

**KEYBOARD, SYSTEM BOARD  
POWER SUPPLY**

See Folder CSCS7

**DISK DRIVE**

See Folder CSCS7-A

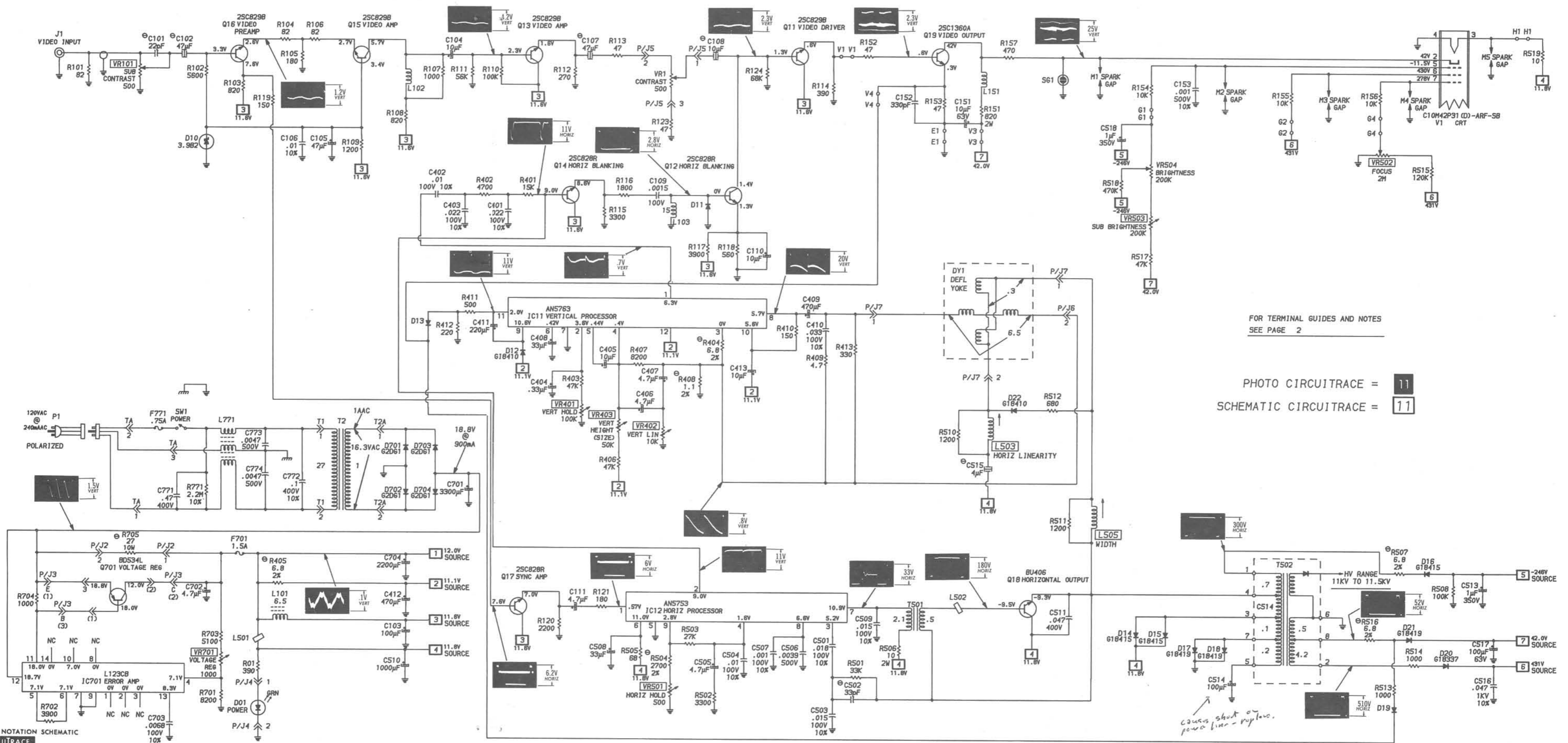
APPLE  
MODEL IIc

CSCS7-B

CSCS7-B

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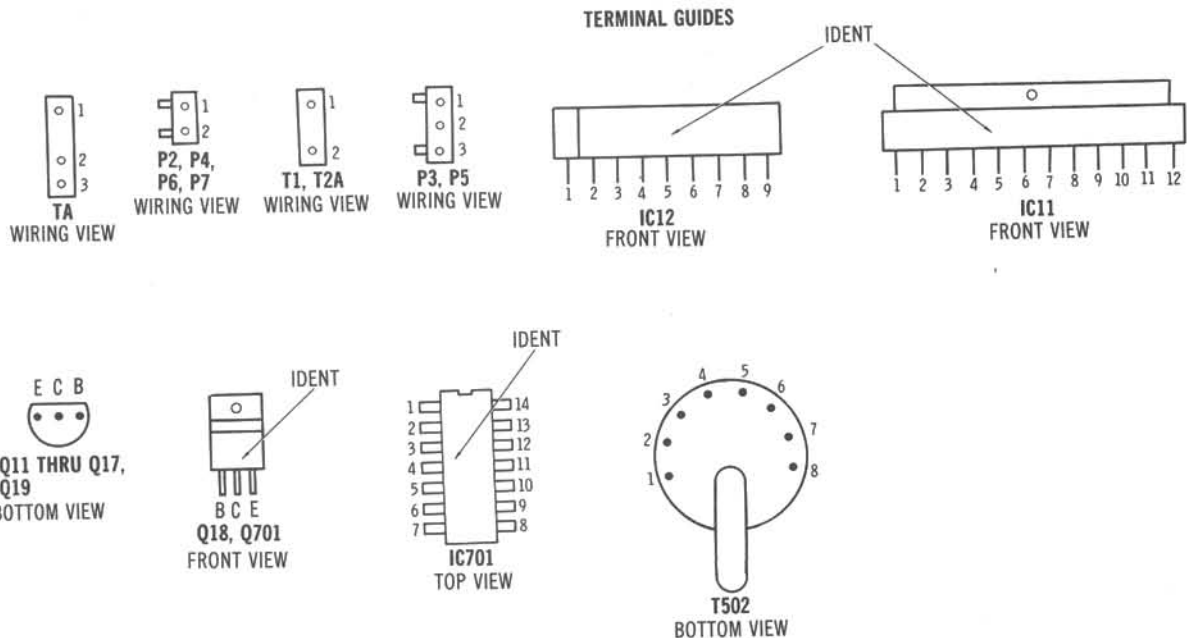
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PHOTO CIRCUITRACE = 11  
SCHEMATIC CIRCUITRACE = 11

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
WITH CIRCUITRACE

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APPLE  
MONITOR  
MODEL IIc



## RESISTANCE MEASUREMENTS

| MEASUREMENTS TAKEN WITH LOW POWER OHMS METER |       |       |       |       |       |       |       |          |        |        |        |        |        |        |
|--|-------|-------|-------|-------|-------|-------|-------|----------|--------|--------|--------|--------|--------|--------|
| 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 |
| IC11   | 26K   | 82K   | 8     | 7400  | 10.3K | 552   | 0     | 10.3K(1) | 18K(1) | 10.1K  | 715    | 45     |        |        |
| IC12   | 20.8K | INF   | 18.7K | 30.5K | 0     | 105   | 50    | INF      | 2960   |        |        |        |        |        |
| IC701  | INF   | INF   | INF   | 3350  | INF   | INF   | 0     | INF      | 0      | INF    | 1061   | 65     | INF    | INF    |
| V1   | 470K  | 450K  | 28    | 0     | 2.2M  | 2M    | 1.4M  |          |        |        |        |        |        |        |
| ITEM   | E     | B     | C     |       | ITEM  | E     | B     | C        |        | ITEM   | E      | B      | C      |        |
| Q11  | 387   | 68K   | 44    |       | Q16   | 260   | 6760  | 858      |        |        |        |        |        |        |
| Q12  | 485   | 15    | 68K   |       | Q17   | 2190  | 1008  | 44       |        |        |        |        |        |        |
| Q13  | 266   | 36K   | 44    |       | Q18   | INF   | INF   | 38       |        |        |        |        |        |        |
| Q14  | 3300  | INF   | 44    |       | Q19   | 47    | 434   | INF      |        |        |        |        |        |        |
| Q15  | 259   | 1233  | 861   |       | Q701  | 65    | 1061  | 38       |        |        |        |        |        |        |

(1) Reading may vary according to the condition of the electrolytic in the circuit.

## SCHEMATIC NOTES

- \* Circuitry not used in some versions
- Circuitry used in some versions
- ⊕ See parts list
- ⊕ Ground
- ⊕ Chassis

Waveforms and voltages taken from ground, unless noted otherwise

Voltages, logic readings and waveforms taken in Power Up mode, Caps Lock and 80/40 Column keys down, Keyboard Switch up, no diskette in the Disk Drive "Apple IIc" and "Check Disk Drive" displayed on the Monitor screen.

Waveforms taken with triggered scope and Sweep/Time switch in Calibrate position, scope input set for DC coupling on 0 reference voltage waveforms. Switch to AC input to view waveforms after DC reference is measured

when necessary. Each waveform is 7 cm. width with DC reference voltage given at the bottom line of each waveform.

Time in  $\mu$ sec. per cm, given with p-p reading at the end of each waveform.

Item numbers in rectangles appear in the alignment/adjustment instructions.

Supply voltages maintained as shown at input.

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

Capacitors are 50 volts or less, 5% unless noted.

Electrolytic capacitors are 50 volts or less, 20% unless noted.

Resistors are  $\frac{1}{2}$ W or less, 5% unless noted.

Value in ( ) used in some versions.

# MISCELLANEOUS ADJUSTMENTS

## ALIGNMENT TOOLS

|            |                  |
|------------|------------------|
| L503 ..... | GC ELECTRONICS   |
| L503 ..... | 5000, 5009, 8276 |
| L505 ..... | 9440, 8282, 8606 |

NOTE: Pattern generator with 1Vp-p into 75 ohms (VTR Standard) output used with appropriate pattern.

## INITIAL MONITOR TEST

Connect a crosshatch generator to the Video In Jack. Turn the Monitor On and adjust the Brightness and Contrast controls for the best display. Check the adjustment of the Vert Hold, Horiz Hold, Vert Lin, Vert Size and Focus controls. If any of these controls produce erratic operation, clean that control with contact cleaner and recheck.

## ADJUSTMENTS

NOTE: Connect a crosshatch generator to the Video In Jack for the following adjustments.

### FOCUS ADJUSTMENT

Adjust the Focus Control (VR502) for sharp, well defined lines on the display.

### VERT AND HORIZ HOLD ADJUSTMENT

Adjust the Vert Hold Control (VR401) and Horiz Hold Control (VR501) for the most stable display.

### VERT SIZE ADJUSTMENT

Adjust the Vert Size Control (VR403) for the desired height on the display.

### VERT LIN ADJUSTMENT

Adjust the Vert Lin Control (VR402) for even spacing between the vertical lines on the display.

## VOLTAGE REGULATOR ADJUSTMENT

Connect a voltmeter to the collector of Voltage Regulator Transistor (Q701). Adjust the Voltage Regulator Control (VR701) for 12.0V.

## SUB BRIGHTNESS ADJUSTMENT

Connect a crosshatch generator to the Video In Jack. Set the Brightness and Contrast Controls to Maximum clockwise position.

Adjust the Sub Brightness Control (VR503) for Maximum brightness without retrace lines.

## CENTERING ADJUSTMENT

Center the CRT display by adjusting the two magnetic centering rings located on the deflection yoke rear cover.

## HORIZ LIN ADJUSTMENT

Adjust the Horiz Lin Coil (L503) for even spacing between the horizontal lines on the display.

## WIDTH ADJUSTMENT

Adjust the Width Coil (L505) for the desired width on the display.

## SUB CONTRAST

Set the Brightness and Contrast Controls to Maximum clockwise position. Adjust the Sub Contrast Control for best display with no distortion.

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# TROUBLESHOOTING AID

**Note:** Waveforms taken with triggered scope, Keyed-Rainbow generator. Schematic voltages measured with digital meter, no signal. Controls adjusted for normal operation.

## PICTURE OR SOUND

NO PIC, NO RASTER: Check AC power supply, sources generated from Horizontal Output Transformer (T502) and Video circuit. Refer to "Troubleshooting" Power Supply, Video and Horizontal circuits.

NO PIC, HAS RASTER: Refer to "Troubleshooting" Video circuit.

LOW OR EXCESSIVE BRIGHTNESS: Check Video and Luminance circuits. Refer to "Troubleshooting" Video circuit.

## SWEEP

NO RASTER: Check HV Rectifier, Rectifiers D20 and D21 and Horizontal circuit. Refer to "Troubleshooting" Horizontal circuit.

NO VERT DEFLECTION: Refer to "Troubleshooting" Vertical circuit.

POOR VERT LIN OR FOLDOVER: Refer to "Troubleshooting" Vertical circuit.

POOR HORIZ LIN OR FOLDOVER: Refer to "Troubleshooting" Horizontal circuit.

NARROW PICTURE: Refer to "Troubleshooting" Horizontal circuit.

VERT OFF FREQUENCY: Refer to "Troubleshooting" Vertical circuit.

HORIZ OFF FREQUENCY: Refer to "Troubleshooting" Horizontal circuit.

## SYNC

NO VERT/HORIZ SYNC: Refer to "Troubleshooting" Sync circuit.

## MONITOR BOARD GridTrace LOCATION GUIDE

|      |      |       |      |      |      |       |      |       |      |
|------|------|-------|------|------|------|-------|------|-------|------|
| C101 | F-3  | C516  | I-13 | P4   | A-11 | R403  | I-5  | VR501 | G-4  |
| C102 | E-4  | C517  | F-8  | P5   | A-10 | R404  | H-7  | VR502 | A-12 |
| C103 | C-4  | C518  | J-9  | P6   | H-8  | R405  | H-5  | VR503 | H-9  |
| C104 | B-5  | C701  | A-3  | P7   | A-11 | R406  | I-5  | VR504 | K-10 |
| C105 | C-6  | C702  | D-1  | Q11  | A-9  | R407  | J-7  | VR701 | D-1  |
| C106 | D-6  | C703  | A-2  | Q12  | B-8  | R408  | H-7  |       |      |
| C107 | A-7  | C704  | G-3  | Q13  | A-5  | R409  | I-8  |       |      |
| C108 | A-9  | D10   | C-7  | Q14  | C-6  | R410  | G-7  |       |      |
| C109 | B-7  | D11   | C-8  | Q15  | C-5  | R411  | G-7  |       |      |
| C110 | B-9  | D12   | G-6  | Q16  | E-3  | R412  | F-7  |       |      |
| C111 | C-4  | D13   | F-8  | Q17  | D-4  | R413  | H-8  |       |      |
| C401 | I-8  | D14   | F-13 | Q18  | D-12 | R501  | D-7  |       |      |
| C402 | I-8  | D15   | F-13 | R01  | A-10 | R502  | F-4  |       |      |
| C403 | J-7  | D16   | J-11 | R101 | J-12 | R503  | F-5  |       |      |
| C404 | I-6  | D17   | G-9  | R102 | D-4  | R504  | F-5  |       |      |
| C405 | I-5  | D18   | G-9  | R103 | E-4  | R505  | E-7  |       |      |
| C406 | J-6  | D19   | F-8  | R104 | C-4  | R506  | D-9  |       |      |
| C407 | I-7  | D20   | I-13 | R105 | C-5  | R507  | I-12 |       |      |
| C408 | H-6  | D21   | H-9  | R106 | C-5  | R508  | I-20 |       |      |
| C409 | G-8  | D22   | C-13 | R107 | B-4  | R510  | C-12 |       |      |
| C410 | H-8  | D701  | E-2  | R108 | B-4  | R511  | D-11 |       |      |
| C411 | H-5  | D702  | F-2  | R109 | C-5  | R512  | C-13 |       |      |
| C412 | G-5  | D703  | F-2  | R110 | A-6  | R513  | F-8  |       |      |
| C413 | G-6  | D704  | F-1  | R111 | B-6  | R514  | I-12 |       |      |
| C501 | D-6  | F701  | H-3  | R112 | A-6  | R515  | G-13 |       |      |
| C502 | D-7  | IC11  | H-6  | R113 | A-9  | R516  | G-9  |       |      |
| C503 | D-7  | IC12  | E-5  | R114 | B-9  | R517  | H-9  |       |      |
| C504 | E-5  | IC701 | B-2  | R115 | B-7  | R518  | J-10 |       |      |
| C505 | E-5  | J1    | K-11 | R116 | B-6  | R519  | D-9  |       |      |
| C506 | F-5  | L101  | C-3  | R117 | C-7  | R701  | B-1  |       |      |
| C507 | E-5  | L102  | A-5  | R118 | B-8  | R702  | C-1  |       |      |
| C508 | F-7  | L103  | B-8  | R119 | D-4  | R703  | E-1  |       |      |
| C509 | E-6  | L501  | A-4  | R120 | C-4  | R704  | C-2  |       |      |
| C510 | D-10 | L502  | E-9  | R121 | D-5  | T2A   | G-1  |       |      |
| C511 | E-12 | L503  | B-13 | R123 | B-10 | VR101 | F-4  |       |      |
| C513 | I-10 | L505  | C-11 | R124 | B-7  | VR401 | K-6  |       |      |
| C514 | B-10 | P2    | G-2  | R401 | I-8  | VR402 | I-4  |       |      |
| C515 | A-11 | P3    | D-2  | R402 | J-8  | VR403 | K-8  |       |      |

# TROUBLESHOOTING

## POWER SUPPLY

Check the AC Line Fuse (F771) and the DC Fuse (F701). If Fuse F771 is open, check Diodes D701 thru D704, Capacitor C771 and Electrolytic C701 for possible shorts. Also check Power Transformer (T2) for shorted windings. If Fuse F701 is open, check Electrolytics C704 and C412 for shorts. Also check Electrolytic C514 in the Horizontal Sweep Circuit for a possible short. If both fuses are good, check for 18.8V DC at the emitter of Voltage Regulator Transistor (Q701). If 18.8V is missing at the emitter of Q701, check for an open Diode D701 thru D704, an open Power Transformer T2 winding or an open Line Choke L771. Also check Power Switch SW1 and the power cord.

If the 18.8V is present at the emitter of Q701, check for 12V at the collector of Q701. If the voltage is missing or incorrect at the collector of Regulator Transistor Q701, check Transistor Q701, Resistor R705, Error Amplifier (IC701) and associated components. If 12V is present at the Collector of Q701, check Resistor R405 and Choke L101.

## HORIZONTAL

If there is no high voltage, inject a horizontal drive signal at the base of Horizontal Output Transistor (Q18). If the high voltage returns, check Horizontal Driver Transformer (T501), Horizontal Processor (IC12), Resistors R505 and R506. Also check other components associated with the Horizontal Driver circuit and the Horizontal Processor IC. If the high voltage does not return when a horizontal drive signal is injected at the base of Horizontal Output Transistor (Q18), check Q18, Horizontal Output Transformer (T502), Deflection Yoke (DY1) and Diodes D14, D15, D17 and D18. Also check Horizontal Linearity Coil (L503), Width Coil (L505), Capacitors C511 and C516, Electrolytics C513, C514, C515, and C517. Check for possible shorts at the outputs of Diodes D20 and D21 that could load down the Horizontal Output Transformer.

Poor horizontal linearity or foldover problems may be caused by Capacitor C511, Electrolytics C514 or C515, Deflection Yoke DY1, Horizontal Linearity Coil L503 or Width Coil L505. Also check Resistor R510, R511 and R512 and Diode D22. If the horizontal sweep is off frequency, check the adjustment of the Horizontal Hold Control (VR501). If horizontal sync cannot be obtained with the Horizontal Hold Control, check the Horizontal Processor (IC12) and its associated components. If the monitor has a narrow raster, check the 11.8V source in the power supply. If the 11.8V source is normal, check the waveform at the base of the Horizontal Output Transistor (Q18). If the drive waveform at the base of Q18 has insufficient amplitude, check the voltages on the Horizontal Processor IC12. Also check Capacitors C501, C502, C503 and C509 in the Horizontal Drive circuit. If the waveform at the base of the Horizontal Output Transistor is normal, check Resistors R510 and R511, Coils L503 and L505 and Electrolytic C515 in the horizontal yoke circuit.

## VIDEO

Inject a video signal at the Video Input Jack (J1) and check the waveform at the emitter of the Video Pre-amplifier Transistor (Q16). If the waveform is missing at the emitter of Q16, check Resistor R103, Capacitor C101, Electrolytic C102 and Transistor Q16. If the waveform is present at the emitter of Q16, check the waveform at the base of Video

Amplifier Transistor (Q13). If the waveform is missing at the base of Q13, check Video Amplifier Transistor (Q15), Resistors R104, R106, R108 and R109 and Electrolytic C104. If the waveform is present at the base of Transistor Q13, check the waveform at the base of Video Driver Transistor (Q11). If the video signal is missing at the base of Q11, check Transistor Q13, Resistors R110, R112 and R113, Electrolytics C107 and C108, Contrast Control (VR1) and Horizontal Blanking Transistor (Q12).

If the video waveform is present at the base of Q11, check the waveform at the base of Video Output Transistor (Q19) on the CRT Board. If the waveform is missing on the base of Q19, check Transistor Q11 and Resistor R114. If the waveform is present at the base of Q19, check the waveform at pin 2 of the CRT. If the video signal is missing at pin 2 of the CRT, check Transistor Q19, Resistors R151, R153 and R157, Coil L151, and Electrolytic C151. If the video signal is present at pin 2 of the CRT, check the voltages on pins 5, 6 and 7 of the CRT. If all voltages on the CRT are normal, check the CRT. If the monitor has low brightness or excessive brightness, check the voltages on Transistors Q11 and Q19.

## SYNC

If there is no horizontal or vertical sync, check the composite video waveform at pin 1 of Horizontal Processor (IC12). If the waveform is missing at pin 1 of IC12, check for the composite video signal at the base of Sync Amplifier Transistor (Q17). If the composite video signal is present at the base of Q17, check Transistor Q17, Resistors R120 and R121 and Electrolytic C111. If the composite video signal is missing at the base of Q17, check Resistor R119 and Transistor Q16. If the composite signal is present at pin 1 of the Horizontal Processor IC12, check IC12 by substitution.

If there is no horizontal sync, check Horizontal Processor IC12 and its associated components. If there is no vertical sync, check for vertical sync pulses at pin 2 of IC12. If the vertical sync pulses are missing at pin 2 of IC12, check IC12. If there are vertical pulses present at pin 2 of IC12, check for vertical sync pulses at pin 1 of the Vertical Processor (IC11). If the vertical sync pulses at pin 1 of IC11 are missing or have low amplitude, check Resistors R401 and R402, Capacitors C401, C402 and C403. If the vertical sync pulses are normal at pin 1 of Vertical Processor IC11, check IC11 by substitution.

## VERTICAL

If there is no vertical sweep, check the waveform at pin 8 of Vertical Processor (IC11). If the vertical sweep signal is present at pin 8 of IC11, check Electrolytic C409 and Deflection Yoke (DY1). If the vertical sweep signal is missing at pin 8 of IC11, check Vertical Processor IC11 and associated components. Poor vertical linearity or foldover may be caused by a defective component in the vertical feedback circuit. Check Resistors R404, R406, R407, R408 and R409, Controls VR402 and VR403 and Electrolytics C404, C406, C407, C408, C411 and Capacitor C410. If the Vertical sweep is off frequency, check Vertical Hold Control (VR401), Resistor R403 and Electrolytic C404. If these components check good, check IC11 by substitution. If vertical retrace lines appear in the raster, check Resistors R411 and R412, Diodes D13 and D19 and Capacitor C152 on the CRT Board.

## PARTS LIST AND DESCRIPTION

When ordering parts, state Model, Part Number, and Description

### SEMICONDUCTORS (Select replacement for best results)

| ITEM No.  | TYPE No. | MFG. PART No. | REPLACEMENT DATA          |              |              |              |                  |                 |
|-----------|----------|---------------|---------------------------|--------------|--------------|--------------|------------------|-----------------|
|           |          |               | GENERAL ELECTRIC PART No. | NTE PART No. | ECG PART No. | RCA PART No. | WORKMAN PART No. | ZENITH PART No. |
| D10       | 3.9B2    |               | GEZD-3.9                  | NTE5007A     | ECG5007A     | SK3A9/5007A  | WEP1407/5007     |                 |
| D11       | G18410   |               |                           |              |              |              |                  |                 |
| D12       | G18410   |               |                           |              |              |              |                  |                 |
| D13       | G18415   |               |                           |              |              |              |                  |                 |
| D14 thru  |          |               |                           |              |              |              |                  |                 |
| D16       | G18419   |               |                           |              |              |              |                  |                 |
| D17, D18  | G18419   |               |                           |              |              |              |                  |                 |
| D19       | G18337   |               |                           |              |              |              |                  |                 |
| D20       | G18419   |               |                           |              |              |              |                  |                 |
| D21       | G18410   |               |                           |              |              |              |                  |                 |
| D22       | G2DGI    |               |                           |              |              |              |                  |                 |
| D701 thru |          |               |                           |              |              |              |                  |                 |
| D704      | AN5763   |               |                           |              |              |              |                  |                 |
| IC11      | AN5753   |               |                           |              |              |              |                  |                 |
| IC12      | L1230B   |               |                           |              |              |              |                  |                 |
| IC701     |          |               | GE1C-260                  | NTE923D      | ECG923D      | SK3165/923D  | WEP2331/923D     | 221-Z9020       |
| Q11       | 2SC829B  |               | GE-20*                    | NTE85        | ECG85        | SK3122       | WEP829           | 121-Z9021       |
| Q12       | 2SC828R  |               | GE-61                     | NTE85        | ECG85        | SK3931/90    | WEP828           | 121-972         |
| Q13       | 2SC829B  |               | GE-20*                    | NTE85        | ECG85        | SK3122       | WEP829           | 121-Z9021       |
| Q14       | 2SC828R  |               | GE-61                     | NTE85        | ECG85        | SK3931/90    | WEP828           | 121-972         |
| Q15, Q16  | 2SC829B  |               | GE-20*                    | NTE85        | ECG85        | SK3122       | WEP829           | 121-Z9021       |
| Q17       | 2SC828R  |               | GE-61                     | NTE85        | ECG85        | SK3931/90    | WEP828           | 121-972         |
| Q18       | BU406    |               |                           | NTE379       | ECG379       | SK9085/379   | WEP379/379       | 121-Z9111       |
| Q19       | 2SC1360A |               | GE-62                     | NTE199       | ECG199       | SK3132       | WEP66/199        | 121-972         |
| Q701      | BD534L   |               | GE-69A                    | NTE153       | ECG153       | SK3274/153   | WEP746/153       | 121-988-03      |

\* Lead configuration may vary from original.

## WIRING DATA

|   |  |
|---|--|
| High Voltage Lead .....                   | Use BELDEN No. 8869 (17 KV) or 8868 (24 KV)        |
| Shielded Hook-up Wire .....               | Use BELDEN No. 8401 or 8421 (Single-Conductor)     |
| General-use Unshielded Hook-up Wire ..... | Use BELDEN No. 8529 (Solid) Available in 13 Colors |
| 75-Ohm Tuner Input Lead .....             | Use BELDEN No. 8241                                |

## PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

### ELECTROLYTIC CAPACITORS Items Not Listed Are Normally Available At Local Distributors.

| ITEM No. | RATING    | MFGR. PART No. |
|----------|-----------|----------------|
| C102     | 47 16V NP |                |
| C107     | 47 16V NP |                |

| ITEM No. | RATING    | MFGR. PART No. |
|----------|-----------|----------------|
| C108     | 10 16V NP |                |
| C515     | 4 25V NP  |                |

### CAPACITORS Items Not Listed Are Normally Available At Local Distributors.

| ITEM No. | RATING      | MFGR. PART No. |
|----------|-------------|----------------|
| C101     | 22 N220 50V |                |

| ITEM No. | RATING         | MFGR. PART No. |
|----------|----------------|----------------|
| C502     | 33 NPO 500V 5% |                |

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

| ITEM NO. | FUNCTION           | RESISTANCE | MFGR. PART NO. | NOTES |
|----------|--------------------|------------|----------------|-------|
| VR1      | Contrast           | 500        |                |       |
| VR101    | Sub Contrast       | 500        |                |       |
| VR401    | Vert Hold          | 100K       |                |       |
| VR402    | Vert Linearity     | 10K        |                |       |
| VR403    | Vert Height (Size) | 50K        |                |       |
| VR501    | Horiz Hold         | 500        |                |       |
| VR502    | Focus              | 2M         |                |       |
| VR503    | Sub Brightness     | 200K       |                |       |
| VR504    | Brightness         | 200K       |                |       |
| VR701    | Voltage Regulator  | 1000       |                |       |

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### RESISTORS (Power and Special)

| ITEM No. | RATING                  | REPLACEMENT DATA |              |                  |
|----------|-------------------------|------------------|--------------|------------------|
|          |                         | MFGR. PART No.   | NTE PART No. | WORKMAN PART No. |
| R404     | 6.8 2% 1.4W Metal Film  |                  | QW6D8        | 22-2246          |
| R405     | 6.8 2% 1/4W Metal Film  |                  | QW6D8        |                  |
| R408     | 1.1 2% 1/4W Metal Film  |                  | QW1D1        |                  |
| R504     | 2700 2% 1/4W Metal Film |                  | QW227        |                  |
| R507     | 6.8 2% 1/4W Metal Film  |                  | QW6D8        |                  |
| R516     | 6.8 2% 1/4W Metal Film  |                  | QW6D8        |                  |
| R705     | 27 5% 10W WW            |                  | 10W027       |                  |



## PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

### COILS (RF-IF)

| ITEM No. | FUNCTION | MFR. PART No. |
|----------|----------|---------------|
| L101     | RF Choke |               |
| L102     | RF Choke |               |
| L103     | RF Choke |               |

| ITEM No. | FUNCTION    | MFR. PART No. |
|----------|-------------|---------------|
| L151     | RF Choke    |               |
| L771     | Line Filter |               |

### COILS & TRANSFORMERS

| ITEM No. | FUNCTION                           | MFR. PART No.     | OTHER IDENTIFICATION | NOTES |
|----------|------------------------------------|-------------------|----------------------|-------|
| DY1      | Yoke Horiz 156uH<br>90° Vert 9.9mH | TMD-2728(1)       |                      |       |
| L502     | Width                              | HW-440(1)         |                      |       |
| L503     | Horiz Linearity                    | 2449-717-0109(1)  |                      |       |
| T2       | Power                              | 2869-239-0104(1)  |                      |       |
| T501     | Driver                             | 027-0108-DD156(1) |                      |       |
| T502     | Horiz Output                       | TMF-2222(1)       |                      |       |

# For SAFETY use only equivalent replacement part.  
(1) Number on unit.

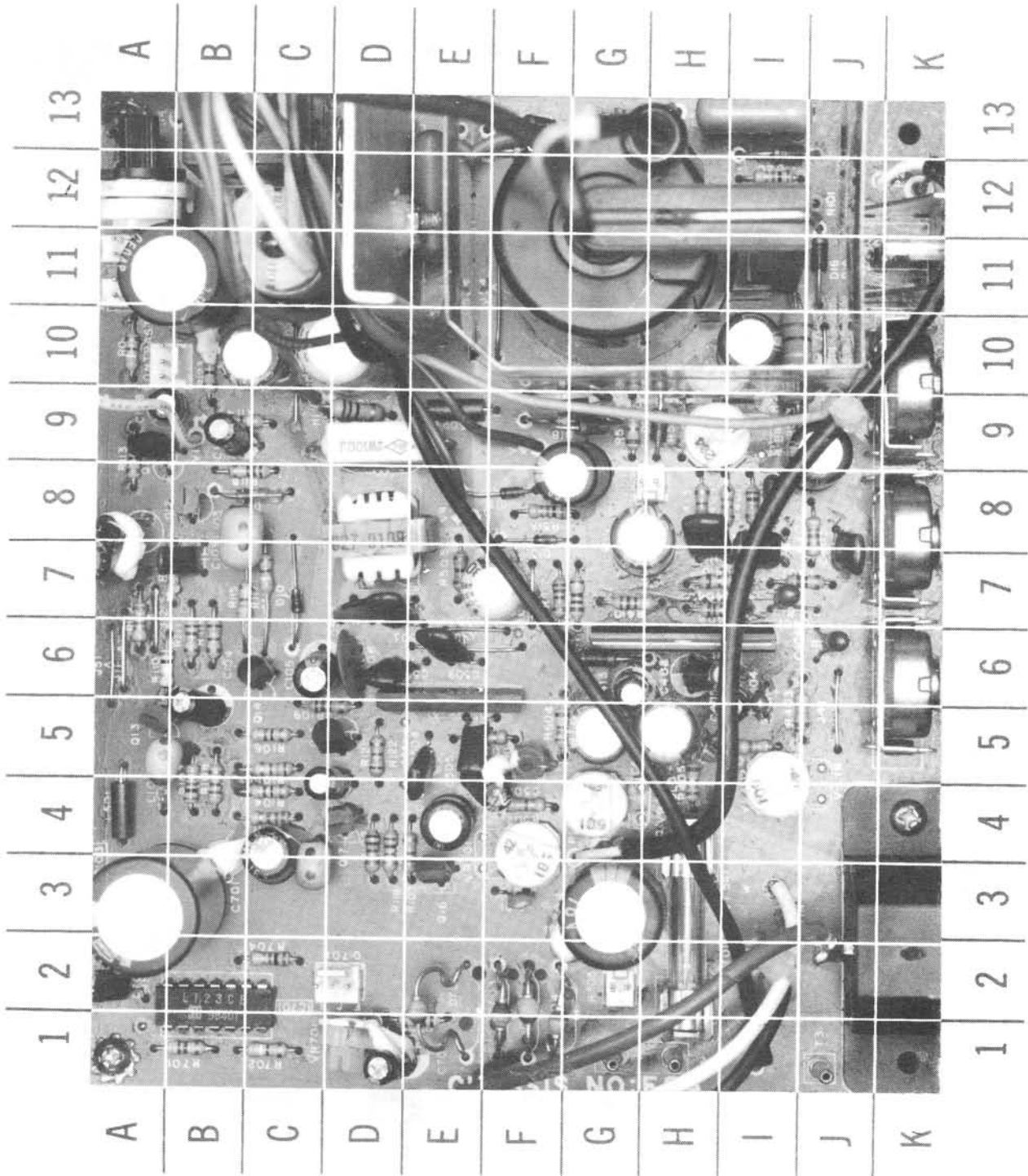
### FUSE DEVICES

| ITEM NO. | DESCRIPTION                 | MFR. PART NO. |        | NOTES |
|----------|-----------------------------|---------------|--------|-------|
|          |                             | DEVICE        | HOLDER |       |
| F701     | 1.5A @ 250V<br>Fast-Acting  |               |        |       |
| F771     | 750mA @ 250V<br>Fast-Acting |               |        |       |

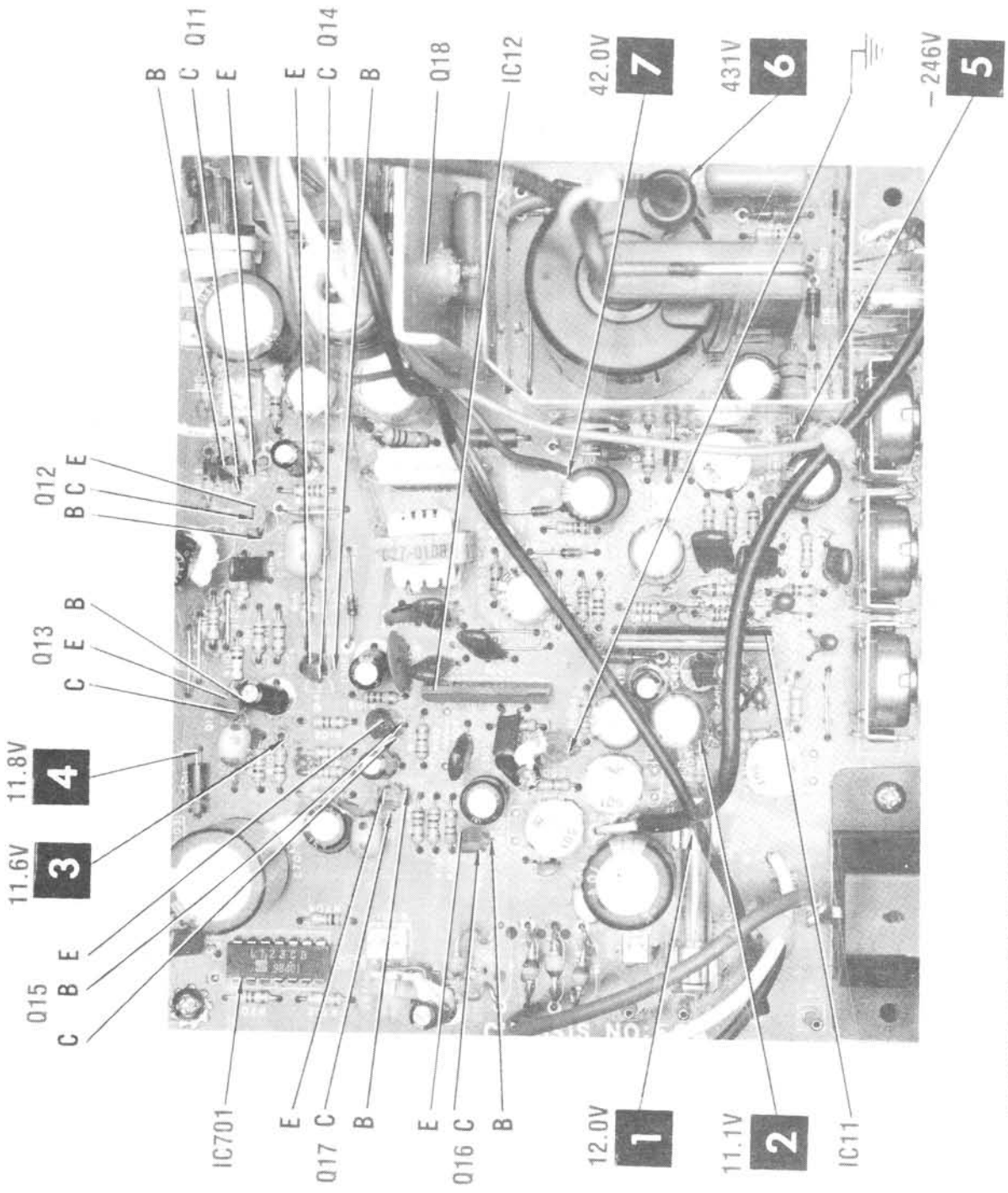
### MISCELLANEOUS

| ITEM No. | PART NAME    | MFR. PART No. | NOTES               |
|----------|--------------|---------------|---------------------|
| D01      | LED          |               | Power, Green        |
| L501     | Ferrite Bead |               |                     |
| L502     | Ferrite Bead |               |                     |
| M1       | Spark Gap    |               |                     |
| Thru     |              |               |                     |
| M5       |              |               |                     |
| P1       | Cord         |               | AC Power            |
| SG1      | Lamp         |               | Neon                |
| SW1      | Switch       |               | Power               |
| V1       | CRT          |               | C10M42P31(D)-ARF-SB |
|          | PC Board     |               | Main                |
|          | PC Board     |               | Power Supply        |
|          | PC Board     |               | CRT Socket          |

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



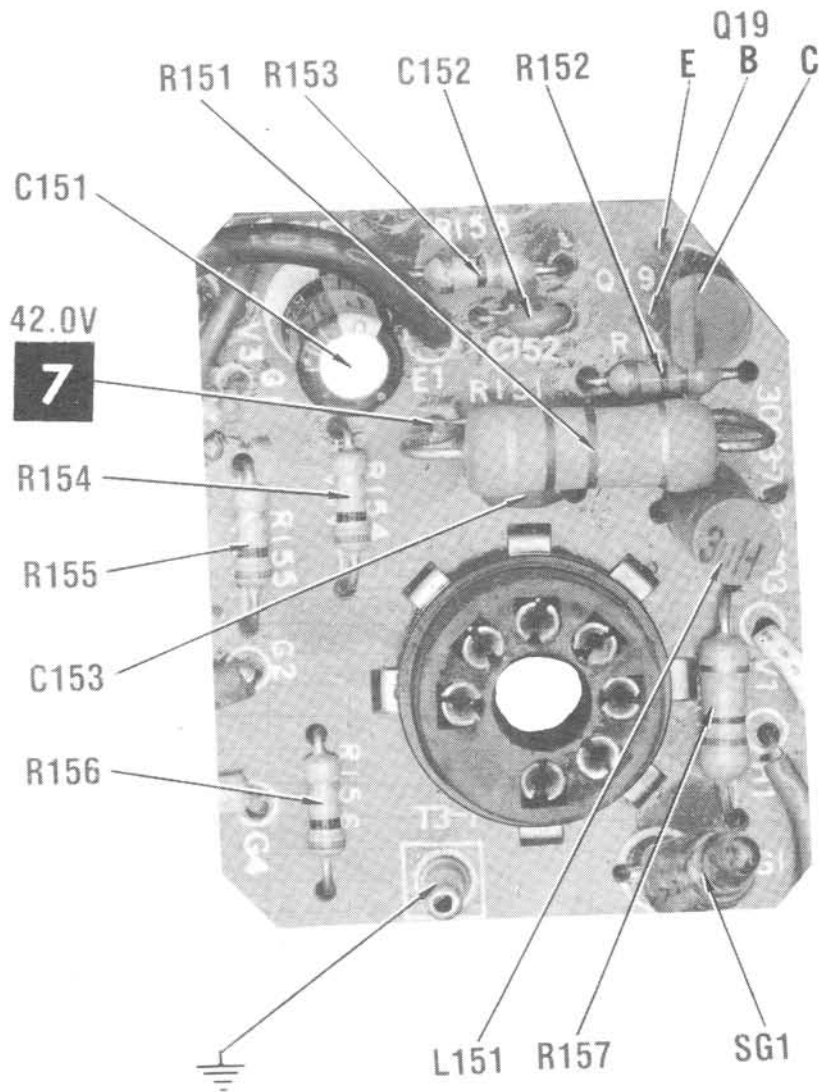
APPLE  
MODEL IIc

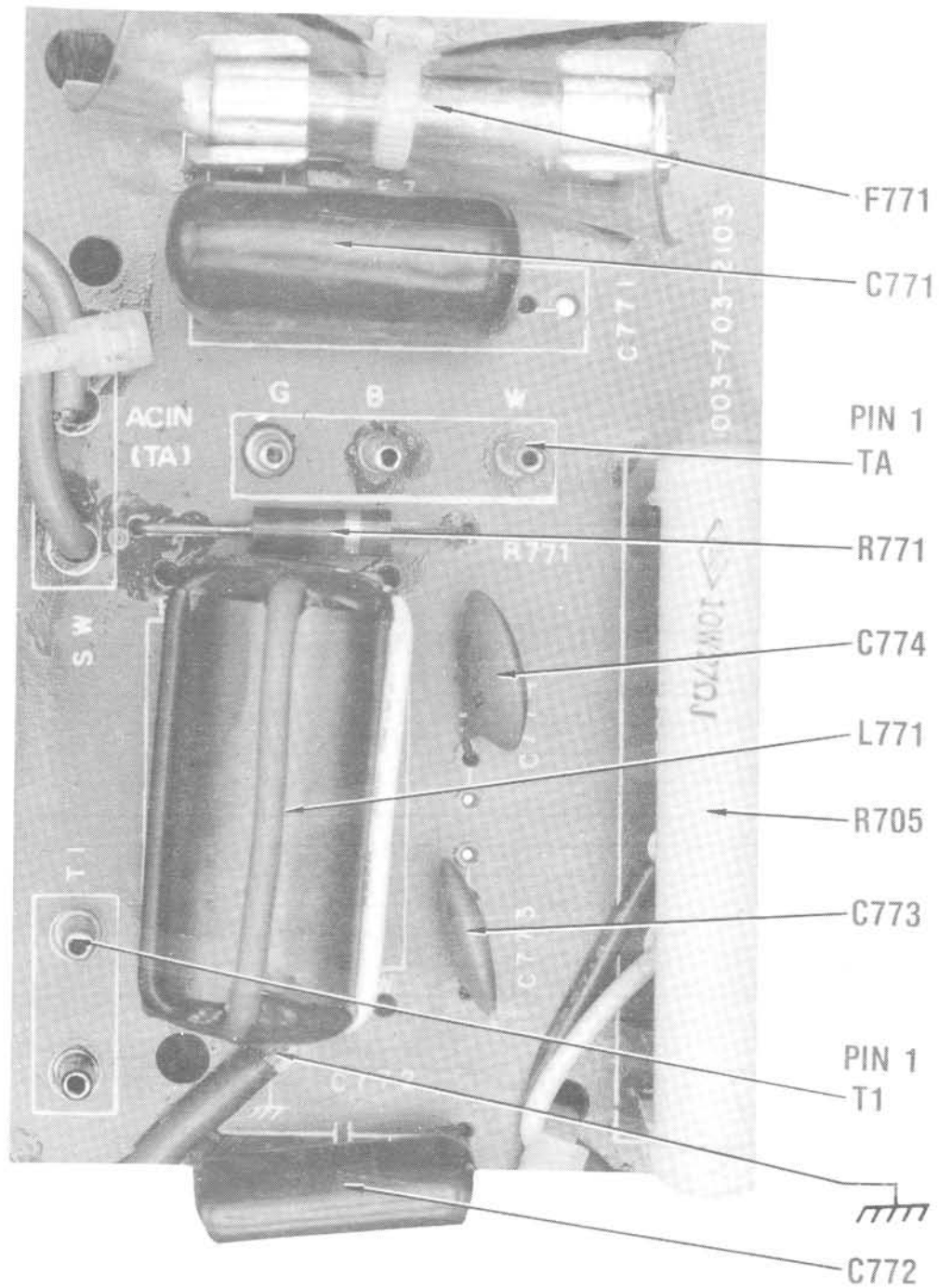


ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

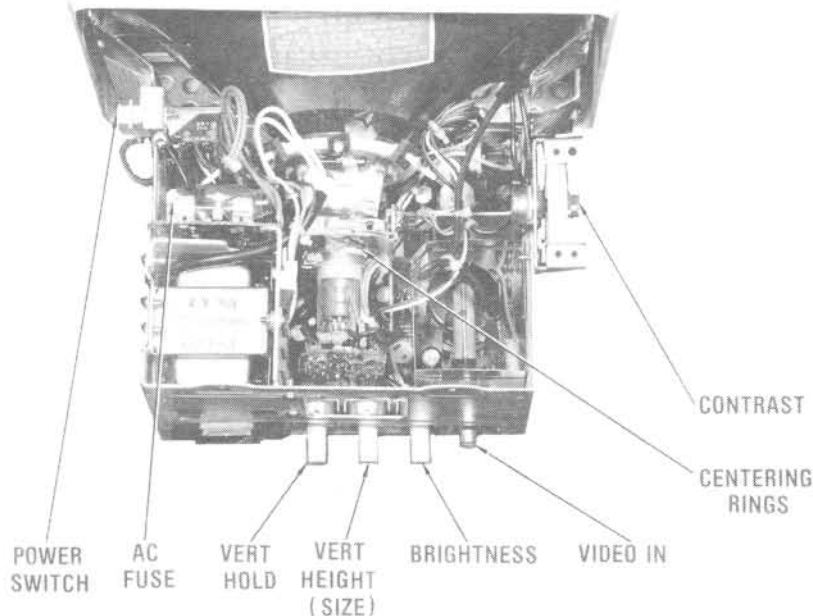
MONITOR BOARD

A Howard W. Sams CIRCUITRACE® Photo





MONITOR POWER SUPPLY BOARD



## CABINET VIEW DISASSEMBLY INSTRUCTIONS

### CABINET REMOVAL

Remove two screws holding rear panel. Pull the lower part of the rear panel out and lift up to remove panel. Remove two screws holding top vent panel and slide panel out. Remove two screws holding recessed handle section and remove handle. Remove two screws holding contrast control and two screws holding cabinet bottom and remove cabinet bottom. Remove four screws holding the front cabinet and remove front cabinet from CRT.

### MAIN BOARD REMOVAL

Remove ten screws holding bottom shield and remove shield. Remove two screws from bottom of Main board and

two screws from sides of chassis holding front brackets to Main board. Pull the Main board down. Disconnect CRT socket and HV anode lead. Disconnect eight connectors from Main board and one connector from AC input board. Remove Main board.

### CRT REMOVAL

Follow the "Cabinet Removal" procedure. Disconnect CRT socket, HV anode lead and the deflection yoke. Remove four screws holding CRT to cabinet front. Remove the CRT. Loosen and remove the deflection yoke from neck of CRT.

## 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 1.5-amp fuse is used for low-voltage power-supply protection.

A .75-amp fuse is used for AC line protection.

### HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Hold Control.

### WIDTH

The width may be varied by adjusting the width coil.

### FOCUS

The focus may be varied by a focus control.

### CENTERING

Centering is accomplished by proper adjustment of two magnetic rings located on the yoke rear cover.