**RADIO CORPORATION OF AMERICA**
RCA VICTOR DIVISION
TUBE DEPT. STANDARDIZING K-2x4-K
HARRISON, N. J.          LANCASTER, PA.

DATE Sept. 13, 1952 PAGE     1

STANDARDIZING
NOTICE                    **MAY   1955**
34-16-2B

SUBJECT: MOUNT BEADING
Process Specifications

SUPERSEDED DATE   Apr. 11, 1942, Pg. 1 & 2

This specification applies to the procedure for joining cathode ray mount parts by beading.

### SCHEDULE NO. 1
(Initially for 17HP4 cage assembly - This procedure
may be used as a guide for other beaded assemblies)

**1. EQUIPMENT**
    a. Mandrels and spacers to hold mount parts in correct alignment.
    b. Shield to protect operator from heat and flames.
    c. Tweezers for handling glass and hot finished assemblies.
    d. Timer with indicator lamp present to determine length of time for heating glass.
    e. Beading fixture with a sliding holder for mandrel and mount parts, a bead block to hold bead glass in proper position for heating and beading, and 2 rows of flat flame burners about 30mm from the bead block and mounted so that the planes of the flames will be about 30° from the horizontal. The horizontal spread of the flames should be sufficient to envelop the glass bead from end to end. At present, burners such as AGF #1012 flat flame burners are used for heating beads. Stops on the bed to fix the distance between the glass bead and the mount parts initially for 17H cage assembly.

**2. MATERIALS**
    ---- Cane glass of specified kind and size.
    ---- Mount parts with bead supports welded in position.

**3. PROCEDURE**

    a. Set timer to approximately 10-11 seconds depending upon fire setting.
    b. Set fires by adjusting the oxygen and city gas valves on the flowraters to 20 cfh and 10 cfh respectively or therabouts. Nearly always the ratio of oxygen to gas is 2 to 1. The specific setting is determined by the characteristics of the glass. The object is to heat the glass until it is soft enough to permit entrance of the bead supports at least 2/3 of the diameter into the glass and to allow the glass to flow around the flat end of the bead supports.
    c. Set stops to provide proper clearance between bead glass and mount parts.
    d. Load glass bead into bead block with tweezers.
    e. Load parts and spacers on the beading mandrel in the proper places according to dimensions and locations specified.
    f. Operate foot pedal to feed gas and oxygen to the burners to heat the bead glass.
    g. A second or two before the timer finishes its cycle lower the assembly to be beaded over the glass and allow a set of bead supports to pre-heat. Caution: Do not pre-heat bead supports if adjacent bead glass has cooled off too much.
    h. When timer has finished its cycle, indicated by neon bulb going out, release foot pedal slowly to prevent burners from going completely out.
    i. Immediately lower bead supports into bead glass. Beading is now completed. Attach as many beads as are required and unload beaded assembly from mandrel.
    j. Allow beaded assembly to cool before removing spacers.
    k. Visually inspect spacing. When possible insert check mandrel through apertures and check concentricity of assembly by spinning gently on mandrel.

**RADIO CORPORATION OF AMERICA**
RCA VICTOR DIVISION
TUBE DEPT. STANDARDIZING K-2cp-Kc
HARRISON, N. J.          LANCASTER, PA.

DATE Dec. 3, 1952     PAGE   2

STANDARDIZING     34-16-2B
NOTICE

SUPERSEDED DATE

MOUNT BEADING
SUBJECT: Process Specifications

## SCHEDULE NO. 2
### (Initially for 7NP4, 7WP4 and C73320.)

1. **EQUIPMENT:**
   a. Beading fixture with a sliding holder for mandrel and mount parts, mandrel and spacers to hold parts, a bead block to hold bead glass in proper position for heating and beading, and a flat flame burner of a sufficient length to cover the glass bead from end to end.
   b. Hand torch to oxidize the beading pins prior to beading.
   c. Tweezers for handling glass and hot finished assemblies.
   d. Small pliers for adjustment of beading pins.
   e. Supplies of gas, low pressure air, and oxygen.

2. **MATERIALS:**
   --- Cane glass
   --- Mount parts ready to bead.

3. **PROCEDURE:**

   Note: Handle all parts and sub-assemblies wearing white rayon gloves.

   a. Slide $G_3$ assembly on left beading mandrel. Slide on .080" spacer.
   b. Raise mandrel to vertical position. Fit $G_2$ assembly aperture over pin and slide down to fit against spacer.
   c. Slide on .025" spacer.
   d. Place $G_1$ assembly aperture over stud. Caution: Do not scratch or damage the $G_1$, since cathode-grid spacing may be affected.
   e. Slide other end of mandrel into grid-cathode assembly and tighten expanding bushing. Tighten set screw on mandrel and return to horizontal position.
   f. Place beading glass in bead block with tweezers. Align beading studs to fall in center of beading glass. Oxidize beading studs by heating with hand torch to a dull red. Raise fire into position and depress pedal, using approximately 9 cfh gas, 12 cfh air and just enough oxygen to make flame sharp. Heat glass until bead glass becomes rounded at the edges, and lower mandrel pressing beading studs firmly into the soft glass bead.
   g. Release fire pedal slowly. As soon as glass bead has hardened, raise mandrel.
   h. Repeat steps (f) and (g) for each of the two additional beads.
   i. Loosen expanding bushing holding grid-cathode assembly and slide away from beaded mount. Slide mount off mandrel to the right.
   j. Test strength of bead with tweezers. Bead should not crack under moderate strain, and should have the supports in the bead for at least 2/3 of the diameter of the bead glass.
   k. Remove the two spacers from the mount with tweezers.
   l. Visually check concentricity of $G_1$ and $G_2$ apertures.