



***WHEEL BALANCER USER'S MANUAL***

***ITEM NO: RBB93***



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## **INTRODUCTION**

### **Thank you for purchasing the fully automatic wheel balancer.**

This guide has been made in order to supply the owner as well the user with the basic instructions for a correct use of the machine, Read this guide carefully before using the machine and follow the instructions given by this guide carefully to grant the machine a correct function, efficiency and a long service life.

#### **INTENDED USE:**

This full automatic wheel balancer is designed to balance wheels with max weight of 60KG/154LBS. The calibration system is sufficient to cover different wheels from motorcycles to cars.

**Manufacturer and dealer will not be held responsible for any damage caused from using this wheel balancer for purposes other than those specified in this manual and therefore inappropriate, incorrect and unreasonable.**

#### **TECHNICAL DATA**

Max. Wheel Weight:	60KG
Power Supply:	220V,1PH
Max. Power:	300W
Rim Diameter:	10-24" / 256-615mm
Rim Width:	1.5-20" / 40-510mm
Balancing Accuracy:	1g / 0.035oz
Balancing Speed:	200 RPM <sup>-1</sup>
Noise:	<70db
Net Weight:	90KG
Packing Size:	1200mmx1400mmx1670mm

***(Please check motor plate of your machine before use)***

## **GENERAL SAFETY RULES**

#### **a. BEFORE USE**

Carefully read the operation manual before using the machine.

Checking the voltage, and frequency instructing on motor plate, wiring must be done by electricians only.

#### **b. DURING USE**

The machine must be operated by trained staff and can only be used for purpose described in this manual.

Do not wear unfit clothes such as large clothes with flounces, tires, etc; which could get caught by moving parts of the machine.

#### **c. AFTER USE**

Do not modify the machine without manufacturer's advice.

Do not use strong jet of compressed air for cleaning.

Use Alcohol to clean plastic panels, but avoid contaminating important board inside.

If the machine is not to be used any more, owners are suggested to make it unusable by removing the power supply connections, emptying the oil tank and disposing the liquids in accordance with the national laws in force.

## CONTROL PANEL

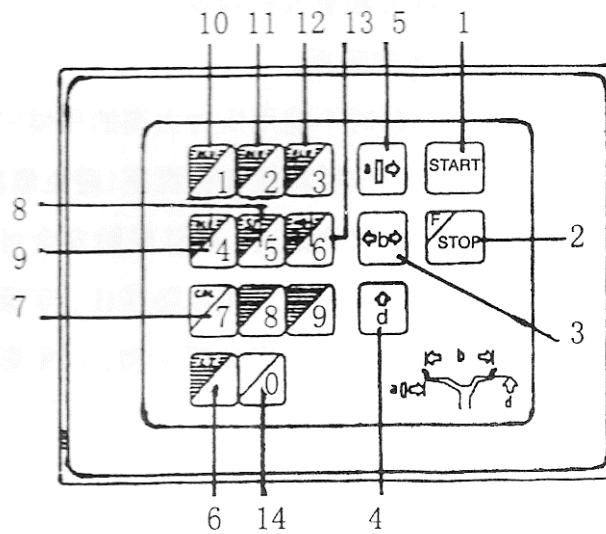
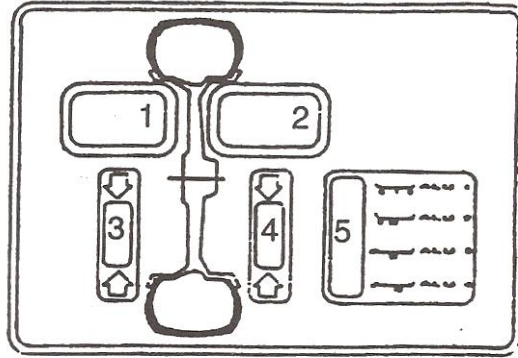


Fig 1

1. Start button
2. Emergency stop button
3. Push button, manual Width input (b)
4. Push button, manual Diameter input (d)
5. Push button, manual Distance input (a)
6. Demonstration not balanced data
7. [CAL/7]+[F/STOP]: Push button, self-diagnostics and self-calibration
8. Static equilibrium bond
9. AIU4: Balanced way4
10. AIU1: Balanced way1
11. AIU2: Balanced way2
12. AIU3: Balanced way3
13. [←/6]:Changes to the transient equilibrium survey
14. [R/O]+[F/STOP]: Display monitor size



1. Display of Amount of Unbalance, inside or DISTANCE dimension.
2. Display of Amount of Unbalance, outside or DIAMETER dimension
3. Indicator of Position of Unbalance, inside
4. Indicator of Position of Unbalance, outside
5. Demonstrates the balanced way

### Main pressed key and combination key function

- [ALU/1]: Choice Balanced way1
- [ALU/2]: Choice Balanced way2
- [ALU/3]: Choice Balanced way3
- [ALU/4]: Choice Balanced way4
- [ST]: Choice Static equilibrium way
- [←/6]: Choice Dynamical equilibrium way
- [<T]: Demonstrated actually not the balanced data (is smaller than 5 g data)
- [F/STOP]+[CAL]: Enters oneself calibrates
- [F/STOP]+[ <T]: The weight unit transforms
- [F/STOP]+[R/O]: Again calculates not the balanced data
- [F/STOP]+[9]: Covers protects the guard to carry on the start
- [F/STOP]+[B]: Not balanced optimization

### TRANSPORTATION

The wheel balancer must be transported in its original packing and kept in the position shown on the package itself. The packed machine should be moved by means of a forklift truck of suitable capacity. Insert the forks at the right points.

### INSTALLATION

The machine must be installed on level ground and there is no need to anchor the machine to the floor for correct operation

### ELECTRICAL CONNECTION:

#### Electrical connection must be done by qualified personnel

Before connecting the balancer to the power supply, check the voltage that showing on the nameplate at the back of machine.

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 mains 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.

## WHEEL MOUNTING

The machine is supplied as standard with a universal cone adapter. The adapter body build-in spring cannot be disassembled from the spindle. The threaded end is removable in order to allow mounting alternative adapters.

## PRESETTING OF DIMENSIONS

Two types of measurements are provided:

- Standard wheels also valid for correction mode 1"-2".
- S, very useful for wheels with correction just on the inside.

### 1. STANDARD WHEELS

Move the gauge into measuring position as described as following. During gauge movement, the displays go out showing that the gauge is not steady.

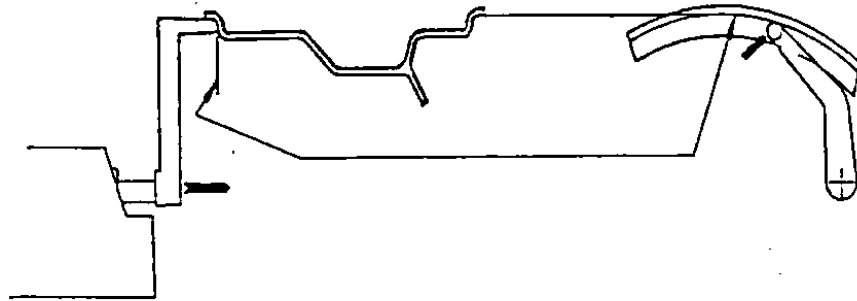


Fig 2

1. Installs the tyre.

1.1. Installs the main axle lead screw.

Installs when the main axle lead screw certainly will have touse the industrial alcohol or the gasoline installs in the contact face the pickling oil to polish, In order to avoid affects installs the precision to have a main axle lead screw in the stochastic appendix, aims at on the main axle to install the hole, installs solidly

Decides the long bolt, is fixed with in hexagonal head wrench,(certainly must fasten otherwise influence repetition measuring accuracy). (the main axle The lead screw has installed may omit this step.)

1.2. installs the tire.

1.2.1 choices with rim the hole match awl disk, installs on the main axle.

1.2.2. installs the tire, with fast nut lock.

2. rim data feeds method.

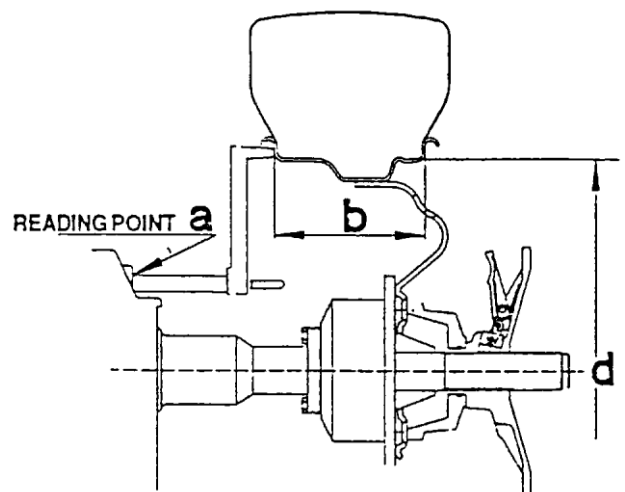
2.1. inputs distances.

2.1.1. pulls out the balance machine edge to measure the gauge rule, arrives in rim the edge, the read-out this time scale reads the value.

2.1.2. pressed keys, after but inputs is away from the value, the input mistake, may press a key eliminates rein puts.

2.2. inputs widths of wheel rim.

2.2. 1. uses the stochastic belt the width to measure the gauge rule determines rim the width.



**2.2.2.** pressed keys, after but inputs rim the wide size with the numeric keyboard.

**2.3.** inputs the rim diameter.

**2.3.1.** pressed keys, after but with the numeric keyboard input rim diameter, after the input mistake may according to the elimination, rein put.

**2.4.** belts extension rods distance size input. (Uses in to survey motorcycle rim)

In measured the gauge rule gets hooked on extends the drive pipe.(10cm). The ruler peak depends on to rim the inside, reads on the rod takes: ' a "value.

When the input is away from the value, should input "a+10".

**3.** Before balances machine uses from calibrates the procedure.

**Attention:** After the equipment setup or has used period of time, suspected the survey is not punctual all should move from the calibration procedure, guarantees evenly. The weighing machine survey is accurate.

**3.1** The circular telegram turns on the power switch

After the demonstration [ 533 ] [ ] treats for several seconds

Demonstrates [A] [ 5 ]

Installs a medium size (13 "- 15") the tire, the input rim data, then is pressing [ F/STOP ] the key, after but according to [CAL/7 ] the key, this time the position of equilibrium indicating lamp does not glitter, continues to hold down does not put, until The demonstration [ CAUIOU lays down guarantees guard the pressed key, after the main axle revolves Demonstrated [Add ] the dagger [00 ] in rim outside adds 100gbalance weight , lays down guarantees guard, pressed key,

The main axle revolves

Demonstration [ End) [ C ]Finished from the calibration, from calibration data storing in the memory, Guan Jehu the data does not lose, later will bellowed to carry on the tire

The balance operated.

**4.** wheel balances operation.

**4.1.** automobiles and the middle and small scale truck tires are balanced.

◆ Turns on the power switch, installs treats balances the tire, the input rim data.

◆Covers guarantees guard, the pressed[START] key, after the tire starts to rotate stops, monitor 1.2 demonstrations not balance date.

Namely must add for in flank balance weight is heavy, according to not balance date choice balance weight.

◆ Slowly rotates the tire with the hand, entire is bright to the inside not balanced indicating lamp, expression this time rim inside peak (12 o'clock Clock) position for position of equilibrium. Adds on in this position balance weight, after but with above operation, in rim flank Canada

On corresponding balance weight, rotates the tire once more, to the demonstration [ o ] [ o ], the tire is balanced.

**4.2** actually not balanced demonstrated.

The common tire balance date, balance date every 58 demonstrations, are not smaller than 5s balance date not to demonstrate [ 0 ], each unevenness

After weighs the operation to revolve completes, Click [<T] button, it shows that the actual value of imbalance.

When the imbalance is less than 58 screens showed [0] [0], click [<T] button, it shows that the residual value of the actual imbalance

**4.3** motors wheel balance and balanced way choice.

When the balance motor cycle tire and cannot according to the normal way when rim two adds balance weight, must choose the different balance Way.

The pressed key and the key choice Static equilibrium and each balance way, according to [ ←/6 ] returns to the normal equilibrium side Type.

According to adds balance weight the position, the reference balance way indicating lamp choice balanced way

**Trouble shooting.**

Machine when work, is possible because each kind of reason enables the machine the normal work, after the computer determines the reason,

Breakdown code as follows:

Error meaning

**1** has not rotated the signal, the electrical machinery does not transfer or the position transducer is not right, the sensor is bad, and plug contact is not good, the computer board is bad.

**2** in computer collection survey data period, rim the rotational speed is lower than 60rpm, does not have the tire and the leather belt

Loose excessively is tight can create the mistake.

**3** miscalculations, balance date do not surpass the operation scope.

**4** electrical machinery reverses.

**5** pressed keys, guarantees cover is opens.

**7** oneself calibrates is wrong from the calibration or from the calibration data missing, remarries on from the calibration.

**8** from the calibration mistake, possibly is second time revolves when has not added 100 grams balance weight or the sensor electric cable breaks. The plug contact is not good.

**Daily maintenance (layman).**

In carries on before the service operation, please separate the power source.

**1.1** adjustments belt tension.

1 dismantling face guard.

2 pines operate the electrical machinery bolt, moves the electrical machinery to the leather belt bicompart appropriately, after press under the leather belt, is approximately low 4mm.

3 screws tight the electrical machinery the bolt, covers the faceguard.

**1.2** replacements fuses.

Two fuses both install on the power panel, and can take down from the insurance place, once damages, may use

The same specification insurance replacement, this kind of matter frequently bumps into in the post-sale service.

**1.3** balances demonstration is unstable.

After balances the good tire recto install demonstrates not balanced.

This is not the machine demonstration mistake, generally because rim the installment wrongly creates.

The installment rim two fitting surfaces and the conical surface not coaxial cable, or rim the hole distorts, with awl disk gap

Too big; As well as fast locks the nut whether becomes less crowded. By is can create a bigger error.

**INCONSISTENT UNBALANCE READINGS**

Sometimes after balancing a wheel and removing it from the balancing machine, then again mounting it on the balancing machine, it is found that the wheel is not balanced.

This does not depend on incorrect indication of the machine, but only on a faulty mounting of the wheel on the adapter, i.e. in the two mountings, the wheel has assumed a different position with respect to the balancing machine shaft center line.



If the wheel is mounted on the adapter with screw, it could be possible that the screws have not be correctly tightened- they should be tightened one by one crosswise or else (as often happened) holes have been drilled on the wheel with too wide tolerance.

Small errors, up to 10 grams (4 oz) are to be considered normal in wheels locked by a cone; the error is normally greater for wheels locked with screws or studs.

If, after balancing, when the wheel is refitted on the vehicle, it is still out of balance, this could be due to unbalance of the car brake drum or very often due to the holes for the screws of the rim and drum drilled sometimes with too wide tolerances. In such case a readjustment could be advisable using the balancing machine with the wheel mounted.

## **WHEEL BALANCING**

### **MEASUREMENT OF UNBALANCE**

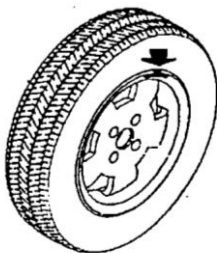
-To make a measuring spin, close the guard (press "START" if function "Start with guard closed" is not enabled. See OPTIONAL FEATURES)

-In a few seconds the wheel is brought up to speed and a new braking; the amounts of unbalance remain memorized on instruments 1 and 2.

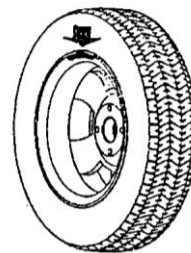
-The illuminated LED display show the correct angular position where to fit the counterweight (12 O'CLOCK position)

-In this screen, a light pressing of key "C" will display in sequence the preset dimensions.

**Fig 12 Correction on the outside**



**Fig 13. Correction on the inside**



### **DISPLAY OF UNBALANCE**

-Press the button "FINE" to display real unbalance amount (pitch 1gram/0.1oz)

-The instruments should show "GUD" for amounts of unbalance less than 5 gram (0.4oz); to display residual unbalance, press "FINE"

**NOTE: When static unbalance is greater than 30gram/1.1oz, the wording "OPT" appear on the display "17", In such case, press push button "14" and the system passes automatically on to the second unbalance optimization spin (see relative section)**

### **RECALCULATION OF THE UNBALANCE**

-Preset the new dimensions following the procedures described above.

-The new recalculated unbalance values are displayed.

**MINIMIZE STATIC UNBALANCE**

-When standard commercially available weights with pitch of 5 every 5g, an unbalance of up to 4g can remain. The damage of such approximation is conspicuous for the fact that most of the disturbance of the vehicle are caused by static unbalance. The computer **indicates** automatically the **optimum entity** of the weights to be applied, by approximating them in **intelligent** mode according to their position. (Pitch 5 gram/0.25oz)

-Press “<T” to display actual unbalance. (Pitch 1 gram/0.1oz)

-The instruments show “0” for unbalance less than 5grams/0.4oz; to display the residual unbalance, press “<T”

**AUTOMATIC WHEEL POSITIONING**

Automatic wheel position is always performed with reference to the position of the unbalance on the outside. When a measurement is made of the STATIC unbalance, wheel positioning is automatic. Positioning accuracy is approx. ±20 degree for wheel weighing up to 25kg. Positioning is never performed for wheels less than 13” in diameter.

**STATIC-ALU**

The available functions show where to place the corrective weights in positions differing from the normal ones.

-Press “ALU” to select the required “ALU” functions “1” for static correction.

-LED’s (5) when lit up clearly show the position selected as indicated as below Fig 14.

The amounts of unbalance are displayed correct on the basis of the selected correction position.

Fig 14



**STANDARD-** Balancing of steel or light alloy rims by applying clip-on weights on the rim edges.



**STATIC-** STATIC correction is required for motorcycle wheels or when it is impossible to place the weights on both sides of the rim.

NOTE: The balance position can be read on indicator 3 or 4- it does not matter which. For unbalance values exceeding 30 gram/1.1oz, the wording “ALU” appear on display “1”; it is possible to press directly on to the second unbalance optimization spin.



**ALU1-** Balancing of light alloy rims with hidden application of the adhesive weights on the outside.



**ALU2-** Combined balancing: clip-on weight on inside; hidden application of the adhesive weight on the outside. (Position of the external weight as in ALU 1)

## ***ROUTINE MAINTENANCE***

**Warning!** Before carrying out any operation, disconnect the machine from the mains.

### **ADJUSTMENT OF THE DRIVING BELT TENSION**

1. Remove the weight holder shelf carefully not to tear away the electrical connections.
2. Slightly loosen the four screws fastening the motor. Then shift the motor until the belt is correctly tensioned.
3. Carefully retighten the 4 motor mounting screws. Check then when the belt is running, there is no side deviation.

### **TO REPLACE THE FUSES**

Remove the weight holder shelf to gain access to the power supply PC board and the two fuses mounted on it. If the failure persists, contact the manufacturer or dealer.

### **ADAPTERS:**

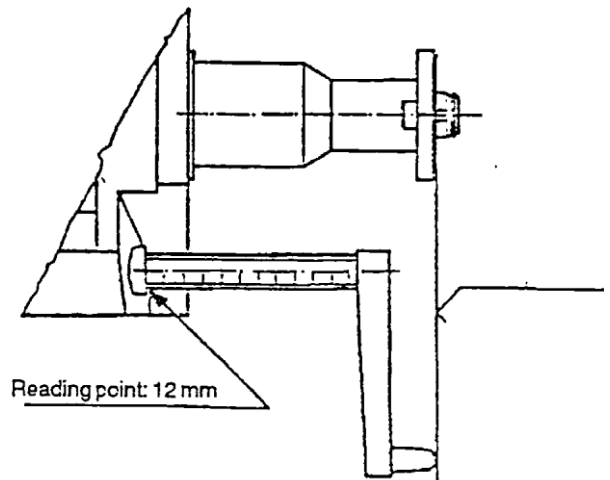
Plastic wheel holder sleeve: kept the inner rubber ring constantly lubricated.

## CHECK AND CALIBRATE THE AUTOMATIC DISTANCE/DIAMETER GAUGES

### CHECK

Check that with the ruler for measuring the distance of the wheel

Reads 12cm as measurement of the distance of the adapter support plane. If the graduated scale is changed, position it with the line indicating 12 at the fixed index limit (reading point) when the tip coincides with adapter support plane.



### CALIBRATION OF THE DISTANCE POTENTIOMETER

Calibration of the distance potentiometer

- Remove the weight holder shelf and refit on the gauge rod.
- Back-off the set screws fastening the pulley to the potentiometer shaft.
- Select self-diagnostics by pressing button "16", **D**.
- After the test for correct display operation, press **ALU**

The wording "dIS" appears on display "17" while display "1" a number appears which varies when the distance gauges is moved and represent a reference for potentiometer calibration.

- With the gauge fully retracted, turn potentiometer shaft holding the pulley still until the lowest possible number is read (about 30)
- Increase by 4 numbers and retighten the set screws fastening the pulley on the shaft.

### CALIBRATION OF THE DIAMETER POTENTIOMETER

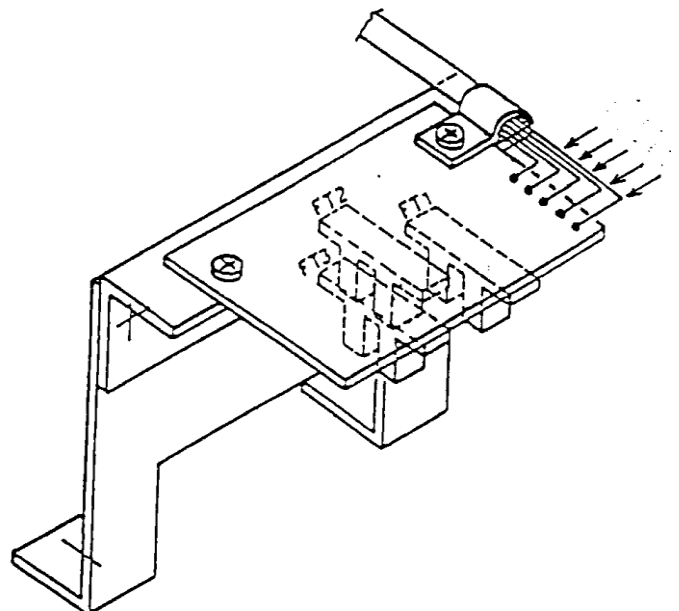
-Press **ALU** after carrying out the **CALIBRATION OF THE DISTANCE POTENTIOMETER**.

-The word "dIA" appears on the left display, while on the right display there appears a number which varies when gauge is rotated -and represents a difference for potentiometer calibration.

- Lift out the diameter potentiometer from the gauge rod after loosening the mounting screw.
- Slightly pull the gauge rod out and rest its locator on the machine shaft extremely close to the base.
- Turn the potentiometer shaft until 34 is read on the display, then reinsert the potentiometer in its correct working position.
- Lock the potentiometer with relative set screw.

Press "ALU" to quit the function after calibration.

NOTE: The function can be interrupted during any phase, by pressing "C".



## CHECK THE POSITION SENSOR

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

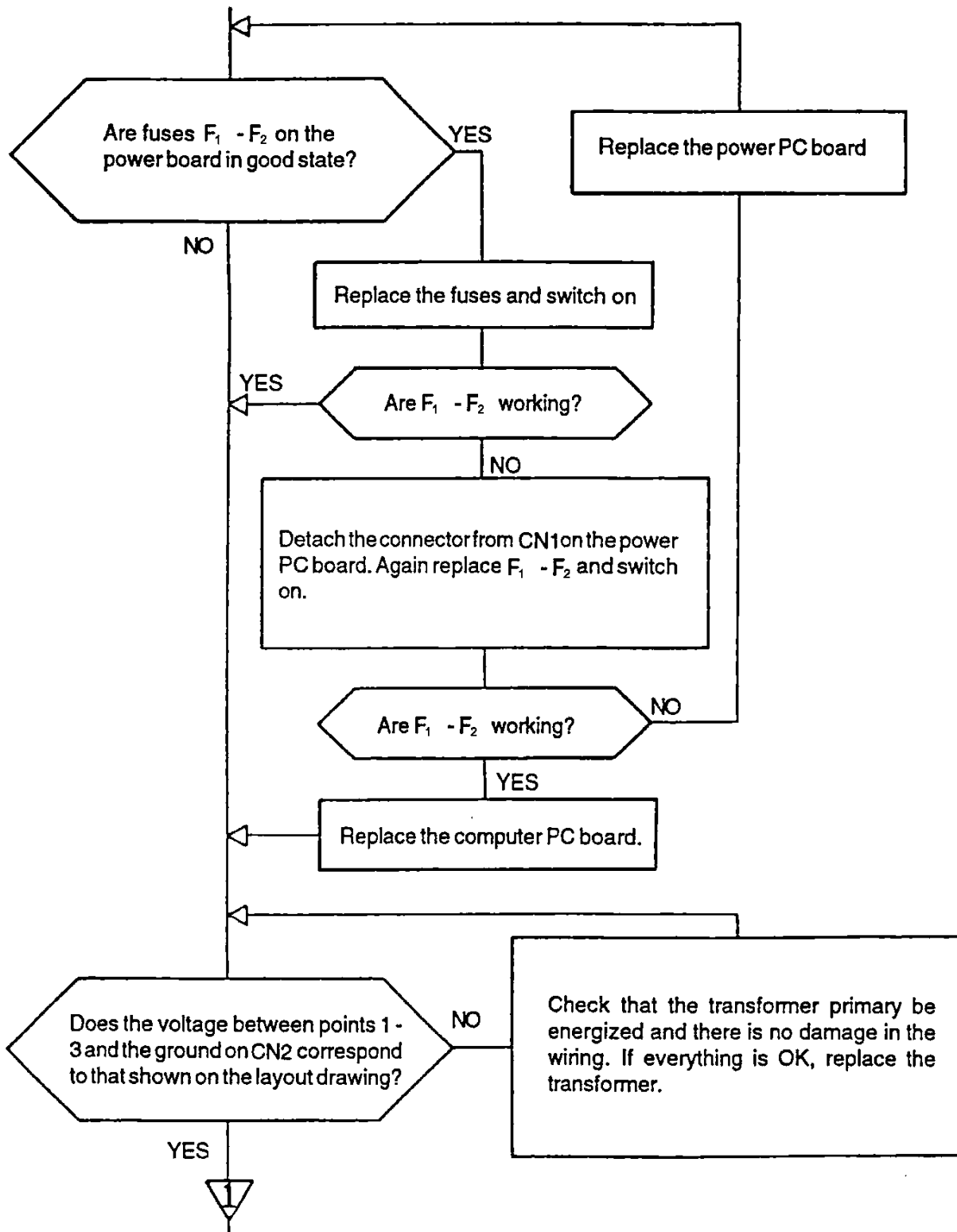
1. Make sure that none of the three photocells rub against the phase disk and RESET tooth.
2. Using a voltmeter set to the Vd.c. scale, test the following voltages:
  - \*Between earth and red wire + 5 Vdc steady
  - \*Between earth and yellow wire (RESET) +4.5 to 4.8 Vd.c when the RESET tooth is the photocell.
  - \*Between earth and the green wire (CLOCK) and between earth and the white wire (U/D), when the machine shaft is turned very slowly, there should be a variation in voltage going from "0" to 4.5/4.8Vd.c.

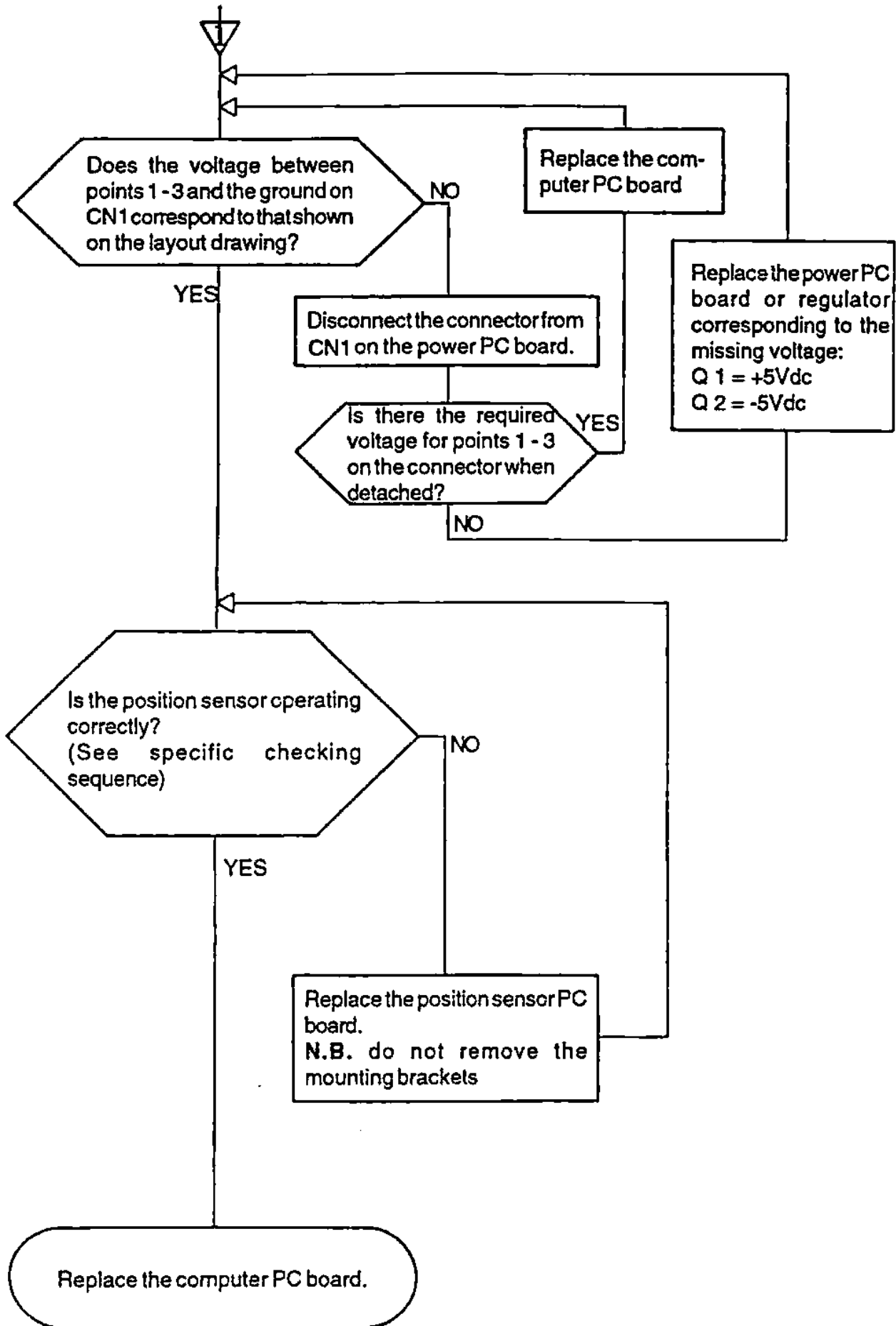
NOTE: When the position sensor requires replacement, remove just the PC board after backing-off the two mounting screws; as the mounting bracket is not moved, repositioning is easier.

## LOGIC TROUBLE SHOOTING SEQUENCE

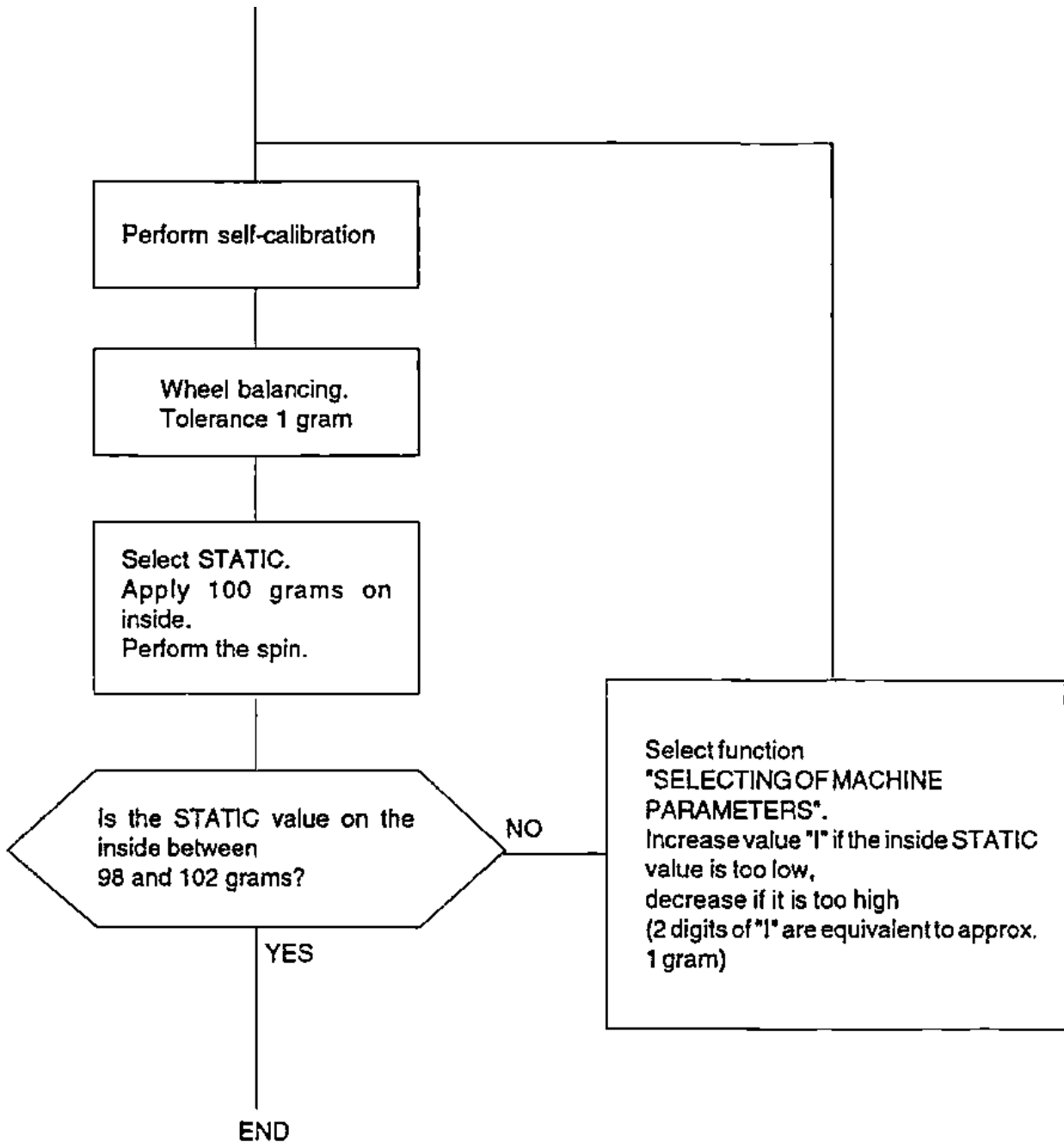
Before carrying out any tests, disconnect braking resistor R from the contractor. Only reconnect resistor R at end of testing. When power or computer PC boards require replacement, repeat the self-calibration of the balancing machine and calibration of the automatic gauge.

When the computer PC board is replaced, preset the machine parameters as shown on relative nameplate.



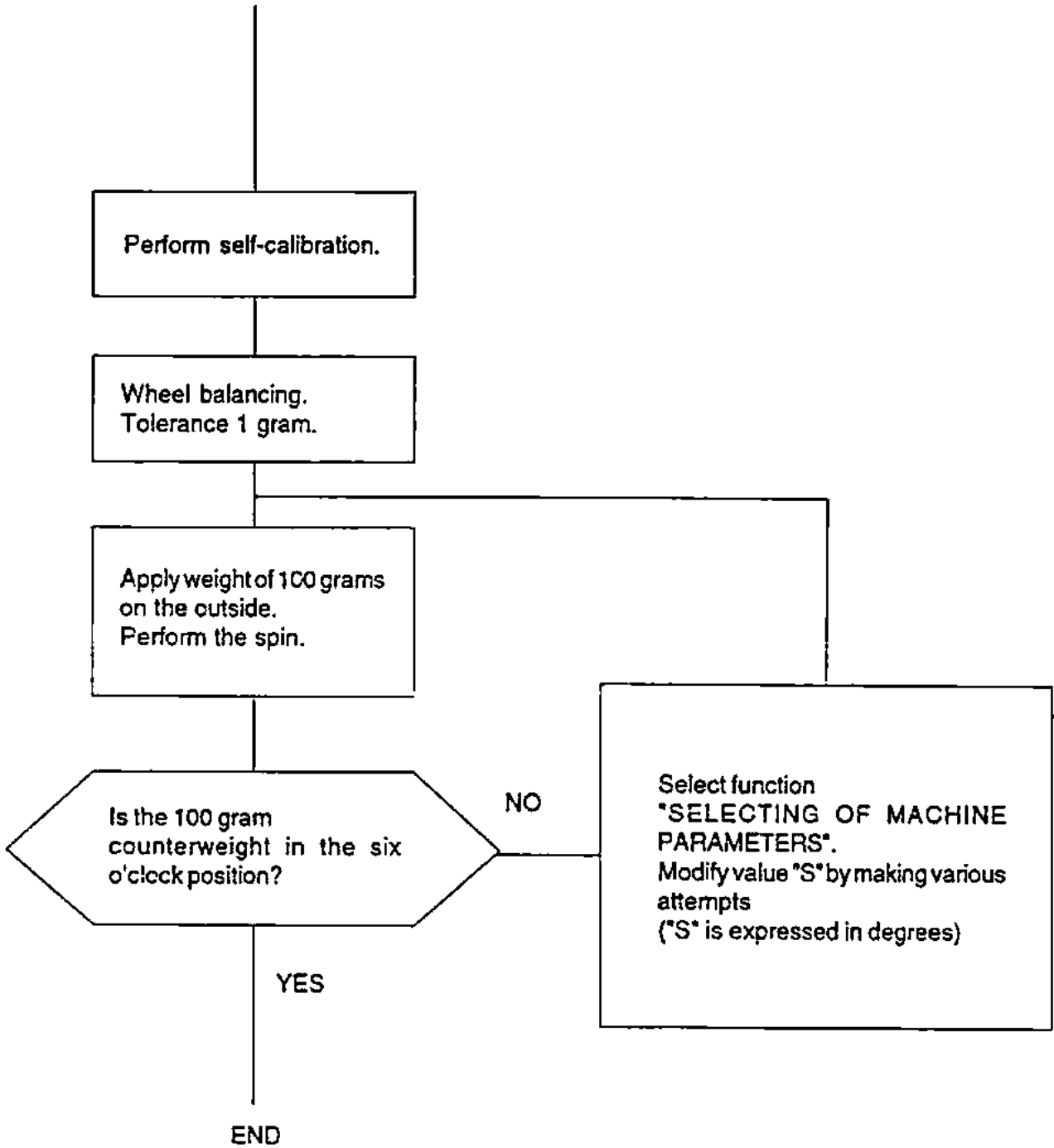


### CHECKING AND SETTING OF STATIC VALUE (STI)

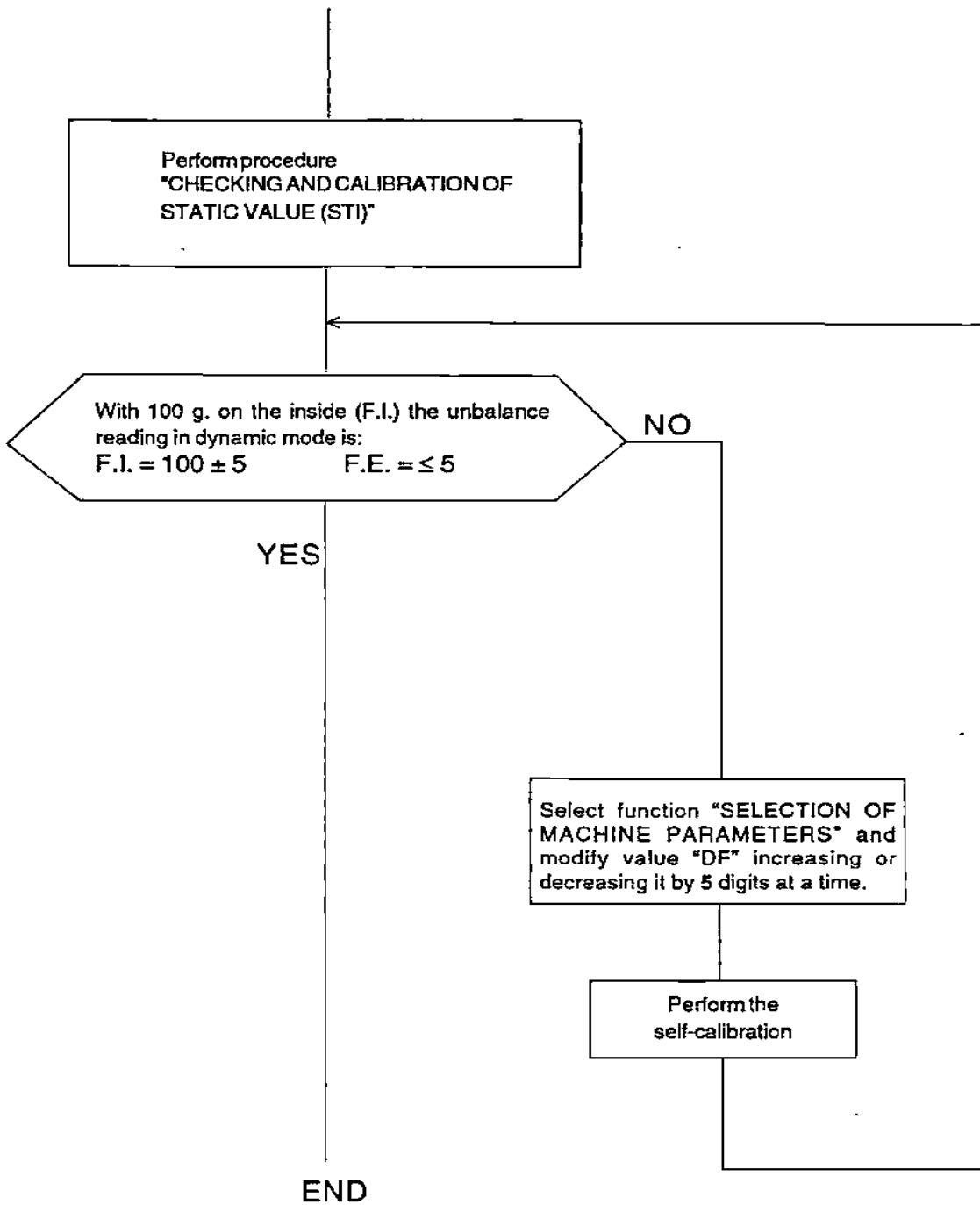




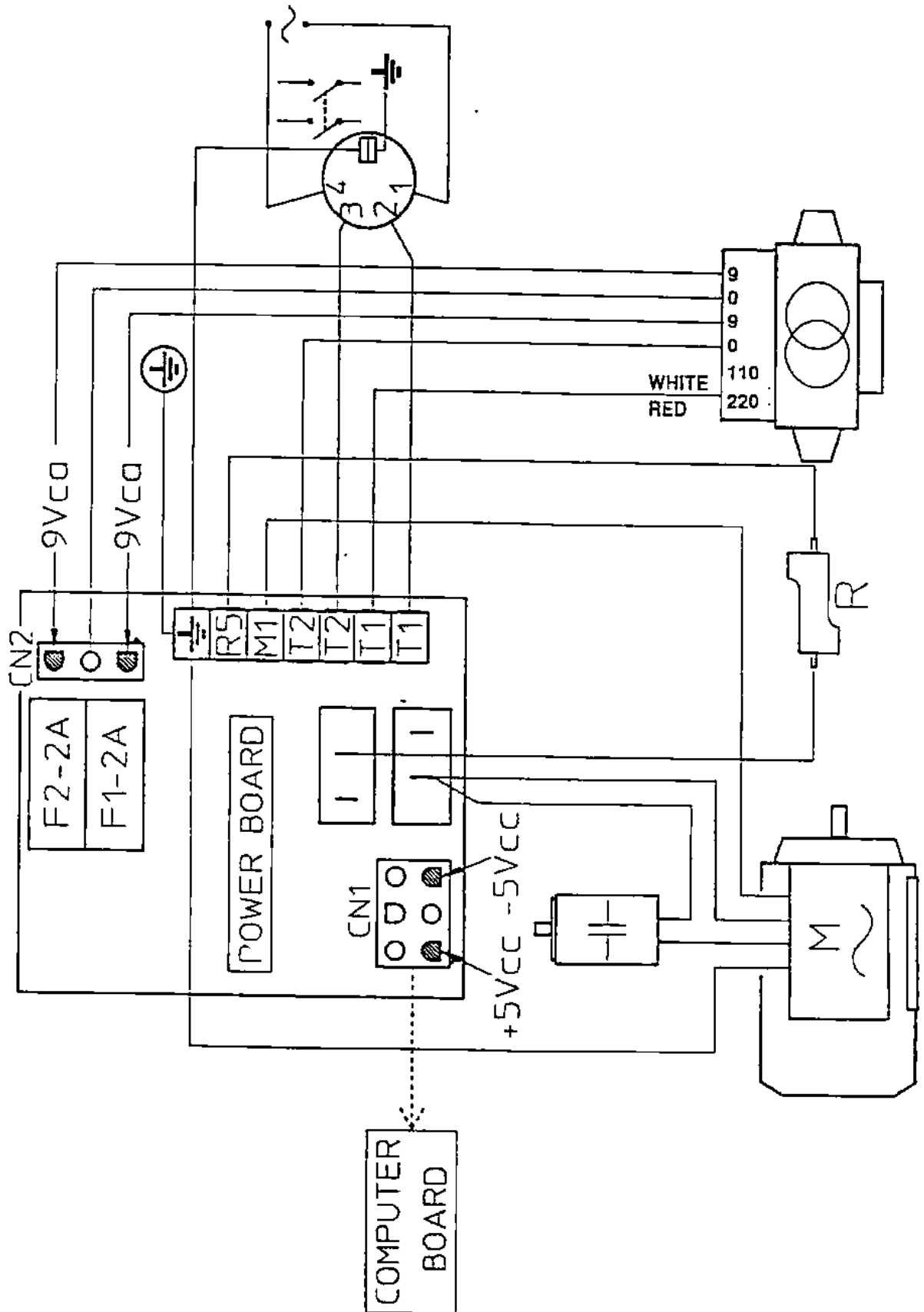
CHECKING AND SETTING OF UNBALANCE POSITION



### CHECKING AND CALIBRATION OF FIXED DISTANCE VALUE (DF)



POWER PC BOARD LAYOUT



### REPLACE THE POWER PC BOARD

