

### Ultrasonic Unit Calibration Report—AWS

Ultrasonic Unit Model \_\_\_\_\_ Serial No. \_\_\_\_\_

Search Unit—Size \_\_\_\_\_ Type \_\_\_\_\_ Frequency \_\_\_\_\_ MHz

Calibration—Date \_\_\_\_\_ Interval \_\_\_\_\_ Method \_\_\_\_\_

Block Serial No. \_\_\_\_\_ Data \_\_\_\_\_ As Found \_\_\_\_\_ As Adjusted \_\_\_\_\_

#### SUPPLEMENTAL INSTRUCTIONS

- Start with the lowest dB level that you can obtain a 40 percent display height indication from directly over the two in section of the DS block. Add 6 dBs and record this dB reading “a” and display height “b” as the starting point on the tabulation chart.
- After recording these values in Rows “a” and “b,” slide the transducer to obtain a new 40 percent display height. Without moving the transducer add 6 dBs and record the new dB reading and the new display height in the appropriate row. Repeat this step as many times as the unit allows.
- Find the average % screen values from Row “b” by disregarding the first 3 and the last 3 tabulations. Use this as %<sub>2</sub> in calculating the corrected reading.
- The following equation is used to calculate Row “c”:  
 %<sub>1</sub> is Row “b”  
 %<sub>2</sub> is the average of Row “b” disregarding the first and last three tabulations.  

$$dB_2 = 20 \times \log\left(\frac{\%_2}{\%_1}\right) + dB_1$$
 dB<sub>1</sub> is Row “a”  
 dB<sub>2</sub> is Row “c”
- The dB Error “d” is established by subtracting Row “c” from Row “a”: (a – c = d).
- The Collective dB Error “e” is established by starting with the dB Error “d” nearest to 0.0, collectively add the dB Error “d” values horizontally, placing the subtotals in Row “e.”
- Moving horizontally, left and right from the Average % line, find the span in which the largest and smallest Collective dB Error figures remain at or below 2 dB. Count the number of horizontal spaces of movement, subtract one, and multiply the remainder by six. This dB value is the acceptable range of the unit.
- In order to establish the acceptable range graphically, Form M-8 should be used in conjunction with Form M-9 as follows:
  - (1) Apply the collective dB Error “e” values vertically on the horizontal offset coinciding with the dB reading values “a.”
  - (2) Establish a curve line passing through this series of points.
  - (3) Apply a 2 dB high horizontal window over this curve positioned vertically so that the longest section is completely encompassed within the 2 dB Error height.
  - (4) This window length represents the acceptable dB range of the unit.

Row	Number	1	2	3	4	5	6	7	8	9	10	11	12	13
a	dB Reading													
b	Display Height													
c	Corrected Reading													
d	dB Error													
e	Collective dB Error													

Accuracy Required: Minimum allowable range is \_\_\_\_\_ . %<sub>2</sub> (Average) \_\_\_\_\_ %

Equipment is: Acceptable for Use \_\_\_\_\_ Not Acceptable for Use \_\_\_\_\_ Recalibration Due Date \_\_\_\_\_

Total qualified range \_\_\_\_\_ dB to \_\_\_\_\_ dB = \_\_\_\_\_ dB Total error \_\_\_\_\_ dB (From the Chart above)

Total qualified range \_\_\_\_\_ dB to \_\_\_\_\_ dB = \_\_\_\_\_ dB Total error \_\_\_\_\_ dB (From Form M-9)

Calibrated by \_\_\_\_\_ Level \_\_\_\_\_ Location \_\_\_\_\_