5. Connect black lead of cable (item D) to circuit ground (ground chassis).
6. Connect red lead of picture size control turn to high positive side of horizontal deflection coil and black lead to low positive end. Connect green and yellow leads across the vertical deflection coil. Pointer on arm is not important on the vertical coil.
7. Connect wires for ground connection to converter and input pins on intercom receiver.
8. Mount converter and size control turn with screws provided.
9. Connect yellow lead from picture tube (item H) to the yellow lead on converter, thus the return color (item I).
10. Connect the green lead (item K) from picture tube to the green lead on the converter.
11. Plug connector on converter into converter on cable (item D).

**COLOR SCANNING WHEEL INSTALLATION**

1. Mount the angle brackets to the shelf and back of the scanning wheel housing, using the proper holes in the brackets that will position the scanning wheel outer edge near the picture tube (item J). Use self-tapping screws (no. 10-32) (item L) to secure the brackets to the picture tube. Use self-tapping screws (no. 10-32) (item M) to secure the scanning wheel housing to the brackets. Install a securing screw (item N) in each hole of the bracket. Use a hole saw (item O) to drill the hole for the securing screw (item N).

**COLOR SCANNING WHEEL INSTALLATION**

1. Turn "PICTURE SIZE" switch to "ON". Adjust the size control to "COLOR". Always have TV set turned off when operating this switch.
2. Place Cut-Hat in scanning wheel assembly in front of TV picture screen and adjust adjusting screws in cable to plug on rear of scanning wheel.
3. Adjust TV receiver to sharp picture position with its line timing control. Generally the "CONTRAST" and "BRIGHTNESS" of the TV receiver should be increased for color scanning.
4. Set converter "OFF/ON" switch to "OFF".
5. Adjust the line output on the TV receiver to the line output on the scanning wheel.
6. Turn "COLOR" control to "ON". Adjust the size control to "COLOR". Always have TV set turned off when operating this switch.
7. Place Cut-Hat in scanning wheel assembly in front of TV picture screen and adjust adjusting screws in cable to plug on rear of scanning wheel.
8. Adjust TV receiver to sharp picture position with its line timing control. Generally the "CONTRAST" and "BRIGHTNESS" of the TV receiver should be increased for color scanning.
9. Connect the converter into the converter on cable (item D).

**COLOR SCANNING WHEEL INSTALLATION**

1. Make sure the black lead of cable (item D) is connected to the circuit ground (ground chassis).
2. Connect the red lead of the picture size control turn to the high positive side of the horizontal deflection coil and the black lead to the low positive end. Connect the green and yellow leads across the vertical deflection coil. The pointer on the arm is not important on the vertical coil.
3. Connect wires for ground connection to the converter and input pins on the intercom receiver.
4. Mount the converter and size control turn with screws provided.
5. Connect the yellow lead from the picture tube (item H) to the yellow lead on the converter, thus the return color (item I).
6. Connect the green lead (item K) from the picture tube to the green lead on the converter.
7. Plug the connector on the converter into the converter on the cable (item D).
Fig. 4 - Block diagram.

**INSTALLATION**

The COL-TEL converter will operate on any black and white TV receiver having a bandwidth of at least 8 mega cycles at 10% amplitude. Receivers with wider band pass will produce a greater color amplitud than the narrowband type.

The receiver must be in good condition if satisfactory pictures are to be obtained. It must be possible, with the fine tuning control, to adjust the TV receiver to the high frequency edge of each channel received to permit reception of the color carrier frequency of 3.579545 MHz. Have the color carrier frequency set on the receiver to the line carrier, and here will be visible in the picture just past the correct line tuning setting for color. TV sets as delivered from the factory are usually adjusted correctly. Sets that have been serviced, especially the turret type, should be carefully checked and if necessary adjusted to permit tuning just to the sound bar region. THIS IS VERY IMPORTANT.

**PARTS INCLUDED FOR INSTALLATION**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>COL-TEL Converter</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>Screwing Wood</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>Installation Kit consisting of pins D, E, F, G, and H</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>Connecting Plug and Color Transformer</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Rectangular Voltage Divider</td>
<td>0.5 mfd cond.</td>
</tr>
<tr>
<td>F</td>
<td>0.1 uf 250 v / 50 ma</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>0.1 uf 250v / 50 ma</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>Wire with Connectors (1 green, 1 yellow)</td>
<td>2</td>
</tr>
<tr>
<td>J</td>
<td>Strip Glass</td>
<td>1</td>
</tr>
</tbody>
</table>

**WIRING INSTRUCTIONS**

Before proceeding with the wiring connections to the interference receiver, it should be determined where the converter and the picture tube control box are to be mounted and connecting leads cut accordingly.

Most installations will be made with the converter mouted on the back of the interference receiver with the controls extending above the top of the cabinet, although some customers may prefer a vertical mounting with the controls accessible from the side.

(Continued on reverse side)

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Fig. 3 Schematic diagram.

Courtesy of Cliff Benham