CONTENTS

1.0 IMPORTANT NOTICE & INTRODUCTION & SAFETY NOTICE

IMPORTANT NOTICE

Please read before attempting service

1. While the monitor is in operation, do not attempt to connect or disconnect any wires.
2. Make sure the power cord is disconnected before replacing any parts in the monitor.
3. When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the monitor.
4. When servicing the H.V. area, be certain that the C.R.T anode is safely discharged before removing the anode cap.
5. Caution must exercised when servicing this monitor.

INTRODUCTION

Enhanced repair capabilities

This Service manual is edited for model 2195UE when service is necessary. there are four primary parts included in this troubleshooting guide which offer the easiest way to locate problem points and repair the machine to the best possible condition.

1. The Adjustment section offers the adjustable method, steps and all data of the factory's initial settings which can make the machine get the best performance at that time. By the way, before adjusting, the machine must be warmed up for at least 10 minutes and the CRT face must be in an east ward direction.
2. The Troubleshooting section has four main parts including: power supply, micon circuit, CRT, deflection & video circuit. Each offers fast repair routine and the IC, transistor voltage records against all specified signal modes. These voltage readings are measured with a HP 34401A multimeter with input impedance 10M (0.1V1000V range) and waveforms shown on circuit schematics are measured by a Tektronix TDS 520 digital oscilloscope, the monitor receives VGA-480 full white square pattern.
3. The Spare parts list offers the CTX part number (P/N) which is used frequently by repairmen / technicians. For details please refer to the service guide or service manual. If there is any engineering change regarding this model, CTX will issue the updated information by a non-periodical Technical Bulletin.
4. The transistor voltage records are measured from LEFT side to RIGHT side when face to the front (printed side) of transistor.

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

The following precautions should be observed.

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.
2. When replacing a chassis in the monitor, all the protective devices must be put back in place, such as barriers, non-metallic knobs, adjustment and compartment shields, and isolation resistor-capacitor, etc..
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacturer's replacement components. Especially critical components as indicated on the Replacement parts list should not be replaced by other manufacturer's Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced monitor to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the monitor by the manufacturer has become defective, or inadvertently defeated during servicing. Therefore, the following

checks should be performed for continued protection of the customer and service technician.

High Voltage

This monitor is provided with a high voltage hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit may function correctly.

Service Warning

With minimum Brightness and Contrast the operation high voltage in this display is lower than 27KV.

If any component having influence on the high voltage is replaced, confirm that the high voltage with minimum Brightness and Contrast is lower than 27KV. To measure high voltage use a high impedance high-voltage meter.(SENSITIVE RESEARCH Model: ESH or Equivalent) Connect (-) to chassis earth and (+) to the CRT anode button. (See the following connection diagram Fig. 1).

NOTE:

1) Turn power switch off without fail before making the connection to the Anode button.

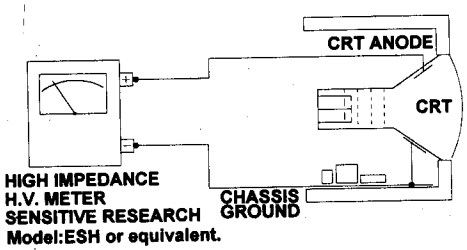


Fig. 1

2) Before turn power switch ON, confirm the AC line voltage.

X-radiation

TUBE: The primary source of X-radiation in this monitor is the picture tube. The tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, manufacturer approved type. When troubleshooting and making test measurements in a monitor with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage components. Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.

CHECK OF HIGH VOLTAGE HOLD DOWN CIRCUIT

Checking of the high voltage hold down circuit operation.

1. Turn the switch of the unit ON.
2. Set Brightness, Contrast controls to max..
3. To check R475 with R474 to GND Voltage is 20.9±5% V, then Connect a check switch to the two pins of P406 as shown in Fig. 2.
4. Set the check switch to "OFF" condition.
5. Turn the switch of the unit ON and turn the check switch to "ON" condition.
6. The picture should disappear after turning the check switch to "ON" condition.

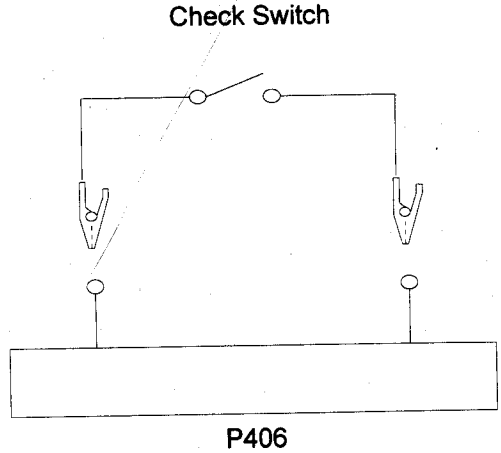
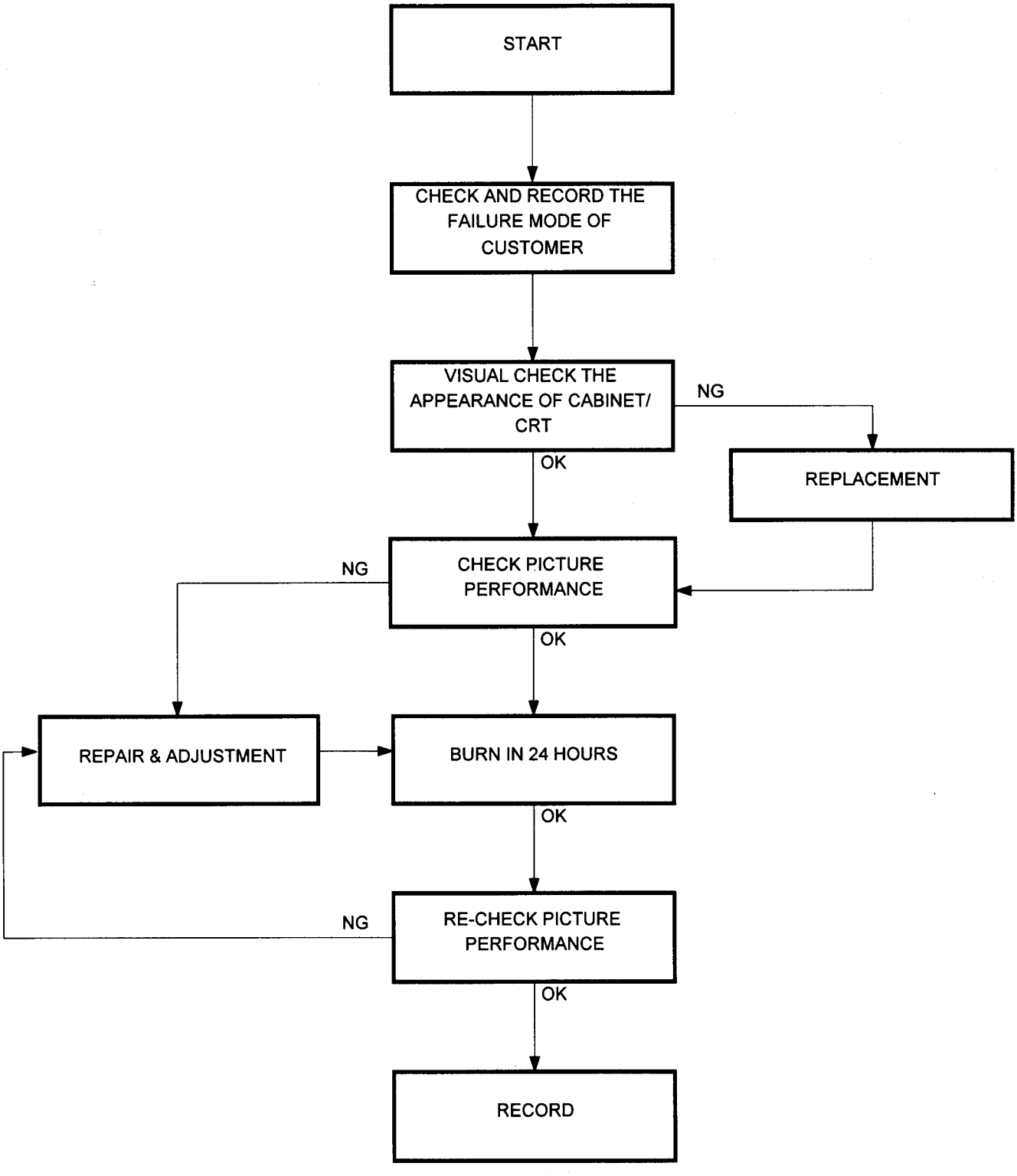


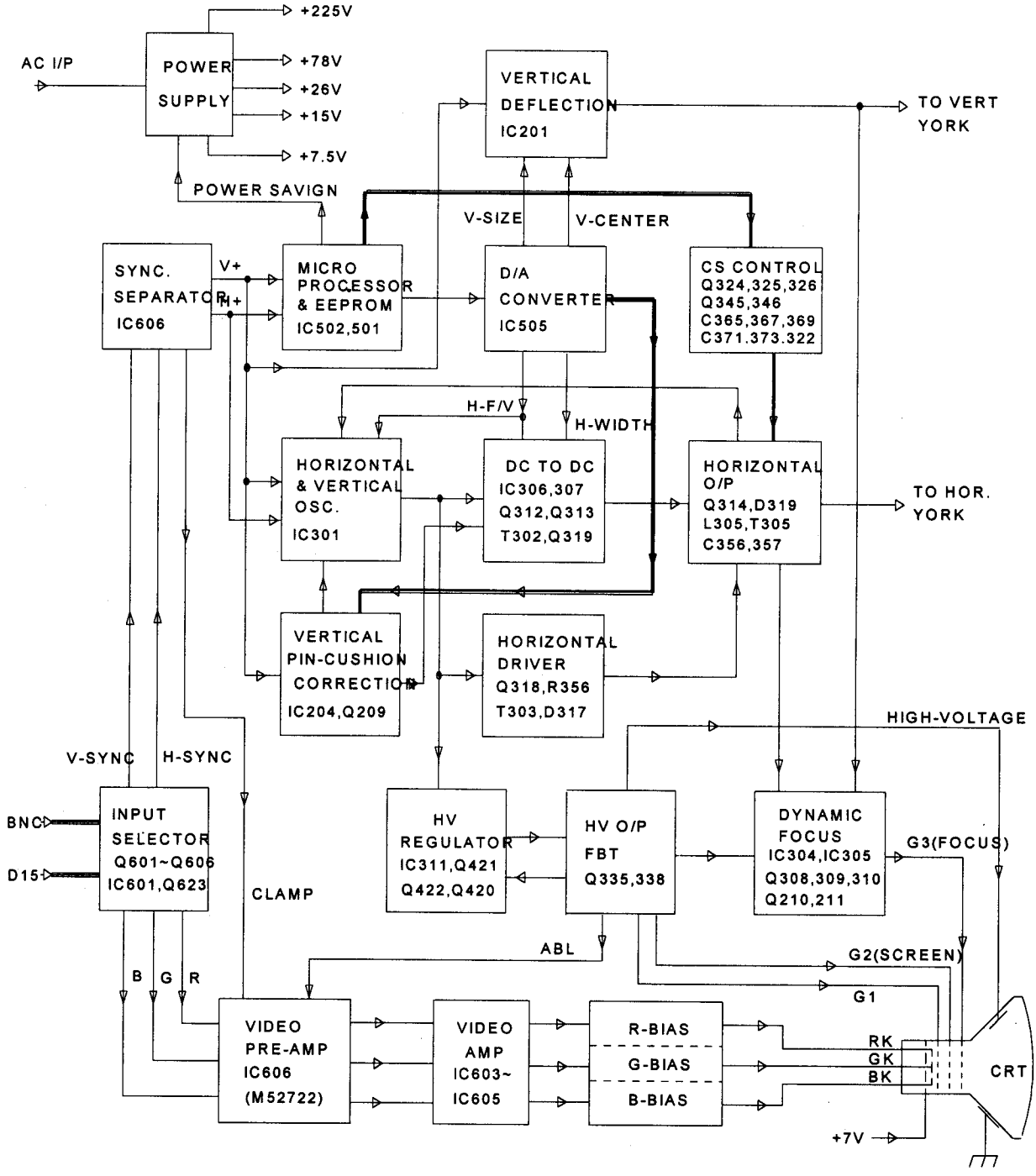
Fig. 2

7. Turn the switch of the unit OFF immediately after the picture disappears.
8. Remove the check switch.

2.0 GENERAL MAINTENANCE PROCEDURE



3.0 FUNCTION BLOCK DIAGRAM



4.0 DESCRIPTION OF CIRCUIT

1. Power supply circuit

The power supply is a serial & universal AC input switching power supply. The start up circuit (Q101) will provide a DC voltage for PWM (Pulse Width Modulation) IC(IC101) when power on. While IC101 works normal, Q101 will be cut off by the DC voltage. The IC101 will Auto-detect output voltage of power supply from Pin2 and correct the duty cycle of Pin6 output pulse to compensate the variation of output voltage.

The output of IC101 Pin6 connected to power MOSEFET to drive the power transformer T101. When power MOSFET is on, the energy stored in the primary winding of T101. Once MOSEFET is off, the energy transfer to the secondary and charges the output capacitor to get the stable DC voltage.

2. Oscillation circuit

The Horizontal Oscillation IC is used LA7860 (IC301) Pin1 is H Sync. Input, Pin3~6 control horizontal phase shift Pin15 control duty cycle of output square wave. Pin16 is square wave output and connected horizontal output stage H.V. output stage. Pin18 is FBT pulse input. The Q301 Q302 are X-RAY protect input. When H.V. output circuit is abnormal(H.V. too high) the X-RAY protect circuit will shut off the horizontal output, H.V. also will be shut down.

3. Vertical output circuit

The Vertical IC is used TDA1675, its function include oscillation and amplifier output. The amplifier output (Pin1) drives the vertical deflection coil directly. Pin3,4,6 oscillation time constant. Pin5 is V-Sync. Input Pin7 V-size control . Pin9 V-Linearity control.

4. Horizontal output circuit

The DC-DC is to generate a DC voltage (B^+) for horizontal output circuit. The IC306 and IC307 are control the H-SIZE. When Q319 is ON, the energy stored in L301 and the energy released when Q319 turned OFF. The B^+ applied to H-DY through T302 primary winding to make horizontal deflection.

5. Micon circuit

The IC501(CPU) will detect polarity and frequency of input H.V. Sync.. The CPU will determine the mode of input timing (preset or users mode) and load mode data from IC502(EEPROM). The output of IC501 were connected to other function circuit (ie. H-size, H-phase, V-size, V-center.....). Also, the user can adjust picture from key board and the data will be saved into IC502 automatically. For the O.S.D. mode, when O.S.D. manual is active CPU will inform the O.S.D IC (IC510) to send O.S.D BLK signal to blank the video signal from VGA card, and the O.S.D. IC will send O.S.D. R.G.B. Video signal the show the O.S.D. manual on screen.

6. H.V. regulation circuit

The PWN control IC3843 is kernel of the circuit. The 3843 will detect the output of H-O/P and then change the duty of Pin6. When Q338 is on, the energy stored in the secondary of power transformer. The energy will be released and to get the B^+ when Q338 turned off. So, the input duty cycle of Q338 gate is higher, the output B^+ is higher. The H.V adjustment circuit consist of Q338, Q335, C386, C387 and H.V regulation CIRCUIT (Q338, Q421, Q422, IC311) which control the H.V output level. The duty cycle of Q338 gate directly control output voltage of C386. The C386 is a supply capacitor which supply the energy to primary winding of FBT and Q335 switch repeatedly to transfer the energy to FBT secondary winding.

7. Video output circuit

Video circuit consists of video preamplifier IC602 and output cascode amplifier IC603, IC604 ,IC605. IC602 is a video processing IC equipped with three DC amplifiers to pre-amplify R.G.B. signals from 0.6V to 3V. The voltage gain of these amplifiers are controlled by DC volt. from Micro processor.

The R.G.B. GAIN & BIAS control signal are from IC502&C505, so simple voltage drive with resistors and trimmers can be used to adjust the voltage GAIN and BIAS of each R.G.B. signal's amplification and thus achieve a well balance white picture.

The O.S.D. IC is to control picture of OSD. window. The IC603,IC604,IC605 are R.G.B driver to capable of driving CRT.

5.0 TIMING MODE (CTX presetting Timing)

NAME	720X400-70		640X480-60		640X480-85		640X480-120	
PIXEL CLOCK	28.322 MHz		25.2 MHz		36.000 MHz		54.890 MHz	
Fh	31.469 KHz		31.469 KHz		43.269 KHz		63.530 KHz	
Fv	70.087 Hz		59.940 Hz		85.008 Hz		119.868 Hz	
INTERLACE MODE	NO		NO		NO		NO	
VIDEO	ANALOG-COLOR		ANALOG COLOR		ANALOG COLOR		ANALOG COLOR	
XS SYNC ON GREEN	NO		NO		NO		NO	
VIDEO LEVEL	700mv		700mv		700mv		714mv	
WHITE LEVEL	714mv		700mv		700mv		700mv	
BLANK LEVEL	0 IRE		0 IRE		0 IRE		0 IRE	
16 BIT HEX DATA	0000		0000		0000		0000	
UNIT OF DATA	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms
H TOTAL	900	31.77 us	800	31.746 us	832	23.111 us	864	15.741 us
H DISPLAY	720	25.422 us	640	25.397 us	640	17.778 us	640	11.660 us
H B-PORCH	54	1.907 us	48	1.905 us	112	3.111 us	95	3.731 us
H-S-WIDTH	108	3.813 us	96	3.810 us	48	1.333 us	96	1.749 us
H BORDER	0	0.000 us	0	0.000 us	0	0.000 us	0	0.000 us
H SIZE	4.000mm		4.000mm		4.000mm		4.000mm	
V TOTAL	449	14.268 ms	525	16.667 ms	509	11.764 ms	530	8.343 ms
V DISPLAY	400	12.711 ms	480	15.238 ms	480	11.093 ms	480	7.555 ms
V B-PORCH	35	1.112 ms	33	1.048 ms	25	0.578 ms	36	0.567 ms
V S WIDTH	2	0.064 ms	2	0.063 ms	3	0.069 ms	6	0.094 ms
V BORDER	0	0.000 ms	0	0.000 ms	0	0.00ms	0	0.000 ms
V SIZE	3.000mm		3.000mm		3.000mm		3.000mm	
H S OUTPUT	ON(-)		ON(-)		ON(-)		ON(-)	
V S OUTPUT	ON(+)		ON(-)		ON(-)		ON(-)	
X S OUTPUT	ON(-)		ON(-)		ON(-)		ON(+)	
X S SELETE	H		H		H		H	

NAME	800X600-85		800X600-120		1024X768-100		1024X768-75	
PIXEL CLOCK	56.250 MHz		81.000 MHz		110.000 MHz		78.751MH	
Fh	53.674 KHz		75.985 KHz		80.468 KHz		60.024KHz	
Fv	85.061 Hz		120 Hz		99.836 Hz		75.030Hz	
INTERLACE MODE	NO		NO		NO		NO	
VIDEO	ANALOG-COLOR		ANALOG COLOR		ANALOG COLOR		ANALOG COLOR	
XS SYNC ON GREEN	NO		NO		NO		NO	
VIDEO LEVEL	714mv		700mv		700mv		700mv	
WHITE LEVEL	700mv		700mv		700mv		700mv	
BLANK LEVEL	0 IRE		0 IRE		0 IRE		0 IRE	
16 BIT HEX DATA	0000		0000		0000		0000	
UNIT OF DATA	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms
H TOTAL	1048	18.631 us	1066	13.160 us	1367	12.427 us	1312	16.660us
H DISPLAY	800	14.22 us	796	9.827 us	1024	9.309 us	1024	13.003us
H B-PORCH	152	2.702 us	158	1.951 us	214	1.945 us	176	2.235 us
H-S-WIDTH	64	1.138 us	87	1.074 us	118	1.073 us	96	1.219 us
H BORDER	0	0.000 us	0	0.000 us	0	0.000 us		0.000 us
H SIZE	4.000mm		4.000mm		4.000mm		4.000mm	
V TOTAL	631	11.756 ms	633	8.331 ms	806	10.016 ms	800	13.328 ms
V DISPLAY	600	11.179 ms	600	7.896 ms	769	9.55 ms	768	12.795 ms
V B-PORCH	27	0.503 ms	29	0.382 ms	34	0.433 ms	28	0.466 ms
V S WIDTH	3	0.056 ms	3	0.039 ms	3	0.037 ms	3	0.050 ms
V BORDER	0	0.000 ms	0	0.000 ms	0	0.000 ms	0	0.000 ms
V SIZE	3.000mm		3.000mm		3.000mm		3.000mm	
H S OUTPUT	ON(+)		ON(-)		ON(-)		ON(+)	
V S OUTPUT	ON(+)		ON(-)		ON(-)		ON(+)	
X S OUTPUT	ON(+)		ON(-)		ON(-)		ON(+)	
X S SELETE	H		H		H		H	

NAME	1024X768-85		1280x1024-75		1280X1024-85		1600X1200-75	
PIXEL CLOCK	94.500 MHz		135.000 MHz		157.500 MHz		202.500 MHz	
Fh	68.677 KHz		79.976 KHz		91.146 KHz		93.750 KHz	
Fv	84.997 Hz		75.024 Hz		85.024 Hz		75 Hz	
INTERLACE MODE	NO		NO		NO		NO	
VIDEO	ANALOG COLOR		ANALOG COLOR		ANALOG COLOR		ANALOG COLOR	
XS SYNC ON GREEN	NO		NO		NO		NO	
VIDEO LEVEL	700mv		714mv		700mv		700mv	
WHITE LEVEL	700mv		700mv		700mv		700mv	
BLANK LEVEL	0 IRE		0 IRE		0 IRE		0 IRE	
16 BIT HEX DATA	0000		0000		0000		0000	
UNIT OF DATA	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms
H TOTAL	1376	14.561 us	1688	12.504 us	1728	0.971 us	2160	10.667 us
H DISPLAY	1024	10.836 us	1280	9.481 us	1280	8.127 us	1600	7.901 us
H B-PORCH	208	2.20 us	248	1.837 us	240	1.524 us	304	1.501 us
H-S-WIDTH	96	1.016 us	144	1.067 us	160	1.016 us	192	0.984 us
H BORDER	0	0.000 us	0	0.000 us	0	0.000 us	0	0.000 us
H SIZE	4.000mm		4.000mm		4.000mm		4.000mm	
V TOTAL	808	11.765 ms	1066	13.329 ms	1072	11.76 ms	1250	13.333 ms
V DISPLAY	768	11.183 ms	1024	12.804 ms	1024	11.235 ms	1200	12.800 ms
V B-PORCH	36	0.524 ms	38	0.475 ms	44	0.483 ms	46	0.491 ms
V S WIDTH	3	0.044 ms	3	0.038 ms	3	0.033 ms	3	0.032 ms
V BORDER	0	0.000 ms	0	0.000 ms	0	0.000 ms	0	0.000 ms
V SIZE	3.000mm		3.000mm		3.000mm		3.000mm	
H S OUTPUT	ON(+)		ON(+)		ON(+)		ON(+)	
V S OUTPUT	ON(+)		ON(+)		ON(+)		ON(+)	
X S OUTPUT	ON(+)		ON(+)		ON(+)		ON(+)	
X S SELETE	H		H		H		H	

6.0 ADJUSTMENT

6.1 2195UE ADJUSTMENT

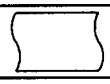
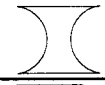
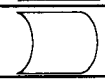
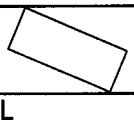
REM:PRESET MODE DATA ADJUSTMENT:

A. Turn off it.

B. Insert service port or press the ⊕ and ⊖ at same time which on the external control panel.

C. Turn on it.

Remark: Before adjusting, monitor must warm up 20 minutes and CRT must be degaussed.

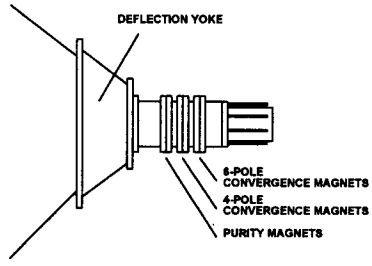
ADJUSTMENT	LOCATION	SPECIFICATION/DESCRIPTION	TIMING & PATTERN
225V	VR101	J132=225V±0.5V	VGA-480, X'HATCH
16V	VR308	TP301=16V±0.05V	VGA-480, X'HATCH
H.V.	VR401	CRT ANODE=27.0KV±0.3KV	VGA-480, X'HATCH
H-HOLD	VR301	Picture stand or flow slowly when TP302 shorted to GND.	VGA-480 (31KHz) , X'HATCH
	VR302	Ditto	VESA-64K, X'HATCH
V-LINE	VR201	$\frac{Ymax-Ymin}{Ymax} \leq 10\%$	VGA-480 , X'HATCH
V-SIZE	OSD. MANUAL	V-SIZE=290mm±3mm	All of PRESET modes, X'HATCH
	VR202	Just over screen when OSD. V-SIZE is max.	37KHz/85Hz, X'HATCH
H-CENTER	VR307	Set Raster at center.	VESA 93K, X'HATCH
H-WIDTH	OSD. MANUAL	H-WIDTH=390±3mm	All of PRESET modes, X'HATCH
	VR306	Just over screen when OSD. H-WIDTH is max.	MAC832, X'HATCH
H-PHASE	OSD. MANUAL	$\frac{\lvert R-L \rvert}{2} \leq 3mm$	SVGAIII, X'HATCH
V-CENTER	OSD. MANUAL	$\frac{\lvert U-D \rvert}{2} \leq 3mm$	SVGAIII, X'HATCH
	VR207	≤ 0.5mm	60KHz/75Hz, X'HATCH
	OSD. SIDE-PIN MANUAL	≤ 1.5mm	All of PRESET modes, X'HATCH
	OSD. BALANCE MANUAL	≤ 1.5mm	All of PRESET modes, X'HATCH
	OSD. MANUAL	≤ 3mm	All of PRESET modes, X'HATCH
	OSD. MANUAL	≤ 2mm	All of PRESET modes, X'HATCH
	OSD. MANUAL	≤ 2.5mm	All of PRESET modes, X'HATCH
ABL	VR402	33±5FL	VGA-480, MOSAIC
H-CONVERGENCE	OSD. MANUAL	ZONE A ≤ 0.25mm ZONE B ≤ 0.35mm ZONE C ≤ 0.4mm	VGA-480, X'HATCH
V-CONVERGENCE	OSD. MANUAL	ZONE A ≤ 0.25mm ZONE B ≤ 0.35mm ZONE C ≤ 0.4mm	VGA-480, X'HATCH
SCREEN	OSD. G2 MANUAL	The "1" row of color bar pattern is visible when Brightness VR is click.	VGA-480 COLOR BAR
FOCUS	FBT FOCUS VR,	Optimum point	VESA-80K , "m"

ADJUSTMENT	LOCATION	SPECIFICATION/DESCRIPTION	TIMING & PATTERN
WHITE BALANCE PRE ADJ	CONTRAST VR	MAX	VGA-480, MOSAIC
	BRIGHTNESS VR	CLICK POINT	DITTO
	OSD. G2	RASTER Y=0.06FL	DITTO
	OSD. R.G.B BIAS	RASTER X=281±20, Y=311±20	DITTO
	OSD. SUBCONT	MOSAIC=33±5FL	DITTO
WHITE BALANCE ADJ	OSD. R.G.B GAIN	MODE1(9300°K):X=281±20 Y=311±20	VGA-480, FULL WHITE
		MODE2(7500°K):X=301±40 Y=310±40	
		MODE3(6500°K):X=313±40 Y=329±40	
		MODE4(5000°K):X=345±40 Y=351±40	
	OSD. R.G.B BIAS	MODE1(9300°K):X=281±10 Y=311±10 When contrast is in 1~3FL.	
BRIGHTNESS SETTING	CONTRAST VR	MAX	VGA-480, COLOR BAR
	BRIGHTNESS VR	CLICK POINT	
	OSD. G2	The "2" row of color bar pattern is just visible.	

Brightness

	BRIGHT BLUE	BRIGHT RED	BRIGHT PRUPLE	GREEN	BLUE + GREEN	RED + YELLOW	WHITE	
			R+B		B+G	R+G		
15								7
14								6
13								5
reduce 12								4
11								3
10								2 → visible
9								1 → visible obscurely
8								0

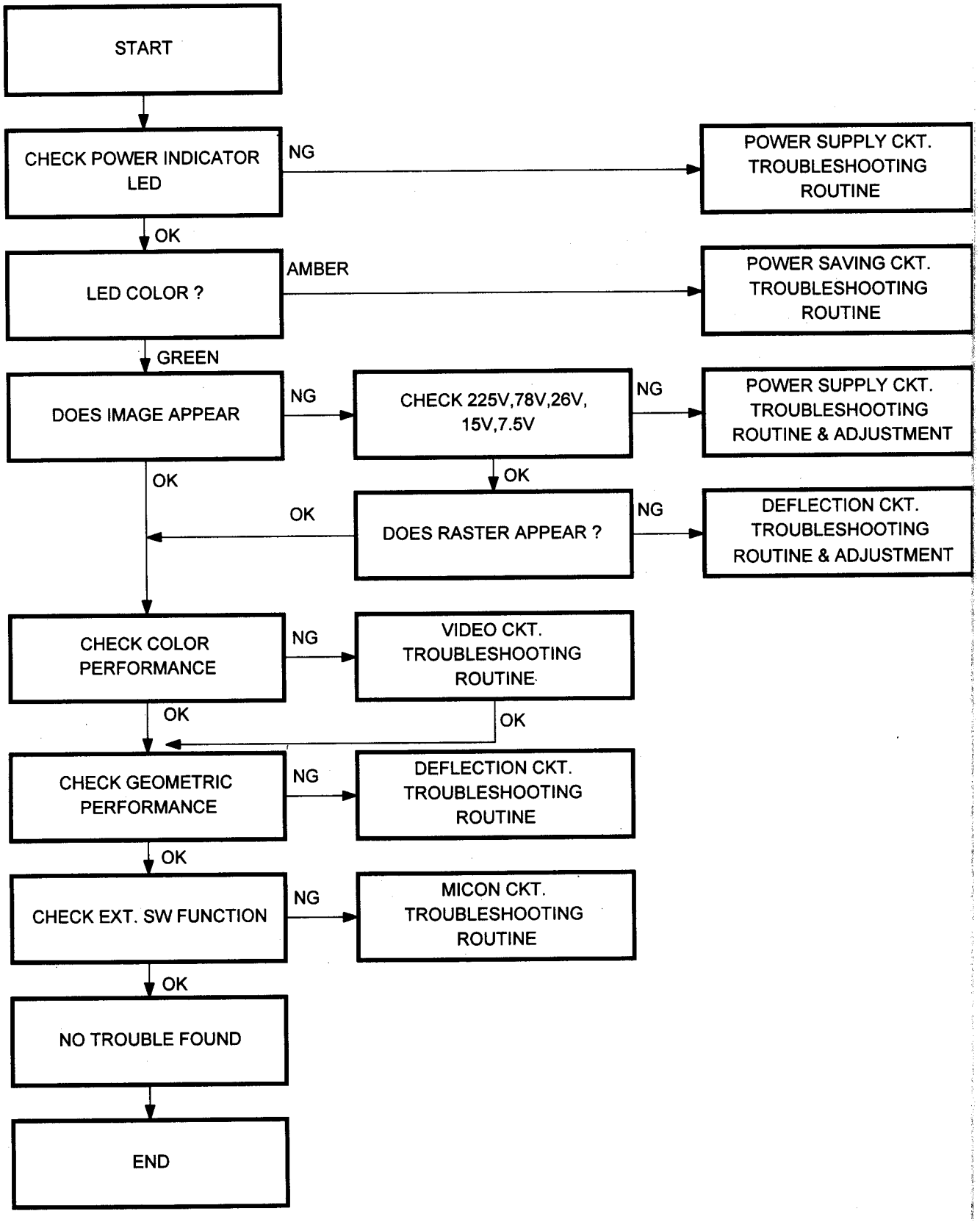
CONVERGENCE	4 POLE OF PCM	Vertical RED and BLUE lines are converged by varying the angle between the two tabs.	VGA-480 , MAGERTA X'HATCH
	4 POLE OF PCM	Horizontal RED and BLUE lines are converged by moving the two tabs at the same time.	VGA-480 , MAGENTA X'HATCH
	6 POLE OF PCM	Vertical GREEN and MAGENTA lines are converged by varying the angle between the two tabs.	VGA-480 , X'HATCH
	6 POLE OF PCM	Horizontal GREEN and MAGENTA lines are converged by moving the two tabs at the same time.	VGA-480 , X'HATCH



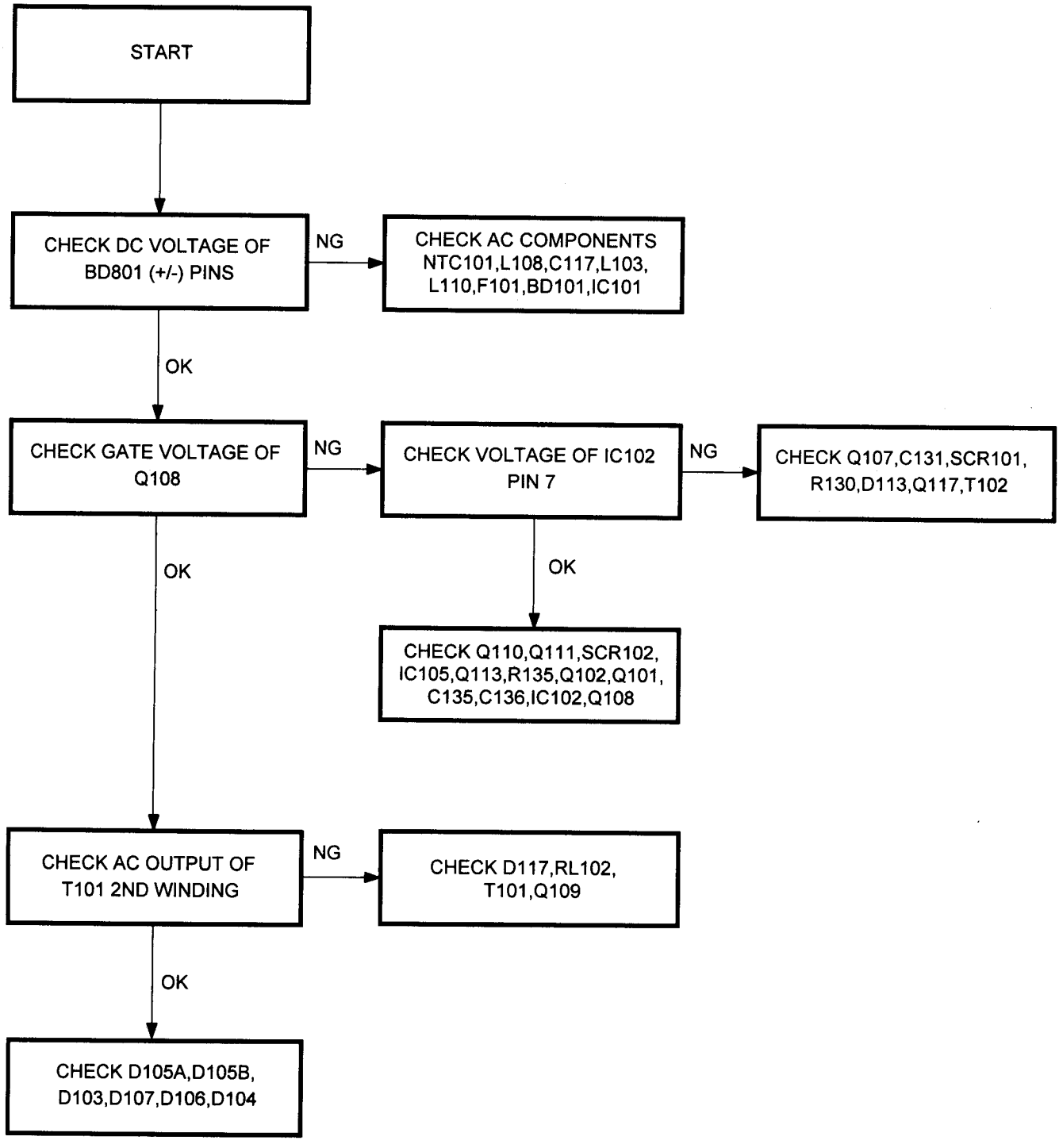
PCM:PURITY CONVERGENCE MAGNET

7.0 TROUBLESHOOTING

7.1 MAIN TROUBLESHOOTING ROUTINE



7.2 POWER SUPPLY CIRCUIT TROUBLESHOOTING ROUTINE



TEST CONDITIONS: TIMING : 640X480-60Hz (31K)
PATTERN: CROSS HATCH

Unit: Volt

IC	IC101 (L6560)							
PIN / AC IN	1	2	3	4	5	6	7	8
110V	2.48	4.61	0.78	0.16	1.86	GND	11.05	15.93
220V	2.48	3.57	1.66	0.04	2.92	GND	5.65	15.84

IC	IC102 (3842)							
PIN / AC IN	1	2	3	4	5	6	7	8
110V	2.97	2.50	0.06	1.99	GND	2.10	15.29	4.99
220V	2.97	2.50	0.06	1.99	GND	2.09	15.23	4.99

IC	IC104 (PS-2561)				IC105 (TL431)		
PIN / STATUS	1	2	3	4	R	A	K
NORMAL	6.33	5.24	2.00	4.99	2.46	GND	5.23
STAND BY	4.73	3.61	3.37	4.99	2.47	GND	3.61
SUSPEND	4.75	3.63	3.37	4.99	2.47	GND	3.63
OFF	4.70	3.58	3.50	4.99	2.48	GND	3.58

TR	SCR101 (BT169)			SCR102 (BT169)			TR	Q103 (C945)		
PIN / AC IN	K	G	A	K	G	A	PIN / STATUS	E	C	B
110V	1.72	0	369	GND	0	2.97	NORMAL	GND	14.85	0
220V	2.60	0	369	GND	0	2.97	DEGUASS	GND	0.25	0.74

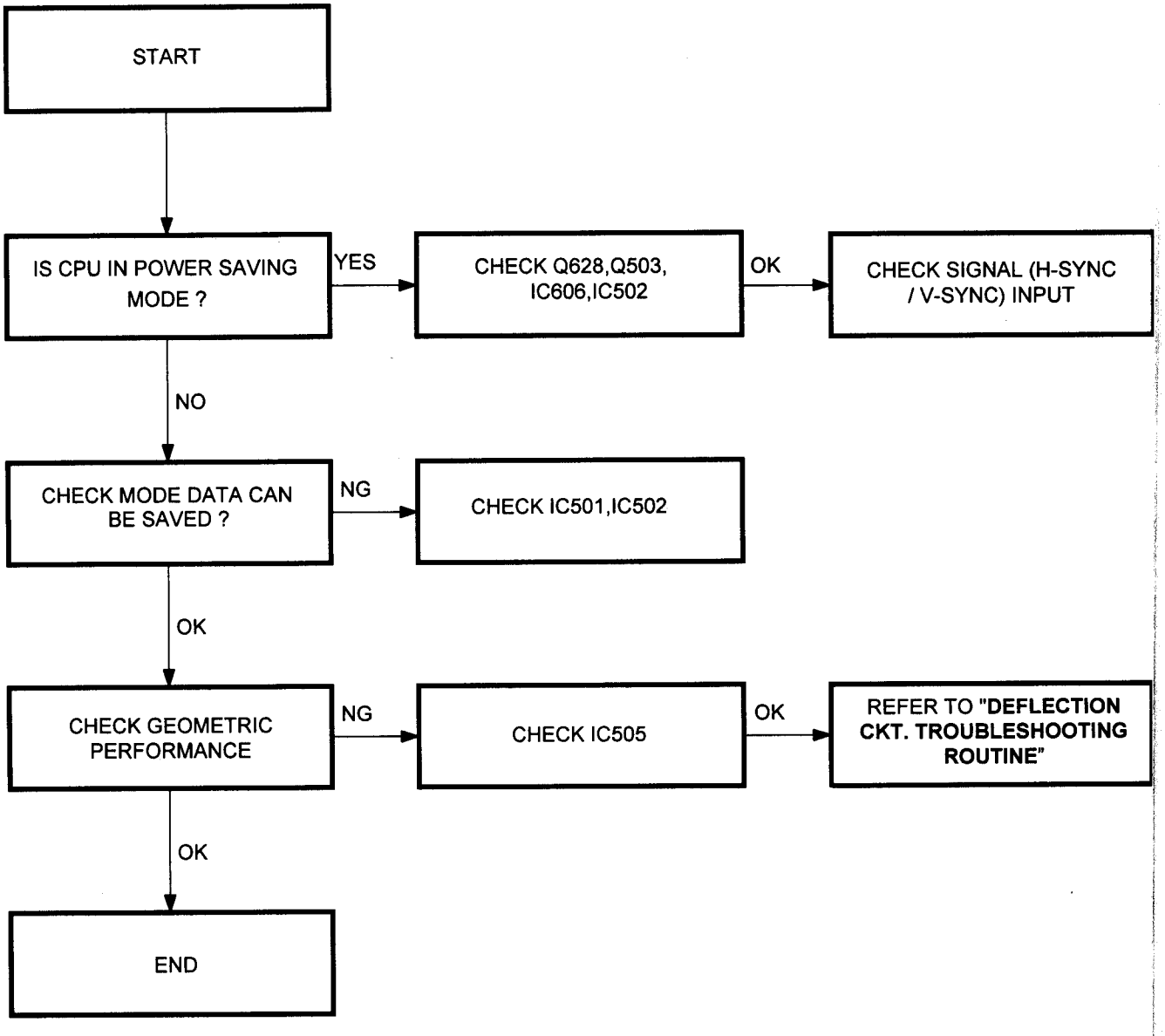
TR	Q104 (C945)			Q107 (C945)			Q108 (FS10SM-16)		
PIN / AC IN	E	C	B	E	C	B	G	D	S
110V	GND	2.97	0.46	GND	0	0.67	1.92	371	0.06
220V	GND	2.97	0.46	GND	0	0.66	1.91	371	0.06

TR	Q110 (C945)			Q111 (C945)		
PIN / AC IN	E	C	B	E	C	B
110V	GND	0	0.01	GND	0.01	0.72
220V	GND	0	0.01	GND	0.01	0.72

TR	Q113 (C945)			Q114 (A733)			Q116 (A733)			Q117 (FS14KM10)		
PIN / AC IN	E	C	B	E	C	B	E	C	B	G	D	S
110V	GND	0.09	0.64	15.97	15.93	15.29	18.12	-3.59	18.12	11.04	89.9	0.16
220V	GND	0.09	0.63	15.91	15.83	15.21	18.13	-4.97	18.14	5.50	194	0.04

TR	Q101 (C945)			Q102 (A733)			Q109 (C945)		
PIN / STATUS	E	C	B	E	C	B	E	C	B
NORMAL	GND	7.54	0.01	7.61	2.46	7.57	GND	7.55	0
STAND BY	GND	0	0.64	6.73	6.68	6.08	GND	0.15	0.74
SUSPEND	GND	0	0.65	6.73	6.68	6.08	GND	0.15	0.74
OFF	GND	0	0.65	6.73	6.68	6.08	GND	0.16	0.75

7.3 MICON CIRCUIT TROUBLESHOOTING ROUTINE



TEST CONDITIONS: AC LINE IN:110V/60Hz
PATTERN: CROSS HATCH
STATUS : NORMAL

Unit: Volt

IC	IC501 (24C04)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA 480	0	0	5.04	0	0.04	5.04	0	5.04

IC	IC502 (68P61)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	2.21	2.45	0.27	5.02	5.04	GND	2.69	2.58	0.04	5.04
VESA 53K	2.19	2.32	1.10	5.02	5.04	GND	2.69	2.58	0.04	5.04
VESA 79K	2.17	2.06	3.68	5.02	5.04	GND	2.69	2.58	0.04	5.04
VESA 93K	2.17	2.07	3.68	5.02	5.04	GND	2.69	2.58	0.04	5.04

IC	IC502 (68P61)									
PIN / MODE	11	12	13	14	15	16	17	18	19	20
VGA 480	5.04	5.03	5.03	5.03	0.20	0	0	0	0	0.20
VESA 53K	5.04	5.03	5.03	5.03	5.03	0	0	4.97	4.97	5.02
VESA 79K	5.04	5.03	5.03	5.03	5.03	4.96	4.96	4.96	4.96	5.01
VESA 93K	5.04	5.03	5.03	5.03	5.03	4.95	4.95	4.95	4.95	5.01

IC	IC502 (68P61)									
PIN / MODE	21	22	23	24	25	26	27	28	29	30
VGA 480	0	0	0	5.03	5.03	5.04	3.51	3.70	2.30	2.00
VESA 53K	0	0	0	5.03	5.03	5.03	3.51	3.59	2.21	1.87
VESA 79K	0	0	0	5.03	5.03	5.03	3.51	3.43	2.26	1.77
VESA 93K	4.96	0	0	5.03	5.03	5.03	3.51	3.43	2.36	1.56

IC	IC502 (68P61)									
PIN / MODE	31	32	33	34	35	36	37	38	39	40
VGA 480	2.77	0.05	0.62	3.31	3.64	3.64	2.67	4.35	1.37	0.39
VESA 53K	2.77	0.05	0.32	3.31	3.64	3.64	2.46	4.37	1.17	0.39
VESA 79K	2.77	0.04	0.44	3.31	3.64	3.64	2.53	4.37	1.25	0.38
VESA 93K	2.77	0.04	0.45	3.31	3.64	3.64	2.51	4.37	1.26	0.38

IC	IC505 (M62385)										
PIN / MODE	1	2	3	4	5	6	7	8	9	10	11
VGA 480	5.03	5.03	0.04	7.94	5.99	6.08	6.08	6.84	9.36	0	0
VESA 53K	5.03	5.04	0.04	7.94	5.99	6.08	6.08	6.84	9.36	0	0
VESA 79K	5.03	5.04	0.04	7.94	5.99	6.08	6.08	6.84	9.36	0	0
VESA 93K	5.03	5.04	0.04	7.94	5.99	6.08	6.08	6.84	9.36	0	0

IC	IC505 (M62385)										
PIN / MODE	12	13	14	15	16	17	18	19	20	21	22
VGA 480	5.02	12.24	6.06	12.04	7.88	0.25	9.28	6.36	0	5.02	5.02
VESA 53K	5.02	12.24	6.06	12.04	6.06	4.36	7.79	7.49	0	5.02	5.02
VESA 79K	5.02	12.24	6.06	12.04	5.82	9.15	6.99	6.79	0	5.02	5.02
VESA 93K	5.02	12.24	6.06	12.04	5.02	11.67	6.24	6.83	0	5.02	5.02

IC	IC510 (M35043)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	5.04	GND	5.03	5.03	5.03	0.04	GND	5.04	4.91	4.98
VESA 53K	5.04	GND	5.03	5.04	5.04	0.04	GND	5.04	4.91	4.98
VESA 79K	5.04	GND	5.03	5.04	5.04	0.04	GND	5.04	4.91	4.98
VESA 93K	5.04	GND	5.03	5.04	5.04	0.04	GND	5.04	4.91	4.98

IC	IC510 (M35043)									
PIN / MODE	11	12	13	14	15	16	17	18	19	20
VGA 480	GND	0	NC	5.04	0	NC	0	4.70	0.16	5.04
VESA 53K	GND	0	NC	5.04	0	NC	0	4.46	0.16	5.04
VESA 79K	GND	0	NC	5.04	0	NC	0	4.17	0.16	5.04
VESA 93K	GND	0	NC	5.04	0	NC	0	4.02	0.15	5.04

TR	Q502 (C945)			Q503 (A733)			Q505 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	12.23	0	5.04	5.02	4.37	GND	0.04	0.69
VESA 53K	GND	12.23	0	5.04	5.02	4.37	GND	0.04	0.69
VESA 79K	GND	12.23	0	5.04	5.02	4.37	GND	0.04	0.69
VESA 93K	GND	12.23	0	5.04	5.02	4.37	GND	0.04	0.69

TR	Q506 (C945)			Q507 (C945)			Q508 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	0.02	0.64	GND	0.02	0.65	0	12.24	0.02
VESA 53K	GND	0.02	0.64	GND	0.02	0.65	0	12.24	0.02
VESA 79K	GND	0.02	0.64	GND	0.02	0.65	0	12.24	0.02
VESA 93K	GND	0.02	0.64	GND	0.02	0.65	0	12.24	0.02

TR	Q509 (C945)			Q510 (C945)			Q511 (C2001)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	12.14	0.02	11.55	12.24	12.14	7.23	11.89	6.84
VESA 53K	GND	12.14	0.02	11.55	12.24	12.14	7.23	11.89	6.84
VESA 79K	GND	12.14	0.02	11.55	12.24	12.14	7.23	11.89	6.84
VESA 93K	GND	12.14	0.02	11.55	12.24	12.14	7.23	11.89	6.84

TR	Q512 (D882)			Q515 (C945)			Q516 (A733)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	7.23	11.89	7.60	2.06	2.13	2.77	2.13	0.28	4.91
VESA 53K	7.23	11.89	7.60	2.06	2.13	2.77	2.13	0.27	4.91
VESA 79K	7.23	11.89	7.60	2.06	2.13	2.77	2.13	0.27	4.91
VESA 93K	7.23	11.89	7.60	2.06	2.13	2.77	2.13	0.28	4.91

TR	Q517 (B772)			Q518 (A952)			Q530 (C2001)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	7.23	GND	7.60	7.23	GND	6.84	8.23	11.89	8.89
VESA 53K	7.23	GND	7.60	7.23	GND	6.84	8.23	11.89	8.89
VESA 79K	7.23	GND	7.60	7.23	GND	6.84	8.23	11.89	8.89
VESA 93K	7.23	GND	7.60	7.23	GND	6.84	8.23	11.89	8.89

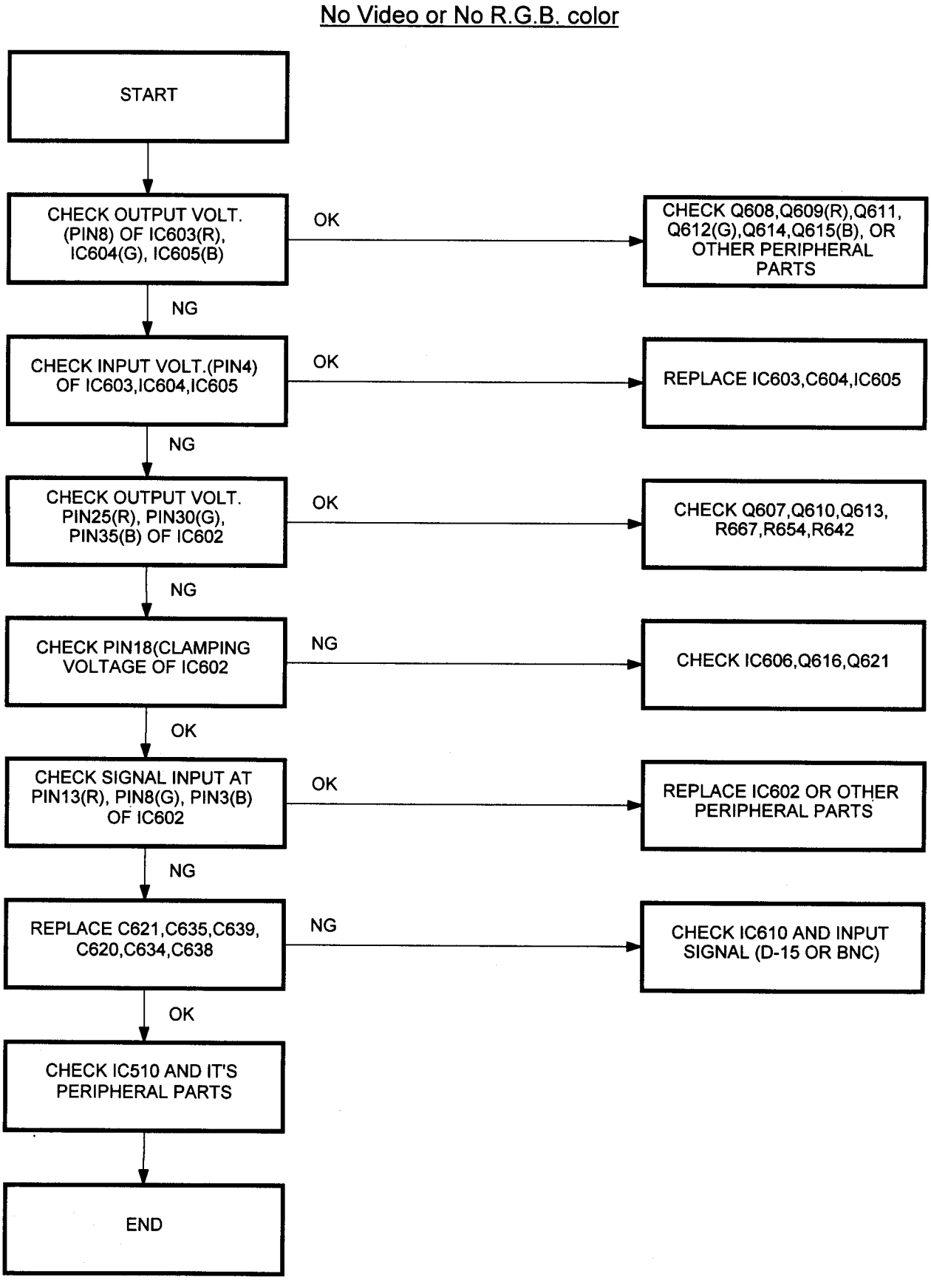
TR	Q531 (A952)			Q534 (D882)			Q535 (B772)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	8.23	GND	8.89	6.68	11.89	6.08	6.68	GND	6.08
VESA 53K	8.23	GND	8.89	6.68	11.89	6.08	6.68	GND	6.08
VESA 79K	8.23	GND	8.89	6.68	11.89	6.08	6.68	GND	6.08
VESA 93K	8.23	GND	8.89	6.68	11.89	6.08	6.68	GND	6.08

TR	Q504 (D882)			Q513 (C2001)			Q514 (A952)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	5.76	11.89	6.08	5.76	11.89	6.08	5.76	GND	6.08

TR	Q519 (B772)			Q522 (C2001)			Q523 (A952)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	5.76	GND	6.08	5.73	11.89	6.08	5.73	GND	6.08

TR	Q524 (D882)			Q525 (B772)					
PIN / MODE	E	C	B	E	C	B			
VGA 480	5.73	11.89	6.08	5.73	GND	6.08			

7.4 VIDEO CIRCUIT TROUBLESHOOTING ROUTINE



TEST CONDITIONS: AC LINE IN:110V/60Hz
TIMING: 640X480-60Hz (31K)
PATTERN: a. Full white b. Cross-hatch

Unit: Volt

IC	IC601 (74LS00)													
PIN / MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
D-15	0.02	0.06	1.76	3.51	4.11	1.76	GND	1.47	3.51	4.64	1.47	0.02	0.06	5.04
BNC	2.84	4.09	1.89	0.15	0.14	1.89	GND	1.65	0.15	0.14	1.65	2.84	4.64	5.04

IC	IC602 (M52722)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
Full white	0	11.85	2.83	3.57	0	GND	11.85	2.84	3.58	0
Cross-hatch	0	11.85	2.43	3.57	0	GND	11.85	2.42	3.57	0

IC	IC602 (M52722)									
PIN / MODE	11	12	13	14	15	16	17	18	19	20
Full white	GND	11.85	2.83	3.27	0	GND	3.43	0.07	1.79	GND
Cross-hatch	GND	11.85	2.43	3.27	0	GND	3.83	0.07	1.79	GND

IC	IC602 (M52722)									
PIN / MODE	21	22	23	24	25	26	27	28	29	30
Full white	GND	5.43	4.10	11.87	3.05	GND	5.43	4.10	11.87	3.23
Cross-hatch	GND	5.44	4.05	11.88	1.66	GND	5.44	4.05	11.88	1.70

IC	IC602 (M52722)					
PIN / MODE	31	32	33	34	35	36
Full white	GND	5.43	4.10	11.87	3.12	1.97
Cross-hatch	GND	5.44	4.05	11.88	1.69	1.98

IC	IC603,604,605 (VPA18)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
Full white	11.90	GND	1.90	2.30	GND	GND	GND	49.35	76.69	49.35
Cross-hatch	11.90	GND	0.57	1.01	GND	GND	GND	70.05	76.92	70.05

IC	IC606 (CXA2016)										
PIN / MODE	1	2	3	4	5	6	7	8	9	10	11
VGA-480	1.44	3.11	3.77	3.09	2.70	2.68	1.60	2.27	1.28	1.28	0

IC	IC606 (CXA2016)										
PIN / MODE	12	13	14	15	16	17	18	19	20	21	22
VGA-480	3.18	0.18	0.12	0	0.20	0.20	1.37	1.38	1.38	0.39	5.04

IC	IC607 (LM317)			IC608 (29M05)		
PIN / MODE	A	O	I	I	G	O
VGA-480	10.67	11.94	14.49	7.15	GND	5.04

IC	IC609 (24LC21)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA-480	NC	NC	NC	GND	0.65	5.03	4.63	5.04

IC	IC701 (LM2576)				
PIN / MODE	1	2	3	4	5
VGA-480	14.84	5.17	GND	1.24	GND

IC	IC702 (MIC2526)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA-480	5.02	5.12	5.12	5.02	2.00	GND	5.17	2.25

IC	IC703 (MIC2526)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA-480	5.02	5.12	5.12	5.02	2.23	GND	5.17	2.16

TR	Q601 (C1906)			Q602 (C1906)			Q603 (C1906)		
PIN / MODE	E	C	B	E	C	B	E	C	B
D-15	0.44	12.24	0	4.77	12.24	5.50	0.44	12.24	0
BNC	4.75	12.24	5.47	0.41	12.24	0	4.75	12.24	5.48

TR	Q604 (C1906)			Q606 (C1906)			Q623 (C1906)		
PIN / MODE	E	C	B	E	C	B	E	C	B
D-15	4.75	12.24	5.47	0.47	12.24	0	4.75	12.24	5.46
BNC	0.42	12.24	0	4.76	12.24	5.48	0.45	12.24	0

TR	Q605 (C945)			Q607,610,613 (C1906)			Q608,611,614 (BF488)		
PIN / MODE	E	C	B	E	C	B	E	C	B
Full white	GND	10.67	0.09	2.60	11.89	3.31	89.28	GND	88.58
Cross-hatch	GND	10.67	0.09	1.02	11.90	1.70	89.39	GND	88.69

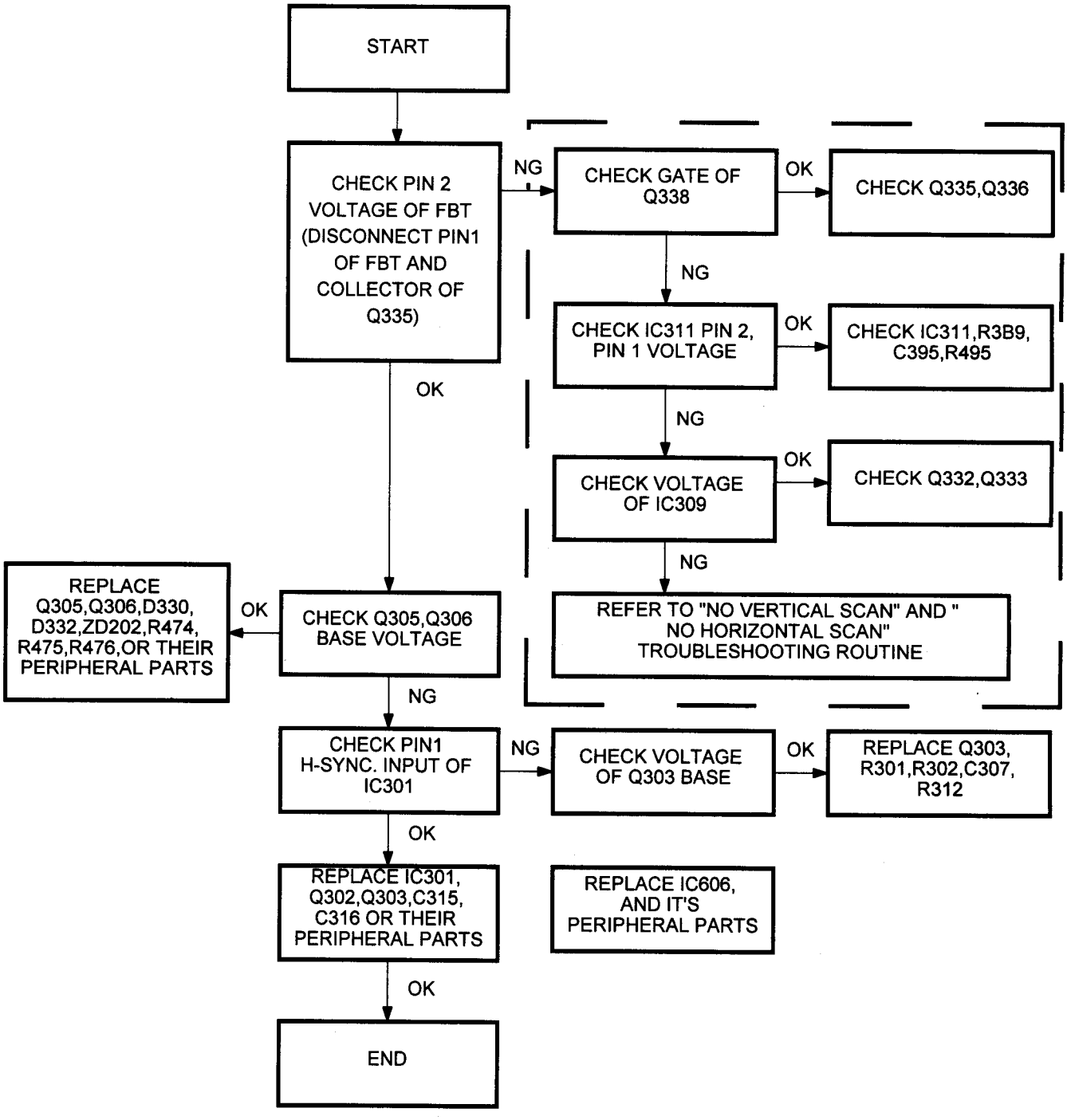
TR	Q609,613,615 (BF483)			Q617 (C2001)			Q618 (B562)		
PIN / MODE	E	C	B	E	C	B	E	C	B
Full white	3.38	54.88	3.96	0.21	11.89	0.07	7.53	7.40	6.74
Cross-hatch	3.39	54.82	3.95	0.21	11.89	0.08	7.43	7.31	6.65

TR	Q619 (C945)			Q625 (C945)			Q621 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
Full white	GND	0.05	0.70	GND	0.09	0.68	GND	0.06	0
Cross-hatch	GND	0.05	0.69	GND	0.09	0.68	GND	0.06	0

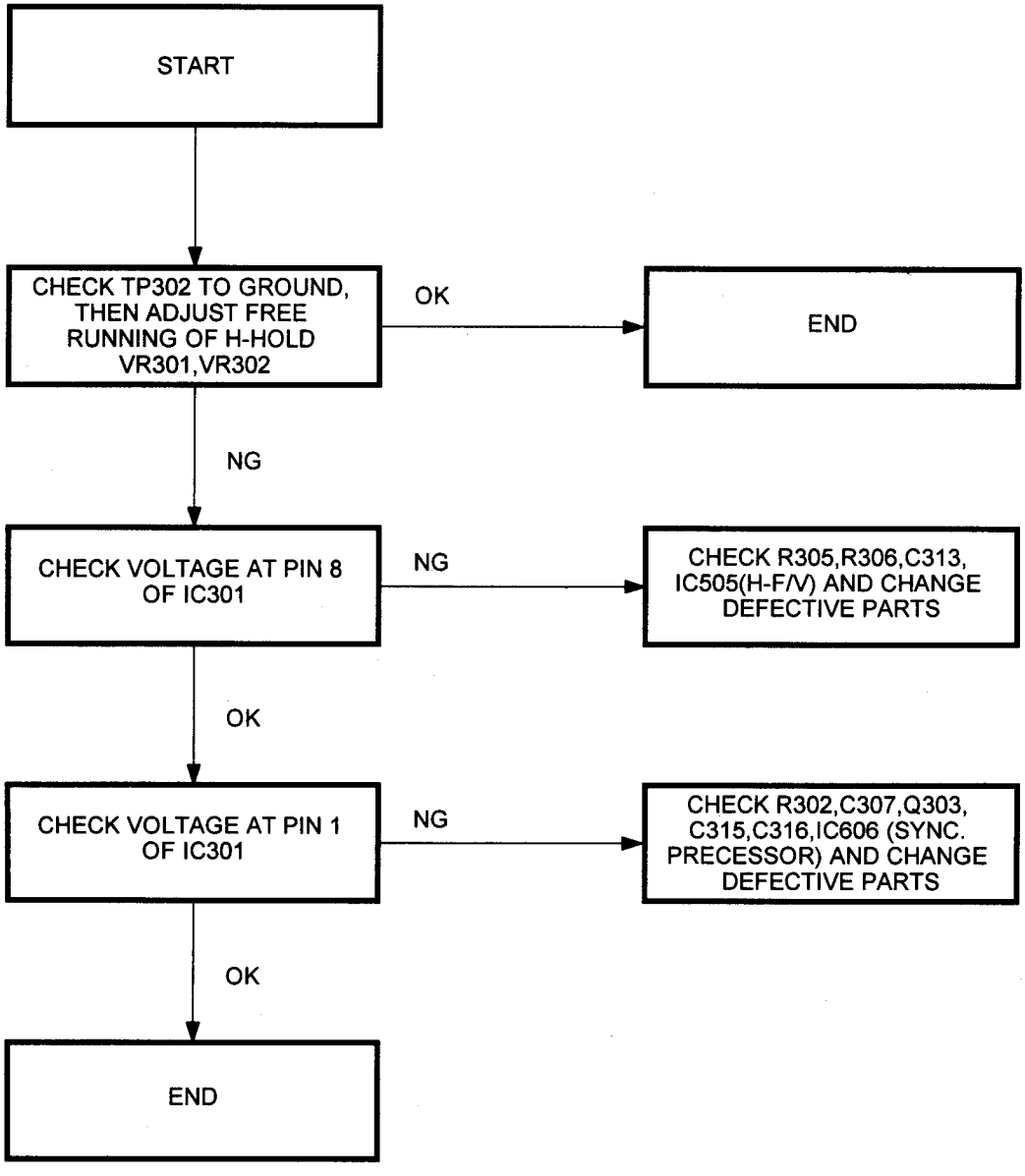
7.5 DEFLECTION CIRCUIT TROUBLESHOOTING ROUTINE

7.5.1 Horizontal Deflection Circuit

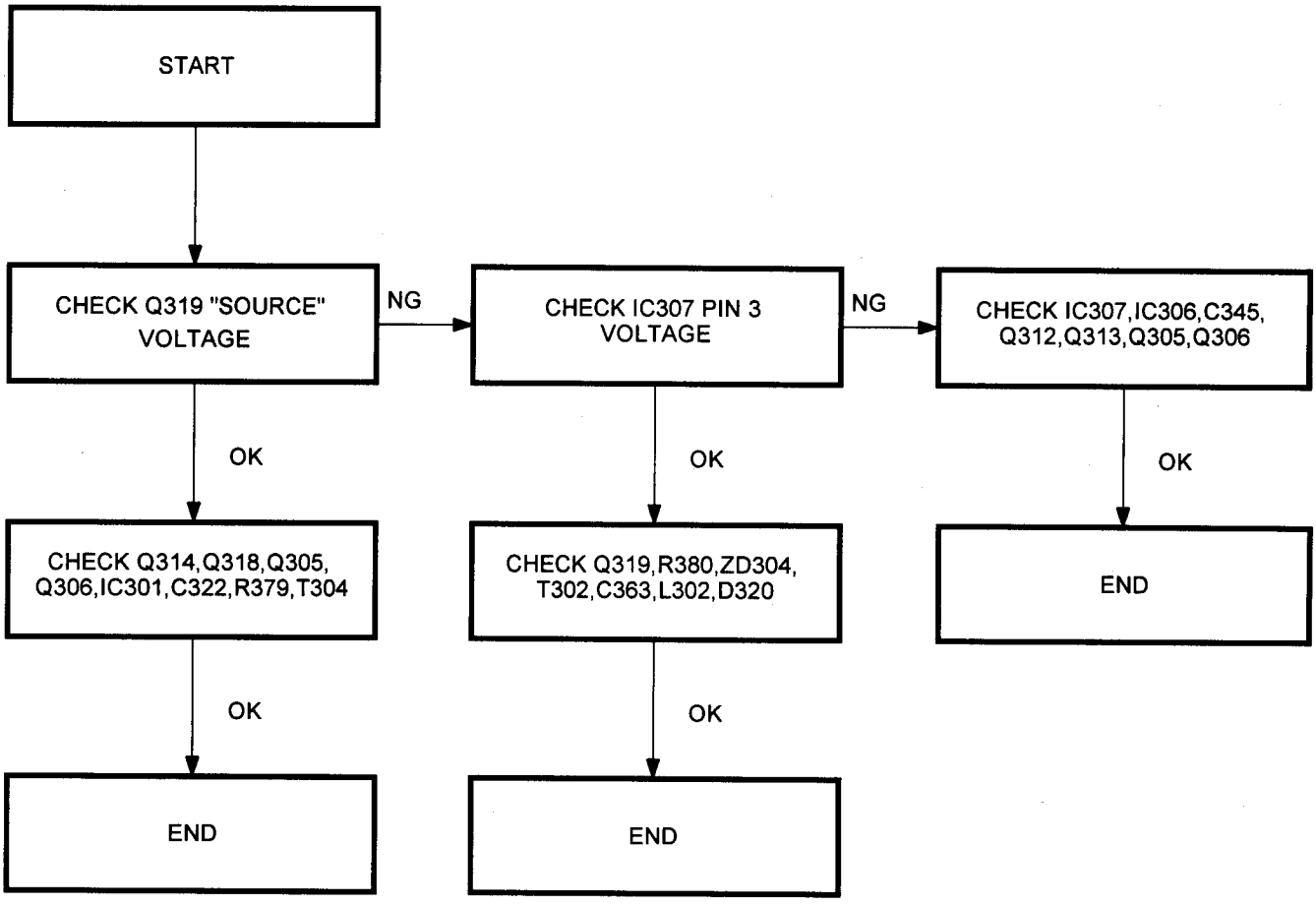
No Raster



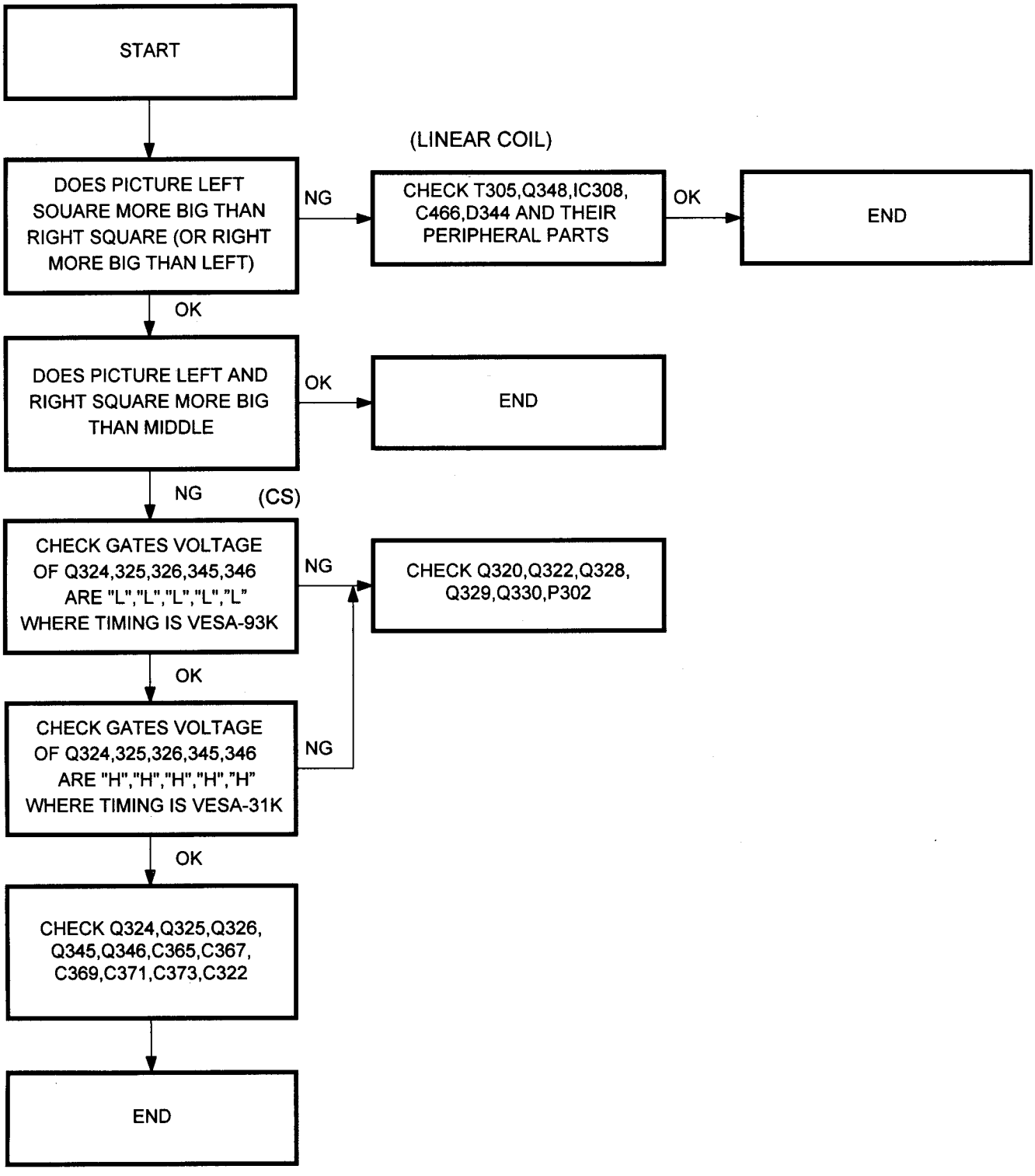
H-Asynchronous



No Horizontal Scan

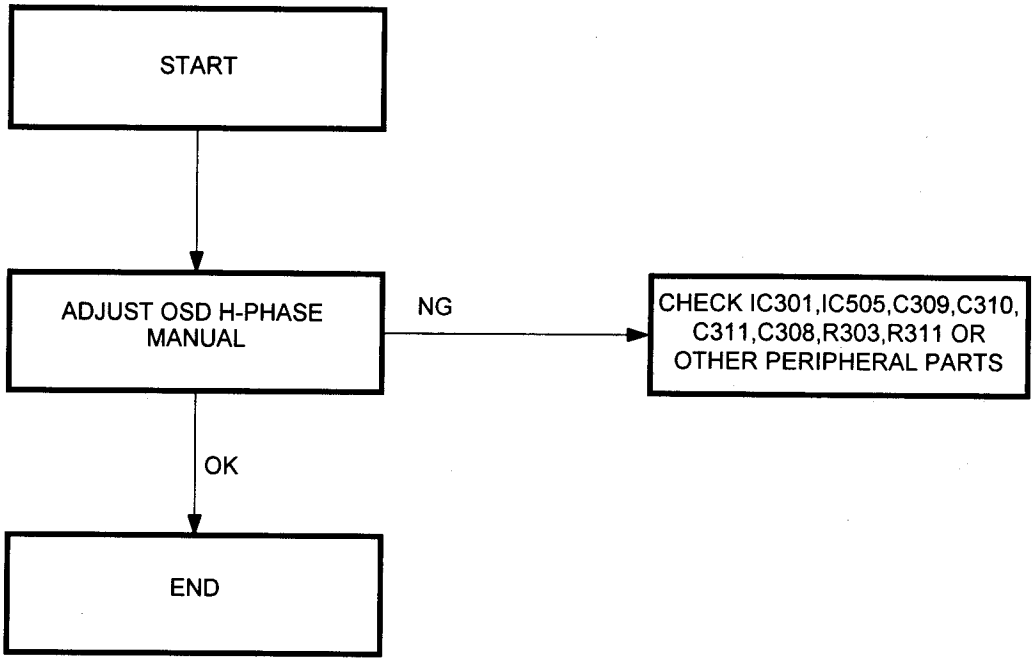


Linearity

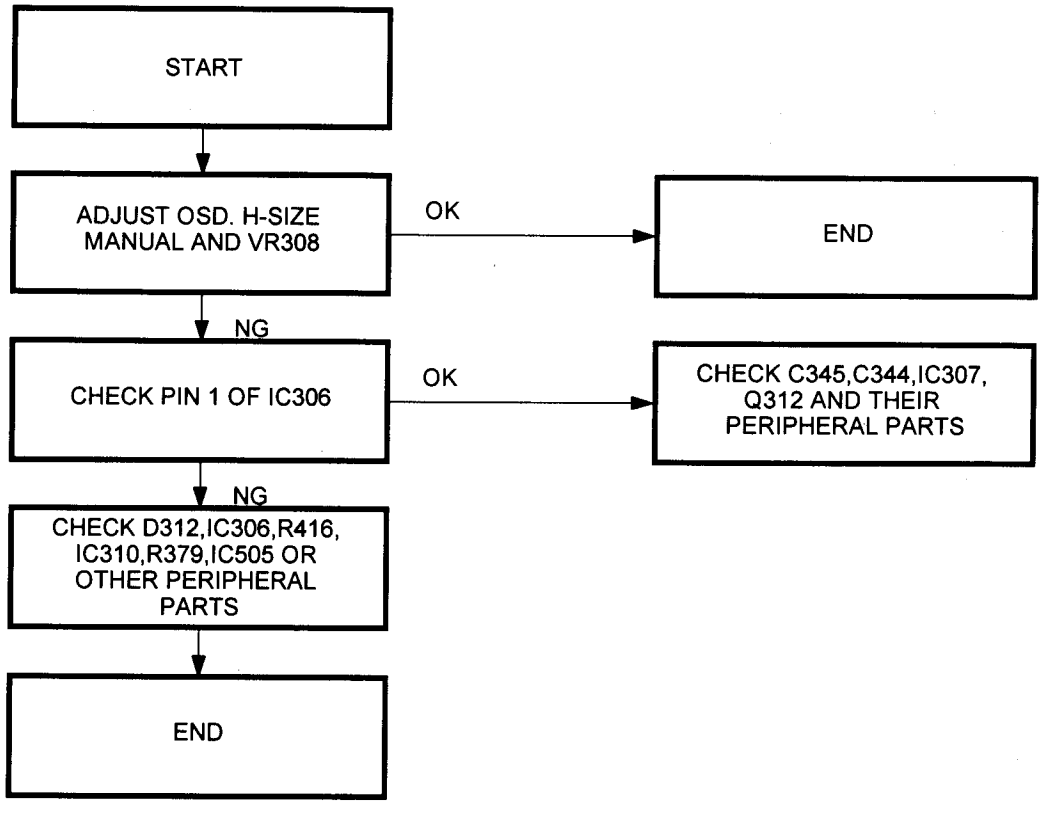


REMARK: 1. "L" means the voltage between gate and source is <4V which can't turn on the MOSFET.
2. "H" means the voltage between gate and source is ≥4V which can turn on the MOSFET.

Out of phase

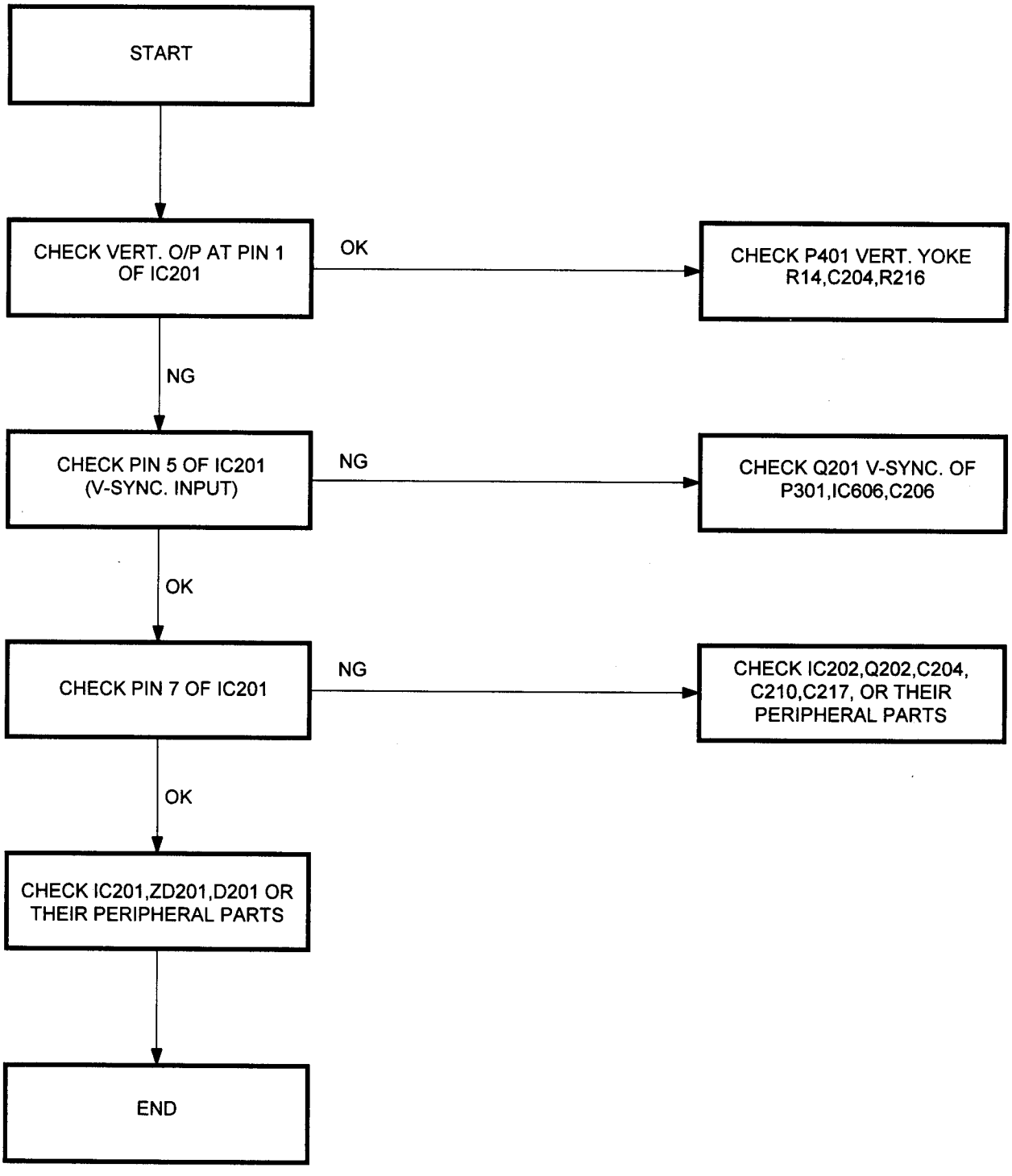


Width Abnormal

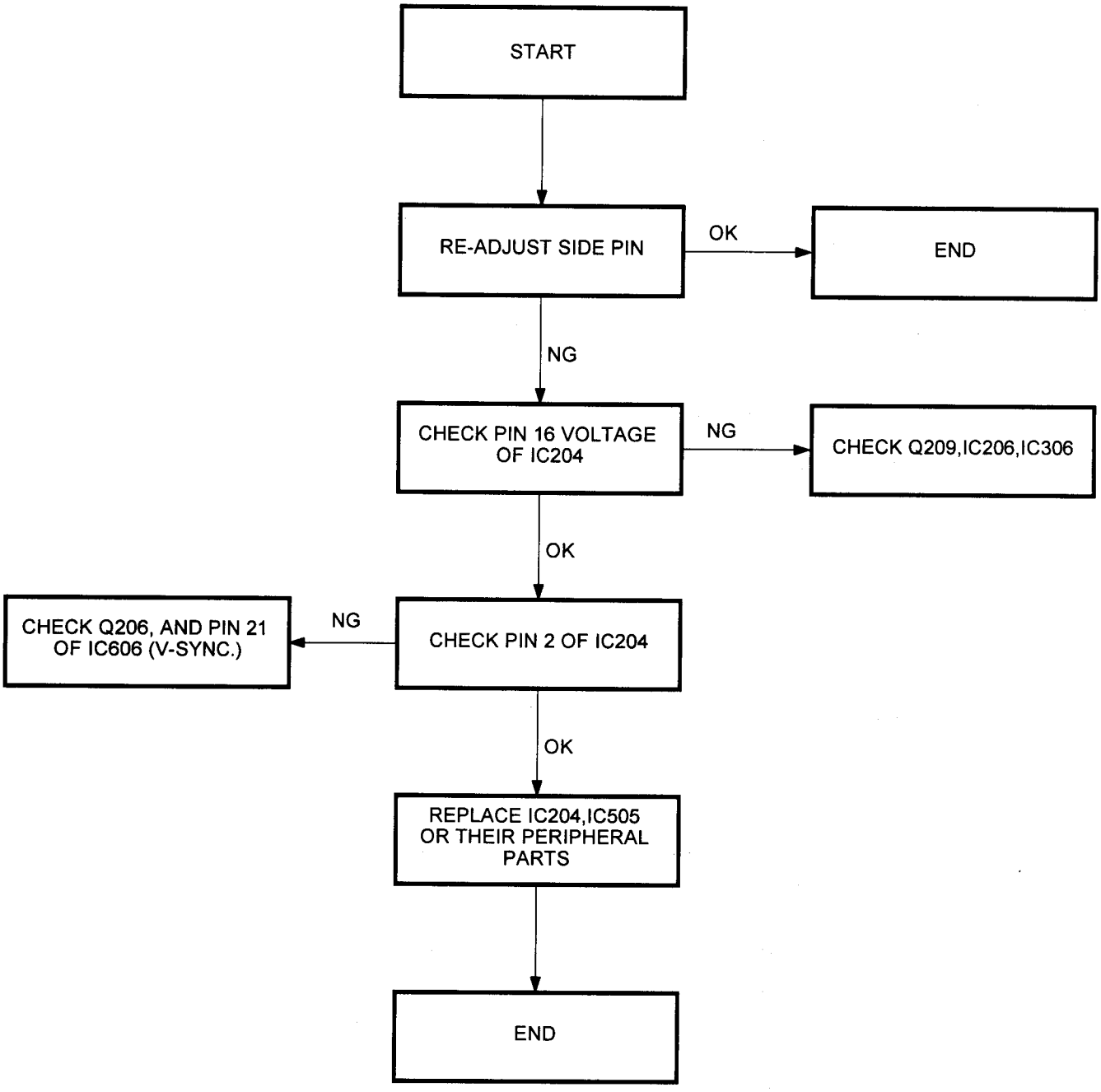


7.5.2 Vertical Deflection Circuit

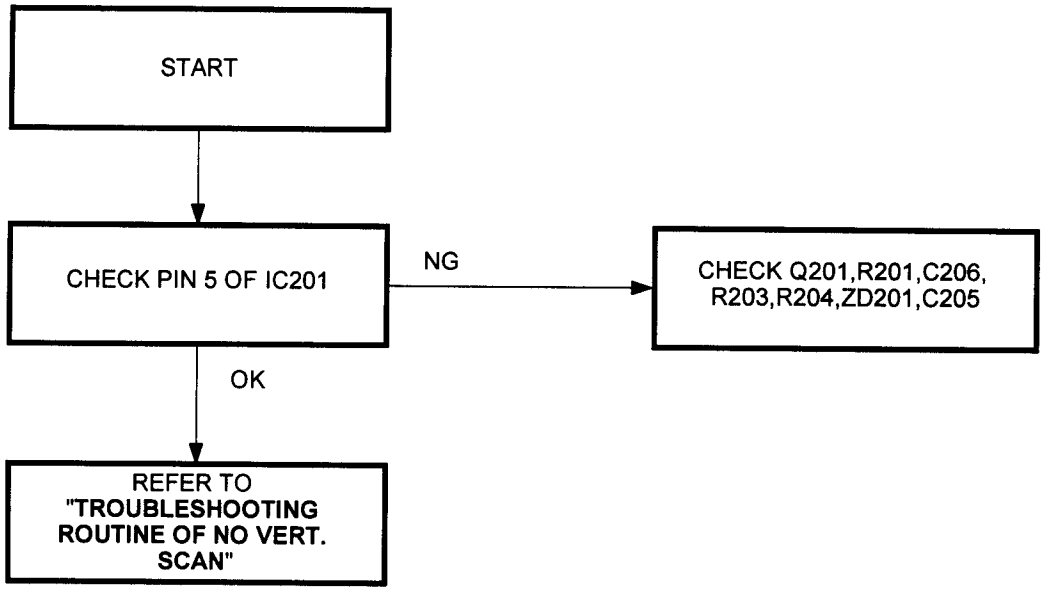
No vertical scan



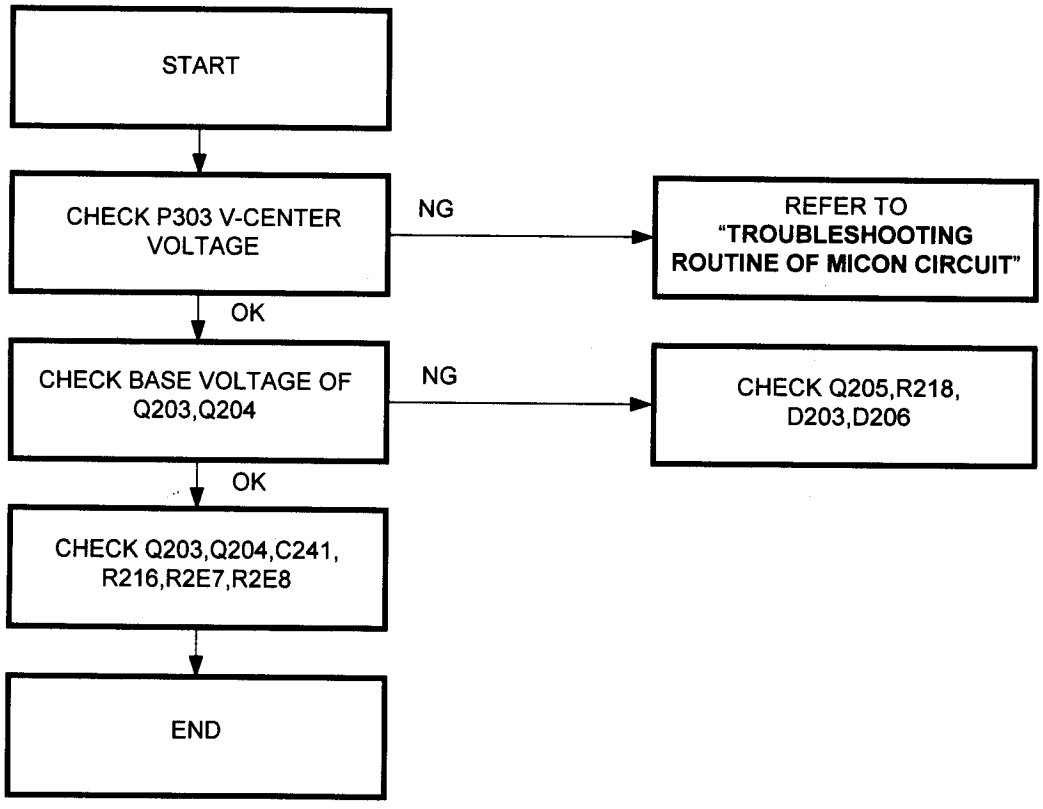
Picture distortion



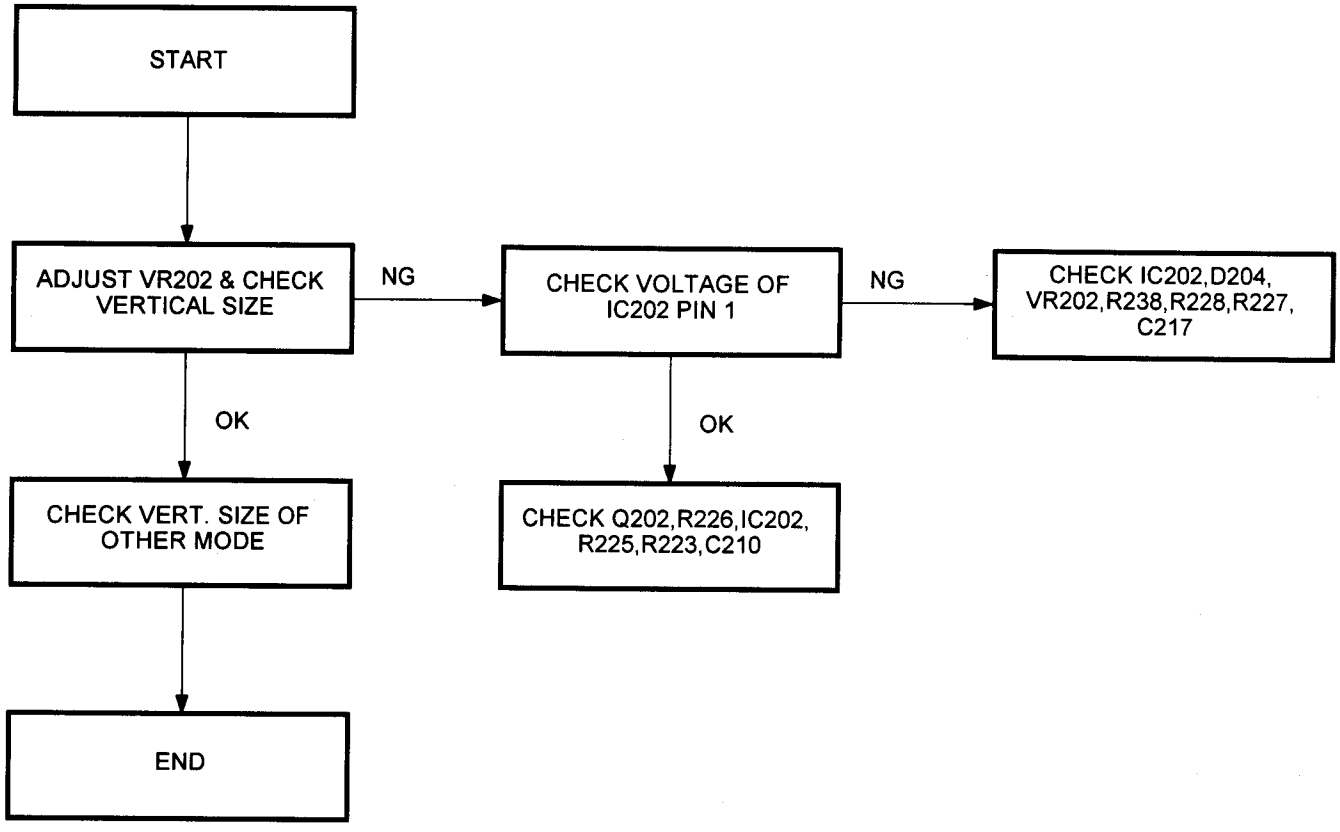
V-Asynchronous



Vertical position & Size



Vertical Size



TEST CONDITIONS: AC LINE IN:110V/60Hz
PATTERN: CROSS HATCH
STATUS : NORMAL

Unit: Volt

IC	IC201 (TDA1675)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	15.23	26.11	4.76	0.48	-0.03	0.16	6.70	GND	5.13	5.94
VESA 53K	15.35	26.19	4.62	0.48	-0.04	0.16	6.70	GND	5.03	5.80
VESA 79K	15.35	26.13	4.65	0.48	-0.03	0.16	6.70	GND	5.03	5.80
VESA 93K	15.35	26.13	4.65	0.48	-0.02	0.16	6.70	GND	5.03	5.80

IC	IC201 (TDA1675)				
PIN / MODE	11	12	13	14	15
VGA 480	4.44	4.15	0.07	26.55	0.55
VESA 53K	4.44	4.18	0.07	26.49	0.75
VESA 79K	4.44	4.18	0.07	26.46	0.67
VESA 93K	4.44	4.18	0.07	26.44	0.67

IC	IC202 (LM358)								IC203 (7812)		
PIN / MODE	1	2	3	4	5	6	7	8	I	G	O
VGA 480	6.62	7.32	7.32	GND	5.41	5.41	5.41	26.52	21.47	GND	12.10
VESA 53K	7.92	7.79	7.79	GND	5.30	5.30	5.30	26.49	21.31	GND	12.10
VESA 79K	7.33	7.50	7.50	GND	5.30	5.30	5.30	26.47	21.26	GND	12.10
VESA 93K	7.32	7.52	7.52	GND	5.30	5.30	5.30	26.45	21.24	GND	12.10

IC	IC204 (AN5766)										
PIN / MODE	1	2	3	4	5	6	7	8	9	10	11
VGA 480	GND	5.06	NC	5.92	5.58	5.58	6.39	12.09	5.95	2.61	NC
VESA 53K	GND	5.06	NC	5.92	6.24	6.24	6.39	12.09	5.95	2.61	NC
VESA 79K	GND	5.06	NC	5.92	5.98	5.98	6.39	12.09	5.95	2.61	NC
VESA 93K	GND	5.06	NC	5.92	5.98	5.98	6.39	12.09	5.95	2.61	NC

IC	IC204 (AN5766)										
PIN / MODE	12	13	14	15	16	17	18	19	20	21	22
VGA 480	NC	6.64	6.73	3.83	4.27	2.44	3.00	2.59	2.20	NC	2.64
VESA 53K	NC	6.64	6.70	3.83	4.35	2.37	3.13	2.59	2.18	NC	2.64
VESA 79K	NC	6.64	6.67	3.83	4.43	2.31	3.25	2.59	2.16	NC	2.64
VESA 93K	NC	6.64	6.60	3.83	4.49	2.19	3.34	2.59	2.16	NC	2.64

IC	IC205 (74LS74)													
PIN / MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VGA 480	5.11	2.06	0.40	5.11	1.87	2.06	GND	2.06	2.07	5.07	0.93	2.06	5.07	5.11
VESA 53K	5.11	2.04	0.40	5.11	1.85	2.04	GND	2.05	2.07	5.07	0.66	2.05	5.07	5.11
VESA 79K	5.11	2.14	0.40	5.11	1.94	2.14	GND	2.05	2.04	5.07	0.76	2.05	5.07	5.11
VESA 93K	5.11	2.14	0.39	5.11	1.94	2.14	GND	2.05	2.02	5.07	0.77	2.05	5.07	5.11

IC	IC206 (AN6147)						
PIN / MODE	1	2	3	4	5	6	7
VGA 480	3.79	3.94	3.94	GND	3.79	11.99	8.25
VESA 53K	3.79	3.94	3.94	GND	3.79	11.99	8.25
VESA 79K	3.79	3.94	3.94	GND	3.79	11.99	8.25
VESA 93K	3.79	3.94	3.94	GND	3.79	11.99	8.25

IC	IC301 (LA7860)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	4.73	0.02	1.81	7.25	0	8.25	4.41	0.18	1.14	6.56
VESA 53K	4.72	0.02	1.52	7.16	0	8.17	4.42	1.03	1.97	6.51
VESA 79K	4.70	0.02	1.36	7.05	0	8.07	4.43	2.01	2.94	6.54
VESA 93K	4.69	0.02	1.22	7.04	0	8.02	4.43	2.53	3.46	6.49

IC	IC301 (LA7860)									
PIN / MODE	11	12	13	14	15	16	17	18	19	20
VGA 480	5.86	GND	8.35	9.12	8.16	4.05	NC	0.94	NC	7.16
VESA 53K	5.85	GND	8.32	9.10	8.52	5.13	NC	1.34	NC	6.86
VESA 79K	5.84	GND	8.29	9.07	8.94	6.37	NC	1.77	NC	6.52
VESA 93K	5.84	GND	8.28	9.05	9.15	6.44	NC	1.97	NC	6.33

IC	IC301 (LA7860)									
PIN / MODE	21	22	23	24	25	26	27	28	29	30
VGA 480	GND	5.07	GND	GND	GND	GND	GND	GND	GND	GND
VESA 53K	GND	5.08	GND	GND	GND	GND	GND	GND	GND	GND
VESA 79K	GND	5.09	GND	GND	GND	GND	GND	GND	GND	GND
VESA 93K	GND	5.10	GND	GND	GND	GND	GND	GND	GND	GND

IC	IC304 (AN5262)							IC305 (TL431)		
PIN / MODE	1	2	3	4	5	6	7	R	A	K
VGA 480	5.45	GND	10.04	GND	1.76	12.10	5.65	2.49	GND	10.04
VESA 53K	5.45	GND	8.36	GND	1.76	12.10	5.65	2.49	GND	8.36
VESA 79K	5.45	GND	8.09	GND	1.75	12.10	5.65	2.49	GND	8.09
VESA 93K	5.45	GND	7.94	GND	1.75	12.10	5.65	2.49	GND	7.94

IC	IC306 (C4557)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA 480	6.04	8.10	8.08	GND	9.11	9.11	9.11	15.82
VESA 53K	6.62	8.09	8.07	GND	8.96	8.96	8.96	15.81
VESA 79K	6.10	8.09	8.07	GND	8.46	8.46	8.46	15.80
VESA 93K	6.20	8.09	8.07	GND	8.31	8.32	8.32	15.80

IC	IC307 (NE555)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA 480	GND	7.90	2.91	15.82	8.79	0.75	0.74	15.82
VESA 53K	GND	7.90	4.94	15.81	8.88	1.25	1.25	15.81
VESA 79K	GND	7.89	7.18	15.80	8.65	1.74	1.75	15.80
VESA 93K	GND	7.90	8.47	15.80	8.70	2.06	2.06	15.80

IC	IC309 (74LS123)							
PIN / MODE	1	2	3	4	5	6	7	8
VGA 480	GND	5.09	4.59	NC	4.59	GND	0.73	GND
VESA 53K	GND	5.07	4.59	NC	4.59	GND	0.65	GND
VESA 79K	GND	5.08	4.59	NC	4.59	GND	0.64	GND
VESA 93K	GND	5.07	4.59	NC	4.59	GND	0.64	GND

IC	IC309 (74LS123)							
PIN / MODE	9	10	11	12	13	14	15	16
VGA 480	GND	0.49	5.14	NC	3.75	0	1.07	5.14
VESA 53K	GND	0.48	5.14	NC	3.75	0	0.97	5.13
VESA 79K	GND	0.47	5.13	NC	3.75	0	1.00	5.13
VESA 93K	GND	0.46	5.14	NC	3.75	0	1.00	5.13

IC	IC310 (LM317)			IC311 (3843)							
PIN / MODE	A	O	I	1	2	3	4	5	6	7	8
VGA 480	14.69	15.94	26.81	2.92	2.50	0.03	0.47	GND	0.82	15.77	5.01
VESA 53K	14.69	15.94	26.75	2.21	2.50	0.02	0.39	GND	1.35	15.75	5.01
VESA 79K	14.69	15.94	26.72	1.86	2.50	0.02	0.44	GND	2.26	15.72	5.01
VESA 93K	14.69	15.94	26.72	1.78	2.50	0.02	0.49	GND	3.20	15.71	5.01

TR	Q200 (C945)			Q201 (C945)			Q202 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	1.43	13.96	2.04	0.11	26.80	0.16	2.80	6.70	3.30
VESA 53K	1.43	14.06	2.04	0.13	26.75	0.17	3.44	6.70	3.95
VESA 79K	1.43	14.08	2.04	0.09	26.72	0.16	3.13	6.71	3.64
VESA 93K	1.43	14.08	2.04	0.07	26.71	0.16	3.14	6.70	3.65

TR	Q203 (B882)			Q204 (B772)			Q205 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	11.01	26.79	11.14	10.55	GND	9.99	1.13	9.99	1.73
VESA 53K	11.33	26.74	11.48	10.89	GND	10.33	1.10	10.34	1.69
VESA 79K	11.75	26.71	11.94	11.35	GND	10.80	1.06	10.81	1.65
VESA 93K	11.74	26.70	11.93	11.35	GND	10.79	1.06	10.81	1.65

TR	Q206 (C945)			Q208 (C945)			Q209 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	0.02	12.09	0.16	GND	23.28	0.07	3.68	12.09	4.26
VESA 53K	0.03	12.09	0.17	GND	22.18	0.07	3.76	12.09	4.34
VESA 79K	0.02	12.09	0.16	GND	21.04	0.07	3.84	12.09	4.43
VESA 93K	0.01	12.09	0.15	GND	20.37	0.07	3.89	12.09	4.49

TR	Q210 (C4632)			Q211 (A733)			Q212 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	11.50	413.2	12.10	11.28	0	10.69	GND	5.09	-0.01
VESA 53K	11.50	440.5	12.10	11.28	0	10.69	GND	5.07	-0.01
VESA 79K	11.50	456.7	12.10	11.28	0	10.69	GND	5.07	-0.01
VESA 93K	11.50	461.5	12.10	11.28	0	10.69	GND	5.07	-0.01

TR	Q213 (A733)			Q214 (A733)			Q2C2 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	2.05	0	4.47	4.50	4.47	3.93	0.11	0.29	0.66
VESA 53K	2.04	0	4.48	5.35	4.48	4.70	0.13	0.25	0.70
VESA 79K	2.01	0	3.69	9.80	3.69	9.09	0.22	0.24	0.81
VESA 93K	2.00	0	3.27	12.13	3.27	11.43	0.21	0.23	0.81

TR	Q301 (A733)			Q302 (C945)			Q303 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	4.05	0.22	3.96	GND	3.96	0.22	0.64	11.91	0.72
VESA 53K	5.13	0.24	5.00	GND	5.00	0.24	0.42	11.90	0.43
VESA 79K	6.37	0.25	6.16	GND	6.16	0.25	0.60	11.90	0.54
VESA 93K	6.44	0.25	6.21	GND	6.21	0.25	0.65	11.89	0.56

TR	Q304 (A733)			Q305 (A733)			Q306 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	8.76	GND	11.73	4.11	GND	4.05	4.11	26.79	4.05
VESA 53K	8.85	GND	11.73	5.09	GND	5.13	5.09	26.74	5.13
VESA 79K	8.63	GND	11.72	6.21	GND	6.36	6.21	26.70	6.36
VESA 93K	8.69	GND	11.72	6.26	GND	6.43	6.28	26.70	6.43

TR	Q307 (C945)			Q308 (B649)			Q309 (D669)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	7.14	11.58	7.76	33.08	GND	32.78	33.08	75.84	33.39
VESA 53K	7.16	11.57	7.76	33.21	GND	32.82	33.21	76.32	33.43
VESA 79K	7.18	11.56	7.78	33.03	GND	32.64	33.02	75.62	33.21
VESA 93K	7.18	11.56	7.79	32.87	GND	32.23	32.84	75.29	32.83

TR	Q310 (C2705)			Q311 (BF488)			Q312 (A733)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	4.90	32.79	5.51	28.18	0.71	27.51	12.02	0.74	11.40
VESA 53K	4.92	32.83	5.53	28.30	0.71	27.63	12.02	1.25	11.40
VESA 79K	4.91	32.66	5.51	28.14	0.71	27.47	12.01	1.74	11.39
VESA 93K	4.88	32.24	5.47	28.06	0.70	27.39	12.11	2.06	11.39

TR	Q313 (C945)			Q314 (C3996)			Q315 (A1145)		
PIN / MODE	E	C	B	B	C	E	E	C	B
VGA 480	GND	9.35	-1.28	-0.39	40.32	GND	75.62	33.38	75.02
VESA 53K	GND	7.50	-1.51	-0.33	70.25	GND	75.93	33.42	75.33
VESA 79K	GND	5.38	-1.20	-0.25	103.8	GND	75.50	33.23	74.90
VESA 93K	GND	5.22	-1.19	-0.25	122.9	GND	75.29	32.82	74.69

TR	Q316 (C945)			Q317 (C945)			Q318 (K941)		
PIN / MODE	E	C	B	E	C	B	S	D	G
VGA 480	0.10	4.90	0.71	7.14	12.10	7.72	GND	16.54	4.11
VESA 53K	0.10	4.92	0.71	7.16	12.10	7.72	GND	11.74	5.08
VESA 79K	0.10	4.91	0.71	7.18	12.10	7.72	GND	7.73	6.20
VESA 93K	0.10	4.88	0.70	7.18	12.10	7.72	GND	7.49	6.28

TR	Q319 (FS5KM)			Q320 (C945)			Q321 (D699)		
PIN / MODE	G	D	S	E	C	B	E	C	B
VGA 480	44.82	223.9	43.49	GND	18.03	0	42.90	54.58	43.27
VESA 53K	77.12	223.8	74.98	GND	0.01	0.67	74.62	86.11	74.90
VESA 79K	112.6	223.8	109.7	GND	0.01	0.67	109.3	120.3	109.7
VESA 93K	132.8	223.8	129.4	GND	0.01	0.67	129.3	139.9	129.4

TR	Q322 (C945)			Q323 (B649)			Q324 (IRF640)		
PIN / MODE	E	C	B	E	C	B	S	D	G
VGA 480	GND	18.05	0	42.90	30.38	43.27	GND	0	18.03
VESA 53K	GND	18.02	0	74.62	62.22	74.90	GND	32.20	0.01
VESA 79K	GND	0	0.67	109.3	97.65	109.7	GND	40.07	0.01
VESA 93K	GND	0	0.67	129.3	117.5	129.4	GND	47.90	0.01

TR	Q325 (IRF630)			Q326 (IRF630)			Q328 (C945)		
PIN / MODE	S	D	G	S	D	G	E	C	B
VGA 480	GND	0	18.03	GND	0	18.02	GND	18.03	0
VESA 53K	GND	0.01	18.00	GND	0	17.98	GND	0.01	0.67
VESA 79K	GND	40.00	0.01	GND	0.01	17.97	GND	0.01	0.67
VESA 93K	GND	47.90	0.01	GND	47.70	0.01	GND	0.01	0.67

TR	Q329 (C945)			Q330 (C945)			Q332 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	18.03	0	GND	18.01	0	GND	0.02	0.65
VESA 53K	GND	18.00	0	GND	17.98	0	GND	0.02	0.65
VESA 79K	GND	0.01	0.67	GND	17.96	0	GND	0.02	0.65
VESA 93K	GND	0.01	0.67	GND	0.01	0.67	GND	0.02	0.65

TR	Q333 (C945)			Q334 (C945)			Q335 (C5296)		
PIN / MODE	E	C	B	E	C	B	B	C	E
VGA 480	GND	2.90	0.02	GND	23.28	0.03	174.5	223.0	174.8
VESA 53K	GND	2.21	0.02	GND	22.18	0.03	134.4	222.4	134.5
VESA 79K	GND	1.86	0.02	GND	21.04	0.03	79.85	221.3	79.9
VESA 93K	GND	1.77	0.02	GND	20.37	0.03	46.65	220.7	46.85

TR	Q336 (K941)			Q337 (C945)			Q338 (K118)		
PIN / MODE	S	D	G	E	C	B	S	D	G
VGA 480	GND	16.89	4.11	GND	15.51	0.01	0.03	174.7	0.82
VESA 53K	GND	14.10	5.09	GND	15.21	0.01	0.03	134.4	1.35
VESA 79K	GND	7.99	6.20	GND	14.86	0.02	0.03	79.74	2.26
VESA 93K	GND	4.87	6.28	GND	14.68	0.02	0.03	46.4	3.22

TR	Q339 (C945)			Q340 (A733)			Q341 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	23.28	0.09	1.46	1.45	0.74	23.19	26.80	23.28
VESA 53K	GND	22.18	0.06	5.41	5.41	4.73	22.09	26.75	22.17
VESA 79K	GND	21.04	-0.02	9.91	9.91	9.25	21.16	26.72	21.04
VESA 93K	GND	20.37	-0.07	12.30	12.29	11.66	20.61	26.72	20.39

TR	Q342 (A733)			Q343 (C2688)			Q344 (A733)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	23.19	GND	23.28	129.0	224.0	128.0	12.10	5.93	11.59
VESA 53K	22.09	GND	22.17	129.0	224.0	128.0	12.10	6.15	11.58
VESA 79K	21.16	GND	21.04	129.0	224.0	128.0	12.10	6.18	11.57
VESA 93K	20.61	GND	20.39	129.0	224.0	128.0	12.10	6.16	11.57

TR	Q345 (IRF630)			Q346 (IRF630)			Q348 (C2001)		
PIN / MODE	S	D	G	S	D	G	E	C	B
VGA 480	GND	0.01	18.03	GND	0.01	18.05	GND	7.44	0
VESA 53K	GND	31.92	0.01	GND	0.01	18.02	GND	6.84	0.02
VESA 79K	GND	39.90	0.01	GND	39.82	0.01	GND	5.40	0.09
VESA 93K	GND	47.98	0.01	GND	47.81	0.01	GND	3.62	0.19

TR	Q349 (A733)			Q350 (C945)			Q351 (C945)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	11.67	0	11.90	GND	3.46	0.52	1.43	14.23	1.95
VESA 53K	11.66	0	11.88	GND	3.54	0.48	1.43	14.35	1.95
VESA 79K	11.66	0	11.88	GND	3.47	0.51	1.43	14.43	1.95
VESA 93K	11.65	0	11.88	GND	3.56	0.49	1.43	14.42	1.95

TR	Q352 (C945)			Q353 (A733)			Q354 (A733)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	1.43	12.09	2.0	14.83	1.11	14.23	15.41	0.24	14.79
VESA 53K	1.43	12.09	2.0	14.95	0.99	14.35	15.49	0.48	14.87
VESA 79K	1.43	12.09	2.0	14.98	0.95	14.43	15.56	1.00	14.96
VESA 93K	1.43	12.09	2.0	14.98	0.95	14.42	15.58	1.82	14.99

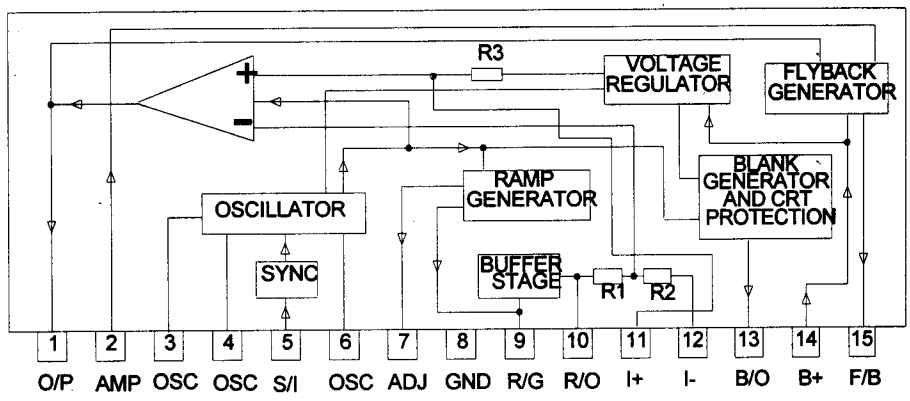
TR	Q357 (C945)			Q358 (C3675)			Q400 (A733)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	11.97	0	11.58	571.0	12.09	15.93	0.46	15.89
VESA 53K	GND	11.98	0	11.57	573.8	12.09	15.93	0.79	15.86
VESA 79K	GND	11.98	0	11.56	575.7	12.09	15.93	1.18	15.83
VESA 93K	GND	11.98	0	11.56	576.2	12.08	15.93	1.38	15.81

TR	Q401 (BF483)			Q420 (A733)			Q421 (BF483)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	-140	-22.29	-148.3	2.91	GND	3.63	39.25	75.71	39.83
VESA 53K	-140.3	-24.14	-148.9	2.20	GND	3.63	39.67	75.75	40.25
VESA 79K	-140.2	-25.33	-148.9	1.85	GND	3.63	39.87	75.71	40.46
VESA 93K	-140.2	-25.92	-148.9	1.76	GND	3.63	39.92	75.68	40.51

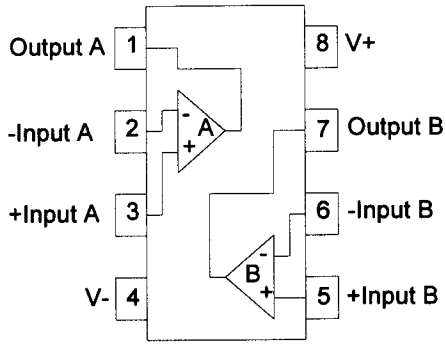
TR	Q422 (BF488)			Q4C1 (C945)			Q4C2 (BF488)		
PIN / MODE	E	C	B	E	C	B	E	C	B
VGA 480	39.83	GND	39.37	GND	3.43	0	3.43	-12.02	2.82
VESA 53K	39.80	GND	40.04	GND	3.43	0	3.43	-12.93	2.81
VESA 79K	40.46	GND	39.98	GND	3.43	0	3.43	-13.06	2.81
VESA 93K	40.51	GND	40.02	GND	3.43	0	3.43	-13.13	2.82

8.0 IC CONFIGURATION

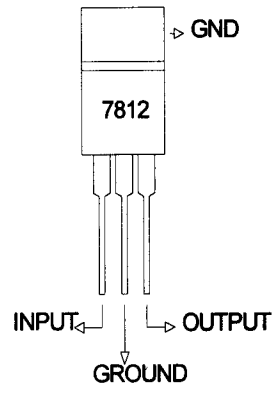
(1) IC201 (TDA1675A)



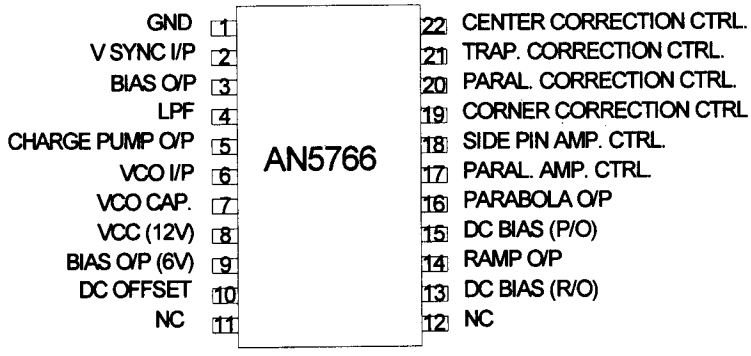
(2) IC202,IC306 (C4557,LM358)



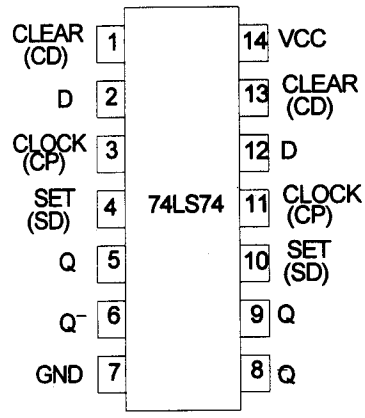
(3) IC203 (7812)



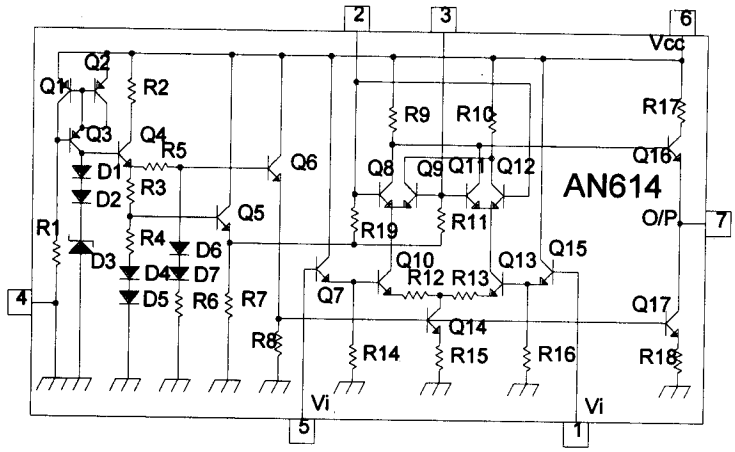
(4) IC204 (AN5766K)



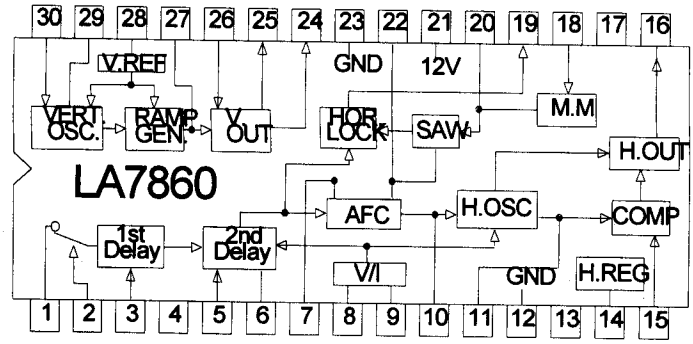
(5) IC205 (74LS74)



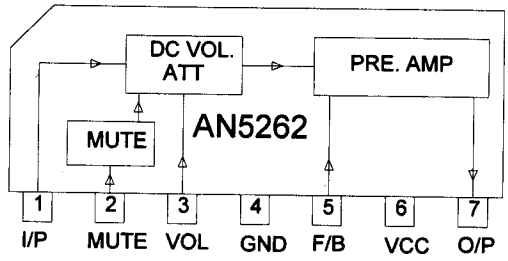
IC206 (AN614)



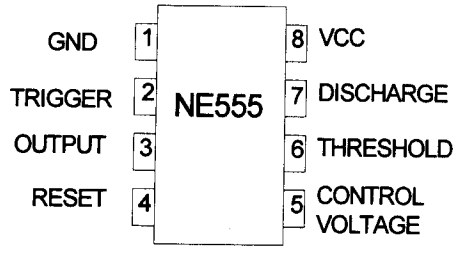
(7) IC301 (7860)



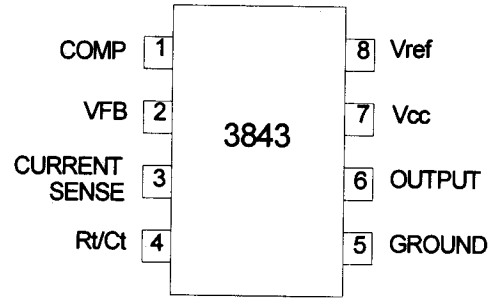
(8) IC304 (AN5262)



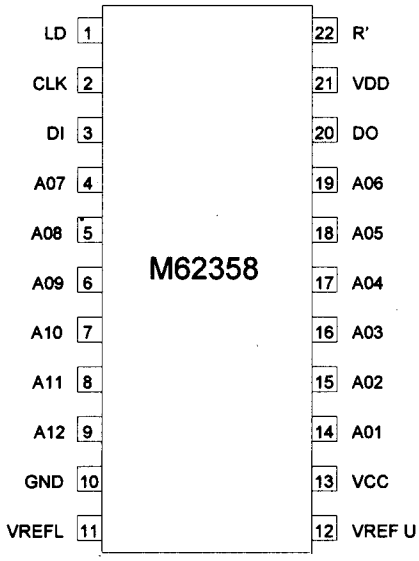
(9) IC307,IC308 (NE555)



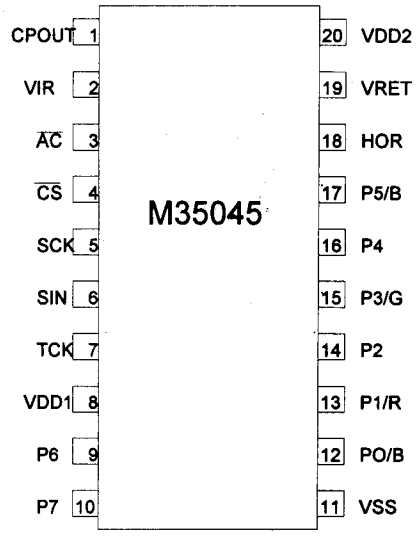
(10) IC311 (UC3843)



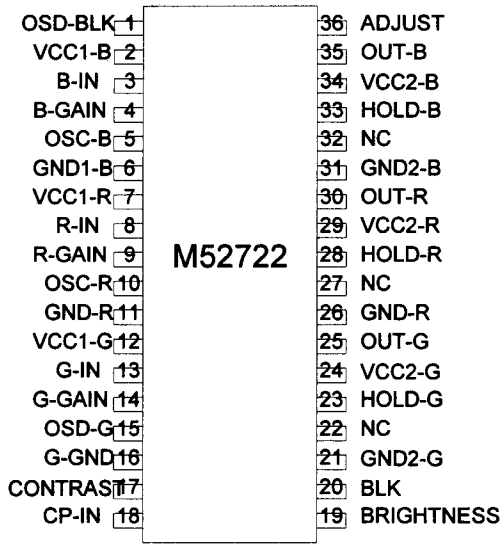
(11) IC505 (M62358)



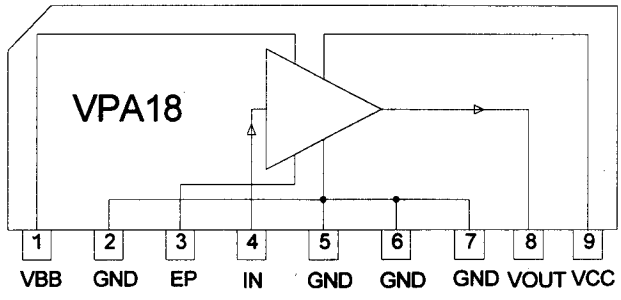
(12) IC510 (M35045)



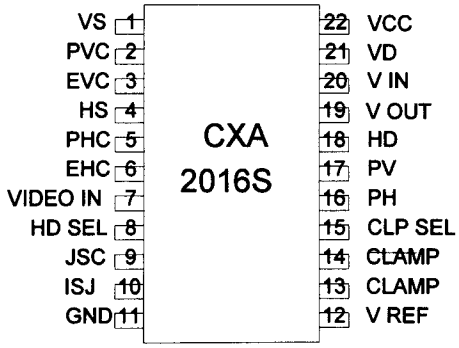
(13) IC602 (M52722)



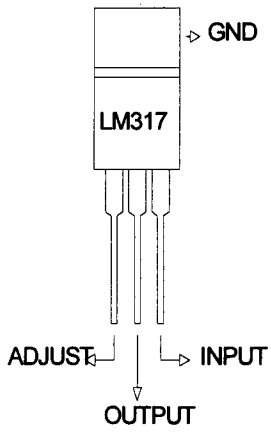
(14) IC603,604,605 (VPA18)



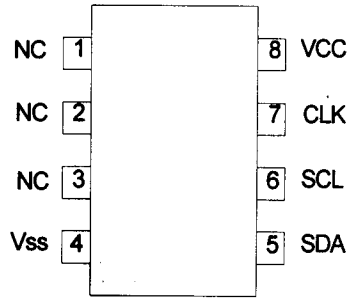
(15) IC606 (CXA2016S)



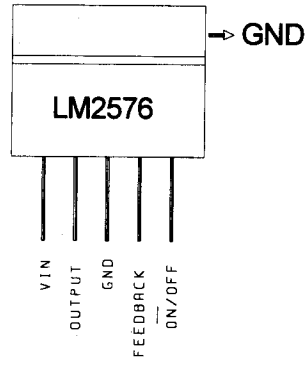
(16) IC607 (LM317)



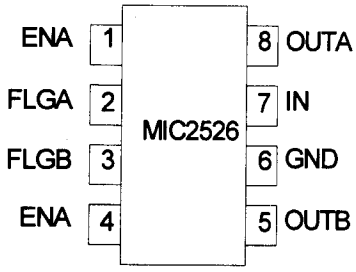
(17) IC609 (24LC21)



(18) IC701 (LM2576)



(19) IC702,IC703 (MIC2526)



9.0 PARTS LIST

2195UE Parts List

Abbreviations :	Capacitors	EL: Electrolytic Aluminum, TA: Tantalum, CE: Ceramic PP: Polypropylene, PEI: Polyster (Inductive), PEN: Polyster (Non-Inductive) PPS: Serial Poly Propylene, MPE: Polyster Metalized, MPP: Polypropylene Metalized.
	Resistors	CF: Carbon Film, MF:Metal Film, VR: Variable Resistor. MOF: Metal Oxide Film, POT: Potentiometer
	Semiconductor	TR: Transistor, DI: Diode, ZD: Zener Diode, IC: IC.
Remark:	●: 1st priority , Recommended Q'ty = (Location Number x3) ⊙: 2nd priority, Recommended Q'ty = (Location Number x2) N : New parts ! : Critical Components Affecting X-radiation	

Location	Part No.	Description
TRANSISTOR		
Q1	14C92-111B	TR NPN 2SC945P/Q
Q2	14A92-021B	TR PNP 2SA733P/Q
⊙ Q101	14C92-111B	TR NPN 2SC945P/Q
Q102	14A92-021B	TR PNP 2SA733P/Q
Q102	14T92-011E	TR SCR BT169D
⊙ Q103	14C92-111B	TR NPN 2SC945P/Q
Q104	14C92-111B	TR NPN 2SC945P/Q
Q107	14C92-111B	TR NPN 2SC945P/Q
Q108	14K22-250U	TR MOS FET FS10SM-16A
Q109	14C92-111B	TR NPN 2SC945P/Q
Q110	14C92-111B	TR NPN 2SC945P/Q
Q111	14C92-111B	TR NPN 2SC945P/Q
Q113	14C92-111B	TR NPN 2SC945P/Q
Q114	14A92-021B	TR PNP 2SA733P/Q
Q116	14A92-021B	TR PNP 2SA733P/Q
N Q117	14K3P-070SU	TR MOS FET FS14KM-10
Q146	14K3P-070SU	TR MOS FET FS10SM-16A
Q200	14C92-111B	TR NPN 2SC945P/Q
Q201	14C92-111B	TR NPN 2SC945P/Q
Q202	14C92-111B	TR NPN 2SC945P/Q
Q203	14D26-010B	TR NPN 2SD882P/Q
⊙ Q204	14B26-030B	TR PNP 2SB772
Q205	14C92-111B	TR NPN 2SC945P/Q
Q206	14C92-111B	TR NPN 2SC945P/Q
Q208	14C92-111B	TR NPN 2SC945P/Q
Q209	14C92-111B	TR NPN 2SC945P/Q
Q210	14C22-210C	TR NPN 2SC4632
⊙ Q211	14A92-021B	TR PNP 2SA733P/Q
Q212	14C92-111B	TR NPN 2SC945P/Q
Q213	14A92-021B	TR PNP 2SA733P/Q
Q214	14A92-021B	TR PNP 2SA733P/Q
Q2C2	14C92-111B	TR NPN 2SC945P/Q
Q301	14A92-021B	TR PNP 2SA733P/Q
Q302	14C92-111B	TR NPN 2SC945P/Q
Q303	14C92-111B	TR NPN 2SC945P/Q
⊙ Q304	14A92-021B	TR PNP 2SA733P/Q
Q305	14A92-021B	TR PNP 2SA733P/Q
Q306	14C92-111B	TR NPN 2SC945P/Q
Q307	14C92-111B	TR NPN 2SC945P/Q
Q308	14B17-010P	TR PNP 2SB649A
Q309	14D17-010P	TR NPN 2SD669A
Q310	14C93-011A	TR NPN 2SC2705
Q311	14A92-141E	TR PNP BF488
Q312	14A92-021B	TR PNP 2SA733P/Q
Q313	14C92-111B	TR NPN 2SC945P/Q
● Q314	14C3P-160C	TR NPN 2SC3996
⊙ Q315	14A93-011A	TR PNP 2SA1145
Q316	14C92-111B	TR NPN 2SC945P/Q
Q317	14C92-111B	TR NPN 2SC945P/Q
⊙ Q318	14K93-021P	TR MOS FET 2SK941
⊙ Q319	14K22-210AU	TR MOS FET FS5KM-9
Q320	14C92-111B	TR NPN 2SC945P/Q
Q321	14D17-010P	TR NPN 2SD669A
Q322	14C92-111B	TR NPN 2SC945P/Q
Q323	14B17-010P	TR PNP 2SB649A
Q324	14K22-180Y	TR MOS FET IRF640
Q325	14K22-110W	TR MOS FET 630/890
Q326	14K22-110W	TR MOS FET 630/890

Location	Part No.	Description
Q328	14C92-111B	TR NPN 2SC945P/Q
Q329	14C92-111B	TR NPN 2SC945P/Q
Q330	14C92-111B	TR NPN 2SC945P/Q
Q332	14C92-111B	TR NPN 2SC945P/Q
Q333	14C92-111B	TR NPN 2SC945P/Q
Q334	14C92-111B	TR NPN 2SC945P/Q
● Q335	14C3P-220C	TR NPN 2SC5296
⊙ Q336	14K93-021P	TR MOS FET 2SK941
Q337	14C92-111B	TR NPN 2SC945P/Q
! Q338	14K22-090P	TR MOS FET 2SK1118
Q339	14C92-111B	TR NPN 2SC945P/Q
Q340	14A92-021B	TR PNP 2SA733P/Q
Q341	14C92-111B	TR NPN 2SC945P/Q
Q342	14A92-021B	TR PNP 2SA733P/Q
Q343	14C26-040B	TR NPN 2SC2688K
Q344	14A92-021B	TR PNP 2SA733P/Q
Q345	14K22-110W	TR MOS FET 630/890
Q346	14K22-110W	TR MOS FET 630/890
Q348	14C92-101B	TR NPN 2SC2001K
Q349	14A92-021B	TR PNP 2SA733P/Q
Q350	14C92-111B	TR NPN 2SC945P/Q
Q351	14C92-111B	TR NPN 2SC945P/Q
Q352	14C92-111B	TR NPN 2SC945P/Q
Q353	14A92-021B	TR PNP 2SA733P/Q
Q354	14A92-021B	TR PNP 2SA733P/Q
Q357	14C92-111B	TR NPN 2SC945P/Q
Q358	14C92-220C	TR NPN 2SC3675
Q400	14A92-021B	TR PNP 2SA733P/Q
Q401	14C92-201E	TR NPN BF483
Q420	14A92-021B	TR PNP 2SA733P/Q
Q421	14C92-201E	TR NPN BF483
Q422	14A92-141E	TR PNP BF488
Q4C1	14C92-111B	TR NPN 2SC945P/Q
Q4C2	14A92-141E	TR PNP BF488
Q502	14C92-111B	TR NPN 2SC945P/Q
Q503	14A92-021B	TR PNP 2SA733P/Q
Q504	14D26-010B	TR NPN 2SD882P/Q
Q505	14C92-111B	TR NPN 2SC945P/Q
Q506	14C92-111B	TR NPN 2SC945P/Q
Q507	14C92-111B	TR NPN 2SC945P/Q
Q508	14C92-111B	TR NPN 2SC945P/Q
Q509	14C92-111B	TR NPN 2SC945P/Q
Q510	14C92-111B	TR NPN 2SC945P/Q
Q511	14C92-101B	TR NPN 2SC2001K
Q512	14D26-010B	TR NPN 2SD882P/Q
Q513	14C92-101B	TR NPN 2SC2001K
Q514	14A92-071B	TR PNP 2SA952
Q515	14C92-111B	TR NPN 2SC945P/Q
Q516	14A92-021B	TR PNP 2SA733P/Q
Q517	14B26-030B	TR PNP 2SB772
⊙ Q518	14A92-071B	TR PNP 2SA952
Q519	14B26-030B	TR PNP 2SB772
Q522	14C92-101B	TR NPN 2SC2001K
Q523	14A92-071B	TR PNP 2SA952
Q524	14C92-101B	TR NPN 2SC2001K
Q525	14A92-071B	TR PNP 2SA952
Q530	14C92-101B	TR NPN 2SC2001K
Q531	14A92-071B	TR PNP 2SA952
Q534	14D26-010B	TR NPN 2SD882P/Q
Q535	14B26-030B	TR PNP 2SB772
Q601	14C92-281P	TR NPN 2SC1906
Q602	14C92-281P	TR NPN 2SC1906
Q603	14C92-281P	TR NPN 2SC1906
Q604	14C92-281P	TR NPN 2SC1906
Q605	14C92-111B	TR NPN 2SC945P/Q
Q606	14C92-281P	TR NPN 2SC1906
Q607	14C92-281P	TR NPN 2SC1906
Q608	14A92-141E	TR PNP BF488
Q609	14C92-201E	TR NPN BF483
Q610	14C92-281P	TR NPN 2SC1906
Q611	14A92-141E	TR PNP BF488
Q612	14C92-201E	TR NPN BF483
Q613	14C92-281P	TR NPN 2SC1906
Q614	14A92-141E	TR PNP BF488
Q615	14C92-201E	TR NPN BF483
Q616	14A92-021B	TR PNP 2SA733P/Q
Q617	14C92-101B	TR NPN 2SC2001K
● Q618	14B92-011P	TR PNP 2SB562
Q619	14C92-111B	TR NPN 2SC945P/Q
Q620	14C92-111B	TR NPN 2SC945P/Q
Q621	14C92-111B	TR NPN 2SC945P/Q
Q623	14C92-281P	TR NPN 2SC1906
Q625	14C92-111B	TR NPN 2SC945P/Q
QT01	14K93-021P	TR MOS FET 2SK941
QT02	14C92-111B	TR NPN 2SC945P/Q
QT03	14C92-201D	TR NPN 2SC1473AQ
QT04	14C93-071C	TR NPN 2SC3467
QT05	14A93-041C	TR PNP 2SA1370

DIODES

D1	15S11M001F	DI SW 0.5A 50V 1N4148
D102	15S11M001F	DI SW 0.5A 50V 1N4148

Location	Part No.	Description	Location	Part No.	Description
D103	15S47TK00F	DI HI SW 2.3A 600V 30NS	D331	15S11M001F	DI SW 0.5A 50V 1N4148
⊙ D104	15B4J-G010	DI HI SW 3.5A 60V	D332	15S33T201F	DI MD SW 1A 200V
D105	15S11M001F	DI SW 0.5A 50V 1N4148	D333	15S33T201F	DI MD SW 1A 200V
● D105A	15S49TK00F	DI HI SW 2.3A 1000V 75NS	D340	15S65M201F	DI RECTIFIER 1A 400V
● D105B	15S49TK00F	DI HI SW 2.3A 1000V 75NS	D341	15S65M201F	DI RECTIFIER 1A 400V
D106	15S47TK00F	DI HI SW 2.3A 600V 30NS	D342	15S65M201F	DI RECTIFIER 1A 400V
D107	15S47TK00F	DI HI SW 2.3A 600V 30NS	D344	15S11M001F	DI SW 0.5A 50V 1N4148
D109	22225-102M	CF 1K 5% 1/4W	D345	15S11M001F	DI SW 0.5A 50V 1N4148
D110	15S49T200F	DI HI SW 1A 1000V 75NS	D346	15S11M001F	DI SW 0.5A 50V 1N4148
D111	15S49T200F	DI HI SW 1A 1000V 75NS	D347	15S11M001F	DI SW 0.5A 50V 1N4148
D113	15S61M201F	DI RECTIFIER 1A 50V	D401	15S33T201F	DI MD SW 1A 200V
D114	15S11M001F	DI SW 0.5A 50V 1N4148	D402	15S35T201F	DI MD SW 1A 400V
D115	15S61M201F	DI RECTIFIER 1A 50V	D403	15S11M001F	DI SW 0.5A 50V 1N4148
D116	15S33T201F	DI MD SW 1A 200V	D405	15S11M001F	DI SW 0.5A 50V 1N4148
D117	15S11M001F	DI SW 0.5A 50V 1N4148	D409	15S11M001F	DI SW 0.5A 50V 1N4148
D119	15S11M001F	DI SW 0.5A 50V 1N4148	D410	15S33T201F	DI MD SW 1A 200V
D120	15S47TK00F	DI HI SW 2.3A 600V 30NS	D411	15S33T201F	DI MD SW 1A 200V
D121	15S11M001F	DI SW 0.5A 50V 1N4148	D415	15S11M001F	DI SW 0.5A 50V 1N4148
D201	15S11M001F	DI SW 0.5A 50V 1N4148	D418	15S11M001F	DI SW 0.5A 50V 1N4148
D202	15S61M201F	DI RECTIFIER 1A 50V	D419	15S11M001F	DI SW 0.5A 50V 1N4148
⊙ D203	15S11M001F	DI SW 0.5A 50V 1N4148	D4C1	15S11M001F	DI SW 0.5A 50V 1N4148
D204	15S11M001F	DI SW 0.5A 50V 1N4148	D4C2	15S35T201F	DI MD SW 1A 400V
D205	15S11M001F	DI SW 0.5A 50V 1N4148	D501	15S11M001F	DI SW 0.5A 50V 1N4148
D206	15S11M001F	DI SW 0.5A 50V 1N4148	D506	15S11M001F	DI SW 0.5A 50V 1N4148
D301	15S11M001F	DI SW 0.5A 50V 1N4148	D507	15S11M001F	DI SW 0.5A 50V 1N4148
D302	15S11M001F	DI SW 0.5A 50V 1N4148	D601	15S11M001F	DI SW 0.5A 50V 1N4148
D303	15S11M001F	DI SW 0.5A 50V 1N4148	D602	15S11M001F	DI SW 0.5A 50V 1N4148
D308	15S11M001F	DI SW 0.5A 50V 1N4148	D603	15S11M001F	DI SW 0.5A 50V 1N4148
D309	15S11M001F	DI SW 0.5A 50V 1N4148	D604	15S11M001F	DI SW 0.5A 50V 1N4148
D311	15S11M001F	DI SW 0.5A 50V 1N4148	D605	15S11M001F	DI SW 0.5A 50V 1N4148
D312	15S33T201F	DI MD SW 1A 200V	D606	15S11M001F	DI SW 0.5A 50V 1N4148
D313	15S11M001F	DI SW 0.5A 50V 1N4148	D607	15S11M001F	DI SW 0.5A 50V 1N4148
D314	15S11M001F	DI SW 0.5A 50V 1N4148	D608	15S11M001F	DI SW 0.5A 50V 1N4148
D315	15S11M001F	DI SW 0.5A 50V 1N4148	D609	15S11M001F	DI SW 0.5A 50V 1N4148
D316	15S11M001F	DI SW 0.5A 50V 1N4148	D610	15S11M001F	DI SW 0.5A 50V 1N4148
D317	15B40T2011	DI HI SW 1A 50V	⊙ D612	15S43M001F	DI HI SW 0.5A 200V
D319	15S6C-A01F	DI RECTIFIER 10A 1500V	⊙ D613	15S43M001F	DI HI SW 0.5A 200V
⊙ D320	15S47TK00F	DI HI SW 2.3A 600V 30NS	D614	15S11M001F	DI SW 0.5A 50V 1N4148
N⊙ D321	15S43TH00F	DI HI SW 1.75A 200V 25NS	D615	15S11M001F	DI SW 0.5A 50V 1N4148
D322	15S43TH00F	DI HI SW 1.75A 200V 25NS	D618	15S43M001F	DI HI SW 0.5A 200V
D323	15S65M201F	DI RECTIFIER 1A 400V	D619	15S43M001F	DI HI SW 0.5A 200V
D324	15S65M201F	DI RECTIFIER 1A 400V	D620	15S11M001F	DI SW 0.5A 50V 1N4148
D325	15S3LM100F	DI MD SW 0.5A 1600V	D621	15S11M001F	DI SW 0.5A 50V 1N4148
D326	15B40T2011	DI HI SW 1A 50V	D624	15S43M001F	DI HI SW 0.5A 200V
⊙ D327	15S47TK00F	DI HI SW 2.3A 600V 30NS	D625	15S43M001F	DI HI SW 0.5A 200V
D330	15S11M001F	DI SW 0.5A 50V 1N4148	D626	15S11M001F	DI SW 0.5A 50V 1N4148

Location	Part No.	Description
D627	15S11M001F	DI SW 0.5A 50V 1N4148
D628	15S11M001F	DI SW 0.5A 50V 1N4148
D630	15B40T2011	DI HI SW 1A 50V
D701	15B6J-6010	DI HI SW 3A 60V
DT01	15S11M001F	DI SW 0.5A 50V 1N4148
DT02	15S11M001F	DI SW 0.5A 50V 1N4148
DT03	15S11M001F	DI SW 0.5A 50V 1N4148
DT04	15S11M001F	DI SW 0.5A 50V 1N4148
DT05	15S11M001F	DI SW 0.5A 50V 1N4148
DT06	15S11M001F	DI SW 0.5A 50V 1N4148
ZENER DIODE		
ZD1	15Z33M3390P	ZD 3.3V 5% 0.5W
ZD2	15Z33M3390P	ZD 3.3V 5% 0.5W
⊙ ZD101	15Z33M1800P	ZD 18V 5% 0.5W
ZD102	15Z33M1200H	ZD 12V 5% 0.5W
⊙ ZD103	15Z33M1800P	ZD 18V 5% 0.5W
⊙ ZD104	15Z33M2000P	ZD 20V 5% 0.5W
⊙ ZD105	15Z33M2000P	ZD 20V 5% 0.5W
ZD106	15Z33M1200H	ZD 12V 5% 0.5W
ZD108	15Z33M1200H	ZD 12V 5% 0.5W
ZD200	15Z33M5190P	ZD 5.1V 5% 0.5W
ZD201	15Z33M4390P	ZD 4.3V 5% 0.5W
! ZD202	15Z33M1200P	ZD 12V 5% 0.5W
ZD203	15Z33M5190P	ZD 5.1V 5% 0.5W
ZD302	15Z33M1200P	ZD 12V 5% 0.5W
ZD304	15Z33M1500P	ZD 15V 5% 0.5W
ZD402	15Z33M1200P	ZD 12V 5% 0.5W
ZD404	15Z33M6290P	ZD 6.2V 5% 0.5W
ZD501	15Z33M3990P	ZD 3.9V 5% 0.5W
ZD602	15Z33M5190P	ZD 5.1V 5% 0.5W
ZD603	15Z33M5190P	ZD 5.1V 5% 0.5W
ZD604	15Z33M5190P	ZD 5.1V 5% 0.5W
ZD607	15Z33M5190P	ZD 5.1V 5% 0.5W
RESISTORS		
R1	22215-150M	CF 15R 5% 1/8W
R2	22215-150M	CF 15R 5% 1/8W
R3	22215-150M	CF 15R 5% 1/8W
R4	22215-152M	CF 1K5 5% 1/8W
R5	22215-150M	CF 15R 5% 1/8W
R6	22215-150M	CF 15R 5% 1/8W
R7	22215-150M	CF 15R 5% 1/8W
R8	22215-150M	CF 15R 5% 1/8W
R9	22215-150M	CF 15R 5% 1/8W
R10	22215-103M	CF 10K 5% 1/8W

Location	Part No.	Description
R11	22215-302M	CF 3K 5% 1/8W
R12	22215-302M	CF 3K 5% 1/8W
R14	22215-471M	CF 470R 5% 1/8W
R15	22215-150M	CF 15R 5% 1/8W
R16	22215-150M	CF 15R 5% 1/8W
R17	22215-221M	CF 220R 5% 1/8W
R18	22215-221M	CF 220R 5% 1/8W
R19	22215-103M	CF 10K 5% 1/8W
R001	23765-3995	MOF 3R9 5% 3W
R002	22245-6801	CF 68R 5% 1/2W
R003	22245-4701	CF 47R 5% 1/2W
R003	22245-6801	CF 68R 5% 1/2W
R004	22245-6801	CF 68R 5% 1/2W
R006	22245-1041	CF 100K 5% 1/2W
R006	22245-1041	CF 100K 5% 1/2W
R007	22245-4701	CF 47R 5% 1/2W
R101	22215-102M	CF 1K 5% 1/8W
R102	22215-103M	CF 10K 5% 1/8W
R103	22215-103M	CF 10K 5% 1/8W
R104	22215-103M	CF 10K 5% 1/8W
R105	22215-101M	CF 100R 5% 1/8W
R106	22215-473M	CF 47K 5% 1/8W
R107	22215-473M	CF 47K 5% 1/8W
R108	22225-101M	CF 100R 5% 1/4W
R109	22245-4741	CF 470K 5% 1/2W
R111	23A11-222M	MF 2K2 1% 1/8W
R113	22215-363M	CF 36K 5% 1/8W
R114	23A11-132M	MF 1K3 1% 1/8W
R116	22245-6831	CF 68K 5% 1/2W
R119	22245-2231	CF 22K 5% 1/2W
R120	22215-103M	CF 10K 5% 1/8W
R121	23755-5634	MOF 56K 5% 2W
R122	22245-2441	CF 240K 5% 1/2W
R123	22215-102M	CF 1K 5% 1/8W
R124	22225-472M	CF 4K7 5% 1/4W
R125	23755-2214	MOF 220R 5% 2W
R126	22215-470M	CF 47R 5% 1/8W
R127	24765-3031	CEMENT 30K 5% 5W
R128	22225-472M	CF 4K7 5% 1/4W
R129	22245-2441	CF 240K 5% 1/2W
R130	23755-5634	MOF 56K 5% 2W
R132	24765-1021	CEMENT 1K 5% 5W
R133	22225-471M	CF 470R 5% 1/4W
R134	22225-472M	CF 4K7 5% 1/4W
N● R135	23765-1885	MOF 0.18R 5% 3W
R136	22225-153M	CF 15K 5% 1/4W

Location	Part No.	Description	Location	Part No.	Description
R138	22215-270M	CF 27R 5% 1/8W	R218	22215-102M	CF 1K 5% 1/8W
R140	22215-101M	CF 100R 5% 1/8W	R219	22215-224M	CF 220K 5% 1/8W
R142	22215-102M	CF 1K 5% 1/8W	R220	22215-822M	CF 8K2 5% 1/8W
R144	22215-103M	CF 10K 5% 1/8W	R221	22225-153M	CF 15K 5% 1/4W
R145	22215-103M	CF 10K 5% 1/8W	R222	22215-102M	CF 1K 5% 1/8W
R146	22215-471M	CF 470R 5% 1/8W	R223	22215-104M	CF 100K 5% 1/8W
R147	22225-220M	CF 22R 5% 1/4W	R225	22215-104M	CF 100K 5% 1/8W
R149	22215-112M	CF 1K1 5% 1/8W	R226	22215-683M	CF 68K 5% 1/8W
R150	22215-112M	CF 1K1 5% 1/8W	R227	22215-103M	CF 10K 5% 1/8W
R152	22215-103M	CF 10K 5% 1/8W	R228	22215-512M	CF 5K1 5% 1/8W
R154	22225-510M	CF 51R 5% 1/4W	R229	22215-622M	CF 6K2 5% 1/8W
R155	22225-391M	CF 390R 5% 1/4W	R230	22215-751M	CF 750R 5% 1/8W
R156	22215-103M	CF 10K 5% 1/8W	R231	22215-103M	CF 10K 5% 1/8W
R157	22215-112M	CF 1K1 5% 1/8W	R232	22215-393M	CF 39K 5% 1/8W
R158	22215-102M	CF 1K 5% 1/8W	R233	22215-103M	CF 10K 5% 1/8W
R159	22215-123M	CF 12K 5% 1/8W	R234	23A11-103M	MF 10K 1% 1/8W
R160	22225-684M	CF 680K 5% 1/4W	R235	23A11-202M	MF 2K 1% 1/8W
R161	22225-514M	CF 510K 5% 1/4W	R236	22225-681M	CF 680R 5% 1/4W
R162	22225-514M	CF 510K 5% 1/4W	R237	22215-332M	CF 3K3 5% 1/8W
R163	22215-102M	CF 1K 5% 1/8W	R238	22215-103M	CF 10K 5% 1/8W
R164	23765-2285	MOF 0.22R 5% 3W	R239	22215-153M	CF 15K 5% 1/8W
R165	22225-684M	CF 680K 5% 1/4W	R240	22215-752M	CF 7K5 5% 1/8W
R166	22225-754M	CF 750K 5% 1/4W	R241	22215-103M	CF 10K 5% 1/8W
R167	22225-754M	CF 750K 5% 1/4W	R242	22215-822M	CF 8K2 5% 1/8W
R168	23755-5634	MOF 56K 5% 2W	R243	22215-392M	CF 3K9 5% 1/8W
R171	22215-103M	CF 10K 5% 1/8W	R244	22215-333M	CF 33K 5% 1/8W
R172	22215-223M	CF 22K 5% 1/8W	R245	22215-222M	CF 2K2 5% 1/8W
R173	23A11S091M	MF 11K5 1% 1/8W	R246	23245-8204	MOF 82R 5% 1W
R200	22215-471M	CF 470R 5% 1/8W	R247	22215-332M	CF 3K3 5% 1/8W
R201	22225-102M	CF 1K 5% 1/4W	R248	22225-333M	CF 33K 5% 1/4W
R202	22215-103M	CF 10K 5% 1/8W	R249	22215-113M	CF 11K 5% 1/8W
R203	22215-133M	CF 13K 5% 1/8W	R250	22365-1055	CF 1M 5% 2W
R204	23A11S082M	MF 33K2 1% 1/8W	R251	22245-1021	CF 1K 5% 1/2W
R205	23245-1094	MOF 1R 5% 1W	R252	23A11-162M	MF 1K6 1% 1/8W
R206	22215-223M	CF 22K 5% 1/8W	R253	22215-203M	CF 20K 5% 1/8W
R207	22215-472M	CF 4K7 5% 1/8W	R254	22215-621M	CF 620R 5% 1/8W
R208	22215-334M	CF 330K 5% 1/8W	R255	22215-152M	CF 1K5 5% 1/8W
R209	22215-513M	CF 51K 5% 1/8W	R256	22215-100M	CF 10R 5% 1/8W
R210	22215-223M	CF 22K 5% 1/8W	R257	22215-332M	CF 3K3 5% 1/8W
R211	22215-122M	CF 1K2 5% 1/8W	R258	23245-1224	MOF 1K2 5% 1W
R212	23245-1094	MOF 1R 5% 1W	R259	22215-472M	CF 4K7 5% 1/8W
R213	22215-750M	CF 75R 5% 1/8W	R260	22215-101M	CF 100R 5% 1/8W
R214	22245-3311	CF 330R 5% 1/2W	R261	22215-222M	CF 2K2 5% 1/8W
R215	22225-332M	CF 3K3 5% 1/4W	R262	22215-513M	CF 51K 5% 1/8W
R216	23765-8205	MOF 82R 5% 3W	R263	22215-153M	CF 15K 5% 1/8W
R217	22215-153M	CF 15K 5% 1/8W	R264	22215-333M	CF 33K 5% 1/8W

Location	Part No.	Description	Location	Part No.	Description
R265	22215-752M	CF 7K5 5% 1/8W	R311	22225-103M	CF 10K 5% 1/4W
R266	22215-102M	CF 1K 5% 1/8W	R312	22215-562M	CF 5K6 5% 1/8W
R267	22215-204M	CF 200K 5% 1/8W	R313	23985-1810	MOF 180R 5% 5W
R268	22215-512M	CF 5K1 5% 1/8W	R314	23A11-152M	MF 1K5 1% 1/8W
R269	22215-103M	CF 10K 5% 1/8W	R315	23A11-823M	MF 82K 1% 1/8W
R270	23A11-332M	MF 3K3 1% 1/8W	R316	22225-510M	CF 51R 5% 1/4W
R271	22215-912M	CF 9K1 5% 1/8W	R317	22215-272M	CF 2K7 5% 1/8W
R272	22215-393M	CF 39K 5% 1/8W	R318	22215-473M	CF 47K 5% 1/8W
R273	23A11S083M	MF 511R 1% 1/8W	R319	22215-102M	CF 1K 5% 1/8W
R274	22215-154M	CF 150K 5% 1/8W	R320	22215-102M	CF 1K 5% 1/8W
R275	22225-229M	CF 2R2 5% 1/4W	R321	22215-102M	CF 1K 5% 1/8W
R276	22215-752M	CF 7K5 5% 1/8W	R322	22215-223M	CF 22K 5% 1/8W
R277	23A11-272M	MF 2K7 1% 1/8W	R324	22215-104M	CF 100K 5% 1/8W
R278	22215-271M	CF 270R 5% 1/8W	R326	23885-1010	MOF 100R 5% 5W
R279	22215-123M	CF 12K 5% 1/8W	R327	22215-122M	CF 1K2 5% 1/8W
R280	22215-392M	CF 3K9 5% 1/8W	R333	22225-204M	CF 200K 5% 1/4W
R281	22215-102M	CF 1K 5% 1/8W	R334	22225-204M	CF 200K 5% 1/4W
R282	22215-102M	CF 1K 5% 1/8W	R335	22215-204M	CF 200K 5% 1/8W
R283	22215-102M	CF 1K 5% 1/8W	R336	22215-105M	CF 1M 5% 1/8W
R284	22215-822M	CF 8K2 5% 1/8W	R337	23A11-154M	MF 150K 1% 1/8W
R285	22215-103M	CF 10K 5% 1/8W	R338	23A11-104M	MF 100K 1% 1/8W
R286	22215-394M	CF 390K 5% 1/8W	R340	22225-623M	CF 62K 5% 1/4W
R287	22215-124M	CF 120K 5% 1/8W	R341	22215-103M	CF 10K 5% 1/8W
R288	23A11-303M	MF 30K 1% 1/8W	R348	22215-103M	CF 10K 5% 1/8W
R289	22215-153M	CF 15K 5% 1/8W	R349	22215-103M	CF 10K 5% 1/8W
R290	22215-103M	CF 10K 5% 1/8W	R350	22215-103M	CF 10K 5% 1/8W
R291	22215-102M	CF 1K 5% 1/8W	R351	22215-103M	CF 10K 5% 1/8W
R292	23A11-113M	MF 11K 1% 1/8W	R352	22215-103M	CF 10K 5% 1/8W
R293	22215-224M	CF 220K 5% 1/8W	R355	22245-2201	CF 22R 5% 1/2W
R294	22215-332M	CF 3K3 5% 1/8W	R356	23765-5685	MOF 0.56R 5% 3W
R295	22215-563M	CF 56K 5% 1/8W	R357	22215-221M	CF 220R 5% 1/8W
R296	22215-102M	CF 1K 5% 1/8W	R359	22215-101M	CF 100R 5% 1/8W
R297	22225-821M	CF 820R 5% 1/4W	R360	22215-470M	CF 47R 5% 1/8W
R298	22215-821M	CF 820R 5% 1/8W	R361	22215-102M	CF 1K 5% 1/8W
R299	23A11-303M	MF 30K 1% 1/8W	R362	22215-683M	CF 68K 5% 1/8W
R300	22215-204M	CF 200K 5% 1/8W	R363	22245-2211	CF 220R 5% 1/2W
R301	22215-562M	CF 5K6 5% 1/8W	R364	22215-102M	CF 1K 5% 1/8W
R302	22215-102M	CF 1K 5% 1/8W	R365	22215-683M	CF 68K 5% 1/8W
R303	22215-242M	CF 2K4 5% 1/8W	R366	23765-6805	MOF 68R 5% 3W
R304	22215-223M	CF 22K 5% 1/8W	R370	23765-1005	MOF 10R 5% 3W
R305	23A11S065M	MF 15K4 1% 1/8W	R371	22215-333M	CF 33K 5% 1/8W
R306	23A11-132M	MF 1K3 1% 1/8W	R372	22215-683M	CF 68K 5% 1/8W
R307	23A11S080M	MF 13K7 1% 1/8W	R373	22215-333M	CF 33K 5% 1/8W
R308	22215-102M	CF 1K 5% 1/8W	R374	22215-683M	CF 68K 5% 1/8W
R309	23A11-593M	MF 59K 1% 1/8W	R375	22215-333M	CF 33K 5% 1/8W
R310	22225-104M	CF 100K 5% 1/4W	R376	22215-683M	CF 68K 5% 1/8W

Location	Part No.	Description	Location	Part No.	Description
R379	23225-109M	MOF 1R 5% 1/4W	R426	22215-182M	CF 1K8 5% 1/8W
● R380	23225-109M	MOF 1R 5% 1/4W	R427	22215-471M	CF 470R 5% 1/8W
R381	22215-470M	CF 47R 5% 1/8W	R428	22215-303M	CF 30K 5% 1/8W
R382	22215-222M	CF 2K2 5% 1/8W	R429	22225-103M	CF 10K 5% 1/4W
R383	22215-333M	CF 33K 5% 1/8W	R430	22215-224M	CF 220K 5% 1/8W
R384	22215-333M	CF 33K 5% 1/8W	R433	22215-103M	CF 10K 5% 1/8W
R385	22215-333M	CF 33K 5% 1/8W	R434	23A11-820M	MF 82R 1% 1/8W
R386	22215-152M	CF 1K5 5% 1/8W	R435	23A11-513M	MF 51K 1% 1/8W
R387	22215-332M	CF 3K3 5% 1/8W	R436	23A11-472M	MF 4K7 1% 1/8W
R388	22215-102M	CF 1K 5% 1/8W	R437	22215-102M	CF 1K 5% 1/8W
R389	22215-103M	CF 10K 5% 1/8W	R438	22215-432M	CF 4K3 5% 1/8W
R390	22215-243M	CF 24K 5% 1/8W	R439	22215-301M	CF 300R 5% 1/8W
R391	22225-154M	CF 150K 5% 1/4W	R440	22215-473M	CF 47K 5% 1/8W
R392	22215-122M	CF 1K2 5% 1/8W	R441	22215-224M	CF 220K 5% 1/8W
R394	22215-473M	CF 47K 5% 1/8W	R442	22215-104M	CF 100K 5% 1/8W
R395	22215-823M	CF 82K 5% 1/8W	R443	22225-103M	CF 10K 5% 1/4W
R396	22215-244M	CF 240K 5% 1/8W	R444	22215-103M	CF 10K 5% 1/8W
R397	22225-100M	CF 10R 5% 1/4W	R445	22215-479M	CF 4R7 5% 1/8W
● R398	23225-150M	MOF 15R 5% 1/4W	R446	22215-511M	CF 510R 5% 1/8W
R399	22225-100M	CF 10R 5% 1/4W	R447	22215-330M	CF 33R 5% 1/8W
R400	22215-100M	CF 10R 5% 1/8W	R449	22215-562M	CF 5K6 5% 1/8W
R401	22215-271M	CF 270R 5% 1/8W	R450	22215-184M	CF 180K 5% 1/8W
R402	22215-751M	CF 750R 5% 1/8W	R451	22225-274M	CF 270K 5% 1/4W
R403	22225-224M	CF 220K 5% 1/4W	R452	22225-154M	CF 150K 5% 1/4W
R404	22225-100M	CF 10R 5% 1/4W	R453	22225-222M	CF 2K2 5% 1/4W
R405	22225-222M	CF 2K2 5% 1/4W	R454	23885-2710	MOF 270R 5% 5W
R406	22215-154M	CF 150K 5% 1/8W	R455	23755-1094	MOF 1R 5% 2W
R407	22215-153M	CF 15K 5% 1/8W	R456	22245-2201	CF 22R 5% 1/2W
R408	22215-224M	CF 220K 5% 1/8W	R457	22215-103M	CF 10K 5% 1/8W
R409	22215-913M	CF 91K 5% 1/8W	R459	22225-561M	CF 560R 5% 1/4W
R410	22215-273M	CF 27K 5% 1/8W	R460	22215-101M	CF 100R 5% 1/8W
R411	22215-105M	CF 1M 5% 1/8W	R462	22215-101M	CF 100R 5% 1/8W
R412	22215-472M	CF 4K7 5% 1/8W	R463	22215-821M	CF 820R 5% 1/8W
R413	22215-473M	CF 47K 5% 1/8W	R464	22215-821M	CF 820R 5% 1/8W
R414	22215-513M	CF 51K 5% 1/8W	R465	22215-102M	CF 1K 5% 1/8W
R415	22225-244M	CF 240K 5% 1/4W	R466	22215-393M	CF 39K 5% 1/8W
R416	22215-224M	CF 220K 5% 1/8W	R467	23A11-104M	MF 100K 1% 1/8W
R417	22215-243M	CF 24K 5% 1/8W	R468	22215-103M	CF 10K 5% 1/8W
R418	23A11-242M	MF 2K4 1% 1/8W	R469	22225-100M	CF 10R 5% 1/4W
R419	23A11S025M	MF 6K19 1% 1/8W	R471	23A11-274M	MF 270K 1% 1/8W
R420	23A11-222M	MF 2K2 1% 1/8W	R472	22215-563M	CF 56K 5% 1/8W
R421	22215-103M	CF 10K 5% 1/8W	R473	22215-182M	CF 1K8 5% 1/8W
R422	22215-103M	CF 10K 5% 1/8W	R474	23A11-432M	MF 4K3 1% 1/8W
R423	22215-102M	CF 1K 5% 1/8W	R475	23A11-562M	MF 5K6 1% 1/8W
R424	22215-103M	CF 10K 5% 1/8W	R476	23A11-123M	MF 12K 1% 1/8W
R425	22225-433M	CF 43K 5% 1/4W	R477	22245-1091	CF 1R 5% 1/2W

Location	Part No.	Description	Location	Part No.	Description
R478	22225-681M	CF 680R 5% 1/4W	R538	22215-332M	CF 3K3 5% 1/8W
R479	22225-123M	CF 12K 5% 1/4W	R539	23A11-241M	MF 240R 1% 1/8W
R483	22215-102M	CF 1K 5% 1/8W	R540	22215-332M	CF 3K3 5% 1/8W
R484	22215-100M	CF 10R 5% 1/8W	R541	22215-471M	CF 470R 5% 1/8W
R485	22215-512M	CF 5K1 5% 1/8W	R542	22215-102M	CF 1K 5% 1/8W
R486	22225-102M	CF 1K 5% 1/4W	R543	22215-100M	CF 10R 5% 1/8W
R487	22225-220M	CF 22R 5% 1/4W	R544	22215-562M	CF 5K6 5% 1/8W
R489	22215-222M	CF 2K2 5% 1/8W	R546	22215-103M	CF 10K 5% 1/8W
R490	23A11S083M	MF 511R 1% 1/8W	R548	22245-1001	CF 10R 5% 1/2W
R491	22225-102M	CF 1K 5% 1/4W	R549	22225-100M	CF 10R 5% 1/4W
R492	23225-109M	MOF 1R 5% 1/4W	R551	22215-103M	CF 10K 5% 1/8W
R493	22225-164M	CF 160K 5% 1/4W	R554	22215-103M	CF 10K 5% 1/8W
R494	22215-472M	CF 4K7 5% 1/8W	R555	22215-471M	CF 470R 5% 1/8W
R495	22225-164M	CF 160K 5% 1/4W	R556	22215-471M	CF 470R 5% 1/8W
R496	23225-109M	MOF 1R 5% 1/4W	R558	22215-472M	CF 4K7 5% 1/8W
R498	22215-102M	CF 1K 5% 1/8W	R559	22215-472M	CF 4K7 5% 1/8W
R499	22215-103M	CF 10K 5% 1/8W	R560	22215-220M	CF 22R 5% 1/8W
R503	22215-103M	CF 10K 5% 1/8W	R561	22215-471M	CF 470R 5% 1/8W
R504	22215-472M	CF 4K7 5% 1/8W	R562	22215-471M	CF 470R 5% 1/8W
R505	22215-102M	CF 1K 5% 1/8W	R568	22215-181M	CF 180R 5% 1/8W
R506	22215-102M	CF 1K 5% 1/8W	R569	22215-472M	CF 4K7 5% 1/8W
R507	22215-103M	CF 10K 5% 1/8W	R570	22215-472M	CF 4K7 5% 1/8W
R508	22215-471M	CF 470R 5% 1/8W	R571	22215-103M	CF 10K 5% 1/8W
R509	22215-471M	CF 470R 5% 1/8W	R572	22215-103M	CF 10K 5% 1/8W
R510	22215-472M	CF 4K7 5% 1/8W	R573	22215-103M	CF 10K 5% 1/8W
R512	22215-472M	CF 4K7 5% 1/8W	R574	23A11-103M	MF 10K 1% 1/8W
R513	22215-472M	CF 4K7 5% 1/8W	R601	22215-750M	CF 75R 5% 1/8W
R515	22215-472M	CF 4K7 5% 1/8W	R602	22215-122M	CF 1K2 5% 1/8W
R516	22215-472M	CF 4K7 5% 1/8W	R603	22215-103M	CF 10K 5% 1/8W
R517	22215-102M	CF 1K 5% 1/8W	R604	22215-151M	CF 150R 5% 1/8W
R518	22215-472M	CF 4K7 5% 1/8W	R605	22215-103M	CF 10K 5% 1/8W
R519	22215-102M	CF 1K 5% 1/8W	R606	22215-103M	CF 10K 5% 1/8W
R520	22225-102M	CF 1K 5% 1/4W	R607	22215-103M	CF 10K 5% 1/8W
R522	22215-102M	CF 1K 5% 1/8W	R608	22215-151M	CF 150R 5% 1/8W
R523	22215-103M	CF 10K 5% 1/8W	R609	22215-331M	CF 330R 5% 1/8W
R524	22215-103M	CF 10K 5% 1/8W	R610	22215-750M	CF 75R 5% 1/8W
R525	22215-103M	CF 10K 5% 1/8W	R611	22215-151M	CF 150R 5% 1/8W
R526	22215-102M	CF 1K 5% 1/8W	R612	22215-103M	CF 10K 5% 1/8W
R527	22215-472M	CF 4K7 5% 1/8W	R613	22215-151M	CF 150R 5% 1/8W
R528	22215-472M	CF 4K7 5% 1/8W	R614	22215-103M	CF 10K 5% 1/8W
R529	22215-472M	CF 4K7 5% 1/8W	R615	22215-103M	CF 10K 5% 1/8W
R530	22215-330M	CF 33R 5% 1/8W	R618	22215-331M	CF 330R 5% 1/8W
R532	22215-330M	CF 33R 5% 1/8W	R619	22215-750M	CF 75R 5% 1/8W
R533	22215-332M	CF 3K3 5% 1/8W	R620	22215-151M	CF 150R 5% 1/8W
R534	23225-390M	MOF 39R 5% 1/4W	R621	22215-103M	CF 10K 5% 1/8W
R535	23A11-393M	MF 39K 1% 1/8W	R622	22215-103M	CF 10K 5% 1/8W

Location	Part No.	Description	Location	Part No.	Description
R623	22215-123M	CF 12K 5% 1/8W	R672	22215-220M	CF 22R 5% 1/8W
R624	22215-103M	CF 10K 5% 1/8W	R673	22215-753M	CF 75K 5% 1/8W
R625	22215-151M	CF 150R 5% 1/8W	R674	22215-223M	CF 22K 5% 1/8W
R626	22215-151M	CF 150R 5% 1/8W	R675	22215-271M	CF 270R 5% 1/8W
R627	22215-472M	CF 4K7 5% 1/8W	R676	22215-271M	CF 270R 5% 1/8W
R628	23A11-241M	MF 240R 1% 1/8W	R677	22215-151M	CF 150R 5% 1/8W
R629	23A11-202M	MF 2K 1% 1/8W	R678	22215-224M	CF 220K 5% 1/8W
R630	22215-122M	CF 1K2 5% 1/8W	R679	22215-224M	CF 220K 5% 1/8W
R631	22215-222M	CF 2K2 5% 1/8W	R680	22215-513M	CF 51K 5% 1/8W
R632	22215-222M	CF 2K2 5% 1/8W	R681	22215-512M	CF 5K1 5% 1/8W
R634	22215-102M	CF 1K 5% 1/8W	R682	22215-223M	CF 22K 5% 1/8W
R635	22215-331M	CF 330R 5% 1/8W	R683	22215-103M	CF 10K 5% 1/8W
R636	22215-331M	CF 330R 5% 1/8W	R684	22215-562M	CF 5K6 5% 1/8W
R637	22215-331M	CF 330R 5% 1/8W	R685	22215-681M	CF 680R 5% 1/8W
R639	23A11S019M	MF 6K49 1% 1/8W	R687	23225-109M	MOF 1R 5% 1/4W
R640	22215-393M	CF 39K 5% 1/8W	R688	22215-102M	CF 1K 5% 1/8W
R641	22225-221M	CF 220R 5% 1/4W	R689	23A11-242M	MF 2K4 1% 1/8W
R642	22215-220M	CF 22R 5% 1/8W	R693	22215-102M	CF 1K 5% 1/8W
R643	22215-132M	CF 1K3 5% 1/8W	R694	22215-222M	CF 2K2 5% 1/8W
R645	22215-220M	CF 22R 5% 1/8W	R695	22215-912M	CF 9K1 5% 1/8W
R646	22215-753M	CF 75K 5% 1/8W	R696	22215-472M	CF 4K7 5% 1/8W
R647	22215-512M	CF 5K1 5% 1/8W	R697	22215-103M	CF 10K 5% 1/8W
R648	22215-513M	CF 51K 5% 1/8W	R698	22215-271M	CF 270R 5% 1/8W
R649	22215-223M	CF 22K 5% 1/8W	R699	22215-472M	CF 4K7 5% 1/8W
R650	22215-224M	CF 220K 5% 1/8W	R700	22215-123M	CF 12K 5% 1/8W
R651	22215-224M	CF 220K 5% 1/8W	R701	22215-103M	CF 10K 5% 1/8W
R652	22215-223M	CF 22K 5% 1/8W	R702	22215-103M	CF 10K 5% 1/8W
R653	22215-103M	CF 10K 5% 1/8W	R703	22215-103M	CF 10K 5% 1/8W
R654	22215-220M	CF 22R 5% 1/8W	R704	22215-103M	CF 10K 5% 1/8W
R655	22225-221M	CF 220R 5% 1/4W	R705	23A11S081M	MF 3K32 1% 1/8W
R656	22215-102M	CF 1K 5% 1/8W	R706	23A11S077M	MF 1K05 1% 1/8W
R657	22215-680M	CF 68R 5% 1/8W	R713	22215-680M	CF 68R 5% 1/8W
R658	22215-220M	CF 22R 5% 1/8W	R714	22215-331M	CF 330R 5% 1/8W
R659	23A11-103M	MF 10K 1% 1/8W	R715	22215-472M	CF 4K7 5% 1/8W
R660	22215-753M	CF 75K 5% 1/8W	R716	22215-271M	CF 270R 5% 1/8W
R661	22215-223M	CF 22K 5% 1/8W	R717	22215-102M	CF 1K 5% 1/8W
R662	22215-224M	CF 220K 5% 1/8W	R718	22215-122M	CF 1K2 5% 1/8W
R663	22215-224M	CF 220K 5% 1/8W	R719	22215-681M	CF 680R 5% 1/8W
R664	22215-513M	CF 51K 5% 1/8W	R720	22215-122M	CF 1K2 5% 1/8W
R665	22215-512M	CF 5K1 5% 1/8W	R721	22215-103M	CF 10K 5% 1/8W
R666	23A11-432M	MF 4K3 1% 1/8W	R722	22215-102M	CF 1K 5% 1/8W
R667	22215-220M	CF 22R 5% 1/8W	R723	22215-332M	CF 3K3 5% 1/8W
R668	22225-221M	CF 220R 5% 1/4W	R724	22215-473M	CF 47K 5% 1/8W
R669	22215-622M	CF 6K2 5% 1/8W	R725	22215-151M	CF 150R 5% 1/8W
R670	22215-271M	CF 270R 5% 1/8W	R726	22215-151M	CF 150R 5% 1/8W
R671	22215-680M	CF 68R 5% 1/8W	R727	22215-151M	CF 150R 5% 1/8W

Location	Part No.	Description	Location	Part No.	Description
R729	22215-220M	CF 22R 5% 1/8W	R3B4	22215-470M	CF 47R 5% 1/8W
R730	22215-220M	CF 22R 5% 1/8W	R3B5	22245-6821	CF 6K8 5% 1/2W
R731	22215-220M	CF 22R 5% 1/8W	R3B6	22215-333M	CF 33K 5% 1/8W
R732	22215-102M	CF 1K 5% 1/8W	R3B7	22215-334M	CF 330K 5% 1/8W
R733	23A11-392M	MF 3K9 1% 1/8W	R3B8	23A21-564M	MF 560K 1% 1/4W
R734	22215-102M	CF 1K 5% 1/8W	R3B9	23755-2084	MOF 0.2R 5% 2W
R735	22215-204M	CF 200K 5% 1/8W	R3C1	22215-151M	CF 150R 5% 1/8W
R736	22215-333M	CF 33K 5% 1/8W	R3C2	22215-471M	CF 470R 5% 1/8W
R738	22215-123M	CF 12K 5% 1/8W	R3C3	22215-513M	CF 51K 5% 1/8W
R778	22225-183M	CF 18K 5% 1/4W	R4A0	22225-335M	CF 3M3 5% 1/4W
R793	22215-680M	CF 68R 5% 1/8W	R4A1	22225-335M	CF 3M3 5% 1/4W
R904	23A11S058M	MF 2K43 1% 1/8W	R4A5	22245-6211	CF 620R 5% 1/2W
R905	23A11S058M	MF 2K43 1% 1/8W	R4A8	22225-164M	CF 160K 5% 1/4W
R906	23A11S003M	MF 3K24 1% 1/8W	R4A9	22225-164M	CF 160K 5% 1/4W
R907	23A11S064M	MF 1K87 1% 1/8W	R4B1	22245-5141	CF 510K 5% 1/2W
R908	23A11S064M	MF 1K87 1% 1/8W	R4B2	22245-5141	CF 510K 5% 1/2W
R909	23A11S073M	MF 4K22 1% 1/8W	R4B3	22245-5141	CF 510K 5% 1/2W
R910	23A11S073M	MF 4K22 1% 1/8W	R4B4	22215-102M	CF 1K 5% 1/8W
R2C1	22215-104M	CF 100K 5% 1/8W	R4B5	22215-333M	CF 33K 5% 1/8W
R2C2	22225-102M	CF 1K 5% 1/4W	R4B6	22215-154M	CF 150K 5% 1/8W
R2C3	22215-104M	CF 100K 5% 1/8W	R4B7	22215-102M	CF 1K 5% 1/8W
R2C4	22225-473M	CF 47K 5% 1/4W	R4B8	22215-622M	CF 6K2 5% 1/8W
R2C5	22215-204M	CF 200K 5% 1/8W	R4B9	22215-332M	CF 3K3 5% 1/8W
R2C6	22225-473M	CF 47K 5% 1/4W	R4C7	22215-100M	CF 10R 5% 1/8W
R2C7	22225-473M	CF 47K 5% 1/4W	R4C0	22225-564M	CF 560K 5% 1/4W
R2C8	22215-203M	CF 20K 5% 1/8W	R4C1	22215-103M	CF 10K 5% 1/8W
R2C9	23A11S079M	MF 768R 1% 1/8W	R4C2	22245-5141	CF 510K 5% 1/2W
R2E1	23A11S012M	MF 10K5 1% 1/8W	R4C3	22215-124M	CF 120K 5% 1/8W
R2E2	22215-103M	CF 10K 5% 1/8W	R4C4	23A21S022M	MF 26K1 1% 1/4W
R2E3	22215-392M	CF 3K9 5% 1/8W	R4C5	22215-153M	CF 15K 5% 1/8W
R2E4	22215-822M	CF 8K2 5% 1/8W	R4C6	22215-682M	CF 6K8 5% 1/8W
R2E5	22215-472M	CF 4K7 5% 1/8W	R4D1	22225-105M	CF 1M 5% 1/4W
R2E6	22215-100M	CF 10R 5% 1/8W	R4D2	22215-103M	CF 10K 5% 1/8W
R2E7	22215-100M	CF 10R 5% 1/8W	R4D3	22225-154M	CF 150K 5% 1/4W
R2E8	22215-100M	CF 10R 5% 1/8W	R6A1	22215-821M	CF 820R 5% 1/8W
R3A0	22215-151M	CF 150R 5% 1/8W	R6A2	22215-821M	CF 820R 5% 1/8W
R3A4	22215-102M	CF 1K 5% 1/8W	R6A3	22215-151M	CF 150R 5% 1/8W
R3A5	22215-272M	CF 2K7 5% 1/8W	R6A4	22215-821M	CF 820R 5% 1/8W
R3A6	22225-821M	CF 820R 5% 1/4W	R6A6	22215-393M	CF 39K 5% 1/8W
R3A7	23885-4310	MOF 430R 5% 5W	R6A7	22215-562M	CF 5K6 5% 1/8W
R3A8	23885-2710	MOF 270R 5% 5W	R6A8	22215-103M	CF 10K 5% 1/8W
R3A9	22215-102M	CF 1K 5% 1/8W	R6A9	22215-103M	CF 10K 5% 1/8W
R3B0	22225-221M	CF 220R 5% 1/4W	R6B2	22215-822M	CF 8K2 5% 1/8W
R3B1	22215-123M	CF 12K 5% 1/8W	R6B3	22215-101M	CF 100R 5% 1/8W
R3B2	22215-361M	CF 360R 5% 1/8W	RT01	22215-473M	CF 47K 5% 1/8W
R3B3	22215-221M	CF 220R 5% 1/8W	RT02	22215-473M	CF 47K 5% 1/8W

Location	Part No.	Description
RT04	22215-103M	CF 10K 5% 1/8W
RT05	22215-473M	CF 47K 5% 1/8W
RT06	22215-472M	CF 4K7 5% 1/8W
RT07	22225-273M	CF 27K 5% 1/4W
RT08	22215-101M	CF 100R 5% 1/8W
RT09	22215-332M	CF 3K3 5% 1/8W
RT10	22245-163A	CF 16K 5% 1/2W
RT11	22215-221M	CF 220R 5% 1/8W
RT12	22215-221M	CF 220R 5% 1/8W
RT13	22215-105M	CF 1M 5% 1/8W
VARIABLE RESISTOR		
VR101	25B20-103B	POT 10KB 0.1W
VR201	25AA0-503B	POT 50KB 0.1W
VR202	25AA0-103B	POT 10KB 0.1W
VR205	25AA0-502B	POT 5KB 0.1W
VR206	25AA0-203B	POT 20KB 0.1W
VR207	25AA0-103B	POT 10KB 0.1W
VR301	25B20-302B	POT 3KB 0.1W
VR302	25B20-501B	POT 500RB 0.1W
VR304	25AA0-103B	POT 10KB 0.1W
VR306	25AA0-103B	POT 10KB 0.1W
VR307	25AA0-302B	POT 3KB 0.1W
VR308	25AA0-102B	POT 1KB 0.1W
VR310	25B20-502B	POT 5KB 0.1W
! VR401	25B20-201B	POT 200RB 0.1W
VR402	25AA0-501B	POT 500RB 0.1W
CAPACITOR		
C1	28H37-100R	EL 10U 20% 16V
C2	39B87C104R	ML 0.1U 20% 50V
C3	28H37-100R	EL 10U 20% 16V
C4	28H37-101R	EL 100U 20% 16V
C5	39B87C104R	ML 0.1U 20% 50V
C6	39B87C104R	ML 0.1U 20% 50V
C7	39B87C104R	ML 0.1U 20% 50V
C01	39B87C104R	ML 0.1U 20% 50V
C02	39B87C104R	ML 0.1U 20% 50V
C03	39B87C104R	ML 0.1U 20% 50V
C04	39B87C104R	ML 0.1U 20% 50V
C11	39B87C104R	ML 0.1U 20% 50V
C12	39B87C104R	ML 0.1U 20% 50V
C13	39B87C104R	ML 0.1U 20% 50V
C14	28H37-100R	EL 10U 20% 16V
C15	39B87C104R	ML 0.1U 20% 50V
C17	39B87C334R	ML 0.33U 20% 50V

Location	Part No.	Description
C18	38115-330R	CE 33P 5% 50V NPO
C19	38115-330R	CE 33P 5% 50V NPO
C20	38115-470R	CE 47P 5% 50V NPO
C21	38115-470R	CE 47P 5% 50V NPO
C22	38115-470R	CE 47P 5% 50V NPO
C23	38115-470R	CE 47P 5% 50V NPO
C24	38115-470R	CE 47P 5% 50V NPO
C25	38115-470R	CE 47P 5% 50V NPO
C26	38115-470R	CE 47P 5% 50V NPO
C27	38115-470R	CE 47P 5% 50V NPO
C28	38115-470R	CE 47P 5% 50V NPO
C29	38115-470R	CE 47P 5% 50V NPO
C001	39687-1038	CE 0.01U 20% 2KV
C002	39546-102R	CERAMIC 1KV 1000PF +-10%
C003	39546-471R	CE 470P 10% 1KV
C004	39146-103R	CE 0.01U 10% 50V
C005	39146-103R	CE 0.01U 10% 50V
C101	39146-103R	CE 0.01U 10% 50V
C103	34175-1034	MPE 0.01U 5% 630V
C104	28A37-1021	EL 1000U 20% 16V
C105	28A57-3311	EL 330U 20% 35V
C106	31115-222R	PEI 2200P 5% 50V
C107	283A7-1015	EL 100U 20% 200V
C108	34175-1034	MPE 0.01U 5% 630V
C109	39446-1038	CE 0.01U 10% 500V
C110	31115-104R	PEI 0.1U 5% 50V
C111	28A97-1011	EL 100U 20% 100V
C112	28A57-3311	EL 330U 20% 35V
C113	28A57-4711	EL 470U 20% 35V
C114	28PE7-2217	EL 220U 20% 450V
C115	34145-1044	MPE 0.1U 5% 250V
C116	28A97-1011	EL 100U 20% 100V
C117	42A77-474F	SAFETY 0.47U 20% AC250V
C118	28A57-4711	EL 470U 20% 35V
C119	283A7-1015	EL 100U 20% 200V
C120	42D77-4725	SAFETY 4700P 20%
C121	28A37-2221	EL 2200U 20% 16V
C122	39546-470R	CE 47P 10% 1KV Y5P
C123	39446-102R	CE 1000P 10% 500V
C124	35155-1257	MPP 1U2 5% 400V
C125	34175-1034	MPE 0.01U 5% 630V
C126	39146-103R	CE 0.01U 10% 50V
C127	39546-470R	CE 47P 10% 1KV Y5P
C128	39446-102R	CE 1000P 10% 500V
C129	42D77-4725	SAFETY 4700P 20%
C130	28H67-109R	EL 1U 20% 50V

Location	Part No.	Description	Location	Part No.	Description
C131	28A67-100R	EL 10U 20% 50V	C234	39B87C103R	ML 0.01U 20% 50V
C132	28H67-688R	EL 0.68U 20% 50V	C235	28H67-100R	EL 10U 20% 50V
C133	28H37-470R	EL 47U 20% 16V	C236	39B87C103R	ML 0.01U 20% 50V
C134	31115-102R	PEI 1000P 5% 50V	C237	28H47-331R	EL 330U 20% 25V
C135	32115-332R	PEN 3300P 5% 50V	C238	39B87C103R	ML 0.01U 20% 50V
C137	31115-102R	PEI 1000P 5% 50V	C239	28H67-478R	EL 0.47U 20% 50V
C138	39546-221R	CE 220P 10% 1KV	C240	28H47-220R	EL 22U 20% 25V
C139	28A47-151R	EL 150U 20% 25V	C241	39487-103R	CE 0.01U 20% 500V
C141	39B87C104R	ML 0.1U 20% 50V	C242	28H47-470R	EL 47U 20% 25V
C142	28A47-101R	EL 100U 20% 25V	C243	28H67-100R	EL 10U 20% 50V
C145	42D77-2224	SAFETY 2200P 20%	C244	28H47-470R	EL 47U 20% 25V
C148	39146-103R	CE 0.01U 10% 50V	C245	28437-100R	EL 10U 20% 16V
C200	39B87C103R	ML 0.01U 20% 50V	C246	28H67-109R	EL 1U 20% 50V
C201	28H57-2225	EL 2200U 20% 35V	C247	39146-102R	CE 1000P 10% 50V
C202	28H67-109R	EL 1U 20% 50V	C248	39146-102R	CE 1000P 10% 50V
C203	28H57-221R	EL 220U 20% 35V	C249	28H67-100R	EL 10U 20% 50V
C204	346B5-224R	MPE 0.22U 5% 63V	C250	28H67-109R	EL 1U 20% 50V
C205	346B5-334R	MPE 0.33U 5% 63V	C300	28467-109R	EL 1U 20% 50V
C206	346B5-104R	MPE 0.1U 5% 63V	C301	39B87C103R	ML 0.01U 20% 50V
C207	346B5-104R	MPE 0.1U 5% 63V	C302	28H67-100R	EL 10U 20% 50V
C208	346B5-104R	MPE 0.1U 5% 63V	C303	32115-332R	PEN 3300P 5% 50V
C209	28H67-479R	EL 4U7 20% 50V	C304	38115-151R	CE 150P 5% 50V NPO
C210	39B87C103R	ML 0.01U 20% 50V	C305	39B87C103R	ML 0.01U 20% 50V
C211	28H47-470R	EL 47U 20% 25V	C306	28H37-471R	EL 470U 20% 16V
C212	39B87C103R	ML 0.01U 20% 50V	C307	38115-101R	CE 100P 5% 50V NPO
C213	28H57-2225	EL 2200U 20% 35V	C308	28H67-100R	EL 10U 20% 50V
C214	28H47-101R	EL 100U 20% 25V	C309	39B87C103R	ML 0.01U 20% 50V
C215	28H67-109R	EL 1U 20% 50V	C310	38BA5-561R	ML 560P 5% 50V NPO
C216	28H67-100R	EL 10U 20% 50V	C311	33122-152R	PPN 1500P 2% 100V
C217	39B87C104R	ML 0.1U 20% 50V	C312	28H67-479R	EL 4U7 20% 50V
C218	28H67-100R	EL 10U 20% 50V	C313	28H67-100R	EL 10U 20% 50V
C219	28H67-109R	EL 1U 20% 50V	C314	39146-332R	CE 3300P 10% 50V
C220	28H67-100R	EL 10U 20% 50V	C315	33122-152R	PPN 1500P 2% 100V
C221	28H47-101R	EL 100U 20% 25V	C316	38BA5-471R	ML 470P 5% 50V NPO
C222	28467-478R	EL 0.47U 20% 50V	C317	39B87C103R	ML 0.01U 20% 50V
C223	28H67-100R	EL 10U 20% 50V	C318	28H67-229R	EL 2U2 20% 50V
C224	346B5-684R	MPE 0.68U 5% 63V	C319	28H67-229R	EL 2U2 20% 50V
C225	39B87C104R	ML 0.1U 20% 50V	C320	28H67-100R	EL 10U 20% 50V
C226	28H47-470R	EL 47U 20% 25V	C322	35155A2746	MPP 0.27U 5% 400V
C227	28H47-221R	EL 220U 20% 25V	C323	39146-102R	CE 1000P 10% 50V
C228	28H67-100R	EL 10U 20% 50V	C324	39B87C104R	ML 0.1U 20% 50V
C229	28H47-470R	EL 47U 20% 25V	C325	28H67-100R	EL 10U 20% 50V
C230	28H67-100R	EL 10U 20% 50V	C326	28H67-100R	EL 10U 20% 50V
C231	28H67-100R	EL 10U 20% 50V	C327	39487-103R	CE 0.01U 20% 500V
C232	39B87C103R	ML 0.01U 20% 50V	C328	39B87C104R	ML 0.1U 20% 50V
C233	39B87C104R	ML 0.1U 20% 50V	C329	39B87C104R	ML 0.1U 20% 50V

Location	Part No.	Description	Location	Part No.	Description
C330	39B87C104R	ML 0.1U 20% 50V	C378	32125-103R	PEN 0.01U 5% 100V
C331	39B87C103R	ML 0.01U 20% 50V	C379	28H47-4711	EL 470U 20% 25V
C332	38115-100R	CE 10P 5% 50V NPO	C380	28H07-339R	EL 3U3 20% 160V
C333	28H67-100R	EL 10U 20% 50V	C381	39687-1038	CE 0.01U 20% 2KV
C334	39B87C103R	ML 0.01U 20% 50V	C382	28H67-100R	EL 10U 20% 50V
C335	34125-2244	MPE 0.22U 5% 100V	C384	28H67-109R	EL 1U 20% 50V
C336	39646-4718	CE 470P 10% 2KV	C385	32125-103R	PEN 0.01U 5% 100V
C337	28H67-100R	EL 10U 20% 50V	! C386	375B5-1227M	PPS 1200P 5% 2KV
C338	28H67-100R	EL 10U 20% 50V	! C387	35155-1547	MPP 0.15U 5% 400V
C339	39446-102R	CE 1000P 10% 500V	C388	38BA5-681R	ML 680P 5% 50V NPO
C340	32115-1043	PEN 0.1U 5% 50V	C389	28H47-101R	EL 100U 20% 25V
C341	39146-471R	CE 470P 10% 50V	C390	32125-102R	PEN 1000P 5% 100V
C342	39B87C103R	ML 0.01U 20% 50V	C391	39B87C104R	ML 0.1U 20% 50V
C343	28H47-101R	EL 100U 20% 25V	C392	28H67-109R	EL 1U 20% 50V
C344	39B87C103R	ML 0.01U 20% 50V	C394	39B87C104R	ML 0.1U 20% 50V
C345	32125-102R	PEN 1000P 5% 100V	C395	32115-272R	PEN 2700P 5% 50V
C346	39146-471R	CE 470P 10% 50V	C396	39B87C103R	ML 0.01U 20% 50V
C347	28H67-100R	EL 10U 20% 50V	C397	39B87C103R	ML 0.01U 20% 50V
C348	28HB7-109R	EL 1U 20% 250V	C398	28H67-100R	EL 10U 20% 50V
C349	28H67-109R	EL 1U 20% 50V	C399	39487-103R	CE 0.01U 20% 500V
C350	28H47-470R	EL 47U 20% 25V	C400	39B87C103R	ML 0.01U 20% 50V
C351	38115-220R	CE 22P 5% 50V NPO	C401	39B87C103R	ML 0.01U 20% 50V
C352	39146-102R	CE 1000P 10% 50V	C402	39487-103R	CE 0.01U 20% 500V
C353	39146-221R	CE 220P 10% 50V	C403	28H67-479R	EL 4U7 20% 50V
C354	35145-335C	MPP 3U3 5% 250V	C404	32115-1043	PEN 0.1U 5% 50V
C355	28A47-4711	EL 470U 20% 25V	C405	28H67-100R	EL 10U 20% 50V
C356	375B5-2227M	PPS 2200P 5% 2KV	C406	28HB7-1001	EL 10U 20% 250V
C357	375B5-2727M	PPS 2700P 5% 2KV	C407	39146-221R	CE 220P 10% 50V
C358	28A47-4711	EL 470U 20% 25V	C408	28HB7-478R	EL 0.47U 20% 250V
C359	28H57-101R	EL 100U 20% 35V	C409	39546-101R	CE 100P 10% 1KV
C360	39146-221R	CE 220P 10% 50V	C410	39546-102R	CERAMIC 1KV 1000PF +-10%
C361	28AB7-2201	EL 22U 20% 250V	C411	34145-2246	MPE 0.22U 5% 250V
C362	28H67-109R	EL 1U 20% 50V	C412	28HE7-3391	EL 3U3 20% 450V
C363	33135-2234	PPN 0.022U 5% 200V	C413	32125-102R	PEN 1000P 5% 100V
C364	28H67-479R	EL 4U7 20% 50V	C414	28H07-109R	EL 1U 20% 160V
C365	35155-564C	MPP 0.56U 5% 400V	C415	38112-339R	CE 3P3 0.5P 50V NPO
C366	39446-102R	CE 1000P 10% 500V	C416	35155-1547	MPP 0.15U 5% 400V
C367	35155-1547	MPP 0.15U 5% 400V	C418	346B5-274R	MPE 0.27U 5% 63V
C368	39B87C103R	ML 0.01U 20% 50V	C419	28H97-100R	EL 10U 20% 100V
C369	35155-155C	MPP 1U5 5% 400V	C420	39446-471R	CE 470P 10% 500V
C370	39B87C103R	ML 0.01U 20% 50V	C421	39B87C104R	ML 0.1U 20% 50V
C371	35155-2247	MPP 0.22U 5% 400V	C422	28H67-100R	EL 10U 20% 50V
C372	39B87C103R	ML 0.01U 20% 50V	C423	28H47-220R	EL 22U 20% 25V
C373	35155-1247	MPP 0.12U 5% 400V	C425	38BA5-681R	ML 680P 5% 50V NPO
C376	39B87C103R	ML 0.01U 20% 50V	C426	39B87C103R	ML 0.01U 20% 50V
C377	28H67-109R	EL 1U 20% 50V	C442	39487-103R	CE 0.01U 20% 500V

Location	Part No.	Description	Location	Part No.	Description
C450	28H47-470R	EL 47U 20% 25V	C523	28M57-479R	EL 4U7 20% 35V
C451	39B87C104R	ML 0.1U 20% 50V	C524	28M57-479R	EL 4U7 20% 35V
C452	28HB7-109R	EL 1U 20% 250V	C525	39146-222R	CE 2200P 10% 50V
C453	28H67-479R	EL 4U7 20% 50V	C526	28H67-100R	EL 10U 20% 50V
C454	289C7-4705	EL 47U 20% 350V	C527	28467-109R	EL 1U 20% 50V
C455	28HB7-109R	EL 1U 20% 250V	C528	28467-109R	EL 1U 20% 50V
C456	38115-560R	CE 56P 5% 50V NPO	C529	28467-109R	EL 1U 20% 50V
C457	39B87C103R	ML 0.01U 20% 50V	C530	28H37-470R	EL 47U 20% 16V
C458	39B87C103R	ML 0.01U 20% 50V	C531	28H67-100R	EL 10U 20% 50V
C459	28H67-109R	EL 1U 20% 50V	C532	28H37-470R	EL 47U 20% 16V
C460	39146-102R	CE 1000P 10% 50V	C533	39487-103R	CE 0.01U 20% 500V
C461	28H07-479R	EL 4U7 20% 160V	C534	39B87C224R	ML 0.22U 20% 50V
C462	38115-101R	CE 100P 5% 50V NPO	C535	39B87C224R	ML 0.22U 20% 50V
C463	39B87C104R	ML 0.1U 20% 50V	C536	39B87C224R	ML 0.22U 20% 50V
C464	39B87C104R	ML 0.1U 20% 50V	C538	28467-109R	EL 1U 20% 50V
C465	38115-101R	CE 100P 5% 50V NPO	C539	39B87C224R	ML 0.22U 20% 50V
C466	39B87C104R	ML 0.1U 20% 50V	C540	39487-103R	CE 0.01U 20% 500V
C467	39687-1038	CE 0.01U 20% 2KV	C541	39487-103R	CE 0.01U 20% 500V
C468	39B87C103R	ML 0.01U 20% 50V	C542	28M57-479R	EL 4U7 20% 35V
C469	28H47-101R	EL 100U 20% 25V	C543	28M57-479R	EL 4U7 20% 35V
C480	39146-102R	CE 1000P 10% 50V	C544	28M57-479R	EL 4U7 20% 35V
C481	39487-103R	CE 0.01U 20% 500V	C545	28M57-479R	EL 4U7 20% 35V
C482	39487-103R	CE 0.01U 20% 500V	C546	28M57-479R	EL 4U7 20% 35V
C483	32115-332R	PEN 3300P 5% 50V	C547	28M57-479R	EL 4U7 20% 35V
C498	39B87C103R	ML 0.01U 20% 50V	C548	28M57-479R	EL 4U7 20% 35V
C499	39B87C103R	ML 0.01U 20% 50V	C549	28M57-479R	EL 4U7 20% 35V
C4C1	39B87C104R	ML 0.1U 20% 50V	C550	28M57-479R	EL 4U7 20% 35V
C501	28M37-100R	EL 10U 20% 16V	C551	39B87C103R	ML 0.01U 20% 50V
C502	39B87C103R	ML 0.01U 20% 50V	C552	39B87C103R	ML 0.01U 20% 50V
C503	38196-390R	CE 39P 10% 50V	C553	39B87C103R	ML 0.01U 20% 50V
C504	38196-390R	CE 39P 10% 50V	C554	39B87C103R	ML 0.01U 20% 50V
C505	39B87C103R	ML 0.01U 20% 50V	C555	39B87C103R	ML 0.01U 20% 50V
C506	28H37-101R	EL 100U 20% 16V	C556	39B87C103R	ML 0.01U 20% 50V
C507	39B87C103R	ML 0.01U 20% 50V	C557	39B87C103R	ML 0.01U 20% 50V
C509	28467-479R	EL 4U7 20% 50V	C558	39B87C103R	ML 0.01U 20% 50V
C510	39B87C104R	ML 0.1U 20% 50V	C559	39B87C103R	ML 0.01U 20% 50V
C511	28H37-470R	EL 47U 20% 16V	C560	39B87C103R	ML 0.01U 20% 50V
C512	39B87C103R	ML 0.01U 20% 50V	C561	39B87C103R	ML 0.01U 20% 50V
C513	39B87C103R	ML 0.01U 20% 50V	C562	39B87C103R	ML 0.01U 20% 50V
C514	28H37-470R	EL 47U 20% 16V	C563	39B87C104R	ML 0.1U 20% 50V
C516	39B87C104R	ML 0.1U 20% 50V	C601	39B87C103R	ML 0.01U 20% 50V
C517	39B87C104R	ML 0.1U 20% 50V	C602	28H37-470R	EL 47U 20% 16V
C518	39B87C103R	ML 0.01U 20% 50V	C603	39B87C103R	ML 0.01U 20% 50V
C520	39B87C104R	ML 0.1U 20% 50V	C604	39B87C103R	ML 0.01U 20% 50V
C521	39B87C103R	ML 0.01U 20% 50V	C605	28H37-470R	EL 47U 20% 16V
C522	28M57-479R	EL 4U7 20% 35V	C606	39B87C103R	ML 0.01U 20% 50V

Location	Part No.	Description	Location	Part No.	Description
C607	39B87C103R	ML 0.01U 20% 50V	C658	39B87C103R	ML 0.01U 20% 50V
C608	28H37-470R	EL 47U 20% 16V	C659	39B87C103R	ML 0.01U 20% 50V
C609	39B87C103R	ML 0.01U 20% 50V	C661	39B87C103R	ML 0.01U 20% 50V
C610	28H37-470R	EL 47U 20% 16V	C662	28H67-100R	EL 10U 20% 50V
C611	39B87C103R	ML 0.01U 20% 50V	C663	39B87C103R	ML 0.01U 20% 50V
C612	28H67-100R	EL 10U 20% 50V	C665	28H97-1011	EL 100U 20% 100V
C613	39B87C103R	ML 0.01U 20% 50V	C666	39E56E103R	ML 0.01U 10% 100V
C614	28H37-470R	EL 47U 20% 16V	C667	34125-2244	MPE 0.22U 5% 100V
C615	39B87C103R	ML 0.01U 20% 50V	C668	39B87C103R	ML 0.01U 20% 50V
C616	28H37-470R	EL 47U 20% 16V	C669	39B87C103R	ML 0.01U 20% 50V
C617	39B87C103R	ML 0.01U 20% 50V	C671	39B87C104R	ML 0.1U 20% 50V
C618	39B87C103R	ML 0.01U 20% 50V	C672	28H67-100R	EL 10U 20% 50V
C620	28H67-479R	EL 4U7 20% 50V	C673	39B87C103R	ML 0.01U 20% 50V
C621	39B87C103R	ML 0.01U 20% 50V	C675	28H97-1011	EL 100U 20% 100V
C622	39B87C103R	ML 0.01U 20% 50V	C676	39B87C104R	ML 0.1U 20% 50V
C623	39B87C103R	ML 0.01U 20% 50V	C677	34125-2244	MPE 0.22U 5% 100V
C624	39B87C103R	ML 0.01U 20% 50V	C678	39B87C103R	ML 0.01U 20% 50V
C625	32115-472R	PEN 4700P 5% 50V	C679	39146-101R	CE 100P 10% 50V
C627	346B5-104R	MPE 0.1U 5% 63V	C680	28H37-221R	EL 220U 20% 16V
C628	39B87C103R	ML 0.01U 20% 50V	C681	346B5-224R	MPE 0.22U 5% 63V
C629	39B87C103R	ML 0.01U 20% 50V	C682	346B5-274R	MPE 0.27U 5% 63V
C630	28H37-220R	EL 22U 20% 16V	C683	28H67-109R	EL 1U 20% 50V
C632	38115-270R	CE 27P 5% 50V NPO	C684	346B5-224R	MPE 0.22U 5% 63V
C634	28H67-479R	EL 4U7 20% 50V	C685	346B5-224R	MPE 0.22U 5% 63V
C635	39B87C103R	ML 0.01U 20% 50V	C686	39B87C103R	ML 0.01U 20% 50V
C637	28H67-478R	EL 0.47U 20% 50V	C688	38196-390R	CE 39P 10% 50V
C638	28H67-479R	EL 4U7 20% 50V	C689	32115-272R	PEN 2700P 5% 50V
C639	39B87C103R	ML 0.01U 20% 50V	C690	28H37-101R	EL 100U 20% 16V
C640	39B87C103R	ML 0.01U 20% 50V	C691	39B87C103R	ML 0.01U 20% 50V
C641	39B87C103R	ML 0.01U 20% 50V	C692	28H27-2221	EL 2200U 20% 10V
C642	28H67-100R	EL 10U 20% 50V	C693	28H67-100R	EL 10U 20% 50V
C643	39487-103R	CE 0.01U 20% 500V	C694	28H67-100R	EL 10U 20% 50V
C644	28H67-109R	EL 1U 20% 50V	C695	38115-470R	CE 47P 5% 50V NPO
C645	28H67-109R	EL 1U 20% 50V	C697	39B87C103R	ML 0.01U 20% 50V
C646	28H67-109R	EL 1U 20% 50V	C698	39E56E103R	ML 0.01U 10% 100V
C647	39B87C103R	ML 0.01U 20% 50V	C699	39E56E103R	ML 0.01U 10% 100V
C648	28HB7-109R	EL 1U 20% 250V	C6A0	28H37-101R	EL 100U 20% 16V
C649	39B87C103R	ML 0.01U 20% 50V	C6A1	39B87C103R	ML 0.01U 20% 50V
C650	39B87C103R	ML 0.01U 20% 50V	C6A2	28H37-101R	EL 100U 20% 16V
C651	39B87C103R	ML 0.01U 20% 50V	C6A3	39B87C103R	ML 0.01U 20% 50V
C652	28H67-100R	EL 10U 20% 50V	C6A4	28H37-101R	EL 100U 20% 16V
C653	39B87C103R	ML 0.01U 20% 50V	C6A5	39B87C103R	ML 0.01U 20% 50V
C654	39E56E103R	ML 0.01U 10% 100V	C6A6	39B87C103R	ML 0.01U 20% 50V
C655	28H97-1011	EL 100U 20% 100V	C6A7	34125-2244	MPE 0.22U 5% 100V
C656	39E56E103R	ML 0.01U 10% 100V	C6A8	34125-2244	MPE 0.22U 5% 100V
C657	34125-2244	MPE 0.22U 5% 100V	C6A9	34125-2244	MPE 0.22U 5% 100V

Location	Part No.	Description
C6B4	39B87C103R	ML 0.01U 20% 50V
C700	38115-270R	CE 27P 5% 50V NPO
C701	38115-270R	CE 27P 5% 50V NPO
C703	39B87C103R	ML 0.01U 20% 50V
C704	28H37-470R	EL 47U 20% 16V
C705	39B87C103R	ML 0.01U 20% 50V
C706	39B87C103R	ML 0.01U 20% 50V
C707	28H37-470R	EL 47U 20% 16V
C708	39B87C103R	ML 0.01U 20% 50V
C709	39B87C103R	ML 0.01U 20% 50V
C711	28H47-101R	EL 100U 20% 25V
C712	28H27-1021	EL 1000U 20% 10V
C714	39B87C103R	ML 0.01U 20% 50V
C720	39B87C103R	ML 0.01U 20% 50V
C721	39B87C103R	ML 0.01U 20% 50V
C722	39B87C103R	ML 0.01U 20% 50V
C723	39146-102R	CE 1000P 10% 50V
C724	39B87C104R	ML 0.1U 20% 50V
C725	39B87C104R	ML 0.1U 20% 50V
C726	28H27-221R	EL 220U 20% 10V
C727	28H27-221R	EL 220U 20% 10V
C728	28H27-221R	EL 220U 20% 10V
C729	28H27-221R	EL 220U 20% 10V
C730	39B87C104R	ML 0.1U 20% 50V
C731	39B87C104R	ML 0.1U 20% 50V
C732	39B87C104R	ML 0.1U 20% 50V
C733	39B87C104R	ML 0.1U 20% 50V
CT01	38115-220R	CE 22P 5% 50V NPO
CT02	39B87C104R	ML 0.1U 20% 50V
CT03	28H67-229R	EL 2U2 20% 50V
CT04	39146-472R	CE 4700P 10% 50V
CT05	39E56E103R	ML 0.01U 10% 100V
CT06	39146-103R	CE 0.01U 10% 50V
CT07	28H97-220R	EL 22U 20% 100V
COILS		
L102	45M1K-4704	COIL CHOKE 47U
L103	47E00-0230	XFMR EMI ET-28
L104	45M1K-4704	COIL CHOKE 47U
L105	45M1K-4704	COIL CHOKE 47U
L106	45M1K-4704	COIL CHOKE 47U
L107	45M1K-4704	COIL CHOKE 47U
L108	47E00-0230	XFMR EMI ET-28
L109	45B0K-100T	COIL PEAKING 10U
L110	46N00-0160	COIL LINE CHOKE 100uH
L301	45M1K-4704	COIL CHOKE 47U

Location	Part No.	Description
L302	46N00-0540	COIL LINE CHOKE 1.9mH
L305	46L00-0620	COIL LINEAR 3.4uH
L307	46N00-0120	COIL LINE CHOKE 1mH
L308	46N00-0120	COIL LINE CHOKE 1mH
L310	22245-1001	CF 10R 5% 1/2W
L401	45M1K-4704	COIL CHOKE 47U
L402	46N00-0310	LINE CHOKE 90UH
L501	45B0K-229T	COIL PEAKING 2U2
L502	45B0K-229T	COIL PEAKING 2U2
L601	45B0K-229T	COIL PEAKING 2U2
L603	45B0K-229T	COIL PEAKING 2U2
L604	45B0K-229T	COIL PEAKING 2U2
L605	45B0K-229T	COIL PEAKING 2U2
L606	45B0K-229T	COIL PEAKING 2U2
L607	45B0K-390T	COIL PEAKING 39U
L608	45B0K-390T	COIL PEAKING 39U
L609	45B0K-390T	COIL PEAKING 39U
L705	46N00-0570	COIL CHOKE 110uH EE-19

Location	Part No.	Description
		ITEGRATED CIRCUITS
IC01	16P68-001W	IC MICRO-PROCESSOR 68P 80930HDXF0 PLCC
IC02	16M28-002R	IC EPROM 27C256-12/15 (BLANK) 28P
IC03	16T20-005R	IC TTL 74HC373 20P
IC101	17A12-080H	IC LINEAR 8P CONTROLLERL6560
⊙ IC102	17A06-150S	IC LINEAR 8P DEFLECTION3842
IC104	17B21-090B	IC PHOTO OPTOCUPLER PS2561-M/TLP721F-GR
IC105	17A07-031H	IC LINEAR VOLTAGE REGULATOR 431 3P
⊙ IC201	17A06-180H	IC LINEAR DEFLECTION TDA1675 15P
⊙ IC202	17A11-040H	IC LINEAR O/P AMP 358 8P
IC203	17A07-010H	IC LINEAR VOLTAGE REGULATOR 7812 3P
IC204	17A06-220H	IC LINEAR 22P DEFLECTION AN5766
N IC205	16T14-023R	IC TTL 74LS74 14P
IC206	17A11-090H	IC LINEAR O/P AMP AN6147P
IC301	17A06-240H	IC LINEAR 30P DEFLECTION 7860
⊙ IC304	17A12-060H	IC LINEAR SPS CONTROLLER AN5262 7P
⊙ IC305	17A07-031H	IC LINEAR VOLTAGE REGULATOR 431 3P
IC306	17A11-020H	IC LINEAR O/P AMP 4557 8P
● IC307	17A08-030T	IC LINEAR V/F CONVERTERNE555N 8P
● IC308	17A08-030T	IC LINEAR V/F CONVERTERNE555N 8P
IC309	16T16-003R	IC TTL 74LS123
⊙ IC310	17A07-100H	IC LINEAR VOLTAGE REGULATOR 317 9P
IC311	17A06-190G	IC LINEAR 8P DEFLECTIONUC3843B
⊙ IC501	16M08-009R	IC EEPROM AT24C04 (B)-10PC (BLANK) 8P
N⊙ IC502	16P40-028F	IC MICRO-PROCESSOR 40P 68P61A OTP 24K
⊙ IC505	17A23-003H	IC LINEAR DIGITAL/ANALOG 62358P 22P
IC508	17A07-031H	IC LINEAR VOLTAGE REGULATOR 431 3P
IC510	16N20-004U	IC CONTROLLER 20P M35045-080SP
N IC601	16T14-022R	IC TTL 74LS38 14P
⊙ IC602	17A04-180V	IC LINEAR 36P VIDEO M52722SP
IC603	17A04-100H	IC LINEAR VIDEO VPA18 9P
N● IC604	17A04-100H	IC LINEAR VIDEO VPA18 9P
N● IC605	17A04-100H	IC LINEAR VIDEO VPA18 9P
● IC606	17A01-050H	IC LINEAR DISCRIMINATORSYNC 2016S 22P
IC607	17A07-100H	IC LINEAR VOLTAGE REGULATOR 317 9P
N IC608	17A07-210B	IC LINEAR 3P VOLTAGE REG. UPC29M05HB
IC609	16M08-007S	IC EEPROM 24LC21 (BLANK) 8P
N IC701	17A07-240H	IC LINEAR 5P VOLTAGE REGULATOR LM2576BT
N IC702	17A02-002H	IC LINEAR 8P SWITCH MIC2526-2BN
N IC703	17A02-002H	IC LINEAR 8P SWITCH MIC2526-2BN
		MISCELLANEOUS
	65S16-1502	CABLE SIGNAL 15D-15D 3+6 150CM BEIGE W/
	65U30-1800	CABLE USB 180CM BLACK
	65W33566D0	CONN H WIRE 1015#18 3P-1 10/8 66L SHORT

Location	Part No.	Description
	65W37415B0	CONN H WIRE 1617#18 3P-1 3.96 15L W/CORE
	54L23B061L	WIRE LEAD 1015#18 6L BROWN 7/7
	52S11-0020	SWITCH POWER 1P1T 8(4)A250V
	54B11-A000	WIRE BRAID 100CM
	19D0B-0021	DIODE LED BICOLOR WHITE-TRANSPA. P=2.0
	20H21-23AC	CRT C-.26 NG M51LCJ180X85(U)
	56Q67A1803	POWER CORD IBMPC VDE 1M8-I 250V10A
	64P60-0010	SOCKET POWER (UNIVERSAL)
	11D30-019A	PCB VIDEO-D 250*203*1.6MM 2195UE
	11D37-007A	PCB CONTROL-D 74*65*1.6MM 2195UE
	11D3A-005A	PCB CONNECTION-D 91*18*1.6MM 2195UE
	11S31-072A	PCB MAIN-S 330*277*1.6MM 2195UE
	11S32-022A	PCB POWER-S 198*164*1.6MM 2195UE
	11S33-025A	PCB CRT-S 1785XA 81*80*1.6MM
	11S37-010A	PCB CONTROL-S 47*50*1.6MM 17XA
	11S39-044A	PCB LED-S 63*35*1.6MM 2195UE
	11S3D-039A	PCB DISPLAY-S 155*27*1.6MM 2195UE
• F101	49FB2-0A0B	FUSE SLOW 3.15A 250V (NORDIC)
FD001	46R00-0010	CORE RF BEAD RHW
FD002	46R00-0010	CORE RF BEAD RHW
FD003	46R00-0010	CORE RF BEAD RHW
FD1	46R00-0380	CORE RF W5 RH
FD2	46R00-0380	CORE RF W5 RH
FD3	46R00-0380	CORE RF W5 RH
FD4	46R00-0380	CORE RF W5 RH
FD5	46R00-0380	CORE RF W5 RH
FD6	46R00-0380	CORE RF W5 RH
FD7	46R00-0380	CORE RF W5 RH
FD8	46R00-0380	CORE RF W5 RH
FD9	46R00-0380	CORE RF W5 RH
FD10	46R00-0380	CORE RF W5 RH
FD11	46R00-0380	CORE RF W5 RH
FD301	46R00-0010	CORE RF BEAD RHW
FD601	46R00-0010	CORE RF BEAD RHW
FD602	46R00-0010	CORE RF BEAD RHW
FD603	46R00-0010	CORE RF BEAD RHW
FD604	46R00-0010	CORE RF BEAD RHW
FD605	46R00-0010	CORE RF BEAD RHW
FD606	46R00-0380	CORE RF W5 RH
FD607	46R00-0380	CORE RF W5 RH
FD608	46R00-0380	CORE RF W5 RH
FD701	46R00-0010	CORE RF BEAD RHW
FD702	46R00-0010	CORE RF BEAD RHW
FD703	46R00-0010	CORE RF BEAD RHW
FD704	46R00-0010	CORE RF BEAD RHW
LC601	46R00-0380	CORE RF W5 RH

Location	Part No.	Description
LC602	46R00-0380	CORE RF W5 RH
LC603	46R00-0380	CORE RF W5 RH
LC604	46R00-0380	CORE RF W5 RH
LC605	46R00-0380	CORE RF W5 RH
LC606	46R00-0380	CORE RF W5 RH
LC607	46R00-0380	CORE RF W5 RH
LC608	46R00-0380	CORE RF W5 RH
LC609	46R00-0380	CORE RF W5 RH
LC610	46R00-0380	CORE RF W5 RH
NTC101	26B00-0031	NTCR 5R 15% 6A
P001	64J40-0011	JACK PIN A-TYPE 90 RIGHT ANGLE
P002	64J40-0011	JACK PIN A-TYPE 90 RIGHT ANGLE
P003	64J40-0011	JACK PIN A-TYPE 90 RIGHT ANGLE
P005	64C30-0080	SOCKET CRT COLOR-H
P02	64J50-0020	JACK USB (787780-1) TYPE B
P03	64J50-0010	JACK USB (787617-1) TYPE A
P04	64J50-0010	JACK USB (787617-1) TYPE A
P102	46G00-0082	COIL DEGAUSSING (100T)
P301	65W61346B0	CONN H/T WIRE 1007#24 6P 2.5 46L-T W/C
P302	65W81349D0	CONN H/T WIRE 1007#24 8P 2.5 49L-T
P303	65WC1349D0	CONN H/T WIRE 1007#24 13P 2.5 49L-T
P405	65W21324D0	CONN H/T WIRE 1007#26 2P 2.5 24L-T
P511	65W21332D0	CONN H/T WIRE 1007#26 2P 2.5 28L-T
P602	64J40-0020	JACK PIN 180 STAND
P602	65C55-0190	CABLE COAXIAL 19CM BLUE
P603	64J40-0020	JACK PIN 180 STAND
P603	65C55-0190	CABLE COAXIAL 19CM BLUE
P604	64J40-0020	JACK PIN 180 STAND
P604	65C55-0190	CABLE COAXIAL 19CM BLUE
PTC101	26A00-0070	PTCR 14R 20% 2P
RP1	16K07-006Z	IC RES ARRAY 3K3*6 5% 1/8W (COMMON P1)
RP2	16K09-003Z	IC RES ARRAY 15K*8 5% 1/8W
RP3	16K09-002Z	IC RES ARRAY 10K*8 5% 1/8W (COMMON P1)
RL101	53R001-008	RELAY COIL DC12V 5A/250V (2-A)
RL102	53R001-010	RELAY COIL DC5V 40NA/1A(2-C)
RPF503	16K09-004Z	IC RES ARRAY 3K3*8 5% 1/8W (COMMON P1)
RPG501	16K09-004Z	IC RES ARRAY 3K3*8 5% 1/8W (COMMON P1)
RPG502	16K07-004Z	IC RES ARRAY 10K*6 5% 1/8W (COMMON P1)
SCR101	14T92-011E	TR SCR BT169D
SW1	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW901	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW902	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW903	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW904	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW905	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW906	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM

Location	Part No.	Description
SW907	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW908	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW909	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
N T101	47S00-0940T	XFMR SPS EE-42/20
T102	47S00-0910T	XFMR SPS EI-30 (CHOKE)
T301	47J00-0090	XFMR FOCUS EL-19
T302	47D10-0150	XFMR DRIVE EE-16
T303	47D10-0300	XFMR DRIVE EI-22
N T304	47F15-0040	XFMR FBT DUMMY
T305	47P10-0100	XFMR PINCUSHING EI-25
T401	47D10-0290	XFMR DRIVE EI-19
! T402	47F13-0560S	XFMR FBT W/FOCUS/SCREEN/CR BLOCK
V101	15R04-A010	DI VARISTOR 10A 300V
X1	60C00-0040	XTAL 12MHZ L=4.5MM
Y501	60C00-0030	XTAL 8MHZ
A001	42S00-0201	SPARK GAP DSP-201M 200V20%
A002	42S00-0201	SPARK GAP DSP-201M 200V20%
A003	42S00-0201	SPARK GAP DSP-201M 200V20%
A004	42S00-0060	SPARK GAP 500V
BD101	15D68-F000	DI BRIDGE 4A 800V
FROM MAIN/B P407-TCO/B P003	65W31340C0	CONN H/H WIRE 1007#24 3P-1 2.5/2.0 40L-T
LED P1-POWER/B P105	65W21363T0	CONN H/H WIRE 1007#24 2P 2.5 63L-T W/T
P605 TO CRT/B P004	65W31316D0	CONN H/T WIRE 1007#24 3P-1 2.5 16L-T
P613	46P00-0010	COIL PURITY
POWER/B P104-M/B P402	65W87418B0	CONN H/H WIRE 1007#18 8P 3.96 18L-T W/C
VIDEO/B P502-DISPLAY/B P901	65W41368C0	CONN H/H WIRE 1007#24 4P-1 2.5 68L-T
VIDEO/B P505-LED P2	65W31367C0	CONN H/H WIRE 1007#24 3P 2.5 67L-T
VIDEO/B P601-MAIN/B P403	65W77433C0	CONN H/H WIRE 1007#22 7P 3.96 33L-T
VIDEO/B P703-USB/B P1	65FH4-10C0	CONN H/H WIRE 2651#28 26P DUAL 2.54 10LF
CRT-VIDEO P509/P513	65W88032C0	CONN H/H WIRE 1007#24 8P-4 2.5/2.0 32L-T
HIELD COVER (VIDEO REAR)	54B16-1802	WIRE BRAID W/TUBE 18CM
M/B G2-CRT/B G2	54N25B302B	WIRE LEAD 1015#22 30L RED W/CORE
POWER SOCKET GND	54C23B1651	WIRE TERMINAL 1015#18 16L GREEN W/TUBE
VIDEO/B R.G.B.	46R00-0450	CORE RF BRH
SHIELD COVER (CRT BOTTOM)-	54B16-1802	WIRE BRAID W/TUBE 18CM
SHIELD COVER (VIDEO REAR)		

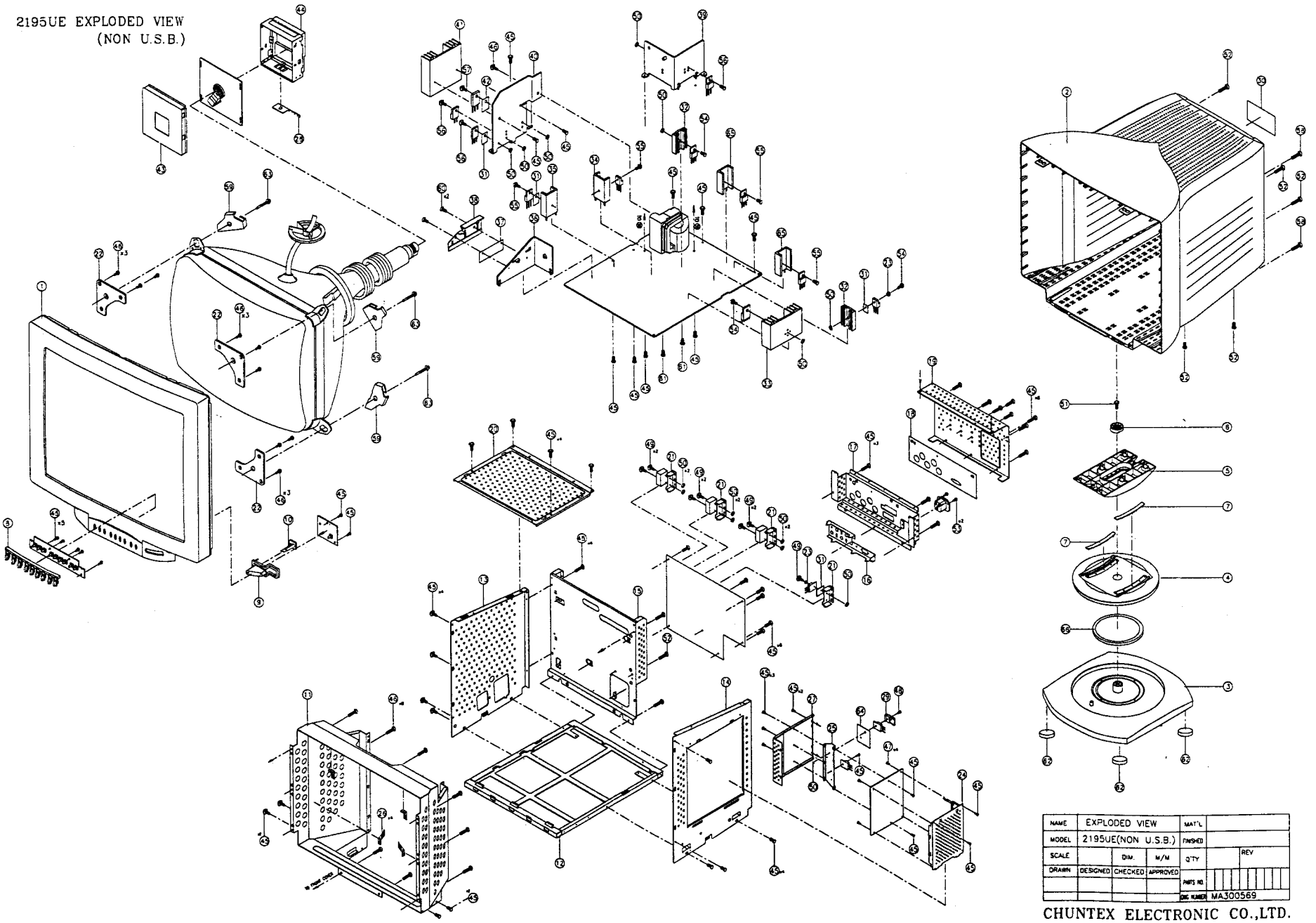
CTX 2195UE EXPLODED VIEW PARTS LIST(NON U.S.B.)

NO.	PARTS NO.	DESCRIPTION	QTY
1	0820016000	FRONT CABINET	1
2	0800010000	REAR CABINET	1
3	0830004000	SWIVEL BASE (BASE)	1
4	0830003000	SWIVEL BASE (TOP)	1
5	0810007000	SWIVEL BOWL	1
6	0810008300	SWIVEL DISK	1
7	0810010300	SWIVEL PAD	2
8	7110028000	FUNCTION KEY	1
9	7110017000	POWER KNOB	1
10	0850001200	LED LENS	1
11	7600004000	METAL FRAME	1
12	7600003000	PCB FRAME	1
13	7620024000	SIDE BRACKET (L)	1
14	7620025000	SIDE BRACKET (R)	1
15	7620029000	VIDEO BRACKET	1
16	7620031200	BNC BRACKET	1
17	7620030000	REAR BRACKET	1
18	7140272400	BNC PLATE	1
19	7500022200	SHIELD COVER (VF)	1
20	7500023200	SHIELD COVER (TOP)	1
21	7513598510	HEAT SINK	4
22	7620026000	CRT BRACKET	4
23	7904451000	SLEEVING INSULATING	2

NO.	PARTS NO.	DESCRIPTION	QTY
24	7621321040	POWER BRACKET	1
25	7513485200	HEAT SINK (POWER)	1
26	7340003300	GROUNDING SPRING	4
27	7501322200	POWER COVER	1
28	7340006300	GROUNDING SPRING	1
29	74A3535000	TRANSISTOR COVER (TR-25)	1
30	7140236600	OVERLAY	1
31	7414452000	S.R. (18*13)	4
32	7515656230	HEAT SINK	2
33	7513599230	HEAT SINK	1
34	7516673650	HEAT SINK	1
35	7516395230	HEAT SINK	1
36	7513733200	HEAT SINK	1
37	7413136000	S.R. (85x20)	1
38	7623730040	BRACKET HOLDER	1
39	7513478201	HEAT SINK (FBT)	1
40	7510009200	HEAT SINK (DEF)	1
41	7510014200	HEAT SINK	1
42	7415711000	S.R. (25x30)	1
43	7500012000	SHIELD COVER(CRT TOP)	1
44	7503731001	SHIELD COVER(CRT BOTTOM)	1
45	6724A30080	SCREW TAPPING T3x8	64
46	6776040141	SCREW TAPPING T4x14	21

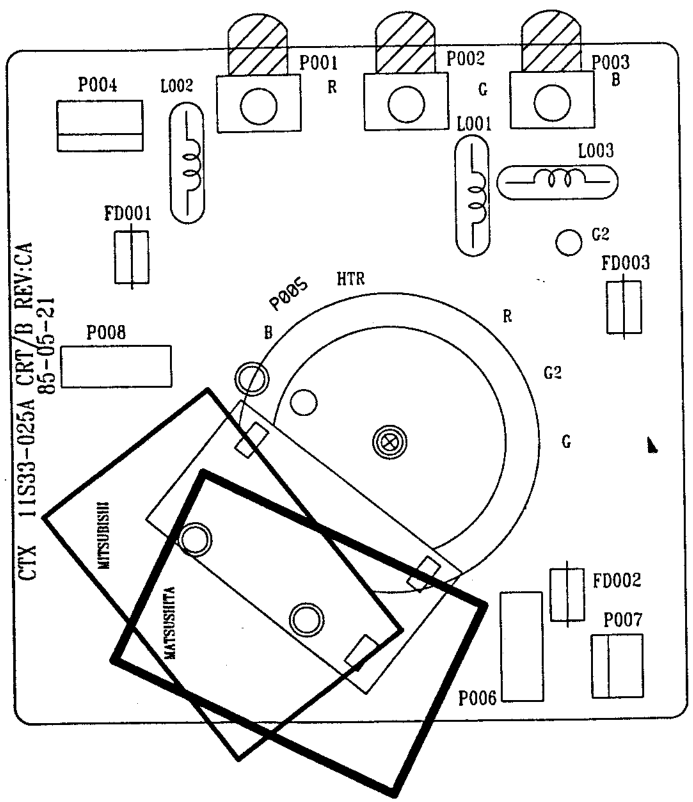
NO.	PARTS NO.	DESCRIPTION	QTY
47	6720H30100	SCREW MACHINE M3x10 W/SP WSR	4
48	6720430120	SCREW MACHINE M3x12	1
49	6720430160	SCREW MACHINE M3x16	7
50	6740030240	NUT HEX M3	16
51	6722250200	SCREW TAPPING T5x20	1
52	6720540081	SCREW MACHINE M4x8	6
53	6720130083	SCREW MACHINE M3x8	2
54	6720430100	SCREW MACHINE M3x10	3
55	6724426060	SCREW TAPPING T2.6x6	2
56	6720430080	SCREW MACHINE M3x8	4
57	6720A30123	SCREW MACHINE M3x12 W/WSR	1
58	6776040160	SCREW TAPPING T4x16	2
59	6776040160	CRT WASHER	4
60	6724F30120	SCREW TAPPING M3x12 SAW/WSR	2
61	6724430080	SCREW TAPPING T3x8	2
62	7486236320	PU FOOT	6
63	6770060250	CRT SCREW	4
64	7410032000	S.R (25x30)	1
65	7510011600-A	HEAT SINK	2
66	0813490300	SWIVEL RING	1

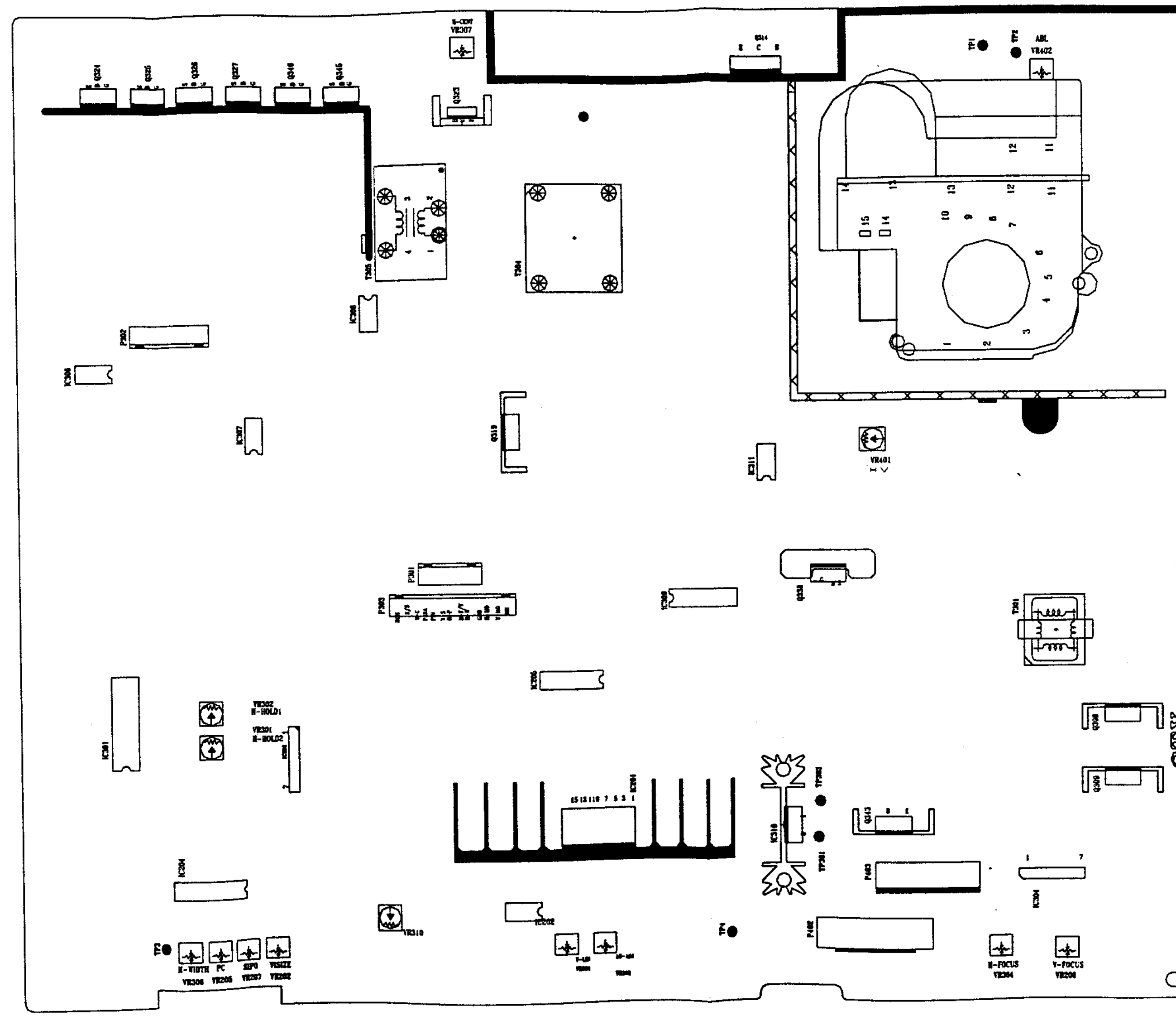
2195UE EXPLODED VIEW
(NON U.S.B.)

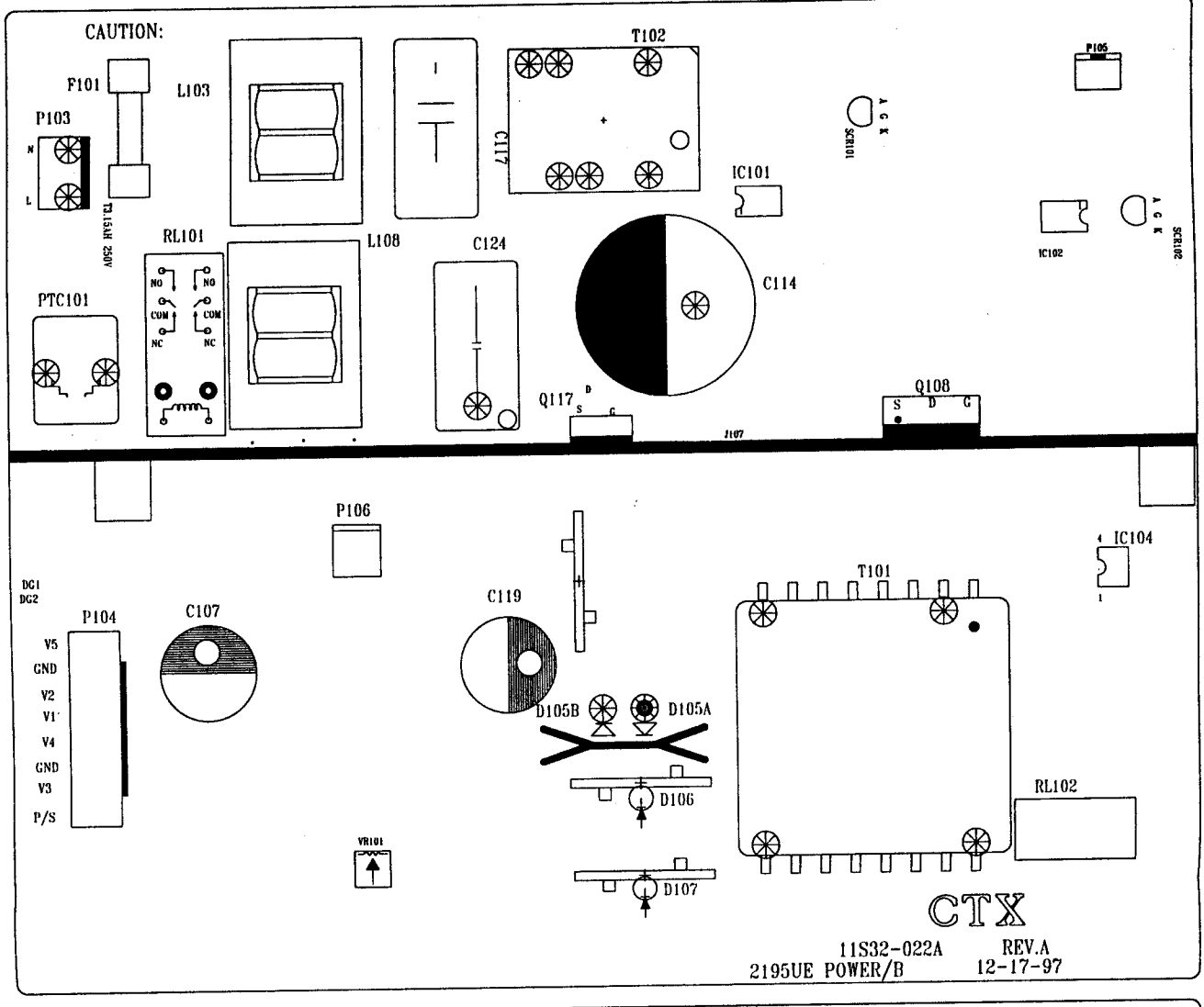


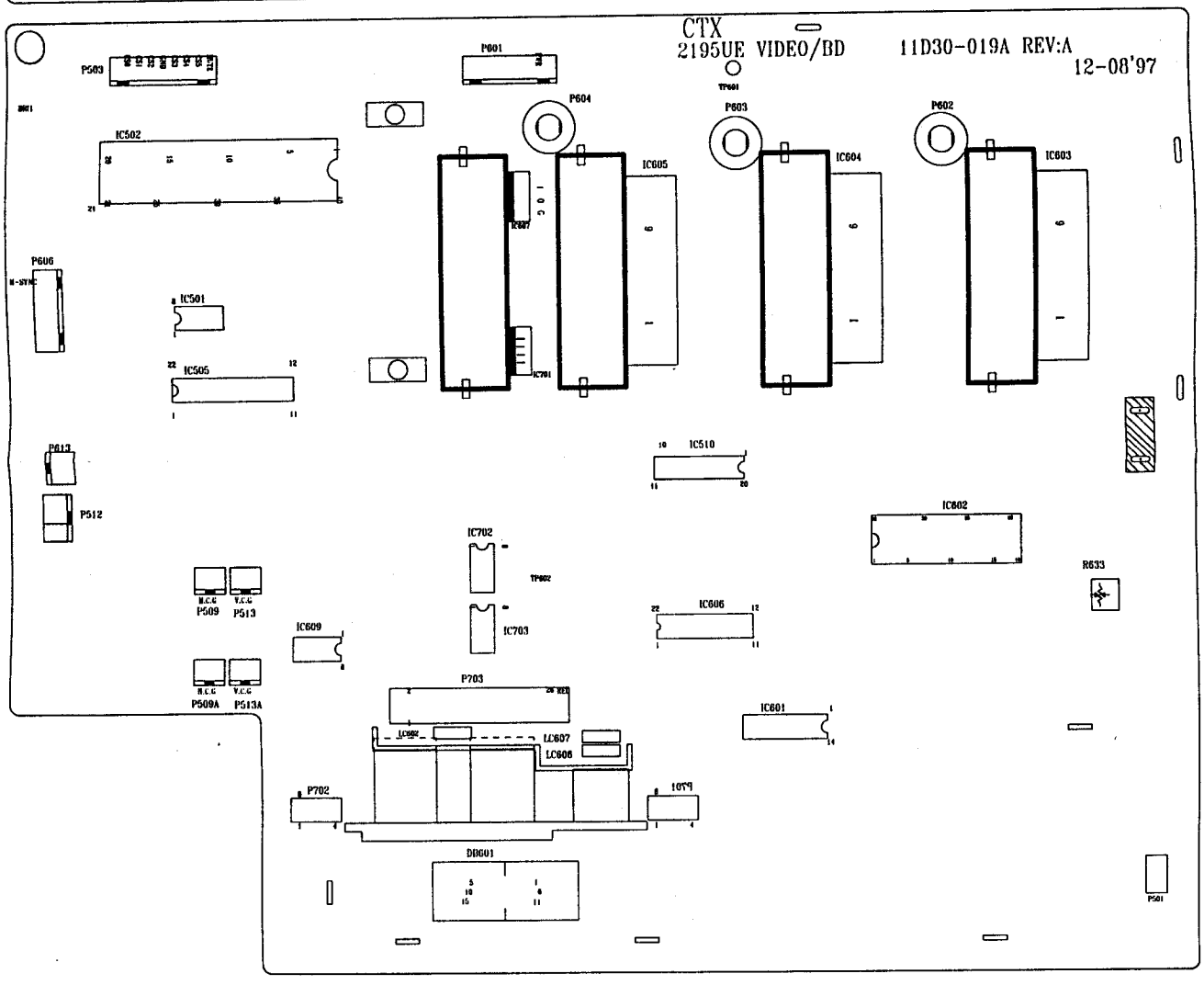
NAME	EXPLODED VIEW			MAT'L		
MODEL	2195UE(NON U.S.B.)			FINISHED		
SCALE		DIM.	M/M	Q'TY		REV
DRAWN	DESIGNED	CHECKED	APPROVED	PARTS NO.		
				DWG NUMBER	MA300569	

CHUNTEX ELECTRONIC CO.,LTD.


CTX 11S33-025A CRT/B REV:CA
85-05-21
P004
L002
P001
R
P002
G
P003
B
L001
L003
FD001
G2
FD003
P005
HTR
R
B
P008
G2
G
MITSUBISHI
MATSUSHITA
FD002
P007
P006


CTX 2195UE 11S31-072A REV:A 86-12-04


CAUTION:
F101
T3.15AH 250V
L103
P103
N
L
T102
C117
P105
SCR101
A G K
IC101
IC102
SCR102
RL101
NO
COM
NC
L108
C124
C114
PTC101
Q117
S
D
G
Z107
Q108
P106
IC104
DG1
DG2
P104
V5
GND
V2
V1
V4
GND
V3
P/S
C107
C119
T101
D105B
D105A
D106
D107
VR101
RL102
CTX
11S32-022A REV.A
2195UE POWER/B 12-17-97


CTX
2195UE VIDEO/BD 11D30-019A REV:A
12-08'97
P503
P001
P604
P603
P602
IC502
IC605
IC604
IC603
P606
H-SYNC
IC501
IC505
P613
P512
IC510
IC802
IC702
IC703
R633
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LC607
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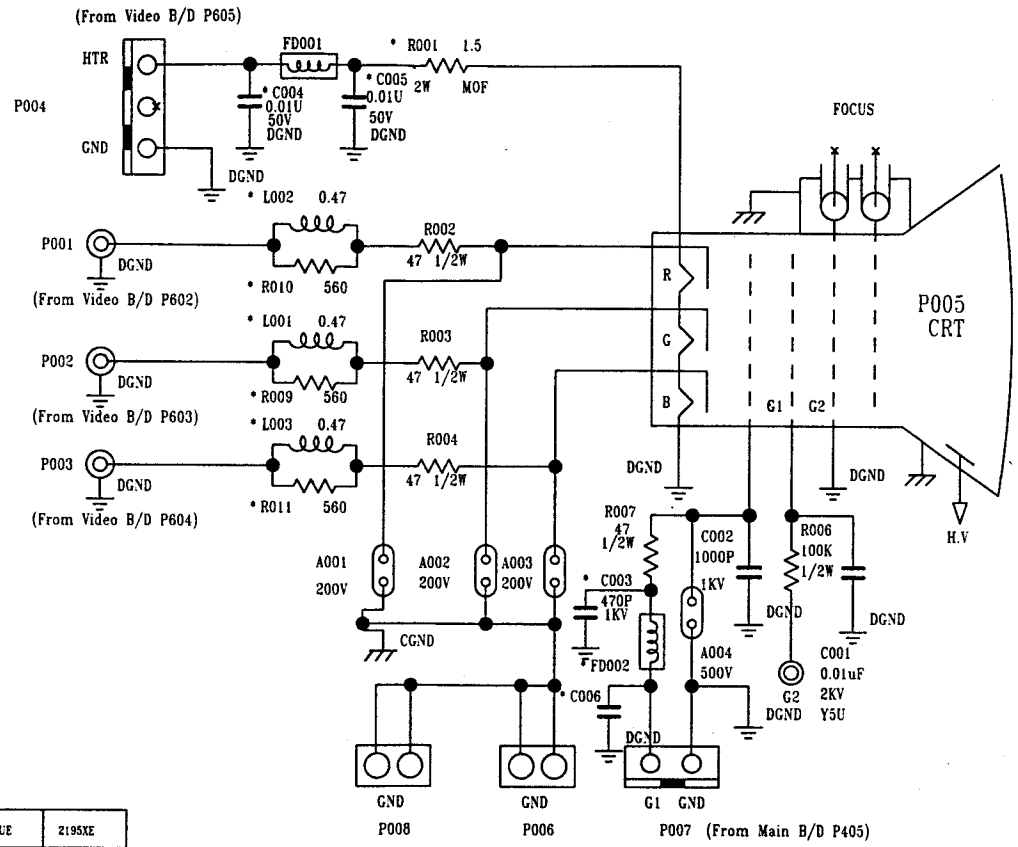
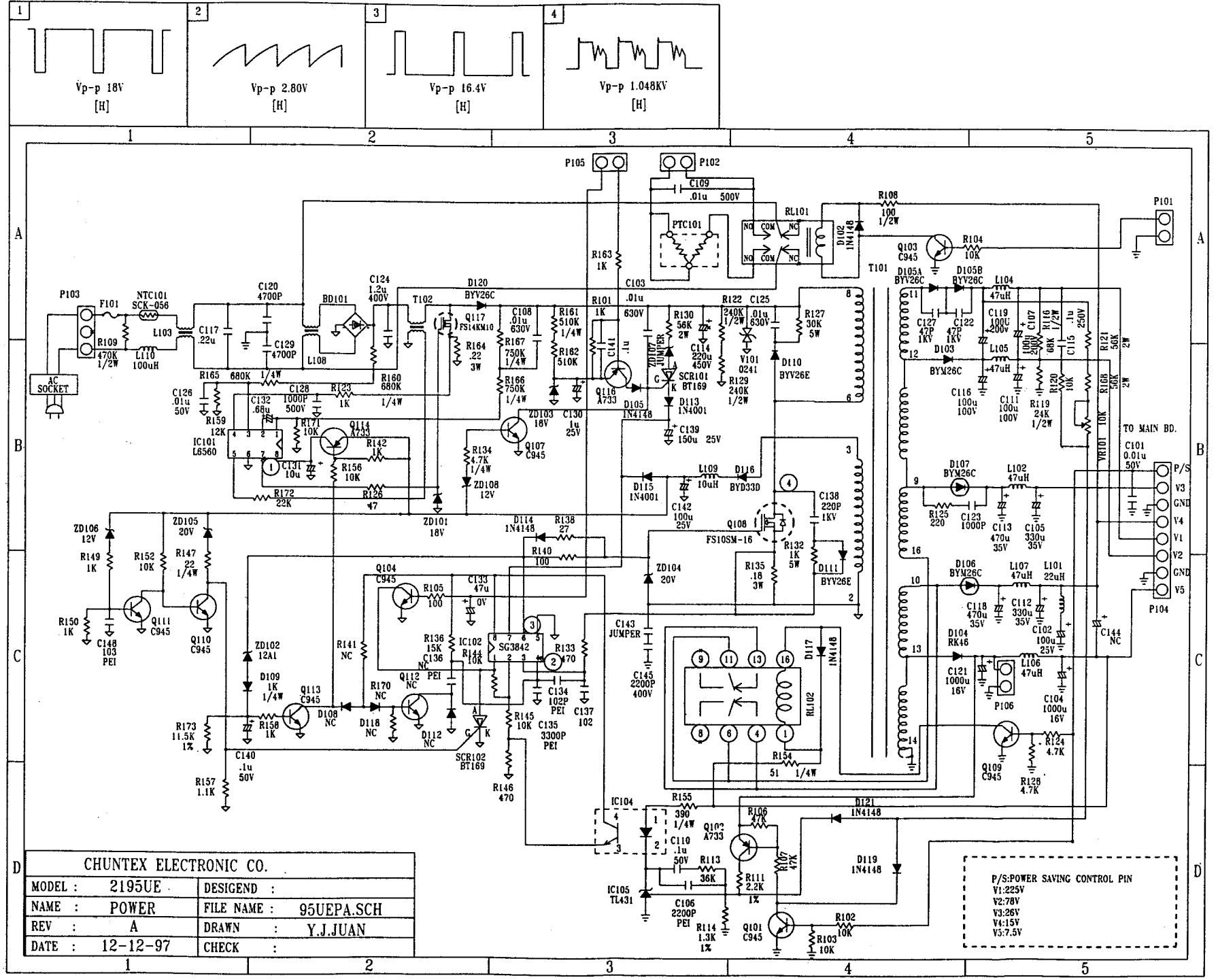
IC704
DB601
P501

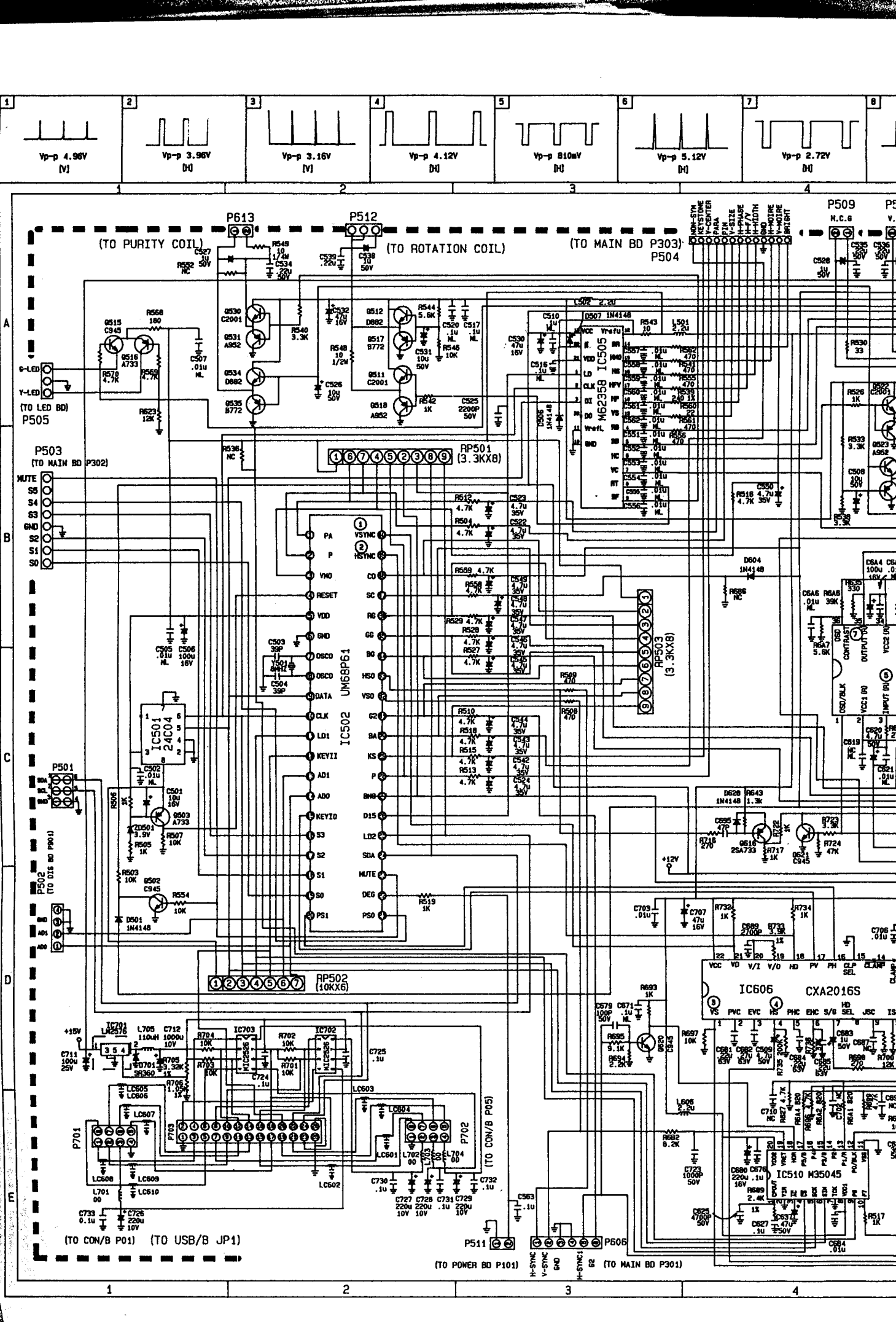


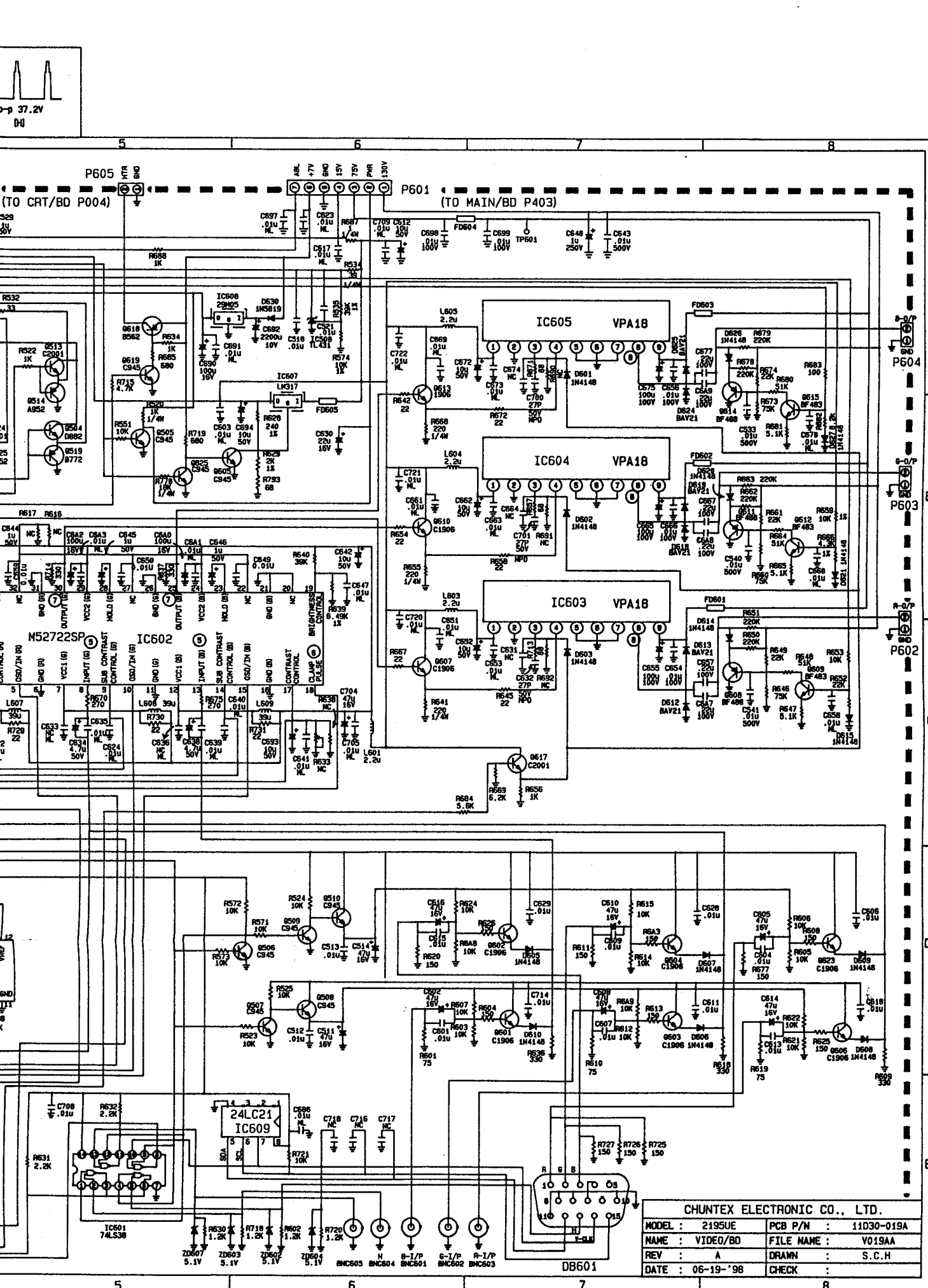
NOTE: "*" INDICATE THE DIFFERENT COMPONENTS ARE USED IN DIFFERENT MODELS

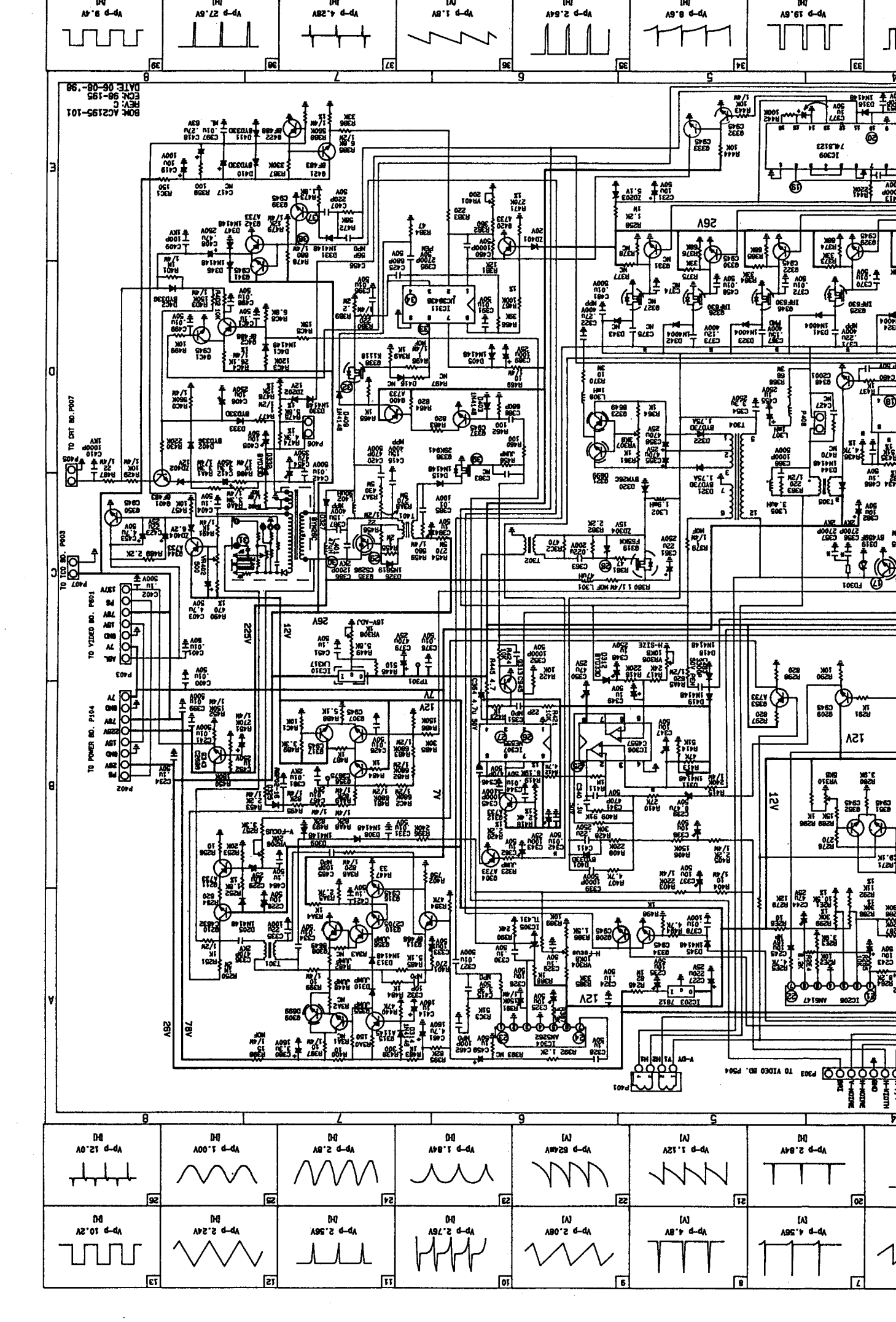
SYM \ MODEL	1785XA	2085GM	2185XA	2085XE	2185XE	2195UE	2195XE
R001	3.3	2.2 2W	4.7 3W	2.2 3W	4.3 3W	3.9 3W	4.3 3W
L001	0.47uH	0.47uH	NC	0.22U	0.22U	NC	0.22u
L002	0.47uH	0.47uH	NC	0.22U	0.22U	NC	NC
L003	0.47uH	0.47uH	NC	0.22U	0.22U	NC	NC
R002	NC	47 1/2W	NC	68 1/2W	68 1/2W	NC	33 1/2W
R003	NC	47 1/2W	NC	68 1/2W	68 1/2W	NC	33 1/2W
R004	NC	47 1/2W	NC	68 1/2W	68 1/2W	NC	33 1/2W
R006	NC	100K 1/2W	100K 1/2W	10M 1/2W	100K 1/2W	100K 1/2W	100K 1/2W
R009	680	680	JUMP	36K	36K	JUMP	NC
R010	680	680	JUMP	36K	36K	JUMP	NC
R011	680	680	JUMP	36K	36K	JUMP	NC
C003	1000PF	470P 1KV	470P 1KV	470P 1KV	470P 1KV	NC	NC
C004	1000PF	.01u 50V	.01u 50V	.01u 50V	.01u 50V	NC	NC
C005	0.01uF	.01u 50V	.01u 50V	.01u 50V	.01u 50V	NC	NC
C006	470PF	NC	NC	NC	NC	NC	NC
FD002			JUMP	JUMP	JUMP	NC	NC

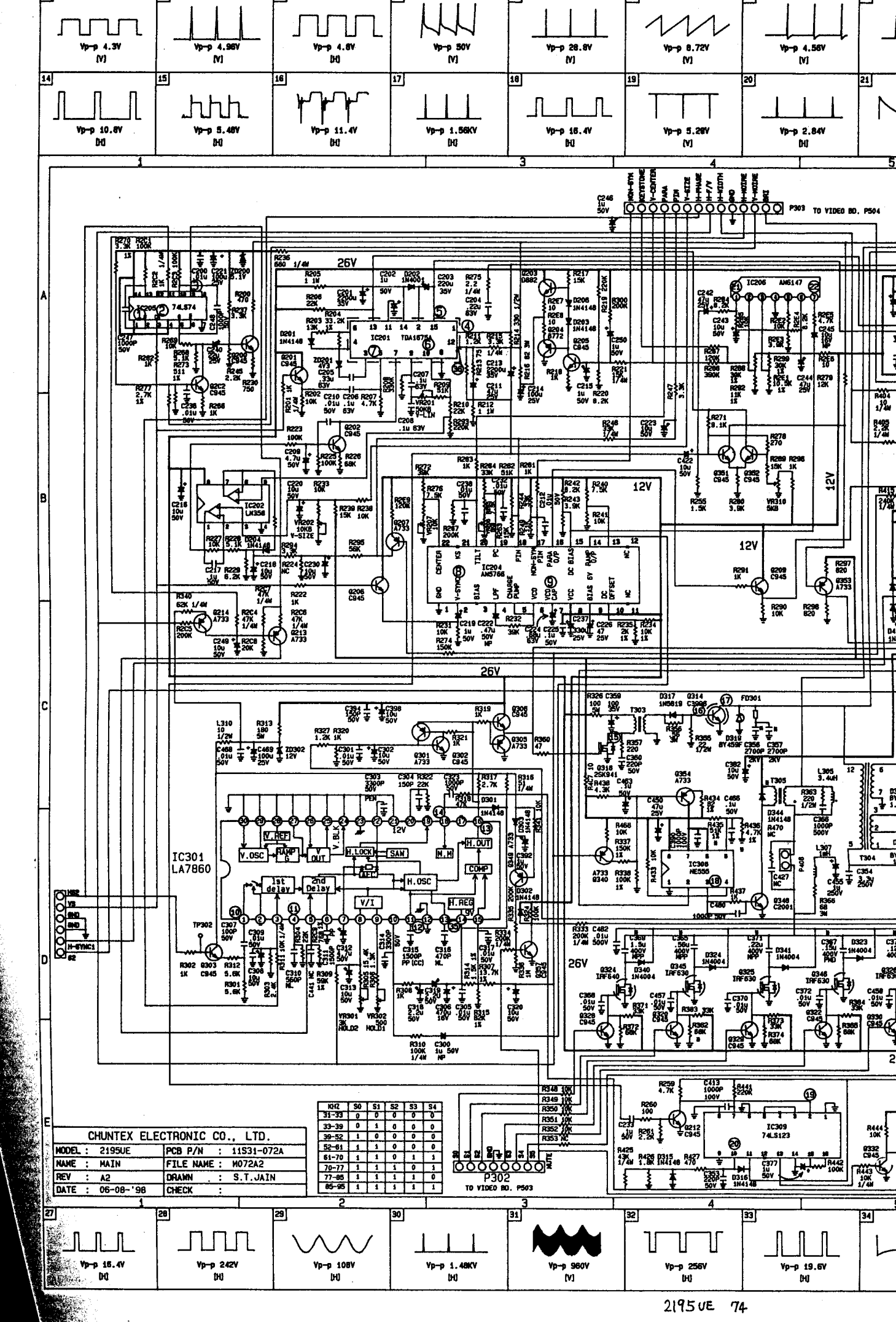
CHUNTEX ELECTRONIC CO.			
MODEL :	2085/XE/2185XA 2185XE/UE/2195XE/UE	PRT. NO :	11S33-025A
NAME :	CRT/BD	FILE NAME :	C25C0
REV :	C0	DRAWN :	SUSANNA
DATE :	01-22-'98	CHECK :	
UPDATE :	M.Y.LEE	UPDATE CHECK:	C.Y.CHANG


1
Vp-p 18V
[H]
2
Vp-p 2.80V
[H]
3
Vp-p 16.4V
[H]
4
Vp-p 1.048KV
[H]
P105
P102
P101
P103
AC SOCKET
F101
NTC101 SCK-056
L103
L110 100uH
R109 470K 1/2W
C117 .22u
C120 4700P
C129 4700P
BD101
L108
C124 1.2u 400V
D120 BYV26C
T102
Q117 FS14KM10
R164 .22 3W
C108 .01u 630V
R167 750K 1/4W
R166 750K 1/4W
R161 510K 1/4W
R182 510K
R101 1K
C103 .01u 630V
C141 .1u
Q116 A733
D107 1N4148
G
K
SCR101 BT169
D113 1N4001
D105 1N4148
R122 240K 1/2W
C125 .01u 630V
V101 0241
R129 240K 1/2W
C114 220u 450V
C139 150u 25V
R130 56K 2W
R127 30K 5W
D110 BYV26E
RL101
PTC101
D102 1N4148
R108 100 1/2W
R163 1K
Q103 C945
R104 10K
T101
D105A BYV26C
D105B BYV26C
L104 47uH
C127 47P 1KV
C122 47P 1KV
C119 100U 200V
C107 100u 200V
R116 68K 1/2W
C115 .1u 250V
R121 56K 2W
R118 56K 2W
R120 10K
R119 24K 1/2W
L105 47uH
D103 BYM26C
C116 100u 100V
C111 100u 100V
VR101 10K
TO MAIN BD.
C101 0.01u 50V
P/S
V3
GND
V4
V1
V2
GND
V5
P104
C126 .01u 50V
R159 12K
C132 .68u
C128 1000P 500V
R123 1K
R160 680K 1/4W
R165 680K 1/4W
IC101 L6560
R171 10K
Q114 A733
R142 1K
C131 10u
R156 10K
R172 22K
R126 47
ZD101 18V
ZD103 18V
C130 1u 25V
Q107 C945
R134 4.7K 1/4W
ZD108 12V
D115 IN4001
L109 10uH
D116 BYD33D
C142 100u 25V
Q108 FS10SM-16
C138 220P 1KV
R132 1K 5W
R135 .18 3W
D111 BYV26E
ZD104 20V
D114 1N4148
R138 27
R140 100
ZD106 12V
ZD105 20V
R149 1K
R152 10K
R147 22 1/4W
R150 1K
C148 103 PEI
Q111 C945
Q110 C945
Q104 C945
R105 100
C133 47u 0V
R136 15K
C136 NC
IC102 SG3842
R144 10K
R133 470
C134 102P PEI
C137 102
R141 NC
Q112 NC PEI
R170 NC
Q113 C945
D108 NC
D118 NC
D112 NC
ZD102 12A1
D109 1K 1/4W
R158 1K
R173 11.5K 1%
C140 .1u 50V
R157 1.1K
SCR102 BT169
R145 10K
C135 3300P PEI
R146 470
C143 JUMPER
C145 2200P 400V
RL102
D117 1N4148
R154 51 1/4W
C144 NC
D104 RK46
C121 1000u 16V
L106 47uH
P106
C104 1000u 16V
Q109 C945
R124 4.7K
R128 4.7K
C118 470u 35V
C112 330u 35V
C102 100u 25V
L101 22uH
D106 BYM26C
C113 470u 35V
C105 330u 35V
L102 47uH
D107 BYM26C
R125 220
C123 1000P
IC104
R155 390 1/4W
C110 .1u 50V
R113 36K
IC105 TL431
C106 2200P PEI
R114 1.3K 1%
R111 2.2K 1%
R106 47K
R107 47K
Q102 A733
Q101 C945
R103 10K
R102 10K
D121 1N4148
D119 1N4148
CHUNTEX ELECTRONIC CO.
MODEL : 2195UE
DESIGEND :
NAME : POWER
FILE NAME : 95UEPA.SCH
REV : A
DRAWN : Y.J.JUAN
DATE : 12-12-97
CHECK :
P/S:POWER SAVING CONTROL PIN
V1:225V
V2:78V
V3:26V
V4:15V
V5:7.5V


1
Vp-p 4.96V
[V]
2
Vp-p 3.96V
[V]
3
Vp-p 3.16V
[V]
4
Vp-p 4.12V
[V]
5
Vp-p 810mV
[V]
6
Vp-p 5.12V
[V]
7
Vp-p 2.72V
[V]
P613
(TO PURITY COIL)
P512
(TO ROTATION COIL)
(TO MAIN BD P303)
P504
P509
H.C.G
NON-SYN
KEYSTONE
V-CENTER
PARA
PIN
V-SIZE
H-PHASE
H-WIDTH
END
H-MOIRE
V-MOIRE
BRIGHT
G-LED
Y-LED
(TO LED BD)
P505
P503
(TO MAIN BD P302)
MUTE
S5
S4
S3
GND
S2
S1
S0
RP501
(3.3KX8)
IC505
M62358
IC502
UM68P61
IC501
24C04
RP503
(3.3KX8)
P501
P502
(TO DIS BD P901)
RP502
(10KX6)
IC606
CXA2016S
IC510
M35045
P701
P702
P703
LC603
LC604
LC605
LC606
LC607
LC608
LC609
LC610
(TO CON/B P05)
(TO CON/B P01)
(TO USB/B JP1)
P511
(TO POWER BD P101)
P606
(TO MAIN BD P301)
H-SYNC
V-SYNC
GND
H-SYNC1
G2
+15V
+12V

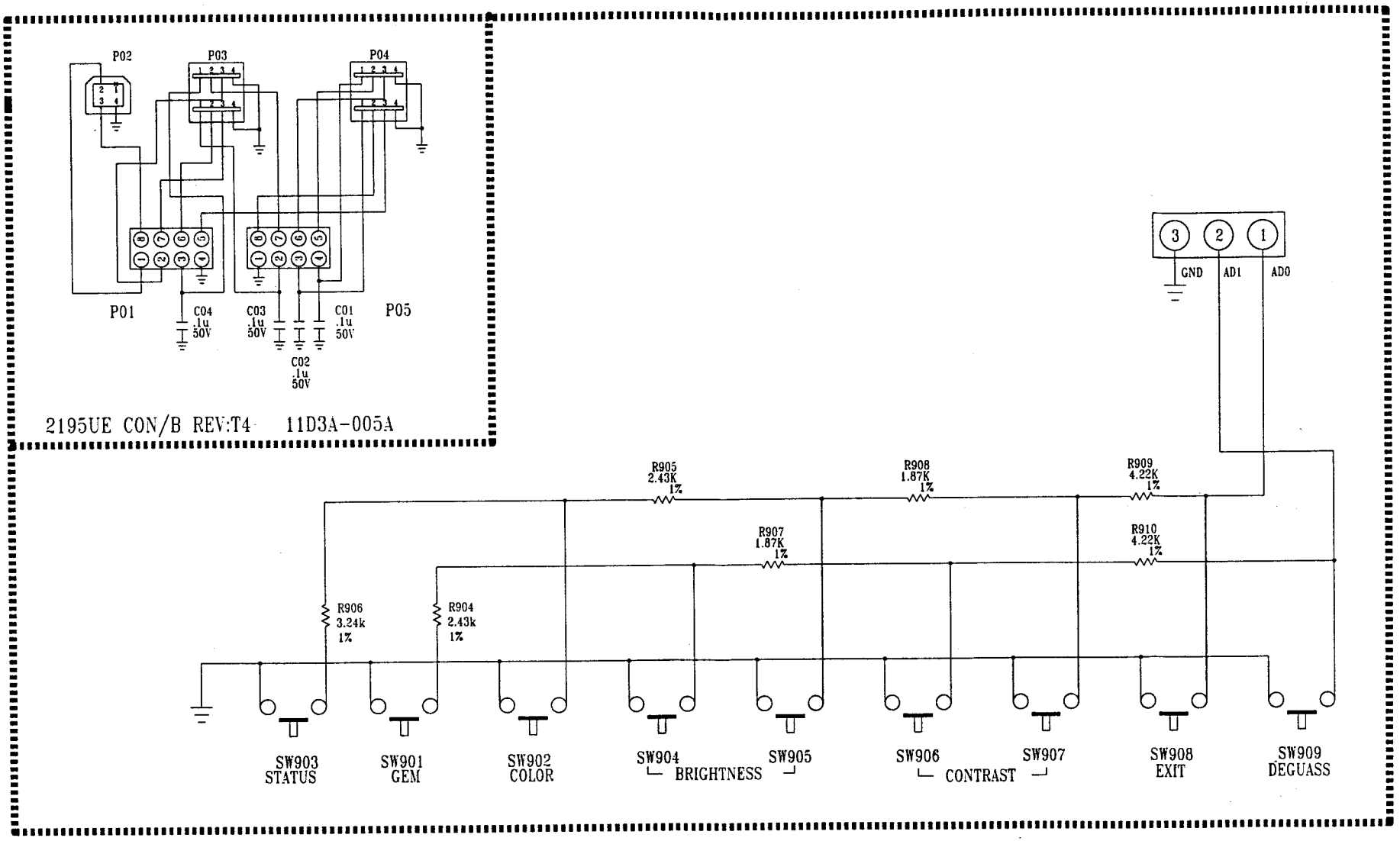

P605
P601
(TO CRT/BD P004)
(TO MAIN/BD P403)
P604
P603
P602
IC605 VPA18
IC604 VPA18
IC603 VPA18
IC602
M52722SP
IC607
LM317
IC608
2SD05
IC609
24LC21
IC601
74LS38
DB601
CHUNTEX ELECTRONIC CO., LTD.
MODEL : 2195UE
PCB P/N : 11D30-019A
NAME : VIDEO/BD
FILE NAME : V019AA
REV : A
DRAWN : S.C.H
DATE : 06-19-'98
CHECK :
2195UE 73





KHZ	S0	S1	S2	S3	S4
31-33	0	0	0	0	0
33-39	0	1	0	0	0
39-52	1	0	0	0	0
52-61	1	1	0	0	0
61-70	1	1	0	1	1
70-77	1	1	1	0	1
77-85	1	1	1	1	0
85-95	1	1	1	1	1

CHUNTEX ELECTRONIC CO., LTD.	
MODEL : 2195UE	PCB P/N : 11S31-072A
NAME : MAIN	FILE NAME : M072A2
REV : A2	DRAWN : S.T.JAIN
DATE : 06-08-'98	CHECK :



11S3D-039A

CHUNTEX ELECTRONIC CO.	
MODEL : 2195UE	FILE NAME : D039A.SCH
NAME : KEYBOARD	DRAWN : S.C.LIN
REV : A	CHECK :
DATE : 01-05-87	REMARK :