

INSTRUCTIONS FOR THE

RENCO® LEAN-MEATER®

“Ultrasound for Ultra Profits”®

The RENCO LEAN-MEATER uses pulsed ultrasound to measure the backfat depth of your growing hogs. It is designed to measure the total depth of backfat. It is a fully portable, all-metal, hand-held instrument powered by rechargeable batteries. Extensive training is not required.

WHY THE LEAN-MEATER WORKS

The *LEAN-MEATER*, with the probe attached and placed against the skin of the hog, emits pulses of high frequency sound, called ultrasound, which enter the animal. The ultrasound is reflected from the inner surfaces of the skin, the backfat and other tissues within the hog. The *LEAN-MEATER* will hear the ultrasound reflections and it will determine which reflections are returning from the skin, the backfat layers and from other tissues. The reflections from only the skin plus the backfat layers are calculated and a reading of the total thickness will be displayed in millimeters* in the window, along with the “reading complete” indicator light (called READ light or READ indicator).



FAT THICKNESS IN MILLIMETERS*

READ INDICATOR
OR READ LIGHT

POWER

RENCO LEAN-MEATER®
DIGITAL BACKFAT INDICATOR
S/N
MADE IN USA BY
RENCO
CORPORATION
MINNEAPOLIS, MN 55401 USA
U.S. PAT. # 4,359,055, # 4,359,056 INTL. PAT. # 4,359,056

LAYER SWITCH

CHARGER INCLUDED
(NOT SHOWN)

PROBE

RENCO
CORPORATION

RENCO® CORPORATION
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*To convert mm to inches multiply reading by 0.04

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FOREIGN PATENTS PENDING.
U.S. PATENT 4359055, 4359056

USING YOUR RENCO LEAN-MEATER®

WHY HAVE A THIRD LAYER SWITCH?

All hogs have the genetic potential for three layers of fat. As the hog grows, fat is deposited in the top two layers. The third layer will not have a fat deposit until later in the hog's life. When the third layer fills with fat, you can measure the depth of the three layers of fat. **DO NOT ATTEMPT TO MEASURE THREE LAYERS OF FAT OVER THE SHOULDER OR THE HAM.** The resulting measurements may not be accurate.

HOW TO USE THE RENCO LEAN-MEATER

1 Use the RENCO charger supplied to charge the LEAN-MEATER battery for about 15 hours before the first use. Charging the battery after each day's use for three times longer than the time it was used will insure long battery life. When the battery becomes discharged the display will either begin flashing, or remain off.

2 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 (2.6 inches) from either side of the backbone. Saturate the skin with a light oil (such as cooking or motor oil) or water. Good contact between probe and skin must be made for the ultrasound to enter the hog and reflect back to the LEAN-MEATER.

To make a measurement, turn the instrument on by pressing the POWER push button. Apply the probe to the test site, and using a gentle pressing/rotating action, move the probe slightly to force out any air bubbles between the skin and probe. *It is very 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 READ light to the left of the display lights when the reading is complete. If the READ light does not come on, then skin contact is poor. Use more oil. Make a greater effort to remove air bubbles. Be sure probe is flat against the skin and perpendicular to the animal's back. Consistency of probe placement is of great importance in obtaining comparative measurements.

3 The first reading should be taken with the layer selection switch at 3. This will measure the total depth of three layers of fat. The red READ indicator will light when the LEAN-MEATER detects *three* fat layers. If the third layer is not present the READ indicator will not light.

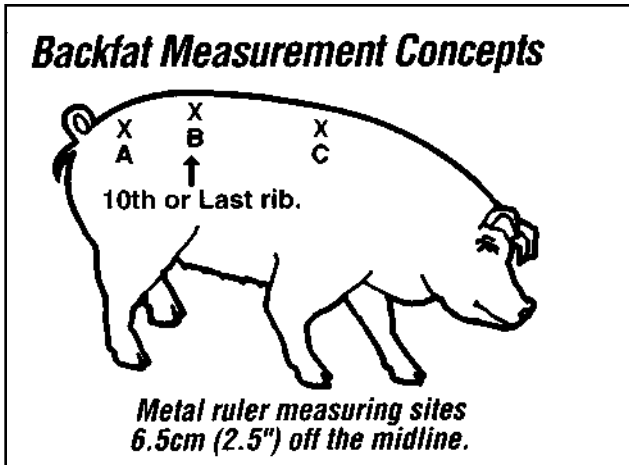
In that case proceed as follows: turn the instrument off, set the layer selection switch to 2, and turn instrument on. The red READ indicator will light when the LEAN MEATER detects and measures, the total of the two fat layers. The LEAN-MEATER attempts a new measurement several times each second. A reading will remain until a new, different reading is detected.

Small irregularities in the fat may sometimes block the beam of sound, causing the LEAN-MEATER to give low readings. Moving the probe slightly will allow the beam to bypass, and the correct reading to appear. (NOTE: *Always keep the probe perpendicular to the animal's back.*)

Fat layers are not uniformly thick. Thus, averaging two or three readings at adjacent sites insures greatest accuracy. The initial reading that occurs when the POWER button is pressed has no meaning. Measurement occurs only when the READ indicator is lit. Accuracy of the reading is ± 1 mm. Usable range is from 5mm to 35mm.

4. 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. Then wet the skin with hot water. Next, apply light oil and allow it to penetrate the skin a minute or two before measuring. Young hogs, with softer skin, generally do not require much site preparation.

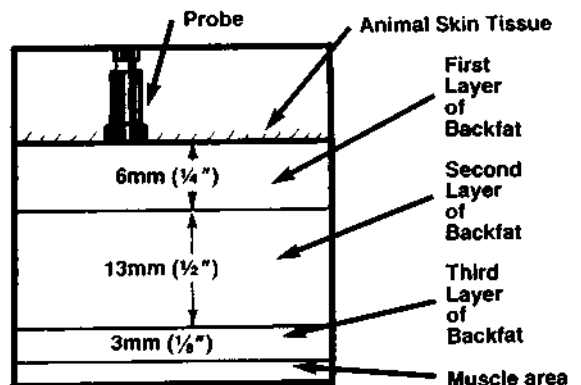
WHY ONLY MEASURE AT THE LAST RIB?



Only site B (the last rib) will give an accurate reading of the three layers of fat. The LEAN-MEATER measures the skin and the first two or three layers of fat. Many hogs have the thin third layer of fat at an early age. As they increase in weight and age, the third layer becomes thicker and more wide spread over the body. Site B is the location normally used in metal ruler probing, 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 measure 10% less than those measured at slaughter because measurement sites are somewhat different and the slaughtered carcass is distorted.

For comparison of backfat values between animals of different weights, the readings should be adjusted to a "standard" 100kg (220 lb.) hog. Tables of adjustment factors are readily available from most extension



For illustration above, the LEAN-MEATER® would read 22 mm

services. A convenient formula for the adjustment which is valid for a $100\text{kg} \pm 15\text{kg}$ Hog: **FAT READING x FACTOR**

FACTOR = $1.275 + ((.0033(\text{WEIGHT})) - (.0000605(\text{WEIGHT})^2))$

Probing should be done on gilts that are contemporaries and that are at or near market weight.

Instruments starting at s/n 30359 are powered by a Nickel-Metal Hydride (NMH) battery that is "green" and does not need recycling. Older units use a NiCad battery, which must be recycled. NMH has a considerably longer life than NiCad. The Renco NMH battery uses special cells and Renco replacements must be used to avoid damage. To replace battery, remove top cover. Unplug battery, replace with new battery and replace cover. Conversion kits are available from the factory to convert older NiCad powered instruments to NMH.

DANGER!

DO NOT USE THE LEAN-MEATER WHEN CONNECTED TO CHARGER.

CAUTION!

DO NOT USE THE LEAN-MEATER ON HUMAN BEINGS.

SERVICE AND HELP

To 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 calling toll free **1-800-359-8181, Mon.- Fri., 8am to 4pm Central Time.** Use the original carton to return the instrument to the factory for service.