

NEC

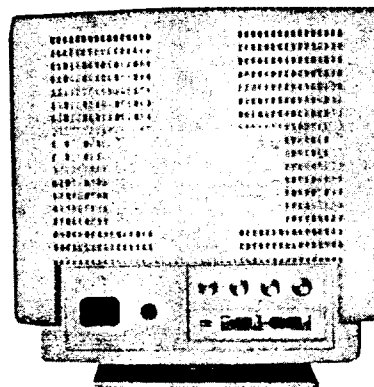
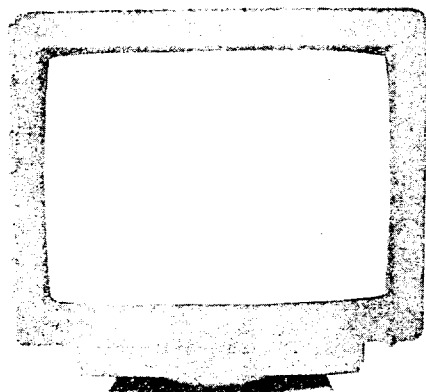
MODEL JC-1601VME/EE/R

COLOR MONITOR **MultiSync 4D** SERVICE MANUAL

PARTS NO 599910294



Better Service
Better Reputation
Better Profit



SPECIFICATIONS

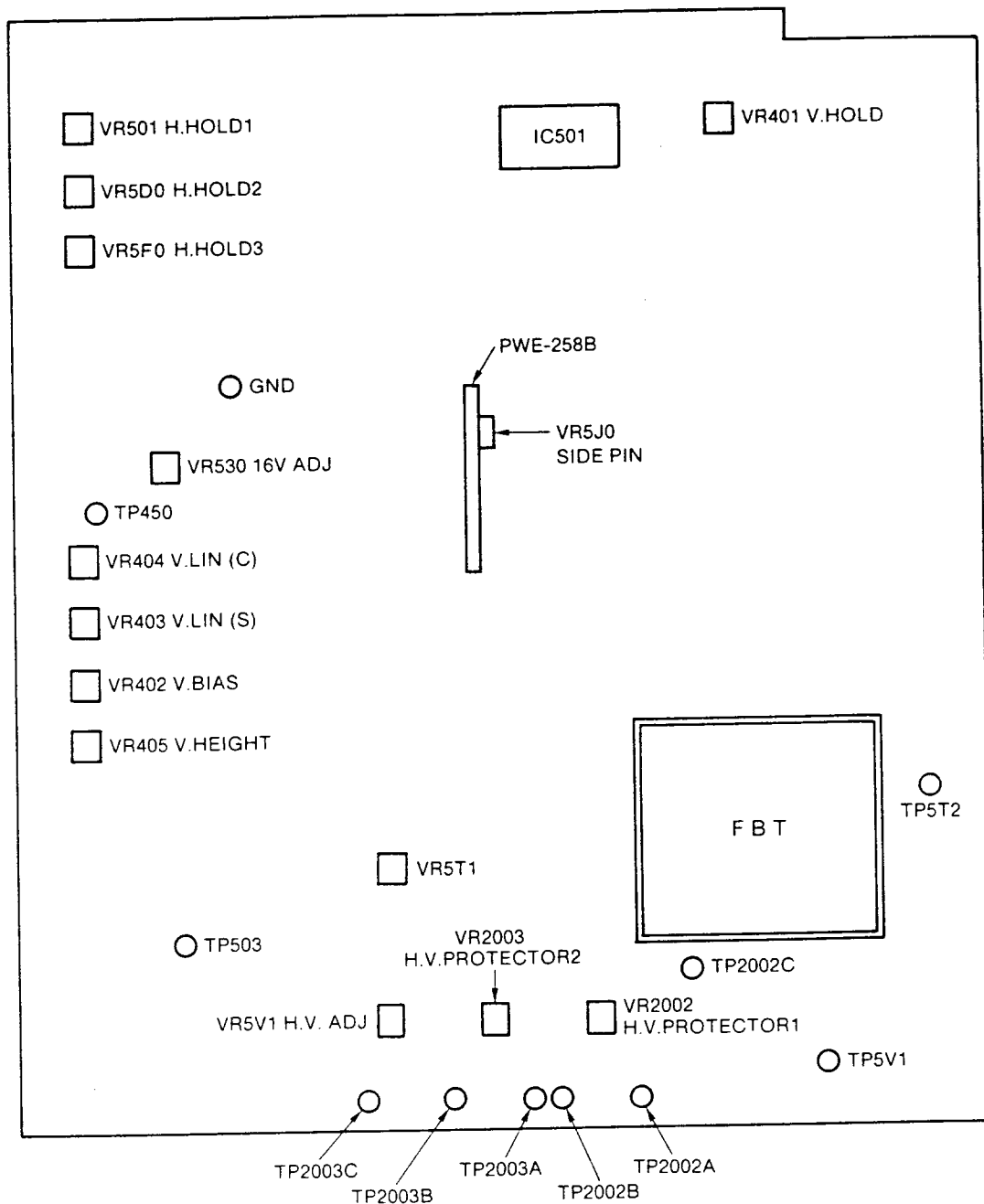
A. Electrical Description

Picture Tube	16 inches, 15 inches visual diagonal measurement 90 degree deflection, 0.28mm Trio dot pitch Dot type black matrix, Non-long persistence phosphor, Dark bulb Non-glare	Synchronization	Horizontal : 30kHz to 57kHz (Automatically) 50Hz to 90Hz (Automatically) Non-Interlaced/Interlaced
Input Signal	Video : 0.7 or 1.0Vp-p/75Ω Positive Sync : Separate sync. TTL Level Horizontal sync. Positive/Negative Vertical sync. Positive/Negative : Composite Sync. TTL Level Positive/Negative : Composite sync. on Green Video 0.3Vp-p Negative (Video 0.7Vp-p Positive) 0.43Vp-p Negative (Video 1.0Vp-p Positive)	Resolution	Horizontal : 1024 dots maximum Vertical : 768 lines maximum
		Video Band Width	75MHz
		Maximum Display Area	Horizontal : 290mm Active display area is Vertical : 217mm changed by signal timing.
		Misconvergence	Less than 0.5mm
		Power Supply	AC220V - 240V, 50/60Hz
		Power Consumption	130W
Display Colors	Analog input Unlimited colors	Environmental Consideration	Operating Temperature 0°C to +40°C Humidity 30% to 80% Storage Temperature -20°C to +60°C Humidity 10% to 90%

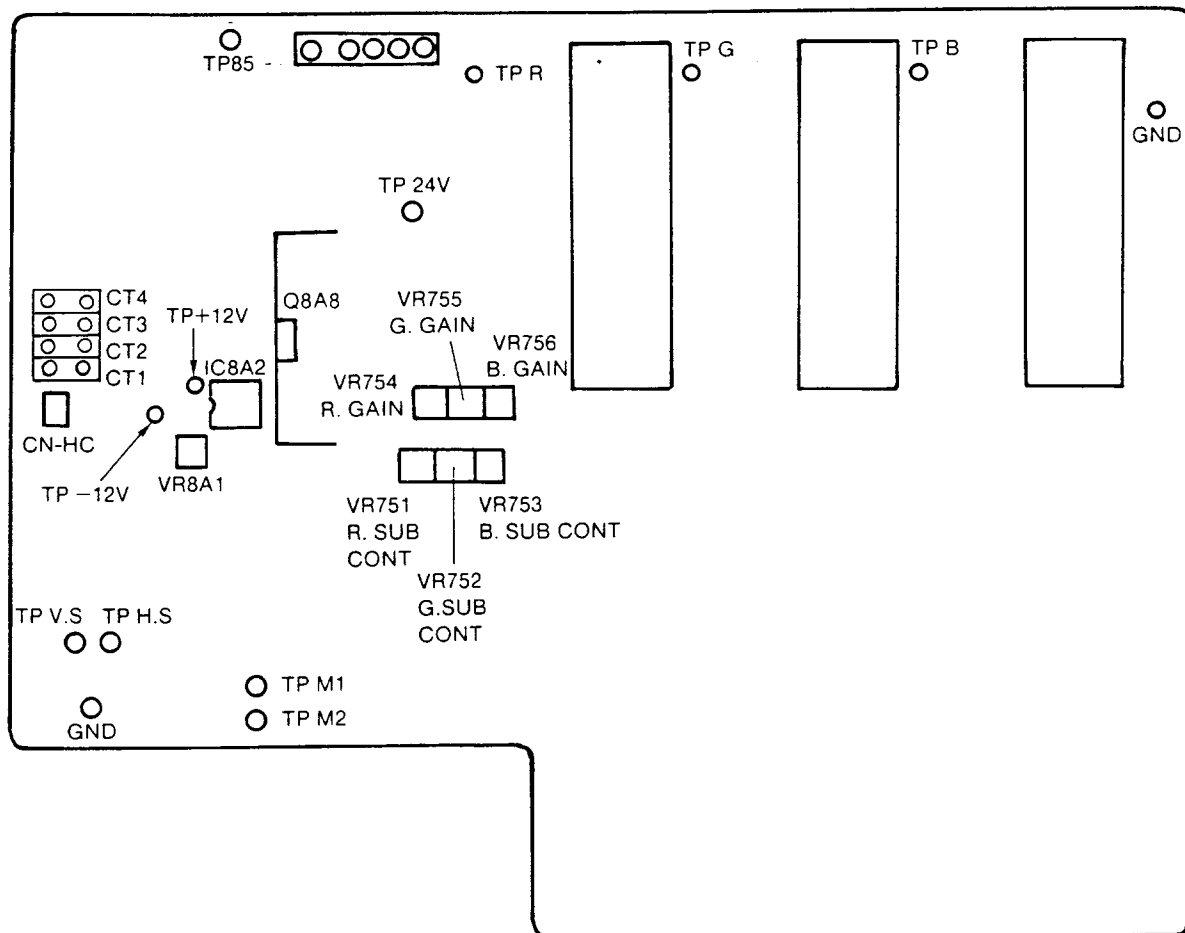
NOTE: The above specifications are subject to change without notice for further improvement.

NEC Corporation
TOKYO, JAPAN

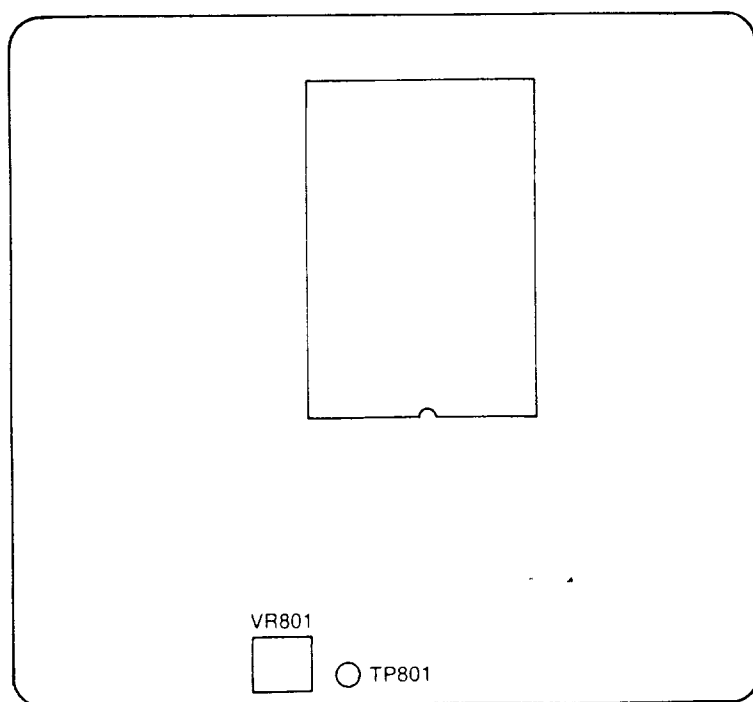
ADJUSTMENT CONTROLS LAYOUT



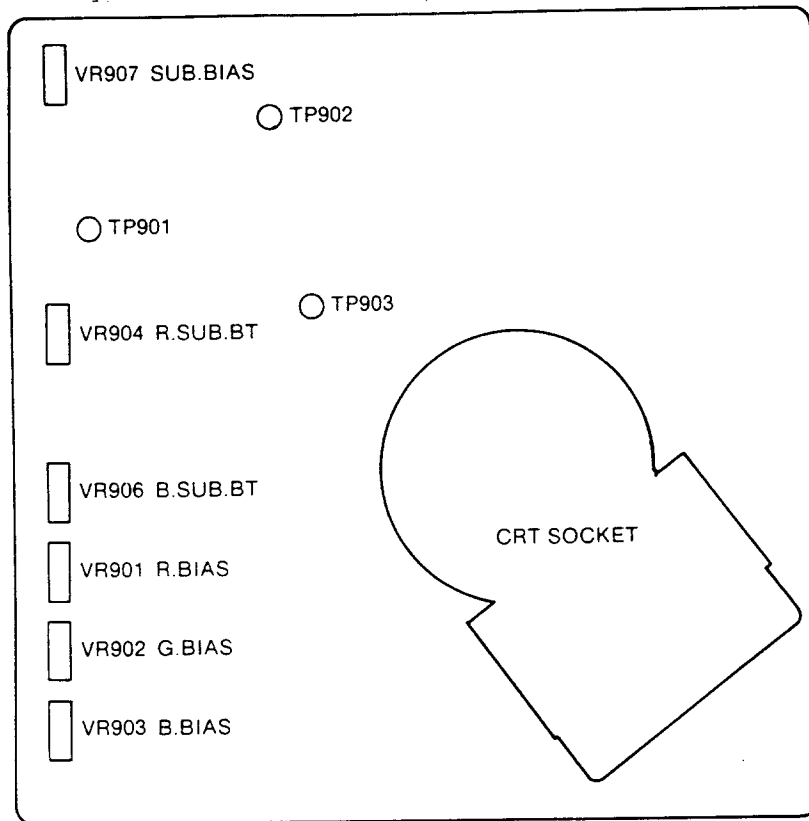
DEF PWB ASSY (PWE-258A)



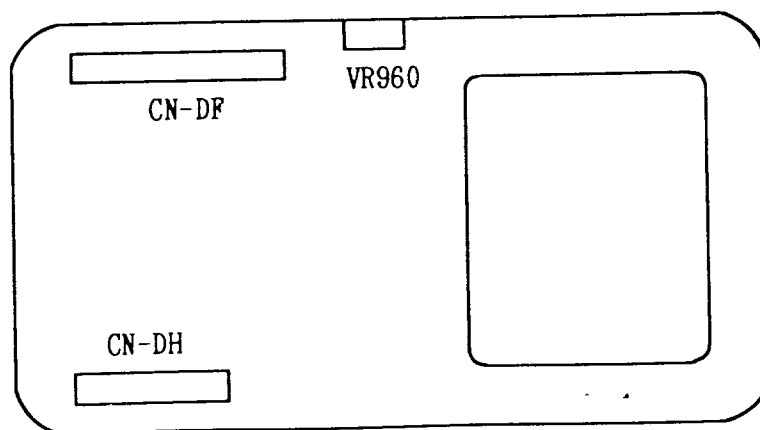
VIDEO PWB ASSY (PWE-264A)



CPU PWB ASSY (PWE-257)



CRT PWB ASSY (PWE-272)



FOCUS PWB ASSY (PWE-264B)

Standard Adjustment Conditions

Standard Adjustment Conditions

- ### 1. Pre-adjustment of DEF PWB

- ## 2. Pre-adjustment of VIDEO PWB

- ### 3. Pre-adjustment of CPU PWB

- #### 4. Main Adjustment.

(1) Settings of the controls.

VR11 BRIGHTNESS	: At point where back raster disappears
VR12 CONTRAST	: Max.(fully clock wise)
S11 MODE SWITCH	: off (left side)
S12 INPUT VOLTAGE SWITCH	: 0.7V (right side)
S13 INPUT SWITCH	: D-Sub (right side)

(2) DEF PWB Adjustment

2-1) V.BIAS (rough adjustment)

- 31 —

2-2) Vertical Hold

- a) Receive signal 11 (fv: 60Hz).
- b) Short TP (VS) and TP (GND) (on the VIDEO PWB),
- c) Adjust VR401 so that the vertical free-run frequency is $50\text{Hz} \pm 1\text{Hz}$.
(measuring the point V.DY1 or #18pin of IC501 with a frequency counter).

2-3) Horizontal Hold

- a) Short TP (HS) and TP (GND) (on the VIDEO PWB).
- b) Receive signal 12 (fh: 56.7kHz) and adjust H. HOLD (1) VR501 so that there is one screen.
- c) Receive signal 2 (fh: 47.1kHz) and adjust H. HOLD (2) VR5D0 so that there is one screen.
- d) Receive signal 3 (fh: 35.4kHz) and adjust H. HOLD (3) VR 5F0 so that there is one screen.

2-4) Horizontal Raster Centering

- a) Receive signal 12 (fh: 56.7kHz).
- b) Adjust the Screen VR and Brightness VR so that the back rasters are faintly illuminated, then connect the "CT" connector to the position that enables the back rasters to be centered on the CRT screen.
CT1 : No correction
CR2 : About 3mm correction
CR3 : About 6mm correction
CR4 : About 10mm correction
* By changing the orientation in which the connector is inserted, the displacement direction of the screen can be changed from side to side.

2-5) Horizontal Width pre-adjustment

- a) Receive signal 9 (fh: 35kHz)
- b) Adjust H. SIZE SWITCH S803 to maximize the horizontal size.
- c) Adjust H. SIZE VR VR570 for the horizontal video size of $275\text{mm} \pm 2\text{mm}$.

2-6) Horizontal Linearity

- a) Receive a crosshatch pattern of signal 12 (fh: 56.7kHz).
- b) Visually check the H. Linearity.
If adjustment is needed, use the L506 so that the linearity is equal.
Avoid rotating L506 unless absolutely necessary.

2-7) Side Pin Cushion

- a) Receive a all white pattern of signal 12 (fh: 56.7kHz).
- b) Adjust VR5J0 so that pin distortion is less than 1mm.
* Before adjusting 2-7), adjust S807, S808 and VR450 so that the vertical size is about 217mm.
* Repeat confirming settings from 2-4) to 2-7), because the above four setting affect each other.

2-8) Vertical Linearity

- a) Receive a crosshatch pattern of signal 11 (fv: 60Hz)
- b) Adjust S807, S808 and VR405 so that the vertical size is about 200mm.
- c) Turn V. LIN(C) VR404 fully clockwise.
- d) Adjust V. LIN(S) VR403 so that the top and bottom linearity is equal.
- e) If the center is elongated, turn VR404 slightly counterclockwise until the elongation is corrected.
And adjust VR403 so that the top and bottom linearity is equal.
- f) Repeat adjusting step e) so that the linearity is within 5%.

- g) Receive signal 5 (fv: 70Hz) and confirm the linearity is within 8%.
 - * Before confirming step g), adjust S807, S808 and VR405 so that the vertical size is about 250mm.
- h) If the linearity is not within 8% on step g), receive signal 12 (fv: 60Hz) again.
 - For top elongation:
Turn VR403 slightly clockwise until the top elongation is eliminated, then perform e) to g).
 - For bottom elongation:
Turn VR403 slightly counterclockwise until the bottom elongation is eliminated, then perform e) to g).
 - For center elongation:
Turn VR404 slightly counterclockwise until the center elongation is eliminated, then perform e) to g).
 - For center shortening:
Turn VR404 slightly clockwise until the center shortening is eliminated, then perform e) to g).
- i) Visually check the top of the back raster when the brightness control is max.
 - For elongation or shortening, adjust h).

2-9) Vertical size pre-adjustment

- a) Receive a all white pattern of signal 6(fv: 70Hz)
- b) Adjust V.SIZE SWITCH S807 to minimize the vertical size.
- c) Adjust V.SIZE VR VR405 for the vertical video size $180\text{mm} \pm 3\text{mm}$.

2-10) Vertical Bias

- a) Receive a all white pattern of signal 11(fv: 60Hz)
- b) Adjust V. SIZE SWITCH S807 or S808 so that the vertical size is about 80% of CRT size.
- c) Adjust V. POSITION SWITCH S805 or S806 that the screen is centered.
- d) Adjust V.BIAS VR402 for $12.5 \pm 0.5\text{V}$ DC between DY3 and the ground
(Measurement point is where the yellow lead is connected of the deflection yoke).

(3) PRESET Adjustment

3-1) Adjustment

- a) Short TPM1 and TPM2 (on the VIDEO PWB)
- b) Set MODE SWITCH S11 "OFF".
- c) Receive a reverse "H" pattern of one of the signals shown in table 1.
- d) Adjust H. POSITION SWITCH S801 or S802 and V.POSITION SWITCH S807 or S808 so that the screen is centered.
- e) Adjust H. SIZE SWITCH S803 or S804 and V. SIZE SWITCH S805 or S806 so that the horizontal and the vertical size are them shown in the table 1.
- f) Push MEMORY RECALL SWITCH S809 for more than 2 seconds.
- g) Repeat steps c)~f) with all of the signals in the table 1.
- h) Open TPM1 and TPM2

3-2) Confirmation

- a) Receive one of the signals shown in the table 1.
- b) MEMORY RECALL SWITCH S809 for more than 2 second.
- c) Confirm that the H/V position and size are correct by visual check.
- d) If incorrect position and size, perform the steps 3-1)-a) to 3-1)-f) and the steps 3-2)-a) to 3-2)-c) with the signal which the incorrectness appear.

Signal No.	f_H , f_V and other conditions	H.SIZE	V.SIZE
5	31.5kHz 70Hz (Separate Sync H: POSI V: NEGA)	280±2mm	200±2mm
6	31.5kHz 70Hz (Separate Sync H: NEGA V: POSI)	280±2mm	205±2mm
7	31.5kHz 60Hz (Separate Sync H: NEGA V: NEGA)	280±2mm	205±2mm
8	35kHz 87Hz (Separate Sync Interace)	290±2mm	210±2mm
9	35kHz 67Hz (Sync on Green)	275±2mm	210±2mm
10	35kHz 56Hz (Separate sync)	290±2mm	217±2mm
11	48.5kHz 60Hz (Sync on Green)	290±2mm	217±2mm
12	56.7kHz 70Hz (Sync on Green)	290±2mm	217±2mm
14	30.5kHz 60Hz (Composite Sync V.MODE: LOW)	280±2mm	205±2mm

Table 1. Preset Signals

(4) Adjustment of Video Amplitude and White Balance

NOTE: Before performing this adjustment, make sure the VIDEO signal is as follows
VIDEO signal: Analog 0.7Vp-p±5% (75Ω ±1% termination)

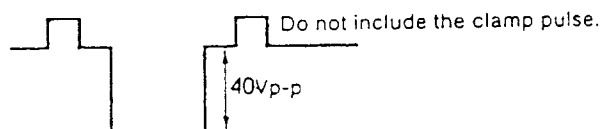
4-1) Default Setting of the Adjustment VRs

VR754~VR756	GAIN VR	Fully left
VR751~VR753	SUB CONT VR	Fully right
VR901~VR903	BIAS VR	Fully left
VR904~VR906	SUB BRIGHT VR	Fully right
VR907	SUB BIAS VR	Fully left
Scenen VR		Fully left

4-2) Video Contrast Adjustment

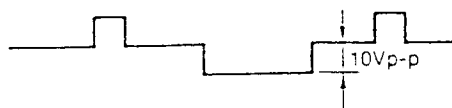
a) GAIN VR Adjustment: Signal 13 (Window white pattern)

- ① Receive the window pattern of Signal 13.
(A video range of 1/3~1/4H x 1/3V within the range where the ABL circuit is not applied despite maximum Contrast is desirable).
- ② Rotate the Contrast VR fully to the right.
Rotate the Brightness VR fully to the left.
- ③ Adjust VR754, VR755 and VR756 so that the TP R, TP G, and TP B terminals on the VIDEO PWB are each set to 40 Vp-p. After adjustment, confirm the Vp-p value of each terminal and perform readjustment if necessary.



b) SUB CONT Adjustment

- ① Rotate the Contrast VR fully to the left.
Rotate the Brightness VR fully to the left.
- ② Adjust VR751, VR752, VR753 so that the TP R, TP G, and TP B terminals on the VIDEO PWB becomes 10Vp-p. After adjustment, confirm the Vp-p value of each terminal and perform readjustment if necessary.



4-3) Cutoff Adjustment (All-black signal)

Rotate the Contrast VR fully to the left.

- a) Perform the two steps below in the (1)→(2) sequence.
 - (1) Create a short-circuit between TP901 and TP902.
 - (2) Create a short-circuit between TP450 and the ground.
- b) Turn the screen Control clockwise until the voltage value between TP903 and the ground becomes 550VDC (using a high voltage meter whose Max. Voltage is more than 1.5kV and input resistance is more than 1000MΩ).
- c) Turn the SUB BIAS VR907 clockwise gradually and set to the position of which a horizontal bar color appears faintly.
- d) Turn the BIAS VRs for a color other than the reference color clockwise until it is as bright as the reference color.
- e) Sequentially cancel the short-circuit created between TP450 and the ground and between TP901 and TP902.

NOTE: The darker the environment where cutoff adjustment is performed, the better white tracking can be achieved later. Be sure to perform cutoff adjustment in as dark a place as possible.

4-4) Adjustment of SUB. BRIGHT VR

- a) Receive Signal 12 (56.7kHz)
- b) Rotate the Contrast VR fully to the left.
Rotate the Brightness VR fully to the right.
- c) Receive all-black signals.
- d) Rotate VR904 and VR906 to adjust the back raster until they are white.

4-5) Fine Adjustment of White Balance

color temperature:	Center	X=0.300
		Y=0.315

Hue: A slightly bluish white.

- a) Receive Signal 13 (56.7kHz) H gray scale (16 gradations). (the window pattern should be in the range where the ABL circuit is not applied).
- b) Short TP901 and TP902.

- c) Rotate the contrast VR fully to the right.

Check that the white balance is satisfactory at each gradation. If the white balance is not satisfactory, perform fine adjustment of the GAIN VRs (VR754 AND VR756).

NOTE: Do not change the setting of VR755.(G.GAIN)

- d) Rotate the Contrast VR fully to the left.

Check that the white balance is satisfactory at each gradation. If the white balance is not satisfactory, perform fine adjustment of the SUB.CONT VRs (VR751 and VR753)

NOTE: Do not change the setting of VR752.(G.SUB. CONT).

- e) Open TP901 and TP902.

Rotate the Contrast VR fully to the left.

Rotate the Brightness VR fully to the right.

Check that the white balance is satisfactory at each gradation, and at each position of the Brightness VR (From Max to Min). If the white balance is not satisfactory, perform fine adjustment of the SUB BRIGHT VRs (VR904 and VR906).

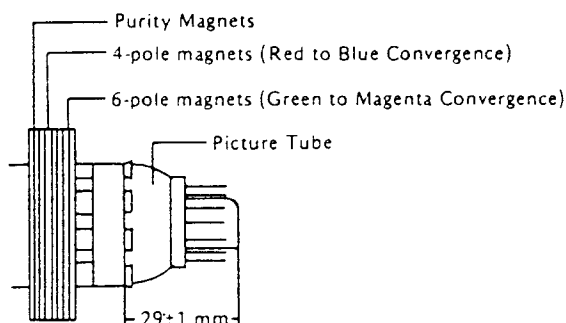
NOTE: Do not change the setting of VR905 (G SUB BRIGHT).

(5) Focus Adjustment

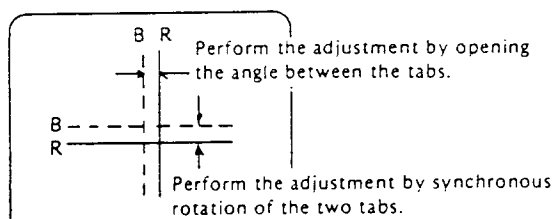
- 1) Receive the signal 7 (f_H:31.5kHz) "\$" character pattern with four dots missing.
- 2) Rotate the contrast VR fully to the right.
Rotate the Brightness VR at point where back raster disappears.
- 3) Adjust the Focus control of FBT so that every "\$" character is the same.
- 4) If its not equal between center and corner, use VR960 for correction.

(6) Purity Adjustment

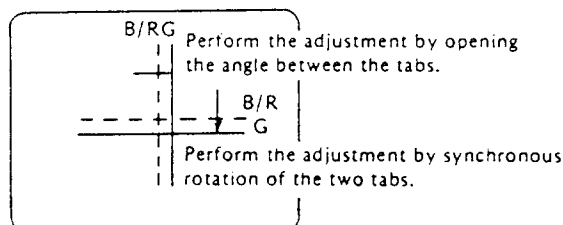
- 1) Be sure that the display is not being exposed to any external magnetic fields.
- 2) Ensure that the spacing between the Purity Convergence Magnet (PCM) assembly and the CRT stem is $29\text{ mm} \pm 1\text{ mm}$. (See below diagram)
- 3) Produce a complete, red pattern on the display. Adjust the 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° .
- 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)

(7) 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 diagrams above)
- 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.

SIGNALS FOR USING QUANTUM 801C

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	59.4 kHz	47.1 kHz	35.4 kHz	PGC 480	VGA 350	VGA 400	VGA 480	8514A	MAC-2	800×600	48.5kHz	56.7kHz	56.7kHz WINDOW	PGC 400
Real Time Parameters														
Dot Rate (MHz)	31.832	31.792	28.320	24.960	28.320	28.320	28.320	31.968	30.240	31.960	31.848	30.936	30.936	24.963
Horizontal Rate (kHz)	59.388	47.099	35.400	30.476	31.467	31.467	31.467	35.520	35.000	35.160	48.475	56.659	56.659	30.476
Vertical Rate (Hz)	80.04	90.06	50.00	59.99	70.08	70.08	60.06	86.96	66.67	56.26	59.99	70.04	70.04	59.99
Non-Real Time Parameters														
H: Dots/Character	8	9	8	9	9	9	9	9	8	9	9	6	6	9
Total Characters	67	75	100	91	100	100	100	100	108	101	73	91	91	91
Displayed Characters	43	54	80	71	80	80	80	81	80	79	57	70	18	71
Drive Delay	51	61	83	71	82	82	82	82	88	81	59	77	51	71
Drive Width	9	10	12	12	12	12	12	14	8	7	4	6	6	12
V: Lines/Character	12	10	10	10	10	10	10	12	10	10	12	8	8	10
Total Lines	742	523	708	508	449	449	524	817	525	625	808	809	809	508
Displayed Rows	54	45	60	48	35	40	48	64	48	60	64	96	24	40
Drive Delay (Rows)	54	46	61	48	39	41	49	64	48	60	64	96	60	44
Drive Width (Lines)	2	2	2	2	2	2	2	4	3	2	4	2	2	2
Step Width	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Signal Gating														
Composite Sync. OP.1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Vertical Step OP.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horizontal Drive OP.3	1	1	1	0	1	1	1	1	1	1	1	1	1	0
Vertical Drive OP.4	1	1	1	0	1	1	1	1	1	1	1	1	1	0
Signal Polarity														
Composite Sync. OP.5	—	—	—	0	—	—	—	—	—	—	1	1	1	0
Vertical Step OP.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horizontal Drive OP.7	1	1	1	—	0	1	1	0	1	0	1	1	1	—
Vertical Drive OP.8	1	1	1	—	1	0	1	0	1	0	1	1	1	—
Video OP.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interlace Mode OP.9	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Video Mode OP.10	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Duty Cycle OP.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Character Clocking Mode OP.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horizontal Skew OP.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vertical Skew OP.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cursor OP.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TIMING OF REFERENCES SIGNALS

SIGNALS FOR USING LVG-1603

Abbreviation		Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14
			59.4 kHz	47.1 kHz	35.4 kHz	PGC 480	VGA 350	VGA 400	VGA 480	8514A	MAC II	800X 600	48.5 kHz	56.7 kHz	56.7 kHz (W)	PGC 400
HORIZONTAL	Total	DOT	1000	0900	0800	0820	0900	0900	0900	1264	0864	1024	1228	1058	1058	0820
	Rate	kHz	059400	047100	035400	030480	031470	031470	031470	035520	035000	035160	048485	056660	056660	030480
	Dots/Character	DOT	08	08	08	08	09	09	09	08	08	08	08	08	08	08
	Characters	CHR	F080	F080	F080	F080	F080	F080	F080	F128	F080	F100	F119	F102	F026	F080
	Drive Delay	DOT	0750	0728	0664	0640	0738	0738	0738	1032	0704	0824	0997	0894	0512	0640
	Drive Width	DOT	0136	0120	0096	0112	0108	0108	0108	0176	0064	0072	0060	0071	0071	0112
VERTICAL	Total	RASTER	0742	0523	0708	0508	0449	0449	0524	0409	0525	0625	0808	806	806	0508
	Rate	Hz	080000	090000	050000	060000	070000	070000	060000	087000	066700	056200	060000	070298	070298	060000
	Lines/Character	RASTER	15	15	15	10	14	16	16	12	16	15	—	—	—	10
	Rows	RASTER	0645	0450	0600	0480	0350	0400	0480	0384	0480	0600	0768	0768	0192	0400
	Drive Delay	RASTER	0650	0455	0605	0481	0387	0412	0489	0384	0483	0601	0772	0768	0480	0441
	Drive Width	RASTER	0002	0002	0002	0002	0002	0002	0002	0004	0003	0002	0004	0002	0002	0002
DOT RATE		MHz	059400	042390	028320	024994	028323	028323	028323	044897	030240	036004	059540	059833	059833	024994
Scan Mode			F0	F0	F0	F0	F0	F0	F0	F1	F0	F0	F0	F0	F0	F0
Character Font			F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1
Character Code			46	48	48	—	—	—	—	—	—	—	—	—	20	—
Pattern Key Code			F2	F2	F2	F	F	F	F	F	F	F	F	F	F2	F
Video Output			1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110
Add Sync/Inverse			0001	0001	0001	0001	0001	0001	0001	0001	0101	0001	0101	0101	0101	0001
Dot Duty			00	00	00	01	00	00	00	00	00	00	00	00	00	01
Polarity			00	00	00	—	10	01	00	11	00	11	00	00	00	

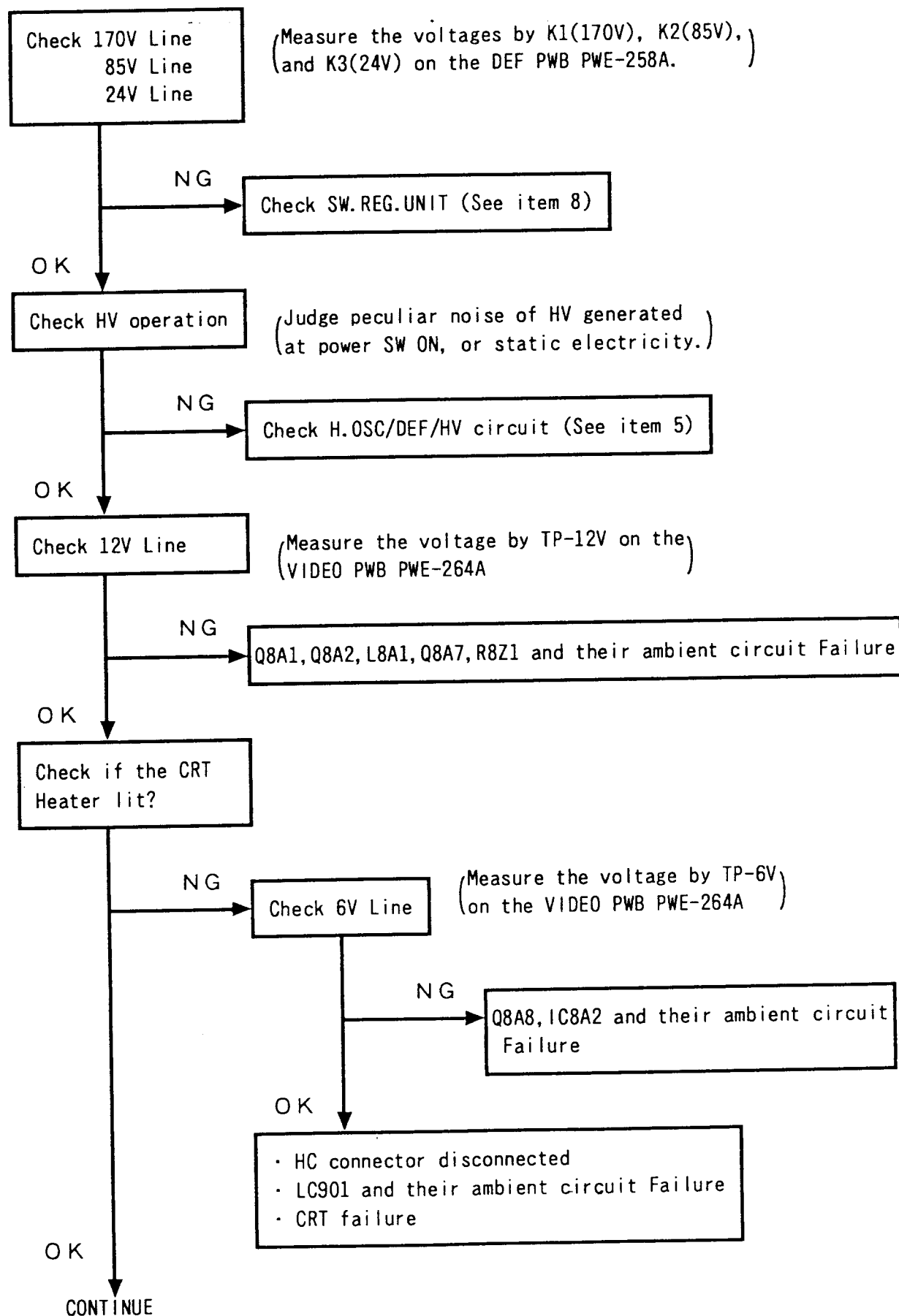
TROUBLE SHOOTING

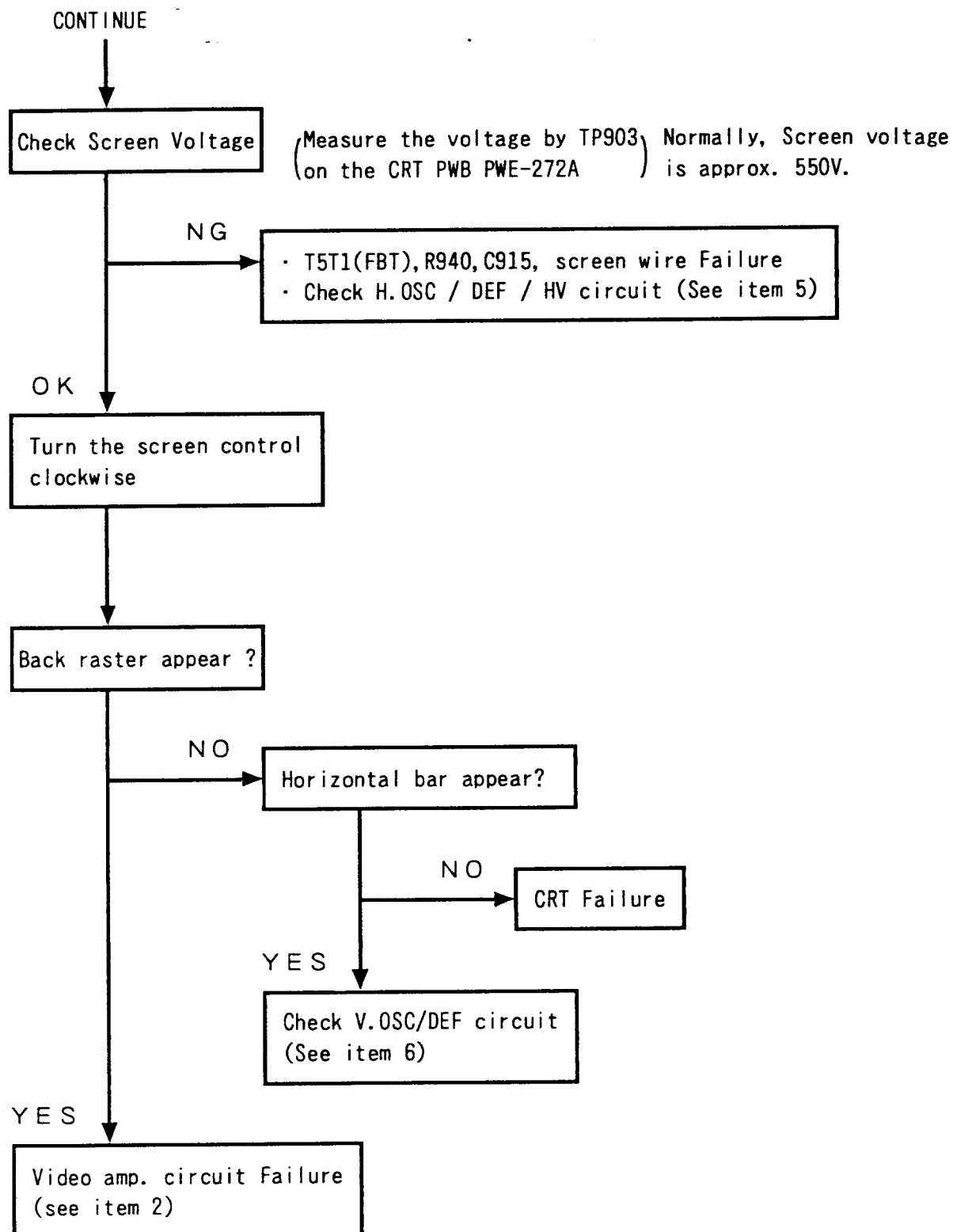
Before using this chart, please refer to the trouble shooting section in the user's manual.

TABLE OF CONTENTS

1. NO RASTER
2. ABNORMAL VIDEO ON CRT SCREEN
3. UNSTABLE PICTURE
 - 3-1) Horizontal
 - 3-2) Vertical
4. ABNORMAL PICTURE
 - 4-1) Horizontal Size
 - 4-2) Vertical Size
 - 4-3) Horizontal Position
 - 4-4) Vertical Position
 - 4-5) Poor Linearity
 - 4-5-1) Horizontal
 - 4-5-2) Vertical
 - 4-6) Side Pincushion Distortion Fault
 - 4-7) Poor Focus
 - 4-8) Impurity On CRT Screen
5. H. OSC / DEF / HV CIRCUIT FAULT
6. V. OSC / DEF CIRCUIT FAULT
7. DIGITAL CONTROL CIRCUIT FAULT
 - 7-1) Digital Control Error
 - 7-2) User Control Error
 - 7-3) Memory Access Error
8. SWITCHING REGULATOR UNIT

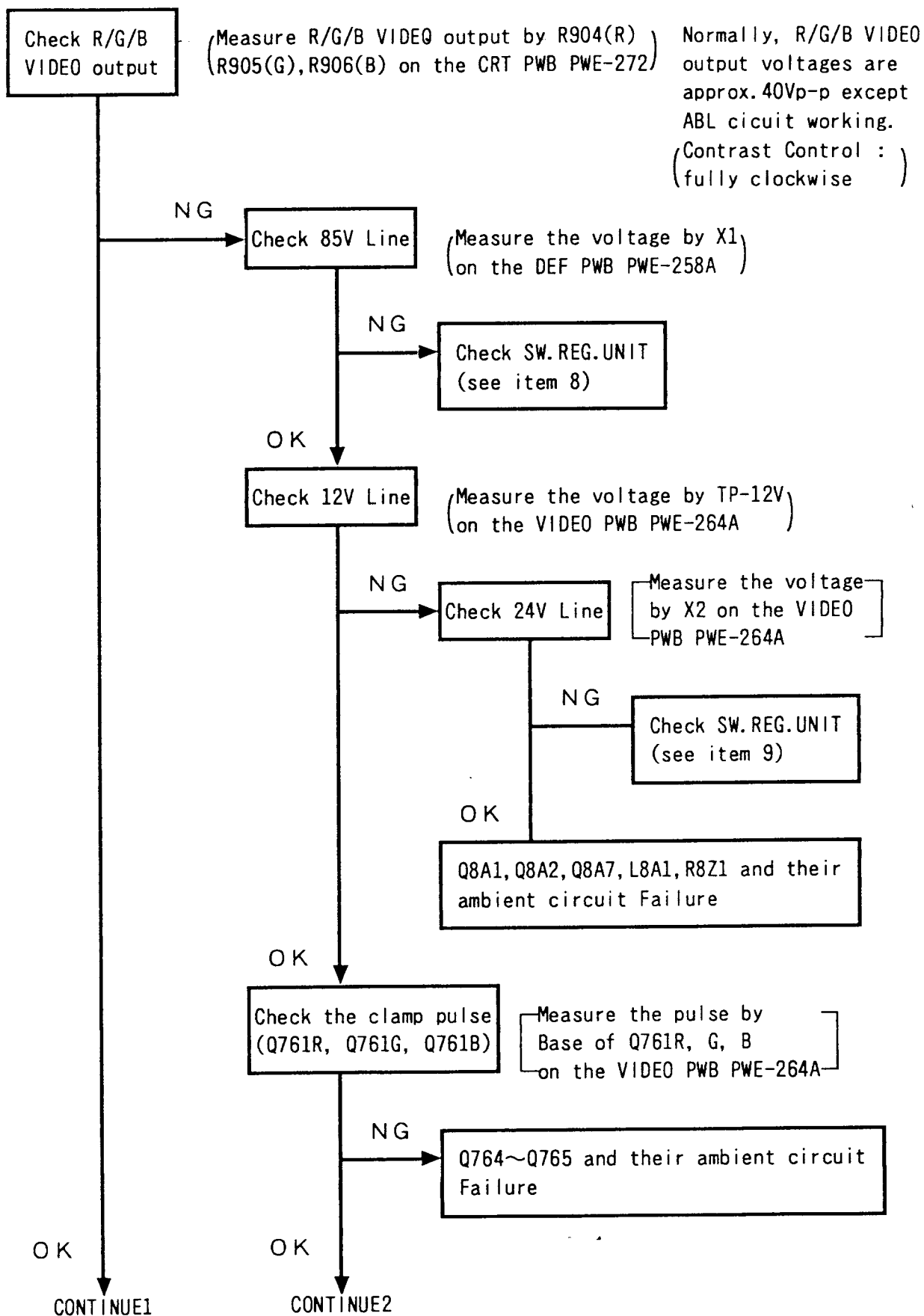
1. NO RASTER





2. ABNORMAL VIDEO ON CRT SCREEN

Too dark or
too bright



CONTINUE1

CONTINUE2

Check the clamp
pulse
(IC751~IC753)

(Measure the pulse by 12 pin of IC751
~IC753 on the VIDEO PWB PWE-264A)

NG

Q863, IC857 and their ambient circuit
Failure

OK

Check the contrast
control voltage

Measure the voltages by 4 pin
of IC751~IC753 on the VIDEO
PWB PWE-264A

Normally, the voltages are
approx. 7.7V at contrast
control is fully clockwise

NG

- Q751, Q754~Q756 and their
ambient circuit Failure
- ABL circuit Failure

OK

Check the IC751~
IC753 Input (video)

Check the video input at
1 pin of IC751~IC753 on
the VIDEO PWB PWE-264A

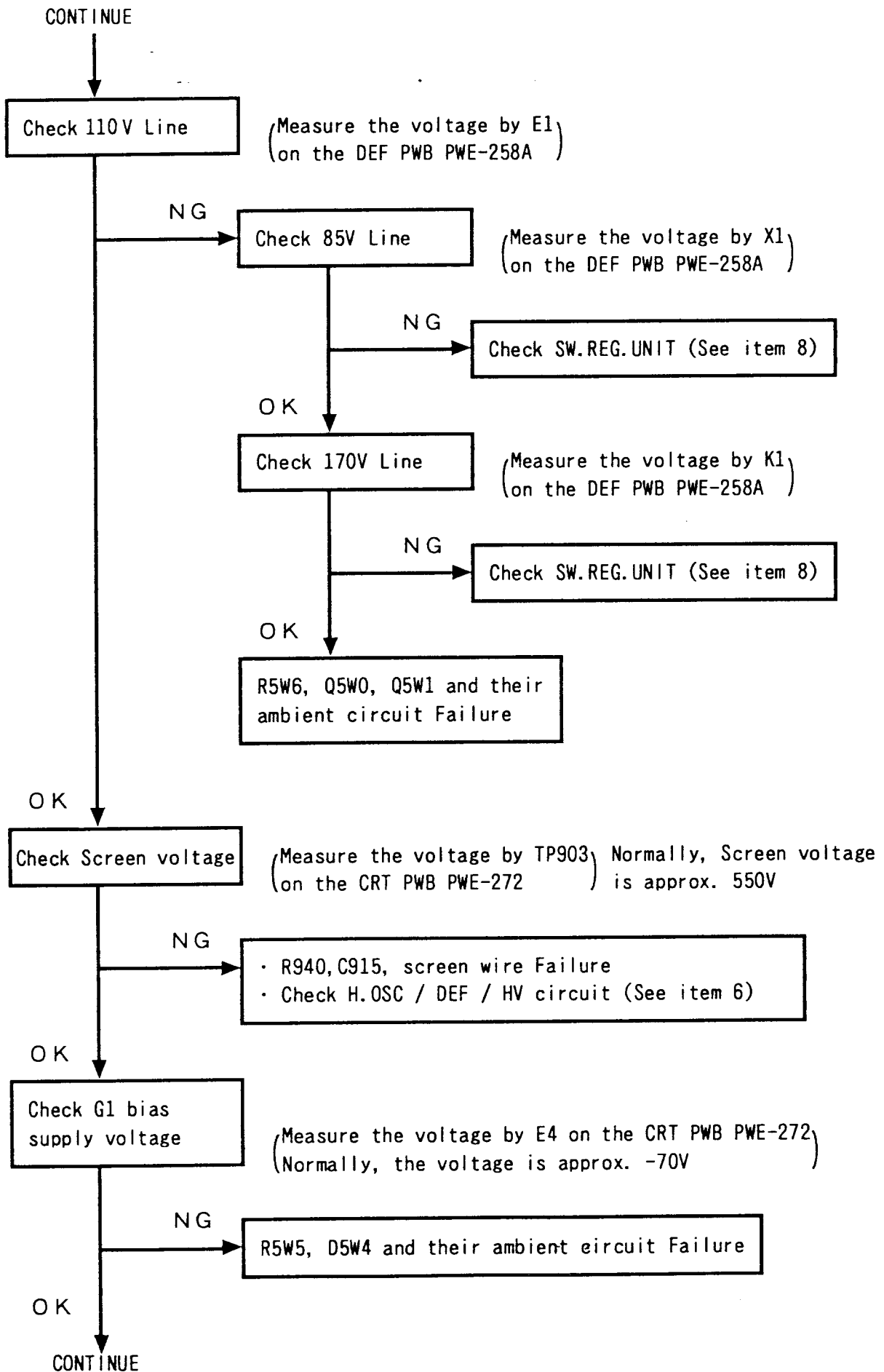
NG

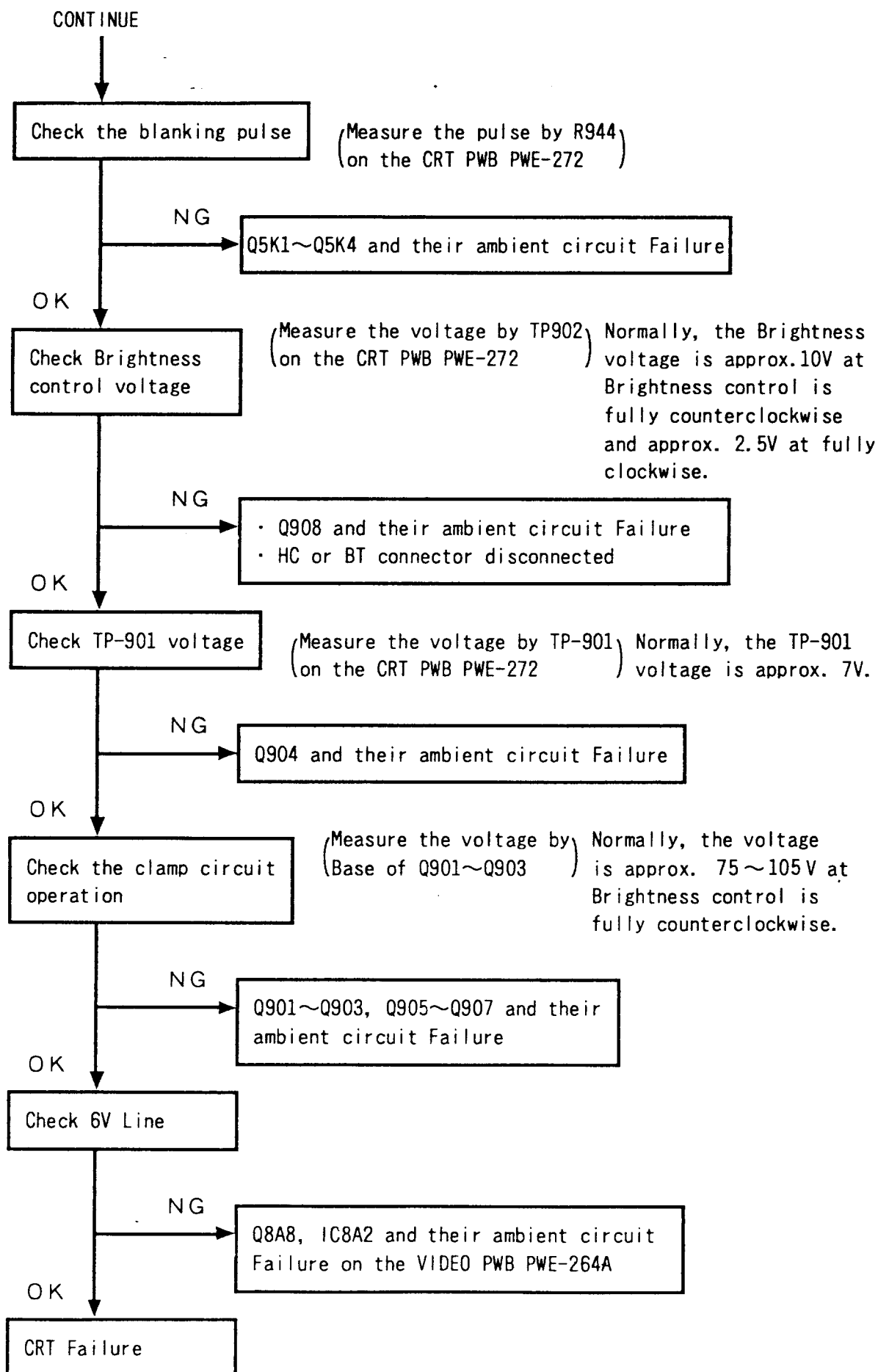
BNC INPUT : Q701~Q703 and their
ambient circuit Failure
D-SUB INPUT : Q704~Q706 and their
ambient circuit Failure

OK

- IC751~IC753 and their ambient circuit Failure
- Q762R, G, B Q763R, G, B Q764R, G, B
Q765R, G, B and their ambient circuit Failure
- Q757~Q759 and their ambient circuit Failure

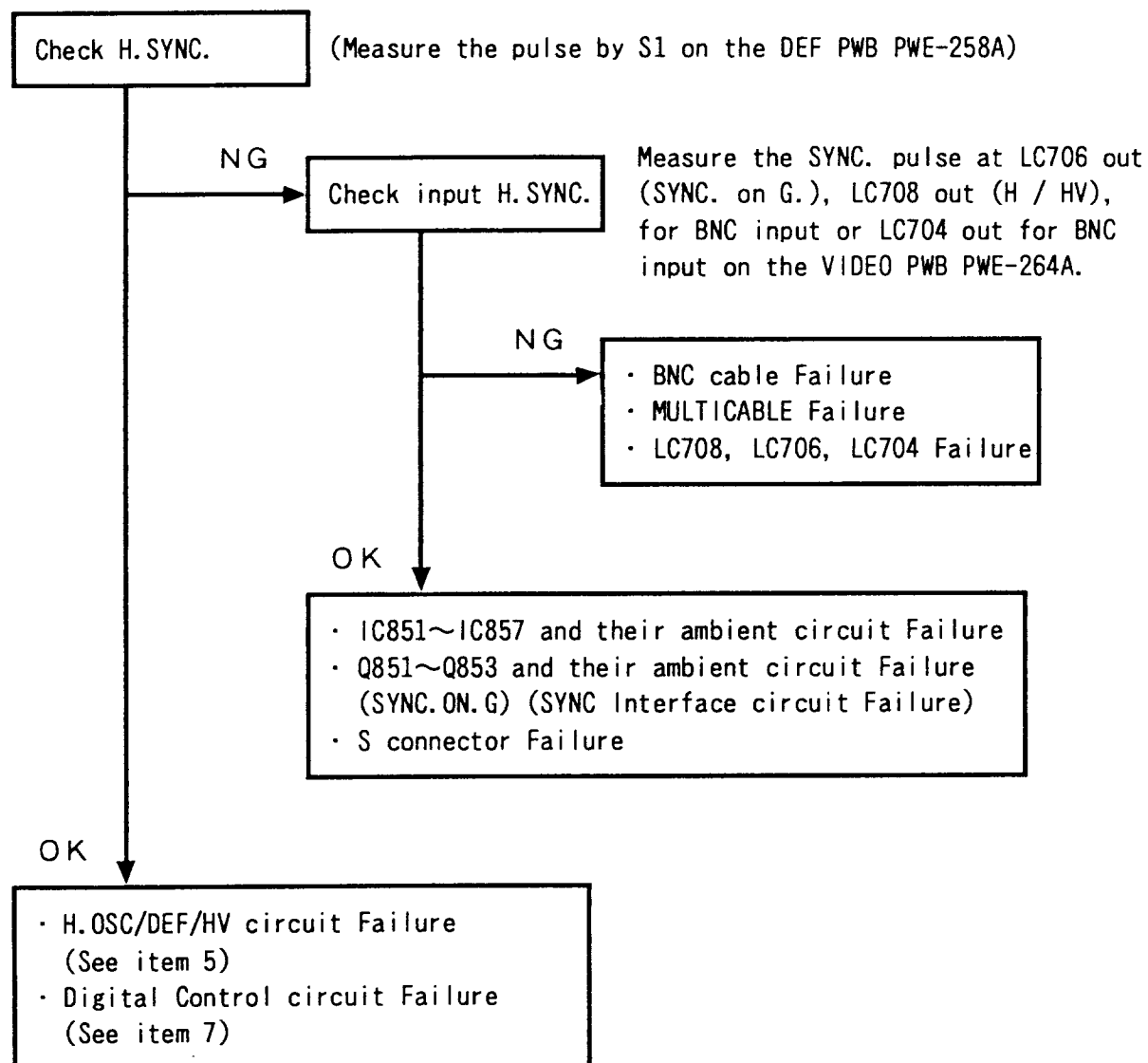
CONTINUE



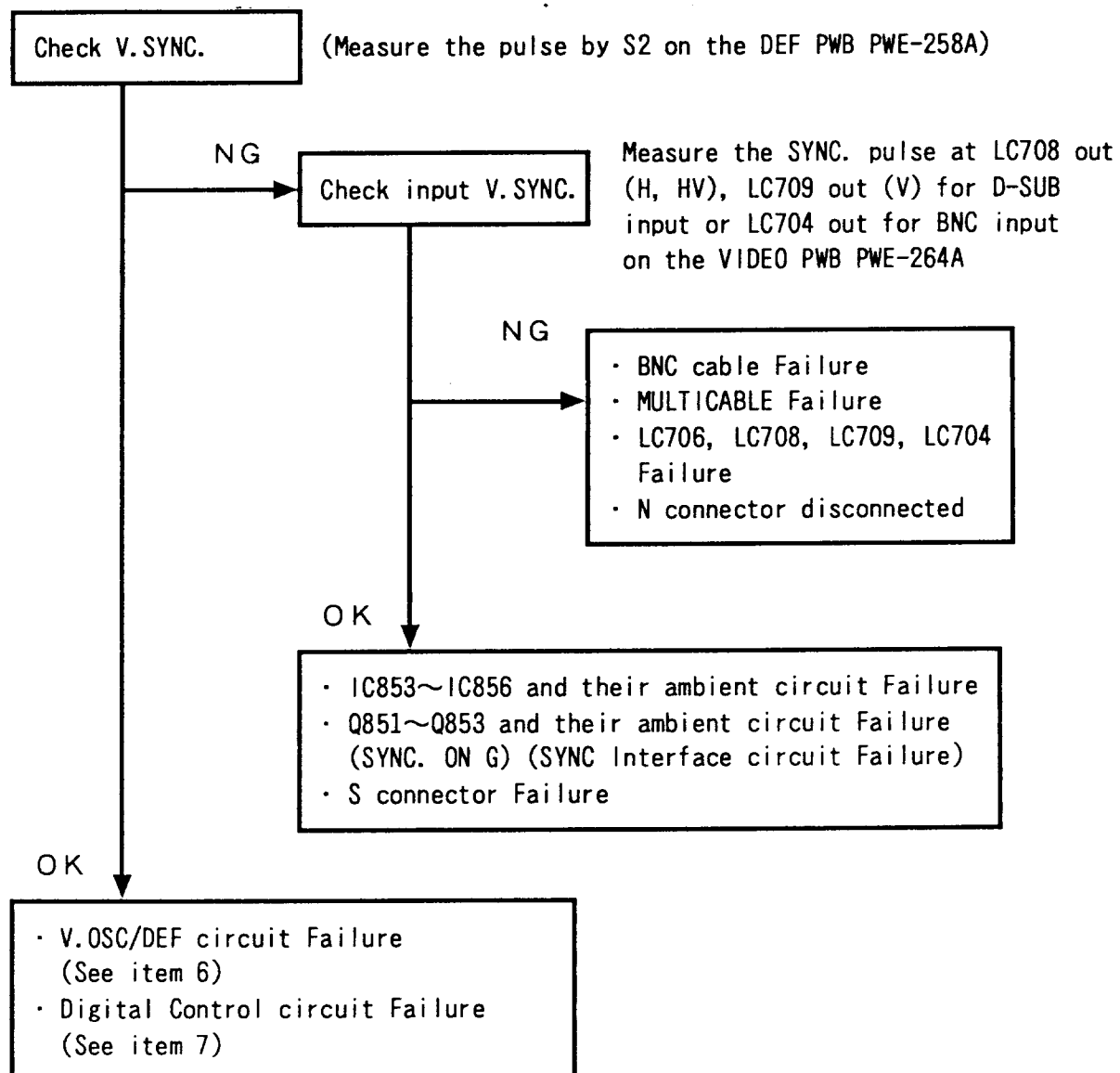


3. UNSTABLE PICTURE

3-1) Horizontal

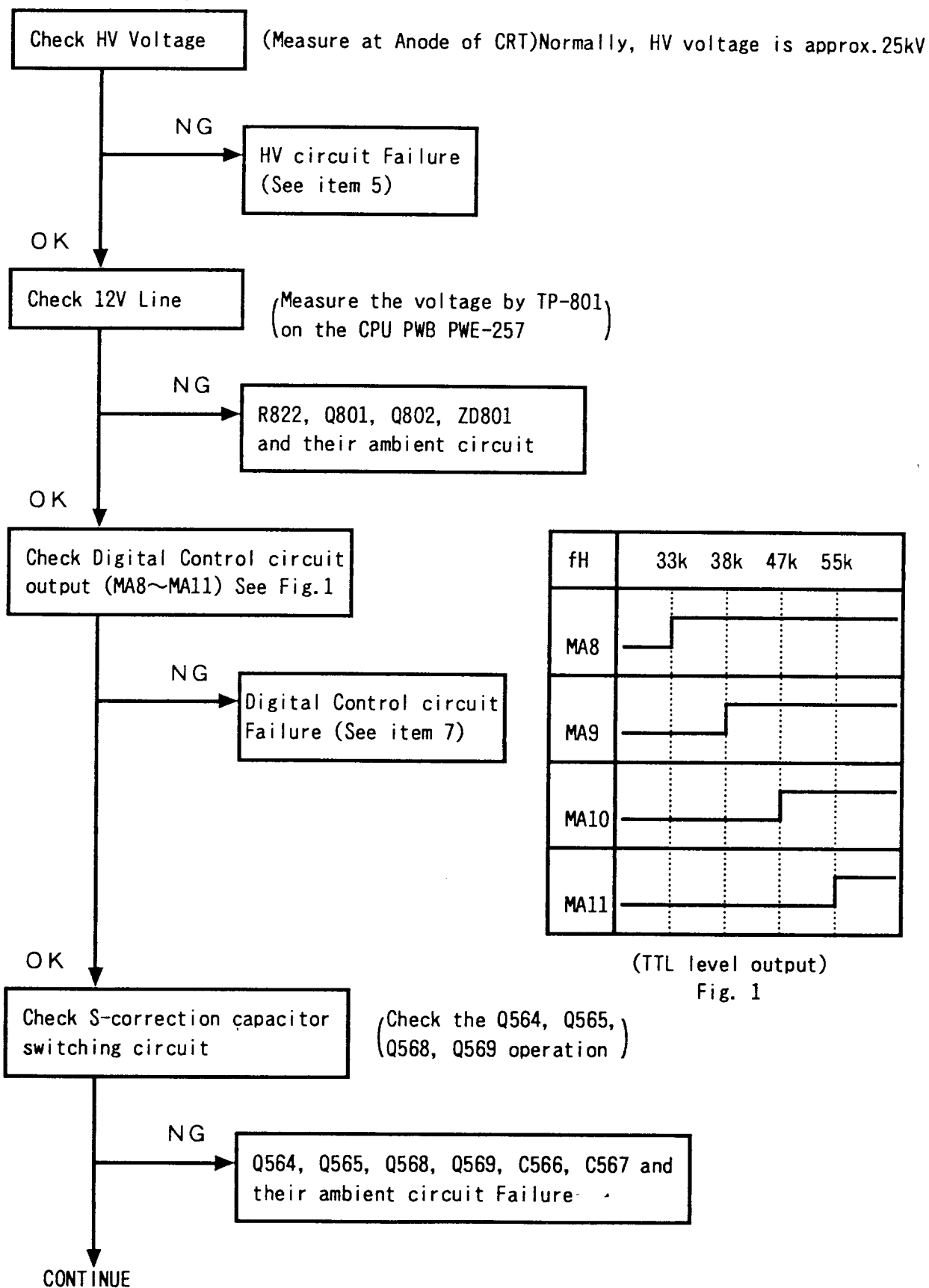


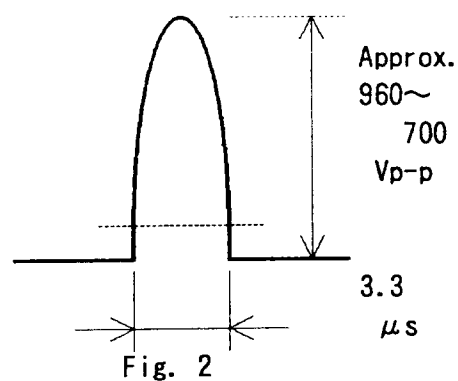
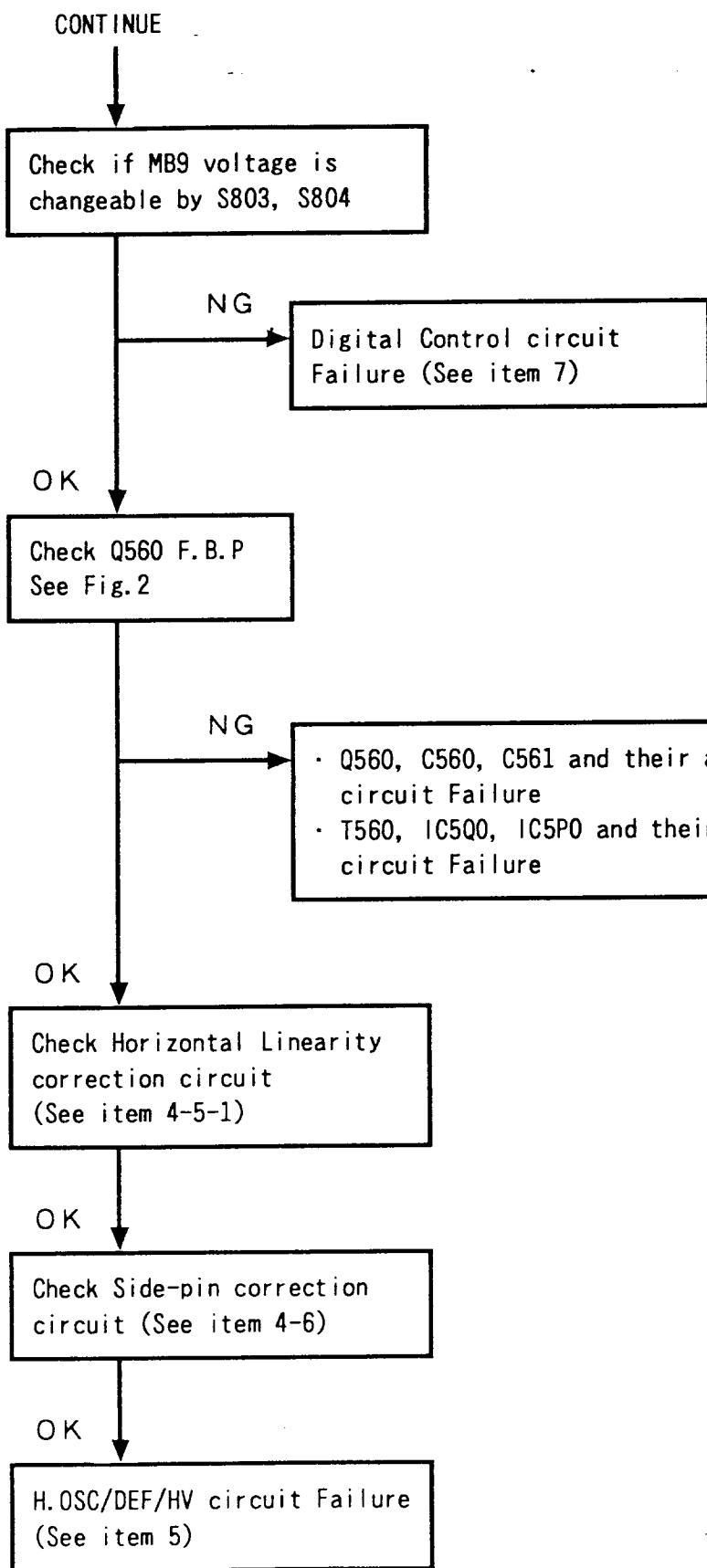
3-2) Vertical



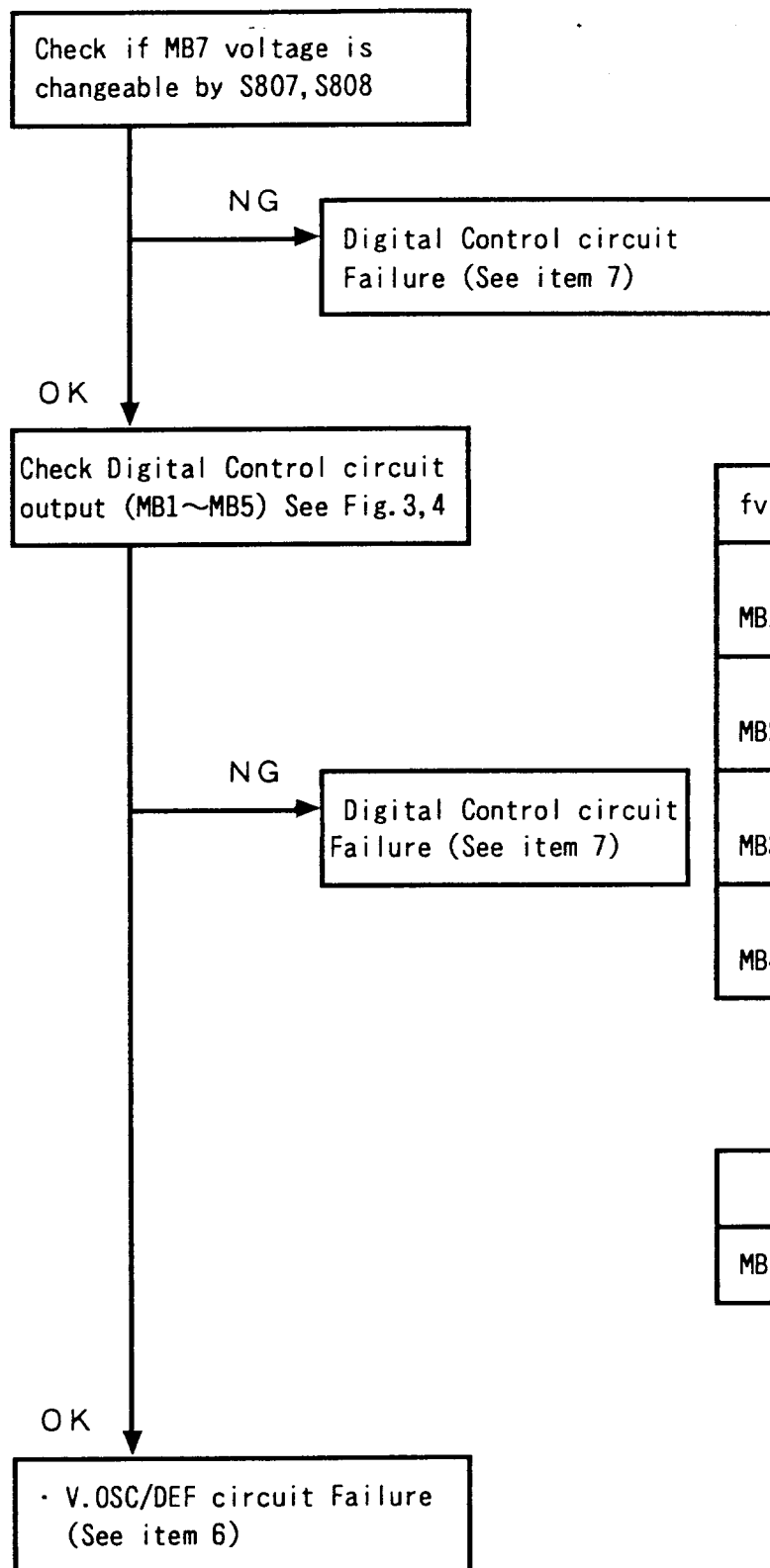
4. ABNORMAL PICTURE

4-1) Horizontal Size





4-2) Vertical Size



fv	54Hz	65Hz	76Hz	85Hz
MB1	Low	High	High	High
MB2	Low	Low	High	High
MB3	Low	Low	Low	High
MB4	Low	Low	Low	High

(TTL level output)

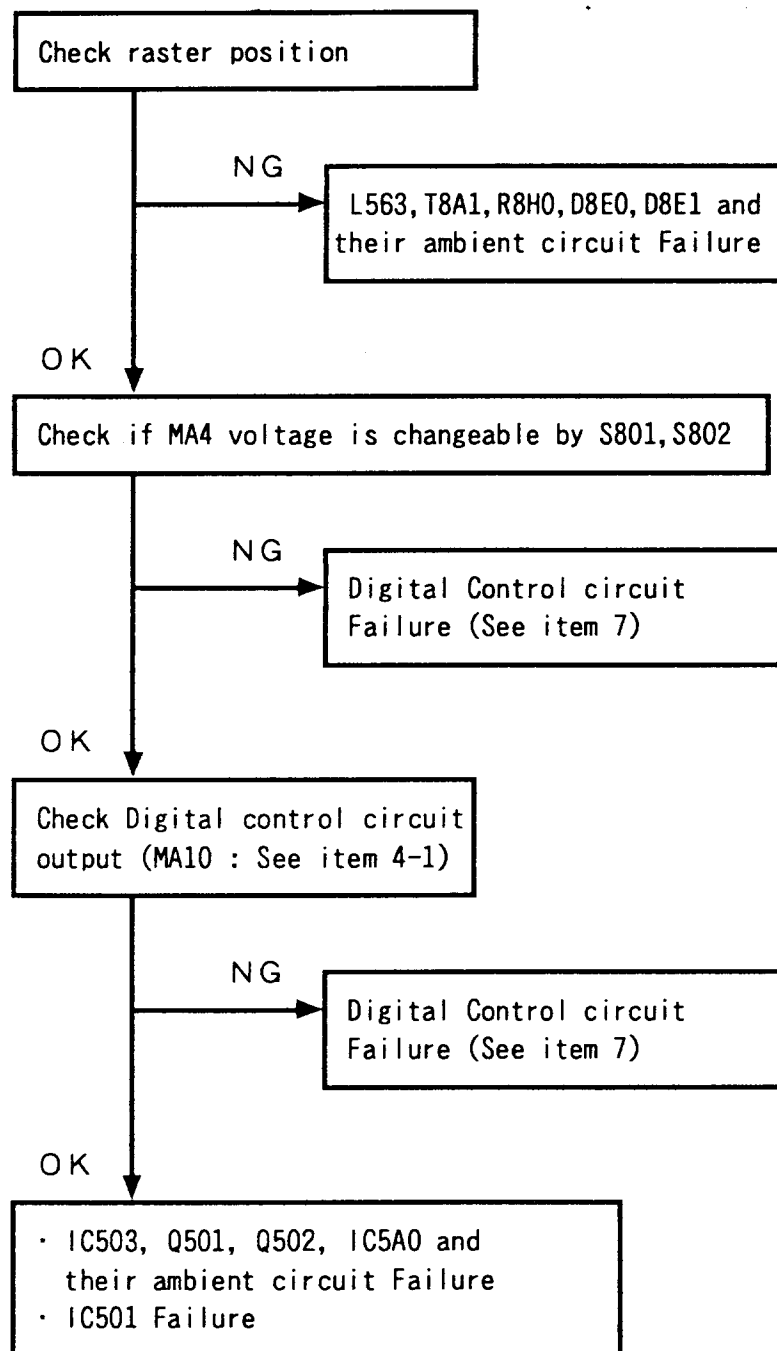
Fig. 3

	PGC400	PGC480
MB5	H	L

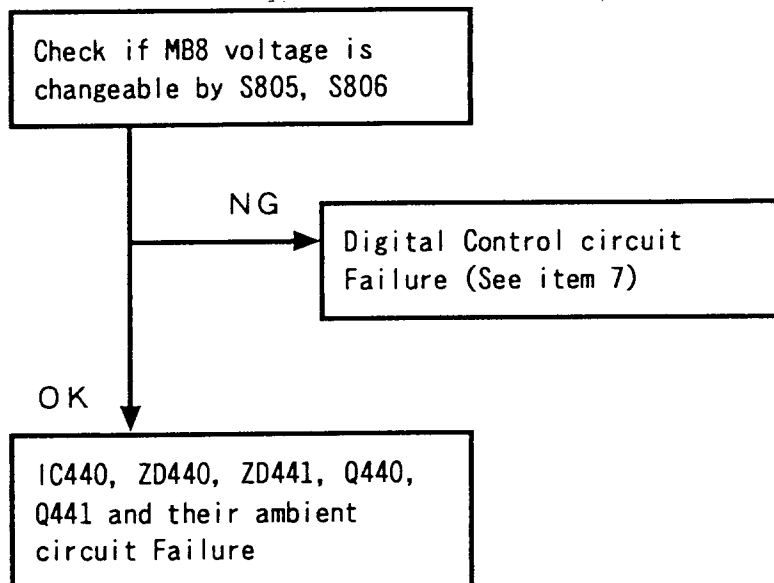
(TTL level output)

Fig. 4

4-3) Horizontal position

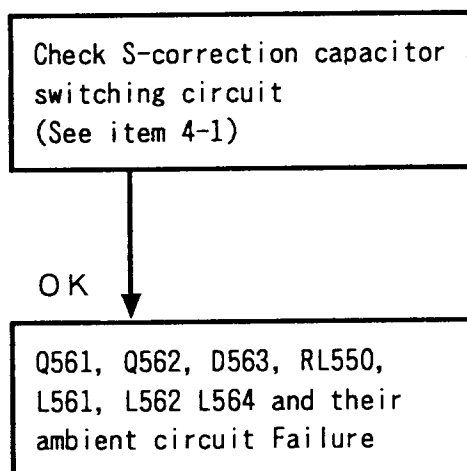


4-4) Vertical Position

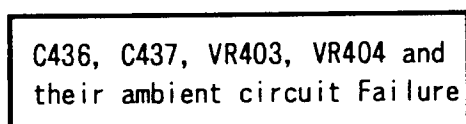


4-5) Poor Linearity

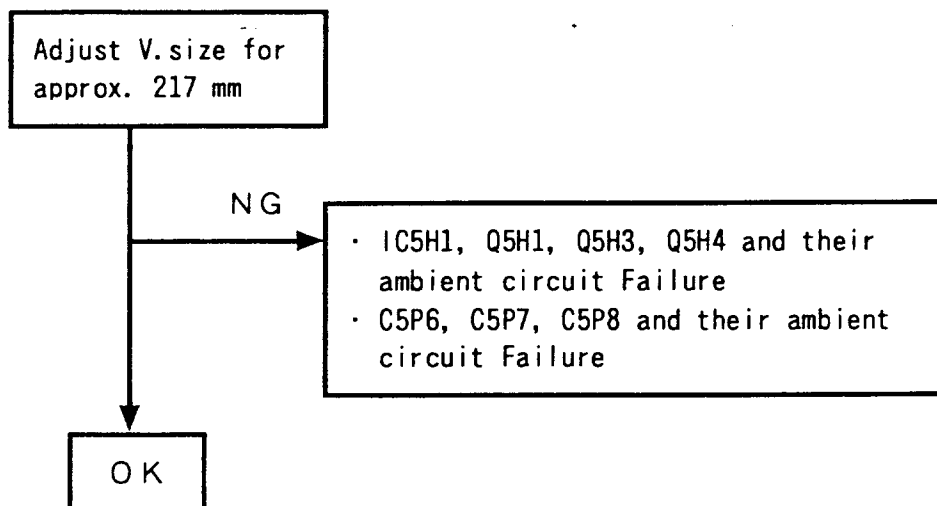
4-5-1) Horizontal



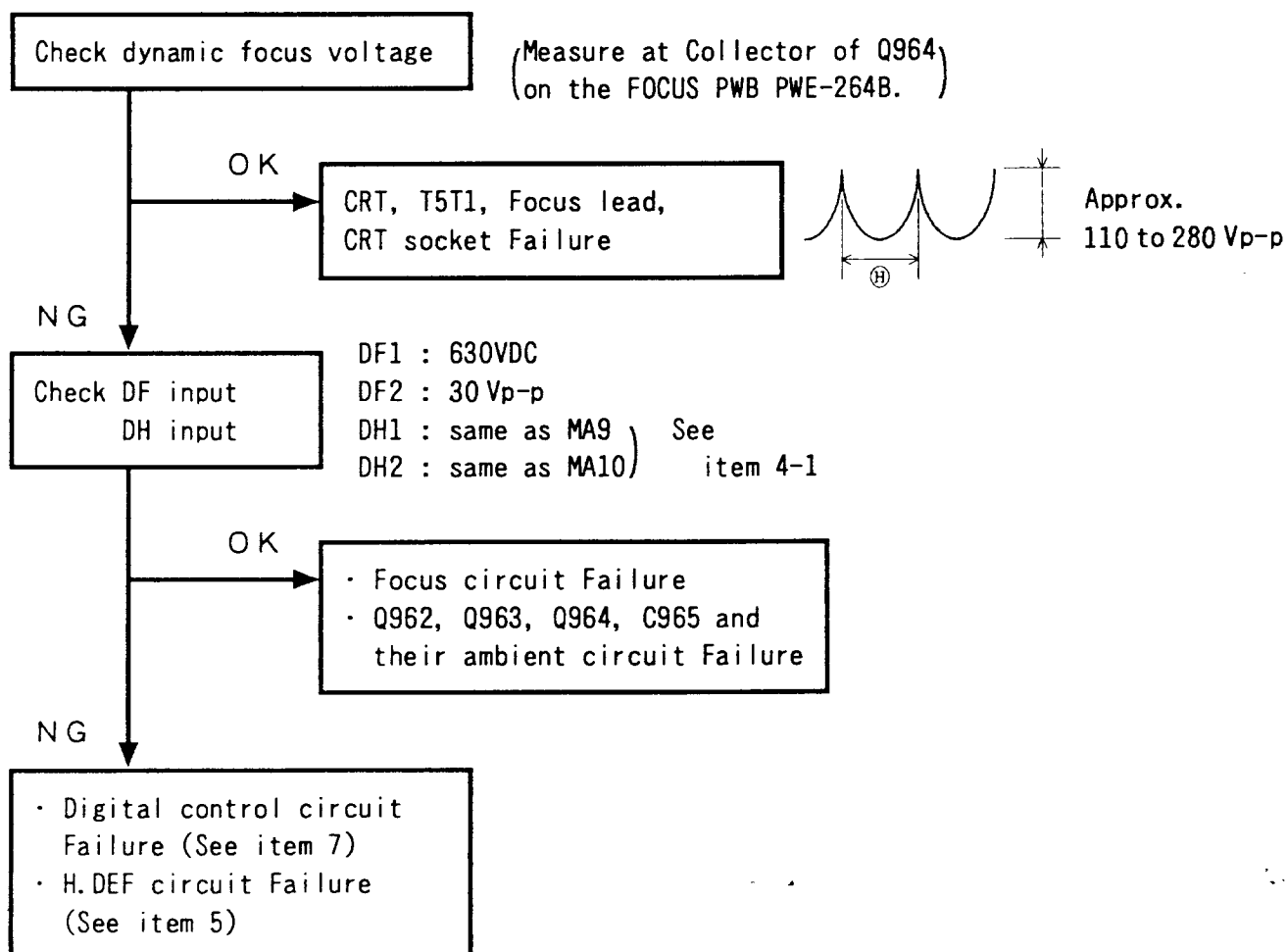
4-5-2) Vertical



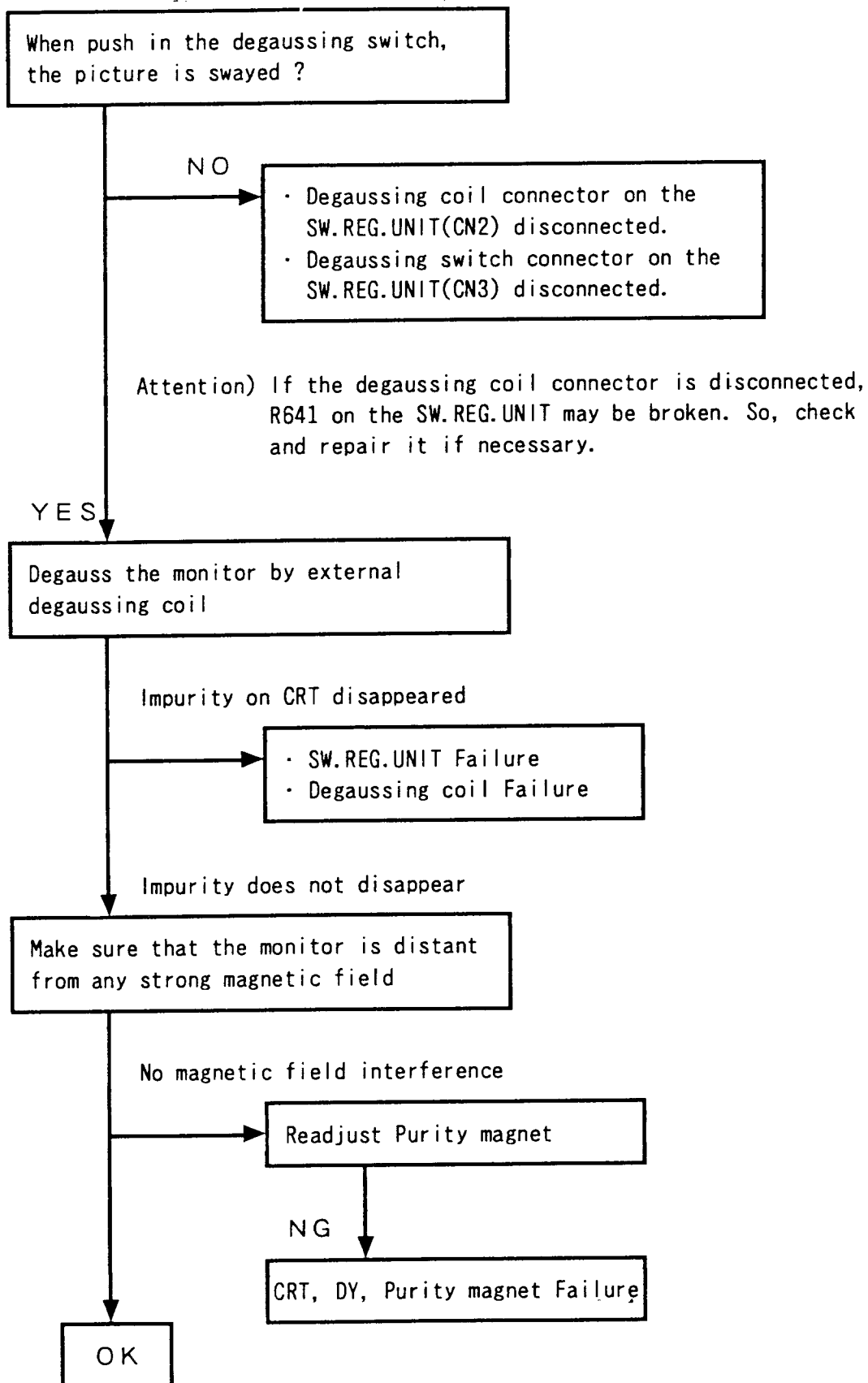
4-6) Side-pin cushion Distortion Fault



4-7) Poor Focus

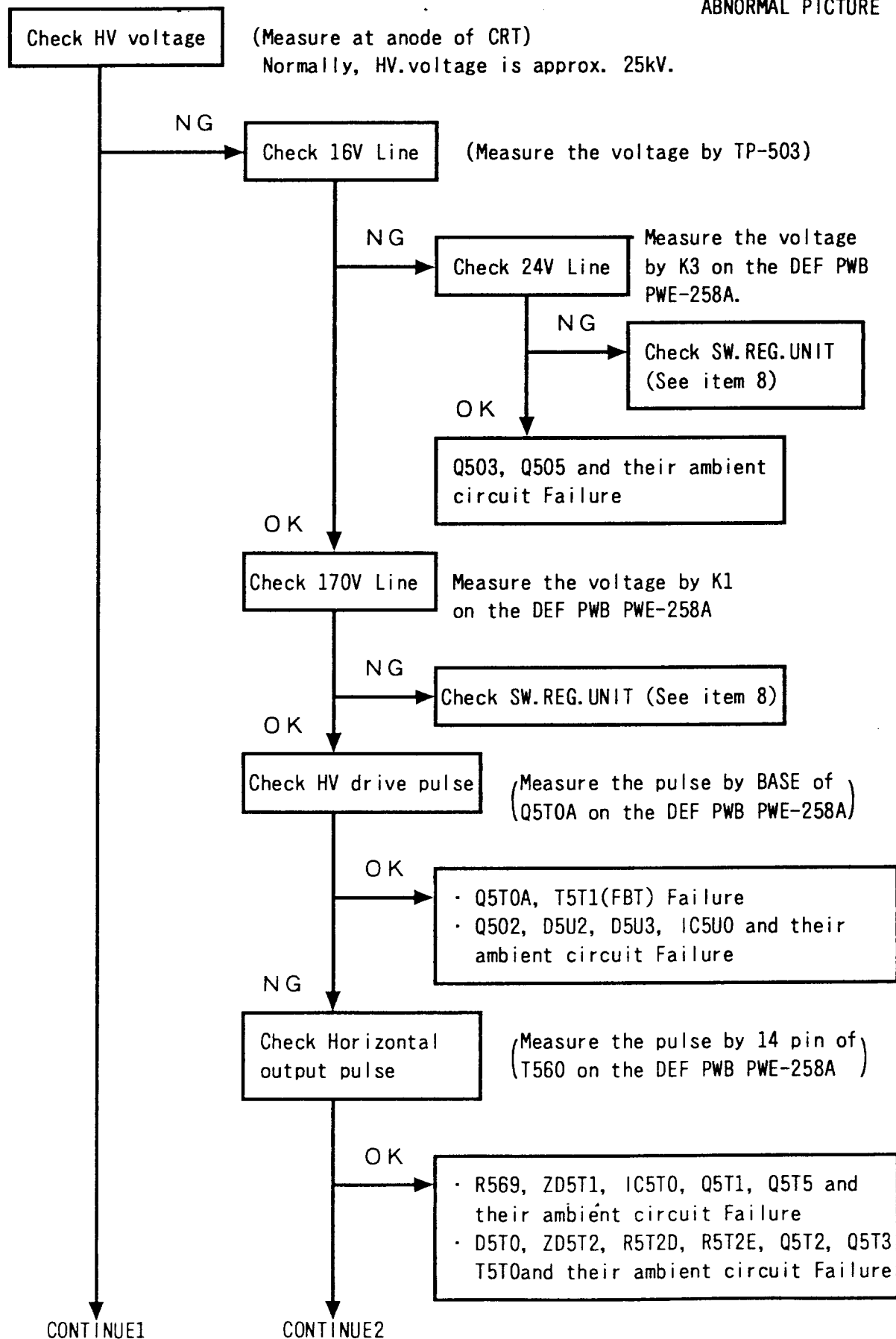


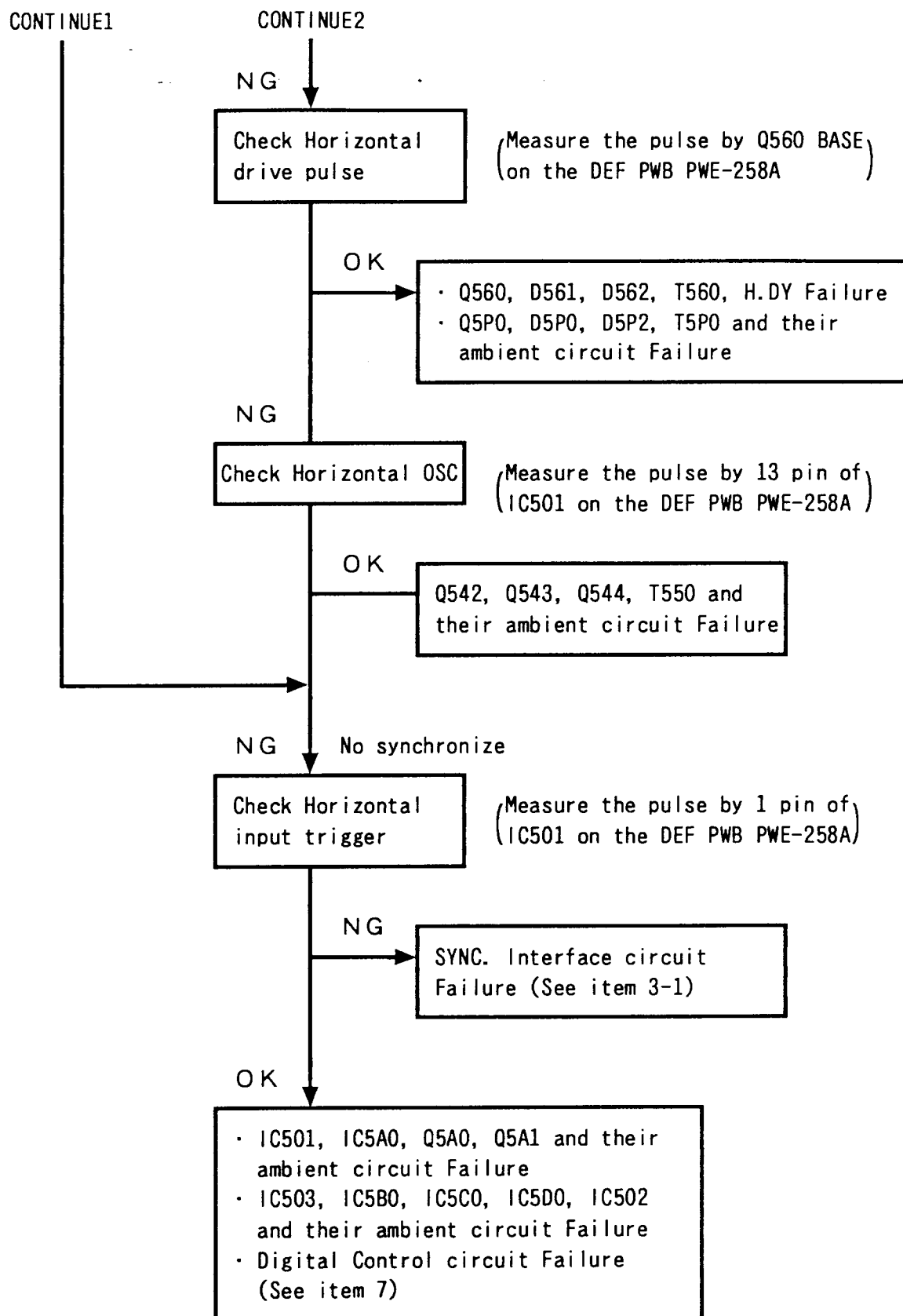
4-8) Impurity On CRT Screen



5. H. OSC/DEF/HV CIRCUIT FAULT

NO RASTER
UNSTABLE PICTURE
ABNORMAL PICTURE

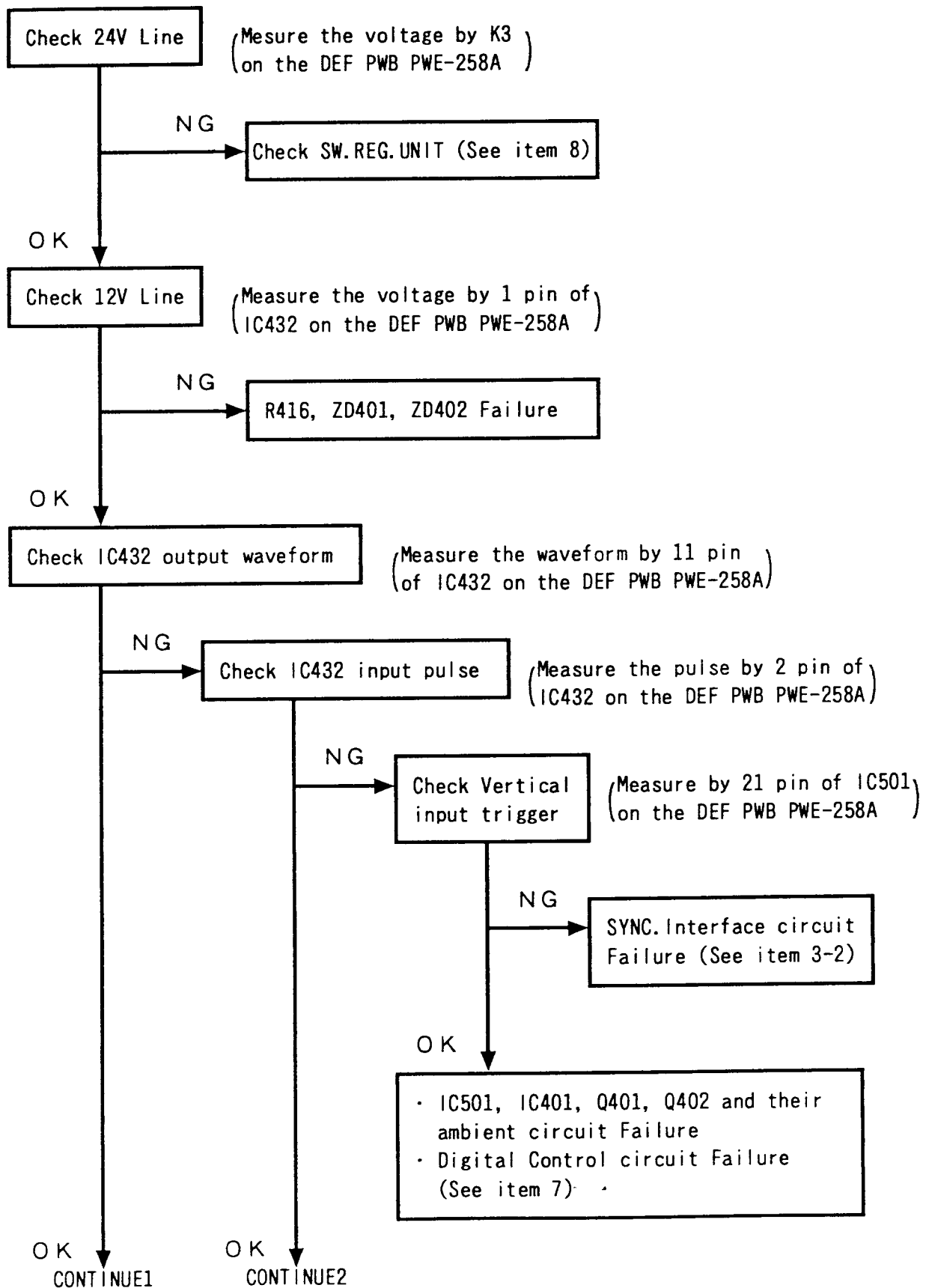




- NOTE 1. Q5T0A or D5T2 and Q5U2 will be broken at same time.
2. Q560, D560, D561 or D562 and Q5P0 will be broken at same time.

6. V. OSC/DEF CIRCUIT FAULT

NO RASTER
UNSTABLE PICTURE
ABNORMAL PICTURE



CONTINUE1

CONTINUE2

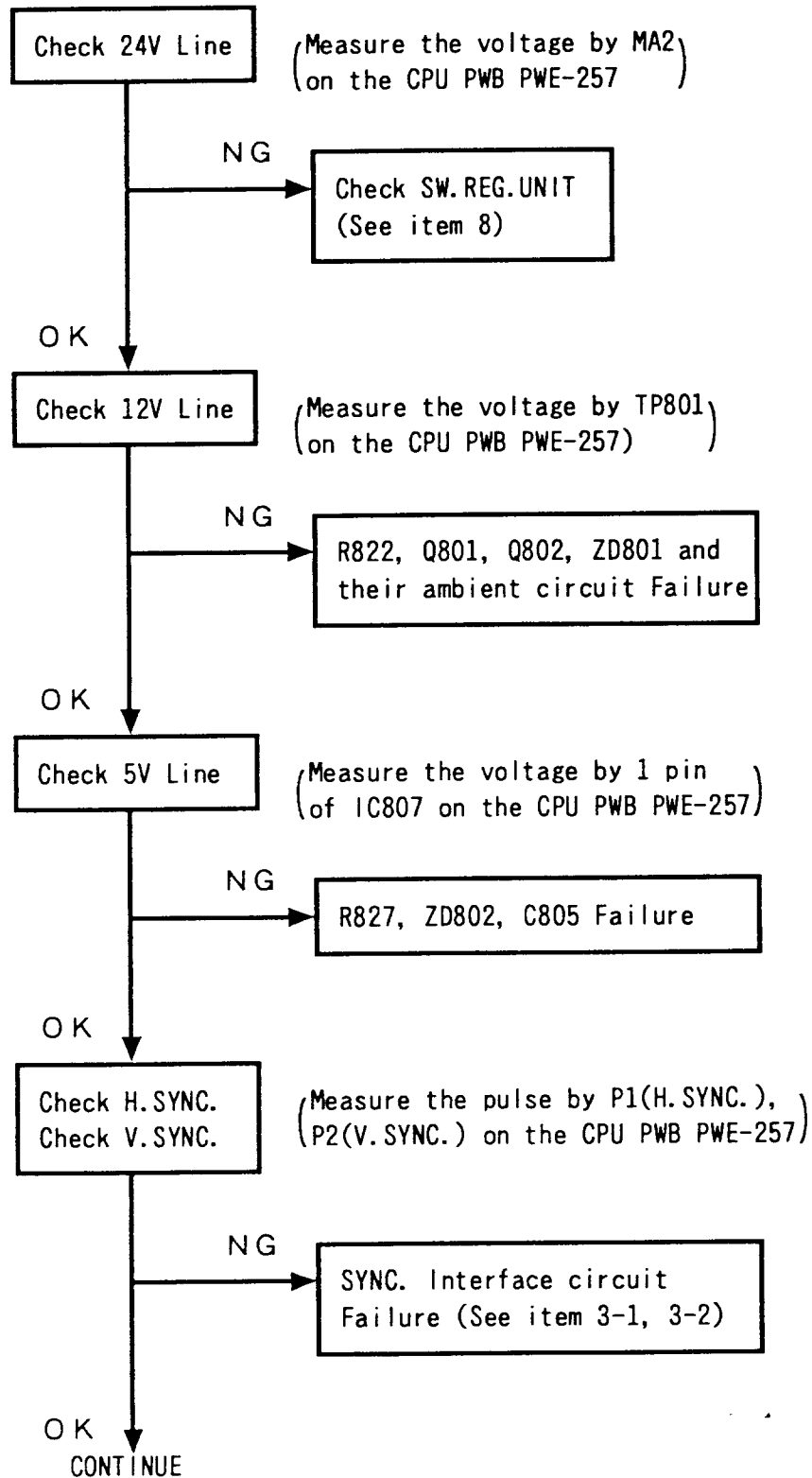
- IC432, R431, C436, C437, C439 and their ambient circuit Failure
- Digital Control circuit Failure (See item 7)
- V.DY Failure

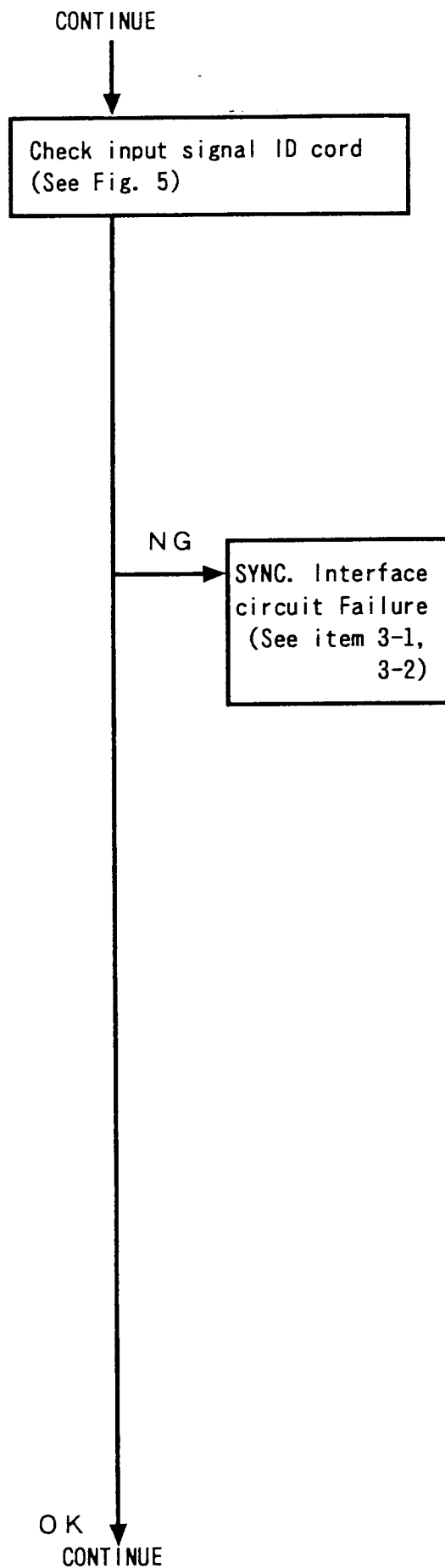
V.DY Failure

7. DIGITAL CONTROL CIRCUIT FAULT

UNSTABLE PICTURE
ABNORMAL PICTURE

7-1) Digital Control Error





INPUT	P3	P4	P5	P6	U11	P1	P2
SIGNAL	(HP)	(VP)	(HE)	(VE)	MODE	(fH)	(fV)
PGC	—	—	H	L	H	(1)	0
VGA350	L	H	H	H	H	(1)	0
VGA400	H	L	H	H	H	(1)	0
VGA480	H	H	H	H	H	(1)	0
8514A	—	—	H	H	H	(2)	1
MAC-2	—	—	L	—	H	(2)	0
800*600	—	—	H	H	H	(2)	0
1024×768 $fV=60\text{Hz}$	—	—	L	—	H	(3)	0
1024×768 $fV=70\text{Hz}$	—	—	L	—	H	(4)	0
USER1	—	—	—	—	H	(1)	—
USER2	—	—	—	—	H	(2)	—
USER3	—	—	H	—	H	(3)	—
USER4	—	—	H	—	H	(4)	—
USER5	—	—	—	—	L	(1)	—
USER6	—	—	—	—	L	(2)	—
USER7	—	—	—	—	L	(3)	—
USER8	—	—	—	—	L	(4)	—

Note 1) P1 (1) fH:30kHz~33kHz
 (2) fH:33kHz~40kHz
 (3) fH:40kHz~50kHz
 (4) fH:50kHz~57kHz
 2) P2 0 fV:50Hz~75Hz
 1 fV:75Hz~90Hz
 3) P3~P6, U11 :TTL level
 4) "—" means any level enable

Fig. 5

CONTINUE

IC801, IC802, IC803, IC805,
IC806, IC807, X1 and their
ambient circuit Failure

7-2) User Control Error

Check user control ID
(See Fig. 6)

NG

• D801~D823, IC804 Failure
• CONTROL PWB PWE-260D Failure

	I C 8 0 1		
	55pin	56pin	57pin
H. POSI	L	H	H
H. SIZE	H	L	L
V. POSI	H	L	H
V. SIZE	H	H	L
DISABLE	H	H	H

Note) TTL level

	I C 8 0 1	
	58pin	59pin
U P	H	L
DOWN	L	H
DISABLE	H	H

Note) TTL level

OK

Digital Control Failure
(See item 7-1))

Fig. 6

Cf). If two switches are pushed simultaneously, the monitor will become disabled and therefore the user controls will not function.

7-3) Memory Access Error

Check CPU mode cord
(See Fig. 7)

	I C 8 0 1	
	61pin	62pin
USER CONTROL MODE	L	L
FACTORY ADJUST MODE	L	H
MEMORY RECALL	H	L
FACTORY DATA WRITING	H	H

Note) TTL level
Fig. 7

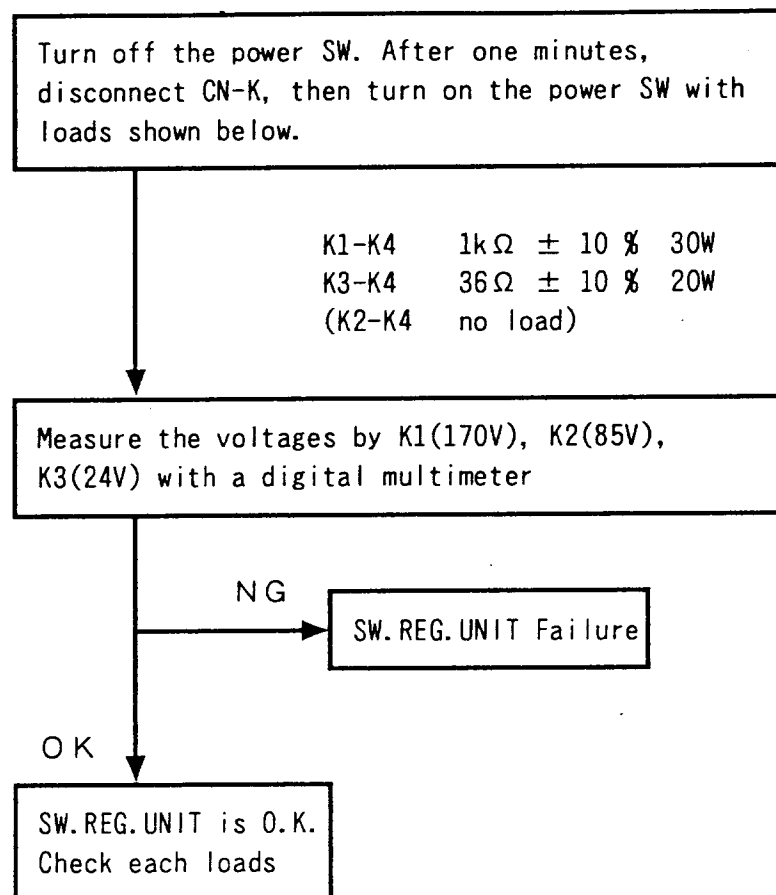
NG

-CONTROL PWB PWE-260D Failure
-VIDEO PWB PWE-259A Failure

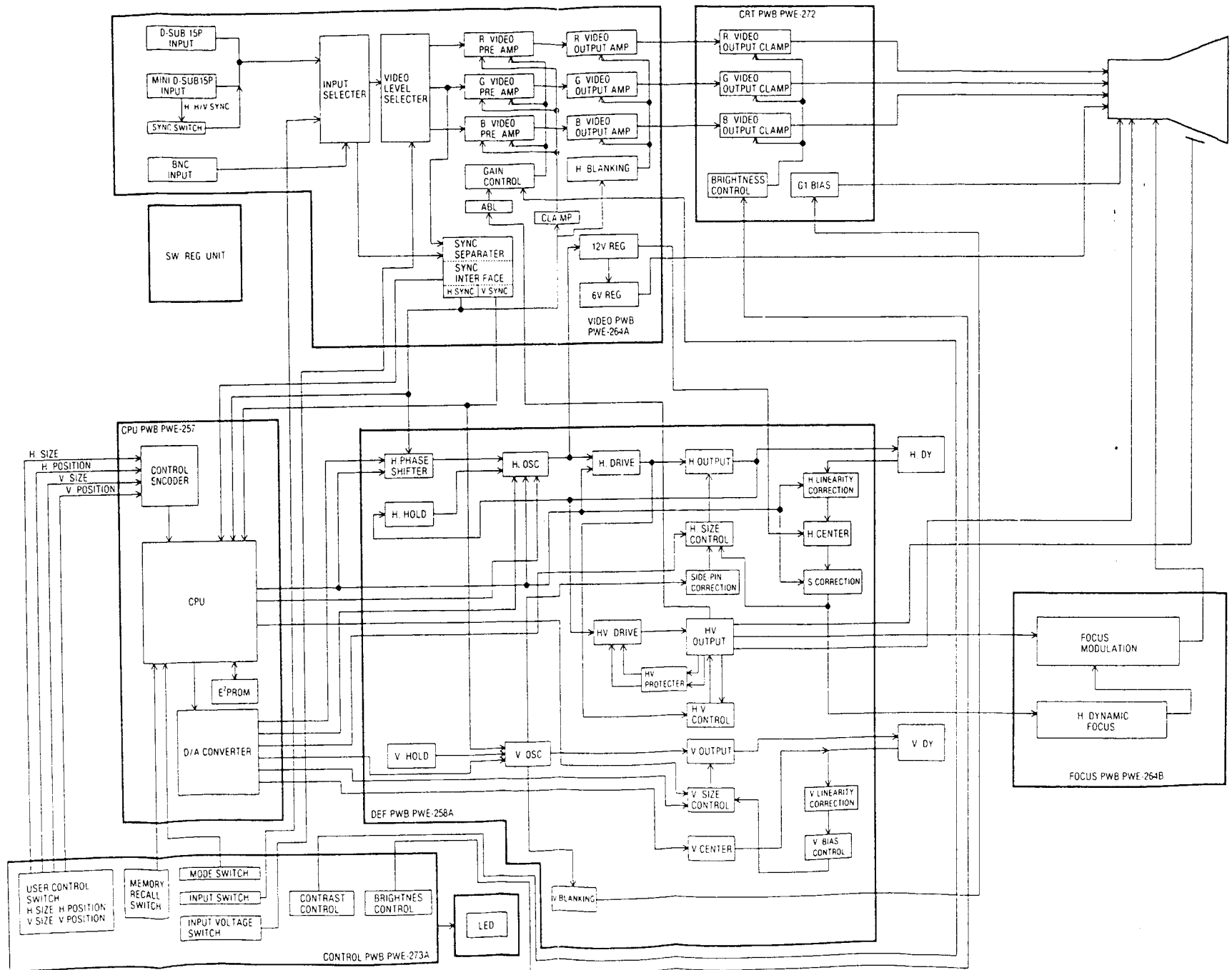
Digital Control Failure
(See item 7-1))

(Cf). If two different signals are put into this same memory location, the most recent signal will be written to this memory and the previous signal erased. Therefore, an error could occur when the microprocessor will have the same ID cord for two different signals.

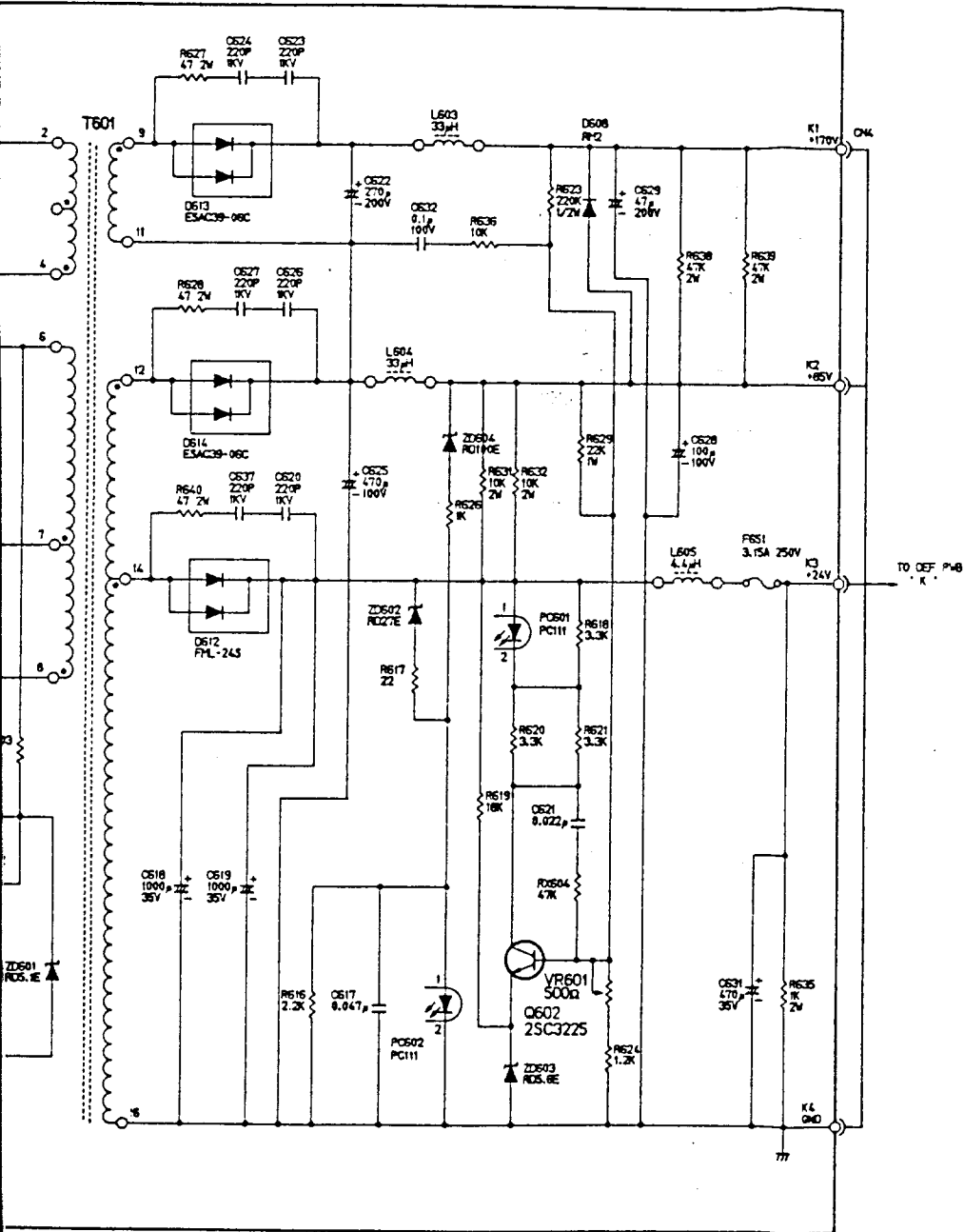
8. SWITCHING REGULATOR UNIT

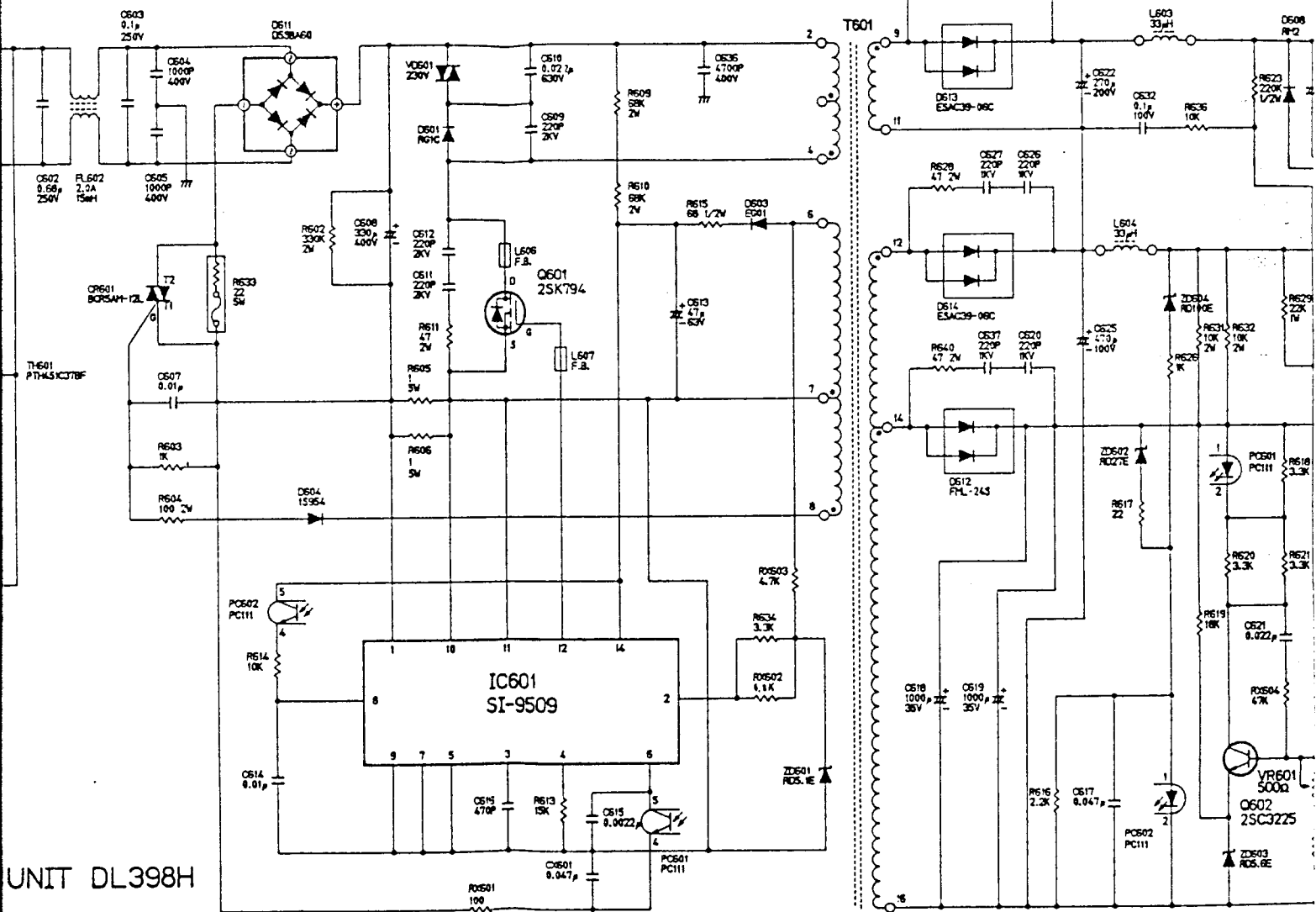


Attention) Do not power on SW.REG.UNIT itself without the loads at K1,K3, or it may misoperate protector.
Do not power on SW.REG.UNIT itself without degaussing coil, or it may cause R641's break.

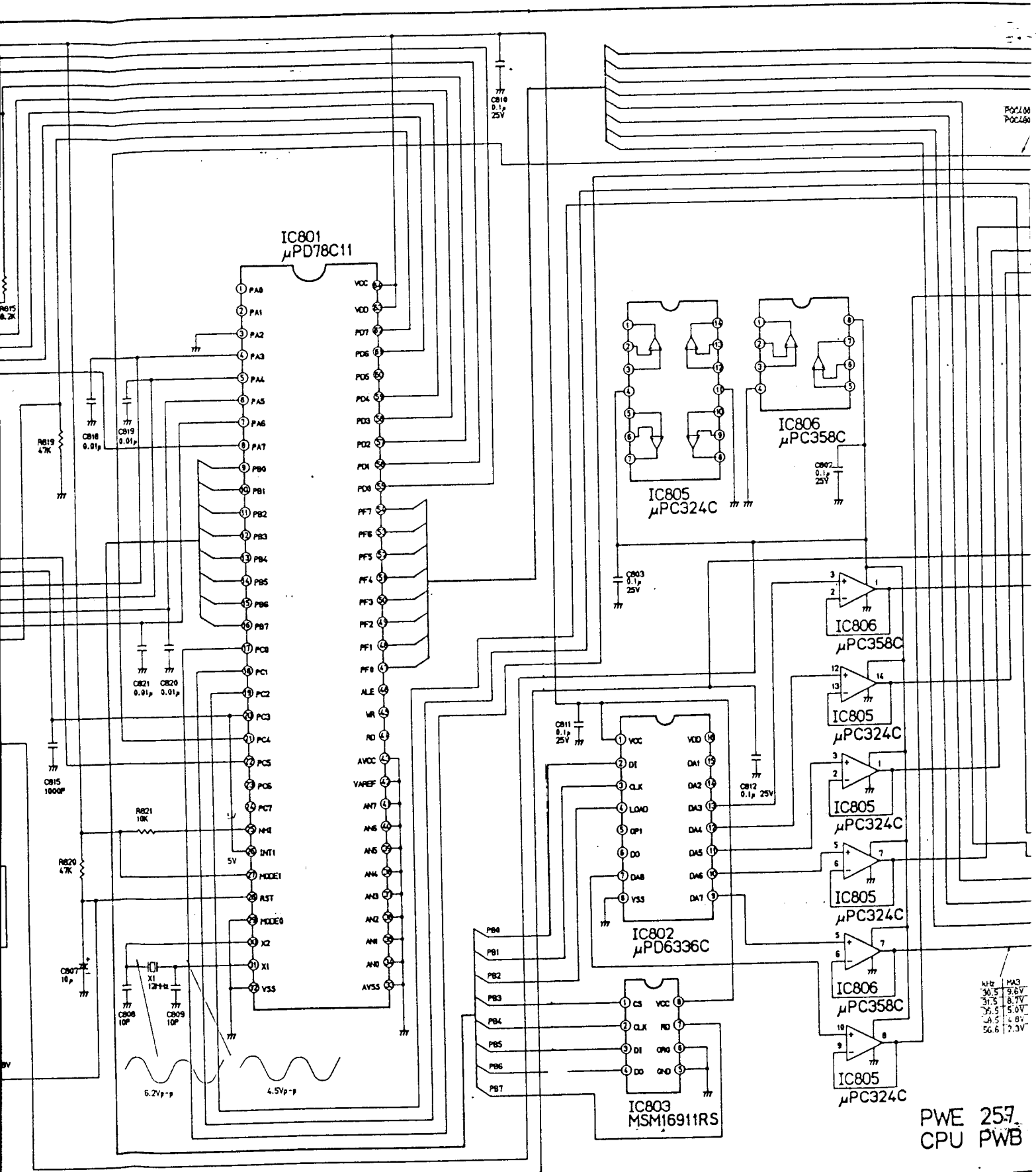


RUN NO.1



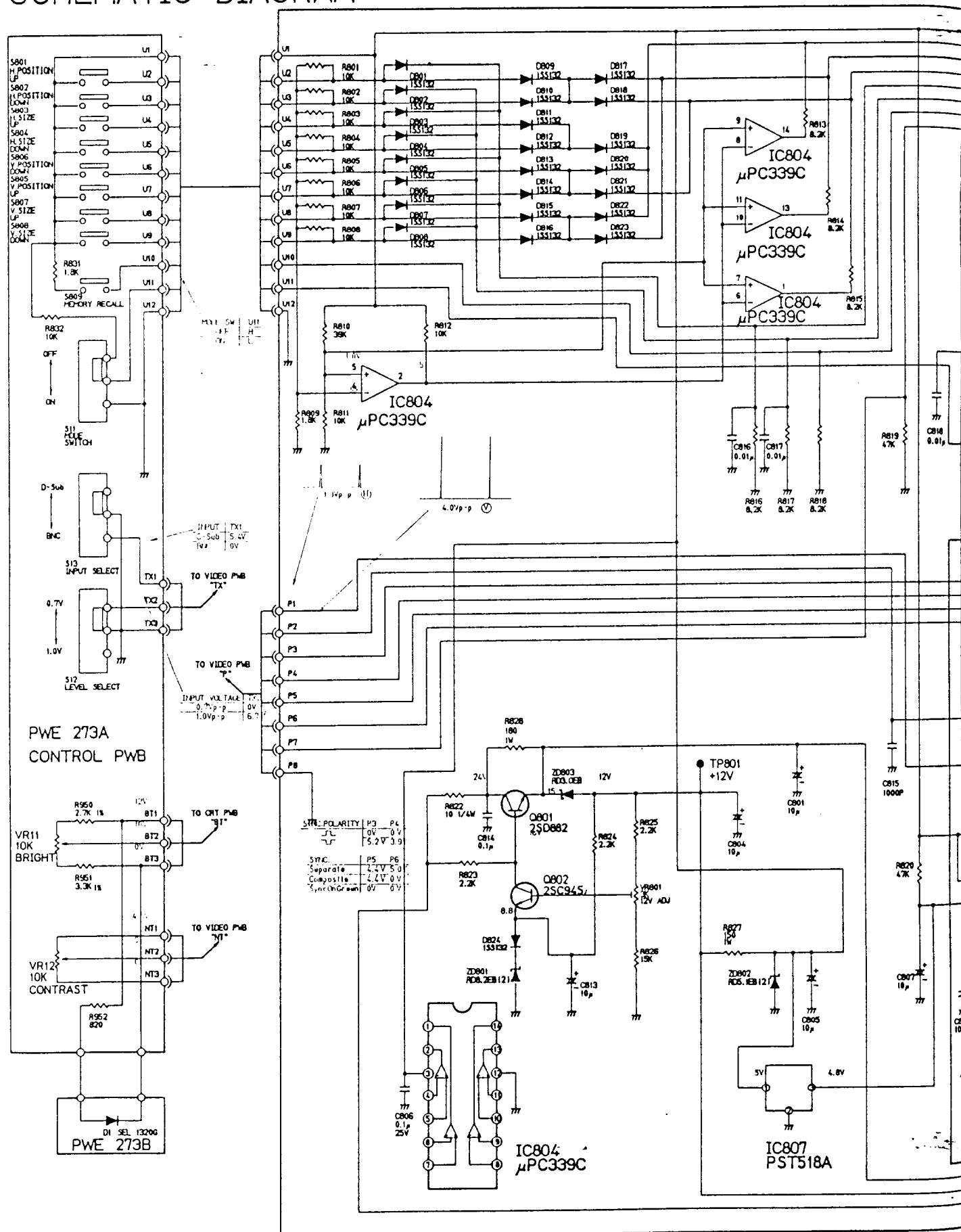


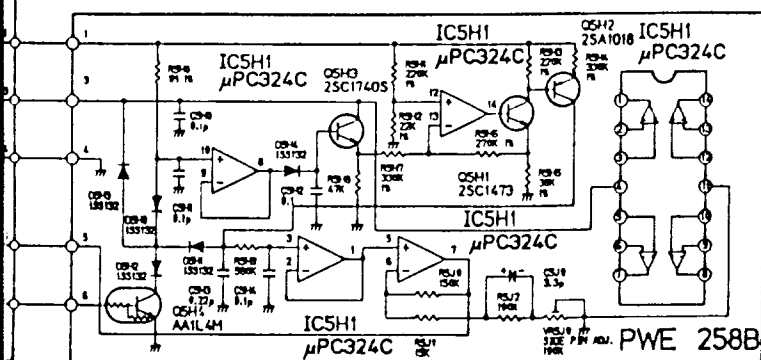
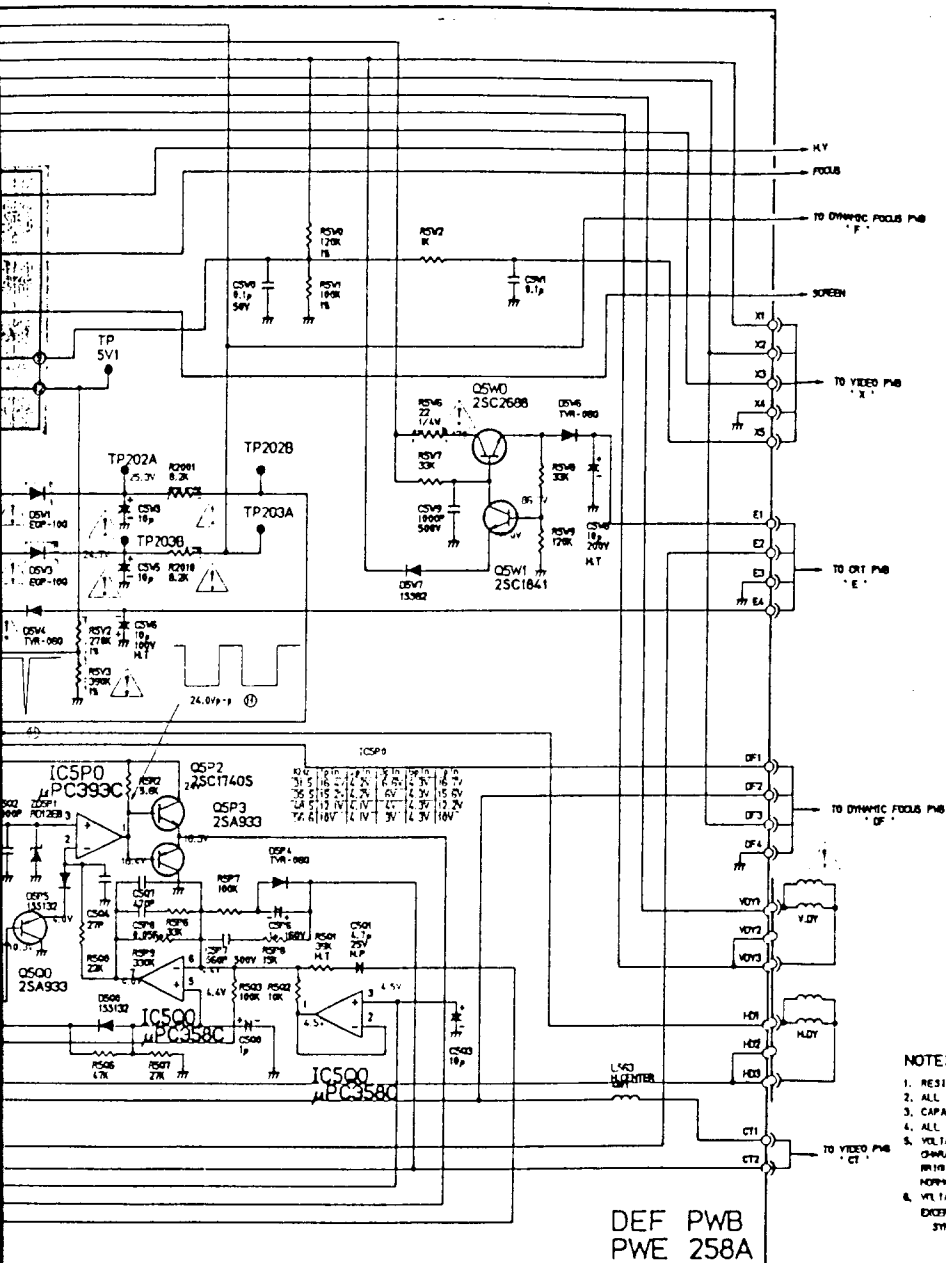
INDICATED
5 tol : 1/4W



PWE 257
CPU PWB

MODEL JC-1601VME/EE/R CPU/SW PWB SCHEMATIC DIAGRAM







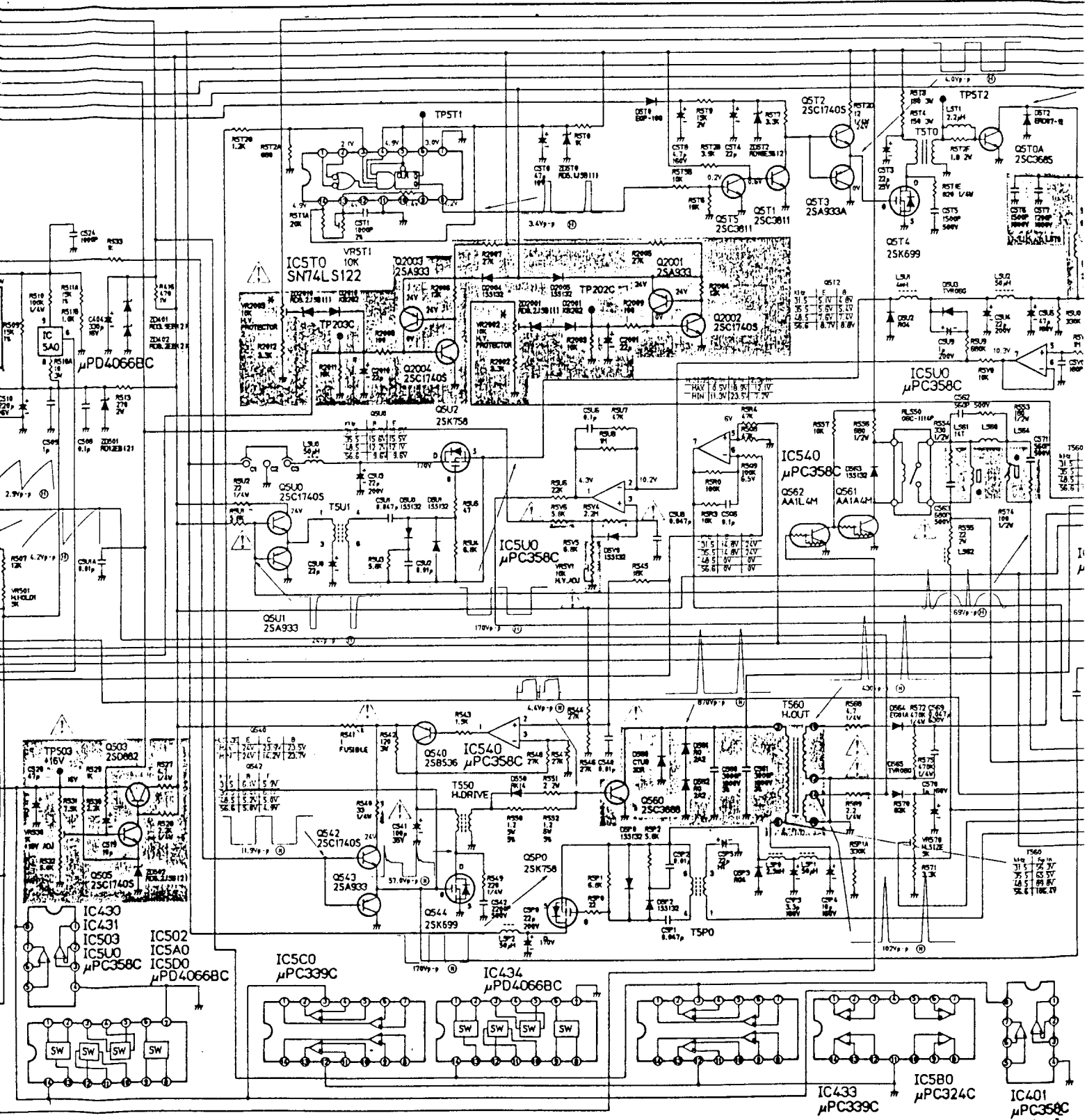
NOTES

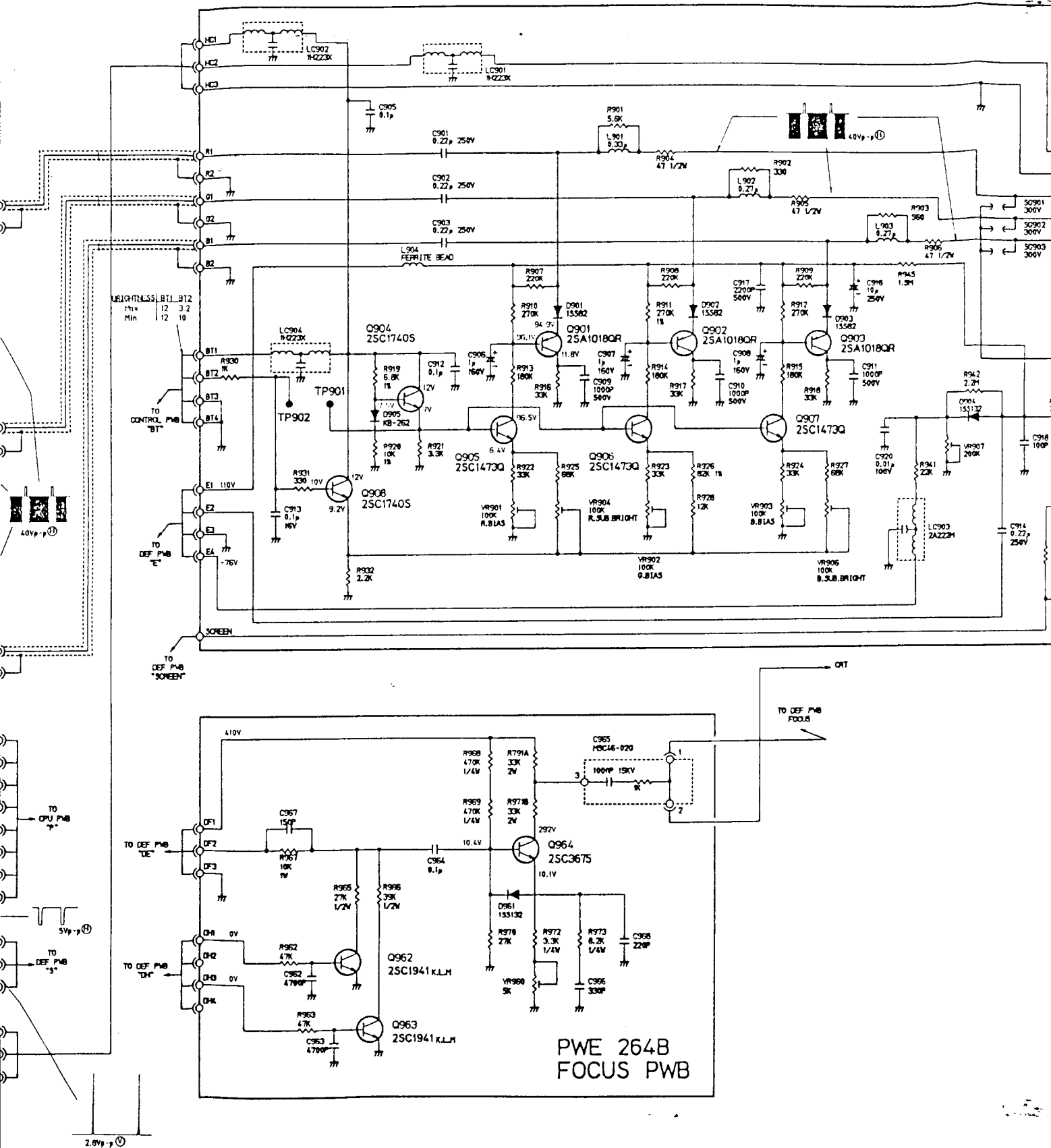
1. RESISTOR VALUES ARE IN Ω (OHM) K = 1,000 M = 1,000,000
2. ALL RESISTORS ARE 1/8WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μ F UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE INVERTED "H" CHARACTER SIGNALS. THE CONTRAST CONTROL IS MAXIMUM. THE BRIGHTNESS CONTROL IS MINIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC AND VIDEO EXCEPT WHERE OTHERWISE INDICATED.
 SYNC : HORIZONTAL RATE-30.3MHz VERTICAL RATE-70Hz
 SEPARATE SYNC TTL LEVEL
 HORIZONTAL SYNC NEGATIVE
 VERTICAL SYNC POSITIVE
 VIDEO : 1MHz 0.7V p-p POSITIVE
7. \odot -----HORIZONTAL RATE \odot ----- VERTICAL RATE
8. L1 TTL LOW LEVEL H1 TTL HIGH LEVEL

WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY  SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

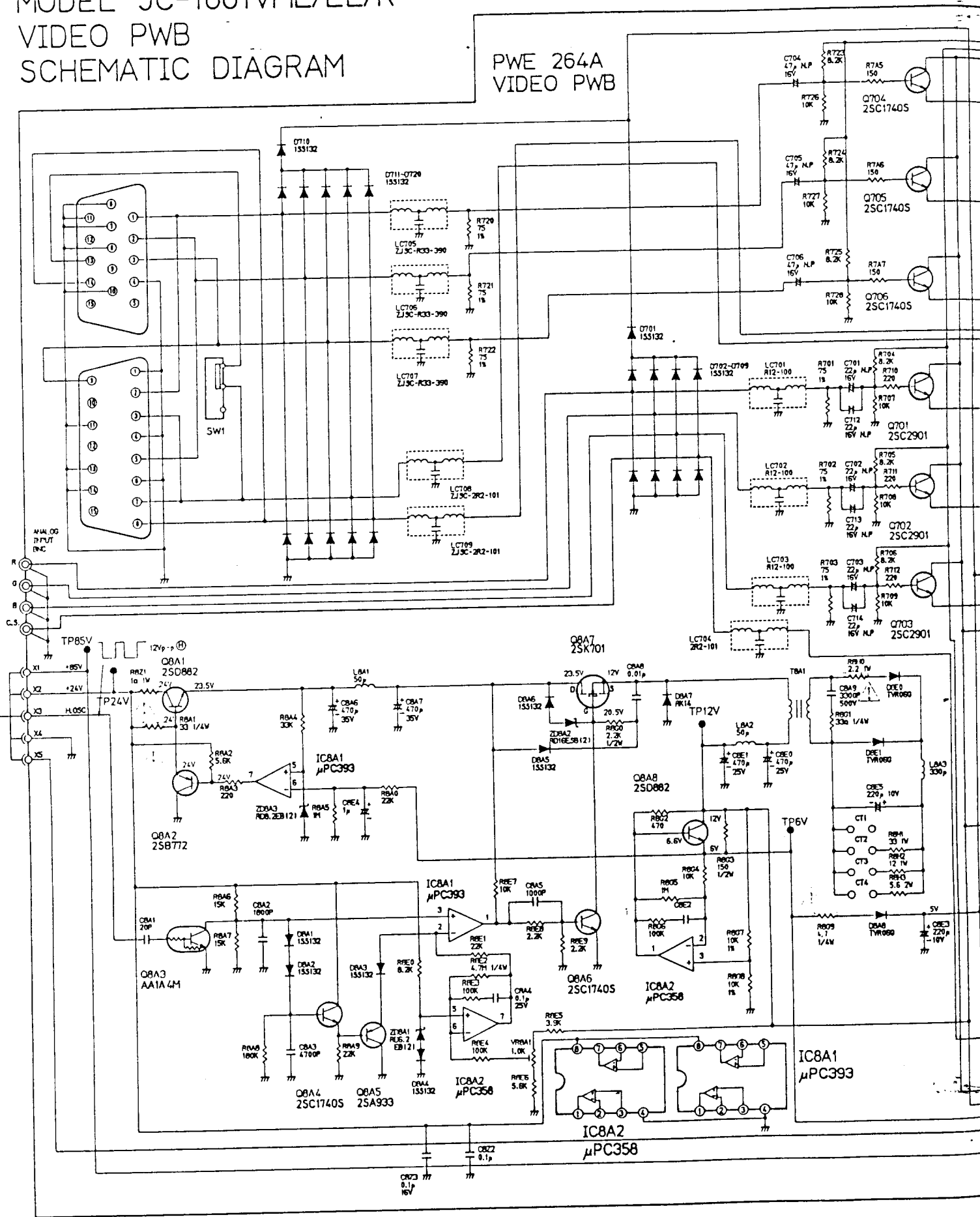
CONTROL (S) MARKED  IS PERMANENTLY FROZEN. DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

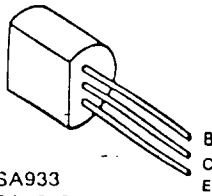




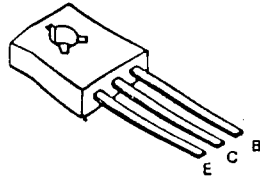
MODEL JC-1601VME/EE/R VIDEO PWB SCHEMATIC DIAGRAM

PWE 264A
VIDEO PWB

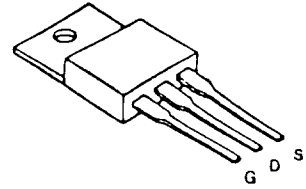




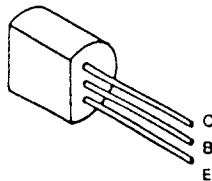
2SA933
2SA1018
2SC945
2SC1473
2SC1841
AA1A4M
AN1A4M
AA1L4M



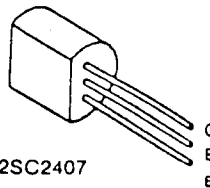
2SB772
2SC2688
S2SD882
2SC3953



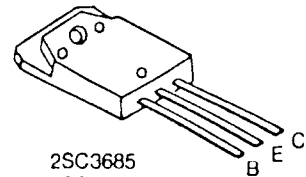
2SB536
2SC3675



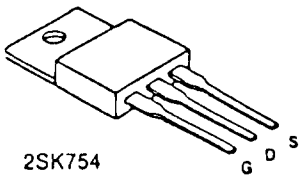
2SC2901
2SC3811



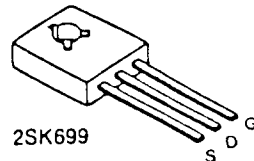
2SC2407



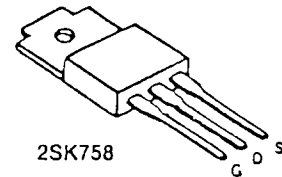
2SC3685
2SC3688



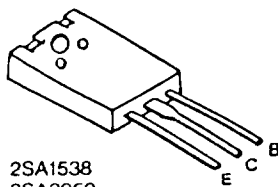
2SK754



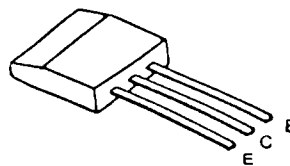
2SK699



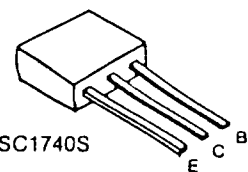
2SK758



2SA1538
2SA3950



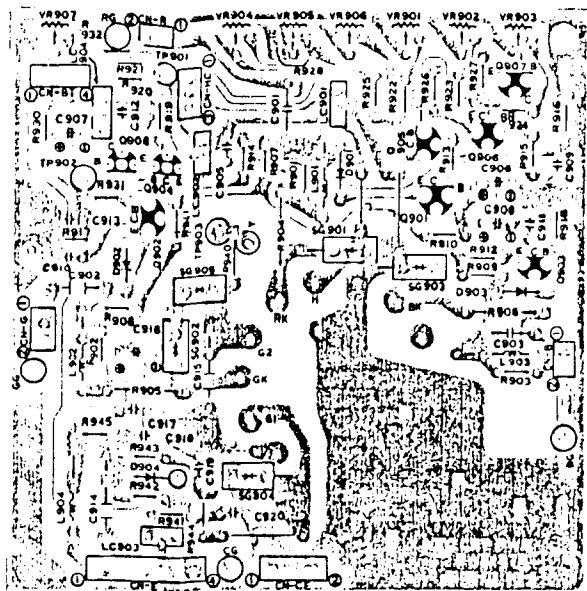
2SC1841



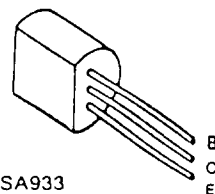
2SC1740S

NOTE:

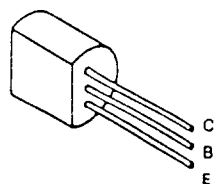
E: EMITTER
B: BASE
C: COLLECTOR
G: GATE
D: DRAIN
S: SOURCE



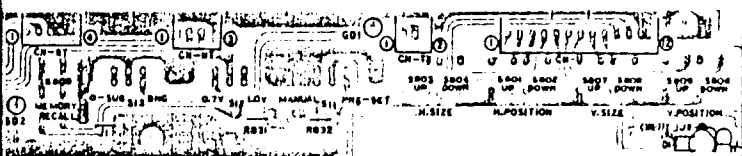
FOCUS PWB ASSY (PWE-264B)
—Component Side—



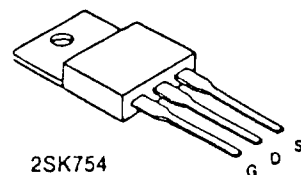
2SA933
2SA1018
2SC945
2SC1473
2SC1841
AA1A4M
AN1A4M
AA1L4M



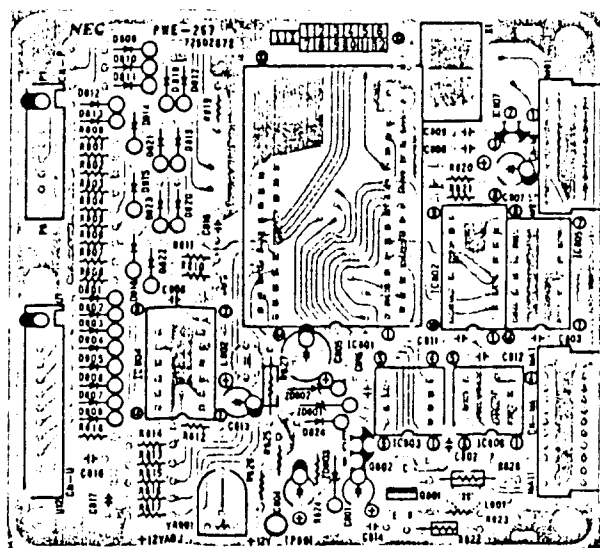
2SC2901
2SC3811



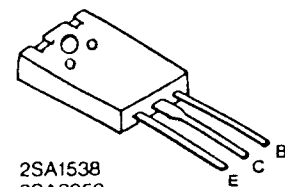
DL PWB ASSY (PWE-273A)
—Solder Side—



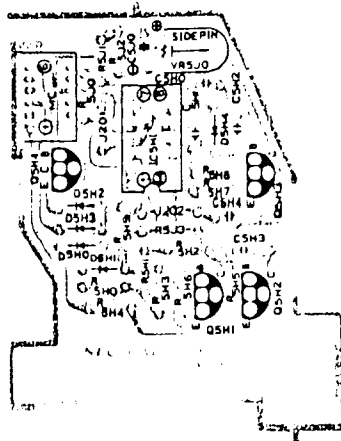
2SK754



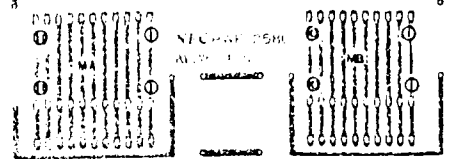
CPU PWB ASSY (PWE-257)
—Component Side—



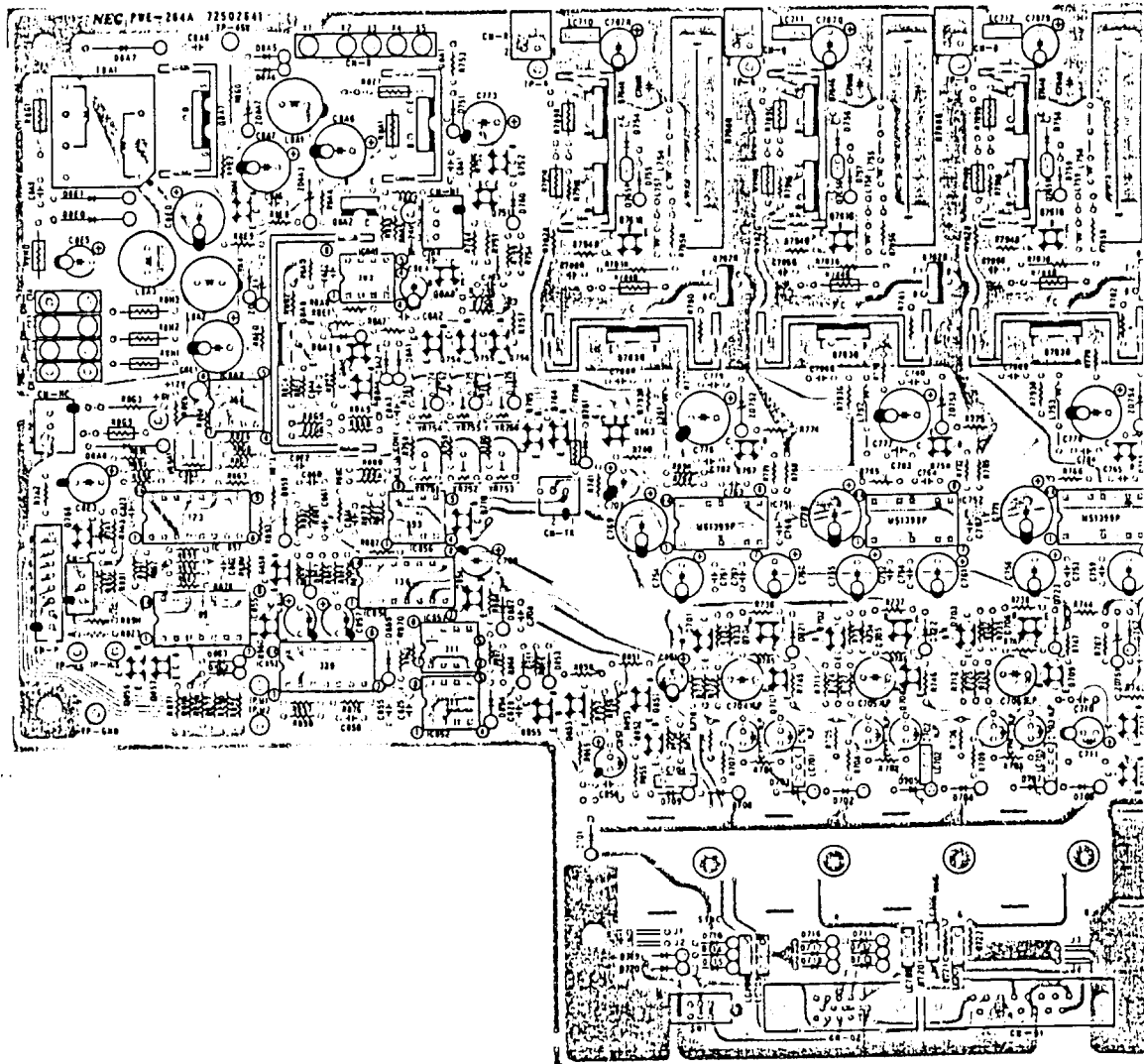
2SA1538
2SA3950



PWE 258B
—Solder Side—

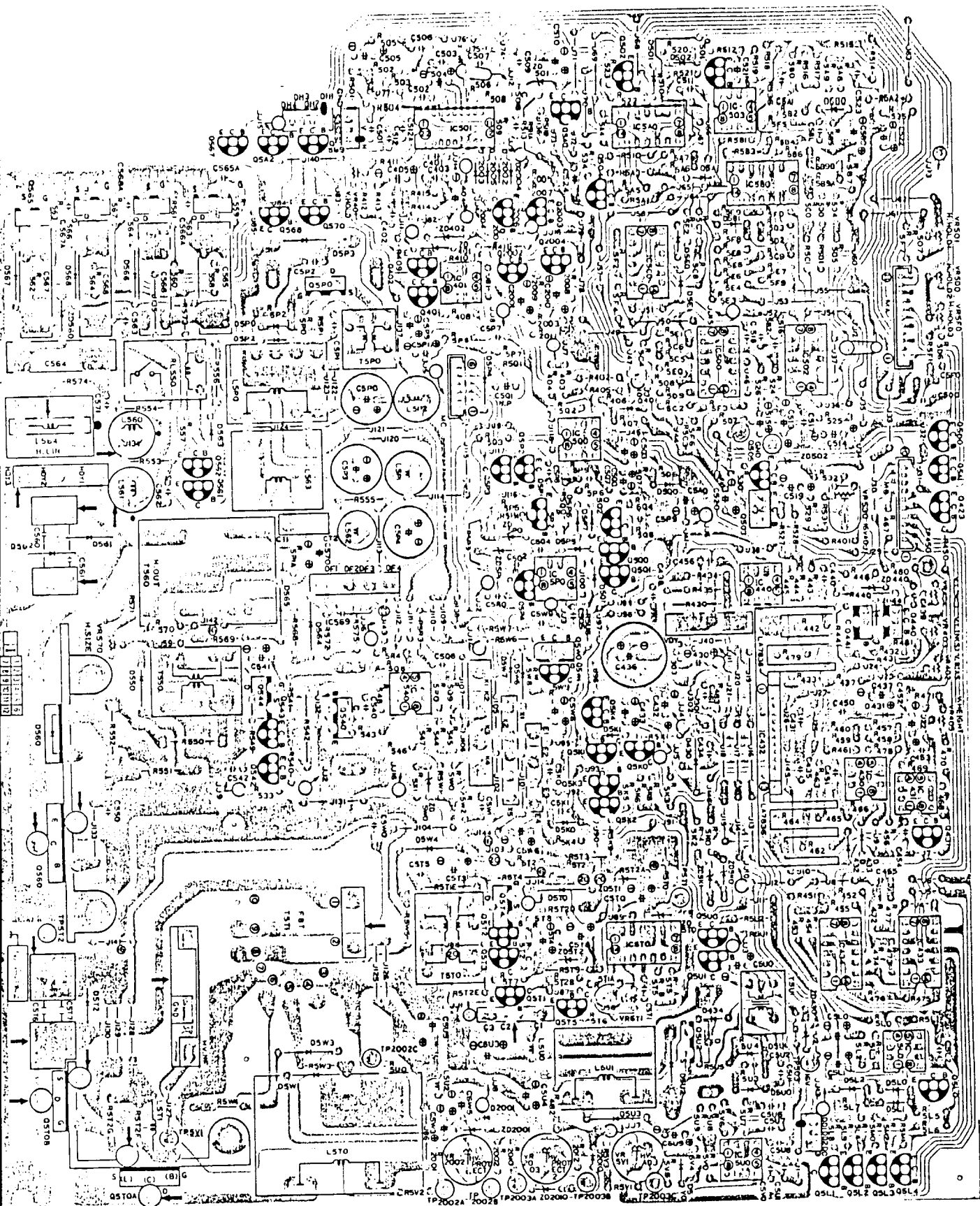


PWE 258C
—Solder Side—



VIDEO PWB ASSY (PWE-264A) —Component Side—

PRINTED WIRING BOARDS



DEF PWB ASSY (PWE-258A)

—Solder Side—