

# **50SX/51SX/58SX/70SX HOG/SHEEP/GOAT SCALE OWNER'S MANUAL**



*"The Original" Since 1952*

# 50SX/51SX/58SX/70SX Owner's Manual

---

## **MANUFACTURER'S WARRANTY**

*W-W Paul Scales guarantees to correct by repair or replacement, at the manufacturer's discretion, any defect in material or workmanship in any scale manufactured by W-W Paul Scales for a period of five years from the date of sale. This warranty does not apply to used equipment, parts requiring replacement due to wear and tear or abuse, product accessories, or parts not manufactured by W-W Paul Scales, even if the part is sold by W-W Paul Scales. The manufacturer shall not be responsible for alterations to the original product or for products, parts, or attachments installed by a dealer or a dealer's representative.*

*Neither shall the manufacturer be responsible for installation or operation of the product. The manufacturer does not guarantee that the product or any part thereof will meet local, state, municipal, or national laws or regulations.*

## **EXCLUSION OF OTHER WARRANTIES AND REMEDIES**

*Except where such disclaimers and exclusions are specifically prohibited by applicable law, the section above sets forth the only guarantee or warranty applicable to this transaction and such warranty is given expressly and in lieu of all other warranties, express or implied, of merchantability and fitness for a particular purpose. All such implied warranties exceeding or differing from the warranty set forth in the above section are disclaimed by W-W Paul Scales, except where such warranties are in writing and signed by the Chief Executive Officer of the company.*

*The purchaser agrees that oral statements made by the manufacturer's representatives about the products covered by this transaction, as well as statements contained in the manufacturer's general advertising, pamphlets, brochures, or other printed material, do not constitute warranties, and that no orders are placed in reliance upon them. The purchaser further agrees that, except where such limitations and exclusions are specifically prohibited by applicable law, the PURCHASER'S SOLE AND EXCLUSIVE REMEDY AGAINST W-W PAUL SCALES SHALL BE FOR THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS AT THE MANUFACTURER'S DISCRETION AS PROVIDED IN THE ABOVE SECTION and that no other remedy shall be available to the purchaser. This exclusive remedy shall not be deemed to have failed in its essential purpose provided the manufacturer is willing and able to repair or replace defective parts in the prescribed manner.*

# Table of Contents

Understanding the Scale .....	1
<i>Leverage</i> .....	1
<i>Balance</i> .....	1
<i>Friction</i> .....	1
<i>Torque Suspension</i> .....	2
<i>Different Models</i> .....	2
Commissioning the Scale .....	3
<i>Unpacking the Scale</i> .....	3
<i>Assembling the Scale</i> .....	3
<i>Moving the Scale</i> .....	4
Maintaining the Scale .....	5
<i>Maintaining A Kevlar Suspension Scale</i> .....	5
<i>Maintaining A Cable Suspension Scale</i> .....	5
<i>Storing the Scale</i> .....	6
<i>Balancing the Scale</i> .....	6
<i>Calibrating the Scale</i> .....	7
Adjusting the Nose Irons .....	8
<i>Replacement Parts List</i> .....	10
Other Scale Replacement Parts .....	12
Optional Electronics .....	13

---

*This page left blank intentionally.*

---

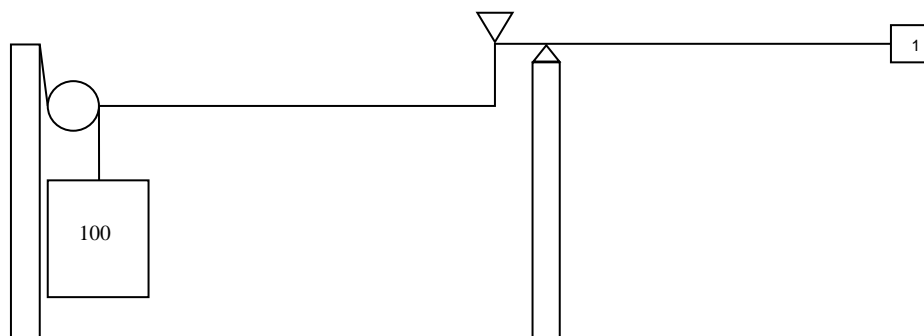
## Chapter

## 1

## Understanding the Scale

*Your W-W Paul Scale is simple. You only need to understand three principles: leverage, balance, and friction.*

### LEVERAGE



In the figure above, two levers act in concert. The left lever reduces 100 pounds to 10 foot-pounds. The right lever then reduces the 10 foot-pounds to 1 foot-pound.

### BALANCE

As a result of leverage, one pound **balances** 100 pounds.

### FRICTION

If measurement **friction** is present, balance cannot be achieved.

## TORQUE SUSPENSION

Your scale uses the basic leverage arrangement shown. A flexible cable suspends the round pivot. Because the diameter of the pivot is fixed, there is little change in leverage accuracy over time. This concept, called **torque suspension**, is used in the platform mechanism.

The scale's beam uses knife-edge pivots and is removable for transport, resulting in long-lived scale accuracy.



### NOTE

We do not advise storing the beam, weights, or balance pot inside the scale during transport. They can be lost by doing so.

## DIFFERENT MODELS

W-W Paul Scales offers several different hog/sheep/goat single-animal scales. The features of each model are listed in the table below:

Model	Capacity (lb)	Crate Size (in.)	Features			
			Wire Floor	Gates	Portable	Sort Gate
50SX*	500	51 × 18 × 33	Yes	Up/Down	Optional	Optional
51SX	500	51 × 18 × 33	Yes	Bifold	Standard	Standard
58SX	500	51 × 18 × 33	Yes	Bifold	Optional	Optional
70SX	700	64.5 × 18 × 38	Yes	Bifold	Optional	Optional

\* The Model 58SX replaced the Model 50SX in 2008. The Model 50SX is no longer manufactured; however, parts are still available from the factory. See the Replacement Parts List in this manual for replacement part information.

## Chapter

## 2

## Commissioning the Scale

**YOUR SCALE IS DELIVERED TO YOU ALREADY SEALED AND CALIBRATED.** Complete the following steps to put the scale to use.

### UNPACKING THE SCALE

Unpack the box accompanying the scale and verify that it contains the following items:

- (1) pivot bearing stand
- (1) trig loop stand
- (1) complete beam and poise
- (1) tip pot
- (2) 100-lb multipliers
- (1) 200-lb multiplier

### ASSEMBLING THE SCALE

1. During shipping, the pivot bearing stand and trig loop stand are packed in a box to prevent damage or loss. Standing on the beam side of the scale, mount the pivot bearing stand on the left side of the beam stand plate.
2. Mount the trig loop stand on the right side of the beam stand plate.
3. Lift the crate lock stops (the metal stops located near the bottom of the beam-side posts on the scale frame). The stops are engaged during shipping to ensure the crate maintains a locked position, thereby avoiding potential shipping damage.
4. Insert the outer end of the beam into the trig loop stand.
5. Place the pivot in the beam bearings on the beam stand.
6. Release the crate locks at each end of the scale by rotating them to face the inside of the scale.
7. Attach the steelyard cable to the hanger loop on the beam.
8. Attach the tip pot to the clevis on the side of the beam opposite the tail ball assembly.
9. If necessary, add or remove weight from the tip pot (rough balance) or adjust the tail ball (fine balance) until the beam floats freely in the trig loop.
10. Ensure that all crate leverage and beam parts are moving freely.

## MOVING THE SCALE

Use the following procedure when moving the scale more than a few feet:

1. Remove the beam, tip pot, and multipliers. This protects the knife-edge pivots on the beam from damage and prevents the tip pot and multipliers from being lost during transit.
2. Move the crate locks to face the outside scale frame (away from the beam stand) and engage the crate lock stops to lock down the crate.

**NOTE**

When moving the scale a significant distance, we recommend engaging the crate lock stops to prevent damage to the scale.

---



## Chapter

## 3

## Maintaining the Scale

*The simple design of your scale allows you to check all the working parts at any time. If the beam (the most delicate part of the scale) is removed and the scale is locked down when transporting the unit, there are relatively few maintenance issues.*

### MAINTAINING A KEVLAR SUSPENSION SCALE

Scales manufactured after 1985 typically have Kevlar suspension. If the scale is locked down when not in use, the Kevlar straps are durable and long-lived and require no maintenance. See the *Replacement Parts List* to order replacement Kevlar straps and hardware.

**CAUTION**

To avoid damaging the Kevlar straps, always lock the scale down when not in use.

---

### MAINTAINING A CABLE SUSPENSION SCALE

For cable suspension scales, the most common maintenance task is adjusting the height or tension of the four pivot suspension cables. Wear on the suspension cables is most often a result of bouncing during transit.

Follow the steps below to adjust the suspension cables:

1. Lock down the crate using the crate locks. When the crate is locked down, there should be no slack in the suspension cables.
2. Tighten the cables if slack is present.

**CAUTION**

To avoid placing the entire weight of the crate on the suspension cables during transport, do not over-loosen or over-tighten the suspension cables. The entire crate weight should never be lifted from the crate lock cams.

---

3. Verify that the four cable suspension points on the scale frame and crate are square.

**CAUTION**

To ensure accuracy, avoid bending the crate or frame out of square as much as possible. Minor variations from square (1/2-in. or less) have negligible effects (<1%) on accuracy; however, larger variations can result in decreased accuracy.

---

4. Verify that all suspension cables hang in plumb position.
- 

**NOTE**

Precise levelling of the scale is not required for practical weighing accuracy.

---

## STORING THE SCALE

Your W-W Paul Scale is built for durability and longevity. To keep your scale in good condition, it should be stored in a dry, enclosed space such as a barn or shed. Exposure to adverse weather conditions can negatively affect the longevity of your scale.

Over time, a build-up of mud and animal detritus can affect scale accuracy. Although not strictly necessary, we recommend power washing the scale before storage.

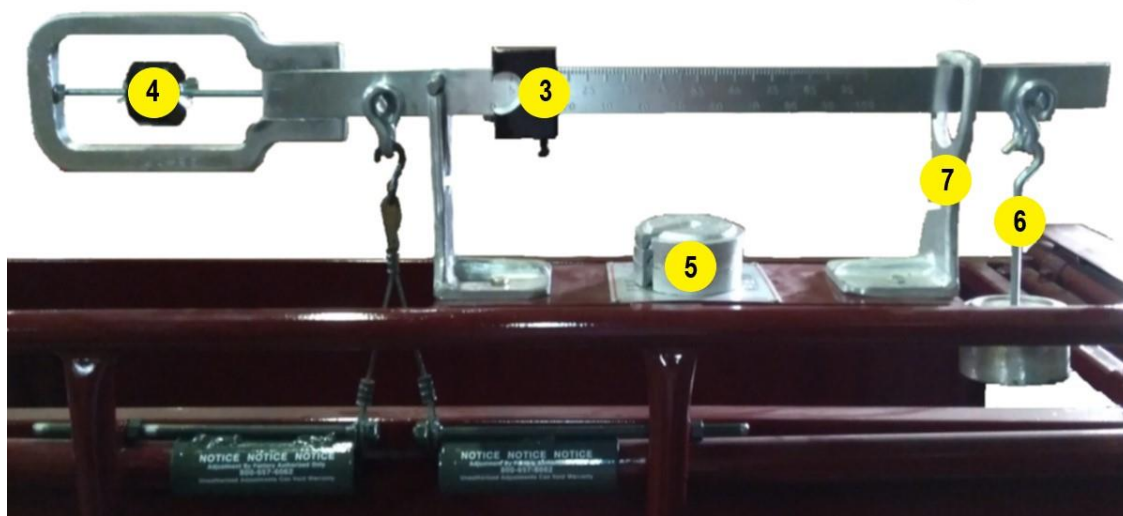
## BALANCING THE SCALE

**Your scale is delivered to you already sealed and calibrated at the factory.** Use the instructions below to balance your scale if it falls out of balance:

1. Turn the lockdown levers (1 and 2 below) to the unlock position (facing the inside of the scale).



2. Move the beam poise (3 below) to zero.
-



3. Move the tail ball (4) to the center of the mounting bracket.
4. Remove the slotted weight multipliers (5) from the tip pot (6) and suspend the tip pot from the clevis on the end of the beam opposite the tail ball.
5. Open the tip pot by unscrewing the lid. Add or remove weight from the tip pot until the beam floats freely in the trig loop (7).

**NOTE**

Any type of weight (lead shot, BBs, fish sinkers, etc.) can be added to the tip pot. Changing the weight of the tip pot does not affect the scale's accuracy.

If your scale does not balance after changing the tip pot's weight, move the tail ball to make fine balance adjustments. If your scale still will not balance, contact W-W Paul Scales for assistance.

## CALIBRATING THE SCALE

**Your scale is delivered to you already sealed and calibrated at the factory.** *Most scales will not need to be calibrated after factory calibration.* Contact the factory to determine whether your scale requires calibration. Use the following procedure to calibrate your scale if it becomes necessary:

1. Turn the lockdown levers (1 and 2 below) to the unlock position (facing the inside of the scale).



2. Verify that the beam is centered in the pivot bearing stand and that the load loop connecting the steelyard cable to the beam is centered on the load loop knife edge.
3. Place a piece of masking tape on the trig loop stand approximately 1/8 inch to 1/4 inch from the beam.
4. Using a pen, mark the masking tape 1/4-in. from the top of the trig loop.
5. Balance the beam (see *Balancing the Scale* above) so that the top of the aluminum bar aligns with the mark on the masking tape when the poise is set to zero.
6. Place a known weight (a certified test weight works best) on one end of the scale.
7. Move the poise to read the test weight on the scale. If the beam reads a weight different than the known weight, adjust the nose irons using the procedure below.

**IMPORTANT**

To determine how much error exists and which end of the scale has the error, test both ends of the scale before adjusting the nose irons.

## ADJUSTING THE NOSE IRONS

**CAUTION**

Adjusting the nose irons can invalidate your warranty. Only adjust the nose irons if instructed to do so by the factory.

The nose irons are located just below the beam stand on the beam stand side of the scale, as shown below:



To adjust the nose irons, use the following procedure:

1. Remove all weights from the scale and set the poise to zero.
2. Balance the beam (see *Balancing the Scale* above) so that the top of the aluminum bar aligns with the mark on the masking tape when the poise is set to zero.
3. Place a known weight (a certified test weight works best) on one end of the scale and move the poise to read the exact number of the known weight.

**IMPORTANT**

Your scales calibration accuracy is only as good as the test weight you use. We highly recommend using **ONLY** certified test weights for scale calibration.

4. If the beam does not align with the mark on the masking tape, adjust the nose iron that corresponds to the end of the scale on which the weight is applied until the beam aligns with the mark on the masking tape. Keep the following guidelines in mind:
  - If the weight is on the left end of the scale, adjust **ONLY** the left nose iron.
  - If the weight is on the right end of the scale, adjust **ONLY** the right nose iron.
  - If the beam is **ABOVE** the mark on the masking tape, move the nose iron toward the center of the scale.
  - If the beam is **BELOW** the mark on the masking tape, move the nose iron away from the center of the scale.

**NOTE**

When moving the nose iron, remember that a little motion goes a long way. Move the nose iron in small increments.

5. After adjustment is complete, tighten the nose iron against the pipe using the nipple on the nose iron.
6. Rebalance the beam to align with the mark on the masking tape using the procedure described in the *Balancing the Scale* section of this manual.
7. Once the beam is balanced, place a known weight on the same end of the scale for which the adjustment was made.
8. Move the poise to the known weight. If the beam aligns with the mark on the masking tape, no further adjustments to that side need to be made.
9. Repeat the Steps 7 and 8 above for the other side of the scale. When both ends of the scale are equal to the known weight, the scale is successfully calibrated.

## REPLACEMENT PARTS LIST

Replacement parts are available for order directly from the factory. When ordering parts, always provide the model and serial number of your scale. The model and serial number can be found on the serial tag located on the beam stand, as shown below:



*Serial Tag*



*Location of Serial Tag*

Items marked with (\*) are standard hardware parts that can be obtained at your local hardware store.



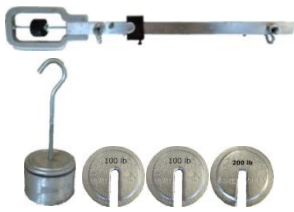

ILLUSTRATION	PART NUMBER	DESCRIPTION	NUMBER REQUIRED
	7311-000-106	Pivot Bearing Stand	1
	7311-000-107	Trig Loop Stand	1
		*Pivot Bearing and Trig Loop Mounting Bolt (3/4-in. × 1-in. machine bolt with lock washer)	4
	7311-000-103	Beam and Poise Complete Assembly (includes tip pot, two 100-lb multipliers, and one 200-lb multiplier)	1
	7311-000-105	Beam and Poise Only (included in Beam and Poise Complete Assembly)	1


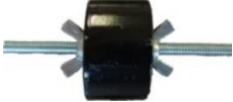














ILLUSTRATION	PART NUMBER	DESCRIPTION	NUMBER REQUIRED
	7311-000-133	Hog Poise Complete (included in Beam and Poise Complete Assembly)	1
	7311-000-110	Tail Ball Complete (included in Beam and Poise Complete Assembly)	1
	7311-000-111	*Tail Ball Bolt Only (included in Tail Ball Complete) (1/4-in. × 4-in. all-thread bolt with wing and hex nuts)	
	0111-000-171	Clevis, 5/16-in.	2
	7311-000-127	Tip Pot with Hook Complete +++Specify cable or Kevlar strap suspension+++	1
	0199-901-320	Tip Pot Hook Only (included in Tip Pot with Hook Complete) +++Specify cable or Kevlar strap suspension+++	1
	7311-000-120	100-lb Multiplier	2
	7311-000-121	200-lb Multiplier	1
	7311-000-125	Torque Bar Assembly, Left	1
	7311-000-126	Torque Bar Assembly, Right	1
	7311-000-122	Nose Iron, Left/Right	2




ILLUSTRATION	PART NUMBER	DESCRIPTION	NUMBER REQUIRED
	7311-000-101	Steelyard Cable +++Specify cable or Kevlar strap suspension+++	1
	7311-000-124	†Kevlar Straps with Hardware	4
	7211-002-117	Kevlar Straps Only	4
	NA	Hardware Only for Kevlar Straps	4
	7211-002-900	Bifold Gates Complete	2
	7311-004-000	Sort Gate Complete (optional)	1

†Scales built after 1985 typically have Kevlar strap suspension. Order information for suspension cables can be found in the Other Scale Replacement Parts table below.

## OTHER SCALE REPLACEMENT PARTS






The following scale parts are no longer commonly used but are still available from our factory.

ILLUSTRATION	PART NUMBER	DESCRIPTION	NUMBER REQUIRED
	7211-000-100	†Suspension Cable Complete (SL-5) (Attach to outside of pivot pipe on crate)	4
	7311-000-116	Lift-up/down Entry/Exit Gates	2
	0199-000-209	Center Split Gate Springs	4



## OPTIONAL ELECTRONICS

You have the option of adding electronics to your W-W Paul Scale. Electronics and parts are listed in the following table.

ILLUSTRATION	PART NUMBER	DESCRIPTION
	9900-000-918	Rice Lake 380 Synergy Digital Weight Indicator with 500-lb Load Cell and Rechargeable Battery
	9900-918-001	380 Synergy Power Supply Assembly
	7211-000-009	Electronics Bracket for Digital Weight Indicator
	0111-000-100	Load Cell, 500-lb, S-Type
	9900-000-937	Epson TM-U220D Tape Printer
	9900-000-938	Epson TM-U295 Ticket Printer

---

*This page left blank intentionally.*

---



# 50SX/51SX/58SX/70SX Owner's Manual

---

---

W-W PAUL SCALES

MAILING ADDRESS • PO Box 729 • Duncan, OK 73534

PHYSICAL ADDRESS • 281810 East 1810 Road • Comanche, OK 73529

TEL 580.439.8802 • TOLL-FREE 800.657.6062 • FAX 580.439.8803

WEBSITE • [paulscales.com](http://paulscales.com)