

FUJITSU GENERAL TELETON

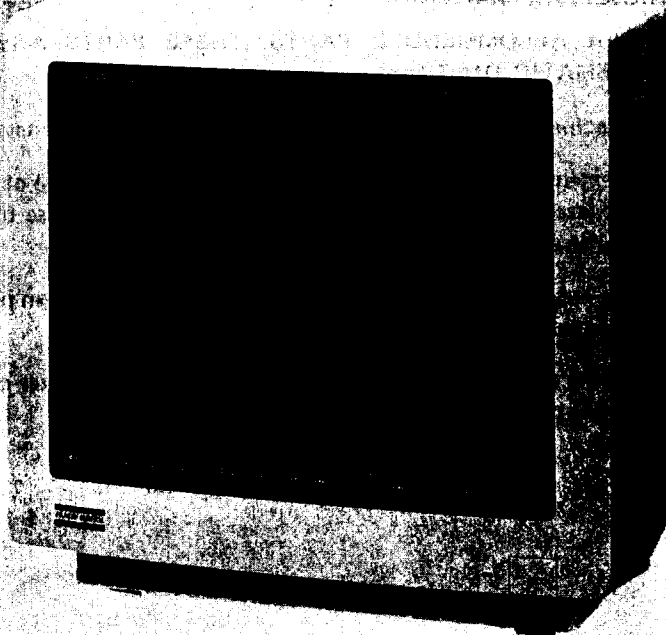
33.5cm COLOUR
DISPLAY MONITOR

ME-503series

ME-503B CHASSIS NO. ECC-14292

ME-503C CHASSIS NO. ECC-14295

ME-503G CHASSIS NO. ECC-14293



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mPC

IMPORTANT SERVICE SAFETY INFORMATION

WARNING: An isolation transformer must be used between the AC supply and the AC plug of the Display Monitor before servicing or testing is performed on this monitor, since the chassis and the heat-sink are directly to one side of the AC line which could present a shock hazard.

The chassis of the monitors should never be connected to the ground.

Before servicing is performed, read all the precautions labelled on the CRT, chassis, cabinet and on the rear cover of the monitor.

X-RAY RADIATION WARNING NOTICE

WARNING: PARTS WHICH INFLUENCE X-RAY RADIATION IN HORIZONTAL DEFLECTION, HIGH VOLTAGE CIRCUITS AND PICTURE TUBE, ETC., ARE INDICATED BY (★) IN THE PARTS LIST. FOR REPLACEMENT PURPOSES USE ONLY THE TYPE SHOWN IN THE PARTS LIST.

PRODUCT SAFETY NOTICE

WARNING: FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER RECOMMENDED PARTS. THESE PARTS ARE IDENTIFIED BY SHADING AND BY (⚠) ON THE SCHEMATIC DIAGRAM.

The manufacturer's warranty and liabilities will be void if any unauthorized modifications, alterations or additions are made.

For replacement purposes, use the same type or specified type of wire and cable, ensuring that the positioning of the wires is followed (especially for H.V. and power supply circuits). Use of alternative wiring or positioning could result in damage to the set or in a shock or fire hazard.

The picture tube used in this monitor employs integral implosion protection and should be replaced with a tube of the same type number for continued safety.

When handling the CRT, shatter-proof goggles must be worn after completely discharging the high voltage circuit. Do not lift the picture tube by the neck.

SPECIFICATIONS

CRT	13" 90° in-line, 0.31mm dot pitch, Non-glare, high resolution
Input Signals	Digital RGB Analog RGB
Input Levels	Digital RGB: TTL Analog RGB: 0.6Vp-p/75 ohm
Display Format	2000 characters
Colors	RGB1: 16 colors, RGB rgb: 64 colors Analog RGB: All colors
Display Size	250 (H) X 180 (V) mm
Resolution	Horizontal: 926 dots Vertical: 580 lines
Video Bandwidth	23 MHz
Scanning Frequency	Horizontal: 15–17 kHz, 21–25 kHz, 29–34 kHz Vertical: 55–63 Hz
Misconvergence	Center: 0.4 mm max. Edge: 0.6 mm max.
Linearity	8% max.
Geometric Distortion	2.5% max.
Cabinet	Beige
Dimensions	328 (H) X 360 (W) X 385 (D) mm
Weight	26.4 lbs. approx.
Power Input	AC230V ±15%, 100W typ.
Power Cord	3-pin grounded plug
Front Controls	H. Pos., Brightness, Contrast
Rear Controls	RGB mode switch, Color mode switch, Text switch

* Design, features and specifications are subject to change without notice.
PC/XT/AT, CGA/EGA/PGA are trade marks of IBM Corp.

Table 1 IC/TR Failure and Symptoms

(Applied to ME-503B / ME-503C)

PCB NAME	REF. NO.	OPERATION	SYMPTOM
Power Board 6BI	IC521	Power output	No power output.
	Q521	Current protector	No power output.
	Q522	Power drive	No power output.
Interface Board 6BFA	IC7201	Sync. processor	Unstable picture. No picture.
	IC7202/IC7203	D/A converter	No picture. Incorrect color.
	IC7204	Video amp.	No picture. Incorrect color/picture.
	Q7201	Sync. sep.	Unstable picture at composite sync. (in case of pin No. 7 Video input used) receiving mode.
	Q7202/Q7203/ Q7215	Sync. detector	Unstable picture. No picture.
	Q7216	Switch	Incorrect color.
	Q7204 ~ Q7212	Video amp.	Incorrect color.
	Q7213	ABL	Dark or too bright picture.
	Q7214	Gate pulse amp.	No picture. Unnormal picture.
Neck Board 6BG	Q251 ~ Q253	Video output	Incorrect color. Unnormal picture.
	Q254	DC restore	Dark or bright picture. Incorrect color.
Main Board 6BH	IC401	Switch	Improper vertical size. Improper horizontal position. Improper horizontal size.
	IC451	Sync. sep./Vert. osc./ V. Drive/Horiz. osc./ Horiz. drive/OVP.	Unstable picture. No raster Horizontal line only.
	IC452	Switch	No raster. Improper horizontal size. Vertical line only.
	IC501	+8V AVR	Abnormal operation.
	IC502	+5V AVR	Poor picture. No picture.
	IC7301	Pulse width control	Improper horizontal size. Incorrect relay operation. No raster blanking at horizontal scanning change.
	IC7302	Pulse width control	Incorrect horizontal scanning. Unstable picture.
	IC7303	Comparator	Improper horizontal size. (Incorrect relay operation.)
	IC7304	Ope. amp.	Incorrect horizontal scanning. (Unstable picture.)

Table 1 IC/TR Failure and Symptoms (Continued)

(Applied to ME-503B / ME-503C)

PCB NAME	REF. NO.	OPERATION	SYMPTOM
Main Board 6BH	IC7305	Decoder	Improper horizontal size. (Incorrect relay operation.) No raster.
	IC7306	Pulse width control	Unstable picture. Improper horizontal position.
	Q401	Vertical position	Improper vertical position.
	Q402 Q403, Q404	Vertical drive Vertical out	Horizontal line only or improper vertical size.
	Q405 ~ Q407	PCC amp., switch	Picture distortion at left/right side.
	Q409, Q410	Blanking amp.	No picture. Vertical line on the picture.
	Q451, Q454, Q455	Horiz. drive	No raster.
	Q456	Switch	Improper horizontal size.
	Q452	Horiz. output	No raster. Power unit utters high sound.
	Q453	Switch	Improper horizontal size.
	Q501 Q502	+73V AVR Error amp.	Improper horizontal size.
	Q532, Q533	Heater voltage control	Incorrect heater voltage.
	Q701, Q702	Raster blanking	Dark picture. No raster blanking operation at horizontal scanning change.
	Q7301, Q7312, Q7313	Horiz. osc. control	Unstable picture.
	Q7303 ~ Q7305, Q7307	Color mode control	Incorrect color at digital RGB reception.
	Q7308 ~ Q7311, Q7317	H. sync. phase control	Improper horizontal position.
	Q7314	HD buffer	Unstable picture.
	Q7315	HD buffer	Unstable picture.
	Q7316	Switch	Incorrect color. Improper horizontal size.

Table 1 IC/TR Failure and Symptoms

(Applied to ME-503G)

PCB NAME	REF. NO.	OPERATION	SYMPTOM
Power Board 6BI	IC521	Power output	No power output.
	Q521	Current protector	No power output.
	Q522	Power drive	No power output.
Interface Board 6BFA	IC7201	Sync. processor	Unstable picture. No picture.
	IC7202/IC7203	D/A converter	No picture. Incorrect color.
	IC7204	Video amp.	No picture. Incorrect color/picture.
	Q7201	Sync. sep.	Unstable picture at composite sync. (in case of pin No. 7 Video input used) receiving mode.
	Q7202/Q7203/ Q7215	Sync. detector	Unstable picture. No picture.
	Q7216	Switch	Incorrect color.
	Q7204 ~ Q7212	Video amp.	Incorrect color.
	Q7213	ABL	Dark or too bright picture.
	Q7214	Gate pulse amp.	No picture. Unnormal picture.
Neck Board 6BG	Q251 ~ Q253	Video output	Incorrect color. Unnormal picture.
	Q254	DC restore	Dark or bright picture. Incorrect color.
Main Board 7AW	IC401	Switch	Improper vertical size. Improper horizontal position. Improper horizontal size.
	IC451	Sync. sep./Vert. osc./ V. Drive/Horiz. osc./ Horiz. drive/OVP.	Unstable picture. No raster Horizontal line only.
	IC452	Switch	No raster. Improper horizontal size. Vertical line only.
	IC501	+8V AVR	Abnormal operation.
	IC502	+5V AVR	Poor picture. No picture.
	IC7301	Pulse width control	Improper horizontal size. Incorrect relay operation. No raster blanking at horizontal scanning change.
	IC7302	Pulse width control	Incorrect horizontal scanning. Unstable picture.
	IC7303	Comparator	Improper horizontal size. (Incorrect relay operation.)
	IC7304	Ope. amp.	Incorrect horizontal scanning. (Unstable picture.)

Table 1 IC/TR Failure and Symptoms (Continued)

(Applied to ME-503G)

PCB NAME	REF. NO.	OPERATION	SYMPTOM
Main Board 7AW	IC7305	Decoder	Improper horizontal size. (Incorrect relay operation.) No raster.
	IC7306	Pulse width control	Unstable picture. Improper horizontal position.
	Q401	Vertical position	Improper vertical position.
	Q402 Q403, Q404	Vertical drive Vertical out	Horizontal line only or improper vertical size.
	Q405 ~ Q407	PCC amp., switch	Picture distortion at left/right side.
	Q409, Q410	Blanking amp.	No picture. Vertical line on the picture.
	Q451, Q454 Q455	Horiz. drive	No raster.
	Q456	Switch	Improper horizontal size.
	Q452	Horiz. output	No raster. Power unit utters high sound.
	Q453	Switch	Improper horizontal size.
	Q501 Q502	+73V AVR Error amp.	Improper horizontal size.
	Q532, Q533	Heater voltage control	Incorrect heater voltage.
	Q701, Q702	Raster blanking	Dark picture. No raster blanking operation at horizontal scanning change.
	Q7301, Q7312, Q7313	Horiz. osc. control	Unstable picture.
	Q7303 ~ Q7305, Q7307	Color mode control	Incorrect color at digital RGB reception.
	Q7308 ~ Q7311, Q7317	H. sync. phase control	Improper horizontal position.
	Q7314	HD buffer	Unstable picture.
	Q7315	HD buffer	Unstable picture.
	Q7316	Switch	Incorrect color. Improper horizontal size.

SERVICE ADJUSTMENT

1. Focus adjustment

- 1) Receive all white "H" characters.
- 2) Set the contrast and brightness controls at the normal viewing level.
- 3) Adjust the focus control so that the entire screen is focused clearly.

2. Vertical size adjustment

Adjust the vertical size control corresponding to the scanning frequency of the signal to be received.

Refer table below:

Table 2

Horiz. scanning frequency	Control to be adjusted	Remarks
15 ~ 17 KHz	VR405 (V. size 2)	This control also affects the vertical sizes 2 and 3. This control should be adjusted first.
21 ~ 25 KHz	VR402 (V. size 1)	
29 ~ 34 KHz	VR406 (V. size 3)	

3. Horizontal size adjustment

Adjust the size coil corresponding to the horizontal scanning frequency, according to the following table.

Table 3

Horiz. Scanning frequency	Coil to be adjusted
15 ~ 17 KHz	L455
21.85 KHz (IBM EGA)	L457
29 ~ 34 KHz	L456

4. Circuit protection

A 4.0A pigtail fuse, mounted on the power pc board has been provided to protect the power output circuit.

5. +B (73V line) adjustment

- 1) Receive all "H" white characters (2,000 characters) of IBM CGA (15.7 KHz).
- 2) Connect the digital voltmeter between the Q501 emitter and the earth ground.
- 3) Turn the +B adjust control (VR501) to adjust the digital voltmeter to 73.0V.
- 4) Turn the horizontal size coil (L455) to set the horizontal size to 246mm.
- 5) Verify that the +B (73V line) has been set to $73 \pm 0.5V$. If the value is not within this range, repeat the above steps 3) to 5).

This adjustment is necessary when the AVR (+73V line) circuit and the HV unit are replaced.

6. High voltage check

High voltage is not adjustable but must be checked to verify the monitor is operating within safe and efficient design limitations as specified.

1. Remove cabinet back.
2. Operate monitor for at least 15 minutes at rated AC line with signal.
3. Rotate brightness and contrast controls to maximum clockwise position.

4. Connect accurate high voltage meter to CRT anode. Reading should be between 22 and 25 KV at the following scanning frequency.

Horizontal scanning frequency = 15.7 KHz
= 21.85 KHz
= 31 KHz

7. Overvoltage protector control (VR451) adjustment

The over voltage protector control (VR452) is factory adjusted and sealed with epoxy glue.

However, if readjustment should be required, proceed as follows.

1. Connect the signal at the following conditions.

Scanning frequency : Horizontal = 15.7 KHz
Vertical = 60 Hz

Display pattern : White

Contrast, brightness controls: Maximum position

2. Jumper IC521 pin No. 1 and pin No. 5 with a clip.
3. Connect the digital voltmeter to +73V DC line.
4. Adjust AC line voltage so that +B (+73V) line becomes 82VDC.
5. Adjust OVP VR (VR451) so that the raster on the CRT is just disappeared.
6. After OVP VR adjusted, remove a jumper clip.
7. AFTER ADJUSTMENT, VR451 MUST BE SEALED WITH EPOXY GLUE.

Note:

Readjust overvoltage protector control (VR451) in the following case:

When parts marked "★" as X-ray relative critical components in the connection diagram and parts list, are replaced.

8. Vertical position control (VR404) adjustment

Vertical position control is the VR which controls the vertical position of the picture. If the vertical position of the picture is not at the center of the picture tube, adjust the vertical position by turning this control.

9. PCC control (VR404) adjustment

The PCC control is used to adjust the amount of distortion on both sides.

Receive all white "H" characters, and adjust this control so that the distortion is least on both sides.

10. Vertical hold control (VR401) adjustment

Adjust the vertical hold control so that picture is stable.

11. Vertical linearity control (VR410) adjustment

Receive the cross-hatch signal.

Adjust the vertical linearity control so that good vertical linearity is obtained.

12. Horizontal position controls (VR407, VR7303, VR7304) adjustment

Table 4

Step	Control to be adjusted	Input signal/ computer	Horiz. scanning frequency	Adjusting method
1.	H. Pos. balance (VR407)	IBM PC/XT CGA mode (Standard Signal A)	15.70 KHz	Adjust VR407 to balance the horizontal position control (VR203, front control) on both sides.
2.	H. Pos. 22 KHz (VR7303)	IBM PC/XT EGA mode (Standard Signal B)	21.85 KHz	Adjust this control so that the horizontal picture position is in the center of CRT.
3.	H. Pos. 31 KHz (VR7304)	IBM PC/XT PGA mode (Standard Signal C)	30.48 KHz	Same as the above.

Pattern signal = All "H" characters (2,000 characters).

Timing chart for this adjustment:

If the computer specified above is not used, generate signal with a signal pattern generator using Table 6 "Standard signal timing chart".

13. Pulse width adjusting capacitor (C7302) adjustment

- 1) Connect the Q455 collector to the ground.
- 2) Connect the digital voltmeter between IC7303, (2) and the ground.

3) Receive the EGA mode signal (or standard signal B) using the IBM PC/XT.

4) Adjust C7302 so that the digital voltmeter reads $3.3 \pm 0.1V$ DC, using the insulating adjusting driver.

Note:

This adjustment is necessary when IC7301 and its peripheral parts are replaced.

14. Horizontal oscillator tracking adjustment [L. fo (VR7301), H. fo (VR7302)]

These controls are used to adjust the horizontal oscillator frequency to the value corresponding to the input signal. Adjust these controls in the following procedure.

Table 5

Step	Control to be adjusted	Computer/ input signal	Horiz. scanning frequency	Adjusting method
1.				Connect the Q455 collector to the ground.
2.				Connect the frequency counter to the IC451, pin 10.
3.	L. fo (VR7301)	IBM PC/XT CGA mode (Standard Signal A)	15.70 KHz	Adjust this control to 15.70 KHz.
4.	H. fo (VR7302)	IBM PC/XT PGA mode (Standard Signal C)	30.48 KHz	Adjust this control to 30.48 KHz.
5.				Repeat steps 3 and 4 until the following specifications are met: L. fo = 15.70 ± 0.05 KHz H. fo = 30.48 ± 0.05 KHz

Note:

This adjustment is necessary when the following parts or circuits are replaced:

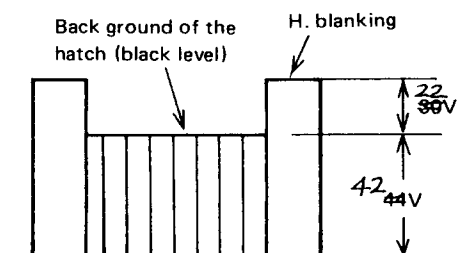
IC501, IC7302, IC7304, IC451, Q7301, Q7312, Q7313 and their peripheral parts and circuits

15. Sub brightness control (VR7202), Sub contrast control (VR7201) adjustment

These controls are factory adjusted.

When readjustment is required, proceed as follows.

- 1) Receive the cross-hatch signal (Digital RGB mode).
- 2) Set the contrast and brightness control at the maximum position.
- 3) Connect the oscilloscope to the Q253 collector. (Neck PCB)
- 4) Adjust the sub-contrast and sub-brightness controls so that the following waveform is obtained.



16. Black and white tracking adjustment [R. Drive (VR7203), G. Drive (VR7204), R. Cut-off (VR251), G. Cut-off (VR252), B. Cut-off (VR253)]

The purpose of this procedure is to optimize the picture tube to obtain a good black and white picture at all brightness levels, while at the same time achieving maximum usable brightness.

When picture tube, neck PCB or interface PCB are replaced, proceed as follows.

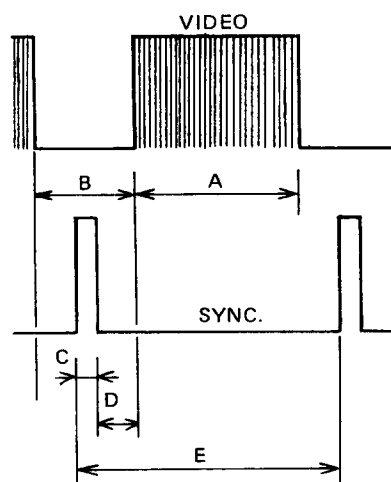
- 1) Set the brightness control at 90° from the maximum position (turned fully clockwise).
- 2) Rotate the red, green and blue cut-off controls fully counter-clockwise.
- 3) Rotate the R. Drive and G. Drive controls midrange.

Horizontal

Mode		A μ sec.	B μ sec.	C μ sec.	D μ sec.	E μ sec./KHz	H. sync. polarity
A	15 KHz (CGA)	44.5	19.2	4.5	8.2	63.5/ 15.75 KHz	Positive
B	22 KHz (EGA)	39.5	6.3	5.0	1.7	45.77/ 21.85 KHz	Positive
C	31 KHz (PGA)	25.0	7.8	2.4	4.5	32.81/ 30.48 KHz	Negative (H/V combined)

- 4) Rotate the screen VR, fully counter-clockwise.
- 5) Receive the black signal (Digital RGB mode).
- 6) Short circuit TP402 and TP452 with a jumper clip to produce a horizontal line.
- 7) Slowly turn the screen control on the HV unit clockwise until color (colors) appears faintly on the screen.
- 8) Adjust the each cut-off control so that color becomes lightest and horizontal lines are turned to white color.
- 9) Remove the jumper clip.
- 10) Receive the white signal.
- 11) Adjust R/G drive controls to produce a hi-lite white screen.
- 12) Set the brightness and contrast controls to minimum. Then, the raster should appear dark.
- 13) Move the brightness control until a dim raster is obtained.
- 14) If necessary, touch-up adjustment of the three cut off controls to obtain best white uniformity on the CRT screen.
- 15) Set the brightness and contrast controls at the maximum position.
If necessary, adjust the R. drive and G. drive controls to produce a uniform black and white picture.

Table 6 Standard Signal Timing Chart



- A Display time
B Blanking time
C Pulse width
D Back porch
E Period

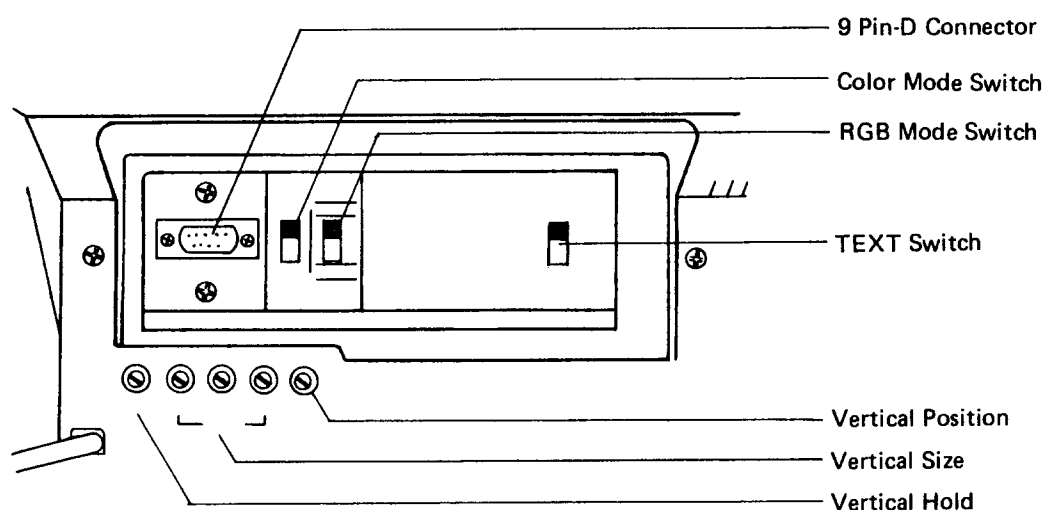
Vertical

Mode		A msec.	B msec.	C msec.	D msec.	E msec./Hz	V. sync. polarity
A	15 KHz (CGA)	12.4	4.3	0.2	2.1	16.67 60 Hz.	Positive
B	22 KHz (EGA)	15.4	1.3	0.6	0.1	16.67 60 Hz	Negative
C	31 KHz (PGA)	12.8	3.9	0.5	1.8	16.67 60 Hz	Negative (H/V combined)

SERVICE INFORMATION

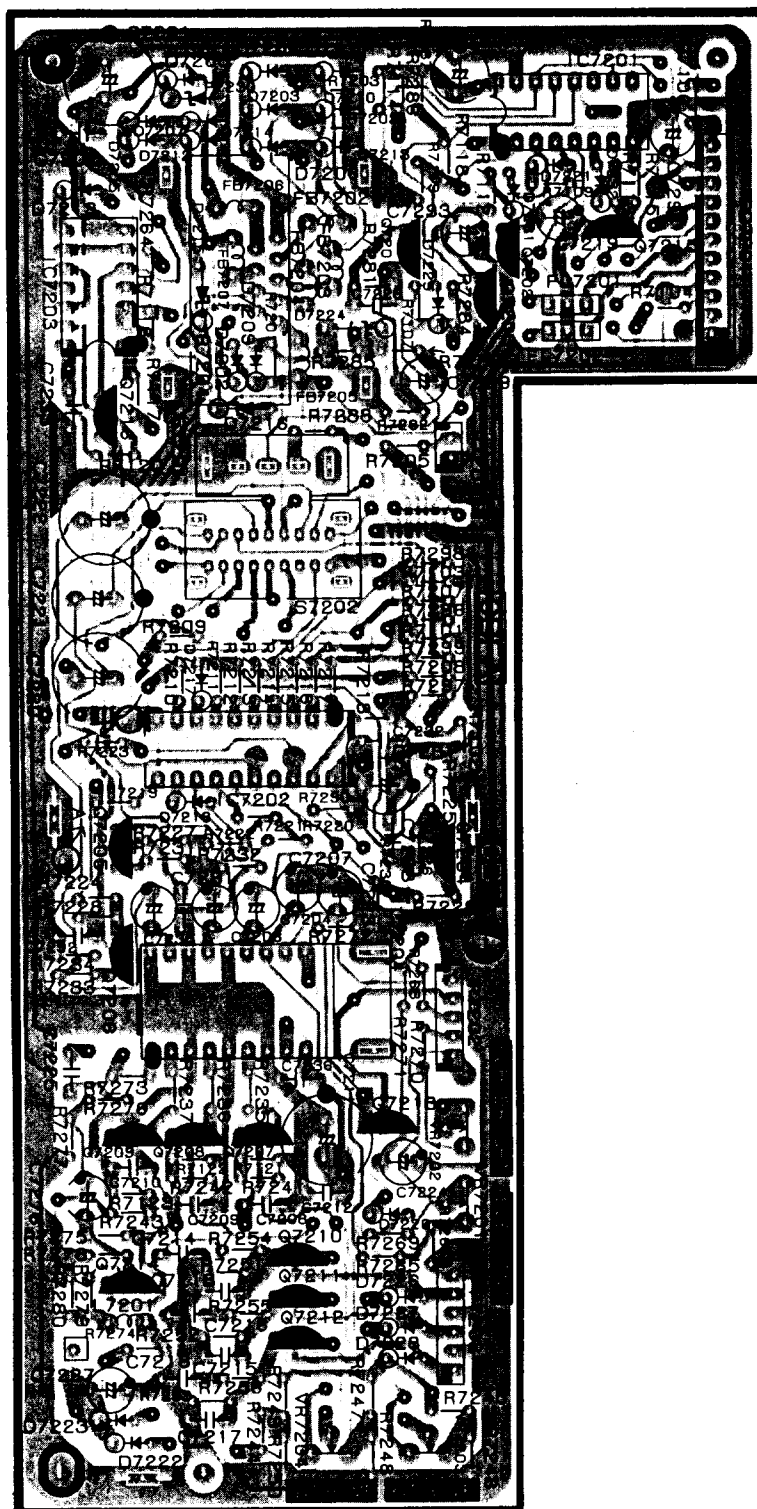
RGB CONNECTION

PIN NO.	DIGITAL RGB		ANALOG RGB
	16 Colors	64 Colors	
1	Ground	Ground	Ground
2	—	2nd Red	—
3	Red	1st Red	Red
4	Green	1st Green	Green
5	Blue	1st Blue	Blue
6	Intensity	2nd Green	—
7	Composite Sync. (0.3 ~ 1Vp-p/75Ω; Negative)	2nd Blue	Composite Sync. (0.3 ~ 1Vp-p/75Ω; Negative)
8	Horizontal Sync./ Composite Sync. TTL	Horizontal Sync./ Composite Sync. TTL	Horizontal Sync./ Composite Sync. TTL
9	Vertical Sync. TTL	Vertical Sync. TTL	Vertical Sync. TTL

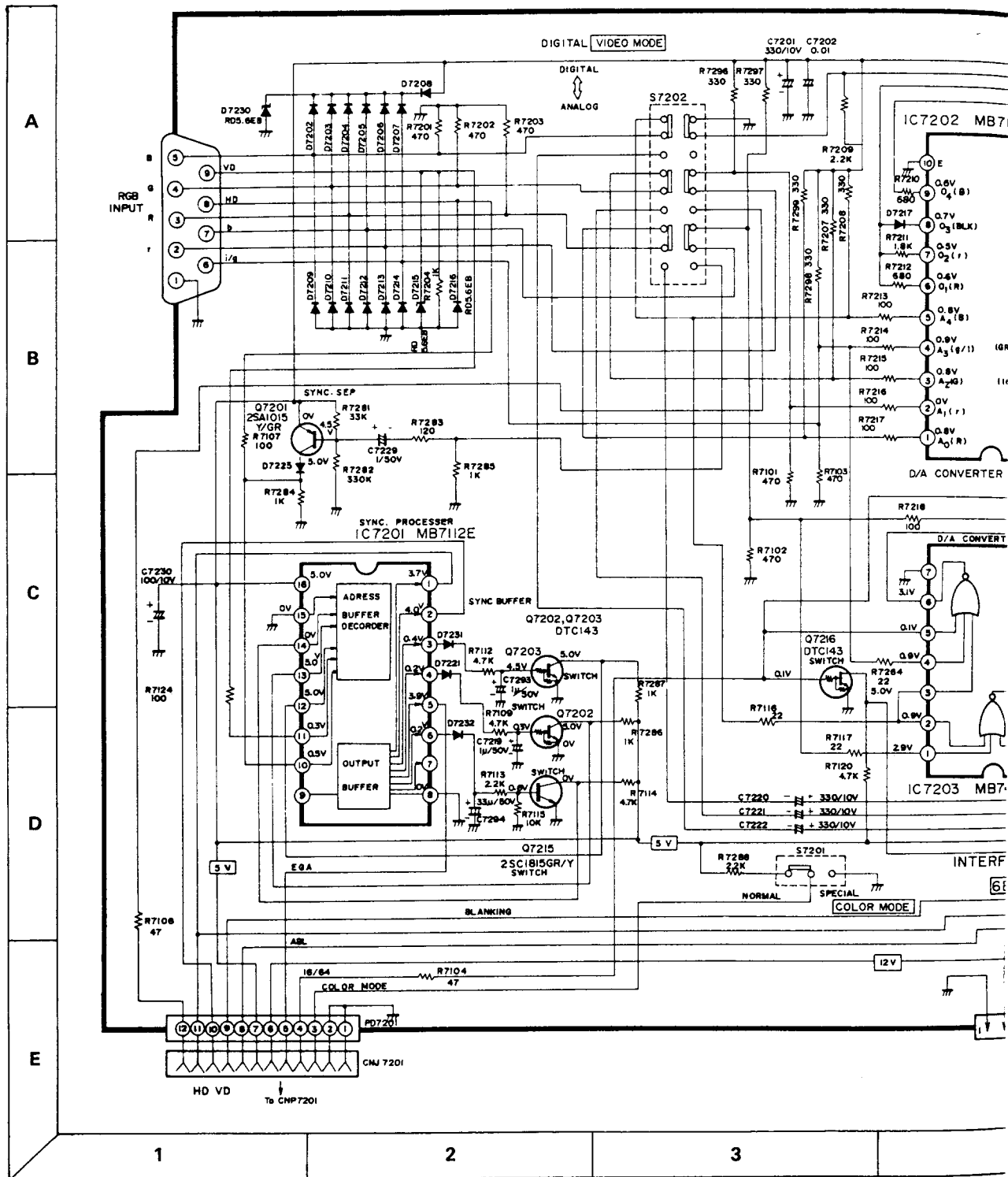


6BFA INTERFACE BOARD MODULE P.C. BOARD OVERLAY

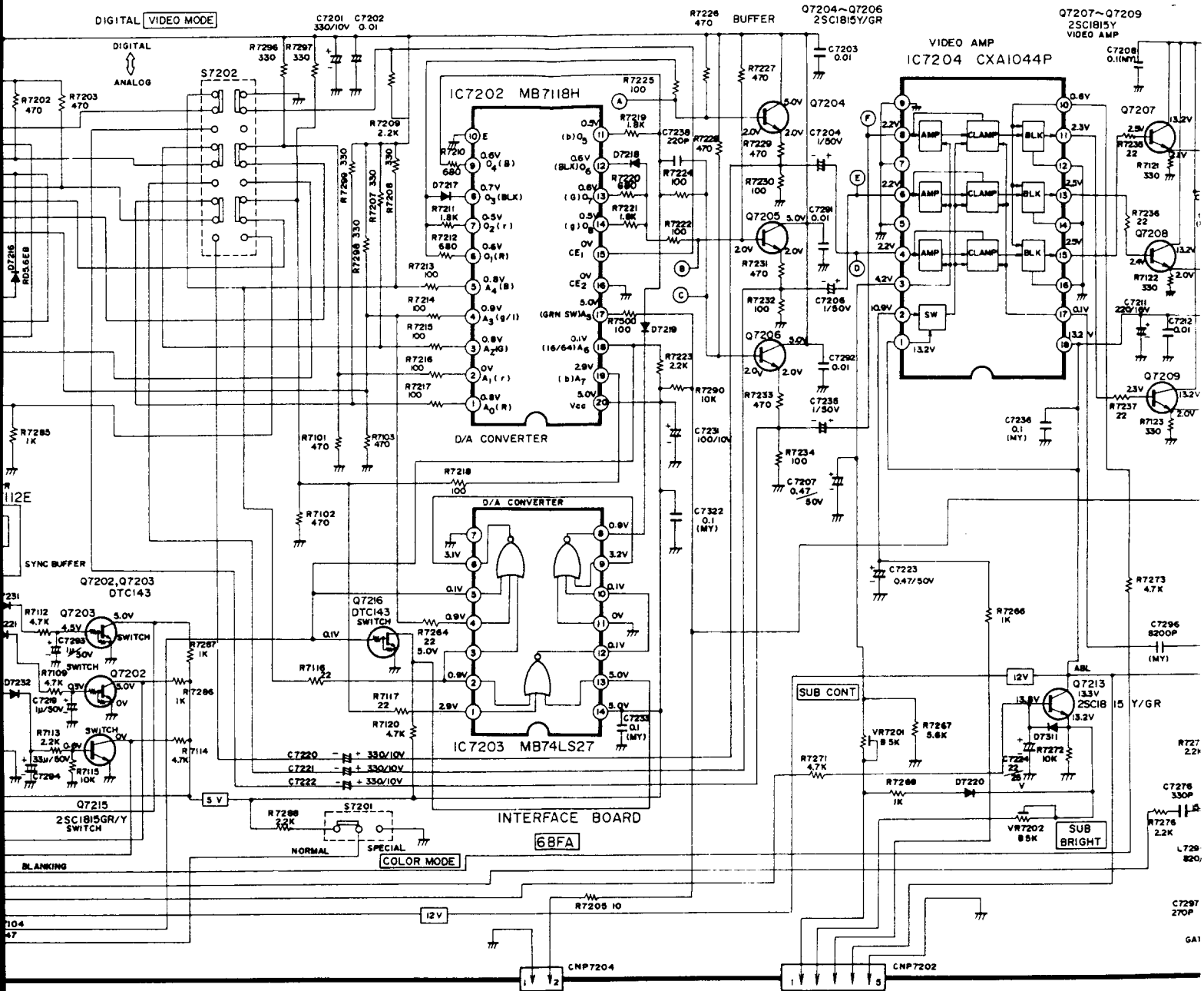
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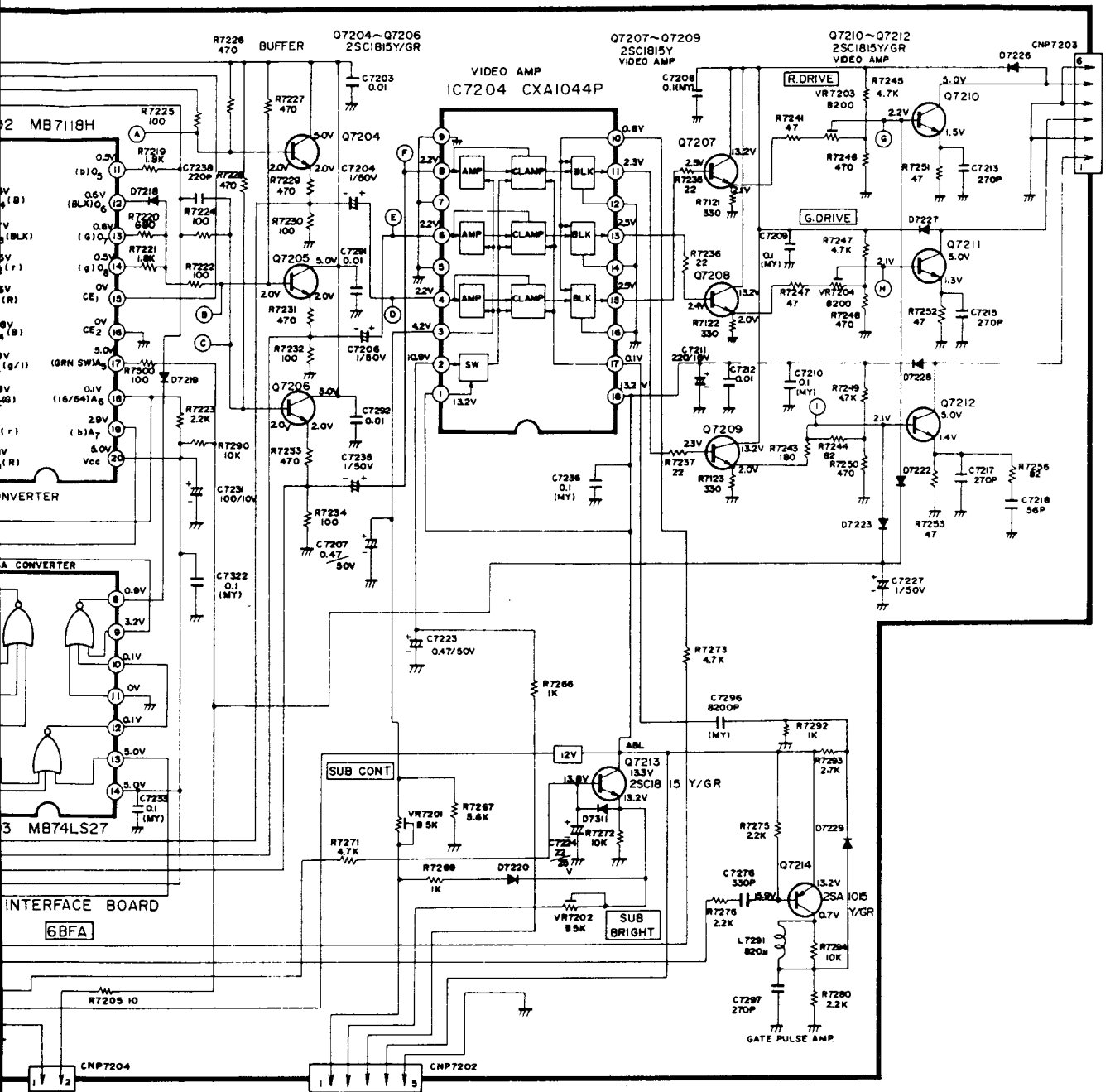
INTERFACE BOARD



INTERFACE BOARD SCHEMATIC DIAGRAM



BOARD SCHEMATIC DIAGRAM



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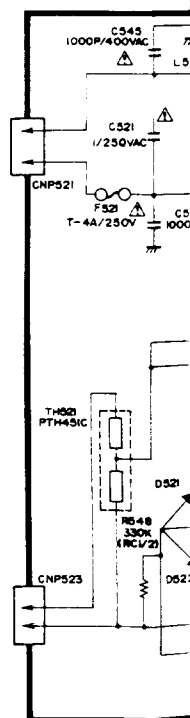
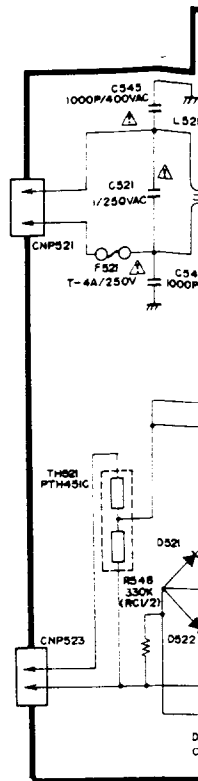
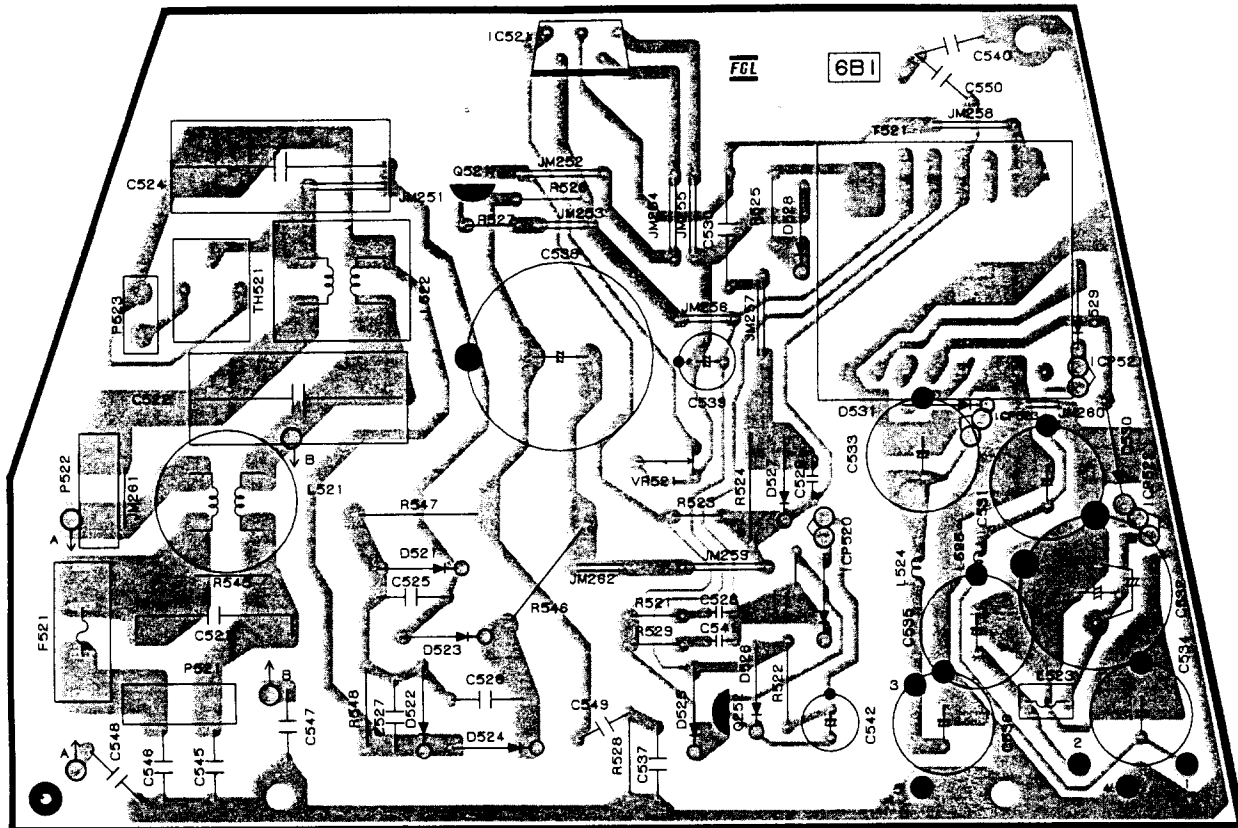
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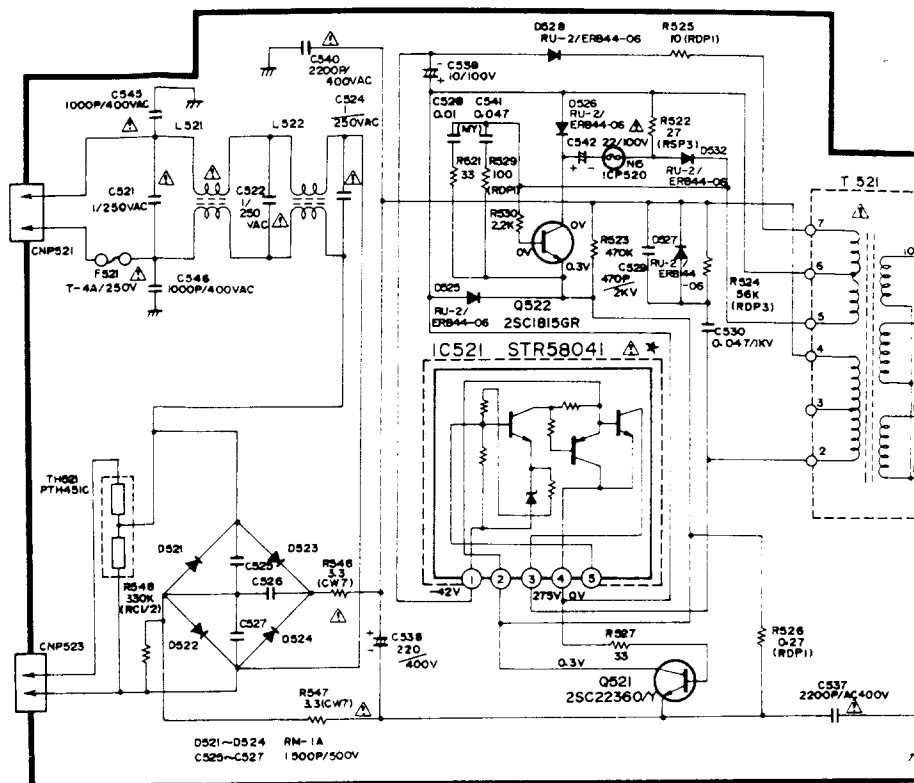
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6BI POWER BOARD MODULE P.C. BOARD OVERLAY

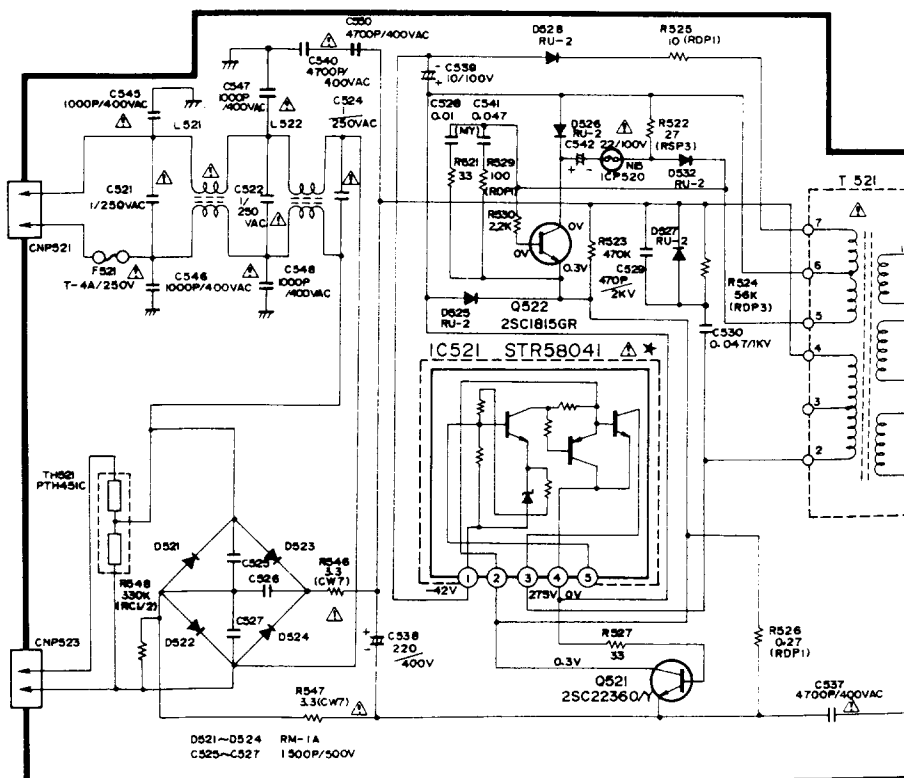
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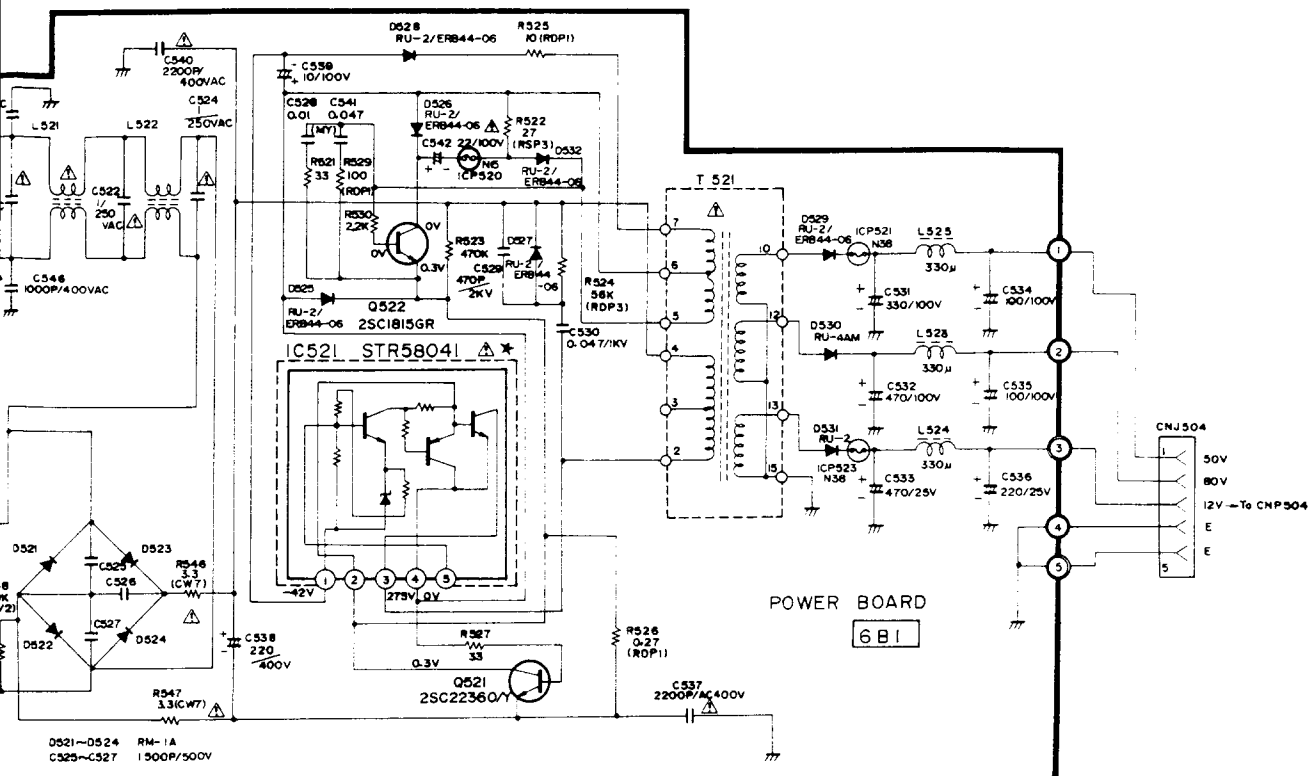
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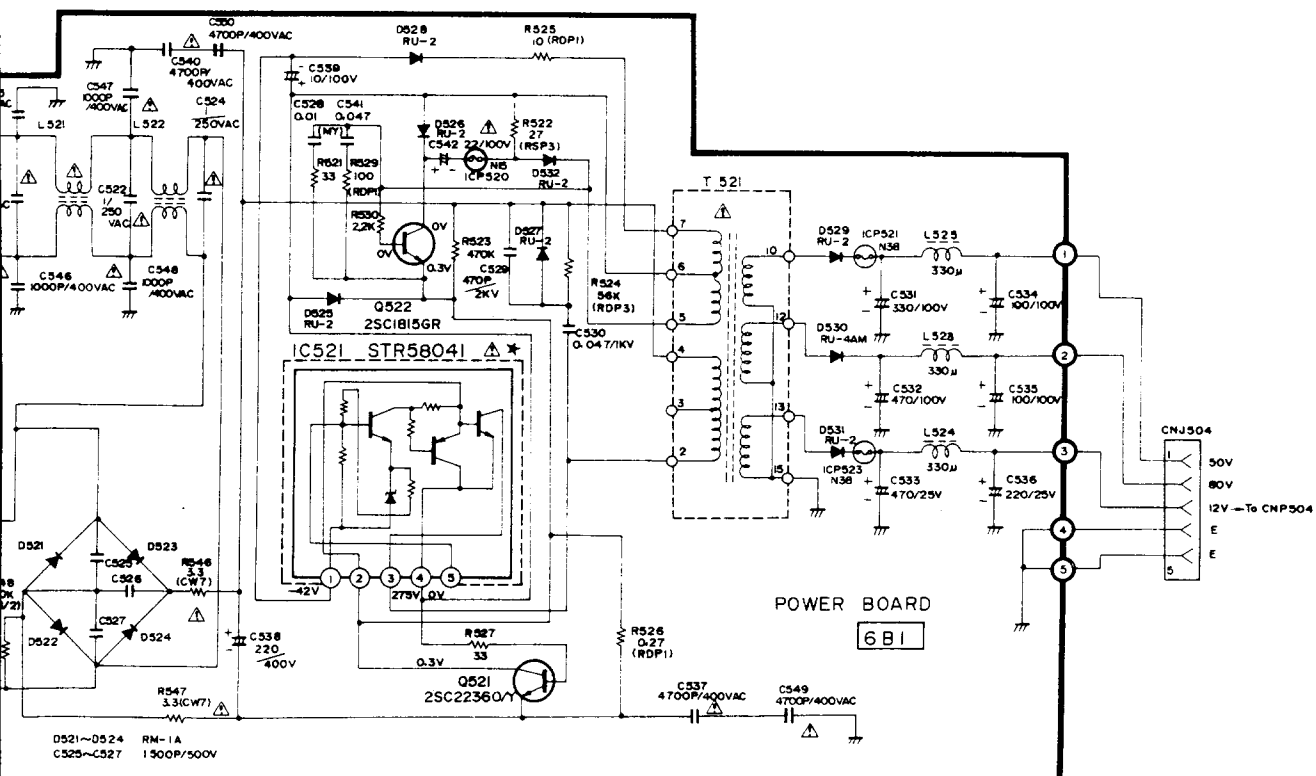
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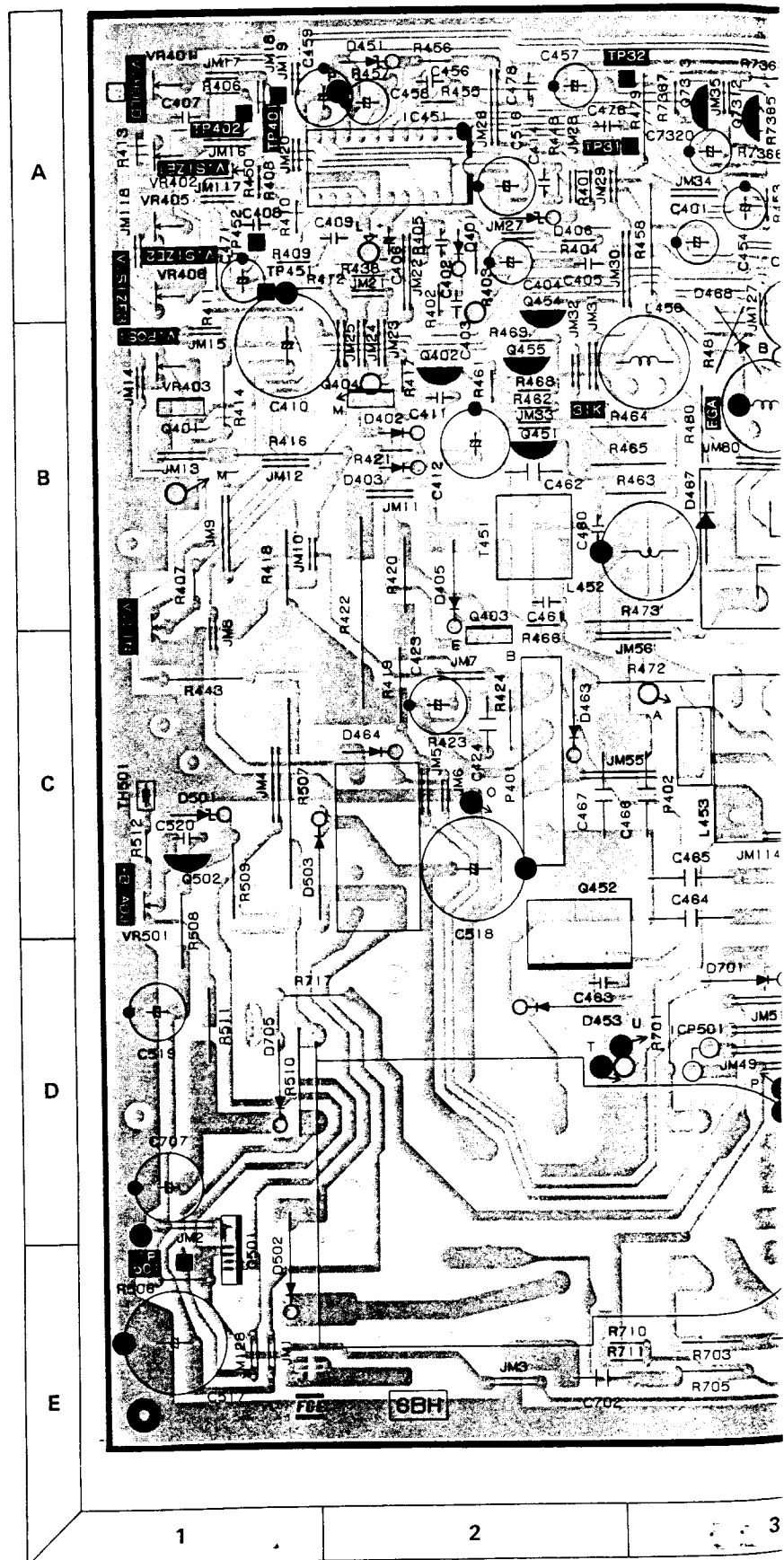


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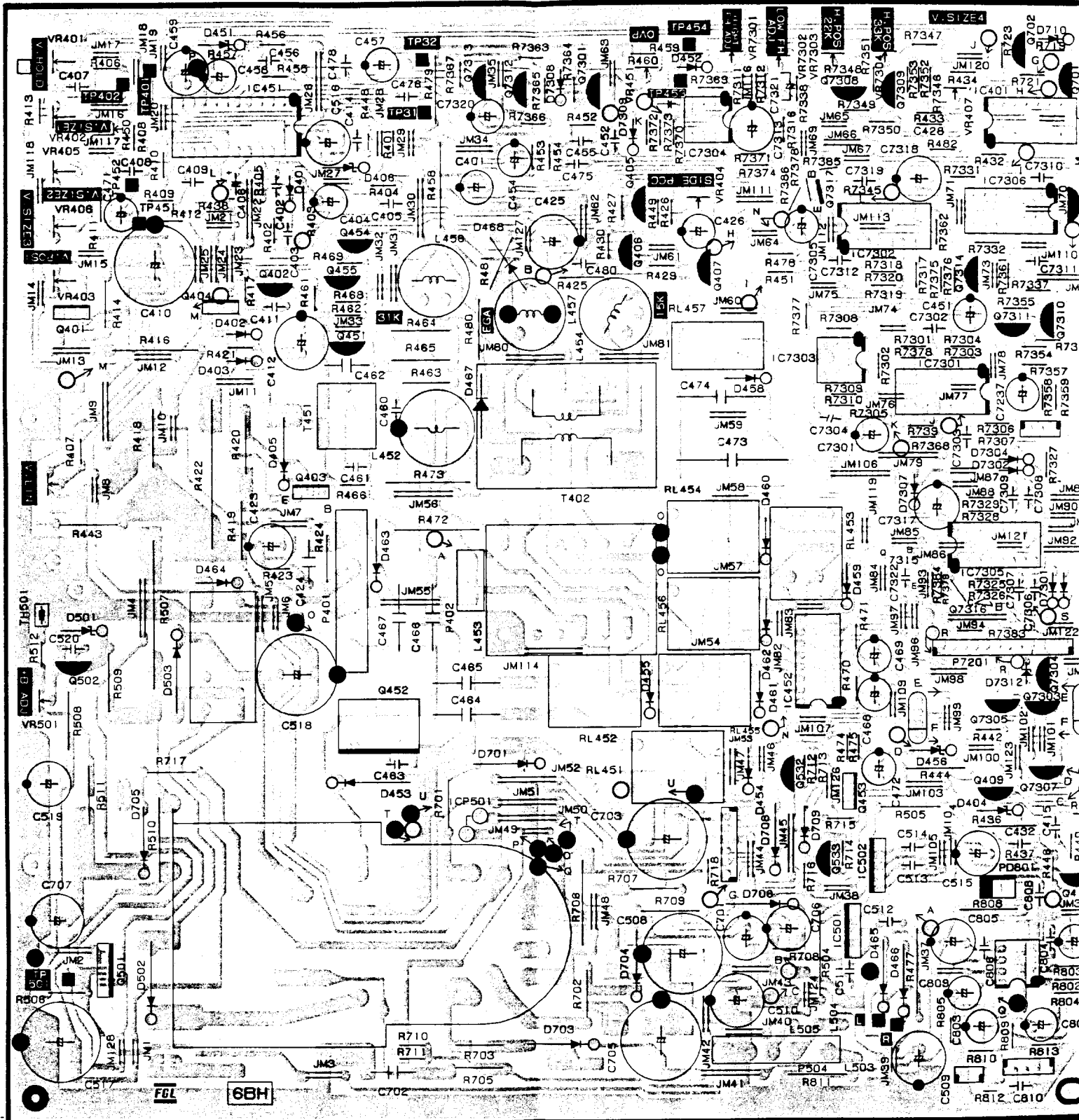
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6BH MAIN CHASSIS BOARD OVERLAY

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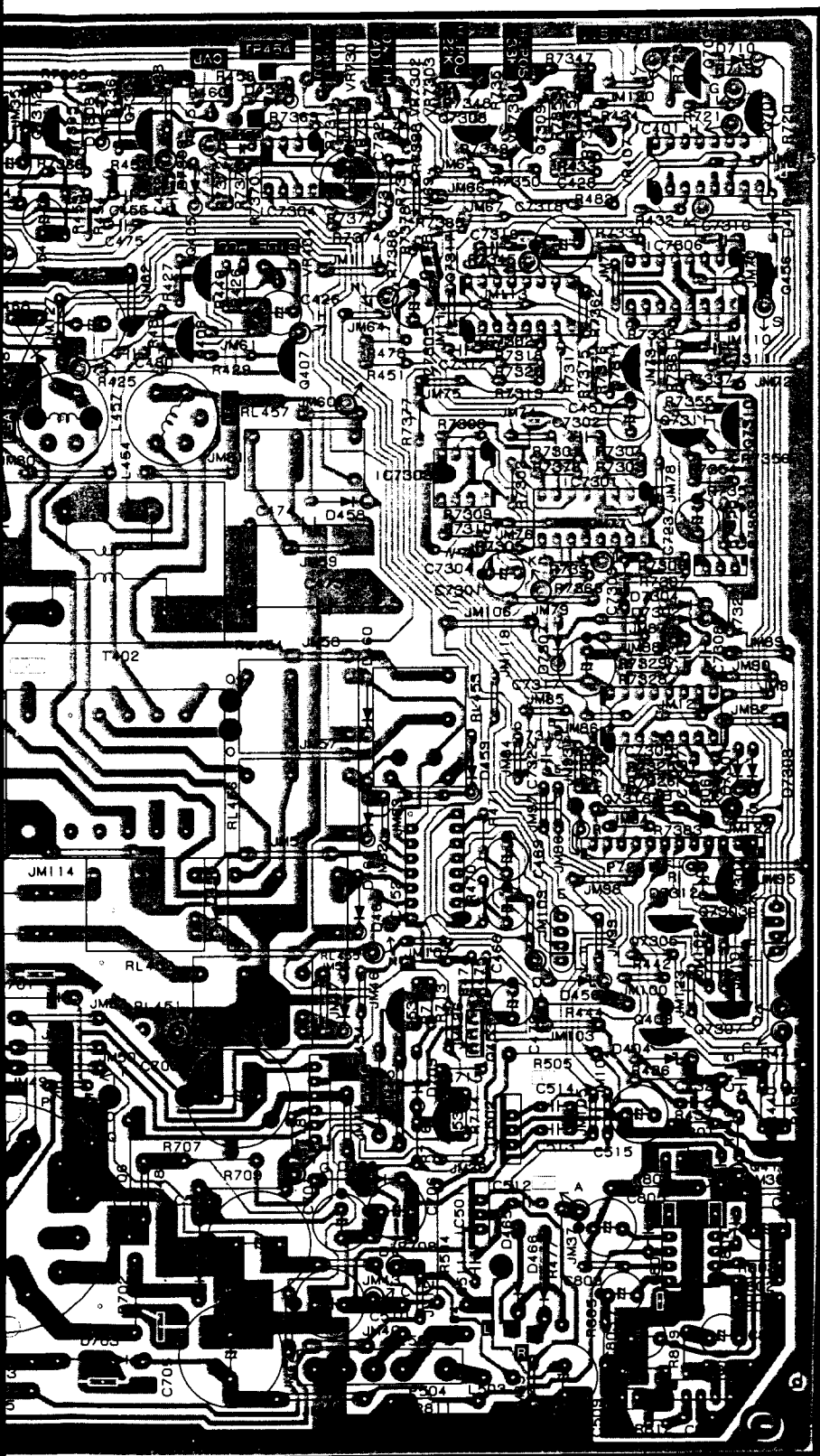
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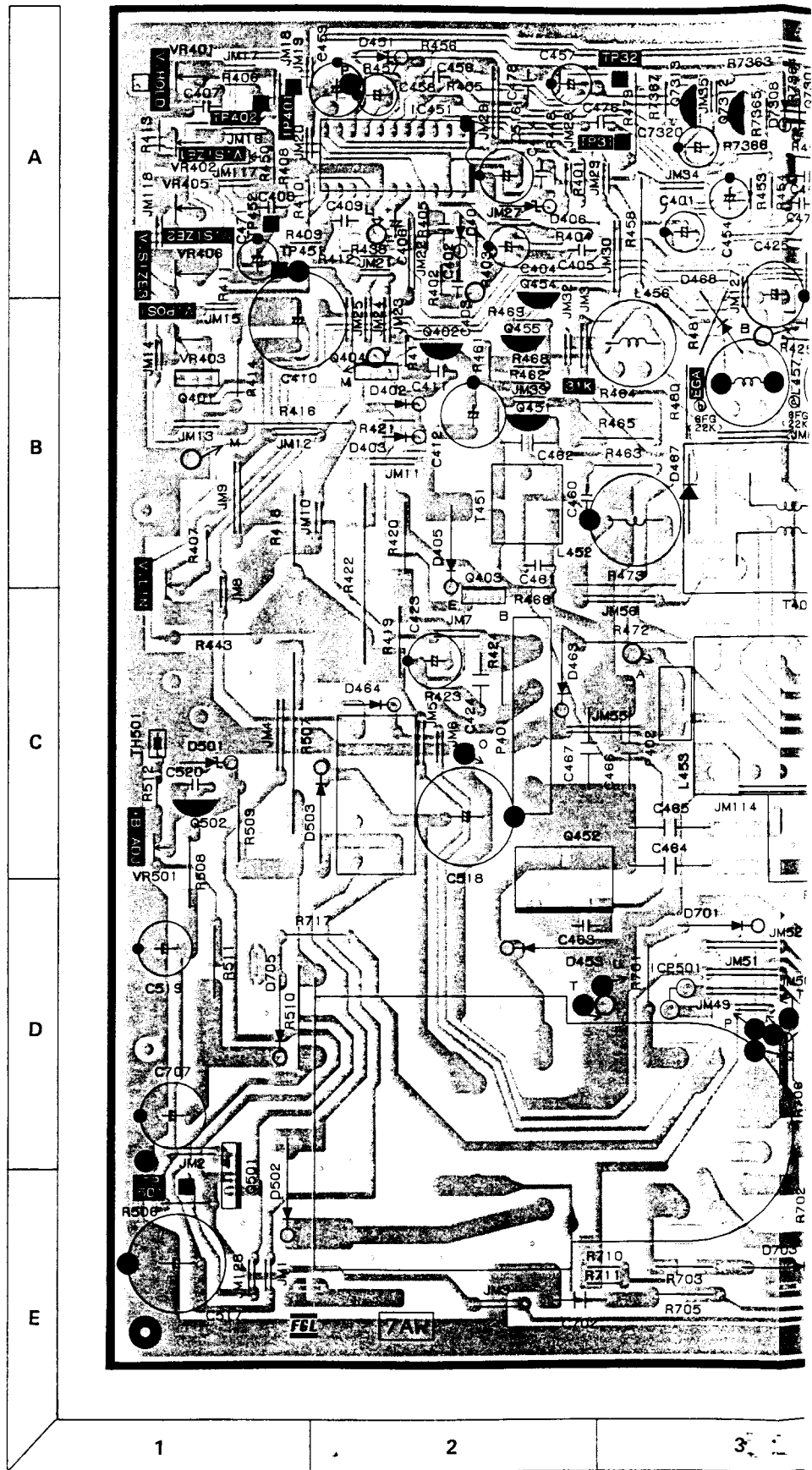
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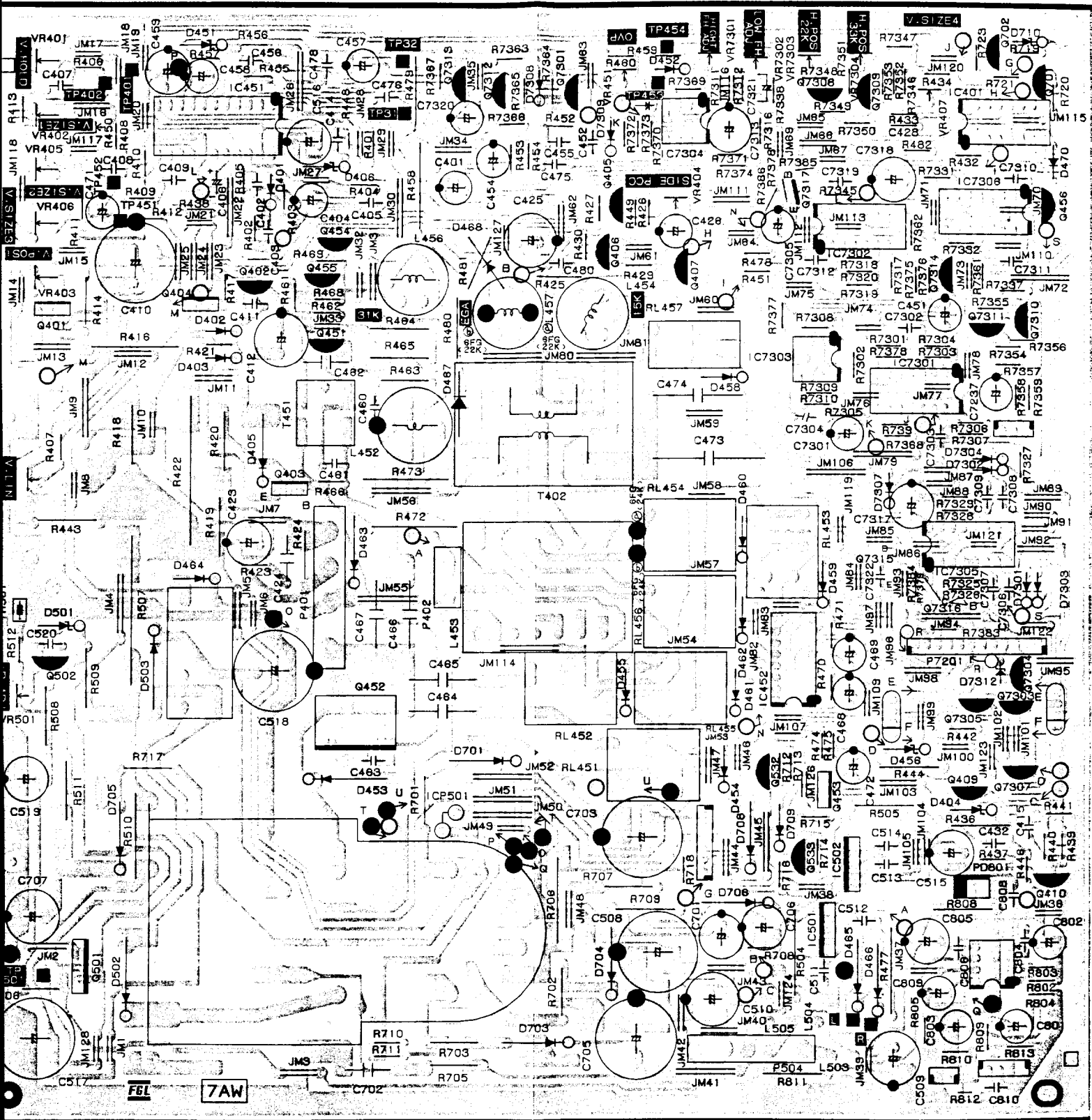


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7AW MAIN CHASSIS I



7AW MAIN CHASSIS BOARD OVERLAY



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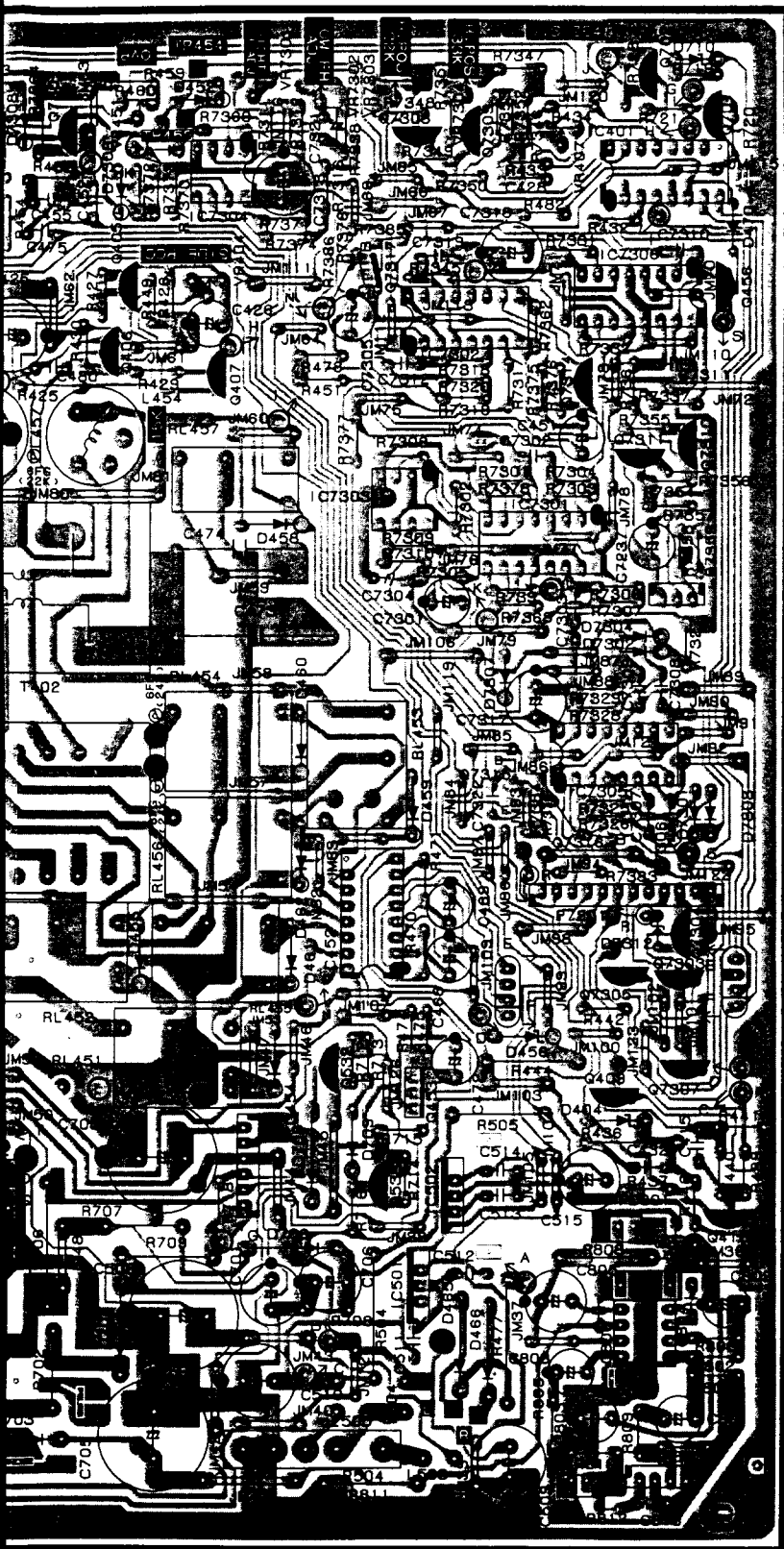
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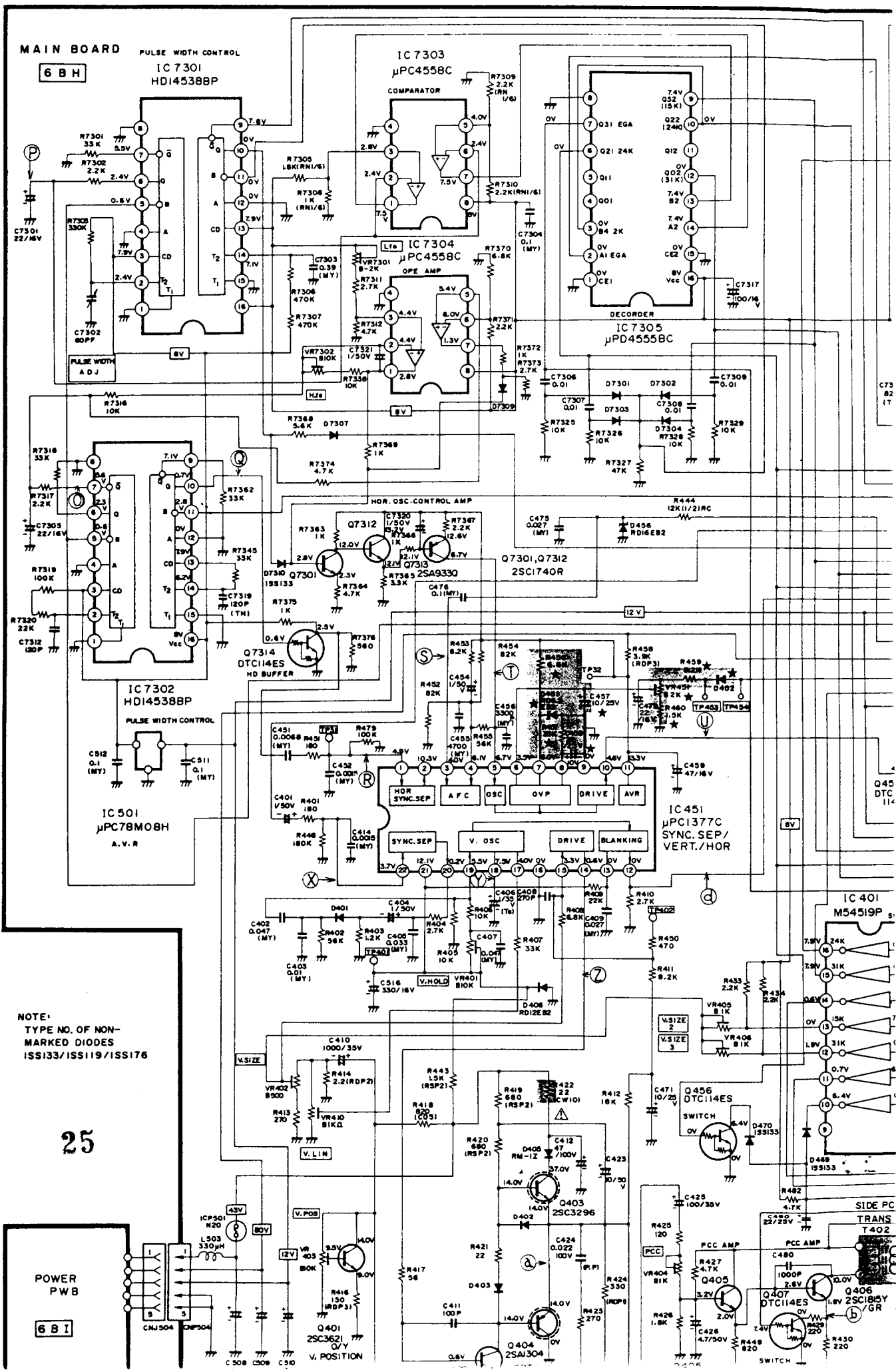
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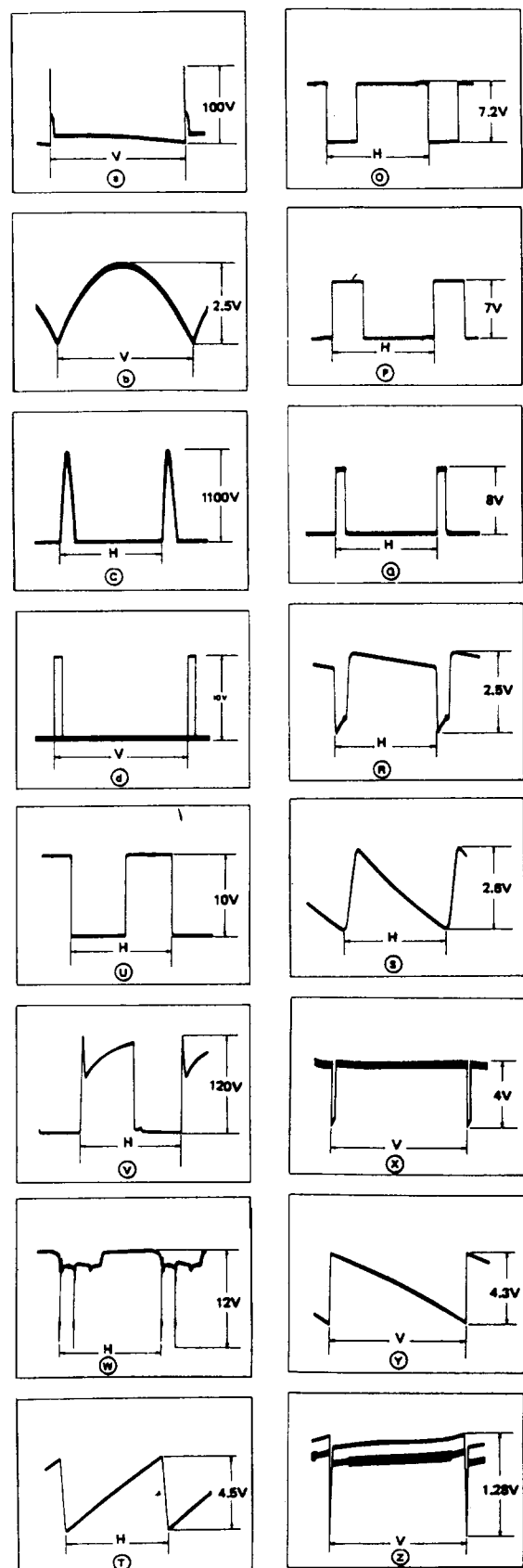
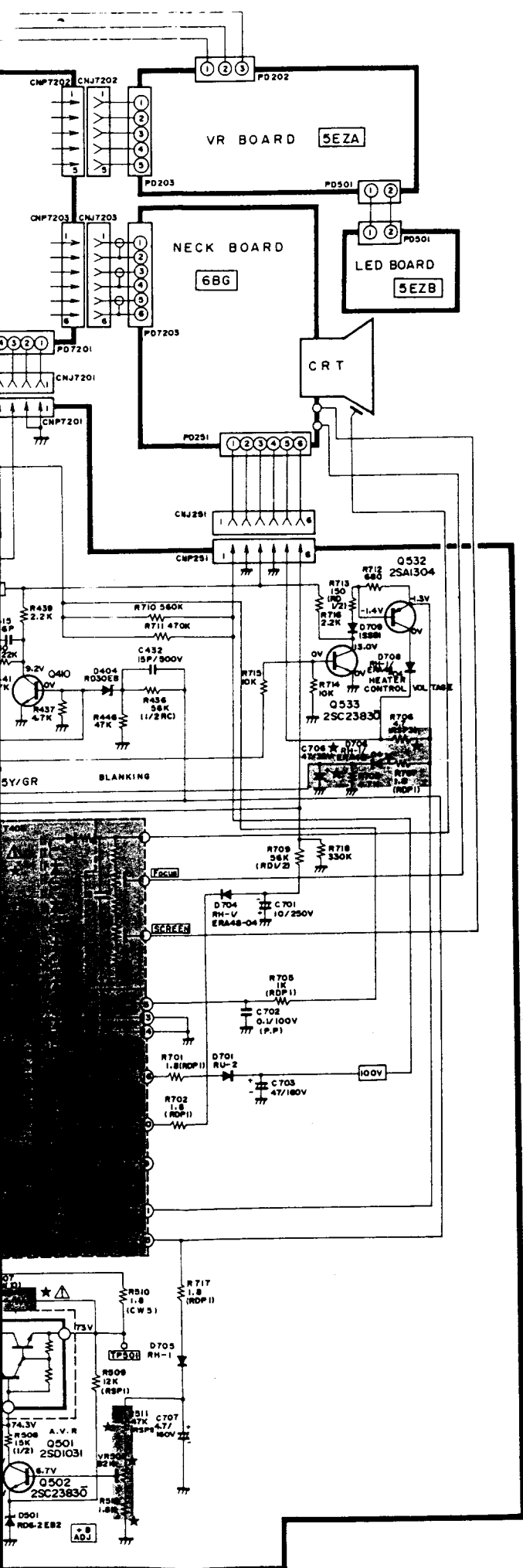
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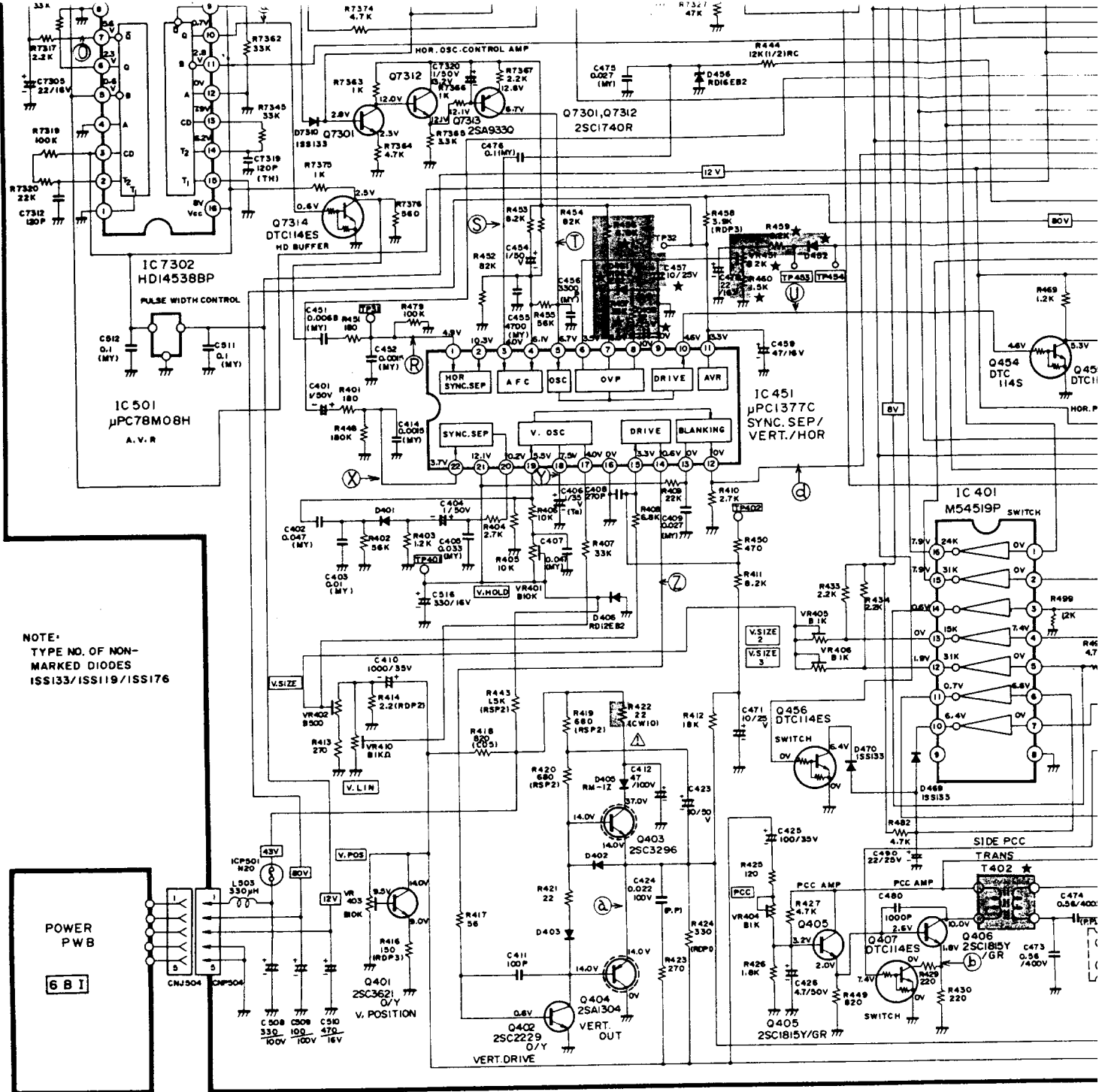


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5





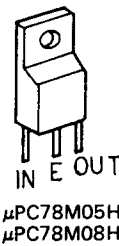
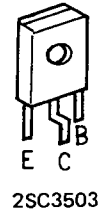
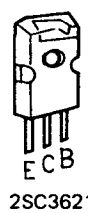


NOTE:
TYPE NO. OF NON-
MARKED DIODES
ISS133/ISS119/ISS176

A B C D

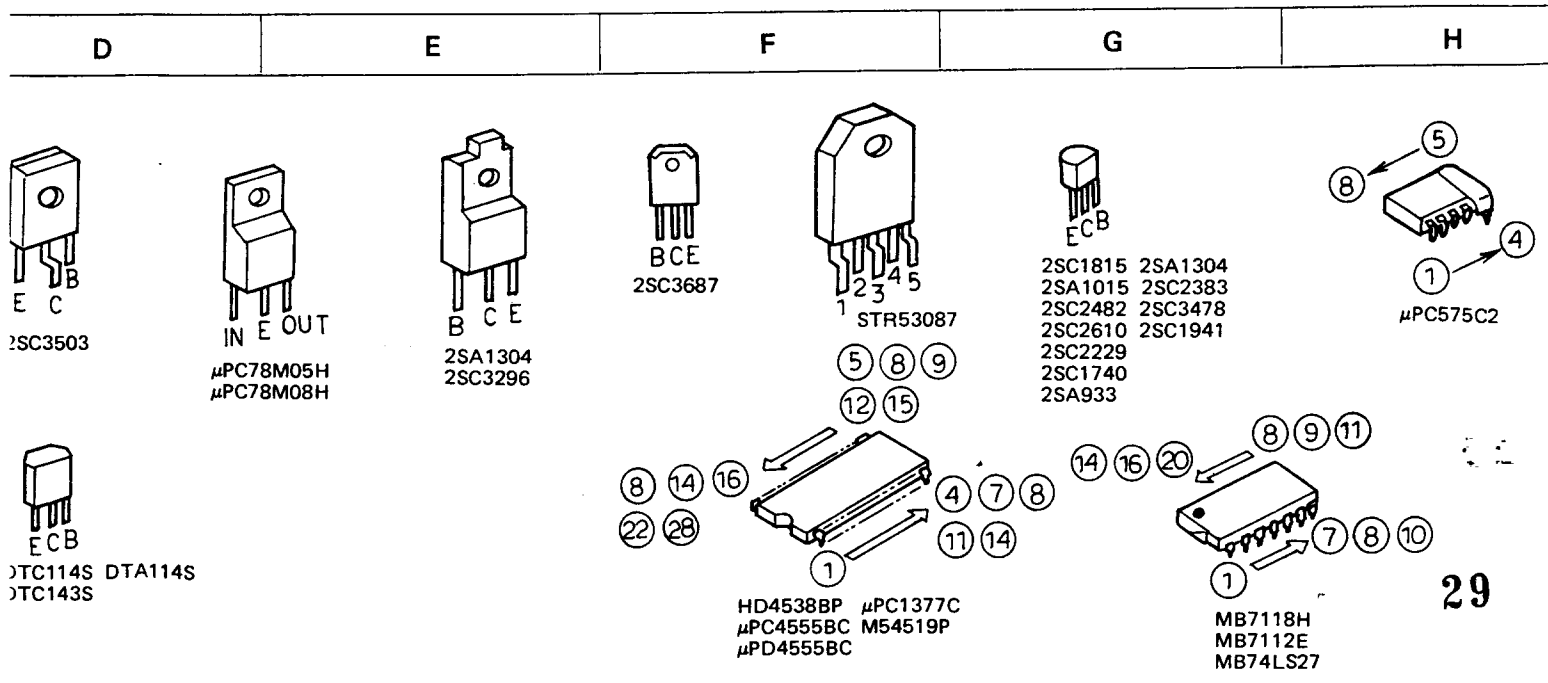
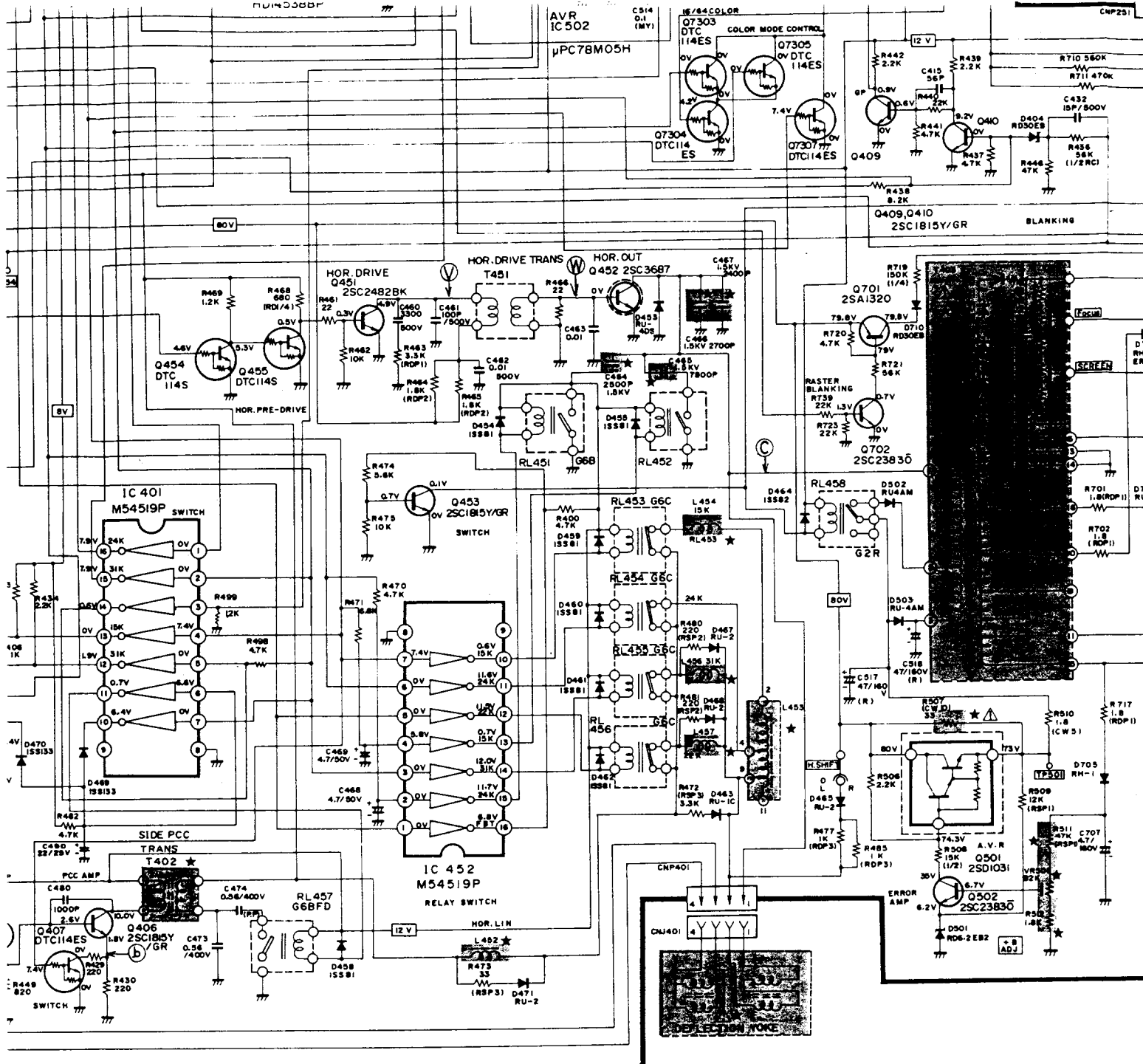
★
SERVICE TECHNICAL WARNING
X-RAY RADIATION PRECAUTION:
THIS PRODUCT CONTAINS CRITICAL
ELECTRICAL AND MECHANICAL
PARTS ESSENTIAL FOR X-RAY
RADIATION PROTECTION.
FOR REPLACEMENT PURPOSES,
USE ONLY TYPE PARTS SHOWN IN
THE PARTS LIST.

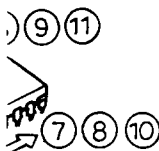
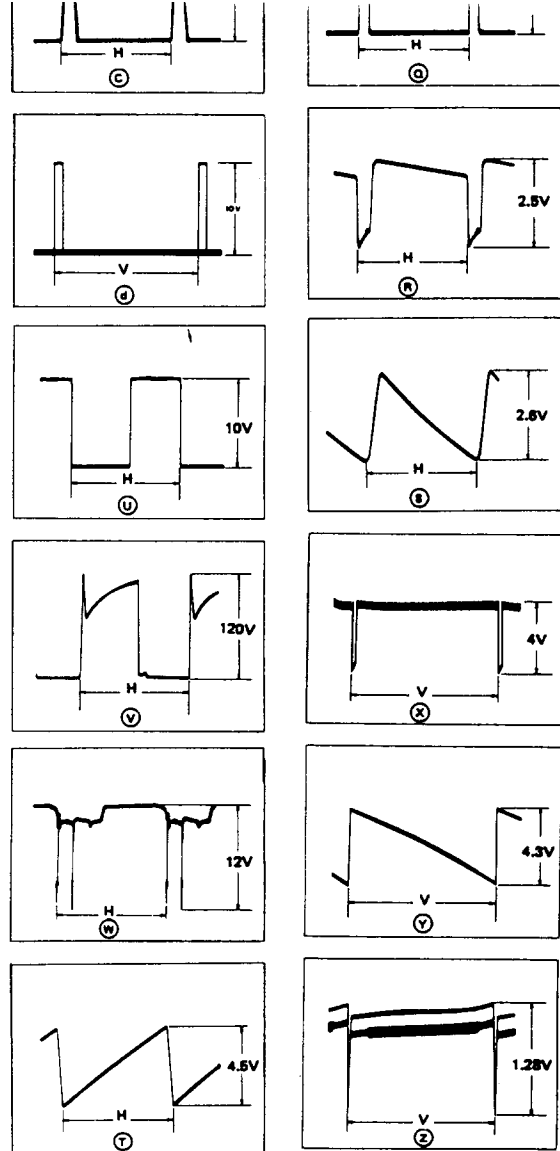
▲
PRODUCT SAFETY NOTICE:
THE PARTS IDENTIFIED BY SHAD-
ING AND BY (▲) ON THE SCHE-
MATIC DIAGRAM ARE SAFETY
CRITICAL COMPONENTS.
FOR REPLACEMENT PURPOSES,
USE ONLY SAME TYPE PARTS
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WARNING:
Over Voltage Protector Adjust control (VR451) has been sealed with Epoxy glue
after proper adjustment at the factory so as not to be influenced at over-radiation
of X-Rays.
Accordingly, do not move it unreasonably.
Also for replacement, seal it securely with epoxy glue after adjusting it properly
with reference to 4. SERVICE ADJUSTMENT in the service manual.







The voltage and waveform shown in the connection diagram were measured under the following conditions.

Display pattern = All white "H" characters
Measuring instrument = Voltage Digital Voltmeter
Waveform . . . Oscilloscope

MAIN BOARD

PULSE WIDTH CONTROL
IC 7301
HD14538BP

7 A W

IC 7303
μPC4558C
COMPARATOR

IC 7305
μPD4555BC
DECODER

IC 7302
HD14538BP
PULSE WIDTH CONTROL

IC 501
μPC78M08H
A.V.R.

IC 451
μPC1377C
SYNC.SEP/VERT./HOR.

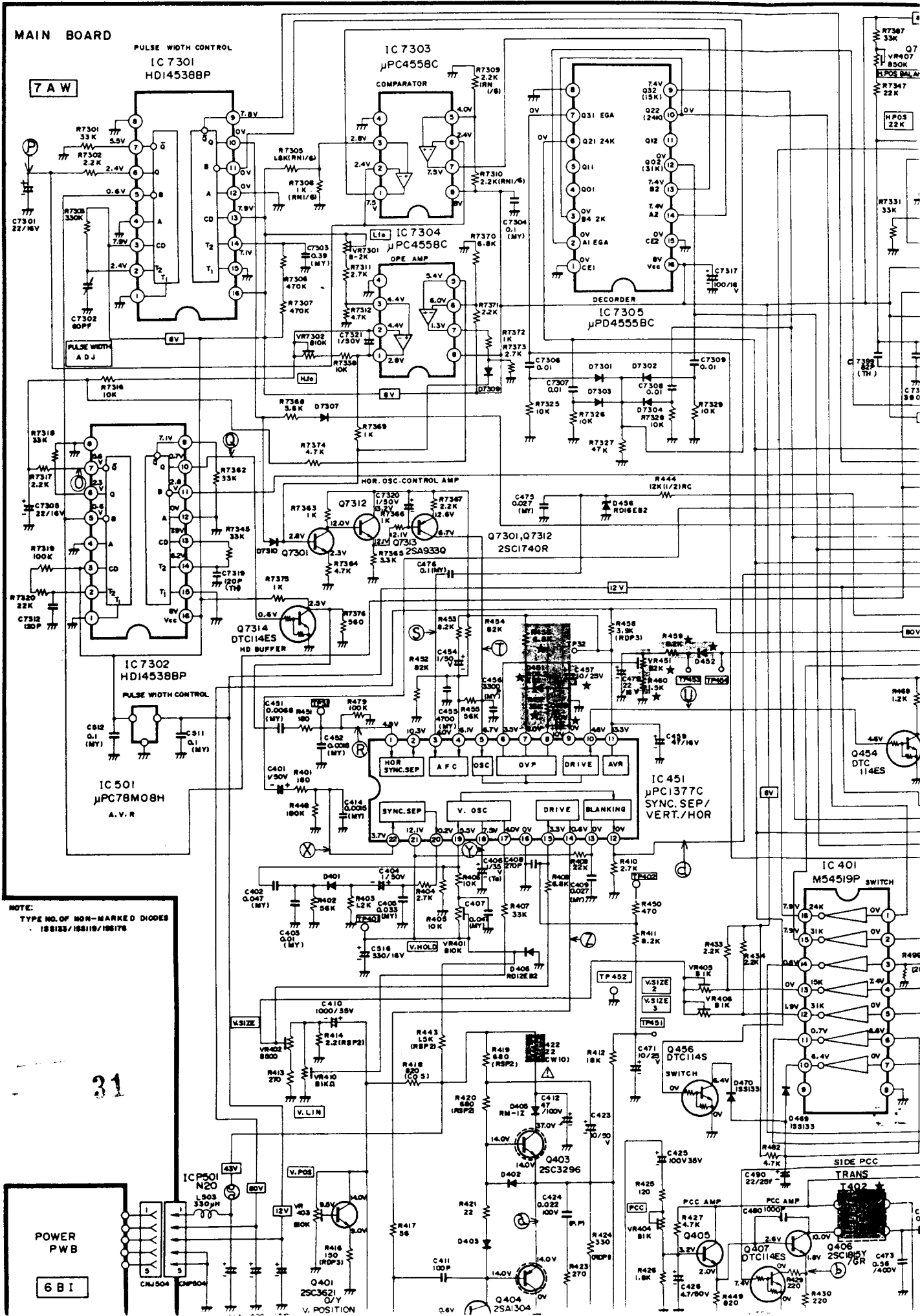
IC 401
M54519P
SWITCH

NOTE:
TYPE NO. OF NON-MARKED DIODES
1S8133/1S8119/1S8178

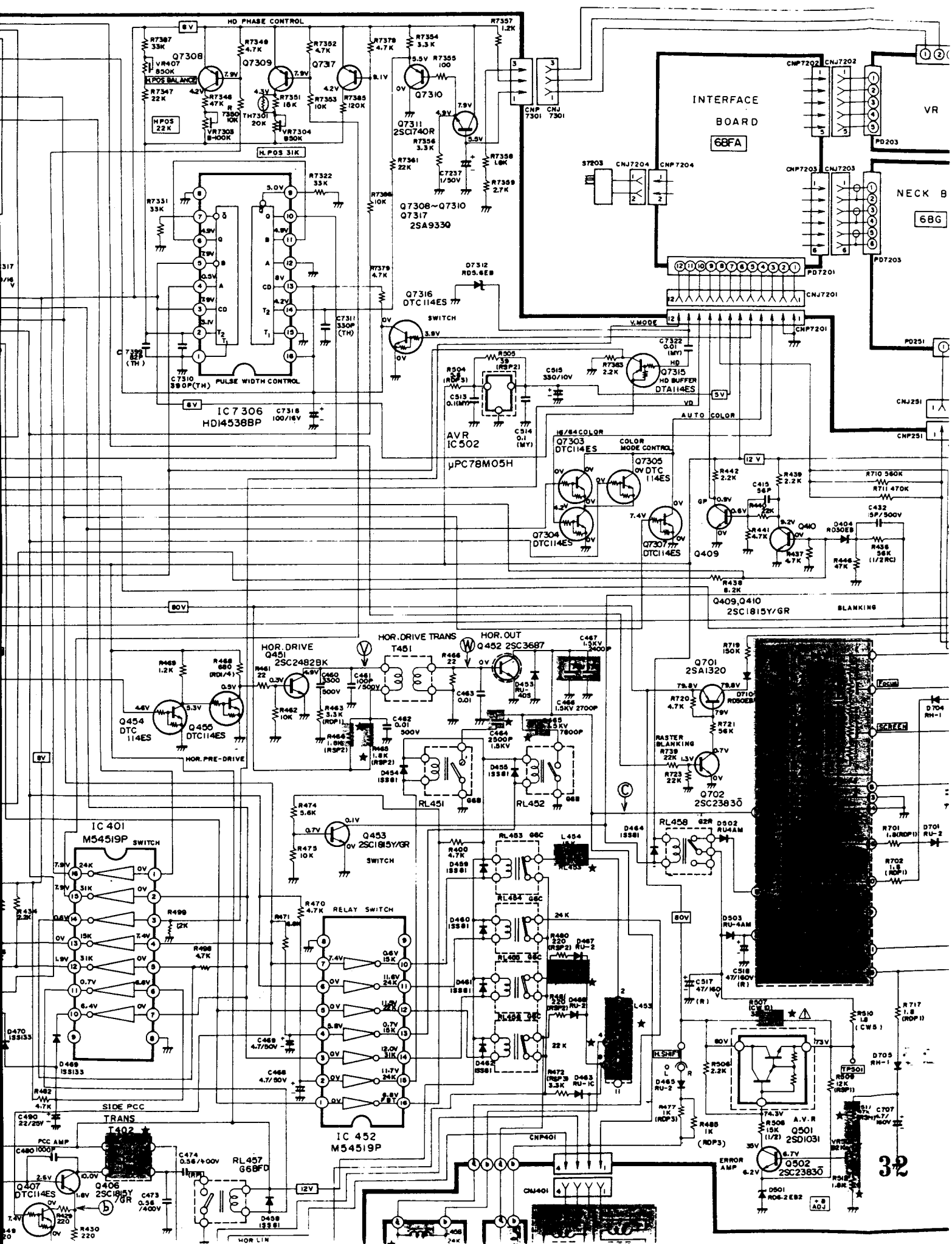
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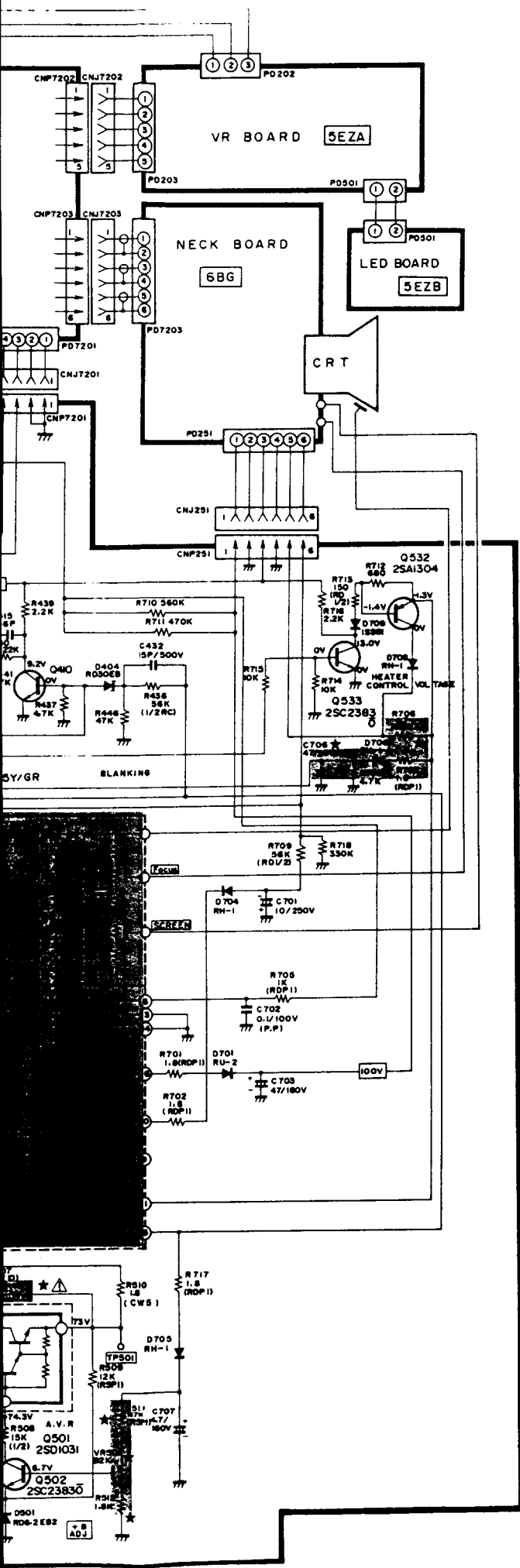
POWER PWB

6 B I

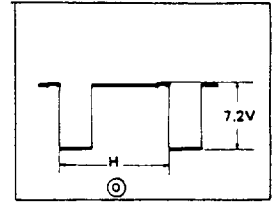
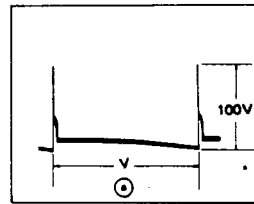


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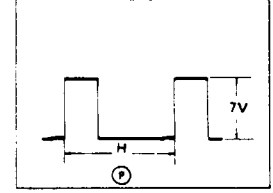
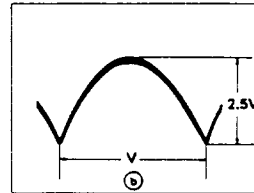




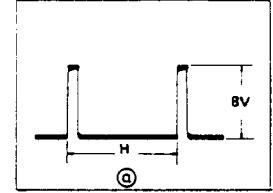
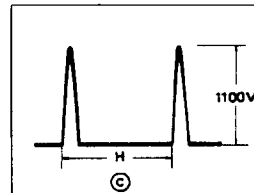
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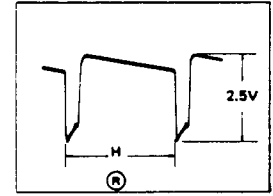
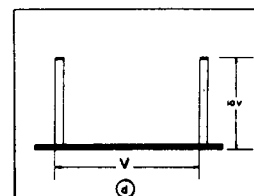
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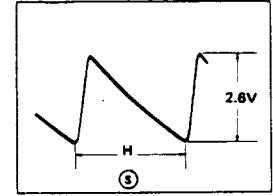
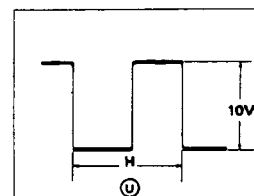
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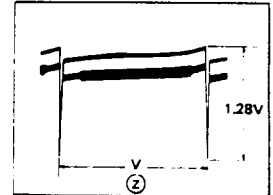
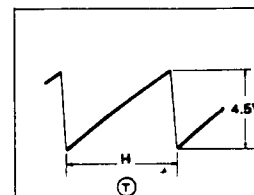
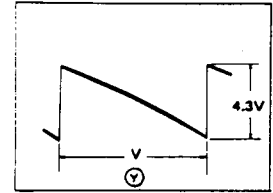
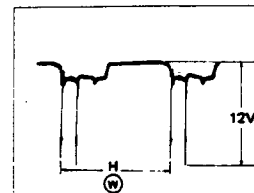
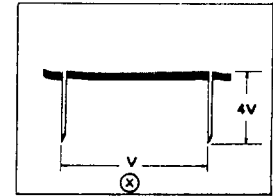
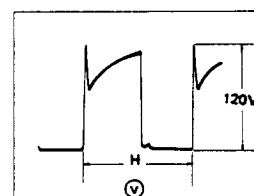
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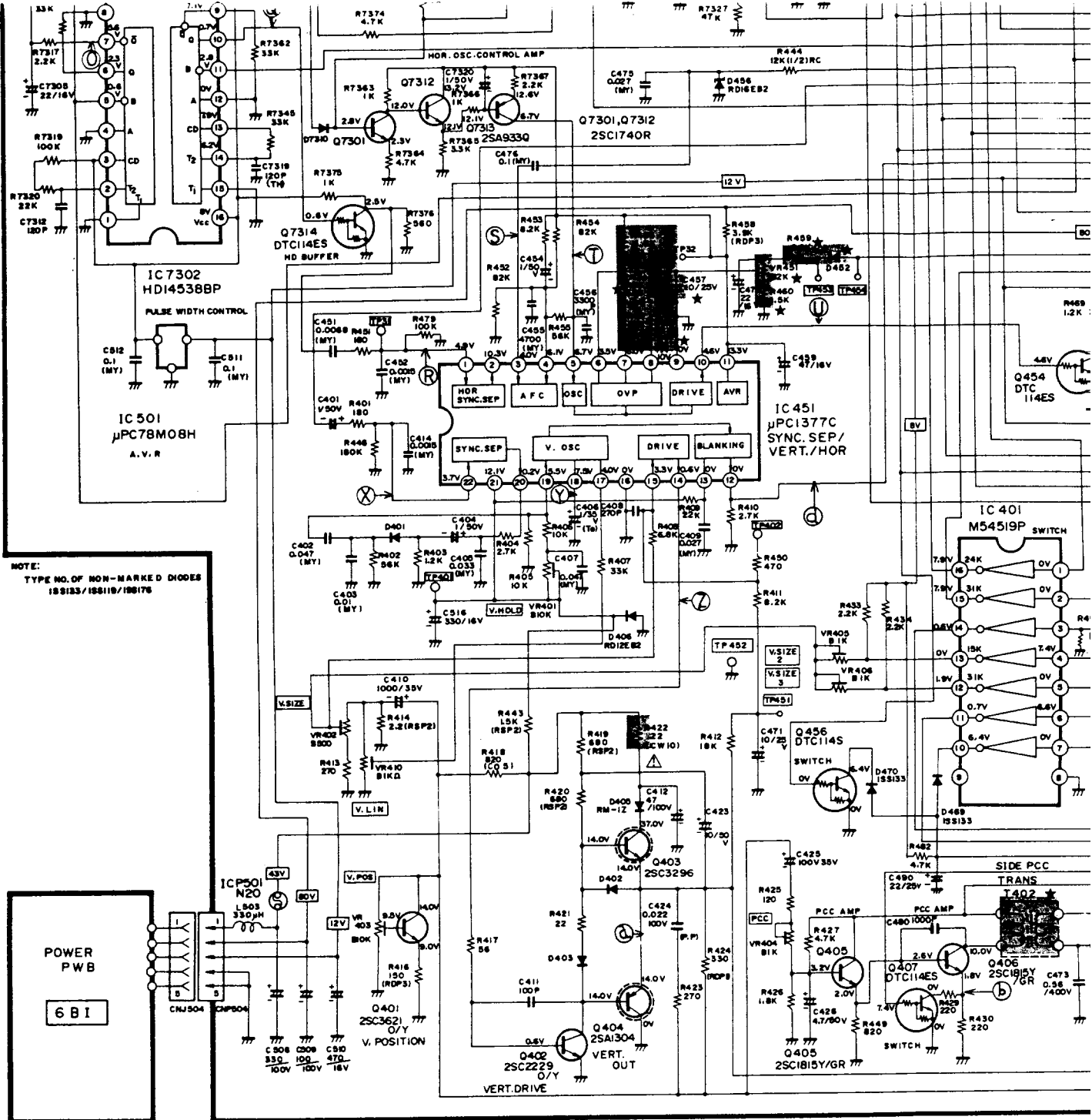


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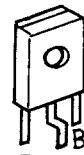


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2SC3621



2SC3503



2SC1815Y/GR

34



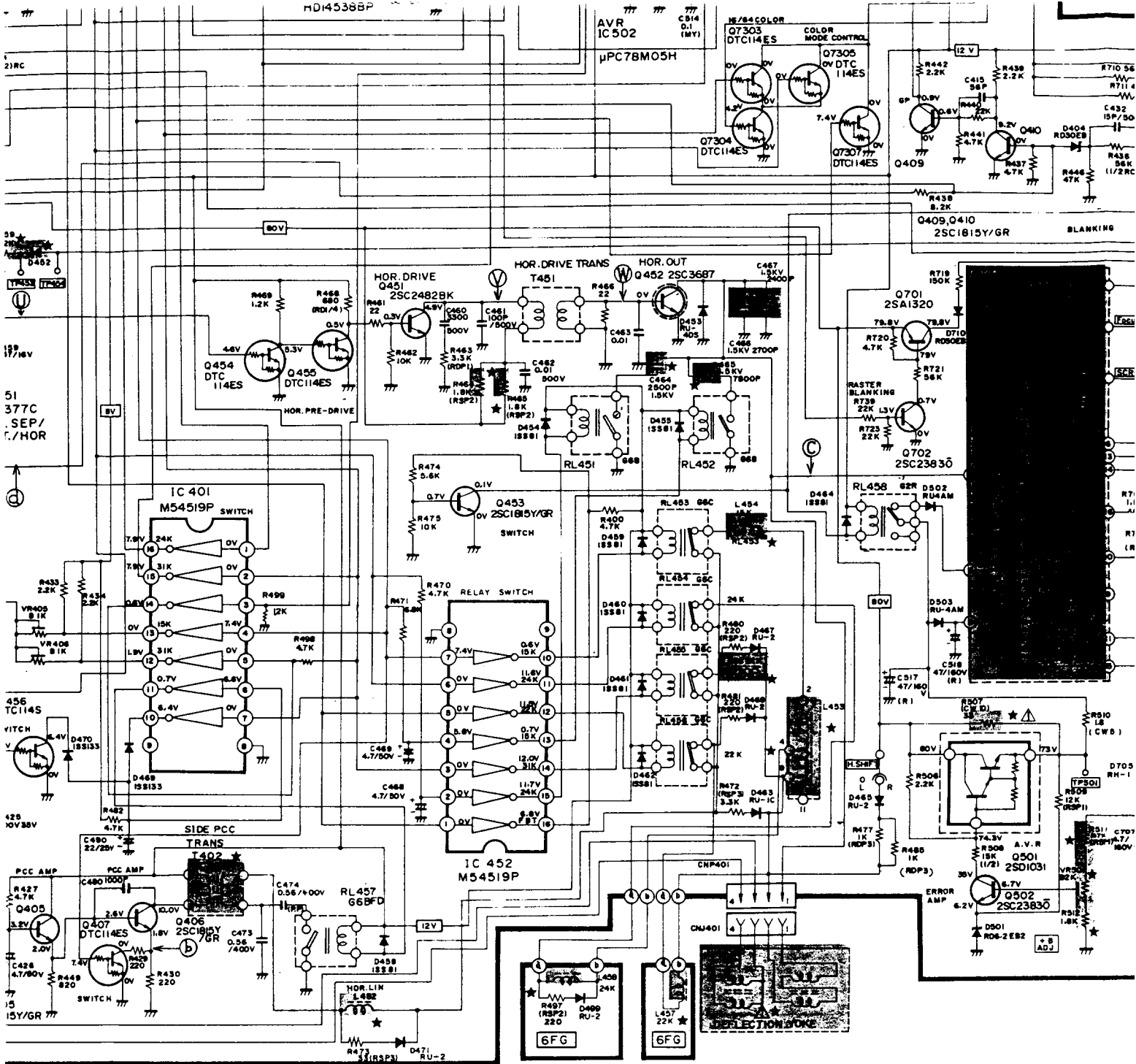
DTC114S DTA114S
DTC143S

WARNING:

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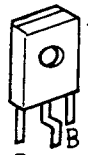
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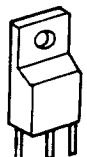
F

G

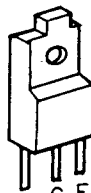
H



2SC3503



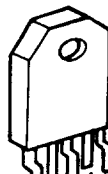
μPC78M05H
μPC78M08H



2SA1304
2SC3296



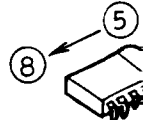
2SC3687



STR53087



2SC1815 2SA1304
2SA1015 2SC2383
2SC2482 2SC3478
2SC2610 2SC1941
2SC2229
2SC1740
2SA933



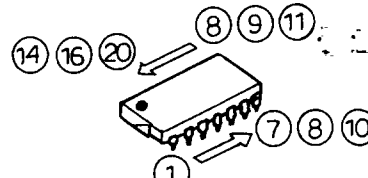
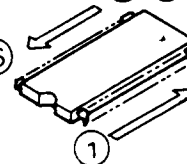
μPC571



DTC114S DTA114S
DTC143S

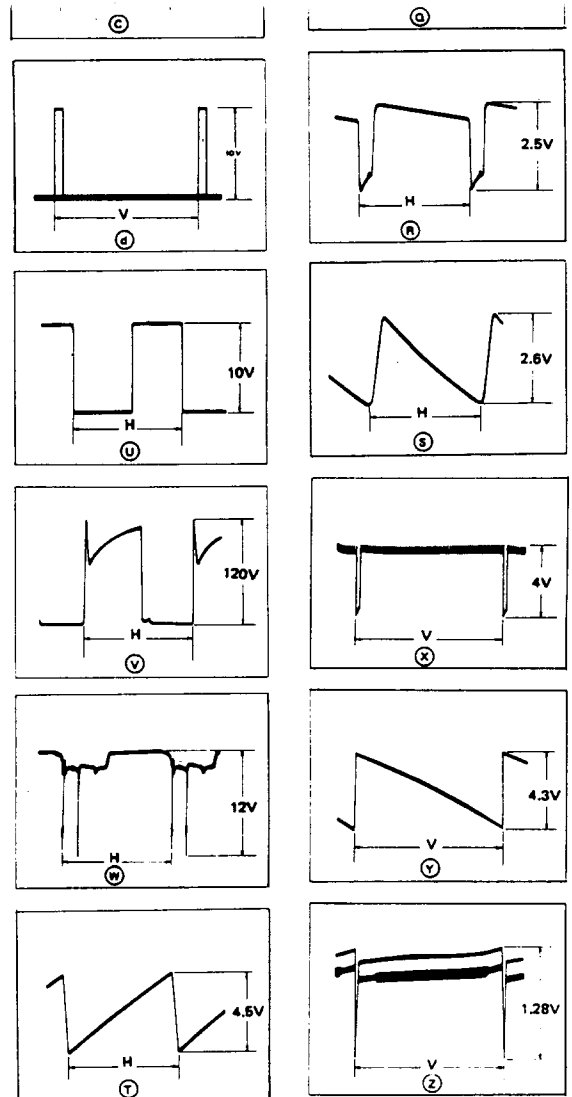
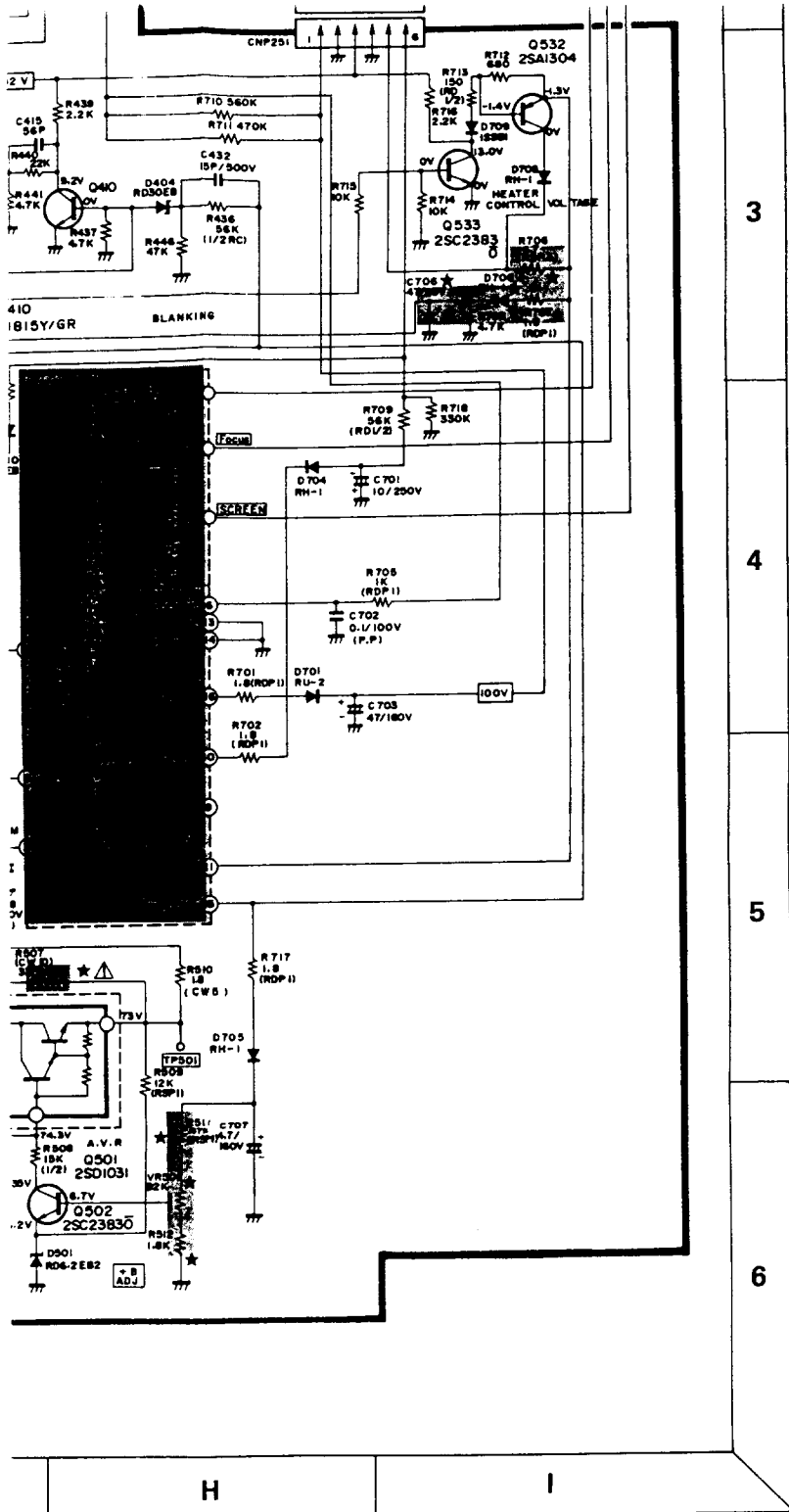


HD4538BP μPC1377C
μPC4555BC M54519P
μPD4555BC



35

MB7118H
MB7112E
MB74LS27



Measurement Conditions

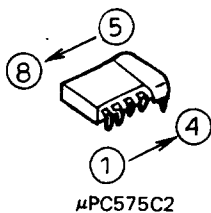
The voltage and waveform shown in the connection diagram were measured under the following conditions.

Scanning frequency = Horizontal 15.7kHz
Vertical 60Hz

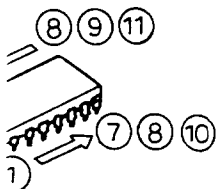
Display pattern = All white "H" characters

Measuring instrument = Voltage Digital Voltmeter

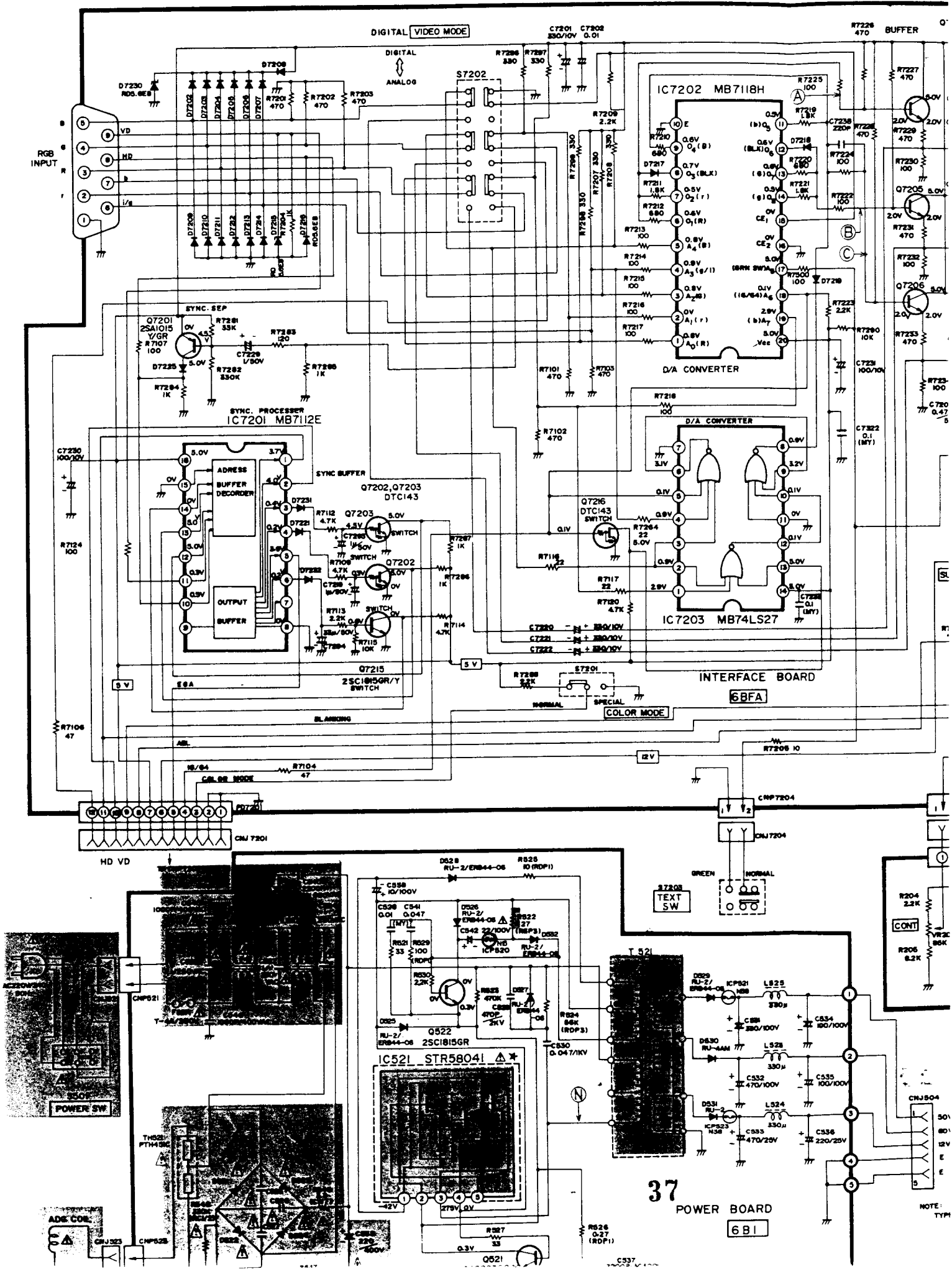
Waveform Oscilloscope



μPC575C2

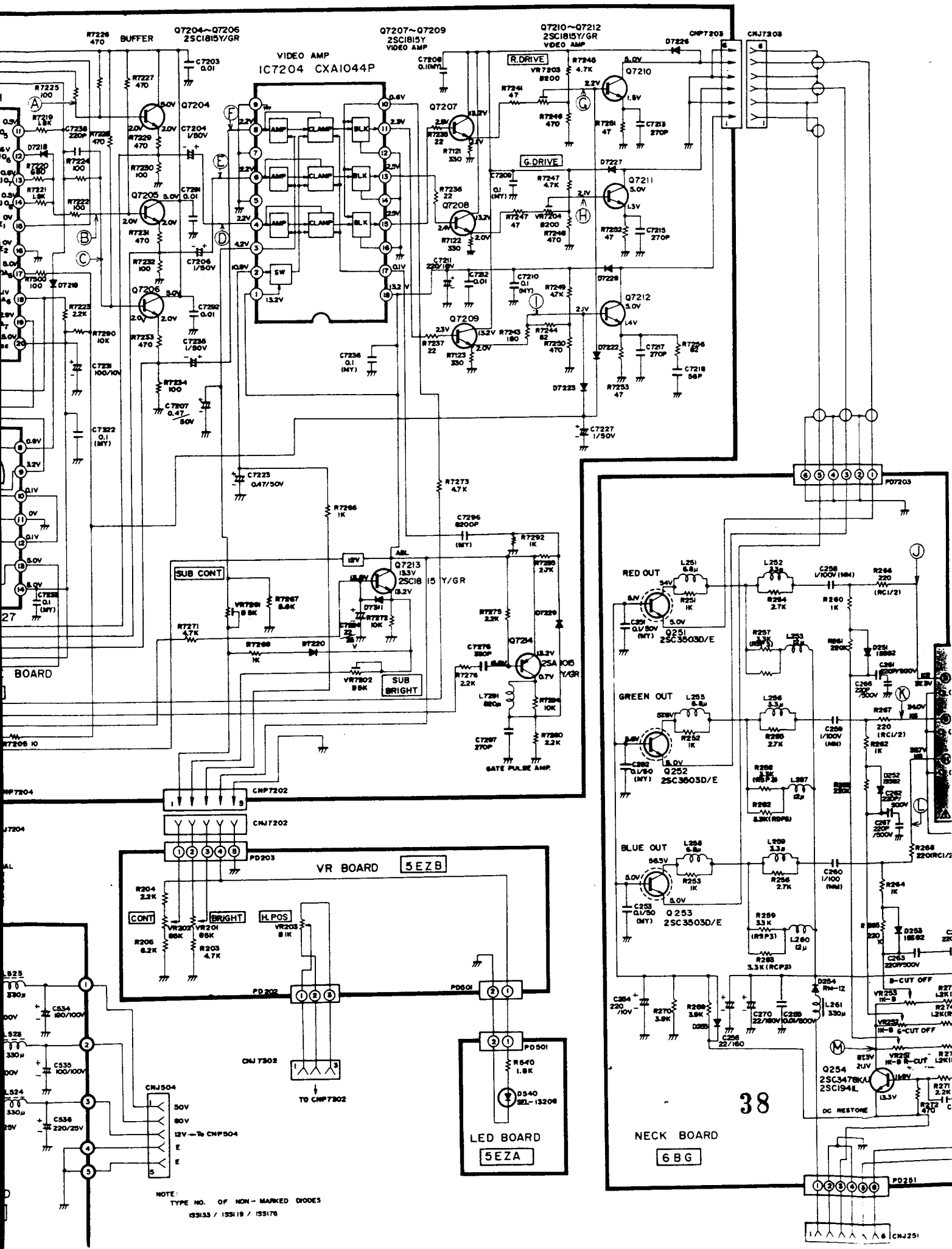


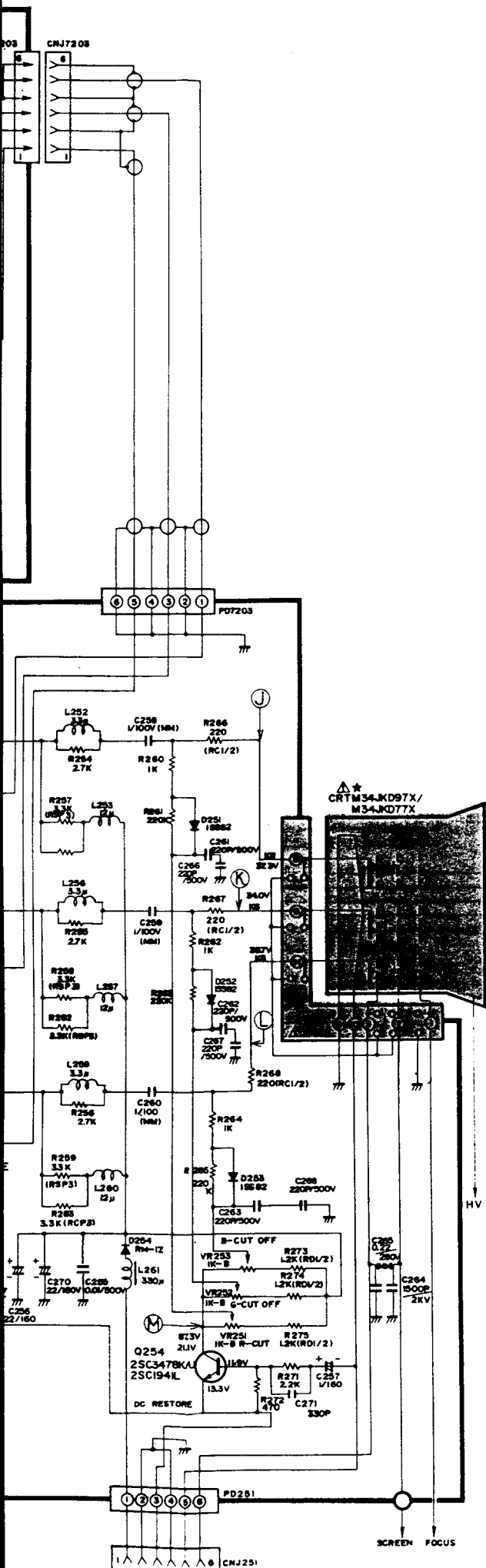
1B7118H
1B7112E
1B74LS27



POWER/VIDEO SECTION SCHEMATIC DIAGRAM

(Applied to ME-5)





1

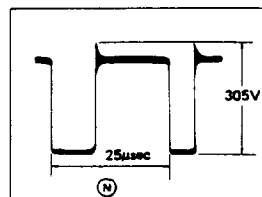
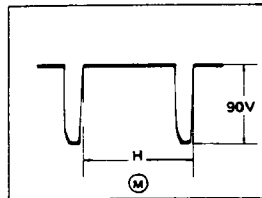
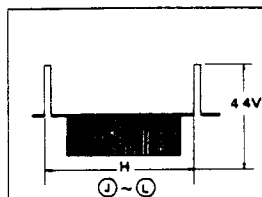
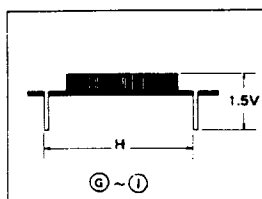
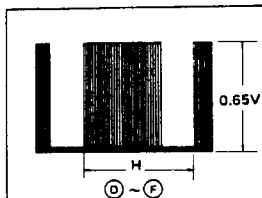
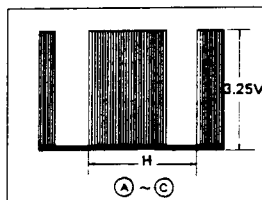
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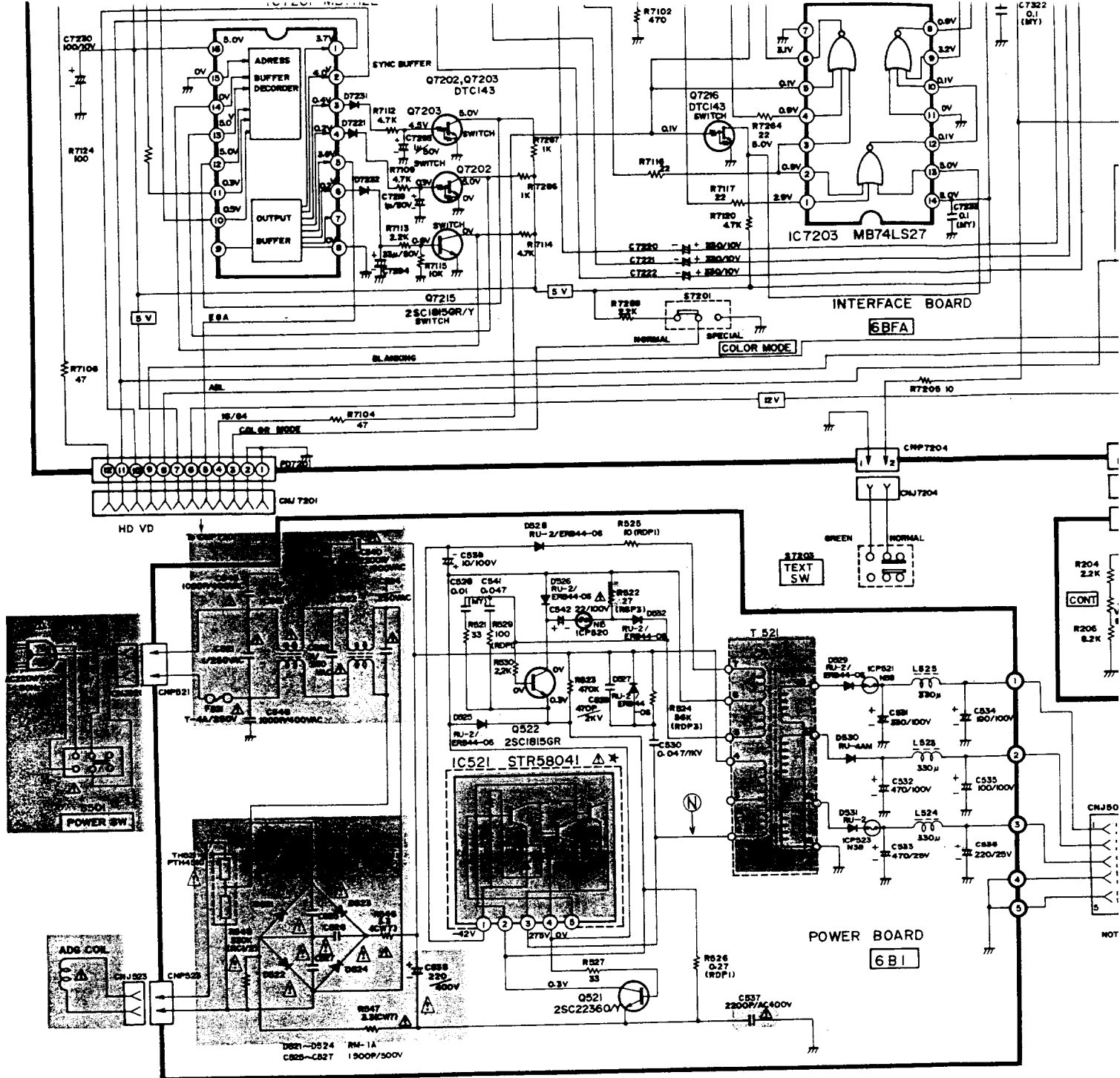
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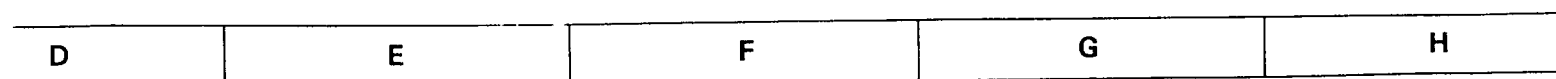
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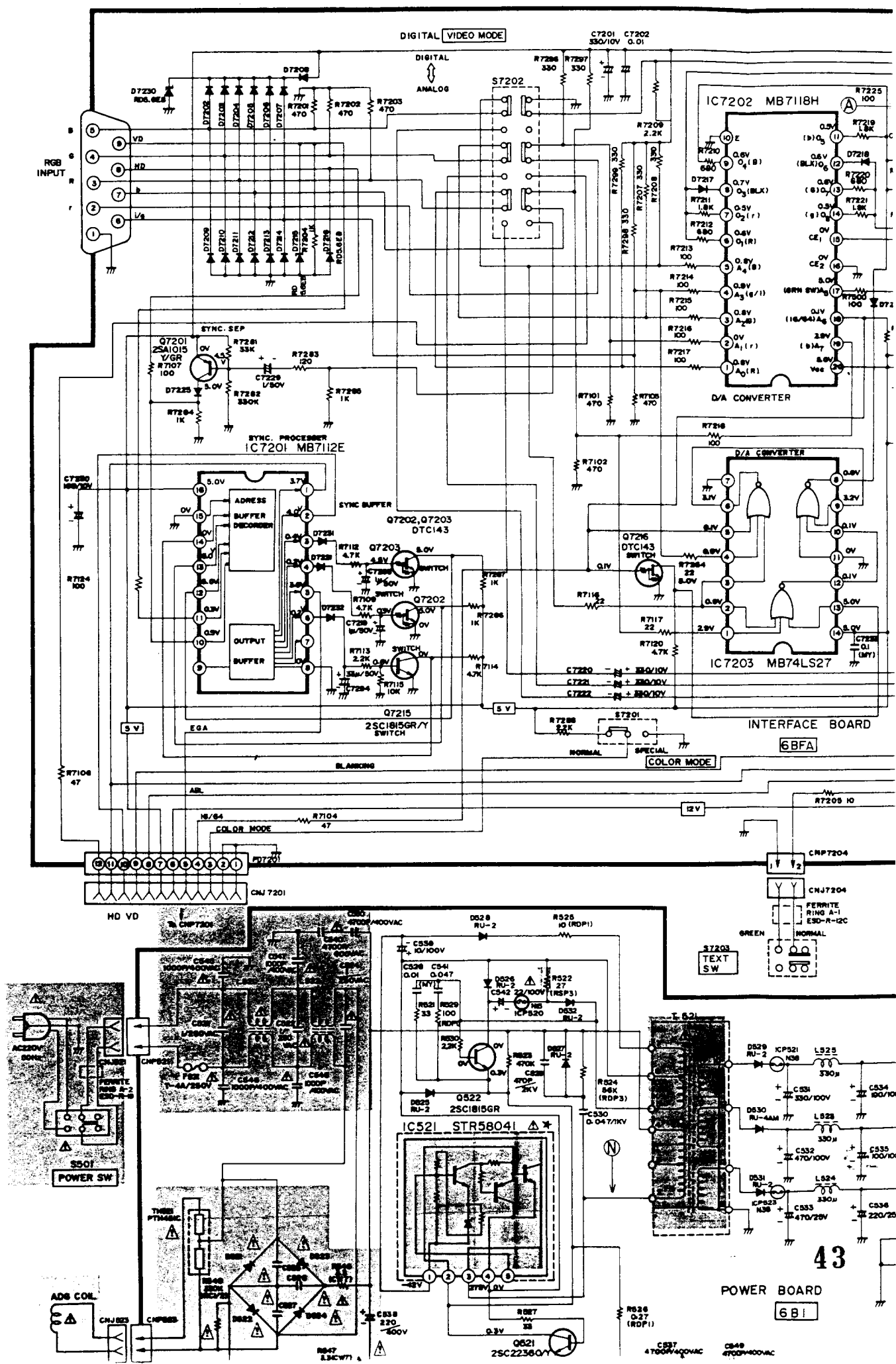
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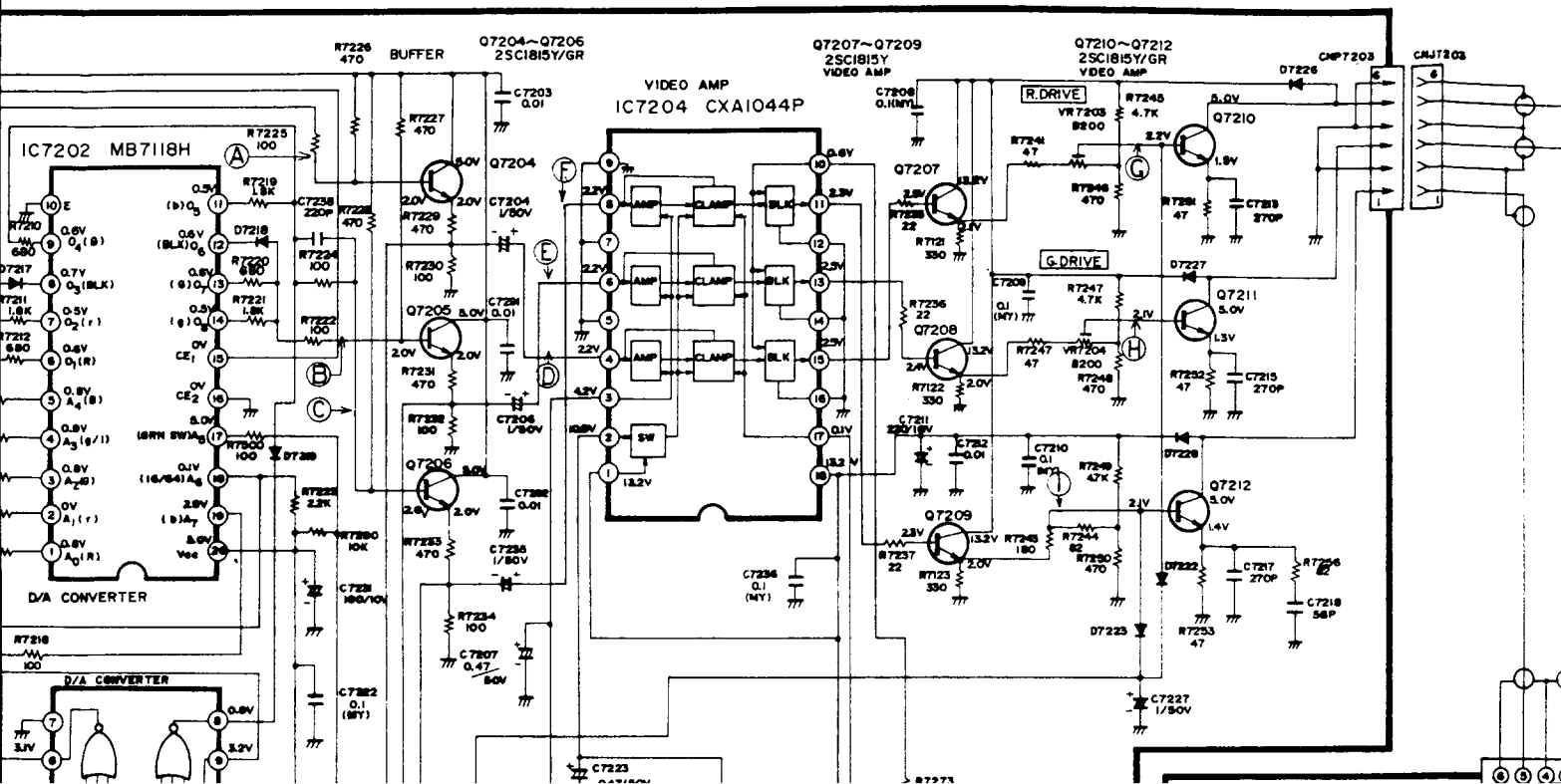
A	B	C	D
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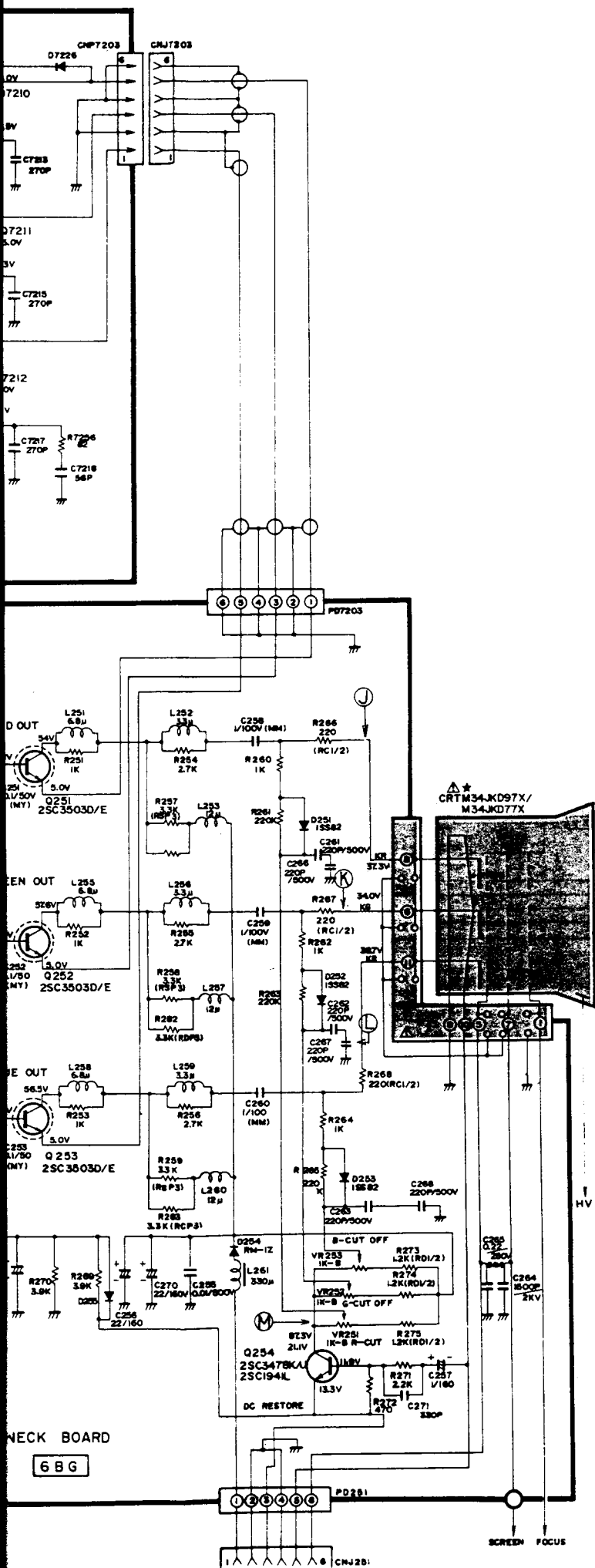




POWER/VIDEO SECTION SCHEMATIC DIAGRAM

(A)





1

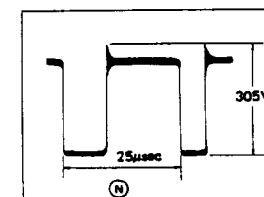
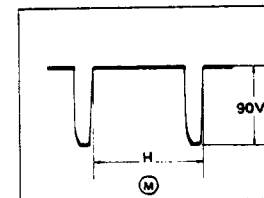
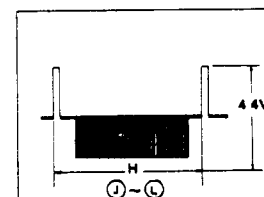
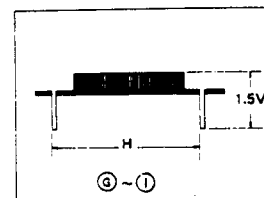
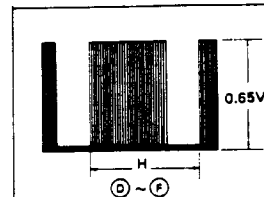
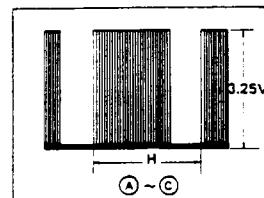
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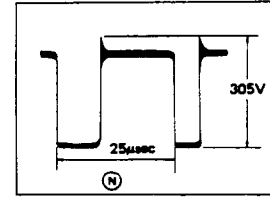
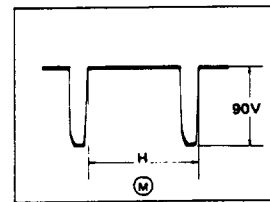
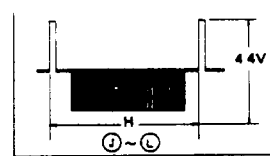
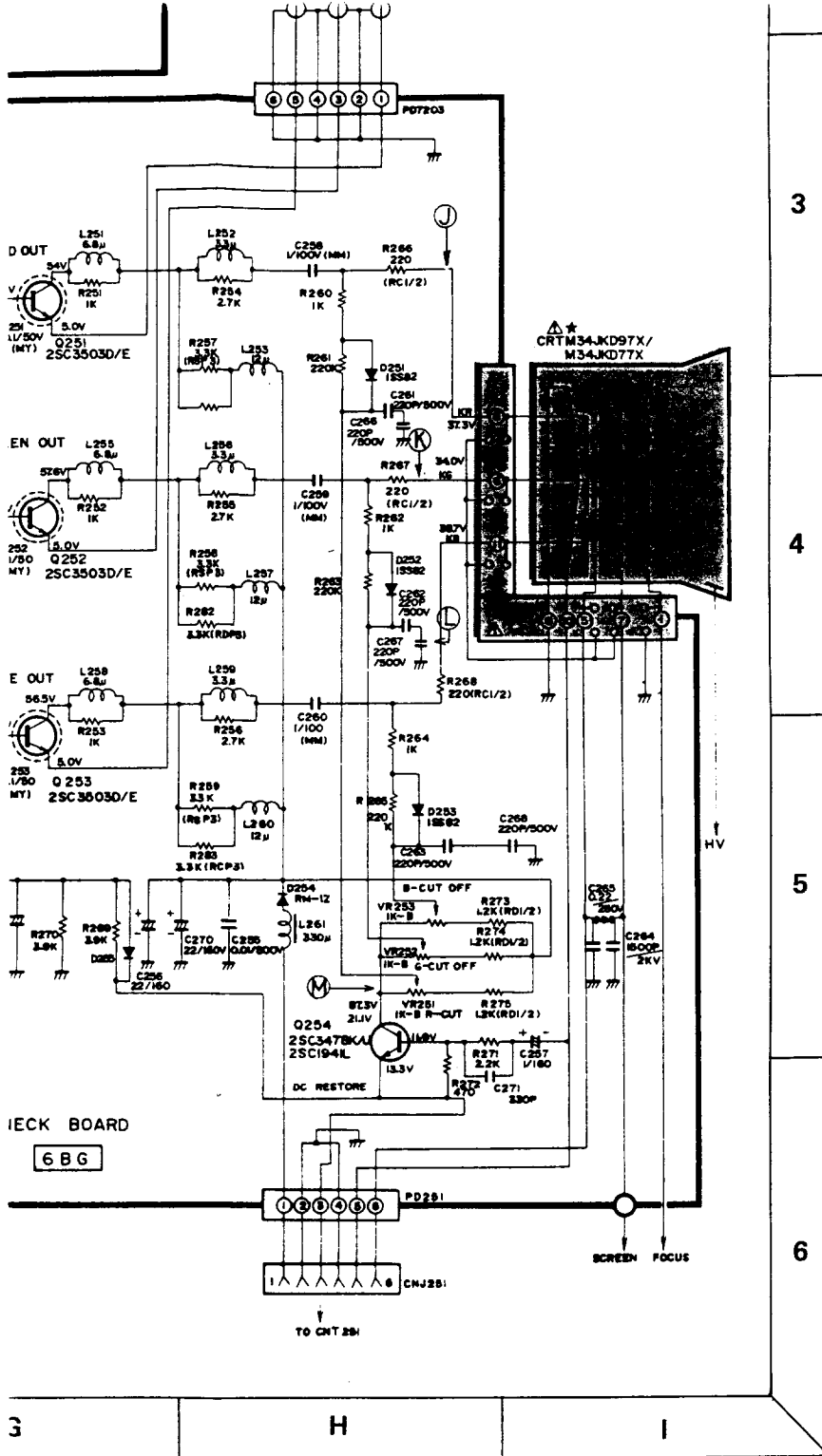
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6



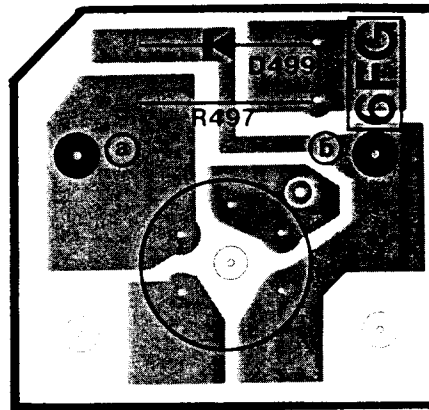


(VIEWED FROM THE COMPONENT SIDE)

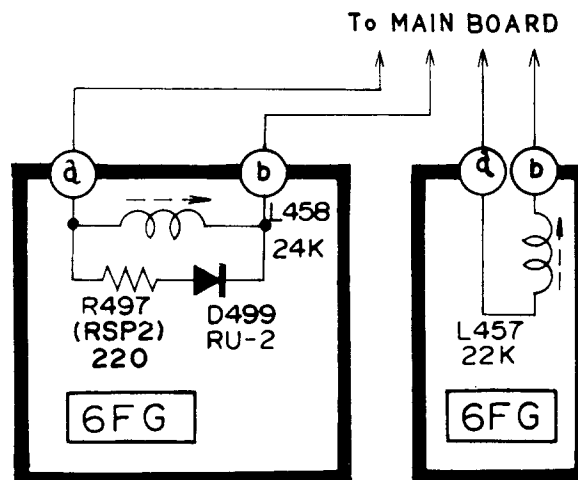


6FG SIZE COIL BOARD MODULE P.C. BOARD OVERLAY

(VIEWED FROM THE COMPONENT SIDE)

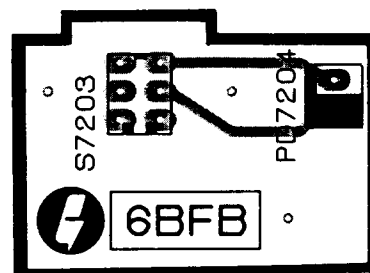


SIZE COIL BOARD SCHEMATIC DIAGRAM



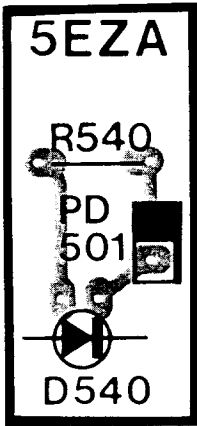
6BFB SWITCH BOARD MODULE P.C. BOARD OVERLAY

(VIEWED FROM THE COMPONENT SIDE)



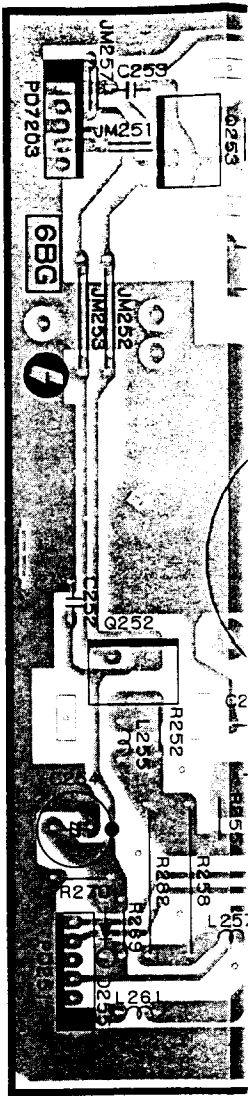
5EZA LED BOARD MODULE P.C. BOARD OVERLAY

(VIEWED FROM THE COMPONENT SIDE)

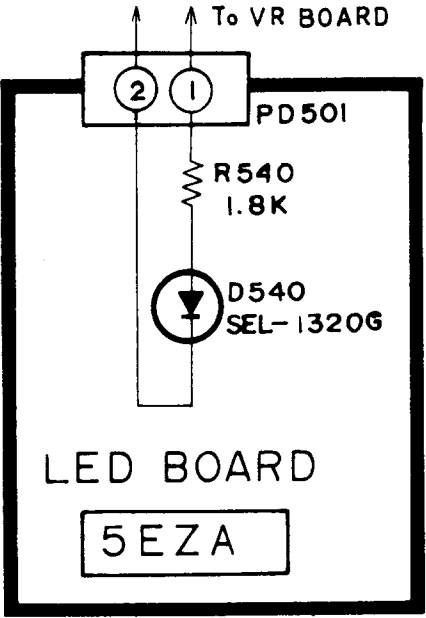


6BG NECI P.C. BOA

(VIEWED F



LED BOARD SCHEMATIC DIAGRAM



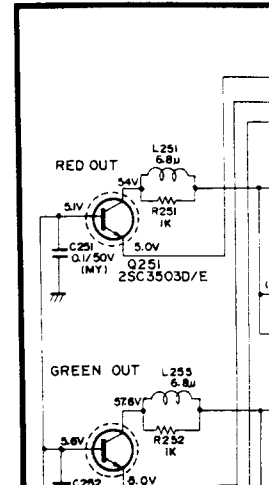
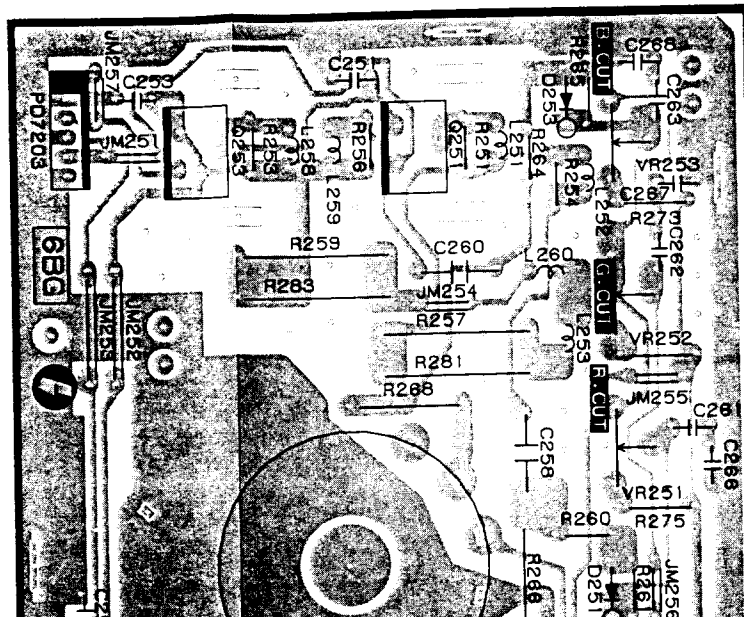
MODULE
LAY

6BG NECK BOARD MODULE
P.C. BOARD OVERLAY

NECK
SCHE

T SIDE)

(VIEWED FROM THE COMPONENT SIDE)

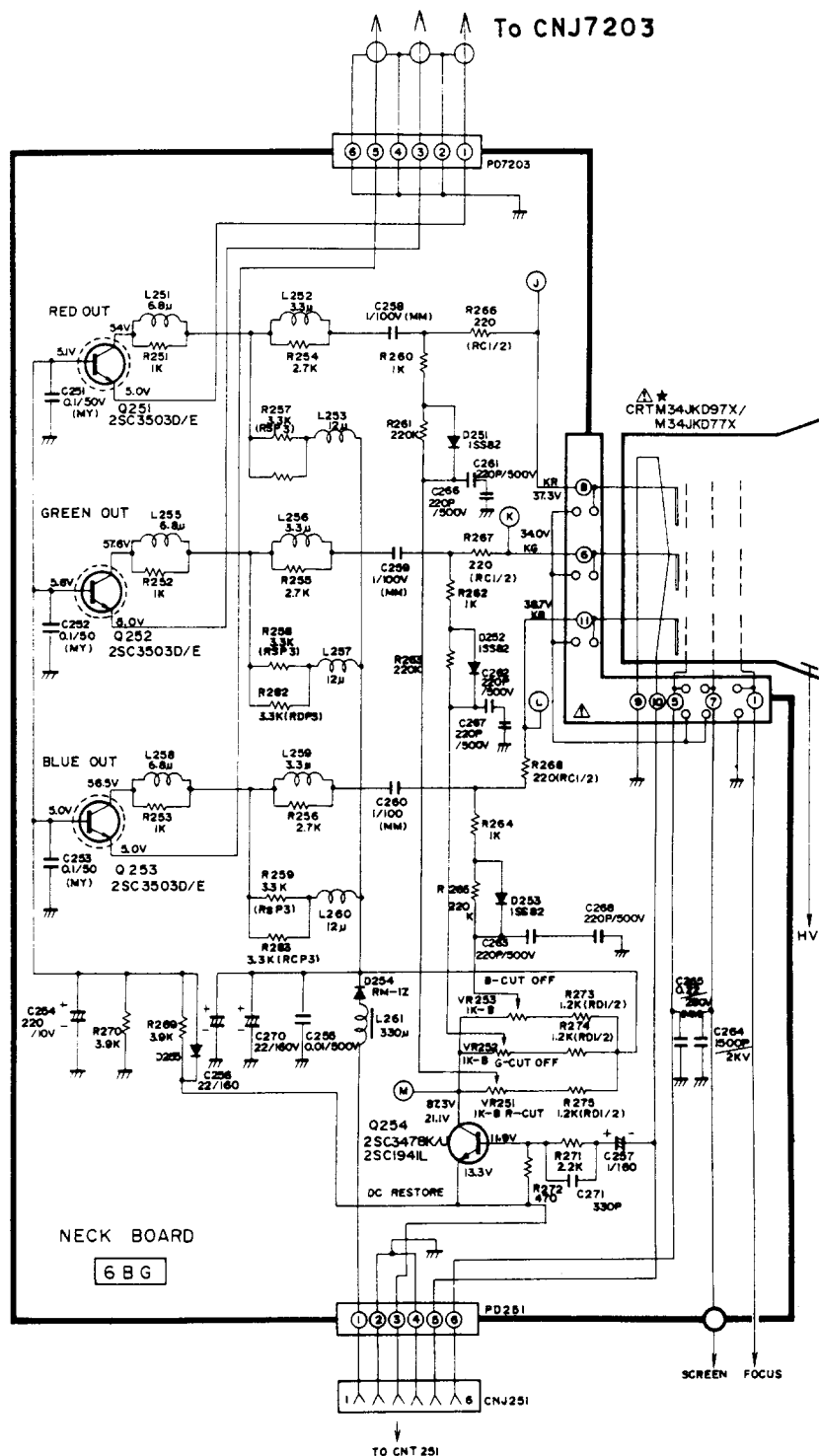


DIAGRAM

RD

FROM THE COMPONENT SIDE)

FROM THE COMPONENT SIDE)



PARTS LIST

When you order the parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

★ Mark : X-RAY RADIATION RELATED PARTS.

⚠ Mark : SAFETY RELATED PARTS.

CABINET PARTS

Ref. No.	Part No.	Description	Order Q'ty
★ ⚠	2001206166	Picture Tube M34JKD87X62	
	2076004619	Cabinet	
	2076309158	Cabinet Rear	
	2076509248	Cover (Hole)	
	2079018951	Decoration (Speaker)	
	2079019832	Decoration (Rear)	
	2087304098	Knob E462-1	
	2087905825	Button (Power Switch)	

Notes:

All capacitors and resistors are listed using abbreviations.

1. Abbreviations of capacitors.

CERAMIC	Disc Ceramic Capacitor
ELECTROLYTIC	Electrolytic Capacitor
MYLAR	Mylar Film Capacitor
VARIABLE	Variable Capacitor
MPP	Metalized Polypropylene Capacitor
PP	Polypropylene Capacitor
PAPER	Paper Capacitor
M.MYLAR	Metalized Mylar Film Capacitor
STYROL	Polystyrene Film Capacitor

2. Abbreviations of resistors.

CARBON	Carbon Film Resistor
CARBON FR	Flameproof Carbon Film Resistor
COMPOSITION	Fixed Composition Resistor
METAL OXIDE	Metal Oxide Film Resistor
WIRE WOUND	
(CEMENT)	Wire Wound (Cement) Resistor
METAL	Metal Film Resistor

3. Abbreviations common to capacitors and resistors.

C	±0.25pF (Used for capacitors only)
D	±0.5pF (Used for capacitors only)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
Z	+80% -20% (Used for capacitors only)
P	+100% -0% (Used for capacitors only)

CAPACITORS

Ref. No.	Part No.	Description	Order Q'ty
C251 thru 253	2031604858	Mylar 50V 0.1μF-K	
C254	2025721299	Electrolytic 10V 220μF-M	
C255	2027050792	Ceramic 500V 0.01μF-K	
C256	2030040034	Electrolytic 160V 22μF	
C257	2030635002	Electrolytic 160V 1μF	
C258 thru 260	2031310197	M. Mylar 100V 1μF-K	
C261 thru 263	2027050591	Ceramic 500V 220pF-K	
C264	2027150039	Ceramic 2KV 1500pF-K	
C265	2031350006	M. Mylar 250V 0.22μF-K	
C266 thru 268	2027050591	Ceramic 500V 220pF-K	
C270	2030040034	Electrolytic 160V 22μF	
C271	2027000122	Ceramic 50V 330pF-K	
C401	2025725297	Electrolytic 50V 1μF-M	
C402	2031600719	Mylar 50V 0.047μF-K	
C403	2031600436	Mylar 50V 0.01μF-K	
C404	2025725297	Electrolytic 50V 1μF-M	
C405	2031600647	Mylar 50V 0.033μF-K	
C406	2030414017	Tantal 35V 1μF-K	
C407	2031600719	Mylar 50V 0.047μF-K	
C408	2027200058	Ceramic 50V 270pF-K	
C409	2031600613	Mylar 50V 0.027μF-K	
C410	2030024233	Electrolytic 35V 1000μF-M	
C411	2027200001	Ceramic 50V 100pF-K	
C412	2030034412	Electrolytic 100V 47μF-M	
C414	2031600073	Mylar 50V 1500pF-J	
C415	2028200514	Ceramic 50V 56pF-J	
C423	2025725332	Electrolytic 50V 10μF-M	
C424	2031207043	PP 100V 0.022μF-K	
C425	2030024197	Electrolytic 35V 100μF-M	
C426	2025725328	Electrolytic 50V 4.7μF-M	
C432	2028265307	Ceramic 500V 15pF-J	
C451	2031600366	Mylar 50V 6800pF-K	
C452	2031600085	Mylar 50V 1500pF-K	
C454	2025725297	Electrolytic 50V 1μF-M	
C455	2031604376	Mylar 50V 4700pF-K	
C456	2031600214	Mylar 50V 3300pF-J	
★ C457	2025723268	Electrolytic 25V 10μF-M	
C458	2025723279	Electrolytic 25V 22μF-M	
C459	2025722283	Electrolytic 16V 47μF-M	
C460	2027050730	Ceramic 500V 3300pF-K	
C461	2027204000	Ceramic 500V 100pF-K	
C462	2027050792	Ceramic 500V 0.01μF-K	
C463	2027203032	Ceramic 50V 0.01μF-Z	
★ C464	2031272143	P.P (DKR) 1.6KVDC 2500pF-J	
★ C465	2031272126	PP 1.6KVDC 7800pF-J	
★ C466	2031271401	PP 1.6KVDC 2700pF-J	
★ C467	2031271398	PP 1.6KVDC 2400pF-J	
C468, 469	2025725328	Electrolytic 50V 4.7μF-M	
C471	2025723268	Electrolytic 25V 10μF-M	
C473, 474	2031450005	Mylar-PP 400V 0.56μF-J	
C475	2031600613	Mylar 50V 0.027μF-K	
C476	2031600859	Mylar 50V 0.1μF-K	
C479	2030014143	Electrolytic 16V 22μF-M	
C480	2027000678	Ceramic 50V 1000pF-K	
C490	2030019026	Electrolytic 25V 22μF-M	
C508	2030034446	Electrolytic 100V 330μF-M	

When you order the parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

Ref. No.	Part No.	Description	Order Q'ty
C509	2030034429	Electrolytic 100V 100μF-M	
C510	2030014209	Electrolytic 16V 470μF-M	
C511 thru 514	2031600859	Mylar 50V 0.1μF-K	
C515	2030009199	Electrolytic 10V 330μF-M	
C516	2030014192	Electrolytic 16V 330μF-M	
C517, 518	2030041057	Electrolytic 160V 47μF	
C521, 522, 524	2031810651	M. Mylar 250V 1μF-M	
C525 thru 527	2027050282	Ceramic 500V 1500pF-K	
C528	2031600436	Mylar 50V 0.01μF-K	
C529	2028140060	Ceramic 2KV 470pF-K	
C530	2031359004	M. Mylar 1KV 0.047μF-K	
C531	2030034930	Electrolytic 100V 330μF-M	
C532	2030034943	Electrolytic 100V 470μF-M	
C533	2030019607	Electrolytic 25V 470μF-M	
C534, 535	2030034919	Electrolytic 100V 100μF-M	
C536	2030019588	Electrolytic 25V 220μF-M	
C537	2027830193	Cera Line 400VAC 4700pF-P	
C538	2030255023	Electrolytic 400V 220μF-M	
C539	2030034873	Electrolytic 100V 10μF-M	
C540	2027830193	Cera Line 400VAC 4700pF-P	
C541	2031600719	Mylar 50V 0.047μF-K	
C542	2030034885	Electrolytic 100V 22μF-M	
C545 thru 548	2027830242	Ceramic 400VAC 1000pF-M	
C549, 550	2027830193	Cera Line 400VAC 4700pF-P	
C701	2030050031	Electrolytic 250V 10μF	
C702	2031207125	PP 100V 0.1μF-K	
C703	2030040052	Electrolytic 160V 47μF	
C705	2030016831	Electrolytic 25V 2200μF-M	
C706	2025724293	Electrolytic 35V 47μF-M	
C707	2030040013	Electrolytic 160V 4.7μF	
C7201	2030009199	Electrolytic 10V 330μF-M	
C7202, 7203	2027203032	Ceramic 50V 0.01μF-Z	
C7204, 7206	2025725297	Electrolytic 50V 1μF-M	
C7207	2025725282	Electrolytic 50V 0.47μF-M	
C7208 thru 7210	2031600859	Mylar 50V 0.1μF-K	
C7211	2030014187	Electrolytic 16V 220μF-M	
C7212	2027203032	Ceramic 50V 0.01μF-Z	
C7213, 7215, 7217	2027204057	Ceramic 500V 270pF-K	
C7218	2028200514	Ceramic 50V 56pF-J	
C7219	2030025544	Electrolytic 50V 1μF-M	
C7220 thru 7222	2030009199	Electrolytic 10V 330μF-M	
C7223	2025725282	Electrolytic 50V 0.47μF-M	
C7224	2025723279	Electrolytic 25V 22μF-M	
C7226, 7227	2025725297	Electrolytic 50V 1μF-M	
C7228	2027204063	Ceramic 500V 330pF-K	
C7229	2025725297	Electrolytic 50V 1μF-M	
C7230, 7231	2025721284	Electrolytic 10V 100μF-M	
C7232, 7233	2031600859	Mylar 50V 0.1μF-K	
C7235	2025725297	Electrolytic 50V 1μF-M	

Ref. No.	Part No.	Description	Order Q'ty
C7236	2031600859	Mylar 50V 0.1μF-K	
C7237	2025725297	Electrolytic 50V 1μF-M	
C7238	2028000729	Ceramic 50V 220pF-J	
C7240	2031600859	Mylar 50V 0.1μF-K	
C7276	2028001724	Ceramic 50V 330pF-J	
C7291, 7292	2027203032	Ceramic 50V 0.01μF-Z	
C7293	2025725297	Electrolytic 50V 1μF-M	
C7294	2025725350	Electrolytic 50V 33μF-M	
C7296	2031100393	Mylar 50V 8200pF-J	
C7297	2028000751	Ceramic 50V 270pF-J	
C7301	2025722260	Electrolytic 16V 22μF-M	
C7302	2032000122	Variable ECR-HA060G11 Capacitor-C	
C7303	2031101102	Mylar 50V 0.39μF-K	
C7304	2031100843	Mylar 50V 0.1μF-J	
C7305	2025722260	Electrolytic 16V 22μF-M	
C7306 thru 7309	2027203032	Ceramic 50V 0.01μF-Z	
C7310	2028042423	Ceramic 50V 390pF-J	
C7311	2028242176	Ceramic 50V 330pF-J	
C7312	2028200630	Ceramic 50V 120pF-J	
C7317, 7318	2025722298	Electrolytic 16V 100μF-M	
C7319	2028242165	Ceramic 50V 120pF-J	
C7320	2025725297	Electrolytic 50V 1μF-M	
C7321	2030315004	Electrolytic 50V 1μF	
C7322	2031600436	Mylar 50V 0.01μF-K	
C7399	2028042091	Ceramic 50V 82pF-J	

RESISTORS

R203	2036307804	Carbon 1/6W 4.7KΩ-J	
R204	2036307728	Carbon 1/6W 2.2KΩ-J	
R205	2036307867	Carbon 1/6W 8.2KΩ-J	
R251 thru 253	2036510647	Carbon 1/6W 1KΩ-J	
R254 thru 256	2036510743	Carbon 1/6W 2.7KΩ-J	
R257 thru 259	2039211006	Metal Oxide 3W 3.3KΩ-J	
R260	2036510647	Carbon 1/6W 1KΩ-J	
R261	2036511201	Carbon 1/6W 220KΩ-J	
R262	2036510647	Carbon 1/6W 1KΩ-J	
R263	2036511201	Carbon 1/6W 220KΩ-J	
R264	2036510647	Carbon 1/6W 1KΩ-J	
R265	2036511201	Carbon 1/6W 220KΩ-J	
R266 thru 268	2035600856	Composition 1/2W 220Ω-K	
R269, 270	2036510787	Carbon 1/6W 3.9KΩ-J	
R271	2036510726	Carbon 1/6W 2.2KΩ-J	
R272	2036510563	Carbon 1/6W 470Ω-J	
R273 thru 275	2036200855	Carbon 1/2W 1.2KΩ-J	
R281 thru 283	2036351082	Carbon-F 3W 3.3KΩ-J	
R401	2036510460	Carbon 1/6W 180Ω-J	
R402	2036351048	Carbon-F 3W 2.2KΩ-J	
R402	2036511067	Carbon 1/6W 56KΩ-J	
R403	2036510668	Carbon 1/6W 1.2KΩ-J	
R404	2036510743	Carbon 1/6W 2.7KΩ-J	

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Ref. No.	Part No.	Description	Order Q'ty
R405, 406	2036510888	Carbon 1/6W 10K Ω -J	
R407	2036511004	Carbon 1/6W 33K Ω -J	
R408	2036510844	Carbon 1/6W 6.8K Ω -J	
R409	2036510967	Carbon 1/6W 22K Ω -J	
R410	2036510743	Carbon 1/6W 2.7K Ω -J	
R411	2036510865	Carbon 1/6W 8.2K Ω -J	
R412	2036510946	Carbon 1/6W 18K Ω -J	
R413	2036510500	Carbon 1/6W 270 Ω -J	
R414	2034270325	Carbon 1W 2.2 Ω -J	
R416	2036350766	Carbon-F 3W 150 Ω -J	
R417	2036510345	Carbon 1/6W 56 Ω -J	
R418	2041450561	Metal Oxide 5W 820 Ω -J Cement	
R419	2034330844	Metal Oxide 2W 680 Ω -J	
R419	2036700562	Carbon 1/2W 1K Ω -J	
R420	2034330844	Metal Oxide 2W 680 Ω -J	
R420	2036700562	Carbon 1/2W 1K Ω -J	
R421	2036510248	Carbon 1/6W 22 Ω -J	
R422	2041600732	Wire Wound 10W 22 Ω -J Cement	
R423	2036510500	Carbon 1/6W 270 Ω -J	
R424	2034270841	Carbon 1W 330 Ω -J	
R425	2036307424	Carbon 1/6W 120 Ω -J	
R426	2036510701	Carbon 1/6W 1.8K Ω -J	
R427	2036510802	Carbon 1/6W 4.7K Ω -J	
R429, 430	2036510483	Carbon 1/6W 220 Ω -J	
R433	2036510726	Carbon 1/6W 2.2K Ω -J	
R433	2036510827	Carbon 1/6W 5.6K Ω -J	
R434	2036510726	Carbon 1/6W 2.2K Ω -J	
R434	2036510888	Carbon 1/6W 10K Ω -J	
R436	2035601878	Composition 1/2W 56K Ω -K	
R437	2036510802	Carbon 1/6W 4.7K Ω -J	
R438	2036510865	Carbon 1/6W 8.2K Ω -J	
R438	2036510967	Carbon 1/6W 22K Ω -J	
R439	2036510726	Carbon 1/6W 2.2K Ω -J	
R440	2036510967	Carbon 1/6W 22K Ω -J	
R441	2036307804	Carbon 1/6W 4.7K Ω -J	
R442	2036510726	Carbon 1/6W 2.2K Ω -J	
R443	2034330929	Metal Oxide 2W 1.5K Ω -J	
R444	2035601593	Composition 1/2W 12K Ω -K	
R446	2036511046	Carbon 1/6W 47K Ω -J	
R448	2036308182	Carbon 1/6W 180K Ω -J	
R449	2036510620	Carbon 1/6W 820 Ω -J	
R450	2036307565	Carbon 1/6W 470 Ω -J	
R451	2036510460	Carbon 1/6W 180 Ω -J	
R452	2036511103	Carbon 1/6W 82K Ω -J	
R453	2036510865	Carbon 1/6W 8.2K Ω -J	
R454	2036511103	Carbon 1/6W 82K Ω -J	
R455	2036511067	Carbon 1/6W 56K Ω -J	
★ R456	2036510844	Carbon 1/6W 6.8K Ω -J	
★ R457	2036511004	Carbon 1/6W 33K Ω -J	
R458	2036351105	Carbon-F 3W 3.9K Ω -J	
★ R459	2036510865	Carbon 1/6W 8.2K Ω -J	
★ R460	2036510681	Carbon 1/6W 1.5K Ω -J	
R461	2036510248	Carbon 1/6W 22 Ω -J	
R462	2036510888	Carbon 1/6W 10K Ω -J	
R463	2034271087	Carbon 1W 3.3K Ω -J	
R464, 465	2034330946	Metal Oxide 2W 1.8K Ω -J	
R466	2036510248	Carbon 1/6W 22 Ω -J	
R468	2036000907	Carbon 1/4W 680 Ω -J	

Ref. No.	Part No.	Description	Order Q'ty
R469	2036510668	Carbon 1/6W 1.2K Ω -J	
R470	2036510802	Carbon 1/6W 4.7K Ω -J	
R471	2036510844	Carbon 1/6W 6.8K Ω -J	
R472	2039211006	Metal Oxide 3W 3.3K Ω -J	
R473	2039210527	Metal Oxide 3W 33 Ω -J	
R474	2036510827	Carbon 1/6W 5.6K Ω -J	
R475	2036510888	Carbon 1/6W 10K Ω -J	
R477	2036350969	Carbon-F 3W 1K Ω -J	
R477	2036510802	Carbon 1/6W 4.7K Ω -J	
R479	2036308121	Carbon 1/6W 100K Ω -J	
R480, 481	2039110726	Metal Oxide 2W 220 Ω -J	
R482	2036510802	Carbon 1/6W 4.7K Ω -J	
R485	2036350969	Carbon-F 3W 1K Ω -J	
R497	2039110726	Metal Oxide 2W 220 Ω -J	
R498	2036307804	Carbon 1/6W 4.7K Ω -J	
R499	2036307660	Carbon 1/6W 1.2K Ω -J	
R504	2036350424	Carbon-F 3W 5.6 Ω -J	
R505	2034330542	Metal Oxide 2W 39 Ω -J	
R506	2036510726	Carbon 1/6W 2.2K Ω -J	
R507	2041600750	Wire Wound 10W 33 Ω -J Cement	
R508	2036700843	Carbon 1/2W 15K Ω -J	
R509	2036700826	Carbon 1/2W 12K Ω -J	
R510	2041425232	Wire Wound 5W 1.8 Ω -J Cement	
★ R511	2036700966	Carbon 1/2W 47K Ω -J	
★ R512	2036510701	Carbon 1/6W 1.8K Ω -J	
R521	2036510282	Carbon 1/6W 33 Ω -J	
△ R522	2039210502	Metal Oxide 3W 27 Ω -J	
R523	2036511287	Carbon 1/6W 470K Ω -J	
R524	2036351386	Carbon-F 3W 56K Ω -J	
R525	2036330480	Carbon-F 1W 10 Ω -J	
R526	2036330105	Carbon-F 1W 0.27 Ω -J	
R527	2036510282	Carbon 1/6W 33 Ω -J	
R529	2036330723	Carbon-F 1W 100 Ω -J	
R530	2036510726	Carbon 1/6W 2.2K Ω -J	
R540	2036307703	Carbon 1/6W 1.8K Ω -J	
△ R546, 547	2041525095	Wire Wound 7W 3.3 Ω -J Cement	
R548	2035602185	Composition 1/2W 330K Ω -K	
R701 thru 703	2034270300	Carbon 1W 1.8 Ω -J	
R705	2034270964	Carbon 1W 1K Ω -J	
★ R706	2039210320	Metal Oxide 3W 4.7 Ω -J	
★ R707	2034270300	Carbon 1W 1.8 Ω -J	
★ R708	2036510802	Carbon 1/6W 4.7K Ω -J	
R709	2036700989	Carbon 1/2W 56K Ω -J	
R710	2036511308	Carbon 1/6W 560K Ω -J	
R711	2036511287	Carbon 1/6W 470K Ω -J	
R712	2036510605	Carbon 1/6W 680 Ω -J	
R713	2036200521	Carbon 1/2W 150 Ω -J	
R714, 715	2036510888	Carbon 1/6W 10K Ω -J	
R716	2036510726	Carbon 1/6W 2.2K Ω -J	
R717	2034270300	Carbon 1W 1.8 Ω -J	
R718	2036511243	Carbon 1/6W 330K Ω -J	
R719	2036511166	Carbon 1/6W 150K Ω -J	
R720	2036307804	Carbon 1/6W 4.7K Ω -J	
R721	2036511067	Carbon 1/6W 56K Ω -J	
R722	2036510967	Carbon 1/6W 22K Ω -J	
R723	2036307969	Carbon 1/6W 22K Ω -J	
R7101, 7102	2034210564	Carbon 1/6W 470 Ω -J	

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Ref. No.	Part No.	Description	Order Q'ty	Ref. No.	Part No.	Description	Order Q'ty
R7104, 7106	2034210329	Carbon 1/6W 47Ω-J		R7268, 7269	2034210648	Carbon 1/6W 1KΩ-J	
R7107	2034210408	Carbon 1/6W 100Ω-J		R7271	2034210803	Carbon 1/6W 4.7KΩ-J	
R7109	2034210803	Carbon 1/6W 4.7KΩ-J		R7272	2034210889	Carbon 1/6W 10KΩ-J	
R7110	2036510726	Carbon 1/6W 2.2KΩ-J		R7273	2034210803	Carbon 1/6W 4.7KΩ-J	
R7111	2036510888	Carbon 1/6W 10KΩ-J		R7275, 7276	2034210727	Carbon 1/6W 2.2KΩ-J	
R7112	2034210803	Carbon 1/6W 4.7KΩ-J		R7278	2034211202	Carbon 1/6W 220KΩ-J	
R7113	2034210727	Carbon 1/6W 2.2KΩ-J		R7280	2034210727	Carbon 1/6W 2.2KΩ-J	
R7114	2034210803	Carbon 1/6W 4.7KΩ-J		R7281	2034211005	Carbon 1/6W 33KΩ-J	
R7115	2034210889	Carbon 1/6W 10KΩ-J					
R7116, 7117	2034210249	Carbon 1/6W 22Ω-J		R7282	2034211244	Carbon 1/6W 330KΩ-J	
R7120	2034210803	Carbon 1/6W 4.7KΩ-J		R7283	2034210423	Carbon 1/6W 120Ω-J	
R7121 thru 7123	2034210526	Carbon 1/6W 330Ω-J		R7284 thru 7287	2034210648	Carbon 1/6W 1KΩ-J	
R7124	2036307409	Carbon 1/6W 100Ω-J		R7288	2034210727	Carbon 1/6W 2.2KΩ-J	
R7201 thru 7203	2034210564	Carbon 1/6W 470Ω-J		R7290	2034210889	Carbon 1/6W 10KΩ-J	
R7204	2034210648	Carbon 1/6W 1KΩ-J		R7292	2036307649	Carbon 1/6W 1KΩ-J	
R7205	2034210162	Carbon 1/6W 10Ω-J		R7293	2036307745	Carbon 1/6W 2.7KΩ-J	
R7206 thru 7208	2034210526	Carbon 1/6W 330Ω-J		R7294	2036307880	Carbon 1/6W 10KΩ-J	
R7209	2034210727	Carbon 1/6W 2.2KΩ-J		R7296 thru 7299	2034210526	Carbon 1/6W 330Ω-J	
R7210	2034210606	Carbon 1/6W 680Ω-J		R7301	2036511004	Carbon 1/6W 33KΩ-J	
R7211	2034210702	Carbon 1/6W 1.8KΩ-J		R7302	2036510726	Carbon 1/6W 2.2KΩ-J	
R7212	2034210606	Carbon 1/6W 680Ω-J		R7303	2036511243	Carbon 1/6W 330KΩ-J	
R7213 thru 7218	2034210408	Carbon 1/6W 100Ω-J		R7305	2040401231	Metal 1/6W 1.8KΩ-F	
R7219	2034210702	Carbon 1/6W 1.8KΩ-J		R7306	2036511287	Carbon 1/6W 470KΩ-J	
R7220	2034210606	Carbon 1/6W 680Ω-J		R7307	2036510726	Carbon 1/6W 2.2KΩ-J	
R7221	2034210702	Carbon 1/6W 1.8KΩ-J		R7307	2036511287	Carbon 1/6W 470KΩ-J	
R7222	2034210408	Carbon 1/6W 100Ω-J		R7308	2040401202	Metal 1/6W 1KΩ-F	
R7223	2034210727	Carbon 1/6W 2.2KΩ-J		R7309, 7310	2040401244	Metal 1/6W 2.2KΩ-F	
R7224, 7225	2034210408	Carbon 1/6W 100Ω-J					
R7226 thru 7229	2034210564	Carbon 1/6W 470Ω-J		R7311	2036510743	Carbon 1/6W 2.7KΩ-J	
R7230	2034210408	Carbon 1/6W 100Ω-J		R7312	2036510802	Carbon 1/6W 4.7KΩ-J	
R7231	2034210564	Carbon 1/6W 470Ω-J		R7315	2036510647	Carbon 1/6W 1KΩ-J	
R7232	2034210408	Carbon 1/6W 100Ω-J		R7316	2036510888	Carbon 1/6W 10KΩ-J	
R7233	2034210564	Carbon 1/6W 470Ω-J		R7317	2036510726	Carbon 1/6W 2.2KΩ-J	
R7234	2034210408	Carbon 1/6W 100Ω-J		R7318	2036511004	Carbon 1/6W 33KΩ-J	
R7235 thru 7237	2034210249	Carbon 1/6W 22Ω-J		R7319	2036511128	Carbon 1/6W 100KΩ-J	
R7241, 7242	2034210329	Carbon 1/6W 47Ω-J		R7320	2036510967	Carbon 1/6W 22KΩ-J	
R7243	2034210461	Carbon 1/6W 180Ω-J		R7321	2036510802	Carbon 1/6W 4.7KΩ-J	
R7244	2034210380	Carbon 1/6W 82Ω-J		R7325, 7326	2036510888	Carbon 1/6W 10KΩ-J	
R7245	2034210803	Carbon 1/6W 4.7KΩ-J		R7327	2036511046	Carbon 1/6W 47KΩ-J	
R7246	2034210564	Carbon 1/6W 470Ω-J		R7328, 7329	2036510888	Carbon 1/6W 10KΩ-J	
R7247	2034210803	Carbon 1/6W 4.7KΩ-J		R7330	2036510844	Carbon 1/6W 6.8KΩ-J	
R7248	2034210564	Carbon 1/6W 470Ω-J		R7331, 7332	2036511004	Carbon 1/6W 33KΩ-J	
R7249	2034210803	Carbon 1/6W 4.7KΩ-J		R7334	2036510802	Carbon 1/6W 4.7KΩ-J	
R7250	2034210564	Carbon 1/6W 470Ω-J		R7336, 7338	2036510888	Carbon 1/6W 10KΩ-J	
R7251 thru 7253	2034210329	Carbon 1/6W 47Ω-J		R7339	2036510967	Carbon 1/6W 22KΩ-J	
R7256	2034210380	Carbon 1/6W 82Ω-J		R7340	2036511103	Carbon 1/6W 82KΩ-J	
R7263, 7264	2034210249	Carbon 1/6W 22Ω-J		R7341, 7342	2036510827	Carbon 1/6W 5.6KΩ-J	
R7267	2034210828	Carbon 1/6W 5.6KΩ-J		R7343, 7345	2036511004	Carbon 1/6W 33KΩ-J	
				R7347	2036510967	Carbon 1/6W 22KΩ-J	
				R7348	2036511046	Carbon 1/6W 47KΩ-J	
				R7349	2036510802	Carbon 1/6W 4.7KΩ-J	
				R7350	2036510888	Carbon 1/6W 10KΩ-J	
				R7351	2036510929	Carbon 1/6W 15KΩ-J	

When you order the parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

Ref. No.	Part No.	Description	Order Q'ty
R7352	2036510802	Carbon 1/6W 4.7K Ω -J	
R7353	2036510888	Carbon 1/6W 10K Ω -J	
R7354	2036510764	Carbon 1/6W 3.3K Ω -J	
R7355	2036510407	Carbon 1/6W 100 Ω -J	
R7356	2036307766	Carbon 1/6W 3.3K Ω -J	
R7356	2036510787	Carbon 1/6W 3.9K Ω -J	
R7357	2036510668	Carbon 1/6W 1.2K Ω -J	
R7358	2036510726	Carbon 1/6W 2.2K Ω -J	
R7359	2036510743	Carbon 1/6W 2.7K Ω -J	
R7360	2036510328	Carbon 1/6W 47 Ω -J	
R7361	2036510967	Carbon 1/6W 22K Ω -J	
R7362	2036511004	Carbon 1/6W 33K Ω -J	
R7363	2036510647	Carbon 1/6W 1K Ω -J	
R7364	2036510802	Carbon 1/6W 4.7K Ω -J	
R7365	2036510764	Carbon 1/6W 3.3K Ω -J	
R7366	2036510647	Carbon 1/6W 1K Ω -J	
R7367	2036510726	Carbon 1/6W 2.2K Ω -J	
R7368	2036510827	Carbon 1/6W 5.6K Ω -J	
R7369	2036510647	Carbon 1/6W 1K Ω -J	
R7370	2036510844	Carbon 1/6W 6.8K Ω -J	
R7371	2036510726	Carbon 1/6W 2.2K Ω -J	
R7372	2036510647	Carbon 1/6W 1K Ω -J	
R7373	2036510743	Carbon 1/6W 2.7K Ω -J	
R7374	2036510802	Carbon 1/6W 4.7K Ω -J	
R7375	2036510647	Carbon 1/6W 1K Ω -J	
R7376	2036510586	Carbon 1/6W 560 Ω -J	
R7378	2036307804	Carbon 1/6W 4.7K Ω -J	
7379			
R7383	2036510726	Carbon 1/6W 2.2K Ω -J	
R7385	2036308148	Carbon 1/6W 120K Ω -J	
R7386	2036307880	Carbon 1/6W 10K Ω -J	
R7387	2036308007	Carbon 1/6W 33K Ω -J	
R7500	2036307409	Carbon 1/6W 100 Ω -J	

Ref. No.	Part No.	Description	Order Q'ty
VR7303	2042102081	Variable 100K Ω -B	
VR7304	2042102079	Variable 50K Ω -B	

INDUCTORS

L251	2021801042	Coil 14EUD (Degaussing)	
L252	2014500176	Coil Peaking-TP 6.8 μ H $\pm$ 10%	
L253	2014500131	Coil Peaking-TP 3.3 μ H $\pm$ 10%	
L255	2014500011	Coil Peaking-TP 12 μ H $\pm$ 5%	
	2014500176	Coil Peaking-TP 6.8 μ H $\pm$ 10%	
L256	2014500131	Coil Peaking-TP 3.3 μ H $\pm$ 10%	
L257	2014500011	Coil Peaking-TP 12 μ H $\pm$ 5%	
L258	2014500176	Coil Peaking-TP 6.8 μ H $\pm$ 10%	
L259	2014500131	Coil Peaking-TP 3.3 μ H $\pm$ 10%	
L260	2014500011	Coil Peaking-TP 12 μ H $\pm$ 5%	
L261	2014710014	Coil A 330 μ H $\pm$ 10% (RF Choke)	
L452	2021400383	Coil R-1 (Horiz.-Lin)	
L453	2014710478	Coil A-1 (Inductor)	
L454	2015000182	Coil V (Horiz.-Size)	
L457	2015000182	Coil V (Horiz.-Size)	
L458	2015000182	Coil V (Horiz.-Size)	
L503	2014710014	Coil A (330 μ H $\pm$ 10% (RF Choke)	
L522	2016000167	Line-Filter B-1	
L523 thru 525	2014710391	Coil 330 μ H $\pm$ 10% (RF Choke)	
L7291	2014103186	Coil 820 μ H $\pm$ 5% (Peaking)	
RL451	2051400396	Relay P-1	
RL452	2051400396	Relay P-1	
RL457	2051400462	Relay P-4	
T402	2021210284	Transformer W (Sice-PC)	
T403	2009800032	HV-Unit VE1-1	
T451	2021300166	Transformer (Horiz.-Drive)	
T521	2022040576	Transformer DM2 (Converter)	

THERMISTOR

TH521	2010100202	PTC-ADG	
TH7301	2010001062	TD5-C320DA	

CONTROLS

VR201	2043080630	Variable 5K Ω -B	
VR202	2043080630	Variable 5K Ω -B	
VR203	2043080445	Variable 1K Ω -B	
VR401	2042102548	Variable 10K Ω -B	
VR402	2042102506	Variable 500 Ω -B	
VR403	2042102548	Variable 10K Ω -B	
VR404	2042102034	Variable 1K Ω -B	
VR405	2042102514	Variable 1K Ω -B	
VR406	2042102514	Variable 1K Ω -B	
VR407	2042102079	Variable 50K Ω -B	
VR409	2042102034	Variable 1K Ω -B	
VR410	2042102034	Variable 1K Ω -B	
VR451	2042102052	Variable 2K Ω -B	
VR501	2042102052	Variable 2K Ω -B	
VR7201	2042102047	Variable 5K Ω -B	
VR7202	2042102047	Variable 5K Ω -B	
VR7203	2042102005	Variable 200 Ω -B	
VR7204	2042102005	Variable 200 Ω -B	
VR7301	2042102052	Variable 2K Ω -B	
VR7302	2042102020	Variable 10K Ω -B	

MISCELLANEOUS

	2049303646	Socket (CRT)	
	2049603370	Plug D-Sub 9P	
	2058500020	Ferrite (Ring) A-1	
	2065905295	Interface Cable-N L1200	
	2074100222	Spring F (Grounding)	
	2074201561	Spring (Power Switch)	
	2076506891	Holder (Cord)	
	2079017734	CRT Spacer (0.5)	
	2176602808	Nylon Bushing	
CNP401	2049600304	Plug 4P-C, PCB	
CNP501	2049600260	Plug 3P-B, PCB	
CNP502	2049601265	Plug 2P-H, PCB	
CNP503	2049600249	Plug 2P-B, PCB	
CNP504	2049601293	Plug 5P-H, PCB	
CP7201	2049603425	Plug 12P-TSL, PCB	
F521	2047220379	Fuse 4.0A 250V	
	2049200191	Fuse Holder Single E (For F521)	
ICP501	2047900013	Protector 1CP-N20	
ICP520	2047900005	Protector 1CP-N15	
ICP521	2047900020	Protector 1CP-N38	
ICP523	2047900020	Protector 1CP-N38	
P521	2049600249	Plug 2P-B, PCB	

ME-503B
ME-503C
ME-503G

When you order the parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

Ref. No.	Part No.	Description	Order Q'ty
P523	2049601265	Plug 2P-H, PCB	
	2058500034	Ferrite (Ring) A-2	
RL453 thru 456	2051400417	Relay P-3	
RL458	2051400409	Relay P-2	
S501	2048201045	Switch, Push (Power) 5A/80A250V	
S7202	2048100451	Switch, Slide 30VDC 0.2A 6P2T	
S7203	2048100817	Switch, Slide 30V 0.3A 1P2T	

CHASSIS

A	2095003794	Power Cord	
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COMPLETE MODULES AND ASSY

	2915006172	CRT Grounding Wire 147NDBAZ-C	
	2950014081	P.C. Board Assy (Main) 7AW-2	
	2954001848	Size Coil Assy (6FG-1)	
	2956002303	P.C. Board Assy (6B1-3)	
	2957007291	P.C. Board Assy (Neck) 6BG-2	
	2966005891	P.C. Board Assy (I/F) 6BF-1	
	2966005927	P.C. Board Assy (Control) 5EZ-2	

SEMICONDUCTORS

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Integrated Circuit

Ref. No.	Part No.	Type	Substitutes	Function	Order Q'ty
IC451	2002520055	μPC1377C		Sync. sep. /Vert. /Horiz.	
IC501	2002600470	MPC78M08H		AVR	
IC502	2002600154	μPC78M05H		AVR	
★ △ IC521	2002600453	STR58041		Power amp.	
IC7201	2002030262	MB7112EG4		Sync. Processor	
IC7202	2002030241	MB7118HG1		D/A converter	
IC7203	2002010950	MB74LS27		D/A Converter	
IC7204	2002620244	CXA1044P		Video amp.	
IC7301	2002310021	HD14538BP		Pulse width control	
IC7302	2002310021	HD14538BP		Pulse width control	
IC7303	2002800112	μPC4558C		Comparator	
IC7304	2002800112	μPC4558C		Ope. amp.	
IC7305	2002020176	μPD4555BC		Decorder	
IC7306	2002310021	HD14538BP		Pulse width control	

Transistors

Q251	2003340367 2003340351	2SC3503EYA	2SC3503DYA	Video out	
Q252	2003340367 2003340351	2SC3503EYA	2SC3503DYA	Video out	
Q253	2003340367 2003340351	2SC3503EYA	2SC3503DYA	Video out	
Q254	2003290141 2003194114 2003290156	2SC3478K	2SC1941L 2SC3478U	DC restore	
Q401	2003340271 2003340283	2SC3621-O	2SC3621Y	V-position	
Q402	2003222907 2003222915	2SC2229-O 2SC2229Y		Vert. drive	
Q403	2003290117	2SC3296		Vert. out	
Q404	2004104908	2SA1304		Vert. out	
Q405	2013500310 2013500327	2SC1815Y	2SC1815GR	PCC amp.	
Q406	2013500310 2013500327	2SC1815Y	2SC1815GR	PCC amp.	
Q407	2013800027	DTC114ES		Switch	

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Transistors (Continued)

Ref. No.	Part No.	Type	Substitutes	Function	Order Q'ty
Q409	2013500310 2013500327	2SC1815Y	2SC1815GR	Blanking	
Q410	2013500310 2013500327	2SC1815Y	2SC1815GR	Blanking	
Q451	2013500482	2SC2482BK		Horiz. drive	
Q452	2003340378	2SC3687YA		Horiz. out	
Q453	2013500310 2013500327	2SC1815Y	2SC1815GR	Switch	
Q454	2013800027	DTC114ES		Horiz. pre-drive	
Q455	2013800027	DTC114ES		Horiz. pre-drive	
Q456	2007200173	DTC114ES		Switch	
★△ Q501	2004590677	2SD1031		AVR	
Q502	2013500037 2013500327	2SC2383-O	2SC1815GR	Error amp.	
Q521	2013500469 2013500470	2SC2236-O	2SC2236Y	Over current protector	
Q522	2013500327	2SC1815GR		Power Drive	
Q532	2004104908	2SA1304		Heater control voltage	
Q533	2013500037	2SC2383-O		Heater control voltage	
Q701	2004110053	2SA1320		Raster blanking	
Q702	2003238316	2SC2383-O		Raster blanking	
Q7201	2013200035 2013200048	2SA1015Y	2SA1015GR	Sync. sep.	
Q7202	2013800010	DTC143ES		Switch	
Q7203	2013800010	DTC143ES		Switch	
Q7204	2013500310 2013500327	2SC1815Y	2SC1815GR	Buffer	
Q7205	2013500310 2013500327	2SC1815Y	2SC1815GR	Buffer	
Q7206	2013500310 2013500327	2SC1815Y	2SC1815GR	Buffer	
Q7207	2013500310	2SC1815Y		Video amp.	
Q7208	2013500310	2SC1815Y		Video amp.	
Q7209	2013500310	2SC1815Y		Video amp.	
Q7210	2013500310 2013500327	2SC1815Y	2SC1815GR	Video amp.	
Q7211	2013500310 2013500327	2SC1815Y	2SC1815GR	Video amp.	

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Transistors (Continued)

Ref. No.	Part No.	Type	Substitutes	Function	Order Q'ty
Q7212	2013500310 2013500327	2SC1815Y	2SC1815GR	Video amp.	
Q7213	2013500310 2013500327	2SC1815Y	2SC1815GR	Video amp.	
Q7214	2013200035 2013200048	2SA1015Y	2SA1015GR	Gate pulse amp.	
Q7215	2013500310 2013500327	2SC1815Y	2SC1815GR	Switch	
Q7216	2013800010	DTC143ES			
Q7301	2013500149	2SC1740R		H. osc. control	
Q7303	2013800027	DTC114ES		Color mode control	
Q7304	2013800027	DTC114ES		Color mode control	
Q7305	2013800027	DTC114ES		Color mode control	
Q7306	2013800027	DTC114ES			
Q7307	2013800027	DTC114ES		Color mode control	
Q7308	2004093323	2SA933Q		HD phase control	
Q7309	2004093323	2SA933Q		HD phase control	
Q7310	2004093323	2SA933Q		HD phase control	
Q7311	2013500149	2SC1740R		HD phase control	
Q7312	2013500149	2SC1740R		HD phase control	
Q7313	2004093323	2SA933Q		H. osc. control	
Q7314	2013800027	DTC114ES		HD buffer	
Q7315	2007200039	DTA114ES		HD buffer	
Q7316	2007200173	DTC114ES		Switch	
Q7317	2004093323	2SA933Q			

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Diodes (Continued)

Ref. No.	Part No.	Type	Substitutes	Function	Order Q'ty
D251 thru 253	2012010176	1SS82			
D254	2013120255	RM-1Z			
D255	2008010263	1SS133			
D401 thru 403	2012010263 2012010218 2012010225	1SS133	1SS176 1SS119		
D404	2012220777	RD30EB			
D405	2013120255	RM-1Z			
D406	2012221228	RD12EB2			
★ D451	2012221053	RD6.2EB2			
★ D452	2012010263	1SS133			
D453	2008150032	RU4DSK1			
D454, 455	2012010165	1SS81			
D456	2012221300	RD16EB2			
D458 thru 462	2012010165	1SS81			
D463	2012100187	RU1C			
D464	2012010165	1SS81			
D465 thru 468	2008130234	RU-2			
D469, 470	2008010263	1SS133			
D471, 499	2008130234	RU-2			
D501	2012221053	RD6.2EB2			
D502, 503	2008160106	RU4AMK1			
D521 thru 524	2013120216	RM-1A			
D525 thru 529	2012130234	RU-2			
D530	2008160106	RU4AMK1			
D531, 532	2012130234	RU-2			
D540	2011300040	SEL-1320G			
D701, 703	2012130234	RU-2			
D704, 705, 708	2012120009	RH-1			
★ D706	2012120009	RH-1			
D709	2012010165	1SS81			
D710	2012220777	RD30EB			
D999	2013120216	RM-1A			
D7201	2012010263	1SS133			

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Diodes (Continued)

Ref. No.	Part No.	Type	Substitutes	Function	Order Q'ty
D7202 thru 7204	2012010263 2012900020 2012010218 2012010225	1SS133	1SS133T77 1SS176 1SS119		
D7205 thru 7214	2012900020 2012010218 2012010225	1SS133T77	1SS176 1SS119		
D7215, 7216	2008220732	RD5.6EB			
D7217 thru 7221, 7223	2012900020 2012010218 2012010225	1SS133T77	1SS176 1SS119		
D7222	2008010225	1SS119-14			
D7224	2008220732	RD5.6EB			
D7225 thru 7228, 7231, 7232	2012900020 2012010218 2012010225	1SS133T77	1SS176 1SS119		
D7229	2008010263	1SS133			
D7230	2008220732	RD5.6EB			
D7305, 7306	2012010263 2012010218 2012010225	1SS133	1SS176 1SS119		
D7307 thru 7309	2012010263	1SS133			
D7310	2008010263	1SS133			
D7311	2008010225	1SS119-14			
D7312	2008220732	RD5.6EB			