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TRIP REPORT

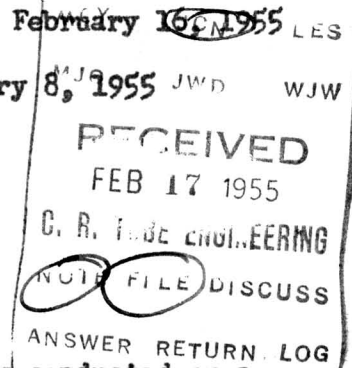
Report by: L. E. Swedlund

Place Visited: Lamp Division
Nela Park

Date of Visit: February 8, 1955 JWD WJW

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During a visit to the Lamp Department, the writer was conducted on a tour through the fluorescent lamp works and the ribbon machine bulb plant in the Park. There were several points of interest in the fluorescent lamp works in relation to cathode-ray tube design and manufacture.

Some colored fluorescent tubes which were not lighted were observed and in answer to a question of what they were, it was explained that they are coated internally with a frit coating which fuses to a color of different shades depending on baking temperature. Frits were chosen to give an indication of maximum temperature during baking. They were able to estimate temperatures to about 15° in the 500° to 600°C range. They considered the precision much better than the Tempilac cones and also provide the important advantage of indicating the temperature variations over the full surface. This technique would obviously be very useful for bakeout tests on cathode-ray tubes, provided frits which cure out at a lower temperature can be obtained. It was indicated that the proper person to contact for information on this subject is Mr. Richard Thayer of Fluorescent Tube Engineering.

Another technique of considerable interest is the method of flow coating a fluorescent screen. The tubes are now being washed with warm deionized water which was found to be necessary to eliminate dust from packing material and soluble sodium on the surface of the glass. Rather high baking temperatures, up to about 600°C , are used in burning out the lacquer binder, and this tends to produce a very clean surface on the outside of the bulb. This clean surface tends to scratch very easily so that a thin coat of bees wax was brushed on the ends of the clean bulbs in order to avoid scratching and cracking. An interesting point is that the new rapid-start lamps require about twice as long activation period as the older conventional type. The rapid-start lamps also have a very interesting base which uses no contact pin or soldering. The lead wires are cut and turned into a small recess and the tube socket is designed to make contact directly with the stem lead wires. It seems that such an idea could be adapted for both amplifier and picture tube bases. The older, conventional type tubes, which have pins in the socket much like bases, now have a lead which is arc welded in providing a very reliable and corrosion resistant joint. This procedure is illustrated in Mr. S.T. Jutila's trip report, covering this same visit.

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