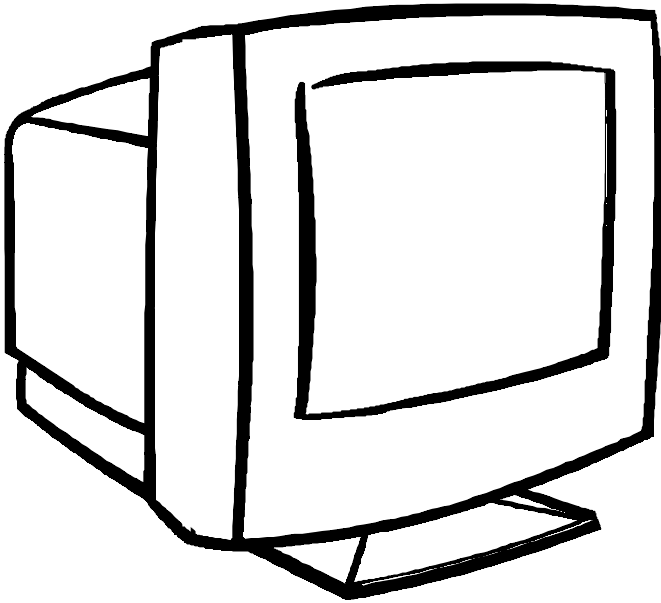


SERVICE MANUAL

COLOR MONITOR

SPECTRUM 9K SERIES (P990T)



AOC

41A50-117

TABLE OF CONTENTS

PAGE		
1.	SPECIFICATIONS	3-4
2.	PRECAUTION AND NOTICES	5
2-1	SAFETY PRECAUTIONS	5
2-2	PRODUCT SAFETY NOTICE	5
2-3	SERVICE NOTES	5
2-4	HIGH VOLTAGE WARNING	6
3.	OPERATING INSTRUCTIONS	7
4.	ADJUSTMENT	8
4-1	ADJUSTMENT CONDITIONS AND PRECAUTIONS	8
4-2	MAIN ADJUSTMENTS	8
4-3	ADJUSTMENT METHOD	8-11
5.	CIRCUIT DESCRIPTION	11-14
6.	TROUBLE SHOOTING CHART	15
6-1	NO RASTER, CRT RELATIVE CIRCUIT PROBLEMS	15
6-2	ABNORMAL DISPLAY	17
6-3	NO BLANKING	18
6-4	HOR. /OSC /DEF /HV CIRCUIT FAULT	18
6-5	ABNORMAL HORIZONTAL DEFLECTION	19
6-6	ABNORMAL VERTICAL SCANNING	20
6-7	SIDE-PIN CUSHION DISTORTION	20
6-8	POOR FOCUS	21
6-9	NO SOUND (FOR AUDIO MODEL ONLY).....	21
6-10	POWER SUPPLY TROUBLE SHOOTING CHART	22
7.	MECHANICAL OF CABINET FRONT DIS-ASSEMBLY.....	23
8.	PARTS LISTING	24
9.	BLOCK DIAGRAM (DEFLECTION)	45
10.	IC BLOCK DIAGRAMS.....	46
11.	PCB LAYOUT	50
12.	SCHEMATIC DIAGRAM	52

1. SPECIFICATIONS FOR 9K SERIES COLOR MONITOR

1. CRT : 48.2CM(19") 90 Deflection, 29mm Neck,Pure flat 0.25mm Dot Pitch, Non-Glare Screen
2. Viewable image Size: 45.7CM (18") diagonal
3. Display Color: Unlimited Colors
4. External Controls:
Power On/Off, OSD key, Function knob: Contrast, Brightness, H-Size, H-Center, V-Size, V-Center, ZOOM, Pincushion, Trapezoid, Pin-Balance, Parallelogram, Rotation, Moire Reduce, Recall, Degaussing, Color Temperature, Volume. (For 9KlrA Model)

5. Input Video Signal

	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5
	RGB Analog	RGB Analog	RGB Analog	RGB Analog	RGB Analog
Horiz. Sync:	TTL Level	TTL Level	TTL Level	TTL Level	TTL Level
	Negative	Negative	Positive	Positive	Positive
Vert. Sync:	TTL Level	TTL Level	TTL Level	TTL Level	TTL Level
	Positive	Negative	Positive	Positive	Positive
Horizontal:	640 (H)	720 (H)	800 (H)	800 (H)	1024 (H)
Vertical :	480 (V)	400 (V)	600(V)	600 (V)	768 (V)
Fh (kHz):	31.47	31.47	46.875	53.67	60.02
Fv (Hz) :	60	70	75	85	75

	Mode 6	Mode 7	Mode 8	Mode 9
	RGB Analog	RGB Analog	RGB Analog	RGB Analog
Horiz. Sync:	TTL Level	TTL Level	TTL Level	TTL Level
	Positive	Positive	Positive	Positive
Vert. Sync:	TTL Level	TTL Level	TTL Level	TTL Level
	Positive	Positive	Positive	Positive
Horizontal:	1024 (H)	1280 (H)	1280 (H)	1600 (H)
Vertical :	768 (V)	1024 (V)	1024 (V)	1200 (V)
Fh (kHz):	68.6	79.6	91.1	93.8
Fv (Hz) :	85	75	85	75

6. Display Size
Horizontal: 346 mm
Vertical: 260 mm
7. Scanning Frequencies
Horizontal: 30KHz ~ 96KHz
Vertical: 50 Hz ~ 160 Hz
8. Factory Preset Timings: 9
User Timings: 20
9. Misconvergence
Center: 0.3 mm Max.
Corner: 0.4 mm Max.
10. Video Dot Rate: 202 MHz

11. Power Source:
Switching Mode Power Supply
AC 100 ~240V, 50/60Hz Universal Type
12. Operating Temperature: 0°C to 40°C Ambient
13. Humidity : 10% to 85% Relative, Non-Condensing
14. Weight: 16.0 Kgs(Net), 19.5Kgs(Gross) for 9Klr
16.8 Kgs(Net), 20.3Kgs(Gross) for 9KlrA
15. Dimensions Monitor:
Carton: 580(W) × 537(H) × 584(D) mm
Monitor: 460(W) × 466(H) × 470(D) mm for 9Klr
460(W) × 503(H) × 470(D) mm for 9KlrA
16. External Connection :
15 Pin D-type Connector AC Power Cord
17. Speaker: (for 9KlrA only)
Rate power: 5W (per channel)
Impedance: 16 Ω
18. Regulations: UL, CSA, FDA, FCC, TÜV/GS, CE, MPR-II
TCO'99

2. PRECAUTIONS AND NOTICES

2-1 SAFETY PRECAUTIONS

1. Observe all caution and safety related notes located inside the display cabinet.
2. Operation of the display with the cover removed, may cause a serious shock hazard from the display power supply. Work on the display should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment.
3. Do not install, remove or handle the picture tube in any manner unless shatter-proof goggles are worn. People who are not so equipped should be kept away while handling picture tube. Keep picture tube away from the body while handling.
4. The picture tube is constructed to limit X-RAY radiation to 0.5 mR/HR. For continued protection, use the designated replacement tube only, and adjust the voltages so that the designated maximum rating at the anode will not be exceeded.
5. Before returning a serviced display to the customer, a thorough safety test must be performed to verify that the display is safe to operate without danger or shock. Always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as screw heads.

Test method for current leakage is described as follow.

- (a) Plug the AC line cord directly into rated AC outlet (do not use a line isolation transformer during this check).
- (b) Use an AC voltmeter having 5000 ohms per volt or with more sensitivity in the following manner: Connect a 1500 ohms 10 Watt resistor, paralleled by a 0.15UF, AC type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts simultaneously. Measure the AC voltage across the combination of 1500 ohms resistor and 0.15UF capacitor.
- (c) Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part.
- (d) Voltage measured must not exceed 0.5 volts RMS. This corresponds to 0.35 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

2-2 PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY radiation or other hazards.

2-3 SERVICE NOTES

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1/2W of metal oxide film resistor) in circuit board, keep the resistor about 10mm (1/2 in) away from circuit board.
3. Keep wires away from high voltage or high temperature components.
4. Keep wires in their original position so as to reduce interference.

Operation of monitor outside of cabinet or with back removed may cause a serious shock hazard. Work on this model should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis and picture tube tag when operating chassis.

Certain HV failures can increase X-ray radiation. Monitor should not be operated with HV levels exceeding the specified rating for the chassis type. The maximum operating HV specified for the chassis used in this monitor is

$$27KV \pm 1KV$$

with a line voltage of 120/240 VAC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the monitor that could cause a rise in high voltage or operating supply voltages. No changes should be made to the original design of the monitor. Components shown in the shaded areas on the schematic should be replaced with exact factory replacement parts. The use of unauthorized substitute parts may create a shock, fire or other hazard.

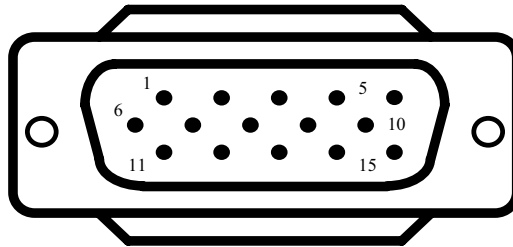
To determine the presence of high voltage, use an accurate, high impedance, HV meter connected between second anode lead and CRT tag grounding device. When servicing the High Voltage System, remove static charge from it by connecting a 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube tag and 2nd anode lead.(AC line cord disconnected from AC power outlet.)

The picture tube used in this monitor employs integral implosion protection. Replace with tube of the same type number for continue safety. Do not lift picture tube by the neck. Handle the picture tube only after discharging the high voltage completely.

3. OPERATING INSTRUCTIONS

This procedure gives you instructions for installing and using the 9K color display.

1. Position the display on the desired operation and plug the power cord into a convenient AC outlet. Three-wire power cord must be shielded and is provided as a safety precaution as it connects the chassis and cabinet to the electrical conduit ground. If the AC outlet in your location does not have provisions for the grounded type plug, the installer should attach the proper adapter to ensure a safe ground potential.
2. Connect the 15-pin color display shielded signal cable to your signal system device and lock both screws on the connector to ensure firm grounding. The connector information is as follow:



15 - Pin Color Display Signal Cable

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	RED	9.	NC
2.	GREEN	10.	GND
3.	BLUE	11.	SYNC. GND
4.	GND	12.	SDA
5.	GND	13.	HORIZ. SYNC
6.	GND-R	14.	VERT. SYNC (*VCLK)
7.	GND-G	15.	SCL
8.	GND-B		

3. Apply power to the display by turning the power switch to the "ON" position and allow about thirty seconds for display tube warm-up. The Power-On indicator lights when the display is on.
4. With proper signals feed to the display, a pattern or data should appear on the screen, adjust the brightness and contrast to the most pleasing display.
5. This monitor has power saving function following the VESA DPMS. Be sure to connect the signal cable to the PC.
6. If your 9K Series color display requires service, it must be returned with the power cord.

4. ADJUSTMENT

4-1 ADJUSTMENT CONDITIONS AND PRECAUTIONS

1. Approximately 30 minutes should be allowed for warm up before proceeding.
2. Adjustments should be undertaken only on those necessary elements since most of them have been carefully preset at the factory.

4-2 MAIN ADJUSTMENTS

NO.	FUNCTION		LOCATION	DESIGNATION
1.	14.5V ADJ		PCB - MAIN	VR901
2.	B + ADJ		PCB - MAIN	VR902
3.	SCREEN ADJ		FLY BACK TRANS	T402
4.	FOCUS ADJ		FLY BACK TRANS	T402
5.	ABL ADJ		PCB - MAIN	VR701
6.	SUB-BRIGHTNESS ADJ		PCB - MAIN	VR702
	-MENU	2	PCB - MAIN	SW103
	-UP	▶	PCB - MAIN	SW105
7.	FUNCTION ADJ	◀	PCB - MAIN	SW104
	-EXIT	1	PCB - MAIN	SW102

4-3 ADJUSTMENT METHOD

1. 14.5V, B + & HV voltage adjustment:
 - A. Chrome-2000 Signal generator or PC equivalent set mode 1, VGA 640X480 pattern 1.0 .
 - B. Connect a DC Volt meter between TP901 or D922 cathode and ground, then adjust VR901 to be 14.5VDC.
 - C. Connect a DC Volt meter between TP902 or D925 cathode and ground, then adjust VR902 to be 60.5 VDC.
 - D. Connect a DC Volt meter between TP701(G1) and ground, Brightness set to max. Then adjust VR702 to be -50 VDC.
2. Factory preset Timings Adjustment:
 - A. Press MENU Key to show OSD window press Up or Down Key to switch the functional controls.
 - B. Press the Up Key to select the "ZOOM" function, then press the MENU Key. While do not release the MENU Key until the OSD window changed to the Factory preset window.
 - C. The Factory preset window contains the following functional controls. Select one of the control. Then press the Up/Down Key to adjust it's value for the optimum picture.

FACTORY PRESET	
H: 36.51kHz	V: 51.34Hz
Vs Vc 9300 6500 Tm	
080	

	CONTRAST		H-MOIRE REDUCE
	BRIGHTNESS		V-MOIRE REDUCE
	H-CENTER		R-GAIN
	H-SIZE		G-GAIN
	V-CENTER		B-GAIN
	V-SIZE		R-BIAS
	ZOOM		G-BIAS
	TOP COMER		R-BIAS
	BOTTOM COMER	9300	COLOR TEMPERATURE
	PINCUSHION	6500	COLOR TEMPERATURE
	TRAPEZOID		DEGAUSS
	PIN-BALANCE		OSD EXIT
	PARALLELOGRAM		RETURN
	ROTATION		Vs LINEAR
Vs	SUB-V-SIZE		Vc LINEAR
Vc	SUB V-CENTER		

MENU Key to Quit the OSD window. Mean while the new setting data will be saved in the memory.

E. To switches the input signal to the other Timing Mode. Please follow step C ~ D to get the optimum picture.

F. Select the " " RETURN function and press the MENU Key, then the Factor Preset window will be returned to the original OSD window.(user's operating condition)

G. The setting data of the CONTRAST, BRIGHTNESS, PIN-BALANCE, PARALLELOGRAM, ROTATION, COLOR TEMPERATURE are common mode saved in the memory. Don't needed adjust it individual at every timing Mode and save in the memory.

H  Model select: for factory only, service engineer can't changed.

3. White Balance, Luminance adjustment:

A. Bias (Low Luminance) adjustment:

- (a) Set mode 2 640 X 480 Fh: 31KHz full white pattern.
- (b) To make the adjustment condition is under the Factory preset window.
Same as step 2-C.
- (c) Warm up more than 20 minutes.
- (d) Brightness  set to maximum. Contrast  set to min. full white pattern, then adjust FBT screen VR to make $Y = 1.0FL \pm 0.2FL$
- (e) Brightness set to raster just cutoff, adjust contrast to be 4FL, then adjust G-Bias , B-Bias , R-Bias , to make the setting value is (20), then adjust the R.G.B Bias individual to the color temperature $x = 281 \pm 10$, $y = 297 \pm 10$.

B. Gain (High light) adjustment:

- (a) Set mode 2 640 X 480 Fh: 31.5KHz full white pattern.
- (b) Brightness set to raster just cutoff and set the contrast to max.
- (c) Adjust G-Gain , B-Gain , R-Gain , to make color temperature $x = 283 \pm 10$, $y = 297 \pm 10$.

C. Recheck item A&B to make sure both of them in spec. Finally select OSD function to the 9300°K function, then press the MENU Key. To make the setting data saved in the memory.

D. The adjustment of 6500°K white Balance, May follow step A ~ C , with the $x = 313 \pm 10$, $y = 329 \pm 10$.

E. Full white luminance:

- (a) Set mode 2 640 X 480 Fh: 31.5KHz full white pattern.
- (b) Image Size : H:300±4mm V:230±4mm.
- (c) Brightness set to raster just cut off and set the contrast to max.
- (d) Adjust VR701 to the luminance at $30 FL \pm 2FL$.

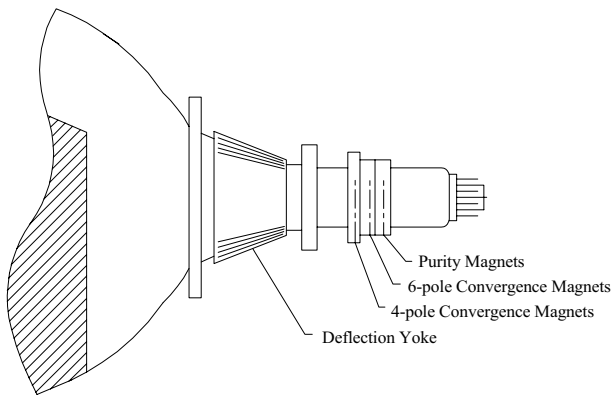
4. Focus Adjustment:

- A. Set mode 2 640 X 480 Fh: 31.5KHz with character full page.
- B. Adjust brightness to center and contrast to max.
- C. Then adjust focus VR1 to a fine vertical line.
- D. Adjust focus VR2 to a fine horizontal line.
- E. Repeat step C & D..

5. Purity Adjustment

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

RELATIVE PLACEMENT OF TYPICAL COMPONENTS



6. Convergence adjustment

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

5. CIRCUIT DESCRIPTION

5-1 MICRO CONTROLLER CIRCUIT

MICRO Controller

The IC101 contains a 6502 8-bit CPU core, 256 bytes of RAM, 16K bytes of ROM, 14 channel 8 bit PWM D/A converters, 2 channel A/D converters for key detection, one 8 bit pre-loadable base timer, internal H-sync and V-sync signals processor providing mode detection, watch-dog timer preventing system from abnormal operation, and an I2C bus interface.

H/V sync signals processor

The functions of the sync processor include polarity detection, H-SYNC & V-SYNC signals counting, Programmable SYNC signals output, free running signal generator. Pin39/Pin40 are for the H-SYNC and V-SYNC input, Pin32/Pin33 will output the same signal as input sync signal without delay, and the polarity are setting in the positive. When no signal input, the Pin32 will output a 61HZ V-SYNC free run signal. The Pin33 will output a 62.5KHz H-SYNC free run signal. for the monitor testing use.

On Screen Display Controller

The IC103 is designed for display the built-in characters or fonts onto monitor screen. The display operation is by transforming data and control information from micro controller to RAM through a serial data interface.

Pin2 is used to control the internal oscillator frequency by DC voltage input from external low pass filter (R125, C114, R161) and filter (R126, C115) is used to regulate the appropriate bias current for internal oscillator the resonate at specific dot frequency.

Pin5 is input the horizontal fly back pulse, for PLL generator tracking.

Pin6 is left floating, I2C bus is enabled. Otherwise the SPI bus is enabled.

Pin7 the external data transfer through this pin to internal display registers and control registers

Pin8 the clock-input pin is used to synchronize the data transfer.

Pin10 is input the vertical flyback pulse for synchronizing the vertical position.

Pin12 is output a blanking signal to cut off external R.G.B signals of VGA while this chip is displaying characters or windows.

Pin13, Pin14, Pin15 is used to output the OSD (B.G.R) video signal.

5-2 DEFLECTION CIRCUIT

The deflection circuit is achieved by a high performance and efficient solution IC 401 (TDA4856) for this monitor. The concept is fully DC controllable and can be used in applications with a micro-controller solutions.

The TDA 4856 provides sync. Processing with full auto sync. capability, a flexible SMPS block and an extensive set of geometry control facilities. Further the IC generates the drive waveforms for DC coupled vertical boosters to the TDA 4866 [ref Page-28].

Horizontal Oscillator

The oscillator is of the relaxation type and requires a capacitor of 10nF C403 at pin 29. The maximum oscillator frequency is determined by a resistor R403 form pin 28 to ground. A resistor R402 from pin27 to pin28 defines the frequency range.

PLL 1 Phase Detector

The phase detector is a standard one using switched current sources. It compares the middle of H-sync. with a fixed point on the oscillator saw-tooth voltage. The PLL loop filter c401, R401, C402 is connected to Pin26.

PLL2 Phase Detector

This phase detector is similar to the PLL1 detector and compares the line flyback pulse at pin 1 with the oscillator saw-tooth voltage. The PLL2 detector thus compensates for the delay in the external H-deflection circuit by adjusting the phase of the HDRV output pulses. The phase between H-flyback and H-sync can be controlled at pin30.

X-ray Protection

The X-ray protection input pin2 provides a voltage detector with a precise threshold. If the voltage exceeds this threshold for a certain time, an internal latch switches the whole IC into protection mode. In this mode several pins are forced into defined states:

Pin7 (HDRV) is floating

Pin6 (BDRV) is floating

Pin12, 13 (VOUT 1, 2) are floating

Pin16 (CLBL) provides a continuous blanking signal.

Vertical Oscillator

The vertical free –running frequency is determined by the resistor R608 at pin23 and capacitor C604 at pin24. Usually the free-running frequency should be lower than the minimum trigger frequency.

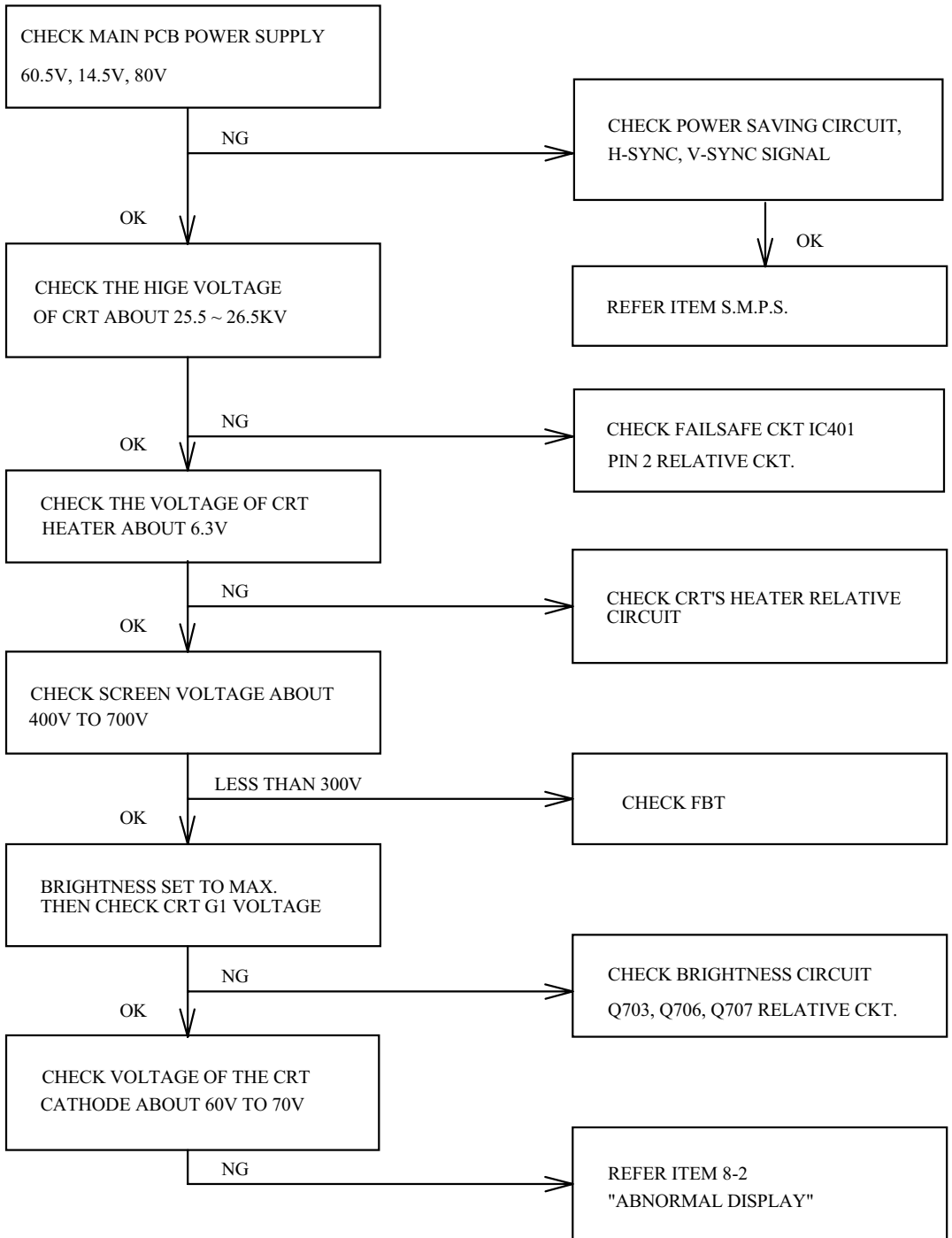
5-3 TRANSISTOR & DIODE CIRCUIT

LOCATION	FUNCTION AL DESCRIPTION
D101	For C102 Discharge
Q101	For LED Indicator Control
D418	Protection Diode for Snubber Clip Diode ZD401
D431	Protection Diode for B+ Control
D405, D424	Speed up for Q403
D406, D407	Supply a bias for D408
D408	Damping Diode and Modulation Diode
Q416	B+ MUTE
D414~ D417,D419	Buffer Diode for IC403
D421 ~ D423	Detected for Q406
Q401	B+ Mute Control
Q402	Horizontal Driver
Q403	Horizontal Out Put
Q404, Q406	A differential Amp for Drive Q405
Q405	DarlingtonTransistor for H-Size Control
Q407	Horizontal Linearity Correction Control
Q410, Q412, Q417	Horizontal S-Correction Control
Q418, Q420	Horizontal S-Correction Control
ZD601,ZD602	VF Voltage Divider
D707	Mixing Diode
D703	Buffer Diode
D704	Rectifier for 250V Supply
D705	Protection Diode for Q708

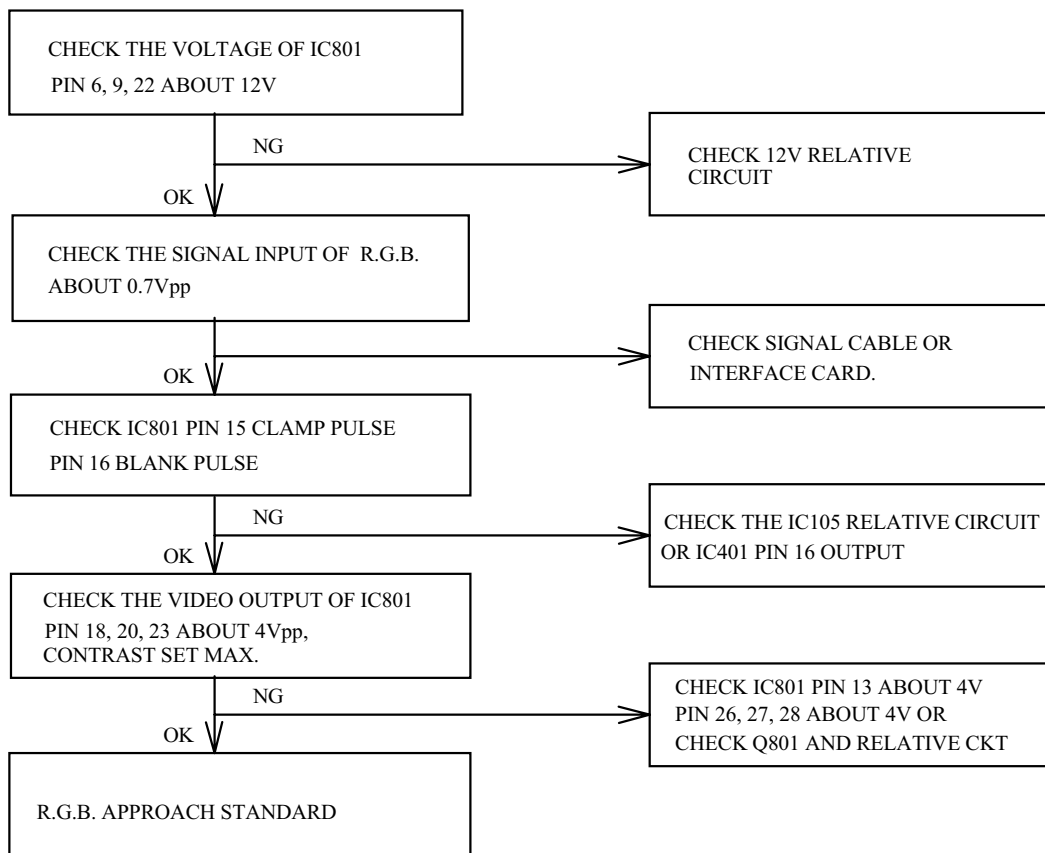
LOCATION	FUNCTION AL DESCRIPTION
D706,D708	Rectifier for -200V Supply
Q707	Picture Mute Control AMP
Q703, Q706	Brightness Control CKT
Q708	Vertical Dynamic Focus Control AMP
D901 ~ D904	Bridge Rectifier for AC Source
D909	Rectifier for Start Power Supply
D910	Clip Diode for Snubber CKT
D911	IC901 VCC Supply
D913	Speed UP for Q901
D914	Synchronous Trigger for Power Supply
D918 ~ D919	Rectifier for Output Voltage Supply
D921 ~ D923	Rectifier for Output Voltage Supply
D924	Clip Diode for Trigger CKT
D925	Rectifier for B+ Supply
D926, D927	Raster Position Control
D939	Clip Diode for Snuffer Pulse
ZD901	Protection Diode
ZD902	Protection Diode
ZD903	Protection Diode
Q901	MOS FET for Switching Power Control
Q904, Q906	Start up CKT for IC901
Q908, Q916	To Turn 6.3V Supply Off when the Off Mode is Required
Q909, Q910	To Turn 14.5V Supply Off when the Off or Suspend Mode is Required
Q911	MOS FET for B+ Control
Q912, Q915	Push Pull Driver for Q911
Q914	Pre-Amplifier for Q912, Q915
D817 ~ D819	DC Restoration for CRT Bias Adjustment
D814 ~ D816	Protection Diode for Q808, Q809, Q810, Q811, Q812, Q813
Q801	A.B.L Control
Q817 ~ Q819	DC Restoration for CRT Bias Adjustment

6.TROUBLE SHOOTING CHART

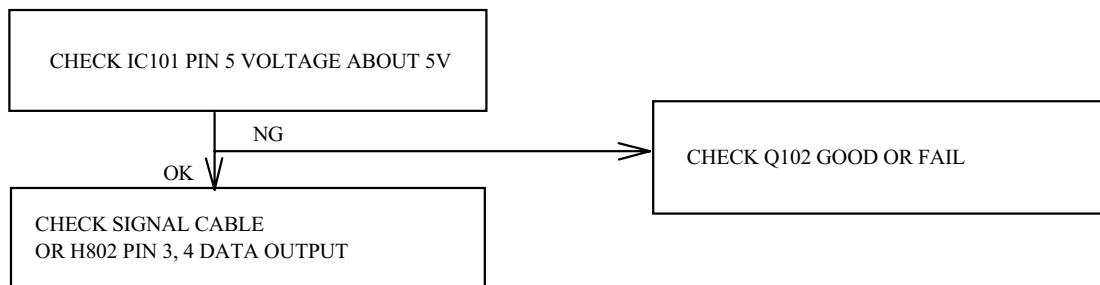
6-1 NO RASTER, CRT RELATIVE CIRCUIT PROBLEMS



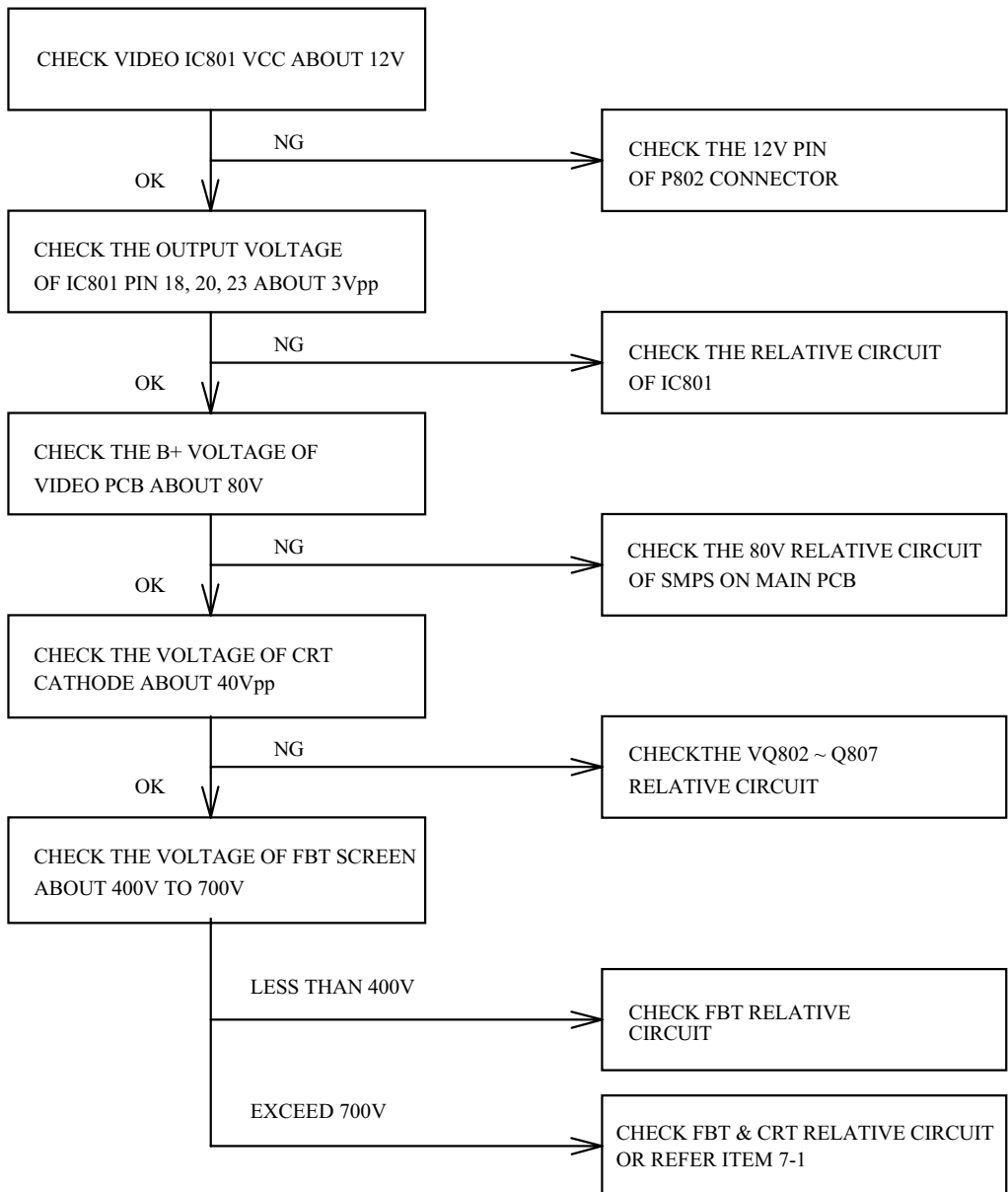
2.ABNORMAL VIDEO LEVEL ON SCREEN



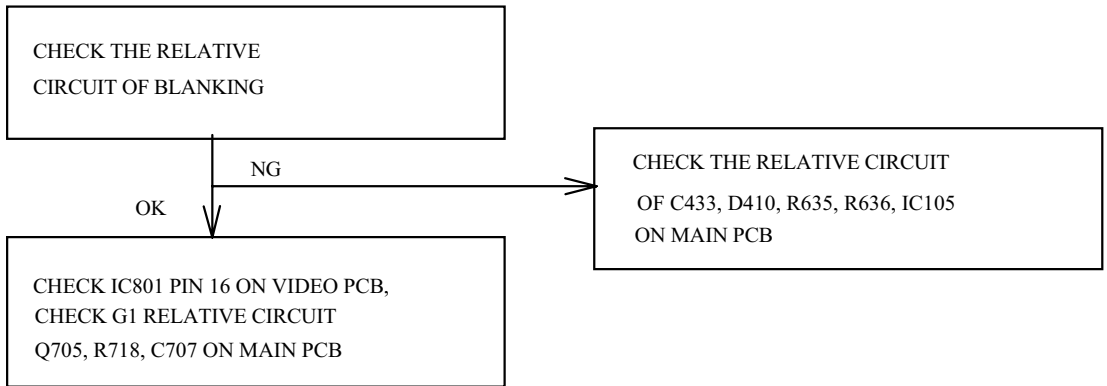
3. ABNORMAL DDC (PLUG & PLAY)



1.NO SIGNAL ON SCREEN

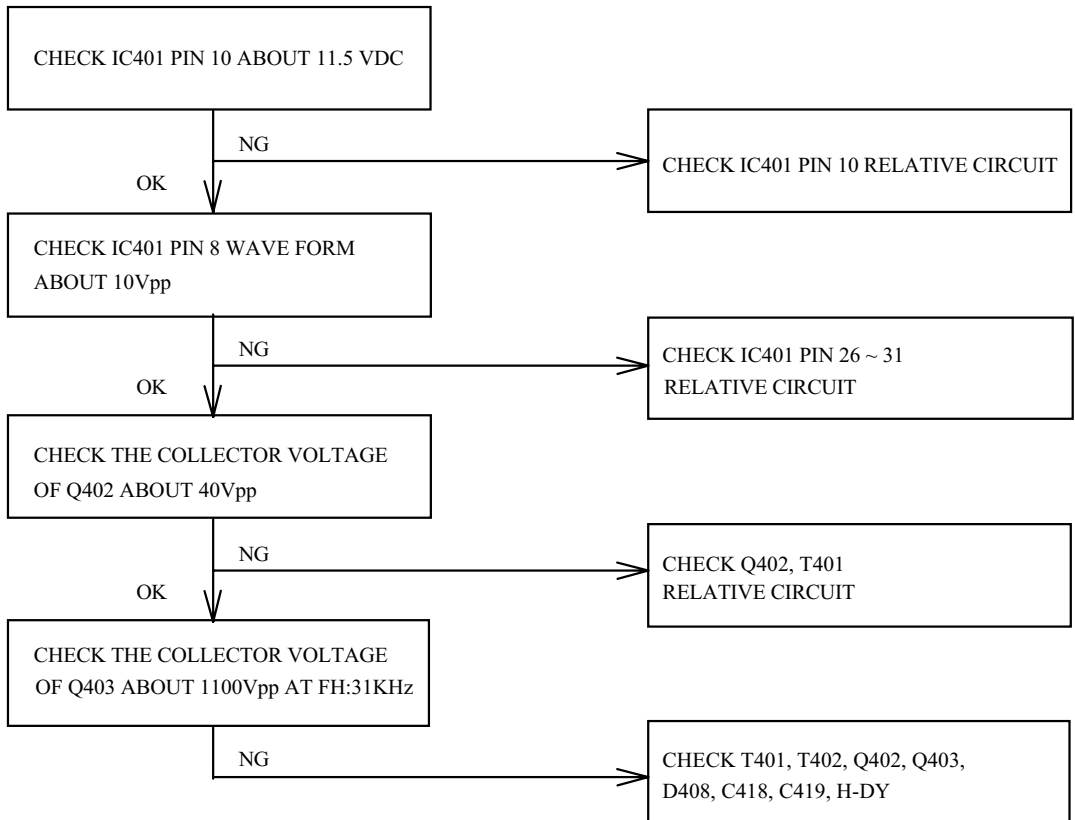


6-3 NO BLANKING



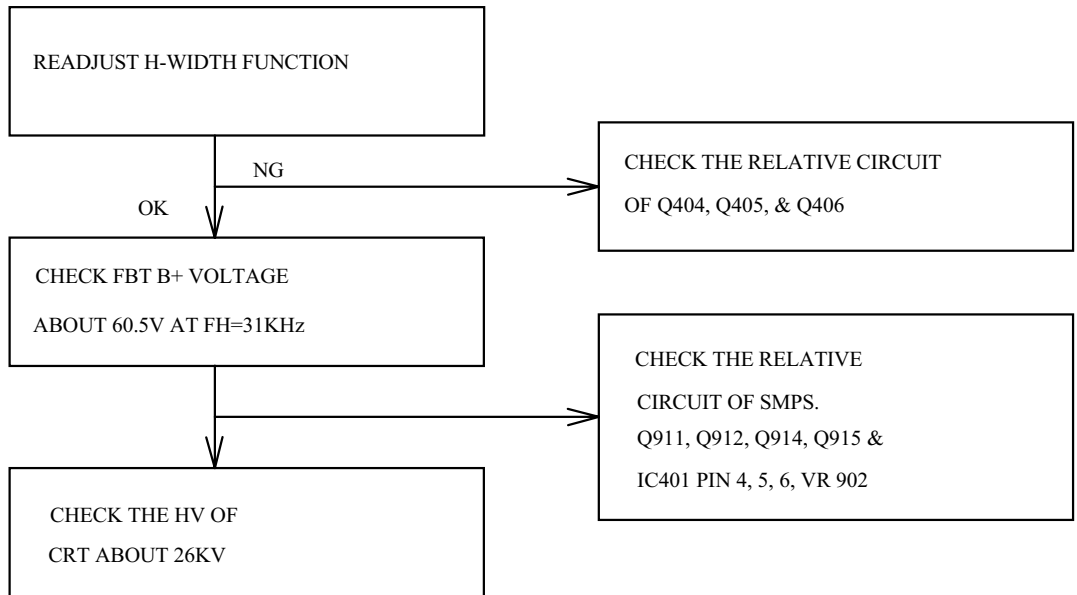
6-4 HOR./OSC/DEF/HV CIRCUIT FAULT

1. NO RASTER (DISCONNECT WITH SIGNAL CABLE)

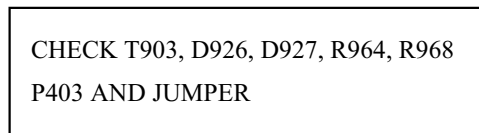


6-5 ABNORMAL HORIZONTAL DEFLECTION

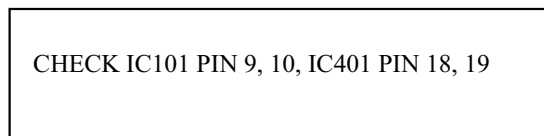
1. ABNORMAL HORIZONTAL WIDTH OF VIDEO



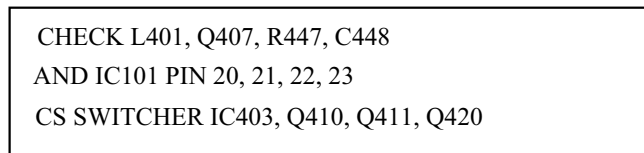
2. ABNORMAL HORIZONTAL RASTER CENTER

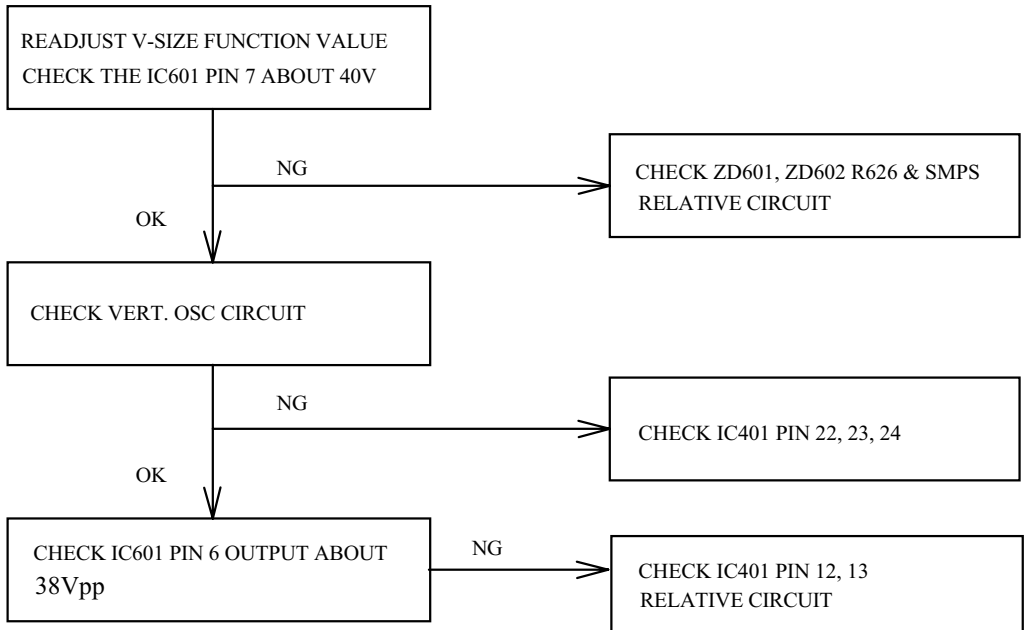
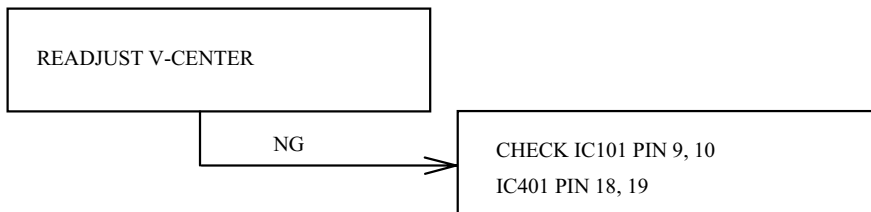
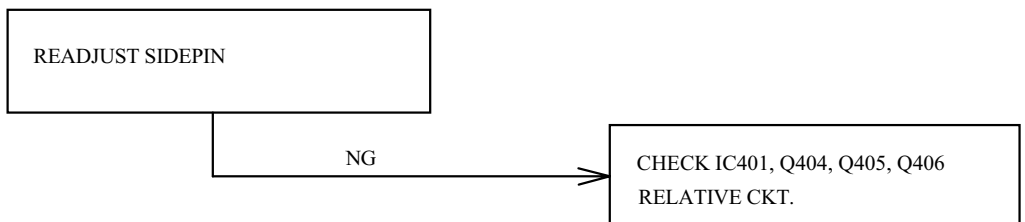


3. ABNORMAL HORIZONTAL VIDEO CENTER

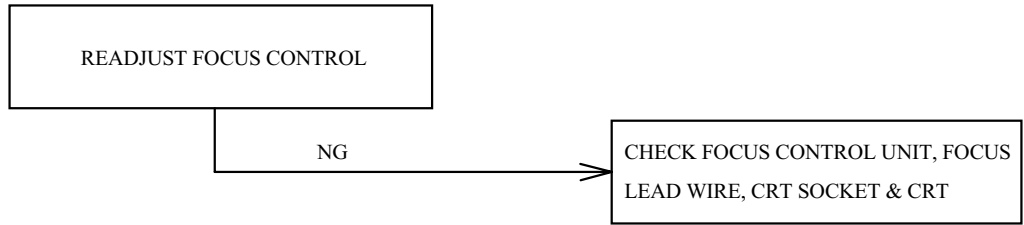


4. ABNORMAL HORIZONTAL LINEARITY

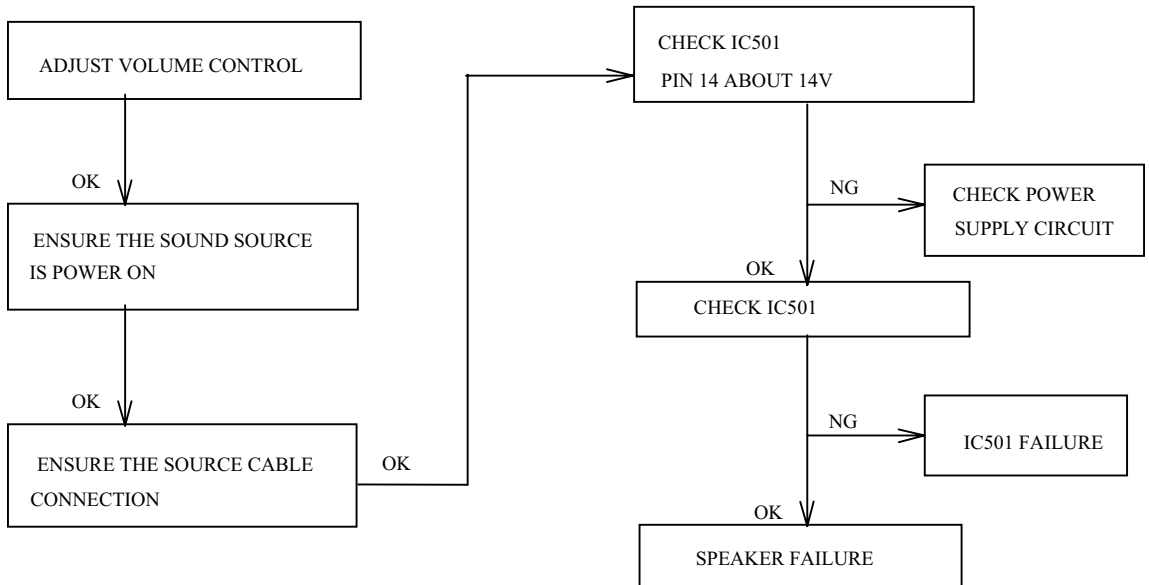


1. ABNORMAL VERTICAL SIZE**2. VERTICAL CENTER****6-7 SIDE-PIN CUSHION DISTORTION**

6-8 POOR FOCUS



6-9 NO SOUND (FOR AUDIO MODEL ONLY)

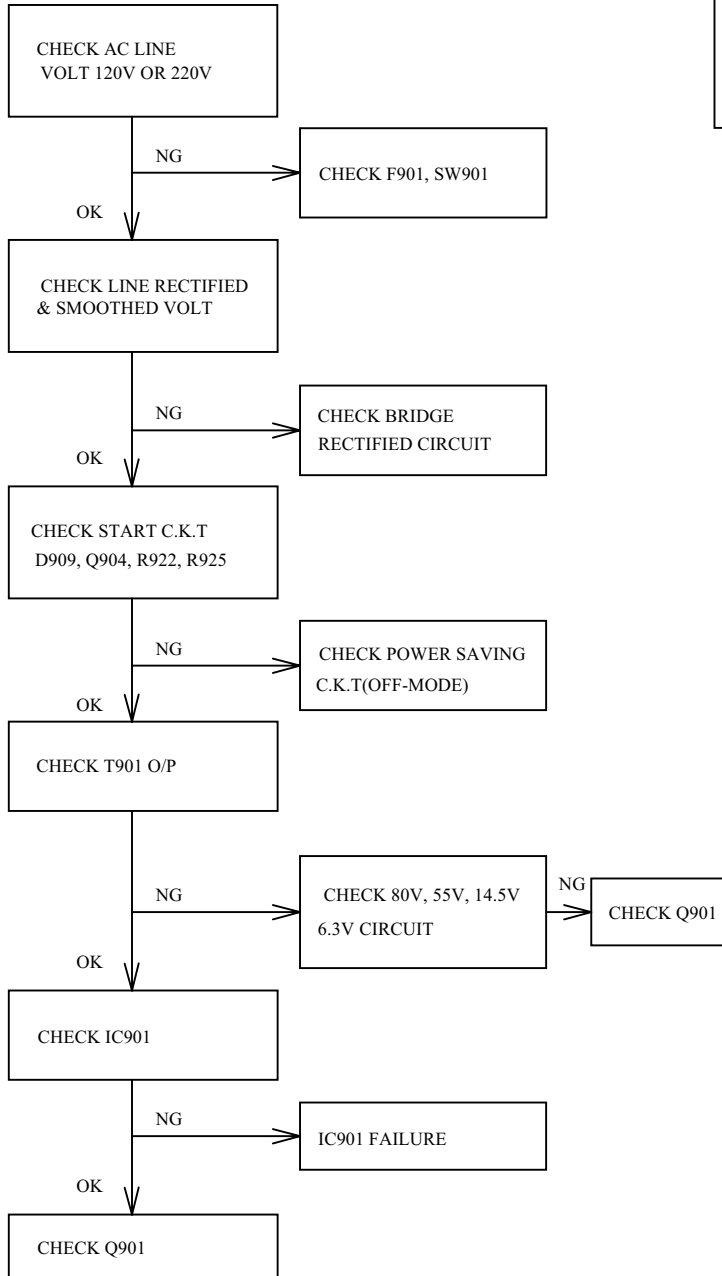


6-10 POWER SUPPLY TROUBLE SHOOTING CHART

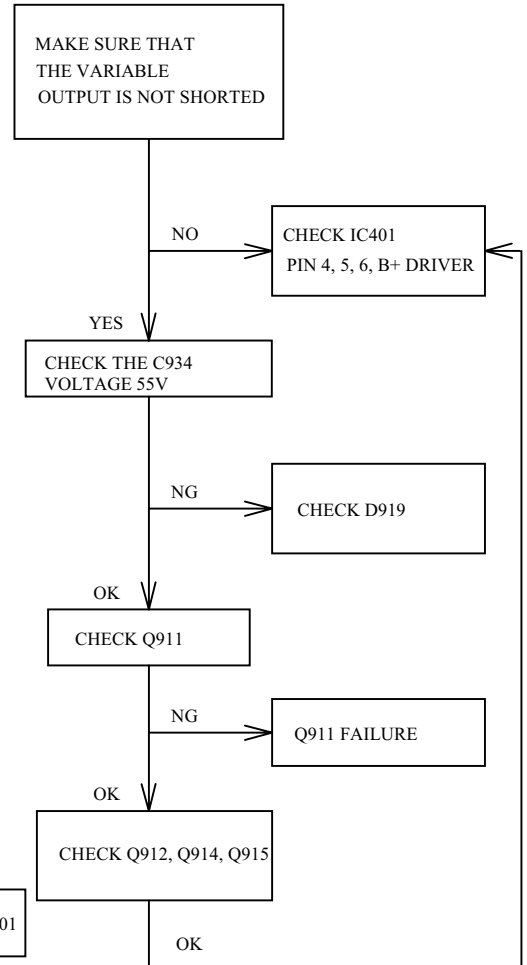
BEFORE CHECK SW.REG. PLEASE REFER TO THE POWER SUPPLY BLOCK DIAGRAM

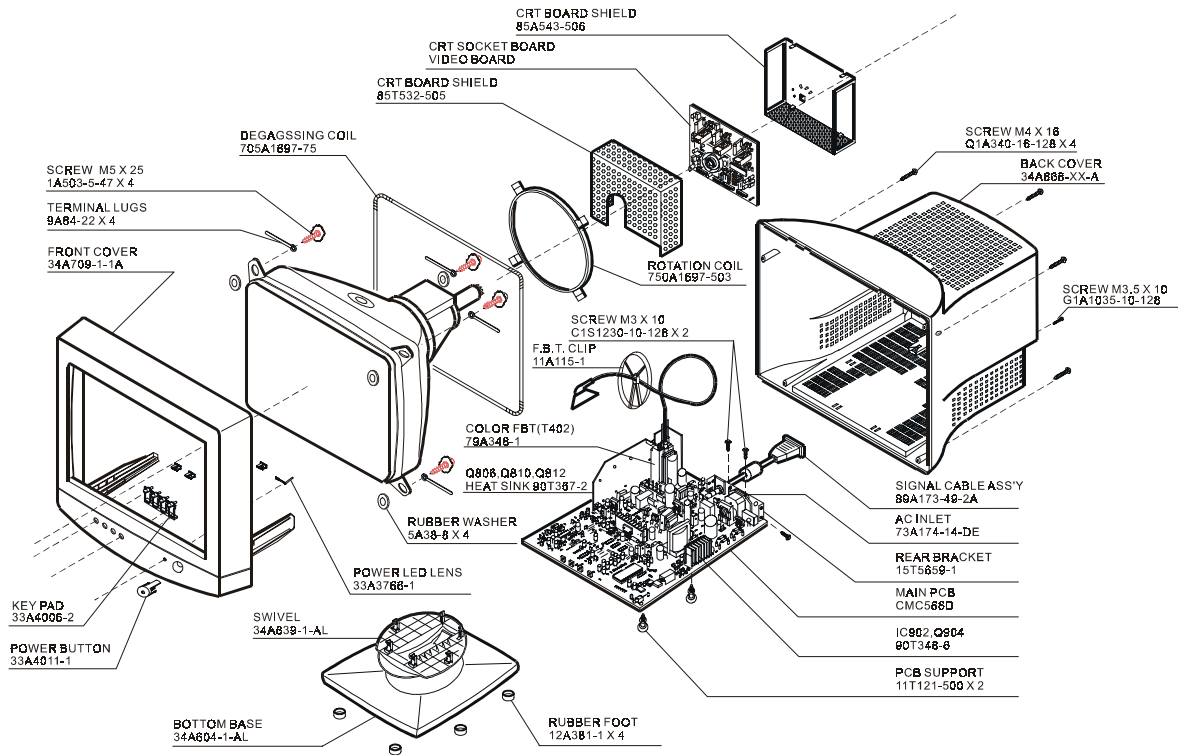
POWER SUPPLY OUTPUT: (A) VARIABLE OUTPUT : 60.5V - 145V
(DEPENDING EPENDING UPON H.SYNC FREQUENCY)
(B) CONSTANT OUTPUT : 6.3V, 14.5V, 55V, 80V

BEAD SET



ABNORMAL VARIABLE OUTPUT





PARTS LIST OF CABINET

LOCATION	P990T2 (LOW RADIATION 220V) C990T2				SPECIFICATION CHAS ASS'Y
	1A	503-	5 -	47	SCREW
	5A	38-	8		RUBBER WASHER
	9A	84-	22		LUG
	11A	112-	500		WIRE MOUNT
	11A	115-	1		FBT CLIP
	12A	381-	500		RUBBER FOOT
	19A	403-	7		STEEL
	19A	506-	5		SPRING
	26A	800-	504 -	3	BARCODE
	33A	3663-	1		SUPPORT
	33A	3726-	1		POWER CAP
	33A	3727-	1		POWER ROD
	33A	4011-	1 -	AT	POWER KNCB
	33A	4006-	2 -	AT	KEY PAD
	33A	4009-	1		LENS0
	34A	604-	1 -	LT	BASE
	34A	639-	1 -	LT	SWIVEL
	34A	668-	1 -	1AT	BACK CABINET
	34A	709-	1 -	1AT	FRONT PANEL
	40A	153-	74 -	2	LABEL
	40A	154-	501 -	1	HI-POT GND LABEL
	40A	581-	26 -	659	HI-VOLTAGE LABEL
	40A	581-	26 -	704	LABEL
	40A	2035-	615 -	1A	ID LABEL
	40A	68-	508 -	A	CARD
	41A	68-	563		WARRANTY CARD
	41A	68-	564 -	1	WARRANTY STATEMENTS
	41A	555-	673 -	1A	OWNER'S MANUAL
	44A	3214-	1		EPS CUSHION(L)
	44A	3214-	2		EPS CUSHION(R)
	44A	3214-	615 -	2A	CARTON
	45A	76-	28 -	RN	PE BAG
	45A	76-	34 -	RN	SWIVEL
	45A	76-	502 -	RN	PE BAG
	45A	77-	500		BARCODE RIBBON
	45A	77-	501		BARCODE RIBBON
	85A	532-	505		CRPC SHIELD
	85A	543-	506		CRPC SHIELD
	89A	402A-	12N -	HY	POWER CORD UL/CSA
	95A	91-	205 -	584	WIRE
	B1A	1035-	10 -	128	SCREW
	Q1A	340-	16 -	128	SCREW
	750A	1697-	77		DEG. COIL UL/CSA
	750A	5408-	1AV		19" HITACHI CRT
	750A	5437-	1AV		19" CRT

PARTS LIST OF CHAS

LOCATION

C990T2

AI990T2

CR990S2

SPECIFICATION

MAIN PC BOARD ASS'Y

CRT BOARD ASS'Y

	1A	421-	4 -	128	SCREW
	2A	202-	4		STAINLESS STEEL CLIP
	3A	1-	4 -	106	LOCK WASHER
	6A	31-	4		BRASS
	9A	203-	8		BRASS PIN
	11A	124-	1		PCB SUPPORT
	11A	127-	500		PCB SUPPORT
	15A	5640-	1 -	A	GND LUG (AL)
	15A	5659-	500 -	2	REAR BRACKET
	40A	581-	26 -	702	FAIL-SAFE LABEL
	40A	581-	624 -	2A	CHASSIS LABEL
	50A	500-	1		CABLE TIE
	71A	55-	2		FERRITE BEAD
	89A	174A-	5DB -	BL	SIGNAL CABLE
	95A	201-	69 -	032	WIRE
	95A	201-	69 -	042	WIRE
	95A	201-	69 -	052	WIRE
	B1A	1030-	10 -	128	SCREW
	B1A	1040-	8 -	128	SCREW
	B1A	1040-	10 -	128	SCREW
	B1A	1140-	8 -	128	SCREW
	M1A	1140-	6 -	128	SCREW
	M1A	1730-	10 -	128	SCREW
	705A	990S-	C56 -	02	IC904 ASS'Y
	705A	995F-	C57 -	01	Q403/Q405/Q911/D408 ASS'Y
	705A	995T-	C56 -	01	IC601 ASS'Y
	705A	995T-	C57 -	02	Q901 ASS'Y
	705A	995T-	C57 -	03	Q425 ASS'Y
	705A	995T-	C57 -	04	Q420 ASS'Y
	705A	995T-	C87 -	01	CN901 ASS'Y
	705A	995T-	C93 -	01	D921 ASS'Y
	750A	5408-	995 -	PAV	19" HITACHI CRT ASS'Y
	750A	5437-	995 -	PAV	19" CRT ASS'Y
(SW103)	77A	602-	1 -	CJ	TACT SWITCH TSVB-2
(SW104)	77A	602-	1 -	CJ	TACT SWITCH TSVB-2
(SW105)	77A	602-	1 -	CJ	TACT SWITCH TSVB-2
AS1	95A	205T-	30 -	07A	WIRE HARNESS
AS2	95A	205T-	30 -	07A	WIRE HARNESS
C411	67A	309-	102 -	3	1000uF +-20% 16V
C414	67A	305-	470 -	10L	47uF 160V
C415	65A	517K-	103 -	5A	10000PF +-10% 500V
C418	63A	210J-	532 -	8FC	5300PF 2KV
C419	63A	210J-	532 -	5BH	5300PF 1000V +-5%
C425	63A	210J-	274 -	3LD	0.27uF 400V
C426	63A	210J-	684 -	2CC	0.68uF 250V +-5%
C428	63A	210J-	182 -	7FM	1800PF 1600V +-5%
C429	63A	210J-	474 -	2CC	0.47uF 250V
C431	64A	100J-	225 -	59	2.2Uf 100V MEF
C438	63A	210J-	683 -	2CC	0.068uF 250V
C439	63A	210J-	474 -	2CC	0.47uF 250V
C453	63A	210J-	274 -	2CC	0.27uF 250V +-5%
C458	63A	210J-	104 -	2BC	0.1Uf 250V
C610	67A	305-	101 -	9T	100uF +-20% 100V
C615	67A	305-	102 -	3	1000uF +-20% 16V
C703	67A	305-	109 -	15	1uF 450V
C713	67A	305-	100 -	12	10uF +-20% 250V
C900	65A	305M-	472 -	2B2	4700PF +-20% 400VAC
C903	65A	305M-	332 -	2B2	3300PF +-20% 400VAC/250V
C904	65A	305M-	332 -	2B2	3300PF +-20% 400VAC/250V
C907	67A	30-	221 -	14	220uF +-20% 400V
C902	63A	107-	224 -	10	0.22uF +-20% 250V



LOCATION

C990T2

SPECIFICATION

C915	65A	2M	103 -	3B	0.01uF+-20% Z5U 2KV
C922	65A	517K-	103 -	5A	10000PF +-10% 500V
C931	67A	305-	101 -	10J	100uF +-20% 160V
C934	67A	215-	391 -	GFH	390uF +-20% 80V
C936	67A	215-	102 -	4	1000uF +-20% 25V
C937	67A	305-	102 -	3	1000uF +-20% 16V
C939	67A	305-	102 -	3	1000uF +-20% 16V
C951	67A	215-	470 -	12H	47uF +-20% 250V
CN902	33A	3074-	1		2P PLUG
D001	93A	64-	11 -	52T	DIODE IN4148
D002	93A	64-	11 -	52T	DIODE IN4148
D901	93A	52-	55W -	52T	IN5408
D902	93A	52-	55W -	52T	IN5408
D903	93A	52-	55W -	52T	IN5408
D904	93A	52-	55W -	52T	IN5408
D922	93A	3020-	8		RG-4Z
D923	93A	3020-	8T		RG-4Z
D925	93A	3020-	8T		RG-4
DF923	71A	55-	2		FERRITE BEAD
DF925	71A	55-	2		FERRITE BEAD
DQ401	93A	64-	11 -	52T	DIODE IN4148
F901	84A	41-	4		FUSE 4A
F901	84A	33-	10		FUSE CLIP
FBTF	71A	100-	8 -	S	COIL
GND1	95A	205-	30 -	082	WIRE
GND3	9A	203-	8		BRASS PIN
GND4	9A	203-	8		BRASS PIN
H802	95A	8013-	9 -	8	WIRE
H803	95A	8013-	6 -	511	WIRE
H804	95A	8013-	5 -	511	WIRE
H805	95A	8013-	7 -	14	WIRE
IC101	56A	1125-	50		40PIN IC
IC102	56A	1133-	14		AT24C08-10PC
IC103	56A	1131-	5		MTV016N
IC105	56A	74LS-	14 -	H	14 PIN IC 74LS14
IC401	56A	552-	1		TDA4856 BY PHILIPS
IC403	56A	212-	2		14P IC LM324N
IC404	56A	212-	2		14P IC LM324N
IC901	56A	379-	12		8P IC UC3842AM
J002	95A	90-	23		TIN COATED
L401	73A	147-	109 -	HJ	LINEARITY COIL
L402	73A	253-	103 -	L	CHOKE COIL
L404	73A	253-	106 -	HJ	CHOKE COIL
L901	73A	174-	16 -	HJ	LINE FILTER
L902	73A	174-	15 -	HJ	LINE FILTER
LED1	81A	10-	6 -	BH	LED HOLDER
NR401	61A	58-	101 -	UT	NTCR 100 OHM
NR630	61A	58-	101 -	UT	NTCR 100 OHM
NR901	61A	58-	8T		NTCR
P402	33A	3192-	4		4P PLUG
P701	33A	3803-	3		WAFER
P903	33A	8009-	3		3P PLUG
PR901	61A	52-	27 -	5	PDGS5140RS-KB
Q410	57A	600-	2		MOS FET IRF630
Q412	57A	610-	501		IRF640A
Q417	57A	610-	501		IRF640A
Q418	57A	600-	2		IRF630
Q908	57A	690-	2		PNP TRANSISTOR BD140

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LOCATION

C990T2

SPECIFICATION

Q909	57A	728	1		2SB722
R001	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R417	61A	172-	102 -	52T	1K OHM +-5% 1/4W
R426	61A	155M-	220 -	61	22 OHM +-5% 5W
R428	61A	155M-	758 -	61	0.75 OHM +-5% 5W
R436	61A	172-	123 -	52T	12K OHM +-5% 1/4W
R456	61A	153M-	181 -	59	180 OHM +-5% 3W
R469	61A	208-	220 -	64	22 OHM +-5% 1W
R473	61A	208-	820 -	64	82 OHM +-5% 1W
R627	61A	208-	100 -	64	10 OHM +-5% 1W
R629	61A	208-	681 -	64	680 OHM +-5% 1W
R630	61A	208-	109 -	64	1 OHM +-5% 1W
R632	61A	153M-	159 -	59	1.5 OHM +-5% 3W
R633	61A	153M-	159 -	59	1.5 OHM +-5% 3W
R723	61A	152M-	121 -	64	120 OHM +-5% 2W
R743	61A	152M-	101 -	64	100 OHM +-5% 2W
R927	61A	153M-	333 -	59	33 OHM +-5% 3W
R929	61A	152M-	278 -	64	0.27 OHM +-5% 2W
R955	61A	301-	228 -	64	0.22 OHM +-5% 1/2W
R964	61A	152M-	220 -	64	22 OHM +-5% 2W
R968	61A	152M-	220 -	64	22 OHM +-5% 2W
R979	61A	152M-	471 -	64	470 OHM +-5% 2W
RA101	61A	124-	472 -	10	10P 4.7K OHM
RA102	61A	124-	472 -	8	8P 4.7K OHM
RA103	61A	124-	472 -	8	8P 4.7K OHM
RQ401	61A	602-	332 -	52T	3.3K OHM +-5% 1/6W
RY401	77A	260-	5 -	1	RELAY DC12V
RY901	77A	260-	5 -	1	RELAY DC12V
SW901	77A	267-	12 -	HJ	PUSH SWITCH
T401	79A	167-	110 -	HJ	DRIVER X'FMR
T402	79A	795F-	1		FBT
T701	79A	167-	112 -	HJA	DRIVER X'FMR
T901	80A	995P-	1 -	T	POWER X'FMR
T903	79A	167-	111 -	HJA	POWER X'FMR
TP401	9A	211-	2		PIN
TP498	95A	201M-	50 -	142	WIRE
TP701	9A	211-	2		PIN
TP901	9A	211-	2		PIN
TR901	9A	203-	9		PIN
VR701	75A	335-	223		22K OHM +-20%
VR702	75A	335-	204		200K OHM +-20%
VR703	75A	335-	223		22K OHM +-20%
VR901	75A	335-	101		100 OHM +-20%
VR902	75A	335-	203		20K OHM +-20%
X101	93A	22-	22 -	H	HC-49/U8.0000 MHz
ZD001	93A	39-	52 -	52T	HZ5C2 5.1V 5% 0.5W



PARTS LIST OF MAIN PC BOARD

LOCATION	AI990T2				SPECIFICATION
	715A	731-	1A		PC BOARD
C101	65A	450-	104 -	7T	0.1uF +80-20% Y5V 50V
C102	67A	309-	330 -	3T	33uF +-20% 16V
C103	67A	305-	101 -	4T	100uF +-20% 25V
C105	67A	309-	100 -	7T	10uF +-20% 50V
C109	65A	442-	101 -	1T	100PF NPO 50V
C110	67A	309-	101 -	3T	100uF +-20% 16V
C113	67A	309-	101 -	3T	100uF +-20% 16V
C114	64A	176J-	103 -	1T	0.01uF +-5% 100V
C115	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C117	67A	309-	221 -	3T	220uF +-20% 16V
C120	67A	309-	100 -	7T	10uF +-20% 50V
C121	67A	309-	100 -	7T	10uF +-20% 50V
C122	67A	309-	100 -	7T	10uF +-20% 50V
C123	67A	309-	100 -	7T	10uF +-20% 50V
C124	67A	309-	100 -	7T	10uF +-20% 50V
C125	67A	309-	100 -	7T	10uF +-20% 50V
C126	67A	309-	100 -	7T	10uF +-20% 50V
C127	67A	309-	100 -	7T	10uF +-20% 50V
C128	67A	309-	100 -	7T	10uF +-20% 50V
C129	95A	90-	23		TIN COATED
C130	67A	309-	100 -	7T	10uF +-20% 50V
C131	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C138	65A	442-	101 -	1T	100PF 50V NPO
C401	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C402	64A	176J-	822 -	1T	8200PF +-5% 100V
C403	64A	45G-	103 -	1AT	0.01uF +-2% 100V
C404	64A	176J-	472 -	1T	0.0047UF +-5% 100V
C407	65A	444-	101 -	5T	100PF 50V 10%
C408	64A	176J-	473 -	2T	0.047uF +-5% 250V
C409	67A	309-	100 -	7T	10UF+-20% 50V
C410	65A	442-	470 -	1T	47PF +-5% NPO 50V
C412	65A	444-	101 -	5T	100PF 10% 50V Y5P
C413	65A	444-	101 -	5T	100PF 10% 50V Y5P
C416	67A	309-	100 -	7T	10uF +-20% 50V
C417	64A	176J-	334 -	0T	0.33uF +-5% 50/63V
C420	65A	450-	473 -	4T	47000PF +80-20% Z5V 50V
C421	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C424	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C427	67A	309-	109 -	7T	1.0uF +-20% 50V
C430	65A	1K-	102 -	5T	1NF/1KV 10% Y5P
C433	64A	176J-	224 -	0T	0.22uF +-5% 63V
C434	67A	309-	470 -	4T	47uF +-20% 25V
C435	65A	450-	104 -	7T	0.1uF +80-20% Y5V 50V
C436	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C437	67A	309-	109 -	7T	1.0uF +-20% 50V
C440	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C441	67A	309-	109 -	7T	1.0uF +-20% 50V
C444	65A	442-	181 -	1T	180PF 5% 50V NPO
C447	67A	309-	109 -	7T	1.0uF +-20% 50V
C448	65A	444-	681 -	5T	680PF 10% 50V
C449	65A	2K-	121 -	5T	120PF 10%
C454	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C455	67A	309-	109 -	7T	1.0Uf+-20% 50V
C456	65A	444-	103 -	5T	0.01uF 10% 50V Y5P
C461	67A	309-	100 -	7T	1.0uF +-20% 50V
C498	65A	1K-	101 -	5T	100PF 1KV 10% Y5P
C499	95A	90-	23		TIN COATED
C603	64A	176J-	224 -	0T	0.22uF +-5% 63V
C604	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C605	64A	44J-	104 -	1AT	0.1uF +-5% 100V
C606	65A	444-	101 -	5T	100PF 10% 50V Y5P

LOCATION	AI990T2				SPECIFICATION
C608	64A	176J-	333 -	1T	0.033uF +-5% 100V
C609	64A	176J-	333 -	1T	0.033uF +-5% 100V
C616	65A	444-	472 -	5T	4700PF 10% 50V Y5P
C617	65A	450-	104 -	7T	0.1uF +80-20% Y5V 50V
C618	67A	309-	220 -	7T	22uF +-20% 50V
C701	67A	309-	100 -	7T	10uF +-20% 50V
C702	65A	1K-	471 -	5T	470PF 1KV 10% Y5P
C704	67A	309-	100 -	7T	10uF +-20% 50V
C707	64A	176J-	104 -	2T	0.1uF +-5% 250V
C708	67A	309-	101 -	7T	100uF +-20% 50V
C710	67A	305-	478 -	7T	0.47uF +-5% 50V
C717	65A	450-	104 -	7T	0.1uF +80-20% Y5V 50V
C719	67A	215K-	828 -	9H	0.82uF 100V
C905	67A	305-	229 -	7T	2.2uF +-20% 50V
C906	65A	444-	681 -	1T	680PF 10% 50V
C914	67A	305-	100 -	7T	10uF +-20% 50V
C916	67A	305-	101 -	4T	100uF +-20% 25V
C918	64A	176J-	332 -	1T	0.0033uF +-5% 100V
C919	64A	176J-	102 -	1T	0.001uF +-5% 100V
C920	64A	176J-	102 -	1T	0.001uF +-5% 100V
C921	64A	44J-	104 -	1AT	0.1uF +-5% 100V
C923	65A	1K-	221 -	5T	220PF 1KV 10%
C924	64A	176J-	332 -	1T	0.0033uF +-5% 100V
C930	67A	309-	470 -	3T	47uF +-20% 16V
C933	65A	1K-	221 -	5T	220PF 1KV 10% Y5P
C935	67A	309-	470 -	3T	47uF +-20% 16V
C938	67A	305-	101 -	4T	100uF +-20% 25V
C940	67A	309-	220 -	7T	22uF +-20% 50V
C941	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C942	65A	442-	470 -	1T	47PF 5% 50V NPO
C943	65A	1K-	221 -	5T	220PF 1KV 10% Y5P
C944	67A	309-	100 -	7T	10uF +-20% 50V
C950	65A	1K-	221 -	5T	220PF 1KV 10%
C952	67A	309-	100 -	7T	10uF +-20% 50V
C955	65A	1K-	221 -	5T	220PF 1KV 10% Y5P
C957	64A	700J-	104 -	0AT	0.1uF +-5% 50V
C958	64A	176J-	222 -	1T	0.0022uF +-5% 100V
C959	64A	176J-	334 -	0T	0.33uF +-5% 50V/63V
CM102	64A	176J-	104 -	0T	0.1uF +-5% 63V
CQ707	67A	309-	101 -	4T	100uF +-20% 25V
D101	93A	64-	11 -	52T	DIODE IN4148
D102	61A	602-	100 -	52T	10 OHM +-5% 1/6W
D103	95A	90-	23		TIN COATED
D104	95A	90-	23		TIN COATED
D401	95A	90-	23		TIN COATED
D402	93A	64-	19 -	52T	DIODE ISS83
D403	93A	64-	11 -	52T	DIODE IN4148
D405	93A	1002-	1 -	52T	IN5817 1A/20V
D406	93A	1060-	6 -	52T	F.R.D BYV26C
D407	93A	60-	21P -	52T	PS156R
D409	93A	64-	11 -	52T	DIODE IN4148
D410	93A	64-	19 -	52T	DIODE ISS83
D411	93A	64-	11 -	52T	DIODE IN4148
D413	93A	64-	11 -	52T	DIODE IN4148
D414	93A	60-	21P -	52T	PS156R
D415	93A	60-	21P -	52T	PS156R
D416	93A	60-	21P -	52T	PS156R
D417	93A	60-	21P -	52T	PS156R
D418	93A	64-	11 -	52T	DIODE IN4148
D419	93A	60-	21P -	52T	PS156R
D420	93A	64-	11 -	52T	DIODE IN4148
D421	93A	64-	11 -	52T	DIODE IN4148

LOCATION	AI990T2				SPECIFICATION
D423	93A	64-	11 -	52T	DIODE IN4148
D425	93A	60-	38T -	52T	FR103
D430	93A	64-	11 -	52T	DIODE IN4148
D431	93A	64-	11 -	52T	DIODE IN4148
D703	93A	64-	11 -	52T	DIODE IN4148
D704	93A	1060-	6 -	52T	F.R.D BYV26C
D705	93A	60-	21P -	52T	PS156R
D706	93A	60-	21P -	52T	PS156R
D707	93A	64-	11 -	52T	DIODE IN4148
D708	93A	60-	21P -	52T	PS156R
D905	93A	64-	31G -	52T	BAV20
D909	93A	52-	1P -	52T	IN4005
D910	93A	1060-	6 -	52T	F.R.D BYV26C
D911	93A	64-	31G -	52T	BAV20
D912	93A	64-	31G -	52T	BAV20
D913	93A	64-	11 -	52T	DIODE IN4148
D914	93A	64-	11 -	52T	DIODE IN4148
D919	93A	1060-	6 -	52T	F.R.D BYV26C
D924	93A	64-	11 -	52T	DIODE IN4148
D926	93A	60-	38T -	52T	FR103
D927	93A	60-	38T -	52T	FR103
D928	93A	64-	11 -	52T	DIODE IN4148
D934	93A	64-	11 -	52T	DIODE IN4148
D939	93A	64-	11 -	52T	DIODE IN4148
FB401	95A	90-	23		TIN COATED
FB903	71A	55-	9 -	T	SHIELD BEAD
FB904	71A	55-	19 -	T	SHIELD BEAD
J003	95A	90-	23		TIN COATED
J006	95A	90-	23		TIN COATED
J007	95A	90-	23		TIN COATED
J009	95A	90-	23		TIN COATED
J010	95A	90-	23		TIN COATED
J012	95A	90-	23		TIN COATED
J014	95A	90-	23		TIN COATED
J015	95A	90-	23		TIN COATED
J016	95A	90-	23		TIN COATED
J017	95A	90-	23		TIN COATED
J018	95A	90-	23		TIN COATED
J019	95A	90-	23		TIN COATED
J020	95A	90-	23		TIN COATED
J021	95A	90-	23		TIN COATED
J022	95A	90-	23		TIN COATED
J025	95A	90-	23		TIN COATED
J027	95A	90-	23		TIN COATED
J028	95A	90-	23		TIN COATED
J029	95A	90-	23		TIN COATED
J030	95A	90-	23		TIN COATED
J031	95A	90-	23		TIN COATED
J032	95A	90-	23		TIN COATED
J033	95A	90-	23		TIN COATED
J034	95A	90-	23		TIN COATED
J036	95A	90-	23		TIN COATED
J037	95A	90-	23		TIN COATED

LOCATION	AI990T2			SPECIFICATION	
J038	95A	90-	23	T	TIN COATED
J039	95A	90-	23		TIN COATED
J040	95A	90-	23		TIN COATED
J041	95A	90-	23		TIN COATED
J042	95A	90-	23		TIN COATED
J043	95A	90-	23		TIN COATED
J044	95A	90-	23		TIN COATED
J045	95A	90-	23		TIN COATED
J046	95A	90-	23		TIN COATED
J047	71A	55-	19 -		SHIELD BEAD
J048	95A	90-	23		TIN COATED
J049	95A	90-	23		TIN COATED
J050	95A	90-	23		TIN COATED
J052	95A	90-	23		TIN COATED
J053	95A	90-	23		TIN COATED
J054	95A	90-	23		TIN COATED
J055	95A	90-	23		TIN COATED
J056	95A	90-	23		TIN COATED
J057	95A	90-	23		TIN COATED
J058	95A	90-	23		TIN COATED
J059	95A	90-	23		TIN COATED
J060	95A	90-	23		TIN COATED
J061	95A	90-	23		TIN COATED
J062	95A	90-	23		TIN COATED
J063	95A	90-	23		TIN COATED
J064	95A	90-	23		TIN COATED
J065	95A	90-	23		TIN COATED
J066	95A	90-	23		TIN COATED
J067	95A	90-	23		TIN COATED
J068	95A	90-	23		TIN COATED
J069	95A	90-	23		TIN COATED
J070	95A	90-	23		TIN COATED
J071	95A	90-	23		TIN COATED
J072	95A	90-	23		TIN COATED
J073	95A	90-	23		TIN COATED
J074	95A	90-	23		TIN COATED
J075	71A	55-	19 -	T	BEAD
J076	95A	90-	23		TIN COATED
J077	95A	90-	23		TIN COATED
J078	95A	90-	23		TIN COATED
J079	95A	90-	23		TIN COATED
J080	95A	90-	23		TIN COATED
J081	95A	90-	23		TIN COATED
J082	95A	90-	23		TIN COATED
J083	95A	90-	23		TIN COATED
J084	95A	90-	23		TIN COATED
J085	95A	90-	23		TIN COATED
J086	95A	90-	23		TIN COATED
J087	95A	90-	23		TIN COATED
J088	95A	90-	23		TIN COATED
J089	95A	90-	23		TIN COATED
J090	95A	90-	23		TIN COATED
J091	95A	90-	23		TIN COATED
J092	95A	90-	23		TIN COATED
J093	95A	90-	23		TIN COATED
J094	95A	90-	23		TIN COATED
J095	95A	90-	23		TIN COATED
J096	95A	90-	23		TIN COATED
J097	95A	90-	23		TIN COATED
J098	95A	90-	23		TIN COATED
J099	95A	90-	23		TIN COATED

LOCATION	AI990T2			SPECIFICATION	
J101	95A	90-	23		TIN COATED
J102	95A	90-	23		TIN COATED
J103	95A	90-	23		TIN COATED
J104	95A	90-	23		TIN COATED
J105	95A	90-	23		TIN COATED
J106	95A	90-	23		TIN COATED
J107	95A	90-	23		TIN COATED
J108	95A	90-	23		TIN COATED
J109	95A	90-	23		TIN COATED
J110	95A	90-	23		TIN COATED
J111	95A	90-	23		TIN COATED
J112	95A	90-	23		TIN COATED
J113	95A	90-	23		TIN COATED
J114	95A	90-	23		TIN COATED
J115	95A	90-	23		TIN COATED
J116	95A	90-	23		TIN COATED
J117	95A	90-	23		TIN COATED
J118	95A	90-	23		TIN COATED
J119	95A	90-	23		TIN COATED
J120	71A	55-	19 -	T	SHIELD BEAD
J121	95A	90-	23		TIN COATED
J122	95A	90-	23		TIN COATED
J123	95A	90-	23		TIN COATED
J124	95A	90-	23		TIN COATED
J125	95A	90-	23		TIN COATED
J126	95A	90-	23		TIN COATED
J127	95A	90-	23		TIN COATED
J128	95A	90-	23		TIN COATED
J129	95A	90-	23		TIN COATED
J130	95A	90-	23		TIN COATED
J131	95A	90-	23		TIN COATED
J132	61A	172-	102 -	52T	1K OHM +-5% 1/4W
J133	95A	90-	23		TIN COATED
J134	95A	90-	23		TIN COATED
J135	95A	90-	23		TIN COATED
J136	95A	90-	23		TIN COATED
J137	95A	90-	23		TIN COATED
J138	95A	90-	23		TIN COATED
J139	95A	90-	23		TIN COATED
J140	95A	90-	23		TIN COATED
J141	95A	90-	23		TIN COATED
J142	95A	90-	23		TIN COATED
J143	95A	90-	23		TIN COATED
J144	95A	90-	23		TIN COATED
J145	95A	90-	23		TIN COATED
J146	95A	90-	23		TIN COATED
J148	95A	90-	23		TIN COATED
J149	95A	90-	23		TIN COATED
J150	95A	90-	23		TIN COATED
J151	95A	90-	23		TIN COATED
J152	95A	90-	23		TIN COATED
J153	95A	90-	23		TIN COATED
J154	93A	39-	536 -	52T	HITACHI HZ11C3
J157	95A	90-	23		TIN COATED
J159	95A	90-	23		TIN COATED
J161	95A	90-	23		TIN COATED

LOCATION	AI990T2				SPECIFICATION
L101	73A	54-	339 -	10T	3.3UH +-10%
L102	61A	175L-	390 -	52T	39 OHM +-5% 1/2W
Q101	57A	420-	P -	T	TR. 2SA733P/NEC
Q102	57A	446-	1 -	T	TR.2SC1213AC
Q400	57A	420-	P -	T	TR. 2SA733P/NEC
Q401	57A	419-	P -	T	TR. 2SC945P/NEC
Q402	57A	731-	1 -	T	2SK941
Q404	57A	619-	1 -	T	2SA673AC/HITACHI
Q406	57A	419-	P -	T	TR. 2SC945P/NEC
Q407	57A	446-	1 -	T	TR.2SC1213AC
Q408	57A	516-	1 -	T	TR. PH2369
Q409	57A	419-	P -	T	TR. 2SC945P/NEC
Q411	57A	420-	P -	T	TR. 2SA733P/NEC
Q413	57A	721-	1 -	T	DTC114ES ROHM
Q416	57A	419-	P -	T	TR. 2SC945P/NEC
Q419	57A	721-	1 -	T	DTC114ES ROHM
Q424	57A	419-	P -	T	TR. 2SC945P/NEC
Q426	57A	419-	P -	T	TR. 2SC945P/NEC
Q427	57A	721-	1 -	T	DTC114ES ROHM
Q701	57A	419-	P -	T	TR. 2SC945P/NEC
Q702	57A	420-	P -	T	TR. 2SA733P/NEC
Q703	57A	420-	P -	T	TR. 2SA733P/NEC
Q704	57A	419-	P -	T	TR. 2SC945P/NEC
Q705	57A	419-	P -	T	TR. 2SC945P/NEC
Q706	57A	498-	1 -	T	TR. BF423
Q707	57A	721-	1 -	T	DTC114ES ROHM
Q708	57A	708-	1 -	T	2SC4002E
Q709	57A	419-	P -	T	TR. 2SC945P/NEC
Q710	57A	420-	P -	T	TR. 2SA733P/NEC
Q904	57A	594-	504 -	T	TR. KSP44TA
Q905	57A	420-	P -	T	TR. 2SA733P/NEC
Q906	57A	419-	P -	T	TR. 2SC945P/NEC
Q910	57A	419-	P -	T	TR. 2SC945P/NEC
Q912	57A	446-	1 -	T	TR.2SC1213AC
Q913	57A	419-	P -	T	TR. 2SC945P/NEC
Q914	57A	419-	P -	T	TR. 2SC945P/NEC
Q915	57A	619-	1 -	T	2SA673AC/HITACHI
Q916	57A	419-	P -	T	TR. 2SC945P/NEC
R101	61A	602-	562 -	52T	5.6K OHM +-5% 1/6W
R102	61A	602-	272 -	52T	2.7K OHM +-5% 1/6W
R103	61A	602-	392 -	52T	3.9K OHM +-5% 1/6W
R104	61A	602-	682 -	52T	6.8K OHM +-5% 1/6W
R105	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R106	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R107	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R108	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R109	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R110	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R111	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R112	61A	172-	101 -	52T	100 OHM +-5% 1/4W
R113	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R117	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R118	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R119	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R120	61A	175L-	109 -	52T	1 OHM +-5% 1/2W
R124	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R125	61A	602-	562 -	52T	5.6K OHM +-5% 1/6W
R126	61A	602-	202 -	52T	2K OHM +-5% 1/6W
R127	61A	602-	752 -	52T	7.5K OHM +-5% 1/6W
R128	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R130	61A	602-	102 -	52T	1K OHM +-5% 1/6W

LOCATION

AI990T2

SPECIFICATION

R131	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R132	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R133	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R134	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R135	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R136	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R137	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R138	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R139	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R140	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R141	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R142	95A	90-	23		TIN COATED
R143	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R161	61A	172-	474 -	52T	470K OHM +-5% 1/4W
R162	61A	172-	181 -	52T	180 OHM +-5% 1/4W
R164	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R165	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R167	61A	602-	105 -	52T	1M OHM +-5% 1/6W
R178	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R179	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R180	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R181	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R186	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R189	61A	602-	151 -	52T	150 OHM +-5% 1/6W
R400	61A	172-	104 -	52T	100K OHM +-5% 1/4W
R401	61A	602-	332 -	52T	3.3K OHM +-5% 1/6W
R402	61A	210-	751 -	52T	750 OHM +-1% 1/6W
R403	61A	210-	272 -	52T	2.7K OHM +-1% 1/6W
R404	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R405	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R406	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R407	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R408	61A	172-	362 -	52T	3.6K OHM +-5% 1/4W
R409	61A	172-	562 -	52T	5.6K OHM +-5% 1/4W
R410	61A	602-	221 -	52T	220 OHM +-5% 1/6W
R411	61A	172-	104 -	52T	100K OHM +-5% 1/4W
R412	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R413	61A	210-	153 -	52T	15K OHM +-1% 1/6W
R414	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R415	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R416	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R418	61A	602-	242 -	52T	2.4K OHM +-5% 1/6W
R419	61A	172-	133 -	52T	13K OHM +-5% 1/4W
R420	61A	172-	103 -	52T	10K OHM +-5% 1/4W
R421	61A	602-	100 -	52T	10 OHM +-5% 1/6W
R422	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R423	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R424	61A	602-	100 -	52T	10 OHM +-5% 1/6W
R425	61A	175L-	121 -	52T	120 OHM +-5% 1/2W
R427	61A	175L-	220 -	52T	22 OHM +-5% 1/2W
R429	61A	175L-	100 -	52T	10 OHM +-5% 1/2W
R430	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R431	61A	602-	222 -	52T	2.2 OHM +-5% 1/6W
R432	61A	602-	223 -	52T	22K OHM +-5% 1/6W
R433	61A	602-	223 -	52T	22K OHM +-5% 1/6W
R434	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R435	61A	210-	911 -	52T	910 OHM +-1% 1/6W
R437	61A	602-	333 -	52T	33K OHM +-5% 1/6W



R438	61A	602-	512 -	52T	5.1K OHM +-5% 1/6W
R440	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R441	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R442	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R444	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R445	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R446	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R447	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R448	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R449	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R450	61A	602-	122 -	52T	1.2K OHM +-5% 1/6W
R451	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R452	95A	90-	23		TIN COATED
R453	61A	602-	562 -	52T	5.6K OHM +-5% 1/6W
R457	61A	175L-	474 -	52T	470K OHM +-5% 1/2W
R460	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R461	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R462	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R463	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R464	61A	602-	563 -	52T	56K OHM +-5% 1/6W
R465	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R466	61A	602-	104 -	52T	100K OHM +-5% 1/6W
R467	61A	175L-	681 -	52T	680 OHM +-5% 1/2W
R468	61A	400-	47 -	52T	2.87K OHM +-1% 1/4W
R470	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R471	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R472	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R474	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R475	61A	602-	131 -	52T	130 OHM +-5% 1/6W
R476	61A	602-	333 -	52T	33K OHM +-5% 1/6W
R478	61A	602-	123 -	52T	12K OHM +-5% 1/6W
R479	61A	602-	153 -	52T	15K OHM +-5% 1/6W
R480	61A	602-	183 -	52T	18K OHM +-5% 1/6W
R481	61A	602-	104 -	52T	100K OHM +-5% 1/6W
R497	61A	172-	105 -	52T	1MEG OHM +-5% 1/4W
R498	61A	175L-	104 -	52T	100K OHM +-5% 1/2W
R603	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R604	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R608	61A	210-	223 -	52T	22K OHM +-1% 1/6W
R609	61A	602-	182 -	52T	1.8K OHM +-5% 1/6W
R610	61A	602-	221 -	52T	220 OHM +-5% 1/6W
R620	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R621	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R626	61A	175L-	220 -	52T	22 OHM +-5% 1/2W
R628	61A	210-	272 -	52T	2.7K OHM +-1% 1/6W
R635	61A	602-	682 -	52T	6.8K OHM +-5% 1/6W
R636	61A	602-	472 -	52T	4.7K OHM +-5% 1/6W
R638	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R639	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R701	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R702	61A	602-	913 -	52T	91K OHM +-5% 1/6W
R703	61A	602-	622 -	52T	6.2K OHM +-5% 1/6W
R704	61A	172-	182 -	52T	1.8K OHM +-5% 1/4W
R705	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R706	61A	602-	100 -	52T	10 OHM +-5% 1/6W
R707	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R708	61A	602-	823 -	52T	82K OHM +-5% 1/6W
R709	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R710	61A	175L-	150 -	52T	15 OHM +-5% 1/2W
R711	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R712	61A	172-	153 -	52T	15K OHM +-5% 1/4W

LOCATION	AI990T2				SPECIFICATION
R713	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R714	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R715	95A	90-	23		TIN COATED
R718	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R719	61A	602-	473 -	52T	47K OHM +-5% 1/6W
R720	61A	602-	125 -	52T	1.2M OHM +-5% 1/6W
R721	61A	172-	623 -	52T	62K OHM +-5% 1/4W
R722	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R724	61A	172-	105 -	52T	1MEG OHM +-5% 1/4W
R725	61A	172-	244 -	52T	240K OHM +-5% 1/4W
R726	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R728	61A	172-	105 -	52T	1MEG OHM +-5% 1/4W
R729	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R730	61A	172-	689 -	52T	6.8 OHM +-5% 1/4W
R731	61A	175L-	274 -	52T	270K OHM +-5% 1/2W
R733	61A	602-	823 -	52T	82K OHM +-5% 1/6W
R734	61A	172-	475 -	52T	4.7M OHM +-5% 1/4W
R735	61A	602-	332 -	52T	3.3K OHM +-5% 1/6W
R736	61A	602-	752 -	52T	7.5K OHM +-5% 1/6W
R737	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R738	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R739	61A	175L-	333 -	52T	33K OHM +-5% 1/2W
R740	61A	175L-	274 -	52T	270K OHM +-5% 1/2W
R741	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R742	61A	175L-	154 -	52T	150K OHM +-5% 1/2W
R744	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R900	61A	175L-	106 -	52T	10M OHM +-5% 1/2W
R901	61A	175L-	474 -	52T	470K OHM +-5% 1/2W
R902	61A	602-	242 -	52T	2.4K OHM +-5% 1/6W
R903	61A	602-	361 -	52T	360 OHM +-5% 1/6W
R904	61A	175L-	204 -	52T	200K OHM +-5% 1/2W
R905	61A	175L-	684 -	52T	680K OHM +-5% 1/2W
R913	61A	172-	223 -	52T	22K OHM +-5% 1/4W
R923	61A	175L-	474 -	52T	470K OHM +-5% 1/2W
R924	61A	175L-	474 -	52T	470K OHM +-5% 1/2W
R925	61A	175L-	473 -	52T	47K OHM +-5% 1/2W
R926	61A	172-	473 -	52T	47K OHM +-5% 1/4W
R928	71A	55-	23		FERRITE BEAD
R930	61A	172-	102 -	52T	1K OHM +-5% 1/4W
R931	61A	172-	479 -	52T	4.7 OHM +-5% 1/4W
R932	61A	172-	100 -	52T	10 OHM +-5% 1/4W
R934	61A	172-	102 -	52T	1K OHM +-5% 1/4W
R935	61A	172-	154 -	52T	150K OHM +-5% 1/4W
R936	61A	172-	222 -	52T	2.2K OHM +-5% 1/4W
R937	61A	172-	151 -	52T	150K OHM +-5% 1/4W
R938	61A	172-	220 -	52T	22 OHM +-5% 1/4W
R939	61A	172-	223 -	52T	22K OHM +-5% 1/4W
R940	61A	171-	183 -	52T	18K OHM +-2% 1/4W
R941	61A	172-	181 -	52T	180 OHM +-5% 1/4W
R942	61A	172-	101 -	52T	100 OHM +-5% 1/4W
R954	61A	175L-	683 -	52T	68K OHM +-5% 1/2W
R956	61A	172-	272 -	52T	2.7K OHM +-5% 1/4W
R957	61A	172-	473 -	52T	47K OHM +-5% 1/4W
R958	61A	172-	102 -	52T	1K OHM +-5% 1/4W
R960	61A	602-	473 -	52T	47K OHM +-5% 1/6W
R962	61A	172-	220 -	52T	22 OHM +-5% 1/4W
R963	61A	172-	100 -	52T	10 OHM +-5% 1/4W
R969	61A	602-	104 -	52T	100K OHM +-5% 1/6W
R970	61A	602-	562 -	52T	5.6K OHM +-5% 1/6W
R971	61A	172-	104 -	52T	100K OHM +-5% 1/4W

LOCATION	AI990T2				SPECIFICATION
R972	61A	602-	912 -	52T	9.1K OHM +-5% 1/6W
R973	61A	602-	223 -	52T	22K OHM +-5% 1/6W
R974	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R976	61A	175L-	101 -	52T	100 OHM +-5% 1/2W
R977	61A	172-	103 -	52T	10K OHM +-5% 1/4W
R978	61A	172-	103 -	52T	10K OHM +-5% 1/4W
R981	61A	602-	103 -	52T	10K OHM +-5% 1/6W
R982	61A	172-	471 -	52T	470 OHM +-5% 1/4W
R983	61A	602-	223 -	52T	22K OHM +-5% 1/6W
ZD101	93A	39-	73 -	52T	HZ6B1/HITACHI
ZD401	93A	39-	514 -	52T	HZ9A3 ZENER
ZD402	93A	39-	73 -	52T	HZ6B1/HITACHI
ZD404	93A	39-	52 -	52T	HZ5C2 5.1V 5% 0.5W
ZD406	93A	39-	77 -	52T	HZ5C1
ZD407	95A	90-	23		TIN COATED
ZD702	93A	39-	58 -	52T	ZD HZ24-2/HITACHI
ZD704	93A	39-	57M -	52T	MTZJ8.2B
ZD901	93A	39-	113 -	52T	ZD HZ20-2/HITACHI
ZD902	93A	39-	113 -	52T	ZD HZ20-2/HITACHI
ZD903	93A	39-	94 -	52T	RD18EB1
ZD934	93A	39-	94M -	52T	MTZJ18A

PARTS LIST OF CRT PC BOARD

LOCATION	CR990S2 RAI990S2				SPECIFICATION CRT BOARD
	9A	203-	8		BRASS
	40A	581-	26 -	605	LABEL
	705A	990S-	R57 -	01	Q802/Q803/Q804 ASS'Y
	705A	995T-	R87 -	01	CRT SOCKET ASS 'Y
C810	67A	305-	470 -	9T	47uF 20%
C853	65A	2M-	103 -	3B	0.01uF 20% 2KV Z5U
FB802	61A	152M-	828 -	64	0.82 OHM 5% 2W
IC801	56A	366-	4		MM1381XD
P801	33A	3278-	11A		11P PLUG
P802	33A	3278-	9		9P PLUG
P803	33A	3278-	6		6P PLUG
P804	33A	3278-	5		5P PLUG
P805	33A	3278-	7		7P PLUG
PSDA1	65A	1K-	101 -	5A	100P 1KV
R836	61A	155C-	102 -	H2	1K OHM +-5% 5W
R837	61A	155C-	102 -	H2	1K OHM +-5% 5W
R838	61A	155C-	102 -	H2	1K OHM +-5% 5W
SG801	62A	10-	2 -	JT	SPARK-GAP
SG802	62A	10-	2 -	JT	SPARK-GAP
SG804	62A	10-	16 -	W	SPARK-GAP 1KV

PARTS LIST OF CRT AUTO INS. PC BOARD

LOCATION	RAI990S2				SPECIFICATION
	715A	669-	2A		CRT PC BOARD
C801	67A	309-	100 -	7T	10uF +-20% 50V
C802	67A	309-	100 -	7T	10uF +-20% 50V
C803	67A	309-	100 -	7T	10uF +-20% 50V
C804	67A	305-	101 -	3T	100uF +-20% 16V
C805	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C806	67A	309-	100 -	7T	10uF +-20% 50V
C807	67A	309-	100 -	7T	10uF +-20% 50V
C808	67A	309-	100 -	7T	10uF +-20% 50V
C809	67A	309-	100 -	7T	10uF +-20% 50V
C811	67A	309-	100 -	7T	10uF +-20% 50V
C812	64A	176J-	104 -	1T	0.1uF +-5% 100V
C813	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C814	65A	450-	223 -	4T	22000PF +80% -20% Z5V 50V
C815	65A	517M-	103 -	3T	10NF +-20% Z5U 500V
C816	65A	450-	223 -	4T	22000PF +80% -20% Z5V 50V
C817	65A	450-	223 -	4T	22000PF +80% -20% Z5V 50V
C818	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C819	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C820	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C821	67A	305-	101 -	3T	100uF +-20% 16V
C822	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C823	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C824	65A	442-	330 -	1T	33PF +-5% NPO 50V
C825	65A	450-	473 -	4T	47000PF +80% -20% Z5V 50V
C826	65A	450-	473 -	4T	47000PF +80% -20% Z5V 50V
C827	65A	450-	473 -	4T	47000PF +80% -20% Z5V 50V
C828	64A	176J-	104 -	1T	0.1uF +-5% 100V
C829	64A	176J-	104 -	1T	0.1uF +-5% 100V
C830	64A	176J-	104 -	1T	0.1uF +-5% 100V
C831	65A	442-	330 -	1T	33PF +-5% NPO 50V
C832	65A	442-	330 -	1T	33PF +-5% NPO 50V
C833	65A	442-	330 -	1T	33PF +-5% NPO 50V
C834	65A	442-	330 -	1T	33PF +-5% NPO 50V
C835	65A	442-	330 -	1T	33PF +-5% NPO 50V
C836	65A	442-	330 -	1T	33PF +-5% NPO 50V
C837	67A	70-	109 -	9T	1UF 100V
C838	67A	70-	109 -	9T	1UF 100V
C839	67A	70-	109 -	9T	1UF 100V
C840	67A	305-	109 -	10T	1uF +-20% 160V
C841	67A	305-	109 -	10T	1uF +-20% 160V
C842	67A	305-	109 -	10T	1uF +-20% 160V
C843	67A	305-	109 -	9T	1uF +-20% 100V
C844	67A	305-	109 -	9T	1uF +-20% 100V
C845	67A	305-	109 -	9T	1uF +-20% 100V
C846	65A	442-	330 -	1T	33PF +-5% NPO 50V
C847	65A	442-	330 -	1T	33PF +-5% NPO 50V
C848	65A	517K-	102 -	5T	1000PF 500V + -10% Y5P
C849	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C850	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C851	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V
C852	65A	517K-	102 -	5T	1000PF 500V + -10% Y5P
C854	65A	450-	104 -	7T	0.1uF +80% -20% Y5V 50V

LOCATION	RAI990S2					SPECIFICATION
C855	67A	309-	221 -	3T		220uF +20% 16V
C857	65A	517K-	102 -	5T		1000PF 500V + -10% Y5P
C858	65A	517K-	102 -	5T		1000PF 500V + -10% Y5P
C862	65A	442-	100 -	1T		10PF +-5% NPO 50V
C863	65A	442-	100 -	1T		10PF +-5% NPO 50V
C864	65A	442-	100 -	1T		10PF +-5% NPO 50V
C865	65A	1K-	101 -	5T		100PF/1KV + -10% Y5P
D801	93A	64-	11 -	52T		DIODE IN4148
D802	93A	64-	11 -	52T		DIODE IN4148
D803	93A	64-	11 -	52T		DIODE IN4148
D804	93A	64-	11 -	52T		DIODE IN4148
D805	93A	64-	11 -	52T		DIODE IN4148
D806	93A	64-	11 -	52T		DIODE IN4148
D807	93A	64-	11 -	52T		DIODE IN4148
D808	93A	64-	11 -	52T		DIODE IN4148
D809	93A	64-	11 -	52T		DIODE IN4148
D810	93A	64-	11 -	52T		DIODE IN4148
D811	93A	64-	11 -	52T		DIODE IN4148
D812	93A	64-	11 -	52T		DIODE IN4148
D813	93A	64-	11 -	52T		DIODE IN4148
D814	93A	64-	19 -	52T		DIODE 1SS83
D815	93A	64-	19 -	52T		DIODE 1SS83
D816	93A	64-	19 -	52T		DIODE 1SS83
D817	93A	64-	11 -	52T		DIODE IN4148
D818	93A	64-	11 -	52T		DIODE IN4148
D819	93A	64-	11 -	52T		DIODE IN4148
D820	93A	60-	21P -	52T		PS156R
D821	93A	64-	11 -	52T		DIODE IN4148
D822	93A	64-	11 -	52T		DIODE IN4148
D823	93A	64-	11 -	52T		DIODE IN4148
D824	93A	64-	19 -	52T		DIODE 1SS83
D825	93A	64-	19 -	52T		DIODE 1SS83
D826	93A	64-	19 -	52T		DIODE 1SS83
D827	93A	60-	21P -	52T		PS156R
FB801	71A	55-	9 -	T		SHIELDS BEAD
FB803	71A	55-	9 -	T		SHIELDS BEAD
FB804	71A	55-	9 -	T		SHIELDS BEAD
FB805	71A	55-	9 -	T		SHIELDS BEAD
FB806	71A	55-	9 -	T		SHIELDS BEAD
FB807	71A	55-	9 -	T		SHIELDS BEAD
FB808	71A	55-	9 -	T		SHIELDS BEAD
FB809	71A	55-	9 -	T		SHIELDS BEAD
FB810	95A	90-	23			TIN COATED
FB811	95A	90-	23			TIN COATED
FB812	95A	90-	23			TIN COATED
J802	95A	90-	23			TIN COATED
J803	95A	90-	23			TIN COATED
J804	95A	90-	23			TIN COATED
J805	95A	90-	23			TIN COATED
J806	95A	90-	23			TIN COATED
J808	95A	90-	23			TIN COATED
J809	95A	90-	23			TIN COATED
J810	95A	90-	23			TIN COATED
J811	95A	90-	23			TIN COATED
J812	95A	90-	23			TIN COATED
J813	95A	90-	23			TIN COATED
J814	95A	90-	23			TIN COATED
J815	95A	90-	23			TIN COATED
J816	95A	90-	23			TIN COATED

LOCATION	RAI990S2				SPECIFICATION
J817	95A	90-	23		TIN COATED
J819	95A	90-	23		TIN COATED
J820	95A	90-	23		TIN COATED
J821	95A	90-	23		TIN COATED
J822	95A	90-	23		TIN COATED
J823	95A	90-	23		TIN COATED
L801	73A	54-	109 -	5T	1uH +-5%
L802	73A	54-	109 -	5T	1uH +-5%
L803	73A	54-	109 -	5T	1uH +-5%
L807	73A	54-	338 -	10T	0.33uH +-10%
L808	73A	54-	338 -	10T	0.33uH +-10%
L809	73A	54-	338 -	10T	0.33uH +-10%
Q801	57A	420-	P -	T	TR. 2SA733P/NEC
Q805	57A	516-	1 -	T	TR. PH2369
Q806	57A	516-	1 -	T	TR. PH2369
Q807	57A	516-	1 -	T	TR. PH2369
Q808	57A	744-	2 -	T	TR. BFQ221
Q809	57A	744-	2 -	T	TR. BFQ221
Q810	57A	744-	2 -	T	TR. BFQ221
Q811	57A	745-	2 -	T	TR. BFQ241
Q812	57A	745-	2 -	T	TR. BFQ241
Q813	57A	745-	2 -	T	TR. BFQ241
Q817	57A	493-	500 -	T	TR. BF422
Q818	57A	493-	500 -	T	TR. BF422
Q819	57A	493-	500 -	T	TR. BF422
R801	61A	602-	750 -	52T	75 OHM +-5% 1/6W
R802	61A	602-	750 -	52T	75 OHM +-5% 1/6W
R803	61A	602-	750 -	52T	75 OHM +-5% 1/6W
R804	61A	602-	330 -	52T	33K OHM +-5% 1/6W
R805	61A	602-	330 -	52T	33K OHM +-5% 1/6W
R806	61A	602-	330 -	52T	33K OHM +-5% 1/6W
R807	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R808	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R809	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R810	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R811	61A	602-	562 -	52T	5.6 OHM +-5% 1/6W
R812	61A	602-	152 -	52T	1.5K OHM +-5% 1/6W
R813	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R814	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R815	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R816	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R817	61A	602-	393 -	52T	39K OHM +-5% 1/6W
R818	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R819	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R820	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R821	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R822	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R823	61A	602-	912 -	52T	9.1K OHM +-5% 1/6W
R824	61A	602-	271 -	52T	270 OHM +-5% 1/6W
R825	61A	602-	271 -	52T	270 OHM +-5% 1/6W
R826	61A	602-	271 -	52T	270 OHM +-5% 1/6W
R830	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R831	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R832	61A	602-	101 -	52T	100 OHM +-5% 1/6W
R833	61A	602-	560 -	52T	56 OHM +-5% 1/6W
R834	61A	602-	560 -	52T	56 OHM +-5% 1/6W
R835	61A	602-	560 -	52T	56 OHM +-5% 1/6W
R839	95A	90-	23		TIN COATED
R840	95A	90-	23		TIN COATED
R841	95A	90-	23		TIN COATED
R842	61A	602-	201 -	52T	200 OHM +-5% 1/6W

LOCATION	CR990S2				SPECIFICATION
R843	61A	602-	201 -	52T	200 OHM +-5% 1/6W
R844	61A	602-	201 -	52T	200 OHM +-5% 1/6W
R845	61A	602-	510 -	52T	51 OHM +-5% 1/6W
R846	61A	602-	510 -	52T	51 OHM +-5% 1/6W
R847	61A	602-	510 -	52T	51 OHM +-5% 1/6W
R848	61A	175L-	111 -	52T	110 OHM +-5% 1/2W
R849	61A	175L-	111 -	52T	110 OHM +-5% 1/2W
R850	61A	175L-	111 -	52T	110 OHM +-5% 1/2W
R851	61A	602-	682 -	52T	6.8K OHM +-5% 1/6W
R852	61A	602-	682 -	52T	6.8K OHM +-5% 1/6W
R853	61A	602-	682 -	52T	6.8K OHM +-5% 1/6W
R854	61A	602-	220 -	52T	22 OHM +-5% 1/6W
R855	61A	602-	220 -	52T	22 OHM +-5% 1/6W
R856	61A	602-	220 -	52T	22 OHM +-5% 1/6W
R857	61A	602-	470 -	52T	47 OHM +-5% 1/6W
R858	61A	602-	470 -	52T	47 OHM +-5% 1/6W
R859	61A	602-	470 -	52T	47 OHM +-5% 1/6W
R866	61A	602-	105 -	52T	1M OHM +-5% 1/6W
R867	61A	602-	105 -	52T	1M OHM +-5% 1/6W
R868	61A	602-	105 -	52T	1M OHM +-5% 1/6W
R869	61A	172-	153 -	52T	15K OHM +-5% 1/4W
R870	61A	172-	153 -	52T	15K OHM +-5% 1/4W
R871	61A	172-	153 -	52T	15K OHM +-5% 1/4W
R872	61A	602-	473 -	52T	47K OHM +-5% 1/6W
R873	61A	602-	473 -	52T	47K OHM +-5% 1/6W
R874	61A	602-	473 -	52T	47K OHM +-5% 1/6W
R875	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R876	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R877	61A	602-	222 -	52T	2.2K OHM +-5% 1/6W
R878	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R879	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R880	61A	602-	102 -	52T	1K OHM +-5% 1/6W
R884	61A	175L-	680 -	52T	68 OHM +-5% 1/2W
R885	61A	175L-	680 -	52T	68 OHM +-5% 1/2W
R886	61A	175L-	680 -	52T	68 OHM +-5% 1/2W
R887	61A	175L-	101 -	52T	100 OHM +-5% 1/2W
R888	61A	175L-	564 -	52T	560K OHM +-5% 1/2W
SG803	62A	10-	2 -	JT	SPARK CAP

PARTS LIST OF Q802/Q803/Q804 ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
	32A	3028-	17	MICA
	90A	361-	1 -	HEAT SINK
	M1A	1730-	10 -	SCREW
			128	
Q802	57A	509-	6	TR. 2SC3953E
Q803	57A	509-	6	TR. 2SC3953E
Q804	57A	509-	6	TR. 2SC3953E

PARTS LIST OF CRT SOCKET ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
	11A	6010-	2 -	SOCKET HOLDER
	87A	3504-	2	CRT SOCKET

PARTS LIST OF IC904 ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
IC904	90A	360-	2	HEAT SINK
	M1A	1730-	6 - 128	SCREW
	56A	133-	12 - N	VOLTAGE REGULATORS

PARTS LIST OF Q403/Q405/Q911/D408 ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
D408 HS1 Q403 Q405 Q911	3A	1-	4 - 106	LOCK WASHER
	5A	42-	501	WASER
	12A	372-	1	SILICONE RUBBER
	32A	3028-	8	MICA
	90A	367-	505	HEAT SINK
	M1A	1730-	8 - 128	SCREW
	M1A	1730-	10 - 128	SCREW
	93A	220-	17	FMQ-2FUR
	95A	205T-	30 - 06A	WIRE ASS'Y
	57A	706-	7	2SC5521Z
	57A	415-	1	TR. NPN TIP122
	57A	600-	504	POWER MOSFET IRF634A

PARTS LIST OF IC601 ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
IC601	11A	6007-	2	BUSHING
	90A	351-	500 - A	HEAT SINK
	M1A	1730-	10 - 128	SCREW
	56A	5002-	1	TDA4866

PARTS LIST OF Q901 ASS'Y

LOCATION	PARTS	No.		SPECIFICATION
Q901	5A	42-	501	WASER
	12A	372-	1	SILICONE RUBBER
	90A	348-	3	HEAT SINK
	M1A	1730-	10 - 128	SCREW
	57A	724-	4	2SK2996

PARTS LIST OF Q425 ASS'Y

LOCATION	PARTS	No.	SPECIFICATION		
Q425	32A	3028-	502	MICA	
	90A	360-	2	HEAT SINK	
	M1A	1730-	8 -	128	SCREW
	56A	728-	3	HSB772P	

PARTS LIST OF Q420 ASS'Y

LOCATION	PARTS	No.	SPECIFICATION		
Q420	2A	6003-	1	SCREW NUT	
	90A	6015-	1	HEAT SINK	
	M1A	1730-	8 -	128	SCREW
	57A	600-	2	MOS FET IRF630	

PARTS LIST OF CN901 ASS'Y

LOCATION	PARTS	No.			SPECIFICATION
	87A	501-	5		RECEPTACLES
	95A	800-	2 -	2C	WIRE ASS'Y
	96A	29-	6 -	190	TUBING

PARTS LIST OF D921 ASS'Y

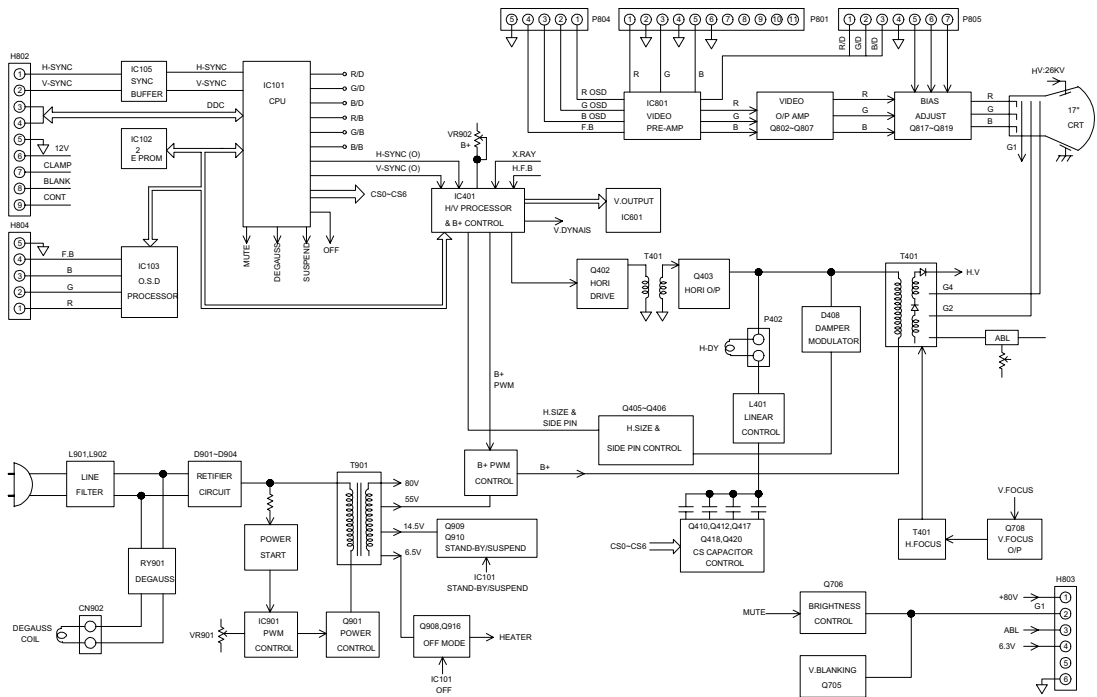
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D921	71A	55-2	FERRITE BEAD
	90A	360-501	HEAT SINK
	93A	3040-8T	RG-4

PARTS LIST CRT ALTERNATION

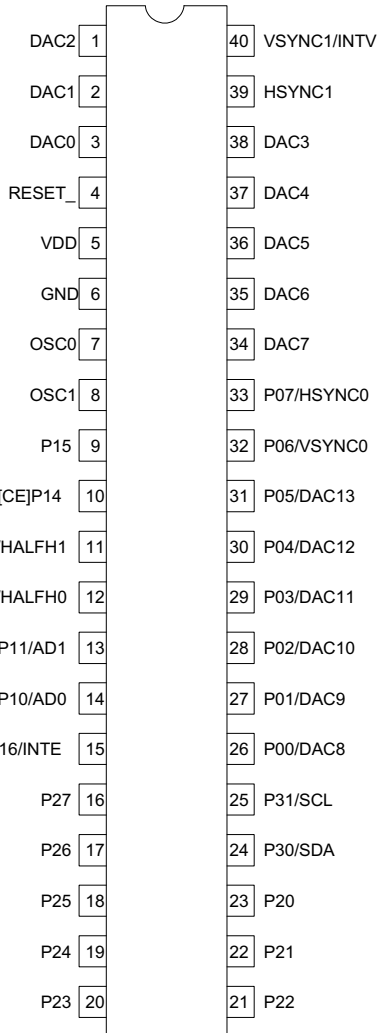
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	750A	5408- 1AV	19" HITACHI CRT

PARTS LIST CRT ALTERNATION

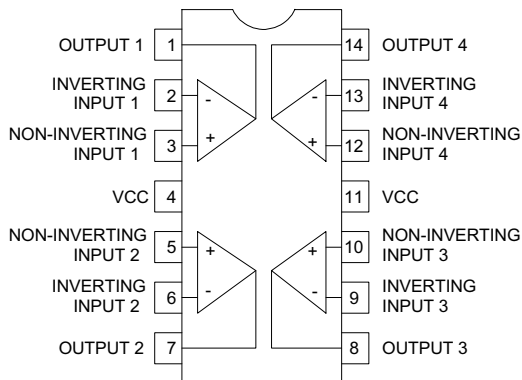
LOCATION	PARTS	No.	SPECIFICATION
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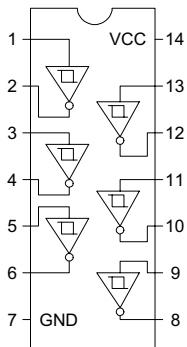
IC101
UM6861



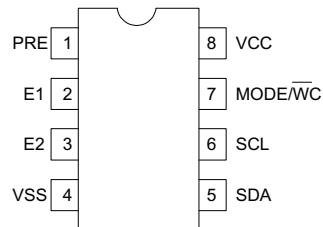
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LM324



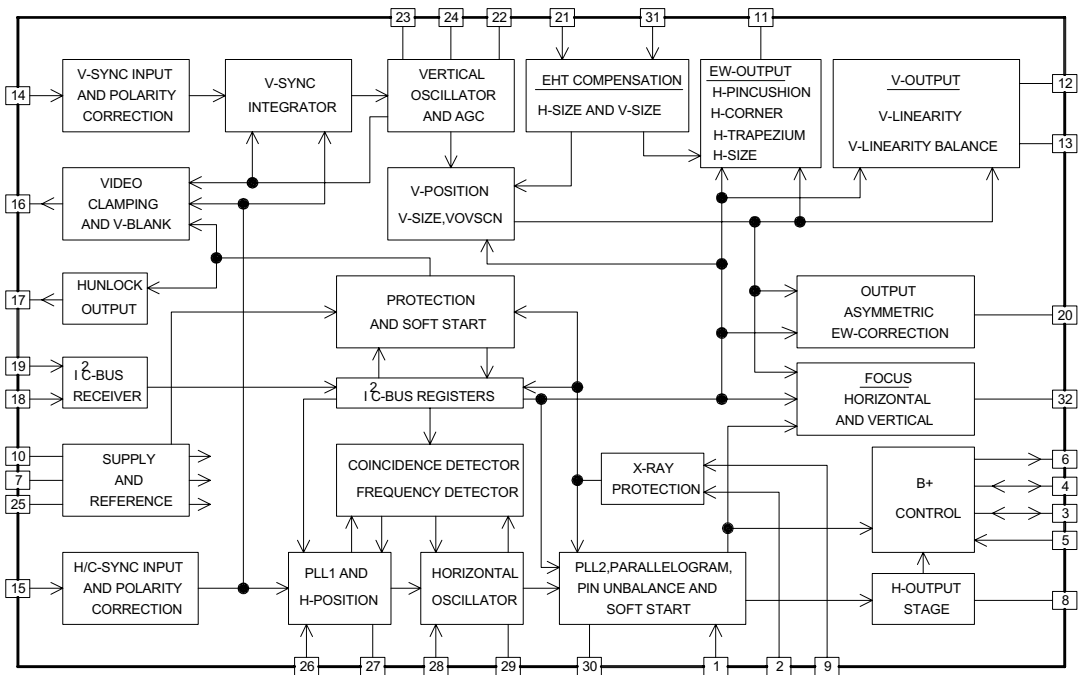
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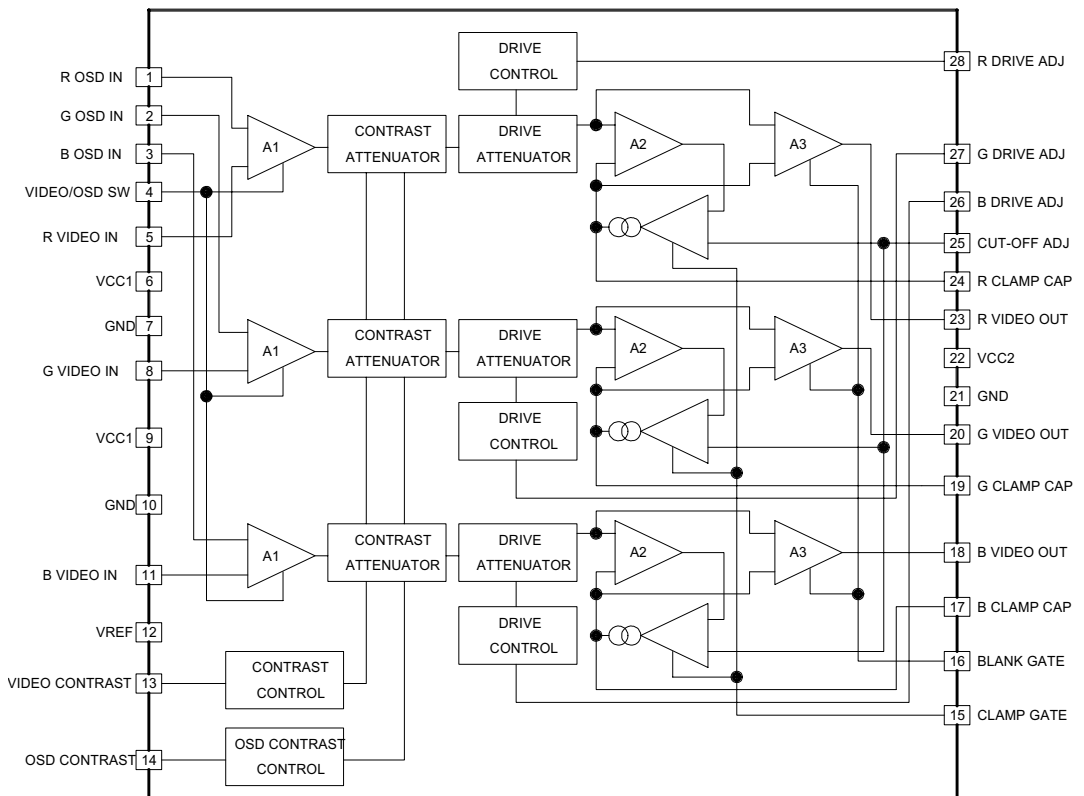
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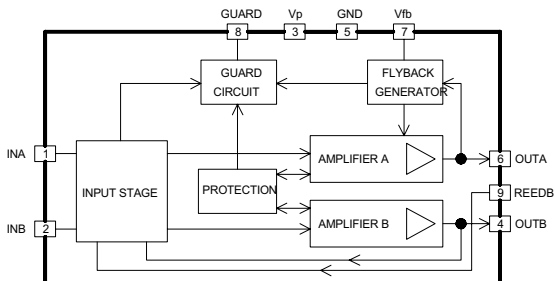
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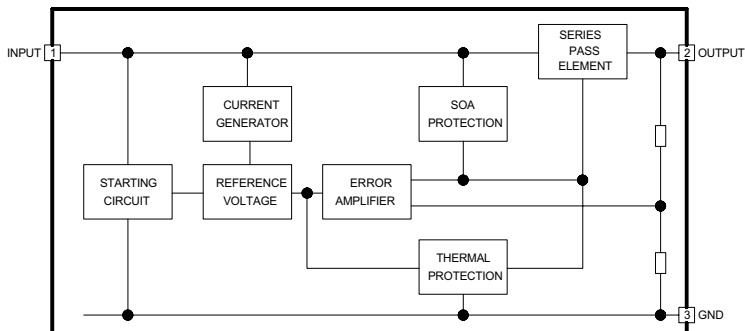
IC801 MM1381XD



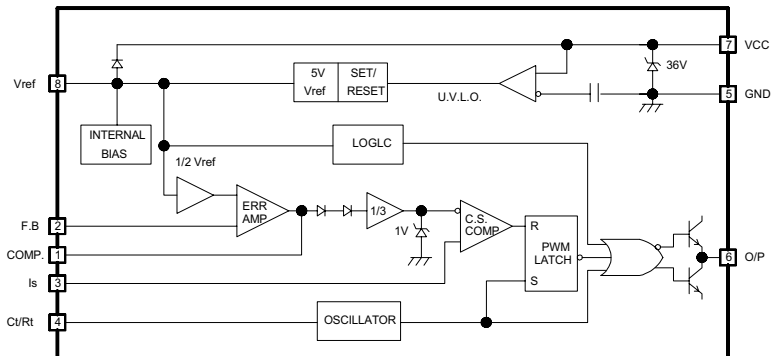
IC601 TDA4866



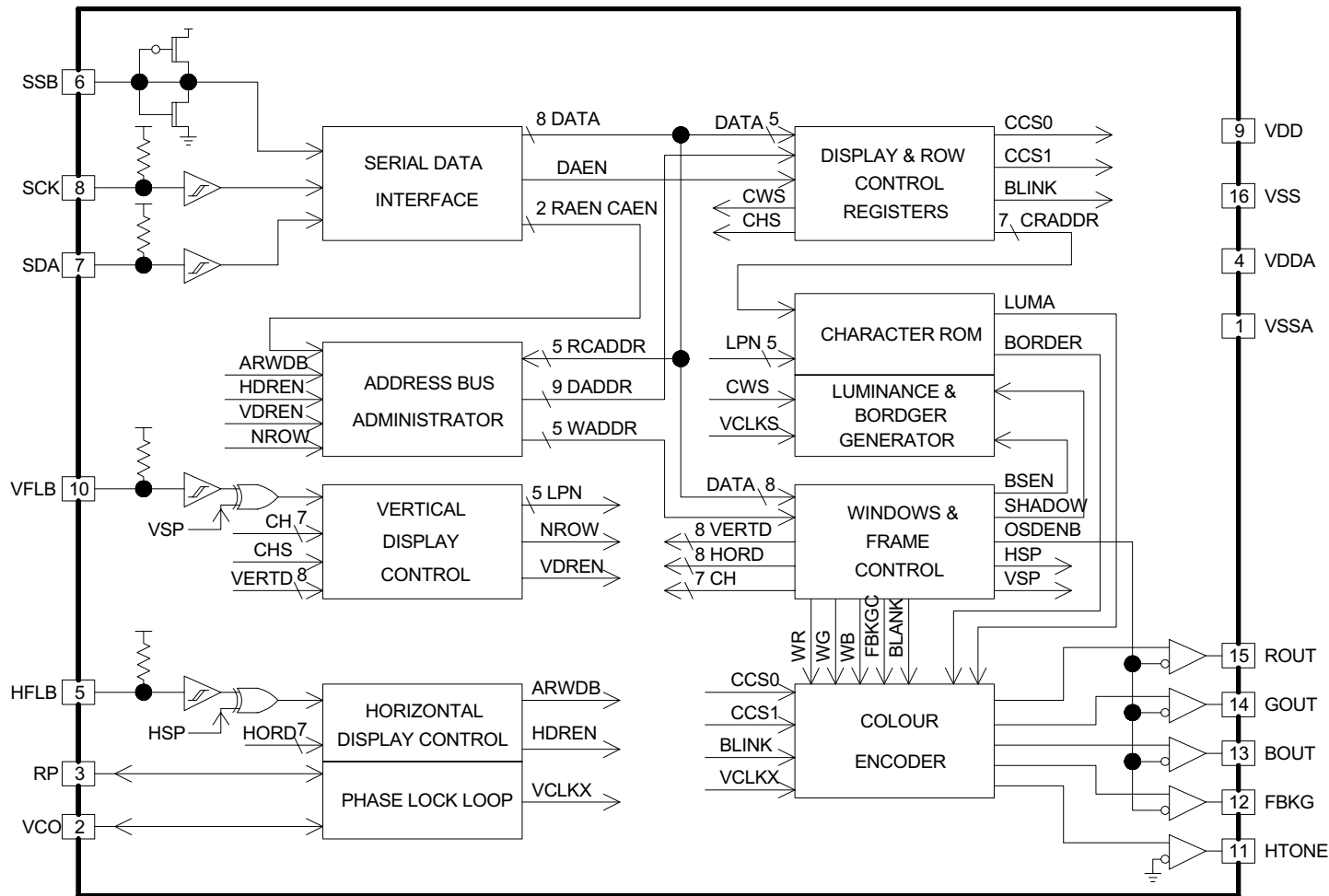
IC904 LM7812



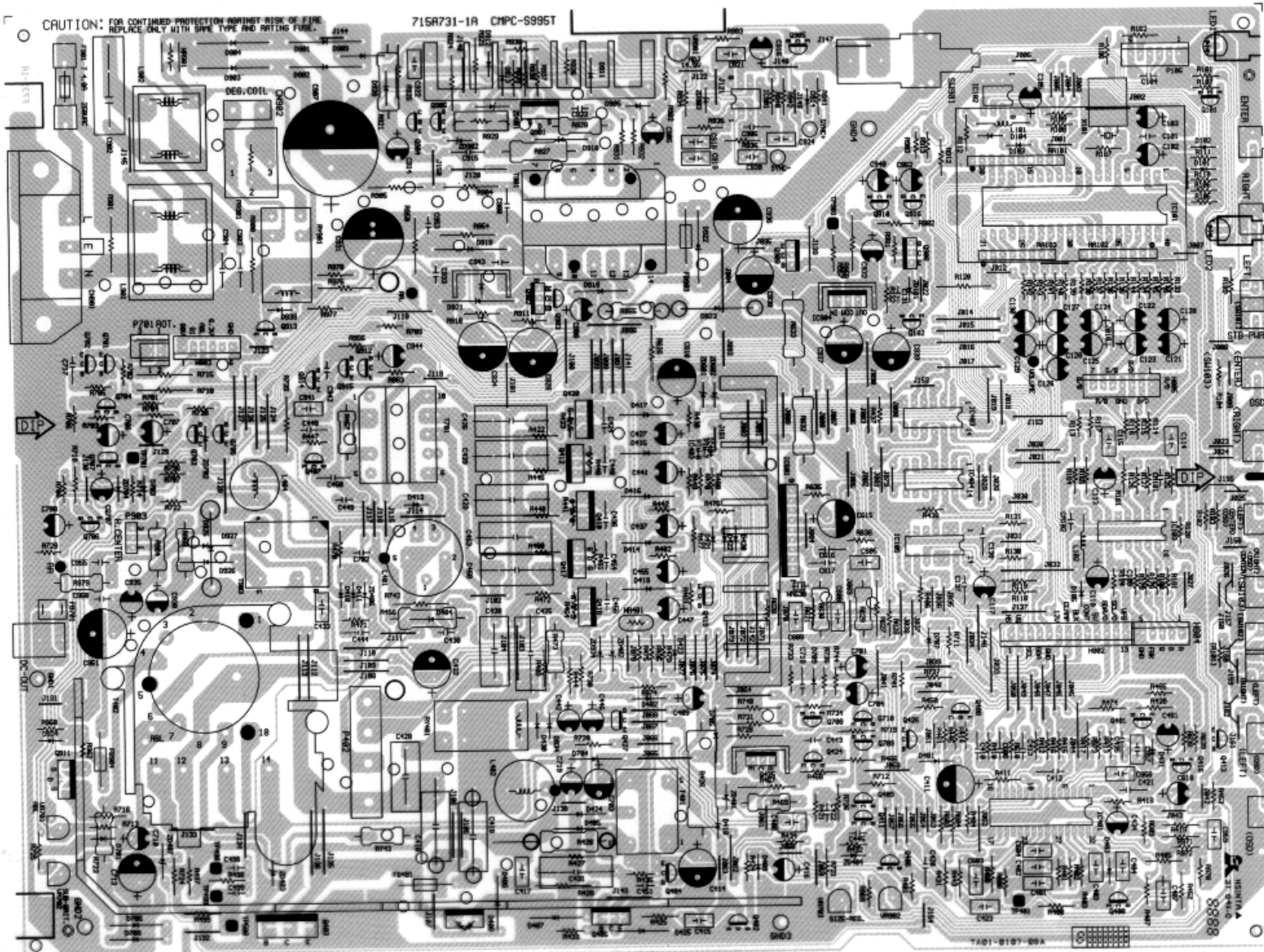
IC901 3842



IC103 MTV016/MTV018

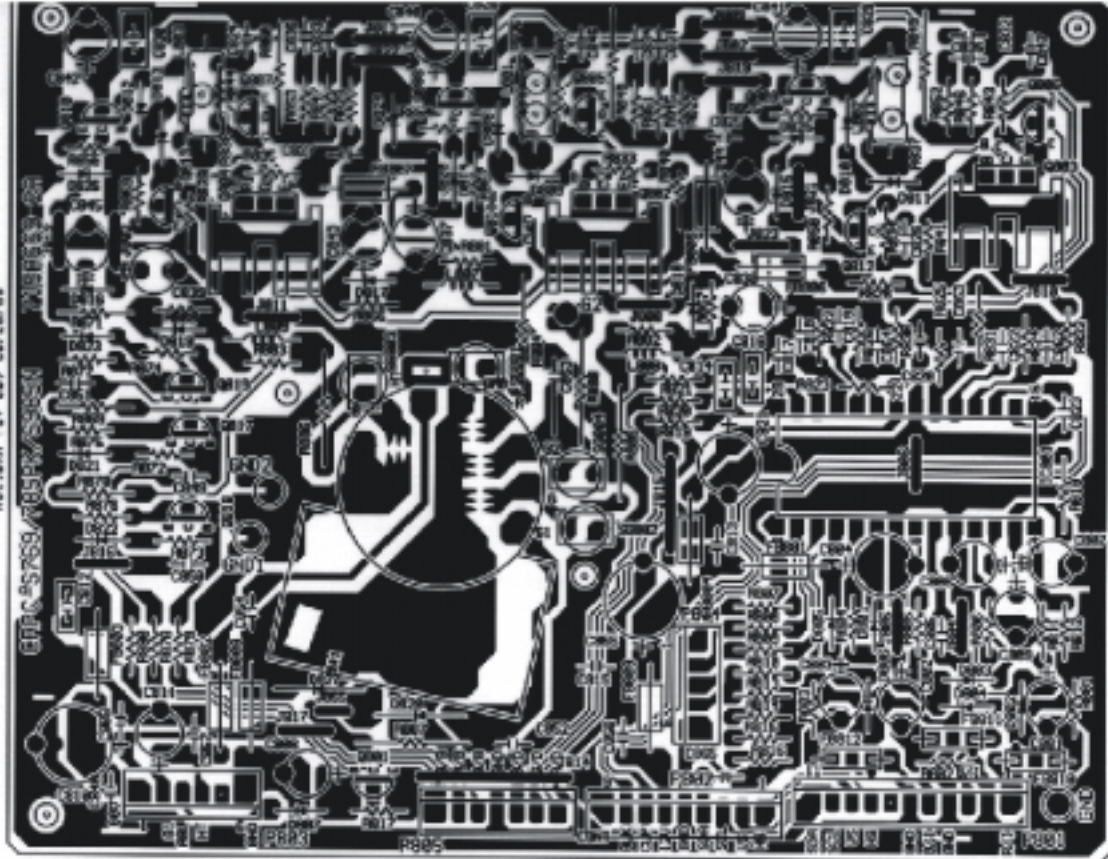


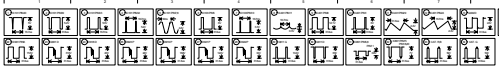
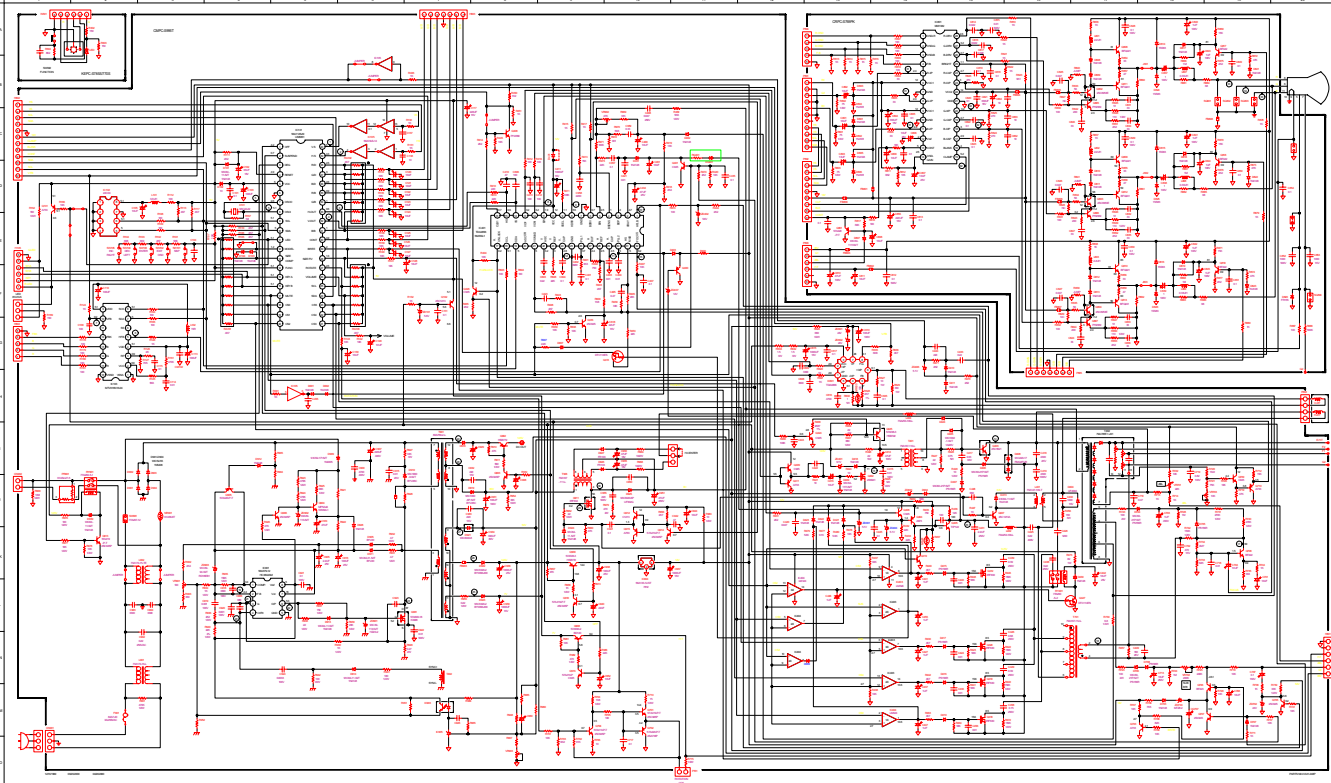
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02-030000

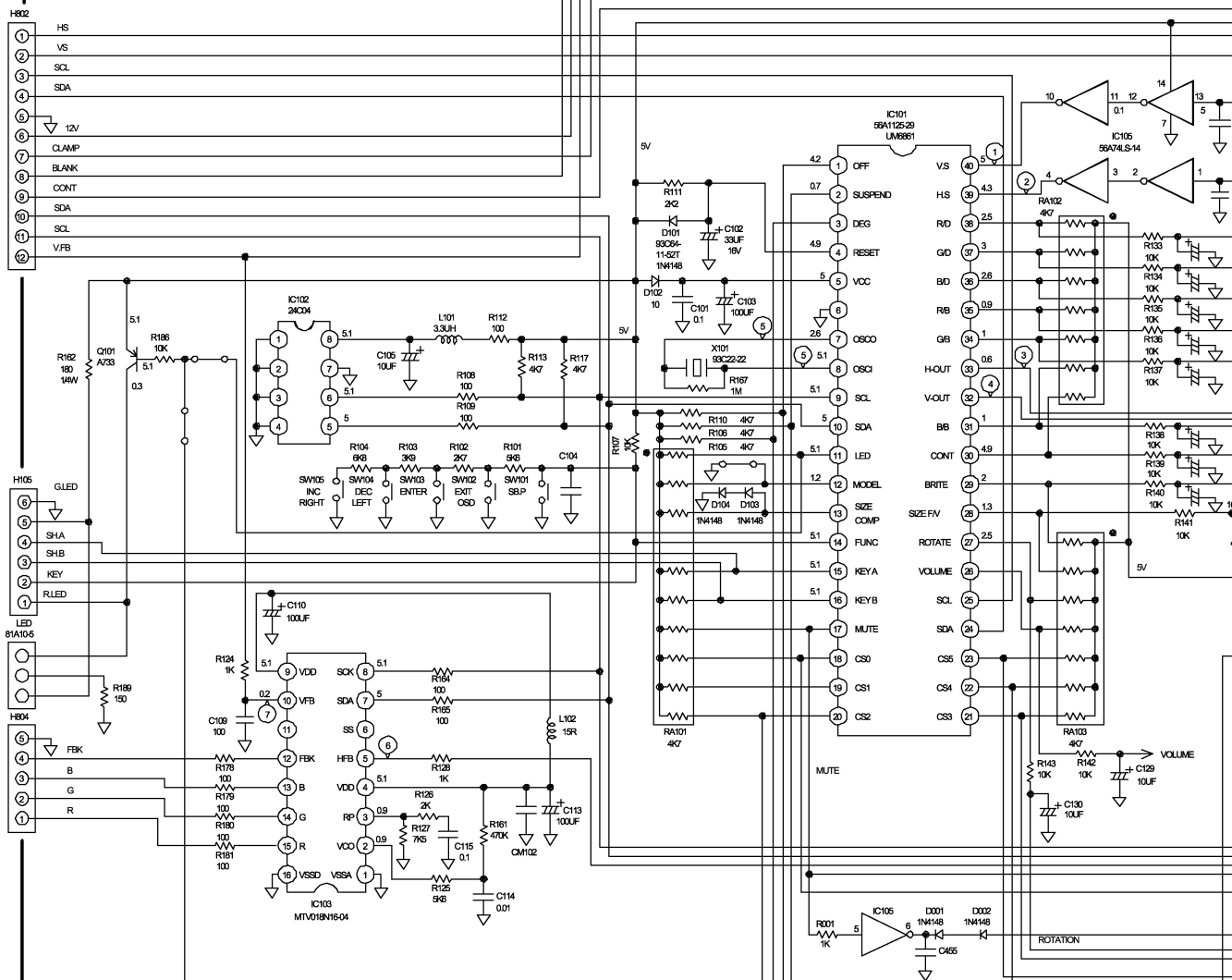
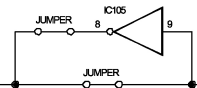
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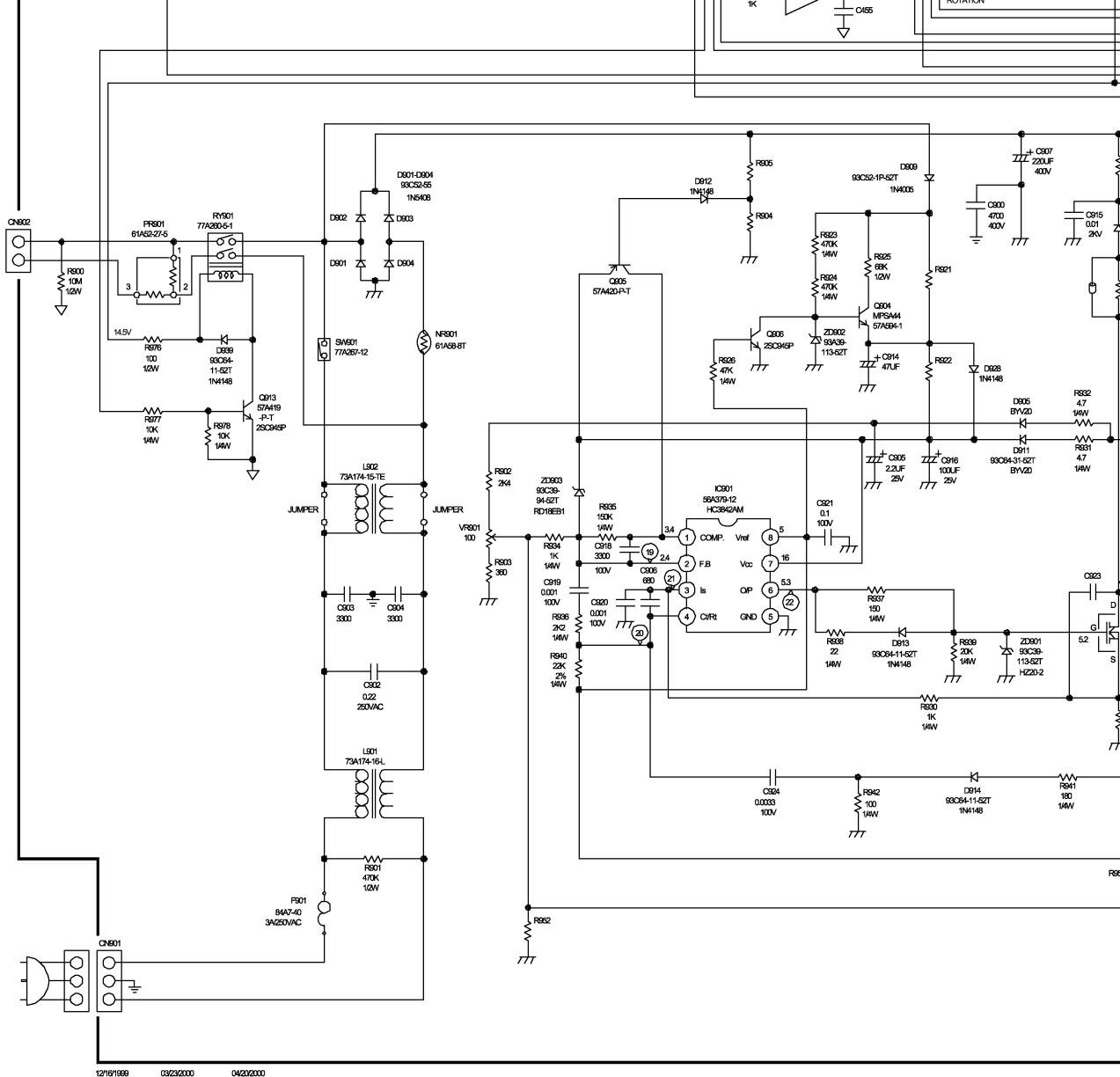




NOTES
The manufacturer and supplier guarantee the accuracy of the information.
When the user makes any change, they assume full responsibility for the changes.

MODEL	S995T	DRAWING	M.Y.KU
VERSION	B	CHECKER	
DATE	03/23/2000	APPROVAL	





1

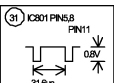
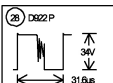
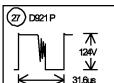
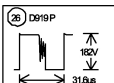
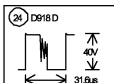
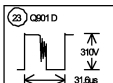
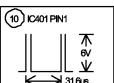
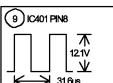
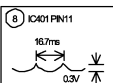
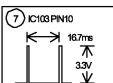
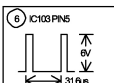
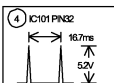
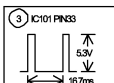
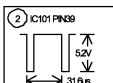
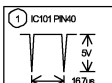
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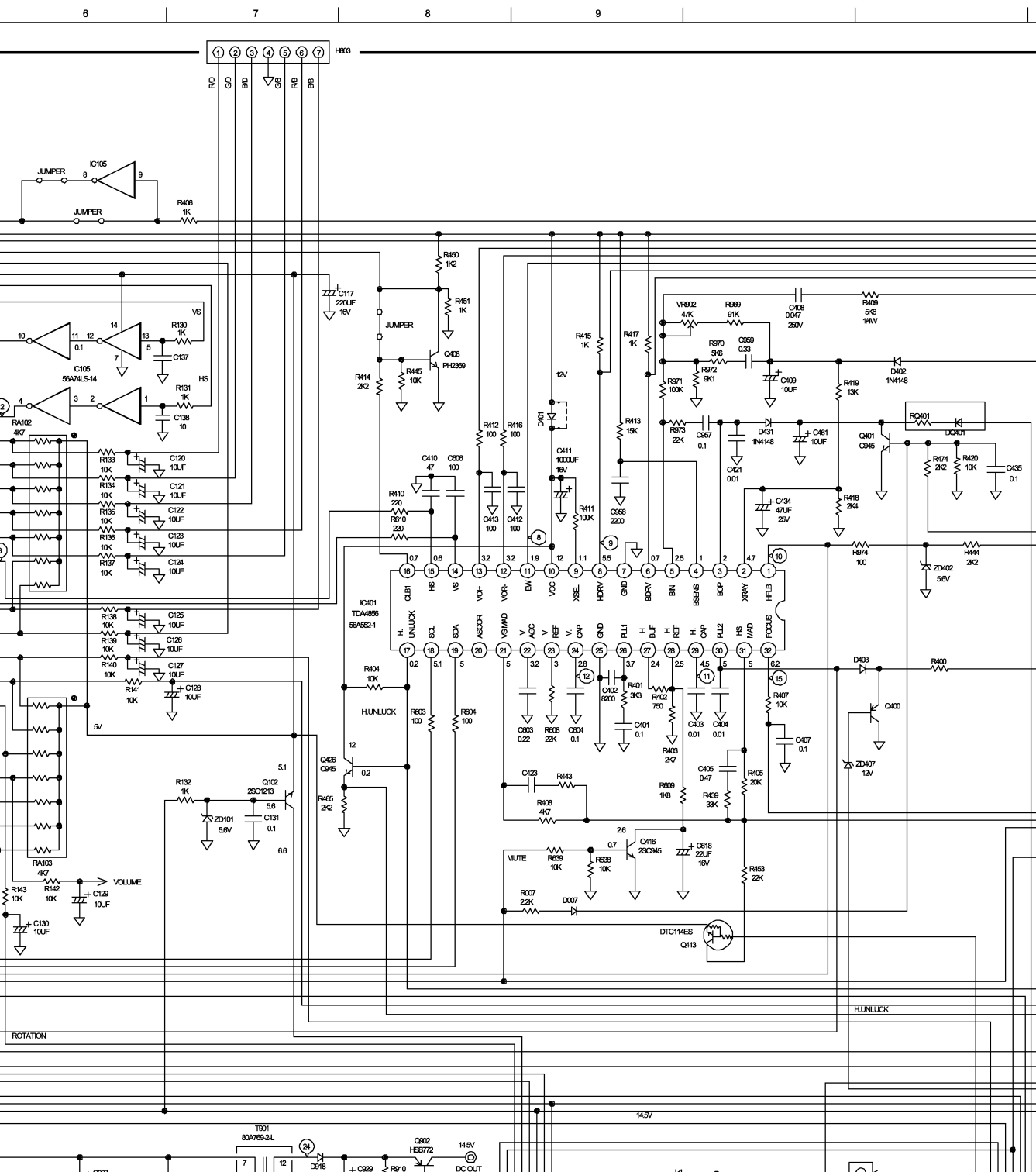
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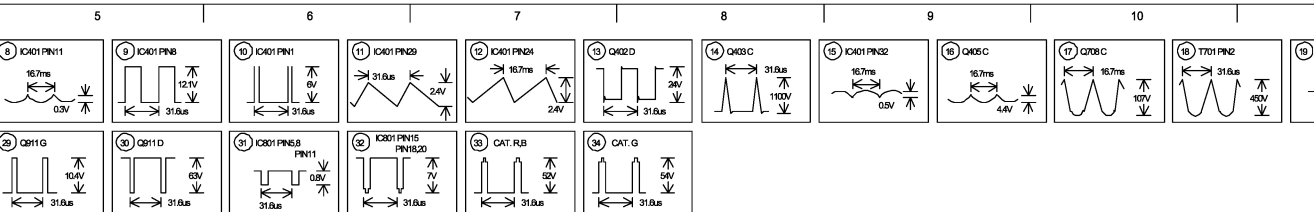
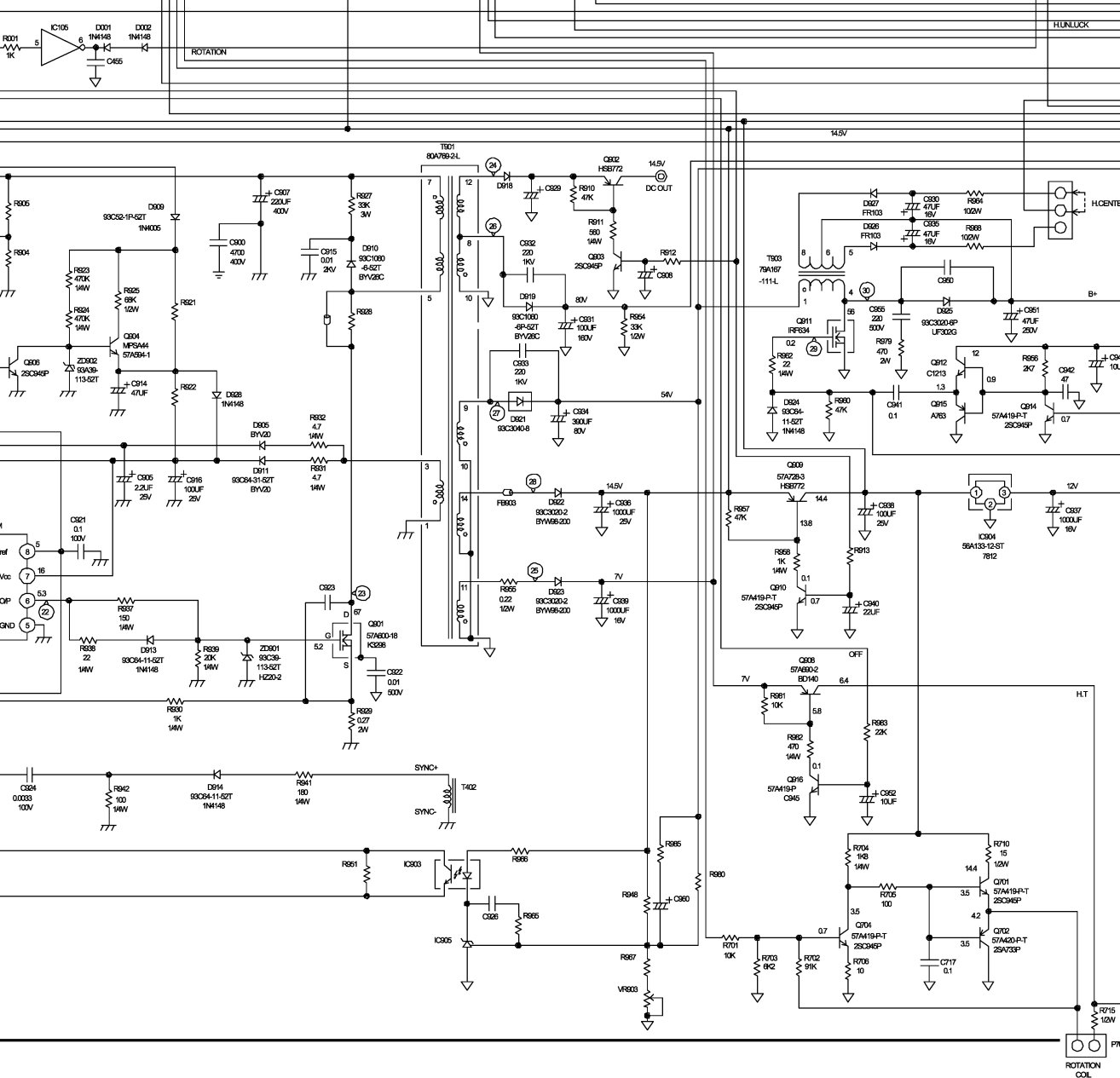
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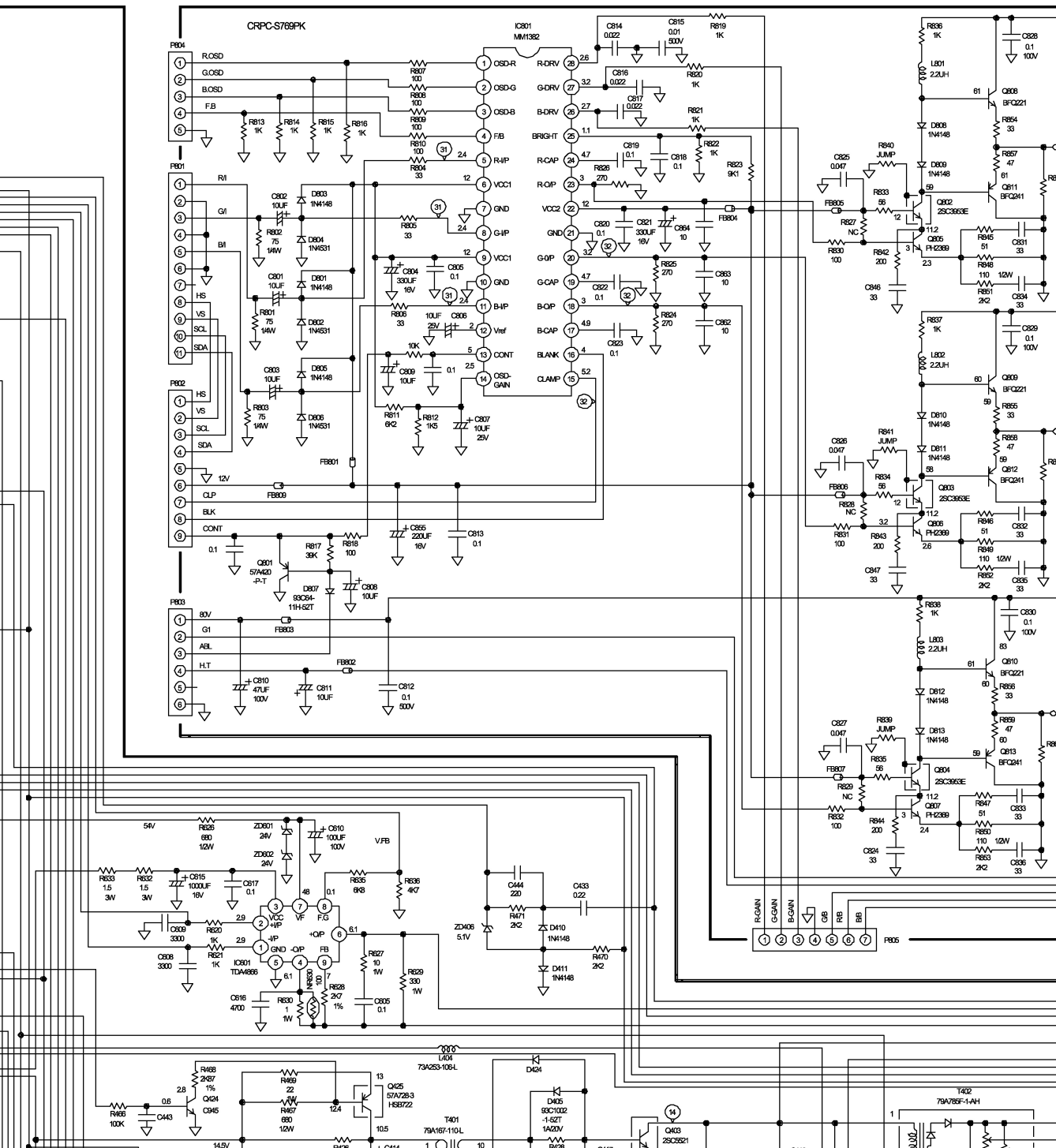
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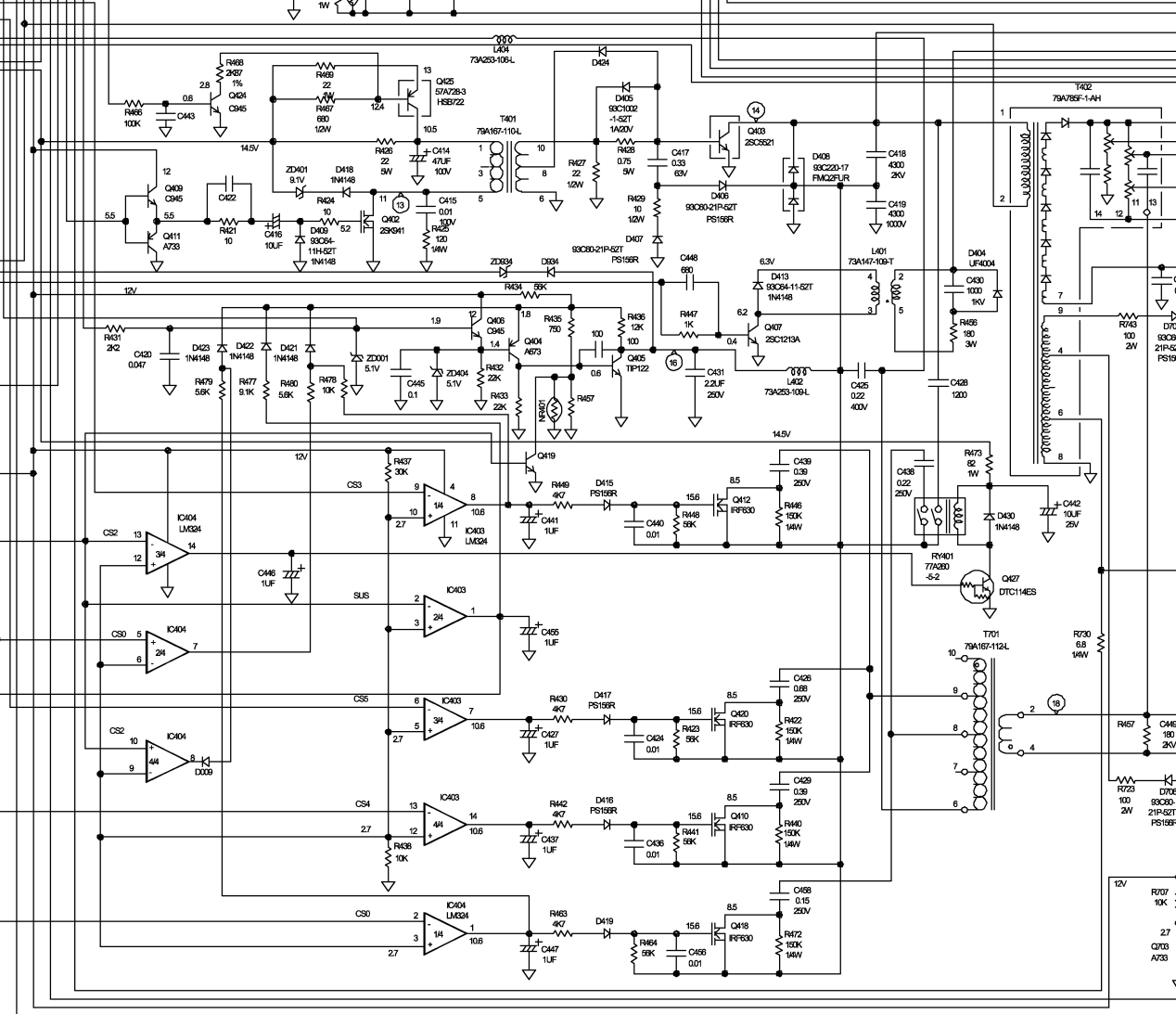
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12	13	14	15	16	17
① 01 PIN4 </					

