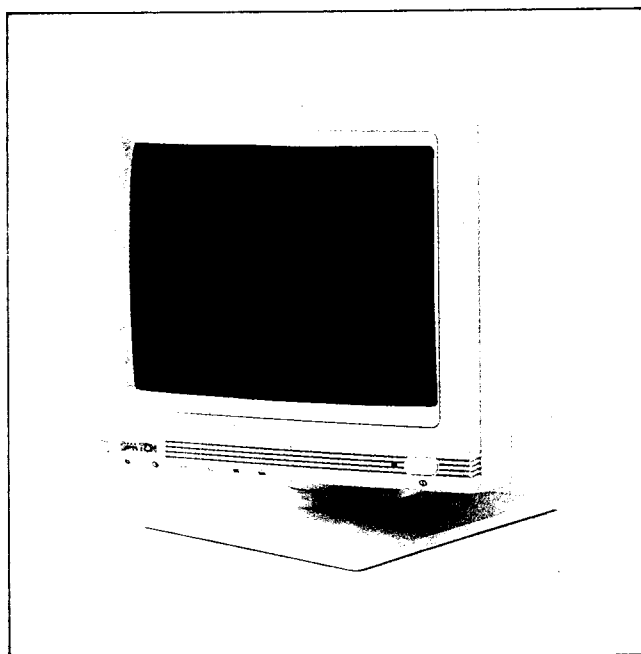


SAMTRON

14" SUPER VGA COLOR MONITOR

SERVICE MANUAL

SC-428TX/TXL



SPECIFICATION

Picture tube	M34KQA22**06-SC-428TX M34KSP23**02-SC-428TXL 14 Inches diagonal 90 degree deflection, 0.28mm dot pitch, black matrix
Input signal	Video : 0.7Vp-p Analog level positive Sync : TTL level
Display	
-colors	Any Colors
Synchro	
-nization	Horizontal : 31.5KHz, 35.2KHz, 35.5KHz, 37.8KHz, 48KHz Vertical : 50~90Hz
Resolution	640 dots(H)X480 Lines 800 dots(H)X600 Lines 1024 dots(H)X768 Lines
Video band	
-width	60MHz(-3dB)
Display area	Horizontal : 240± 10mm Vertical : 180± 10mm
Ac input	
-voltage	AC90V to 264 (60/50Hz)
Power	
-consumption	70W(MAX.)
Dimension	440(W)X457(D)X440(H)mm
Weight	13.0kg (Approx.)

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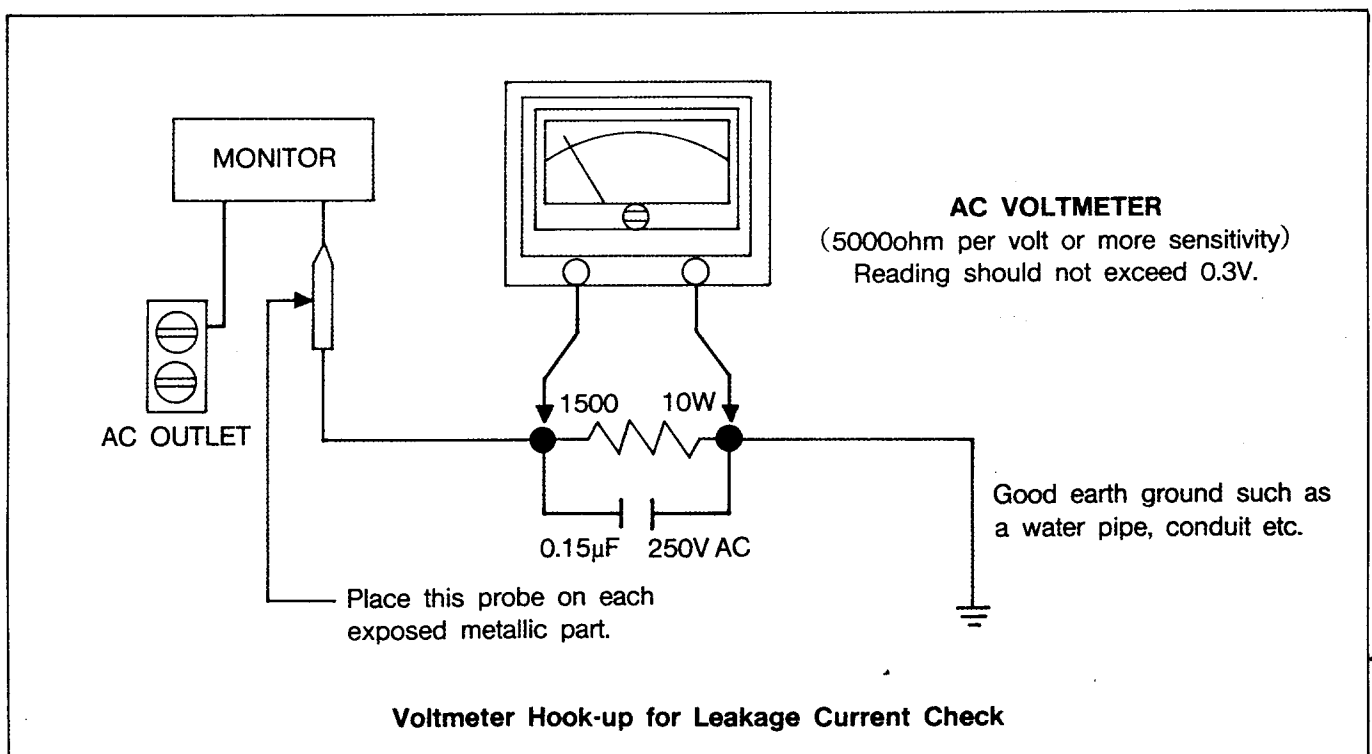
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1. GENERAL INFORMATION

(1) SAFETY PRECAUTION

WARNING: Service should not be attempted anyone unfamiliar with the necessary precautions on this unit.
The following precautions are necessary during servicing.

1. Some parts such as a picture tube in this unit have special safety-related characteristics for X-RAY RADIATION protection.
For continued safety, the parts replacement should be undertaken referring to item 2 below.
2. Many electrical mechanical parts in this unit have special safety-related characteristics for protection against shock hazard and others.
These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage wattage, etc.
Replacement parts which have these special characteristics are identified in the manual and supplements by shading on the schematic diagram and the parts list.
Before replacing of these components read the parts list in this manual, carefully.
3. When replacing chassis in the cabinet, always be certain that all the protective devices are installed properly, such as insulating covers, strain relief, etc.
4. Before replacing the back cover of the set, thoroughly inspect inside the cabinet to see that no stray parts or tools have been left inside.
5. Before returning the set to the customer always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminal, screwheads, metal overlays, control shafts, etc. To be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 115V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner.
Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15mfd(μ F), 250V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time.
Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd(μ F) capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3V RMS. This corresponds to 0.2mA AC any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



[2] DOCUMENT DESCRIPTION

This is technical specification for a SC-428TX/TXL Color display monitor.

This document contains information on all technical details of the monitor.

[3] PRODUCT DESCRIPTION

This SC-428TX/TXL Color display monitor to be operated in Analog Drive mode in put a highlight of these is provided below.

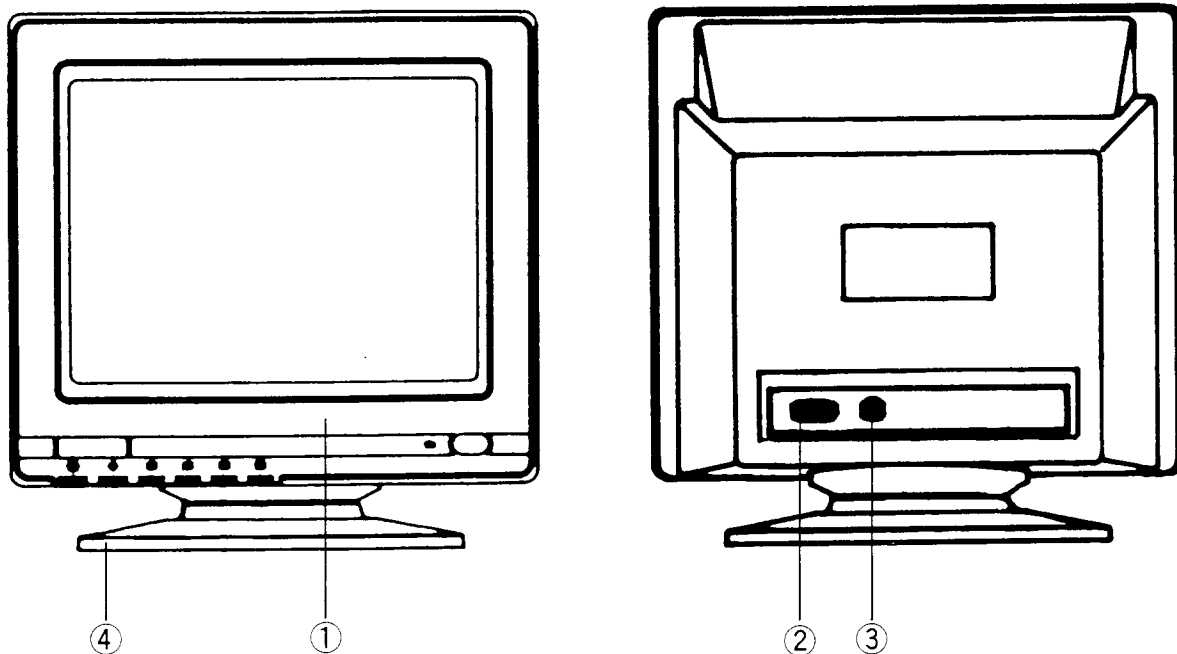
- Resolution : 640 Dots×480 Lines
800 Dots×600 Lines
1024 Dots×768 Lines
- Display capability : up to 2400 Characters
- Active display area : Horizontal : $240 \pm 10\text{mm}$
Vertical : $180 \pm 10\text{mm}$
- Horizontal frequency : 31.5KHz/ 35.2KHz/ 35.5KHz
37.8KHz/48KHz
- Vertical frequency : 50~90Hz.

USING COLOR DISPLAY MONITOR

Meeting SC-428TX/TXL Color display monitor.

Refer to the diagram below to be sure that your SC-428TX/TXL package includes all the items in this picture.

Save the original box and packing materials in case you have to ship or transport.



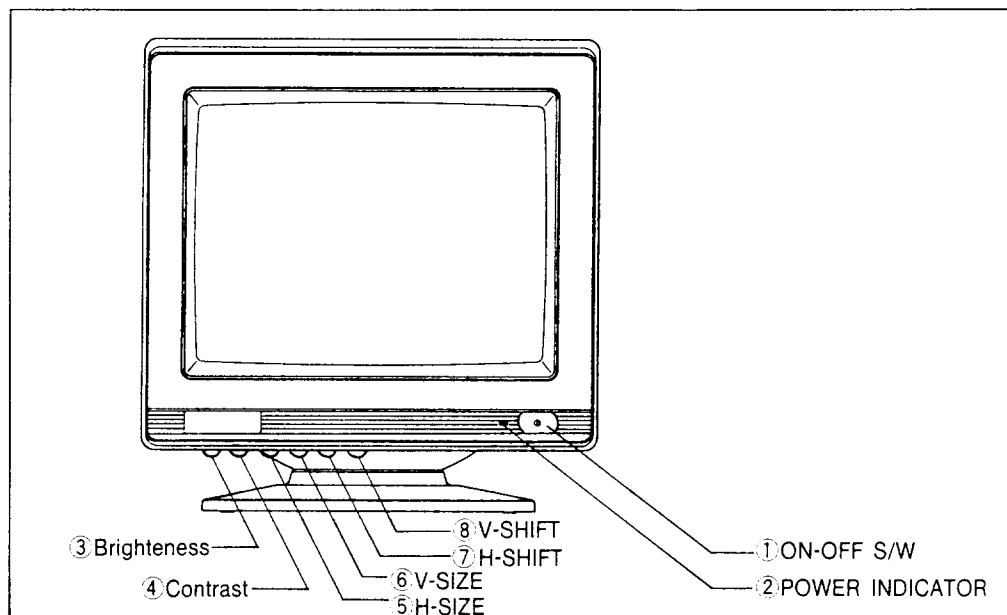
- ① Color display monitor(SC-428TX/TXL)
- ② Power Input
- ③ Signal cable : Connects IBM PC or Compatibles
- ④ Swivel/ Tilt stand

[4] ADJUSTMENT

Apply power and Analog video signal to the data display

1. ADJUSTING THE FRONT CONTROLS

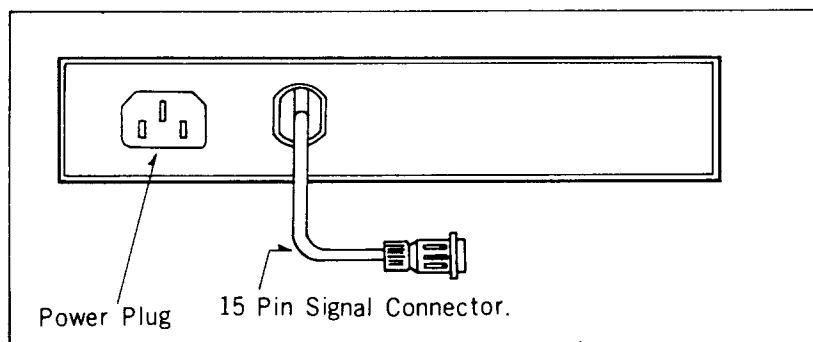
FRONT VIEW



- | | | | |
|-------------------------|---|------------------------|--------------------------------------|
| 1. The On-Off Switch | : The push-button on-off switch of Monitor is in the lower right-hand corner. To turn the Monitor on push the button forward. You will see the light of the power indicator. To turn the Monitor off press the switch again. The power indicator will go out. | 2. The Power Indicator | : Green light. |
| 3. The contrast control | : Rotating it increases or decreases the degree of difference between the lightest and darkest sections on the screen. | 4. Brightness control | : Intensifies screen illumination. |
| 5. H-SIZE | : Adjustment for horizontal width. | 6. V-SIZE | : Adjustment for vertical height. |
| 7. H-SHIFT | : Adjustment for horizontal alignment. | 8. V-SHIFT | : Adjustment for vertical alignment. |

2. ADJUSTING THE REAR CONTROLS

REAR VIEW



2. CHARACTERISTICS

(1) GENERAL CHARACTERISTICS

NO	Description	Nominal	Remark
1	CDT(Color Display Tube)	TX : M34KQA22××06 TXL : M34KSP23××02	Ref. CDT Spec.
2	CDT Phosphor	P 22 Dark Phosphor	
3	D.Y Deflection Angle	90°	Ref. CDT Spec.
4	Resolution	640×480, 800×600, 1024×768	Graphic Mode
5	Horizontal Frequency	31.5KHz/ 35.2KHz/ 35.5KHz 37.8KHz/ 48 KHz	Ref. Timing Chart Fig. 1
6	Vertical Frequency	50~90Hz	
7	Input Signal	R.G.B Analog	
8	Power Consumption	Normal : 60W, Max : 70W	
9	Display Color	Any Colors	
10	Display Zone	240± 10mm×180± 10mm	Ref. Fig.2
11	Display Character	up to 2400 Characters	
12	Dot Pitch	0.28mm	
13	Weight	Approx. 13kg	

(2) Electrical Characteristics

2-1. Input Power

The display device shall maintain the specified performances in the range described below.

NO	Description	Nominal	Remark
1	Power Source	AC 90V~264V	Universal Power
2	Frequency	47~63Hz	
3	Power Consumption	MAX. 70W± 10%	

2-2. Input Signal

The input signals shall be applied to the display devices through a signal cable which must be intended as part of the momitor.(Ref. Fig 1 Timing chart)

Section	Description	Nominal	Remark
Video Signal Red Green Blue	Video Input	0.0 to 0.7V _{p-p} Analog	
	Polarity	Positive	
	Pixel Rate	up to 50 MHz	
	Rise/ Fall Time	Less than 8 nsec	
	Input impedance	75 ohms	
H-Sync.	Sync Input	$2.4V \leq \text{Level} \leq 5V$	
	Pulse Width	1.0~3.92 usec	
	Polarity	Positive or Negative	
	Frequency	31.5/35.2/35.5/37.8/48KHz	
	Front Porch	0.18~1.12 usec	
	Back Porch	1.25~4.6 usec	
V-Sync	Sync Input	$2.4V \leq \text{Level} \leq 5V$	
	Pulse With	0.06~0.2 msec	
	Polarity	Positive or Negative	
	Frequency	50~90Hz	
	Front Porch	0.014~1.2 msec	
	Back Porch	0.48~1.88 msec	

2-3. CRT Electrode voltage

NO	Description	Nominal	Remark
1	Heater	$6.3V \pm 0.5V$, $630mA \pm 30mA$	
2	Cathode(R.G.B)	$70V \pm 10V$	
3	Gride # 1	$-10V \sim -40V$	
4	Gride # 2	$500V \pm 50V$	Screen
5	Gride # 3	$6.5KV \pm 0.5KV$	Focus
6	Anode Voltage	$24KV \pm 1KV$ @OuA	

2-4. Timing Characteristics

The monitor shall be capable of displaying 6 different vertical resolution within the scan frequencies as well as the scanning mode.

No	Description			350 LINES	400 LINES	480 LINES		600 LINES			768 LINES(I)	768 LINES(N.I)
1	Horizontal	Frequency	kHz	31.5	31.5	31.5	37.8	35.2	37.8	48	35.5	48.36
		Line Time	uS	31.77	31.77	31.77	26.41	28.44	26.40	20.79	28.15	20.677
		Active Time	uS	3.77	3.77	3.77	1.27	2.00	3.20	2.4	3.92	2.092
		Blanking Time	uS	1.89	1.89	1.89	4.06	3.56	2.20	1.28	1.25	2.462
		Front Porch	uS	25.17	25.17	25.17	20.32	22.22	20.00	15.99	22.80	15.754
		Back Porch	uS	0.94	0.94	0.94	0.76	0.67	1.00	1.12	0.18	0.369
2	Vertical	Frequency	Hz	70	70	60	72.8	56	60.3	72	87	60
		Line Time	ms	14.27	14.27	16.68	13.74	17.78	16.58	13.89	11.5	16.667
		Active Time	mS	0.06	0.06	0.06	0.08	0.06	0.11	0.12	0.11	0.124
		Blanking Time	mS	1.88	1.08	1.02	0.74	0.6	0.61	0.48	0.56	0.6
		Front Porch	mS	11.13	12.72	15.25	12.68	17.07	15.84	12.5	10.81	15.88
		Back Porch	mS	1.2	0.41	0.35	0.24	0.03	0.03	0.77	0.01	0.062

(3) MECHANICAL CHARACTERISTICS

3-1. Weight

The total weight shall be less than approximate 13.0kg.

3.2 External Dimensions(mm)

	Without Stand	With Stand
Width	354	354
Height	315	365
Lenght	387	387

3-3. Tilt/Swivel

The inclination of the surface of the screen shall be adjustable at least -5deg. and +14deg. With a min. 19deg. from the vertical. The swivel must be min. 180deg.

3.4 Tool Resin

Tool	Resin	Color
Front	ABS	Beige
Rear	"	"
Stand	"	"

3. DISPLAY ADJUSTMENT.

1. +B VOLTAGE ADJUSTMENT.

- ✖ Receive a cross-hatch pattern signal of 640×400 mode.
- ✖ Set contrast and brightness control at maximum position.
- ✖ Set G2 volume controls at minimum position.
- ✖ Make sure the AC Power supply voltage is at the specified value.
- ✖ Adjust 24V line- ADJ.volume(VR101) on the display PCB for a $24.5V(\pm 0.2V)$.

2. HORIZONTAL DEFLECTION CIRCUIT ADJUSTMENT.

2-1. Horizontal oscillation Frequency adjustment.(H-HOLD)

- ✖ Disconnect the signal cable from signal source.
- ✖ Adjust horizontal frequency control volume (VR303) so that the frequency counter reads $35.5\text{ KHz}(\pm 0.2\text{KHz})$.
- ✖ The horizontal frequency for the other modes are automatically set by interface circuit.

2-2. Horizontal position adjustment.(H-SHIFT)

- ✖ Receive a cross-hatch pattern signal of 640×400 mode.
- ✖ H-SHIFT(VR302) located at the bottom side of front is to place the picture at the center position of the CDT screen.

2-3. Horizontal width adjustment.(H-WIDTH)

- ✖ Set contrast and brightness controls at maximum positions.
- ✖ Receive a cross-hatch pattern signal. (640×400 lines)
- ✖ Adjust H-WIDTH(VR702) control located at the bottom side of front bezel so the a width becomes $245\pm 3\text{mm}$.

3. VERTICAL DEFLECTION CIRCUIT.

3-1. Vertical oscillation frequency alignment.(V-HOLD)

- ✖ Disconnect the signal cable from signal source.
- ✖ Adjust vertical frequency control volume (VR304) so that the frequency counter reads $48\text{Hz}(\pm 0.5\text{Hz})$.

3-2. Vertical linearity adjustment.(V-LIN)

- ✖ Receive a cross-hatch pattern signal.(640×400 lines)
- ✖ Adjust the size volume so that the height becomes 80% of the display area of CDT.
- ✖ Adjust V-LIN volume (VR301) to get optimum linearity.

3-3. Vertical Size adjustment.

- ✖ Receive a cross-hatch pattern signal. (640×400 lines)
- ✖ Adjust size volume (VR201) located at the bottom side of front so that the height of the pattern becomes $180\pm 3\text{mm}$.

3-4. Vertical position adjustment.(V-SHIFT)

- ✖ Receive a cross-hatch pattern signal. (640×400 lines)
- ✖ Adjust the V-SHIFT volume (VR203) which is located at the bottom side of front so that the video signal is positioned at the center of the CDT screen.

4. VIDED CIRCUIT ADJUSTMENT.

4-1. Controls function.

- ✖ Brightness volume. (VR802)
This knob controls mainly intended as a raster luminance adjusted.
- ✖ Sub-brightness volume. (VR801)
This control adjust the cut off point of the raster after brightness control set at the maximum state.
- ✖ R.G.B gain volumes. (VR401, VR402, VR403)
This volume adjust the gain of RED, GREEN BLUE video pre-amplifier. •

- ✧ R.G.B bias volumes. (VR405R, VR405G, VR405B)
This volume controls the bias voltage of RED, GREEN, BLUE cathode of CDT.
- ✧ Contrast volume. (VR404)
This knob controls the gain of the video amplifier then adjusts the contrast of the image, but does not affect the raster luminance.
- ✧ Screen volum. (On the FBT)
This Volume controls the screen voltage of the CDT.
- ✧ Focus volume (On the FBT)
This volume controls the focus of the picture.

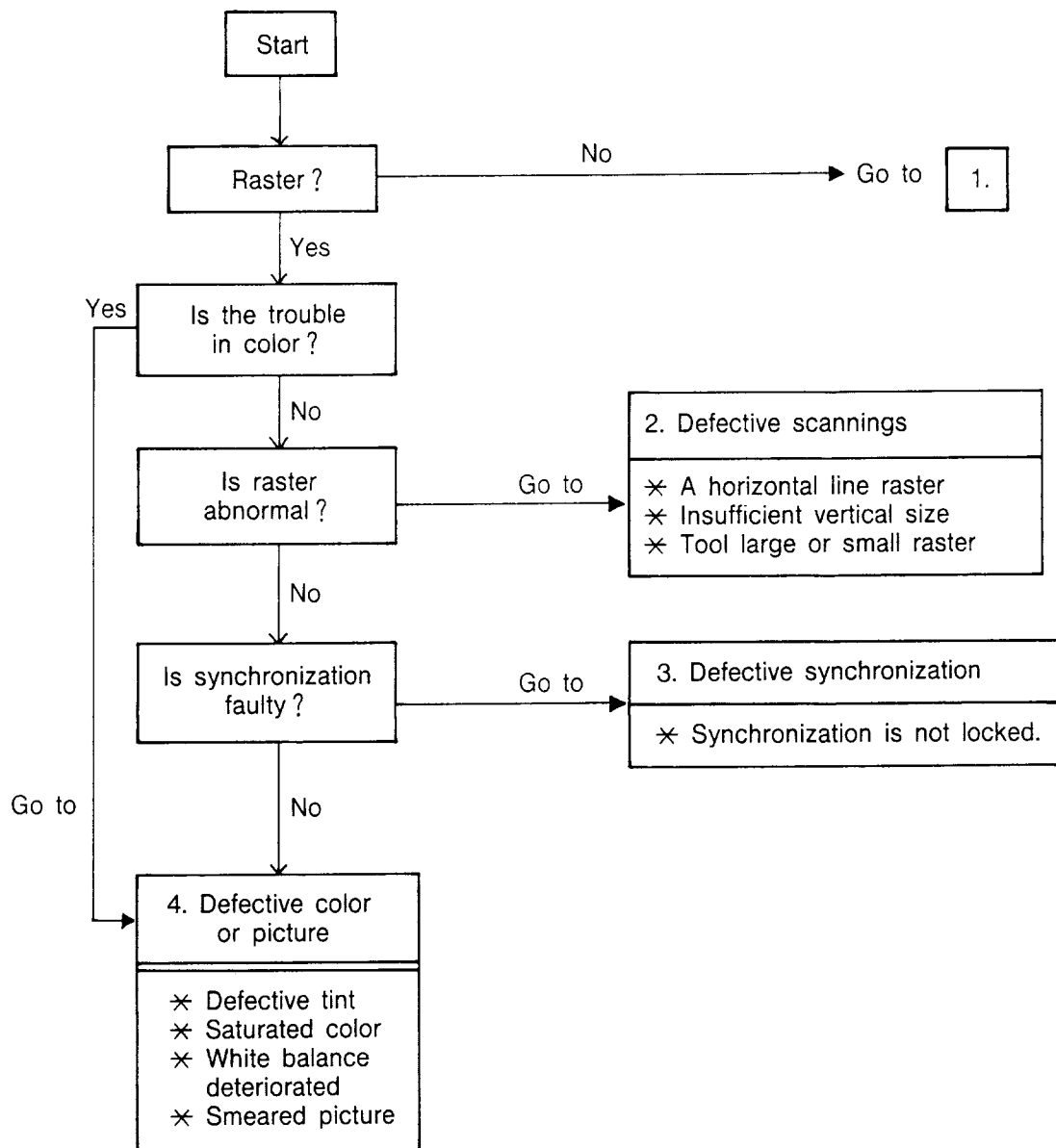
4-2. White balance adjustment.

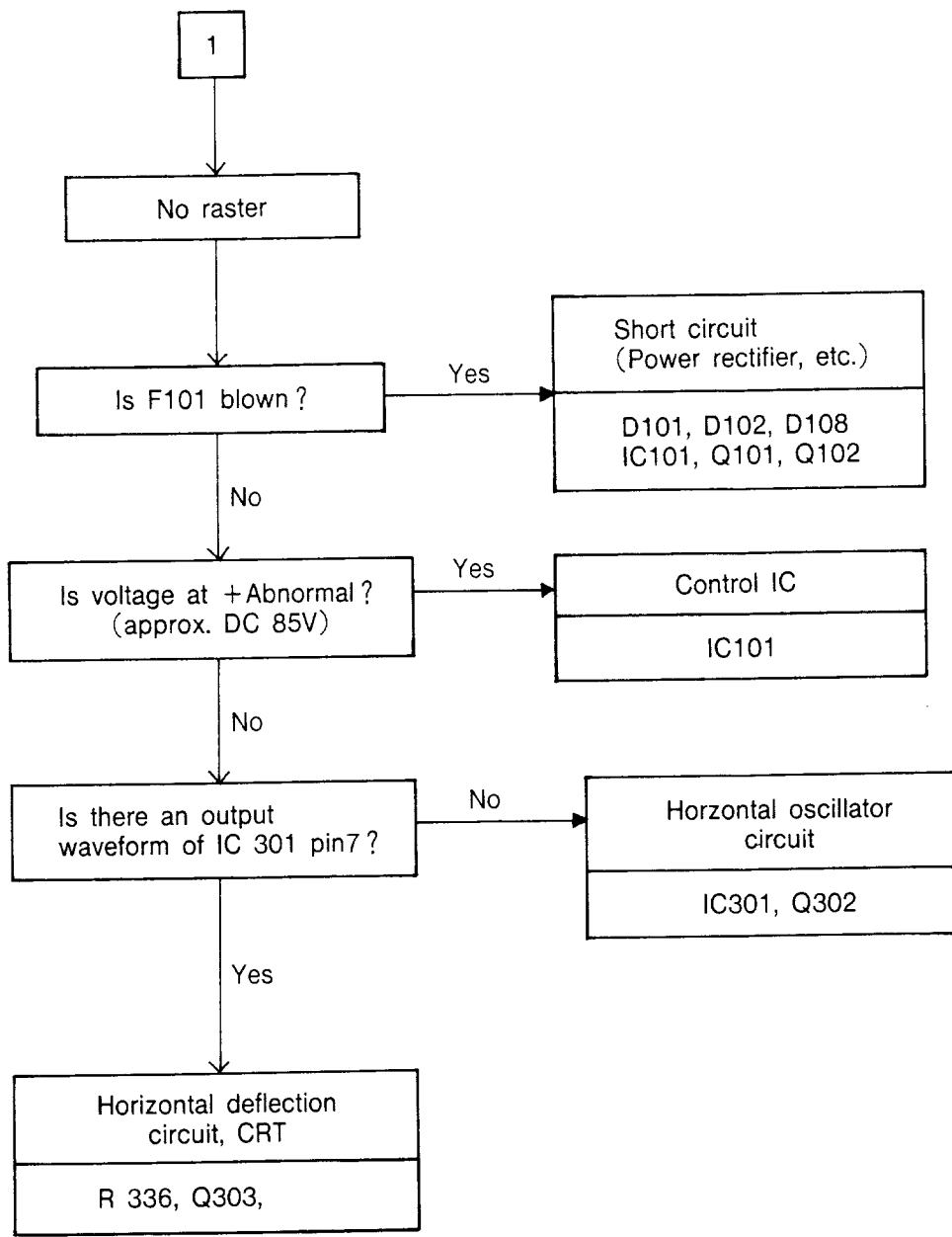
- ✧ Before the power switch on, R.G.B. gain and bias volume set mechanical center.
- ✧ Operate the set 15 minutes to warm up.
- ✧ Degauss the CDT face fully with the degaussing tool.
- ✧ Adjust external-brightness volume at maximum position, sub-brightness volume at maximum position and screen volume at minimum position.
- ✧ Adjust screen volume slowly so that the luminance of the raster becomes 4~5 F/L.
- ✧ Adjust bias volume of R.G.B so that the color of the raster becomes white.
- ✧ Now adjust the sub-brightness volume so that the luminance of the raster becomes 0.2~1.0 F/L.
- ✧ Receive a full white pattern signal.
- ✧ Adjust R.G.B gain volume at the specified white color.
Use the color analyzer equipment.
 - ✧ Standard color coordinate.(@20F/ L, 5F/ L)
 - X=0.281±0.02
 - Y=0.311±0.02
 - ✧ Maximum brightness : More than 23 F/L
 - With full white pattern
 - Brightness V/R : Set at the cut off state.
 - Contrast V/R : Set at the maximum state.
 - Checking area : Center of display.

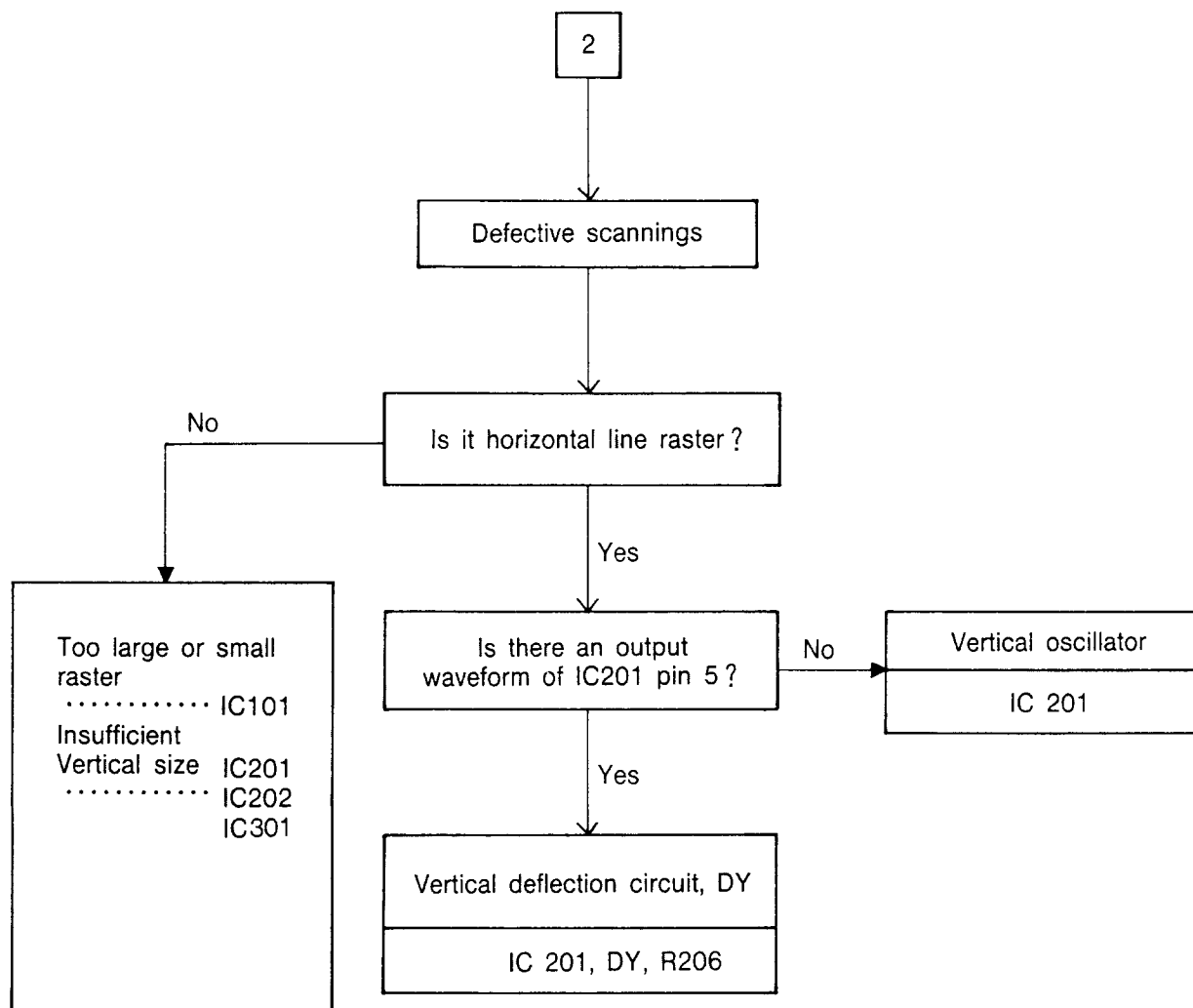
5. FLASHOVER PROTECTION.

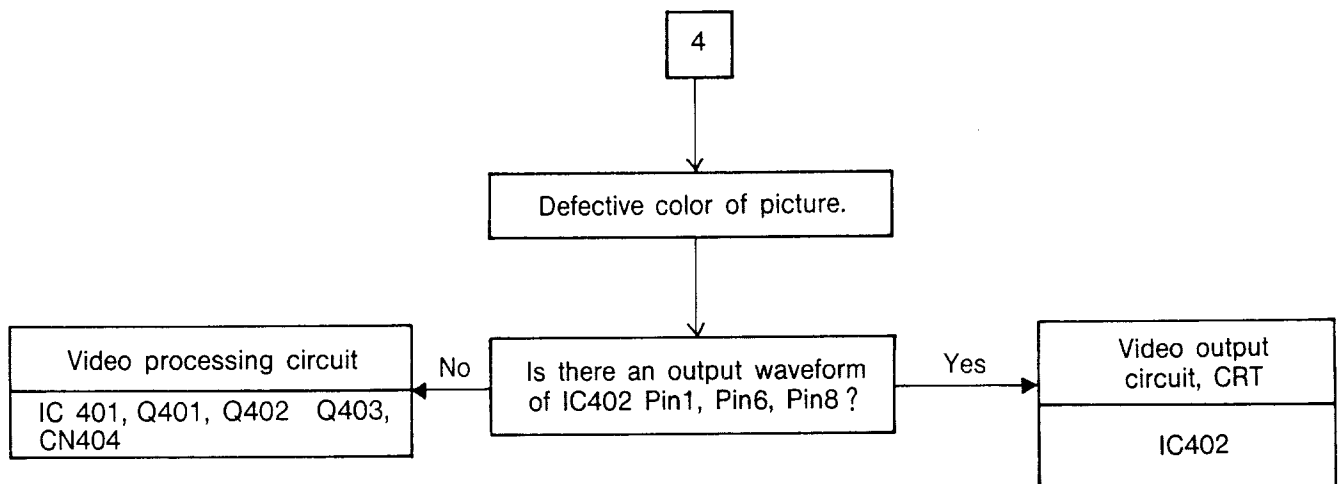
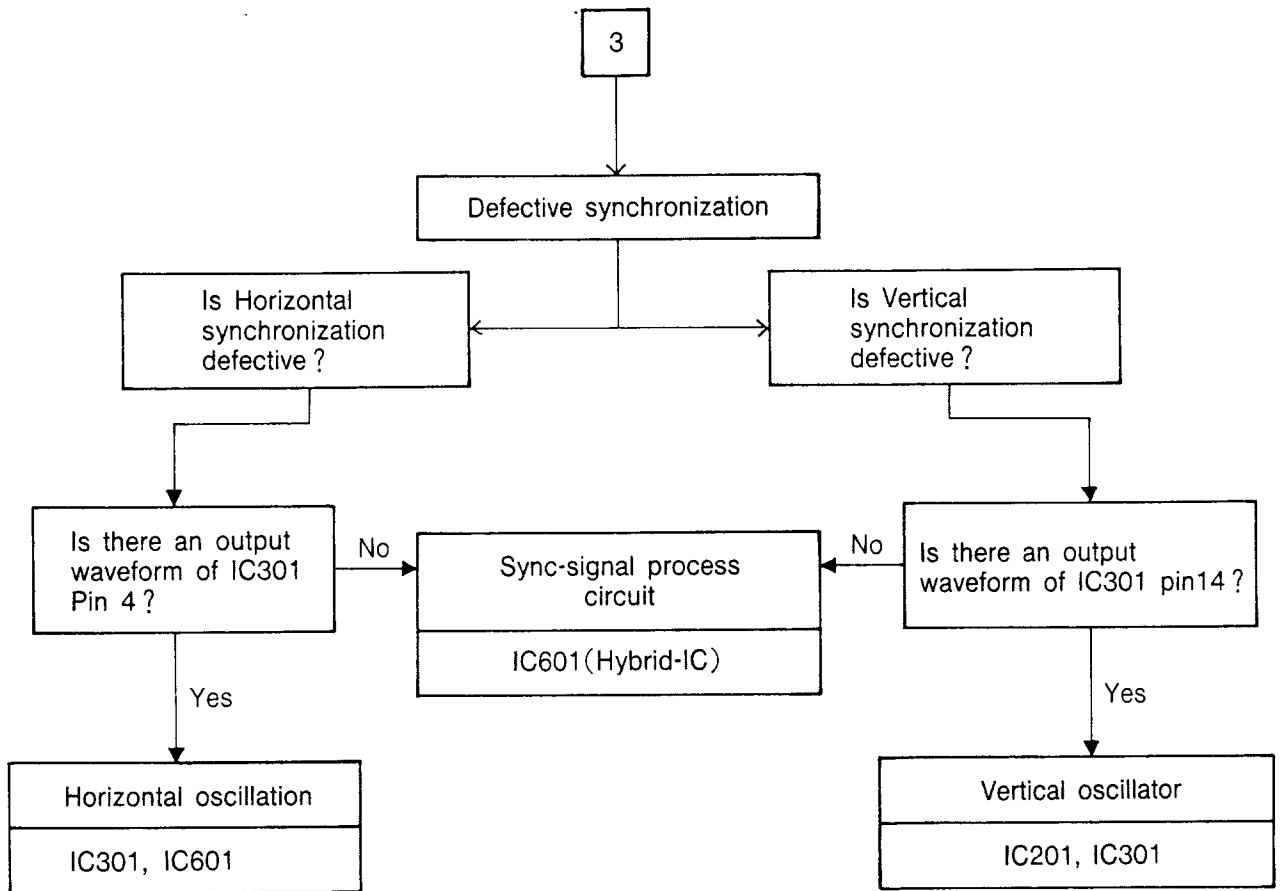
Due to high voltage in this tube, internal flashover occurs.
Protection must be provided using spark gap to prevent flashover from destroying the cathode or other internal circuits.
These spark gaps shall be connected with each electrode in socket PCB assembly.

4. TROUBLE SHOOTING









5. THEORY OF OPERATION.

[1] GENERAL.

This monitor contains four independent circuits.

One of them is power supply section, and the others are the interface, sweep video, CDT drive section.

[2] POWER SUPPLY CIRCUIT.

This circuit adapts the switching mode power supply.

The chassis (secondary side) is insulated from the power source (primary side) by the transformer T101 for switching power source.

By the winding of the transformer T101 connected to the collector circuit of IC101 and the other winding connected to the control circuit, the IC101 is submitted to negative feed back and operate as blocking oscillator.

Change in the power source voltage and load current are detected by the winding and the voltage is applied pin2 of IC101. When the voltage applied to pin2 changes, the conducting time of IC101 changes to compensate for the change in the secondary output voltage of T101 and to stabilize the output voltage.

The range of operating frequency is 22KHz~70KHz.

[3] Interface circuit

This circuit is for the control of each scanning mode automatically after detecting the polarities and frequencies of the sync. pulse from computer.

And uses Hybrid IC which consists of three sections as follows.

- * Stage for the detection of sync. pulse and the buffering.
- * PLL stage for choosing up frequency by sync. pulse from computer.
- * Decoder stage for selecting scanning mode.

[4] VIDEO DRIVE CIRCUIT.

The R,G,B input signal with analog level are applied to the pre-amplifier LM1203.

This section amplifies the output signal of a generator to the level high enough to drive a video output circuit.

Video gain is controlled by DC voltage of pin 12 and DC bias is controlled by the DC voltage of the pin15, 19 and 24.

Clamping pulse is applied to the pin 14 through transistor Q201.

[5] VIDEO OUTPUT CIRCUIT.

The LM2416T IC has 3 channels of R,G,B in one chip.

The LM2416T, CRT video driver is a wide bandwidth, large signal amplifier designed to swing large voltage in a short duration.

The driven signals which is through IC LM2416T are applied to CDT cathode.

[6] DEFLECTION CIRCUIT

This circuit has to ICs. One is the horizontal and vertical one chip processor IC(IC301) for oscillator, synchronization, driver.

Another is the monolithic IC(IC201) for vertical power amplifier.

[7] VERITCAL DEFLECTION CIRCUIT.

The vertical sync. signal with negative polarity is applied to pin 14 of IC301.

The Vertical frequency of the oscillator can be controlled by the voltage at pin 12 of IC301. And it can be varied by the V-HOLD volume (VR304).

The vertical height is controlled by the voltage at pin 16 of IC301.

The vertical linearity is controlled by the voltage at pin 17 of IC301.

The ramp signal from pin 19 of IC301 is applied to pin 1 of IC201.

The IC201 does amplify the power.

Vertical position is determined by the amount of DC component flowing through the vertical deflection coil. Therefore the change of vertical position is done by V-SHIFT volume(VR203) varying.

[8] HORIZONTAL DEFLECTION CIRCUIT.

The horizontal sync. signal with negative polarity is applied to pin 4 of IC301.

The horizontal frequency of the oscillator can be controlled by the voltage at pin 1 of IC301. And it can be varied by the H-HOLD volume(VR303).

The flyback pulse is fed to pin 8 of IC301 for AFC(Auto Frequency Control).

The phase of horizontal saw-tooth wave is compared with that of fly back pulse and horizontal sync.signal at AFC circuit of the IC301.

H-PHASE control(VR302) determines the horizontal position of picture.

The horizontal frequency oscillation is obtained from pin 3 of IC302 and is fed to the next horizontal drive circuit.

The pulse switching mode of the driver and output stage is reverse polarity type, it means that is, when the driver transistor is on, the output transistor is off.

The horizontal output circuit uses, a resonant flyback system to drive the deflection yoke is used into generates the anode and focus voltages, as well as several secondary supplies.

A diode modulator circuit is used to achieve east/west pincushion correction, and set horizontal size.

[9] SIDE PINCUSHION CORRECTOR.

This circuit compensated the east/ west pincushion distortion.

The signal processing for E/ W pincushion correction is done inside IC701.

The vertical ramp signal from the IC301 is AC coupled through C703 to the E/ W pincushion amplitude control, VR703.

The output section of IC701 is class-D(pwm) power amplifier.

A positive horizontal flyback pulse from T302 is clipped by zener diode D704 and applied to pin 8 of IC701.

The horizontal width is determined by the voltage of pin 8, which is varied by the setting of the horizontal width control volume(VR702).

[10] PROTECTION CIRCUIT.

If the failure which causes an increase in high voltage occurs (such as opened sweep capacitor or failed power regulator), the cathode voltage of D305 will be increased by the FBT(T301).

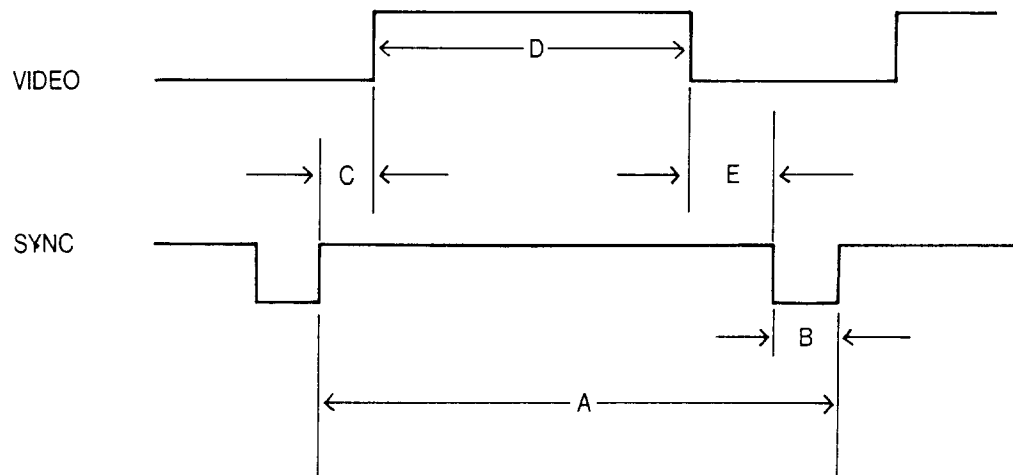
Then the protection operation occurs by turning on Q305 as the result of the breakdown of D305.

When this happens, the oscillator signal coming from IC301 can no longer drive Q303, then the set turns off.

Therefore to restart the oscillator and the high voltage, the monitor must be turned off and then turned on again.

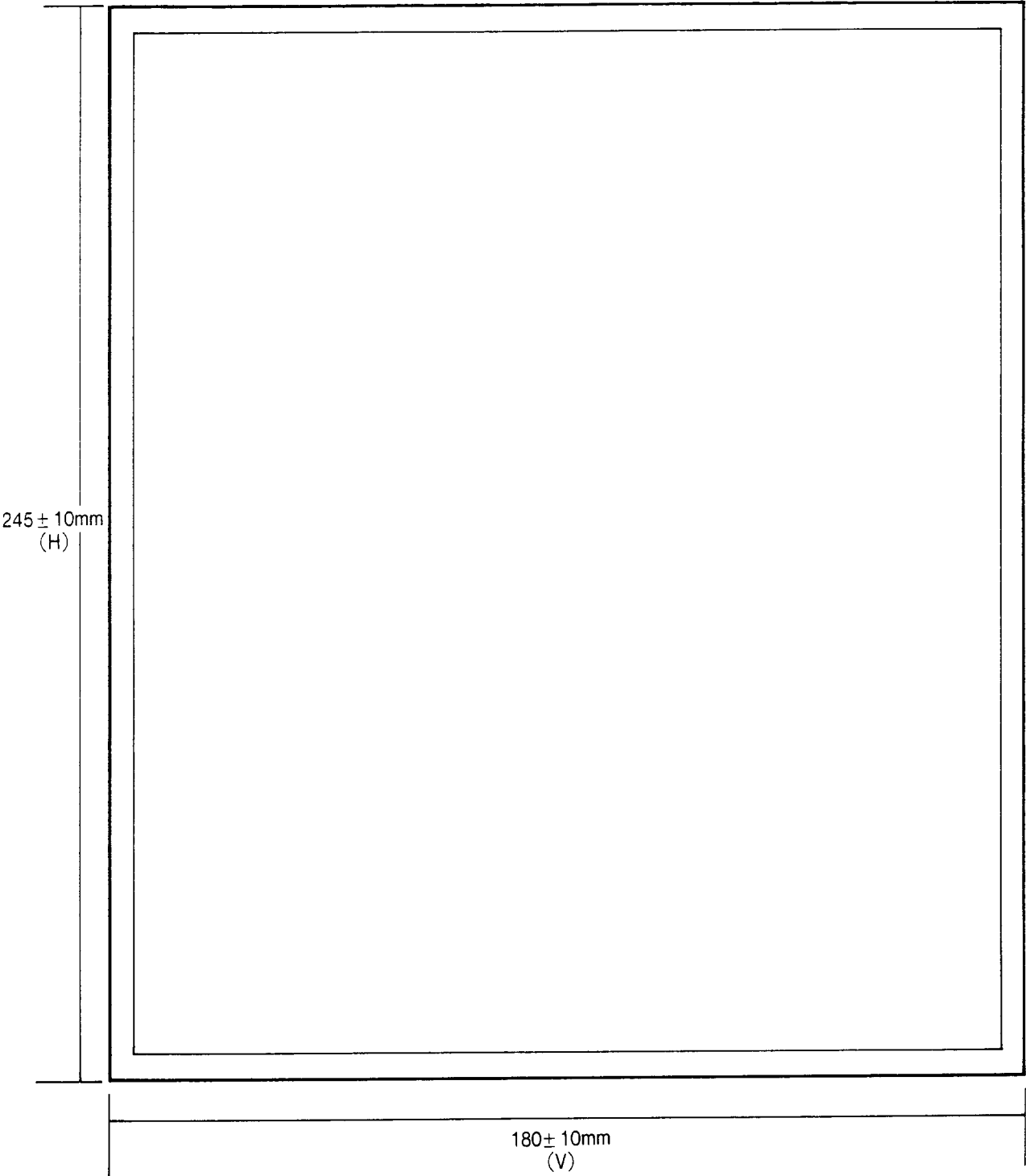
6. FIGURES

[1] Timing chart

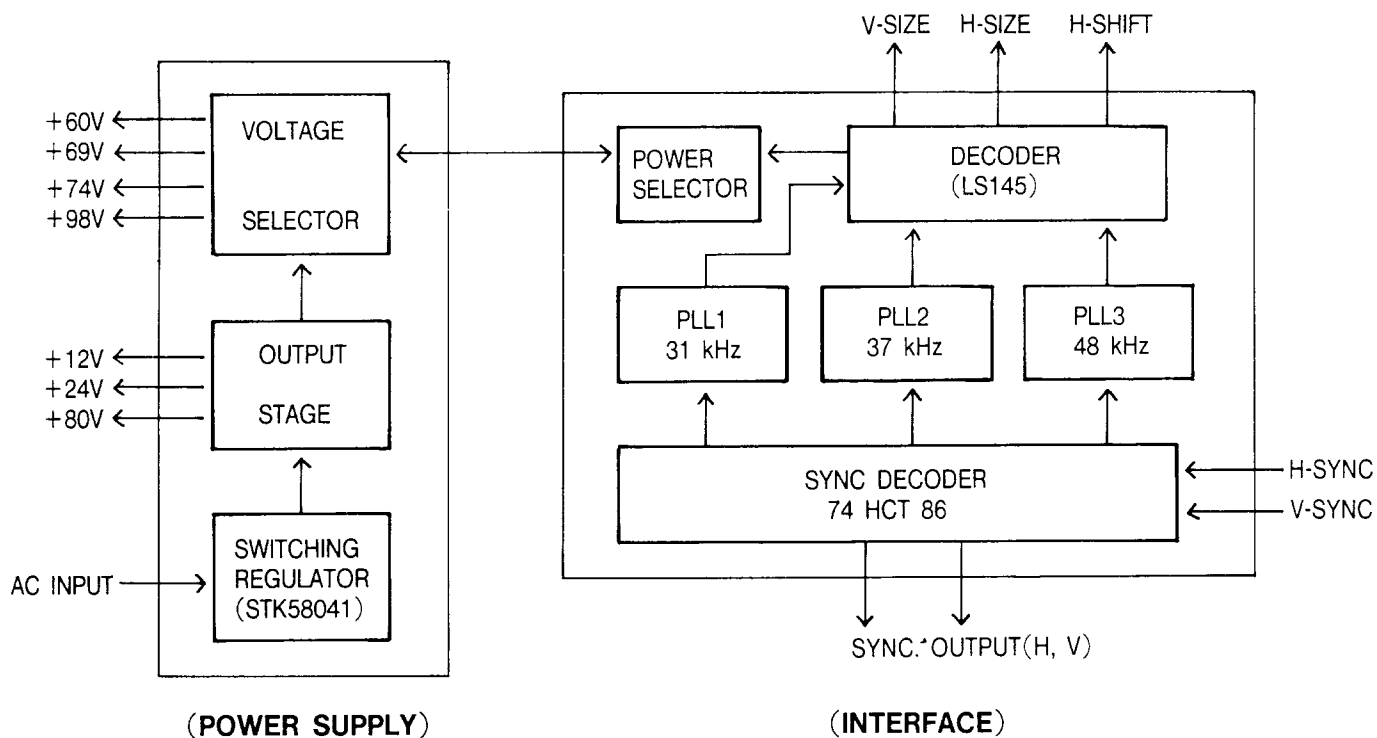
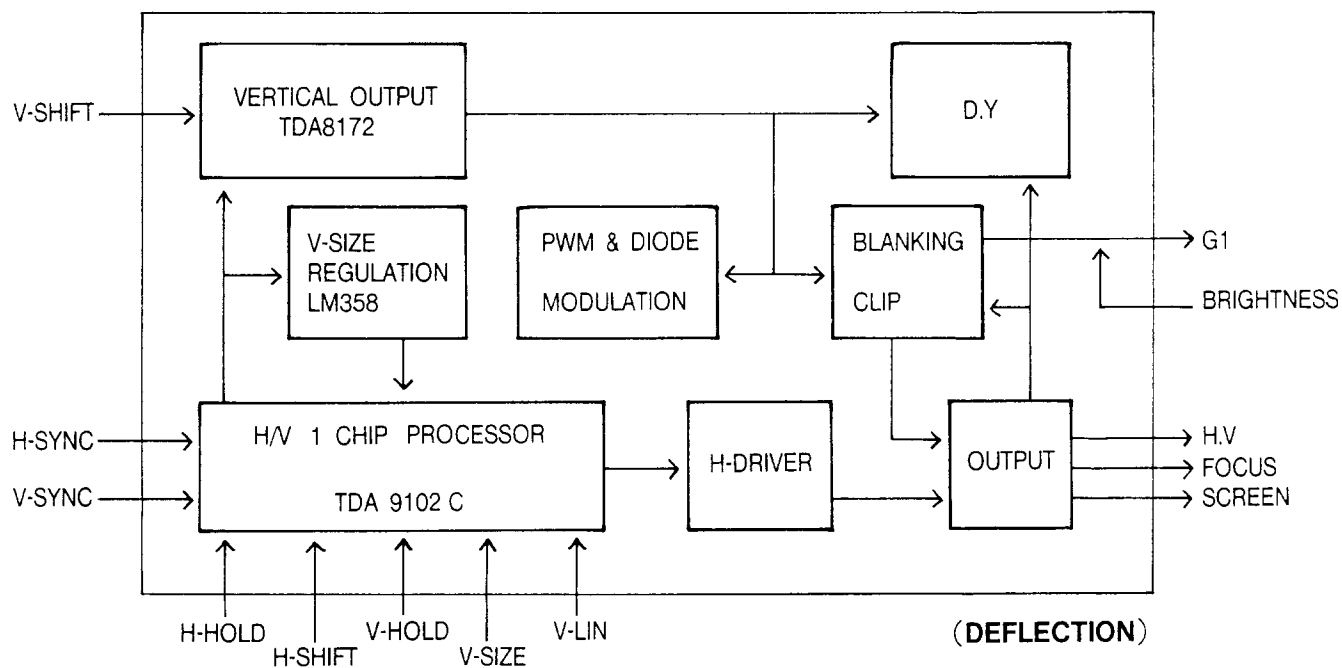
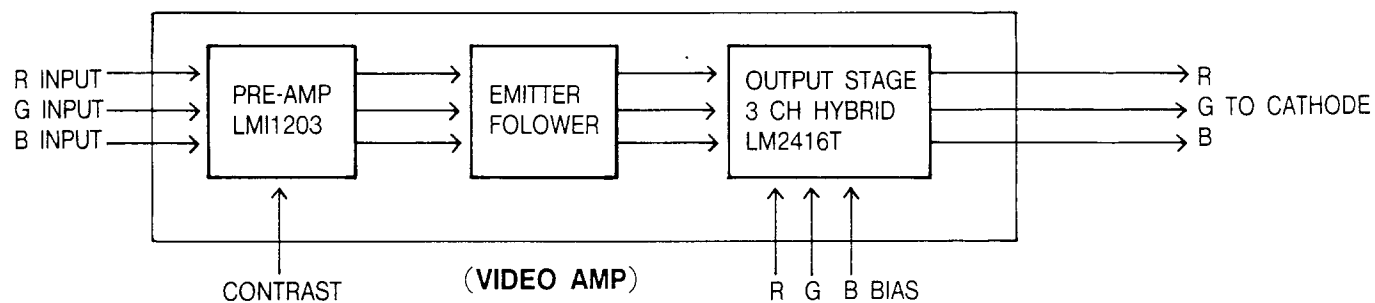


DESCRIPTION			RESOLUTION								
			640×350	640×400	640×600		800×600			1024×768 (I)	1024×768 (N.I)
H	fH	kHz	31.5	31.5	31.5	37.8	35.2	37.8	48	35.5	48.36
	A	uS	31.77	31.77	31.77	26.41	28.44	26.40	20.79	28.15	20.677
	B	us	3.77	3.77	3.77	1.27	2.00	3.20	2.4	3.92	2.092
	C	uS	1.89	1.89	1.89	4.06	3.56	2.20	1.28	1.25	2.462
	D	uS	25.17	25.17	25.17	20.32	22.22	20.00	15.99	22.80	15.754
	E	uS	0.94	0.94	0.94	0.76	0.67	1.00	1.12	0.18	0.369
	POL.		POS.	NEG.	NEG.	NEG.	NEG.	POS.	POS.	POS.	NEG.
V	fV	Hz	70	70	60	72.8	56	60.3	72	87	60
	A	mS	14.27	14.27	16.68	13.74	17.78	16.58	13.89	11.5	16.667
	B	mS	0.06	0.06	0.06	0.08	0.06	0.11	0.12	0.11	0.124
	C	mS	1.88	1.08	1.02	0.74	0.6	0.61	0.48	0.56	0.6
	D	mS	11.13	12.72	15.25	12.68	17.07	15.84	12.5	10.81	15.88
	E	mS	1.2	0.41	0.35	0.24	0.03	0.03	0.77	0.01	0.062
	POL.		NEG.	POS.	NEG.	NEG.	POS.	POS.	POS.	POS.	NEG.

(2) Display zone

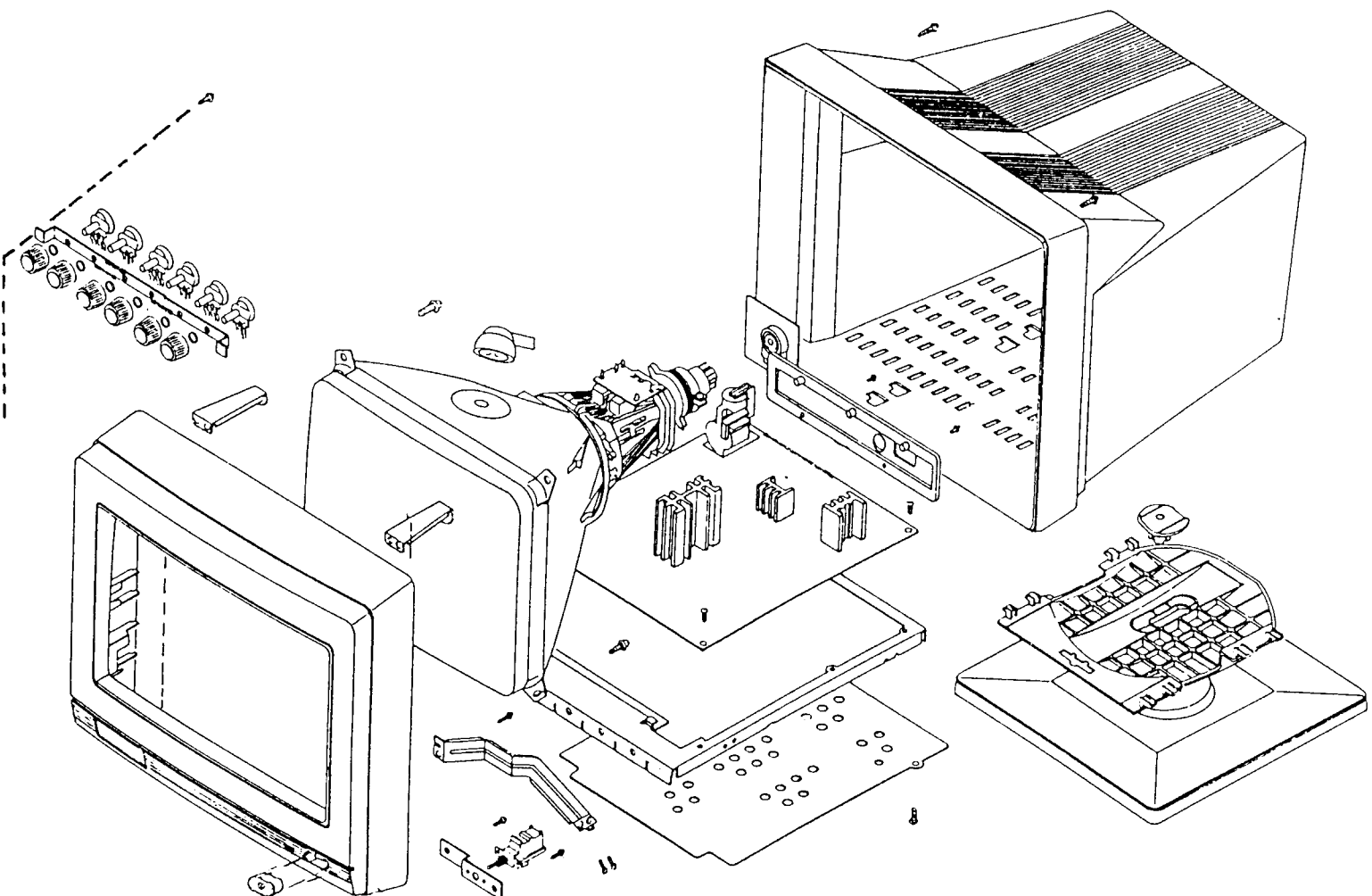


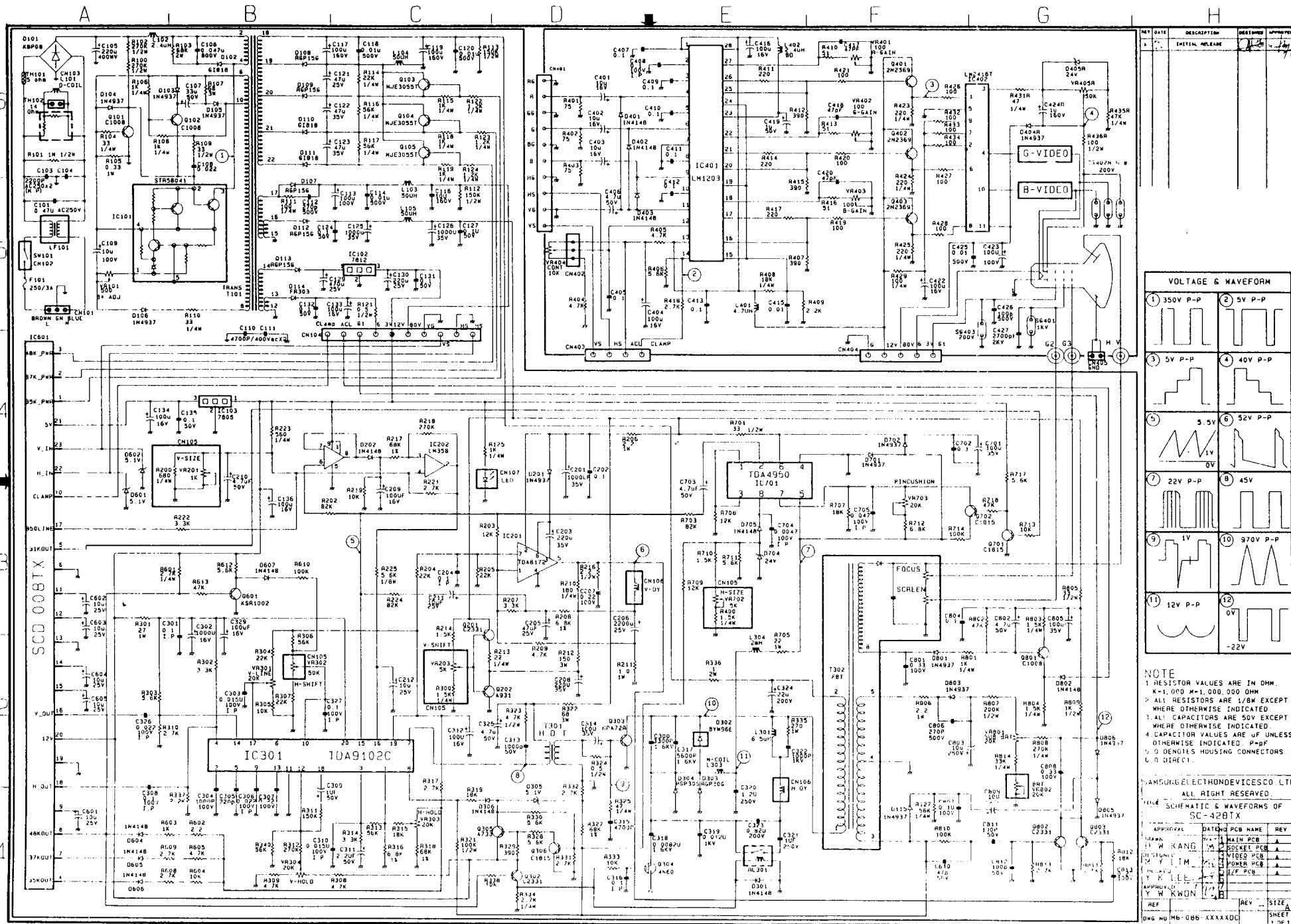
(3) Block diagram



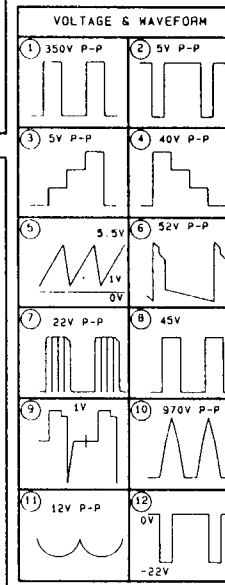
7. DRAWINGS

[1] Mechanical assembly drawings





[2] Circuit diagram

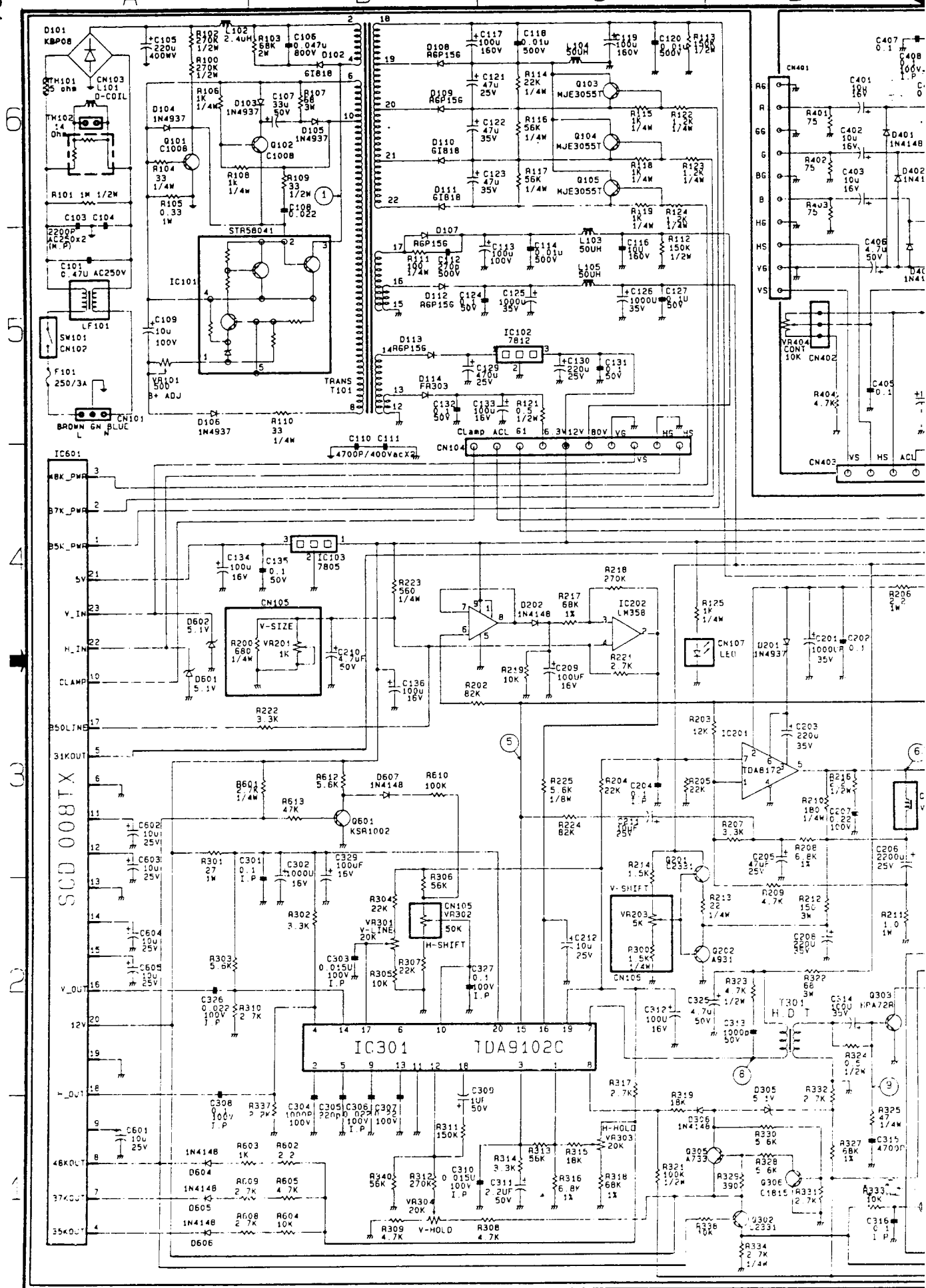


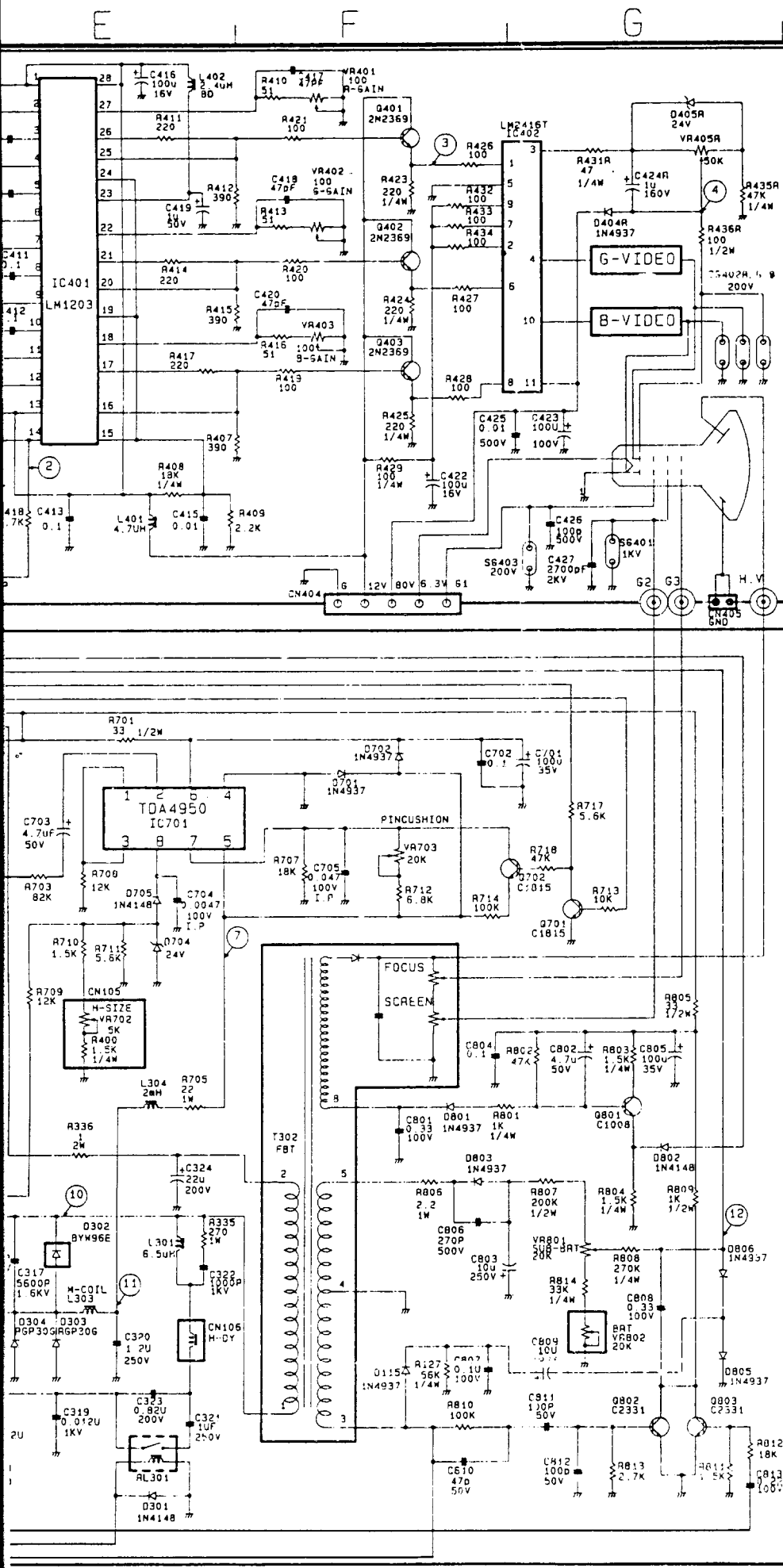
NOTE

1. RESISTOR VALUES ARE IN OHM.
K=1,000 M=1,000,000 OHM
2. ALL RESISTORS ARE 1/8W EXCEPT
WHERE OTHERWISE INDICATED.
3. ALL CAPACITORS ARE 50V EXCEPT
WHERE OTHERWISE INDICATED.
4. CAPACITOR VALUES ARE OF UNLESS
OTHERWISE INDICATED. P=pF
5. 0 DENOTES HOUSING CONNECTORS
6. 0 00000

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SCHEMATIC & WAVEFORMS OF
SC-420TX

APPROVAL	DATE	PCB NAME	REV
DRAWN Y W KANG	7-1-81	MAIN PCB	A
DESIGNED M Y LIM	7-1-81	SOCKET PCB	A
IN CHARGE Y K LEE	7-1-81	VIDEO PCB	A
APPROVED Y W KWON	7-1-81	POWER PCB	A
		1/2 PCB	A
REF		REV	SIZE
DWG NO	MB-086-XXXXXC		SHEET 1 OF 1





REV	DATE	DESCRIPTION	DESIGNED	APPROVED
A		INITIAL RELEASE		

VOLTAGE & WAVEFORM	
1 350V P-P	2 5V P-P
3 5V P-P	4 40V P-P
5 5.5V	6 52V P-P
7 22V P-P	8 45V
9 1V	10 970V P-P
11 12V P-P	12 0V

NOTE

1. RESISTOR VALUES ARE IN OHM.
K=1,000 M=1,000,000 OHM
2. ALL RESISTORS ARE 1/8W EXCEPT WHERE OTHERWISE INDICATED.
3. ALL CAPACITORS ARE 50V EXCEPT WHERE OTHERWISE INDICATED.
4. CAPACITOR VALUES ARE μ F UNLESS OTHERWISE INDICATED. P=pF
5. 0 DENOTES HOUSING CONNECTORS.
6. 0 DIRECT.

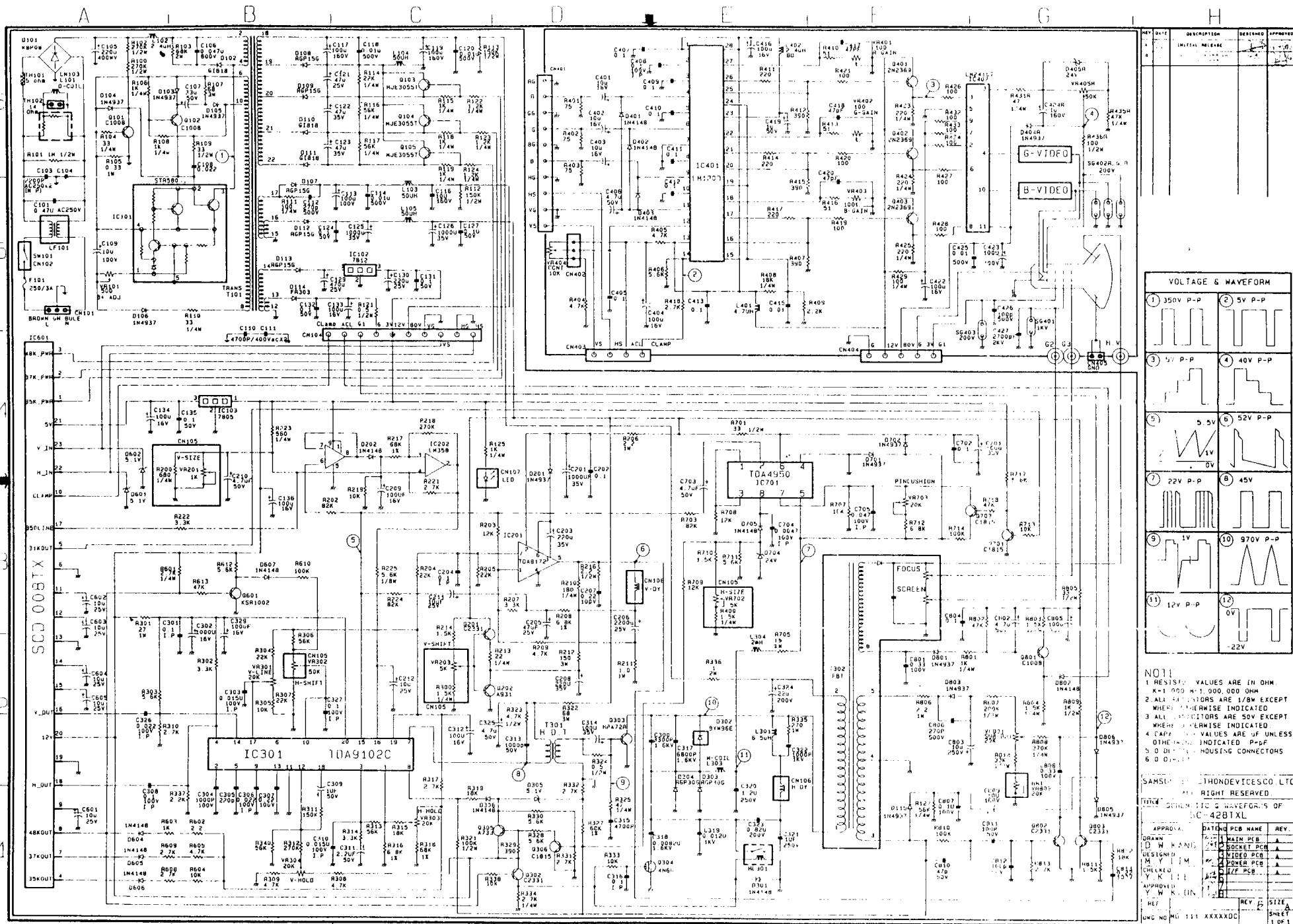
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ALL RIGHT RESERVED.

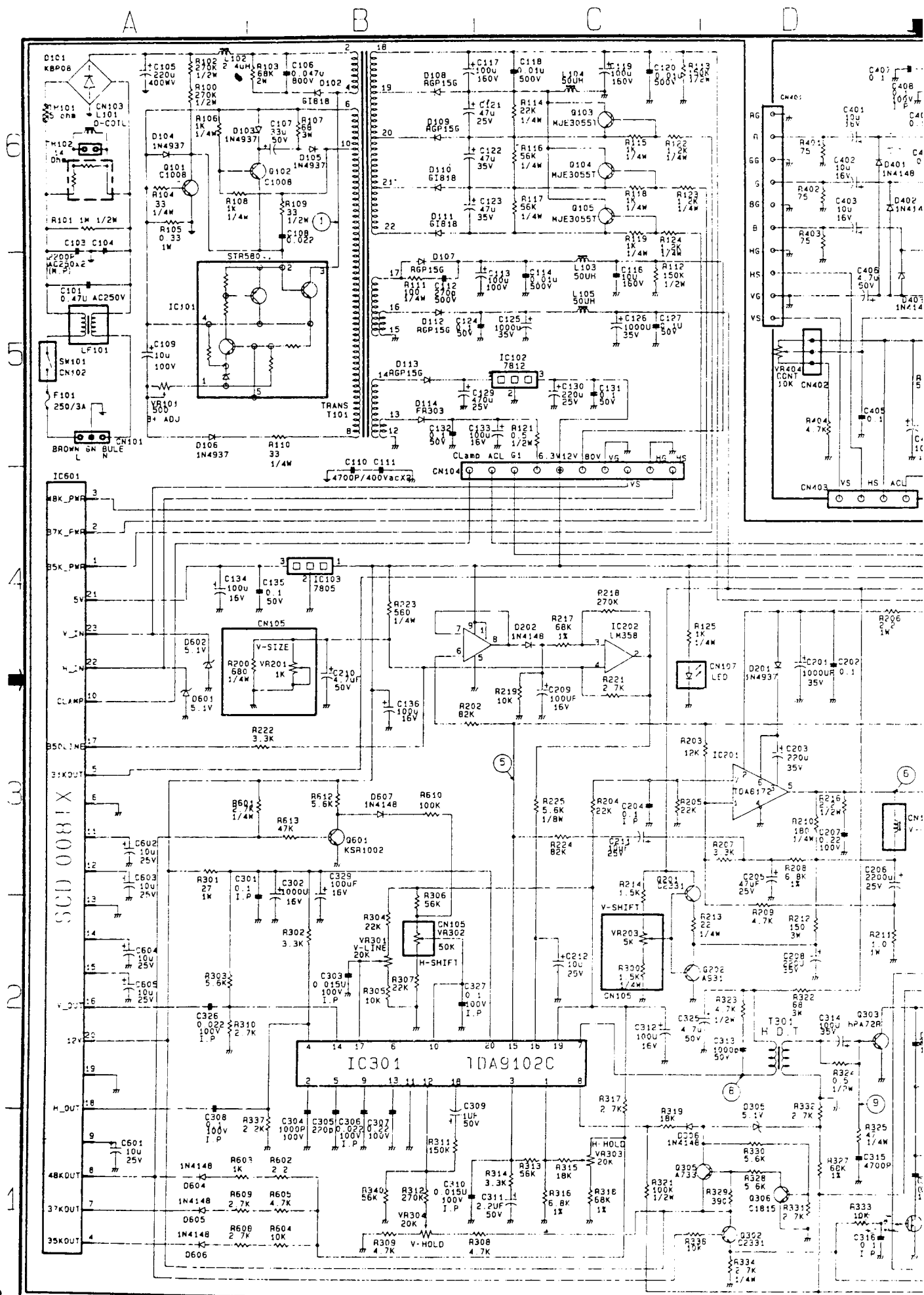
SCHEMATIC & WAVEFORMS OF
SC-428TX

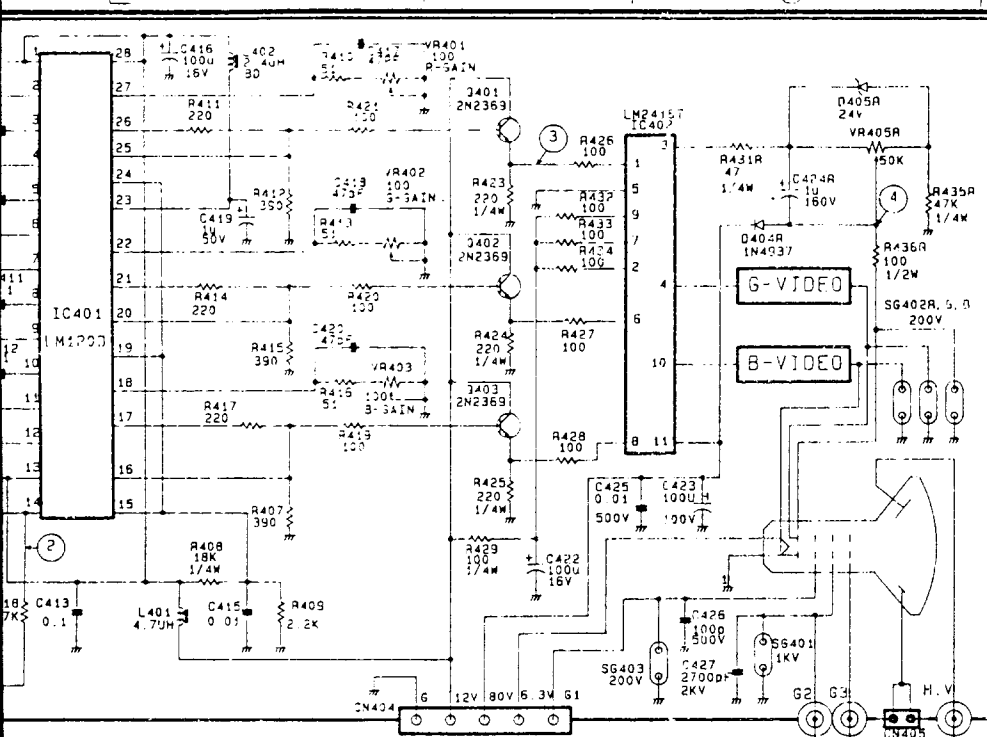
APPROVAL	DRAWN	DATE	PCB NAME	REV.
DESIGNED	Y. W. KANG	7/11	MAIN PCB	A
CHECKED	Y. K. LEE	7/11	SOCKET PCB	A
APPROVED	Y. W. KWON	7/11	VIDEO PCB	A
			POWER PCB	A
			I/F PCB	A

REF.	REV.	SIZE
DMG NO	M5-086-XXXXXDC	1 OF 1

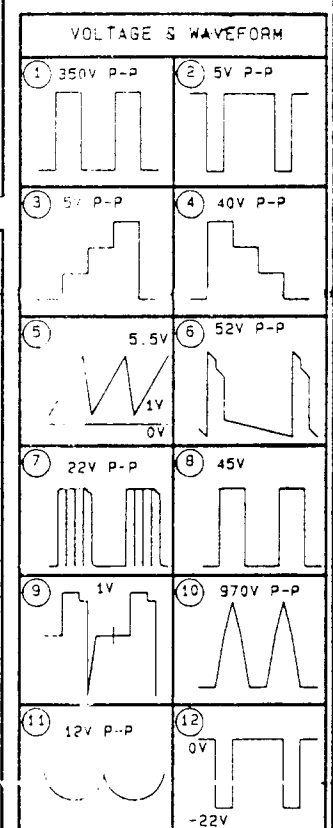
[2] Circuit diagram







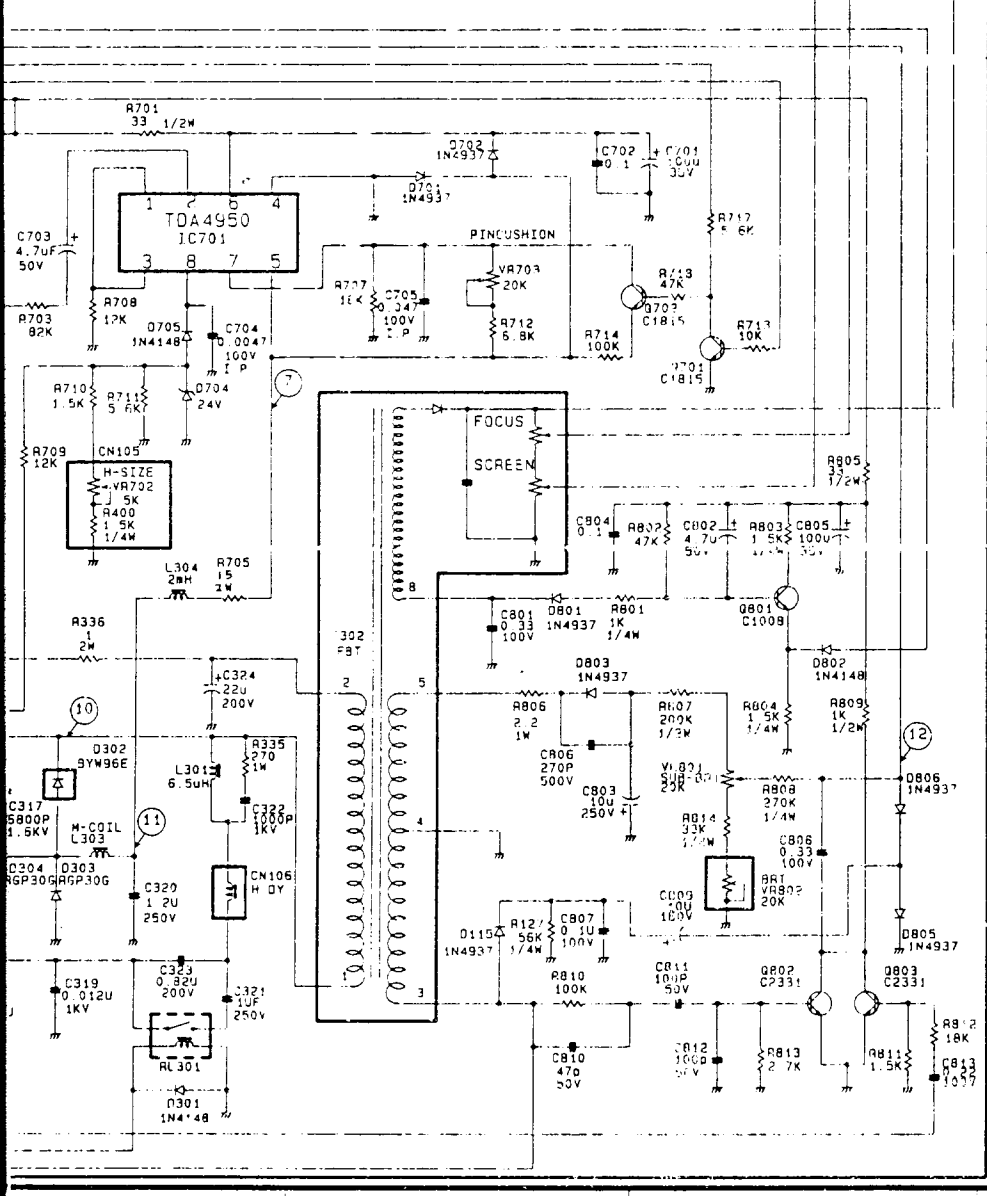
REV	DATE	DESCRIPTION	DESIGNED	APPROVED
1		INITIAL RELEASE		
2				
3				
4				



NOTE

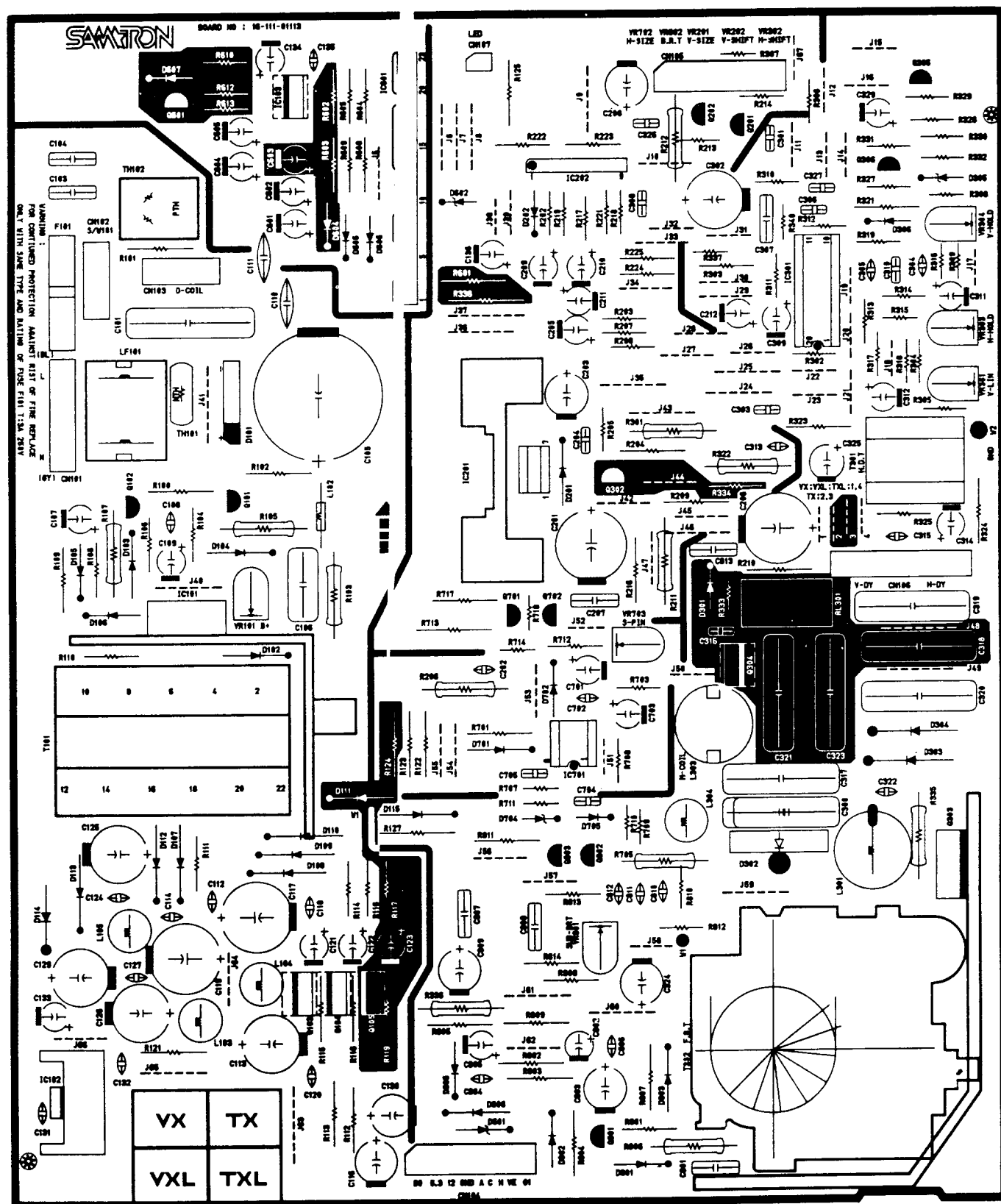
1. RESISTOR VALUES ARE IN OHM.
K=1,000 M=1,000,000 OHM
2. ALL RESISTORS ARE 1/8W EXCEPT WHERE OTHERWISE INDICATED.
3. ALL CAPACITORS ARE 50V EXCEPT WHERE OTHERWISE INDICATED.
4. CAPACITOR VALUES ARE UF UNLESS OTHERWISE INDICATED. P=PF
5. 0.0 DENOTES HOUSING CONNECTORS.
6. 0.01=20P.

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TITLE SCHEMATIC & WAVEFORMS OF SC-428TXL			
APPROVAL	DATE	PCB NAME	REV.
DRAWN	2-11	MAIN PCB	1
DESIGNED	2-11	SOCKET PCB	1
CHECKED	2-11	VIDEO PCB	1
APPROVED	2-11	POWER PCB	1
REF.		I/F PCB	1
UNG NO	MG 111-XXXXXDC	REV	2
		SIZE	A
		SHEET	1 OF 1

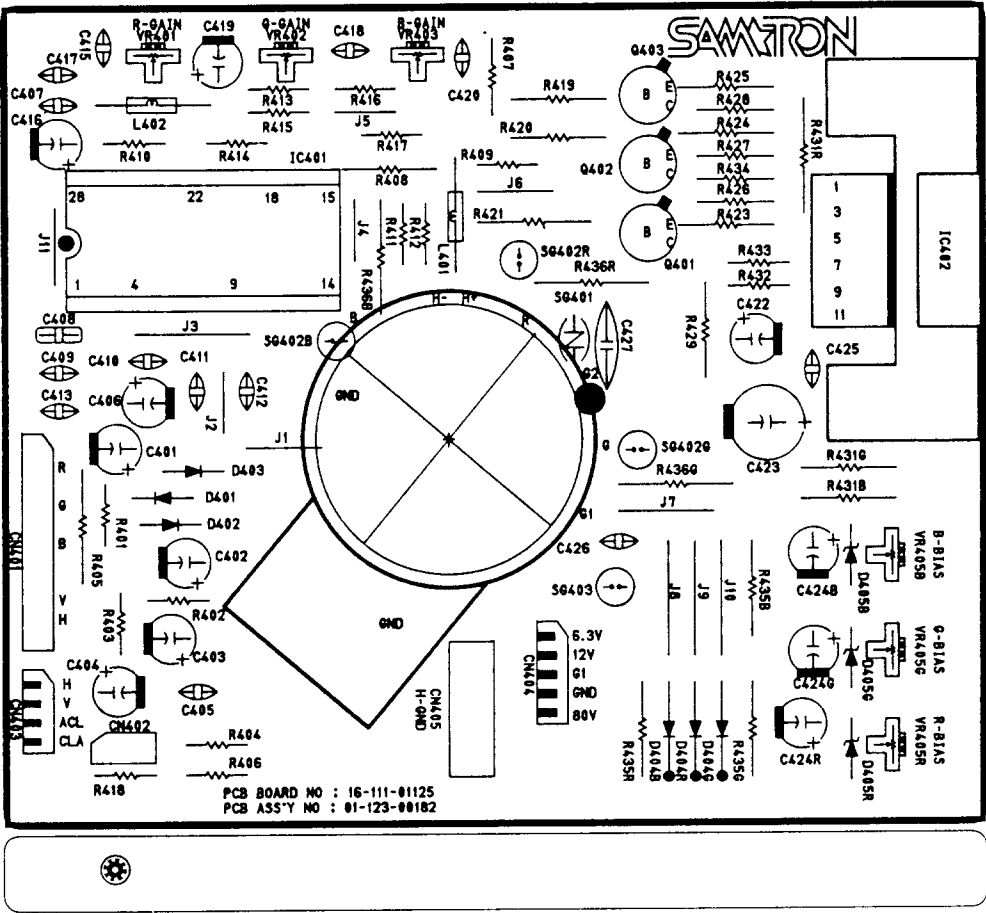


(3) PCB artwork drawings

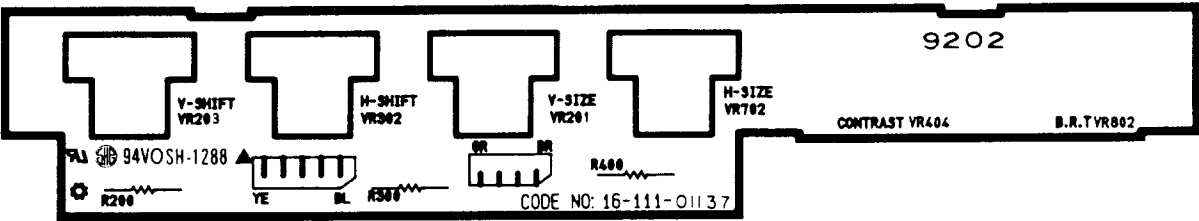
3-1. Main PCB front marking 3-2. Main PCB Pattern



3-3. Socket PCB front marking



3-4. Control Pannel PCB



SC-428TX 115V
 SC-428TX 230V
 SC-428TXL 115V
 SC-428TXL 230V

TABLE OF CONTENTS

NO	B.O.M STRUCTURE	ORIGINAL	REMARK
1-1	M6-086-02372	20EA	SC-428TX, 115V
1-2	M6-086-02369	20EA	SC-428TX, 230V
1-3	M6-111-02384	20EA	SC-428TXL, 115V
1-4	M6-111-02396	20EA	SC-428TXL, 230V
2-1	MJ-086-01719	51EA	SC-428TX 115V, 230V
2-2	MJ-111-01996	52EA	SC-428TXL 115V, 230V
3	01-141-00286	5EA	SUB ASS'Y, PUSH S/W
4	01-151-00461	19EA	SUB ASS'Y, VOLUME
5	01-183-00194	3EA	SUB ASS'Y, BACK PLATE W/CABLE
6	01-173-01018	9EA	SUB ASS'Y, LED
7-1	MG-086-00805	88EA	SC-428TX 115, 230V
7-2	MG-111-00805	89EA	SC-428TXL 115, 230V
8	01-161-00684	5EA	SUB-ASS'Y, HEAT SINK
9	01-161-00788	3EA	SUB-ASS'Y, HEAT SINK
10	01-161-01084	2EA	SUB-ASS'Y, HEAT SINK
11	01-161-01149	3EA	SUB-ASS'Y, HEAT SINK
12	01-161-01152	4EA	SUB-ASS'Y, HEAT SINK
13	MA-086-00713	243EA	A/S ASS'Y
14	01-123-00182	22EA	SUB ASS'Y, SOCKET
15	01-161-01137	4EA	SUB ASS'Y, HEAT SINK
16	01-162-00036	2EA	SUB ASS'Y, SHIELD COVER
17	MA-086-00696	80EA	A/S ASS'Y
		EA	
		EA	

8. APPENDIX

(1) Part List

ASS'Y NO		M6-086-02372		MODEL NO.		SC-428TX
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
1	MJ-086-01719	COLOR SET CHASSIS ASS'Y	FREE,ANALG,0.28	PCS	1.000	
2	02-121-00497	ASS'Y,STAND	SC-441V,AF303-11084	PCS	1.000	
3	02-141-01125	ASS'Y,MANUAL, USER'S,SC-428TX/TXL	115V,SHIP TO US	PCS	1.000	
4	19-172-00012	FERRITE SHEET	PST 10*90(FS200)3M	PCS	1.500	
5	32-111-01761	PLA,EXT-H,REAR,SC-428ES/EX/EXL	310*354*313.8,ABS,OEM-3357	PCS	1.000	
6	33-191-00051	MS,SPL,PCN,W/P.W,ZPW	M4*12,SWRCH1018AK	PCS	4.000	
7	33-485-00012	TS+,OVAL,2,ZPW	M3*12,SWRCH1018AK	PCS	3.000	
8	33-612-00051	PS+PAN,ZPW	M3.5*10,SWRCH1018AK	PCS	1.000	
9	34-111-02517	BOX,SC-428TX	457*440*440,240ST*2*(A200*K200)*KA2	PCS	1.000	
10	34-211-00407	S/FOAM,SC-4**VII/VS/VX/TX/EX/ES,L	437*410*115,EPS	PCS	1.000	
11	34-311-00473	VINYL BAG,SET	800*880,HDPE 0.02T	PCS	1.000	
12	34-311-00497	VINYL BAG,S/CABLE	110*200,HDPE 0.05T	PCS	1.000	
13	35-111-05571	LABEL,BOX	PRODUCT 1D SHEET,115V	PCS	1.000	
14	35-111-07348	LABEL,PRODUCT,SC-428TX	99.8*49.8,UL/CSA/TUV/GS,OEM-3357	PCS	1.000	
15	35-211-00274	LOGO,SAMTRON	46.6*13.5*0.25T,PC,OEM-3357	PCS	1.000	
16	36-521-00179	CORD,POWER,NONMAL,DETACH	SVT,125V/7A,BE,6FT	PCS	1.000	

ASS'Y NO		M6-086-02369		MODEL NO.		SC-428TX
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
1	MJ-086-01719	COLOR SET CHASSIS ASS'Y	FREE,ANALG,0.28	PCS	1.000	
2	02-121-00497	ASS'Y,STAND	SC-441V,AF303-11084	PCS	1.000	
3	19-172-00012	FERRITE SHEET	PST 10*90(FS 200) 3M	PCS	1.500	
4	32-111-01761	PLA,EXT-H,REAR,SC-428ES/EX/EXL	310*354*313.8,ABS,OEM-3357	PCS	1.000	
5	33-191-00051	MS,SPL,PCN,W/P.W,ZPW	M4*12,SWRCH1018AK	PCS	4.000	
6	33-485-00012	TS+,OVAL,2,ZPW	M3*12,SWRCH1018AK	PCS	3.000	
7	33-612-00051	PS+,PAN,ZPW	M3.5*10,SWRCH1018AK	PCS	1.000	
8	34-111-02517	BOX,SC-428TX	457*440*440,240ST*2*(A200*K200)*KA2	PCS	1.000	
9	34-211-00407	S/FOAM,SC-4**VII/VS/VX/TX/EX/ES,L	437*410*115,EPS	PCS	1.000	
10	34-311-00473	VINYL BAG,SET	800*880,HDPE 0.02T	PCS	1.000	
11	34-311-00497	VINYL BAG,S/CABLE	110*200,HDPE 0,05T	PCS	1.000	
12	35-111-05568	LABEL,BOX	PRODUCT 1D SHEET,230V	PCS	1.000	
13	35-111-07348	LABEL,PRODUCT,SC-428TX	99.8*49.8,UL/CSA/TUV/GS,OEM-3357	PCS	1.000	
14	35-211-00274	LOGO,SAMTRON	46.6*13.5*0.25T,PC,OEM-3357	PCS	1.000	
15	35-311-02699	MANUAL,USER'S,SC-428TX/TXL	SED	PCS	1.000	
16	36-521-90048	CORD,POWER,NORMAL,EDTACH	H05VV-F,250V,BK,6FT	PCS	1.000	

ASS'Y NO		M6-111-02384		MODEL NO.		SC-428TXL
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	MJ-111-01996	COLOR SET CHASSIS ASS'Y	FREE,ANALG,0.28V	PCS	1.000	
2	02-121-00497	ASS'Y,STAND	SC-441V,AF303-11084	PCS	1.000	
3	02-141-01125	ASS'Y,NANUAL,USER'S,SC-428TX,TXL	115V,SHIP TO US	PCS	1.000	
4	19-172-00012	FERRITE SHEET	PST 10*90(FS 200) 3M	PCS	1.500	
5	32-111-01761	PLA,EXT-H,REAR,SC-428ES/EX/EXL	310*354*313.8,ABS,OEM-3357	PCS	1.000	
6	33-191-00051	MS,SPL,PCN,W/P.W,ZPW	M4*12,SWRCH1018AK	PCS	4.000	
7	33-485-00012	TS+,OVAL,2,ZPW	M3*12,SWRCH1018AK	PCS	3.000	
8	33-612-00051	PS+,PAN,ZPW	M3.5*10,SWRCH1018AK	PCS	1.000	
9	34-111-02529	BOX,SC-428TXL	457*440*440,240ST*2*(A200*K200)*KA2	PCS	1.000	
10	34-211-00407	S/FOAM,SC-4**VII/VS/VX/TX/EX/ES,L	437*410*115,EPS	PCS	1.000	
11	34-311-00473	VINYL BAG,SET	800*880,HDPE 0.02T	PCS	1.000	
12	34-311-00497	VINYL BAG,S/CABLE	110*200,HDPE 0.05T	PCS	1.000	
13	35-111-05571	LABEL,BOX	PRODUCT 1D SHEET,115V	PCS	1.000	
14	35-111-07351	LABEL,PRODUCT,SC-428TXL	99.8*49.8,UL/CSA/TUV/GS,OEM-3357	PCS	1.000	
15	35-211-00274	LOGO,SAMTRON	46.6*13.5*0.25T,PC,OEM-3357	PCS	1.000	
16	36-521-00179	CORD,POWER,NONMAL,DETACH	SVT,125V/7A,BE,6FT	PCS	1.000	

ASS'Y NO		M6-111-02396		MODEL NO.		SC-428TXL
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	MJ-111-01996	COLOR SET CHASSIS ASS'Y	FREE,ANALG,0.28V	PCS	1.000	
2	02-121-00497	ASS'Y,STAND	SC-441V,AF303-11084	PCS	1.000	
3	19-172-00012	FERRITE SHEET	PST 10*90 (FS200) 3M	PCS	1.500	
4	32-111-01761	PLA,EXT-H,REAR,SC-428ES/EX/EXL	310*354*313.8,ABS,OEM-3357	PCS	1.000	
5	33-191-00051	MS,SPL,PCN,W/P.W,ZPW	M4*12,SWRCH1018AK	PCS	4.000	
6	33-485-00012	TS+,OVAL,2,ZPW	M3*12,SWRCH1018AK	PCS	3.000	
7	33-612-00051	PS+,PAN,ZPW	M3.5*10,SWRCH1018AK	PCS	1.000	
8	34-111-02529	BOX,SC-428TXL	457*440*440,240ST*2*(A200*K200)*KA2	PCS	1.000	
9	34-211-00407	S/FOAM,SC-4**VII/VS/VX/TX/EX/ES,L	437*410*115,EPS	PCS	1.000	
10	34-311-00473	VINYL BAG,SET	800*880,HDPE 0.02T	PCS	1.000	
11	34-311-00497	VINYL BAG,S/CABLE	110*200,HDPE 0.05T	PCS	1.000	
12	35-111-05568	LABEL,BOX	PRODUCT 1D SHEET,230V	PCS	1.000	
13	35-111-07351	LABEL,PRODUCT,SC-428TXL	99.8*49.8,UL/CSA/TUV/GS,OEM-3357	PCS	1.000	
14	35-211-00274	LOGO,SAMTRON	46.6*13.5*0.25T,PC,OEM-3357	PCS	1.000	
15	35-311-02699	MANUAL,USER'S,SC-428TX/TXL	SED	PCS	1.000	
16	36-521-90048	CORD,POWER,NORMAL,DETACH	H05VV-F,250V,BK,6FT	PCS	1.000	

ASS'Y NO		MJ-086-01719		MODEL NO.		SC-428TX
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	MG-086-00805	PCB ASS'Y	FREE,ANALG,M.V.S	PCS	1.000	
2	01-141-00286	SUB ASS'Y,PUSH S/W	POWER,2P,VII/VS/TX/VX	PCS	1.000	
3	01-151-00461	SUB ASS'Y,VOLOUME	SC-4 * * TX/VX,1K/5K * 2/50K/10K/20K,OEM	PCS	1.000	
4	01-173-01018	SUB ASS'Y,BACK PLATE W/CABLE	SC-4 * * TX/VX,1720MM,OEM-3357	PCS	1.000	
5	01-183-00194	SUB ASS'Y,LED	VII/VS/VX/TX,GREEN,SLB25MG3	PCS	1.000	
6	01-211-90473	ASS'Y,CDT	M34KQA22 * * 06,0.28P,14",HF W/O VLMF	PCS	1.000	
7	17-224-00128	COIL,DEGAUSSING	120+ - 1T,0.3D,30.5 OHM,995MM	PCS	1.000	
8	31-211-00868	MET-I,PRS,SIG. GND CLIP,STD,FST	ET,0.3T	PCS	1.000	
9	31-211-01324	MET-I,PRS,BOTTOM CHASSIS,SC-431VII	285 * 238 * 0.8,EGI 0.8T	PCS	1.000	
10	31-211-01336	MET-I,PRS,TOP BRKT L/H,SC-431VII/E	54.5 * 12 * 20,EGI	PCS	1.000	
11	31-211-01348	MET-I,PRS,TOP BRKT R/H,SC-431VII/E	54.5 * 12 * 20,EGI	PCS	1.000	
12	31-211-01351	MET-I,PRS,BRACE L/H,SC431VII/EII	52.5 * 149 * 70,EGI 1.2T	PCS	1.000	
13	31-211-01363	MET-I,PRS,BRACE R/H,SC-431VII/EII	52.5 * 149 * 70,EGI 1.2T	PCS	1.000	
14	32-311-00012	CABLE TIE	L101.6 * W25 * T1	PCS	5.000	
15	33-168-00024	MS+,BND,W/T.L.W,ZPW	M4 * 8,SWRCH1018AK	PCS	1.000	
16	33-172-00012	MS+,C/S,ZPW	M3 * 8,SWRCH1018AK	PCS	2.000	
17	33-425-00012	TS+,BND,W/P.W,ZPW	M3 * 8SWRCH1018AK	PCS	8.000	
18	33-612-00051	PS+,PAN,ZPW	M3.5 * 10,SWRCH1018AK	PCS	1.000	
19	33-612-00259	PS+,PAN,ZPW	M4.5 * 14,SWRCH1018AK	PCS	10.000	
20	33-642-00036	PS+,HEX,W/S.W,ZPW	M4.5 * 24,WD19,SWRCH1018AK	PCS	4.000	
21	35-111-02782	LABEL,WARNING,DHHS	24KV	PCS	1.000	
22	36-437-00247	BRAID WIRE,RING TER	D5,190MM,D5	PCS	3.000	
23	39-119-00116	RUBBER,WASHER,SC-431VII	D21 * 6.3,BK	PCS	4.000	
24	02-121-01045	ASS'Y FRONT	SC-428TX, OEM-3357	PCS	1.000	
25	36-437-00104	BRAID WIRE,TER/CONN	SHIELD,540MM,BK	PCS	1.000	

ASS'Y NO		MJ-111-01996		MODEL NO.		SC-428TXL
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	MG-111-00805	PCB ASS'Y	FREE,ANALG,M.V.S	PCS	1.000	
2	01-141-00286	SUB ASS'Y,PUSH S/W	POWER,2P,VII/VS/TX/VX	PCS	1.000	
3	01-151-00461	SUB ASS'Y,VOLUME	SC-4 * * TX/VX,1K/5K * 2/50K/10K/20K,OEM	PCS	1.000	
4	01-173-01018	SUB ASS'Y,BACK PLATE W/CABLE	SC-4 * * TX/VX,1720MM,OEM33-57	PCS	1.000	
5	01-183-00194	SUB ASS'Y,LED	VII/VS/VX/TX,GREEN,SLB25MG3	PCS	1.000	
6	01-211-90393	ASS'Y,CDT	M34KSP23XX02(G3),14",0.28P,VLMF, +38	PCS	1.000	
7	17-224-00128	COIL,DEGAUSSING	120+ - 1T,0.3D,30.5 OHM,995MM	PCS	1.000	
8	31-211-00868	MET-I,PRS,SIG. GND CLIP,STD,FST	ET,0.3T	PCS	1.000	
9	31-211-01324	MET-I,PRS,BOTTOM,CHASSIS,SC-431VII	285 * 238 * 0.8,EGI 0.8T	PCS	1.000	
10	31-211-01336	MET-I,PRS,TOP BRKT L/H,SC-431VII/E	54.5 * 12 * 20,EGI	PCS	1.000	
11	31-211-01348	MET-I,PRS,TOP BRKT R/H,SC-431VII/E	54.5 * 12 * 20,EGI	PCS	1.000	
12	31-211-01351	MET-I,PRS,BRACE L/H,SC-431VII/EII	52.5 * 149 * 70,EGI 1.2T	PCS	1.000	
13	02-121-01101	ASS'Y,FRONT	SC-4 * * TX,OEM-3357	PCS	1.000	

ASS'Y NO		MJ-111-01996			MODEL NO.	SC-428TXL	
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
14	31-211-01363	MET-I,PRS,BRACE R/H,SC-431VII/EII	52.5*149*70,EGI 1.2T	PCS	1.000		
15	32-311-00012	CABLE TIE	L101.6*W25*T1	PCS	5.000		
16	33-168-00024	MS+,BND,W/T.L.W,ZPW	M4*8,SWRCH1018AK	PCS	1.000		
17	33-172-00012	MS+,C/S,ZPW	M3*8,SWRCH1018AK	PCS	2.000		
18	33-425-00012	TS+,BND,W/P.W,B,ZPW	M3*8,SWRCH1018AK	PCS	8.000		
19	33-612-00051	PS+,PAN,ZPW	M3.5*10,SWRCH1018AK	PCS	1.000		
20	33-612-00259	PS+,PAN,ZPW	M4.5*14,SWRCH1018AK	PCS	10.000		
21	33-642-00036	PS+,HEX,W/S.W,ZPW	M4.5*24,WD19,SWRCH1018AK	PCS	4.000		
22	35-111-02782	LABEL,WARNING,DHHS	24KV	PCS	1.000		
23	36-437-00247	BRAID WIRE,RING TER	D5,190MM,D5	PCS	3.000		
24	36-437-00104	BRAID WIRE,TER/CONN	SHIELD,540MM,BK,245MM	PCS	1.000		
25	39-119-00116	RUBBER,WASHER,SC-431VII	D21*6.3,BK	PCS	4.000		
26	39-411-00143	FOIL SHEET,ZIRCON-II	85*100,PEST 0.3T	PCS	1.000		

ASS'Y NO		01-141-00286			MODEL NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	19-131-90048	PUSH SWITCH	SPST,4A/32A,250V,2P,J-U3065#01	PCS	1.000		
2	31-211-01707	PRS,S/W BRACKET,SC-4**VS	83*18.5*1.2T,EGI	PCS	1.000		
3	33-162-00012	MS+,BND,ZPW	M3*6,SWRCH1018AK	PCS	2.000		
4	36-412-00407	WIRE,CONN/HOUSING	190MM,2P,GY,10,R,R,1672	PCS	1.000		
5	39-422-00024	TUBE-SHRINK,WHT	D4,POLY-OLEFIN	M	.030		

ASS'Y NO		01-151-00461			MODEL NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	14-134-01523	RES,CARBON,AT	1.5K OHM,1/4W,5%	PCS	2.000	R300 R400	
2	14-134-06817	RES,CARBON,AT	680 OHM,1/4W,5%	PCS	1.000	R200	
3	15-351-00036	VAR,HANDLE,PCB-MOUNT,V-TYPE	1K OHM,B,0.1W,25F	PCS	1.000	VR201	
4	15-351-00048	VAR,HANDLE,PCB-MOUNT,V-TYPE	5K OHM,B,0.1W,25F	PCS	2.000	VR203 VR702	
5	15-351-00051	VAR,HANDLE,PCB-MOUNT,V-TYPE	50K OHM,B,0.1W,25F	PCS	1.000	VR302	
6	15-441-00075	VAR,HANDLE,WIRE-SOLDER,H-TYPE	10K OHM,B,0.2W,V16L(8X5)N25F-B10K	PCS	1.000	VR404	
7	15-441-00087	VAR,HANDLE,WIRE-SOLDER,H-TYPE	20K OHM,B,0.2W,V16L4(8X5)N25F-B20K	PCS	1.000	VR802	
8	16-111-01137	PCB,VOLUME,VX/L,TX/L	108*16,FR-1,1.6T	PCS	1.000		
9	32-611-02571	PLA,V/R KNOB,SC-4**VX/TX	D20*15,ABS,OEM-3357	PCS	2.000	VR404 VR802	
10	32-611-02675	PLA,V/R BRKT,SC-4**VX/TX	185.5*18.6*19.5,ABS,OEM-3357	PCS	1.000		
11	32-611-02687	PLA,V/R KNOB,SC-4**TX/VX	D18*18,ABS,OEM-3357	PCS	4.000	VR201 VR702 VR203 VR302	
12	36-412-00669	WIRE,CONN/HOUSING	155MM,11P,W,2.5,UL1007#22.5P,4P	PCS	1.000		
13	36-414-00182	WIRE,CONN/HOUSING	350MM,3P,W,2.5,W,O,Y	PCS	1.000		

ASS'Y NO		01-183-00194			MODEL NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	16-111-01084	PCB,LED,SC-428VR	FR-1,1.6T,25.10	PCS	1.000		
2	22-152-00048	LED GREEN	25MA,75MW,SLB-25MG3,RECT	PCS	1.000		
3	36-413-00657	WIRE,CONN/HOUSING	220MM,2P,W,2.5,R,BK,1007	PCS	1.000		

ASS'Y NO		01-173-01018			MODEL NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	17-314-00099	FILTER,EMI SOCKET	250V/2A,0.033UF(X),2200PF(Y),2.4MH	PCS	1.000		
2	32-211-01841	PLA,EXT-P,BACK PLATE,SC-4 * TX/VX	210 * 50 * 12.2,ABS,OEM-3357	PCS	1.000		
3	32-315-90024	CABLE BUSH	D15.9 * 14.6,1210(SR-6P-4)	PCS	1.000		
4	33-172-00024	MS+,C/S,ZPW	M3 * 10,SWRCH1018AK	PCB	2.000		
5	33-852-00012	NUT,HEX,2,ZPW	M3 * 0.5P,S10C	PCS	2.000		
6	36-437-00143	BRAID WIRE,RING TER	D4,70MM	PCS	1.000		
7	36-541-00446	CABLE,SIGNAL,NON-DET	15P,1720MM,SC-4 * TX/VX	PCS	1.000		

ASS'Y NO		MG-086-00805			MODEL NO.		SC-4 * TX
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	MA-086-00713	A/S ASS'Y	FREE,ANALG,M.V.S	PCS	1.000		
2	01-123-00182	SUB ASS'Y,CPT SOCKET	SC-4 * TX/VX	PCS	1.000		
3	01-161-00684	SUB ASS'Y,HEAT SINK	SC-431VII/EII/VS,STR58041,90 * 57 * 60	PCS	1.000	IC101	
4	01-161-00788	SUB ASS'Y,HEAT SINK	MC7812CT,23.5 * 15 * 30,SC-431EII/VII	PCS	1.000	IC102	
5	01-161-01084	SUB ASS'Y,HEAT SINK	ZIRCON I/II,BYW96E,54.8 * 25 * 5.3	PCS	1.000	D302	
6	01-161-01149	SUB ASS'Y,HEAT SINK	TDA8172,SC-4 * TX/VX	PCS	1.000	IC201	
7	01-161-01152	SUB ASS'Y,HEAT SINK	HPA72R,SC-4 * TX/VX	PCS	1.000	Q303	
8	11-193-02289	CAP,AL-ELECT,GP	2200UF,20%,25V,-40/85'C,RT	PCS	1.000	C206	
9	11-233-02277	CAP,AL-ELECT	220UF,20%,400V,-40/85'C,PT	PCS	1.000	C105	
10	12-243-01021	CAP,DISC CERAMIC,CK	1000PF,10%,1KV,-25/85'C,EPOXY,RB	PCS	1.000	C322	
11	12-287-04722	CAP,DISC CERAMIC,CK	4700 PF,20%,400VAC,EPOXY,RB	PCS	2.000	C110,C111	
12	13-152-01045	CAP,METALZ-POLYESTER	0.1UF,10%,100V,RB,CF93MM,OEM	PCS	1.000	C807	
13	13-152-02241	CAP,METALZ-POLYESTER	0.22UF,10%,100V,RB,CF93MM,OEM	PCS	3.000	C207 C307 C813	
14	13-152-03342	CAP,METALZ-POLYESTER	0.033UF,10%,100V,RB	PCS	2.000	C801 C808	
15	13-154-92226	CAP,METALZ-PLOYESTER	2200PF,10%,250VAC,RB	PCS	2.000	C103 C104	
16	13-154-94746	CAP,METALZ-POLYESTER	0.47UF,10%,250VAC,RB	PCS	1.000	C101	
17	13-311-01021	CAP,PP	1000PF,5%,100V,RB	PCS	1.000	C304	
18	13-315-01232	CAP,PP	0.012UF,5%,1KV,-25/85'C,RB	PCS	1.000	C319	
19	13-317-03327	CAP,PP,HIGH-VOL	3300PF,5%,1.6KV,RB	PCS	1.000	C300	
20	13-317-05624	CAP,PP,HIGH-VOL	5600 PF,5%,1.6KV,RB	PCS	1.000	C317	
21	13-317-08226	CAP,PP,HIGH-VOL	8200 PF,5%,1.6KV,RB	PCS	1.000	C318	
22	13-352-08241	CAP,METALS-PP,GP	0.82UF,5%,200V,RB	PCS	1.000	C323	
23	13-354-01057	CAP,METALZ-PP	1 UF,5%,250V,RB	PCS	1.000	C321	
24	13-354-01256	CAP,METALZ-PP,GP	1.2UF,5%,250V,RB	PCS	1.000	C320	
25	13-355-04734	CAP,METALZ-PP,GP	0.047UF,5%,800V,RB,CF93MP,OEM	PCS	1.000	C106	
26	14-332-01R01	RES,METAL OXIDE,AB	1.0 OHM,1W,5%,FORMING	PCS	1.000	R211	
27	14-332-02R22	RES,METAL OXIDE,AB	2.2 OHM,1W,5%,FORMING	PCS	2.000	R206 R806	

ASS'Y NO		MG-086-00805		MODEL NO.		SC-4 * * TX
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
28	14-332-02202	RES,METAL OXIDE,AB	22 OHM,1W,5%,FORMING	PCS	2.000	R301 R705
29	14-332-02716	RES,METAL OXIDE,AB	270 OHM,1W,5%,FORMING	PCS	1.000	R335
30	14-342-01R01	RES,METAL OXIDE,AB	1 OHM,2W,5%,FORMING	PCS	1.000	R336
31	14-342-06832	RES,METAL OXIDE,AB	68K OHM,2W,5%,FORMING	PCS	1.000	R103
32	14-352-01511	RES,METAL OXIDE,AB	150 OHM,3W,5%,FORMING	PCS	1.000	R212
33	14-352-06805	RES,METAL OXIDE,AB	68 OHM,3W,5%,FORMING	PCS	2.000	R107 R322
34	14-641-0R336	RES,WIRE WOUND,AB	0.33 OHM,1W,5%	PCS	1.000	R105
35	15-222-00087	VAR,NO-HANDLE,CAP,V-TYPE	20K OHM,B,0.2W,CET92A-B20K	PCS	5.000	VR301 VR303 VR304 VR703 VR801
36	15-222-00099	VAR,NO-HANDLE,CAP,V-TYPE	500 OHM,B,0.2W,CET92A-B500	PCS	1.000	VR101
37	15-621-90063	THERMISTOR,PTC	14 OHM,20%,220V	PCS	1.000	TH102
38	15-622-90024	THERMISTOR,NTC	5 OHM,3.4A,2.4W	PCS	1.000	TH101
39	17-116-00274	TRANS,POWER,SWITCHING	SC-428TX,115/230V	PCS	1.000	T101
40	17-122-90179	FBT,COLOR	Y262391,48KHZ,VLF	PCS	1.000	T302
41	17-132-00155	COIL,TRANS,H-DRIVE	10MH,70UH,15%,SC-431VII	PCS	1.000	T301
42	17-211-00208	COIL,MODULATION	LITZ,USTC,93UH-107UH,SC-428VSL	PCS	1.000	L303
43	17-222-00087	COIL,CHOKE	50UH+ - 15%,SC-431EII/VII	PCS	3.000	L103 L104 L105
44	17-222-00211	COIL,CHOKE	2MH,15%,SC-431VS	PCS	1.000	L304
45	17-226-00182	COIL,H-LIN,FIX	6.5UH, + - 25%,ZIRCON II	PCS	1.000	L301
46	17-311-00274	FILTER,LINE	40MH MIN,ZIRCON I	PCS	1.000	LF101
47	19-103-00063	FUSE TIMELAG WITHOUT LEAD	3A,250V,5.20 * 20,51S	PCS	1.000	F101
48	19-113-00012	FUSE CLIP	5.20 * 2.80MM,30A/300V, FC51A2	PCS	1.000	F101
49	19-121-90024	RELAY	12VDC, -, -, G6B1114P-FD-US	PCS	1.000	RL301
50	21-117-90116	TR NPN TO-220	10A,70V,75W(TC),PW SW,MJE3055T	PCS	3.000	Q103 Q104 Q105
51	21-313-00036	FET N.CHANNEL	4.0A,600V,75W(TC),PW,SSP4N60	PCS	1.000	Q304
52	22-111-90075	RECTIFIER DIODE FR	2.5A,400V,RGP30G	PCS	2.000	D303 D304
53	22-111-90366	RECTIFIER DIODE,FR	3A,200VFR303G(S)	PCS	1.000	D114
54	22-113-90012	RECTIFIER DIODE BRIDGE	1.5A,800V,KBP08	PCS	1.000	D101
55	23-312-00128	IC,REGULATOR,TO-220	7805C,1.5A,5V	PCS	1.000	IC103
56	23-321-90211	IC,LINEAR,DIP	4950,PIN-CUSHION CORRECTION,8	PCS	1.000	IC701
57	23-321-90259	IC,LINEAR,DIP-20	HV PROCESSOR,TDA9102C	PCS	1.000	IC301
58	23-322-00131	IC,LINEAR,SIP	358,OP AMP,9P	PCS	1.000	IC202
59	23-511-00036	IC,HYBRID	HV SYNC IETERFACE,SCD008TX	PCS	1.000	IC601
60	31-211-01639	EMT-I,PRS,PCB BRKT,SC-431VII/EII	13 * 13 * 20,SBHGI	PCS	1.000	
61	31-211-01853	MET-I,PRS,MAIN CHASSIS,SC-431VS/42	310 * 240 * 17,EGI, 1T	PCS	1.000	
62	33-425-00012	TS+,BND,W/P.W,B,ZPW	M3 * 8,SWRCH1018AK	PCS	9.000	
63	33-612-00247	PS+,PAN,ZPW	M4 * 12,SWRCH1018AK	PCS	1.000	
64	35-111-06378	LABEL,BAR CODE	65 * 20	PCS	1.000	
65	36-211-00012	WIREFORM,UL1007-AWG22	TCST,1ST,17X0.16,PVC,0,90MM	PCS	1.000	W-1
66	36-431-00104	WIRE,RING TER,SINGLE	BK,D5,53MM	PCS	1.000	W-2
67	36-437-00286	BRAID WIRE,RING TER	D4,73MM	PCS	1.000	
68	36-615-00012	CONNECTOR SHROUDED HEADER	2.5,ST,2P,5267-02A	PCS	1.000	CN107
69	36-615-00075	CONNECTOR SHROUDED HEADER	2.5,ST,11P,5267-11A	PCS	2.000	CN104 CN105
70	36-181-00012	WIRE,BARE	CU+SN+PB,1ST,1 * 0.6,S	KG	1.000	

ASS'Y NO		MG-111-00805		MODEL NO.		SC-4 * * TXL
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	MA-086-00713	A/S ASS'Y	FREE, ANALG,M.V.S	PCS	1.000	
2	01-123-00182	SUB ASS'Y,CPT SOCKET	SC-4 * * TX/VX	PCS	1.000	
3	01-161-00684	SUB ASS'Y,HEAT SINK	SC-431VII/EII/VS,STR58041,90 * 57 * 60	PCS	1.000	IC101
4	01-161-00788	SUB ASS'Y,HEAT SINK	MC7812CT,23.5 * 15 * 30,SC-431EII/VII	PCS	1.000	IC102
5	01-161-01084	SUB ASS'Y,HEAT SINK	ZIRCON, I/II,BYW96E,54.8 * 25 * 5.3	PCS	1.000	D302
6	01-161-01149	SUB ASS'Y,HEAT SINK	TDA8172,SC-4 * * TX/VX	PCS	1.000	IC201
7	01-161-01152	SUB ASS'Y,HEAT SINK	HPA72R,SC-4 * * TX/VX	PCS	1.000	Q303
8	11-193-02289	CAP,AL-ELECT,GP	2200UF,20%,25V,-40/85'C,RT	PCS	1.000	C206
9	11-233-02277	CAP,AL-ELECT	220UF,20%,400V,-40/85'C,RT	PCS	1.000	C105
10	12-243-01021	CAP,DISC CERAMIC,CK	1000PF,10%,1KV,-25/85'C,EPOXY,RB	PCS	1.000	C332
11	12-287-04722	CAP,DISC CERAMIC,CK	4700 PF,20%,400VAC,EPOXY,RB	PCS	2.000	C110 C111
12	13-152-01045	CAP,METALZ-POLYESTER	0.1UF,10%,100V,RB,CF93MM,OEM	PCS	1.000	C807
13	13-152-02241	CAP,METALZ-POLYESTER	0.22UF,10%,100V,RB,CF93MM,OEM	PCS	3.000	C207 C307 C813
14	13-152-03342	CAP,METALZ-POLYESTER	0.33UF,10%,100V,RB	PCS	2.000	C801 C808
15	13-154-92226	CAP,METALZ-POLYESTER	2200PF,10%,250VAC,RB	PCS	2.000	C103 C104
16	13-154-94746	CAP,METALZ-POLYESTER	0.47UF,10%,250VAC,RB	PCS	1.000	C101
17	13-311-01021	CAP,PP	1000PF,5%,100V,RB	PCS	1.000	C304
18	13-315-01232	CAP,PP	0.012UF,5%,1KV,-25/85'C,RB	PCS	1.000	C319
19	13-317-03327	CAP,PP,HIGH-VOL	3300PF,5%,1.6KV,RB	PCS	1.000	C300
20	13-317-06829	CAP,PP,HIGH-VOL	6800 PF,5%,1.6KV,RB	PCS	1.000	C317
21	13-317-08226	CAP,PP,HIGH-VOL	8200 PF,5%,1.6KV,RB	PCS	1.000	C318
22	13-352-08241	CAP,METALZ-PP,GP	0.82UF,5%,200V,RB	PCS	1.000	C323
23	13-354-01057	CAP,METALZ-PP	1 UF,5%,250V, RB	PCS	1.000	C321
24	13-354-01256	CAP,METALZ-PP,GP	1.2UF,5%,250V,RB	PCS	1.000	C320
25	13-355-04734	CAP,METALZ-PP,GP	0.047UF,5%,800V,RB,CF93MP,OEM	PCS	1.000	C106
26	14-332-01R01	RES,METAL OXIDE,AB	1.0 OHM,1W,5%,FORMING	PCS	1.000	R211
27	14-332-02R22	RES,METAL OXIDE,AB	2.2 OHM,1W,5%,FORMING	PCS	2.000	R206 R806
28	14-332-02202	RES,METAL OXIDE,AB	22 OHM,1W,5%,FORMING	PCS	2.000	R301
29	14-332-02716	RES,METSL OXIDE,AB	270 OHM,1W,5%,FORMING	PCS	1.000	R335
30	14-342-01R01	RES,METAL OXIDE,AB	1 OHM,2W,5%,FORMING	PCS	1.000	R336
31	14-342-06832	RES,METAL OXIDE,AB	68K OHM,2W,5%,FORMING	PCS	1.000	R103
32	14-352-01511	RES,METAL OXIDE,AB	150 OHM,3W,5%,FORMING	PCS	1.000	R212
33	14-352-06805	RES,METAL OXIDE,AB	68 OHM,3W,5%,FORMING	PCS	2.000	R107 R332
34	14-641-0R336	RES,WIRE WOUND,AB	0.33 OHM,1W,5%	PCS	1.000	R105
35	15-222-00087	VAR,NO-HANDLE,CAP,V-TYPE	20K OHM,B,0.2W,CET92A-B20K	PCS	5.000	V301 VR303 V304 VR703 VR801
36	15-222-00099	VAR,NO-HANDLE,CAP,V-TYPE	500 OHM,B,0.2W,CET92A-B500	PCS	1.000	VR101
37	15-621-90063	THERMISTOR,PTC	14 OHM,20%,220V	PCS	1.000	TH102
38	15-622-90024	THERMISTOR,NTC	5 OHM,3.4A,2.4W	PCS	1.000	TH101
39	17-116-00286	TRANS,POWER,SWITCHING	SC-428TXL,115/230V	PCS	1.000	T101
40	17-122-90179	FBT,COLOR	Y262391,48KHZ,VLF	PCS	1.000	T302
41	17-132-00155	COIL,TRANS,H-DRIVE	10MH,70uH,15%,SC-431VII	PCS	1.000	T301
42	17-211-00211	COIL,MODULATION	LITZ,USTC,93UH-107UH,SC-428VSL	PCS	1.000	L303
43	17-222-00087	COIL,CHOKE	50UH + - 15%,SC-431EII/VII	PCS	3.000	L103 L104 L105
44	17-222-00211	COIL,CHOKE	2MH,15%,SC-431VS	PCS	1.000	L304

ASS'Y NO		MG-111-00805		MODEL NO.		SC-4 * * TXL
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
45	17-226-00182	COIL,H-LIN, FIX	6.5UH, + - 25%, ZIRCON II	PCS	1.000	L301
46	17-311-00274	FILTER, LINE	40MH MIN, ZIRCON I	PCS	1.000	LF101
47	19-103-00063	FUSE TIME LAG WITHOUT LEAD	3A, 250V, 5.20 * 20, 51S	PCS	1.000	F101
48	19-113-00012	FUSE CLIP	5.20 * 2.80MM, 30A/300V, FC51A2	PCS	1.000	F101
49	19-121-90024	RELAY	12VDC, -, -, G6B1114P-FD-US	PCS	1.000	RL301
50	21-117-90116	TR NPN TO-220	10A, 70V, 75W(TC), PW SW, MJE3055T	PCS	3.000	Q103 Q104 Q105
51	21-131-00036	FET N.CHANNEL	4.0A, 600V, 75W(TC), PW, SSP4N60	PCS	1.000	Q304
52	22-111-90075	RECTIFIER DIODE FR	2.5A, 400V, RGP30G	PCS	2.000	D303 D304
53	22-111-90366	RECTIFIER DIODE, FR	3A, 200V, FR303G(S)	PCS	1.000	D114
54	22-113-90012	RECTIFIER DIODE BRIDGE	1.5A, 800V, KBP08	PCS	1.000	D101
55	23-312-00128	IC, REGULATOR, TO-220	7805C, 1.5A, 5V	PCS	1.000	IC103
56	23-321-90211	IC, LINEAR, DIP	4950, PIN-CUSHION CORRECTION, 8	PCS	1.000	IC701
57	23-321-90259	IC, LINEAR, DIP-20	HV PROCESSOR, TDA9102C	PCS	1.000	IC301
58	23-322-00131	IC, LINEAR, SIP	358, OP AMP, 9P	PCS	1.000	IC202
59	23-511-00036	IC, HYBRID	HV SYNC IETERFACE, SCD008TX	PCS	1.000	IC601
60	31-211-01639	MET-I, PRS, PCS BRKT, SC-431VII/EII	13 * 13 * 20, SBHGI	PCS	1.000	
61	31-211-01853	MET-I, PRS, MAIN CHASSIS, SC-431VS/42	310 * 240 * 17, EGI 1T	PCS	1.000	
62	33-425-00012	TS +, BND, W/P.W, B, ZPW	M3 * 8, SWRCH1018AK	PCS	9.000	
63	33-612-00247	PS +, PAN, ZPW	M4 * 12, SWRCH1018AK	PCS	1.000	
64	35-111-06378	LABEL, BAR CODE	65 * 20	PCS	1.000	
65	36-211-00012	WIREFORM, UL1007-AWG22	TCST, 1ST, 17X0.16, PVC, 0.90MM	PCS	1.000	W-1
66	36-431-00099	WIRE, RING TER, SINGLE	BK, D5, 133MM	PCS	1.000	W-2
67	36-437-00286	BRAID WIRE, RING TER	D4, 73MM	PCS	1.000	
68	36-615-00012	CONNECTOR SHROUDED HEADER	2.5, ST, 2P, 5267-02A	PCS	1.000	CN107
69	36-615-00075	CONNECTOR SHROUDED HEADER	2.5, ST, 11P, 5267-11A	PCS	2.000	CN104 CN105
70	39-411-00143	FOIL SHEET, ZIRCON-II	85 * 100, PEST 0.3T	PCS	1.000	
71	14-342-01508	RES, METAL OXIDE, AB	15 OHM, 2W, 5%, FORMING	PCS	1.000	
72	36-181-00012	WIRE, BARE	CU + SN + PB, 1ST, 1 * 0.6	PCS	1.000	

ASS'Y NO		01-161-00684		MODEL NO.		
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	23-322-00104	IC, LINEAR, SIP-5	STR58041	PCS	1.000	IC101
2	31-114-00327	HEAT SINK-N, SC-431EII/VII	90 * 60 * 57, AL 2.0T	PCS	1.000	
3	33-142-00036	MS +, PAN, W/P.W, ZPW	M3 * 12, SWRCH1018AK	PCS	1.000	
4	33-852-00012	NUT, HEX, 2, ZPW	M3 * 0.5P, S10C	PCS	1.000	
5	35-111-05081	LABEL, WARNING, SC-431EII/VII	HIGH VOLTAGE	PCS	1.000	

ASS'Y NO		01-161-00788		MODEL NO.		
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	23-312-00048	IC, REGULATOR, TO220	7812C, 1.5A, 12V	PCS	1.000	IC102
2	31-114-00381	HEAT SINK-N, SC-431VII/EII	30 * 15-23.5, AL, W/SOLDER PIN	PCS	1.000	
3	33-142-00012	MS +, PAN, W/P.W, ZPW	M3 * 8, SWRCH1018AK	PCS	1.000	

ASS'Y NO		01-161-01084		MODEL NO.		
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
1	22-111-90048	RECTIFIER DIODE FR	3A, 1000V, BYW96E/BYT78, SC-431VS	PCS	1.000	D302
2	31-114-00526	HEAT SINK-N, ZIRCON	22 * 55.8 * 5.2, TIN PLATE	PCS	1.000	

ASS'Y NO		01-161-01149		MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
1	23-329-90089	IC,LINEAR,SPECIAL	VERTICAL DEFLECTION DRIVER,TDA8172	PCS	1.000	IC201
2	31-114-00577	HEAT SINK-N,SC-4 * * VX/TX,TDA8172	50 * 28 * 40,A6063S	PCS	1.000	
3	33-142-00012	MS+,PAN,W/P.W,ZPW	M3 * 8,SWRCH1018AK	PCS	1.000	
4	33-852-00012	NUT,HEX,2,ZPW	M3 * 0.5P,S10C	PCS	1.000	

ASS'Y NO		01-161-01152		MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
1	21-117-90303	TR NPN TO-3P	7A,1500V,60W(TC),HPA72R,HOR DEF,ML	PCS	1.000	Q303
2	31-114-00565	HEAT SINK-N,FBT,SC-4 * * VX/TX	100.6 * 79.6 * 104,AL 2T	PCS	1.000	
3	33-142-00024	MS+,PAN,W/P.W,ZPW	M3 * 10,SWRCH1018AK	PCS	1.000	
4	33-852-00012	NUT,HEX,2,ZPW	M3 * 0.5P,S10C	PCS	1.000	

ASS'Y NO		MA-086-00713		MODEL. NO.		SC-4 * * TX
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
1	11-192-0107B	CAP,AL-ELECT,GP	100UF,20%,16V-40/85'C,RT,SMALL	PCS	6.000	C133 C134 C136 C209 C312 C329
2	11-192-01084	CAP,AL-ELECT,GP	1000UF,16V,20%,-40/85'C,RT	PCS	1.000	
3	11-193-0106B	CAP,AL-ELECT,GP	10UF,20%,25V,-40/85'C,RT	PCS	7.000	C211 C212 C601 C602 C603 C604 C605
4	11-193-02277	CAP,AL-ELECT,GP	220UF,20%,25V,-40/85'C,RT	PCS	1.000	
5	11-193-0476B	CAP,AL-ELECT,GP	47UF,20%,25V,-40/85'C,RT	PCS	2.000	C121 C205
6	11-193-04773	CAP,AL-ELECT,GP	470UF,20%,25V,-40/85'C,RT	PCS	1.000	C129
7	11-194-01072	CAP,AL-ELECT,GP	100UF,20%,35V,-40/85'C,RT	PCS	3.000	C314 C701 C805
8	11-194-01084	CAP,AL-ELECT,GP	1000UF,20%,35V,-40/85'C,RT	PCS	3.000	
9	11-194-02277	CAP,AL-ELECT,GP	220UF,20%,35V,-40/85'C,RT	PCS	2.000	C203 C208
10	11-194-0476B	CAP,AL-ELECT,GP	47UF,20%,35V,-40/85'C,RT	PCS	2.000	C122 C123
11	11-195-0105B	CAP,AL-ELECT,GP	1UF,20%,50V,-40/85'C,RT	PCS	1.000	C309
12	11-195-02253	CAP,AL-ELECT,GP	2.2UF,20%,50V,-40/85'C,RT	PCS	1.000	C311
13	11-195-0336B	CAP,AL-ELECT,GP	33 UF,20%,50V,-40/85'C,RT,SMALL	PCS	1.000	C107
14	11-195-04758	CAP,AL-ELECT,GP	4.7UF,20%,50V,-40/85'C,RT	PCS	4.000	C210 C325 C703 C802
15	11-195-0106B	CAP,AL-ELECT,GP	10UF,20%,100V,-40/85'C,RT,SMALL	PCS	1.000	
16	11-196-01072	CAP,AL-ELECT,GP	100UF,100V,20%,-40/85'C,RT	PCS	1.000	C113
17	11-197-01069	CAP,AT-ELECT,GP	10UF,20%,160V,-40/85'C,RT	PCS	2.000	C116 C809
18	11-197-01072	CAP,AT-ELECT,GP	100UF,20%,160V,-40/85'C,RT	PCS	2.000	C117 C119
19	11-198-01069	CAP,AL-ELECT,GP	10UF,20%,250V,-40/85'C,RT	PCS	1.000	C803
20	11-199-02265	CAP,AL-ELECT,GP	22UF,20%,200V,-40/85'C,RT	PCS	1.000	C324
21	12-182-02214	CAP,DISC CERAMIC,CC	220PF,5%,50V,-25/85'C,RT	PCS	1.000	C305
22	12-182-04707	CAP,DISC CERAMIC,CC	47PF,5%,50V,-25/85'C,RT	PCS	1.000	C810

ASS'Y NO		MA-086-00713		MODEL. NO.		SC-4 * * TX
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.
23	12-191-01018	CAP,DISC CERAMIC,CC45	100PF,10%,50V,-25/85°C,RT,TC	PCS	2.000	C811 C812
24	12-331-01021	CAP,DISC CERAMIC,CK	1000PF,10%,50V,-25/85°C,RT	PCS	1.000	C313
25	12-331-04722	CAP,DISC CERAMIC,CK	4700PF,10%,50V,-25/85°C,RT	PCS	1.000	C315
26	12-334-02716	CAP,DISC CERAMIC,CK-45	270PF,10%,500V,-25/85°C,RT	PCS	2.000	C112 C806
27	12-335-01033	CAP,DISC CERAMIC,CK	0.01UF,-20/80%,500V,-25/85°C,RT	PCS	3.000	C114 C118 C120
28	12-371-01045	CAP,DISC CERAMIC,CK-45	0.1UF,-20/80%,50V,-25/85°C,RT	PCS	8.000	C124 C127 C131 C132 C135 C202 C702 C804
29	12-371-02238	CAP,DISC CERAMIC,CK45	0.022UF,-20/80%,50V,-25/85°C,RT,HDC	PCS	1.000	C108
30	13-126-01045	CAP,IND-POLYESTER	0.1UF,10%,100V,RT,CQ92MT	PCS	5.000	C204 C301 C308 C316 C327
31	13-126-01535	CAP,IND-POLYESTER	0.015UF,10%,100V,RT	PCS	2.000	C303 C310
32	13-126-02238	CAP,IND-POLYESTER	0.022UF,10%,100V,-,RT	PCS	2.000	C306 C326
33	13-126-04722	CAP,IND-POLYESTER	0.0047UF,10%,100V,RT	PCS	1.000	C704
34	13-126-04734	CAP,IND-POLYESTER	0.047UF,10%,100V,-,RT	PCS	1.000	C705
35	14-134-01018	RES,CARBON,AT	100 OHM,1/4W,5%	PCS	1.000	R111
36	14-134-01021	RES,CARBON,AT	1K OHM,1/4W,5%	PCS	7.000	R106 R108 R115 R118 R119 R125 R801
37	14-134-01229	RES,CARBON,AT	1.2K OHM,1/4W,5%	PCS	3.000	R122 R123 R124
38	14-134-01523	RES,CARBON,AT	1.5K OHM,1/4W,5%	PCS	2.000	R803 R804
39	14-134-01814	RES,CARBON,AT	180 OHM,1/4W,5%	PCS	1.000	R210
40	14-134-02202	RES,CARBON,AT	22 OHM,1/4W,5%	PCS	1.000	R213
41	14-134-02238	RES,CARBON,AT	22K OHM,1/4W,5%	PCS	1.000	R114
42	14-134-02728	RES,CARBON,AT	2.7K OHM,1/4W,5%	PCS	2.000	R334 R601
43	14-134-02743	RES,CARBON,AT	270K OHM,1/4W,5%	PCS	1.000	R808
44	14-134-03303	RES,CARBON,AT	33 OHM,1/4W,5%	PCS	2.000	R104 R110
45	14-134-03339	RES,CARBON,AT	33K OHM,1/4W,5%	PCS	1.000	R814
46	14-134-04707	RES,CARBON,AT	47 OHM,1/4W,5%	PCS	1.000	R325
47	14-134-05612	RES,CARBON,AT	560 OHM,1/4W,5%	PCS	1.000	R223
48	14-134-05636	RES,CARBON,AT	56K OHM,1/4W,5%	PCS	3.000	R116 R117 R127
49	14-142-0R508	RES,CARBON,AT	0.5 OHM,1/2W,5%	PCS	2.000	R121 R324
50	14-142-01021	RES,CARBON,AT	1K OHM,1/2W,5%	PCS	1.000	R809
51	14-142-01045	RES,CARBON,AT	100K OHM,1/2W,5%	PCS	1.000	R321
52	14-142-01057	RES,CARBON,AT	1M OHM,1/2W,5%	PCS	1.000	R101
53	14-142-01547	RES,CARBON,AT	150K OHM,1/2W,5%	PCS	2.000	R112 R113
54	14-142-02R22	RES,CARBON,AT	2.2 OHM,1/2W,5%	PCS	1.000	R216
55	14-142-02042	RES,CARBON,AT	200K OHM,1/2W,5%	PCS	1.000	R807
56	14-142-02743	RES,CARBON,AT	270K OHM,1/2W,5%	PCS	2.000	R100 R102
57	14-142-03303	RES,CARBON,AT	33 OHM,1/2W,5%	PCS	3.000	R109 R701 R805
58	14-142-04722	RES,CARBON,AT	4.7K OHM,1/2W,5%	PCS	1.000	R323
59	14-412-01021	RES,METAL,AT	1K OHM,1/8W,5%	PCS	1.000	R603
60	14-412-01033	RES,METAL,AT	10K OHM,1/8W,5%	PCS	6.000	R219 R305 R333 R338 R604 R713
61	14-412-01045	RES,METAL,AT	100K OHM,1/8W,5%	PCS	3.000	R610 R714 R810
	14-412-01229	RES,METAL,AT	1.2K OHM,1/8W,5%	PCS	1.000	
62	14-412-01232	RES,METAL,AT	12K OHM,1/8W,5%	PCS	3.000	R203 R708 R709
63	14-412-01523	RES,METAL,AT	1.5K OHM,1/8W,5%	PCS	3.000	R214 R710 R811

ASS'Y NO		MA-086-00713		MODEL. NO.		SC-4 * * TX
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
64	14-412-01547	RES,METAL,AT	150K OHM,1/8W,5%	PCS	1.000	R311
65	14-412-01838	RES,METAL,AT	18K OHM,1/8W,5%	PCS	4.000	R315 R319 R707 R812
66	14-412-02R22	RES,METAL,AT	2.2 OHM,1/8W,5%	PCS	1.000	R602
67	14-412-02226	RES,METAL,AT	2.2K OHM,1/8W,5%	PCS	1.000	R337
68	14-412-02238	RES,METAL,AT	22K OHM,1/8W,5%	PCS	4.000	R204 R205 R304 R307
69	14-412-02728	RES,METAL,AT	2.7K OHM,1/8W,5%	PCS	8.000	R221 R310 R317 R331 R332 R608 R609 R813
70	14-412-02743	RES,METAL,AT	270K OHM,1/8W,5%	PCS	2.000	R218 R312
71	14-412-03327	RES,METAL,AT	3.3K OHM,1/8W,5%	PCS	4.000	R207 R222 R302 R314
72	14-412-03912	RES,METAL,AT	390 OHM,1/8W,5%	PCS	1.000	R329
73	14-412-04722	RES,METAL,AT	4.7K OHM,1/8W,5%	PCS	4.000	R209 R308 R309 R605
74	14-412-04734	RES,METAL,AT	47K OHM,1/8W,5%	PCS	3.000	R613 R718 R802
75	14-412-05624	RES,METAL,AT	5.6K OHM,1/8W,5%	PCS	7.000	R225 R303 R328 R330 R612 R711 R717
76	14-412-05636	RES,METAL,AT	56K OHM,1/8W,5%	PCS	3.000	R306 R313 R340
77	14-412-08238	RES,METAL,AT	82K OHM,1/8W,5%	PCS	3.000	R202 R224 R703
78	14-413-06829	RES,METAL,AT	6.8K OHM,1/8W,1%	PCS	3.000	R208 R316 R712
79	14-413-06832	RES,METAL,AT	68K OHM,1/8W,1%	PCS	3.000	R217 R318 R327
80	16-111-01113	PCB,MAIN,VX/L,TX/L	233 * 277,FR-1,1.6T	PCS	1.000	
81	17-313-00063	FILTER,CORE	2.4UH,5.5MM,BEAD,0.032 OHM,CGA/VII,	PCS	1.000	L102
82	21-114-00036	TR NPN TO 92	0.7A,80V,800MA,LF AMP,KSC1008Y	PCS	3.000	Q101 Q102 Q801
83	21-114-00048	TR NPN TO-92	0.15A,60V,0.4W,LF AMP,KTC3198Y/1815	PCS	3.000	Q306 Q701 Q702
84	21-114-00116	TR NPN TO-92	700MA,80V,1.0W,LF AMP,KSC2331	PCS	4.000	Q201 Q302 Q802 Q803
85	21-114-00223	TR NPN TO-92	100MA,50V,300MW,SW,KSR1002,BR	PCS	1.000	Q601
86	21-124-00024	TR PNP TO-92	0.15A,60V,0.25W,LF AMP,KSA733CY	PCS	1.000	Q305
87	21-124-00155	TR PNP TO-92	0.7A,80V,1W,LF AMP,KSA931.0	PCS	1.000	Q202
88	22-111-90012	RECTIFIER DIODE FR	1A,1000V,MR818/G1818	PCS	3.000	D102 D110 D111
89	22-111-90087	RECTIFIER DIODE FR	1A,600V,IN4937	PCS	12.000	D103 D104 D105 D106 D115 D201 D701 D702 D801 D803 D805 D806
90	22-111-90167	RECTIFIER DIODE FR	1.5A,400V,RGP15G/FF1504	PCS	5.000	D107 D108 D109 D112 D113
91	22-121-00051	ZENER DIODE	0.5W,5.1V,UZ5.1B	PCS	3.000	D305 D601 D602
92	22-121-00167	ZENER DIODE	0.5W,24V,UZ24B	PCS	1.000	D704
93	22-132-00048	SWITCHING DIODE	100MA,75V,IN4148	PCS	9.000	D202 D301 D306 D604 D605 D606 D607 D705 D802
94	31-131-00012	BEAD PIN	D2.36 * 14.1,BRASS,SN	PCS	11.000	CN101 CN102 CN103 CN106
95	36-181-00012	WIRE,BARE	CU + SN + PB,1ST,1 * 0.6	KG	12.000	

ASS'Y NO		01-123-00182			MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	MA-086-00696	A/S ASS'Y	SOCKET	PCS	1.000		
2	01-161-01137	SUB ASS'Y,HEAT SINK	LM2416T,SC-4 * * TX/VX	PCS	1.000	IC402	
3	01-162-00036	SUB ASS'Y,SHIELD COVER	SC-4 * * TX/VX,TIN,WH,RING TER,133 * 111	PCS	1.000		
4	12-246-02728	CAP,DISC CERAMIC,CK-45	2700PF,10%,2KV,-25/85'C,RB	PCS	1.000	C427	
5	13-911-00024	CAP,SPARK-GAP	1KV,S-23	PCS	1.000	SG401	
6	15-221-00749	VAR,NO-HANDLE,CAP,H-TYPE	100 OHM,B,0.2W	PCS	3.000	VR401 VR402 VR403	
7	15-221-00752	VAR,NO-HANDLE,CAP,H-TYPE	50 KOHM,B,0.2W	PCS	3.000	VR405R VR405G VR405B	
8	19-161-00036	NEON LAMP	200VDC	PCS	4.000	SG402R SG402G SG402B SG403	
9	21-112-90024	TR NPN TO-18	200MA,40V,360MW,SW,2N2369A	PCS	3.000	Q401 Q402 Q403	
10	23-321-90208	IC,LINEAR,DIP	1203,RGB VIDEO AMP,28	PCS	1.000	IC401	
11	36-412-00672	WIRE,CONN/HOUSING	145MM,11P,W,2.5,UL1007 # 22,5P,4P	PCS	1.000	CN403 CN404	
12	36-615-00024	CONNECTOR SHROUDED HEADER	2.5,ST,3P,5267-03A	PCS	1.000	CN402	
13	36-615-00075	CONNECTOR SHROUDED HEADER	2.5,ST,11P,5267-11A	PCS	1.000	CN401	
14	36-633-90116	CRT SOCKET	12P,HPS-019P-01-020	PCS	1.000		

ASS'Y NO		01-161-01137			MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	23-329-90099	IC,LINEAR,SPECIAL	COLOR CRT DRIVER,LM2416T	PCS	1.000		
2	31-114-00538	HEAT SINK-N,SC-428VS/431VS,A6063S	50 * 18 * 30,AL	PCS	1.000		
3	33-142-00012	MS + ,PAN,W/P.W,ZPW	M3 * 8,SWRCH1018AK	PCS	1.000		
4	33-852-00012	NUT,HEX,2,ZPW	M3 * 0.5P,S10C	PCS	1.000		

ASS'Y NO		01-162-00036			MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	31-129-00434	SHIELD COVER,SOCKET,SC-4 * * VX(L)/TX	133 * 110 * 43,TIN 0.3T	PCS	1.000		
2	36-437-00194	BRAID WIRE,RING,W/TUBE	D5 * 120MM	PCS	1.000		

ASS'Y NO		MA-086-00696			MODEL. NO.		
SEQ	P/N	DESCRIPTION	SPEC	UNIT	Q'TY	CKT NO.	
1	11-192-0106B	CAP,AL-ELECT,GP	10UF,20%,16V,-40/85'C,RT	PCS	3.000	C401 C402 C403	
2	11-192-0107B	CAP,AL-ELECT,GP	100UF,20%,16V,-40/85'C,RT,SMALL	PCS	3.000	C404 C416 C422	
3	11-195-0105B	CAP,AL-ELECT,GP	1UF,20%,50V,-40/85'C,RT	PCS	1.000	C419	
4	11-195-0475B	CAP,AL-ELECT,GP	4.7UF,20%,50V,-40/85'C,RT	PCS	1.000	C406	
5	11-196-01072	CAP,AL-ELECT,GP	100UF,100V,20%,-40/85'C,RT	PCS	1.000	C423	
6	11-197-01057	CAP,AL-ELECT,GP	1UF,20%,160V,-40/85'C,RT	PCS	3.000	C424R C424G C424B	
7	12-182-04707	CAP,DISC CERAMIC,CC	47PF,5%,50V,-25/85'C,RT	PCS	3.000	C417 C418 C420	
8	12-334-01018	CAP,DISC CERAMIC,CK45	100PF,10%,500V,-25/85'C,RT,HDC	PCS	1.000	C426	
9	12-335-01033	CAP,DISC CERAMIC,CK	0.01UF,-20/80%,500V,-25/85'C,RT	PCS	1.000	C425	
10	12-371-01033	CAP,DISC CERAMIC,CK	0.01UF,-20/80%,50V,-25/85'C,RT	PCS	1.000	C415	

ASS'Y NO		MA-086-00696		MODEL. NO.		
SEQ	P/N	DESCRIPTION	S P E C	UNIT	Q'TY	CKT NO.
11	12-371-01045	CAP,DISC CERAMIC,CK-45	0.1UF,-20/80%,50V,-25/85'C,RT	PCS	7.000	C405 C407 C409 C410 C411 C412 C413
12	13-126-01045	CAP,IND-POLYESTER	0.1UF,10%,100V,RT,CQ92MT	PCS	1.000	C408
13	14-134-01018	RES,CARBON,AT	100 OHM,1/4W,5%	PCS	1.000	R429
14	14-134-01838	RES,CARBON,AT	18K OHM,1/4W,5%	PCS	1.000	R408
15	14-134-02214	RES,CARBON,AT	220 OHM,1/4W,5%	PCS	3.000	R423 R424 R425
16	14-134-04707	RES,CARBON,AT	47 OHM,1/4W,5%	PCS	3.000	R431R R431G R431B
17	14-134-04734	RES,CARBON,AT	47K OHM,1/4W,5%	PCS	3.000	R435R R435G R435B
18	14-142-01018	RES,CARBON,AT	100 OHM,1/2W,5%	PCS	3.000	R436R R436G R436B
19	14-412-01018	RES,METAL,AT	100 OHM,1/8W,5%	PCS	9.000	R419 R420 R421 R426 R427 R428 R432 R433 R434
20	14-412-02214	RES,METAL,AT	220 OHM,1/8W,5%	PCS	3.000	R411 R414 R417
21	14-412-02226	RES,METAL,AT	2.2K OHM,1/8W,5%	PCS	1.000	R409
22	14-412-02728	RES,METAL,AT	2.7K OHM,1/8W,5%	PCS	1.000	R418
23	14-412-03912	RES,METAL,AT	390 OHM,1/8W,5%	PCS	3.000	R407 R412 R415
24	14-412-04722	RES,METAL,AT	4.7K OHM,1/8W,5%	PCS	2.000	R404 R405
25	14-412-05107	RES,METAL,AT	51 OHM,1/8W,5%	PCS	3.000	R410 R413 R416
26	14-412-05624	RES,METAL,AT	5.6K OHM,1/8W,5%	PCS	1.000	R406
27	14-412-07508	RES,METAL,AT	75 OHM,1/8W,5%	PCS	3.000	R401 R402 R403
28	16-111-01125	PCB,SCOCKET,VX/L,TX/L	130 * 107,FR-1,1.6T	PCS	1.000	
29	17-223-00104	COIL,INDUCTOR	4.7UH + - 10%,AT	PCS	1.000	L401
30	17-313-00063	FILTER,CORE	2.4UH,5.5MM,BEAD,0.032 OHM,CGA/VII,	PCS	1.000	L402
31	22-111-90087	RECTIFIER DIODE FR	1A,600V,1N937	PCS	3.000	D404R D404G D404B
32	22-121-00167	ZENER DIODE	0.5W,24V,UZ24B	PCS	3.000	D405R D405G D405B
33	22-132-00048	SWITCHING DIODE	100MA,75V,1N4148	PCS	3.000	D401 D402 D403
34	31-131-00012	BEAD PIN	D2.36 * 14.1,BRASS,SN	PCS	2.000	CN405
35	36-181-00012	WIRE,BARE	CU+SN+PB,1ST,1 * 0.6	KG	12.000	

(2) Reliabilities

2-1. Life test.(MTBF)

The monitor shall have 20,000hrs MTBF when operated under any combination of conditions as detailed specification.

2-2. Environmental Test.

The monitor must operate in operating environment without degradation or damage.

These are test that SED will perform on the monitor prior to its release.

The monitor is required to satisfactorily pass these tests prior to mass production.

These tests are detailed in SED environment specification.

The monitor must operate within specification when subjected to the following environmental conditions.

2-3. Temperature

- * Operating : 0°C To 45°C
- * Storage : -40°C To +70°C

2-4. Humidity test.

- * Operating : 15% To 80% (Non condensing)
- * Storage : Maximum 90%

2-5. Vibration

The level specified for vibration apply to three mutually perpendicular directions(principle monitor axis) with packing and non operation.

- * Frequency : 5~200 Hz
- * Amplitude : 0~4mm
- * Sweep Time : 30Min.
- * Waveform : Sinewave
- * Direction : Up/Down
- * Time : 1 Hour

2-6. Altitude

- * Operating : 15000 ft at + 70°C
0 ft at + 0°C
- * Non Operating : MAX. 50000 ft

2-7. Safety and approvals

2-7-1. Electromagnetic interference.

The system will be certified according to following international radiation standards.

1) Radiated emission.

- FCC rules, Part 15, Class B.
- FTZ 1064/84, VDE 0871 CLASS B
- CISPR rules, CISP 22
- DOC SOR 88-475

2) Conducted emission.

The monitor electronics shall not be customer accesable, same as above, 1)

2-7-2. Safety approval.

The system will be certified according to following international safety standards.

- UL 1950 with D3
- CSA C22.2 NO.950 with D3
- TUV-EN60950

2-7-3. Ergonomics.

The complete assembly shall be certified as complying with the rule and regulations of the German Ergonomics Standards (formerly GS).

- ZH 1/618

2-7-4. Ionogenic Radiation.

The display device must be certified as complying with the U.S

Department of Health and human Service(D.H.H.S), rule 21 CFR, subchapter J and ANSI C95-1.

- 21 CFR SUB CH.J.
- PTB

(3) Signal cable pin connection

* SIGNAL CABLE PIN CONNECTION(15PIN D-SUB MINIATURE SIGNAL CONNECTOR WITH CABLE)

NO	RGB/ANALOG SIGNAL	SIGNAL PIN NO.	WIRE COLOR	REMARKS
1	RED	PIN # 1	RED	
2	GREEN	PIN # 2	GREEN	
3	BLUE	PIN # 3	BLUE	
4	GROUND	PIN # 4	BLACK	
5	SELFTTEST	PIN # 5	BLACK	
6	RED GROUND	PIN # 6	SHIELD	
7	GREEN GROUND	PIN # 7	SHIELD	
8	BLUE GROUND	PIN # 8	SHIELD	
9	N.C	PIN # 9		
10	GROUND	PIN # 10	BLACK	
11	SYNC GROUND	PIN # 11	BLACK	
12	N.C	PIN # 12		
13	H-SYNC	PIN # 13	WHITE	
14	V-SYNC	PIN # 14	YELLOW	
15	N.C	PIN # 15		