

CABINET-REAR VIEW

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE DEVICES

A circuit breaker is used for AC line protection. (See photo, Cabinet - Rear View.)

A .6-amp fuse is used for vertical sweep circuit protection. (See photo, Cabinet - Rear View.)

A 4-amp fuse is used for CRT filament protection. (See Placement Chart.)

LAMP ACCESSIBILITY

Tuner assembly must be removed. See Disassembly Instructions.

VHF/UHF TUNER

The fine tuning mechanically engages tuning control for adjustment (one control for each position).

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horiz. Hold Coil. (See photo, Cabinet - Rear View.)

FOCUS

The focus may be varied by a focus control. (See photo, Cabinet - Rear View.)

AGC

The AGC may be varied by an AGC Delay control. (See photo, Cabinet - Rear View.)

CENTERING

Vertical centering is accomplished by proper adjustment of the vertical centering control. (See photo, Cabinet - Rear View.)

SET 1558 FOLDER 2

ZENITH CHASSIS
23GC45, 25GC45/45Z

PHOTOFACT® Folder with CIRCUITRACE™

For Supplier Address See PHOTOFACT Index

| MODEL | CHASSIS | MODEL | CHASSIS |
|-----------|---------|------------|---------|
| G4541W | 23GC45 | G4751P | 25GC45 |
| G4543W | 23GC45 | G4754E | 25GC45 |
| G4545P | 23GC45 | G4760X | 25GC45 |
| G4547M | 23GC45 | G4762P | 25GC45 |
| G4548P,DE | 23GC45 | G4764E | 25GC45 |
| G4549PN | 23GC45 | G4766M | 25GC45 |
| G4550DE,P | 23GC45 | G4767PN | 25GC45 |
| #GT2858W | 23GC45 | G4768P | 25GC45 |
| #GT2860P | 23GC45 | G4769P | 25GC45 |
| SG2361P | 23GC45 | +G8748P | 25GC45 |
| SG2362PN | 23GC45 | GT2873P | 25GC45 |
| G4740W | 25GC45 | GT2875M | 25GC45 |
| G4742W | 25GC45 | GT2877P | 25GC45 |
| G4744P | 25GC45 | GT2881DE,P | 25GC45 |
| G4746M | 25GC45 | S2923W | 23GC45 |
| G4748P,DE | 25GC45 | S2926P | 23GC45 |
| G4749E | 25GC45 | S2937W | 25GC45 |
| G4750X | 25GC45 | --- | 25GC45Z |

+ Uses Radio Ch. 15WFR55

Use Remote Control Receiver A-00709/9-128-01 and Transmitter 124-9

Model G4746M

SAFETY PRECAUTIONS

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HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed.

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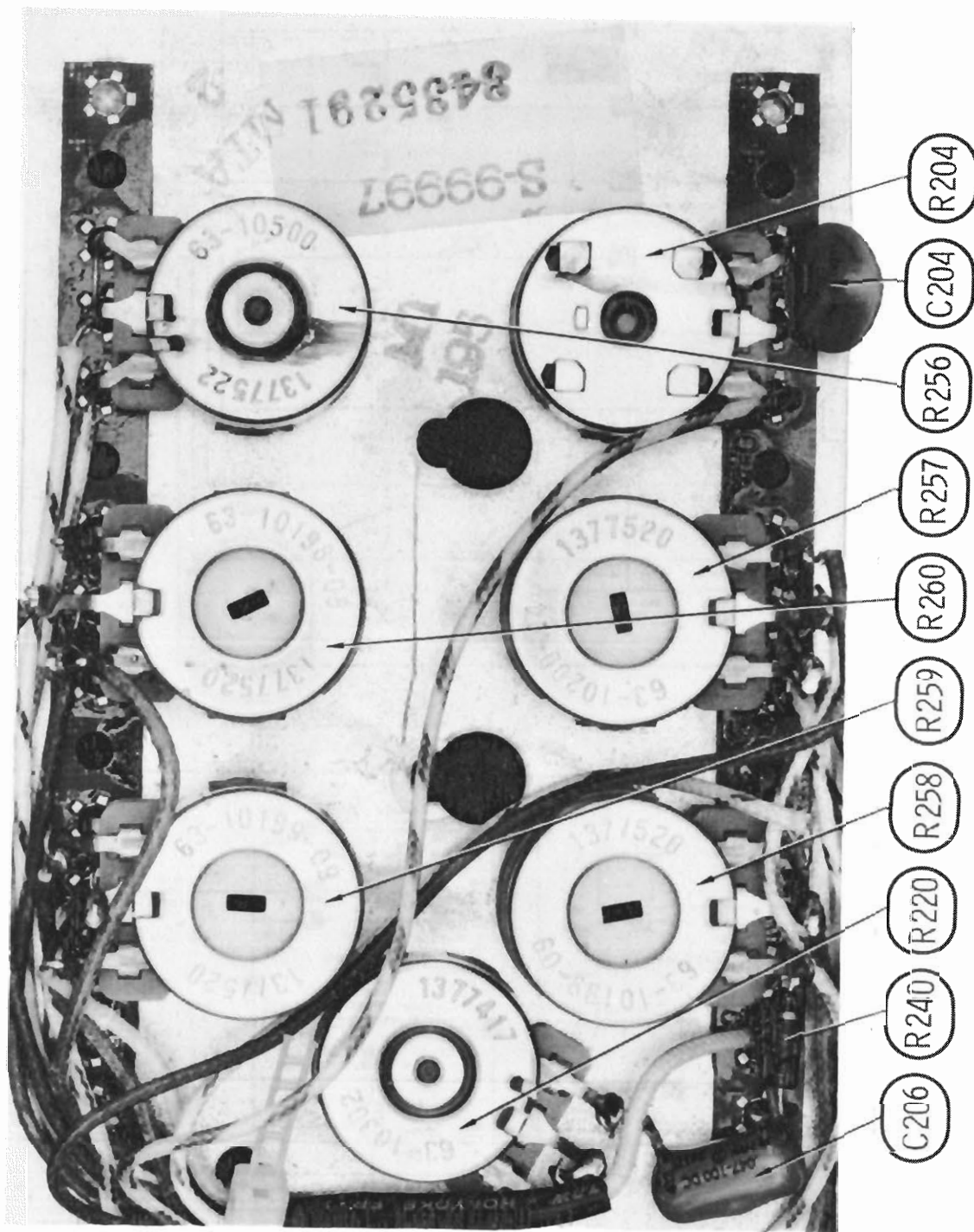
SPD1468

DATE 4-76

SET 1558 FOLDER 2

ZENITH CHASSIS
23GC45, 25GC45/45Z

SET 1558 FOLDER 2



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove three screws holding cabinet back. Release five twist tabs holding cabinet back and remove back.

Remove one screw holding top left corner of chassis. Loosen side brackets and tilt chassis out for service.

Disconnect CRT socket, HV anode lead, speaker wires, degaussing coil, deflection yoke plug, convergence assembly plug, three plugs to tuner controls, two wires to tuner assembly and ground straps.

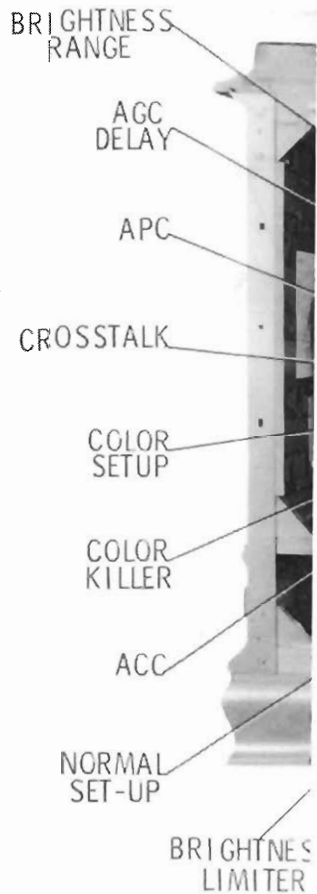
Remove five screws holding chassis and lift chassis from cabinet.

NOTE: CRT may be changed at this point of disassembly.

Remove all knobs. Remove two screws holding switch and two screws holding control bracket. Remove three screws holding tuner controls. Remove control brackets from cabinet. Lamps are now accessible.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set face down on a soft protective surface. Remove blue lateral assembly and convergence and deflection yokes from CRT neck. Remove two screws holding degaussing shield together. Lift CRT from cabinet. Do not lift CRT by the neck.



CRT IMPLOSION PROTECTION

Implosion protection is a picture tube, cleaning and removal.

FUSE DEVICES

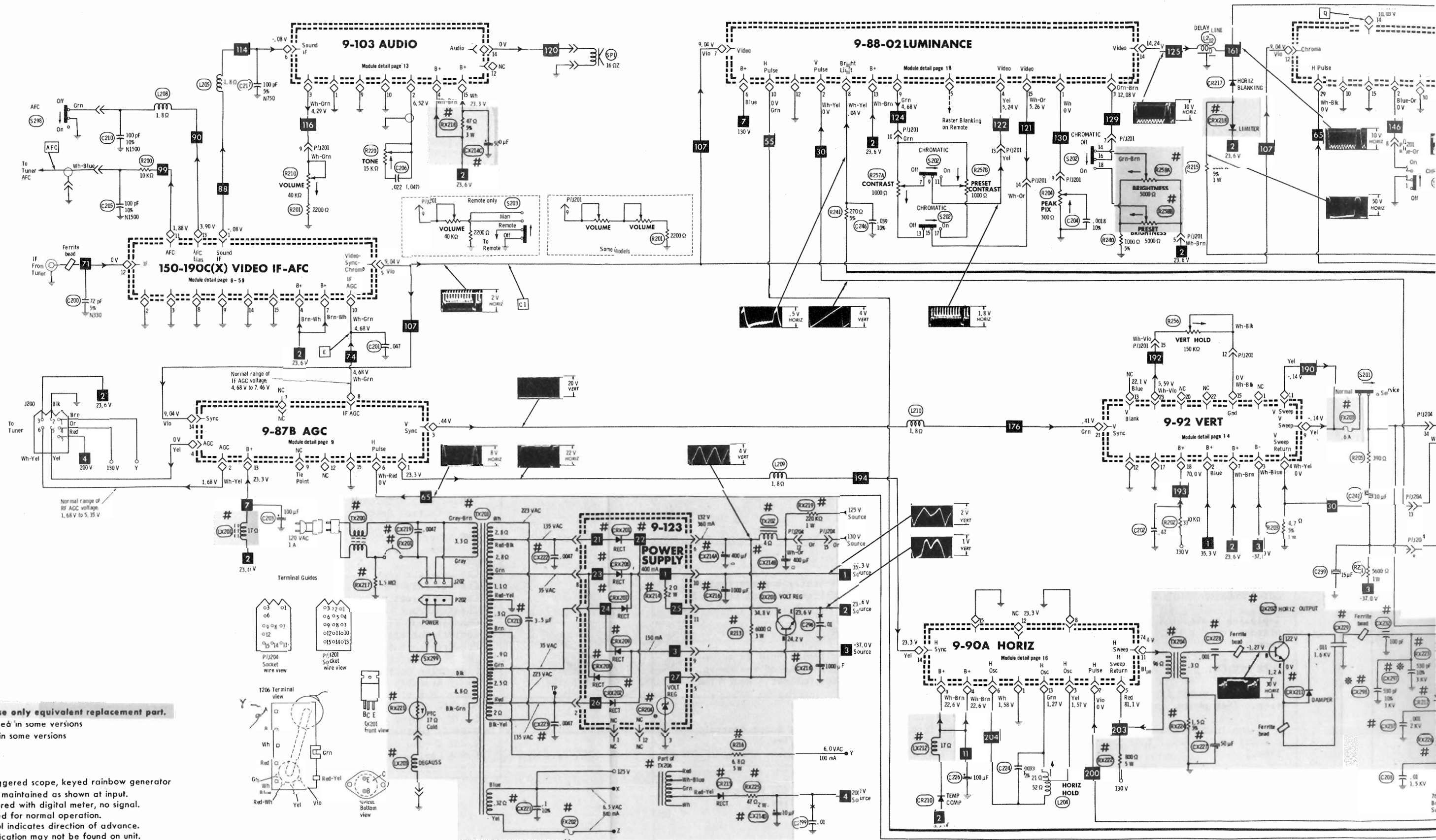
A circuit breaker is used for protection. (See photo, Cabinet View.)

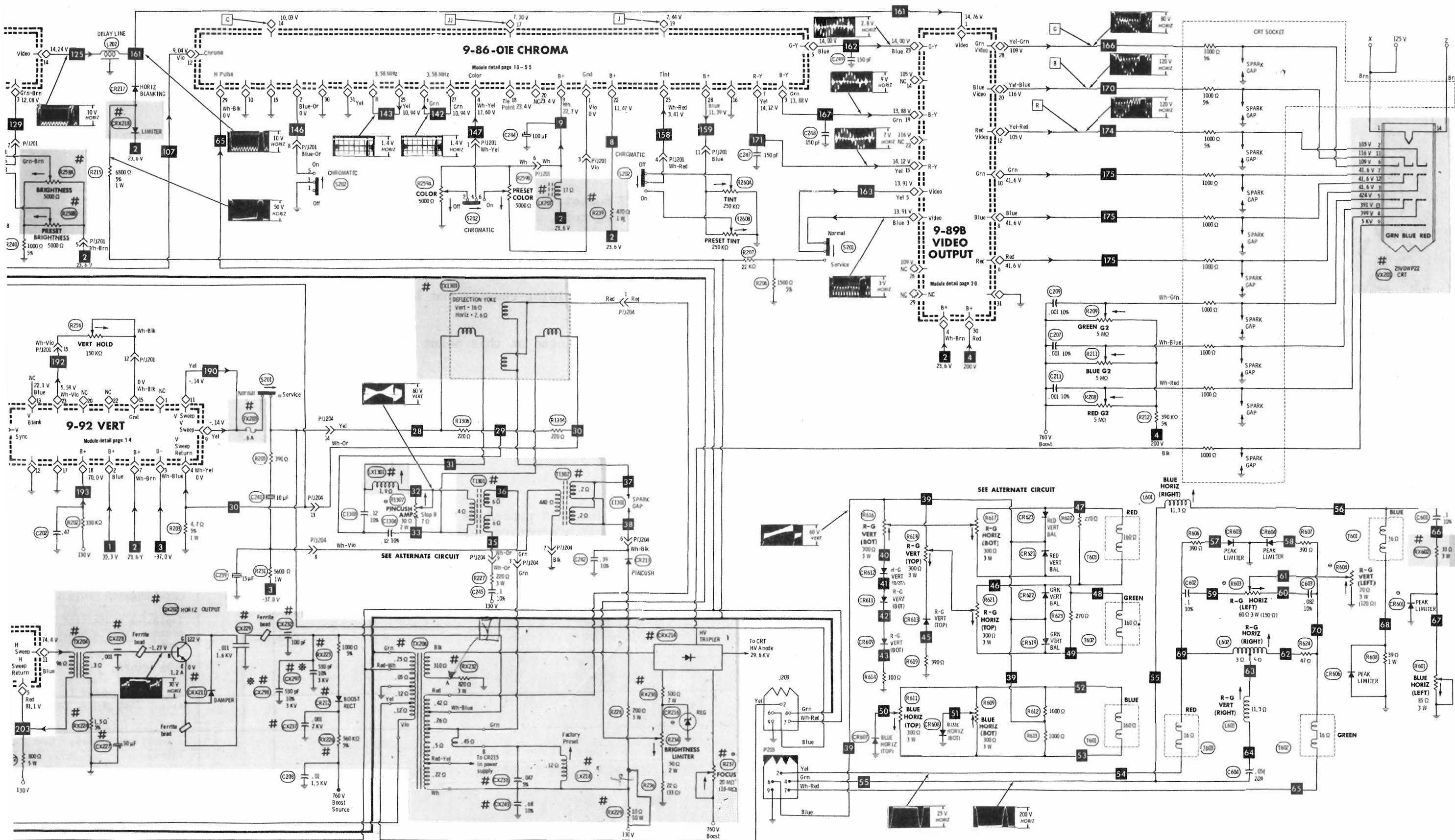
A .6-amp fuse is used for circuit protection. (See View.)

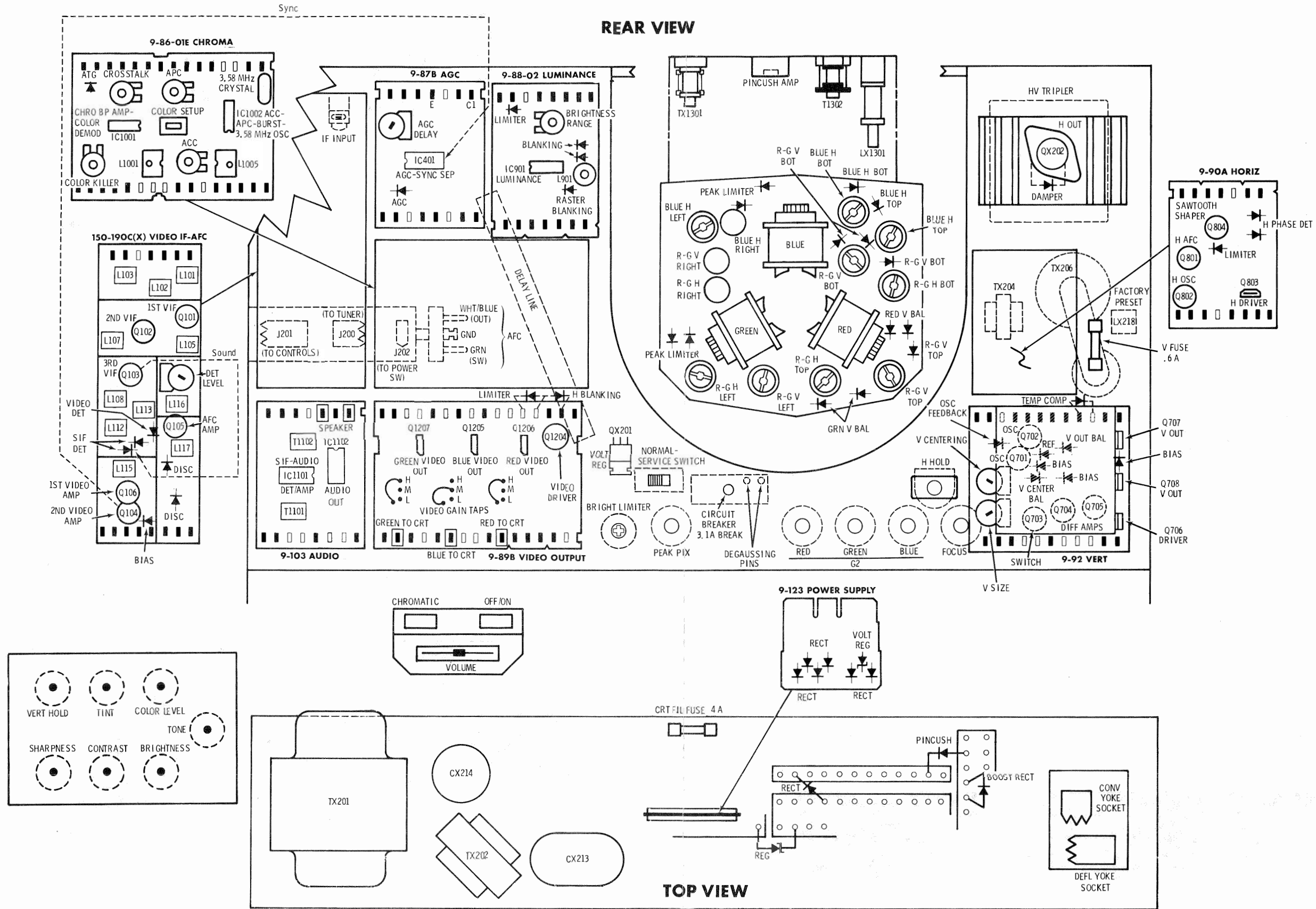
A 4-amp fuse is used for protection. (See Placement Chart.)

LAMP ACCESSIBILITY

Tuner assembly must be removed by Instructions.







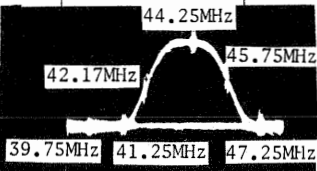
TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain line voltage at 120VAC. Allow a 20-minute warm-up period for receiver and test equipment.
Suggested Alignment Tools: GC ELECTRONICS
VHF Tuner IF Output Coil, L101, L102, L103, L901, L1005, L105, L107, L108, L112, L113, L115, L116, L117, T1101, T1102 9296, 9297, 9300

PRELIMINARY INSTRUCTIONS

Set the channel selector to the highest unused channel. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication.
Note: Response may vary slightly from that shown.
Connect a +7.2 volt bias supply to E, low side to ground. Place AFC switch to off.
Connect a voltmeter to C1, low side to ground. With no signal, adjust detector level control, R125, for +8.5 volts DC ± 0.2 volts. Disconnect meter after making this adjustment.

VIDEO IF ALIGNMENT

| CONNECT SCOPE | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | REMARKS |
|--|--|---------------------------|----------------------------|--|
| Vertical input to C1, low side to ground. | Thru .001uF to A on VHF tuner, low side to ground. | 44MHz (10MHz Sweep) | 39.75MHz | Adjust L102 for MINIMUM. See Figure 1. |
| | | | 41.25MHz | Adjust L112 Top and Bottom for MINIMUM. See Figure 1. |
| | | | 47.25MHz | Adjust L103 Top and Bottom for MINIMUM. See Figure 1. |
|  | " | " | 39.75MHz | Adjust L101 Top and Bottom, L105 Top and Bottom, L107, L108, L113 and VHF Tuner IF Output for maximum gain and symmetry of response. L101 Bottom and L113 affect 45.75MHz marker. L101 Top and L108 affect 44.25MHz. L105 and L107 affect 44.25MHz and 42.17MHz markers. VHF Tuner IF Output affects overall response. See Figure 2. |
| | | | 41.25MHz | |
| | | | 47.25MHz | |

4.5MHz TRAP ALIGNMENT

Tune in a strong TV signal and set the contrast at maximum. Adjust the fine tuning until a beat pattern is visible on the screen. Adjust L115 for MINIMUM beat interference.

AFC ALIGNMENT

AFC switch to "On" position. Connect as explained in preliminary instructions. Disconnect AFC output lead (white/blue wire). Adjust detector level as explained in preliminary instructions, if necessary.

| CONNECT SCOPE | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | REMARKS |
|--|--|---------------------------|----------------------------|--|
| Vertical input to AFC output terminal. | Thru .001uF to A on VHF tuner, low side to ground. | 44MHz (10MHz Sweep) | 45.75MHz | Adjust L116 and L117 Bottom for maximum gain and symmetry of response. See Figure 3. |
| " | " | " | " | Adjust L117 Top for placement of 45.75MHz marker. See Figure 3. |

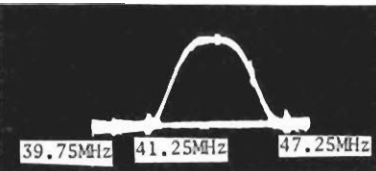


FIG. 1

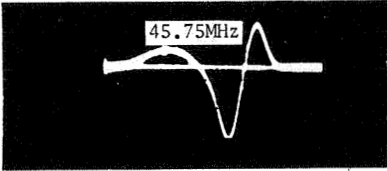


FIG. 3

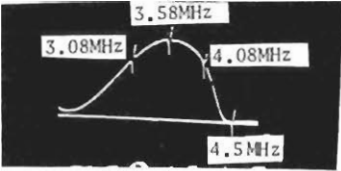
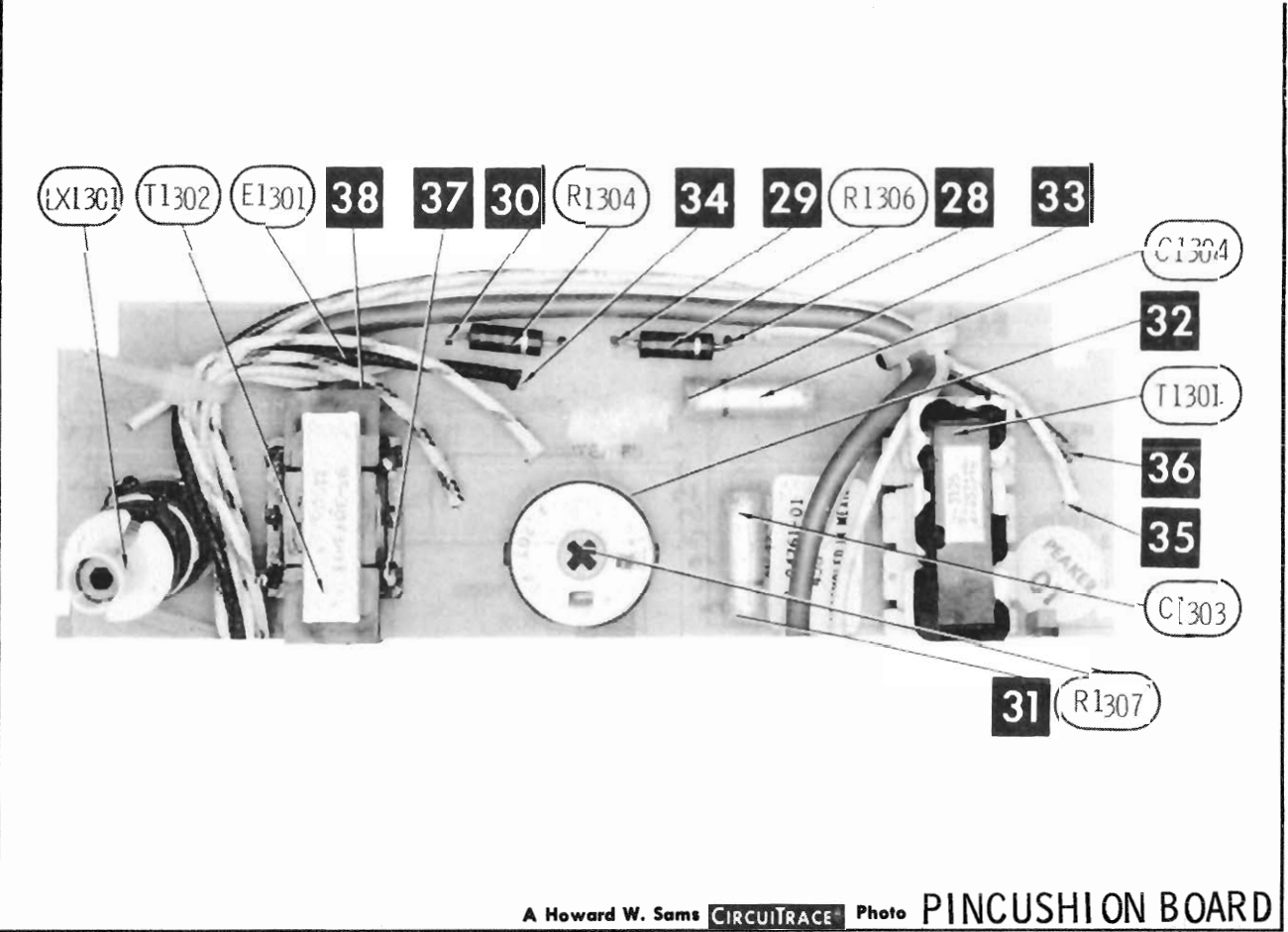
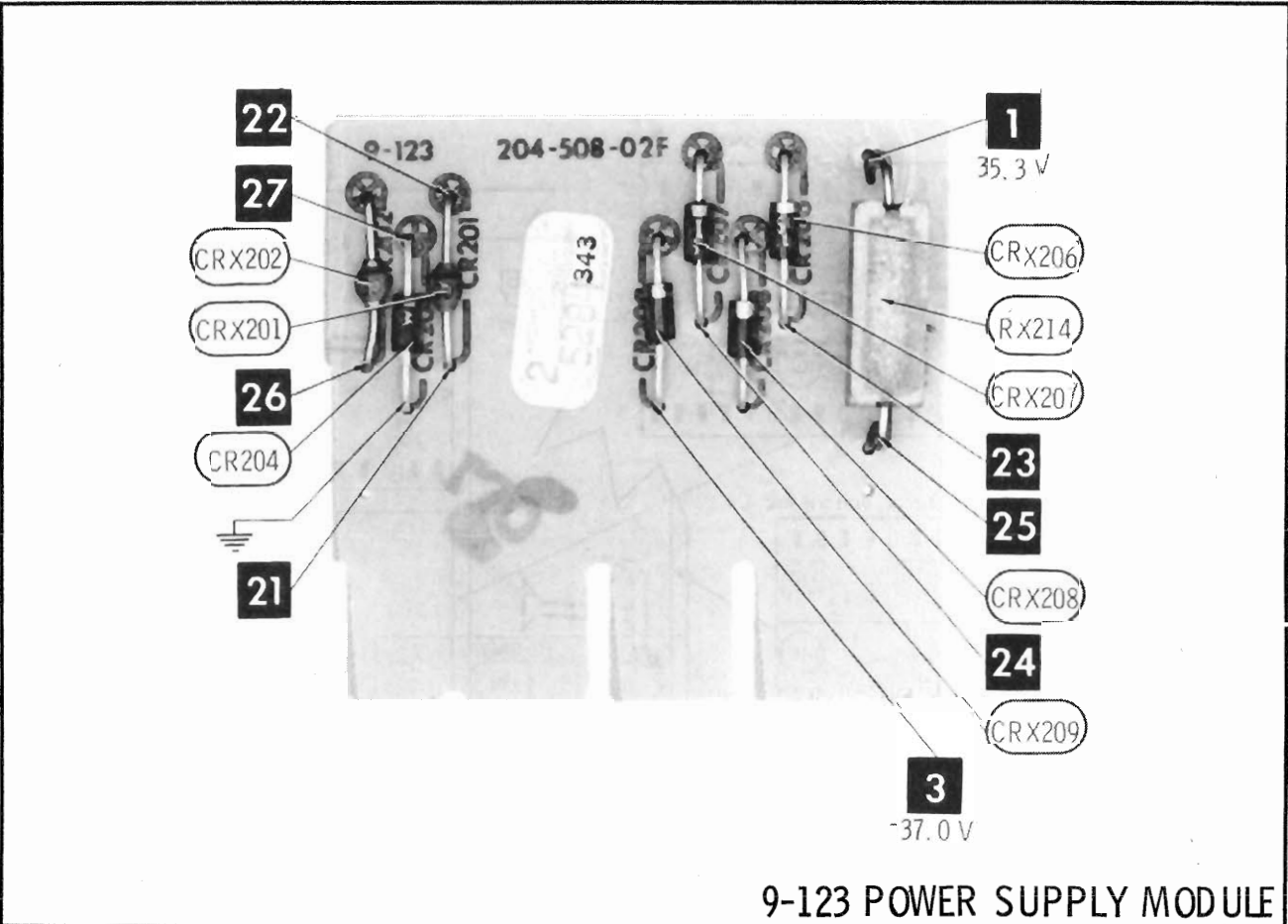


FIG. 4



A Howard W. Sams CIRCUITRACE Photo PINCUSHION BOARD

FOLDER 2

RESISTANCE MEASUREMENTS

| MEASUREMENTS BELOW TAKEN WITH METER HAVING .08V MAX BETWEEN PROBE TIPS | | | | | | | | | | | | | | |
|--|-------|--------|--------|-------|-------|---------|---------|---------|-------|--------|--------|--------|----------------|----------------|
| ITEM | PIN 1 | PIN 2 | PIN 3 | PIN 4 | PIN 5 | PIN 6 | PIN 7 | PIN 8 | PIN 9 | PIN 10 | PIN 11 | PIN 12 | PIN 13 | PIN 14 |
| VX201 | FIL | 30K | 85K | 1.5M | 1.8M | 30K | 85K | NC | 50M | NC | 30K | 85K | 1.6M | FIL |
| IC401 | 470K | 6500 | INF(2) | 150K | 3700 | 380 | 1500 | 1600 | 10K | 0 | INF | 4500 | 2200 | INF |
| | | | | | | | | | | | | | PIN 15 3400 | PIN 16 1000 |
| IC901 | 30K | 0 | INF(2) | 34 | 0 | 500K | 700 | 170 | 4800 | INF | INF(2) | 7500 | 650 | 780 |
| | | | | | | | | | | | | | PIN 15 35K | PIN 16 35K |
| IC1001 | 35K | 2600 | 8000 | 38K | 0 | 1000 | INF | INF | 2000 | 2000 | 2000 | 140 | 7800 | 140 |
| | | | | | | | | | | | | | PIN 15 35K | PIN 16 35K |
| IC1002 | 8200 | 700 | 700 | 35K | 0 | 5000 | 550 | 1000 | 550 | 550 | 35K | 35K | 720K | 720K |
| | | | | | | | | | | | | | PIN 15 35K | PIN 16 35K |
| IC1101 | INF | INF | 0 | 0 | 770 | 14K | 10K | 1M | 7000 | 7000 | INF | 12K | 6700 | 60K |
| IC1102 | 0 | 56K | 0 | 0 | 0 | INF | INF | INF | 420 | 0 | 0 | 0 | INF | 0 |
| ITEM | E | B | C | | ITEM | E | B | C | | ITEM | E | B | C | |
| Q101 | 1000 | 4000 | 2600 | | Q701 | 150K | 150K | 17K | | Q801 | 270 | 220K | 3M | |
| Q102 | 680 | 1500 | 2600 | | Q702 | 0 | 15K | 3000 | | Q802 | 200 | 10K | 28K | |
| Q103 | 100 | 750 | 800 | | Q703 | 0 | 15K | 1M | | Q803 | 15 | 180 | INF(2) | |
| Q104 | 680 | 1800 | 1100 | | Q704 | 20K (1) | 40K (1) | 40K (1) | | Q804 | 330 | 0 | 35K (1) | |
| Q105 | 470 | 1800 | 1000 | | Q705 | 20K (1) | 28K | 40K (1) | | Q1204 | INF | 1000 | 0 | |
| Q106 | 1400 | 4000 | 1800 | | Q706 | 40K (1) | 40K (1) | INF(2) | | Q1205 | INF | 3000 | 27K | |
| QX201 | 380 | INF(2) | INF(2) | | Q707 | 26 | 7000(1) | 6000(1) | | Q1206 | INF | 3000 | 27K | |
| QX202 | 0 | 1.8 | INF(2) | | Q708 | 26 | INF(2) | 40K (1) | | Q1207 | INF | 3000 | 27K | |

(1) This reading will vary depending upon the condition of the electrolytic in the circuit.
(2) Reading depends upon polarity of meter connections.

TROUBLESHOOTING CHECK CHART

| The following chart lists component failures most likely to produce the indicated symptoms. | |
|--|---|
| PICTURE or SOUND No pic, no sound, no raster: Circuit Breaker, LV Rects No pic, no sound, has raster: Video IFs, Tuner Mixer No pic, no sound, has snow: Tuner RF/Mixer/Osc No pic, has sound, no raster: CRT No pic, has sound, has raster: Video Amps/Driver Has pic, no sound: Sound IF/Det, Audio Det/Amp/Output Overloaded picture: AGC, Video Det Low or excessive brightness: Horiz Blanking, Brightness Limiter | SYNC No vert sync: Vert Osc No horiz sync: Horiz Phase Det/AFC/Osc No vert/horiz sync: Sync Sep RASTER Yellow (no blue): Blue Video Out, CRT Cyan (no red): Red Video Out, CRT Magenta (no green): Green Video Out, CRT COLOR (B/W operating normally) No color: Burst, Chroma Bandpass Weak color: Chroma Bandpass No color sync: Burst, 3.58MHz Osc No green: Color Demod, Green Video Out No blue: Color Demod, Blue Video Out No red: Color Demod, Red Video Out Incorrect hue (tint): Burst, Color Demod |
| SWEEP No raster, has sound: Horiz Osc/Driver/Output, Damper, Sawtooth Shaper, HV Tripler, CRT No vert deflection: Vert Osc/Sw/Diff Amp/Driver/Output Poor vert lin or foldover: Vert Osc/Sw/Diff Amp/Driver/Output Poor horiz lin or foldover: Horiz Output, Damper Narrow picture: LV Rect, Horiz Osc/Driver/Output, Damper Vert off frequency: Vert Osc Horiz off frequency: Horiz Phase Det/AFC/Osc | |

TV ALIGNMENT INSTRUCTIONS (Continued)

SOUND IF ALIGNMENT

Tune in a station and adjust T1101 (Black Dot) for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting T1102 (Green Dot).

3.58MHz TRAP ALIGNMENT

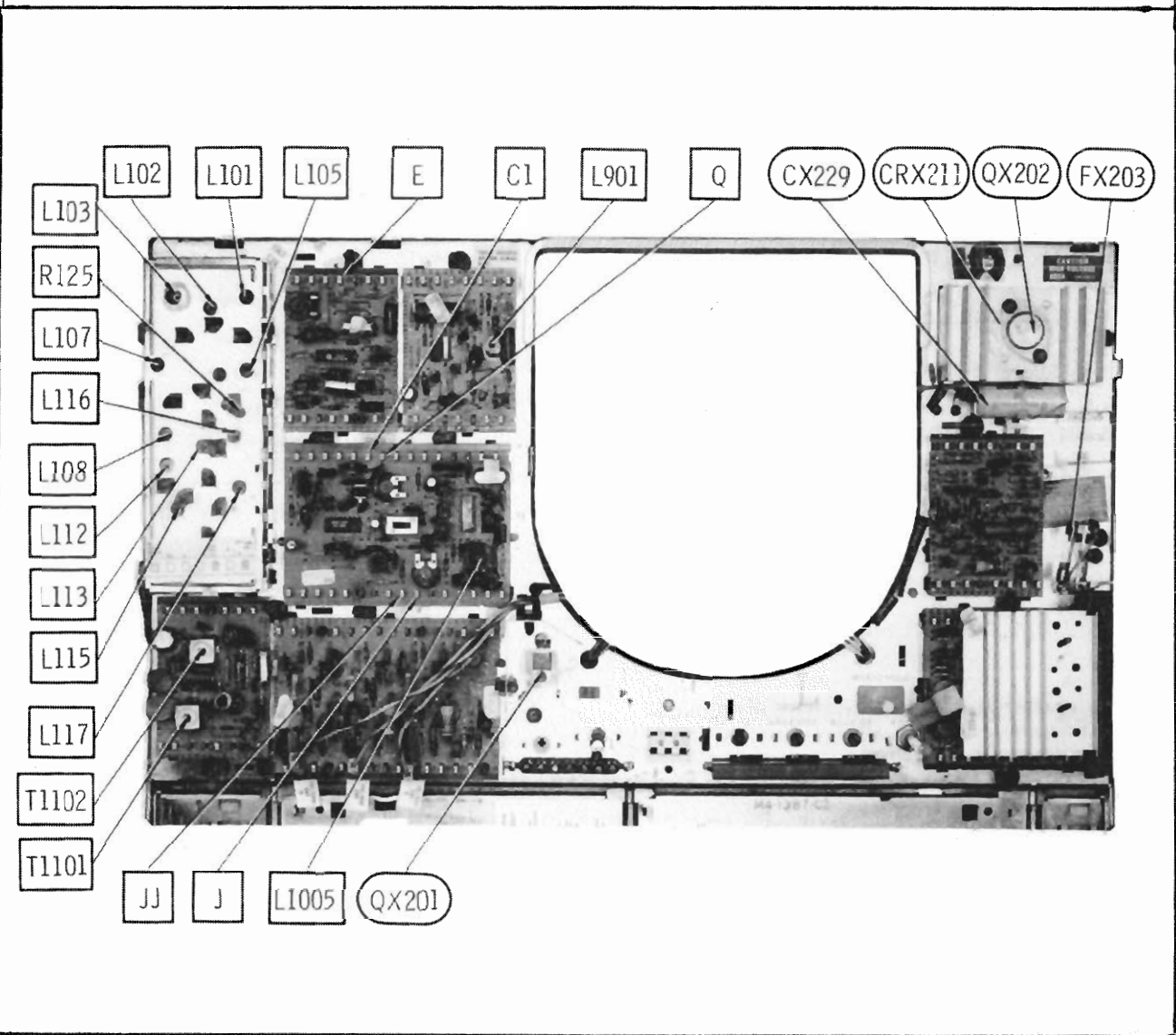
Connect scope and signal generator across 3.58MHz Trap, L901. Set generator for 3.58MHz and adjust L901 for maximum indication on scope. This adjustment is made with the set turned off.

CHROMA BANDPASS ALIGNMENT

Connect as explained in preliminary instructions. Set color control to maximum, tint control to mid-range, and color killer fully clockwise.

| CONNECT SCOPE | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | REMARKS |
|--|--|---------------------------|-------------------------------|--|
| Vertical input thru detector probe to point X, low side to ground. | Thru .001mfd to test point A on VHF tuner, low side to ground. | 44MHz (10MHz Sweep) | 3.08MHz 3.58MHz 4.08MHz | Adjust L1001 for maximum gain and symmetry of response. See Figure 4. |
| | | | (4.5MHz Trap) | Inability to obtain proper bandpass alignment may be due to misadjustment of the 4.5MHz trap. Adjust L115 for MINIMUM at 4.5MHz. |

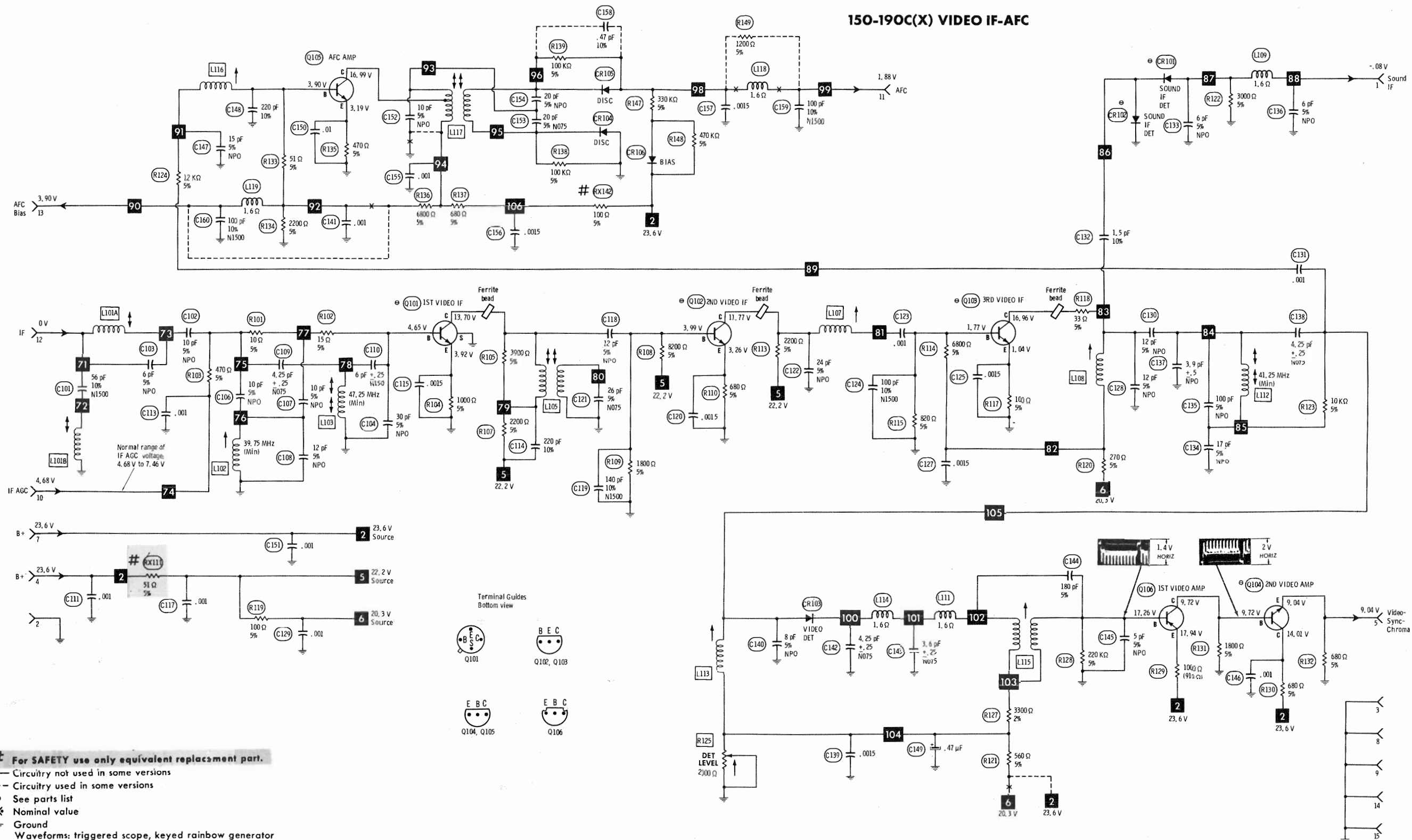
After completing Chroma Bandpass Alignment, reset color killer. (Refer to Miscellaneous Adjustments.)



ZENITH CHASSIS
236C45, 256C45/45Z

FOLDER 2

150-190C(X) VIDEO IF-AFC



For SAFETY use only equivalent replacement part.

— Circuitry not used in some versions

--- Circuitry used in some versions

⊕ See parts list

* Nominal value

⊥ Ground

Waveforms: triggered scope, keyed rainbow generator

Supply voltage maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Arrow at control indicates direction of advance.

Terminal identification may not be found on unit.

Resistors are 1/2W or less, 10% unless noted.

Value in () used in some versions.

A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH **CircuitTrace**

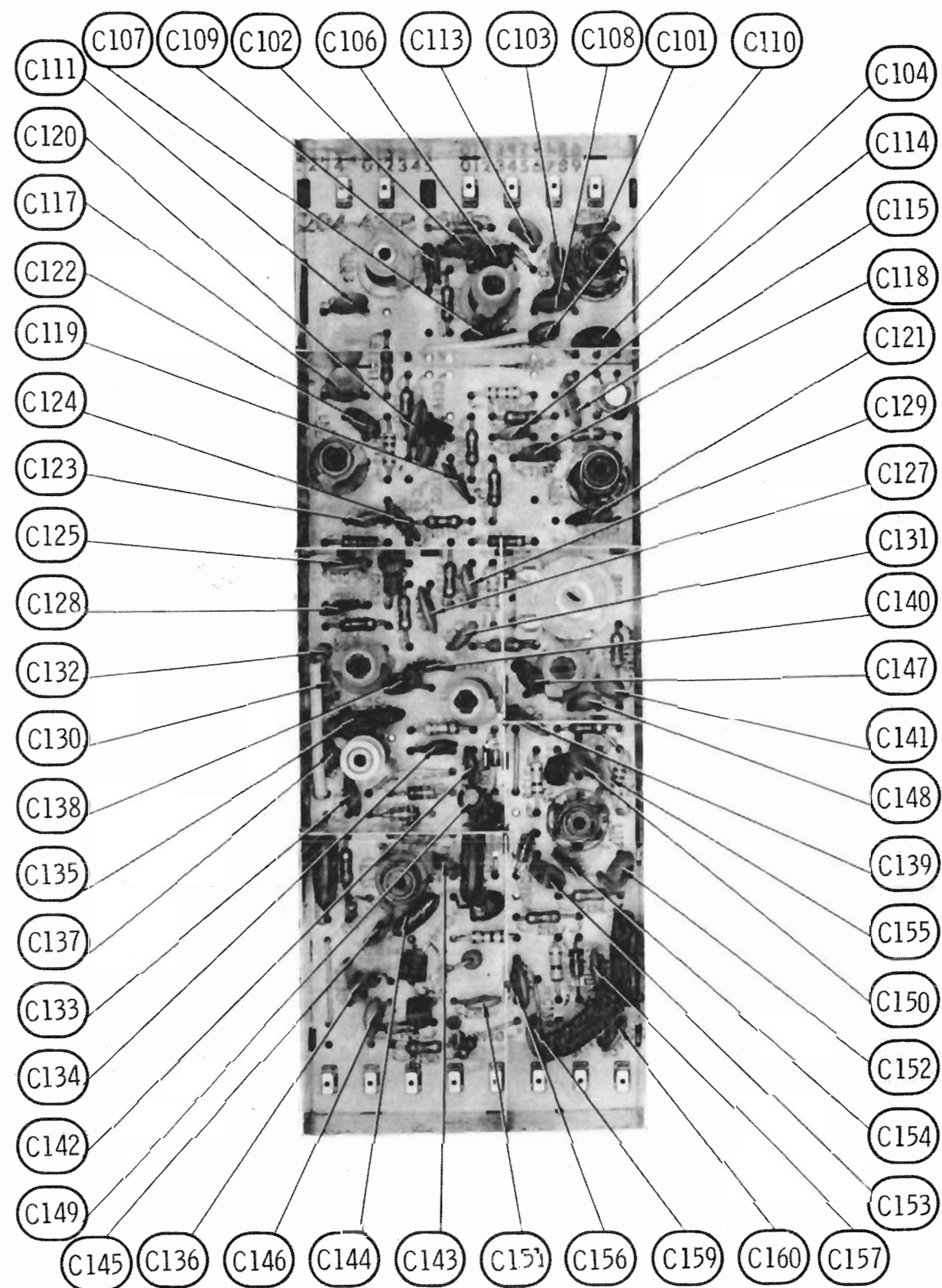
150-190(X) IF MODULE

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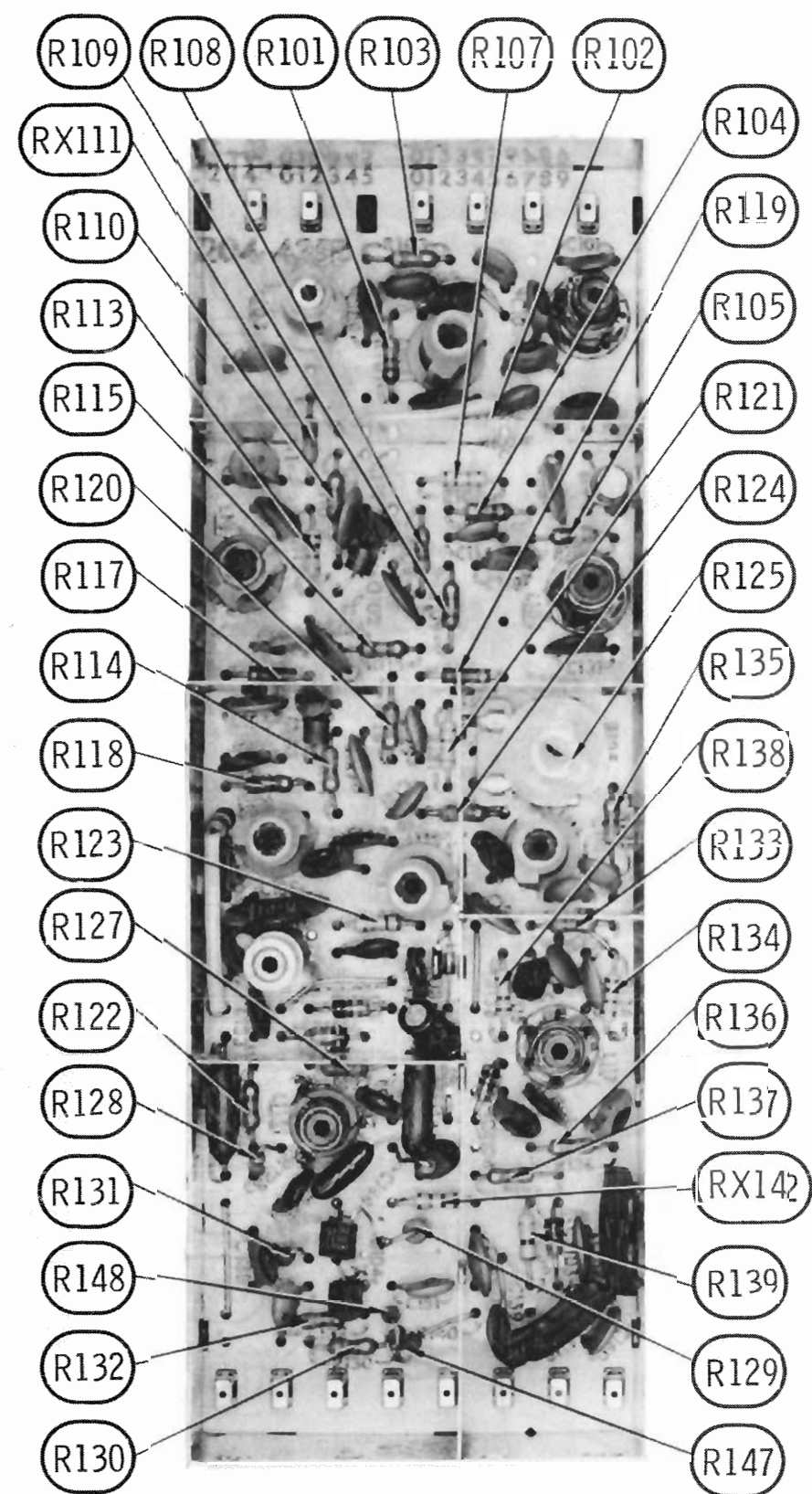
150-190C (X) IF MODULE

ZENITH CHASSIS
23GC45, 25GC45/45Z

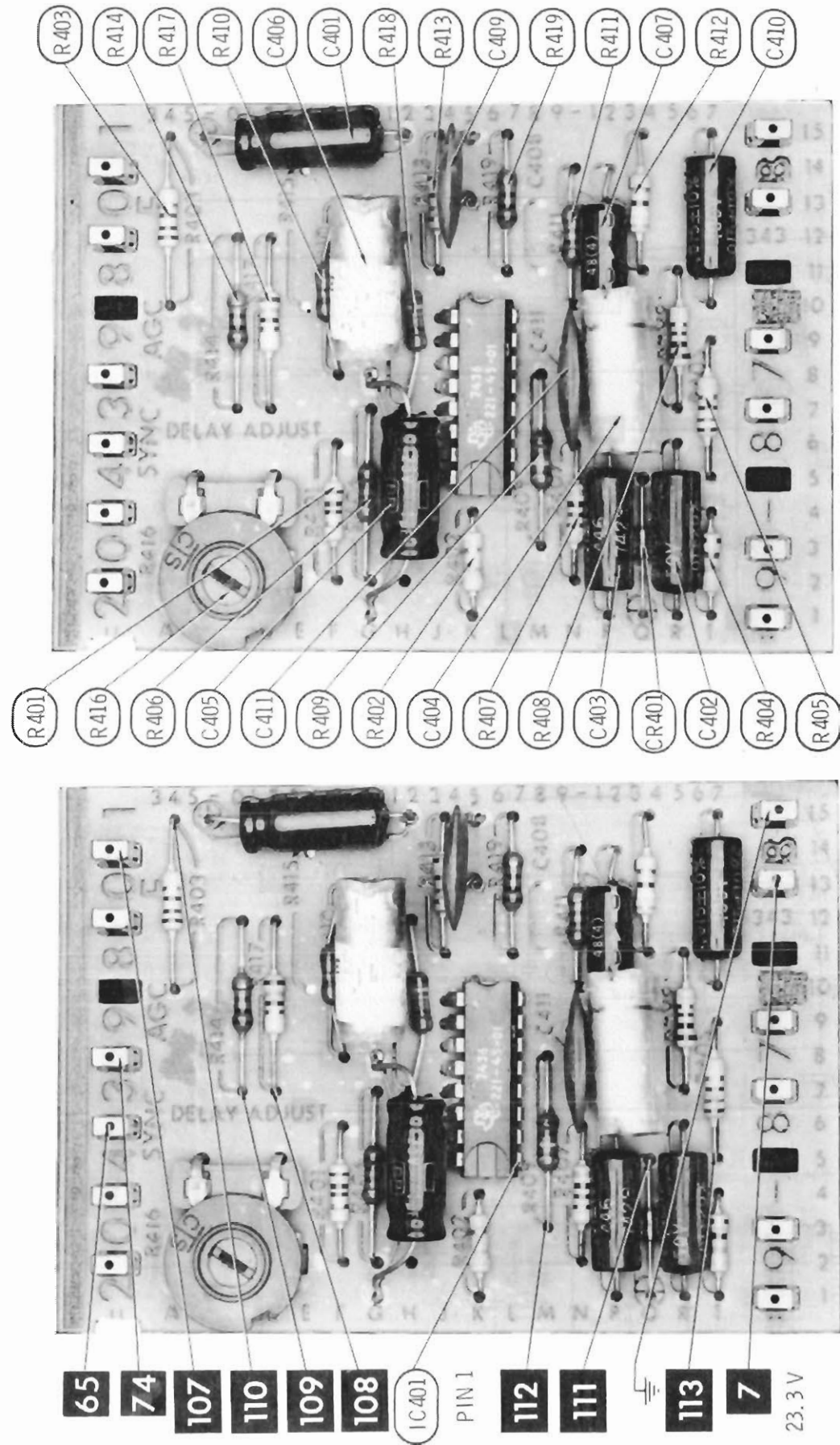
FOLDER 2



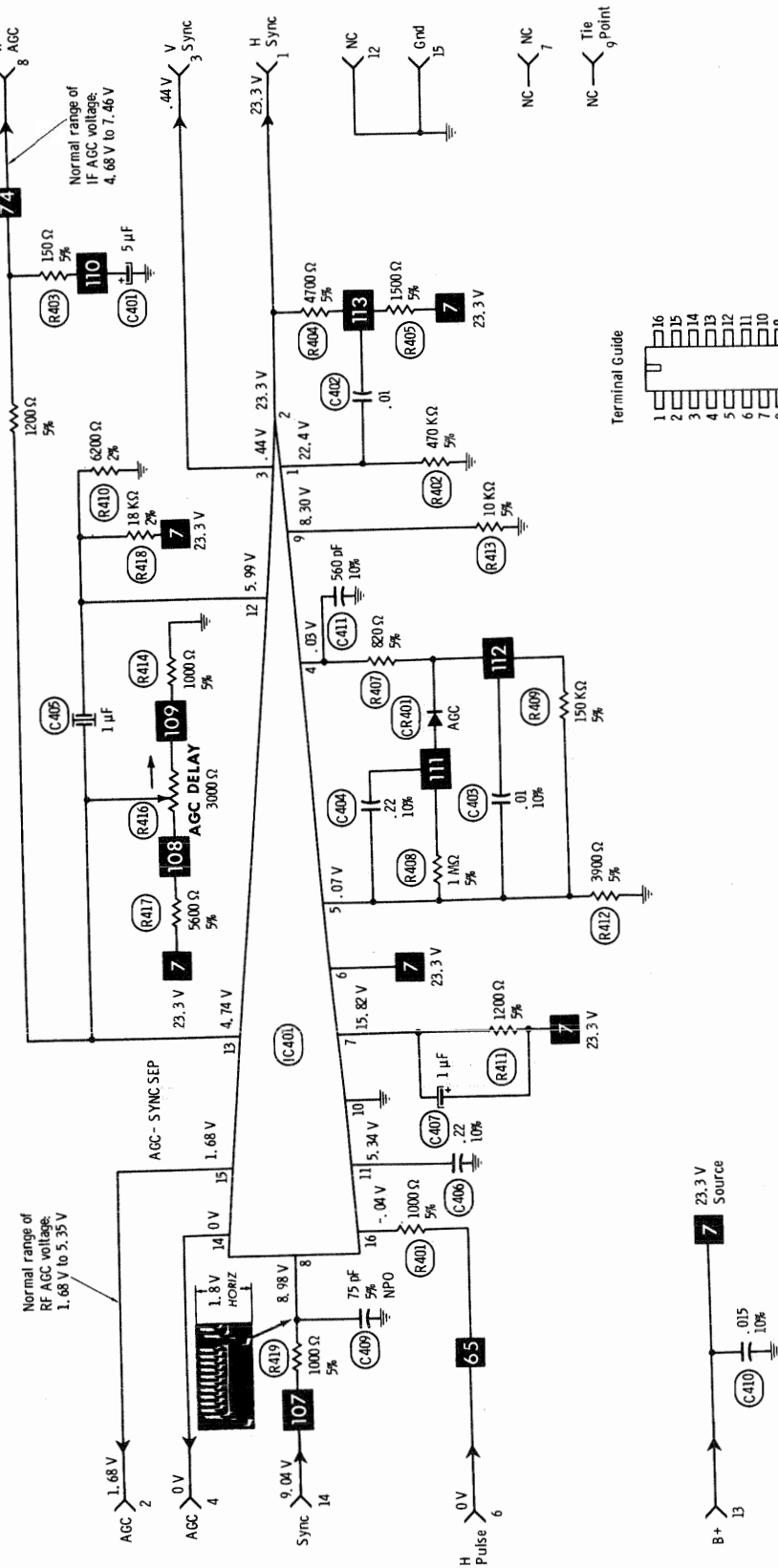
150-190C (X) IF MODULE



150-190C (X) IF MODULE



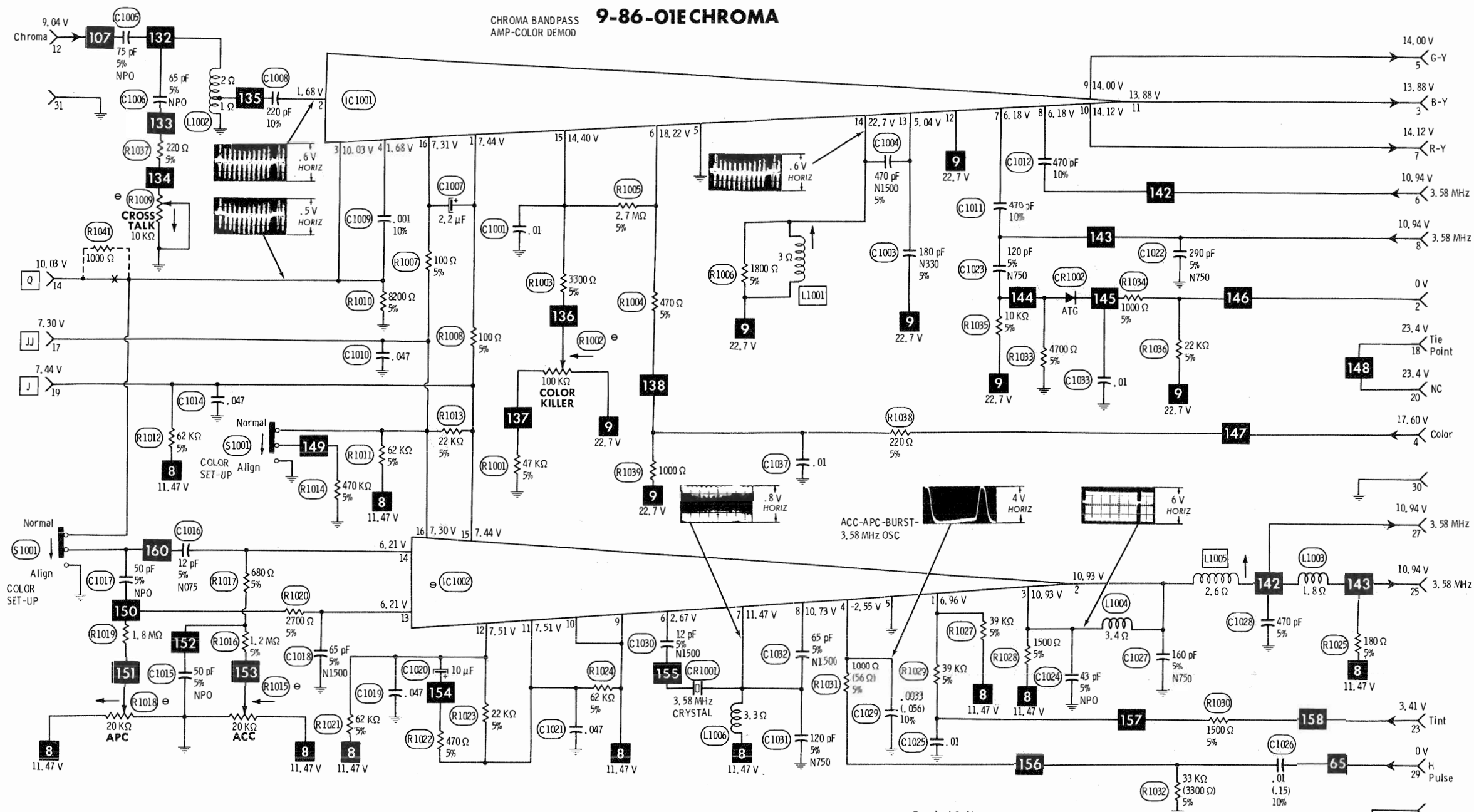
9-87B AGC



- *— Circuitry not used in some versions
- Circuitry used in some versions
- ⊗ See parts list
- * Nominal value
- ⊥ Ground
- A PHOTOFACET STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

Waveforms: triggered scope, keyed rainbow generator
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation of advance.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 10% unless noted.
Value in () used in some versions.

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For SAFETY use only equivalent replacement part.

— Circuitry not used in some versions

--- Circuitry used in some versions

⊖ See parts list

✱ Nominal value

⊕ Ground

Waveforms: triggered scope, keyed rainbow generator

Supply voltage maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Arrow at control indicates direction of advance.

Terminal identification may not be found on unit.

Resistors are 1/2W or less, 10% unless noted.

Value in () used in some versions.

A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH CIRCUITACE

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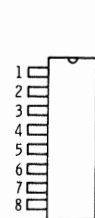
9-86-01 CHROMA MODULE

9-86-01 CHROMA MODULE

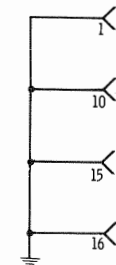
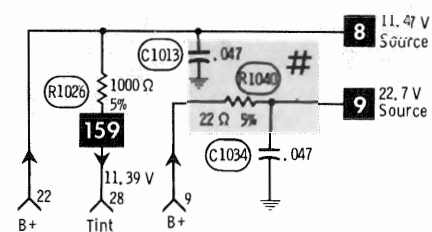
ZENITH CHASSIS
236C45, 256C45/45Z

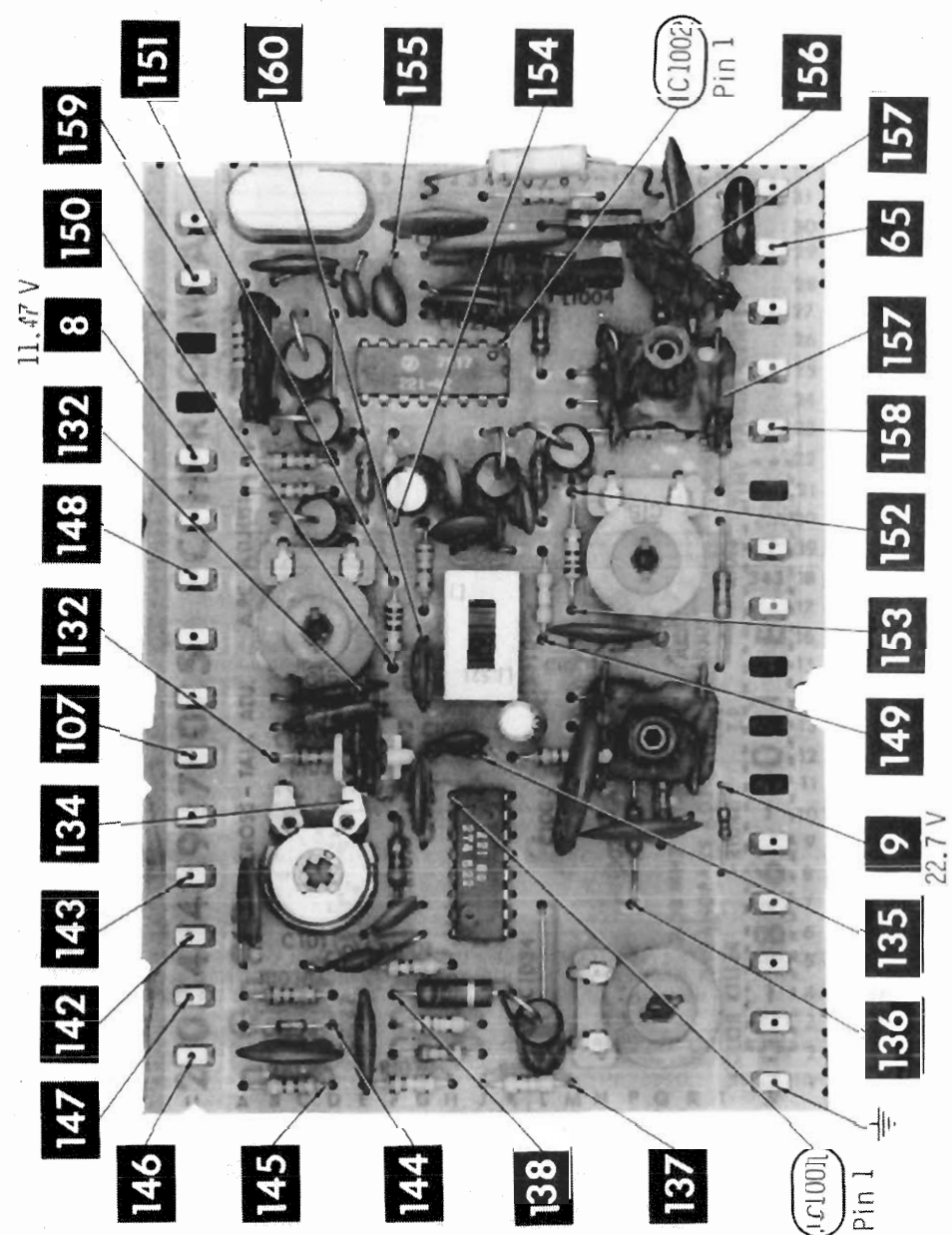
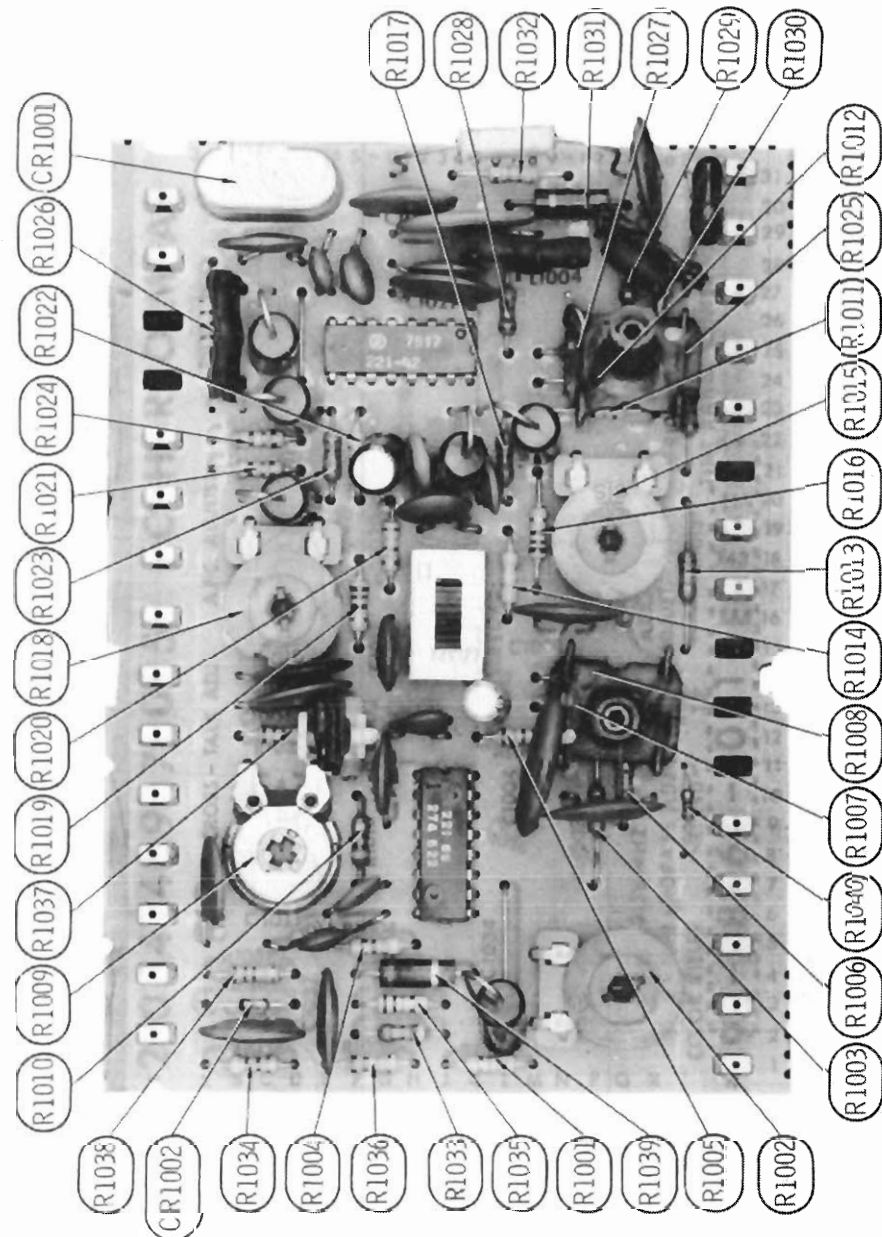
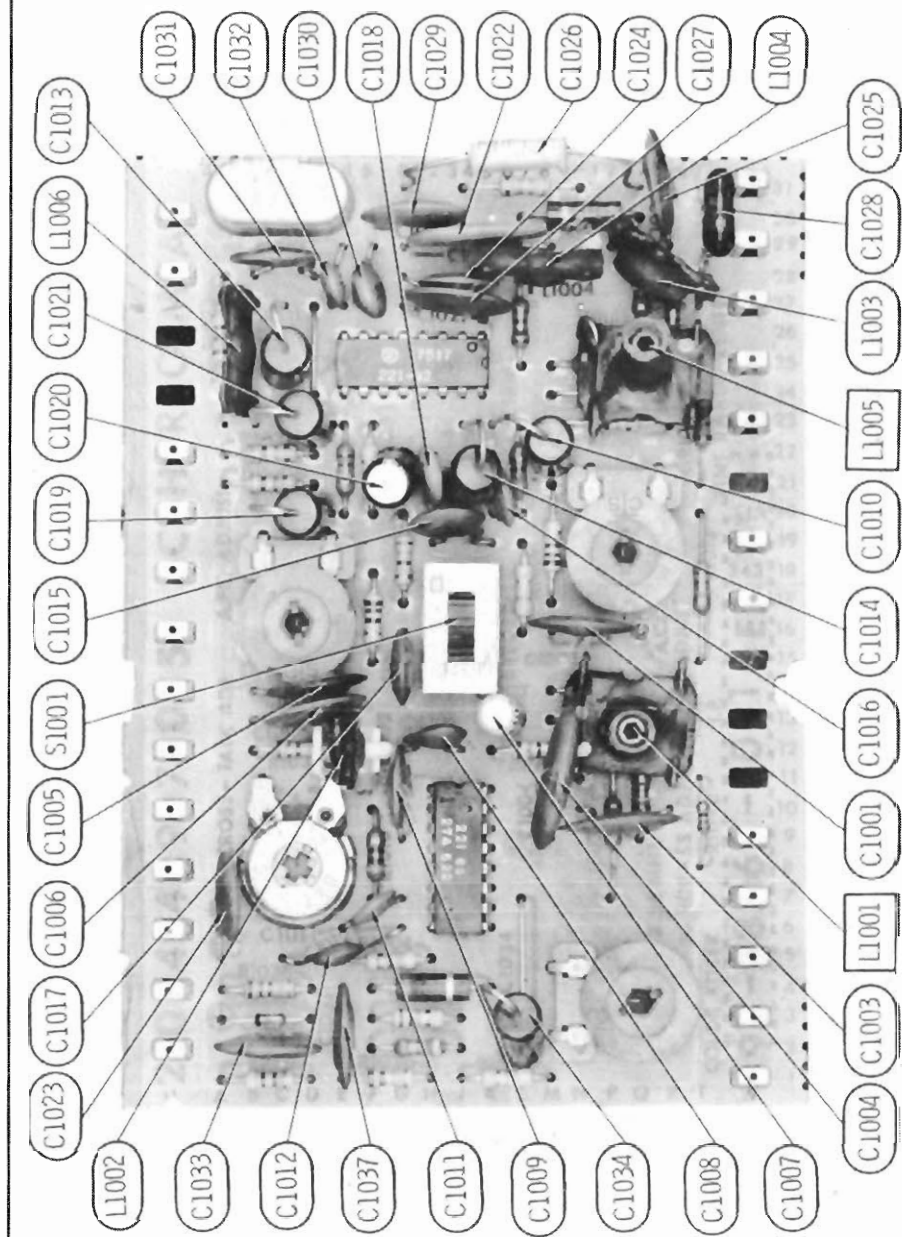
FOLDER 2

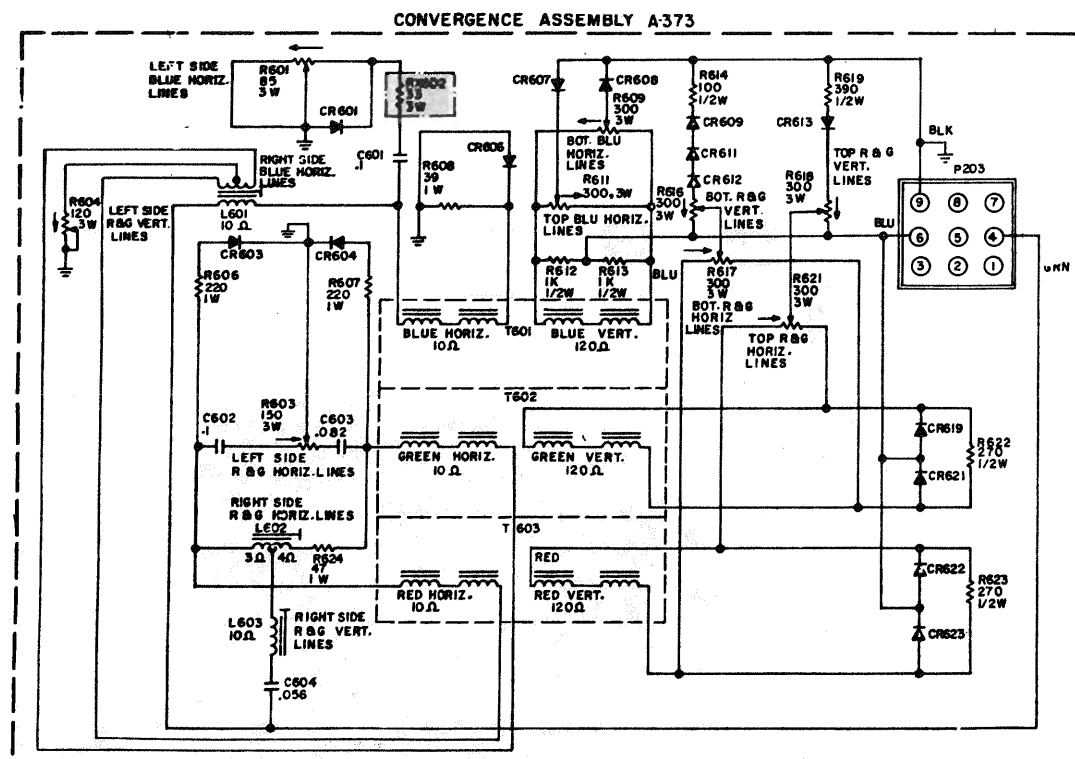
Terminal Guide



IC1001, IC1002
Top view





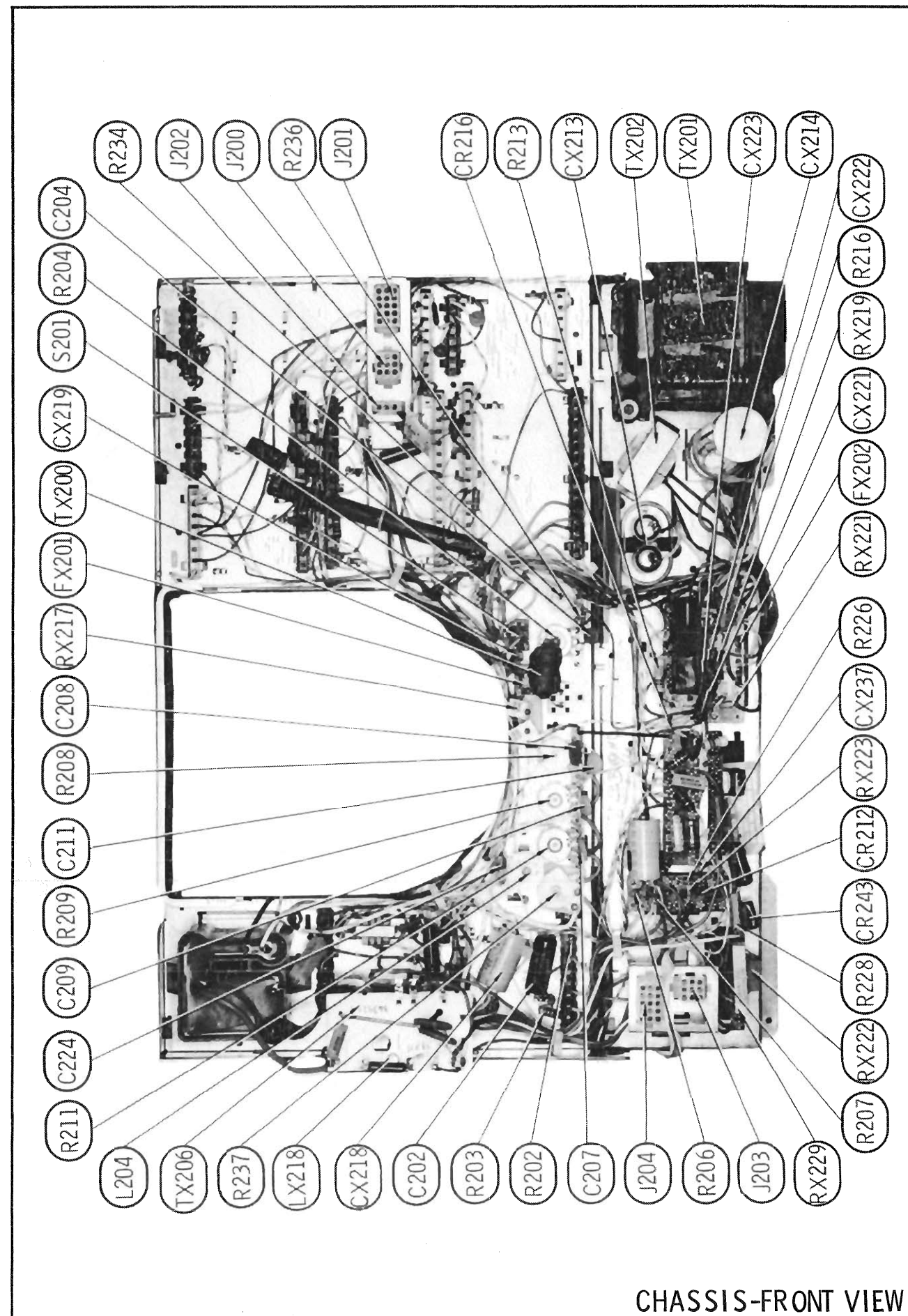


A-00373-01

| A-00373-01 | | | | | |
|--|-----------|---------------------------|------------------------------|-----------|----------------------------|
| PART NO. REFERENCE CODE | | | PART NO. REFERENCE CODE | | |
| A-00373 A | | | A-00373-01 B | | |
| NOTE: THIS COMBINED PARTS LIST WILL ENABLE YOU TO MORE EASILY DETERMINE THE PART NUMBER OF PARTS USED ON EACH MODEL, CHASSIS OR ASSEMBLY. EACH OF THESE HAS BEEN ASSIGNED A REFERENCE CODE WHICH IS IN THE COLUMN IMMEDIATELY TO THE RIGHT OF THE PART NUMBER. THE ABSENCE OF A REFERENCE CODE DENOTES THE PART IS USED ON ALL UNITS LISTED. | | | | | |
| CONVERGENCE UNIT ASSEMBLY COMPONENTS | | | | | |
| PART NO. | REF. CODE | DESCRIPTION | PART NO. | REF. CODE | DESCRIPTION |
| 19-733-01 | | CABLE RETAINING STRAP | 63-9023 | | RED/GREEN VERTICAL |
| 20-3578 | | COIL - RED/GREEN | | | LEFT CONTROL |
| 22-5473 | | VERTICAL RIGHT | 63-10379-36 | | 33 OHM RESISTOR 3W. 10% |
| | | .056 MF MYLAR CAPACITOR | 63-10567-48 | | 100 OHM RESISTOR 1/2W. 10% |
| | | ±10% 200V. | 63-10567-58 | | 270 OHM RESISTOR |
| 22-5634 | | .1 MF MYLAR CAPACITOR | | | 1/2W. 10% (2 REQ.) |
| | | ±10% 200V. (2 REQ.) | 63-10567-62 | | 390 OHM RESISTOR 1/2W. 10% |
| 22-5965 | | .082 MF MYLAR CAPACITOR | 63-10567-72 | | 1K OHM RESISTOR |
| | | ±10% 200V. | | | 1/2W. 10% (2 REQ.) |
| 43-571 | | 9 CONTACT HOUSING - MALE | 64-991 | | FLANGE EYELET (2 REQ.) |
| 63-6010 | | 39 OHM RESISTOR 1W. 10% | 83-8708 | | INSULATING STRIP - |
| 63-6014 | | 47 OHM RESISTOR 1W. 10% | | | ADHESIVE BACK |
| 63-6042 | | 220 OHM RESISTOR 1W. 10% | 86-390 | | TERMINAL - MALE |
| | | (2 REQ.) | | | (3 USED ON 43-571) |
| 63-9016 | | RED/GREEN HORIZ. TOP & | 95-3111 | | RED/GREEN HORIZ. |
| | | BOTTOM, RED/GREEN VERT. | | | RIGHT COIL |
| | | TOP & BOTTOM, BLUE HORIZ. | 95-3163 | | BLUE HORIZ. RIGHT |
| | | TOP & BOTTOM (6 REQ.) | | | TRANSFORMER |
| 63-9019 | | RED/GREEN HORIZ. | 103-142 | | SILICON DIODE - LOW |
| | | LEFT CONTROL | | | VOLTAGE (14 REQ.) |
| 63-9022 | | BLUE VERTICAL LEFT | 212-76 | | SILICON RECTIFIER |
| | | CONTROL | S-94731 | | COIL & MAGNET ASSEM. |
| | | | | | (RED, BLUE, GREEN) |

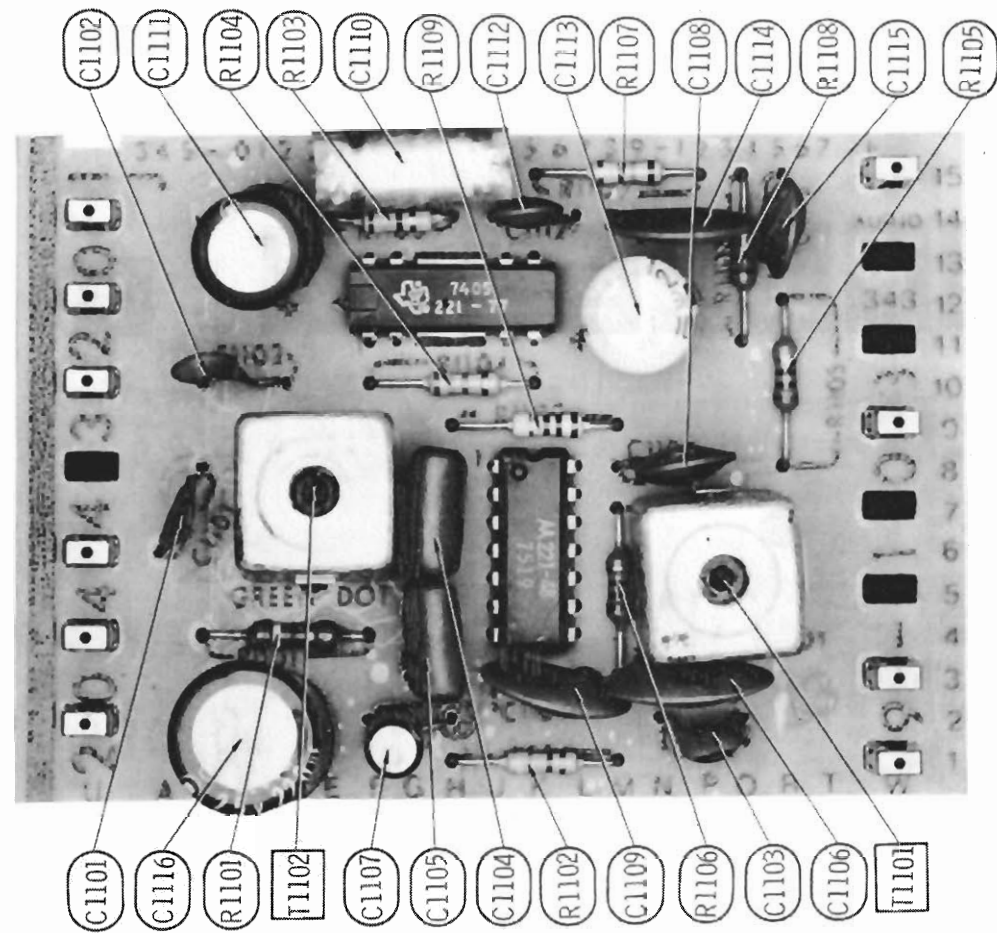
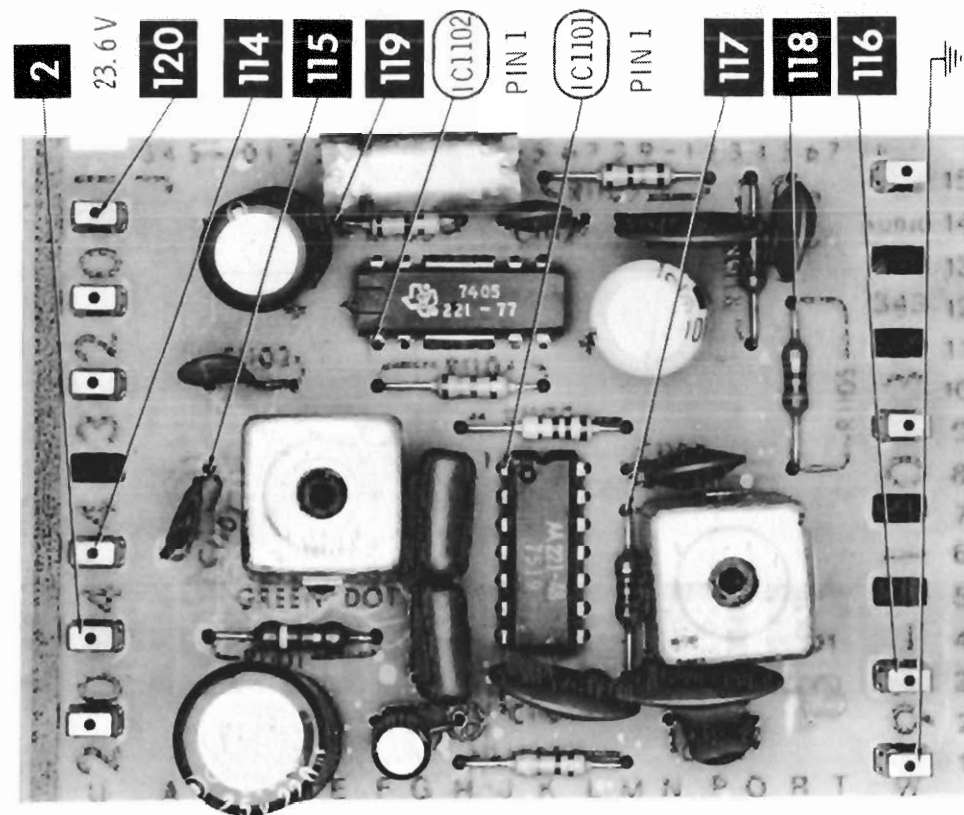
CONVERGENCE ALTERNATE

Courtesy of the Manufacturer



CHASSIS-FRONT VIEW

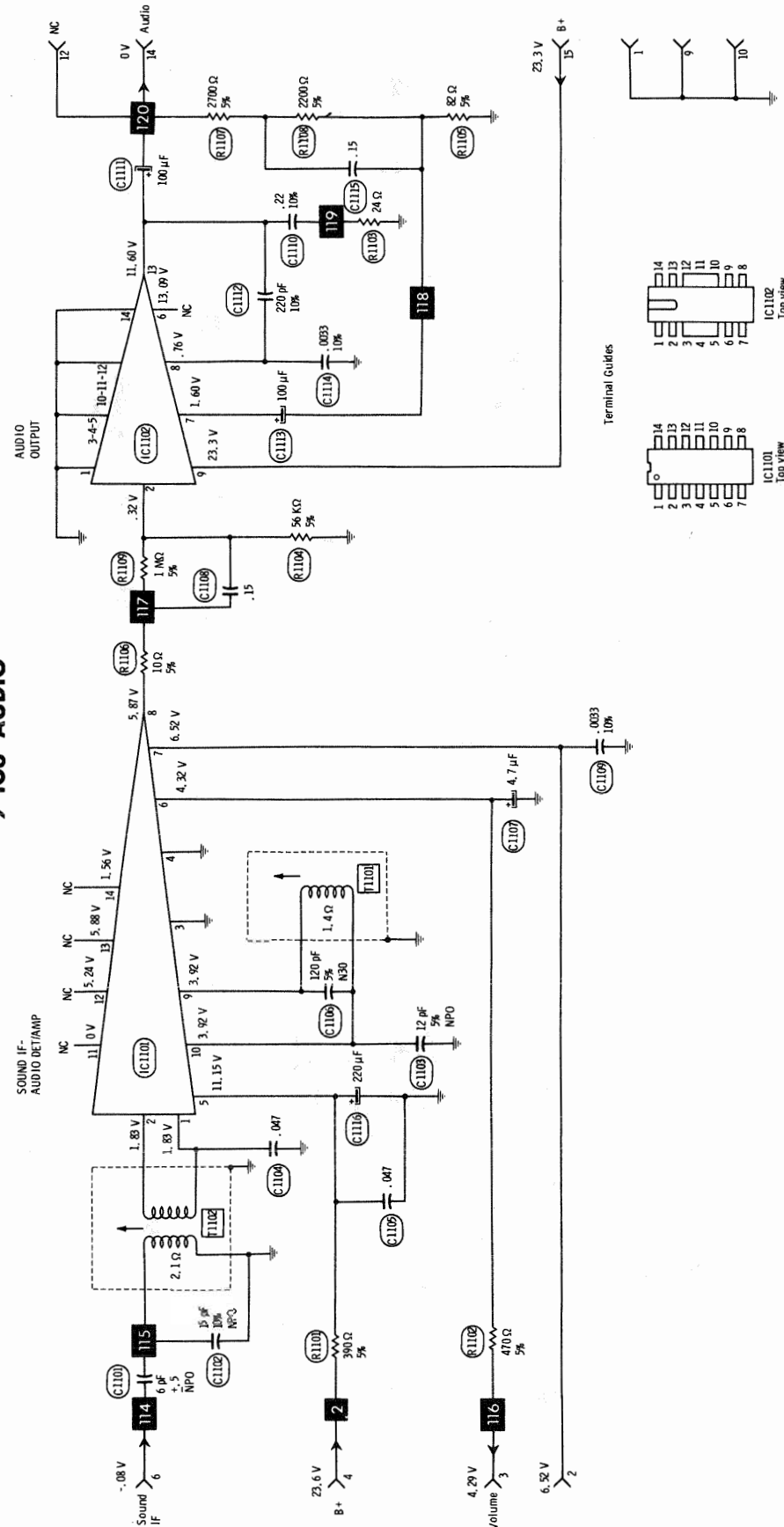
FOLDER 2



- Circuitry not used in some versions
- Circuitry used in some versions
- e See parts list
- * Nominal value
- ⊥ Ground

Waveforms: triggered scope, keyed rainbow generator
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 10% unless noted.
Value in () used in some versions.

9-103 AUDIO

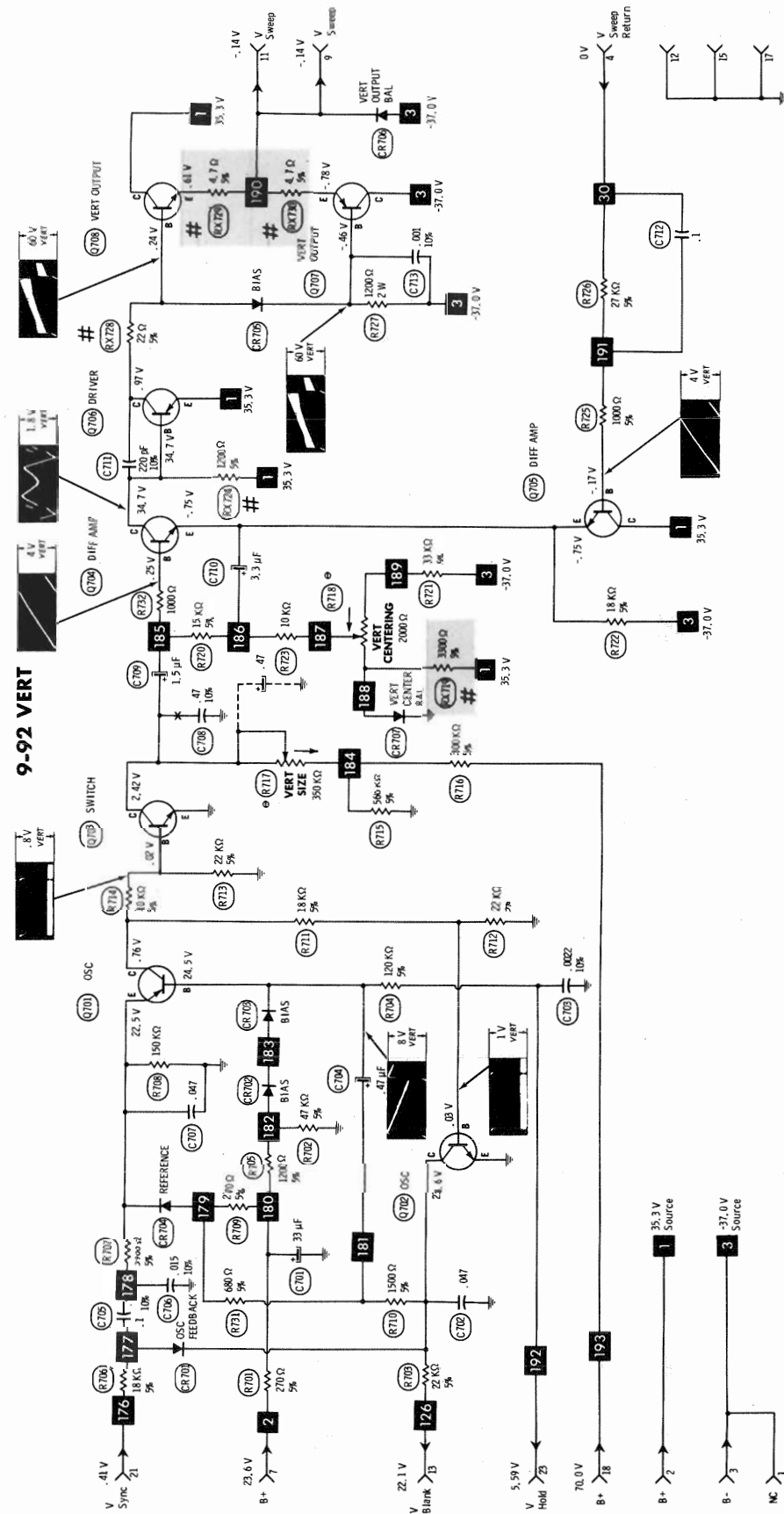


A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE
© Howard W. Sams & Co., Inc. 1976

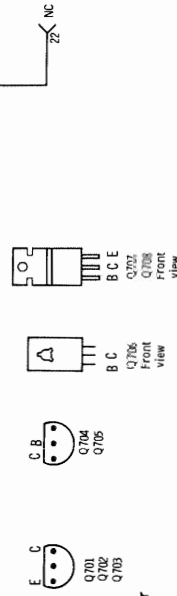
ZENITH CHASSIS
23GC45, 25GC45/45Z

9-92 VERTICAL MODULE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE**
© Howard W. Sams & Co., Inc. 1976

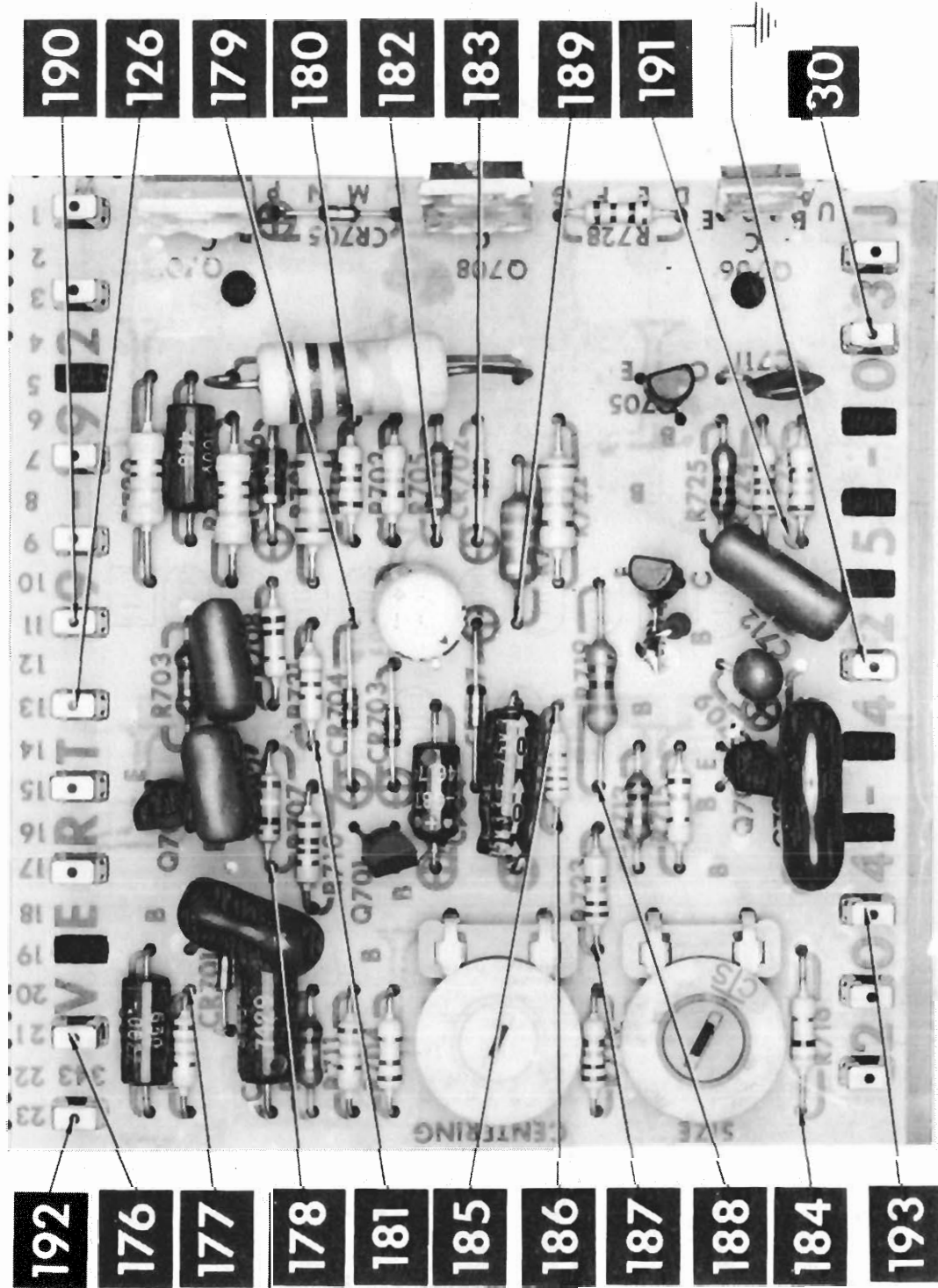


Terminal Guides
Bottom view unless noted



Waveforms: triggered scope, keyed rainbow generator
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 10% unless noted.
Value in () used in some versions.

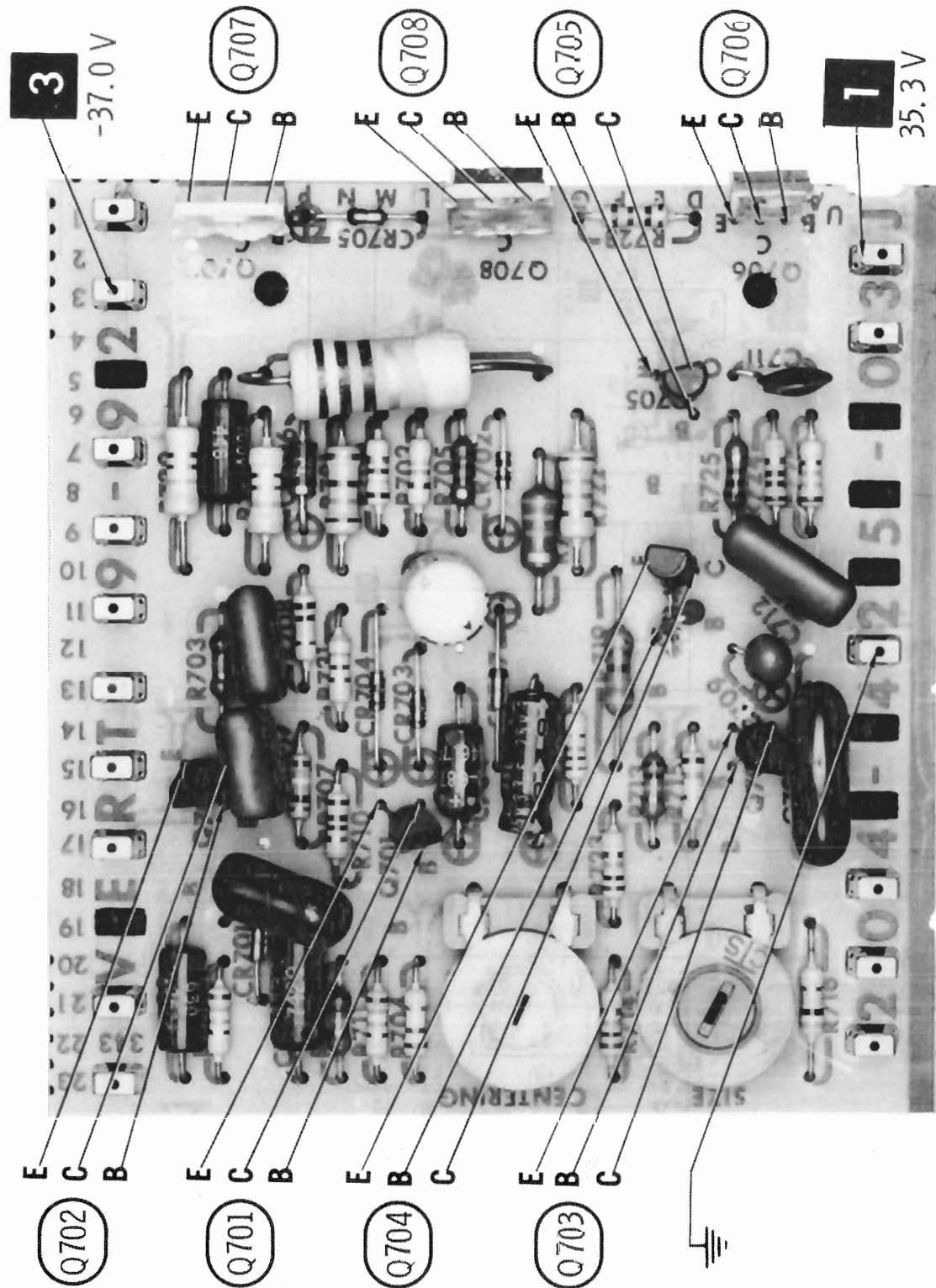
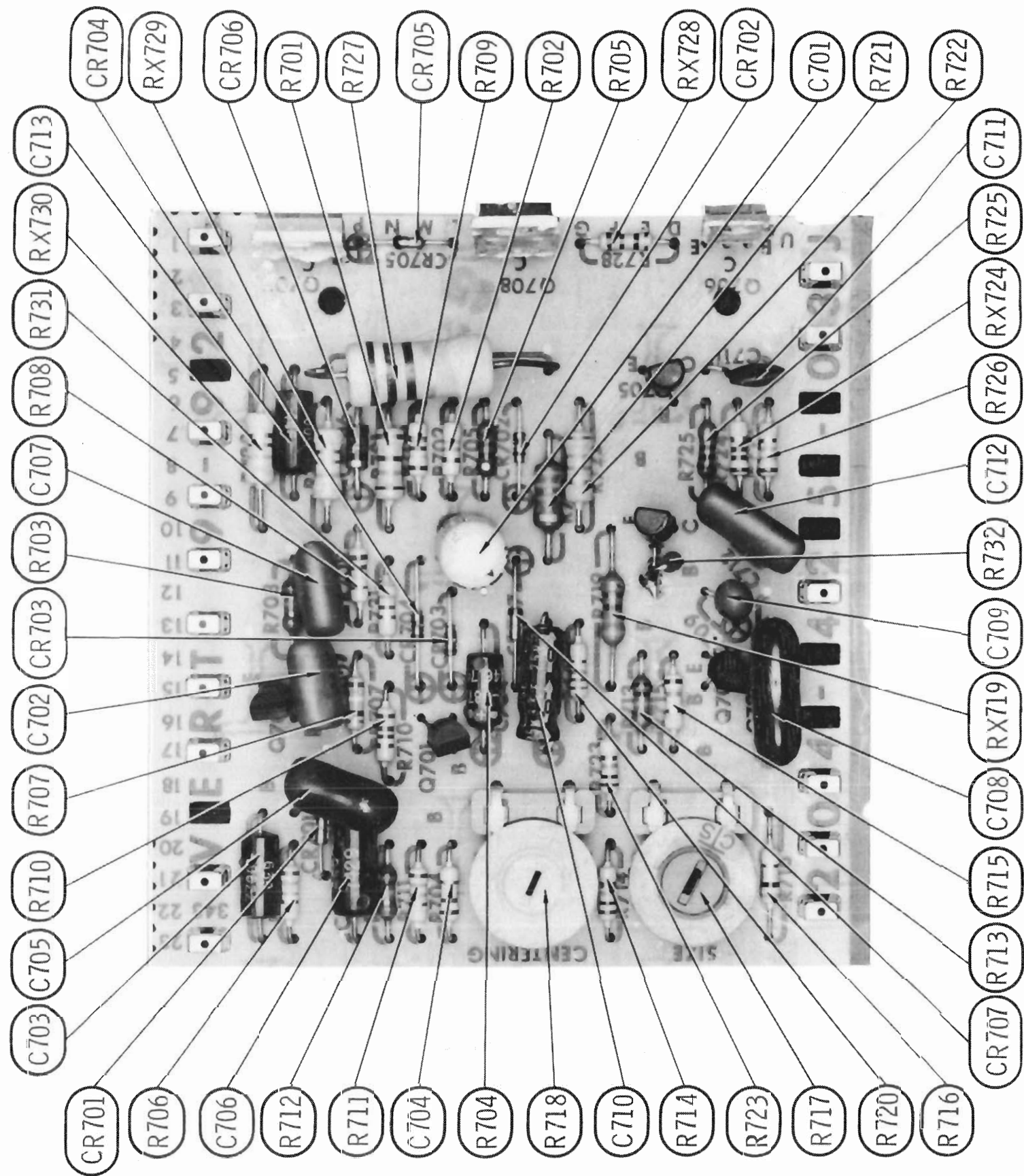
For SAFETY use only equivalent replacement part.
--- Circuitry not used in some versions
e See parts list
* Nominal value
⊥ Ground



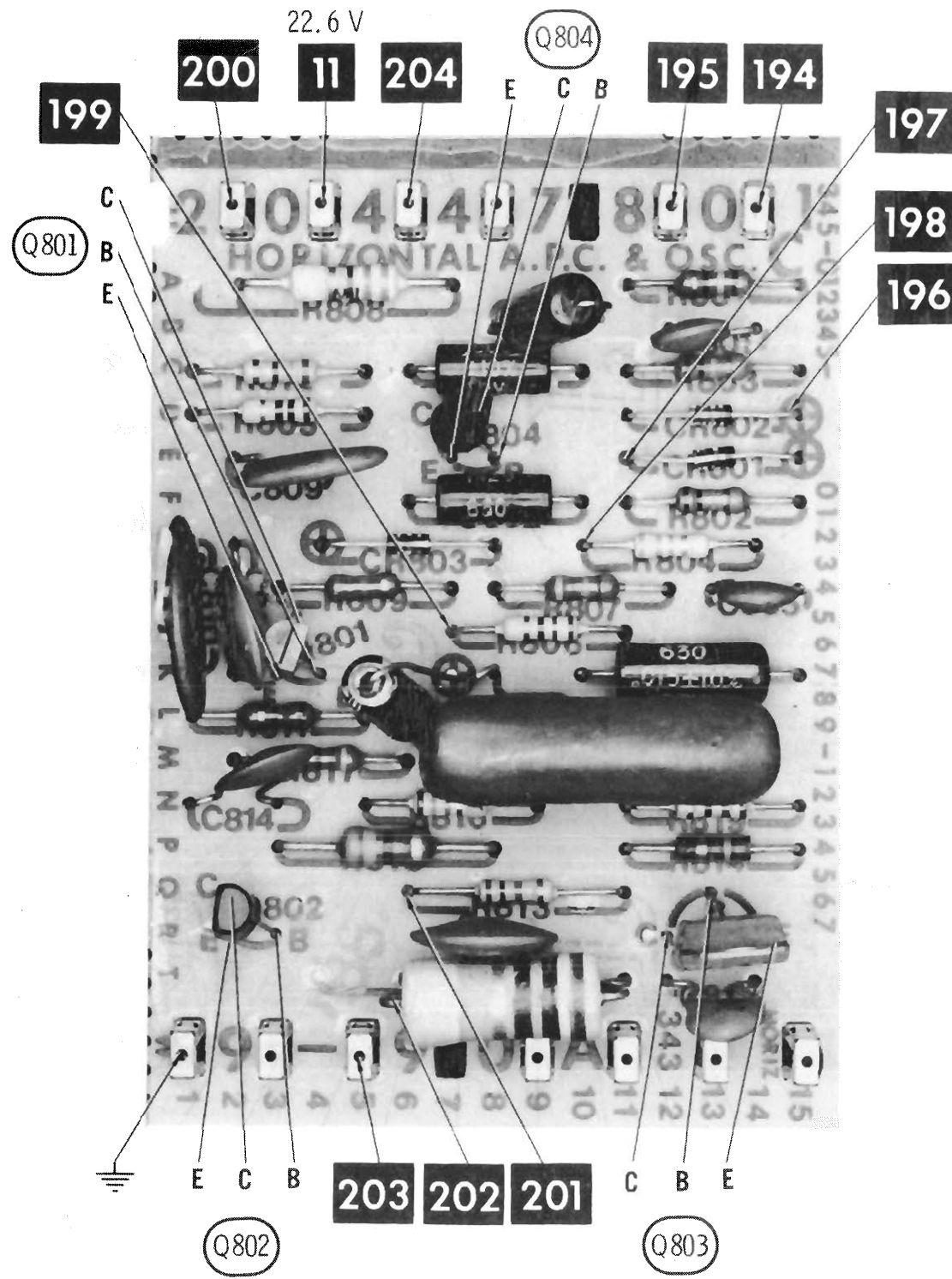
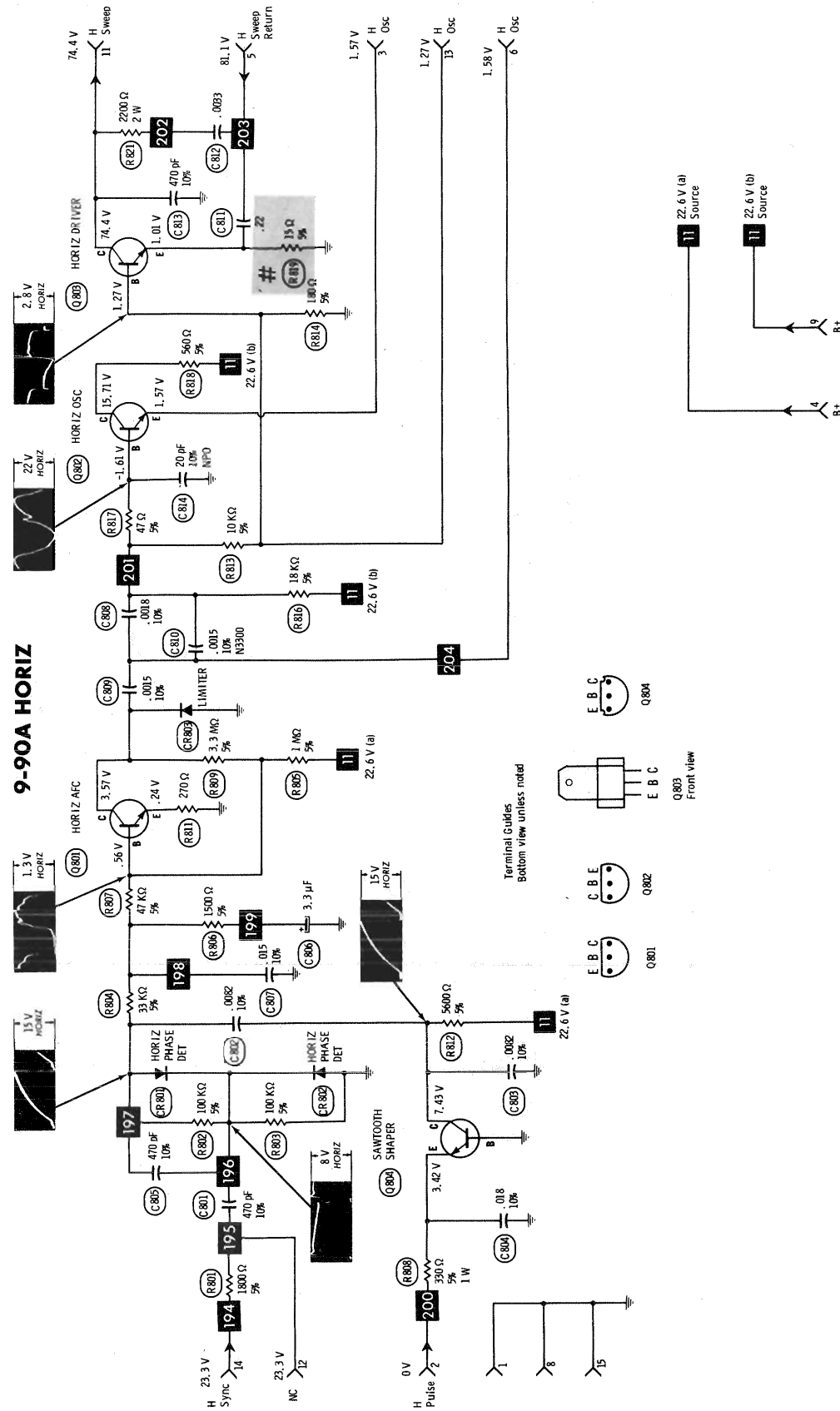
A Howard W. Sams **CIRCUITRACE** Photo 9-92 VERTICAL MODULE

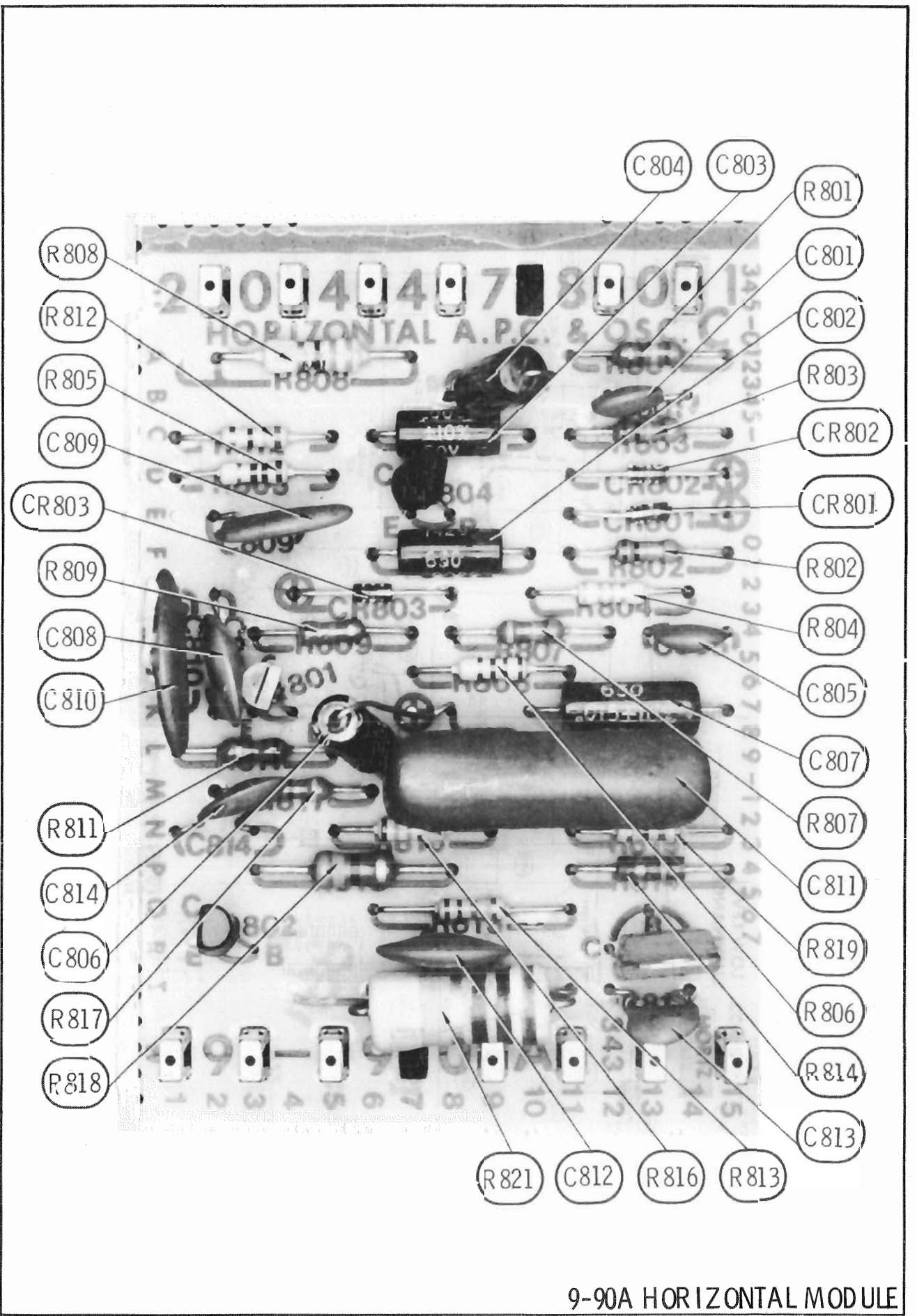
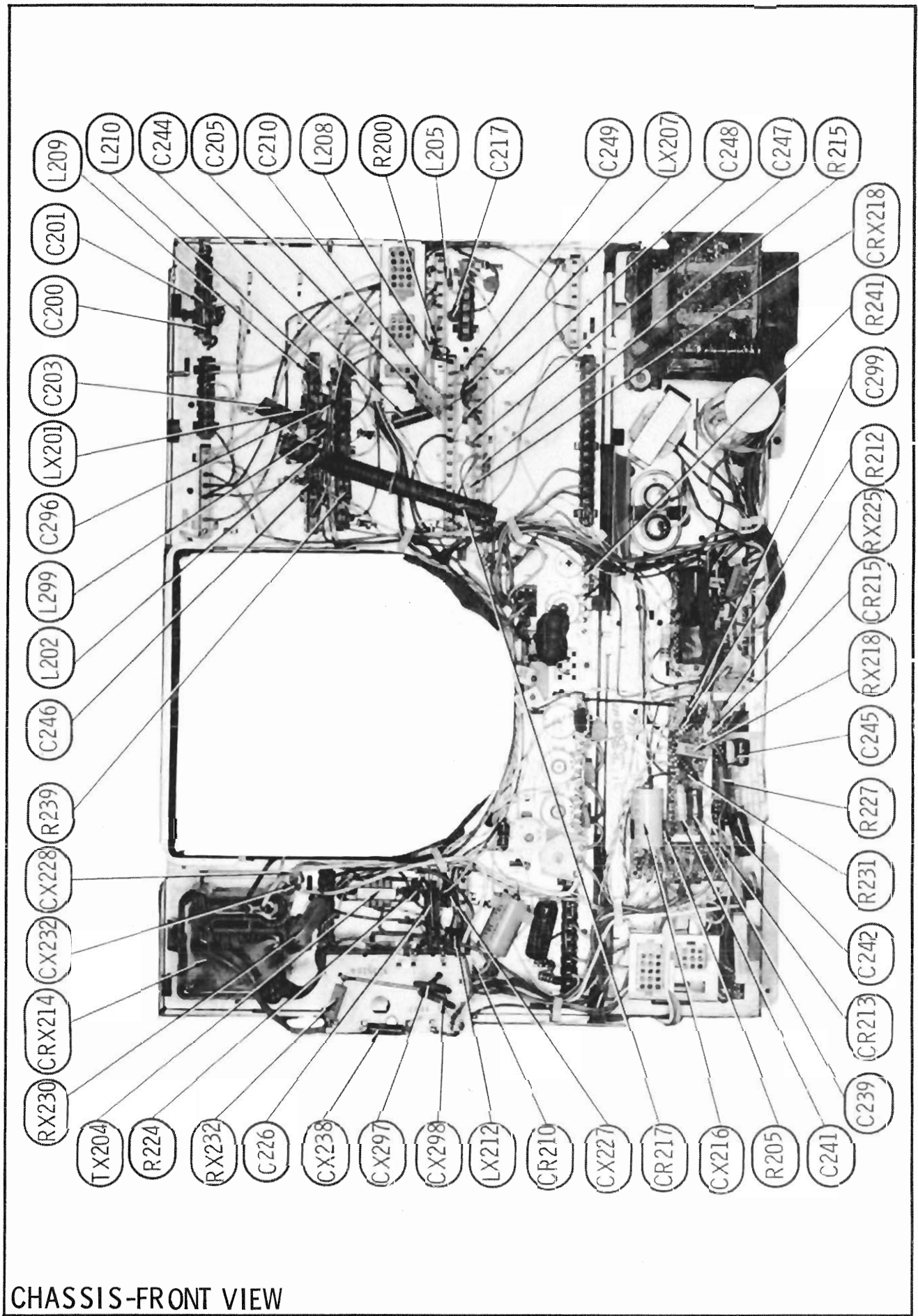
ZENITH CHASSIS
23GC45, 25GC45/45Z

FOLDER 2

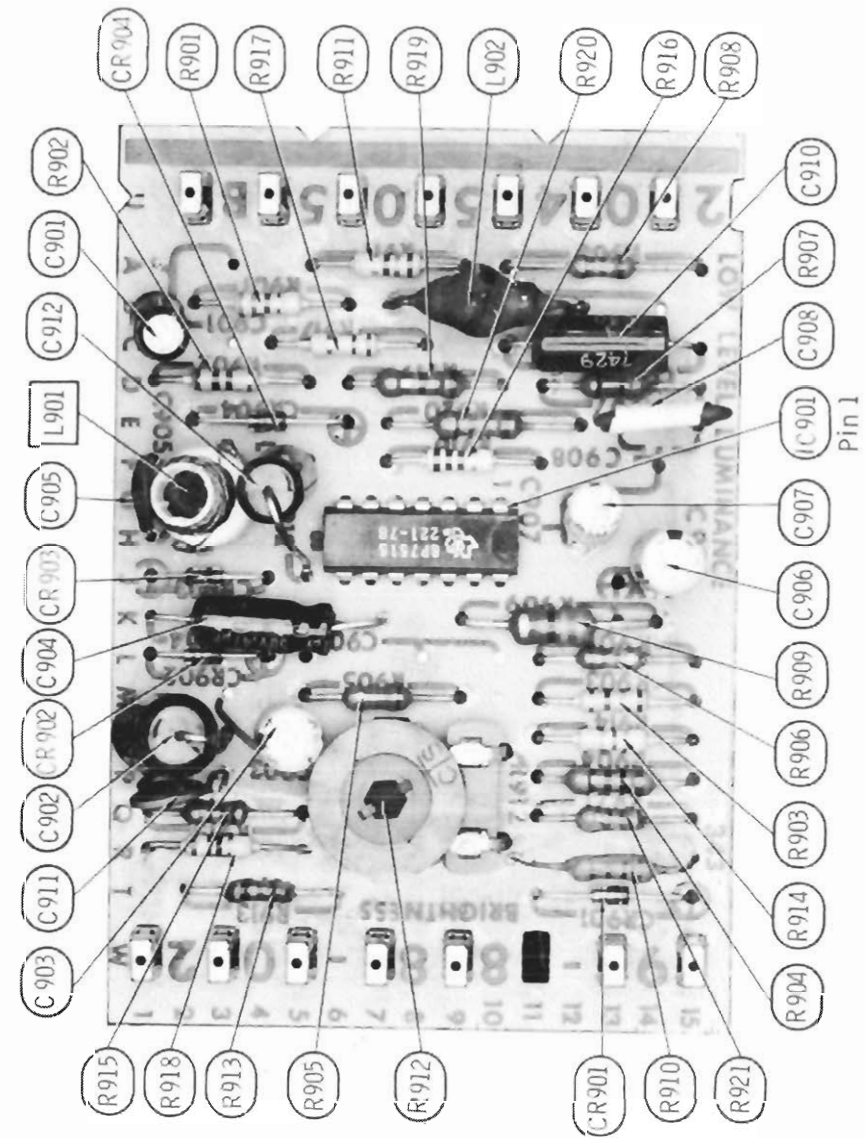
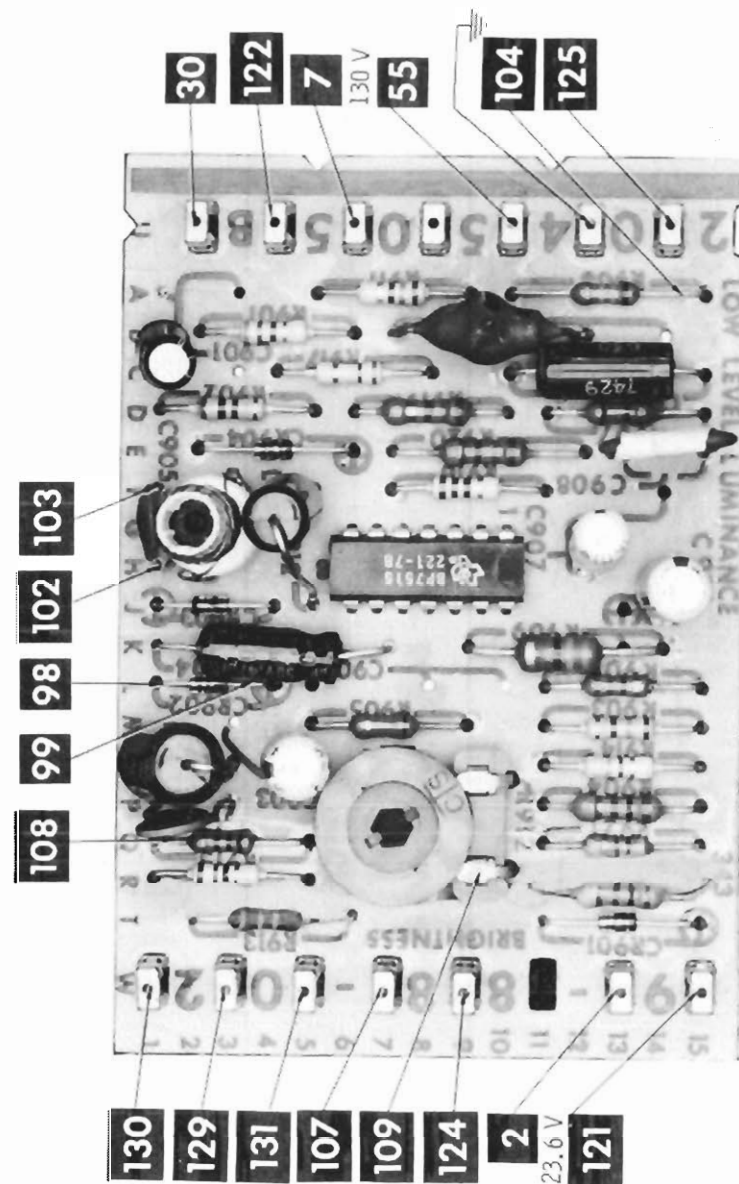
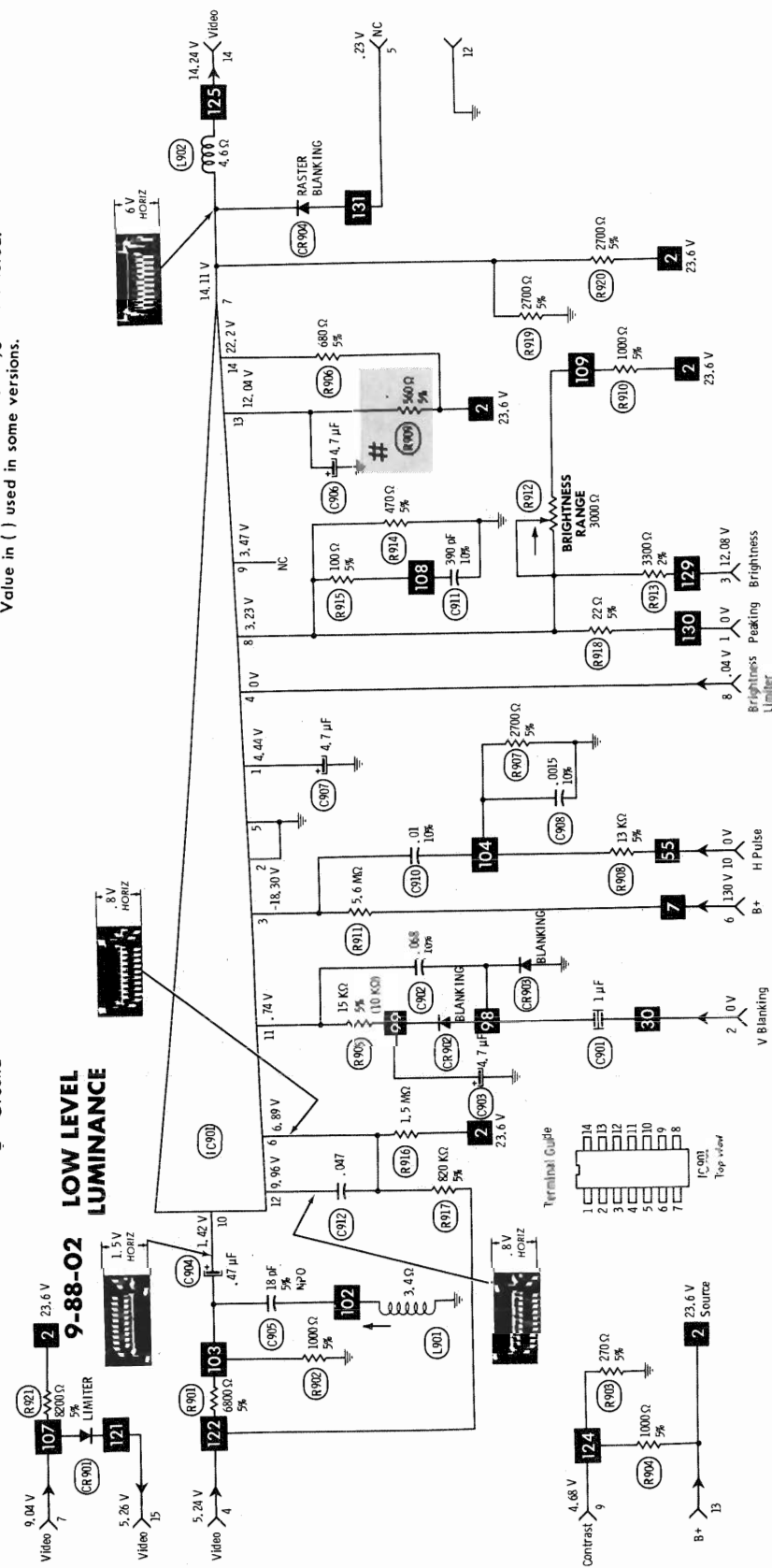


Waveforms: triggered scope, keyed rainbow generator
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are $1/2W$ or less, 10% unless noted.
Value in {} used in some versions.





Waveforms: triggered scope, keyed rainbow generator
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Arrow at control indicates direction of advance.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 10% unless noted.
Value in () used in some versions.



SAFETY PRECAUTIONS

PRODUCT SAFETY SERVICING GUIDELINES FOR COLOR TELEVISION RECEIVERS.

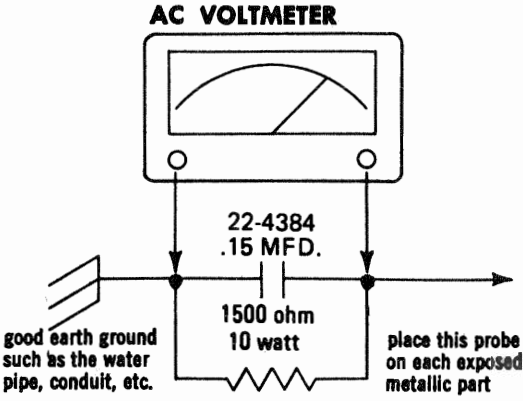
CAUTION: No modification of any circuit should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise increases the risk of potential hazards and injury to the user.

SAFETY CHECKS

SUBJECT: Fire & Shock Hazard

1. Be sure that all components are positioned in such a way to avoid possibility of adjacent components shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Always replace all protective devices such as insulators and barriers after working on a receiver.
3. Always check High Voltage for proper value. See table given in section on X-radiation.
4. After re-assembly of the set always perform an AC leakage test on the exposed metallic parts of the cabinet such as the channel selector knob, antenna terminals, etc. to be sure the set is safe to operate without danger of electrical shock. Do not use a line isolation transformer during this test. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm 10 watt resistor, (63-10401-76) paralleled by a .15 mfd, AC type capacitor (22-4384) between a known good earth ground (water pipe, conduit, etc.) and the exposed matallic parts, one at a time. Measure the AC voltage across the combination 1500 ohm resistor and .15 mfd. capacitor. Reverse

the AC plug on the set and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed .3 volts RMS. This corresponds to 0.2 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

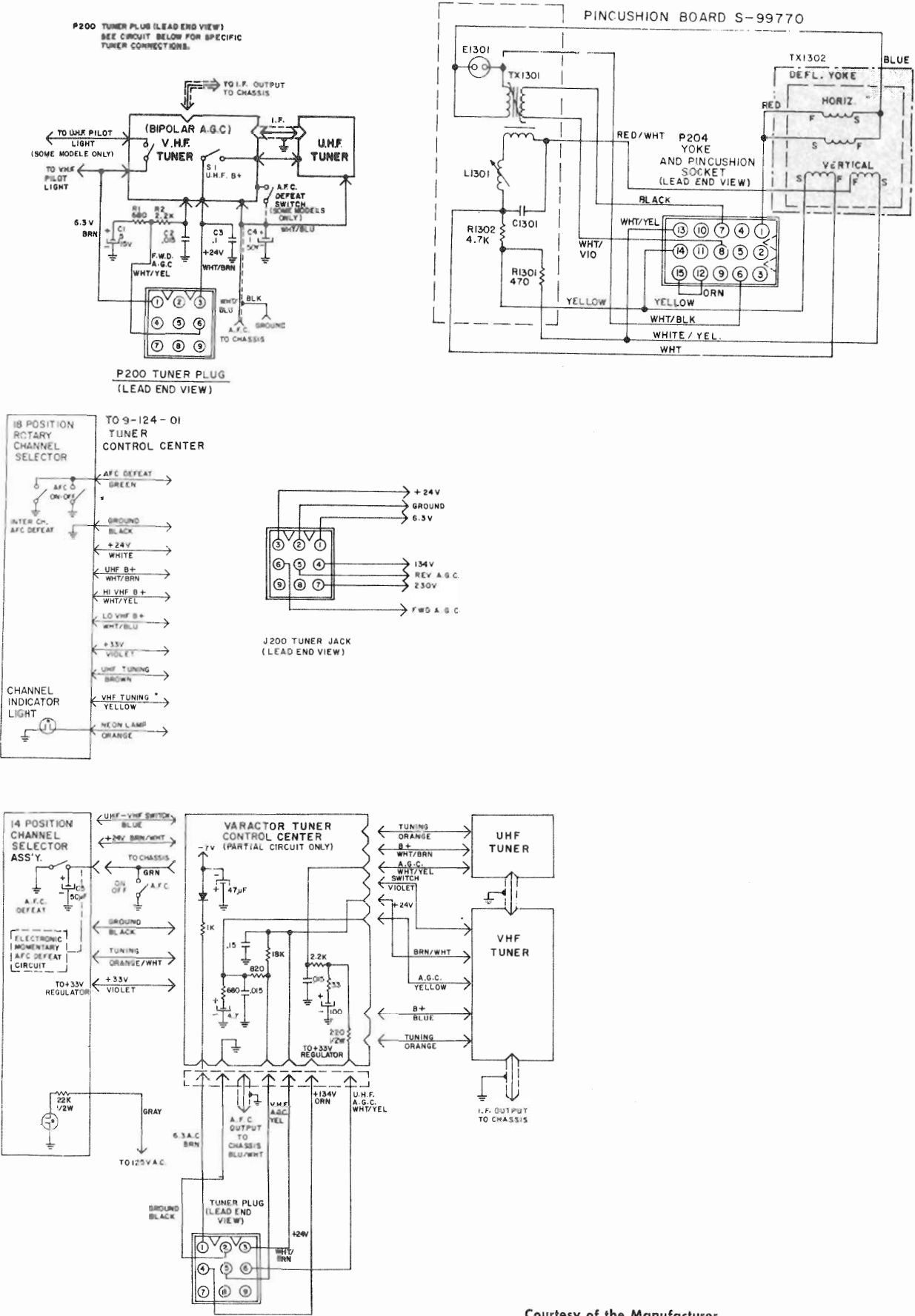


5. Check for frayed insulation on wires including the AC cord. Also check across-the-line components for damage and replace if necessary.

ZENITH CHASSIS
23GC45, 25GC45/45Z

IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE ZENITH RADIO CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT, AND THEIR PHYSICAL LOCATION, WIRING AND LEAD DRESS MUST CONFORM TO ORIGINAL LAYOUT UPON COMPLETION OF REPAIRS. IN SOME INSTANCES REDUNDANT CIRCUITRY IS INCORPORATED FOR ADDITIONAL CIRCUIT PROTECTION AND X RADIATION SAFETY. SPECIAL CIRCUITS ARE ALSO USED TO PREVENT SHOCK AND FIRE HAZARD. THESE CRITICAL AREAS ARE # ON THE SCHEMATIC FOR EASY IDENTIFICATION. THE LETTER "X" INCLUDED IN THE ITEM NUMBER DESIGNATES SPECIAL FAIL SAFE COMPONENTS IN THESE AREAS (SEE PERTINENT NOTE) WHICH ARE REQUIRED TO MAINTAIN SAFE PERFORMANCE. NO DEVIATIONS ARE ALLOWED WITHOUT PRIOR APPROVAL BY THE PRODUCT SAFETY ENGINEERING DEPARTMENT.



Courtesy of the Manufacturer

Courtesy of the Manufacturer

CONVERGENCE ADJUSTMENTS

Miscellaneous Adjustments should be made before proceeding to Convergence Adjustments. Connect dot/crosshatch generator to antenna terminals. Use dot pattern for center dot convergence. Use crosshatch pattern for all other adjustments. View pattern as displayed on TV screen.
NOTE: Maintain center convergence throughout setup procedure.

Perform center dot convergence using convergence magnets.

Adjust R616 and R618 to converge red and green vertical center line from top to bottom of screen.

Adjust R617 and R621 to converge red and green horizontal lines along vertical center line from top to bottom of screen.

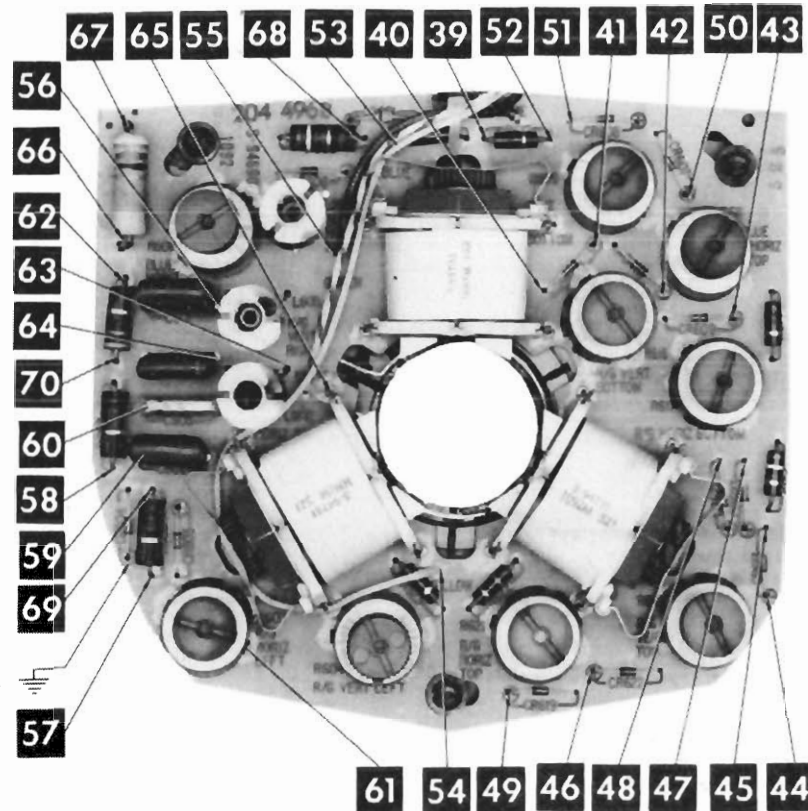
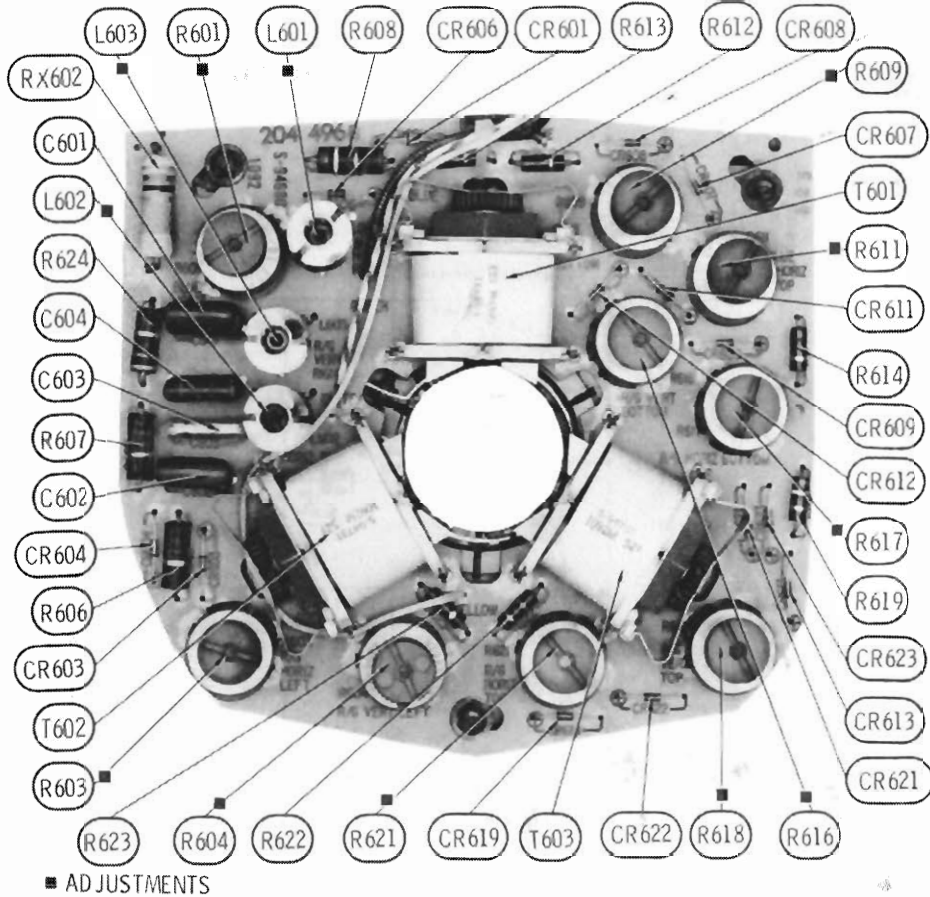
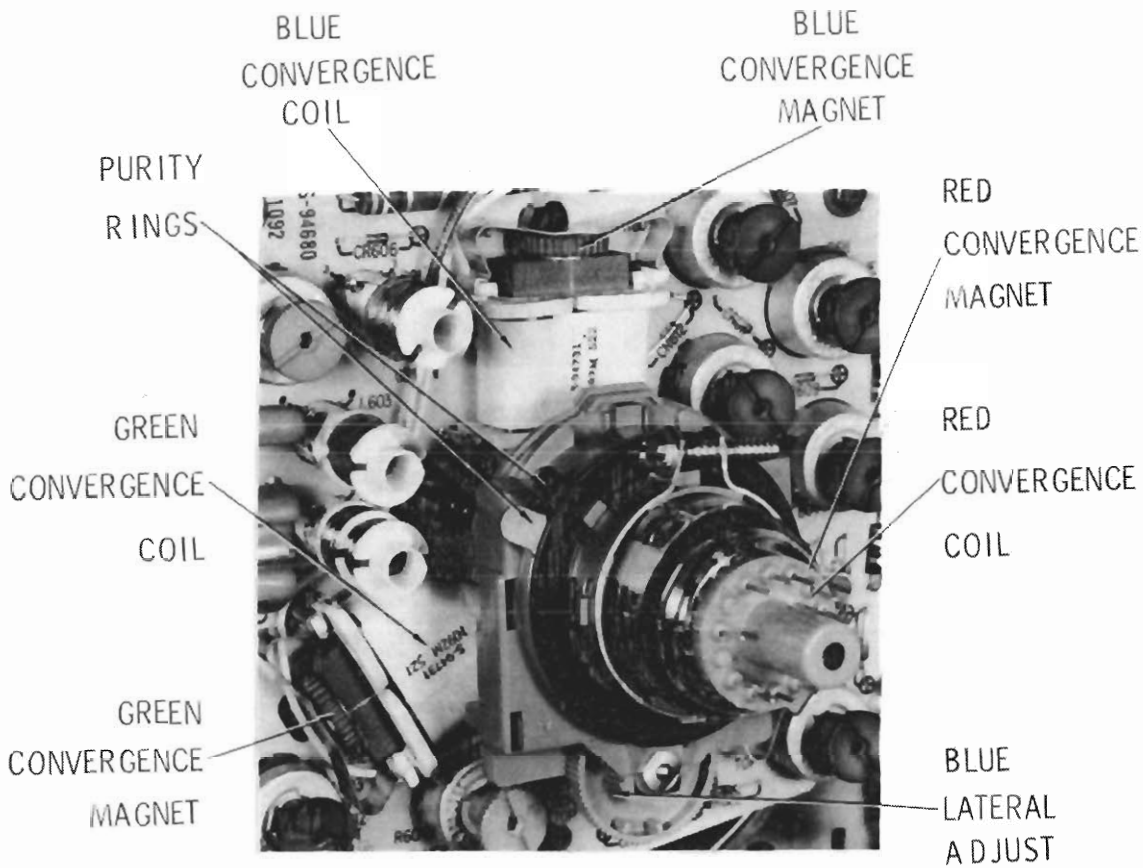
Adjust R603 and R604 to converge red and green vertical and horizontal lines, left side of screen.

Adjust L602 and L603 to converge red and green vertical and horizontal lines, right side of screen.

Adjust R609 and R611 to converge blue horizontal lines along vertical center line from top to bottom of screen.

Adjust R601 and L601 to converge blue horizontal lines, left and right sides of screen.

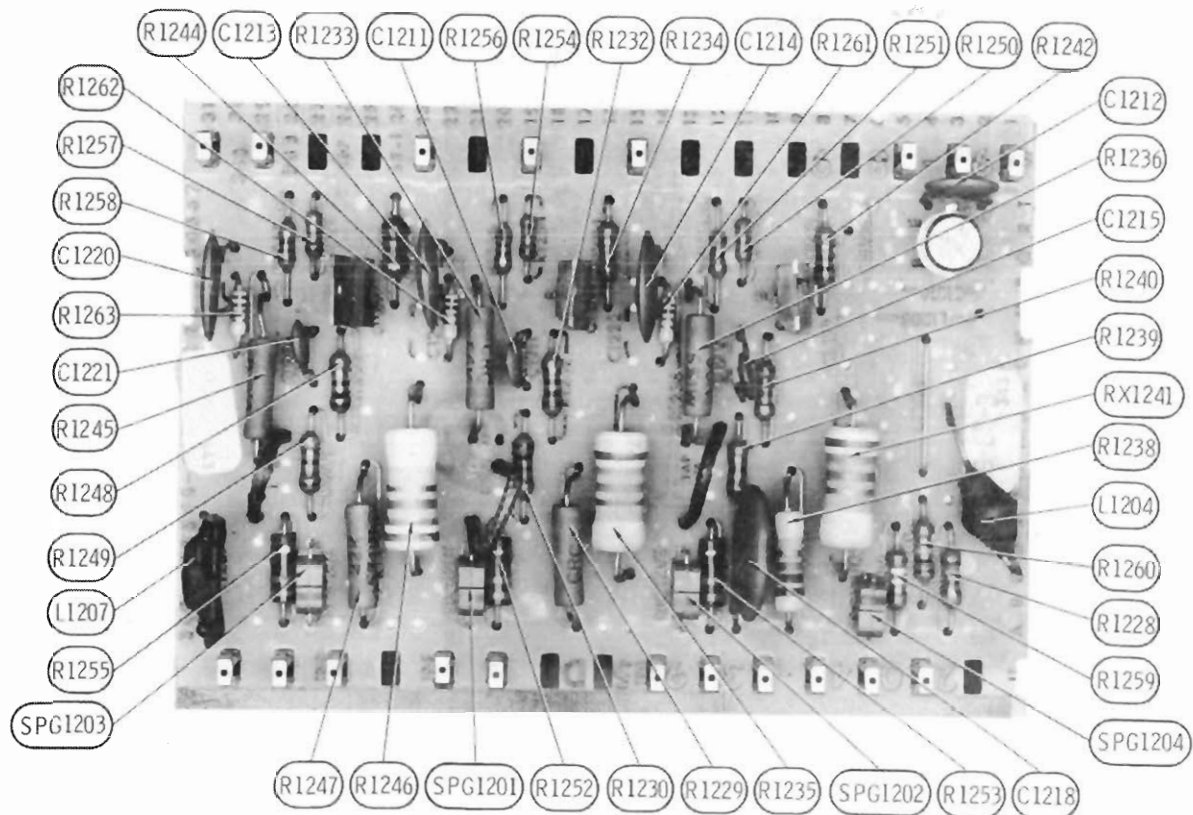
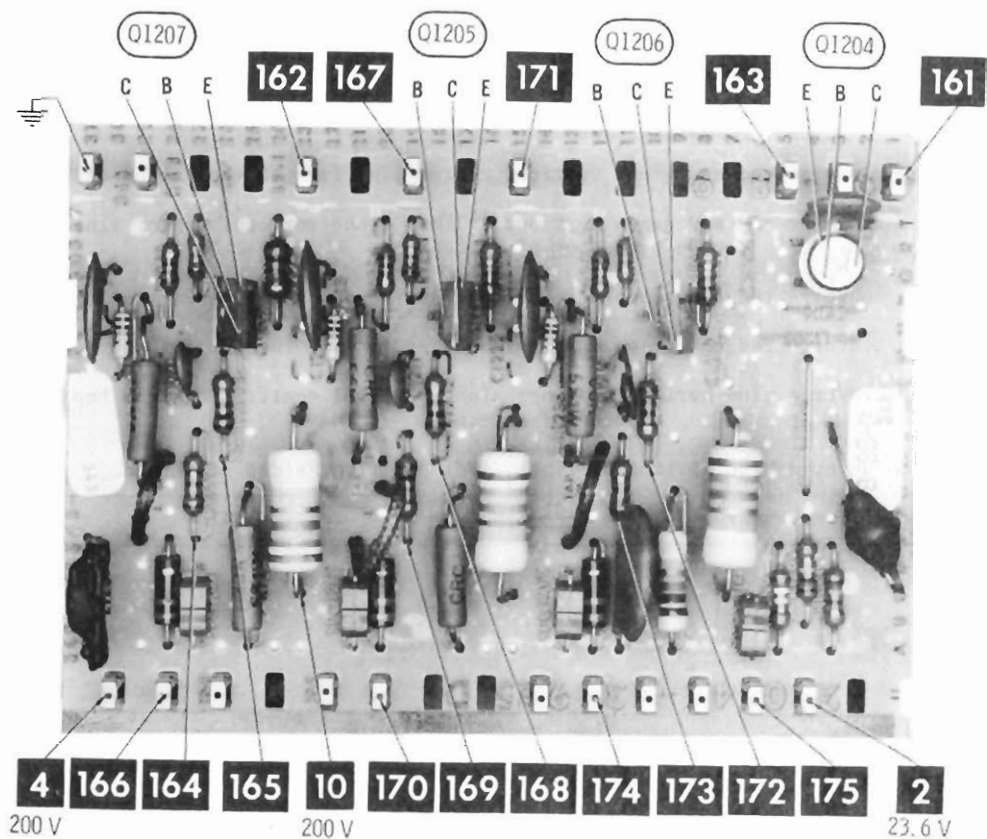
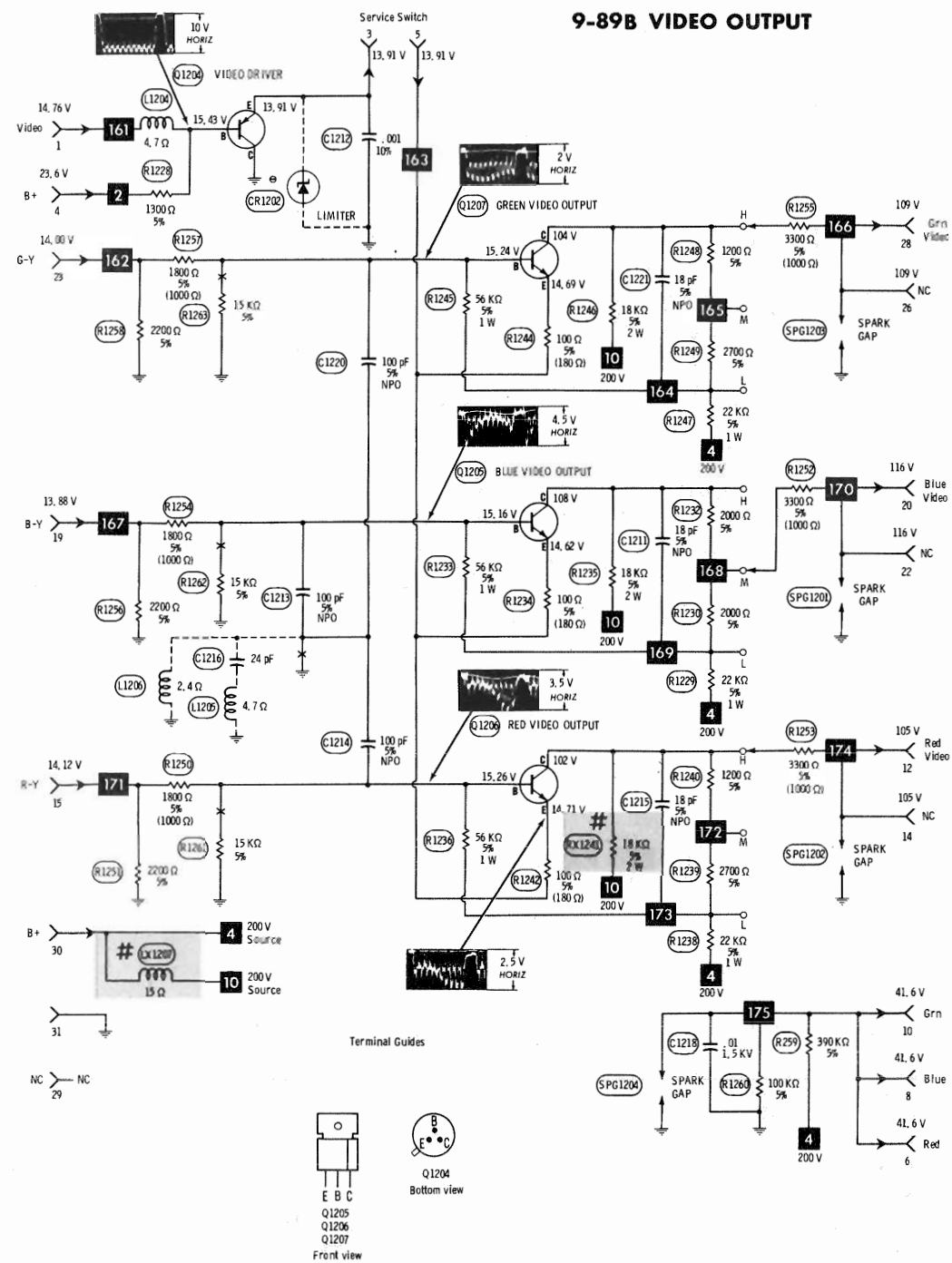
Touch up appropriate controls if necessary.

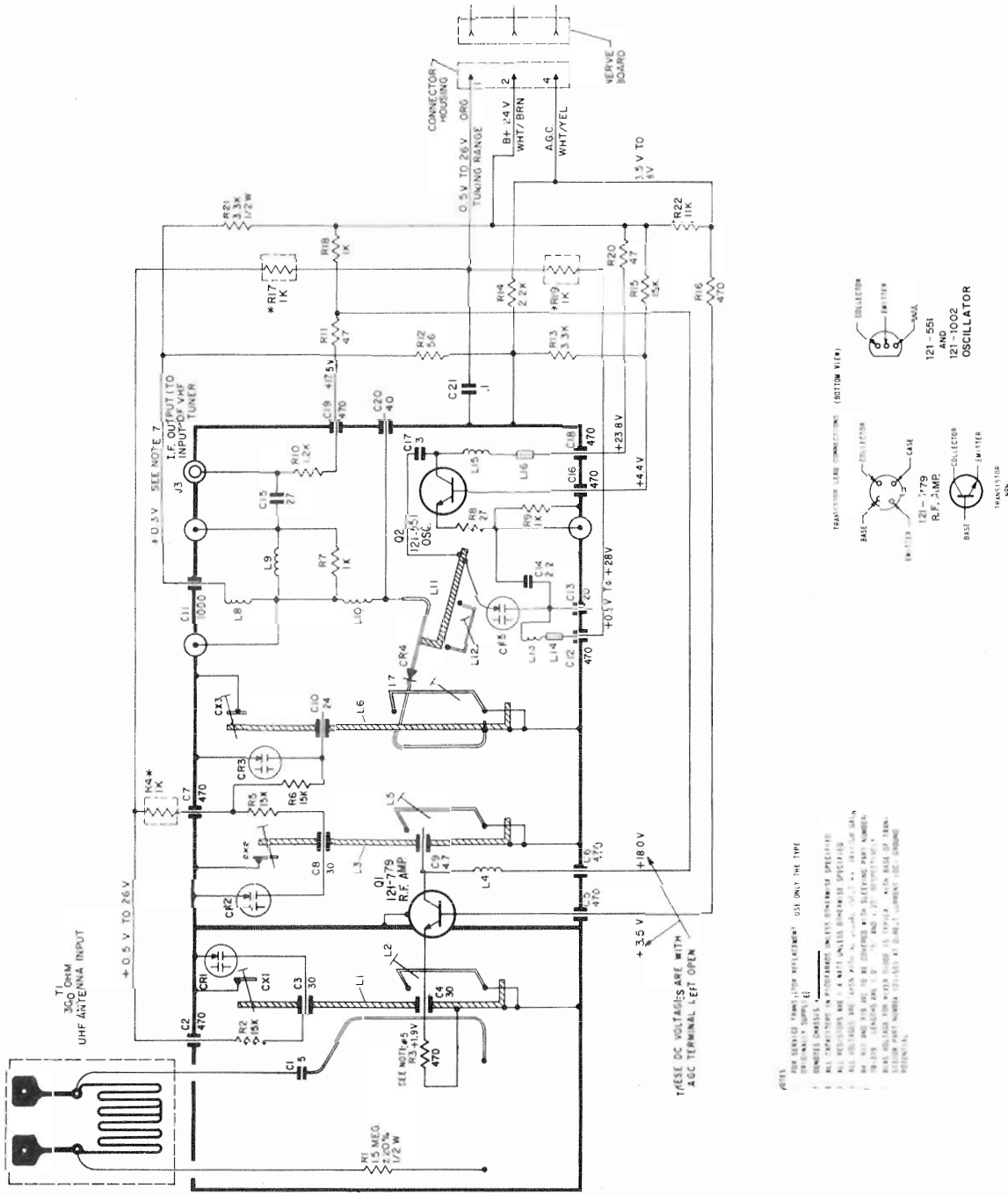


A Howard W. Sams CIRCUITRACE® Photo CONVERGENCE BOARD

ZENITH CHASSIS
23GC45, 25GC45/45Z

FOLDER 2

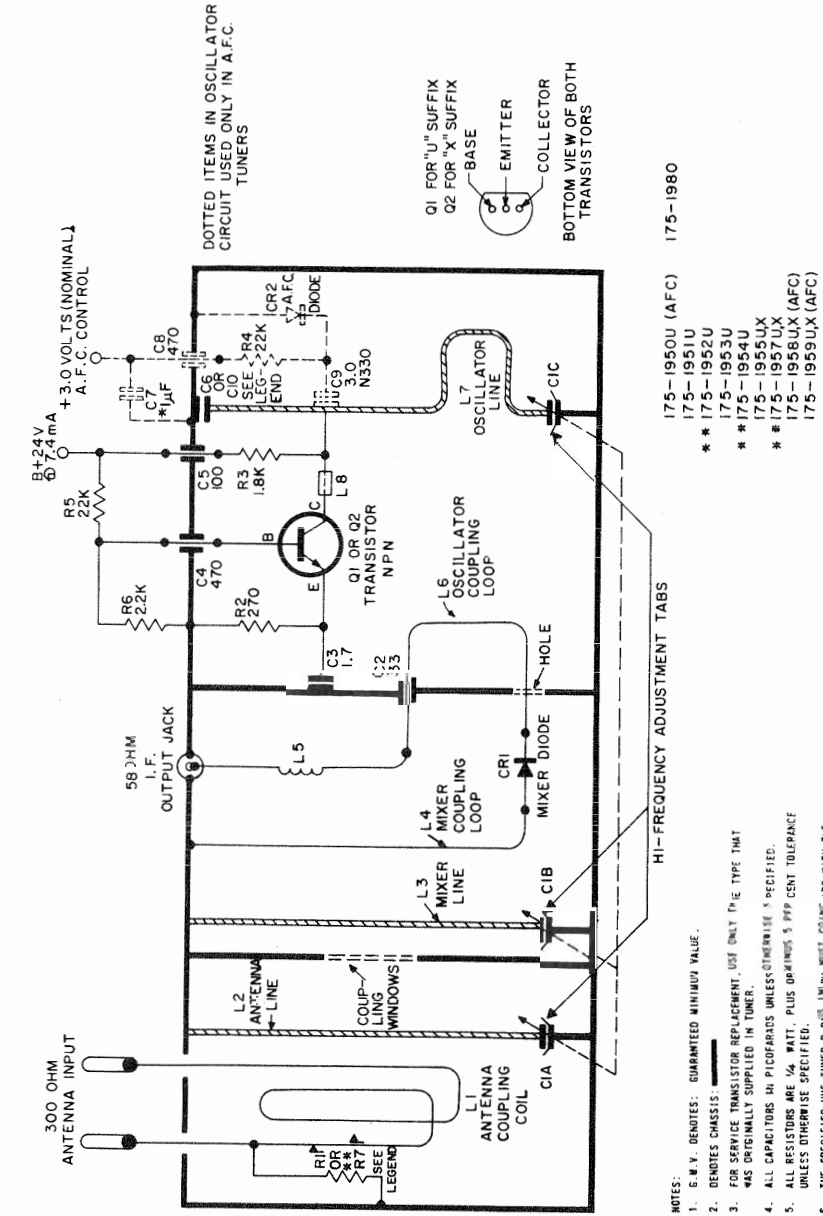




NOTES:
1. FOR SERVICE TRANSMISSION REVISIONS, USE ONLY THE TYPE SPECIFIED.
2. RESISTORS ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
3. ALL CAPACITORS ARE IN PICOFARADS UNLESS OTHERWISE SPECIFIED.
4. ALL RESISTORS ARE 1/4 WATT, PLUS OR MINUS 5 PER CENT TOLERANCE UNLESS OTHERWISE SPECIFIED.
5. THE SPECIFIED UHF TUNER B PLUS INP MUST COMPLY WITH THE B PLUS SUPPLY AVAILABLE FROM THE MANUFACTURER'S TELEVISION CHASSIS.
6. INDICATES PLUS OR MINUS 20 PERCENT TOLERANCE PERMISSIBLE.
7. * DENOTES EXTERNAL TO TUNER, PART OF TUNER AND BRACKET ASSEMBLY.
8. ** DENOTES LINE CONNECTED APPLICATION, (HOT CHASSIS).

175-1611 UHF TUNERS SCHEMATIC DIAGRAM & PARTS LIST.

Courtesy of the Manufacturer

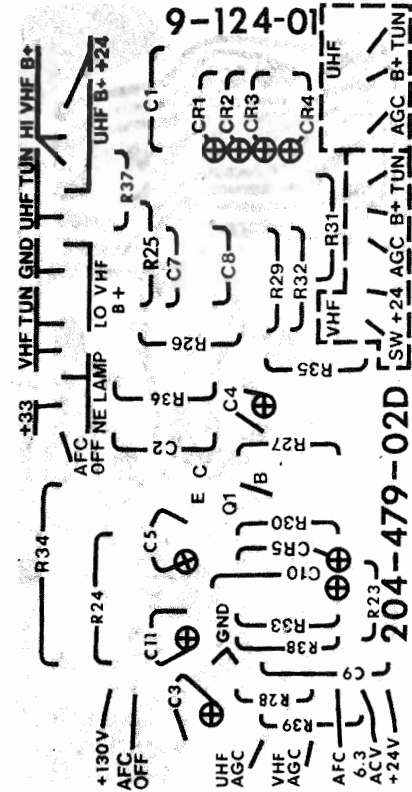


NOTES:
1. G.M.V. DENOTES: GUARANTEED MINIMUM VALUE.
2. DENOTES CHASSIS: ————
3. FOR SERVICE TRANSMISSION REPLACEMENT, USE ONLY THE TYPE THAT WAS ORIGINALLY SUPPLIED IN TUNER.
4. ALL CAPACITORS ARE IN PICOFARADS UNLESS OTHERWISE SPECIFIED.
5. ALL RESISTORS ARE 1/4 WATT, PLUS OR MINUS 5 PER CENT TOLERANCE UNLESS OTHERWISE SPECIFIED.
6. THE SPECIFIED UHF TUNER B PLUS INP MUST COMPLY WITH THE B PLUS SUPPLY AVAILABLE FROM THE MANUFACTURER'S TELEVISION CHASSIS.
7. * INDICATES PLUS OR MINUS 20 PERCENT TOLERANCE PERMISSIBLE.
8. * DENOTES EXTERNAL TO TUNER, PART OF TUNER AND BRACKET ASSEMBLY.
9. ** DENOTES LINE CONNECTED APPLICATION, (HOT CHASSIS).

FIG. 15 — UHF TUNER SCHEMATIC DIAGRAM

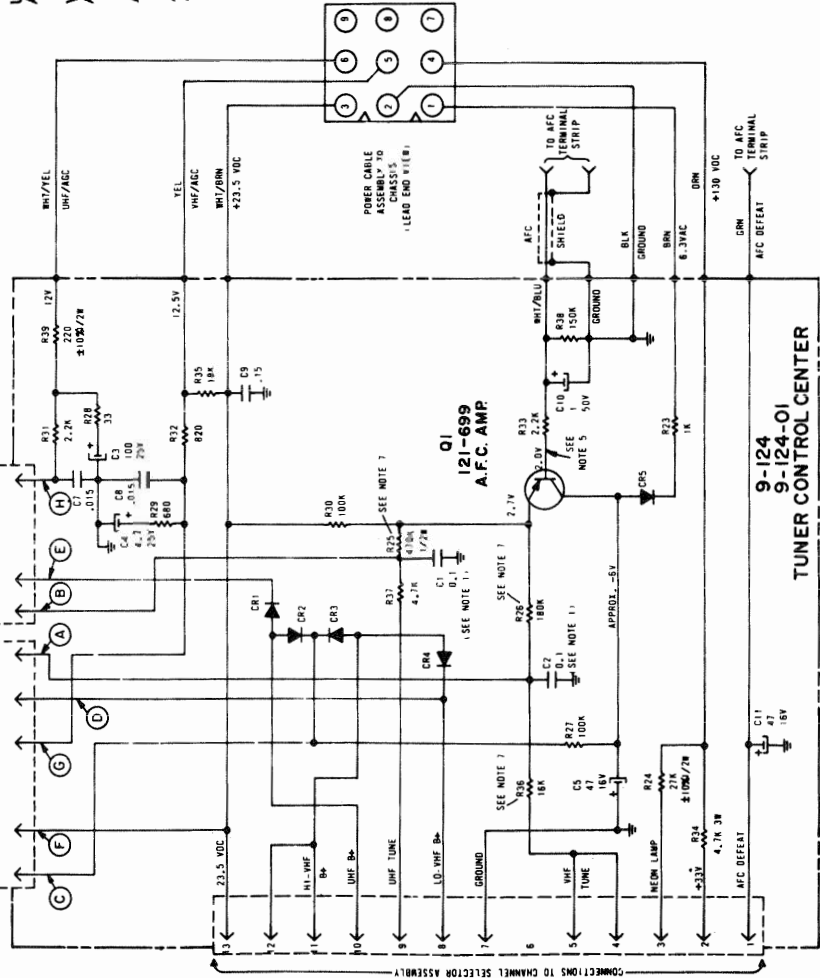
175-1950, 175-1953, 175-1957
175-1951, 175-1954, 175-1958
175-1952, 175-1955, 175-1959

ZENITH CHASSIS
23GC45, 25GC45/45Z



| ITEM NUMBER | PART NUMBER | DESCRIPTION |
|-------------|-------------|---|
| C1 | 22-4805 | 0.1 uF MYLAR CAPACITOR ±10% 50 V |
| C2 | 22-7152-06 | 100 uF ELECTROLYTIC CAPACITOR +100/-100% 16 V |
| C3 | 22-7152-03 | 4.7 uF ELECTROLYTIC CAPACITOR +100/-100% 16 V |
| C4 | 22-7151-07 | 4.7 uF ELECTROLYTIC CAPACITOR +100/-100% 16 V |
| C5 | 22-6130 | .015 uF MYLAR CAPACITOR ±10% 50 V |
| C6 | 22-6130 | .015 uF MYLAR CAPACITOR ±10% 50 V |
| C7 | 22-6130 | .015 uF MYLAR CAPACITOR ±10% 50 V |
| C8 | 22-6130 | .015 uF MYLAR CAPACITOR ±10% 50 V |
| C9 | 22-6130 | .015 uF MYLAR CAPACITOR ±10% 50 V |
| C10 | 22-7151-07 | 4.7 uF ELECTROLYTIC CAPACITOR +100/-100% 16 V |
| C11 | 22-7151-07 | 4.7 uF ELECTROLYTIC CAPACITOR +100/-100% 16 V |
| CR1 | 103-142-01 | DIODE, LOW VOLTAGE GENERAL, SILICON |
| CR2 | 103-142-01 | DIODE, LOW VOLTAGE GENERAL, SILICON |
| CR3 | 103-142-01 | DIODE, LOW VOLTAGE GENERAL, SILICON |
| CR4 | 103-142-01 | DIODE, LOW VOLTAGE GENERAL, SILICON |
| D1 | 121-699 | TRANSISTOR, PNP, SILICON |
| R23 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R24 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R25 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R26 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R27 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R28 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R29 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R30 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R31 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R32 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R33 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R34 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R35 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R36 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R37 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R38 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |
| R39 | 63-9921-12 | 1K OHM FILM RESISTOR ±5% 1/4 W |

123-4998
SHEET 1

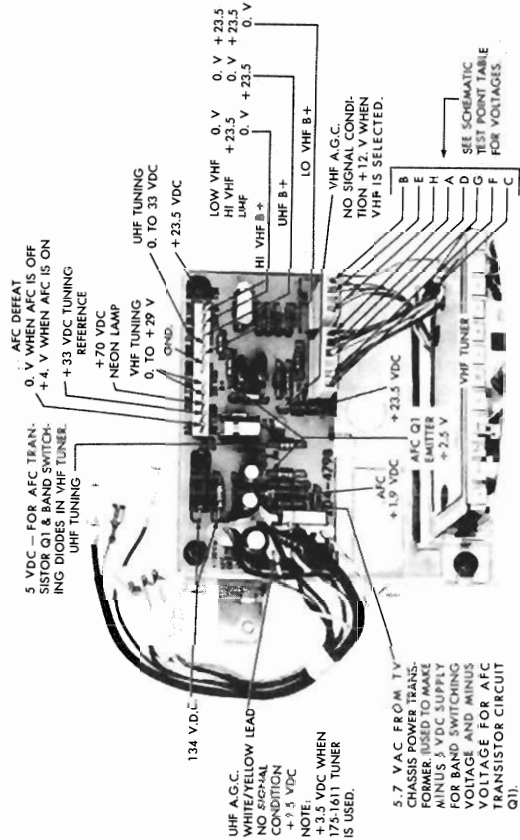


SYSTEM VOLTAGES

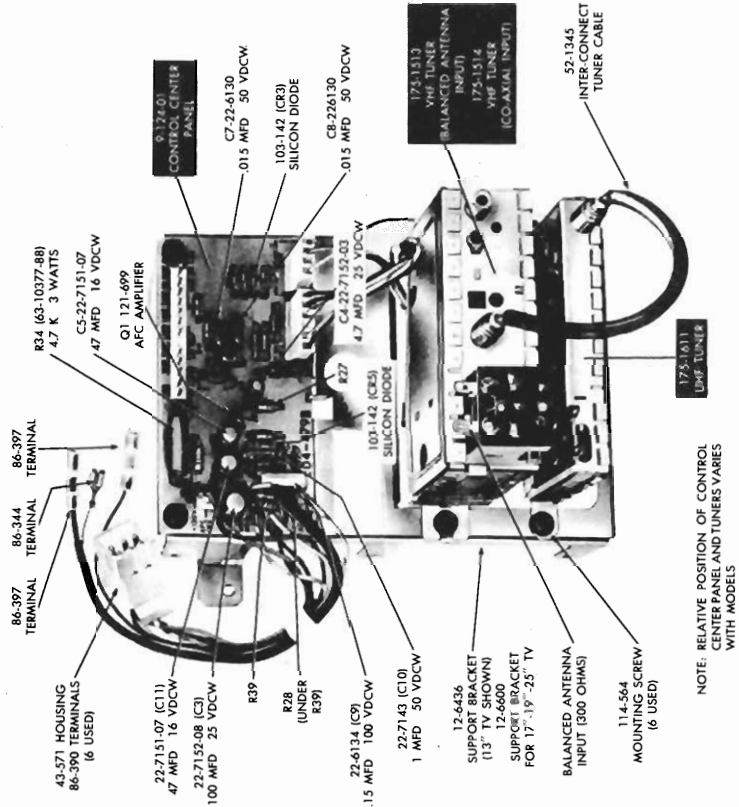
(NO SIGNAL CHANNEL SELECTOR CONNECTED AND SET TO DESIRED CHANNEL)

| TEST POINT | DESIGNATION | LO VHF | HI VHF | UHF |
|------------|--------------------|-------------|--------------|-----------------------------------|
| A | VHF TUNING VOLTAGE | CH 2 - CH 6 | CH 7 - CH 13 | CH 14 - CH 83 |
| B | UHF TUNING VOLTAGE | 1 TO 12 | 10 TO 23 | — |
| C | BANDSWITCH VOLTAGE | APPROX -6 | +22.8 | +22.8 |
| D | VHF BI | +23.5 | +22.8 | 0 |
| E | VHF BI | 0 | 0 | +22.8 |
| F | MIXER BI | +23.5 | +23.5 | +23.5 |
| G | VHF AGC | +12.5 | +12.5 | +7.5 |
| H | UHF AGC | 0 | 0 | +3.7 ON 9-124-01 +2.7 ON 9-124 |

- NOTES
- #1 C1 AND C2 ARE USED ON 9-124 MODULE ONLY WHEN THE 9-124-01 IS USED.
 - C1 AND C2 ARE MOUNTED ON THE VHF AND UHF TUNERS.
 - ALL CAPACITORS VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
 - ALL RESISTORS ARE 1/4 WATT, ±5 PERCENT TOLERANCE, FILM UNLESS OTHERWISE SPECIFIED. REPLACEMENT RESISTORS SHOULD ALWAYS BE OF THE SAME TYPE SPECIFIED IN THE LEGEND.
 - ALL VOLTAGES MEASURED WITH A VOLT METER HAVING 11 MEGOHMS IMPEDANCE.
 - VOLTAGE ON Q1 AS SHOWN WHEN AN AFC BIAS OF +2.0 VOLTS IS APPLIED TO THE BASE VIA THE AFC INPUT LEAD.
 - THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS MAY BE DUE TO THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SETS IS NOT DELAYED UNTIL THE NEW SERVICE RELEASES ARE AVAILABLE.
 - REPLACE Q1 WITH THE SAME TYPE AND PART NUMBER. Q1 IS NOT TO BE REPLACED WITH AN EQUIVALENT TYPE TO INSURE ORIGINAL PERFORMANCE CHARACTERISTICS.



NOTE:
9-124 and 9-124-01 CONTROL CENTERS
ARE NOT INTERCHANGEABLE.



9-124 AND 9-124-01 TUNER CONTROL CENTERS

MISCELLANEOUS ADJUSTMENTS

HIGH VOLTAGE ADJUSTMENT

This chassis uses a voltage regulating power transformer and therefore no high voltage adjustment is required. With all controls set for a normal picture, the high voltage should read 28.6KV to 30.6KV for 19 inch chassis.

AGC ADJUSTMENTS

The AGC delay control is set at the factory and normally will not need adjustment. To adjust the AGC delay control, tune in the weakest TV station available, but one without snow in the picture. Turn the AGC delay control to the right until snow appears in the picture; then turn control back until the snow just disappears. Check this setting against other weak stations in the area.

VERTICAL SIZE AND CENTERING

Adjust vertical size and vertical centering while observing a test pattern. There is no vertical linearity control on this chassis.

BRIGHTNESS RANGE AND LIMITER ADJUSTMENT

Connect VTVM to point Y of Horizontal Output Transformer (TX206) (across Resistor RX232) low side to ground. Turn Brightness Limiter Control (R234) counterclockwise. Turn Brightness, Contrast and Color Controls to Maximum. Connect a jumper from E to ground. Adjust Brightness Range Control (R912) for -.17 Volts. Remove jumper from E and tune in a TV station. Adjust Brightness Limiter Control (R234) for -.9 Volts.

COLOR KILLER ADJUSTMENT

Tune in a weak signal or reduce the signal at the antenna terminals to obtain a snowy picture. Set contrast, color level and color killer to maximum clockwise rotation. Slowly turn color killer counterclockwise until colored snow just disappears.

ACC CONTROL ADJUSTMENT

Slide color set-up switch to the align position. Connect a VTVM from point Q to ground. Short across points J and JJ and observe meter reading. Remove short from test points and adjust ACC control, R1015, for an identical reading.

APC CONTROL ADJUSTMENT

Slide color set-up switch to the align position. Adjust APC control, R1018, for MINIMUM movement of color bars through picture. Return color set-up switch to normal position. Check for proper waveform as shown on schematic at R-Y, G-Y, and B-Y outputs: points R, G and B.

Connect scope to point R. Set tint control to mid-range. Adjust Hue coil, L1005, to obtain 6th bar crossover, waveform as shown on schematic.

PURITY ADJUSTMENTS

If the picture tube appears to be magnetized, use a degaussing coil to demagnetize tube and mounting brackets.

Turn the blue and green G2 controls counter-clockwise and turn the red G2 control fully clockwise. Loosen the locking wing nuts of the deflection yoke assembly and slide it back without disturbing the position of the other neck components. Adjust the tabs on the purity magnet until a red spot appears at the center of the tube. Slide the deflection yoke forward to obtain a uniform red over the entire picture-tube face.

GRAY SCALE ADJUSTMENTS

To adjust, use a black and white picture that displays an adequate range of light levels, light and gray objects, dark objects, etc. Set brightness and contrast for a normal picture.

Place the normal set-up switch to set-up position. Place video output taps to high (H) position. Advance the screen controls (G2) one at a time, until each produces a barely visible line on the screen.

Return the normal set-up switch to normal. If a slight color cast is present, relocate the appropriate video (chroma) gain taps to eliminate the color shading. Check overall black and white tracking by turning contrast and brightness controls through their entire range.

DYNAMIC PINCUSHION ADJUSTMENTS

Connect a crosshatch generator to the antenna terminals and adjust the set for a normal cross-hatch pattern. Pincushion correction at the sides is fixed; no adjustment is provided. Top and bottom pincushion is factory adjusted and readjustment is seldom needed.

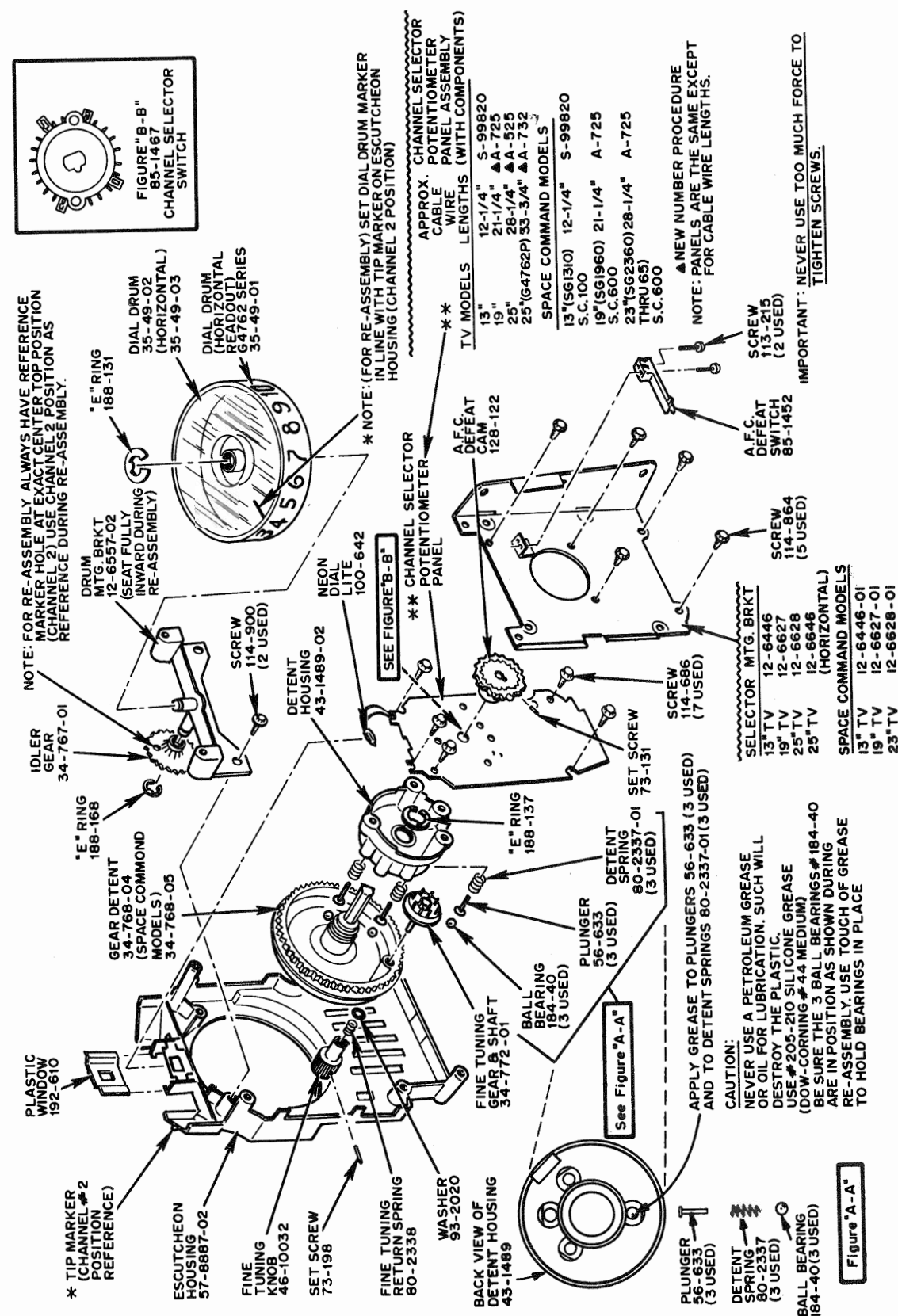
If necessary adjust the Pincushion Amplitude control, R1307, and Phase coil, L1301, until the top and bottom of the pattern is as straight as possible.

CROSSTALK ADJUSTMENT

Connect a color bar generator to the antenna terminals. Tune in a color bar pattern. Turn AFC to "On" position. Turn contrast to MINIMUM, color control to mid-range. Adjust Crosstalk control (R1009) for uniform magenta color across the bar.

CHROMATIC ADJUSTMENT

Push Chromatic Switch (S202) to "On" position.
Adjust Preset Brightness, Contrast, Color, and
Tint for desired level.



PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

MODULES/PLUG-IN BOARDS

| ITEM No. | PART NAME | MFG. PART No. | NOTES |
|----------|-----------|---------------|---|
| | Module | 9-86-01E | Chroma Subcarrier Regenerator |
| | Module | 9-86-01B | Chroma Subcarrier Regenerator (Used in some versions) |
| | Module | 9-87B | Sync and AGC |
| | Module | 9-87A | Sync and AGC (Used in some versions) |
| | Module | 9-88-02 (1) | Low Level Luminance |
| | Module | 9-88-01 (1) | Low Level Luminance (Used in some versions) |
| | Module | 9-89B (2) | Video Output |
| | Module | 9-89 (2) | Video Output (Used in some versions) |
| | Module | 9-89-01 (2) | Video Output (Used in some versions) |
| | Module | 9-90A | Horiz. AFC Osc |
| | Module | 9-124-01 (1) | Tuner Control |
| | Module | 9-124 (1) | Tuner Control (Used in some versions) |
| | Module | 9-92 | Vertical Osc |
| | Module | 9-103-01 (3) | Audio Amp |
| | Module | 9-107-01 (3) | Audio Amp (Used in some versions) |
| | Module | 9-123 | Power Supply |
| | Module | 150-190C(X) | Video IF |

- (1) Noninterchangeable.
(2) Fully interchangeable.
(3) Electronic interchangeable: Mechanically 9-103-01 and 9-107-01 fit all chassis, may be difficult to remove, if mounted on chassis using new hold down.

PICTURE TUBE

| ITEM No. | REPLACEMENT DATA | | | | NOTES |
|----------|------------------|---------------------------|--------------|-------------------|------------------------|
| | MFG. PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | SYLVANIA PART No. | |
| VX201 | 25VDWP22 # | | | AA25VDMP22 | Used in Chassis 25GC45 |
| | 25VCEP22 # | | | AA23VCGP22 | Used in Chassis 23GC45 |

For SAFETY use only equivalent replacement part.

SEMICONDUCTORS (Select replacement transistor for best results)

| ITEM No. | TYPE | MFG. PART No. | REPLACEMENT DATA | | | | | | | |
|----------|----------------|---------------|---------------------------|----------------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|
| | | | GENERAL ELECTRIC PART No. | INTERNATIONAL RECTIFIER PART No. | MALLORY PART No. | MOTOROLA PART No. | RAYTHEON PART No. | RCA PART No. | SPRAGUE PART No. | SYLVANIA PART No. |
| CR101 | 24V Zener | 103-23 | 1N34AS | 1N34A | PTC207 | HEPR9134 | RE 47 | SK3087 | RT-200 | ECG109 |
| CR102 | | 103-23 | 1N34AS | 1N34A | PTC207 | HEPR9134 | RE 47 | SK3087 | RT-200 | ECG109 |
| CR103 | | 103-202 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR104 | | 103-271 | 1N34AS(7) | 1N34A(7) | PTC207M(6) | HEPR9134(7) | RE 86(6) | SK3087(7) | RT-200(7) | ECG110(6) |
| CR105 | | 103-271 | | | | | | | | |
| CR106 | | 103-271 | 1N34AS | 1N34A | PTC207 | HEPR9134 | RE 47 | SK3087 | RT-200 | ECG109 |
| CR204 | | 103-105# | | | | | | | | |
| CR210 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR212 | | 103-193# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-210 | ECG116 |
| CR213 | | 103-196 | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-210 | ECG116 |
| CR215 | 7.5V Zener | 103-196# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CR216 | | 103-194 | GEZD-7.5 | Z1207 | PTC504 | HEPZ0410 | RE 11 | SK3059 | RT-239 | ECG138 |
| CR217 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR401 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR601 | | 212-76 | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| | | (1) | | | | | | | | |
| CR603 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR604 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR606 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR607 | 24V Zener 2.5W | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR608 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR609 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR611 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR612 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR613 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR619 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR621 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR622 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR623 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR701 | 24V Zener 2.5W | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR702 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR703 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR704 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR705 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR706 | | 103-254 | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CR707 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR801 | | 103-142-01 | GE-300(7) | D200MP(6) | PTC214M(6) | HEPR0602(7) | RE 52(7) | SK3100(7) | RT-218(7) | ECG178MP(6) |
| CR802 | | 103-142-01 | | | | | | | | |
| CR803 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR901 | 24V Zener 2.5W | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR902 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR903 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR904 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR1002 | | 103-142-01 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR1202 | | 103-144-01 | | | 1N5359A | HEPZ2526 | | | | ECG5137 |
| CRX201 | | 212-76# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX202 | | 212-76# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX206 | | 103-254# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX207 | | 103-254# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX208 | 24V Zener 2.5W | 103-254# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX209 | | 103-254# | GE-504A | 8D6 | PTC202 | HEPR0054 | RE 49 | SK3017A | RT-215 | ECG116 |
| CRX211 | | 103-193# | GE-511 | D172 | PTC216 | HEPR3012 | RE 55 | SK3130 | RT-203 | ECG506 |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

| ITEM | PART No. | ITEM | PART No. |
|--|------------|---|------------|
| Models G4541W/3W/5P/7H/8DE/8P/9PH/50DE/50P | | Model G8748P | |
| Knob - Horiz Hold | 46-5829 | Knob - Horiz Hold | 46-5829 |
| Knob - Volume | 46-7662 | Knob - On/Off Push Button | 46-9778-15 |
| Knob - UHF Channel Selector | 46-9767-01 | Knob - Stereo Controls Bass, Treble, Balance, Loudness, Mode Switch | 46-9816 |
| Knob - AFC | 46-9778-09 | | |
| Knob - VHF Fine Tuning | 46-9785 | Knob - Stereo Tuning | 46-9817 |
| Knob - UHF Fine Tuning | 46-9787 | Knob - TV Volume | 46-9957-01 |
| Knob - VHF Channel Selector | 46-9789 | Knob - Channel Selector | 46-9974 |
| Model G4740W | | Models GT2858W, GT2860P | |
| Knob - Horiz Hold | 46-5829 | Knob - Horiz Hold | 46-5829 |
| Knob - Push Button On/Off | 46-9778-15 | Knob - Volume | 46-7662 |
| Knob - Volume | 46-9957-01 | Knob - UHF Channel Selector | 46-9767-01 |
| Knob - UHF, VHF Channel Selector | 46-9974 | Knob - AFC Push Button | 46-9778-09 |
| Models G4744P/6H/8DE/8P/9E/50X/51P/54E/60X | | Knob - UHF Fine Tuning | 46-10008 |
| Knob - Horiz Hold | 46-5829 | Knob - VHF Fine Tuning | 46-10009 |
| Knob - On/Off Push Button Models G4744P/6H/8DE/8P/9E/51P/54E | 46-9778-14 | Knob - VHF Channel Selector | 46-10010 |
| Knob - On/Off Push Button Models G4744P/6H/8DE/8P/9E/51P/54E | 46-9778-15 | | |
| Knob - Volume Models G4750X/60X | 46-9957 | Models GT2873P/75H/77P | |
| Knob - Volume Models G4744P/48H/48DE/P/49E/51P/54E | 46-9957-01 | Knob - Horiz Hold | 46-5829 |
| Knob - Channel Selector Models G4750X/60X | 46-9975 | Knob - AC | 46-9778-15 |
| Knob - Channel Selector Models G4744P/6H/8DE/P/9E/51P/54E | 46-9974 | Knob - Volume | 46-9957-01 |
| Models G4762P/64E/68H/67PH/68P/69P | | Knob - Channel Selector | 46-9974 |
| Knob - Horiz Hold | 46-5829 | Model GT2881DE/P | |
| Knob - On/Off Push Button Model 4762P | 46-9778 | Knob - Horiz Hold | 46-5829 |
| Knob - On/Off Push Button Models G4764E/68H/67PH/68P/69P | 46-9778-01 | Knob - AFC, On/Off Push Button | 46-9778-01 |
| Knob - UHF and VHF Channel Selector | 46-10005 | Knob - UHF-VHF Tuning | 46-10011 |
| Model G4762P | | Knob - Volume (Slide) | 46-10012 |
| Knob - UHF and VHF Channel Selector Models G4764E/68H/67PH/68P/69P | 46-10011 | Models S2923W/26P | |
| Knob - Slide Volume Model G4762P | 46-10007 | Knob - Horiz Hold | 46-5829 |
| Knob - Slide Volume Models G4764E/68H/67PH/68P/69P | 46-10012 | Knob - Volume | 46-7662 |
| | | Knob - VHF Fine Tuning | 46-9800 |
| | | Knob - UHF Channel Selector | 46-9812 |
| | | Knob - UHF Fine Tuning | 46-9913 |
| | | Knob - VHF Channel Selector | 46-10044 |
| | | Model S2937W | |
| | | Knob - Horiz Hold | 46-5829 |
| | | Knob - AFC - AC | 46-9778-01 |
| | | Knob - VHF Fine Tuning | 46-9800 |
| | | Knob - Volume | 46-9836 |
| | | Knob - UHF Channel Selector | 46-9912 |
| | | Knob - Fine Tuning | 46-9913 |
| | | Knob - VHF Channel Selector | 46-10044 |

WIRING DATA

| | |
|-------------------------------------|---|
| High Voltage Lead | Use BELDEN No. 8866 (40 KV) |
| Shielded Hook-up Wire | Use BELDEN No. 8208 or 8421 (Single-Conductor) |
| | 8208 (Two-Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8528 (Solid) Available in 12 Colors |
| | 8522 (Stranded) Available in 12 Colors |
| 300-Ohm Tuner Input Lead | Use BELDEN No. 8225 |
| 75-Ohm Tuner Input Lead | Use BELDEN No. 8241 |
| 300-Ohm Antenna Lead-in | Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed) |
| Antenna Rotor Cable | Use BELDEN No. 8464 (Flat) or 8484 (Round) 4-Conductor |
| | 8485 (Round) - 5 Conductor |
| | 8488 (Round) - 8 Conductor |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

FUSE DEVICES

| ITEM No. | DESCRIPTION | REPLACEMENT DATA | | | | | |
|----------|--|------------------|--------|---------------|--------|---------------------|------------------|
| | | PART No. | | BUSS PART No. | | LITTELFUSE PART No. | |
| | | DEVICE | HOLDER | DEVICE | HOLDER | DEVICE | WORKMAN PART No. |
| FX201 | Circuit Breaker 1A @ 125V Hold 1.8A Break 3.1A | 85-976-02 # | | | | 81502.7 | FA3.5 |
| FX202 | 4A @ 250V Quickacting Pigtail | 136-114-23 # | | GJV-4 | | 318004 | |
| FX203 | .6A @ 250V Quickacting Pigtail | 136-114-13 # | | GJV-6/10 | | 318.600 | |
| | .6A @ 250V | 136-87 # (1) | | | | | |

For SAFETY use only equivalent replacement part.
(1) Used in some versions.

MISCELLANEOUS

| ITEM No. | PART NAME | PART No. | NOTES |
|----------|-----------------------|-------------------|---|
| | AC Power Cord | 11-240-02 | Used in Models: G4541W/3W/5P/7M/8P/9PN; G4550DE/P; G4742W/4P/6M/8P/9E; G4750X/51P/54E/60X/62P/64E/66M/ 67PN/68P/69P; GT2881DE, P; S2923W/26P/37W; SG2361P/2PN |
| | AC Power Cord | 11-237 | Used in Models: G4740W; GT2858W/60P/73P/75M/77P |
| | AC Power Cord | 11-235 | Used in Models: G8748P (Line Cord with Plug and Socket) |
| | AC Power Cord | 11-241 | Used in Models: G8748P (Line Cord and Plug) |
| | VHF Antenna | 1-221-03 | Used in Models: G4541W, G4740W |
| | VHF Antenna | SB6924-01 | Used in Models: G4541W, G4740W |
| | VHF Tuner | 175-1513 | |
| | VHF Tuner | 175-1514 | |
| | VHF Tuner | 175-1814 | |
| | VHF Tuner | 175-2207-20/41/50 | |
| | UHF Tuner | 175-985 | |
| | UHF Tuner | 175-1611 | |
| | UHF Tuner | 175-2225-01 | |
| | UHF Tuner | 175-1959 | |
| | Crystal | 103-152-01 | 3.58MHz |
| | Spark Gap | | |
| | Degaussing Coil | 20-3548 | Used in 23GC45 Chassis (23") |
| | Degaussing Coil | 20-3548-08 | Used in 25GC45 Chassis (25") |
| | Switch | 83-1353-01 | Normal-Service |
| | Switch | 85-1288 | Chromatic. Used in Models G4541W/3W/5P/7M/8DE/9PN; G4550DE,P; GT2858W/60P |
| | Switch | 85-1291 | Chromatic. Used in Model G4762P |
| | Switch | 85-1290 | Chromatic. Used in Models G4720W/64E/66M/67PN/68DE/P,69P; GT2881DE/P |
| | Switch | 85-1291-09 | Chromatic. Used in Models G4740W/44P/51P/46M/49E/54E/48DE; G8748P; GT2873P/75M/77P |
| | Switch | 85-1291-10 | Chromatic. Used in Models G4750X/60X |
| | Switch | 85-1291-14 | Chromatic. Used in Models SG2361P/62PN |
| | Switch | 46-9778-09 | AFC. Used in Models G4541W/3W/5P/7M/8DE/9PN; G4550DE/P;GT2858W/60P |
| | Switch | 85-1452 | AFC. Used in Models G4762P/64E/66M/67PN/68DE/68P/69P |
| | Switch | 85-1282 | AFC. Used in Models G4742W;S2937W |
| | Switch | 85-1291-28 | AFC. Used in Models S2923W, S2926P |
| | Switch | 85-1390 | Color Set-up |
| | Switch | 46-9778-15 | On-Off Used in Models G4740W/44P/46M/48DE/P/49E/51P/54E; GT2873P/75M/77P |
| | Switch | 46-9778-14 | On-Off Used in Models G4750X/60X |
| | Switch | 46-9778 | On-Off Used in Models G4762P |
| | Switch | 46-9778-01 | On-Off Used in Models G4764E/6M/7PN/8DE/P/9P |
| | Switch | 85-1283 | On-Off Used in Models G4742W; S2937W |
| | Switch | 85-1238 | Hi-Low Used in Models SG2361P, SG2362PN |
| | Switch | 85-1109 | AFC Defeat Used with VHF Tuner 175-2207-50 only |
| | Switch | A-02841 | Manual-Remote-Off Used in Models SG2361P, SG2362PN |
| | Spark Gap | 52-2240-03 | |
| | Spark Gap | 52-2240-03 | |
| | Spark Gap | 52-2240-03 | |
| | Spark Gap | 52-2240-03 | |
| | Magnet | S-97121 | Purity and Blue Lateral |
| | Printed Circuit Board | S-94761-01 | Pincushion |
| | Printed Circuit Board | S-99770 | Pincushion Used in some versions |
| | Printed Circuit Board | S-94680 | Convergence |
| | Printed Circuit Board | A-373 | Convergence Used in some versions |
| | Socket | 70-2204 | CRT |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

| ITEM No. | TYPE No. | MFR. PART No. | REPLACEMENT DATA | | | | | | | |
|----------|----------|--------------------------------|---------------------------|----------------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|
| | | | GENERAL ELECTRIC PART No. | INTERNATIONAL RECTIFIER PART No. | MALLORY PART No. | MOTOROLA PART No. | RAYTHEON PART No. | RCA PART No. | SPRAGUE PART No. | SYLVANIA PART No. |
| CRX214 | | 212-145# 212-141-02# (1) | | | | | | | | |
| CRX218 | | 103-142# | GE-300 | D200 | PTC214 | HEPRO602 | RE 52 | SK3100 | RT-218 | ECG177 |
| IC401 | | 221-45-01 | GEIC-13 | | PTC731 | | | | TVM-15 | |
| IC901 | | 221-78 | | | | | | | | |
| IC1001 | | 221-69 | GEIC-33 | | PTC733 | | RE324-IC | SK3149 | TVM-34 | ECG791 |
| IC1002 | | 221-42 | GEIC-4 | IC509 | PTC715 | HEPS6070P | RE 307-IC | SK3075 | TVM-8 | ECG714 |
| | | 221-87(1) | | | PTC715 | | | | | |
| IC1101 | | 221-48 | GEIC-2 | IC507 | PTC726 | HEPC6063P | RE 305-IC | SK3072 | TVM-11 | ECG712 |
| IC1102 | | 221-77 | GEIC-27 | | PTC732 | HEPC6090 | RE 322-IC | | TVM-65 | |
| Q101 | | 121-501 | GE-39 | TR-70 | PTC126 | HEPS0017 | RE 28 | SK3039 | RT-187 | ECG161 |
| | | 121-503(1) | GE-60 | TR-24 | PTC132 | HEPS0020 | RE 28 | SK3117 | RT-187 | ECG161 |
| Q102 | | 121-509 | GE-60 | TR-53 | PTC132 | HEPS0020 | RE 28 | SK3117 | RT-187 | ECG161 |
| | | 121-507(1) | GE-60 | TR-70 | PTC132 | HEPS0020 | RE 28 | SK3117 | RT-187 | ECG161 |
| | | 121-508(1) | GE-60 | TR-70 | PTC132 | HEPS0020 | RE 28 | SK3117 | RT-187 | ECG161 |
| Q103 | | 121-524 | GE-60 | TR-70 | PTC132 | HEPS0020 | RE 192 | SK3117 | RT-187 | ECG233 |
| | | 121-526(1) | GE-61 | TR-21 | PTC132 | HEPS0020 | RE 192 | SK3117 | RT-187 | ECG233 |
| Q104 | | 121-895 | GE-60 | TR-51 | PTC132 | HEPS0020 | RE 28 | SK3117 | RT-187 | ECG161 |
| Q105 | | 121-925 | GE-20 | TR-21 | PTC123 | HEPS0020 | RE 10 | SK3018 | RT-107 | ECG108 |
| Q106 | | 121-986 | GE-22 | TR-30 | PTC103 | HEPS0019 | RE 26 | SK3025 | RT-126A | ECG159 |
| Q701 | | 121-973 | GE-21 | TR-30 | PTC131 | HEPS0019 | RE 18 | SK3114 | RT-106 | ECG129 |
| Q702 | | 121-975 | GE-20 | TR-24 | PTC136 | HEPS0025 | RE 13 | SK3122 | RT-172 | ECG123A |
| Q703 | | 121-972 | GE-20 | TR-21 | PTC136 | HEPS0015 | RE 13 | SK3122 | RT-172 | ECG123A |
| Q704 | | 121-972 | GE-20 | TR-21 | PTC136 | HEPS0015 | RE 13 | SK3122 | RT-172 | ECG123A |
| Q705 | | 121-972 | GE-20 | TR-21 | PTC136 | HEPS0015 | RE 13 | SK3122 | RT-172 | ECG123A |
| Q706 | | 121-980 | GE-58 | TR-73 | PTC111 | HEPS0006 | RE 76 | SK3083 | RT-185 | ECG185 |
| Q707 | | 121-988(5) | GE-69 | TR-77 | PTC166 | HEPS0006 | RE 22 | SK3083 | RT-155 | ECG153 |
| | | 121-969(5) | GE-69 | TR-77 | PTC166 | HEPS0006 | RE 22 | SK3083 | RT-155 | ECG153 |
| | | (1) | | | | | | | | |
| Q708 | | 121-970(5) | GE-66 | TR-76 | PTC167 | HEPS0000 | RE 21 | SK3054 | RT-154 | ECG152 |
| | | 121-987(5) | GE-66 | TR-76 | PTC167 | HEPS0000 | RE 21 | SK3054 | RT-154 | ECG152 |
| | | (1) | | | | | | | | |
| Q801 | | 121-931 | GE-20 | TR-21 | PTC123 | HEPS0015 | RE 13 | SK3122 | RT-172 | ECG123A |
| Q802 | | 121-888 | GE-20 | TR-53 | PTC123 | HEPS0025 | RE 10 | SK3122 | RT-112 | ECG108 |
| Q803 | | 121-755 | GE-27 | TR-75 | PTC124 | HEPS0015 | RE 44 | SK3104 | RT-159A | ECG190 |
| Q804 | | 121-447 | GE-10 | TR-21 | PTC123 | HEPS0015 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q1204 | | 121-952 | GE-22 | | PTC103 | HEPS0022 | RE 26 | SK3114 | RT-101 | ECG159 |
| Q1205 | | 121-868 | GE-27 | TR-60 | PTC117 | HEPS0021 | RE 23 | SK3104 | RT-159A | ECG171 |
| Q1206 | | 121-868 | GE-27 | TR-60 | PTC117 | HEPS0021 | RE 23 | SK3104 | RT-159A | ECG171 |
| Q1207 | | 121-868 | GE-27 | TR-60 | PTC117 | HEPS0021 | RE 23 | SK3104 | RT-159A | ECG171 |
| QX201 | | 121-966# | GE-57 | TR-55 | PTC110 | HEPS0003 | RE 21 | SK3054 | RT-154 | ECG152 |
| QX202 | | 121-831# | GE-36 | TR-93 | PTC129A | HEPS0021 | RE 30 | SK3111 | RT-140 | ECG163 |

For SAFETY use only equivalent replacement part.
(1) Used in some versions.
(5) Half of complementary pair (Q707 and Q708).
(6) Matched pair.
(7) Two required - select matched pair.

ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | REPLACEMENT DATA | | | | | |
|----------|----------------|------------------|---------------|--------------------|---------------------------|------------------|------------------|
| | | MFR. PART No. | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C149 | .47 50V | 22-7304 | RME-A-J-001 | EP50-1 | PC1-50 | VTT47B63 | EV-1610 |
| C203 | 100 50V | 22-7143-08 | ME-J100 | EA50-100 | WBR100-50 | TC3501D | TVA-1310 |
| C226 | 100 50V | 22-7143-08 | ME-J100 | EA50-100 | WBR100-50 | TC3501D | TVA-1310 |
| C239 | 15 25V NP | 22-7227 | CTA-7350 | | WNP20-50 | TCN2516B | TVAN-1204.3 |
| C241 | 10 75V NP | 22-6008 | CTA-7550 | | | TCN1512 | TVAN-1333 |
| C244 | 100 50V | 22-7143-08 | ME-J100 | EA50-100 | WBR100-50 | TC3501D | TVA-1310 |
| C401 | 5 15V | 22-5424 | ME-1-E-005 | EA15-5 | WBR5-50 | TT15X5 | TVA-1144 |
| C405 | 1 25V NP | 22-6693 | CTA-7425 | EN50-105 | WNP1-50 | TCN501A | TVAN-1560 |
| C407 | 1 25V | 22-3615 | ME-1-G-001 | EA30-1 | WBR1-50 | TT25X1 | TVA-1200 |
| C701 | 33 25V | 22-7152-06 | ME-4-G-035 | EP30-25 | PC30-25 | VTT33025 | EV-1325 |
| C704 | .47 50V | 22-6872-01 | (1) | | | TOC474M050EL | SD50-R479 |
| C708 | .47 50V | 22-6872-01 | | | | TOC474M050EL | SD50-R479 |
| C709 | 1.5 50V | 22-7232-01 | | | | TOC155M050FL | SD50-1R59 |
| C710 | 3.3 25V | 22-7142-02 | | | | | |
| C806 | 3.3 25V | 22-7283 | RME-A-H-003 | EP30-5 | PC5-50 | VTT3R3A50 | EV-1318 |
| C901 | .47 50V NP | 22-7407 | RME-A-H-003 | EP30-5 | PC5-50 | VTT3R3A50 | EV-1318 |
| C903 | .47 50V | 22-7390 | CTA-7425 | EN50-105 | WNP1-50 | TCN501A | TVAN-1560 |
| C906 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | VTT47B63 | EV-1610 |
| C907 | 4.7 25V | 22-7389-01 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1CB50 | EV-1615 |
| C1007 | 2.2 50V | 22-7390-01 | RME-A-J-005 | EP30-5 | PC5-50 | VTT47A50 | EV-1319 |
| C1020 | 10 25V | 22-7389 | RME-A-J-002 | EP50-2 | PC2-100 | VTT21A250 | EV-1517 |
| C1107 | 4.7 25V | 22-7152-03 | RME-B-G-010 | EP30-10 | PC10-25 | VTT11A25 | EV-1322 |
| C1111 | 100 25V | 22-7152-08 | RME-A-J-005 | EP30-5 | PC5-50 | VTT47A50 | EV-1319 |
| C1113 | 100 25V | 22-7152-08 | RME-G-G-100 | EP30-100 | PC100-25 | VTT1100G25 | EV-1330 |
| | 100 25V | 22-7152-08 | RME-G-G-100 | EP30-100 | PC100-25 | VTT1100G25 | EV-1330 |
| | 100 25V | 22-4981 (1) | RME-G-G-100 | EP30-100 | PC100-25 | VTT1100G25 | EV-1330 |
| C1116 | 220 25V | 22-7152-09 | RME-G-G-100 | EP30-100 | PC100-25 | VTT1100G25 | EV-1330 |
| CX213 | 3.5 440V NP 6% | 22-7126-01 # | RME-K-G-250 | EP30-250 | PC250-25 | VTT220H25 | EV-1340 |
| CX214A | 400 150V | 22-7436 # | | | | | |
| B | 400 150V | | | | | | |
| C | 500 35V | | | | | | |
| D | 10 300V | | | | | | |
| CX216 | 1000 50V | 22-5362 # | ME-J1000 | EA50-1000 | WBR1000-50 | TC50100C | TVA-1316 |
| CX218 | 1000 50V | 22-7259 # | ME-J1000 | EA50-1000 | WBR1000-50 | TC50100C | TVA-1316 |
| CX227 | 50 10V | 22-6283 # | ME-3-D-050 | EA15-50 | WBR50-25 | TT10X50A | TVA-1129.94 |

For SAFETY use only equivalent replacement part.
(1) Used in some versions.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS

| ITEM No. | RATING | MFR. PART No. | REPLACEMENT DATA | | | | |
|----------|----------------|---------------|------------------|--------------------|---------------------------|------------------|------------------|
| | | | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C101 | 56 N1500 10% | 22-6157 | * | | | * | 10TCW-Q56 |
| C102 | 10 NPO 5% | | | DTZ-10 | NP010 | CN0410 | 10TCC-Q10 |
| C103 | 6 NPO 5% | | | DTZ-6R8 | NP06P8 | | 10TCC-V68 |
| C104 | 30 NPO 5% | | CCT0-300 | | | | 10TCC-Q30 |
| C106 | 10 NPO 5% | | | DTZ-10 | NP010 | CN0410 | 10TCC-Q10 |
| C107 | 10 NPO 5% | | | DTZ-10 | NP010 | CN0410 | 10TCC-Q10 |
| C108 | 12 NPO 5% | | | | | CN0412 | 10TCC-Q12 |
| C109 | 4.25 N075 +.25 | 22-6184 | | | | | |
| C110 | 6 N150 +.25 | 22-6158 | | | | | |
| C111 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C113 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C114 | 220 10% | | CCD-221 | DD-221 | | GP322 | 10TS-T22 |
| C115 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C117 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C118 | 12 NPO 5% | | | | | CN0412 | 10TCC-Q12 |
| C119 | 140 N1500 10% | | * | DTX-151 | | | 10TCW-T15 |
| C120 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C121 | 26 N075 5% | 22-6181 | | | | * | |
| C122 | 24 NPO 5% | | | DTZ-25 | NP025 | CN0425 | 10TCC-Q25 |
| C123 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C124 | 100 N1500 10% | | * | DTX-101 | | CN15-310 | 10TCW-T10 |
| C125 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C127 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C128 | 12 NPO 5% | | | | | CN0412 | 10TCC-Q12 |
| C129 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C130 | 12 NPO 5% | | | | | CN0412 | 10TCC-Q12 |
| C131 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C132 | 1.5 10% | | | DTZ-1R5 | NP01P5 | CN0515 | 10TCC-V15 |
| C133 | 6 NPO 5% | | | DTZ-6R8 | NP06P8 | | 10TCC-V68 |
| C134 | 17 NPO 5% | | | | | CN0418 | 10TCC-Q18 |
| C135 | 100 NPO 5% | | | DTZ-100 | NP0100 | CN0310 | 10TCC-T10 |
| C136 | 6 NPO 5% | | | DTZ-6R8 | NP06P8 | | 10TCC-V68 |
| C137 | 3.9 NPO +.5 | 22-6171 | | | | | |
| C138 | 4.25 N075 +.25 | 22-6184 | | | | | |
| C139 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C140 | 8 NPO 5% | | | | | | |
| C141 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C142 | 4.25 N075 +.25 | 22-6184 | | | | | |
| C143 | 3.6 N075 +.25 | 22-6170 | | | | | |
| C144 | 180 100V 5% | | DM10-181J | CPR-180J | CD7FD181J03 | SX318 | 424ME1800J501 |
| C145 | 5 NPO 5% | | CCT0-050 | | | | 10TCC-V50 |
| C146 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C147 | 15 NPO 5% | | | DTZ-15 | NP015 | CN0415 | 10TCC-Q15 |
| C148 | 220 10% | | CCD-221 | DD-221 | | GP322 | 10TS-T22 |
| C150 | .01 | | CCD-103 | DD-1032 | GP10000 | GP110 | 10TS-S10 |
| C151 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C152 | 10 NPO 5% | 22-6185 | | DTZ-10 | NP010 | CN0410 | 10TCC-Q10 |
| C153 | 20 N075 5% | | | | | * | |
| C154 | 20 NPO 5% | | | DTZ-20 | NP020 | CN0420 | 10TCC-Q20 |
| C155 | .001 | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C156 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C157 | .0015 | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C158 | .47 10% | | 1MDF-4-474 | | DPMS2P47 | EWFA047 | 1PB-P47 |
| C159 | 100 N1500 10% | | * | DTX-101 | | CN15-310 | 10TCW-T10 |
| C160 | 100 N1500 10% | | * | DTX-101 | | CN15-310 | 10TCW-T10 |
| C200 | 68 N750 10% | | CCTN-600 | DTN-68 | H68 | CN7468 | 10TCU-Q68 |
| C201 | .047 100V | | 1MDF-2-473 | | DPMS2S47 | EWFA147 | 1PB-S47 |
| C202 | .47 200V | | 2DP-5-474 | | DPMS2P47 | EWFA047 | 2PB-P47 |
| C204 | .0018 1KV 10% | | CCS-182 | | GP1800 | GP218 | 10TS-D18 |
| C205 | 100 N1500 10% | | * | DTX-101 | | CN15-310 | 10TCW-T10 |
| C206 | .0068 25V | | CCD-682 | DD-682 | GP6800 | GP268 | 10TS-D68 |
| C207 | .001 3KV 10% | | 3CCD-102 | DD30-102 | HV3-1000 | 3HV210 | 30GA-D10 |
| C208 | .01 1.5KV | | | DD16-103 | | 2HV110 | 30GA-S10 |
| C209 | .001 3KV 10% | | 3CCD-102 | DD30-102 | HV3-1000 | 3HV210 | 30GA-D10 |
| C210 | 100 N1500 10% | | * | DTX-101 | | CN15-310 | 10TCW-T10 |
| C211 | .001 3KV 10% | | 3CCD-102 | DD30-102 | HV3-1000 | 3HV210 | 30GA-D10 |
| C217 | 100 N750 5% | | | DTN-100 | H100 | CN7310 | 10TCU-T10 |
| C224 | .0033 400V 10% | | 6DP-1-332 | | DPMS6D33 | EWFA233 | 6PS-D33 |
| C242 | .39 200V 10% | | 2DP-5-474 | | DPMS2P47 | EWFA047 | 2PB-P47 |
| C245 | .1 200V 10% | | 2DP-3-104 | | DPMS2P1 | EWFA010 | 2PB-P10 |
| C246 | .039 100V 10% | | 6DP-3-393 | | DPMS6S39 | PVC6139 | 6PS-S39 |
| C247 | 150 | | CCD-151 | DD-151 | | CN0315 | 10TCC-T15 |
| C248 | 150 | | CCD-151 | DD-151 | | CN0315 | 10TCC-T15 |
| C249 | 150 | | CCD-151 | DD-151 | | CN0315 | 10TCC-T15 |
| C296 | .01 | | CCD-103 | DD-1032 | GP10000 | GP110 | 10TS-S10 |
| C299 | .01 1.5KV | | | DD16-103 | | 2HV110 | 30GA-S10 |
| C402 | .01 50V | | DM30-103J | CPR-10000J | CD20FD103J03 | SX110 | |
| C403 | .01 100V 10% | | 1MDF-1-103 | | DPMS4S1 | EWFA110 | 1PB-S10 |
| C404 | .22 50V 10% | | 1MDF-4-224 | CPJ-103 | DPMS2P22 | EWFA022 | 1PB-P22 |
| C406 | .22 50V 10% | | 1MDF-4-224 | | DPMS2P22 | EWFA022 | 1PB-P22 |
| C409 | 75 NPO 5% | | | DTZ-75 | NP075 | CN0475 | 10TCC-Q75 |
| C410 | .015 50V 10% | | 1MDF-1-153 | CFJ-153 | DPMS4S15 | EWFA115 | 1PB-S15 |
| C411 | .560 10% | | CCD-561 | DC-561 | | GP356 | 10TS-T56 |
| C601 | .1 10% | | 1MDF-3-104 | | DPMS2P1 | EWFA010 | 1PB-P10 |
| C602 | .1 200V 10% | | 2DP-3-104 | | DPMS2P1 | EWFA010 | 2PB-P10 |
| C603 | .082 200V 10% | | 6DP-4-823 | | DPMS6S82 | PVC6182 | 6PS-S82 |
| C604 | .056 200V 10% | | 6DP-3-563 | | DPMS6S56 | PVC6156 | 6PS-S56 |
| C702 | .047 100V | | 1MDF-2-473 | | DPMS2S47 | EWFA147 | 1PB-S47 |
| C703 | .0022 100V 10% | | DM19-222J | CPR-2200J | CD19FD222J03 | SX222 | 424ME2201J501 |
| C705 | .1 100V 10% | | 1MDF-3-104 | | DPMS2P1 | EWFA010 | 1PB-P10 |
| C706 | .015 50V 10% | | 1MDF-1-153 | CPJ-153 | DPMS4S15 | EWFA115 | 1PB-S15 |
| C707 | .047 100V | | 1MDF-2-473 | | DPMS2S47 | EWFA147 | 1PB-S47 |
| C708 | .47 100V 10% | | 1MDF-4-474 | | DPMS2P47 | EWFA047 | 1PB-P47 |
| C711 | 220 10% | | CCD-221 | DD-221 | | GP322 | 10TS-T22 |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | NOTES |
|----------|--------------------|---------|-------------------------------|------------------|---------------------|----------------|--|
| | CURRENT (Measured) | DC RES. | INDUCTANCE (0 CURRENT 1000 ~) | MFR. PART No. | THORDARSON PART No. | TRIAD PART No. | |
| TX202 | .36A DC | 4 | .07H | 95-2925-04 # | | | # For SAFETY use only equivalent replacement part. |

TRANSFORMER (Power)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | NOTES |
|----------|-------------------------|--|----------------------------|------------------|---------------------|----------------|--|
| | PRI. | SEC. 1 | SEC. 2 | MFR. PART No. | THORDARSON PART No. | TRIAD PART No. | |
| TX201 | 120V AC 0 .9A AC | 446V AC CT 0 .7A AC 270V AC/CT 0 | 116V AC Degauss- ing | 95-3172-01# | | | # For SAFETY use only equivalent replacement part. |
| | SEC. 3 | .36A DC 70V AC | SEC. 5 | | | | |
| | 5.5V AC 0 .04A AC | CT 0 .4A DC Tapped 0 6V AC 0 .1A AC | | | | | |

SPEAKER

| ITEM No. | TYPE | REPLACEMENT DATA | | NOTES |
|----------|---------------|------------------|---------------|---|
| | | MFR. PART No. | QUAM PART No. | |
| SP1 | 5" PM 16 ohms | 49-1234-02 | 5A05216 | Used in Models G4541H/3H/5P/7M/8P/9PH; GT2050H/60P; SC2361P/62PN; G4740W/42W/44P/46M/48P/49E/ 50X/51P/54E; G6748P; SZ923W/26P/37W |
| | 5" PM | 49-1234-03 | | Used in Models G4550DE, P (Two Used) |
| | 4" x 6" PM | 49-1257 | | Used in Model G4760X (Two Used) |
| | 6" x 5" PM | 49-1196-02 | | Used in Models G4762P/4E/6M/7PN/8P/9P |
| | 6" x 5" PM | 49-1196-01 | | Used in Model GT20010E, P (Two Used) |
| | 5" PM 4 ohms | 49-1234-01 | | Used in Models GT2073P/5M/7P |
| | Horn | 49-1166 | | Used in Model G6748P |
| | 10" PM | 49-1222 | | Used in Model G8748P |
| | | | | |
| | | | | |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

COILS (RF-IF)

| ITEM No. | FUNCTION | REPLACEMENT DATA | | | REMARKS |
|----------|--------------------------|------------------|----------------------|-----------------|---------|
| | | PART No. | OTHER IDENTIFICATION | MILLER PART No. | |
| L101A | Video Input IF Bandwidth | 95-3096-01 | | | |
| L102 | 39.75MHz Trap | 20-3145-01 | | | |
| L103 | 47.25MHz Trap | 20-3409-01 | | | |
| L105 | 1st Video IF | 95-3097-01 | | | |
| L107 | 2nd Video IF | 20-3507-02 | | | |
| L108 | 3rd Video IF (Pri) | 20-3145-01 | | | |
| L109 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L111 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L112 | 41.25MHz Trap | 20-3669 | | | |
| L113 | 3rd Video IF (Sec) | 30-3405-02 | | | |
| L114 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L115 | 4.5MHz Trap | 95-3118 | | | |
| L116 | AFC Input IF | 30-3405-02 | | | |
| L117 | AFC Discr | 95-3069-01 | | | |
| L118 | RF Choke (27uH) | 20-2714 | | | |
| L119 | RF Choke (27uH) | 20-2714 | | | |
| L202 | Delay Line | S-91401-01 | | 7607 | |
| L205 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L208 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L209 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L210 | RF Choke (27uH) | 20-2707 | | 72F275AP | |
| L901 | 3.58MHz Trap | 20-3698 | | | |
| L902 | Peaking (58uH) | 20-2030 | | | |
| L1001 | Chroma Bandpass | 20-3577-02 | | | |
| L1002 | Chroma Take-off | 95-3080 | | | |
| L1003 | RF Choke (7.5uH) | 20-2311 | | | |
| L1004 | Peaking (47uH) | 20-2301 | | 72F475AP | |
| L1005 | Hue | 20-3577-02 | | | |
| L1006 | RF Choke (18uH) | 20-2302 | | 72F185AP | |
| L1204 | Peaking (68uH) | 20-2020 | | 72F685AP | |
| L1205 | RF Choke (20uH) | 20-2041 | | 6152 | |
| L1206 | RF Choke (10uH) | 20-2033 | | 74F105AP | |
| L1207 | Peaking (550uH) | 20-2024 # | | 6144 | |
| LX201 | Peaking (663uH) | 20-2061 # | | 72F684AP | |
| LX207 | Peaking (663uH) | 20-2061 # | | 72F684AP | |
| LX212 | Peaking (663uH) | 20-2061 # | | 72F684AP | |
| T1101 | Quadrature | 95-2785 | | | |
| T1102 | Sound Input IF | 95-2620 | | | |
| TX200 | Line Choke | 95-2964 # | | 5252 (1) | |

For SAFETY use only equivalent replacement part.
(1) Two required.

COILS & TRANSFORMERS (Sweep Circuits)

| ITEM No. | FUNCTION | REPLACEMENT DATA | | | | |
|----------|-----------------------------|------------------|----------------------|-----------------|---------------------|----------------|
| | | MFR. PART No. | OTHER IDENTIFICATION | MILLER PART No. | THORDARSON PART No. | TRIAD PART No. |
| L204 | Horiz Osc (Hold) | S-56075 | | | HS-7 (1) | WLC-25 (1) |
| L601 | Blue Horiz Lines (Right) | 20-3570 | 3578 | | | |
| L602 | R/G Horiz Lines (Right) | 95-3111 | | | | |
| L603 | R/G Vert Lines (Right) | 20-3570 | 3578 | | | |
| L1301 | Pincushion Phase Link Coil | 20-3579 (2) # | | | | |
| LX210 | Convergence Yoke | 20-3654-01 # | | | | |
| T601 | Blue Section | S-94731 | | | | |
| T602 | Green Section | S-94731 | | | | |
| T603 | Red Section | S-94731 | | | | |
| T1301 | Top and Bottom Pincushion | 95-3125 # | | | | |
| T1302 | Pincushion Correction (Alt) | 95-3102 (2) # | | | | |
| TX204 | Side Pincushion | 95-3073-01 # | | | | |
| TX206 | Horiz Driver | 95-2095-02 # | | | | D413 (4) |
| | Horiz Output | 95-3177 # | | | | |
| | | 95-3176 (4) # | | | | |
| TX1303 | Yoke Horiz Coil | 95-3102 # | | | Y200 (5) | YC-320-4 (5) |
| | 90° Vert 21.5uH | | | | | |

For SAFETY use only equivalent replacement part.
(1) Use original extension knob.
(2) Used in some versions.
(3) Part of Horiz Output Transformer TX206.
(4) Used in Chassis 236C45.
(5) See COMPONENT CONNECTION DATA.

SWEEP COMPONENT CONNECTION DATA

| ORIGINAL | HORIZONTAL OUTPUT | | | | | | | VERTICAL OUTPUT | | | | | | |
|-------------|----------------------|---|---|---|---|---|-----|----------------------|--|--|--|--|--|--|
| REPLACEMENT | Original Connections | | | | | | | Original Connections | | | | | | |
| THORDARSON | | | | | | | | | | | | | | |
| TRIAD | EXACT REPLACEMENT | | | | | | | | | | | | | |
| ORIGINAL | YOKE | | | | | | | YOKE PLUG | | | | | | |
| REPLACEMENT | Original Connections | | | | | | | TO YOKE TERMINALS | | | | | | |
| THORDARSON | 1 | 2 | 4 | 5 | 6 | 7 | (1) | | | | | | | |
| TRIAD | 1 | 2 | 4 | 5 | 6 | 7 | (1) | | | | | | | |

(1) Use original yoke plug, pincushion board and mounting assembly.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS (cont)

| ITEM No. | RATING | MFR. PART No. | REPLACEMENT DATA | | | | |
|----------|------------------|---------------|------------------|--------------------|---------------------------|------------------|------------------|
| | | | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C712 | .1 50V | | 1MDF-3-104 | | DPMS2P1 | EWFA1010 | 1PB-P10 |
| C713 | .001 100V 10% | | 1MDF-1-102 | CPJ-102 | DPMS601 | EWFA1210 | 1PB-D10 |
| C801 | 470 1KV 10% | | CCD-471 | DD-471 | GP470 | GP347 | 10TS-147 |
| C802 | .0082 50V 10% | | 1MDF-1-822 | CPJ-822 | DPMS6082 | EWFA1282 | 1PB-D82 |
| C803 | .0082 50V 10% | | 1MDF-1-822 | CPJ-822 | DPMS6082 | EWFA1282 | 1PB-D82 |
| C804 | .018 50V 10% | | 1MDF-1-203 | CPJ-203 | DPMS252 | PVC212 | 2PS-S20 |
| C805 | 470 1KV 10% | | CCD-471 | DD-471 | GP470 | GP347 | 10TS-T47 |
| C807 | .015 50V 10% | | 1MDF-1-153 | CPJ-153 | DPMS4515 | EWFA1115 | 1PB-S15 |
| C808 | .0018 10% | | CCS-182 | DD-182 | GP1800 | GP218 | 10TS-D18 |
| C809 | .0015 10% | | CCD-152 | DD-152 | | GP215 | 10TS-D15 |
| C810 | .0015 N3300 10% | 22-6716 | | | | | |
| C811 | .22 200V | | 6DP-5-224 | | | | |
| C812 | .0033 | | CCD-332 | | DPMS6P22 | EWFA022 | 6PS-P22 |
| C813 | 470 1KV 10% | | CCD-471 | DD-471 | GP470 | GP347 | 10TS-D33 |
| C814 | 20 NPO 10% | | CCD-200 | DD-200 | NP020 | CN0420 | 10TS-T47 |
| C902 | .01 500V | | CCD-103 | DD-1032 | GP10000 | GP110 | 10TS-S10 |
| C904 | .047 | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C905 | 18 NPO 5% | | | | | | |
| C908 | .0015 10% 500V | | CCD-152 | DD-152 | | | |
| C909 | .015 10% | | CPJ-153 | CPJ-153 | DPMS4515 | EWFA1115 | 1PB-S15 |
| C910 | .01 10% | | 1MDF-1-103 | CPJ-103 | DPMS451 | EWFA1110 | 1PB-S10 |
| C911 | 390 10% 500V | | CCD-391 | DD-391 | GP390 | GP339 | 10TS-T39 |
| C912 | .047 | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1001 | .01 | | CCD-103 | DD-1032 | GP10000 | GP110 | 10TS-S10 |
| C1003 | 180 N330 5% | | | | | | |
| C1004 | 470 N1500 5% | | | | | | |
| C1005 | 75 NPO 5% | | | DTX-471 | | CN15-347 | 10TCM-T47 |
| C1006 | 65 NPO 5% | | | DTZ-75 | NP075 | CN0475 | 10TCC-Q75 |
| C1008 | 220 10% | | | DTZ-68 | NP068 | CN0468 | 10TCC-Q68 |
| C1009 | .001 1KV 10% | | CCD-221 | DD-221 | GP10000 | GP322 | 10TS-T22 |
| C1010 | .047 100V | | CCD-103 | DD-1032 | DPMS2547 | GP110 | 10TS-S10 |
| C1011 | 470 1KV 10% | | 1MDF-2-473 | | EWFA1147 | GP347 | 1PB-S47 |
| C1012 | 470 1KV 10% | | CCD-471 | DD-471 | GP470 | GP347 | 10TS-T47 |
| C1013 | .047 100V | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1014 | .047 100V | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1015 | 50 NPO 5% | | | DTZ-50 | NP050 | CN0450 | 10TCC-Q50 |
| C1016 | 12 N075 5% | 22-2379 | | | | | |
| C1017 | 50 NPO 5% | | | DTZ-50 | NP050 | CN15-468 | 10TCM-Q68 |
| C1018 | 65 N1500 5% | | | | | | |
| C1019 | .047 100V | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1021 | .047 100V | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1022 | 290 N750 5% | | | | | | |
| C1023 | 120 N750 100V 5% | | | | | | |
| C1024 | 43 NPO 5% | | | | | | |
| C1025 | .01 | | | | | | |
| C1026 | .01 100V 10% | | CCD-103 | DD-1032 | NP047 | CN0447 | 10TCC-Q47 |
| C1027 | 160 N750 5% | | 1MDF-1-103 | CPJ-103 | GP10000 | GP110 | 10TS-S10 |
| C1028 | 470 100V 5% | | | DTN-150 | DPMS451 | EWFA1110 | 1PB-S10 |
| C1029 | .0033 10% | | DM15-471J | CPN-470J | N150 | CN15-347 | 10TCM-T15 |
| C1030 | 12 N1500 5% | | | | | | |
| C1031 | 120 N750 100V 5% | | | | | | |
| C1032 | 65 N1500 5% | | | | | | |
| C1033 | .01 | | | | | | |
| C1034 | .047 100V | | CCD-103 | DD-1032 | GP10000 | GP110 | 10TS-S10 |
| C1037 | .01 | | 1MDF-2-473 | DD-1032 | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1101 | 6 NPO +5 | | CCD-103 | DTZ-6R8 | NP06P8 | NP015 | 10TCC-Q68 |
| C1102 | 15 NPO 10% | | 1MDF-2-473 | DTZ-15 | | | |
| C1103 | 12 NPO 5% | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1104 | .047 100V | | 1MDF-2-473 | | DPMS2547 | EWFA1147 | 1PB-S47 |
| C1105 | .047 100V | | | | | | |
| C1106 | 120 N30 5% | 22-5912 | | | | | |
| C1108 | .15 12V | 22-5251 | | | | | |
| C1109 | .0033 10% | | CCD-332 | | | | |
| C1110 | .22 50V 10% | | 1MDF-4-224 | | | | |
| C1112 | 220 10% | | CCD-221 | DD-221 | DPMS2P22 | EWFA022 | 10TS-D33 |
| C1114 | .0033 10% | | CCD-332 | | | | |
| C1115 | .15 12V | | | | | | |
| C1211 | 18 NPO 5% | | | | | | |
| C1212 | .001 1KV 10% | | CCD-102 | DD-102 | | CN0418 | 10TCC-Q18 |
| C1213 | 100 NPO 5% | | | DTZ-100 | NP0100 | CN0310 | 10TCC-D10 |
| C1214 | 100 NPO 5% | | | DTZ-100 | NP0100 | CN0310 | 10TCC-T10 |
| C1215 | 18 NPO 5% | | | | | CN0418 | 10TCC-Q18 |
| C1216 | .01 1.5KV | | | | | | |
| C1220 | 100 NPO 5% | | | | | | |
| C1221 | 18 NPO 5% | | | | | | |
| C1303 | .12 10% | | 1MDF-3-154 | | DPMS2P15 | EWFA1015 | 1PB-P15 |
| C1304 | .12 10% | | 1MDF-3-154 | | DPMS2P15 | EWFA1015 | 1PB-P15 |
| CX219 | .0047 1.4KV | 22-6276 # | | | | | |
| CX221 | .1 200V 10% | 22-4368 # | | | | | |
| CX222 | .0047 1KV | 22-7272 # | 2DP-3-104 | | | | |
| CX223 | .0047 1KV | 22-7272 # | CCD-472 | | | | |
| CX228 | .001 | 22-6311 # | | | | | |
| CX229 | .011 1.6KV | 22-7465-01 # | | | | | |
| CX232 | 100 | 22-6866 # | | | | | |
| CX237 | .001 2KV | 22-4979 # | | | | | |
| CX238 | .047 200V 5% | 22-7200-02 # | 3CCD-102 | DD30-102 | HV3-1000 | 3HV210 | 30GA-D10 |
| CX243 | .68 200V 10% | 22-7128 # | | | DMF2P68 | EWFA2068 | 2PB-P68 |
| CX297 | 530 3KV 10% | | | | | | |
| CX298 | 530 3KV 10% | | | | | | |

For SAFETY use only equivalent replacement part.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

| ITEM No. | FUNCTION | RESIST-ANCE | REPLACEMENT DATA | | | | |
|----------|----------------------------|------------------|-------------------------|---|--|---|------------------|
| | | | MFGR. PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | MALLORY PART No. | TRW PART No. |
| R125 | Detector Level | 10K | 63-9697-02 | TSV-10K (3) or T-10K (3) | C-103 (3) | MTC14L4 | U201R103B |
| R204 | Detector Level | 2000 | 63-9697-06 (18) | TSV-2.5K(3) or T-2500 | C-252 (3) | MTC23L4 | U201R252B |
| | Sharpness (Peak Picture) | 300 Detent @ 50% | 63-10528 | F5-500, SNK200, AK-38 | NP-500-V, NML-A-300, TT-2 | RU52R, SL37, SN2000 | BU11, CF50, SS6A |
| | Sharpness (Peak Picture) | 300 | 63-10529 (19) (20) (26) | | | | |
| R208 | Sharpness (Peak Picture) | 300 | 63-10520 (6) | | | | |
| | Red G2 | 5meg | 63-10139 | F1-5Meg, SNK104, AK-45 or [F1-5Meg(10), SNK012] | | PTA56L(10), or [UA56L(10), SN1000] or [RU56L(10), SN1000] | HLC5(10) |
| R209 | Green G2 | 5meg | 63-10137 | F1-5Meg, SNK104, AK-45 or [F1-5Meg(10), SNK012] | | PTA56L(10) or [UA56L(10), SN1000] or [RU56L(10), SN1000] | HLC5 (10) |
| R210 | Volume(Slider Type) | 40K | 63-10570-01 | | | | US403R |
| R211 | Volume(Slider Type) | 40K | 63-7997 (21) | | | | |
| | Volume | 40K | 63-10257(19) (26) | | | | |
| | Volume | 40K | 63-10542(22) | | | | |
| R211 | Volume(Slider Type) | 40K | 63-10570(20) | | | MSD54A | US503A |
| | Blue G2 | 5meg | 63-10138 | F1-5Meg, SNK104, AK45 or [F1-5Meg(10), SNK012] | | PTA56L(10) or [UA56L(10), SN1000] or [RU56L(10), SN1000] | HLC5 (10) |
| R220 | Tone | 15K | 63-10302 (23) | F1-15K, SNK200, AK-38 | A47-15K-S, RN-3, TT-2 or [NP-15K-S, NML-A-300, TT-2] | RU153L, SL37, SN2000 | BU11, CF10, SS6A |
| R234 | Tone | 15K | 63-10256 (20) | | | | |
| R237 | Brightness Limiter | 50 2W | 63-10141 | WT-50 or WB50 | | MR50T or MR50B | P115R500A |
| | Focus | 20meg | 63-10556-1 # | | | | |
| R256 | Focus | 15meg | 63-10276#(6) | | | | |
| R256 | Vert Hold | 150K | 63-10500 | F1-150K, SNK200, AK-38 | A47-150K-S, RN-3, TT-2 or [NP-150K-S, NML-A-300, TT-2] | RU154L, SL37, SN2000 | BU11, CF72, SS6A |
| R257A | Vert Hold | 150K | 63-10258 (19) (20) (26) | | | | |
| | Contrast (Front) | 1000 | 63-10200-04 | | | | |
| | Preset Contrast(Rear) | 1000 | 63-9286-03 (19) | | | | |
| R258A | Contrast | 1000 | 63-10200-09 (20) | | | | |
| | Preset Contrast | 1000 | 63-10589 (26) | | | | |
| | Contrast | 1000 | 63-10592 (28) | | | | |
| R258A | Brightness (Front) | 5000 | 63-10199-09 # | | | | |
| | Preset Brightness (Rear) | 5000 | 63-9286-01 # (19) | | | | |
| | Brightness | 5000 | 63-10587 (26) | | | | |
| R259A | Brightness | 5000 | 63-10199-13 # (20) | | | | |
| | Preset Brightness | 5000 | 63-10590(28) | | | | |
| | Brightness | 5000 | 63-10199-09 | | | | |
| R260A | Color Level (Front) | 5000 | 63-9286-01 (19) | | | | |
| | Preset Color Level (Rear) | 5000 | 63-10199-13 (20) | | | | |
| | Color Level | 5000 | 63-10587 (26) | | | | |
| R260A | Color Level | 5000 | 63-10590 (28) | | | | |
| | Tint (Front) | 250K | 63-10198-08 | | | | |
| | Preset Tint (Rear) | 250K | 63-9286-02 (19) | | | | |
| R260A | Tint | 250K | 63-10198-12 (20) | | | | |
| | Preset Tint | 250K | 63-10588 (26) | | | | |
| | Tint | 250K | 63-10198-01 (22) | | | | |
| R416 | Preset Tint | 250K | 63-10591(28) | | | | |
| | Tint | 250K | 63-9697-01 | TSV-2.5K(3) or T-2500 (3) | C-252 (3) | MTC33L4 | X201R302B (3) |
| | AGC Delay | 3000 | | WP-100, WSK104 | | MR100P, MRS1250 | |
| R601 | Blue Horiz Lines (Left) | 85 3W | 63-9022 | WP-100, WSK104 | | MR100P, MRS1250 | |
| R603 | R/G Horiz Lines (Left) | 60 3W | 63-9015 | WP-100, WSK104 | | MR100P, MRS1250 | |
| R604 | R/G Horiz Lines (Left) | 150 3W | 63-9019 (6) | | | | |
| | R/G Vert Lines(Left) | 70 3W | 63-9021 | WP-100, WSK104 | | MR100P, MRS1250 | |
| R609 | R/G Vert Lines(Left) | 120 3W | 63-9023 (6) | | | | |
| R609 | Blue Horiz. Lines (Bottom) | 300 3W | 63-9016 | | | | |
| R611 | Blue Horiz. Lines (Top) | 300 3W | 63-9016 | | | | |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)(cont)

| ITEM No. | FUNCTION | RESIST-ANCE | REPLACEMENT DATA | | | | |
|----------|--------------------------|----------------|------------------|----------------------------|--------------------|------------------|---------------|
| | | | MFGR. PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | MALLORY PART No. | TRW PART No. |
| R616 | R/G Vert. Lines (Bottom) | 300 3W | 63-9016 | | | | |
| R617 | R/G Horiz Lines (Bottom) | 300 3W | 63-9016 | | | | |
| R618 | R/G Vert Lines (Top) | 300 3W | 63-9016 | | | | |
| R621 | R/G Horiz Lines (Top) | 300 3W | 63-9016 | | | | |
| R717 | Vert Size | 350K | 63-9697-05 | | | MTC3253L4 | |
| R718 | Vert Size | 350K | 63-10585-01 (27) | | | MTC3253L4 | |
| | Vert Centering | 2000 | 63-9697-06 | TSV-2.5K(3), or T-2500 (3) | C-252 (3) | MTC23L4 | U201R252B |
| R912 | Vert Centering | 2000 | 63-10585 (27) | TSV-2.5K (3) or T-2500 (3) | C-252 (3) | MTC23L4 | U201R252B |
| | Brightness Range | 3000 | 63-9697-16 | TSV-2.5K(3) or T-2500 (3) | C-252 (3) | MTC33L4 | X201R302B (3) |
| R1002 | Brightness Range | 3000 | 63-9697-01 (6) | TSV-2.5K(3) or T-2500 (3) | C-252 (3) | MTC33L4 | X201R302B (3) |
| | Color Killer | 100K | 63-9697-15 | TSV-100K (3) or T-100K (3) | C-104 (3) | MTC15L4 | U201R104B |
| R1002 | Color Killer | 100K | 63-9228 (24) | TSV-100K or T-100K | C-104 | MTC15L1 | X201R104B |
| | Color Killer | 100K | 63-9697-04 (25) | TSV-100K (3) or T-100K (3) | C-104 (3) | MTC15L4 | U201R104B |
| R1009 | Crosstalk | 10K | 63-10531 | | | | |
| R1015 | Crosstalk | 10K | 63-10521 (24) | | | | |
| R1015 | ACC | 20K | 63-9697-14 | T-20K(3) or TSV-25K (3) | C-253 (3) | MTC24L4 | U201R253B |
| | ACC | 20K | 63-9697 | T-20K(3) or TSV-25K (3) | C-253 (3) | MTC24L4 | U201R253B |
| R1018 | APC | 20K | 63-9697-14 | T-20K(3) or TSV-25K (3) | C-253 (3) | MTC24L4 | U201R253B |
| | APC | 20K | 63-9697 | T-20K(3) or TSV-25K (3) | C-253 (3) | MTC24L4 | U201R253B |
| R1307 | Pincushion | 20 Stop @ 7 2W | 63-10278 | | | | |
| | Pincushion | 30 2W | 63-10223 (6) | | | | |

For SAFETY use only equivalent replacement part.

(3) For horizontal mounting, bend the two outside terminals to fit PC board. Use jumper to connect center terminal to PC Board.

(6) Alternate part, may be used in some versions.

(10) Use original nylon tab mount.

(18) Used in Models with IF Module 150-190A.

(19) Used in Models G454 W, G454W3W, G4545P, G4547M, G4548DE, G4548P, G4549PN, G4550DE, G4550P, GT2854W and GT2860P.

(20) Used in Models G4762P, G4764E, G4766M, G4767PN, G4768P, G4769P, GT2881DE and GT2881P.

(21) Used in Models G4742W and S2937W.

(22) Used in Models SG2361P and SG2362P.

(23) No Tone Control used in Models G4541W, G4543W, G4545P, G4547M, G4548DE, G4548P, G4549PN, G4550DE, G4550P, GT2858W, GT2860P, SG2361P, SG2362P, S2923W and S2926P.

(24) Used in Models with Chroma Module 9-86.

(25) Used in Models with Chroma Module 9-86-01 and 9-86-01A.

(26) Used in Models S2923W and S2926P.

(27) Used in Models with Vertical Module 9-92 and 9-92B.

(28) Used in Model S2937W.

RESISTORS (Power and Special)

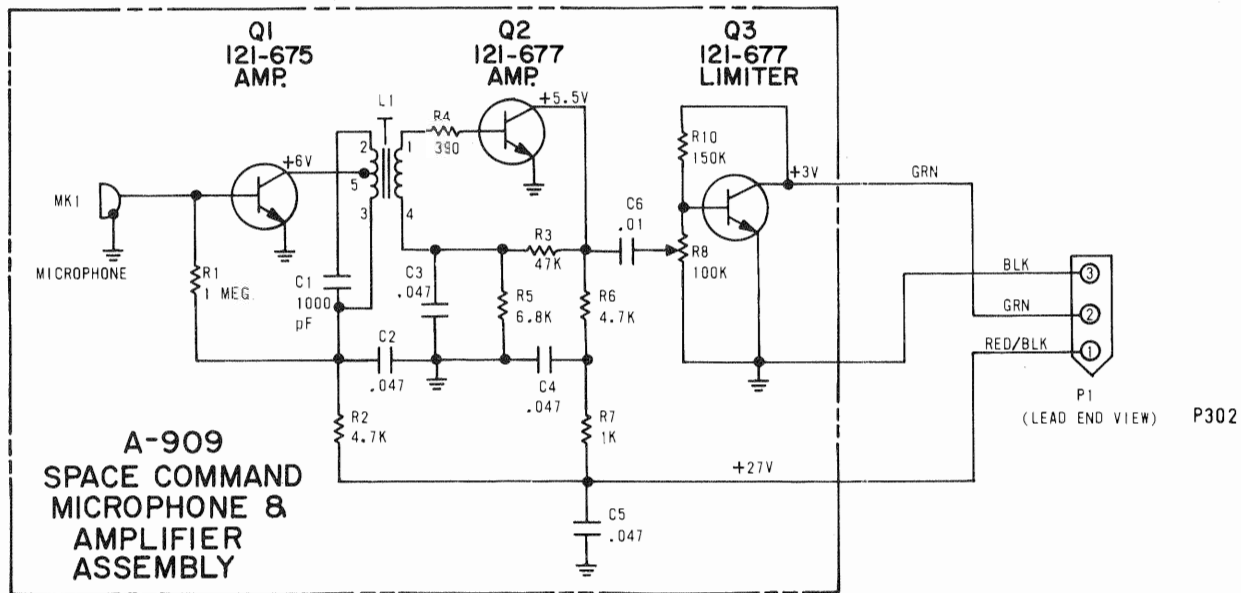
| ITEM No. | RATING | REPLACEMENT DATA | | ITEM No. | RATING | REPLACEMENT DATA | |
|----------|------------------------|------------------|----------------|----------|---------------------|------------------|----------------|
| | | WORKMAN PART No. | MFGR. PART No. | | | WORKMAN PART No. | MFGR. PART No. |
| R127 | 3300 2% 1/4W Film | | 63-9919-84 | RX218 | 47 5% 3W WW | CA-220000 | 62-10428-64 # |
| R202 | 330K 5% 1/2W Carbon | CA-330000 | 63-1890 # | RX219 | 220K 10% 1W Carbon | FR605 | 63-6168 # |
| R213 | 6000 10% 3W Film | | 63-9938 # | RX221 | 17 (Cold) PTC | CA-1000 * | 63-8687 # |
| R216 | 6.8 10% 5W WW | | 63-10444-44 # | RX222 | 800 10% 5W WW | 5W-SQ-800 | 63-10434 # |
| R224 | 1.5 5% 1/2W Carbon | | 63-4508 | RX223 | 1000 5% 1/2W Film | CA-1000 * | 63-10329-72 # |
| R226 | 560K 5% 1/2W Carbon | CA-560000 | 63-1900 # | RX225 | 47 10% 2W Film | | 63-7545 # |
| R227 | 220 10% 3W Film | 20-0005 | 63-7656 | RX229 | 10 10% 10W WW | 10W-SQ-10 | 63-10460-48 # |
| R228 | 220 10% 3W Film | | 63-9952 | RX230 | 500 10% 7W WW | | 63-10279 # |
| R238 | 4.7meg 20% 2W Film | | 63-5823 # | RX232 | 820 10% 3W WW | | 63-10268 # |
| R239 | 470 10% 1W Carbon | CB-470 | 63-6056 # | RX602 | 33 10% 3W Film | | 63-10379-36 # |
| R410 | 6200 2% 1/4W Film | | 63-9919-91 | RX719 | 3300 5% 1/2W Carbon | CA-3300 | 63-9946-84 # |
| R418 | 18K 2% 1/4W Film | | 63-9920-02 | RX724 | 1200 5% 1/4W Carbon | CD-1200 | 63-10559-74 # |
| R1025 | 180 2% 1/4W Film | | 63-10557-54 | RX728 | 22 5% 1/4W Carbon | CD-22 | 63-10559-32 # |
| R1040 | 22 5% 1/8W Film | | 63-10543-32 # | RX729 | 4.7 5% 1/2W Carbon | CA-4.7 | 63-10565-16 # |
| RX111 | 51 5% 1/4W Film | | 63-9921-41# | RX730 | 4.7 5% 1/2W Carbon | CA-4.7 | 63-10565-16 # |
| RX142 | 100 5% 1/4W Film | CD-100 * | 63-9921-48 # | RX819 | 15 5% 1/2W Film | CA-15 * | 63-9921-28 # |
| RX214 | 2 10% 2W WW | | 63-10193 # | RX909 | 560 5% 1/2W Film | CA-560 * | 63-9946-66 # |
| RX217 | 1.5meg 20% 1/2W Carbon | CA-1.5Meg | 63-10526 # | RX1241 | 18K 5% 2W Film | | 63-8212 # |

For SAFETY use only equivalent replacement part.

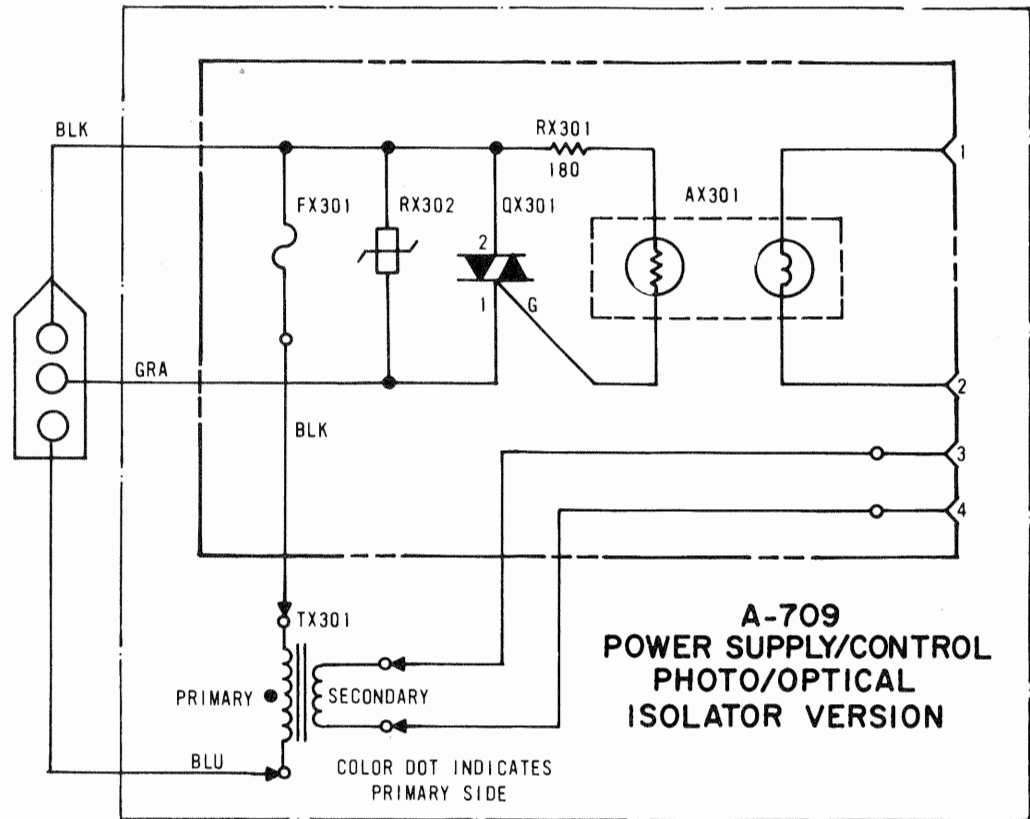
* Specify Carbon Film.

(1) Used in some versions.

SET 1558 FOLDER 2-A



**A-909
SPACE COMMAND
MICROPHONE &
AMPLIFIER
ASSEMBLY**



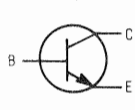
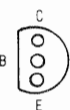
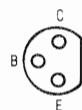
**A-709
POWER SUPPLY/CONTROL
PHOTO/OPTICAL
ISOLATOR VERSION**

| ITEM NUMBER | PART NUMBER | DESCRIPTION |
|---------------|-------------|---------------------------------------|
| C1 | 22-5214 | 1000pF MICA CAPACITOR ±10% 100 V |
| C2 | 22-6447-01 | .047 uF MYLAR CAPACITOR ±20% 100 V |
| C3 | 22-6447-01 | .047 uF MYLAR CAPACITOR ±20% 100 V |
| C4 | 22-6447-01 | .047 uF MYLAR CAPACITOR ±20% 100 V |
| C5 | 22-6447-01 | .047 uF MYLAR CAPACITOR ±20% 100 V |
| C6 | 22-6861 | .01 uF POLYESTER CAPACITOR ±10% 100 V |
| L1 | 95-3114 | INTERSTAGE COIL 39.5 KILOHERTZ |
| MK1 | S-95039 | MICROPHONE ASSEMBLY |
| P1 | A-907 | HOUSING WIRE AND TERMINAL ASSEMBLY |
| Q1 | 121-675 | TRANSISTOR-AMPLIFIER NPN |
| Q2 | 121-677 | TRANSISTOR-AMPLIFIER NPN |
| Q3 | 121-677 | TRANSISTOR-LIMITER NPN |
| R1 | 63-9922-44 | 1 MEGOHM RESISTOR ±5% 1/4 W |
| R2 | 63-9921-88 | 4.7K OHM RESISTOR ±5% 1/4 W |
| R3 | 63-9922-12 | 47K OHM RESISTOR ±5% 1/4 W |
| R4 | 63-9921-62 | 390 OHM RESISTOR ±5% 1/4 W |
| R5 | 63-9921-92 | 6.8K OHM RESISTOR ±5% 1/4 W |
| R6 | 63-9921-88 | 4.7K OHM RESISTOR ±5% 1/4 W |
| R7 | 63-9921-72 | 1K OHM RESISTOR ±5% 1/4 W |
| R8 | 63-9228 | 100K OHM ROTARY CONTROL |
| R9 | 63-9922-24 | 150K OHM RESISTOR ±5% 1/4 W |
| QUANTITY USED | PART NUMBER | DESCRIPTION |
| 1 | 204-423-01 | CIRCUIT PANEL |

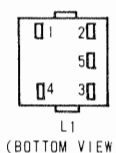
123-5040

NOTES:

- ALL VOLTAGES MEASURED FROM GROUND TO POINTS INDICATED.
- ALL VOLTAGES ARE DIRECT CURRENT (DC) UNLESS OTHERWISE SPECIFIED.
- ALL DC VOLTAGES TO BE MEASURED WITH A VOLT METER HAVING ELEVEN MEGOHMS TO GREATER INPUT RESISTANCE.
- ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT.
- ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
- ALL RESISTORS ARE ±5 PERCENT TOLERANCE, 1/4 WATT, METAL, UNLESS OTHERWISE SPECIFIED.
- ⊥ INDICATES GROUND.



TRANSISTOR BASING NPN TYPE
(LEAD END VIEW)
B - BASE
C - COLLECTOR
E - EMITTER



| QUANTITY USED | PART NUMBER | DESCRIPTION |
|---------------|-------------|---|
| 1 | 204-551 | CIRCUIT PANEL - POWER SUPPLY |
| ITEM NUMBER | PART NUMBER | DESCRIPTION |
| AX301 | 162-9 | PHOTO-OPTICAL ISOLATOR |
| FX301 | 136-117-05 | FUSE TIME DELAY .125 AMPERES, 125 VOLTS |
| P302 | A-2059 | CABLE ASSEMBLY WITH HOUSING (3 CONDUCTOR) |
| QX301 | 185-9-1 | SILICON BI-DIRECTIONAL THYRISTOR TRIAC |
| RX301 | 63-9921-54 | 180 OHM FILM RESISTOR ±5% 1/4 W |
| RX302 | 63-10507 | RESISTOR VARISTOR METAL OXIDE |
| TX301 | 95-3200 | POWER TRANSFORMER |

123-5044
SHEET 1

CRITICAL SAFETY COMPONENTS
THE LETTER "X" IN THE ELECTRICAL SCHEMATIC AND LEGEND DESIGNATES SPECIAL FAIL SAFE COMPONENTS WHICH ARE REQUIRED TO MAINTAIN SAFE PERFORMANCE. THESE COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL SCHEMATIC.
THE LETTER "X" MAY NOT BE INDICATED ON EARLIER PRODUCTION BOARDS.

SCHEMATIC DIAGRAM OF MICROPHONE AMPLIFIERS, S-99924, A-1084 and A-937.

A709 SCHEMATIC DIAGRAM & PARTS LIST OF SPACE COMMAND
POWER SUPPLY/CONTROL (Photo/Optical Isolator Version)

Courtesy of the Manufacturer

SET 1558 FOLDER 2-A

PHOTOFACT® Folder



ZENITH REMOTE CONTROL RECEIVER
A-00709/9-128-01, TRANSMITTER 124-9

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Courtesy of the Manufacturer

| PART NO. | REF. CODE | DESCRIPTION |
|------------|-----------|--|
| 27-615 | | COLOR EMBLEM (PA S 98709) |
| 30-515-04 | | OVERLAY DECORAT (PART OF S 98709) |
| 43-1431 | | HAMMER HOUSING (S 94922-04) |
| 43-1432-01 | | HOUSING TOP (PAR OF S 98709) |
| 43-1433 | | HOUSING BOTTOM (KNOB - PUSH BUTTO OF S 94922-04) |
| 46-9768 | | KNOB - PUSH BUTTO (S 94922-04) |
| 46-9768-03 | | SOLID SHAFT DAMPE (PART OF S 94922-04) |
| 76-2095 | | SOLID SHAFT TRIGG (PART OF S 94922-04) |
| 76-2096 | | HAMMER (4 REQ.) |
| 97-907 | | 4-24 X .375 PAN HD. P |
| 112-1381 | | SCREW - BLACK O. 43-1433) |

HOWARD W. SAMS

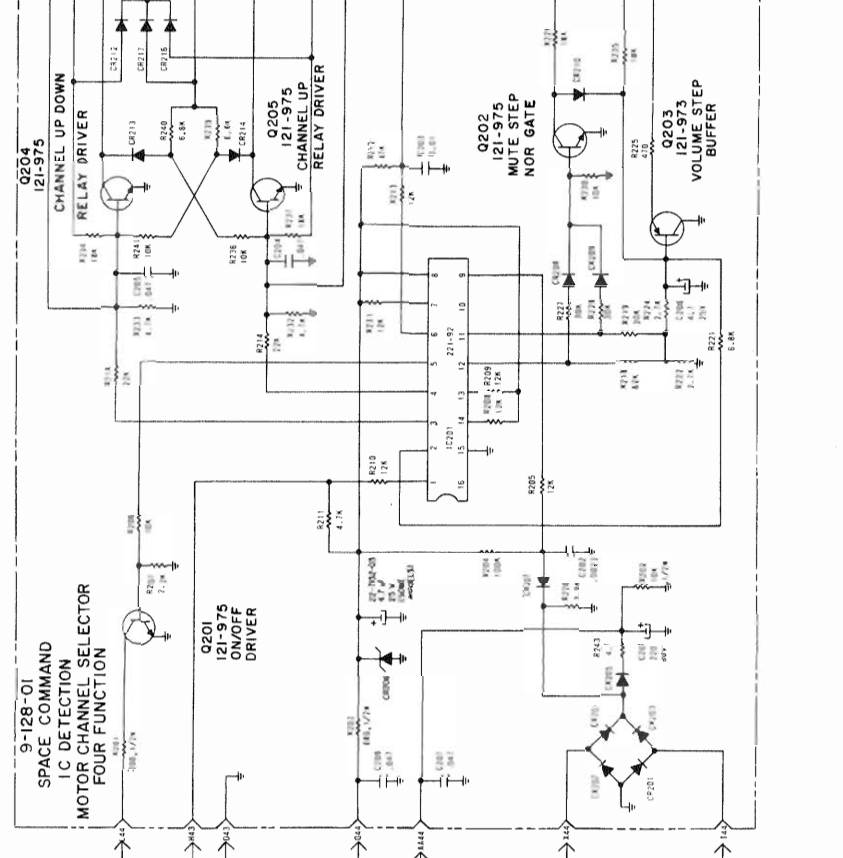
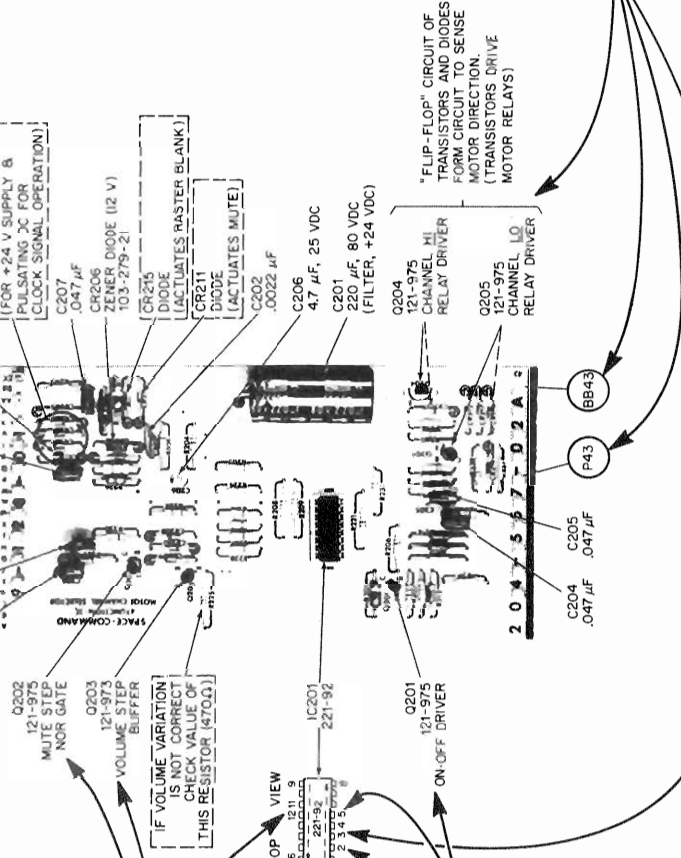
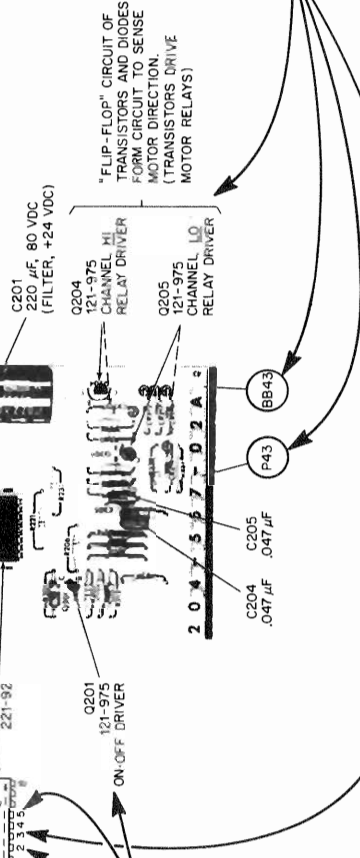
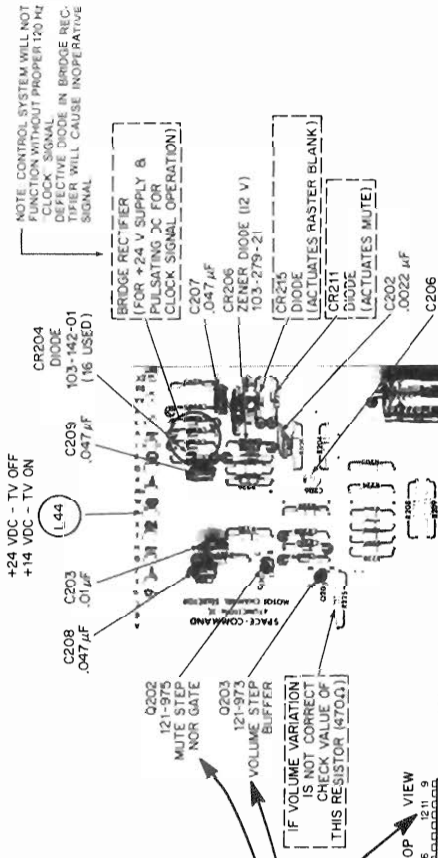
The listing of any available replacement part here in any case a recommendation, warranty or guarantee. Sams & Co., Inc., as to the quality and suitability of any part. The numbers of these parts have been information furnished to Howard W. Sams & Co., Inc. as to the quality and suitability of any part. The numbers of these parts have been information furnished to Howard W. Sams & Co., Inc. as to the quality and suitability of any part.



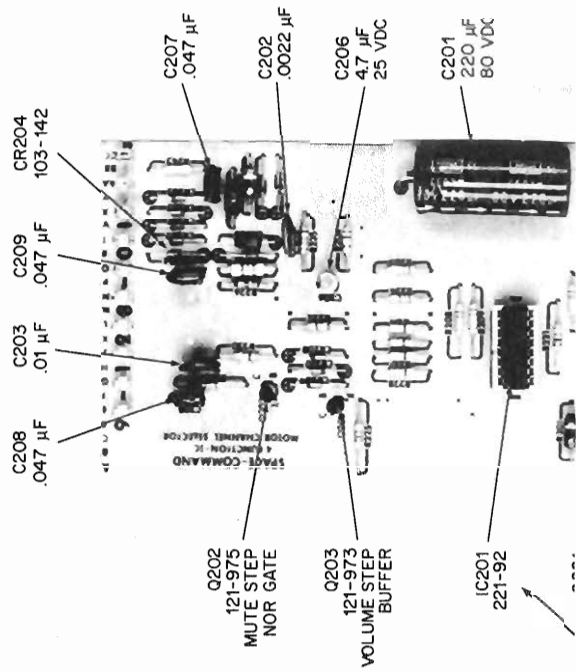
NOTES:

(1) THE "AT REST" VOLTAGE AT THE TEST POINTS MAY VARY FROM 0 TO +5 VDC FOR ALL FUNCTIONS.

(2) WHEN THE FUNCTION IS ACTIVATED THE VOLTAGE AT THE TEST POINTS WILL NORMALLY VARY FROM +10 VDC TO +12 VDC FOR ALL FUNCTIONS.



9-128-01 SCHEMATIC DIAGRAM

[illegible]

Courtesy of the Manufacturer

TO CHECK TV ON-OFF OPERATION

A. CHECK PIN #5 OF IC
 0 VDC - TV OFF
 +10 VDC - TV ON

B. CHECK BASE OF Q201
 0 VDC - TV OFF
 +6.5 VDC - TV ON

C. CHECK COLLECTOR OF Q201
 +24 VDC - TV OFF
 +2 VDC - TV ON

NOTE: IF VOLTAGES ARE CORRECT BUT ON-OFF FUNCTION DOES NOT OPERATE, CHECK TRIAC, MOV, AND PHOTO-OPTICAL ISOLATOR LOCATED IN A-709 POWER SUPPLY.

TO CHECK TV ON-OFF OPERATION

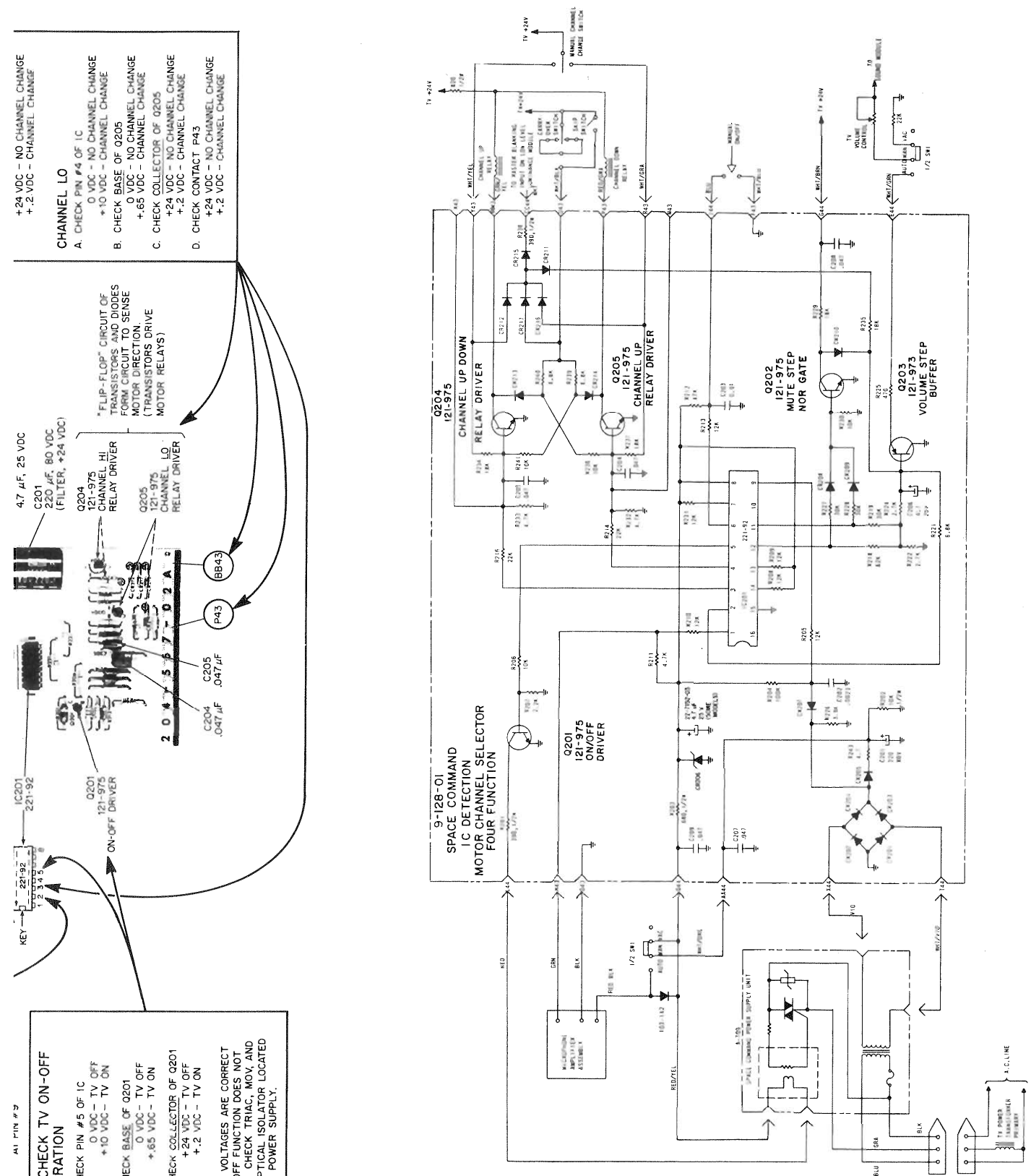
A. CHECK PIN #5 OF IC
 0 VDC - TV OFF
 +10 VDC - TV ON

B. CHECK BASE OF Q201
 0 VDC - TV OFF
 +6.5 VDC - TV ON

C. CHECK COLLECTOR OF Q201
 +24 VDC - TV OFF
 +2 VDC - TV ON

NOTE: IF VOLTAGES ARE CORRECT BUT ON-OFF FUNCTION DOES NOT OPERATE, CHECK TRIAC, MOV, AND PHOTO-OPTICAL ISOLATOR LOCATED IN A-709 POWER SUPPLY.

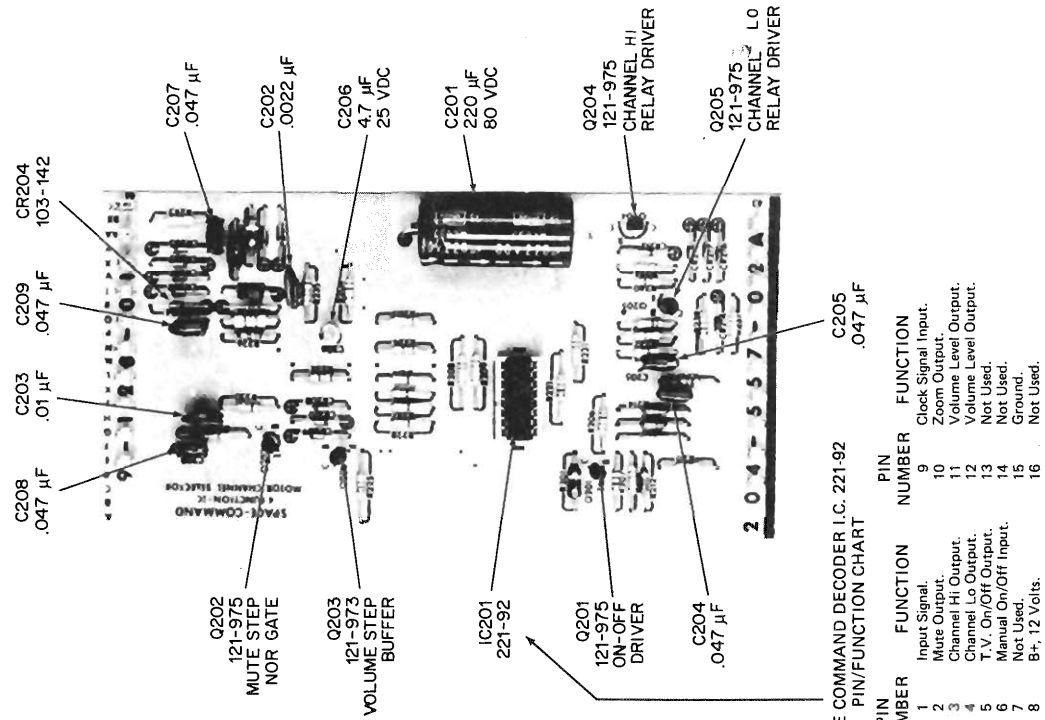
NOTE: IF VOLTAGES ARE CORRECT BUT ON-OFF FUNCTION DOES NOT OPERATE, CHECK TRIAC, MOV, AND PHOTO-OPTICAL ISOLATOR LOCATED IN A-709 POWER SUPPLY.



123-5013
SHEETS 1 & 2

9-128-01 SCHEMATIC DIAGRAM

| QUANTITY USED | | PART NUMBER | D E S C R I P T I O N |
|---------------|------------|--|-----------------------|
| 1 | A-999 | CKT PANEL ASST. RESISTORS AND TERMINALS | |
| 70 | 78-2018 | SOCKET INTEGRATED CIRCUIT | |
| | 86-055 | CONNECTOR TERMINAL - FEMALE | |
| | 204-157-02 | CIRCUIT PANEL 16 VERSION 4 AND 6 FUNCTION | |
| ITEM NUMBER | | PART NUMBER | D E S C R I P T I O N |
| C201 | 22-146-09 | 220 OF ELECTROLYTIC CAPACITOR +100-10% | |
| C202 | 22-146-09 | .0022 OF CERAMIC DISC CAPACITOR $\pm 10\%$ | |
| C203 | 22-146-09 | 100 V | |
| C204 | 22-146-09 | 100 V | |
| C205 | 22-146-09 | 100 V | |
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| C547 | 22-146-09 | | |



9-128-01 TOP VIEW

RESISTORS (Power and Special)

| ITEM No. | RATING | REPLACEMENT DATA | | ITEM No. | RATING | REPLACEMENT DATA | |
|----------|-----------|------------------|---------------|----------|------------------|------------------|---------------|
| | | WORKMAN PART No. | MFR. PART No. | | | WORKMAN PART No. | MFR. PART No. |
| R304 | 390 2W WW | | 63-1458 | R472 | 1 2W WW | WS1 | 63-9982 |
| R305 | 560 3W WW | | 63-10430-90 | R501 | 560 3W WW | | 63-10430-90 |
| R422 | 1 2W WW | WS1 | 63-9982 | R506 | 2.2M 1/4W Carbon | CD-2.2 | 63-1926 # |

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

| ITEM No. | FUNCTION | REPLACEMENT DATA | | | REMARKS |
|----------|----------------|------------------|----------------------|-----------------|---------|
| | | PART No. | OTHER IDENTIFICATION | MILLER PART No. | |
| L1 | FM Antenna | 20-3664 | | | |
| L2 | FM RF | 20-3665 | | | |
| L3 | RF Choke | 20-1631 | | | |
| L4 | FM Oscillator | 20-3597 | | | |
| L101 | Loopstick | S-93292 | | | |
| L301 | RF Choke | 20-3080 | | | |
| T101 | AM Oscillator | 95-3077 | | | |
| T201 | FM Input IF | 95-2546 | | | |
| T202 | AM Input IF | 95-2541 | | | |
| T203 | FM Interstage | 95-2547 | | 8601 | |
| T204 | AM Interstage | 95-2542 | | | |
| T205 | FM Interstage | 95-2548 | | 8601 | |
| T206 | AM Output | 95-2689 | | | |
| T207 | Ratio Detector | 95-2545 | | | |
| T301 | 19kHz Doubler | 95-3021 | | | |
| T302 | 38kHz Output | 95-3023 | | | |

TRANSFORMER (Power)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | NOTES |
|----------|-----------------|---------------------|--------------------|------------------|---------------------|----------------|--|
| | PRI. | SEC. 1 | SEC. 2 | MFR. PART No. | THORDARSON PART No. | TRIAD PART No. | |
| T501 | 120VAC @ .4A AC | 70.1VAC CT @ .4A DC | 6.00VAC @ .135A AC | 95-3091# | | | # For SAFETY use only equivalent replacement part. |

FUSE DEVICES

| ITEM No. | DESCRIPTION | REPLACEMENT DATA | | | | | | | |
|----------|----------------------------------|------------------|--------|---------------|--------|---------------------|--------|------------------|--|
| | | PART No. | | BUSS PART No. | | LITTELFUSE PART No. | | WORKMAN PART No. | |
| | | DEVICE | HOLDER | DEVICE | HOLDER | DEVICE | HOLDER | DEVICE | |
| F501 | .6A @ 125V, Slow Blow Pigtail | 136-106 # | | MDV 6/10 | | 315,600 | | | |
| F502 | .5A @ 250V, Quick Acting Pigtail | 136-107 # | | GJV 1/2 | | 368,500 | | | |

For SAFETY replace only with equivalent part.

PHONO CARTRIDGE & NEEDLES

| ITEM No. | REPLACEMENT DATA | | | | | | NOTES |
|-------------|------------------|---------|---------------------|--------|---------------------------|--------|-------|
| | MFR. PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | |
| | CARTRIDGE | NEEDLE | CARTRIDGE | NEEDLE | CARTRIDGE | NEEDLE | |
| M1 | 142-167 | | | N803sd | 5188D | 3456DS | |
| M2 | | S-82621 | | N803sd | | 3456DS | |

MISCELLANEOUS

| ITEM No. | PART NAME | PART No. | NOTES |
|----------|-----------------------|---------------------|--|
| M3 | Tuning Meter | 122-68 or 122-68-03 | |
| M4 | Motor | 841-548 # | |
| SW1 | Switch | 85-1370 # | Changer Function (Off-Phono/AM/FM/Stereo/Tape) |
| SW2 | Switch | 95-1372 | AFC |
| SW3 | Switch | | Speaker Matrix/Ext/Stereo |
| SW4 | Switch | 906-11098-2 # | |
| | AC Power Cord | 11-305 # | |
| | Printed Circuit Board | 204-374-03 # | |
| | 45 FPM Adapter | S-72910 | |
| | Idler Wheel | 906-10162-3 | |
| | Hold Down Arm | 906-10871-73 | |
| | Tone Arm Tube | 906-10899-5 | |
| | Tone Arm Rear Housing | 906-10921-73 | |
| | Cartridge Housing | 906-10901-23 | |

For SAFETY use only equivalent replacement part.

SET 1558 FOLDER 2-B

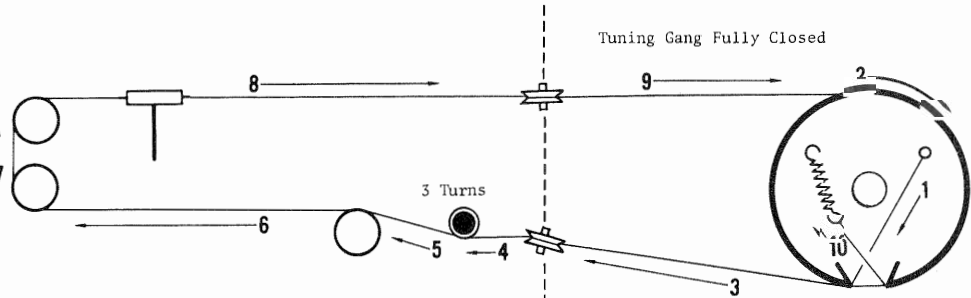


ZENITH CHASSIS 15WFR55

IMPORTANT FILING NOTICE

This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 1558 FOLDER 2. File this Folder with the TV Folder in the yellow filing jacket provided.

DIAL CORD STRINGING



RECORD CHANGER SERVICING

ZENITH RECORD CHANGER PART NUMBER 169-483

ADJUSTMENTS

TONE ARM SETDOWN

Adjust screw B1 so the needle sets down in the center of the lead-in groove on a 12-inch record. Turning the screw clockwise moves the set-down point outward.

TONE ARM HEIGHT

Adjust B2 so the top of the tone arm clears a 12-inch record on the center spindle shelf during the change cycle. Turning B2 clockwise decreases the lift-up height.

NEEDLE PRESSURE

Nominal pressure 2-1/2 grams. Adjust B3 to obtain correct needle pressure. Turning B3 clockwise decreases needle pressure.

ANTI-SKATE

Adjust B5 to correspond with the "Needle Pressure". (MINIMUM of 2)

DRIVE IDLER HEIGHT

Select 33 rpm and adjust the screw in the idler support arm so the idler wheel is in the center of the 33 rpm section of the motor shaft.

CLEANING

Use a cloth dampened with isopropyl alcohol to clean the driving surfaces of the idler wheel, motor shaft and inside rim of the turntable.

LUBRICATION

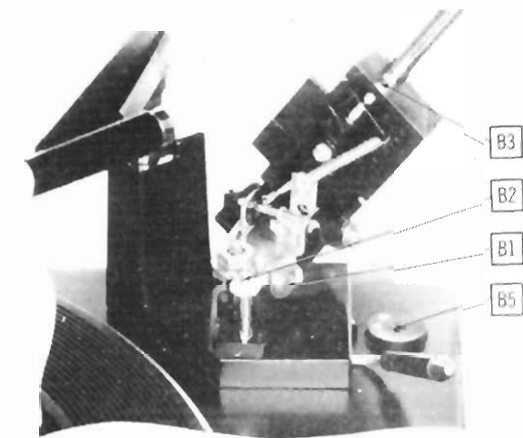
Apply light nonhardening grease to sliding cam surfaces and pivot points, light machine oil on the tone arm lift rod, idler wheel bearings, and motor bearings.

DO NOT lubricate turntable driving surface, the teeth on cycling gear or turntable hub.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed.



DATE 4-76

SET 1558 FOLDER 2-B

ZENITH CHASSIS 15WFR55

SET 1558 FOLDER 2-B

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

SEMICONDUCTORS (Select replacement transistor for best results)

| ITEM No. | TYPE No. | MFR. PART No. | REPLACEMENT DATA | | | | | | | |
|----------|-----------|---------------|---------------------------|----------------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|
| | | | GENERAL ELECTRIC PART No. | INTERNATIONAL RECTIFIER PART No. | MALLORY PART No. | MOTOROLA PART No. | RAYTHEON PART No. | RCA PART No. | SPRAGUE PART No. | SYLVANIA PART No. |
| CR1 | | 103-47 | GE-90 | D201 | | HEPR2503 | RE 195 | SK3126 | RT-262 | |
| CR101 | | 103-189(1) | GE-90 | D201 | | HEPR2503 | RE 195 | SK3126 | RT-262 | |
| CR201 | | 103-142 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR202 | | 103-23 | 1N60 | 1N60 | PTC206 | HEPR9135 | RE 47 | SK3088 | RT-200 | ECG109 |
| CR205 | | 103-90 | 1N60(7) | 1N60(7) | PTC206M(6) | HEPR9135(7) | RE 86(6) | SK3088(7) | RT-200(7) | ECG10(6) |
| CR206 | 1N60 | 103-90 | 1N60 | 1N60 | PTC206 | HEPR9135 | RE 47 | SK3088 | RT-200 | ECG109 |
| CR207 | 1N60 | 103-90 | 1N60 | 1N60 | PTC206 | HEPR9135 | RE 47 | SK3088 | RT-200 | ECG109 |
| CR401 | | 103-222 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR451 | | 103-222 | GE-300 | D200 | PTC214 | HEPR0602 | RE 52 | SK3100 | RT-218 | ECG177 |
| CR501 | | 212-76# | GE-504A | 804 | PTC201 | HEPR0053 | RE 49 | SK3016 | RT-215 | ECG116 |
| CR502 | | 212-76# | GE-504A | 804 | PTC201 | HEPR0053 | RE 49 | SK3016 | RT-215 | ECG116 |
| CR503 | | 103-96 | GE-504A | 804 | PTC508 | HEPZ0416 | RE 119 | SK3016 | RT-244 | ECG143 |
| IC301 | 13V Zener | 221-79 | GEIC-9 | IC513 | PTC721 | HEPC6056P | RE 309-IC | SK3161 | TVCM-10 | ECG722 |
| Q1 | | 221-65(1) | GEIC-9 | IC513 | PTC721 | HEPC6056P | RE 309-IC | SK3161 | TVCM-10 | ECG722 |
| Q2 | | 121-953 | | | PTC181 | HEPF2004 | | SK3050 | RT-180 | ECG222 |
| Q101 | | 121-113 | GE-11 | TR-21 | PTC136 | HEPS0020 | RE 10 | SK3018 | RT-113 | ECG108 |
| Q201 | | 121-735 | GE-17 | TR-25 | PTC121 | HEPS0025 | RE 9 | SK3018 | RT-108A | ECG107 |
| Q202 | | 121-614 | GE-20 | TR-24 | PTC136 | HEPS0020 | RE 10 | SK3018 | RT-113 | ECG108 |
| Q203 | | 121-950 | GE-20 | TR-24 | PTC121 | HEPS0016 | RE 13 | SK3018 | RT-172 | ECG123A |
| Q204 | | 121-950 | GE-20 | TR-24 | PTC121 | HEPS0016 | RE 13 | SK3018 | RT-172 | ECG123A |
| Q401 | | 121-433 | GE-20 | TR-24 | PTC136 | HEPS0024 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q402 | | 121-433 | GE-20 | TR-24 | PTC136 | HEPS0024 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q403 | | 121-889 | GE-20 | TR-24 | PTC123 | HEPS3010 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q404 | | 121-927(5) | GE-66 | TR-76 | PTC110 | HEPS3024 | RE 21 | SK3054 | RT-154 | ECG241 |
| Q405 | | 121-926(5) | GE-69 | TR-77 | PTC111 | HEPS3028 | RE 22 | SK3083 | RT-155 | ECG242 |
| Q451 | | 121-433 | GE-20 | TR-24 | PTC136 | HEPS0024 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q452 | | 121-433 | GE-20 | TR-24 | PTC136 | HEPS0024 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q453 | | 121-889 | GE-20 | TR-24 | PTC123 | HEPS3010 | RE 13 | SK3124 | RT-172 | ECG123A |
| Q454 | | 121-927(5) | GE-66 | TR-76 | PTC110 | HEPS3024 | RE 21 | SK3054 | RT-154 | ECG241 |
| Q455 | | 121-926(5) | GE-69 | TR-77 | PTC111 | HEPS3028 | RE 22 | SK3083 | RT-155 | ECG242 |

For Safety use only equivalent replacement part.

(1) Used in some versions.

(5) Half of complementary pair (Q404 and Q405, Q454 and Q455).

(6) Matched pair.

(7) Two required - select matched pair.

ELECTROLYTIC CAPACITORS

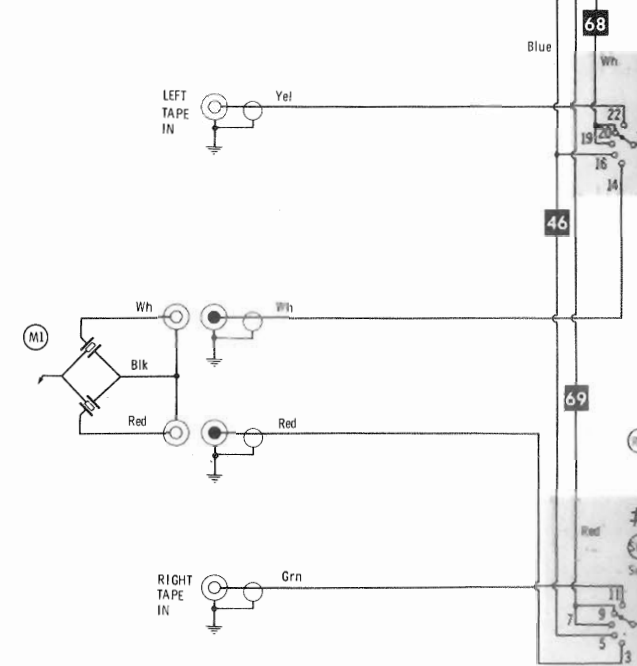
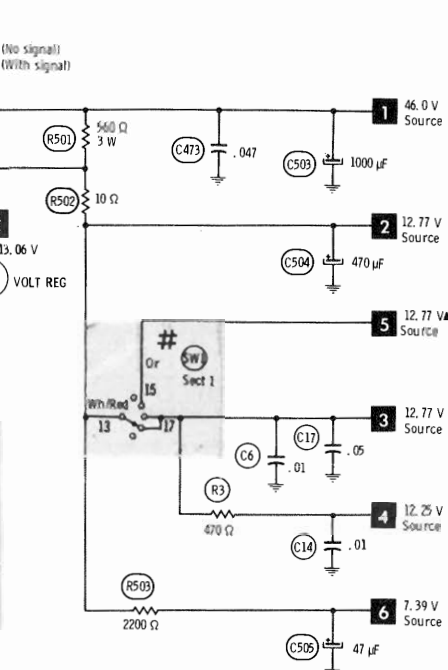
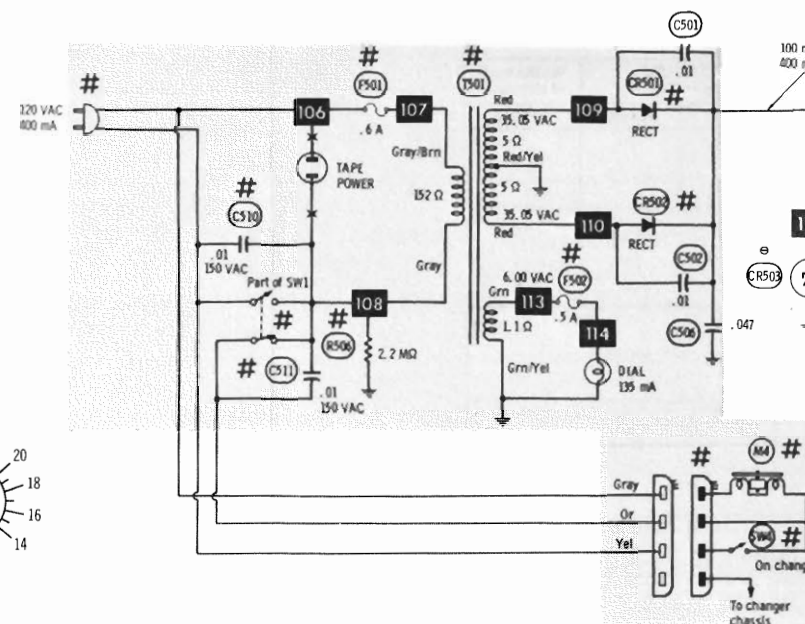
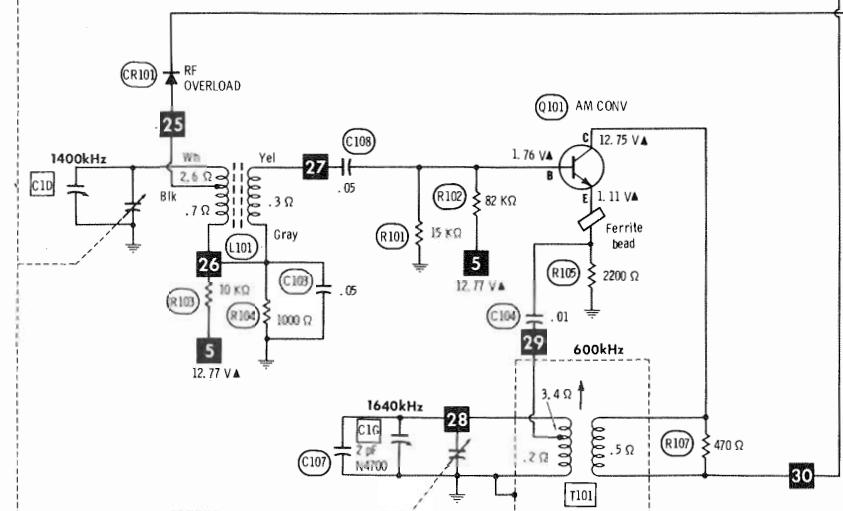
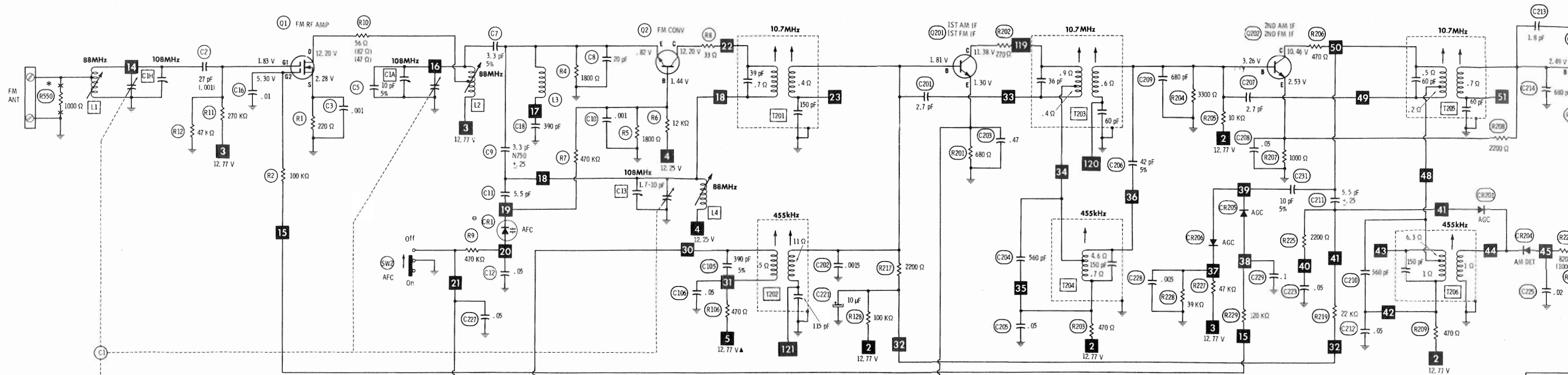
| ITEM No. | RATING | REPLACEMENT DATA | | | | | |
|----------|----------|------------------|---------------|--------------------|---------------------------|------------------|------------------|
| | | MFR. PART No. | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C220 | 4.7 25V | 22-7142-03 | RME-A-J-005 | EP30-5 | PCS-50 | VTT4R7A50 | EV-1319 |
| C221 | 10 16V | 22-7151-04 | RME-B-G-010 | EP15-10 | PC10-25 | VTT10A25 | EV-1222 |
| C303 | 4.7 25V | 22-7142-03 | RME-A-J-005 | EP30-5 | PCS-50 | VTT4R7A50 | EV-1319 |
| C404 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C412 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C415 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C420 | 100 25V | 22-7152-08 | RME-G-G-100 | EP30-100 | PC100-25 | VTT100G25 | EV-1330 |
| C422 | 470 50V | 22-7153-11 | RME-R-J-500 | EP50-500 | WBR500-50 | VTT470N50 | EV-1550 |
| C454 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C462 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C465 | 1 50V | 22-7153 | RME-A-J-001 | EP50-1 | PC1-50 | MTV1C850 | EV-1615 |
| C470 | 100 25V | 22-7152-08 | RME-G-G-100 | EP30-100 | PC100-25 | VTT100G25 | EV-1330 |
| C472 | 470 50V | 22-7153-11 | RME-R-J-500 | EP50-500 | WBR500-50 | VTT470N50 | EV-1550 |
| C503 | 1000 65V | 22-6112 | RME-L-E-500 | EP15-500 | PCS500-16 | TC10102 | EV-1250 |
| C504 | 470 16V | 22-7141-11 | RME-E-E-050 | EP15-50 | PCS50-16 | VTT470J16 | EV-1226 |
| C505 | 47 10V | 22-7150-07 | RME-E-E-050 | EP15-50 | PCS50-16 | VTT470J16 | EV-1226 |

CAPACITORS

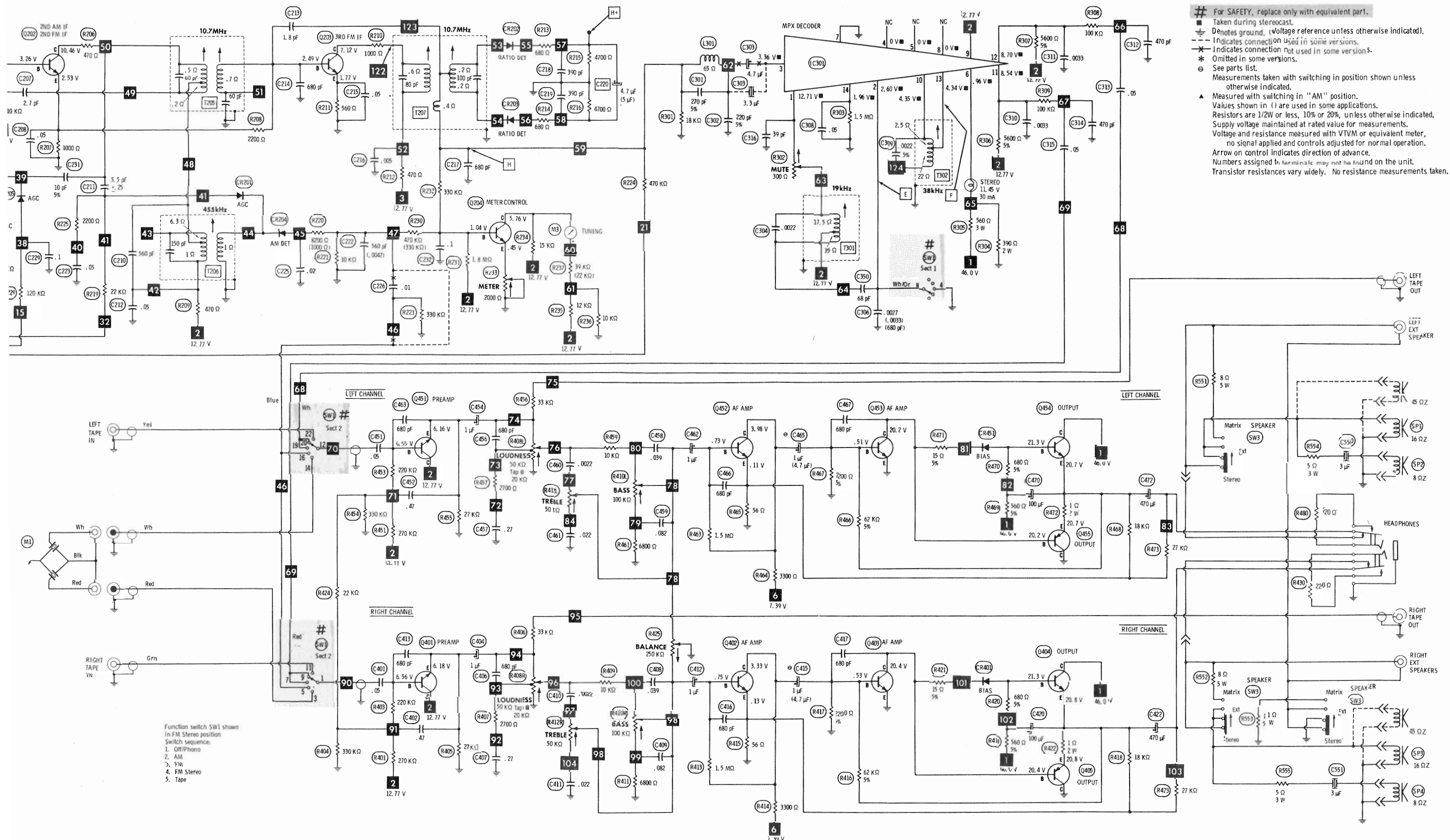
| ITEM No. | RATING | MFR. PART No. | REPLACEMENT DATA | | | | |
|----------|---------------|---------------|------------------|--------------------|---------------------------|------------------|------------------|
| | | | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C1 | Tuning Gang | 22-7134 | | | | | |
| C1A | Trimmer | (1) | | | | | |
| C1D | Trimmer | (1) | | | | | |
| D1G | Trimmer | (1) | | | | | |
| C1H | Trimmer | (1) | | | | | |
| C2 | 27 NPO 10% | | CCTO-270 | | | CN0427 | 10TCC-027 |
| C3 | .001 25V | | CCD-102 | DD-102 | NP010 | GP210 | 10TS-D10 |
| C5 | 10 NPO 5% | | CCD-103 | DTZ-10 | | CN0410 | 10TCC-010 |
| C6 | .01 25V | | CCTO-3R3 | DTZ-3R3 | NP03P3 | CN0533 | 10TS-S10 |
| C7 | 3.3 5% | | | | | * | 10TCC-V33 |
| C8 | 20 N075 5% | 22-3751 | | | | | |
| C9 | 3.3 N750 ±.25 | 22-5879 | | | | | |
| C10 | .001 25V | | CCD-102 | DD-102 | | GP210 | 10TS-D10 |
| C11 | 5.5 N2200 ±.5 | 22-5878 | | | | | |
| C12 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C13 | 1.7-10pF | 22-5855 | | | | | |
| C14 | .01 25V | | CCC-103 | | | | 10TS-S10 |
| C16 | .01 25V | | CCC-103 | | | | 10TS-S10 |
| C17 | .05 25V | | CCC-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C18 | 390 10% | | CCC-391 | DD-391 | GP390 | GP390 | 10TS-T39 |
| C103 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C104 | .01 25V | | CCD-103 | | | | 10TS-S10 |
| C105 | 390 163V 5% | | DM15-391J | CPR-390J | CD15FD391:03 | SK339 | 424ME390J501 |
| C106 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C107 | 2 N4700 ±.25 | 22-4819 | | | | | |
| C108 | .04 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C201 | 2.7 | | | | | | |

CAPACITORS (cont)

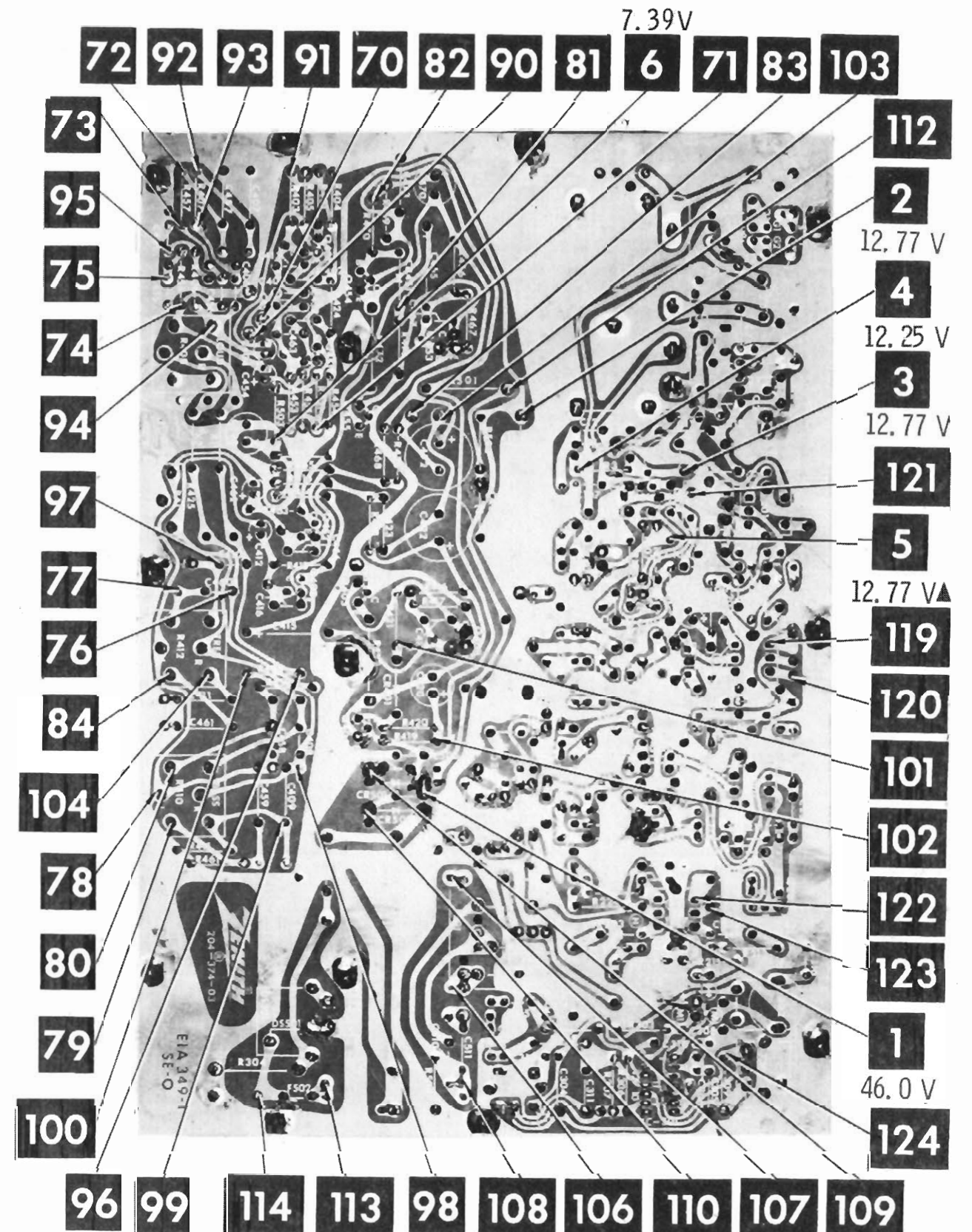
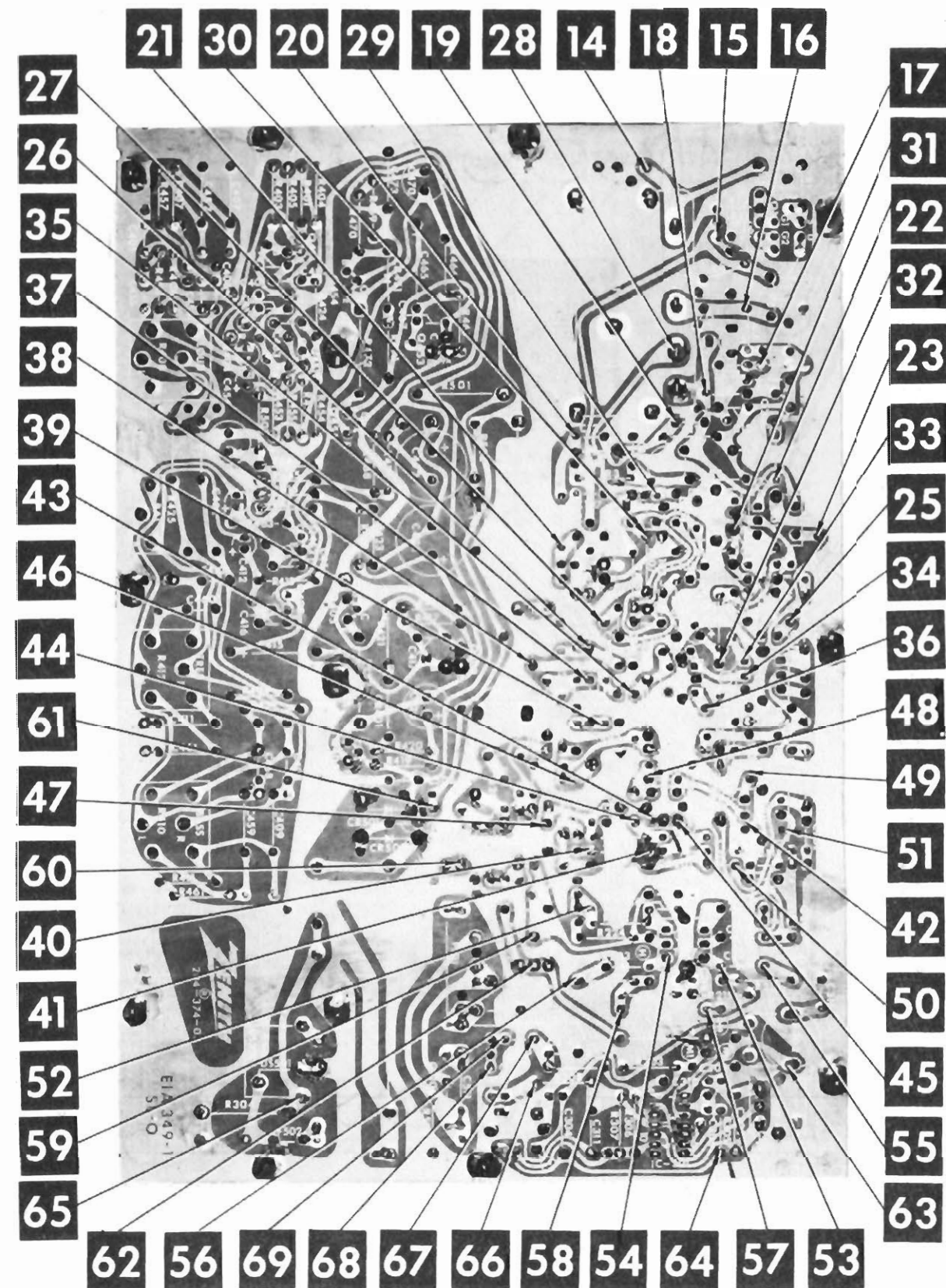
| ITEM No. | RATING | MFR. PART No. | REPLACEMENT DATA | | | | | |
|----------|---------------|---------------|------------------|--------------------|---------------------------|------------------|------------------|----------|
| | | | ARCO PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C202 | .0015 10% | 22-3791 | CCD-152 | DD-152 | | GP215 | 10TS-D15 | |
| C203 | .47 3V | | 1MDF-4-474 | | DPMS2P47 | EWFA047 | 1PB-P47 | |
| C204 | 560 | | CCD-561 | DD-561 | | GP356 | 10TS-T56 | |
| C205 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | |
| C206 | 42 N330 5% | | | | | | | |
| C207 | 2.7 | | | | | | | |
| C208 | .05 25V | | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 |
| C209 | 680 10% | | | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 |
| C210 | 560 10% | | | CCD-561 | DD-561 | GP356 | GP356 | 10TS-T56 |
| C211 | 5.5 N220 ±.25 | | 22-3770 | | | | | |
| C212 | .05 25V | 22-2428 | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | |
| C213 | 1.8 | | | | | | | |
| C214 | 680 10% | | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | |
| C215 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | |
| C216 | .005 25V | | CCD-502 | | | | 10TS-D50 | |
| C217 | 680 10% | | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | |
| C218 | 390 10% | | CCD-391 | DD-391 | GP390 | GP339 | 10TS-T39 | |
| C219 | 390 10% | | CCD-391 | DD-391 | GP390 | GP339 | 10TS-T39 | |
| C222 | 560 10% | | CCD-561 | DD-561 | | GP356 | 10TS-T56 | |
| C223 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | |
| C225 | .02 25V | CCD-203 | | | GP120 | 56A-S20 | | |
| C226 | .01 25V | CCD-103 | | | | 10TS-S10 | | |
| C227 | .05 25V | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | | |
| C228 | .005 25V | CCD-502 | | | | 10TS-D50 | | |
| C229 | .1 10V | 1MDF-3-104 | | | DPMS2P1 | EWFA1010 | 1PB-P10 | |
| C231 | 10 NPO 5% | 22-5780 | | DTZ-10 | NP010 | UNU410 | 10TCC-Q10 | |
| C232 | .1 10V | | 1MDF-3-823 | | DPMS6S02 | EWFA182 | 1PB-S82 | |
| C301 | 270 6.30V 5% | | | | | | | |
| C302 | 220 N750 5% | | | DTN-220 | N220 | CN7322 | 10TCU-T22 | |
| C304 | .0022 630V 5% | | | | | | | |
| C305 | 68 N750 10% | | CCTN-680 | DTN-68 | N68 | CN7468 | 10TCU-Q68 | |
| C306 | .0027 10% | | CCD-272 | | | GP227 | 10TS-D27 | |
| C308 | .05 25V | | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | |
| C309 | .0022 630V 5% | | | | | | | |
| C310 | .0033 10% | | CCD-332 | | | | 10TS-D33 | |
| C311 | .0033 10% | CCD-332 | | | | 10TS-D33 | | |
| C312 | 470 10% | CCD-471 | DD-471 | GP470 | GP347 | 10TS-T47 | | |
| C313 | .05 25V | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | | |
| C314 | 470 10% | CCD-471 | DD-471 | GP470 | GP347 | 10TS-T47 | | |
| C315 | .05 25V | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | | |
| C316 | 39 N330 5% | * | | | * | 10TCS-039 | | |
| C401 | .05 25V | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | | |
| C402 | .47 3V | | UK-474 | | MAG3047 | HY-130 | | |
| C406 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C407 | .27 50V 10% | 1MDF-4-274 | | WMF1P27 | EWFA027 | 1PB-P27 | | |
| C408 | .039 50V 10% | 6DP-3-393 | | DPMS6S39 | PVC6139 | 6PS-S39 | | |
| C409 | .082 100V 10% | 1MDF-3-823 | | DPMS6S02 | EWFA182 | 1PB-S82 | | |
| C410 | .0022 10% | CCD-222 | | | GP222 | 10TS-D22 | | |
| C411 | .022 100V | 1MDF-1-223 | CPJ-223 | DPMS2S22 | EWFA122 | 1PB-S22 | | |
| C413 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C416 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C417 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C451 | .05 25V | CCD-503 | DC-503 | MGP05 | MAG5015 | TGL-S50 | | |
| C452 | .47 3V | | UK-471 | | MAG3047 | HY-130 | | |
| C456 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C457 | .27 50V 10% | 1MDF-4-274 | | WMF1P27 | EWFA027 | 1PB-P27 | | |
| C458 | .039 50V 10% | 6DP-3-393 | | DPMS6S39 | PVC6139 | 6PS-S39 | | |
| C459 | .082 100V 10% | 1MDF-3-823 | | DPMS6S02 | EWFA182 | 1PB-S82 | | |
| C460 | .0022 10% | CCD-222 | | | GP222 | 10TS-D22 | | |
| C461 | .022 100V | 1MDF-1-223 | CPJ-223 | DPMS2S22 | EWFA122 | 1PB-S22 | | |
| C463 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C466 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C467 | 680 10% | CCD-681 | DD-681 | GP680 | GP368 | 10TS-T68 | | |
| C473 | .047 100V | 1MDF-2-473 | | DPMS2S47 | EWFA147 | 1PB-S47 | | |
| C501 | .01 | CCD-103 | | | | 10TS-S10 | | |
| C502 | .01 | CCD-103 | | | | 10TS-S10 | | |
| C505 | .047 100V | 1MDF-2-473 | | | DPMS2S47 | EWFA147 | | |
| C510 | .01 150VAC | 22-6005 # | | | | | | |
| C511 | .01 150VAC | 22-6005 # | | | | | | |



Function switch SW1 shown in FM Stereo position
Switch sequence:
1. Off/Phono
2. AM
3. FM
4. FM Stereo
5. Tape

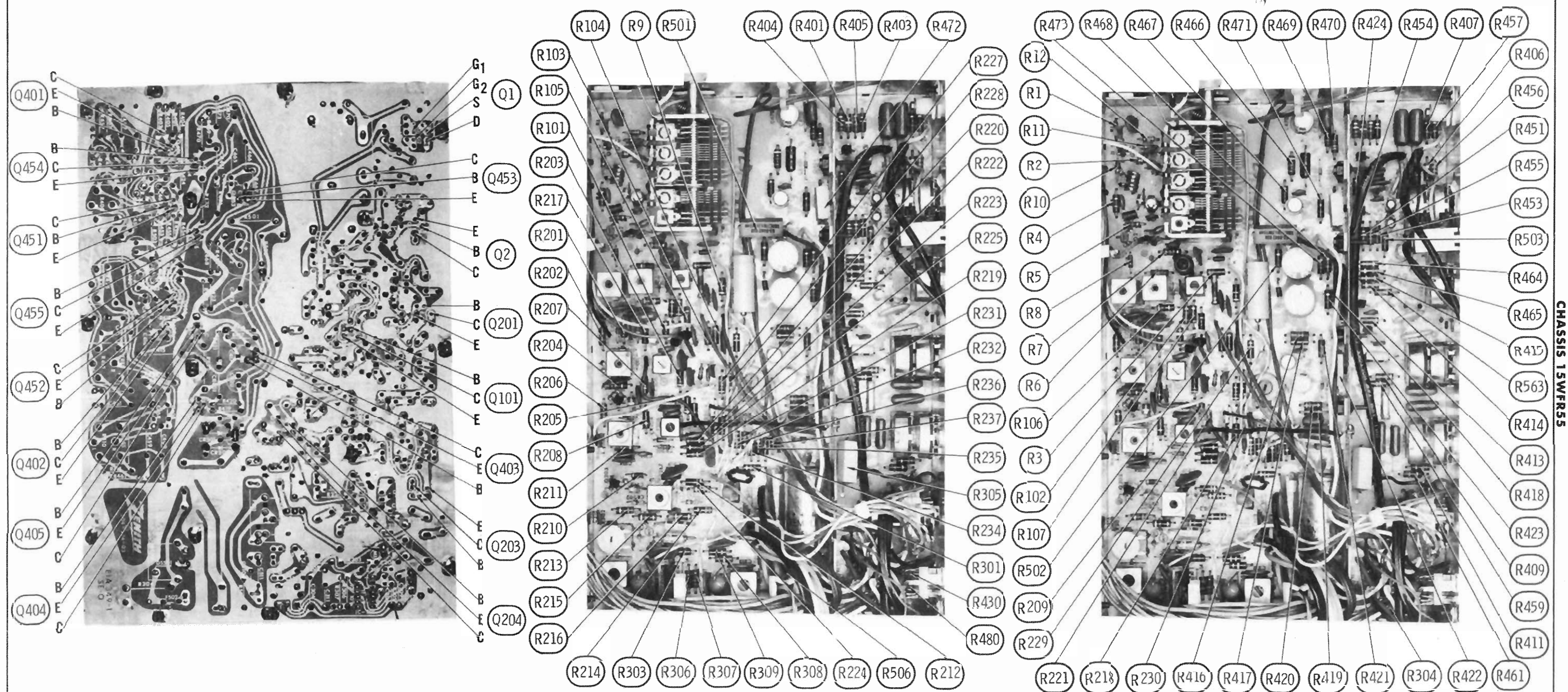


For SAFETY, replace only with equivalent part.
 ■ Taken during stereocast.
 ⚡ Denotes ground. (voltage reference unless otherwise indicated).
 - - - Indicates connection used in some versions.
 * Indicates connection not used in some versions.
 * Omitted in some versions.
 ⊖ See parts list.
 Measurements taken with switching in position shown unless otherwise indicated.
 ▲ Measured with switching in "AM" position.
 Values shown in () are used in some applications.
 Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
 Supply voltage maintained at rated value for measurements.
 Voltage and resistance measured with VTVM or equivalent meter, no signal applied and controls adjusted for normal operation.
 Arrow on control indicates direction of advance.
 Numbers assigned to terminals may not be found on the unit.
 Transistor resistances vary widely. No resistance measurements taken.

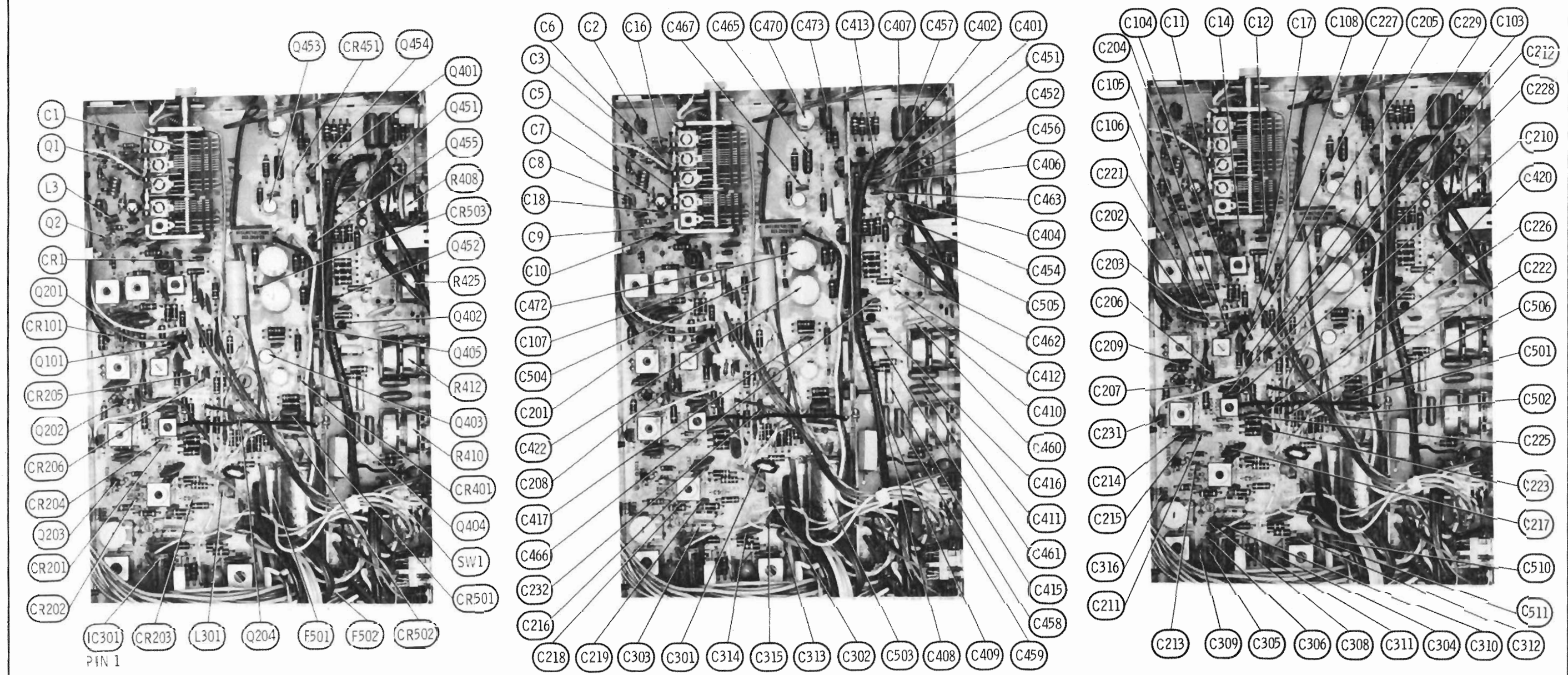


MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo



MAIN BOARD

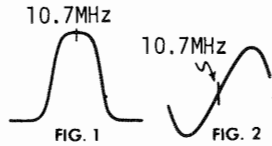


MAIN BOARD

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120VAC. Allow a 15-minute warm-up period. Use only enough generator output to obtain a suitable indication.

Suggested Alignment Tools: GC ELECTRONICS
L4 8606, 8606L, 8869
T201, T202, T203, T205, T207 9296, 9297, 9300
R233, R302, T101, T204, T206, T301, T302 .. 8728



AM ALIGNMENT—SELECTOR IN AM POSITION

Connect generator across loop fashioned of several turns of wire. Set volume at maximum.

| GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR | ADJUST | REMARKS |
|-----------------------------------|---------------------------|-----------------------------------|--|---|
| 455kHz 400-hertz Modulation | Tuning gang fully open | Output meter across voice coil | T206,T204, T202 (Top and Bottom) | Adjust for maximum. Repeat until no further improvement is noted. |
| 600kHz | Tune to signal | " | T101 | Adjust for maximum. |
| 1640kHz | " | " | C1G | Adjust for maximum. |
| 1400kHz | " | " | C1D | Adjust for maximum. Repeat AM alignment until no further improvement is noted. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point B, low side to ground.

| GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR | ADJUST | REMARKS |
|------------------------|-------------------------------|---|---|---|
| 10.7MHz Unmodulated | Point of non- interference | DC probe of VTVM to point H+, common to ground. | T207 (Bottom) T205 (Top/Bot) T203 (Top/Bot) T201 (Top/Bot) | Adjust for maximum. |
| " | " | DC probe of VTVM to point H, common to ground. | T207 (Top) | Adjust for zero reading. A positive or negative reading will be obtained on either side of correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point B, low side to ground.
Use only enough marker signal for indication. Use 60-hertz frequency modulated signal
with 450kHz sweep. Use 60-hertz sawtooth voltage in scope for horizontal deflection.

| GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR | ADJUST | REMARKS |
|-------------------------|-------------------------------|---|---|---|
| 10.7MHz 450kHz Sweep | Point of non- interference | Vert input of scope to point H+, low side to ground. | T207 (Bottom) T205 (Top/Bot) T203 (Top/Bot) T201 (Top/Bot) | Disconnect stabilizing capacitor C220. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C220. |
| " | " | Vert input of scope to point H, low side to ground. | T207 (Top) | Adjust T207 (Top to place marker at center of S curve similar to Fig. 2. Readjust T207 (Bottom) for maximum amplitude and straightness of line. |

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. Adjustment of coils by bending should not be attempted unless the coil is deformed or replaced.

| GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR | ADJUST | REMARKS |
|-----------------------|--------------------|---|-------------|--|
| 88MHz Unmodulated | Low freq end | DC probe of VTVM to point H+, common to ground. | L4,L2,L1 | Adjust for maximum. |
| 108MHz Unmodulated | Tune to signal | " | C13,C1A,C1H | Adjust for maximum. Repeat FM RF steps until no further improvement is noted. |

ALIGNMENT INSTRUCTIONS (Continued)

FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR (± .0001% ACCURACY)

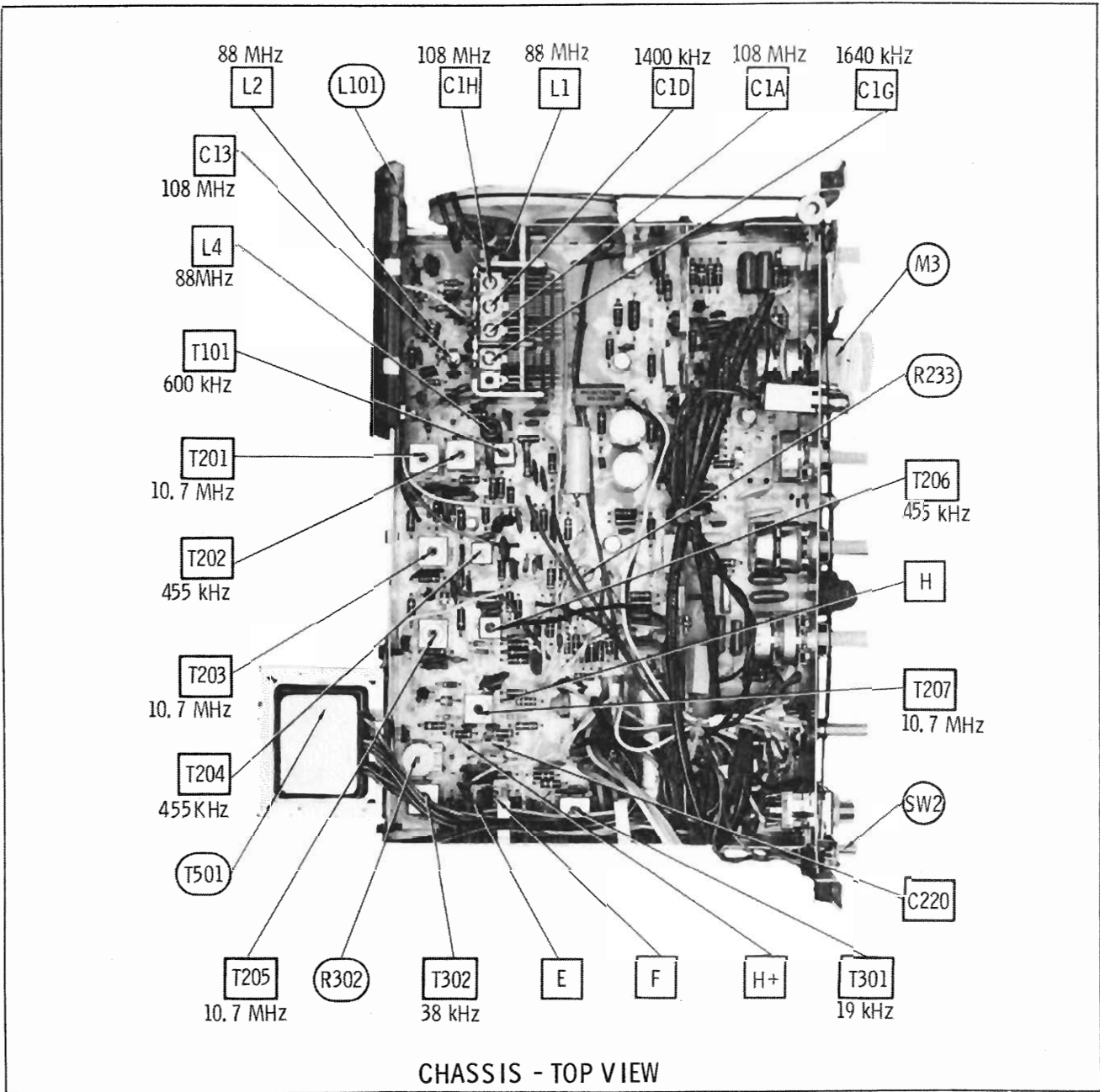
| High side of generator thru 47K to point D, low side to ground. | | | |
|---|--|--------|------------------------------------|
| GENERATOR FREQUENCY | INDICATOR | ADJUST | REMARKS |
| 19kHz | Vert input of scope thru 47K to point E, low side to ground. | T301 | Adjust for maximum. |
| 38kHz | Vert input of scope thru 47K to point F, low side to ground. | T302 | Adjust for maximum 38kHz response. |

MUTE CONTROL ADJUSTMENT

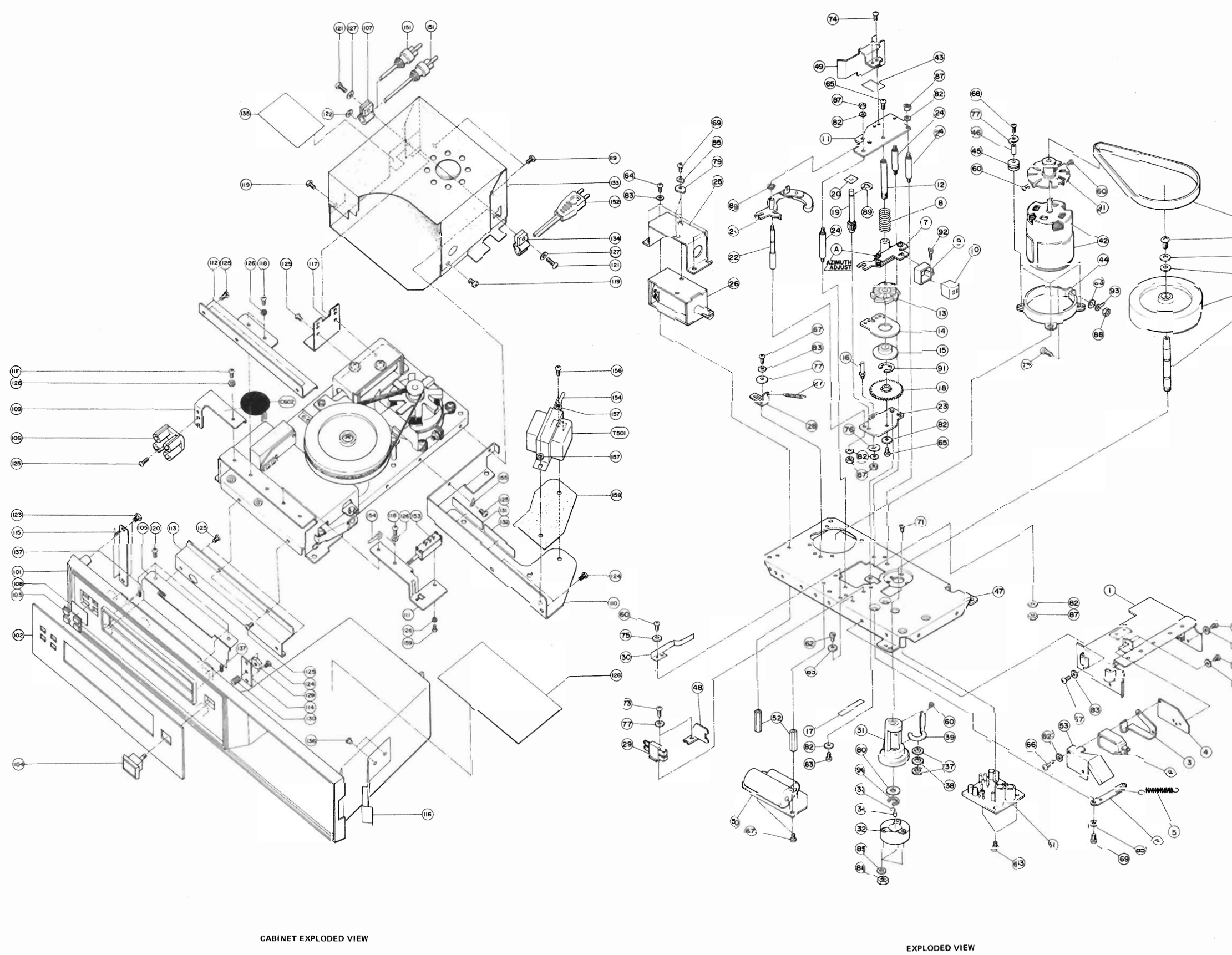
Adjust receiver for a weak stereo signal. Adjust Mute Control (R302) until stereo lamp lights.

TUNING METER ADJUSTMENT

Adjust receiver for a weak station signal, not noise. At the station's strongest point, adjust Meter Control (R233) until needle in tuning meter is centered.



PARTS LIST MECHANISM COMPONENTS



| REF. NO. | PART NO. | DESCRIPTION |
|----------|-----------|---|
| 1 | 812-258B | Magazine Guide Assem. |
| 2 | 885-93B | Switch, Micro. |
| 3 | 919-48B | Actuator, Switch (Used on 812-259B) |
| 4 | 812-259B | Bracket, Switch (Used on 812-258B) |
| 5 | 880-187B | Spring, Roller Arm (Used on 812-260B) |
| 6 | 812-260B | Bracket, Spring Hook (Used on 804-151B) |
| 7 | *948-73B | Head Arm Assem. (Used on 812-261B) |
| 8 | *880-276B | Spring, Head (Used on 812-58B) |
| 9 | 812-261B | Bracket, Head |
| 10 | 942-14B | Tape Head |
| 11 | 857-428B | Plate - Head Base (Used on 876-75B) |
| 12 | 876-75B | Shaft, Cam |
| 13 | 860-7B | Selector Cam Assem. (Used on 812-263B) |
| 14 | 804-150B | Wafer, Indicator (Used on 812-263B) |
| 15 | 812-263B | Holder for Wafer |
| 16 | 812-264B | Stopper (Used on 857-430B) |
| 17 | 901-77B | Indicator Label - Strip (Used on 804-151B) |
| 18 | 834-7B | Gear, Head Height Adjuster Assem. (Used on 876-75B) |
| 19 | 812-265B | Head Height Adjuster Assem. (Used on 857-430B) |
| 20 | 880-189B | Spring, Plate (Used on 812-265B) |
| 21 | 860-6B | Driving Pawl Assem. (Used on 876-91B) |
| 22 | 876-91B | Shaft (Used on 857-430B) |
| 23 | 857-430B | Plate, Head Base |
| 24 | 884-7B | Stanchion for Plate (3Mt. 804-151B) |
| 25 | 812-266B | Bracket for Plunger Magnet |
| 26 | *986-4B | Plunger |
| 27 | 880-190B | Spring, Plunger (Used on 812-267B) |
| 28 | 812-267B | 'L' Bracket (Used on 804-151B) |
| 29 | 885-92B | Switch Assem. |
| 30 | 880-191B | Detent Bracket (Used on 804-151B) |
| 31 | 812-269B | Flywheel Metal Assem. (Used on 804-151B) |
| 32 | 806-13B | Capstan Thrust Bearing (Mts. 812-269B) |
| 33 | 984-4B | Steel Ball (Used on 806-14B) |
| 34 | 806-14B | Rest, Ball Bearing (Used on 806-13B) |
| 35 | 876-76B | Shaft, Capstan |
| 36 | 861-82B | Flywheel |
| 37 | 893-161B | Washer, Plastic (2 Used on 812-269B) |
| 38 | 893-182B | Washer, Felt (Used on 812-269B) |
| 39 | 812-430B | Guard, Tape (Used on 812-269B) |
| 40 | 832-31B | Belt, Drive |
| 41 | *861-146B | Pulley Assem., Motor (With Fan-Blades) |
| 42 | *941-33B | Motor |
| 43 | 901-83B | Label |
| 44 | 812-271B | Bracket, Motor Mtg. |
| 45 | 925-12B | Cushion, Motor (4 Used on 812-271B) |
| 46 | 879-7B | Pipe, Motor Cushion (1 Used on Ea. 925-12B) |
| 47 | 804-151B | Chassis Mechanism Base Assem. |
| 48 | 812-268B | Guide, Tape |
| 49 | 857-385B | Bracket (Used on 857-428B) |
| 52 | 884-12B | Stanchion, Hexagonal |
| 53 | 824-173B | Cover, Micro Switch |
| 60 | 912-509B | Screw - 2 x 4 (2 Mt. 861-146B, 880-191B & 1 Mts. 812-430B) |
| 61 | 912-510B | Screw - 2 x 5 (2 Mt. 812-258B) |
| 62 | 912-522B | Screw - 2.6 x 5 (1 Mts. 804-151B) |
| 63 | 912-512B | Screw - 2.6 x 6 (1 Mts. 857-430B & 3 Mt. Printed Circuit Board) |
| 64 | 912-513B | Screw - 3 x 8 (4 Mt. 812-266B) |
| 65 | 912-514B | Screw - 2.6 x 8 (2 Mt. 876-75B) |
| 66 | 912-775B | Screw - 2.6 x 14 (2 Mt. 885-93B) |
| 67 | 912-576B | Screw - 3 x 5 (4 Mt. 812-258B, 1 Mts. Ea. 884-12B & 2 Mt. 812-267B) |
| 68 | 912-517B | Screw - 8 x 12 (4 Mt. 812-271B) |
| 69 | 912-518B | Screw - 4 x 6 (2 Mt. ea. 812-260B & 812-266B) |
| 70 | 912-519B | Screw - 4 x 12 (1 Used on 812-271B) |
| 71 | 912-520B | Screw - 4 x 20 (3 Mt. 806-13B) |

CABINET EXPLODED VIEW

EXPLODED VIEW

Note: Certain mechanical components in the following parts lists are manufactured to metric standards. Caution should be used in selecting replacement hardware.

Courtesy of the Manufacturer

FOLDER 2-B

| Q451 | | Q452 | |
|------|-----------------|------|-----------------|
| 1ST | PRE - AMPLIFIER | 2ND | PRE - AMPLIFIER |
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ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED

MEASURED 'WITHOUT SIGNAL INPUT USING A HIGH IMPEDANCE VACUUM

TRANSDUCER LEAD LAYOUT



Q401, Q402
Q451, Q452

Q401, Q402
Q451, Q452

CHASSIS 15WFR55