

**RCBS®**

# ELECTRONIC SCALE

## RangeMaster



Safety and Operating Instructions

# SAFETY

Reloading is an enjoyable and rewarding hobby that can be conducted safely. But carelessness or negligence can make reloading hazardous. This product has been designed from the beginning with the user's safety in mind.

When reloading, safety rules must be followed. By observing these rules, the chance of a hazardous occurrence causing personal injury or property damage is minimized.

## GENERAL

- Use all equipment as the manufacturer recommends. Study the instructions carefully and become thoroughly familiar with the operation of the product. Don't take short cuts.
- Observe "good housekeeping" in the reloading area. Keep tools and components neat, clean and orderly. Promptly and completely clean up primer and powder spills.
- Reload only when you can give your undivided attention. Do not reload when fatigued or ill. Develop a reloading routine to avoid mistakes. Avoid haste—load at a leisurely pace.
- Always wear adequate eye protection. You assume unnecessary risk when reloading without wearing safety glasses.

## LOADING DATA

- Use only laboratory/tested reloading data. We highly recommend the use of the SPEER Reloading Manual.
- **OBSERVE ALL WARNINGS ABOUT THE USE OF MAXIMUM LISTED LOADS.**

## PRIMERS AND POWDER

- Store primers and powder beyond the reach of children and away from heat, dampness, open flames and electrical equipment.
- **DO NOT** use primers of unknown identity.
- Keep primers in original factory container until ready to use. Return unused primers to the same factory packaging for safety and to preserve their identity.
- **DO NOT** store primers in bulk. The blast of just a few hundred primers is sufficient to cause serious injury to anyone nearby.
- **DO NOT** force primers. Use care in handling primers.
- **DO NOT** use any powder unless its identity is positively known.
- If you use a Powder Measure, replace the lids on both the Powder Hopper and powder can after the Powder Hopper has been filled.
- Before charging cases, settle the powder in the Powder Hopper. Throw and check the weight of at least ten charges. This will assure you that the correct powder charge is being thrown.
- After a reloading session ends, pour the remaining powder back into its original factory container. This will preserve the identity and shelf life of the powder.
- **DO NOT** smoke while handling powder or primer.

## RECORD KEEPING

- Keep complete records of reloads. Apply a descriptive label to each box showing the date produced, and the primer, powder and bullet used. Labels for this purpose are packed with SPEER bullets.

Since RCBS has no control over the choice of components, the manner in which they are assembled, the use of this product, or the guns in which the resulting ammunition may be used, no responsibility, either express or implied, is assumed for the use of ammunition reloaded with this product.

## **▲ WARNING**

THIS SCALE IS FOR USE WITH SMOKELESS POWDERS ONLY. DO NOT USE WITH BLACK POWDER. IF BLACK POWDER SHOULD COME IN CONTACT WITH AN ELECTRICAL SPARK, AN EXPLOSION MIGHT OCCUR, CAUSING SERIOUS PERSONAL INJURY.

CHECK CALIBRATION PRIOR TO EACH USE OF THE SCALE AND RECHECK PERIODICALLY DURING USE. IF CALIBRATION ACCURACY IS FOUND TO BE OUT OF TOLERANCE, THE SCALE MUST BE RECALIBRATED AS EXPLAINED IN THE CALIBRATION SECTION OF THIS INSTRUCTION MANUAL. A SCALE WITH AN INACCURATE CALIBRATION WILL CAUSE AN INACCURATE WEIGHING, WHICH MAY EXCEED THE MAXIMUM RECOMMENDED LISTED LOAD.

ELECTRONIC SCALES ARE RELIABLE DEVICES, BUT IT IS POSSIBLE FOR FAILURES TO OCCUR THAT MAY CAUSE AN INACCURATE READING.

- CHANGES IN TEMPERATURE WILL AFFECT CALIBRATION ACCURACY. SCALES SHOULD BE ALLOWED TO STABILIZE FOR ONE HOUR PRIOR TO USE WHEN TAKEN FROM ONE LOCATION TO ANOTHER WHERE THE TEMPERATURE IS DIFFERENT.
- CHANGES IN SCALE LOCATION OR LEVEL CONDITION WILL AFFECT CALIBRATION ACCURACY.

THIS SCALE SHOULD BE SERVICED ONLY BY A TRAINED, QUALIFIED TECHNICIAN.

### **PRECAUTIONS**

1. USE ONLY THE CALIBRATION WEIGHTS SUPPLIED WITH THE SCALE.
2. ACCURACY OF CALIBRATION WEIGHTS IS CRITICAL TO THE ACCURACY OF THE SCALE. WEIGHTS SHOULD BE KEPT CLEAN AND STORED IN A DRY PLACE. IF WEIGHTS ARE DROPPED, DAMAGED IN ANY WAY, DIRTY OR CORRODED, THEY SHOULD BE REPLACED OR SERVICED TO VERIFY THEIR ACCURACY.
3. UNPLUG THE AC ADAPTER WHEN NOT IN USE. FOR LONG TERM STORAGE, REMOVE THE BATTERY TO PREVENT LEAKING.
4. SET-UP SCALE PRIOR TO INTRODUCING POWDERS INTO THE AREA. DO NOT INSTALL BATTERY IN POWDER AREA.
5. IF STATIC BUILD-UP ON SCALE IS NOTICED, WIPE SCALE WITH ANY READILY AVAILABLE ANTI-STATIC SPRAY.
6. IF POWDER SHOULD ENTER THE UNIT, DO NOT USE THE SCALE. SEND FOR SERVICING OR CONTACT PRODUCT SERVICE.

## NOTICE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the department of communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le ministre des communications.

Unauthorized changes or modifications to this equipment are not permitted.



This device corresponds to requirements stipulated in 73/23/EEC and features radio interference suppression in compliance with valid EC Regulation 89/336/EEC. Note: The displayed value may be adversely affected under extreme electromagnetic influences, eg. when using a radio unit in the immediate vicinity of the device. Once the interference has been rectified, the product can once again be used for its intended purpose.

Cet appareil correspond aux exigences selon la norme 73/23/CEE et est déparasité conformément à la directive de la CE 89/336/CEE en vigueur. Remarque: Dans des conditions d'influences électromagnétiques extrêmes, par exemple en cas d'exploitation d'un appareil radio à proximité immédiate de l'appareil la valeur d'affichage risque d'être influencée. Une fois que l'influence parasite est terminée, le produit peut être de nouveau utilisé de manière conforme aux prescriptions.

Dieses Gerät entspricht den Anforderungen nach 73/23/EWG und ist funkenstört entsprechend der geltenden EG-Richtlinie 89/336/EWG. Hinweis: Unter extremen elektromagnetischen Einflüssen z.B. bei Betreiben eines Funkgerätes in unmittelbarer Nähe des Gerätes kann eine Beeinflussung des Anzeigewertes verursacht werden. Nach Ende des Störeinflusses ist das Produkt wieder bestimmungsgemäss benutzbar.

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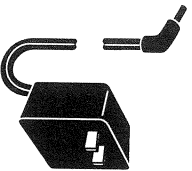
## DESCRIPTION

The RangelMaster is a precision weighing instrument, designed to provide years of service. Features include front panel controls, simplified menu, auto shut-off, and readings in either grains or grams. It can be operated by a 9 Volt battery or with the AC Adapter supplied.

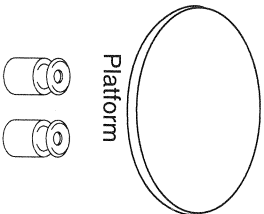
## UNPACKING

The RangelMaster is shipped with the following components:

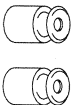
- Stainless steel platform
- Scale pan
- Power adapter
- Instruction manual
- 2-50 gram Calibration weights



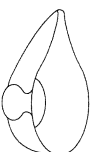
AC Adapter



Platform



Calibration Weights



Scale Pan

1. Carefully unpack the scale, verify that all items are on hand. Save the packing material for transporting the scale.
2. Remove the cardboard insert from under the platform support.

## INSTALLATION

### IMPORTANT!

Electronic scales are reliable devices, but it is possible for failures to occur that may cause an inaccurate reading.

- Changes in temperature will affect calibration accuracy. Scales should be allowed to stabilize for one hour prior to use when taken from one location to another where the temperature change is greater than a few degrees.
- Changes in scale location or level condition will affect calibration accuracy.
- Rough handling, dropping or picking it up by the platform support will affect accuracy.

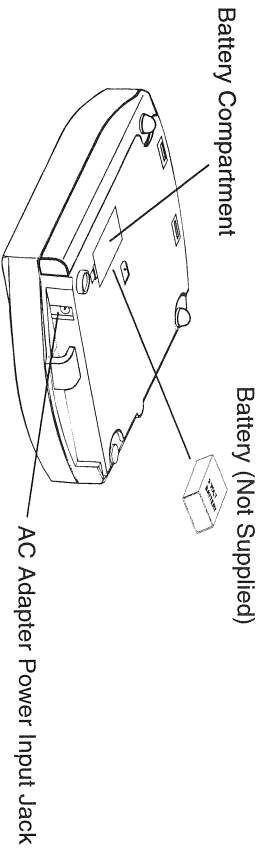
**IT IS RECOMMENDED THAT YOU CHECK CALIBRATION PRIOR TO EACH USE OF THE SCALE AND RECHECK PERIODICALLY DURING USE.** If calibration accuracy is found to be out of tolerance, the scale must be recalibrated as indicated in the Calibration section.

**DO NOT** install the scale:

- near open windows/doors causing drafts or rapid temperature changes.
- near air conditioning or heat vents.
- near vibrating, rotating or reciprocating equipment.
- on an unlevel work surface.

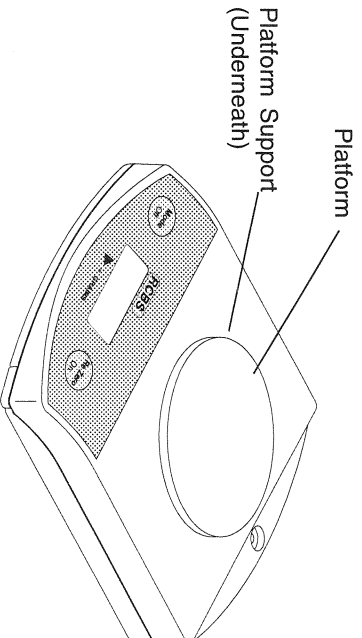
## Power

Connect the AC Adapter at the rear of the scale. For portable operation, install a 9 V battery in the battery compartment as shown in the illustration.



## Platform Installation

Place the platform over the platform support as shown in the illustration. NEVER pick up the scale by the platform support.



## OPERATION

### Turning the Scale ON

Press **ReZero/On**. All segments will appear briefly followed by a software revision number and then **00<sup>g</sup>**. Allow 5 minutes warm-up time.



### Turning the Scale OFF

To turn the scale **OFF**, press and hold **Mode/Off** until the display indicates **OFF**, then release.

## Weighing

IMPORTANT! VERIFY CALIBRATION ACCURACY PRIOR TO USE.    PERFORM CALIBRATION PROCEDURE IF REQUIRED.

The scale is shipped from the factory ready to weigh in grams. If grams is desired, see Menu, Activating Units to change. The RangeMaster can be programmed for easy toggling from grams to grams by turning both units "ON" in the units segment of the menu.

1. If both units are on, select the desired weighing unit by momentarily pressing **Mode/Off**.

Make certain that the correct measuring unit is selected, **g = grams** or **▶ = grains**.

2. If it is necessary to rezero the display, momentarily press **ReZero/On**.
3. Place material to be weighed on the platform and read the weight on the display. The stability indicator \* appears when the reading is stable.

## Taring

When weighing material such as powder, which must be held in a container, taring subtracts the container's weight from the total weight on the platform.

1. With an empty scale pan on the platform, press **ReZero/On** to zero the display.
2. As powder is added to the scale pan, the net weight is displayed. The scale pan's weight remains in scale's memory until **ReZero/On** is pressed again.  
  
It may be necessary to rezero the display between weighings.

## CALIBRATION

Make sure the scale pan is removed from the platform before calibration. Allow 5 minutes warm up time if the scale has been off. A scale with an inaccurate calibration will cause an inaccurate weighing, which may exceed the maximum recommended listed load. The scale has been calibrated before shipment, however calibration can be affected by changes in location, temperature, or rough handling. Check the scale with the calibration weights supplied. If weights are damaged, dirty or corroded, they should be replaced or serviced to verify their accuracy. If calibration is required, proceed as follows:

1. With the scale on, press and hold **ReZero/On** until **[RL]** is displayed then release it. **-[-]** will be displayed followed by **[ 100 ]**. **Do not disturb the scale while -[-] is displayed.**
2. Place the two 50 gram calibration weights on the platform and momentarily press **ReZero/On**.
3. When the weight on the platform is displayed with the stability indicator, the scale is calibrated.



## MENU

The User Menu permits you to activate the Auto Shut-off feature, available weighing units and Linearity calibration.

1. With the scale off, press and hold **ReZero/On** until **UNIT MENU** is displayed, then release it. The first menu item **R OFF** will be displayed.  
Use **Mode/Off** to scroll through the menu items.  
Use **ReZero/On** to see status.  
Use **Mode/Off** to change status.

2. Repeatedly press **Mode/Off** to display the desired menu item to be used or to exit, press **Mode/Off** until **End** is displayed, then press **ReZero/On**.

MENU

- └ A.OFF - Set to On or Off.
- └ UNITS -grams (g) or grains (►) - Set either to On or Off.
- └ LIN - Performs linearity calibration.
- └ END - Exit menu and store settings.

### Auto Shut-off

Use **Mode/Off** to scroll to A.OFF.

When Auto Shut-off is activated, the scale will shut off after three minutes of non use.

1. When the scale displays **R OFF**, press **ReZero/On** to view the current setting **On** or **OFF**.
2. To change the displayed setting, press **Mode/Off**.

3. To select the displayed setting, press **ReZero/On**. The display will again indicate **R OFF**.

4. Change to another menu item, or exit as described above.

### Activating Units

Use **Mode/Off** to scroll to Units.

1. When the scale displays **Un 1t5**, press **ReZero/On** to display the grams indicator "g" with its current setting **On 9** or **OFF 9**.
2. To change the displayed setting, press **Mode/Off**.
3. To select the displayed setting, press **ReZero/On**. The display will show the current grams setting, **On ►** or **OFF ►**.
4. To change the displayed setting, press **Mode/Off**.
5. To select the displayed setting, press **ReZero/On**. The display will again indicate **Un 1t5**.
6. Change to another menu item, or exit as described above.

## Linearity Calibration

Linearity calibration may be required if Err 1 is displayed, the scale's zero reference has shifted, or deviations between actual and displayed weights occur within the scales weighing range. This procedure resets the scale's weighing range and calibration zero reference using three reference points: zero, 50 grams and 100 grams. Before beginning, make sure both 50 gram calibration weights are on hand and the balance has warmed up for at least 5 minutes. If weights are damaged, dirty or corroded, they should be replaced or serviced to verify their accuracy.

Use **Mode/Off** to scroll to Lin.

1. When the scale displays **L n**, press **ReZero On.** **- [ -** will be displayed followed by **[ 50**.
2. Place one 50 gram calibration weight on the platform and momentarily press **ReZero On.** **- [ -** is displayed, then **[ 100**.
3. Add the second 50 gram weight on the platform for a total of 100 grams and momentarily press **ReZero On.**
4. When the weight is displayed with the stability indicator, the scale is calibrated.

When Linearity calibration is completed, the scale automatically exits the menu and stores any changes you have made.

## CARE AND MAINTENANCE

To keep the scale operating properly, keep the housing and platform clean. If necessary, a cloth dampened with a mild detergent may be used. Keep calibration weights in a safe dry place. Unplugging the AC Adapter when not in use. For long term storage, remove the battery.

### Error Codes

**Err 0** Invalid checksum data. The scale may need recalibration, particularly linearity calibration. If the error persists after recalibration, the scale must be serviced.

**Err 1** Sample being weighed exceeds the capacity of the scale. If error occurs when the sample is within the scale capacity, scale may be incorrectly calibrated. An underload such as the platform off of the scale could also display Err1. Recalibrate the scale.

**Err 4** Incorrect or no calibration weight(s) used when performing calibration procedure. Error will flash momentarily, then scale will use previous calibration data. Recalibrate correctly.

**Err 9** Internal data error. Return scale for servicing.

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
No Display.	Power Adapter not connected. Battery is dead.	Connect AC Adapter. Replace battery.
<b>BAT</b> Indicator is on.  Incorrect weight reading.	Battery is weak.  Scale was not rezeroed before weighing.  Scale out of calibration.	Replace battery.  Press <b>ReZero/On</b> with no weight on the platform, then weigh item.  Calibrate the scale.
Calibration procedure does not work.	Incorrect calibration weight(s) being used.	Use correct weight(s).
Unable to display weight in a particular weighing unit.	Weighing unit not activated in menu.	Use Units menu to set desired unit ON (see menu).
Scale won't store selections made in menu.	END selection was not used to exit menu.	You must use END to exit menu and save selections.

## PARTS AND SERVICE INFORMATION

If you require replacement parts or service assistance, please call Ohaus Corporation toll-free at (800) 526-0659. An Ohaus Product Service Specialist will be available to help you.

## PARTS AND ACCESSORIES

	Part No.
AC Adapters:	
100/120 V ac US Plug	90524-62
220 V ac Euro Plug	90524-75
240 V ac UK Plug	90524-79
Scale Pan	5077-00
Platform	77064-00
50 gram Calibration Weight	51054-14
Instruction Manual	300140-030

## SPECIFICATIONS

	g grams	▶ grains
Capacity	100	1543
Readability	0.01	0.1
Repeatability (std. dev.)	0.01	0.15
Linearity	0.01	0.15
Tare range	To capacity by subtraction	
Over range capacity	103%	
Stabilization time (seconds)	3	
Power requirements	AC Adapter (supplied with scale) or one 9V battery (not included)	
Platform size	4" dia.	
Net weight (lb/kg)	1.5/0.7	
Shipping weight (lb/kg)	3.7/1.5	

## **LIMITED WARRANTY**

(THIS SCALE IS NOT COVERED UNDER  
RCBS' LIFETIME WARRANTY.)

Your RCBS Electronic Scale is warranted by Ohaus Corporation against defects in materials and workmanship for one (1) year from date of delivery. During the warranty period Ohaus will repair, or, at its option, replace any component(s) that proves to be defective at no charge, provided that the scale is returned (shipping charges prepaid) to Ohaus Corporation.

This warranty does not apply if the scale has been damaged by accident or misuse, exposed to radioactive or corrosive materials, has foreign material penetrating to the inside of the scale, or as a result of service or modification by other than a Service Center authorized by Ohaus. In lieu of a properly returned warranty registration card, the warranty period shall begin on the date of shipment to the authorized dealer. No other express or implied warranty is given by Ohaus Corporation. Ohaus Corporation shall not be liable for any consequential damages.



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We think that we make the very best reloading equipment in the world. If you agree, please tell your friends.

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U.S. or Canada. Elsewhere, call 916-533-5191.

Hours: Monday — Friday, 6:30am — 4:00pm Pacific Time.

### **BLOUNT, INC.**

#### **SPORTING EQUIPMENT DIVISION**

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