

J. Campbell

Research Laboratory Trip Report  
3/6/59

W.E. Good  
T.T. True  
H.J. Vanderlaan

The following persons met in Dr. Pashler's office at the Research Laboratory to discuss the progress on Glenn's projection color TV system: P.E. Pashler, W.E. Glenn, of RL; V.C. Campbell of CRT; W.E. Good, T.T. True, H.J. Vanderlaan and G.A. Schupp (part time) of TVRD.

Glenn has modified his projection system to the following:

Single gun, sans beam-splitter, with  $1\frac{1}{2}$  mil round spot. Green is obtained by raster line refraction in the vertical direction. Green intensity variation by 50 mc vertical wobulation. Black at maximum signal. Red is obtained by a grating developed by velocity modulation on the horizontal sweep at  $2 \times 3.58$  mc. Red intensity by AM of this carrier. Black level corresponds to zero carrier. Blue is obtained by another grating developed by velocity modulation on the horizontal sweep at  $3 \times 3.58$  mc. Blue intensity by AM of its carrier. Black level equals zero carrier. A white light source is used which is separated into green and magenta by a dichroic mirror into the right angle slit system.

Variations of the above system are possible as to whether blue and red are put through the same or adjacent output slits and to the exact choice of the various carrier frequencies.

This is now an R, G, B system, as compared with the fixed R and variable blue-green primary as proposed before. The new system will require modulators and mixing equipment as shown on the diagram.

Glenn stated that the new system had a better chance of working than the one with the beam-splitter, because the oil time constants for the different colors will be more nearly the same.

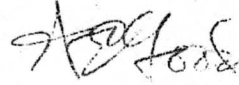
Equipment to be furnished by TVRD for evaluation of the tube operation at the Research Laboratory:

1. Horizontal and vertical sweeps with dynamic focus and sweep corrections.  
(This chassis is almost ready for debugging and should be ready about 3/16/59.)
2. Color receiver and modulator for producing off-the-air color signals for the tube for Research Laboratory evaluation. This equipment is block diagrammed in the attached sheet. Design will start 3/16/59.
3. Schlieren lens for projector. Determination of the Schlieren lens for the proposed slit system will start immediately. The first attempt will be to use a two-element lens.

The optical system is shown on an attached sheet. The Xenon lamp and starter are in hand, the reflector and slits are under construction at the Research Laboratory.

Glenn also proposed a simple circuit for driving the tube from an NTSC signal. As intriguing as this possibility was, it was more or less agreed to concentrate on straightforward signals for operating the tube at this time.

Campbell expects to assemble the rotating disc and oil reservoir during the week of 3/9/59.



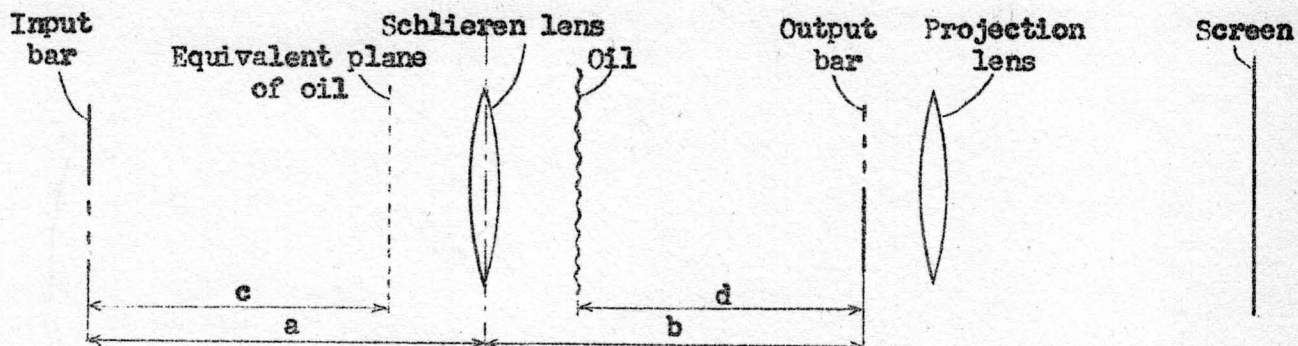
W. E. Good  
Advanced Development Engineering  
Television Receiver Department

WEG:REL  
3/9/59  
Att.

CC: P Humeniuk  
C Ellis - #7 - EP  
P Sullivan - #6 - EP  
V Campbell - Res. Lab.  
Dr. W Glenn - Res. Lab.  
Dr. P Pashler - Res. Lab.

Research Laboratory Trip - March 6, 1959

Dimensions in Glenn's Optical System



If the surface of the oil is smooth, without ripples, then the Schlieren lens forms an image of the slots of the input bar on the bars of the output bar system.

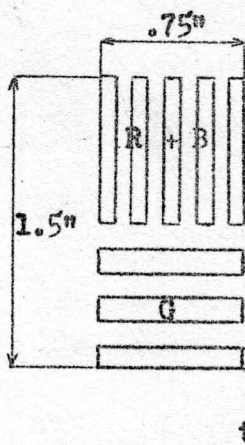
The dimensions which Glenn gives for the slot-and-bar system are:

Input bar: Magenta: 56 mils center-to-center spacing; 21 mils slot width  
Green: 112 mils center-to-center spacing; 42 mils slot width

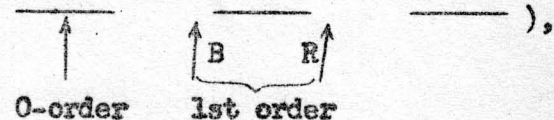
Output bar: Magenta: 28 mils center-to-center spacing; 14 mils slot width  
Green: 56 mils center-to-center spacing; 28 mils slot width

These are the output bar dimensions if  $a \approx 2b$  in the above figure.

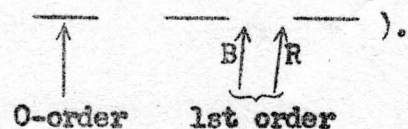
Input bar:



The above dimensions are either for the 3 x 3.58 mc Red and 2 x 3.58 mc Blue modulating frequencies (red through second slot and blue through first slot:



or for the 2 x 3.58 mc Red and 3 x 3.58 mc Blue modulating frequencies (R and B both through 2nd slot:



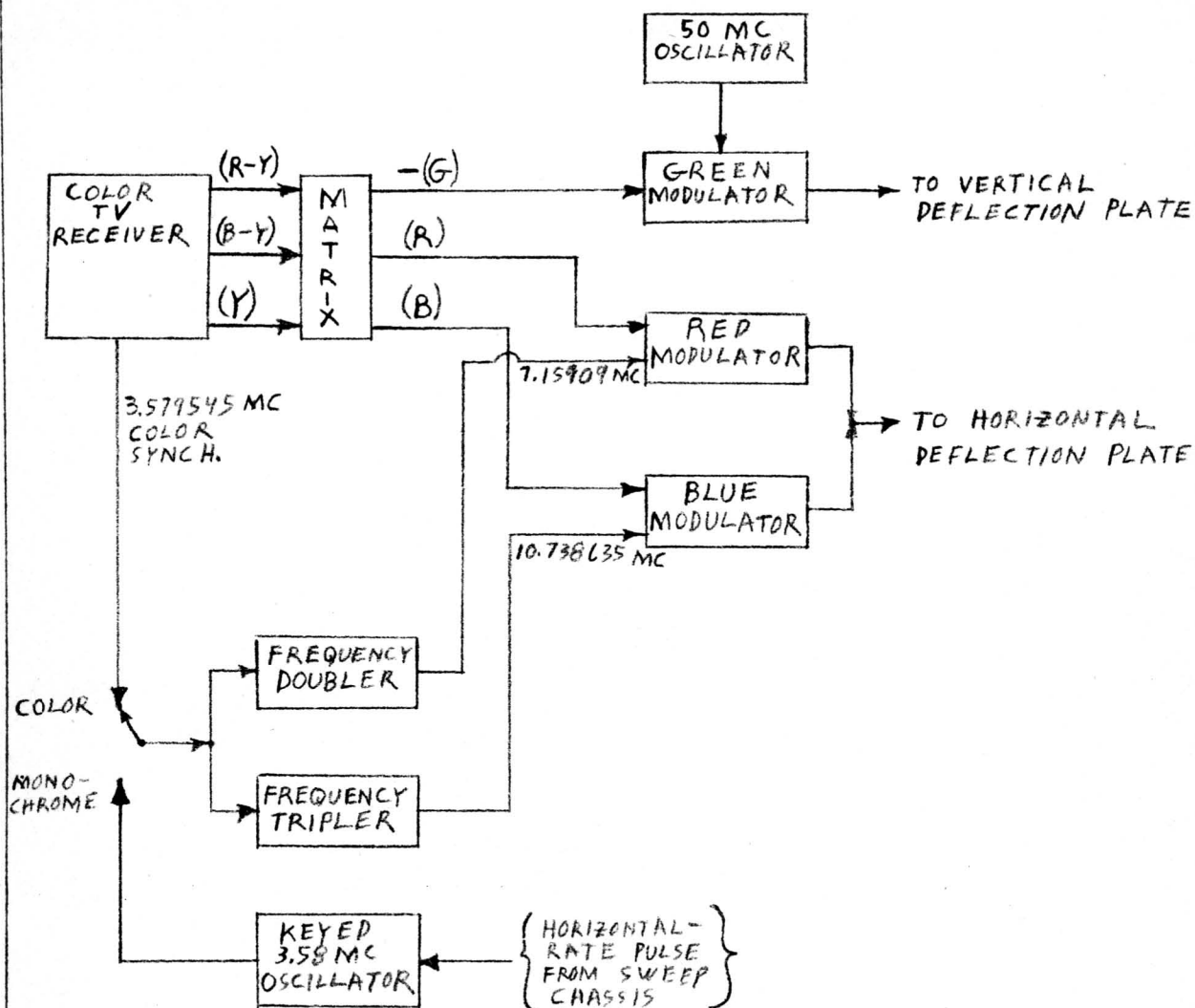
Not more than 4 mils in this direction.

Glenn mentions that the oil can be placed in an equivalent position (see figure above) which gives the same results if  $c:a = d:b$ . He says that for his system  $c \approx 6"$ ; further  $b - d \approx 1\frac{1}{2}"$  and  $b \approx 6\frac{1}{4}"$ . Then it follows that  $d \approx 4\frac{3}{4}"$ ,  $a - c \approx 1.9"$  and  $a \approx 7.9"$ . Then  $a/b \approx 1.26$ ; this does not agree with his  $a/b \approx 2$  for the slot-and-bar dimensions.

*Henry J. Vanderlaan*

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REV NO.	TITLE	CONT ON SHEET	SH NO.
	BLOCK DIAGRAM of the SIGNAL PROCESSING CIRCUITRY; TO BE FURNISHED BY T.R.D. FOR TESTING OF THE GLENN COLOR PROJECTION TV TUBE.		
CONT ON SHEET	FIRST MADE FOR		SH NO.



MADE BY <u>Three</u>	APPROVALS	DIV OR DEPT	
ISSUED <u>3/9/59</u>		LOCATION	CONT ON SHEET
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