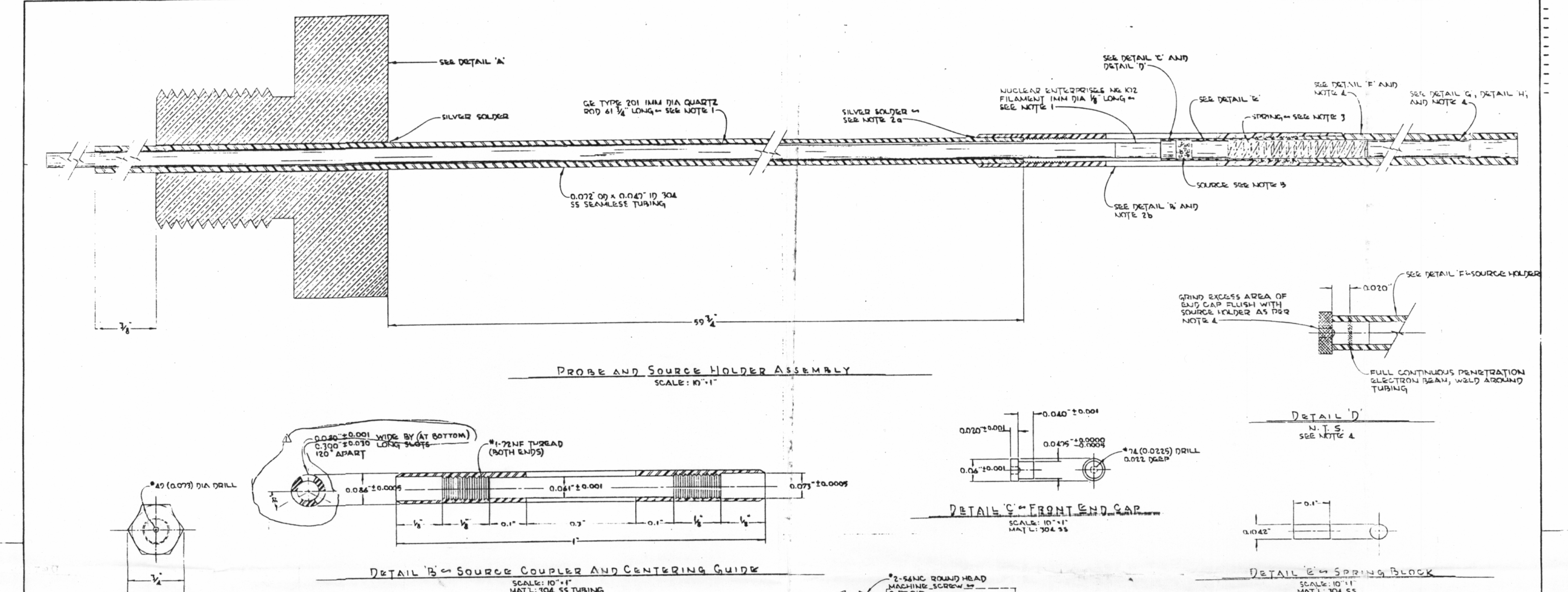
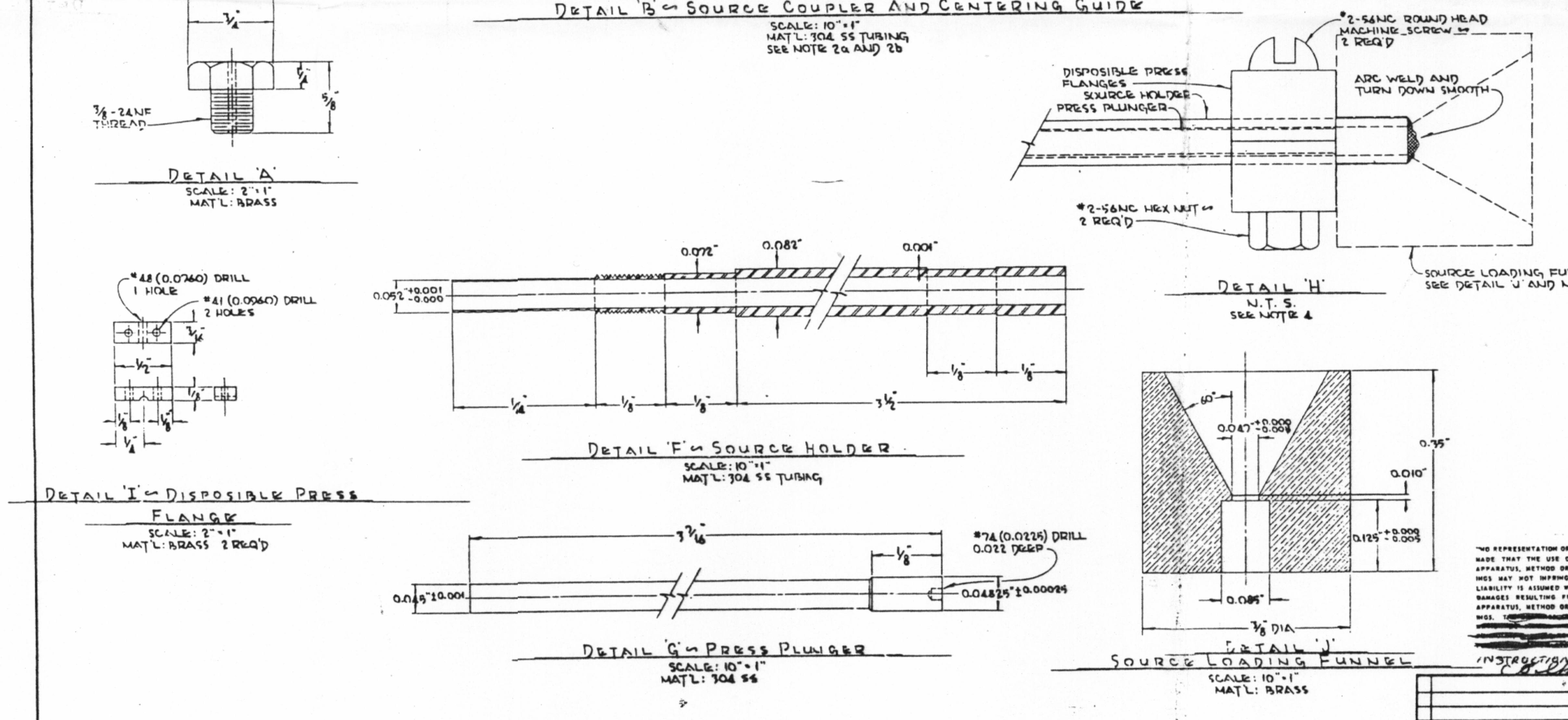

SEE DETAIL 'A'
SILVER SOLDER
GE TYPE 201 1MM DIA QUARTZ ROD 61 1/4" LONG ~ SEE NOTE 1
SILVER SOLDER ~ SEE NOTE 2a
NUCLEAR ENTERPRISES NE 102 FILAMENT 1MM DIA 1/8" LONG ~ SEE NOTE 1
SEE DETAIL 'C' AND DETAIL 'D'
SEE DETAIL 'E'
SPRING ~ SEE NOTE 3
SEE DETAIL 'F' AND NOTE 4
SEE DETAIL G, DETAIL H, AND NOTE 4
SOURCE SEE NOTE 5
SEE DETAIL 'B' AND NOTE 2b
0.072" OD x 0.047" ID 304 SS SEAMLESS TUBING
59 3/4"
PROBE AND SOURCE HOLDER ASSEMBLY
SCALE: 10"=1'
GRIND EXCESS AREA OF END CAP FLUSH WITH SOURCE HOLDER AS PER NOTE 4
0.020"
SEE DETAIL 'F' ~ SOURCE HOLDER
FULL CONTINUOUS PENETRATION ELECTRON BEAM, WELD AROUND TUBING
DETAIL 'D'
N.T.S.
SEE NOTE 4
0.030 ±0.001 WIDE BY (AT BOTTOM) 0.390 ±0.030 LONG SLOTS 120° APART
#1-72NF THREAD (BOTH ENDS)
0.084" ±0.0005
0.061" ±0.001
0.073" ±0.0005
DETAIL 'B' ~ SOURCE COUPLER AND CENTERING GUIDE
SCALE: 10"=1"
MAT'L: 304 SS TUBING
SEE NOTE 2a AND 2b
0.040" ±0.001
#74 (0.0225) DRILL 0.022 DEEP
DETAIL 'C' ~ FRONT END CAP
SCALE: 10"=1"
MAT'L: 304 SS
0.1"
0.042"


#42 (0.093) DIA DRILL
3/8-24NF THREAD
DETAIL 'A'
SCALE: 2"=1"
MAT'L: BRASS
#48 (0.0760) DRILL 1 HOLE
#41 (0.0960) DRILL 2 HOLES
DETAIL 'I' ~ DISPOSIBLE PRESS FLANGE
SCALE: 2"=1"
MAT'L: BRASS 2 REQ'D
0.072"
0.082"
0.001"
DETAIL 'F' ~ SOURCE HOLDER
SCALE: 10"=1"
MAT'L: 304 SS TUBING
#74 (0.0225) DRILL 0.022 DEEP
0.04825" ±0.00025
DETAIL 'G' ~ PRESS PLUNGER
SCALE: 10"=1"
MAT'L: 304 SS
#2-56NC ROUND HEAD MACHINE SCREW ~ 2 REQ'D
DISPOSIBLE PRESS FLANGES
SOURCE HOLDER
PRESS PLUNGER
ARC WELD AND TURN DOWN SMOOTH
#2-56NC HEX NUT ~ 2 REQ'D
SOURCE LOADING FUNNEL SEE DETAIL 'J' AND NOTE 4
DETAIL 'H'
N.T.S.
SEE NOTE 4
0.010"
0.125" +0.000 -0.005
0.085"
1/8" DIA
DETAIL 'J'
SOURCE LOADING FUNNEL
SCALE: 10"=1"
MAT'L: BRASS

DETAIL 'E' ~ SPRING BLOCK
SCALE: 10"=1"
MAT'L: 304 SS

NOTES

1. a) Both ends of the Quartz Rod are to have a No. 4 finish.

   b) Quartz Rod and Filament are covered with a rolled tube made from two layers of 0.001" aluminum foil approximately 3/4" long. Crimp the end of aluminum foil over the filament after it is rolled.

   c) Quartz Rod is coupled to the Filament using Dow Corning DC 200 silicone grease having 10⁶ centistokes viscosity.

   d) After assembly the Quartz Rod and Filament are to be light checked.

   e) The Quartz Rod is very brittle and extreme care must be taken while making and during installation.

2. a) Use a No. 1-72NF brass screw to determine the best thread fit on the coupler. Silver solder opposite end to the 304 SS tubing as shown in assembly drawing.

   b) The Filament and Source must be as near the center of the slots in the coupler as possible.

3. The Spring is 0.005" piano wire and is wound on a 0.032" mandrel and should be 3/4" long uncompressed.

4. a) Insert Front End Cap (Detail 'C') into Source Holder Outside Tube (Detail 'F'). Weld End Cap into place as shown by Detail 'D' by full continuous penetration electron beam, weld around the tubing.

   b) Leak check, Cap and Source Holder after weld, for less than 5×10^{-8} cc atmosphere helium leak test.

   c) Grind off shaded area (Detail 'D') after leak test and recheck for leaks. Do not use if measurable leaks above 5×10^{-8} cc atmosphere are detected.

   d) Place disposable press flange (Detail 'I') on Source Holder as shown by Detail 'H'. Insert Source into Holder, by use of the Source Loading Funnel (Details 'H' and 'J'), Spring Block (Detail 'E'), Spring (See Note 3), and press plunger (Detail 'G') into holder (Detail 'H'). The press flanges are to be used only to support the holder so that no pressure will be applied against the thin wall tubing.

   e) After the plunger is pressed into place, Arc Weld the plunger and holder as shown in Detail 'H' and turn down smooth. The whole Source Holder Assembly may now be screwed into the Coupler.

5. Source Characteristics:

   a) Sr^{90} [illegible], fired at [illegible]°C, screened [illegible] mesh, output after encapsulation equivalent to [illegible] an unencapsulated source using an ion chamber instrument to make the comparison. Approximate total activity 20 mc.

REFERENCE DRAWINGS

B-I-25708 DRAWING LIST

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As per TELEPHONE INSTRUCTIONS FROM UCC 10/12/64

a	CHANGED SLOT SIZE (BREES, W131)	T.K.B.	
REVISION	BY	APP	DATE

BREAK ALL SHARP EDGES UNLESS OTHERWISE SPECIFIED
TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONS ± 1/64" DECIMALS ± AS NOTED ANGLES ±
SCALE AS NOTED

Y-12 PLANT OAK RIDGE, TENN.
BETA BACK SCATTER
PROBE ASSEMBLY
BLDG.
E-I-54431 a

MICROFILMED

D-1