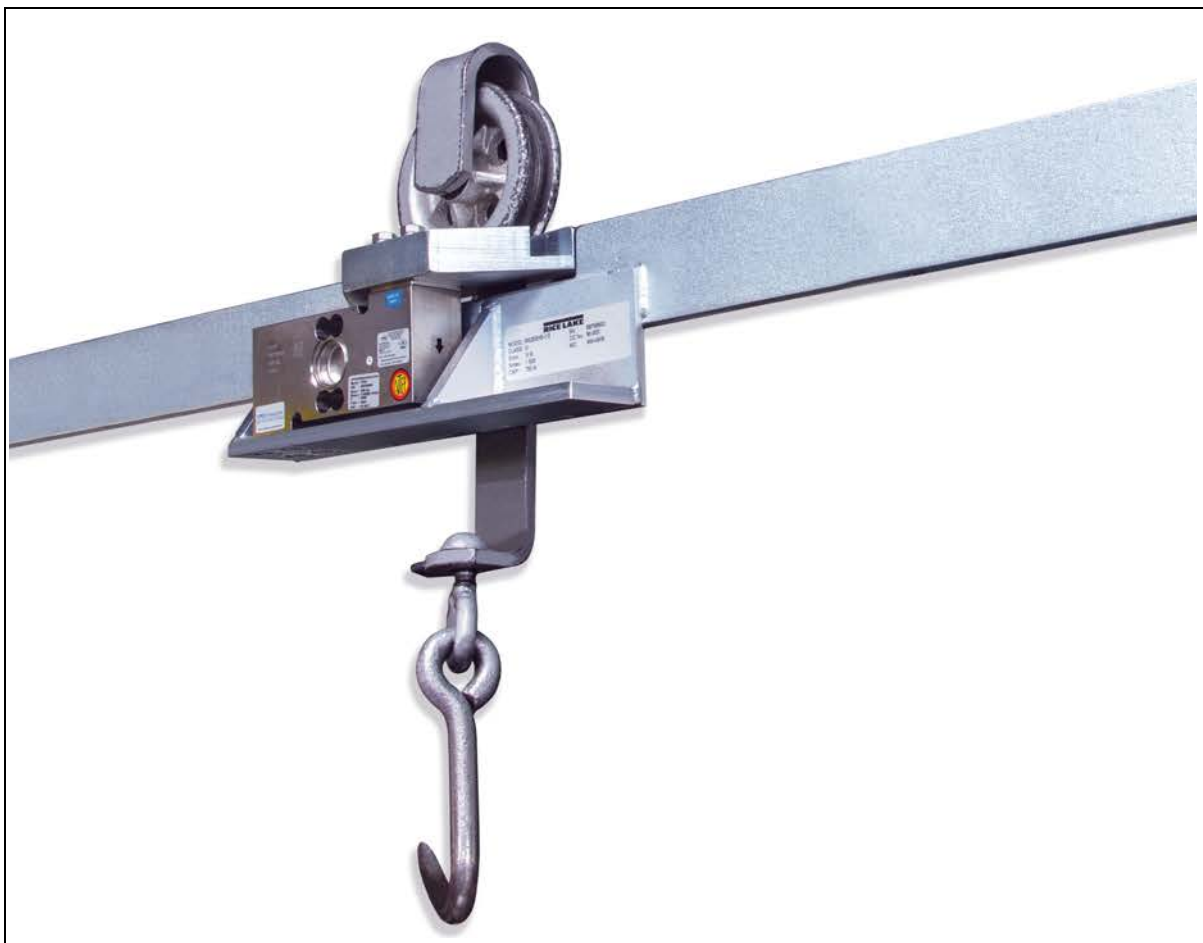


MS200 and MS202

Monorail Scale

Installation Manual



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Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at www.ricelake.com/training or obtained by calling 715-234-9171 and asking for the training department.



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

1.0 Introduction

The MS200 Monorail Scale is for portable use and is designed to bolt onto a straight section of either 3/8" x 2 1/2" or 1/2" x 2 1/2" rail. The overall length of straight rail required for the scale and ramps is 41". The scale body requires a 22" space between existing support hangers.

The MS202 Monorail Scale is for permanent use and comes with 52" of either 3/8" or 1/2" rail. To install, remove a straight section of rail, then cut the MS202 rail to replace the section removed.



Note A section as short as 14" can be removed. Because the usual hanger spacing of many existing mechanical scales is 48", most often installers remove a 48" section of rail, and cut 48" of the MS202 rail to fit between the existing hangers.

It is recommended to place a new hanger near the scale to reduce flexing and twisting within the 48" span. On both models, the live section of scale is 8" long with a slight concave dip so a trolley wheel will settle into the dip. Only one trolley at a time will fit on the 8" live portion of the scale.



WARNING Use only high strength L9 (Grade 9) bolts and flat washers to attach load cells to the scale frame. Use only 140,000 PSI or greater fasteners on rail attachment points. Failure to follow this warning can cause severe injury or death.



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 Safety

Safety Signal Definitions:



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



IMPORTANT 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.



Failure to heed could result in serious injury or death.

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

Do not use for purposes other than weight taking.

Do not place fingers into slots or possible pinch points.

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

Do not exceed the rated specification of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not use solvents or aggressive substances to clean product.

Do not submerge.

2.0 Installation

This section provides an overview of MS200 and MS202 Monorail Scale installation information.

2.1 Pre-Installation Checks

Before installing the portable monorail scale, check the trolleys used in the plant to ensure there is adequate clearance between the top of the swivel hook and the bottom of the scale (Figure 2-1).

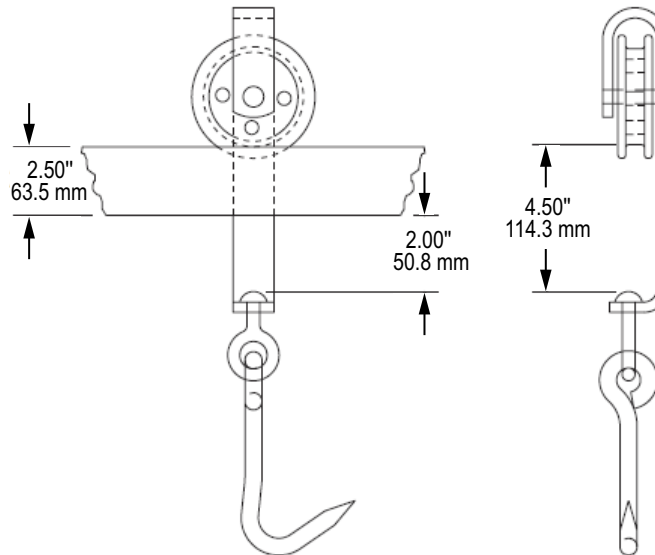


Figure 2-1. Minimum Clearances for Trolleys

2.2 Portable Installation

1. Select a location for installation with at least 41" of straight rail section.



CAUTION Avoid locating the approach ends of the scale close to bends or corners of the rail system.



Note If the rail hangers have less than 22" of space between them, move one of the hangers to achieve the 41" clearance.

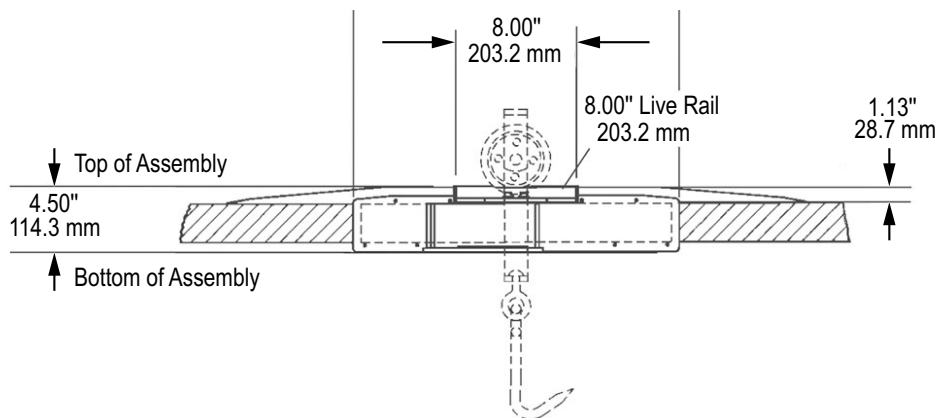


Figure 2-2. Portable Scale Dimensions

2. Loosen the four top bolts (Figure 2-3 on page 3) of the scale bracket.
3. Remove the four lower bolts (Figure 2-3 on page 3) of the scale bracket.

- Slide the scale unit over the rail with the load cell bracket toward the rail-hanger side of the rail then move the scale left or right along the rail to the desired location.



Note *The installation kit provides two 1/16" shims, 2-1/2" x 20" long for use with portable monorail scales on rails that are 3/8" thick.*

- If the rail is 3/8", place one shim on each side of the rail. If using a rail which is 1/2" thick, shims are not required.
- Once in position, replace the four lower bolts.
- Ensure the scale body is contacting the rail evenly along the entire length of the scale.
- Tighten all eight bolts.
- Check the alignment of the ends of the approach ramps with the rail.



Note *If the rail is not straight and true, correct the alignment by loosening the bolts and inserting pieces of shim stock between the rail and the bracket. Do this on a cut-and-try basis until the alignment looks smooth then tighten all eight bolts.*

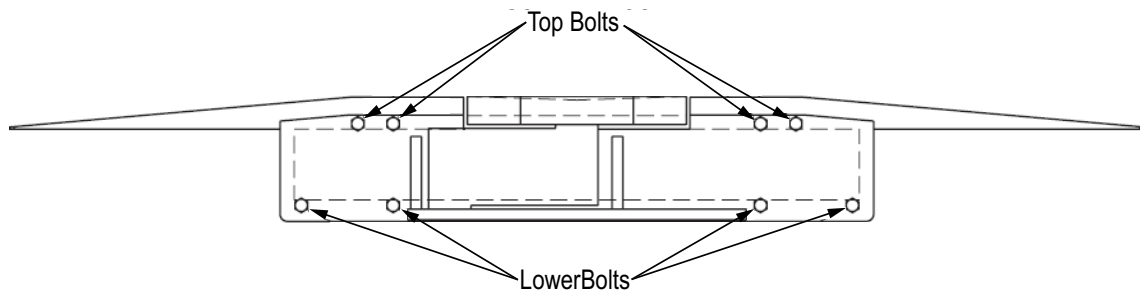


Figure 2-3. Top and Lower Bolts of Scale Mounting Bracket

- Route the 25' load cell cable to the desired location for the digital weight indicator.



CAUTION *Do not cut the cable, as the load cell is temperature compensated for exactly 25' of cable. It is recommended that the cable be attached to the rail assembly to prevent the possibility of damage (Figure 2-4).*

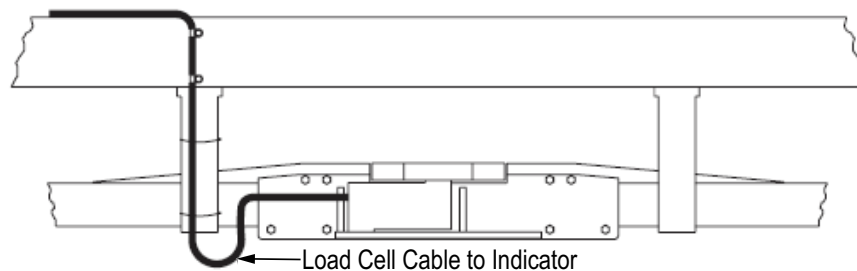


Figure 2-4. Suggested Load Cell Cable Attachment

- Rail hangers and their beam supports usually provide a good place for attaching cable ties and cable clamps.



CAUTION *When attaching cable clamps, be careful not to pierce the load cell cable.*

- Attach load cell cable to indicator.

2.3 Permanent Installation

1. Check that all trolleys using the scale have adequate clearance to fit on the scale. See [Figure 2-1 on page 2](#) for minimum clearance size.
2. Remove an existing section of straight rail then cut the MS202 rail to fit the removed section.



Note *The existing section of straight rail that should be removed should be in the range of 14" – 52". To prevent having to weld in the new rail section, choose a section supported with hangers on each end.*

3. Bolt the new section to the inner bolt holes of each hanger, as the joint will lie at the hanger center lines.



Note *If the removed rail section spans more than 24" between hangers, install a new hanger close to the scale to prevent rail twist when the installation is complete.*

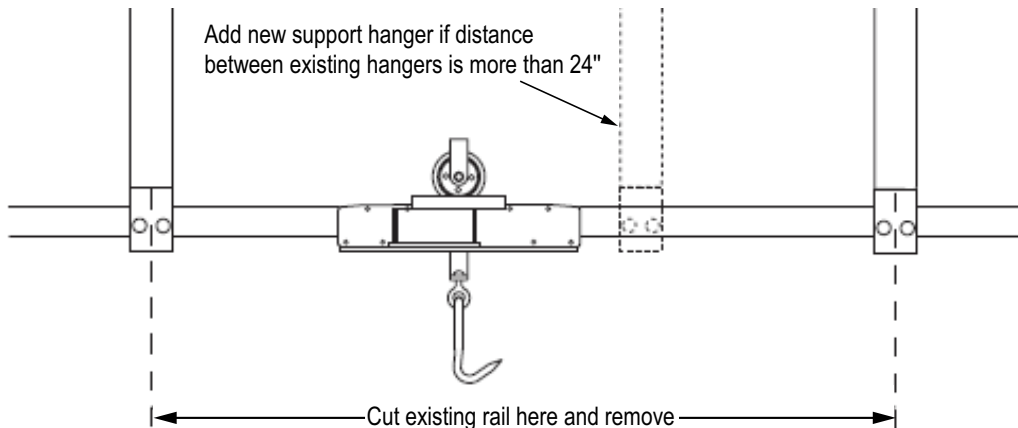


Figure 2-5. MS202 Rail Installation

4. Select a convenient location for mounting the indicator tilt stand within the 25' allowed by the load cell cable.



Note *If the location requires a location further than 25', consult an authorized Rice Lake Weighing Systems scale technician.*

5. Ensure the MS202 rail section is the correct width (3/8" or 1/2") then remove the rail section, and cut the MS202 rail to the size of the section removed.
6. Temporarily position the MS202 section in place to match the alignment of the existing rail.
7. Mark the MS202 rail for drilling bolt holes matching the inner holes of the rail hangers.
8. Remove the MS202 rail and drill a hole in each rail end for the hanger bolts.
9. Bolt the MS202 rail section and scale to the supporting hangers, shimming as necessary to achieve good track alignment.
10. Route and secure the load cell cable and positioning the indicator.
11. Connect the load cell cable to the indicator.
12. Plug the power cord into a grounded outlet.
13. Power on the device. The display is ready for weighing.



Note *If a place in service report is required for new equipment, contact a Rice Lake Weighing Systems certified scale service company for assistance.*

3.0 Maintenance

This section provides an overview of MS200 and MS202 Monorail Scale maintenance information.

 **Note** Use live rail shims as necessary to reach proper live rail height.

3.1 Portable Monorail Replacement Parts

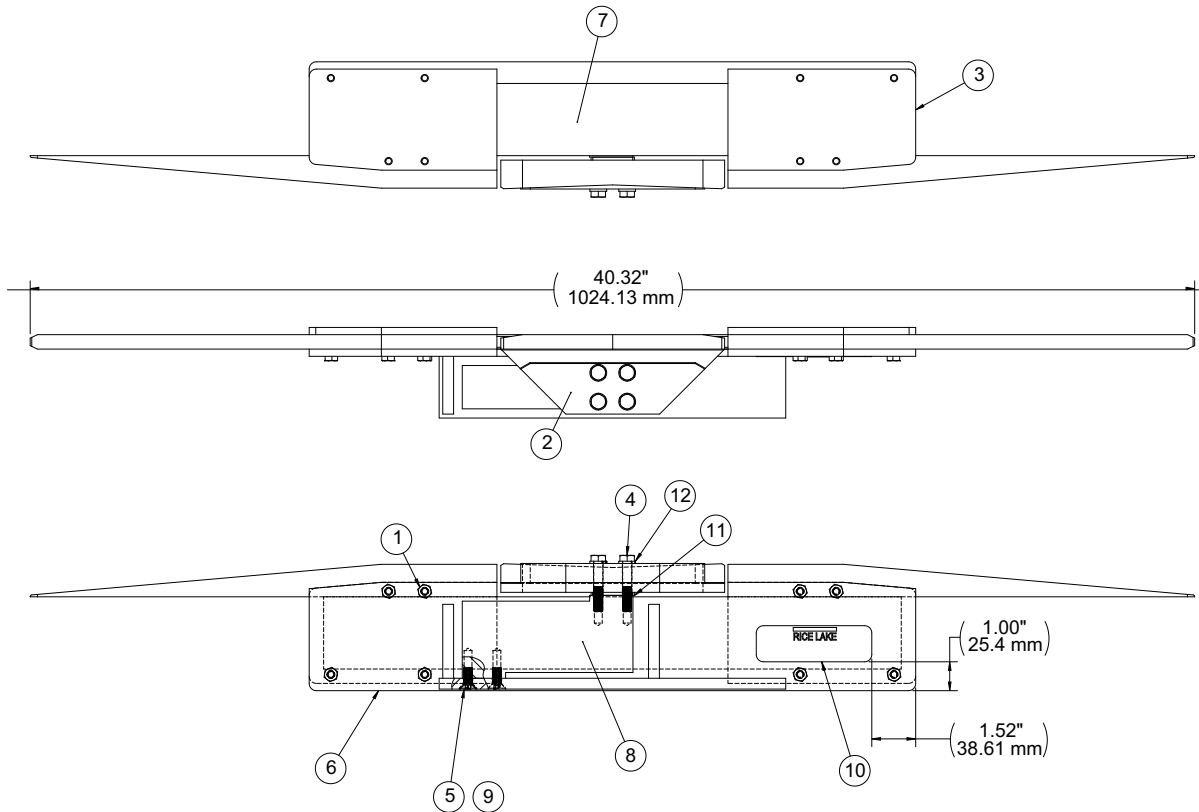


Figure 3-1. MS200HB Portable Monorail Replacement Parts

Item No.	Part No.	Description	Qty.
1	14968	Screw, Cap 1/4-28NFx1 Hex Head SST	8
2	58A013-3	Live Rail, Zinc Plated	1
3	19995	Clamp, Side Rail Monorail	2
4	204847	Screw, Hex Head Cap 5/16-24NF x 1-3/4 SST	4
5	14990	Screw, Cap 5/16-24NFx3/4	4
6	58A013-1	Monorail, Portable Scale Weldment	1
7	19997	Shim, Monorail 2-1/2x20x1/16	2
8	167585	Load Cell, SPT 1510-500 kg	1
9	15386	Plug, Finishing Cap 1/4	4
10	52342	Label, 4.00 x 1.25 8000T	1
11	181955	Live Rail Shim, .105", SST	1
	181954	Live Rail Shim, .06", SST	1
	205524	Live Rail Shim, .0747", SST	1
12	15154	5/16 Lock Washer, SST	4

Table 3-1. MS200HB Portable Monorail Scale Parts List

3.2 Permanent Monorail Scale Replacement Parts

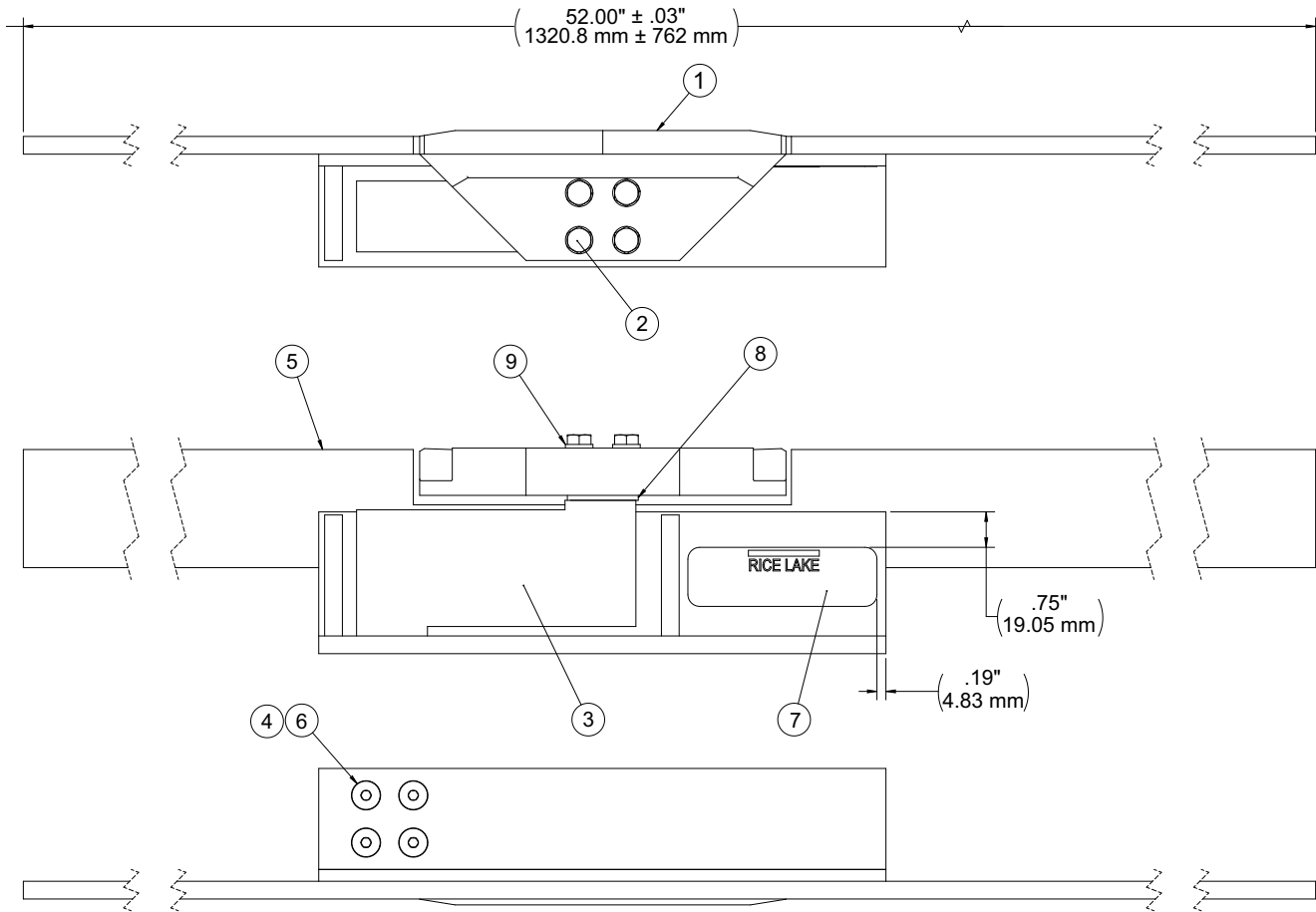


Figure 3-2. MS202HB (PN 19744 and 19745) and MS202HB-SS (PN 196885 and 196887) Permanent Monorail Scale Parts

Item No.	Part No.	Description	Qty.
1	58A013-3	Live Rail, MS Zinc Plated	1
2	204847	Screw, Hex Head Cap 5/16-24 x 1-3/4 SST	4
3	167585	Load Cell, SPT 1510-500 kg	1
4	15386	Plug, Finishing Cap 1/4"	4
5	22207	Weldment, 3/8" In-line MS (PN 19744)	1
	22208	Weldment, 1/2" In-line MS (PN 19745)	
6	14990	Screw, Cap 5/16-24NFx3/4	4
7	52342	Label, 4.00 x 1.25 8000T	1
8	181955	Live Rail Shim .105" SST	1
	181954	Live Rail Shim .06" SST	1
	205524	Live Rail Shim .0747" SST	1
9	15154	5/16 Lock Washer, SST	4

Table 3-2. MS202HB Monorail Scale Parts List

Item No.	Part No.	Description	Qty.
1	196883	Live Rail, SST	1
2	204847	Screw, Hex Head Cap 5/16-24 x 1-3/4 SST	4
3	167585	Load Cell, SPT 1510-500 kg	1
4	15386	Plug, Finishing Cap 1/4"	4
5	196884	Weldment, 3/8" In-Line SST (PN 196885)	1
	196887	Weldment, 1/2" In-Line SST (PN 196888)	
6	14990	Screw, Cap 5/16-24NFx3/4	4
7	52342	Label, 4.00 x 1.25 8000T	1
8	181955	Live Rail Shim .105" SST	1
	181954	Live Rail Shim .06" SST	1
	205524	Live Rail Shim .0747" SST	1
9	15154	5/16 Lock Washer, SST	4

Table 3-3. MS202HB-SS Monorail Scale Parts List



Note Use live rail shims as necessary to reach proper live rail height.

4.0 Limited Warranty

Rice Lake Weighing Systems (Rice Lake) warrants that all Rice Lake brand equipment and systems properly installed by an Authorized Reseller or original equipment manufacturer (OEM) will operate per written specifications as confirmed by the Authorized Reseller/OEM and accepted by Rice Lake. All systems and components are warranted against defects in materials and workmanship for one (1) year from the date of shipment from Rice Lake, unless otherwise stated in the product catalog or manual. Rice Lake warrants that the equipment sold here under will conform to the current written specifications authorized by Rice Lake. Rice Lake warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, Rice Lake will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by the customer of such non-conformity, Rice Lake will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to Rice Lake for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in the publication, "Protecting Your Components from Static Damage in Shipment," available from Rice Lake Equipment Return Department.
- Examination of such equipment by Rice Lake confirms that the non-conformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair, or improper testing. Rice Lake shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than Rice Lake or its duly authorized repair agents.
- Cutting the load cell cable will void the warranty.
- Rice Lake will have a reasonable time to repair or replace the defective equipment. The customer is responsible for shipping the product to Rice Lake. Rice Lake is responsible for shipping the product back to the customer.
- In no event will Rice Lake be responsible for travel time or on-location repairs, including assembly or disassembly of equipment. Nor will Rice Lake be liable for the cost of any repairs made by others.
- On all intrinsically safe equipment, any field repair or modifications voids any and all warranties expressed or implied and void F.M. approval.
- Any loose hardware, screws, washers or non-ESD bags of hardware stored inside indicator will void warranty. This could cause harm to repair technician or damage CPU board.
- If just the board is sent in for repair, the serial number of the product the board is from should accompany the board.

These warranties exclude all other warranties, expressed or implied, including without limitation warranties of merchantability or fitness for a particular purpose. Neither Rice Lake nor Authorized Reseller will, in any event, be liable for incidental or consequential damages at the point of use.

Rice Lake and the customer agree that Rice Lake's sole and exclusive liability here under is limited to repair or replacement of such goods. In accepting this warranty, the customer waives any and all other claims to warranty.

Should the seller be other than Rice Lake, the customer agrees to look only to the seller for warranty claims.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of Rice Lake and the customer.

5.0 Specifications

MS200 Portable Monorail Scale

Construction

Zinc-plated steel construction, stainless steel hardware

Load Cell Construction

Stainless steel

Bridge Resistance

350 ohms nominal

Rated Output

2 mV/V

Nonlinearity

0.03% full scale

Warranty

One-year limited warranty

Certifications and Approvals



NTEP

CoC Number 90-003

Accuracy Class: III; n_{max} : 1500

MS202 Permanent Monorail Scale

Construction

Zinc-plated steel construction (PN 19744, PN 19745)

Stainless steel construction (PN 196885, PN 196888)

Load Cell Construction

Stainless steel

Bridge Resistance

350 ohms nominal

Rated Output

2 mV/V

Nonlinearity

0.03% full scale

Warranty

One-year limited warranty

Certifications and Approvals



NTEP

CoC Number 90-003

Accuracy Class: III; n_{max} : 1500



Measurement Canada

AM-4849

FCC Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.



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