

**Inspection Procedure for Probe 12  
(50 cm Active Length Morgan Coil)**

TS-SSC 91-123  
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June 16, 1991

**Introduction:** This note specifies inspections of Probe 12 by Lab D and Lab 2 personnel to establish azimuthal positions of all longitudinal grooves in the probe, non-spiralling of all longitudinal grooves, and lengths of longitudinal grooves.

**Lab D Measurements:**

1) Mark 1 1/2", 6", and 10 1/2" , 14 1/2", and 19 1/2" points along the length of the probe as shown in Figure 1.

2) Set up probe on table with vibro-shock feet, using 4-jaw independent chuck on rotary table with small pieces of aluminum stock between ends and chuck jaws. **THE PROBE MUST BE SET UP SO THAT IT IS PARALLEL TO THE TABLE SURFACE.** (If there are any questions on this procedure, contact Charles Hess at x3375.)

3) Use direct light source with microscope.

4) At the 1.5", 6", 10.5", 14.5", and 19.5" positions, measure all groove azimuthal angles, widths, and depths. Make two sets of measurements at each position to establish precision of the measurement.

5) Use home-made thin disc probes on Micro-hite to measure groove depths.

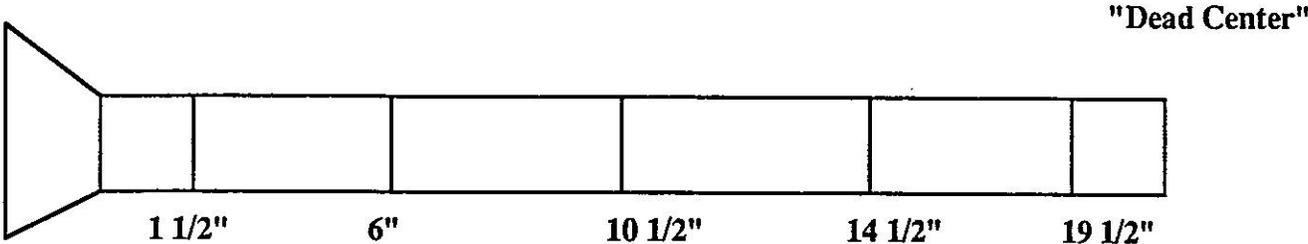
6) Use microscope reading of groove edges and calculation to measure groove widths.

**Lab 2 Measurements:**

1) **Non-spiralling:** Mount the probe on the Gorton milling machine. Establish straightness of tube with respect to travel of vice and parallelism of fixed jaw with respect to table travel using dial indicator against the probe surface. By observing the dipole longitudinal grooves for various vice positions, establish that the longitudinal grooves do not spiral, or if they do, by how much.

2) **Longitudinal Groove Length:** Map and record the positions of all 24 azimuthal groove edges relative to one outside azimuthal edge of the skew Dipole ( Dipole 2.) Do this in the 0, 112, and 249 degree positions. (See Figure 2.)

**Indexing Head Chuck**

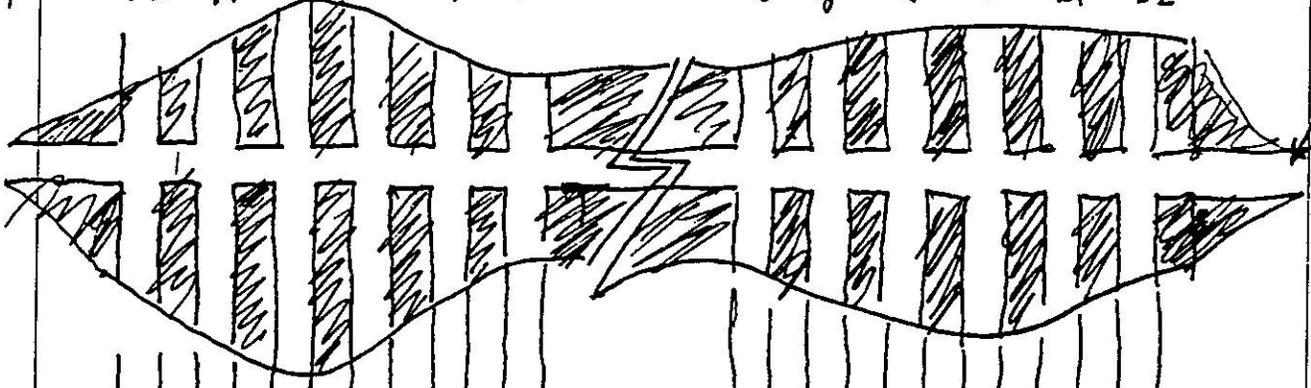


**Figure 1. Measurement Positions for 50 cm Morgan Coil Probe**

Eg 112° Longitudinal groove

10 8 6 4 2 0

10 8 6 4 2 0



positions

0 1 2 3 4 5 6 7 8 9 10 11

12 13 14 15 16 17 18 19 20 21 22 23