

Trouble shooting guide for Detecto Mechanical Physicians Balance Beam Scales Models: 475-485-4420-4520-495-437-438-439-337-339

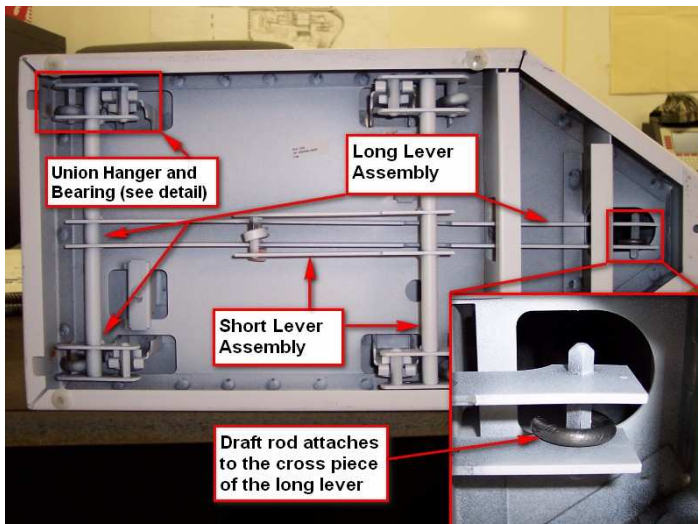
Symptom: Cannot balance (Calibrate Zero) using zero balance adjustment
Beam stays down when load applied to scale platform

Diagnostic: 1) Packing material in scale base
2) Draft rod not connected in scale base,
Note: The draft rod is the connecting rod that is located inside the column.

Solution #1: Packing material

- 1) Turn the scale on its side or lie across a chair or table so that the bottom of the scale can be viewed.
- 2) Remove all packing materials such as cardboard from inside of the scale base. The cardboard packing material will be wedged between the lever assemblies and the scale base.
- 3) Set scale upright
- 4) Zero balance the scale (See instructions)
- 5) Check for scale proper operation

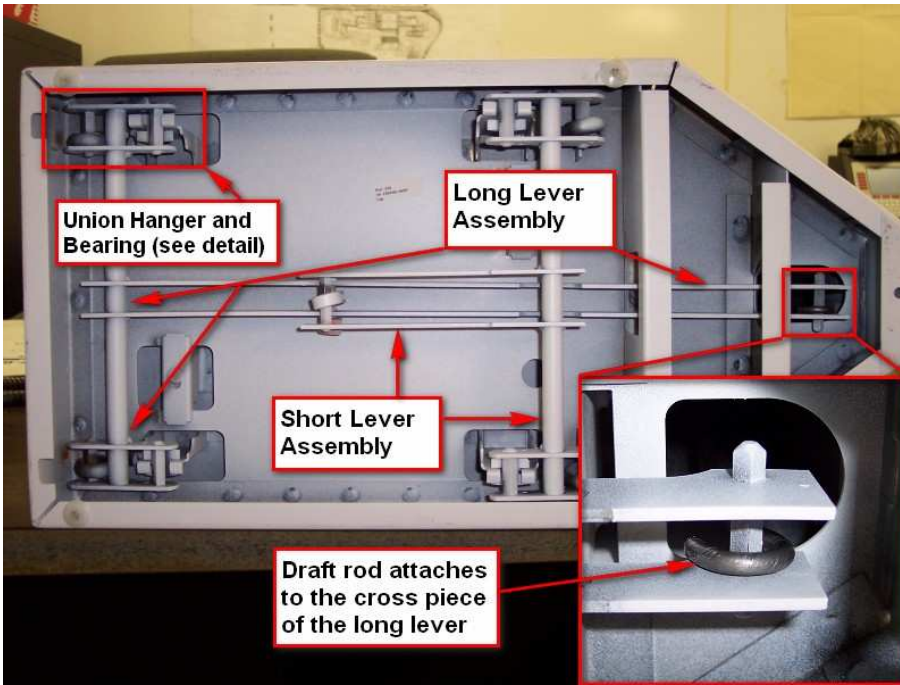
Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.



Solution #2: Draft rod

- 1) Turn the scale on its side or lie across a chair or table so that the bottom of the scale can be viewed.
- 2) Connect draft rod (See below)
- 3) Set scale upright
- 4) Zero balance the scale (See instructions)
- 5) Check for scale proper operation

Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.



Symptom: Weight readings are ok up to a point then are inaccurate; indicated weight is lighter than it should be.

Diagnostic: Inference or obstruction of lever system under scale base

Solution: Remove obstruction or if on carpet or padded floor set scale base on a solid surface.

Symptom: Weight readings are inaccurate
Weight readings change when load is applied to different positions on the scale platform:

Diagnostic:

- 1) Loose/Missing “S” hook and/or bearing
- 2) Broken weld on lever
- 3) Broken/worn pivot on lever and/or bearing

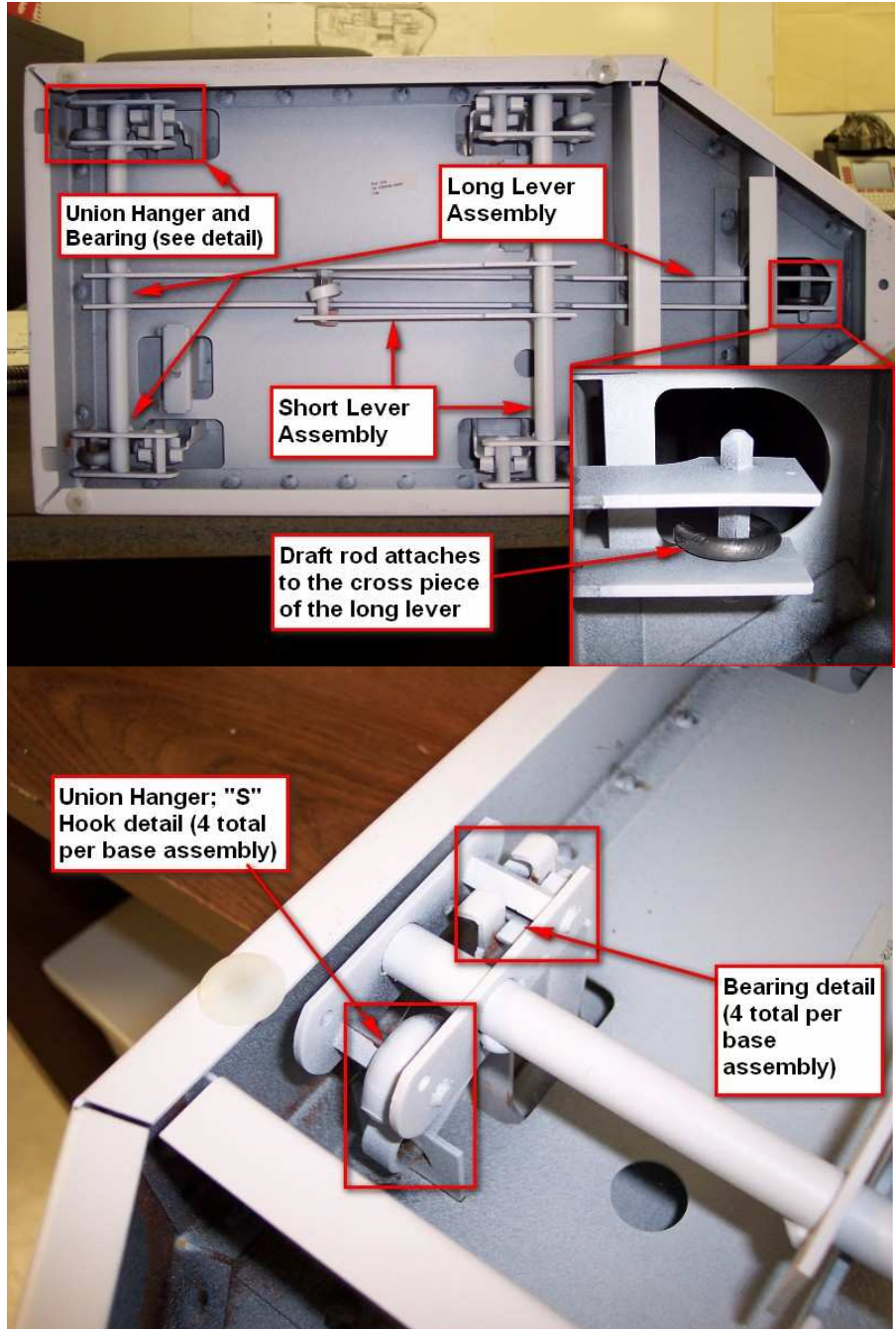
Solution #1: **Loose/Missing “S” Hook (Union Hanger)**

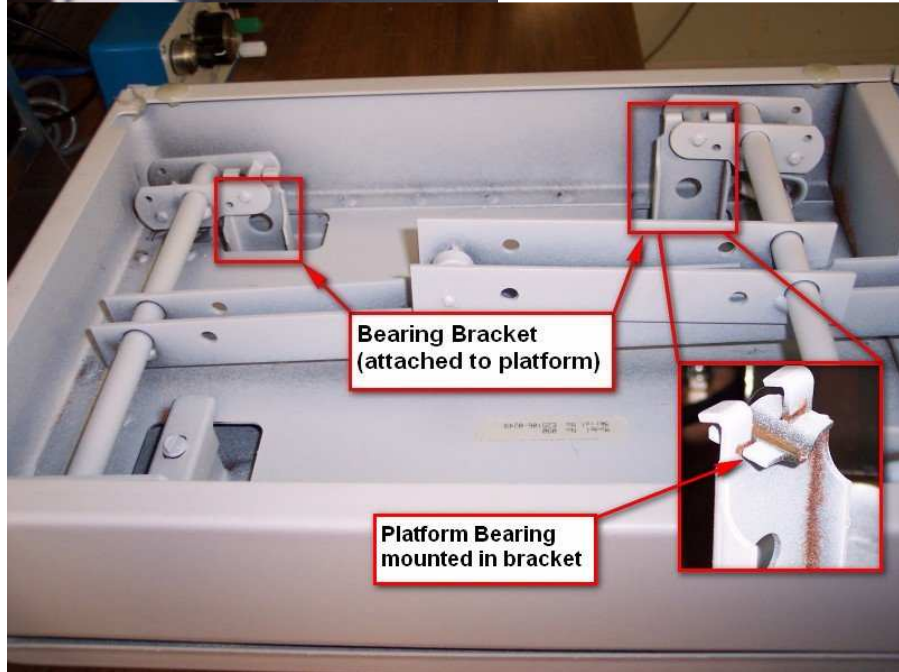
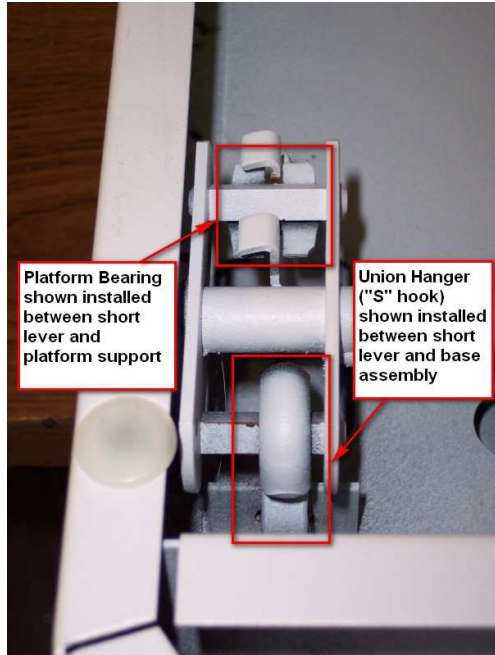
Visual inspection of scale base:

Weighing platform should have an equal spacing from base, if it tilts or leans to one corner indicates a possible missing “S” hook (Union Hanger) and/or bearing

- 1) Turn the scale on its side or lie across a chair or table so that the bottom of the scale can be viewed.
- 2) Disconnect draft rod
- 3) Install the bearing if required (See below)
- 4) Install the rounded end of the “S” hook onto the lever
- 5) Hook the flat end on the “S” hook onto the scale base support bracket.
- 6) Connect the draft rod
- 7) Set scale upright
- 8) Zero balance the scale (See instructions)
- 9) Check scale for proper operation

Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.



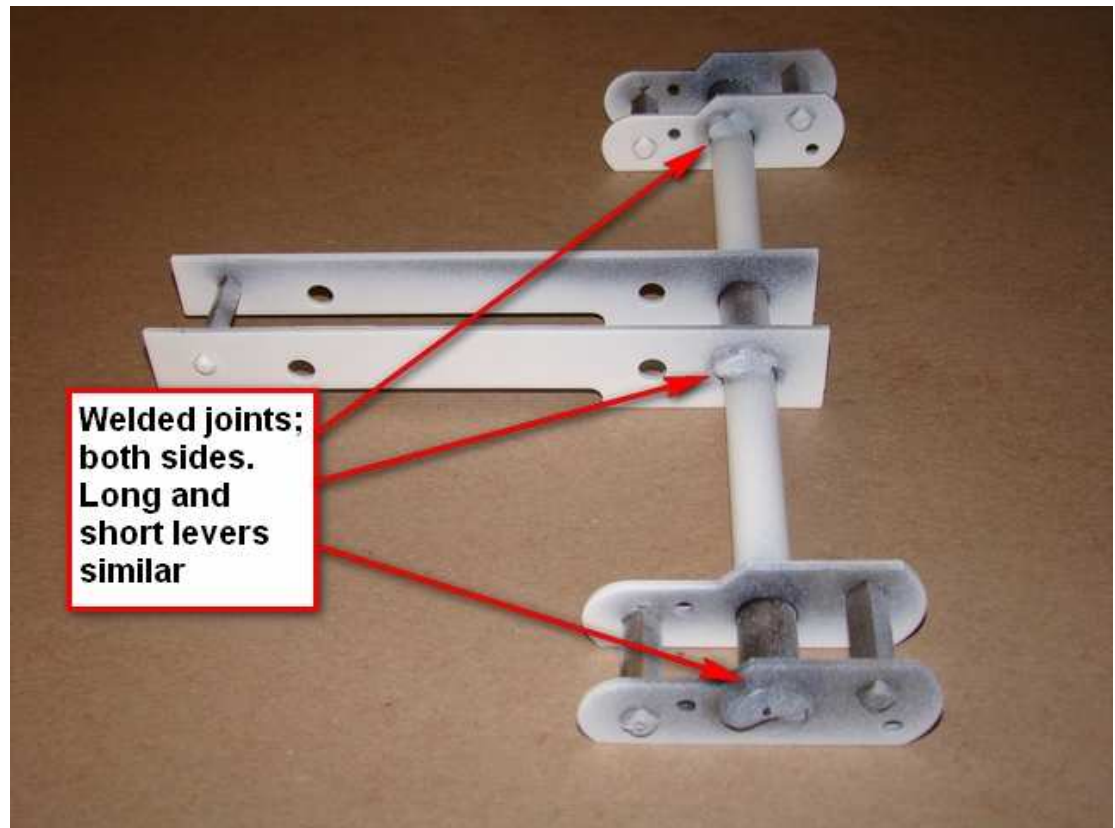


Solution #2: Broken weld on lever

If all “S” hooks and bearings are in place then inspect the levers for a broken weld or damaged pivot; Look for signs of a broken weld (s) such as paint scraped off by the rod twisting inside the weld. Usually this problem is not easy to see.

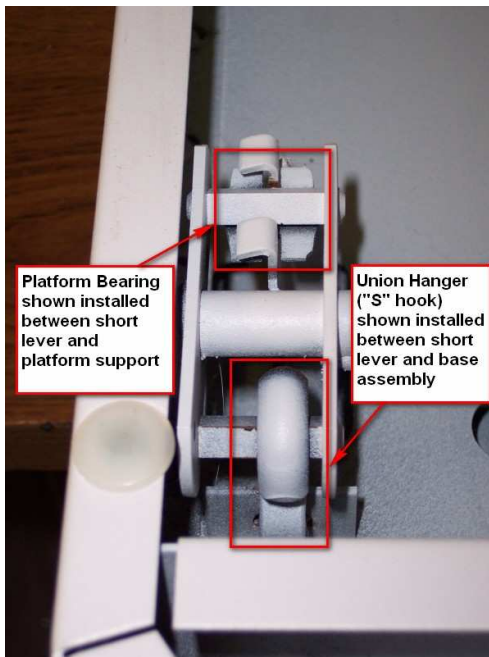
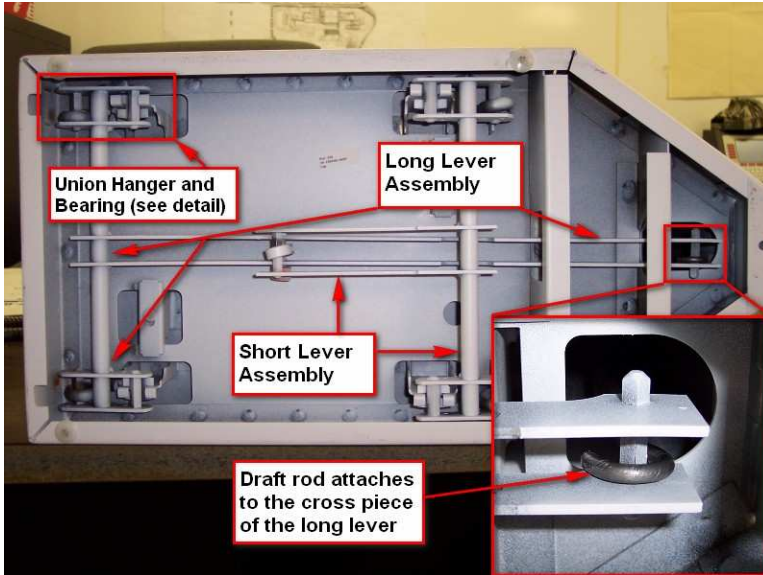
Replace lever assembly if damaged then check scale for proper operation.

Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.



Solution #3: Broken/worn pivot and/or bearing

Inspect the pivots and bearings for signs of wear or damage.
Replace any worn or damaged parts and check scale for proper operation.



The lever pivots ride on the bearings and union hangers. If the pivots or bearings are worn or broken the scale will not repeat or give accurate weights.

Symptom:

Weight readings are inaccurate
Beam does not float.
Beam is not responsive or is sticky
Instead of floating to balance when weighing the beam sticks,
When nearing the balance point, the minor poise can be moved
several divisions with little or no response.

Diagnostic:

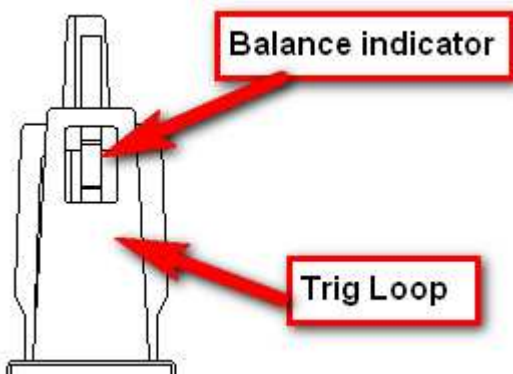
- 1) Beam balance indicator is touching either the front or back of the trig loop causing it to drag and not float freely.
- 2) Shelf lever is tilted and not hanging correctly

Solution #1:

Balance beam touching the trig loop

- 1) Remove plastic beam covers, lift up then unsnap.
- 2) Loosen the two screws that hold the beam yoke bracket to the column
- 3) Move the beam yoke bracket so that the beam balance indicator is located in the center of the trig loop.
- 4) Tighten the two screws that hold the beam yoke bracket to the column
- 5) Replace plastic beam covers
- 6) Zero balance the scale (See instructions)
- 7) Check scale for proper operation

Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.

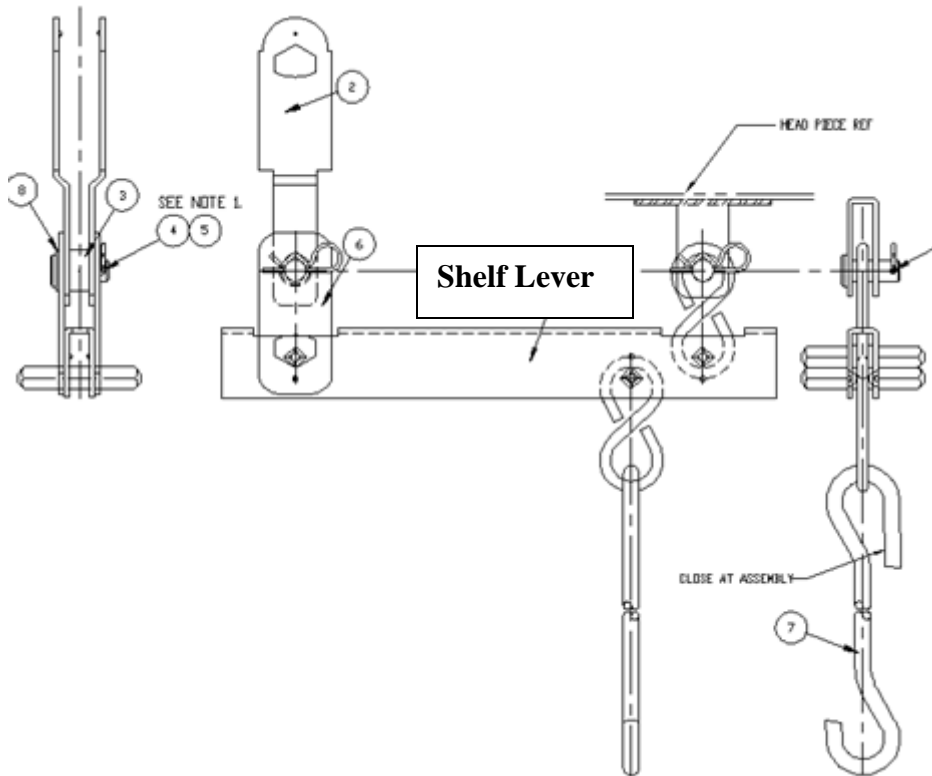


Balance indicator should be located such that it does not touch either side of the trig loop.

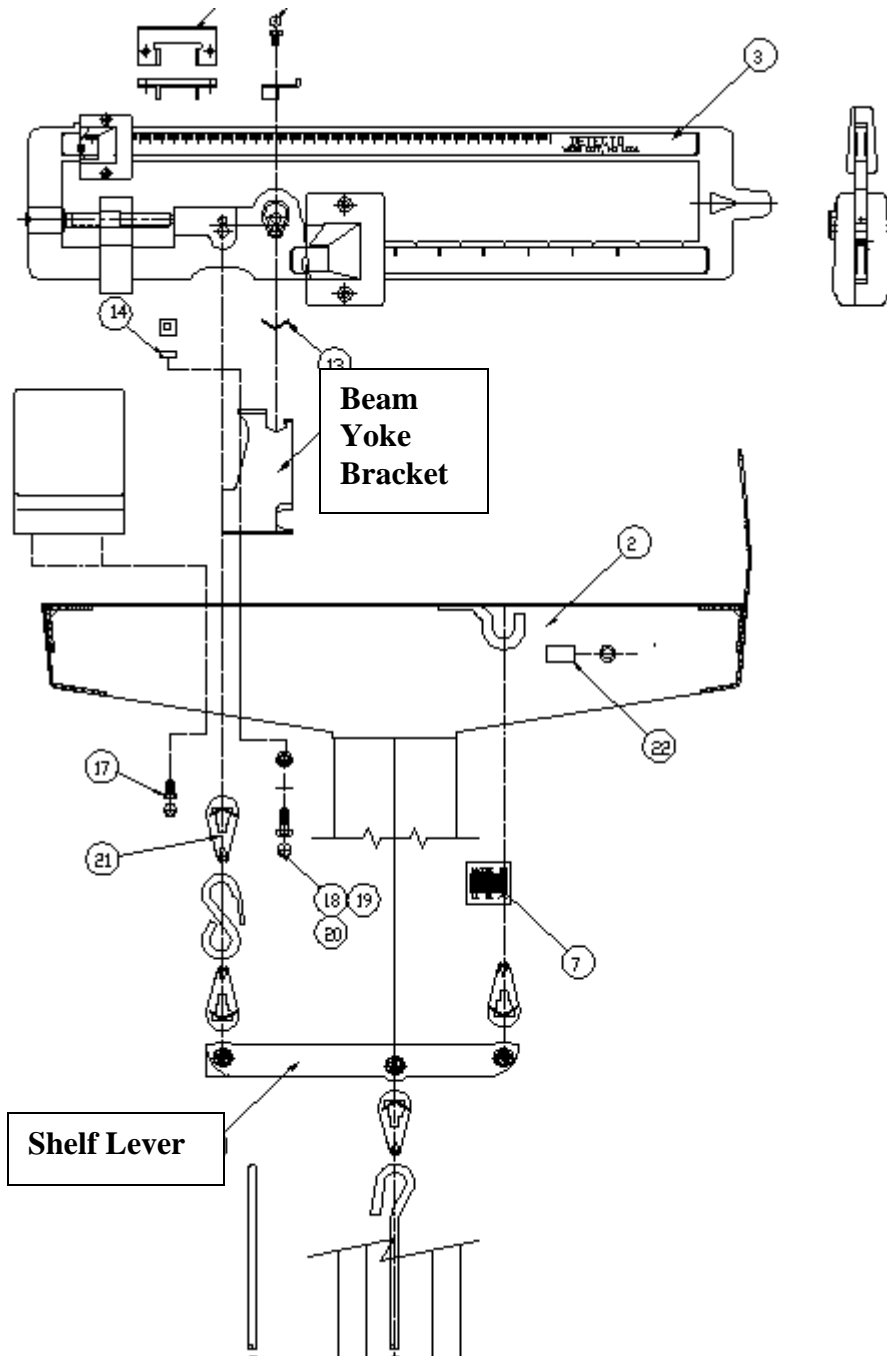
Solution #2: Shelf lever

Check shelf lever for proper assembly and that it is hanging straight from its supports. The shelf lever is located inside the beam assembly in the “T” area of the column assembly. If it is hanging at an angle from the supports, grasp the shelf lever and gently shake it, Zero balance the beam and test the scale for proper operation.

Note: A scale that is working properly will repeat the same readings both with an applied load and also balance at zero without requiring adjustment of the zero balance screw.



1	8	6024-0014	WASHER FLAT	1/4" x .032 THK NYLON
1	7	0033-B333-08	DRAFT ROD	
2	6	0033-B334-08	SL SIDE HANGER	
2	5	6009-5094	COTTER HAIR PIN	-
2	4	6028-0105	CLEVIS PIN	
1	3	6680-0142	SPACER	
2	2	3P8034	BM. HGR. SIDE	
1	1	0033-C369-0A	SHELF LEVER ASSY	

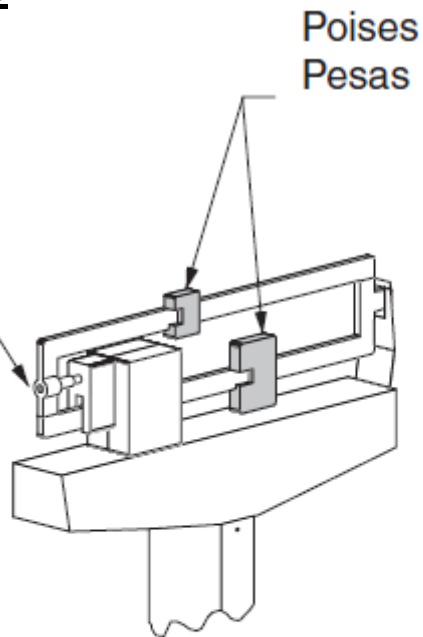


Note: It is important that the shelf lever hangs straight from the supports.

Zero Balance instructions

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Balance Screw
Tornillo de la
balanza



To balance scale, move both poises to zero (0) and turn balance screw to right or left until scale balances. For accurate weighing, place scale on level floor.

Calibration Procedure

Detecto Mechanical Physicians Balance Beam Scales

Models: 475-485-4420-4520-495-437-438-439-337-339

Tools required:

Screwdrivers: One straight blade and one Phillips.

Test weights: one totaling 50 lbs, one totaling 250 lbs.

Calibration procedure:

1. Begin by moving both the sliding poises to the 0 position.
2. Observe if the balance indicator is in the center of the trig loop (Arrow pointer on the right end of the beam is in the center of the opening)
If not, adjust the zero adjusting screw located at the left end of the beam till balanced.
3. Scale balanced at 0
4. Place a 50 lb test weight on the scale
5. Move the upper sliding poise to the 50 lb mark
6. Observe if the balance indicator is in the center of the trig loop.
7. A correct reading will be the balance indicator in the center of the trig loop with 50 lb weight on the scale, small poise is at the 50lb mark and the large poise at 0.
8. If not alter the amount of weight inside the small sliding poise.
 - If the arrow is DOWN, this indicates that the small poise is too heavy therefore requiring the removal of a small amount of weight from the small poise.
 - If the arrow is UP, then the small poise is too light therefore you must add weight to the small poise. Lay the additional weight on top the poise till balance is achieved, then open the poise and place the additional weight inside the poise. Check for balance indication.

Note: The poises are held together by small Phillips screws along the back.

Remove the Phillips screws in order to gain access to the inside of the poise.

9. Remove the test weight, and slide the small poise back to 0.
10. Observe if the balance indicator is in the center of the trig loop.
11. A correct reading will be the balance indicator in the center of the trig loop with both the small and large poises at 0lbs and no load applied to the scale platform.
12. If not, adjust the zero adjusting screw located on the left hand side of the balance beam till balanced.
Repeat steps 3 -12 till the scale balances both at 0lbs and 50 lbs.
13. With the scale balanced at both at 0lbs and 50lbs test the large sliding poise with a total weight of 250lbs.
14. Apply the 250lb test weight to the scale platform.
15. Move the lower sliding poise over to 250 lb mark while ensuring that the small sliding poise is at 0.
16. A correct reading will be the balance indicator in the center of the trig loop with 250 lb weight on the scale, large poise is at 250lbs and small poise at 0.
17. If not alter the amount of weight inside the large sliding poise.

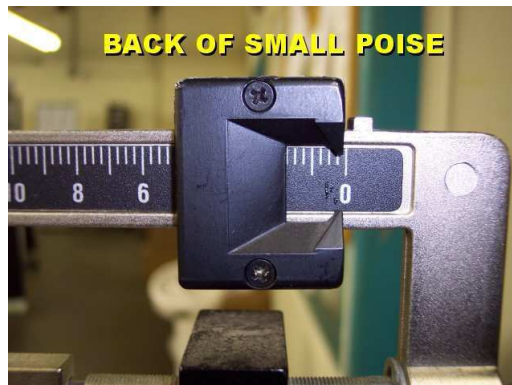
- If the arrow is DOWN, this indicates that the large poise is too heavy therefore requiring the removal of a small amount of weight from the large poise.
- If the arrow is UP, then the large poise is too light therefore you must add weight to the large poise. Lay the additional weight on top the poise till balance is achieved, then open the poise and place the additional weight inside the poise. Check for balance indication.

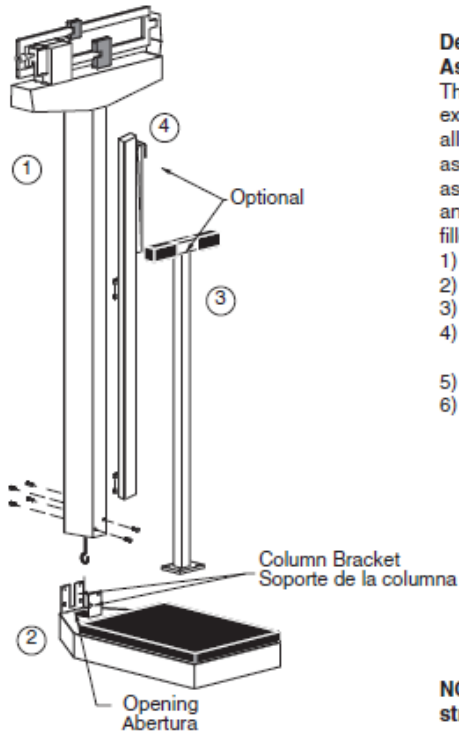
Note: The poises are held together by small Phillips screws along the back.
Remove the Phillips screws in order to gain access to the inside of the poise.

18. Repeat the above steps till the scale repeats at 0lbs, 50lbs and 250lbs.

Note: This may require adjusting 0, 50lbs and 250lbs till all points repeat.

19. Once complete, test the scale operation at various weights to confirm operation.





Detecto Physician's Scale Assembly Instructions

This precision instrument is extremely easy to set up as all major parts are factory pre-assembled. Before starting to assemble, please unpack carefully and remove all wrappings and fillers. Carton contains:

- 1) Column with head.
- 2) Platform base.
- 3) Hand post. - optional
- 4) Height measuring rod. - optional
- 5) Hardware kit
- 6) Wheels - optional

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Balanza para médicos Instrucciones de armado

Este instrumento de precisión es facilísimo de armar ya que todos los componentes principales son ensamblados de antemano en la fábrica. Antes de empezar, favor de desempacar cuidadosamente y quitar todas las envolturas y material de empaque. La caja contiene:

- 1) Columna con cabezal;
- 2) Plataforma con base;
- 3) Poste de Mano;
- 4) Vara de medir;
- 5) Juego de hardware;
- 6) Ruedas - opcional.

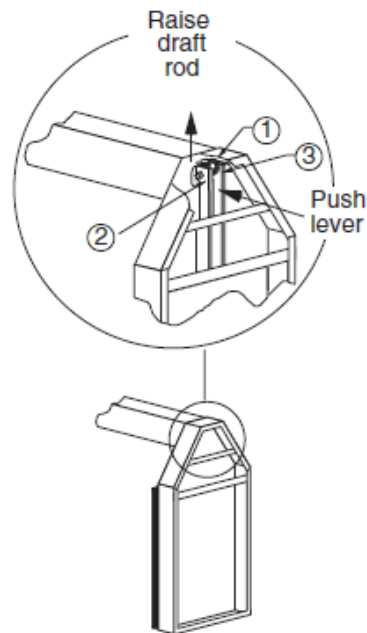
NOTE! If column bracket is bent, straighten before assembling.

- 1) Unpack platform base from box and plastic bag.
- 2) Lay platform base upside down and remove all cardboard packing and hardware kit from bottom of scale base.
- 3) Flip scale base over.
- 4) Slip column over column bracket on platform base. Hold column straight so that draft rod enters opening in column bracket. Screw column to column brackets (two 1/4 hex head screws in front of column, four in back).

2

! Si el soporte esta doblado enderescalo antes de ensamblar la balanza.

- 1) Desempaque la base de la plataforma de su caja y funda plástica.
- 2) Recuesta la base de la plataforma al revés y remueva los empaques de cartón y el juego de hardware del mismo.
- 3) Voltee la base de la báscula.
- 4) Pasar la columna por encima del soporte de la columna en la base de la plataforma. Sostener recta la columna para que la vara de acero entre en la abertura del soporte de la columna. Atornillar la columna a la escuadra de la columna (dos tornillos hexagonales de 1/4 en frente de la columna, y cuatro en la parte de atrás).



Lay down scale, with column horizontal to floor (using a table top).

- 1) Raise draft rod keeping out of lever's way.
- 2) Push lever
- 3) When lever is in position, hook draft rod around pivot.

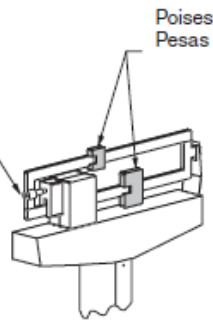
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Poner la balanza horizontalment sobre una mesa.

- 1) Levantar la vara de acero manteniendola alejada de la palanca.
- 2) Empujar la palanca
- 3) Cuando la palanca este en posición, enganche la vara de acero alrededor del pivote.

4

Balance Screw
Tornillo de la
balanza



To balance scale, move both poises to zero (0) and turn balance screw to right or left until scale balances. For accurate weighing, place scale on level floor.

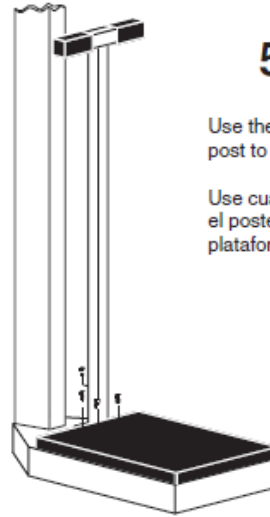
Para poner la balanza en fiel, mover las dos pesas corredizas a cero (0) y girar el tornillo de la balanza hacia la derecha o izquierda hasta que la balanza quede equilibrada. Para pesadas exactas, colóquese la balanza en suelo a nivel.

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Optional Hand Post

Use the four screws to attach the hand post to the platform base.

Use cuatro (4) tornillos para pegar el poste de mano a la base de la plataforma.



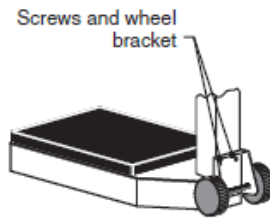
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Optional Wheels

How to setup the Detecto Physician's scale with roller wheels.

Use the two screws in the back of the column to attach the wheel bracket.

Como arma la Detecto balanza para médicos con ruedas. Use los dos tornillos en la parte atras de la columna para pegar el soporte de la rueda a la columna.



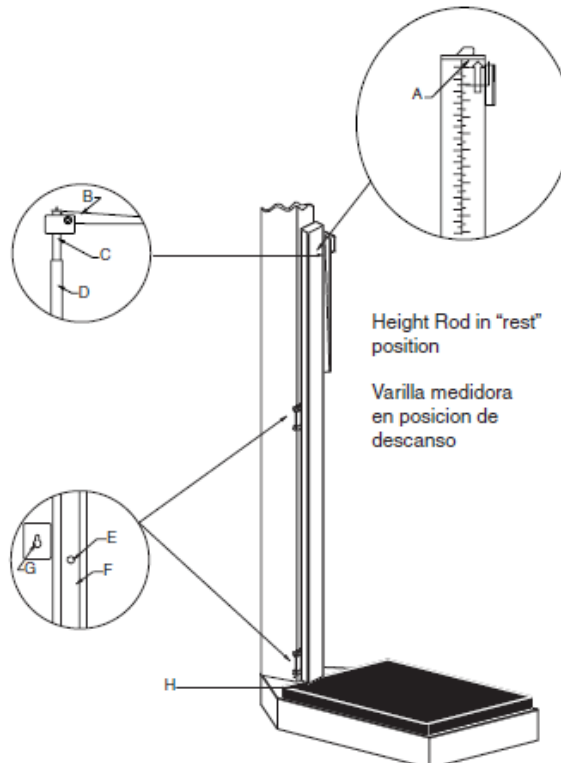
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Optional Height Rod

- A = "Read" line
- B = Spoon
- C = Inner height rod
- D = Outer height rod
- E = Hex head screw
- F = Column
- G = Mounting bracket
- H = Height rod sits on top of the scale base

Opcional Varilla Medidora

- A = Línea de lectura
- B = Cuchara
- C = Varilla medidora interna
- D = Varilla medidora externa
- E = Tornillos de cabezas hexagonales
- F = Columna
- G = Soporte
- H = La varilla medidora debe descansar sobre la base de la bascula como se ve en el dibujo



Optional Height Rod Installation:

1. Remove the height rod from the box.
2. If not already installed, insert the two hex head screws from the hardware pack into the holes in the front of the column and tighten them with the included wrench until the hex heads are 1/8" from the column.
3. Place both height rod brackets over the two pre-installed hex head screws and pull down.
4. Use the included wrench to tighten both hex head screws. Do not overtighten the screws.

Height Rod Operating Guide:

1. Before the person steps onto the scale platform, the spoon should be rotated to the horizontal position, and raised well above the person's apparent height.
2. The person may now step onto the scale platform. The spoon should be held horizontal and above the person's head.
3. Carefully lower the spoon, while keeping it horizontal, until it rests gently upon the top of the person's head. If the person is shorter than 3' 4" (101.5 cm), push the latch to the right, while simultaneously pushing down on the spoon, until the spoon rests horizontally upon the top of the person's head.
4. Read the height of the person as follows:
If the back of the spoon points to the outer height rod, then it points to the correct height.
If the back of the spoon points to the inner height rod, then the correct height is read at the top of the outer height rod (see "Read" arrow on the outer height rod).
5. While holding the spoon horizontally, raise the spoon above the person's head. The person may now step off of the scale platform. Hold the spoon horizontal until the person is clear of the height rod.
6. Rotate the spoon back to the vertical position and adjust the height rod back to the rest position (i.e. the spoon should be locked in place within the inner height rod and the inner rod should be at its lowest position).

Instalacion de la Barra Medidora de Altura:

1. Remueva el tallimetro de la caja.
2. Si no estan instalados, coloque los tornillos con cabezas hexagonales en los huecos al frente de la columna y atornillelos con la llave incluida en el paquete de partes, hasta que sus cabezas quenden aproximadamente 1/8" de pulgada (3mm) de la columna.
3. Coloque los dos soportes de la barra medidora en los tornillos ya instalados y tire de los soportes hacia abajo.
4. Termine de atornillar sin apretarlos demasiado.

Como Usar La Barra Medidora:

1. Antes de subir a la plataforma, la cuchara debe rotarse hacia la posicion horizontal y colocarse a una altura superior a la que aparenta la persona.
2. La persona ya puede subir a la plataforma y la cuchara debe mantenerse horizontalmente sobre la cabeza.
3. Bajando la cuchara cuidadosa y horizontalmente, deje que caiga suavemente sobre la cabeza. Si la altura de la persona es menos de 3 pies y 4 pulgadas (101.5 cm), empuje el pestillo hacia la derecha al mismo tiempo que empuja la cuchara hacia abajo hasta que la cuchara descansa sobre la cabeza de la persona.
4. Lea la altura de la persona de la siguiente manera:
Si la parte posterior de la cuchara señala hacia la barra medidora exterior, esta indicando la altura correcta.
Si la parte posterior de la cuchara señala hacia la barra medidora interior, entonces la lectura correcta debe hacerse al tope de la barra medidora exterior (note la flecha y la palabra "Read" en la barra medidora exterior).
5. Mientras mantiene la cuchara en la posicion horizontal, levántela de la cabeza de la persona. La persona ya puede bajarse de la plataforma. Mantenga la cuchara horizontalmente hasta que la persona haya bajado de la balanza.
6. Rote la cuchara hacia la posicion vertical y ajuste la barra medidora en su posicion de descanso (la cuchara debe estar firme en su lugar y dentro de la barra medidora interna y esta debe estar en su posicion mas baja).

REPLACEMENT PART IDENTIFICATION

Item	Part	Part Name	Req'd
1	3P1001X	Base Weldment	1
2	0033-D244-0A	Headpiece & Column Weldment	1
3	3P2011X	Platform Weldment	1
	3P5011X	Platform Weldment (handpost)	1
4	3P8068	Mat (removable)	1
	3P9068	Mat (handpost)	1
5	0033-C106-1A	Hand Post Assembly	1
6	0033-D063-1A	Measuring Rod Assy in/cm	1
7	0033-B333-08	Draft Rod	1
8	0033-C369-0A	Shelf Lever w/Pivot	1
9	3P8002X	Long Lever Assembly	1
10	3P8003X	Short Lever Assembly	1
11	0033-B220-0A	Beam 400 lb	1
	0033-B227-1A	Beam 180 kg	1
	0033-B226-0A	Beam 400 lb/175 kg	1
12	3P60	Check Plate	2
13	3P41	Reading Beam Retainer	1
14	0033-C236-08	Beam Cover	2
17*		#10 Internal Tooth Lockwasher	2
18		#10-32 x 1/2 lg. hex head screw	2
19*		#10-32 Square Nut	2
20	3P1008	Beam Yoke	1
21	3P8059	Union Hanger	4
22	2U58	Union Center Hanger	1
23	3P2087	Platform Bearing	4
24		1/4 - 20 x 3/4" lg. truss head Screw	10
25*		1/4 Split Lockwasher	10
26*	63K1038	Base Leg	4
27		#6 x 1/4 lg. hex head type "B" Screw	2
28*	650RC7	Flatwasher	2
29	3P8034	Beam Hanger Side	2
30	6028-0105	Pin	2
31*	6024-0014	Flat Washer	1
32*	6009-5094	Hair Pin Cotter	2
33*	0033-B033-08	Wrench	1
34		#10 x 1/2 hex washer head type "B" Screw	2
35	0033-B334-08	Hanger	2

*Not Shown