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TRIP REPORT
VISIT TO PHILCO ON DEC. 1, 1955

DR JCN LES
JAS EFS JWD CD

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DEC 8 1955

G. R. TUBE ENGINEERING

NOTE FILE DISCUSS

ANS RETURN LOG

Those present: G.E.

Philco

I.J. Kaar
J.F. McAllister
J.C. Nonnekens
L.C. Kaier
C.G. Lob
W.J. Gruen

L.J. Woods
D.B. Smith
F.J. Bingley
E. Creamer
A.M. Hopwood
C. Simmons

The purpose of this trip was to review the progress made by Philco on their Apple system since last June. At the outset of the meeting Mr. F.J. Bingley pointed out the various modifications of the system which led to major performance improvements. These were:

A. Picture Tube Modifications:

1. Increased triad spacing, from 50 to 60 mils, to achieve better saturation.
2. Color stripes of 50% duty cycles with inert dark guard spaces printed in between the color stripes. This permits the tube to be run at higher beam current and results in a 2 to 1 increase in brightness over previous tubes for the same saturation.
3. Controlled Index Displacement.
This technique compensates for transit time errors in the picture tube by proper placement of the index stripes with respect to the color stripes, and eliminates previously used compensating circuitry. In addition, only two high voltage buttons are now necessary instead of three.
4. Redesigned gun with increased grid to cathode spacing (from 3 to 8 mils) and increased writing grid aperture (from 14 to 20 mils). This resulted in better tube life, giving a yield of 90% at 2000 hours.
5. New glassware using the "2174" 21 inch bulb with 74° deflection instead of the previous 70° bulb. This gives an additional 10 square inches of picture area.

B. Circuit Modifications:

A new receiver chassis has been designed, known as receiver #7, with a long count of 44 tubes, including 2 power rectifiers and the picture tube. This presents a reduction of 3 tubes over their receiver #6 design. The main features of the new chassis are as follows:

1. Temperature stable Alnico focusser, eliminating the formerly required stabilizing circuitry for the ferrite focussers. The new focusser produces an astigmatic spot with a height to width ratio of 3 to 1, making it possible to run the tube at high beam current and good saturation.

2. Combined sweep and high voltage system. This development is perhaps the major accomplishment in the direction of reduced tube count and cost.

C. Future Plans:

Philco is proceeding to build a total of 7 receivers of the present version. This number may include receivers to be built by licensees and receivers #6 to be modified to the new circuitry. The main purpose of these receivers is that of gaining field experience in terms of long time stability and ease of operation.

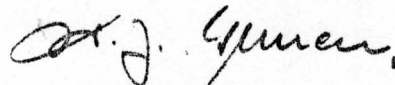
At the same time the Engineering Department is proceeding with the design of a printed circuit version of this chassis. This new version might have a reduced number of tubes and it seems quite feasible that a long count of less than 40 tubes can be achieved. A total of 15 of these receivers is planned.

Demonstration:

After discussing the present status of the Apple system, the new receiver was demonstrated and an RCA receiver was provided for the purpose of comparison. The program consisted of slide and film material.

It became obvious from the very beginning of the show, that the performance of the Apple receiver was greatly improved over that of previous demonstrations. The brightness of the Apple receiver, with good saturation on the "crayon boy," was 40 foot lamberts as against 20 on the RCA, and it gave a considerably sharper picture. It may be argued that the RCA receiver was not representative of the top of its class, the RCA receiver in our own laboratory will provide 27 foot lamberts and somewhat better definition, yet the receiver at Philco was definitely not a reject.

In the opinion of this writer, Philco is as enthusiastic about their system as ever and their convictions should have received new impetus from their recent accomplishments. There is no question about the excellent performance of their receiver in both monochrome and color. The main questions to be resolved at this time are those of reproducibility, servicability and operation in the field. If the answers turn out to be favorable, Philco might try to hit the 1956-57 market with their product.



W. J. Gruen
Development Engineering
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WJG:REL

12/7/55

cc: Those present - (G.E.)

W.R.G. Baker

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D.E. Harnett

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