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Servicemanual

KERN ALJ/ALS/PLJ/PLS

Version 3.3

02/2020

GB

Valid from Serial number:
WI1400341
WIC1400834

ALS/ALJ-SH-e-1633

GB

KERN ALJ/ALS/PLJ/PLS

Version 3.3 02/2016

Servicemanual

Contents

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!

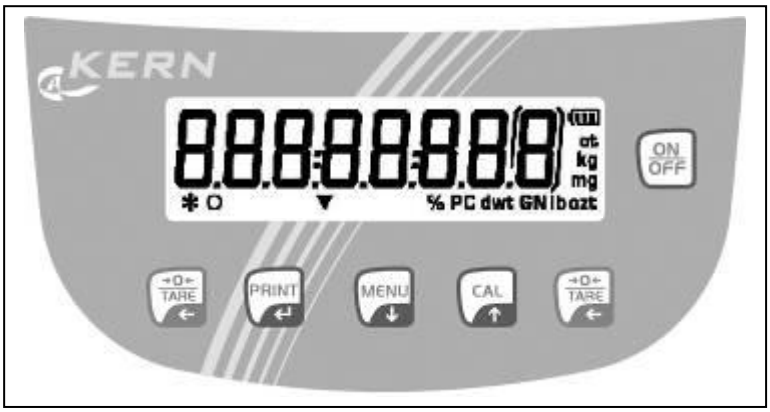
After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

2 Introdution

This service manual covers the PLS/PLJ series and is edited for the authorized servicing personnel.

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.

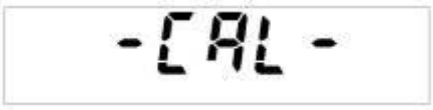
4.1 Models with external weight (KERN ALS/PLS)

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 chpt. 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.

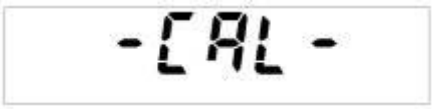
- ⇨ **During** the flashing display put the required adjustment weight carefully in the center of the weighing plate.
  The flashing display disappears.
  After successful adjustment the balance automatically returns to weighing mode.
- ⇨ Take away adjustment weight

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/PLJ)

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	not documented

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 Adjustment models PLJ-M

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 setting for models with type approval.

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

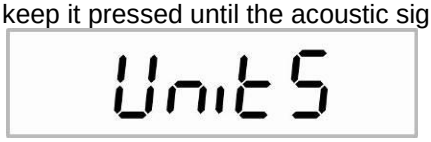
To finish the menu press the **MENU** button and keep it pressed until the acoustic signal gets mute. The balance returns automatically into weighing mode.

4.2.2 Overwrite internal adjustment weight

(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 **CAL** key

Wait until the exact value of the adjustment weight will be shown flashing

(Example)

⇨ Place the displayed adjusting weight on the weighing plate.

The flashing display extinguishes and the balance changes into weighing mode.

⇨ Remove adjustment weight from weighing plate
⇨ Press the **PRINT** button and keep it pressed until the acoustic signal gets mute.

The calibrating process is started

During this process „**tEc MEM**“ is displayed

After having automatically saved the value of the internal adjustment weight, the balance will return into weighing mode.

⇨ Carry out the adjustment process as described in chapter 4.2

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 0.0001g

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

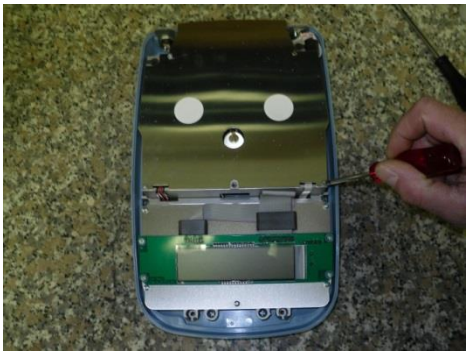


Fig.3

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

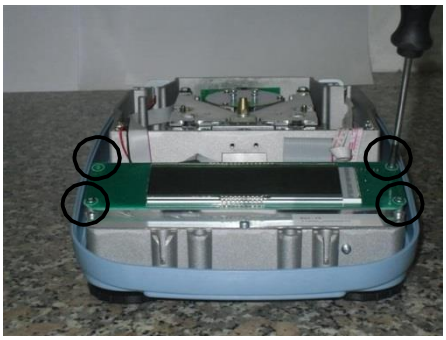


Fig.1

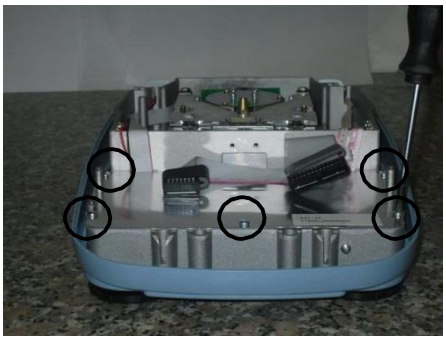


Fig.2

4. REMOVE THE CABLE OF OPTICAL GROUP (Fig.3) AND THEN REMOVE THE MECHANICAL GROUP (REMOVE THREE SCREWS UNDER THE BALANCE Fig.4).

Fig.3

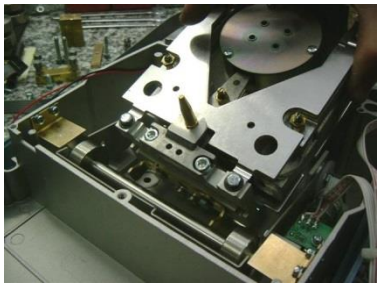
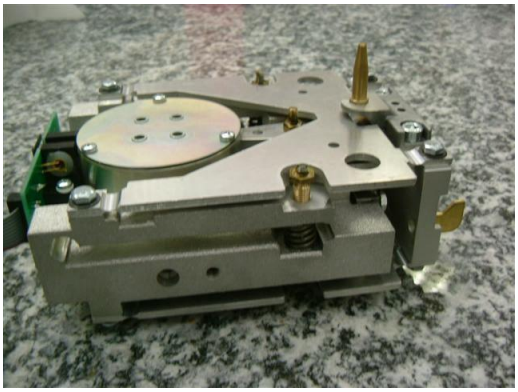



Fig.4

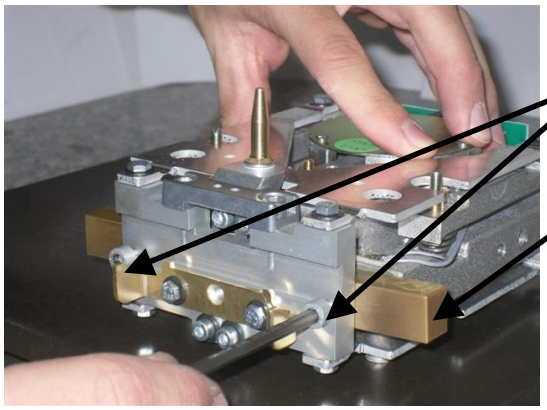
Disassembly group for all Model 0.0001g



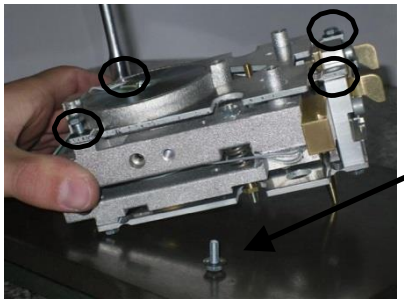
The mechanical group is the same for all model except for:

- dimension of springs
- dimension of spacers
- cone

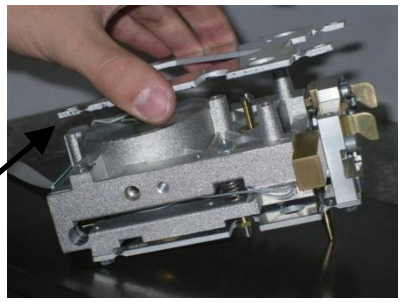
1. Take jigs for the moving pillar (two screws M5x20mm and two spacers)

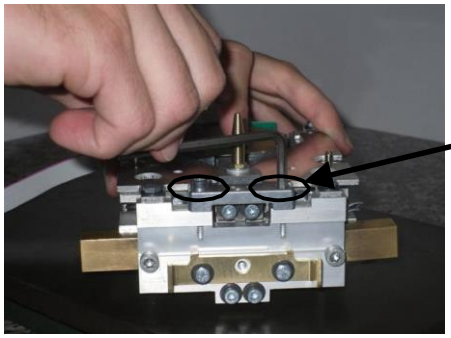


2. Insert the screws in the holes (left and right) of the moving pillar
3. Insert the spacers in the space between moving pillar and monobloc (left and right)
4. Fix the screws left and right



5. Turn up side down the group
6. Take tool n°7
7. Remove the four scerews of bottom parallelogram guide
8. Remove parallelogram, handling it carefully

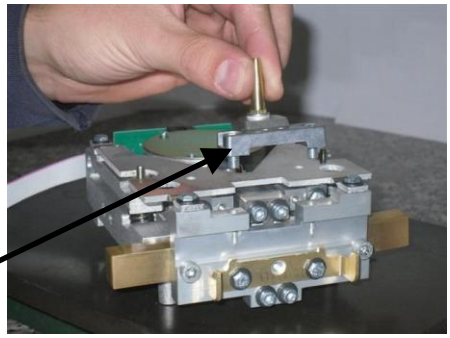


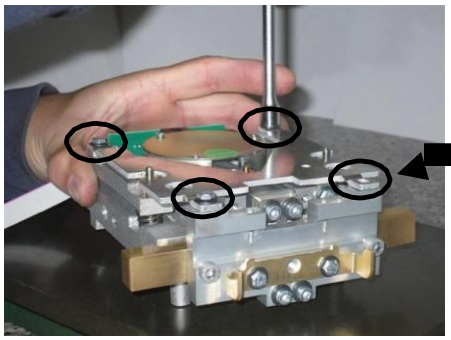


9. Turn the group up again

10. Remove the two cone support's screws

11. Remove the cone support

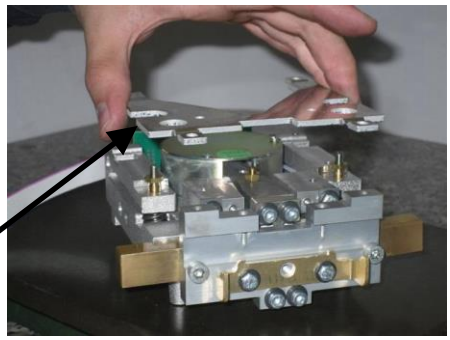


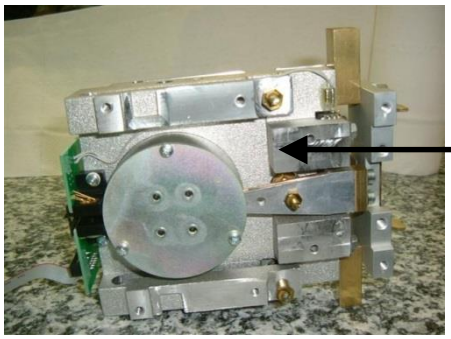


12. Take tool n°7

13. Remove the four screws of top parallelogram guide

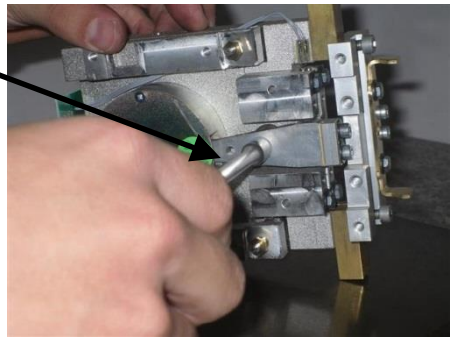
14. Remove the top parallelogram guide, handle it carefully

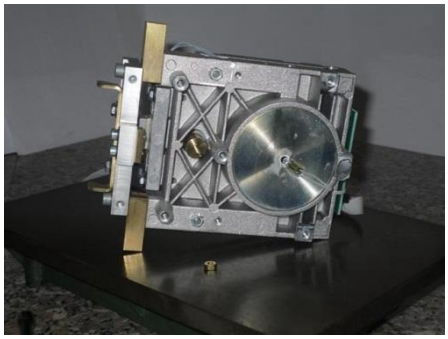




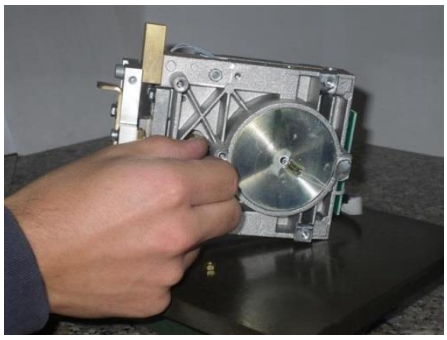
15. Take tool n°7

16. Remove the nut of barycenter from the lever

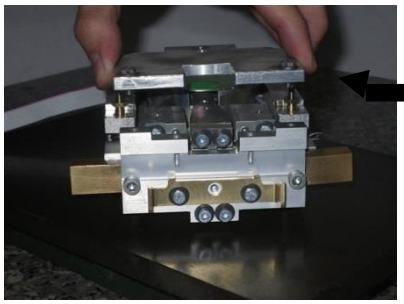




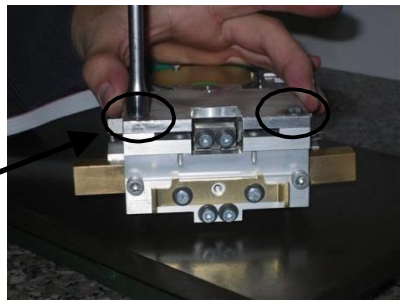
17. Remove barycenter from below the monobloc

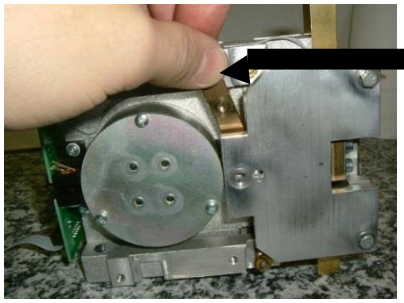


18. Take the jigs for vertical spring (n°2 screws M4x10mm, n°1 screw M4x22mm, n°1 clamping plate whit hole and n°1 tool to fix the lever)



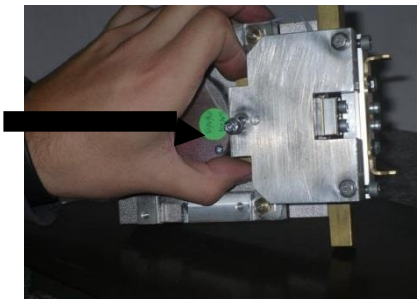
19. Position the jig on the moving pillar
20. Insert two screws in the holes of moving pilar and fix them.

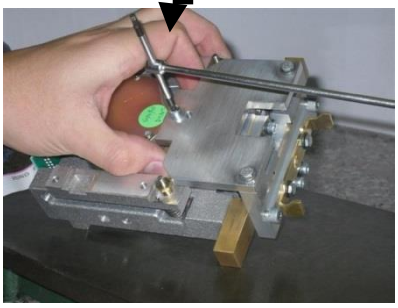


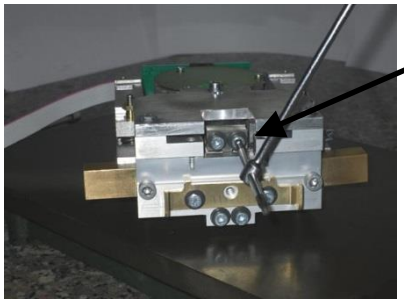


21. Insert the clamping plate.

22. Insert screw and fix clamping plate with tool n°3.



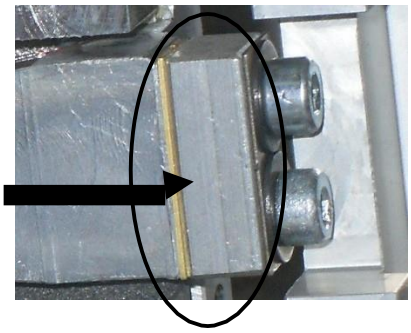


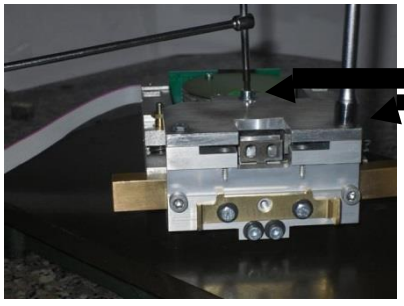


23. Remove top screws of vertical spring, with tool n°3

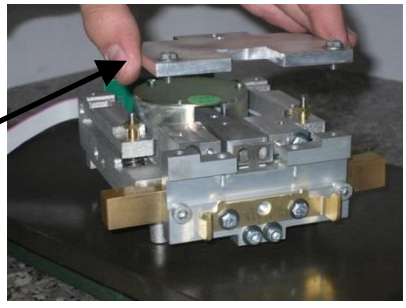
24. Remove spacer lever for:

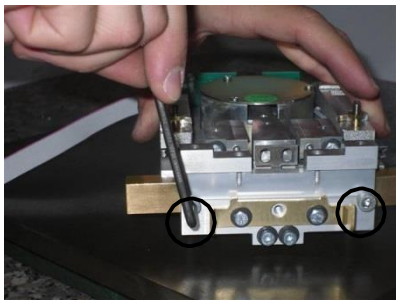
n°1x5mm,n°1x0.5mm



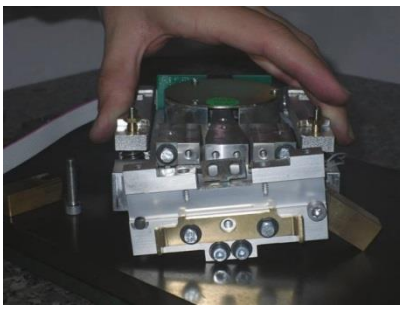


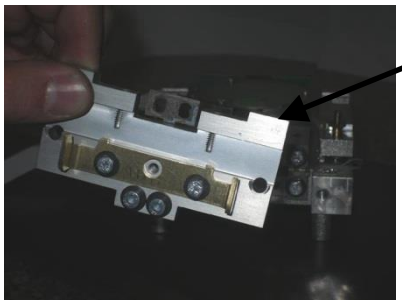
25. Remove screw of plate.
26. Remove screws of fixed jig to moving pillar.
27. Remove jigs for vertical spring.





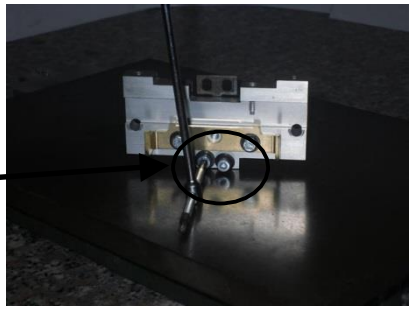
28. Remove the screws and spacer fixed jigs of moving pillar.

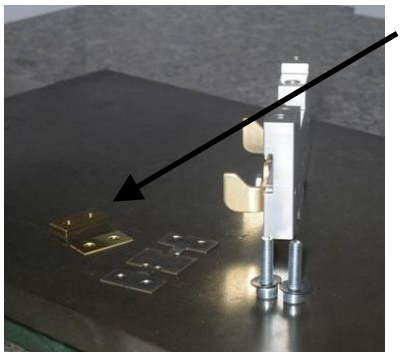




29. Remove moving pillar

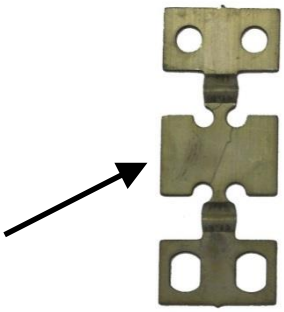
30. Remove screws of fixed vertical spring with tool n°3

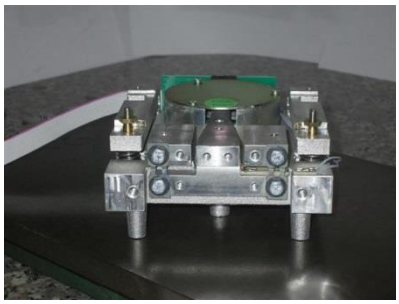




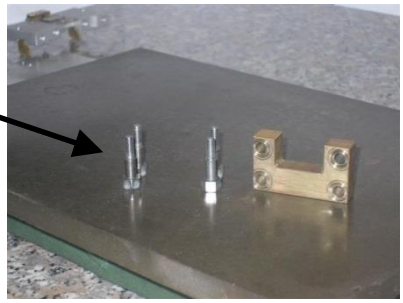
Spacer of moving pillar for:
n°5x0.5mm

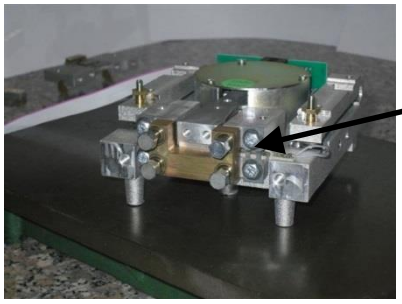
Vertical spring:
Vertical spring 0.5/0.10mm





31. Take jigs for the lever (n°4 screws M4x19mm, n°1 tool for fixing the lever)

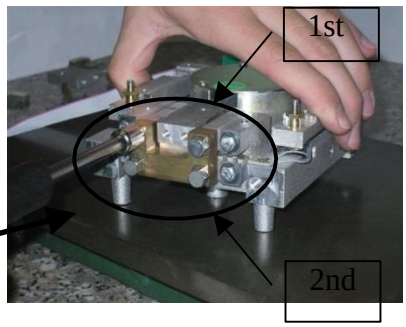


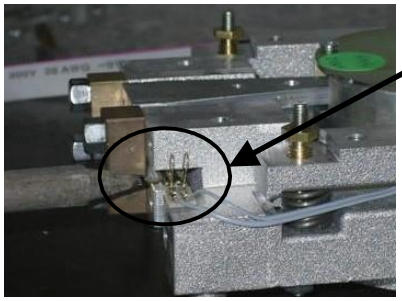


32. Put the jig on the lever

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

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

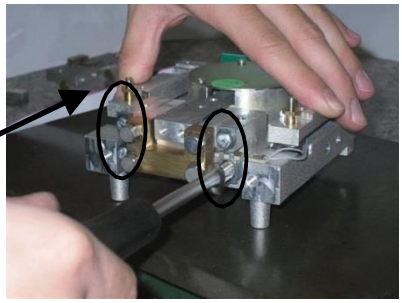


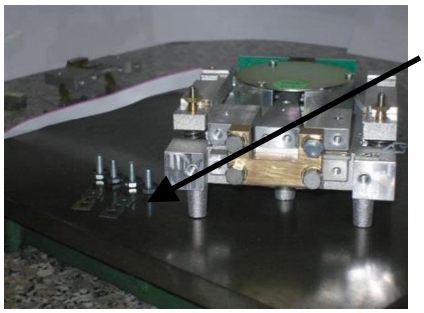


35. Unsolder the gold wires.

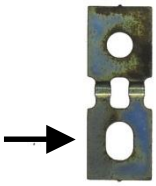
36. Remove n°4 screws that fix the fulcrum flexures using tool n°7.

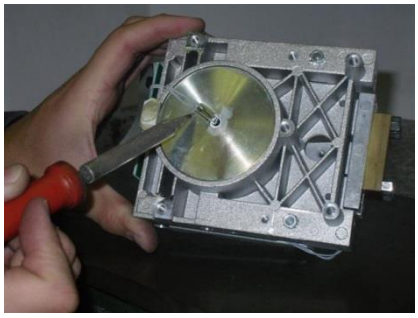
37. Remove the fulcrum flexures





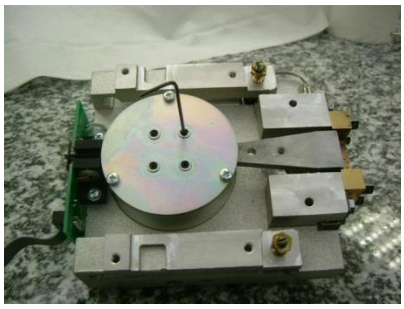
Fulcrum flexures:
Fulcrum flexures 0.5/0.09mm





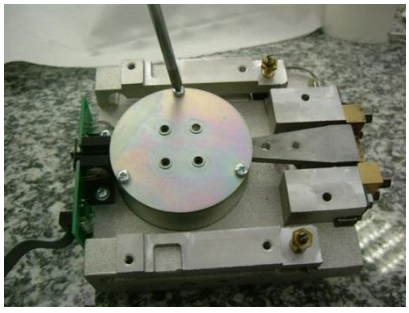
38. Unsolder the wire of sensor

39. Take tools for remove the 8 screws

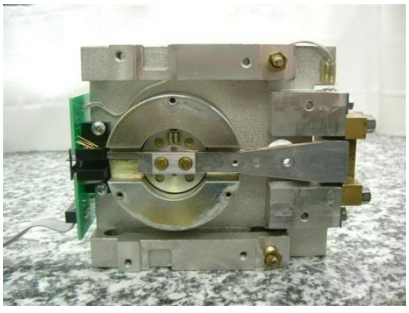


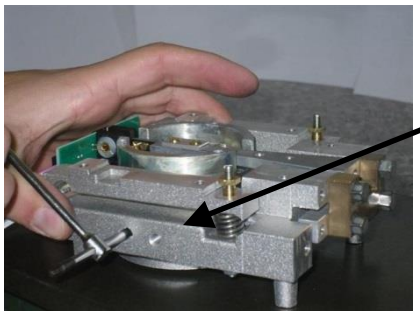
40. Remove the 8 screws

41. Remove n°3 screws that fix the magnet cover

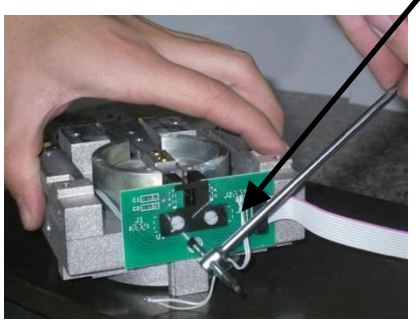


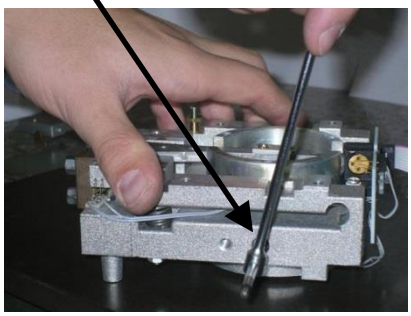
42. Remove magnet cover.

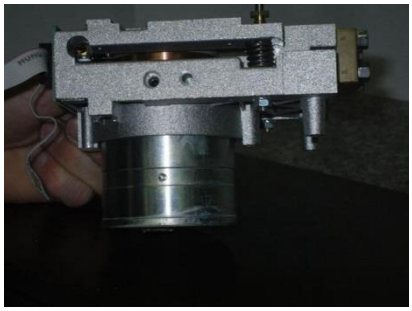




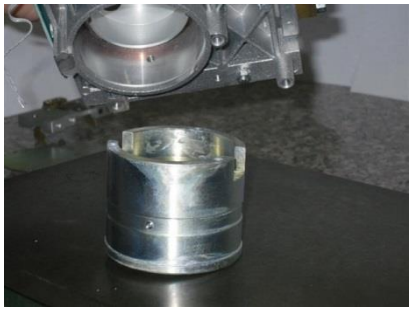
43. Remove n°5 grains (n°2 left and rigth side and n°1 at rear side) that fix the magnet.





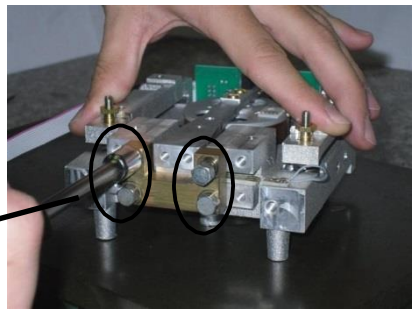


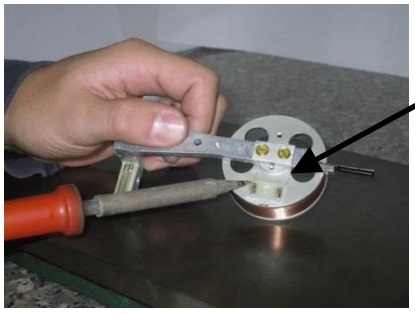
44. Remove magnet from below the monobloc



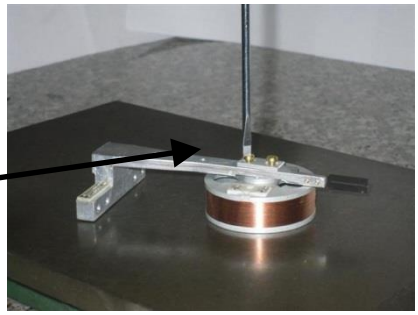
Now if you need to remove the lever to change the coil or lever then follow points from A to E, otherwise go to point 43.

A. Remove jigs for lever (Remove n°4 screws).
B. Remove the lever.



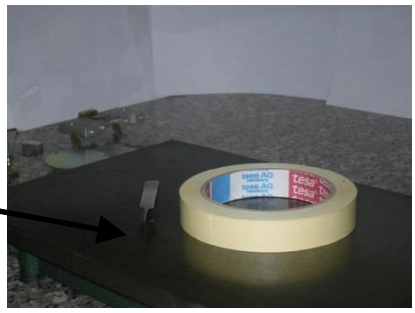


C. Unsolder the wire of coil.
D. Remove n°2 screws and spacer of coil that fix the lever to coil.



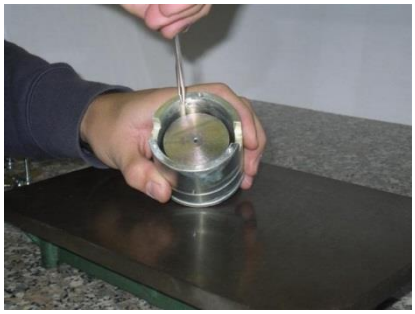
43. Clean the magnet with air

44. Take a taper and precision tweezer.

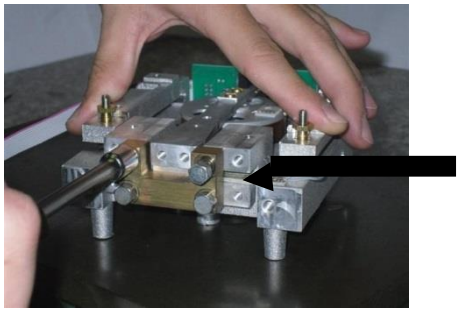


45. Put taper on the top of precision tweezer so that adhesive side is outside.

46. Clean deeply the magnet turning precision tweezer around of magnet.

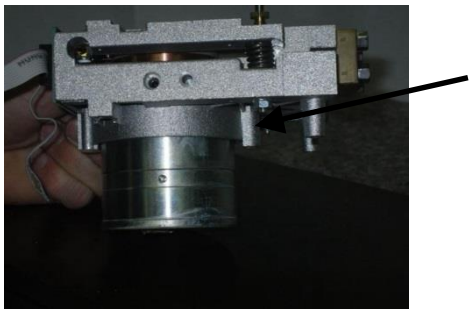


6.1 Now you can start assemble the mechanical group



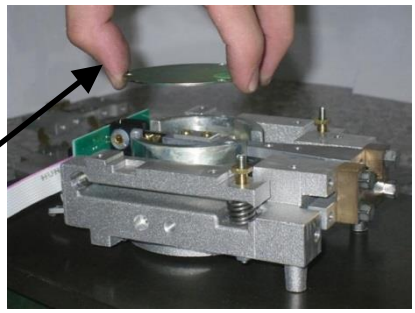
47. Take jigs for level (n°4 screws M4x19mm, n°1 tool for fixing the lever).

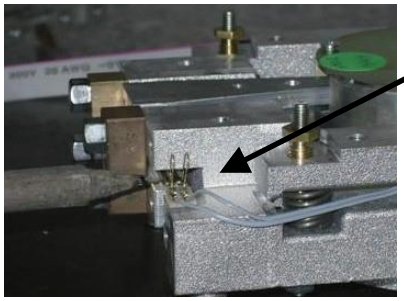
48. Insert two screws in to monobloc and two in to lever.



49. Insert magnet from below into monobloc
50. Fixed whit n°5 screws

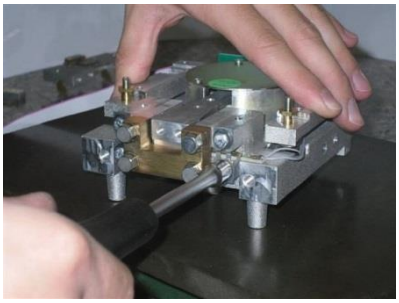
51. Put on the cover of magnet (do not fix it).



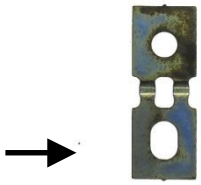


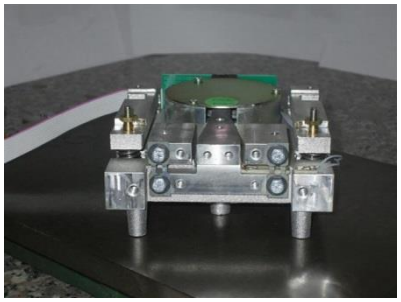
52. Solder the gold wires on the lever.

53. Put fulcrum flexures with four screws, and fix them.(<u>Position the flexures with circular hole UP)</u>



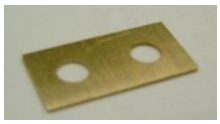
Fulcrum flexures:
Fulcrum flexures 0.5/0.09mm





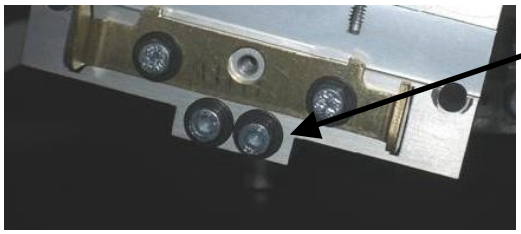
54. Remove the jig for the lever.

Spacer movin pillar for:
n°5x0.5mm

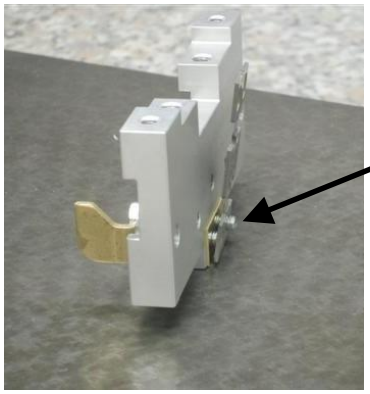


Vertical spring:
Vertical spring 0.5/0.10mm

Clamping plate

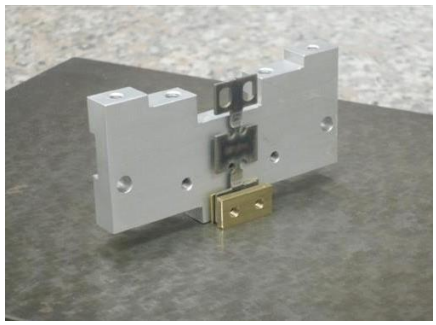


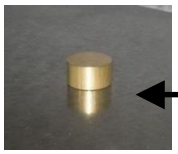
55. Insert two screws (M4x22mm) with washer.



56. Insert the spacer on moving pillar, and vertical spring

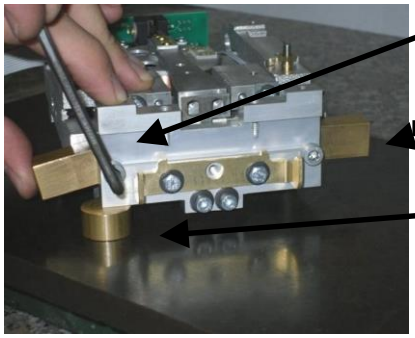
57. Insert Clamping plate, but do not strongly fix the screws.



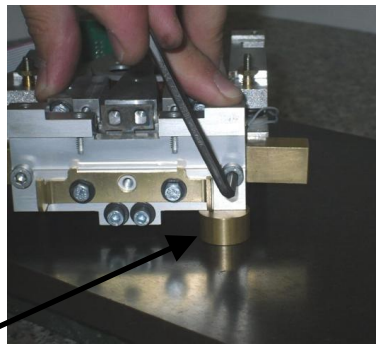


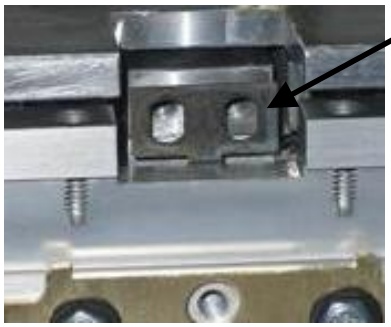
58. Take the jig for the vertical spring.

59. Take jig spacer for moving pillar

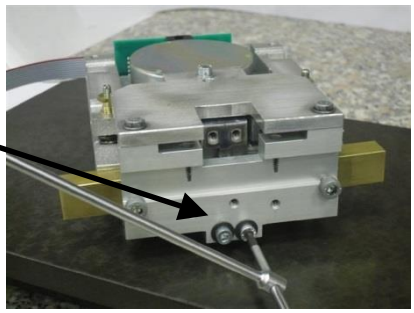


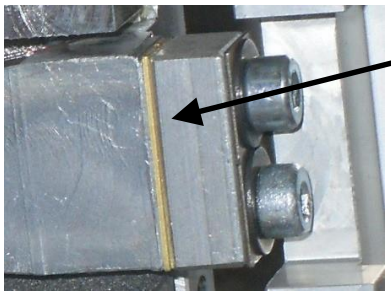
60. Insert screws in the holes (left and right) of moving pillar
61. Insert spacer between moving pillar and monobloc (left and right)
62. Put the jig spacer under the left side of moving pillar and fix the screw on left.
63. Put the jig spacer under the right side of moving pillar and fix the screw on rigth.





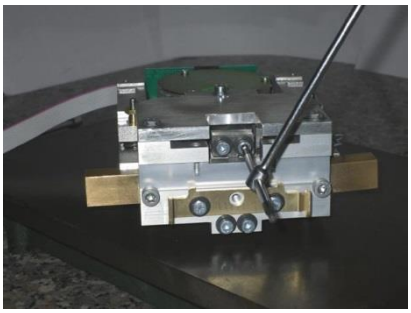
64. Center the the hole of the vertical spring with the hole of the lever.
65. Fix the two screws of bottom vertical spring

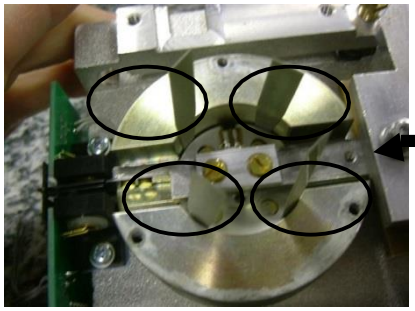




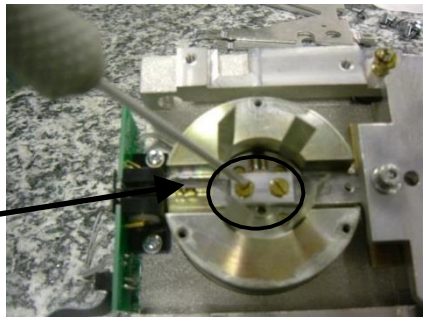
66. Insert spacer of lever for: n°5x0.5mm

67. Insert top screws of vertical spring, and fix them using tool n°3

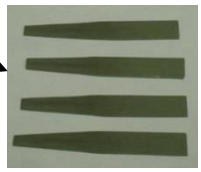


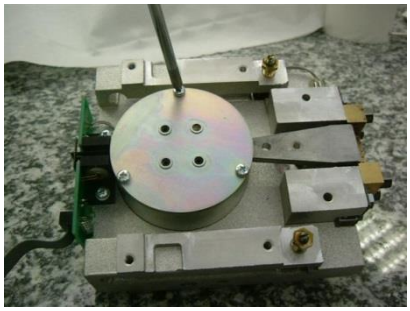


68. Revome the cover of magnet
69. Insert jigs for centering the lever
70. Fix the screws of coil.



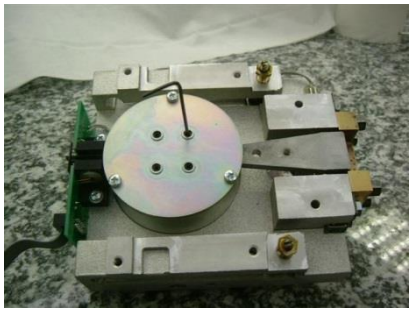
Jigs for coil centering



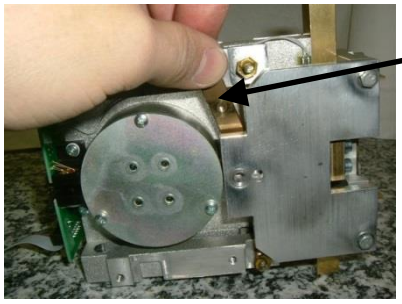


71. Put cover of magnet and fixed whit 3 screws

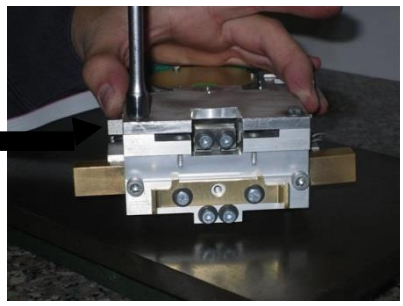
72. Take tools for insert the n°8 screws

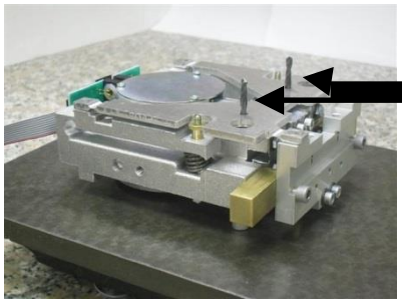


45. Insert the 8 screws

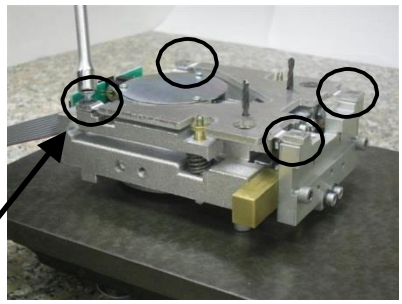


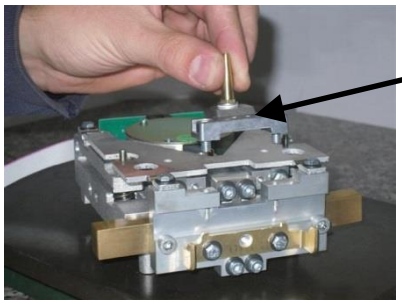
71. Remove the screw that fix the clamping plate of jig.
72. Remove screws that fix the jig for vertical spring.
73. Remove jig for vertical spring.



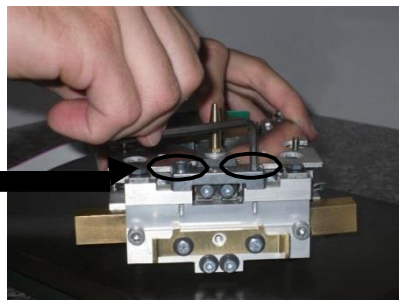


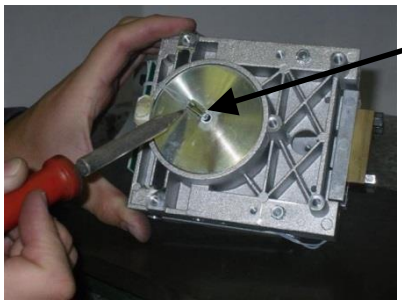
74. Put the top parallelogram guide onto the group.
75. Insert the jigs for centering the parallelograms
76. Insert four top scews of parallelogram guide and fix them.



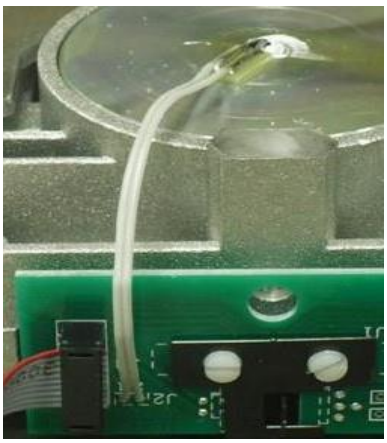


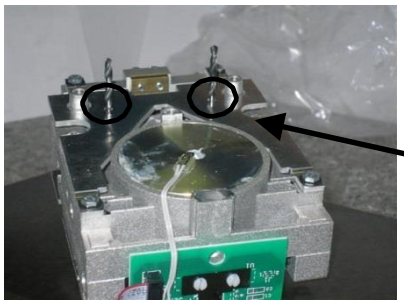
77. Put cone support on the moving pillar
78. Insert two cone support's screws and fix them





79. Solder the wire of temperatur sensor. (**Important:** do not invert the wires)

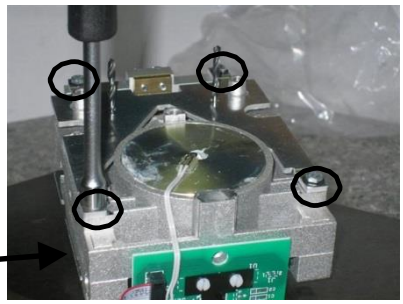


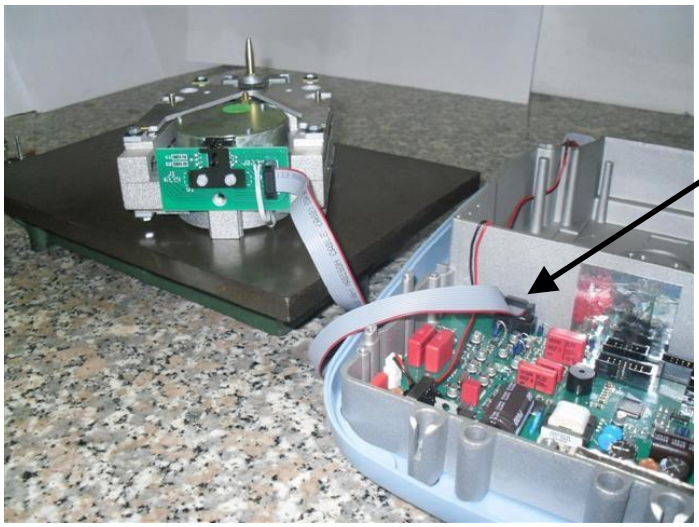


80. Put the bottom parallelogram guide on bottom of the group.

81. Insert the jigs for centering parallelograms

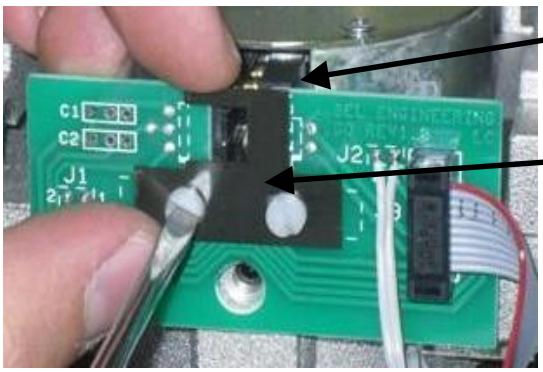
82. Insert four screws of parallelogram guide and fix them.





83. Turn up the group

84. Connect the group to the main board.



85. Turn on the balance and center the lever.(when the balance is turned on, the lever must exactly be centred in the window).

86. Fix the screws

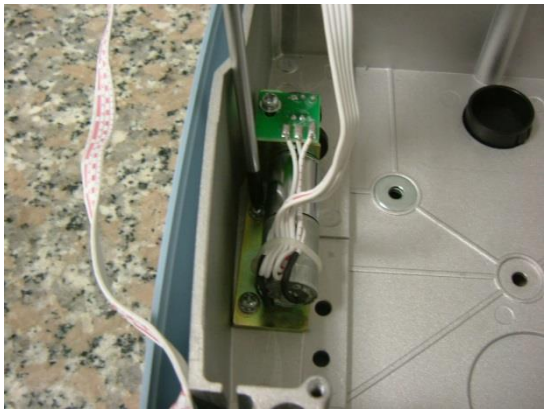
87. Fix the mechanical group in the bottom case.

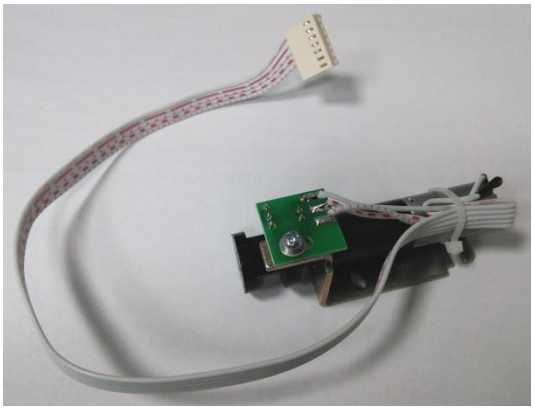
88. Check the mainboard signals.

89. Regulat the corner load error of the balance.

90. Check and regulate linearity of balance.

Autocalibration system motor group





6.2 Corner load regulation.

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


Fig.1

Fig.2

2. REMOVE LABELS ON THE HOLES (Fig 3)

Fig.3

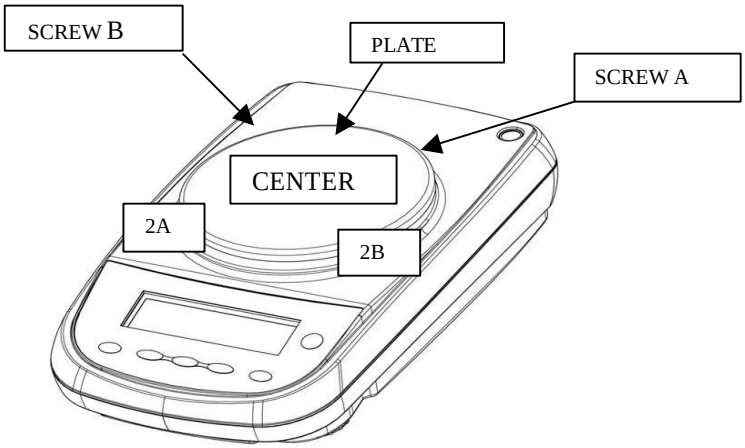
3. CONNECT KEYBOARD, PUT THE PLATE WIHT WINDSHIELD AND TURN ON THE BALANCE. (KEEP WARM UP FOR 20 MINUTES Fig 4.)

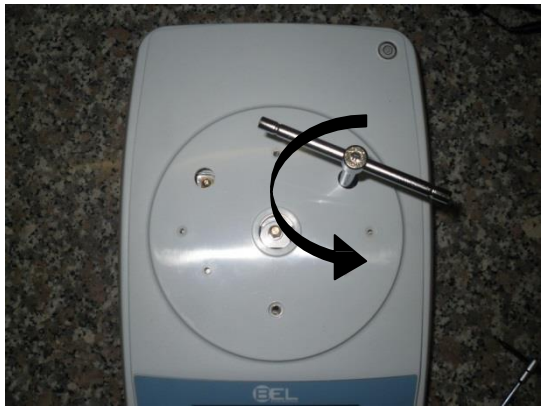
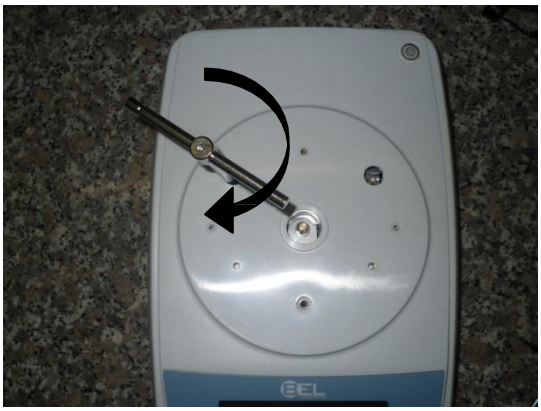
Fig.4

TOOL NUMBER 8
FOR CORNER LOAD RAGULATION

SCREW FOR CORNER LOAD REGULATION

1. PUT THE WEIGHT(1/3 OF MAX RANGE) TO CHECK IN THE CENTER OF THE PLATE, AND PRESS TARE.
2. MOVE THE WEIGHT IN THE POINT 2A, READ AND WRITE DOWN THE VALUE.
3. MOVE THE WEIGHT IN THE CENTER AND PRESS TARE.
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 POSITIVE(+) THEN TURN THE TOOL CLOCKWISE (SCREW A) 	IF THE CORNER 2A NEGATIVE(-) THEN TURN THE TOOL ANTICLOCKWISE (SCREW A) 
IF THE CORNER 2B POSITIVE(+) THEN TURN THE TOOL ANTICLOCKWISE (SCREW B) 	IF THE CORNER 2B NEGATIVE(-) THEN TURN THE TOOL CLOCKWISE (SCREW B) 

Attention:if the corner opposite can not corrected, check if the mechanical group is ok.

Procedure to linearize Emc balances with sotware Release R_3.xx and R6.xx.

For model with 12 points of linearity

1. Switch on balance.
2. After 30 min press ON/OFF button.
3. Press sequentially buttons ON/OFF - CAL – CAL.
4. You will see "Lin" on display, press ENTER to confirm..
5. The display show on the left number “1” wait stability and after 3 seconds press CAL to confirm.
6. When the balance and show number 2 on the left put first weight,(table weight for linearity) wait stability and after 3 seconds press CAL to confirm.
7. Put second weight, wait stability and after 3 seconds press CAL to confirm.
8. Put third weight, wait stability and after 3 seconds press CAL to confirm.
9. Put fourth weight, wait stability and after 3 seconds press CAL to confirm.
10. Put fifth weight, wait stability and after 3 seconds press CAL to confirm.
11. Put sixth weight, wait stability and after 3 seconds press CAL to confirm.
12. Put seventh weight, wait stability and after 3 seconds press CAL to confirm.
13. Put eighth weight, wait stability and after 3 seconds press CAL to confirm.
14. Put nineth weight, wait stability and after 3 seconds press CAL to confirm.
15. Put tenth weight, wait stability and after 3 seconds press CAL to confirm.
16. Put eleventh weight, wait stability and after 3 seconds press CAL to confirm.
17. Put twelveth weight, wait stability and after 3 seconds press CAL to confirm.
18. The balance goes automatically in stand-by status ; press ON/OFF to return to weighing mode.
19. Calibrated the balance whit external weight and check linearity.
20. Make technical calibration.

For model with 7 points of linearity

1. Switch on balance.
2. After 30 min press ON/OFF button.
3. Press sequentially buttons ON/OFF - CAL – CAL.
4. You will see "Lin" on display, press ENTER to confirm..
5. The display show on the left number “1” wait stability and after 3 seconds press CAL to confirm.
6. When the balance and show number 2 on the left put first weight,(table weight for linearity) wait stability and after 3 seconds press CAL to confirm.
7. Put second weight, wait stability and after 3 seconds press CAL to confirm.
8. Put third weight, wait stability and after 3 seconds press CAL to confirm.
9. Put fourth weight, wait stability and after 3 seconds press CAL to confirm.
10. Put fifth weight, wait stability and after 3 seconds press CAL to confirm.
11. Put sixth weight, wait stability and after 3 seconds press CAL to confirm.
12. After this point, press CAL and keep it pressed until the display show number 3 on the left.
13. Then press ON/OFF to return to weighing mode.
14. Calibrated the balance and check linearity.

Attention: if you forget point 12 the data will not be stored and you will have to do again the linearization procedure.

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.

TABLE OF WEIGHTS FOR LINEARITY FOR BALANCES PLS PLJ ALS ALJ

0.0001g

MODEL	RANGE(g)	RES.(g)	Linearity / E2 class weight
ALJ 160-4AM	160	0.0001	0-25g-50g-75g-100g-125g-150g
ALJ 250-4AM	250	0.0001	0-20g-40g-60g-80g-100g-120g-140g-160g-180g-200g-220g-240g
ALJ 310-4A	310	0.0001	0-25g-50g-75g-100g-125g-150-175g-200g-225g-250g-275g-300g
ALJ 500-4A	510	0.0001	0-170g-340g-510g
ALS 160-4A	160	0.0001	0-25g-50g-75g-100g-125g-150g
ALS 250-4A	250	0.0001	0-20g-40g-60g-80g-100g-120g-140g-160g-180g-200g-220g-240g

0.001g

MODEL	RANGE(g)	RES.(g)	Linearity / E2 class weight
PLS 420-3F	420	0.001	0-140g-280g-420g
PLS 720-3A	720	0.001	0-240g-480g-720g
PLS 1200-3A	1000	0.001	0-400g-800g-1200g
PLJ 420-3F	420	0.001	0-140g-280g-420g
PLJ 720-3A	720	0.001	0-240g-480g-720g
PLJ 1200-3A	1000	0.001	0-400g-800g-1200g
PLJ 2000-3A	2100	0.0.1	0-700g-1400g-2100g

0.001/0.01g

MODEL	RANGE(g)	RES.(g)	Linearity / E2 class weight
PLJ 720-3AM	720	0.001/0.01	0-240g-480g-720g

0.01g

MODEL	RANGE(g)	RES.(g)	Linearity / F1 class weight
PLS 4200-2F	4200	0.01	0-1400g-2800g-4200g
PLS 6200-2A	6200	0.01	0-2000g-4000g--6000g
PLJ 4200-2A	4200	0.01	0-1400g-2800g-4200g
PLJ 6200-2A	6200	0.01	0-2000g-4000g--6000g
PLS 8000-2A	8200	0.01	0-2700g-5400g-8100g
PLS 20000-1F	20000	0.1	0-5000g-10000g-20000g

0.01/0.1g

MODEL	RANGE(g)	RES.(g)	Linearity / F1 class weight
PLJ 3000-2FM	3100	0.01/0.1	0-1000g-2000g-3000g
PLJ 6200-2AM	6200	0.01/0.1	0-2000g-4000g--6000g

English

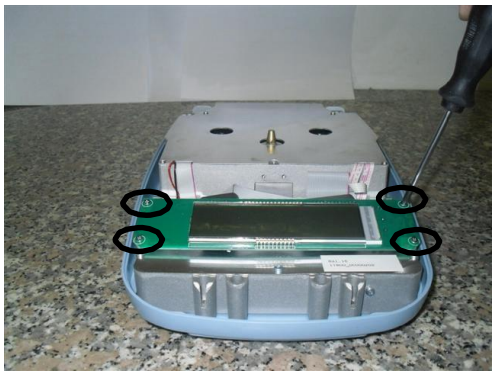
7 Change main board.

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

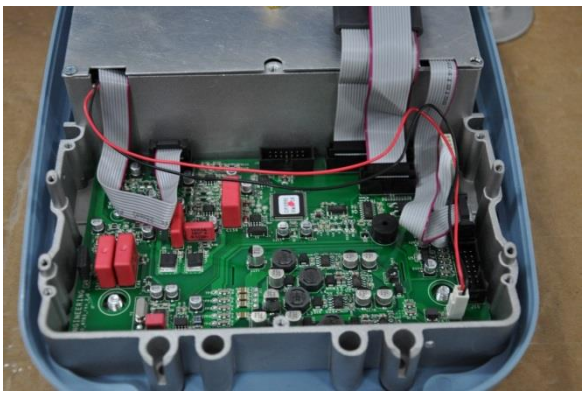
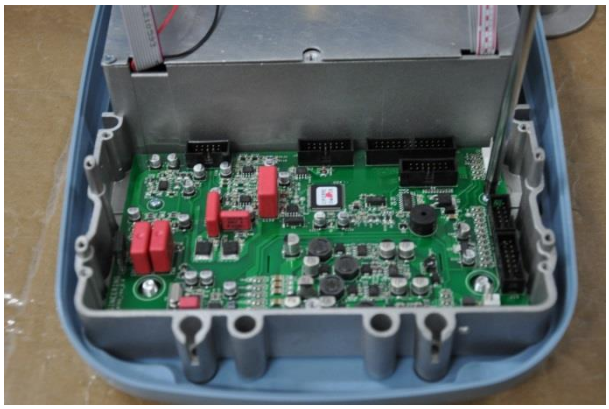

Fig.1

Fig.2

2. REMOVE THE DISPLAY AND THE BOARD SHIELD.




3. DISCONNECT POWER SUPPLY, OPTICAL SENSOR CONNECTOR, RS232 CONNECTOR,KEYBOARD CONNECTOR, DISPLAY CONNECTOR, GEAR CONNECTOR.

4. REMOVE THE FOUR SCREWS AND REMOVE THE MAIN BOARD.

NOW YOU CAN ASSEMBLE THE NEW MAIN BOARD.

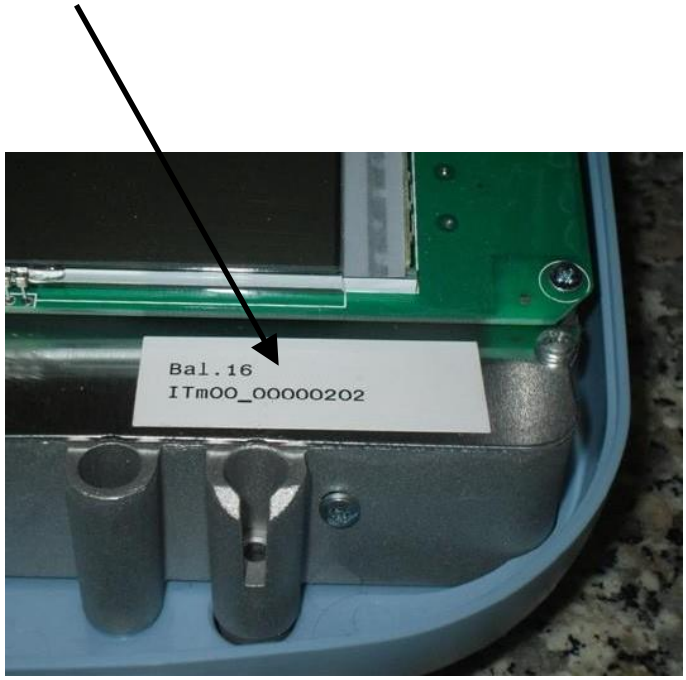
5. CONNECT, POWER SUPPLY, OPTICAL SENSOR, RS232, KEYBOARD, DISPLAY, GEAR CONNECTOR.

6. FIX THE DISPLAY AND THE BOARD SHIELD.

7. FIX THE COVER OF BALANCE.

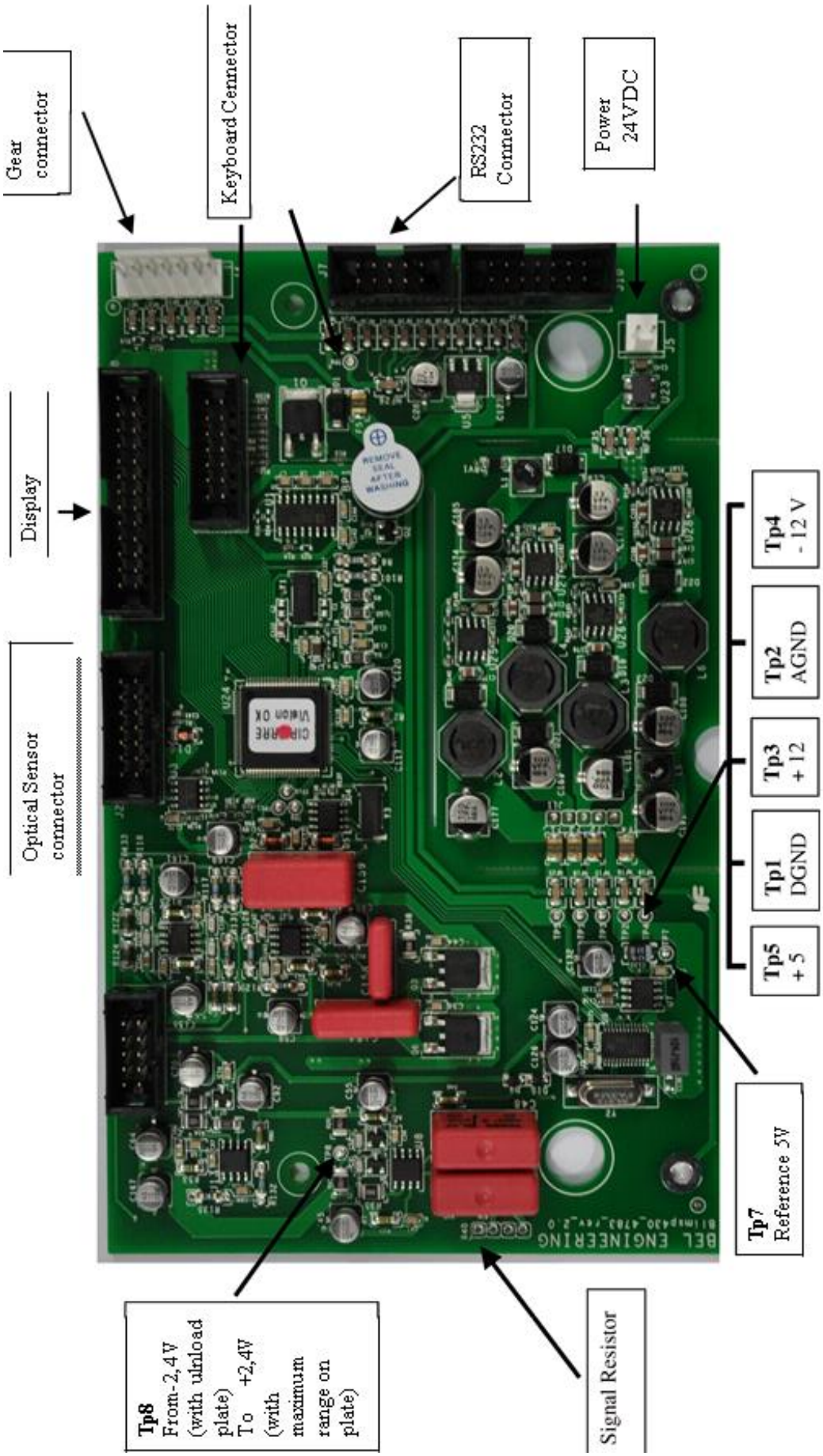
8. CHECK AND REGULATE CALIBRATION LINEARITY AND INTERNAL CALIBRATION(TECH CAL).

IMPORTANT:When you order a new MAIN BOARD, please tell us the reference code printed on label on board shield (fig.1)

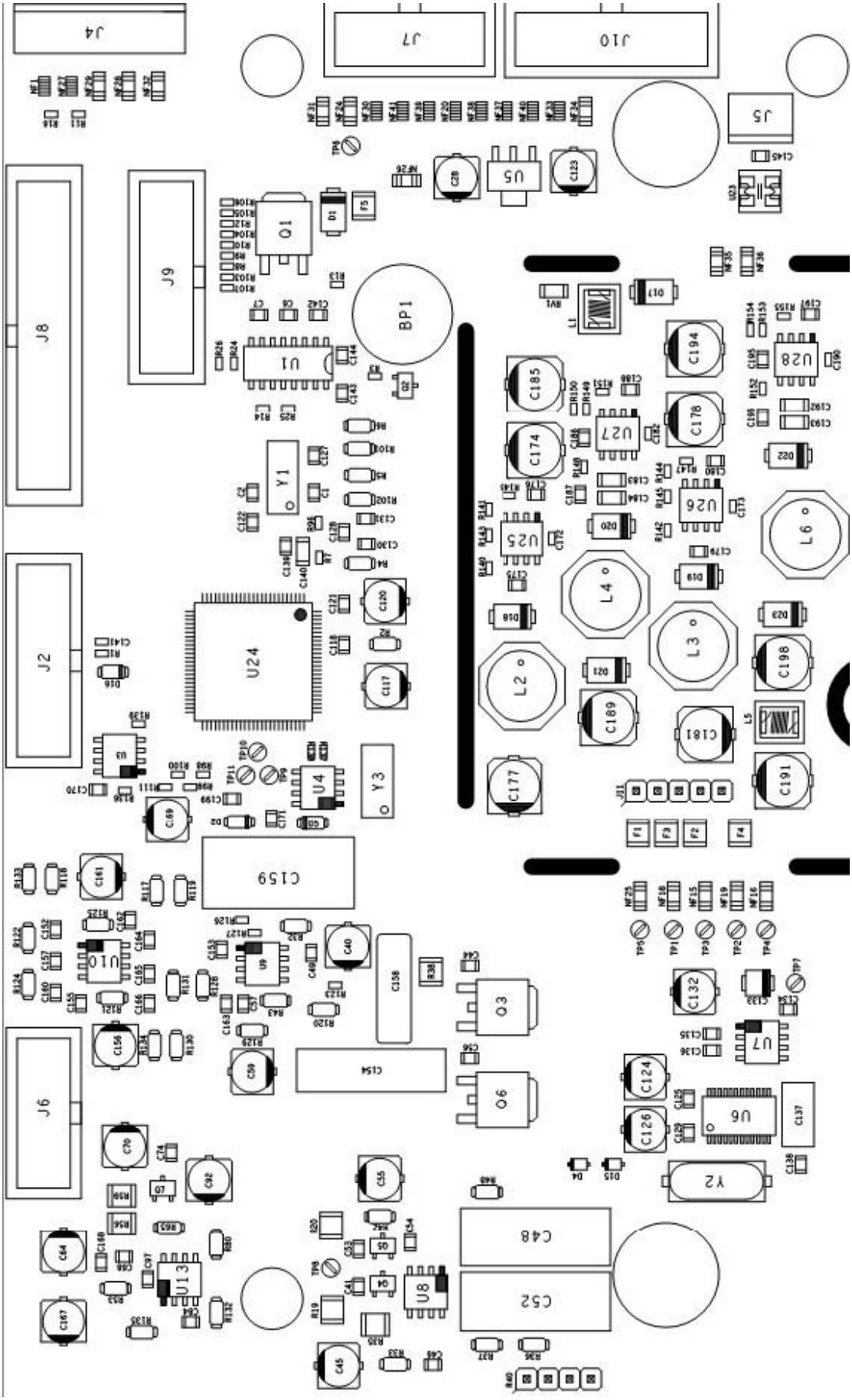


English

7.1 Check main board signals load cell balance series



7.2 Position components of main board signals



7.3 Test point ceck

Modality tester	Number test point		Value	If value is not correct
V dc	J3 pin2 (-)	J3 pin1 (+)	+ 9 volt dc	Check power supply
V dc	(j7) gnd (-)	Tp3 (+)	+ 5 volt dc	Check lm2940 (u2)
V dc	(j7) gnd (-)	Tp4 (+)	+ 3,3 volt dc	Check lm3940 (u3)
V dc	(j7) exc (-)	(j7) exc (+)	+ 5 volt dc	Check lm2940 (u2)
Mv dc	(j7) exc (-)	(j7) exc (+)	With unload plate ≅ ±0 mv	Check load cell
Mv dc	(j7) signal (-)	(j7) signal (+)	With maximum Range on plate ≅ +5 mv	Check load cell

English

8 Internal calibration

In these balance models there are 4 calibration modes:

From display zero condition, press and keep pressed the menu button until the acoustic alarm is over, then release the button. The message “units” will be visualized on display, press then menu button until you visualize “calib” on display. Press print to confirm.

1. Select the calibration mode you wish by pressing menu button 

in sequence:

   - aut-cal: auto calibration
   - i-cal: internal calibration
   - e-cal: external calibration
   - tec-cal: technical calibration

2. Press print button to confirm “aut-cal”, “i-cal”, “e-cal”.
   To confirm “tec-cal” keep pressed the print button until the acoustic alarm is over.

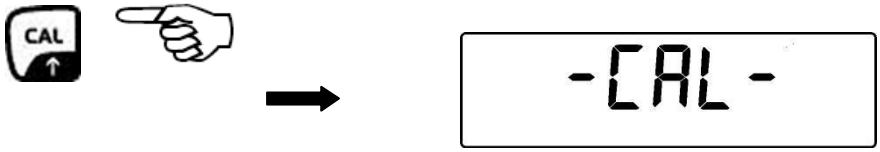
3. After selection, the balance returns to calibration menu. Press and keep pressed menu button until the acoustic alarm is over, then release the button. Balance is again ready for weighing operations.

English

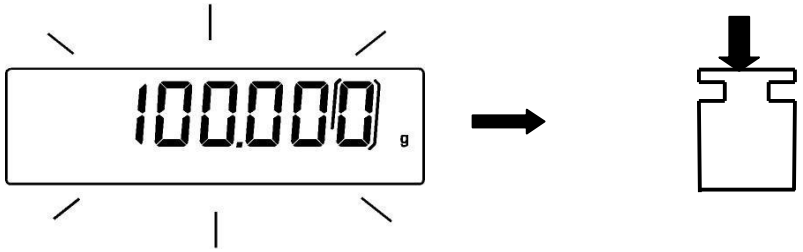
8.1 Technical calibration (tec-cal)

This function allows to store the value of internal reference mass whenever checking or assistance Actions require it.

1. After having selected the tec-cal calibration mode, press cal button at empty pan. It will be displayed “cal”.



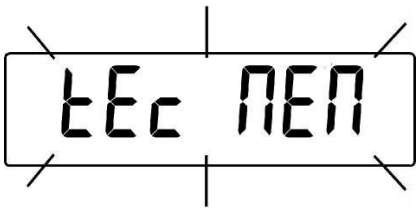
2. When the value of calibration weight start flashing on display, load the weight on to the balance pan.



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

4. When string “0.000” is displayed continuously, then press and keep pressed the print button.
   This starts the internal weight value automatic acquisition and store. During the acquisition

5. Cycle, the display will show “tec-mem”.



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

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

Attention: this procedure must be effected only using e2-class reference masses.

8.2 Manual correction of the internal weight.

In these balance models there are 4 calibration modes:

From display zero condition, press and keep pressed the menu button until the acoustic alarm is over, then release the button. The message “units” will be visualized on display, press then menu button until you visualize “calib” on display. Press print to confirm.

1. Select the calibration mode you wish by pressing menu button in sequence:

   - aut-cal: auto calibration
   - i-cal: internal calibration
   - e-cal: external calibration
   - tec-cal: technical calibration

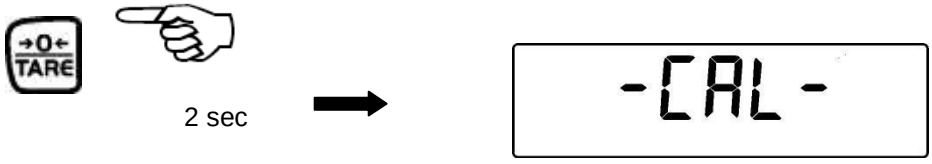
2. Press print button to confirm “aut-cal”, “i-cal”, “e-cal”.
   To confirm “tec-cal” keep pressed the print button until the acoustic alarm is over.

3. After selection, the balance returns to calibration menu. Press and keep pressed menu button until the acoustic alarm is over, then release the button. Balance is again ready for weighing operations.

English

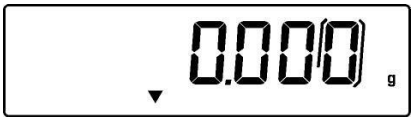
8.3 Technical calibration (tec-cal)

4. After having selected the tec-cal calibration mode, keep pressed the tare button .
   The message “cal” will be displayed and balance calibration will be effected automatically.

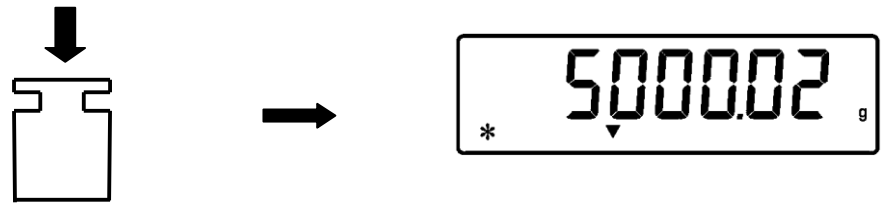


5. Then the message “corr” is displayed.keep pressed the enter button

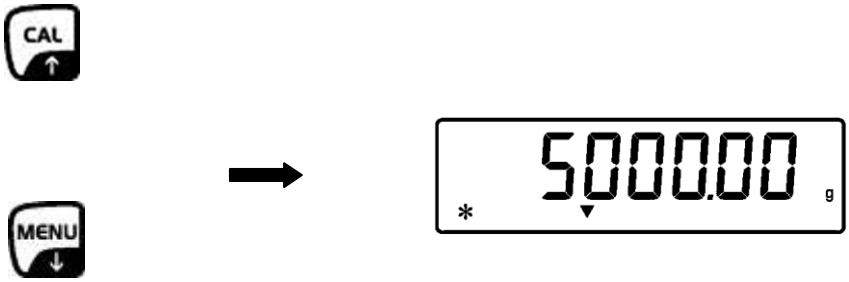
6. The display show:



7. Load weight calibration



8. Correct the weight by pressing cal e menu for increase and decrease the value.(press three times for have 1 digit correction).



9. When the value is correct press the print button.

10. Select automatic calibration mode press cal button to calibrate the balance and then check if the value of calibration weight is correct.

11. If not correct, please repeat the operation as explained above.