14" DUAL VGA / SVGA Colour Monitor

7CM5209/00T

7CM5279/00T

Service
Service
Service

ServiceManual

Horizontal frequencies
31.5 - 35.2 - 35.5 kHz

Contents

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GB 4822 727 19839

PHILIPS

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PCS 41 345 GB

Technical Data*

General

- Mains voltage : AC 230 V 15%
- Mains frequency : 50 Hz
- Power consumption : 65 W (nominal) 80 W (max)
- Operating temperature : 10°C to 40°C
- Weight : 11 kg
- Dimensions (W x H x D) : 356 x 376 x 385 mm

Picture tube

- Size :14 inch
- Light transmission : 57 % (dark glass)
- Deflection angle : 90 Degrees
- EHT voltage : 24 kVolt
- Pitch : 0.28 mm
- Phosphor : P22 medium short

Video

- Dot rate : 45 MHz
- Video signal : 0.7 Vpp Linear/75 Ω
- Image size : 250 x 188 mm
- H-Shift range : 6 mm
- V-Shift range : 9 mm

Sync. signal

- Sync. level : TTL level
- Sync. polarity : positive or negative
- Vertical frequency : 50 - 100 Hz
- Horizontal frequency : 31.5/35.2/35.5 KHz (catch in range 600 Hz)

Image geometry

- Total geometrical distortion of the image (pincushion and barrel distance) : 3.00 mm Max Horizontal 3.00 mm Max Vertical
- Horizontal tilt (rotation) : 2.00 mm Max
- Image non linearity (according IEC 107-73,74) : 7% Max Horizontal 5% Max VerticalGeneral

* Specifications are subject to change without notice !

RESOLUTION MODES AND SYNC POLARITIES

Modes	Resolution	Frequency		Sync. Polarity	
		H (kHz)	V(Hz)	H	V
VGA	640x350	31.5	70	+	-
VGA	640x400	31.5	70	-	+
VGA	640x480	31.5	60	-	-
S-VGA	800x600	35.2	56	+ , -	+ , -
XGA *	1024x768 Interlaced	35.5	87	+	+

* The monitor is preset on VGA and SVGA (600*800 35.2kHz/56Hz) modes. For an alternative SVGA mode i.e. XGA (1024*768 35.5kHz/87Hz) the controls at the rear are available to optimize the picture adjustments. The default mode SVGA (600*800 35.2kHz/56Hz) will be replaced by re-adjust preset.

Warnnings 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

Notes

1. The direct voltages and oscillograms are average voltages. They have been measured by using the Service testsoftware (see user guide 4822 727 19896) and under the following conditions:

* **DC Voltages**
  - Adjust brightness and contrast control for the mechanical mid-position (click position)
  - Mode: 640 * 480 (31.5kHz/60Hz)
  - Pattern: grey scale
    Remark: On some points in the diagrams the DC values are also indicated for 800 * 600 35.2kHz/56Hz and 1024 * 768 35.5kHz/87Hz modes).
* **Wave forms**
  - Adjust brightness and contrast control for the mechanical mid-position (click position)
  - Mode: 800 * 600 (35.2kHz/56Hz)
  - Signal pattern: grey scale

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.

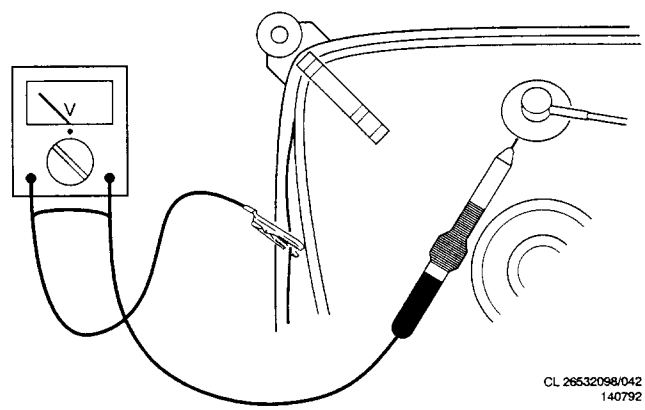


Fig. 3.1

Mechanical instructions

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

Video panel
- Remove the rear cover (4 screws).
- Remove the metal shielding on rear side of Video panel by desolder 5 lags.

Main panel
- Remove the rear cover (4 screws).
- Disconnect the degaussing coil from Main PCB.
- Remove the video panel from CRT.
- Disconnect the I/F cable from metal bracket.
- Slide the main panel out of bottom plate.
- Place Main panel in service position as shown in Fig.4.1.
- Mount Video panel again on CRT.

Remark:
To connect also the degaussing coil to the Main PCB in service position 1 extension cables is required.
The service code number of this cable is 4822 321 61698 (2p to 2p cable).

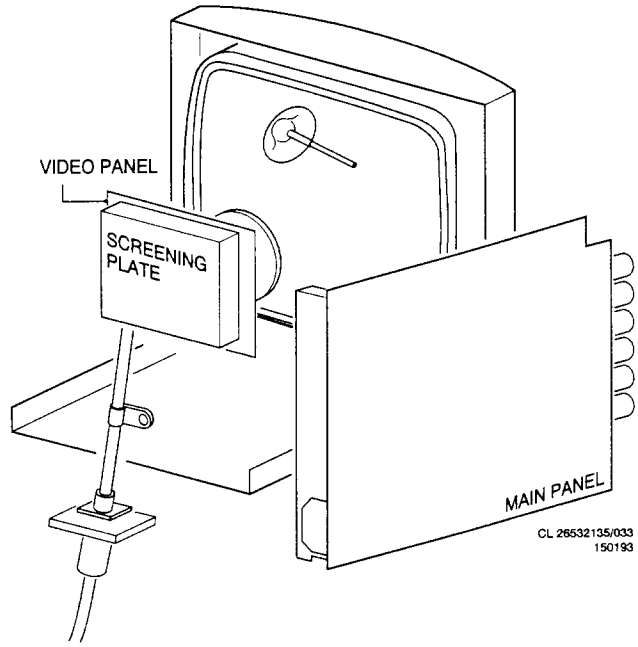
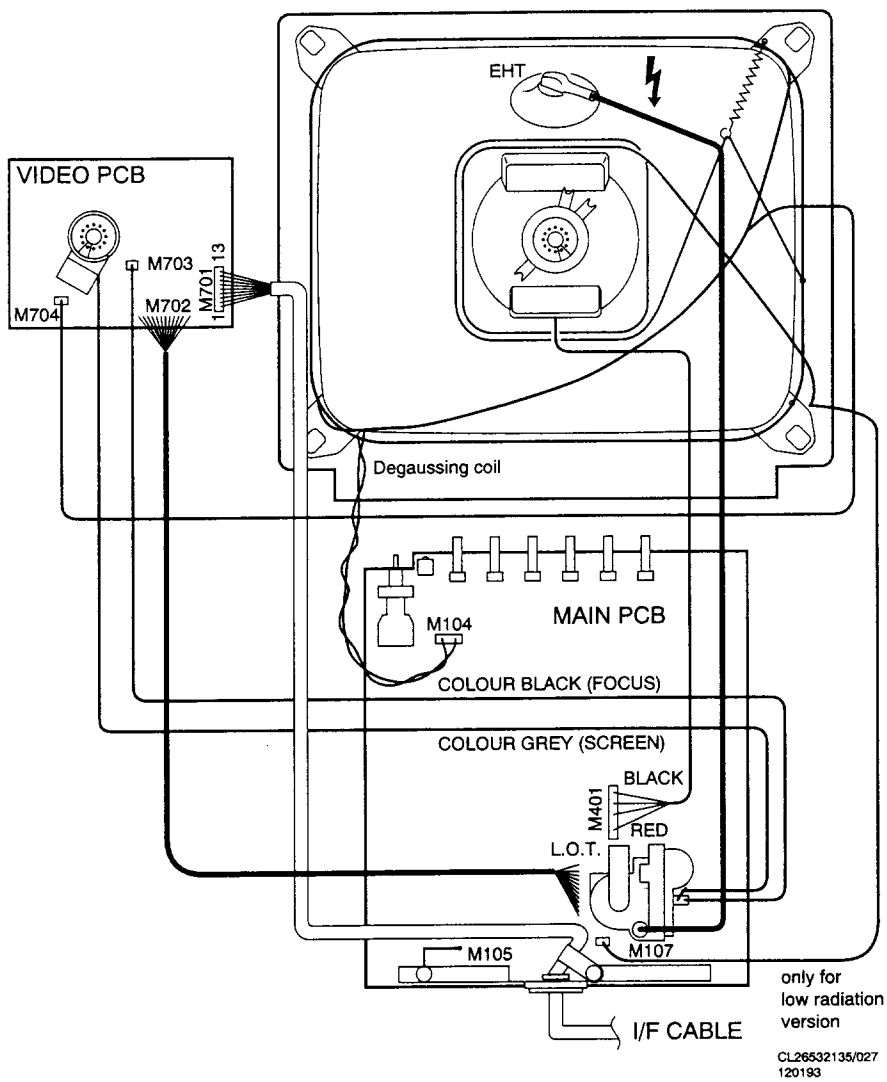


Fig. 4.1

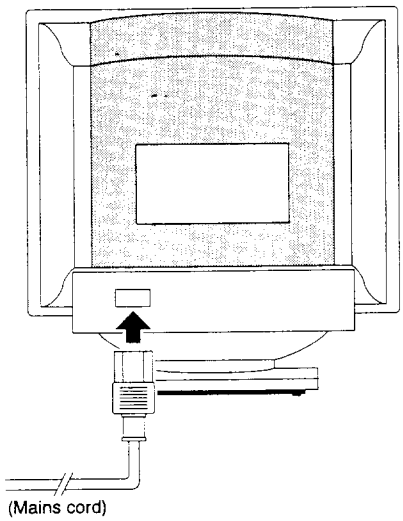
WIRING DIAGRAM



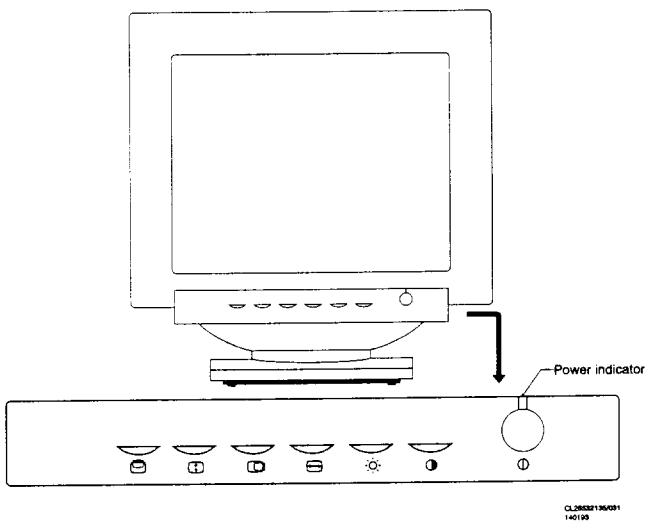
Controls and Connection facilities

Connection to the mains

(Rear of the monitor)



Front controls



For an optimized adjustment of the picture following controls are available at the front.

- **POWER**
  - •Press this knob, the green LED lights and power is ON.
  - • Press this knob again, the green LED disappears and the power is OFF.
- **CONTR.**
  - • Used to adjust contrast.
- **BRIGHT.**
  - • Used to adjust brightness.
- **H-SIZE**
  - • Used to adjust image width.
- **H-SHIFT**
  - • Used to adjust image position horizontally.
- **V-SIZE**
  - • Used to adjust image height.
- **V-SHIFT**
  - • Used to adjust image position vertically.

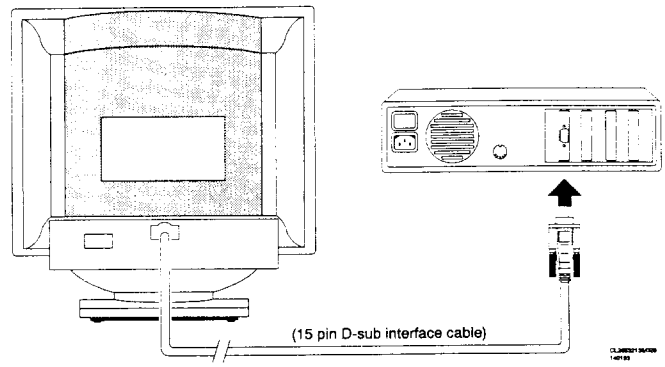
Connection to the computer

NOTE: please be sure the AC power to the 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 the computer equipments.

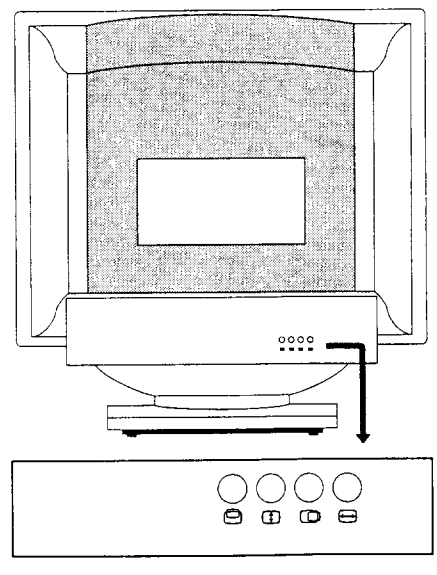
IBM PC, PC/XT, PS/2 or the compatibles:

Connect the fixed 15-pin D-sub connector of the video signal cable to the computer at the video connector on the video card, and fix it firmly with the screws on the plug.

(Rear of the monitor)



Additional controls at the rear of the monitor

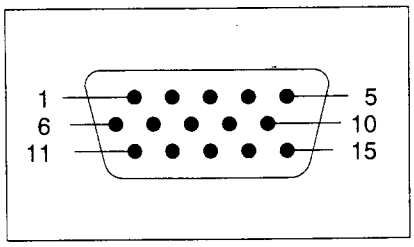


The monitor is pre-set on 800x600 mode as default SVGA Mode. For an alternative mode, i.e. 1024x768, the following controls are available at the rear to optimize adjustment of the picture: (The default mode will be replaced by re-adjust pre-set)

- **H-SIZE**
  - • Used to adjust image width.
- **H-SHIFT**
  - • Used to adjust image position horizontally.
- **V-SIZE**
  - • Used to adjust image height.
- **V-SHIFT**
  - • Used to adjust image position vertically.

Connection to the computer

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



CL26532135/034
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INPUT-OUTPUT SIGNALS

15 pins D-Shell connector

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

Electrical instructions

General :

When carry-out the electrical setting in many cases a video signal must be applied to the monitor.
A computer with an "ATI1024 V6-1.04/PH beta4" interface card (1024 * 768) is used as the video signal source.
The signal pattern are selected from the "service test software" package (see user guide 4822 727 19896).

Installation instruction for the ATI card :

- 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 your computer type.
- Select "analog monitor".
- Select the monitor type from video rom bios (two selections):
  Select "NEC 3D" for the resolutions:
  600 x 400 31.5KHz/70Hz
  600 x 350 31.5KHz/60Hz
  600 x 480 31.5KHz/60Hz
  1024 x 768 35.5KHz/87Hz
  Select "NEC 5D" for the resolution:
  800 x 600 35.2KHz/56Hz
- 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 setting.

1.B+ supply voltage (3109)

- Set the brightness control 3617 and the contrast control 3624 to minimum.
- Set the trimming pot-meter 3109 in the mechanical mid-position (this is a pre-setting).
- Connect a dc voltmeter between capacitor 2515 and ground (b+ output).
- Switch on the monitor.
- Apply a video signal in the 640 * 480 31.5KHz/60Hz mode.
- Select the "cross-hatch" pattern.
- Adjust trimming pot-meter 3109 until the dc voltmeter reads 90.7V ±0.2V.
- Remark: In the 800 * 600 35.2kHz/56Hz mode the B+ voltage should be now 102V ±1V.

2.Horizontal synchronization (3520)

- Set H-shift front control 3533 at click position.
- Disable H SYNC. by grounding pin 19 of IC7504.
- Apply a video signal in the 800 * 600 35.2KHz/56Hz or 1024 * 768 35.5KHz /87Hz mode.
- Select the "cross-hatch" pattern.
- Adjust trimming pot-meter 3520 until the picture is straight.
- Remove the grounding of pin 19 of IC7504.

3.Horizontal raster centering (3552)

- Apply a video signal in the 800 * 600 with 35.2KHz/56Hz mode.
- Set pot-meter 3552 for the correct horizontal centering of the whole raster.

4.Picture geometry settings

General
- The recommended aligment steps are that first proceeding in VGA mode, then proceeding in SVGA mode.
- For the following settings apply a video signal with cross-hatch pattern.
- Pre-set H-shift front control 3533 and V-shift front control 3422 to click position.
- Pre-set contrast control 3624 to mid position and brightness control 3617 to click position.

4.1 VGA mode

Apply a video signal in the 640 * 480 31.5KHz/60Hz mode.

Horizontal Phase centering (3528)
- Set pot-meter 3528 for the correct horizontal phase centering.

horizontal size (3581)
- Adjust pot-meter 3581 for a picture width of 250 mm.

Vertical centering (3419)
- Adjust pot-meter 3419 for the correct vertical centering.

Vertical size (3404)
- Adjust pot-meter 3404 for a picture height of 188 mm.

East-west correction (3574)
- Adjust pot-meter 3574 until the vertical lines at the left and right sides of the screen are as straight as possible

4.2 SVGA mode

Apply a video signal in the 800 * 600 35.2KHz/60Hz mode.

Horizontal Phase center (3529)
- Set pot-meter 3529 for the correct horizontal phase centering.

horizontal size (3591)
- Adjust pot-meter 3591 for a picture width of 250 mm.

Vertical centering (3420)
- Adjust pot-meter 3420 for the correct vertical centering.

Vertical size (3405)
- Adjust pot-meter 3405 for a picture height of188 mm.

East-west correction (3575)
- Adjust pot-meter 3575 until the vertical lines in the left and right sides of the screen are as straight as possible.

Electrical instructions

5.Alignments of :

* VG2 (bottom knob on the line output transformer).
* Cut-off points of the picture tube (3741, 3771, 3711)
* White "D" (3763, 3703, 3623)

- Pre-set pot-meter 3763, 3703, 3741, 3371 and 3711 to mid-position.
- Apply a video signal (full white) in the 640 x 480 31.5KHz/60HZ mode.
- Set brightness control 3617 at click position, sub-contrast 3623 and contrast 3624 to minimum.
- Set VG2 pot-meter on the line output transformer to minimum.
- Adjust VG2 pot-meter to increase VG2 until any colour among red, green and blue becomes "just visible".
- Adjust the pot-meters of the "two remaining" colours (3741, 3771 and 3711) to the same light output level, so that an optimal background (raster) colour is obtained.
- Adjust brightness front control 3617 to maximum for double checking the background (raster) colour.
- Set brightness control 3617 to click position, contrast control 3624 and sub-contrast control 3623 to mid position.
- Adjust pot-meter 3763 and 3703 to the same light output level, so that an optimal display colour (white "D") is obtained.
- If necessary, adjust sub-contrast pot-meter 3623 for the optimal light output of the video display (until the brightness no loger increases).
- Adjust contrast control 3624 to maximum, for double checking the displayed colour.

6.Focussing

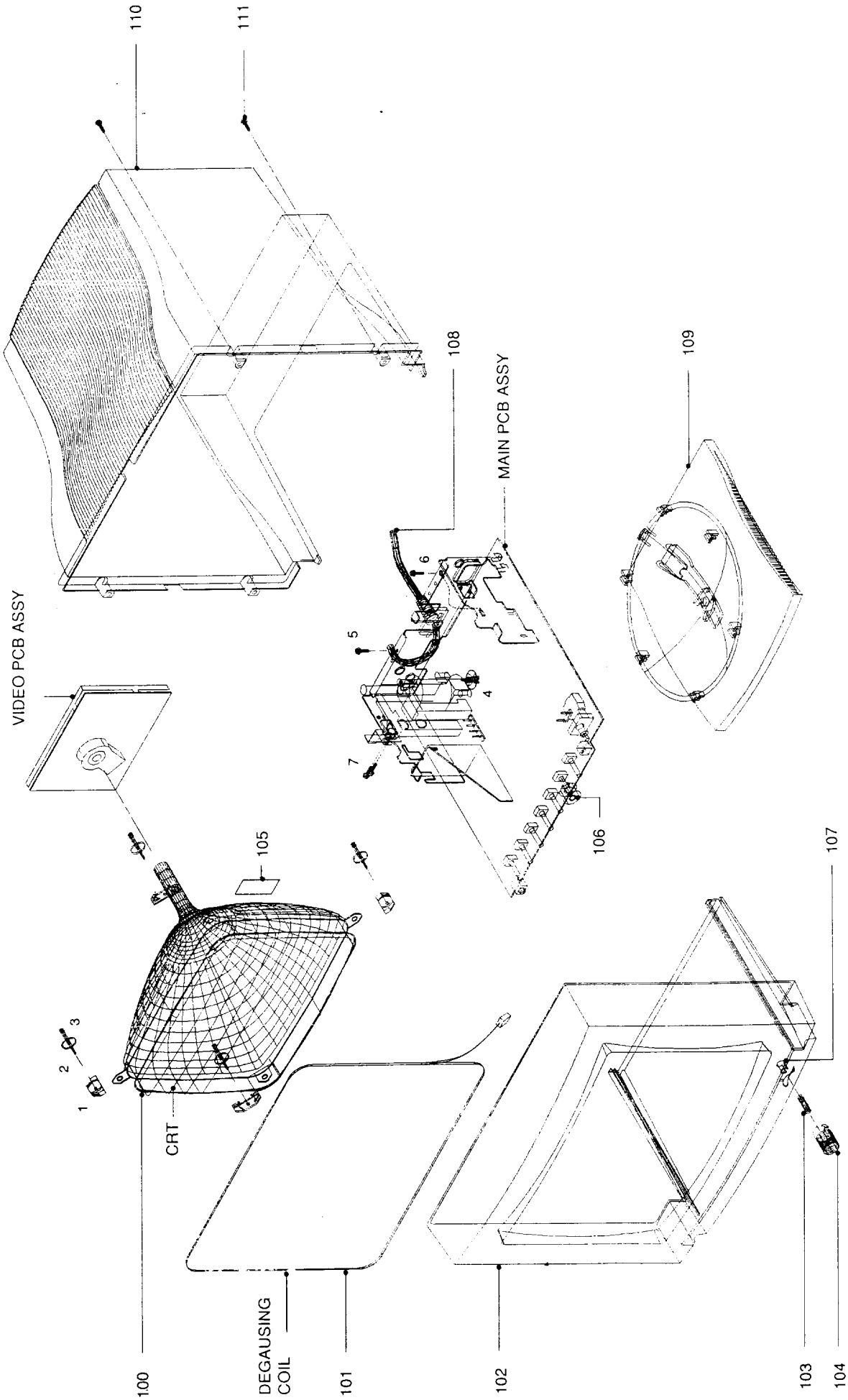
- Apply a video signal ("M" characters) in the 640 * 480 31.5 KHz/60 Hz mode.
- Set brightness control 3617 at click position and contrast control 3624 to maximum.
- Adjust focus pot-meter (top knob on the line output transformer) so that the picture at 2/3 of the diagonal lines (from center to four corners) of the displayed screen is as sharp as possible.

7.Mode detector (3504)

- Apply video signal (cross-hatch pattren) in the 640 * 480 31.5KHz/60Hz mode.
- Connect oscilloscope to pin 10-7502.
- Adjust potentiometer 3504 so that the positive going part the of pulse on 10-7502 is 30.3 µs.

For Service Manuals
MAURITRON SERVICES
8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554
email:- mauritron@dial.pipex.com

Exploded view



Spare parts list

Parts indicated on exploded view.

100	▲ 4822 131 20494	Picture tube (item 1100) for 7CM5209/00T M34EDC12X36 /F14
100	▲ 4822 131 20491	Picture tube (item 1100) 7CM5279/00T M34EDC13X36
101	▲ 4822 157 70505	Degaussing coil (item 5107)
102	4822 430 10439	Front (complete) with item 103, 104 and 107 for 7CM5209
102	4822 430 10438	Front (complete) with item 103, 104 and 107 for 7CM5279
103	4822 701 13013	Spring for power push buton
104	4822 410 62588	Power push button
105	4822 526 20183	Spoiler
106	4822 413 41781	Knob
107	4822 381 11403	Lens power indicator
108	4822 321 61984	Flying lead I/F cable
109	4822 462 10539	Pedestal (complete)
110	4822 438 10418	Rear cover
111	4822 502 21238	Screw fix. rear cover

Accessories

▲ 4822 701 11934	Power cord -/00

Auxilliary tools

4822 321 61698	Extention cable 2p-2p for deg. coil (when Main Panel in service position)
4822 727 19896	Service test software kit (user guide with floppy)

Main panel B C

Various

1101	▲ 4822 070 32002	Fuse T2A
1103	▲ 4822 276 12445	Power switch
	▲ 4822 265 31077	Power socket (M101)
	4822 265 30375	4P socket (J101)
	4822 492 71337	For fix Fuse (item 1101)
	4822 267 30987	2p socket (M104)
	4822 492 62076	Spring fix. (item 7101, 7521)
	4822 492 71345	Spring fix. (item 7108,7523)
	4822 255 40893	Isolating plate for item 7523
	5322 390 20011	Silicon grease

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2101	▲ 5322 121 44212	1µF 10% 250V
2102	▲ 4822 122 33535	4,7nF 20% 400V
2103	▲ 4822 122 33535	4,7nF 20% 400V
2105	4822 124 41819	100µF 20%
2106	4822 126 12646	1nF 10% 1KV
2107	4822 121 70294	22nF 10% 630V
2108	5322 122 32818	2,2nF 10% 100V
2109	5322 122 32331	1nF 10% 100V
2110	5322 122 32331	1nF 10% 100V
2111	4822 121 51625	27nF 10% 630V
2113	4822 126 10757	22nF 20% 50V
2115	4822 124 22669	1µF 20% 50V
2116	4822 124 22669	1µF 20% 50V
2117	4822 124 40737	150µF 20% 25V
2118	▲ 4822 122 33535	4,7nF 20% 400V
2119	4822 124 40255	100µF 20% 63V
2120	4822 122 33691	330pF 2KV
2121	5322 124 41802	220µF 20% 100V
2122	4822 122 33645	220pF 500V
2123	4822 124 40214	1000µF 20% 25V
2124	5322 124 10617	100µF 20% 16V
2125	4822 122 33645	220pF 500V
2126	4822 124 42144	470µF 63V
2127	▲ 4822 122 33535	4,7nF 20% 400V
2128	4822 124 42172	1000µF 16V
2129	4822 126 10757	22nF 20% 50V
2131	4822 122 33645	220pF 500V
2134	4822 121 51626	47nF 250V
2151	4822 122 33691	330pF 2KV
2401	4822 122 33966	10nF 10% 50V
2402	4822 122 33966	10nF 10% 50V
2403	4822 124 40198	470µF 20% 16V
2405	4822 124 40198	470µF 20% 16V
2406	4822 121 43696	100nF 100V
2407	4822 124 42359	47µF 100V
2501	4822 121 70297	3,3nF 5% 100V
2502	4822 121 70297	3,3nF 5% 100V
2503	4822 121 43699	220nF 100V
2504	4822 121 70073	100nF 10% 250V
2505	4822 121 43698	470nF 100V
2506	4822 121 70299	1,2nF 5% 100V
2507	4822 121 70295	10nF 5% 100V
2508	4822 121 43696	100nF 100V
2509	4822 126 10851	10pF 50V
2510	4822 121 43696	100nF 100V
2511	4822 121 43699	220nF 100V
2512	4822 124 42172	1000µF 16V
2513	4822 126 10757	22nF 20% 50V
2514	4822 126 10757	22nF 20% 50V
2515	4822 124 22365	47µF 160V
2516	4822 124 22669	1µF 20% 50V
2517	4822 124 22686	10µF 16V
2518	4822 124 22686	10µF 16V
2519	4822 124 22499	10µF 160V
2521	4822 121 40336	47nF 10% 250V
2522	4822 126 12647	220pF 10% 2KV
2523	4822 126 12096	4,7nF 5% 1,6KV
2524	4822 121 70296	4,7nF 400V
2525	4822 121 70236	1µF 400V
2527	4822 121 43696	100nF 100V
2528	4822 122 32835	1nF 500V
2529	4822 121 70191	4,7nF 5% 250V
2530	4822 121 43678	15nF 5% 400V
2532	4822 124 22461	6,8µF 50V
2533	4822 121 43698	470nF 100V
2534	4822 121 70298	2,2nF 10% 100V
2536	4822 126 10757	22nF 20% 50V
2538	4822 122 32027	56pF 2% 100V
2539	4822 124 80132	47µF 20% 25V
2540	4822 121 43696	100nF 100V
2541	4822 121 70073	100nF 10% 250V
2542	4822 121 70298	2,2nF 10% 100V
2543	4822 121 43696	100nF 100V
2544	4822 124 41659	4,7µF 20% 25V
2601	4822 121 43694	22nF 100V
2602	4822 121 43698	470nF 100V
2603	4822 124 80132	47µF 20% 25V
2604	4822 126 10757	22nF 20% 50V
2605	4822 124 22669	1µF 20% 50V

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3101	4822 113 80628	4Ω7 5W
3102	4822 050 11509	15Ω 1% 0,4W
3103	4822 050 21801	180Ω 1% 0,6W
3104	4822 050 22202	2k2 1% 0,6W
3105	4822 050 23301	330Ω 1% 0,6W
3106	4822 113 80629	1,2k 3W
3107	4822 050 23301	330Ω 1% 0,6W
3108	▲ 4822 052 10338	3Ω3 5% 0,33W
3109	4822 100 20166	10k 30% Lin pot.
3110	4822 050 22203	22k 1% 0,6W
3111	4822 050 24702	4k7 1% 0,6W
3112	4822 050 21208	1Ω2 1% 0,6W
3113	4822 050 11504	150k 1% 0,4W
3114	4822 050 12709	27Ω 1% 0,4W
3115	4822 050 22702	2k7 1% 0,6W
3116	4822 050 24701	470Ω 1% 0,6W
3117	4822 053 12153	15k 5% 3W
3118	4822 050 21208	1Ω2 1% 0,6W
3119	▲ 4822 052 10108	1Ω 5% 0,33W
3121	4822 050 11002	1k 1% 0,4W
3122	4822 053 11822	8k2 5% 2W
3123	4822 050 21203	12k 1% 0,6W
3124	4822 050 21003	10k 1% 0,6W
3125	▲ 4822 052 10108	1Ω 5% 0,33W
3129	4822 050 24704	470k 1% 0,6W
3130	4822 116 52218	300Ω 5% 0,5W
3131	4822 050 21208	1Ω2 1% 0,6W
3132	4822 117 10291	39k 3W
3133	4822 113 80628	4Ω7 5W
3134	▲ 4822 052 10108	1Ω 5% 0,33W
3135	4822 116 40233	DUAL PTC
3136	4822 053 21334	330k 5% 0,5W
3401	4822 050 12204	220k 1% 0,4W
3402	4822 050 22704	270k 1% 0,6W
3403	4822 050 15603	56k 1% 0,4W
3404	4822 100 11141	10k Lin. pot.
3405	4822 102 90036	22K (part of combi pot.)
3406	4822 050 16802	6k8 1% 0,4W
3410	4822 050 22704	270k 1% 0,6W
3411	4822 050 11504	150k 1% 0,4W
3412	4822 100 90081	10k 20% pot.
3413	4822 050 21204	120k 1% 0,6W
3414	4822 050 13304	330k 1% 0,4W
3415	4822 050 26803	68k 1% 0,6W
3416	4822 050 23902	3k9 1% 0,6W
3417	4822 050 26803	68k 1% 0,6W
3418	4822 050 21002	1k 1% 0,6W
3419	4822 100 11141	10k lin. pot.
3420	4822 102 90036	5K (part of combi pot.)
3421	4822 116 82046	2k2 5% 1/6W

Spare parts list

7514	4822 130 44121	BC338
7515	4822 130 44104	BC328
7516	5322 130 60068	BC558C
7519	4822 130 41078	BC640
7520	4822 130 63081	BSN254A
7521	4822 130 63271	BU2508AF
7522	5322 130 60068	BC558C
7523	4822 130 41484	BD677
7527	5322 130 60068	BC558C
7528	5322 130 60068	BC558C
7529	4822 130 44196	BC548C
7601	5322 130 60068	BC558C
7602	5322 130 60068	BC558C
7603	4822 130 41782	BF422
7604	4822 130 41646	BF423

Video panel A

Various

1103	4822 212 30524	Video panel complete
	4822 265 20366	1p socket (M703)
	4822 265 41308	11P socket (M701)
	▲ 4822 255 70245	CRT socket

2701	4822 126 10757	22nF 20% 50V
2702	4822 122 40257	100pF %
2703	4822 126 10757	22nF 20% 50V
2704	4822 124 22499	10µF 160V
2705	4822 122 31072	47pF 2% 100V
2711	4822 126 10757	22nF 20% 50V
2712	4822 122 31237	82pF 2% 100V
2713	4822 126 10757	22nF 20% 50V
2714	4822 124 22499	10µF 160V
2715	4822 122 31072	47pF 2% 100V
2721	4822 126 10757	22nF 20% 50V
2722	4822 122 31237	82pF 2% 100V
2723	4822 126 10757	22nF 20% 50V
2724	4822 124 22499	10µF 160V
2725	4822 122 31072	47pF 2% 100V
2726	4822 126 10757	22nF 20% 50V
2727	4822 122 30031	820pF 10% 500V
2728	4822 122 40427	470pF 2KV
2731	4822 126 10757	22nF 20% 50V
2732	4822 126 10757	22nF 20% 50V
2741	4822 124 22499	10µF 160V
2742	4822 121 42191	10nF 500V
2743	4822 126 10757	22nF 20% 50V
2744	5322 124 10617	100µF 20% 16V
2745	4822 126 10757	22nF 20% 50V

3701	4822 050 17509	75Ω 1% 0,4W
3702	4822 116 82044	120Ω 5% 1/6W
3703	4822 100 11141	10k lin.pot.
3704	4822 050 21006	10M 1% 0,6W
3705	4822 050 28209	82Ω 1% 0,6W
3706	4822 116 82059	150Ω 5% 1/6W
3707	4822 050 24709	47Ω 1% 0,6W
3708	4822 116 83931	3K3 3W
3709	4822 117 10292	53K3 1%
3710	4822 050 21201	120Ω 1% 0,6W
3711	4822 100 11212	2k2 30%
3712	4822 116 52184	18Ω 5% 0,5W
3713	4822 050 23909	39Ω 1% 0,6W
3714	4822 116 82996	10Ω 5% 0,33W
3715	4822 050 24222	4K22 1% 0,6W
3731	4822 050 17509	75Ω 1% 0,4W
3732	4822 116 82044	120Ω 5% 1/6W
3734	4822 050 21006	10M 1% 0,6W
3735	4822 050 28209	82Ω 1% 0,6W
3736	4822 050 23301	330Ω 1% 0,6W
3737	4822 050 24709	47Ω 1% 0,6W
3738	4822 116 83931	3K3 3W
3739	4822 117 10292	53K3 1%
3740	4822 050 21201	120Ω 1% 0,6W
3741	4822 100 11212	2k2 lin.pot.
3742	4822 116 52184	18Ω 5% 0,5W
3743	4822 050 23909	39Ω 1% 0,6W
3744	4822 116 82996	10Ω 5% 0,33W
3745	4822 050 24222	4K22 1% 0,6W
3761	4822 050 17509	75Ω 1% 0,4W
3762	4822 116 82044	120Ω 5% 1/6W
3763	4822 100 11141	10k lin.pot.
3764	4822 050 21006	10M 1% 0,6W
3765	4822 050 28209	82Ω 1% 0,6W
3766	4822 050 23901	390Ω 1% 0,6W
3767	4822 050 24709	47Ω 1% 0,6W
3768	4822 116 83931	3K3 3W
3769	4822 117 10292	53K3 1%
3770	4822 050 21201	120Ω 1% 0,6W
3771	4822 100 11212	2k2 30%
3772	4822 116 52184	18Ω 5% 0,5W
3773	4822 050 23909	39Ω 1% 0,6W
3774	4822 116 82996	10Ω 5% 0,33W
3775	4822 050 24222	4K22 1% 0,6w
3781	4822 116 82046	2k2 5% 1/6W
3782	4822 050 21001	100Ω 1% 0,6W
3783	4822 050 21002	1k 1% 0,6W
3785	4822 050 21001	100Ω 1% 0,6W
3786	4822 050 22201	220Ω
3787	4822 116 80547	1k5 5% 0,5W
3788	4822 116 80548	15k 5% 0,5W
3789	▲ 4822 052 10109	10Ω 5% 0,33W
3791	4822 116 82046	2k2 5% 1/6W
3792	4822 050 21002	1k 1% 0,6W
3795	4822 050 22202	2K2 1% 0,6W

5701	4822 157 70479	22µH
5702	4822 157 52496	15µH
5711	4822 157 70479	22µH
5712	4822 157 52496	15µH
5721	4822 157 70479	22µH
5722	4822 157 52496	15µH
5733	4822 152 20587	7,5µH
5734	4822 157 52496	15µH

6701	4822 130 30621	1N4148
6702	4822 130 30842	BAV21
6703	4822 130 30621	1N4148
6711	4822 130 30621	1N4148
6712	4822 130 30842	BAV21
6713	4822 130 30621	1N4148
6721	4822 130 30621	1N4148
6722	4822 130 30842	BAV21
6723	4822 130 30621	1N4148
6725	4822 130 30621	1N4148
6727	4822 130 30621	1N4148
6728	4822 130 30621	1N4148
6736	4822 130 34173	BZX79-F5V6
6738	4822 130 42489	BYD33G

7701	4822 130 63269	2SC3467D
7702	4822 130 41782	BF422
7703	4822 130 41646	BF423
7711	4822 130 63269	2SC3467D
7712	4822 130 41782	BF422
7713	4822 130 41646	BF423
7721	4822 130 63269	2SC3467D
7722	4822 130 41782	BF422
7723	4822 130 41646	BF423
7731	4822 209 32285	TDA4881

Spare parts list

3422	4822 100 90081	10k pot.meter	
3423	4822 050 21802	1k8 1% 0,6W	
3424 ▲	4822 052 11478	4Ω7 5% 0,5W	
3425 ▲	4822 052 11478	4Ω7 5% 0,5W	
3426	4822 050 21802	1k8 1% 0,6W	
3428	4822 116 81155	3Ω9 5% 0,5W (7CM5279 only)	
3429	4822 050 24704	1Ω5	
3430 ▲	4822 052 10568	5Ω6 5% 0,33W	
3432	4822 050 21002	1k 1% 0,6W	
3433 ▲	4822 052 10221	220Ω 5% 0,33W	
3434	4822 050 24704	470k 1% 0,6W	
3435	4822 116 52278	390k 5% 0,5W	
3436	4822 050 26803	68k 1% 0,6W	
3437	4822 116 52248	160k 5% 0,5W	
3438	4822 050 22704	270k 1% 0,6W	
3501	4822 050 21002	1k 1% 0,6W	
3502 ▲	4822 052 10101	100Ω 5% 0,33W	
3503	4822 050 21002	1k 1% 0,6W	
3504	4822 100 20166	10k lin. pot.	
3506	4822 050 24702	4k7 1% 0,6W	
3507	4822 050 21203	12k 1% 0,6W	
3508	4822 050 25602	5k6 1% 0,6W	
3509	4822 050 21802	1k8 1% 0,6W	
3510	4822 050 22203	22k 1% 0,6W	
3511	4822 116 52271	33k 5% 0,5W	
3512 ▲	4822 052 10479	47Ω 5% 0,33W	
3513	4822 050 21503	15k 1% 0,6W	
3514	4822 050 25602	5k6 1% 0,6W	
3515	4822 050 21503	15k 1% 0,6W	
3516	4822 050 25602	5k6 1% 0,6W	
3518	4822 050 11803	18k 1% 0,4W	
3519	4822 050 11803	18k 1% 0,4W	
3520	4822 101 10927	470Ω lin.pot.	
3521	4822 116 82046	2k2 5% 1/6W	
3522	4822 116 52267	30k 5% 0,5W	
3523	4822 050 28202	8k2 1% 0,6W	
3524	4822 050 25101	510Ω 1% 0,6W	
3526	4822 050 13903	39k 1% 0,4W	
3527	4822 050 16802	6k8 1% 0,4W	
3528	4822 100 11212	2k2 lin.pot.	
3529	4822 102 90036	5K (part of combi pot.)	
3530	4822 050 25602	5k6 1% 0,6W	
3531	4822 116 52271	33K 5% 0,5W	
3532	4822 050 22203	22k 1% 0,6W	
3533	4822 100 90081	10k pot.	
3534	4822 050 13302	3k3 1% 0,4W	
3535	4822 050 21002	1k 1% 0,6W	
3536 ▲	4822 052 10479	47Ω 5% 0,33W	
3537	4822 116 52234	100K 5% 0,5W	
3538 ▲	4822 052 10108	1Ω 5% 0,33W	
3539 ▲	4822 052 10108	1Ω 5% 0,33W	
3540 ▲	4822 052 10478	4Ω7 5% 0,33W	
3541	4822 050 22205	2M2 5%	
3542	4822 050 25602	5k6 1% 0,6W	
3543	4822 050 22203	22k 1% 0,6W	
3544	4822 050 24702	4k7 1% 0,6W	
3545	4822 050 13302	3k3 1% 0,4W	
3546	4822 116 82046	2k2 5% 1/6W	
3547	4822 050 11803	18k 1% 0,4W	
3548	4822 050 21003	10k 1% 0,6W	
3549	4822 050 22003	20k 1% 0,6W	
3550	4822 050 21604	160k 1% 0,6W	
3551	4822 050 24704	470k 1% 0,6W	
3552	4822 100 11348	1k lin.pot.	
3553	4822 053 10181	180Ω 5% 1W	
3556	4822 050 15603	56k 1% 0,4W	
3560	4822 050 11503	15k 1% 0,4W	
3561	4822 116 83914	10k 5% 3W	
3562	4822 050 23301	330Ω 1% 0,6W	
3563	4822 050 23901	390Ω 1% 0,6W	
3564	4822 050 21502	1k5 1% 0,6W	
3565	4822 117 10293	3k3 5%	
3566	4822 050 21202	1k2 1% 0,6W	
3567	4822 053 12181	4Ω7 5% 3W	
3568	4822 050 26809	68Ω 1% 0,6W	
3569	4822 050 25601	560Ω 1% 0,6W	
3570	4822 050 26202	6k2 1% 0,6W	
3571	4822 050 24701	470Ω 1% 0,6W	
3573	4822 116 52255	200k 5% 0,5W	
3574	4822 100 11319	4k7 lin.pot.	
3575	4822 100 11319	4k7 lin.pot.	
3576	4822 116 81154	2Ω2 5% 0,5W	
3577	4822 050 25604	560k 1% 0,6W	
3579	4822 050 21001	100Ω 1% 0,6W	
3580	4822 050 22203	22k 1% 0,6W	
3581	4822 100 11141	10k lin.pot.	
3582	4822 050 25602	5k6 1% 0,6W	
3583	4822 050 15603	56k 1% 0,4W	
3584	4822 050 26803	68k 1% 0,6W	
3585	4822 050 21503	15k 1% 0,6W	
3586	4822 050 22402	2k4 1% 0,6W	
3588	4822 116 52278	390k 5% 0,5W	
3589	4822 100 90081	10k pot.	
3590	4822 100 11141	10k lin.pot.	
3591	4822 102 90036	10K (part of combi pot.)	
3592	4822 050 21202	1k2 1% 0,6W	
3594	4822 116 52306	9k1 5% 0,5W	
3595	4822 050 21503	15k 1% 0,6W	
3596	4822 117 10012	12Ω 5% 2W	
3597	4822 050 21003	10k 1% 0,6W	
3598	4822 116 82976	82k 5% 1/6W	
3599	4822 050 16802	6k8 1% 0,4W	
3601	4822 050 21003	10k 1% 0,6W	
3604	4822 050 21502	1k5 1% 0,6W	
3605	4822 050 13903	39k 1% 0,4W	
3606	4822 050 24702	4k7 1% 0,6W	
3607	4822 050 21003	10k 1% 0,6W	
3608	4822 050 24702	4k7 1% 0,6W	
3609	4822 050 21003	10k 1% 0,6W	
3611	4822 050 26803	68k 1% 0,6W	
3612	4822 050 21503	15k 1% 0,6W	
3614	4822 050 21502	1k5 1% 0,6W	
3615	4822 050 15603	56k 1% 0,4W	
3616	4822 050 21001	100Ω 1% 0,6W	
3617	4822 100 90081	10k pot.	
3619	4822 050 22201	220Ω 1% 0,6W	
3620	4822 050 21002	1k 1% 0,6W	
3621	4822 050 21001	100Ω 1% 0,6W	
3622	4822 050 21002	1k 1% 0,6W	
3623	4822 100 11141	10k lin.pot.	
3624	4822 100 11895	10k pot.	
3625	4822 050 13302	3k3 1% 0,4W	
3626	4822 050 22702	2k7 1% 0,6W	
3627	4822 050 21203	12k 1% 0,6W	
3801	4822 116 52305	820k 5% 0,5W	
3802	4822 050 22203	22k 1% 0,6W	
3803	4822 050 21001	100Ω 1% 0,6W	
3804	4822 050 21002	1k 1% 0,6W	
3805	4822 116 52271	33K 5% 0,5W	
3807	4822 050 11002	1k 1% 0,4W (7CM5279 only)	
3809	4822 116 52295	620k 5% 0,5W (7CM5279 only)	

5101 ▲	4822 157 10292	14mH	
5102	4822 157 70483	Bead coil	
5103	4822 157 70483	Bead coil	
5104 ▲	4822 146 31222	Power transformer	
5151	4822 156 21399	180µH	
5152	4822 156 21399	180µH	
5153	4822 157 52234	100µH	
5154	4822 157 52234	100µH	
5155	4822 157 52234	100µH	
5401	4822 157 51998	6.8µH	
5503 ▲	4822 140 10482	Line output transformer	
5504	4822 157 70478	7mH	
5505	4822 140 10455	Hor. drive transformer	
5506	4822 157 90246	120µH	
5507	4822 156 50102	Linearity coil	
5508	4822 157 70477	3,9µH	

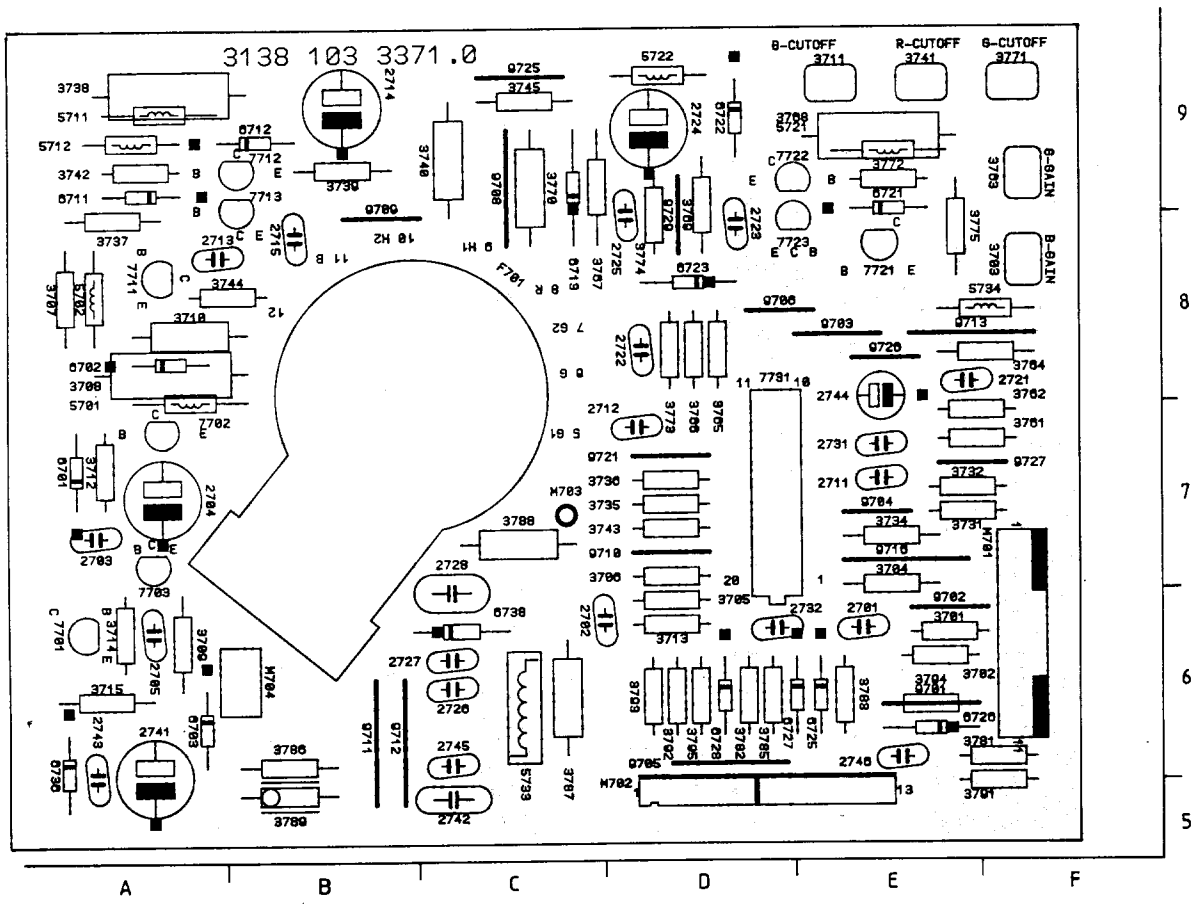
6101	4822 130 81497	1N4005
6102	4822 130 81497	1N4005
6103	4822 130 81497	1N4005
6104	4822 130 81497	1N4005
6105	4822 130 31393	RGP10J
6106	4822 130 31393	RGP10J
6107	4822 130 30621	1N4148
6108	4822 130 30621	1N4148
6109	4822 130 30842	BAV21
6110	4822 130 31933	1N5061
6111	4822 130 31393	RGP10J
6112	4822 130 83362	1N4004GP
6113	4822 130 42606	BYD33J
6114	4822 130 31607	RGP10D
6115	4822 130 31607	RGP10D
6116	4822 130 31933	1N5061
6118	5322 130 32184	BYV27-50
6120	4822 130 33742	LTL4234
6122	4822 130 34197	BZX79-C12
6150	4822 130 42488	BYD33D
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	4822 130 30621	1N4148
6406	4822 130 31607	RGP10D
6407	4822 130 34441	BZX79-C22
6408	4822 130 34441	BZX79-C22
6502	4822 130 30621	1N4148
6504	4822 130 30621	1N4148
6505	4822 130 30621	1N4148
6506	4822 130 30621	1N4148
6507	4822 130 34441	BZX79-B22
6508	4822 130 31607	RGP10D
6509	4822 130 42489	RGP10G
6510	4822 130 42489	RGP10G
6513	4822 130 32834	BY329
6514	4822 130 31607	RGP10D
6516	4822 130 41602	BYW95C
6517	4822 130 30842	BAV21
6518	4822 130 30621	1N4148
6519	4822 130 30621	1N4148
6520	4822 130 30621	1N4148
6521	4822 130 34382	BZX79-C8V2
6522	4822 130 34278	BZX79-C6V8
6523	4822 130 30621	1N4148
6524	4822 130 30621	1N4148
6525	4822 130 30621	1N4148
6527	5322 130 32184	BYV27-50
6528	4822 130 34197	BZX79-C12
6601	4822 130 30621	1N4148

7101	4822 130 63287	MTP6N60
7102	4822 130 63272	BSS100
7105	4822 209 83909	UC3842N
7106	4822 130 41078	BC640
7107	4822 130 41782	BF422
7108	4822 209 72554	MC7808CT
7401	5322 130 60068	BC558C
7402	4822 209 31676	TDA4860
7502	5322 209 10422	HEF4538
7503	4822 130 44196	BC548C
7504	4822 209 32284	TDA4851
7505	4822 130 44196	BC548C
7506	4822 130 44196	BC548C
7507	4822 130 44196	BC548C
7508	5322 130 60068	BC558C
7509	4822 130 44196	BC548C
7512	4822 130 44196	BC548C
7513	4822 130 44196	BC548C

Video panel

2701	E6	2745	C6	3739	B9	3783	E6	6713	C9	9705	D6
2702	D6	2746	E6	3740	C9	3785	D6	6721	E9	9706	E8
2703	A7	3701	E6	3741	E9	3786	B6	6722	D9	9708	C9
2704	A7	3702	E6	3742	A9	3787	C6	6723	D8	9709	B8
2705	A6	3703	F8	3743	D7	3788	C7	6725	E6	9710	D7
2711	E7	3704	E7	3744	B8	3789	B5	6726	E6	9711	B6
2712	D7	3705	D6	3745	C9	3791	F5	6727	E6	9712	B6
2713	B8	3706	D7	3761	F7	3792	D6	6728	D6	9713	F8
2714	B9	3707	A8	3762	F7	3793	D6	6736	A6	9716	E7
2715	B8	3708	A8	3763	F9	3794	E6	6738	C6	9721	D7
2721	E8	3709	A6	3764	F8	3795	D6	7701	A6	9725	C9
2722	D8	3710	A8	3765	D8	5701	A8	7702	A7	9726	E8
2723	D8	3711	E9	3766	D8	5702	A8	7703	A7	9727	F7
2724	D9	3712	A7	3767	D9	5711	A9	7711	A8	9729	D8
2725	D8	3713	D6	3768	E9	5712	A9	7712	B9	F701	C8
2726	C6	3714	A6	3769	D9	5721	E9	7713	B9	M701	F6
2727	C6	3715	A6	3770	C9	5722	D9	7721	E8	M702	D5
2728	C7	3731	E7	3771	F9	5733	C6	7722	E9	M703	C7
2731	E7	3732	E7	3772	E9	5734	F8	7723	E8	M704	B6
2732	D6	3734	E7	3773	D8	6701	A7	7731	D7		
2741	A6	3735	D7	3774	D8	6702	A8	9701	E6		
2742	C5	3736	D7	3775	E8	6703	A6	9702	E6		
2743	A6	3737	A8	3781	F6	6711	A9	9703	E8		
2744	E8	3738	A9	3782	D6	6712	B9	9704	E7		

For Service Manuals
MAURITRON SERVICES
8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554
email:- mauritron@dial.pipex.com



A1 0.5V/DIV

A2 1V/DIV

A3 1V/DIV

A4 1V/DIV

A5 1V/DIV

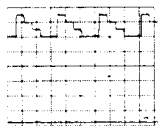
A6 1V/DIV

A7 0.2V/DIV

A8 1V/DIV

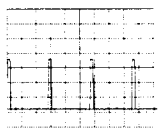
Wave forms for diagram A

A1 7731-5



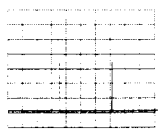
0.5V/DIV 10µS/DIV

A2 M701-8



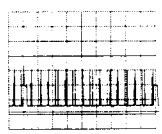
1V/DIV 10µS/DIV

A3 M701-10



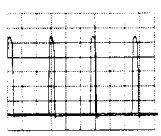
1V/DIV 5mS/DIV

A4 7731-10



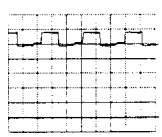
1V/DIV 2mS/DIV

A5 7731-9



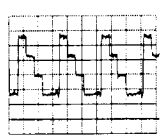
1V/DIV 10µS/DIV

A6 7731-15



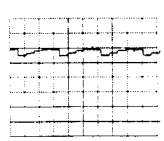
1V/DIV 10µS/DIV

A7 7731-16



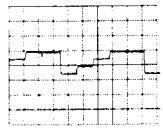
0.2V/DIV 10µS/DIV

A8 7731-17



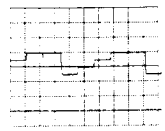
1V/DIV 10µS/DIV

A9 7711-C



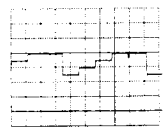
20V/DIV 5µS/DIV

A10 7712-B



20V/DIV 5µS/DIV

A11 7712-E



20V/DIV 5µS/DIV

9

8

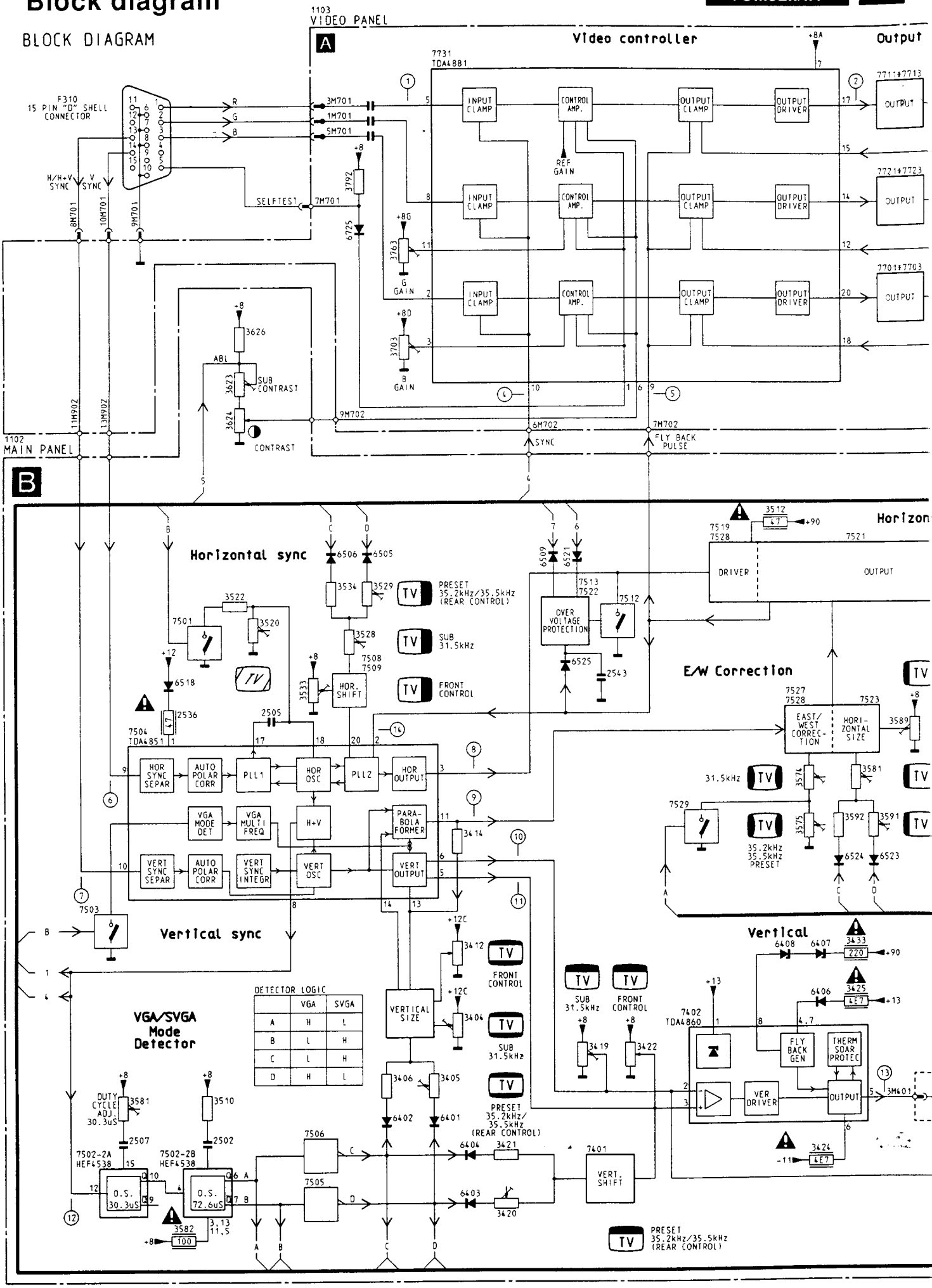
7

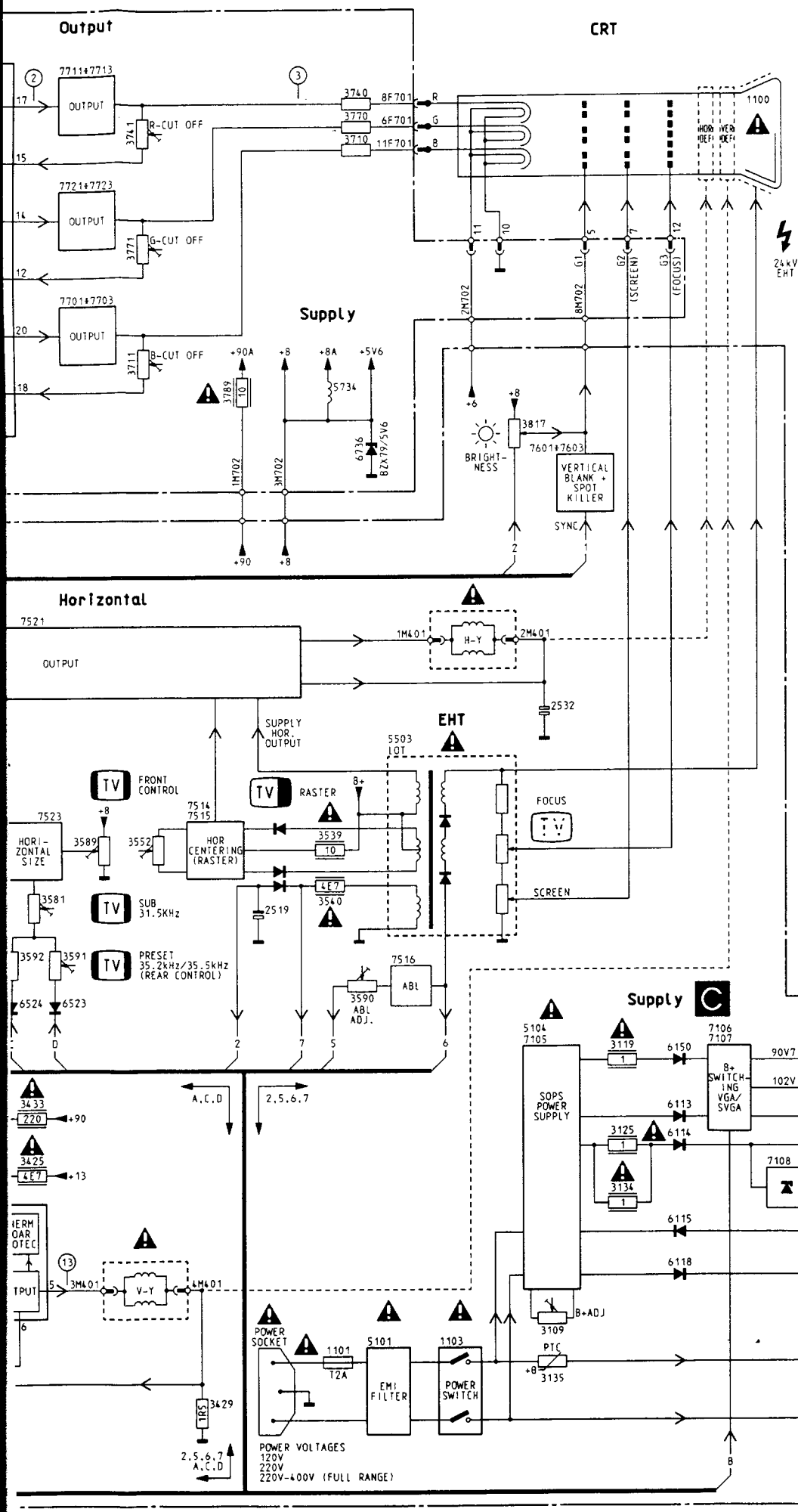
6

5

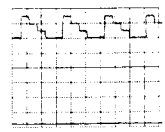
Block diagram

BLOCK DIAGRAM



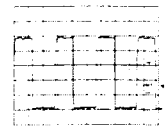


1 7731-5



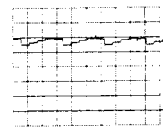
0.5V/DIV 10µS/DIV

8 7504-3



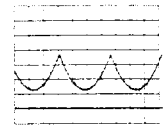
1V/DIV 5mS/DIV

2 7731-17



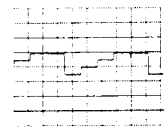
1V/DIV 10µS/DIV

9 7504-11



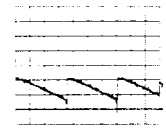
1V/DIV 5mS/DIV

3 7712-E



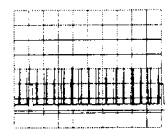
20V/DIV 5µS/DIV

10 7504-6



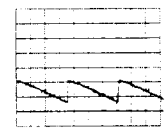
0.5V/DIV 5mS/DIV

4 7731-10



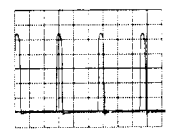
1V/DIV 2mS/DIV

11 7504-5



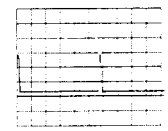
0.5V/DIV 5mS/DIV

5 7731-9



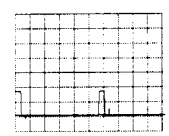
1V/DIV 10µS/DIV

12 7502-12



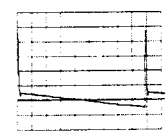
2V/DIV 5µS/DIV

6 7504-9



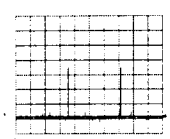
0.2V/DIV 5µS/DIV

13 7402-5



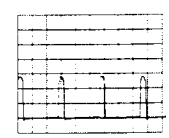
10V/DIV 2mS/DIV

7 7504-10



1V/DIV 5mS/DIV

14 7504-2

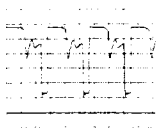


2V/DIV 10µS/DIV

CM 2000

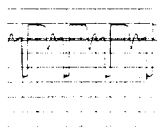
CL26532212/011.XREF
140193

C1 5104-18



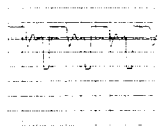
20V/DIV 10µS/DIV

C2 5104-3



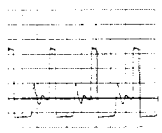
100V/DIV 10µS/DIV

C3 5104-6



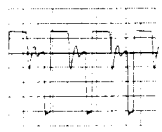
20V/DIV 10µS/DIV

C4 5104-8



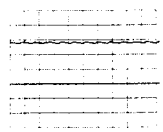
10V/DIV 10µS/DIV

C5 5104-5



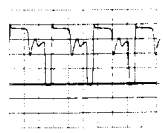
5V/DIV 10µS/DIV

C6 5104-11



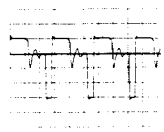
100V/DIV 100mS/DIV

C7 5104-14



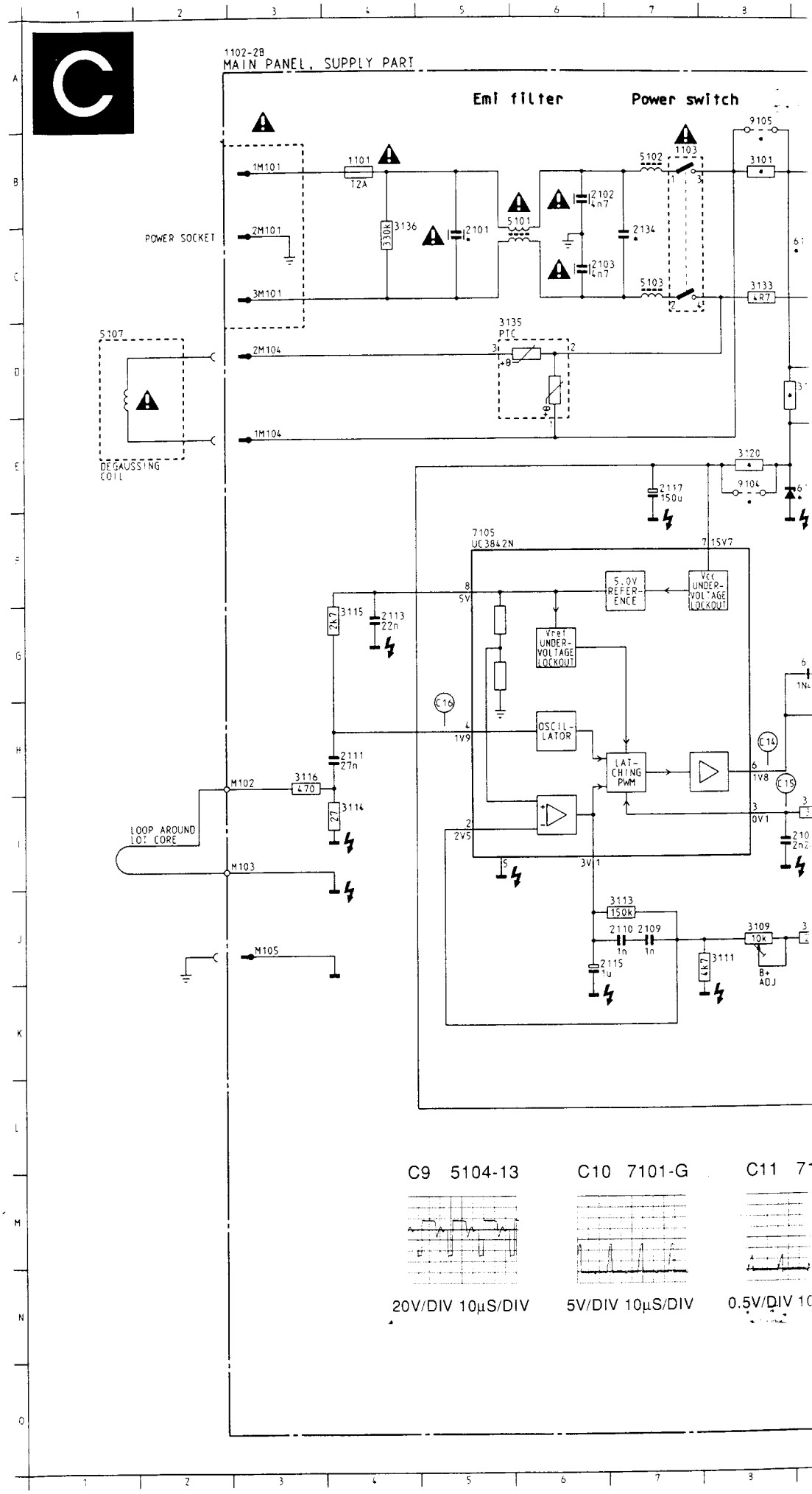
100V/DIV 10µS/DIV

C8 5104-12

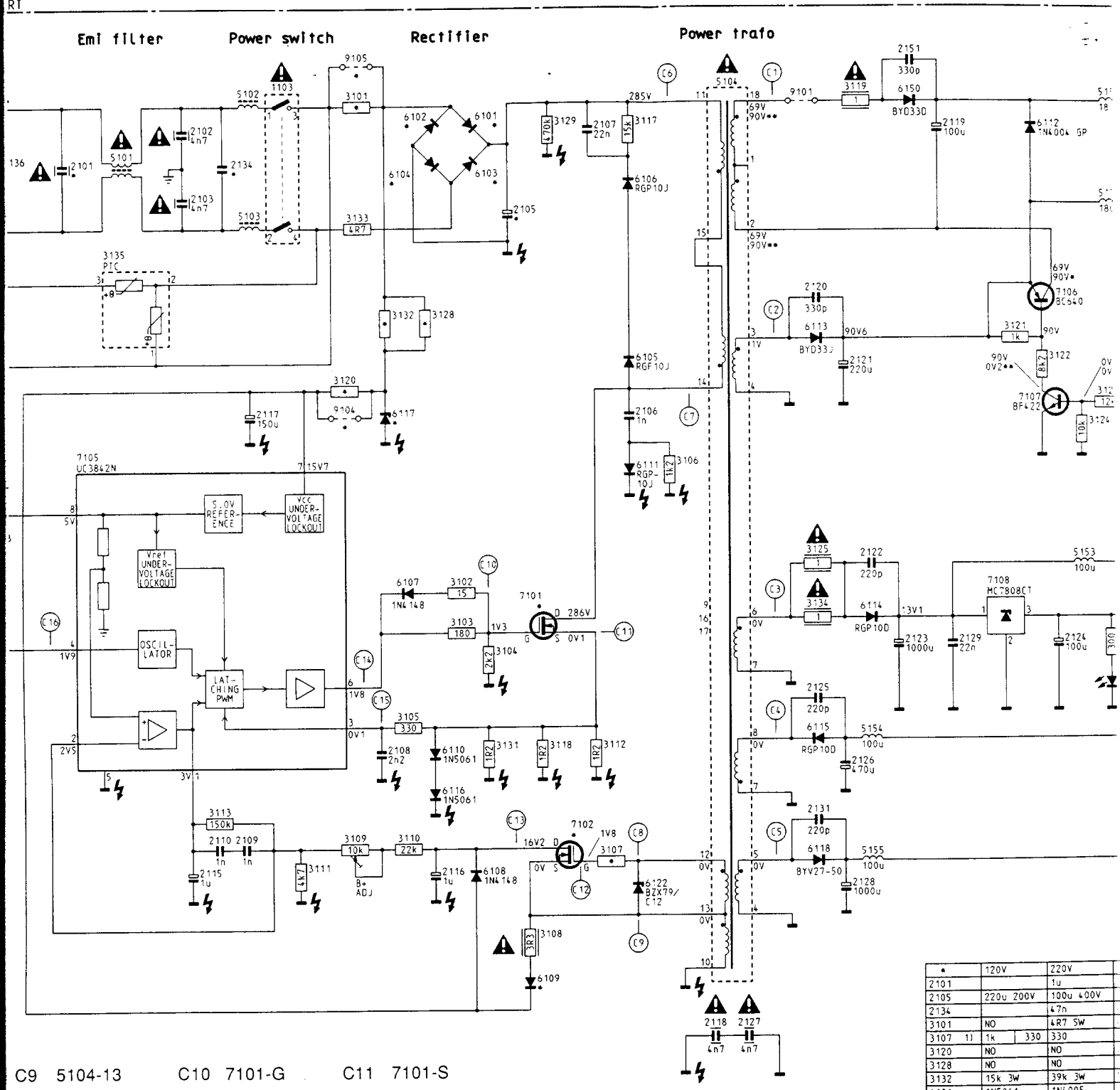


20V/DIV 10µS/DIV

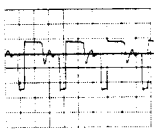
Power supply



ver supply

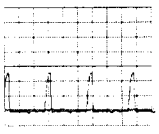


C9 5104-13



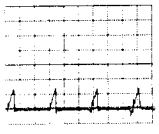
0V/DIV 10µS/DIV

C10 7101-G



5V/DIV 10µS/DIV

C11 7101-S

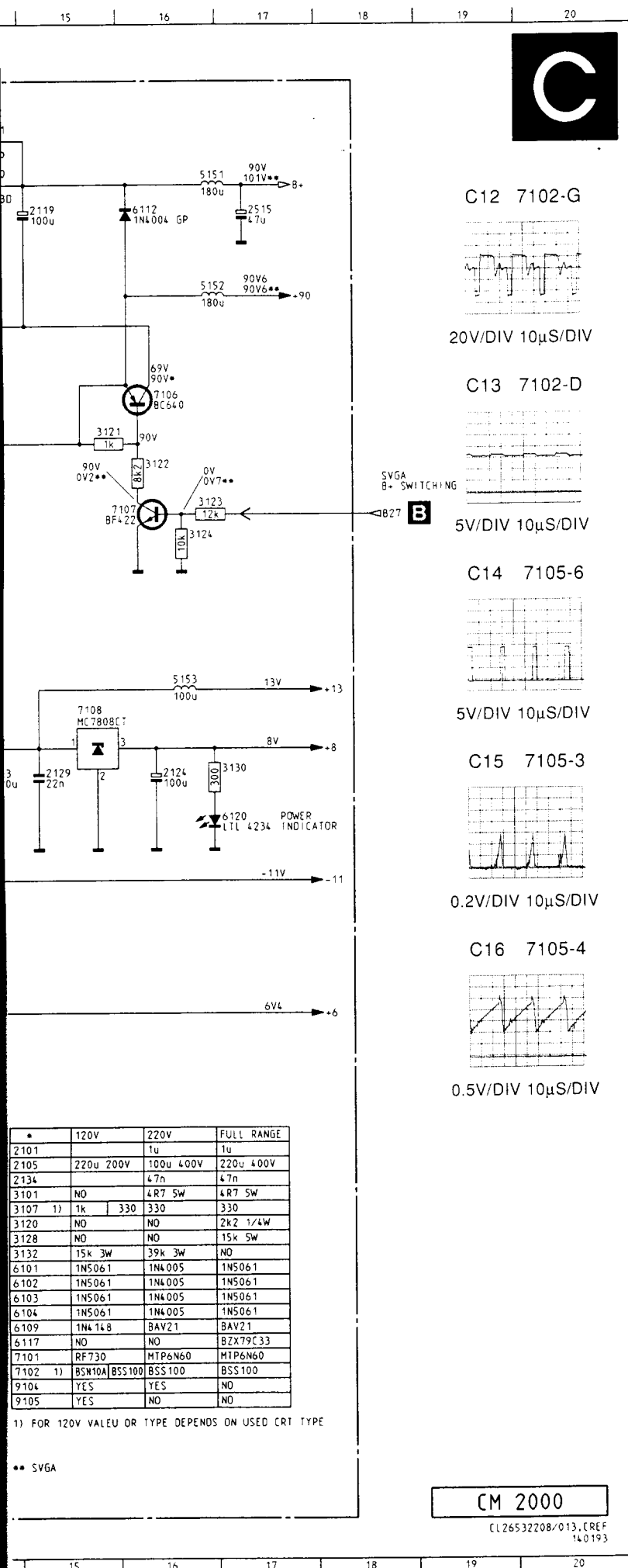


0.5V/DIV 10µS/DIV

*	120V	220V
2101		1u
2105	220u 200V	100u 400V
2134		47n
3101	NO	4R7 5W
3107 1)	1k 330	330
3120	NO	NO
3128	NO	NO
3132	15k 3W	39k 3W
6101	1N5061	1N4005
6102	1N5061	1N4005
6103	1N5061	1N4005
6104	1N5061	1N4005
6109	1N4148	BAV21
6117	NO	NO
7101	RF730	MTP6N60
7102 1)	BSN10A BSS100	BSS100
9104	YES	YES
9105	YES	NO

1) FOR 120V VALEU OR TYPE DEPENDS

** SVGA



C12 7102-G

20V/DIV 10µS/DIV

C13 7102-D

5V/DIV 10µS/DIV

C14 7105-6

5V/DIV 10µS/DIV

C15 7105-3

0.2V/DIV 10µS/DIV

C16 7105-4

0.5V/DIV 10µS/DIV

*	120V	220V	FULL RANGE
2101		1u	1u
2105	220u 200V	100u 400V	220u 400V
2134		47n	47n
3101	NO	4R7 5W	4R7 5W
3107 1)	1k 330	330	330
3120	NO	NO	2k2 1/4W
3128	NO	NO	15k 5W
3132	15k 3W	39k 3W	NO
6101	1N5061	1N4005	1N5061
6102	1N5061	1N4005	1N5061
6103	1N5061	1N4005	1N5061
6104	1N5061	1N4005	1N5061
6109	1N4148	BAV21	BAV21
6117	NO	NO	BZX79C33
7101	RF730	MTP6N60	MTP6N60
7102 1)	BSN10A BSS100	BSS100	BSS100
9104	YES	YES	NO
9105	YES	NO	NO

1) FOR 120V VALEU OR TYPE DEPENDS ON USED CRT TYPE

** SVGA

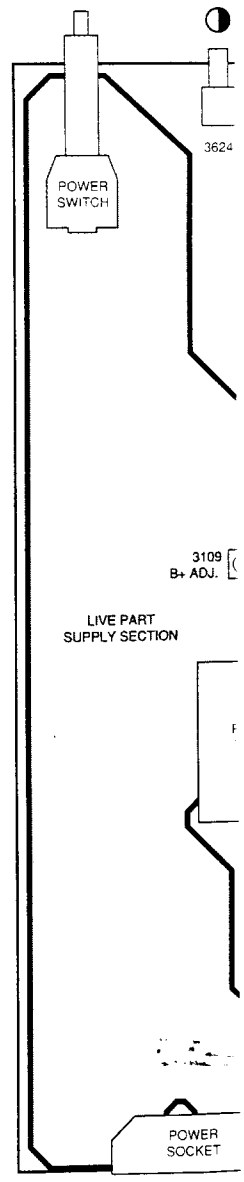
CM 2000

CL26532208/013.CREF 140193

	1101	B 4
	1102	A 2
	1103	B 7
	2101	C 5
A	2102	B 6
	2103	C 6
	2105	C10
	2106	E11
	2107	B11
	2108	I 8
	2109	J 7
	2110	J 7
B	2111	H 4
	2113	G 4
	2115	J 6
	2116	J 9
	2117	E 7
	2118	L12
	2119	B15
	2120	D13
C	2121	E14
	2122	G14
	2123	H14
	2124	H16
	2125	H13
	2126	I14
	2127	L12
D	2128	K14
	2129	H15
	2131	J13
	2134	C 7
	2151	A14
	2515	B17
	3101	B 8
	3102	G 9
E	3103	H 9
	3104	H10
	3105	I 9
	3106	F12
	3107	J11
	3108	K10
	3109	J 8
F	3110	J 9
	3111	J 8
	3112	I11
	3113	J 7
	3114	I 4
	3115	G 4
	3116	H 3
	3117	B11
G	3118	I10
	3119	B14
	3120	E 8
	3121	D15
	3122	E16
	3123	E16
	3124	E16
	3125	G13
H	3128	D 9
	3129	B10
	3130	H17
	3131	I10
	3132	D 9
	3133	C 8
	3134	G13
I	3135	D 5
	3136	B 4
	5101	C 6
	5102	B 7
	5103	C 7
	5104	B12
	5151	B16
J	5152	C16
	5153	G16
	5154	I14
	5155	J14
	6101	B 9
	6102	B 9
	6103	C 9
	6104	C 9
K	6105	E11
	6106	C11
	6107	G 9
	6108	J10
	6109	L10
	6110	I 9
	6111	F11
L	6112	B16
	6113	D13
	6114	G14
	6115	I13
	6116	I 9
	6117	E 9
	6118	J13
	6120	H17
M	6122	K11
	6150	B14
	7101	G10
	7102	J10
	7105	F 5
	7106	D16
	7107	E16
	7108	G15
N	9101	B13
	9104	E 8
	9105	A 8
O		

LOCATION

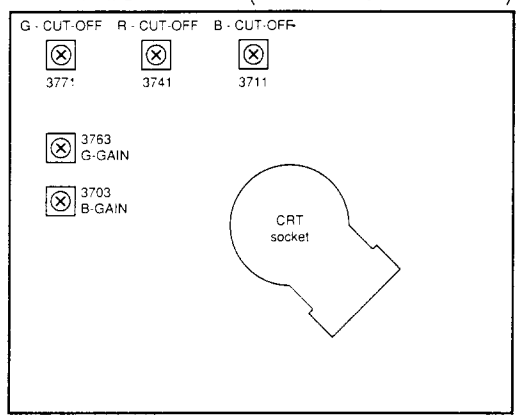
MAIN PANEL
(component view)



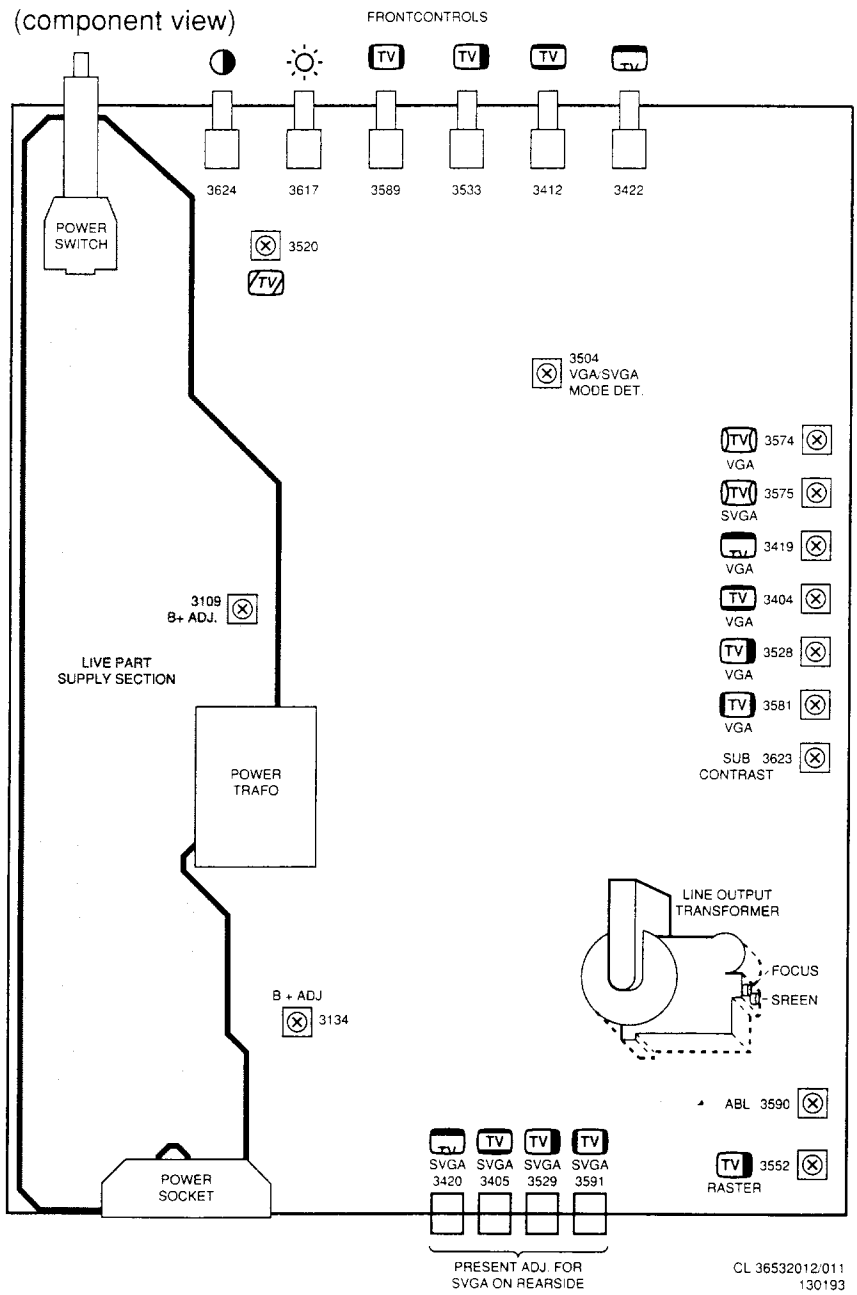
Electrical instructions

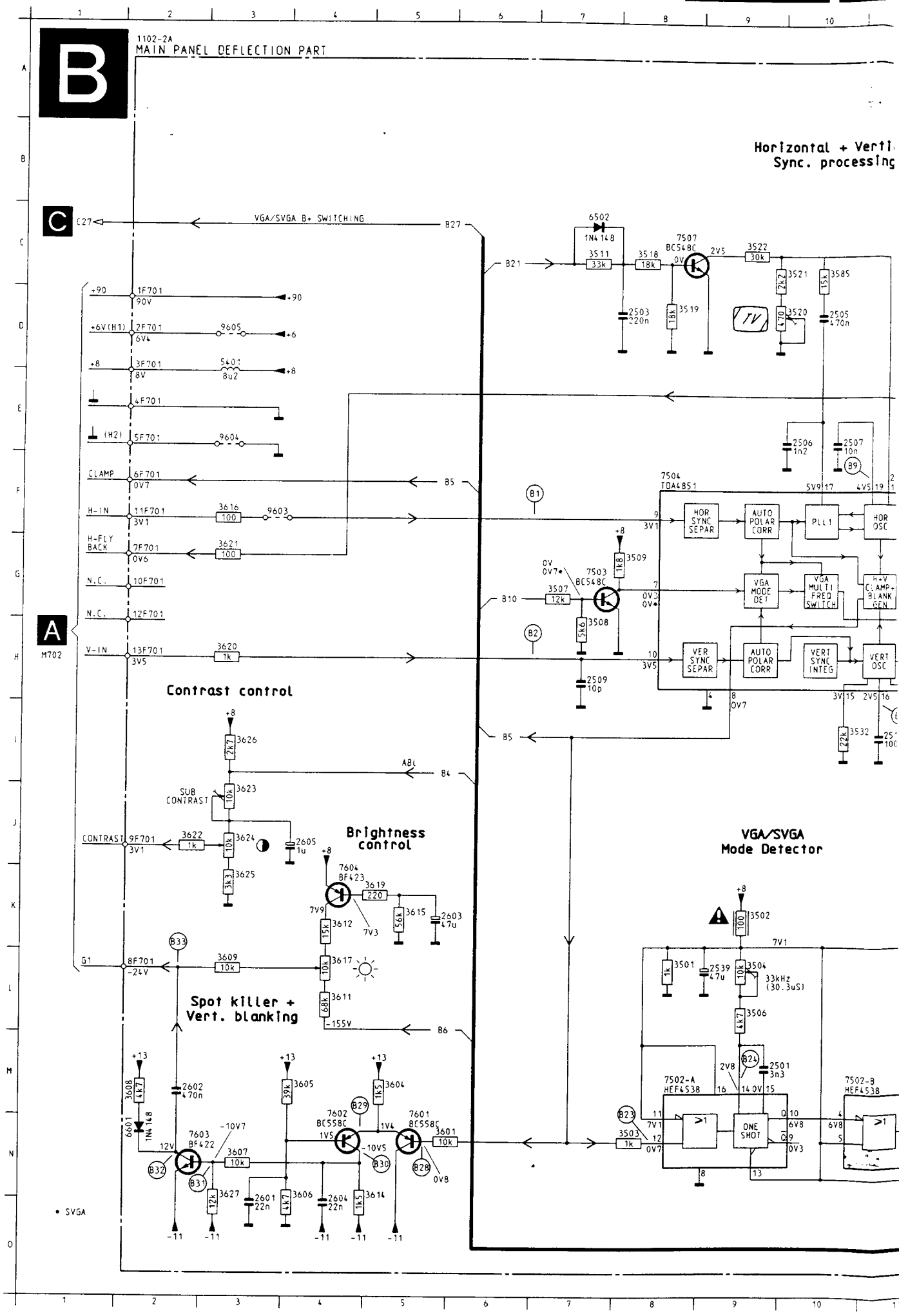
LOCATION OF ADJUSTING COMPONENTS

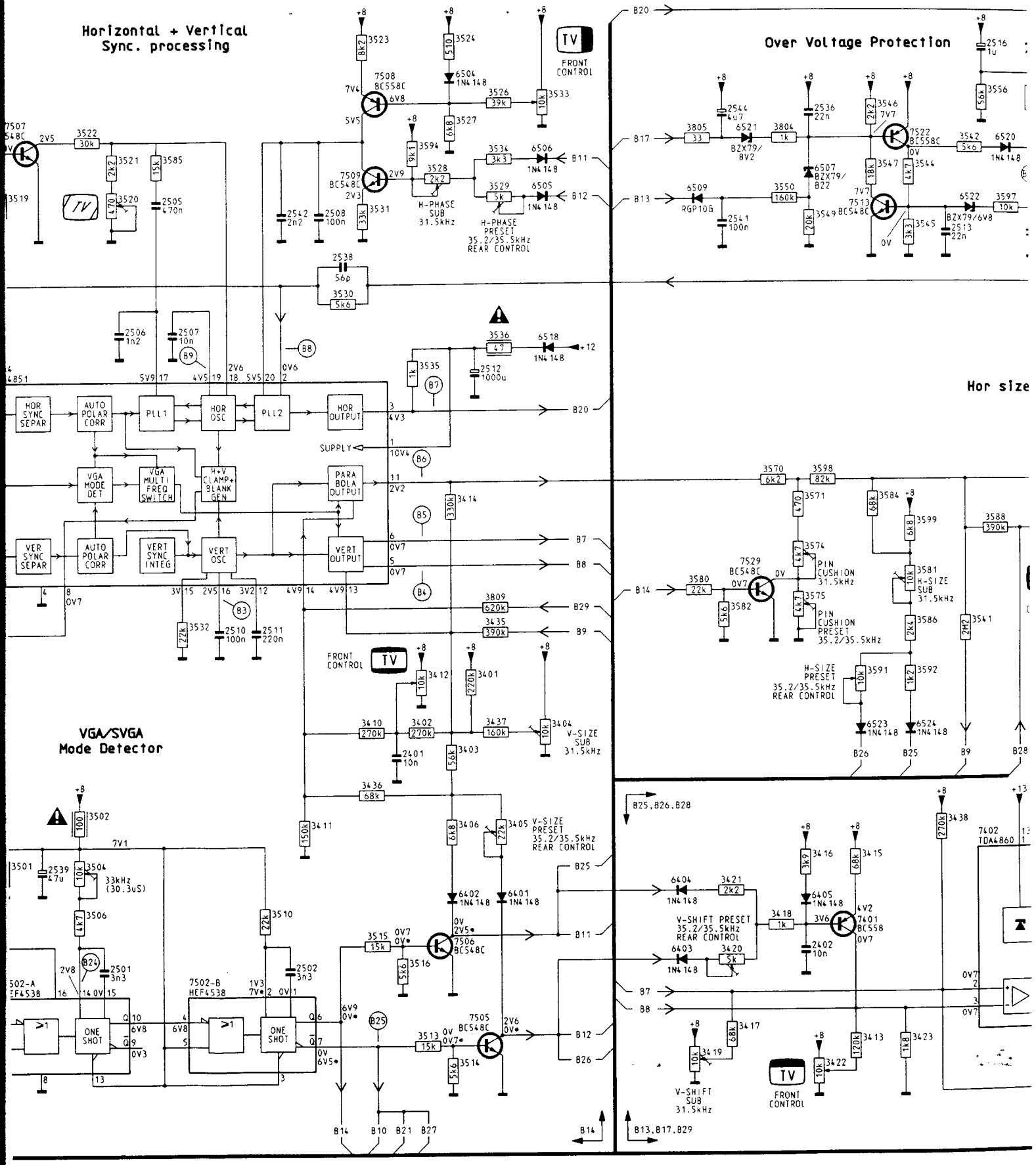
VIDEO PANEL (TRACK SIDE VIEW)

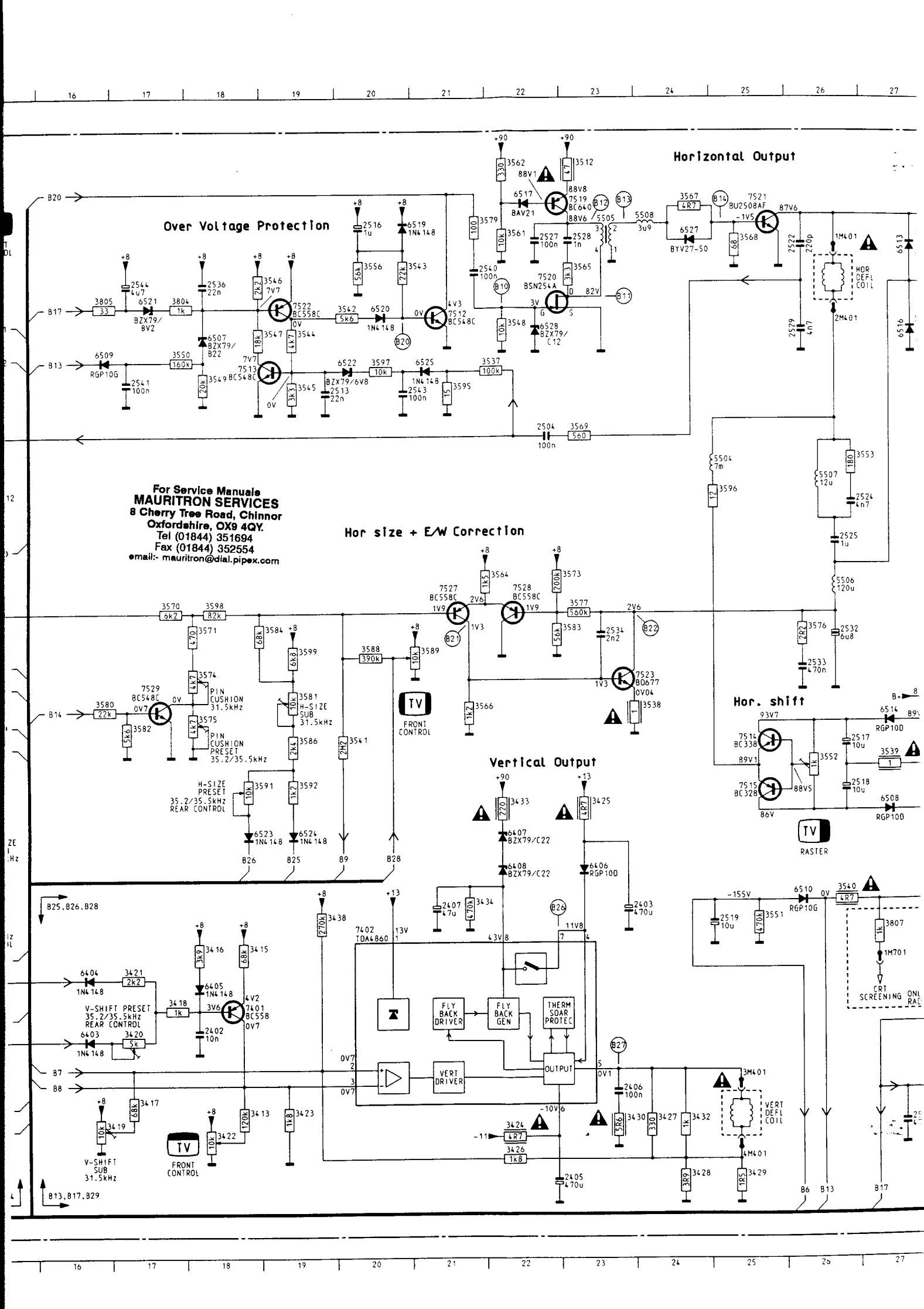


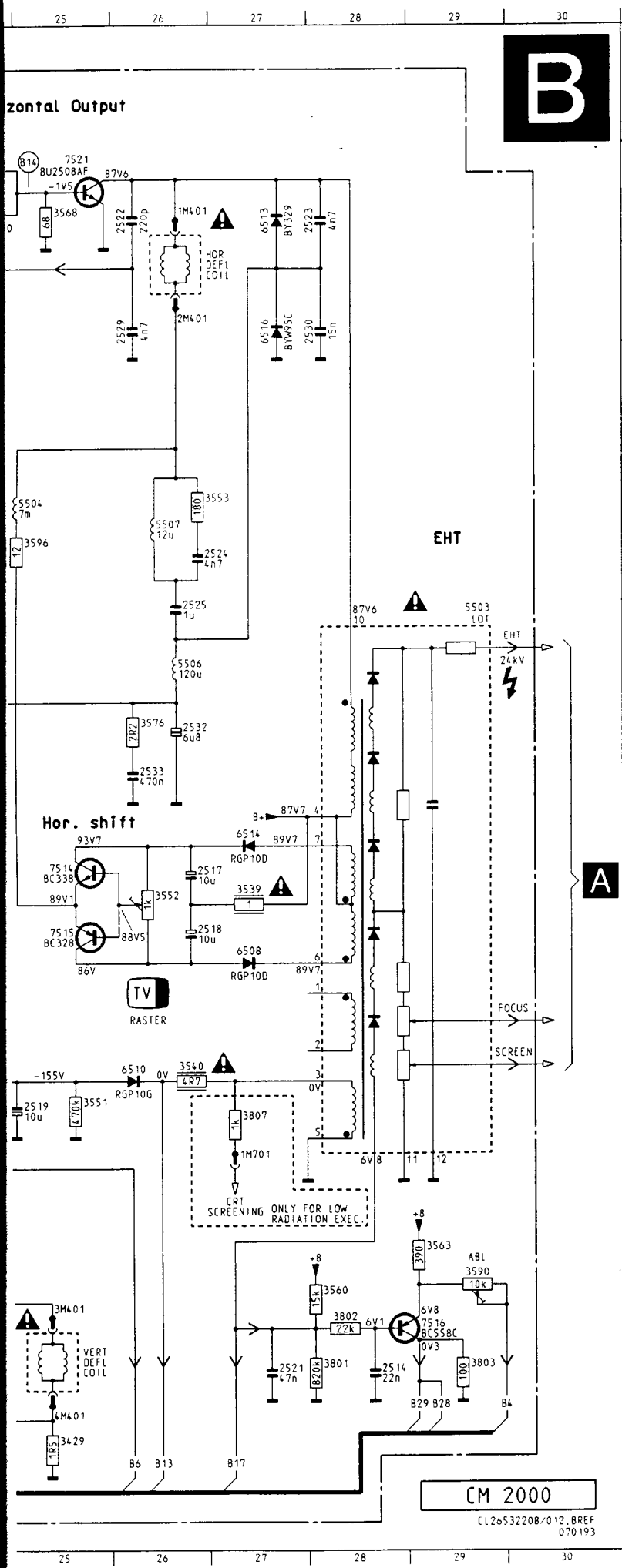
MAIN PANEL
(component view)



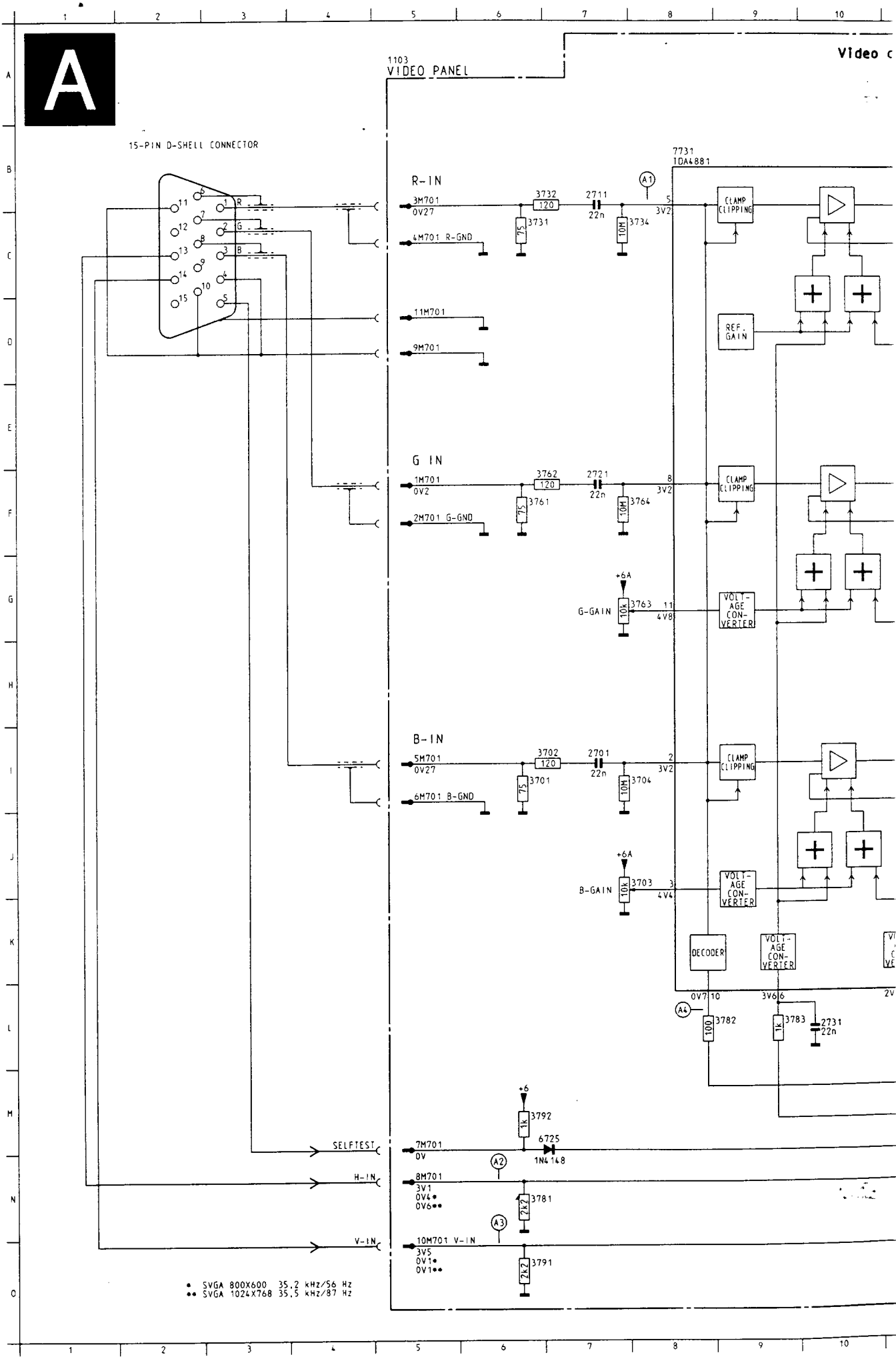

B
1102-2A
MAIN PANEL DEFLECTION PART
Horizontal + Verti
Sync. processing
C
A
M702
VGA/SVGA B+ SWITCHING
+90
+6V(H1)
+8
(H2)
CLAMP
H-IN
H-FLY BACK
N.C.
N.C.
V-IN
Contrast control
SUB CONTRAST
CONTRAST
Brightness control
G1
Spot killer + Vert. blanking
VGA/SVGA Mode Detector
7504 TDA4851
HOR SYNC SEPAR
AUTO POLAR CORR
PLL1
HOR OSC
VGA MODE DET
VGA MULTI FREQ SWITCH
H+V CLAMP+ BLANK GEN
VER SYNC SEPAR
VERT SYNC INTEG
VERT OSC
7502-A HEF4538
7502-B HEF4538
ONE SHOT
33kHz (30.3uS)
• SVGA

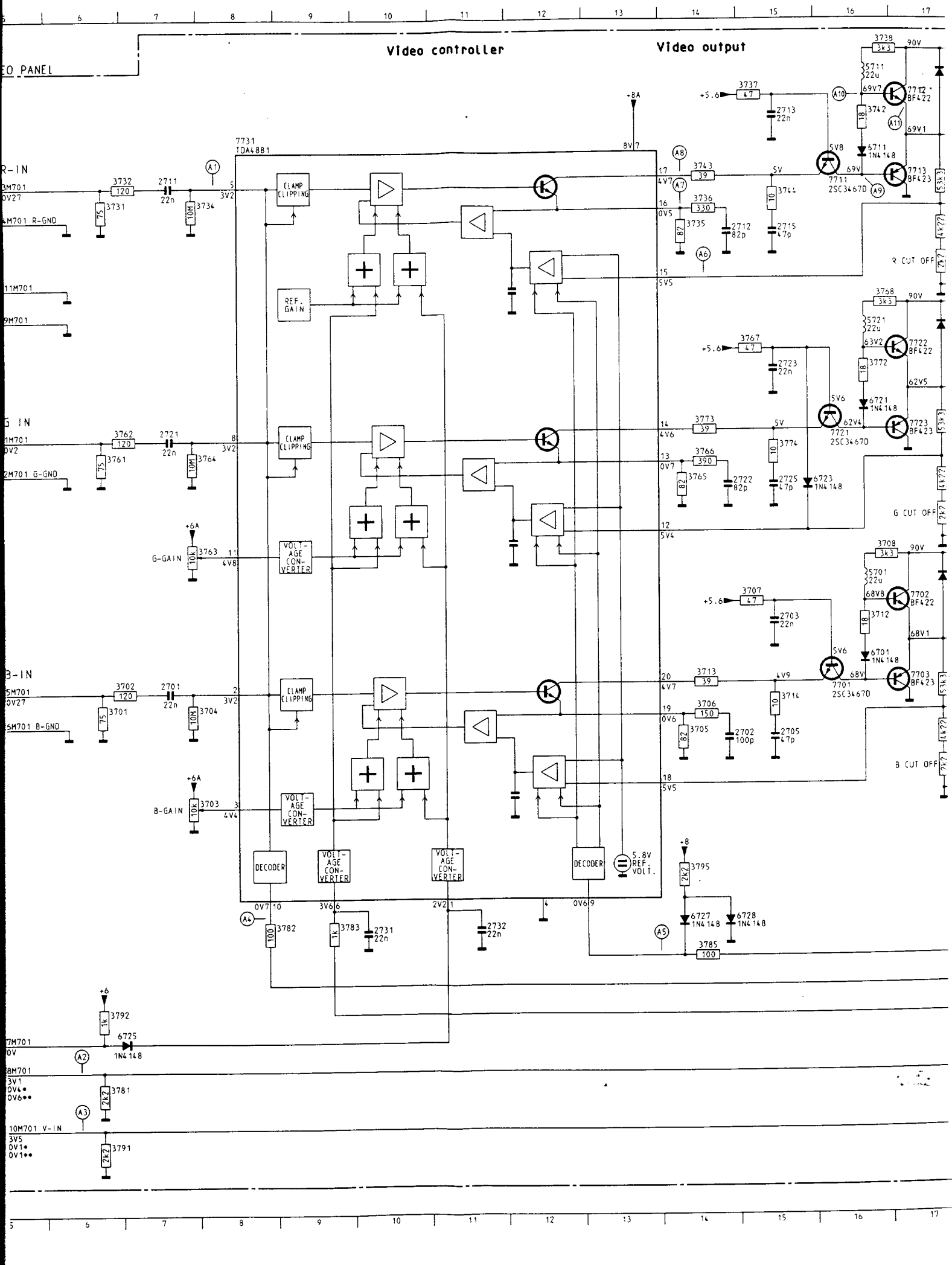

Horizontal + Vertical Sync. processing
Over Voltage Protection
Hor size
VGA/SVGA Mode Detector
HOR SYNC SEPAR
AUTO POLAR CORR
PLL1
HOR OSC
PLL2
HOR OUTPUT
VGA MODE DET
VGA MULTI FREQ SWITCH
H+V CLAMP+ BLANK GEN
PARA BOLA OUTPUT
VER SYNC SEPAR
AUTO POLAR CORR
VERT SYNC INTEG
VERT OSC
VERT OUTPUT
SUPPLY
FRONT CONTROL
H-PHASE SUB 31.5kHz
H-PHASE PRESET 35.2/35.5kHz REAR CONTROL
PIN CUSHION 31.5kHz
PIN CUSHION PRESET 35.2/35.5kHz
H-SIZE SUB 31.5kHz
H-SIZE PRESET 35.2/35.5kHz REAR CONTROL
V-SIZE SUB 31.5kHz
V-SIZE PRESET 35.2/35.5kHz REAR CONTROL
V-SHIFT PRESET 35.2/35.5kHz REAR CONTROL
V-SHIFT SUB 31.5kHz
33kHz (30.3uS)
7502-A HEF4538
7502-B HEF4538
ONE SHOT
7508 BC558C
7509 BC548C
7506 BC548C
7505 BC548C
7529 BC548C
7522 BC558C
7513 BC548C
7401 BC558
7402 TDA6860
BZX79/8V2
BZX79/B22
BZX79/6V8
RGP10G
1N4148
B20
B11
B12
B7
B8
B29
B9
B14
B10
B21
B27
B25
B26
B24
B4
B5
B6
B17
B13
B28
B25,B26,B28
B13,B17,B29

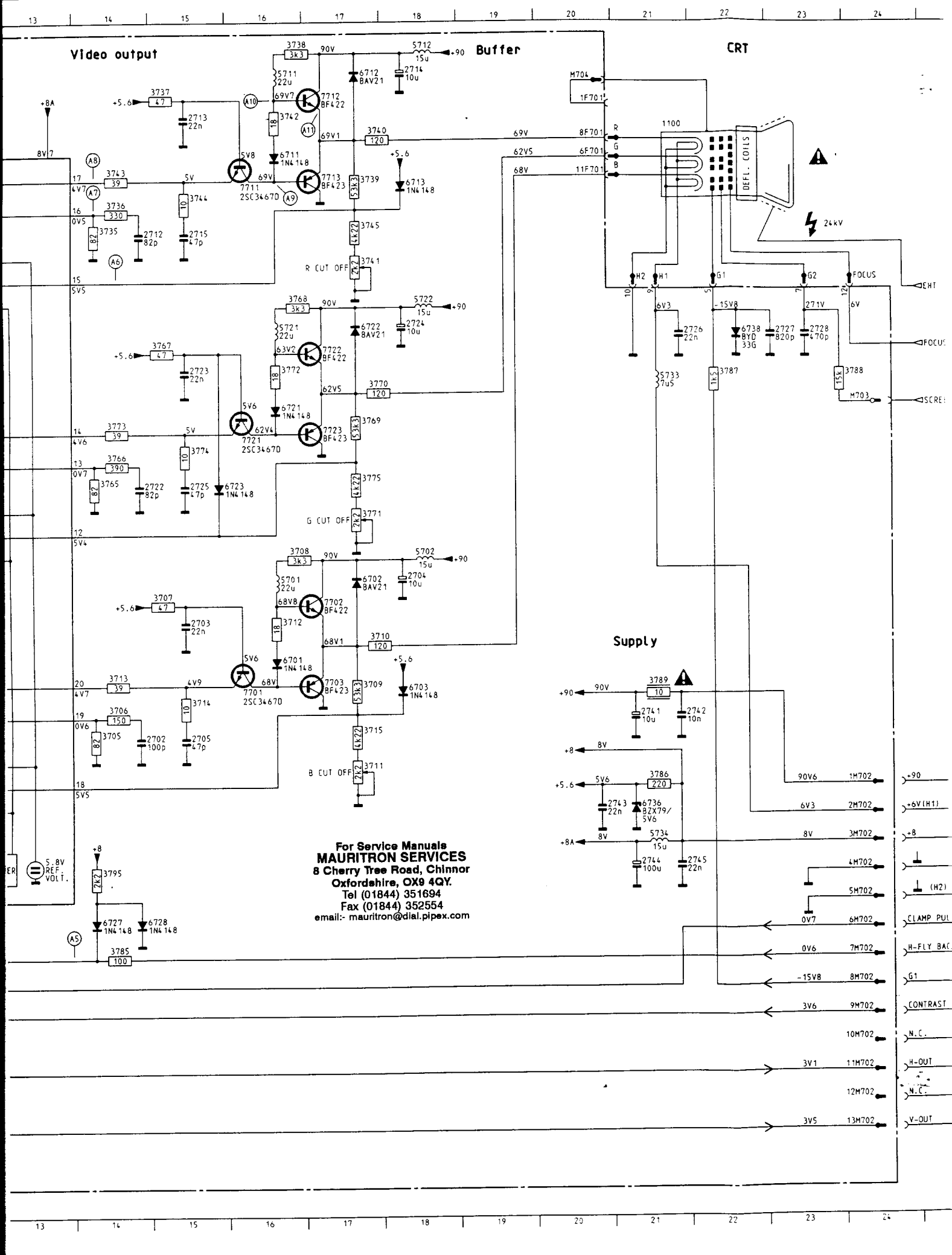

Horizontal Output
Over Voltage Protection
Hor size + E/W Correction
Hor. shift
Vertical Output
For Service Manuals
MAURITRON SERVICES
8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554
email:- mauritron@dial.pipex.com
PIN CUSHION 31.5kHz
H-SIZE SUB 31.5kHz
PIN CUSHION PRESET 35.2/35.5kHz
H-SIZE PRESET 35.2/35.5kHz REAR CONTROL
V-SHIFT PRESET 35.2/35.5kHz REAR CONTROL
V-SHIFT SUB 31.5kHz
FRONT CONTROL
RASTER
HOR DEFL COIL
VERT DEFL COIL
CRT SCREENING
FLY BACK DRIVER
FLY BACK GEN
THERM SOAR PROTEC
VERT DRIVER
OUTPUT
TDA4860
BAV21
BSN254A
BU2508AF
BYV27-50
BC640
BC558C
BC548C
BC338
BC328
BD677
RGP10G
RGP10D
BZX79/8V2
BZX79/6V8
BZX79/C12
BZX79/C22
1N4148
RGP100



	1102	A 2	3536	E14	6523	J18
	2401	J13	3537	D22	6524	J19
	2402	M18	3538	H24	6525	D21
	2403	K23	3539	I27	6527	B24
A	2405	O23	3540	K26	6528	C22
	2406	M23	3541	I20	6601	N 2
	2407	K21	3542	C20	7401	L18
	2501	M 9	3543	B20	7402	K20
	2502	M12	3544	C19	7502	M 8
	2503	D 8	3545	D19	7502	M10
	2504	E22	3546	C19	7503	G 7
	2505	D10	3547	C19	7504	F 8
B	2506	E10	3548	C22	7505	N14
	2507	E10	3549	D18	7506	M13
	2508	D12	3550	D17	7507	C 8
	2509	H 7	3551	K25	7508	B13
	2510	I11	3552	I26	7509	D12
	2511	I11	3553	E26	7512	C21
	2512	F14	3556	B20	7513	D18
	2513	D19	3560	M28	7514	I25
C	2514	N28	3561	B22	7515	I25
	2516	B20	3562	A22	7516	M29
	2517	I26	3563	M29	7519	B23
	2518	I26	3564	G22	7520	C22
	2519	K25	3565	C23	7521	B25
	2521	N27	3566	H21	7522	C19
	2522	B26	3567	B24	7523	H24
D	2523	B28	3568	B25	7527	G21
	2524	F26	3569	E23	7528	G22
	2525	F26	3570	G17	7529	H17
	2527	B22	3571	G18	7601	N 5
	2528	B23	3573	G23	7602	N 4
	2529	C26	3574	H18	7603	N 2
	2530	C28	3575	H18	7604	K 4
	2532	G26	3576	G26	9603	F 3
E	2533	H26	3577	G23	9604	E 3
	2534	G23	3579	B21	9605	D 3
	2536	C18	3580	H16		
	2538	E12	3581	H19		
	2539	L 9	3582	I17		
	2540	C21	3583	G23		
	2541	D17	3584	G19		
F	2542	D12	3585	C10		
	2543	D20	3586	I19		
	2544	C17	3588	H20		
	2601	O 3	3589	H21		
	2602	M 2	3590	M29		
	2603	K 5	3591	I18		
	2604	O 4	3592	I19		
	2605	J 4	3594	C13		
G	3401	I14	3595	D21		
	3402	J13	3596	E25		
	3403	J14	3597	D20		
	3404	J15	3598	G18		
	3405	K14	3599	H19		
	3406	K14	3601	N 5		
	3410	J13	3604	M 5		
H	3411	K12	3605	M 4		
	3412	I13	3606	N 4		
	3413	N18	3607	N 3		
	3414	G14	3608	M 2		
	3415	L18	3609	L 3		
	3416	L18	3611	L 4		
	3417	N17	3612	K 4		
	3418	L17	3614	N 5		
I	3419	N16	3615	K 5		
	3420	M17	3616	F 3		
	3421	L17	3617	L 4		
	3422	N18	3619	K 5		
	3423	N19	3620	H 3		
	3424	N22	3621	G 3		
	3425	J23	3622	J 2		
J	3426	N22	3623	J 3		
	3427	N24	3624	J 3		
	3428	O24	3625	K 3		
	3429	O25	3626	I 3		
	3430	N23	3627	N 3		
	3432	N24	3801	N28		
	3433	J22	3802	M28		
	3434	K21	3803	N29		
K	3435	I14	3804	C17		
	3436	K13	3805	C16		
	3437	J14	3807	K27		
	3438	K19	3809	I14		
	3501	L 8	5401	D 3		
	3502	K 9	5503	F29		
	3503	N 8	5504	E25		
L	3504	L 9	5505	B23		
	3506	L 9	5506	G26		
	3507	G 7	5507	E26		
	3508	G 7	5508	B24		
	3509	G 8	6401	L14		
	3510	L11	6402	L14		
	3511	C 7	6403	M16		
	3512	A23	6404	L16		
M	3513	N13	6405	L18		
	3514	N14	6406	K23		
	3515	M13	6407	J22		
	3516	M13	6408	K22		
	3518	C 8	6502	C 7		
	3519	D 8	6504	B14		
	3520	D10	6505	D15		
	3521	C10	6506	C15		
N	3522	C 9	6507	D18		
	3523	B13	6508	J27		
	3524	B14	6509	D16		
	3526	C14	6510	K26		
	3527	C14	6513	B27		
	3528	C13	6514	I27		
	3529	D14	6516	C27		
	3530	E12	6517	B22		
O	3531	D13	6518	E15		
	3532	I10	6519	B20		
	3533	C15	6520	C20		
	3534	C14	6521	C17		
	3535	F13	6522	D20		


A
1103
VIDEO PANEL
Video c
15-PIN D-SHELL CONNECTOR
7731
TDA4881
R-IN
3M701
0V27
4M701 R-GND
3732
120
3731
75
2711
22n
3734
10M
A1
5
3V2
CLAMP CLIPPING
REF. GAIN
11M701
9M701
G IN
1M701
0V2
2M701 G-GND
3762
120
3761
75
2721
22n
3764
10M
8
3V2
CLAMP CLIPPING
+6A
G-GAIN
10k
3763
11
4V8
VOLT-AGE CON-VERTER
B-IN
5M701
0V27
6M701 B-GND
3702
120
3701
75
2701
22n
3704
10M
2
3V2
CLAMP CLIPPING
+6A
B-GAIN
10k
3703
3
4V4
VOLT-AGE CON-VERTER
DECODER
VOLT-AGE CON-VERTER
0V7
10
3V6
6
2V
A4
100
3782
1k
3783
2731
22n
+6
1k
3792
6725
1N4148
SELFTEST
7M701
0V
A2
H-IN
8M701
3V1
0V4*
0V6**
2k2
3781
A3
V-IN
10M701 V-IN
3V5
0V1*
0V1**
2k2
3791
* SVGA 800X600 35.2 kHz/56 Hz
** SVGA 1024X768 35.5 kHz/87 Hz


Video controller
Video output
EO PANEL
7731
TDA4881
CLAMP CLIPPING
REF. GAIN
VOLT-AGE CON-VERTER
DECODER
S.8V REF. VOLT.
R-IN
G-IN
B-IN
R-GND
G-GND
B-GND
R CUT OFF
G CUT OFF
B CUT OFF
7711 2SC3467D
7721 2SC3467D
7701 2SC3467D
7712 BF422
7722 BF422
7702 BF422
7713 BF423
7723 BF423
7703 BF423


Video output
Buffer
CRT
Supply
R CUT OFF
G CUT OFF
B CUT OFF
DEFL. COILS
24kV
EHT
FOCUS
SCREEN
5.8V REF. VOLT.
For Service Manuals
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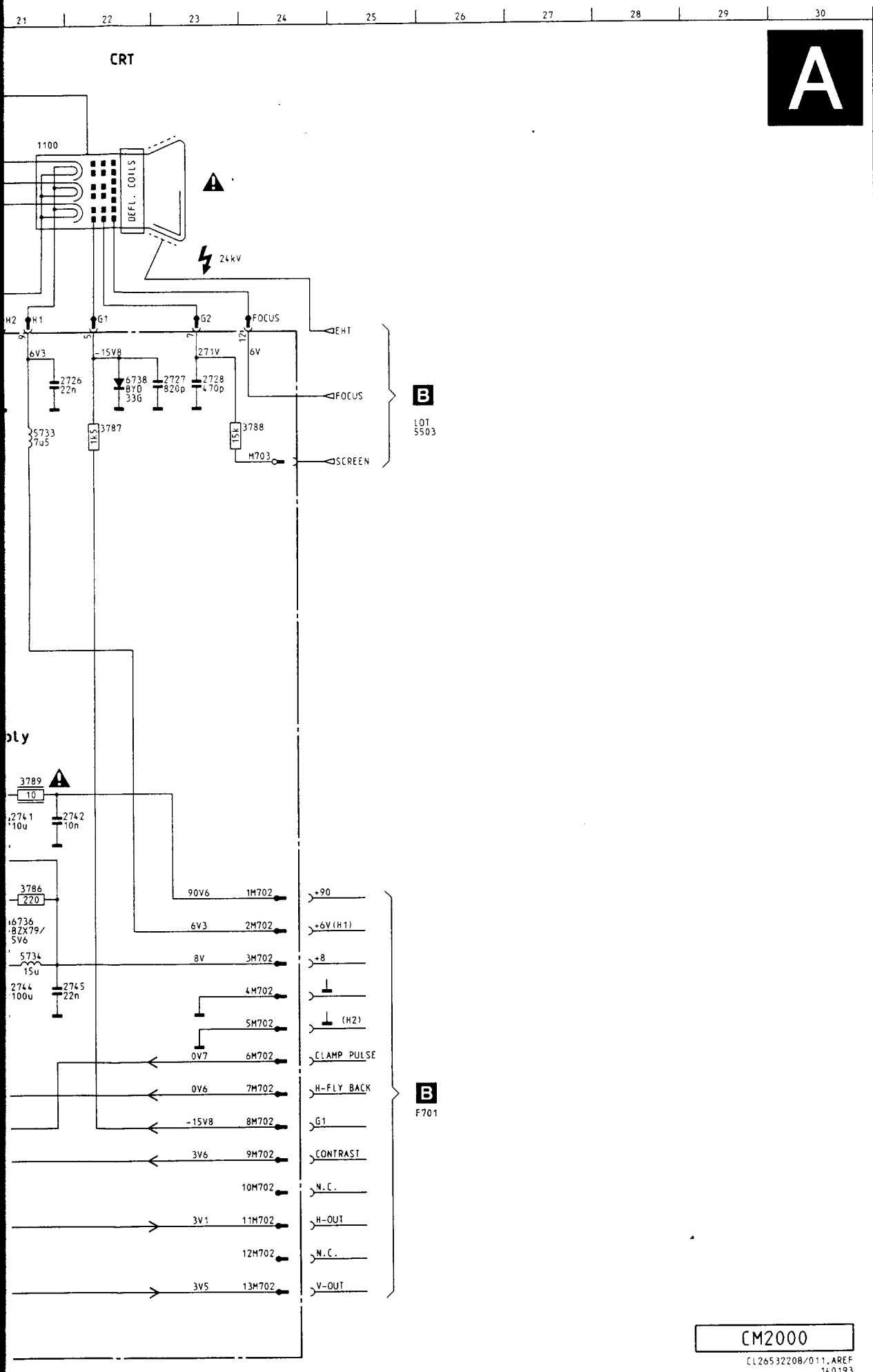
8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554
email:- mauritron@dial.pipex.com



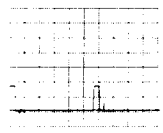
A	1100	B21
	1103	A 5
	2701	I 7
	2702	J14
	2703	H15
	2704	G18
	2705	J15
	2711	B 7
	2712	C14
B	2713	B15
	2714	A18
	2715	C15
	2721	F 7
	2722	F14
	2723	E15
	2724	D18
	2725	F15
	2726	D21
	2727	D23
	2728	D23
C	2731	L10
	2732	L11
	2741	I21
	2742	I21
	2743	J20
	2744	K21
	2745	K21
D	3701	I 6
	3702	I 7
	3703	J 8
	3704	I 8
	3705	I14
	3706	I14
	3707	H15
	3708	G16
E	3709	I17
	3710	H17
	3711	J17
	3712	H16
	3713	I14
	3714	I15
	3715	I17
F	3731	C 6
	3732	B 7
	3734	C 8
	3735	C14
	3736	C14
	3737	A15
	3738	A16
	3739	B17
G	3740	B17
	3741	C17
	3742	A16
	3743	B14
	3744	B15
	3745	C17
	3761	F 6
H	3762	F 7
	3763	G 8
	3764	F 8
	3765	F14
	3766	F14
	3767	D15
	3768	D16
	3769	E17
I	3770	E17
	3771	G17
	3772	E16
	3773	F14
	3774	F15
	3775	F17
	3781	N 6
	3782	L 8
J	3783	L 9
	3785	L14
	3786	J21
	3787	E22
	3788	E24
	3789	I21
	3791	O 6
K	3792	M 6
	3795	K14
	5701	H16
	5702	G18
	5711	A16
	5712	A18
	5721	D16
	5722	D18
L	5733	E21
	5734	K21
	6701	I16
	6702	H17
	6703	I18
	6711	B16
	6712	A17
M	6713	B18
	6721	E16
	6722	D17
	6723	F15
	6725	M 7
	6727	L14
	6728	L14
N	6736	J21
	6738	D22
	7701	I16
	7702	H17
	7703	I17
	7711	B16
	7712	A17
	7713	B17
	7721	F16
O	7722	E17
	7723	F17
	7731	B 8

Wave forms for diagram B

9103 J7
9104 D8
9105 D9
9112 B4
9113 K7
9114 B4
9115 G9
9116 G5
9117 F9
9118 B4
9119 E2
9120 K3
9121 K7
9122 I5
9123 I5
9124 A8
9125 E5
9126 D5
9127 D6
9128 E5
9129 I7
9130 J6
9131 J1
9132 I2
9133 E6
9134 H1
9135 G1
9136 I9
9137 H4
9138 D2
9139 I6
9140 E5
9141 I6
9142 H5
9144 C5
9145 F3
9146 B8
9147 D7
9148 B4
9149 K2
9150 B3
9151 G3
9152 D6
9154 I6
9155 C4
9156 I1
9157 I5
9158 C2
9159 D7
9160 D7
9161 G5
9163 H5
9164 K3
9165 H5
9166 D5
9167 K2
9168 E5
9169 B6
9170 D2
9172 D5
9173 D1
9174 G6
9175 B4
9176 C2
9177 J1
9178 G5
9180 G6
9181 D5
9182 K4
9183 D5
9184 F5
9185 K7
9186 F6
9187 E7
9188 C2
9189 J2
9190 C10
9191 B3
9193 G8
9194 D6
9195 D2
9196 F4
9197 B3
9201 A1
9202 B1
9204 D2
9205 H5
9206 H1
9208 F5
9401 C1
9403 B3
9501 B4
9502 E1
9603 F6
9604 I6
9605 I6
F601 I5
M101 K9
M102 E8
M103 E8
M104 C1
M105 J8
M106 F7
M107 J5
M108 J1
M201 B3
M203 B1

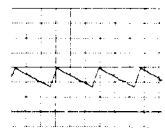
M204 B1
M401 G4

B1 7504-9



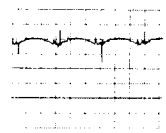
0.2V/DIV 5µS/DIV

B9 7504-19



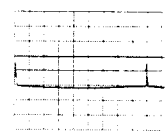
2V/DIV 10µS/DIV

B22 7523-C



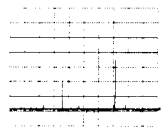
1V/DIV 10µS/DIV

B30 7602-C



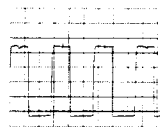
5V/DIV 2mS/DIV

B2 7504-10



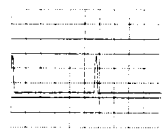
1V/DIV 5mS/DIV

B10 7520-G



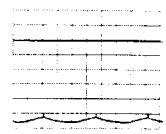
2V/DIV 10µS/DIV

B23 7502-12



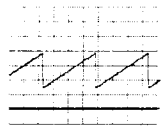
2V/DIV 5µS/DIV

B31 7603-B



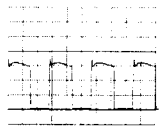
2V/DIV 5mS/DIV

B3 7504-16



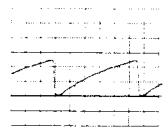
1V/DIV 5mS/DIV

B11 7520-E



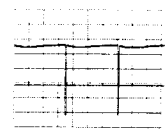
50V/DIV 10µS/DIV

B24 7502-14



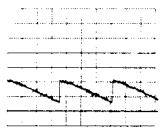
2V/DIV 5µS/DIV

B32 7603-C



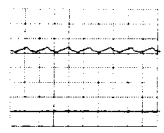
5V/DIV 5mS/DIV

B4 7504-5



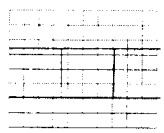
0.5V/DIV 5mS/DIV

B12 7519-C



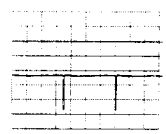
20V/DIV 20µS/DIV

B25 7502-7



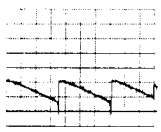
2V/DIV 5mS/DIV

B33 F701-8



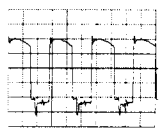
10V/DIV 5mS/DIV

B5 7504-6



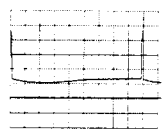
0.5V/DIV 5mS/DIV

B13 5505-2



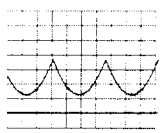
2V/DIV 10µS/DIV

B26 7402-7



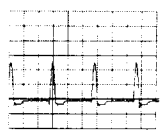
10V/DIV 2mS/DIV

B6 7504-11



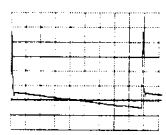
1V/DIV 5mS/DIV

B14 7521-B



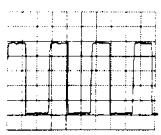
0.2V/DIV 10µS/DIV

B27 7402-5



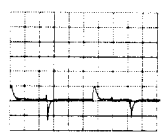
10V/DIV 2mS/DIV

B7 7504-3



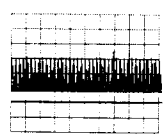
1V/DIV 5mS/DIV

B20 7512-B



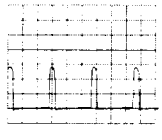
0.5V/DIV 5µS/DIV

B28 7601-B



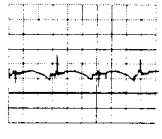
1V/DIV 5mS/DIV

B8 7504-2



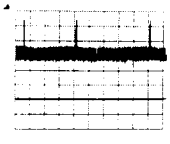
2V/DIV 10µS/DIV

B21 7527-C



1V/DIV 10µS/DIV

B29 7601-E



0.5V/DIV 5mS/DIV