Mettler

Mettler H10/H20

Instructions

Mettler Instrument Corporation, 20 Nassau Street, Princeton, N. J. 08540

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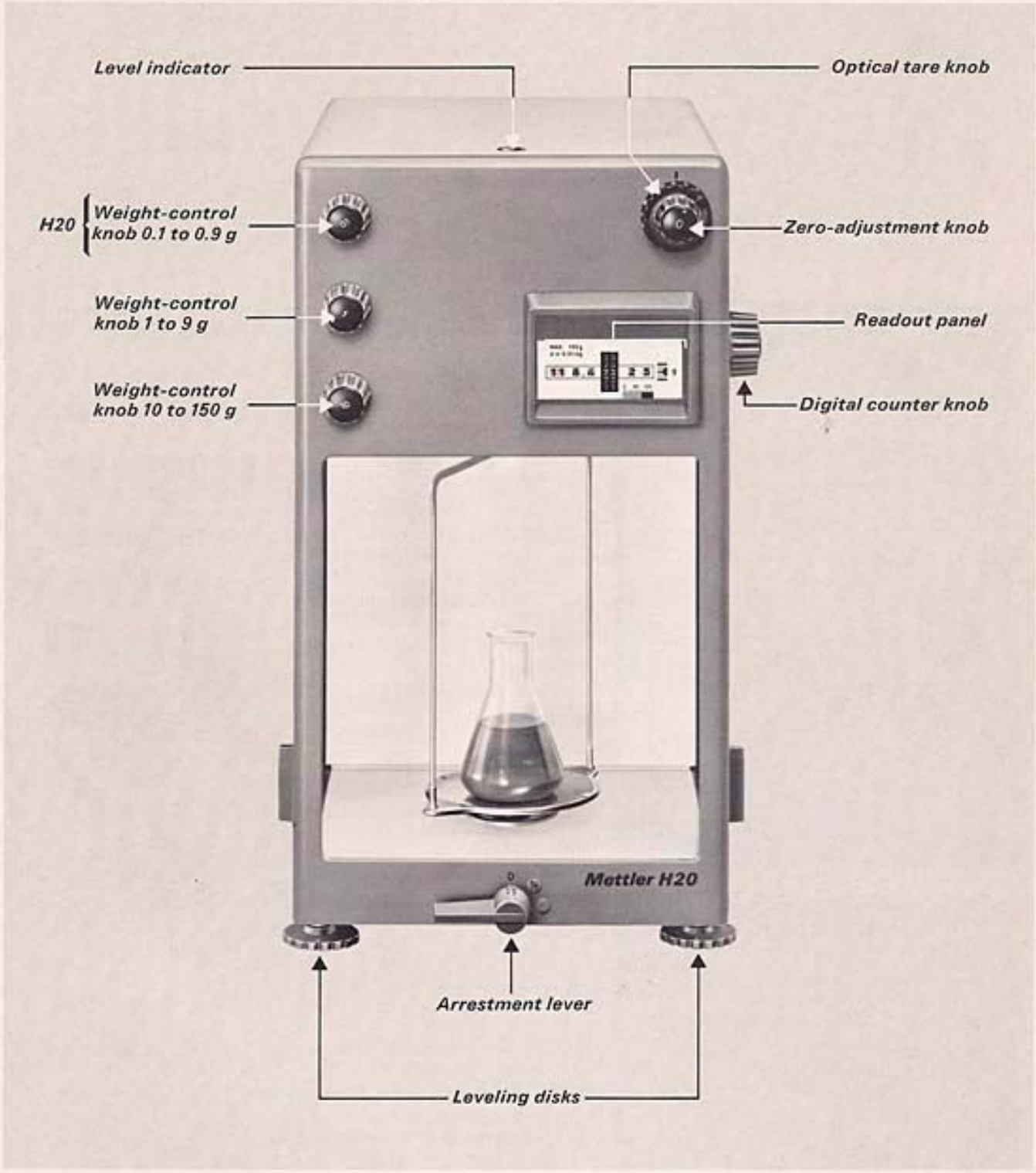
1. General view

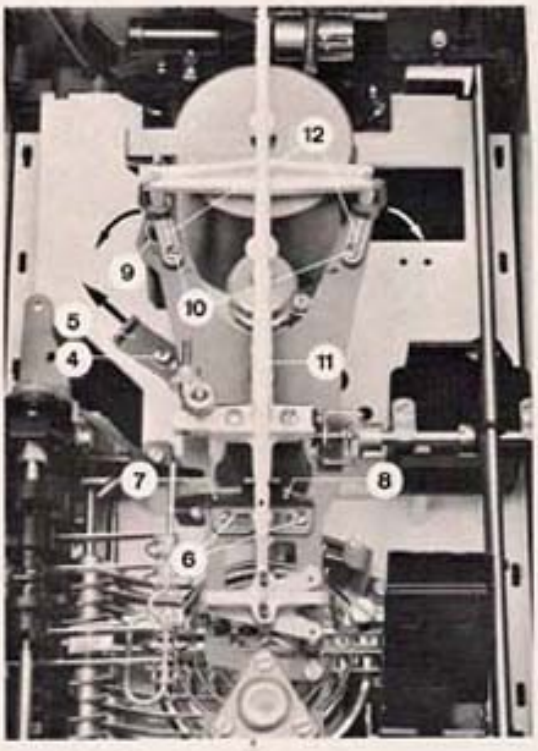


The balance is provided with a taring device which extends over the entire optical weighing range. A filling guide is provided for weighing-in operations. The balance is also provided with an automatic weight locking device which protects the beam in the full released position.

2. Setting-up

2.1. To check voltage selector

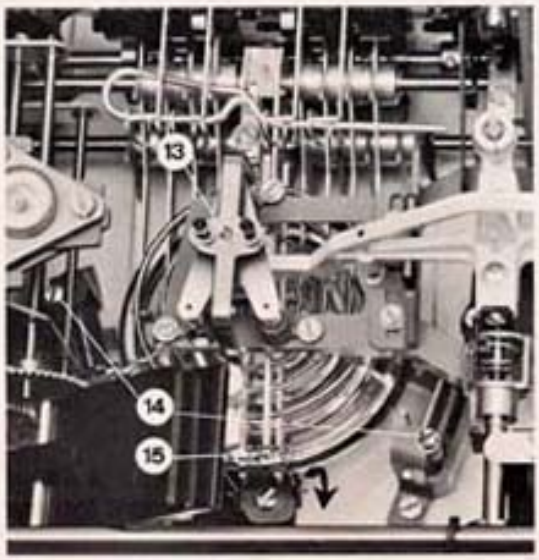
- Remove housing cover ① from rear wall.
- If operating voltage shown on terminal strip ② does not coincide with the supply voltage, the wire ③ should be connected to the desired voltage.
- Replace cover ①.



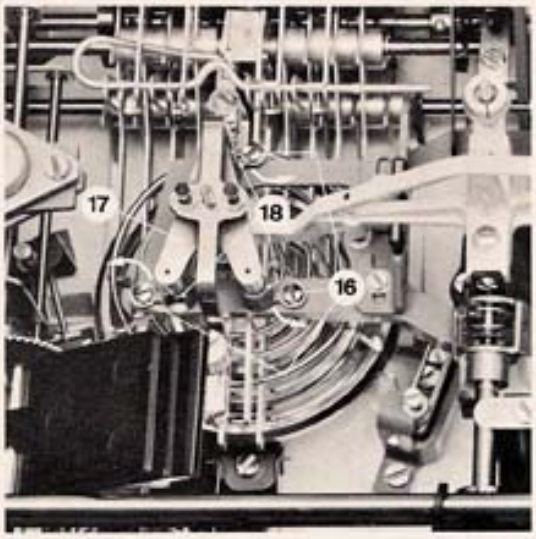
2.2. To set up the balance

All the following manipulations must be done with the balance arrested (arrestment lever at 0).

- Remove housing cover by lifting upward.
- Loosen screw ④ and move bracket ⑤ in direction of arrow.
- Tighten screw ④.
- Loosen the four screws ⑥, move bracket ① to the left and bracket ⑧ to the right.
- Tighten screws ⑥.
- Remove cardboard strip ⑨.
- Loosen screws ⑩, slightly lift up balance beam ⑪ at the rear and swing bolts ⑫ in direction of arrows.
- Carefully replace balance beam ⑪ and tighten screws ⑩.

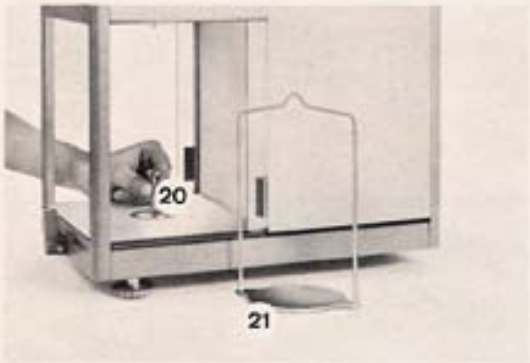


- Loosen set screw ⑬ as far as it will go. (Do not force at stop position.)
- Turn screws ⑭ as far as they will go. (Do not force at stop position.)
- Unsnap and swing down spring ⑮ to the right.



- Loosen three screws (16), raise suspension plate (17) and swing out three supports (18) in direction of the arrows.
- Tighten three screws (16) with the three supports parallel to the arrest platform.
- Replace housing cover.

3. Checking and adjusting



3.1. To position pan brake and pan

- Insert pan brake (20).
- Hang pan (21) on top hook.

To check pan brake:

- Push pan laterally about 1 cm (1/2 in.) and release. The pan should come to rest after 5 to 10 oscillations.

To adjust pan brake:

- Unhook the pan (21).
- Remove pan brake (20).

If braking effect is too strong:

- Hold cap and turn shaft (22) in the direction of the arrow.

If braking effect is too weak:

- Hold cap and turn shaft (23), in opposite direction of arrow.
- Replace pan brake (20) and pan (21).

3.2. To set all readouts to zero

- Turn optical tare knob (24) counterclockwise to the stop position.
- Set digital readout to " 00 " with digital-counter knob (25).

H20 | - Set weight readout to zero with weight-control knobs (26), (27) and (28).

H10 | - Set weight readout to zero with weight-control knobs (27) and (28).

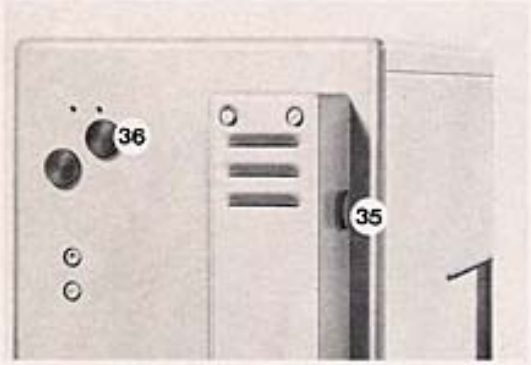
3.3. *To level the balance*

- Accurately center the level indicator bubble on top of the balance (30) within the circular marker by turning the leveling disks (31).
- Connect electric cord plug.

3.4. *To unlock the arrestment lever*

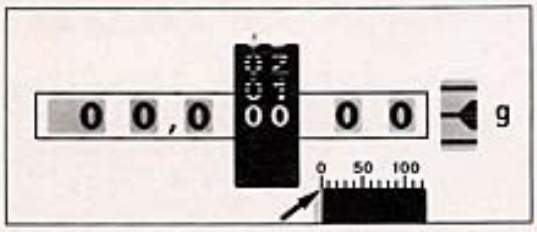
- To unlock the arrestment lever depress button (32) and pull arrestment lever (33) past locking pin.
  Positions of the arrestment lever:

  0 = arrest position
  1/2 = partial-release position
  1 = full-release position

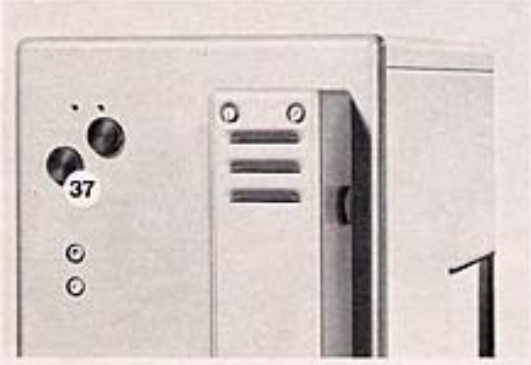


3.5. *To check image focus and brightness*

- Place an approximate 1 g weight on the pan and partially release the balance (arrestment lever at 1/2).
- If the scale image is dim or has shadows along the edges, adjust image brightness by turning red knob (35).
- Adjust image focus by turning red knob (36) on the rear wall.
- Arrest balance and remove weight.



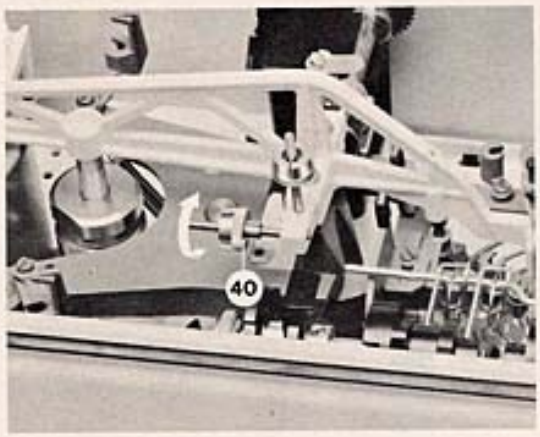
- Fully-release balance (position 1). The filling-line must be set accurately to zero.



- Lateral displacement of any kind can be corrected by turning the knob (37).

3.6. To set zero range

- The optical tare knob (24) should be turned counterclockwise to the stop position and the weighing chamber doors should be closed.
- Align the red dot on the zero-adjustment knob (39) with the " T " on the optical tare knob (24).
- Fully release the balance (arrestment lever at 1).
- The " 00 " scale division line of the moving scale should be approximately centered within the index fork.



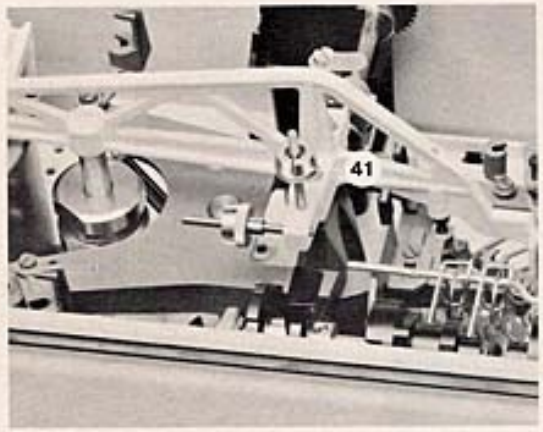
If the balance does not read approximate zero:
- Arrest the balance. Remove housing cover.

If the reading is more than " 00 ": Turn the fine-zero adjustment weight on the beam (40) toward the back.
- Replace housing cover.
- Recheck and repeat above procedure if necessary.

If the reading is less than " 00 ": Turn the fine-zero adjustment weight on the beam (40) toward the front.
- Replace housing cover.
- Recheck and repeat above procedure if necessary.

Turning the fine-zero-adjustment weight in the direction of the arrow in the photo will raise the scale. (One full turn corresponds to about 14 scale division lines on the H20 and 7 scale division lines on the H10).

3.7. To check scale deflection



H20
- Turn weight-control knob (26) to read 0.1 g.
- Place an approximate 0.1 g weight (± 2 mg) on the pan and fully release the balance.
- Use zero-adjustment knob (39) to set exact zero.
- Without arresting the balance turn weight-control knob (26) back to read 0.

H10
- Turn weight-control knob (27) to read 1 g.
- Place an approximate 1 g weight (± 20 mg) on the pan and fully release the balance.
- Use zero-adjustment knob (39) to set exact zero.
- Without arresting the balance turn weight-control knob (27) back to read 0.

The optical scale must read 100 exactly.
- If the balance reads exactly 100, arrest balance and remove weight.

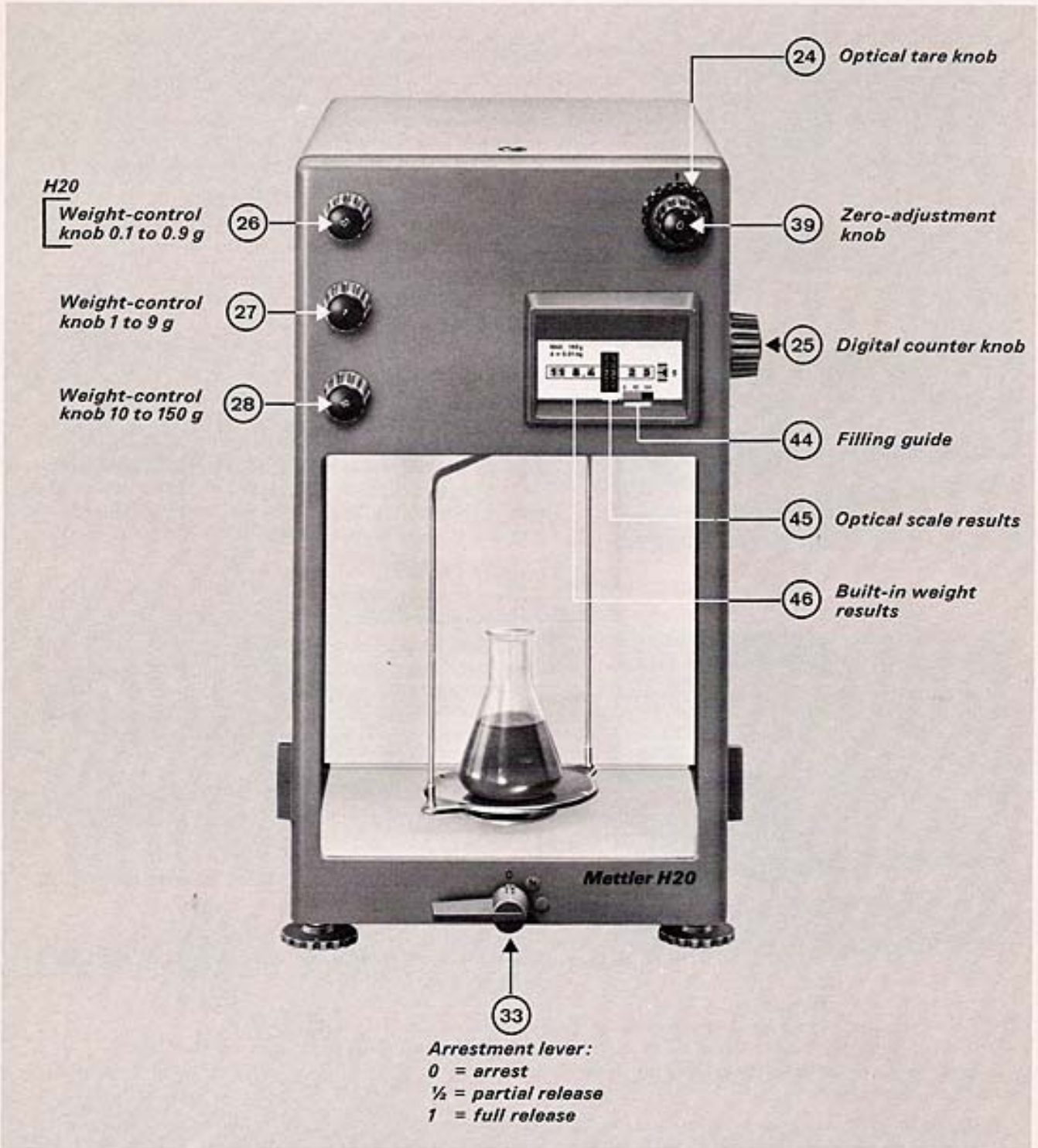
To correct scale deflection:

If the reading is more than " 100 ": Remove housing cover.
- With the balance arrested, lower scale deflection weight (41) on the beam. Replace housing cover.
- Repeat complete procedure for checking scale deflection.
- Recheck zero range.

If the reading is less than " 100 " : Remove housing cover.
- With the balance arrested, raise scale deflection weight (41) on the beam. Replace housing cover.
- Repeat complete procedure for checking scale deflection.
- Recheck zero range.

Note: One full turn corresponds to approximately 0.4 scale divisions on the H20 and 0.2 scale divisions on the H10.

4. Directions for use



Before using the balance:

- The weighing pan must be clean and the weighing chamber doors must be closed.
- Turn the optical tare knob (24) counterclockwise to the stop position.
- Turn all weight-control knobs (26), (27) and (28) to read zero.
- Set digital readout to " 00 " with the digital-counter knob (25).
- Fully release balance (arrestment lever (33) to position 1).
- Accurately line up the zero line with the pointer using the zero-adjustment knob (39).
- Arrest the balance (arrestment lever (33) to position 0).

Weight indication H20: 118.47325 g

Weight indication H10: 132.5243 g

4.1. To weigh a sample

- Place sample to be weighed on pan.
- Close weighing chamber doors.
- Partially release balance (arrestment lever ㉝ at 1/2 position).
- Turn 10 g weight-control knob ㉘ and watch the arrows on the filling guide ㊹. When the direction of the arrows changes, turn the 10 g weight-control knob ㉘ back one step as indicated by the arrows. If the direction of the arrows does not change, leave knob in its position.

H20 | - Repeat the above procedure with the weight-control knobs ㉗ and ㉖.

H10 | - Repeat the above procedure with the weight-control knob ㉗.

- Arrest balance and pause.
- Fully release balance and allow optical scale to come to rest.
- Turn the digital-counter knob ㉙ counterclockwise until the next lower scale division is in perfect alignment with the pointer or is centered in the light slot of the index fork.
- Read the result.
- Arrest the balance.
- Return all knobs to zero.

Note: When beam is released, the 1 g and 10 g increment weights on the H20 and the 10 g increment weights on the H10 are automatically locked.

4.2. To tare a sample

- Place tare container on pan and partially release balance.
- Tare with the weight-control knobs ㉖, ㉗ and ㉘ as in the weighing procedure.
- Arrest balance and pause.
- Fully release balance and allow scale to come to rest.
- Return scale to approximate zero by turning the optical tare knob ㉔ clockwise. Watch the filling line rapidly return to approximate zero.
- Set exact zero with the zero-adjustment knob ㉚.
- Arrest the balance.

The weighing range is reduced by the tared value.

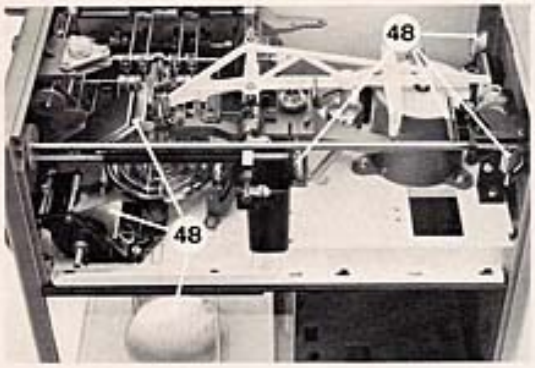
4.3. Weighing-in

The filling guide ㊹ permits continuous reading of the approximate weight being added while the optical scale is in motion. Each division on the filling guide scale represents 10 mg on the H20 and 100 mg on the H10.

- Set target weight (with weight set, and last two places with the digital-counter knob).
- If the built-in weights are used, they must be set before fully releasing the balance. (Set 0.1 g knob ㉖ or 1 g knob ㉗ to the next lower value so that the full optical range is available for weighing-in).
- Fully release balance.
- Add the final amount by watching the filling guide and the optical scale.
- Arrest balance.
- Remove sample.
- Return all readouts and optical tare knob to zero.

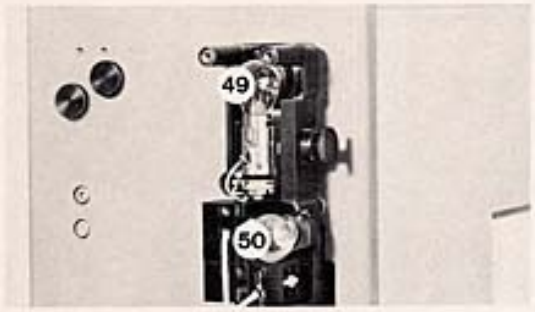
5. Cleaning and maintenance

For the customer maintenance is limited to:
- Checking and possibly adjusting scale deflection.
- Cleaning the housing, weighing chamber and mirrors.
- Replacing light bulb.



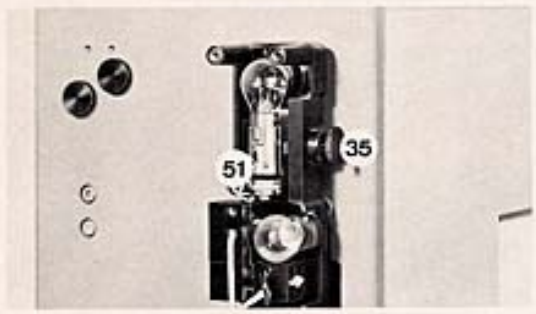
5.1. Cleaning

- Remove digital counter knob (25) (pry off black cap; loosen the clamping cone using the key wrench supplied with accessories, and pull off knob).
- Remove housing cover and right side wall.
- Clean mirrors and pan (48) with a chamois as shown in the photograph.
- Replace right side wall, housing cover and digital counter knob. (Side wall drops into two tracks).



5.2. To replace light bulb

- Disconnect electric cord plug.
- Remove light bulb housing from rear wall by removing three screws.
- Turn bulb (49) counterclockwise and pull it out.
- Pull out spare light bulb (50).
- Insert new bulb (filament should be parallel to back wall).
- Order spare bulb.



To adjust image brightness:
- Connect electric cord plug and partially release the balance.
- Turn red knob (35) for height adjustments.
- If necessary, bend light bulb holder (51) for left-right adjustments.
- Refocus if necessary.
- Replace light bulb housing cover.

To correct lateral displacement of scale image refer to chapter 3.5.

6. Troubles and their causes

No scale image

No voltage supply

Electric cord plug not connected
Loose contacts in cord or electric cord plug
Light bulb defective

Poor scale image

Voltage selector (wire ⑨ in terminal strip) not adjusted to proper supply voltage
Image out of focus
Image brightness not adjusted
Mirror dirty

Zero point cannot be set

Optical tare knob not turned counterclockwise to stop position
Level indicator bubble not centered in circular marker
Weight-control knobs not at zero
Pan dirty

Optical scale moves jerkily or blocks

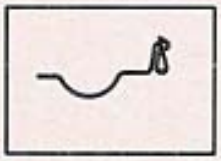
Pan brake shaft is dirty
Weights out of position (Correct by dialing all weight-control knobs and return to zero)

7. Accessories

Standard equipment includes:

		Order No.
	Protective dust cover	50560
	Light bulb	11698
	Dust brush	70114
	Chamois	70109
	Screw driver	50279
	Key wrench	50599

Supplied upon order:

		Order No.
	Vibro spatula Mettler LV2	
	220 V	9770
	220 V without plug	9785
	220 V with Schuko plug	9786
	110 V	9787
	110 V with USA plug	9788
	Nickel weighing scoop 10 g	4507
	Nickel weighing scoop 20 g	4508
	Watch glass, dia 50 mm, 10 g	4506
	Watch glass, dia 70 mm, 20 g	2013
	Set of three pan hooks	52625
	Holder for specific gravity determination	1526
	Set of four damping pads	4578

8. Repacking

To protect the balance:

1. All internal packing parts must be re-engaged. Reverse setting up procedure according to chapter 2.2.
2. Replace balance in cardboard carrying case using all protective packing parts as shown below.