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Servicemanual

KERN TALJ(G)/TALS(G) 0.1mg

Version 3.5

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GB



GB

KERN ALJ/ALS

Version 3.5 04/2021

Servicemanual

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1 Basic Information

The device must be repaired only by trained specialist staff or personnel with professional formation (such as a repair-specialist accredited by law concerning verification). The service manual is obligatory for repair work. After repair, original conditions of the device have to be restored. Only original spare parts should be used.

Instructions about conformity-evaluated scales:

Repair must be carried only at 100% compliance with the type approval. A violation of this specification will result in a loss of the type approval! After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

Detailed instructions about conformity-evaluated scales:

Repair must be carried only at 100% compliance with the type approval. A violation of this specification will result in a loss of the type approval!

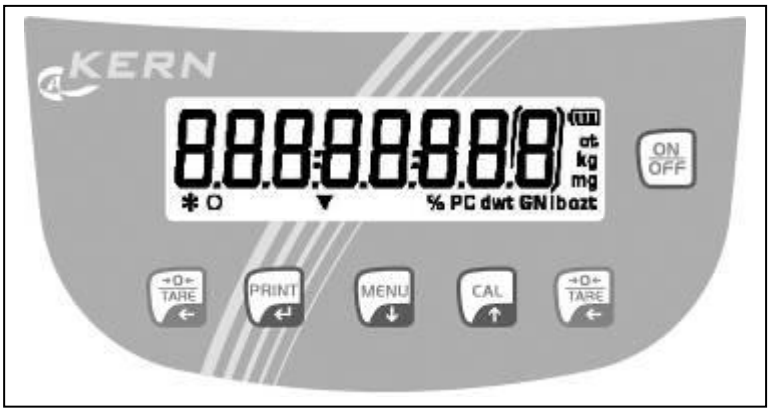
After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

2 Introdution

This service manual covers the ALS/ALJ series and is edited for the authorized servicing personnel.
Note all rights are reserved. Copying any part of this manual is prohibited without our permission.

3 Controls

3.1 Overview of display



3.2 Keyboard overview

Key	Designation	Short key pressing	longtime pressed button until the acoustic signal gets mute
MENU	**MENU** button/	• Call-up application menu • Select menu items – scroll forward	• Call-up user menu • Exit user menu • Switch-over display
	Arrow button ↓	• numerical input – scroll backward	
ON OFF	**ON/OFF** switch	• Turn on/off • Exit user menu	
CAL	**CAL** button/	• Adjustment • Select menu items – scroll backward	
	Arrow button ↑	• Numerical input – scroll forward	
PRINT	**PRINT** button	• Calculate weighing data via interface • Confirm / store settings	
	Arrow button ←	• Numerical input – cipher selection	
→0← TARE	**TARE** button	• Taring • Zeroing	

4 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values, it is also recommended to adjust the balance periodically in weighing operation.

- ⇨ Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.
- ⇨ Ensure that there are no objects on the weighing plate.

4.1 Models with external weight (KERN ALS)

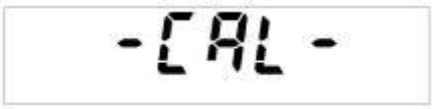
The adjustment is locked for verified balances.

4.1.1 Adjustment with recommended adjustment weight (factory setting)

Weight value of the required adjustment weight see chap. 1 “Technical specifications “:



- ⇨ Ensure that there are no objects on the weighing plate. Press the **CAL** key



- ⇨ Wait until the weighed value for the required adjustment weight appears flashing.



- ⇨ **During** the flashing display put the required adjustment weight carefully in the center of the weighing plate.
  The flashing display disappears.
  After successful adjustment the balance automatically returns to weighing mode.
- ⇨ Take away adjustment weight



4.1.2 Adjustment with weights of other nominal values

Weights of different nominal values may be used for adjustment but are not optimal for technical measuring, possible adjustment points see table 1.

Info about adjustment weights can be found on the Internet at: http://www.kern-sohn.com



⇨ Ensure that there are no objects on the weighing plate. Press the **CAL** button and keep it pressed until the acoustic signal gets mute.



⇨ Wait until „LoAd“ appears.



⇨ **During** the flashing display put the adjustment weight carefully in the center of the weighing plate.
The flashing display disappears.
After successful adjustment the balance automatically returns to weighing mode.

⇨ Take away adjustment weight



An error message will be displayed in the event of an adjustment error or incorrect adjustment weight. Wait until the balance is again in weighing mode and repeat the adjustment procedure.

4.2 Models with internal weight (KERN ALJ)

For non-verified balances four adjustment possibilities are available in the menu.

Menu settings

In weighing mode press the **MENU** button and keep it pressed until the acoustic signal gets mute. The first menu item „units“ is displayed.

Press **MENU** button repeatedly until „calib“ appears and confirm using **PRINT** button.

Use the **MENU** key to choose between the following settings:

AUT-CAL	Automatic adjustment with internal weight. Factory settings of models with type approval.
I-CAL	Adjustment with internal weight after having pressed CAL; not available for models with settings appropriate for verification.
E-CAL	Adjustment with external weight not available for models with settings appropriate for verification.
TEC-CAL	technical calibration

Take over selection using the **PRINT** button.
The balance returns to menu.

To finish the menu press the **MENU** button and keep it pressed until the acoustic signal gets mute. The balance returns automatically into weighing mode.

AUT-CAL
Factory setting of verified balances

With activated AUT-CAL function the internal adjustment is automatically started when the balance

- after the weighing balance was disconnected from the mains
- after pressing **ON/OFF** in stand-by mode
- after a temperature change of 1.5 °C
  with non loaded weighing plate / zero display
- after a time interval of 3 hours
  with non loaded weighing plate / zero display

The automatic adjustment function is always enabled. You can start adjustment at any time by pressing the **CAL**-key manually.

I-CAL When the I-CAL function is activated, the internal adjustment is started only by pressing the **CAL** button. Before pressing CAL ensure that there are no objects on the weighing plate.

E-CAL At the models with internal adjustment weight the adjustment with external weight is not recommended.

Procedure see chapter 7.1.

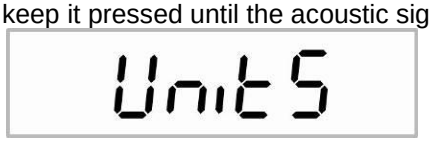
4.2.1 Manual correction of the internal weight LCD Version

(Models with settings not appropriate for verification only)

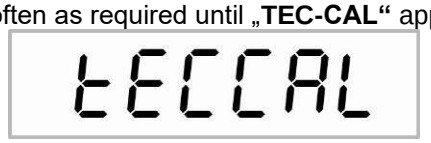
! Overwriting is restricted to specialist staff possessing well acquainted with the workings of weighing scales.



⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute.



⇨ Press the **MENU** button as often as required until „**CAlib“** appears
⇨ Operate the **PRINT** key
⇨ Press the **MENU** button as often as required until „**TEC-CAL“** appears



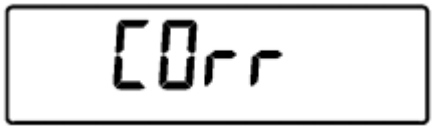
⇨ Press the **PRINT** button and keep it pressed until the acoustic signal gets mute.



⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute. The balance changes automatically into weighing mode
⇨ Ensure that there is no load on the weighing plate
⇨ Press the **TARA** key



⇨ Then the message “C0rr” is displayed. Keep pressed the **PRINT** button



⇨ The display show:



⇨ Load weight calibration
⇨ Correct the weight by pressing **CAL** or **MENU** for increase or decrease the value. Press three times for have 1-digit correction for version 0,1mg and for version 0,01mg press one time for correction 1 digit.

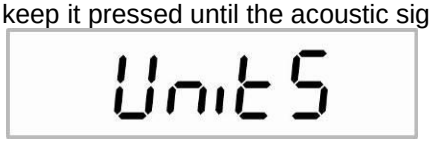
⇨ When the value is correct press the **PRINT** button
⇨ Select automatic calibration mode and press **CAL** button to calibrate the balance check if the value of calibration weight is correct.
⇨ If is not correct, please repeat the operation as explained above
⇨ Carry out the adjustment process as described in chapter 4.2

4.2.2 Correction of internal weight for LCD version.

! Overwriting is restricted to specialist staff possessing well acquainted with the workings of weighing scales.



⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute.



⇨ Press the **MENU** button as often as required until „**CAlib“** appears
⇨ Operate the **PRINT** key
⇨ Press the **MENU** button as often as required until „**TEC-CAL“** appears



⇨ Press the **PRINT** button and keep it pressed until the acoustic signal gets mute.

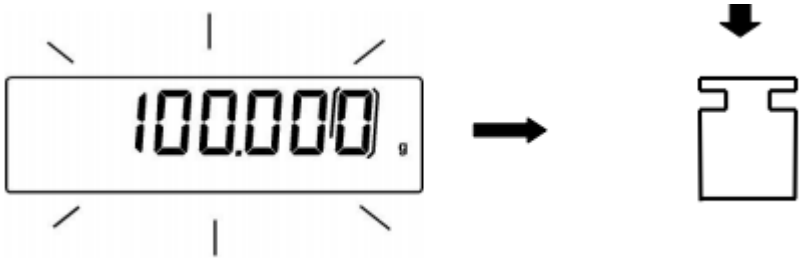


⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute. The balance changes automatically into weighing mode
⇨ Ensure that there is no load on the weighing plate

⇨ Press the **CAL** key

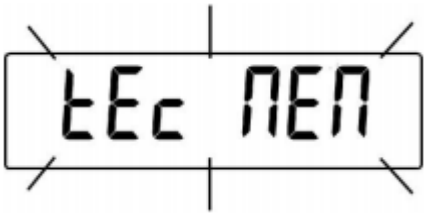


⇨ When the value of calibration weight start flashing on display, load the weight on the balance pan.



⇨ Wait the acoustic alarm and then the displayed calibrated weight value stops flashing, then unload the weight from balance pan.

⇨ When string **"0.000"** is displayed continously, then press and keep pressed the **PRINT** button. That starts the internal weight value automatic acquisition and store. During the acquisition cycle, the display will show **"TEC-MEM".**



⇨ After having stored the value of internal calibration weight, the balance returns to normal weighing conditions.

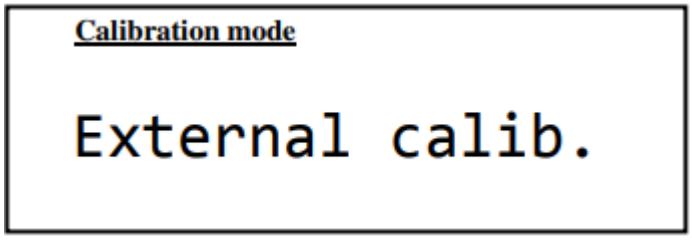
⇨ Return to calibration menu as described at paragraph 6.2 and set the desired calibration mode: internal, automatic or external.



4.2.3 Manual correction of internal weight for graphic version.

⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute.

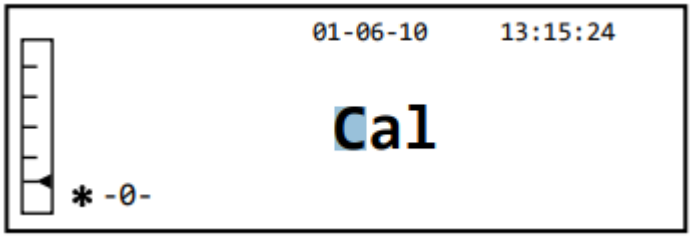
⇨ Select the calibration mode parameter.
The currently set calibration mode will be shown on the display:



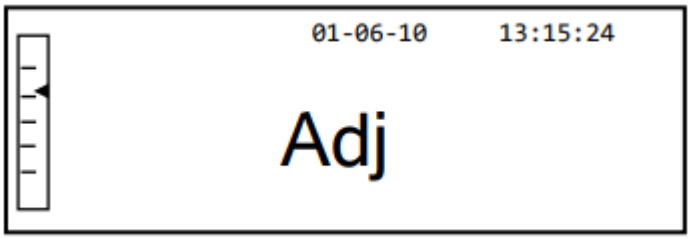
⇨ Press the **MENU** button as often as required until „**TEC-CAL"**appears



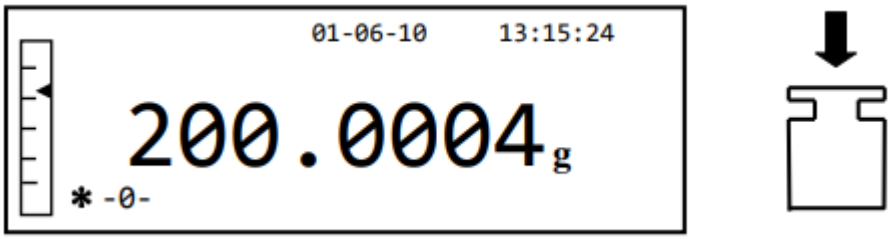
- ⇨ Press the **PRINT** button and keep it pressed until the acoustic signal gets mute.
- ⇨ The screen relative to the balance parameters menu will then be displayed. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.
- ⇨ After having selected the **TEC-CAL** calibration mode, press the **TARE** button with the plate empty. The word "**CAL**" will be displayed.



- ⇨ Then the message "**Adj**" is displayed.
- ⇨ Keep and pressed the "**PRINT**" button.



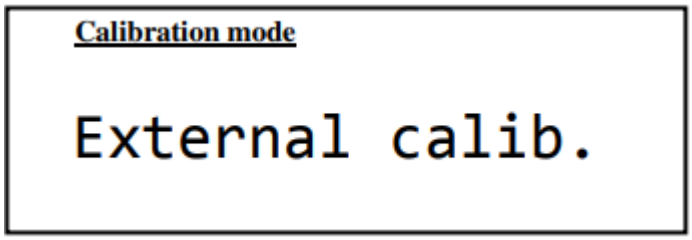
- ⇨ The display show "**0,0000**"
- ⇨ Load weight calibration



- ⇨ Correct the weight by pressing **CAL** or **MENU** for increase and decrement the value (Press three times for have 1digit correction).
- ⇨ When the value is correct press the **PRINT** button.
- ⇨ Select automatic calibration mode press **CAL** button to calibrate the balance and then check if the value of calibration weight is correct.
- ⇨ If not correct, please repeat the operation as explained above.

4.2.4 Correction of internal weight for graphic version.

- ⇨ Press the **MENU** button and keep it pressed until the acoustic signal gets mute.
- ⇨ Select the calibration mode parameter.
  The currently set calibration mode will be shown on the display:



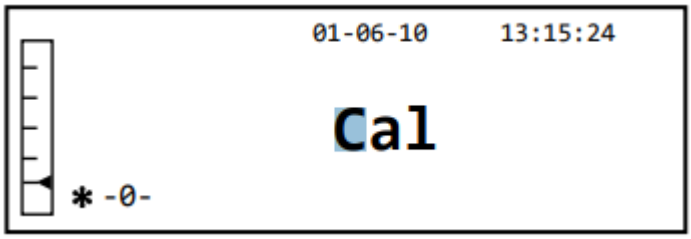
⇨ Press the **MENU** button as often as required until „**TEC-CAL“**appears



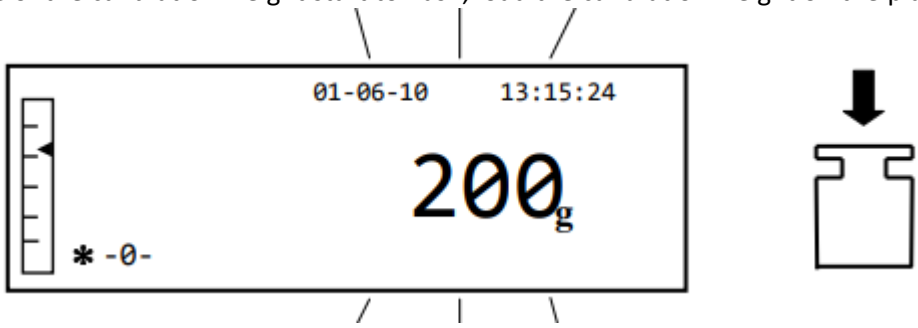
⇨ Press the **PRINT** button and keep it pressed until the acoustic signal gets mute.

⇨ The screen relative to the balance parameters menu will then be displayed. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

⇨ After having selected the **TEC-CAL** calibration mode, press the **CAL** button with the plate empty. The word “**CAL**” will be displayed.

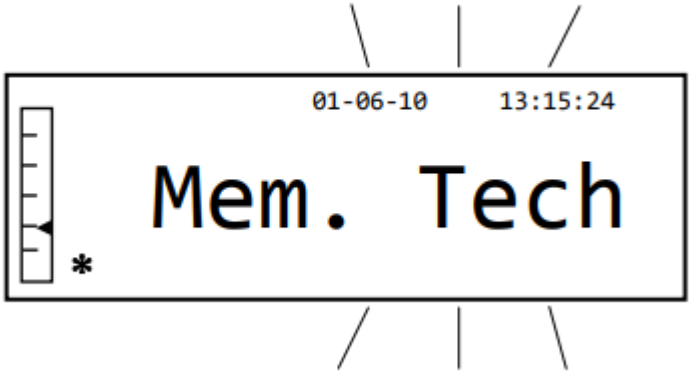


⇨ When the value of the calibration weight start to flash, load the calibration weight on the plate.



⇨ Wait for the calibrated weight to be displayed and the stability symbol to turn on, and then remove the weight from the plate.

⇨ When **“0.000”** is shown on the display, press the **PRINT** button in a prolonged manner until the beeping stops. The acquisition and automatic storage of the internal weight will now begin. During the acquisition cycle, the display will show the following flashing writing:



⇨ Once the internal calibration has been stored, the balance will return to the normal

weighing condition.

⇨ Now re-enter the calibration menu and set the desired internal, automatic, or external calibration modality.



WARNING: this procedure must be carried out only using class E1 reference masses.

5 Problem and solution for load cell balances.

Fault	Possible Cause	Service table
Balance not stable	Dirt inside the magnet Bandy flexures	Mechanical group service (Clearn the magnet) Mechanical group service (Change flexures)
Display doesn' t move from zero	Mechanical group damage Error linearity A/D converter fail	Mechanical group service Function linearity Check main board signal
Display doesn' t work correctly	Display damage No power supply No connection display	Change display Check main board signals Change cable 26 poli
Keyboard fail / At power on if balances beep	No connection to keyboard No bottom Keyboard	Change cable 14 poli Change Keyboard
Corner load not correct.	Parallelogram guide damage Corner load not regulated	Change parallelogram guide Corner load
Linearity not correct	Regulated linearity error Verify bandy flexures	Function linearity Mechanical group service

6 Mechanical group service

For Model 0.01mg

1. REMOVE THE BALANCE TOP COVER WITH DRAFTSHIELD (REMOVE ONE SCREW Fig.1 AND FOUR SCREWS UNDER THE BALANCE Fig2)




Fig.1



Fig.2

2. REMOVE THE COVER SHIELD OF MECHANICAL GROUP, Fig.3

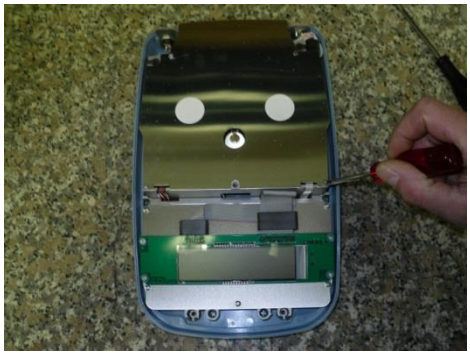
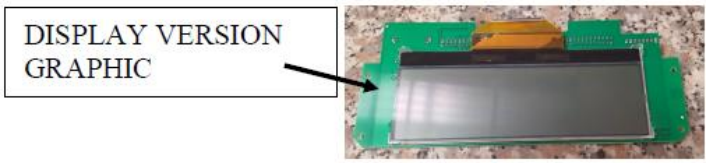
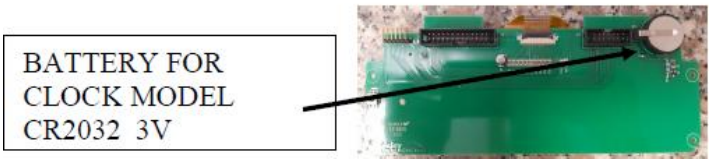


Fig.3





3. REMOVE THE DISPLAY BOARD (REMOVE FOUR SCREWS Fig.1) AND COVER SHIELD OF MAINBOARD (REMOVE FIVE SCREWS Fig2)

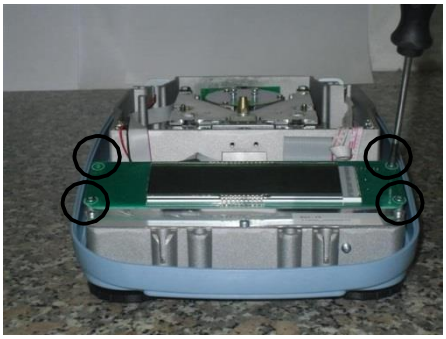


Fig.1

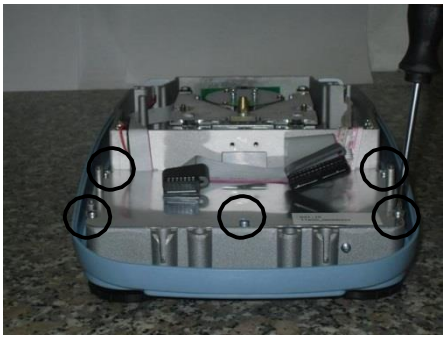


Fig.2

4. REMOVE THE CABLE OF OPTICAL GROUP (Fig.3)

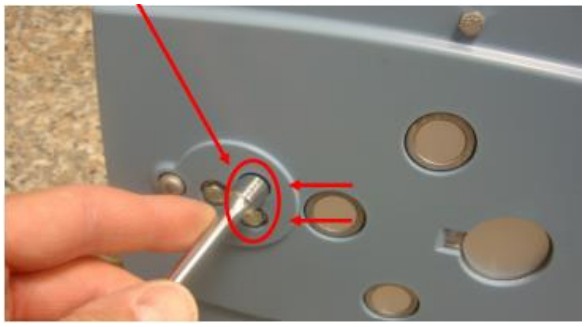


Fig 3

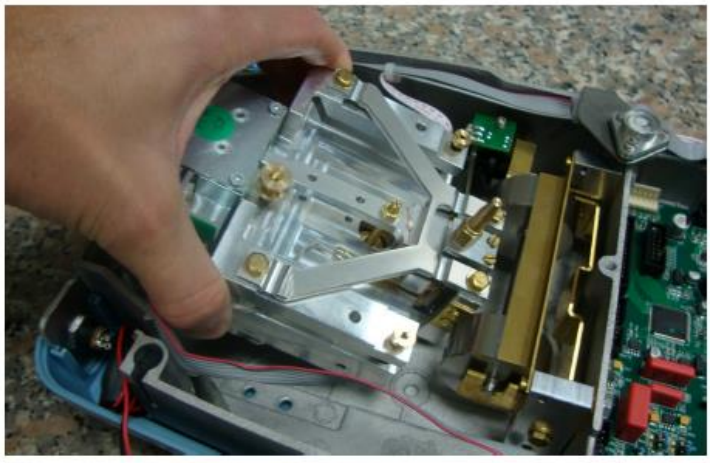


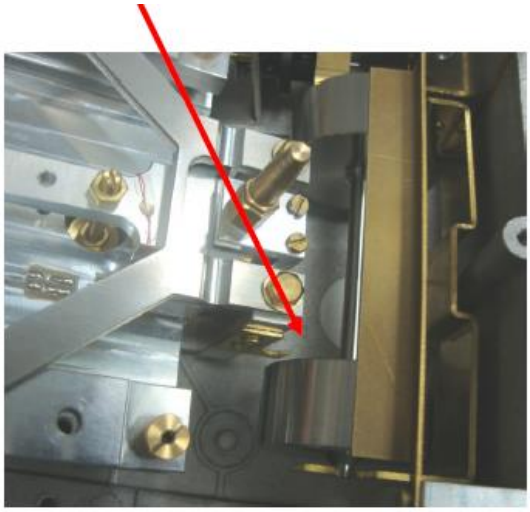
Fig 4

5. REMOVE THE TWO SCREWS LOCATED IN THE LOWER PART OF THE BOTTOM CASE



6. REMOVE THE MECHANICAL GROUP BY LIFTING IT FIRST FROM THE REAR. TAKING CARE TO FREE THE WEIGHT ARM FIXED ON THE MECHANICAL GROUP FROM THE INTERNAL CALIBRATION WEIGHT.





6.1 Disassembly mechanical group for replacing damaged parts

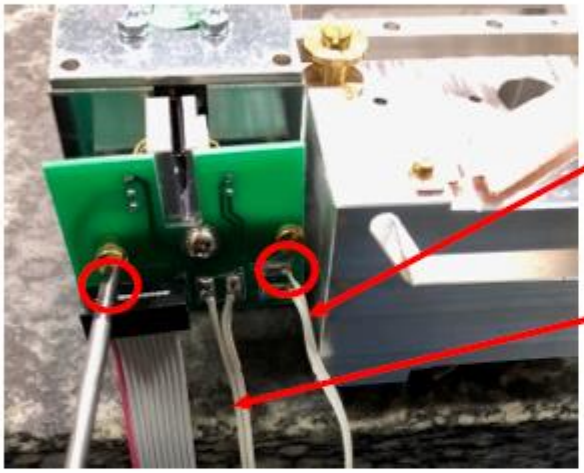
To do maintenance on the weighing group it is necessary to have the Service Tool(JIG) **RALJG-9002**.



1. Turn the group upside down.
2. Fix the unit support with the two screws.



3. Turn the group upside up.



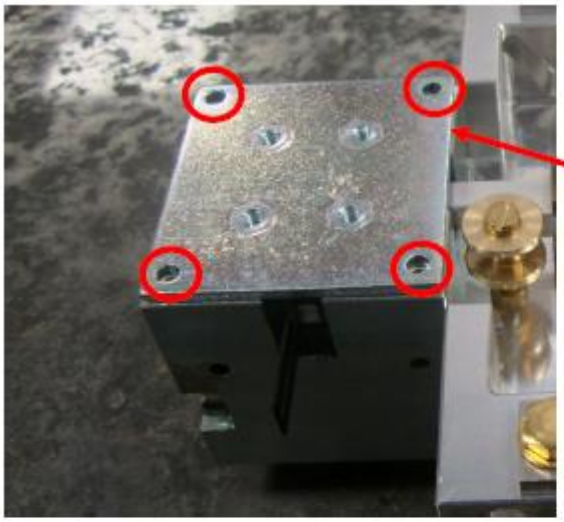
4. Unsolde the two coil wires. Mark the correct position of the wires. (Do not reverse the position).
5. Unsolde the two temperature sensor wires and tow coil wires.



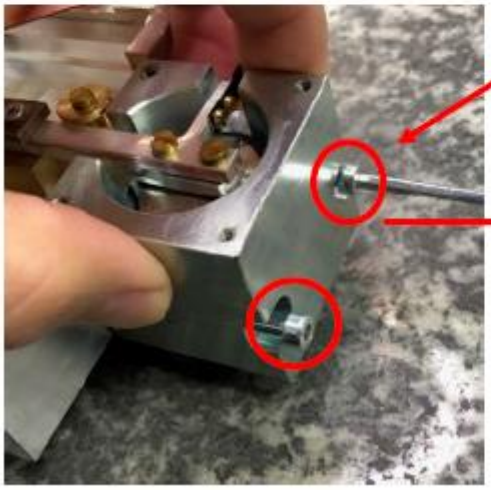
6. Now remove the optical group.



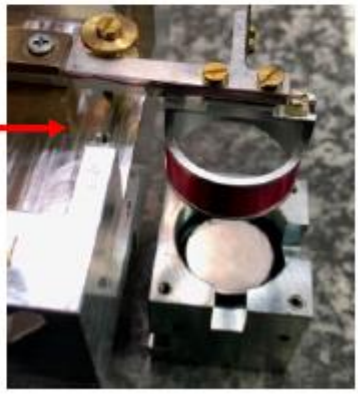
7. Insert the lever fixing jig, and lock the two fixing screws jig for the lever

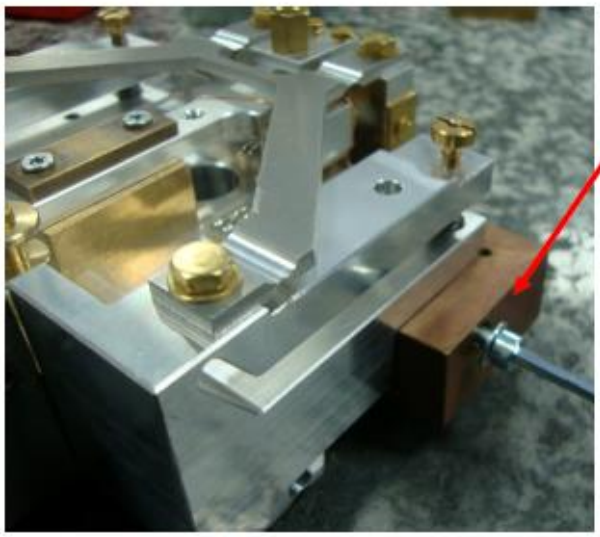


8. Remove the magnet cover screen by removing the 4 screws.



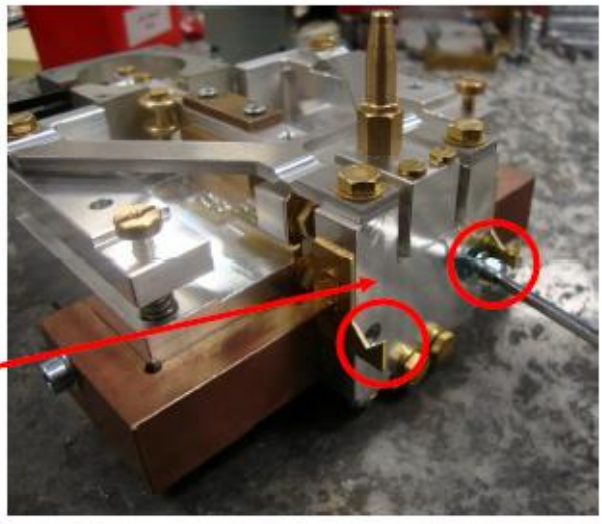
9. Now remove the magnetic circuit. Remove the two fixing screws.



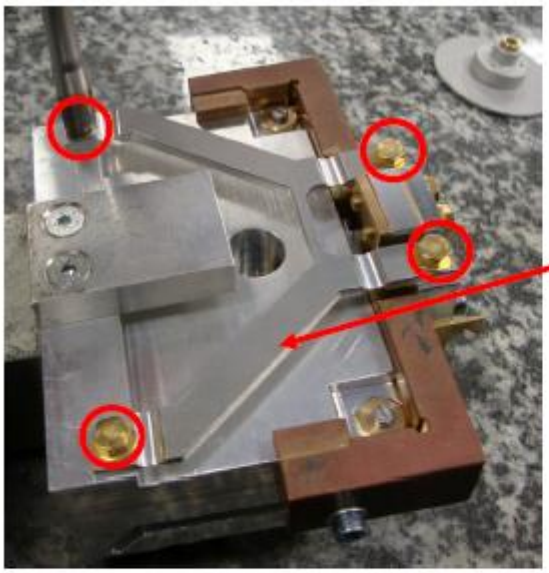


10. Position the moving pillar jig (right) and fix it with one side screw.

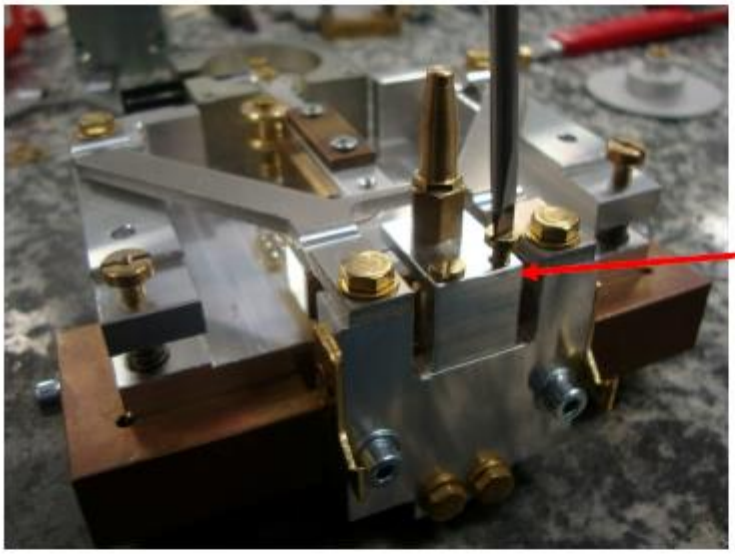
11. Position the moving pillar jig (left) and fix it with one side screw and one front screw.



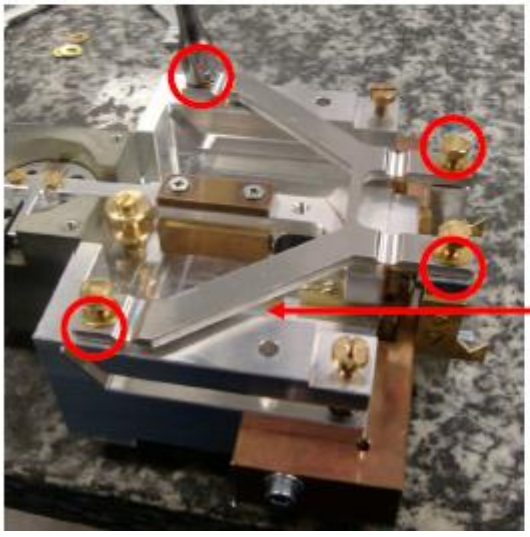
12. Fix the moving pillar to the jig with the two screws.



13. Turn the group upside down
14. Remove the four screws of the bottom parallelogram guide
15. Remove parallelogram, handling it carefully



16. Turn the group upside up
17. Remove the two screws in order to remove the cone support.



18. Remove the four screws of the bottom parallelogram guide
19. Remove parallelogram, handling it carefully



20. Remove two screws of vertical spring and the spacer positioned behind in the lower part.

21. Remove vertical spring.



22. Remove two screws of moving pillar.

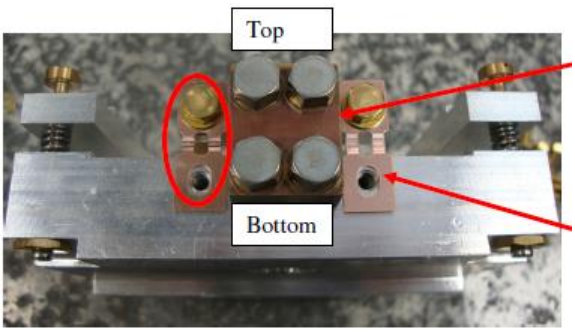
23. Remove moving pillar.







24. Remove jigs for moving pillar.



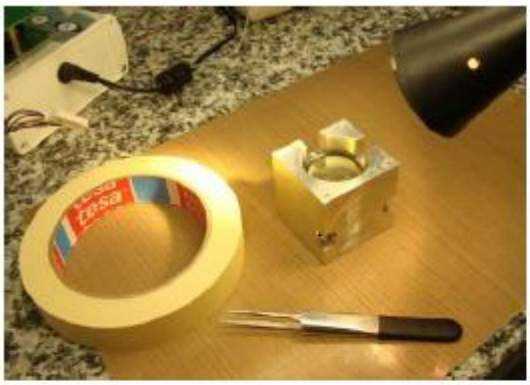
25. Put the jig on the lever

26. Insert two screws in to monobloc and two in to lever

27. Fix the screws: first the bottom ones then the top ones

28. Remove n°4 screws that fix the fulcrum flexures.

29. Replace damaged spring and secure with the 4 screws

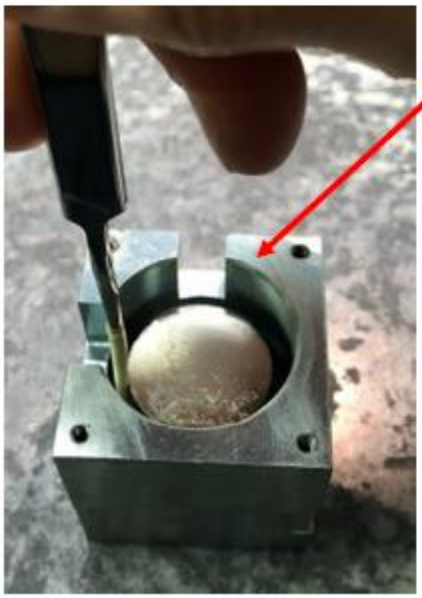


30. Clean the magnet by blowing with compressed air

31. Take paper tape and precision tweezer

32. Put some tape on the top of precision tweezer so that the sticky side is outside





33. Clean deeply the magnet turning precision tweezer around of magnet, at the end be sure the magnet is properly clean using a magnifier with light if available

6.2 Now you can start assembly the mechanical group



1. Put the magnet to the monobloc and fix it with n°2 screws



2. Position the moving pillar jig (right) and fix it with one side screw.
3. Position the moving pillar jig (left) and fix it with one side screw.



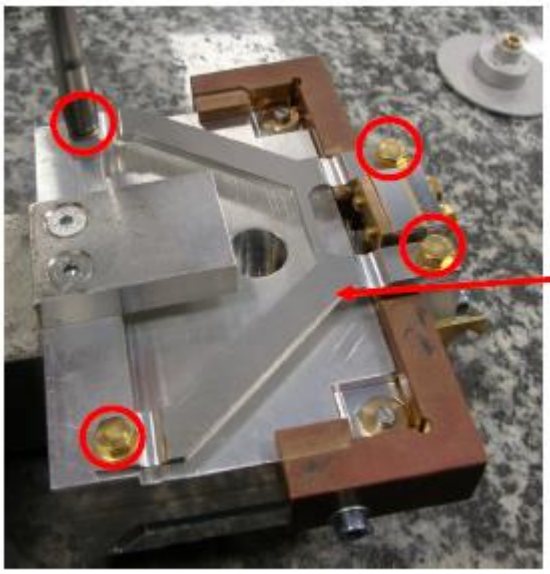
4. Fix the moving pillar with two screws
5. Position the new vertical spring if the removed one is damaged and fix with the two screws.





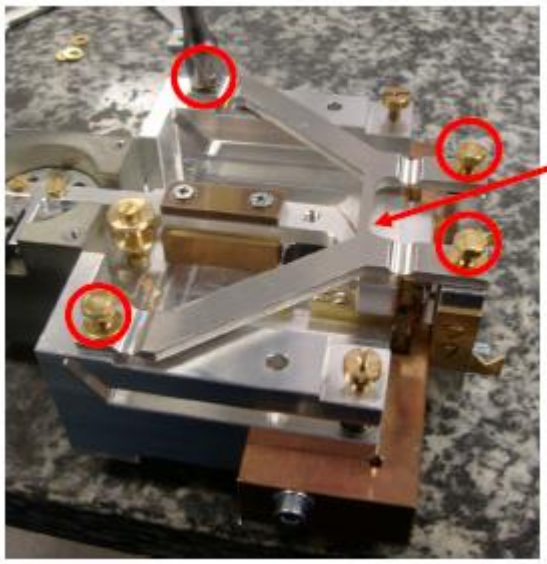
6. Position the spacer behind the vertical spring in the top part and fix the vertical spring with two screws.





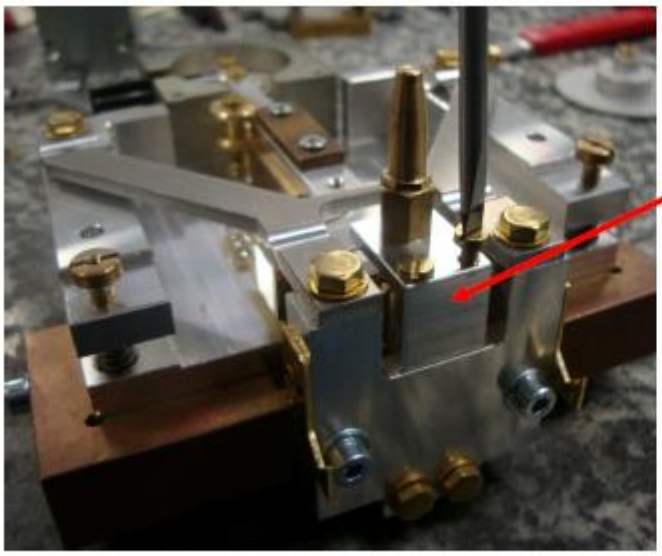
7. Turn the group upside down

8. Position the bottom parallelogram guide (replace it if necessary if the disassembled one is damaged) and fix it with four screws.



9. Turn the group upside up

10. Position the top parallelogram guide (replace it if necessary if the disassembled one is damaged), and fix it with four screws

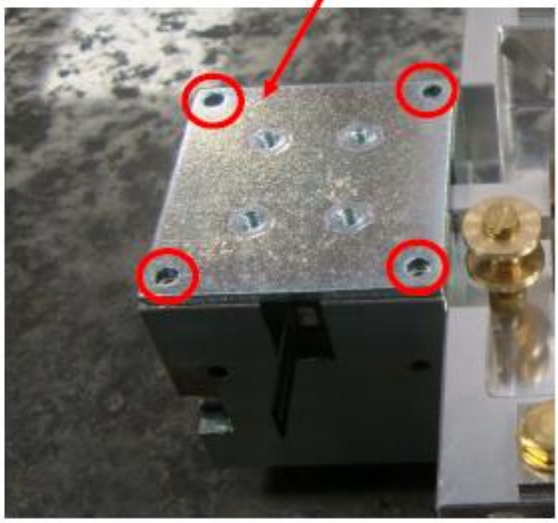


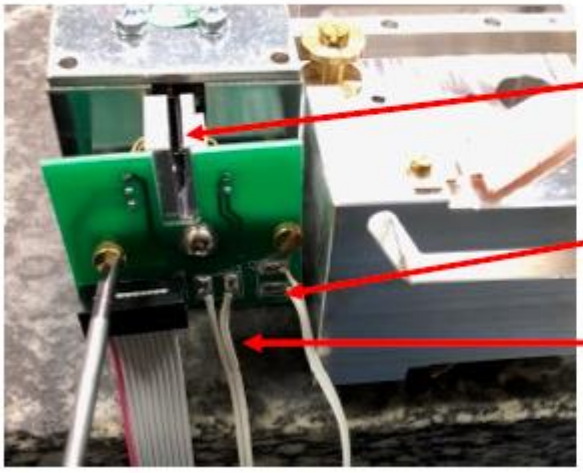
11. Position the cone support and fix it with the two screws.



12. Check that the coil is perfectly positioned in the center and, if necessary, correct the position by loosening the two screws indicated in the picture.

13. Now place the magnet cover and fix it with the four screws.

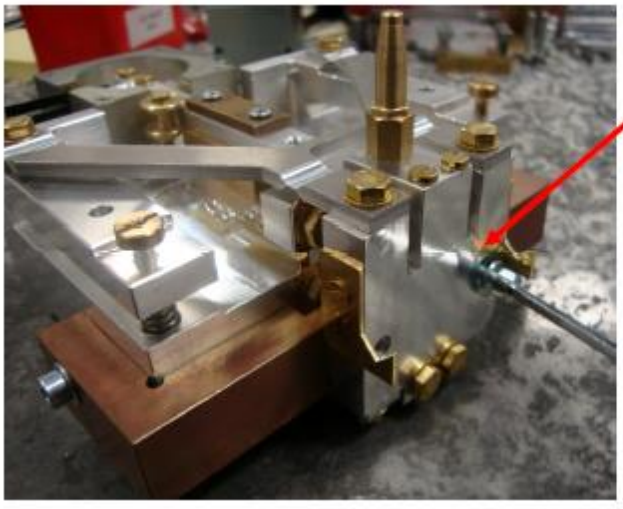




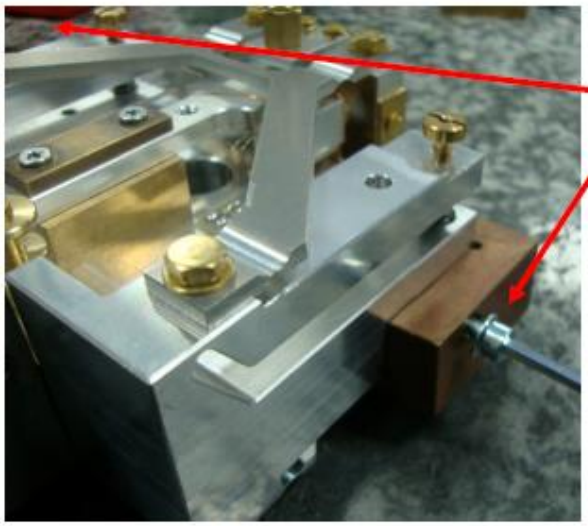
14. Fix now the optical group. **Place the flag in the center of the slot**

15. Solder the two coil wires. (Do not reverse the position).

16. Solder the two temperature sensor wires.

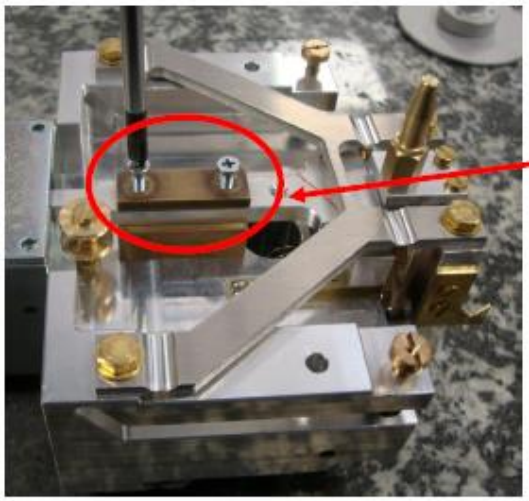


17. Remove the two screws that secure the moving pillar to the jig.

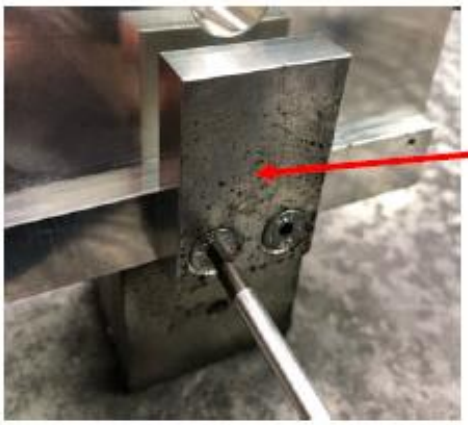


18. Remove now the moving pillar jig (left and right)





19. Remove the jig of lever.



20. Remove the unit support with the two screws.

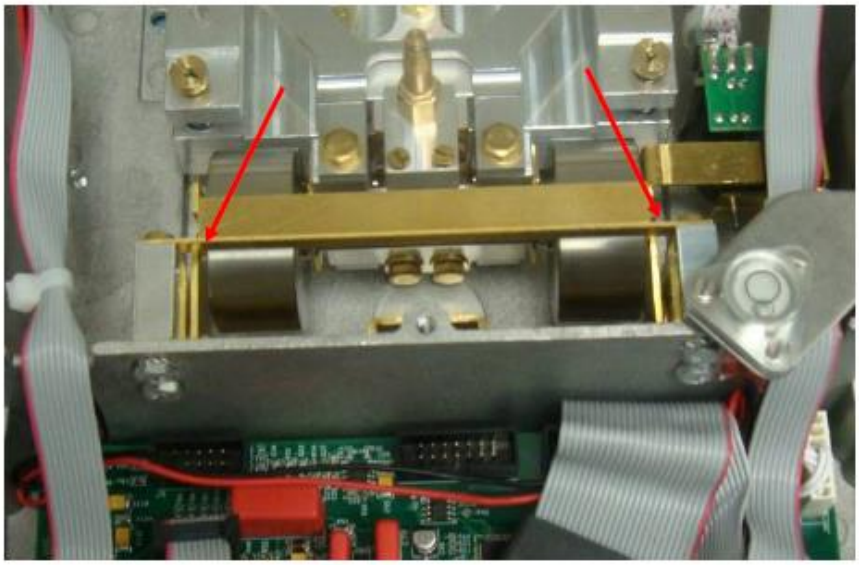
23. Insert the mechanical unit into the base.

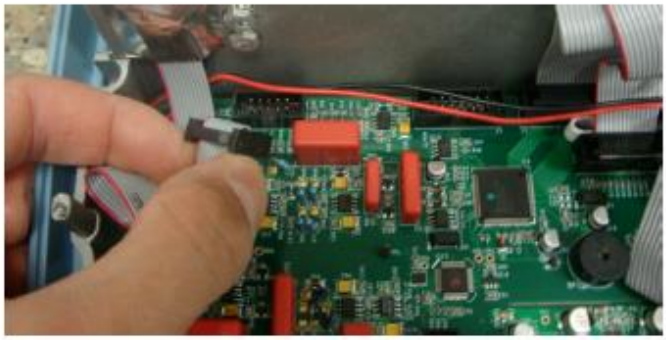


24. Fix the group with the two screws to the base.



25. Check that the weight is positioned correctly. Then tighten the assembly fixing screws.



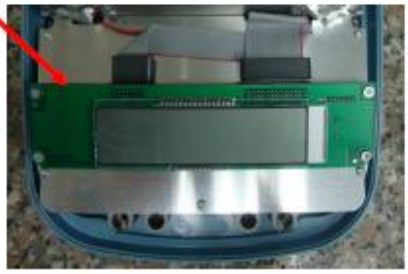


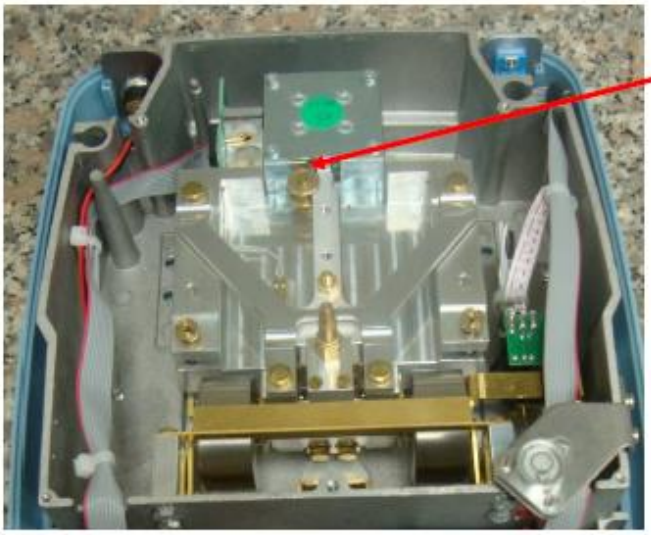
26. Connect the optical group cable.



27. Place the cover plate and fix it with the five screws.

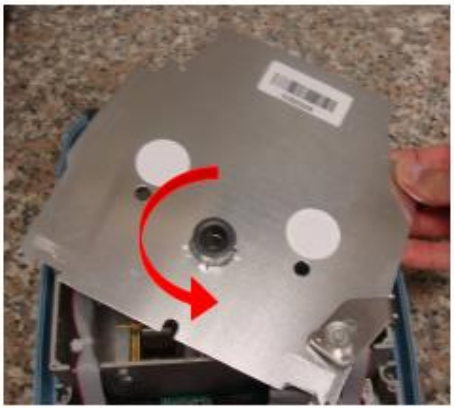
28. Connect the display and secure it with the four screws.





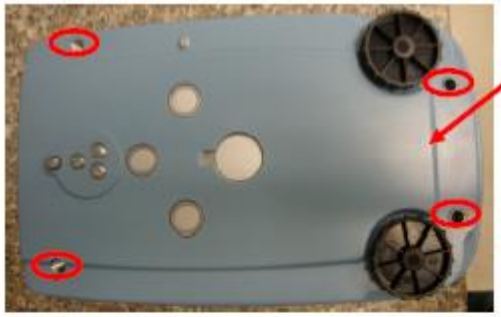
29. .Power up the scale and check that the lever is positioned in the center of the end stroke. If the lever is not centered, screw or unscrew the end stroke until it is positioned in the center.





30. Power off the balance and position the group cover plate and fix it with the four screws.

31. Place the top plastic cover of the balance.



32. Insert the four closing screws.

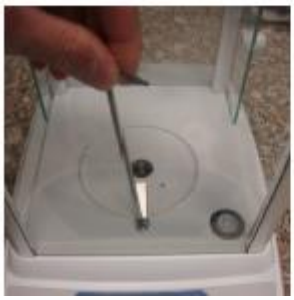
33. Inser the bush





34. Insert the adjustable foot on the left and the fixed foot or the right

35. Insert the central locking screw, then position the plate, the disc and fix it with the two screws.



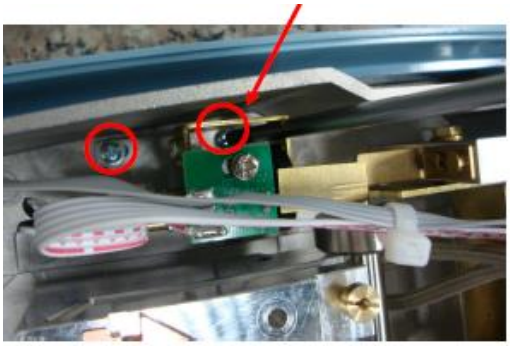


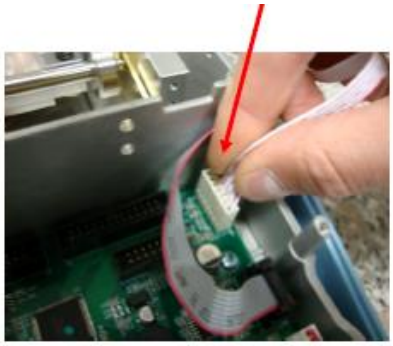


36. Now place the anti-ventilation cylinder and the weighing plate.

6.3 Motor replacement for self-calibration

1. To replace the motor, the cover of the scale, display and board shield must be removed
2. Remove the two screws that secure the motor unit to the base and remove the connector.

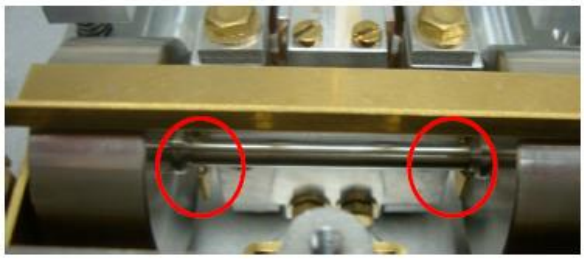


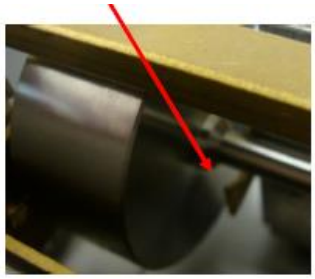


3. Place the new motor assembly and secure it with the two screws and insert the connector.
4. Check that the position of the weight locking springs (left and right) is correct. When the weight is all the way up, the spring must touch the weight. If necessary, adjust using the screws as indicated.

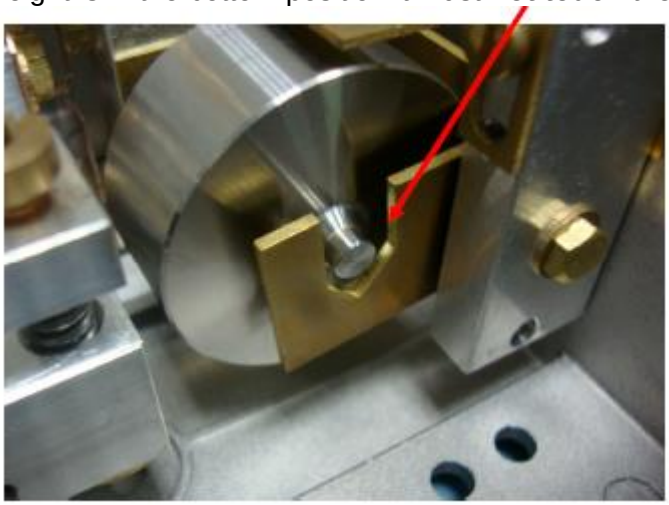


5. Check that the weight, when in top position does **not touch** the support fixed to the mechanicial group.





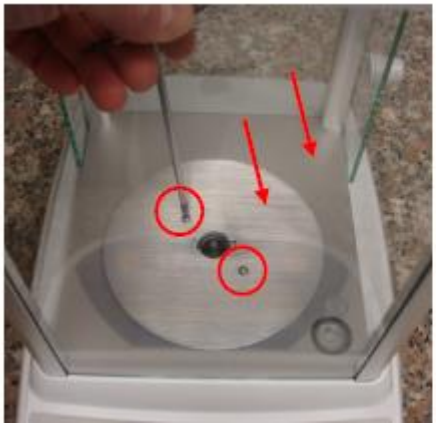
6. While when the weight is in the bottom position it must **not touch** the weight lifting arms.



7. Fix the disply and the board shield.
8. Fix the mechanical group shiled.
9. Fix the cover of the balance.

6.4 Corner load Adjustment

1. Remove the circular and rectangular plate cover (remove n°2 screw fig.1)
2. Remove labels on the holes (fig.2)





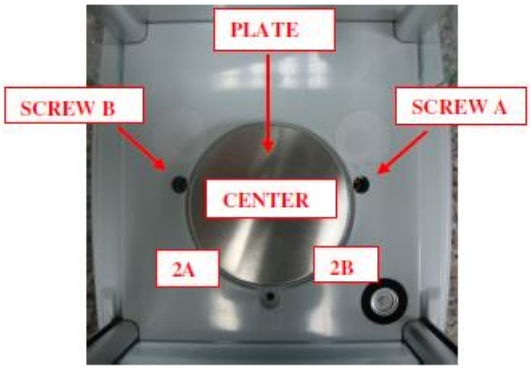


SCREWDRIVER
FOR CORNER LOAD ADJUSTMENT



SCREWS FOR CORNER LOAD

1. PUT THE WEIGHT (1/3 OF MAXIMUM CAPACITY OF THE BALANCE) TO CHECK IN THE CENTER OF THE PLATE.
2. MOVE THE WEIGHT IN THE POINT 2A, READ AND WRITE DOWN THE VALUE.
3. MOVE THE WEIGHT IN THE CENTER.
4. MOVE THE WEIGHT IN THE POINT 2B, READ AND WRITE DOWN THE VALUE.
5. TAKE THE TOOL AND REGULATE AS ILLUSTRATED IN THE TABLE BELOW.



IF THE CORNER 2A IS POSITIVE(+) TURN THE TOOL CLOCKWISE (SCREW A) 	**IF THE CORNER 2A IS NEGATIVE(-) TURN THE TOOL ANTICLOCKWISE** (SCREW A) 
IF THE CORNER 2B IS POSITIVE(+) TURN THE TOOL CLOCKWISE (SCREW B) 	**IF THE CORNER 2B IS NEGATIVE(-) TURN THE TOOL ANTICLOCKWISE** (SCREW B) 

English

7 Procedure to linearize ALJ LCD balances

Switch on balance and **after 4 hours of warm up press ON/OFF button.**
When the display shows the weight indication ("0.00000") Press sequentially buttons ON/OFF - CAL – CAL.



You will see **"Lin"** on display, press ENTER to confirm



The display show on the left number "**1**" wait stability and after 3 seconds press CAL to confirm.



When the balance and show to number 2 on the left put first weight, (according to the table weight for linearity) wait stability and after 3 seconds press CAL to confirm



Put second weight, wait stability and after 3 seconds press CAL to confirm



Put third weight, wait stability and after 3 seconds press CAL to confirm



After this point, press CAL and keep it pressed until the display show number 3 on the left and "L" on the bottom of the display

Press now the On/Off button to restart the balance

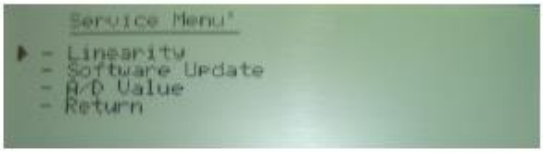
Calibrate the balance and check the linearity

Clear the linearity and calibration value:

1. Switch on balance.
2. Press sequentially buttons ON/OFF - CAL – CAL.
3. You will see "Lin" on display, press ENTER to confirm.
4. The display show on the left number "1" press MENU and keep it pressed until the display shows CLEAR.

8 Procedure to linearize ALJ GRAPHIC balances

Switch on balance and **after 4 hours of warm up press ON/OFF button.**
When the display shows the weight indication ("0.00000") Press sequentially buttons ON/OFF - CAL – CAL.



You will see "Service Menù" on the display, and you see the arrow next to "**Linearity**"

Press ENTER key to confirm



The display show on the "**Weight: 01 UP**" with plate empty wait stability and after 3 seconds press CAL to confirm.



When the balance and show "**Weight: 02 UP** put first weight,(according to the table weight for linearity) wait stability and after 3 seconds press CAL to confirm.



When the balance and shows "**Weight: 03 UP** put second weight,(table weight for linearity) wait stability and after 3 seconds press CAL to confirm.



When the balance and show "**Weight: 04 UP** put third weight,(table weight for linearity) wait stability and after 3 seconds press CAL to confirm.



When the balance and show "**Weight: 05 UP**" press CAL and keep it pressed until the display show "**Weight: 03 DW**"



Press now the On/Off button to restart the balance.

Calibrate the balance and check the linearity

Clear the linearity and calibration value:

5. Switch on balance.
6. Press sequentially buttons ON/OFF - CAL – CAL.
7. You will see "Lin" on display, press ENTER to confirm..
8. The display show on the left number "1" press MENU and keep it pressed until the display shows CLEAR.

English

9 Table of weight for linearity.

To perform linearity use class E1 weights

RANGE(g)	RES.(g)	Weights for linearity
120	0,0001	0-40g-80g-120g
160	0,0001	0-50g-100g-150g
220	0,0001	0-70g-140g-210g
250	0,0001	0-80g-160g-240g
310	0,0001	0-100g-200g-300g
510	0,0001	0-170g-340g-510g

10 Check and adjustment value A/D HPB LCD balances with software Release R_7.04

Switch on balance.
When the display shows the weight indication ("0.00000") Press sequentially buttons ON/OFF - CAL – CAL.



You will see "**Lin**" on display



Press MENU key for two time and you will see "**A-d**" on display
Press ENTER key to confirm



The **a/d value** must be **between**:

0.7 with plate empty (0g)

and



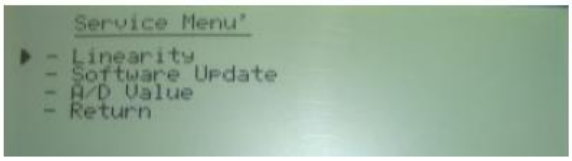
8.7 with plate loaded with maximum load (e.g. 500g)

To adjust the value of A/d you have to modify the value of resistance R81:

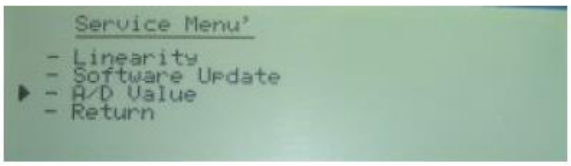
- **Decreasing the value of R81 decreases the A/d value.**
- **Increasing the value of R81 increases the A/d value.**

11 Check and adjustment value A/d GRAPHIC balances with software Release R_1.xx.

Switch on balance.
When the display shows the weight indication ("0.0000") Press sequentially buttons ON/OFF - CAL – CAL.



You will see "Service Menu" on display



Press MENU key for two time and when you see the arrow next to "**A/D Value**". Press ENTER key to confirm



The **a/d value** must be between:

0.7 with plate empty (0g)

and



8.7 with plate loaded with maximum load (e.g. 500g)

To adjust the value of A/d you have to modify the value of resistance R81:

- **Decreasing the value of R81 decreases the A/d value.**
- **Increasing the value of R81 increases the A/d value.**

English

12 Change main board

To replace the motherboard, when ordering a new one from the manufacturer it is necessary to provide the data shown on the bar code label inside the instrument.



1. Remove the cover of balance, display and cover shield of board.(to see page 4).

2. Disconnect cables of power(1), display(2), keyboard(3), RS232(4), mechanical group(5) and motor(6).



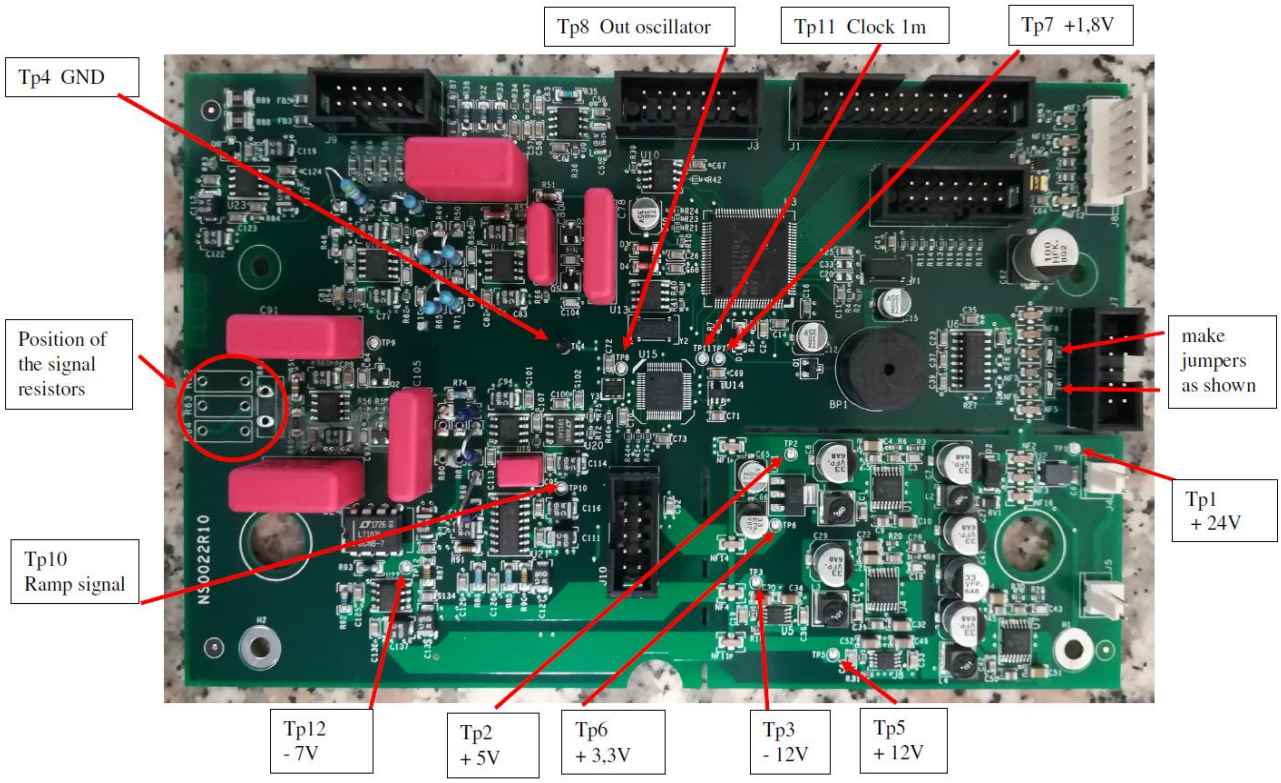
3. Remove main board. (Remove four screws)



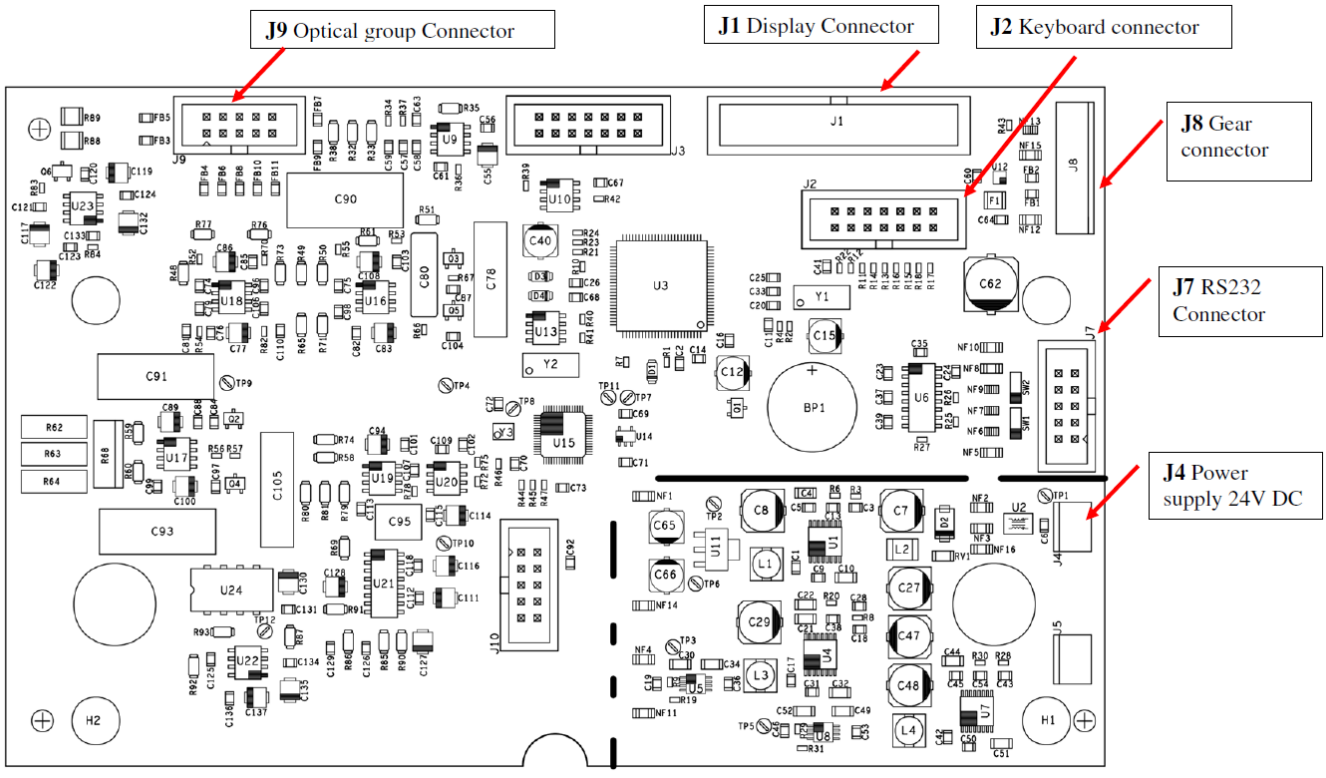
1. Fix the mainboard.
2. Connect cables of power(1), display(2), keyboard(3), RS232(4), mechanical group(5) and motor(6) if present.
3. Fix cover shield of board and display
4. Fix the cover of balance.
5. Check the power supplies and the A / D value are correct.
6. Check and if necessary to adjust linearity and calibration.

12.1 Check main board signals load cell balance series

Model board: SmbBil_rev1.0 and rev2.0 For version LCD and Graphic. (Only difference between the LCD and Graphics version is the software.)



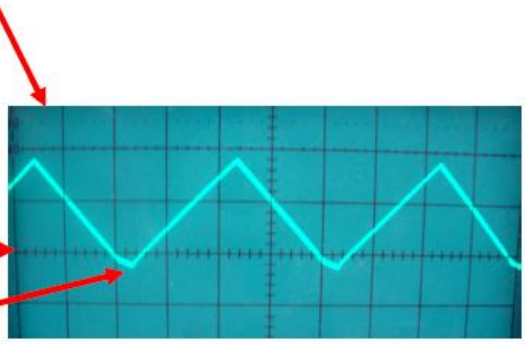
12.2 Position components of main board signals


J9 Optical group Connector
J1 Display Connector
J2 Keyboard connector
J8 Gear connector
J7 RS232 Connector
J4 Power supply 24V DC

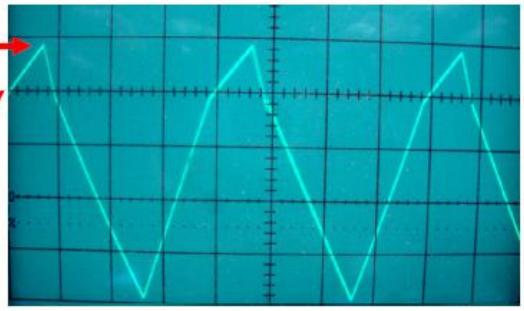
12.3 Test point check main board

Modality tester	Number test point		Value	If not correct value
V DC	Tp4 (-)	Tp1 (+)	+ 24 Volt DC	Check TLV7021 (U14)
V DC	Tp4 (-)	Tp2 (+)	+ 5 Volt DC	Check LM46000 (U1)
V DC	Tp4 (-)	Tp6 (+)	+ 3,3 Volt DC	Check LM3940/SOT223 (U11)
V DC	Tp4 (-)	Tp3 (+)	- 12 Volt DC	Check LM46000 (U4)
Oscilloscope	Tp4 (-)	Tp8 (+)	Out oscillator	Check U15
V DC	Tp4 (-)	Tp5 (+)	+ 12 Volt DC	Check LM46000 (U7)
Oscilloscope	Tp4 (-)	Tp11 (+)	Clock 1ms	Check oscillator Y2
V DC	Tp4 (-)	Tp12 (+)	- 7 Volt DC	Check LT1021B-7 (U24)
V DC	Tp4 (-)	Tp7 (+)	+1,8 Volt DC	Check TLV7021 (U14)
Oscilloscope	Tp4 (-)	Tp10 (+)	Ramp signal	Check mechanical group

Check signal without weight loaded on the pan.



Check signal with maximum load on the plate.



- **To move the ramp downwards, increase the value of R81**

13 Change date and time battery, only for Series graphic.

1. Remove the cover of the balance
2. Remove the Display



English

3. Replace the exhausted battery, with a new battery model CR2032 3V

