

INSTALLATION and SERVICE NOTES

Printed Wiring Views, Schematic Diagrams, List of Special Parts, Installation Adjustments
Intended for Installation and Servicemen

For complete service information, see Service Manual No. S566; for printed wiring service information, see Service Manual No. S559. Manuals available from Admiral distributors.

Make all checks or adjustments given here to insure best performance and ease in tuning. It is especially important that the Channel Slugs and Ion Trap be adjusted upon installation and at every service call. Removal of cabinet back disconnects interlock. Use a separate line cord (part number 89A22-1) when servicing.

ADJUST CHANNEL SLUGS

Slugs can be adjusted without removing chassis from cabinet.

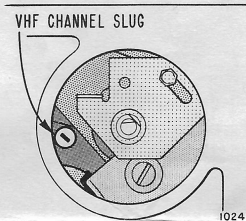
Check individual channel slug adjustment for each station received. If this adjustment is properly made, it is possible to tune from one station to another by turning the Channel Selector only.

- Turn the set on and allow 15 minutes to warm up.
- Set Channel Selector for a station; set other controls for normal picture and sound.
- Set Fine Tuning control at center of its range by rotating it approximately half-way.
- Remove Channel Selector and Fine Tuning knobs.

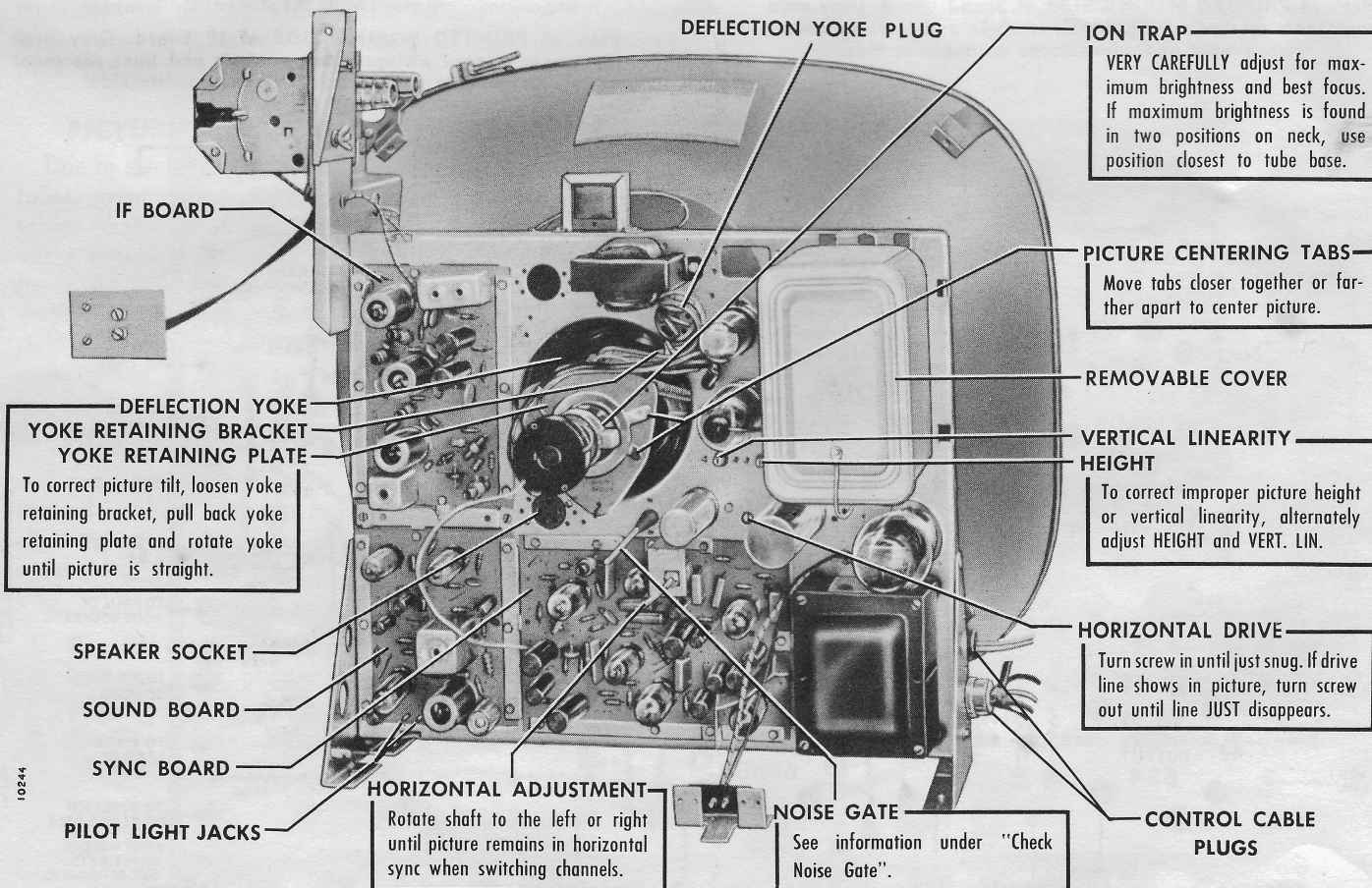
- Insert a $\frac{1}{8}$ " blade, flexible non-metallic tool (Part No. 98A 30-19) through the hole adjacent to Channel Selector shaft (see illustration). For each channel in operation, carefully adjust the channel slug for best picture. Note that this may not be the point at which the sound is loudest.)

Caution: Only slight rotation of the slug will be required; turning the slug in too far will cause it to fall into the coil.

View through hole in glass and mask with Channel Selector and Fine Tuning Knobs removed.



10248



Rear View of Chassis Showing Adjustments.

**For complete printed wiring service information,
see Service Manual No. S559.**

**For complete printed wiring service information,
see Service Manual No. S559.**



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10210



View of PRINTED WIRING SIDE of Sync Board. Gray area represents printed wiring; black symbols and lines represent components and connections on opposite side.

300

SCHEMATIC NOTES

②, ③, . . . indicate production changes covered by a Run number. Run numbers are rubber stamped on the chassis.

Ⓐ, Ⓑ, . . . , Ⓜ, Ⓝ, etc. indicate alignment points and alignment connections.

Fixed resistor values shown in ohms $\pm 10\%$ tolerance, $\frac{1}{2}$ watt; capacitor values shown in micromicrofarads $\pm 20\%$ tolerance unless otherwise specified.

NOTE. $K=R \times 1,000$. $MEG=R \times 1,000,000$. MF =microfarad.

CONDITIONS FOR MEASURING VOLTAGES

Warning: Pulsed high voltages are present at the caps of V405 and V407, and at pin 3 of V406. Do not attempt to measure voltages at these points without suitable test equipment. A VTVM with a high voltage probe should be used when measuring picture tube 2nd anode voltage.

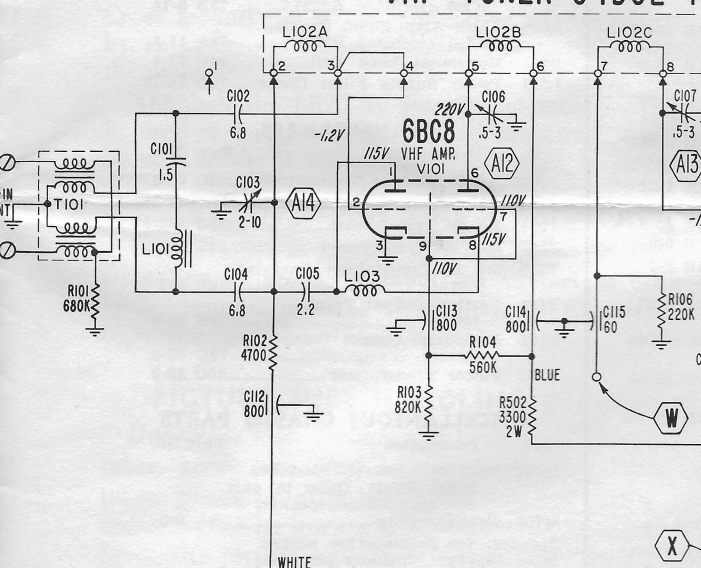
- Set the **Channel Selector** on an unused channel. **Contrast** control fully clockwise. All other controls fully counterclockwise. Do not disturb **Horiz. Lock** and **Horiz. Drive** adjustments.
- Antenna disconnected and terminals shorted together.
- Line voltage: 117 volts AC.
- DC voltages measured with a VTVM between tube socket terminals and chassis, unless otherwise indicated.
- Voltages at V101 and V102 measured from the top of the tuner with tubes in socket. Use of an adapter is recommended.
- Voltages at V305 socket measured with socket removed from tube.

CONDITIONS FOR OBSERVING WAVEFORMS

Warning: Pulsed high voltages are present at the caps of V405 and V407, and at pin 3 of V406. Do not attempt to observe waveforms at these points unless suitable test equipment is used. Waveforms at these points may be taken with a capacitive voltage divider probe. The waveform at pin 3 of V406 may also be taken by clipping or twisting the lead from the high side of the oscilloscope over the insulation on the lead connecting to pin 3. If the waveform is taken in this manner, its shape will be the same, but the peak-to-peak voltage will be lower, depending on the degree of coupling between the oscilloscope and the lead connecting to pin 3 of V406.

- Waveforms should resemble those shown on the schematic.
- Waveforms are taken with a transmitted signal input to the television chassis.
- Set all controls for normal picture. Set **Noise Gate** control fully counterclockwise. After the receiver is set for a normal picture, turn the **Contrast** control fully clockwise.
- Oscilloscope sweep is set at 30 cycles for vertical waveforms and at 7,875 cycles for horizontal waveforms, to permit 2 complete cycles to be observed.
- Peak-to-peak voltages will vary from those shown on the schematic, depending on the test equipment employed and chassis parts tolerances.

VHF TUNER 94D92-7

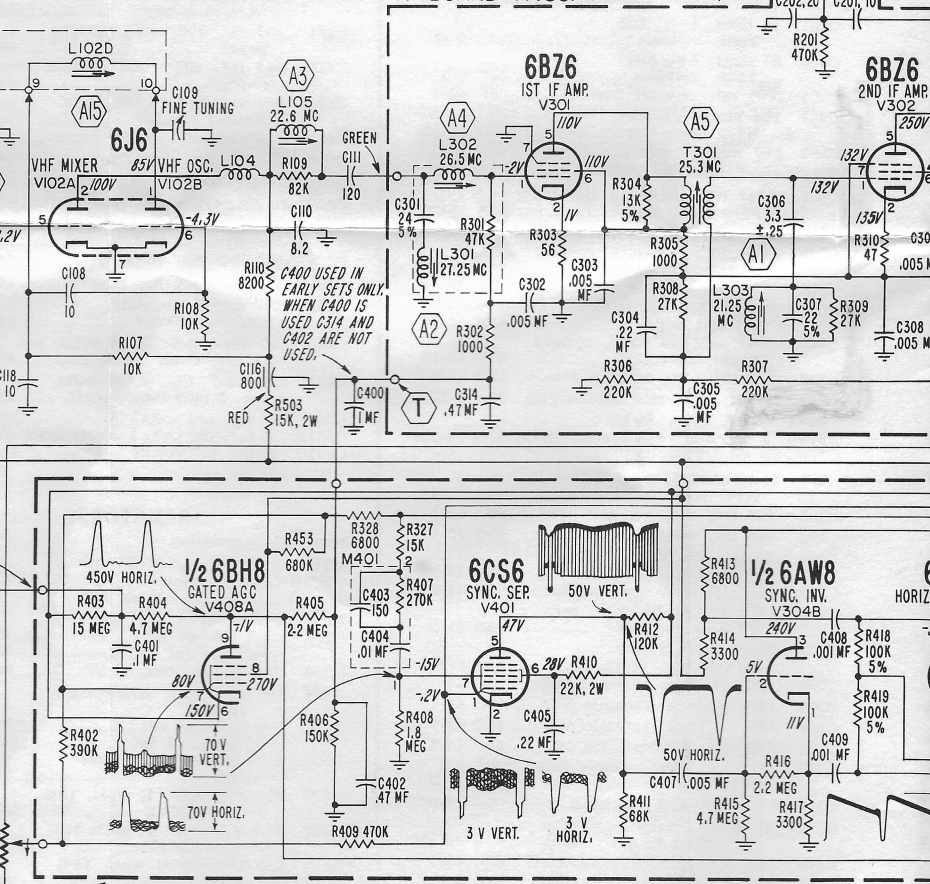


V101-6B8C
V102-6J6
V201-6AU6
V202-6AL5
V203-6AV6
V204-6BF5
V301-6BZ6
V302-6BZ6
V303-6AM8
V304-6AW8
21ALP4A
(20Y4E,
20Y4L,
24DP4A
(20Y4F)

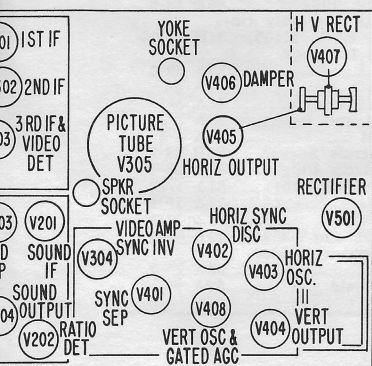
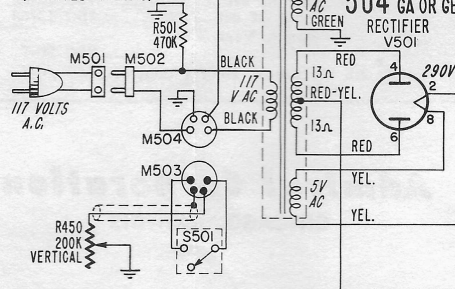
V401-6CS6
V402-6AL5
V403-12AU7
V404-6S4
V405-6CU6
V406-6AU4GT
V407-1B3GT
V408-6BH8
V501-5U4GA
or
5U4GB

NOTE: ARROW THROUGH VARIABLE ARM ON CONTROLS INDICATES CLOCKWISE ROTATION AND MAXIMUM SETTING.

IF BOARD A486H-1 (PRINTED WIRING)



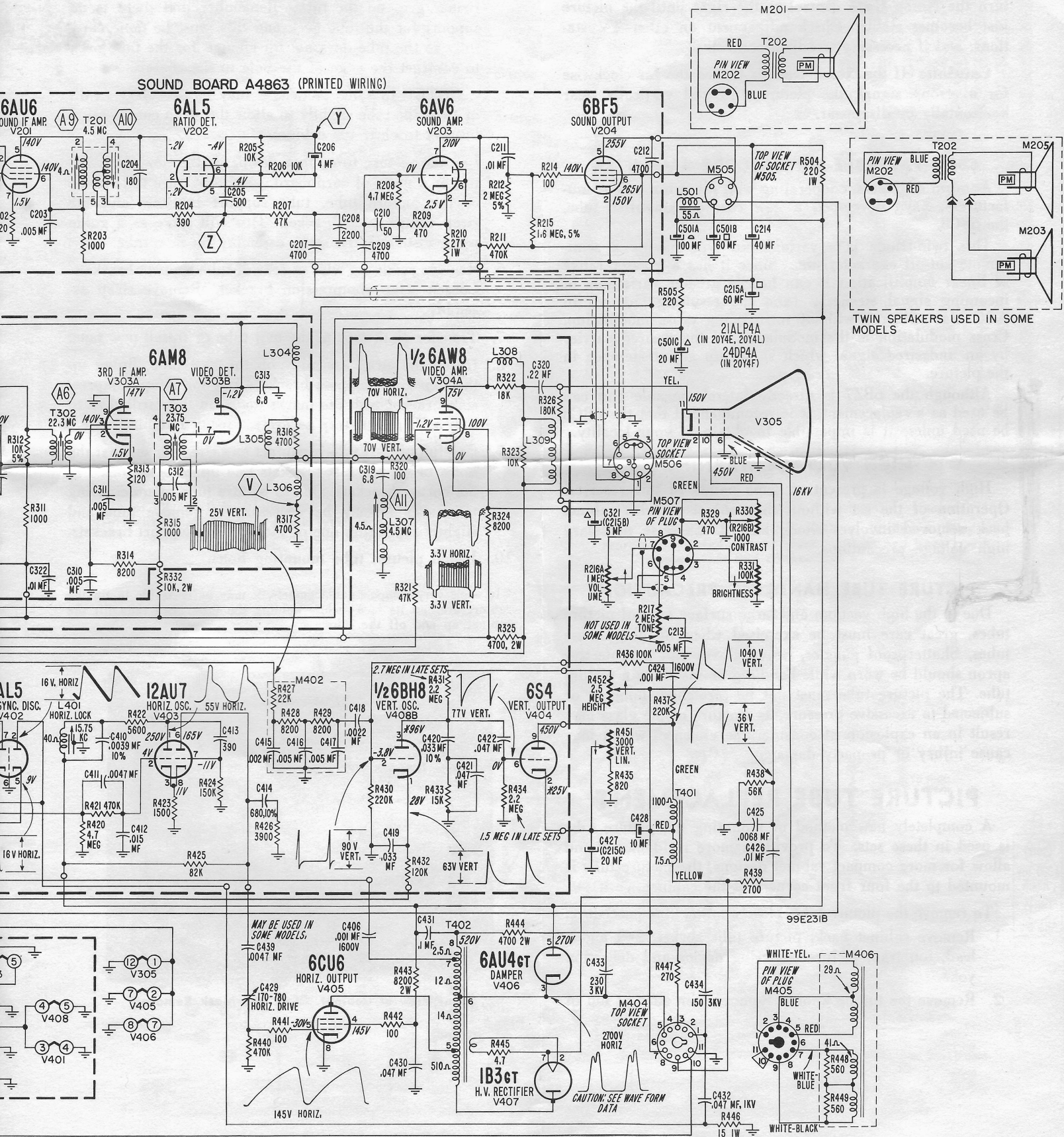
SYNC BOARD A486B-1 (PRINTED WIRING)



Rear View of Chassis.

Schematic for 20Y4E, 20Y4F, 20Y4L Television Chassis

For complete service information, see Service Manual No. S566.



CHECK NOISE GATE

The **Noise Gate** control is used to improve sync stability in fringe and noisy areas.

Set the **Noise Gate** fully to the left (counterclockwise). Set the **Channel Selector** for the strongest TV station. (Be sure that the **Vertical** and **Horizontal** adjustments are correct.) If the picture is unstable (jitters or rolls), slowly turn the **Noise Gate** control to the right until the picture just becomes stable. Check adjustment on other TV stations, and if necessary, readjust control.

Caution: If the **Noise Gate** is turned too far clockwise for a strong signal, the picture may roll vertically, tear horizontally or disappear.

6BC8 VARIABLE-MU CASCODE AMPLIFIER

Admiral engineers, cooperating with receiving tube manufacturers, have developed a new cascode amplifier tube, the 6BC8.

This twin-triode is a variable-mu type having a semi-remote cut-off characteristic. Since it has a greater range of linear amplification it can handle greater variations in incoming signal strengths (and the resulting changes in AGC bias voltage) without introducing cross modulation. Cross modulation is the modulation of the desired carrier by an undesired signal which shows up as interference in the picture.

Although the 6BZ7 is directly interchangeable and can be used as a replacement, it is recommended that the 6BC8 be used unless it is impossible to obtain in your locality.

HIGH VOLTAGE WARNING

High voltage is present at some points in this receiver. Operation of the set without the cabinet or with cabinet back removed involves shock hazard. Exercise necessary high voltage precautions.

PICTURE TUBE HANDLING PRECAUTION

Due to the high vacuum and large surface area of picture tubes, great care must be exercised when handling these tubes. Shatterproof goggles, heavy gloves and a protective apron should be worn while handling or installing a picture tube. The picture tube must not be scratched, bumped or subjected to excessive pressure, as fracture of the glass may result in an explosion of considerable violence, which may cause injury or property damage.

PICTURE TUBE REPLACEMENT

A completely new method of mounting the picture tube is used in these sets. To provide a more rigid mount and allow for more compact cabinet designs, the picture tube is mounted to the four front corners of the cabinet.

To remove the picture tube, closely follow this procedure.

1. Remove cabinet back, picture tube socket, 2nd anode lead, ion trap, picture centering device and deflection yoke.
2. Remove the tuning knobs. Remove trim strip at top of

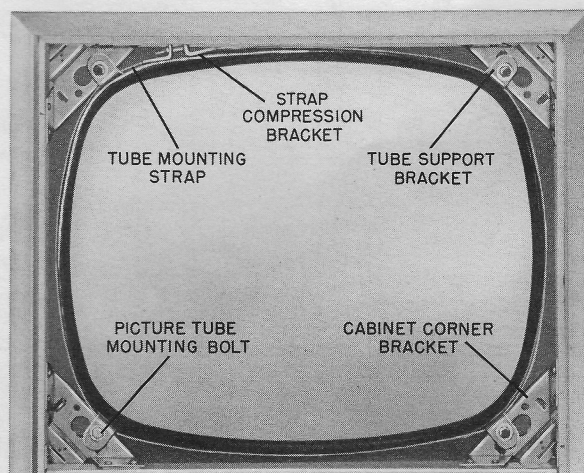
picture window and carefully remove the glass and mask. Remove tuner shaft bearing bracket.

3. Supporting the tube so it does not drop sharply when the last bolt is removed, remove the four bolts which mount the picture tube to the corner brackets.
- *4. Grasp the tube at diagonal corners and carefully guide it forward about an inch. At this point it is possible to shift the position of the hands in order to obtain a firmer grip on the tube. Remember that there is no support for the tube neck and this must be done carefully so the tube does not tilt enough for the tube neck to contract the edge of the hole in the chassis.

NOTE: In some models, it may be necessary to tilt or twist the tube slightly to allow the strap compression bracket to clear the cabinet.

5. Lay the picture tube, face down, on the new tube carton or a piece of cardboard. Carefully trace the outline of the picture tube, tube support brackets and the strap compression bracket. This will serve as a guide when installing the strap assembly on new tube.
6. Remove retaining wire at rear of tube support brackets. Loosen strap compression bracket. Remove strap assembly.
7. Transfer cloth tape to the new tube or install new tape.
8. Install the strap assembly on the new tube, lining up the four tube support brackets and the strap compression bracket with the marks made on the cardboard in step 5. Tighten strap securely. Install retaining wire.
9. Carefully insert tube in cabinet and check to see that the holes in the support brackets line up with the holes in the corner brackets. Due to picture tube manufacturing tolerances it may be necessary to remove tube and slightly reposition one or more of the support brackets.
10. Install picture tube mounting bolts.

* In some very compact table models, it may be desirable to tip the cabinet over on its face (while holding the tube) and then lift the cabinet up and off the tube.



Front View of Cabinet, Glass and Mask Removed.

Parts List

Only special parts are listed below. See Service Manual No. S566 for complete parts list.

CAPACITORS			CAPACITORS			COILS		
Sym.	Description	Part No.	Sym.	Description	Part No.	Sym.	Description	Part No.
C101	1.5 mmf, ceramic.....	94D 46-84	C401	.1 mf, 200 volts, upright paper.....	64B 16-53	L101	FM Trap Coil.....	94D 92-67
C102	6.8 mmf, 3%, cer. NPO temp. coeff.	94D 47-53	C402	.47 mf, 200 volts, upright paper (not used in early sets).....	64B 16-49	L102	VHF Channel Coil	
C103	2 to 10 mmf, cer. trimmer.....	94D 92-71	*C403	150 mmf, ceramic.....	Part of M401		Coils for channels 2 to 6 stamped 2CA, 3CA, etc.	
C104	6.8 mmf, 3%, cer. NPO temp. coeff.	94D 47-53	*C404	.01 mf, ceramic.....	Part of M401		Coils for channels 7 to 13 stamped 7AA, 8AA, etc.	
C105	2.2 mmf, ceramic.....	94C 37-97	C405	.22 mf, 200 volts, upright paper.....	64B 16-51		for channel #2.....	94D 92-52
C106	.5 to 3 mmf, cer. trimmer.....	98A 45-23	C406	.001 mf, 10%, 1,600 volts, molded tubular.....	64A 2-28		for channel #3.....	94D 92-53
C107	.5 to 3 mmf, cer. trimmer.....	98A 45-23	C407	.005 mf, min. ceramic disc.....	65C 43-1		for channel #4.....	94D 92-54
C108	10 mmf, 3%, cer. NPO temp. coeff.	94D 47-51	C408	.001 mf, 400 volts, molded tubular.....	64B 21-1		for channel #5.....	94D 92-55
C109	Fine Tuning Rotor.....	94D 91-65	C409	.001 mf, 400 volts, molded tubular.....	64B 21-1		for channel #6.....	94D 92-56
C110	8.2 mmf, 5%, cer. NPO temp. coeff.	94D 92-74	C410	.0039 mf, 10%, mica.....	65B 21-392		for channel #7.....	94D 92-57
C111	120 mmf, 10% 500 volts, ceramic.....	65C 6-66	C411	.0047 mf, 400 volts, upright paper.....	64B 16-38		for channel #8.....	94D 92-58
C112	800 mmf, min. ceramic feed-through.....	94C 37-90	C412	.015 mf, 200 volts, upright paper.....	64B 16-58		for channel #9.....	94D 92-59
C113	800 mmf, min. ceramic feed-through.....	94C 37-90	C413	390 mmf, 10%, mica.....	65B 21-391		for channel #10.....	94D 92-60
C114	800 mmf, min. ceramic feed-through.....	94C 37-90	C414	680 mmf, 10%, mica.....	65B 21-681		for channel #11.....	94D 92-61
C115	60 mmf, min. ceramic feed-through.....	94D 92-76	†C415	.002 mf, ceramic.....	Part of M402		for channel #12.....	94D 92-62
C116	800 mmf, min. ceramic feed-through.....	94C 37-90	†C416	.005 mf, ceramic.....	Part of M402		for channel #13.....	94D 92-63
C117	800 mmf, min. ceramic feed-through.....	94C 37-90	†C417	.005 mf, ceramic.....	Part of M402			
C118	10 mmf, 3%, cer. NPO temp. coeff.	94D 47-51	C418	.0022 mf, 10%, mica.....	65B 21-222			
C201	10 mmf, 10%, 500 volts, ceramic.....	65C 6-44	C419	.033 mf, 200 volts, upright paper.....	64B 16-56	L104	Mixer Plate Choke.....	94D 92-69
C202	20 mmf, 5%, 500 volts, ceramic.....	65C 6-51	C420	.033 mf, 10%, 600 volts, upright paper.....	64B 15-10	L105	Mixer Plate Coil.....	94D 92-64
C203	.005 mf, ceramic disc.....	65C 43-1	C421	.047 mf, 400 volts, upright paper.....	64B 16-32	L201	Sound Take-Off Coil.....	72C 132-1
C204	180 mmf, 5%, cer. N030 temp. coeff.	65D 10-52	C422	.047 mf, 600 volts, upright paper.....	64B 16-9	L301	Adjacent Channel Trap Coil.....	72C 132-5
C205	500 mmf, ceramic.....	65C 39-3	C424	.001 mf, 10%, 1,600 volts, molded tubular.....	64A 2-28	L302	1st IF Grid Input Coil.....	72C 132-6
C206	4 mf, 50 volts, electrolytic.....	67B 27-3	C425	.0068 mf, 600 volts, paper.....	64B 9-14	L303	21.25 MC Trap Coil.....	72C 132-3
C207	.0047 mf, 400 volts, upright paper.....	64B 16-38	C426	.01 mf, 600 volts, paper.....	64B 9-13	L304	Detector Output Stabilizing Choke.....	73A 24-2
C208	.0022 mf, ceramic.....	65D 10-89	C427	20 mf, 50 volts, electrolytic.....	See C215C	L305	Detector Series Peaking Coil.....	73B 5-26
C209	.0047 mf, 400 volts, upright paper.....	64B 16-38	C428	10 mf, 475 volts, electrolytic.....	67A 4-22		(includes R316)	
C210	50 mmf, ceramic.....	65C 39-11	C429	170 to 780 mmf, Horiz. Drive control.....	66A 30-3	L306	Detector Shunt Peaking Coil.....	73B 5-25
C211	.01 mf, 400 volts, upright paper.....	64B 16-36	C430	.047 mf, 600 volts, paper.....	64B 9-9	L307	4.5 MC Trap Coil.....	72C 132-1
C212	.0047 mf, 600 volts, upright paper.....	64B 16-15	C431	.1 mf, 600 volts, paper.....	64B 9-7	L308	Video Amp. Series Peaking Coil (includes R322).....	73B 5-14
C213	.005 mf, min. ceramic disc.....	65D 10-5	C432	.047 mf, 1,000 volts, molded tubular.....	64A 2-30	L309	Video Amp. Shunt Peaking Coil (includes R323).....	73A 11-1
C214	40 mf, 200 volts, electrolytic.....	67A 4-21	C433	230 mmf, 5%, 3,000 volts, cer. N1500 temp. coeff.	65D 10-69	L401	Horizontal Lock Coil.....	94C 17-4
C215A	60 mf, 200 volts } electrolytic.....	67D 15-109	C434	150 mmf, 5%, 3,000 volts, cer. N1500 temp. coeff.	65D 10-68	L501	Power Supply Filter Choke.....	74B 18-13
C215B	5 mf, 200 volts }							
C215C	20 mf, 50 volts }							
C301	24 mmf, 5%, cer. NPO temp. coeff.	65C 6-112	C501A	100 mf, 350 volts }				
C302	.005 mf, min. ceramic disc.....	65C 43-1	C501B	60 mf, 350 volts }	electrolytic.....			
C303	.005 mf, min. ceramic disc.....	65C 43-1	C501C	20 mf, 200 volts }	electrolytic.....			
C304	.22 mf, 200 volts, upright paper.....	64B 16-51						
C305	.005 mf, min. ceramic disc.....	65C 43-1						
C306	3.3 mmf, ± .25 mmf, cer. NPO temp. coeff.	65C 6-89						
C307	22 mmf, 10%, cer. NPO temp. coeff.	65C 6-113						
C308	.005 mf, min. ceramic disc.....	65C 43-1						
C309	.005 mf, min. ceramic disc.....	65C 43-1						
C310	.005 mf, min. ceramic disc.....	65C 43-1						
C311	.005 mf, min. ceramic disc.....	65C 43-1						
C312	.005 mf, min. ceramic disc (Part of T303).....	65D 10-5						
C313	6.8 mmf, 10%, ceramic.....	65B 28-068						
C314	.47 mf, 200 volts, upright paper (not used in early sets).....	64B 16-49						
C315	.005 mf, min. ceramic disc.....	65C 43-1						
C316	.005 mf, min. ceramic disc.....	65C 43-1						
C317	.005 mf, min. ceramic disc.....	65C 43-1						
C319	6.8 mmf, 10%, ceramic.....	65B 28-068						
C320	.22 mf, 400 volts, upright paper.....	64B 16-28						
C321	5 mf, 200 volts, electrolytic.....	See C215B						
C322	.01 mf, ceramic disc.....	65C 43-2						
C400	1. mf, 100 volts, paper.....	64A 10-3						

*Part of M401, 63C 9-3. Replace with exact part.
†Part of M402, 63C 9-1. Replace with exact part.

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