

COLOR MONITOR

KT-1982*



SERVICE *MANUAL*

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1. Precautions

1-1. Safety precautions

Warnings : Service should not be attempted by anyone unfamiliar with the necessary on this Monitor.

The followings are the necessary precautions to be observed before servicing.

- 1) For continued safety, do not attempt to modify the circuit board.
- 2) Disconnect the AC power before servicing.
- 3) When the chassis is operating, semiconductor heat sinks are potential shock hazards.

1-1-1 Servicing the high voltage volume are CRT Warnings

A High Voltage volume replaced in the wrong direction may cause excessive X-Ray emissions.

- 1) Adjust in order to 26KV with signal at Anode.
- 2) When the troubleshooting a monitor with excessively High Voltage, avoid being unnecessarily close to the monitor. Do not operate the monitor for longer than is necessary to locate the cause of excessive voltage.
- 3) Excessive High Voltage can produce potentially hazardous X-Ray RADIATION. To avoid such hazards, the high voltage must be above the specified limit. The nominal value of the High voltage of this Monitor is 26KV \pm 0.3KV at zero beam current(minimum brightness) under a 120V AC power source. The High Voltage must not (under any circumstances) exceed 29KV. Each time a monitor requires servicing, the High Voltage should be checked following the High Voltage check procedure on this manual. It is recommended the reading of the voltage be recorded as a part of the service record. It is important to use an accurate and reliable High Voltage meter.
- 4) When the High Voltage regulator is operating properly, there is no possibility of an X-Ray problem.
- 5) The CRT is especially designed to prohibit X-ray emission. To ensure continued X-ray protection, replace the CRT only with one that is the same or equivalent type as the original.
- 6) Handle the CRT only when wearing shatterproof goggles and after completely.
- 7) Do not lift the CRT by the neck.

1-1-2. Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

- 1) Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
- 2) Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment cover or shields isolation resistor-capacitor networks, mechanical insulations, etc.
- 3) To be sure that no shock hazard exists, check for leakage current in the following manner.
 - a. Plug the AC line cord directly into a 120 or 230 Volt AC outlet.
(Do not use an isolation transformer for this test)
 - b. Using two clip leads, connect a 1.5K , 10Watt resistor paralleled by a 0.15Uf capacitor in serial with an exposed metal chassis part and a known earth ground, such as an electrical conductor and electrical ground connected to a earth ground.
 - c. Use a SSVM or VOM with 1000 ohms per-volt or sensitivity to measure the AC voltage drop across the resistor.
 - d. Connect the resistor to an exposed metal part having a return path to the chassis(metal cabinet, screw heads, knobs, shafts, escutcheon,etc) and measure the AC voltage drop across the resistor.
 - e. Any reading of 5.25 volt RMS(this corresponds to 3.5 milliampere AC) or more is excessive and indicates a potential shock hazard. Correct the shock hazard before returning the monitor to the user.

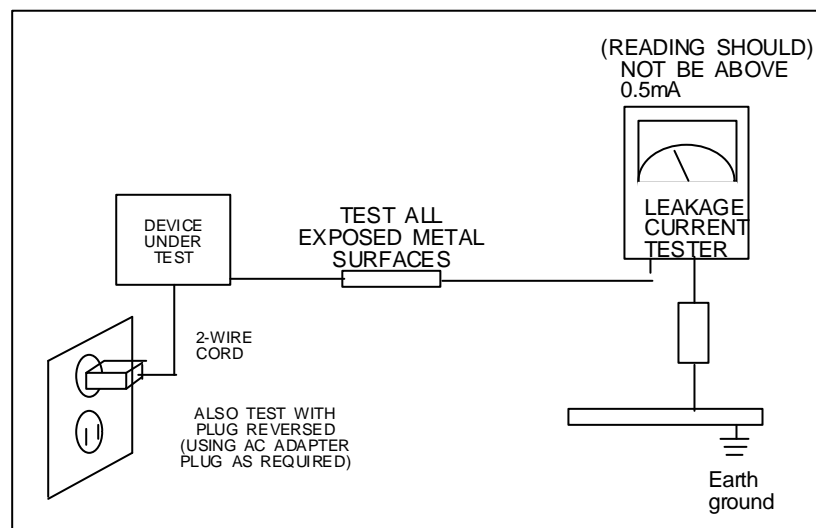


Figure 1-1. Leakage Current Test Circuit

1-1-3. Product safety notices:

Some electrical and mechanical parts have special safety related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by on schematics and parts lists.

A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and or other hazards. Product safety is under review continuously and new instructions whenever appropriate.

1-2. Servicing Precautions

WARNING 1 : First read the "Safety Precaution" section of this manual. if unforeseen circumstances create conflict between the servicing precautions and safety precautions, always follow the safety precautions.

WARNING 2 : A High Voltage volume replaced in the wrong direction may cause excessive X-ray emissions.

WARNING 3 : An electrolytic capacitor installed with the wrong polarity might explode.

- 1) Servicing precautions are printed on the chassis, and should be followed closely
- 2) Always unplug the units AC power cord from the AC power source before attempting to : (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect all test components in parallel with an electrolytic capacitor.
- 3) after servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
- 4) Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
- 5) Never defeat any of the +B voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
- 6) Always connect a test instruments ground lead to the instrument chassis ground before connecting the lead; always remove the instruments lead last.

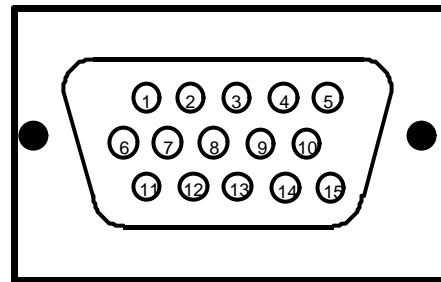
2. Product Specifications

2-1 SPECIFICATION

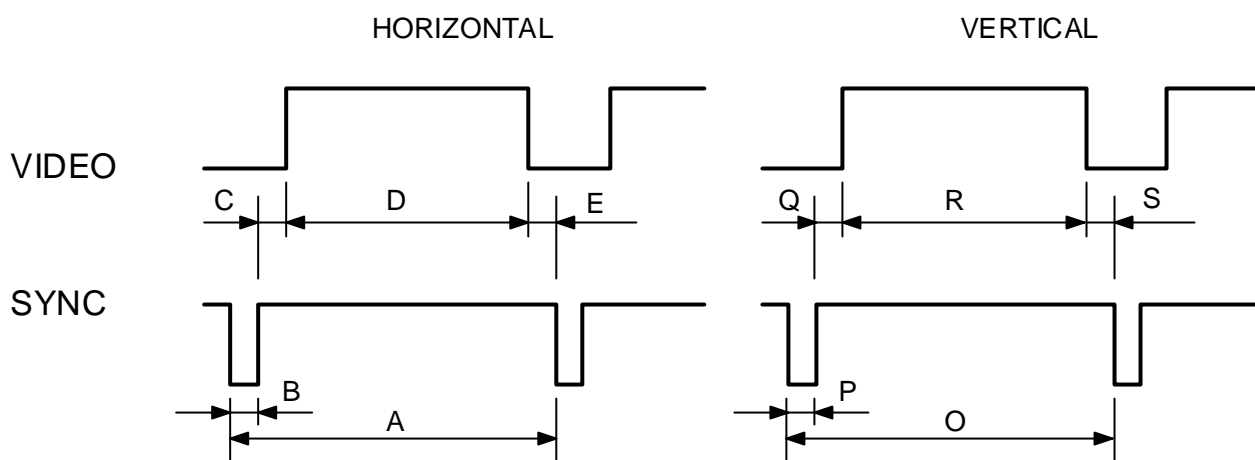
CDT	Tube Size Viewable Image Size Dot Pitch Deflection Angle Focusing Method	FST, Dyna flat (option) 48cm (19") diagonal 45.7cm (18") 0.26mm(H) 90 ° Double Focusing(static & dynamic)
Bandwidth	Maximum	140MHz
Scanning Frequency (Auto Scanning)	Horizontal Vertical	30-82KHz 50-120Hz
Display Area	Normal Maximum	350×262.5mm 366×275mm
Microprocessor	User Saving Mode	13 Modes
User Control Display	Digital Language	Position,Size,Pincushion,Trapezoid,H/Vcorner, Pin-B,Trapezoid,Parallel,Tilt,Moire,Zoom Color Temperature,Recall,Manual Degauss Eng/Ger/Fra/Esp/Port
Display color	Color Temperature	9300 K, 6500 K, User Color
Resolution	Maximum Mode	1280 X 1024 @ 75Hz
Signal Input	Connect	15 pin D-sub(Female) or Option
Safety & EMC	Safety EMC	UL,CSA,TUV,CB,DHHS FCC,CE
Power	Voltage	AC 90-264V, 60 / 50 ±3Hz
Power Consumption	Nomal Operation Input Current at 120V Input Current at 240V	100 Watts Operating : 1.5Amps rms. Turn on : 30Amps Peak. Operating : 0.8Amps rms. Turn on : 60Amps Peak.
Linearity	Cross Pattern	Horizontal : 5% Vertical : 5%
Environment	Temperature Humidity	Operating : 0 to +40 Storage : -40 to +60 Operating : 10 to 85% Storage : 5 to 95%

2-2 D-SUB SIGNAL CABLE SPECIFICATION

	PIN NAME
1	RED
2	GREEN
3	BLUE
4	GND
5	GND (DDC)
6	R-GND
7	G-GND
8	B-GND
9	N.C
10	SELF RASTER
11	GND
12	SDA (DDC)
13	H-SYNC
14	V-SYNC
15	SCL (DDC)



2-3 TIMING CHART



A : LINE TIME TOTAL

C : BACK PORCH

E : FRONT PORCH

B : HORIZONTAL SYNC WIDTH

D : ACTIVE TIME

O : FRAME TIME TOTAL

Q : BACK PORCH

S : FRONT PORCH

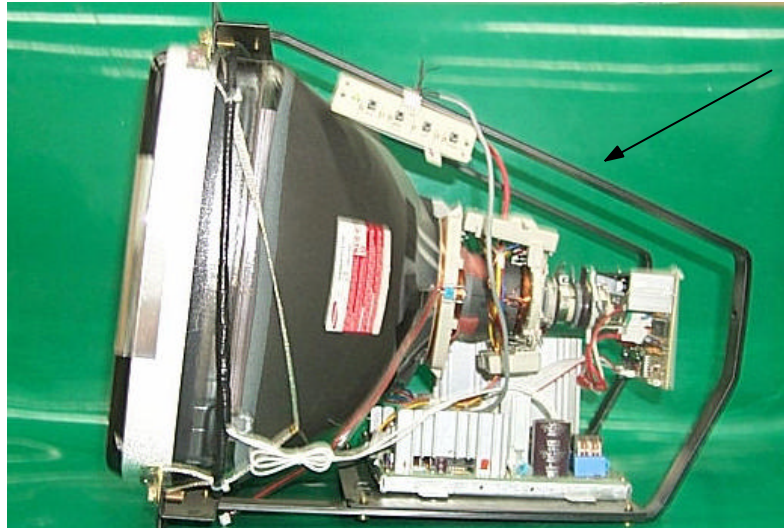
P : VERTICAL SYNC WIDTH

R : ACTIVE TIME

DESCRIPTION	I.B.M		VESA												
	720*400	640*480	1024*768 (I)	640*480	800*600	800*600	800*600	1024*768	800*600	1024*768	1280*1024	1024*768	1280*1024	1024*768	
H	f KHz	31.469	31.469	35.52	37.860	37.88	46.875	48.077	48.363	53.674	56.476	63.702	68.677	79.976	81.400
	A uS	31.778	31.778	28.15	26.413	26.40	21.333	20.800	20.677	18.631	17.707	15.698	14.561	12.504	12.285
	B uS	3.813	3.813	3.92	1.270	3.20	1.616	2.400	2.092	1.138	1.813	1.358	1.016	1.067	0.988
	C uS	1.907	1.907	1.25	4.603	2.20	3.232	1.280	2.262	2.702	1.920	1.812	2.201	1.837	1.624
	D uS	25.422	25.422	22.80	20.317	20.00	16.162	16.000	15.754	14.222	13.653	12.075	10.836	9.481	9.037
	E uS	0.636	0.636	0.18	0.762	1.00	0.323	1.120	0.369	0.569	0.320	0.453	0.508	0.119	0.635
	POL.	NEG	NEG	POS	POS	POS	POS	POS	NEG	POS	NEG	NEG	POS	NEG	POS
V	f Hz	70.087	59.940	86.906	72.809	60.317	75Hz	72.188	60.00	85.061	70.00	60.00	84.997	75.025	100.00
	O mS	14.268	16.683	11.50	13.735	16.58	13.333	13.853	16.667	11.756	14.272	16.640	11.765	13.329	10.000
	P mS	0.064	0.064	0.113	0.079	0.11	0.064	0.125	0.124	0.056	0.106	0.047	0.044	0.038	0.037
	Q mS	1.080	1.048	0.563	0.740	0.61	0.448	0.478	0.60	0.503	0.513	0.471	0.524	0.475	0.516
	R mS	12.711	15.253	10.81	12.678	15.84	12.8	12.480	15.88	11.179	13.599	16.075	11.183	12.804	9.435
	S mS	0.413	0.318	0.014	0.238	0.03	0.021	0.770	0.062	0.019	0.053	0.047	0.015	0.013	0.012
	POL.	POS	NEG	POS	POS	POS	POS	POS	NEG	POS	NEG	NEG	POS	POS	POS

3. Operating Instruction

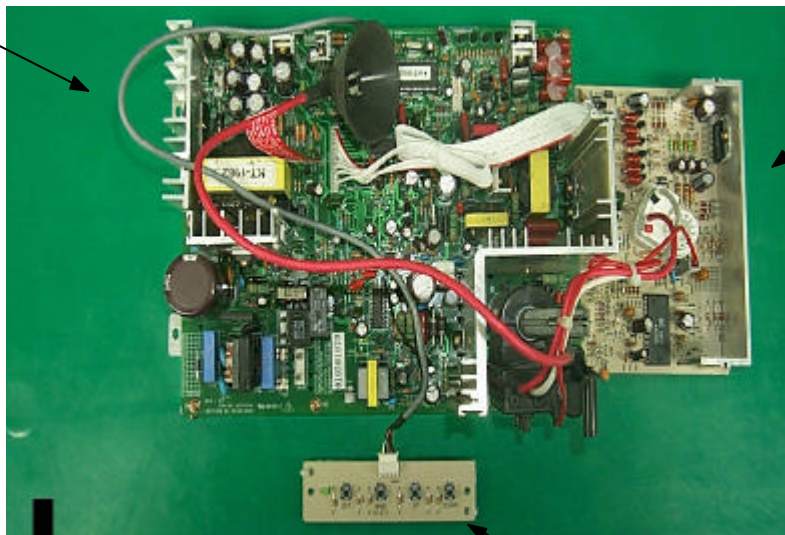
3-1 FRONT FRAME



KORTEK STANDARD
FRAME
(X-FRAM)

3.2 MAIN PCB ASS'Y

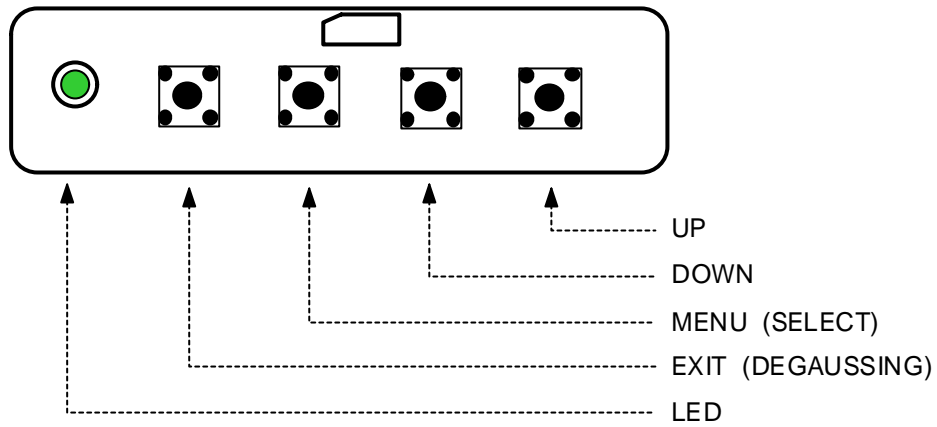
MAIN PCB



SOCKET PCB

CONTROL PCB

3-3. Function of Control



Control	Function
LED (Power Indicator)	The light of power LED changes according to each state. on mode : Green LED. power saving mode : green LED blinking.
MENU(Select)	When you press this button, the MENU appears. The MENU will disappear in 10 seconds if you don't operate any button. When you press EXIT button again, the MENU disappears. This button is used to select the control item on the MENU. In MENU, the control item could be selected and unselected by this button.
EXIT	This button is used to exit the value of any selected control.
UP	This button is used to increase the value of any selected control. This button is used to locate to the next control item for select.
DOWN	This button is used to decrease the value of any selected control. This button is used to locate to the previous control item for select.

4.Adjustments

4-1. Adjustment Control

4-1-1. Before making Adjustments

1) Orientation

When servicing, always face the monitor to east.

2) Warm-up time

The monitor must be on for 30 minutes before starting alignment. Warm-up time is especially critical in color temperature and white balance adjustments.

3) Signal

Analog, 0.714Vp-p positive at 75 , internal termination.

4) High Voltage Adjustment

Signal : without signal

Adjustment : 26KV \pm 0.3KV.

PROCEDURE

Disconnect the AC line cord from the power source.

Connect positive end of High Voltage probe to anode cap of CRT, negative end of to GND(main chassis)

First of all Disconnect AC cord and than disconnect High voltage probe.

5) Screen Voltage

- signal : 1024 x 768 (48KHz) , Full white

- Bright : max

- Contrast : max

- Adjustment (SAMSUNG SDI) : 580 \pm 10V

4-1-2 TURN ON THE FACTORY OSD MANUAL METHOD

1) press on the "UP" key.

2) connect the AC line cord from the power source.

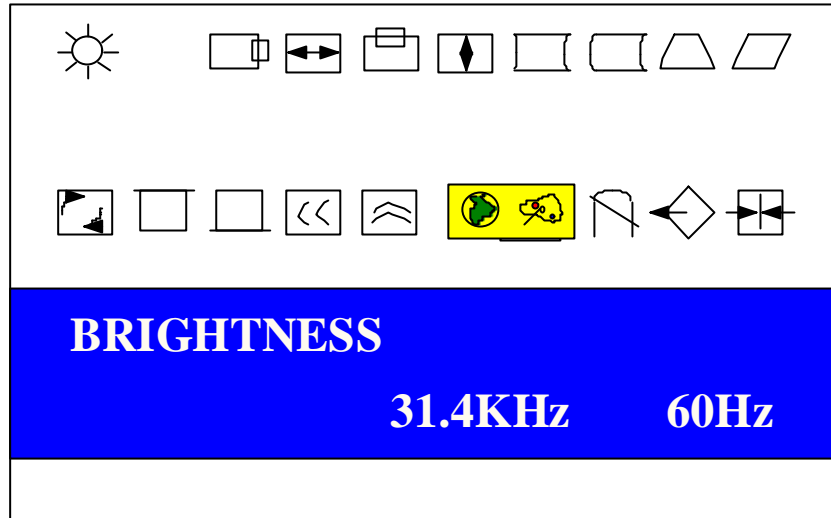
3) At this time OSD menu changed factory mode.



4-2. Display Control Adjustment

Click on the "MENU" button (OSD MENU).

This menu is user's OSD manual.(user's manual)



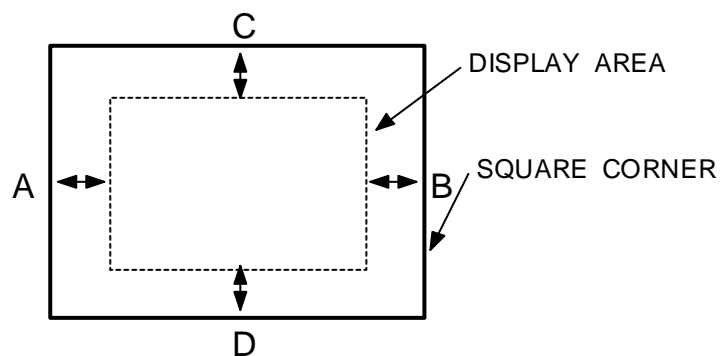
- 1) Click on the "MENU" button.
- 2) Click on the "UP" or "DOWN" and move any function control.
- 3) Press the "MENU(SELECT)" button.
- 4) "UP" or "DOWN" button is used to control the value of any function.
- 5) When you press exit button, the MENU disappears.

4-2-1 Screen center adjustment

width : 352mm height : 264mm

signal : 1024 x 768 (48KHz)

| A-B | 4.0mm , | C-D | 4.0mm



a) Horizontal size adjustment

adjustment : use to "H-SIZE", $390 \pm 3\text{mm}$

b) Vertical size adjustment

adjustment : use to "V-SIZE", $292 \pm 3\text{mm}$

c) Horizontal position adjustment

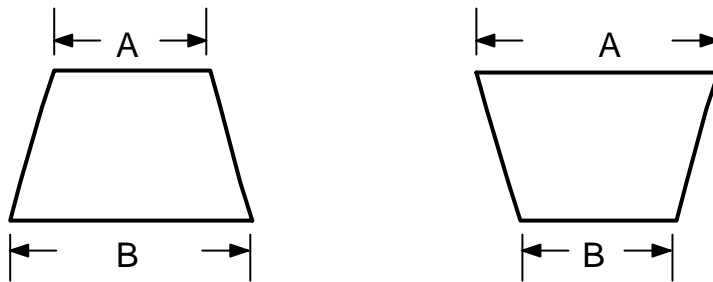
adjustment : use to "H-POS"

d) Vertical position adjustment

4-2-2 Trapezoid adjustment

frequency : all mode

signal pattern : cross hatch

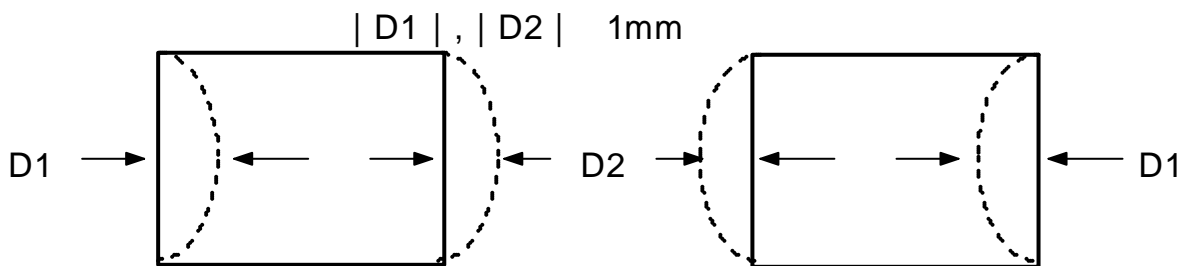


$$| A - B | < 2.5\text{mm}$$

4-2-3 Pin balance adjustment

frequency : all mode

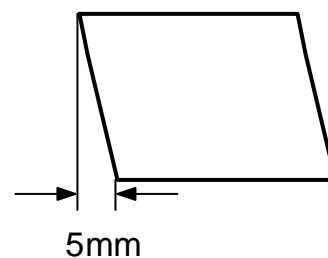
signal pattern : cross hatch



4-2-4 Parallelogram adjustment

frequency : all mode

signal pattern : cross hatch



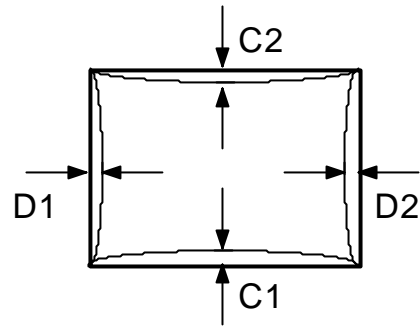
4-2-5 Side pin-cushion adjustment

frequency : all mode

signal pattern : cross hatch

brightness : MIN (cut-off)

contrast : MAX



| C1 | , | C2 | 2.0mm, | D1 | , | D2 | 2.0mm

4-2-6 Tilt adjustment

frequency : all mode

signal pattern : cross hatch

brightness : MIN (cut-off)

contrast : MAX

4-2-7 Degaussing adjustment

Don't adjust the degaussing. Degaussing is possible in OSD adjustment menu. After using this function once, You must use again after at least 30minutes.

4-2-8 SAVE ADJUSTMENT CONDITION & REMOVE USER MODE.

4-3 Color adjustment

4-3-1 color temperature

Set condition

- measuring instrument : color analyzer (CA-100)
- frequency : 48KHz / 60Hz (1024 x 768)
- display pattern : full white , one square(20% window)
- brightness : cut off
- contrast : MAX

specification

- 9300K $x=0.281 \pm 0.02$, $y=0.311 \pm 0.02$
- 6500K $x=0.313 \pm 0.02$, $y=0.329 \pm 0.02$

4-3-2 color adjustment (9300K)

a) Back raster color adjustment

Set condition

- frequency : 48KHz / 60Hz (1024 x 768)
- display pattern : back raster pattern
- brightness : MIN (cut off)
- contrast : MAX

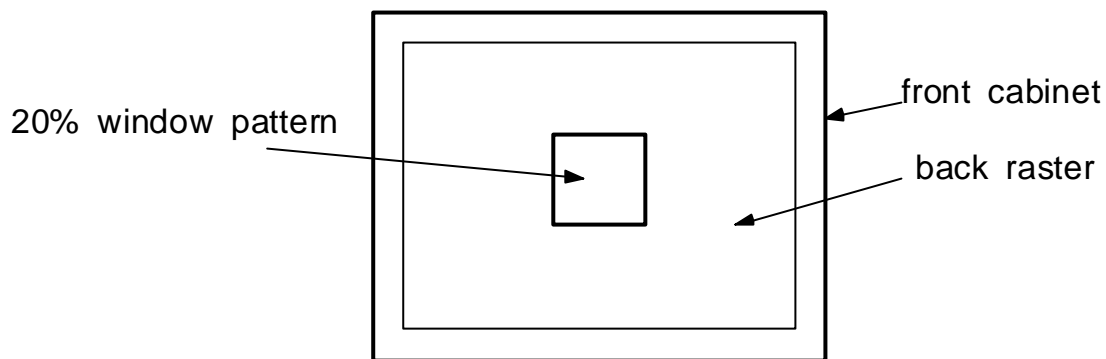
1. Select factory mode.
2. Select COLOR TEMP with UP.DOWN key.
3. Select 9300K.
4. Adjust back raster brightness to 0.2~0.8(F/L) with VR701.
5. Select B-B with UP,DOWN adjust $y=0.311$ and do the next selection with EXIT key.
6. Select R-B with UP,DOWN adjust $y=0.281$ and do the next selection with EXIT key.

a) white balance / ACL adjustment

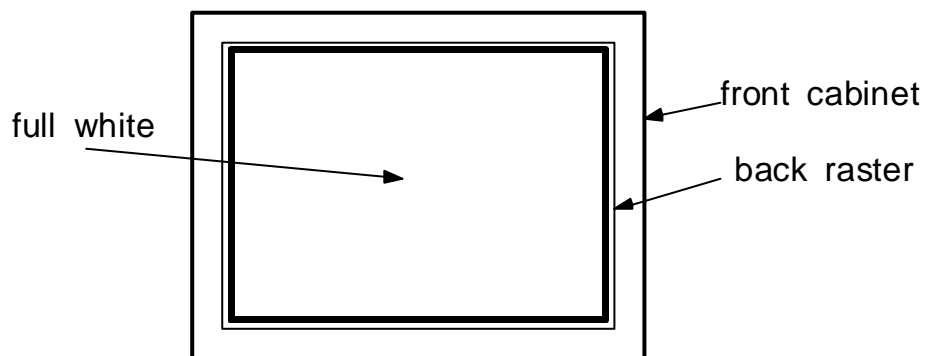
Set condition

- frequency : 48KHz / 60Hz (1024 x 768)
- display pattern : one square(20% window) , full white
- brightness : MIN (cut off)
- contrast : MAX

1. Select factory mode.
2. Select COLOR TEMP with UP,DOWN key.
3. Select 9300K.
4. Select B-G with UP,DOWN adjust $y=0.311$ and do the next selection with EXIT key.
6. Select R-G with UP,DOWN adjust $y=0.281$ and do the next selection with EXIT key.
7. Select contrast icon with UP,DOWN key, adjust contrast to 50~60f/l with UP,DOWN key.



8. Select ACL key(A/C) in full white pattern and adjust ACL to 28~30f/l.



attention : If 50f/l doesn't adjust in 20% window, adjust G-G again with DOWN key.

4-3-3 color adjustment (6500K)

a) white balance adjustment

1. Select factory mode.
2. Select COLOR TEMP with UP,DOWN key.
3. Select 6500K.

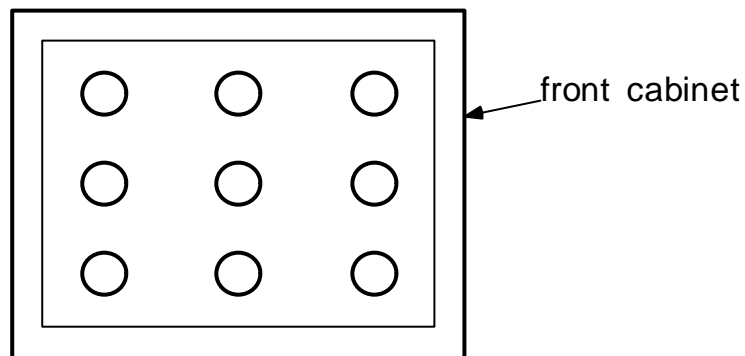
4. Select B-G with UP,DOWN adjust $y=0.329$ and do the next selection with EXIT key.
6. Select R-G with UP,DOWN adjust $y=0.313$ and do the next selection with EXIT key.

4-3-4 brightness uniformity adjustment

set condition

- frequency : 48KHz / 60Hz (1024x768)
- display pattern : 9ball pattern
- brightness : MIN (cut off)
- contrast : MAX

Measure nine brightness display in the screen.



4-3-5 Focus adjustment

set condition

- frequency : 48KHz / 60Hz (1024x768)
- display pattern : "H" character
- brightness : min (cut off)
- contrast : max

1. Adjust in focus of whole screen to be the best fitted with FOCUS V/R in FBT.

4-3-6 PURITY adjustment

Purity is that unnecessary colors appear in the screen except displayed color. Don't appear unnecessary colors divided with the naked eye at a distance of 50cm from CRT surface.

set condition

- direction : east
- frequency : included timing chart
- display pattern : full white
- brightness : MIN (cut off) - display center

RED	$x=0.640 \pm 0.015$	$y=0.323 \pm 0.015$
GREEN	$x=0.295 \pm 0.015$	$y=0.594 \pm 0.015$
BLUE	$x=0.142 \pm 0.015$	$y=0.066 \pm 0.015$

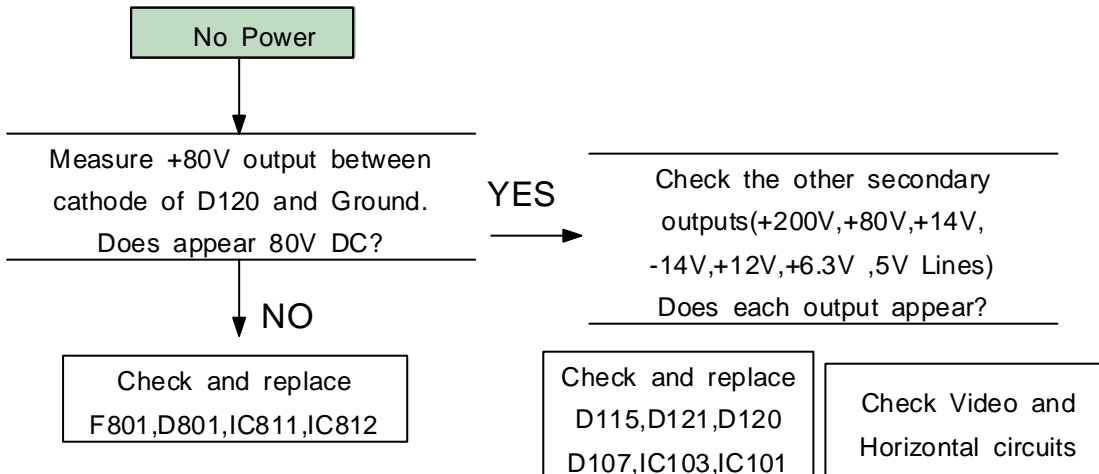
5. TROUBLESHOOTING GUIDE

5-1. Troubleshooting Guide.

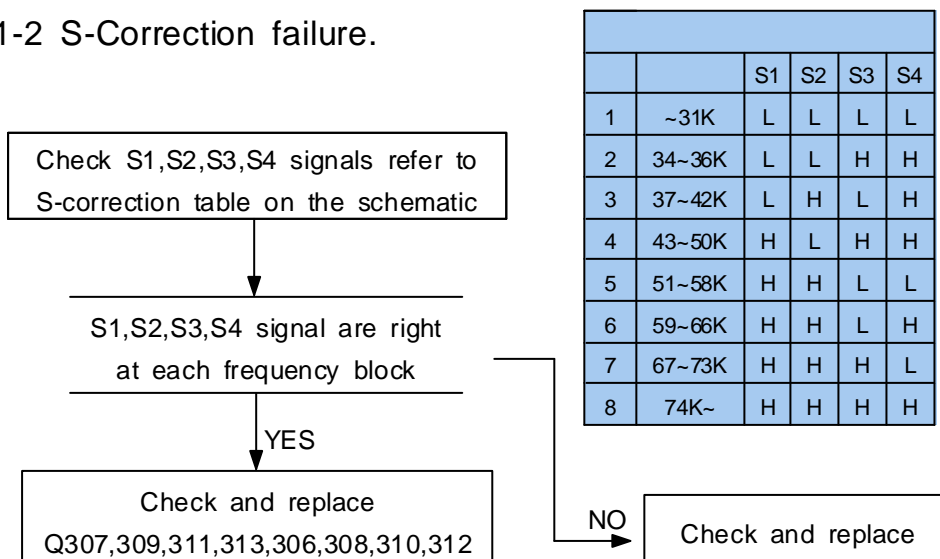
NOTES ;

- If picture does not appear, fully rotate the brightness and contrast controls clockwise.
- Check the following circuits.
 - No raster appear : power circuit. Horizontal output circuit.
 - High voltage control circuit and output circuit.
 - High voltage develops but no raster appears : Video output circuit.
 - High voltage does not develop : Horizontal output circuit.

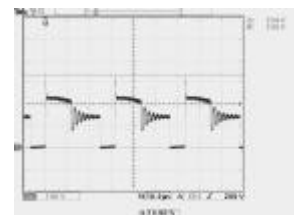
5-1-1. No Raster, No Video



5-1-2 S-Correction failure.

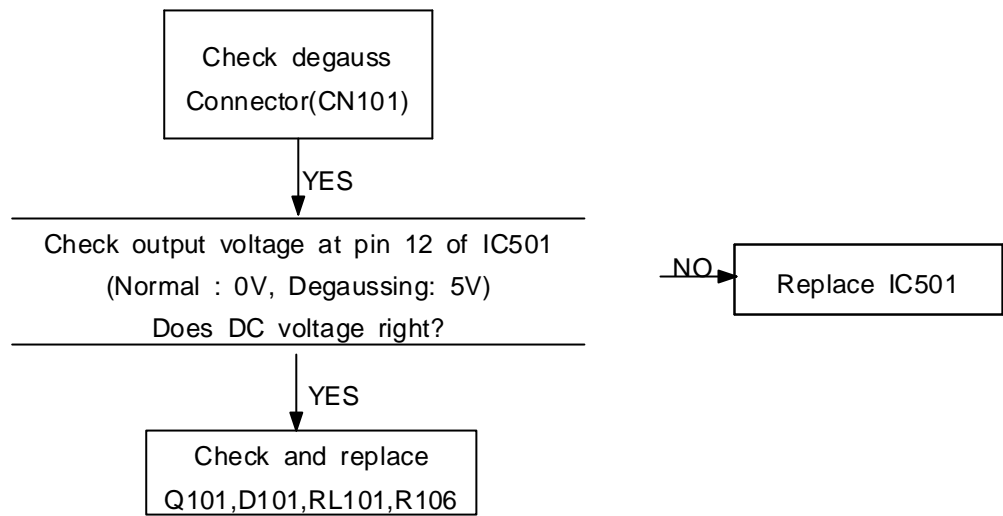


		S1	S2	S3	S4
1	~31K	L	L	L	L
2	34~36K	L	L	H	H
3	37~42K	L	H	L	H
4	43~50K	H	L	H	H
5	51~58K	H	H	L	L
6	59~66K	H	H	L	H
7	67~73K	H	H	H	L
8	74K~	H	H	H	H

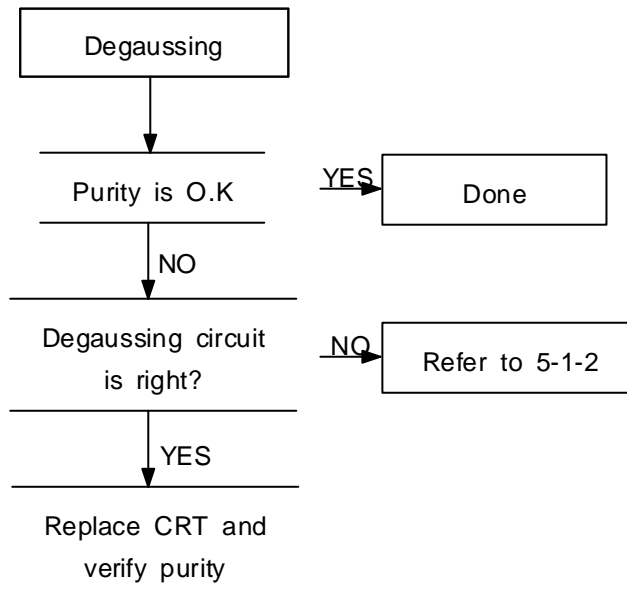


IC106 1pin

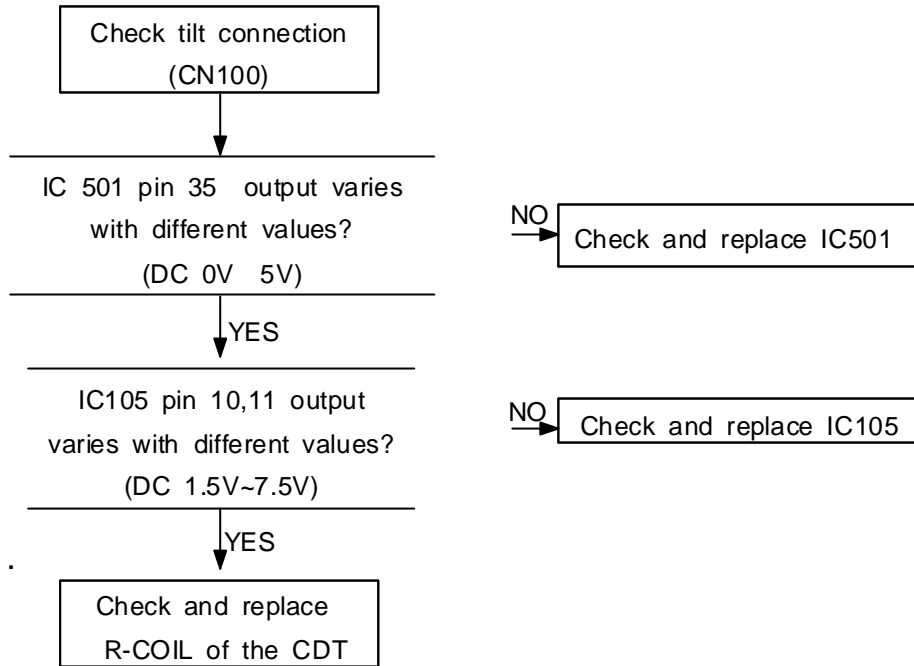
5-1-3 Degaussing failure



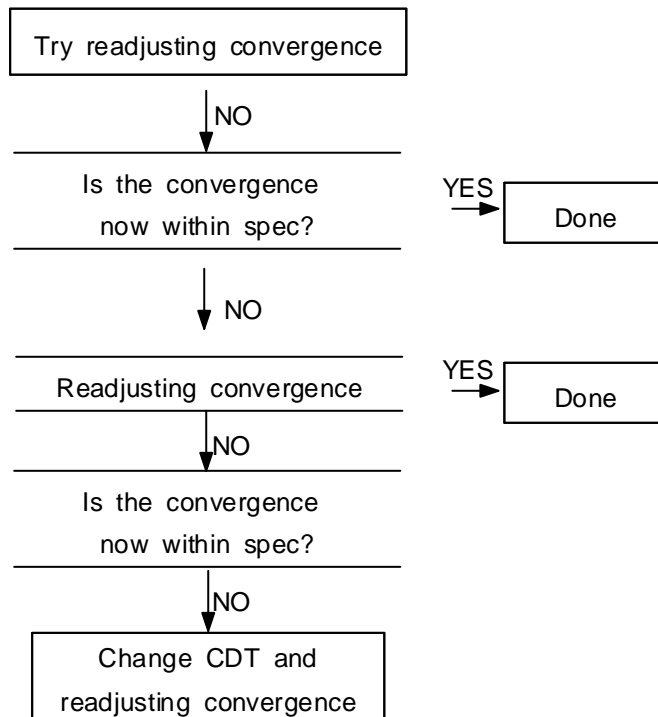
5-1-3 Purity failure



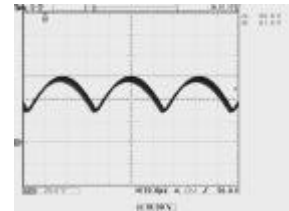
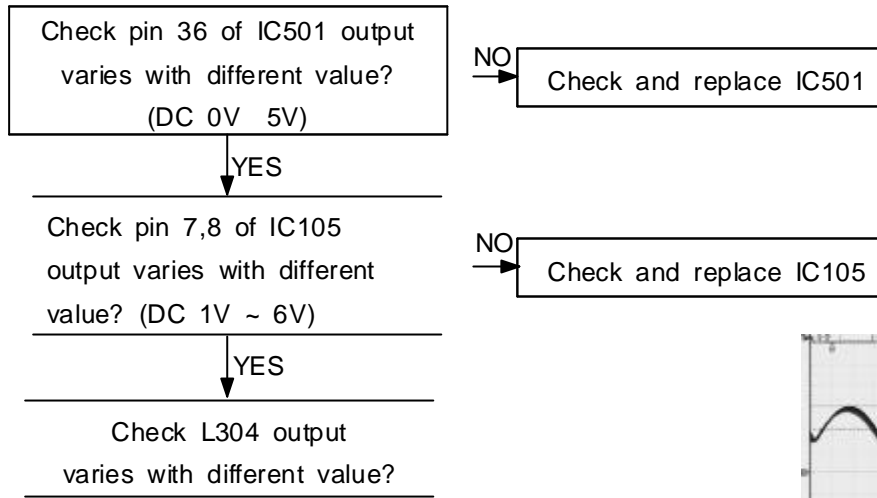
5-1-4 Tilt Failure



6-1-6 Misconvergence Failure

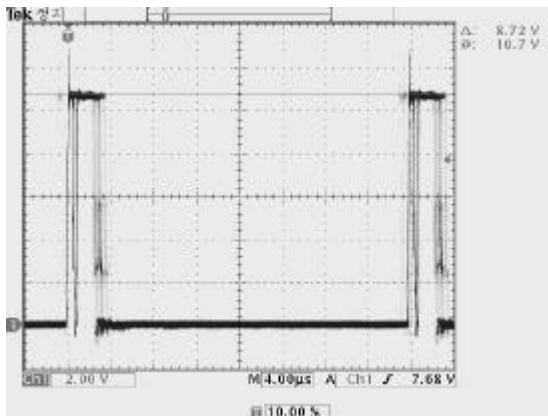
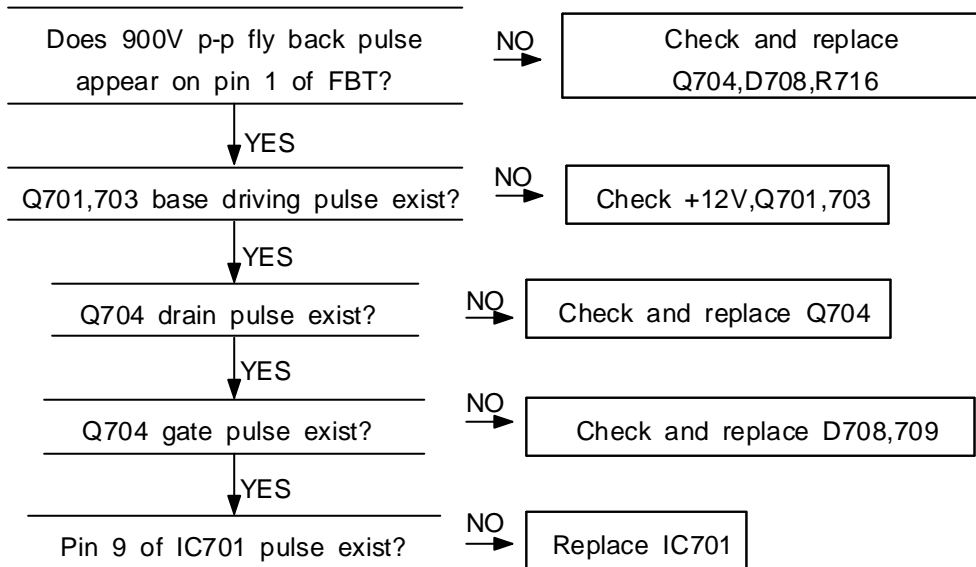


6-1-7 H-Linearity Failure

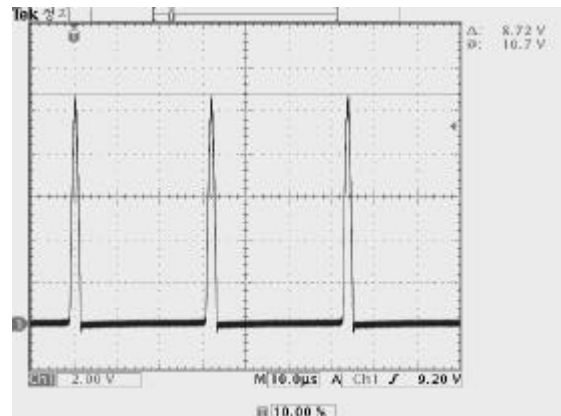


L304

6-1-8 High Voltage Failure

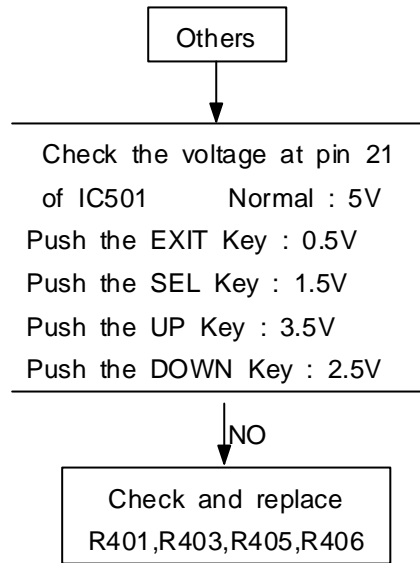


Q701,Q703 BASE

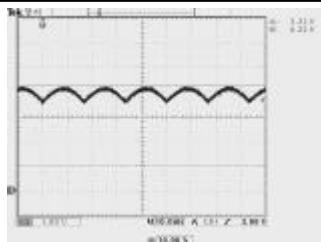
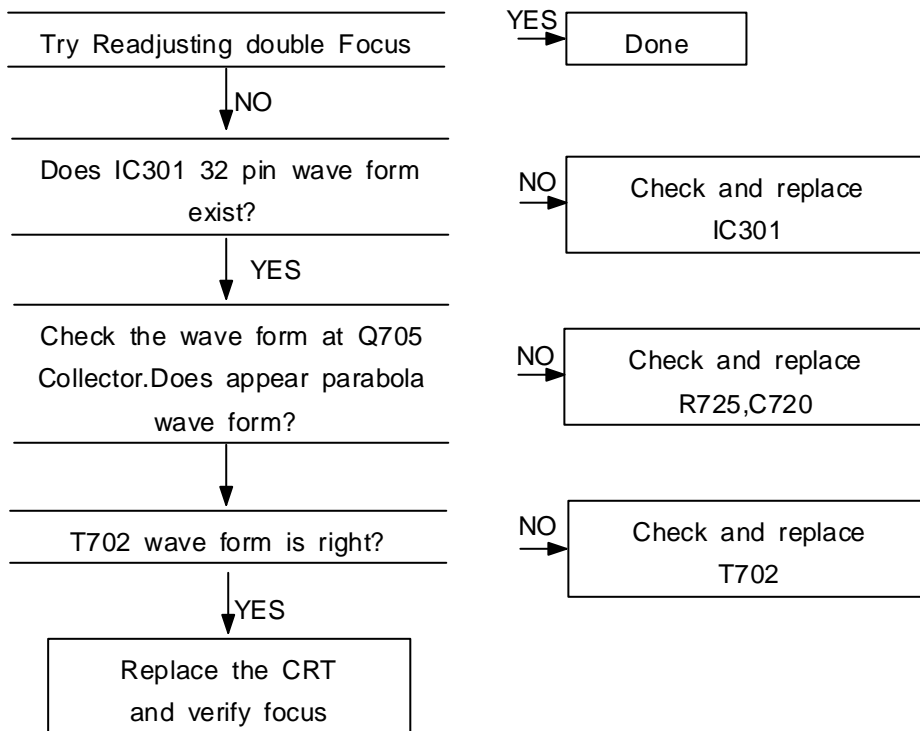


FBT 1pin

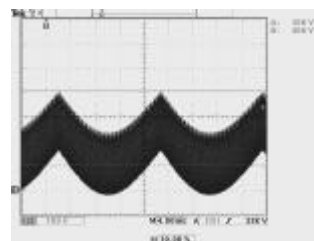
5-1-9 User control Failure



5-1-10 Dynamic Focus Failure or poor Focus

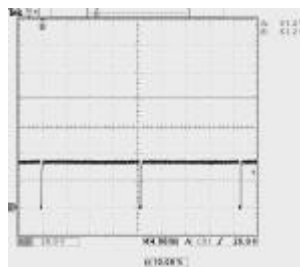
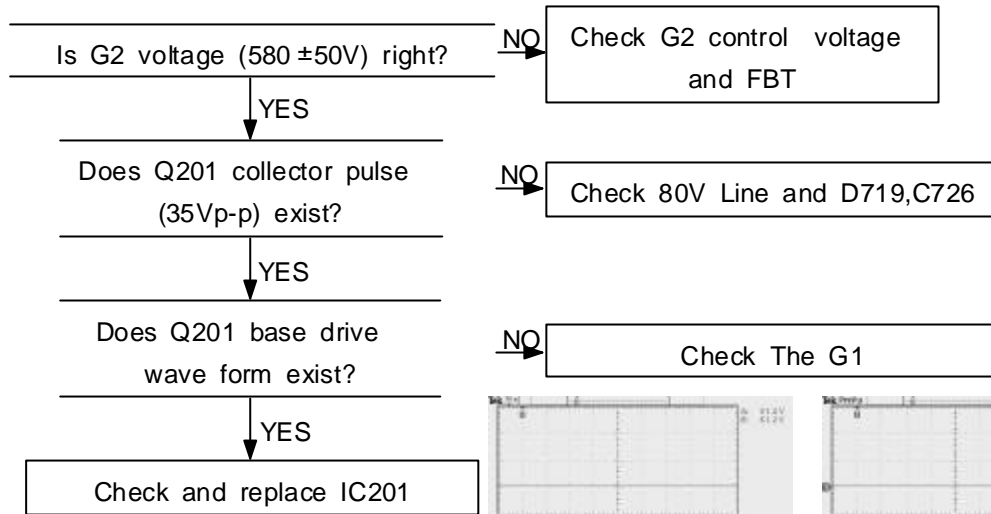


IC301 32 pin

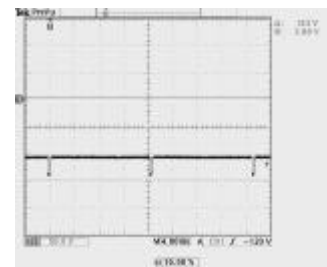


T702

5-1-11 Visible Retrace

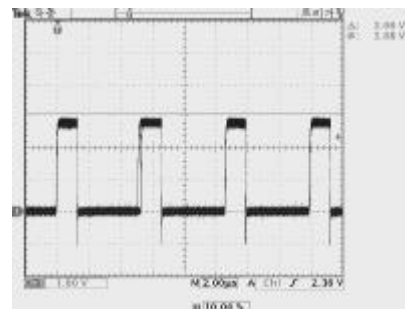
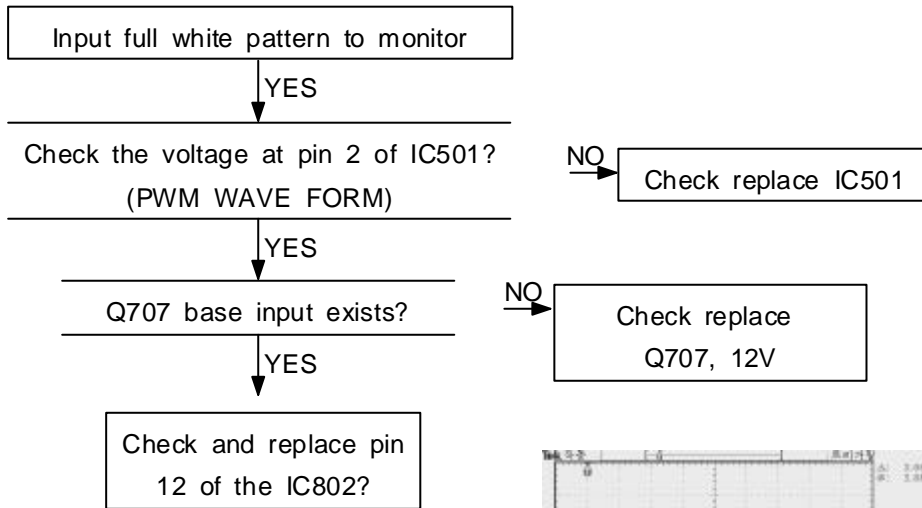


Q201 COLLECTOR



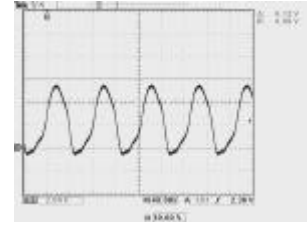
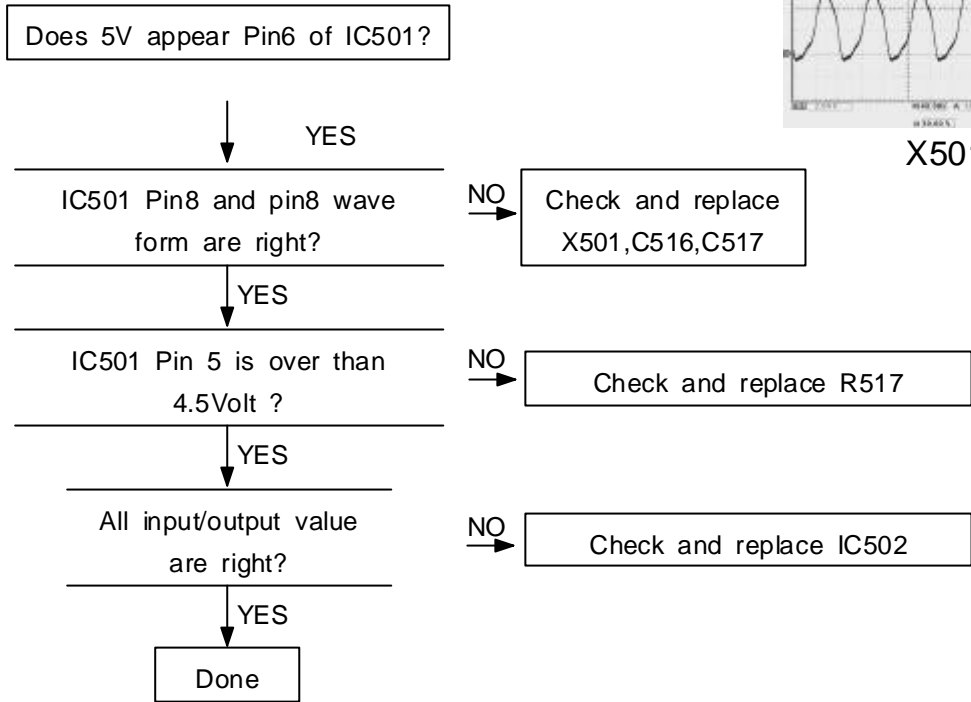
G1

5-1-12 ACL Failure



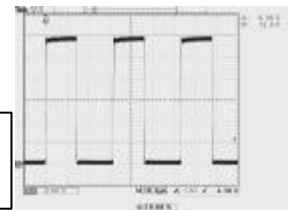
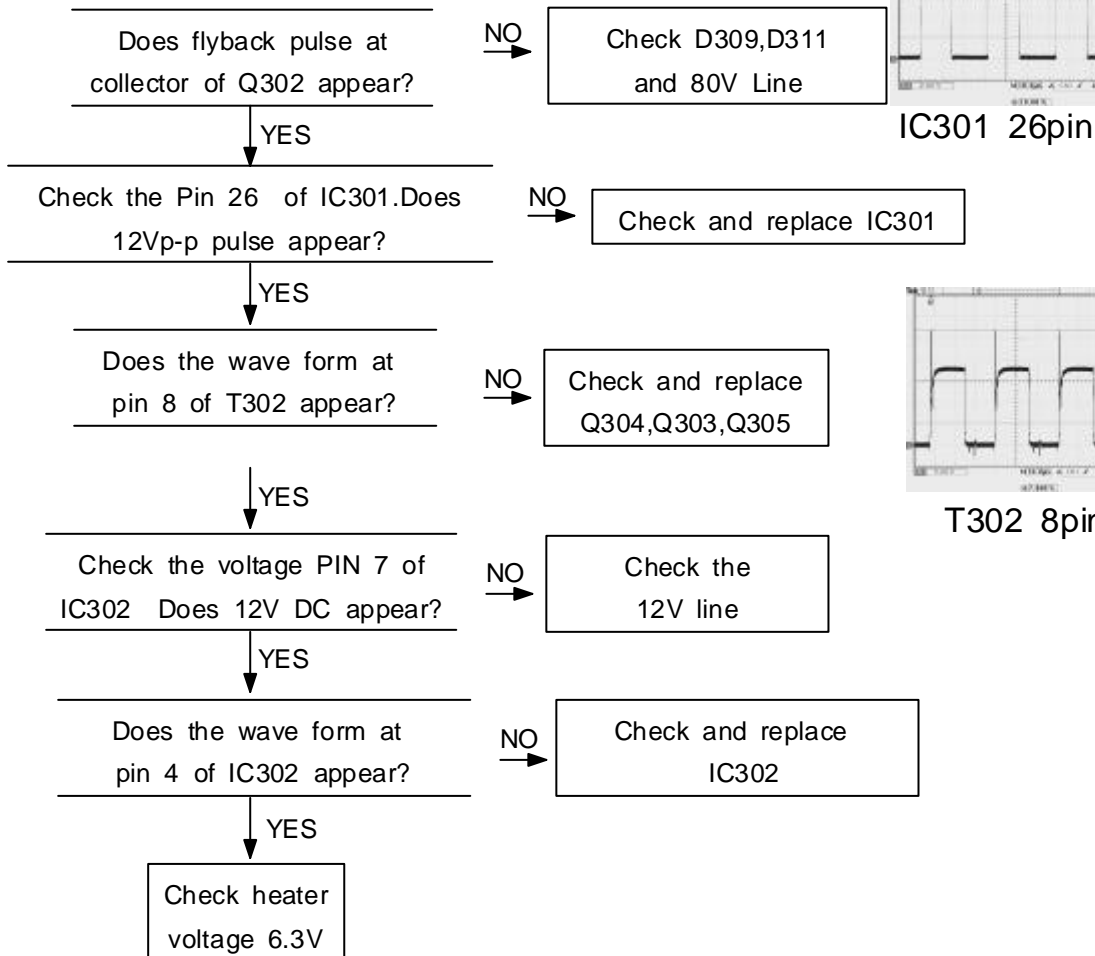
IC501 2pin PWM

5-1-13 Micom Failure

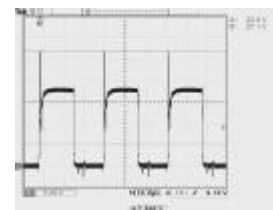


X501

5-1-14 No Raster

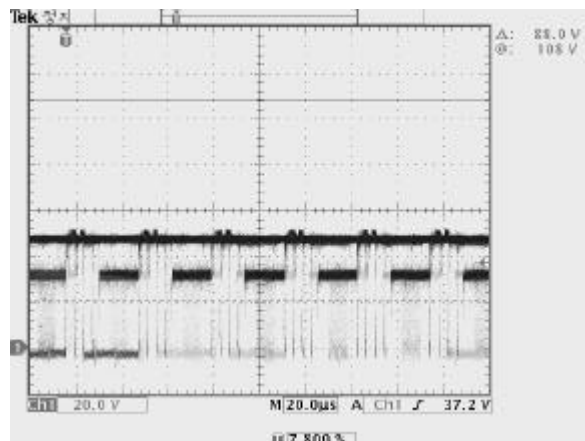
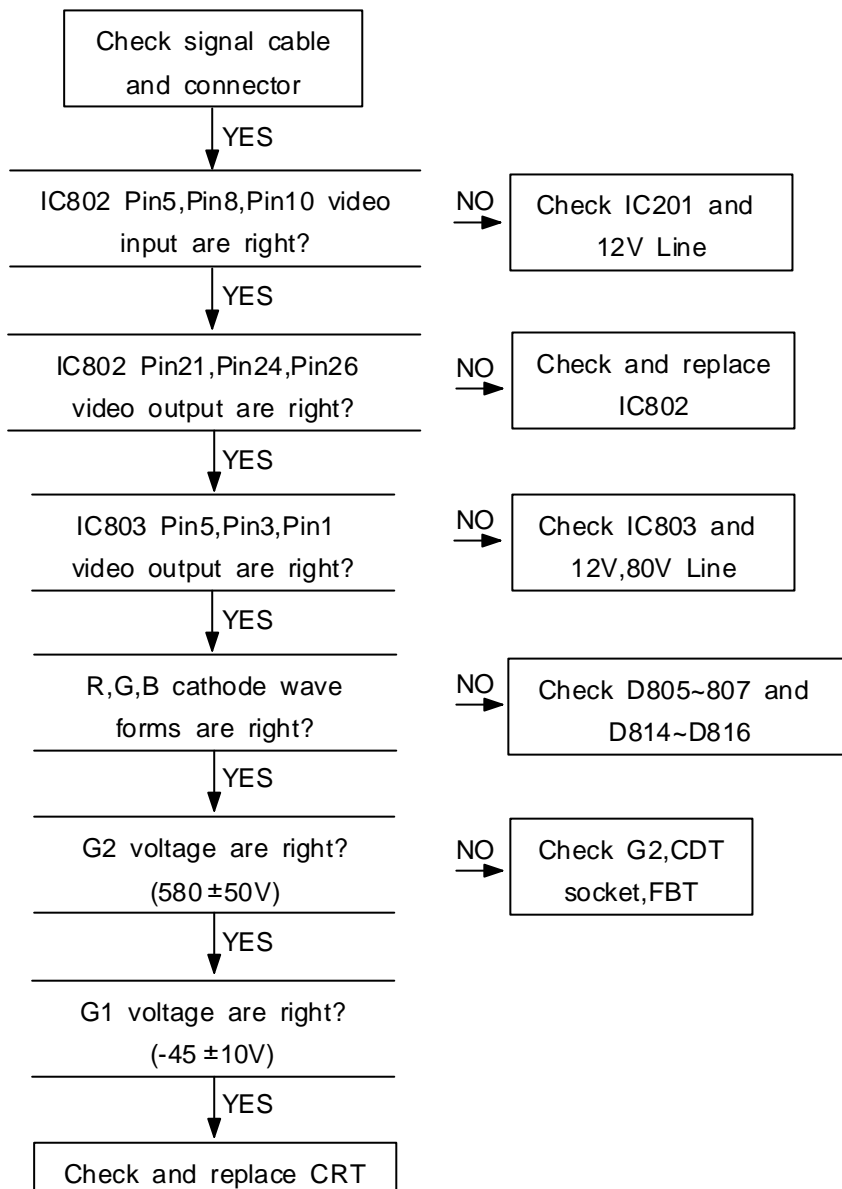


IC301 26pin



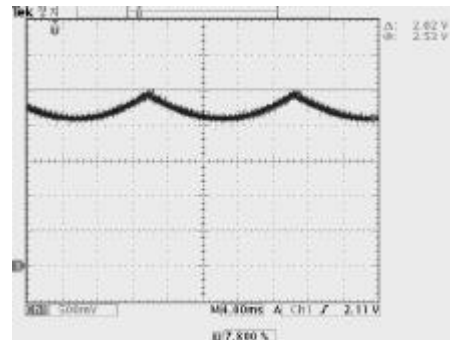
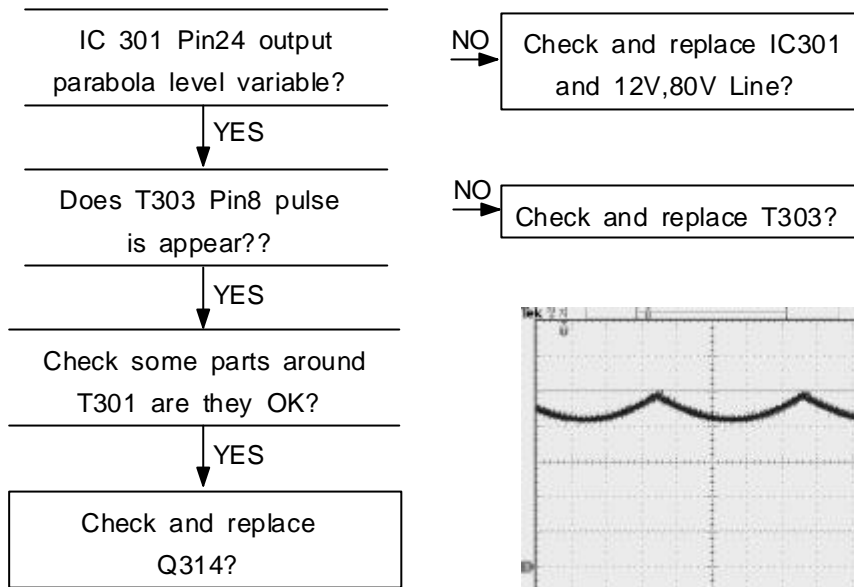
T302 8pin

5-1-15 No Video



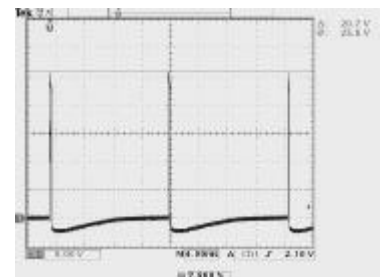
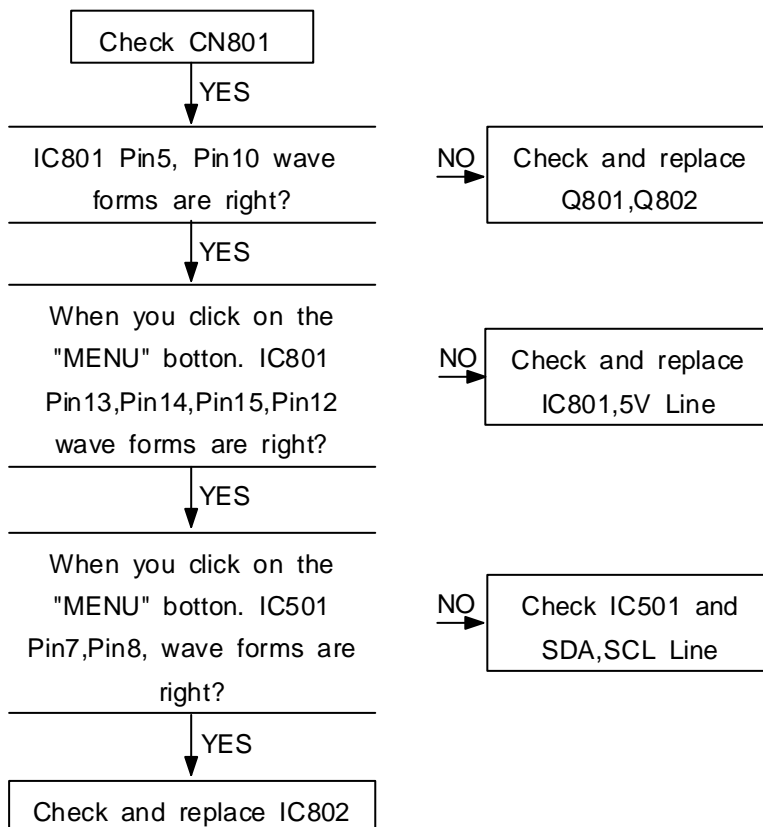
B-OUT Cathode wave form

5-1-16 Abnormal & Invariable H-size

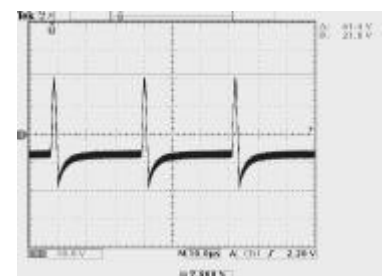


IC301 24pin

5-1-17 OSD failure

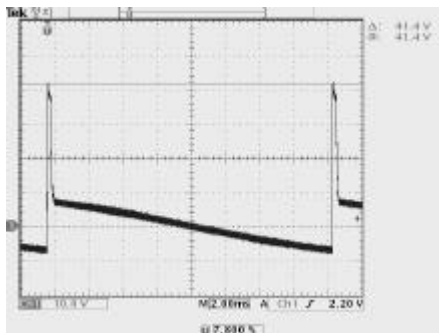
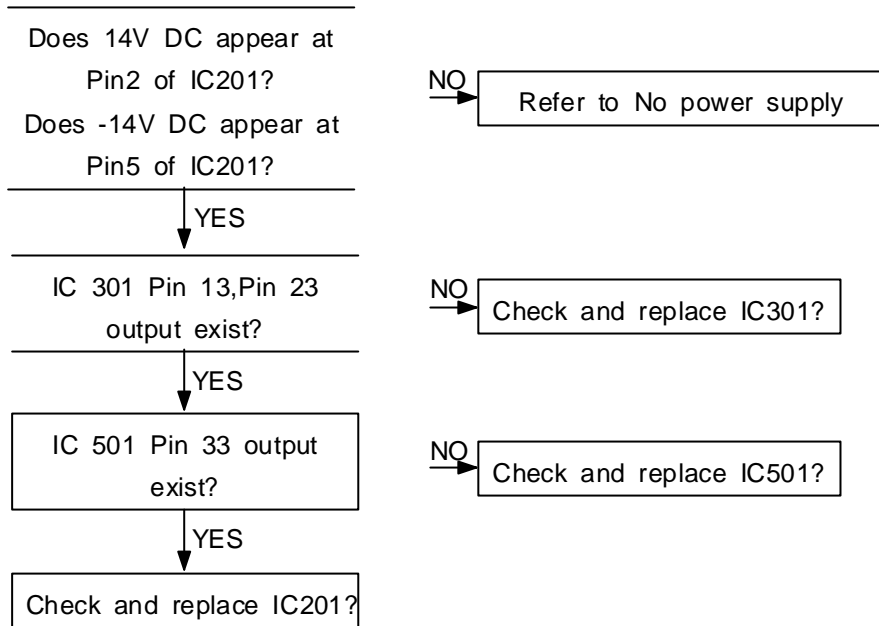


V-FLY

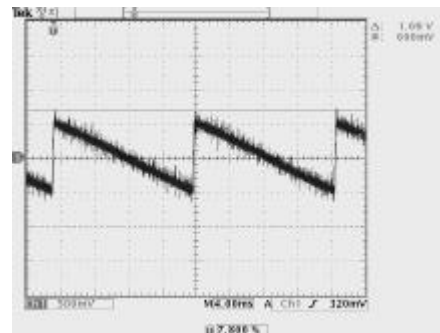


H-FLY

6-1-18 V-deflection failure



IC201 6 pin



IC201 1 pin

6. PART LIST

PART NO	DESCRIPTION	SPECIFICATION	Q'TY	LOCATION NO.
0290 151088	H/S ASS'Y	KA2142, 88X15X50 2PIN	1	IC201
0215 50F020	H/S ASS'Y	19N20, 15X10X50 2PIN	2	Q306, Q308
0215 50F030	H/S ASS'Y	11N40, 15X10X50 2PIN	1	Q314
0215 50F020	H/S ASS'Y	78R12, 15X10X50 2PIN	1	IC103
0215 50F020	H/S ASS'Y	7805, 15X10X50 2PIN	1	IC101
02A3 A0T081	H/S ASS'Y	C5584, 125X81X90 2PIN	1	Q302, Q714, D309, D313
0250 50I100	H/S ASS'Y	6S1265R, 50X15X50 2PIN	1	IC106
CC-2E102EMB	CAP., CERAMIC	E250V 102H(AC Y-CAP, Y1 TYPE)	3	C111, C112, C127
CE-C2E3010B	CAP., ELECT.	KMG10U, 250V	1	C727
CE-C2A4010B	CAP., ELECT.	KME100U, 100V	1	C135
CE-C1C5010B	CAP., ELECT.	KMG1000U, 16V	2	C113, C114
CE-C2A4022B	CAP., ELECT.	KME220U, 100V	1	C714
CE-C1F4047B	CAP., ELECT.	KME470U, 35V	2	C119, C207
CE-C2E3047B	CAP., ELECT.	KMG47U, 250V	2	C124, C344
CE-C2G4033B	CAP., ELECT.	KMH330U, 400V	1	C115
CM-3C701TM	CAP., MEPP	1.6KV 701J	1	C711
CM-2E103TN	CAP., MPP	250V 103J	1	C724
CM-2E104TM	CAP., MPP	250V 104J	1	C341
CM-2E254TM	CAP., MPP	250V 254J	1	C340
CM-2E274TM	CAP., MPP	250V 274J	1	C343
CM-2E564TM	CAP., MPP	250V 564J	1	C339
CM-2E824TM	CAP., MPP	250V 824J	1	C338
CM-AC2E154PK	CAP., MPP (BOX)	275V 154 (X-CAP)	2	C116, C121
CM-3C272TMS	CAP., PP	1.6KV 272J	2	C327, C328
CM-2A102PJ	CAP., PP	100V 102J	2	C305, C335
CO-LT4R2	COIL-LEARITY	4. 2UH	1	L304
CO-CK6R8	COIL-CHOKE	6. 8UH	1	L703
GT-YFW80210	CONNECTOR-2P	10mm	2	CN103, CN301
GT-YFW80208	CONNECTOR-2P	8mm	2	CN101, CN201
ICC-12MHZ	X-TAL	12MHZ/S-TYPE	1	X501
DOB-GBU6K	DIODE-BRIDGE	GBU6K	1	D106
DOR-GUR460L	DIODE-RECTIFIER	GUR460	2	D708, D709
DOR-31GF6	DIODE-RECTIFIER	31GF6	3	D115, D120, D121
DOU-UF5405G1	DIODE-RECTIFIER	UF5404	1	D105
FS-2E3R15A3S	FUSE	53S 250V 3.15A	1	F101
CN-13PW350	HARNESS-13P	350mm ()	1	CN120
CN-04SW500	HARNESS-4P	500mm (SHIELD)	1	CN502
IC-TDA9113	IC	TDA9113	1	IC301
IC-KS24C04	IC-I2CROM	KS24C04	1	IC501
IC-WT62P1	IC-MCU	WT62P1	1	IC502
IS-42P	IC-SOCKET	42PIN SDIP	1	IC502
IC-AN5452	IC-OPAMP	AN5452	1	IC105
IC-KA358A	IC-OPAMP	KA358A	1	IC702
ICP-LTV817	IC-PHOTO	LTV817	1	IC104
IC-KA3883C	IC-PWM	KA3883C	1	IC302
IC-KA7500B	IC-PWM	KA7500B	1	IC701
ICR-HRCR7	RELAY	HR-CR7 DC12V	1	RL101
RV-630V410N	RES-CARBON	630V 100K	1	VR701
RF-CL002R20J	RES-FUSEABLE	2. 2, 1/2W(FUSEABLE)	1	R360
RF-CL022000J	RES-FUSEABLE	22, 1/2W(FUSEABLE)	1	R361
RF-DF000R33J	RES-MO	0. 33, 1W	1	R716
RM-FF001R20J	RES-MO	1. 2, 3W	2	R321, R330
RM-FF001R80J	RES-MO	1. 8, 3W	1	R118
RM-FF310000K	RES-MO	10, 3W	1	R323
RM-DF410000K	RES-MO	100K, 1W	1	R353
RM-DF310000K	RES-MO	10K, 1W	1	R727
RM-FF310000K	RES-MO	10K, 3W	2	R717, R718
RM-FF315000K	RES-MO	15, 3W	2	R314, R732
RM-DF418000K	RES-MO	180K, 1W	1	R101
RM-FF122000J	RES-MO	220, 3W	1	R352
RM-EF122000J	RES-MO	330, 2W	1	R349
RM-FF206R80K	RES-MO	6. 8K, 3W	1	R136
RT-H033000RJ	RES-CEMENT	33, 7W	1	R714
SG-1R5KV	SPARK GAP	S23 1.5KV	1	SG701
TH-8D13	THERMISTOR-NTC	8D13	1	TH102
DP-09ROM2P	THERMISTOR-PTC	9 ohm 2PIN	1	TH101
FT-19A002	TRANS-FBT	FQM19A002	1	T701

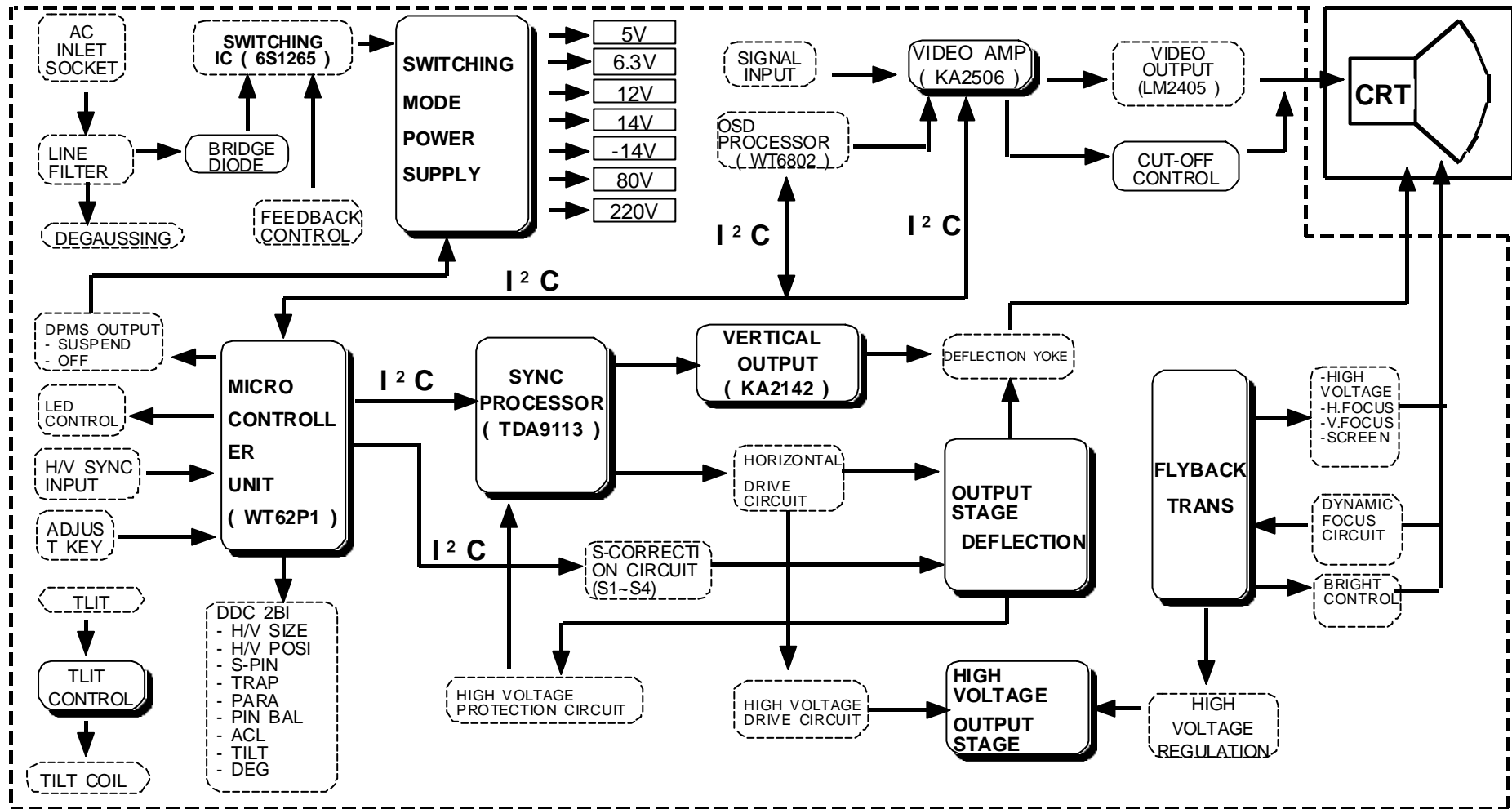
PART NO	DESCRIPTION	SPECIFICATION	Q'TY	LOCATION NO.
CO-DTT1982	TRANS-FOCUS	DFT-82	1	T702
CO-DTG1982	TRANS-GATE	GTT-82	1	T301
CO-DTH1982	TRANS-HDT	HDT-82	1	T302
CO-DTL1982	TRANS-LINEFILTER	LF-82	1	T103
CO-DTM1982	TRANS-MAIN	SPT-82	1	T101
CO-DTS1982	TRANS-SYNC	TGT-82	1	T102
CO-DTC1982	TRANS-SCAN	SCT-82	1	T303
TRF-19N20	TR-FET	19N20	2	Q310,Q312
TRF-4N20	TR-FET	4N20	1	Q304
WF-526706	WAFER	5267-6P	1	CN503
WF-526702	WAFER	5267-2P	1	
WF-B3B2HA	WAFER	B3B-2H-A	1	CN100
PS-KTNAK	PCB-CHASSIS	KT-XX03NA(S)	1	
PS-KTLAL	PCB-CHASSIS	KT-XX04NA(L)	1	
BT-3X12PHW	MACHINE BOLT	PH+PW 3*12()	1	
NT-03PAI	NUT	3PAI	1	
TP-3X08PHW2	SCREW TAPPING	TP+PW-2 3*8	7	
CN-15MS2182	SIGNAL CABLE	1500mm 15PIN	1	
MP-KT1982	PCB MAIN	FR-4,247*197	1	
CC-2H103FZT	CAP-CERAMIC	F 500V 103Z	3	C102,C117,C347
CC-1H103FZT	CAP-CERAMIC	F 50V 103Z	2	C337,C708
CC-1H104FZT	CAP-CERAMIC	F 50V 104Z	8	C122,C204,C206,C333,C502,C511,C513,C702
CC-2H102BKT	CAP-CERAMIC	B 500V 102K	3	C332,C342,C345
CC-1H101SJT	CAP-CERAMIC	SL 50V 101J	3	C210,C504,C506
CC-1H102SJT	CAP-CERAMIC	SL 50V 102J	1	C503
CC-1H121SJT	CAP-CERAMIC	SL 50V 121J	1	C315
CC-1H220SJT	CAP-CERAMIC	SL 50V 220J	2	C516,C517
CC-1H331SJT	CAP-CERAMIC	SL 50V 331J	1	C334
CC-1H330SJT	CAP-CERAMIC	SL 50V 330J	2	C507,C508
CC-1H680SJT	CAP-CERAMIC	SL 50V 681J	1	C326
CC-3A101BKT	CAP-CERAMIC(EPOXY)	B 1KV 101K	1	C348
CC-3D152BKT	CAP-CERAMIC(EPOXY)	B 2KV 152K	1	C709
CC-3A221BKT	CAP-CERAMIC(EPOXY)	B 2KV 221K	4	C129,C720,C712,C722
CC-3A331BKT	CAP-CERAMIC(EPOXY)	B 1KV 331K	1	C310
CE-C1C4010T	CAP-ELECTROLYTIC	KME100U,16V	2	C105,C728
CE-C1H3010T	CAP-ELECTROLYTIC	KME10U,50V	7	C301,C324,C316,C501,C514,C515,C710
CE-C1H2001T	CAP-ELECTROLYTIC	KME1U,50V	4	C131,C202,C312,C322,C505
CE-C2H22R2T	CAP-ELECTROLYTIC	KMG2.2U,450V	1	C713
CE-C1C4022T	CAP-ELECTROLYTIC	KMG220U,16V	4	C103,C325,C331,C707
CE-C1F4022T	CAP-ELECTROLYTIC	KME220U,35V	1	C203
CE-C1H3022T	CAP-ELECTROLYTIC	KME22U,50V	1	C701
CE-C1H3033T	CAP-ELECTROLYTIC	KME33U,50V	1	C123
CE-C1H24R7T	CAP-ELECTROLYTIC	KME4.7U,50V	2	C306,C717
CE-C1C4047T	CAP-ELECTROLYTIC	KMG470U,16V	4	C106,C118,C205,C303
CE-C1H3047T	CAP-ELECTROLYTIC	KME47U,50V	3	C314,C703,C715
CE-D1H23R3T	CAP-ELECTROLYTIC	SMS-BP(D)3.3U,50V	4	C100,C308,C718,C719
CM-2A104KT	CAP-MP	100V 104K	1	C716
CM-2E104KT	CAP-MP	250V 104K	1	C726
CM-2A224KT	CAP-MP	100V 224K	1	C704
CM-1J224JT	CAP-MP	63V 224K	1	C336
CM-1J474JT	CAP-MP	63V 474K	4	C309,C313,C319,C320
CM-1J105JT	CAP-MP	63V 105K	1	C209
CL-2A332JT	CAP-MYLAR	100V 332J	1	C317
CL-2A472JT	CAP-MYLAR	100V 472J	2	C126,C208
CL-2A153JT	CAP-MYLAR	100V 153J	1	C104
CL-2A103JT	CAP-MYLAR	100V 103J	6	C107,C109,C304,C307,C318,C706
CL-2A223JT	CAP-MYLAR	100V 223J	2	C108,C321
CL-2A222JT	CAP-MYLAR	100V 222J	1	C330
CL-2A273JT	CAP-MYLAR	100V 273J	1	C329
CL-2A473JT	CAP-MYLAR	100V 473J	2	C323,C346
CL-2A563JT	CAP-MYLAR	100V 563J	1	C705
CL-2A154JT	CAP-MYLAR	100V 154J	1	C311
CL-2A104JT	CAP-MYLAR	100V 104J	3	C125,C134,C302
CL-2A224JT	CAP-MYLAR	100V 224J	1	C110
CO-BD3550L	COIL-BEAD	BFS3550	13	L103,L104,L105,L106,L108,L109,L112,L302,L303 L308,L309,L705,L706
CO-BD3510L	COIL-BEAD	BFS3510	1	L702

PART NO	DESCRIPTION	SPECIFICATION	Q'TY	LOCATION NO.
CO-1N03150K	COIL-INDUCTOR	AL03TB151K	1	L301
CO-1N03330K	COIL-INDUCTOR	AL03TB330K	1	L110
CO-1N03470K	COIL-INDUCTOR	AL03TB470K	1	L701
DOR-1N4007	DIODE-RECTIFIER	1N4007GP	1	D312
DOS-1N4148	DIODE-RECTIFIER	1N4148	24	D101, D116, D117, D201, D301, D302, D304, D305, D306 D310, D701, D702, D703, D704, D706, D707, D713, D714, D716 D717, D551, D554, D555, D556
DOS-BAV21	DIODE-RECTIFIER	BAV21 (1SS244)	2	D316, D719
DOS-UF1G	DIODE-RECTIFIER	UF1G	3	D110, D112, D303
DOS-UF4004G1	DIODE-RECTIFIER	UF4004	7	D107, D114, D202, D307, D311, D315, D711
DOS-UF4007G1	DIODE-RECTIFIER	UF4007	6	D111, D119, D710, D712, D721, D722
DOZ-1N5242	DIODE-ZENER	1N5242 (12V)	1	D102
DOZ-1N5230	DIODE-ZENER	1N5230 (4.7V)	2	D104, D715
DOZ-1N5232	DIODE-ZENER	1N5232 (5.6V)	3	D550, D552, D553
FC-FC51F	FUSE-CLIP	FC-51F	2	F101
IC-KA431	IC-SCR	KA431 (K1A431)	1	IC102
RC-CT001000J	RES-CARBON	1, 1/2W	2	R208, R301
RC-CT001R20J	RES-CARBON	1.2, 1/2W	1	R205
RC-AT201R20K	RES-CARBON	1.2K, 1/6W	9	R307, R335, R336, R339, R340, R343, R344, R346, R348
RC-AT201R50K	RES-CARBON	1.5K, 1/6W	2	R114, R711
RC-BT201R80K	RES-CARBON	1.8K, 1/4W	1	R532
RC-CT010000J	RES-CARBON	10, 1/2W	1	R322
RC-AT110000J	RES-CARBON	100, 1/6W	11	R206, R302, R303, R324, R523, R527, R529 R534, R537, R726, R744
RC-CT410000K	RES-CARBON	100K, 1/2W	1	R115
RC-BT410000K	RES-CARBON	100K, 1/4W	1	R738
RC-AT410000K	RES-CARBON	100K, 1/6W	4	R334, R338, R342, R347
RC-AT310000K	RES-CARBON	10K, 1/6W	2	R106, R210
RC-CT412000K	RES-CARBON	120K, 1/2W	1	R116
RC-CT415000K	RES-CARBON	150K, 1/2W	1	R725
R	RES-CARBON	15K, 1/6W	2	R217, R724
RC-CT418000J	RES-CARBON	180K, 1/2W	2	R728, R729
RC-AT318000K	RES-CARBON	18K, 1/6W	6	R319, R329, R333, R337, R341, R345
RA-AT201000K	RES-CARBON	1K, 1/6W	8	R103, R123, R518, R520, R704, R706, R709, R734
RC-CT501000M	RES-CARBON	1M, 1/2W	1	R739
RC-AT202R20K	RES-CARBON	2.2K, 1/6W	5	R501, R502, R514, R731, R735
RC-AT202R40K	RES-CARBON	2.4K, 1/6W	1	R327
RC-AT202R70K	RES-CARBON	2.7K, 1/6W	3	R309, R310, R311
RC-CT122000J	RES-CARBON	220, 1/2W	1	R207
RC-AT122000J	RES-CARBON	220, 1/6W	1	R517
RC-AT124000J	RES-CARBON	240, 1/6W	1	R108
RC-CT420000K	RES-CARBON	200K, 1/2W	2	R117, R121
RC-CT422000K	RES-CARBON	220K, 1/2W	2	R125, R126
RC-AT422000K	RES-CARBON	220K, 1/6W	1	R104
RC-AT322000K	RES-CARBON	22K, 1/6W	3	R201, R723, R730
RC-BT127000J	RES-CARBON	270, 1/4W	1	R128
RC-BT427000K	RES-CARBON	270K, 1/4W	1	R737
RC-AT203R30K	RES-CARBON	27K, 1/6W	1	R740
RC-AT203R90K	RES-CARBON	3.3K, 1/6W	1	R202
RC-AT203R90K	RES-CARBON	3.9K, 1/6W	2	R521, R526
RC-CT033000J	RES-CARBON	33, 1/2W	2	R133, R134
RC-AT133000J	RES-CARBON	330, 1/6W	1	R127
RC-CT433000K	RES-CARBON	330K, 1/2W	1	R120
RC-AT433000K	RES-CARBON	330K, 1/6W	1	R318
RC-CT333000K	RES-CARBON	33K, 1/2W	1	R137
RC-CT339000K	RES-CARBON	39K, 1/4W	1	R736
RC-CT139000J	RES-CARBON	390, 1/2W	1	R109
RC-BT139000J	RES-CARBON	390, 1/4W	1	R733
RC-AT439000K	RES-CARBON	390K, 1/6W	1	R705
RC-BT004R70J	RES-CARBON	4.7, 1/4W	2	R131, R326
RC-AT204R70K	RES-CARBON	4.7K, 1/6W	16	R113, R130, R305, R503, R504, R505, R506, R507 R508, R509, R510, R511, R512, R513, R525, R743
RC-BT047000J	RES-CARBON	47, 1/4W	2	R102, R325
RC-AT247000J	RES-CARBON	470, 1/6W	1	R708
RC-AT347000K	RES-CARBON	47K, 1/6W	1	R122
RC-AT205R10K	RES-CARBON	5.1K, 1/6W	2	R702, R710
RC-AT205R60K	RES-CARBON	5.6K, 1/6W	2	R312, R703

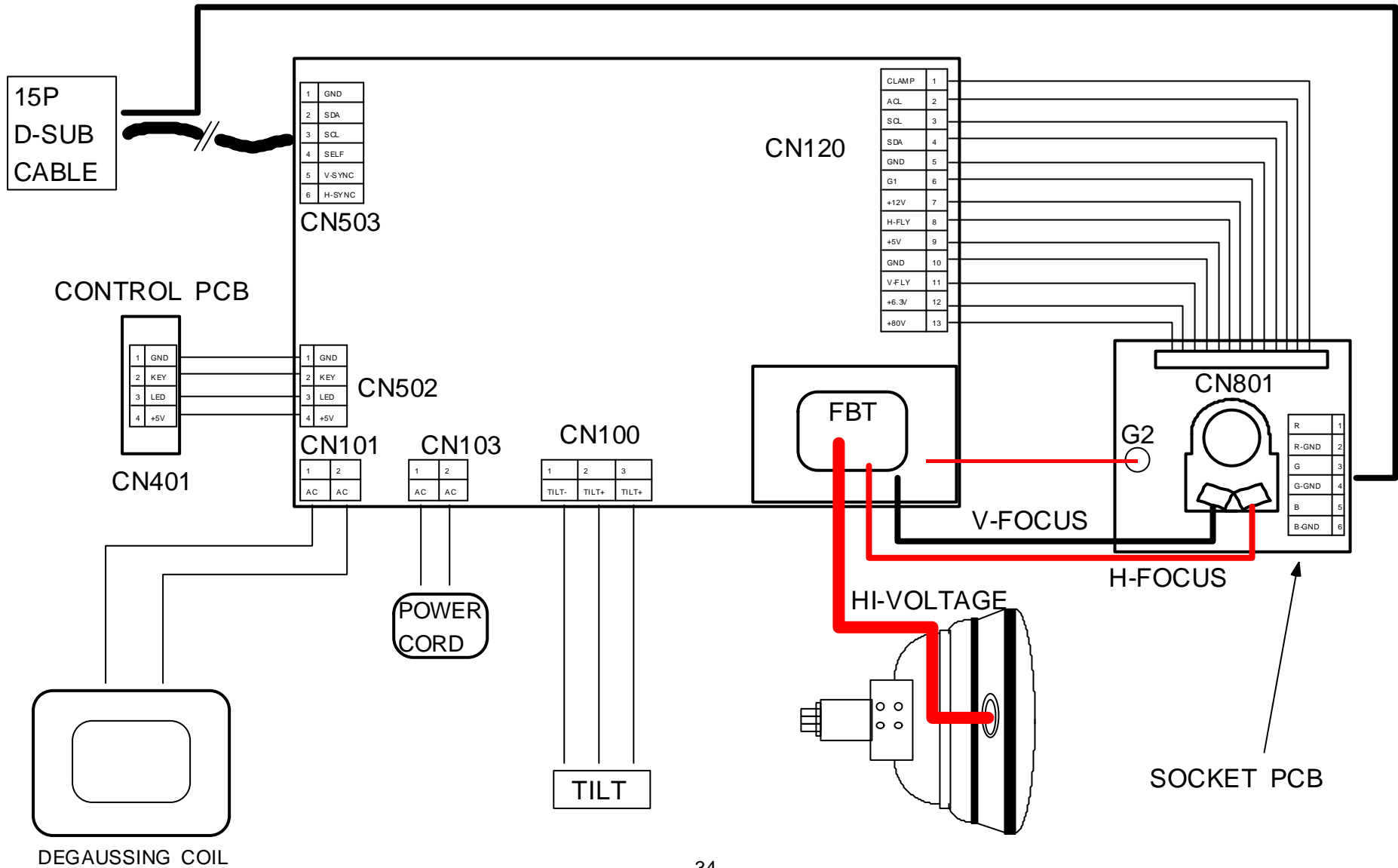
PART NO	DESCRIPTION	SPECIFICATION	Q'TY	LOCATION NO.
RC-AT056000J	RES-CARBON	56, 1/6W	4	R528, R530, R535, R536
RC-BT156000J	RES-CARBON	560, 1/4W	1	R304
RC-AT206R20K	RES-CARBON	6.2K, 1/6W	1	R701
RC-BT006R80J	RES-CARBON	6.8, 1/4W	1	R715
RC-AT206R80K	RES-CARBON	6.8K, 1/6W	3	R105, R316, R350
RC-AT207R50K	RES-CARBON	7.5K, 1/6W	2	R331, R707
RC-BT075000J	RES-CARBON	75, 1/4W	1	R315
RC-AT275000K	RES-CARBON	750, 1/6W	1	R359
RC-AT375000K	RES-CARBON	75K, 1/6W	2	R320, R332
RC-AT208R20K	RES-CARBON	8.2K, 1/6W	1	R203
RC-AT482000K	RES-CARBON	820K, 1/6W	1	R110
RC-CT001R20JF	RES-METAL, F	1.2, 1/2W	2	R213, R214
RC-AT202R20KF	RES-METAL, F	2.2K, 1/6W	1	R713
RC-BT310000KF	RES-METAL, F	10K, 1/4W	1	R719
RC-AT310000KF	RES-METAL, F	10K, 1/6W	2	R209, R216
RC-AT312000KF	RES-METAL, F	12K, 1/6W	2	R355, R712
RC-BT312000KF	RES-METAL, F	200K, 1/4W	1	R720
RC-AT320000KF	RES-METAL, F	20K, 1/6W	1	R308
RC-BT320000KF	RES-METAL, F	20K, 1/4W	1	R356
RC-AT327000KF	RES-METAL, F	27K, 1/6W, F	3	R215, R522, R742
RC-BT202000KF	RES-METAL, F	2K, 1/4W, F	1	R107
RC-AT203R30KF	RES-METAL, F	3.3K, 1/6W, F	3	R211, R212, R358
RC-BT203R90KF	RES-METAL, F	3.9K, 1/4W, F	1	R721
RC-AT347000KF	RES-METAL, F	47K, 1/6W, F	1	R357
RC-AT205R10KF	RES-METAL, F	5.1K, 1/6W, F	1	R306
TR-2N3904	TR-NPN	2N3904	2	Q701, Q702
TR-KSC945	TR-NPN	C945YC	8	Q103, Q105, Q201, Q303, Q307, Q309, Q311, Q313
TR-KSC1008	TR-NPN	KSC1008	1	Q101
TR-KSP44	TR-NPN	KSP44	1	Q705
TR-2N3906	TR-PNP	2N3906	1	Q703
TR-2N6520	TR-PNP	2N6520	1	Q706
TR-A1273	TR-PNP	A1273	1	Q104
TR-A733	TR-PNP	A733YC	3	Q301, Q305, Q707
CC-3D102BKB	CAP-CERAMIC(EPOXY)	2KV 102K	1	C837
CV-CR150X095	CRT COVER	150 * 95mm	1	
GT-1PIN	GT-PIN	GT-1PIN	2	CN803, CN804
IC-WT6802	IC-OSD	WT6802	1	IC801
IC-KA2506	IC-PREAMP	KA2506	1	IC802
CS-1SDS01S	SOCKET-CRT	1SDS01S	1	CRT801
SG-1R5KV	SPARK GAP	1.5KV	1	SP805
WT-526706	WAFER	5267-6P	1	CN802
WF-SMW25013	WAFER	SMW250-13P	1	CN801
WF-526804	WAFER	5268-4P	1	CN401
Q2A4 301110	H/S ASS'Y	LM2405 140X30X35	1	IC803
CP-KT1982	PCB	CEM-1 150x100	1	
CC-1H104FZT	CAP-CERAMIC	F 50V 104Z	9	C806, C817, C822, C825, C827, C831, C832, C833, C838
CC-2H103FZT	CAP-CERAMIC	F 500V 103Z	2	C821, C836
CC-1H101SJT	CAP-CERAMIC	SL 50V 101J	2	C839, C840
CE-C1C4010T	CAP-ELECTROLYTIC	KME100U, 16V	1	C805
CE-C1C4022T	CAP-ELECTROLYTIC	KME220U, 16V	3	C809, C813, C815, C818
CE-C1H23R3T	CAP-ELECTROLYTIC	KME3.3U, 50V	1	C834
CE-C2A3047T	CAP-ELECTROLYTIC	KME47U, 100V	1	C820
CE-E2A2001T	CAP-ELECTROLYTIC	KME-BP(D)1U, 100V	3	C814, C824, C830
CL-2A472JT	CAP-MYLAR	100V 472J	1	C807
CL-2A104JT	CAP-MYLAR	100V 104J	6	C802, C803, C804, C810, C811, C812
CL-2A224JT	CAP-MYLAR	100V 224J	1	C808
CO-BD3550L	COIL-BD	BFS3550	7	BD801, BD803, BD804, BD805, BD806, BD807, L807
CO-1N030R47K	COIL-INDUCTOR	AL03TBR47K	3	L802, L803, L805
D0S-1N4148	DIODE-RECTIFIER	1N4148	7	D801, D808, D809, D810, D817, D818, D819
D0S-BAV21	DIODE-RECTIFIER	BAV21 (1SS244)	9	D802, D803, D804, D805, D806, D807, D814, D815, D816
DOU-UF4004GI	DIODE-RECTIFIER	UF4004	1	D823
DOL-3PAI	DIODE-LED	GREEN 3PAI	1	D401
JP-5200TP	JUMPER	52mm TAPPING	4	J801, J802, J811, J813
JP-5200TP	JUMPER	52mm TAPPING	14	J803, J804, J805, J808, J808, J812, J814, J815, J816, J817 J818, J821, J823, J824
JP-5200TP	JUMPER	52mm TAPPING	1	J825
JP-5200TP	JUMPER	52mm TAPPING	2	J806, J807

PART NO	DESCRIPTION	SPECIFICATION	Q'TY	LOCATION NO.
JP-5200TP	JUMPER	52mm TAPPING	5	J809, J810, J819, J820, J822
RC-CT010000J	RES-CARBON	10, 1/2W	3	R827, R832, R835
RC-AT110000J	RES-CARBON	100, 1/6W	9	R401, R806, R816, R817, R818, R833, R836, R855, R860
RC-AT310000K	RES-CARBON	10K, 1/6W	1	R805
RC-AT201000K	RES-CARBON	1K, 1/6W	5	R402, R406, R801, R807, R808
RC-AT202R20K	RES-CARBON	2.2K, 1/6W	3	R813, R814, R815
RC-CT122000J	RES-CARBON	220, 1/2W	1	R848
RC-BT422000K	RES-CARBON	220K, 1/4W	3	R819, R821, R822
RC-AT202R40K	RES-CARBON	2.4K, 1/6W	1	R405
RC-AT203R90K	RES-CARBON	3.9K, 1/6W	1	R803
RC-AT133000J	RES-CARBON	330, 1/6W	1	R404
RC-AT318000K	RES-CARBON	12K, 1/6W	1	R854
RC-AT139000J	RES-CARBON	390, 1/6W	7	R820, R823, R824, R828, R844, R845, R846
RC-BT047000J	RES-CARBON	47, 1/4W	6	R825, R826, R830, R831, R834, R841
RC-AT147000J	RES-CARBON	470, 1/6W	1	R403
RC-AT168000J	RES-CARBON	680, 1/6W	2	R802, R812
RC-AT075000J	RES-CARBON	75, 1/6W	6	R829, R837, R843, R850, R851, R852
RC-BT382000K	RES-CARBON	82K, 1/4W	3	R809, R810, R811
SG-BS0201M	SURGEABSOBER	201M	3	SP801, SP802, SP803
SG-BS0401M	SURGEABSOBER	401M	1	SP804
SW-DHT1105	SWITCH-TACT	DHT1105 (2PIN)	4	SW401, SW402, SW403, SW404
TR-2N3904	TR-NPN	2N3904	2	Q801, Q802
TR-KSP44	TR-NPN	KSP44	3	Q806, Q807, Q808
TR-KSP92	TR-PNP	KSP92	3	Q803, Q804, Q805
HS-C1510302A	HEAT SINK,C	AL, 15X10X30, 2PIN	1	
IC-KA7805	I.C-REGULATOR	KA7805/KIA7805P (AP)	1	IC101
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	1	
HS-C1510302A	HEAT SINK,C	AL, 15X10X30, 2PIN	1	
IC-KA78R12	I.C-REGULATOR	KA78R12	1	IC103
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	1	
HS-C1510302A	HEAT SINK,C	AL, 15X10X30, 2PIN	2	
TR-19N20	TR-FET	19N20	2	Q306, Q308
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	2	
HS-C1510302A	HEAT SINK,C	AL, 15X10X30, 2PIN	1	
TR-11N40	TR-FET	11N40	1	Q314
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	1	
HS-C9015502A	HEAT SINK,C	AL, 88*15*50, 2PIN	1	
IC-KA2142	IC-VERTICAL	KA2142	1	IC201
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	1	
HS-CA372A1A	HEAT SINK,C	AL, 125X81X90	1	
TRF-C5584	TR-FET	C5584	1	Q302
TRF-SSS10N60	TR-FET	SSS10N60A	1	Q714
DOD-DTV56F	DIODE-DAMPER	DTV56F	2	D309, D313
TP-3X10PHW2	TAPPING, . SCREW	TP+PW-2 3*10	4	
SR-19X24		20*24	1	Q302
HS-C5015602A	HEAT SINK,C	AL, 50X15X60, 2PIN	1	
IC-6S1265R	IC	6S1265R	1	
TP-3X10PHW2	TAPPING, . SCREW	TP+PW-2 3*10	1	
SR-19X24		20*24	1	
HS-CA430352A	HEAT SINK,C	AL, 140X30X35, 2PIN	1	
IC-LM2405	IC-VIDEO	LM2405	1	
TP-3X08PHW2	TAPPING, . SCREW	TP+PW-2 3*8	1	

7. BLOCK DIAGRAM

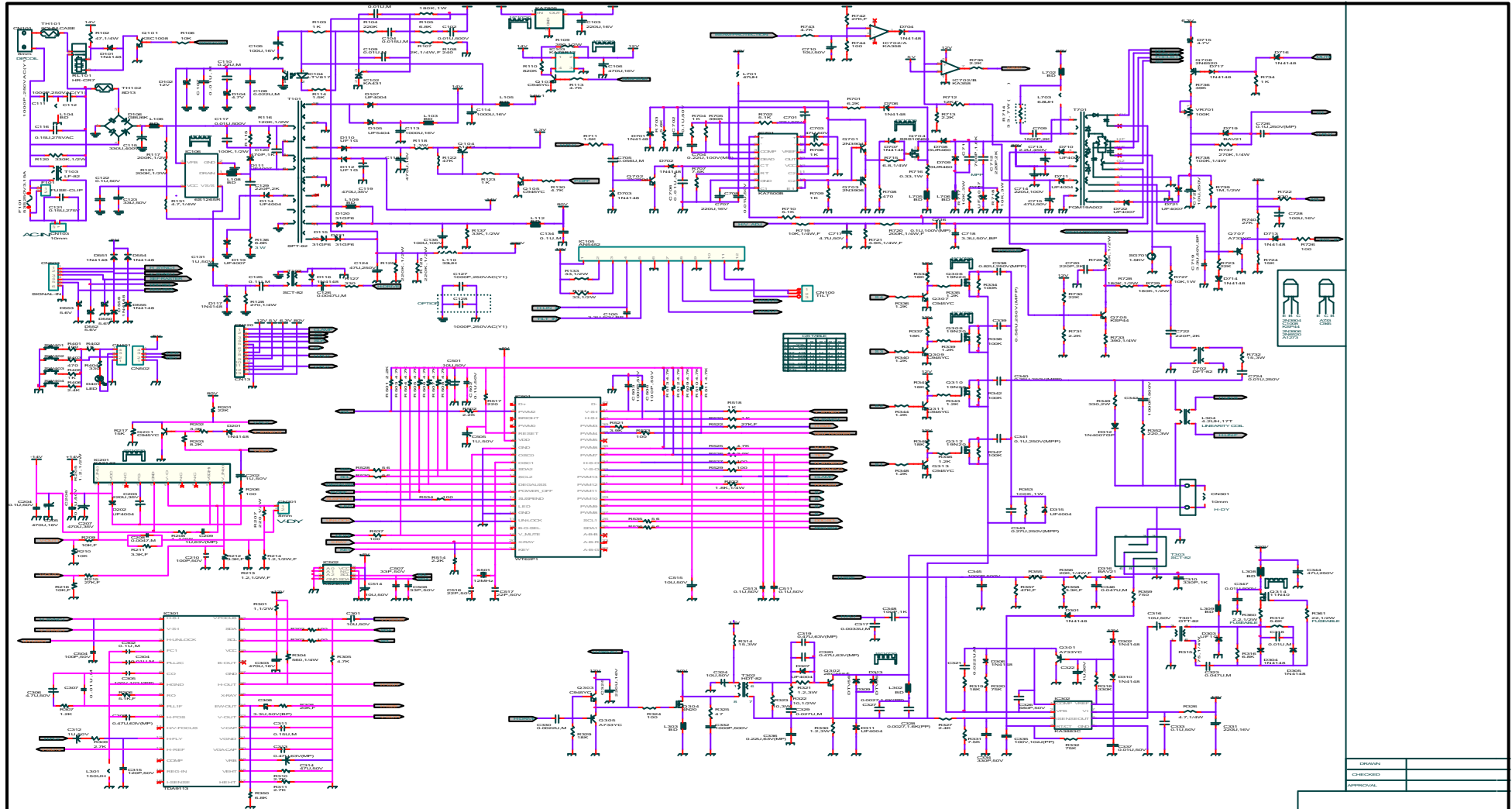


8. CONNECTING DIAGRAM



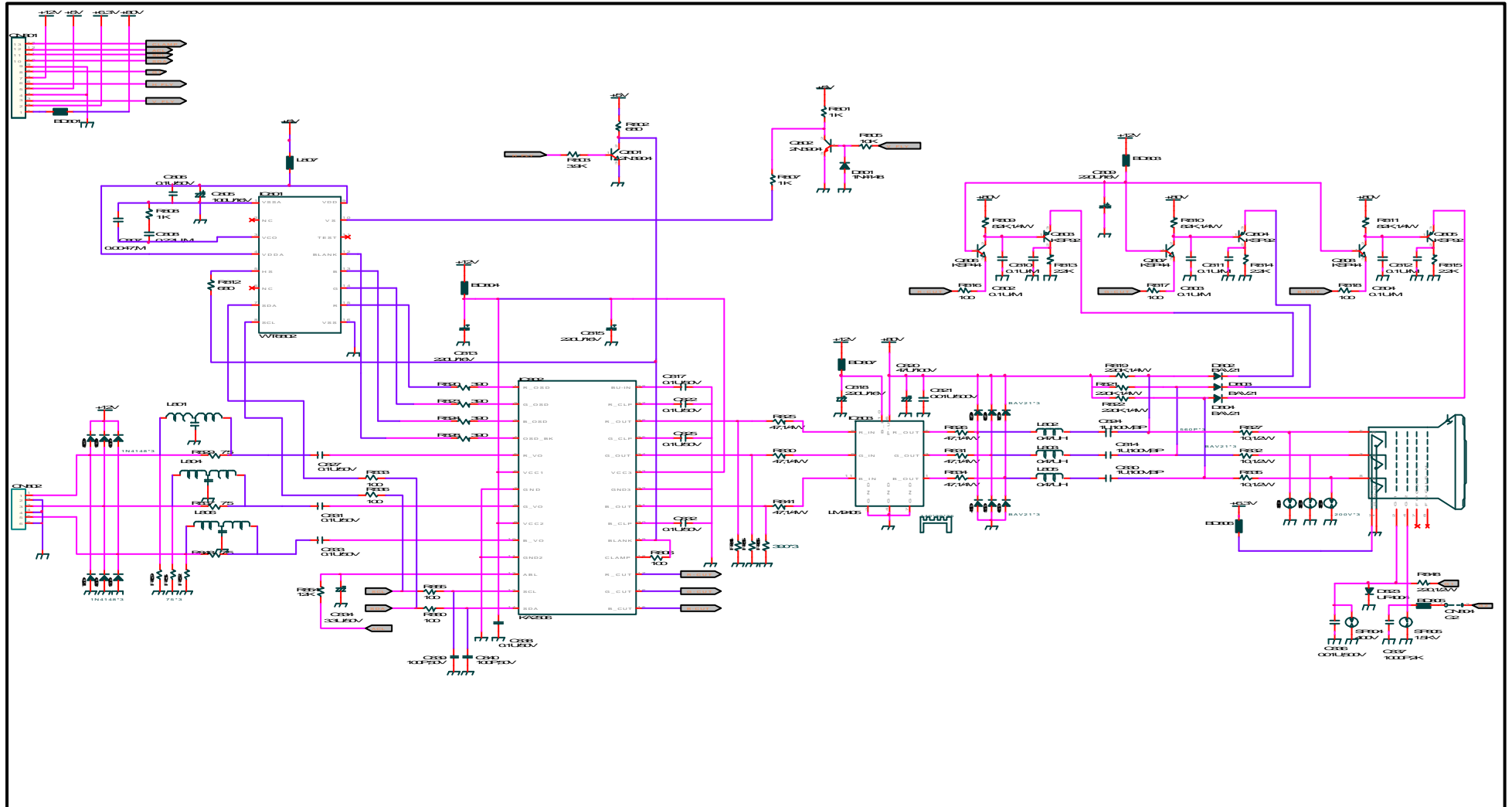
9. SCHEMATIC

9-1 MAIN



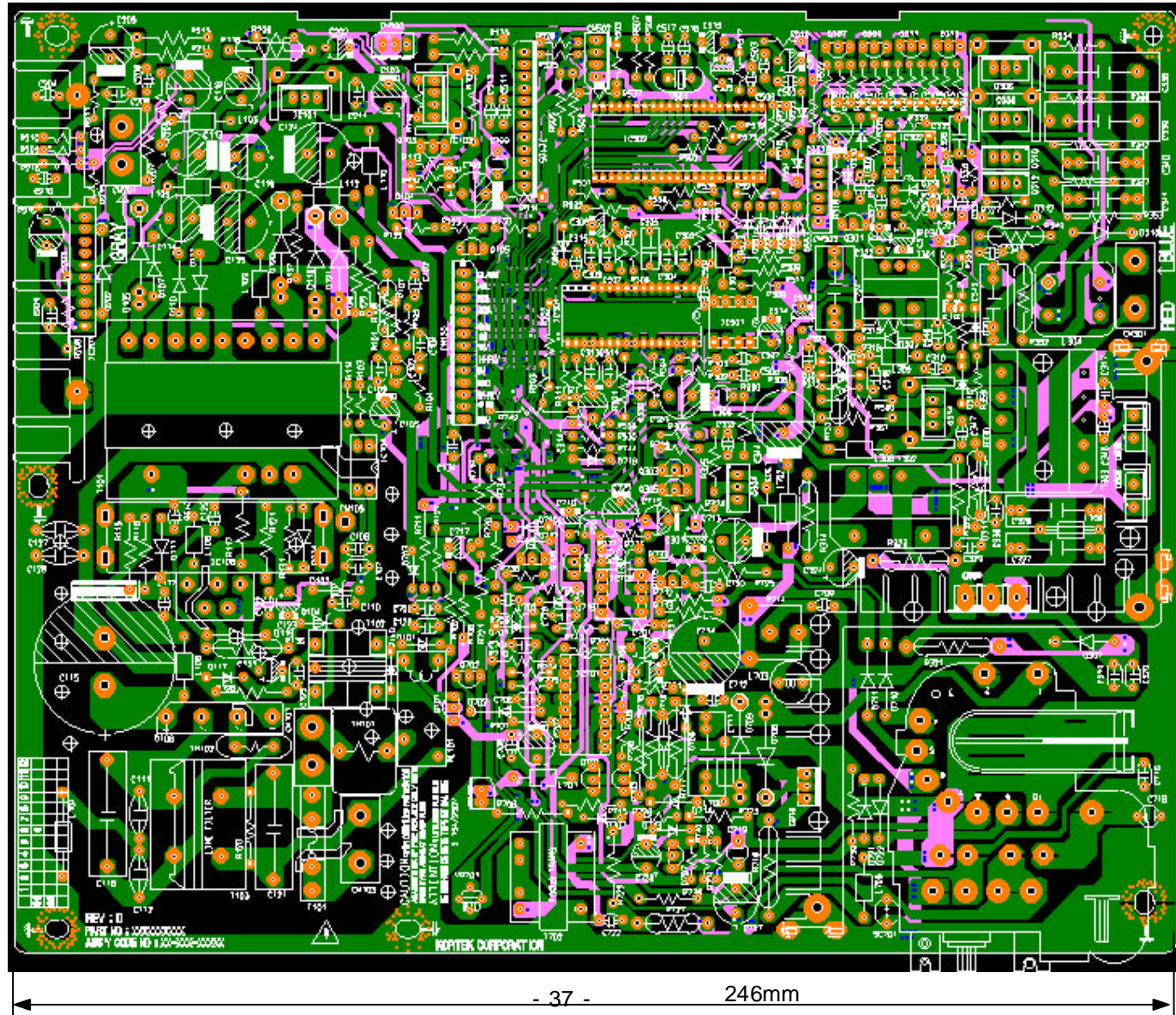
9. SCHEMATIC

9-2 VIDEO



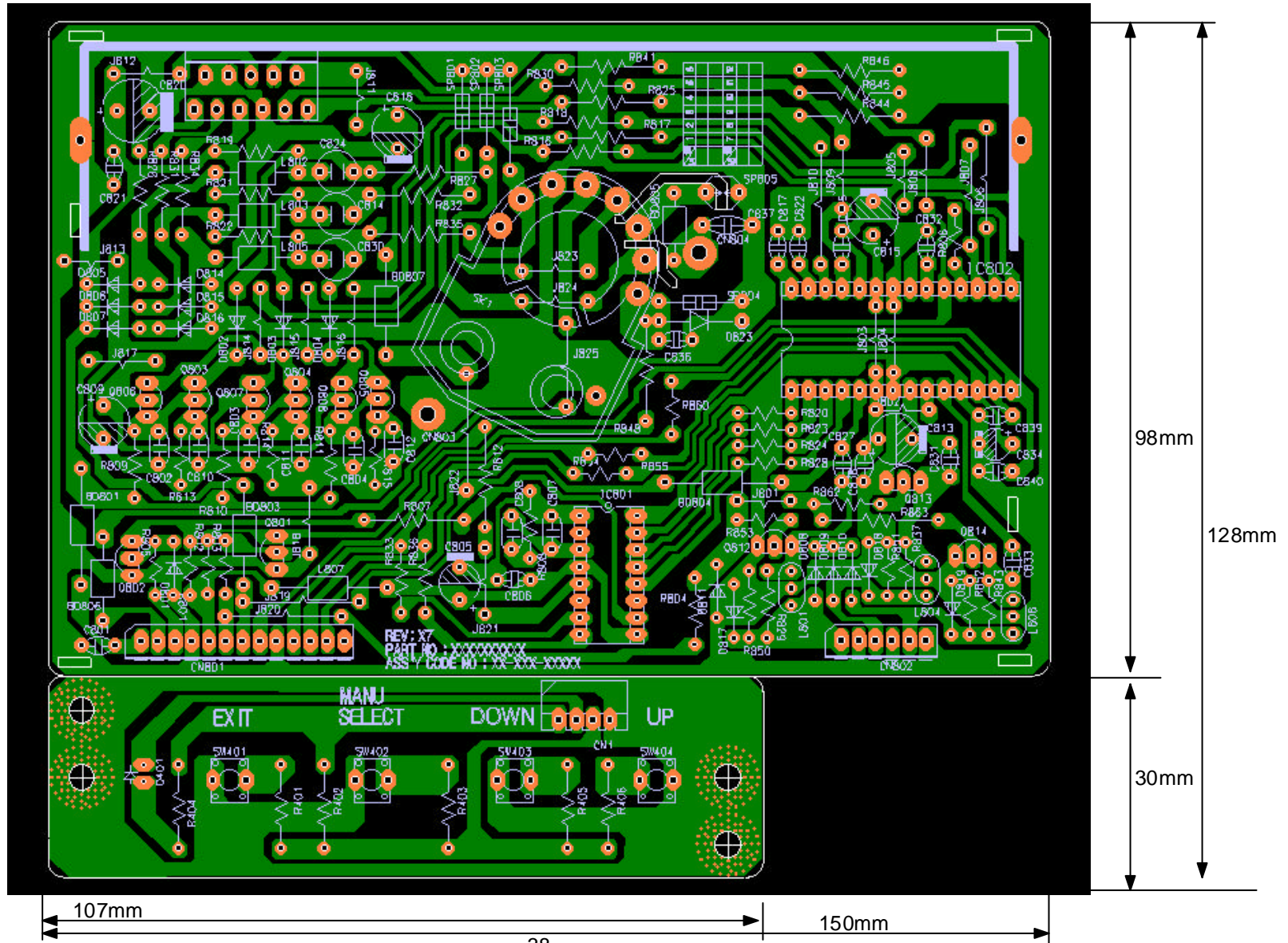
10. PRINT CIRCUIT BOARD

10-1 MAIN



10. PRINT CIRCUIT BOARD

10-2 VIDEO



10. PRINT CIRCUIT BOARD

10-3 PCB DIMENSION

