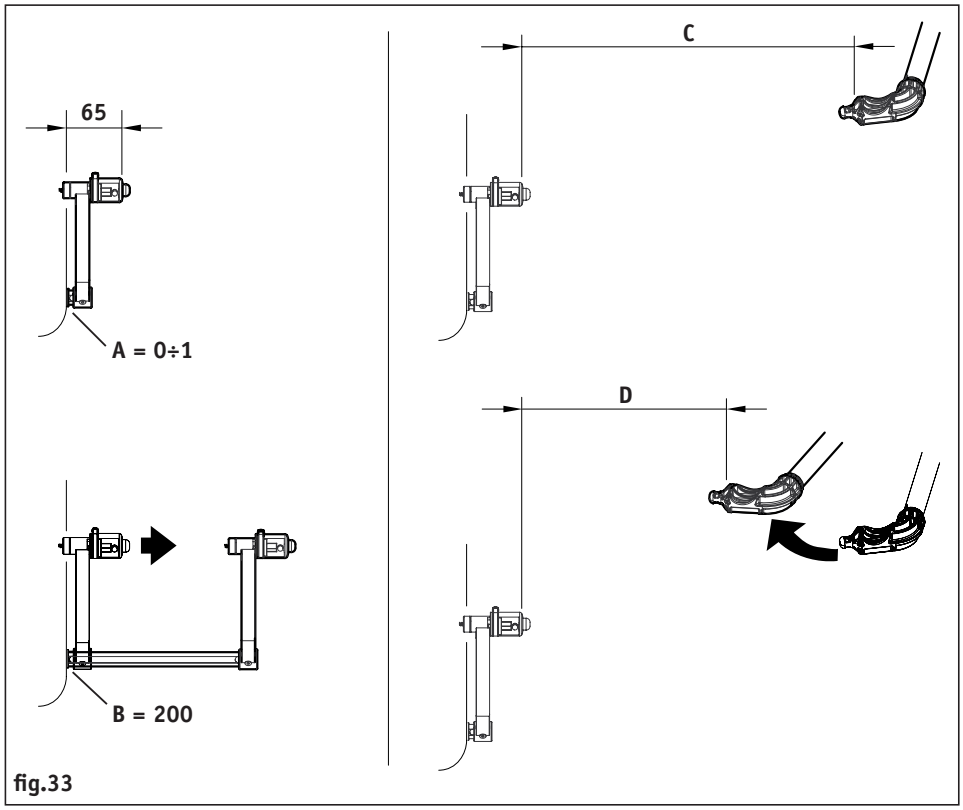


fig.33

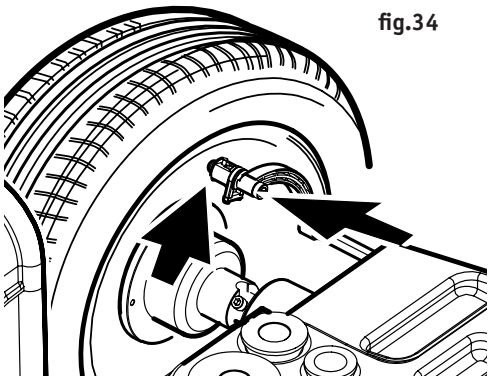


fig.34

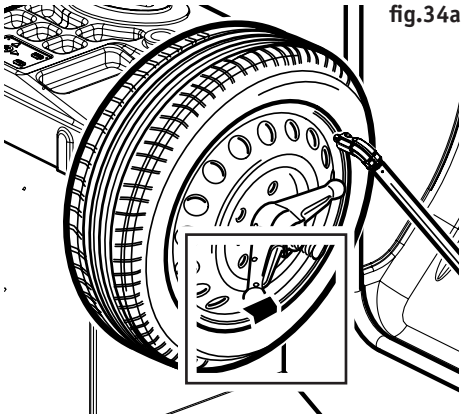


fig.34a

BALANCER SELF CALIBRATION

- Mount a car wheel in good condition of average size (diameter 14”) on the cone adapter and secure well.
- Remove any weights on the wheel.
- Very carefully set the wheel measurements using the automatic gauges (previously calibrated) as shown previously.
- Following the instructions on the monitor, run a cycle with the wheel.
- At the end of the cycle the machine requests the setting of the figures for the weight for the following calibration stages. The default figure is 100g.
- If necessary, insert the figure in grams for the chosen weight for auto-calibration and press the ENTER key to confirm.
- Following the instructions on the monitor, place the weight on the inside of the wheel and run a balance cycle.
- At the end of the cycle remove the calibration weight from the inside of the wheel and move it to the outside, in the symmetrically opposite position; run a balance cycle.
- The wheel must be manually rotated so a to bring the calibration weight into a perpendicular position at 6 o’clock (fig.34a)
- Push the bottom n. 3 in order to confirm the position.

BALANCING ACCURACY TEST

- Balance the two sides of a wheel according to the instructions.
- Artificially create an imbalance by fitting a weight of 50 grams to one side of a wheel. The machine should identify this imbalance precisely, both for the weight and the position of the imbalance. A reading up to 5 grams is possible for the other side.
- In order to check the position of the imbalance, turn the wheel to the balancing position as indicated by the arrows on the monitor (6 O'clock).

- In this particular position, the test weight should be vertically below the shaft (6 O'clock).
- If there is an obvious angular error the indicators have to rectified.
- If there is and unacceptably large weight error on the side with the test weight, or an excessive figure for the opposite side of the wheel, the machine needs to be re-calibrated.

SELF DIAGNOSIS

- Self-diagnostic functions are included to check that the balancing machine is working properly.
- From the MAIN PAGE press the SERVICE MENU key. From here, press the WHEEL BALANCER SELF-DIAGNOSIS key. In this page the monitor displays the following vaues:
  - Supply voltage and reference voltage.
  - Voltages for the distance, width, and diameter gauges.
  - Voltage and phase of the internal pick up (read during the last measurement).
  - Voltage and phase of the external pick up (read during the last measurement).
  - Phase difference (calculated).
  - Angular position (in encoder impulses: from 0 to 399) of the shaft.
  - Speed (in rpm) of the shaft: by pressing START the machine’s operating speed can be checked.
  - Output voltage from the roundness sensor.
  - Roundness sensor supply voltage.
  - Internal pick-up voltage (in real time).
  - External pick-up voltage (in real time).

SECTION 5: TROUBLESHOOTING

This machine can assist the user in idendifying problems and offer remedies to any of the following error messages displayed. The interactive menus that the monitor will display prompt troubleshooting steps to resolve the problems below.

Impossible to complete optimisation.
Memory loss of data. recalibration required.
Motor counter-rotates.
Motor inability to reach range speed.
Protecting cover has not been closed.
Optical sensor for position is defective.
Optical sensor for phase detection is defective.
Protection open.
The wheel speed has dropped below the minimum threshold for measuring.
Possible fault in the electrical system.
Wheel measures data are required.
Wheel unbalance is out of adjustment range.
The sample weight has not been fastened.
Inner PICK-UP defective.
Outer PICK-UP defective.
Phase difference between two PICK-UP it too high.
Optical senor is defective.
Fault during continuous cycle.
Inverted PICK-UP.
Wrong Password.
The line voltage is different from the one used in calibration.

BEAR by M&B Engineering

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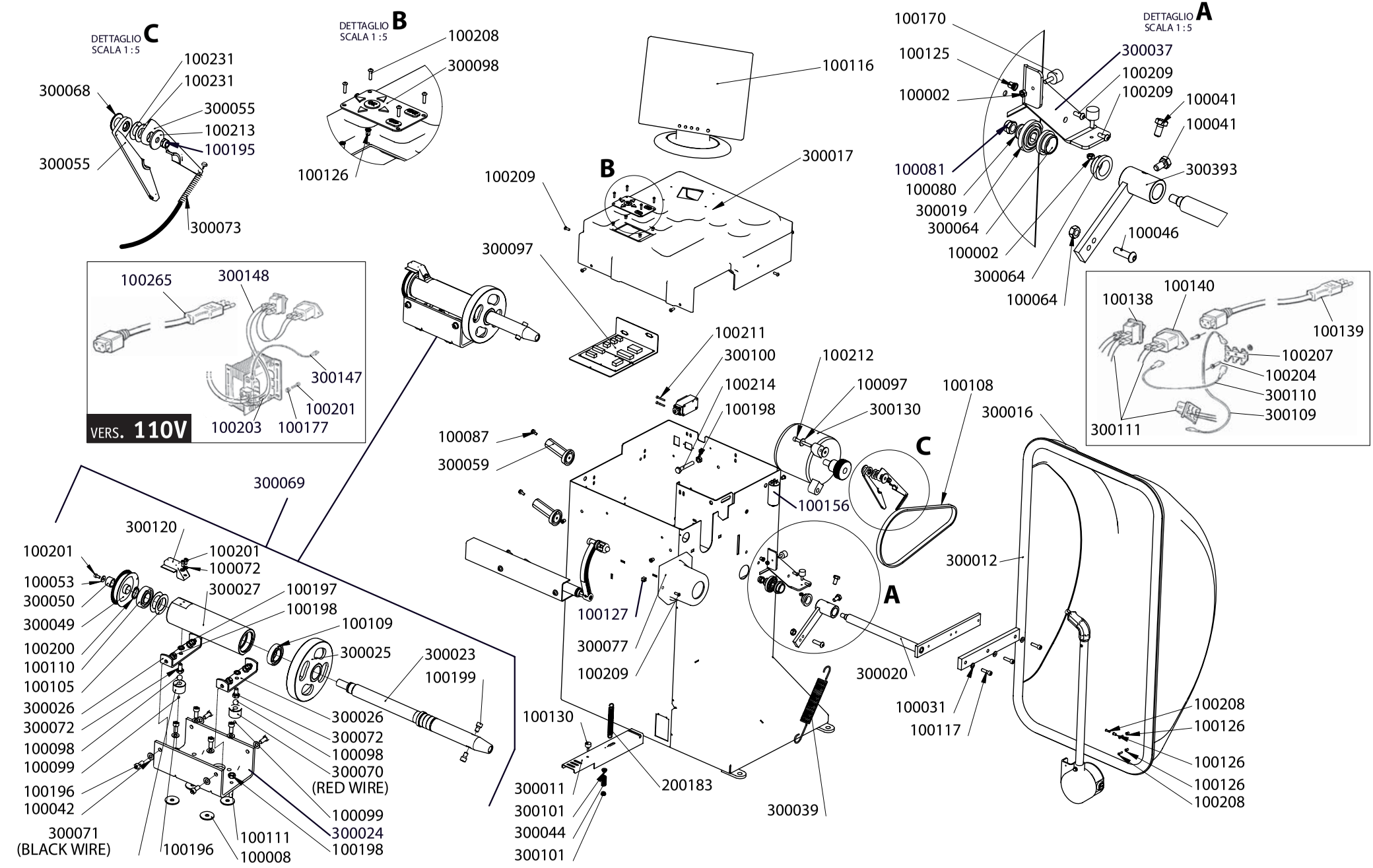
SECTION 6: SPARE PARTS

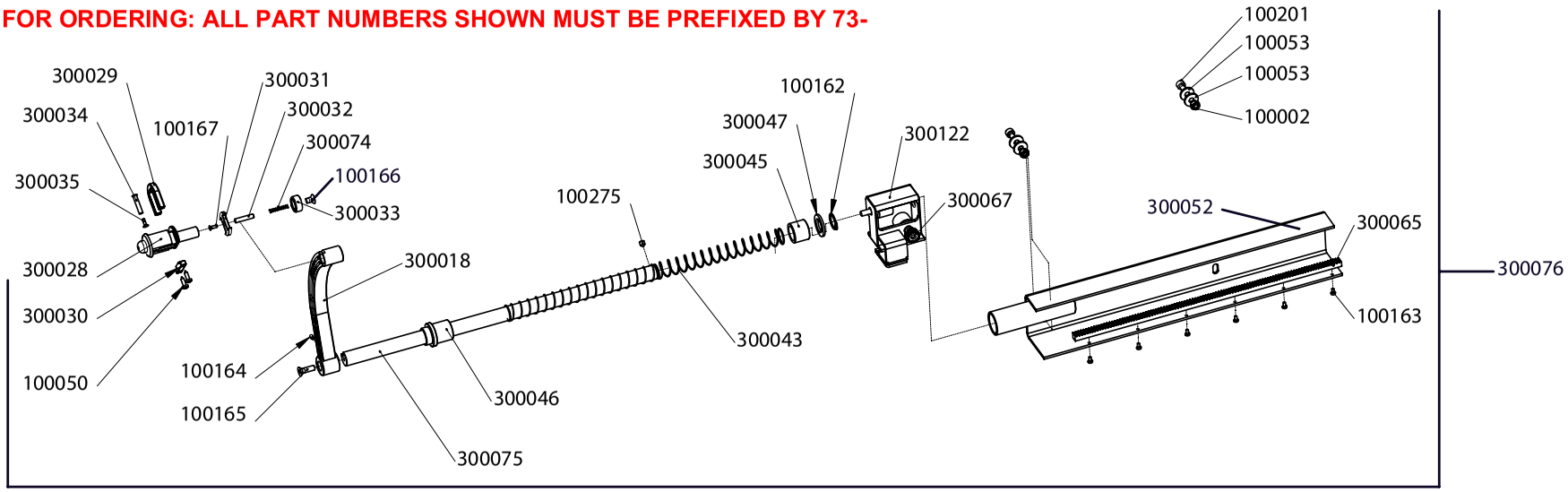
PARTS DIAGRAMS

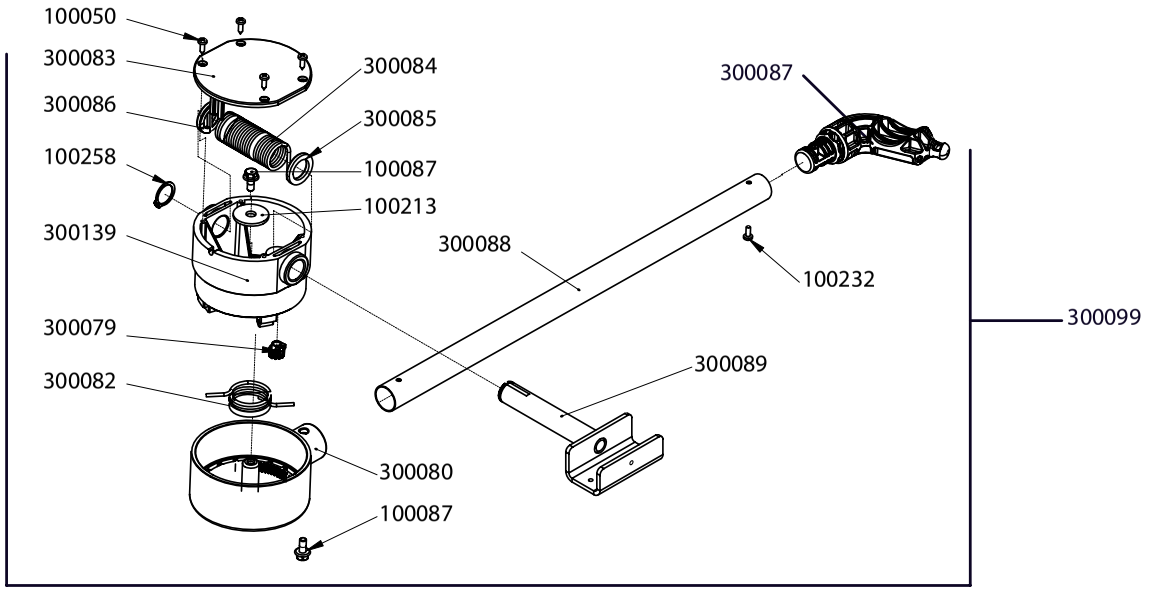
PARTS DESCRIPTIONS



FOR ORDERING: ALL PART NUMBERS SHOWN MUST BE PREFIXED BY 73-

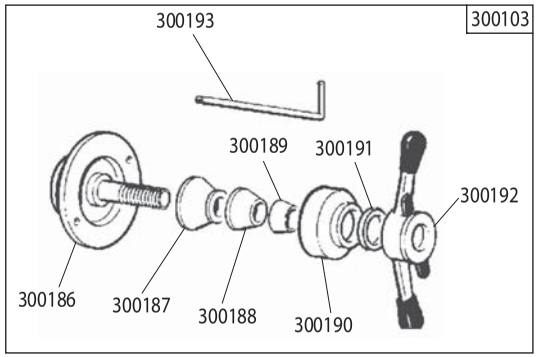
FOR ORDERING: ALL PART NUMBERS SHOWN MUST BE PREFIXED BY 73-

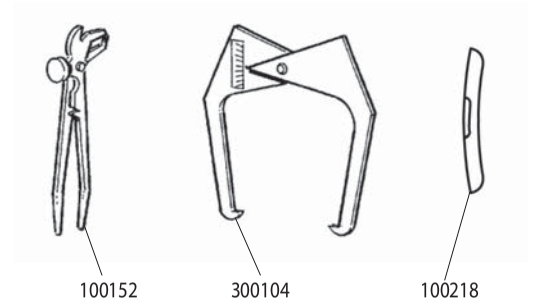




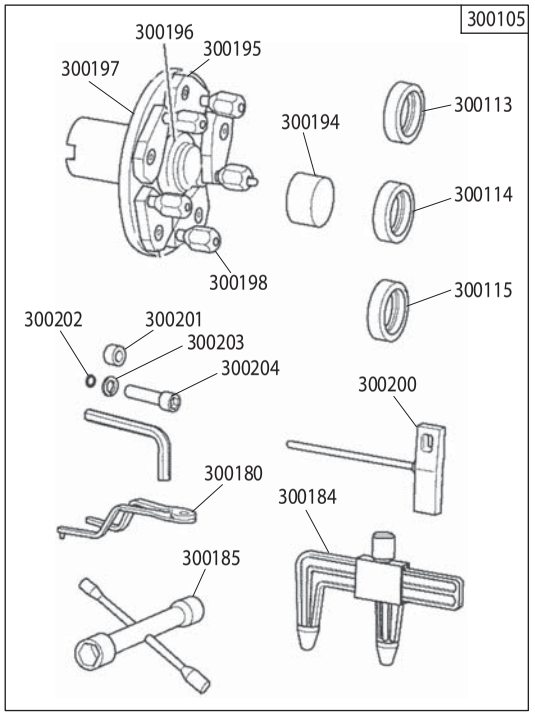
FOR ORDERING: ALL PART NUMBERS SHOWN MUST BE PREFIXED BY 73-

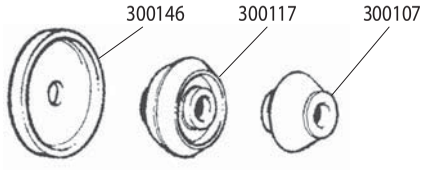
STANDARD

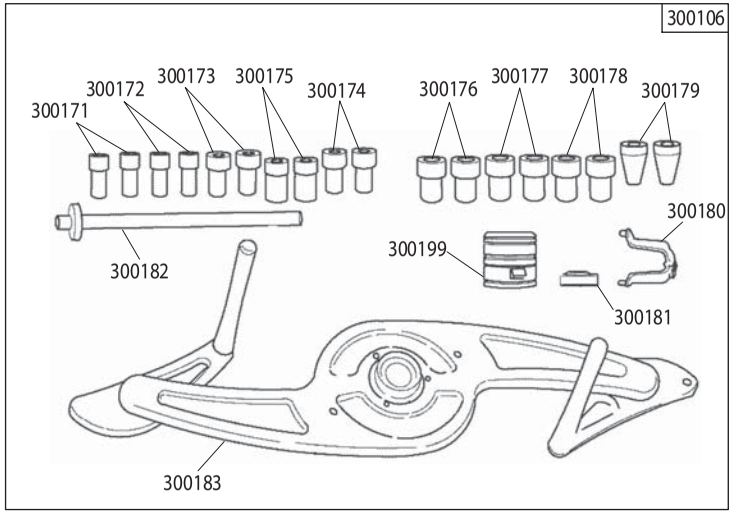


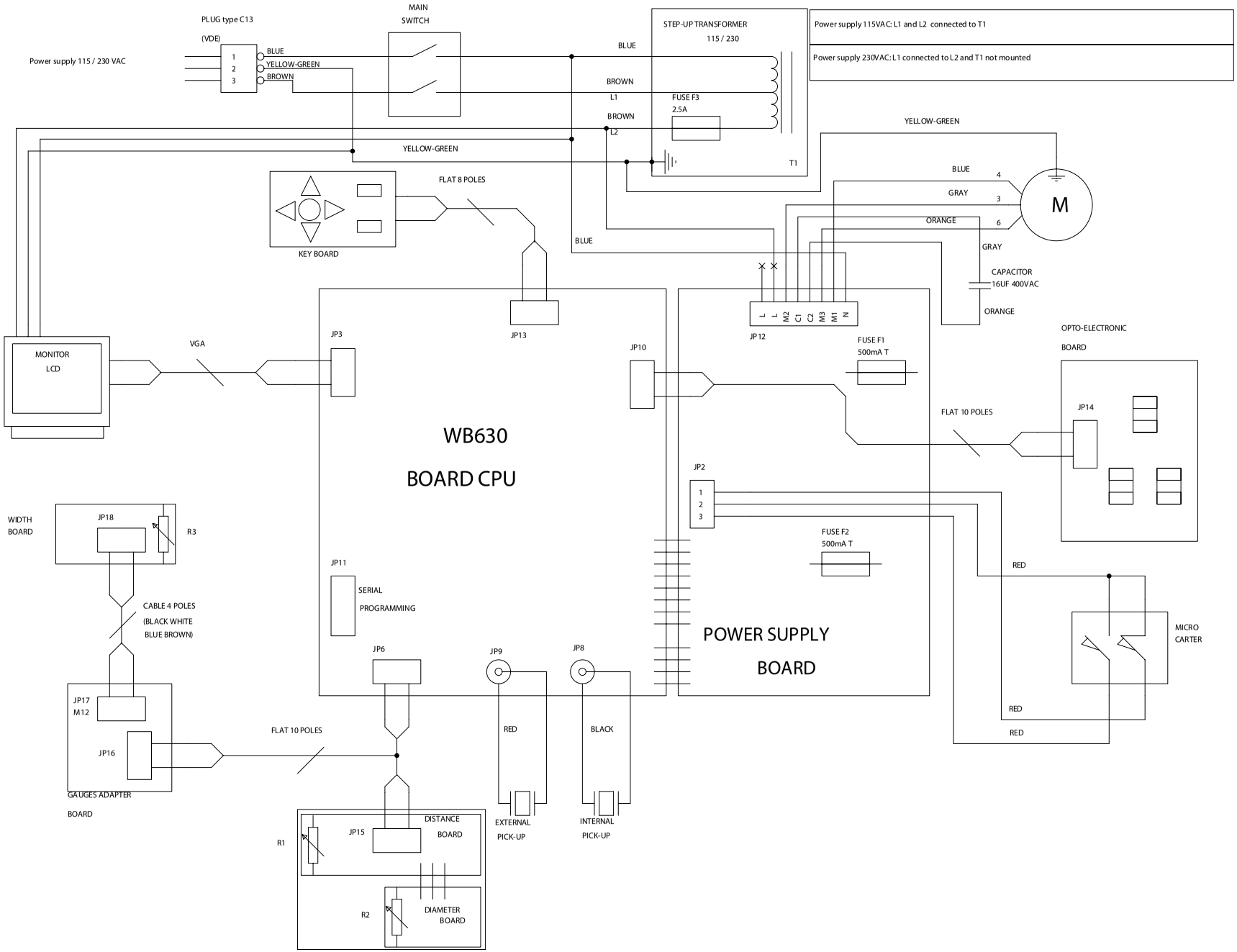


OPTIONAL








Power supply 115 / 230 VAC
PLUG type C13
(VDE)
1
2
3
BLUE
YELLOW-GREEN
BROWN
MAIN
SWITCH
BLUE
BROWN
L1
BROWN
L2
STEP-UP TRANSFORMER
115 / 230
FUSE F3
2.5A
T1
Power supply 115VAC: L1 and L2 connected to T1
Power supply 230VAC: L1 connected to L2 and T1 not mounted
YELLOW-GREEN
YELLOW-GREEN
FLAT 8 POLES
KEY BOARD
BLUE
BLUE
4
GRAY
3
ORANGE
6
GRAY
M
CAPACITOR
16UF 400VAC
ORANGE
L
L
M2
C1
C2
M3
M1
N
JP12
JP13
MONITOR
LCD
VGA
JP3
JP10
FUSE F1
500mA T
OPTO-ELECTRONIC
BOARD
JP14
FLAT 10 POLES
WB630
BOARD CPU
JP2
1
2
3
FUSE F2
500mA T
WIDTH
BOARD
JP18
R3
JP11
SERIAL
PROGRAMMING
CABLE 4 POLES
(BLACK WHITE
BLUE BROWN)
JP6
JP9
JP8
POWER SUPPLY
BOARD
RED
MICRO
CARTER
JP17
M12
JP16
FLAT 10 POLES
RED
BLACK
RED
RED
GAUGES ADAPTER
BOARD
DISTANCE
BOARD
JP15
R1
EXTERNAL
PICK-UP
INTERNAL
PICK-UP
R2
DIAMETER
BOARD

PREFIX	PART NUMBER	DESCRIPTION
73-	100002	NUT 5588
73-	100003	REVERSER
73-	100004	SINGLE PHASE INVERTER
73-	100005	THREE PHASE INVERTER
73-	100006	FLAT WASHER 8,5X32X2,5
73-	100008	WASHER 10,5X40X3
73-	100010	OR GASKET 16X8X4
73-	100012	OR RING 3300
73-	100013	GASKET DEM 80
73-	100014	GASKET DEM 237
73-	100015	GASKET UM- 34
73-	100016	OR RING 184X180X2
73-	100017	GASKET
73-	100018	BI-DIRECTIONAL COUPLER
73-	100019	STEEL GUIDE RING D.20
73-	100020	GASKET DE 725
73-	100021	WASHER FOR PEDAL COCK
73-	100023	OR GASKET 4100
73-	100025	10X30SCREW UNI 5739
73-	100026	NUT M8 5588
73-	100027	8X25 SCREW
73-	100028	NUT M8 5589
73-	100029	HEADLESS SCREW
73-	100030	16X1,5 LOCKNUT
73-	100031	CHANFERED WASHER UNI 6592
73-	100032	1/8 6X4 JOINT
73-	100033	LOCK NUT M14
73-	100034	TOOTHED WASHER SIZE 14
73-	100035	"L" SHAPED CONN. 8X6 1/8
73-	100036	SPHERE BEARING 6004-2Z (20X42X12)
73-	100037	SEEGER UNI7435-D12
73-	100038	CHANFERED WASHER UNI 6592
73-	100040	FLAT WASHER UNI 6592-17x30 (16) ZINC. WHITE
73-	100041	SCREW TE M10x20 UNI 5739 8.8 ZINC. WHITE
73-	100042	LEVEL WASHER UNI 6592-10.5x21 (10) ZINC. WHITE
73-	100043	SEEGER UNI7435-D8
73-	100045	SCREW TSPEI M16x40 UNI 5933 BRT
73-	100046	SCREW TBEI M10x35 ISO 7380 ZNT BIANCO
73-	100047	BLOK NUT M10 UNI 7474 ZINC. WHITE
73-	100048	SCREW TE M10x110 UNI 5737 BRT
73-	100049	1,5 X 30 COTTER PIN UNI 1336
73-	100050	SELF THREADED NUT 3,9X13
73-	100051	COUNTER HEAD SCREW 6X8
73-	100052	6X10 SCREW UNI 5739
73-	100053	CHANFERED WASHER UNI 6593
73-	100054	M 6X25 SCREW
73-	100055	STRAIGHT SHAPED CONNECTION CONICAL 8x6 1/8

73-	100056	"T" SHAPED CENTRAL CONNECTION MALE CONICAL 1/8 6x8
73-	100057	PLASTIC SILENCER 1/4
73-	100058	SPRING COTTER 4X14 UNI 6873
73-	100059	SCREW TCEI M8x45 UNI 5931 BRT
73-	100060	"L" SHAPED CONN. 6X4 1/8
73-	100061	QUICK ANGLE CONNECTION CONICAL 6x4 1/8
73-	100062	SCREW TCEI M8X20 UNI 5931 BRT
73-	100063	SCREW TSPEI M5x16 UNI 5933 BRT
73-	100064	NUT 6S M10 UNI 5588 BRT
73-	100064	NUT 6S M10 UNI 5588 BRT
73-	100065	SCREW TE M14x45 UNI 5739 BRT
73-	100066	FLAT WASHER UNI 6592 15x28 ZINC. WHITE
73-	100067	NUT 6S M14 UNI 5588 BRT
73-	100068	FLAT WASHER UNI 6593 5.5X15X1.5 ZNT BIANCO
73-	100069	SCREW TCEI UNI 5931 M5X10 BRT
73-	100070	SCREW TE M8x30 UNI 5739 BRT
73-	100071	NUT 6S M8 UNI 5588 BRT
73-	100072	FLAT WASHER UNI 6592-6.4x12.5x1.6 (6) ZINC. WHITE
73-	100073	SELF THREADED SCREW 4.8X13 UNI 6954 ZINC. WHITE
73-	100074	SCREW TCEI UNI 5931 M5X14 BRT
73-	100075	GROWER WASHER SIZE 5
73-	100076	SLOTTER SCREW 3X10
73-	100077	TOOTHED WASHER SIZE 3
73-	100078	CHAMFERED WASHER SIZE 16 UNI 6592
73-	100079	SEEGER D16
73-	100080	FLAT WASHER 13X24X2,5
73-	100081	LOCKNUT M12
73-	100082	CORRUGATED SPRING WASHER DIN 137/B12
73-	100083	INTERNAL RING D22
73-	100084	INNER HEX.HEAD UNI 5931
73-	100085	QUICK ROTATING CONN. 6X4 1/8
73-	100086	NUT M12 UNI 5589
73-	100087	SELF THREADED NUT 6,3X13
73-	100090	NUT 6S M4 UNI 5588 ZINC. WHITE
73-	100091	FLAT WASHER UNI 6592 4.3x9 ZINC. WHITE
73-	100092	12X100 INNER HEX. HEAD
73-	100093	1" HOSE CONN. ELBOW
73-	100094	HEX. GEAR
73-	100095	HOSE JUNCTION 3/4 X 20
73-	100096	HEX.OT CAP M.Z. 1"
73-	100097	FLAT WASHER UNI 6593 9X24X2 ZINC WHITE
73-	100098	ANTISHOCK SPHERE SIZE 15
73-	100099	ANTISHOCK SPHERE SIZE 6
73-	100105	BUCKET WASHER FOR BEARING DIN 2093
73-	100108	POLY BELTI V 895 J8
73-	100109	BALL BEARING SKF 6007-2Z
73-	100110	BALL BEARING SKF 6206-2Z

73-	100111	SCREW UNI 5929 STEI M10X25 BLUED CUP
73-	100116	MONITOR LCD WB630
73-	100117	SCREW M8X30
73-	100118	SCREW M6X20
73-	100120	SCREW M8X10
73-	100121	SCREW M10X150
73-	100122	SCREW M6X10
73-	100123	SCREW M8X20
73-	100124	6X6X25 TAB
73-	100125	M6 ALLUMINUM RIVET FTT-L
73-	100126	M4 ALLUMINUM RIVET FTT-L
73-	100127	CAGE NUTM6 ZINC. YELLOW
73-	100128	CARVING SCREW M4X16 (BRASS)
73-	100129	NUT M4 BRASS
73-	100131	LOCKING CONTROL HANDLE
73-	100132	QUICK ANGLE CONNECTION 8x6 1/4
73-	100135	PROTECTION CUPS PA262
73-	100136	NYLON CABLE PRESS PG 11
73-	100137	NUT FOR FAIRLEAD PG11
73-	100138	SWICHT
73-	100139	CORD.3x0.75 H05VVF L=2MT NERO SCHUKO 90°+CEE DIR.
73-	100140	PLUG 6.3 P/N 0166-CW
73-	100141	QUICK ANGLE CONNECTION M. GIR. CIL.1/4
73-	100143	MALE FEMALE EXTENTION 1/4 L=27
73-	100144	ADJUSTABLE RING 1/4
73-	100145	DOUBLE HOLES SCREW 1/4
73-	100146	CONIC NIPPLE 1/4-3/8
73-	100147	1/4 A WAY DISTRIBUTION BLOCK
73-	100148	1/4 ZE0063101 SAFETY VALVE
73-	100149	WATER DISCHARGE COCK 1/4
73-	100152	COUNTER WEIGHT PLIERS
73-	100156	CONDENSER
73-	100161	RING 2031 7.66x1.78 NBR
73-	100162	SEEGER UNI 7435-D18
73-	100163	CARVING SCREW TC UNI 6107 M3X6 ZINC. WHITE
73-	100164	SCREW M4X8 FLAT TIP
73-	100165	SCREW TSPEI UNI 5933 M6X20 BRT
73-	100166	SCREW TSPEI UNI 5933 M6X10 BRT
73-	100167	SCREW TSPEI UNI 5933 M3X10 BRT
73-	100169	MANOMETER 0-10BAR E PSI R1/4-ISO7
73-	100170	CYLINDRICAL BUMPER D.20
73-	100172	RING OR4150 37,69x3.53 NBR 70
73-	100176	SREW TCEI UNI 5931 M6X40 BRT
73-	100177	LOW LOCKING NUT M6 UNI 7474 ZINC. WHITE
73-	100178	RUBBER LIMIT SWITCH EXTERNAL D. 21
73-	100179	SCREW TE M6X16 UNI 5739 BRT
73-	100184	ANGLE CONNECTION M. 8x6 1/4

73-	100185	TUBE FASTENER 22X31
73-	100186	QUICK COUPLING 6X8 1/4
73-	100191	INFLATION COMPLETE HOSE
73-	100192	3/4 ANGLE
73-	100193	CHAMFERED WASHER
73-	100194	HIGH BLOK NUT 7473
73-	100195	LOW LOCKNUT M8 UNI 7474
73-	100196	SCREW TCEI UNI 5931 M10X25 ZINC. WHITE
73-	100197	10 KNURLED WASHER
73-	100198	NUT 6S M10 UNI 5588 ZINC. WHITE
73-	100199	SREW TCEI UNI 5931 M10X16 ZINC. WHITE
73-	100200	SEEGER UNI 7435-D30
73-	100201	SCREW TCEI UNI 5931 M6X12 BRT
73-	100204	ALUMINIUM RIVET 4X16
73-	100205	SCREW STEI UNI 5925 M6X10 PUNTA CILINDRICA BRT
73-	100206	SCREW TCEI UNI 5931 M8X35 BRT
73-	100208	SCREW TBEI CON FLANGIA M4X16 BRT
73-	100209	SCREW TBEI CON FLANGIA M6X16 BRT
73-	100211	SCREW TCEI UNI 5931 M4X30 BRT
73-	100212	SCREW TCEI UNI 5931 M8X65 BRT
73-	100213	FLAT WASHER 32x9x2,6 ZINC. WHITE
73-	100214	SCREW TE M10x70 UNI 5739 ZINC. WHITEO
73-	100215	EXTERNAL NOTCHED WASHER DIN 6798 D.4 BRT
73-	100218	100g WEIGHT
73-	100219	SCREW TC TORX 3x20 1452 . ZINC. WHITE
73-	100223	NUT 6S M4 UNI 5588 BRT
73-	100227	FLAT WASHER UNI6592-15x28 (14) ZNT BIANCO
73-	100228	SCREW TE M14x30 UNI 5739 BRT
73-	100231	CUP SPRING 31,5x16,5x0,8
73-	100232	SCREW T.CROSS 4,2x9,5 T1/2T ZINC. BLAK (16947)
73-	100233	WASHER CONTACT 14 ZNT GIALLO
73-	100240	SCREW TCEI UNI 5931 M4X40 BRT
73-	100245	LOW LOCKING NUT M20x1.5 UNI 7474 ZINC. WHITE
73-	100246	SCREW TE M20x130 UNI 5737 BRT
73-	100247	COTTER UNI 8833-A4 ZINC. YELLOW
73-	100248	BOTTOM GROUP 3/2 NC T.4 RED
73-	100249	PASSED SIDE CONNECTION TUBE 8x6
73-	100250	CUP 1/8"
73-	100251	QUICK T CONNECTION F/F/F TUBO 8x6
73-	100254	QUICK ROTATING CONNECTION 8X6 1/8
73-	100255	QUICK ROTATING CONNECTION 4X2,5 1/8
73-	100258	SEEGER UNI 7435-D20
73-	100259	FLAT TIP SCREW STEI UNI 5923 M10X50
73-	100260	FLAT TIP SCREW UNI 5923 M10X25
73-	100270	FLAT WASHER UNI 6592 23x39 (22) ZINC. WHITE
73-	100271	SCREW TE M22x30 UNI 5739 BRT
73-	100275	SCREW STEI UNI 5927 M6X5 P.CONICA BRT

73-	100296	TAB UNI 6604 12X8X40
73-	100308	GROWER WASHER UNI 1751 D. 6
73-	200104	BEAD BREAKER CYLINDER PISTON
73-	200105	BEAD BREAKER CYLINDER FRONT FLANGE
73-	200106	REAR HEAD D.80 ALLUMINIUM
73-	200107	FRONT HEAD D.80 ALLUMINIUM
73-	200108	GASKET FIXING RING D.18
73-	200109	BEAD BREAKER REAR FLANGE
73-	200110	BEAD BREAKER PISTON-RING
73-	200111	BEAD BREAKER TIE ROD
73-	200112	RACING BEAD BREAKER CYLINDER BAR
73-	200113	CYLINDER CHAMBER D.80 SELF CENTERING PLATE 20"
73-	200114	CYLINDER PISTON D.80
73-	200115	CYLINDER TIE ROD D.80 SELF CENTERING PLATE 20"
73-	200116	CYLINDER ROD D.80 SELF CENTERING PLATE 20"
73-	200117	CYLINDER D.80 20"
73-	200118	INVERTER CUP
73-	200119	INVERTER BODY
73-	200120	LOCKING ROLL HOLDER
73-	200121	BEAD BREAKER ANTI REVERSE RING
73-	200122	BEAD BREAKER CYLINDER BAR
73-	200124	OR SPACER
73-	200125	GUIDE PIN WASHER
73-	200127	SPRING PUSH CUP
73-	200128	TURNING COLLECTOR COMPLETE GROUP
73-	200129	SLOW RELEASE LOCKING ROLL
73-	200130	TOWER TAB
73-	200131	LOCKING CYLINDER PISTON
73-	200132	GUIDE BUSH
73-	200133	ANTI REVERSE RING
73-	200134	LOCKING CYLINDER NYLON CHAMBER
73-	200135	CYLINDER CUP
73-	200153	SELF CENTERING CYLINDER SUPPORT
73-	200162	FRONT BEAD BREAKER SUPPORT
73-	200163	TOWER ROLL
73-	200164	SPECIAL SREW FOR TOWER
73-	200166	INVERTER LEVER
73-	200167	INVERTER PROTECTION CAP
73-	200169	PEDAL INVERTER SPRING
73-	200170	SPRING FULCRUM TUBE
73-	200171	REGISTER BAR
73-	200172	INVERTER CONTROL FORK
73-	200173	INVERTER BAR
73-	200174	INVERTER REGISTER SPACER
73-	200175	LEVEL GUIDE WASHER
73-	200176	BAR FIXING PIN
73-	200177	INVERTER PEDAL

73-	200180	FIXING TUBE PLATE
73-	200181	PEDAL
73-	200182	COCK BAR FORK
73-	200183	PEDAL RETURN SPRING
73-	200184	COCK ROD FORK
73-	200185	TRIGGER RETURN SPRING
73-	200186	COCK ROD
73-	200187	PEDAL BODY
73-	200191	INVERTER PEDAL SPACER
73-	200193	PLASTIC ANTISHOCK RING
73-	200194	SPRING PRESSURE CAP
73-	200195	TILTING POLE CONTROL PEDAL
73-	200196	SELF CENTERING CONTROL PEDAL
73-	200197	PEDALE COMANDO STALLONATORE
73-	200203	LOCKING SYSTEM
73-	200204	PEDAL AXIS
73-	200205	PEDAL SPACER
73-	200209	LOCKING CONTROL HANDLE
73-	200210	BEAD BREAKER TOOL
73-	200215	KIT PROTEZIONE PER PALETTA STALLONATORE
73-	200216-016	NYLON PROTECTION FOR BEAD BREAKER TOOL KIT
73-	200221	ADJUSTER FOR BEAD BREAKER
73-	200225	STOP PLUG FOR BEAD BREAKER SLIP OFF
73-	200227	FIXING PIN FOR BEAD BREAKER CYLINDER
73-	200228-016	FIXED BEAD BREAKER ARM GREY RAL 7016
73-	200234	NYLON WASHER 52x20
73-	200235	HANDLE PIN TOOL
73-	200236	INFLATOR TUBELESS TANK WITH FIXING PLATE
73-	200242	WEDGE CAP
73-	200243	VERTICAL LOCKING CYLINDERS
73-	200244	UNIVERSAL LOCKING CYLINDER CHAMBER
73-	200248-006	SLIDE SLIDE 28" ZINC. YELLOW
73-	200249	REGISTER FORK
73-	200250	FORK PISTON
73-	200251	LOCKING CLAMP SPRING
73-	200254	WEDGE
73-	200256	HORIZONTAL STOPPER
73-	200261	PIN FOR BACK SPRING CONNECTION
73-	200262	RATCHET TOOL SPACER
73-	200263	PIN ADAPTOR FOR INVERTER BOARD FROM 5 TO 6
73-	200264	PEDAL SPACER - TWO PEDALS
73-	200265	INVERTER GROUP SPACER
73-	200266	SLIDING ROLL
73-	200268	UPPER FULCRUM PIN FOR BEAD BREAKER CYLINDER
73-	200269	CONTROL CLAMP ROD BUSH
73-	200270	CYLINDERS FULCRUM PIN D.80
73-	200271	TOWER

73-	200272	MOUNTING HEAD PROTECTION
73-	200273	CYLINDER TIP POLE CHAMBER
73-	200274	OVERTURNING POLE CYLINDER FORK ZINC.WHITE
73-	200275	OVERTURNING POLE CYLINDER STEM
73-	200276	OVERTURNING POLE CYLINDER
73-	200277-015	TYRE CHANGER TC522-528 BOX RED RAL 3000 B.
73-	200277-023	TYRE CHANGER TC522-528 BOX BLU RAL 5015 B.
73-	200300-015	TYRE CHANGER TC322 BOX RED RAL 3000 B.
73-	200300-023	TYRE CHANGER TC322 BOX BLU RAL 5015 B.
73-	200304	BEAD BREAKER SUPPORTER
73-	200307-006	SLIDE 28" IT ZINC. YELLOW
73-	200308-016	TYRE CHANGER POLE TC522-528
73-	200318-016	SLIDING ARM TC522-528 GREY RAL 7016 BUCC.
73-	200322	LOCKING CYLINDER SUPPORT
73-	200327	POLE FULCRUM PIN
73-	200328-016	TYRE CHANGER TC322 POLE
73-	200335	VERTICAL BAR FOR TYRE CHANGER TC522-528
73-	200336-016	ARM FOR TYRE CHANGER TC322 GREY RAL 7016 B.
73-	200342	NORMAL BEAD BREAKER CYLINDER
73-	200343	RACING BEAD BREAKER CYLINDER
73-	200344	CYLINDER TIE ROD FOR TECNOHELP
73-	200346	TYRE CHANGER FOOT
73-	200348-016	BEARING STUCTURE TECNOHELP GREY RAL 7016
73-	200348-015	BEARING STUCTURE TECNOHELP RED RAL 3000
73-	200349	TECNOHELP CYLINDER
73-	200350-016	TECNOHELP SLIDING GREY RAL 7016 B.
73-	200351-016	TECNOHELP THIRD ARM GREY RAL 7016 B.
73-	200352	ROLL HOLDER PANEL
73-	200354	PUSH WHEEL CONE
73-	200355	THIRD ARM GUIDE PANEL
73-	200357	THIRD ARM SQUARE FIXED PIN
73-	200358	VERTICAL GUIDE BAR WITH ANTI ROTATION CARBON NITRIDING
73-	200359-016	TECNOHELP FRONT PROTECTION GREY RAL 7016 B.
73-	200360-016	TECNOHELP REAR PROTECTION GREY RAL 7016 B.
73-	200361	THIRD ARM HORIZONTAL LOCKING SUPPORT
73-	200362	TECNOHELP ROLL
73-	200371	FIXING PIN WITH PRESSING WHEEL
73-	200393	MOTOR SUPPORT
73-	200394	FIXING PIN FOR TECHNOHELP ZINC.WHITE
73-	200395-003	REVERSAL BAR SPRING
73-	200396	TURNING JOINT PIN FOR RACING VERSION
73-	200398	REVERSAL REAR PISTON SPRING
73-	200399	SPRING FOR SLOW RELEASE LOCKING
73-	200400	RACING ADAPTOR SPRING
73-	200401	BEAD BREAKER ARM FULCRUM PIN
73-	200402	TURNING JOINT PIN
73-	200403	AUXILIARY DEVICE CYLINDER STEM

73-	200404	AUXILIARY DEVICE CYLINDER CHAMBER
73-	200406	VERTICAL STEM LOCKING PROTECTION
73-	200407	HOLDER CASE FOR TYRE CHANGERS BOX
73-	200408-016	TECNOHELP CENTRAL PROTECTION GREY RAL 7016 B.
73-	200409	CAR TYRE CHANGER PEDAL PROTECTION
73-	200410-016	CAR TYRE CHANGERS SIDE DOOR GREY RAL 7016
73-	200414	SQUARE SELF CENTERING PLATE 20"
73-	200418	VERTICAL LOCKING REGISTER SREW
73-	200419	TYRE CHANGER FULCRUM SCREW - FLAG ARM
73-	200420	IT COCK BAR
73-	200421-016	SIDE DOOR FOR CART IT TYRE CHANGER GREY RAL 7016
73-	200422	AUXILIARY DEVICE CONTROL BOX
73-	200423	SPECIAL SCREW
73-	200424	THREE PHASE INVERTER GROUP
73-	200425	REDUCER WITH SHAFT CONICITY 1:5
73-	200426	VERTICAL BAR LOCKING PLATE ZINC. WHITE
73-	200427	VERTICAL BAR LOCKING PLATE
73-	200428-016	LOCKING HORIZONTAL CYLINDER PROTECTION GREY RAL 7016
73-	200429	TOWER STIFFENING WASHER
73-	200430	TOWER GROUP
73-	200431	TOWER STIFFENING PLATE
73-	200432	TIE ROD
73-	200433-016	IT PEDAL PROTECTION GREY RAL 7016 B.
73-	200437	LEVELLING WASHER 30X17X0.3
73-	200438	IT PEDAL GROUP
73-	200440	SELF CENTERING CONTROL PLATE GROUP
73-	200441	LEVELLING WASHER 45x20x0.3
73-	200442	TYRE CHANGER TC322 VERTICAL STEM
73-	200458	IT MANOMETER SUPPORT GREY RAL 7016 B.
73-	200464-006	20" SLIDE ZINC. YELLOW
73-	200465-006	20" SLIDE WITH SUPPORT ZINC. YELLOW
73-	200466-006	IT 20" SLIDE ZINC. YELLOW
73-	200467-006	IT 20" SLIDE WITH SUPPORT ZINC. YELLOW
73-	200470-016	HELP FIRST ARM GREY RAL 7016 B.
73-	200471	HELP SECOND ARM
73-	200485	AUTOMATIC TYRE CHANGER PEDAL GROUP
73-	200486	TILTING POLE COCK
73-	200487	SELF CENTERING CONTROL COCK
73-	200488	BEAD BREAKER CONTROL COCK
73-	200489-006	DRIVING SLIDE 20" WITH SUPPORT ZIC.YELLOW
73-	200492	REVERSAL LOCKING SPRING
73-	200493	VERTICAL STEM LOCKING CYLINDER GROUP
73-	200497	BLOWER VALVE FROM 1"
73-	200502	GONFIATUBLESS BLOWER VALVE SUPPORT
73-	200503	REGULATOR PIN FOR HELP THRUST BEARING ZINC.WHITE
73-	200504	HELP SLIDING
73-	200507	ARM REGULATOR HANDWHEEL

73-	200510-016	TECNOHELP FOOT GREY RAL 7016 B.
73-	200511	COLLECTOR SUPPORT
73-	200512	IT TURNING COLLECTOR
73-	200514	BEAD BREAKER ARM RETURN SPRING
73-	200516	RACING BEAD BREAKER CYLINDER ADAPTOR
73-	200517	RACING BEAD BREAKER CYLINDER STEM PLUG
73-	200535	TOWER LOCKING VALVE GROUP
73-	200536	SLIDING LOCKING FRONT LEVER
73-	200537	SLIDING LOCKING REAR LEVER
73-	200540	TERMINAL BOARD 4 POLE 3 OUTPUT CABLE 3PH
73-	200541	TERMINAL BOARD 4 POLE 3 OUTPUT CABLE 1PH
73-	200547	REDUCER PULLEY A120
73-	200551	STEM REGULATOR HANDLE
73-	200554	REDUCER WITH SHAFT CONICITY 1:5 IT VERSION
73-	200555	IT CONTROL PEDAL
73-	200560	TIPPING POLE RUBBER PROTECTION
73-	200561	TIPPING POLE SHOCK ABSORBER
73-	200562	SCREW TE M10x180 BRT
73-	200563	UNDERSIDE OF 6"8"10" SCOOTER ADAPTOR ZINC.WHITE
73-	200564	MOTORCYCLE ADAPTOR UNDERSIDE
73-	200571	SCOOTER ADAPTOR - 6"/8"/10" WEDGE
73-	200572	RACING BEAD BREAKER RUBBER WASHER
73-	200573	BELT TIGHTENER RUBBER WASHER
73-	200574	IT PEDAL FULCRUM PIN
73-	200578	TC522-528 HORIZONTAL LOCKING CYLINDER GROUP
73-	200583	TOOL PROTECTION FIXING
73-	200584	MR 1/4" 039 4R T 3.5 B+VAL+RAC. AUT.
73-	200585	FR+BUI+L 1/4" 040 12 R + CONNECTION
73-	200586	F+L 1/4" 042 07 PE +MR+V
73-	200588	CLOSING SLOT BOX FOR PEDALS (TWO PEDALS)
73-	200589	SLIDE GUARD KIT
73-	200599	TECNOHELP REGULATOR ROUND
73-	200600	HELPER THRUST BUFFER
73-	200601	IT PEDAL POLYURETHANE SPRING
73-	200602	IT PEDAL COCK
73-	200603	BLOWING VALVE GROUP
73-	200604	MOTORCYCLE ADAPTORS KIT
73-	200605	NYLON PROTECTION FOR BEAD BREAKER TOOL
73-	200606	SCOOTER ADAPTORS KIT
73-	200607	RUBBER TUBE A 20 BAR 19X30 L=680 BLOWING VALVE BOTTLE
73-	200608	RUBBER TUBE 20 BAR 19X30 L=510 BLOWING VALVE COMMUTATOR
73-	200609	IT BOTTLE GROUP
73-	200610	INFLATING MANOMETER GROUP
73-	200614	RILSAN TUBE 6X4 L=75
73-	200619	1 PHASE INVERTER GROUP
73-	200639	COMMUTATOR GROUP + 3 PHASE INVERTER
73-	200651	PEDAL TC322 IT ZINC. WHITE VERSION

73-	200667	TECNOHELP PASS SIDE CORNER ZINC.WHITE
73-	200668	ANTIROLL PANEL LOCK
73-	200678	5/3 CLOSED CENTRES 1/8" WITH CONNECTORS
73-	200682-006	28" SLIDE ZINC. YELLOW
73-	200693	BRASS VALVE + BOTTOM VALVE FOR AIR OUTLET (INFL.MANOMETER)
73-	200866	TECNOHELP BRASS BLADE
73-	200875	SLIDE GUARD
73-	200881	GASKET KIT FOR CYLINDER D.80
73-	200882	GASKET KIT FOR BEAD BREAKER CYLINDER
73-	200884	TURNING COLLECTOR GASKET KIT
73-	200885	INVERTER CONTROL GROUP
73-	200902	JACKET GROUP + BEAD BREAKER CYLINDER CHAMBER
73-	300001-015	CAR WHEEL BALANCER BOX RED RAL 3000 B.
73-	300001-023	CAR WHEEL BALANCER BOX BLU RAL 5015 B.
73-	300011-016	CAR WHEEL BALANCER BRAKE PEDAL GREY RAL 7016 B.
73-	300012-016	WHEEL PROTECTION SUPPORT GREY RAL 7016 B.
73-	300015	WB255 WEIGHTS HOLDER CARTER
73-	300016	CAR WHEEL BALANCER WHEEL PROTECTION CARTER
73-	300017	VIDEO WHEEL BALANCER WEIGHTS HOLDER CARTER
73-	300018	GAUGE MEASURING STEM
73-	300019	CAR WHEEL BALANCER ACTIVATION MICRO CAM
73-	300020	PROTECTION FULCRUM PIN
73-	300023	OSCILLANTING GROUP SHAFT
73-	300024	OSCILLANTING GROUP SUPPORT
73-	300025	OSCILLANTING GROUP PULLEY
73-	300026	OSCILLANTING GROUP CLAMP
73-	300027	OSCILLANTING GROUP TUBE
73-	300028	FEELER PIN PART
73-	300029	FEELER PIN FLOATING PART
73-	300030	FLOATING PART LOCK
73-	300031	FEELER PIN LOCKING WEIGHT
73-	300032	FEELER PIN DRIVING PIN ZINC. WHITE
73-	300033	FEELER PIN CLOSER
73-	300034	ADHESIVE WEIGHT EJECTOR UPPER PART
73-	300035	ADHESIVE WEIGHT EJECTOR LOWER PART
73-	300037-016	WHEEL PROTECTION STOPPER CAR WHEEL BALANCER GREY RAL 7016
73-	300039	WHEEL PROTECTIONCARTER SPRING
73-	300043	FRONT GAUGE REVERSAL SPRING
73-	300044	BRAKE END RUN SPRING
73-	300045	REAR GAUGE BUSH
73-	300046	FRONT GAUGE BUSH
73-	300047	GAUGE WASHER
73-	300049	OPTOELECTRONIC READING DISC
73-	300050	LOCKING DISC
73-	300052	FRONT GAUGE SUPPORT
73-	300055-011	WHEEL BALANCER BRAKE SHOE WITH BRAKE LINING
73-	300059	CONES SUPPORT

73-	300064	GUIDE PIN BUSH
73-	300065	FRONT GAUGE RACK
73-	300067	FRONT GAUGE GEAR
73-	300068	BRAKE SHOE BUSH ZINC.WHITE
73-	300069	CAR WHEEL BALANCER OSCILLANTING GROUP
73-	300070	FRONT PICK UP GROUP
73-	300071	REAR PICK UP GROUP
73-	300072	SCREW WITH NOTCH FOR PICK UP
73-	300073	MECHANICAL BRAKE REVERSAL SPRING
73-	300074	POSITIONING WEIGHTS PLIER SPRING
73-	300075	ASTA CALIBRO ANTERIORE
73-	300076	FRONT GAUGE BAR
73-	300077	OSCILLANTING GROUP PIN COVER
73-	300079	REAR GAUGE GEAR
73-	300080	REAR GAUGE UPPER PART
73-	300082	REAR GAUGE UPPER SPRING
73-	300083	REAR GAUGE COVER
73-	300084	REAR GAUGE LOWER SPRING
73-	300085	DRIVING WASHER LEVEL SPRING
73-	300086	DRIVING WASHER SHAPED SPRING
73-	300087	REAR GAUGE FEELER PIN
73-	300088	REAR GAUGE BAR
73-	300089	TONDO DI FULCRO CALIBRO POSTERIORE
73-	300093	WHEEL PROTECTION BALANCING SPRING PULL
73-	300096	WB255 COMPLETE PANEL
73-	300097	VIDEO WB630 ELECTRIC BOARD
73-	300098	VIDEO WB630 ACTION CENTER
73-	300099	WIDTH GAUGE GROUP
73-	300100	WB630-255 MICRO WITH CABLE
73-	300101	BRAKE PEDAL SPRING GUIDE
73-	300103	CONES COMPLE FLANGE
73-	300104	DIAMETER/WIDTH GAUGE
73-	300105	UNIVERSAL HOLE FLANGE 3-4-5 HAWEKA
73-	300106	QUICK MOTORCYCLE FLANGE
73-	300107	4RD CONES
73-	300117	5RD CONES
73-	300120	OPTOELECTRONIC GROUP SUPPORT
73-	300122	WIDTH INPUT GROUP
73-	300130	WHEEL BALANCER MOTOR WITH PULLEY
73-	300139	WIDTH GAUGE
73-	300146	UNIVERSAL SPACER
73-	300180	HOLDER WHEEL PIN FIXING KEY
73-	300182	MOTORCYCLE SHAFT 14mm Cod. HAWEKA 870 997 140
73-	300184	CALIPER FOR PCD IN NYLON COD.HAWEKA 490008000
73-	300185	HEXAGONAL TUBE KEY 19 / 22
73-	300187	CONES D. 75-110
73-	300188	CONES D. 54-80

73-	300189	CONES D. 42-65
73-	300190	CONCAVE SLEEVE
73-	300191	STOPPER RING IN NYLON
73-	300192	QUICK FIXING LOCKNUT
73-	300193	HEXAGONAL “L” KEY 14
73-	300198	CONICAL NUT M10X1.25