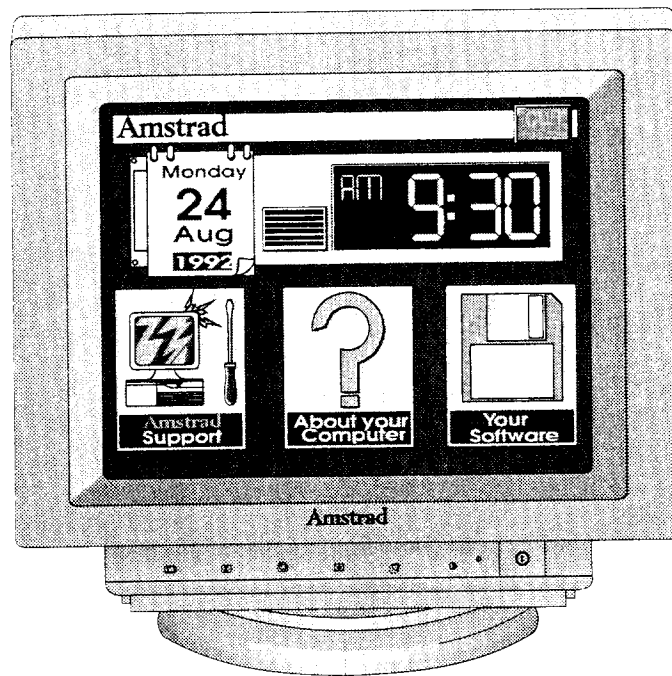


# Amstrad



ALSO COVERS PC-14 D S M

**PC14M28LR**

**PC14M39 Y2**

**SVGA MONITOR**

**SERVICE MANUAL**

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Date of first publication August 1993.  
Information published was latest available at the time of print.  
Amstrad reserves the right to supply selective components.

## Technical Specifications

Power Supply	220-240V AC 48-63Hz				
Sync. Input	TTL Levels:				
	Mode	H-Sync	V-Sync	H-Freq/kHz	V-Freq/Hz
	1	+	-	31.5	70
	2	-	+	31.5	70
	3	-	+	31.5	60
	4	+	-	35.52	87 (I)
	5	+/-	+/-	35-38	55-60
Signal Cable	15-Way Sub-Miniature "D" Type				
CRT	PC14M28LR 14" 0.28mm Dot Pitch Anti-Glare, Low Radiation LR is Low Radiation CRT & components fitted to comply to MPR II standard. PC14M39 14" 0.39mm Dot Pitch				
Operating Range	Temperature: 10-35°C Humidity: 20-85% (non condensing)				
Weight	11.5kg				
Video Input	RGB Analogue video signal 0.71V Positive				
User Controls	Power On / Off Contrast Brightness Width V-Centre Height (mode 5) H-phase (mode 4.5)				
Display Area	245mm wide x 183mm high				
Dimensions	351mm (W) x 327mm (H) x 384mm (D)				

### SAFETY TEST

Please note: when any work is carried out on a set, the following safety tests must be carried out to ensure continued electrical safety.

#### 1) Flash Test:

Test at 4kV between the live and neutral of the mains lead joined together and ALL accessible metal points on the exterior of the set.

#### 2) Insulation Resistance Test:

Test between the live and neutral of the mains lead joined together and ALL accessible metal points on the exterior of the set to show resistance of at least 4M ohm.

In keeping with our policy of continually improving our service and the technical quality of our products, we reserve the right to change component type, manufacturers, sources of supply or technical specifications at any time.

**Amstrad Plc.**

**BRENTWOOD HOUSE, 169 KINGS ROAD, BRENTWOOD ESSEX CM14 4EF**

### **Note:**

PC14M28LR has a magnetic cancellation coil fitted around the deflection yoke. When replacing the CRT, remove this coil and refit in the same way around the deflection yoke of the replacement CRT.

The monitor incorporates a number of adjustments which are listed below, and will have been correctly aligned before leaving the factory. Adjustments should only be carried out if necessary

### **Alignments**

#### **Main PCB**

HT Adjust	RV832
B+ Adjust	RV503
VGA Frequency	RV429
30µs Monostable	RV406
13µs Monostable	RV407
Keystone	RV491
East / West Amplitude	RV450
H-Shift	SK403
V-Size (Master)	RV422
V-Frequency	RV303
V-Linearity	RV316
A1 / Screen Voltage	FBT
Focus	FBT

#### **Video PCB**

Red Gain	RV219
Green Gain	RV220
Blue Gain	RV221
Red Cut-Off	RV225
Green Cut-Off	RV226
Blue Cut-Off	RV227

All test patterns refer to SVGA test Programme, Issue 001, used in conjunction with a Trident MVGA-T8900a Video Card.

### **HT AND B+ SETTING**

N.B. Number in square brackets refer to the calculator numeric keypad.  
Numbers without brackets refer to the typewriter numeric keys.

Select MODE 3, BLANK RASTER. "3,F9" [1] from keyboard.  
Select CONTRAST to minimum and BRIGHTNESS to DETENT.  
Check the voltage at C819 is  $110\text{v} \pm 0.5\text{v}$ . Adjust RV832, if necessary.  
Check the voltage at C425 is  $84\text{V} \pm 0.5\text{v}$ . Adjust RV503, if necessary.  
for Y2 and Y2V chassis

### **VERTICAL HOLD**

Select MODE 7, 50Hz Sync "7" from Keyboard.  
Set CONTRAST to mid range and BRIGHTNESS to DETENT.  
Turn VR303 (vertical hold) fully anti-clockwise. Then slowly turn RV303 clockwise until the display becomes stable. Stop turning RV303 immediately.

## **FOCUS SETTING**

Set CONTRAST to mid range and BRIGHTNESS to DETENT.  
Set Focus Pattern Green "3,F6, [5]" from keyboard.  
Adjust Focus control so that the resolution is optimised.

## **HORIZONTAL CENTRE**

Select MODE 3, BLANK RASTER "3,F9,[1]" from keyboard.  
Set BRIGHTNESS to maximum  
Check for a centred raster within  $\pm 2.0\text{mm}$ .  
Adjust the position of jumper SK403, if necessary.

## **HORIZONTAL PHASE (VGA)**

Select FOUR BY FOUR GRID "3,F3,[8]" from keyboard.  
Set contrast to mid-range and BRIGHTNESS to MAXIMUM.  
Adjust RV429 (H. Freq.) to centre display image within the display consistent with a voltage of  $4.0\text{v} \pm 0.5\text{v}$  on IC404, pin 5.

## **VERTICAL LINEARITY**

Set BRIGHTNESS to DETENT.  
Select Square grid "3,F8" from keyboard.  
Adjust RV316 (Vertical Linearity) for best linearity, if necessary.  
Check that Vertical Linearity is better than 7%.

## **HORIZONTAL WIDTH**

Select MODE 3, WHITE SCREEN, NO BORDER "3,F9" from keyboard.  
Set Brightness to DETENT and Contrast to give  $100 \pm 20 \text{ Cd/m}^2$   
Adjust RV451 USER WIDTH and check that a width of 245mm is available.  
Set RV451 to DETENT.

## **VERTICAL SIZE**

Select MODE 3 WITH SCREEN, NO BORDER "3,F9" FROM keyboard  
Set BRIGHTNESS to DETENT and contrast to give  $100 \pm 20 \text{ Cd / m}^2$   
Adjust RV422 (480 size) for  $183\text{mm} \pm 1\text{mm}$  display size.

Select mode 2 with screen , no border "2,F9" from keyboard.  
Check the display size  $183\text{mm} \pm 3\text{mm}$ .

Select MODE 1 White Screen, No Border "1,F9" from keyboard.  
Check for display size  $183\text{mm} \pm 3\text{mm}$ .

Select MODE 4 WHITE SCREEN, NO BORDER "4,F9" From Keyboard.  
Adjust RV433 USER HORIZONTAL PHASE for a locked, central display.  
Check for display size  $183\text{mm} \pm 3\text{mm}$ .

Select MODE 5 WHITE SCREEN, NO BORDER "5,F9" from keyboard.  
Adjust RV433 USER HORIZONTAL PHASE for a locked display and check that  $183\text{mm}$  display size can be obtained using RV409 SVGA SIZE USER CONTROL.  
Set RV409 for  $183\text{mm} \pm 3\text{mm}$  display size.

## VERTICAL CENTRE

SET CONTRAST TO MID RANGE and BRIGHTNESS to DETENT.  
Select FOUR BY FOUR GRID "3,F3" from keyboard.  
Adjust RV313 (Vertical Centre) for a centred display within  $\pm 2.0\text{mm}$ .

## GEOMETRIC DISTORTION

Select FOUR BY FOUR GRID "3,F3" from keyboard.  
Check the total distortion.  
Adjust RV450 E/W Amp for straight vertical edges, if necessary.  
Adjust RV491 for a trapezoidal display.

## VIDEO Cut-Off

Select MODE 3 BLANK SCREEN "3,F10" from keyboard.  
Set BRIGHTNESS TO minimum.  
! Check the screen emission is  $3 \pm 0.5 \text{ Cd/m}^2$ . Adjust A1 if necessary.  
Select Mode 3 WHITE BLOCK "3,F1,[\*]" from the keyboard.  
Set BRIGHTNESS to DETENT and CONTRAST to give screen emission of  $17 \pm 1 \text{ Cd/m}^2$ .  
Using the cut-off presets adjust as required to obtain;  
 $x = 0.281 \pm 0.005$   
 $y = 0.311 \pm 0.005$   
(Adjusting a minimum number of the presets to meet the required limit).  
Do not make COARSE adjustment.

## VIDEO GAIN

Select MODE 3 GREEN BLOCK "3,F1,[8],[5]" from keyboard.  
Set BRIGHTNESS to DETENT and CONTRAST to MAXIMUM.  
Set GREEN gain RV220 for a screen emission of  $76 \pm 1 \text{ Cd/m}^2$ .

Select MODE 3 WHITE BLOCK "3,F1,[8]" from keyboard.  
Without further adjustment to RV220, set RED and BLUE GAIN, RV219, RV221 to obtain a white balance of  $x = 0.281 \pm 0.005$   $y = 0.311 \pm 0.005$  (Note the measurements)  
Check the screen emission is  $100 \pm 15/-10 \text{ Cd/m}^2$ . If not, readjust RV220.  
Reduce CONTRAST to give a screen emission of  $17 \pm 1 \text{ Cd/m}^2$ .  
Check the x and y co-ordinates are within  $\pm 0.015$  of the measurement taken in Horizontal Phase (VGA) (at CONSTANT maximum).  
If not using the MINIMUM of the adjustment, carefully re-adjust the appropriate Cut-Off preset (RV225, RV226, RV227) to bring the colour co-ordinates just within the limits stated below.  
Verify the following conditions.

Screen brightness: "3,F1"	$100 \pm 15/-10 \text{ Cd/m}^2$	BRIGHTNESS DETENT. CONTRAST MAXIMUM.
Colour Point	$x = 0.281 \pm 0.015$ $y = 0.311 \pm 0.015$	BRIGHTNESS DETENT. $90 \text{ Cd/m}^2$ WHITE SCREEN
Colour Tracking	$x = \pm 0.015$ $y = \pm 0.015$	CONTRAST VARIABLES. $20 \text{ to } 90 \text{ Cd/m}^2$ .
Background Brightness: "3,F10"	$3 \pm 0.5 \text{ Cd/m}^2$	BRIGHTNESS MAXIMUM. CONTRAST MINIMUM

## VERTICAL CENTRE

SET CONTRAST TO MID RANGE and BRIGHTNESS to DETENT.  
Select FOUR BY FOUR GRID "3.F3" from keyboard.  
Adjust RV313 (Vertical Centre) for a centred display within  $\pm 2.0\text{mm}$

## GEOMETRIC DISTORTION

Select FOUR BY FOUR GRID "3.F3" from keyboard.  
Check the total distortion  
Adjust RV450 E/W Amp for straight vertical edges, if necessary.  
Adjust RV491 for a trapezoidal display

## VIDEO Cut-Off

Select MODE 3 BLANK SCREEN "3.F10" from keyboard  
Set BRIGHTNESS TO minimum  
! Check the screen emission is  $3 \pm 0.5 \text{ Cd/m}^2$ . Adjust A1 if necessary.  
Select Mode 3 WHITE BLOCK "3.F1[\*]" from the keyboard  
Set BRIGHTNESS to DETENT and CONTRAST to give screen emission of  $17 \pm 1 \text{ Cd/m}^2$ .  
Using the cut-off presets adjust as required to obtain:  
 $x = 0.281 \pm 0.005$   
 $y = 0.311 \pm 0.005$   
(Adjusting a minimum number of the presets to meet the required limit)  
Do not make COARSE adjustment.

## VIDEO GAIN

Select MODE 3 GREEN BLOCK "3.F1.[8].[5]" from keyboard  
Set BRIGHTNESS to DETENT and CONTRAST to MAXIMUM.  
Set GREEN gain RV220 for a screen emission of  $76 \pm 1 \text{ Cd/m}^2$   
  
Select MODE 3 WHITE BLOCK "3.F1.[8]" from keyboard  
Without further adjustment to RV220, set RED and BLUE GAIN, RV219, RV221  
to obtain a white balance of  $x = 0.281 \pm 0.005$   $y = 0.311 \pm 0.005$  (Note the measurements)  
Check the screen emission is  $100 \pm 15 \pm 10 \text{ Cd/m}^2$ . If not, readjust RV220.  
Reduce CONTRAST to give a screen emission of  $17 \pm 1 \text{ Cd/m}^2$   
Check the x and y co-ordinates are within  $\pm 0.015$  of the measurement taken in Horizontal  
Phase (VGA) (at CONSTANT maximum).  
If not using the MINIMUM of the adjustment, carefully re-adjust the  
appropriate Cut-Off preset (RV225, RV226, RV227) to bring the colour  
co-ordinates just within the limits stated below.  
Verify the following conditions

Screen brightness: "3.F1"	$100 \pm 15 / - 10 \text{ Cd/m}^2$	BRIGHTNESS DETENT. CONTRAST MAXIMUM.
Colour Point	$x = 0.281 \pm 0.015$ $y = 0.311 \pm 0.015$	BRIGHTNESS DETENT. 90 $\text{Cd/m}^2$ WHITE SCREEN
Colour Tracking	$x = \pm 0.015$ $y = \pm 0.015$	CONTRAST VARIABLES 20 to 90 $\text{Cd/m}^2$
Background Brightness: "3.F10"	$3 \pm 0.5 \text{ Cd/m}^2$	BRIGHTNESS MAXIMUM. CONTRAST MINIMUM

## FOCUS SETTING

Set CONTRAST to mid range and BRIGHTNESS to DETENT  
Set Focus Pattern Green "3.F6.[5]" from keyboard  
Adjust Focus control so that the resolution is optimised

## HORIZONTAL CENTRE

Select MODE 3. BLANK RASTER "3.F9.[1]" from keyboard.  
Set BRIGHTNESS to maximum  
Check for a centred raster within  $\pm 2.0\text{mm}$   
Adjust the position of jumper SK403, if necessary.

## HORIZONTAL PHASE (VGA)

Select FOUR BY FOUR GRID "3.F3.[8]" from keyboard  
Set contrast to mid-range and BRIGHTNESS to MAXIMUM  
Adjust RV429 (H. Freq.) to centre display image within the display consistent with a  
voltage of  $4.0\text{V} \pm 0.5\text{V}$  on IC404, pin 5

## VERTICAL LINEARITY

Set BRIGHTNESS to DETENT  
Select Square grid "3.F8" from keyboard  
Adjust RV316 (Vertical Linearity) for best linearity, if necessary.  
Check that Vertical Linearity is better than 7%.

## HORIZONTAL WIDTH

Select MODE 3. WHITE SCREEN, NO BORDER "3.F9" from keyboard.  
Set Brightness to DETENT and Contrast to give  $100 \pm 20 \text{ Cd/m}^2$   
Adjust RV451 USER WIDTH and check that a width of  $245\text{mm}$  is available.  
Set RV451 to DETENT

## VERTICAL SIZE

Select MODE 3 WITH SCREEN, NO BORDER "3.F9" FROM keyboard  
Set BRIGHTNESS to DETENT and contrast to give  $100 \pm 20 \text{ Cd/m}^2$   
Adjust RV422 (480 size) for  $183\text{mm} \pm 1\text{mm}$  display size

Select mode 2 with screen, no border "2.F9" from keyboard  
Check the display size  $183\text{mm} \pm 3\text{mm}$

Select MODE 1 White Screen, No Border "1.F9" from keyboard.  
Check for display size  $183\text{mm} \pm 3\text{mm}$ .

Select MODE 4 WHITE SCREEN, NO BORDER "4.F9" From Keyboard  
Adjust RV433 USER HORIZONTAL PHASE for a locked, central display  
Check for display size  $183\text{mm} \pm 3\text{mm}$

Select MODE 5 WHITE SCREEN, NO BORDER "5.F9" from keyboard.  
Adjust RV433 USER HORIZONTAL PHASE for a locked display and check that  
 $183\text{mm}$  display size can be obtained using RV409 SVGA SIZE USER CONTROL.  
Set RV409 for  $183\text{mm} \pm 3\text{mm}$  display size

*N.B. In all measurements co-ordinate x must be less than y.*

### STATIC CONVERGENCE

Select MODE 3 SQUARE GRID MULTICOLOUR "3,F8,[9]" from keyboard.

Adjust CRT CONVERGENCE RINGS for best alignment of colour segments, if necessary.

### VOLTAGE & WAVEFORM SUMMERY

#### POWER SUPPLY

Assuming normal operation

supply	voltage	measured at
+110v	$110.0 \pm 0.5v$	CE819 Adj RV832
+21v	$20.5 \pm 0.5v$	CE820
+12v	$12.0 \pm 0.5v$	CE823
+6v	$6.2 \pm 0.2v$	CE821

#### Derived Supplies

All checks and adjustments must be done in VGA mode 3 (31.5kHz).

IC801 supply +5v	$12.5 \pm 0.5v$	CE813 *NON ISOLATED*
	$5.0 \pm 0.25$	CE405
IC405 SUPPLY -15V	$8.9V \pm 0.2V$	CE411
	$-15.3 \pm 2V$	CE429 *31.5kHz Operation
Brightness Supply B+	$-64.0 \pm 5v$	CE428
(31.5kHz)	$84.0 \pm 0.5v$	CE425 *Black Screen*
		Adjust RV503 31.5kHz operation
EHT	$24.5 \pm 1kV$	CRT anode *CAUTION*

#### SETTINGS

30us Monostable: measure waveform timing at IC402 pin 13 / D412.

13ms Monostable: measure waveform timing at IC402 pin 12 / R496.

#### HORIZONTAL MONOSTABLE ADJUSTMENT

Select Sync Mode 3

Set RV406 for  $1.3us \pm 0.1us$  duration of TTL low on IC402 pin 13

#### VERTICAL MONOSTABLE ADJUSTMENT

Set RV407 for  $13.0ms \pm 0.5ms$  duration of TTL high on IC402 pin 12

N.B. These are voltage measurements for correct operation using DVM only,

Warning: All measurements are with respect to mains earth unless otherwise indicated.  
High voltages exist on the primary side of the power supply, testing should only be carried out with the unit connected to the mains supply via an isolation transformer.

Test Point	Voltage
PSU	
D802 cathode with respect to pin 5 ic801	335v dc
T801 pin 1 with respect to pin 5 ic801	335v dc
IC801 pin 7 with respect to pin 5 ic 801	12.5v dc
D813 cathode	110v dc
D814 cathode	21v dc
IC803 output	12v dc
D815 cathode	6.2v dc
D416 cathode	5v dc
B+ Regulator	
R501 (both ends)	-260v dc
D502 cathode	84v dc
Mode Detection	
IC403 pin 6,7 (VGA mode 1)	< 0.1v dc
IC403 pin 5 (VGA mode 2)	< 0.1v dc
IC403 pin 4 (VGA mode 3)	< 0.1v dc
TR416 collector (IBM 8514/a mode)	< 0.1v dc
IC403 pin 9-12 (SVGA 800x600 mode)	< 0.1v dc
Line Stage	
IC404 pin 6	8.8v dc
IC 404 pin 5	4v $\pm$ 1v dc
T402 pin 2	84v dc
R441 (both end)	20.5v dc
D410 anode	-15v dc
CE428 cathode	-55v dc



N.B. In all measurements co-ordinate x must be less than y.

## STATIC CONVERGENCE

Select MODE 3 SQUARE GRID MULTICOLOUR "3.F8.19]" from keyboard.  
Adjust CRT CONVERGENCE RINGS for best alignment of colour segments, if necessary

## VOLTAGE & WAVEFORM SUMMARY

### POWER SUPPLY

Assuming normal operation

supply	voltage	measured at
+110v	110.0 ± 0.5v	CE819 Adj RV832
+21v	20.5 ± 0.5v	CE820
+12v	12.0 ± 0.5v	CE823
+6v	6.2 ± 0.2v	CE821

### Derived Supplies

All checks and adjustments must be done in VGA mode 3 (31.5kHz).

IC801 supply +5v	12.5 ± 0.5v	CE813 *NON ISOLATED*
	5.0 ± 0.25	CE405
IC405 SUPPLY -15V	8.9V ± 0.2V	CE411
	-15.3 ± 2V	CE429 *31.5kHz Operation
Brightness Supply B+	-64.0 ± 5v	CE428
(31.5kHz)	84.0 ± 0.5v	CE425 *Black Screen*
EHT	24.5 ± 1kV	Adjust RV503 31.5kHz operation CRT anode *CAUTION*

### SETTINGS

30us Monostable: measure waveform timing at IC402 pin 13 / D412.  
13ms Monostable: measure waveform timing at IC402 pin 12 / R496.

### HORIZONTAL MONOSTABLE ADJUSTMENT

Select Sync Mode 3

Set RV406 for 1.3us ± 0.1us duration of TTL low on IC402 pin 13

### VERTICAL MONOSTABLE ADJUSTMENT

Set RV407 for 13.0ms ± 0.5ms duration of TTL high on IC402 pin 12

N.B. These are voltage measurements for correct operation using DVM only.

Warning: All measurements are with respect to mains earth unless otherwise indicated.  
High voltages exist on the primary side of the power supply, testing should only be carried out with the unit connected to the mains supply via an isolation transformer.

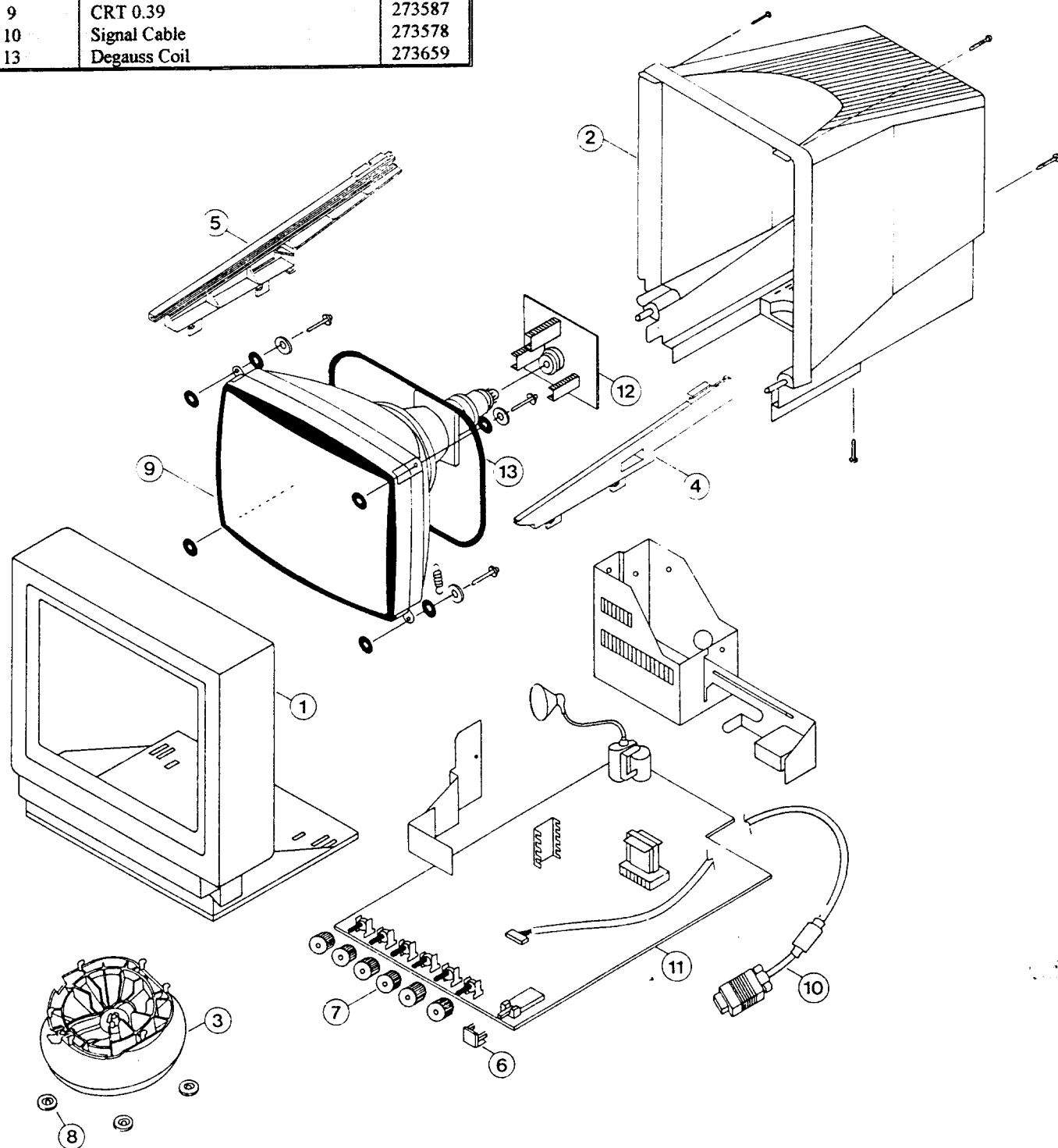
Test Point	Voltage
PSU	
D802 cathode with respect to pin 5 ic801	335v dc
T801 pin 1 with respect to pin 5 ic801	335v dc
IC801 pin 7 with respect to pin 5 ic 801	12.5v dc
D813 cathode	110v dc
D814 cathode	21v dc
IC803 output	12v dc
D815 cathode	6.2v dc
D416 cathode	5v dc
B+ Regulator	
R501 (both ends)	-260v dc
D502 cathode	84v dc
Mode Detection	
IC403 pin 6,7 (VGA mode 1)	< 0.1v dc
IC403 pin 5 (VGA mode 2)	< 0.1v dc
IC403 pin 4 (VGA mode 3)	< 0.1v dc
TR416 collector (IBM 8514/a mode)	< 0.1v dc
IC403 pin 9,12 (SVGA 800x600 mode)	< 0.1v dc
Line Stage	
IC404 pin 6	8.8v dc
IC404 pin 5	4v ± 1v dc
T402 pin 2	84v dc
R441 (both end)	20.5v dc
D410 anode	-15v dc
CE428 cathode	-55v dc

## PC14M28LR / PC14M39 Y2

### Cabinet Parts List

Ref. No.	Description	Pt. No.
1	Front Cabinet Assy PC14M28LR	274239
1	Front Cabinet Front PC14M39 Y2	273572
2	Rear Cabinet Assy PC14M28LR	273584
2	Rear Cabinet Assy PC14M39 Y2	273573
3	Stand Assy	273574
4	Chassis Rail L	273656
5	Chassis Rail R	273657
6	Knob Power On Off	273658
7	Knob Control	273575
8	Foot Rubber	273630
9	CRT 0.28	274233
9	CRT 0.39	273587
10	Signal Cable	273578
13	Degauss Coil	273659

**CABINET EXPLODED VIEW**



## Electrical Parts List

Ref.No.	Description	Pt. No
<b>ICs</b>		
IC201	IC M51387P	175652
IC301	IC TDA1675A	273660
IC401	IC 74LS86	175935
IC402	IC 74LS123	176642
IC403	IC 74LS156	273661
IC404	IC LM1391N	273662
IC405	IC TDA8146	273663
IC801	IC UC3842AN	274059
IC802	IC TLP731-LF2	194187
IC803	IC 78M12 REG	273664
IC804	IC TL431CLP	272290
<b>Transistors</b>		
TR205-207	TR 2SD1610C / 2SC3955D	273665
TR208-210	TR 2SD468C	193513
TR301,401-403	TR BC547C	241116
405,410,412		
416-418,802		
803,502		
TR404,411	TR BC557	273599
413,419,420		
503		
TR406	TR 2SD667AC	273602
TR407	TR BU2508AF	273601
TR501	TR MPSA43	273603
TR504,414	TR TIP31E	273600
TR505	TR MPSA93	273604
Q801	TR SMP4N60	273605
<b>Diodes</b>		
D301,412,413	D 1N4002	175543
▲		
D302	DZ C2V7 1/2W	175767
D303,404-408	D 1N4148	270754
414,419,421		
817-820,823		
D401,410,411	D BYD33G	273607
501,502,807		
810,812		
D402	D BY328	270754
D403	D BYD73F	273608
D415 ▲	DZ C33V 1/2W	273609
D416 ▲	DZ C4V7 1/2W	175021
D417	LED GREEN	273617
D418,805,821	Thyristor TICP106D	273615
D422	DZ C9V1 1/2W	171493
D801-804	D BY133GP	273611
D806,822	D BYD33M	273614
D808	D RGP15M	273612
D809	DZ C16V 1/2W	273610
D813,814	D BY399	273618
D815	D SB140	273613
D825,826,503 ▲	D 1N4003	157656

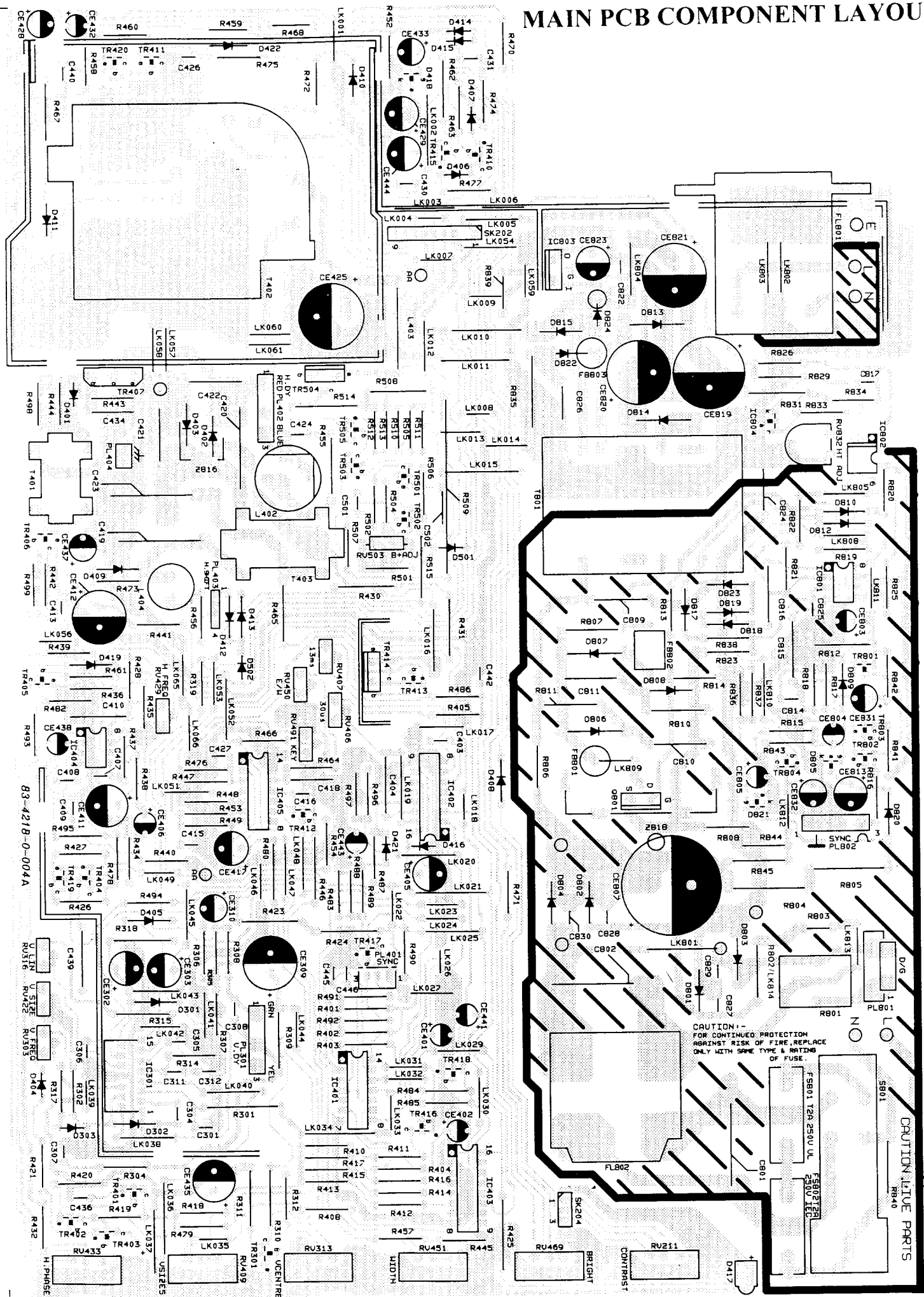
Ref.No.	Description	Pt. No
<b>Coils</b>		
L204,205 ▲	Coil 33uH Choke TAL04T	273667
L402	Coil Line Linearity	273619
L403	Coil 22uH Choke	273669
L4004	Coil 700uH 7679	273670
FL801	Coil Line Filter	273621
FL802	Coil Line Filter TLF-011A	273620
T401	Tx Line Drive	273622
T402 ▲	Tx Flyback 7789	274237
T403	Tx Diode Modulator	273623
T801 ▲	Tx Switch MODE0139-3	273624
<b>Variable Resistors</b>		
VR219-221	VRSF 10k $\Omega$ 3179 Linear RGB	273672
225-227		
VR303,406	VRSF 10k $\Omega$ 3199	273673
450,491		
VR316	VRSF 100k $\Omega$ Linear V Linearity	273674
VR211,313	VRot 10K $\Omega$ L'r Hp,Vs,Vc,W,B,C	273671
409,451		
VR407,422	VRSF 47k $\Omega$ Linear	273675
VR503	VRSF 50k $\Omega$ Linear 20%	273675
VR429	VRSF 4.7k $\Omega$ Linear	273676
VR433	VROT 100k $\Omega$ 3213 H Phase	274247
VR469	VROT 100k $\Omega$ 3206 Brightness	273677
VR832	VRSF 470 $\Omega$ 3173 HT Adj.	273678
<b>Miscellaneous</b>		
SK901 ▲	CRT Socket CVT3240-1251 2070	274238
S801 ▲	Switch Power On Off 4074	273626
F801 ▲	Fuse T2A 250V	240082
R801 ▲	Thermister De-Gauss 3569	273595
R803	Thermister 15 $\Omega$ NTC 5313	273596
G204	Spark Gap	273627
CRT 14"	M34AFA60X14 PC14M28LR	274233
CRT 14"	E2971B22TC54ET PC14M39 Y2	273587
	Signal Cable	273578
	Mains Lead	274248
	Cancellation Coil PC14M28LR Y2V	274249

Description	Ref. no.	Pt. No.
<b>Resistors</b>		
<b>Carbon</b>		
1 $\Omega$ 1/4w 270 $\Omega$ 1/2w 470 $\Omega$ 1/2w $\Delta$ 680 $\Omega$ 1/2w 1k $\Omega$ 1/2w 1.8k $\Omega$ 1/4w 180k $\Omega$ 1w	R307 M28LR only R309 M39 Y2 only R256,257,258 R309 M28LR only R260 R446 R835	241520
<b>Metal Film</b>		
0.33 $\Omega$ 1/2w $\Delta$ 0.68 $\Omega$ 1/2w 1.8 $\Omega$ 1/2w 4.7 $\Omega$ 1/2w $\Delta$ 8.2 $\Omega$ 2w 220 $\Omega$ 1/2w $\Delta$ 820 $\Omega$ 1/2w 1.5k $\Omega$ 1w 3k $\Omega$ 2.5w $\Delta$ 5.6k $\Omega$ 1/4w 16k $\Omega$ 1/4w 33k $\Omega$ 1/4w 33k $\Omega$ 1/2w 43k $\Omega$ 1/4w 51k $\Omega$ 1/4w 100k $\Omega$ 1/4w	R806 R307 M39 Y2 only R444,498 R261,441,465,472 R514 R501 R442,499 R807 R239,241,243 R234 R232 R416 R505 R414 R410,412 R418,507	273593   273590 273686 241372  176339 274234  273690 176331 193716 273692 273693
<b>Metal Oxide</b>		
0.33 $\Omega$ 1w $\Delta$ 56k $\Omega$ 3w	R808 R805	271444 274235
<b>Wire Wound</b>		
3.3 $\Omega$ 4w 68 $\Omega$ 1.5w 150 $\Omega$ 7w 1k $\Omega$ 4w 8.2k $\Omega$ 4w	R802 R839 R509 R810 R811	273592 273695 273696 273697 273698
<b>Metal Glaze</b>		
270k $\Omega$ 1/2w $\Delta$	R840	273594

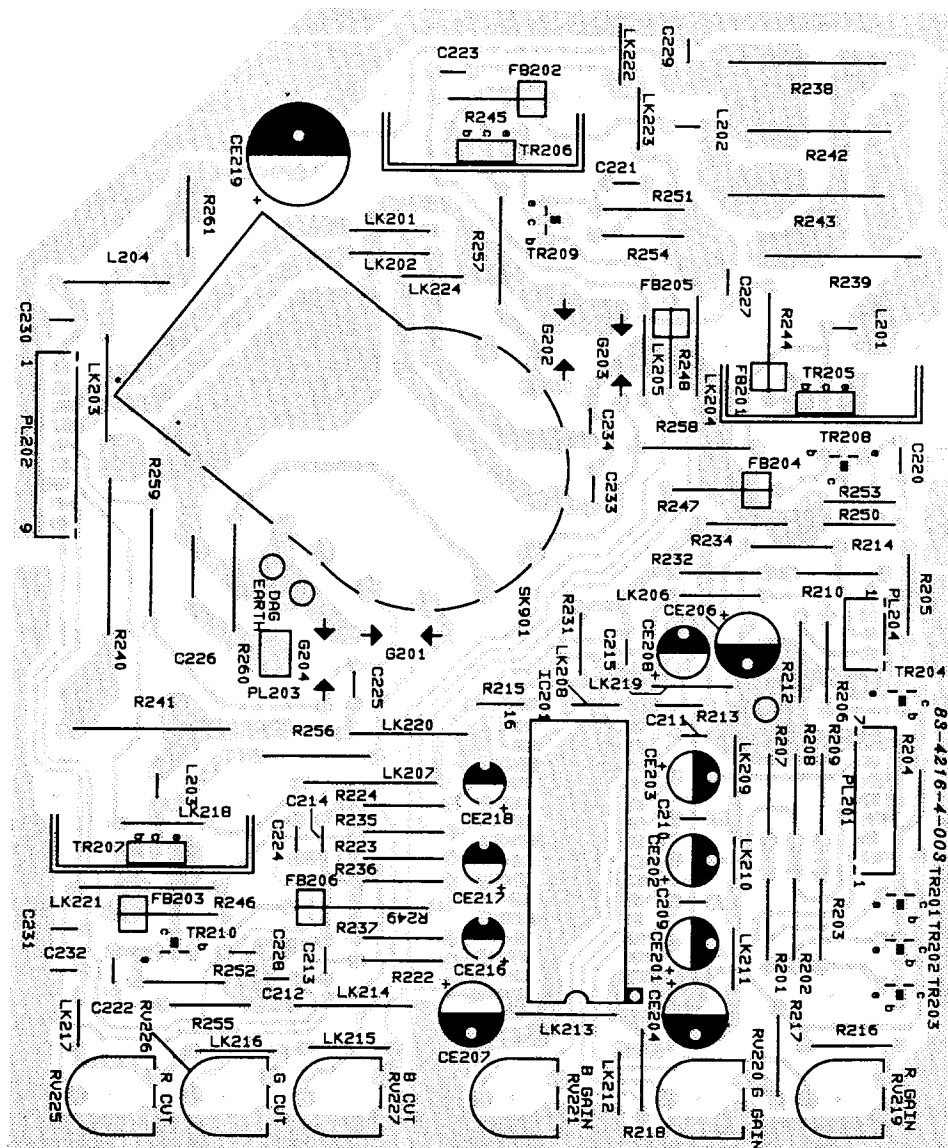
Description	Ref. no.	Pt. No.
<b>Capacitors</b>		
<b>Metal Poly</b>		
0.01 $\mu$ F 400v 0.022 $\mu$ F 250v 0.022 $\mu$ F 400v 0.022 $\mu$ F 630v 0.033 $\mu$ F 250v 0.1 $\mu$ F 400v 0.47 $\mu$ F 63v	C409,431,501 C413 C502 C826 C229,230 C809 C403,415	273701 273702 273703 273704 273705 273706 178047
<b>Electrolytic</b>		
10 $\mu$ F 160v 100 $\mu$ F 400v 220 $\mu$ F 160v	CE219 C807 CE819	170608 270614 170851
<b>Ceramic</b>		
100pF 400v 180pF 220pF 470pF plate 0.01 $\mu$ F 63v 0.01 $\mu$ F 2kv $\Delta$	C225 C222 C220,221 C825 C209-215 C226	273715  273717 273718 273719 273716
<b>Polystyrene</b>		
470pF 630v 680pF 1.6kv 0.0033 $\mu$ F 160v	C439 C811 C404,410,815,816	273708 273709 273710
<b>Polypropylene</b>		
680pF 1.6kv 0.0036 $\mu$ F 1.6kv 0.033 $\mu$ F 630v 0.047 $\mu$ F 1.6kv 0.012 $\mu$ F 630v 0.015 $\mu$ F 630v 0.82 $\mu$ F 160v 1 $\mu$ F 250v	C422 C420 M28LR only C810 C420 M39 Y2 only C421 M28LR only C421 M39 Y2 only C419 M28LR only C419 M39 Y2 only	273709 273711 273713  273712 273714
<b>Line Across</b>		
0.0033 $\mu$ F 400v $\Delta$ 1 $\mu$ F 250v ac $\Delta$	C824 C801,802	

Amstrad reserves the right to supply selective components

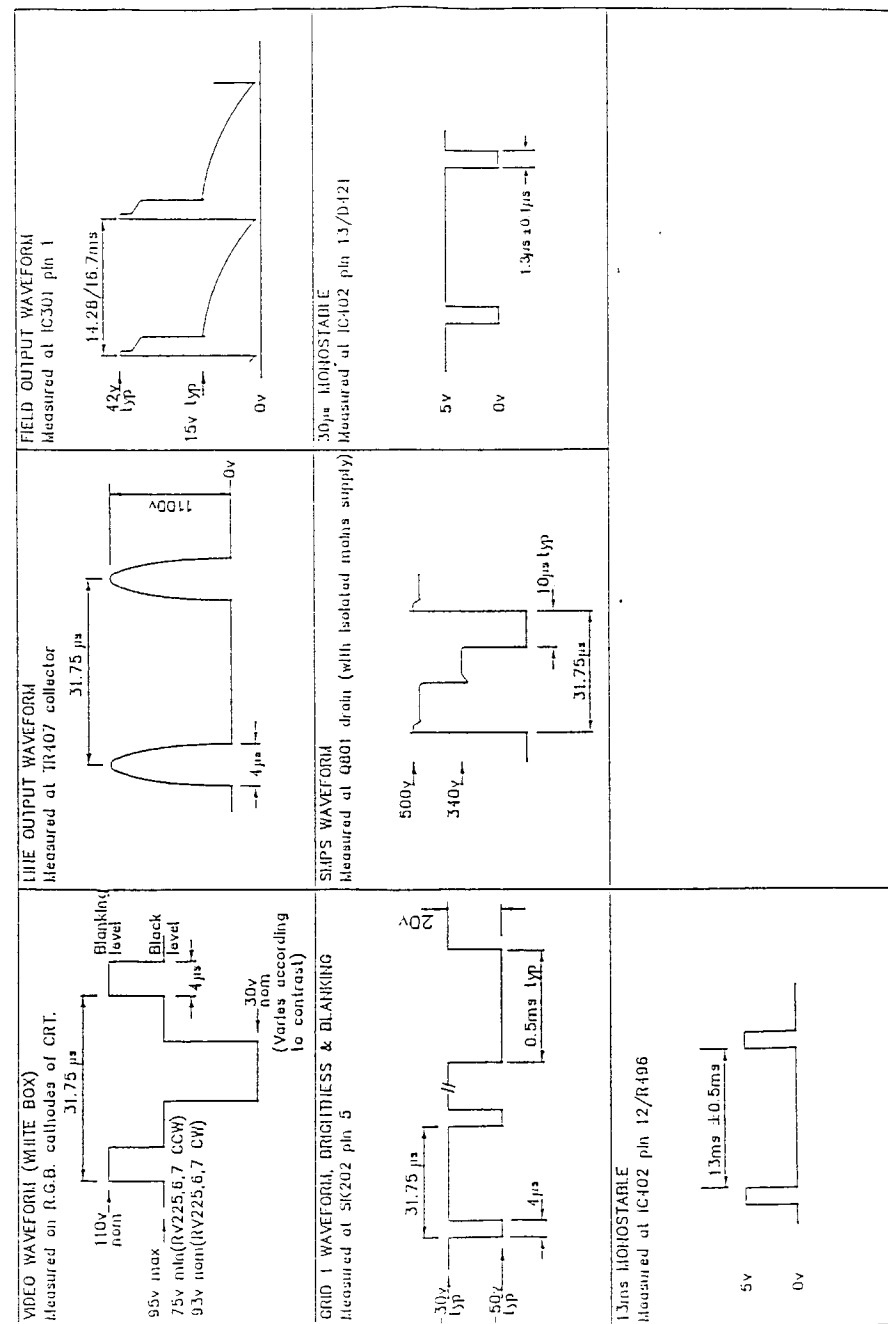
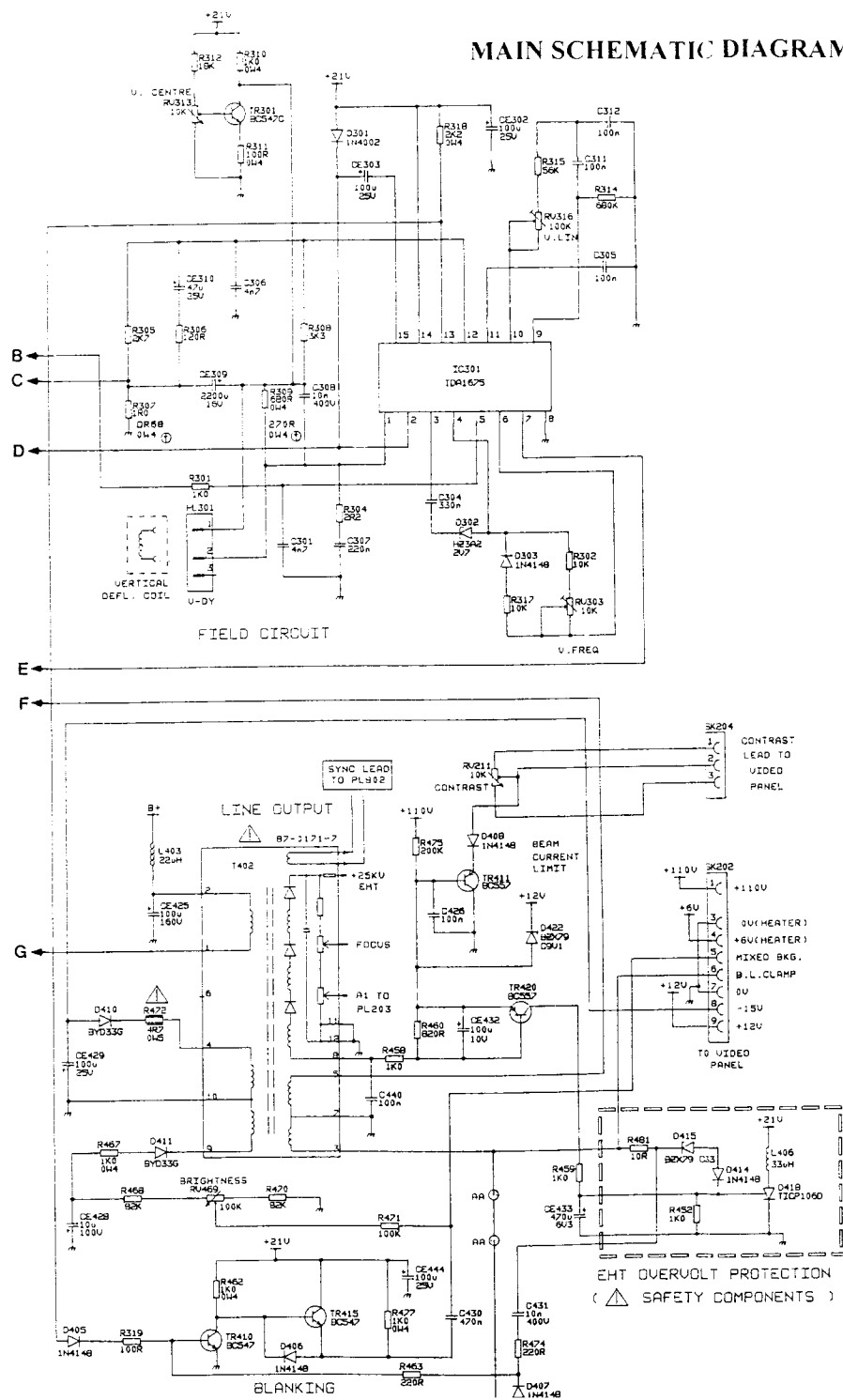
## MAIN PCB COMPONENT LAYOUT



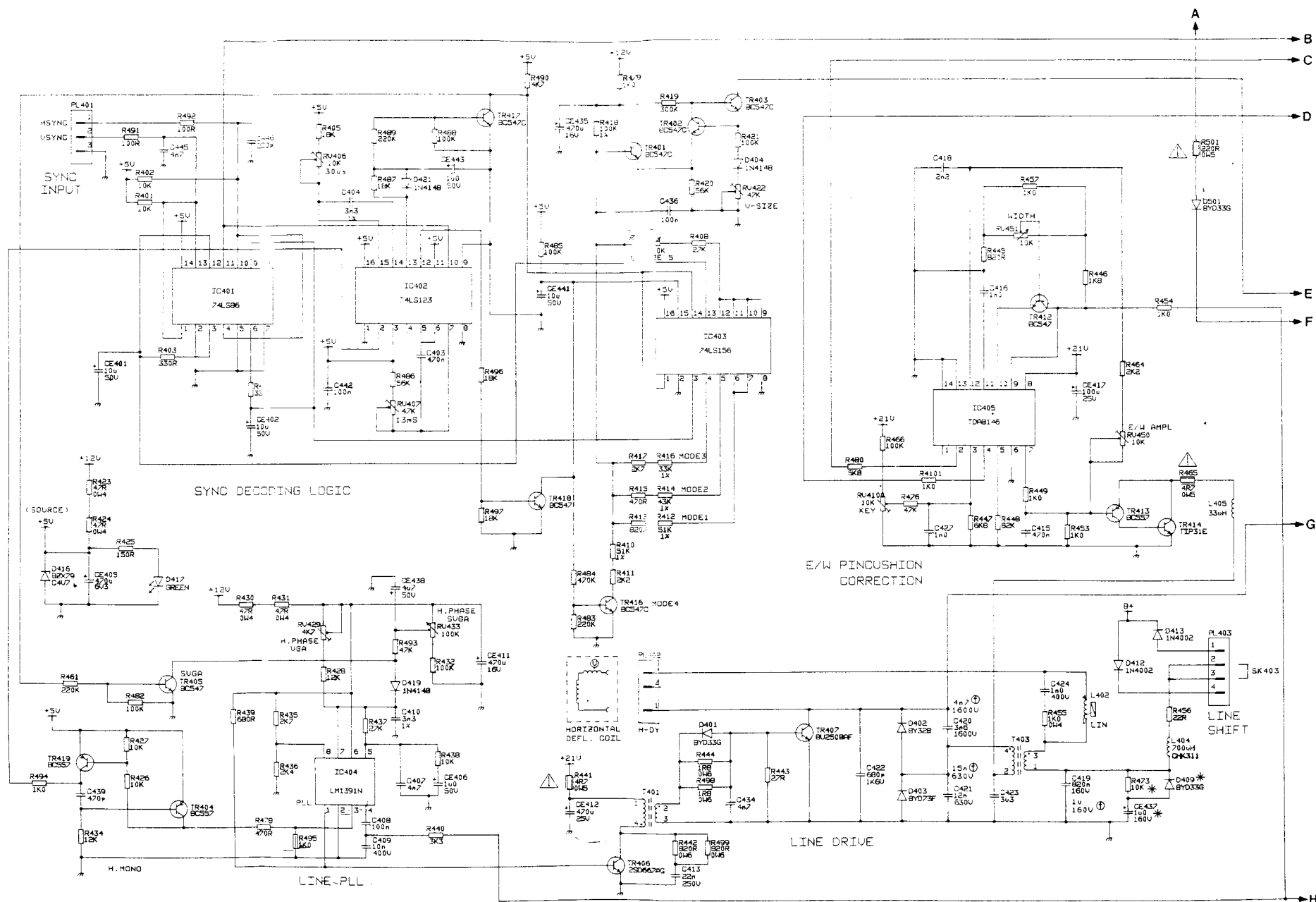
# CRT PCB COMPONENT LAYOUT



# MAIN SCHEMATIC DIAGRAM 2/3 & WAVEFORMS



### MAIN SCHEMATIC DIAGRAM 1.1





# PSU SCHEMATIC DIAGRAM

MONITOR CHASSIS TYPES Y, Y2U AND Y2V

79-1536-5-002

- \* - NOT FITTED
- ① - 110V OPTION
- ☑ - NOT FITTED ON 110V
- ② - USED WITH Y CHASSIS 0.39 CRT AND ALL Y2 CHASSIS
- ③ - CANCELLATION COIL FITTED ON Y2U CHASSIS ONLY

⚠ - CRITICAL SAFETY COMPONENT

NOTE: B+ VOLTAGE VARIES WITH CHASSIS TYPE  
(SEE SERVICE MANUAL FOR DETAILS)

## SAFETY AND ISOLATION

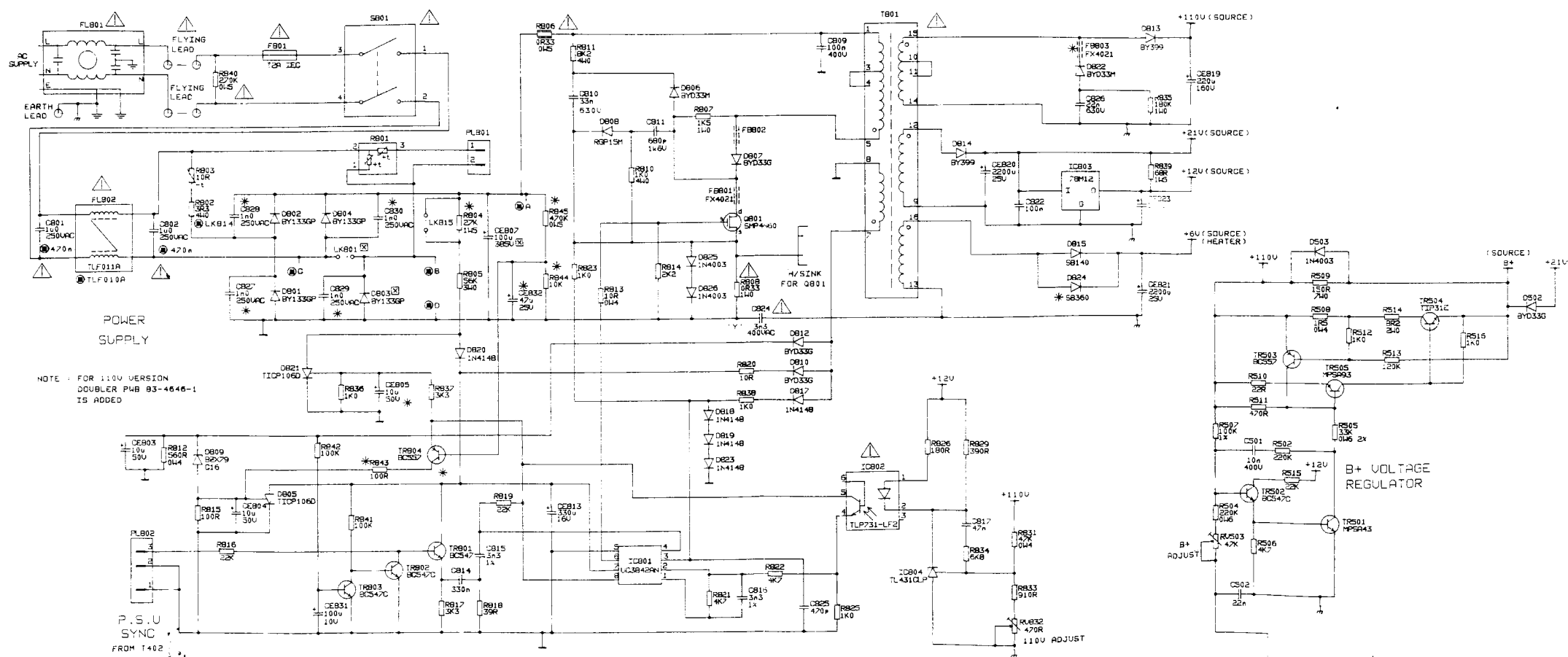
THE POWER SUPPLY IS ALWAYS LIVE REGARDLESS OF THE MAINS SUPPLY POLARITY. THEREFORE, FOR SERVICING, THE MONITOR SHOULD BE SUPPLIED THROUGH A MAINS ISOLATION TRANSFORMER.

THE POWER SUPPLY REMAINS CHARGED FOR ABOUT 30 SECS AFTER SWITCHING OFF. AVOID TOUCHING THIS AREA DURING THIS TIME.

MOST OF THE MONITOR, OTHER THAN THE POWER SUPPLY, IS ISOLATED FROM THE MAINS BY T801, C802, C824 AND AN AIR GAP OF 6MM OR MORE. TO MAINTAIN SAFETY, ENSURE THAT AFTER REPAIR THE AIR GAPS ARE NOT REDUCED BY PROTRUDING WIRES ETC.

COMPONENTS MARKED ⚠ ON THE PARTS LIST OR CIRCUIT DIAGRAM ARE SAFETY APPROVED TYPES AND SHOULD BE REPLACED ONLY WITH APPROVED COMPONENTS AS GIVEN ON THE PARTS LIST. IT IS RECOMMENDED THAT OTHER REPLACED PARTS SHOULD BE OF THE TYPE ORIGINALLY FITTED, PARTICULARLY RESISTORS STOOD OFF THE PRINTED BOARD.

FAILURE TO OBSERVE THE ABOVE MAY RENDER THE CHASSIS AND EXTERNAL ACCESSIBLE PARTS LIVE, OR CAUSE OTHER HAZARDS.



# MAIN SCHEMATIC DIAGRAM 3/3

