SUBJECT NECK TO BULB SPLICING AND SEALING OF 2nd ANODE LEAD (BUTTON CONTACT)

Initially used for splicing neck (J21-1/4A1) assembly to a partial FB72-30E assembly and sealing in of FM2454J contact assembly as No. 2 anode lead.

1. EQUIPMENT

a. 8-head Splicing Unit Model No. 781K Ser. #10.
b. Gauges for measuring I.D. of bulb and O.D. of neck flare.
c. Asbestos strips made up to fit circumference of face.
d. Asbestos pads to cover face of cathode ray bulbs.
e. Gloves, tweezers, glass rods, etc.
f. Air line (approx. 45 psi).

2. FIRES

Position #1 - None - (Loading & Unloading)

Position #2 - One Meeker burner pitched slightly upward 7" away from neck with medium flame 8" directed at bulb-neck splice.

Position #3 - One cannon burner pitched upward 30° and 13" away from bulb with a medium to soft flame 18" long directed at lower edge of bulb assly. (Air & gas handles at angles of 45° with respect to "off" positions).

(Also in position #3 are two opposing sets of eight #693D burners in an arc 3" from bulb, with sharp flames (gas-air-oxygen) 4" long (cones 1-3/4" long) directed horizontally at sealing area. USE THESE CROSSFIRES IN #3 POSITIONS ONLY WHEN WORKING WITH HARD GLASS.)

Position #4 (sealing) - Two opposing sets of seven #693D burners in an arc 3" from bulb, with sharp flames (gas-air-oxygen) 4" long (cones 1-3/4") directed horizontally at bulb where upper part of neck assembly meets bulb (sealing area).

Position #5 (cut-off) - Two opposing sets of seven #693D burners in an arc 3" from bulb with very sharp flames (gas-air-oxygen) 4" long (cones 1" -2" long) directed horizontally just below splicing joint; also one cannon burner 8" from bulb pitched upward at 30° angle with a medium to soft flame 10" long to preheat area on bulb where button contact lead is to be sealed.

Position #6 - One cannon burner 12" from bulb pitched upward 45° with medium flame 16" long directed at bulb circumference where button contact is to be sealed. This flame is automatically turned off during sealing-in of contact.

Contact sealing fires mounted on movable arm at position #6 - One punching out flame (gas-oxygen) 5" long (cone 1/4") and four concentric sealing fires (gas and air) 1" long (cones 1/4") directed to heat contact and area of glass around hole after punching out operation.

*General Revision.

2. FIRES (Cont'd)

Position #7 - One medium flame from Eimer & Amend Blast burner, flame 5" long pitched upward at 45° directed below collar of neck holder to prevent formation of strains in neck as a result of too rapid cooling; also one Fisher cannon burner pitched upward at 45° , 10" from bulb, and with soft spreading flame 18" long directed at button sealed in bulb. To aid in spreading flame from cannon burner a length of copper pipe connected to gas line has been added. The force with which this supplementary jet strikes and spreads the main flame (cannon burner) is controlled by a valve.

Position #8 - One cannon burner directed at and 8" from middle of neck holder with a 10" hard flame directed at collar, splash of flame heating splice.

3. PROCEDURE

a. Measure with gauge I.D. of bulb where splice is to be made (normally this is done when bulbs are being trimmed after screen spraying) and select neck with flare having O.D. nearest that of I.D. of bulb.

b. Preheat for 15 sec. in soft flame at #2 position the flare of neck which has previously been selected for splicing to next bulb.

c. Stop machine from indexing and insert neck into holder at position #1 so that button contact is aligned with slit in neck holder.

d. Give bulb screen a casual inspection for quality so that no bulbs with screen imperfections are spliced to neck. Then place asbestos cloth on bulb face and into upper holder at position 1, releasing during insertion the vacuum on bulb face by pressing on floor pedal. Center bulb in holder and then release foot pedal.

e. Raise loaded neck holder very carefully into bulb and twirl loaded head to check alignment of bulb. Turn on indexing switch. (With one man operation, use only every other head to give sufficient time for checking sealing and cut-off, at their respective positions, and for sealing-in 2nd anode lead in 6th position).

f. When bulb reaches 5th position, remove cullet. Smooth neck-to-bulb seal if necessary.

Sealing in Button Contact:

g. When bulb reaches 6th position, open neck holder exposing button contact sealed in neck of bulb. Align gas-oxygen piercing fire with this contact button, using pointer attached to equipment for this purpose. Bring piercing flame (Westinghouse burner) forward to heat a small area of glass. When glass is molten, pull it out with a pyrex glass rod while continuing heating so as to punch out a hole slightly smaller than button which is to be sealed in.

3. PROCEDURE (Cont'd)

Sealing in Button Contact (Cont'd)

h. Turn on 4 concentric fires about piercing burner so as to preheat glass around hole and anode assembly at same time. Position button contact adjacent to bulb by means of tweezer-like holder of Westinghouse piercing burner. Heat contact to redness. Then push button contact into rim of molten glass about hole. While fires continue playing on button, move holder slightly in and out so as to get a perfect seal.

i. Make certain seal is smooth and button is level. If hollow around contact, blow air cautiously into bulb until glass and button are level with bulb surface.

j. Unload bulbs in 1st position, and evacuate on Cenco-Megavac pump, testing for leaks with H.F. spark coil around splicing joint and all button contacts. (Bulb is now ready for application of conductive coating.)

NOTE: For one man operation, simply remove bulb from splicing machine and allow to cool in air until time permits testing for leaks as in item 3-j above.

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