



BEAM BALANCE

DESCRIPTION

The beam balance is one of the basic apparatuses in the field of science. It is a device used to measure the mass of objects. Two kinds of beam balance are used in laboratory; but the method of maintenance is almost same.



← This beam balance has two scale pans. It is commonly called double pan balance



← This beam balance has only one scale pan. This type is called triple beam balance. If you don't need to compare 2 objects, you should select this type. It can weigh 600g without extra weight.

MAINTENANCE

1. Daily maintenance

After using, remove chemicals spilled on the scale pan.

Avoid dust, humidity and fungus by putting the balances inside cabinets.

Keep your laboratory and science apparatuses clean!

2. Regular maintenance

If your beam balance has any problems, it has to be repaired.

If the parts of your beam balance are not lost, repair is not so difficult. However, if some parts are lost unfortunately, you have to make 1 normal beam balance from 2 broken ones.

TOOLS AND MATERIALS NEEDED FOR REPAIR OF BEAM BALANCE

Screwdrivers (+ or -)

Hammer

Vise grip

Long nose pliers

Sandpaper, gauge 600

Rags

Lead pellets

REPAIR

Beam balances are very sensitive. Some problems often occur.

Problem 1: Pointer does not settle at zero line

Solution #1.1.

Usually balances can be adjusted to zero by turning the zero adjustment counterbalance as shown in the right picture. The counterbalance must be in the middle portion of the lever. For example, if it can turn 10 times from one end to another end, turn the knob 5 times from one end. If the pointer is still unstable, then proceed to solution no. 1.2.



Solution #1.2.

Put your beam balance on a flat table. Turn off the fan or air conditioning unit and close the window.

Adjust all weight scales to zero

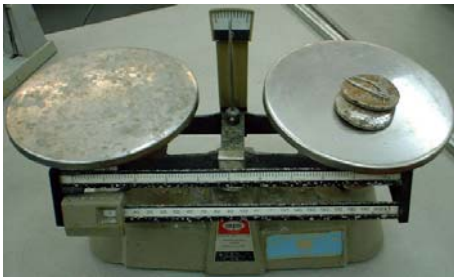


Open the pan by turning it in counter-clockwise direction.



Take out all the weights inside the plastic housing.

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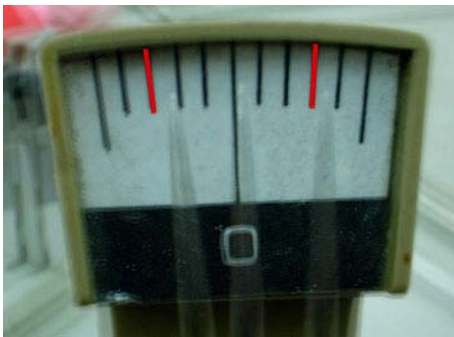


Put the pans on the housing, and put the weights on it. If they are not balanced, add small weights on lighter side. You can use stain-resistant materials as weights; for example, 5 centavos coin, copper wire, small pieces of lead pellets, etc...

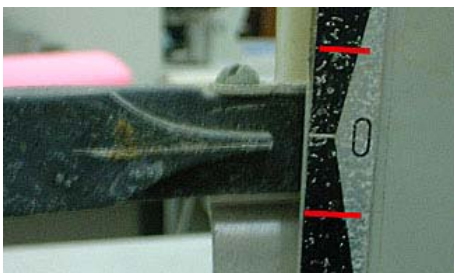


Use trial and error method until the needle will point at the center.

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You don't need to put the needle exactly at the center. It is enough that the needle is 2 or 3 scales away from center.

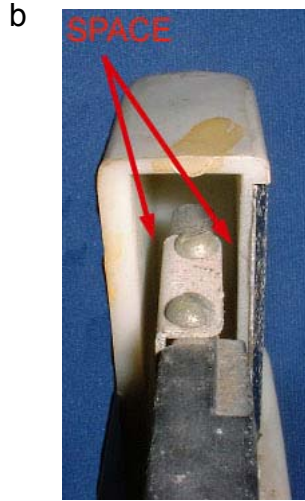


After you have finished the zero adjustment, put the weights back into the plastic housing and close the housing by the scale pans.

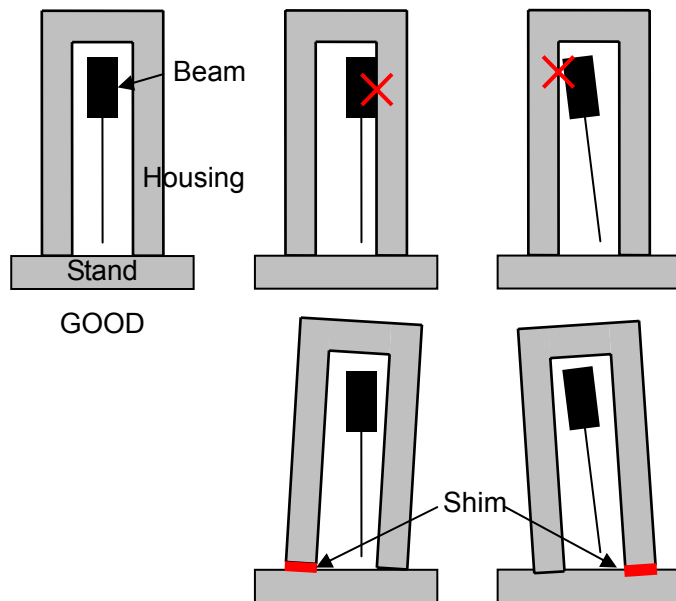
Problem 2: Erratic swing of the lever beams
Solution #2.1.



Sometimes the end of beam touches the plastic part surrounding the red line.



Check the space between the plastic housing and beam. If the beam touches the housing, it cannot swing smoothly. In the following case, you have to put a shim between the plastic housing and the stand (shown in the diagram below):



This is a screw to fix the plastic housing. Loosen it then put shim between housing and stand.