SUPREME

TEST INSTRUMENT BULLETIN

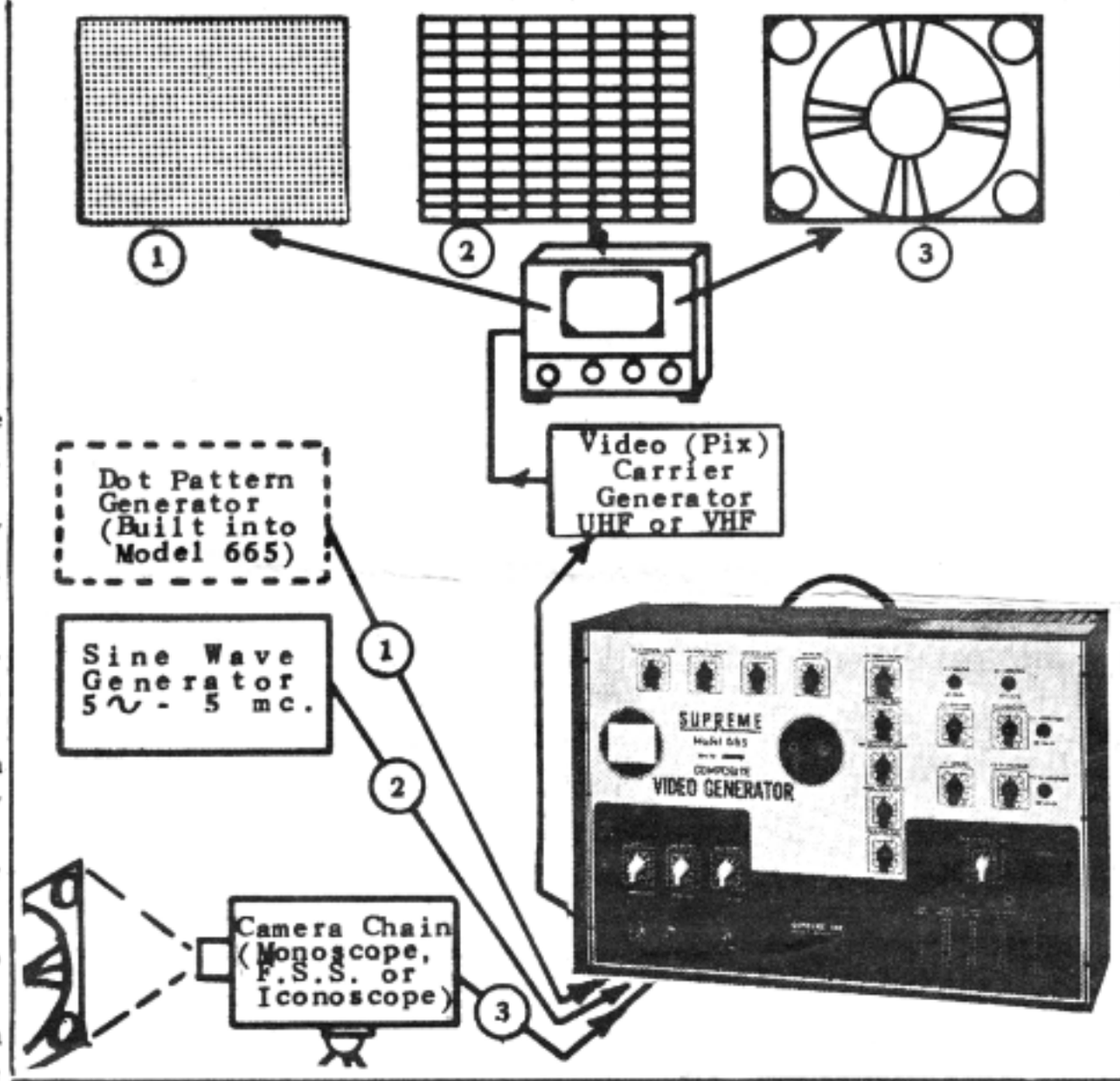
Our 25th Year | Greenwood, Mississippi, U.S.A. | 1952 Fourth Quarter

THE VANISHING TEST PATTERN

Technicians are beginning to feel the absence of a stationary type of test pattern which they used to see often, before stations went on full time. Here is a typical factory inquiry: "WHY DO NEW BOOKS AND MAGAZINE ARTICLES illustrate faults with patterns you will not see on a television set that needs checking? Stations don't send a test pattern like they did when they first went on the air a couple of years ago. Do they expect TV technicians to get up before breakfast to catch that pattern and then check all the sets in for service during the 15 minutes or so, while the station is making adjustments on their equipment? How can you make comparisons with a picture that is changing all the time?"

New Approach Needed

Apparently most writers use illustrations that are produced with camera devices, which are classed as studio equipment, rather than test instruments for servicing TV sets in the field. Perhaps you overlooked the article "Interpreting That TV Test Pattern" which appeared in a recent issue of Radio & Television News. Using approximately 35 actual photographic illustrations, an interesting comparison was made between the familiar Indian Head pattern and a typical precision dot pattern, similar to the type produced by the Supreme Model 665 Composite Video Generator.



WHAT KIND OF TEST PATTERN?

An ideal test pattern synchronized with the FCC or RTMA composite sync signal should provide a means of checking the following adjustments in a TV receiver: (1) Line and field deflection circuits with respect to frequency. (2) Height, width and aspect ratio. (3) Horizontal and vertical linearity. (4) Proper interlace. (5) Overall frequency response for adequate picture detail (resolution).

There are two basic types of test patterns. One is the precision type; the other is the scanned type. Included in the former is the precision dot pattern and the bar or cross-hatch pattern. In the latter group is the RTMA, Indian Head, and other test patterns or scenes picked up by a camera, monoscope or flying spot scanner.

When using the precision type pattern such as is produced by the Supreme Model 665, the pattern on the TV set should remain steady after adjusting the horizontal and vertical hold controls. The operator should be able to change channels without having to readjust these controls. Height and width are correct when the aspect ratio is 4:3, the blanking bars are just behind the mask, and there are 31 dots visible across the screen and 23 dots down. The horizontal and vertical linearity is correct when there is uniform spacing between the dots at all points on the raster. The set has proper interlace when a dot is not less than five lines high and the lines are not pairing. The dots will appear sharp and crisp when the frequency response is adequate for picture detail. If there is any appreciable phase shift or loss of high frequency picture signals in the r-f, i-f, or video amplifier stages, white shadows will make the dots appear fuzzy. White on one side of the dot usually means phase

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FREQUENCY RESPONSE AND "DOTS"

Good frequency response in a TV set is essential if the picture reproduced on the screen is to resemble the scene photographed by the camera.

In order to see the fine detail that goes to make up a good picture, the circuits in a set must be broad enough to pass frequencies up to 4 mc. (320 line resolution). If these frequencies are attenuated, or shifted in phase, before reaching the grid of the picture tube, the quality of the picture will suffer. It will look more like a newspaper picture than a photographic print.

Square Waves

One method of testing the overall frequency response of TV circuits, designed for broad bandpass, is through the use of a special type waveform. A clipped or squared type waveform is generally used since this type waveform is very rich in harmonics. If a square wave of a particular frequency can pass through a circuit unscathed, the circuit will pass frequencies several times higher without appreciable attenuation or distortion.

Grating Pattern

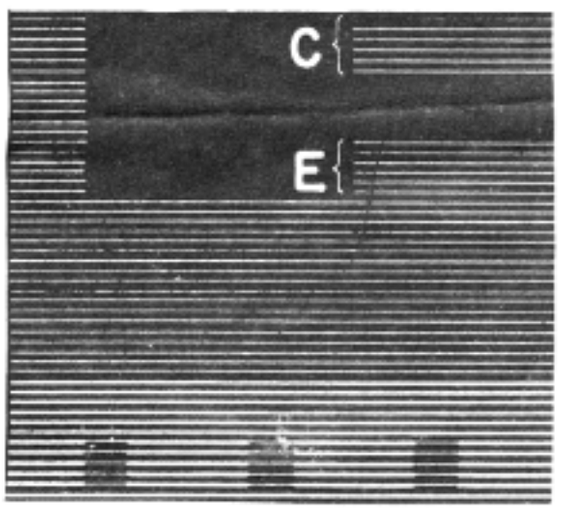
The Model 665 Composite Video Generator may be used to modulate a carrier oscillator (tuned to the picture frequency of a

(Cont'd on page 2, col. 3)

DON'T BLAME IT ALL ON THE HAM

The larger screens are showing up poor interlace where it was often overlooked on TV sets with smaller viewing areas. Improper interlace produces an effect similar to TVI and is often assumed to be caused by RFSNAF (R-F signals not accounted for). In most cases it shows up as a sort of moire like one sees when the shadow of a window screen falls on a slowly moving marquisette curtain.

To check interlacing on a TV set, the raster must be locked in with an FCC or RTMA recommended type of composite video signal containing the EQUALIZING pulses. The presence of equalizing pulses can be verified by examining



CENTER SECTION OF VERTICAL BLANKING BAR SHOWING PRESENCE OF 12 EQUALIZING PULSES (C & E) (3 five-line dots also in view)

the vertical blanking bar.

If you are using the Supreme Model 665 C.V.G., simply count the number of lines in each dot. Less than 5 black lines in any dot means poor interlace. To use a station C.V. signal, count the number of lines per vertical inch. There should not be less than 40 lines per inch when picture height is 12 inches or not less than 80 lines if picture height is 6 inches. The lines must not be dancing up and down or pairing, another symptom of defective interlace.

If adjustment of the vertical hold control does not produce proper interlace, the vertical sync circuits must be stabilized. This usually means changing some capacitors. Incidentally, the December 1952 issues of RADIO SERVICE DEALER (p33) and SERVICE (p48) magazine contain notes on correcting interlace trouble in a Philco and Admiral television set, respectively.

NEW SETTINGS FOR SUPREME TUBE TESTERS

For Models 600 and 616.

6BX7	19	C	7	7	38
6BX7	19	C	7	7	68
6CJ6 (16789)	19	C	4	7	35
6CK6	19	C	4	7	35
25BK5	19	C	4	11	56
5881	23	C	2	7	78
6046	19	C	2	11	78

For Models 589, 599 & 504-A, B.

6 BX7	7	6	19	C	38
6 BX7	7	6	19	C	68
6 CJ6 (1678)	4	6	19	C	35
6 CK6	4	6	19	C	35
25 BK5	4	9	19	C	56
5881	2	6	24	C	78
6046	2	9	19	C	78

PARDON US --- BUT YOUR TEST INSTRUMENTS ARE SHOWING!

Reference Manual Aids Technicians In Selecting And Using Proper Instruments to Reflect Real Know-how

The more experience a professional Electronic Technician acquires, the more he will use his test instruments to convert his know-how to money in the form of increased earnings. Technicians with plenty of know-how are the best customers of manufacturers who design and produce high quality test instruments. They know what specifications a test instrument must meet to be an aid in diagnosing trouble in electronic devices. The failure to meet certain performance specifications can, not only make it a dead investment, but actually a handicap. Makeshift instruments, selected by the hit-or-miss method, are usually liabilities that make technicians lose confidence in their know-how as well as their patience. Good instruments will build confidence and create good-will so necessary to successful business.

Edward Noll, well known writer and lecturer on TV service, recently released some important test instrument data in the form of "TTLB Notebook No6". In addition to useful application data, it contains a chart for comparing important characteristics of many brands and models of VTVM's Scopes and Signal Generators. Additional data on Tube Testers and Composite Video Generators was published in the September issue of SERVICE MANAGEMENT magazine, of which Mr. Noll is the technical editor. The notebook is available from parts supply houses or from the publisher, LECTURE BUREAU PUBLISHING CO. 161 Luckie St. NW, Atlanta, Georgia. The price is $1.00, and when used with catalog sheets giving full specifications, the technician has a good chance to select test instruments that will give him a genuine pleasure to use and recommend to his friends.

Remember, high quality, well designed test instruments calibrated against reliable factory standards are long term investments that will be used over and over again. They are not expense items like solder, rent, gasoline, or utilities. You won't buy test instruments every day. SELECT THEM WITH CARE.

BRING YOUR TUBE SETTING LISTS UP TO DATE

NEW ROLL CHARTS ARE AVAILABLE FOR ALL SUPREME TUBE TESTERS MANUFACTURED SINCE 1940, AND SEVERAL OF THE EARLIER SERIES. SUPREME REVISES AND REPRINTS NEW ROLL CHARTS AT LEAST ONCE A YEAR TO INCLUDE THE NEW TUBE TYPES. SUPPLEMENTARY DATA IS SUPPLIED ONLY FOR THE LATEST EDITION. SEND $1.17 WITH THE MODEL NUMBER AND OLD CHART NUMBER TO SUPREME TUBE SETTING SERVICE, BOX 3552, GREENWOOD, MISSISSIPPI. A NEW CHART WILL MAKE YOUR TUBE TESTER MUCH MORE VALUABLE.

WHAT KIND OF TEST PATTERN?

(cont'd from page 1, column 2)

shift. White on both sides of the dot indicates very poor response or misalignment.

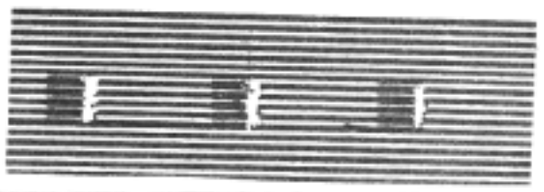
The station test pattern (which is seldom seen except by early risers) permits making the same adjustments, but uses circles and wedges instead of squares. Adjustment of sets using this type of pattern has been explained in many reference books and magazine articles.

The principal disadvantage in using a station test pattern is that it is televised for only 15 to 30 minutes preceding program transmission. Stations frequently use this time for adjusting their own equipment. Therefore, the accuracy of the circle-wedge pattern might be questionable for checking linearity whereas the precision type is always reliable.

FREQUENCY RESPONSE AND "DOTS"

(cont'd from page 1, column 4)

channel) as shown in the illustration. The picture signal is a square wave of approximately 600 Kc. This signal appears on the picture tube as a grating pattern of precision spaced blocks or "dots" as they are commonly referred to. The appearance of these dots will be altered considerably if the harmonics (below the 7th) of this picture signal do not reach the grid of the picture tube. If these dots appear crisp and square, with minimum white shadows on either side, the frequency response of the set is adequate for good picture definition.



White Edges On Dots Indicating Circuits Not Tuned Properly

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