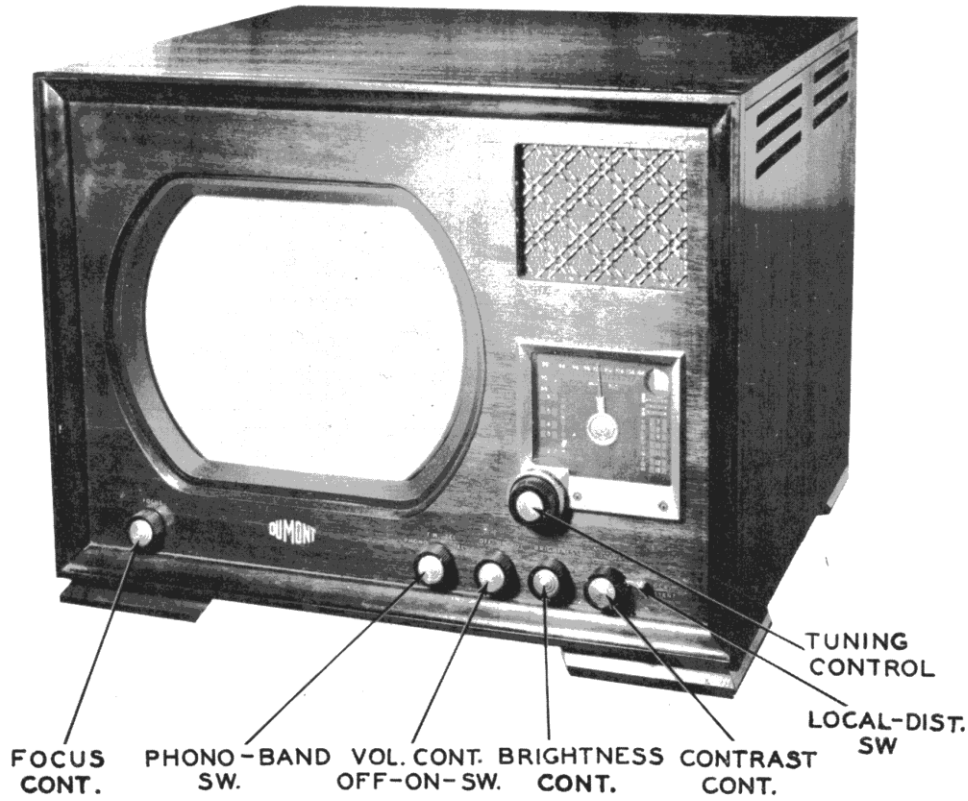
PHOTOFACT* Folder

# DUMONT
# MODELS RA-103D, RA-104A, RA-110A




DUMONT MODEL RA-103D

| | |
|---|---|
| TRADE NAME | Dumont, Models RA-103D "Rumson" or "Sheffield", RA-104A "Hastings" or "Wellington", RA-110A "Westwood" or "Fairfield" |
| MANUFACTURER | Allen B. Dumont Laboratories, Inc., 2 Main Ave., Passiac, New Jersey |
| TYPE SET | TV-FM Receiver |
| TUBES | Thirty |
| POWER SUPPLY | 110-120 Volts AC-60 Cycle |
| TUNING RANGE | 44 thru 216MC (Continuous Tuning) RATING 2.8 Amp. @ 117 Volts AC |

## INDEX

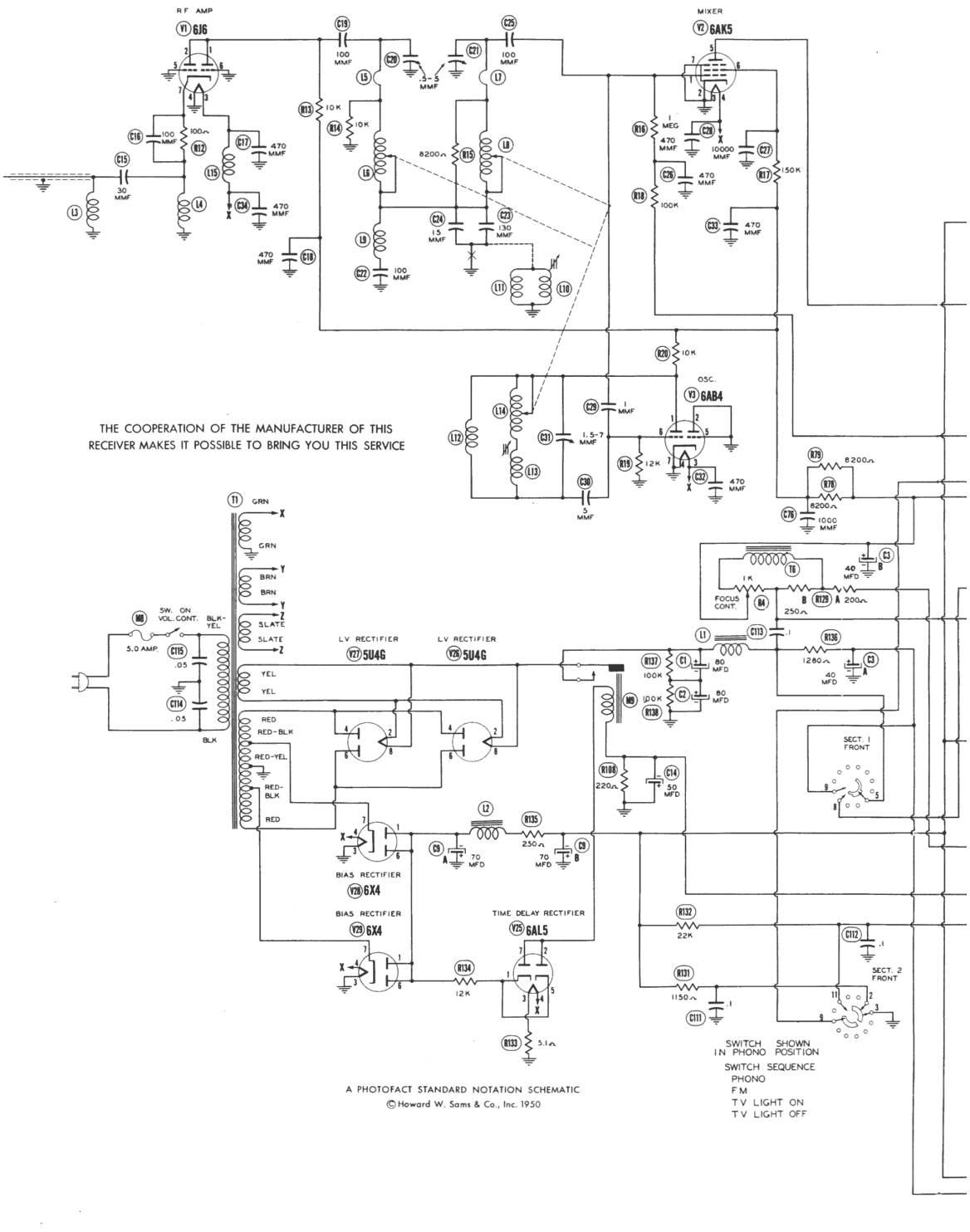


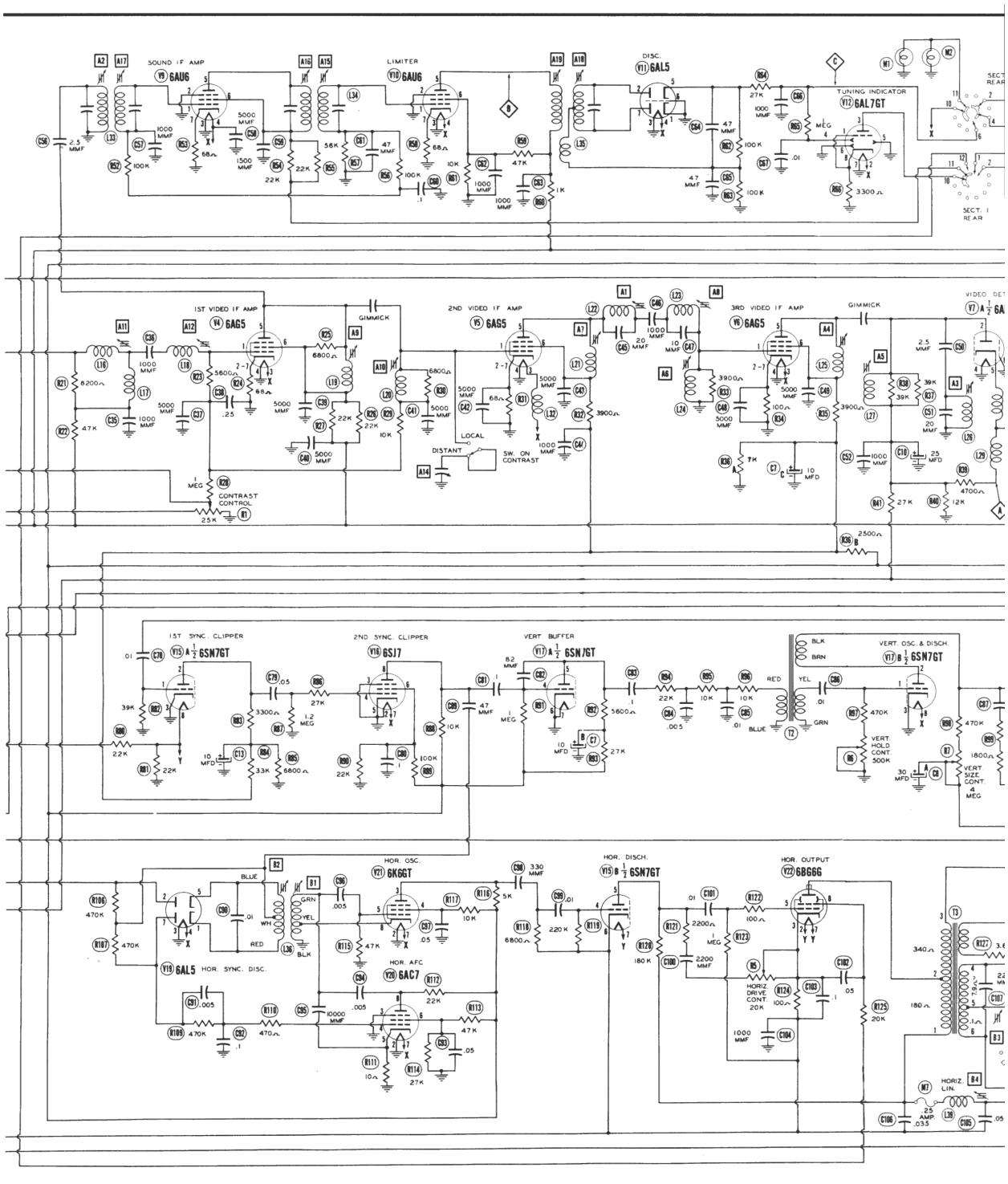
DUMONT
MODELS RA-103D, RA-104A, RA-110A

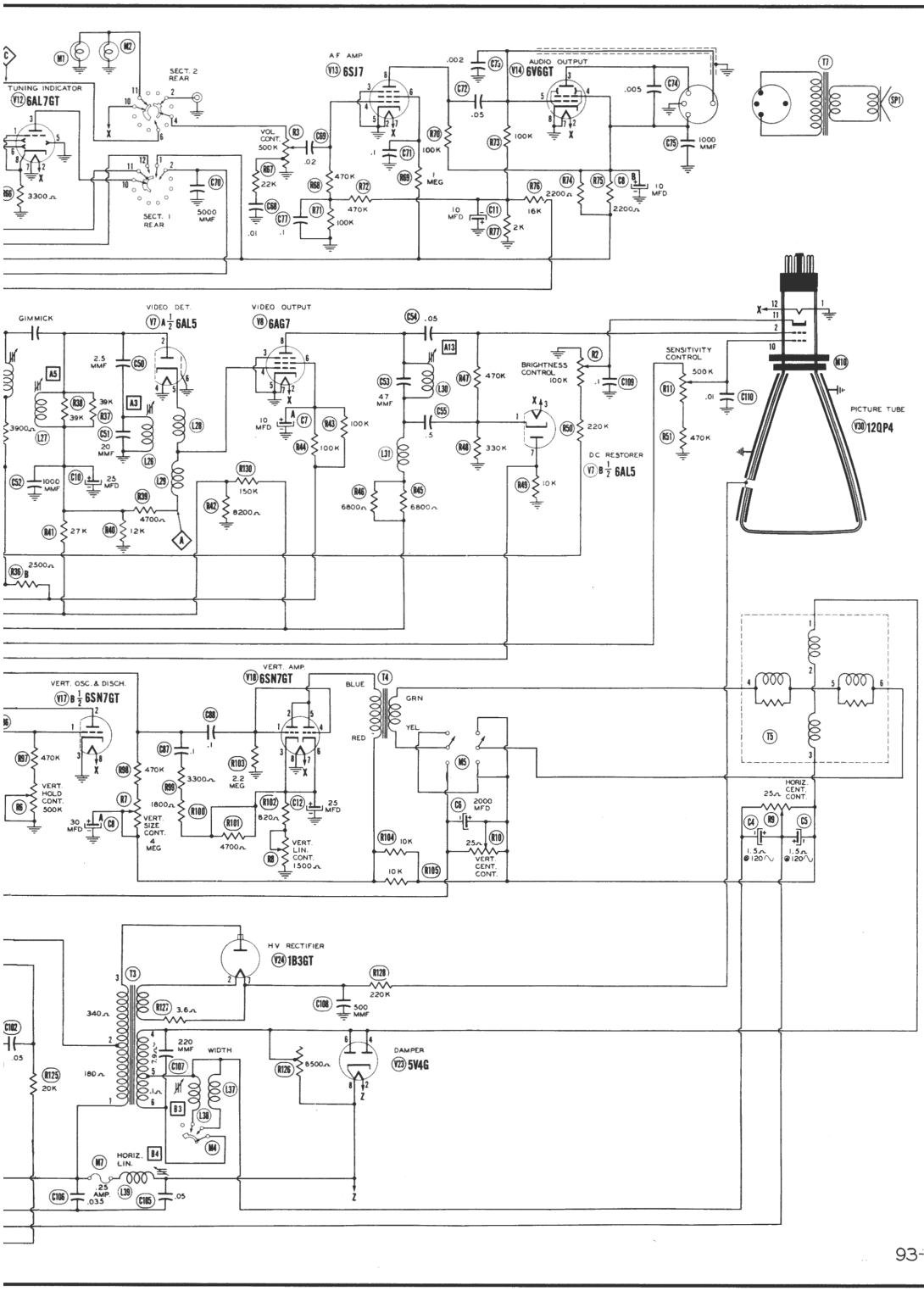
HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana



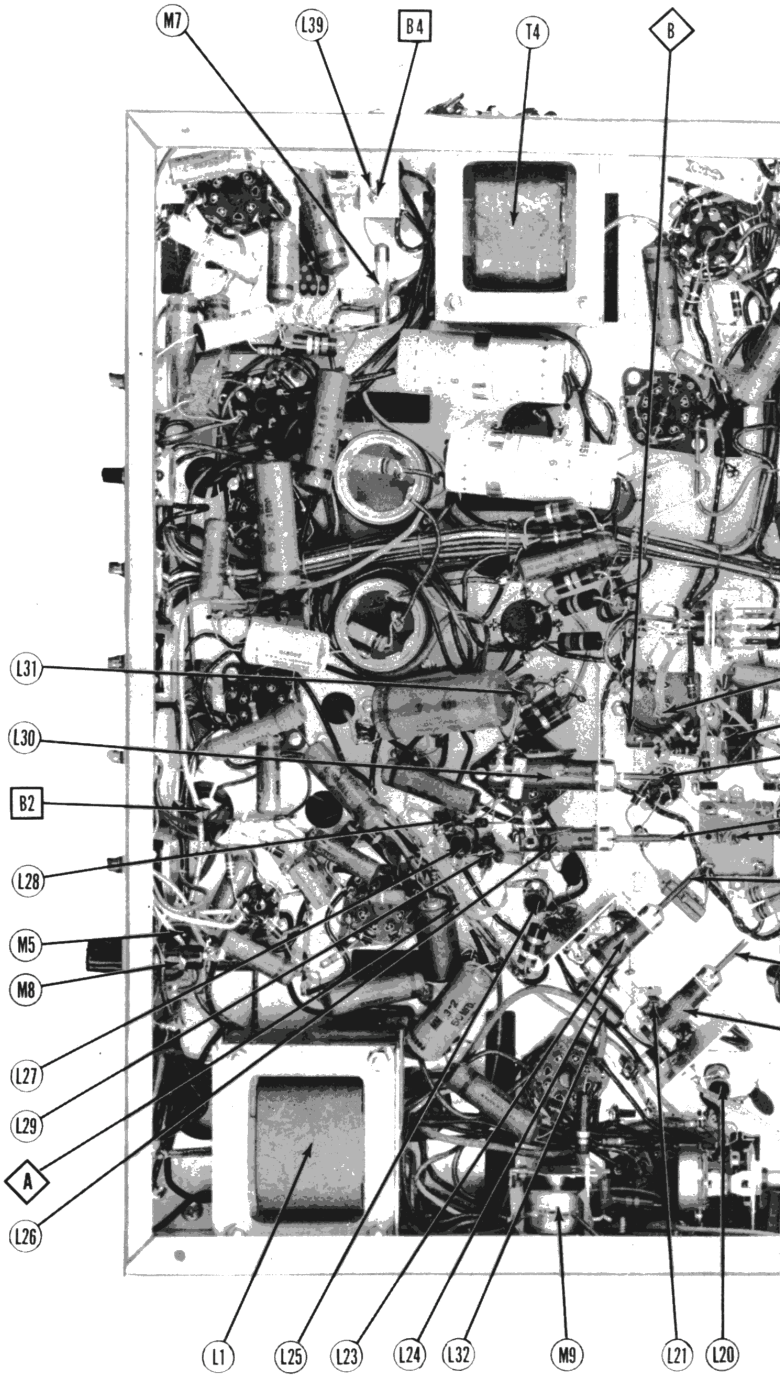
DATE 5-50 SET 93 FOLDER 4


RF AMP
V1 6J6
MIXER
V2 6AK5
OSC.
V3 6AB4
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
LV RECTIFIER
V27 5U4G
LV RECTIFIER
V26 5U4G
BIAS RECTIFIER
V28 6X4
BIAS RECTIFIER
V29 6X4
TIME DELAY RECTIFIER
V25 6AL5
FOCUS CONT.
SW. ON VOL. CONT.
5.0 AMP.
SECT. 1 FRONT
SECT. 2 FRONT
SWITCH SHOWN IN PHONO POSITION
SWITCH SEQUENCE
PHONO
F.M
TV LIGHT ON
TV LIGHT OFF
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950

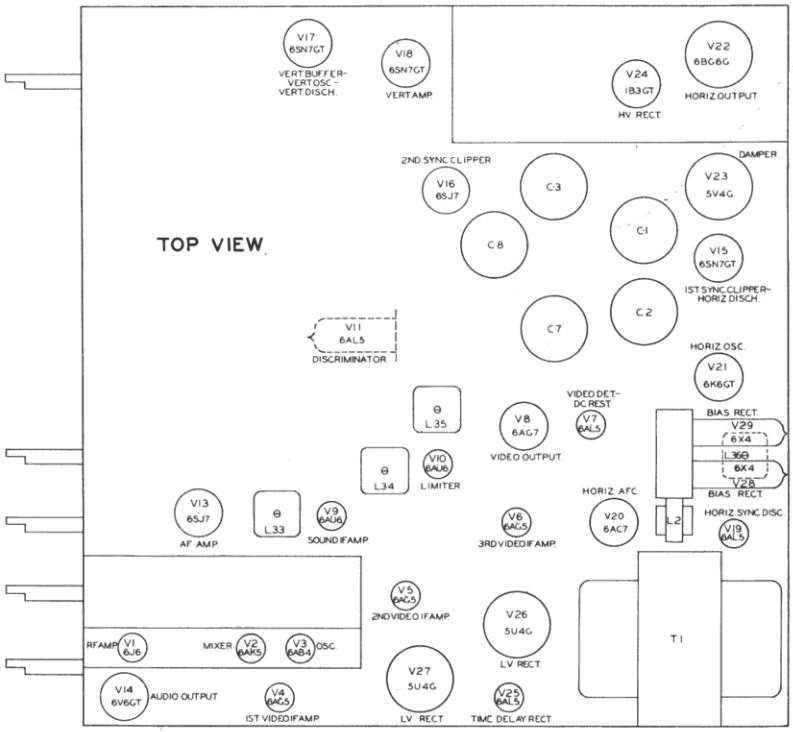

SOUND IF AMP
V9 6AU6
LIMITER
V10 6AU6
DISC.
V11 6AL5
TUNING INDICATOR
V12 6AL7GT
SECT. I REAR
1ST VIDEO IF AMP
V4 6AG5
GIMMICK
2ND VIDEO IF AMP
V5 6AG5
3RD VIDEO IF AMP
V6 6AG5
GIMMICK
VIDEO DET
V7 A 1/2 6A
CONTRAST CONTROL
LOCAL
DISTANT
SW. ON CONTRAST
1ST. SYNC. CLIPPER
V15 A 1/2 6SN7GT
2ND SYNC. CLIPPER
V16 6SJ7
VERT. BUFFER
V17 A 1/2 6SN7GT
VERT. OSC. & DISCH.
V17 B 1/2 6SN7GT
VERT. HOLD CONT. 300K
VERT. SIZE CONT. 4 MEG
HOR. OSC.
V21 6K6GT
HOR. AFC
V20 6AC7
HOR. SYNC. DISC.
V19 6AL5
HOR. DISCH.
V15 B 1/2 6SN7GT
HOR. OUTPUT
V22 6BG6G
HORIZ DRIVE CONT. 20K
HORIZ. LIN.
.25 AMP
.035

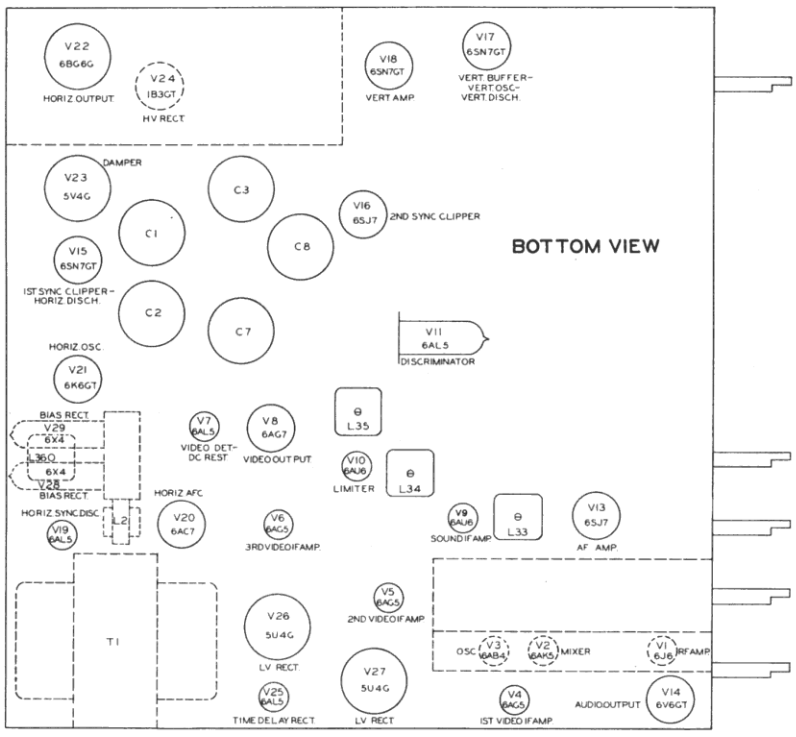

TUNING INDICATOR V12 6AL7GT
SECT. 2 REAR
SECT. 1 REAR
AF AMP V13 6SJ7
AUDIO OUTPUT V14 6V6GT
VOL. CONT. 500K
GIMMICK
VIDEO DET. V7 A 1/2 6AL5
VIDEO OUTPUT V8 6AG7
BRIGHTNESS CONTROL 100K
SENSITIVITY CONTROL 500K
DC RESTORER V7 B 1/2 6AL5
PICTURE TUBE V30 12QP4
VERT. OSC. & DISCH. V17 B 1/2 6SN7GT
VERT. AMP. V18 6SN7GT
VERT. HOLD CONT. 500K
VERT. SIZE CONT. 4 MEG
VERT. LIN. CONT. 1500
VERT. CENT. CONT.
HORIZ. CENT. CONT.
BLUE
GRN
YEL
RED
HV RECTIFIER V24 1B3GT
DAMPER V23 5V4G
WIDTH
HORIZ. LIN.

CHASSIS TOP VIEW




CHASSIS BOTTOM VIEW-TRANS., INDUCTO




TUBE PLACEMENT CHART

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V21) from its socket.
Turn the function switch to "Television" (maximum clockwise).

**VIDEO IF ALIGNMENT**

Remove the local oscillator tube (V3) to prevent erroneous indications.
If the set has a "LOCAL-DISTANCE" switch set it to "LOCAL".
Pre-set A14 to the center of the range.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .01MFD | High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis. | Not used | 21.9MC (400 ∿ AM Mod.) | Any | Vert. Amp. to Point (A). Low side to chassis | A1, A2 | Adjust for MINIMUM 400 ∿ indication on scope. |
| 2. | .01MFD | " | " | 20.4MC (400 ∿ AM Mod.) | " | " | A3 | " |
| 3. | .01MFD | High side to pin 1 (Grid) of 6AG5 (V6). Low side to chassis. | 25MC (10MC SWP) | 21.9MC 22.9MC 26.4MC | " | " | A4, A5 | Turn contrast control to maximum counter-clockwise. Short A8. Adjust for response curve similar to Fig 1 with markers as shown. |
| 4. | .01MFD | High side to pin 1 (Grid) of 6AG5 (V5). Low side to chassis. | " | 22.4MC 26.4MC | " | " | A6, A7, A8 | Remove the short across A8. Adjust for response curve similar to Fig 2. |
| 5. | .01MFD | High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis. | " | 22.9MC 25.65MC 26.4MC | " | " | A9, A10 | Turn the contrast control to mid-position. Adjust for response curve similar to Fig 3 with markers as shown. |
| 6. | Direct | High side to an ungrounded tube shield floating over mixer tube (V2). Low side to chassis. | " | 22.9MC 26.65MC 26.4MC | " | " | A11, A12 | Adjust for response curve similar to Fig 4 with markers as shown. If necessary retouch A9 and A10 for proper response. |

**4.5MC TRAP ADJUSTMENT**

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 7. | .01MFD | High side to pin 4 (Grid) of 6AC7 (V8). Low side to chassis. | Not used | 4.5MC (400 ∿ AM Mod.) | Any channel not used locally | Vert. Amp. thru probe detector (Fig. 4) to pin 2 (Grid) of picture tube. Low side to chassis. | A13 | Adjust for MINIMUM 400 ∿ indication on scope. |

**LOCAL-DISTANCE ADJUSTMENTS**

This adjustment appears only in those models having a "LOCAL-DISTANCE" switch.
After the set has been aligned turn the "LOCAL-DISTANCE" switch to "DISTANCE" and tune in a weak (50 microvolt) signal. If no weak signals is available use a strong signal and an attenuater in the antenna lead. Adjust A10 for maximum picture strength. Tune in a strong signal (500 microvolts) and adjust A14 for best picture.

**SOUND IF ALIGNMENT**

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 8. | .01MFD | High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis. | 21.9MC (1MC SWP) | 21.9MC | Any | Vert. Amp. thru probe detector (Fig 4) to point (B). Low side to chassis. | A15, A16, A17 | Adjust for maximum amplitude and symmetry as per Fig 5. |
| 9. | .01MFD | " | " | " | " | Vert. Amp. to point (C). Low side to chassis. | A18, A19 | Adjust A19 to place 21.9MC marker at center of diagonal line. Adjust A20 for maximum amplitude and straightness of diagonal line as per Fig 6. |

**TUNER ALIGNMENT**

The RF, mixer, and oscillator circuits in this receiver are pre-set at the factory and are very stable. They should not require adjustment in the field.

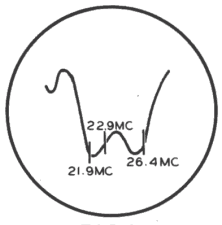


FIG.1

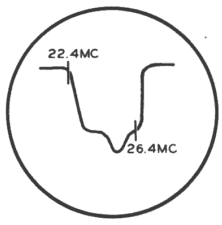


FIG. 2

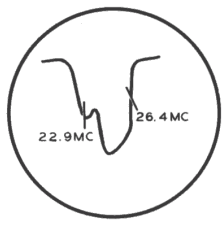


FIG. 3

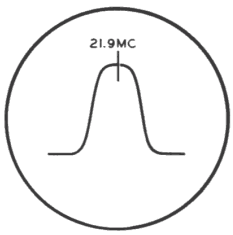


FIG. 5

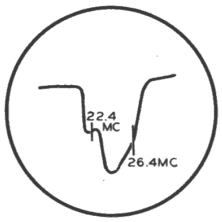


FIG.4

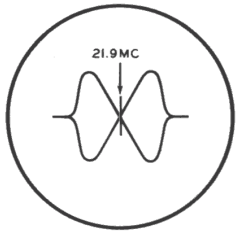
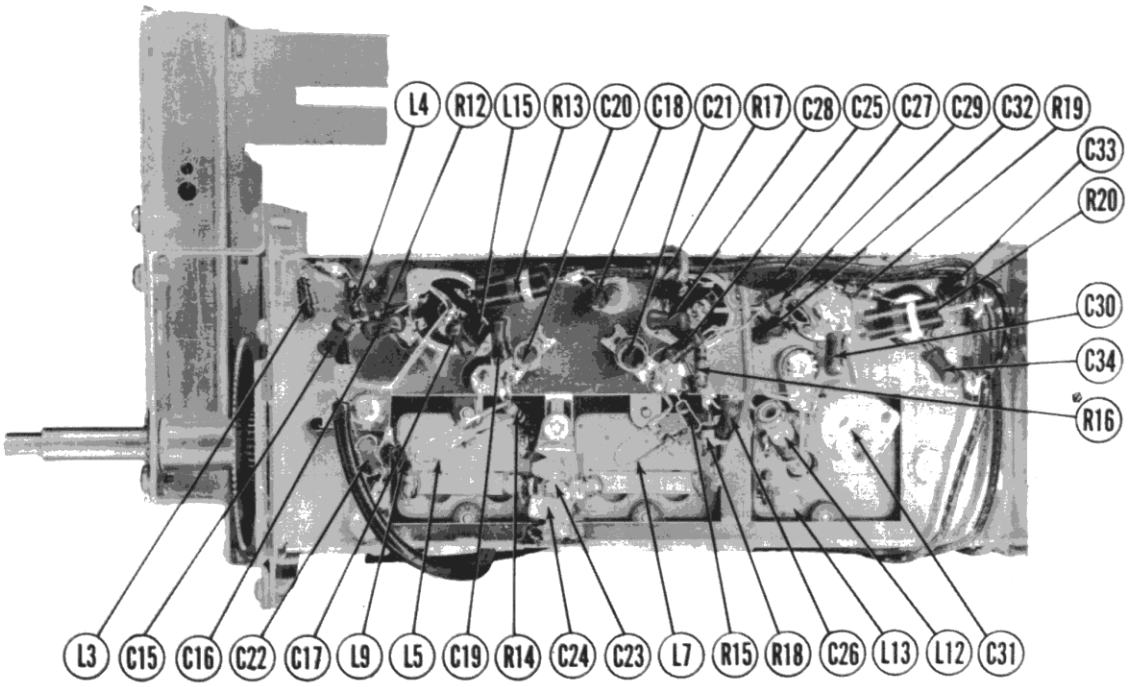
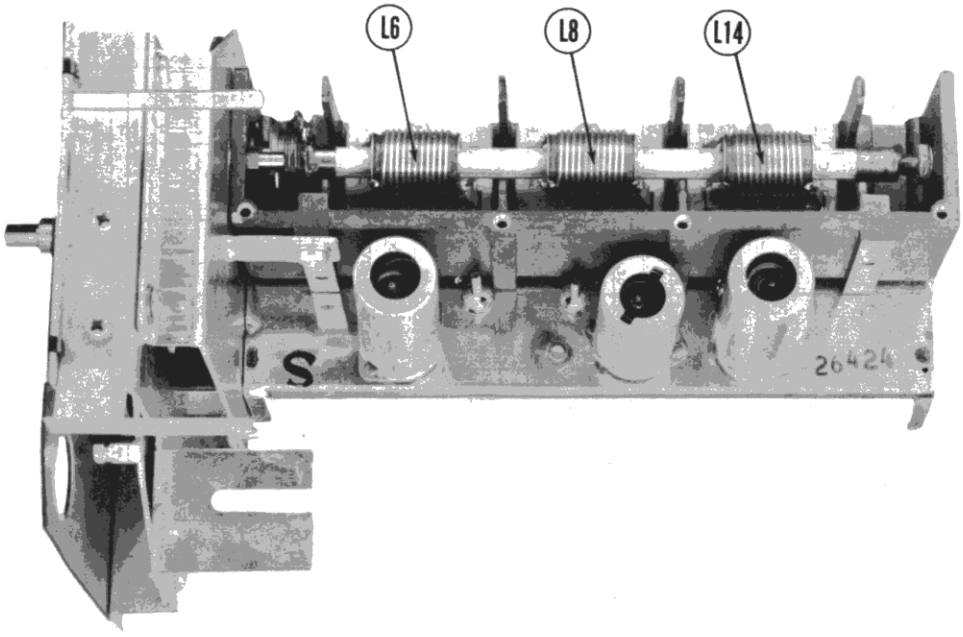


FIG. 6




RF TUNER




RF TUNER

# VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6J6 | 100VDC | 100VDC | 6.3VAC | 0V. | 0V. | 0V. | 1.6VDC | | |
| V 2 | 6AK5 | -.6VDC | 0V. | 0V. | 6.3VAC | 140VDC | 80VDC | 0V. | | |
| V 3 | 6AB4 | 135VDC | 0V. | 6.3VAC | 0V. | 0V. | §-3.5VDC | 0V. | | |
| V 4 | 6AG5 | -.2VDC | 1.1VDC | 6.3VAC | 0V. | 140VDC | 140VDC | 1.1VDC | | |
| V 5 | 6AG5 | 0V. | .8VDC | 6.3VAC | 0V. | 122VDC | 122VDC | .8VDC | | |
| V 6 | 6AG5 | 0V. | 1.2VDC | 6.3VAC | 0V. | 125VDC | 125VDC | 1.2VDC | | |
| V 7 | 6AL5 | 2.8VDC | -4VDC | 6.3VAC | 0V. | -.1VDC | 0V. | -.2VDC | | |
| V 8 | 6AG7 | 0V. | 6.3VAC | 0V. | -3.7VDC | 0V. | 140VDC | 0V. | 215 VDC | |
| V 9 | 6AU6 | -.1VDC | 0V. | 0V. | 6.3VAC | 155VDC | 155VDC | 1.2VDC | | |
| V 10 | 6AU6 | -.2VDC | 0V. | 0V. | 6.3VAC | 310VDC | 43VDC | 0V. | | |
| V 11 | 6AL5 | 0V. | -.4VDC | 0V. | 6.3VAC | 5.8VDC | 0V. | -.5VDC | | |
| ‡ V 12 | 6AL7GT | 0V. | 6.3VAC | 310VDC | 0V. | 0V. | 0V. | 0V. | 0V. | |
| V 13 | 6SJ7 | 0V. | 0V. | 0V. | -.8VDC | 0V. | 65VDC | 6.3VAC | 165VDC | |
| V 14 | 6V6GT | 0V. | 6.3VAC | 250VDC | 260VDC | -13VDC | -14VDC | 0V. | 0V. | |
| V 15 | 6SN7GT | -.4VDC | 20VDC | 0V. | ¶-37VDC | ¶220VDC | ¶ 0V | #-60VDC | #-60VDC | |
| V 16 | 6SJ7 | 0V. | 0V. | 0V. | -.5VDC | 0V. | 46VDC | 6.3VAC | 290VDC | |
| V 17 | 6SN7GT | -19VDC -26VDC | 75VDC | 0V. | .3VDC | 70VDC | 0V. | 0V. | 6.3VAC | |
| V 18 | 6SN7GT | 0V. | 320VDC | 11VDC 16VDC | 0V. | 320VDC | 11VDC 16VDC | 6.3VAC | 0V. | |
| V 19 | 6AL5 | 1.5VDC | -1.9VDC | 0V. | 6.3VAC | 0V. | 0V. | -1.2VDC | | |
| V 20 | 6AC7 | 0V. | 0V. | 0V. | -1.3VDC | 0V. | 105VDC | 6.3VAC | 275VDC | |
| V 21 | 6K6GT | 0V. | 0V. | 215VDC | 215VDC | -46VDC | 310VDC | 6.3VAC | .5VDC | |
| V 22 | 6BG6G | 0V. | #-60VDC | ¶8.6VDC | ¶-21VDC | ¶-21VDC | ¶430VDC | #-60VDC | 270VDC | TOP CAP * |
| V 23 | 5V4G | 90VDC | 590VDC | 410VDC | 410VDC | 410VDC | 410VDC | 380VDC | 500VDC | |
| V 24 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V 25 | 6AL5 | -45VDC | -43VDC | 1.2VAC | 6.3VAC | -45VDC | 0V. | -43VDC | | |
| V 26 | 5U4G | 0V. | 440VDC | 140VAC | 380VAC | -13VDC | 380VAC | 410VDC | 440VDC | |
| V 27 | 5U4G | 0V. | 440VDC | 140VAC | 380VAC | 390VAC | 380VAC | 2.4VAC | 440VDC | |
| V 28 | 6X4 | -142VDC | 0V. | 0V. | 6.3VAC | -112VDC | -142VDC | 135VAC | | |
| V 29 | 6X4 | -142VDC | -140VDC | 0V. | 6.3VAC | 0V. | -142VDC | 135VAC | | |
| V 30 | 12QP4 | 0V. | 1.6VDC | PIN 10 410VDC | PIN 11 90VDC | PIN 12 6.3VAC | | | | |

NOTE : CONTRAST CONTROL SET AT MAXIMUM.

§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
‡ TAKEN IN "FM" POSITION.
¶ MEASURED FROM PIN 6 OF V15.
# 6.3VAC MEASURED ACROSS FILAMENTS.

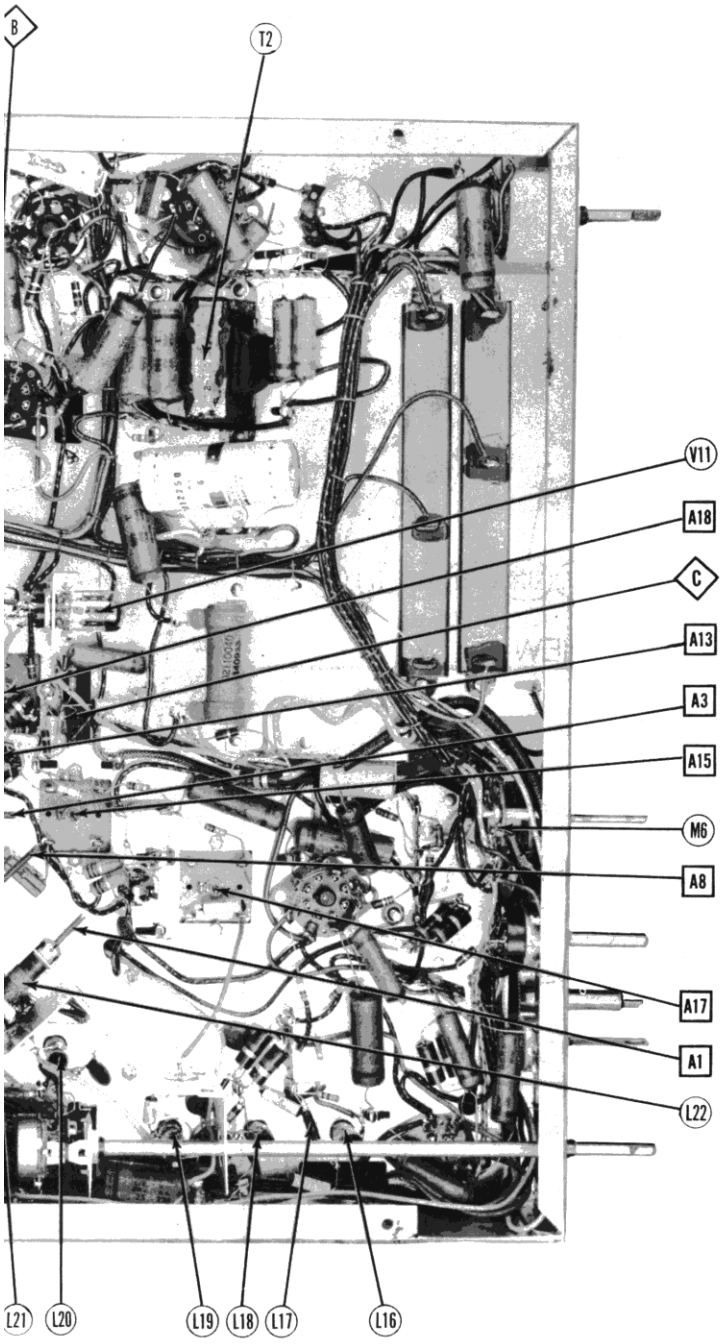
RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6J6 | †15KΩ | †15KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 100Ω | | |
| V 2 | 6AK5 | 1.2 Meg. | 0Ω | 0Ω | .1Ω | †50KΩ | †150KΩ | 0Ω | | |
| V 3 | 6AB4 | †15KΩ | 0Ω | .1Ω | 0Ω | 0Ω | 12KΩ | 0Ω | | |
| V 4 | 6AG5 | 1.1Meg. | 68Ω | .1Ω | 0Ω | †13KΩ | †13KΩ | 68Ω | | |
| V 5 | 6AG5 | 1.1 Meg. | 68Ω | .1Ω | 0Ω | †7KΩ | †7KΩ | 68Ω | | |
| V 6 | 6AG5 | 0Ω | 100Ω | .1Ω | 0Ω | †7KΩ | †7KΩ | 100Ω | | |
| V 7 | 6AL5 | 330KΩ | 9KΩ | .1Ω | 0Ω | 14KΩ | 0Ω | 10KΩ | | |
| V 8 | 6AG7 | 0Ω | .1Ω | 0Ω | 14KΩ | 0Ω | †50KΩ | 0Ω | †4.5KΩ | |
| V 9 | 6AU6 | 250KΩ | 0Ω | 0Ω | .1Ω | †12KΩ | †12KΩ | 68Ω | | |
| V 10 | 6AU6 | 56KΩ | 0Ω | 0Ω | .1Ω | †2KΩ | †13KΩ | 68Ω | | |
| V 11 | 6AL5 | 0Ω | 100KΩ | 0Ω | .1Ω | 150KΩ | 0Ω | 100KΩ | | |
| ‡ V 12 | 6AL7GT | 3.3KΩ | .1Ω | †2KΩ | 1 Meg. | 0Ω | 0Ω | 0Ω | 3.3KΩ | |
| V 13 | 6SJ7 | 0Ω | 0Ω | 0Ω | 570KΩ | 0Ω | † 1 Meg. | .1Ω | †100KΩ | |
| V 14 | 6V6GT | 0Ω | .1Ω | †2KΩ | †1.6KΩ | 100KΩ | 2KΩ | 0Ω | 0Ω | |
| V 15 | 6SN7GT | 39KΩ | 14KΩ | 0Ω | ¶220KΩ | †180KΩ | ¶0Ω | 14KΩ | 14KΩ | |
| V 16 | 6SJ7 | 0Ω | 0Ω | 0Ω | 1.2 Meg. | 0Ω | †23KΩ | .1Ω | 10KΩ | |
| V 17 | 6SN7GT | 1 Meg. 470KΩ | †4.5Meg. †480KΩ | 0Ω | †1 Meg. | †33KΩ | †0Ω | 0Ω | .1Ω | |
| V 18 | 6SN7GT | 2.2 Meg. | †6KΩ | 2.5KΩ 800Ω | 2.2 Meg. | †6KΩ | 2.5KΩ 800Ω | .1Ω | 0Ω | |
| V 19 | 6AL5 | 470KΩ | 220Ω | 0Ω | .1Ω | 470KΩ | Inf. | 1 Meg. | | |
| V 20 | 6AC7 | 0Ω | 0Ω | 0Ω | 1.5 Meg. | 10Ω | 20KΩ | .1Ω | 22KΩ | |
| V 21 | 6K6GT | 0Ω | 0Ω | 6KΩ | 10KΩ | 47KΩ | †500Ω | .1Ω | 20Ω | |
| V 22 | 6BG6G | 0Ω | 14KΩ | ¶100Ω | ¶1 Meg. | ¶1 Meg. | †500Ω | 14KΩ | †20KΩ | TOP CAP †7.5KΩ |
| V 23 | 5V4G | †65KΩ | †7.5KΩ | †85Ω | †95Ω | †95Ω | †95Ω | †300Ω | †7.5KΩ | |
| V 24 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP †7.5KΩ |
| V 25 | 6AL5 | 22KΩ | 5KΩ | 2.5Ω | .1Ω | 22KΩ | Inf. | 5KΩ | | |
| V 26 | 5U4G | 0Ω | 8KΩ | 5.5Ω | 15Ω | 4KΩ | 16Ω | 6KΩ | 8KΩ | |
| V 27 | 5U4G | Inf. | 8KΩ | 8KΩ | 15Ω | 5.5Ω | 16Ω | 8KΩ | 8KΩ | |
| V 28 | 6X4 | 9KΩ | Int. | 0Ω | .1Ω | 8.5KΩ | 9KΩ | 6Ω | | |
| V 29 | 6X4 | 9KΩ | Inf. | 0Ω | .1Ω | Inf. | 9KΩ | 6Ω | | |
| V 30 | 12QP4 | 0Ω | 300KΩ | PIN 10 †80Ω | PIN 11 70KΩ | PIN 12 .1Ω | | | | |

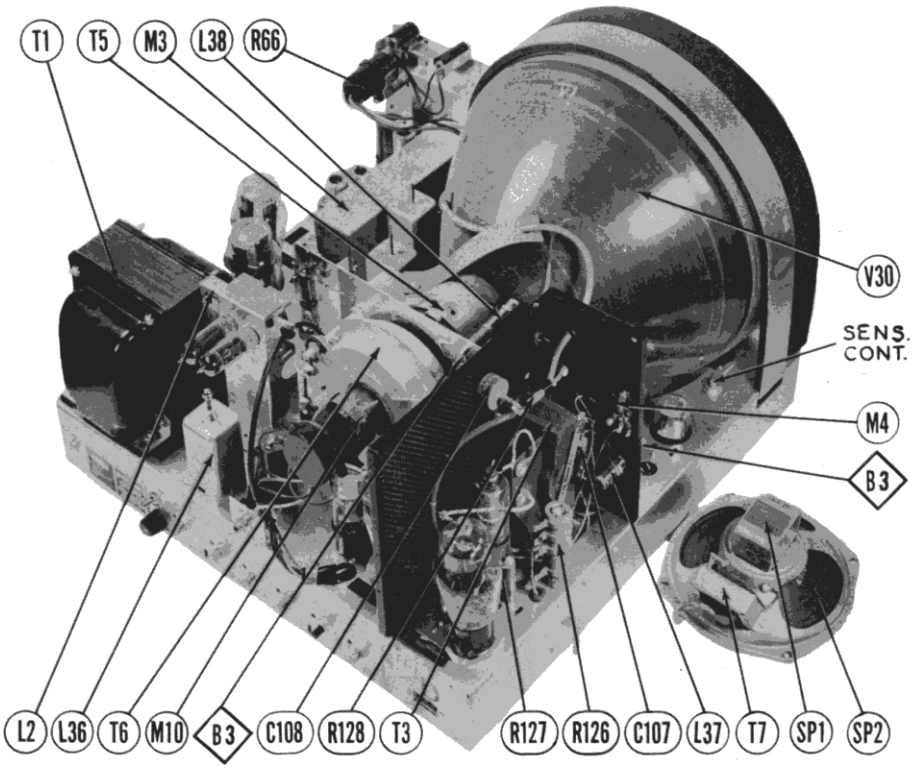
NOTE : RELAY MUST BE CLOSED FOR ALL B+ RESISTANCE MEASUREMENTS.

† MEASURED FROM PIN 8 OF V26.
‡ TAKEN IN "FM" POSITION.
¶ MEASURED FROM PIN 6 OF V15.

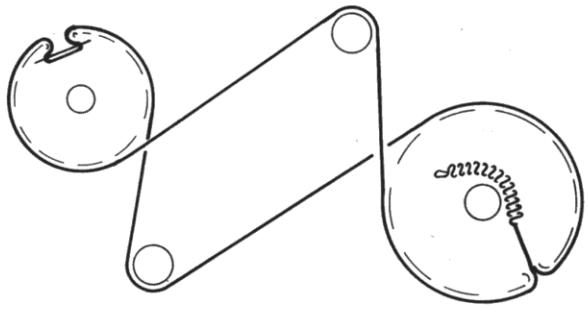
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.




NDUCTOR AND ALIGNMENT IDENTIFICATION



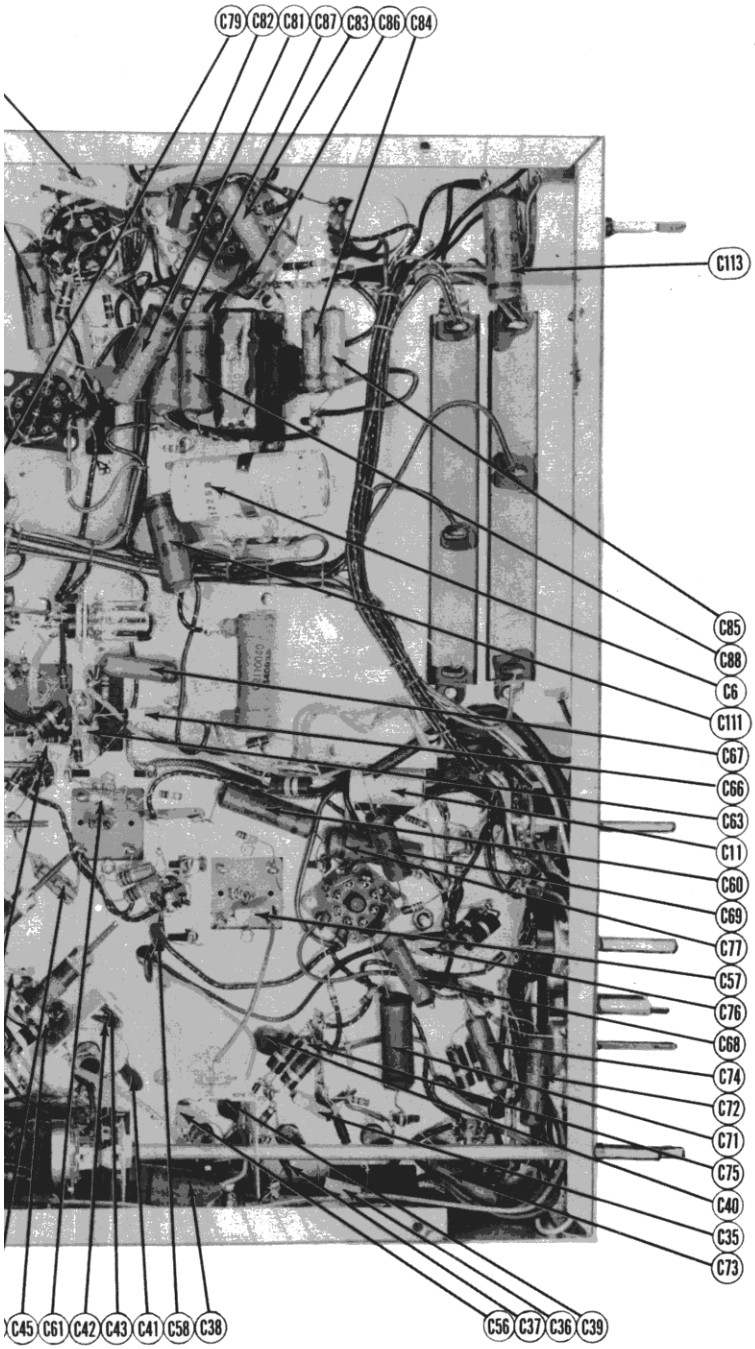

CHASSIS-TOP VIEW



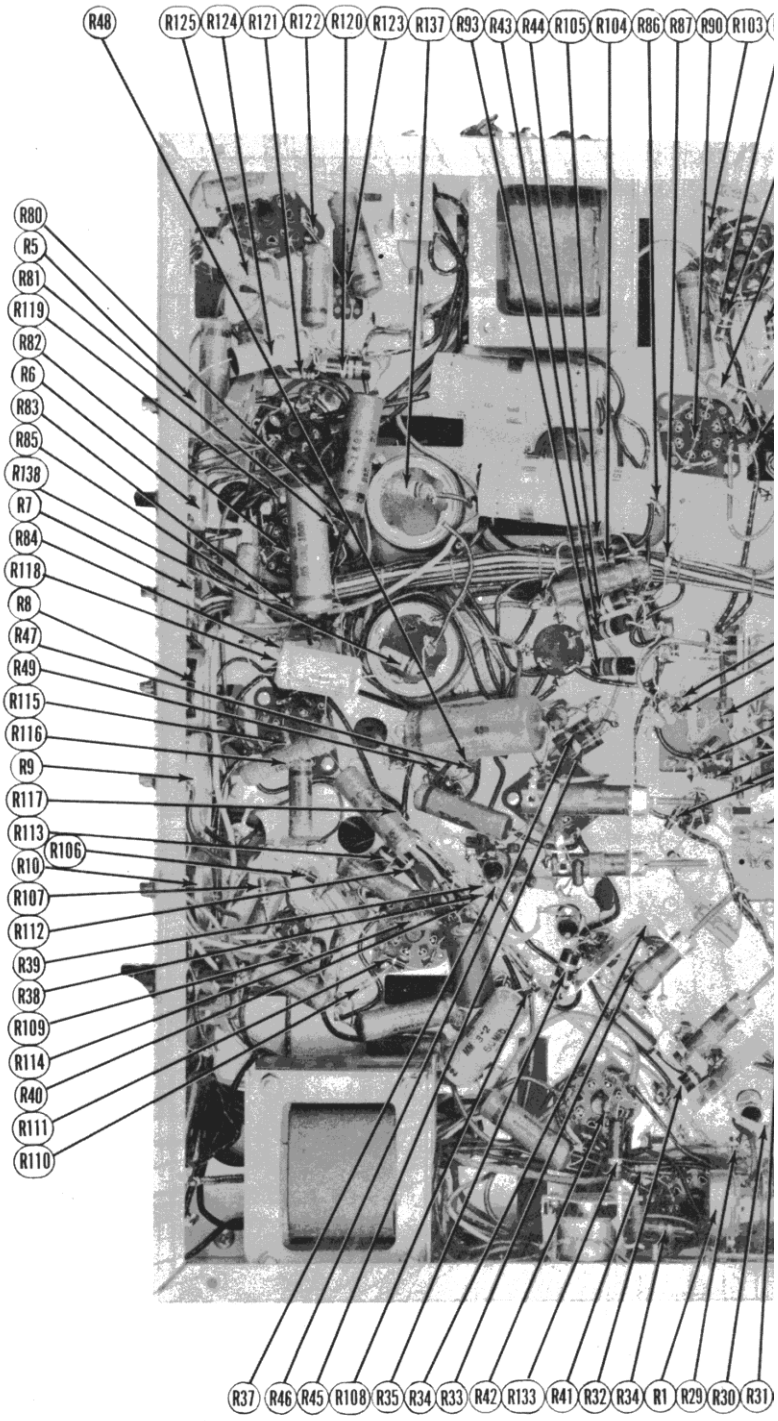
DIAL CORD STRINGING

## DISASSEMBLY INSTRUCTIONS

1. Loosen screw holding Vernier tuning knob. Remove knob.
2. Loosen two screws holding fast tuning knob. Remove knob.
3. Remove five push-on type control knobs. (NOTE: To remove "Local-Distant" lever, line up shaft of contrast control first).
4. Remove seven phillips head screws holding rear cover. Open cover.
5. Disconnect speaker plug.
6. Remove four 7/16" hex head bolts holding chassis. Remove chassis.
7. Remove four 11/32" hex nuts holding speaker. Remove speaker.




EW-CAPACITOR IDENTIFICATION




CHASSIS BOTTOM VIEW-RESI

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| | | DUMONT PART No. | STANDARD REPLACEMENT | | |
| V1 | RF Amp | 25000190 | 6J6 | 7BF | |
| V2 | Mixer | 25000180 | 6AK5 | 7BD | |
| V3A | Oscillator | 25001760 | 6AB4 | 5CE | |
| B | Oscillator | 25000190 | 6J6 | 7BF | |
| V4 | lst Video IF | 25000010 | 6AG5 | 7BD | |
| V5 | 2nd Video IF | 25000010 | 6AG5 | 7BD | |
| V6 | 3rd Video IF | 25000010 | 6AG5 | 7BD | |
| V7 | Video Det.-DC Restorer | 25000020 | 6AL5 | 6BT | |
| V8 | Video Output | 25000580 | 6AG7 | 8Y | |
| V9 | Sound IF | 25000050 | 6AU6 | 7BK | |
| V10 | Limiter | 25000050 | 6AU6 | 7BK | |
| V11 | Disc. | 25000020 | 6AL5 | 6BT | |
| V12 | Tuning Indicator | 25000200 | 6AL7GT | 8CH | |
| V13 | AF Amp. | 25000270 | 6SJ7 | 8N | |
| V14 | Audio Output | 25000090 | 6V6GT | 7AC | |
| V15 | lst Sync. Clipper-Hor. Disch. | 25000110 | 6SN7GT | 8BD | |
| V16 | 2nd Sync. Clipper | | 6SJ7 | 8N | |
| V17 | Vert. Buffer-Vert. Osc.-Vert. Disch. | 25000110 | 6SN7GT | 8BD | |
| V18 | Vert. Amp. | 25000110 | 6SN7GT | 8BD | |
| V19 | Hor. Sync. Disc. | 25000020 | 6AL5 | 6BT | |
| V20 | Hor. AFC | 25000120 | 6AC7 | 8N | |
| V21 | Hor. Osc. | 25000100 | 6K6GT | 7S | |
| V22 | Hor. Output | 25000140 | 6BG6G | 5BT | |
| V23 | Damper | 25000160 | 5V4G | 5L | |
| V24 | HV Rectifier | 25000150 | 1B3GT | 3C | |
| V25 | Time Delay Rect. | 25000020 | 6AL5 | 6BT | |
| V26 | LV Rectifier | 25000060 | 5U4G | 5T | |
| V27 | LV Rectifier | 25000060 | 5U4G | 5T | |
| V28 | Bias Rectifier | 25000170 | 6X4 | 5BS | |
| V29 | Bias Rectifier | 25000170 | 6X4 | 5BS | |
| V30A | Picture Tube | 25000330 | 12QP4 | 12D | |
| B | Picture Tube | 25000870 | 19AP4 | 12D | Model RA110A |
| C | Picture Tube | 25001560 | 15DP4 | 12D | Model RA104A |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | DUMONT PART No. | AEROVOX PART No. | CENTRALAB PART No. | ERIE PART No. | SPRAGUE PART No. | |
| C1 | 80 | 350 | 03016620 | AFNI6H | | | TVL-5 | Filter |
| C2 | 80 | 350 | 03016620 | AFNI6H | | | TVL-5 | Filter |
| C3A | 40 | 475 | 03016050 | AF8X8I | | | TVL-20 | ▬ Filter |
| B | 40 | 400 | | | | | | ▲ Filter |
| C4 | 1.5Ω Ⓐ | | | | | | | |
| | 120 ∿ | 6 | 03016851 | PRS6/1000 | | | TVA-2 | Hor. Cent. Cont. Bypass |
| C5 | 1.5Ω Ⓐ | | | | | | | |
| | 120 ∿ | 6 | 03016851 | PRS6/1000 | | | TVA-2 | Hor. Cent. Cont. Bypass |
| C6 | 2000 | 6 | 03012250 | PRS6/2000 | | | TVA-2 | Vert. Cent. Cont. Bypass |
| C7A | 10 | 350 | 03016900 | AF2222J | | | EL-410 | ▬ V. Amp. Screen Bypass |
| B | 10 | 350 | | | | | | ■ Vert. Buffer Dec. |
| C | 10 | 300 | | | | | | ▲ Decoupling |
| C8A | 30 | 450 | 03014110 | AF66J | | | TVL-69 | ▬ Decoupling |
| B | 10 | 450 | | | | | | ▲ Decoupling |
| C9A | 70 | 175 | 03016040 | E29D7 | | | D14948 | Filter-Red Dot |
| B | 70 | 175 | | | | | | Filter-Red Dot |
| C10 | 25 | 25 | 03015310 | PRS25/25 | | | TVA-6 | Bias Filter |
| C11 | 10 | 25 | 03016730 | PRS25/10 | | | TVA-5 | Bias Filter |
| C12 | 25 | 50 | 03013890 | PRS50/25 | | | TVA-15 | Vert. Output Cath. Bypass |
| C13 | 10 | 50 | 03014100 | PRS50/10 | | | TVA-14 | lst Sync. Clipper Dec. |
| C14 | 50 | 25 | 03000020 | PRS25/50 | | | TVA-7 | Filter |
| C15 | 30 | | 03013070 | SI30JNPO | D2-30 | NPOL-30 | | RF Coupling |
| C16 | 100 | | 03016700 | GP100M | D6-101 | GP1K-100 | | RF Cathode Bypass |
| C17 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | RF Filament Bypass |
| C18 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | RF Bypass |
| C19 | 100 | | 03016700 | GP100M | D6-101 | GP1K-100 | | RF Coupling |
| C20 | .5-5 | | 03016650 | | | 532-.5-5 | | Variable Trimmer |
| C21 | .5-5 | | 03016650 | | | 532-.5-5 | | Variable Trimmer |
| C22 | 100 | | 03016700 | GP100M | D6-101 | GP1K-100 | | Fixed Trimmer |
| C23 | 130 | | 03016660 | | | | | Fixed Trimmer |
| C24 | 15 | | 03014580 | CI15JNPO | D6-150 | GP1K-15 | | Fixed Trimmer |
| C25 | 100 | | 03016700 | GP100M | D6-101 | GP1K-100 | | RF Coupling |
| C26 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | Bias Filter |
| C27 | 10000 | | 03016770 | BPD-10 | D6-103 | 821-01 | 36C1 | Mixer Screen Bypass |
| C28 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | Mixer Filament Bypass |
| C29 | 1 | | 03012150 | | D2-1 | | | Osc. Coupling |
| C30 | 5 | | 03016860 | CN5JN150 | | N150K-5 | | Osc. Grid Cap. |
| C31 | 1.5-7 | | 03016870 | | | TS2A-N300 -1.5-7 | | Variable Trimmer |
| C32 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | Osc. Filament Bypass |
| C33 | 470 | | 03016470 | GP470M | D6-471 | GP2K-470 | | RF Bypass |
| C34 | 470 | | 03016470 | GP470M | D6-470 | GP2K-470 | | Filament Bypass |
| C35 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | Mixer Plate Decoupling |
| C36 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | IF Coupling |
| C37 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | Bias Filter |
| C38 | .25 | 200 | | P488-25 | | | TC-2 | Bias Filter |
| C39 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | lst V. IF Decoupling |
| C40 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | RF Bypass |
| C41 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | Bias Filter |
| C42 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | 2nd V. IF Cathode Bypass |
| C43 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | 2nd V. IF Decoupling |
| C44 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | RF Bypass * |
| C45 | 20 | | 03014010 | CI20KNPO | D2-20 | NPOK-20 | MS-42 | Fixed Trimmer |
| C46 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | IF Coupling |
| C47 | 10 | | 03013080 | CI10FNPO | D2-10 | NPOK-10 | MS-41 | Fixed Trimmer |
| C48 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | 3rd V. IF Cath. Bypass |
| C49 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | 3rd V. IF Decoupling |
| C50 | 2.5 | | 03014570 | CI2.5CNPO | D2-2.2 | NPOK-2.5 | | IF Coupling |

## CAPACITORS (CONT.)

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA DUMONT PART No. | AEROVOX PART No. | CENTRALAB PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C51 | 20 | | 03013800 | SI20KNPO | D2-20 | NPOK-20 | MS-42 | Fixed Trimmer |
| C52 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | Bias Filter |
| C53 | 47 | | 03012730 | CI47KNPO | D2-47 | NPOM-47 | MS-45 | Fixed Trimmer |
| C54 | .05 | 400 | 03014020 | P488-05 | | | TM-15 | Video Coupling |
| C55 | .5 | 400 | 03014269 | P488-5 | | | TC-5 | Video Coupling |
| C56 | 2.5 | | 03014570 | C12.5CNPO | D2-2.2 | NPOK-2.5 | | S. IF Coupling |
| C57 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | AVC Filter |
| C58 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | 1st S. IF Fil. Bypass |
| C59 | 1500 | 500 | 03033760 | 1467-0015 | D6-152 | GP2L-0015 | 1FM-215 | 1st S. IF Decoupling |
| C60 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | AVC Filter |
| C61 | 47 | | 03014200 | GP47K | D6-470 | GP1K-47 | 1FM-45 | Limiter Grid Filter |
| C62 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | Limiter Screen Bypass |
| C63 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | Limiter Decoupling |
| C64 | 47 | | 03014200 | GP47M | D6-470 | GP1K-47 | 1FM-45 | RF Bypass |
| C65 | 47 | | 03014200 | GP47M | D6-470 | GP1K-47 | 1FM-45 | RF Bypass |
| C66 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | De-emphasis |
| C67 | .01 | 400 | 03001450 | P488-01 | D6-103 | 821-01 | TM-11 | Tuning Ind. Filter |
| C68 | .01 | 400 | 03001450 | P488-01 | D6-103 | 821-01 | TM-11 | Tone Compensation |
| C69 | .02 | 400 | 03001460 | P488-02 | | | TM-12 | Audio Coupling |
| C70 | 5000 | | 03015610 | BPD-5 | D6-502 | 811-005 | 29C1 | RF Bypass |
| C71 | .1 | 400 | 03014040 | P488-1 | | | TM-1 | AF Amp. Screen Bypass |
| C72 | .05 | 400 | 03014020 | P488-05 | | | TM-15 | Audio Coupling |
| C73 | .002 | 600 | 03014430 | P688-002 | D6-202 | GP2M-002 | TM-22 | Output Grid Filter † |
| C74 | .005 | 600 | 03001570 | P688-005 | D6-502 | 811-005 | TM-25 | Output Plate Bypass |
| C75 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | Output Decoupling |
| C76 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | RF Bypass |
| C77 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Bias Filter |
| C78 | .01 | 400 | 03001450 | P488-01 | D6-103 | 821-01 | TM-11 | Sync. Coupling |
| C79 | .05 | 200 | 03000950 | P288-05 | | | TM-15 | Sync. Coupling |
| C80 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Sync. Clipper Screen Bypass |
| C81 | .1 | 400 | 03013910 | P488-1 | | | TM-1 | Vert. Sync. Coupling |
| C82 | 82 | 500 | 03017430 | | | | | Vert. Sync. Feedback |
| C83 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Vert. Sync. Coupling |
| C84 | .005 | 600 | 03001570 | P688-005 | D6-502 | 811-005 | TM-25 | Integrator Net. |
| C85 | .01 | 400 | 03001450 | P488-01 | D6-103 | 821-01 | TM-11 | Integrator Net. |
| C86 | .01 | 400 | 03003410 | P488-01 | D6-103 | 821-01 | TM-11 | Vert. Osc. Grid Cap. |
| C87 | .1 | 400 | 03003400 | P488-1 | | | TM-1 | Vert. Discharge |
| C88 | .1 | 400 | 03014040 | P488-1 | | | TM-1 | Vert. Sweep Coupling |
| C89 | 47 | | 03013950 | CI47KNPO | D6-470 | GP1K-47 | 1FM-45 | Hor. Sync. Coupling |
| C90 | .01 | 400 | 03003410 | P488-01 | D6-103 | 821-01 | TM-11 | Fixed Trimmer |
| C91 | .005 | 600 | 03001570 | P688-005 | D6-502 | 811-005 | TM-25 | AFC Filter |
| C92 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | AFC Filter |
| C93 | .05 | 200 | 03000950 | P288-05 | | | TM-15 | Hor. AFC Screen Bypass |
| C94 | .005 | 600 | 03001570 | P688-005 | D6-502 | 811-005 | TM-25 | Hor. AFC Coupling |
| C95 | 10000 | 300 | 03033860 | 1467-01 | D6-103 | | 1FM-11 | Phase Shifter |
| C96 | .005 | 600 | 03001570 | P688-005 | | 811-005 | TM-25 | Hor. Osc. Grid Cap. |
| C97 | .05 | 400 | 03014020 | P488-05 | | | TM-15 | Hor. Osc. Screen Bypass |
| C98 | 330 | 500 | 03020180 | | D6-331 | GP2K-330 | | Differentiator Net. |
| C99 | .01 | 400 | 03001450 | P488-01 | D6-103 | 821-01 | TM-11 | Hor. Sweep Coupling |
| C100 | 2200 | 500 | 03029080 | | D6-222 | GP2M-0022 | | Hor. Discharge |
| C101 | .01 | 600 | 03012560 | P688-01 | D6-103 | 821-01 | TM-11 | Hor. Sweep Coupling |
| C102 | .05 | 400 | 03014020 | P488-05 | | | TM-15 | Hor. Output Screen Bypass |
| C103 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Hor. Output Cathode Bypass |
| C104 | 1000 | | 03013940 | GP1000M | D6-102 | GP2L-001 | 1FM-21 | RF Bypass |
| C105 | .05 | 1000 | 03014070 | P1088-05 | | | TR-15 | Damper Filter |
| C106 | .035 | 1000 | 03014060 | P1088-033 | | | | Damper Filter |
| C107 | 220 | 1500 | 03014740 | | | | | Fixed Trimmer |
| C108 | 500 | 10000 | 03014410 | HV-500 | | 410-500 | | HV Filter † |
| C109 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Pic. Tube Cathode Decoupling |
| C110 | .01 | 600 | 03012560 | P688-01 | D6-103 | | TM-11 | Acc. Anode Bypass |
| C111 | .1 | 400 | 03014040 | P488-1 | | | TM-1 | Bias Filter |
| C112 | .1 | 200 | 03013910 | P288-1 | | | TM-1 | Bias Filter |
| C113 | .1 | 400 | 03014040 | P488-1 | | | TM-1 | RF Bypass |
| C114 | .05 | 600 | 03016500 | P688-05 | | | TM-15 | Line Filter |
| C115 | .05 | 600 | 03016500 | P688-05 | | | TM-15 | Line Filter |

* Not used in all models.
† Not used in model RA-110A

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DUMONT PART No. | IRC PART No. | CLAROSTAT PART No. | CENTRALAB PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| R1A | Switch | | 05003671 | | | | Local-Distance Switch |
| B | 25KΩ | ½ | 01025202 | | | | Contrast Control |
| R2 | 100KΩ | ½ | 01011820 | Q11-128 | M-49-S | B-40 | Brightness Control |
| R3A | 500KΩ | ½ | 01010800 | Q19-133X | T-90 | BT-65-S | Volume Control, tapped @ 200K |
| B | Switch | | Not Req. | 76-1 | SW-A | * | Attach to R3A per Instructions |
| R4 | 1000Ω | 25 | 01006680 | PR-25-1000 | PW-25-1000 | | Focus Control-Wire Wound |
| R5 | 20KΩ | ½ | 01007650 | Q11-119 | M-36-S | B-22 | Horiz. Drive Control |
| R6 | 500KΩ | ½ | 01011740 | Q11-133 | M-58-S | B-59 | Vert. Hold Control |
| R7 | 4 Meg. | ½ | 01008570 | Q11-141 | M-85-S | B-86 | Vert. Size Control |
| R8 | 1500Ω | 2 | 01006810 | W-2000 | 43-2000 | V-131 | Vert. Linearity Control-Wire Wound |
| R9 | 25Ω | 4 | 01006660 | | 10-25 | | Horiz. Centering Control-Wire Wound |
| R10 | 25Ω2 | 2 | 01006630 | W-25 | 43-25 | V-111 | Vert. Centering Control-Wire Wound |
| R11 | 500KΩ | ½ | 01006710 | Q11-133 | M-58-S | B-59 | Sensitivity Control |

* Switch is attached at factory.

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DUMONT PART No. | IRC PART No. | IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED. |
|---|---|---|---|---|---|
| R12 | 100Ω 5% | ½ | 02030240 | | RF Cathode |
| R13 | 10KΩ | 2 | 02037890 | | RF Plate |
| R14 | 10KΩ | ½ | 02031890 | | RF Plate Coil Shunt |
| R15 | 8200Ω | ½ | 02031880 | | Mixer Grid Coil Shunt |
| R16 | 1 Meg. | ½ | 02032130 | | Mixer Grid |
| R17 | 150KΩ | ½ | 02032030 | | Mixer Screen |
| R18 | 100KΩ | ½ | 02032010 | | Bias Network |
| R19 | 12KΩ | ½ | 02031900 | | Osc. Grid |
| R20 | 10KΩ | 2 | 02037890 | | Osc. Plate |

## RESISTORS (CO

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DUMONT PART No. | IRC PART No. | |
|---|---|---|---|---|---|
| R21 | 8200Ω 5% | ½ | 02030700 | BTS-8200-5% | Mixe |
| R22 | 47KΩ | ½ | 02031970 | BTS-47K | Mixe |
| R23 | 5600Ω 5% | ½ | 02030660 | | 1st V |
| R24 | 68Ω | ½ | 02031630 | | 1st V |
| R25 | 6800Ω 5% | ½ | 02030680 | BTS-6800-5% | 1st V |
| R26 | 22KΩ | 2 | 02037930 | | 1st V |
| R27 | 22KΩ | 2 | 02037930 | | 1st V |
| R28 | 1 Meg. 20% | ½ | 02032600 | BTS-1 Meg. | Bias |
| R29 | 10KΩ | ½ | 02031890 | BTS-10K | Bias |
| R30 | 6800Ω 5% | ½ | 02030680 | BTS-6800-5% | 2nd |
| R31 | 68Ω | ½ | 02031630 | | 2nd |
| R32 | 3900Ω | 2 | 02037840 | | 2nd |
| R33 | 3900Ω 5% | ½ | 02030620 | BTS-3900-5% | IF T |
| R34 | 100Ω | ½ | 02031650 | | 3rd |
| R35 | 3900Ω | 2 | 02037840 | | 3rd |
| R36A | 7000Ω | 7 | 02018990 | AB-7000 | Blee |
| B | 2500Ω | 9.6 | | AB-2500 | Filte |
| R37 | 39KΩ 5% | ½ | 02030860 | BTS-39K-5% | 4th V |
| R38 | 39KΩ 5% | ½ | 02030860 | BTS-39K-5% | 4th V |
| R39 | 4700Ω 5% | ½ | 02030640 | BTS-4700-5% | Vide |
| R40 | 12KΩ | ½ | 02031900 | BTS-12K | Volta |
| R41 | 27KΩ | ½ | 02031940 | BTS-27K | Bias |
| R42 | 8200Ω 5% | ½ | 02030700 | BTS-8200-5% | Bias |
| R43 | 100KΩ | 2 | 02038010 | BT-2-100K | Vide |
| R44 | 100KΩ | 2 | 02038010 | BT-2-100K | Vide |
| R45 | 6800Ω | 2 | 02037870 | BT-2-6800 | Vide |
| R46 | 6800Ω | 2 | 02037870 | BT-2-6800 | Vide |
| R47 | 470KΩ | ½ | 02032090 | BTS-470K | Pictu |
| R48 | 330KΩ | ½ | 02032070 | BTS-330K | Volta |
| R49 | 10KΩ | ½ | 02031890 | BTS-10K | DC R |
| R50 | 220KΩ | ½ | 02032050 | BTS-220K | Volta |
| R51 | 470KΩ | ½ | 02032090 | BTS-470K | Volta |
| R52 | 100KΩ | ½ | 02032010 | BTS-100K | Sounc |
| R53 | 68Ω | ½ | 02031630 | | Sounc |
| R54 | 22KΩ | 1 | 02034930 | BTA-22K | Sounc |
| R55 | 22KΩ | 1 | 02034930 | BTA-22K | Sounc |
| R56 | 100KΩ | ½ | 02032010 | BTS-100K | Sounc |
| R57 | 56KΩ | ½ | 02031980 | BTS-56K | Limit |
| R58 | 68Ω | ½ | 02031630 | | Limit |
| R59 | 47KΩ | 2 | 02037970 | | Limit |
| R60 | 1000Ω | ½ | 02031770 | BTS-1000 | Limit |
| R61 | 10KΩ | ½ | 02031890 | BTS-10K | Volta |
| R62 | 100KΩ | ½ | 02032010 | BTS-100K | Disc. |
| R63 | 100KΩ | ½ | 02032010 | BTS-100K | Disc. |
| R64 | 27KΩ | ½ | 02031940 | BTS-27K | De-e |
| R65 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | Tunin |
| R66 | 3300Ω | ½ | 02031830 | BTS-3300 | Tunin |
| R67 | 22KΩ | ½ | 02031930 | BTS-22K | Tone |
| R68 | 470KΩ | ½ | 02032090 | BTS-470K | AF A |
| R69 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | AF A |
| R70 | 100KΩ | ½ | 02032010 | BTS-100K | AF A |
| R71 | 100KΩ | ½ | 02032010 | BTS-100K | Volta |
| R72 | 470KΩ | ½ | 02032090 | BTS-470K | Bias |
| R73 | 100KΩ | ½ | 02032010 | BTS-100K | Outpu |
| R74 | 2200Ω | 2 | 02037810 | BT-2-2200 | Outpu |
| R75 | 2200Ω | 2 | 02037810 | BT-2-2200 | Outpu |
| R76 | 16KΩ 5% | ½ | 02030770 | | Bias |
| R77 | 2000Ω 5% | ½ | 02030550 | | Volta |
| R78 | 8200Ω | 2 | 02037880 | BT-2-8200 | Volta |
| R79 | 8200Ω | 2 | 02037880 | BT-2-8200 | Volta |
| R80 | 22KΩ | ½ | 02031930 | BTS-22K | Bias |
| R81 | 22KΩ | ½ | 02031930 | BTS-22K | Bias |
| R82 | 39KΩ | ½ | 02031960 | BTS-39K | 1st S |
| R83 | 3300Ω | ½ | 02031830 | BTS-3300 | 1st S |
| R84 | 33KΩ | 2 | 02037950 | BT-2-33K | 1st S |
| R85 | 6800Ω | ½ | 02031870 | BTS-6800 | Volta |
| R86 | 27KΩ | ½ | 02031940 | BTS-27K | 2nd S |
| R87 | 1.2 Meg. | ½ | 02032140 | BTS-1.2 Meg. | 2nd S |
| R88 | 10KΩ | ½ | 02031890 | BTS-10K | 2nd S |
| R89 | 100KΩ | 1 | 02035010 | BTA-100K | 2nd S |
| R90 | 22KΩ | ½ | 02031930 | BTS-22K | Volta |
| R91 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | Vert. |
| R92 | 5600Ω | ½ | 02031860 | BTS-5600 | Vert. |
| R93 | 27KΩ | 2 | 02037940 | BT-2-27K | Vert. |
| R94 | 22KΩ | ½ | 02031930 | BTS-22K | Integ |
| R95 | 10KΩ | ½ | 02031890 | BTS-10K | Integ |
| R96 | 10KΩ | ½ | 02031890 | BTS-10K | Integ |
| R97 | 470KΩ | ½ | 02032090 | BTS-470K | Vert. |
| R98 | 470KΩ | ½ | 02032090 | BTS-470K | Vert. |
| R99 | 3300Ω | ½ | 02031830 | BTS-3300 | Vert. |
| R100 | 1800Ω | ½ | 02031800 | BTS-1800 | Vert. |
| R101 | 4700Ω 5% | ½ | 02030640 | BTS-4700-5% | Vert. |
| R102 | 820Ω | 1 | 02034760 | BTA-820 | Vert. |
| R103 | 2.2 Meg. | ½ | 02032170 | BTS-2.2 Meg. | Vert. |
| R104 | 10KΩ | 2 | 02037890 | BT-2-10K | Deco |
| R105 | 10KΩ | 2 | 02037890 | BT-2-10K | Deco |
| R106 | 470KΩ | ½ | 02032090 | BTS-470K | Horiz |
| R107 | 470KΩ | ½ | 02032090 | BTS-470K | Horiz |
| R108 | 220Ω 5% | ½ | 02030320 | BW-½-220-5% | Volta |
| R109 | 470KΩ | ½ | 02032090 | BTS-470K | Horiz |
| R110 | 470Ω | ½ | 02031730 | BTS-470 | Horiz |
| R111 | 10Ω | ½ | 02031530 | | Horiz |
| R112 | 22KΩ | 2 | 02037930 | BT-2-22K | Horiz |
| R113 | 47KΩ | 2 | 02037970 | BT-2-47K | Horiz |
| R114 | 27KΩ | 1 | 02034940 | BTA-27K | Volta |
| R115 | 47KΩ | ½ | 02031970 | BTS-47K | Horiz |
| R116 | 5000Ω | 5 | 02107960 | AB-5000 | Horiz |
| R117 | 10KΩ | 1 | 02034890 | BTA-10K | Horiz |
| R118 | 6800Ω | ½ | 02031870 | BTS-6800 | Differ |
| R119 | 220KΩ | ½ | 02032050 | BTS-220K | Horiz |
| R120 | 180KΩ | 2 | 02038040 | BT-2-180K | Horiz |
| R121 | 2200Ω | ½ | 02031810 | BTS-2200 | Horiz |
| R122 | 100Ω | ½ | 02031650 | | Paras |
| R123 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | Horiz |

# DESCRIPTIONS (Continued)

RESISTORS (CONT.)

| IT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|
| BTS-8200-5% | Mixer Plate Transformer Shunt |
| BTS-47K | Mixer Plate Decoupling |
| | 1st Video IF Grid |
| | 1st Video IF Cathode |
| BTS-6800-5% | 1st Video IF Coil Shunt |
| | 1st Video IF Decoupling |
| | 1st Video IF Decoupling |
| BTS-1 Meg. | Bias Network |
| BTS-10K | Bias Network |
| BTS-6800-5% | 2nd Video IF Coil Shunt |
| | 2nd Video IF Cathode |
| | 2nd Video IF Decoupling |
| BTS-3900-5% | IF Trap Coil Shunt |
| | 3rd Video IF Cathode |
| | 3rd Video IF Decoupling |
| AB-7000 | Bleeder-Wire Wound |
| AB-2500 | Filter-Wire Wound |
| BTS-39K-5% | 4th Video IF Coil Shunt |
| BTS-39K-5% | 4th Video IF Coil Shunt |
| BTS-4700-5% | Video Det. Diode Load |
| BTS-12K | Voltage Divider |
| BTS-27K | Bias Network |
| BTS-8200-5% | Bias Network |
| BT-2-100K | Video Output Screen |
| BT-2-100K | Video Output Screen |
| BT-2-6800 | Video Output Plate |
| BT-2-6800 | Video Output Plate |
| BTS-470K | Picture Tube Grid |
| BTS-330K | Voltage Divider |
| BTS-10K | DC Rest. Load |
| BTS-220K | Voltage Divider |
| BTS-470K | Voltage Divider |
| BTS-100K | Sound IF Grid |
| | Sound IF Cathode |
| BTA-22K | Sound IF Decoupling |
| BTA-22K | Sound IF Decoupling |
| BTS-100K | Sound IF Grid Filter |
| BTS-56K | Limiter Grid |
| | Limiter Cathode |
| | Limiter Screen |
| BTS-1000 | Limiter Decoupling |
| BTS-10K | Voltage Divider |
| BTS-100K | Disc. Diode Load |
| BTS-100K | Disc. Diode Load |
| BTS-27K | De-emphasis |
| BTS-1 Meg. | Tuning Ind. Network |
| BTS-3300 | Tuning Ind. Grid |
| BTS-22K | Tone Compensation |
| BTS-470K | AF Amp. Grid |
| BTS-1 Meg. | AF Amp. Screen |
| BTS-100K | AF Amp. Plate |
| BTS-470K | Voltage Divider |
| BTS-100K | Bias Network |
| BT-2-2200 | Output Grid |
| BT-2-2200 | Output Decoupling |
| | Output Decoupling |
| | Bias Network |
| | Voltage Divider |
| BT-2-8200 | Voltage Dropping |
| BT-2-8200 | Voltage Dropping |
| BTS-22K | Bias Network |
| BTS-22K | Bias Network |
| BTS-39K | 1st Sync. Clipper Grid |
| BTS-3300 | 1st Sync. Clipper Plate |
| BT-2-33K | 1st Sync. Clipper Plate Decoupling |
| BTS-6800 | Voltage Divider |
| BTS-27K | 2nd Sync. Clipper Grid |
| BTS-1.2 Meg. | 2nd Sync. Clipper Grid |
| BTS-10K | 2nd Sync. Clipper Plate |
| BTA-100K | 2nd Sync. Clipper Screen |
| BTS-22K | Voltage Divider |
| BTS-1 Meg. | Vert. Buffer Grid |
| BTS-5600 | Vert. Buffer Plate |
| BT-2-27K | Vert. Buffer Decoupling |
| BTS-22K | Integrator Network |
| BTS-10K | Integrator Network |
| BTS-10K | Integrator Network |
| BTS-470K | Vert. Osc. Grid |
| BTS-470K | Vert. Osc. Plate |
| BTS-3300 | Vert. Peaking |
| BTS-1800 | Vert. Peaking |
| BTS-4700-5% | Vert. Peaking |
| BTA-820 | Vert. Amp. Cathode |
| BTS-2.2 Meg. | Vert. Amp. Grid |
| BT-2-10K | Decoupling |
| BT-2-10K | Decoupling |
| BTS-470K | Horiz. Sync. Disc. Load |
| BTS-470K | Horiz. Sync. Disc. Load |
| W-½-220-5% | Voltage Divider |
| BTS-470K | Horiz. AFC Filter |
| BTS-470 | Horiz. AFC Grid |
| | Horiz. AFC Cathode |
| BT-2-22K | Horiz. AFC Plate |
| BT-2-47K | Horiz. AFC Screen |
| BTA-27K | Voltage Divider |
| BTS-47K | Horiz. Osc. Grid |
| 3-5000 | Horiz. Osc. Plate-Wire Wound |
| BTA-10K | Horiz. Osc. Screen |
| BTS-6800 | Differentiator |
| BTS-220K | Horiz. Discharge Grid |
| BT-2-180K | Horiz. Discharge Plate |
| BTS-2200 | Horiz. Peaking |
| | Parasitic Supp. |
| BTS-1 Meg. | Horiz. Output Grid |

RESISTORS (CONT.)

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R124 | 100Ω | 5 | 02109220 | AB-100 | Horiz. Output Cathode-Wire Wound |
| R125 | 20KΩ | 10 | 02108100 | AB-20,000 | Horiz. Output Screen-Wire Wound |
| R126 | 8500 | 25 | 02018981 | | Damper Filter-Wire Wound-See Note 1 |
| R127 | 3.6Ω | ½ | 02100780 | | HV Rect. Filament-Wire Wound-See Note 4 |
| R128 | 220KΩ | 1 | 02035050 | | HV Filter |
| R129A | 200Ω | 15 | 02017600 | DG-200 | Series Focus Coil-Wire Wound |
| B | 250Ω | 10 | | AB-250 | Focus Coil Shunt-Wire Wound |
| R130 | 150KΩ | 2 | 02038030 | BT-2-150K | Voltage Divider |
| R131 | 1150Ω | 20 | 02110040 | | Bias Filter-Wire Wound |
| R132 | 22KΩ | ½ | 02031930 | BTS-22K | Bias Filter- See Note 2 and 3 |
| R133 | 5.1Ω | 1 | 02102650 | | Time Delay Rect. Filament-Wire Wound |
| R134 | 12KΩ 5% | 2 | 02036740 | BT-2-12K-5% | Bias Network |
| R135 | 250Ω | 5 | 02107140 | AB-250 | Bias Filter-Wire Wound |
| R136 | 1280Ω | 25 | 02017610 | | Filter-Wire Wound |
| R137 | 100KΩ | 1 | 02035010 | BTA-100K | Bleeder |
| R138 | 100KΩ | 1 | 02035010 | BTA-100K | Bleeder |

Note 1. This resistor is tapped at 7500Ω and 5500Ω.
Note 2. Some models use 27KΩ resistor in this application.
Note 3. Model RA-110A uses 50KΩ fixed resistor in this application.
Note 4. Model RA-110A uses 7.5Ω fixed resistor in this application.

## SPEAKER

| ITEM No. | RATINGS FIELD | RATINGS V. C. IMP. | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA JENSEN PART No. | REPLACEMENT DATA QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| SP1A | PM | 3.4Ω | 1800276① ③ | MOD. P6-V ⑤ | 6A1 ⑤ | ② Used in Sheffield model RA-103D |
| B | PM | | ② | ST-119 MOD. P10-T ⑤ | 10A31 ⑤ | ① Used in Rumson model RA-103D |
| C | PM | | ④ | ST-119 MOD. P10-T ⑤ | 10A31 ⑤ | ③ Used in model RA-104A |
| | | | | | | ④ Used in model RA-110A |
| | | | | | | ⑤ Remount output transformer |
| | CONE DIA. | V. C. DIA. | | | | |
| SP2A | 5 7/8" | 9/16" | ① ③ | | | |
| B | 10" | | ② | | | |
| C | 10" | | ④ | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | RATING SEC. 3 | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA MERIT PART No. | REPLACEMENT DATA CHICAGO PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC @ 2.8A | 760VCT .290ADC & 290 VCT @ .103ADC | 5VAC @ 6A | 5VAC @ 2A | 20004283 | | | |
| | | SEC. 4 | SEC. 5 | | | | | |
| | | 6.3VAC @ 1.5A | 6.3VAC @ 9.4A | | | | | |

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE PRI. | RATING DC RESISTANCE SEC. | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA MERIT PART No. | REPLACEMENT DATA CHICAGO PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | 280Ω | 590Ω | 20004142 | | | | Vert. Block Osc. Trans. |
| | | SEC. 2 | | | | | |
| | | 730Ω | | | | | |
| T3A | 520Ω | SEC. 1 | 2000426①②③ | A-8128 | HVO-3 | TFB-3 | Hor. Output Trans. |
| | Tap @ 180Ω | 8Ω Tap @ .1Ω | | | | | |
| B | | | 20004521 ④ | | | | Hor. Output Trans. |
| T4 | 600Ω | 6Ω | 20003944 | A-8115 | A-3035 | TSO-1 | Vert. Output Trans. |
| T5A | 12.5Ω | | 21004242 ① ② | DY-1 | MD-1 | | Hor. Deflection Coil |
| B | 63Ω | | | | | | Vert. Deflection Coil |
| T5 | | | 21004241 ③ ④ | | | | Vert.-Hor. Defl. Coils |
| T6A | 550Ω | | 21004252 ① ③ | | | | Focus Coil |
| B | | | 21004254 ② ④ | | | | Focus Coil |

① Used in Rumson model RA-103D.
② Used in Sheffield model RA-103D.
③ Used in model RA-104A.
④ Used in model RA-110A

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA MERIT PART No. | REPLACEMENT DATA CHICAGO PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T7 | 5.3KΩ | 3.4Ω | 410Ω | .5Ω | Part of 18002761 | A-3849 | A-2901 | RO-201 | |

## FILTER CHOKE

| ITEM No. | RATINGS TOTAL DIRECT CURRENT | RATINGS D. C. RESISTANCE | RATINGS INDUCTANCE (0 CURRENT 1000 ~) | REPLACEMENT DATA DUMONT PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA MERIT PART No. | REPLACEMENT DATA CHICAGO PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | .290A | 80Ω | 4.5 Henries | 21004382 | C-1703 ⑤ | C-2991 ⑤ | TR-3300 ⑤ | ⑥ Drill one new mounting hole. |
| L2 | .103A | 60Ω | 1 Henry | 21004722 | C-2304 ⑥ | C-2974 ⑥ | TR-4200 ⑤ | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

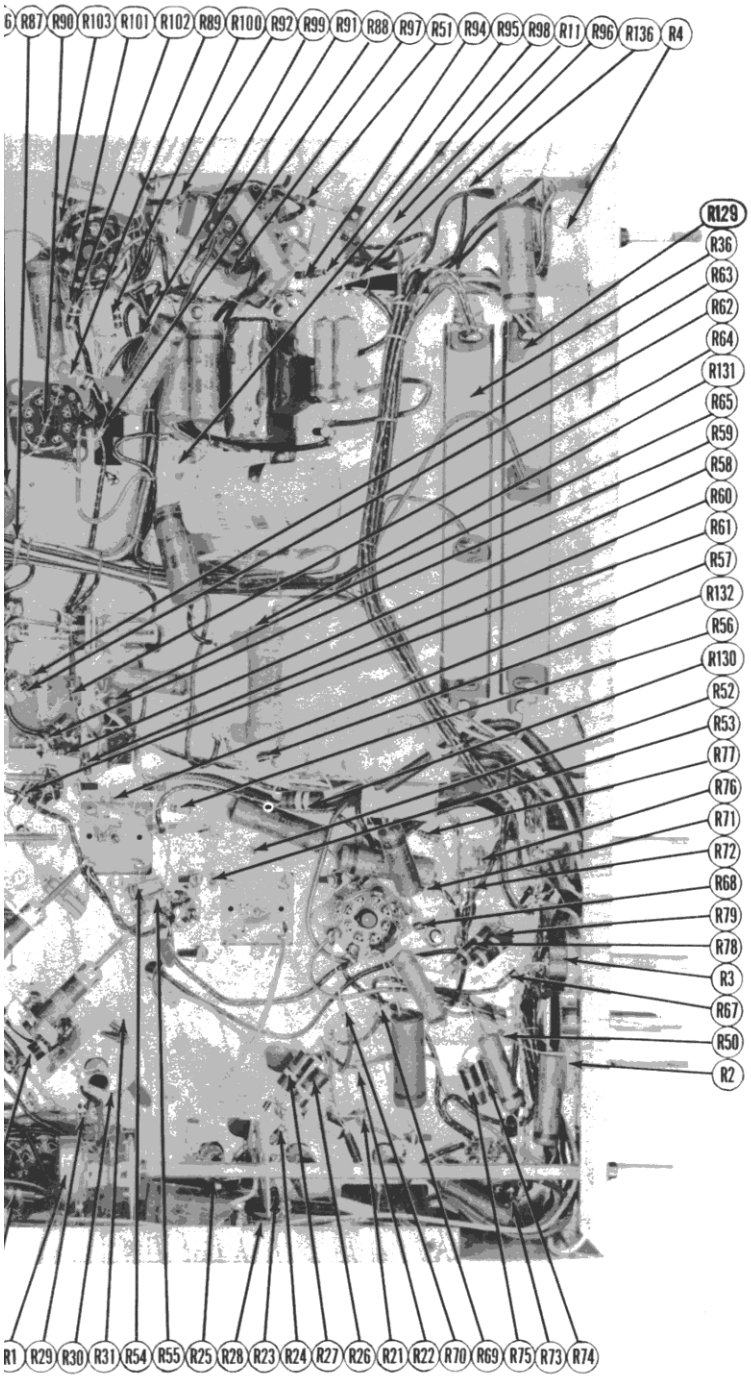
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | DUMONT PART No. | MEISSNER PART No. | |
| L3 | Ant. Coil | 0Ω | | 21004571 | | |
| L4 | Ant. Coil | 0Ω | | 21004571 | | |
| L5 | RF End Inductor | 0Ω | | 21004931 | | |
| L6 | RF Plate | 0Ω | | | | Part of inductuner . Part #21004691 |
| L7 | RF End Inductor | 0Ω | | 21004921 | | |
| L8 | Mixer Grid | 0Ω | | | | Part of inductuner. Part #21004961. |
| L9 | Band Pass Coupling | 0Ω | | 21004941 | | |
| L10 | Band Width | | | 21004601 | | Not used in all models. |
| L11 | Ground Strap | | | 21004951 | | Not used in all models. |
| L12 | Osc. Shunt | 0Ω | | 21004041 | | |
| L13 | Osc. End Inductor | 0Ω | | 21004891 | | |
| L14 | Osc. Coil | 0Ω | | | | Part of Inductuner. Part #21004961 |
| L15 | Fil. Choke | .1Ω | | 21004571 | | |
| L16 | lst Video IF | .8Ω | | 21004137 | | |
| L17 | RF Choke | 0Ω | | 21004421 | | |
| L18 | lst Video IF Coupling | 0Ω | | 21004136 | | |
| L19 | 2nd Video IF | .8Ω | | 21004137 | | |
| L20 | 2nd Video IF | 0Ω | | 21004136 | | |
| L21 | 3rd Video IF | .8Ω | | 21004137 | | |
| L22 | 21.9 MC Sound Trap | 0Ω | | 21004802 | | |
| L23 | Adjacent Channel Sound Trap | 0Ω | | 21004801 | | |
| L24 | 3rd Video IF | 0Ω | | 21004136 | | |
| L25 | 4th Video IF | .8Ω | | 21004137 | | |
| L26 | 21.9MC Sound Trap | 0Ω | | 21004802 | | |
| L27 | 4th Video IF | .8Ω | | 21004137 | | |
| L28 | Peaking | 19Ω | | 21004467 | | Yellow identification dot. |
| L29 | Peaking | 11Ω | | 21004461 | | Red identification dot. |
| L30 | 4.5MC Sound Trap | 0Ω | | 21004121 | | |
| L31 | Peaking | 6Ω | | 21004464 | | |
| L32 | Fil. Choke | .2Ω | | 21004961 | | |
| L33 | lst SoundIF | 0Ω | 0Ω | 20004101 | | Alternate Part #20004111 |
| L34 | 2nd Sound IF | 0Ω | 0Ω | 20004101 | | Alternate Part #20004111 |
| L35 | Disc. Trans. | .2Ω | 0Ω | 20003901 | | Alternate Part #20004091 |
| L36 | Horiz. Osc. Trans. | 65Ω | 63Ω | 20004081 | | |
| L37 | Width Cont. | .1Ω | | 21004761 | | Fixed |
| L38A | Width Cont. | .2Ω | | 21004741 | | Not used in RA-110A |
| B | Width Cont. | | | 21005001 | | Used in model RA-110A only. |
| L39 | Horis. Linearity | 55Ω | | 21004771 | | |

## DIAL LIGHTS

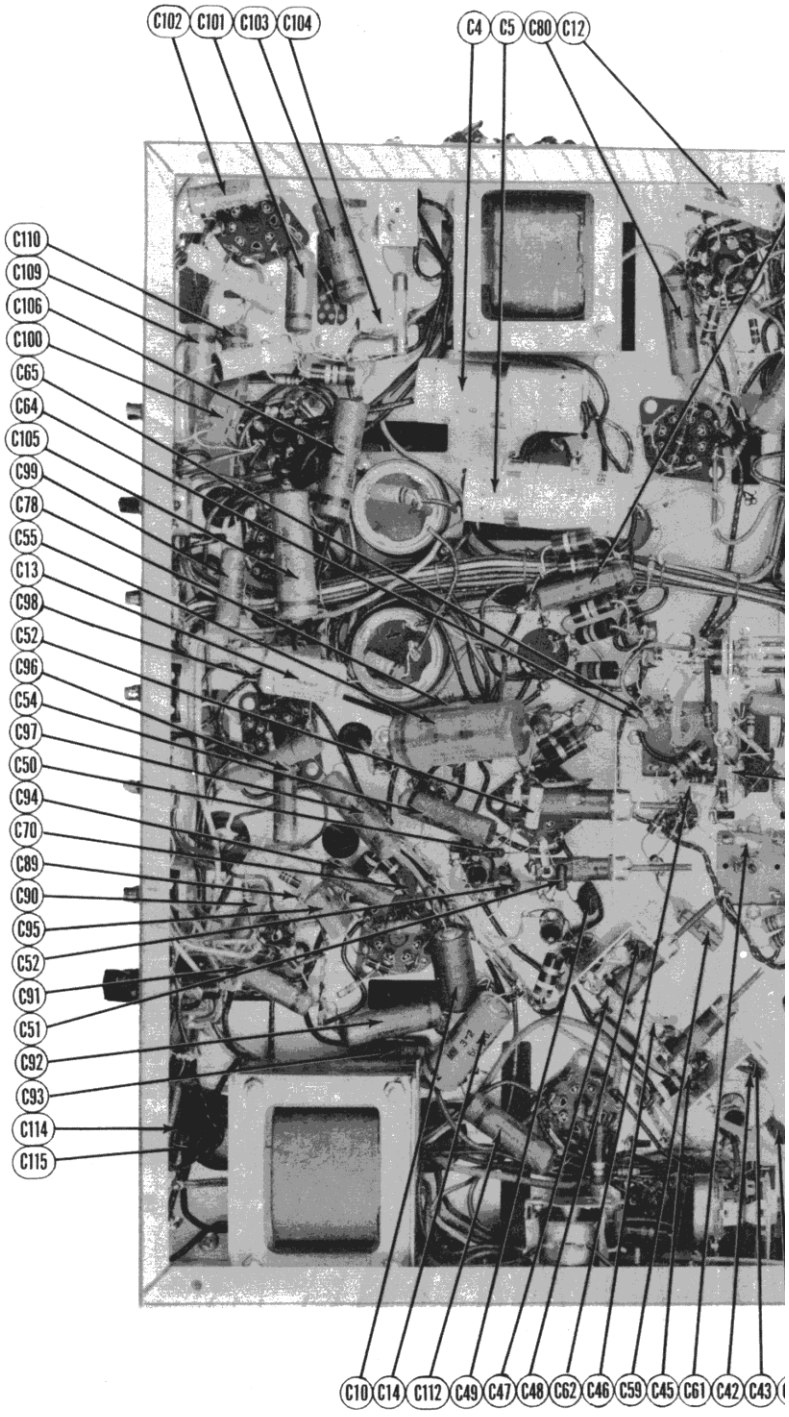
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | DUMONT PART No. | | |
| M1 | Bayonet | 6-8 | .25 | Blue | 12000840 | | Type #44 |
| M2 | Bayonet | 6-8 | .25 | Blue | 12000840 | | Type #44 |

## MISCELLANEOUS

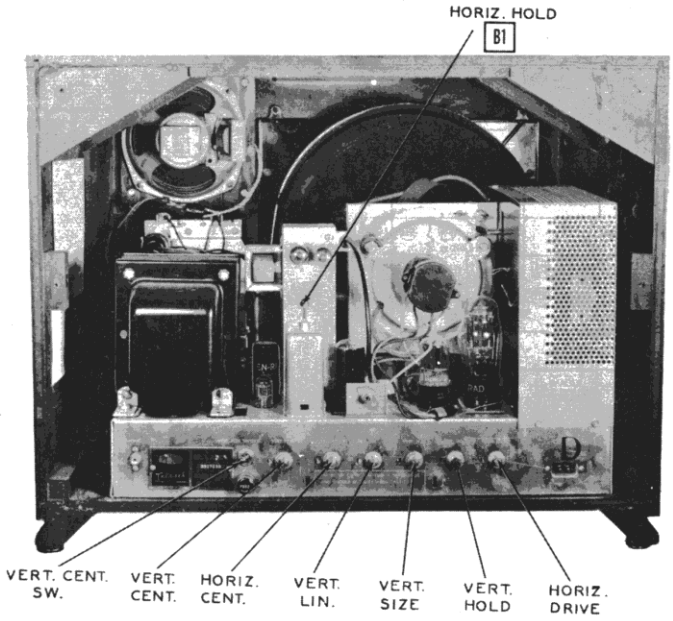
| ITEM No. | PART NAME | DUMONT PART No. | NOTES |
|---|---|---|---|
| M3 | RF Tuner Assy. | | |
| M4 | Switch | 05003431 | Width |
| M5 | Switch | 05000120 | Vert. Positioning Alternate Part #05003050 |
| M6 | Switch | 050003321 | Function |
| M7 | Fuse | 11001100 | .25A., 250V |
| M8 | Fuse | 11000810 | 5A., 250V |
| M9 | Relay | 05002410 | Alternate Part #05003260 and 05003060 |
| M10 | Ion Trap | 21004472 | |
| | Safety Glass | 45000046 | Model RA-103D |
| | Safety Glass | 45000047 | Model RA-104A |
| | Safety Glass | 45001131 | Model RA-110A |
| | Knob | 45000021 | Control |
| | Knob | 45000022 | Control — Model RA-103D |
| | Knob | 45001001 | Tuner — Model RA-103D |
| | Knob | 45001011 | Tuner — Model RA-103D |
| | Knob | 45001001 | Vernier Dial |
| | Knob | 45001012 | Main Dial — Model RA-104A |
| | Knob | 45000091 | Control — Model RA-104A |
| | Knob | 45000092 | Control — Model RA-104A |
| | Knob | 45000021 | Control, Mahogany |
| | Knob | 45000091 | Control, Blonde |
| | Knob | 45000022 | Control, Mahogany |
| | Knob | 45000092 | Control, Blonde |
| | Knob | 45001001 | Vernier Dial, Mahogany |
| | Knob | 45001002 | Vernier Dial, Blonde — Model RA-110A |
| | Knob | 45001011 | Main Dial, Mahogany — Model RA-110A |
| | Knob | 45001012 | Main Dial, Blonde — Model RA-110A |
| | Magnet | 29000530 | Magnet for 6BG6G |




N- RESISTOR IDENTIFICATION




CHASSIS BOTTOM VIEW-CAPA




## CABINET-REAR VIEW

## HORIZONTAL SWEEP ADJUSTMENTS

**HORIZONTAL FREQUENCY ADJUSTMENTS**

Rotate the horizontal frequency adjustment (B1) until the picture falls out of "sync." Adjust the control to bring the picture back into sync and note the position where this occurs. Repeat the above procedure but in the opposite direction. The correct setting is mid-way between the two points where picture falls into synchronization.

**HORIZONTAL PHASING ADJUSTMENT**

Reduce the picture width until both edges are visable. Turn up the brightness control and reduce the contrast control so the normally blanked out edges of the picture are visable. Adjust the phasing adjustment (B2) until the normally blanked edges of the raster are of equal width.

**HORIZONTAL SIZE AND LINEARITY ADJUSTMENTS**

There are two size adjustments, a coarse adjustment which is a switch on the side of the flyback power supply case, and a fine adjustment (B3). Set these two adjustments until picture fills the mask horizontally.

Adjust the horizontal drive control and horizontal linearity adjustment (B4) until the picture is linear in the horizontal plane.

## VERTICAL SWEEP ADJUSTMENTS

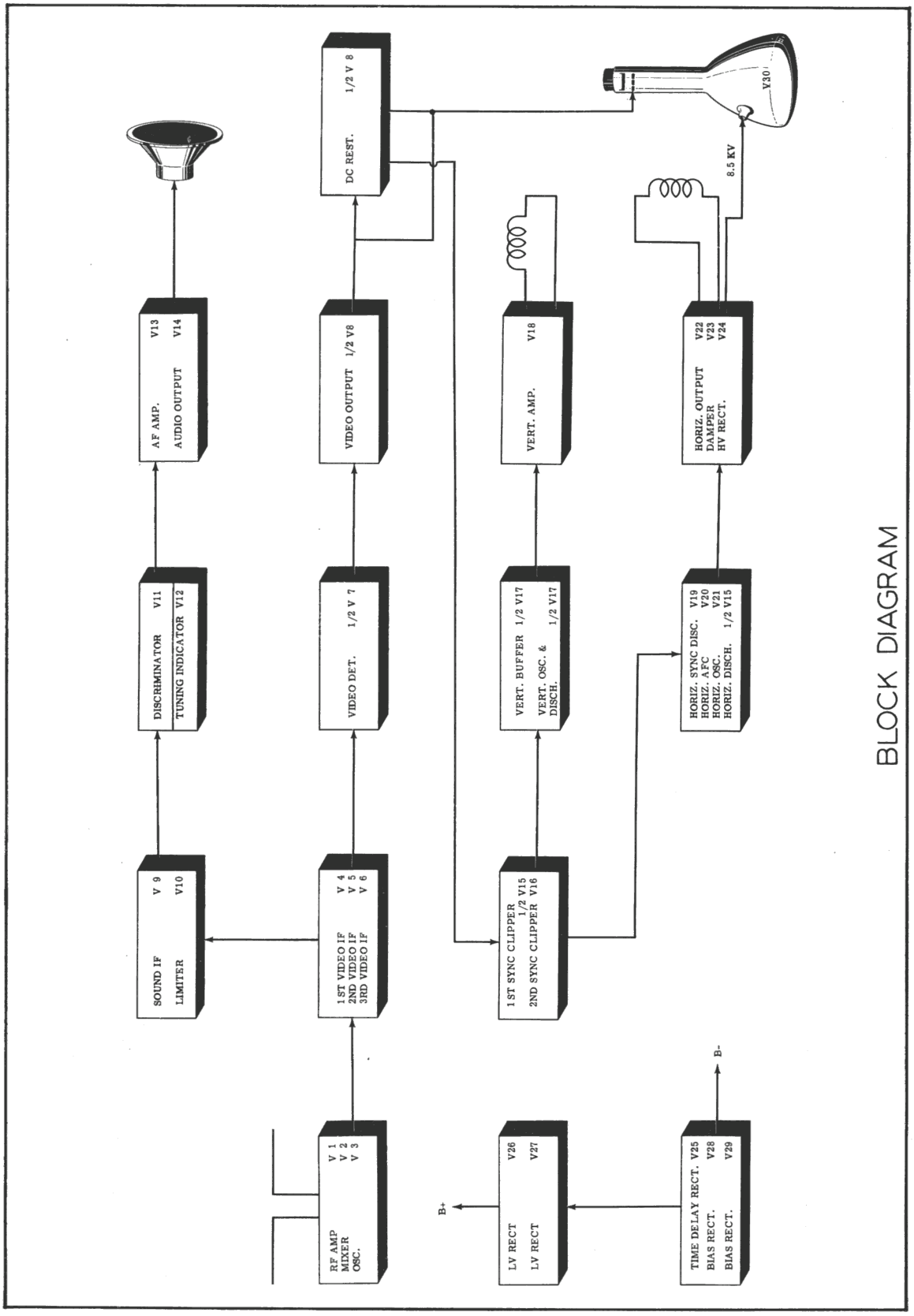
Rotate vertical hold control until picture falls out of sync. Adjust control until picture falls out of sync. Adjust control until picture falls back into sync and note this position. Repeat this procedure in opposite direction from above. Mid-way between these positions is the correct setting.

There are two vertical position controls; a coarse control switch on rear of the receiver main chassis, and a fine control adjacent to the switch. Adjust these two controls until the picture is properly centered vertically.

Adjust the vertical size control until picture fills the mask vertically. Adjust the vertical linearity control until picture is linear from top to bottom. Slight readjustment of vertical size control may be necessary.

## PICTURE TUBE SENSITIVITY CONTROL ADJUSTMENT

If the picture tube is replaced, the picture tube sensitivity control (R12) should be adjusted as follows. Turn the contrast fully counter-clockwise. Adjust brightness control until DC voltmeter connected between brightness control arm and chassis reads 45 volts. Adjust the picture sensitivity control until raster on screen just disappears.


BLOCK DIAGRAM
RF AMP V 1
MIXER V 2
OSC. V 3
1ST VIDEO IF V 4
2ND VIDEO IF V 5
3RD VIDEO IF V 6
SOUND IF V 9
LIMITER V10
DISCRIMINATOR V11
TUNING INDICATOR V12
A.F AMP. V13
AUDIO OUTPUT V14
VIDEO DET. 1/2 V 7
VIDEO OUTPUT 1/2 V8
DC REST. 1/2 V 8
1ST SYNC CLIPPER 1/2 V15
2ND SYNC CLIPPER V16
VERT. BUFFER 1/2 V17
VERT. OSC. & DISCH. 1/2 V17
VERT. AMP. V18
HORIZ. SYNC DISC. V19
HORIZ. AFC V20
HORIZ. OSC. V21
HORIZ. DISCH. 1/2 V15
HORIZ. OUTPUT V22
DAMPER V23
HV RECT. V24
8.5 KV
V30
LV RECT V26
LV RECT V27
B+
TIME DELAY RECT. V25
BIAS RECT. V28
BIAS RECT. V29
B-