BenchMark[™] Series

Single Point Bench Scales

Installation/Service Manual





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Congratulations on choosing a scale from the BenchMarkTM series, the highest-quality single-point benchtop scales available. The following types of NTEP-approved BenchMark scales are available:

• The light-capacity SL series featuring stainless steel construction in 10"x10" and 12"x12" platforms with capacities from 5 lb to 100 lb.



Authorized distributors and their employees can view or download this manual from the Rice Lake Weighing Systems distributor site at www.rlws.com

- A mid-range model with a 12"x18" platform and a cover and frame that are constructed of stainless steel. This model is available in capacities from 50 lb to 100 lb.
- The medium-capacity series is constructed with stainless steel covers, and mild steel—or optional stainless steel—frame construction. This series is available in sizes from 12" x 12" up to 24" x 24" in capacities from 30 lb to 1,000 lb. This manual covers each scale series.

One exciting feature of the BenchMark series is its ability to be converted into a checkweigher. By adding the neck and head from a CW-80 CheckWeigher to your BenchMark scale, the features of a checkweigher are available to you. Contact your Rice Lake Weighing Systems distributor for more information.

1.1 10"x10" and 12"x12" SL Models

All seven models of the 10" x 10" and 12"x12" SL series have stainless steel covers and frame systems. All models use an RL 1040 load cell. The 10, 20, 30, 50, and 100 lb models come standard with a potted RL 1040 load cell that offers extra protection against water infiltration but is not designed for washdown use. The 30, 50 and 100 lb models can also be supplied with an RL1140 stainless steel load cell. Extra load cell protection is also available in the form of optional stainless steel "clamshells" which enclose the load cell. See Section 7.0 for information about clamshell installation. All load cells come with 10 ft of cable.

The SL series scales use a sensitive 4-point, springplate suspension which minimizes shock and overload damage typical of light-capacity scales. The system uses a bolt and pre-set spring at each of four loading points beneath the top cover (Figure 1). Each spring is set for a specific tension so that it will compress to prevent overload damage. If a potentially damaging load is placed on a corner of the scale, the spring at that corner compresses. When the spring compresses, the load is taken off the load cell. This



Figure 1

eliminates the possibility of damaging the load cell from overload. Likewise, if a load more than 150% of total capacity is placed anywhere on the deck, the

springs will depress and remove the load from the load cell.

In addition to the spring overload system, the SL models incorporate a load cell overload protection screw beneath the load cell to help prevent overload damage.

To protect the load cell from being accidentally forced upward and damaged by improperly lifting the scale by the spider, a lift up protection screw is incorporated into the design (Figure 2).





1.2 12", 18", and 24" Models

All models in the larger scale series utilize mild steel frames and stainless steel deck covers for light washdown

with a damp sponge. All models are available with mild steel or optional stainless steel underbody frame construction. The standard load cell is either an RL 1040 or RL 1250 depending on capacity. Options include a stainless steel RL 1140 load cell for certain 12"x12" and 12"x18" models and protective stainless steel clamshells for all models using RL 1040 or RL 1250 load cells. All load cells come with 10 feet of cable.

These medium-capacity bench scales provide overload protection for the load cell by positive stops located beneath each corner of the top frame (see Figure 3). These stops are set at the factory for 100% of scale capacity. Additional





overload protection is provided by an overload screw beneath the load cell to help prevent shock damage.

1.3 12" x 18" Stainless Steel

This model has both a stainless steel cover and underbody frame that make it ideal for washdown use and allow it to meet USDA requirements for stainless steel use. The 12"x18" comes standard with an RL1040 load cell, and a stainless steel load cell is optional for both the 50 lb and 100 lb models. Extra load cell protection is available in the form of an optional stainless steel "clamshell" that encloses the load cell. See Section 7.0 for information about clamshell installation. All load cells come with 10 ft of cable.

These medium-capacity bench scales provide overload protection with positive stops located beneath each corner of the top frame. These stops are set at the factory for 100% of scale capacity. Additional overload protection is provided by an overload screw beneath the load cell to help prevent shock damage.

1.4 Specifications

1.4.1 10"x10" and 12"x12" SL Models

Load Ce	II:
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RL1040-N5 potted single point (5 lb is not potted) RL1140 potted single point, stainless steel load cell optional on 30, 50, and 100 lb models

Rated Output:0.91 mV/VMaximum Overload:200 %Overload Protection:Spring loaded spiderCable Length:10 ft. (3 m) – (6 wire) shieldedOutput Impedance (ohms):350 ohmsCompensated-10°C/14°F to +50°C/122°FSafe Temperature Range:-30°C/-22°F to +70°C/158°FDimensions/Capacities:-10°C/14°F to +50°C/122°F

Size	Capacity	Height
10"x10"/254.0mm x 254.0mm	10 lb/2.3kg 10 lb/4.5kg 20 lb/9.1kg 30 lb/13.6kg	3.15"/80.0mm 3.15"/80.0mm 3.15"/80.0mm 3.15"/80.0mm 3.15"/80.0mm
12"x12"/304.8mm x 304.8mm	1 30 lb/15kg 50 lb/25kg 100 lb/50kg	3.25"/91.9mm 3.25"/91.9mm 3.25"/91.9mm

1.4.2 12", 18", and 24" Models Load Cell: 12"x12" and 12"x18" –

Overload Protection: Cable Length: Rated Output: Output Impedance: Maximum Overload: Compensated Temperature Range: Safe Temperature Range: Dimensions/Capacities:	RL1040-N5 18"x18", 18" RL1250-N5 5 point, inde 10 ft. (3m) – 0.91 mV/V 350 ohms 200% -10°C/14°F t -30°C/-22°F	potted single-point x24" and 24"x24"– potted single-point pendently adjusted (6 wire) shielded to +50°C/122°F to +70°C/158°F
Size	Capacity	Height
12"x12"/304.8mm x 304.8mm	30 lb/15kg 50 lb/25kg 100 lb/50kg	3.62"/91.9mm 3.62"/91.9mm 3.62"/91.9mm
12"x18"/304.8mm x 457.2mm	50 lb/25kg 100 lb/50kg	3.62"/91.9mm 3.62"/91.9mm
18"x18"/457.2mm x 457.2mm 22 23 35 10	50 lb/15kg 100 lb/25kg 150 lb/50kg 200 lb/100kg 50 lb/125kg 300 lb/150kg 300 lb/250kg 900 lb/250kg	5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm
18"x24"/457.2mm x 609.6mm	50 lb/25kg 100 lb/50kg 150 lb/75kg 200 lb/100kg 50 lb/125kg 300 lb/150kg 300 lb/250kg 900 lb/250kg	5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm
24"x24"/609.6mm x 609.6mm 22 22 23 24 24 24 24 24 24 24 24 24 24 24 24 24	100 lb/50kg 150 lb/75kg 200 lb/100kg 250 lb/125kg 300 lb/150kg 300 lb/250kg 300 lb/500kg	5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm 5.25"/133.4mm

1.4.3 12"x18" Stainless Steel Model

Load	Cell:	

Rated Output: Maximum Overload: Overload Protection: Cable Length: Output Impedance (ohms): Compensated Temperature Range: Safe Temperature Range: Dimensions/Capacities:

RL1040-N5 potted single point RL1140 potted single point, stainless steel load cell optional on 50 lb and 100 lb models

0.91 mV/V 200 % 5 point, independently adjusted 10 ft. (3 m) – (6 wire) shielded 350 ohms

-10°C/14°F to +50°C/122°F -30°C/-22°F to +70°C/158°F

Size	Capacity	Height	
12"x18"/304.8mm x 457.2mm	50 lb/25kg	4.00"/101.6mm	
	100 lb/50kg	4.00"/101.6mm	

2.1 Leveling Scale

Remove the scale from the shipping container and place it in the desired location. Lift off the deck cover and locate the bubble level. Adjust the four corner feet until the scale is level and all feet contact the support surface so the scale does not rock. Lock the jam nuts on the feet when the final level is correct.

2.2 Connecting the Load Cell Cable

All models come with 10 feet of color-coded load cell cable. **Do not cut this cable**. The load cell is temperaturecompensated for an exact cable length of 10 feet.

Consult your indicator manual to determine the proper terminal for load cell cable input. Use the following color coding to determine wiring connections to your indicator.

For 6-wire operation:

6-Wire Color Code	Function
Red	+ Signal
White	– Signal
Green	+ Excitation
Black	 Excitation
Blue	+ Sense
Brown	– Sense
Yellow or Bare	Shield

For 4-wire operation:

4-Wire Color Code	Function
Red	+ Signal
White	– Signal
Green & Blue*	+ Excitation
Black & Brown*	 Excitation
Yellow or Bare	Shield

* Connect Sense and Excitation wires together if using 4-wire system without sense leads.

2.3 Grounding the Scale Base

Bench scales can build up a static electricity charge during weighing operations. If powerful enough, this charge can travel through the load cell cable to the indicator. To prevent this, all bench scales should be adequately grounded so that static charges and transient electrical surges can drain directly to ground. Recommended practice is to connect the scale base to an AC ground circuit using at least #12 wire. All BenchMark scales have either a grounding screw or a hole for such a grounding screw located on the bottom of the lower frame for this purpose.

3.0 Calibration

It is recommended that the scale be "exercised" by loading it to near capacity 2 or 3 times before calibration to be certain that everything is seated. To calibrate your BenchMark:

- 1. With no load on scale, place indicator in its calibration mode and perform a zero calibration.
- 2. Place test weights on platform equal to 70%–100% of scale's capacity. If several weights are used, they should be evenly distributed around platform.
- 3. Perform a span calibration.
- 4. Remove the test weights and check the zero reading. If necessary, repeat the calibration process.

Refer to the indicator's operator manual to determine the correct indicator calibration procedure.

4.0 Troubleshooting Guide

Symptom	Probable Cause	Remedy
No display	Power disconnected	Connect Power
	Cable cut or disconnected	Repair Cable
	Signal leads incorrectly wired at indicator	Connect according to manual
Display stays at zero	Incorrect load cell cable connections	Connect according to manual
	Indicator faulty	Service indicator
Erratic weight display	Vibration near scale	Remove source of vibration, or adjust digital averaging of indicator to minimize erratic display.
	Scale not level	Level scale
	Water damage to load cell or cable	Replace load cell
	Indicator faulty	Service indicator
	Loose load cell screws	Tighten to correct torque
	Faulty load cell	Test and replace if necessary
Consistently low weights	Indicator not properly adjusted to zero	Zero indicator correctly
	Scale deck cover binding	Obtain adequate clearance
	Overload stops set too high	Reset stops correctly
	Indicator not calibrated for scale	Calibrate
	Load cell faulty	Test and replace if necessary

5.1 10"x10" and 12"x12" SL Models

- 1. Unplug AC power from indicator and disconnect load cell cable from indicator's terminal connection strip.
- 2. Lift off scale top cover. Locate two upper load cell screws. Use 7/16" wrench to unscrew and remove
- those two load cell screws. Do not remove four spring-loaded screws which attach load plate to spider assembly. Lift off load plate/ spider assembly as a unit. Remove spacer between load plate and load cell and set it aside.
- 3. Turn scale over and back off Overload Protection Screw one complete turn. Completely unscrew and remove Lift up Protection Screw.
- 4. Use 7/16" wrench to unscrew and remove two lower load cell screws. The load cell and cable can now be removed from scale. Do not lose shim beneath load cell.



Figure 4

- 5. Thread cable of replacement load cell through rubber grommet. Position load cell on shim and screw in two lower load cell screws. Torque to 80 in. lb.
- 6. Replace Lift up Protection Screw by screwing it in until it lightly bottoms, then back it off 1/4 turn.
- 7. Turn scale right side up. Position spacer on load cell, then place load plate/spider unit into position. Screw in two upper load cell screws. Torque to 80 in. lb.
- 8. Using an accurate caliper, check compressed spring length on four overload springs. If necessary, adjust length to specifications in table below, *Overload Spring Length*. Replace top cover and re-level scale if necessary.
- 9. Connect load cell cable to correct pins on indicator terminal strip.
- 10. Recalibrate scale according to Calibration section of this manual.
- 11. Adjust Overload Protection Screw on bottom of scale by loading scale to 125% capacity. Place this weight on top cover, centered on platform. With appropriate size hex wrench, screw in Overload Protection Screw until it touches load cell, then back it off 1/6 turn. Recheck calibration.

Scale Model	Spring Length "H"
10 x 10 – 5 lb	1.06
10 x 10 – 10 lb	.94
10 x 10 – 20 lb	.97
10 x 10 – 30 lb	1.43
12 x 12 – 30 lb	1.43
12 x 12 – 50 lb	1.12
12 x 12 – 100 lb	1.16



Figure 5

Overload Spring Length

12", 18", and 24" Models 5.2

- 1. Unplug AC power from indicator and disconnect load cell cable from indicator's terminal strip.
- 2. Lift off scale top cover. Locate upper load cell screws. Depending on model of scale, there will be either

two or four upper load cell screws. Unscrew and remove those load cell screws. Lift off top spider. Remove spacer plate and set it aside.

- 3. Loosen four Overload Stop Screws and turn each screw in one turn to provide ample clearance for new load cell when it is attached. Turn scale over and back off Overload Protection Screw one complete turn to provide clearance.
- 4. Unscrew and remove lower load cell screws. Depending on model of scale, there will be either two or four lower load cell screws. Remove bottom shim beneath



Figure 6

load cell and set it aside. The load cell and cable can now be removed from scale.

- 5. Thread cable of replacement load cell through rubber grommet. Position bottom shim directly beneath load cell and screw in lower load cell screws. Torque to 80 in. lbs for 12" x 12" and 12" x 18" scales, and to 120 in. lb for 18" x 18", 18" x 24", and 24" x 24" scales.
- 6. Turn scale right side up. Position spacer plate on load cell, then place top spider into position. Screw in four upper load cell screws. Torque to 80 in. lbs for 12" x 12" and 12" x 18" scales and to 120 in. lb for 18" x 18", 18" x 24", and 24" x 24" scales.
- 7. Connect load cell cable to correct pins on indicator terminal strip.
- 8. Recalibrate scale according to *Calibration* section of this manual.
- 9. Adjust Overload Protection Screw on bottom of scale by loading scale to 125% capacity. Place this weight on top cover, centered on platform. With appropriate size hex wrench, screw in Overload Protection Screw until it touches load cell, then back it off 1/6 turn. Recheck calibration.
- 10. To reset corner Overload Stop Screws, load top spider over one corner with approximately 30% of scale capacity. Adjust screw under that corner to just touch top frame. Place a drop of a non-permanent highstrength locking compound such as LOCTITE[®] on the thread. Back screw off slightly so it is not touching top frame. Repeat for each corner. Replace top cover and re-level scale if necessary.

LOCTITE is a registered trademark of the Loctite Corporation.

6.0 Load Cell Replacement Table

Deck Size	Capacity	Load Cell	Part #
10 x 10	5 lb	RL1040-N5-5 kg	32859
10 x 10	10 lb	RL1040-N5-10 kg	32861
10 x 10	20 lb	RL1040-N5-20 kg	32863
10 x 10	30 lb	RL1040-N5-30 kg	32864
12 x 12	30 lb	RL1040-N5-30 kg	32864
12 x 12, 12 x 18	50 lb	RL1040-N5-50 kg	32865
12 x 12, 12 x 18	100 lb	RL1040-N5-100 kg	32866
18 x 18, 18 x 24	50 lb	RL1250-N5-50 kg	32849
18 x 18, 18 x 24, 24 x 24	100 lb	RL1250-N5-100 kg	32855
18 x 18, 18 x 24, 24 x 24	150 lb	RL1250-N5-150 kg	32854
18 x 18, 18 x 24, 24 x 24	200 lb	RL1250-N5-200 kg	32853
18 x 18, 18 x 24, 24 x 24	250 lb	RL1250-N5-250 kg	32852
18 x 18, 18 x 24, 24 x 24	300 lb	RL1250-N5-300 kg	32851
18 x 18, 18 x 24, 24 x 24	500 lb	RL1250-N5-500 kg	32850
18 x 18, 18 x 24, 24 x 24	1000 lb	RL1250-N5-1000 kg	32857

7.0 Installing Protective Clamshells

Stainless steel enclosures called clamshells are available to provide extra protection for the load cell of every BenchMark scale. All clamshells are pre-drilled for load cell screws, overload screws, and cables. Any existing load cell shims or spacers are installed inside the clamshells.

The bottom clamshell is installed first as it fits inside of the upper clamshell. Position the clamshell so that no part of it touches the load cell, then tighten the lower load cell screws to the specifications given in the load cell replacement section of this manual. When installing the upper clam shell, position it so there is clearance on all sides to prevent any binding problems with the bottom clam shell. Tighten the upper load cell screws to the required torque.

When installation is complete, reset all overload protection screws as discussed under Load Cell Replacement. Calibrate the scale according to the procedure in the Calibration section of this manual.



Figure 7

8.0 Replacement Parts—10" x 10" and 12" x 12" SL Models



Section AA (Enlarged)

Item	Description	Req'd	Item	Description	Req'd
1	Lift up Protection Screw, 1/4 - 28 x 3/8, SS	1	15	Internal Lock Washer, #8, SS	1
2	Load Cell Overload Stop, 8 -32 x 1/4, SS	1	16	Rubber Grommet, 3/16 ID x 1/2 OD	1
3	Scale Foot, 1/4 - 20 x 1, SS	4	17	Cable Tie, 8"	1
4	Hex Jam Nut, 1/4 - 20, SS	4	18	Overload Spring Bolt, SS	4
5	Bottom Sub Assembly	1	19	Overload Spring, SS	4
6	Sealing Rivet, 1/8 SS	2	20	Flat Washer, 1/4 Type A SS	4
7	Label, Bench Scale	1	21	Nylon Insert Nut, 1/4 - 20 SS	4
8	Top Cover, 10 x 10 SS or 12 x 12 SS	1	22	Load Cell Shim, SS	1
9	Top Spider	1	23	Plastic Wire Clamp	1
10	Load Cell Screw, 1/4 - 20 x 5/8 SS	4	24	Load Plate	1
11	Lockwasher 1/4 SS	4	25	Washer, rubber	4
12	Bubble Level, Plastic 15 mm	1	26	Washer, #8 SS	1
13	Load Cell (see loadcell replacement table)	1	27	Machine Screw, 8 -32 x 3/8 SS	1
14	Pan Head Screw, 8 - 32 x 1/4 SS	1	28	Load Cell Spacer	1



Item	Description	Req'd	Item	Description	Req'd
1	Scale Foot, 1/4 - 20 x 1	4	12	Bubble Level, Plastic 15 mm	1
2	Jam Nut, 1/4 - 20	4	13	Load Cell (see load cell replacement table)	1
3	Bottom Frame	1	14	Top Spider	1
4	Label, Bench Scale	1	15	Cable Tie 8"	1
5	Sealing Rivet, 1/8	2	16	Plastic Wire Clamp	1
6	Overload Stop Bolt, 1/4 - 20 x 1/2	4	17	Rubber Grommet, 3/16 x 1/2 OD	1
7	Top Cover, SS	1	18	Load Cell Shim	1
8	Rubber Pads, 0.75 dia.	12	19	Overload Protection Screw, 8 - 32 x 1/4	1
9	Lockwasher, 1/4 PLT	4	20	Square Insert Glide, 1.00 x 14G. (steel only)	8
10	Load Cell Screw, 1/4 - 20 Hex Head	4			
11	Load Cell Spacer	1			

10.0 Replacement Parts—12" x 18" SST Model



Item	Description	Req'd	Item	Description	Req'd
1	Foot, Bench Scale 1/4	4	11	Top Cover, 12 x 18 x 1	1
2	Jam Nut, 1/4 - 20NC Hex SST	4	12	Screw, Cap, 1/4 - 20NC x 1/2	4
3	Bottom Sub-Assembly	1	13	Cable Tie, 8" Nylon	1
4	Label, Bench Scale, 5 x 3/4	1	14	Grommet, Rubber	1
5	Sealing Rivet, 1/8 DIA x 3/8	2	15	Clamp, Cable, NO 8 Hole	1
6	Screw, Cap, 1/4 - 20NC x 3/4	4	16	Screw, MACH 8-32 NC x 3/8	2
7	Shim, Load Cell, .125 x 1 x 1.34	1	17	Washer, Plain STD NO 8 SST	1
8	Screw, Cap, 1/4 - 20NC x 3/4	4	18	Shim, Load Cell, .060 x 1 x 1.34	1
8A	Washer, Lock 1/4 Regular	4	19	Screw, Set 8-32 NC x 1/4 Hex	1
9	Load Cell (see load cell replacement table)	1	20	Level, Spirit Bubble	1
10	Top Spider	1			



Section AA (Enlarged)

Item	Description	Req'd	Item	Description	Req'd
1	Scale Foot, 3/8 - 16 x .78	4	12	Bubble Level, Plastic 15 mm	1
2	Jam Nut, 3/8 - 16	4	13	Load Cell (see load cell replacement table)	1
3	Bottom Frame	1	14	Square Insert Glide, 1.50 x 11G. (steel only)	8
4	Label, Bench Scale	1	15	Top Spider	1
5	Sealing Rivet, 1/8	2	16	Cable Tie 8"	1
6	Overload Stop Bolt, 3/8 - 16	4	17	Plastic Wire Clamp	1
7	Top Cover, SS	1	18	Rubber Grommet, 3/16 ID x 1/2 OD	1
8	Rubber Pads, 1.25" x 1.25"	20	19	Load Cell Screw, 5/16 - 18 x 3/4, Hex Head	4
9	Lockwasher, 5/16	8	20	Load Cell Shim	1
10	Load Cell Screw, 5/16 - 18 x 1, Hex Head	4	21	Overload Protection Screw, 1/2 - 20 x 1/2	1
11	Load Cell Spacer	1			

12.0 BenchMark Series Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for one year.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS'S SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER 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 RLWS and the Buyer.

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