

TELEVISION Service Manual

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1966 Supplement No. 74

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*

Key To Circuits:

Unit

CA-3 Tuner circuits - page 68
 CBC-3 Video IF, video-sound detectors, sound IF and audio amplifier - page 64
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CHECK YOUR TUBE INVENTORY

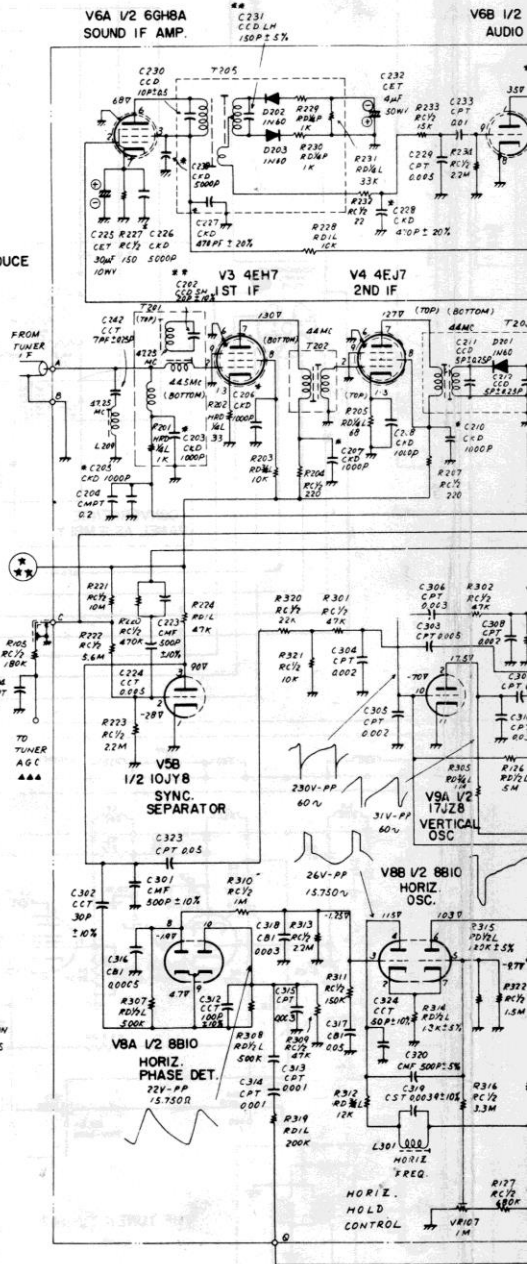
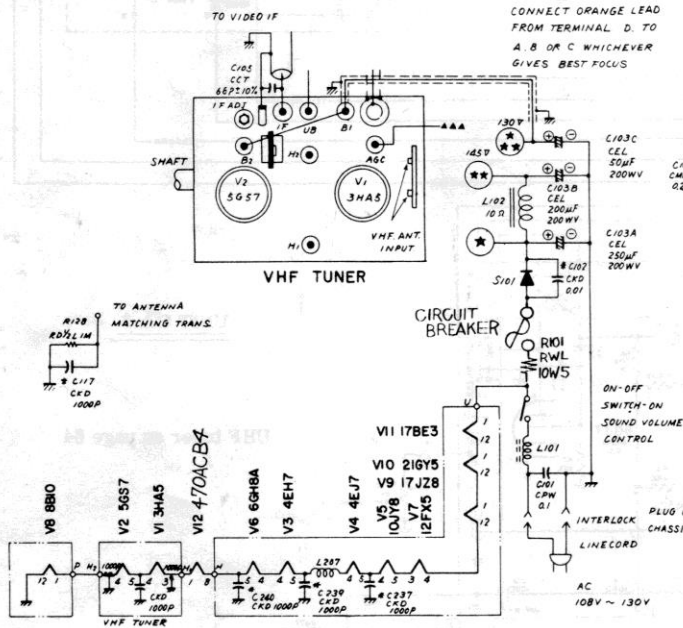
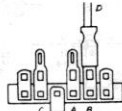
A list of tube types used in receivers covered by this supplement appears on page 104.

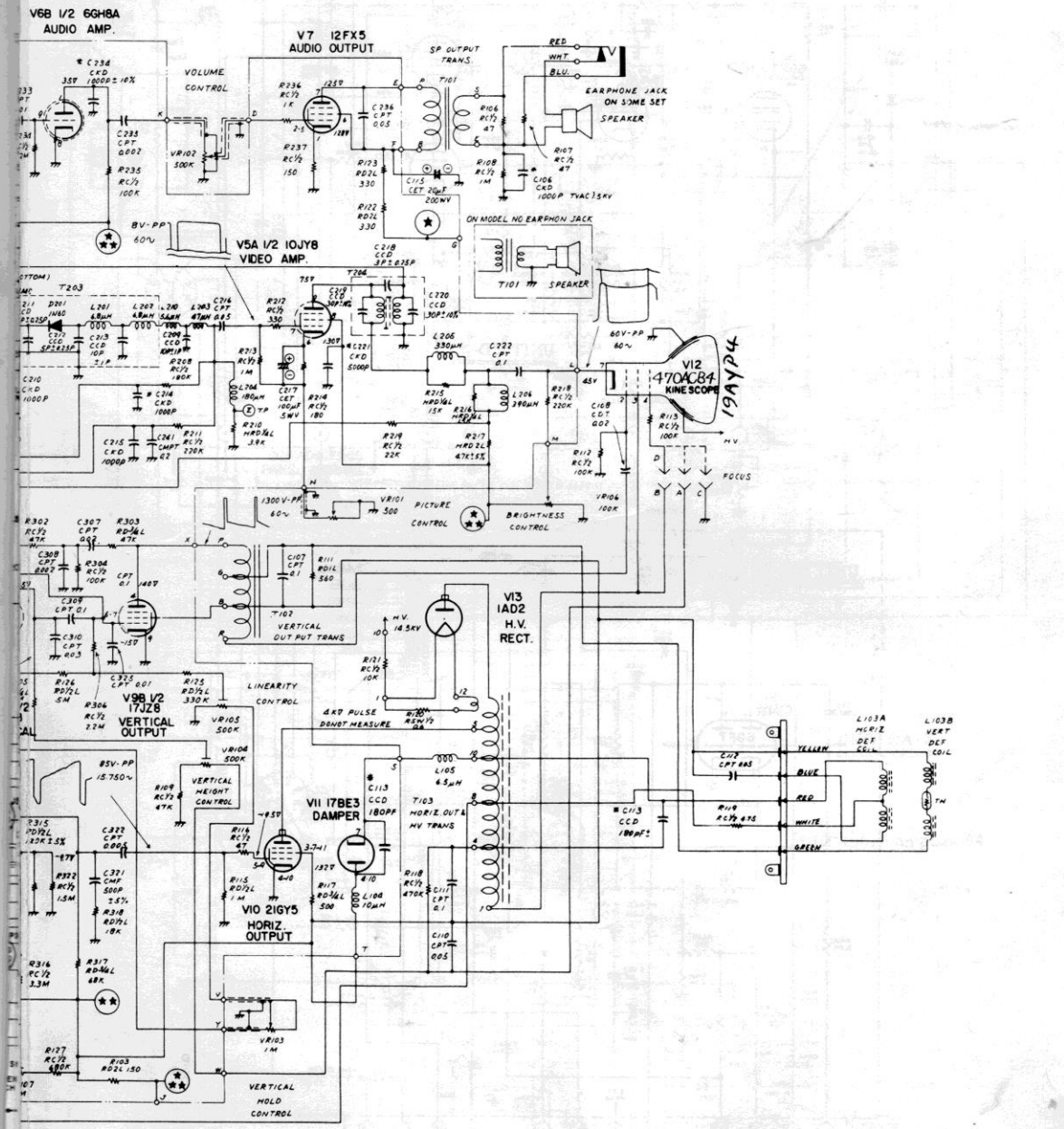
RCC
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NOTE:

1. ALL CARBON DEPOSIT FILM RESISTOR(RD) VALUES IN OHMS $\pm 10\%$ TOLERANCE 1/2 WATT UNLESS OTHERWISE NOTED.
2. ALL CARBON COMPOSITION RESISTOR(RC) VALUES IN OHMS $\pm 20\%$ TOLERANCE 1/2 WATT UNLESS OTHERWISE NOTED.
3. ALL MICA AND PAPER CONDENSERS $\pm 20\%$ TOLERANCE UNLESS OTHERWISE NOTED.
4. ALL CERAMIC CONDENSERS (** MARK DISC TYPE) VALUES IN MICRO-MICRO FARADS $\pm 10\%$ TOLERANCE UNLESS OTHERWISE NOTED.
5. ALL VOLTAGE MEASURED BETWEEN POINTS INDICATED AND CHASSIS, USING AN ELECTRONIC VOLTMETER. ALL VOLTAGE READINGS $\pm 15\%$ WITH INCOMING SIGNAL AND WITH CONTRAST CONTROL SET TO PRODUCE 60VOLTS PEAK TO PEAK AT KINESCOPE.
6. ** MARK HEAT COEFFICIENT.

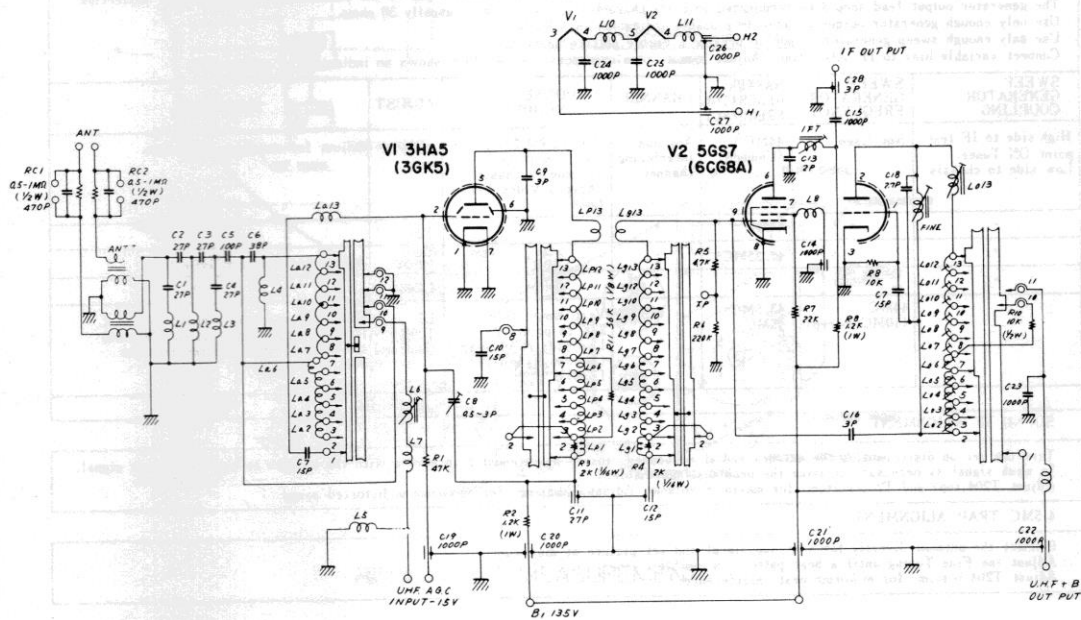
FOCUS ADJUSTMENT





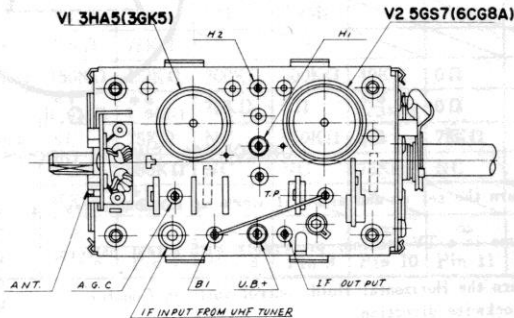
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TUNER SCHEMATIC AND LAYOUT



TRANSFORMERS & COILS

- | | | |
|-------|--------|--|
| T 101 | E11320 | Transformer, Audio Output |
| T 102 | E11321 | Transformer, Vertical Output |
| T 103 | E11322 | Transformer, Horizontal Output |
| T 201 | E11323 | I.F. Transformer, 1st Video |
| T 202 | E11324 | I.F. Transformer, 2nd Video |
| T 203 | E11325 | I.F. Transformer, 3rd Video & Detector |
| T 204 | E11326 | I.F. Transformer, Sound |
| T 205 | E11327 | Transformer, Ratio Detector |
| L 201 | E11328 | Coil, Choke |
| L 202 | E11329 | Coil, Choke |
| L 203 | E11330 | Coil, Peaking |
| L 204 | E11331 | Coil, Peaking |
| L 205 | E11332 | Coil, Peaking |
| L 206 | E11333 | Coil, Peaking |
| L 207 | E11334 | Coil, Filament |
| L 209 | E11335 | Coil, 47.25 Mc. Trap. |
| L 210 | E11336 | Coil, Peaking |
| L 301 | E11337 | Coil, Horizontal Frequency |
| L 101 | E11338 | Line Filter |
| L 102 | E11339 | Choke, Filter |
| L 103 | E11340 | Deflection Yoke |
| L 104 | E11341 | Coil, Damper Choke |
| L 105 | E11342 | Coil, Choke |



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The High Voltage lead should be securely taped and kept away from the chassis. Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Use only enough generator output to provide a usable indication on VTVM. Use only enough sweep generator output to provide a usable pattern on scope. Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
High side to IF test point ON Tuner. Low side to chassis	Not Used	44MC (Unmod.)	Any non-interfering channel	Use VTVM DC probe thru 10K to point A. Common to chassis. (Across Video Det. Load)	T203	Adjust for maximum deflection.
"	"	44MC	"	"	T202	"
"	"	47.25MC	"	"	T201 (TOP)	Adjust for minimum deflection.
"	"	"	"	"	L208	"
	44MC (10MC sweep)	43.5MC 45MC		Vert Amp. thru 27K to point A. Low side to chassis (Across Video Det. Load)	L2 T201 (Bottom)	Check for response similar to Fig 1. If necessary retouch T202, T203 and L2 T201 (Bottom) as required for desired response.

SOUND IF ALIGNMENT

Turn the set on disconnecting the antenna and if necessary, insert an attenuator in series with the antenna to provide a weak signal. (a weak signal is necessary to make the peak distinguishable.) Adjust T204(top) and T205(bottom) for maximum volume. Adjust T205(top) for maximum undistorted sound.

4.5MC TRAP ALIGNMENT

Connect the antenna directly for a strong signal and set picture at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust T204(bottom) for minimum beat interference.

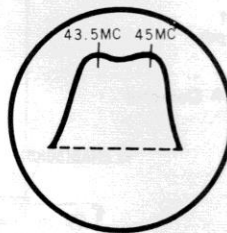
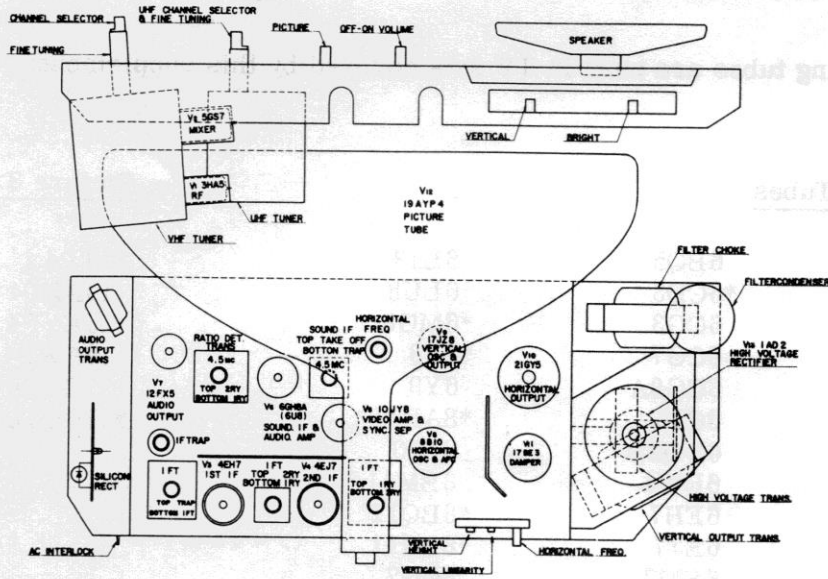


FIG. 1

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and allow it warm up for 2 minutes.
2. Tune in a TV station, preferably with a test pattern.
3. Turn the Horizontal Hold control fully in Counter Clockwise direction.
4. Rotate Horizontal Frequency control coil through small hole on bottom of cabinet in Counter clock-wise direction until picture falls out of horizontal sync. (if picture is not out of sync at the end of the control range, momentarily switch tuner to "free" channel and then return to original.)
5. Reverse rotation of Frequency Control coil slowly until picture falls into sync.
6. Set the Horizontal hold control at the center of range.

TUBE LAYOUT



RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V 1	3HA5	440K Ω	0 Ω	—	—	75K Ω	0 Ω	0 Ω					
V 2	5GS7	11K Ω	75K Ω	0 Ω	—	—	75K Ω	90K Ω	0 Ω	200K Ω			
V 3	4EH7	33 Ω	150K Ω	33 Ω	—	—	0 Ω	75K Ω	75K Ω	0 Ω			
V 4	4EJ7	68 Ω	0 Ω	68 Ω	—	—	0 Ω	75K Ω	83K Ω	0 Ω			
V 5	10JY8	0 Ω	1.8M Ω	130K Ω	—	—	* 1 650 Ω	840K Ω	75K Ω	78K Ω			
V 6	6GH8A	150K Ω	2.5 Ω	83K Ω	—	—	83K Ω	150 Ω	0 Ω	2.2M Ω			
V 7	12FX5	150 Ω	* 2 500K Ω	—	—	400K Ω	75K Ω	75K Ω					
V 8	8B10(A)	—	1.2K Ω	900K Ω	83K Ω	180K Ω	150K Ω	1.2K Ω	700K Ω	300K Ω	40K Ω	0 Ω	—
V 9	17JZ8	—	* 3 1.3K Ω	NC	75K Ω	NC	* 4 1.6M Ω	* 4 1.6M Ω	75K Ω	0 Ω	* 5 1.3M Ω	0 Ω	—
V 10	21GY5	—	NC	75K Ω	0 Ω	950K Ω	NC	75K Ω	NC	950K Ω	0 Ω	75K Ω	—
V 11	17BE3	—	NC	NC	75K Ω	NC	NC	950K Ω	NC	NC	75K Ω	NC	—
V 12	19AYP4	—	85K Ω	950K Ω	1M Ω	NC	85K Ω	* 6 260K Ω	—				
V 13	1AD2	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12

NC NO CONNECTION

- * 1 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF PICTURE.
- * 2 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF VOLUME.
- * 3 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF VERTICAL HEIGHT.
- * 4 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF VERTICAL LINEA.
- * 5 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF VERTICAL HOLD.
- * 6 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF BRIGHTNESS.