Single Animal Scale

# **Installation Manual**





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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit **www.ricelake.com/webinars** 

#### Introduction 1.0

Please take the time to read this manual completely before attempting to install the system. Although the SAS has been designed for easy setup and use, a thorough understanding of this manual will ensure the maximum benefit from the system is attained.

Please contact Rice Lake Weighing Systems at 800-472-6703 with any guestions or comments.



Manuals and additional resources are available from the Rice Lake Weighing Systems website at www.ricelake.com

Warranty information can be found on the website at www.ricelake.com/warranties

#### 1.1 Overview

The SAS consists of a sheeted animal cage suspended by four S-type load cells on top of a stationary base frame. A digital indicator can be connected to the scale to display the weight.

The SAS can be used on any firm surface that is straight, plumb and level.



Legal for Trade applications often require a concrete slab foundation. Check with the local Weights and Measure officials in the area.

#### 1.2 Safety

#### **Safety Signal Definitions:**



Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.

CAUTION

IMPORTANT

Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.

Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

## General Safety



Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

### WARNING

Failure to heed could result in serious injury or death.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not use for purposes other than weighing.

Do not place fingers into slots or possible pinch points.

Do not place hands, feet or any body part underneath scale at any time. Scale could be lowered at any time, crushing body parts.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Keep hands, feet and loose clothing away from moving parts.

Be sure the gates are latched or tied inward before transporting the scale.

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#### **Animal Safety**

Animal safety is a very serious issue and must be observed when handling any type of animal.

The scale surface may become slippery during use; a build-up of manure on the scale may reduce traction. It is recommended that the necessary precautions are taken to maintain an acceptable level of animal footing.

#### Calibration

Do not calibrate this scale with a weight cart having a gross weight in excess of 25% of the total capacity of the scale. This device is designed to be calibrated with single block weights spread evenly throughout the floor of the scale. If using a test cart, use 3/4" plywood for testing and calibration. This will minimize the damage to the X-lug floor. Shift tests should not be done with more than 2,500 lb or 1,134 kg in a 2' x 2' area. Failure to comply may result in damage to the scale and voids the warranty.

#### 1.2.1 Safety Decals

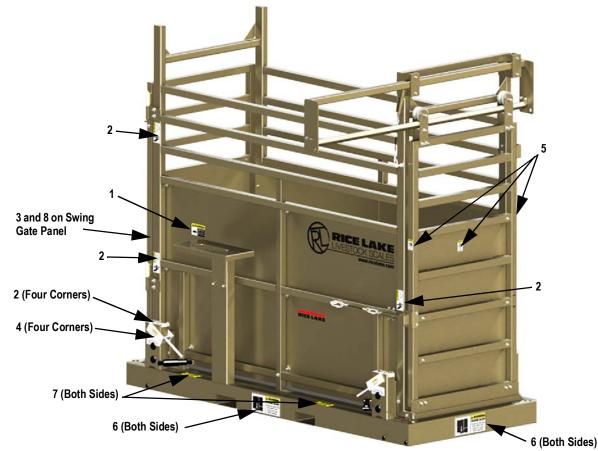


Figure 1-1. Safety Decals

Item No.	Part No.	Description	Qty
1	151908	Warning, Read Manual	1
2	151909	Caution, Pinch Point	8
3	151902	Warning, Opens Quickly	1
4	151910	Caution, Always Grip With Two Hands	4
5	173808	Warning, Stay Clear	2
6	151898	Caution, Crush Hazard	4
7	151901	Caution, Not A Step	4
8	128266	Do Not Use For Transportation of Goods	1

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I anic	1-1.	



#### 1.2.2 Non-Safety Decals

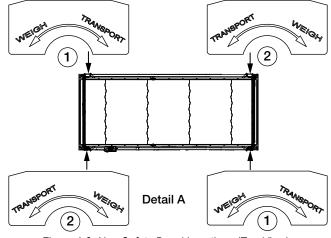


Figure 1-2. Non-Safety Decal Locations (Top View)

Item No.	Part No.	Description	Qty
1	132692	Label Weigh/Transport	2
2	127094	Label Weigh/Transport	2

Table 1-2. Non-Safety Decal List

# 1.3 Lifting and Unloading Instructions

The scale can be lifted using a forklift.



Ensure the forklift being used has tines long enough to go all the way through the scale, so the scale rests securely on the tines.

Ensure cams are in the transport mode (see Section 2.2.2 on page 10) when loading and transporting the scale.

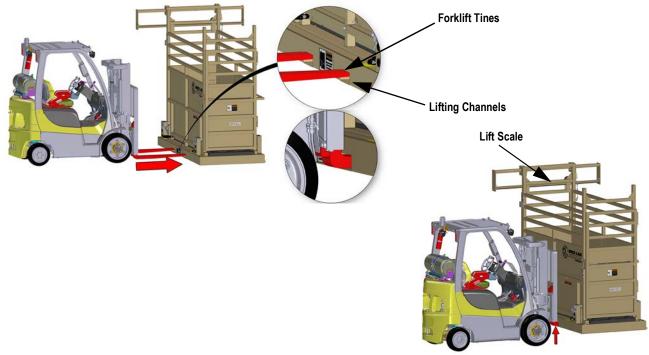


Figure 1-3. Forklift Lifting



#### 1.3.1 Lift the Scale

- 1. Adjust the tines of the forklift to fit in the lifting channels of the scale.
- 2. Carefully approach the scale inserting the tines into the channels.
- 3. Ensure the tines are all the way through the scale channels before attempting to lift.
- 4. Carefully lift the unit and proceed to a prepared location; a firm surface that is straight, plumb and level. Store scale on the same type of surface.

#### DANGER

# The unit is very heavy. Ensure that adequate tines are used for lifting the scale and that the scale is securely resting on them before transporting.

Ensure no one is around or under the scale when lifting and moving into the selected location.

#### 1.3.2 Package Removal

The indicator is shrink wrapped for transportation. Be careful when removing to avoid damaging the indicator.

Please recycle the packaging material.



Place the parts safely in a location they will not be damaged.



# 2.0 Setup

The following section explains setup, replacement procedures and necessary adjustments for both gate styles.

### 2.1 Gates

Check to make sure the gates work properly once the scale has been placed on a solid, level surface. The scale comes assembled with the gates in place.

#### 2.1.1 Sliding Gate Setup and Use

Prior to using the gate, the top slide frame must be repositioned to one side of the slide assembly.

#### Transport/Weigh Mode

The top slide frame is set to the center of the scale for transportation. It must be slid to one side for operation.

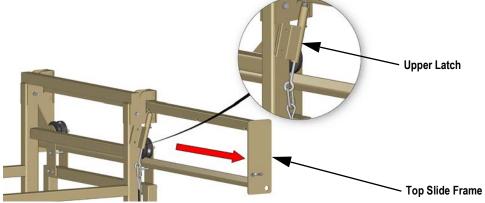


Figure 2-1. Top Slide Frame Transport to Weigh Mode

- 1. Release the upper latch securing the top slide frame to the center.
- 2. Slide the frame all the way to the side in the direction the gate is to open.
- 3. Ensure the upper latch engages with the frame, securing it in this position. The gate is now ready for use.



#### **Open Sliding Gate**

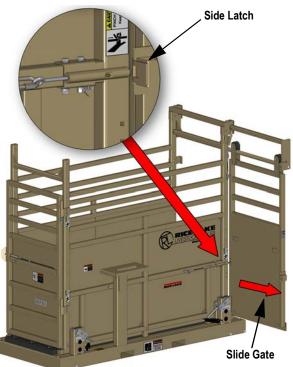


Figure 2-2. Open Slide Gate

To open the gate:

- 1. Release the side latch.
- 2. Slide the gate in the direction of the top rail.



#### 2.1.2 Sliding Gate with Slide Weldment Replacement

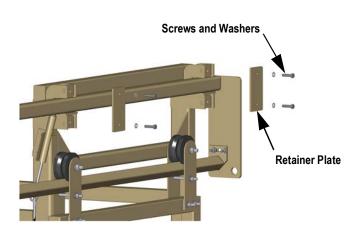




Figure 2-3. Remove Slide Gate with Gate Slide Weldment

- 1. Remove hardware and retainer plate as shown in Figure 2-3. Retain for reassembly.
- 2. Pull gate and slider bracket from the scale.
- 3. Reverse above steps for re-installation.



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#### 2.1.3 Gate Only Replacement

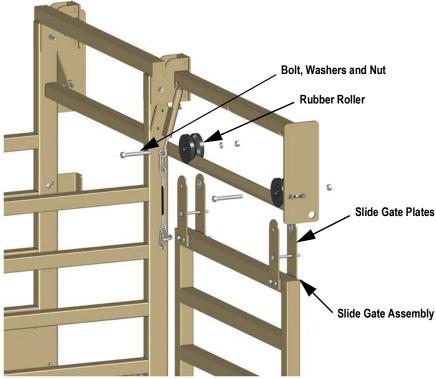


Figure 2-4. Remove the Slide Gate Assembly Only

- 1. Hold the gate to keep it from falling as it is being removed.
- 2. Remove the hardware from the top holes of the slide gate assembly plates. There are flat washers between the plate and the rubber roller, do not lose these. Retain all hardware and rubber rollers for reassembly.
- 3. Lower the gate assembly from the scale.
- 4. Reverse above steps for re-installation.



#### 2.1.4 Swing Gate Replacement

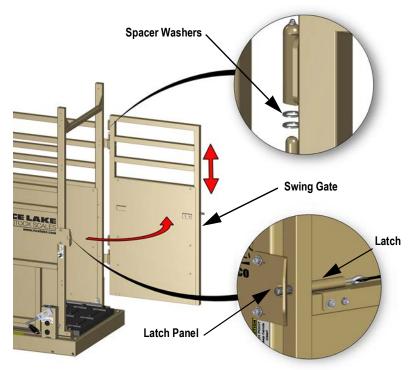


Figure 2-5. Replace and Adjust Swing Gate

- 1. Release the latch and swing the gate open.
- 2. Lift existing gate up off the hinges.
- 3. Set the new gate on the hinges and close the gate.
- 4. Ensure the latch fits into the latch panel. If not, install/remove spacer washers between the hinge sections until it latches securely.



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### 2.2 Switching Between Modes

WARNING

The lift mechanism is an over center cam style lift and lock. If not disturbed, the scale will remain locked in the up position. Always grip the lift handle with two hands when raising and lowering the scale.



Cam levers point toward each other in weigh mode and away from each other in transport. See decals for direction of levers in each mode.

#### 2.2.1 Converting to Weigh Mode

- 1. Place the scale in as level a location as possible. Ensure there are no obstructions under the deck that would affect weighing accuracy.
- 2. Use shims or timbers to ensure the scale is as close to level as possible.

#### Note The scale weighs properly on a slope up to 3°, approximately 6%.

- 3. Inspect all four corners of the scale. Although the scale will weigh properly up to four degrees off level, individual corners of the scale should not be allowed to teeter. If any of the corners are not contacting the ground, place shims directly under the base frame, under the load cell stands, to prevent teetering.
- 4. Plug the indicator into the scale cable. The scale cable runs from the junction box (inside the base frame) to the indicator.
- 5. Connect power to the indicator and switch ON.
- 6. Using both hands, rotate each cam to raise the scale into weigh position, according to the decal on load cell stand. The scale is now in weigh mode.

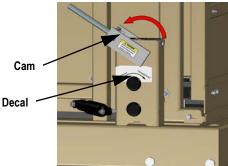


Figure 2-6. Scale Lift – Weigh Position

#### 2.2.2 Convert to Transport or Non-Use Mode

When the scale is not in use or is going to be moved, it should be locked down in transport mode to prevent any accidental overload of the weigh system.

1. Using both hands, rotate each cam to lower the scale into transport position, according to the decal on load cell stand.

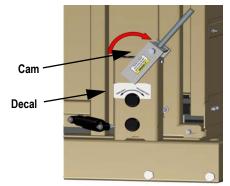
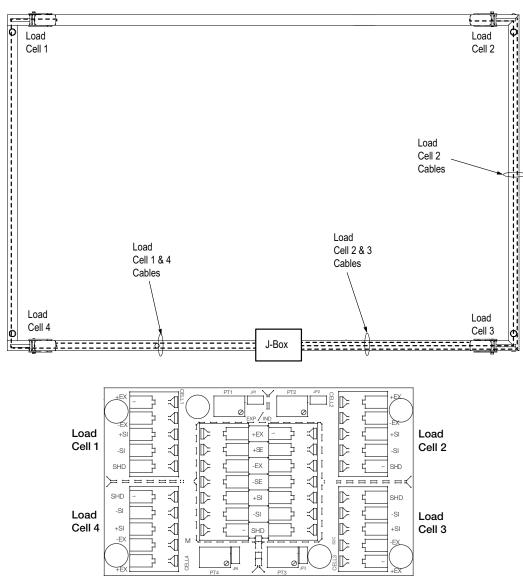


Figure 2-7. Scale Lift – Transport Position

2. Turn off the indicator. A stand alone indicator should be stored indoors when the scale is not in use. The weigh center should be closed and latched to prevent damage.





# 2.3 Load Cell Wiring and Connections

Figure 2-8. Load Cell Wiring Diagram



Load cell wiring shown is effective for all models later than 07/01/2015. Models built prior to that date should rewire the scale to the updated configuration.

For information on rewiring, download Technical Bulletin PN 159193 from www.ricelake.com

# 3.0 Repair Parts

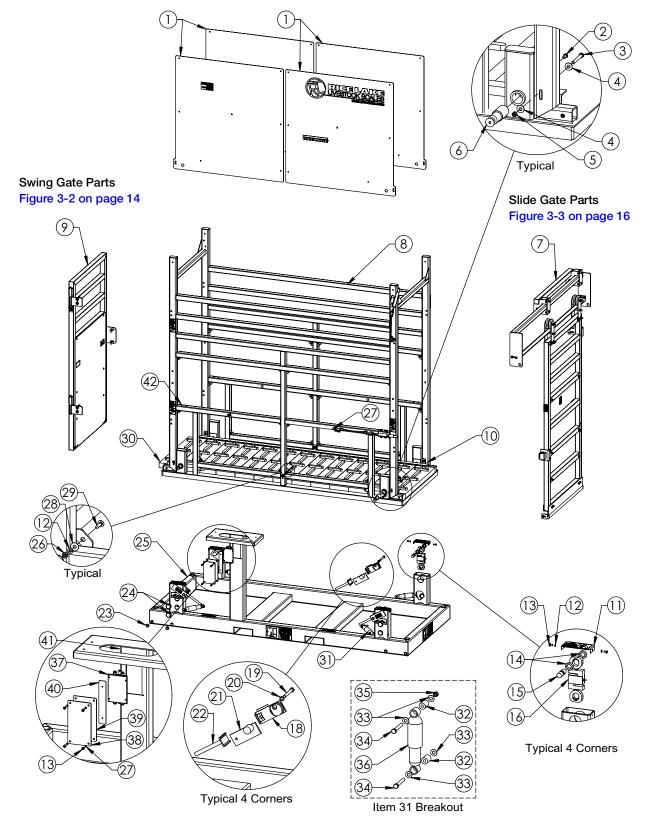


Figure 3-1. Single Animal Scale Repair Parts Illustration



Item No.	Part No.	Description	Qty
1	173776	Cage 1/2 Panel SAS M	4
2	118020	Screw, Cap 5/16-18NC x 5/8	4
	15154	Washer, Lock 5/16 Reg	4
	44237	Washer, Plain STD 5/16 SST	4
3	127013	Screw, Cap Hex 3/8-16 x 3	8
4	21938	Washer, Plain 3/8 Type A	4
5	14656	Nut, 3/8-16NC Hex Steel Zinc Plated	8
6	172087	Load Cell Pin SAS M	4
	126926	Pin, 1/4 x 2-1/4 Slotted	4
7	171549	Sliding Gate, Complete	1
8	170664	Cage and Floor WLDT	1
9	171548	Bolt-on Swing Gate ASSEM	1
10	167697	Plank Retention WLDT SASM	2
11	127200	Cover, Cell Stand Sheeting	4
12	15147	Washer, Lock 1/4 Regular	8
13	127007	Cap Screw, 1/4-20 x 1/2	2
14	127165	Spacer, Upper Load Cell	8
15	128184	Pin, Notched Upper Cam	4
16	21443	Load Cell, SBM RL20000I-5K	4
18	131785	Cam Lever w/o Lock down - Right Rear	2
	127676	Cam Lever w/ Lock down - Left Rear	2
19	14765	Bolt, 1/2-13NC x 4 HEX	4
20	15167	Washer, Lock 1/2 Regular	8
21	131787	Cam Lever with Lock down - Left Front	2
	127675	Cam Lever w/o Lock down - Right Front	2
22	127732	Cam Handle, Mask	4
23	126788	Plug	10
24	126789	Plug, Plastic for Round	8
25	170217	Frame Base Weldment SAS M	1
26	14641	Nut, 1/4-20 Hex	20
27	173140	Eye Nut, 3/8-16	2
	14748	Bolt, 3/8-16 x 3	2
28	81427	Washer, Flat 1/4 Steel	20
29	132917	Carriage Bolt, 1/4-20x1	20
30	171619	Flooring, X-Lug Rough	13
31	163212	Shock Assembly, MAS	4
32	126815	Bushing, Rubber 7/8 OD	2
33	15161	Washer, Plain STD 3/8 SST	4
34	22093	Screw, Cap 3/8-16NCx2 HEX	2
35	126992	Nut, Hex 3/8-16 18-8 SST	2
36	160883	Shock Absorber	1
37	88958	J-Box, JB4SS 4 Channel	1
38	127740	J-Box Cover Plate	1
39	126819	Gasket	1
40	131885	Mount plate J-Box	1
41	158143	Homerun Cable Kit, MAS-LC	1
	15730	Dust Cap	1
	15748	Gasket, Conn	1
	158055	Cable, J-box to MS Conn	1
42	164909	Plug, Hole 10 mm Black	9

Table 3-1. Single Animal Scale Repair Parts List



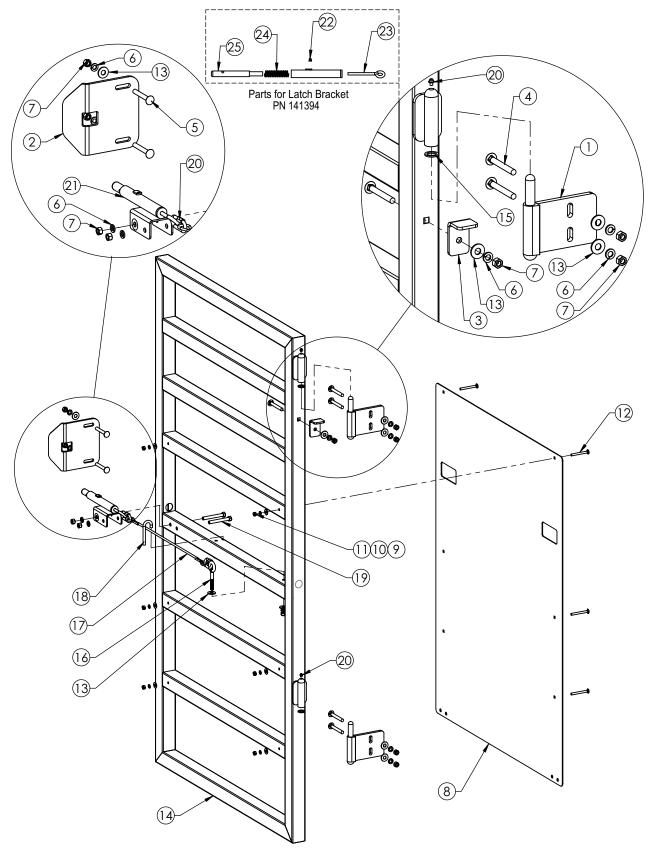


Figure 3-2. Swing Gate Repair Parts Illustration



Item No.	Part No.	Description	Qty
1	170643	Lower Hinge Mount Weldment	2
2	170651	Strike Plate	1
3	168177	Gate Lift Off Stop SAS	1
4	14748	RHSN Bolt 0.375-16x3x1-N-STL ZP	5
5	163466	Carriage Bolt, 3/8-16NC X 2.75	2
6	15159	Washer, Lock 3/8 Regular Helical Spring Steel Zinc Plated	10
7	14656	Nut, 3/8-16NC Hex Steel Zinc Plated	11
8	172458	Swing Gate Panel SAS	1
9	81427	Wide FW 0.25-STL ZP	6
10	15148	Washer, Lock 1/4 Regular Helical Spring SST	6
11	14641	Nut, 1/4-20 Hex ZN	6
12	173644	RHSN Bolt 0.25-20x2.5x2.5-N-STL ZP	6
13	21938	Wide FW 0.375-STL zp	13
14	170984	Swing Gate Wldt Universal	1
15	163215	Hinge Bushing	2
16	150820	Eye Bolt, 3/8-16NC x 3 Zinc Plated	1
17	171355	Latch Pull Cable, SAS	1
18	171340	3/8-16 J Bolt	1
19	127013	Bolt 0.3750-16 x 3 x 1-N-ZnPISTL grade 5	2
20	126967	Link, Quick 5/16	2
21	141394	Latch Assembly	1
22	70339	Grease Zerk	2
23	131700	Eye Bolt, 5/16-18 x 3.5	2
24	131702	Spring, Compression	2
25	141401	Latch Pin Lower	1

Table 3-2. Swing Gate Repair Parts List



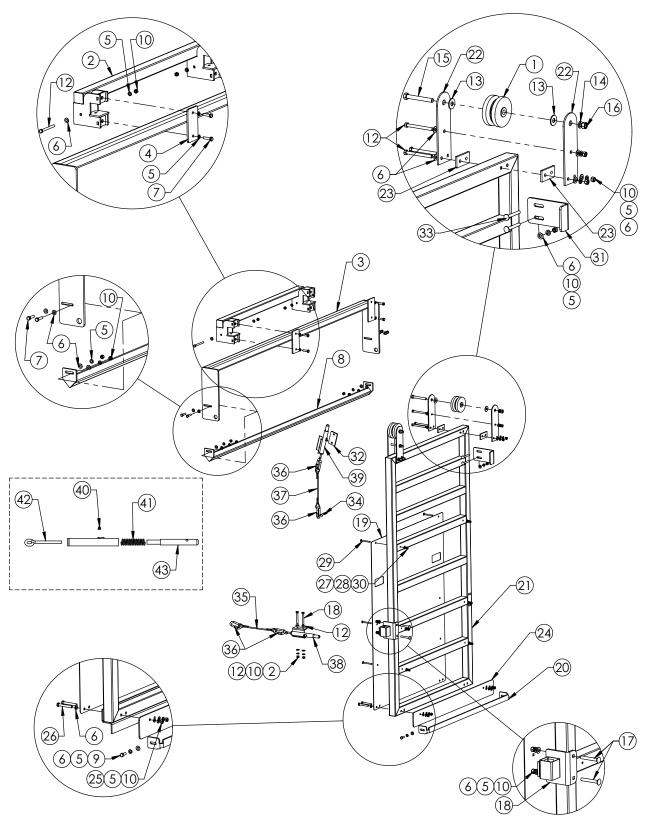


Figure 3-3. Slide Gate Parts Illustration



Item No.	Part No.	Description	Qty
1	107443	Track Roller Wheel	2
2	171430	Sliding Gate, Overhead	1
3	169182	Gate Slide Weldment	1
4	169198	Gate Slide Face P.late	2
5	15159	Washer, Lock 3/8 Regular Helical Spring Steel Zinc Plated	29
6	21938	Narrow FW 0.375-STL ZP	15
7	14745	HHCS 3/8-16 X 1.5	8
8	170936	Gate Slide Tube weldment	1
9	15019	Hex Bolt 0.3750-16x1x1-N-Zn	2
10	14656	Nut, 3/8-16NC Hex Steel Zinc	22
12	161570	Bolt 3/8-16 x 3 1/2-N-STL ZP	8
13	126976	Wide FW 0.5-STL ZP	4
14	15167	Washer, Lock 1/2 Regular Helical Spring Steel Zinc Plated	2
15	14765	Bolt, 1/2-13NCx4 HEX Head Grade 5 Zinc Plated	2
16	14672	Nut, 1/2-13NC Hex Steel Clear Zinc	2
17	163466	Carriage Bolt 3/8-16NC x 2.75	2
18	172270	Bolt on Grip and Strike Assembly	1
19	172458	Swing Gate Panel SAS	1
20	172744	Sliding Gate Guide	1
21	171573	Sliding Gate Weldment SAS 3ft	1
22	171607	Wheel Plate	4
23	172972	.250 Spacer Plate	4
24	172746	Sliding Gate Guide Plate	1
25	15159	Lock Washer, 3/8	7
26	127013	Bolt 0.375-16 x 3 x 1-N	6
27	81427	Wide FW 0.25-STL ZP	6
28	15147	Washer, Sprlk 1/4 Regular ZN	6
29	173644	Bolt, Carriage 1/4-20 x 2.75	6
30	14641	Nut, 1/4-20 Hex ZN	6
31	172986	Bolt-on Kick Out Stop	1
32	173025	Overhead Latch Mount Spacer	1
33	14748	Bolt 0.375-16 x 3 x 1-N-STL ZP	3
34	173140	Eye Nut, 3/8-16NC Zinc Plated, 500lb Vert Cap.	1
35	173141	SAS Latch Pull Cable	1
36	126976	Quick Link, 5/16	2
37	173142	SAS Latch Pull Cable	1
38	141394	Latch Assembly	1
39	131784	Gate Latch Assembly	1
40	70339	Grease Zerk	1
41	131702	Spring, Compression	2
42	131700	Eye Bolt, 5/16-18 x 3.5	2
43	131832	Latch Pin, 3/4, upper	1
-	141401	Latch Pin Lower	1

Table 3-3. Slide Gate Repair Parts List



# 4.0 Maintenance

### 4.1 Maintenance Schedule

The following maintenance schedule should be completed weekly:

- · Check entire scale for buildup of debris. Remove any debris found on, under or around the scale
- · Check for dirt and debris in the load cell stands and clean accordingly
- Check all external cables and conduit for damage

Grease hinges and latch assembly should be checked monthly.

### 4.2 Scale Maintenance Procedures

The following sections explain scale maintenance procedures.

#### 4.2.1 Replace Flooring

- 1. Remove the hold down angle on both side of the floor by loosening the bolts.
- 2. Remove section(s) of flooring that are to be replaced.
- 3. Install new flooring.
- 4. Reinstall the hold down angles.

#### 4.2.2 Replace Load Cell/Clean Load Cell

#### **Cleaning Load Cell Stands**

It is very important to keep any excess debris from building up in the load cell stand. Lift the scale and block it up. Clean any dirt out of the load cell stands through the drain holes located at the bottom of the stand.

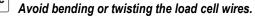


#### **Disassembly and Greasing**

Greasing the scale is very important to ensure the long life of the unit. See Figure 4-1.

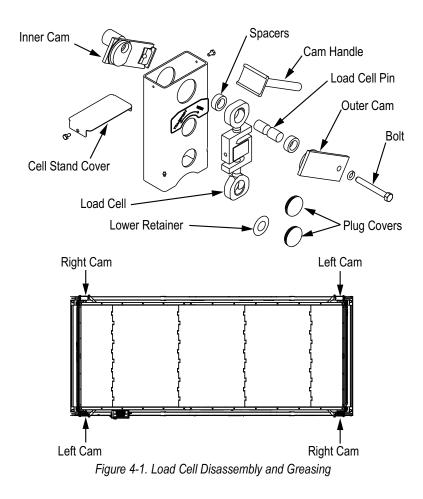


Use quality high-pressure grease.



- 1. Remove the cell stand cover.
- 2. Remove the plug covers.
- 3. Remove the bolt which holds together the outer cam, load cell pin and inner cam.
- 4. While holding the cam handle, remove the outer cam.
- 5. Remove the load cell pin and spacers. The load cell assembly will be free on top and rest against the inside of the cell stand.
- 6. Remove the inner cam.
- 7. Remove the lower retainer.
- 8. Grease all bearing surfaces except where the eye bolt contacts the pin (upper and lower pins, cams, upper and lower eye bolts).
- 9. Reassemble in reverse order as described above.

#### **IMPORTANT** Avoid bending or twisting the load cell wires.





# 4.3 Troubleshooting

Symptom	Probable Cause	Action
The weight reading on the indicator is unstable	The circuit board in the control panel may be wet or the junction box for the load cells may have moisture	Dry areas that are contaminated with moisture Check for leaks and reseal
	A load cell cable may be pinched or dam- aged.	Contact Rice Lake Weighing systems or a qualified dealer for sup- port Cutting the load cell cable will void the warranty Special repair techniques are required
The scale has a positive error when loading or a negative error when unloading	Mechanical binding problem on scale	Check for debris around/under scale Check each load cell location for foreign material Check items running on and off the scale Check all gates or gathering panels for contact
The scale has a negative error when loading or a positive error when unloading	Moisture is present in electrical system	Dry areas that are contaminated with moisture Check for leaks and reseal
Scale will not ZERO	Weight on scale is larger than the allowable	Clean the scale deck of debris, Zero the scale
	ZERO window	Zero window parameter set incorrectly
System does not operate	Power disconnected	Check and reconnect
no display	Indicator fuse blown	Replace fuse, Check for cause
	Interface cable cut or disconnected	Repair
	Signal leads incorrectly installed at indicator	Install according to indicator installation manual
Display stays at zero	Indicator faulty	Service indicator
	Load cell connections faulty	Check cable connections in junction box and at indicator
Erratic weights	Vibration near scale	Remove source of vibration Relocate scale
	Platform not level within 1/4 inch	Level scale by adjusting feet or shimming
	Load cell or cable water damage	Replace
	Debris under load cells or platform	Clean
	Indicator faulty	Use simulator to test indicator for stability Service indicator
Consistently high or low weights	Indicator not properly adjusted to zero	Zero the indicator according to indicator manual
	Platform binding	Obtain adequate clearance for free platform movement
	Indicator not calibrated	Calibrate according to indicator manual
	Feet touching deck underside	Adjust feet downward to provide clearance

Table 4-1. Troubleshooting

IMPORTANT

If a problem with the scale is suspected, contact Rice Lake Weighing Systems or a qualified local scale dealer.

The space between the platform side, weigh bridge and frame, and the surface beneath the platform must be periodically cleaned to prevent debris build up. More frequent cleaning of these areas is necessary with scales mounted in pits.

# 4.4 Specifications

**Overall Length** 

9' 1"

Deck Length

8'0"

**Overall Width** 

3' 11"

Deck Width

2' 1"

Height

8' 2"

Weight 2350 lb

Capacity

5000 lb

Approval Class

#### Approvals



Measurement Canada Approved AM5284

Grad Size 1 lb (0.5 kg)

Paint Powder Coated Steel

#### Notes:

Size / Model #			
Serial #	_		
Date Purchased			
Jnit ID #	_		







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