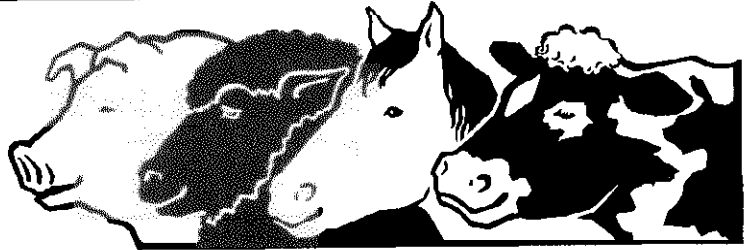


# RENCO

# PREG-ALERT®

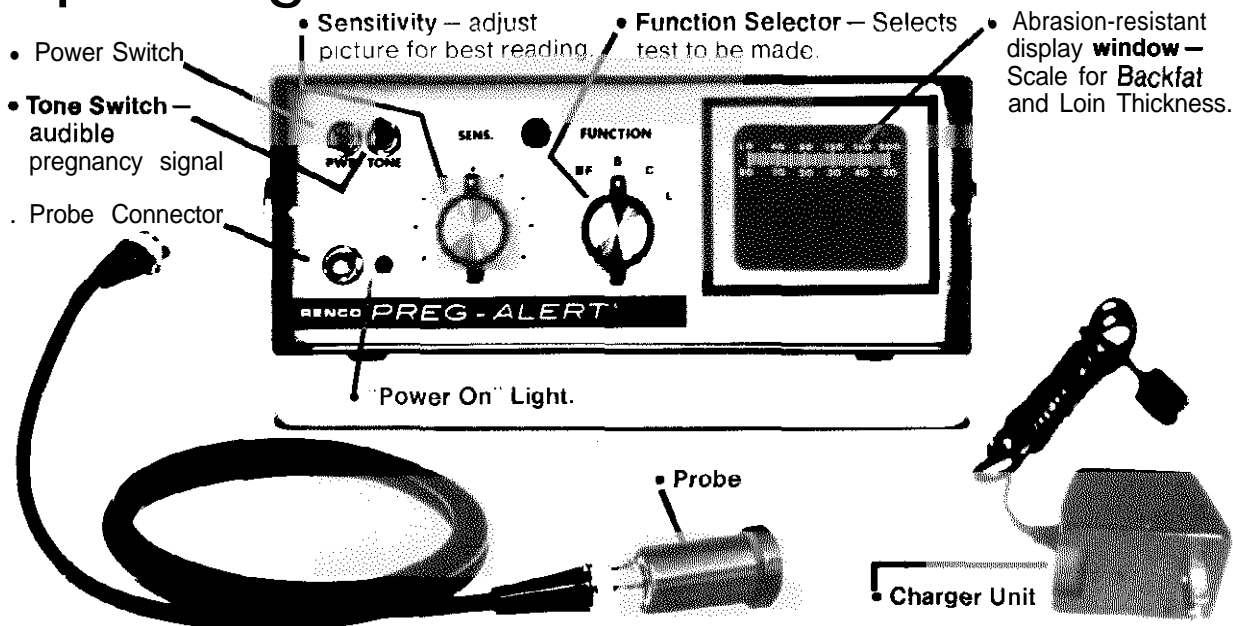
## Type 2B Operator's Manual



A Product of  
RENCO CORPORATION  
811883  
U.S. PAT. 3,112,667  
MADE IN U.S.A.

## Section 1.

# Operating Controls



**PWR** — Instrument is on when switch is up. Unit requires 30 seconds of "warm up" after switch is turned on. Switch should be OFF when charging battery.

**TONE** — Tone switch is ON, in the UP position. Tone sounds if signal on screen indicates animal is pregnant. Tone may be turned off if operator prefers (not used when measuring backfat or loin thickness).

**POWER ON LIGHT** — Bright Red indicates unit is on and battery is charged (does not indicate difference between fully and partly charged battery). Dim or no glow if battery is discharged.

**PROBE CONNECTOR** — Where probe cable connects to instrument. Cable ends

are interchangeable. Can be disconnected for storage when power is off.

### FUNCTION —

**BF** Mode for Backfat. Lower screen scale (B) indicates 0-50mm (0-2").

**S** Mode for Sow and Sheep pregnancy.

**C** Mode for Cattle and Horse pregnancy.

**L** Mode for Loin Muscle measurement. Upper screen scale (L) indicates Loin Depth 0-200mm (0-B").

**SENS** — Controls sensitivity of unit. See Individual Testing Procedures.

### INITIAL SETTINGS:

**BF** Second Dot (9:00 O'Clock)

**C** 3/4 ON (Clockwise)

**L** FULL ON

## Preliminary

The shipping carton should contain one each of the following:

PREG-ALERT Instrument	Charger Unit
Probe	Two Straps
Probe Cable	Instruction Manual

Remove the components and inspect for possible shipping damage. Notify carrier immediately if damage is found. Turn the unit on (PWR switch is in the upper left-hand corner). Red Power light will glow brightly and a green horizontal line will appear on the screen in about 30 seconds, indicating the unit is ready for use. If they do not appear, the battery may need recharging

## Battery Recharging

First, examine charger to make sure the INPUT VOLTAGE shown, is that which is supplied in your area. SEVERE DAMAGE WILL RESULT IF THE VOLTAGE SUPPLIED IS HIGHER THAN SHOWN ON CHARGER. CHARGERS WILL OPERATE ONLY ON AC CURRENT. Make sure power switch is OFF. Plug charger into wall outlet and cable into socket on back panel of unit.

The NICAD battery requires 16 hours to recharge from "dead" to fully charged. When full charged, the unit will operate for about

11 hours; less in very cold weather. Charger may be connected to unit indefinitely without harm. If not used for several weeks, battery may require recharging before use.

The battery will have a nominal life of 1,000 complete charge/discharge cycles, if recharged after each period of use. To assure maximum battery life, avoid storing the unit in high temperatures, above 110°F., for long periods; such as may occur in a closed automobile on a hot day.

Caution! DO NOT use with charger connected

---

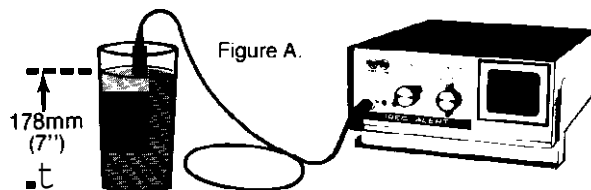
## How PREG-ALERT Works

PREG-ALERT is a fully portable, battery operated instrument, which can be used by one man with a minimum of training.

The device, which works much like a radar set, generates a narrow beam of very high frequency sound, called ultrasound, which is reflected by various muscle layers and fluid filled organs. These reflections called echoes, are displayed on a TV-like screen. Distance from the probe to the echoing object is proportional to the distance between the left end of the display and the echo signal, which appears as a vertical line or spike.

To demonstrate this, fill a tall glass with about 7 inches of water. Turn PWR switch ON, set SENS control to the first dot and set FUNCTION knob to S. (See Figure A. ) Dip the probe into the water about 3mm (1/8") or so, pointing it straight down. Note the spike in the middle

of the screen. Now increase the depth to about 25mm (1"). Note that the spike moves toward the left. You are measuring the distance between the probe face and the bottom of the glass.



Pregnancy is detected by determining that the uterus contains fluid. The fluid increases rapidly from 30 to 60 days after conception and then gradually decreases. Ultrasound is reflected from the far side of the fluid filled uterus. Just as it is from the bottom of the glass of water. If the animal is not pregnant, no echo will occur.

---

## Suspension Straps

Two wide adjustable straps attach to two "D" ring fittings on the handle. One strap is placed around the neck, the other around the chest. Adjust to provide a comfortable viewing angle.

## Section 2.

# Hog Pregnancy Test



When a sow or gilt becomes pregnant, her uterus fills with fluid. PREG-ALERT can be used to detect this fluid. After 30 days, the fluid has enlarged the uterus and caused it to drop toward the abdominal wall. During the last third of the gestation period, the fluid gradually decreases. Therefore, PREG-ALERT is most sensitive and reliable between 30 and 60 days after mating.

The PREG-ALERT probe is placed on the right flank. The sound waves it produces travel through the abdominal wall and are echoed back from the far side of the uterus (like the reflection from the water glass). The echoes are very weak if there is no fluid in the uterus but are very strong if fluid is present.

## Procedure

1 Turn PWR switch ON (allow 30 sec. warm-up = UP) Set FUNCTION switch to S (Swine). Set SENS. knob straight up and then turn on TONE if audible signal is desired.

2. Apply coupling fluid (cooking oil) to the test site, and work the probe into the oil. The object is to provide a very low resistance pathway for the sound waves to travel from the end of the probe, through body hair etc. and into the skin of the animal. Air only provides a high resistance path. Fluids provide a lower resistance path. A high resistance path decreases the ability of the sound waves to penetrate, thus reducing the effectiveness of the machine and making readings more difficult to obtain. As an alternative to using oil, the area of probe

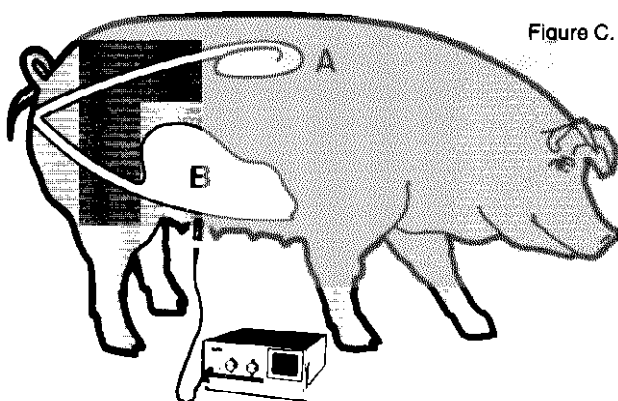


Figure C.

Place probe about 25mm (1") above nipple line.

A — Normal uterus.

B-Fluid in uterus due to animal being pregnant causes it to sink and enlarge.

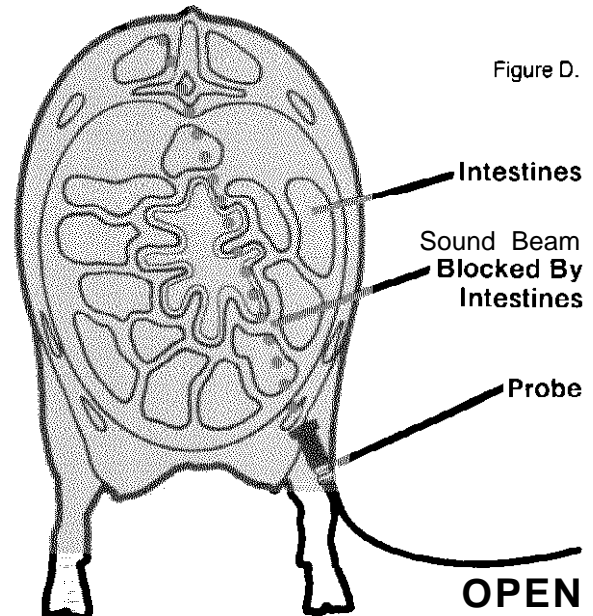


Figure D.

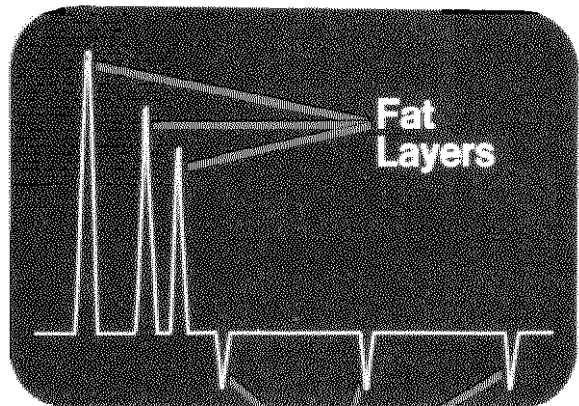
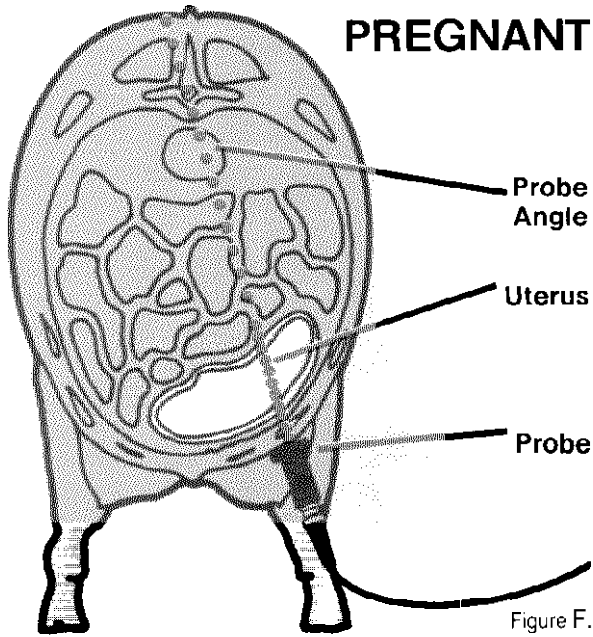


Figure E.

Distance Markers  
(depth into animal)

placement can be saturated with water by using a dripping sponge. Fluid must be applied each time the probe is applied. **Lack of sufficient fluid is the most common source of problems in the use of PREG-ALERT.** Plastic trigger bottles like those used for spray cleaners make ideal applicators of oil.



**3** Place the probe 2 -4cm (1-2") in front of flank, half-way between hair-line and teat-line. Aim for the backbone and miss it on the opposite side by half an inch. Aim just as though you were going to pass a sword through the body. Hold the probe to the body with a firm pressure, but not so great as to distort abdominal wall. Tilt the probe slightly so as to make it scan across the uterus. If sow appears open, move probe forward or backward an inch or two and lastly, check the left side of animal in the same manner. (See Fig. D. & F.)

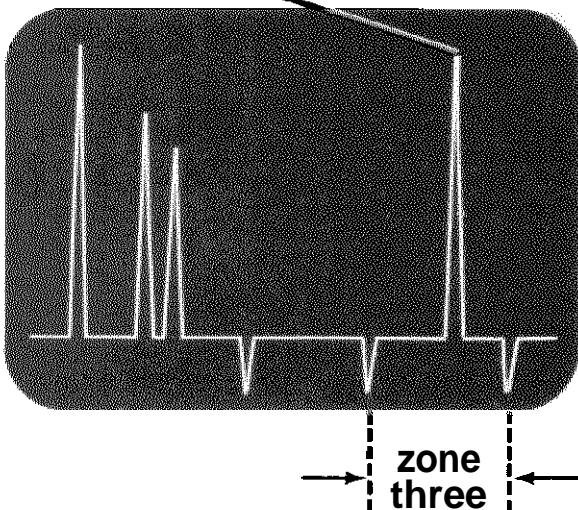
**4** Pregnancy is indicated by a signal in the right or third zone. The height of the signal is not important: it being dependent upon the setting of the SENS control, adequate wetting of the skin and the size of the animal. However, the height of the signal (spike) is important in triggering the tone. A spike about 19mm (3/4") high must be present to trigger the tone note. The spike triggers the tone only if it occurs in the third zone. The tone feature is useful in removing the need for the operator to continually watch the screen. Signals in the first or left-hand zone are skin and fat layers. Signals appearing in all three zones means that the SENS control is set too high or in some cases, disease may cause fluid build-up in the abdomen. The distance markers at the top of the screen are not used for pregnancy tests. Adjusting the SENS control one or two dots in either direction from the initial setting should be sufficient to obtain a spike about one inch high.

A smaller young gilt may produce a pregnancy signal in the middle zone. The tone will not sound (since it works only in the third zone). A sow far along in pregnancy (60 to 90 days) could also produce a middle zone signal when the uterus presses closer to the abdominal wall.

A broad, multi-peaked signal in the middle zone may indicate the probe is aimed at a sow's full bladder, particularly if the probe beam is aimed rather high and back into the sow. If you are unsure, repeat the pregnancy test after sow urinates.

**CAUTION: DO NOT ATTEMPT TO USE RENC0 PREG-ALERT ON HUMAN BEINGS**

### Uterine Wall and fluid in the uterus.



# Backfat and Loin Thickness Measurement-Hogs

Best results from these measurements are obtained when the animals reach a weight of 90Kg (200 lbs) or greater. Data can be adjusted

to a standard weight using available charts, for example, Iowa State University Cooperative Extension Service Publication AS-403J.

## Procedure – Backfat

- 1 Turn PWR switch ON. Set FUNCTION knob to BF (Backfat). Set SENS control to about the second dot (9 O'Clock). Set TONE switch OFF.
- 2 Probe Placement-Animal should be standing (feed her to keep her busy).

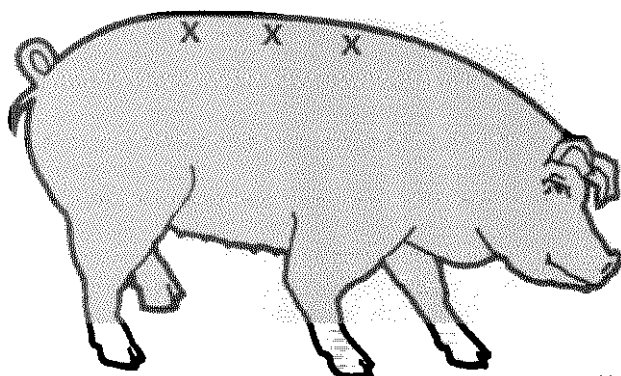


Figure H.

## Hog Backfat Anatomy

PREG-ALERT Probe

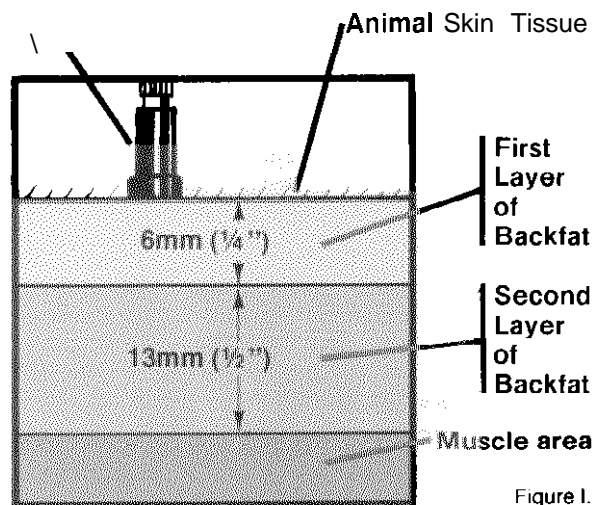


Figure I.

Place probe in the areas of the "X" as shown on the diagram and at least 4-6 cm (Z-3") off the backbone midline. (Fig. H.)

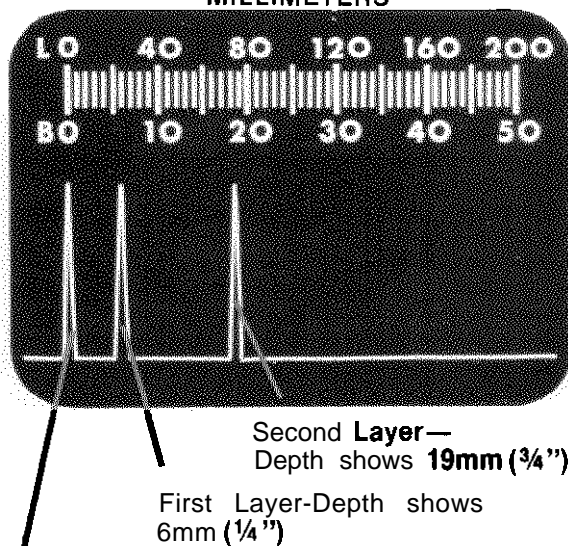
Be sure to use generous amounts of oil on probe and animal to assure good contact. Measurement off the midline, in addition to measuring fat, indirectly measures loin size.

Muscular hogs have less fat depth over the top of the loin than they have over the midline. Less muscular hogs have readings over the midline similar to those over the top of the loin.

- 3 Display—For clear easy reading, SENS control should be adjusted so that the peaks which indicate the fat-layers, just reach the scale. (Fig. J.)

L = Loin      B = Backfat  
MILLIMETERS

Figure J.



Skin on the animal is the reading at 0

You should see 2 major peaks which indicate the presence of thin tissue layers within the backfat. There will possibly be a third peak very close to the second peak. Include it in your total measurement of backfat as it represents a smaller backfat layer on fatter animals.

## Procedure – Loin Thickness

Turn PWR switch to ON. To obtain loin thickness, set function knob to L. Scale across top of screen represents 0 to 200 mm (0-8"). SENS control should be set at 75% (from seventh dot to all the way clockwise), for loin thickness.

Note: The development of skill and technique is essential to the success of loin measurement.

**L = Loin**      **B = Backfat**  
MILLIMETERS

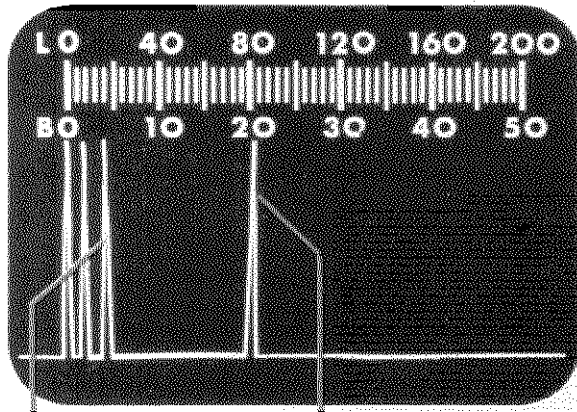


Figure K.

Backfat peaks show backfat at about 19mm (3/4")—or the same as shown on the backfat test example. (3-1/8").

• High Peak showing bottom of loin indicating 80mm

Small "Grassy Peaks" show when going through the fat layers and top of loin muscle when the SENS control is set at 75% to 100%.

Display-When reading the screen display, you should look for the peak farthest to the right, about 80mm (3-1/8") in the above diagrams. Then, subtract the backfat reading of 19mm (3/4") to give loin depth, which in this example would be 61mm (2-2/5"). Fig. K.

Peaks- When you get a low peak reading, this indicates a weak sound wave return. Most of the sound waves have glanced off of a curve of the loin, at an angle away from the

probe placement. Move the probe up or down from that spot to get a good and direct sound wave return. As you move the probe, a high peak reading may flash quickly on the screen, which will back up your low peak reading. You may be able to hold the high peak with a steadily held probe. The action of sound waves are much like throwing a basketball-if you throw it at an angle at a wall, it will bounce off at an equal angle, away from you. But if you throw it at a wall straight in front of you, it will bounce straight back to you.

Probe Placement-The PREG-ALERT probe is normally placed about 5 cm (2") off of the spine, over the last rib placement is located midway between the poll and the tail, (this is where metal ruler probing is done). Figure L. shows normal probe placement.

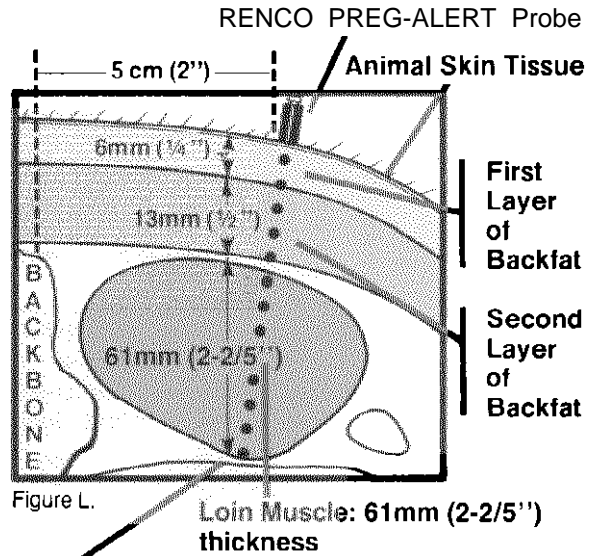


Figure L.

Bottom of Loin From Which Most of the Sound Waves are Returned Straight Back to the Probe.

NOTE: 1cm of depth = 1sq. in. of area

## Hog Loin Area Anatomy

If the probe placement is different from that shown, you may get a "low peak." If the angle is too great, you may not get a reading at all, because all of the deep sound waves have glanced off in a different direction from that of the probe area.

## Section 3.

# Sheep Pregnancy Testing



Pregnancy testing of sheep is done in the same manner as with hogs, except that only the right side of the animal is used. The **rumen** blocks the test signal path on the **left** side. In early pregnancy some care must be taken to avoid interference from the rumen on the right side, also.

For ewes on full feed (high solids), feeding should be withheld 8 to 12 hours before testing. If the animals are on range grass or a low solids diet less attention can be paid to **withholding** food. To prevent

the possible mistake of a fluid filled bladder being interpreted as the fluid filled uterus in a positive indicating animal, it is best to withhold water 4 to 8 hours before testing.

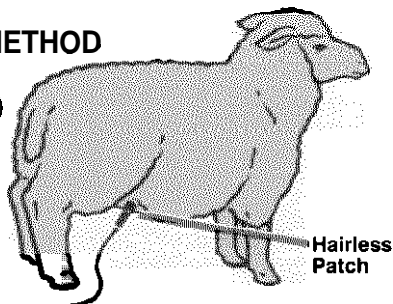
Studies indicate that 98% accuracy can be obtained at 85 days when the animal is tested in the standing position. Comparable accuracy at 30-45 days is possible if the animal is tested when sitting in the vertical position on its tail. This causes the uterus to be in a better position for testing.

## Procedure:

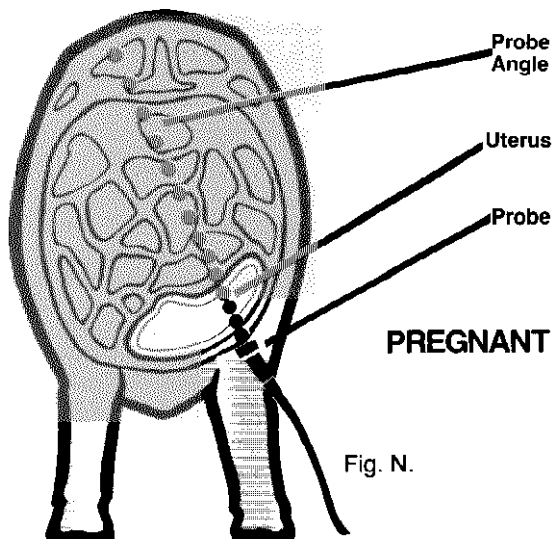
1 To become familiar with testing, begin with a ewe about 60 days pregnant. Set FUNCTION switch to position "S". Set SENS control pointer straight up.

### STANDING METHOD

60 + day testing  
(Right side only.)

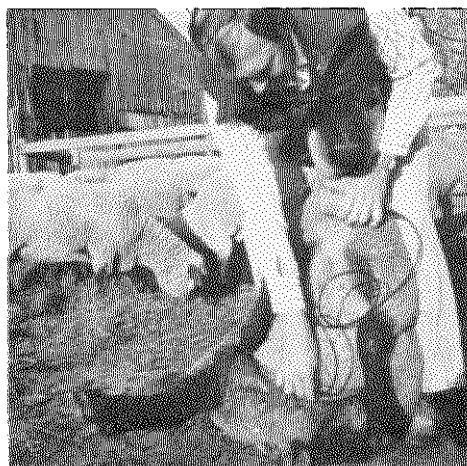


2 See Fig. M. & N.. The testing site is the clear patch of skin just to the side of the right



mammary gland. Be sure the skin is clean. Apply coupling fluid (cooking oil) to the test site, work the probe into the oil and aim it across the abdomen toward the left last rib. Never **point the probe towards the tail, as this could give a false pregnancy signal from the bladder.**

3 Testing can be done on standing animals. However, **better** accuracy when testing sheep in the earlier stages of pregnancy can be achieved when the animal is made to sit on its tail. (See Fig. 0.) In later stages of pregnancy, e.g. 60 days, standing animals can be checked at a rate of 100 to 140 per hour by using an elevated platform, and two helpers. One person momentarily stops each ewe. A head gate may be used to control the flow of ewes when ear tags have to be recorded.

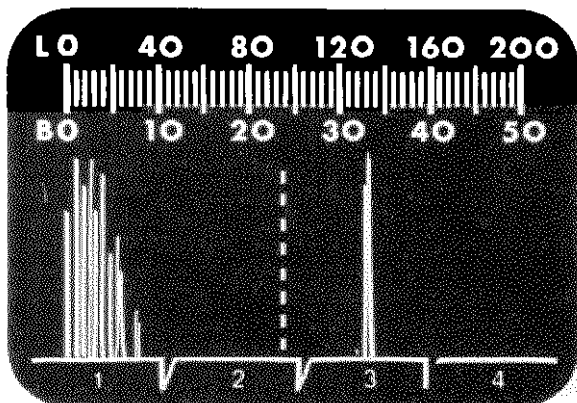


**SITTING METHOD**  
Early Method (Prior to 60 days.)

Fig. 0.

## POSITIVE EWE AT 30-45 DAYS

Fig. P.



These peaks show "contact". They always appear on screen. If a single peak appears on the far left of the screen, more oil is needed for contact.

Spikes occurring in this area indicate pregnancy. Twin peaks in 2nd and 3rd segments indicates twins. Non-pregnant ewes will have no peaks in 2nd or 3rd segments.

**4** Pregnancy is indicated by a spike in the last third of the SECOND zone or anywhere in the THIRD or FOURTH zones. The tone will sound only if the spike is in the THIRD zone and also provided that the spike is about 20mm (3/4") high. The SENS control should be adjusted to produce the required height. See Fig. P. (A doublespike indicates twins.)

In late pregnancy, the uterus contains only 5 small amounts of fluid and the fetus is situated close to the mother's skin. A false negative result is often obtained if the probe is directed straight towards the uterus. To obtain a positive result, the probe beam must be directed past the fetus to obtain an echo from the little bit of fluid between the fetus and the uterine wall. Place the ewe in a sitting position and direct the probe beam towards the hip bones on either side of the distended uterus. In the last month before lambing, it becomes very difficult to obtain a positive result.

## Section 4.

# Detection of Pregnancy in Cattle



While the principles of detection of pregnancy in cattle are the same as with swine and sheep, the technique when checking cows is somewhat modified due to anatomical differences.

As pregnancy progresses in the cow, the Fetal-Placental Unit (FPU) in the uterus descends over the pelvic rim and gradually proceeds downward. Thus, three different test locations are used, depending on the stage of pregnancy.

The following terms and definitions are used for purposes of this manual:

Stage of Pregnancy:	Referred to as:	Area Where Testing is Done:	Name for Method & Location:
4-9 Weeks	<b>EARLY</b>	Sacro-iliac Area (Top of animal).	<b>SI</b>
14 Wks. thru 4 Mo.	<b>MID</b>	"Early" Groin Position	<b>EG</b>
5 Mo. thru 9 Mo.	<b>LATE</b>	"Late" Groin position	<b>LG</b>

During the 10-14 week period, when the uterus is descending over the pelvic rim, an indication is

sometimes possible from both locations SI & EG. In some animals however, it is difficult to obtain a signal from any of the sites during this period. After 14 weeks, indications are easily obtained in the groin area.

### Detection Accuracy

A major study done by Dr. Gerry Retief (Pretoria, South Africa) reports the following results on a test of 352 Holstein cows, where diagnoses made with the RENCO PREG-ALERT were compared against rectal palpation.

"Of the 206 cows which tested negative by rectal examination, all but 7 were correctly diagnosed (96.6%) when using the RENCO PREG-ALERT. Of the 7 not correctly diagnosed, the following remarks were made after diagnosis with RENCO PREG-

### A L E R T :

- 4 Cows- 'Suspicious-test again.'
- 1 Cow- 'Possibly 4 weeks pregnant.'
- 1 Cow- 'False positive signal at LG position.'
- 1 Cow- 'False positive at SI position.' This cow showed fluid in the uterus on rectal examination, possibly due to Pyometra.

Rectal examination was used to determine that 146 cows were pregnant, ranging from 5 weeks to 8 months. Of these, a total of 132 (90.4%) were correctly diagnosed by the RENCO PREG-ALERT on the first attempt, and 6 were diagnosed correctly on a second attempt. If the "problem" period from 10-14 weeks is omitted, the accuracy becomes

considerably higher. Of 128 cows diagnosed pregnant from 5-9 weeks and from 48 months, 123 were correctly diagnosed (96%). Of the 18 cows tested positive by rectal examination in the 10-14 week range, only 9 were correctly diagnosed as pregnant using the RENCO PREG-ALERT."

## Early Testing at the SI Position

Testing at the sacro-iliac area will give an indication of pregnancy from 4 to 9 weeks. After 9 weeks, the FPU passes over the rim of the pelvis, at which time this site can no longer be used.

### Procedure:

**1.** To become familiar with the procedure, begin with cows known to be about 6 weeks pregnant. Set FUNCTION switch to "C". Set TONE switch to ON. Rotate SENS control clockwise to about 3/4 on.

**2.** See Figures Q.&R. Draw an imaginary line from the RIGHT pin bone to the RIGHT hip bone. Find the mid-point and go 3cm toward the spine. This is the test site. Saturate the oval area on the RIGHT side (Fig. R.) with cooking oil, which is most easily done with a paint brush. Place the probe vertically and firmly on top of the oil within the oval area and rock from side to side in careful, deliberate slow movements. The action is something like shining a flashlight into a dark room through a small window, sweeping to all corners of the room with the beam. If small spike appears on the screen in the THIRD or FOURTH zone, hold the probe completely still and pointed in the same direction. The spike will usually "grow" higher on the screen. If the spike is in the THIRD zone, a continuous tone will be heard provided the spike is at least 20mm high. If no spike appears, move the probe to a different position within the oval and try again, etc. If all searches on the RIGHT side give negative results, then repeat the entire procedure on the LEFT side in the oval site shown. Point the probe toward the RIGHT hip bone.

It is absolutely necessary that there be no air bubbles between probe and skin. This is most easily accomplished by using a twisting/pressing motion while working the probe with the rocking motion described. Whenever the probe is moved to a new location in the test site, LIFT it, don't slide it. Sliding will remove the oil from the probe face, which we

don't want to happen, since it will make contact harder to re-establish.

Adjust SENS control to change the height of the spike if necessary. The tone will sound only for spikes in the THIRD ZONE, and then only if the spike is about 20mm high. Note: Signals in the FIRST and SECOND zones should not be interpreted as a pregnancy signal.

### 8 WEEKS (APPROX.) PREGNANCY-SI

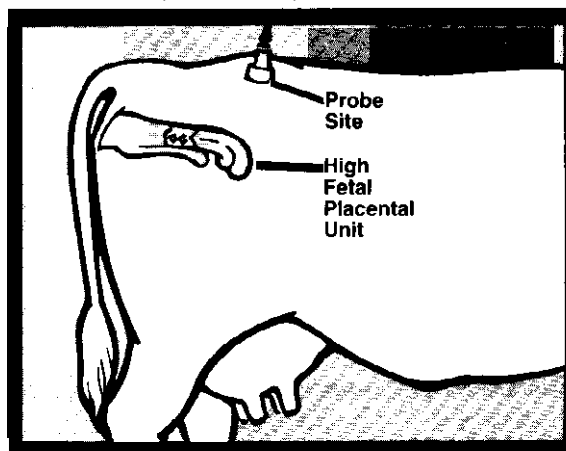
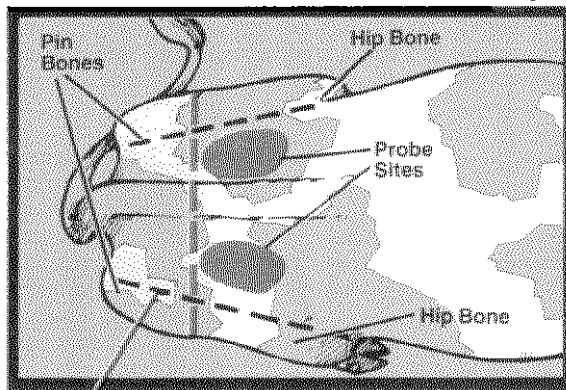


Fig. Q.



Do not test behind this line.

Fig. R.

# Mid Stage Testing at the EG (Early Groin) Position

This method utilizes the test site in the groin area under the RIGHT side kneefold.

## Procedure:

**1** For learning purposes, work first with cows between 150 and 180 days pregnant. Set FUNCTION switch to the "C" position. Set SENS control to FULL CLOCKWISE ROTATION (FULL ON). Set TONE switch to ON.

**2** The test site is located on the RIGHT rear flank **inside** the flap of skin connecting the right rear leg to the flank. Apply plenty of coupling fluid (cooking oil) to the test site. (See Fig. U. and V.)

**3** Wet the probe with oil and lift the kneefold with your left hand as high as possible. With the right hand, push the probe up towards the spine very strongly. The action should be as though you are trying to bring the probe so close to the spine, that you can touch it. (See Fig. U.). Repeat the rocking motion described for the SI position, but **point the probe forwards** of an imaginary line drawn between the points of the right and left side hip bones (Tuber sacrale), i.e., the area of the "hooks".

A strong-broad peaked signal should appear in the THIRD zone if the animal is pregnant. By this time, the FPU has become larger, so it should be relatively easy to find with the probe beam. (Note: The left side cannot be used for this technique, due to the presence of the rumen.)

## 16 WEEK (APPROX.) PREGNANCY-EG

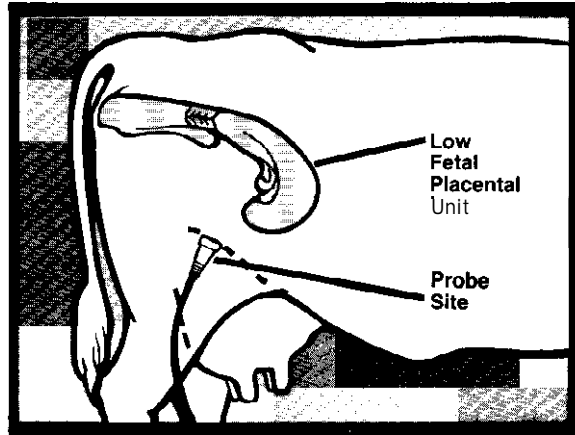


Fig. T.

## PROBE PLACEMENT SITES

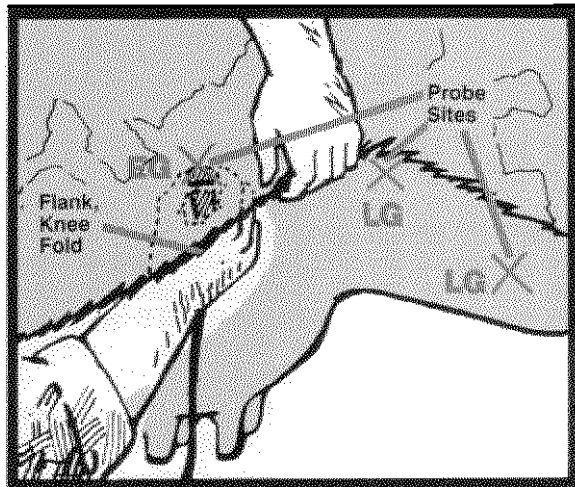
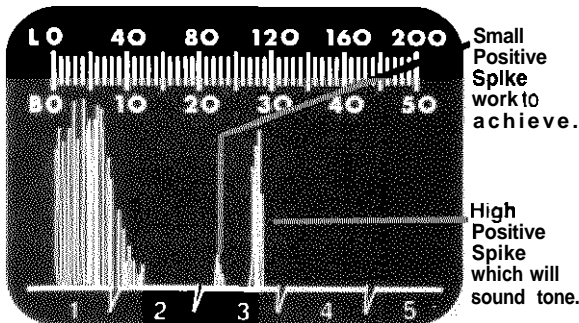


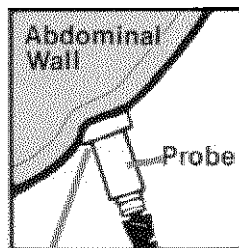
Fig. U.



## PREGNANCY IN CATTLE

Fig. S.

## RIGHT



No Gap  
Probe Pressed In

## WRONG

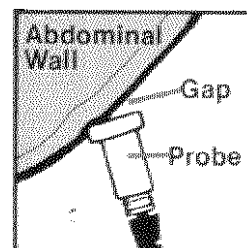
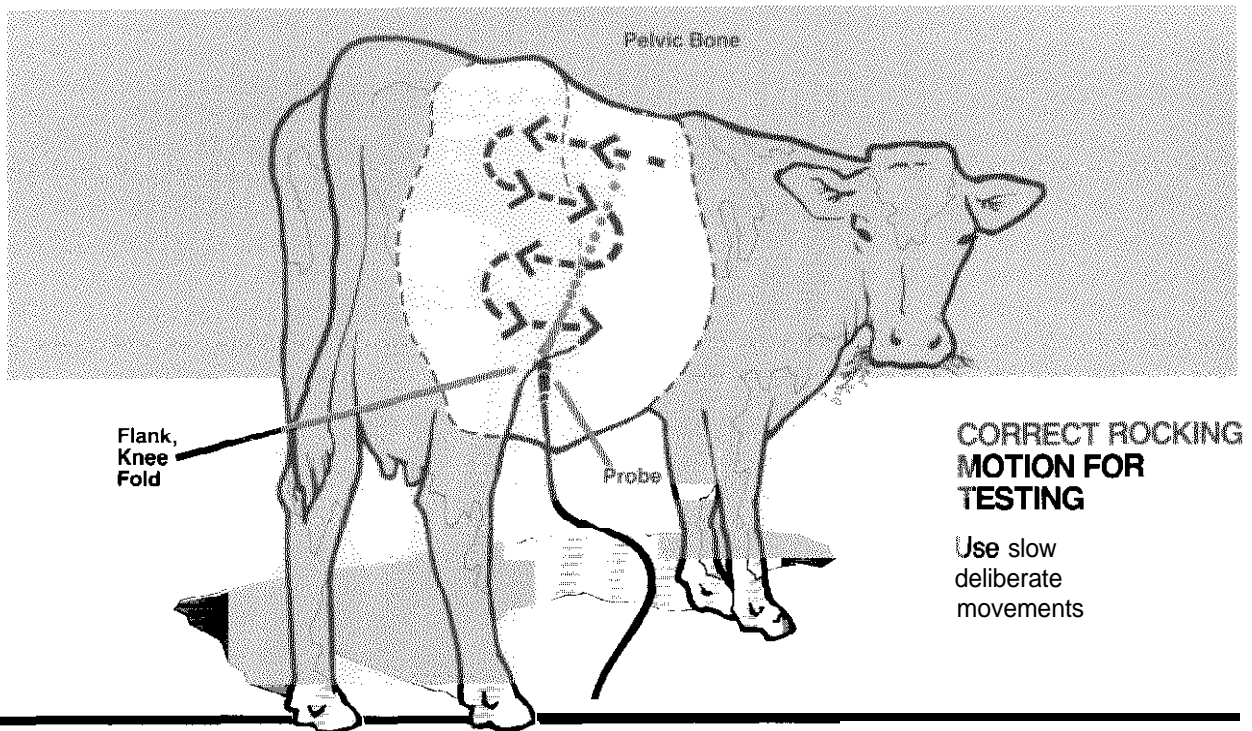


Fig. V.



## Late Stage Testing at the LG (Late Groin) Position

From the EG position, angle the probe more towards the left front knee. Then move the probe downward towards the udder. During late pregnancy, a broad positive signal in the THIRD OR FOURTH zones will be received from almost any angle around the udder, in the pregnant cow. (See Fig. W.)

Pregnancy using the LATE method is usually indicated by a spike in the FOURTH zone. Valid spikes may also appear in the last 50% of the THIRD zone. These spikes will appear and disappear as the probe beam is moved across the FPU, much like the reflection of a flashlight beam from a mirror. (It is these reflections which are represented as spikes on the screen.) Pregnancy spikes do not occur in zones ONE and TWO, and the first 50% of zone THREE. (See Fig. S.)

If the screen is flooded with spikes in all zones, reduce the setting of the SENS control, i.e. rotate counterclockwise, until only the prominent ones in the zones indicated above show on the screen.

As regards all techniques: If a good strong spike cannot be obtained, then: (1) Animal is not pregnant

### 6 MO. (APPROX.) PREGNANCY-LG

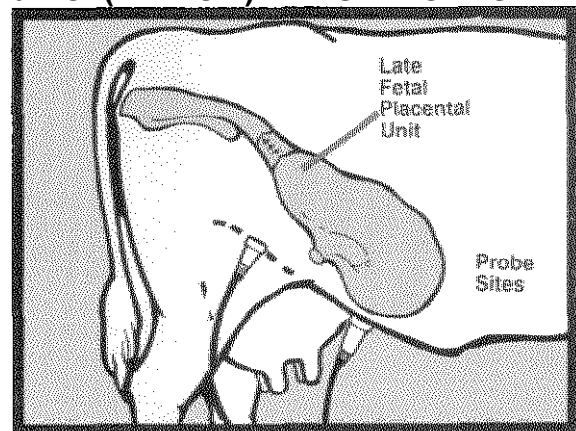


Fig W.

or, (2) scanning was not done with proficiency or, (3) detection was attempted at too early a stage (or the stage of pregnancy lies within the "problem" period), or (4) not enough coupling fluid was used or was not worked thoroughly into the skin, thus causing poor skin contact or, (5) the wrong position was used.

A false positive reading may occur under the following conditions:

**1.** The RENCO PREG-ALERT will give a **positive** reading from any fluid-filled hollow organ, (except the intestines and stomach, because of grass and air). Thus, it is possible to get a positive response from a urine-filled bladder. Therefore, it is extremely important to avoid placing the probe behind (towards the tail) the **SI** area. The limit should be the midpoint on the "pin-bonehipbone" line. We don't test behind this point, because if the bladder is partially filled, it will be in this position (under the vagina and cervix).

When the bladder is very full, it lies under the uterus in the pelvic cavity. The lower wall of the bladder (which is the surface that reflects the ultrasound), is too far away from the body surface for the ultrasound beam to reach it. Attempts have been made to get a false positive reading from a fully extended bladder, (as diagnosed per rectum) and failed. It is theoretically possible to get a false positive reading from the fully extended bladder from the EG position, if the bladder lies over the pelvic rim in the abdominal cavity. It is, however, extremely unlikely because, (a) cows usually urinate when they come into a barn or confinement area and (b) the bladder will be situated behind a line drawn between the points of the hip bones. (See technique for EG area.)

**2.** After calving, since the cow's uterus may contain fluid for a length of time (usually up to 30 days).

**3.** During **estrus**, when there is a significant amount of mucus produced in the genital tract.

**4.** In the case of Pyometra, when there is fluid pus in the uterus.

It is necessary that many spikes appear on the screen in zone ONE, since this is proof that proper contact between probe and skin has been established. However, if the SENS control has been turned too high, then these spikes will extend into the **THIRD zone, and perhaps even cause the tone to sound.** In such cases, rotate the SENS control (counterclockwise), until the group of "contact" spikes appear only in the **FIRST zone, or at most, halfway into the SECOND zone.**

## Summary Table:

### Summary Table:

---

**4-10 WEEKS** Test the right SI area. If no positive result, test the left SI area.

---

**11-14 WEEKS:** From about 11 weeks, the uterus lies over the pelvic rim, but some fluid may still be detectable from the SI position. It is therefore often possible to get a positive reaction from both the SI and EG positions at this stage of pregnancy.

---

**15 WEEKS - 4.5 MONTHS:** Usually negative from SI position. Positive from EG position.

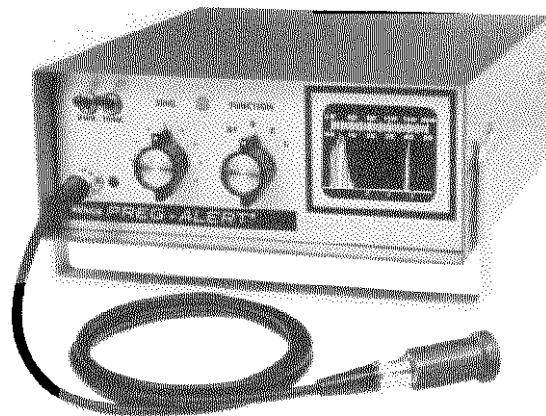
---

**5-6 MONTHS:** Positive only from LG position.

---

**7-9 MONTHS:** Positive from LG, EG, and SI positions.

---



---

**RENCO**  
*PREG-ALERT*

## In Case of Trouble

Should your PREG-ALERT require repair, please contact the distributor repair center or factory for shipping instructions.

BUT, before you decide the instrument needs repair, here are a few things to check:

**1.** Display becomes dim and moves toward the right of screen: Unit is OK, but battery needs charging.

**2.** Red Power light does not glow: Battery may be discharged. Is the charger cord firmly plugged into the rear of the machine? Try the charger unit in a different wall outlet. PWR switch must be OFF when unit is to be charged.

**3.** If unit will operate only a short time between 16 hour recharges, then, leave PWR switch ON for at least 12 hours, turn switch off and recharge for 24 hours. If unit still only operates for 2 or 3 hours, the battery probably needs replacement. Batteries can be obtained only from distributor repair station.

**4.** Red Power light glows brightly, but nothing appears on screen after one minute warm up: Unit is probably defective. Return to repair station.

**5.** Red Power light glows and green horizontal line shows on screen: Try the glass of water test. Be sure knobs are pointed as shown. If the vertical spike appears, try the unit again on an animal. Be sure to use adequate oil to insure contact between probe and animal. Carefully follow suggestions for use in the appropriate section of the instruction manual.

If the water glass test does not work, examine the probe cable, connectors and probe for damage. Replacements for these parts may be ordered without the need of returning the entire unit to the repair center. If the cable shows cuts, severe kinks or pinches, this is very likely to be the problem. The probe is likely to be damaged if the body has been deformed or cracks are visible on the face.

**6.** Tone does not sound: Is TONE switch UP? Is FUNCTION knob set at S or C? Both are necessary. A signal at least 19mm (3/4") high in the third, or right, zone is required to sound the tone. Tone will not sound if battery is discharged. On the other hand, if the tone sounds continuously, the unit is defective and should be returned to repair center. (If screen display is OK, unit can be used without harm until convenient to return.)

---

## Routine Care of PREG-ALERT

**1.** Cleaning: Charger must not be connected and PWR switch must be OFF Use soap and water to clean cabinet, probe, and cable. A soft tissue or cloth moistened with soap and water is ideal for cleaning the display screen. Do not use abrasives or chemical solvents. Do not use excessive water or immerse unit.

**2.** Keep battery charged and store unit at normal room temperature. Avoid extremes of heat and cold for long periods.

**3.** When returning an instrument for repair, the probe, cable, and charger must also be returned.

---

**Notes:**

CAUTION: HIGH VOLTAGES ARE PRESENT INSIDE PREG-ALERT. DO NOT OPERATE UNIT WITH COVERS REMOVED.

COPYRIGHT 1995 BY RENCO CORPORATION, MINNEAPOLIS, MINNESOTA. PRINTED IN THE UNITED STATES OF AMERICA. ALL RIGHTS RESERVED. CONTENTS **OF THIS** PUBLICATION MAY NOT BE REPRODUCED IN ANY FORM WITHOUT PERMISSION IN WRITING OF THE COPYRIGHT OWNER.

DESIGNED AND MANUFACTURED BY RENCO CORPORATION, 116 THIRD AVENUE NORTH, MINNEAPOLIS: MINNESOTA **55401USA**. TEL: (612) 336-6124 FAX: (612) 333-9026