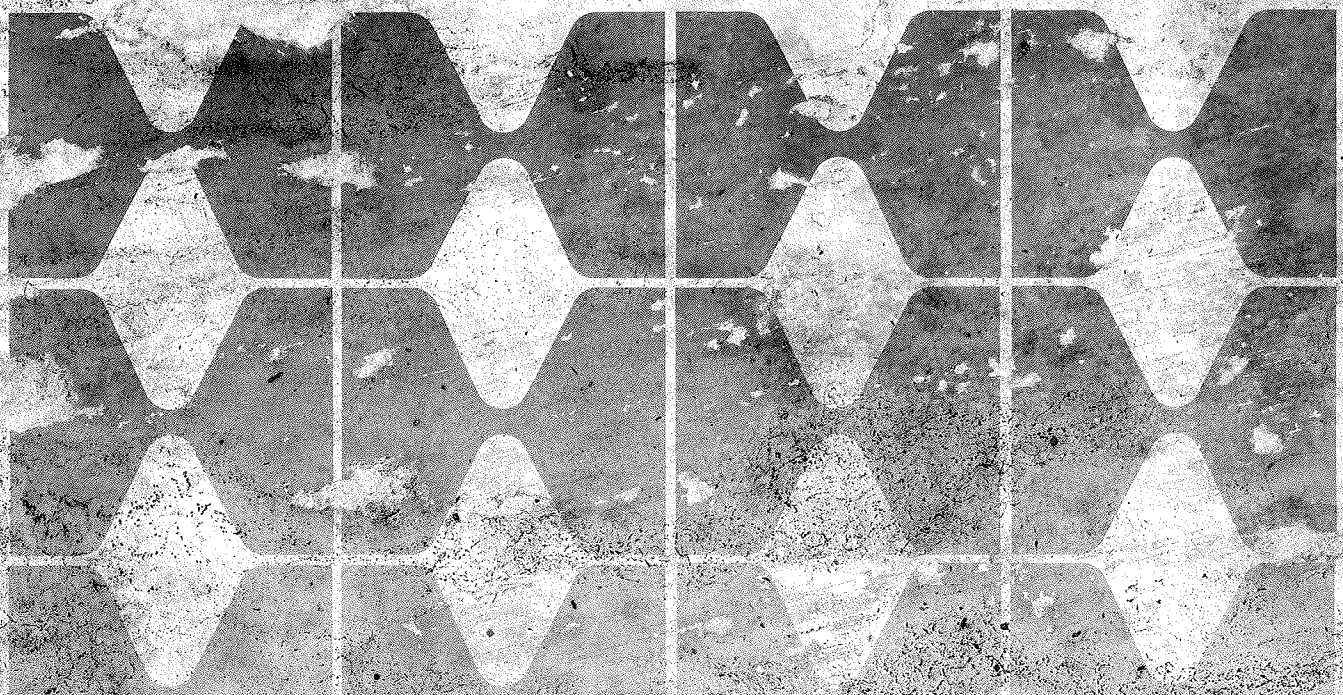
QNIC ELECTRONIC CORPORATION

VIDEO MONITORS



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COLOR MONITOR SPECIFICATIONS

(A) CRT

a) RCA model A63ADT 10 x 05 (25").

b) 25" *(diagonal)*

c) P22 phosphor

d) Polished faceplate is standard (other faceplates available)

e) Stripe trio spacing (standard): 0.66mm (13"), 0.82mm (19"), 0.82mm (25").

f) Finer pitches available (optional).

(B) INPUT SIGNALS

a) Video: RGB analog. 1v to 5v peak-to-peak (adjustable with contrast control), 4.7k Ω input impedance, 40 µsec active video.

b) Optional inputs available:

1. Negative video
2. RGB analog 0~0.75 Ω input impedance
3. Composite video (NTSC)
4. Both composite video and RGB analog: Both signal sources can be connected to the monitor at the same time. Monitor display can be switched from one to the other at any time at pixel or vertical frame rate.

c) Sync: TTL positive or negative, seperate or composite. Input impedance: 20k Ohms for positive sync: 12k Ohms for negative sync.

(C) HORIZONTAL SCAN

a) Width: adjustable with one coil to accommodate active video 40 µsec to 50 µsec.

b) Frequency: 15.1kHz standard; higher scan frequencies available.

c) Linearity: ±5%

(D) PICTURE SIZE REGULATION

a) 2%

(E) VERTICAL SCAN

a) Frequency: 47Hz to 63Hz.

b) Linearity: ±5%

(F) GEOMETRIC DISTORTION

a) ±2% (max)

(G) VIDEO CHARACTERISTICS

a) Bandwidth (-3db) 12MHz typical

b) Rise Time: Less than 50 nanoseconds

c) Overshoot (max): 5%

(H) MECHANICAL

a) 13" to 25" monitor is available in universal mount brackets. The monitor can be mounted in the users' cabinet horizontally or vertically.

b) Monitor is available as a kit (without a frame). Also, available in chassis form adaptable to your requirements.

(I) USER ADJUSTABLE CONTROLS AND ADJUSTMENTS

a) Brightness, Contrast, Horizontal Hold, Horizontal Raster Position, Horizontal Video Position, Vertical Hold, Vertical Size, Vertical Raster Position, Focus, Custom Control Location available.

(J) POWER INPUT

a) 120V AC +10% ~ -10%, 50~60Hz, 85W (max). Isolation Transformer required.

(K) ENVIRONMENTAL CONDITIONS

a) Operating temperature 0° to 55°C. Complies with UL and DHHS radiation performance standards (composite video).

(L) RESOLUTIONS

a) Standard CRT

13", 400 Pixels x 240 Lines

19", 400 Pixels x 240 Lines

25", 560 Pixels x 240 Lines

CIRCUIT ADJUSTMENT CONTROLS

- Contrast control
- Horizontal Oscillator Adjustment
- Width Adjustment
- Vertical Oscillator Adjustment
- Vertical Height Adjustment
- Vertical Raster Position Adjustment
- White Balance Adjustment
- Focus Adjustment
- Brightness Adjustment
- Screen Adjustment

DEGAUSSING

- After the monitor is off for at least five minutes it will be automatically degaussed when power is resumed. If the chassis becomes magnetized for any reason use a manual degaussing coil and follow usual procedure, moving coil around the CRT face and all surrounding parts before withdrawing to about six feet.

CIRCUIT ADJUSTMENT

- **Contrast control:** Adjust CONTRAST for picture intensity.
- **Horizontal Oscillator Adjustment:** If there is unstable horizontal synchronization, adjust the Horizontal Hold Control (H HOLD).
- **Width Adjustment:** If picture width is not satisfactory, adjust H-SIZE VR.
- **Vertical Oscillator Adjustment:** If the picture moves up or down on the screen, adjust the Vertical Hold Control (V-HOLD).
- **Vertical Height Adjustment:** Adjust Height Control (V SIZE) for proper height.
- **Vertical Raster Position Adjustment:** If picture is off-center vertically, try adjusting (V-position).
- **White Balance Adjustment:** R301, R302, R303, R304, R305, R306.
- **Focus Adjustment:** Use Focus Control VR on Focus Pack for center of screen.
- **Brightness Adjustment:** Adjusting (BRIGHT) may be necessary to get a good Black Level. Do not use screen control to set for BLACK!
- **Screen Adjustment:** This control is pre-set at factory and ordinarily doesn't require attention, however if needs be, adjust screen VR on Focus Pack.

PERFORMANCE AND OPERATING DATA

Isolation Transformer

(1 Amp minimum) must be used between primary power source and this unit.

Set Controls

Although all controls are factory-set, they may be adjusted for individual needs.

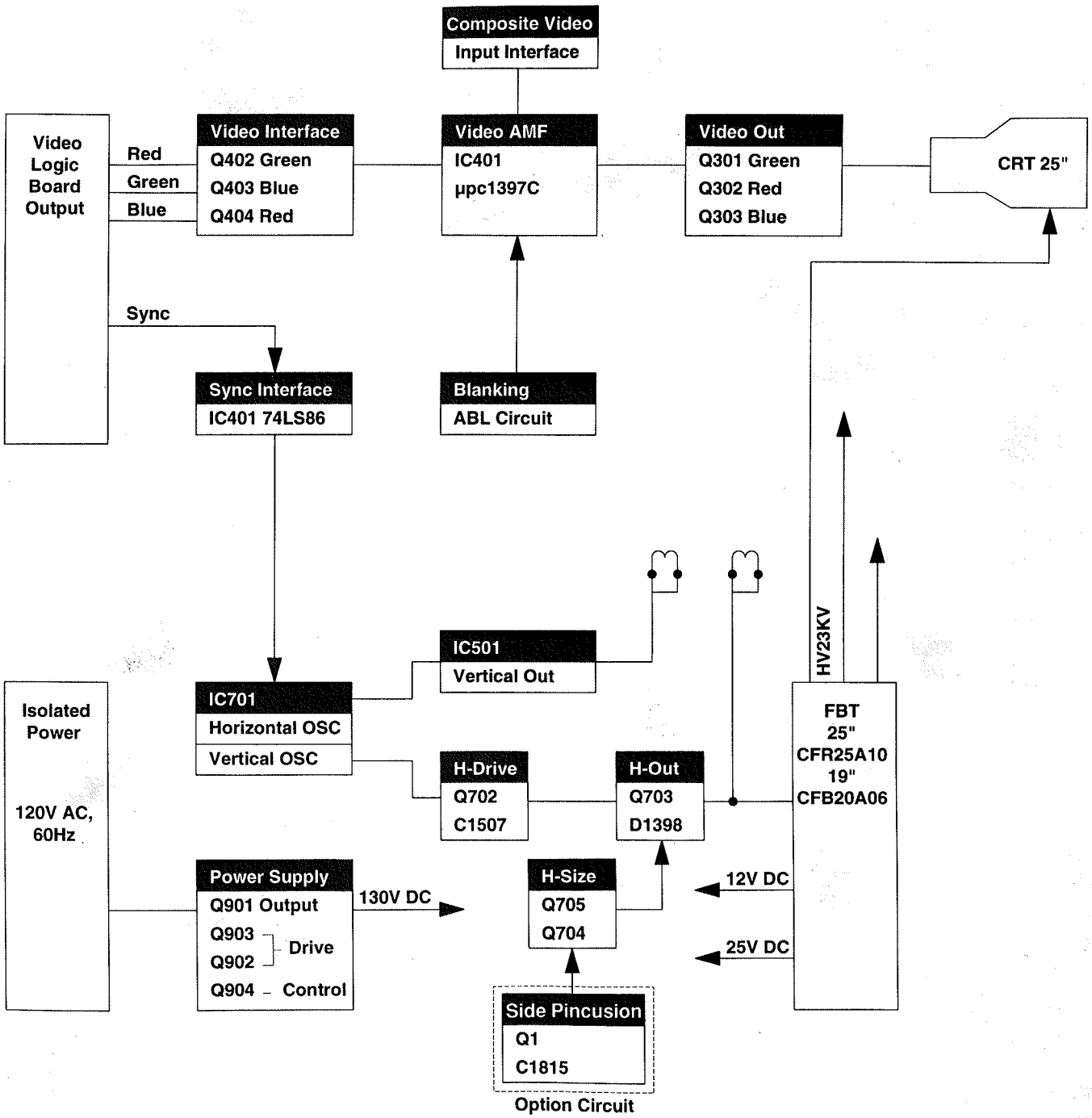
Supply

Voltage 105V AC~135V AC (Main Voltage) Frequency 50H~60Hz.

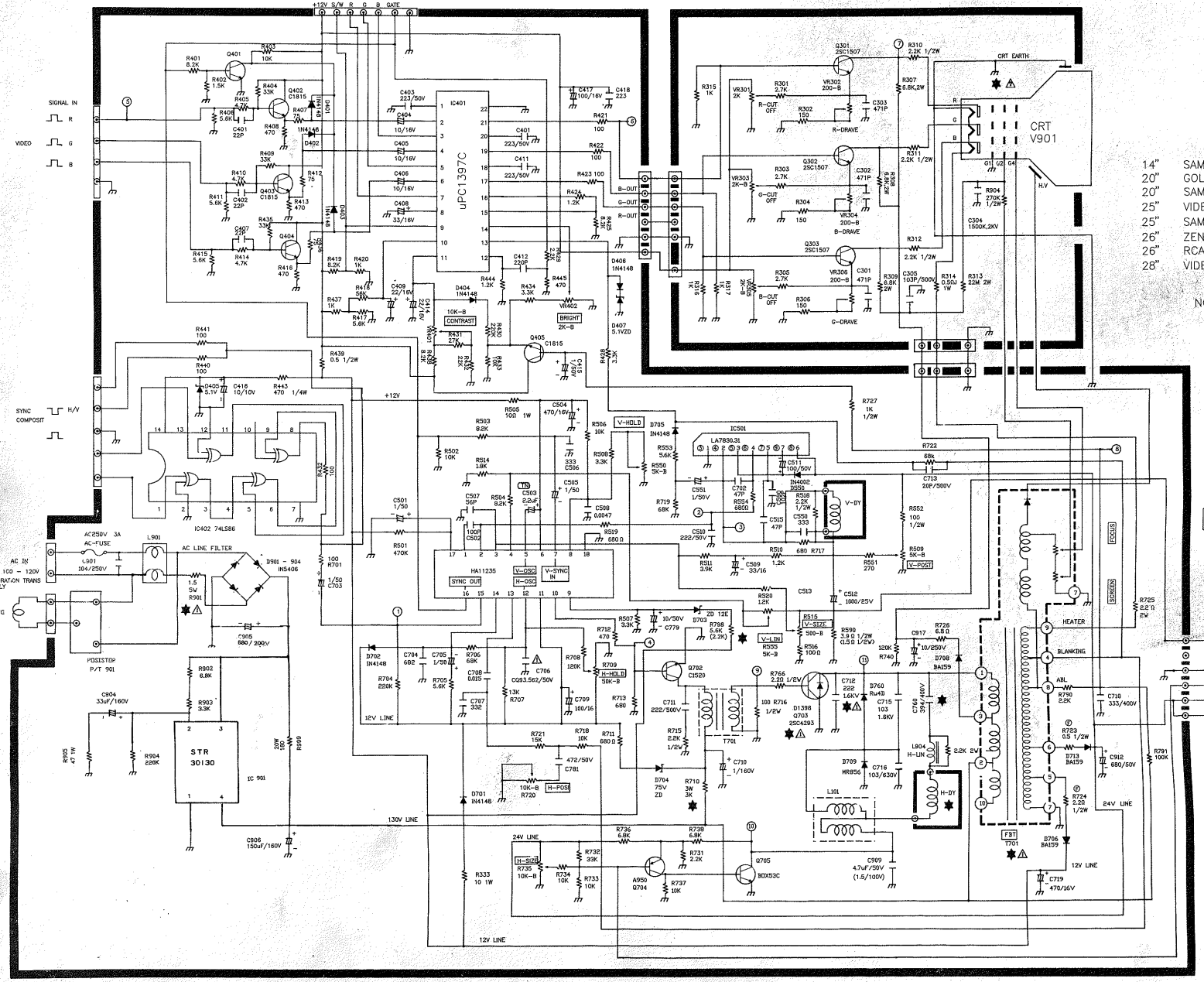
Isolation Transformer

(1 Amp minimum) must be used between primary power source and this unit.

CGM-2500 Color Monitor
Block Diagram



13", 19", 25 Inch Color Monitor
Schematic Diagram



14"	SAMSUNG A34KQY42X01
20"	GOLDSTAR A48KMX12XX24
20"	SAMSUNG A48KRD82X01
25"	VIDEO COLOR A59EA SOOX
25"	SAMSUNG 63YYB90X-TC
26"	ZENITH A63ADG25X
26"	RCA A63ADT10X05
28"	VIDEO COLOR A66EA SOOX

NOTES

1 ALL RESISTORS ARE IN OHMS,1/4W,5% LESS OTHERWISE INDICATED.
2 CAPACITANCE VALUES LESS THAN ARE MICROFARADS. ABOVE IN PICOFARADS LESS OTHERWISE INDICATED.
3 CIRCLED NUMBERS INDICATE LOCATION CERTAIN WAVEFORM READINGS.

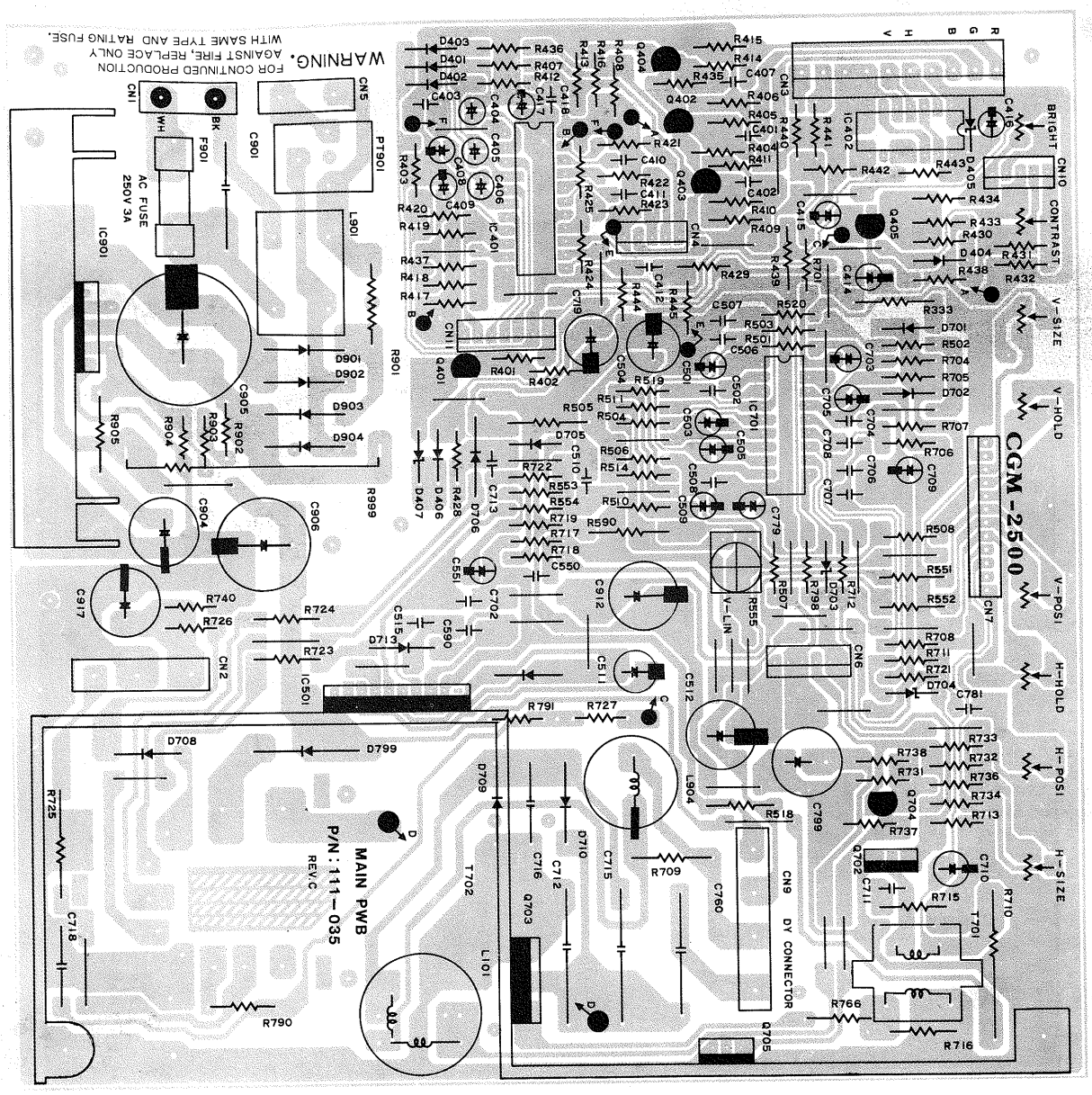
FBT-19"	CFB20A06(LH:1.9mh)
25"	CFR25A08(LH:1.5mh)
26"	CFR25A10(LH:1.3mh)

⚠ CAUTION SAFETY CRITICAL COMPONENT

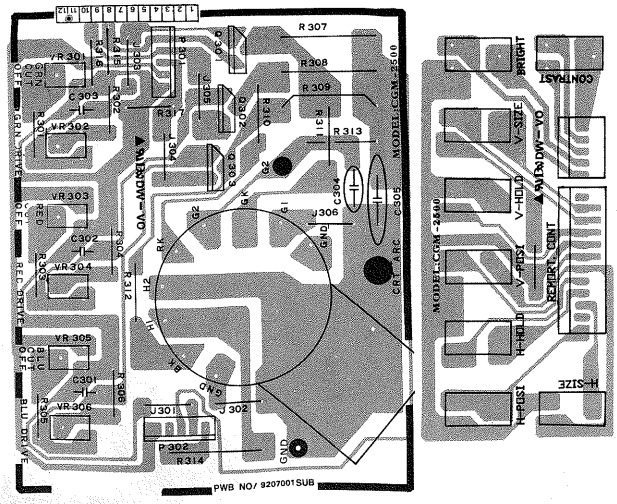
✱ X-RAY RADIATION RELATED COMPONENT

REPLACE ONLY WITH SAME TYPE PARTS AS SHOWN IN PARTS LIST

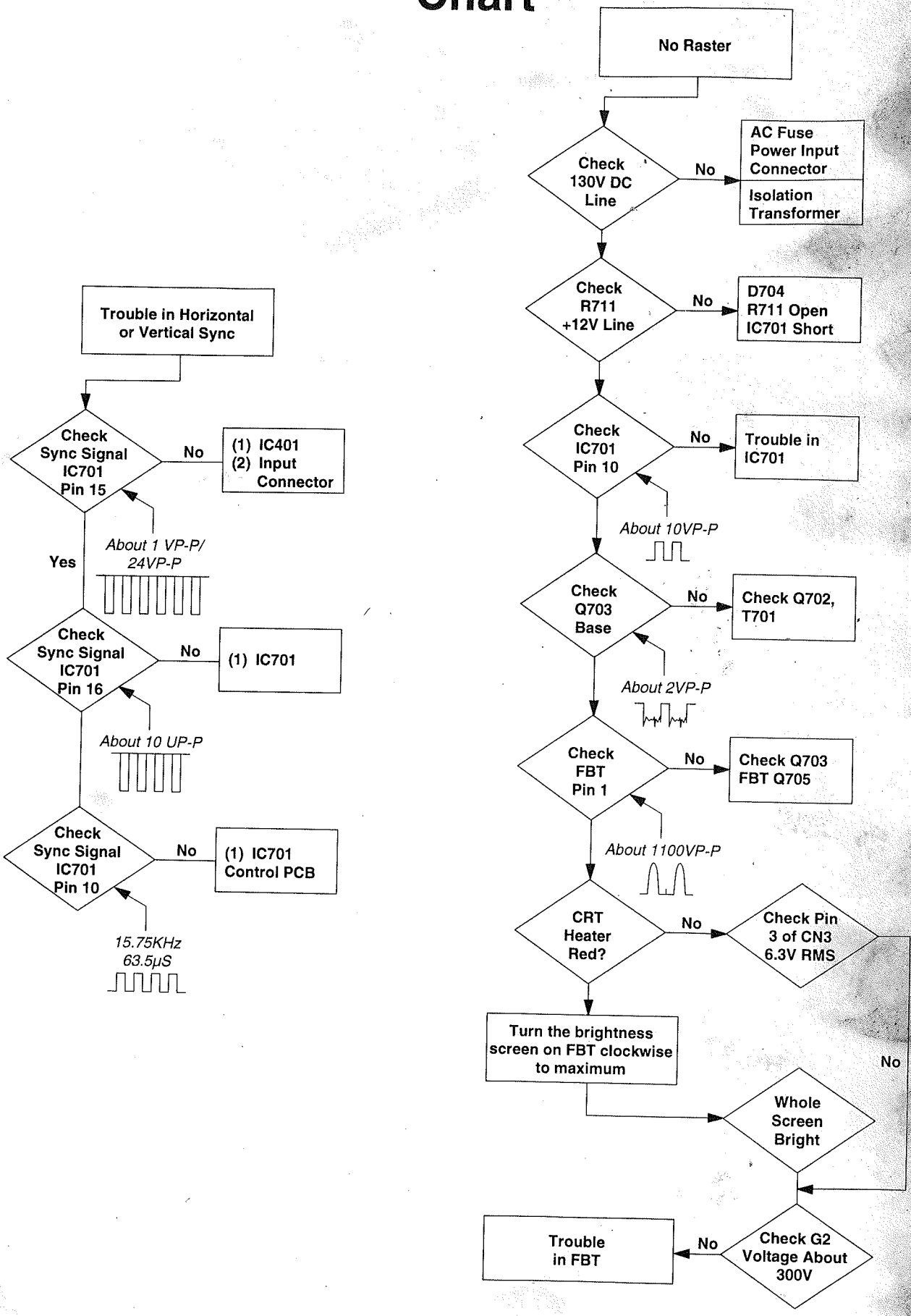
Component Layout, Main Board



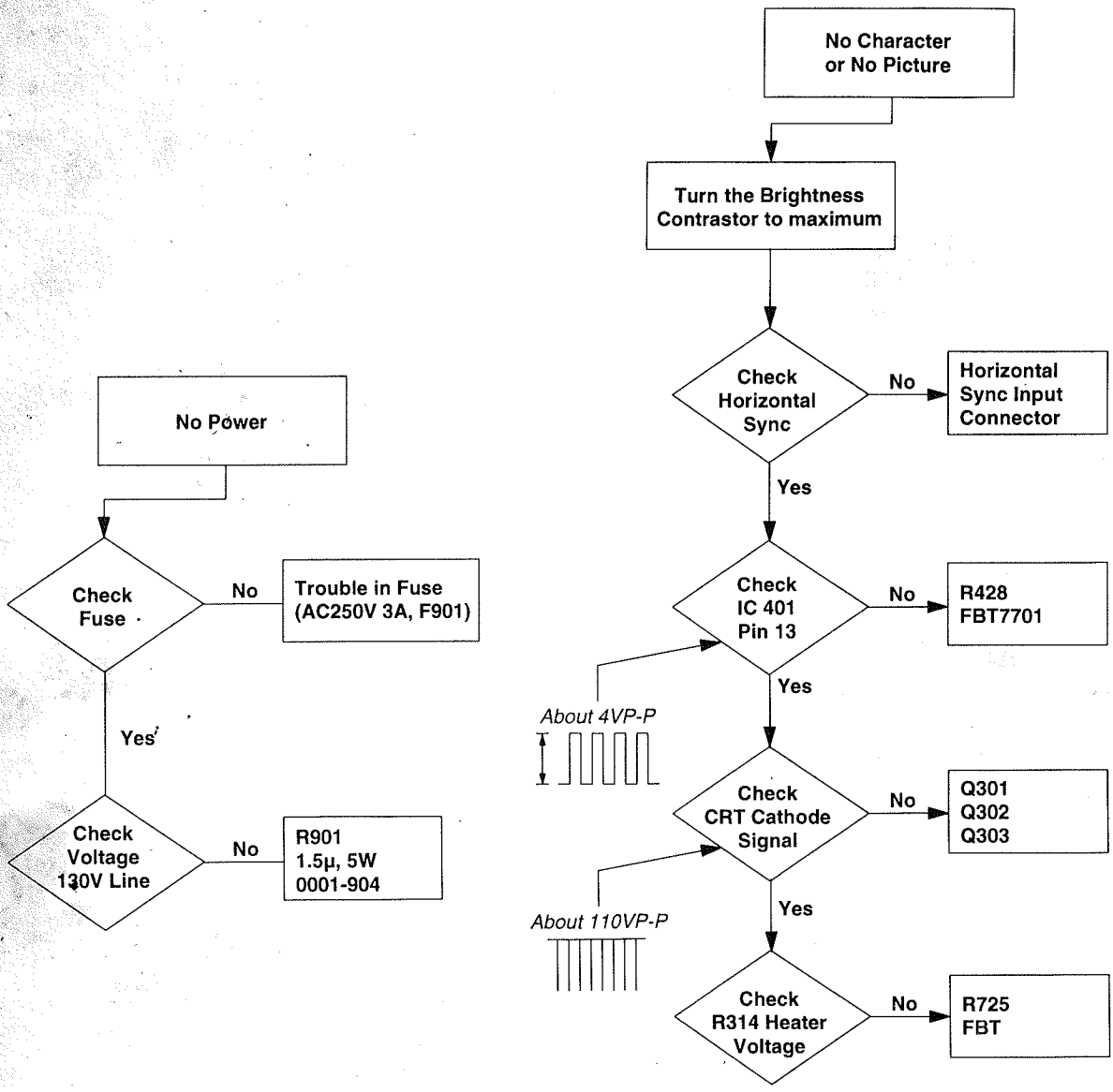
Component Layout, Neck Board & Control Board



Trouble-Shooting Chart



Trouble-Shooting Chart



Control Test Points & Wave Forms

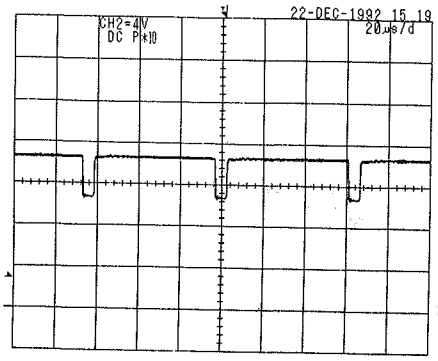
Typical Oscilloscope Waveform Patterns

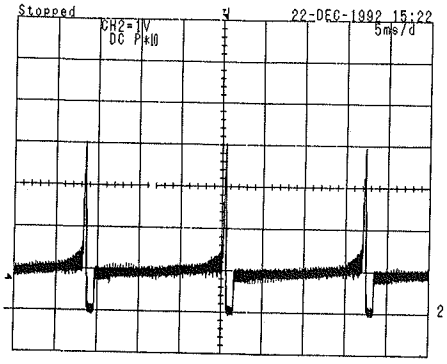
The waveforms shown below indicate typical wave shapes of a fully functional monitor. When attempting to diagnose monitor problems with an oscilloscope it may be helpful to refer to these wave shapes. The charts are numbered which corresponds to circled numbers to be found on the schematic diagram from where on the chassis the waveform was derived.

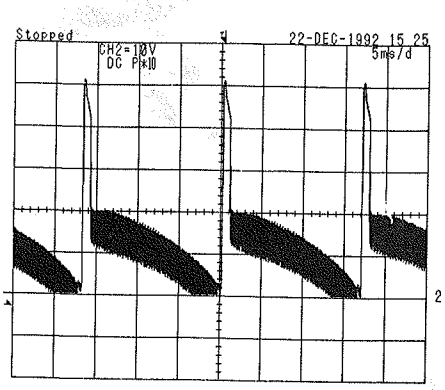
The waveforms were observed on a wide band oscilloscope under the following conditions:

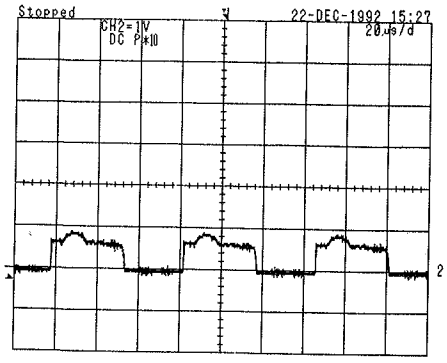
Monitor Input Signal

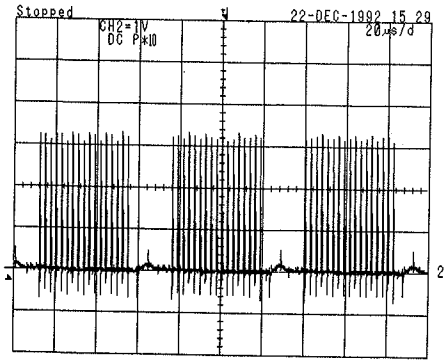
1. Crosshatch
2. Horizontal — 15.75 KHz
3. Vertical frequency — 60 Hz

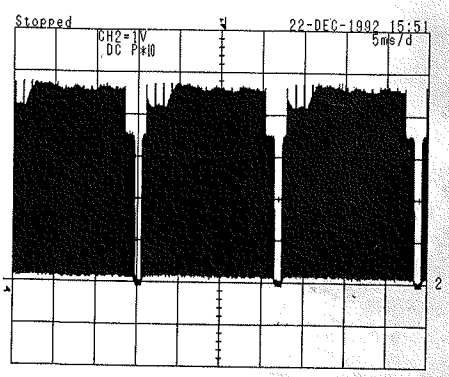


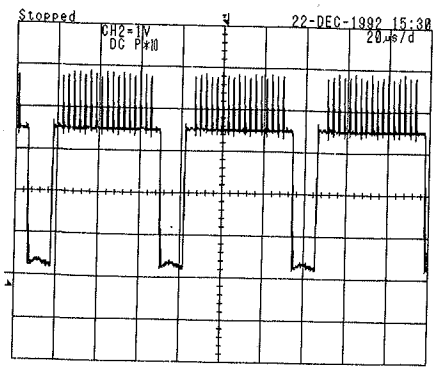


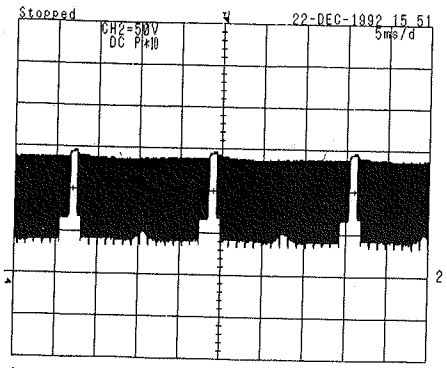


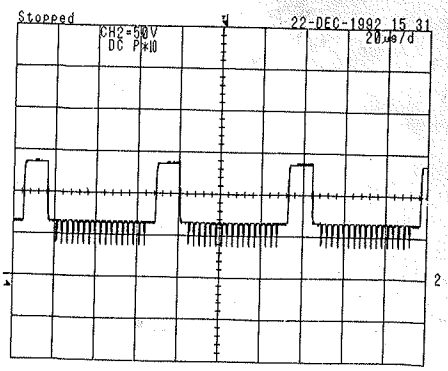




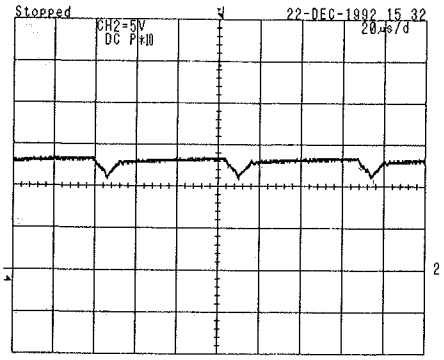


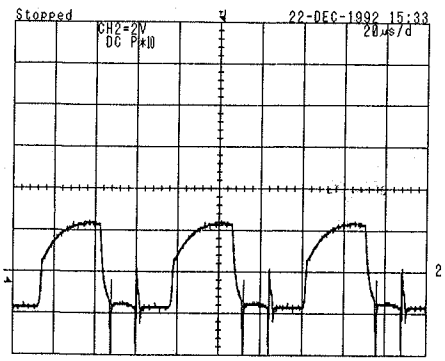


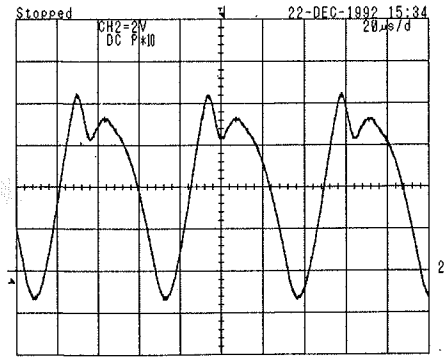


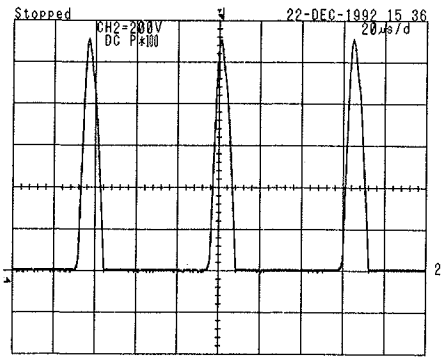


Control Test Points & Wave Forms
(continued)



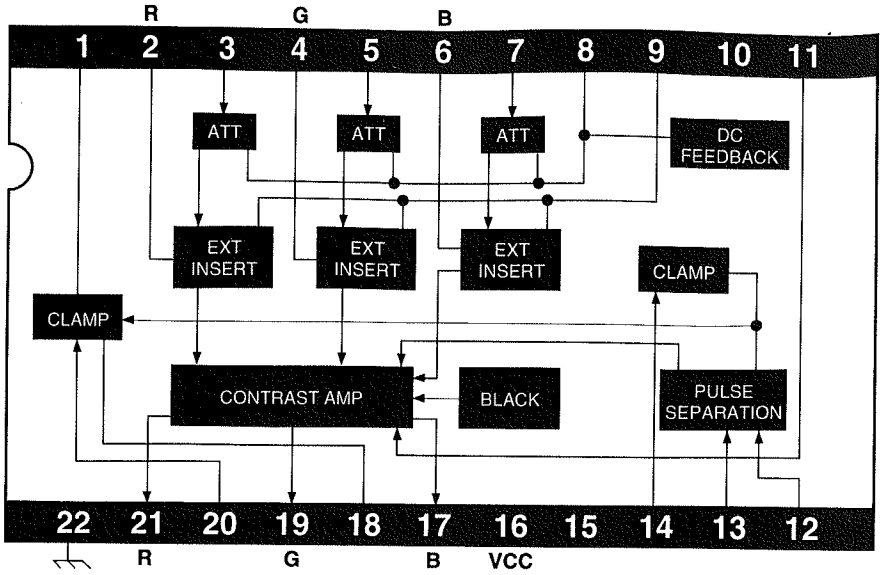




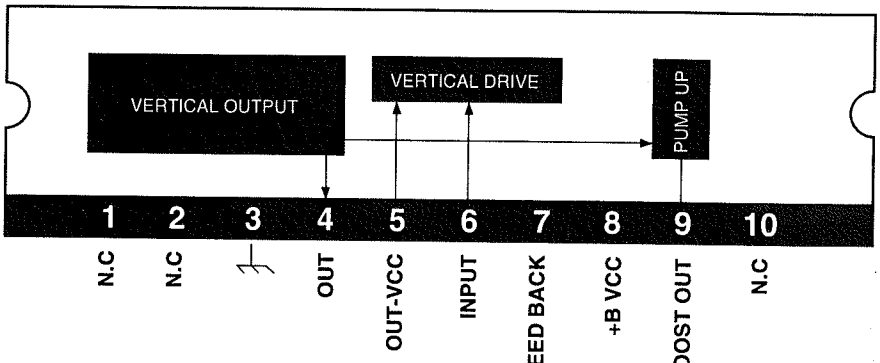


Integrated Circuit Diagram

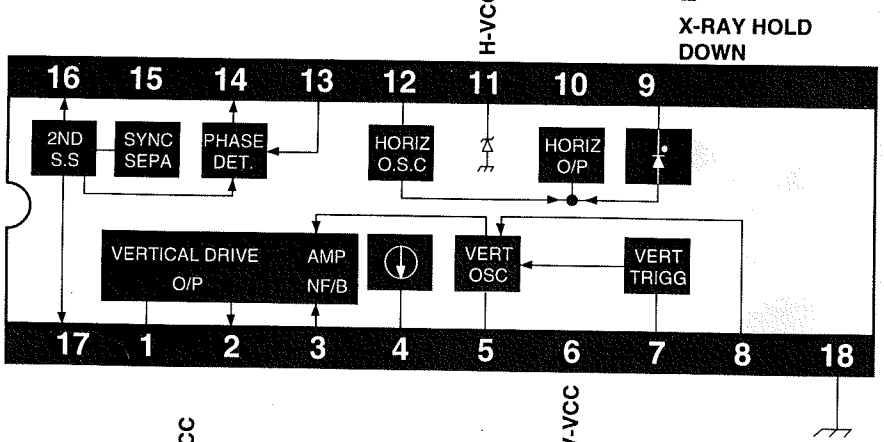
IC 401
µPC1397C



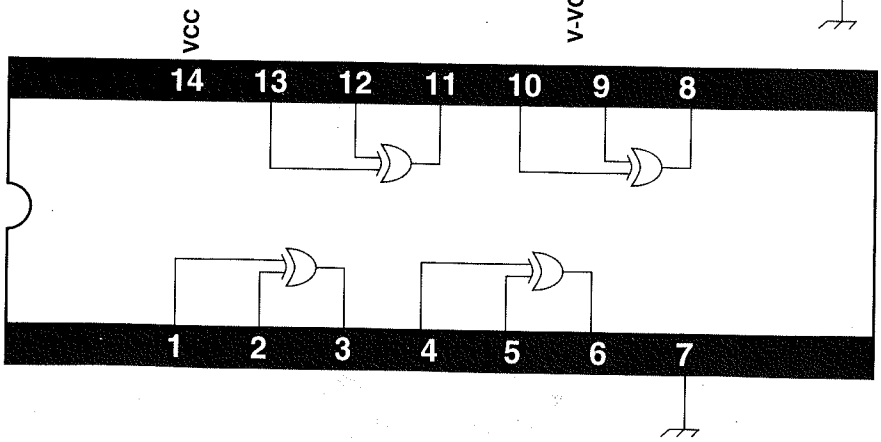
IC 501
LA7831



IC 701
HA11235



IC 402
74LS86



Parts List

"*" Indicates parts that influence X-ray radiation in the horizontal deflection and high-voltage circuit, the picture tube, etc.

"?" Indicates safety-critical parts.

Main Board

Circuit #	Description
R401	8.2k 5% , 1/4W carbon film
R402	1.5k 5% , 1/4W carbon film
R403	10k 5% , 1/4W carbon film
R404	33k 5% , 1/4W carbon film
R405	4.7k 5% , 1/4W carbon film
R406	5.6k 5% , 1/4W carbon film
R407	75 5% , 1/4W carbon film
R408	470 5% , 1/4W carbon film
R409	33k 5% , 1/4W carbon film
R410	4.7k 5% , 1/4W carbon film
R411	5.6k 5% , 1/4W carbon film
R412	75 5% , 1/4W carbon film
R413	470 5% , 1/4W carbon film
R414	4.7k 5% , 1/4W carbon film
R415	5.6k 5% , 1/4W carbon film
R416	470 5% , 1/4W carbon film
R436	75 5% , 1/4W carbon film
R417	5.6k 5% , 1/4W carbon film
R418	56k 5% , 1/4W carbon film
R437	1k 5% , 1/4W carbon film
R419	8.2k 5% , 1/4W carbon film
R420	1k 5% , 1/4W carbon film
R421	100 5% , 1/4W carbon film
R422	100 5% , 1/4W carbon film
R423	100 5% , 1/4W carbon film
R424	1.2k 5% , 1/4W carbon film
R425	8.2k 5% , 1/4W carbon film
R428	3.3k 5% , 1/4W carbon film
R429	2.2k 5% , 1/4W carbon film
R430	220k 5% , 1/4W carbon film
R431	27k 5% , 1/4W carbon film
R432	22k 5% , 1/4W carbon film
R433	10k 5% , 1/4W carbon film
R434	3.3k 5% , 1/4W carbon film

Circuit #	Description
R438	8.2k 5% , 1/4W carbon film
R440	100 5% , 1/4W carbon film
R441	100 5% , 1/4W carbon film
R442	100 5% , 1/4W carbon film
R443	470 5% , 1/4W carbon film
R444	1.2k 5% , 1/4W carbon film
R439	2.2 5% , 1/2W carbon film
R501	470k 5% , 1/4W carbon film
R502	10k 5% , 1/4W carbon film
R503	8.2k 5% , 1/4W carbon film
R504	8.2k 5% , 1/4W carbon film
R505	10 5% , 1W carbon film
R506	10k 5% , 1/4W carbon film
R507	3.3k 5% , 1/4W carbon film
R508	3.3k 5% , 1/4W carbon film
R510	1.2k 5% , 1/4W carbon film
R511	3.9k 5% , 1/4W carbon film
R514	1.8k 5% , 1/4W carbon film
R516	100 5% , 1/4W carbon film
R518	2.2k 5% , 1/2W carbon film
R519	680 5% , 1/2W carbon film
R520	1.2k 5% , 1/4W carbon film
R551	270 5% , 1/4W carbon film
R552	100 5% , 1/2W carbon film
R553	5.6k 5% , 1/2W carbon film
R590	3.9 5% , 1W carbon film
R554	680 5% , 1/4W carbon film
R701	100 5% , 1/4W carbon film
R704	270k 5% , 1/4W carbon film
R705	5.6k 5% , 1/4W carbon film
R706	68k 5% , 1/4W carbon film
R707	13k 5% , 1/4W carbon film
R708	120k 5% , 1/4W carbon film
R710	3k 5% , 3W cerment

Circuit #	Description
R711	680 5% , 1/4W carbon film
R712	470 5% , 1/4W carbon film
R713	680 5% , 1/4W carbon film
R715	2.2k 5% , 1/2W carbon film
R716	100 5% , 1/2W carbon film
R717	680 5% , 1/4W carbon film
R718	10k 5% , 1/4W carbon film
R719	68k 5% , 1/4W carbon film
R721	15k 5% , 1/4W carbon film
R722	68k 5% , 1/4W carbon film
R723	0.5 5% , 1/2W carbon film
R724	2.2 5% , 1/2W carbon film
R725	2.2 5% , 2W carbon film
R726	6.8 5% , 1/4W carbon film
R727	1k 5% , 1/2W carbon film
R731	2.2k 5% , 1/4W carbon film
R732	33k 5% , 1/4W carbon film
R733	10k 5% , 1/4W carbon film
R734	10k 5% , 1/4W carbon film
R736	6.8k 5% , 1/4W carbon film
R737	10k 5% , 1/4W carbon film
R738	6.8k 5% , 1/4W carbon film
R740	120k 5% , 1/4W carbon film
R790	2.2k 5% , 1/4W carbon film
R791	100k 5% , 1/4W carbon film
R333	10 5% , 1W carbon film
R901	2.2 5% , 5W carbon film
R902	6.8k 5% , 1/4W carbon film
R903	3.3k 5% , 1/4W carbon film
R905	47 5% , 1W carbon film
R904	220k 5% , 1/4W carbon film
R798	2.2k 5% , 1/4W carbon film
R766	2.2 5% , 1/2W carbon film
R445	470 5% , 1/4W carbon film
R435	33k 5% , 1/4W carbon film
R999	180 5% , 20W cerment
VR401	10k-B Contrastor CET-92E
VR402	2k-B Bright CET-92E
VR550	5k-B V-hold CET-92E
VR555	5k-B V-lin CET-92E
VR515	500-B V-size CET-92E

Circuit #	Description
C401	22 pF 50V ,Ceramic
C402	22 pF 50V ,Ceramic
C403	0.022μF50V , Mylar
C404	10μF 16V , Electrolytic
C405	10μF 16V , Electrolytic
C406	10μF 16V , Electrolytic
C407	22pF 50V , Ceramic
C408	33μF 16V , Electrolytic
C409	22μF 16V , Electrolytic
C410	0.022μF50V , Mylar
C411	0.022μF50V , Mylar
C412	220pF 50V , Ceramic
C414	22μF 16V , Electrolytic
C415	1μF 50V , Electrolytic
C416	10μF 16V , Electrolytic
C417	100μF 16V , Electrolytic
C418	0.022μF50V , Mylar
C501	1μF 50V , Electrolytic
C502	100pF 50V , Ceramic
C503	2.2μF 35V , Tantal
C504	470μF 16V , Electrolytic
C505	1μF 50V , Electrolytic
C506	0.033μF50V , Electrolytic
C507	56pF 50V , Ceramic
C508	0.0047μF50V , Mylar
C509	33μF 50V , Electrolytic
C510	0.0022μF50V , Ceramic
C511	100μF 50V , Electrolytic
C512	1000μF25V , Electrolytic
C551	1μF 50V , Electrolytic
C513	222 500V , Ceramic
C515	47pF 50V , Ceramic
C590	0.001μF 50V , Ceramic
C550	0.0033μF50V , Mylar
C703	1μF 50V , Electrolytic
C704	0.0068μF50V , Mylar
C702	47 50V , Ceramic
C705	1μF 50V , Electrolytic
C706	0.0056μF50V , Schiroll
C707	0.0033μF 50V , Mylar
C708	0.0015μF 50V , Mylar
C709	100μF 16V , Electrolytic

Circuit #	Description
VR509	5k-B V-position CET-92E
VR709	50k-B H-hold CET-92E
VR720	10k-B H-position CET-92E
VR735	10k-B H-size CET-92E
C710	1μF 160V , Electrolytic
C711	0.0022μF 500V , Ceramic
C712	0.0022μF 1.6kV , Polypropylene
C713	15pF 500V , Ceramic
C702	47pF 50V , Ceramic
C715	0.01μF 1.6kV , Polypropylene
C716	0.01μF 630V , Polypropylene
C718	0.033μF 400V , Polypropylene
C760	0.39μF 400V , Polypropylene
C781	0.0047μF 500V , Mylra
C719	470μF 16V , Electrolytic
C901	0.1μF 250V AC , Mylra
C905	560μF 180V , Electrolytic
C904	33μF 160V , Electrolytic
C906	100μF 160V , Electrolytic
C909	4.7μF 50V , BP
C912	680μF 50V , Electrolytic
C917	10μF 250V , Electrolytic
C799	10μF 50V , Electrolytic
D406	1N4148 Diode
D401	1N4148 Diode
D402	1N4148 Diode
D403	1N4148 Diode
D404	1N4148 Diode
D405	5.1V 0.5W Zener Diode
D407	5.1V 0.5W Zener Diode
D701	1N4148 Diode
D702	1N4148 Diode
D703	12.1V 0.5W Zener Diode
D704	75.0V 1W Zener Diode
D705	1N4148 Diode
D706	BA159 Diode
D708	BA159 Diode
D713	BA159 Diode
D709	MR856 Diode
D710	RU4D Diode

Circuit #	Description
Q401	2SC1815 Transistor
Q402	2SC1815 Transistor
Q403	2SC1815 Transistor
Q404	2SC1815 Transistor
Q405	2SC1815 Transistor
IC401	μPC1397C Video Out
IC402	74LS86 IC Sync Sep
IC701	HA11235 H/V OSC
IC501	LA7831 V-Out
IC901	STR30130 Power REG. IC.
Q702	2SC1520/1507 Transistor
Q703	2SC4293 Transistor
Q704	2SA950 Transistor
Q705	BDX53C Transistor
L901	DH-005 AC Line Filter
L101	DH-003 H-Size Coil
L904	DH-006 H-Linearty Coil
L902	9 ohme Degausing Coil
T701	DH-007 H-Driv Trans
T702	CFR25A10 F B T
F901	3A AC250V AC Fuse 5.25 Dia.
PT901	PTH451C106BG080N140
Fuse Holder	
CN8	BW 504 DY Pin Base
CN2	BW-503 Heater Base
CN5	BW-502 Degausing Base
CN7	12P-S3T2-E Control PCB Pin Header
CN4.10	5P-S3T2-E Control /RGB Out
CN3	5273-10 RGB In Put Pin Base
D550	1N4002/BA159 Diode
D901-904	1N5406 Diode
R301	2.7k 5% , 1/4W, Carbon Film
R302	150 5% , 1/4W, Carbon Film
R303	2.7k 5% , 1/4W, Carbon Film
R304	150 5% , 1/4W, Carbon Film
R305	2.7k 5% , 1/4W, Carbon Film
R306	150 5% , 1/4W, Carbon Film
R307	6.8k 5% , 2W, Metal Oxide
R308	6.8k 5% , 2W, Metal Oxide
R309	6.8k 5% , 2W, Metal Oxide
R310	2.2k 5% , 1/2W, Carbon Film