

R.C.C. Service Manual

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1955 Supplement No. 14

GORDON OLIVER TELEVISION

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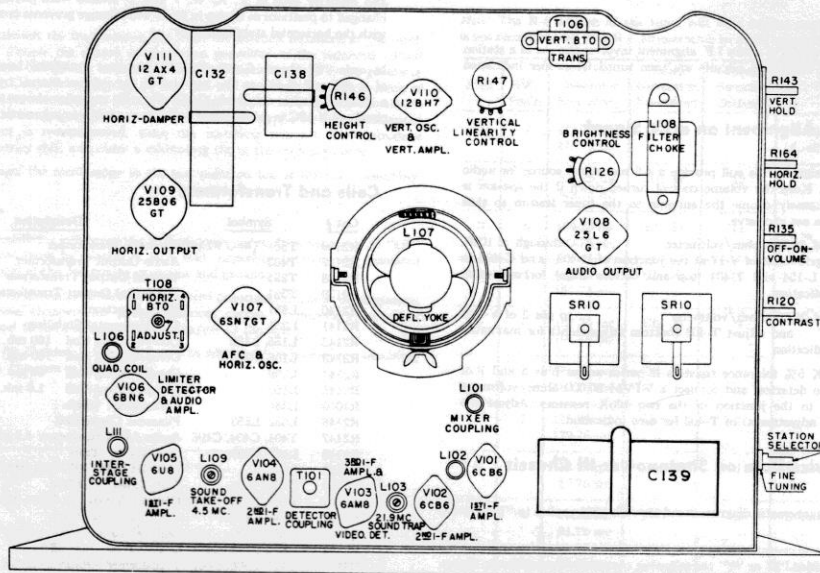
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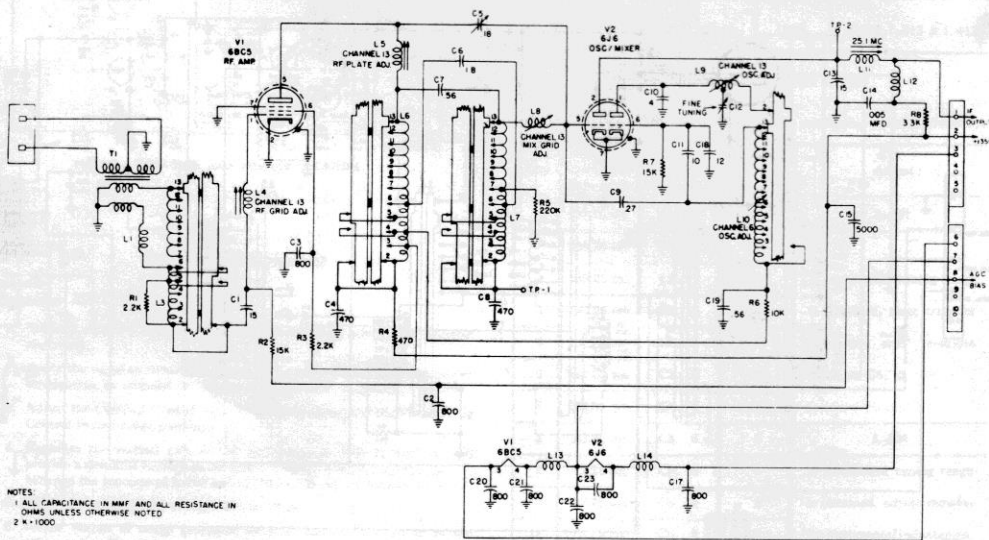
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RCC
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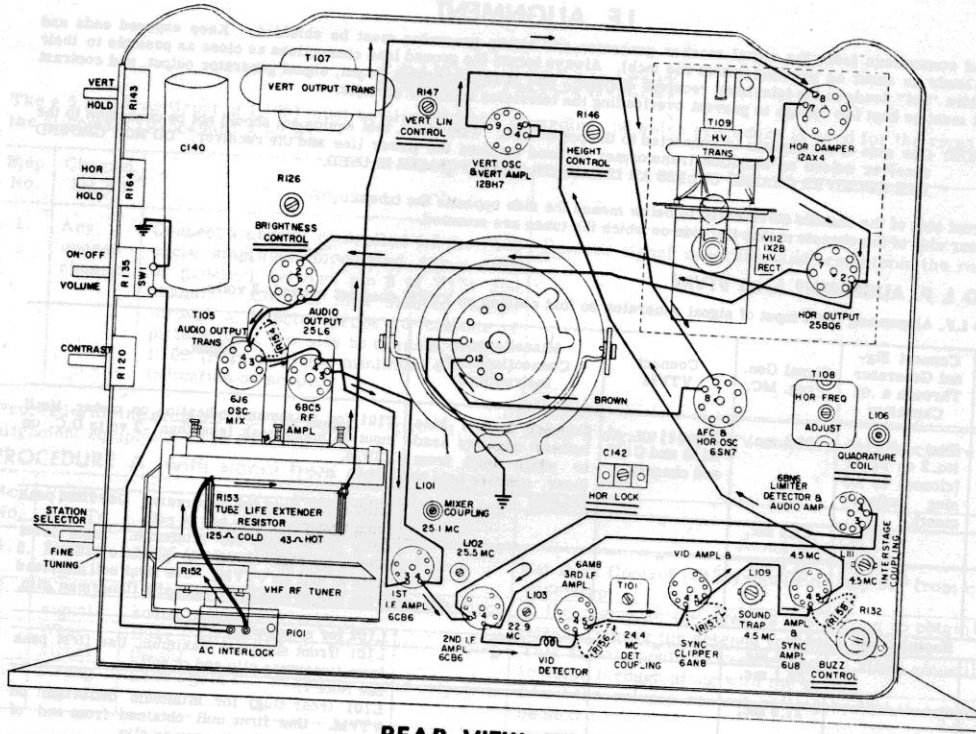
CROSLLEY GC17TOL, 426, 7 chassis



**FRONT VIEW OF CHASSIS 426
(Tube & Alignment Locations)**



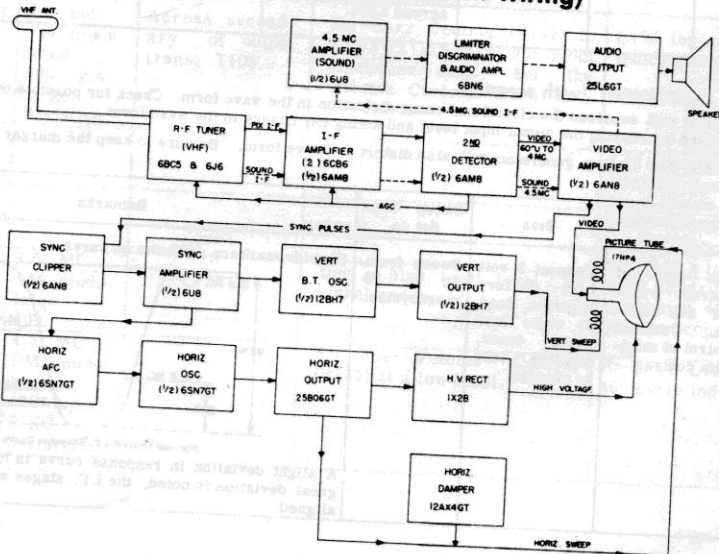
NOTES
1 ALL CAPACITANCE IN MMF AND ALL RESISTANCE IN OHMS UNLESS OTHERWISE NOTED
2 X-1000



REAR VIEW OF CHASSIS 426

(Tube & Alignment Locations
& Tube Filament Wiring)

BLOCK DIAGRAM:



I.F. ALIGNMENT

All lead connections from the signal marker generator and sweep generator must be shielded. Keep exposed ends and ground leads as short as possible (about one inch). Always locate the ground lead connections as close as possible to their respective "hot" leads in the television receiver chassis. The sweep generator output, signal generator output, and contrast control must be kept low enough to prevent overloading the television receiver circuits.

CAUTION: One side of the chassis is connected to the power line. Therefore, test equipment should not be connected to the receiver unless an isolation transformer is used between the power line and the receiver. DO NOT GROUND THE RECEIVER CHASSIS UNLESS AN ISOLATION TRANSFORMER IS USED.

The front side of the chassis as referred to below means the side opposite the tubes.
The rear side of the chassis means the side on which the tubes are mounted.

VIDEO I. F. ALIGNMENT (with VTVM)

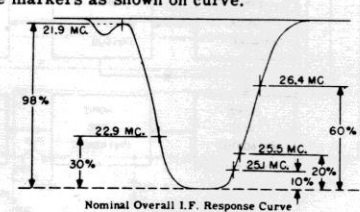
In the I.F. Alignment, limit input of signal generator so that reading on VTVM does not exceed -2 volts.

Step No.	Connect Signal Generator Through a .01 Capacitor	Signal Gen. Freq. MC.	Connect VTVM	Miscellaneous Connections and Instructions	Adjust
1.	Test Point No. 2 on Tuner (closest to L9 slug adjustment).	24.4 mc.	Junction of R118 and C113 and chassis.	Connect 3 volt bias battery negative lead to white lead from tuner, positive lead to chassis	T101 for maximum indication on meter, limit input to make peak less than -2 volts D.C. on VTVM.
2.	"	22.9 mc.	"	"	L103 (rear slug) for maximum. Use first peak from tinnerman clip end of coil.
3.	"	21.9 mc.	"	"	L103 (front slug) for minimum. Input level should be high enough to produce at least .5 volts at null on VTVM. Use first null obtained from end of coil form opposite tinnerman clip.
4.	Repeat steps 2 and 3.				
5.	"	25.5 mc.	"	"	L102 for maximum.
6.	"	25.1 mc.	"	"	L101 (front slug) for maximum. Use first peak from tinnerman clip end of coil.
7.	"	27.9 mc.	"	"	See Note 1. L101 (rear slug) for minimum deflection on VTVM. Use first null obtained from end of coil form opposite tinnerman clip.
8.	Repeat step 6 (and 7, if adjacent channel trap is used).				
9.	Test Point No. 1 on Tuner	25.1 mc.	"	Connect a 100 ohm resistor in series with a 1000 mmf. cap. across L101.	L11 (brass screw) on the Tuner for maximum.

TO CHECK I. F. ALIGNMENT (with scope)

Excessive sweep input will overload the circuit and cause distortion in the wave form. Check for possible overload by temporarily increasing and decreasing the signal input level and noting any change in the wave form.

Excessive signal from the marker generator will also distort the wave form. Be sure to keep the marker at the minimum usable amplitude.

Sweep Gen. Connected to	Scope Connected to	Bias	Sweep Gen. Set to	Remarks
Ungrounded shield of V2 and chassis.	High side of contrast control and chassis. Contrast control at minimum contrast.	Connect 3 volt bias battery negative lead to white lead from tuner, positive lead to chassis.	Sweep from 20 to 30 megacycles.	Provide markers as shown on curve.  A slight deviation in response curve is tolerated, but if any great deviation is noted, the I.F. stages will have to be re-aligned.

SOUND ALIGNMENT

The 4.5 mc. trap (front of L109) must be aligned first, regardless of which procedure is used for the remainder of the alignment (Procedure A or B).

Step No.	Channel Set To	Adjust	Remarks
1.	Any unused channel	Connect a crystal controlled 4.5 mc., 400 cycle amplitude modulated signal (30% or greater) between pin 8 of V104 and chassis. Connect high side of scope through a detector probe to cathode of picture tube, low side to chassis. Adjust L109 (rear slug) for minimum 400 cycle indication on scope.	Remove signal generator and scope from the receiver.

Proceed with the remainder of the Sound Alignment, using either a signal from a TV station as in Procedure A, or alignment equipment as in Procedure B.

PROCEDURE A (with signal from station)

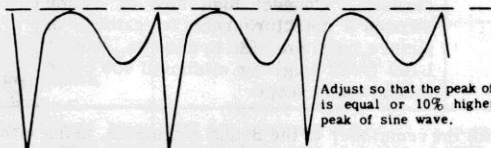
Step No.	Channel Set To	Adjust	Remarks
1.	Strong signal	L106 for maximum sound output.	Set Buzz Control (R132) approximately 90° from clockwise stop.
2.	Weak signal	L111 and L109 (front slug) for maximum sound output.	If the signal in the area is too strong to obtain these peaks, remove the antenna from the receiver.
3.	Weak signal	Buzz Control (R132) for minimum noise (hash).	This signal should be weak enough to allow noise (hash) to come through along with the sound.
4.	Strong signal	L106 again for maximum sound output.	Limit the volume control setting so that this peak can be heard.

PROCEDURE B (with alignment equipment)

Step No.	Connect Signal Gen.	Signal Gen. Freq. MC.	Connect Scope	Miscellaneous Instructions	Adjust
1.	Pin 8 of V104.	4.5 mc. FM modulated 400 c.p.s., 25 kc. deviation.	Across secondary of output trans. T105.	Set Buzz Control (R132) to approximately 90° from clockwise stop. Set the Volume Control (R135) at a low level.	L106 for maximum 400 cycle indication on scope.
2.	"	"	"	"	L111 for maximum response keeping input signal at a low level (below limiting).
3.	"	"	"	"	L109 (front slug) for maximum response keeping input signal at a low level.
4.	"	4.5 MC. AM modulated 400 c.p.s.	"	Use a high input level on signal generator.	Buzz Control (R132) for null (minimum 400 c.p.s. amplitude on scope).
5.	"	4.5 MC. FM modulated 400 c.p.s., 25KC. deviation.	"	Set the Volume Control (R135) at a low level.	Re-peak L106 for maximum 400 cycle indication on scope.

HORIZONTAL BLOCKING OSCILLATOR ALIGNMENT

Tune Receiver to TV signal, adjust contrast control for normal picture below limiting in the Video Amplifier, and proceed as follows:

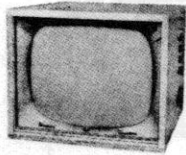
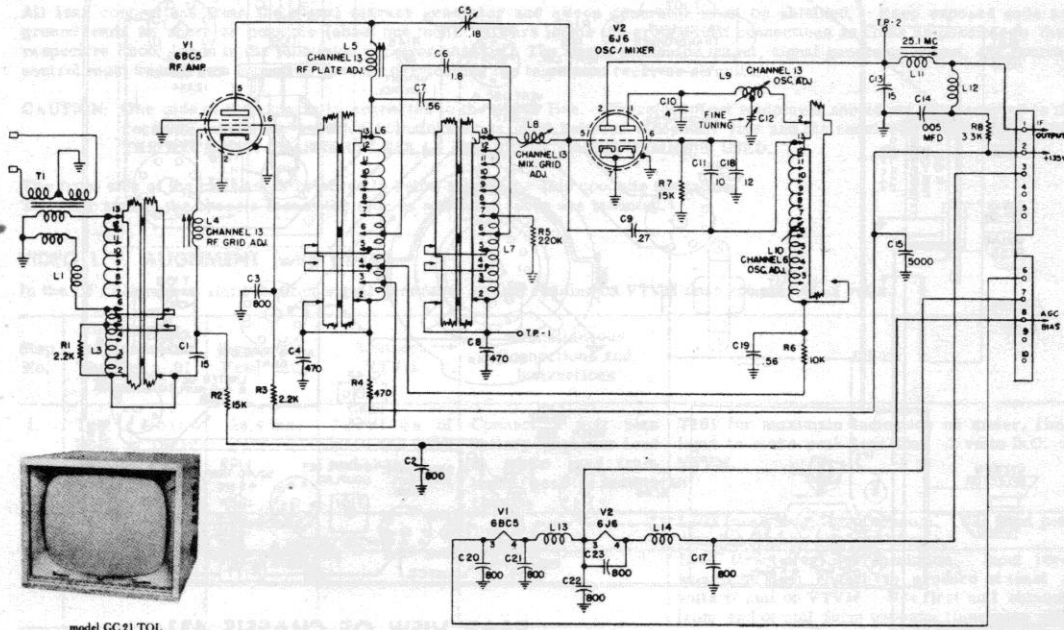
Step No.	Contrast Control Set For	Miscellaneous	Adjust
1.	Normal Picture	-----	Horizontal Hold Control (R164) and Horizontal Frequency Adjustment (rear slug of T108) until picture is in sync.
2.	"	Connect scope in series with 10 mmf. to lug 4 of T108.	Adjust Horizontal BTO Trap (front slug of T108) to obtain the waveform shown below. Keep the picture in sync at all times by re-adjusting the Horizontal Hold, Horizontal Frequency and/or Horizontal Lock Trimmer (C142). 
3.	"	Horizontal Hold set fully clock-wise.	Adjust Horizontal Frequency (rear slug of T108) by turning out until the picture is just out of sync. Then turn the control slowly in until the picture is just ready to fall into sync (indicated by a wide black vertical or diagonal horizontal blanking bar).
4.	"	Horizontal Hold set fully clockwise.	Picture should normally be in sync. Remove the signal by tuning off and then re-tuning to the station. If more than seven bars are present, adjust the Horizontal Lock Trimmer slightly counter-clockwise until three or four bars appear when the receiver is tuned off and then re-tuned to the station (Horizontal Hold Control still set fully clockwise). If less than three bars are present, adjust the Horizontal Lock Trimmer counter-clockwise to obtain the three or four bars as described above. Since the Horizontal Lock Trimmer adjustment affects the horizontal frequency, the adjustments of both the Horizontal Frequency Adjustment and the Horizontal Lock Trimmer must be repeated until the conditions outlined in steps 3 and 4 exist simultaneously at the extreme positions of the Horizontal Hold control.
5.	Weak Picture	-----	Check pull-in range, which should be normally 60° to 120°. Set the Horizontal Hold Control so that when the receiver is tuned off and then re-tuned to the station, the picture returns completely in sync.

L112	13565	Coil Video Peaking	L103	13040	Coil 2nd I.F. & Trap (2nd choice)
L111	13551	Coil Sound Coupling		13552	Coil 2nd I.F. & Trap (1st choice)
L110	13042	Choke Filter	L102	13544	Coil I.F. Interstage
L109	13549	Coil Sound Take Off	L101	13545	Coil I.F. Input
L108	13610	Choke Filter (25 cycle)	T109	13518	Trans. Horiz. Deflection
	13523	Choke Filter (60 cycle)	T108	13546	Trans. Horiz. Osc. & Trap
L107	13519	Deflection Yoke	T107	13522	Trans. Vert. Output
L106	13548	Coil Quad. Grid	T106	13524	Trans. Vert. Blocking Osc.
L105	13547	Coil Video Peaking	T105	13521	Trans. Audio Output
L104	12455	Coil Choke Diode	T101	13550	Trans. I.F. Output

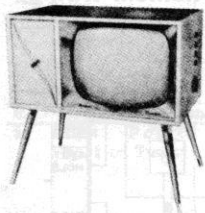
NOTES

Later production models of this receiver deleted R156, R157 and R158 as shown on the Chassis Layout and changed to R174 as shown on the Schematic Diagram.

CROSLEY GC21TOL etc. 431 chassis



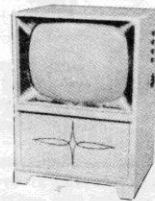
model CC21 TOL



model HC21 HCL

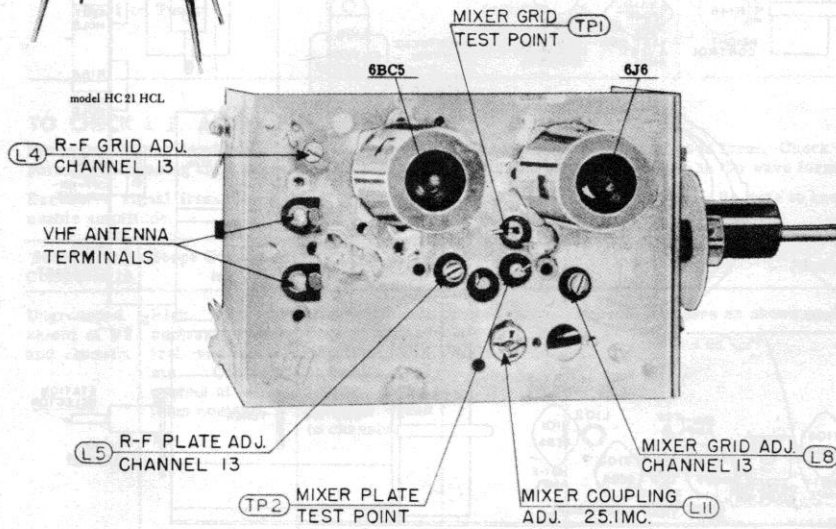


model GC17 TOL

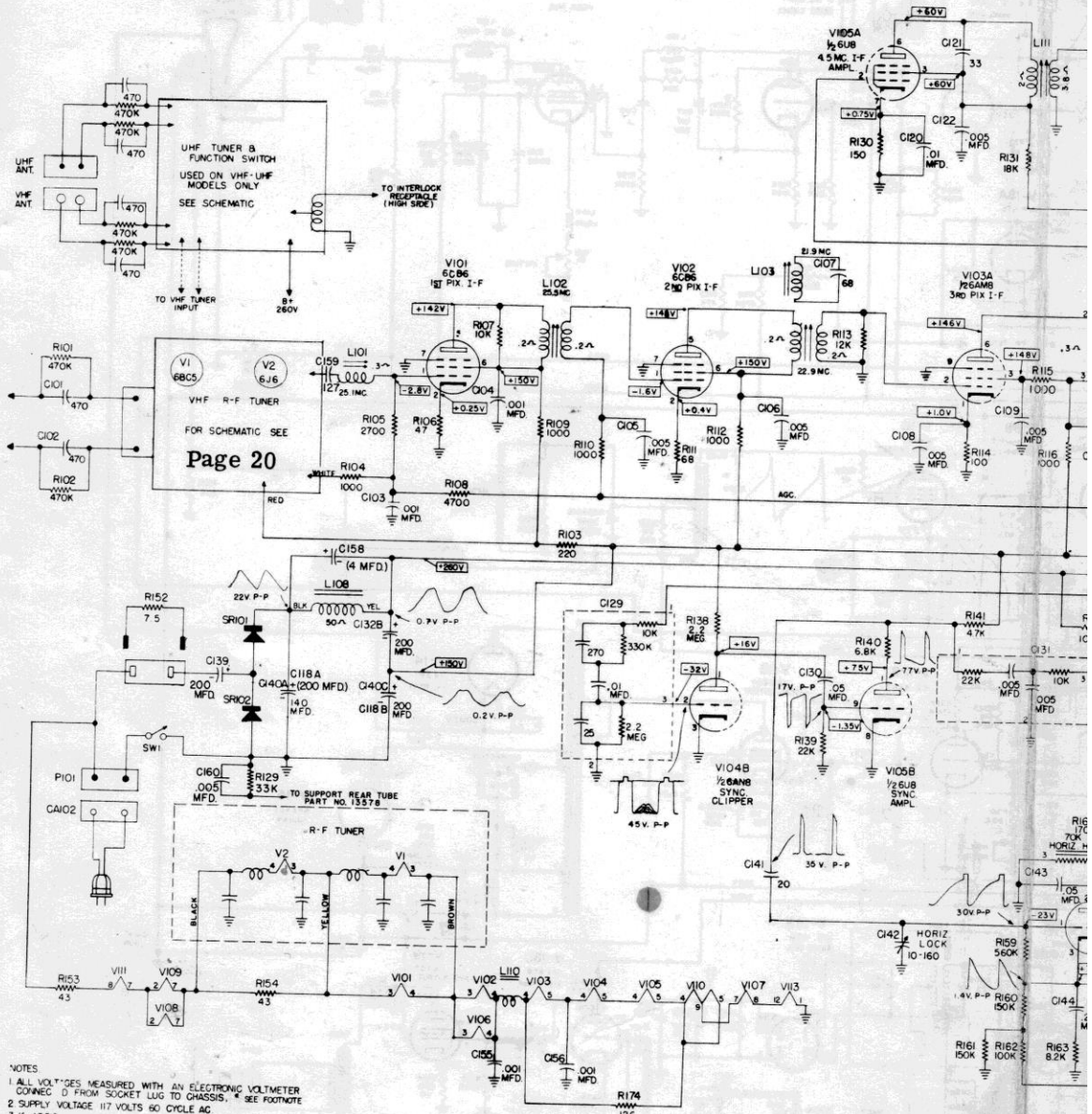


model HC21 COL

NOTES:
1. ALL CAPACITANCE IN MMF AND ALL RESISTANCE IN OHMS UNLESS OTHERWISE NOTED.
2. K = 1000

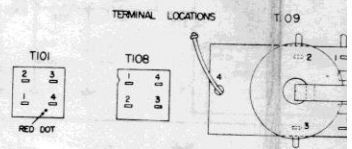


VHF TUNER
(Tube & Alignment Locations)



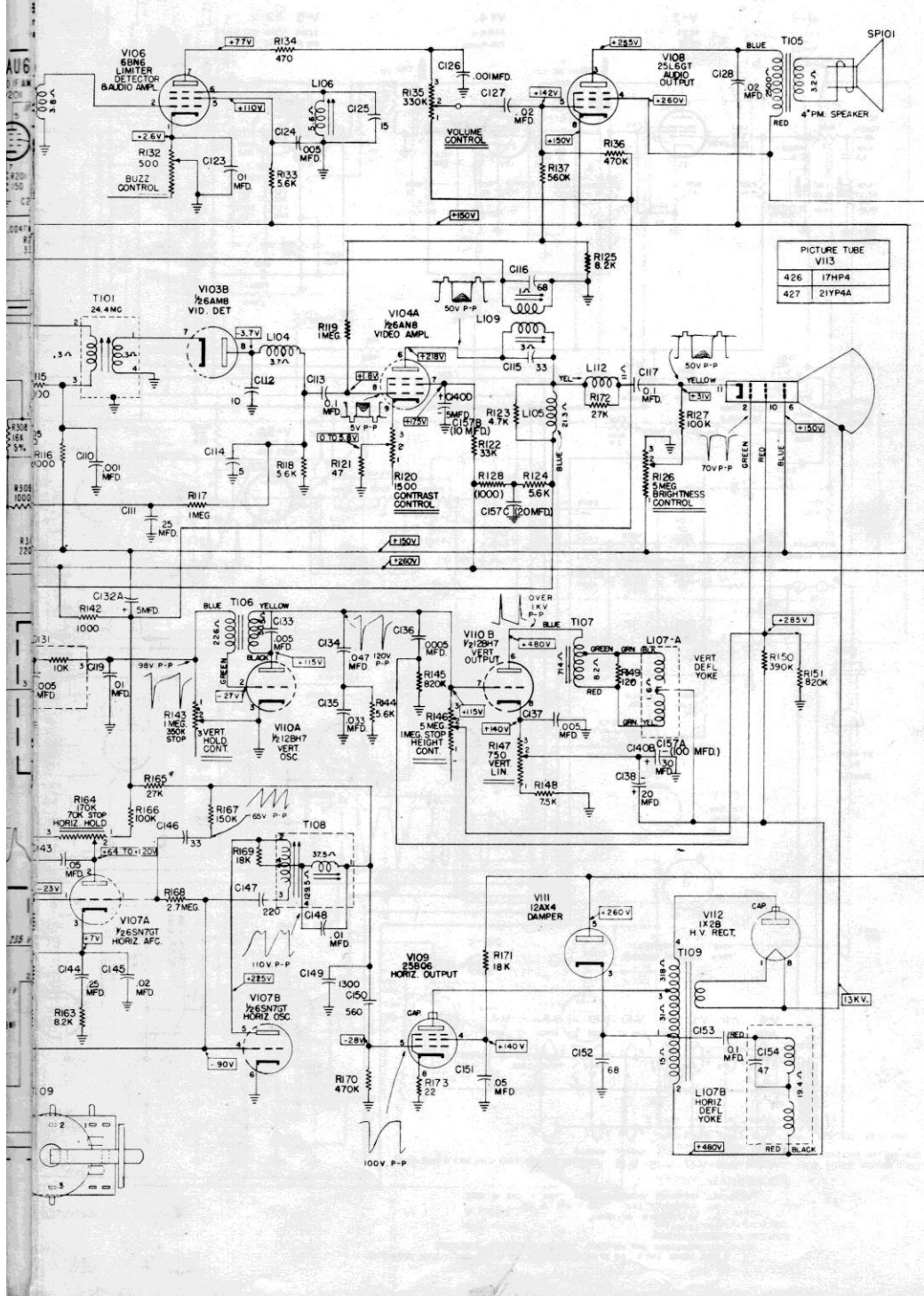
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- NOTES
1. ALL VOLTAGES MEASURED WITH AN ELECTRONIC VOLTMMETER. CONNECT D FROM SOCKET LUG TO CHASSIS. * SEE FOOTNOTE
 2. SUPPLY VOLTAGE 117 VOLTS 60 CYCLE AC
 3. K = 1000
 4. ALL CAPACITANCE VALUES IN MMF. & ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE NOTED
 5. VALUES SHOWN IN BRACKETS ARE FOR 25 °C ONLY.
- * SOME VOLTAGES ARE VARIABLE & VOLTAGES SHOWN WERE MEASURED WITH A NORMAL PICTURE ON THE PICTURE TUBE AND THE CONTRAST AND BRIGHTNESS CONTROLS SET FOR 50 VOLTS PEAK TO PEAK ON THE CATHODE (PIN 11) OF THE PICTURE TUBE SOCKET. VOLTAGE TOLERANCE ± 10%.



CROSLLEY

GC17TOL, 426, 7 chassis



PICTURE TUBE V113	
426	17HP4
427	21YP4A