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G. R. TUBE ENGINEERING - 6

Trip Report - RCA
September 6, 1956

September 7, 1956

T-4

Mr. J. M. Lang
Bldg. #6

The following information was made available by RCA on our recent plant visitation.

In October 1954 RCA started a facilitation program aimed at 30,000 per month 21" round metal aperture mask tubes on a three-shift, five-day basis. As of this date, the program is essentially complete with an investment of eight million dollars in equipment (i.e., does not include buildings and facilities costs) and utilizes 230,000 square feet of manufacturing space (includes four-day hold floor space but excludes parts, preparation mounting, mask making and finished tube warehousing). RCA further feels that because yields are substantially greater than originally predicted, the above described facility could now produce close to 40,000 tubes per month.

At the current production level (which appeared to be 300-400 tubes per day), RCA is experiencing a 10.5% scrap to seal shrinkage and a 70% screening efficiency (100% efficiency would be three screens laid per tube shipped). Under these conditions, they are obtaining a 99.9% material efficiency on frames, an 88% material efficiency on caps, an 80% material efficiency on funnels and a 78% material efficiency on masks. Theoretically the RCA slurry process should use slightly less than 100 grams of phosphor per tube produced (i.e., at 100% screening efficiency) and they are currently using 160 grams per tube produced. (Incidentally, RCA mentioned that theoretically the Sylvania dusting process would use 65 grams of phosphor per tube produced.) Their current life test requirements are 80% of initial emission at the end of 1050 hours. With this criterion, they feel that on the average 50% of the tubes will last more than 4,000 hours in the field. RCA has been investigating renecking and regunning life test failure tubes but they have not as yet proved that the screen assembly life is such that the tube can be rebuilt by this method.

In answer to a specific question, RCA estimated that it would take them 18 to 24 months to reproduce their 30,000 tube per month aperture mask facility starting from the official go-ahead. It would take 6 to 12 months additional to obtain the production level. They felt

that the timing was independent of constructing new buildings, since the facilities and equipment were the lag items but that it does recognize the fact that they would have a large number of personnel highly skilled in color work. RCA further felt that if they could run their present facility in excess of 30,000 tubes per month on a steady basis for the next five years, it might be possible to reach a \$50-60 selling price at a 10% profit margin. (This corresponds with our cost estimates for either the P.O.F. or aperture masks as to profitable selling prices at the end of seven years of manufacturing experience.)

Perhaps the opinion most clearly expressed by RCA was their firm conviction and implied threat that the momentum they had picked up over the past two years would be very difficult for anyone else to overcome in introducing a new tube, be it rectangular aperture mask or what have you. They fully recognized that their two-year head start and their present capabilities in producing the round metal 21" tube were assets of the first magnitude for which they had expended 70 million dollars and that they obviously would not easily give up their position.

L. C. MAIER, JR.

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