



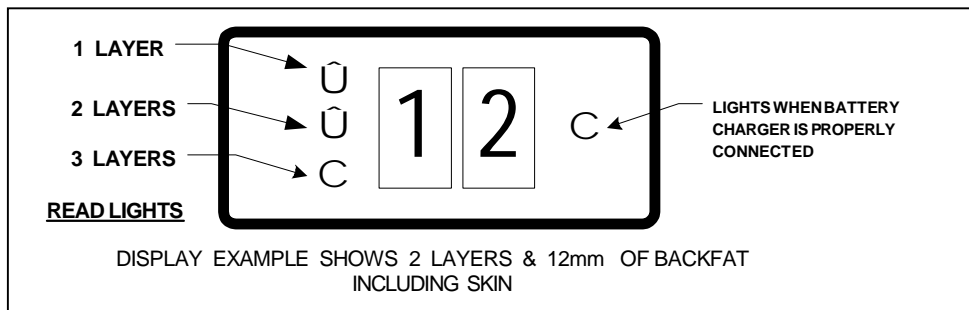
# LEAN-MEATER®

## INSTRUCTIONS FOR USING THE SERIES 12 (S/N: 45000)

The Renco Lean-Meater uses pulsed ultrasound to measure total backfat depth of mammals having 1, 2, or 3 backfat layers. Total measurement range and accuracy including skin is 4-35mm,  $\pm 1$  digit. Power is provided by a Nickel Metal Hydride (NMH) rechargeable battery. The number of backfat layers is automatically determined and displayed. The instrument is not waterproof, do not submerge. To assemble, connect the probe to the cable and the cable to the instrument. Twist both connector barrels until they snap into locked position.

### Turn On Sequence

Press and hold the push button to turn on the instrument. The display will show the number "88" for a second, verifying that all segments are functional. The 3 READ lights on the left side of the display will turn on briefly. After a moment, the right-most digit will show "0" and the rest of the display will be dark.



### Using the Lean-Meater

Apply a generous amount of coupling fluid, such as cooking oil or water to the test site. Insufficient coupling fluid is the most common source of error as ultrasound cannot pass through air or air bubbles. Press the Power button. Apply the probe to the site, use a gentle pressing/rotating action to force out any air bubbles between the skin and probe. It is important that the probe be kept perpendicular to the back. Errors may result if probe is at an angle. Many have found that the probe is most easily managed if held between the index and middle fingers.

The illustration above shows 3 READ light indicators on the left. The TOP light indicates 1 layer, TOP and MIDDLE lights, 2 Layers, all 3 lights, 3 Layers. (The illustration shows 2 layers.) The skin thickness is included in all cases unless it is **>3mm, in which case it will be counted as 1 layer**. The skin of most mammals does not exceed 3mm.

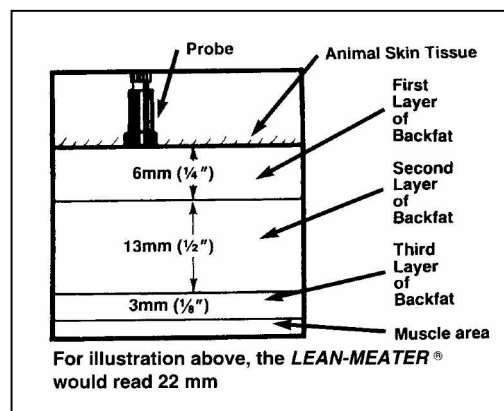
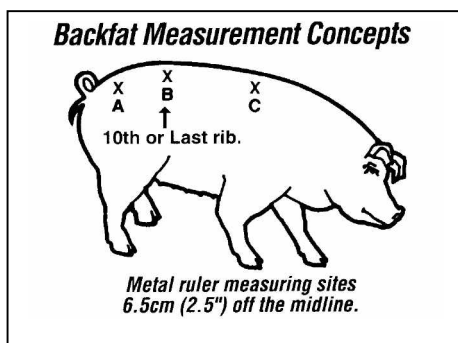
The READ indicators light when the appropriate number of layers have been found. If Read light(s) do not come on, then skin contact is poor; use more oil, make a greater effort to remove air bubbles, be sure probe is perpendicular to the back. Consistency of probe placement is of great importance in obtaining comparative measurements.

For swine, only site B (see the drawing below), will give an accurate reading of the 3 layers of fat. Many hogs have a third layer of fat. As they increase in weight and age, the third layer becomes thicker and more widespread over the body. Site B is the location normally used in the old metal ruler probing technique, and shows the best correlation with overall carcass yield. Because of the trapezius muscle at the shoulder (false lean), measurement at site C is more difficult and inconsistent. (True for both ruler and ultrasound devices). Site A will give accurate measurement for two layers of fat but may not give an accurate measurement for three layers of fat due to the muscle tissue below the fat layers.

Values obtained using ultrasonic devices on live animals will generally be different than those measured at slaughter because of differences in measurement sites and fat on a hanging carcass is distorted or cut.

**Example: Locating The Test Site For Swine**

The most accurate spot in which to measure backfat can be found by walking your fingers forward along the hog’s flank until you can feel the last rib, then place the probe on this site B, 65mm (2.5 inches) from either side of the backbone. Saturate the skin with a light oil (such as cooking oil) or water.



**Important:** Small irregularities in the fat may block the beam of sound,. Moving the probe slightly will allow the beam to bypass, and the correct reading to appear. Fat layers are not uniformly thick. Averaging two or three readings at adjacent sites insures greatest accuracy. Measurement occurs only when the Read lights are on. Older animals with tough dead skin will require extra effort to obtain a good clean probe contact with the underlying live tissue. If necessary, remove the hair at the site (true for all mammals). Then wet the skin with hot water. Next, apply light oil and allow it to wet the skin a minute or two before measuring.

**Charging the Battery and Low Power Indication**

Plug the RENCO charger into a wall outlet that supplies the rated charger voltage and plug the charger cable into the instrument. **NOTE: Charger light stays lit until charger is disconnected.** Charge the battery for about 15 hours before the first use. (Charging the battery after each period of use for three times longer than the time it was used insures long battery life. Do not make a practice of charging the

battery for extended periods of time, say over 30 hours, as it may actually shorten the battery life.) **The instrument is deactivated and not usable when the charger is connected.** When the battery becomes discharged and no measurement is being made, a horizontal bar will show in place of the “0”, which indicates only a brief time remains. The “0” reappears when a measurement is made.

**Nickel Metal Hydride Battery (NiMH or NMH):** Battery is “green” and does not need to be recycled. The Renco NMH battery uses special cells and should only be replaced with Renco replacements to avoid damage and shortened battery life. Warranty is void if battery is replaced with other than a Renco replacement. To replace battery, remove top cover by removing the two end screws. Unplug battery, replace with new battery and replace cover. The instrument will automatically turn off if it has been on for more that two minutes during which there has been no measurement activity. This protects the battery from discharge if the instrument is inadvertently placed upside down on a table, which might keep the Power button actuated.

**Plastic Test Cylinder:** This is provided for verifying that the instrument is operational. Wet the end of the probe or Cylinder and apply the probe to the Cylinder. Do not allow the opposite end to be in full contact with any surface and be sure the hole is not plugged. The reading should be approximately 25mm, depending on humidity, or approximately 30mm for instruments purchased in Australia and New Zealand. Since the Lean-Meater is a crystal controlled device, the actual reading is not as important as just getting a reading. If there is any internal problem you will most likely not get any reading at all.

### **Service and Help**

For help with any questions or problems in regard to the use of the Lean-Meater, RENCO provides free telephone technical support during the warranty period, which may be obtained by reading the FAQ’s on our Internet site, emailing or calling. (Our phones are open M-F, 8am to 4pm Central Time.) We do not charge for online or telephone technical support. Use the original carton to return the instrument to the factory for service and regardless of problem, be sure to return **instrument, probe, cable and charger.**

*CAUTION! DO NOT USE THE LEAN-MEATER ON HUMAN BEINGS.*



*“Ultrasound for Ultra Profits”®*