

Tiff

TRIP REPORT

Destination: Lansdale Tube Plant, Lansdale, Pa.
Date of Contact: December 9, 1954
Persons Contacted: M. Sadowsky, G. Pratt, H. Colgate
W. Snyder, I. Krynock

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The purpose of this trip was to inspect the Lansdale setup for processing Apple bulbs and to study techniques, etc. of this processing. The procedures have not changed from those reported November 30 except for the items discussed below.

Philco, like ourselves, have experienced bulb breakage in bake out (Lehr). This was worse with Corning bulbs than with bulbs from Kimble. They have greatly reduced shrinkage by painting the outside of the anode button with silver paint. (The dark buttons heated much faster than the glass). We will immediately adopt this procedure.

The subject of Kimble versus Corning bulbs was discussed with George Pratt. His impressions are:

1. More "suck up" on Kimble bulbs.
2. Radii of curvature of the Kimble faceplates shorter by about two inches.
3. Top buttons on Kimble bulbs are about 1/4" further from the faceplate and therefore out of spec.
4. Kimble faceplates are not polished. This makes phosphor line quality inspection more difficult.
5. The cost of Kimble bulbs are substantially less but this does not represent the cost in production quantities.
6. The indications are that the Kimble bulbs resist bake out better. This may be due to the out of spec top anode button.

Lansdale is using both Kimble and Corning bulbs.

Their screening area is air conditioned and expanded low pressure air is used for drying screen coatings. However, control is not very good, on December 9th their drying air was 71°F with a relative humidity of 28%.

The timing of their film flow coater is set differently and might account for the corner wash-off that we sometimes get on the anode button side of our bulbs when we use the coater.

For developing, they use cold water for approximately 75 seconds with a high pressure stream. This indicates that we need adjustment on our developer as a stream of the intensity they use would tear off lines on our developer.

The effect of the double dichromating procedure was not impressive. The sole purpose of instituting this process is to prevent the contamination of the green and blue stripe by the subsequent phosphors applied. Any decrease in contamination between the lines is incidental. The highest purity lines are required to minimize the stringent spot size requirements. However, this procedure results in poor line geometry.

They have an inverted umbrella type shield that they use at aluminizing that gives good results. If used in conjunction with the shield we are now using there is a chance that removal of excess aluminum would be unnecessary.

The Lansdale personnel are convinced that their triple leaching with bake out before filming has taken them out of the problem of aluminum blisters while back lacquering. They feel that water entrapped in the screen was the cause of blisters. However, as the screen is re-wet after bake out, we do not agree with this but believe it is due to increased phosphor adherence. They are not experiencing the blister problem at the present time. (Tests of this processing are now being run.)

They stated that their Cr_2O_3 paint will not keep and is made up in small batches as needed.

The index stripe mapping was inspected. A tube with a reject screen but good index stripe will be measured and sent to us as a standard to calibrate our mapping device.

A "number 8" quality screen was looked at. According to Mr. Colgate, a sufficient criterion for screen quality is an acceptable screen for monochrome. Thus our philosophy should be to make a good monochrome tube that can produce color, not the inverse.

Two screen processing conveyors, exactly like the current one, are being installed in the dark area.

Lansdale believes that an improvement in MgO yield is achieved if silver paint is used from the screen button area to a point just masking the actual screen area. A further improvement results if a band is painted outside the tube neck around the gun area. Harry Colgate stated that the accepted anode voltage ratings on the Apple tube are 30, 27, and 25.5 KV respectively, and that this represents no change from former ratings.

Lansdale cathode spraying has been removed from the factory area and is being handled in the pilot laboratory under engineering supervision. A partial

outline of the Lansdale cathode situation follows:

1. Cathode Mix - Baker 500. This material is used as it comes from the vendor. Monochrome lot tests are made using about 25 tubes.
2. Cathode Nickel - Inco 779 for caps
Inco 220 for sleeves
3. Cleaning Schedule - as outlines in "Cathode Etching Schedule H2A" which is in our files. This schedule calls for an acetic acid, etc., followed by tap and then distilled water rinses. No firing is required.

Recent discrepancies have been noticed between cathodes in factory built and laboratory built Apple guns. It has been found that the laboratory for some unknown length of time has been pressing heaters into cathode sleeves until no turns protrude. This condition is being evaluated. Cathodes are considered good when 90% of the visible area is active. The dead 10% must be scattered in small spots. Tests are being made to check cathode temperature at different processing stages.

Some Lansdale mounts are being fabricated with multifilm glass while others have pyrex. A6F 1142 burners are made for either with no change in fire settings. No difference in quality has been observed.

4. RCA MCH-6027E-1 heaters are used with coating weight of 8 to 12 Mg.
5. A simplified gun insertion fixture has been added to the gun seal head. The gun is located on the sealing pin by three long fingers which engage the notches on the upper bulb spacer. When the pin crosses the pick up cam, the three fingers are disengaged. The bulb is located in its holder by observing the silhouette cast by the long edge of the bulb by an Ediswan 150CPAC point light source mounted overhead. The shadow is aligned with a painted pattern properly located on the gun sealer turntable.

F. J. Mayer

W. Rublack

W. Tiff
CATHODE-RAY TUBE SUB-DEPT.

/fmd