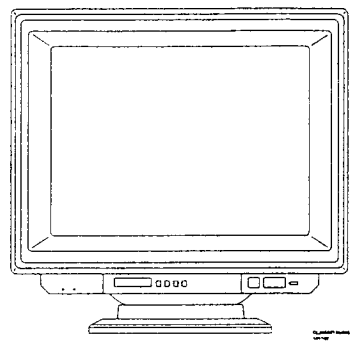
17" AUTO SCAN Colour Monitor

4CM6088/00T/69T

Service
Service
Service

DAN TECHNOLOGY
CD-1746TR.



Service Manual

Horizontal frequencies
30 to 66 kHz

Contents

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PHILIPS

PHILIPS

PCS 43.251.GB

Technical data

General

Mains voltage	: 90 - 270 V
Mains frequency	: 50 / 60 Hz
Power consumption	: 110 W (normal) 120 W (max.)
Operating temperature	: 0°C to 40°C
Weight	: 23 kg
Width x Depth x Height	: 422 x 440 x 425 mm
Video signal	: 0.7 or 1.0 Vp-p 75 Ω switchable

Sync. signal

- separate sync.	: TTL-level
- composite sync.	: TTL-level
- composite sync.	: on Green

Picture tube

Type	: Trinitron
Size	: 17 inch
Light transmission	: 42.0 % (dark glass)
Deflection angle	: 90 Degree
EHT voltage	: 26 kVolt
Pitch	: 0.26 mm
Phosphor	: Medium short (P22)

Video

Dot rate	: 110 MHz
Visible screen within mask area	: 370 mm x 299 mm
Vertical frequency	: 50 - 100 Hz
Sync. polarity	: positive or negative
Vertical shift range	: 10 mm Min.
Horizontal frequency	: 30 to 66 kHz
Sync. polarity	: positive or negative
Horizontal shift	: 20 mm Min.

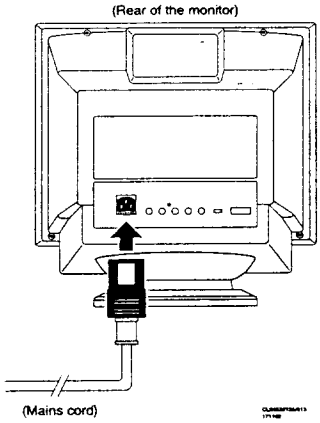
Geometry distortion

Pincushion, barrel	: Horizontal 4 mm Max. : Vertical 4 mm Max.
horizontal tilt (rotation)	: 2,5 mm Max.
Non-linearity	: 7% (31.5/35.2/35.5/48.4/ 61.9kHz) : 8% (other modes)

* specifications are subject to change without notice

Connection facilities

Connection to the mains



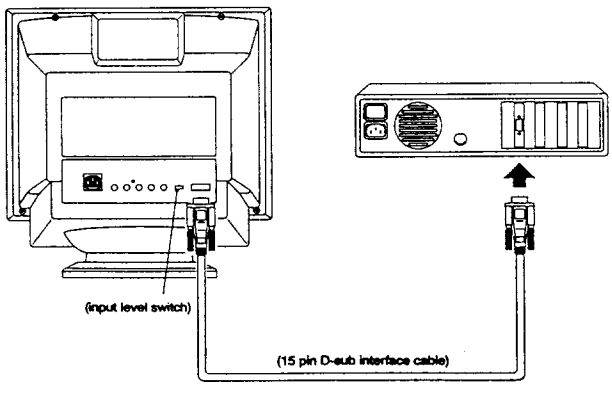
This monitor is set to operate at a mains supply of 100-240 volts AC±10%, 50-60 Hz. If the Mains voltage in your home is different from this, consult your dealer. Connect one end of the mains cord to the mains socket at the rear of monitor, and the other end to the mains supply.

Connection to the computer

NOTE: Please be sure the AC power to your computer is " OFF" before connecting or disconnecting any display peripheral.
Failure to do so may cause serious personal injury as well as permanent damage to your computer equipments.

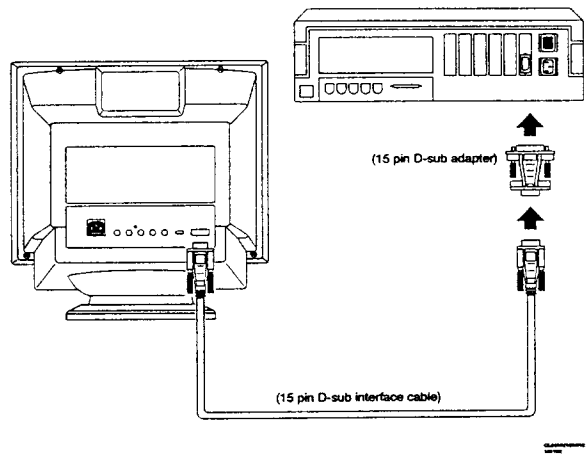
1. IBM PC, PC/XT, PC/AT, PS/2 ,or the compatibles:

- Make sure the "D-SUB/BNC" switch on the front of the monitor is on the 'D-sub' position.
- Connect one end of the 15-pin D-sub interface cable to the D-sub connector at the rear of monitor.
- Connect the other end of the computer at the video connector on the video adapter, and fix it firmly with the screws on the plug.
- Set the **"Input level"** switch to 1.0Vp-p position when display is too bright.



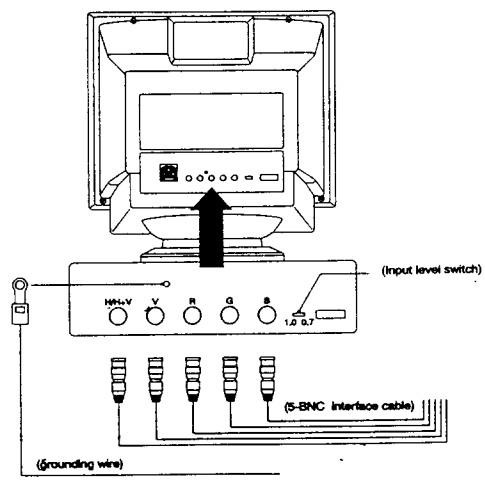
2. Apple Macintosh II and SE families:

- Make sure the **"D-SUB/BNC"** on the front of the monitor is to the 'D-sub' position.
- Connect one end of of the 15-pin D-sub interface cable to the D-sub connector at the rear of the monitor.
- Connect the 15-pin D-sub adapter to the interface cable.
- Connect the 15-pin D-sub adapter to the computer at the video connector on the video card.
- Fix both connectors firmly with the screws on the plugs.



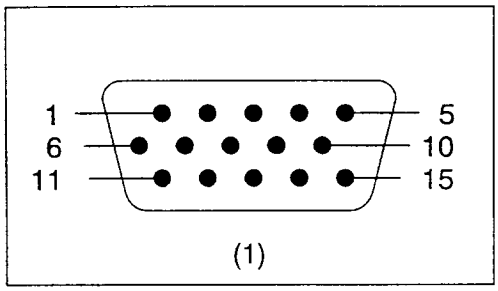
3. Computer with video adapter of BNC connector:

- Make sure the **"D-SUB/BNC"** on the front of the monitor is to the 'BNC' position.
- Connect your BNC cable (this cable is not provided with the monitor) according to the BNC connector assignment at the rear of the monitor.
- Connect the ground wire to the **"grounding"** connector at the rear of the monitor,and fix it firmly with screw driver.
- Set the **"Input level"** switch to 1.0Vp-p position, when diplay is too bright.

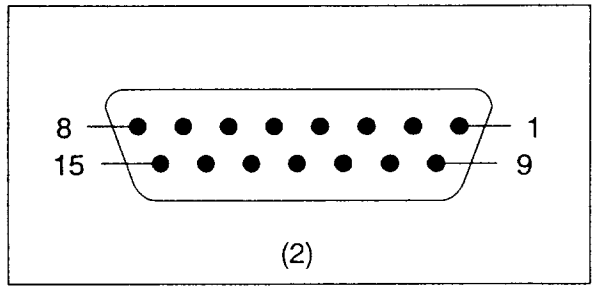


Connection facilities

Pin assignment 15p 'D' shell (3 rows)



Pin assignment 15p 'D' shell (2 rows)



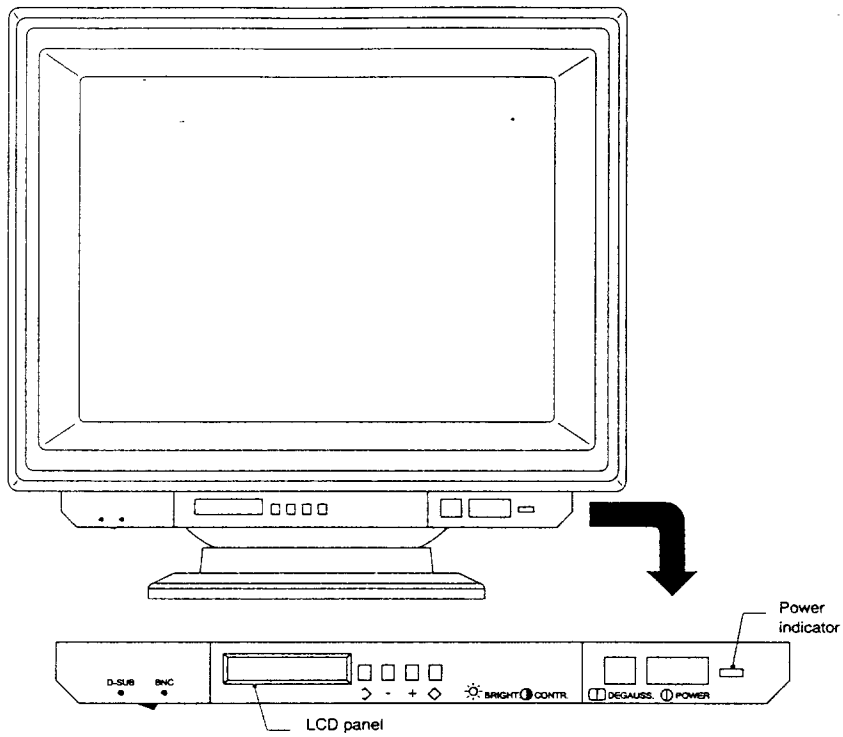
CL26532135/016
181192

INPUT-OUTPUT SIGNALS

15 pins D-Shell connector | **D-Shell adapter (3 rows to 2 rows)**

Pin	Assignment	Sensitivity	Terminal impedance	Assignment	Sensitivity	Terminal impedance
1	Red Video input	RGB-analog	75 Ω	Red ground		
2	Green Video input/ sync. on green	RGB-analog	75 Ω	Red Video input/	RGB-analog	75 W
3	Blue Video input	RGB-analog	75 Ω	Composite sync.		2.2 kΩ
4	Ident output (connected to 10)			Sync. ground		
5	Self test input (ground)			Green Video input	RGB-analog	75 Ω
6	Red Video ground			Green ground		
7	Green Video Ground			Not connected		
8	Blue Video ground			Not connected		
9	Not connected (no pin)			Blue Video input	RGB-analog	75 Ω
10	Logic ground			Not connected		
11	Ident output (connected to 10)			Not connected		
12	Not connected			Not connected		
13	Horizontal sync. (or Hor. + Vert. sync)	TTL Level L= 0 - 0.8V H= 2.4 - 5V	2.2 kΩ pull down	Blue ground		2.2 kΩ (pull down)
14	Vertical sync.	TTL Level L= 0 - 0.8V H= 2.4 - 5V	2.2 kΩ pull down	Not connected		2.2 kΩ (pull down)
15	Not connected (no pin)			Not connected		

Control locations and functions



"D-SUB"/ "BNC"

- Switch to "D-SUB" position, when the monitor is connected with a D-sub interface cable.
- Switch to "BNC position, when the monitor is connected with a BNC interface cable.

◇ SELECT

- Press this knob to select the adjustment item which is displayed on the LCD panel in the following order:

- **LEVEL I**

a) SET H-SHIFT : to adjust the image position horizontally
b) SET H-SIZE : to adjust the image width
c) SET V-SHIFT : to adjust the image position vertically
d) SET V-SIZE : to adjust the image height
e) SET H.CONVERGENCE : to adjust the blue/red horiz. lines to converge with the green horiz. lines
f) SET V.CONVERGENCE : to adjust the blue/red vert. lines to converge with the green vert.lines
g) -(CURSOR) : to access LCD display characters (for user-set mode only)

If only necessary, you can select the adjustment item **LEVEL II** by pressing "◇" and "+" simultaneously for 3 seconds, then the following order will be displayed on the LCD panel:

LEVELII

h) SET PIN/BARREL : to adjust the image geometry
i) SET TRAPEZOID : to adjust the image geometry
j) SET PARALLELOGRAM : to adjust the image geometry
k) SET UNBALANCE : to adjust the image geometry

"+" and "-"

(adjustment a-f) :* Press "+" or "-" to adjust the respective magnitude.
(adjustment g) :* Press "+" to access characters (space 0,1...9, A, B,....Z)
* Press "-" to access character , in backward order.
* Press "+" and "-" simultaneously to move the cusor.

◇ SAVE

- Press this knob to save the result of the adjustment.

ⓘ POWER

- Press this knob, the green LED lights (power indicator) and the power is ON.
- Press this knob, the green LED disappears and the power is OFF.

DEGAUSS.

- Press this knob to eliminate the colour impurity.

CONTR.

- Used to adjust contrast.

BRIGHT.

- Used to adjust brightness.

Control locations and functions

Adjustment

This monitor is pre-set with 11 modes as indicted in table below:

For video adapter in line with factory preset mode e.g 1024x768 48.4KHz/60Hz

A) M01-M11 (factory pre-set mode)

* Press knob ⏻ to switch on the monitor.
* The LCD panel will display the default mode e.g.

M09 1024x768 60

* The image will be in right size (H+V), centering and geometry.

B) M12-M22

* M12-M22 is preserved for any adjustment of factory pre-set mode (M01-M11).
  if you are not satisfied with the image result of factory pre-set mode, you may adjust it according to the following procedure:

* Press knob ⏻ to switch on the monitor.
* The LCD panel will display the default mode e.g.

M09 1024x768 60

* Press knob ☽ to select the adjustment item.
* Press "+" or "-" to adjust the magnitude.
* Press knob ◇ to save the result of adjustment.
* The LCD panel will display immediately e.g.

M20 1024x768 60

For non-standaard video adapter e.g. 1024x768 72Hz:

M23-M26

* Press power knob ⏻ to switch on the monitor.
* The LCD panel will display:

New Mode

* Press knob ☽ to select the adjustment item.
* Press "+ " or " - " to adjust the magnitude.
* Press "+ " or " - " to access LCD display character.
* Press knob ◇ to save all adjustments, the LCD will display immediately e.g.

M23 1024x768 72 or
M23 (resolution and refresh rate will not display if not registered by CURSOR adjustment)

✱ You may save by press knob ◇ after each adjustment, or you may do it after all the adjustments are completed; however the latter is recommended.

✱ The LCD display will revert to default if the user does not press ◇ to save the adjustment result after 30 seconds. However the adjusted configuration will remain exist until power off, but not be memorized.

✱ The **RECALL** function:
you may erase all the user set modes (M12 to M26) by pressing and holding the knobs "☽ " and " - " simultaneously for 2 seconds. The letter RECALL will display on the LCD.

✱ LCD module Backlight
When power on, the LCD module acting with backlight. The backlight will be turned off after 60 seconds automatically. The LCD diplay will be turned on again pressing "selection" or "save" keys.

(factory pre-set mode table)

	Mode.	Resolution	Frequency		Sync. Polarity	
			H (KHz)	V(Hz)	H	V
M01	VGA	640x350	31.5	70	+	-
M02	VGA	640x400	31.5	70	-	+
M03	VGA	640x480	31.5	60	-	-
M04	MAC II	640x480	35.0	66.7	Composite sync. on green	
M05	SVGA	800x600	35.2	56	+/-	+/-
M06	SVGA	800x600	37.8	60	+	+
M07	SVGA	800x600	48.0	72	+	+
M08	8514A	1024x768	35.5	87 *	+	+
M09		1024x768	48.4	60	-	-
M10		1024x768	56.0	70	+/-	+/-
M11		1280x1024	61.9	58.6	Composite sync. on green	

* Interlaced

Warnings and notes

Warnings

1. Safety regulations require that the unit should be returned in its original conditions and that components identical to the original components are used.
   The safety components are indicated by the symbol ⚠

2. In order to prevent damage to **ICs** and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approx. 30s).

3. **ESD**
   All **ICs** and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the mains voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that safety goggles are worn when replacing the picture tube.

7. When making settings, use plastic rather than metal tools.
   This will prevent any short-circuit and the danger of a circuit becomes unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the deflection unit the picture tube is used as an integrated unit. Adjustment of this unit during repair is therefor not recommended.

10. After repair the wiring should be fastened once more in the cable clamps for this purpose.

Notes

1. The direct voltages and oscillograms are average voltages.
   They have been measured by using the Service test software and under the following conditions:
   - Signal pattern: grey scale
   - Mode: 56.0kHz/70Hz 1024*768
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

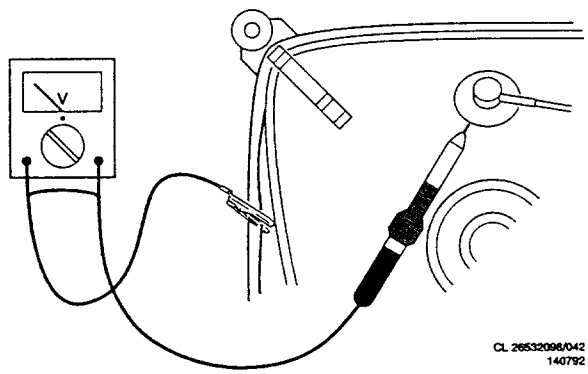


Fig. 3.1

Mechanical instructions

Location of the Panels (see Fig. 4.1)

1. Deflection + Supply panel (1102)
2. Video panel (1104)
3. Input + Terminal panel (1103)
4. Digital + Sync panel (1105)
5. Emi panel (1106)
6. Key + Control panel (1107)
7. LCD panel (1108)
8. Power indicator panel (1110)

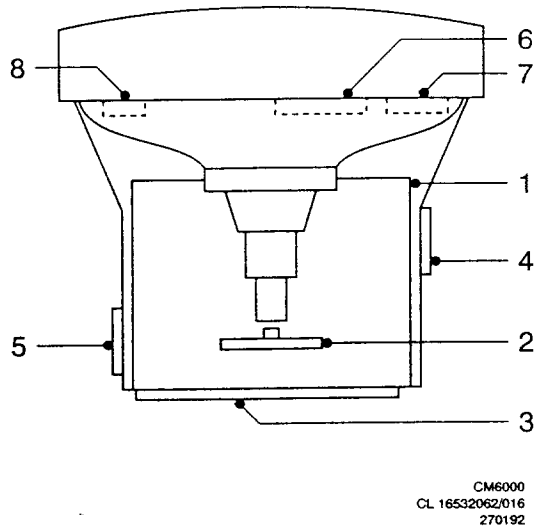


Fig. 4.1

General

To be able to perform measurements and repairs on the "circuit boards", the monitor should placed in the service position first:

1. Remove the back cover by 4 screws.
2. Remove the metal shielding by 12 screws.
3. Remove the metal cover for the "EMI-panel" (if necessary by 6 screws)
4. Turn the set 90 Degree counter-clockwise (see Fig 4.2).
5. Remove the pedestal with the metal shielding by 4 screw and 2 plastic clamps.
6. Remove the "Digital+Sync panel" by 1 screw and remount this panel on a specified slot which is existing on the metal frame (see Fig.4.3).
7. Remove the "Input + Terminal panel" by 5 screws, then stand-up the "Input+Terminal panel" between the metal frame and the work bench.
8. Connect an "extension cable (4822 321 61504) for the connection between the "EMI-panel" and the "Input+Terminal panel".

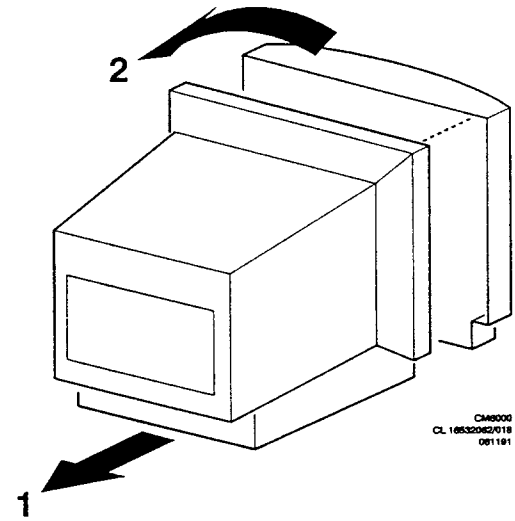


Fig. 4.2

Repair instructions

1. Deflection + Supply panel
   - Place the set into the Service position.
   - Remove the "Deflection + Supply panel" by 4 screws.
   - Isolate the "HOT ground" (on the power supply circuit) and the "Command ground" (on the metal frame).
   - Before switching on the set, connect the set to an isolating transformer.

2. Video panel
   - Place the set into the Service position.
   - De-solder 3 soldering joints (shielding) of the solder side of the panel.
   - Remove the shielding on the solder side.
   - De-solder 10 soldering joints 9 shielding) on the component side of the panel.
   - Remove the shielding on the component side.

3. Input + Terminal panel
   - Place the set into the Service position.
   - Remove 2 screws (on the 15 pins "D" Shell connector).
   - Remove 2 fixing screws.
   - De-solder 10 soldering joints (BNC-socket).
   - Remove the metal bracket.

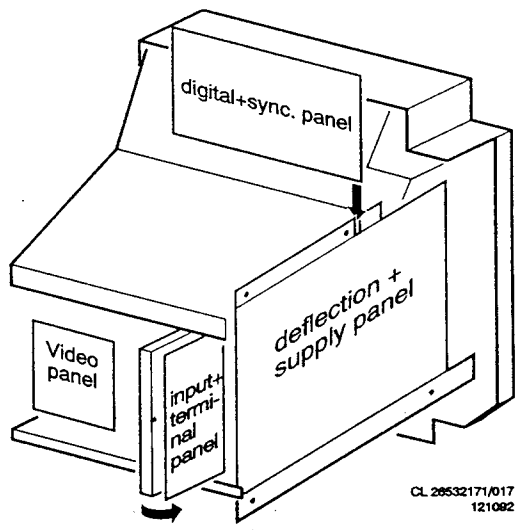
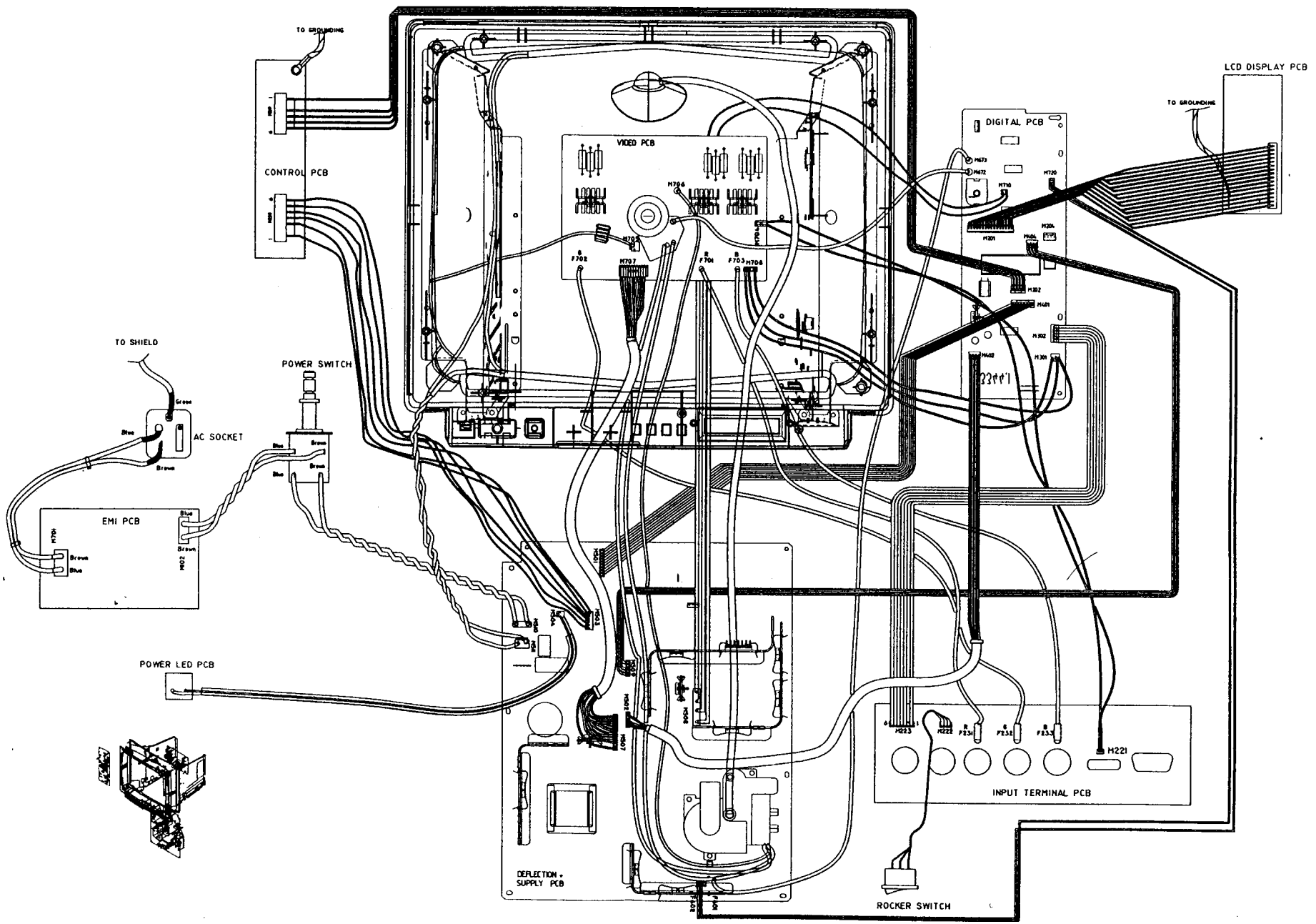
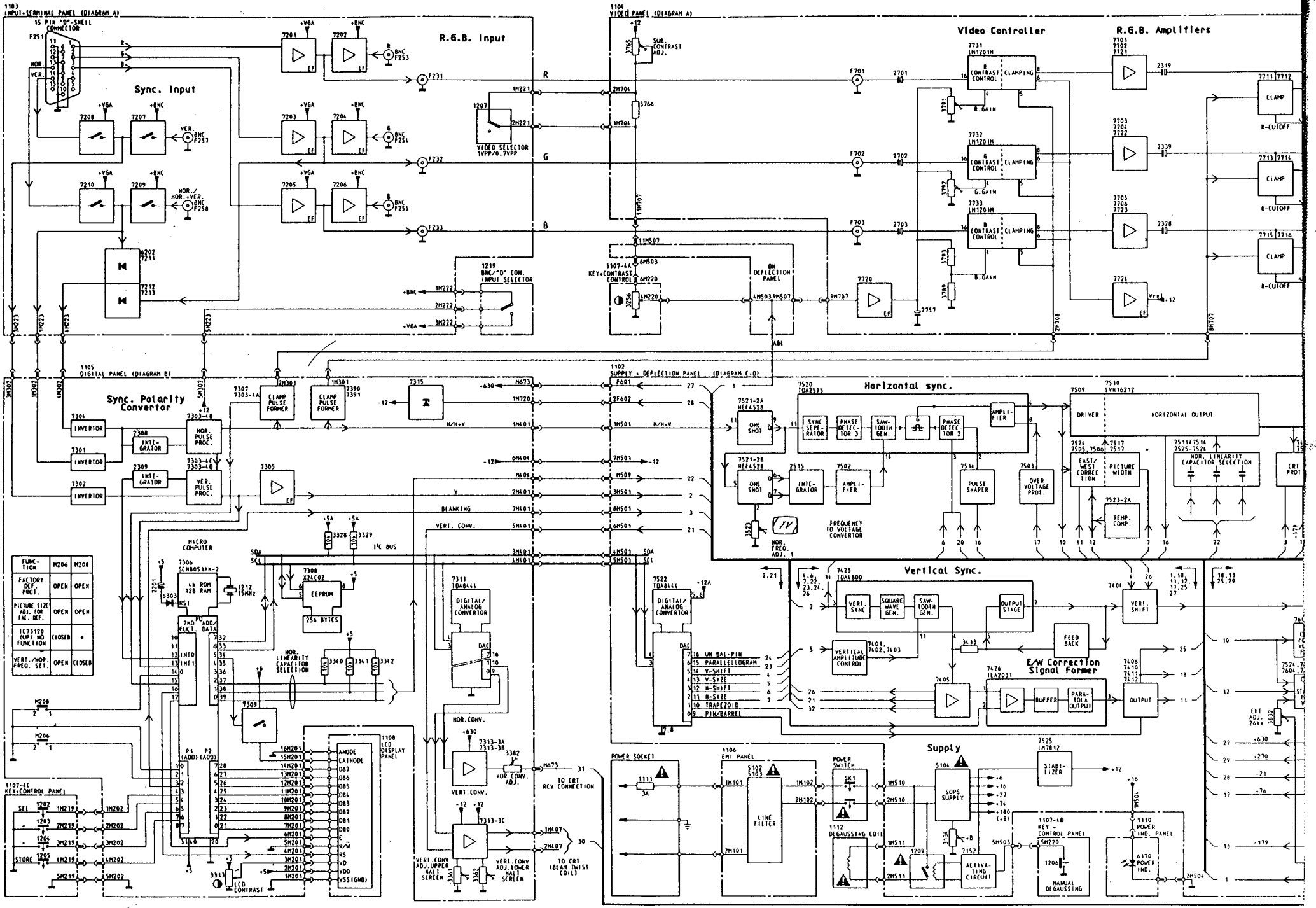


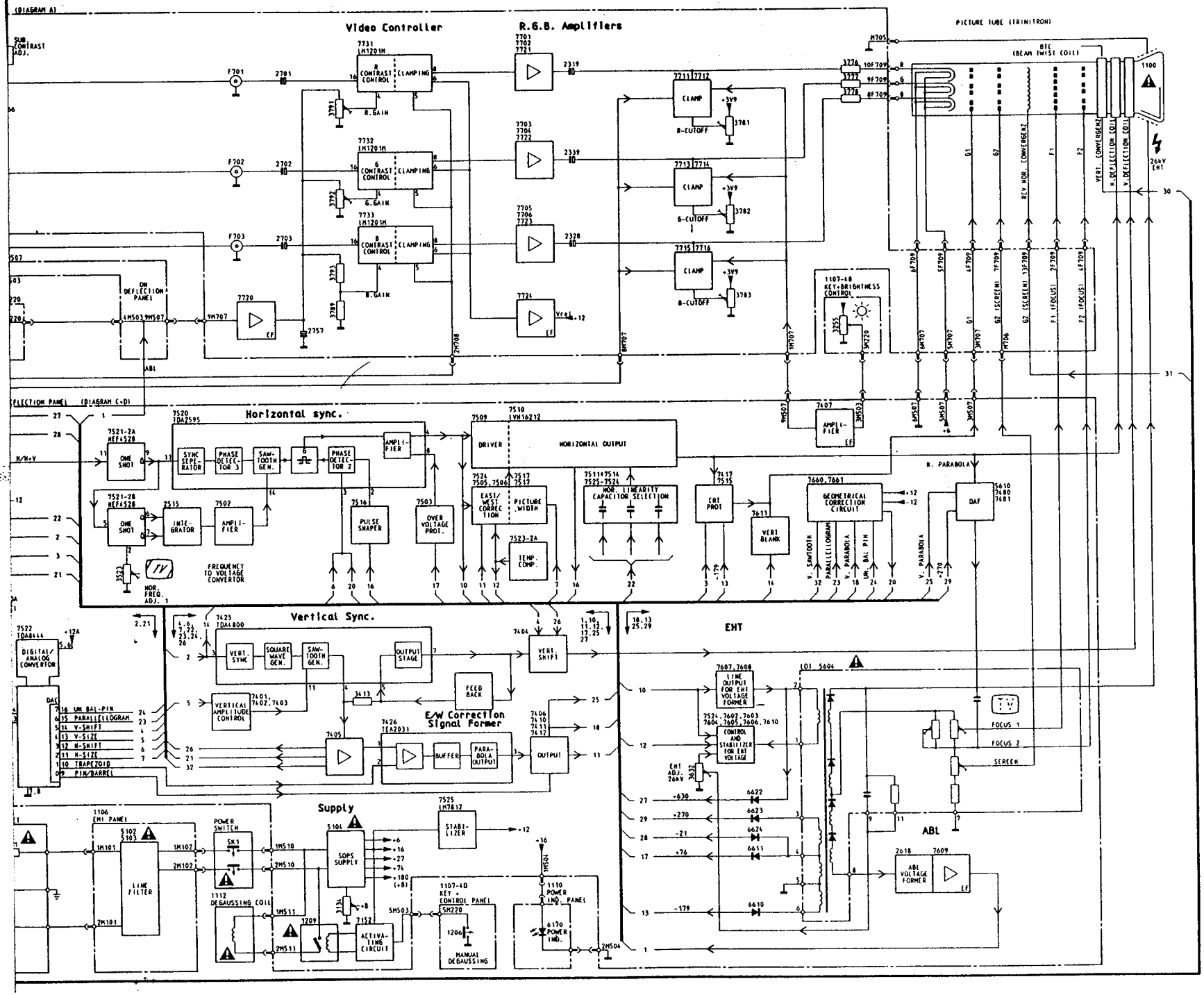
Fig. 4.3


TO GROUNDING
CONTROL PCB
VIDEO PCB
DIGITAL PCB
LCD DISPLAY PCB
TO GROUNDING
TO SHIELD
POWER SWITCH
AC SOCKET
EMI PCB
POWER LED PCB
DEFLECTION + SUPPLY PCB
INPUT TERMINAL PCB
ROCKER SWITCH
H221


R.G.B. Input
Sync. Input
Video Controller
R.G.B. Amplifiers
Sync. Polarity Convertor
Horizontal sync.
Vertical Sync.
E/W Correction Signal Former
Supply
FREQUENCY TO VOLTAGE CONVERTOR
I²C BUS
MICRO COMPUTER
EEPROM
256 BYTES
LCD CONTRAST
VIDEO SELECTOR
SUB CONTRAST ADJ.
R.GAIN
G.GAIN
B.GAIN
R-CUTOFF
G-CUTOFF
B-CUTOFF
LINE FILTER
DEGAUSSING COIL
MANUAL DEGAUSSING
POWER SOCKET
POWER SWITCH
SOPS SUPPLY
ACTIVATING CIRCUIT
TO CRT REV CONNECTION
TO CRT (BEAM TWIST COIL)
VERT. CONV ADJ. UPPER HALF SCREEN
VERT. CONV ADJ. LOWER HALF SCREEN
HOR. CONV. ADJ.
HOR. LINEARITY CAPACITOR SELECTION
HOR. LINEARITY CAPACITOR SELECTION
EHT ADJ. 26kV
1103 INPUT-TERMINAL PANEL (DIAGRAM A)
1104 VIDEO PANEL (DIAGRAM A)
1105 DIGITAL PANEL (DIAGRAM B)
1102 SUPPLY + DEFLECTION PANEL (DIAGRAM C-D)
1106 EMI PANEL
1107-4A KEY+CONTROL PANEL
1107-4C KEY+CONTROL PANEL
1107-4D KEY + CONTROL PANEL
1108 LCD DISPLAY PANEL
1110 POWER IND. PANEL
1112 DEGAUSSING COIL
DEFLECTION PANEL
BNC/"D" CON. INPUT SELECTOR
15 PIN "D"-SHELL CONNECTOR
FUNCTION | M206 | M208
FACTORY DEF. PROT. | OPEN | OPEN
PICTURE SIZE ADJ. FOR FAC. DEF. | OPEN | OPEN
IC73120 (UP) NO FUNCTION | CLOSED | •
VERT./HOR. FREQ. SEL. | OPEN | CLOSED

Block diagram

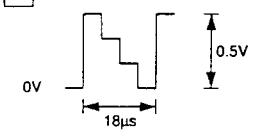
Block diagram



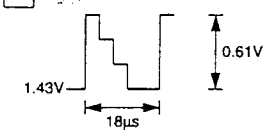
Print layout

WAVE FORMS FOR DIAGRAM A

97 F251 PIN 1



107 7213-B

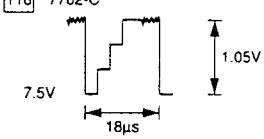


117 7721-E

98 F251 PIN 13

108 7213-C

118 7702-C



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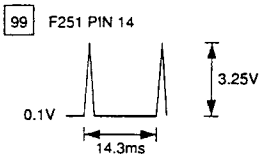

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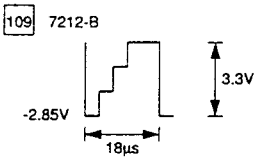
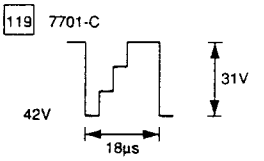


119 7701-C



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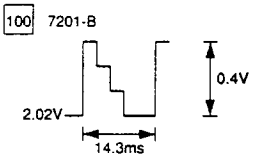
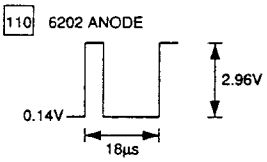
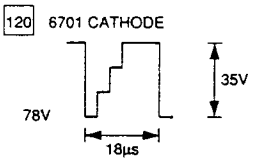


110 6202 ANODE



120 6701 CATHODE



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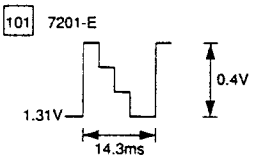
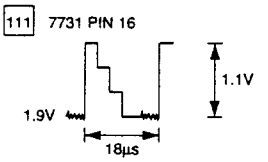
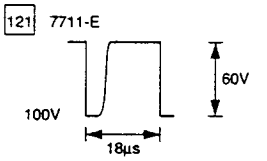


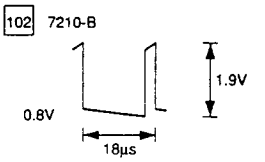
111 7731 PIN 16



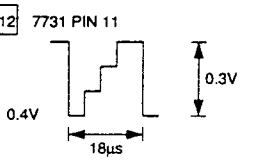
121 7711-E



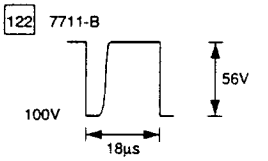
102 7210-B



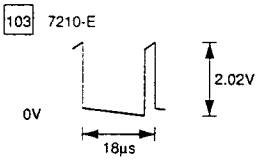
112 7731 PIN 11



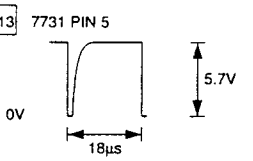
122 7711-B



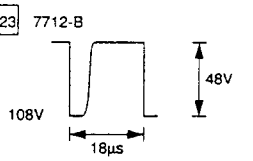
103 7210-E



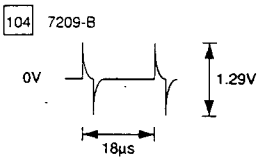
113 7731 PIN 5



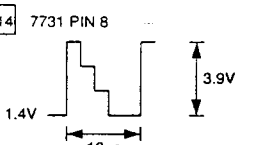
123 7712-B



104 7209-B



114 7731 PIN 8



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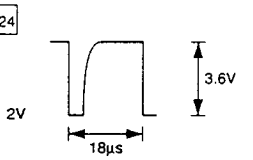
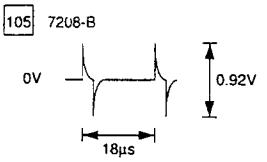
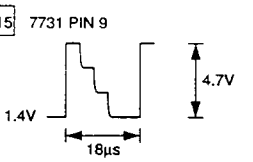


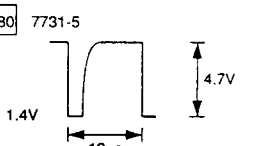
105 7208-B



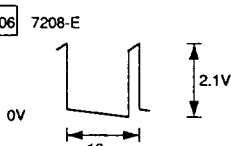
115 7731 PIN 9



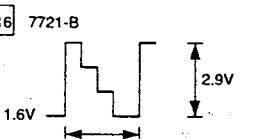
180 7731-5



106 7208-E



116 7721-B



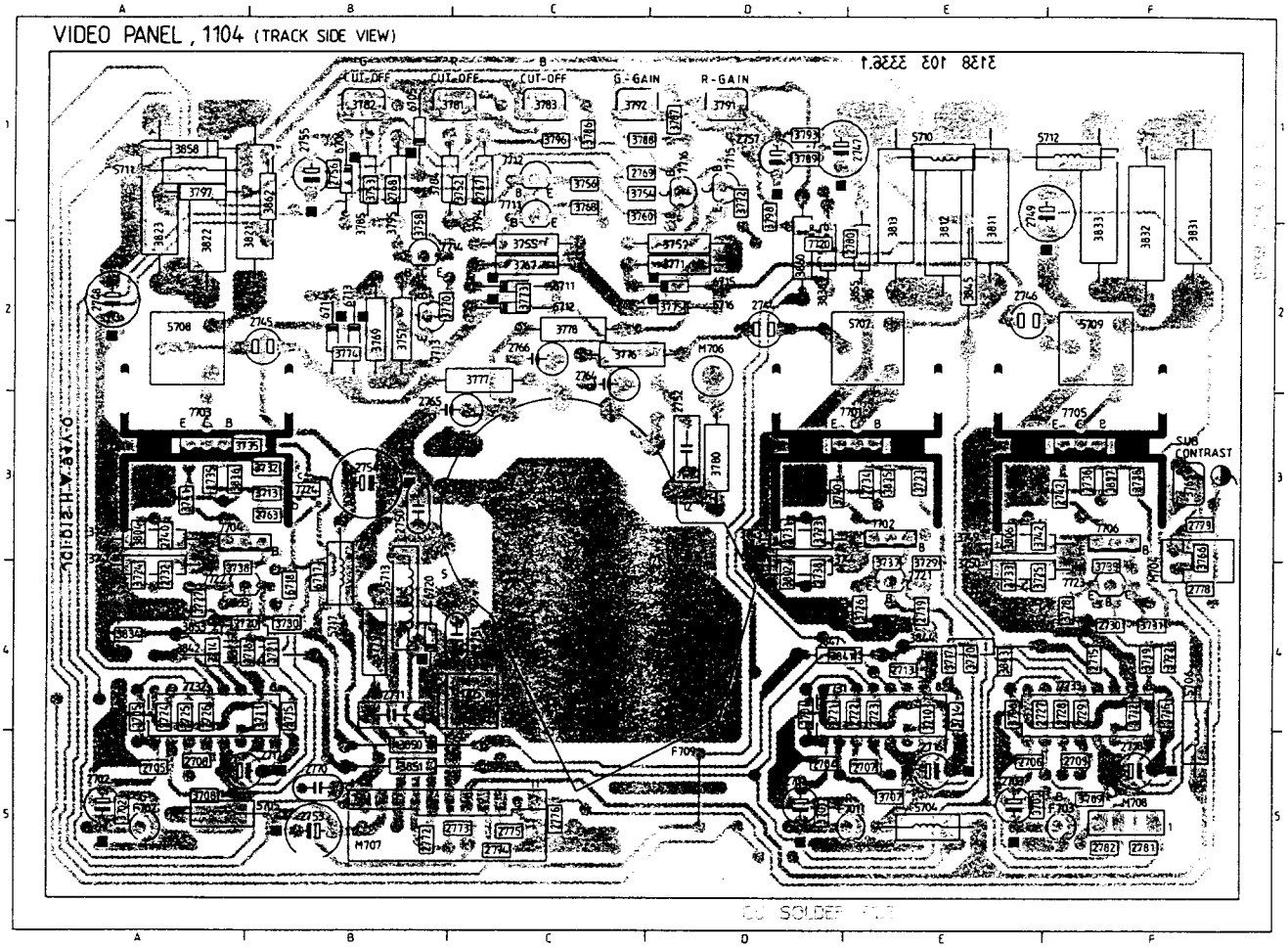
CM6000
CL 26532191/012
031192

2701 D5
2702 A5
2703 E5
2704 D5
2705 A5
2706 E5
2707 E5
2708 A5
2709 F5
2713 E4
2714 A4
2715 F4
2716 E5
2717 B5
2718 F5
2719 E4
2720 A4
2721 D4

1207 B2
2207 A1
2208 A1
2209 A1
2210 E1
2211 D1
2212 C1
2213 C1

Print layout Input / Video

2701	D5	2722	E4	2744	D2	2767	C1	3704	D4	3722	F4	3741	A3	3766	F3	3784	B1	3812	E2	3847	D4	5717	B4	7711	C1	M704	F4
2702	A5	2723	E4	2745	B2	2768	B1	3705	A4	3723	D3	3742	E3	3767	C2	3785	B1	3813	E2	3850	B5	6705	B1	7712	C1	M705	C4
2703	E5	2724	A4	2746	E2	2769	C1	3706	E4	3724	A4	3743	D3	3768	C1	3786	C1	3821	A2	3851	B5	6706	B1	7713	B2	M706	D2
2704	D5	2725	A4	2747	E1	2770	B5	3707	E5	3725	E4	3744	D3	3769	B2	3787	D1	3822	A2	3853	A4	6711	C2	7714	B2	M707	B5
2705	A5	2726	A4	2748	A2	2771	B4	3708	A5	3726	E4	3746	A3	3770	B2	3788	C1	3823	A2	3855	E2	6712	C2	7715	D1	M708	F5
2706	E5	2727	F4	2749	E2	2772	B5	3709	F5	3727	A4	3747	A3	3771	D2	3789	D1	3831	F2	3858	A1	6713	B2	7716	D1		
2707	E5	2728	F4	2750	B3	2773	C5	3710	E4	3728	F4	3749	E3	3772	D1	3791	D1	3832	F2	3860	D2	6714	B2	7720	D2		
2708	A5	2729	F4	2751	C4	2774	C5	3711	B4	3729	E3	3750	E4	3773	C2	3792	C1	3833	F2	3862	B1	6715	D2	7721	E4		
2709	F5	2730	F4	2752	D3	2775	C5	3712	F4	3730	B4	3752	C1	3774	B2	3793	D1	3834	A4	5704	E5	6716	D2	7722	A4		
2713	E4	2731	D3	2753	B5	2776	C5	3713	B3	3731	F4	3753	B1	3775	D2	3794	C1	3835	E3	5705	B5	6717	B4	7723	F4		
2714	A4	2732	A4	2754	B3	2778	F4	3714	E4	3732	B3	3754	C1	3776	C2	3795	B1	3836	A3	5706	F4	6718	B4	7724	B3		
2715	F4	2733	E4	2755	B1	2779	F3	3715	B4	3733	E3	3755	C2	3777	C2	3796	C1	3837	F3	5707	E2	6720	B4	7731	D4		
2716	E5	2734	E3	2756	B1	2780	E2	3716	F4	3735	A3	3756	C1	3778	C2	3797	A1	3838	D2	5708	A2	7701	E3	7732	A4		
2717	B5	2735	A3	2757	D1	2781	F5	3717	E4	3736	F3	3757	B2	3779	B4	3798	D1	3841	D4	5709	F2	7702	E3	7733	F4		
2718	F5	2736	F3	2763	B3	2782	F5	3718	B4	3737	E3	3758	B1	3780	D3	3802	D4	3842	A4	5710	E1	7703	A3	F701	E5		
2719	E4	2738	D4	2764	C2	3701	D5	3719	F4	3738	A4	3759	D1	3781	B1	3804	A3	3843	E4	5711	A1	7704	A3	F702	A5		
2720	A4	2740	A3	2765	B3	3702	A5	3720	E4	3739	F4	3760	C1	3782	B1	3806	E3	3844	E4	5712	F1	7705	F3	F703	F5		
2721	D4	2742	F3	2766	C2	3703	E5	3721	B4	3740	D3	3765	F3	3783	C1	3811	E2	3845	E2	5713	B4	7706	F3	F709	D5		



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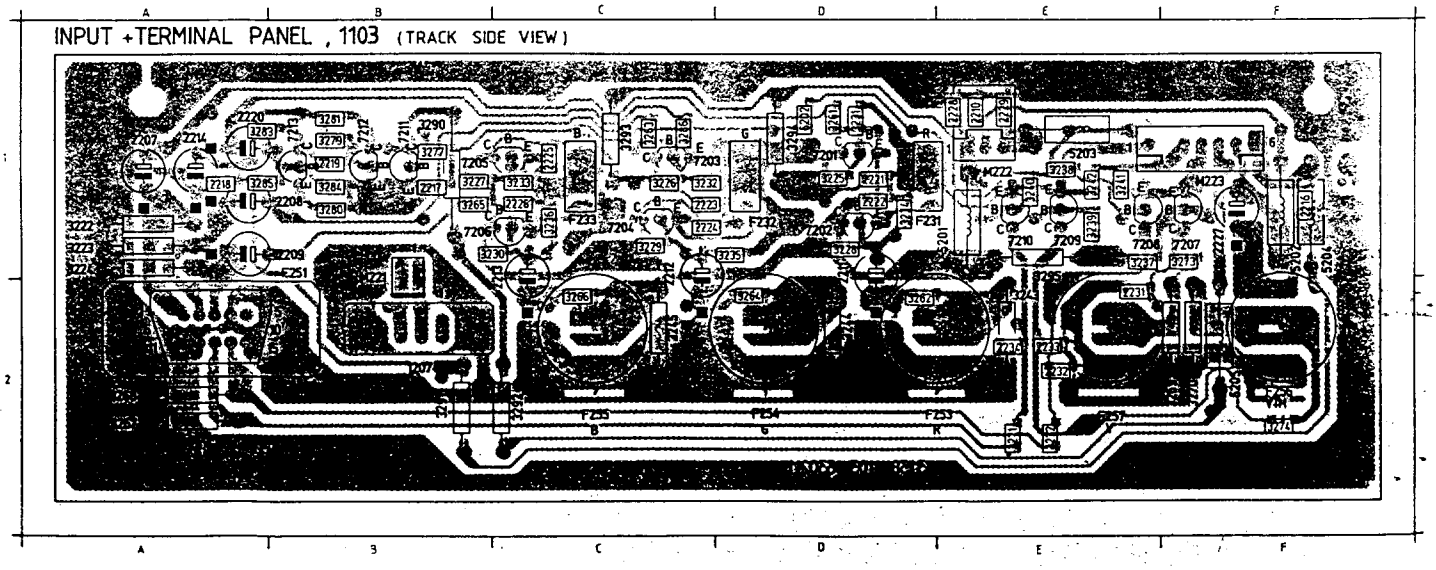
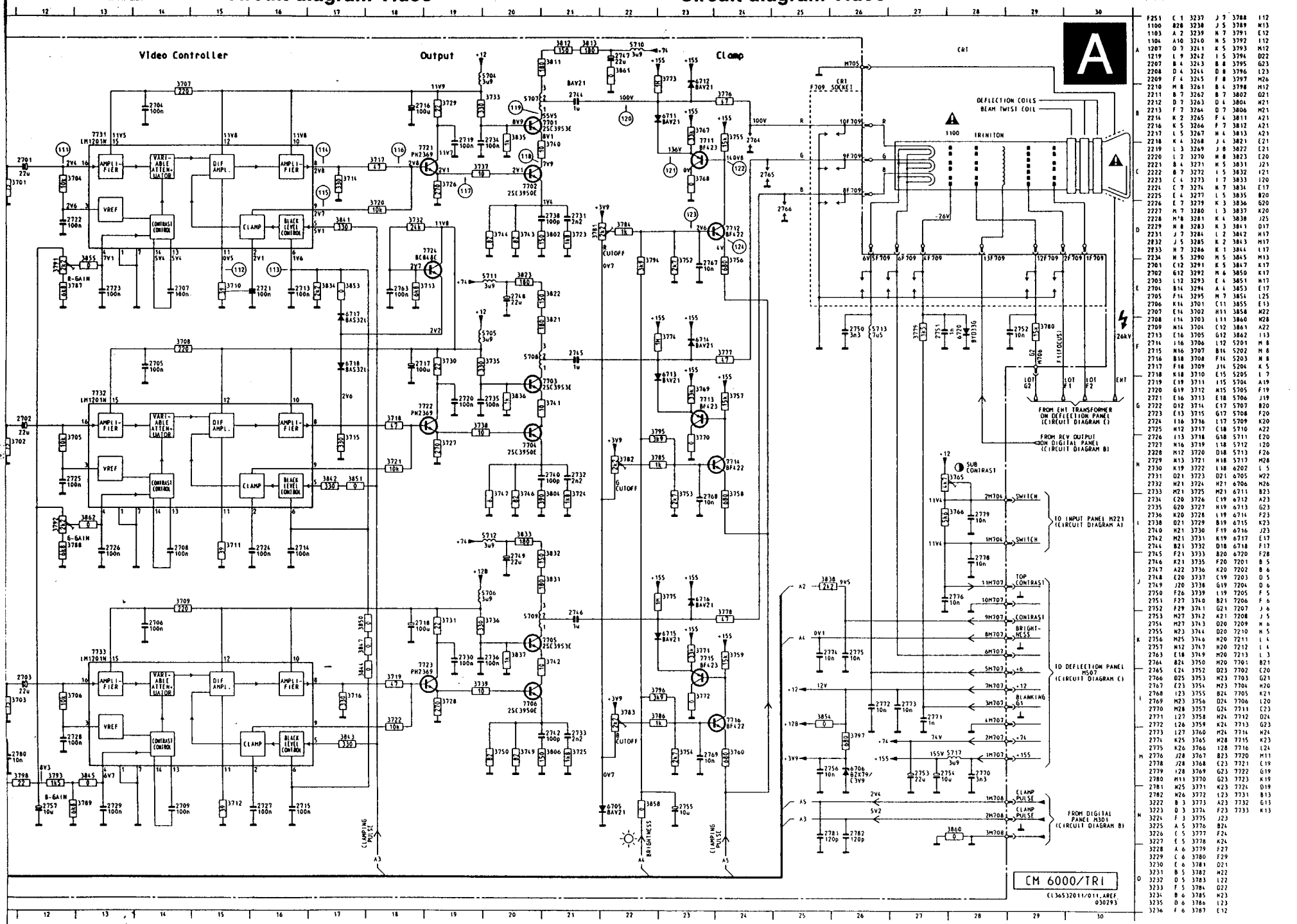
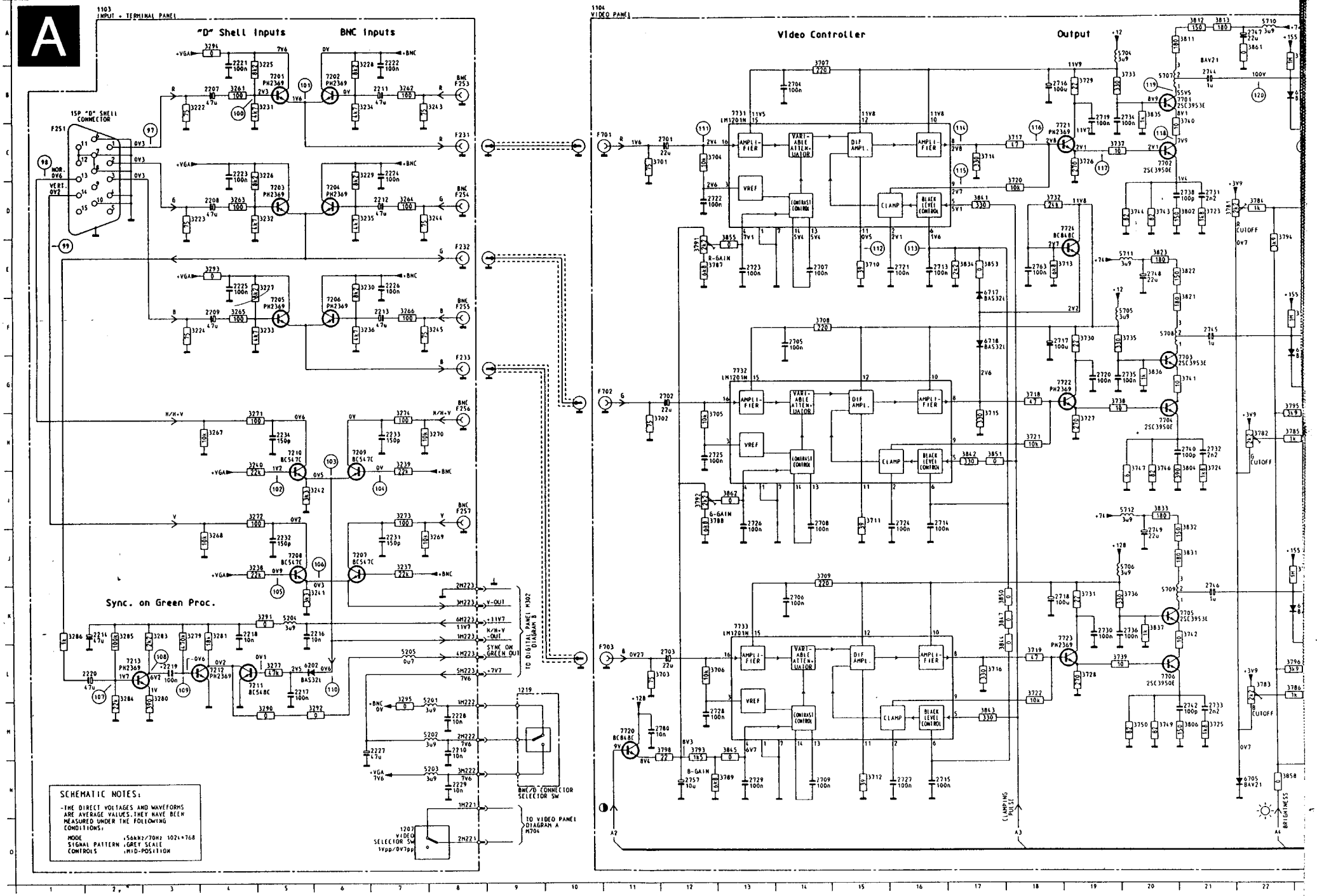
2207	A1	2216	F1	2224	C1	2233	E2	3228	D1	3236	C1	3244	D2	3267	A2	3277	B1	3290	B1	5203	E1	7205	B1	7213	B1	F256	F2
2208	A1	2217	B1	2225	C1	2234	E2	3229	C1	3237	E1	3245	C2	3268	A2	3279	B1	3291	B2	5204	F1	7206	B1	F231	D1	F257	E2
2209	A1	2218	A1	2226	C1	3222	A1	3230	C1	3238	E1	3261	D1	3269	F2	3280	B1	3292	C2	5205	F2	7207	F1	F232	D1	M221	B1
2210	E1	2219	B1	2227	F1	3223	A1	3231	D1	3239	E1	3262	D2	3270	F2	3281	B1	3293	C1	6202	D1	7208	E1	F233	C1	M222	E1
2211	D1	2220	A1	2228	E1	3224	A1	3232	C1	3240	E1	3263	C1	3271	E2	3283	A1	3294	D1	7201	E1	7209	E1	F251	B1	M223	F1
2212	C1	2221	D1	2229	E1	3225	D1	3233	C1	3241	E1	3264	D2	3272	E2	3284	B1	3295	E1	7202	D1	7210	E1	F253	D2		
2213	C1	2222	D1	2231	E2	3226	C1	3234	D1	3242	E1	3265	B1	3273	F1	3285	A1	5201	E1	7203	C1	7211	B1	F254	D2		



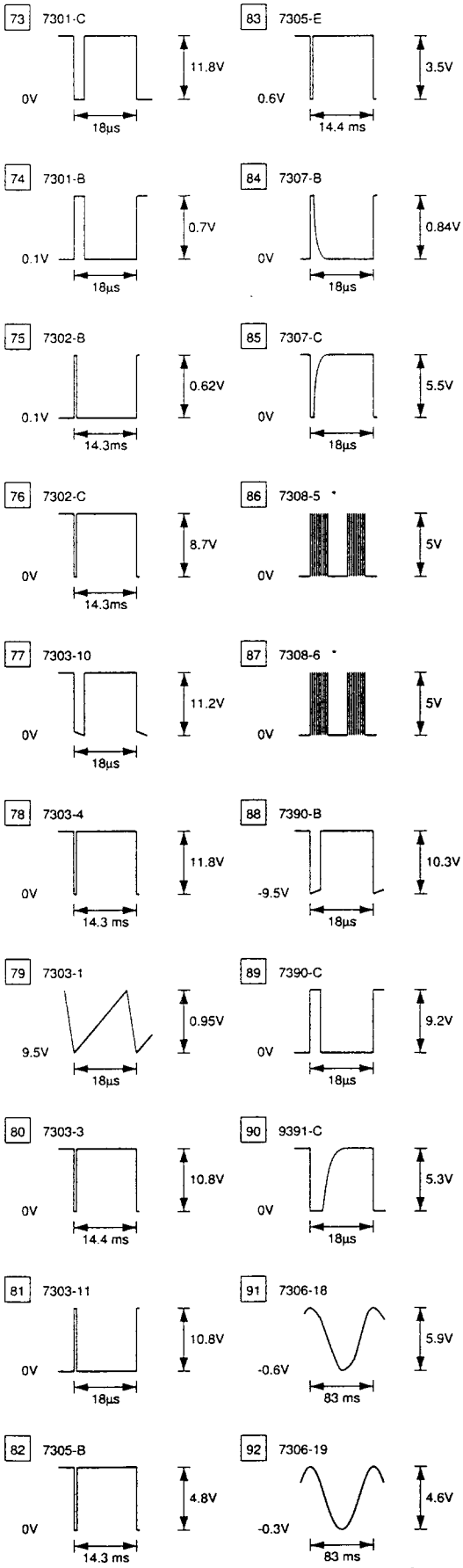
Circuit diagram Video

Circuit diagram Video




A
1103
INPUT + TERMINAL PANEL
"D" Shell Inputs
BNC Inputs
15P "D" SHELL CONNECTOR
F251
Sync. on Green Proc.
SCHEMATIC NOTES:
-THE DIRECT VOLTAGES AND WAVEFORMS ARE AVERAGE VALUES. THEY HAVE BEEN MEASURED UNDER THE FOLLOWING CONDITIONS:
MODE :56kHz/70Hz 1024x768
SIGNAL PATTERN :GREY SCALE
CONTROLS :MID-POSITION
TO DIGITAL PANEL M302 DIAGRAM B
BNC/D CONNECTOR SELECTOR SW
VIDEO SELECTOR SW
1Vpp/0V7pp
TO VIDEO PANEL DIAGRAM A M704
1104
VIDEO PANEL
Video Controller
Output
AMPLI-FIER
VARIABLE ATTENUATOR
DIF AMPL.
VREF
CONTRAST CONTROL
CLAMP
BLACK LEVEL CONTROL
R-GAIN
G-GAIN
B-GAIN
CLAMPING PULSE
BRIGHTNESS
R CUTOFF
G CUTOFF
B CUTOFF

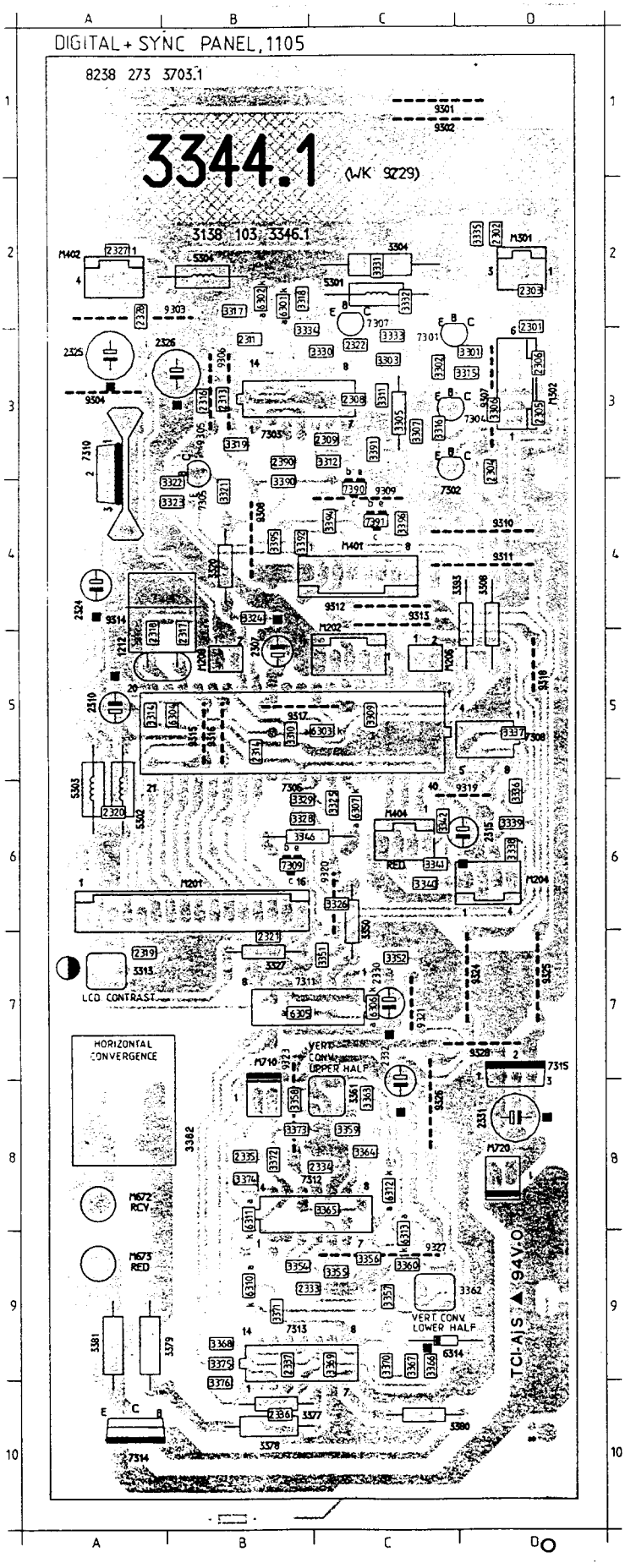
WAVE FORMS FOR DIAGRAM B



CM6000
CL 26532191/013
031192

* I^2C data information

Print layout Digital



1212 A5
2301 D2
2302 D2
2303 D2
2304 D3
2305 D3
2306 D3
2307 B5
2308 C3
2309 C3
2310 A5
2311 B3
2313 B3
2314 B5
2315 D6
2316 B3
2317 B5
2318 A5
2319 A7
2320 A6
2321 B7
2322 C3
2324 A4
2325 A3
2326 B3
2327 A2
2328 A2
2330 C7
2331 D8
2332 C7
2333 B9
2334 C8
2335 B8
2336 B10
2337 B9
2360 A6
2390 B3
3301 D3
3302 C3
3303 C3
3304 C2
3305 C3
3306 D3
3307 C3
3308 D4
3309 C5
3310 B5
3311 C3
3312 C3
3313 A7
3314 A5
3315 D3
3316 C3
3317 B2
3318 B2
3319 B3
3320 B4
3321 B4
3322 B4
3323 B4
3324 B4
3325 C6
3326 C6
3327 B7
3328 B6
3329 B6
3330 C3
3331 C2
3332 C2
3333 C3
3334 B3
3335 D2
3336 D6
3337 D5
3338 D6
3339 D6
3340 C6
3341 C6
3342 C6
3346 B6
3350 C6
3351 C7
3352 C7
3354 B9
3355 C9
3356 C9
3357 C9
3358 B8
3359 C8
3360 C9
3361 C8
3362 C9
3363 C8
3364 C8
3365 C8
3366 C9
3367 C9
3368 B9
3369 C9
3370 C9
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3372 B8
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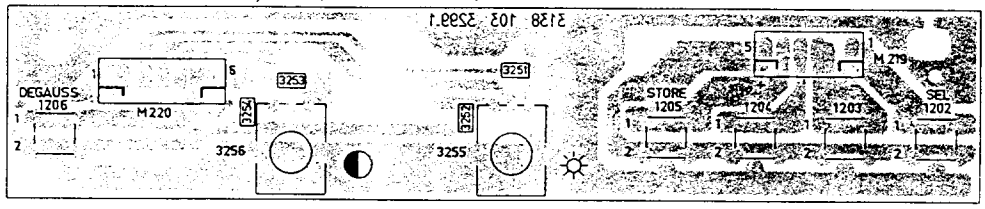
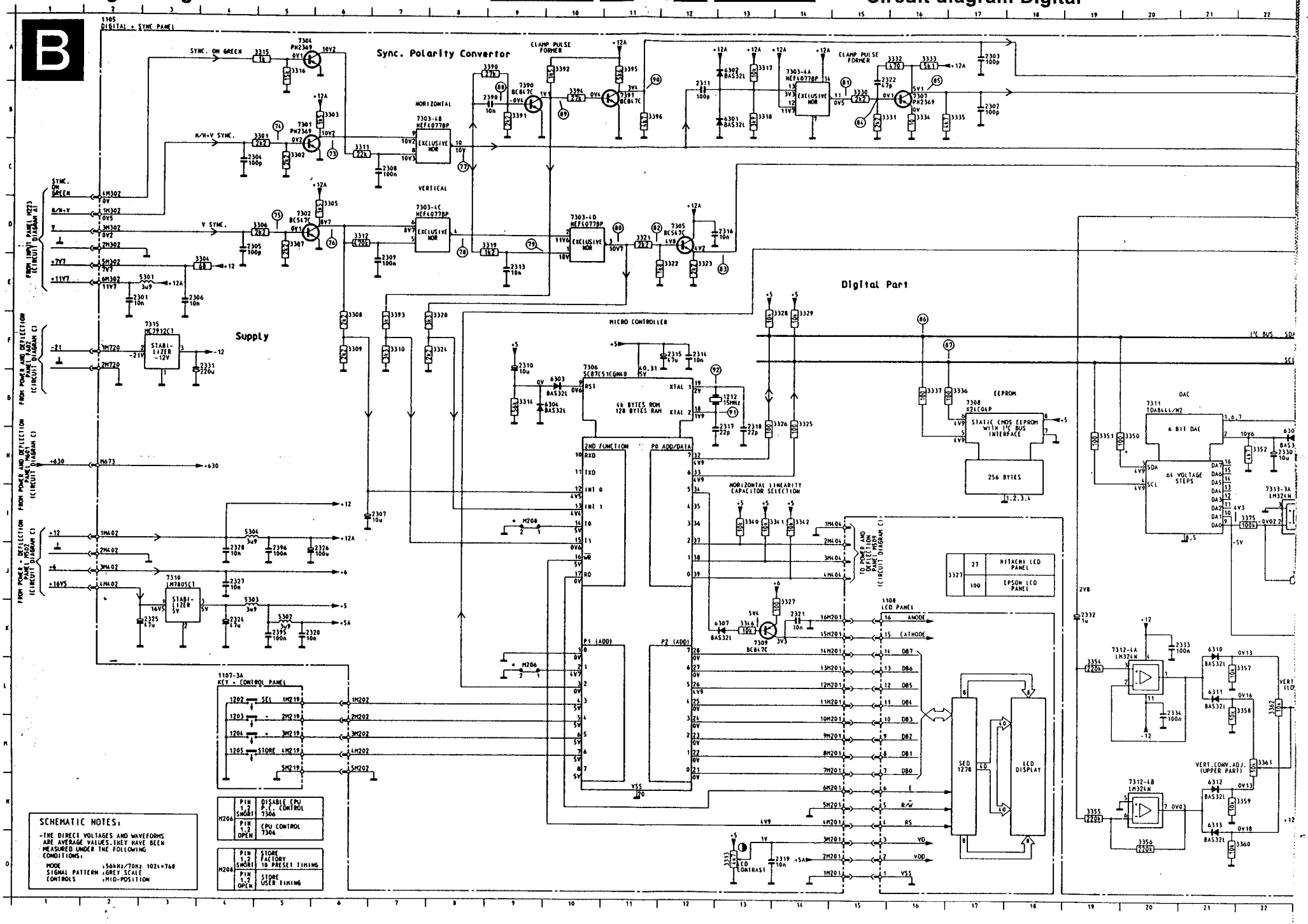
3374 B8
3375 B9
3376 B10
3377 B10
3378 B10
3379 A9
3380 C10
3381 A9
3382 B8
3390 B4
3391 C3
3392 B4
3393 D4
3394 C4
3395 B4
3396 C4
5301 C2
5302 A6
5303 A6
5304 B2
6301 B2
6302 B2
6303 C5
6304 B5
6305 B7
6306 C7
6307 C6
6310 B9
6311 B8
6312 C8
6313 C9
6314 C9
7301 C3
7302 D4
7303 B3
7304 D3
7305 B4
7306 B6
7307 C2
7308 D5
7309 B6
7310 A3
7311 B7
7312 B8
7313 B9
7314 A10
7315 D7
7390 C4
7391 C4
9301 C1
9302 C1
9303 A2
9304 A3
9305 B3
9306 B3
9307 D3
9308 B4
9309 C4
9310 D4
9311 D4
9312 C4
9313 C4
9314 A4
9315 B5
9316 B5
9317 B5
9318 D5
9319 D6
9320 C6
9321 C7
9323 B7
9324 D7
9325 D7
9326 C8
9327 C9
9328 D7
M201 B6
M202 C5
M204 D6
M206 C5
M208 B5
M301 D2
M302 D3
M401 C4
M402 A2
M404 C6
M672 A8
M673 A9
M710 B7
M720 D8

Print layout Control

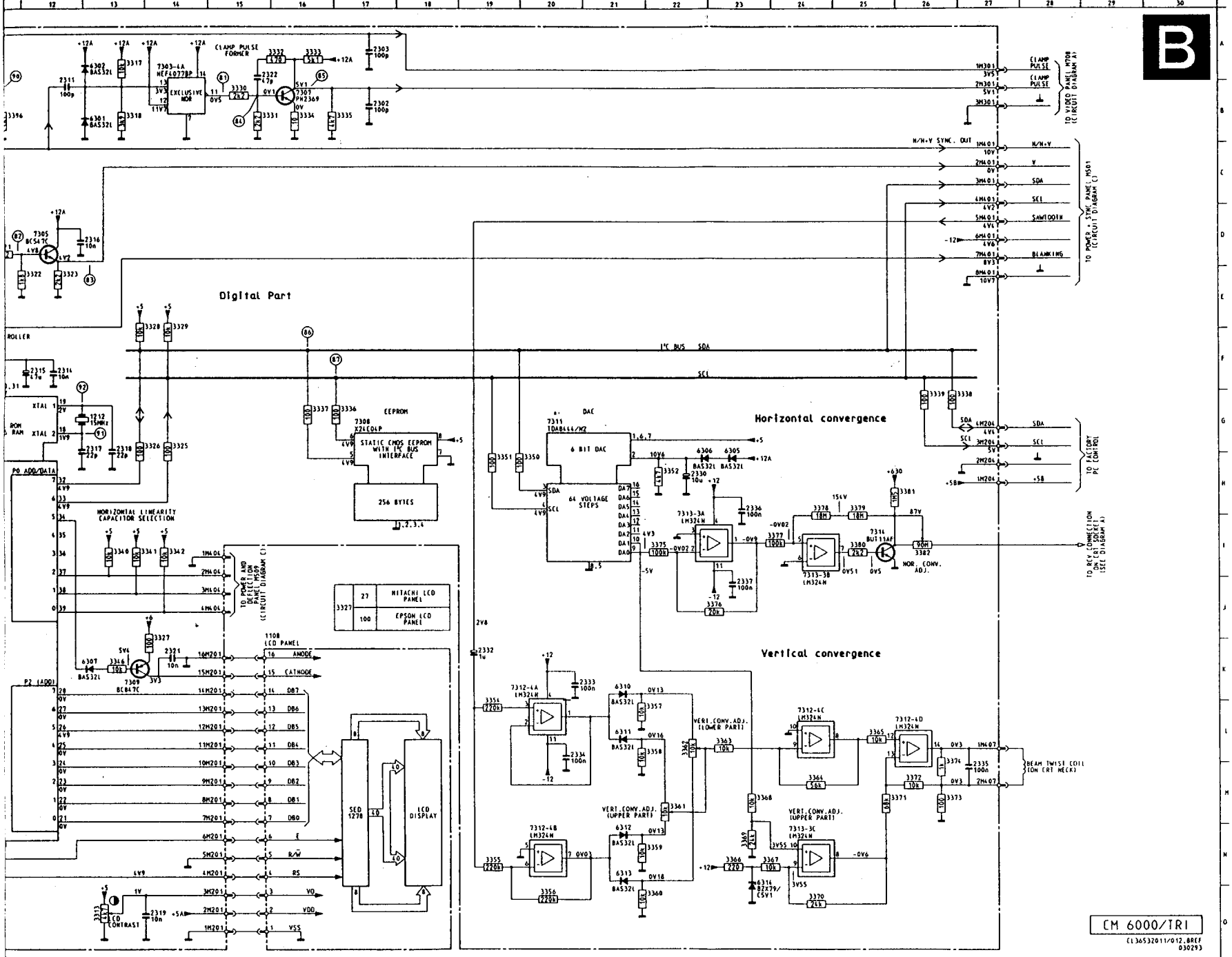
KEY + CONTROL PANEL , 1107 (TRACK SIDE VIEW)




B
1105 DIGITAL + SYNC PANEL
Sync. Polarity Convertor
Supply
Digital Part
MICRO CONTROLLER
EEPROM
DAC
1107-3A KEY + CONTROL PANEL
1108 LCD PANEL
SCHEMATIC NOTES:
-THE DIRECT VOLTAGES AND WAVEFORMS ARE AVERAGE VALUES. THEY HAVE BEEN MEASURED UNDER THE FOLLOWING CONDITIONS:
MODE :56kHz/70Hz 1024x768
SIGNAL PATTERN :GREY SCALE
CONTROLS :MID-POSITION
M206 PIN 1,2 SHORT DISABLE CPU P.L. CONTROL 7306
M206 PIN 1,2 OPEN CPU CONTROL 7306
M208 PIN 1,2 SHORT STORE FACTORY 10 PRESET TIMING
M208 PIN 1,2 OPEN STORE USER TIMING
3327 27 HITACHI LCD PANEL
3327 100 EPSON LCD PANEL

Circuit diagram Digital

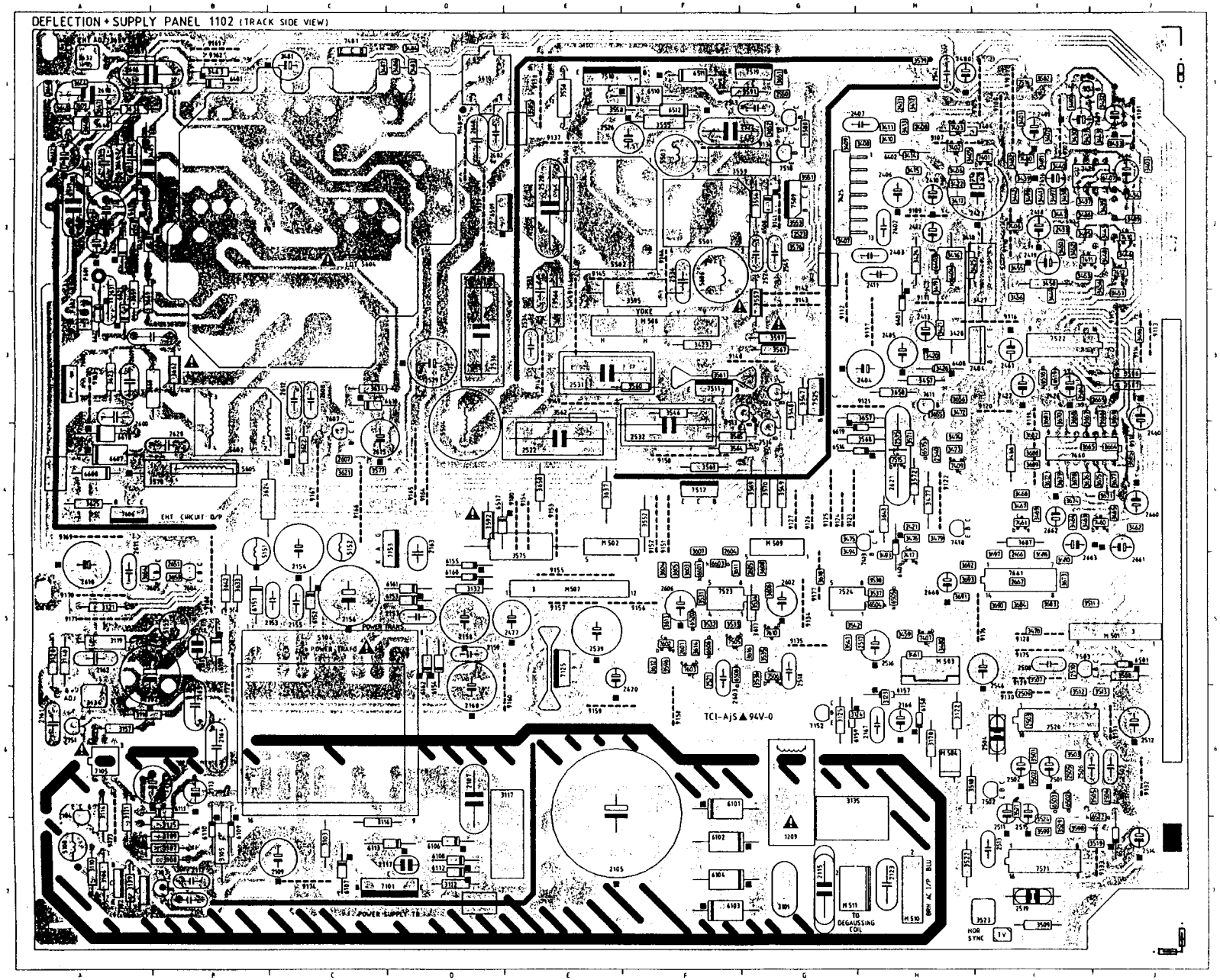
B



1105	A 2	3381	N26
1107	L 4	3382	I26
1108	J15	3390	A 9
1202	L 4	3391	B 9
1203	M 4	3392	A10
1204	M 4	3393	E 7
1205	M 4	3394	B10
1212	G13	3395	A11
2301	E 2	3396	B11
2302	B17	5301	E 3
2303	A17	5302	K 5
2304	C 4	5303	K 1
2305	D 4	5304	I 4
2306	E 3	6301	B13
2307	I 7	6302	A13
2308	C 7	6303	G10
2309	E 7	6304	G10
2310	F 9	6305	N23
2311	B12	6306	M22
2313	E 9	6307	K13
2314	F12	6310	K21
2315	F12	6311	L21
2316	D13	6312	M21
2317	G13	6313	M21
2318	G13	6314	N23
2319	O14	7301	B 5
2320	K 5	7302	D 5
2321	K14	7303	B 7
2322	A15	7303	D 7
2324	K 4	7303	D10
2325	K 3	7303	A14
2326	J 6	7304	A 5
2327	J 4	7305	D12
2328	J 4	7306	F10
2330	N22	7307	B16
2331	F 4	7308	G17
2332	K19	7309	K13
2333	K20	7310	J 3
2334	L20	7311	G20
2335	M27	7312	L24
2336	N23	7312	L25
2337	J23	7312	N20
2390	B 9	7312	K20
3301	B 5	7313	N24
3302	C 5	7313	I24
3303	B 6	7313	I22
3304	E 4	7314	I25
3305	D 6	7315	F 3
3306	D 5	7390	B 9
3307	D 5	7391	B11
3308	E 6		
3309	F 6		
3310	F 7		
3311	C 6		
3312	O 6		
3313	O13		
3314	G 9		
3315	A 5		
3316	A 5		
3317	A13		
3318	B13		
3319	D 9		
3320	E 8		
3321	D11		
3322	E12		
3323	E12		
3324	F 8		
3325	G14		
3326	G13		
3327	J14		
3328	E13		
3329	E14		
3330	B15		
3331	B15		
3332	A16		
3333	A16		
3334	B16		
3335	B17		
3336	G17		
3337	G16		
3338	G26		
3339	G26		
3340	I13		
3341	I13		
3342	I14		
3346	K13		
3350	N20		
3351	N19		
3352	N22		
3354	L19		
3355	N19		
3356	O20		
3357	L21		
3358	L21		
3359	N21		
3360	O21		
3361	M22		
3362	L22		
3363	L23		
3364	N24		
3365	L25		
3366	N23		
3367	N23		
3368	M23		
3369	N23		
3370	O24		
3371	M25		
3372	M26		
3373	M26		
3374	L26		
3375	I22		
3376	J23		
3377	I24		
3378	M24		
3379	M25		
3380	I25		

Print layout Main

DEFLECTION + SUPPLY PANEL 1102 (TRACK SIDE VIEW)



2105	E7	2661	J5	3503	I6	3674	I4	7480	J4
2106	B7	2662	I4	3504	J6	3675	J4	7481	I4
2107	D6	2663	J4	3505	J6	3676	I4	7480	I1
2109	C7	2665	J3	3507	I5	3677	J4	7481	C1
2111	B6	2666	I4	3508	J5	3678	I4	7502	I6
2112	B7	2667	I5	3509	I7	3679	I4	7503	I5
2113	B6	2668	H5	3511	J5	3680	I5	7505	F5
2115	G7	3101	G7	3512	I6	3681	I3	7506	G5
2117	D7	3103	C7	3513	J6	3682	I4	7509	G2
2123	H7	3105	B7	3518	I6	3683	I5	7510	E1
2151	B5	3106	A7	3519	J7	3684	I5	7511	F3
2152	B6	3107	B7	3521	I6	3685	J4	7512	F4
2153	C5	3108	B7	3522	H7	3686	I4	7513	F3
2154	C5	3109	B7	3523	I7	3687	I4	7514	G4
2155	C5	3110	A7	3524	I6	3688	I4	7515	H4
2156	C5	3111	A6	3529	I7	3689	I4	7516	I1
2157	D5	3112	D7	3531	F5	3690	I5	7517	G1
2158	D5	3114	A6	3532	F5	3691	H5	7518	G2
2159	D6	3115	B7	3533	F5	3692	H5	7519	G1
2160	D6	3116	C7	3534	G5	3693	H5	7520	I6
2161	A6	3117	E6	3535	G5	3697	I4	7521	I7
2162	A5	3118	A6	3536	G5	5104	C5	7522	I3
2163	D4	3119	A5	3537	H5	5108	A7	7523	F5
2164	B6	3120	A5	3538	H5	5151	B4	7524	G5
2165	B6	3121	A5	3541	G5	5152	C4	7525	G3
2166	H6	3122	H6	3542	G5	5153	B5	7526	G3
2167	H6	3123	H6	3546	F3	5501	F2	7602	F5
2401	I1	3124	H6	3547	G3	5502	E2	7603	F5
2402	H2	3125	G6	3548	G3	5503	F1	7604	B5
2403	H2	3132	D5	3549	G4	5504	D4	7605	B5
2404	H3	3134	A6	3551	G2	5602	B4	7606	A4
2405	H3	3135	G6	3552	F4	5604	C2	7607	C3
2406	H2	3139	A7	3553	G2	5605	B4	7608	A3
2407	H1	3140	A5	3554	G2	5606	F2	7609	A1
2408	H1	3157	A6	3555	F1	5608	F6	7610	G5
2409	J1	3170	H6	3556	E1	5610	D1	7611	H3
2410	H2	3401	I1	3557	G3	6001	F5	7660	I4
2411	H2	3402	I1	3558	E1	6101	F6	7661	I5
2412	H2	3403	J2	3559	F2	6102	F7	9101	J1
2413	J1	3404	J1	3560	F3	6103	F7	9102	I1
2414	J1	3405	H1	3561	F3	6104	F7	9103	I1
2415	J1	3406	H2	3562	E3	6106	D7	9104	I1
2416	I2	3407	G2	3563	F4	6107	C7	9105	J1
2417	I2	3408	H1	3564	F4	6108	D7	9107	H1
2419	I2	3409	G1	3565	F4	6109	B7	9109	H2
2421	H4	3410	H1	3566	E3	6110	B7	9110	I2
2422	I3	3411	H1	3567	G3	6111	B6	9111	H3
2423	I2	3412	H1	3568	H4	6112	D7	9112	G3
2426	I3	3413	H1	3569	G4	6113	C7	9113	J3
2431	H1	3414	H1	3570	G4	6150	B5	9114	J3
2433	I2	3415	H2	3571	H4	6151	B5	9115	J3
2460	J4	3416	H2	3572	H4	6152	C5	9116	I3
2461	I3	3417	H2	3575	E4	6153	D5	9117	H3
2477	E5	3418	H2	3576	G2	6154	D5	9118	J4
2480	H1	3419	H2	3577	C4	6155	D5	9119	I3
2481	C1	3420	H3	3578	B4	6157	H6	9120	I3
2482	D1	3421	H3	3579	H1	6158	H6	9121	H3
2501	I6	3422	H2	3580	G1	6159	G6	9122	H4
2502	I6	3423	F3	3582	I1	6160	D5	9123	G4
2503	I6	3424	H2	3584	I3	6161	D5	9124	G2
2504	I6	3425	I2	3585	E1	6162	D5	9124	G4
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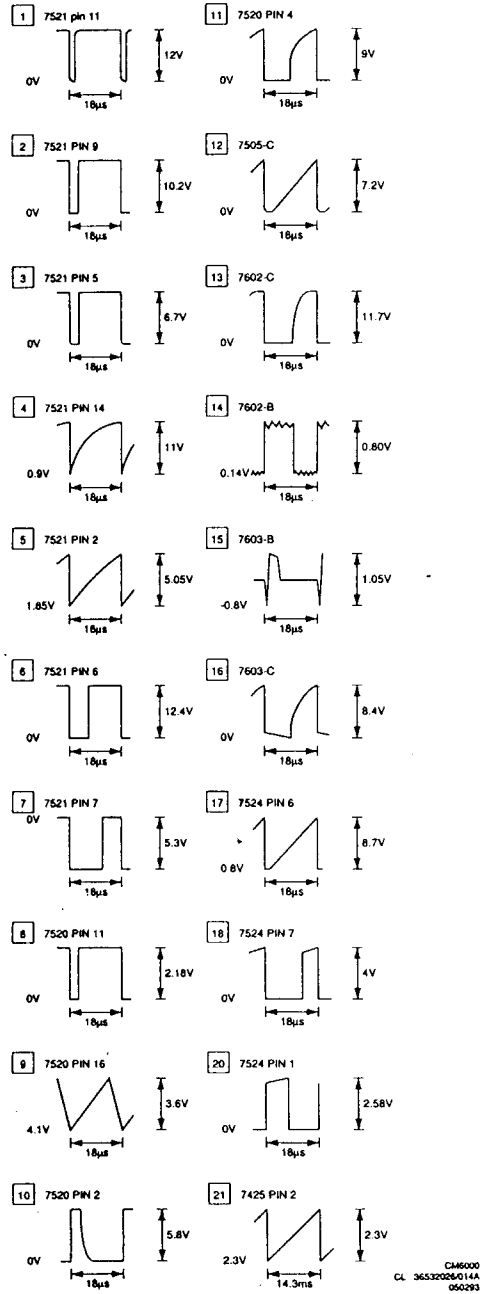
2506	I6	3427	I3	3587	J3	6402	H1	9126	G4
2507	J6	3428	H3	3591	G1	6403	H2	9127	G4
2508	I5	3430	I1	3592	D4	6404	H2	9128	I5
2509	I6	3431	I1	3595	F3	6406	H5	9129	I5
2510	I5	3432	J1	3596	F5	6407	J2	9130	I6
2511	I7	3433	J1	3597	G3	6408	H3	9131	J6
2512	I6	3434	J2	3598	I7	6481	B1	9132	J6
2513	I7	3435	J2	3599	I7	6501	J5	9133	J7
2514	J7	3436	I2	3603	F5	6502	I6	9134	G5
2515	I7	3437	I2	3604	F5	6503	I6	9135	G5
2516	H5	3438	I2	3605	F5	6504	H5	9136	G1
2517	H5	3439	I2	3606	G5	6505	H5	9137	E1
2518	G5	3440	I2	3607	F4	6506	F5	9138	E1
2519	I7	3441	I2	3608	G5	6508	G2	9139	D2
2521	F5	3442	I2	3611	F5	6509	D2	9140	D1
2522	E4	3443	J1	3612	F5	6510	F1	9141	G2
2523	G2	3445	J2	3613	F5	6511	F1	9143	G3
2524	G2	3446	J2	3614	F5	6512	F1	9144	F2
2526	E1	3447	I2	3616	G5	6514	G4	9145	E2
2527	G1	3448	J2	3617	G5	6515	H4	9146	E2
2528	E2	3449	I3	3618	G5	6517	D4	9147	E3
2529	D3	3450	I2	3621	C4	6518	I3	9148	F3
2530	D3	3451	J3	3622	C4	6519	I3	9149	E3
2531	E3	3452	I2	3623	A3	6520	F5	9150	F4
2532	F4	3453	I2	3624	B4	6521	J7	9151	F4
2533	E2	3454	J2	3625	A4	6522	J6	9152	F4
2534	E3	3455	I2	3631	A1	6603	F5	9153	E4
2535	E3	3456	I3	3632	A1	6606	F5	9154	E4
2536	F2	3457	H3	3633	B5	6607	A4	9155	E5
2539	E5	3458	I2	3634	C3	6608	A4	9156	F5
2540	H4	3459	H5	3635	A2	6610	D3	9157	E5
2542	H4	3461	H5	3636	A1	6611	A2	9158	E6
2543	F1	3462	J4	3637	E4	6612	A1	9159	E6
2545	G2	3463	I4	3638	B1	6615	C4	9160	E6
2546	I5	3463	B1	3640	A1	6618	A4	9161	B1
2552	G1	3464	B4	3642	B5	6619	G4	9162	B1
2600	A3	3465	J4	3643	H4	6621	A3	9163	A3
2601	F5	3466	I4	3644	A1	6622	A3	9164	D4
2602	G5	3467	I4	3645	A1	6623	A2	9165	D4
2603	F6	3468	I4	3646	A1	6624	A2	9166	C4
2604	F4	3469	I4	3647	A1	7101	D7	9167	C4
2605	G5	3472	H3	3648	A1	7102	A7	9168	B5
2606	F5	3473	H4	3649	A2	7103	B7	9169	A4
2607	C4	3474	H4	3650	E4	7104	A6	9170	A5
2608	C3	3475	G4	3651	G1	7105	A6	9171	A5
2609	A3	3476	H4	3652	G1	7106	B7	9172	B6
2611	A4	3477	H4	3653	B5	7125	E5	9173	A7
2612	C3	3478	I5	3654	A5	7151	A6	9174	C7
2613	A2	3479	H4	3655	H3	7152	G6	9175	I5
2614	A1	3480	H5	3656	H3	7153	D4	9176	I5
2615	C4	3481	I1	3657	H3	7401	I1	9177	G5
2616	A1	3482	I1	3658	H3	7402	H1	9180	E4
2617	A1	3483	D1	3659	A3	7403	H1	F601	A2
2618	A1	3484	D1	3660	B3	7404	I3	F602	A3
2619	A2	3486	D1	3661	A3	7405	I1	M501	J5
2620	F5	3487	C1	3662	B3	7406	I2	M502	E4
2621	H4	3489	J2	3664	J4	7407	H5	M503	H5
2628	B4	3490	I1	3665	I4	7408	H4	M504	H6
2630	B3	3493	H4	3666	J3	7410	J2	M507	E5
2631	A2	3494	G4	3667	I3	7411	I2	M508	F3
2632	A2	3495	I2	3668	I3	7412	J2	M509	G4
2633	A2	3496	J3	3669	J3	7413	H4	M510	H7
2640	D1	3497	I2	3670	I3	7417	H4	M511	G7
2650	A5	3498	I2	3671	J4	7418	H4		
2651	B5	3501	I6	3672	I4	7425	G2		
2660	J4	3502	I6	3673	I5	7426	I2		

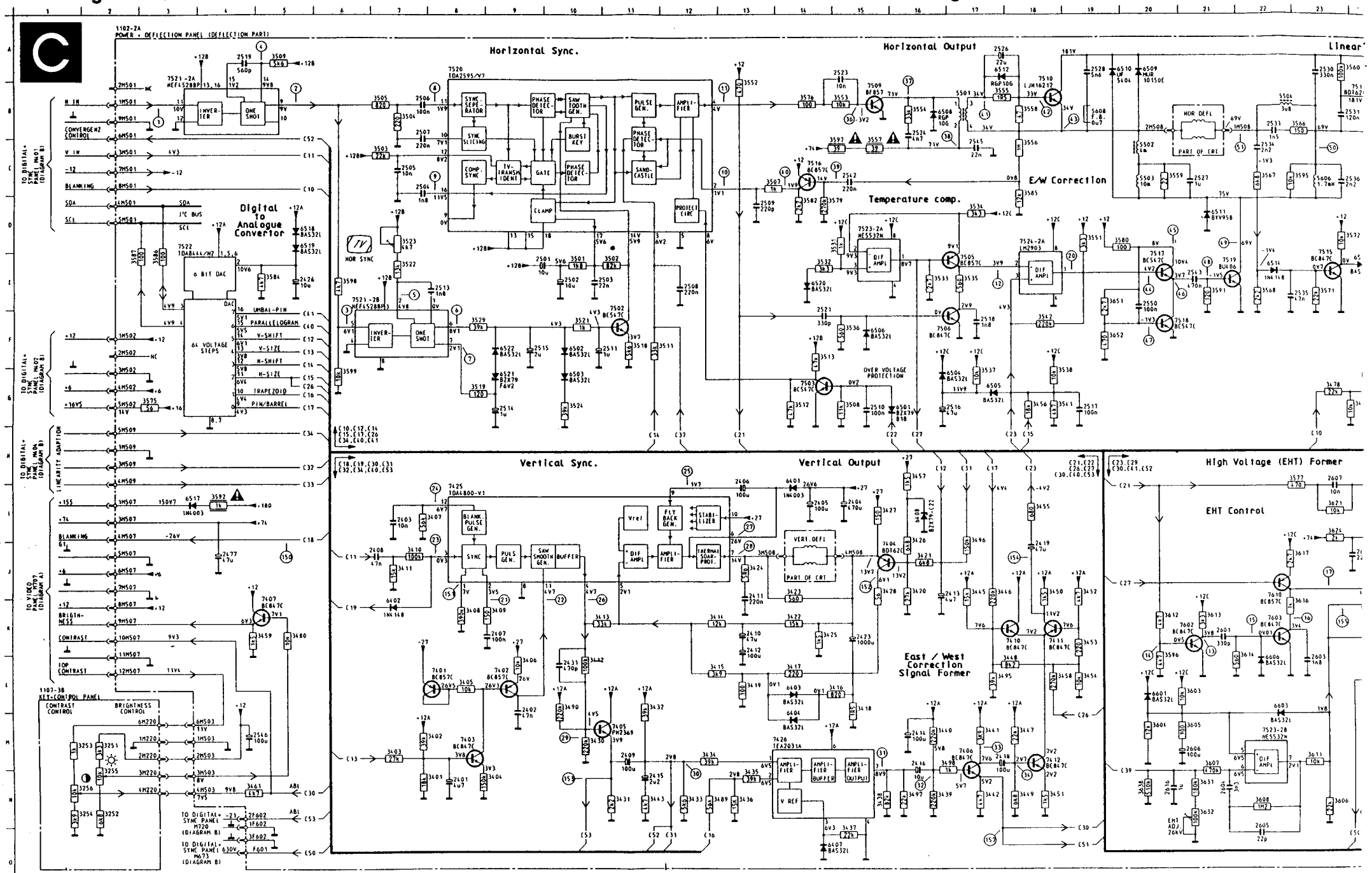
WAVE FORMS FOR DIAGRAM C

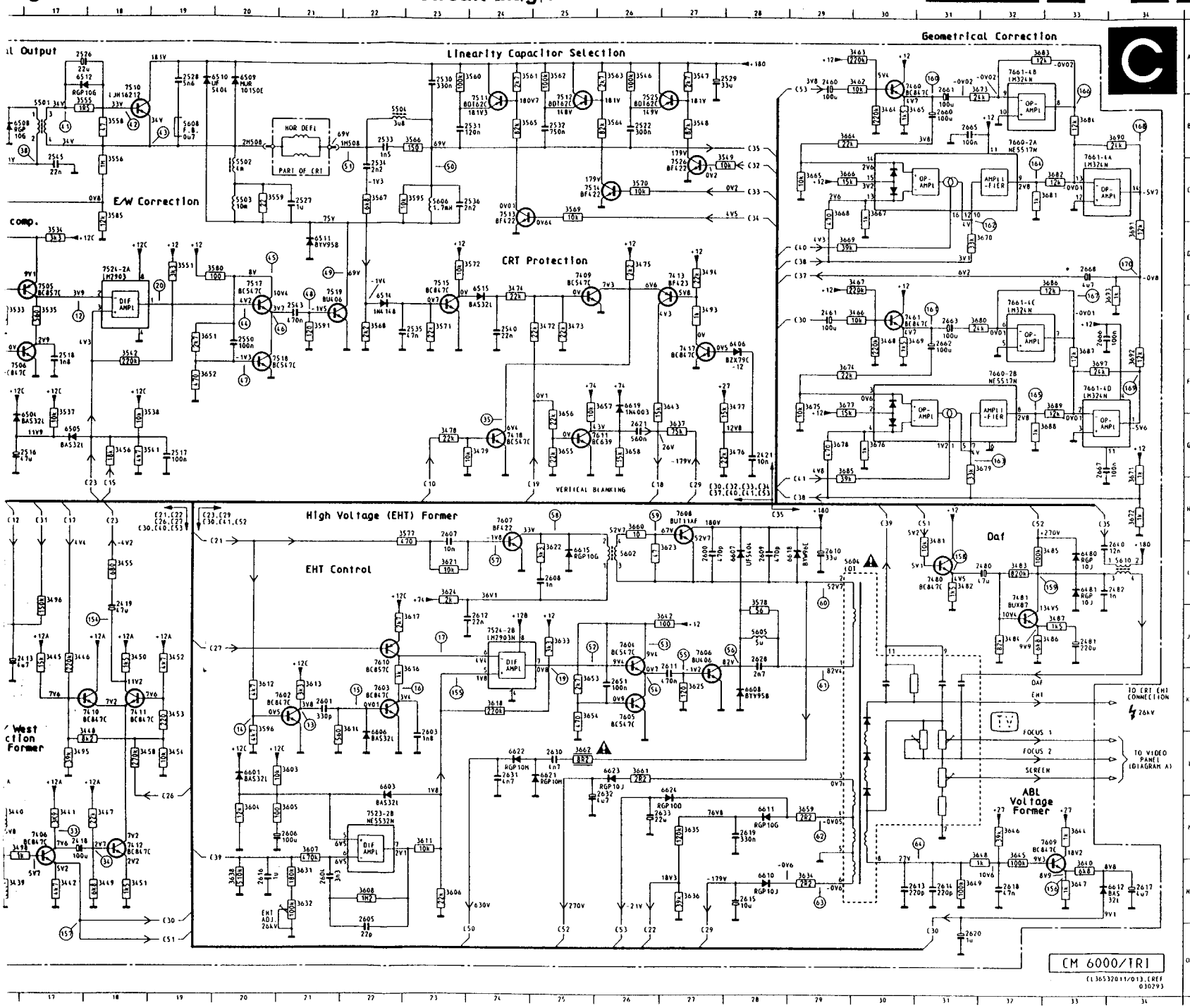


PCS 43 259 GB

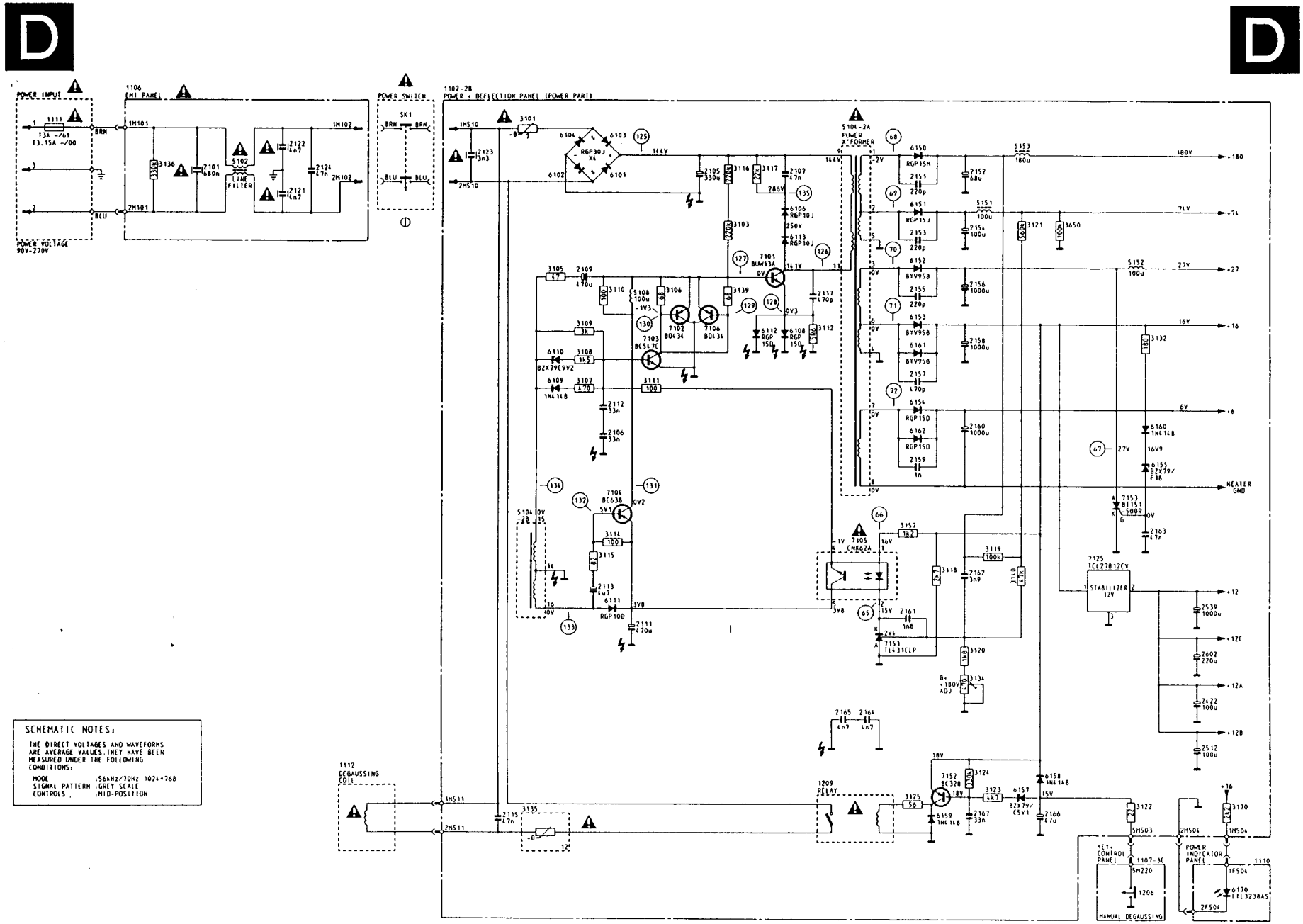
WAVE FORMS FOR DIAGRAM C

PCS 43 260 GB


C
1102-2A
POWER + DEFLECTION PANEL (DEFLECTION PART)
Horizontal Sync.
Horizontal Output
Linear
Digital to Analogue Convertor
6 BIT DAC
64 VOLTAGE STEPS
E/W Correction
Temperature comp.
OVER VOLTAGE PROTECTION
Vertical Sync.
Vertical Output
East / West Correction Signal Former
High Voltage (EHT) Former
EHT Control
1107-3B
KEY-CONTROL PANEL
CONTRAST CONTROL
BRIGHTNESS CONTROL
LINEARITY ADAPTION
TO DIGITAL+ PANEL M401 (DIAGRAM B)
TO DIGITAL+ PANEL M402 (DIAGRAM B)
TO DIGITAL+ PANEL M404 (DIAGRAM B)
TO VIDEO PANEL M707 (DIAGRAM A)
TO DIGITAL+ SYNC PANEL M720 (DIAGRAM B)
TO DIGITAL+ SYNC PANEL M673 (DIAGRAM B)


Linearity Capacitor Selection
Geometrical Correction
E/W Correction
CRT Protection
High Voltage (EHT) Former
EHT Control
Daf
ABL Voltage Former
VERTICAL BLANKING
TO CRT EHT CONNECTION
TO VIDEO PANEL (DIAGRAM A)
FOCUS 1
FOCUS 2
SCREEN
CM 6000/TRI

Circuit diagram Supply



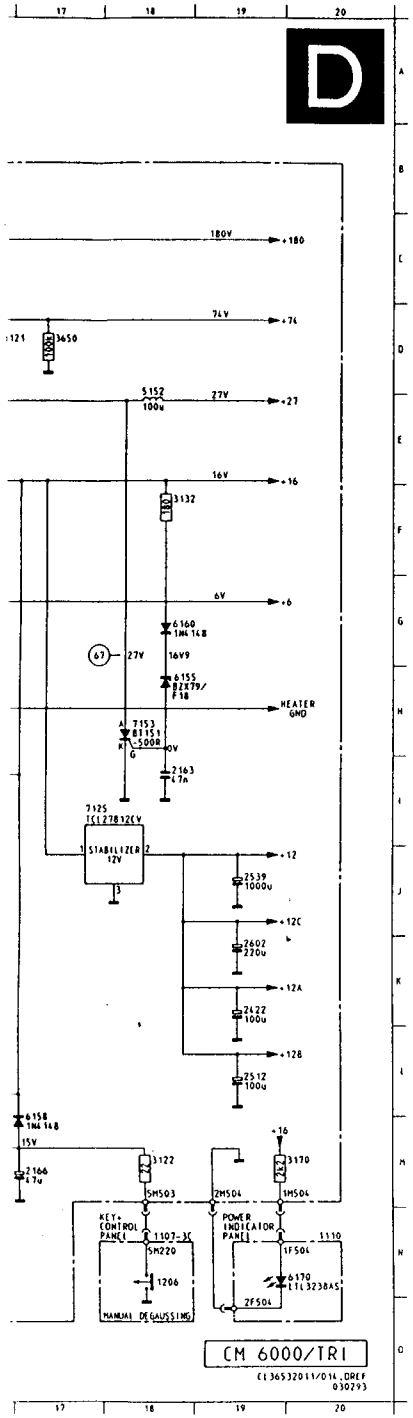
WAVE F

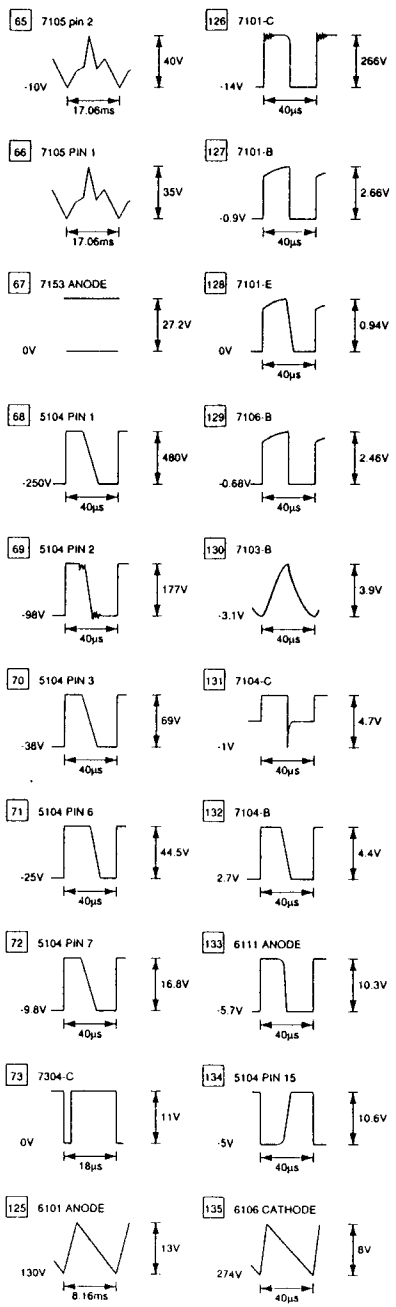
65 7105
66 7105
67 7153
68 5104
69 5104
70 5104
71 5104
72 5104
73 7304
125 6101

CM6000
CL 26532192/015
031192

Print layout

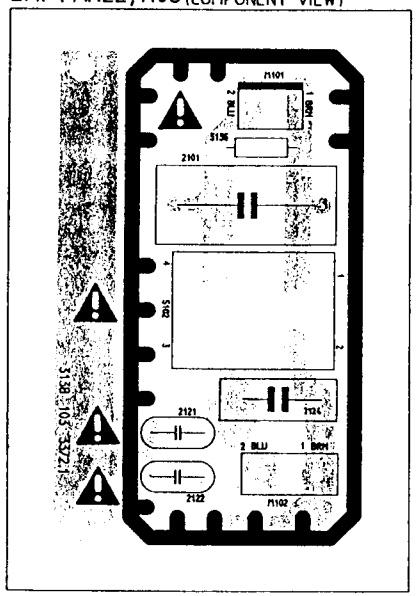
WAVE FORMS FOR DIAGRAM D



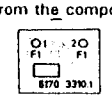


CM6000
CL 26532192/015
031192

EMI PANEL, 1106 (COMPONENT VIEW)



POWER INDICATOR PC BOARD
(viewed from the component side)



Electrical instructions

General:

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with an "ATI VGA 1024 V6-1.04/PH Beta 4" interface card (1024 * 768) is used as the video signal source. The signal patterns are selected from the "Service test software" package.

Installation instruction for the ATI Interface card:

- Place the monitor (if possible) in east-west direction.
- Place the ATI interface card in the computer.
- Select the "VSETUP" file from the "UTILITY" DISK" belonging to the card.
- Select "8-bits" or "16-bits" ROM operation depends on the computer type.
- Select "ANALOG MONITOR".
- Select the "MAGNAVOX CM5000" as monitor type.
- Re-boot your computer again.
- Put the floppy disk with the "Service test software" package in the computer and select the test pattern indicated for the following settings.

Remark:

Above mentioned ATI-card is only usable up to mode 1024*768. For higher resolutions, a special generator is needed (e.g. Chroma 2000 or equivalent).

1. Settings on the PCB's, see Fig. 7.1.

1.1 B+ supply voltage (3134)

- Video sinal: cross-hatch pattern in the 1024*768 56 kHz/70 Hz mode.
- Set the brightness front control 3255 and the contrast front control 3256 to the minimum position.
- Preset trimming potentiometer 3134 in mid-position.
- Connect a DC Voltmeter between the "+" pole of capacitor 2152 (on power supply) and ground (common ground).
- Set the B+ trimming potentiometer 3134 so that the reading on the DC meter is 180V ± 0,5V.

1.2 High-Voltage EHT (3632)

- Connect a "High-Voltage Voltmeter" between the high-voltage connection of the picture tube and earth.
- Set the EHT trimming potentiometer 3632 so that the "High-voltage voltmeter" reads 26kV ± 0,2kV.

1.3 Horizontal Synchronization (3523)

- Video Signal: Cross-hatch pattern in the 640*480 31.5kHz/60Hz mode.
- Position both the brightness front control 3255 and the contrast front control 3256 in the mechanical mid-position.
- Connect a DC Voltmeter to the junction of the capacitors 2501/2502 and ground (nearly to IC7520).
- Adjust trimming potentiometer 3523 so that the reading on the DC voltmeter is 5.8V ± 0.1V.

1.4 Focus setting

* Focus 2 (vertical focus), middle key on LOT.
* Focus 1 (horizontal focus), top key on LOT.

- Signal: Apply a "@" pattern in the 1024 * 768 56kHz/70Hz mode.
- Set the brightness front control 3255 at mechanical mid position.-Set the contrast front control 3256 at mechanical max. position.
- Adjust the vertical focus key (on LOT) so that the vertical lines in the east and west part on the screen have optimum sharpness.
- Adjust the horizontal focus key (on LOT) so that the horizontal lines in the top and bottom of the screen have optimum sharpness.

1.5 Cut off points of the picture tube

* VG2 (screen key, bottom key on LOT)
* Cut off points of the picture tube (3781, 3782, 3783)

- Signal: Black pattern in the 1024 * 768 56kHz/70 Hz mode.
- Place the cut-off trimming potentiometers 3781, 3782, 3783 and the sub-contrast potentiometer 3765 to the central position for pre-setting.
- Set the VG2 setting key to the minimum position.
- Set the brightness front control 3255 at center click-point and the contrast front control 3256 at mechanical mid-position.
- Using the VG2 setting key, increase the VG2 voltage until a colour is just visible (the colour may be red,green or blue).
- Then set the cut-off points trimming potentiometers belonging to the two colours not yet visible (3781, 3782 or 3783) so that an optimum white background colour is obtained.
- Set the contrast front control 3256 to maximum in order to check that the background colour remains the same even at maximum contrast.
- Than set the contrast front control 3256 to the central position again.

1.6 White "D"

* R.G.B. amplification (3791, 3792,)
* Sub-contrast (3765)
- Degaussing the monitor manual before the settings.

R.G.B. amplification

- Signal: White pattern in the 1024*768 56 kHz/70 Hz mode.
- set the trimming potentiometers 3791 and 3792 so that an optimum colour is produced in the white window.

Subcontrast (3765)

* Method 1 (with photometer)
- Signal: White window pattern in the 1024*768 56 kHz/70 Hz mode.
- Place the photometer in the centre of the screen.
- Set the subcontrast control 3765 so that the photometer shows 40 ± 1 Foot Lamber.
- Using the contrast front control 3256, slowly adjust the contrast from maximum to minimum in order to check that "white" remains the same.

* Method 2 (without photometer)
- Signal: white pattern in the 1024*768 56kHZ/70Hz mode.
- Set the contrast front control 3256 and the brightness front control 3255 to maximum and the subcontrast control 3765 in the mid-position.
- Then turn the subcontrast control 3765 slowly until the brightness no longer increase. This happens when the ABL (automatic beam-current limiter) comes into operation.

1.7 **LCD Contrast adjustment (3313)**
- Adjust potentiometer 3313 (contrast control for LCD-module) to get an overall sharpness as well as excellent foreground and background characteristics.

2. Factory default modes

General:
In the factory the most popular modes are stored in the memory (default modes).
The default modes are called M01 to M11. (See also Chapter 2 "Control location and functions".)
Changing a default mode is possible by closing 1 of the 2 jumpers (M206, M208) on the Digital and Sync Panel.
The Digital and Sync Panel is reachable when the back cover is removed.
Below in the table the combinations are mentioned.

	M206	M208	Function
2.1	open	open	Factory defaults protection
2.2	short	open	IC7306 (microprocessor) no function
2.3	open	short	Store 10 parameters for preset modes

During the adjustment, do not remove or

Note 1. remount the jumpers to prevent any component damaged.

Note 2. When remove or remount the jumpers, the monitor must be turned off.

Note 3. For the off-line of finished goods, both jumpers (M206, M208) are under "OPEN" position.

3. Picture geometry settings

3.1 **Picture geometry settings, M01 to M11 (Exclusive Special Modes M04 and M11) general:**
- Short circuit "Service Jumper M208" (pin1 and pin2)
- Turn on the monitor.
- Set brightness front control 3255 at center click position and the contrast front control 3256 in the mechanical maximum position.
- Video signal: Cross-hatch pattern in the 640*350 31,5 kHz/70 Hz Mode (M01).

Level 1 Adjustments (see chapter 2)

3.1.1 Horizontal picture centring
- Press front control "SEL" key (>) to select "SET H-SHIFT" function.
- Press front control "+" or "-" key to adjust horizontal phase so that the horizontal centring of the picture is correct on the screen.

3.1.2 Picture width
- Press front control "SEL" key (>) to select "SET H-SIZE" function.
- Press front control "+" or "-" key to adjust the horizontal width so that the picture width is 300mm ± 3mm

3.1.3 Vertical picture centring
- Press front control "SEL" key (>) to select "SET V-SHIFT" function.
- Press front control "+" or "-" key to adjust vertical phase so that the vertical centring of the picture is correct on the screen.

3.1.4 Picture height
- Press front control "SEL" key (>) to select "SET V-Size" function.
- Press front control "+" or "-" key to adjust vertical height so that the picture height is 225mm ± 3mm.

3.1.5 Horizontal convergence (3382)
- Press front control "SEL" key (>) to select "H.CONV." funcion.
- Adjust 3382 (on Digital Panel) until the horizontal convergence on the screen is optimum.

3.1.6 Vertical convergence (3361,3362)
- Press front control "SEL" key (>) to select "V.CONV." funcion.
- Press "-" or "+" key to adjust the optimum vertical center convergence.
- Adjust 3361 (on Digital Panel) for optimum vertical convergence in upper half of screen.
- Adjust 3362 (on Digital Panel) for optimum vertical convergence in lower half of screen.

Electrical instructions

Level 2 adjustments (see chapter 2)

3.1.7 East-west pincushion distortion
- Press front control "SEL" key (◇) and "+" key at the same time for 3 seconds to select "PIN/BARREL" function.
- Press front control "+" or "-" key to adjust the linearity so that the vertical lines on the right and left of the picture are straight.

3.1.8 Trapezoid distortion
- Press front control "SEL" key (◇) to select "TRAPEZOID" function.
- Press front control "+" or "-" to adjust trapezoid distortion so that an optimum square cross-hatch pattern is obtained.

3.1.9 Paralello distorsion
- Press front control "SEL" key (◇) to select "PARALELLO" function.
- Press front control "+" or "-" key to adjust Paralello distortion so that an optimum square cross-hatch pattern is abtained.

3.1.10 Unbal-pin distorsion

- Press front control "SEL" key (◇) to select "UNBAL-PIN" function.
- Press front control "+" or "-" key to adjust Unbal-pin distortion so that an optimum square cross-hatch pattern is abtained.

3.1.11 Press "SAVE" key (◇) to save the mode parameters.

3.1.12 Turn off the monitor.

3.1.13 Open the jumper M208 to prevent any hamper for new setting protection.

3.1.14 Apply following video signal with cross-hatch pattern in different frequency and resolution for the settings of M02 to M10.
Repeat each time the steps 3.1.1 to 3.1.11. (Do not readjust 3361,3362 and 3382 again)

- M02	640 *400	31,5 kHz/70 Hz
- M03	640 *480	31,5 kHz/60 Hz
- M05	800 *600	35,2 kHz/56 Hz
- M06	800 *600	37,8 kHz/60 Hz
- M07	800 *600	48,0 kHz/72 Hz
- M08	1024*768	35,5 kHz/87 Hz
- M09	1024*768	48.4 kHz/60 Hz
- M10	1024*768	56.0 kHz/70 Hz

3.2 Picture geometry settings, M04 and M11 (Special Modes)
General:
- Short circuit "Service jumper M208"(pin1 and pin2).
- Turn on the monitor.
- Set brightness front control 3255 at center click position and the contrast front control 3256 in the mechanical max. position.
- Video signal:
  For the above mentioned Special Modes a pattern generator(e.g. CHROMA 2000 or equivalent) or video adaptor (up to 64kHz) is needed as signal source.

3.2.1 Special Mode (M04)
For the Chroma 2000 timing chart for mode M04, see below.

M04 640*480 35 kHz/67 Hz, Pixel MHz = 30.24

Horizontal		**Vertical**	
Frame border	: 0.000µS	Frame border	: 0.000mS
Total size	: 28.571µS	Total size	: 15.000mS
Display size	: 21.164µS	Display size	: 13.714mS
Rear porch	: 3.175µS	Rear porch	: 1.114mS
Sync width	: 2.116µS	Sync width	: 0.086mS
Sync polarity	: Sync on green	Sync polarity	: Sync on green

Then repeat the steps 3.1.1 to 3.1.11.

3.2.2 Special Mode (M11)
For the Chroma 2000 timing chart for mode M11, see below

M11 1280*1024 61.91kHz/58.63Hz, Pixel MHz = 105.00

Horizontal		**Vertical**	
Frame border	: 0.000µS	Frame border	: 0.000mS
Total size	: 16.15µS	Total size	: 17.057mS
Display size	: 12.19µS	Display size	: 16.540mS
Rear porch	: 2,2µS	Rear porch	: 0.468mS
Sync width	: 1.5µS	Sync width	: 0.048mS
Sync polarity	: sync on green	sync polarity	: sync on green

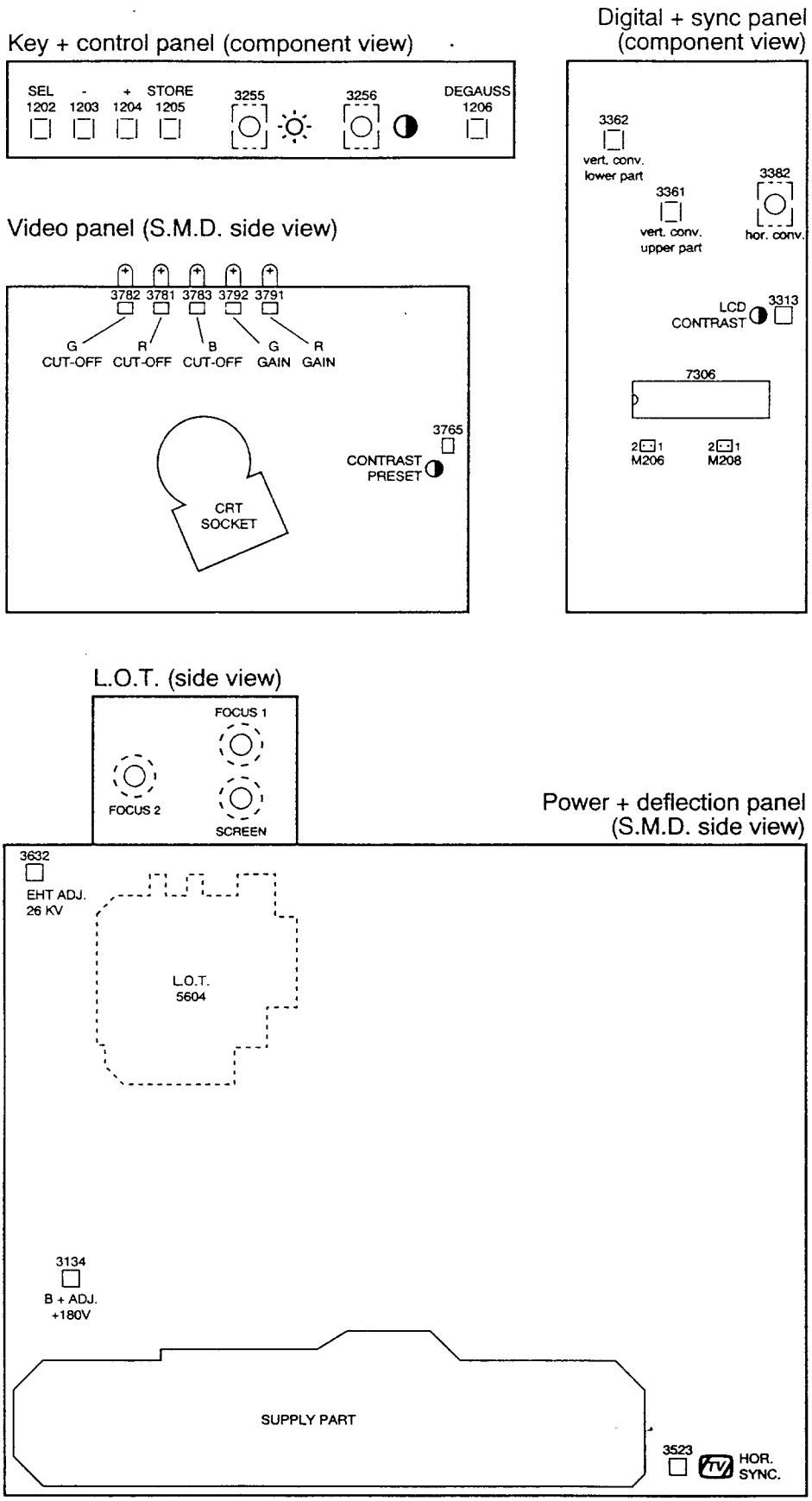
Then repeat the steps 3.1.1 to 3.1.11

3.2.3 Turn off the monitor.

3.2.4 Open the jumper M208 to prevent any hamper for new setting protection.

Electrical instructions

LOCATION OF ADJUSTING COMPONENTS



REMARK: ( ) = hole in screening plate

4CM 6088/741
CL 26532191/016
031192

Fig. 7.1

Repair tips

Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance.

Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

1.1 General cautions on handling and storage

a. Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
b. Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.
The capacitance or resistance value of the SMDs may be affected by this.
c. Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2. Removal of SMDs

a. Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 8.1A) or:
b. While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 8.1B).
c. Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 8.1C).

Caution on removal:

a. When handling the soldering iron, use suitable pressure and be careful.
b. When removing the chip, do not use undue force with the pair of tweezers.
c. The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250$C).
d. The chip, once removed, must **never** be reused.

1.3 Attachment of SMDs

a. Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 8.2A).
b. Next complete the soldering of the terminals of the component (see Fig. 8.2B).

Caution when attaching SMDs:

a. When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible; care must be taken to avoid damage to the terminals of the SMDs themselves.
b. Keep the SMD's body in contact with the printed board when soldering.
c. The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250$C).
d. Soldering should not be done outside the solder land.
e. Soldering flux (of rosin) may be used, but should not be acidic.
f. After soldering, let the SMD cool down gradually at room temperature.
g. The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 8.3).

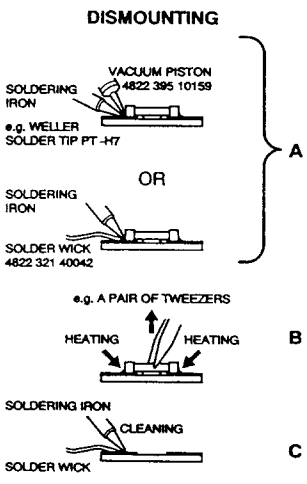


Fig. 8.1

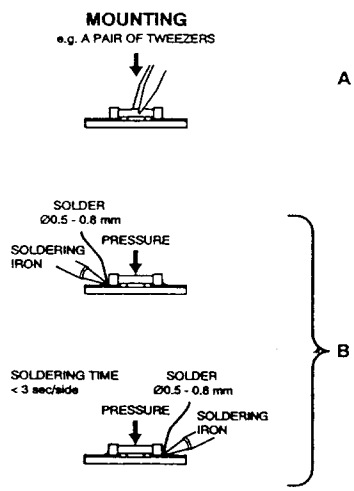


Fig. 8.2

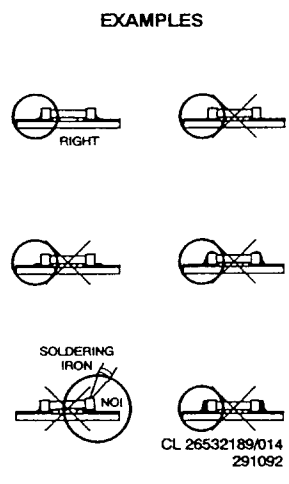
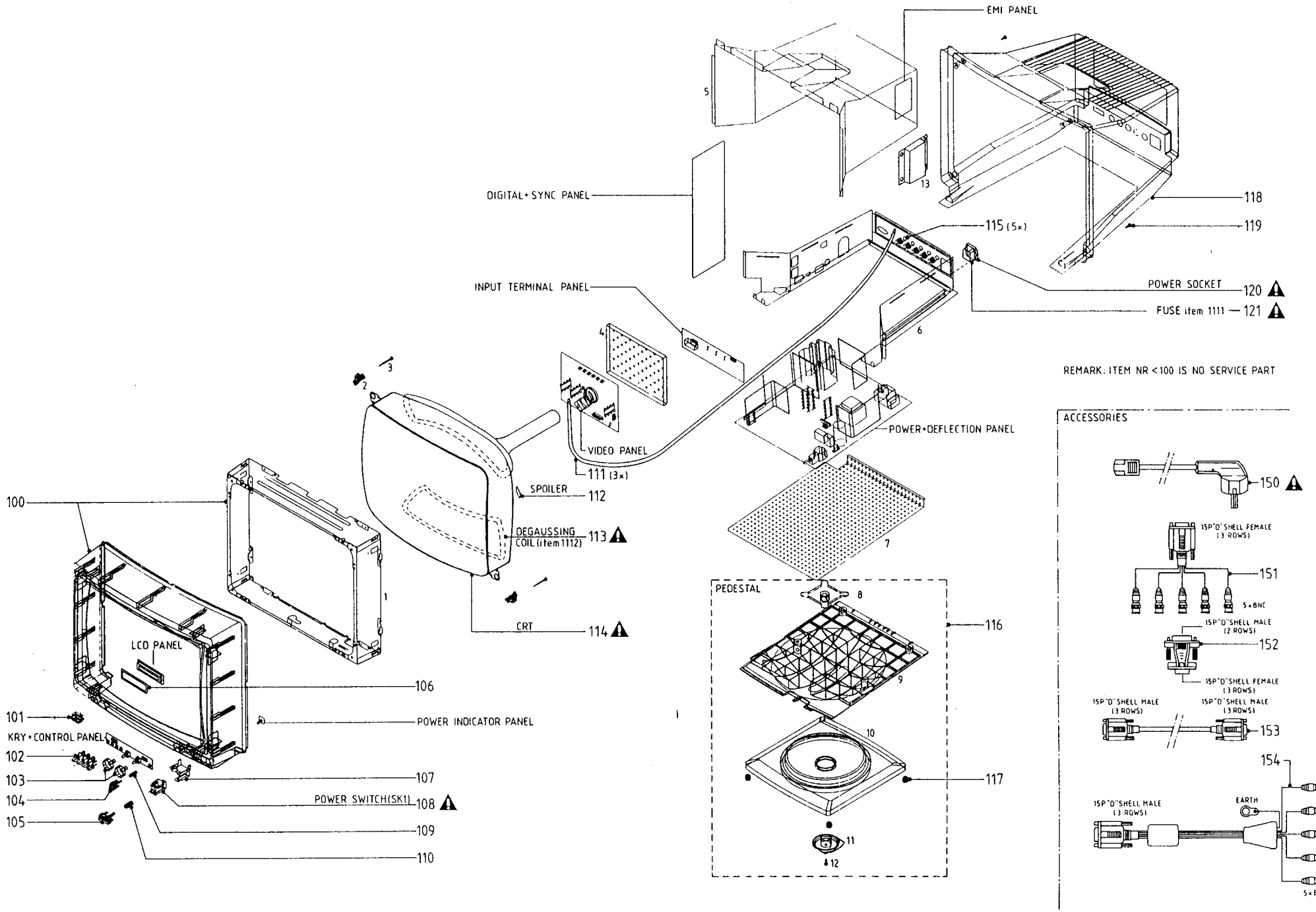


Fig. 8.3

Exploded view



Main panel 1102

Parts indicated on exploded view

100		4822 430 20099	Front cabinet (with item 104,105,106, 109,110)
101		4822 277 11369	Rocker switch
102		4822 413 31693	Push button (4 folt)
103		4822 413 41651	Knob
104		4822 410 61226	Push button (degausing)
105		4822 410 61812	Push button (power)
106		4822 381 11319	Lens (LCD display)
107		4822 432 92868	Housing (power switch)
108	▲	4822 276 11504	Power switch (SK1)
109		4822 492 52324	Spring
110		4822 492 52324	Spring
112		4822 526 20183	Spoiler
113	▲	4822 157 70296	Degaussing coil (item 1112)
114	▲	4822 131 20528	Picture tube M41KNP16X (item 1100)
115		4822 267 10281	BNC socket
116		4822 462 10517	Pedestal
117		4822 466 61517	Pad
118		4822 438 10398	Rear cover
119		4822 502 13763	Screw
120	▲	4822 265 30955	Power socket
121	▲	4822 070 33152	Fuse T3,15A/250V (item 1111) for -/00
	▲	4822 253 30374	Fuse T3A/250V (item 1111) for -/69

Accessories

150	▲	4822 321 10676	Power cord
151		4822 321 61241	I/F cable (short) 5XBNC male-15p "D" Shell female
152		4822 263 50197	Adapter 15p "D" Shell female 3 rows -15p "D" Shell male 2 rows
153		4822 321 61529	I/F cable 15p "D" Shell male-15p "D" Shell male
154		4822 321 61411	I/F cable (long) 5xBNC male-15p "D" Shell male

Auxilliary tools

	4822 321 61504	Extension cable 3p-3p for EMI panel to Power socket

Various

	4822 265 30888	6P (M503)
	4822 265 20561	2P (M504)
	4822 265 30375	4P (M508)
	4822 265 20564	2P (M510)
	4822 265 30891	2P (M511)
	4822 255 40893	Insulator for 7512, 7525
	4822 466 92891	Plate for 7101
	4822 255 40893	Plate for 7510, 7519, 7606, 7608
	4822 492 62076	Spring for transistors
	5322 390 20011	Silicon grease
1209 ▲	4822 280 70358	Relay

⊣⊢

2105	4822 124 42159	330µF 20% 400V
2106	5322 121 42489	33nF 5% 250V
2107	4822 121 43516	47nF 400V
2109	4822 124 40198	470µF 20% 16V
2111	4822 124 40198	470µF 20% 16V
2112	5322 121 42489	33nF 5% 250V
2113	4822 124 40246	4,7µF 20% 63V
2115	4822 121 43385	47nF 20% 250V
2117	4822 126 11454	470pF 2KV
2123 ▲	4822 126 12097	3,3nF 20% 250V
2151	4822 126 12356	220pF 10% 2KV
2152	4822 124 42158	68µF 20% 250V
2153	4822 122 33645	220pF 500V
2154	4822 124 40755	100µF 20% 100V
2155	4822 122 33645	220pF 500V
2156	4822 124 42195	1000µF 35V
2157	4822 122 33646	470pF 10% 500V
2158	4822 124 40214	1000µF 20% 25V
2159	5322 122 32331	1nF 10% 100V
2160	4822 124 42172	1000µF 16V
2161	4822 121 70184	1,8nF 5% 100V
2162	4822 121 43366	3n9 400V
2163	4822 121 43695	47nF 10% 100V
2164	4822 122 33535	4,7nF 20% 400V
2165	4822 122 33535	4,7nF 20% 400V
2166	4822 124 80132	47µF 20% 25V
2167	4822 121 43912	33nF 10% 100V
2401	4822 124 41659	4,7µF 20% 25V
2402	4822 121 43695	47nF 10% 100V
2403	4822 121 43693	10nF 100V
2404	4822 124 41334	470µF 20% 35V
2405	4822 124 22336	100µF 20% 40V
2406	4822 124 22336	100µF 20% 40V
2407	4822 121 70106	100nF 5% 100V
2408	4822 122 32542	47nF 10% 63V
2409	4822 124 22678	100µF 20% 16V
2410	4822 124 22681	47µF 20% 16V
2411	4822 121 43699	220nF 100V
2412	4822 124 22678	100µF 20% 16V
2413	4822 124 41659	4,7µF 20% 25V
2414	4822 124 22678	100µF 20% 16V
2415	4822 124 40763	2,2µF 100 V
2416	4822 124 22686	10µF 16V
2418	4822 124 22678	100µF 20% 16V
2419	4822 124 22681	47µF 20% 16V
2421	4822 122 32442	10nF 50V
2422	4822 124 22678	100µF 20% 16V
2423	4822 124 40214	1000µF 20% 25V
2426	4822 124 22686	10µF 16V
2431	4822 122 31727	470pF 2% 63V
2460	4822 124 22678	100µF 20% 16V
2461	4822 124 22678	100µF 20% 16V
2477	4822 124 42359	47µF 100V
2480	4822 124 22681	47µF 20% 16V
2481	5322 124 41817	220µF 16V

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2482	4822 122 33352	1nF 10% 1KV
2501	4822 124 22686	10µF 16V
2502	4822 124 22686	10µF 16V
2503	4822 122 31797	22nF 10% 63V
2504	4822 121 70185	1,8nF 2% 50V
2505	4822 122 32442	10nF 50V
2506	4822 121 43696	100nF 100V
2507	4822 121 43699	220nF 100V
2508	4822 121 43699	220nF 100V
2509	4822 122 31965	220pF 2% 63V
2510	4822 122 33496	100nF 10% 63V
2511	4822 124 22669	1µF 20% 50V
2512	4822 124 22678	100µF 20% 16V
2513	4822 121 70184	1,8nF 5% 100V
2514	4822 124 22669	1µF 20% 50V
2515	4822 124 40763	2,2µF 100 V
2516	4822 124 22681	47µF 20% 16V
2517	4822 122 33496	100nF 10% 63V
2518	4822 121 70184	1,8nF 5% 100V
2519	4822 121 70192	560pF 5% 100V
2521	5322 122 31842	330pF 2% 63V
2522	4822 121 70242	300nF 5% 250V
2523	4822 122 32442	10nF 50V
2524	4822 121 70191	4,7nF 5% 250V
2526	4822 124 80405	22µF 20% 100V
2527	4822 121 70095	1µF 10% 100V
2528	4822 121 43677	5,6nF 5% 1,6KV
2529	4822 124 42161	33µF 20% 250V
2530	4822 121 43681	330nF 250V
2531	4822 121 70241	120nF 5% 250V
2532	4822 121 70239	750nF 5% 250V
2533	4822 121 43906	1,5nF 10% 400V
2534	4822 126 10206	2,2nF 10% 500V
2535	4822 122 32542	47nF 10% 63V
2536	4822 126 11388	2,2nF 1KV
2539	4822 124 42339	1000µF 25V
2540	4822 122 31797	22nF 10% 63V
2542	4822 121 43699	220nF 100V
2543	4822 121 43698	470nF 100V
2545	4822 121 43907	22nF 20% 250V
2546	4822 124 22678	100µF 20% 16V
2550	4822 122 33496	100nF 10% 63V
2600	4822 126 12267	470pF 5% 1KV
2601	5322 122 31842	330pF 2% 63V
2602	5322 124 41817	220µF 16V
2603	4822 121 70184	1,8nF 5% 100V
2604	5322 122 33446	3,3nF 10% 63V
2605	4822 122 32482	22pF 2% 63V
2606	4822 124 22678	100µF 20% 16V
2607	4822 122 32442	10nF 50V
2608	4822 122 33968	1nF 5% 500V
2609	4822 126 11136	470pF 10% 2KV
2610	4822 124 42161	33µF 20% 250V
2611	4822 121 43698	470nF 100V
2612	4822 121 43907	22nF 20% 250V
2613	4822 126 12095	220pF 10% 2KV
2614	4822 126 12095	220pF 10% 2KV
2615	4822 124 80107	10µF 20% 250V
2616	4822 121 70095	1µF 10% 100V
2617	4822 124 41659	4,7µF 20% 25V
2618	4822 121 40336	47nF 10% 250V
2619	4822 121 43916	330nF 10% 250V
2620	4822 124 22669	1µF 20% 50V
2621	4822 121 70101	560nF 5% 250V
2628	4822 121 51464	2,7nF 5% 400V
2630	4822 122 10377	4.7nF 10% 10KV
2631	4822 122 10377	4.7nF 10% 10KV
2632	4822 124 42156	4,7µF 20% 400V
2633	4822 124 42199	22µF 20% 50V
2640	4822 121 51173	12nF

Main panel 1102

3614	4822 051 10561	560Ω 2% 0,25W	
3616	4822 051 10102	1k 2% 0,25W	
3617	4822 050 12702	2k7 1% 0,4W	
3618	4822 051 10224	220k 2% 0,25W	
3621	4822 051 10103	10k 2% 0,25W	
3622	4822 050 23302	3k3 1% 0,6W	
3623	4822 050 24709	47Ω 1% 0,6W	
3624	4822 116 83629	2k 5% 5W	
3625	4822 050 21201	120Ω 1% 0,6W	
3631	4822 050 21804	180k 1% 0,6W	
3632	4822 100 11163	100k 30%LIN 0,1W	
3633	4822 050 23302	3k3 1% 0,6W	
3634	4822 050 22208	2Ω2 1% 0,6W	
3635	4822 116 80556	120k 0,25W	
3636	4822 116 82963	39k 1%	
3637	4822 050 27503	75k 1% 0,6W	
3638	4822 116 80944	510k 1%	
3640	4822 051 10682	6k8 2% 0,25W	
3642	4822 116 83973	100Ω 5% 1W	
3643	4822 050 21503	15k 1% 0,6W	
3644	4822 051 10102	1k 2% 0,25W	
3645	4822 051 10104	100k 2% 0,25W	
3646	4822 051 10393	39k 2% 0,25W	
3647	4822 051 10102	1k 2% 0,25W	
3648	4822 116 80545	1k 5% 0,5W	
3649	4822 050 21004	100k 1% 0,6W	
3650	4822 050 21004	100k 1% 0,6W	
3651	4822 051 10272	2k7 2% 0,25W	
3652	4822 051 10471	470Ω 2% 0,25W	
3653	4822 051 10272	2k7 2% 0,25W	
3654	4822 051 10471	470Ω 2% 0,25W	
3655	4822 051 10223	22k 2% 0,25W	
3656	4822 051 10223	22k 2% 0,25W	
3657	4822 050 21003	10k 1% 0,6W	
3658	4822 050 21503	15k 1% 0,6W	
3659	4822 050 22208	2Ω2 1% 0,6W	
3660	4822 050 21009	10Ω 1% 0,6W	
3661	4822 050 22208	2Ω2 1% 0,6W	
3662 ▲	4822 052 10828	8Ω2 5% 0,33W	
3664	4822 051 10223	22k 2% 0,25W	
3665	4822 051 10103	10k 2% 0,25W	
3666	4822 051 10153	15k 2% 0,25W	
3667	4822 051 10102	1k 2% 0,25W	
3668	4822 051 10471	470Ω 2% 0,25W	
3669	4822 051 10393	39k 2% 0,25W	
3670	4822 051 10333	33k 2% 0,25W	
3671	4822 051 10102	1k 2% 0,25W	
3672	4822 051 10102	1k 2% 0,25W	
3673	4822 051 10243	24k 2% 0,25W	
3674	4822 051 10223	22k 2% 0,25W	
3675	4822 051 10103	10k 2% 0,25W	
3676	4822 051 10102	1k 2% 0,25W	
3677	4822 051 10153	15k 2% 0,25W	
3678	4822 051 10471	470Ω 2% 0,25W	
3679	4822 051 10333	33k 2% 0,25W	
3680	4822 051 10243	24k 2% 0,25W	
3681	4822 051 10102	1k 2% 0,25W	
3682	4822 051 10123	12k 2% 0,25W	
3683	4822 051 10123	12k 2% 0,25W	
3684	4822 051 10123	12k 2% 0,25W	
3685	4822 051 1039339k	2% 0,25W	
3686	4822 051 1012312k	2% 0,25W	
3687	4822 050 2120312k	1% 0,6W	
3688	4822 051 101021k	2% 0,25W	
3689	4822 051 1012312k	2% 0,25W	
3690	4822 051 1024324k	2% 0,25W	
3691	4822 051 1012312k	2% 0,25W	
3692	4822 051 1012312k	2% 0,25W	
3693	4822 051 101021k	2% 0,25W	
3697	4822 051 1024324k	2% 0,25W	

5104 ▲	4822 146 31191	Power trafo.	
5108	4822 157 70293	100µH	
5151	4822 157 70293	100µH	
5152	4822 157 70293	100µH	
5153	4822 156 21399	180µH (choke)	
5501	4822 142 40327	Driver trafo.	
5502	4822 157 70292	4mH	
5503	4822 157 63218	10mH	
5504 ▲	4822 157 70295	3,8µH	
5602	4822 142 40327	Driver trafo.	
5604	4822 140 10449	L.O.T.	
5605	4822 157 53189	5µH	
5606	4822 157 70294	1,7mH	
5608	4822 526 10522	0,7µH	
5610	4822 157 63212	DAF Trafo.	

6101	4822 130 80572	RGP30J
6102	4822 130 80572	RGP30J
6103	4822 130 80572	RGP30J
6104	4822 130 80572	RGP30J
6106	4822 130 31393	RGP10J
6108	5322 130 31971	RGP15D
6109	4822 130 30621	1N4148
6110	4822 130 30862	BZX79-C9V1
6111	4822 130 31607	RGP10D
6112	5322 130 31971	RGP15D
6113	4822 130 31393	RGP10J
6150	5322 130 31969	RGP15M
6151	5322 130 33885	RGP15J
6152	4822 130 41486	BYV95B
6153	4822 130 41486	BYV95B
6154	5322 130 31971	RGP15D
6155	4822 130 31024	BZX79-F18
6157	4822 130 34233	BZX79-C5V1
6158	4822 130 30621	1N4148
6159	4822 130 30621	1N4148
6160	4822 130 30621	1N4148
6161	4822 130 41486	BYV95B
6162	5322 130 31971	RGP15D
6401	4822 130 31878	1N4003
6402	4822 130 30621	1N4148
6403	4822 130 80446	BAS32L
6404	4822 130 80446	BAS32L
6406	4822 130 34197	BZX79-C12
6407	4822 130 80446	BAS32L
6408	4822 130 34441	BZX79-C22
6480	4822 130 31393	RGP10J
6481	4822 130 31393	RGP10J
6501	4822 130 31024	BZX79-B18
6502	4822 130 80446	BAS32L
6503	4822 130 80446	BAS32L
6504	4822 130 80446	BAS32L
6505	4822 130 80446	BAS32L
6506	4822 130 80446	BAS32L
6508	4822 130 42489	RGP10G
6509	4822 130 82584	MUR10150E
6510	4822 130 80445	UF5404
6511	4822 130 41486	BYV95B
6512	4822 130 42489	RGP10G
6514	4822 130 30621	1N4148
6515	4822 130 80446	BAS32L
6517	4822 130 31878	1N4003
6518	4822 130 80446	BAS32L
6519	4822 130 80446	BAS32L
6520	4822 130 80446	BAS32L
6521	4822 130 34167	BZX79-F6V2
6522	4822 130 80446	BAS32L
6601	4822 130 80446	BAS32L
6603	4822 130 80446	BAS32L
6606	4822 130 80446	BAS32L
6607	4822 130 80445	UF5404

6608	4822 130 41486	BYV95B
6610	4822 130 31393	RGP10J
6611	4822 130 42489	RGP10G
6612	4822 130 80446	BAS32L
6615	4822 130 42489	RGP10G
6618	5322 130 32042	BYW96E
6619	4822 130 31878	1N4003
6621	4822 130 32148	RGP10M
6622	4822 130 32148	RGP10M
6623	4822 130 31393	RGP10J
6624	4822 130 31607	RGP10D

7101	5322 130 42047	BUW13A
7102	4822 130 40995	BD434
7103	4822 130 44503	BC547C
7104	4822 130 41087	BC638
7105 ▲	4822 130 80908	CNX62A
7106	4822 130 40995	BD434
7125	4822 209 81726	ICL7812CV
7151	4822 209 81397	TL431CLP
7152	4822 130 44104	BC328
7153	5322 130 24081	BT151-500R
7401	5322 130 42756	BC857C
7402	5322 130 42756	BC857C
7403	5322 130 42755	BC847C
7404	4822 130 62702	BDT62C
7405	4822 130 41594	PH2369
7406	5322 130 42755	BC847C
7407	5322 130 42755	BC847C
7409	5322 130 42755	BC847C
7410	5322 130 42755	BC847C
7411	5322 130 42755	BC847C
7412	5322 130 42755	BC847C
7413	4822 130 41646	BF423
7417	5322 130 42755	BC847C
7418	4822 130 44503	BC547C
7425	4822 209 63848	TDA4800/V1
7426	4822 209 31125	TEA2031A
7460	5322 130 42755	BC847C
7461	5322 130 42755	BC847C
7480	5322 130 42755	BC847C
7481	5322 130 44918	BUX87
7502	4822 130 44503	BC547C
7503	4822 130 44503	BC547C
7505	5322 130 42756	BC857C
7506	5322 130 42755	BC847C
7509	4822 130 60832	BF857
7510	4822 130 62701	LJH16212
7511	4822 130 62702	BDT62C
7512	4822 130 62702	BDT62C
7513	4822 130 41782	BF422
7514	4822 130 41782	BF422
7515	5322 130 42755	BC847C
7516	5322 130 42756	BC857C
7517	4822 130 44503	BC547C
7518	4822 130 44503	BC547C
7519	4822 130 42241	BU406
7520	4822 209 63299	TDA2595/V7
7521	4822 209 10866	HEF4528BP
7522	4822 209 63995	TDA8444/N2
7523	5322 209 86234	NE5532N
7524	4822 209 80635	LM2903N
7525	4822 130 62702	BDT62C
7526	4822 130 41782	BF422
7602	5322 130 42755	BC847C
7603	5322 130 42755	BC847C
7604	4822 130 44503	BC547C

Spare parts lists

Main panel

7605	4822 130 44503	BC547C
7606	4822 130 42241	BU406
7607	4822 130 41782	BF422
7608	4822 130 42679	BUT11AF
7609	5322 130 42755	BC847C
7610	5322 130 42756	BC857C
7611	4822 130 41053	BC639
7660	4822 209 63807	NE5517N
7661	4822 209 80587	LM324N

Input + Terminal panel

Various

1103	4822 212 23994	Input + terminal panel
	4822 265 30889	3P (M222)
	4822 267 41002	Mini pin socket
	4822 277 21595	Slide switch (item 1207)
	4822 267 51145	Socket 15P "D" Shell (item F251)

2207	4822 124 80106	47µF 20% 16V
2208	4822 124 80106	47µF 20% 16V
2209	4822 124 80106	47µF 20% 16V
2210	4822 122 32442	10nF 50V
2211	4822 124 80106	47µF 20% 16V
2212	4822 124 80106	47µF 20% 16V
2213	4822 124 80106	47µF 20% 16V
2214	4822 124 80106	47µF 20% 16V
2216	4822 122 32442	10nF 50V
2217	4822 122 33496	100nF 10% 63V
2218	4822 122 32442	10nF 50V
2219	4822 122 33496	100nF 10% 63V
2220	4822 124 80106	47µF 20% 16V
2221	4822 122 33496	100nF 10% 63V
2222	4822 122 33496	100nF 10% 63V
2223	4822 122 33496	100nF 10% 63V
2224	4822 122 33496	100nF 10% 63V
2225	4822 122 33496	100nF 10% 63V
2226	4822 122 33496	100nF 10% 63V
2227	4822 124 80106	47µF 20% 16V
2228	4822 122 32442	10nF 50V
2229	4822 122 32442	10nF 50V
2231	4822 122 31767	150pF 2% 63V
2232	4822 122 31767	150pF 2% 63V
2233	4822 122 31767	150pF 2% 63V
2234	4822 122 31767	150pF 2% 63V

3222	4822 050 27509	75Ω 1% 0,6W
3223	4822 050 27509	75Ω 1% 0,6W
3224	4822 050 27509	75Ω 1% 0,6W
3225	4822 051 10822	8k2 2% 0,25W
3226	4822 051 10822	8k2 2% 0,25W
3227	4822 051 10822	8k2 2% 0,25W
3228	4822 051 10822	8k2 2% 0,25W
3229	4822 051 10822	8k2 2% 0,25W
3230	4822 051 10822	8k2 2% 0,25W
3231	4822 051 10472	4k7 2% 0,25W
3232	4822 051 10472	4k7 2% 0,25W
3233	4822 051 10472	4k7 2% 0,25W
3234	4822 051 10472	4k7 2% 0,25W
3235	4822 051 10472	4k7 2% 0,25W
3236	4822 051 10472	4k7 2% 0,25W
3237	4822 051 10223	22k 2% 0,25W
3238	4822 051 10223	22k 2% 0,25W
3239	4822 051 10223	22k 2% 0,25W
3240	4822 051 10223	22k 2% 0,25W
3241	4822 051 10332	3k3 2% 0,25W
3242	4822 051 10332	3k3 2% 0,25W
3243	4822 050 27509	75Ω 1% 0,6W
3244	4822 050 27509	75Ω 1% 0,6W
3245	4822 050 27509	75Ω 1% 0,6W
3261	4822 051 10101	100Ω 2% 0,25W
3262	4822 051 10101	100Ω 2% 0,25W
3263	4822 051 10101	100Ω 2% 0,25W
3264	4822 051 10101	100Ω 2% 0,25W
3265	4822 051 10101	100Ω 2% 0,25W
3266	4822 051 10101	100Ω 2% 0,25W
3267	4822 050 21003	10k 1% 0,6W
3268	4822 050 21003	10k 1% 0,6W
3269	4822 050 21003	10k 1% 0,6W
3270	4822 050 21003	10k 1% 0,6W

3271	4822 051 10101	100Ω 2% 0,25W
3272	4822 051 10101	100Ω 2% 0,25W
3273	4822 051 10101	100Ω 2% 0,25W
3274	4822 051 10101	100Ω 2% 0,25W
3277	4822 051 10473	47k 2% 0,25W
3279	4822 051 10474	470k 2% 0,25W
3280	4822 051 10391	390Ω 2% 0,25W
3281	4822 051 20183	18k 5% 0,1W
3283	4822 051 20222	2k2 5% 0,1W
3284	4822 051 10223	22k 2% 0,25W
3285	4822 051 10104	100k 2% 0,25W
3286	4822 051 10102	1k 2% 0,25W
3290	5322 116 51882	0Ω
3291	5322 116 51882	0Ω
3292	5322 116 51882	0Ω
3293	5322 116 51882	0Ω
3294	5322 116 51882	0Ω
3295	5322 116 51882	0Ω

5201	4822 157 63863	3,9µH 10%
5202	4822 157 63863	3,9µH 10%
5203	4822 157 63863	3,9µH 10%
5204	4822 157 63863	3,9µH 10%
5205	4822 526 10522	BEAD 0.7µH

6202	4822 130 80446	BAS32L

7201	4822 130 41594	PH2369
7202	4822 130 41594	PH2369
7203	4822 130 41594	PH2369
7204	4822 130 41594	PH2369
7205	4822 130 41594	PH2369
7206	4822 130 41594	PH2369
7207	4822 130 44503	BC547C
7208	4822 130 44503	BC547C
7209	4822 130 44503	BC547C
7210	4822 130 44503	BC547C
7211	4822 130 44196	BC548C
7212	4822 130 41594	PH2369
7213	4822 130 41594	PH2369

Spare parts lists

Video panel

1104	4822 212 30365	Video panel
▲	4822 267 51188	CRT Socket (F709)
	4822 265 20562	2P (M704)
	4822 265 30895	2P (M705)
	4822 265 10274	Mini pin jack (3x)
	4822 265 20619	Wafer 11P (M707)
	5322 390 20011	Silicon grease

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2701	4822 124 42171	22µF 25V
2702	4822 124 42171	22µF 25V
2703	4822 124 42171	22µF 25V
2704	4822 122 33496	100nF 10% 63V
2705	4822 122 33496	100nF 10% 63V
2706	4822 122 33496	100nF 10% 63V
2707	4822 122 33496	100nF 10% 63V
2708	4822 122 33496	100nF 10% 63V
2709	4822 122 33496	100nF 10% 63V
2713	4822 122 33496	100nF 10% 63V
2714	4822 122 33496	100nF 10% 63V
2715	4822 122 33496	100nF 10% 63V
2716	4822 124 80131	1000µF 20% 25V
2717	4822 124 80131	1000µF 20% 25V
2718	4822 124 80131	1000µF 20% 25V
2719	4822 122 33496	100nF 10% 63V
2720	4822 122 33496	100nF 10% 63V
2721	4822 122 33496	100nF 10% 63V
2722	4822 122 33496	100nF 10% 63V
2723	4822 122 33496	100nF 10% 63V
2724	4822 122 33496	100nF 10% 63V
2725	4822 122 33496	100nF 10% 63V
2726	4822 122 33496	100nF 10% 63V
2727	4822 122 33496	100nF 10% 63V
2728	4822 122 33496	100nF 10% 63V
2729	4822 122 33496	100nF 10% 63V
2730	4822 122 33496	100nF 10% 63V
2731	4822 122 31644	2,2nF 10% 63V
2732	4822 122 31644	2,2nF 10% 63V
2733	4822 122 31644	2,2nF 10% 63V
2734	4822 122 33496	100nF 10% 63V
2735	4822 122 33496	100nF 10% 63V
2736	4822 122 33496	100nF 10% 63V
2738	4822 122 31765	100pF 2% 63V
2740	4822 122 31765	100pF 2% 63V
2742	4822 122 31765	100pF 2% 63V
2744	4822 121 70096	1µF 160V
2745	4822 121 70096	1µF 160V
2746	4822 121 70096	1µF 160V
2747	4822 124 80105	22µF 20% 100V
2748	4822 124 80105	22µF 20% 100V
2749	4822 124 80105	22µF 20% 100V
2750	4822 122 32707	3,3nF 10%B 500V
2751	4822 122 33968	1nF 5% 500V
2752	4822 126 12098	10nF 10% 2KV
2753	4822 124 80105	22µF 20% 100V
2754	4822 124 80107	10µF 20% 250V
2755	4822 124 80104	10µF 20% 16V
2756	4822 122 32442	10nF 50V
2757	4822 124 80104	10µF 20% 16V
2763	4822 122 33496	100nF 10% 63V
2764	4822 252 60127	Spark gap
2765	4822 252 60127	Spark gap
2766	4822 252 60127	Spark gap
2767	4822 122 32442	10nF 50V
2768	4822 122 32442	10nF 50V
2769	4822 122 32442	10nF 50V
2770	4822 122 32707	3,3nF 10% 500V
2771	4822 122 33968	1nF 5% 500V
2772	4822 122 32442	10nF 50V

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2773	4822 122 32442	10nF 50V
2774	4822 122 32442	10nF 50V
2775	4822 122 32442	10nF 50V
2776	4822 122 32442	10nF 50V
2778	4822 122 32442	10nF 50V
2779	4822 122 32442	10nF 50V
2780	4822 122 32442	10nF 50V
2781	4822 122 31766	120pF 2% 63V
2782	4822 122 31766	120pF 2% 63V

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3701	4822 051 10759	75Ω 2% 0,25W
3702	4822 051 10759	75Ω 2% 0,25W
3703	4822 051 10759	75Ω 2% 0,25W
3704	4822 051 10103	10k 2% 0,25W
3705	4822 051 10103	10k 2% 0,25W
3706	4822 051 10103	10k 2% 0,25W
3707	4822 051 10221	220Ω 2% 0,25W
3708	4822 051 10221	220Ω 2% 0,25W
3709	4822 051 10221	220Ω 2% 0,25W
3710	4822 051 10399	39Ω 2% 0,25W
3711	4822 051 10399	39Ω 2% 0,25W
3712	4822 051 10399	39Ω 2% 0,25W
3713	4822 051 10682	6k8 2% 0,25W
3714	4822 051 10331	330Ω 2% 0,25W
3715	4822 051 10331	330Ω 2% 0,25W
3716	4822 051 10331	330Ω 2% 0,25W
3717	4822 051 10479	47Ω 2% 0,25W
3718	4822 051 10479	47Ω 2% 0,25W
3719	4822 051 10479	47Ω 2% 0,25W
3720	4822 051 10103	10k 2% 0,25W
3721	4822 051 10103	10k 2% 0,25W
3722	4822 051 10103	10k 2% 0,25W
3723	4822 051 10182	1k8 2% 0,25W
3724	4822 051 10182	1k8 2% 0,25W
3725	4822 051 10182	1k8 2% 0,25W
3726	4822 051 10271	270Ω 2% 0,25W
3727	4822 051 10271	270Ω 2% 0,25W
3728	4822 051 10271	270Ω 2% 0,25W
3729	4822 051 10229	22Ω 2% 0,25W
3730	4822 051 10229	22Ω 2% 0,25W
3731	4822 051 10229	22Ω 2% 0,25W
3732	4822 051 10223	22k 2% 0,25W
3733	4822 051 10331	330Ω 2% 0,25W
3735	4822 051 10331	330Ω 2% 0,25W
3736	4822 051 10331	330Ω 2% 0,25W
3737	4822 051 10109	10Ω 2% 0,25W
3738	4822 051 10109	10Ω 2% 0,25W
3739	4822 051 10109	10Ω 2% 0,25W
3740	4822 051 10109	10Ω 2% 0,25W
3741	4822 051 10109	10Ω 2% 0,25W
3742	4822 051 10109	10Ω 2% 0,25W
3743	4822 050 28209	82Ω 1% 0,6W
3744	4822 050 28209	82Ω 1% 0,6W
3746	4822 050 28209	82Ω 1% 0,6W
3747	4822 050 28209	82Ω 1% 0,6W
3749	4822 050 28209	82Ω 1% 0,6W
3750	4822 050 28209	82Ω 1% 0,6W
3752	4822 051 10272	2k7 2% 0,25W
3753	4822 051 10272	2k7 2% 0,25W
3754	4822 051 10272	2k7 2% 0,25W
3755	4822 116 83633	15k 5%
3756	4822 051 10681	680Ω 2% 0,25W
3757	4822 116 83633	15k 5%
3758	4822 051 10681	680Ω 2% 0,25W
3759	4822 116 83633	15k 5%
3760	4822 051 10681	680Ω 2% 0,25W
3765	4822 100 11319	4k7 Trim.pot
3766	4822 051 10562	5k6 2% 0,25W
3767	4822 050 23303	33k 1% 0,6W
3768	4822 051 10008	0Ω 5% 0,25W

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3769	4822 050 23303	33k 1% 0,6W
3770	4822 051 10008	0Ω 5% 0,25W
3771	4822 050 23303	33k 1% 0,6W
3772	4822 051 10008	0Ω 5% 0,25W
3773	4822 051 10105	1M 5% 0,25W
3774	4822 051 10105	1M 5% 0,25W
3775	4822 051 10105	1M 5% 0,25W
3776	4822 050 24709	47Ω 1% 0,6W
3777	4822 050 24709	47Ω 1% 0,6W
3778	4822 050 24709	47Ω 1% 0,6W
3779	4822 116 80547	1k 5 5% 0,5W
3780	4822 116 80548	15k 5% 0,5W
3781	4822 100 11212	2k2 30% pot.m.
3782	4822 100 11212	2k2 30% pot m.
3783	4822 100 11212	2k2 30% pot.m.
3784	4822 050 11002	1k 1% 0,4W
3785	4822 050 11002	1k 1% 0,4W
3786	4822 051 10102	1k 2% 0,25W
3787	4822 051 10682	6k8 2% 0,25W
3788	4822 051 10682	6k8 2% 0,25W
3789	4822 051 10682	6k8 2% 0,25W
3791	4822 100 11212	2k2 30% pot.m.
3792	4822 100 11212	2k2 30% pot.m.
3793	4822 051 10152	1k5 2% 0,25W
3794	4822 050 13902	3k9 1% 0,4W
3795	4822 050 13902	3k9 1% 0,4W
3796	4822 051 10392	3k9 2% 0,25W
3797	4822 050 26801	680Ω 1% 0,6W
3798	4822 051 10229	22Ω 2% 0,25W
3802	4822 051 10151	150Ω 2% 0,25W
3804	4822 051 10391	390Ω 2% 0,25W
3806	4822 051 10151	150Ω 2% 0,25W
3811	4822 116 90834	180Ω 5%
3812	4822 116 90833	150Ω 5%
3813	4822 116 90834	180Ω 5%
3821	4822 116 90834	180Ω 5%
3822	4822 116 90833	150Ω 5%
3823	4822 116 90834	180Ω 5%
3831	4822 116 90834	180Ω 5%
3832	4822 116 90833	150Ω 5%
3833	4822 116 90834	180Ω 5%
3834	4822 051 20222	2k2 5% 0,1W
3835	4822 051 10102	1k 2% 0,25W
3836	4822 051 10102	1k 2% 0,25W
3837	4822 051 10102	1k 2% 0,25W
3838	4822 050 22202	2k2 1% 0,6W
3841	4822 051 10331	330Ω 2% 0,25W
3842	4822 050 23301	330Ω 1% 0,6W
3843	4822 051 10331	330Ω 2% 0,25W
3844	5322 116 51882	0Ω
3845	5322 116 51882	0Ω
3847	5322 116 51882	0Ω
3850	5322 116 51882	0Ω
3851	5322 116 51882	0Ω
3853	5322 116 51882	0Ω
3855	5322 116 51882	0Ω
3858	5322 116 51882	0Ω
3860	5322 116 51882	0Ω
3862	5322 116 51882	0Ω

Spare parts lists

Video panel

5704	4822 157 63863	3,9µH 10%
5705	4822 157 63863	3,9µH 10%
5706	4822 157 63863	3,9µH 10%
5707	4822 158 30247	T-Coil 10%
5708	4822 158 30247	T-Coil 10%
5709	4822 158 30247	T-Coil 10%
5710	4822 157 63863	3,9µH 10%
5711	4822 157 63863	3,9µH 10%
5712	4822 157 63863	3,9µH 10%
5713	4822 152 20587	7,5µH
5717	4822 157 63863	3,9µH 10%

6705	4822 130 3084	2BAV21
6706	4822 130 3198	1BZX79-C3V9
6711	4822 130 3084	2BAV21
6712	4822 130 3084	2BAV21
6713	4822 130 3084	2BAV21
6714	4822 130 3084	2BAV21
6715	4822 130 3084	2BAV21
6716	4822 130 3084	2BAV21
6717	4822 130 8044	6BAS32L
6718	4822 130 8044	6BAS32L
6720	4822 130 4248	9BYD33G

7701	4822 130 62279	2SC3953E
7702	4822 130 62278	2SC3950E
7703	4822 130 62279	2SC3953E
7704	4822 130 62278	2SC3950E
7705	4822 130 62279	2SC3953E
7706	4822 130 62278	2SC3950E
7711	4822 130 41646	BF423
7712	4822 130 41782	BF422
7713	4822 130 41646	BF423
7714	4822 130 41782	BF422
7715	4822 130 41646	BF423
7716	4822 130 41782	BF422
7720	5322 130 42136	BC848C
7721	4822 130 41594	PH2369
7722	4822 130 41594	PH2369
7723	4822 130 41594	PH2369
7724	5322 130 42136	BC848C
7731	4822 209 63873	LM1201N
7732	4822 209 63873	LM1201N
7733	4822 209 63873	LM1201N

Digital panel

Various

1105	4822 212 30366	Digital panel (complete)
	4822 265 41207	16P (M201)
	4822 265 30889	3P (M301)
	4822 265 30886	4P (M402,M204)
	4822 265 30887	5P (M202)
	4822 265 30888	6P (M302)
	4822 265 31058	4p (M404)
	4822 265 41206	8P (M401)
	5322 255 44217	40P IC Socket for IC7306
	4822 267 51147	8P IC Socket for IC7308
	4822 265 20563	2P jumper male M206, M208
	4822 267 31474	2P jumper female M206, M208
	4822 265 20616	1p (M672)
	4822 265 20561	2p (M720)
	4822 265 20615	2p
	5322 390 20011	Silicon grease
1212	4822 242 81162	Crystal (15MHz)

2301	4822 122 32442	10nF 50V
2302	4822 122 31765	100pF 2% 63V
2303	4822 122 31765	100pF 2% 63V
2304	4822 122 31765	100pF 2% 63V
2305	4822 122 31765	100pF 2% 63V
2306	4822 122 32442	10nF 50V
2307	4822 124 22686	10µF 16V
2308	4822 122 33496	100nF 10% 63V
2309	4822 122 33496	100nF 10% 63V
2310	4822 124 22686	10µF 16V
2311	4822 122 31765	100pF 2% 63V
2313	4822 122 32442	10nF 50V
2314	4822 122 32442	10nF 50V
2315	4822 124 22681	47µF 20% 16V
2316	4822 122 32442	10nF 50V
2317	4822 122 32482	22pF 2% 63V
2318	4822 122 32482	22pF 2% 63V
2319	4822 122 32442	10nF 50V
2320	4822 122 32442	10nF 50V
2321	4822 122 32442	10nF 50V
2322	4822 122 31772	47pF 2% 63V
2324	4822 124 22681	47µF 20% 16V
2325	4822 124 80132	47µF 20% 25V
2326	4822 124 22678	100µF 20% 16V
2327	4822 122 32442	10nF 50V
2328	4822 122 32442	10nF 50V
2330	4822 124 22686	10µF 16V
2331	5322 124 41817	220µF 16V
2332	4822 124 22669	1µF 20% 50V
2333	4822 122 33496	100nF 10% 63V
2334	4822 122 33496	100nF 10% 63V
2335	4822 122 33496	100nF 10% 63V
2336	4822 122 33496	100nF 10% 63V
2337	4822 122 33496	100nF 10% 63V
2390	4822 122 32442	10nF 50V
2395	4822 122 33496	100nF 10% 63V
2396	4822 122 33496	100nF 10% 63V

3301	4822 051 20222	2k2 5% 0,1W
3302	4822 051 20222	2k2 5% 0,1W
3303	4822 051 10152	1k5 2% 0,25W
3304	4822 116 83962	68Ω 5% 3W
3305	4822 050 21502	1k5 1% 0,6W
3306	4822 051 20222	2k2 5% 0,1W
3307	4822 051 20222	2k2 5% 0,1W
3308	4822 050 22202	2k2 1% 0,6W
3309	4822 051 20222	2k2 5% 0,1W
3310	4822 051 10332	3k3 2% 0,25W
3311	4822 051 10223	22k 2% 0,25W
3312	4822 051 10474	470k 2% 0,25W
3313	4822 100 11319	4k7 Trim.
3314	4822 051 10563	56k 2% 0,25W
3315	4822 051 10102	1k 2% 0,25W
3316	4822 051 10153	15k 2% 0,25W
3317	4822 051 10103	10k 2% 0,25W
3318	4822 051 10392	3k9 2% 0,25W
3319	4822 051 10122	1k2 2% 0,25W
3320	4822 050 23302	3k3 1% 0,6W
3321	4822 051 20222	2k2 5% 0,1W
3322	4822 051 10182	1k8 2% 0,25W
3323	4822 051 20222	2k2 5% 0,1W
3324	4822 051 20222	2k2 5% 0,1W
3325	4822 051 10101	100Ω 2% 0,25W
3326	4822 051 10101	100Ω 2% 0,25W
3327	4822 050 21001	100Ω 1% 0,6W
3328	4822 051 10103	10k 2% 0,25W
3329	4822 051 10103	10k 2% 0,25W
3330	4822 051 20222	2k2 5% 0,1W
3331	4822 051 20222	2k2 5% 0,1W
3332	4822 051 10471	470Ω 2% 0,25W
3333	4822 051 10512	5k1 2% 0,25W
3334	4822 051 10109	10Ω 2% 0,25W
3335	4822 051 10472	4k7 2% 0,25W
3336	4822 051 10101	100Ω 2% 0,25W
3337	4822 051 10101	100Ω 2% 0,25W
3338	4822 051 10101	100Ω 2% 0,25W
3339	4822 051 10101	100Ω 2% 0,25W
3340	4822 051 10103	10k 2% 0,25W
3341	4822 051 10103	10k 2% 0,25W
3342	4822 051 10103	10k 2% 0,25W
3346	4822 050 21003	10k 1% 0,6W
3350	4822 050 21001	100Ω 1% 0,6W
3351	4822 051 10101	100Ω 2% 0,25W
3352	4822 051 10472	4k7 2% 0,25W
3354	4822 051 10224	220k 2% 0,25W
3355	4822 051 10224	220k 2% 0,25W
3356	4822 051 10224	220k 2% 0,25W
3357	4822 051 10103	10k 2% 0,25W
3358	4822 051 10103	10k 2% 0,25W
3359	4822 051 10103	10k 2% 0,25W
3360	4822 051 10103	10k 2% 0,25W
3361	4822 100 20166	10k 30% 0,1W pot.m.
3362	4822 100 20166	10k 30% 0,1W pot.m.
3363	4822 051 10103	10k 2% 0,25W
3364	4822 051 10563	56k 2% 0,25W
3365	4822 051 10103	10k 2% 0,25W
3366	4822 051 10221	220Ω 2% 0,25W
3367	4822 051 10103	10k 2% 0,25W
3368	4822 051 10103	10k 2% 0,25W
3369	4822 051 10243	24k 2% 0,25W
3370	4822 051 10243	24k 2% 0,25W
3371	4822 051 10683	68k 2% 0,25W
3372	4822 051 10103	10k 2% 0,25W
3373	4822 051 10101	100Ω 2% 0,25W
3374	4822 051 10102	1k 2% 0,25W
3375	4822 051 10104	100k 2% 0,25W
3376	4822 051 10203	20k 2% 0,25W
3377	4822 116 52234	100k 5% 0,5W
3378	4822 117 10164	18M 0,25W
3379	4822 117 10164	18M 0,25W
3380	4822 050 22202	2k2 1% 0,6W
3381	4822 050 21505	1M5 1% 0,6W
3382	4822 101 90239	90M 4kV pot.m.
3390	4822 051 10273	27k 2% 0,25W
3391	4822 051 20222	2k2 5% 0,1W
3392	4822 051 10152	1k5 2% 0,25W
3393	4822 050 23302	3k3 1% 0,6W

Spare parts lists

Digital panel

3394	4822 051 10273	27k 2% 0,25W
3395	4822 051 10562	5k6 2% 0,25W
3396	4822 051 10472	4k7 2% 0,25W
3397	4822 051 10101	100Ω 2% 0,25W
3398	4822 051 10101	100Ω 2% 0,25W

5301	4822 157 63863	3,9µH 10%
5302	4822 157 63863	3,9µH 10%
5303	4822 157 63863	3,9µH 10%
5304	4822 157 63863	3,9µH 10%

6301	4822 130 80446	BAS32L
6302	4822 130 80446	BAS32L
6303	4822 130 80446	BAS32L
6304	4822 130 80446	BAS32L
6305	4822 130 80446	BAS32L
6306	4822 130 80446	BAS32L
6307	4822 130 80446	BAS32L
6310	4822 130 80446	BAS32L
6311	4822 130 80446	BAS32L
6312	4822 130 80446	BAS32L
6313	4822 130 80446	BAS32L
6314	4822 130 34233	BZX79-C5V1

7301	4822 130 41594	PH2369
7302	4822 130 44503	BC547C
7303	4822 209 10223	HEF4077BP
7304	4822 130 41594	PH2369
7305	4822 130 44503	BC547C
7306	4822 209 31992	SC87C51CGN40 WITH PROGRAM + Item 7308 (X24C04P WITH PROGRAM)
7307	4822 130 41594	PH2369
7308	See Item 7306	
7309	5322 130 42756	BC857C
7310	4822 209 80981	MC7805CT
7311	4822 209 63995	TDA8444/N2
7312	4822 209 80587	LM324N
7313	4822 209 80587	LM324N
7314	4822 130 42679	BUT11AF
7315	5322 209 85913	MC7912CT
7390	5322 130 42755	BC847C
7391	5322 130 42755	BC847C

Emi panel

Various

1106 ▲	4822 212 30367	EMI panel
	4822 265 30891	2P (M101)
	4822 265 20564	2P (M102)

2101 ▲	4822 121 70201	680nF 20% 250V
2121 ▲	4822 122 33535	4,7nF 20% 400V
2122 ▲	4822 122 33535	4,7nF 20% 400V
2124	4822 121 43385	47nF 20% 250V

3136	4822 053 21334	330k 5% 0,5W

5102 ▲	4822 157 10292	Line filter (14mH)

Control panel

1107	4822 212 23995	Control panel
1202	4822 276 13249	Switch
1203	4822 276 13249	Switch
1204	4822 276 13249	Switch
1205	4822 276 13249	Switch
1206	4822 276 13249	Switch

3251	4822 051 10332	3k3 2% 0,25W
3252	4822 051 10682	6k8 2% 0,25W
3253	4822 051 10102	1k 2% 0,25W
3254	4822 051 10392	3k9 2% 0,25W
3255	4822 100 20821	10k pot.meter
3256	4822 100 20817	10k pot.meter

LCD panel

1108	4822 212 23991	LCD panel

Power indicator panel

1110	4822 130 91094	Power indicator panel

6170	4822 130 81701	LED LTL3238AS