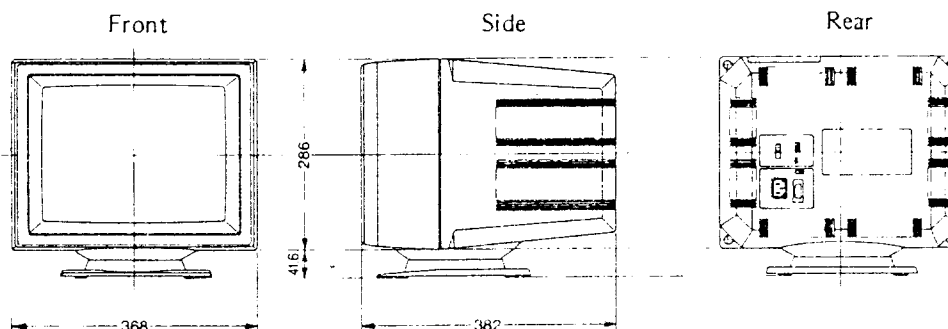


B. Mechanical Description (See below diagrams)

- |                |  |
|----------------|--|
| 1. Cabinet:    | Molded plastic cabinet with attachable tilt swivel base. |
| 2. Dimensions: | 368(W) x 327.6(H) x 382(D) mm                            |
| 3. Weight:     | 15.2 kg  |



4. Controls

Rear Controls:

POWER SWITCH  
MANUAL SWITCH  
COLOR SWITCH  
TEXT COLOR SWITCH  
TTL/ANALOG SWITCH  
BRIGHT. CONTROL  
CONTRAST CONTROL  
V. SIZE CONTROL  
V. POSITION CONTROL  
V. HOLD CONTROL  
H. POSITION CONTROL  
TEXT SWITCH  
H. WIDTH SWITCH

Top Controls:

5. Input Signal Terminal:

9 PIN D-SUB CONNECTOR (FEMALE)  
(SEE PAGE 2 FOR PIN ASSIGNMENTS)

NOTE: Power cord: Plug form different by model.

JC-1401P3EE

Warning: This apparatus must be earthed.

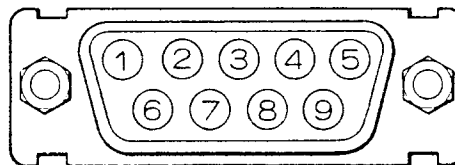
Important

The wires in this mains lead are colored in accordance with following code:



# PIN ASSIGNMENTS AND SIGNAL LEVELS

D-SUB Type 9P



## PIN ASSIGNMENT OF IBM GRAPHICS ADAPTER

IBM ADAPTERS PIN- ASSIGNMENT	COLOR GRAPHICS TTL 16 COLORS	ENHANCED GRAPHICS TTL 64/16 COLORS	PROFESSIONAL GRAPHICS ANALOG
1	GROUND	GROUND	* RED
2	GROUND	SECONDARY RED	* GREEN
3	RED	PRIMARY RED	* BLUE
4	GREEN	PRIMARY GREEN	COMPOSITE SYNC.
5	BLUE	PRIMARY BLUE	MODE CONTROL
6	INTENSITY	SECONDARY GREEN /INTENSITY	RED GROUND
7	NON-CONNECTION	SECONDARY BLUE	GREEN GROUND
8	HORIZONTAL SYNC.	HORIZONTAL SYNC.	BLUE GROUND
9	VERTICAL SYNC.	VERTICAL SYNC.	GROUND

## PIN ASSIGNMENT OF OTHER COMPUTERS

SIGNAL PIN- ASSIGNMENT	TTL			ANALOG		
	8 COLORS	16 COLORS	64 COLORS	SEPARATE SYNC.	COMPOSITE SYNC.	SYNC. ON GREEN
1	GROUND			* RED		
2	——		SECONDARY RED	* GREEN		GREEN Ⓢ H/V SYNC.
3	RED		PRIMARY RED	* BLUE		
4	GREEN		PRIMARY GREEN	H. SYNC.	H/V SYNC.	——
5	BLUE		PRIMARY BLUE	V. SYNC.	——	
6	——	INTENSITY	SECONDARY GREEN	GROUND		
7	——		SECONDARY BLUE			
8	H. SYNC./H/V SYNC.					
9	V. SYNC.					

"—" means GROUND or NON-CONNECTION

### SIGNAL LEVEL

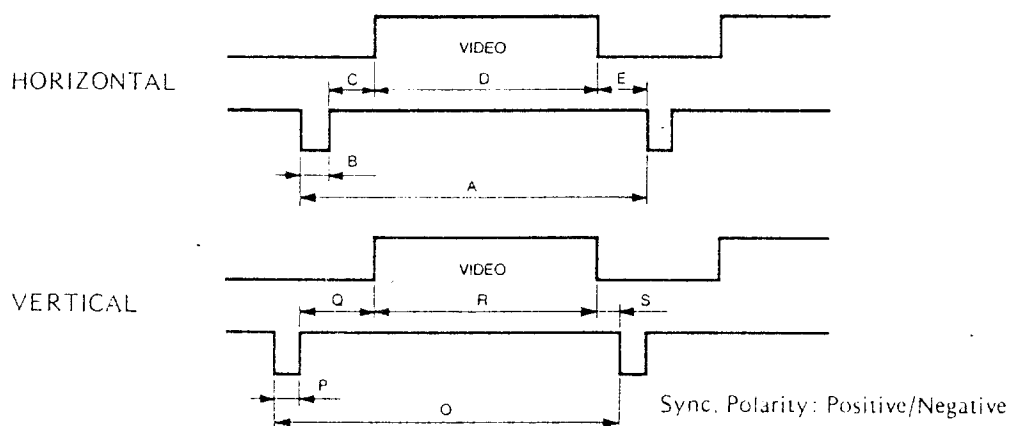
All signal levels, except for those listed below, are TTL.

"\*" means 0.6 Vp-p (VIDEO)

"©" means 0.6 Vp-p (VIDEO), 0.3 Vp-p (SYNC.)

# TIMING CHART

## SEPARATE SYNC.



	$f_H$	EXAMPLE TIMING			REMARKS
		15.75kHz	24.83kHz	30.1kHz	
Horizontal	$A_{\mu s}$	63.5	40.28	33.2	64.5 to 28.6 $\mu s$ (15.5 to 35kHz)
	$B_{\mu s}$	5.08	3.04	3.43	2 to 10 $\mu s$
	$C_{\mu s}$	7.62	2.80	2.86	2 to 8 $\mu s$
	$D_{\mu s}$	46.3	32.4	25.76	20 to 48 $\mu s$ *
	$E_{\mu s}$	4.4	2.04	1.14	1 to 6 $\mu s$ and $E/(B+C) = 0.1$ to 0.45 Range 1: $E/(B+C) = 0.3$ to 0.5
Vertical	$O_{mS}$	16.6	17.72	17.66	16.1 to 17.8 mS (56 to 62Hz)
	$P_{mS}$	0.26	0.32	0.26	0.05 to 0.7 mS
	$Q_{mS}$	1.6	1.01	0.73	0.08 to 2.2 mS
	$R_{mS}$	13.84	16.11	16.6	12 to 17 mS and $(O-R) = 0.8$ to 4.0
	$S_{mS}$	0.9	0.28	0.066	0 to 1.6 mS and $Q = [(O-R)-0.8]/2 \pm 0.2$

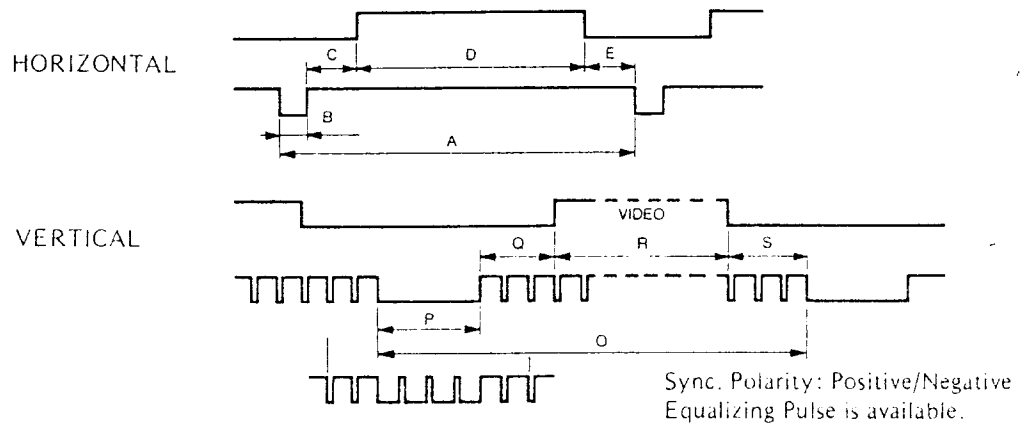
Range 1:  $A = 64.5$  to  $50\mu s$   
 Range 2:  $A = 50$  to  $37\mu s$   
 Range 3:  $A = 37$  to  $28.6\mu s$

\* Both SEPARATE SYNC. & COMPOSITE SYNC.  
 Range 1:  $D/A = 0.7 \sim 0.75$   
 Range 2:  $D/A = 0.8 \sim 0.85$   
 Range 3:  $D/A = 0.75 \sim 0.8$

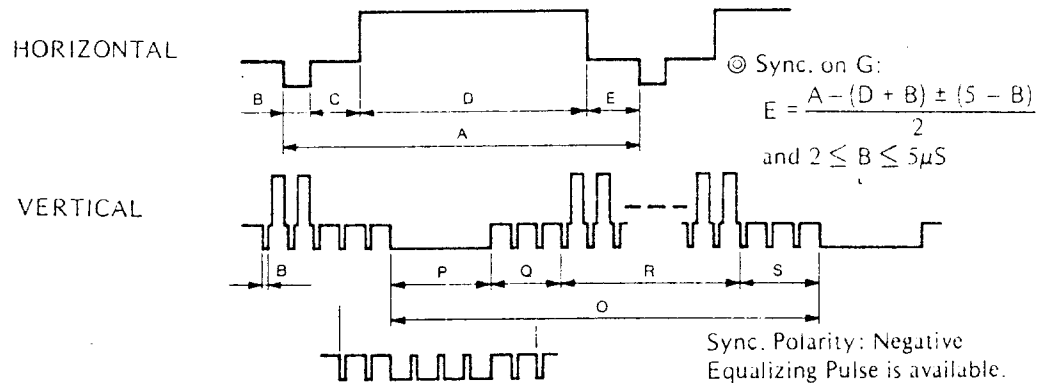
## PRESET TIMING

Horizontal	$f_H$	15.8kHz	22kHz	30.5kHz	Vertical	$f_H$	15.8kHz	22kHz	30.5kHz
	$A_{\mu s}$	63	45.5	33		$O_{mS}$	16.4	16.68	16.6
	$B_{\mu s}$	4.2	4.9	4.5		$P_{mS}$	0.075	0.6	0.07
	$C_{\mu s}$	7.2	1.6	2.8		$Q_{mS}$	1.525	0.08	2.12
	$D_{\mu s}$	45	39	25.6		$R_{mS}$	12.6	16	13.05
	$E_{\mu s}$	6.6	0	0.1		$S_{mS}$	2.2	0	1.36

## COMPOSITE SYNC.



### Composite Sync. & Video (Sync. on Green)



	$f_H$	EXAMPLE TIMING			REMARKS
		15.98kHz	25.5kHz	31.5kHz	
Horizontal	$A_{\mu s}$	62.6	39.2	31.75	64.5 to 28.6 $\mu s$ (15.5 to 35kHz)
	$B_{\mu s}$	5.41	2.51	2.06	2 to 10 $\mu s$
	$C_{\mu s}$	8.0	3.30	3.62	3.3 to 8 $\mu s$
	$D_{\mu s}$	44.7	32.14	24.52	20 to 48 $\mu s$ *
	$E_{\mu s}$	4.47	1.25	1.56	1 to 6 $\mu s$ and $E/(B + C) = 0.1$ to 0.45 Range 1: $E/(B + C) = 0.3$ to 0.5 ©
Vertical	$O_{mS}$	16.35	16.67	16.67	16.1 to 17.8 mS (56 to 62Hz)
	$P_{mS}$	0.19	0.12	0.19	0.05 to 0.19 mS
	$Q_{mS}$	1.82	0.80	1.02	0.8 to 2.2 mS
	$R_{mS}$	13.47	15.63	15.24	12 to 17 mS and $(O - R) = 0.8$ to 4.0
	$S_{mS}$	0.87	0.12	0.22	0 to 1.6 mS and $Q =  (O - R) - 0.8 /2 \pm 0.2$

## GENERAL

MultiSync, The Intelligent Monitor, is a high resolution color monitor that automatically adjusts to graphics board scanning frequencies from 15.5 KHz to 35 KHz.

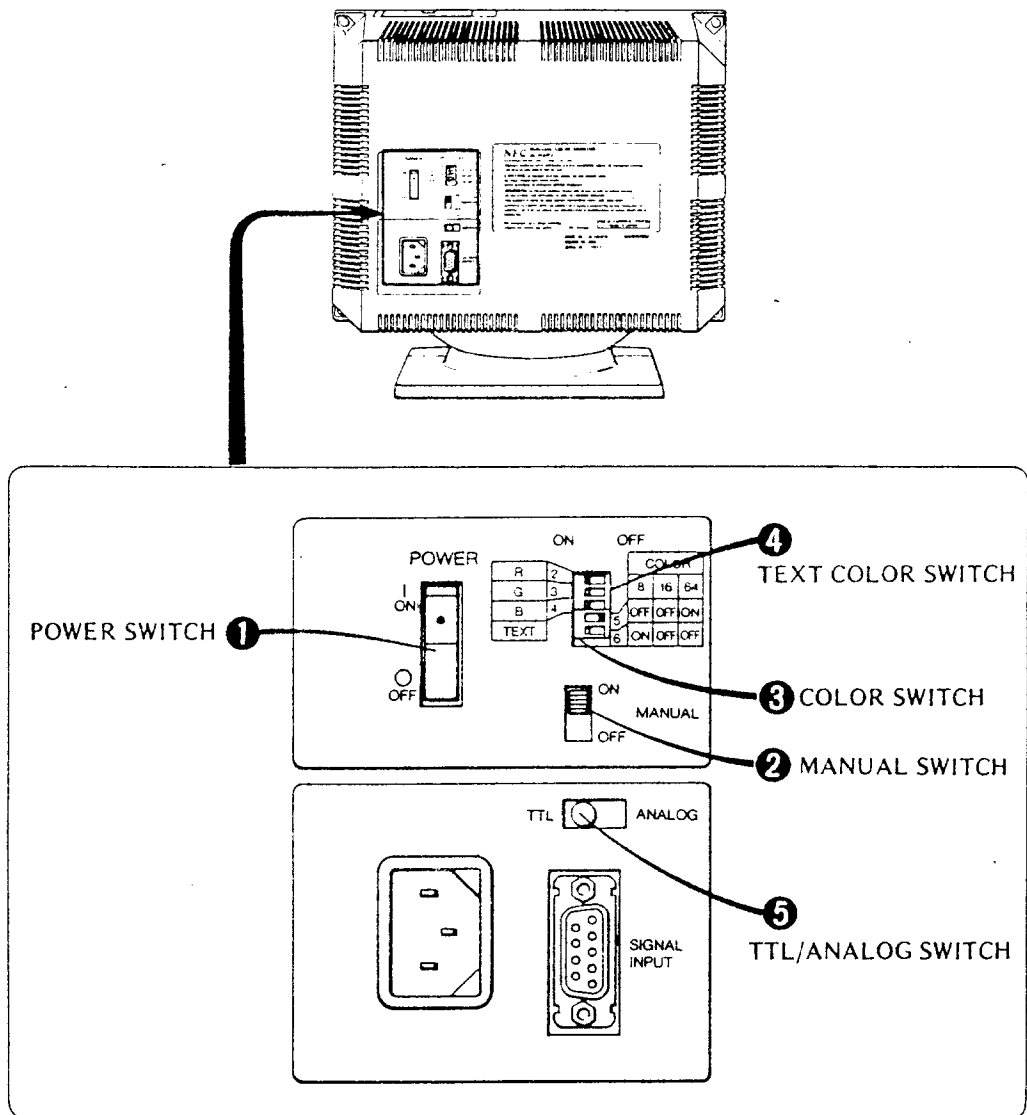
MultiSync gives IBM PC, PC/XT, and PC/AT users crisp text and vivid color graphics displays when used with any of the three IBM graphics adapters (the CGA, EGA or VGA)

MultiSync can also be used with other IBM compatible graphics adapters to provide IBM users with the widest range of color monitor compatibility and capability available in the market place.

## FEATURES

- MultiSync automatically scans all frequencies between 15.5 KHz and 35 KHz.
- MultiSync is compatible with the IBM PC, PC/XT, PC/AT and look-alikes.
- MultiSync is compatible with the IBM Professional Graphics Adapter, the IBM Enhanced Graphics Adapter, the IBM Color Graphics Adapter and other IBM compatible graphics adapters.
- MultiSync's wide compatibility makes it possible to upgrade boards or software without purchasing a new monitor.
- MultiSync has a maximum horizontal resolution of 800 dots and a maximum vertical resolution of 560 lines for superior clarity of display.
- MultiSync offers both TTL and ANALOG signal inputs, and in the ANALOG mode can display an unlimited palette of colors depending on the graphics board and software being used.
- MultiSync features a TEXT SWITCH with a choice of seven colors (red, blue, green, cyan, yellow, white and magenta) displaying word processing, spread sheets, databases or other software in crisp alphanumeric text on a dark-bulb black background.
- MultiSync has a 14 inches diagonal display and a large, 13 inches viewing area.

## ADJUSTING THE REAR CONTROLS



### 1 POWER SWITCH

Used to turn the power ON or OFF. When the power is ON, the power indicator is lit.

### 2 MANUAL SWITCH

This switch selects either the IBM mode when OFF or the manual mode when ON.

When this switch is OFF, MultiSync automatically works in the IBM mode and adjusts itself to the scanning frequency, resolution and color requirements of the IBM compatible graphics adapter being used.

When this switch is ON, the user must manually select the number of colors (8/16/64) needed by the graphics adapter being used with the COLOR SWITCH (see No. 3 below). Refer to instructions accompanying the graphics adapter being used for information on how many colors the adapter can display.

### **③ COLOR SWITCH**

The three color configurations (8/16/64 colors) necessary when using non-IBM compatible graphics adapters can be set using No. 5 and 6 of the dip switches as shown below. Refer to instructions accompanying the graphics adapter being used for information on how many colors the adapter can display.

COLOR MODE	DIP SWITCH	
	No. 5	No. 6
8 colors	OFF	ON
16 colors	OFF	OFF
64 colors	ON	OFF
UNUSED	ON	ON

#### **NOTE**

These switches should be set correctly in relation to the input signal of the graphics adapter being used. Refer to instructions accompanying the graphics adapter for information on the input signal and refer to No. ⑥ below.

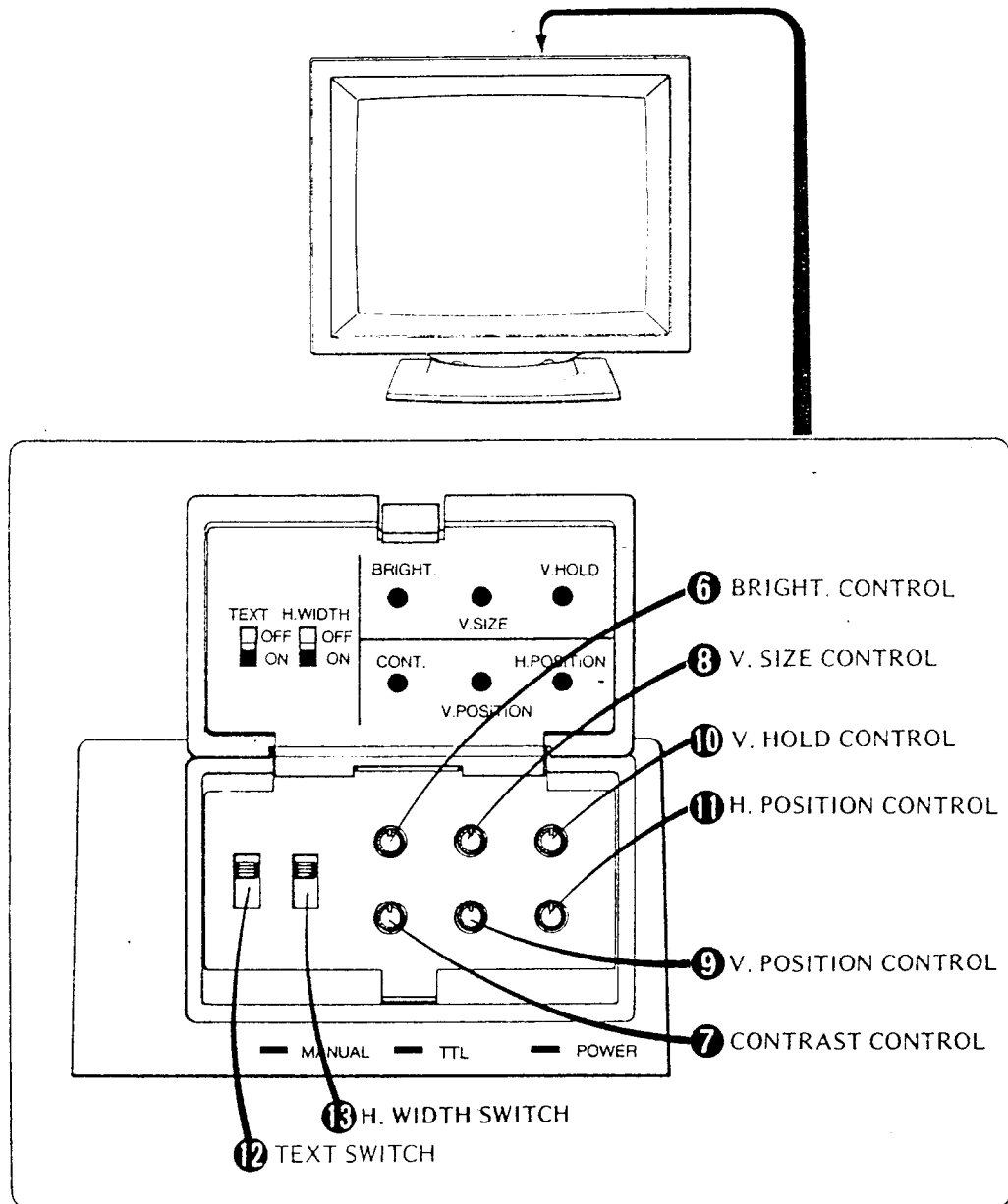
### **④ TEXT COLOR SWITCH**

Refer to No. ⑫ TEXT SWITCH for full information on using the TEXT SWITCH.

### **⑤ TTL/ANALOG SWITCH**

Used to select an input video signal – either TTL or ANALOG – of the graphics adapter. It is important to determine whether the input signal of the graphics adapter being used is ANALOG or TTL prior to connecting the adapter with your personal computer. Refer to instructions accompanying the graphics adapter for information on the input signal.

## ADJUSTING THE TOP CONTROLS



### ⑥ BRIGHT. CONTROL

Used to adjust the picture brightness of the screen.

### ⑦ CONTRAST CONTROL

Adjusts the display to the contrast preferred by the user.

### **8 V. SIZE CONTROL**

Turn this knob for the proper vertical size of the display. Turn the knob clockwise for a larger display; turn it counterclockwise for a smaller display.

### **9 V. POSITION CONTROL**

Turn this knob for the proper vertical position of the display. Turn the knob clockwise to raise the display position; turn it counterclockwise to lower the display position.

### **10 V. HOLD CONTROL**

Adjusts the vertical stability of the display. Please adjust the V. HOLD CONTROL so that CONTROL position is center of the hold range for proper picture.

### **11 H. POSITION CONTROL**

Turn this knob for the proper horizontal position of the display. Turn the knob clockwise to reposition display to the right; turn it counterclockwise to reposition to the left.

### **12 TEXT SWITCH**

This switch controls the text mode of MultiSync.

When it is ON, the text of the display will appear in one color selected by the TEXT COLOR SWITCH (No. 2, 3 and 4 of the dip switch on the rear of MultiSync), regardless of the colors of the software program being used.

When it is OFF, the color of the software program being used will again be displayed.

The diagram below of the dip switches shows how to display text in your choice of seven colors.

TEXT COLOR	DIP SWITCH		
	2 R	3 G	4 B
RED	ON	OFF	OFF
GREEN	OFF	ON	OFF
BLUE	OFF	OFF	ON
YELLOW	ON	ON	OFF
CYAN	OFF	ON	ON
MAGENTA	ON	OFF	ON
WHITE	ON	ON	ON

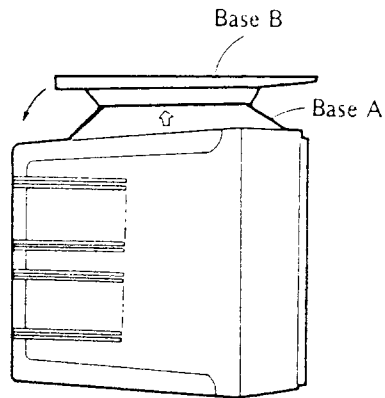
#### **NOTE**

The text switch works only in the TTL mode.

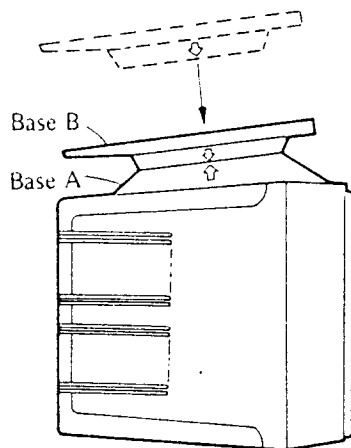
### **13 H. WIDTH SWITCH**

Adjust this switch for the horizontal size of display preferred. When this switch is ON, the width of the display size changes.

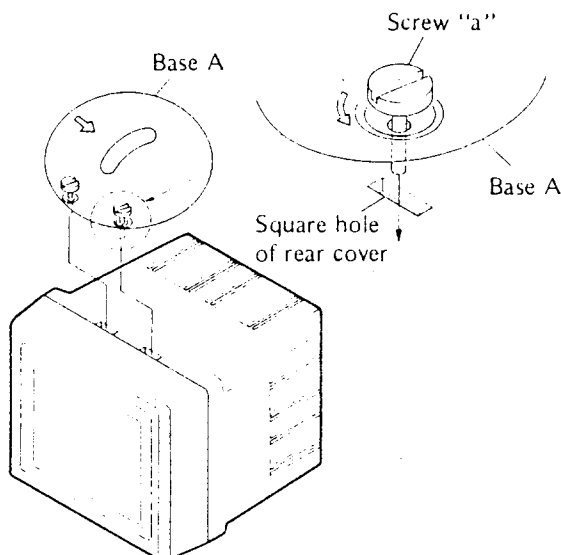
## THE METHOD FOR REMOVING AND MOUNTING THE TILT SWIVEL BASE



1. Push base "B" in the direction of the arrow as shown in the figure on the left.



2. Turn base "B" through and align marks "⊕" on base "A" and base "B".
3. Remove base "B" from base "A".



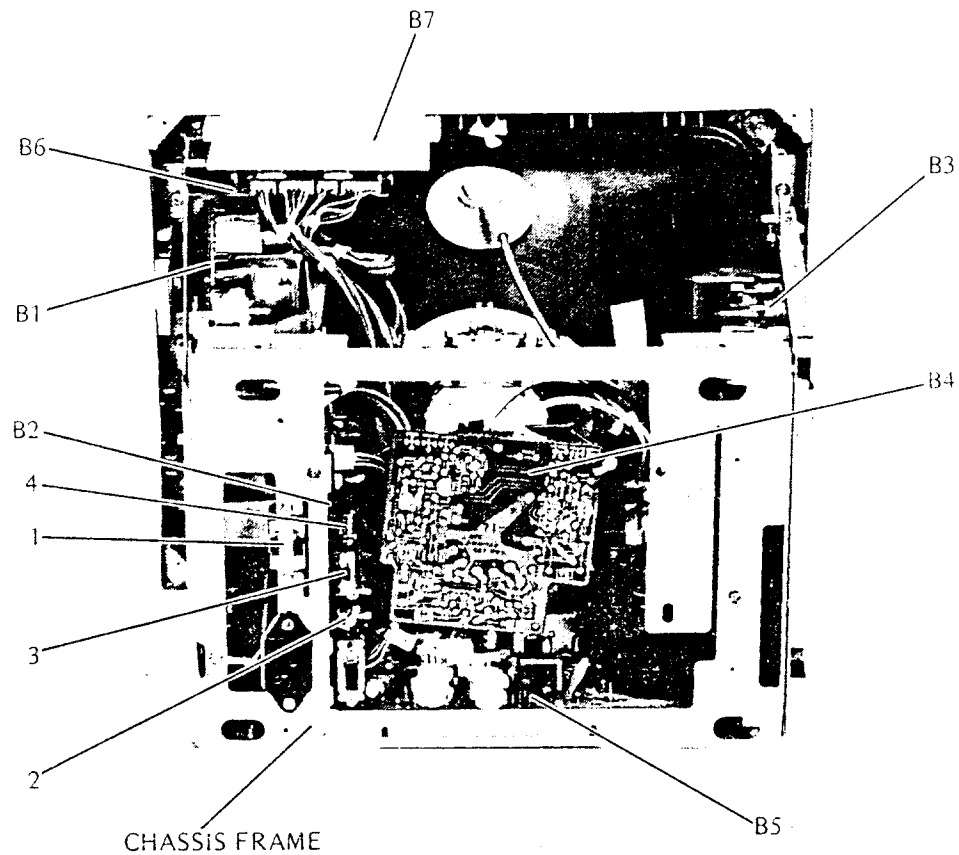
4. Remove the two screws "a" and lift up base "A" from the display.

### NOTE

- To mount the tilt swivel bases, follow the removing procedure in the reverse order.
- When turning the display upright care should be taken so as not to jolt or damage etc.

## PART LOCATIONS

### BOARD LAYOUT



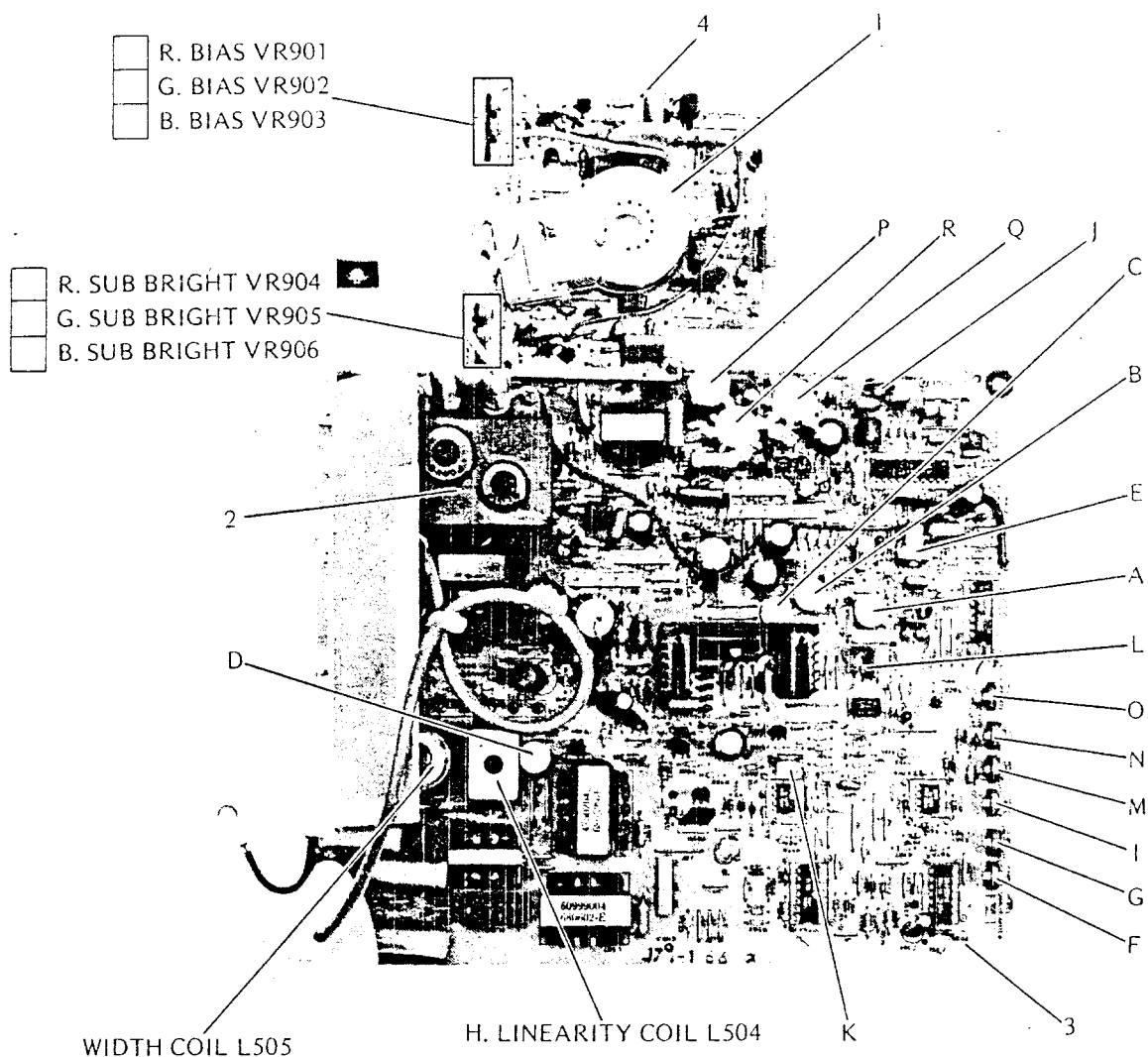
### BOARDS

B1	SWITCHING REGULATOR POWER SUPPLY BOARD	PWE 142
B2	INTERFACE BOARD	PWE 110
B3	VIDEO BOARD	PWE 147
B4	CRT BOARD	PWE 123
B5	DEFLECTION BOARD	PWE 150
B6	CONTROL BOARD	PWE 125A
B7	LED BOARD	PWE 125B

### USER CONTROLS

1	POWER SWITCH
2	TTL/ANALOG SWITCH
3	MANUAL SWITCH
4	TEXT COLOR SWITCH

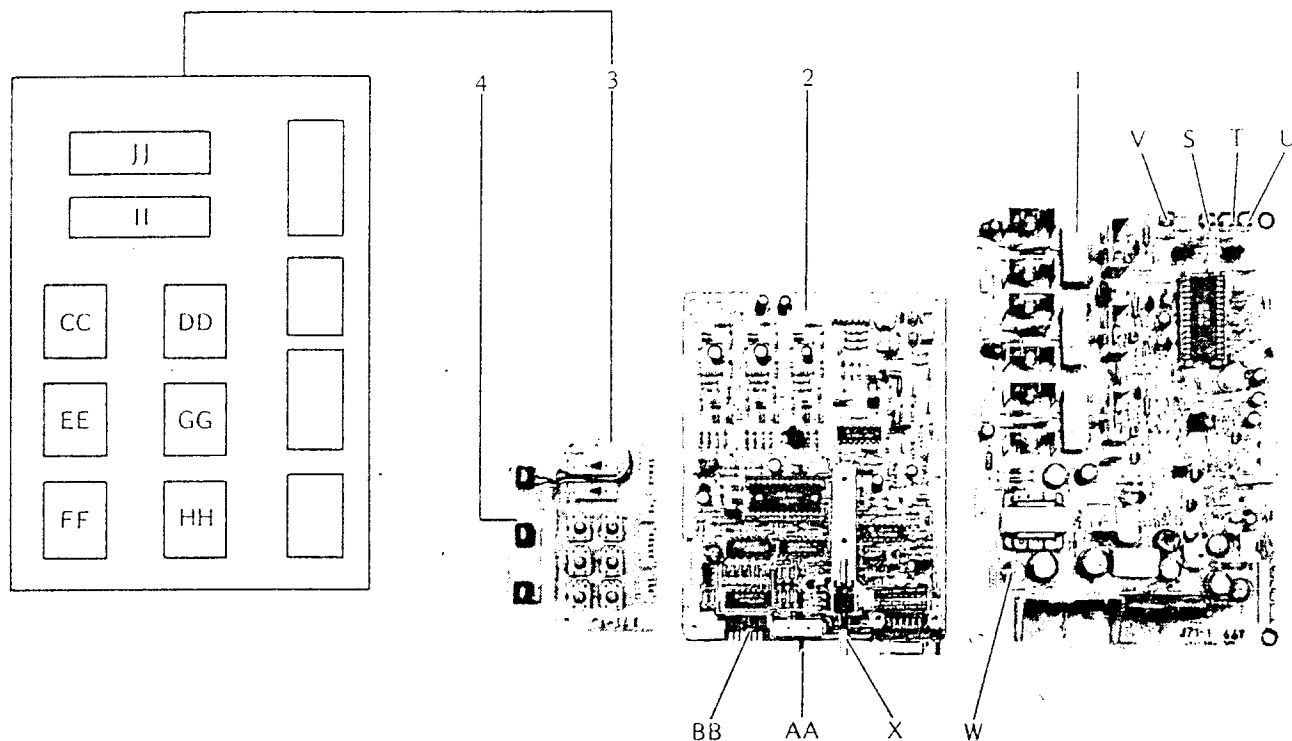
1	CRT SOCKET	
2	FLYBACK TRANSFORMER	
3	DEFLECTION BOARD	PWE 150
4	CRT BOARD	PWE 123



#### ADJUSTMENT CONTROLS

A	V. LINEARITY (2) (VR401)	K	+16V ADJUST (VR551)
B	V. LINEARITY (1) (VR402)	L	F.V ADJUST (VR552)
C	SUB. HEIGHT (1) (VR403)	M	SUB. H CENTER (2) (VR553)
D	SIDE PINCUSHION (VR404)	N	SUB. H CENTER (3) (VR554)
E	V. BIAS (VR405)	O	H. HOLD (2) (VR555)
F	V. MODE (VR451)	P	H. V. ADJUST (VR2001)
G	SUB. HEIGHT (2) (VR452)	Q	H. V. PROTECTOR (1) (VR2002)
I	SUB. H. CENTER (1) (VR501)	R	H. V. PROTECTOR (2) (VR2003)
J	H. HOLD (1) (VR502)		

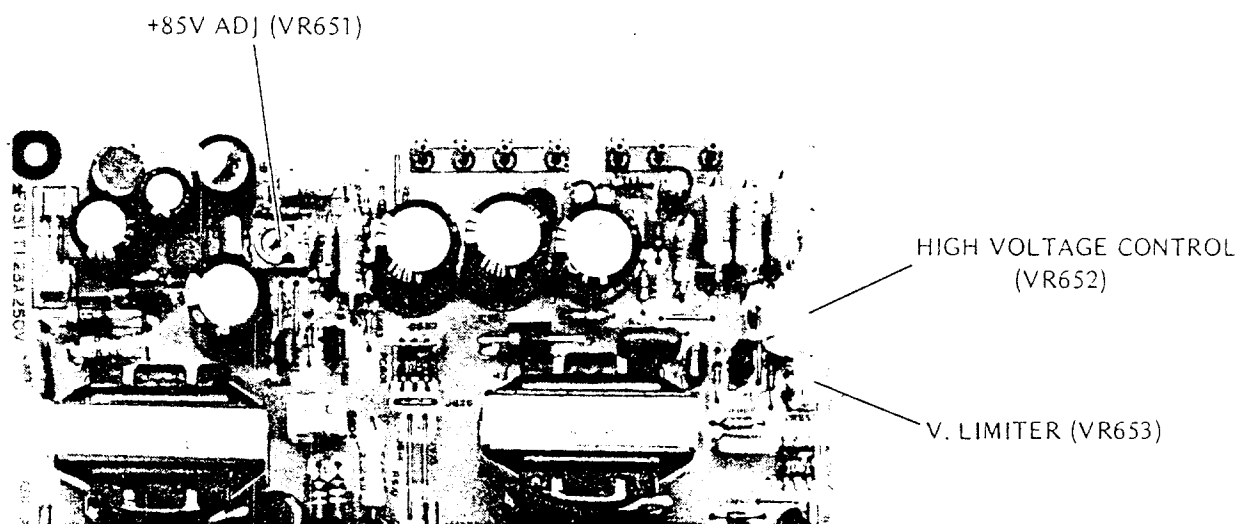
1	VIDEO BOARD	PWE 147
2	INTERFACE BOARD	PWE 110
3	CONTROL BOARD	PWE 125A
4	LED BOARD	PWE 125B



#### ADJUSTMENT CONTROLS

S	R. GAIN CONTROL (VR701)	CC	CONTRAST CONTROL (VR1)
T	G. GAIN CONTROL (VR702)	DD	BRIGHTNESS CONTROL (VR2)
U	B. GAIN CONTROL (VR703)	EE	V. POSITION CONTROL (VR3)
V	SUB CONTRAST CONTROL (VR704)	FF	H. POSITION CONTROL (VR5)
W	+6V ADJUST CONTROL (VR705)	GG	V. SIZE CONTROL (VR4)
X	TTL/ANALOG SWITCH (SW801)	HH	V. HOLD CONTROL (VR6)
AA	MANUAL SWITCH (SW802)	II	H. WIDTH SWITCH
BB	TEXT COLOR SWITCH (SW803 NO. 2, 3, 4)	JJ	TEXT SWITCH
BB	COLOR SWITCH (SW803 NO. 5, 6)		

# SW. REG. PWB LAYOUT



## ALIGNMENT PROCEDURE

### Adjustment conditions and Precautions

1. Power supply voltage: AC 220 – 240 V, 50/60 Hz
2. Warm up time  
The display must be on for at least 20 minutes before starting alignments.  
This is especially critical in color temperature and white balance adjustments.
3. Signals  
Video: Analog 0.6 Vp-p, 75 $\Omega$ , positive  
analog sync. on green  
video: 0.6 Vp-p  
synchronizing: 0.3 Vp-p  
Synchronizing: TTL level negative/positive  
separate/composite  
Scanning Frequency: H 15 kHz – 35 kHz  
V 56 Hz – 62 Hz  
Unless otherwise specified, adjust at signal 6 (22 kHz).

### 1. SW. REG. UNIT

- 1-1. +B<sub>1</sub> (VR651) +85V LINE  
Adjust VR651 to be 85 VDC
  - 1-2. +B<sub>H</sub> (VR652) High Voltage control  
This control is permanently sealed at factory.  
Do not attempt to readjust.
  - 1-3. +B<sub>LIM</sub> (VR653) V. limit (C1 – Gnd Voltage)  
Remove C-connector.  
Adjust VR653 to be 122 Volts.
- Note: Do not operate the SW. Reg. unit itself without any load.

### 2. DEF PWB Pre-Adjustment

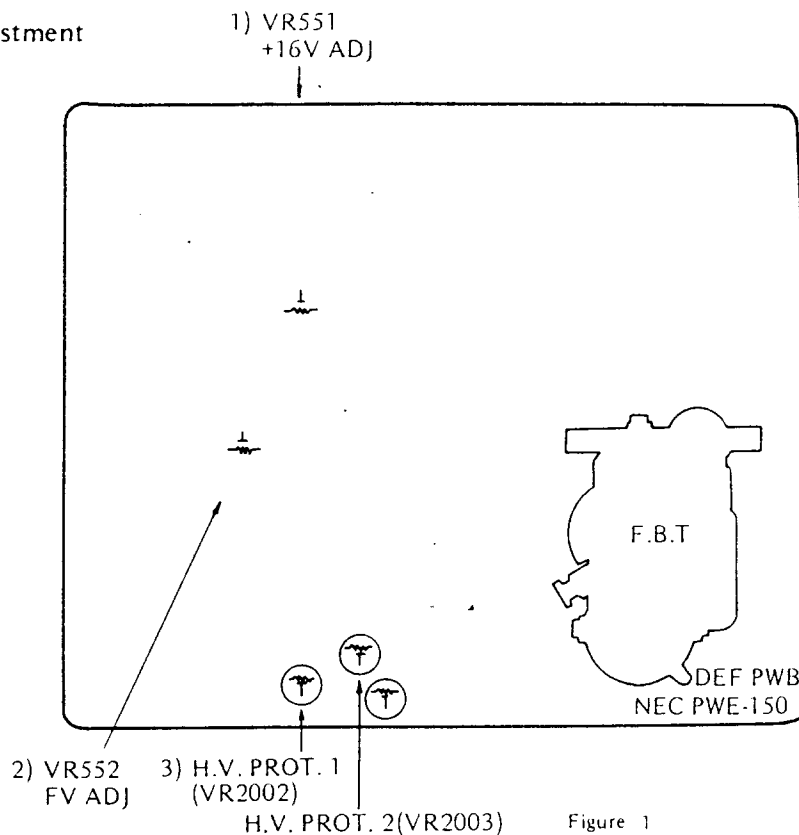


Figure 1

Remove K and C connectors, and apply 24V DC between K2 and K3.  
Or just only remove C connector.

(1) +16V adjustment

Adjust TP551-GND to  $16V \pm 0.05V$  DC. (VR551)

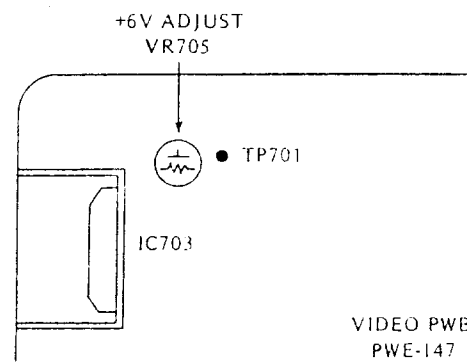
(2) Receive signal 1 and adjust VR552 so that the voltage between TP552 and Gnd is  $10 \pm 0.05V$  DC.

(3) H.V. Protector

The high Voltage protector control 1 (VR2002) and control 2 (VR2003) are permanently sealed at factory.

Do not attempt to readjust!

### 3. Video PWB pre-Adjustment



VIDEO PWB  
PWE-147

Figure 2

(1) +6V adjustment

Adjust VR705 so that the voltage between TP701 and GND is  $6V \pm 0.05V$  DC.

### 4. Main Adjustments

Unless otherwise specified, adjust the controls on the control PWB as shown below:

- VR1 Contrast: Max. (fully clockwise)
- VR2 Brightness: So that no background raster appears
- VR3 V. position: Center
- VR4 H. position: Center
- VR5 V. size: Center
- VR6 V. hold: Proper position

SW2 H. size: OFF

SW3 TEXT SW: OFF

Focus control: Adjust for the optimum picture.

#### 4-1) Adjustment of H. raster centering

Turn the brightness control fully clockwise so that background raster can be seen, then connect the H connector in the position so that the background raster is in the center of the CRT screen.

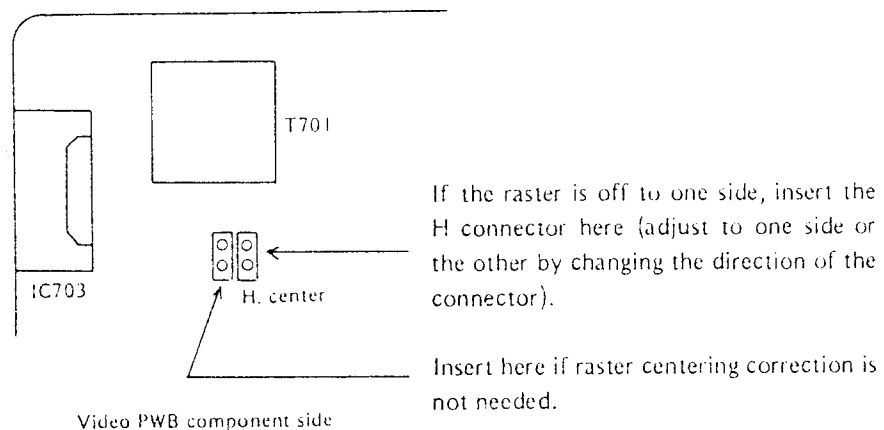


Figure 3

NOTE: Due to overscan, it is impossible to center the background raster if the horizontal frequency is between 15 kHz and 20 kHz.

#### 4-2)

##### (1) H. hold

- Short between TP501 and GND.
- Apply signal 3 (30 kHz) and adjust H. hold (1) VR502 so that the entire picture appears.
- Apply signal 2 (20 kHz) and adjust H. hold (2) VR555 so that the entire picture appears.

##### (2) H.V. ADJ (VR2001)

The H.V. ADJ (VR2001) is permanently sealed at factory.  
Do not attempt to readjust.

##### (3) H. linearity

Adjust L504 for the optimum H. linearity. If at this time the picture is horizontally mispositioned, it is possible to adjust VR4 to center it, but after adjustment of the linearity set VR4 to the mechanical center.

##### (4) H. position (adjust to the center of the raster)

- Adjust sub H. center 1 VR501 to center the picture when signal 3 (30.48 kHz) is applied.
- Adjust sub H. center 3 VR554 to center the picture (1 mm to the left) when signal 6 (22 kHz) is input for mutuality between actual EGA timing and test timing.
- Adjust sub H. center 2 VR553 to center the picture when signal 5 (15.75 kHz) is applied.
- Check that the picture is centered when the signals in a), b), and c) above are applied.

NOTE: Adjust in the order a) → b) → c)

##### (5) Side pincushion

Adjust VR404 for the optimum side pincushion distortion.  
Be careful that there is no barrel distortion.

(6) H. width

Adjust H. width L505 so that the size of the picture when signal 6 (22 kHz) is applied is 250mm. Perform this adjustment with the H. wide switch SW2 OFF. If the size cannot be adjusted to 250mm even if H. width L505 is turned fully, turn L504 slightly to correct this.

(7) V. position

Vertically center the picture when adjustment signal 6 (22 kHz) is applied (VR3, V. POSITION)

(8) V. linearity

Adjust VR401 and VR402 so that vertical linearity is optimum when signal 6 (22 kHz) is applied.

(9) V. size

a) Adjust sub height (1) VR403 so that the vertical amplitude is 180mm when signal 3 (30.48 kHz) is applied.

b) Adjust sub height (2) VR452 so that the vertical amplitude when signal 5 (15.75kHz) is applied is 180 mm.

c) Adjust V-mode VR451 so that the vertical amplitude is 180 mm when V-mode signal 4 (30.48 kHz, 400 lines) is applied.

Set the MANUAL switch to the OFF (PRE-SET mode) when performing this adjustment.

Also V-mode (Input pin #5) should be low.

d) Applies the signals in above steps a), b), and c) and check that the vertical amplitude for each is 180 mm $\pm$ 2 mm. If readjustment is necessary, start from step a) and proceed in order.

(10) V. bias

Adjust VR405 so that the voltage between DY4 and GND is 12.0 VDC when signal 6 (22 kHz) is applied.

#### 4-3) Adjustment of video amplitude and white balance

NOTE: Before performing this adjustment, check that the video signals are as follows:

Be sure to set the TTL/ANALOG SW to ANALOG position.

Video: analog 0.6 Vp-p

Synchronizing: separate TTL level

Unless otherwise specified, use signal 8 for the adjustments.

(1) Initial setting of adjustment VR

VR701 ~ 703 GAIN control	Fully counterclockwise
VR704 SUB cont. control	Fully clockwise
VR901 ~ 903 BIAS control	Fully counterclockwise
VR904 ~ 906 SUB BRIGHT control	Fully clockwise

(2) Video contrast adjustment

a) Adjustment of GAIN control – use signal 7 [all white signal]

i) Receive a window pattern (within a range for which ABL does not function even with a maximum contrast, and preferably with a video range of 1/3 to 1/2H x 1/2V).

ii) Turn the contrast control fully clockwise and the brightness control fully counterclockwise.

iii) Adjust VR701, VR702, and VR703 so that R, G, and B OUT respectively on the video PWB become 40 Vp-p. After adjusting, check each Vp-p, and if not proper readjust.

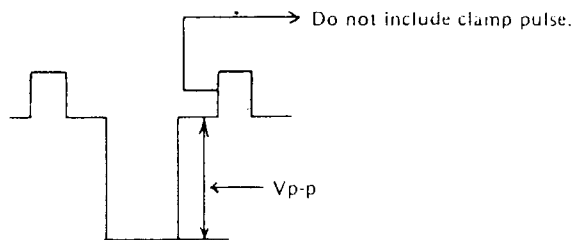


Figure 4

- b) Adjustment of sub-contrast control — use signal 7 [all white signal]
  - i) Turn both the contrast and brightness controls fully counterclockwise.
  - ii) Adjust VR704 so that R, G, and B OUT respectively on the video PWB become 10 Vp-p. After adjusting, check each Vp-p, and if not proper readjust.

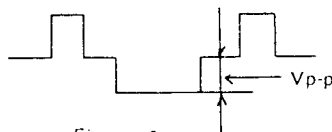


Figure 5

- (3) Cut-off adjustment (all black signals)
 

Turn the contrast control (VR1) and screen control of FBT fully counterclockwise.

  - a) Short TP901 — TP902. (CRT PWB)  
Short TP401 — GND. (DEF PWB)
  - b) Turn the screen control clockwise gradually and set to the position at which a single horizontal color appears faintly.  
Take this color as the reference color for cut-off adjustment.
  - c) Turn the bias controls for a color other than the reference color clockwise until it is as bright as the reference color.
  - d) Remove the TP401-GND and TP901-TP902 shorts.

NOTE: Perform the cut-off adjustment in as dark a place as possible, as this will facilitate white tracking.
- (4) Adjustment of sub-brightness VR
  - a) Receive the signal 8 (15.75 kHz) H grey scale (16 grades).  
IF signal generator does not function white H grey scale (16 grades), Apply 0.2V Video input insted of 5/16 grades.
  - b) Turn the contrast control fully clockwise and the brightness control fully counterclockwise.
  - c) Adjust sub-bright VR905 so that the 5/16 grade appears faintly.  
From this point on, leave VR905 in this position.
  - d) Turn the contrast control fully counterclockwise and the brightness control fully clockwise.
  - e) Receive all black signals.
  - f) Adjust VR904 and VR906 so that background raster becomes white.

Following procedure can be used instead of above. {Regarding quantum 801 C}

- (4)' Adjustment of sub-brightness VR
 

Turn the contrast control fully counter clockwise, the brightness control fully clockwise and sub-brightness control VR905 mechanical center.

  - a) Receive the signal 8 (15.75 kHz) all black signal.
  - b) Adjust VR904 and VR906 so that the background raster becomes white. If retrace lines appear, readjust the VR905 counter clockwise so that the retrace lines disappear, and readjust white barance.
  - c) Receive the all white pattern.

- d) Check the followings
  - No retrace lines appear at
    - contrast control fully counter clockwise.
    - brightness control fully clockwise.
  - Back raster appear at
    - contrast control fully clockwise.
    - brightness control fully clockwise.
- (5) Fine adjustment of white balance
  - a) Receive the white H grey scale (16 grades).
    - IF signal generator does not function white H grey scale (16 grades), Apply white window pattern.
    - (Window pattern . . . . . within a range for which ABL does not function)
  - b) Turn the contrast control fully counterclockwise and the brightness control fully clockwise.
    - Check that the white balance is proper for each grade.
    - If the background raster and the white balance for the different grades are off, fine adjust sub bright VR904 and VR906.

ATTENTION: Do not touch VR905 – G sub bright.

- c) Turn the contrast control fully clockwise.
  - Adjust the brightness control so that no background raster appears and check that the white balance is proper for each grade.
  - If the white balance is off for the upper grades, fine adjust the gain control, VR701 and VR703 to match the white.

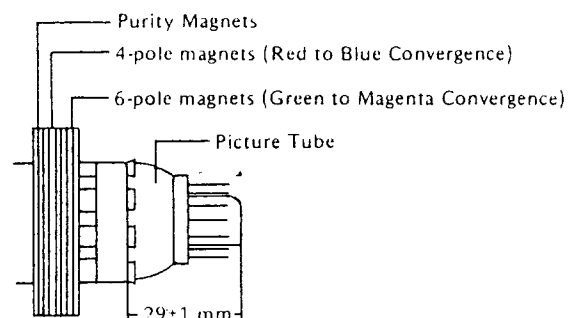
ATTENTION: Do not touch VR702 – G Gain.

## 6. Focus Adjustment (Use signal 3)

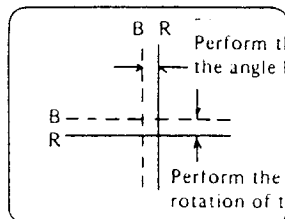
Turn the contrast control fully clockwise and set the brightness control to a suitable position. Adjust the focus control to the optimum position.

## 7. Purity Adjustment

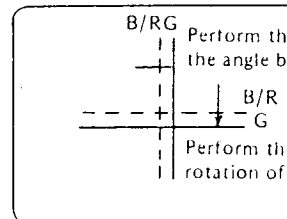
- 1) Be sure that the display is not being exposed to any external magnetic fields.
- 2) Ensure that the spacing between the Purity, Convergence Magnet, (PCM), assembly and the CRT stem is  $29 \text{ mm} \pm 1 \text{ mm}$ . (See below diagram)
- 3) Produce a complete, red pattern on the display. Adjust the Purity magnet rings on the PCM assembly to obtain a complete field of the color red. This is done by moving the two tabs in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately  $180^\circ$ .
- 4) Check the complete blue and complete green patterns to observe their respective color purity. Make minor adjustments if needed.



Purity, Convergence Magnet Assembly (PCM)



Red to Blue Convergence  
(Magenta)



Green to Magenta Convergence  
(White)

## 8. Convergence Adjustment

- 1) Produce a magenta crosshatch on the display.
- 2) Adjust the focus for the best overall focus on the display.  
Also adjust the brightness to the desired condition.
- 3) Vertical red and blue lines are converged by varying the angle between the two tabs of the 4-pole magnets on the PCM assembly. (See above diagrams)
- 4) Horizontal red and blue lines are converged by varying the two tabs together, keeping the angle between them constant.
- 5) Produce a white crosshatch pattern on the display.
- 6) Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.
- 7) Horizontal green and magenta lines are converged by varying the two tabs together, keeping the angle between them constant.

## 9. Switches and Controls Operation

Confirm the following Switches and controls operate correctly.

### Switches

- 1) TTL/ANALOG SW
- 2) MANUAL SW
- 3) 8/16/64 color select SW
- 4) TEXT SW
- 5) TEXT color SW
- 6) H. Width SW

### Controls

- 1) Brightness
- 2) Contrast
- 3) V. size
- 4) V. position
- 5) V. Hold
- 6) H. position

## 10. Multi Scanning Operation

Confirm the Multi Sync operate correctly with IBM PC W/C GA, EGA also PGA, or with signal 3, 4, 5, and 6.









① Indication address

② Abbreviation

③ Description

④ Contents

⑤ Unit

## Description of each address

add.	Description	Condition
0		05.000 ~ 40.000 MHz, 5- or 6-digit 2.5KHz step for 10 MHz or lower, 5 KHz step for 10 ~ 20 MHz, and 10 KHz step for 20 MHz or higher
1		Reference data, 5-digit
2		Reference data, 5-digit
3		(H direction) x (V direction), 02 to 16      01 to 32 each 2-digit
4	Total number of characters, horizontal	255 characters or less, 3-digit
5	Number of indication characters, horizontal	$N_{ht}$ or less, 3-digit
6	Horizontal synchronization position	$N_{ht}$ or less, 3-digit
7	Vertical/horizontal pulse width	V: 1 to 16 H/H:1 to 15 chr.
8	Total raster adjustment	31 H or less
9	Total number of characters, vertical	127 rows or less, 3-digit
10	Number of indication characters, vertical	$N_{vt}$ or less
11	Vertical synchronization position	$N_{vt}$ or less
12	Vertical indication position correction	0 ~ 16 H (Synchronization position moves in the form of $N_{vsp} + N_{vsadj}$ )
13	Interlace select	00: non-interlace 01: interlace
14	Output condition setting	

Likewise, when significant data is a single digit, do not forget to enter 0.

## DATA FORMAT FOR USING Quantum 801C

### TIMING PARAMETERS:

#### Real Time Parameters

Dot Rate	MHz
Horizontal Rate	KHz
Vertical Rate	Hz

#### Non-Real Time Parameters

Horizontal	Vertical
Dots/Character	Lines/Character
Total	Total
Characters	Rows
Drive Delay	Drive Delay
Drive Width	Drive Width
	Step Width

### SIGNAL'S DISCRIPTION:

Signal No.	Description
1	H: 25kHz
2	H: 20kHz
3	H: 30.48kHz (480 lines)
4	H: 30.48kHz (400 lines)
5	H: 15.85kHz
6	H: 22kHz
7	H: 15.85kHz WINDOW PATTERN
8	H: 15.85kHz

### OPTION PARAMETERS

#### Signal Gating

Composite Sync	OP 1.—0 = off 1 = on
Vertical Step	OP 2.—0 = off 1 = on
Horizontal Drive	OP 3.—0 = off 1 = on
Vertical Drive	OP 4.—0 = off 1 = on

#### Signal Polarity

Composite Sync	OP 5.—0 = non-inverted 1 = inverted
Vertical Step	OP 6.—0 = non-inverted 1 = inverted
Horizontal Drive	OP 7.—0 = non-inverted 1 = inverted
Vertical Drive	OP 8.—0 = non-inverted 1 = inverted
Video	OP 13.—0 = non-inverted/positive 1 = inverted/positive 2 = non-inverted/negative 3 = inverted/negative

#### Interlace Mode

OP 9.—0 = non-interlace 1 = interlaced sync only 3 = interlaced sync & video
--

#### Video Mode

OP 10.—0 = monochrome 1 = color
---------------------------------

#### Duty Cycle

OP 11.—0 = 50% 1 = 100% (OP 12.0) 0 or 1 = 100% (OP 12.2)
--

#### Character Clocking Mode

OP 12.—0 = single-phase 2 = dual-phase
---

#### Horizontal Skew

OP 14.—skew right 0—3 dots
----------------------------

#### Vertical Skew

OP 15.—skew down 0—9 lines
----------------------------

#### Cursor

OP 16.—0 = off 1 = fast blink 2 = slow blink 3 = on continuous
---

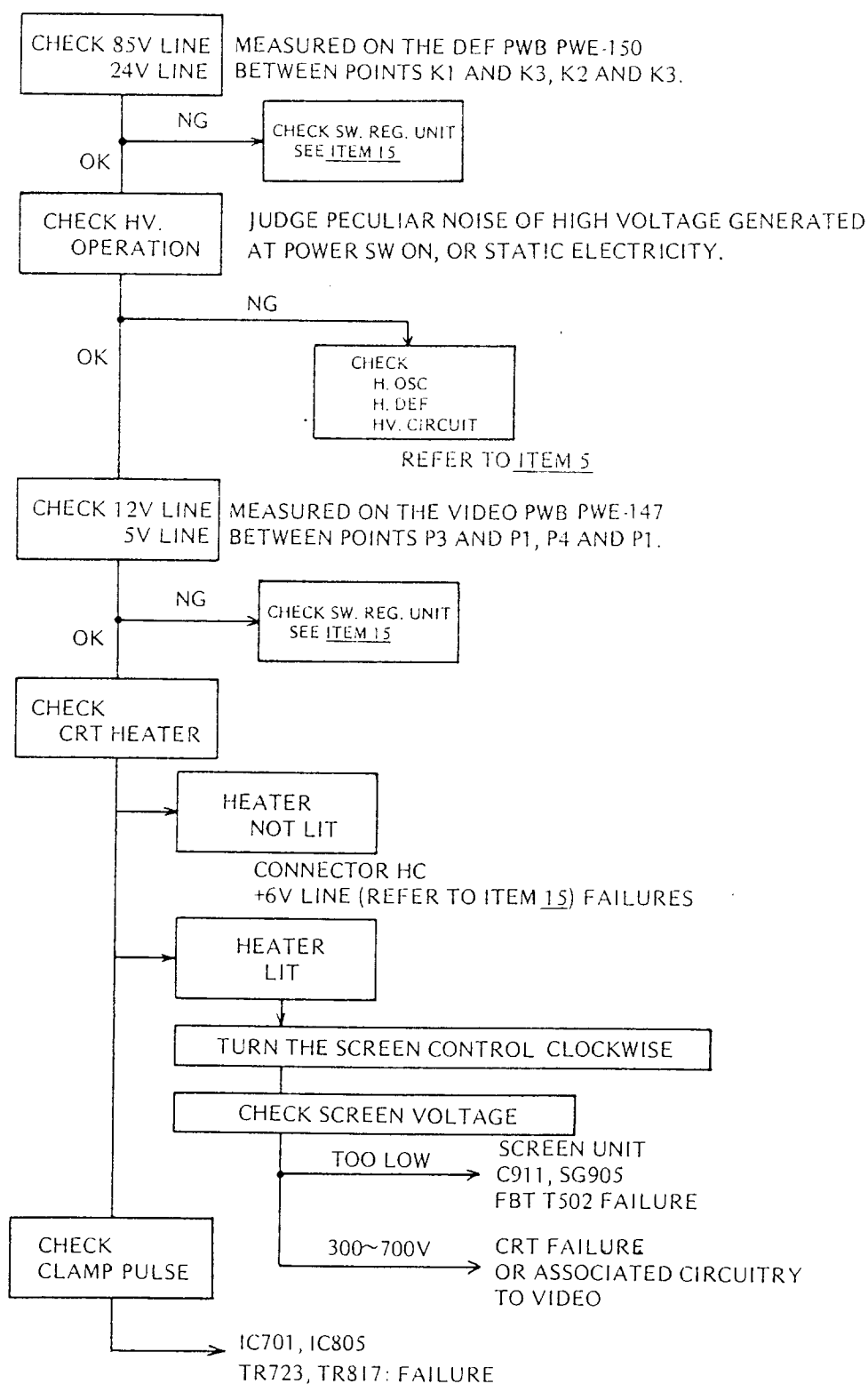
# TEST SIGNALS FOR USING Quantum 801C

SIGNAL No.	1	2	3	4	5	6	7	8
Real Time Parameters								
Dot Rate (MHz)	20.800	16.640	25.112	25.112	14.200	16.368	14.200	14.200
Horizontal Rate (kHz)	25.000	20.000	30.476	30.476	15.848	22.000	15.848	15.848
Vertical Rate (Hz)	59.95	60.06	59.99	59.99	60.03	60.11	60.03	60.03
Non-Real Time Parameters								
H: Dots/Character	8	8	8	8	8	8	8	8
Total	104	104	103	103	112	93	112	112
Characters	80	80	80	80	80	80	20	80
Drive Delay	88	88	80	80	92	80	62	92
Drive Width	8	8	14	14	7	10	7	7
V: Lines/Character	10	10	10	10	10	10	10	10
Total	417	333	508	508	264	366	264	264
Rows	38	30	48	40	20	35	10	20
Drive Delay	38	30	48	44	23	35	18	23
Drive Width	3	3	2	2	1	13	1	1
Step Width	—	—	—	—	—	—	—	—
Signal Gating								
Composite Sync	1	1	1	1	1	1	1	1
Vertical Step	0	0	0	0	0	0	0	0
Horizontal Drive	1	1	1	1	1	1	1	1
Vertical Drive	1	1	1	1	1	1	1	1
Signal Polarity								
Composite Sync	1	1	1	1	1	1	1	1
Vertical Step	—	—	—	—	—	—	—	—
Horizontal Drive	1	1	1	1	1	1	1	1
Vertical Drive	1	1	1	1	1	1	1	1
Video	0	0	0	0	0	0	0	0
Interlace Mode	0	0	0	0	0	0	0	0
Video Mode	1	1	1	1	1	1	1	1
Duty Cycle	0	0	0	0	0	0	0	0
Character Clocking Mode	0	0	0	0	0	0	0	0
Horizontal Skew	—	—	—	—	—	—	—	—
Vertical Skew	—	—	—	—	—	—	—	—
Cursor	—	—	—	—	—	—	—	—

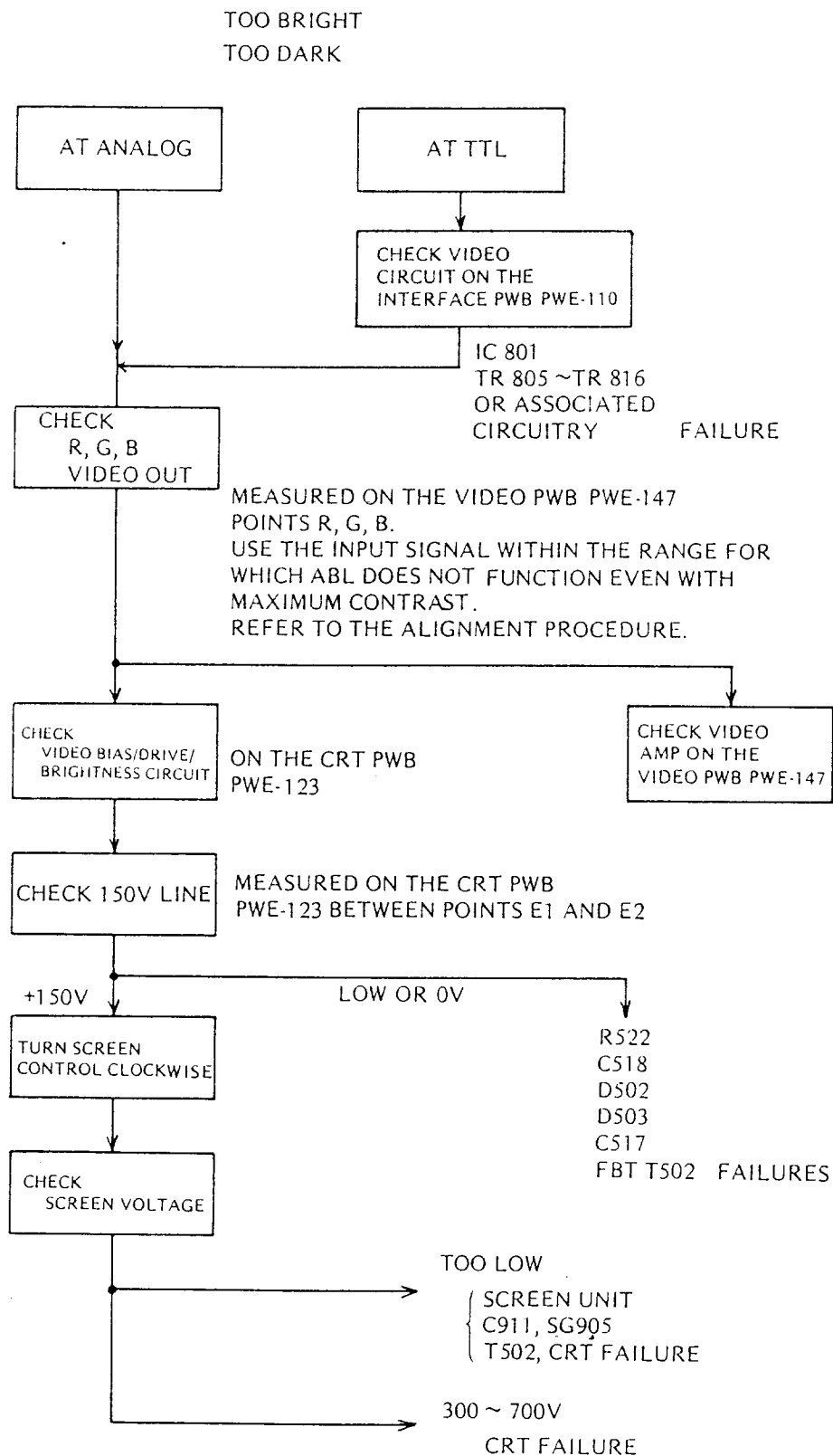
## TROUBLE SHOOTING

BEFORE USING THIS CHART, PLEASE REFER TO THE TROUBLESHOOTING THE USER'S MANUAL.

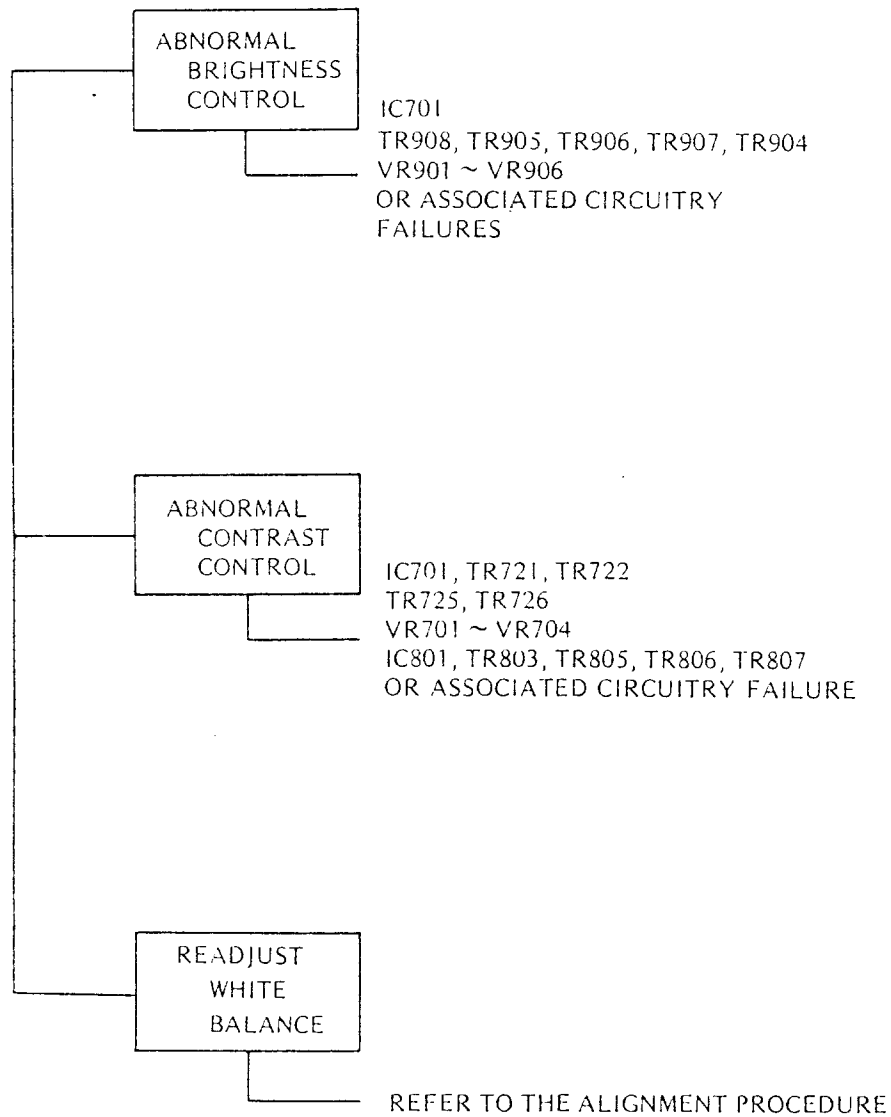
### 1. NO RASTER



## 2. ABNORMAL VIDEO ON CRT SCREEN

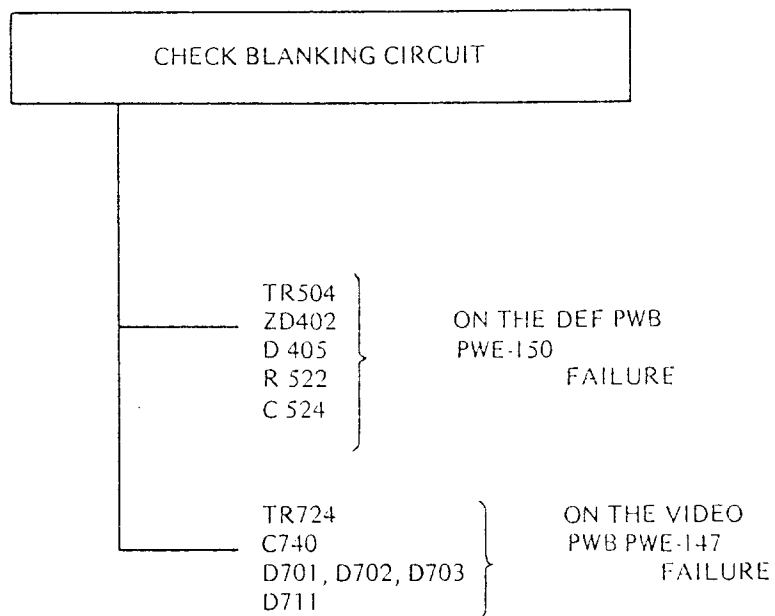


### 3. ABNORMAL WHITE BALANCE AND TRACKING



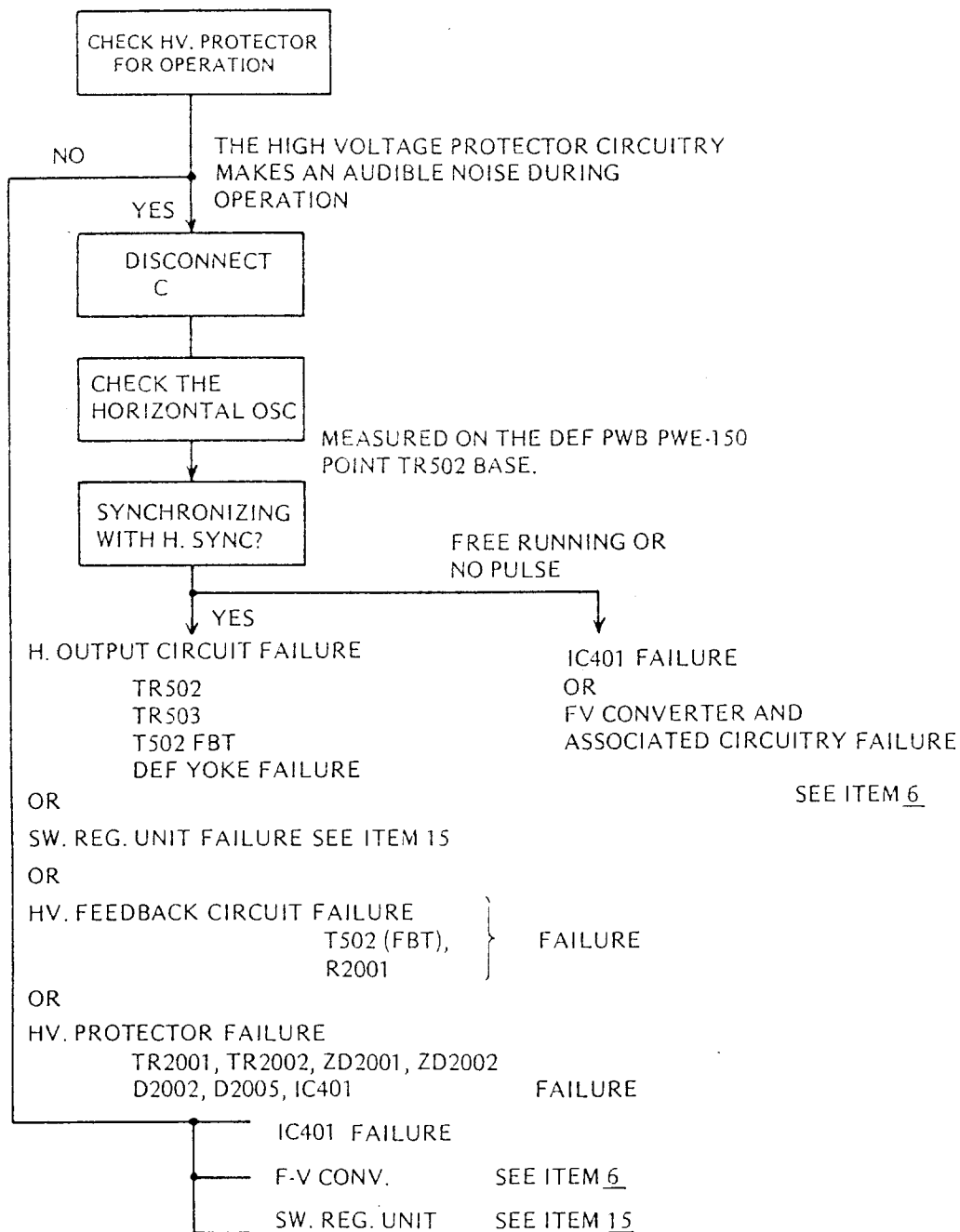
#### 4. NO BLANKING WORKS

VISIBLE RETRACE LINE ON THE BACK RASTER

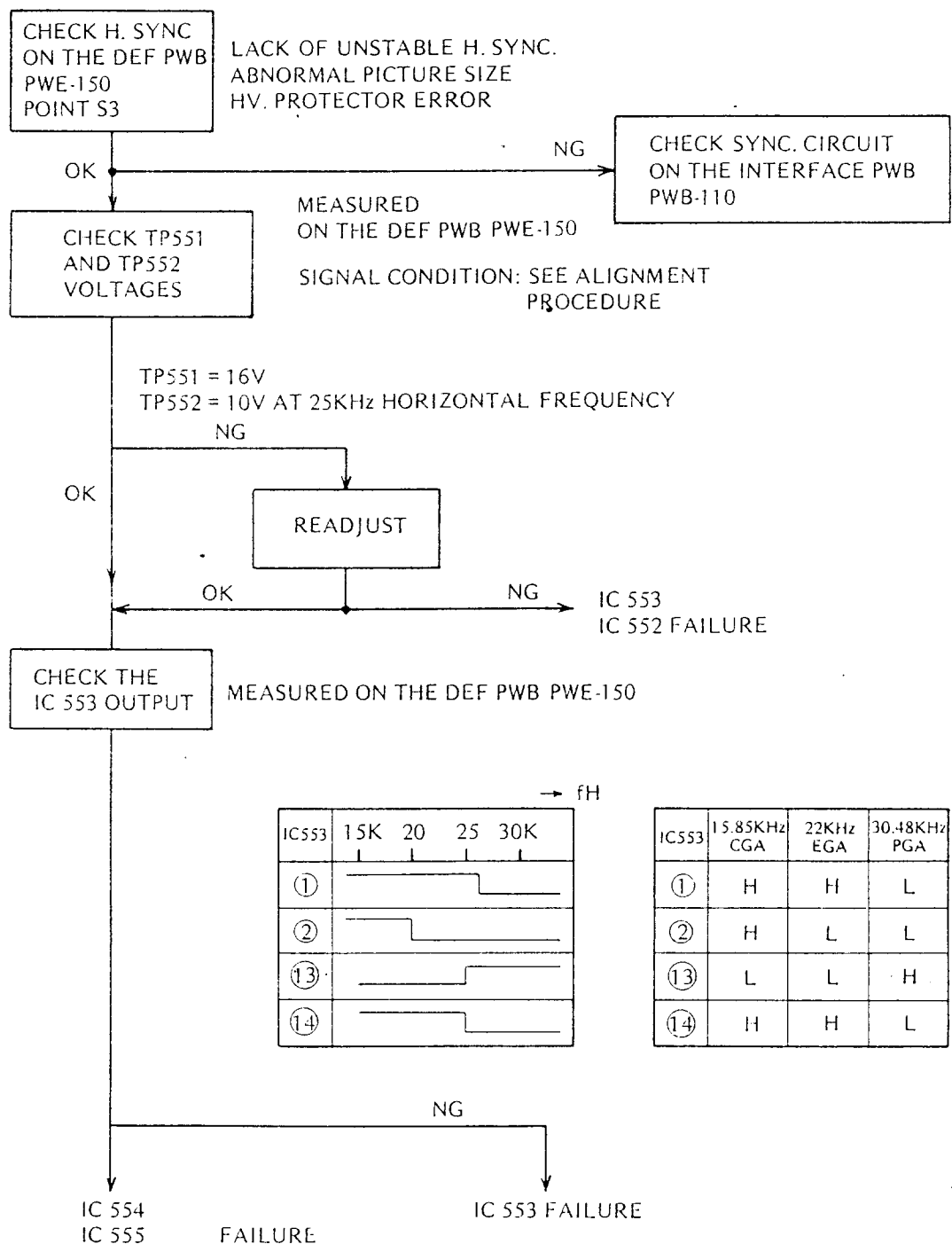


## 5. H. OSC/DEF/HV. CIRCUIT FAULT

NO RASTER  
ABNORMAL PICTURE SIZE  
ABNORMAL VIDEO ON THE CRT SCREEN

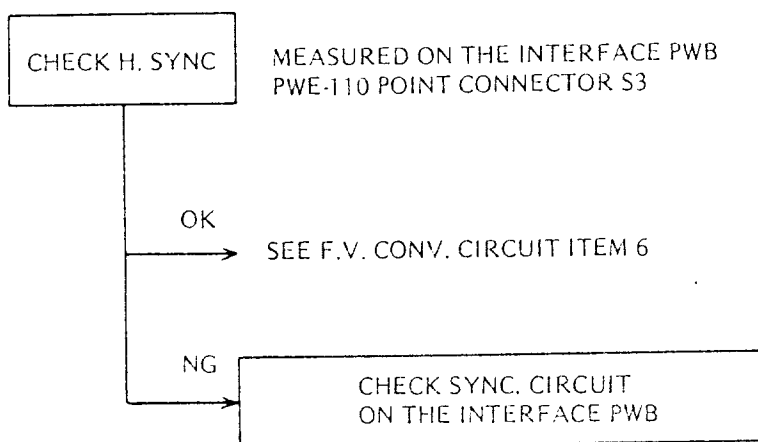


## 6. F-V CONVERTER AND ASSOCIATED CIRCUITRY

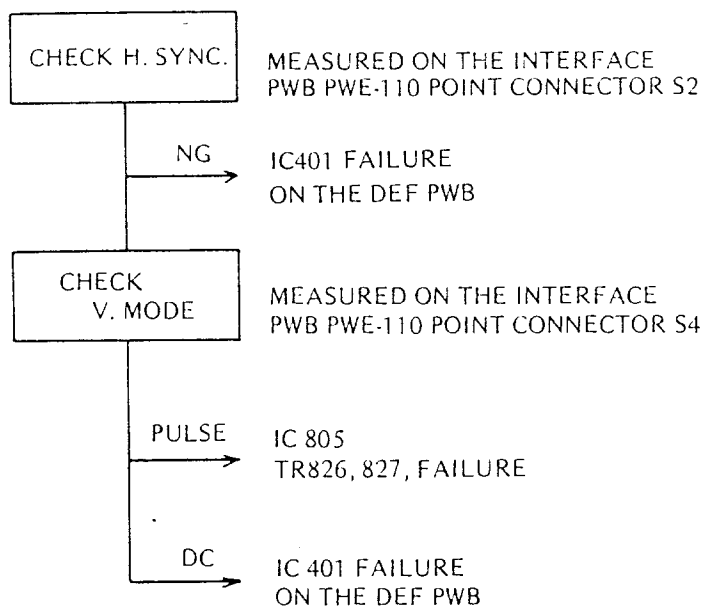


## 7. LACK OF UNSTABLE SYNCHRONIZATION

### HORIZONTAL

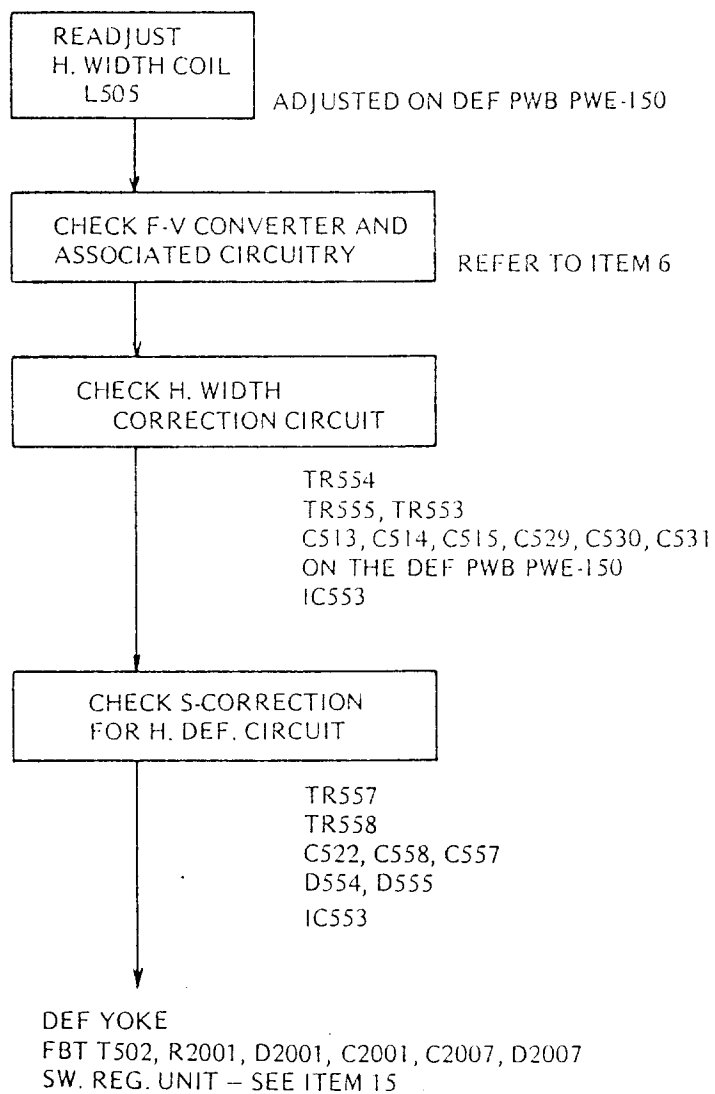


### VERTICAL

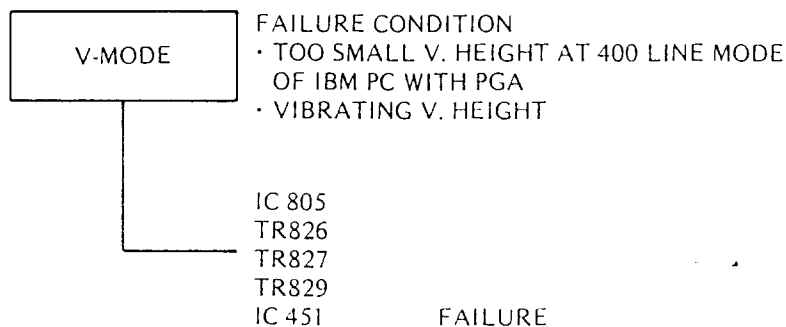
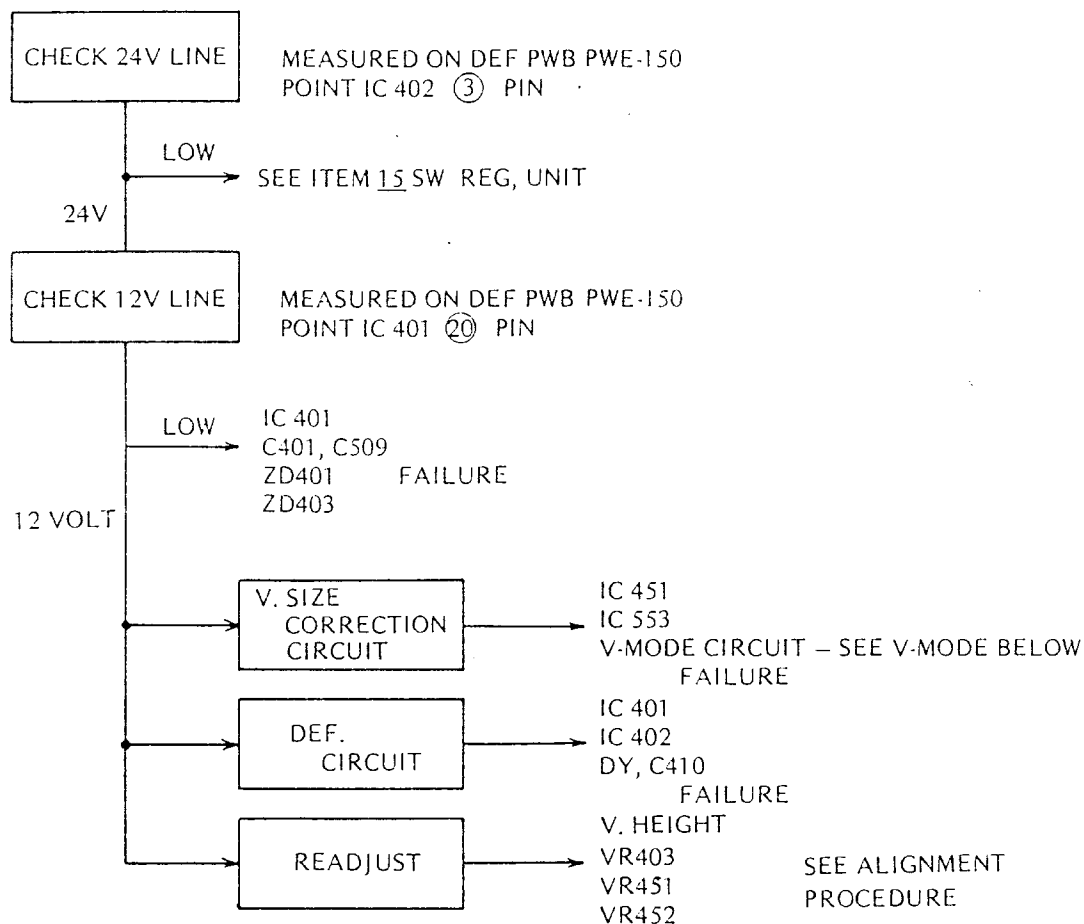


## 8. PICTURE SIZE

### ABNORMAL HORIZONTAL WIDTH



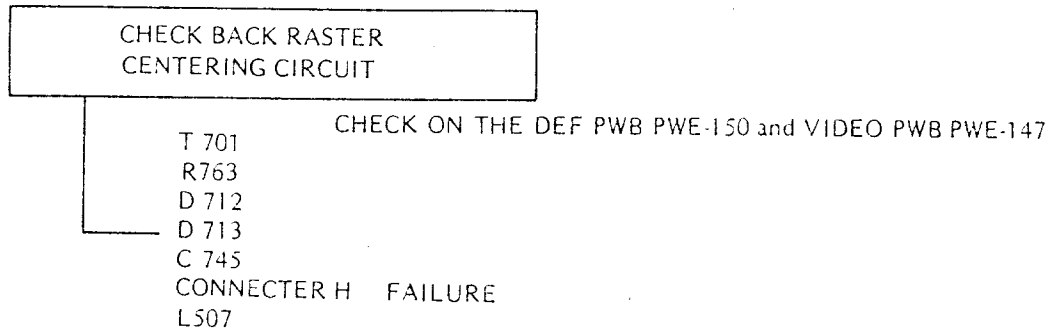
# ABNORMAL VERTICAL HEIGHT



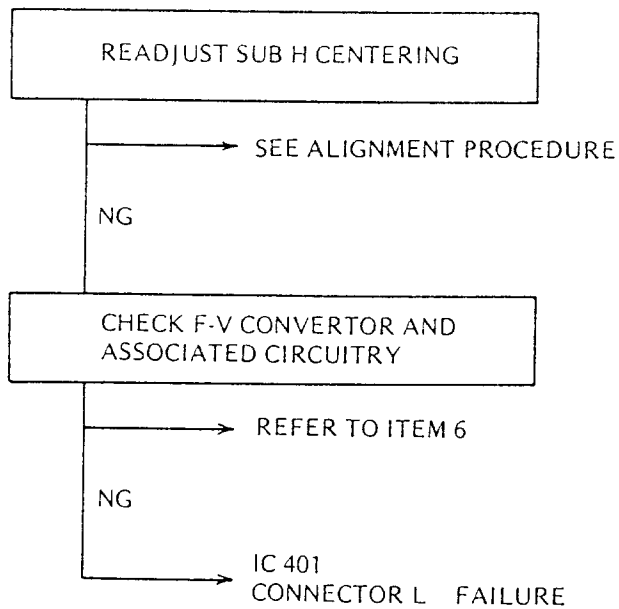
## 9. CENTERING

### 9-1. HORIZONTAL

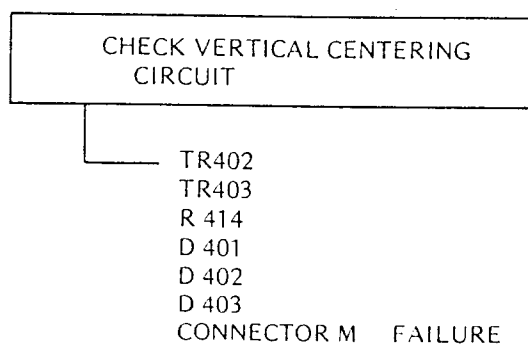
#### a) BACK RASTER CENTERING



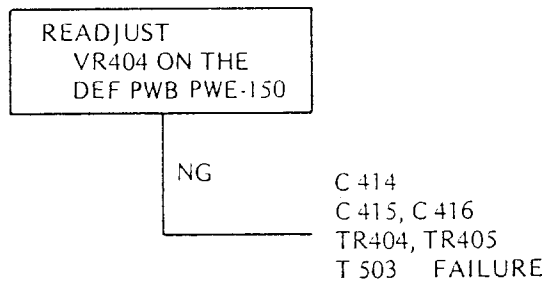
#### b) PICTURE CENTERING



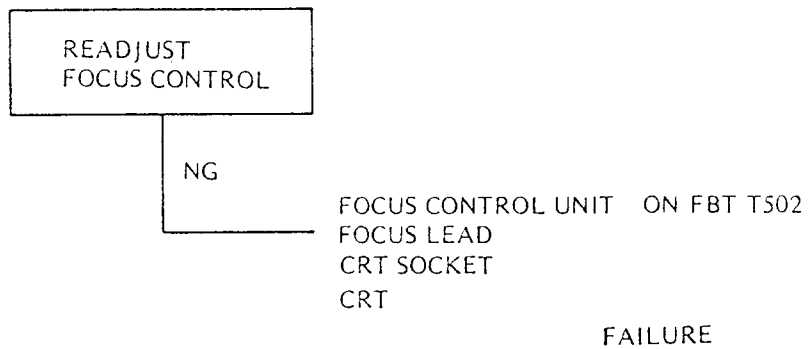
### 9-2. VERTICAL



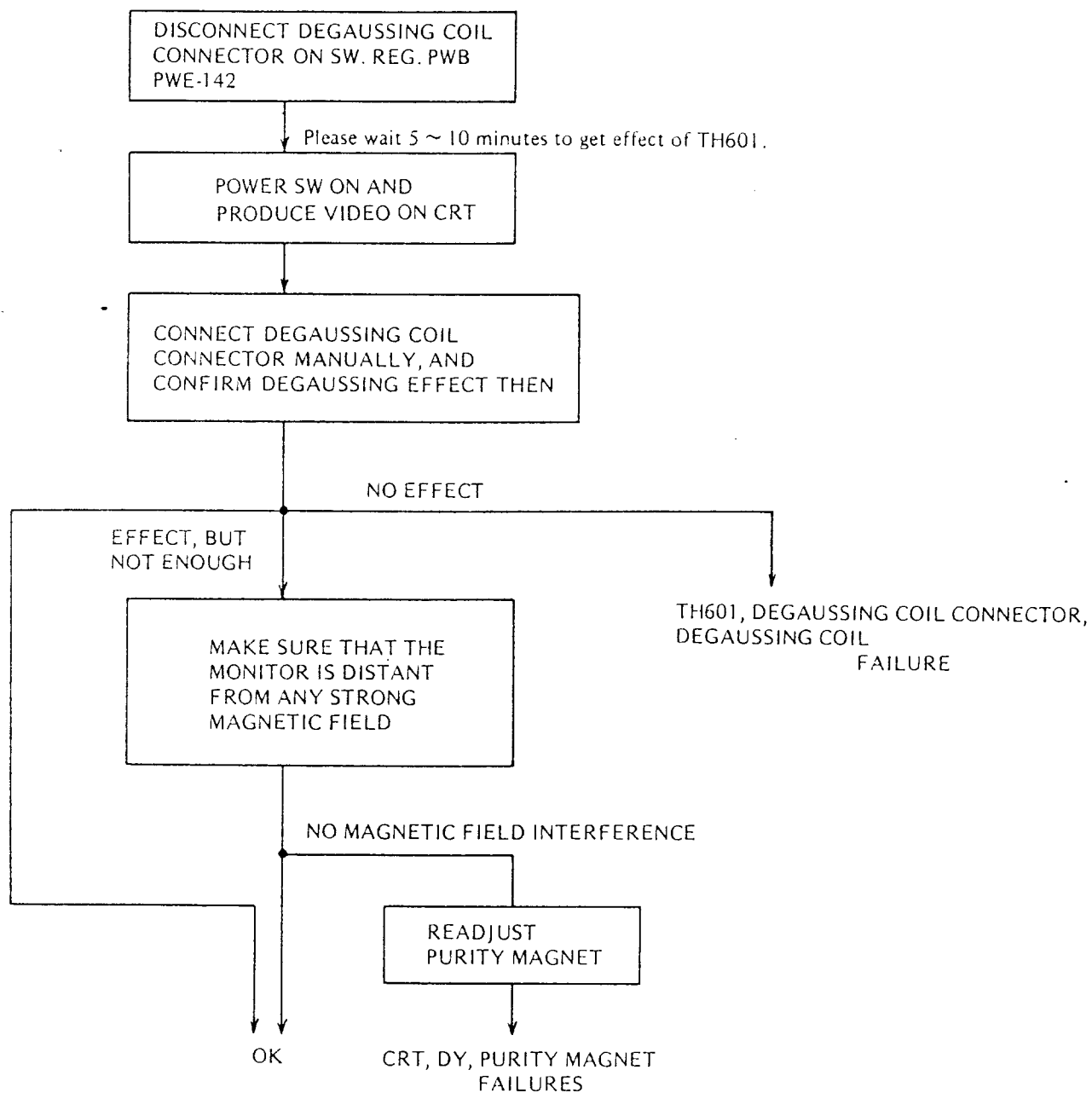
10. SIDE PINCUSHION DISTORTION FAILURE



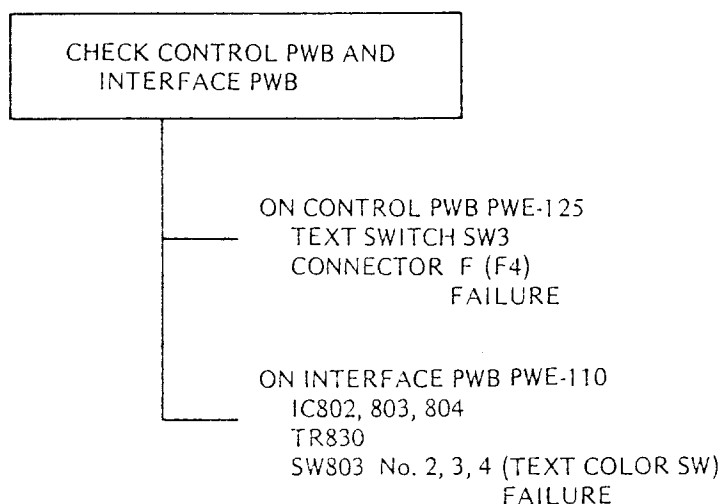
11. POOR FOCUS



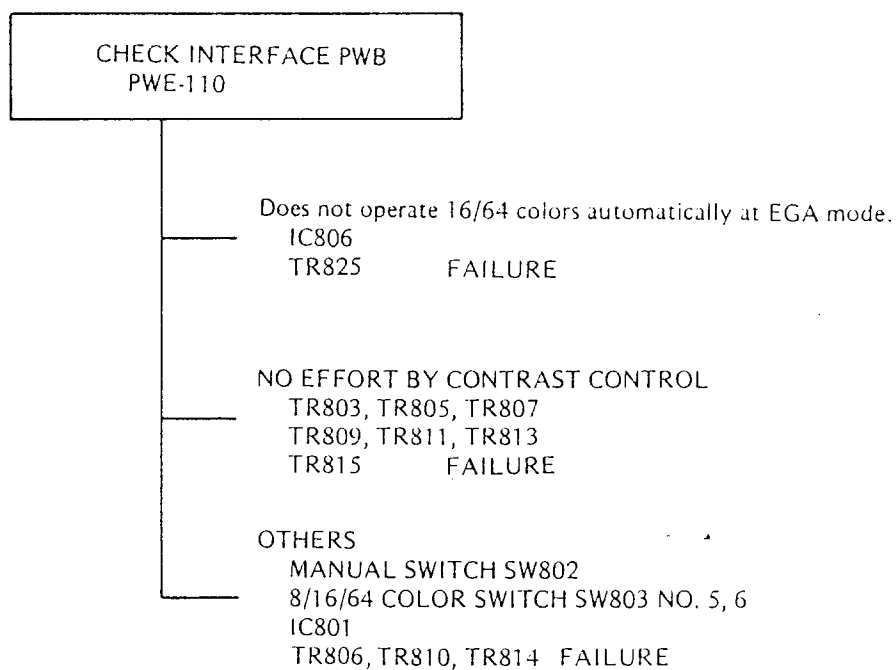
## 12. IMPURITY ON CRT SCREEN



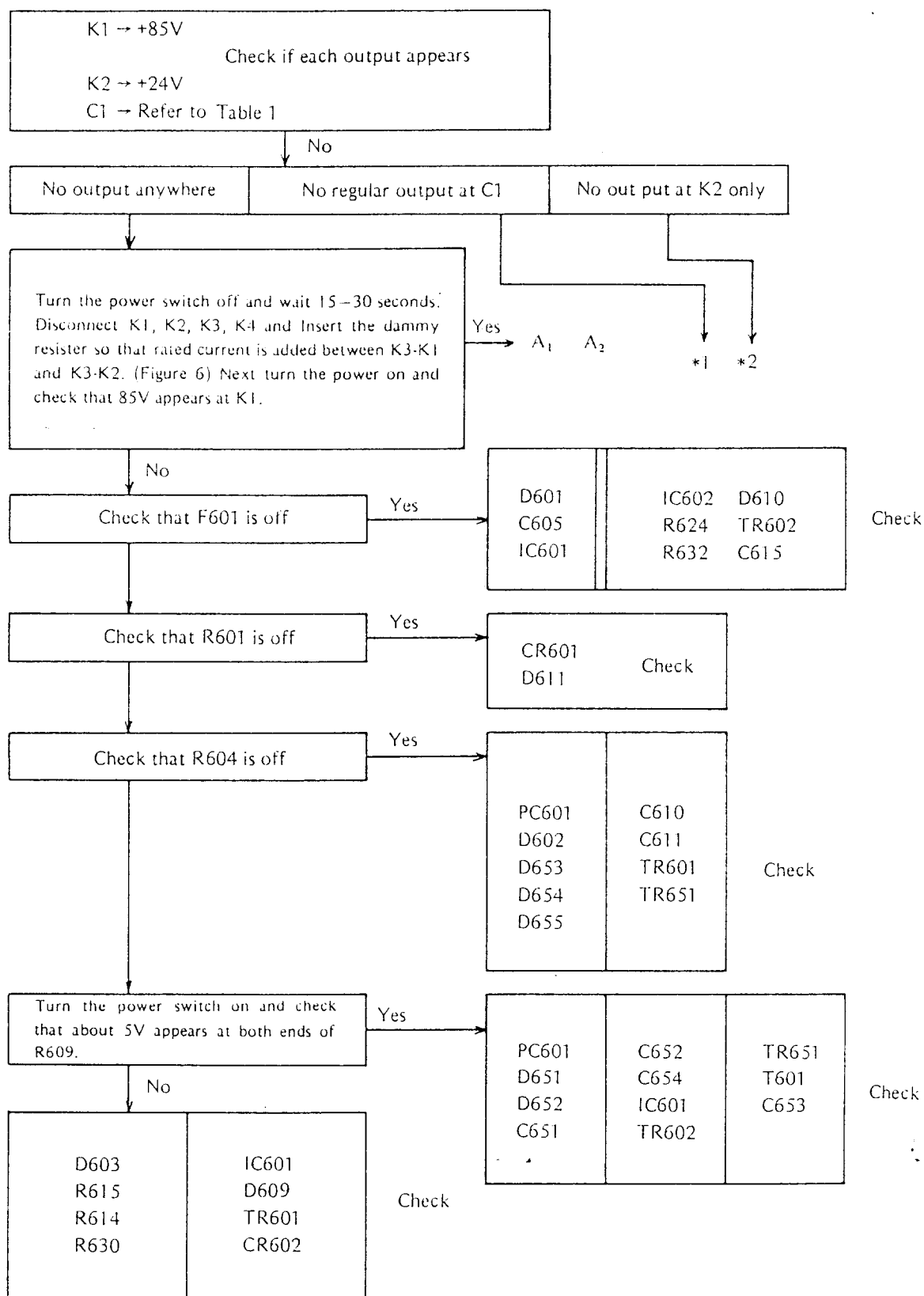
### 13. ABNORMAL TEXT MODE OPERATION

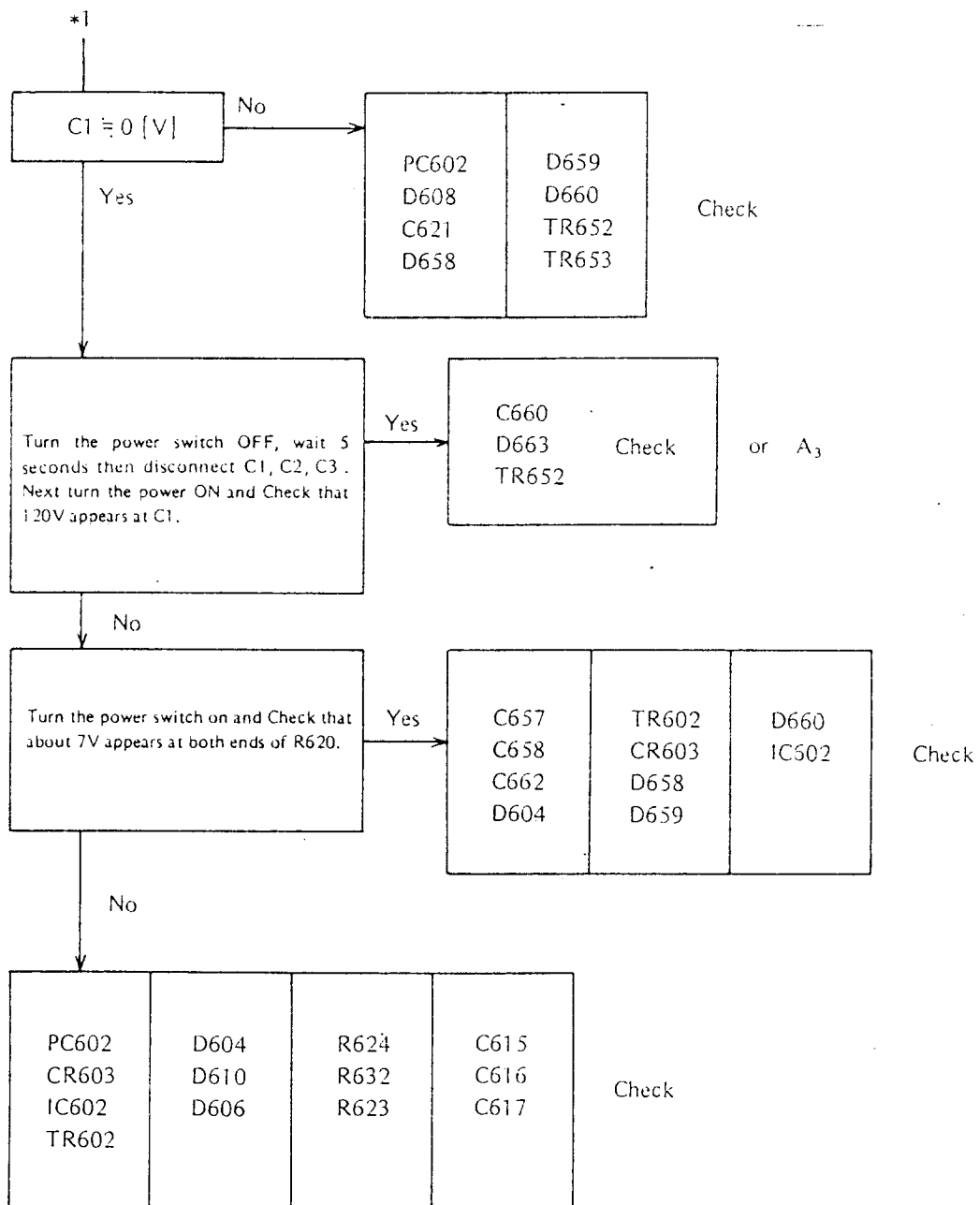


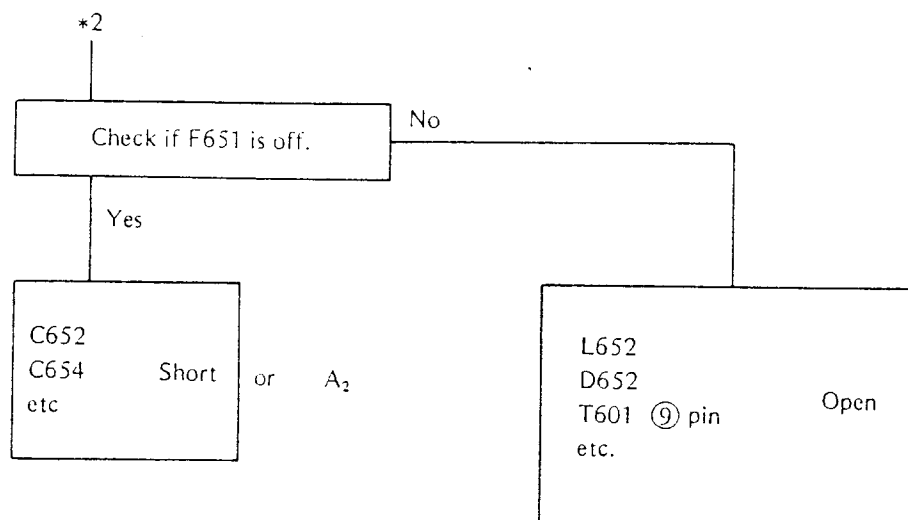
### 14. ABNORMAL COLOR AT TTL MODE



## 15. SWITCHING REGULATOR UNIT







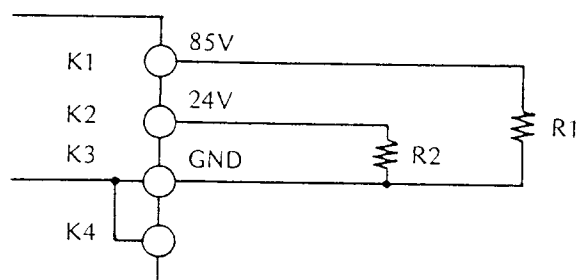
An Trouble excluding Switching Regulator (see next page)

Table 1. C1 output voltage

Horizontal Frequency [KHz]	C1 Voltage [V]
15.85 (CGA)	51 ± 2.6
22 (EGA)	64 ± 3.2
30.48 (PGA)	93 ± 4.7

With no input signal, about 45V should appear at C1.

Figure 6. Rated load current at K1 and K2 terminal



+85V	0.015 – 0.11 A R1 (5.67kΩ – 772Ω)
+24V	0.4 – 0.91 A R2 (60Ω – 26Ω)

Attention) Do not power on SW. REG. unit itself without the load at K1, K2, or it may misoperate protector.

# MAIN VOLTAGE LINE FAILURE EXCEPT SW. REG. UNIT

VOLTAGE LINE		FAILURE PARTS	PWB ASSY	REMARKS
A1 85V CONNECTOR K1-K3		D554, D555 TR501 TR502	DEF PWB PWE-150	
		TR707 ~ TR712 R731 ~ R736 C742, C743, C745	VIDEO PWB  PWE-147	
A2 24V  K2-K3 AND ASSOCI- ATED VOLTAGE LINES	24V CONNEC- TOR K2-K3	D404, IC402, C409	DEF PWB PWE-150	BECAUSE OF FAILURE BELOW PART MAY BE DAMAGE  1. F651      1.6A 2. R744      2.2Ω 1/2W 3. R743      4.7Ω 1/2W 4. TR720
		TR720, IC702, IC703 ZD702 C735, C741, C734, T501	VIDEO PWB  PWE-147	
	12V CONNEC- TOR P3-P1	C731 AND ASSOCIATED CIRCUITRY OF VIDEO AMP CIRCUIT USING 12 Volts Supply	VIDEO PWB  PWE-147	
		C810, C829, TR801	INTERFACE PWB PWE-110	
	6V CONNEC- TOR HC2-HC3	CRT HEATER	CRT PWB PWF-123	
		C742	VIDEO PWB PWE-147	
		INTERFACE CIRCUIT ~ BASED ON 5V LINE BETWEEN CONNECTOR P4 AND P1 TTL ICs	INTERFACE PWB PWE-110	
	A3 45 ~ 120V CONNECTOR C1-C3		C516 FBT D501 TR503 C513, C514 DEFLECTION YOKE	
A3 HIGH VOLTAGE FEEDBACK VOLTAGE CONNECTOR C2-C3		FBT C2001, C2007 D2001, D2007  OTHERS	DEF PWB PWE-150	SEE ITEM 5

## REASSEMBLE OF JC-1401P3ED

**Warning:** This equipment generates and used radio frequency energy and if not reconstructed properly, ie., in strict accordance with the following instruction, it may cause interference to radio or television reception.

Confirm that all parts in Figure 6-1 and 6-2 are screwed tightly. Also confirm that the isolation on the back bracket is in the correct position as in Figure 7.

### [ATTACHING THE SCREWS]

• Screw in and tighten and screws A: ~ G: as shown in the Fig. below. With the 4 screws H: attach the degaussing coil and wires which are clamped together, to the bracket shown in the Fig.

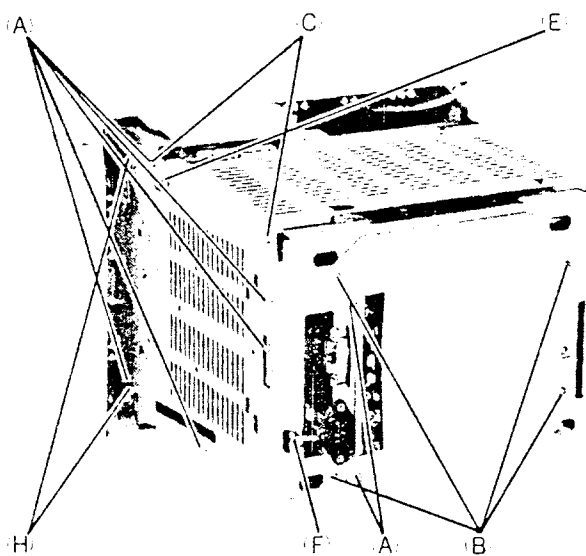


Figure 6-1

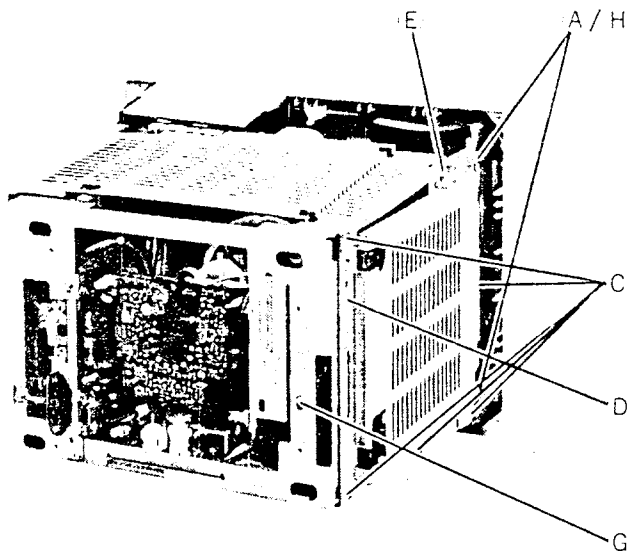


Figure 6-2

### [INSULATION]

- ① To the one a shaded with apply insulating tape to replace that which was removed in disassembly. Confirm that the insulating tape has been replaced properly. If it has been cut or damaged replace it in the correct manner.
- ② To the one a shaded with apply the barrier (insulating board). Check that the insulating washers are attached to screws G and D before replacing.

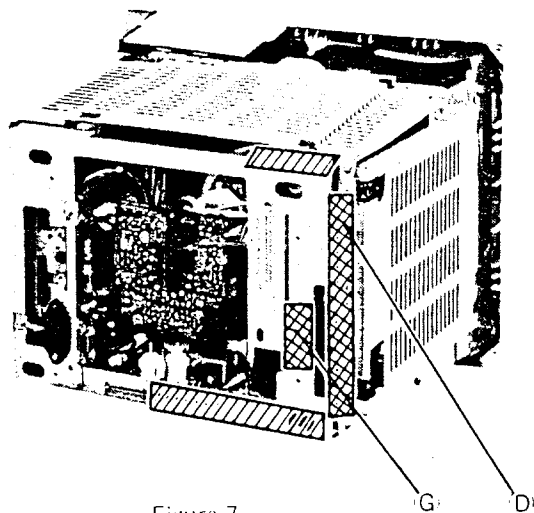
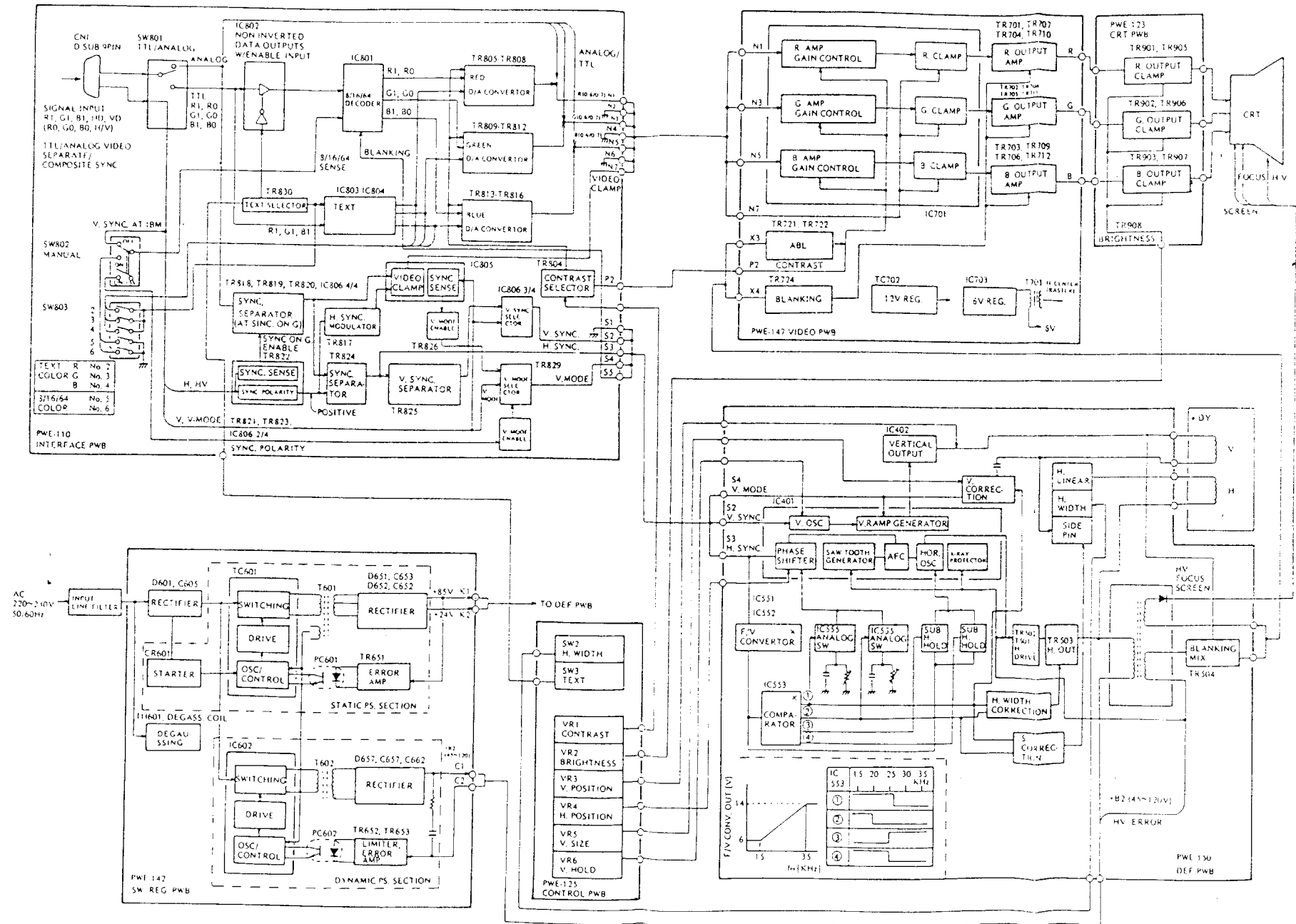


Figure 7

### — Screws Used —

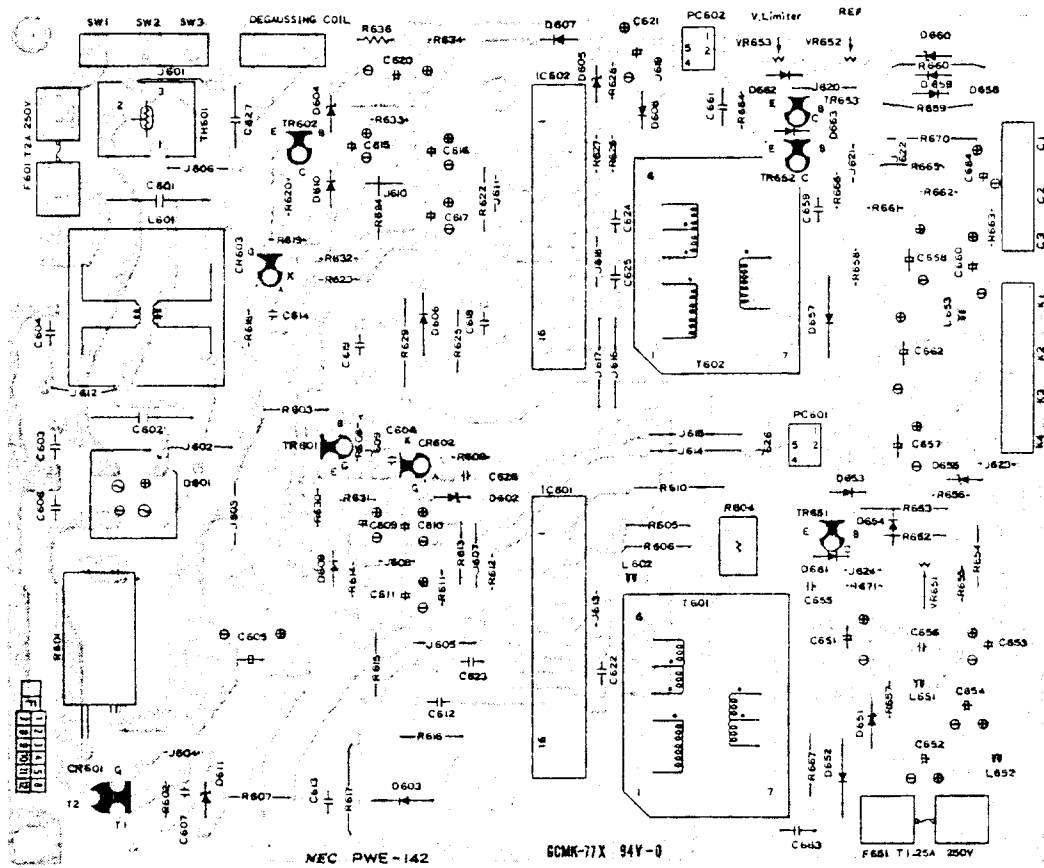
- |  |  |
|--|--|
|  | (A) 3mm Machine Screw                            |
|  | (B) 3mm Tapping Screw (attached washer)          |
|  | (C) 3mm Tapping Screw                            |
|  | (D) 3mm Tapping Screw (attached insulating bush) |
|  | (E) 4mm Machine Screw (Long)                     |
|  | (F) 4mm Machine Screw (Short)                    |
|  | (G) 3mm Machine Screw (attached bush and nut.)   |

BLOCK DIAGRAM

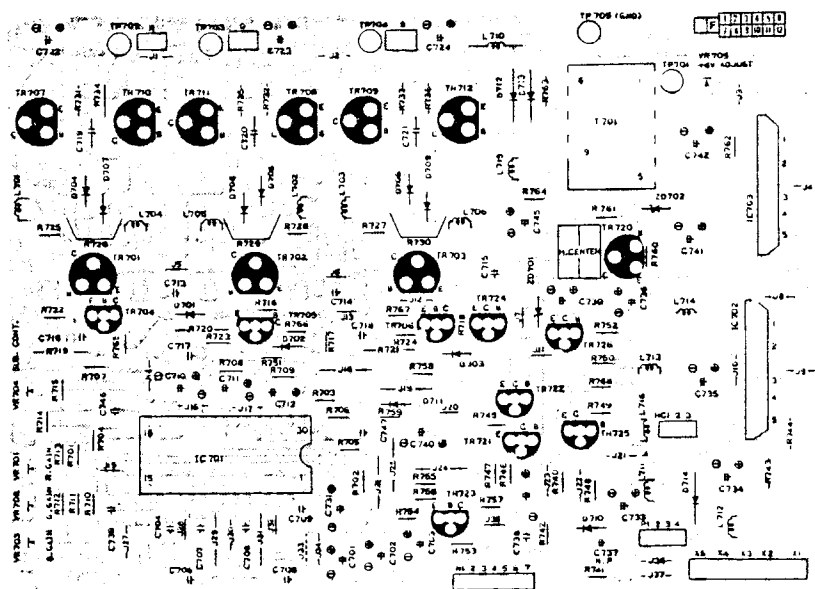




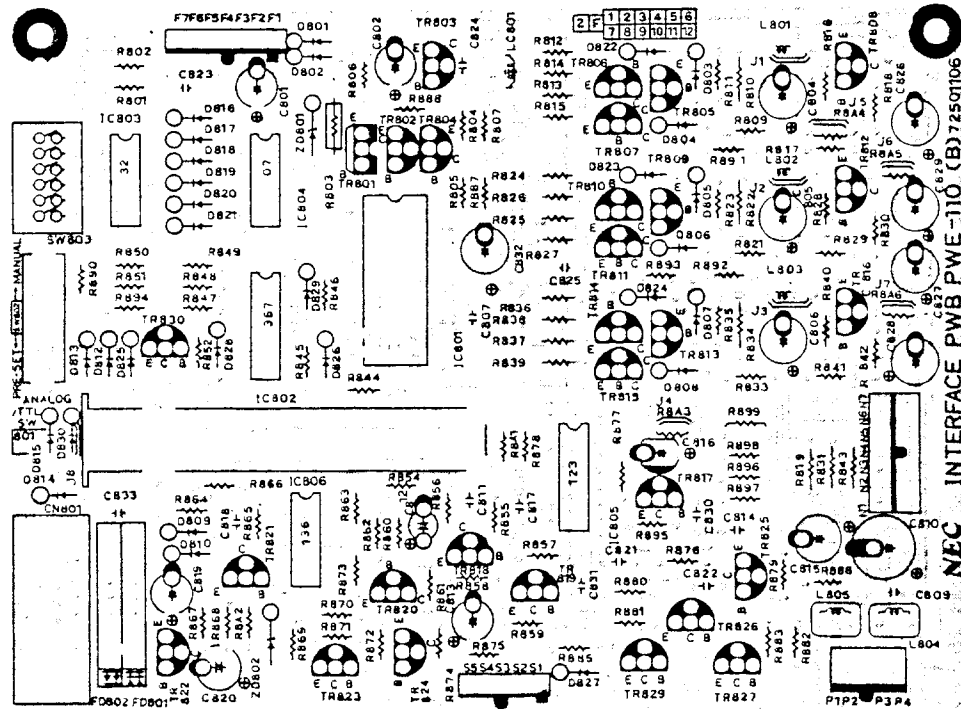
SWITCHING REGULATOR POWER SUPPLY PWB ASS'Y (PWE 142)  
- Solder Side -



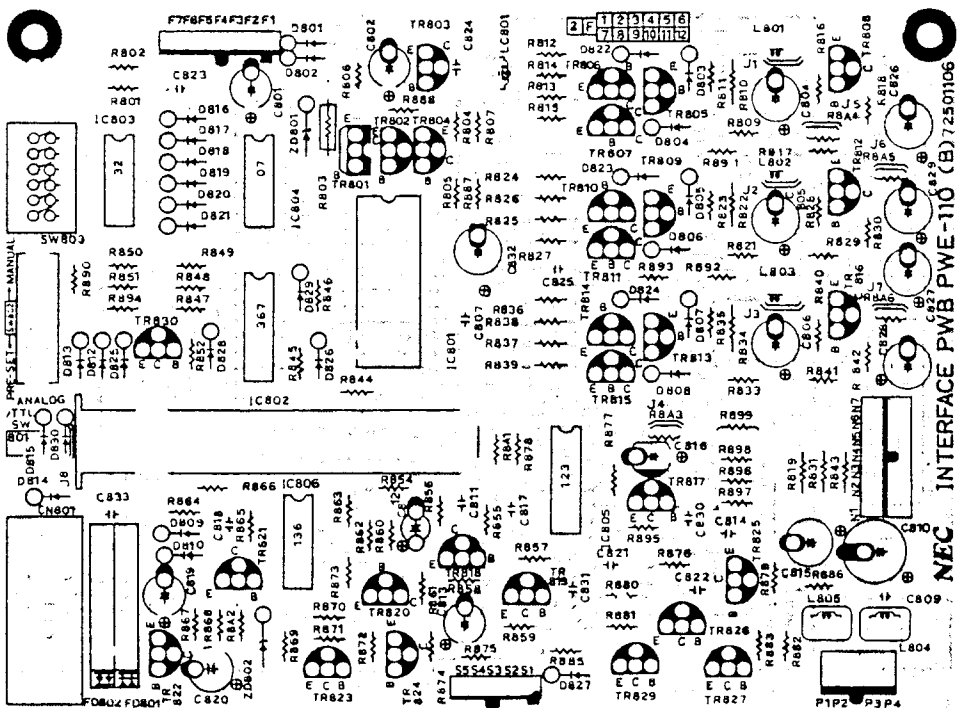
VIDEO PWB ASS'Y (PWE 147)  
- Solder Side -



INTERFACE PWB ASS'Y (PWE 110)  
- Component Side -



INTERFACE PWB ASS'Y (PWE 110)  
See-through view of reverse-side components



## REPLACEMENT PARTS LIST

Note: The components identified by  $\Delta$  make are critical for safety. Replace only with Parts Number Specified.

SYMBOL	PARTS NO	DESCRIPTION	QTY
--------	----------	-------------	-----

## \*\*\* CRT &amp; TUNER \*\*\*

$\Delta$ (JC-1401P3E/EE)	33014117	CRT 370HYB22-TC126(PN2)	1
$\Delta$ JC-1401P3ED)	33014129	CRT 370HYB22-TC135(PN2)	1
$\Delta$ (JC-1401P3R)	33014124	CRT 370HYB22-TC126(PN2)(R)	1

## \*\*\* ICS \*\*\*

IC553	37011054	IC UPC339C (COMP)	1
IC451 IC555	37051036	MOS UPD4066BC (ESD)	2
IC803	37051081	IC SN74LS32N (OR)	1
IC802	37051096	IC SN74LS367AN (BUFF)	1
IC804	37051108	IC SN7407N (BUFF)	1
IC805	37051179	IC SN74LS123N (MONO MLT)	1
IC806	37052011	IC SN74LS136N (EX-OR)	1
IC552 IC554	37056207	IC UPC358	2
$\Delta$ IC402	37056216	IC LA7830	1
$\Delta$ IC401	37056217	IC LA7850	1
$\Delta$ IC551	37056218	IC 1R9331	1
$\Delta$ IC703	37056219	IC STR2005	1
$\Delta$ IC702	37056220	IC STR2012	1
$\Delta$ IC801	37056233	IC PCD-016MI	1
$\Delta$ IC701	37056245	IC M51387P	1
$\Delta$ IC601 $\Delta$ IC602	37056250	IC STK-7404H-105	2

## \*\*\* TRANSISTORS \*\*\*

$\Delta$ TR2002 TR401 TR404	350D7217	TR, 2SC945-T Q	28
TR501 TR504 TR552			
$\Delta$ TR553 TR722 TR726			
TR802 TR804 TR808			
TR812 TR816 TR817			
TR818 TR819 TR821			
TR822 TR823 TR824			
TR825 TR826 TR827			
TR829 TR830 TR904			
TR908			
TR704 TR705 TR706	350H5017	TR, 2SC3811-TA Q	14
TR723 TR805 TR806			
TR807 TR809 TR810			
TR811 TR813 TR814			
TR815 TR820			

SYMBOL	PARTS NO	DESCRIPTION	QTY
--------	----------	-------------	-----

## \*\*\* TRANSISTORS \*\*\*

$\Delta$ TR2001 TR721 TR724	350K3517	TR 2SA733/2SA733A Q	5
TR725 TR803			
TR403	350K4412	TR, 2SA952 L	1
TR405	350G4312	TR, 2SA953 L	1
TR901 TR902 TR903	35005217	TR, 2SA1018 Q	3
TR710 TR711 TR712	35006804	TR, 2SA1538-RA D	3
$\Delta$ TR601 $\Delta$ TR602	35047216	TR, 2SC945 P	2
$\Delta$ TR651 $\Delta$ TR652 $\Delta$ TR653	35053011	TR, 2SC1941 K	3
TR402	35055312	TR 2SC2001 L	1
TR502	35056311	TR, 2SC2688 K	1
TR801	35063511	TR 2SD471 (1) K	1
TR551	35065416	TR, 2SD882 P	1
TR720	35065417	TR, 2SD882 Q	1
$\Delta$ TR503	35082401	TR 2SC3486-YF	1
TR701 TR702 TR703	35082505	TR, 2SC3502 E	3
TR905 TR906 TR907	35084417	TR, 2SC1473 Q	3
TR707 TR708 TR709	35086004	TR, 2SC3957-RA D	3
$\Delta$ TR557 $\Delta$ TR558	35121000	TR, 2SK430	2
$\Delta$ TR554 $\Delta$ TR555	35121500	TR 2SK530	2
$\Delta$ CR602 $\Delta$ CR603	35595010	THYRISTOR C3P4N-L	2
$\Delta$ CR601	35595011	TRIAC PCR6AM-12L	1

## \*\*\* DIODES \*\*\*

$\Delta$ D661 $\Delta$ D662 $\Delta$ D663	360K1009	DIODE, S1.1S2473	13
D701 D702 D703			
D704 D705 D706			
D707 D708 D709			
D711			
D710	360K1010	DIODE, S1.1S2472	1
D2006 D401 D402	360K1027	DIODE, 1SS132	29
D403 D405 D406			
D551 D552 D553			
D557 D801 D802			
D803 D804 D805			
D806 D807 D808			
D809 D810 D812			
D813 D814 D815			
D816 D817 D818			
D819 D820 D821			
D822 D823 D824			

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* DIODES \*\*\*

D825	D826	D827			
D828	D829	D830			
△D607	△D608	D901	360K1C32	DIODE 1SS82-TA	5
D902	D903				
△D609	△D610	△D653	360K1528	DIODE 1S954-T4	6
△D654	△D658	△D659			
ZD8C1			360K3112	DIODE RD9.1EP (3)-T4	1
ZD702			360K3121	DIODE RD6.8EP(3)-T4	1
ZD402			360K3123	DIODE RD20EB(3)	1
ZD701			360K3124	DIODE RDE.2EB (3)-T4	1
△D6C4			360K3129	DIODE RD27EB(4)-T4	1
△D605			360K3133	DIODE RD7.5EB(2)-T4	1
△ZD2001	△ZD2002	ZD551	360K3143	DIODE RD8.2JSP(1)-T4	3
△D602			360K3149	DIODE RD10EB(2)-T4	1
△D655	△D660		360K3151	DIODE RD6.8EP(2)-T4	2
ZD4C3			360K3160	DIODE RDE.2EP(2)-T4	1
△D611			360K3162	DIODE RD2.7EP(1)-T4	1
ZD401			360K3188	DIODE RD3.9EP(2)-T4	1
ZD8C2			36003100	DIODE RD5.1EP-2	1
ZD552			36003147	DIODE RD18EP(1)	1
△D554	△D555		361K7094	RECTIFIER, SI. SM-1A-02	2
△D2C01	△D2004	D2007	361K7160	RECTIFIER, SI. TWP-C66 G23	8
D4C4	D5C5	D712			
D713	D714				
D502	D5C3		361K75C5	RECTIFIER, SI. FRB44-06V1	2
△D603	△D6C6		36107174	RECTIFIER, SI. PU1P	2
△D651			36107180	DIODE RU3AM, LFE2	1
△D5C1			36107509	DIODE PH4F	1
△D652			36107511	RECTIFIER, SI. RL47, LFK2	1
△D657			36107512	RECTIFIER, SI. RG4C, LFK2	1
△D6C1			36108009	DIODE, RE-4CC BRIDGE	1
FD8C2			36108C54	DIODE ARRAY 1S2473+7A	1
FD8C1			36108055	DIODE ARRAY 1S2473+7K	1
D1	D2	D3	36801046	DIODE, LIGHT-F SG275D	3
△D2C02	△D2003		38005C11	VARIATER, VD122C	2
△TH601			38112C31	THERMISTOR, POSITIVE	1
△PC601	△PC602		38200233	IC TLP634 (GB-LF2)	2

\*\*\* TRANSFORMERS \*\*\*

△T501	45803008	TRANS, P.DPIVE	1
△T701	46305101	TRANS, CONVERTER	1
△T601	46308402	TRANS, SWITCHING	1
△T602	46308403	TRANS, SWITCHING	1
△T502	47105630	FLY BACK TRANSFORMER	1
△T503	47502042	TRANS, SIDE PINCUSHION	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* VARIABLE RESISTORS \*\*\*

VR5		4101127C	R,VARIABLE	B500-V(M)	1	
VR1	VR2	41011271	R,VARIABLE	B10K-V(M)	2	
VR3		41011273	R,VARIABLE	B20K-V(M)	1	
VR6		41011274	R,VARIABLE	B20CK-V(M)	1	
VR4		41011275	P,VARIABLE	B20K-V(M)	1	
VR401		41061006	R,VARIABLE	B100K	1	
VR404		41061007	R,VARIABLE	B470H	1	
VR402	VR403	41061013	R,VARIABLE	B220H	2	
VR405		41061614	R,VARIABLE	B100K	1	
VR552		41067027	R,VARIABLE	B3K	1	
VR551		41067105	R,VARIABLE	1K 0.1W	1	
VR502		41067108	R,VARIABLE	B5K	1	
VR704		41071160	R,VARIABLE	B3.3K	1	
VR701	VR702	VR703	41071161	R,VARIABLE	B4.7K	3
VR901	VR902	VR903	41071169	R,VARIABLE	B100K	6
VR9C4	VR905	VR906				
VR451	VR452		41085C05	R,VARIABLE	B1K	2
VR705			41085C08	R,VARIABLE	B5K	1
VR501	VR553		41085C12	R,VARIABLE	B50K	2
VR554			41085013	R,VARIABLE	B100K	1
VR555			41085C16	R,VARIABLE	B50CK	1
△VR651			41087C58	R,VARIABLE	B5K	1
△VR2002△VR2003△VR652			41505005	R,VARIABLE	B2K	3
△VR653			41505007	R,VARIABLE	B5K	1
△VR2001			41505C08	R,VARIABLE	B10K	1

\*\*\* RELAYS & SWITCHES \*\*\*

△SW802	65163001	SWITCH, SLIDE	1
△SW2 △SW3	65163002	SWITCH, SLIDE	2
△SW801	651699C1	LEVER SWITCH, SLIDE	1
△SW1	65260002	SWITCH, SEE-SAW	1
RL501	65602501	RELAY G6P-1114F	1
△SW803	66098006	SW, LEVER SDRPC6P	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* COILS & FILTERS \*\*\*

△L505	609C8043	COIL, VARIABLE WIDTH	1
△L506	60908047	COIL, WIDTH	1
△L504	60918101	COIL, H. LIN	1
L507	60999004	COIL, CHOKE	1
L901 L902 L903	610E1711	COIL, FILTER 2.7UH	3
L716 L804 L805	610E1714	COIL, FILTER 5.6UH	3
L710	610F6014	COIL, FILTER 5.6UH	1
L503	610F7010	COIL, FILTER 2.7UH	1
L714	61022081	COIL (SF471M1R0)	1
L701 L702 L703	61051710	COIL, FILTER 2.7UH	6
L704 L705 L706			
△L601	61062040	LINE FILTER (12MH-1.3A)	1
	61062057	LINE FILTER GL-2070F	1
L501 L711 L712	61064006	COIL, FILTER 50UH	3
△L602 △L651 △L653	61099011	COIL, CHOKE 37UH	3
L713 L715	61099019	COIL, CHOKE	2
△L652	61099020	COIL, CHOKE	1
△	61314209	COIL, DEGAUSSING	1
LC401	61606022	NOISE FILTER DSS-722M	1
LC801	61606023	FILTER DSS-223S	1

\*\*\* PWB ASSYS \*\*\*

	84J85A01	SW. REG. PWB ASSY	1
	84J85C01	VIDEO PWB ASSY	1
	84J85D01	DEF PWB ASSY	1
	84J85J01	CRT PWB ASSY	1
	84J85K01	INTERFACE PWB ASSY	1
	84J85LC1	CONTROL PWB ASSY	1

\*\*\* ELECTRICAL PARTS & MISCELLANEOUS PARTS \*\*\*

HS-402	31709201	INSULATOR SHEET	1
△F601	31709202	SHEET, INSULATOR	1
△F651	66699007	FUSE E1 T2A, 250V-S, B SOC	1
SG901 SG902 SG903	66699009	FUSE T1.25A 250-SP	1
SG905	66706001	SPARK GAP 1.2KV	4

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* ELECTRICAL PARTS & MISCELLANEOUS PARTS \*\*\*

△	70032026	SG/CRT SOCKET	1
CN1	70056331	D-SUB SOCKET CPL	1
	70102147	IC SOCKET 24P	1
IS701	70102152	IC SOCKET 30P	1
	70301513	RUBBER WEDGE	1
(JC-1401P3E/ ED)	70800031	POWER CORD (E)	1
(JC-1401P3EE)	75513006	LINE CORD SAA L20	1
(JC-1401P3R)	70800321	POWER CORD	1
	71205037	HOLDER, FUSE	4
CN-CE CN-CE CN-H1	73721003	CONNECTOR PIN 2P	3
(JC-1401P3ED)	73893017	CABEL, SIGNAL	1
(JC-1401P3E/ EE/ R)	73893013	CABEL, SIGNAL	1
	73898244	SIGNAL, CABEL 2P (R, 250)	1
	73898245	SIGNAL CABEL 2P (B, 275)	1
	73898246	SIGNAL CABEL 2P (G, 325)	1
	73898247	SIGNAL CABLE 7P (425)	1
CN-B CN-G CN-R	70541084	POST 25MM	3
CN-N	70541167	25MM POST (B7B-XH)	1

\*\*\* APPEARANCE PARTS \*\*\*

	25406301	PUSH BUTTON	1
	24514792	COIL SPRING	1
	25307221	CABINET, FRONT	1
	25307241	CABINET, BACK	1
	25404111	REVOLVING STAND (T)	1
	25404121	LID, CONTROL	1
(JC-1401P3ED)	25514802	REAR PANEL	1
(JC-1401P3E/EE/R)	25513151	REAR PANEL	1
(JC-1401P3ED)	25406091	REVOLVING STAND (B)	1
(JC-1401P3E)	25405021	REVOLVING STAND (B) ASSY	1
(JC-1401P3EE)	25405151	REVOLVING STAND (B) ASSY	1
(JC-1401P3R)	25405131	REVOLVING STAND (B) ASSY	1
(JC-1401P3ED)	25763641	NAME PLATE INSTRUCTION	1
(JC-1401P3E)	25763141	NAME PLATE INSTRUCTION	1
(JC-1401P3E)	25763371	NAME PLATE INSTRUCTION	1
(JC-1401P3R)	25763361	NAME PLATE INSTRUCTION	1
	25763771	LABEL	4

\*\*\* PRINTED & PACKING MATERIALS \*\*\*

	24813191	BAG, POLYETHYLENE	1
	25280711	CLAMPER, WIRE	1
	25280851	BUSHING, INSULATOR	2
	25600691	CUSHION, SHEET	1
	25601551	CUSHION SHEET	4

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* PRINTED & PACKING MATERIALS \*\*\*

(JC-1401P3R) (JC-1401P3ED) (JC-1401P3E/EE/R)	25603114	PLATE, SHIELDING	1
	25603511	BARRIER (SW, RFG, PWP)	1
	25603661	BARRIER A	1
	25603671	BARRIER B	1
	25804501	SERVICE ENVELOPE	1
	25810221	FILLER (L), CARTON	1
	25810231	FILLER (R), CARTON	1
	25810711	FILLER (T), CARTON	1
	25811351	CARTON BOX	1
	78044881	LABEL, FTB	1
	78043391	WARRANTY CARD	1
	78118811	INSTRUCTION BOOK	1
	78118111	INSTRUCTION BOOK	1
	599910256	SERVICE MANUAL	1
	599910255	CIRCUIT DESCRIPTION	1

\*\*\* RESISTORS \*\*\*

△R671	401C6657	R, CARBON 220H 5% 1/4W	1
△R658	401C6661	R, CARBON 330H 5% 1/4W	1
△R602 △R606 △R611	401C6673	R, CARBON 1.0K 5% 1/4W	5
△R619 △R663			
△R609 △R620	401C6675	R, CARBON 1.2K 5% 1/4W	2
△R662	401C6679	R, CARBON 1.6K 5% 1/4W	1
△R631	401C6681	R, CARBON 2.2K 5% 1/4W	1
△R612 △R666	401C6683	R, CARBON 2.7K 5% 1/4W	2
△R628 △R633 △R656	401C6685	R, CARBON 3.3K 5% 1/4W	4
△R661			
△R636 △R655	401C6691	R, CARBON 5.6K 5% 1/4W	2
△R627 △R664	401C6709	R, CARBON 33K 5% 1/4W	2
△R657	401C6723	R, CARBON 120K 5% 1/4W	1
△R597	401H5669	R, CARBON 680H 5% 1/2W	1
△R605 △R606	401H5735	R, CARBON 350K 5% 1/2W	2
△R603	401H5743	R, CARBON 520K 5% 1/2W	1
△R618	401H5753	R, CARBON 2.2M 5% 1/2W	1
△R2002 R742	401K5679	R, CARBON 1.8K 5% 1/6W	2
△R2005 △R2009 R411	401K5685	R, CARBON 7.3K 5% 1/6W	10
R438 R598 R599			
R710 R711 R712			
R741 R817 R829			
R841 R861 R862			
R874 R899 R922			
R930			

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* RESISTORS \*\*\*

R2004 △R2008 R591	401K5693	R, CARBON 6.8K 5% 1/6W	3
△R2003 △R2006 △R2010	401K5697	R, CARBON 10K 5% 1/6W	16
R416 R513 R531			
R551 R552 R558			
R592 R755 R8A1			
△R2011 R506 R868	401K5699	R, CARBON 12K 5% 1/6W	5
R857 R921			
R417 R437 △R596	401K5721	R, CARBON 160K 5% 1/6W	3
△R587	40175117	R, CARBON 4.7H 5% 1/4W	1
△R630 △R632 △R634	40175143	R, CARBON 56H 5% 1/4W	3
△R626	40175157	R, CARBON 220H 5% 1/4W	1
△R614	40175181	R, CARBON 2.2K 5% 1/4W	1
△R623	40175189	R, CARBON 4.7K 5% 1/4W	1
△R763	40177109	R, CARBON 2.2H 5% 1/4W	1
△R731 △R732 △R733	40177141	R, CARBON 47H 5% 1/4W	6
△R734 △R735 △R736			
△R743	40178117	R, CARBON 4.7H 5% 1/2W	1
R728 R729 R730	40318179	R, METAL 1.8K 5% 5W	3
R526	40371137	R, METAL 37H 5% 1W	1
R803	40371161	R, METAL 370H 5% 1W	1
△R615 △R624	40372107	R, METAL 1.8H 5% 2W	2
R407	40372113	R, METAL 3.3H 5% 2W	1
△R667	40372137	R, METAL 37H 5% 2W	1
△R613	40372145	R, METAL 68H 5% 2W	1
△R607 △R622	40372147	R, METAL 82H 5% 2W	2
△R616 △R625	40372149	R, METAL 100H 5% 2W	2
R401 R413	40372157	R, METAL 220H 5% 2W	2
△R652	40372203	R, METAL 18K 5% 2W	1
△R654	40372205	R, METAL 22K 5% 2W	1
△R665	40372209	R, METAL 33K 5% 2W	1
R519	40373163	R, METAL 390H 5% 3W	1
R520	40373165	R, METAL 470H 5% 3W	1
△R610	40373181	R, METAL 2.2K 5% 3W	1
△R653	40373195	R, METAL 8.2K 5% 3W	1
△R660	40373197	R, METAL 10K 5% 3W	1
△R659 △R670	40373203	R, METAL 18K 5% 3W	2
△R617 △R629	40373221	R, METAL 100K 5% 3W	2
△R604	40399031	R, METAL 2.2K 5% 2W	1
△R601	40399032	R, METAL 10H 5% 5W	1
△R2001 △R2007 △R523	40405109	R, METAL 2.2H 5% 1/4W	3
△R522	40405117	R, METAL 4.7H 5% 1/4W	1
△R525	40812661	R, FUSE 330H 5% 1/2W	1
△R524	40812665	R, FUSE 470H 5% 1/2W	1
△R744	40822609	R, FUSE 2.2H 5% 1/2W	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
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\*\*\* CAPACITORS \*\*\*

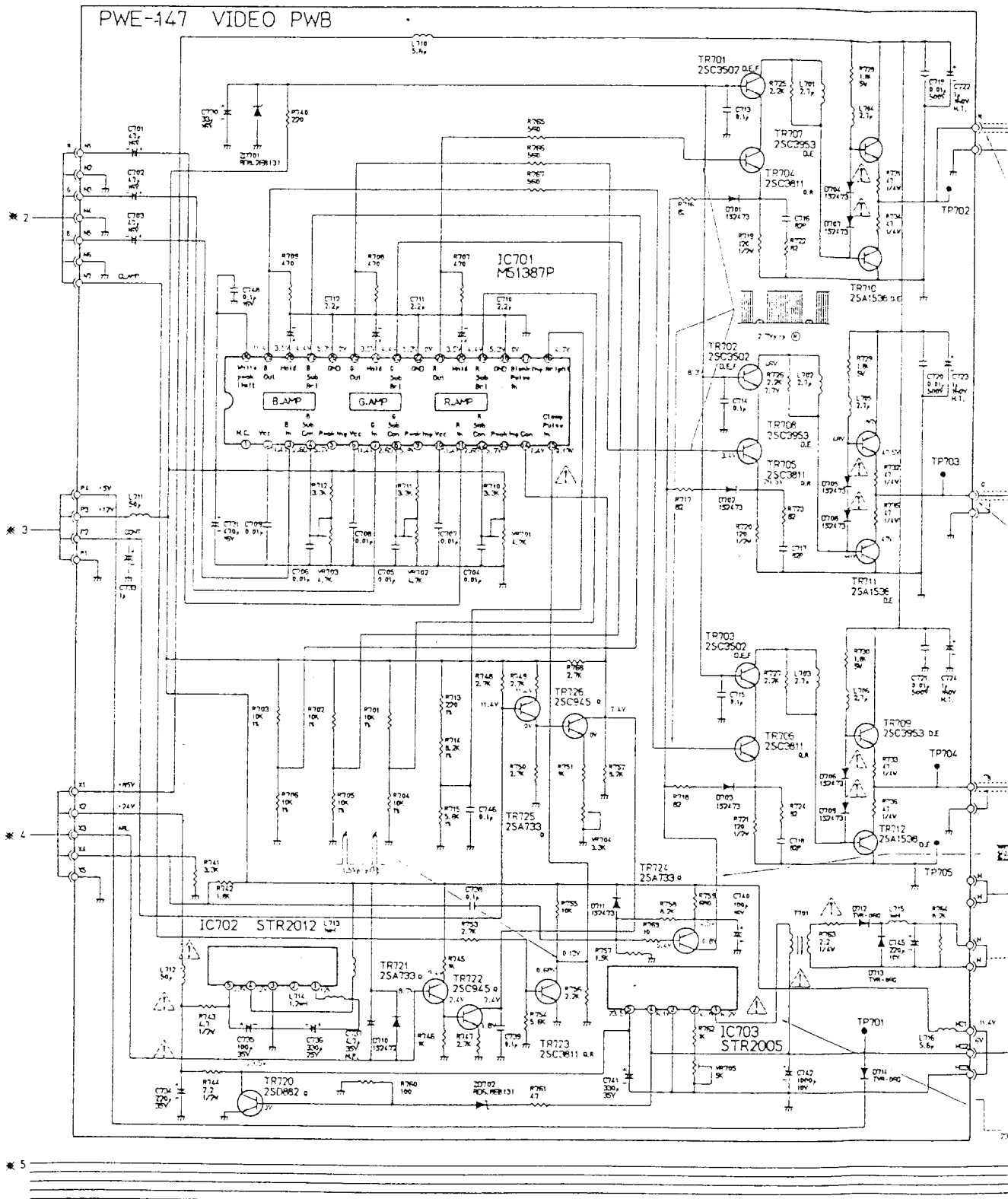
C412		420C9551	C,CERAMIC 500V 100PF	1
C524		420C9555	C,CERAMIC 500V 220PF	1
△C521		420C9557	C,CERAMIC 500V 330PF	1
C411	C420	420C9560	C,CERAMIC 500V 560PF	4
△C520				
C512	C912	420C9563	C,CERAMIC 500V 0.001UF	4
C914				
C9C5	C9C6	420C9567	C,CERAMIC 500V 2200PF	4
C908				
C511	C719	4201J575	C,CERAMIC 500V 0.01UF	4
C721				
C911		42019175	C,CERAMIC 2KV 0.01UF	1
△C626		4203J554	C,CERAMIC 500V 180PF	1
△C603	△C6C4	42053C13	C,CERAMIC 400V 1000PF	2
△C606		42053C67	C,CERAMIC 400V 2200PF	1
C1001		42099C69	C,CERAMIC 50V 0.01UF	1
△C663		42099C82	C,CERAMIC 2KV 1500PF	1
△C622	△C623	42099C85	C,CERAMIC 2KV 560PF	4
△C625				
△C612	△C618	42099C88	C,CERAMIC 2KV 220PF	2
△C530	C559	421AC425	C,CERAMIC 50V 0.01UF	13
C561	C704			
C7C6	C7C7			
C7C9	C8C7			
C814				
C566		421C0212	C,CERAMIC 50V 820PF	1
C419	C527	421C0213	C,CERAMIC 50V 1000PF	3
△C531		421C5C14	C,CERAMIC 50V 0.01UF	1
C713	C714	421J9C01	C,CERAMIC 50V 0.1UF	12
C739	C746			
C823	C824			
C831	C915			
C568		4213K211	C,CERAMIC 50V 680PF	1
C5C1	C562	423A1C45	C,CERAMIC 50V 100PF	2
C5C3		423A1C55	C,CERAMIC 50V 270PF	1
C811		423A1C74	C,CERAMIC 50V 270PF	1
C830		423A2C27	C,CERAMIC 50V 18PF	1
C716	C717	423A2C43	C,CERAMIC 50V 82PF	3
C563		427A7C05	C,FILM 100V 0.0022UF	1
C5C8		427A7C07	C,FILM 100V 0.0033UF	1
C5C2		427F4C01	C,FILM 50V 1000PF	1
C565		427F4C05	C,FILM 50V 2200PF	1
C404		427F4C13	C,FILM 50V 0.01UF	1
C405		427F4C17	C,FILM 50V 0.022UF	1
C403		427F4C25	C,FILM 50V 0.1UF	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
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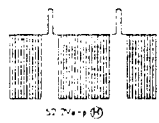
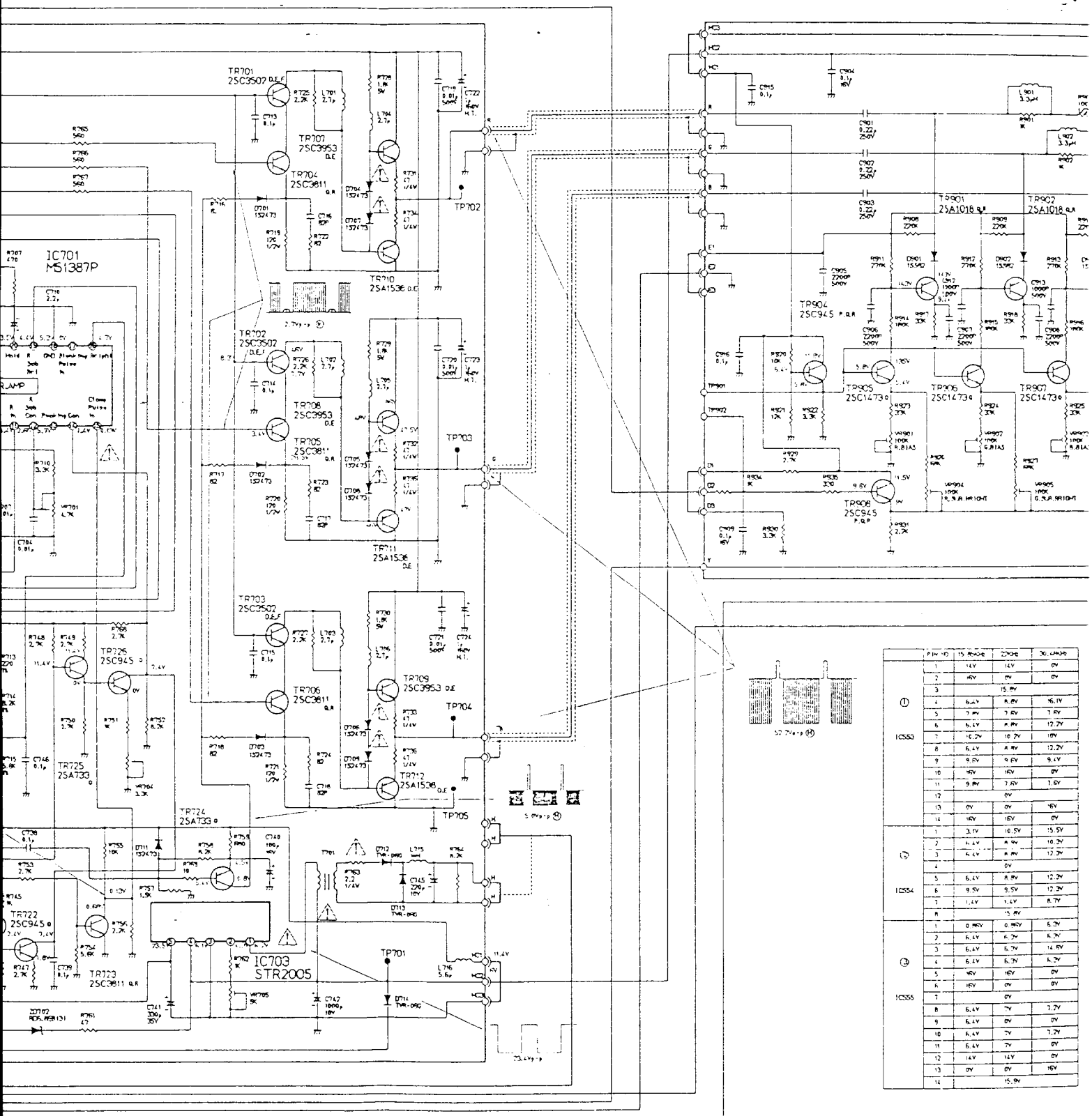
\*\*\* CAPACITORS \*\*\*

C817	C822	427F4C51	C,FILM 50V 1000PF	2
C402		427F4C52	C,FILM 50V 1200PF	1
C551	C821	427F4C53	C,FILM 50V 1500PF	2
C504		427F4C61	C,FILM 50V 6800PF	1
C506		427F4C63	C,FILM 50V 0.01UF	1
C406	C423	427F4C71	C,FILM 50V 0.047UF	2
C421	C526	427F4C75	C,FILM 50V 0.1UF	3
△C529		427C3863	C,MYLAR 400V 0.01UF	1
△C515		427C3866	C,FILM 400V 0.01UF	1
C517		42754267	C,FILM 200V 0.022UF	1
△C608	△C614	42760C63	C,FILM 50V 0.01UF	2
△C656		42760C73	C,FILM 50V 0.068UF	1
△C607		42760C75	C,FILM 50V 0.1UF	1
△C655		4279JC58	C,FILM 100V 5600PF	1
△C613	△C619	42799C99	C,MYLAR 400V 0.073UF	3
△C514		428C7511	C,METAL FILM 1.6KV 2700PF	1
△C513		428C7512	C,METAL FILM 1.6KV 3000PF	1
C2C06	C2007	4282CC25	C,METAL FILM 50V 1UF	3
△C627		42824315	C,FILM 250V 0.015UF	1
△C6C2		42824325	C,FILM 250V 0.1UF	1
△C601		42824329	C,FILM 250V 0.22UF	1
△C661		42839C21	C,METAL FILM 250V 0.068UF	1
C9C1	C9C2	42899C10	C,METAL FILM 250V 0.22UF	3
△C522	△C557	42899C42	C,METAL FILM 400V 0.64UF	3
C5C5	C5C7	430A4105	C,ELEC 50V 1UF	2
△C2002	C2005	430A9C15	C,ELEC 10V 47UF	2
C733	C819	430A9C61	C,ELEC 50V 1UF	2
C710	C711	430A9C62	C,ELEC 50V 2.2UF	4
C82C				
△C2004		430A9C65	C,ELEC 50V 10UF	1
C415		430E3102	C,ELEC 50V 1UF	1
△C2C01		430F3109	C,ELEC 50V 47UF	1
C722	C723	430F3182	C,ELEC 160V 1UF	3
C518		4300E135	C,ELEC 200V 10UF	1
△C660		4302C101	C,ELEC 50V 0.47UF	1
C519		4302C1C7	C,ELEC 50V 22UF	1
△C651		4302C172	C,ELEC 100V 330UF	1
△C664		4302C182	C,ELEC 160V 1UF	1
C516	△C657	4302C19C	C,ELEC 160V 100UF	4
△C662				
△C611	△C617	4302EC51	C,ELEC 16V 220UF	2
△C610	△C616	4302EC53	C,ELEC 50V 470UF	2
△C654		4302EC90	C,ELEC 35V 100UF	1
△C652		4302EC93	C,ELEC 35V 470UF	1
△C609	△C615	4302E105	C,ELEC 50V 4.7UF	2
△C620	△C621	4302E1C7	C,ELEC 50V 22UF	2
△C653		4302E17C	C,ELEC 100V 100UF	1
△C6C5		431081C5	C,ELEC 400V 220UF	1

\* 1

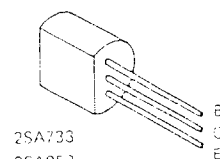
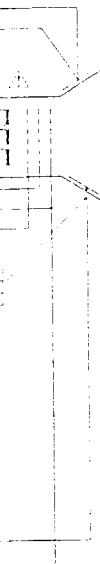


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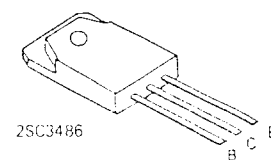


Pin No.	15 MHz			
	15 MHz	15 MHz	15 MHz	15 MHz
①	1	15V	15V	15V
	2	15V	15V	15V
	3	15V	15V	15V
	4	15V	15V	15V
	5	15V	15V	15V
	6	15V	15V	15V
	7	15V	15V	15V
	8	15V	15V	15V
	9	15V	15V	15V
	10	15V	15V	15V
	11	15V	15V	15V
	12	15V	15V	15V
②	1	15V	15V	15V
	2	15V	15V	15V
	3	15V	15V	15V
	4	15V	15V	15V
	5	15V	15V	15V
	6	15V	15V	15V
	7	15V	15V	15V
	8	15V	15V	15V
	9	15V	15V	15V
	10	15V	15V	15V
	11	15V	15V	15V
	12	15V	15V	15V
③	1	15V	15V	15V
	2	15V	15V	15V
	3	15V	15V	15V
	4	15V	15V	15V
	5	15V	15V	15V
	6	15V	15V	15V
	7	15V	15V	15V
	8	15V	15V	15V
	9	15V	15V	15V
	10	15V	15V	15V
	11	15V	15V	15V
	12	15V	15V	15V

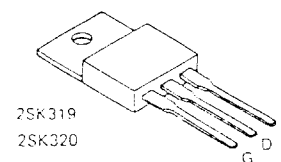




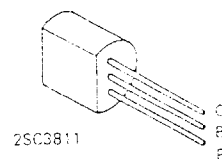
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2SA952  
2SA953  
2SA1018  
2SC945  
2SC1473  
2SC1730  
2SC2001



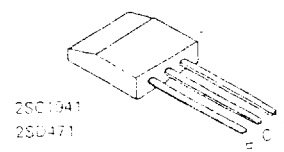
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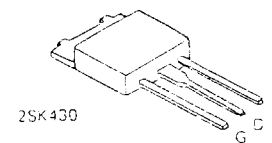
2SK319  
2SK320



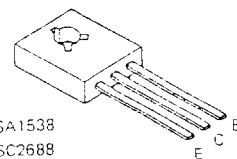
25C3811



2501941  
250471



2SK430



2SA1538  
2SC2688  
2SC3502  
2SC2953  
2SD882

NOTE:

E: EMITTER

B: BASE

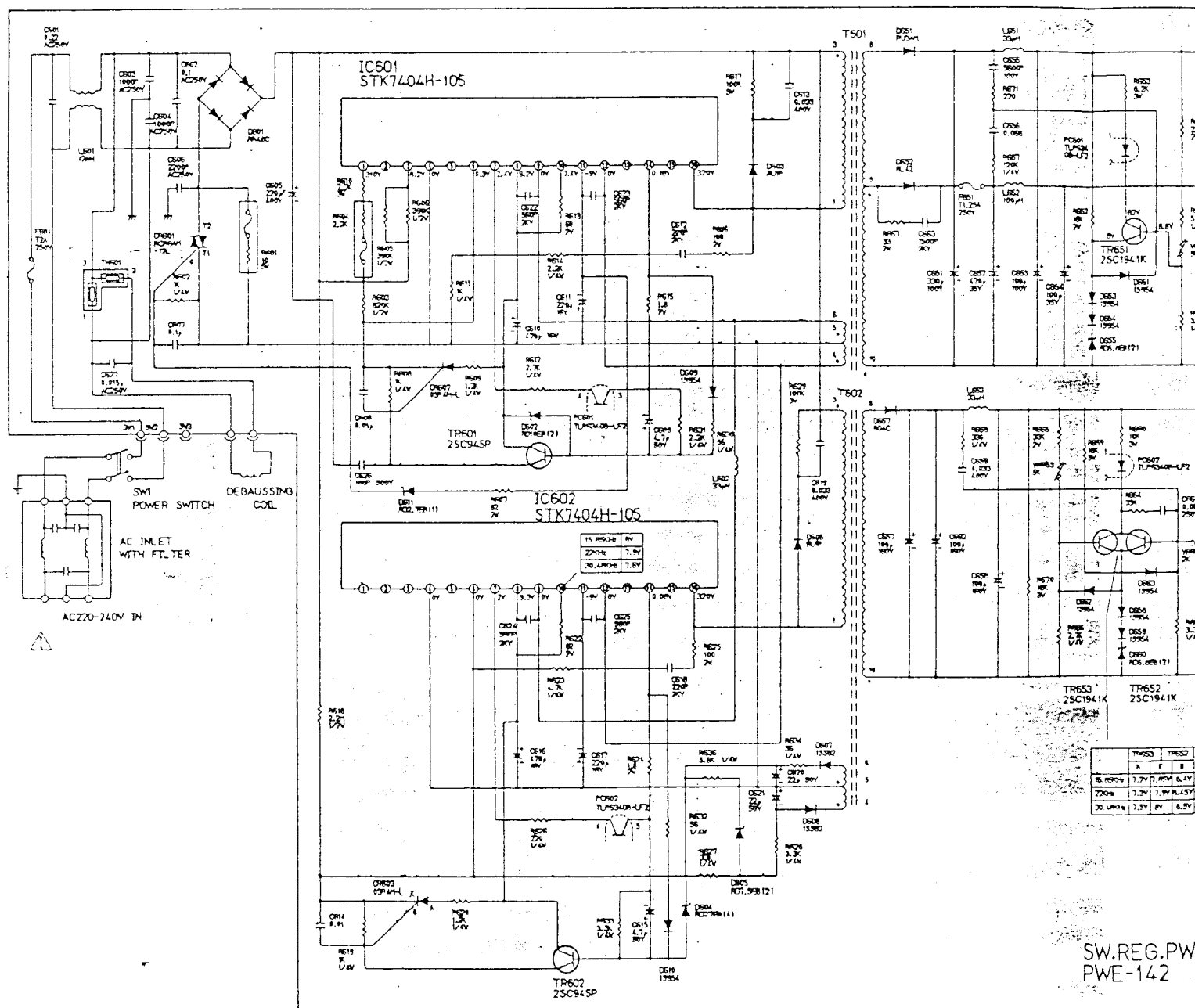
C: COLLECTOR

G: GATE

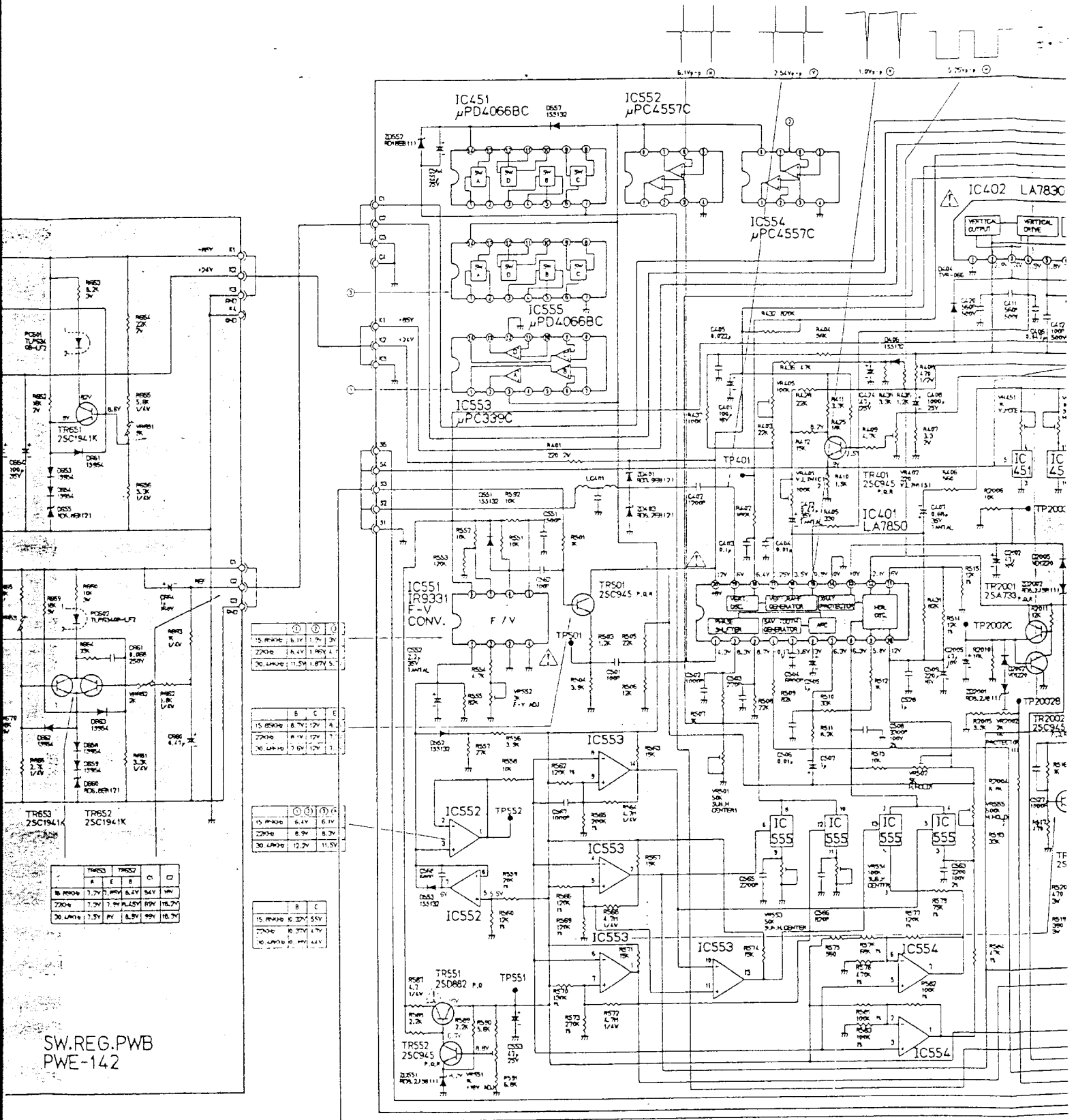
D: DRAIN

S: SOURCE

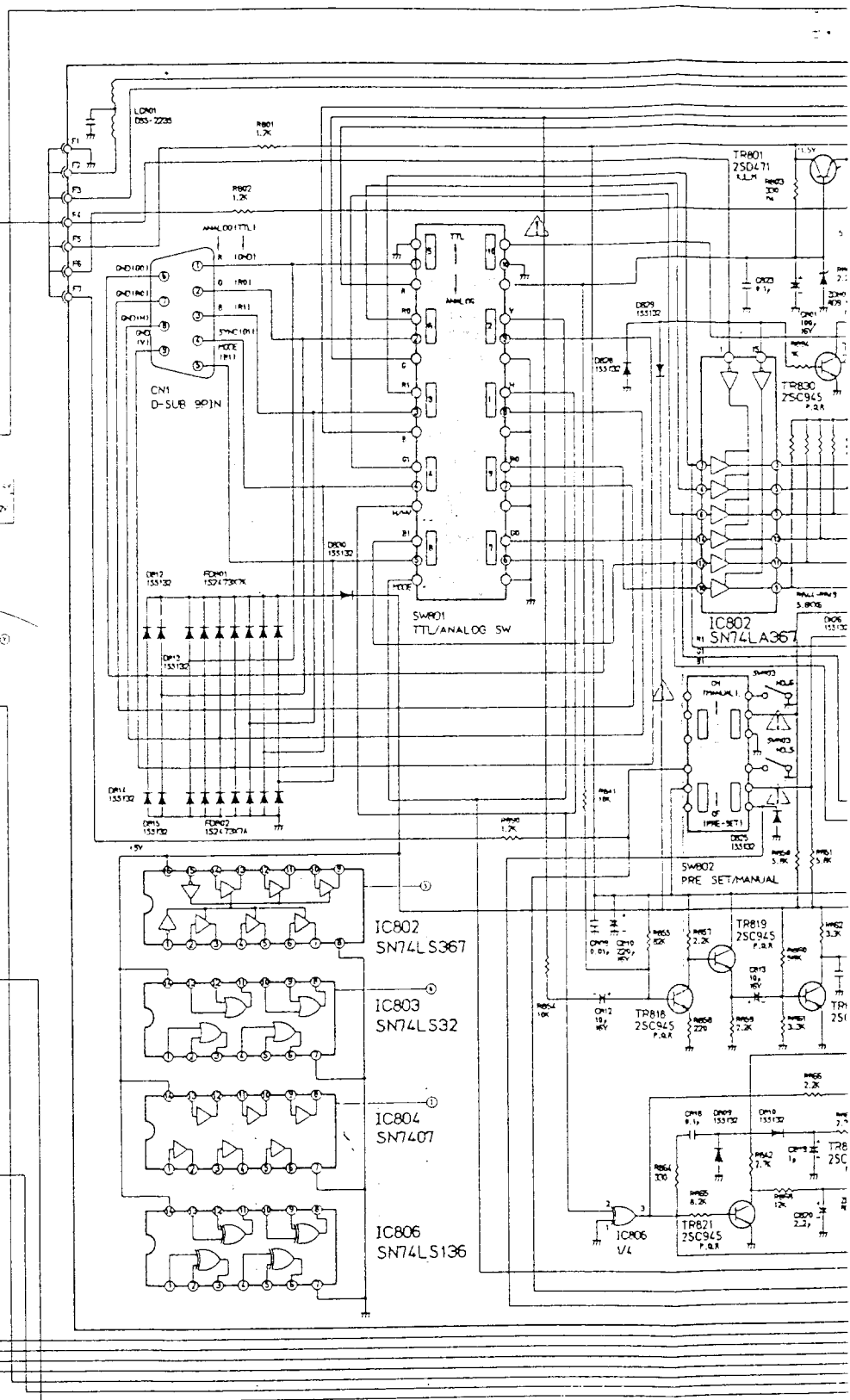
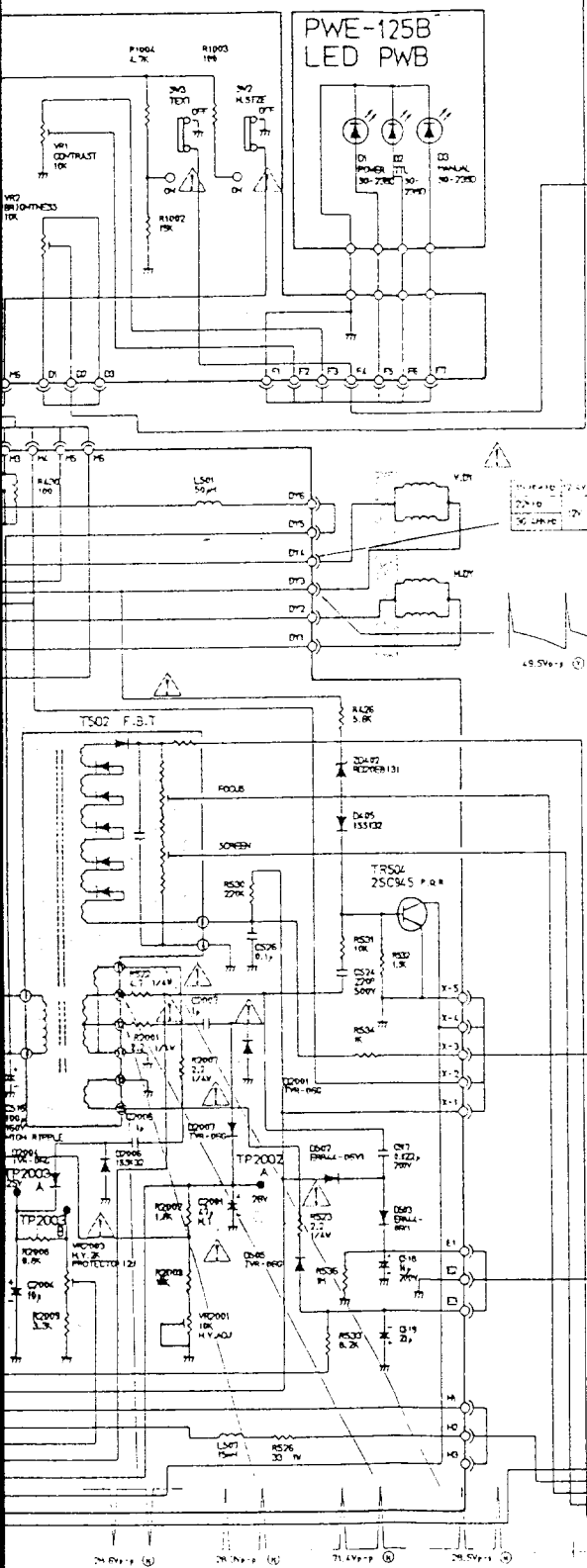
# MODELS JC-1401P3E/EE/R/ED SCHEMATIC DIAGRAM



SW.REG.PW  
PWE-142







RUN NO.1

