

TELEVISION Service Manual

PUBLISHED BY RADIO COLLEGE OF CANADA, TORONTO

1956 Supplement No. 21

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Model:

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18X4CZF, EZF, FZF same as BZF.	

Models:

5CW55Z to 5W7Z Uses chassis 18X4CZF.	
5CW55Z to 5W7Z Uses chassis 18X4EZF.	
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Model:

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Model:

21C501 Uses chassis 1-533.	
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TRAV-LER

Chassis	Page
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520E5 (25 cycle) All data.....	61, 62

Model:

517-T-107 Uses 520C5 or E5 chassis.	
521-T-112 Uses 520C5 or E5 chassis.	
521-T-113 Uses 520C5 or E5 chassis.	

VIKING

Chassis	Page
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Model:

TCD-225AR Uses Ultronic 90 chassis.	
TCD-246 Uses Ultronic 90 chassis.	
TCD-247 Uses Ultronic 90 chassis.	
TCD-250 Uses Ultronic 90 chassis.	
TCE-243 Uses Ultronic 90 chassis.	
TMD-224AR Uses Ultronic 90 chassis.	

RCC
TELEVISION
Supplement
No. 21

ALIGNMENT PROCEDURE

4.5 Mc SOUND I.F. AND TRAP

1. Trap L7:

Apply crystal calibrated 4.5 Mc. signal source capacitively to V6 pin No. 2; set contrast control at max. Connect DC VTVM through the diode probe shown schematically in Fig. 1 to kinescope cathode. Tune L7 for minimum reading on VTVM. To prevent received signals from interfering with the adjustment V5 should be removed. The VTVM should have a full scale reading of 1 or 2 volts and the signal generator should be adjusted for full output.

2. Sound I.F., T4 Pri. and Sec. and T5 Pri. (bottom):

Apply signal as above.

Connect DC VTVM across ratio detector 5 uf. electrolytic capacitor.

Tune T4 (Top and bottom) and T5 pri. (bottom) for maximum VTVM reading.

3. Ratio Detector, T5 Sec. (top):

Apply signal as above.

Connect DC VTVM to junction of de-emphasis resistor and capacitor (150K and 470 uuf) at either end of shielded audio lead.

Adjust T5 sec. (top) for zero VTVM reading.

Note that adjustments numbers 2 and 3 above may be made with a received TV signal. The trap adjustment, number 1 above, may only be made as described. However the need of this adjustment being made in the field is very unlikely.

1. (a) Input Pair, L1 and L3:

Apply swept IF signal (approx. 38-48 Mc.) capacitively thru an ungrounded tube shield to V2.

Connect the oscilloscope thru the diode probe shown schematically in Fig. 1 to V3 pin No. 5.

Connect a non-inductive resistor of approximately 180 ohms across T1 primary.

Apply battery bias of 1.5 volts to the IF AGC bus.

Adjust L1 and L3 to provide the waveform shown in Fig. 2.

1. (b) Alternative Method, if sweep generator has insufficient output for the above method to be used.

Connect VTVM across diode load, at L5.

Apply battery bias of 4.5 volts to the IF AGC bus.

Detune L1 to highest frequency—slug furthest out.

With crystal calibrated signal source apply 44.1 Mc. signal capacitively through ungrounded tube shield to V2.

Adjust L3 for maximum output, controlling signal strength to limit output to approximately 4 volts.

Connect a capacitor of approximately 500 uuf across L3.

Retune signal source to 44.7 Mc.

Adjust L1 for maximum output.

2. Staggered Triple, T1 Pri. and Trap, T2 Pri. and Trap, T3:

Apply swept IF signal (approx. 38-48 Mc.) capacitively thru an ungrounded tube shield to V2.

Connect 4.5 volt bias battery to IF AGC bus.

Connect oscilloscope across diode load at L5.

Adjust T1 Pri. trap, T2 Pri. and trap and T3 to provide the wave-form shown in Fig. 3.

T1 Pri. (bottom) controls height of 42.5 marker.

T2 Pri. (bottom) controls height of 45.75 marker.

T3 controls slope at maximum response.

T1 trap (top) attenuates 41.25 Mc.

T2 trap (top) attenuates 47.25 Mc.

Height of the 44.5 Mc. marker is critical; the dressing of V5 screen by-pass capacitor is important. The leads of this capacitor must be very short and the grounded lead must be closely soldered to the base of the grounding lug.

In these adjustments the output of the wobblers must be attenuated to limit the peak-to-peak diode voltage to 8 volts. For most wobblers this corresponds to a DC voltage of 4 volts.

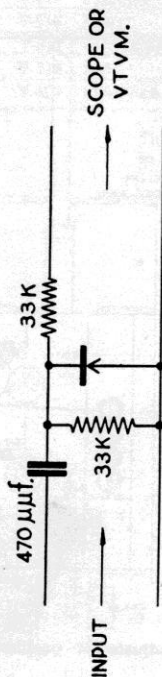


FIG. No 1

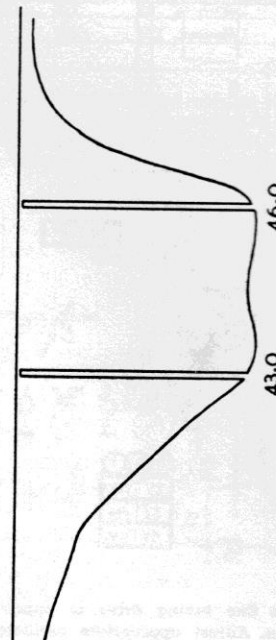


FIG. No 2

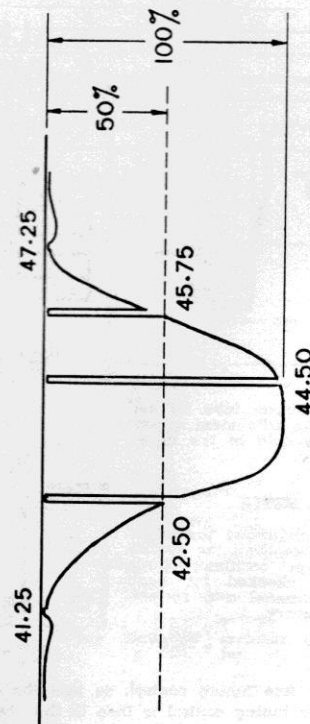
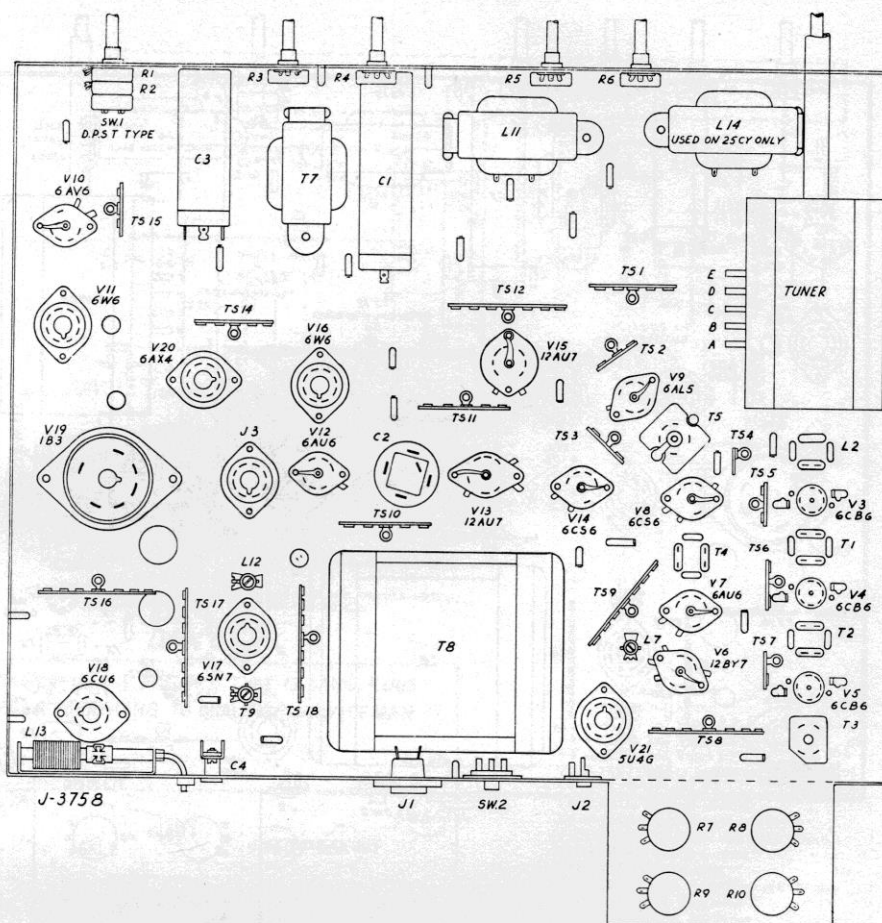


FIG. No 3

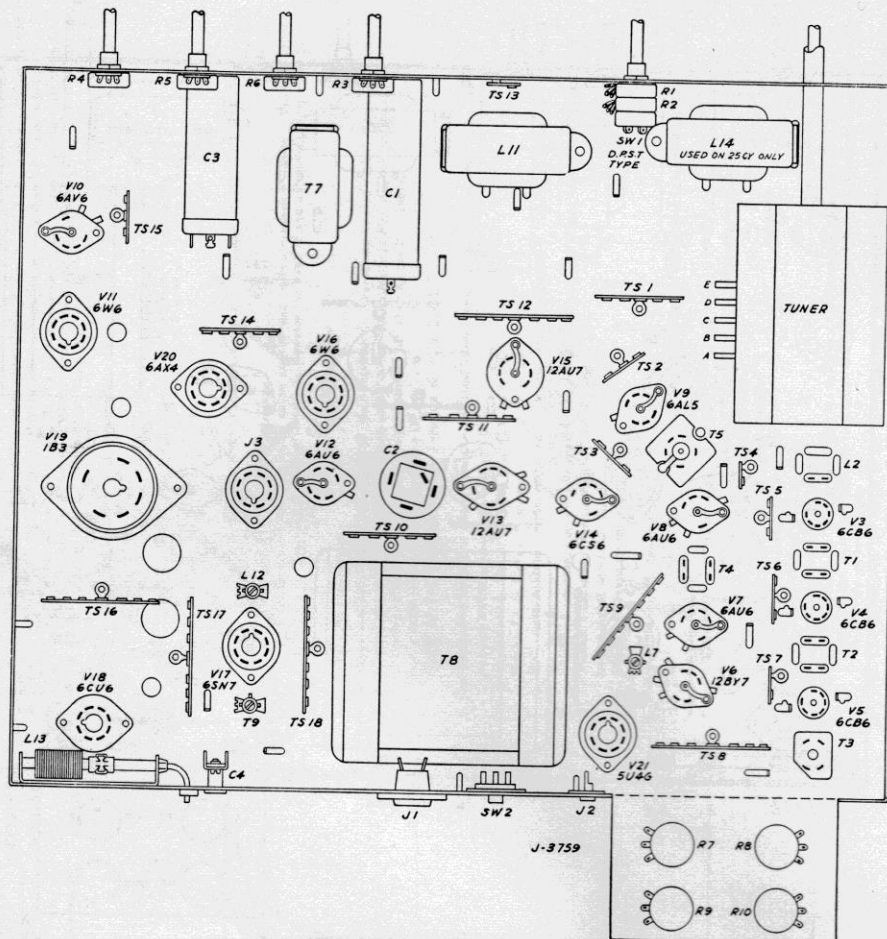


COMPONENT DESCRIPTIONS

C1.....Electrolytic—Single Sect. 60 cycle
 —Dual Sect. 25 cycle
 C2.....Electrolytic—Single Section
 C3.....Electrolytic—Triple Section
 C4.....Drive Trimmer
 J1.....AC Outlet
 J2.....Phono, Hi-fi Jack
 J3.....Yoke Socket
 L2.....1st I.F. Grid Coil
 L7.....4.5 Mc. Trap
 L11.....Filter Choke
 L12.....Stabilizer Coil Assembly
 L13.....Width Coil
 L14.....Filter Choke—25 Cycle ONLY
 R1.....Contrast } Dual
 R2.....Volume }
 R3.....Tone
 R4.....Brightness
 R5.....Horizontal Hold
 R6.....Vertical Hold

R7.....Sync. Control
 R8.....A.G.C. Control
 R9.....Vertical Linearity
 R10.....Vertical Size
 SW1.....AC Off-On Switch) D.P.S.T.
 Afterglow Switch)
 SW2.....Phono-TV-Hi-fi Switch
 T1.....1st Video I.F.
 T2.....2nd Video I.F.
 T3.....3rd Pix I.F.
 T4.....Interstage Sound I.F.
 T5.....4.5 Mc. Ratio Detector
 T6.....Output Trans.—Top of Chassis
 T7.....Vertical Output Transformer
 T8.....Power Transformer
 T9.....Horizontal Blocking Osc. Transformer
 T10.....Horizontal Output—Top of chassis under shield can

ELECTROHOME ELECTROMATIC 90

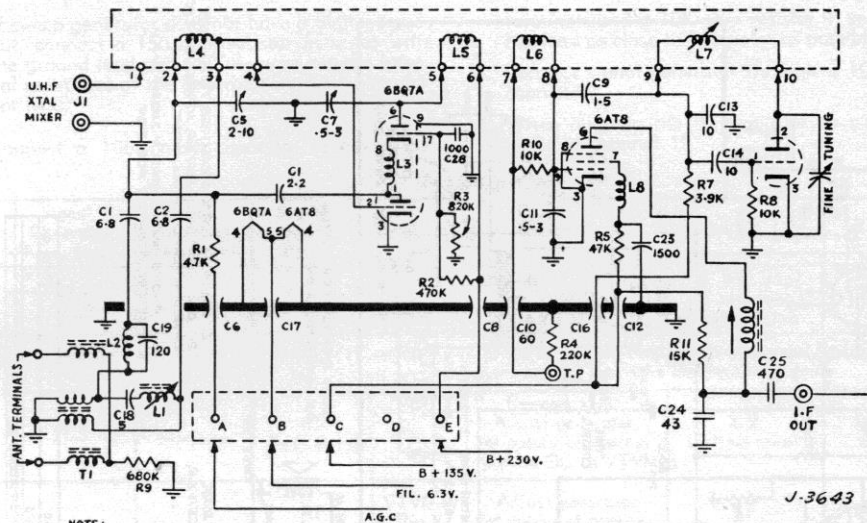


COMPONENT DESCRIPTIONS

- | | | | |
|----------|------------------------------------|----------|---|
| C1..... | Electrolytic—Single Sect. 60 cycle | R7..... | Sync. Control |
| | —Dual Sect. 25 cycle | R8..... | A.G.C. Control |
| C2..... | Electrolytic—Single Section | R9..... | Vertical Linearity |
| C3..... | Electrolytic—Triple Section | R10..... | Vertical Size |
| C4..... | Drive Trimmer | SW1..... | AC Off-On Switch } D.P.S.T. |
| J1..... | AC Outlet | | Afterglow Switch |
| J2..... | Phono, Hi-fi Jack | SW2..... | Phono-TV-Hi-fi Switch |
| J3..... | Yoke Socket | T1..... | 1st Video I.F. |
| L2..... | 1st I.F. Grid Coil | T2..... | 2nd Video I.F. |
| L7..... | 4.5 Mc. Trap | T3..... | 3rd Pix I.F. |
| L11..... | Filter Choke | T4..... | Interstage Sound I.F. |
| L12..... | Stabilizer Coil Assembly | T5..... | 4.5 Mc. Ratio Detector |
| L13..... | Width Coil | T6..... | Output Trans.—Top of Chassis |
| L14..... | Filter Choke—25 Cycle ONLY | T7..... | Vertical Output Transformer |
| R1..... | Contrast | T8..... | Power Transformer |
| R2..... | Volume } Dual | T9..... | Horizontal Blocking Osc. Transformer |
| R3..... | Tone | T10..... | Horizontal Output—Top of chassis under shield can |
| R4..... | Brightness | | |
| R5..... | Horizontal Hold | | |
| R6..... | Vertical Hold | | |

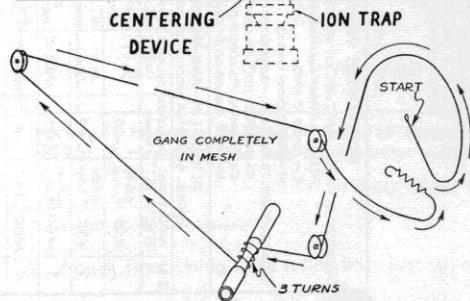
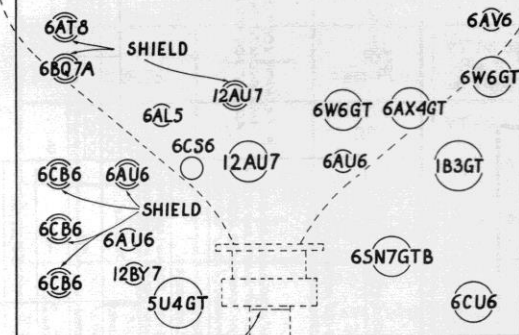
ELECTROHOME ELECTROMATIC 90 VIKING ULTRONIC 90

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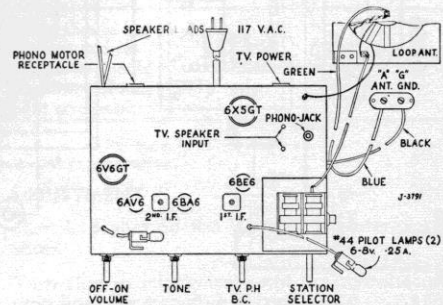


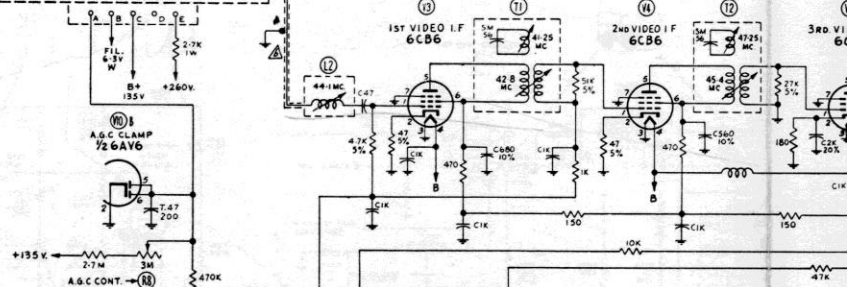
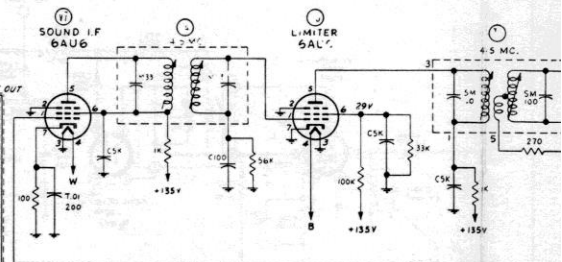
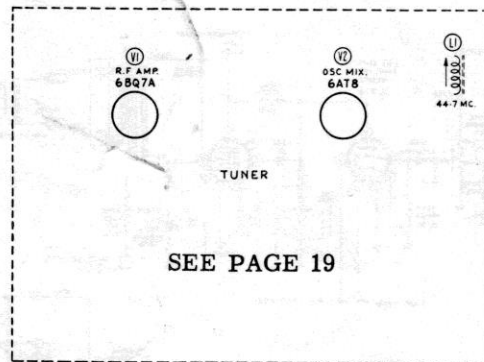
DANGER

FRAGILE GLASS PICTURE TUBE IS DANGEROUS
REFER SERVICING TO QUALIFIED SERVICEMAN



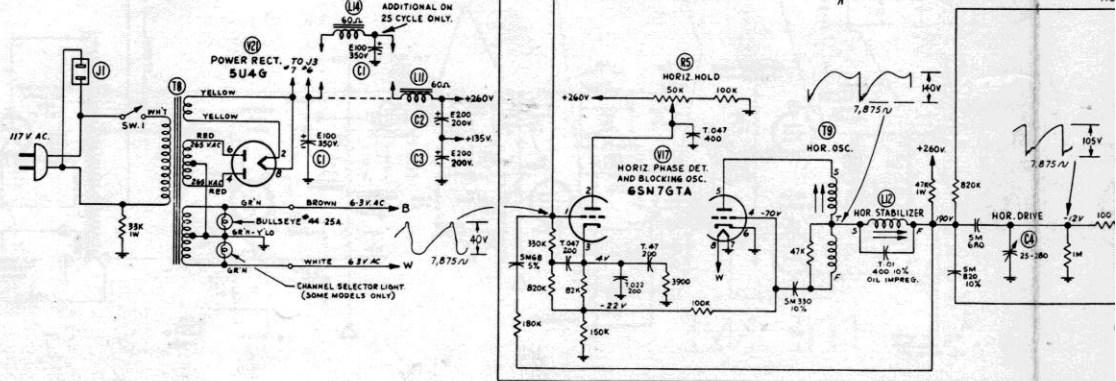
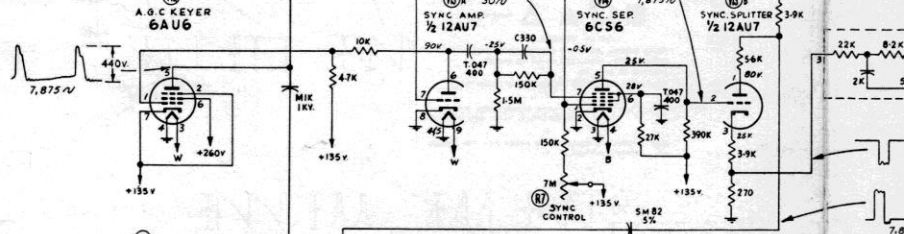
- V1—6BQ7A R.F. Amp.
- V2—6AT8 Osc. Mixer.
- V3—6CB6, 1st Video I.F.
- V4—6CB6, 2nd Video I.F.
- V5—6CB6, 3rd Video I.F.
- V6—12BY7 Video Amplifier.
- V7—6AU6 Sound I.F.
- V8—6AU6 Limiter—Sound.
- V9—6AL5 Discriminator—Sound.
- V10—6AV6, 1st Audio and AGC Clamp.
- V11—6W6GT Audio Output.
- V12—6AU6 AGC Keyer.
- V13—12AU7 Sync. Amplifier and Splitter.
- V14—6CS6 Sync. Separator.
- V15—12AU7 Vert. Oscillator.
- V16—6W6GT Vertical Output.
- V17—6SN7GTB Horizontal Phase Detector and Blocking Oscillator.
- V18—6CU6 Horizontal Output.
- V19—1B3GT H.V. Rect. (on top of chassis under shield can)
- V20—6AX4GT Damper.
- V21—5U4G Power Rect.
- V22—Pix Tube.





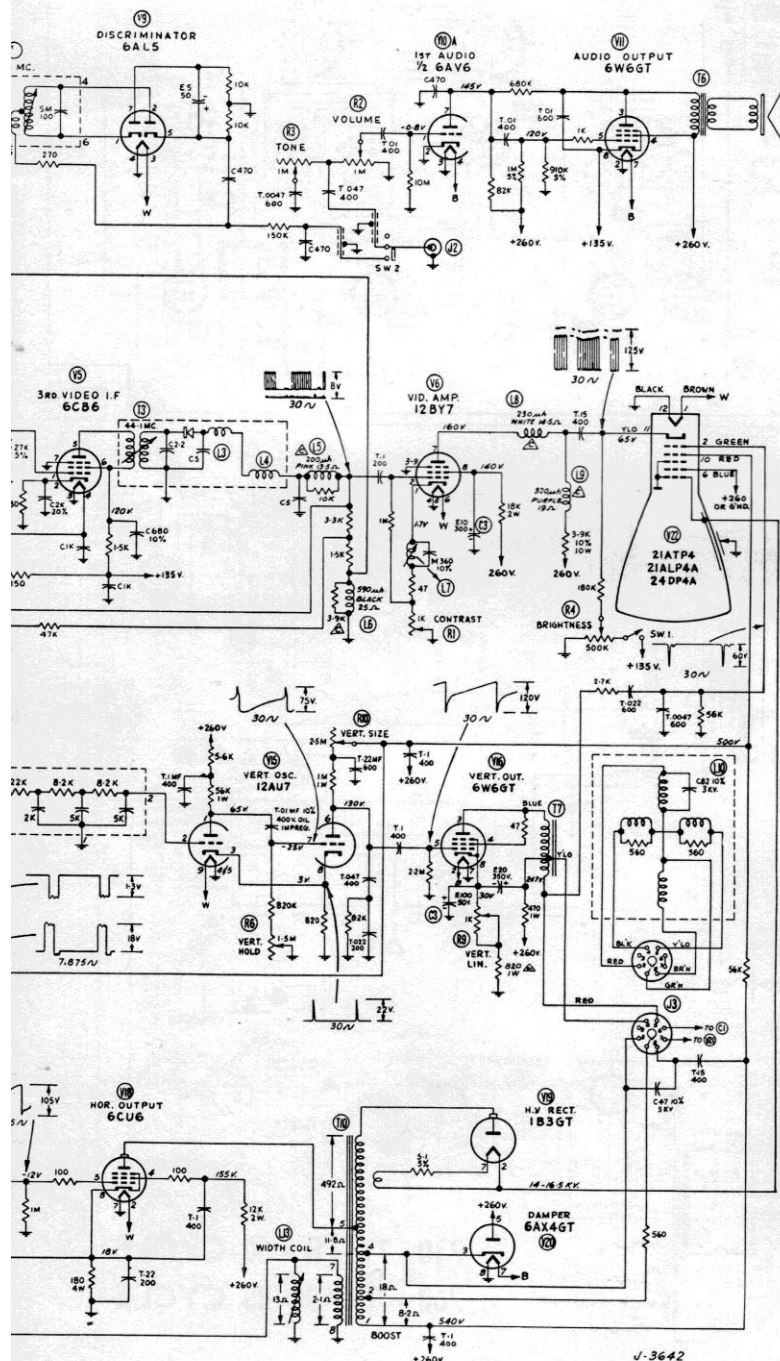
DC VOLTAGES ARE SHOWN FOR A NORMAL SIGNAL,
VOLUME CONTROL ZERO, BRIGHTNESS FULL,
CONTRAST FULL. OTHERS NORMAL, MEASURED
WITH A V-T-V HAVING 10 MΩ INPUT RESISTANCE.
RESISTORS 1/2 W. 10% UNLESS OTHERWISE NOTED.

T = TUBULAR PAPER CONDENSER
SM = SILVER MICA CONDENSER
E = ELECTROLYTIC CONDENSER
C = CERAMIC CONDENSER
M = MICA CONDENSER



ELECTROHOME

ELECTROMATIC 90 VIKING ULTRONIC 90



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