

Wells-Gardner

Electronics Corporation



U3000

Service Guide

For 14", 17" & 19" Video Monitors

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NOTICE

You may store this manual in WMS
Gaming three-ring binder 20-9896.



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PRODUCT SPECIFICATIONS

SPECIFICATIONS

- CRT size (diagonal measure): **14", 17" FS, 19"**
- Phosphor type: P22
- CRT etch: Polished faceplate; other faceplates available
- Phosphor trio spacing: .28mm or .39mm (14"), .42mm (17"FS), .71mm (19")

INPUT SIGNALS

- Input connector: 15 pin D-sub male; VGA compatible
- Video type: RGB analog
- Video input impedance: 75 Ohm; 470 Ohm optional
- Video level: 0.7 volts peak-to-peak; other levels optional
- Sync type: Standard VGA/SVGA TTL sync; composite optional
- Sync input impedance: 4.7 kOhm
- Horizontal sync frequency: 31.5, 35 kHz
- Vertical sync frequency: 36 to 70 Hz

LIGHT OUTPUT

40 fL typical

GEOMETRY

- Horizontal linearity: $\pm 5\%$
- Vertical linearity: $\pm 5\%$
- Picture size regulation: 1%
- Geometric distortion: $\pm 2\%$ max

POWER INPUT

- Input voltage: 90 - 264 VAC, 50 - 70 Hz; no isolation transformer required
- Max power: 130 Watts

USER CONTROLS

- Remote controls: Brightness, contrast, horizontal size, horizontal centering, vertical size, vertical centering
- Internal controls: Horizontal frequency, vertical frequency, vertical linearity, focus

MECHANICALS

See additional pages

MISCELLANEOUS

- Operating temperature: 0 to 55 degrees C
- Agency compliance: U.L., C.S.A., D.H.M.S. radiation performance standard, T.U.V.

RESOLUTION

- Graphics modes: VGA: 640 x 200, 640 x 350, 640 x 480
SVGA: 800 x 600
- Video bandwidth: 25 MHz typical

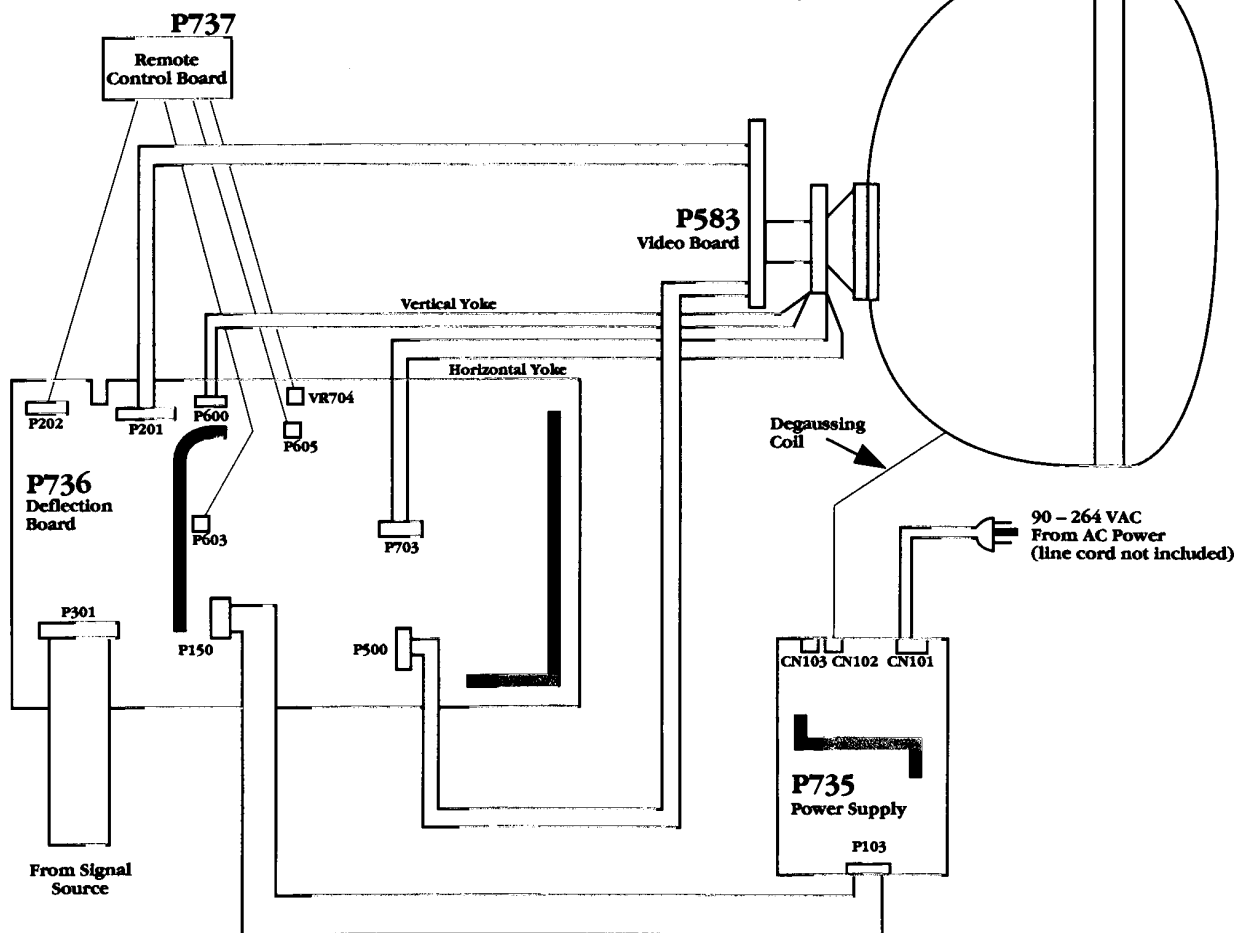


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Monitor Connection Diagram



AC Input Connector: CN101

PCB connector

Amp type 640445-5

Mating Amp type 640251-5

Input Signal Connector: P301

PCB connector

Amp type 1-640445-0

Mating Amp type 1-640251-0

Optional Cable connector

Amp type 748364-1 (DB15)

Mating Amp type 748565-1

| Pin | Description |
|-----|-------------|
| 1 | AC hot |
| 2 | N/A |
| 3 | AC neutral |
| 4 | N/A |
| 5 | Ground |

| Pin | Description |
|-----|-----------------|
| 1 | Horizontal sync |
| 2 | Vertical sync |
| 3 | Sync ground |
| 4 | Shield ground |
| 5 | Blue return |
| 6 | Green return |
| 7 | Red return |
| 8 | Blue video |
| 9 | Green video |
| 10 | Red video |

| Pin | Description |
|-----|-----------------|
| 1 | Red video |
| 2 | Green video |
| 3 | Blue video |
| 4 | N/A |
| 5 | N/A |
| 6 | Red return |
| 7 | Green return |
| 8 | Blue return |
| 9 | N/A |
| 10 | Sync grounds |
| 11 | Sync grounds |
| 12 | N/A |
| 13 | Horizontal sync |
| 14 | Vertical sync |
| 15 | Shield ground |

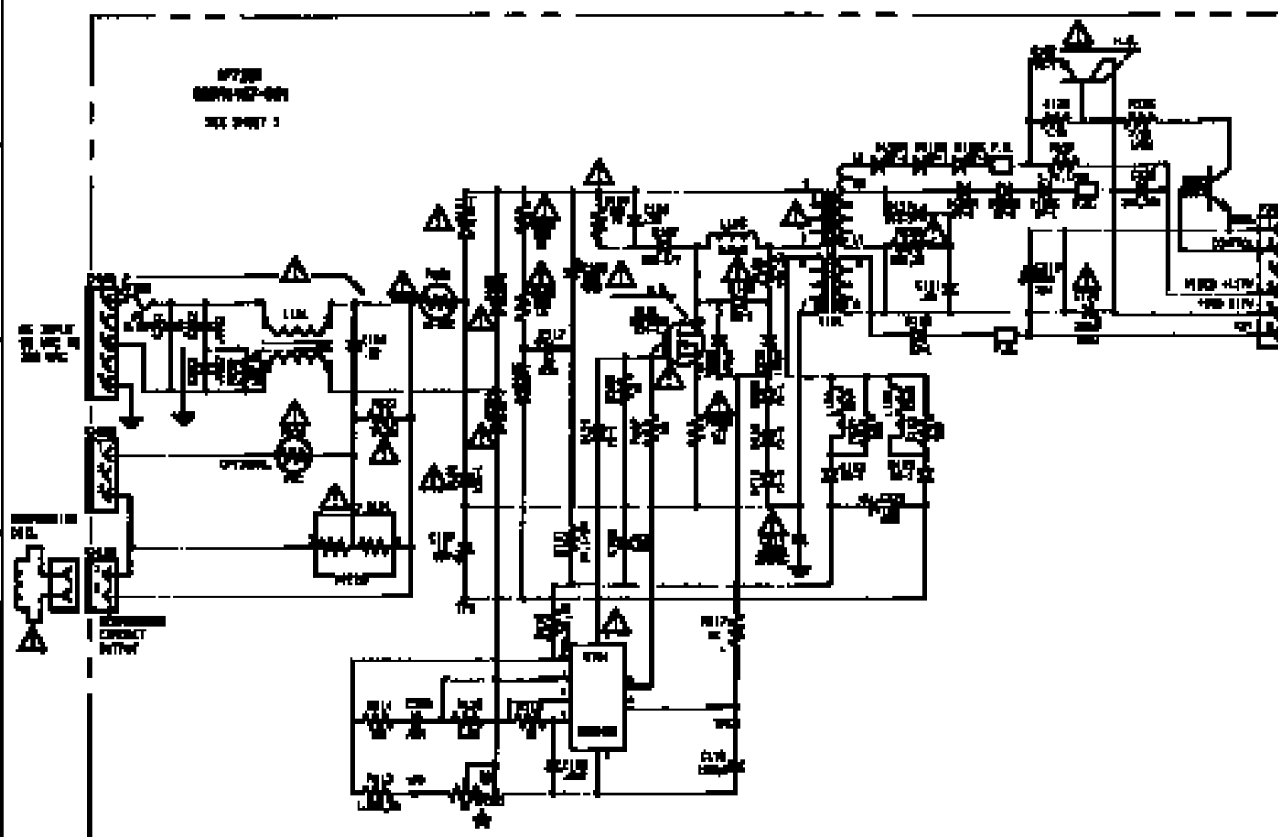
▲ CAUTION SAFETY CRITICAL COMPONENT.

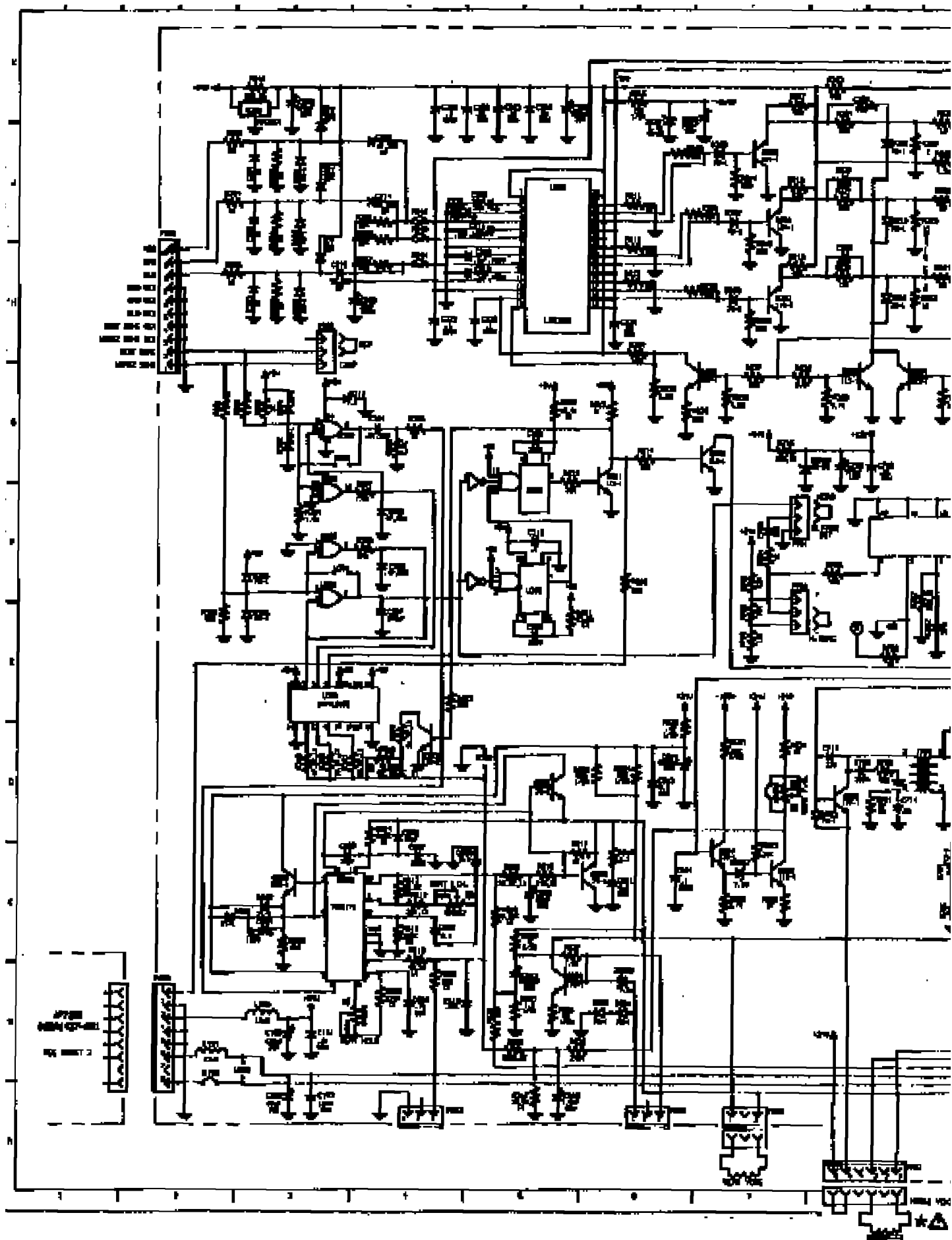
★ K-WAY INDICATION RELATED COMPONENT.

REPLACE ONLY WITH SAME TYPE
PARTS AS SHOWN IN PARTS LIST.

NOTE:

1. ALL RESISTORS ARE IN OHMS, K Ω , M Ω UNLESS OTHERWISE INDICATED.
2. CAPACITANCE VALUES LESS THAN 1 ARE IN MICROFARADS, ABOVE 1 IN PICOFARADS UNLESS OTHERWISE INDICATED.

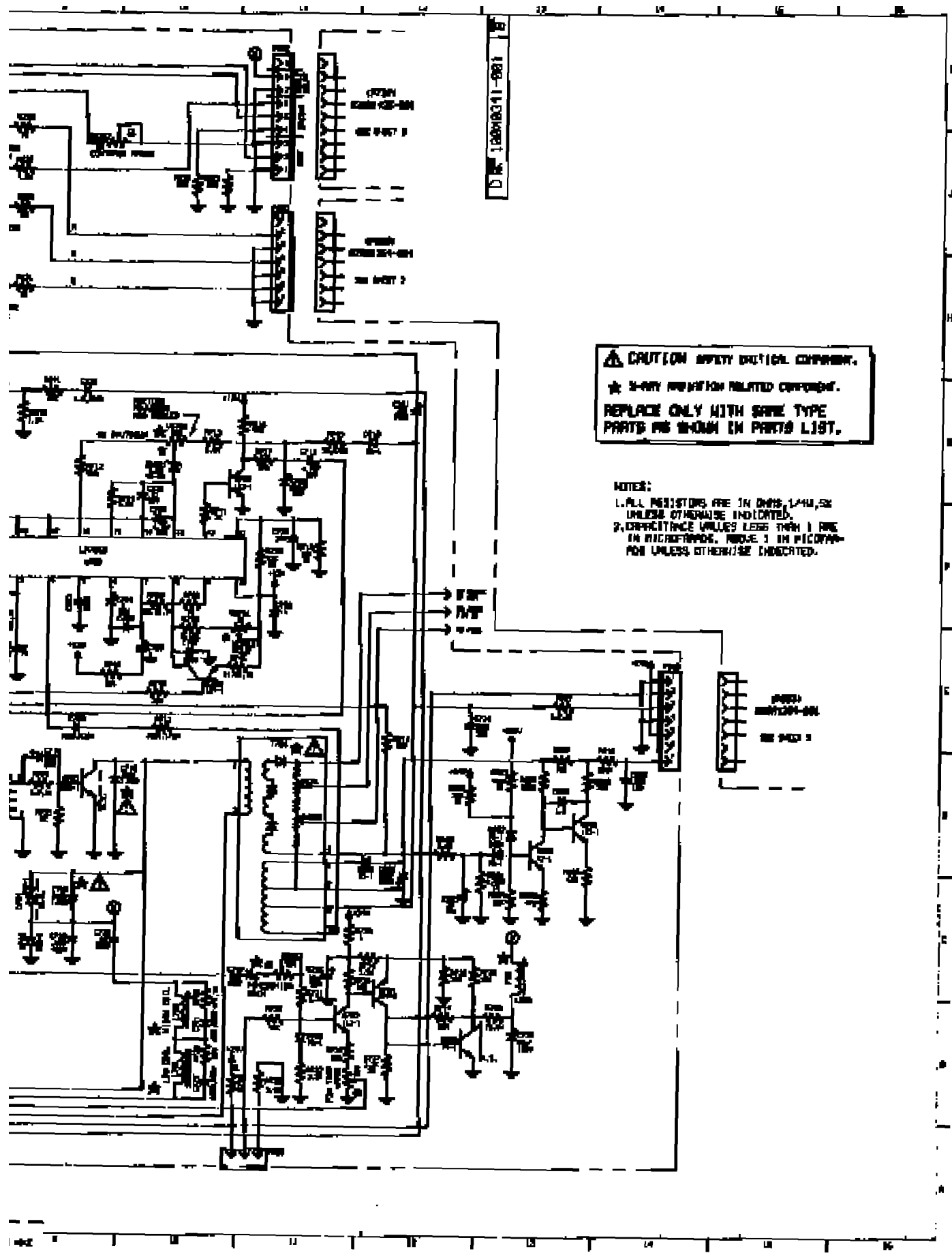




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CAUTION SAFETY EXCITATION COMPONENT.
 ☆ 2-WAY POSITION RELATED COMPONENT.
 REPLACE ONLY WITH SAME TYPE
 PARTS AS SHOWN IN PARTS LIST.

NOTES:
 1. ALL RESISTORS ARE IN OHMS, 1/4W, 5%
 UNLESS OTHERWISE INDICATED.
 2. CAPACITANCE VALUES LESS THAN 1 ARE
 IN MICROFARADS, ABOVE 1 IN PICOFAR-
 ADS UNLESS OTHERWISE INDICATED.

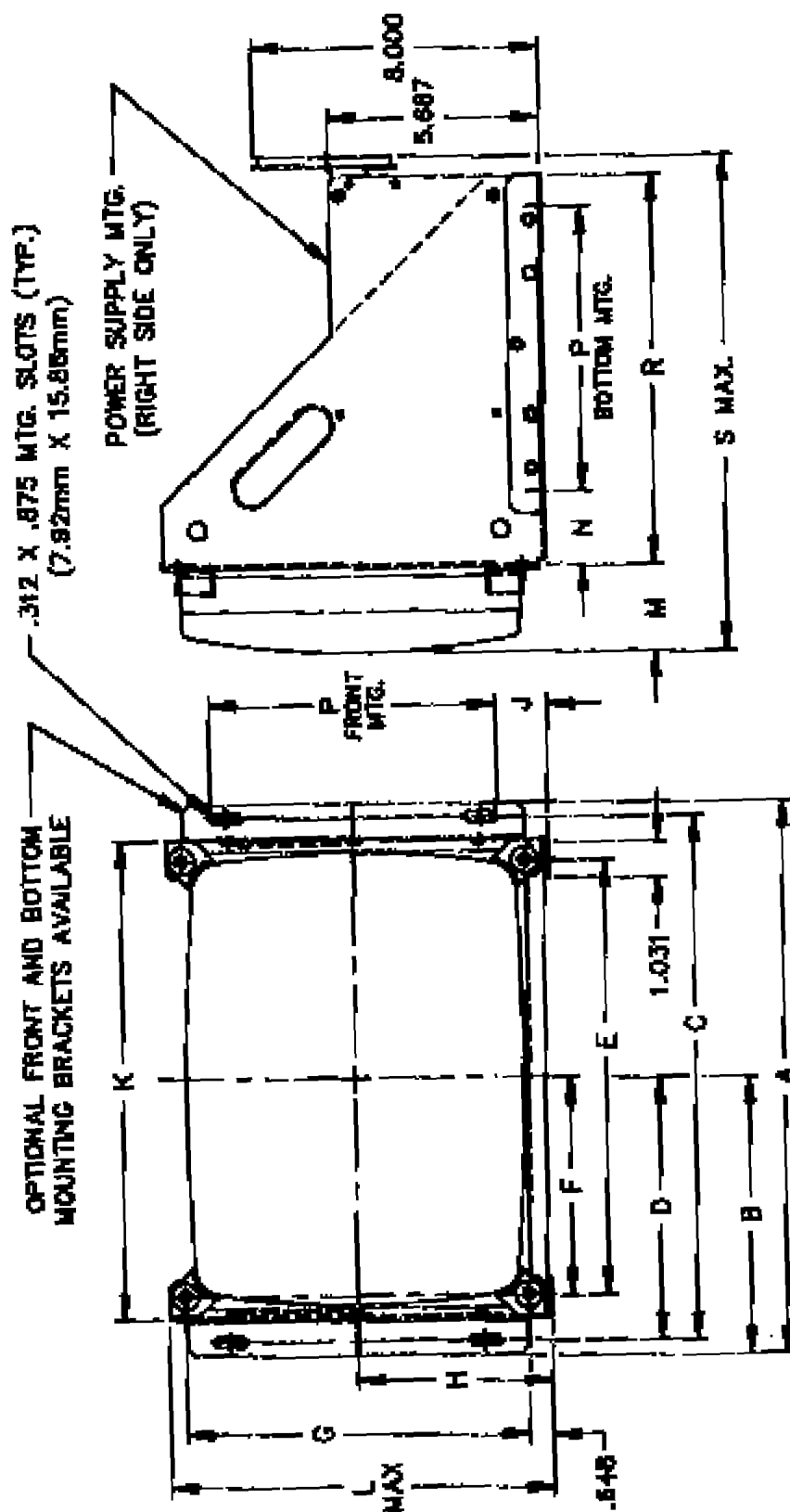


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TRAINING: 17TH AIRBORNE DIVISION, 1963-1964



| DIM. | A | B | C | D | E | F | G | H | I | K | L | M | N | P | R | S |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| IN. | 13425 | 7512 | 74812 | 7405 | 12560 | 6130 | 4372 | 5437 | 7420 | 11900 | 10750 | 2450 | 2405 | 6000 | 11000 | 14125 |
| MM. | 326.9 | 190.4 | 526.3 | 165.1 | 377.4 | 153.7 | 243.2 | 104.1 | 36.32 | 342.3 | 273.0 | 63.23 | 50.40 | 201.3 | 279.4 | 336.5 |



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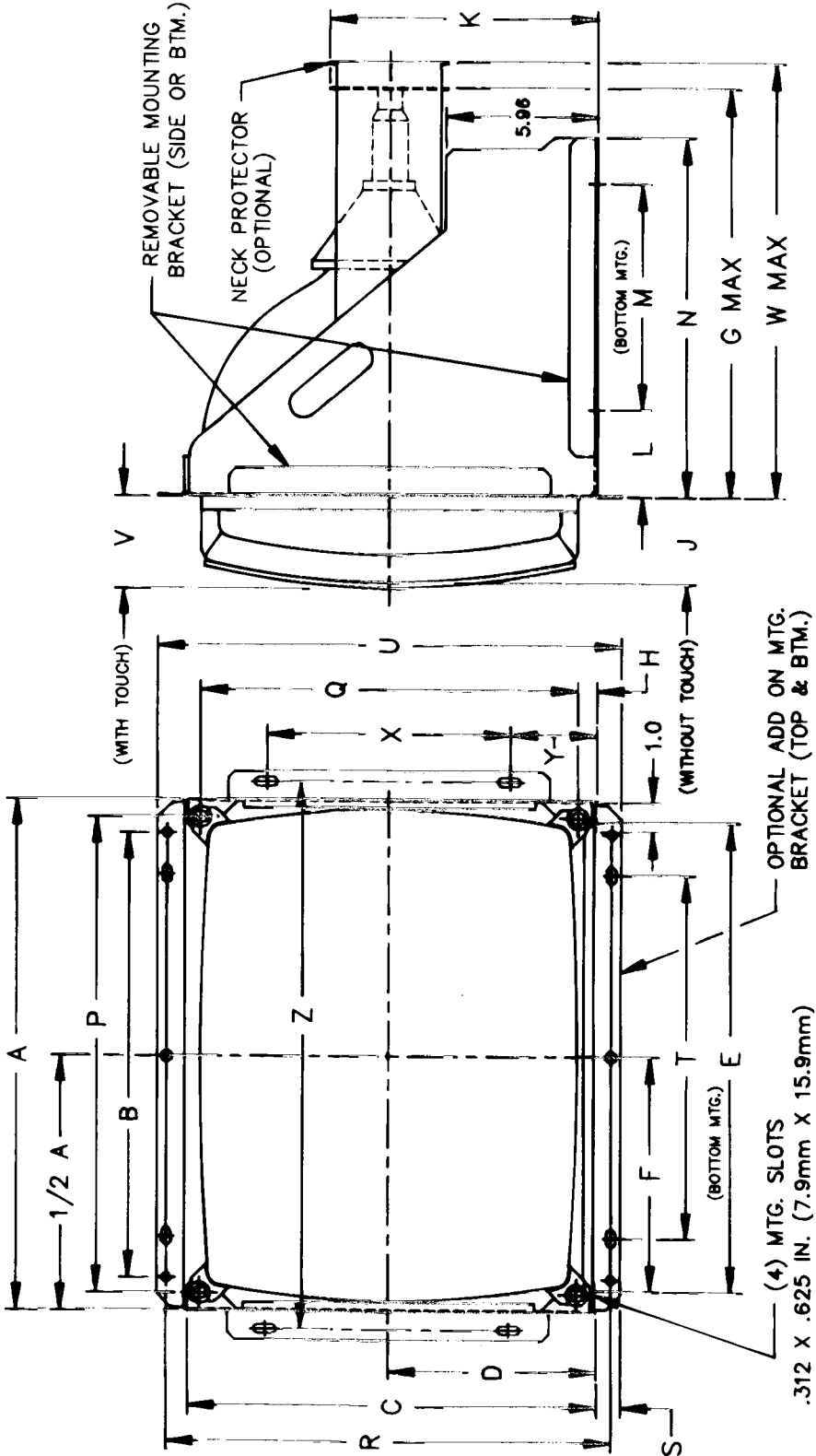
17V Color Monitor 17-M2 (F17HM2)

| DIM. | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X | Y | Z |
|------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|-------|--------|--------|--------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|
| IN. | 15.375 | 13.500 | 12.437 | 6.312 | 14.125 | 7.062 | 12.875 | .562 | 2.236 | 9.500 | 2.957 | 7.250 | 11.375 | 14.450 | 11.500 | 13.776 | .968 | 10.625 | 14.496 | 2.438 | 13.375 | 7.125 | 2.750 | 16.620 |
| mm. | 390.53 | 342.90 | 315.90 | 160.33 | 358.78 | 179.38 | 327.03 | 14.27 | 56.80 | 241.30 | 75.11 | 184.15 | 288.93 | 367.03 | 292.10 | 349.91 | 24.59 | 269.88 | 368.20 | 61.93 | 339.73 | 180.98 | 69.85 | 422.15 |

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY. FOR SPECIFICS CONTACT W.G.E.C. ENGINEERING.



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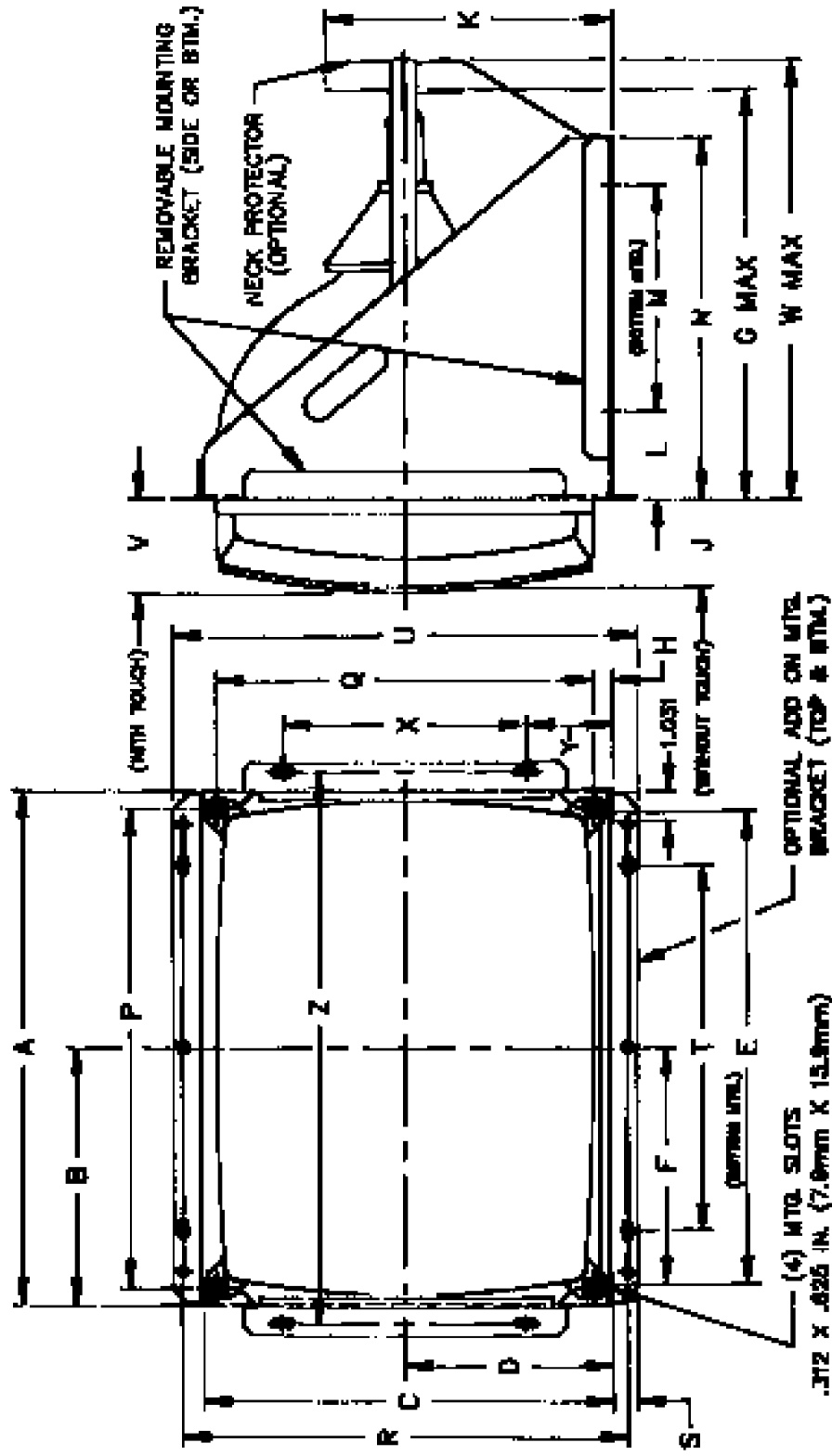
19V Color Monitor 19-M2 (FY9HM2)



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| DIAL | A | B | C | D | E | F | G | H | I | K | L | M | N | P | Q | R | S | T | U | V | W | X | Y | Z |
|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|-------|--------|--------|--------|--------|--------|-------|--------|--------|-------|--------|-------|-------|--------|
| INCH | 14.340 | 9.170 | 11.345 | 7.255 | 16.875 | 8.485 | 14.051 | .657 | 3.079 | 9.811 | 3.683 | 8.080 | 12.060 | 17.070 | 13.290 | 13.290 | .868 | 12.843 | 16.840 | 3.281 | 16.320 | 8.470 | 3.680 | 19.895 |
| MILL. | 363.84 | 233.02 | 288.31 | 184.38 | 427.06 | 215.57 | 356.09 | 1.669 | 78.51 | 249.17 | 93.80 | 205.35 | 305.35 | 434.68 | 338.80 | 338.80 | 21.97 | 326.27 | 427.26 | 83.34 | 412.11 | 215.9 | 93.8 | 507.56 |



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REPLACEMENT PARTS LIST FOR 14", 17" & 19"

Power Supply Board Assembly 25A1427-001 P735

| <u>DESIGNATION</u> | <u>DESCRIPTION</u> | <u>W/G PART NO.</u> |
|--------------------|--------------------|---------------------|
| D101-D104 | Diode, 1N5406 | 066X0135-001 |
| D106 | Diode, BYV28-200 | 066X0097-001 |
| D107 | Diode, MUR490 | 066X0126-002 |
| D118 | Diode, BYV28-200 | 066X0097-001 |
| Q101 | FET, SSP6N60 | 086X0334-001 |
| U101 | IC, UC3842AN Reg. | 086X0257-001 |

Deflection Board Assembly 25A1438-001 (14"), 25A1440-001 (17"), 25A1424-001 (19") P750 (14"), P753 (17"), P736 (19")

| <u>DESIGNATION</u> | <u>DESCRIPTION</u> | <u>W/G PART NO.</u> |
|--------------------|------------------------|---------------------|
| D602 | Diode, 1N4001 | 066X0071-001 |
| D603 | Diode, RL202 | 066X0147-001 |
| D704 | Diode, DD20R | 066X0143-001 |
| D705 | Diode, MUR490 | 066X0126-002 |
| F101 | Fuse, 3.15A, 5 X 20 mm | 016X0210-009 |
| Q500, Q502, Q504 | Transistor, 2SC3950 | 086X0290-001 |
| Q501, Q503, Q505 | Transistor, 2SC3782 | 086X0287-001 |
| Q601 | Transistor, 2SD525R | 086X0074-001 |
| Q602 | Transistor, 2SB595R | 086X0075-001 |
| Q701 | Transistor, 2SC3686 | 086X0286-001 |
| U200 | IC, LM1203 Video | 086X0270-001 |
| U300 | IC, 74LS156 Demult. | 086X0295-001 |
| U302 | IC, 74LS86 Exl-Or | 086X0313-001 |
| U303 | IC, 74LS123 Dual-Mono | 086X0338-001 |
| U600 | IC, TDA1175 Vert. | 086X0347-001 |
| U700 | IC, LA7850 Horz. | 086X0274-001 |