

Service Manual

ViewSonic 17PS-2
Model No. 1786PS-M/-E/-A

17" Digital Controlled Color Monitor
Professional Series



(Rev. 1 - July 1996)

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1 CAUTION:

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

3 FIRE & SHOCK HAZARD

- 3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.
- 3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.
- 3-3 All the protective devices must be reinstated per original design.
- 3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

4 LEAKAGE CURRENT COLD CHECK

- 4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 4-2 Turn the CRT display power switch "on".
- 4-3 Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be 1.8 megohm minimum.

5 LEAKAGE CURRENT HOT CHECK

- 5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.
- 5-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15 μ F capacitor between each exposed metallic part and a good earth ground (as shown in Fig.1).
- 5-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15 μ F capacitor.
- 5-4 Move the resistor connection to each exposed metallic part and measure the voltage.
- 5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.
- 5-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground. A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.

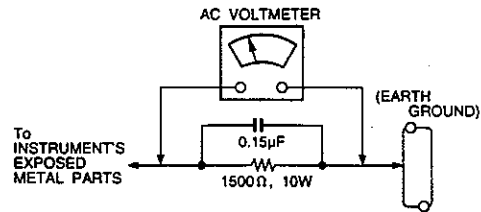


Fig.1

6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only ViewSonic replacement picture tubes.


7 X-RADIATION

WARNING : The only potential source of X-Radiation is the picture tube. However when the high voltage circuitry is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

Note: It is important to use an accurate periodically calibrated high voltage meter.

- 7-1 The procedure for adjustment high voltage is as shown on page 27.
- 7-2 If can not be adjust 25.0 kV at immediate service is required to prevent the possibility of premature component failure.
- 7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol  on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacture's specified parts to prevent X-RADIATION, shock, fire or other hazards. Do not modify the original design or this will void the original parts and labor guarantee.

GENERAL INFORMATION

1. OUTLINE

1786PS is a 17 inch multi-scan color CRT display with the following features.

- Multi scan •Digital control •OSD (On Screen Display) control •Power saving •High contrast and fine dot pitch CRT

2. FEATURES

2-1 Power Saving

- Built in Power Saving function based on VESA-DPMS standard. Power energy shall be saved by controlling the circuit in accordance with power save signal from computer.

2-2 OSD (on screen display) function

- OSD (5 languages) is a man-machine interface. Any one is able to set up the picture as he like through OSD menu.

2-3 Self Test function

- With a touch of a button (**1**) the self-test function quickly identifies a "no signal condition." This time saving function simplifies diagnostics and prevents unnecessary service calls.

2-4 Ergonomic design

- Low emission design to meet MPR II
- ESF (Electro static field) free coating on CRT

2-5 Multi scan with digital technology

- 8 bit micro computer controls the circuit operation to meet with wide range signal of $f_H=30\sim 86\text{kHz}$ and $f_V=50\sim 160\text{ Hz}$. So VGA640x350, VGA640x400, VGA640x480, SVGA800x600, 1024x768 and 1280x1024 mode are applicable.

2-6 1 Factory preset, (+7 Reservation), 13 user memories.

- 1 standard modes are preset at the factory.
- 7 modes are reserved at the factory.
- 13 user memories are available to set the users own timing and display information.

2-7 Flat Face and fine dot pitch

- Flat face CRT with a fine dot pitch of 0.25 mm provides for comfortable viewing.

2-8 Superior display performance

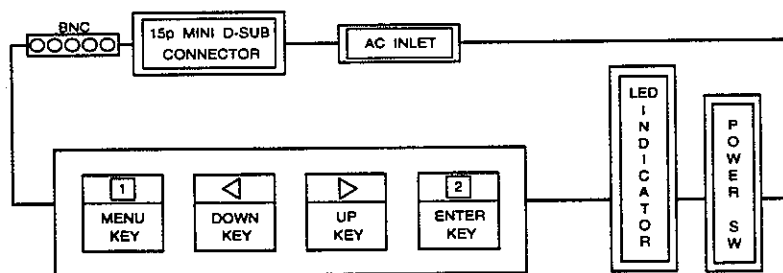
- Good focus by sophisticated gun and dynamic focus circuit
- High contrast
- Minimized distortion by correction circuit
- Good convergence
- Users enjoy full scan image for graphics

2-9 Additional function

- Moire reduction circuit
- Rotation control circuit
- VESA/DDC1 & DDC2B (Display Data Channel) Compatible

SPECIFICATION

1. DIAGRAM



1.1 POWER SW, LED, **1**-key (MENU), \leftarrow -key (DOWN), \rightarrow -key (UP), and **2**-key (ENTER) are located on the front panel.

1.2 Signal connector and AC inlet are located on the back side of the cabinet.

1.3 OSD menu includes the following function.

CONTRAST	BRIGHTNESS	DEGAUSS
RECALL	H. POSITION	H. SIZE
V. POSITION	V. SIZE	V. PINCUSHION
TRAPEZOID	PARALLELOGRAM	ROTATION
COLOR SELECT	DISPLAY FREQUENCY	

VIDEO INPUT LEVEL VIDEO INPUT SELECT
H. MOIRE V. MOIRE LANGUAGES

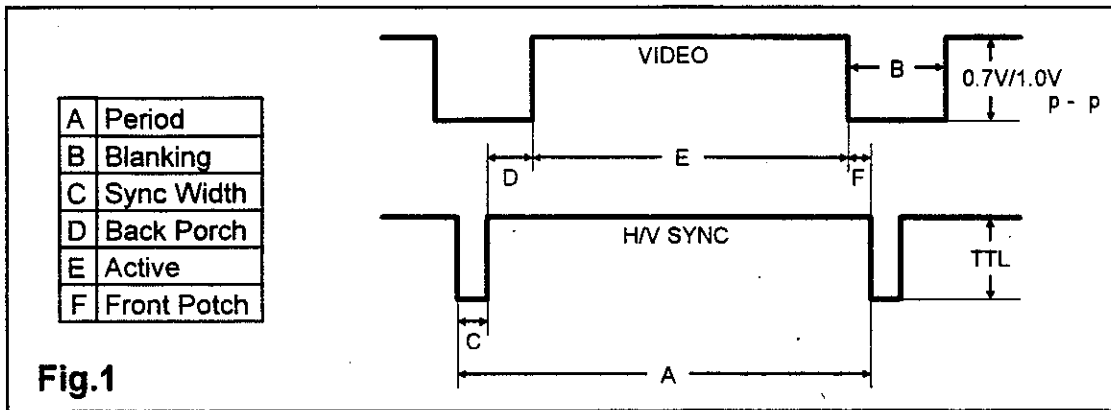
※) CONTRAST can be directly controlled with \leftarrow/\rightarrow -key.

※) VIDEO INPUT SELECT can be directly controlled by pushing **2**-key.

※) With sync signal, OSD menu appears by pushing **1**-key.

Without sync signal, self test menu appears by pushing **1**-key.

TIMING CHART



	PRESET	RESERVATION	RESERVATION
	MODE - 1 1024 × 768 (75)	MODE - 2 640 × 480 (60)	MODE - 3 640 × 480 (75)
DOT CLOCK	78.7500 MHz	25.1745 MHz	31.5000 MHz
fH	60.0229 kHz	31.4681 kHz	37.5000 kHz
H A - PERIOD	16.660 μs (1,312 dots)	31.778 μs (800 dots)	26.667 μs (840 dots)
B - BLANKING TIME	3.657 μs (288 dots)	6.356 μs (160 dots)	6.349 μs (200 dots)
C - SYNC WIDTH	1.219 μs (96 dots)	3.813 μs (96 dots)	2.032 μs (64 dots)
D - BACK PORCH	2.235 μs (176 dots)	1.907 μs (48 dots)	3.810 μs (120 dots)
E - ACTIVE TIME	13.003 μs (1,024 dots)	25.423 μs (640 dots)	20.317 μs (640 dots)
F - FRONT PORCH	0.203 μs (16 dots)	0.636 μs (16 dots)	0.508 μs (16 dots)
V fV	75.0286 Hz	59.9393 Hz	75.0000 Hz
A - PERIOD	13.328 ms (800 lines)	16.684 ms (525 lines)	13.333 ms (500 lines)
B - BLANKING TIME	0.533 ms (32 lines)	1.430 ms (45 lines)	0.533 ms (20 lines)
C - SYNC WIDTH	0.050 ms (3 lines)	0.064 ms (2 lines)	0.080 ms (3 lines)
D - BACK PORCH	0.466 ms (28 lines)	1.049 ms (33 lines)	0.427 ms (16 lines)
E - ACTIVE TIME	12.795 ms (768 lines)	15.254 ms (480 lines)	12.800 ms (480 lines)
F - FRONT PORCH	0.017 ms (1 lines)	0.318 ms (10 lines)	0.027 ms (1 lines)
SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Negative / Negative

FOR PRESET	RESERVATION	RESERVATION	RESERVATION
	MODE - 4 800 × 600 (75)	MODE - 5 MAC 832 × 624	MODE - 6 1024 × 768 (70)
DOT CLOCK	49.5000 MHz	57.2832 MHz	75.0000 MHz
fH	46.8750 kHz	49.7250 kHz	56.4759 kHz
H A - PERIOD	21.333 μs (1,056 dots)	20.111 μs (1,152 dots)	17.707 μs (1,328 dots)
B - BLANKING TIME	5.172 μs (256 dots)	5.586 μs (320 dots)	4.053 μs (304 dots)
C - SYNC WIDTH	1.616 μs (80 dots)	1.117 μs (64 dots)	1.813 μs (136 dots)
D - BACK PORCH	3.232 μs (160 dots)	3.910 μs (224 dots)	1.920 μs (144 dots)
E - ACTIVE TIME	16.162 μs (800 dots)	14.524 μs (832 dots)	13.653 μs (1,024 dots)
F - FRONT PORCH	0.323 μs (16 dots)	0.559 μs (32 dots)	0.320 μs (24 dots)
V fV	75.0000 Hz	74.5502 Hz	70.0694 Hz
A - PERIOD	13.333 ms (625 lines)	13.414 ms (667 lines)	14.272 ms (806 lines)
B - BLANKING TIME	0.533 ms (25 lines)	0.865 ms (43 lines)	0.673 ms (38 lines)
C - SYNC WIDTH	0.064 ms (3 lines)	0.060 ms (3 lines)	0.106 ms (6 lines)
D - BACK PORCH	0.448 ms (21 lines)	0.784 ms (39 lines)	0.513 ms (29 lines)
E - ACTIVE TIME	12.800 ms (600 lines)	12.549 ms (624 lines)	13.599 ms (768 lines)
F - FRONT PORCH	0.021 ms (1 lines)	0.020 ms (1 lines)	0.053 ms (3 lines)
SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Negative / Negative

		RESERVATION	RESERVATION
		MODE - 7	MODE - 8
		MAC 1024 × 768	1280 × 1024 (75)
DOT CLOCK		80.0000 MHz	135.0000 MHz
H	f H	60.2410 kHz	79.9763 kHz
	A - PERIOD	16.600 μs (1,328 dots)	12.504 μs (1,688 dots)
	B - BLANKING TIME	3.800 μs (304 dots)	3.022 μs (408 dots)
	C - SYNC WIDTH	1.200 μs (96 dots)	1.067 μs (144 dots)
	D - BACK PORCH	2.200 μs (176 dots)	1.837 μs (248 dots)
	E - ACTIVE TIME	12.800 μs (1,024 dots)	9.481 μs (1,280 dots)
	F - FRONT PORCH	0.400 μs (32 dots)	0.119 μs (16 dots)
V	f V	74.9266 Hz	75.0247 Hz
	A - PERIOD	13.346 ms (804 lines)	13.329 ms (1,066 lines)
	B - BLANKING TIME	0.598 ms (36 lines)	0.525 ms (42 lines)
	C - SYNC WIDTH	0.050 ms (3 lines)	0.038 ms (3 lines)
	D - BACK PORCH	0.498 ms (30 lines)	0.475 ms (38 lines)
	E - ACTIVE TIME	12.749 ms (768 lines)	12.804 ms (1,024 lines)
	F - FRONT PORCH	0.050 ms (3 lines)	0.013 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative	Positive / Positive

		ADJUSTMENT	ADJUSTMENT	ADJUSTMENT
		1	2	4
DOT CLOCK		22.6000 MHz	40.2479 MHz	86.0645 MHz
H	f H	29.5039 kHz	38.9999 kHz	64.5200 kHz
	A - PERIOD	33.894 μs (766 dots)	25.641 μs (1,032 dots)	15.500 μs (1,334 dots)
	B - BLANKING TIME	6.018 μs (136 dots)	5.988 μs (241 dots)	3.602 μs (310 dots)
	C - SYNC WIDTH	4.115 μs (93 dots)	2.832 μs (114 dots)	1.185 μs (102 dots)
	D - BACK PORCH	1.283 μs (29 dots)	2.435 μs (98 dots)	1.975 μs (170 dots)
	E - ACTIVE TIME	27.876 μs (630 dots)	19.653 μs (791 dots)	11.898 μs (1,024 dots)
	F - FRONT PORCH	0.619 μs (14 dots)	0.721 μs (29 dots)	0.442 μs (38 dots)
V	f V	48.0520 Hz	77.0749 Hz	105.0814 Hz
	A - PERIOD	20.811 ms (614 lines)	12.974 ms (506 lines)	9.516 ms (614 lines)
	B - BLANKING TIME	0.915 ms (27 lines)	0.744 ms (29 lines)	0.480 ms (31 lines)
	C - SYNC WIDTH	0.102 ms (3 lines)	0.103 ms (4 lines)	0.046 ms (3 lines)
	D - BACK PORCH	0.712 ms (21 lines)	0.513 ms (20 lines)	0.356 ms (23 lines)
	E - ACTIVE TIME	19.896 ms (587 lines)	12.231 ms (477 lines)	9.036 ms (583 lines)
	F - FRONT PORCH	0.102 ms (3 lines)	0.128 ms (5 lines)	0.077 ms (5 lines)
SYNC POLARITY(H/V)		Negative / Negative	Negative / Negative	Negative / Negative

		ADJUSTMENT
		6
DOT CLOCK		190.9800 MHz
H	f H	86.0270 kHz
	A - PERIOD	11.624 μs (2,220 dots)
	B - BLANKING TIME	2.932 μs (560 dots)
	C - SYNC WIDTH	0.984 μs (188 dots)
	D - BACK PORCH	1.623 μs (310 dots)
	E - ACTIVE TIME	8.692 μs (1,660 dots)
	F - FRONT PORCH	0.325 μs (62 dots)
V	f V	165.1191 Hz
	A - PERIOD	6.056 ms (521 lines)
	B - BLANKING TIME	0.430 ms (37 lines)
	C - SYNC WIDTH	0.035 ms (3 lines)
	D - BACK PORCH	0.384 ms (33 lines)
	E - ACTIVE TIME	5.626 ms (484 lines)
	F - FRONT PORCH	0.012 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative

5.4 Acceptable timing

- If your timing is within following specification, this CRT display can automatically function with a certain size and position.

Horizontal: Sync frequency: 30.0 ~ 86.0 kHz
 Blanking Time: $\geq 3.0 \mu\text{s}$
 Back Porch: $\geq 1.25 \mu\text{s}$
 Front Porch: \leq Back Porch
 Sync Width: $\geq 1.2 \mu\text{s}$

Vertical: Sync frequency: 50.0 ~ 160.0 Hz
 Blanking Time: $\geq 0.5 \text{ ms}$
 Back Porch: $\geq 0.4 \text{ ms}$
 Sync Width: $\geq 0.045 \text{ ms}$

- Several items like size, position and distortion can be adjusted through OSD menu, and if you want to keep it, please push the key \square for memory, or keep the key untouched for about 20 seconds, it is automatically memorized.

NOTE : In case of RECALL, the key is untouched for about 30 seconds, RECALL function will be cancelled.

Please note, however, that there is the case you can not get the size and/or position you want, (for example, in case Display video Time is too short, you can't get bigger size of the image.)

- The CRT adopted in this CRT display is designed to minimize the moire phenomenon at suitable size for typical display modes. However, there might be a display format among many formats, in which the moire phenomenon appears on this display.

5.5 Signal level and input impedance

5.5.1 Video Signal level

- This CRT display is adjusted at the factory using 0.7V p-p Video Signal, Black level is 0V.
- This CRT display is compatible with 1.0V p-p Video Signal by using Video input level selection.

5.5.2 Sync Signal level

- H/V Separate, H/V Mixed : TTL level
- Sync on Green : 0.3 V p-p $\pm 0.015 \text{ V}$

5.5.3 Input impedance

- Video input: 75 Ω
- Sync input: $\geq 1 \text{ k}\Omega$

5.6 Display performance

5.6.1 Display area

1) PRESET TIMING

MODE 1,
 WIDTH : 300 mm $\pm 5 \text{ mm}$
 HEIGHT : 225 mm $\pm 5 \text{ mm}$

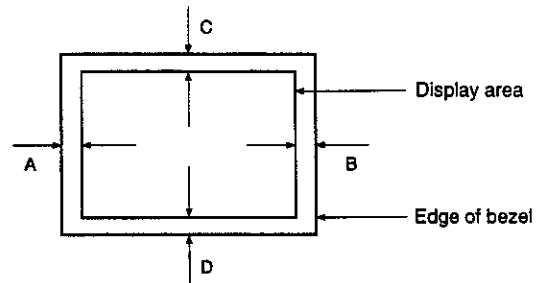
5.6.2 Centering

1) PRESET TIMING (MODE1)

IA - BI $\leq 4 \text{ mm}$
 IC - DI $\leq 4 \text{ mm}$

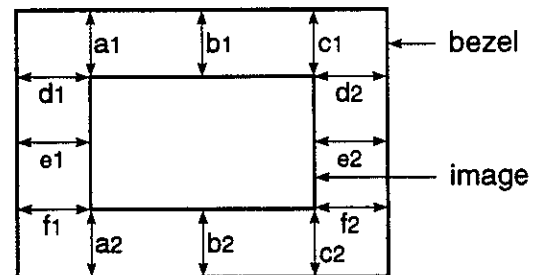
2) RESERVATION TIMING (MODE2-8)

IA - BI $\leq 7 \text{ mm}$
 IC - DI $\leq 7 \text{ mm}$



5.6.3 Distortion

$|a_1 - b_1|, |b_1 - c_1|, |c_1 - a_1| \leq 2 \text{ mm}$
 $|a_2 - b_2|, |b_2 - c_2|, |c_2 - a_2| \leq 2 \text{ mm}$
 $|d_1 - e_1|, |e_1 - f_1|, |f_1 - d_1| \leq 2 \text{ mm}$
 $|d_2 - e_2|, |e_2 - f_2|, |f_2 - d_2| \leq 2 \text{ mm}$

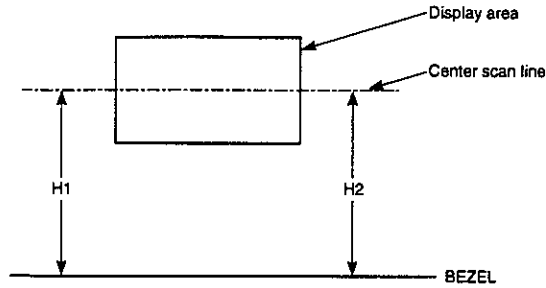


- Test condition: 7.1 Standard Condition
- Image Size: 300 x 225 mm
- User control: AS Shipped

5.6.4 Rotation

$$|H1 - H2| \leq 2.0 \text{ mm}$$

$$\leq 0 \text{ mm (after user adjustment)}$$



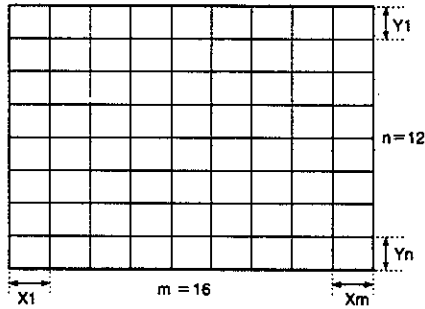
5.6.5 Linearity

Horizontal linearity

$$= \frac{X \text{ max.} - X \text{ min.}}{X \text{ max.} + X \text{ min.}} \times 100 \% \leq 6 \%$$

Vertical linearity

$$= \frac{Y \text{ max.} - Y \text{ min.}}{Y \text{ max.} + Y \text{ min.}} \times 100 \% \leq 5 \%$$



<Conditions>

Display image ----- crosshatch pattern

Maximum and minimum values should not be adjacent to each other.

X max. is maximum value among X1-Xm

X min. is minimum value among X1-Xm

Y max. is maximum value among Y1-Yn

Y min. is minimum value among Y1-Yn

5.7 General performance

5.7.1 Video output

Bandwidth	135 MHz (Typ.)
-----------	----------------

5.7.2 Maximum luminance

Value	130 cd/m ² (Typ.) for 5% white field at the center of the display area. 110 cd/m ² (Typ.) for 100% white field at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Max. (Contrast : Max.) (Brightness : Detent point)

5.7.3 Minimum luminance

Value	$\leq 26 \text{ cd/m}^2$ at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Min. (Contrast : Min.) (Brightness : Detent point)

5.7.4 Brightness variation

Value	70 % (Min.) Variation = C/A X 100
Conditions	Display image : White full flat field Luminance : MAX (Contrast : MAX) (Brightness : Detent point) A ; Luminance at center position C ; Luminance at position of lowest brightness

5.7.5 Display area regulation

	Display area variation	Range of variation
Due to Luminance	within 3 mm	26~110 cd/m ² (white flat field)
Due to Power Supply	within 3 mm	AC : 90-132 V or 180-264 V
Due to Temperature	within 4 mm	0 - 40° C

5.7.6 Color Point

< Conditions >

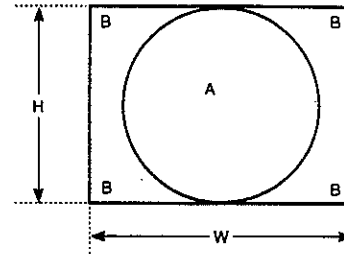
Display image : White flat field at the center of the display area.

Luminance : Brightness Detent point.

Contrast	max	min
Value	9300 K + 8 MPCD x = 0.283 ± 0.020 y = 0.298 ± 0.020	9300 K + 8 MPCD x = 0.283 ± 0.020 y = 0.298 ± 0.020

5.7.7 Misconvergence

Center area of display (A) : 0.3 mm (Max.)
Corner area of display (B) : 0.4 mm (Max.)



<Conditions>

Display image : Crosshatch pattern mixed with R, G and B colors.

Convergence gauge : KLEIN CM7AG or equivalent.

Display area : W x H .300 x 225 mm

5.7.8 Purity

Conspicuous mislanding shall not be visible within display area at a distance of 60cm from CRT surface.

<Conditions>

Display image : White flat field

Luminance : Contrast max, Brightness Detent point.

5.7.9 Jitter

Invisible at a distance of 60 cm from CRT surface.

6. ENVIRONMENTS

6.1 Ambient temperature, humidity and altitude

	Operating	Storage and shipment
Temperature	0 ~ 40° C ** (fh = 30-65 kHz)	-20 ~ +60° C (-4 ~ 140° F)
Humidity	5 ~ 90 % *	5 ~ 90 % *
Altitude	3,000 m (Max.) (10,000 ft)	12,000 m (Max.) (40,000 ft)

* Non-condensation

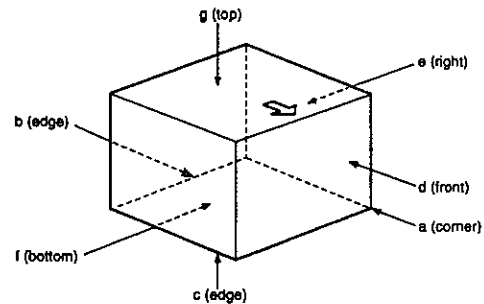
6.2 Vibration and shock

6.2.1 Vibration

	Order of tests	Direction of vibration		Acceleration		Frequency	Sweep	Test time
				Non-operation	Storage and shipment			
Unpacked	1	Vertical	Up to down	2.9 m/s ² (0.3 G)	/	5 - 55 Hz	120 s	30 min.
	2	Horizontal	Front to back					15 min.
	3		Right to left					
Packed	1	Vertical	Up to down	/	12.3 m/s ² (1.25 G)	5 - 50 Hz	810 s Log sweep	40 min.
	2	Horizontal	Front to back		20 min.			
	3		Right to left					

6.2.2 Shock (Drop test)

Unpacked	20 G One time for each face (6 faces) (non-operation)			
Packed	Order of drop	Face to drop is to face the floor. (See the figure)	Height	Number of drop
	1	a, b, c, d, e, g	60 cm	1 time for each
	2	f	70 cm	



7. REGULATORY STANDARDS

7.1 Safety standards

Applicable standards

UL 1950, Listing

CSA 22.2 No. 950, Products Certification

TüV (IEC-950)/GS (ZH1)

DHHS, 21 CFR subchapter J, X-Ray Radiation

PTB, X-Ray Radiation, Approval

HWC

NORDIC

Energy Star

7.2 EMC standards

Designed to meet following standards

VCC I class II

FCC: FCC part 15, subpart B, class-B

VDE 0878/06.83

Vfg 243/1991

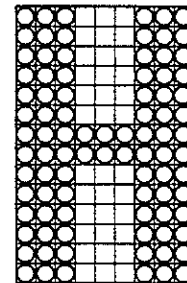
CISPR22 class B

MPR- II Radiation

TCO'92 Radiation

<EMI test pattern>

White, full "H" characters (9 x 14 dots), block (12 x 24 dots) "H" character font is as follows:



8. POWER CORD

•Northern Hemisphere Version ... UL/CSA approved power cord (North America and Japan) (Wall Type)

•European Version ... VDE approved power cord (PC Type)

•Australia, New Zealand Version ... None

9. SIGNAL CABLE

Signal cable with Mini D-Sub 15P connectors at both end is put in package.

Length : 1.5 meter (4.93 feet)

10. RELIABILITY

>55,000hrs (demonstrated MTBF)

11. COLOR CRT DEFECTIVE STANDARD

11.1 Specification of screen blemishes

This instruction is applied to inspection of the screen faults and of the glass quality of the faceplate.

11.2 Test procedure

11.2.1 Tests are to be done under the following two conditions:

- (a) With a blanked white raster at 80 μ A.
- (b) With incident light (white light of 700 - 1000 lux at the center of the screen; tube is not operated).

11.2.2 Viewing distance should be 60 cm minimum. Faults not visible at this viewing distance are permitted.

11.2.3 The Following quality areas are specified:

Zone A: Rectangular area (sides X and Y) of which the point of intersection of the diagonals coincides with the mechanical center of the screen.

Zone B: The remaining screen area except zone A.

Specified zone is applied to glass faceplate defects.

	Screen size	
	X	Y
Zone A	320mm (12.6")	240mm (9.45")

11.2.4 Remarks concerning faults:

a) Unless otherwise specified, the size of a fault is the smallest value found with one of the two formulas:

$$\frac{a+b}{a}, \frac{a}{20} + 2b \quad (a = \text{length}, b = \text{width})$$

b) For entirely or partially missing and/or non-fluorescent phosphor dots hold the following definitions:

Entire defect: Remaining part is not more than 50% of the complete dot.

Partial defect: Remaining part is between 50% and 75% of the complete dot.

11.3 Permissible limit

11.3.1 Screen faults

Missing phosphor dots, black spots, filled mask holes and copper stains

Size of defects			Max. permissible number	Min. permissible distance between defects	Max. permissible number in circle of ϕ 50 mm	
Entire defects	A	A1	3 adjacent trios or more	0	—	—
		A2	3 adjacent same color dots or more	0		
		A3	More than 6 adjacent dots	0		
	B	B1	2 adjacent trio	0	—	—
		B2	4 or 5 adjacent dots	0		
		B3	2 adjacent same color dots	1		
	C	C1	1 trio	1	20 mm	—
		C2	2 adjacent different color dots	2		
		C3	1 dot	7		
B + C			—	20 mm	—	
Partial defects	D	Partial defects	—	—	5	
Total pieces of defects excluding partial defects			7	—	—	

— Entire defects having separation less than min. permissible distance are defined as an adjacent defects.

— Defects of remaining part more than 75% is ignored, except for concentration having diameter more than ϕ 8 mm.

11.3.2 Glass faceplate defects

(A) Air bubbles, open bubbles, stones and elongated air bubbles.

Area		Zone A	Zone B	
Permissible major defects	Air Bubble. (average dia.)	0.51 – 0.70 mm	0.51 – 0.70 mm	
	Spot and open air bubble (average dia.)	0.41 – 0.60 mm	0.41 – 0.60 mm	
	Maximum Permissible number	Each zone	1	1
		Total	2	
	Minimum allowable distance among defects		57 mm	
Permissible defects within any 50 mm-dia.-circle	Air Bubble. (average dia.)	0.25 – 0.50 mm		
	Spot and open air bubble (average dia.)	0.20 – 0.40 mm		
	Max. permissible number	2		
	Δ Minimum allowable distance among defects	12.7 mm		
ΔΔ Elongated air bubble (permissible size)	Width	0.10 – 0.20 mm	0.10 – 0.30 mm	
	Length	4.0mm	6.0 mm	

Δ This is also applied to the distance to major defects.

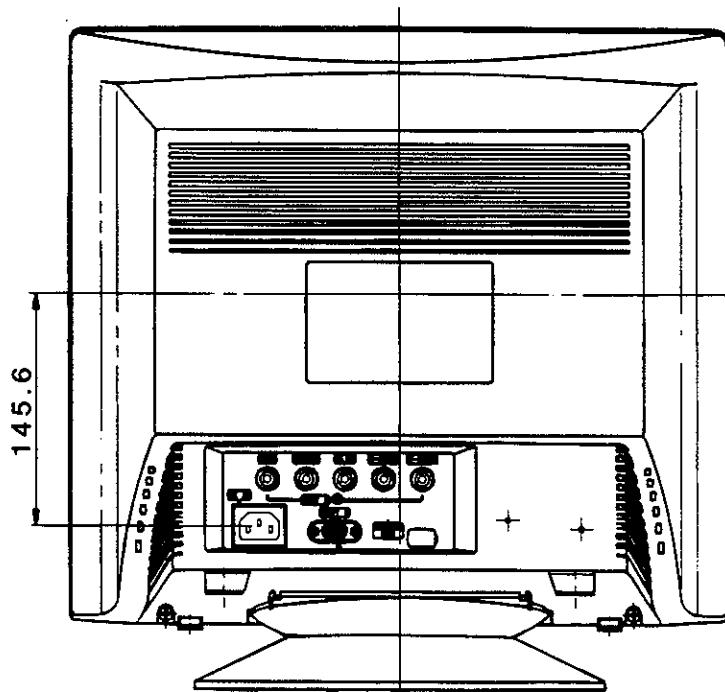
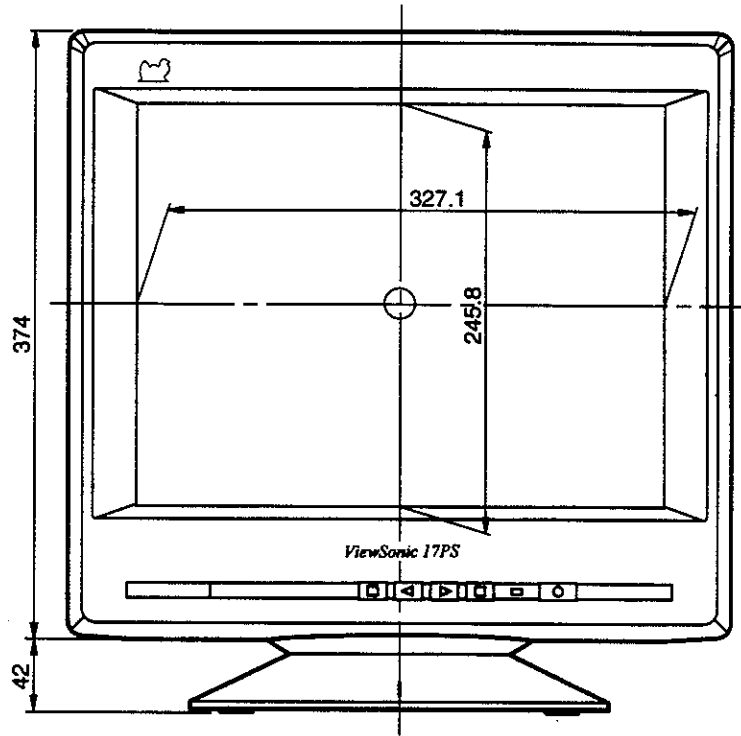
ΔΔ This should be evaluated by its average diameter, and then relevant standards of air bubble are applied except number of defects for each zone, minimum distance among defects and maximum limit of average diameter.

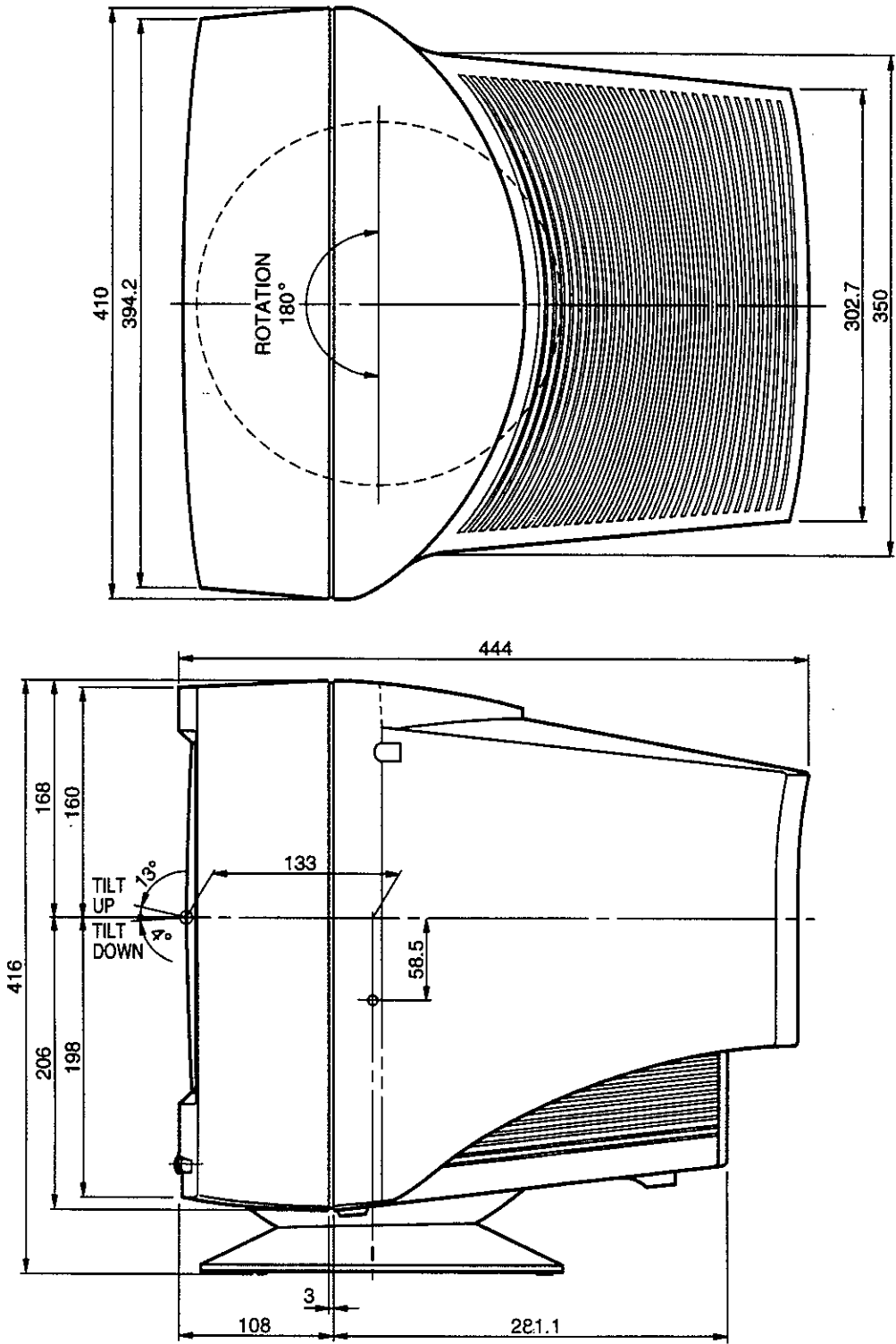
(B) Scratches

Width (mm)	Maximum allowable length (mm)
< 0.05	permitted
0.05 - 0.10	25.4
0.11 - 0.15	12.7
> 0.15	rejected

(C) Other defects not stated above such as chips, cracks, bruises, shear marks, clouds and polished patterns are not allowed when they substantially spoil appearance, viewed from the viewing distance.

DIMENSIONS



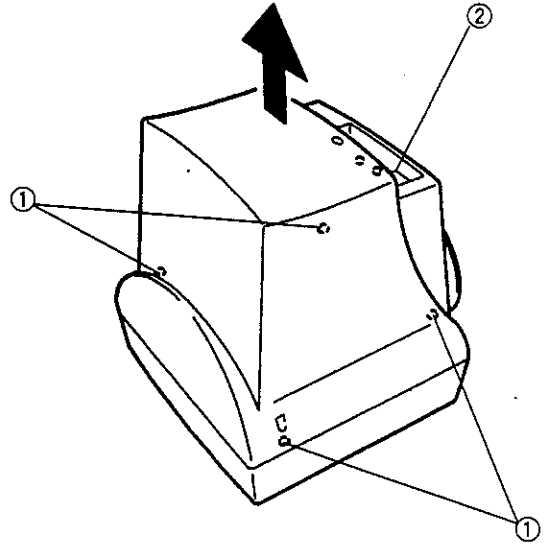
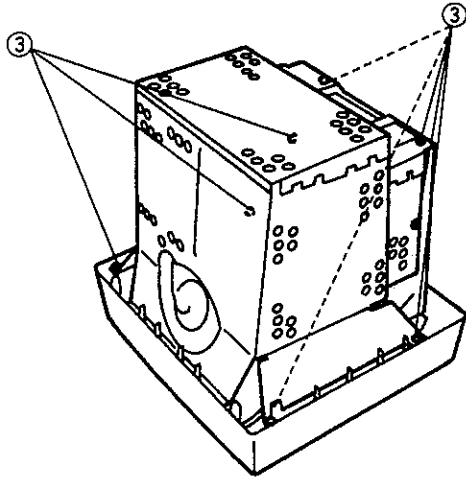


DISASSEMBLY INSTRUCTIONS

1. Rear cover removal

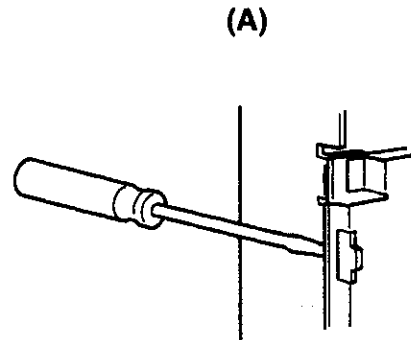
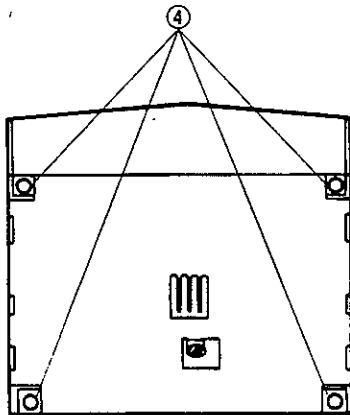
Note: Spread a mat underneath to avoid damaging the CRT surface.

- 1) Remove four large screws ① and small screw ② from the rear cover.
- 2) Remove the cover.
- 3) Remove eight screws ③ from the shield case.
- 4) Remove the shield case.

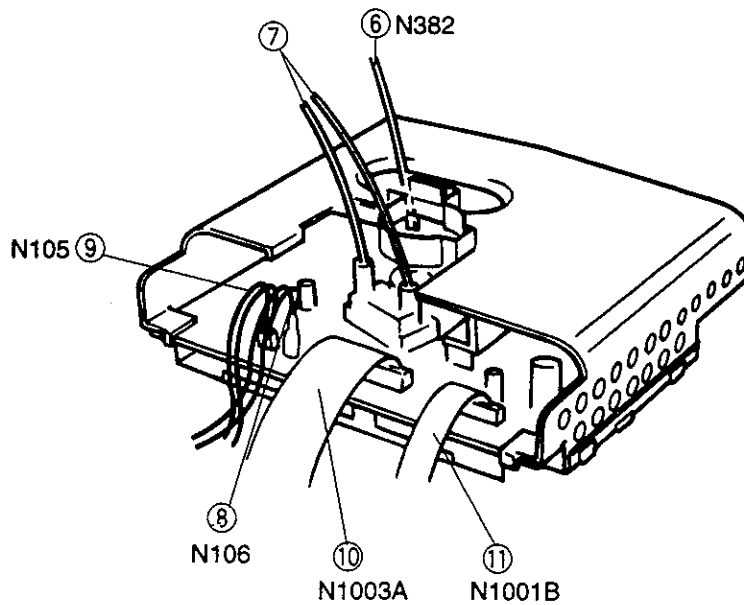
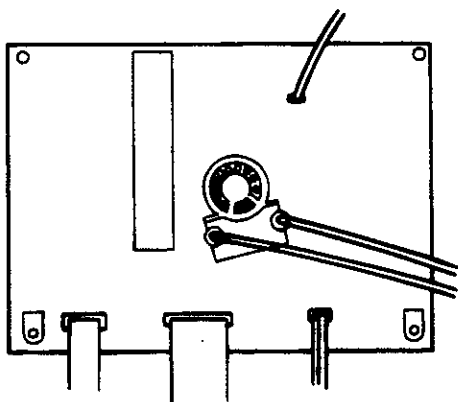
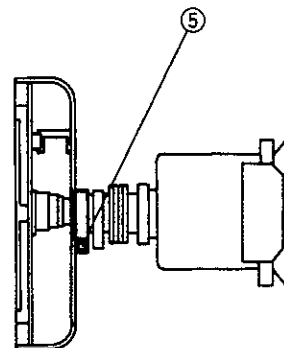


2. Video PCB removal

- 1) Remove four screws ④ securing the shield cover.
- 2) Desolder (B) and Remove the shield cover (A).

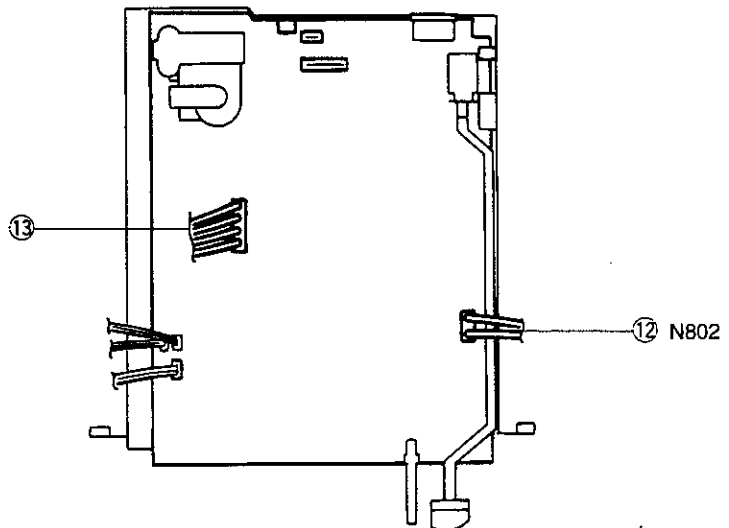
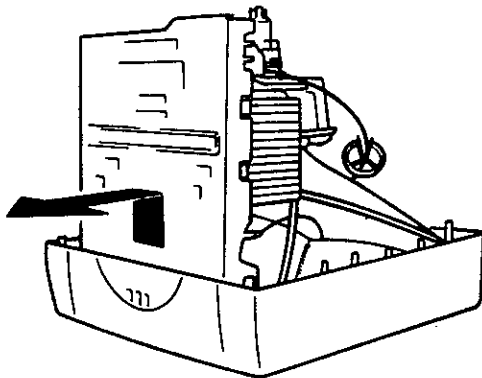
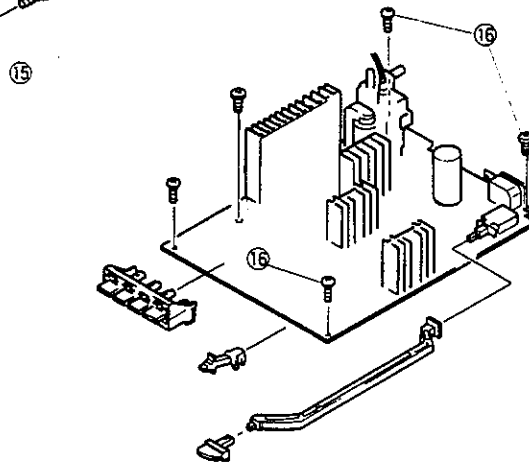
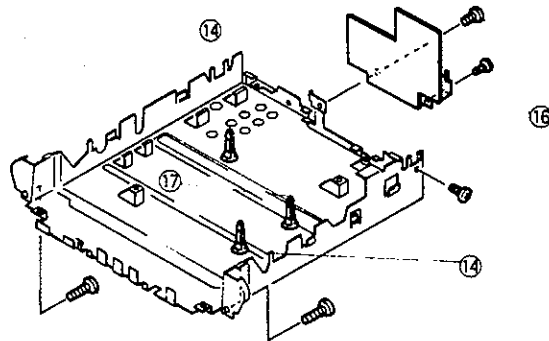


- 3) Loosen the screw ⑤ securing the CRT neck and the shield case.
- 4) Remove the PCB block from the CRT.
- 5) Remove the N382 connector ⑥.
- 6) Remove two focus leads ⑦.
- 7) Remove ground connector ⑧ (N106) connected to the PCB.
- 8) Remove N105 connector ⑨.
- 9) Remove N1003A connector ⑩.
- 10) Remove N1001B connector ⑪.
- 11) Remove the PCB from the shield case.



3. Main PCB Removal

- 1) Remove the connector ⑫ (N802) of the degauss coil.
- 2) Remove the DY connector ⑬.
- 3) Remove the anode cap.
- 4) Remove two ground connector ⑭.
- 5) Move the CRT face down and remove two screws ⑮ securing the bottom fitting metal.
- 6) Remove the fitting metal and the PCB from the cabinet.
- 7) Remove ten screws ⑯ securing the fitting metal and PCB.
- 8) Remove there clamber ⑰ the fitting metal and PCB.
- 9) Remove the PCB ⑱ with the figure referenced.



CONTROL LOCATION

Basic operation of parts

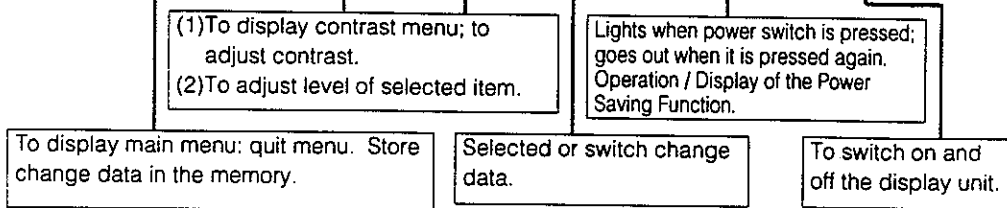
Control panel



Names of control



Functions



* For a detailed description of the functions of the 1 key, left key, right key, and 2 key, refer to the next section onward.

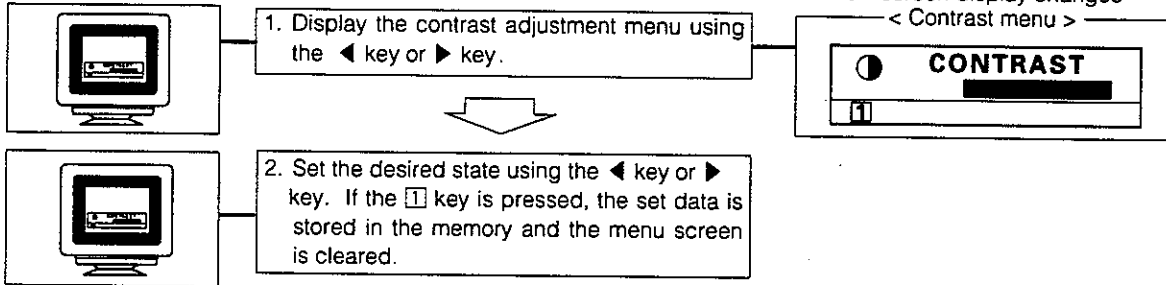
Examples of on-screen operation

A. Contrast adjustment

Display changes

Steps of operation

On-screen display changes

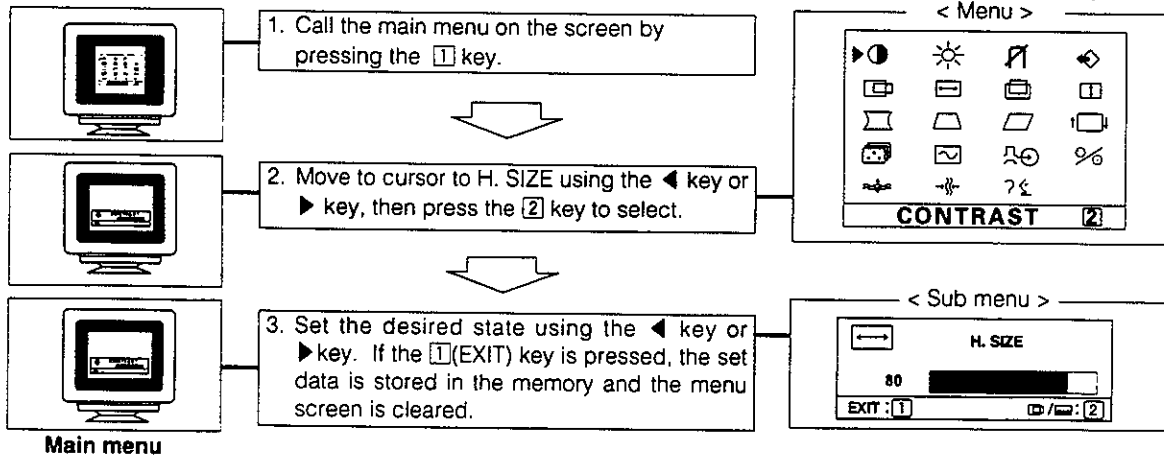


B. H. size adjustment

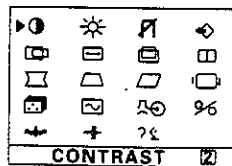
Display changes

Steps of operation

On-screen display changes



Main menu



CONTRAST	BRIGHTNESS	DEGAUS	RECALL
H.POSITION	H.SIZE	V.POSITION	V.SIZE
V.PINCUSHION	TRAPEZOID	PARALLELOGRAM	ROTATION
COLOR SELECT	DISPLAY FREQUENCY	VIDEO INPUT LEVEL	VIDEO INPUT SELECT
H.MOIRE	V.MOIRE	LANGUAGES	
CONTRAST 2			

CAUTION FOR ADJUSTMENT AND REPAIR

1. Degaussing is inevitably required at purity adjustment or convergence adjustment.
2. If you check or adjust electrical specification or function, more than 20 minutes burn-in is required.
3. Reforming of the lead wire is required after your repair work.
4. Prior to starting work, be sure to check that the input signal is at the specified timing and that the polarity is as specified in all modes.
5. Brightness control: After mounting the rear cover, brightness tends to decrease about 5 cd/m^2 on a flat white field and about 1 cm/m^2 on a white raster field. This should be taken into consideration.
6. Brightness stabilizing time: It takes about 20 to 50 seconds for the brightness to stabilize after turning the power off for 5 seconds (AC). Therefore, care should be taken to this.
7. Aging should be made in white raster of $30 \sim 50 \text{ cd/m}^2$ and raster size, $320 \times 240 \text{ mm}$ before adjusting the ITC.
8. Set the CONTRAST to MAX and BRIGHTNESS to CENTER using the O.S.D.

CAUTION FOR SERVICING

When servicing or replacing the CRT, high voltage sometimes remains on the anode. So, completely discharge high voltage before servicing or replacing the CRT so as to prevent a shock to the service person.

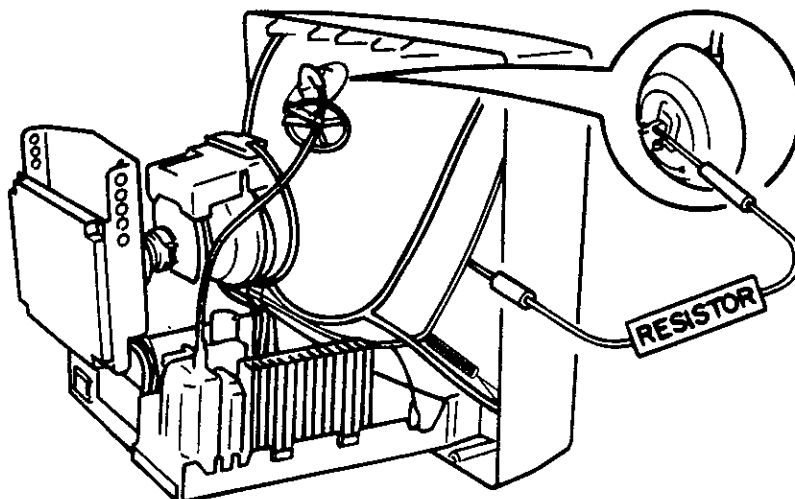
CRT Anode Discharge

1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of CRT, especially when checked right after power turn-off.
2. Ground one end of a jumper wire which has a resistor ($30 \text{ kV} < \text{resisting pressure } 100 \text{ M}\Omega$) and connect the other point to the CRT anode.

Note: Grounding must be done first.

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may be hit by an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.



ADJUSTMENT AND CHECK PROCEDURE

INTRODUCTION

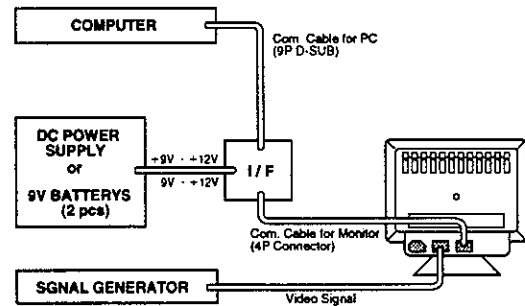
- This monitor is controlled by a microcomputer. With the exception of purity/convergence/focus all is digitally adjusted. Therefore a computer, the dedicated control software, the dedicated interface, a 9~12 V power supply, and a signal generator are required servicing.

TOOLS REQUIRED

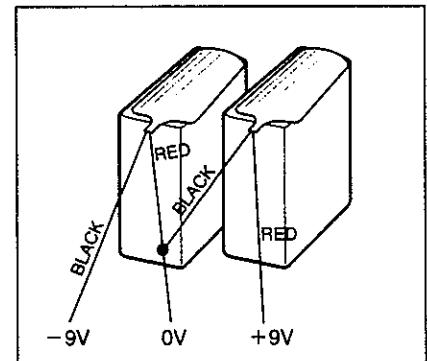
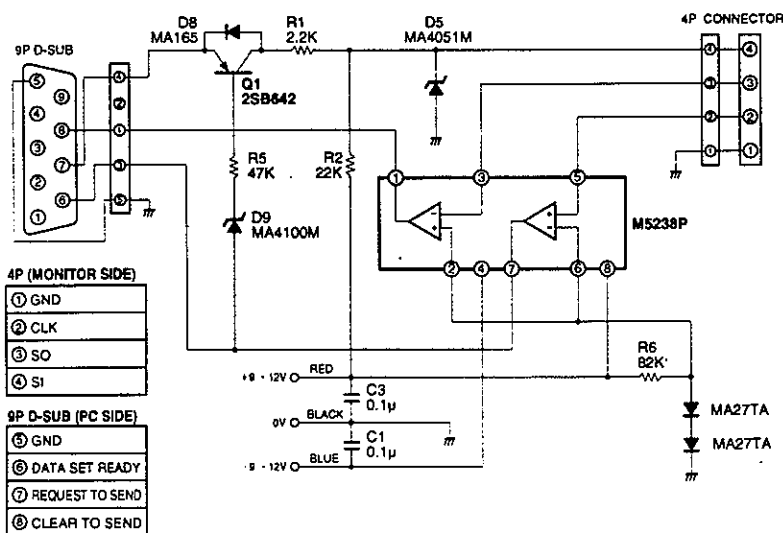
- Computer**
The control software is IBM PC compatible only. Therefore, it is not compatible with any other operating systems. For further information please contact Customer Support Department.
- Control Software**
The 17PS-2 chassis can only use "1786PS adjustment program disk". No other program can access the EEPROM on the monitor. For further information please contact our Customer Support Department.

- Interface**
The interface is dedicated to work only with the control software and the our chassis. There are no substitutes for this interface. For further information please contact Customer Support Department.
- Power Supply**
A DC 9~12 V (+9~12 V/-9~12 V) power supply is required for operating the interface.
- Signal Generator**
It is necessary for you to use a signal generator which operates on fh 86 kHz, fv 160 Hz, and fc 135 MHz bands.

INTERFACE CONNECTION



INTERFACE SCHEMATIC DIAGRAM



BATTERY CONNECTION

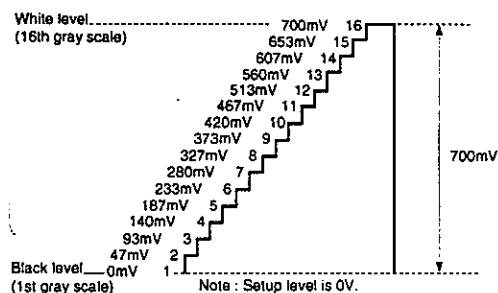
OTHER TOOLS

- Oscilloscope (dual trace)
- Scope probe – Attenuation: 100:1
Attenuation: 10:1
- Digital Voltmeter – Range: 0 to 1000 V DC
Accuracy: 0.1 %
- TV color Analyzer II – that reads luminance and chromaticity X and Y coordinates.
- Digital High Voltmeter
- AC power supply – Output voltage : 0 to 300 V
- Degaussing coil
- Convergence meter
- Scale
- Double-faced scale
- Microscope – Scale factor: 50
- White racquer (Paint)

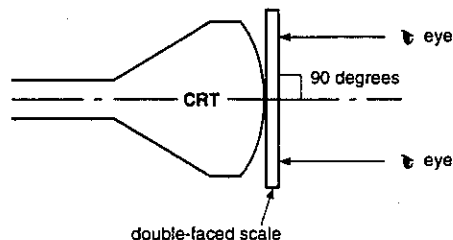
STANDARD CONDITION OF ADJUSTMENT PROCEDURE

- Signal timing : Standard timing 1024 x 768
(See page 5)
- Display pattern : White, full "H" character
- Signal level : V/H: TTL level video: 700 mV
- Input source : AC 120 V, 60 Hz
- Ambient temperature : Room temperature
- Warm-up time : More than 30 minutes
- Brightness control : Center
- Contrast control : Max.
- Magnetic field : Vertical: 40 μ T
Horizontal: 0 μ T
- Signal cable : Attached

Video input signal from PC.



- Use a Helmholtz device to adjust an unit with no horizontal magnetic field and a vertical field of 40 μ T. Inspect the unit under the same conditions.
- The ambient illuminance must be 200 lux.
- Use an external degaussing coil any time the DEGAUSS switch does not remove color shading.
- To check the image width, height, linearity and distortion, proceed as below.



Measure level with respect to tube axis.

ADJUSTMENT SOFTWARE

1. Software operating procedure

- A) Power on the computer.
- B) Connect the Communication cable for monitor adjustment.
- C) Insert the adjustment disk into the drive.
- D) At the A:> prompt type "VSR", then press [ENTER].

A function to identify the connected monitor is provided to prevent accidents due to erroneous use of the 17PS-2 chassis program. If this program is used for any monitor other than the 17PS-2 the message reading "This monitor is not an 17PS-2 chassis. All further activity has been prevented" is displayed and the operation is stopped.

- E) Refer to the adjustment procedures.

2. Adjustment Program

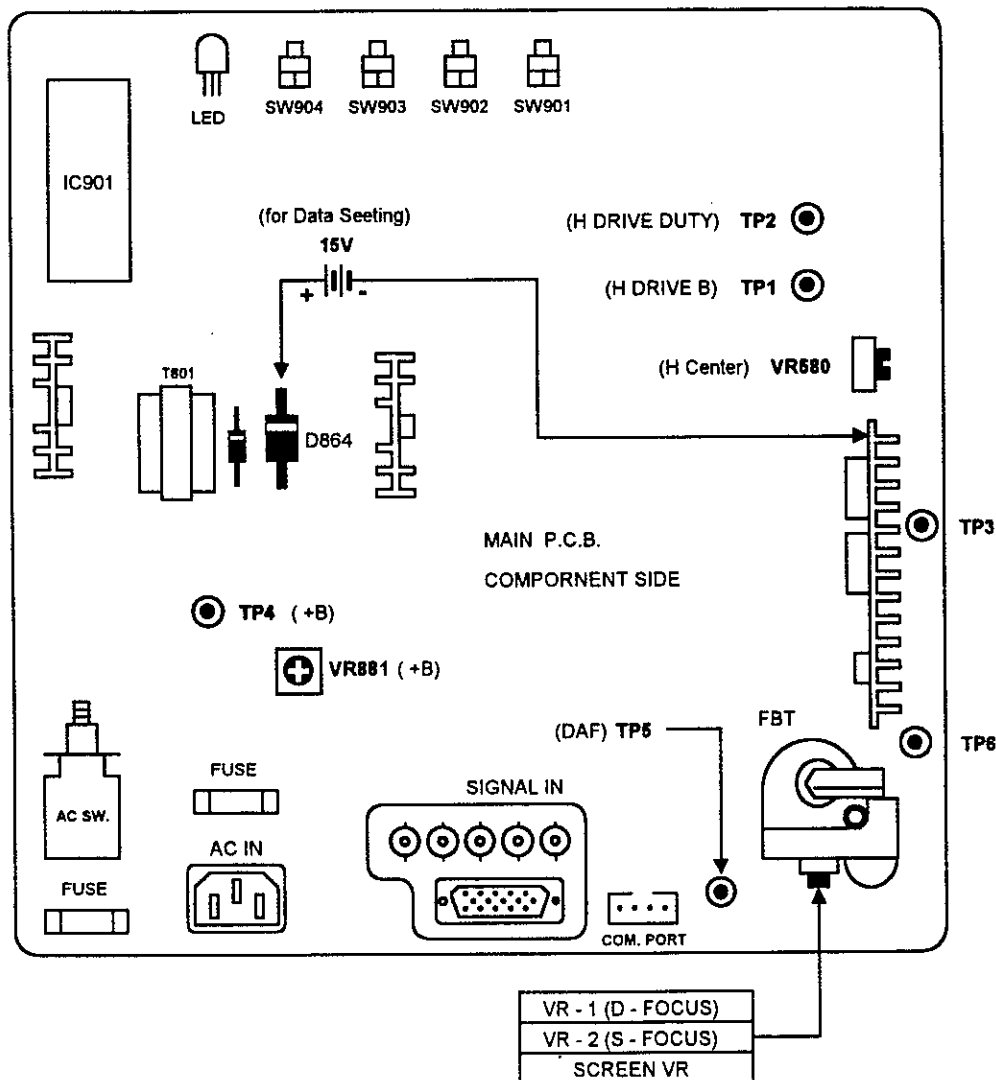
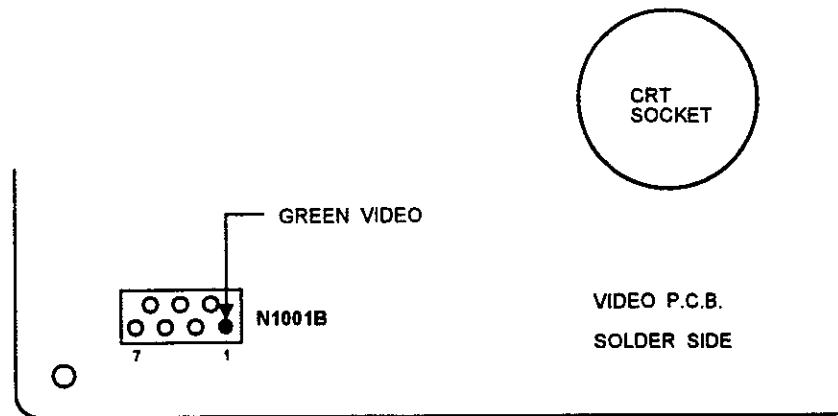
Main Menu of Adjustment Program

```
<<17PS-2 ADJUST PROGRAM MAIN MENU>> (e: exit) <Ver *.*>
  1) Load data from FILE          6) Clear User preset
  2) Adjust H. OSC freerun        7) Save data to FILE
  3) Adjust VSR setting           8) Special ADJUST
  4) Adjust OTHER setting         9) Information Service
  5) Adjust Factory preset       10) Show Version & Error
```

Description of Function of Each Menu

- 1) **Load Data from File**
This transfers the data file from the disk to the EEPROM on the monitor.
- 2) **Adjust H. OSC Freerun**
To guarantee that the full range of horizontal frequencies operate correctly. The reference oscillation frequency should be set.
- 3) **Adjust VSR Setting**
To guarantee that the full range of horizontal frequencies operate correctly. The reference voltage and the distortion offset data should be set.
- 4) **Adjust Other Setting**
This is used to control the brightness and color.
- 5) **Adjust Factory Preset**
Makes adjustments to the factory presets. This data is also referenced when in modes other than the preset mode.
- 6) **Clear User Preset**
Clear the data written in the user preset domain. There is no data in the user presets when the product shipped from the factory.
- 7) **Save Data to File**
Transfers the data from the EEPROM on the monitor to a data file on a floppy disk or hard drive. The data file can be named anything as long as it is less than 8 characters long.
- 8) **Special Adjust**
This menu has the following functions
① Related data is automatically set on the basis of adjustment results to save the time for adjustment.
(Example: Color adjustment applies only to the 9300 K, while 6550 K and user color data are automatically set.)
- 9) **Information Service**
Displays the HV frequencies that is being supplied to the monitor and gives the operational status of the monitor.
- 10) **Show Version and Error**
Shows the version of the microprocessor that is in the monitor. Also, if there is an error in the operation of the monitor.
The error is displayed on the screen of the PC.

SERVICE ADJUSTMENT CONTROL LOCATION



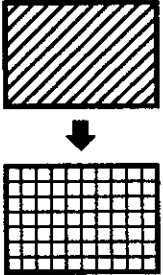
REQUIRED ADJUSTMENT PROCEDURE AFTER A PARTS IS REPLACED (✓ IS REQUIRED)

ADJUSTMENT ITEM	REPLACED PARTS											
	MAIN P.C.B.	VIDEO P.C.B.	CRT DY	IC1302 IC1303 IC1307 IC1401	IC901	IC821 Q821	IC490	IC501	IC550	Q549 Q719 Q550 Q855	FBT Q660 Q690 Q855	
A DATA SETTING*	✓				✓							
B +B ADJUST	✓				✓	✓						
C H. FREE RUN	✓				✓		✓					
D H. DRIVE DUTY	✓				✓		✓					
E H. DRIVE +B	✓				✓			✓				
F EHT	✓		✓		✓						✓	
G H. CENTER	✓		✓		✓						✓	
H V. SIZE / POSI DISTORTION	✓		✓		✓		✓			✓	✓	
I H. SIZE / POSI DISTORTION	✓		✓		✓		✓			✓	✓	
J PRESET	✓		✓		✓		✓			✓	✓	
K DAF	✓				✓							
L FOCUS	✓		✓		✓						✓	
M CUT-OFF & BRIGHTNESS	✓	✓	✓		✓						✓	
N FINAL TUNE	✓	✓	✓		✓						✓	
O DATA SAVING	✓	✓	✓		✓				✓		✓	
PURITY & CONVERGENCE			✓									
SCREEN CHECK	✓	✓	✓		✓				✓		✓	

* DATA SETTING : Do not load standard data except when main PCB and IC901 are replaced.

ADJUSTMENT PROCEDURE

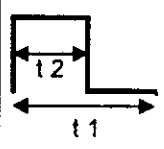
1. Description of Adjustment Method

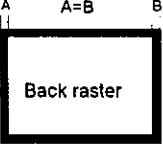
Program Menu Item	◆ Test Meter ↓ Test Point ⌋ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
A STANDARD DATA SETTING 1) Load data from FILE	↓ D864 - GND Refer to service adjustment control location for connect point.	A1		Do not connect the power and signal cable to monitor.	
		A2		Apply 15V to D864 CATHODE and GND. (Do not apply 5V to IC901. Because IC833 will supply the 5V and RESET, signal to IC901)	
		A3		Set the cell to the menu at left and press [↵].	
		A4		A message FILE -> EEPROM FILE NAME (q or Q escape) [] : is displayed. So key in the DACDATA.DAT (when using the standard data) and press [↵].	
		AE		Disconnect 15V cable, then turn on the power switch of the monitor.	
Do not load standard data except when Main P.C.B. and IC901 are replaced.					
B +B ADJUST	◆ Digital voltmeter ↓ TP4 ~ GND ⌋ RGB OFF (SYNC ONLY)	B1 B2	-1	Check that the input signal to the monitor is [fH 29.5kHz] and [fV 48.0Hz]. Make the adjustment to the value shown at right by turning the VR881 on the main PCB.	82V +0.5 -1.0
C H. FREE RUN 2) Adjust H. OSC freerun	⌋ Crosshatch	C1		Set the cell to the menu at left and press [↵].	
		C2		Set the cell to the adjusting mode <u>INTP</u> [0] and press [↵].	
		C3	-1	Check that the input signal to the monitor is [fH 29.5kHz] and [fV 48.0Hz] and press [↵].	
		C4		When the screen image has stabilized, press [↵] to return to menu of C2.	
		C5	2	Input signal [fH 39.0kHz] and [fV 77.1Hz]	
		C6		Select Adjusting mode <u>INTP</u> [1], and repeat above procedure.	
		C7	4	Input signal [fH 64.5kHz] and [fV 105.0Hz]	
		C8		Select Adjusting mode <u>INTP</u> [2], and repeat above procedure.	
		C9	6	Input signal [fH 86.0kHz] and [fV 165.1Hz]	
		C10		Select Adjusting mode <u>INTP</u> [3], and repeat above procedure.	
CE			Press [E] to return to main menu.		

Note 1 : Check to be sure that the program disk name is **1786PS** before making necessary adjustment.

Note 2 : Unless otherwise specified, the monitor state is as given at right.

Note 3 : The underlined places indicate the adjustment items on the screen of the PC.

Program Menu Item	◆ Test Meter ↓ Test Point Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
D H. DRIVE DUTY 3) Adjust VSR setting	◆ Oscilloscope ↓ TP2 ~ GND Crosshatch Oscilloscope Range 1 10μs/div. 2 5μs/div. 4 5μs/div. 6 2μs/div.	D1		Set the cell to the menu at left and press [J].	 $t_2 + t_1 \times 100 =$ 52% ±2.5% 51% ±2.5% 47% ±2.5% 42% ±2.5%
		D2		Set the cell to the adjusting mode <u>INTP [0]</u> and press [J].	
		D3	1	Check that the input signal to the monitor is [fH 29.5kHz] and [fV 48.0Hz] and press [J].	
		D4		Set the cell to <u>H. DRIVE DUTY</u> and press [J].	
		D5		Make the adjustment to the value shown at right by using [←] and [→].	
		D6		Register by pressing [J] and return to menu of D2 by pressing [E].	
		D7	2	Input signal [fH 39.0kHz] and [fV 77.1Hz]	
		D8		Select Adjusting mode <u>INTP [1]</u> , and repeat above procedure.	
		D9	4	Input signal [fH 64.5kHz] and [fV 105.0Hz]	
		D10		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
		D11	6	Input signal [fH 86.0kHz] and [fV 165.1Hz]	
		D12		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	
		DE		Press [E] to return to main menu.	
E H. DRIVE +B 3) Adjust VSR setting	◆ Digital voltmeter ↓ TP1 ~ GND Crosshatch	E1		Set the cell to the menu at left and press [J].	21.0V ±0.3V 19.5V ±0.3V 17.0V ±0.3V 14.5V ±0.3V
		E2		Set the cell to the adjusting mode <u>INTP [0]</u> and press [J].	
		E3	1	Check that the input signal to the monitor is [fH 29.5kHz] and [fV 48.0Hz] and press [J].	
		E4		Set the cell to <u>H. DRIVE +B</u> and press [J].	
		E5		Make the adjustment to the value shown at right by using [←] and [→].	
		E6		Register by press [J] and return to menu of E2 by press [E].	
		E7	2	Input signal [fH 39.0kHz] and [fV 77.1Hz]	
		E8		Select Adjusting mode <u>INTP [1]</u> , and repeat above procedure.	
		E9	4	Input signal [fH 64.5kHz] and [fV 105.0Hz]	
		E10		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
		E11	6	Input signal [fH 86.0kHz] and [fV 165.1Hz]	
		E12		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	
		EE		Press [E] to return to main menu.	

Program Menu Item	◆ Test Meter ∩ Test Point Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
F EHT ADJUST 4) Adjust OTHER setting	◆ Digital voltmeter ◆ High Voltage Probe ∩ Anode Cap ~ GND RGB off (Sync only)	F1 F2 F3 F4 F5 F6 F7 FE	6	Turn the power switch of the monitor OFF. Connect high voltage probe to Anode Cap and GND. Turn the power switch of the monitor ON. Set the cell to the menu at left and press [J]. Check that the input signal to the monitor is [fH 86.0kHz] and [fV 165.1Hz]. Set the cell to EHT and press [J]. Make the adjustment to the value shown at right by using [←] and [→]. Register by press [J] after adjustment and return to main menu by press [E].	25.0kV ±0.3kV
G H. CENTER	RGB off (Sync only)	G1 G2 G3	5	Set the Brightness to MAX on the OSD. Check that the input signal to the monitor is [fH 86.0kHz] and [fV 165.1Hz]. Make the adjustment as shown at right by turning the VR580 on the main PCB.	 Set the raster to the center with respect to the bezel.
H V. SIZE / POSI and DISTORTION 5) Adjust OTHER setting	Crosshatch	H1 H2 H3 HE	Mode-1	Set the cell to the menu at left and press [J]. Check that the input signal to the monitor is [fH 60.0kHz] and [fV 75.0Hz] and press [J]. Set the cell to following items, press [J] and make the adjustment to the value shown at right by using [←] and [→]. ① * H. SIZE ⑥ V. PCC BARANCE ② * H. POSITION ⑦ PARALLELOGRAM ③ V. SIZE ⑧ TRAPEZOID ④ V. POSITION ⑨ V. LIN (C) ⑤ * V. PCC <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">H. SIZE, H. POSI and V. PCC is dose not register to interpolation data.</div> After adjustment, return to the main menu by using [E].	H : 300mm ±5 V : 225mm ±5 H/V Posi : Center V. PCC : Best point
I H. SIZE / POSI, V. PCC and V.LIN 3) Adjust VSR Setting	Crosshatch	I1 I2 I3 I4	1	Set the cell to the menu at left and press [J]. Set the cell to the adjusting mode INT[P 0] and press [J]. Check that the input signal to the monitor is [fH 29.5kHz] and [fV 48.0Hz] and press [J]. Set the cell to following items, press [J] and make the adjustment to the value shown at right by using [←] and [→]. ① H. SIZE ④ V. PCC CORNER ② H. POSI ⑤ V. LIN (S) ③ V. PCC	H : 300mm ±5 V : 225mm ±5 H/V Posi : Center V. PCC : Best point V. LIN

- To be continued -

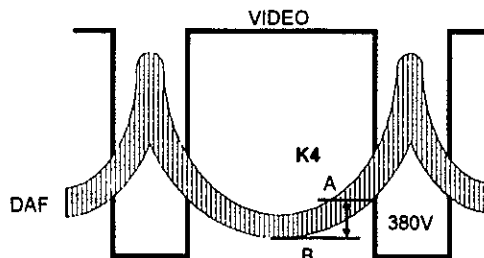
Program Menu Item	◆ Test Meter ↓ Test Point Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
I H. SIZE / POSI, V. PCC and V.LIN 3) Adjust VSR Setting	Crosshatch	15		After adjusting the above, return to menu of I2 by using [E].	H : 300mm ±5 V : 225mm ±5
		16	2	Input signal [fH 39.0kHz] and [fV 77.1Hz]	H/V Posi : Center V. PCC : V. LIN : Best point
		17		Select Adjusting mode <u>INTP [1]</u> , and repeat above (I4~I5) procedure.	
		18	4	Input signal [fH 64.5kHz] and [fV 105.0Hz]	
		19		Select Adjusting mode <u>INTP [2]</u> , and repeat above procedure.	
		I10	6	Input signal [fH 86.0kHz] and [fV 165.1Hz]	
I11		Select Adjusting mode <u>INTP [3]</u> , and repeat above procedure.	After adjustment, return to the main menu by press [E].		
IE					
J PRESET ADJUST 4) Adjust Factory preset	Crosshatch	J1		Set the cell to the menu at left and press [↵].	Mode-1 H : 300mm ±5 V : 225mm ±5 Mode-2~7 H : 300mm ±7 V : 225mm ±7 Mode-8 H : 286mm ±7 V : 229mm ±7
		J2	Mode-1	Check that the input signal to the monitor is [fH 60.0kHz] and [fV 75.0Hz] and press [↵].	
		J3		Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→].	
				① <u>H. SIZE</u> ⑤ <u>V. PCC</u> ② <u>H. POSI</u> ⑥ <u>PARALLEL</u> ③ <u>V. SIZE</u> ⑦ <u>TRAPEZOID</u> ④ <u>V. POSI</u>	
		J4	M2~M8	Make above adjustment when out of adjusting value by changing input signal to Mode-2~8 and check screen image.	
JE			After adjustment, return to the main menu by using [E] and [N].	H/V Posi : Center V. PCC : Best point	
K DAF ADJUST 8) Special ADJUST	White flat field ◆ Oscilloscope ↓ TP5~GND 100:1 probe ↓ N1001B(2) ~ GND 10:1 probe	K1		Set the cell to the menu at left and press [↵].	380V ±10V Refer to Fig.K for adjustment.
		K2		Select the 3: <u>ADJUST H.DAF GAIN</u> .	
		K3	4	Check that the input signal to the monitor is [fH 64.5kHz] and [fV 105.0Hz].	
		K4		Adjust as shown at right by using [←] and [→].	
		KE			

Fig.K

Adjusting Value of K4

K4 : Set to voltage A B

- A : Closing VIDEO and DAF
- B : Bottom of DAF



Program Menu Item	◆ Test Meter ∪ Test Point ∥ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value	
L FOCUS	∥ Character	L1	Mode-1	Check that the input signal to the monitor is [fH 60.0kHz] and [fV 75.0Hz].		
		L2		Make the corner sections of the screen optimum by turning FOCUS VR 1 on the FBT.		
		L3		Make the center section optimum by turning FOCUS VR 2 on the FBT.		
		L4		Repeat L2 and L3 to make it optimum.		
M CRT CUT-OFF 4) Adjust OTHER setting BRIGHTNESS & COLOR ADJUST ABL DATA SETTING 8) Special ADJUST	◆ TV Color Analyzer II ∥ RGB Off (Sync only) ∥ White window (5cm×5cm at the center) ∩ White flat field (full window)	M1	Mode-1	Set the Contrast to MAX, Brightness to Center and Color is 9300k by using the OSD.		
		M2		Check that the input signal to the monitor is [fH 60.0kHz], [fV 75.0Hz] and turn off the RGB signal.		
		M3		Set the cell to the menu at left and press [↵].		
		M4		Make the adjustment <u>R, G and B Low Light</u> by using [←], [→] and Screen VR to CRT cut-off.		
		M14		Please refer to flow chart for this adjustment on page 31.		
		M15		Change to the pattern at left.		Y=130 cd/m ² x=0.283 ±0.020 y=0.298 ±0.020
		M16		Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. <u>R. SUB CONT 9300K</u> <u>G. SUB CONT 9300K</u> <u>B. SUB CONT 9300K</u>		
		M17		Set CONTRAST to MIN by using the OSD.		x=0.283 ±0.020 y=0.298 ±0.020
		M18		Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. <u>R. LOW LIGHT</u> Adjust two colors only <u>G. LOW LIGHT</u> out of these (RGB) three as <u>B. LOW LIGHT</u> shown in M12 on page 31.		
		M19		Set CONTRAST to MAX by using the OSD		Y=130 cd/m ² x=0.283 ±0.020 y=0.298 ±0.020
		M20		Check the value shown at right, then if out of range, to repeat M16~M20.		
		M21		Set CONTRAST to MAX by using the OSD		Y=110 cd/m ²
		M22		Change to the pattern at left.		
		M23		Move the cell to <u>ABL 9300K</u> and make the adjustment to the value shown at right by using [←] and [→].		
M24	Press [E] to return to main menu.					
M25	Set the cell to the menu at left and press [↵].					
M26	Select the 2: <u>ADJUST COLOR</u> from the menu. This messages will appear : Calculate COLOR 6550K data automatically . OK ? > , press[Y]and [↵]. Calculate USER COLOR data automatically . OK ? > , press[Y]and [↵].					
M27						
M28						

- To be continued -

Program Menu Item	◆ Test Meter ∩ Test Point Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
M 1.0V ADJUST 8) Special ADJUST	◆ TV Color Analyzer II White window (5cm×5cm at center) 1.0V p-p video	M29		Calculate ABL data automatically . OK ? > , press[Y]and [↵]. finished . (Hit return key) , Press [↵], to menu of M26. Press[E] [↵], to return to the main menu.	Y=130 cd/m ²
		M30 M31			
		M32		Set Input Video Level 1.0V using the OSD of the monitor.	
		M33 M34		Set the cell to the menu at left and press [↵]. Select the 1: <u>ADJUST VIDEO 1.0Vpp</u> from the menu.	
		M35 M36	Mode-1	Change to the pattern and signal level at left. Make the adjustment to the value shown at right by using [←] and [→].	
		ME		Press [↵] to return to menu of M34, then press [E] [↵] to return to the main menu.	
		N FINAL TUNE 8) Special ADJUST		N1 N2	
N3				Press [↵], to menu of N2.	
N4				Press[E] [↵], to return to the main menu.	
N5					
N6					
N7					
NE					
O DATA SAVING 7) Save data to file				O1 O2	

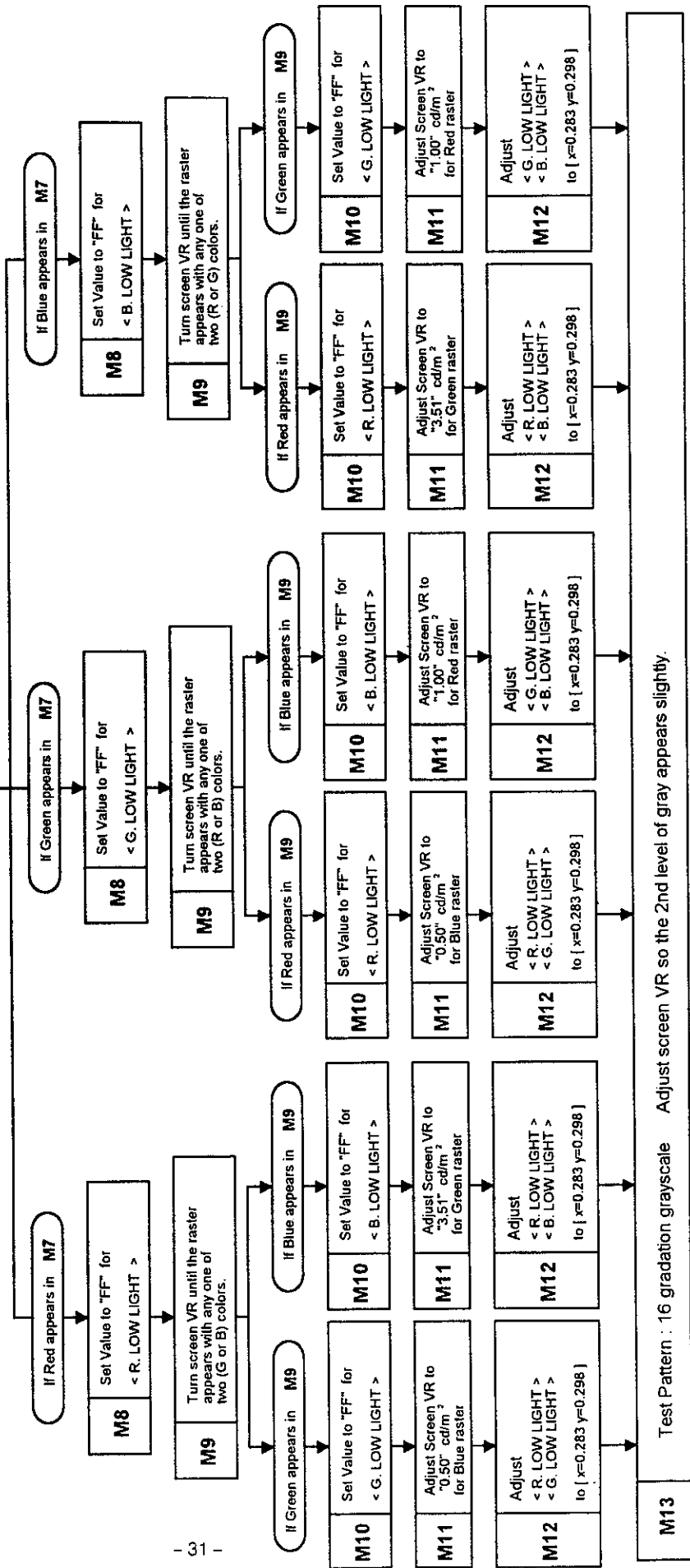
Conditions
 Signal : Turn off the R, G, B (sync signal only)
 Adjust Menu : 4) Adjust OTHER setting
 Using by Color Analyzer for M11 and M12 adjustment

CRT CUT - OFF ADJUSTMENT

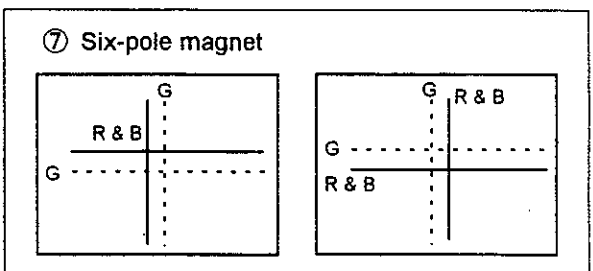
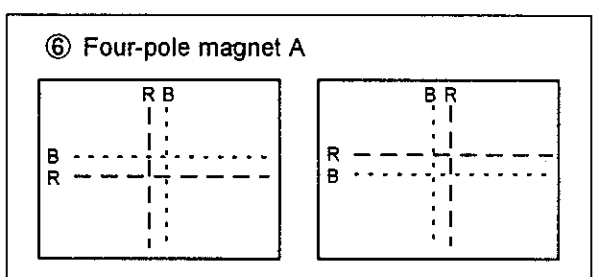
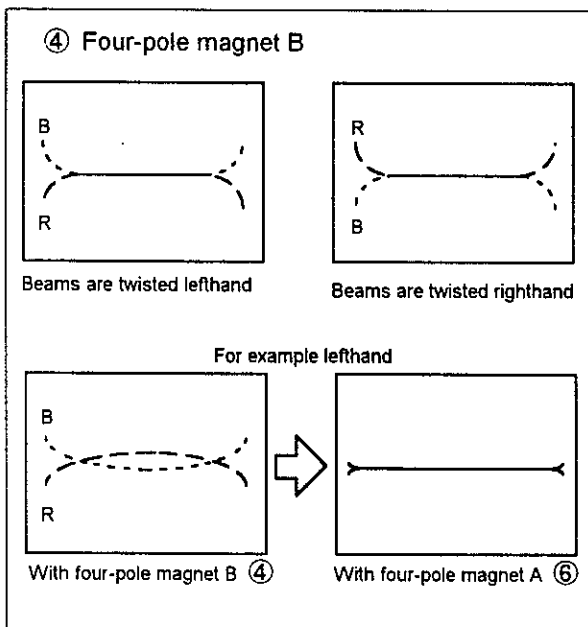
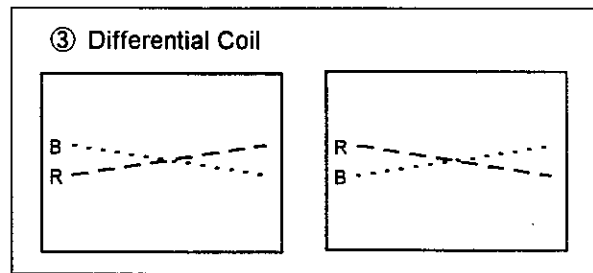
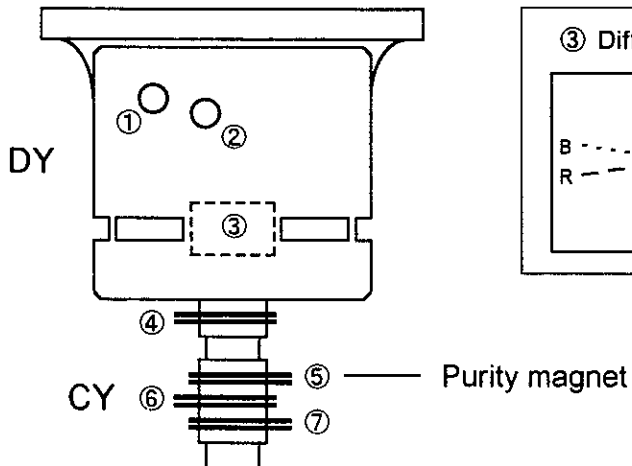
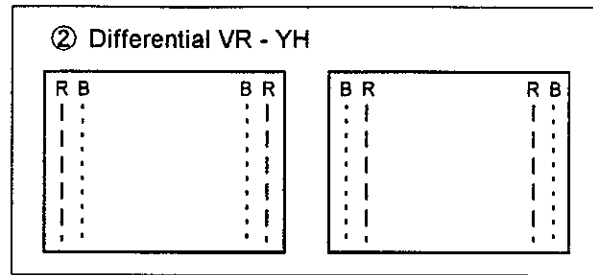
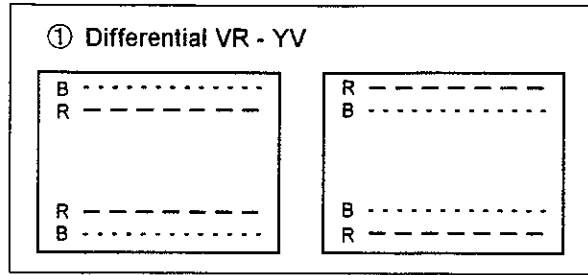
WARNING
 Do not turn the screen VR after this adjustment.

- M4 Set screen VR fully counterclockwise (Min).
- M5 Set BRIGHTNESS to center point by using the OSD
- M6 Set data value to "20" for R, G, B LOW LIGHT

M7 Turn screen VR until the raster appears with any one of three (R,G,B) colors



2. Adjustment Location for Purity and Convergence





TECHNICAL INFORMATION FOR DDC

● It must be noted that this monitors is designed to be applicable to DDC1 communication the following points are different from ordinary monitors.

1. Use the signal cable, the which is furnished as an accessory (applicable to DDC1) only.
2. When replacing a PCB on which ROM for DDC1 is mounted, data writing is required.
In addition to the above, a computer applicable to WINDOWS and a 5V power supply unit are required.

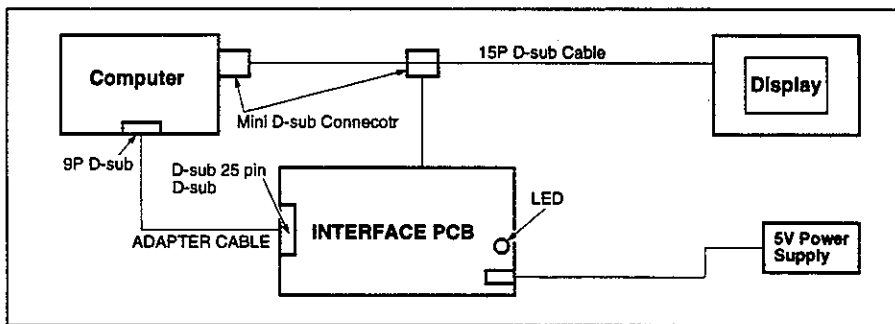
● DDC1 Data Read/write System

1. Communication jig

(1) The composition of Communication jig

- ① Interface PCB. ② Adapter cable (D-SUB 25P → 9P) ③ 15P D-SUB cable

(2) Connection diagram for communication jig.



(3) Procedure to turn on the power:

- ① Make connections as shown above.
- ② Turn on the computer.
- ③ Turn on the power supply of communication jig.
- ④ Turn on the power supply of the MONITOR.

(Note) If the above-mentioned operation is normal, LED of the communication jig turns green after step (4).

If this LED is red, repeat the steps (3) and (4).

(4) Confirmation of DDC mode

LED is mounted on the communication jig. According to its color, the DDC mode can be discriminated.

- When LED is green. DDC1 mode.
- When LED is orange. DDC2B mode.
- When LED is red. Transmission error.
- When LED is not lit. Obsolete.

2. Preliminary arrangements for using DDC data read/write software

(1) Copy DDC WRITE. EXE from floppy disk to hard disk drive (Name: **\ViewTool** Directory).

(2) Register DDC data read/write software (DDCWRITE.EXE) in the Icon.

- ① Click the menu bar "Icon" of the program manager.
- ② Select "register and group create" from the pull down menu.
- ③ Select "group create."
- ④ Name the group **ViewTool** and register the group.
- ⑤ Repeat (1) and (2) again and select "Icon registration."
- ⑥ Enter "DDC1/2B" for [Title] and "Hard disk drive name: **\ViewTool\DDCWRITE. EXE**" for [Command line]. Then select [OK]

3. How to use DDC data read/write software.

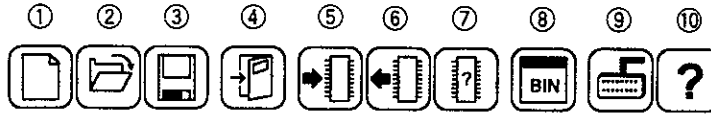
(1) Start of DDC data read/write software.

Double-click the "DDC1/2B" Icon in the **ViewTool** group.

(2) Meaning of a button displayed.

The tool bar indicates the nine icons shown below.

These icons are explained, from left to right :



- Icon ① : Initialization of screen display contents.
- Icon ② : File is opened and displayed on the screen.
- Icon ③ : Data are stored in a file.
- Icon ④ : Finish the DDC data read/write software.
- Icon ⑤ : Data displayed on the screen are written in EEPROM.
- Icon ⑥ : Contents of EEPROM are displayed on the screen.
- Icon ⑦ : Contents of EEPROM are compared with the data displayed on the screen.
- Icon ⑧ : Check binary data by text format.
- Icon ⑨ : Communication port setting.
Contents of setting : PORT → Using Communication port No.
Baud rate → 9600, Data → 8 bits, Parity → Nil, Stop → 1 bits
- Icon ⑩ : Version information display.

(3) Using the tool bar explained in (2) above, write data in EEPROM and make operations of reading, etc. A pop-up window may be displayed on the way. In such a case, select a proper one according to the message.

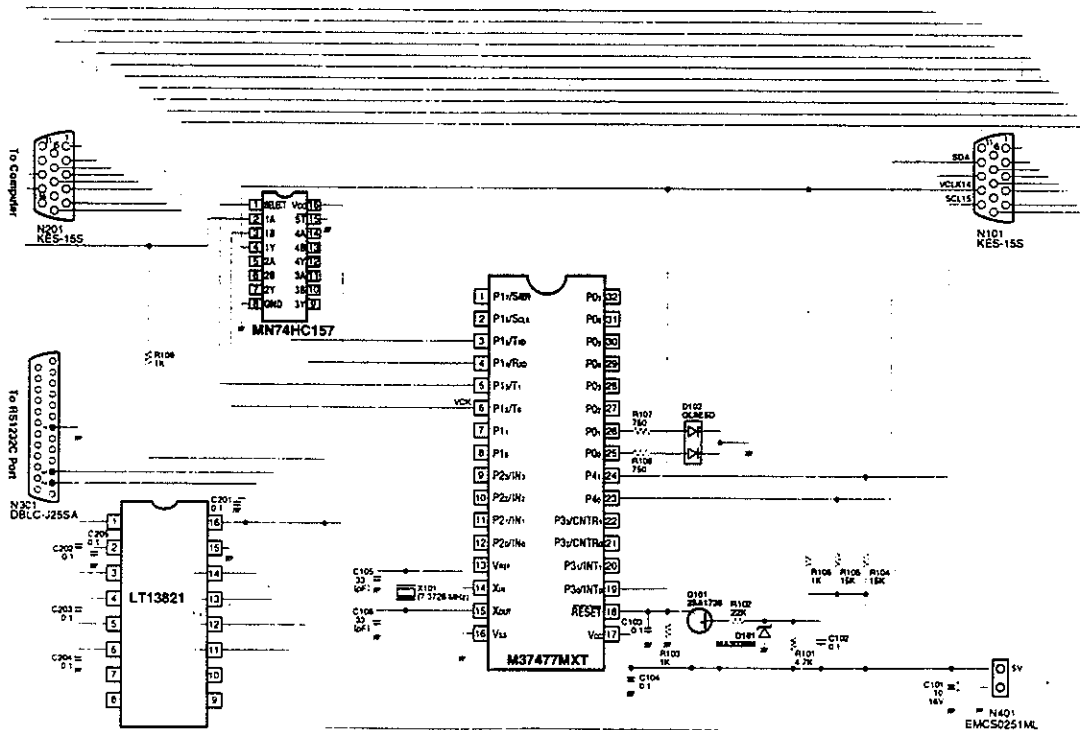
(Example 1) EEPROM data are displayed on the screen.

- ① Click the loon (6th from the left) in the tool bar, with the arrow pointing from the memory chip.
- ② Decided whether reading is started in DDC1 mode or DDC2B mode.
- ③ Select START.

(Example 2) Data displayed on the screen are written in EEPROM.

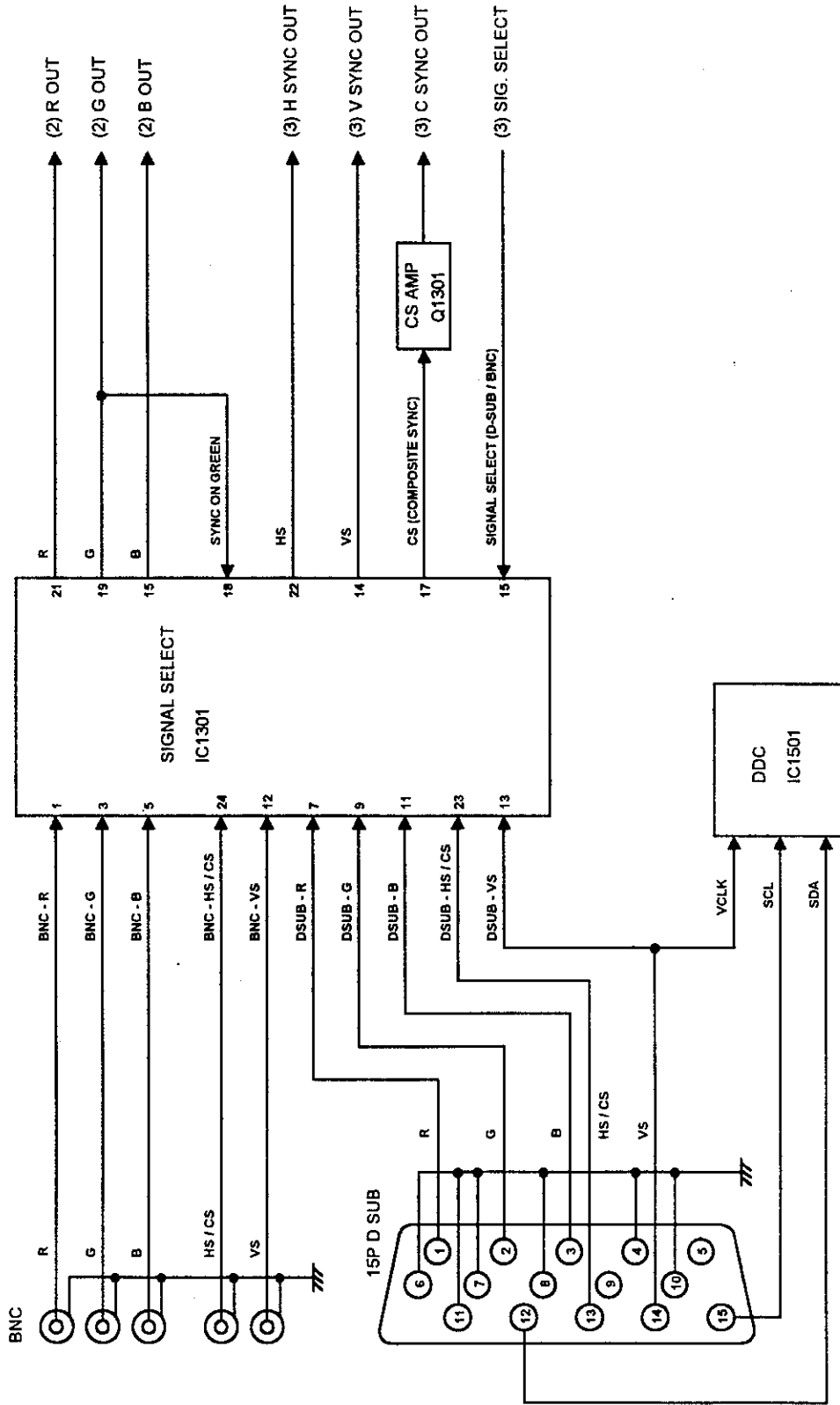
- ① Click the icon (5th from the left) in the tool bar, with the arrow pointing toward in the memory chip.
- ② Select START.

SCHEMATIC DIAGRAM FOR INTERFACE

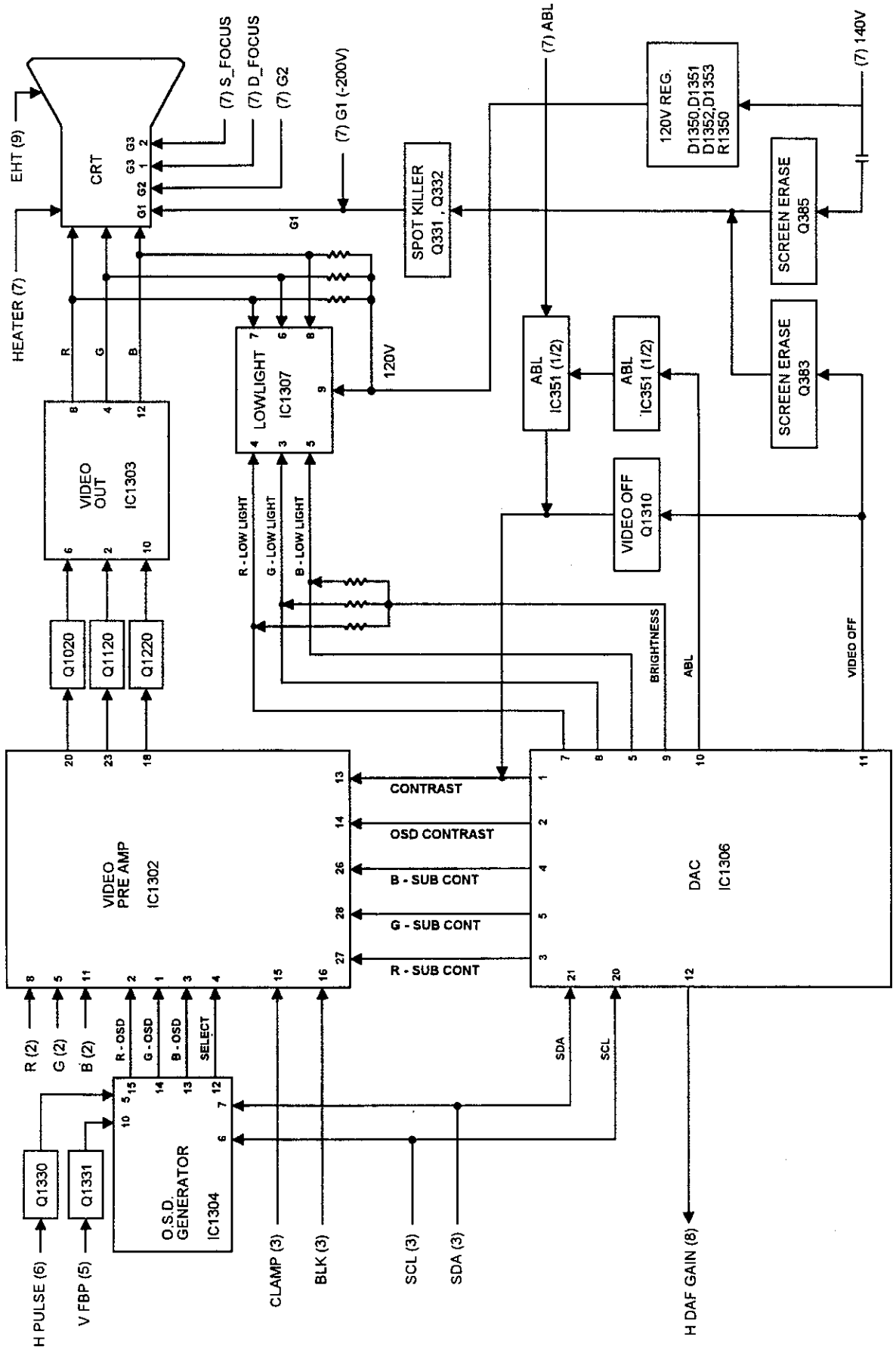


BLOCK DIAGRAM

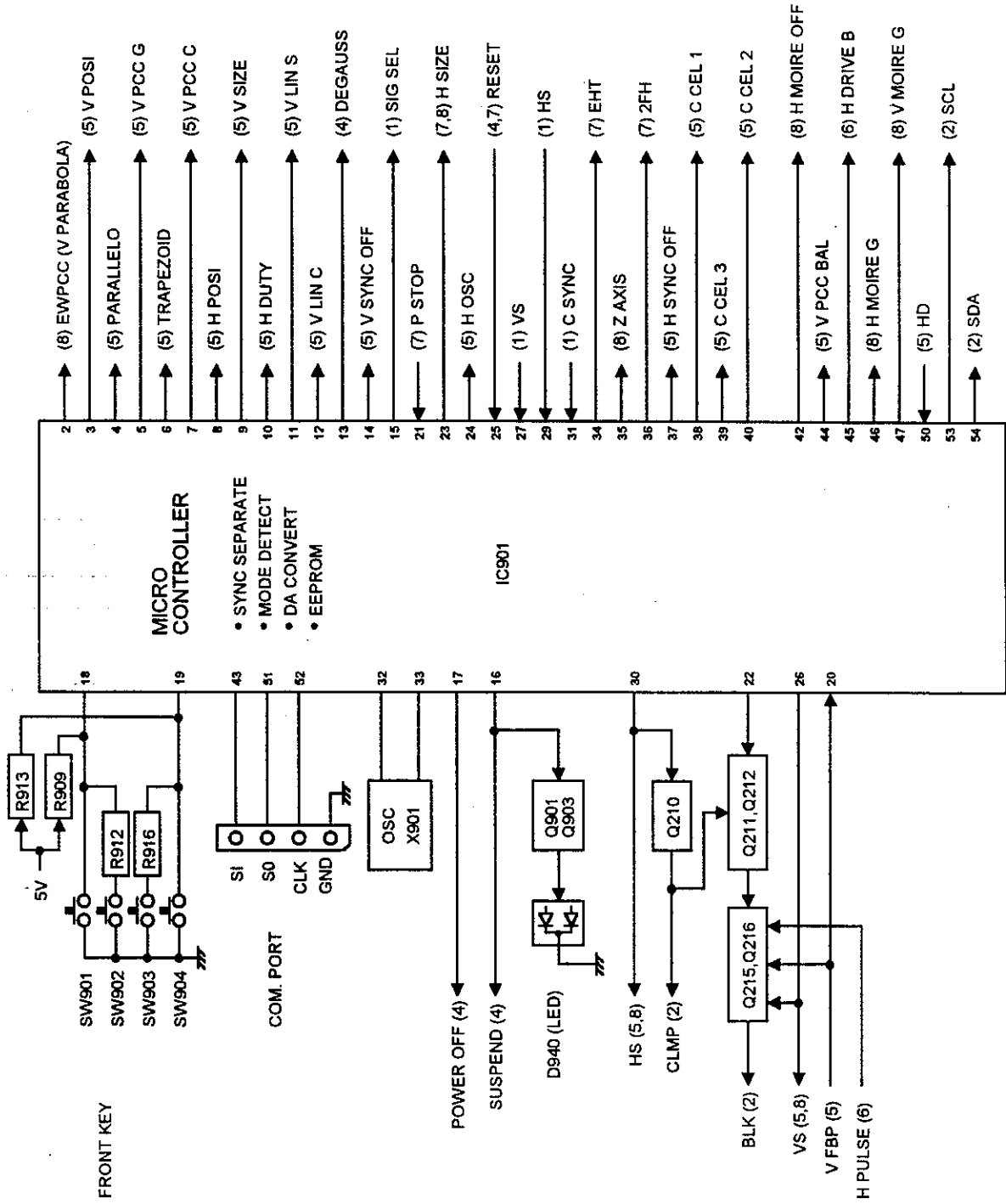
SHEET (1) SIGNAL SELECT



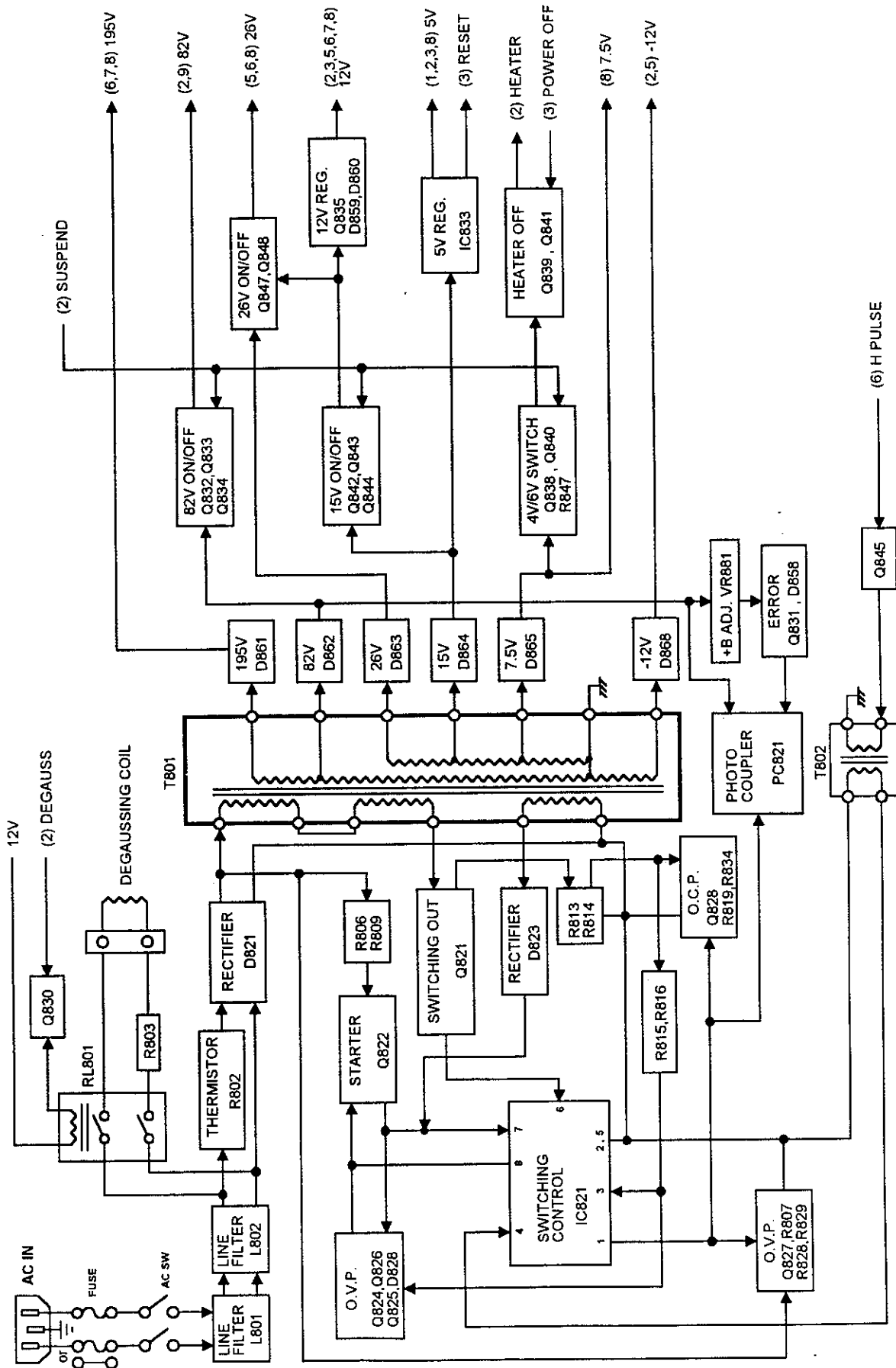
SHEET (2) VIDEO OUT



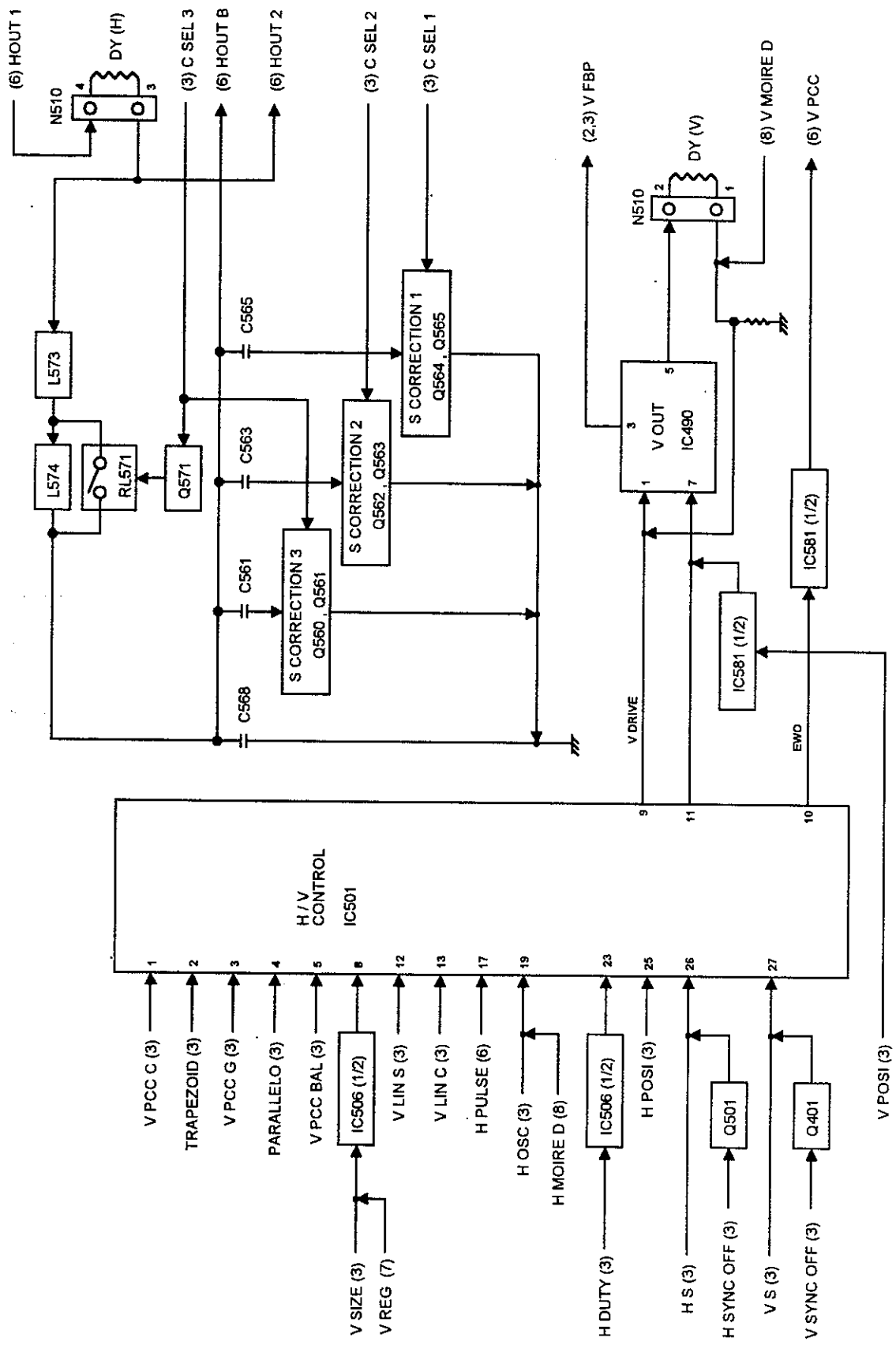
SHEET (3) MICRO CONTROLLER



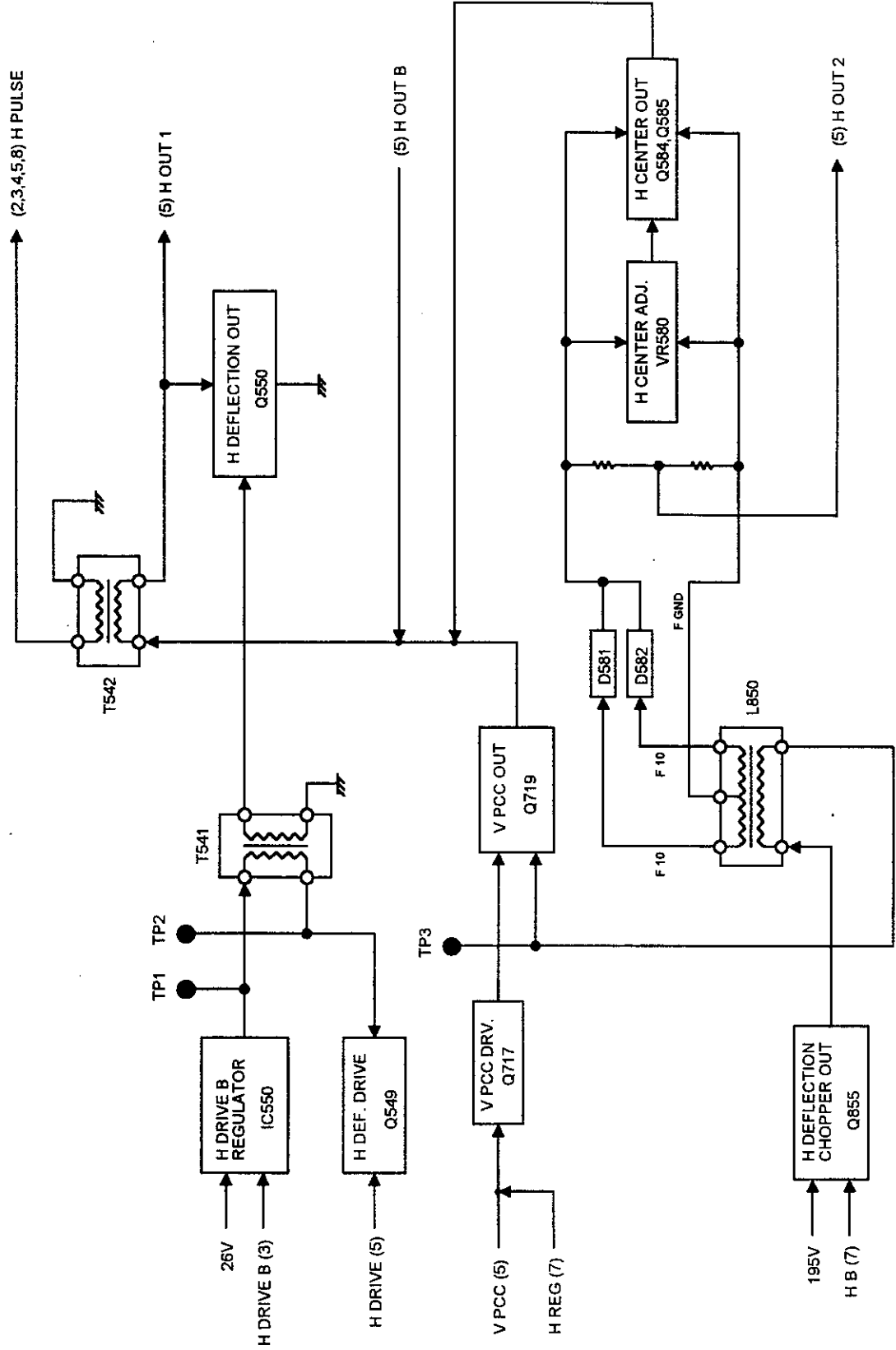
SHEET (4) POWER SUPPLY



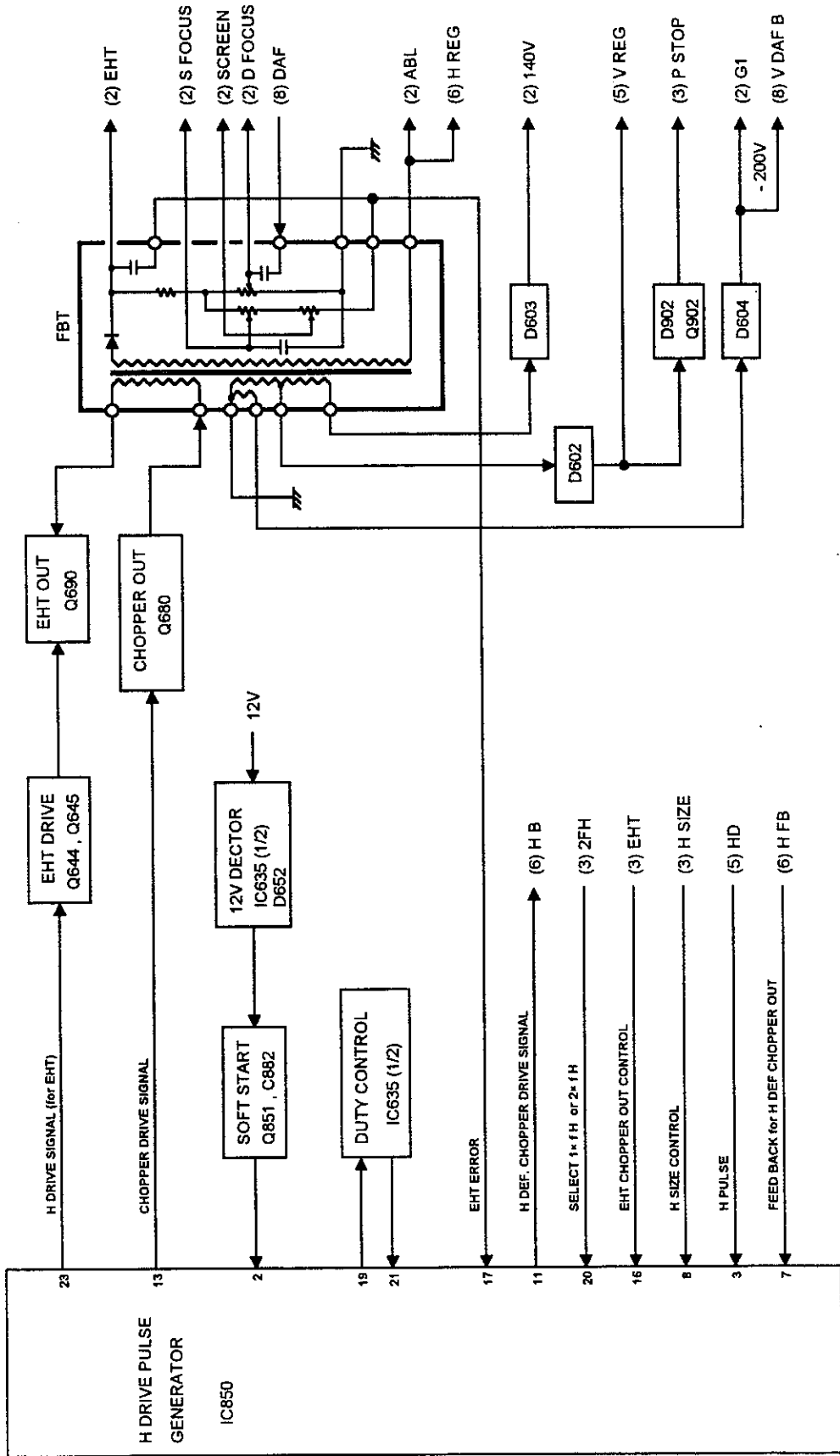
SHEET (5) H. V. CONTROL / H. LIN. / V. OUT



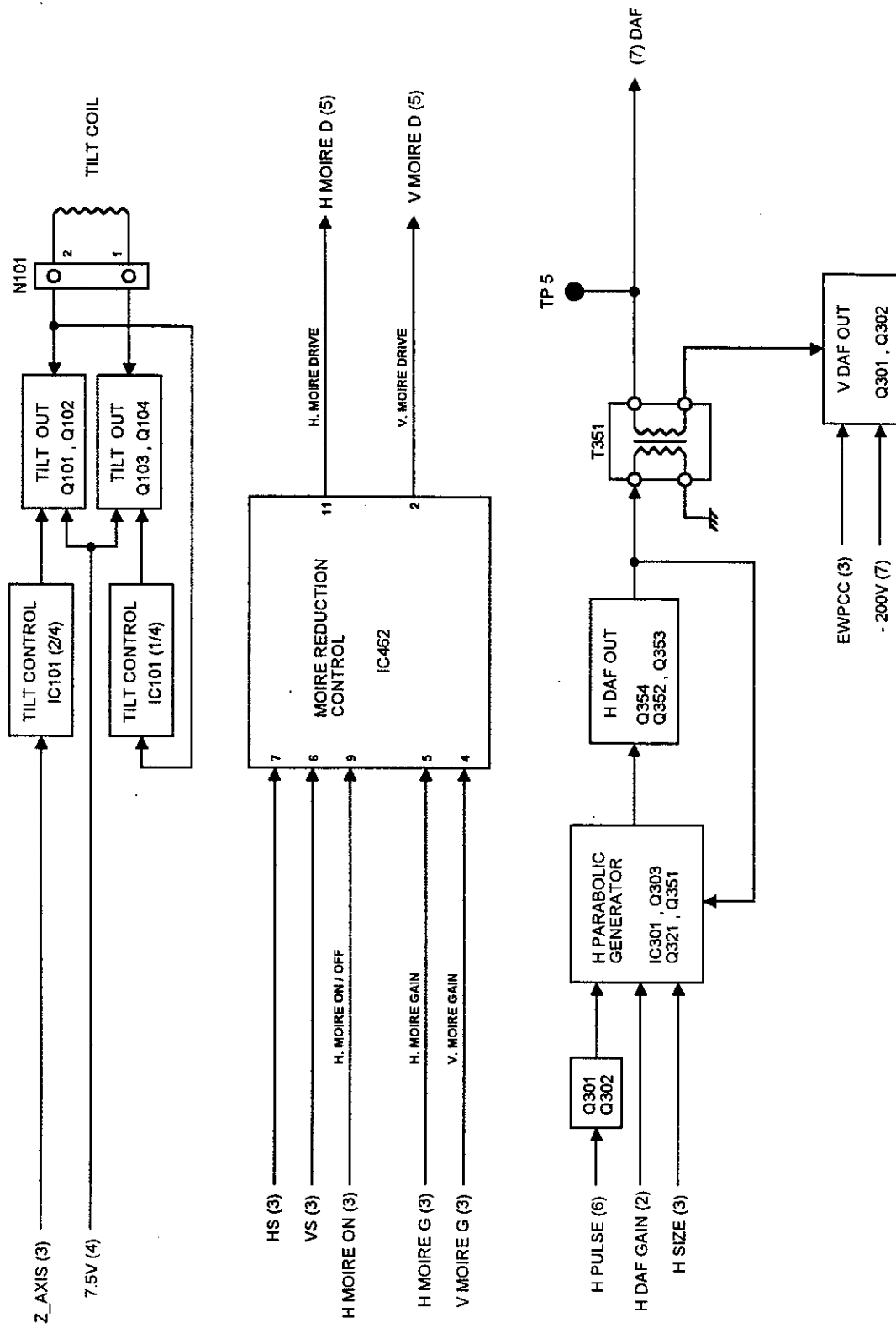
SHEET (6) H DEFLECTION OUT



SHEET (7) H DRIVE / EHT OUT



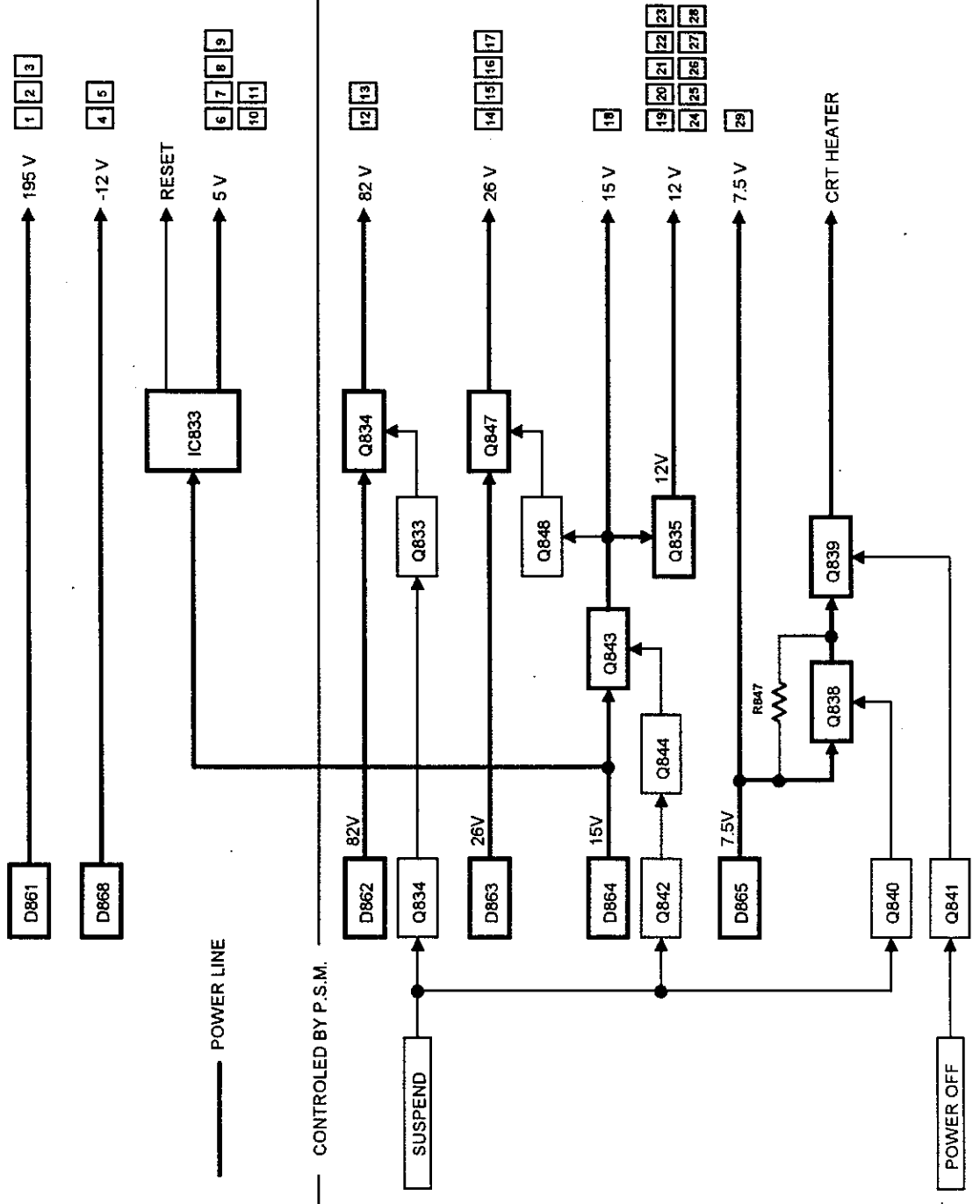
SHETT (8) TILT CONTROL / DAF OUT / MOIRE REDUCTION



REPAIR HINTS FOR POWER SAVE (HV8 CHASSIS)

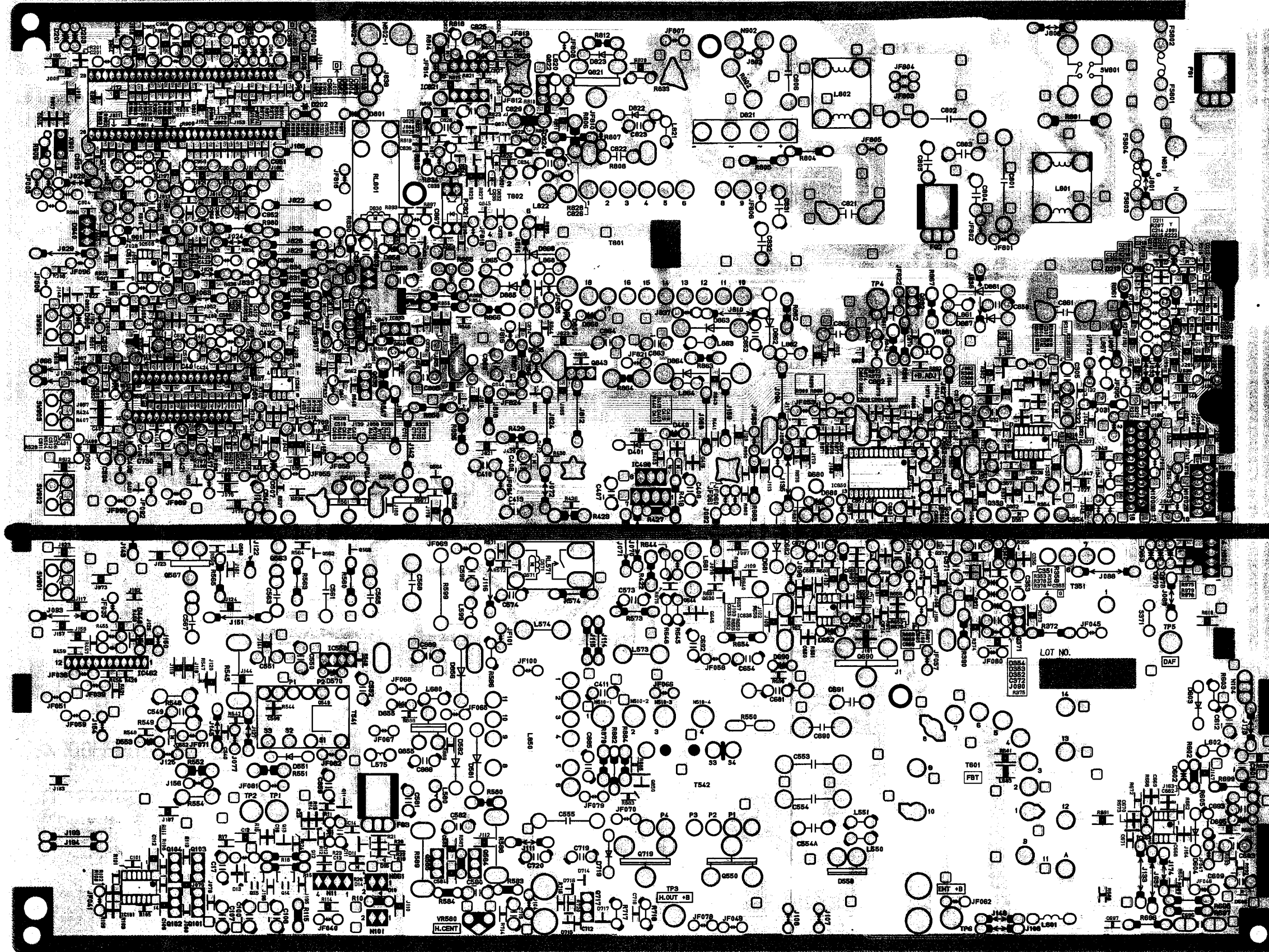
- 1 Q855 (H DEF. CHOPPER OUT)
- 2 Q680 (EHT CHOPPER)
- 3 Q371 (V DAF OUT)
- 4 IC1303 (VIDEO OUT)
- 5 IC490 (V OUT)
- 6 IC1301 (SIGNAL SELECT)
- 7 IC1306 (DAC)
- 8 IC901 (MICRO CONTROLLER)
- 9 IC462 (MOIRE REDUCTION)
- 10 IC1501 (DDC)
- 11 IC1304 (OSD PATTERN GEN.)

- 12 IC1303 (VIDEO OUT)
- 13 TCO PCB
- 14 IC581 (V PCC & V POSI CONTROL)
- 15 IC550 (H DRIVE B REGULATOR)
- 16 IC462 (MOIRE REDUCTION)
- 17 Q353, Q354 (H DAF OUT)
- 18 IC490 (V OUT)
- 19 IC1302 (VIDEO PRE AMP)
- 20 IC1307 (LOW LIGHT)
- 21 IC901 (MICRO CONTROLLER)
- 22 IC850 (CHOPPER DRIVE PULSE GEN.)
- 23 IC635 (CHOPPER DRIVE CONTROL)
- 24 IC101 (TILT CONTROL)
- 25 IC301 (H DAF PARABOLIC GEN.)
- 26 Q302, Q303 (H DAF AMP)
- 27 Q379 (V DAF OUT)
- 28 Q644, Q645 (EHT DRIVE)
- 29 Q101, Q103 (TILT OUT)

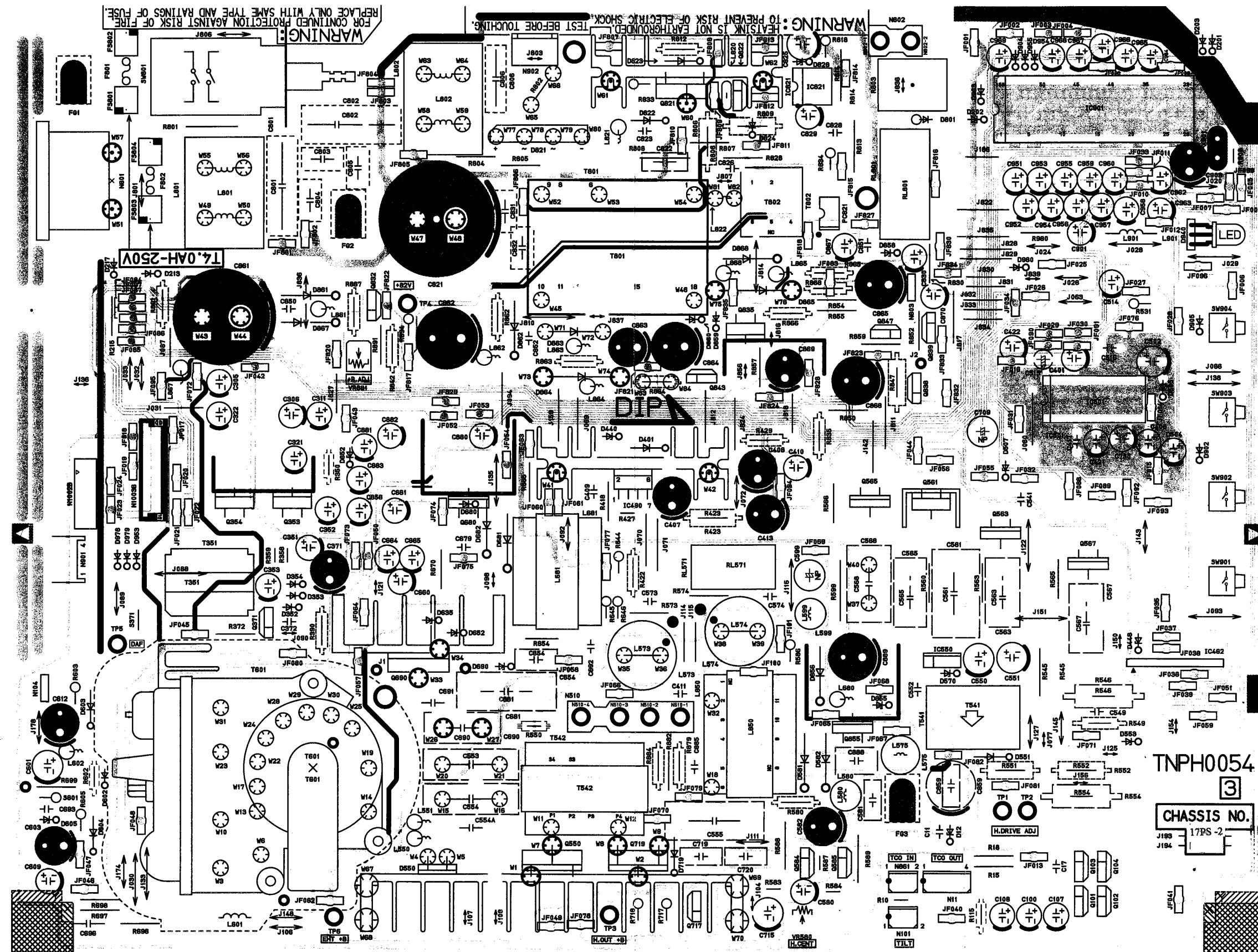


CONDUCTOR VIEW

MAIN BOARD (Solder side)



MAIN BOARD (Parts side)



SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE

The component identified by shading or international symbol Δ on the following schematic diagrams incorporate special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for those critical components.

NOTES :

1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted by the following marks.
Unit of resistance is ohm (Ω), (K = 1,000, M = 1,000,000)

\bigcirc : Non Flammable	Δ : Solid
\boxtimes : Metal Oxide	\odot : Metal (Precision and high stability)
\square : Wire Wound	$\text{---}\square\text{---}$: Thermistor
\otimes : Fusible	$\text{---}\square\text{---}$: Positive coefficient Thermistor
\boxplus : Flame Proof Rectangular	

2. CAPACITOR

All capacitors are ceramic 50V capacitor, unless otherwise noted by the following marks.
Unit of capacitance is μF , unless otherwise noted.

$\text{---}\text{---}\text{---}$: Electrolytic	M : Polyester
T : Tantalum	m : Metalized Polyester
NP : Bipolar	\boxtimes : Polypropylene
S : Polystyrene	Δ : Mica
\otimes : Temperature Compensation	\bigcirc : Ceramic
	\odot : Ceramic (SL)

3. COIL

Unit of inductance is μH , unless otherwise noted.

4. VOLTAGE MEASUREMENT

Voltage is measured by a digital meter receiving normal signal.

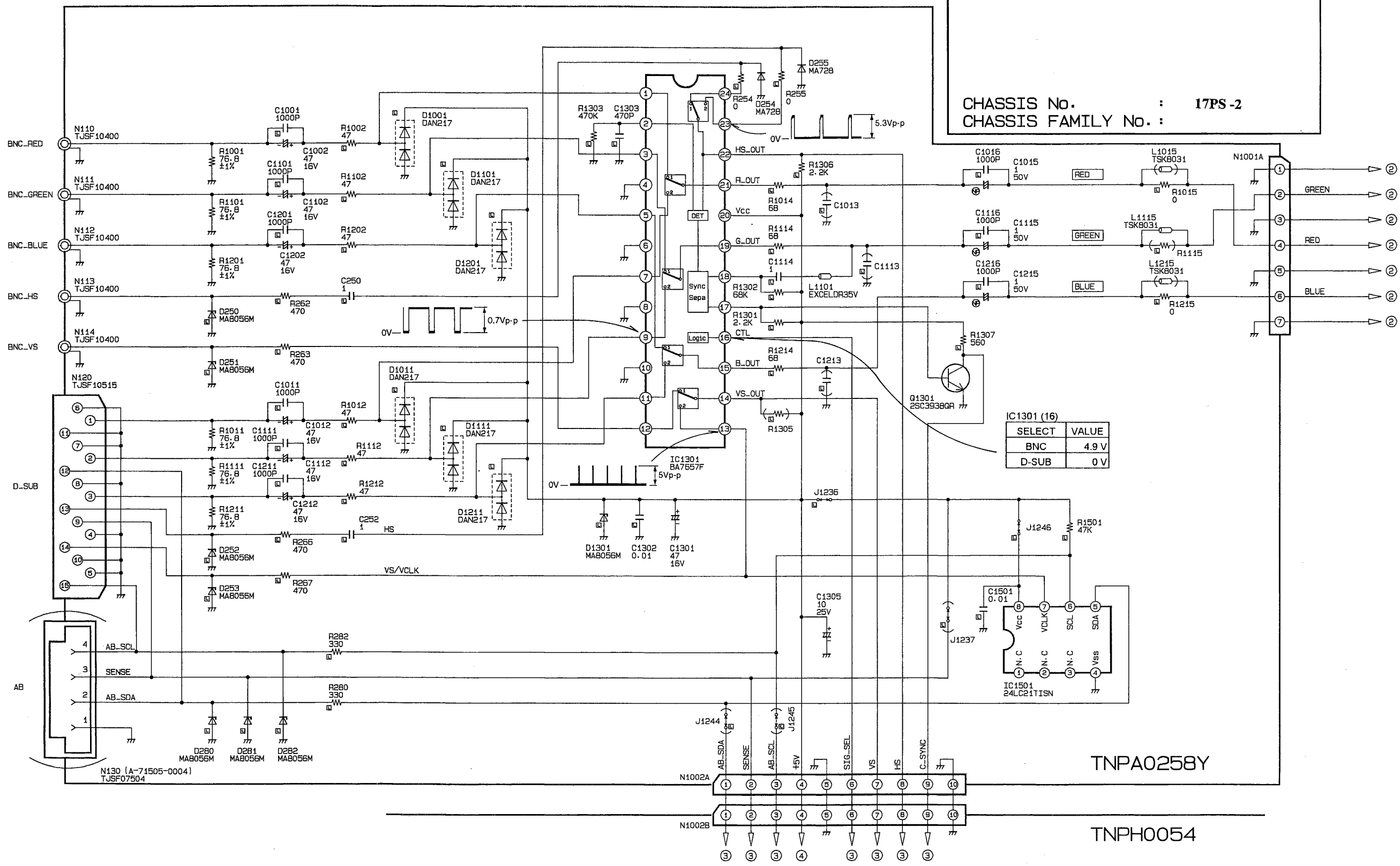
5. This schematic diagram is the latest at the time of printing and is subject to change without notice.

SERVICE NOTES :

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multi-meters.
4. Always unplug the unit before beginning any operation such as removing the chassis.

SCHMATIC DIAGRAM FOR
 MODEL No. :
 1786PS
 CHASSIS No. : 17PS-2
 CHASSIS FAMILY No. :

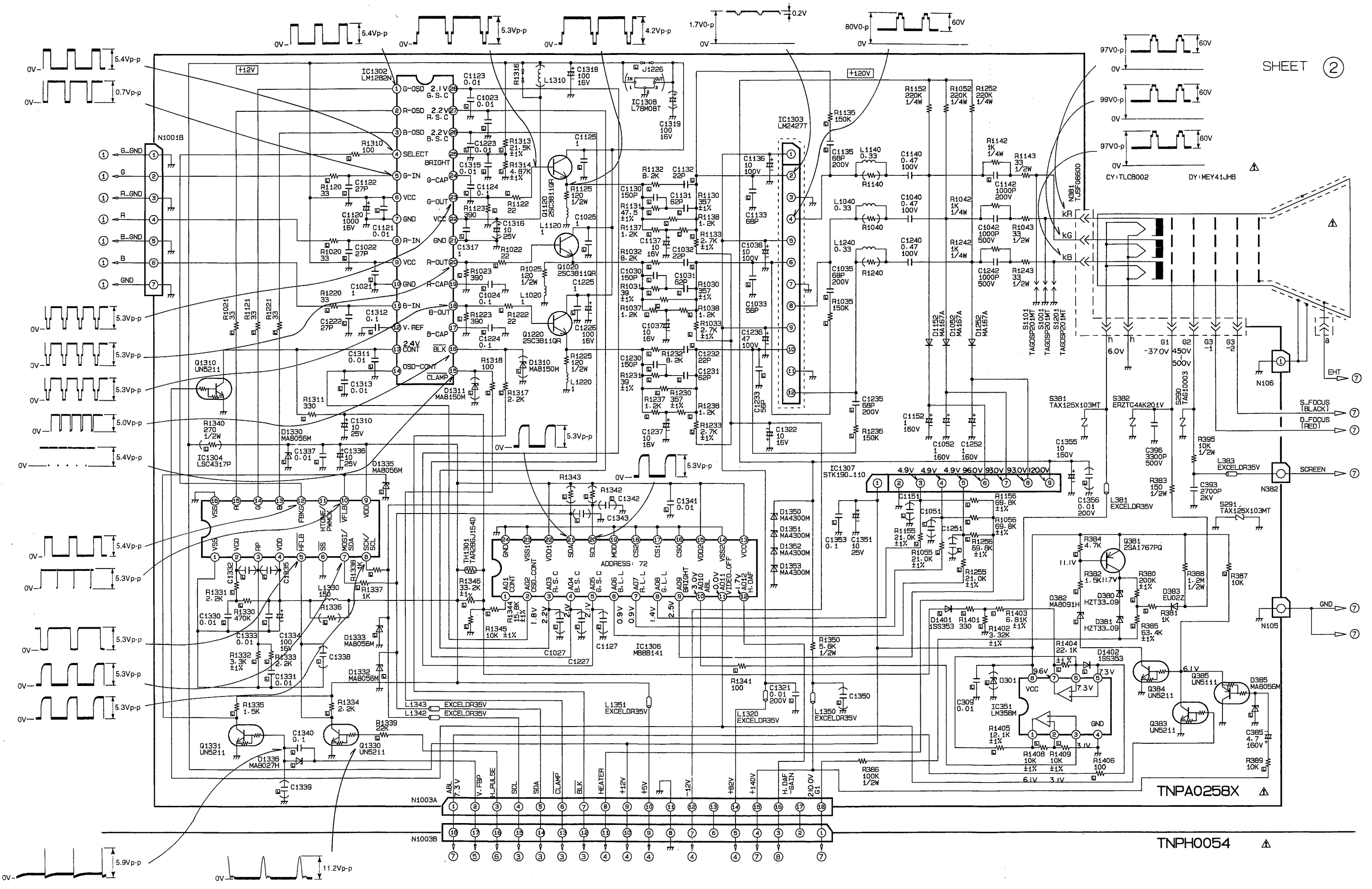


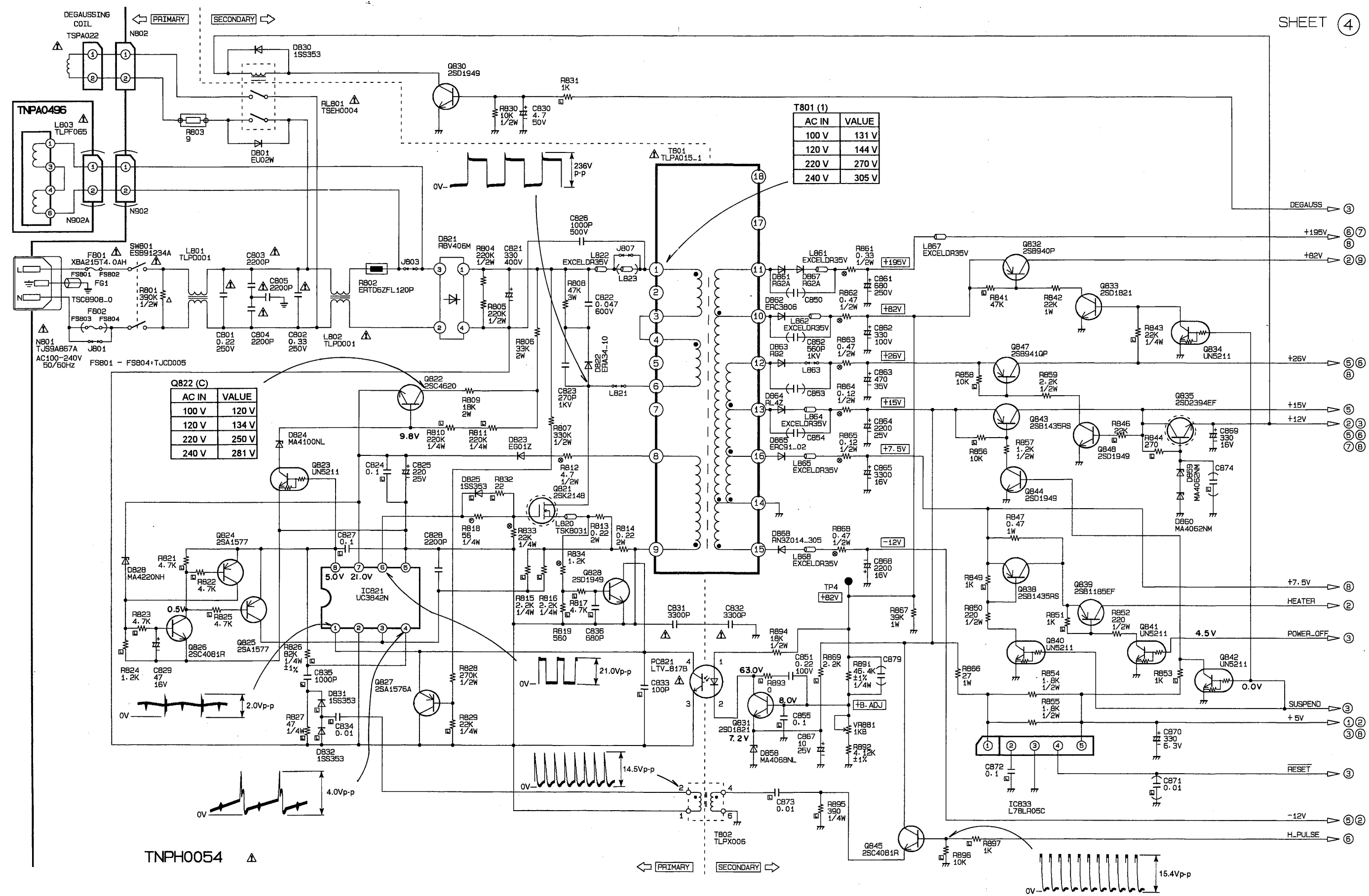
IC1301 (16)

SELECT	VALUE
BNC	4.9 V
D-SUB	0 V

TNPA0258Y

TNPH0054





T801 (1)

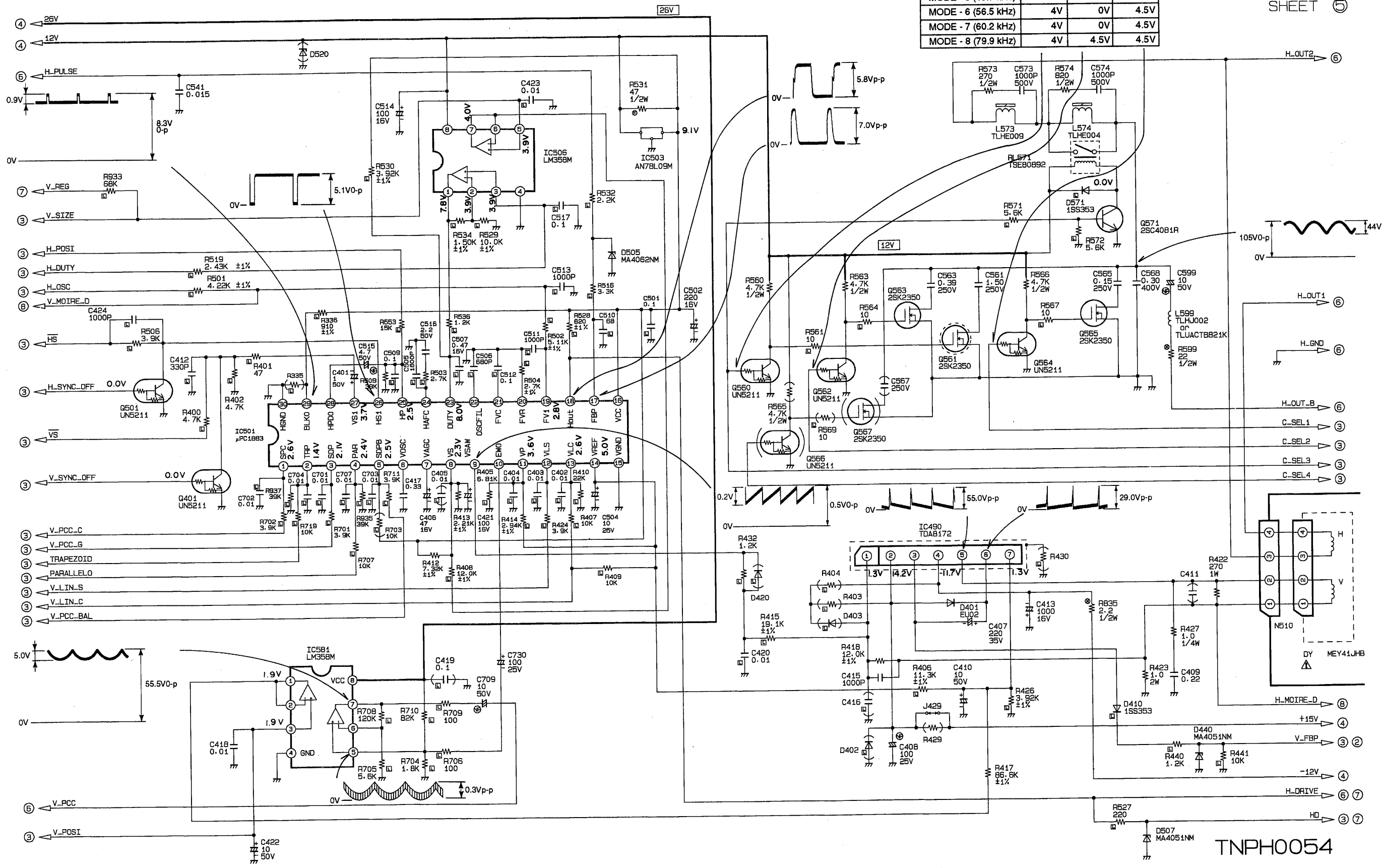
AC IN	VALUE
100 V	131 V
120 V	144 V
220 V	270 V
240 V	305 V

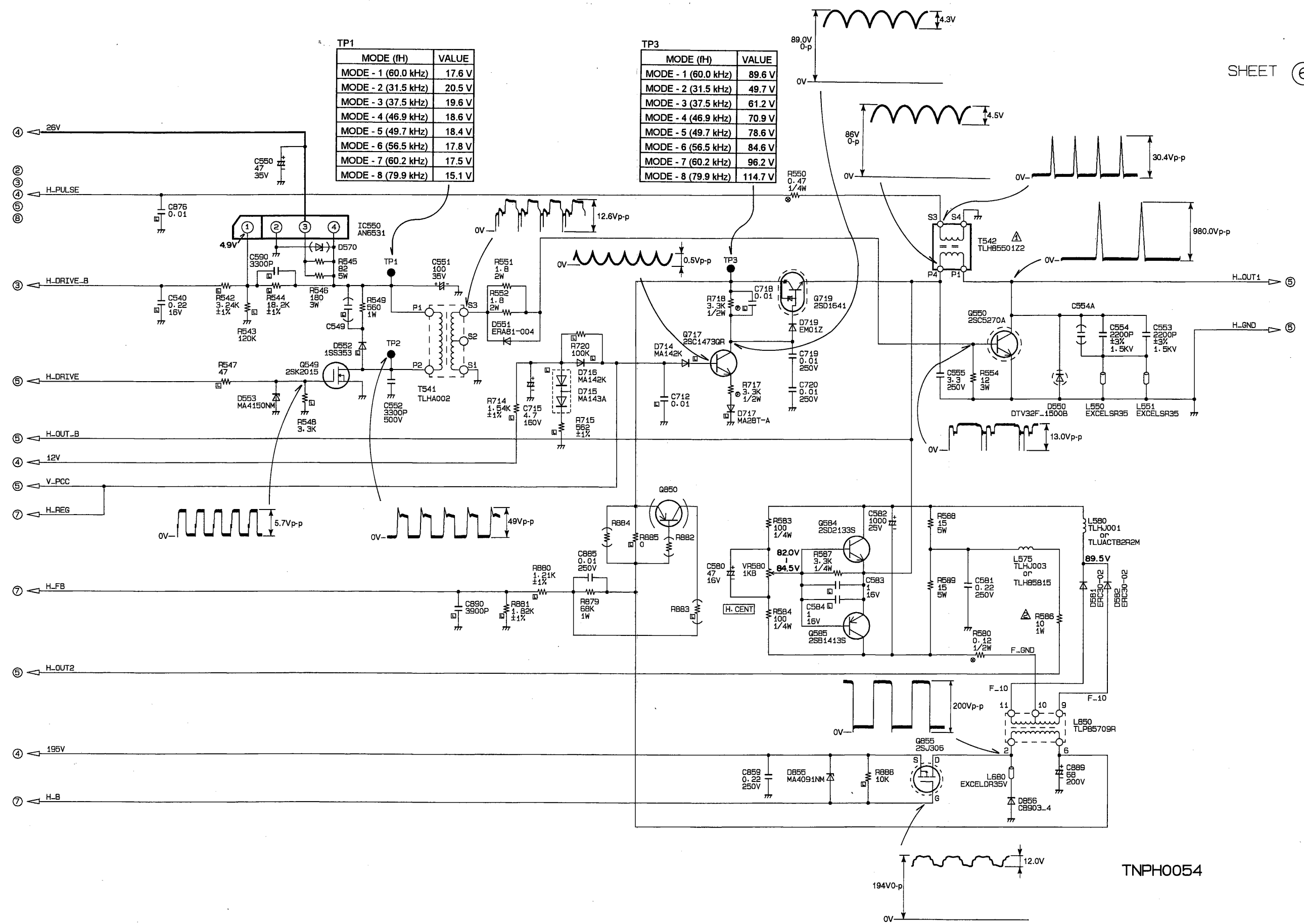
Q822 (C)

AC IN	VALUE
100 V	120 V
120 V	134 V
220 V	250 V
240 V	281 V

TNPH0054

MODE (Hz)	Q560(B)	Q562(B)	Q564(B)
MODE - 1 (60.0 kHz)	4V	0V	4.5V
MODE - 2 (31.5 kHz)	0V	0V	0V
MODE - 3 (37.5 kHz)	0V	4.5V	4.5V
MODE - 4 (46.9 kHz)	4V	0V	0V
MODE - 5 (49.7 kHz)	4V	0V	0V
MODE - 6 (56.5 kHz)	4V	0V	4.5V
MODE - 7 (60.2 kHz)	4V	0V	4.5V
MODE - 8 (79.9 kHz)	4V	4.5V	4.5V

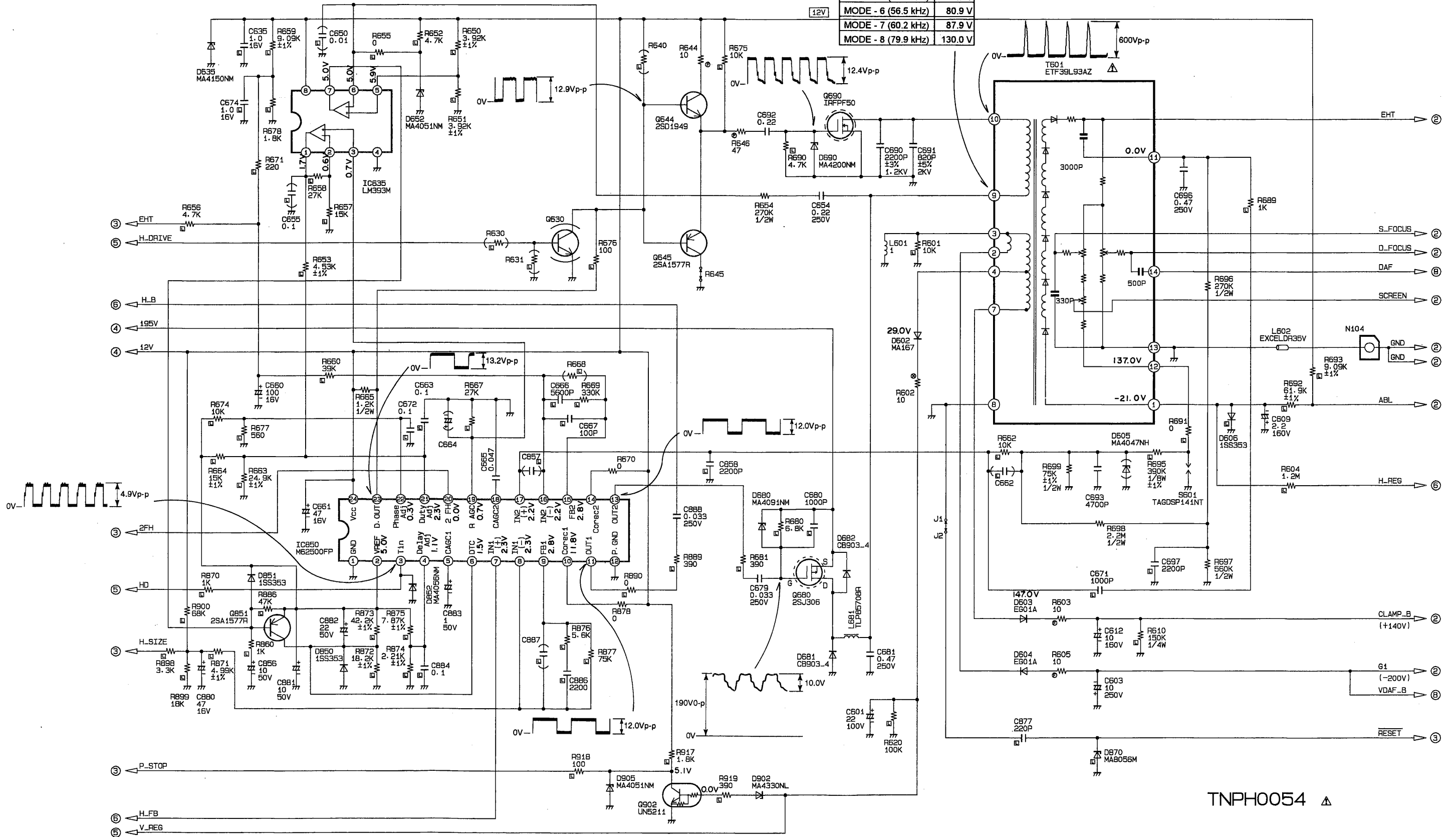




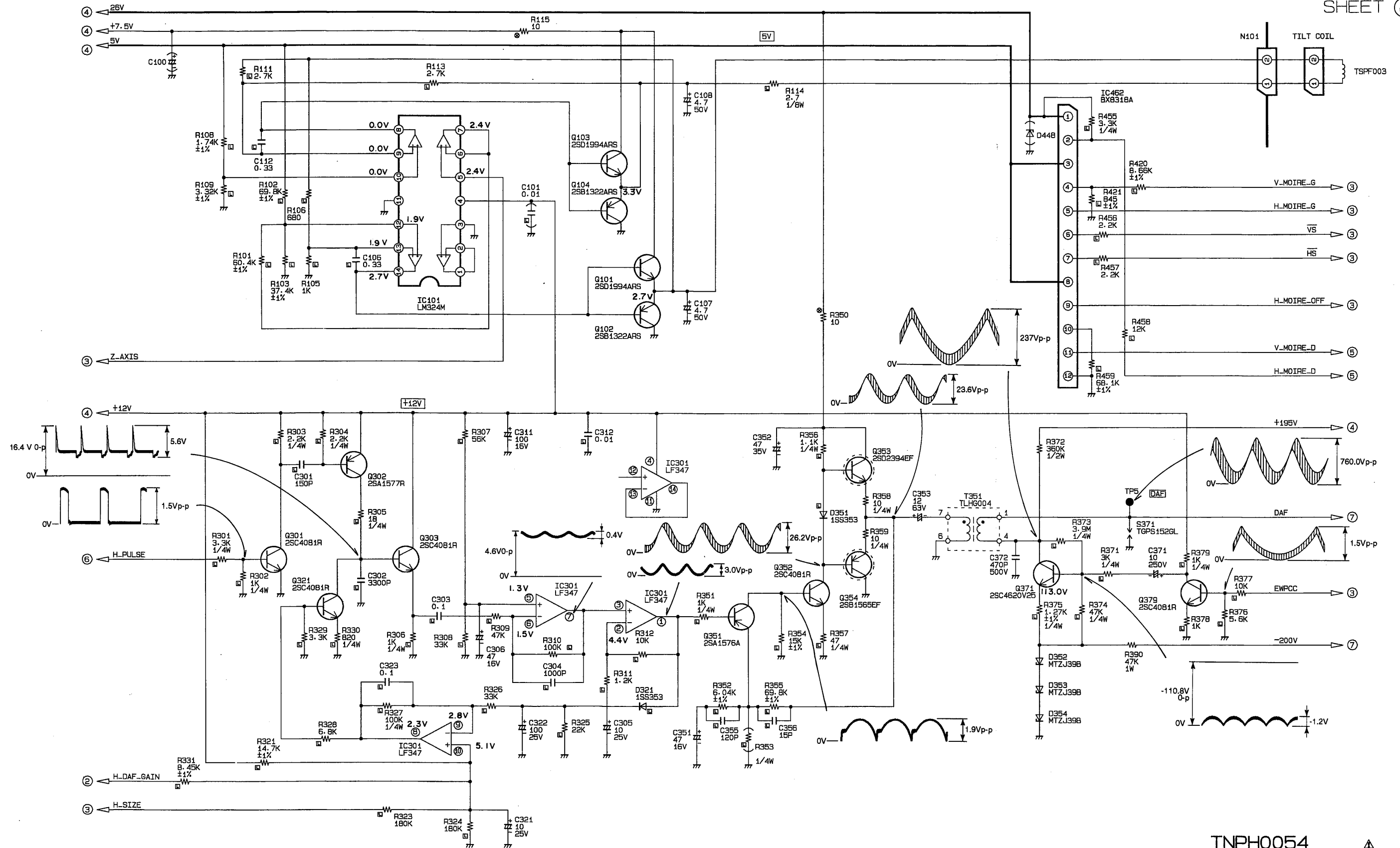
TNPH0054

FBT (9)

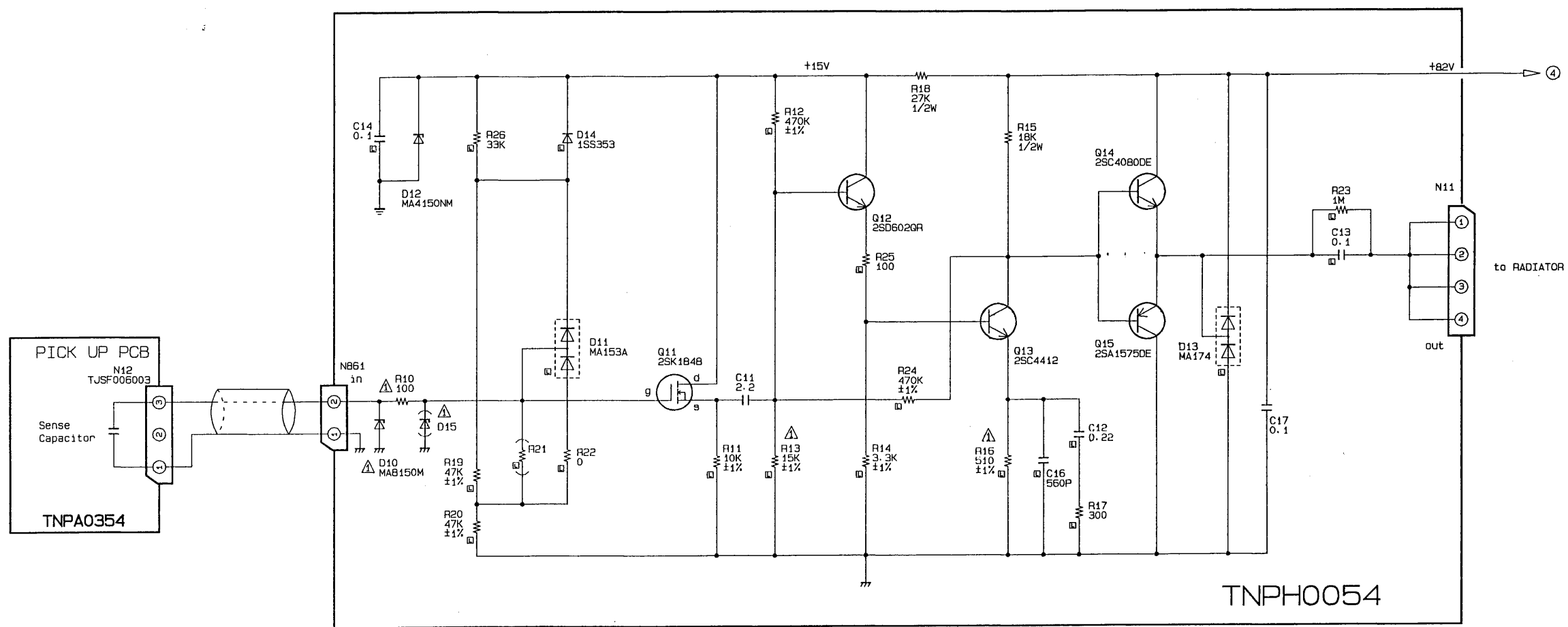
MODE (Hz)	VALUE
MODE - 1 (60.0 kHz)	87.5 V
MODE - 2 (31.5 kHz)	93.0 V
MODE - 3 (37.5 kHz)	119.0 V
MODE - 4 (46.9 kHz)	64.2 V
MODE - 5 (49.7 kHz)	68.7 V
MODE - 6 (56.5 kHz)	80.9 V
MODE - 7 (60.2 kHz)	87.9 V
MODE - 8 (79.9 kHz)	130.0 V



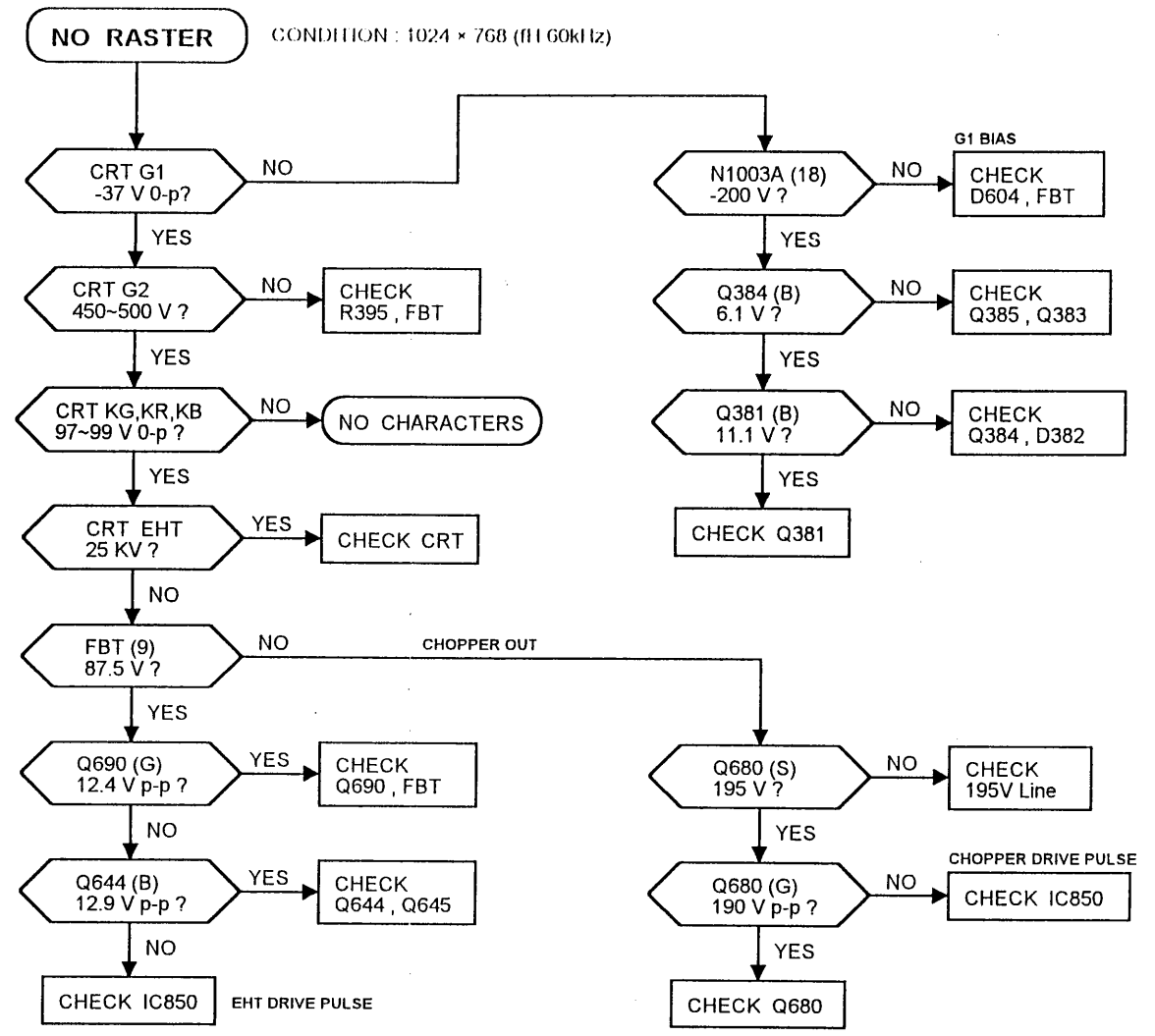
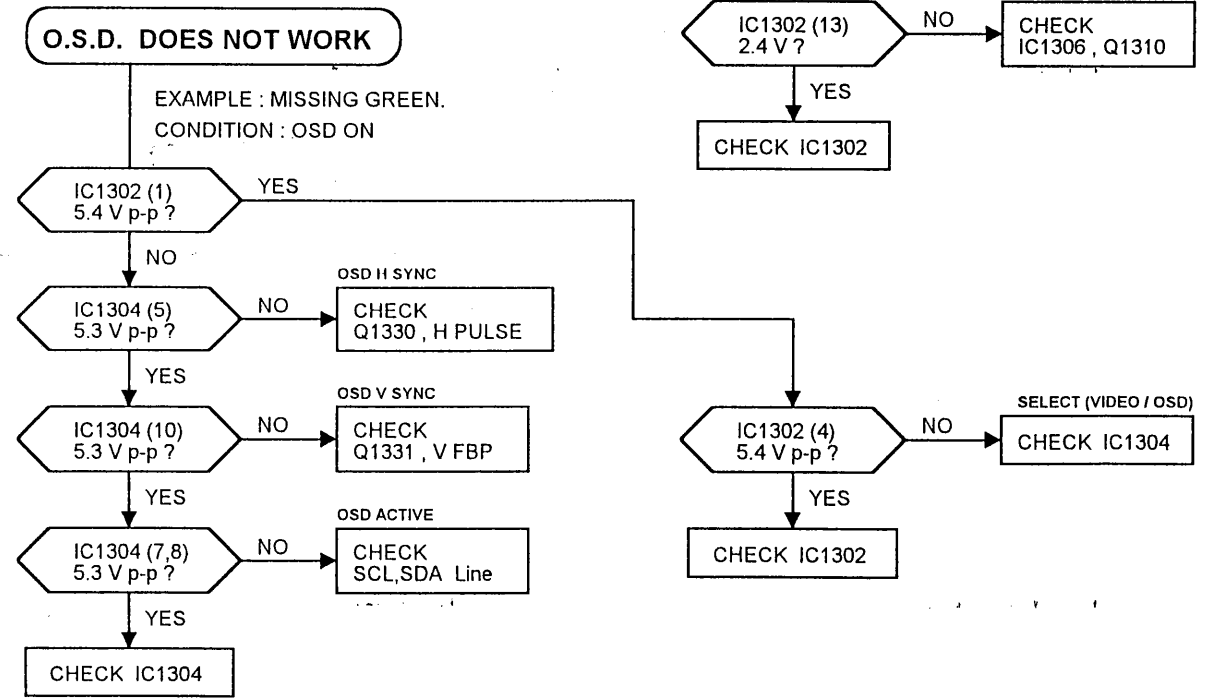
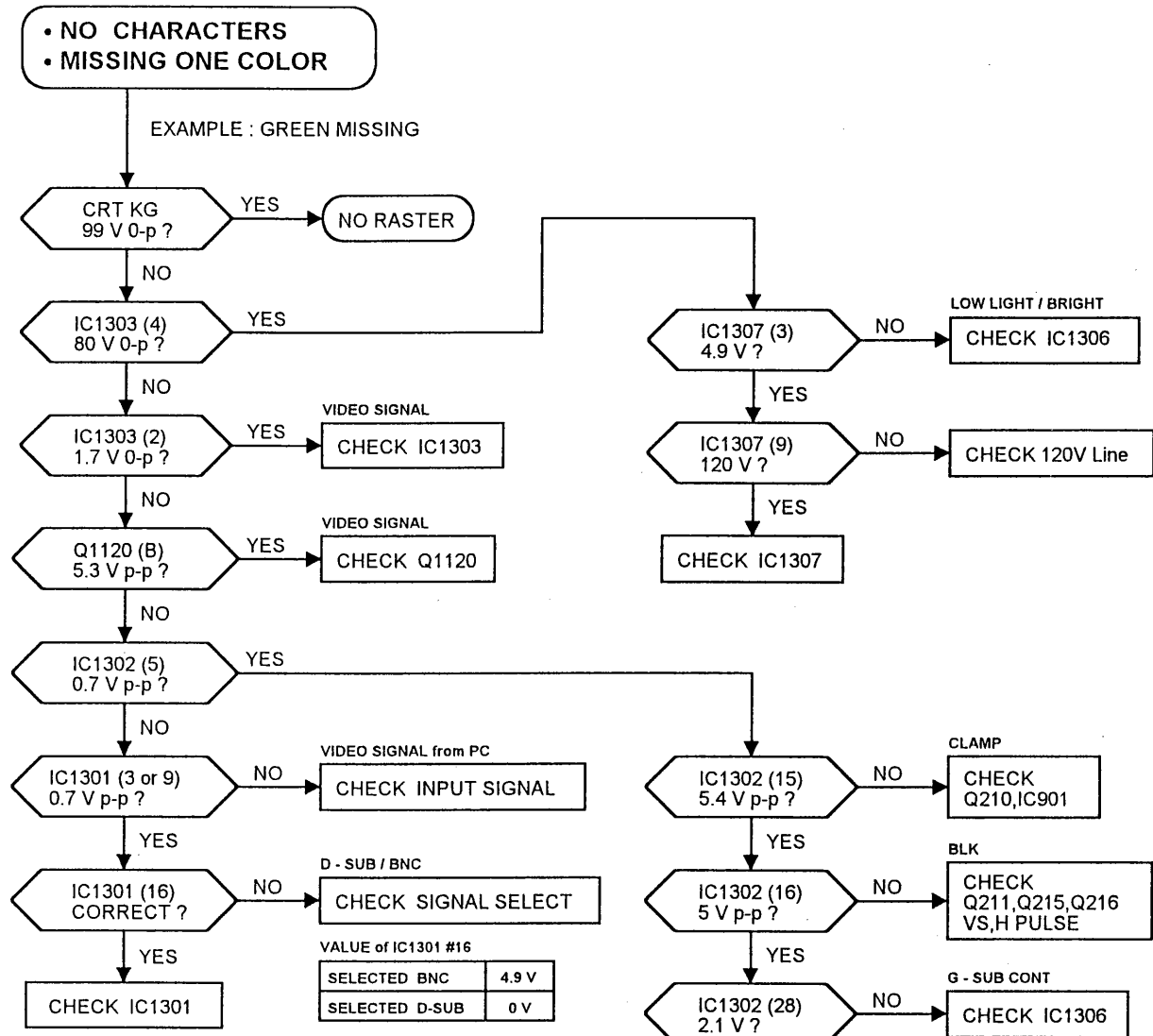
TNPH0054

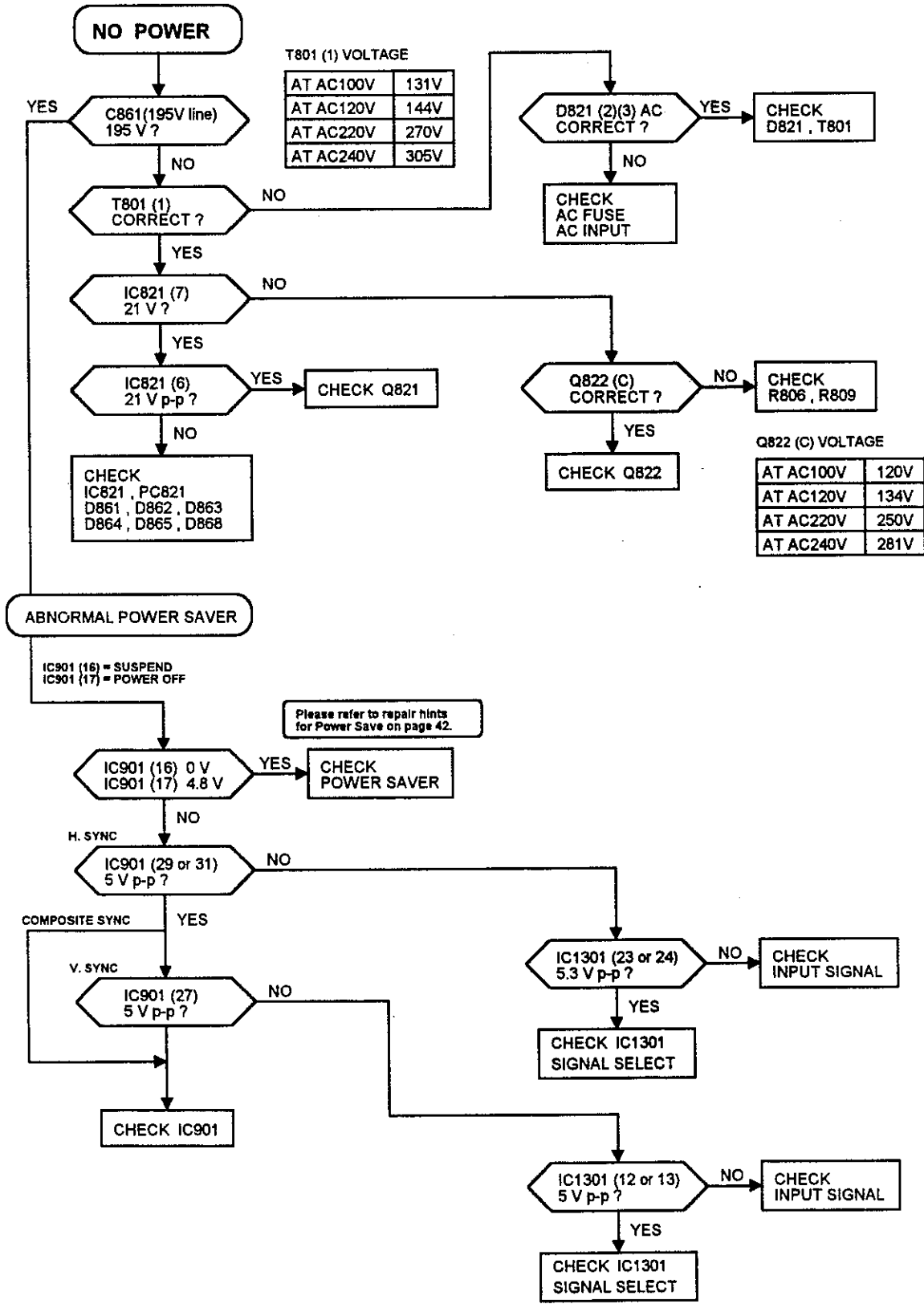


TNPH0054



TROUBLE SHOOTING HINTS





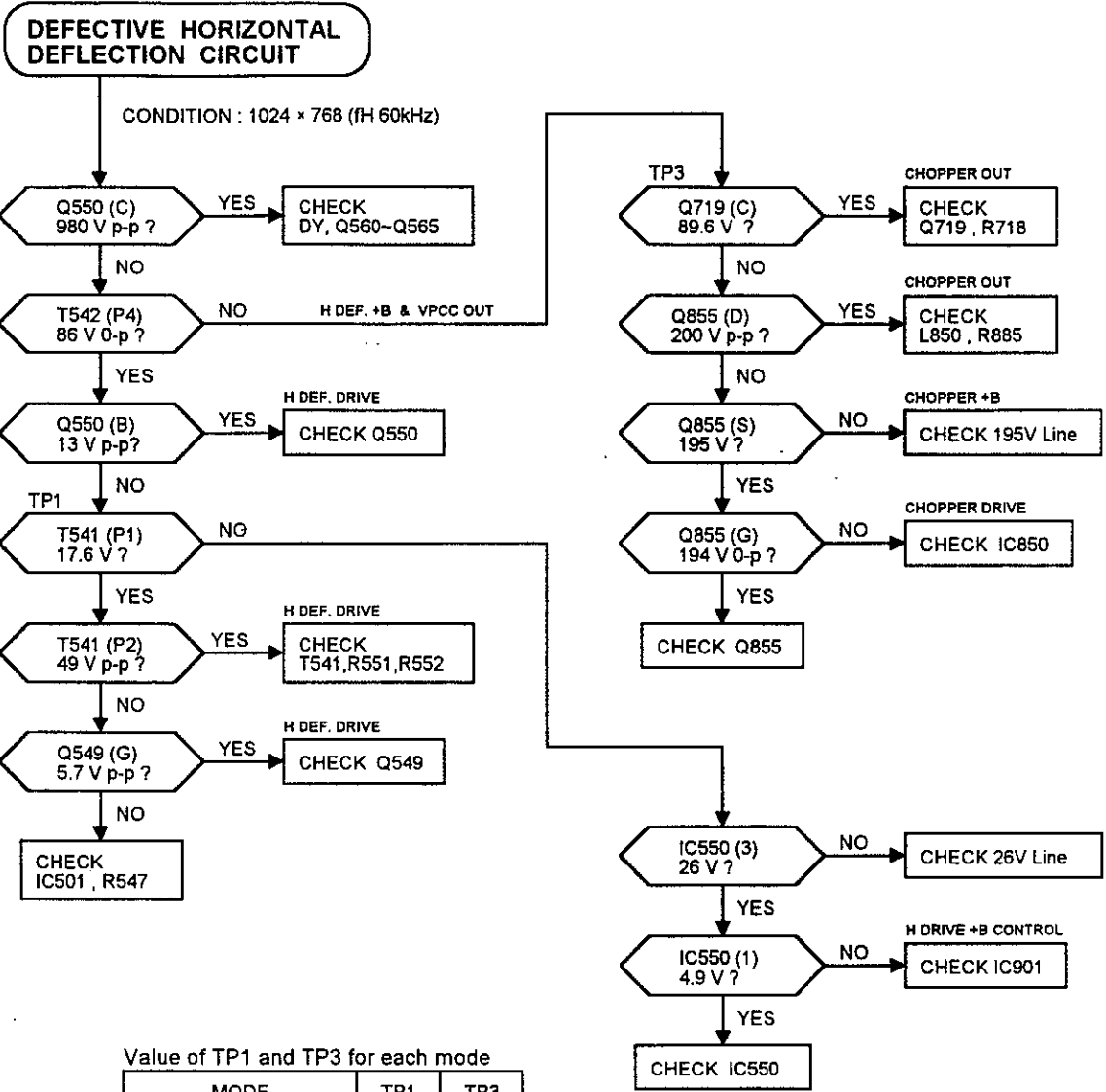
T801 (1) VOLTAGE

AT AC100V	131V
AT AC120V	144V
AT AC220V	270V
AT AC240V	305V

Q822 (C) VOLTAGE

AT AC100V	120V
AT AC120V	134V
AT AC220V	250V
AT AC240V	281V

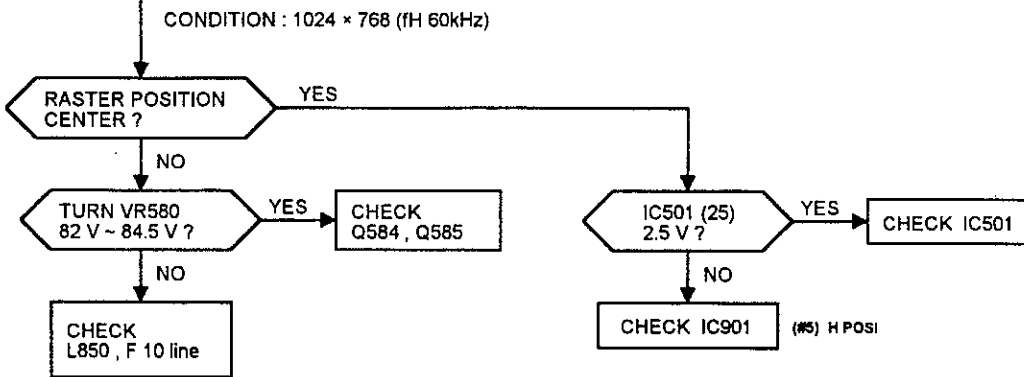
Please refer to repair hints for Power Save on page 42.



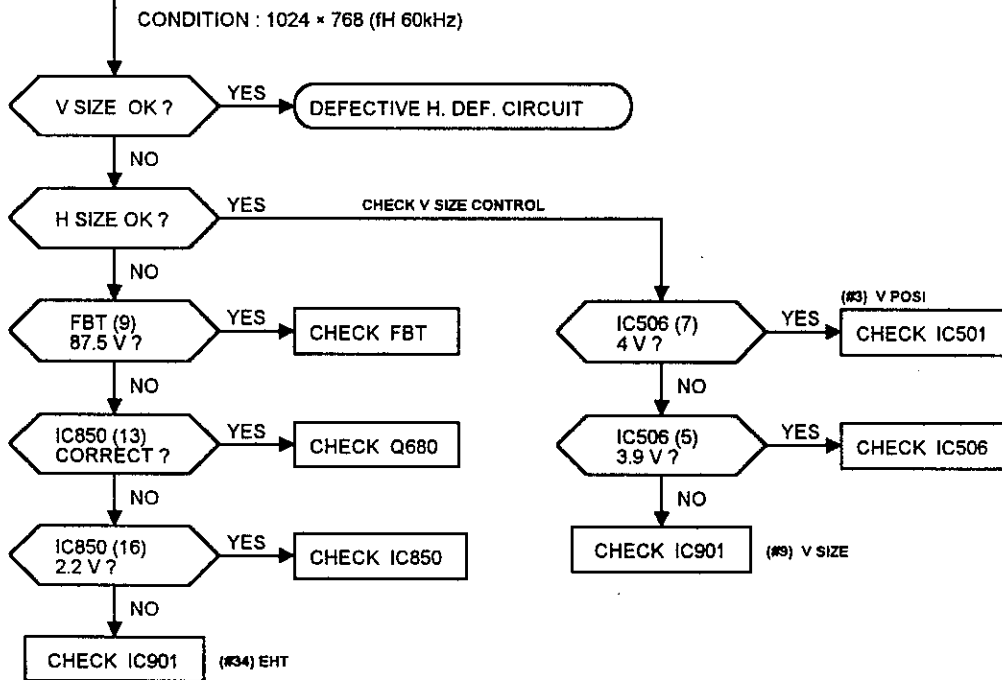
Value of TP1 and TP3 for each mode

MODE	TP1	TP3
MODE - 1 (fH 60.0kHz)	17.6 V	89.6 V
MODE - 2 (fH 31.5kHz)	20.5 V	49.7 V
MODE - 3 (fH 37.5kHz)	19.6 V	61.2 V
MODE - 4 (fH 46.9kHz)	18.6 V	70.9 V
MODE - 5 (fH 49.7kHz)	18.4 V	78.6 V
MODE - 6 (fH 56.5kHz)	17.8 V	84.6 V
MODE - 7 (fH 60.2kHz)	17.5 V	96.2 V
MODE - 8 (fH 80.0kHz)	15.1 V	114.7 V

INCORRECT H. POSITION CONTROL



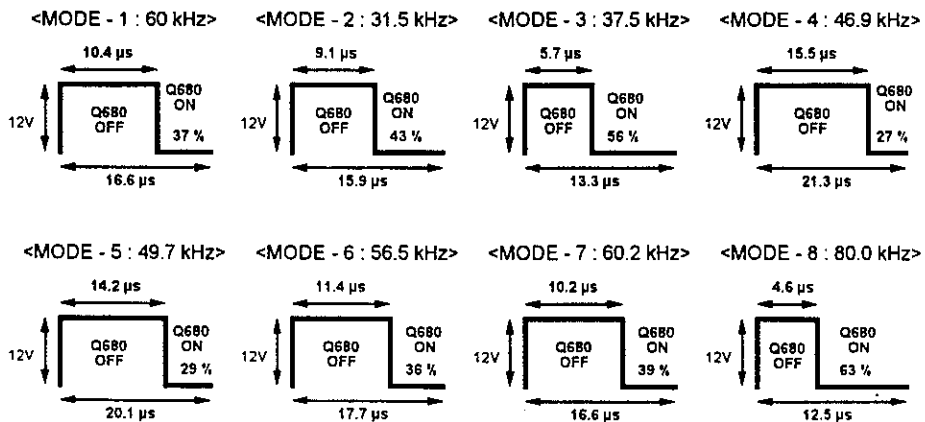
INCORRECT SCREEN SIZE



IC850 (13) Wave

IC850 (20) [2FH]	
30-40 kHz	LOW
40-86 kHz	HIGH

When Low level is applied to 20 pin, IC850 will supply ×2 fH signal to Q680 and Q690. (IC850 13 & 23 pin)



H. SYNC DOES NOT HOLD

CHECK IC501

V. SYNC DOES NOT HOLD

CHECK IC501

If no horizontal and/or vertical sync from PC, then the power save circuit becomes active.

BRIGHT HORIZONTAL LINE APPEARS ON THE SCREEN

IC490 (5)
55 V p-p ?

YES

CHECK DY

NO

IC490 (1)
1.3 V ?

YES

CHECK IC401

NO

CHECK IC501

INCORRECT V.PCC

CONDITION : 1024 × 768 (FH 60kHz)

Q717 (B)
0.5 V p-p ?

YES

CHECK Q717

NO

IC581 (5)
0.3 V p-p ?

YES

CHECK IC581

NO

IC501 (1)
2.6 V ?

NO

(#7) V PCC C

CHECK IC901

YES

IC501 (2)
2.4 V ?

NO

(#6) TRAPEZOID

CHECK IC901

YES

IC501 (3)
2.1 V ?

NO

(#5) V PCC G

CHECK IC901

YES

IC501 (4)
2.4 V ?

NO

(#4) PARALLELO

CHECK IC901

YES

IC501 (5)
2.5 V ?

NO

(#44) V PCC BAL

CHECK IC901

YES

CHECK IC501

INCORRECT V. POSITION CONTROL

IC581 (3)
1.9 V ?

NO

(#3) V POSI

CHECK IC901

YES

IC581 (1)
1.9 V ?

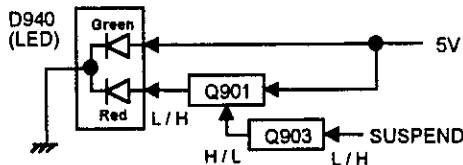
NO

CHECK IC581

YES

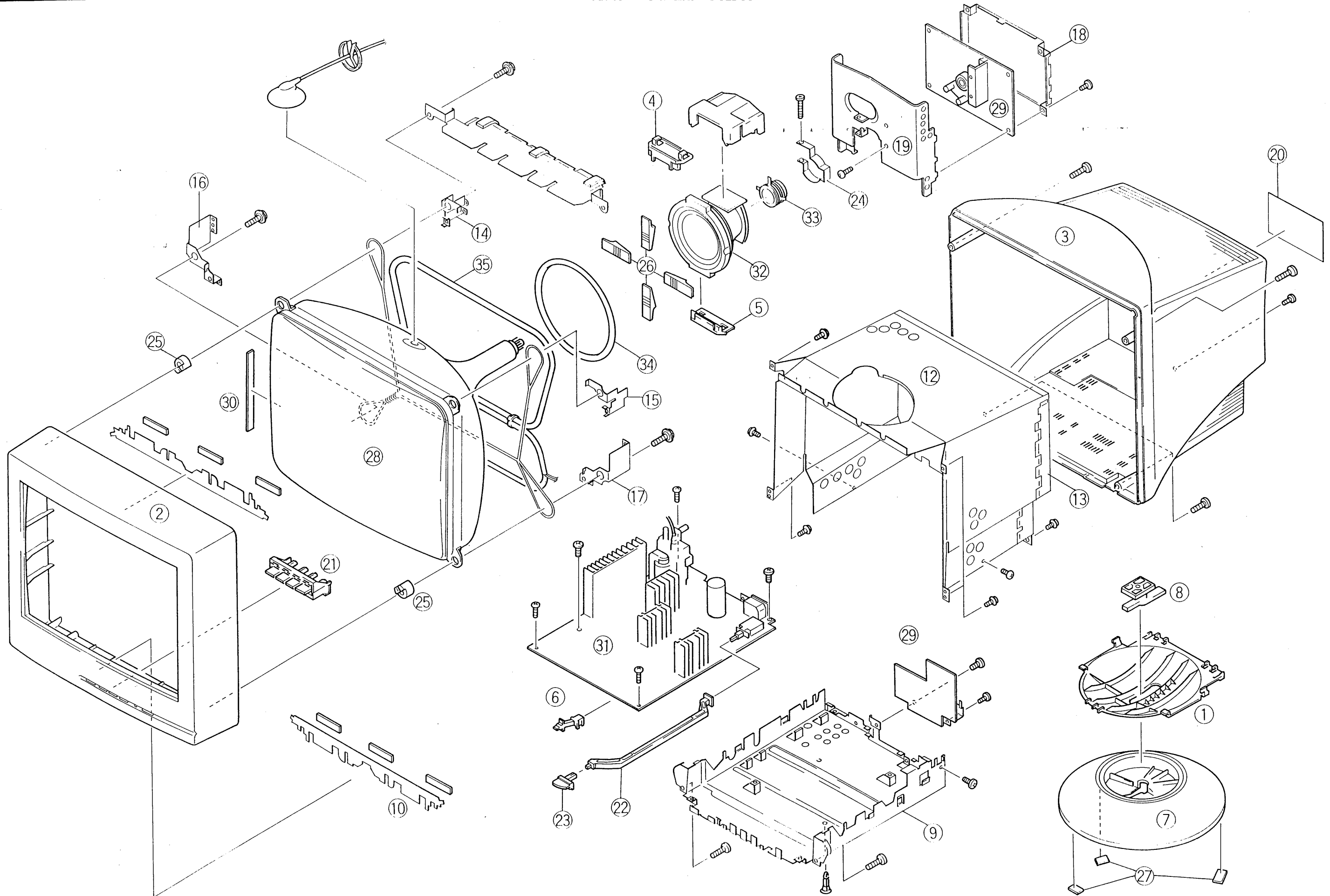
CHECK IC490

ABNORMAL POWER INDICATOR



HS	VS	SUSPEND	COLOR
ON	ON	LOW	GREEN
OFF	ON	HIGH	YELLOW
ON	OFF	HIGH	YELLOW
OFF	OFF	HIGH	YELLOW

EXPLODED VIEW



Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q1310	UN5211AI	TRANSISTOR	D715	MA143A	DIODE
Q1330	UN5211AI	TRANSISTOR	D716	MA142K	DIODE
Q1331	UN5211AI	TRANSISTOR	D717	MA28T-A	DIODE
			D719	EM01Z	DIODE
	DIODES		D801	EU02W	DIODE
D11	MA153A	DIODE	D821	RBV406M	DIODE
D12	MA4150NM	DIODE	D822	ERA34-10	DIODE
D13	MA174	DIODE	D823	EG01Z	DIODE
D14	1SS353	DIODE	D824	MA410ONL	DIODE
D201	MA4056NM	DIODE	D825	1SS353	DIODE
D202	MA4056NM	DIODE	D828	MA4220NH	DIODE
D203	MA4056NM	DIODE	D830	1SS353	DIODE
D210	1SS353	DIODE	D831	1SS353	DIODE
D211	1SS353	DIODE	D832	1SS353	DIODE
D212	1SS353	DIODE	D850	1SS353	DIODE
D213	MA4062NM	DIODE	D851	1SS353	DIODE
D214	1SS353	DIODE	D852	MA4056NM	DIODE
D215	1SS353	DIODE	D855	MA4091NM	DIODE
D216	1SS353	DIODE	D856	CB903-4	DIODE
D217	MA4051NM	DIODE	D858	MA4068NL	DIODE
D250	MA8056M	DIODE	D859	MA4062NM	DIODE
D251	MA8056M	DIODE	D860	MA4062NM	DIODE
D252	MA8056M	DIODE	D861	TVSRG2A	DIODE
D253	MA8056M	DIODE	D862	ERC3806	DIODE
D254	MA728	DIODE	D863	TVSRG2	DIODE
D255	MA728	DIODE	D864	RL4Z	DIODE
D280	MA8056M	DIODE	D865	ERC91-02	DIODE
D281	MA8056M	DIODE	D867	TVSRG2A	DIODE
D282	MA8056M	DIODE	D868	RN3Z014-305	DIODE
D321	1SS353	DIODE	D870	MA8056M	DIODE
D351	1SS353	DIODE	D902	MA4330NL	DIODE
D352	MTZJ39B	DIODE	D903	MA4056NM	DIODE
D353	MTZJ39B	DIODE	D904	MA4056NM	DIODE
D354	MTZJ39B	DIODE	D905	MA4051NM	DIODE
D380	HZT33-09TD	DIODE	D940	SML1816W	DIODE(LED)
D381	HZT33-09TD	DIODE	D953	MA4056NM	DIODE
D382	MA8091H	DIODE	D954	MA4056NM	DIODE
D383	EU02Z	DIODE	D955	MA4056NM	DIODE
D385	MA8056M	DIODE	D978	MA4056NM	DIODE
D401	EU02	DIODE	D979	MA4056NM	DIODE
D410	1SS353	DIODE	D980	MA4082NM	DIODE
D440	MA4051NM	DIODE	D1001	DAN217	DIODE
D505	MA4062NM	DIODE	D1011	DAN217	DIODE
D507	MA4051NM	DIODE	D1052	MA167A	DIODE
D550	DTV32F-1500B	DIODE	D1101	DAN217	DIODE
D551	ERA81004	DIODE	D1111	DAN217	DIODE
D552	1SS353	DIODE	D1152	MA167A	DIODE
D553	MA4150NM	DIODE	D1201	DAN217	DIODE
D571	1SS353	DIODE	D1211	DAN217	DIODE
D581	ERC30-02	DIODE	D1252	MA167A	DIODE
D582	ERC30-02	DIODE	D1301	MA8056M	DIODE
D602	MA167	DIODE	D1330	MA8056M	DIODE
D603	EG01A	DIODE	D1332	MA8056M	DIODE
D604	EG01A	DIODE	D1333	MA8056M	DIODE
D606	1SS353	DIODE	D1335	MA8056M	DIODE
D635	MA4150NM	DIODE	D1336	MA8027H	DIODE
D652	MA4051NM	DIODE	D1350	MA4300M	DIODE
D680	MA4091NM	DIODE	D1351	MA4300M	DIODE
D681	CB903-4	DIODE	D1352	MA4300M	DIODE
D682	CB903-4	DIODE	D1353	MA4300M	DIODE
D690	MA4200NM	DIODE	D1401	1SS353	DIODE
D714	MA142K	DIODE	D1402	1SS353	DIODE

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
	COIL & TRANSFORMERS		C108	ECEA1HGE4R7	E 4.7UF 50V
			C112	ECUX1E334ZFW	C 0.33UF Z 25V
			C201	ECUX1H100DCN	C 10PF D 50V
			C202	ECUX1H101JCG	C 100PF J 50V
			C210	ECUX1H221KBN	C 220PF K 50V
	L381 EXCELD35C	LC COMBINATION	C211	ECUX1H123KBX	C 0.012UF K 50V
	L383 EXCELD35C	LC COMBINATION	C212	ECUX1H221KBN	C 220PF K 50V
	L550 EXCELSR35S	LC COMBINATION	C213	ECUX1H560JCG	C 56PF J 50V
	L551 EXCELSR35S	LC COMBINATION	C214	ECUX1C225ZFW	C 2.2UF Z 16V
Δ	L573 TLHE009	COIL	C250	ECUX1C105ZFW	C 1.0UF Z 16V
Δ	L574 TLHE004	COIL	C252	ECUX1C105ZFW	C 1.0UF Z 16V
	L575 TLH85815T	COIL	C301	ECUX1H151JCG	C 150PF J 50V
	L580 TLUACNB2R2M	PEAKING COIL	C302	ECUX1H332KBN	C 3300PF K 50V
	L599 TLUACNB821K	PEAKING COIL	C303	ECUX1H104ZFX	C 0.1UF Z 50V
	L601 ELEMH1ROKA	PEAKING COIL	C304	ECUX1H102KBN	C 1000PF K 50V
	L602 EXCELD35C	LC COMBINATION	C305	ECEA1EGE100	E 10UF 25V
	L680 EXCELD35C	LC COMBINATION	C306	ECEA1CGE470	E 47UF 16V
Δ	L681 TLP85708R	CHOKO COIL	C309	ECUX1H103KBG	C 0.01UF K 50V
Δ	L801 TLPD001	LINE FILTER	C311	ECEA1CGE101	E 100UF 16V
Δ	L802 TLPD001	LINE FILTER	C312	ECUX1H103KBG	C 0.01UF K 50V
	L820 TSK8031	FERRITE CORE	C321	ECEA1EGE100	E 10UF 25V
	L822 EXCELD35C	LC COMBINATION	C322	ECEA1EGE101	E 100UF 25V
Δ	L850 TLP85709R	CHOKO COIL	C323	ECUX1H104ZFX	C 0.1UF Z 50V
	L861 EXCELD35C	LC COMBINATION	C351	ECEA1CGE470	E 47UF 16V
	L862 EXCELD35C	LC COMBINATION	C352	ECEA1VGE470	E 47UF 35V
	L864 EXCELD35C	LC COMBINATION	C353	ECA1JFQ120	E 12UF 63V
	L865 EXCELD35C	LC COMBINATION	C355	ECUX1H121JCG	C 120PF J 50V
	L867 EXCELD35C	LC COMBINATION	C356	ECUX1H150JCN	C 15PF J 50V
	L868 EXCELD35C	LC COMBINATION	C371	ECA2EHG100	E 10UF 250V
	L901 TLU101K106	PEAKING COIL	C372	ECKD2H471KB5	C 470PF K 500V
	L1020 ELEXH1ROKA	PEAKING COIL	C385	ECA2CHG4R7	E 4.7UF 160V
	L1040 ELEXHR33KA	PEAKING COIL	C393	ECKD3D272KBP	C 2700PF K 2KV
	L1101 EXCELD35C	LC COMBINATION	C396	ECKD2H332KB5	C 3300PF K 500V
	L1115 TSK8031	FERRITE CORE	C401	ECEA1HGE010	E 1UF 50V
	L1120 ELEXH1ROKA	PEAKING COIL	C402	ECUX1H103KBG	C 0.01UF K 50V
	L1140 ELEXHR33KA	PEAKING COIL	C403	ECUX1H103KBG	C 0.01UF K 50V
	L1220 ELEXH1ROKA	PEAKING COIL	C404	ECUX1H103KBG	C 0.01UF K 50V
	L1240 ELEXHR33KA	PEAKING COIL	C406	ECEA1CGE470	E 47UF 16V
	L1320 EXCELD35C	LC COMBINATION	C407	ECEA1VGE221	E 220UF 35V
	L1330 ELEXH151KA	PEAKING COIL	C408	ECEA1EGN101	E 100UF 25V
	L1342 EXCELD35C	LC COMBINATION	C409	ECQV1H224JL	P 0.22UF J 50V
	L1343 EXCELD35C	LC COMBINATION	C410	ECEA1HGE100	E 10UF 50V
	L1350 EXCELD35C	LC COMBINATION	C412	ECUX1H331KBN	C 330PF K 50V
	L1351 EXCELD35C	LC COMBINATION	C413	ECEA1CGE102	E 1000UF 16V
Δ	T351 TLHG004	D.A.F. TRANSFORMER	C415	ECUX1H102KBN	C 1000PF K 50V
Δ	T541 TLHA002	TRANSFORMER	C417	ECQV1H334JL	P 0.33UF J 50V
Δ	T542 TLH85501Z1	COIL	C418	ECUX1H103KBG	C 0.01UF K 50V
Δ	T601 ETF39L93AZ	FLYBACK TRANSFORMER	C420	ECUX1H103KBG	C 0.01UF K 50V
Δ	T801 TLP0015-1	POWER TRANSFORMER	C421	ECEA1CGE101	E 100UF 16V
Δ	T802 TLPX006	TRANSFORMER	C422	ECEA1HGE100	E 10UF 50V
	CONTROL		C423	ECUX1H103KBG	C 0.01UF K 50V
	VR580 EVND1AA00B13	CONTROL B 1K OHM	C424	ECUX1H102KBN	C 1000PF K 50V
	VR881 EVNDXAA03B13	CONTROL B 1K OHM	C501	ECUX1H104ZFX	C 0.1UF Z 50V
	CAPACITORS		C502	ECEA1CGE221	E 220UF 16V
	C11 ECQV1H225JL	P 2.2UF J 50V	C504	ECEA1EGE100	E 10UF 25V
	C12 ECUX1C224KBW	C 0.22UF K 16V	C505	ECUX1H182JCX	C 1800PF J 50V
	C13 ECUX1H104ZFX	C 0.1UF Z 50V	C506	ECUX1H681KBN	C 680PF K 50V
	C14 ECUX1H104ZFX	C 0.1UF Z 50V	C507	ECUX1C474ZFX	C 0.47UF Z 16V
	C16 ECUX1H561KBN	C 560PF K 50V	C509	ECUX1H104ZFX	C 0.1UF Z 50V
	C17 ECQE2104KF	P 0.1UF K 200V	C510	ECUX1H680JCG	C 68PF J 50V
	C106 ECUX1E334ZFW	C 0.33UF Z 25V	C511	ECUX1H102KBN	C 1000PF K 50V
	C107 ECEA1HGE4R7	E 4.7UF 50V	C512	ECUX1H104KBW	C 0.1UF K 50V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C513	ECUX1H102KBN	C 1000PF K 50V	△ C801	ECQU2A224MNF	PP 0.22UF M 250V
C514	ECEA1CGE101	E 100UF 16V	△ C802	ECQU2A334MVZ	PP 0.33UF M 250V
C515	ECEA1HGN4R7	E 4.7UF 50V	△ C803	ECKDRS222ME	C 2200PF M
C516	ECQV1H225JL	P 2.2UF J 50V	△ C804	ECKDRS222ME	C 2200PF M
C517	ECUX1H104ZFX	C 0.1UF Z 50V	△ C805	ECKDRS222ME	C 2200PF M
C540	ECUX1C224ZFX	C 0.22UF Z 16V	C821	TAC1094Z331A	E 330UF 400V
C541	ECQB1H153JF	P 0.015UF J 50V	C822	ECQE6473KF	P 0.047UF K 600V
C550	ECEA1VGE470	E 47UF 35V	C823	ECKD3A271KBP	C 270PF K 1KV
C551	ECA1VHG101	E 100UF 35V	C824	ECUX1H104ZFX	C 0.1UF Z 50V
C552	ECKD2H332KB5	C 3300PF K 500V	C825	ECEA1EGE221	E 220UF 25V
C553	ECWH15H222HN	PP 2200PF H 1.5KV	C826	ECKD2H102KB5	C 1000PF K 500V
C554	ECWH15H222HN	PP 2200PF H 1.5KV	C827	ECUX1H104ZFX	C 0.1UF Z 50V
C555	ECQE2335KF	P 3.3UF K 200V	C828	ECKF1H222KB	C 2200PF K 50V
C561	ECWF2155HB	PP 1.5UF H 200V	C829	ECEA1CGE470	E 47UF 16V
C563	ECWF2394HBB	PP 0.39UF H 200V	C830	ECEA1HGE4R7	E 4.7UF 50V
C565	ECWF2154HBB	PP 0.15UF H 200V	△ C831	ECKDRS332ME	C 3300PF M
C568	ECWF4304HBP	PP 0.3UF H 400V	△ C832	ECKDRS332ME	C 3300PF M
C573	ECKD2H102KB5	C 1000PF K 500V	C833	ECUX1H101JCG	C 100PF J 50V
C574	ECKD2H102KB5	C 1000PF K 500V	C834	ECUX1H103KBG	C 0.01UF K 50V
C580	ECEA1CGE470	E 47UF 16V	C835	ECUX1H102KBN	C 1000PF K 50V
C581	ECQE2224KF	P 0.22UF K 200V	C836	ECUX1H681KBN	C 680PF K 50V
C582	ECA1EHG102	E 1000UF 25V	C851	ECQE1224KF	P 0.22UF K 100V
C583	ECUX1C105ZFW	C 1.0UF Z 16V	C855	ECUX1H104ZFX	C 0.1UF Z 50V
C584	ECUX1C105ZFW	C 1.0UF Z 16V	C856	ECEA1HGE100	E 10UF 50V
C590	ECUX1H103KBG	C 0.01UF K 50V	C858	ECUX1H222KBN	C 2200PF K 50V
C599	ECEA1HGN100	E 10UF 50V	C859	ECQE2224KF	P 0.22UF K 200V
C601	ECEA2AGE220	E 22UF 100V	C861	TAC1232E687	E 680UF 250V
C603	ECA2EHG100	E 10UF 250V	C862	ECA2AHG331	E 330UF 100V
C609	ECA2CHG2R2	E 2.2UF 160V	C863	ECA1VHG471	E 470UF 35V
C612	ECA2CHG100	E 10UF 160V	C864	ECA1EHG222	E 2200UF 25V
C635	ECUX1C105ZFX	C 1.0UF Z 16V	C865	ECA1CHG332	E 3300UF 16V
C654	ECQE2224KF	P 0.22UF K 200V	C867	ECEA1EGE100	E 10UF 25V
C660	ECEA1HGE100	E 10UF 50V	C868	ECA1CHG222	E 2200UF 16V
C661	ECEA1CGE470	E 47UF 16V	C869	ECEA1CGE331	E 330UF 16V
C663	ECUX1H104ZFX	C 0.1UF Z 50V	C870	ECEA0JGE331	E 330UF 6.3V
C665	ECQB1H473JF	P 0.047UF J 50V	C872	ECUX1H104ZFX	C 0.1UF Z 50V
C666	ECUX1H562KBG	C 5600PF K 50V	C873	ECUX1H103KBG	C 0.01UF K 50V
C667	ECUX1H101JCG	C 100PF J 50V	C876	ECUX1H103KBG	C 0.01UF K 50V
C671	ECUX1H102KBN	C 1000PF K 50V	C877	ECUX1H221KBN	C 220PF K 50V
C672	ECUX1H104ZFX	C 0.1UF Z 50V	C880	ECEA1CGE470	E 47UF 16V
C674	ECUX1C105ZFX	C 1.0UF Z 16V	C881	ECEA1HGE100	E 10UF 50V
C679	ECQB2333KF	P 0.033UF K 200V	C882	ECEA1HGE220	E 22UF 50V
C680	ECUX1H102KBN	C 1000PF K 50V	C883	ECEA1HGE010	E 1UF 50V
C681	ECQE2474KF	P 0.47UF K 200V	C884	ECUX1H104ZFX	C 0.1UF Z 50V
C690	ECWH12H222HS	PP 2200PF H 1.2KV	C885	ECQB2103KF	P 0.01UF K 200V
C691	ECKC3D821JBP	C 820PF J 2KV	C886	ECUX1H222KBN	C 2200PF K 50V
C692	ECQB1H224JF	P 0.22UF J 50V	C888	ECQB2333KF	P 0.033UF K 200V
C693	ECKF1H472KB	C 4700PF K 50V	C889	ECA2DGE680Y	E 68UF 200V
C696	ECQE2474KF	P 0.47UF K 200V	C890	ECUX1H392KBN	C 3900PF J 50V
C697	ECUX1H222KBN	C 2200PF K 50V	C901	ECEA1CGE470	E 47UF 16V
C701	ECUX1H103KBG	C 0.01UF K 50V	C903	ECA0JFQ152	E 1500UF 6.3V
C702	ECUX1H103KBG	C 0.01UF K 50V	C904	ECUX1H103KBG	C 0.01UF K 50V
C703	ECUX1H103KBG	C 0.01UF K 50V	C905	ECUX1H200JCN	C 20PF J 50V
C704	ECUX1H103KBG	C 0.01UF K 50V	C906	ECUX1H150JCG	C 15PF J 50V
C707	ECUX1H103KBG	C 0.01UF K 50V	C907	ECUX1H103KBG	C 0.01UF K 50V
C709	ECEA1HGN100	E 10UF 50V	C951	ECEA1HGE2R2	E 2.2UF 50V
C712	ECUX1H103KBG	C 0.01UF K 50V	C952	ECEA1HGE010	E 1UF 50V
C715	ECA2CHG4R7	E 4.7UF 160V	C953	ECEA1HGE010	E 1UF 50V
C718	ECUX1H103KBG	C 0.01UF K 50V	C954	ECEA1HGE010	E 1UF 50V
C719	ECQB2103KF	P 0.01UF K 200V	C955	ECEA1HGE010	E 1UF 50V
C720	ECQB2103KF	P 0.01UF K 200V	C956	ECEA1HGE470	E 47UF 50V
C730	ECEA1EGE101	E 100UF 25V	C957	ECEA1HGE010	E 1UF 50V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C958	ECEA1HGE100	E 10UF 50V	C1223	ECUX1H103KBG	C 0.01UF K 50V
C959	ECEA1HGE010	E 1UF 50V	C1224	ECUX1H104ZFX	C 0.1UF Z 50V
C960	ECEA1HGE010	E 1UF 50V	C1225	ECUX1C105ZFW	C 1.0UF Z 16V
C962	ECEA1HGE010	E 1UF 50V	C1226	ECEA1CGE101	E 100UF 16V
C963	ECEA1HGE330	E 33UF 50V	C1230	ECUX1H151JCG	C 150PF J 50V
C964	ECEA1HGE010	E 1UF 50V	C1231	ECUX1H620JCG	C 62PF J 50V
C965	ECEA1HGE010	E 1UF 50V	C1232	ECUX1H220JCN	C 22PF J 50V
C966	ECEA1HGE010	E 1UF 50V	C1233	ECUX1H560JCG	C 56PF J 50V
C967	ECEA1HGE010	E 1UF 50V	C1235	TAC1212Z680H	C 68PF J 200V
C968	ECEA1HGE010	E 1UF 50V	C1236	ECEA2AGE470	E 47UF 100V
C969	ECEA1HGE010	E 1UF 50V	C1237	ECEA1CGE100	E 10UF 16V
C1001	ECUX1H102KBN	C 1000PF K 50V	C1240	ECQV1474JM	P 0.47UF J 100V
C1002	ECEA1CGE470	E 47UF 16V	C1242	ECKD2H102KB5	C 1000PF K 500V
C1011	ECUX1H102KBN	C 1000PF K 50V	C1252	ECA2CHGO10	E 1UF 160V
C1012	ECEA1CGE470	E 47UF 16V	C1301	ECEA1CGE470	E 47UF 16V
C1015	ECEA1HGNO10	E 1UF 50V	C1302	ECUX1H103KBG	C 0.01UF K 50V
C1016	ECUX1H102KBN	C 1000PF K 50V	C1303	ECUX1H471JCX	C 470PF J 50V
C1021	ECUX1C105ZFW	C 1.0UF Z 16V	C1305	ECEA1EGE100	E 10UF 25V
C1022	ECUX1H270JCG	C 27PF J 50V	C1310	ECEA1EGE100	E 10UF 25V
C1023	ECUX1H103KBG	C 0.01UF K 50V	C1311	ECUX1H103KBG	C 0.01UF K 50V
C1024	ECUX1H104ZFX	C 0.1UF Z 50V	C1312	ECUX1H104ZFX	C 0.1UF Z 50V
C1025	ECUX1C105ZFW	C 1.0UF Z 16V	C1313	ECUX1H103KBG	C 0.01UF K 50V
C1030	ECUX1H151JCG	C 150PF J 50V	C1315	ECUX1H103KBG	C 0.01UF K 50V
C1031	ECUX1H620JCG	C 62PF J 50V	C1317	ECUX1C105ZFW	C 1.0UF Z 16V
C1032	ECUX1H220JCN	C 22PF J 50V	C1318	ECEA1CGE101	E 100UF 16V
C1033	ECUX1H560JCG	C 56PF J 50V	C1321	TACCU103P200	C 0.01UF 200V
C1035	TAC1212Z680H	C 68PF J 200V	C1322	ECEA1CGE100	E 10UF 16V
C1036	ECEA2AGE100	E 10UF 100V	C1330	ECUX1H103KBG	C 0.01UF K 50V
C1037	ECEA1CGE100	E 10UF 16V	C1331	ECUX1H103KBG	C 0.01UF K 50V
C1040	ECQV1474JM	P 0.47UF J 100V	C1333	ECUX1H103KBG	C 0.01UF K 50V
C1042	ECKD2H102KB5	C 1000PF K 500V	C1334	ECEA1CGE101	E 100UF 16V
C1052	ECA2CHGO10	E 1UF 160V	C1336	ECEA1EGE100	E 10UF 25V
C1101	ECUX1H102KBN	C 1000PF K 50V	C1337	ECUX1H103KBG	C 0.01UF K 50V
C1102	ECEA1CGE470	E 47UF 16V	C1340	ECUX1H104ZFX	C 0.1UF Z 50V
C1111	ECUX1H102KBN	C 1000PF K 50V	C1341	ECUX1H103KBG	C 0.01UF K 50V
C1112	ECEA1CKG470	E 47UF 16V	C1351	ECEA1EGE100	E 10UF 25V
C1114	ECUX1C105ZFW	C 1.0UF Z 16V	C1353	ECUX1H104ZFX	C 0.1UF Z 50V
C1115	ECEA1HGNO10	E 1UF 50V	C1355	ECA2CHG100	E 10UF 160V
C1116	ECUX1H102KBN	C 1000PF K 50V	C1501	ECUX1H103KBG	C 0.01UF K 50V
C1120	ECEA1CGE102	E 1000UF 16V	RESISTORS		
C1121	ECUX1H103KBG	C 0.01UF K 50V	J001	ERJ8GCRYOR00	M 0 OHM 1/8W
C1122	ECUX1H270JCG	C 27PF J 50V	J002	ERJ8GCRYOR00	M 0 OHM 1/8W
C1123	ECUX1H103KBG	C 0.01UF K 50V	J003	ERJ6GEYOR00	M 0 OHM 1/10W
C1124	ECUX1H104ZFX	C 0.1UF Z 50V	J004	ERJ6GEYOR00	M 0 OHM 1/10W
C1125	ECUX1C105ZFW	C 1.0UF Z 16V	J005	ERJ6GEYOR00	M 0 OHM 1/10W
C1130	ECUX1H151JCG	C 150PF J 50V	J006	ERJ6GEYOR00	M 0 OHM 1/10W
C1131	ECUX1H620JCG	C 62PF J 50V	J007	ERJ6GEYOR00	M 0 OHM 1/10W
C1132	ECUX1H220JCN	C 22PF J 50V	J008	ERJ8GCRYOR00	M 0 OHM 1/8W
C1133	ECUX1H680JCG	C 68PF J 50V	J009	ERJ8GCRYOR00	M 0 OHM 1/8W
C1135	TAC1212Z680H	C 68PF J 200V	J010	ERJ8GCRYOR00	M 0 OHM 1/8W
C1136	ECEA2AGE100	E 10UF 100V	J011	ERJ8GCRYOR00	M 0 OHM 1/8W
C1137	ECEA1CGE100	E 10UF 16V	J012	ERJ8GCRYOR00	M 0 OHM 1/8W
C1140	ECQV1474JM	P 0.47UF J 100V	J013	ERJ6GEYOR00	M 0 OHM 1/10W
C1142	TACCG102P200	C 1000PF 200V	J014	ERJ8GCRYOR00	M 0 OHM 1/8W
C1152	ECA2CHGO10	E 1UF 160V	J015	ERJ8GCRYOR00	M 0 OHM 1/8W
C1201	ECUX1H102KBN	C 1000PF K 50V	J016	ERJ6GEYOR00	M 0 OHM 1/10W
C1202	ECEA1CGE470	E 47UF 16V	J017	ERJ8GCRYOR00	M 0 OHM 1/8W
C1211	ECUX1H102KBN	C 1000PF K 50V	J018	ERJ8GCRYOR00	M 0 OHM 1/8W
C1212	ECEA1CKG470	E 47UF 16V	J019	ERJ6GEYOR00	M 0 OHM 1/10W
C1215	ECEA1HGNO10	E 1UF 50V	J021	ERJ8GCRYOR00	M 0 OHM 1/8W
C1216	ECUX1H102KBN	C 1000PF K 50V	J022	ERJ6GEYOR00	M 0 OHM 1/10W
C1222	ECUX1H270JCG	C 27PF J 50V			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
J023	ERJ8GCYOR00	M O OHM 1/8W	J114	ERD25TCO	C O OHM 1/4W
J027	ERJ8GCYOR00	M O OHM 1/8W	J115	ERD25TCO	C O OHM 1/4W
J031	ERD25TCO	C O OHM 1/4W	J118	ERJ8GCYOR00	M O OHM 1/8W
J034	ERJ8GCYOR00	M O OHM 1/8W	J119	ERJ8GCYOR00	M O OHM 1/8W
J035	ERJ8GCYOR00	M O OHM 1/8W	J120	ERJ8GCYOR00	M O OHM 1/8W
J036	ERJ8GCYOR00	M O OHM 1/8W	J126	ERJ8GCYOR00	M O OHM 1/8W
J037	ERJ6GEYOR00	M O OHM 1/10W	J128	ERJ8GCYOR00	M O OHM 1/8W
J038	ERJ6GEYOR00	M O OHM 1/10W	J129	ERJ8GCYOR00	M O OHM 1/8W
J039	ERJ8GCYOR00	M O OHM 1/8W	J130	ERJ8GCYOR00	M O OHM 1/8W
J040	ERJ8GCYOR00	M O OHM 1/8W	J131	ERJ8GCYOR00	M O OHM 1/8W
J041	ERJ8GCYOR00	M O OHM 1/8W	J132	ERJ6GEYOR00	M O OHM 1/10W
J042	ERJ8GCYOR00	M O OHM 1/8W	J134	ERJ6GEYOR00	M O OHM 1/10W
J043	ERJ8GCYOR00	M O OHM 1/8W	J139	ERJ6GEYOR00	M O OHM 1/10W
J044	ERJ6GEYOR00	M O OHM 1/10W	J140	ERJ8GCYOR00	M O OHM 1/8W
J045	ERJ8GCYOR00	M O OHM 1/8W	J141	ERJ8GCYOR00	M O OHM 1/8W
J046	ERJ6GEYOR00	M O OHM 1/10W	J142	ERD25TCO	C O OHM 1/4W
J047	ERJ6GEYOR00	M O OHM 1/10W	J144	ERJ8GCYOR00	M O OHM 1/8W
J048	ERJ8GCYOR00	M O OHM 1/8W	J146	ERJ6GEYOR00	M O OHM 1/10W
J049	ERJ8GCYOR00	M O OHM 1/8W	J147	ERJ8GCYOR00	M O OHM 1/8W
J050	ERJ8GCYOR00	M O OHM 1/8W	J152	ERJ8GCYOR00	M O OHM 1/8W
J051	ERJ6GEYOR00	M O OHM 1/10W	J153	ERJ6GEYOR00	M O OHM 1/10W
J052	ERJ6GEYOR00	M O OHM 1/10W	J155	ERJ8GCYOR00	M O OHM 1/8W
J053	ERJ6GEYOR00	M O OHM 1/10W	J157	ERJ8GCYOR00	M O OHM 1/8W
J054	ERJ8GCYOR00	M O OHM 1/8W	J158	ERJ8GCYOR00	M O OHM 1/8W
J055	ERJ8GCYOR00	M O OHM 1/8W	J159	ERD25TCO	C O OHM 1/4W
J056	ERJ8GCYOR00	M O OHM 1/8W	J160	ERJ8GCYOR00	M O OHM 1/8W
J057	ERJ8GCYOR00	M O OHM 1/8W	J161	ERJ8GCYOR00	M O OHM 1/8W
J058	ERJ6GEYOR00	M O OHM 1/10W	J162	ERJ8GCYOR00	M O OHM 1/8W
J059	ERJ8GCYOR00	M O OHM 1/8W	J163	ERJ6GEYOR00	M O OHM 1/10W
J060	ERD25TCO	C O OHM 1/4W	J164	ERJ6GEYOR00	M O OHM 1/10W
J064	ERJ6GEYOR00	M O OHM 1/10W	J165	ERJ6GEYOR00	M O OHM 1/10W
J065	ERJ8GCYOR00	M O OHM 1/8W	J166	ERJ6GEYOR00	M O OHM 1/10W
J067	ERJ8GCYOR00	M O OHM 1/8W	J167	ERJ8GCYOR00	M O OHM 1/8W
J070	ERD25TCO	C O OHM 1/4W	J168	ERJ8GCYOR00	M O OHM 1/8W
J071	ERD25TCO	C O OHM 1/4W	J169	ERJ6GEYOR00	M O OHM 1/10W
J073	ERJ8GCYOR00	M O OHM 1/8W	J170	ERJ8GCYOR00	M O OHM 1/8W
J074	ERJ8GCYOR00	M O OHM 1/8W	J171	ERJ6GEYOR00	M O OHM 1/10W
J075	ERJ8GCYOR00	M O OHM 1/8W	J172	ERJ8GCYOR00	M O OHM 1/8W
J076	ERJ8GCYOR00	M O OHM 1/8W	J173	ERJ6GEYOR00	M O OHM 1/10W
J078	ERJ6GEYOR00	M O OHM 1/10W	J175	ERJ8GCYOR00	M O OHM 1/8W
J079	ERJ8GCYOR00	M O OHM 1/8W	J176	ERJ6GEYOR00	M O OHM 1/10W
J080	ERJ6GEYOR00	M O OHM 1/10W	J179	ERJ8GCYOR00	M O OHM 1/8W
J082	ERJ8GCYOR00	M O OHM 1/8W	J180	ERJ6GEYOR00	M O OHM 1/10W
J083	ERJ6GEYOR00	M O OHM 1/10W	J183	ERJ8GCYOR00	M O OHM 1/8W
J084	ERJ8GCYOR00	M O OHM 1/8W	J184	ERJ6GEYOR00	M O OHM 1/10W
J085	ERJ8GCYOR00	M O OHM 1/8W	J185	ERJ8GCYOR00	M O OHM 1/8W
J086	ERJ8GCYOR00	M O OHM 1/8W	J186	ERD25TCO	C O OHM 1/4W
J087	ERD25TCO	C O OHM 1/4W	J188	ERJ8GCYOR00	M O OHM 1/8W
J091	ERJ6GEYOR00	M O OHM 1/10W	J192	ERJ8GCYOR00	M O OHM 1/8W
J094	ERD25TCO	C O OHM 1/4W	J194	ERD25TCO	C O OHM 1/4W
J095	ERJ8GCYOR00	M O OHM 1/8W	J195	ERJ6GEYOR00	M O OHM 1/10W
J097	ERJ8GCYOR00	M O OHM 1/8W	J196	ERJ6GEYOR00	M O OHM 1/10W
J099	ERJ6GEYOR00	M O OHM 1/10W	J197	ERJ8GCYOR00	M O OHM 1/8W
J100	ERJ8GCYOR00	M O OHM 1/8W	J198	ERJ6GEYOR00	M O OHM 1/10W
J101	ERJ8GCYOR00	M O OHM 1/8W	J199	ERJ6GEYOR00	M O OHM 1/10W
J102	ERJ6GEYOR00	M O OHM 1/10W	J200	ERJ8GCYOR00	M O OHM 1/8W
J103	ERJ8GCYOR00	M O OHM 1/8W	J201	ERJ8GCYOR00	M O OHM 1/8W
J105	ERJ8GCYOR00	M O OHM 1/8W	J202	ERJ6GEYOR00	M O OHM 1/10W
J109	ERJ6GEYOR00	M O OHM 1/10W	J203	ERJ8GCYOR00	M O OHM 1/8W
J110	ERJ8GCYOR00	M O OHM 1/8W	J429	ERJ6GEYOR00	M O OHM 1/10W
J112	ERJ8GCYOR00	M O OHM 1/8W	J804	ERJ6GEYOR00	M O OHM 1/10W
J113	ERJ8GCYOR00	M O OHM 1/8W	J805	ERJ6GEYOR00	M O OHM 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
J808	ERJ6GEYOROO	M 0 OHM 1/10W	J1228	ERJ6GEYOROO	M 0 OHM 1/10W
J809	ERJ8GCYOROO	M 0 OHM 1/8W	J1235	ERJ6GEYOROO	M 0 OHM 1/10W
J811	ERD25TCO	C 0 OHM 1/4W	J1236	ERJ6GEYOROO	M 0 OHM 1/10W
J812	ERD25TCO	C 0 OHM 1/4W	J1238	ERJ6GEYOROO	M 0 OHM 1/10W
J813	ERJ8GCYOROO	M 0 OHM 1/8W	J1239	ERJ8GCYOROO	M 0 OHM 1/8W
J815	ERJ8GCYOROO	M 0 OHM 1/8W	J1240	ERJ8GCYOROO	M 0 OHM 1/8W
J817	ERD25TCO	C 0 OHM 1/4W	J1241	ERJ8GCYOROO	M 0 OHM 1/8W
J818	ERD25TCO	C 0 OHM 1/4W	J1242	ERJ8GCYOROO	M 0 OHM 1/8W
J819	ERJ8GCYOROO	M 0 OHM 1/8W	J1243	ERJ8GCYOROO	M 0 OHM 1/8W
J820	ERJ8GCYOROO	M 0 OHM 1/8W	J1246	ERJ6GEYOROO	M 0 OHM 1/10W
J821	ERJ8GCYOROO	M 0 OHM 1/8W	J1247	ERJ8GCYOROO	M 0 OHM 1/8W
J822	ERD25TCO	C 0 OHM 1/4W	R11	ERJ6ENF1002	M 10K OHM F 1/10W
J823	ERJ8GCYOROO	M 0 OHM 1/8W	R12	ERJ6ENF4703	M 470K OHM F 1/10W
J824	ERD25TCO	C 0 OHM 1/4W	R13	ERJ6ENF2402	M 24K OHM F 1/10W
J825	ERJ8GCYOROO	M 0 OHM 1/8W	R14	ERJ6ENF3301	M 3.3K OHM F 1/10W
J827	ERD25TCO	C 0 OHM 1/4W	R15	ERDS1FJ183	C 18K OHM J 1/2W
J828	ERD25TCO	C 0 OHM 1/4W	R16	ERJ6ENF8200	M 820 OHM F 1/10W
J829	ERD25TCO	C 0 OHM 1/4W	R17	ERJ6ENF3000	M 300 OHM F 1/10W
J830	ERD25TCO	C 0 OHM 1/4W	R18	ERDS1FJ273	C 27K OHM J 1/2W
J831	ERD25TCO	C 0 OHM 1/4W	R19	ERJ6ENF4702	M 47K OHM F 1/10W
J832	ERD25TCO	C 0 OHM 1/4W	R20	ERJ6ENF4702	M 47K OHM F 1/10W
J833	ERD25TCO	C 0 OHM 1/4W	R22	ERJ6GEYOROO	M 0 OHM 1/10W
J834	ERD25TCO	C 0 OHM 1/4W	R23	ERJ6GEYJ105	M 1M OHM J 1/10W
J835	ERD25TCO	C 0 OHM 1/4W	R24	ERJ6ENF4703	M 470K OHM F 1/10W
J840	ERJ8GCYOROO	M 0 OHM 1/8W	R25	ERJ6ENF1000	M 100 OHM F 1/10W
J852	ERJ6GEYOROO	M 0 OHM 1/10W	R26	ERJ6GEYJ333	M 33K OHM J 1/10W
J853	ERJ6GEYOROO	M 0 OHM 1/10W	R101	ERJ6ENF6042	M 60.4K OHM F 1/10W
J855	ERJ8GCYOROO	M 0 OHM 1/8W	R102	ERJ6ENF6982	M 69.8K OHM F 1/10W
J857	ERJ6GEYOROO	M 0 OHM 1/10W	R103	ERJ6ENF3742	M 37.4K OHM F 1/10W
J1103	ERD25TCO	C 0 OHM 1/4W	R105	ERJ6GEYJ102	M 1K OHM J 1/10W
J1107	ERD25TCO	C 0 OHM 1/4W	R106	ERJ6GEYJ681	M 680 OHM J 1/10W
J1110	ERD25TCO	C 0 OHM 1/4W	R108	ERJ6ENF1741	M 1.74K OHM F 1/10W
J1111	ERD25TCO	C 0 OHM 1/4W	R109	ERJ6ENF3321	M 3.32K OHM F 1/10W
J1121	ERD25TCO	C 0 OHM 1/4W	R111	ERJ6GEYJ272	M 2.7K OHM J 1/10W
J1122	ERD25TCO	C 0 OHM 1/4W	R113	ERJ6GEYJ272	M 2.7K OHM J 1/10W
J1124	ERD25TCO	C 0 OHM 1/4W	R114	ERJ8GCYK2R7	M 2.7 OHM K 1/8W
J1125	ERD25TCO	C 0 OHM 1/4W	R115	ERQ14AJ100	F 10 OHM J 1/4W
J1126	ERD25TCO	C 0 OHM 1/4W	R201	ERJ6GEYJ101	M 100 OHM J 1/10W
J1127	ERD25TCO	C 0 OHM 1/4W	R202	ERJ6GEYJ122	M 1.2K OHM J 1/10W
J1201	ERJ8GCYOROO	M 0 OHM 1/8W	R207	ERJ6GEYJ103	M 10K OHM J 1/10W
J1202	ERJ8GCYOROO	M 0 OHM 1/8W	R208	ERJ6GEYJ152	M 1.5K OHM J 1/10W
J1203	ERJ8GCYOROO	M 0 OHM 1/8W	R209	ERJ6GEYJ472	M 4.7K OHM J 1/10W
J1204	ERJ8GCYOROO	M 0 OHM 1/8W	R210	ERJ6GEYJ102	M 1K OHM J 1/10W
J1205	ERJ8GCYOROO	M 0 OHM 1/8W	R212	ERJ6GEYJ561	M 560 OHM J 1/10W
J1206	ERJ8GCYOROO	M 0 OHM 1/8W	R213	ERJ6GEYJ472	M 4.7K OHM J 1/10W
J1207	ERJ8GCYOROO	M 0 OHM 1/8W	R214	ERJ6GEYJ101	M 100 OHM J 1/10W
J1208	ERJ8GCYOROO	M 0 OHM 1/8W	R215	ERDS1FJ151	C 150 OHM J 1/2W
J1209	ERJ8GCYOROO	M 0 OHM 1/8W	R216	ERJ6GEYJ822	M 8.2K OHM J 1/10W
J1211	ERJ6GEYOROO	M 0 OHM 1/10W	R217	ERJ6GEYJ102	M 1K OHM J 1/10W
J1212	ERJ8GCYOROO	M 0 OHM 1/8W	R218	ERJ6GEYJ332	M 3.3K OHM J 1/10W
J1213	ERJ8GCYOROO	M 0 OHM 1/8W	R219	ERJ6GEYJ153	M 15K OHM J 1/10W
J1214	ERJ8GCYOROO	M 0 OHM 1/8W	R220	ERJ6GEYJ152	M 1.5K OHM J 1/10W
J1215	ERJ8GCYOROO	M 0 OHM 1/8W	R221	ERJ6GEYJ152	M 1.5K OHM J 1/10W
J1217	ERJ8GCYOROO	M 0 OHM 1/8W	R222	ERJ6GEYJ472	M 4.7K OHM J 1/10W
J1218	ERJ6GEYOROO	M 0 OHM 1/10W	R223	ERJ6GEYJ102	M 1K OHM J 1/10W
J1219	ERJ8GCYOROO	M 0 OHM 1/8W	R254	ERJ6GEYOROO	M 0 OHM 1/10W
J1220	ERJ8GCYOROO	M 0 OHM 1/8W	R255	ERJ6GEYOROO	M 0 OHM 1/10W
J1221	ERJ8GCYOROO	M 0 OHM 1/8W	R262	ERJ6GEYJ471	M 470 OHM J 1/10W
J1222	ERJ6GEYOROO	M 0 OHM 1/10W	R263	ERJ6GEYJ471	M 470 OHM J 1/10W
J1224	ERJ8GCYOROO	M 0 OHM 1/8W	R266	ERJ6GEYJ471	M 470 OHM J 1/10W
J1226	ERJ6GEYOROO	M 0 OHM 1/10W	R267	ERJ6GEYJ471	M 470 OHM J 1/10W
J1227	ERJ8GCYOROO	M 0 OHM 1/8W	R280	ERJ6GEYJ331	M 330 OHM J 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R282	ERJ6GEYJ331	M 330 OHM J 1/10W	R413	ERJ6ENF2211	M 2.21K OHM F 1/10W
R301	ERJ8GCVJ332	M 3.3K OHM J 1/8W	R414	ERJ6ENF2941	M 2.94K OHM F 1/10W
R302	ERJ8GCVJ102	M 1K OHM J 1/8W	R415	ERJ6ENF1912	M 19.1K OHM F 1/10W
R303	ERJ8GCVJ222	M 2.2K OHM J 1/8W	R417	ERJ6ENF8662	M 86.6K OHM F 1/10W
R304	ERJ8GCVJ222	M 2.2K OHM J 1/8W	R418	ERO25CKF1202	M 12K OHM F 1/4W
R305	ERJ8GCVJ180	M 18 OHM J 1/8W	R420	ERJ6ENF8661	M 8.66K OHM F 1/10W
R306	ERJ8GCVJ102	M 1K OHM J 1/8W	R421	ERJ6ENF8450	M 845 OHM F 1/10W
R307	ERJ6GEYJ563	M 56K OHM J 1/10W	R422	ERG1SJ271	M 270 OHM J 1W
R308	ERJ6GEYJ333	M 33K OHM J 1/10W	R423	ERX2SG1R0	M 1 OHM G 2W
R309	ERJ6GEYJ473	M 47K OHM J 1/10W	R424	ERJ8GCVJ392	M 3.9K OHM J 1/8W
R310	ERJ6GEYJ104	M 100K OHM J 1/10W	R426	ERJ6ENF3921	M 3.92K OHM F 1/10W
R311	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R427	ERDS2TJ1R0	C 1 OHM J 1/4W
R312	ERJ6GEYJ103	M 10K OHM J 1/10W	R432	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R321	ERJ6ENF1472	M 14.7K OHM F 1/10W	R440	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R323	ERJ6GEYJ184	M 180K OHM J 1/10W	R441	ERJ6GEYJ103	M 10K OHM J 1/10W
R324	ERJ6GEYJ184	M 180K OHM J 1/10W	R455	ERJ8GCVJ332	M 3.3K OHM J 1/8W
R325	ERJ6GEYJ223	M 22K OHM J 1/10W	R456	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R326	ERJ8GCVJ333	M 33K OHM J 1/8W	R457	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R327	ERJ8GCVJ104	M 100K OHM J 1/8W	R458	ERJ6GEYJ123	M 12K OHM J 1/10W
R328	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R459	ERJ6ENF6812	M 68.1K OHM F 1/10W
R329	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R501	ERJ6ENF4221	M 4.22K OHM F 1/10W
R330	ERJ8GCVJ821	M 820 OHM J 1/8W	R502	ERJ6ENF5111	M 5.11K OHM F 1/10W
R331	ERJ6ENF8451	M 8.45K OHM F 1/10W	R503	ERJ6GEYJ272	M 2.7K OHM J 1/10W
R336	ERJ6ENF9100	M 910 OHM F 1/10W	R504	ERJ6ENF2701	M 2.7K OHM F 1/10W
R350	ERQ14AJ100	F 10 OHM J 1/4W	R506	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R351	ERJ8GCVJ102	M 1K OHM J 1/8W	R509	ERJ6GEYJ393	M 39K OHM J 1/10W
R352	ERJ6ENF6041	M 6.04K OHM F 1/10W	R516	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R354	ERJ6ENF1502	M 15K OHM F 1/10W	R519	ERJ6ENF2431	M 2.43K OHM F 1/10W
R355	ERJ6ENF6982	M 69.8K OHM F 1/10W	R527	ERJ6GEYJ221	M 220 OHM J 1/10W
R356	ERJ8GCVJ112	M 1.1K OHM J 1/8W	R528	ERJ6ENF8200	M 820 OHM F 1/10W
R357	ERJ8GCVJ470	M 47 OHM J 1/8W	R529	ERJ6ENF1002	M 10K OHM F 1/10W
R358	ERDS2TJ100	C 10 OHM J 1/4W	R530	ERJ6ENF3921	M 3.92K OHM F 1/10W
R359	ERDS2TJ100	C 10 OHM J 1/4W	R531	ERDS1FJ470	C 47 OHM J 1/2W
R371	ERJ8GCVJ302	M 3K OHM J 1/8W	R532	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R372	ERDS1FJ364	C 360K OHM J 1/2W	R534	ERJ6ENF1002	M 10K OHM F 1/10W
R373	ERJ8GCVJ395	M 3.9M OHM J 1/8W	R536	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R374	ERJ8GCVJ473	M 47K OHM J 1/8W	R542	ERJ6ENF3241	M 3.24K OHM F 1/10W
R375	ERJ6ENF1271	M 1.27K OHM F 1/8W	R543	ERJ6GEYJ122	M 120K OHM J 1/10W
R376	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R544	ERJ6ENF1822	M 18.2K OHM F 1/10W
R377	ERJ6GEYJ103	M 10K OHM J 1/10W	R545	TARRS5B820J1	M 82 OHM J 5W
R378	ERJ6GEYJ102	M 1K OHM J 1/10W	R546	ERG3FJ181	M 180 OHM J 3W
R379	ERJ8GCVJ102	M 1K OHM J 1/8W	R547	ERJ6GEYJ470	M 47 OHM J 1/10W
R380	ERJ6ENF2003	M 200K OHM F 1/10W	R548	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R381	ERJ6GEYJ102	M 1K OHM J 1/10W	R549	ERG1SJ561	M 560 OHM J 1W
R382	ERJ6GEYJ152	M 1.5K OHM J 1/10W	R550	ERQ14AJR47HK	F 0.47 OHM J 1/4W
R383	ERDS1FJ151	C 150 OHM J 1/2W	R551	ERX2SJ1R8	M 1.8 OHM J 2W
R384	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R552	ERX2SJ1R8	M 1.8 OHM J 2W
R385	ERJ6ENF6342	M 63.4K OHM F 1/10W	R553	ERJ6GEYJ153	M 15K OHM J 1/10W
R386	ERDS1FJ104	C 100K OHM J 1/2W	R554	ERG3FJ120	M 12 OHM J 3W
R387	ERJ6GEYJ103	M 10K OHM J 1/10W	R560	ERDS1FJ472	C 4.7K OHM J 1/2W
R388	ERDS1FJ125	C 1.2M OHM J 1/2W	R561	ERJ6GEYJ100	M 10 OHM J 1/10W
R389	ERJ6GEYJ103	M 10K OHM J 1/10W	R563	ERDS1FJ472	C 4.7K OHM J 1/2W
R390	ERG1SJ473	M 47K OHM J 1W	R564	ERJ6GEYJ100	M 10 OHM J 1/10W
R395	ERDS1FJ103	C 10K OHM J 1/2W	R566	ERDS1FJ472	C 4.7K OHM J 1/2W
R400	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R567	ERJ6GEYJ100	M 10 OHM J 1/10W
R401	ERJ6GEYJ470	M 47 OHM J 1/10W	R571	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R402	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R572	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R405	ERJ6ENF6811	M 6.81K OHM F 1/10W	R573	ERDS1FJ271	C 270 OHM J 1/2W
R406	ERJ6ENF1132	M 11.3K OHM F 1/10W	R574	ERDS1FJ821	C 820 OHM J 1/2W
R407	ERJ8GCVJ103	M 10K OHM J 1/8W	R580	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R408	ERJ6ENF1202	M 12K OHM F 1/10W	R583	ERDS2TJ101	C 100 OHM J 1/4W
R412	ERJ6ENF7321	M 7.32K OHM F 1/10W	R584	ERDS2TJ101	C 100 OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R587	ERDS2TJ332	C 3.3K OHM J 1/4W	R719	ERJ6GEYJ103	M 10K OHM J 1/10W
R588	TARRS5B150J2	M 15 OHM J 5W	R720	ERJ6GEYJ104	M 100K OHM J 1/10W
R589	TARRS5B150J2	M 15 OHM J 5W	R801	ERC12AGK394	S 390K OHM K 1/2W
R599	ERQ12HJ220	F 22 OHM J 1/2W	R802	ERTD6ZFL120P	THERMISTOR
R601	ERJ8GICYJ103	M 10K OHM J 1/8W	R803	TAP102Q9R0	POSISTOR
R602	ERQ14AJ100	F 10 OHM J 1/4W	R804	ERDS1FJ224	C 220K OHM J 1/2W
R603	ERD25FJ100K	C 10 OHM J 1/4W	R805	ERDS1FJ224	C 220K OHM J 1/2W
R604	ERJ6GEYJ125	M 1.2M OHM J 1/10W	R806	ERG2SJ333	M 33K OHM J 2W
R605	ERD25FJ100K	C 10 OHM J 1/4W	R807	ERDS1FJ334	C 330K OHM J 1/2W
R610	ERJ8GICYJ154	M 150K OHM J 1/8W	R808	TARRS3B473J2	M 47K OHM J 3W
R620	ERJ8GICYJ104	M 100K OHM J 1/8W	R809	ERG25J183	M 18K OHM J 2W
R644	ERD25FJ100K	C 10 OHM J 1/4W	R810	ERJ8GICYJ224	M 220K OHM J 1/8W
R646	ERD25FJ470K	C 47 OHM J 1/4W	R811	ERJ8GICYJ224	M 220K OHM J 1/8W
R650	ERJ6ENF3921	M 3.92K OHM F 1/10W	R812	ERQ12AJ4R7	F 4.7 OHM J 1/2W
R651	ERJ6ENF3921	M 3.92K OHM F 1/10W	R813	ERW2PKR22	W 0.22 OHM K 2W
R652	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R814	ERW2PKR22	W 0.22 OHM K 2W
R653	ERJ6ENF4531	M 4.53K OHM F 1/10W	R815	ERJ8GICYJ222	M 2.2K OHM J 1/8W
R654	ERDS1FJ274	C 270K OHM J 1/2W	R816	ERJ8GICYJ222	M 2.2K OHM J 1/8W
R655	ERJ6GEYOR00	M 0 OHM 1/10W	R817	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R656	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R818	ERD25FJ560K	C 56 OHM J 1/4W
R657	ERJ6GEYJ153	M 15K OHM J 1/10W	R819	ERJ6GEYJ561	M 560 OHM J 1/10W
R658	ERJ6GEYJ273	M 27K OHM J 1/10W	R821	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R659	ERJ6ENF9091	M 9.09K OHM F 1/10W	R822	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R660	ERJ8GICYJ393	M 39K OHM J 1/8W	R823	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R662	ERJ6GEYJ103	M 10K OHM J 1/10W	R824	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R663	ERJ6ENF2492	M 24.9K OHM F 1/10W	R825	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R664	ERJ6ENF1502	M 15K OHM F 1/10W	R826	ERJ8ENF8202	M 82K OHM F 1/8W
R665	ERDS1FJ122	C 1.2K OHM J 1/2W	R827	ERJ8GICYJ470	M 47 OHM J 1/8W
R667	ERJ6GEYJ273	M 27K OHM J 1/10W	R828	ERDS1FJ274	C 270K OHM J 1/2W
R669	ERJ6GEYJ334	M 330K OHM J 1/10W	R829	ERJ8GICYJ223	M 22K OHM J 1/8W
R671	ERJ6GEYJ221	M 220 OHM J 1/10W	R830	ERDS1FJ103	C 10K OHM J 1/2W
R674	ERJ6GEYJ103	M 10K OHM J 1/10W	R831	ERJ6GEYJ102	M 1K OHM J 1/10W
R675	ERJ6GEYJ103	M 10K OHM J 1/10W	R832	ERJ6GEYJ220	M 22 OHM J 1/10W
R676	ERJ8GICYJ101	M 100 OHM J 1/8W	R833	ERD25FJ223K	C 22K OHM J 1/4W
R677	ERJ6GEYJ561	M 560 OHM J 1/10W	R834	ERD25FJ122K	C 1.2K OHM J 1/4W
R678	ERJ6GEYJ182	M 1.8K OHM J 1/10W	R835	ERQ12AJ2R2	F 2.2 OHM J 1/2W
R680	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R841	ERJ6GEYJ473	M 47K OHM J 1/10W
R681	ERJ6GEYJ391	M 390 OHM J 1/10W	R842	ERG15J223	M 22K OHM J 1W
R689	ERJ6GEYJ102	M 1K OHM J 1/10W	R843	ERJ8GICYJ223	M 22K OHM J 1/8W
R690	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R844	ERJ6GEYJ271	M 270 OHM J 1/10W
R691	ERJ8GICYOR00	M 0 OHM 1/8W	R846	ERJ6GEYJ223	M 22K OHM J 1/10W
R692	ERJ6ENF6192	M 61.9K OHM F 1/10W	R847	ERX25J1R8	M 1.8 OHM J 2W
R693	ERJ6ENF9091	M 9.09K OHM F 1/10W	R849	ERJ6GEYJ102	M 1K OHM J 1/10W
R695	ERJ8ENF3903	M 390K OHM F 1/8W	R850	ERDS1FJ221	C 220 OHM J 1/2W
R696	ERDS1FJ274	C 270K OHM J 1/2W	R851	ERJ6GEYJ102	M 1K OHM J 1/10W
R697	ERDS1FJ564	C 560K OHM J 1/2W	R852	ERDS1FJ221	C 220 OHM J 1/2W
R698	ERDS1FJ225	C 2.2M OHM J 1/2W	R853	ERJ6GEYJ102	M 1K OHM J 1/10W
R699	EROS1CKF7502	M 75K OHM F 1/2W	R854	ERDS1FJ182	C 1.8K OHM J 1/2W
R701	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R855	ERDS1FJ182	C 1.8K OHM J 1/2W
R702	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R856	ERJ6GEYJ103	M 10K OHM J 1/10W
R704	ERJ6GEYJ182	M 1.8K OHM J 1/10W	R857	ERDS1FJ122	C 1.2K OHM J 1/2W
R705	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R858	ERJ8GICYJ103	M 10K OHM J 1/10W
R706	ERJ6GEYJ101	M 100 OHM J 1/10W	R859	ERDS1FJ222	C 2.2K OHM J 1/2W
R707	ERJ6GEYJ103	M 10K OHM J 1/10W	R860	ERJ6GEYJ102	M 1K OHM J 1/10W
R708	ERJ6GEYJ124	M 120K OHM J 1/10W	R861	ERQ12AJR33HK	F 0.33 OHM J 1/2W
R709	ERJ6GEYJ101	M 100 OHM J 1/10W	R862	ERQ12AJR47	F 0.47 OHM J 1/2W
R710	ERJ6GEYJ823	M 82K OHM J 1/10W	R863	ERQ12AJR47	F 0.47 OHM J 1/2W
R711	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R864	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R714	ERJ6ENF1541	M 1.54K OHM F 1/10W	R865	ERQ12AJR12HK	F 0.12 OHM J 1/2W
R715	ERJ6ENF5620	M 562 OHM F 1/10W	R866	ERG15J270	M 27 OHM J 1W
R717	ERDS1FJ332	C 3.3K OHM J 1/2W	R867	ERG15J393	M 39K OHM J 1W
R718	ERDS1FJ332	C 3.3K OHM J 1/2W	R868	ERQ12AJR47	F 0.47 OHM J 1/2W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R869	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R961	ERJ6GEYOR00	M 0 OHM 1/10W
R870	ERJ6GEYJ102	M 1K OHM J 1/10W	R962	ERJ6GEYJ102	M 1K OHM J 1/10W
R871	ERJ6ENF4991	M 4.99K OHM F 1/10W	R963	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R872	ERJ6ENF1822	M 18.2K OHM F 1/10W	R964	ERJ6GEYJ102	M 1K OHM J 1/10W
R873	ERJ6ENF4222	M 42.2K OHM F 1/10W	R965	ERJ8GCYJ102	M 1K OHM J 1/8W
R874	ERJ6ENF2211	M 2.21K OHM F 1/10W	R966	ERJ8GCYJ102	M 1K OHM J 1/8W
R875	ERJ6ENF7871	M 7.87K OHM F 1/10W	R967	ERJ8GCYJ102	M 1K OHM J 1/8W
R876	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R968	ERJ8GCYJ102	M 1K OHM J 1/8W
R877	ERJ6GEYJ753	M 75K OHM J 1/10W	R969	ERJ8GCYJ102	M 1K OHM J 1/8W
R878	ERJ6GEYOR00	M 0 OHM 1/10W	R970	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R879	ERG1SJ683	M 68K OHM J 1W	R971	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R880	ERJ6ENF1211	M 1.21K OHM F 1/10W	R972	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R881	ERJ6ENF1821	M 1.82K OHM F 1/10W	R973	ERJ6GEYJ101	M 100 OHM J 1/10W
R885	ERJ6GEYOR00	M 0 OHM 1/10W	R974	ERJ6GEYJ101	M 100 OHM J 1/10W
R886	ERJ6GEYJ473	M 47K OHM J 1/10W	R975	ERJ6GEYJ101	M 100 OHM J 1/10W
R888	ERJ6GEYJ103	M 10K OHM J 1/10W	R976	ERJ6GEYJ473	M 47K OHM J 1/10W
R889	ERJ6GEYJ391	M 390 OHM J 1/10W	R977	ERJ8GCYJ473	M 47K OHM J 1/8W
R890	ERJ6GEYOR00	M 0 OHM 1/10W	R978	ERJ6GEYJ101	M 100 OHM J 1/10W
R891	ERDS1FJ473	C 47K OHM J 1/2W	R979	ERJ6GEYJ101	M 100 OHM J 1/10W
R892	ERJ6ENF4121	M 4.12K OHM F 1/10W	R980	ERDS1FJ151	C 150 OHM J 1/2W
R893	ERJ6GEYOR00	M 0 OHM 1/10W	R981	ERJ6GEYJ102	M 1K OHM J 1/10W
R894	ERDS1FJ183	C 18K OHM J 1/2W	R982	ERJ6GEYJ102	M 1K OHM J 1/10W
R895	ERJ8GCYJ391	M 390 OHM J 1/8W	R983	ERJ6GEYJ102	M 1K OHM J 1/10W
R896	ERJ6GEYJ103	M 10K OHM J 1/10W	R984	ERJ6GEYJ102	M 1K OHM J 1/10W
R897	ERJ6GEYJ102	M 1K OHM J 1/10W	R985	ERJ6GEYJ102	M 1K OHM J 1/10W
R898	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R986	ERJ6GEYJ103	M 10K OHM J 1/10W
R899	ERJ6GEYJ183	M 18K OHM J 1/10W	R987	ERJ6GEYJ102	M 1K OHM J 1/10W
R900	ERJ6GEYJ683	M 68K OHM J 1/10W	R988	ERJ6GEYJ102	M 1K OHM J 1/10W
R901	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R989	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R902	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1001	ERO25CKF76R8	M 76.8 OHM F 1/4W
R903	ERJ6GEYJ101	M 100 OHM J 1/10W	R1002	ERJ6GEYJ470	M 47 OHM J 1/10W
R904	ERJ6GEYJ101	M 100 OHM J 1/10W	R1011	ERO25CKF76R8	M 76.8 OHM F 1/4W
R905	ERJ6GEYJ331	M 330 OHM J 1/10W	R1012	ERJ6GEYJ470	M 47 OHM J 1/10W
R906	ERJ6GEYJ331	M 330 OHM J 1/10W	R1014	ERJ6GEYJ680	M 68 OHM J 1/10W
R907	ERJ6GEYOR00	M 0 OHM 1/10W	R1015	ERJ6GEYOR00	M 0 OHM 1/10W
R908	ERDS2TJ106	C 10M OHM J 1/4W	R1020	ERJ6GEYJ330	M 33 OHM J 1/10W
R909	ERJ6GEYJ153	M 15K OHM J 1/10W	R1021	ERJ6GEYJ330	M 33 OHM J 1/10W
R912	ERJ8GCYJ153	M 15K OHM J 1/8W	R1022	ERJ6GEYJ220	M 22 OHM J 1/10W
R913	ERJ8GCYJ103	M 10K OHM J 1/8W	R1023	ERJ8GCYJ391	M 390 OHM J 1/8W
R916	ERJ8GCYJ103	M 10K OHM J 1/8W	R1025	ERDS1FJ121	C 120 OHM J 1/2W
R917	ERJ8GCYJ182	M 1.8K OHM J 1/8W	R1030	ERJ6ENF3570	M 357 OHM F 1/10W
R918	ERJ8GCYJ101	M 100 OHM J 1/8W	R1031	ERJ6ENF39R0	M 39 OHM F 1/10W
R919	ERJ6GEYJ391	M 390 OHM J 1/10W	R1032	ERJ6GEYJ822	M 8.2K OHM J 1/10W
R930	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1033	ERJ6ENF2701	M 2.7K OHM F 1/10W
R931	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R1035	ERJ6GEYJ154	M 150K OHM J 1/10W
R932	ERJ6GEYJ103	M 10K OHM J 1/10W	R1037	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R933	ERJ8GCYJ683	M 68K OHM J 1/8W	R1038	ERJ6GEYJ122	M 1.2K OHM J 1/10W
R934	ERJ6GEYJ103	M 10K OHM J 1/10W	R1042	ERDS2TJ102	C 1K OHM J 1/4W
R935	ERJ8GCYJ393	M 39K OHM J 1/8W	R1043	ERDS1FJ330	C 33 OHM J 1/2W
R936	ERJ8GCYJ103	M 10K OHM J 1/8W	R1052	ERDS2TJ224	C 220K OHM J 1/4W
R937	ERJ8GCYJ393	M 39K OHM J 1/8W	R1055	ERJ6ENF2102	M 21K OHM F 1/10W
R950	ERJ6GEYJ153	M 15K OHM J 1/10W	R1056	ERJ6ENF6982	M 69.8K OHM F 1/10W
R951	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1101	ERO25CKF76R8	M 76.8 OHM F 1/4W
R952	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1102	ERJ6GEYJ470	M 47 OHM J 1/10W
R953	ERJ6GEYJ102	M 1K OHM J 1/10W	R1111	ERO25CKF76R8	M 76.8 OHM F 1/4W
R954	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R1112	ERJ6GEYJ470	M 47 OHM J 1/10W
R955	ERJ6GEYJ102	M 1K OHM J 1/10W	R1114	ERJ6GEYJ680	M 68 OHM J 1/10W
R956	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R1120	ERJ6GEYJ330	M 33 OHM J 1/10W
R957	ERJ6GEYJ102	M 1K OHM J 1/10W	R1121	ERJ6GEYJ330	M 33 OHM J 1/10W
R958	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R1122	ERJ6GEYJ220	M 22 OHM J 1/10W
R959	ERJ6GEYJ102	M 1K OHM J 1/10W	R1123	ERJ8GCYJ391	M 390 OHM J 1/8W
R960	ERJ6GEYJ333	M 33K OHM J 1/10W	R1125	ERDS1FJ121	C 120 OHM J 1/2W

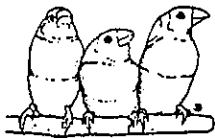
Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R1130	ERJ6ENF3570	M 357 OHM F 1/10W	R1403	ERJ6ENF6811	M 6.81K OHM F 1/10W
R1131	ERJ6ENF47R5	M 47.5 OHM F 1/10W	R1404	ERJ6ENF2212	M 22.1K OHM F 1/10W
R1132	ERJ6GEYJ822	M 8.2K OHM J 1/10W	R1405	ERJ6ENF1212	M 12.1K OHM F 1/10W
R1133	ERJ6ENF2701	M 2.7K OHM F 1/10W	R1406	ERJ6GEYJ101	M 100 OHM J 1/10W
R1135	ERJ6GEYJ154	M 150K OHM J 1/10W	R1408	ERJ6ENF1002	M 10K OHM F 1/10W
R1137	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R1409	ERJ6ENF1002	M 10K OHM F 1/10W
R1138	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R1501	ERJ6GEYJ473	M 47K OHM J 1/10W
R1142	ERDS2TJ102	C 1K OHM J 1/4W		OTHERS	
R1143	ERDS1FJ330	C 33 OHM J 1/2W		THE902N	D-SUB SCREW
R1152	ERDS2TJ224	C 220K OHM J 1/4W		THTFO01	SCREW
R1155	ERJ6ENF2102	M 21K OHM F 1/10W		TMKK001	TAPE(FOR TCO PCB)
R1156	ERJ6ENF6982	M 69.8K OHM F 1/10W		TMK87919	INSULATION SHEET
R1201	ERO25CKF76R8	M 76.8 OHM F 1/4W		TSC8908-0	FERRITE CORE
R1202	ERJ6GEYJ470	M 47 OHM J 1/10W		TUCC5095	AC SOCKET BRACKET
R1211	ERO25CKF76R8	M 76.8 OHM F 1/4W		TUWFO08	BNC TERMINAL BRACKET
R1212	ERJ6GEYJ470	M 47 OHM J 1/10W		XTV3+8J	SCREW
R1214	ERJ6GEYJ680	M 68 OHM J 1/10W	Δ F801	XBA215T4.0AH	FUSE(4.0A)
R1215	ERJ6GEYOR00	M 0 OHM 1/10W	FG1	TJC85341	EARTH LUG
R1220	ERJ6GEYJ330	M 33 OHM J 1/10W	FG2	TJC85341	EARTH LUG
R1221	ERJ6GEYJ330	M 33 OHM J 1/10W	FG3	TJC85341	EARTH LUG
R1222	ERJ6GEYJ220	M 22 OHM J 1/10W	FS801	TJC85502T	FUSE HOLDER
R1223	ERJ8GCYJ391	M 390 OHM J 1/8W	FS802	TJC85502T	FUSE HOLDER
R1225	ERDS1FJ121	C 120 OHM J 1/2W	JC101	TJC85341	EARTH LUG
R1230	ERJ6ENF3570	M 357 OHM F 1/10W	JC102	TJC85341	EARTH LUG
R1231	ERJ6ENF39R0	M 39 OHM F 1/10W	N11	EMCS0464M	4P CONNECTOR
R1232	ERJ6GEYJ822	M 8.2K OHM J 1/10W	N11A-	TSXX027	2P/3P CONNECTOR ASSY
R1233	ERJ6ENF2701	M 2.7K OHM F 1/10W	N101	TJS118590	2P CONNECTOR
R1235	ERJ6GEYJ154	M 150K OHM J 1/10W	N104	TJC85342T	LUG TERMINAL
R1237	ERJ6GEYJ122	M 1.2K OHM J 1/10W	N105-	TXAJTV2P749A	2P CONNECTOR ASSY
R1238	ERJ6GEYJ122	M 1.2K OHM J 1/10W	N106	TJC85342T	LUG TERMINAL
R1242	ERDS2TJ102	C 1K OHM J 1/4W	N110	TJSF10400	BNC TERMINAL
R1243	ERDS1FJ330	C 33 OHM J 1/2W	N111	TJSF10400	BNC TERMINAL
R1252	ERDS2TJ224	C 220K OHM J 1/4W	N112	TJSF10400	BNC TERMINAL
R1255	ERJ6ENF2102	M 21K OHM F 1/10W	N113	TJSF10400	BNC TERMINAL
R1256	ERJ6ENF6982	M 69.8K OHM F 1/10W	N114	TJSF10400	BNC TERMINAL
R1301	ERJ6GEYJ222	M 2.2K OHM J 1/10W	N120	TJSF10515	15P CONNECTOR(D-SUB)
R1302	ERJ6GEYJ683	M 68K OHM J 1/10W	Δ N381	TJSF08600	CRT SOCKET
R1303	ERJ6GEYJ474	M 470K OHM J 1/10W	N382	TJCD003	TERMINAL
R1306	ERJ6GEYJ222	M 2.2K OHM J 1/10W	Δ N801	TJS8A9361	AC SOCKET
R1307	ERJ6GEYJ561	M 560 OHM J 1/10W	N803	TJC85342T	LUG TERMINAL
R1310	ERJ6GEYJ101	M 100 OHM J 1/10W	N861	EMCS0264M	2P CONNECTOR
R1311	ERJ6GEYJ331	M 330 OHM J 1/10W	N901	EMCS0451ML	4P CONNECTOR(L-TYPE)
R1313	ERJ6ENF2152	M 21.5K OHM F 1/10W	N1001A	TJSF05207	7P CONNECTOR
R1314	ERJ6ENF4871	M 4.87K OHM F 1/10W	N1001BT	TJSF05207	7P CONNECTOR
R1317	ERJ6GEYJ222	M 2.2K OHM J 1/10W	N1002AT	TJSF07910	10P CONNECTOR(L-TYPE)
R1318	ERJ6GEYJ101	M 100 OHM J 1/10W	N1002BT	TJSF08010	10P CONNECTOR
R1330	ERJ6GEYJ474	M 470K OHM J 1/10W	N1003AT	TJSF07818	18P CONNECTOR
R1331	ERJ6GEYJ222	M 2.2K OHM J 1/10W	N1003BT	TJSF07818	18P CONNECTOR
R1332	ERJ6ENF3301	M 3.3K OHM F 1/10W	N510-1	TEL302-9	TERMINAL
R1333	ERJ6GEYJ222	M 2.2K OHM J 1/10W	N510-2	TEL302-9	TERMINAL
R1334	ERJ6GEYJ222	M 2.2K OHM J 1/10W	N510-3	TEL302-9	TERMINAL
R1335	ERJ6GEYJ152	M 1.5K OHM J 1/10W	N510-4	TEL302-9	TERMINAL
R1337	ERJ6GEYJ102	M 1K OHM J 1/10W	N802-1	TEL302-9	TERMINAL
R1338	ERJ6GEYJ102	M 1K OHM J 1/10W	N802-2	TEL302-9	TERMINAL
R1339	ERJ6GEYJ223	M 22K OHM J 1/10W	Δ PC821	LTV-817B	PHOTO COUPLER
R1341	ERJ6GEYJ101	M 100 OHM J 1/10W	RL571	TSE80892	RELAY
R1344	ERJ6ENF1582	M 15.8K OHM F 1/10W	Δ RL801	TSEH0004	RELAY
R1345	ERJ6ENF1002	M 10K OHM F 1/10W	S290	TAG10003	SPARK GAP
R1346	ERJ6ENF3322	M 33.2K OHM F 1/10W	S291	TAX125X103MA	VARISTOR
R1350	ERDS1FJ562	C 5.6K OHM J 1/2W	S371	TGPS152GL	SPARK GAP
R1401	ERJ6GEYJ331	M 330 OHM J 1/10W	S381	TAX125X103MA	VARISTOR
R1402	ERJ6ENF3321	M 3.32K OHM F 1/10W			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
S382	ERZC05DK201U	VARISTOR			
S601	TAGDSP141TT	SPARK GAP			
S1001	TAGDSP201MF	SPARK GAP			
S1101	TAGDSP201MF	SPARK GAP			
S1201	TAGDSP201MF	SPARK GAP			
△ SW801	ESB91234A	SWITCH(POWER)			
SW901	EVQPBO05K	SWITCH			
SW902	EVQPBO05K	SWITCH			
SW903	EVQPBO05K	SWITCH			
SW904	EVQPBO05K	SWITCH			
TH1301	TAR28GJ154D	THERMISTOR			
TP1	TEL302-9	TERMINAL			
TP2	TEL302-9	TERMINAL			
TP3	TEL302-9	TERMINAL			
TP4	TEL302-9	TERMINAL			
TP5	TEL302-9	TERMINAL			
TP6	TEL302-9	TERMINAL			
X901	TSS2165TM	CRYSTAL OSCILLATOR			



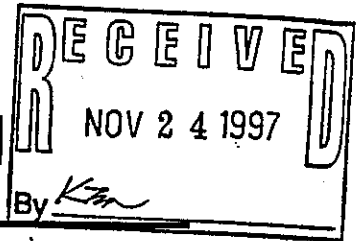
ViewSonic[®] Corporation

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Service Bulletin

SB # 17PS-2_002



To : All authorized service providers	Date: November 4, 1997
Model # : 17PS-2	
Subject: Product service information	
Requested by: Rommel Bugay	From : Tommy W. Jue QC Field Engineer

Symptom:

Unit exhibits kinked and noisy video.

Cause(s):

Defective component in the μ PC1833 HV processing integrated circuit.

Location: C502

Part: 220 μ F/16V electrolytic capacitor

The capacitor serves as the filter capacitor for the 9V power source for IC501 referred to in the above.

Supplementary Information:

Quality Control wishes to thank Jason Tang, lead repair technician, for this information.

If you have any questions regarding this service bulletin, please contact the Quality Control Department (909)444-8727.

Don't do anything

Jue 11/4