



GLO-1030

(WHEEL BALANCER)

OPERATION MANUAL

DATE INSTALLED: _____

SERIAL # _____

MANUFACTURING DATE: _____

(EAGLE - GLOBAL : NHT)

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GENERAL

This is an electronic balancing machine with microprocessor designed for balancing wheels weighing up to 665kg

The push button controlled calibration system allows arrange of adjustment which is also sufficient to cover wheels differing from ordinary ones (motorcycles and racing cars).

Special functions are also available to cater for wheels of unusual shape and there is provision for optional functions on the balancing machine.

RECOMMENDATIONS

- Before starting to use the balancing machine, carefully read the operating instruction manual
- Keep the manual in a safe place for future reference.
- Refrain from removing or modifying machine parts, which would impair correct operation. Please get in touch with the technical service when needing repairs.
- Do not use strong jets of compressed air for cleaning.
- Use alcohol to clean plastic panels or shelves (AVOID LIQUIDS CONTAINING SOLVMENTS)
- Before starting the wheel balancing cycle, make sure that the wheel is securely locked on the adapter.
- The machine operator should not wear clothes with flapping edges; make sure that unauthorized personnel do not approach the machine during the work cycle.
- Avoid placing counterweights or other bodies in the bee, which could impair the correct operation of the balancing machine.
- The balancing machine should not be used for purposes other those described in the instruction manual.

STANDARD SAFETY DEVICES

- Stop push button for stopping wheel under emergency conditions.
- The safety guard of high impact strength plastic is with shape and size designed to prevent is of counterweights from flying out in any direction except towards the floor. A microswitch prevents starting the machine if the guard is not lowered and it stops the wheel whenever the guard is raised.

HOISTING AND INSTALLATION

To hoist the machine, lever the base only with the 3 support points. Under no circumstances, apply force to other points such as the spindle, head or accessory shelf.

It is advisable, but not indispensable, to anchor the machine to the floor using the holes of dia.13 in the three support points, especially if it is often necessary to balance wheels weighing more the 30kg.

Check that the balancing machines rests on the floor at the three points.

ELECTRICAL CONNECTION

WARNING: specialized personnel must make electrical connection. Connection to the single-phase mains must be between phase and neutral; under no circumstances between phase and earth (ground). Earthing is essential for correct machine operation.

The company declines all responsibility and warranty in the event of incorrect connection.

Before connecting the machines to the mains through relative cable, check that the mains voltage matches that shown on the nameplate at the back of the balancing machine. Rating of the electrical connection should be on the basis of the machine electrical power consumption (see nameplate).

-The machine mains supply cable should be fitted with a plug conforming to current regulations

-It is advisable to provide the machine with its own electrical connection through a suitable circuit breaker.

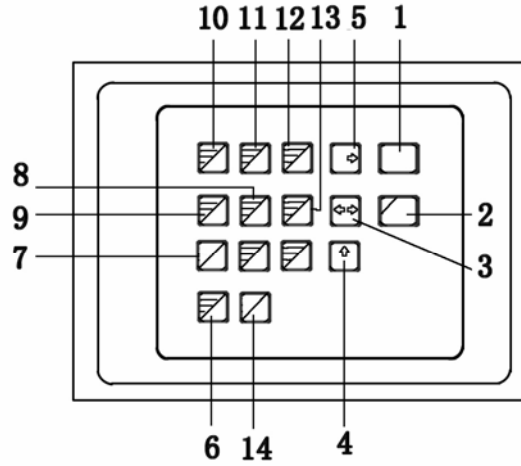
-When connection is made directly to the main control panel, without using any plug, it is advisable to padlock the main switch of the balancing machine so that its use is limited only to authorized personnel.

FLANGE MOUNTING

Before mounting the adapter on the balancing machine shaft, make sure that the shaft and adapter centering zone be quite clean. Lock the flange on the balancing machine shaft with special spanner.

CONTROL PANEL

1. Start: cycle start
2. Emergency
3. Width setting
4. Diameter setting
5. Distance setting
6. Visualizing left unbalance
7. [CAL/7]+[F/STOP]>auto setting
8. Commutation into STATIC
9. ALU 4
10. ALU 1
11. ALU 2
12. ALU 3
13. Commutation into DYNAMIC
14. [R/O]+[F/STOP]>dimensions window

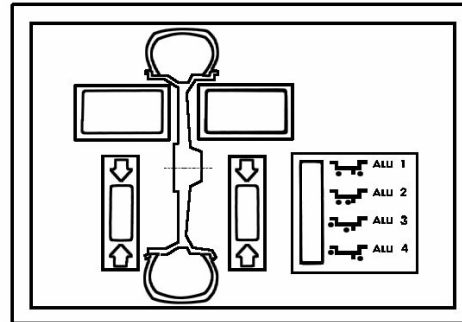


Pict. 1

Note: Push the keys only with your fingers; do never use pliers or on other pointed object.

DISPLAY

1. Value digital indicator
Inner side unbalances
2. Value digital indicator
Outer side unbalances
3. Position indicator
Inner side unbalances
4. Position indicator
Outer side unbalances
5. Indicator of the chosen
Correction method



Pict. 2

KEYS DESCRIPTION

Measurements windows:

[ALU/1]: Select ALU1

[ALU/2]: Select ALU2

[ALU/3]: Select ALU3

[ALU/4]: Select ALU4

[ST]: displays the static unbalance

[<-]: Displays the dynamic unbalance

[<T]: displays the values under threshold

[F/STOP]+[CAL]: Auto setting of the balancer

[F/STOP]+[<T/]: Selects measurement either in gr. Or oz.

[F/STOP]+[R/O]: Recalculation of the unbalance values

[F/STOP]+[9]: Start after the closure of the protection

[F/STOP]+[b]: Unbalance optimization

[a]:Distance setting

[b]:width setting

[d]:Diameter setting

[START]:Motor start

[START]:Motor stop only when the rim is moving

-Dimensions window:

[R/O]÷[9]:numerical keys to set values of the various

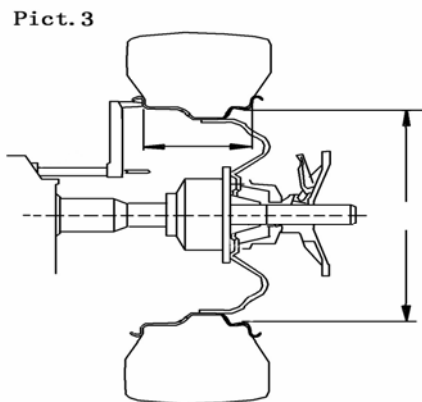
Dimensions

[F/STOP]:+[mm.inch/8]: Selection of the measurement either in mm.or in inches. Whenever you wish to modify width measurement, do push this sequence after having pressed key; if you wish to modify the measurement of the diameter do it after having pressed key [d].

[F/STOP]:+[R/O]: When the displays shows one dimension, by pushing these keys, the display will show the detected measurement and if one of the dimensions has been modified, it will also make the recalculation of the unbalance. Should the display show the result of the measurement, a quick pressure on this key will let the display show, one after the other dimensions a', b' and d' for about two seconds: after having shown the d' dimension, it will automatically go back displaying the unbalance value.

[F/STOP]+[B]: Unbalance optimization

Pict.3



PANEL SETTING

Pict.3 – Distance setting: Push key (a) and digit the wanted value on the numerical keyboard. In case of mistake, press key (b) to cancel the last selection. Any other non-numerical key enters the new data.

ATTENTION: the distance setting range is :0-25 cm. any value not included in such range is to be considered as an error (the display shows: Err). To amend any possible error, digit the correct numerical value.

-Width setting:

Push key (b) and digit the wanted value on the numerical keyboard, In case of mistake press key (b) to cancel the last selection. Any other numerical key enters the new data.

ATTENTION: the width setting range is either 1.5÷20 inches or 40÷510mm. Any value not included in such range is considered as an error (the right display shows: Err). To correct any possible error, digit the correct numerical value. To change the measurement unit press key [F]+[mm.inch/8].

-Diameter setting:

Push key (d) and digit the wanted value on the numerical keyboard, in case of mistake press key (b) to cancel the last selection. Any other non-numerical key enters the new data.

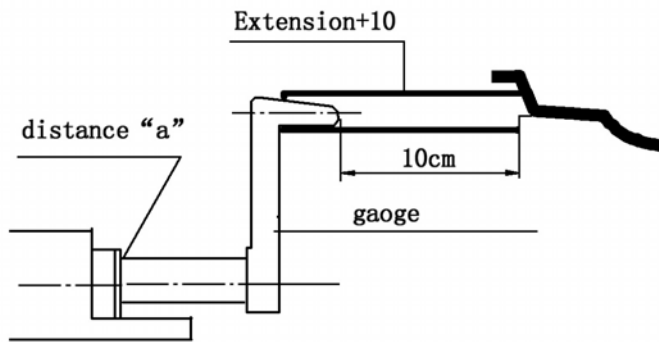
ATTENTION: The diameter setting range is either 10.24 inches or 265.615mm. Any value not included in such range is to be considered as an error (the right display show: Err). To amend any possible error, digit the correct numerical value.

To change the measurement unit press keys [F]+[mm.inch/8].

Note: It is possible starting the auto setting function from each of the setting windows by pressing keys [F]+[CAL]. In case of interruption of the auto setting sequence, the system is automatically brought back to the measurements window.

NOTES ON THE DYNAMIC BALANCING ON MOTOBIKES'WHEEL

Pict. 4



-Insert the extension of the distance gauge

-Take the gauge out until the extension touches the inside part of the rim.

-Read value a' on the index and proceed to the manual setting of value a +10' (full scale 25cm), by means of key (6)

WHEEL BALANCING

- Turn the main switch on 1
- Fix the rim on the machine and prearrange the setting of the panel as per the instructions at page 3. The setting can be set or modified even after the machine has started.
- Close the protection.
- Press key START
- In a few seconds the rim is automatically brought to a running state and then stopped again. Indicators 1-2 store the unbalance values.
- By means of lighted diodes, displays 3-4 show the correction position. The lighted diodes inform that the correction weight must be put on the top of the vertical.

IMPORTANT

For a proper balancing it is commonly acceptable that the unbalance indication is below 10-13 grams (.4-.5oz). With this balancer, it is very easy balancing with an allowance of only 5 grams or less (.3 oz).

UNBALANCE READING KEY LOWER 5 GR (.3 oz)

In case of need (for rims due to special performances), by pressing key [< t] when the machine is not running, it is possible reading the correction of the residual unbalance lower than 5 g (.3oz). Under normal conditions, the indicators 1-2 show 0 for unbalance below 5 g (.3oz)

ALU STATIC FUNCTIONS

(Balancing of motorbikes rims, in light alloy or with special shapes) Set the machine following indications at page 2.

The available ALU functions can be selected at any moment and allow the indication of the correction weights to be put in different positions in respect of the standard one, The wanted function is chosen by pressing the key. For every function the microprocessor processes and stores very quickly on the indicators 1-2 the actual values of the compensation weights modified according to the position of the correction weight.



Standard: For dynamic balancement of steel or light alloy rims with the application of clip-on weights onto rim's edge.



Static: The static correction is needed in case of motorbikes' rims or when it is not possible fixing counterweights on both sides of the rim.



ALU1: Balancement of light alloy rims fixing adhesive weights onto rim's shoulders



ALU2: Balancement of alloy rims with hidden application of the adhesive weight on the external side.



ALU3: Combined balancement: clip-on weight on the external side: adhesive weight on the internal side (Mercedes)



ALU4: Combined balancement: adhesive weight on the external side: clip-on weight on the internal side

AUTOSETTING

Proceed in the following way to carry out the auto setting function of the machine

1. Fit any rim on the shaft, even a non-balanced one. We suggest a "medium" size rim.
2. Digit the exact measurements of the mounted rim. ATTENTION!!! By entering wrong measurements, the machine will not be properly set and consequently, any following measurement will be wrong until another auto setting will be carried out.
3. Start by pressing key F/STOP and then, keeping it pressed, push on CAL/6. The numerical display will show "CAL" to inform that the machine must receive confirmation of the auto setting request. Willing to proceed to the auto setting, it is necessary keeping above keys pressed until the displays do not stop flashing.

Should even only one of the keys be released during this waiting time, the auto setting will not be carried out and the machine will go back to its ON conditions (display showing 00).

4. At the end of the first spin, the display will show "Add 100" whilst the external side positioning led indicators

will flash. At this stage add a 100 gr weight to the EXTERNAL side in any position.

6. Press START. At the end of the spin the machine will be set and the indication END CAL will appear. Removing the 100 gr.weight from the rim, it will be possible proceeding to the placement of the mounted rim with a new spin.

The value that the machine senses during this auto setting cycle is automatically stored into a special memory, which keeps them even when the machine is switched off. This means that every time the machine is switched on, it is ready for a correct working. The auto setting procedure can therefore be repeated at any time, in case of need or in case of doubts about the proper operation of the balancing machine.

OPTIMIZATION

To proceed to the unbalance reduction operation press keys [F/STOP]+[b] at the same time. The display will show "r.s". To proceed then in the following way:

- Mark both flange and rim with a reference sign, in order to re-assemble the rim on the flange in its present position.
- Remove the rim from flange and let the tire rotate on the rim for 180 degrees.
- Reassemble the rim on the flange so that the previously marked reference signs match.
- Press, "START" for second spin.

Always keep in mind that to get the best measurement precision, the previous operations must be carried out with the utmost precision.

Right Display: % Value of the possible unbalance reduction (the symbol 0.1% appears on the display as).

Left Display: Value of the real static unbalance of the rim. This value is necessary in order to decide if it is convenient reducing the suggested unbalance reduction. Actually it would be useless proceeding to reduction operation, even with a 90% indication, if the real unbalance of the rim is not more than 3 or 4 gr.

Positioning led indicator: Rotate the rim manually until the external led indicators light: mark the upper point of the tire (in the same position where the weight should be fitted). Rotate the rim again until the central led indicators light: mark the upper point of the rim. To reduce the unbalance, let the tire rotate on the rim until the two makes match. During every operation, h\the pressure on the [F/STOP] key will stop the operation of unbalance reduction and all functions will go back to the rim unbalance measurement. The enabled keys at the end of the optimization function are the following:

F/STOP: Brings back to the measurement of the rim unbalance values and the display shows 000 000

START: Enters a function of measurement of rim's unbalance.

F/STOP +[b]: Repeats the unbalance reduction function: brings back to the waiting-for START condition for the first spin, the display shows "r.s"

TROUBLE SHOOTING

It is possible remarking different causes of malfunctioning of the machine when it is working, If the microprocessor detects them, they are shown on displays 1-2 with an "Err" followed by a number to indicate these meanings:

ERROR

MEANING

1:	There is no rotation signal. The transducer could be in a wrong Position, the motor could have failed to start, something could Stop the movement of the wheel
2:	During the detecting rounds the speed of the rim has lowered To less than 60 n/l
3	Mistake in the mathematic calculations, probably due to an Auto setting carried out in a wrong way Repeat the auto setting operation. Wheel's unbalances are too relevant.
4	The motor rotates reverse.
5	The protection was open before the spin start
6	Mistake within the memory of the auto setting valuse. Repeat auto setting.
7	Mistake during auto setting procedure. It could be due to the second spin completed without adding the reference weight, or to the interrupted transducers cable.

ORDINARY MAINTENANCE

Before proceeding to any operation disconnect the electric power supply.

Adjustment of belt tension:

1	Remove the plate protection case.
2	Loosen the four screws which hold the motor and adjust the motor position in order to give a suitable tension to the belt
3	Tighten the four screws of the motor and fit the case back to its position

Replacement of safety fuses:

Two safety fuses are fitted on the power board and they can be reached by removing the weights holding support. In case of replacement it is necessary using fuse which supply the same voltage. Should the failure occur again, contact the after sales service.

Unsteady indications of unbalance:

After having balanced a wheel, it could happen that, by removing it from the wheel balancer and mounting it again on it, it reveals to be unbalanced.

This is not due to the wrong indication of the machine but only to a wrong mounting of the rim on the flange, i.d.during the two mounting phased the rim has achieved a different position towards the axis of the balancer's shaft. If the rim has been fixed to the flange by means of screws, it could be due to the fact that the screws haven't been tightened carefully, gradually, cross, one at a time or (and this happens quite often) the hole on the rim could show a too high allowance.

Irrelevant errors unto 10 grams (.4oz) are to be considered as normally acceptable in case of cone blocked rims: in case of rims blocked with screws or stud bolts, the error is usually higher.

Should the wheel be still unbalanced after having been fitted on the vehicle, it will depend on unbalances on the brake drum of the vehicle or –very often – on the holes that hold rim's and drum's screws, which could have been built with too high allowances. In this case it could be necessary proceeding to a final adjustment on the mounted wheel.

LIST OF RECOMMENDED PARTS			
(See the codes on exploded views)			
Item	Part	Q.ty	Description
211	2055	3	Adaptor plate draw 19576P
126	2061	1	Flat belt mega dyne 150 width=25 Dev=940
227	310	2	Fuses DM 5×20 –2A
231	2315	1	Transformer 30 VA draw 18447P
232	1922	1	Switch KL 1002+Q555
120	2117	1	Position pick up board c/w cable plug
318	3335	1	Elaborator board
SPECIFIC PARTS FOR MACHINES AT 110V			
122A	2144	1	Motor, single phase 100V/60Hz-25HP LM63C4-B14
210A	2141	1	Complete power supply plate
225A	2139	1	Complete power supply board
226	2072	2	Resistances 50W 10Ohm,parallel
229A	2446	1	Capacitor 25MF
SPECIFIC PARTS FOR MACHINES AT 220V			
122	2056	1	Motor, single phase 220V/50Hz-0.25hp LM63C-B14
122B	2057	1	Motor, single phase 220V/60Hz –0.25hp LM63C-B14
210	2039	1	Complete power supply plate
225	2006	1	Complete power supply board
226	2072	1	Resistance 50W 10 Ohm
229	2073	1	Condenser 10MF
POWER SUPPLY VOLTAGE CHANGE			
(See the list of recommended parts)			
Wheel balancing machine can work at both 110v or 220v single phase			
To change the power voltage it is necessary to operate following modifications:			
1. Replace motor M1			
2. Replace the whole power supply plate or carry out the following changes on the plate itself.			
A. Replace capacitor C5			
110v C5=25 MF 45v		220v C5 =10 MF 450v	
B. Move bridge B1 on the power supply board 19080/ST according to the power supply voltage.			
C. Apply another resistance 50W-10 Ohm in parallel to the braking resistance R5			
110v R5 =100W – 5 Ohm		220v R5 = 50 W – 10 Ohm	

HANDLING OF MACHINE PARAMETERS

Press keys [F/STOP]+[CAL/7] asin self-calibration. When the LED's stop flashing, instead of performing the spin, press the following keys within 5 seconds and in the correct sequence:

[a] then [b] then [F/STOP]

After pressing [a] and [b], the displays go out. After pressing [F/STOP], the current fixed distance value of [DF] appears it can be modified with numeric keyboard.

Press [a] to switch to modify parameter "I"

The current value (in %) appears on the right display, while the wording "I" appears on the left display plus the symbol "-" if the correction is negative or else "/" if it is positive.

Modify the sign (+ or -) with [b] and the value with numeric keyboard.

Press [a] the values "s" appears on the left display; modify with numeric keyboard.

To finish, press [a]

Note: when the [STOP] key is pressed during any one of the parameter presetting phases, the system interrupts such function and sets the parameters with basic values.

Basic configuration values are: DF =124 I=+3 S=325

After modifying such values, the machine requires self-calibration again.

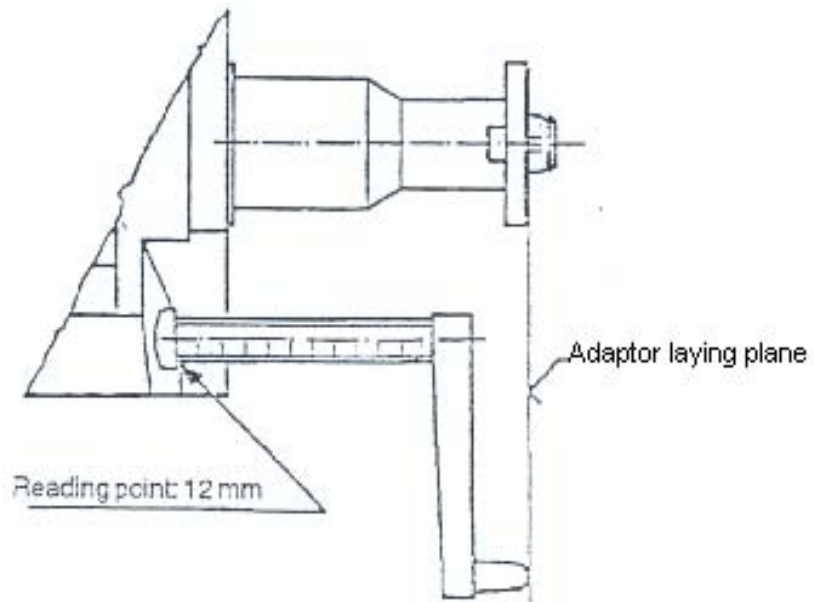
Note: the values at which the machine is factory set are given on a special nameplate inside the machine.

SPECIAL MAINTENANCE

(Only for specialist personnel)

FIG.3

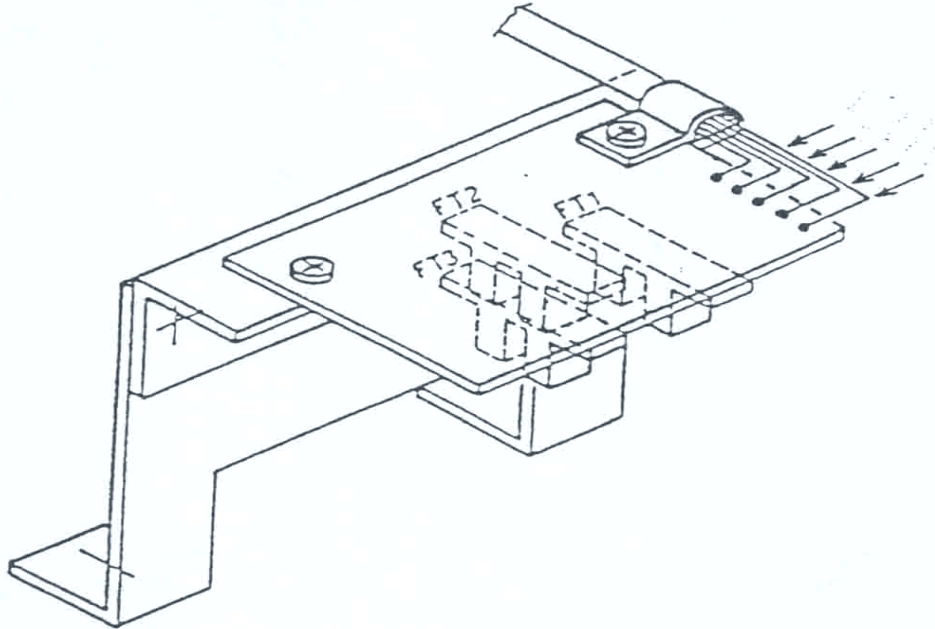
CHECKING THE DISTANCE GAUGE



This gauge does not require any adjustment.

The only attention to be paid to happens in case of replacement of the graduated strip. This strip must be positioned as follows: when the point is in coincidence with the adaptor laying plane, the line which indicates 12 must be at the limit of the white nylon bush. (Reading point)

FIG.4
CHECKING THE POSITION PICK UP

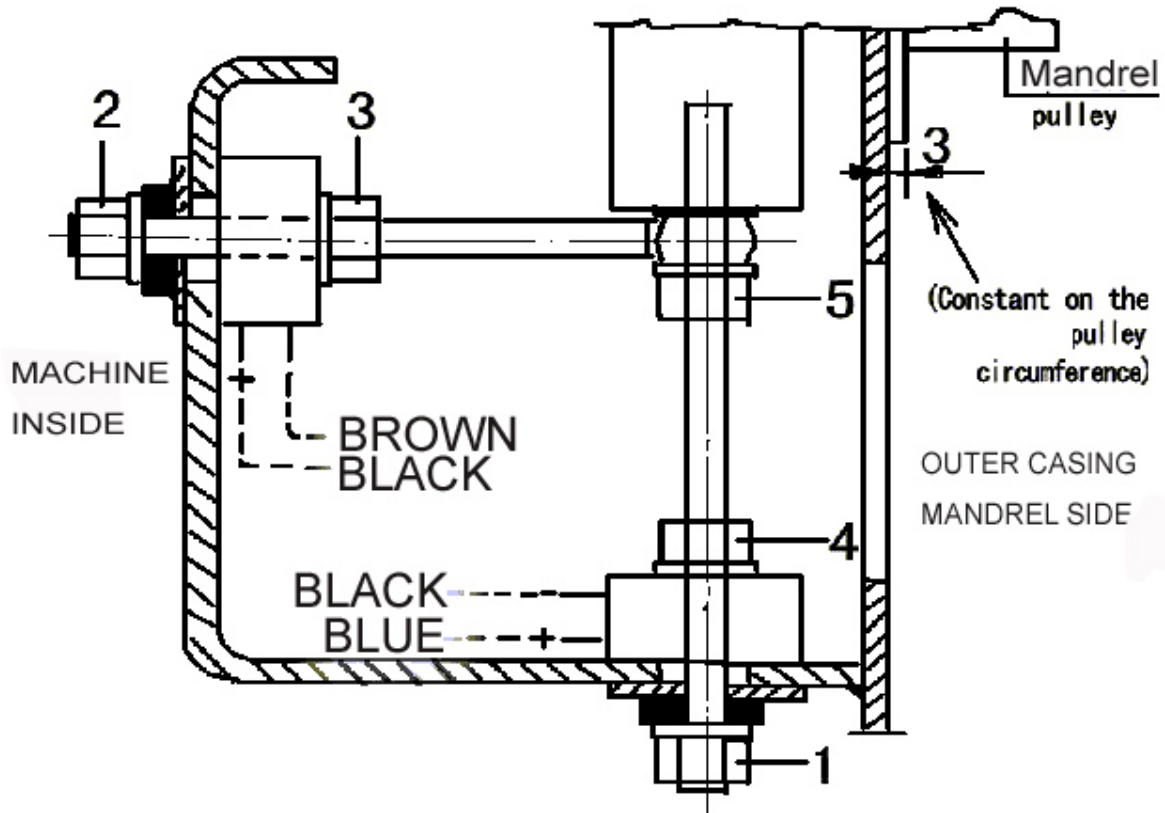


To check efficiency of the position sensor, proceed as follows;

1. Make sure that none of the three photocells rub against the phase disk and RESET tooth.
2. Using a tester, with setting for Vdc measuring, check the following voltages (powered machined but not turning machine)
 3. - +5 Vdc constant between ground and the red wire
 - +4.5 +4.8 Vdc between ground and the yellow wire (RESET) when the RESET tooth is in the opto-coupler TC ST 2000. "0"Vdc when the RESET tooth is out the opt-coupler
 - +4.5 +4.8Vdc between ground and the green light (CLOCK)
 - "0"Vdc to +4.5 +4.8 voltage variations between ground and the white wire (U/D) by taming the machine shaft very slowly

IMPORTANT: In case the position pick up must be replaced, take off the board only by loosening the two fixing screws. But do not move the supporting bracket; this makes repositioning easier.

FIG.5
FITTING THE PIEZO PICK-UP

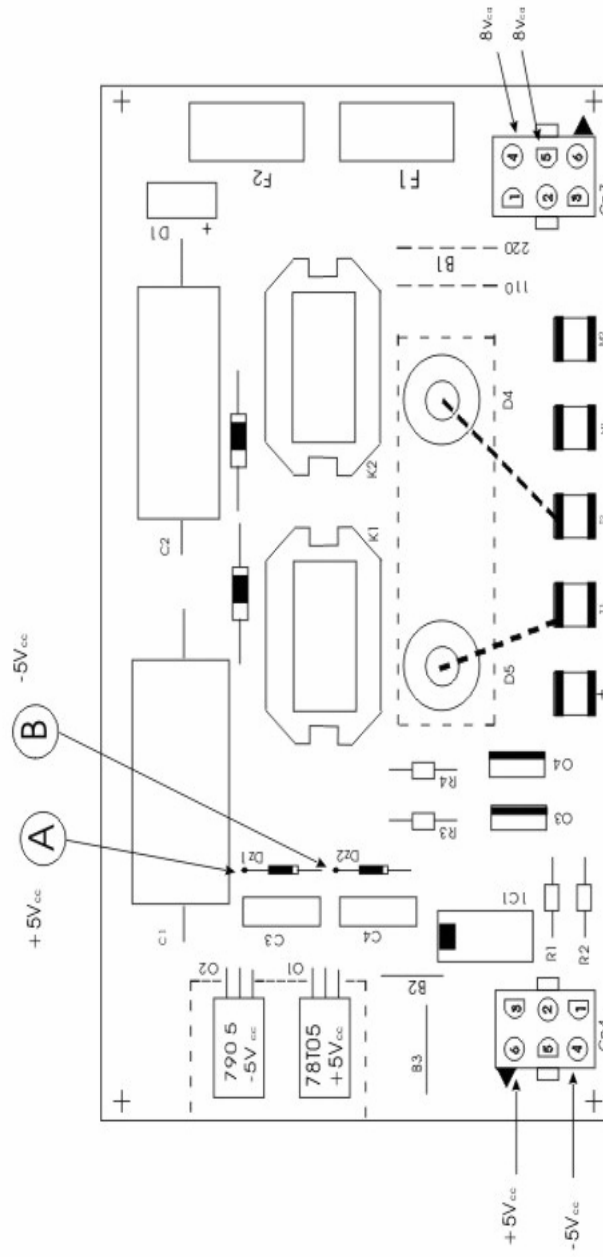


INSTRUCTIONS HOW TO FIT THE PIEZO PICK-UP

Sometimes compensation or angular Position problems may be caused by a fault in the piezo pick-ups. To replace them operate as follows:

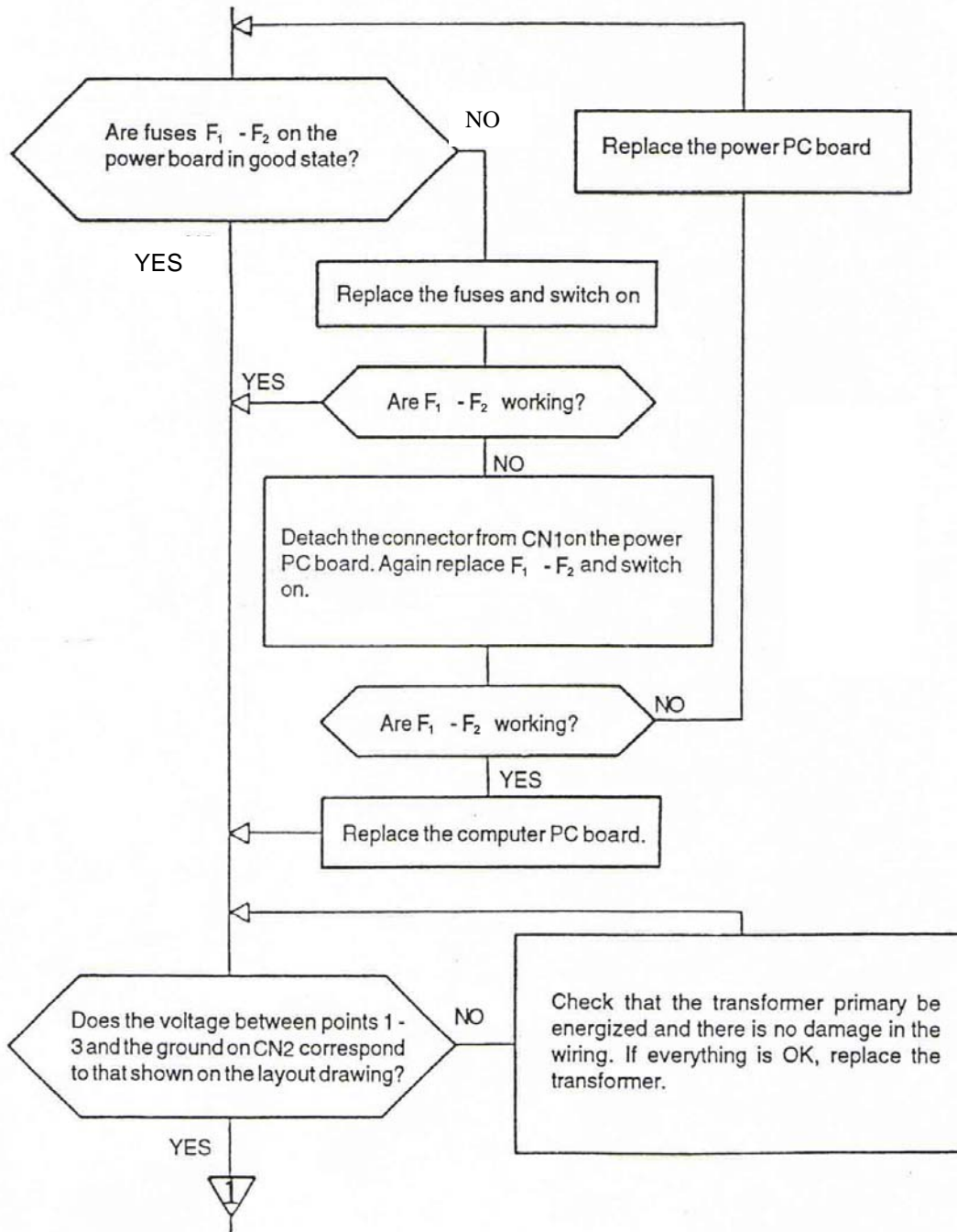
1. Remove side cover and weight tray
2. Take off nuts 1 and 2 with pertaining springs and washers
3. Loosen nuts 3\4 and 5 and detach the various parts.
4. Re-fit the new parts without fixing the nuts and following the correct fitting sequence.
NOTE: the piezo parts must be fitted paying attention to the position of the Color wires as shown in the draw
5. Fix nut by means of a wrench. Nuts 3 and 4 must be fixed by hand (eventually 1/2 turn by wrench)
6. Re-fit the springs and nuts 1 and 2, which must be fully locked to recover the springs elasticity and then loosened half a turn, thus giving the piezo parts the correct load.
7. Smear a plentiful layer of silicone on the piezo parts.
(NOTE: a correct efficiency of piezo crystals is assured by an insulation rate over (50 Mohm).
8. Re-fit side cover and weight tray

FIG.6
POWER SUPPLY LAYOUT DRAW



TROUBLE SHOOTING FLOW CHART

NOTE: Before making any checking detach the connection of braking resistance R5 on relay k2. Reconnect R5 only at the end of checking.



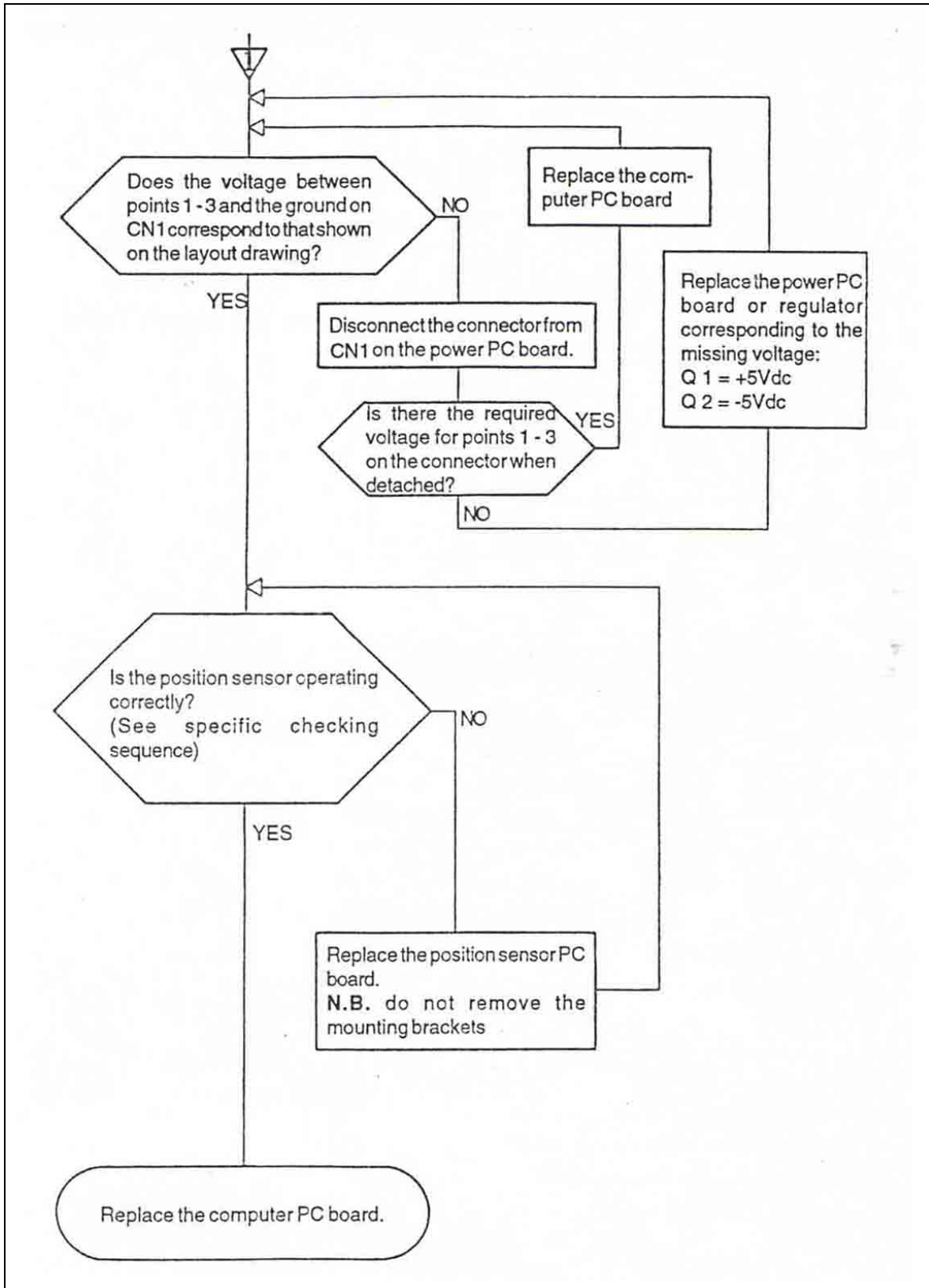


FIG.7
POWER SUPPLY LAYOUT DRAW

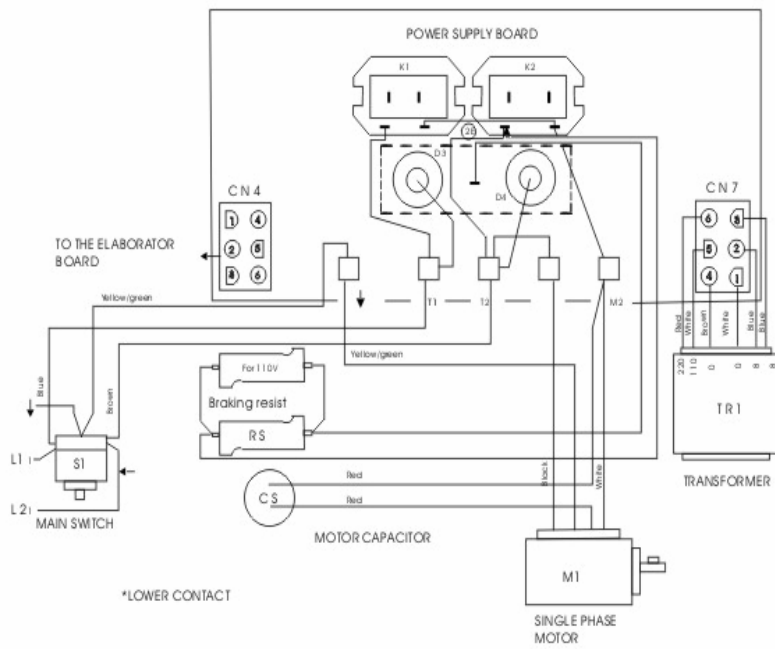
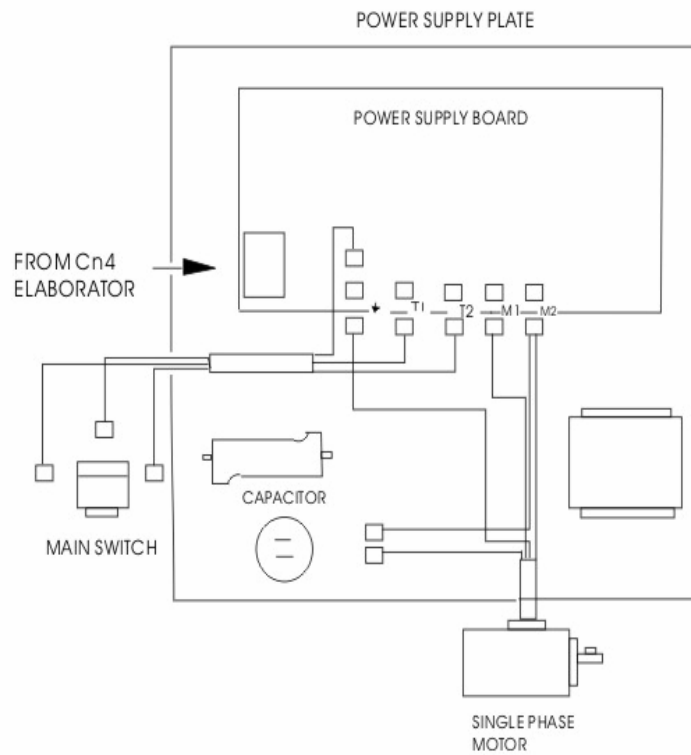


FIG.8
REPLACING THE POWER SUPPLY PLATE

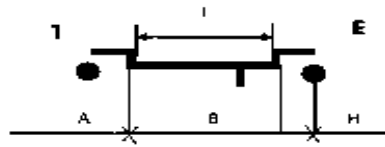


WHEEL MEASUREMENT AND SETTING THE BALANCING MACHINE

Obviously an exact and precise calibration is becoming more and more important, and the introduction of the buttons ALU means it is indispensable to know how to measure the rims and how to interpret the information, which is shown on the balancing machine.

Therefore we hereby propose to explain how the dimensions set on the machine are automatically altered so as to obtain the distances of the correction planes. These are calculated as passing through the center of gravity of the correction weights.

So we consider a typical rim:



Here the measurement I represents the width of the rim, as stated by the manufacture. This will differ from the distances between the correction planes due to the thickness of the rim and the physical dimensions of the counter-weight, the weight, so center of gravity is found at distance from the support on the rim's edge. The balancing machine will automatically correct the set data by adding $2 \times h = 6\text{mm}$ to the measurement. Measurement b, made by the gauge, usually is more precise even if every similar to distance I. These two measurements differ by only the width of the plate, usually about 2mm per part, This difference, small as it is, means we are able to obtain an accurate calibration, set either according to the internal width of the cm I or the extremely width b. We recommend an addition of a quarter of an inch to the values indicated by rim manufacturers.

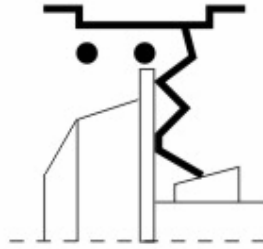
In addition to the systematic corrections related to the counter-weight's center of gravity as explained above, the machine's ALU functions also carry out the following approximations:

ALU1

Note: I = internal side
E = external side



ALU 2



A = value a +3/4"
B = adaptor plane distance -1" -a
D1 =value d -1"
De =value d-3"

ALU 3



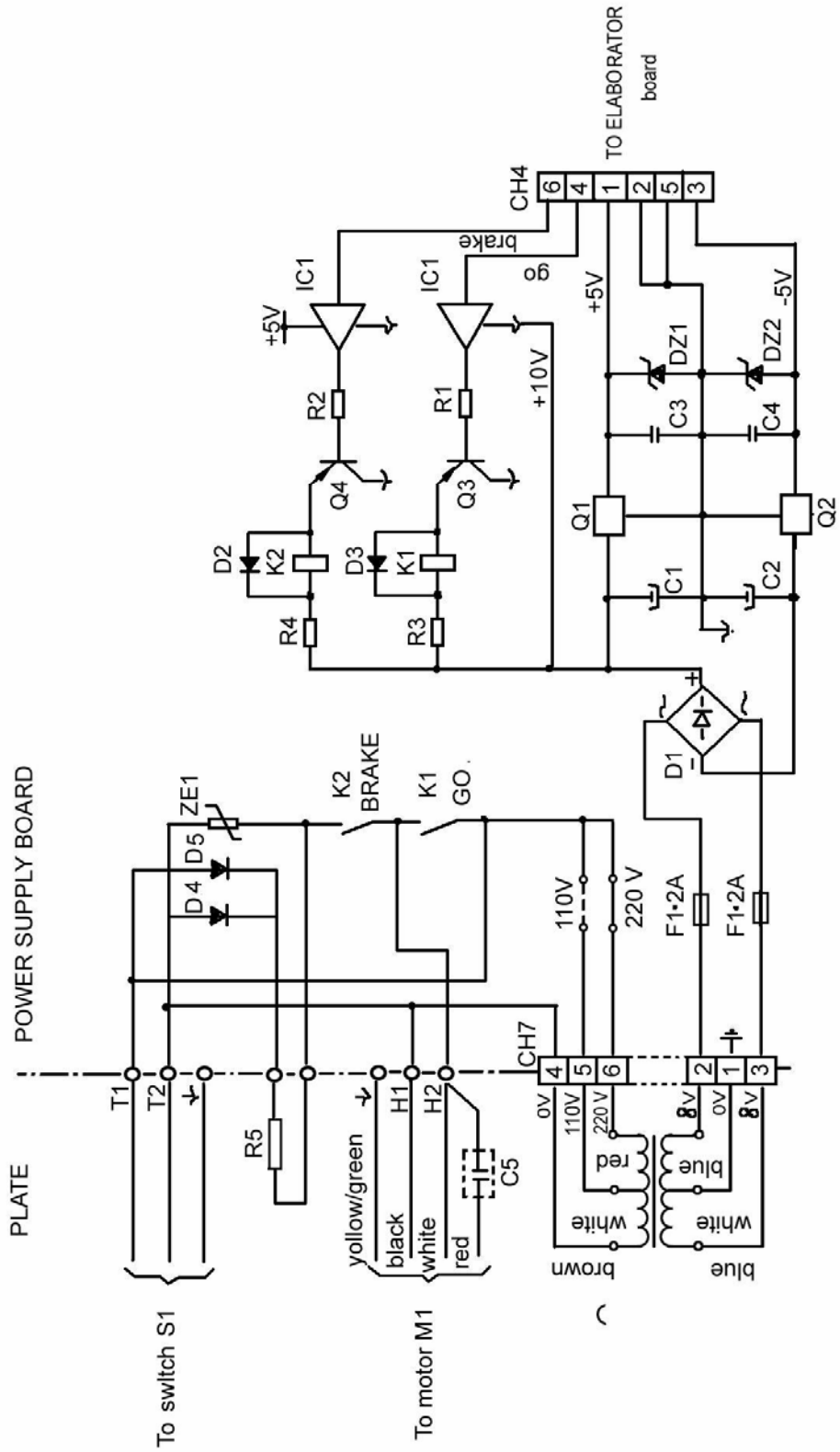
A = value a +3/4"
B = value b -3/4"
D1 =value d -1"
De =value d

ALU 4



A = value a
B = value b -3/4"
D1 =value d
De =value d - 1"

POWER WIRING DIAGAM



TECHNICAL DATA

TECHNICAL DATA Max wheel weight	60kg
Max power consumption	≤250W
Standard power supply	110V/60Hz/1ph
Balancing accuracy	1 g
Balancing speed	200U/min'
Rim diameter	From 10" to 24" or from 256 to 615 mm
Rim width	From 1.5" to 20" or from 40 to 510mm
Cycle time	7-8sec
Net weight with guard (and cone adapter)	120Kg
Overall machine dimension (with guard)	1200×780×1060 (mm)
Sound pressure level in cycle	<70 Db (A)
Operating temperature range	From 0° to 50°C



Eagle Global Series Warranty

Eagle Equipment warrants to the original retail purchaser of an Eagle Global Tire Changer or Wheel Balancer that it will replace without charge any part found under normal use, in the United States or Canada, to be defective in materials or workmanship, **for a period of one (1) year from date of purchase.** Warranty covers parts only; purchaser is responsible for any and all labor requirements.

Exclusions

This warranty will not apply to any machine:

1. Which has not been operated or maintained according to specifications
2. Which has been abused, misused, altered or improperly maintained
3. Which has been improperly installed or assembled

Other limitations

This warranty does not cover:

1. Parts needed for normal maintenance
2. Wear parts, which include but are not limited to, speed-nuts, cones, mount heads, and inserts
3. On-site labor

Eagle Equipment reserves the right to make improvements and/or design changes to its equipment without any obligation to previously sold, assembled or fabricated equipment.

There is no other express warranty on the Eagle Global Series equipment and this warranty is exclusive of and in lieu of all other warranties, expressed or implied, including all warranties of merchantability and fitness for a particular purpose.

To the fullest extent allowed by law, Eagle Equipment shall not be liable for loss of use, inconvenience, lost time, commercial loss or other incidental or consequential damages. Some States do not allow exclusion or limitation of consequential damages or how long an implied warranty lasts, so that the above limitations and exclusions may not apply. This warranty gives you specific legal rights and you may have other rights, which may vary from State to State.

