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# Operating instructions
# Counting scale

## KERN VC

Version 1.2
01/2002
GB

GB

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**Operating instructions**

**Counting scale**

## Table of contents

# 1 Technical data

## 1.1 KERN VC Electronic counting balance

| *KERN* | *VC 3K1M* | *VC 6K2M* | *VC 15K5M* | *VC 30K10M* |
|---|---|---|---|---|
| *Readout* | *1 g* | *2 g* | *5 g* | *10 g* |
| *Weighing range* | *3000 g* | *6000 g* | *15000 g* | *30000 g* |
| *Taring range (subtractive)* | *3000 g* | *6000 g* | *15000 g* | *30000 g* |
| *Min. piece weight at parts counting* | *0,1 g* | *0,2 g* | *0,5 g* | *1 g* |
| *Adjusting weight (not included) (clase)* | *3 kg (M1)* | *6 kg (M1)* | *15 kg (M1)* | *30 kg (M1)* |
| *Operating temperature* | *- 10° C .... +40° C* | | | |
| *Air humidity* | *+15° C .... +85° C* | | | |
| *Case (W x D x H) mm* | *343 x 367 x 119* | | | |
| *Weighing plate mm* | *330 x 245* | | | |
| *Weight kg (net)* | *4,4* | | | |

# 2 Installation of the balance

## 2.1 Unpacking and package volume

Remove the balance from the packing materials carefully, take off the plastic cover and set up the balance at the work site.
Keep all packing materials for future transport of the balance.

***Standard accessories:***

| ***KERN VC*** |
|---|
| • *Balance* |
| • *Weighing plate* |
| • *Power cord* |
| • *Instruction manual* |

## 2.2 Installation

- Put the weighing plate on the balance such that the holes match the pins on the weighing plate.
- Set the balance on a stable surface.
- Make sure the balance is level by adjusting the foot screws until the air bubble (at the left front of the body) is inside the circle.

# 3 Power supply

## 3.1 Power connection

Connect the adapter cord to the bottom of the balance.

Before plugging the cord into the socket, make sure that the voltage setting on the balance is the same as the mains voltage.

## 3.2 Battery operation

Remove the battery cover at the bottom of the balance. Insert six (6) 1.5V batteries (size D). Replace the battery cover.
If the balance will not be used for an extended period of time, remove the batteries and store them separately. Battery acid leaks could damage the balance.

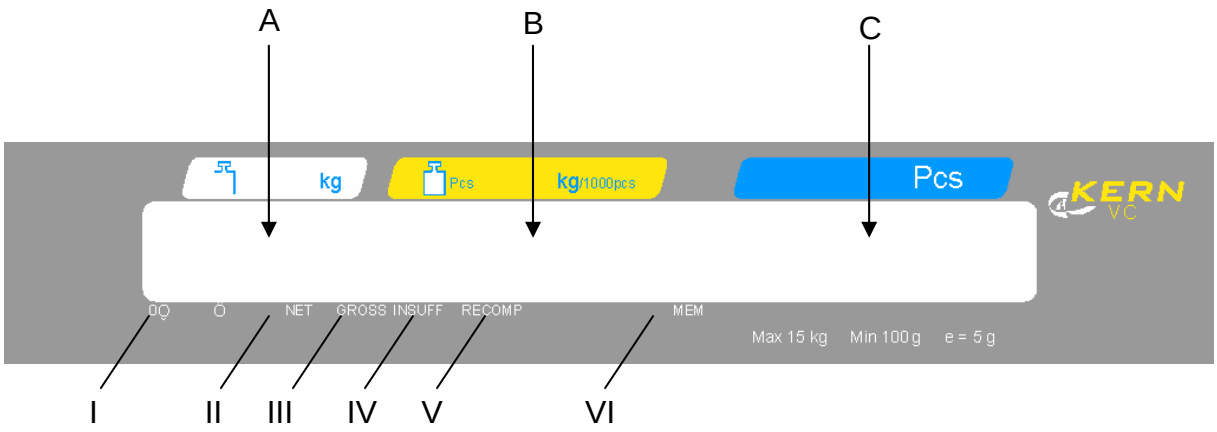
# 4 Controls

## 4.1 Overview of displays and indicators

A Weight display (in kg).

B Reference weight of 1000 units in kg. (unit weight per 1000 units)

C Number of units




I Zeroing indicator

II Net indicator
Lights when the tare value is valid.

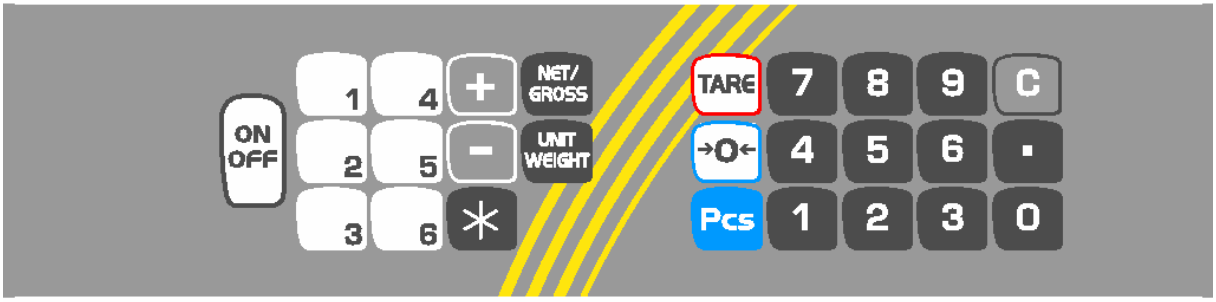
III Gross weight (GROSS)
Lights when the gross weight is displayed.

IV Error indicator
Lights when the number of pieces is insufficient (INSUFF)

V Recompute indicator (RECOMP)
Lights when the unit weight can be recomputed by pressing the PCS key.

VI Memory indicator (MEM)
Lights when there is data in the totalling memory

## 4.2 Overview of the keypad




| | | | |
|---|---|---|---|
| ON OFF | ON/OFF button | UNIT WEIGHT | Specification of piece weight by numeric input |
| 1 | Preadjust key (1, 2, ... 6)<br>Calls up stored reference weights | ->0<- | Zeroing key |
| + | Plus key<br>Add when totalling | TARE | Tare key |
| - | Minus key<br>Subtract when totalling | Pcs | Parts key |
| * | Clear total key<br>Clears the memory values when totalling | 0 - 9 | Numeric keys |
| NET/ GROSS | Net/gross weight key<br>Toggles between net and gross weight | C | Clear key |

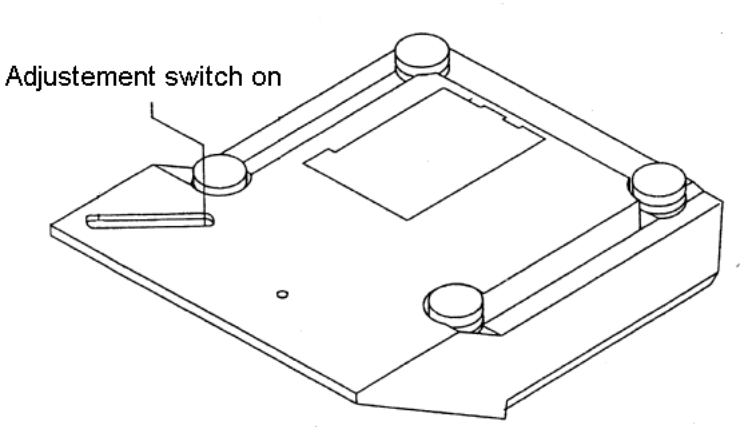
# 5 Adjustments

The adjustment weights can be used to check and adjust balance precision at any time. Adjustment weights can be acquired from **KERN** as an optional component. To decide which adjustment weights are required, refer to Chapter 1 “Technical Data“.

## 5.1 Requirements:

**Note!** In calibrated apparatus, the adjustment switch can only be accessed by destroying the safety seal. This would void the calibration.

- The adjustment switch is located next to the screw of the right front foot, below the balance.
- Press with a long, blunt object (e.g., tip of a ballpoint pen) inside the threaded hole.
- Turn the adjustment switch on; the balance is ready to be adjusted.



## 5.2 Adjustment procedure

Check that the surrounding conditions are stable, see “Important instructions“.
A short warm-up time of about 1 minute is recommended for stabilisation.

| | | Display kg | kg/1000 | Pcs |
|---|---|---|---|---|
| 1. | **Requirements:** Turn the adjustment switch on; see Chapter 5 "Adjustments". | DC688 | VrX.XX | S - ON |
| 2. | Press the **{->0<-}** key and hold down. While holding the **{->0<-}** key, press the 8 7 1 5 keys in succession. | CAL 00 | | |
| 3. | Make sure there is no weight on the weighing plate. Press the **{*} key.** | - - - - - | | |
| 4. | The zero point is stored. CAL SP will subsequently appear. | CAL SP | | |
| 5. | Place the necessary adjustment weight on the weighing plate (see Chapter 1, “Technical Data"). | | | |
| 6. | Enter the adjustment weight (e.g., 10 for 10 kg). | CAL SP | 10 | |
| 7. | Use the **{*}** key to store the data. | -------- | | |
| 8. | The adjustment weight (e.g., 10 kg) will then appear on the display. | 10,000 | 0 | 0 |
| 9. | Remove the adjustment weights to complete the adjustment process. | | | |

Balance precision should be checked regularly when using the balance for quality-related applications.

# 6 Control functions

## 6.1 Turning the balance on and off

| | Display kg | kg/1000 | Pcs |
|---|---|---|---|
| 1. To turn the balance on, press the **{ON/OFF}** key. The balance will perform a self-test. While reinitialising, horizontal eights (8) will appear on the display. | - 88888 | 8888800 | 88888800 |
| 2. Once the weight appears on the Display, the balance is ready for weighing. | - 0,000 | - 0 | - 0 |

## 6.2 Zeroing the balance

Due to environmental influences, the balance may not display exactly "**0.00**“ even when the weighing plate is empty. Nevertheless, you can zero the balance display at any time to ensure that weighing actually starts at zero. Zeroing with some weight on the balance can only be done within a certain range, depending on type. If the balance does not allow zeroing with the weight on the plate, the weight is out-of-range. The balance can be set to “0.00“ by “TARE“.

| | Display kg | kg/1000 | Pcs |
|---|---|---|---|
| | 0,005 | 0 | 0 |
| 1. If the balance does not display zero exactly even when the weighing plate is empty, press the **{->0<-}** key. The balance will start reinitialising at zero. | | | |
| 2. During reinitialisation, horizontal eights (8) will be displayed and after a brief wait, the balance will be set to zero. | 0,000 | 0 | 0 |

## 6.3 Taring

The weight of the containers used for weighing can be tared by pressing a button, such that the net weight of the item being weighed is displayed in subsequent weighing operations.

| | Display kg | kg/1000 | Pcs |
|---|---|---|---|
| 1. Place the empty container to be tared on the weighing plate. The total weight of the container will be displayed. | 0,284 | 0 | 0 |
| 2. Press the **{TARE}** key to start the tare operation. | 0,000 | 0 | 0 |
| 3. After taring is finished, zero is displayed along with the **NET** symbol that indicates net weight. | 0,000 | 0 | 0 |
| **Note**<br>The balance is ready to be used.<br>The balance can only store one tare value.<br>When the balance is empty, the stored tare value will be displayed with a negative sign. To clear the stored tare value, empty the weighing plate and then press the **{TARE} key.** | | | |
| 4. Place the item being weighed in the tare container. | 0,000 | 0 | 0 |
| 5. Read the weight on the display. | 0,550 | 0 | 0 |

## 6.4 Manual tare

If the actual tare weight is known, use the numeric keys to enter this value.

| | Display Kg | kg/1000 | Pcs |
|---|---|---|---|
| 1. Example : Tare 1.246 kg.<br>Enter this value from the keypad. | 0 | 1,2 46 | |
| 2. Press the **{TARE}** key to start the tare operation. | -1,246 | 0 | 0 |

## 6.5 Parts counting

During parts counting, parts can be added or subtracted from a container. The operating sequence is divided in four steps in both types of counting:

- Taring of the weighing container
- Defining the reference quantities
- Weighing the reference quantities
- Counting the parts

Both types of parts counting are described below.

| | kg | Display kg/1000 | Pcs |
|---|---|---|---|
| 1. Place the weighing container on the balance. | 0,284 | 0 | 0 |
| 2. Press the **{TARE}** key to tare the container. | 0,000 | 0 | 0 |
| 3. In order to count parts, the balance needs to know the weight of a certain quantity of parts. Fill an empty weighing container with a certain number of units (reference quantity) | 0,614 | 0 | 0 |
| 4. Use the numeric keys (e.g., 5) to enter the reference quantities. | 0,614 | 0 | 0 |
| 5. Press the **{Pcs}** key to store the number of pieces.<br><br>**Note**:<br>We recommend that you use the largest possible reference quantity. The balance computes the mean weight per unit and stores it as the reference weight. It is unlikely that all units have exactly the same weight and, therefore, the reference weight will be more accurate when the reference quantity is higher. | | 5 | |
| 6. Once the reference has been properly entered, the balance displays the reference quantity and the total weight of 1000 units. | 0,614 | 122,68 | 5 |

| | | Display | |
|---|---|---|---|
| | kg | kg/1000 | Pcs |
| **Note:**<br>If no reference can be created because the item being weighed is too unstable or the reference weight is too small, the balance display will indicate **"ADD"**.<br>In this case, place the desired number of units on the weighing plate and confirm by pressing the **{Pcs}** key. | | | |
| 7. Then add more parts until reaching the desired quantity.<br>The display will indicate the total weight, the total weight of 1000 units and the weighed units. | 1,996 | 122,68 | 16 |

### 6.5.1 Known reference weight

If you know the reference weight of 1000 units, use the keypad to enter the weight.
For example, let's assume a weight of 1.7266 kg for 1000 units.

| | | Display | |
|---|---|---|---|
| | kg | kg/1000 | Pcs |
| 1. Enter **17266** and press the **{UNIT/WEIGHT}** key. | 0,000 | 1,72 | 0 |
| 2. Then place the parts to be counted on the plate.<br>The computed number of units will be displayed. | 0,278 | 1,72 | 161 |

### 6.5.2 Clearing the reference quantity

| | | Display | |
|---|---|---|---|
| | kg | kg/1000 | Pcs |
| 1. Initial data | 0,278 | 1,72 | 161 |
| 2. To clear the reference quantity, press the **{C}** key.<br>The weight of 1000 units and the number of units will be displayed as zero. | 0,278 | 0 | 0 |

### 6.5.3 Storing the reference weight with the Preset key

Six (6) memory registers are available for storing the reference weights of 1000 units.

| | | | Display kg | Display kg/1000 | Display Pcs |
|---|---|---|---|---|---|
| 1. | Enter the reference weight to be stored (e.g., 1.253 kg). | | 0 | 1,2 53 | |
| 2. | Confirm the entry by pressing the **{UNIT/WEIGHT}** key. | | 0,000 | 1,25 | 0 |
| 3. | Press the **{UNIT/WEIGHT}** key again. | UE | | 1,25 | 30 |
| 4. | Select one of the six memory keys (e.g., 1). Press the Preset **1** key.<br><br>If the reference weight is needed later, it can be retrieved by pressing the **{PRESET} 1** key. | | 0,000 | 1,25 | 0 |

### 6.6 Displaying the gross weight

| | | Display kg | Display kg/1000 | Display Pcs |
|---|---|---|---|---|
| 1. | Place the empty weighing container on the plate, tare it and then add the item being weighed to the container. The balance will display the net weight. | 0,480 | 0 | 0 |
| 2. | Press the **{NET/GROSS}** key.<br>The balance displays the gross weight (item being weighed plus tare). This is indicated by “GROSS“. | 0,614 | 0 | 0 |
| 3. | Whenever the **{NET/GROSS}** key is pressed, the balance toggles between net and gross weight. | 0,480 | 0 | 0 |

## 6.7 Totalling

This function allows you to perform several weighing operations. The total number of units and the quantity of weighing operations is then displayed.

| | | Display | |
|---|---|---|---|
| | **kg** | **kg/1000** | **Pcs** |
| 1. Select a reference weight (e.g., 3.56 kg) (see Chapter 6.5.3 “Reference weight with PRESET key“). | 0,000 | 3,56 | 0 |
| 2. Place the weighing container on the balance. | 0,110 | 3,56 | 31 |
| 3. Press the **{TARE}** key to tare the container. | 0,000 | 3,56 | 0 |
| 4. Add the desired quantity of parts for the first weighing operation to the weighing container (e.g., 0.060 kg). | 0,060 | 0 | 17 |
| 5. Press the **{+}** key to add and store the data. | total | 1 | 17 |
| 6. Remove the items from the balance. | 0,000 | 3,56 | 0 |
| 7. Place the desired number of parts for the second weighing operation in the weighing container (e.g., 0.488 kg). | 0,488 | 3,56 | 137 |
| 8. Press the **{+}** key to add and store the data. | total | 2 | 154 |
| 9. Place the desired number of parts for the third weighing operation in the weighing container (e.g., 0.296 kg). | 0,296 | 3,56 | 83 |
| 10. Press the **{-}** key to subtract and store the data. | Corr | 1 | 83 |

If necessary, weigh other parts as described above. Note! The parts must be removed from the balance between weighing operations.
Once all lots have been weighed, all data (number of weighing operations) are available by simply pressing the **{+}** key.

| | | | |
|---|---|---|---|
| 11. Press the **{+}** key to display the total data. | total | 1 | 71 |

### 6.7.1 Clear stored values

Remove the items from the balance and confirm with the ***** key. The stored values, total number of units and number of weighing operations will all be set to zero.

### 6.7.2 Automatic shutoff

The balance can be shut off automatically, if desired. Depending on the display setting, this option can be used to turn the balance off 3, 10, 30 , 60 or 180 minutes after the apparatus is last used.

**Setting the automatic shutoff feature**

| | Display kg | Display kg/1000 | Display Pcs |
|---|---|---|---|
| 1. Press the **{->0<-}** key and hold down. While holding the **{->0<-}** key, press the 1, 4, 1 keys in succession. | SPC00 | 0000 | 0000 |
| 2. Press the 0101 key; this means that the display will shut off after 180 minutes. For other settings, refer to the following table. | SPC01 | 0000 | 0101 |
| 3. Use the **{*}** key to store the data. | SPC01 | 0000 | 0000 |
| 4. Use the **{TARE}** key to finish the setting procedure, the balance will return to weighing mode. | 0,000 | 0 | 0 |

**Table: automatic shutoff times**

0000 = the display does not shut off
0001 = display shuts off after 3 min.
0010 = display shuts off after 10 min.
0011 = display shuts off after 30 min.
0100 = display shuts off after 60 min.
0101 = display shuts off after 180 min.

# 7 Important information

These electronic scales are a precision instrument. Electromagnetic fields can cause major display discrepancies. The scales must then be repositioned away from electromagnetic fields. All sources of environmental interference, such as drafts and vibrations, should be avoided. Sudden changes of temperature should be avoided. The scales must be reset to match changes in temperature.

The scales are not hermetically sealed, therefore avoid high humidity, steam and dust. Do not bring liquids into direct contact with the scales, as these can penetrate into the measuring mechanism. Cleaning material should only be dry or barely damp. Do not use solvents as these can damage paintwork or other plastic parts. Remove damaged items immediately from the scales.

The measuring mechanism will be stabilised by allowing the scales to warm up for a few minutes after switching them on. Place items to be weighed carefully on the scales. Do not place objects on the weighing platform for any period of time, apart from normal use. Sudden shocks or overloading the scales beyond the maximum permitted weight should absolutely be avoided, balance could be damaged.

In case of problems operating the weighing program, switch the scales briefly off and on. The weighing set-up must then be restarted right from the beginning.

Never operate the scales in areas where there is a danger of explosion, the models in this series are not protected against explosion.

Check the scales regularly against, known, external test weights.

**Opening the scales or failing to use them in accordance with the written instructions will invalidate the warranty.**

Please keep all packaging material for possible return of the scales. Scales must only be returned in their original packaging.

# 8 Minor breakdown

| ***Breakdown*** | ***Possible causes*** |
|---|---|
| *No indication.* | • *Balance is not switched on.*<br>• *The power connection is cut off (power cable is defective or not properly inserted).*<br>• *Power cut.* |
| *Weight indication is changing Permanently* | • *Air movements*<br>• *Table/Floor vibrations*<br>• *The pan is in contact with an alien foreign particle.* |
| *Weighing result is obviously faulty* | • *The balance display is not zero*<br>• *The adjusting is no longer correct*<br>• *Temperature deviations.* |

If any other error messages appear turn off the balance and on again. When the error message still appear please contact the manufacturer.

## 9 Declaration of Conformity

# CE Declaration of Conformity

The non-automatic electronic counting balances

| Type: | KERN VC 3K1M | KERN VC 6K2M | KERN VC 15K5M | KERN VC 30K10M |
|---|---|---|---|---|
| Certificate no. for tests relating to the authorisation of EC construction type: | | | T 5784 | |
| Test centre | | | NMI | |

Correspond to the following EC requirements:

| | |
|---|---|
| EC Directive relating to balances | Version 90/384/EWG |
| EC EMC directive (directive relating to electromagnetic compatibility) | Version 89/336/EWG |
| EC Directive relating to low voltage | Version 73/23/EWG |

Compatible norms are, in particular

| |
|---|
| EN 45501 |
| EN 55022 |
| EN 60950 |

**This declaration shall be valid only if accompanied by a certificate of conformity issued by a stated centre**

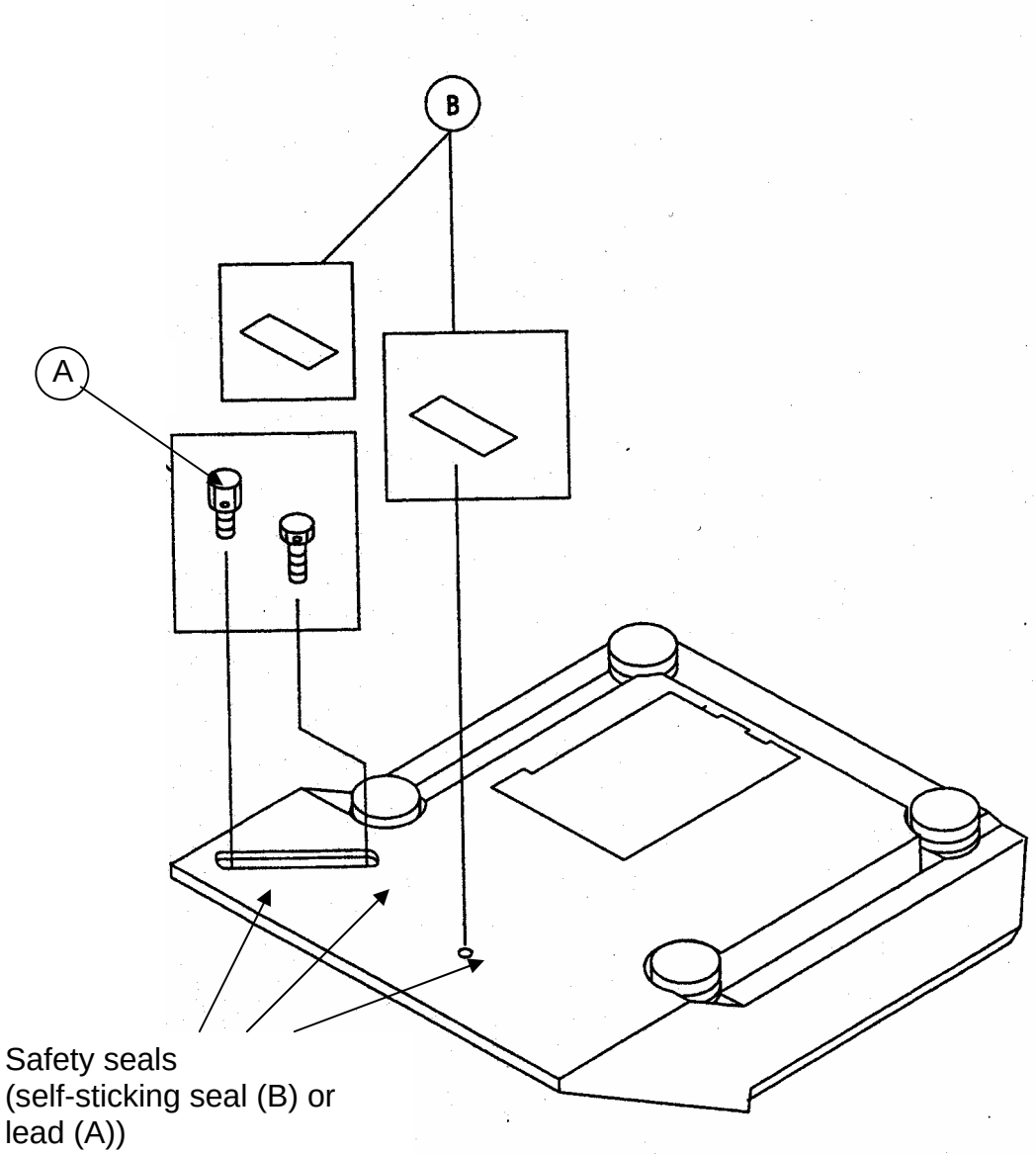
If a change is made to the above mentioned appliances without consulting **KERN** this declaration will become invalid.

Date: 15. January 2001 Signed:

Gottl. KERN & Sohn GmbH
Management

**Gottl. KERN & Sohn GmbH, Ziegelei 1, D-72322 Balingen-Frommern, Tel. +49-07433/9933-0, Fax +49-07433/9933-149**

## 10 Safety seal for calibration




Safety seals
(self-sticking seal (B) or
lead (A))