TFT-LCD TV/MONITOR

Chassis **Model**
VR17UO **LTN1785W/LT-P1795W**

SERVICE Manual

TFT-LCD TV/MONITOR

CONTENTS

Samsung Electronics Co.,Ltd.
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Printed in Korea
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http : //www.samsungmonitor.com (SyncMaster Worldwide)
http : //www.samsung-monitor.com (SyncMaster USA)
URL : http://ecms. samsungelectronics. com/

4 Alignments and Adjustments

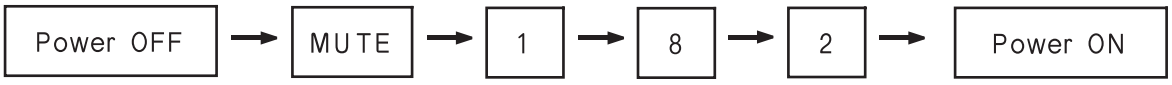
4-1 General Alignment Instuction

1. Usually, a color TV-VCR needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync.
2. Use the specified test equipment or its equivalent.
3. Correct impedance matching is essential.
4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers,do not allow the marker generator to distort test result.
5. Connect the TV only to an DC power source with voltage and frequency as specified on the backcover nameplate.
6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
7. To protect aganist shock hazard,use an isolation transform.

4-2 Factory Mode Adjustments

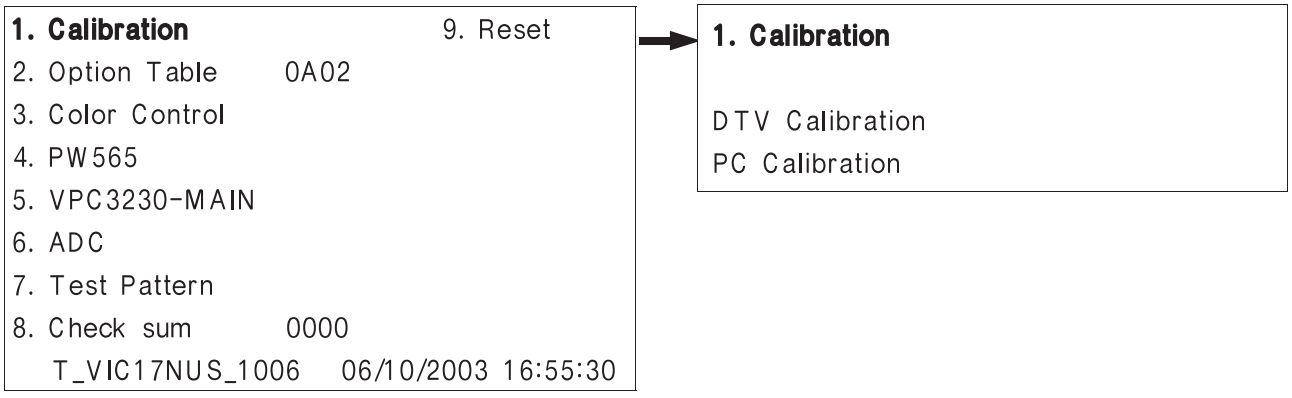
4-2-1 Entering Factory Mode

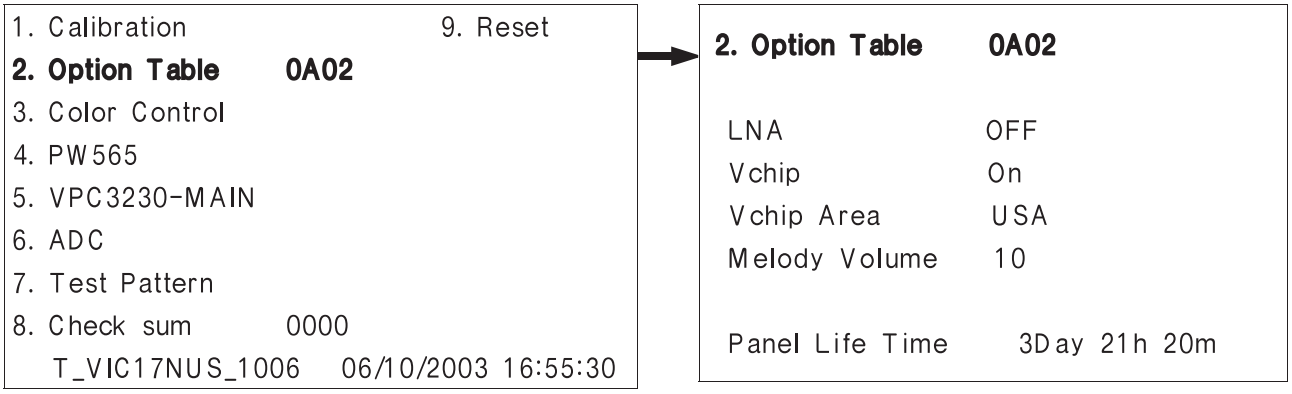
1. To enter "Service Mode" Press the remote -control keys in this sequence :
   - If you do not have Factory remote - control

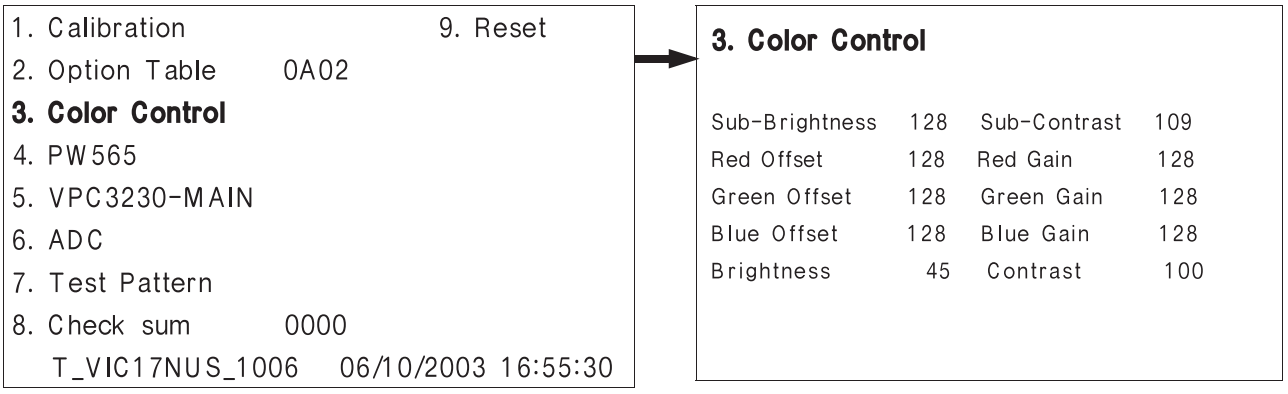


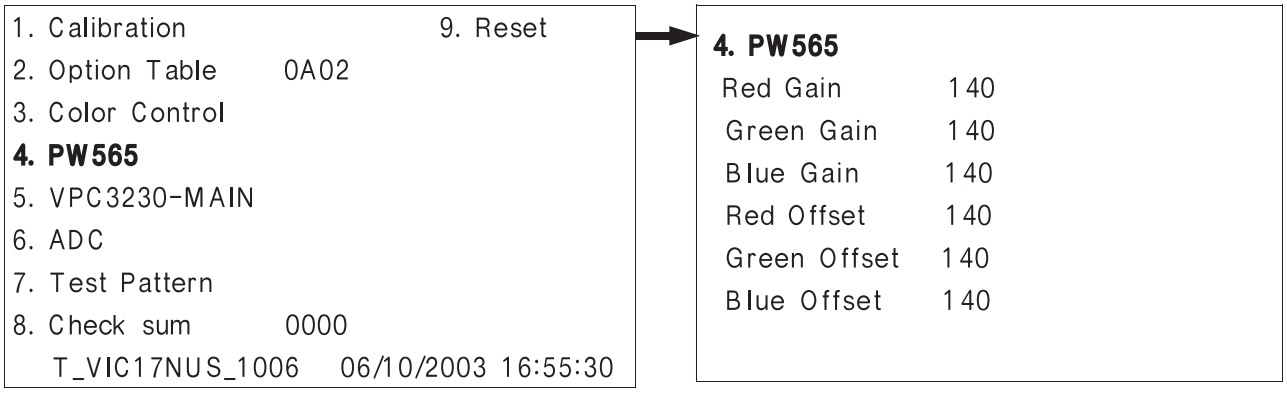
   - If you have Factory remote - control

4-2-2 Factory Mode Tree






1. Calibration 9. Reset
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30
3. Color Control
Sub-Brightness 128 Sub-Contrast 109
Red Offset 128 Red Gain 128
Green Offset 128 Green Gain 128
Blue Offset 128 Blue Gain 128
Brightness 45 Contrast 100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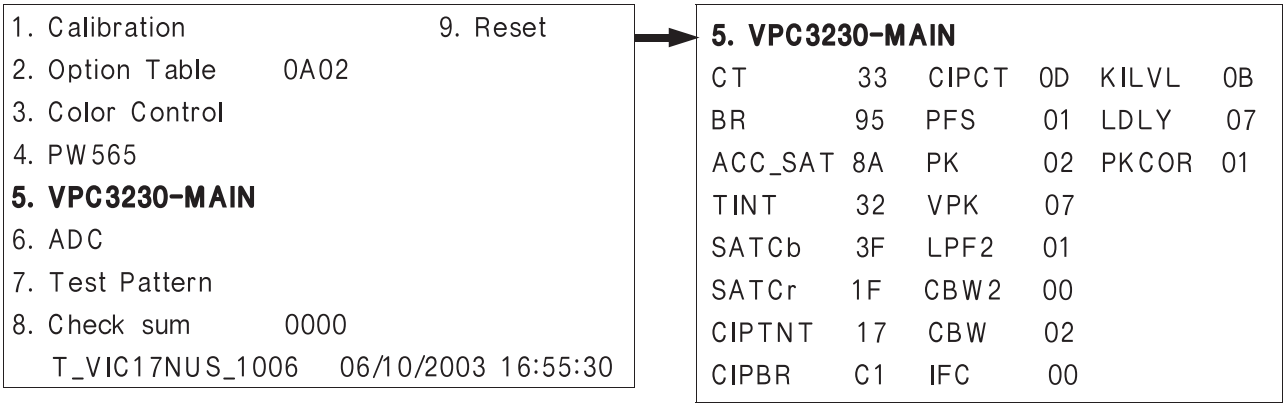
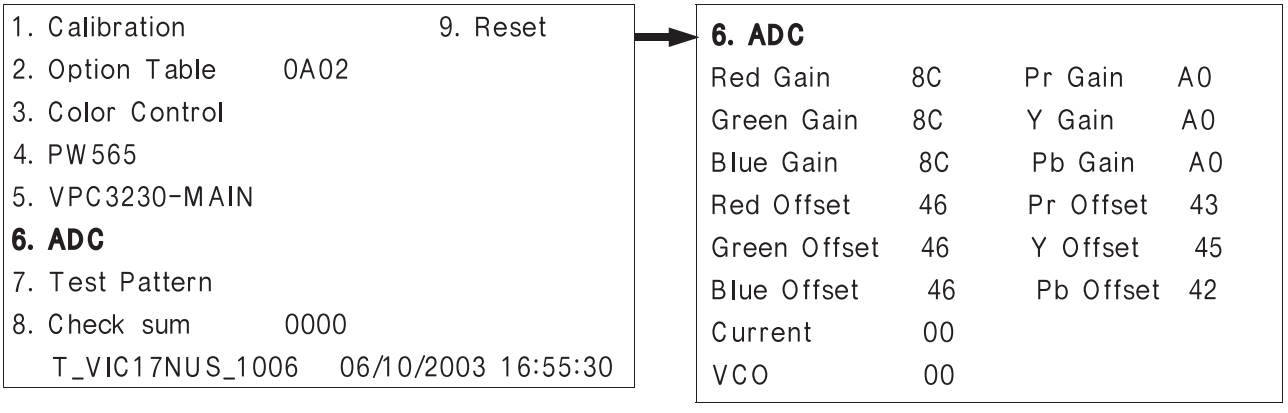
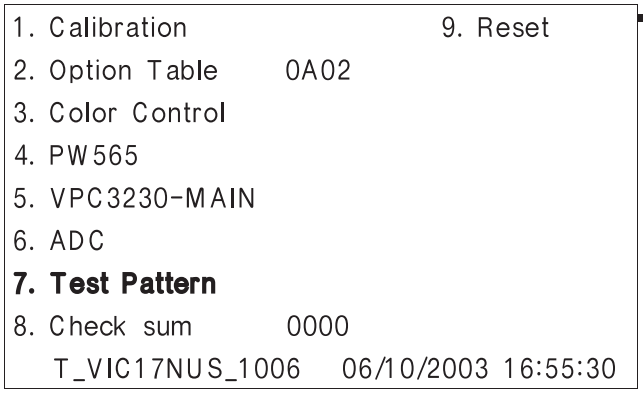
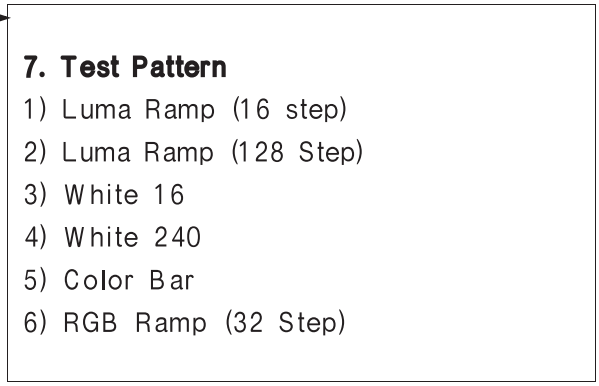
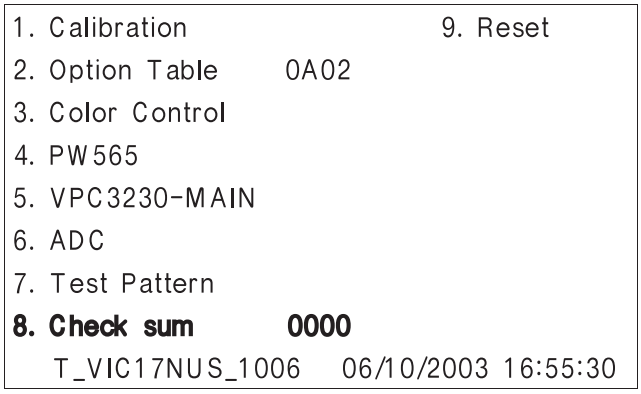
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30
4. PW565
Red Gain 140
Green Gain 140
Blue Gain 140
Red Offset 140
Green Offset 140
Blue Offset 140


1. Calibration 9. Reset
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30
5. VPC3230-MAIN
CT 33 CIPCT 0D KILVL 0B
BR 95 PFS 01 LDLY 07
ACC_SAT 8A PK 02 PKCOR 01
TINT 32 VPK 07
SATCb 3F LPF2 01
SATCr 1F CBW2 00
CIPTNT 17 CBW 02
CIPBR C1 IFC 00


1. Calibration 9. Reset
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30
6. ADC
Red Gain 8C Pr Gain A0
Green Gain 8C Y Gain A0
Blue Gain 8C Pb Gain A0
Red Offset 46 Pr Offset 43
Green Offset 46 Y Offset 45
Blue Offset 46 Pb Offset 42
Current 00
VCO 00


1. Calibration 9. Reset
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30


7. Test Pattern
1) Luma Ramp (16 step)
2) Luma Ramp (128 Step)
3) White 16
4) White 240
5) Color Bar
6) RGB Ramp (32 Step)


1. Calibration 9. Reset
2. Option Table 0A02
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4. PW565
5. VPC3230-MAIN
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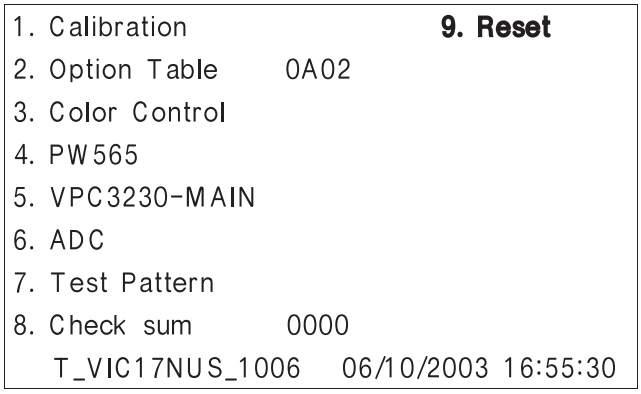
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30


1. Calibration 9. Reset
2. Option Table 0A02
3. Color Control
4. PW565
5. VPC3230-MAIN
6. ADC
7. Test Pattern
8. Check sum 0000
T_VIC17NUS_1006 06/10/2003 16:55:30

4-3 White Balance Adjustment

1. In factory mode (1, 3, 6), you can adjust the white balance.
2. As the adjustment and data values differ depending on input sources, different adjustments are requried for RF, DTV (Component 1, 2) and PC modes.
3. Optimum condition data for each mode are saved as default values. (Refer to Table 2, 3)
4. As the RF mode is applied with the same vlaues as for VIDEO and S-VIDEO, adjustment can be made in any of RF, VIDEO and S-VIDEO modes.

Table 4-1. White Balance Setting Conditions

Mode	High Light			Low Light		
	"x"	"y"	Y	"x"	"y"	Y
RF	255	260	Fix	270	260	0.45fL
DTV	255	260	Fix	270	260	0.7fL
PC	255	260	Fix	270	260	1.4fL

Table 4-2. Color Control Default Vlaue

Mode	RF	DTV	PC	Mode	RF	DTV	PC
Sub-Brightness	128	116	128	Sub-Contrast	109	131	95
Red Offset	128	128	128	Red Gain	128	128	128
Green Offset	128(FIX)	128(FIX)	128(FIX)	Green Gain	128(FIX)	128(FIX)	128(FIX)
Blue Offset	128	128	128	Blue Gain	128	128	128
Brightness	45	45	60	Contrast	100	100	75

Table 4-3. Color Control Default Vlaue

Mode	PC	Mode	DTV
Red Gain	8C	Pr Gain	A0
Green Gain	8C	Y Gain	A0
Blue Gain	8C	Pb Gain	A0
Red Offset	46	Pr Offset	43
Green Offset	46	Y Offset	45
Blue Offset	46	Pb Offset	42
Current	05		04
VCO	01		02

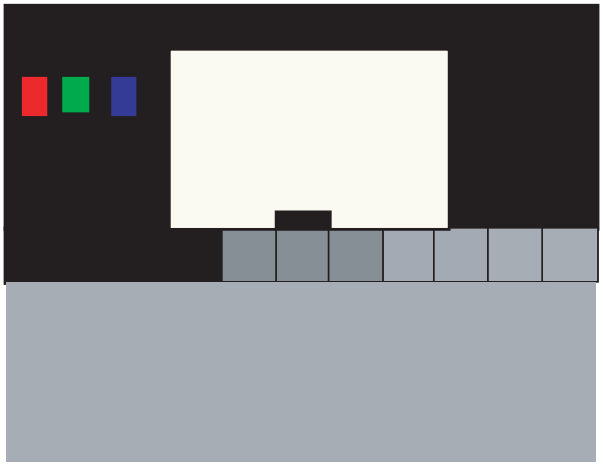
4-3-1 Conditions for Measurement

1. On the basis of toshiba ABL pattern : High Light level (57IRE)
   - INPUT SIGNAL GENERATOR : MSPG-925LTH
2. Optical measuring device : CA210 (FL)

4-3-2 Method of Adjustment

1. Adjust the basic level of DTV and PC input signals.
   a) Set the input to the mode in which the adjustment will be made (DTV → PC).
   * Input signal - DTV Mode : Model #6 (1280*720 Mode), Pattern #36
   - PC Mode : Model #21 (1024*768 Mode), Pattern #16 (Picture 4-1)
   b) Enter factory Calibration, confirm the ADC data (DTV, PC Mode Only).
   * ADC default value : Table 4-3.

Picture 4-1 Toshiba ABL Pattern

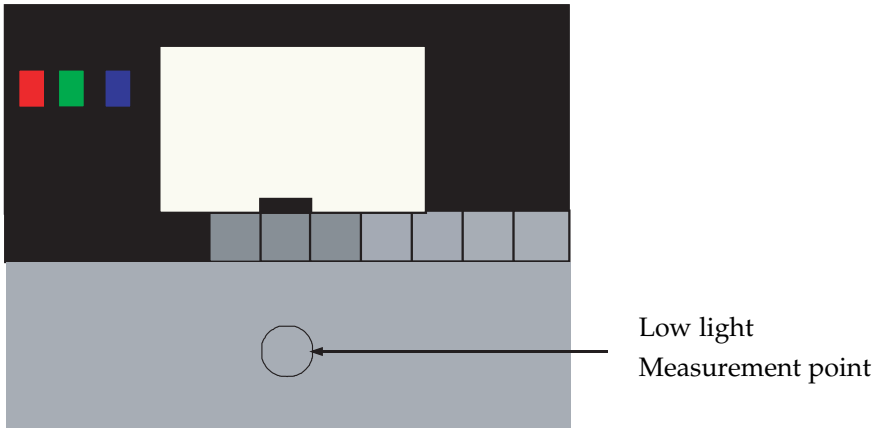


2. Adjust the white balance of RF, DTV and PC Modes.
   a) Set the input to the mode in which the adjustment will be made (RF → DTV → PC).
   * Input signal - RF Mode : Model #1 (750*480 Mode), Pattern #16
   - DTV Mode : Model #6 (1280*720 Mode), Pattern #16
   - PC Mode : Model #21 (1024*768 Mode), Pattern #16
   b) Enter factory color control, confirm the data.

c) Adjust the low light. (Refer to table 1, 2 in adjustment position by mode)
- Adjust sub - Brightness to set the 'Y' value.
- Adjust red offset ('x')and blue offset ('y') to the color coordinates.

* The green offset is fixed to the default and is not adjusted.

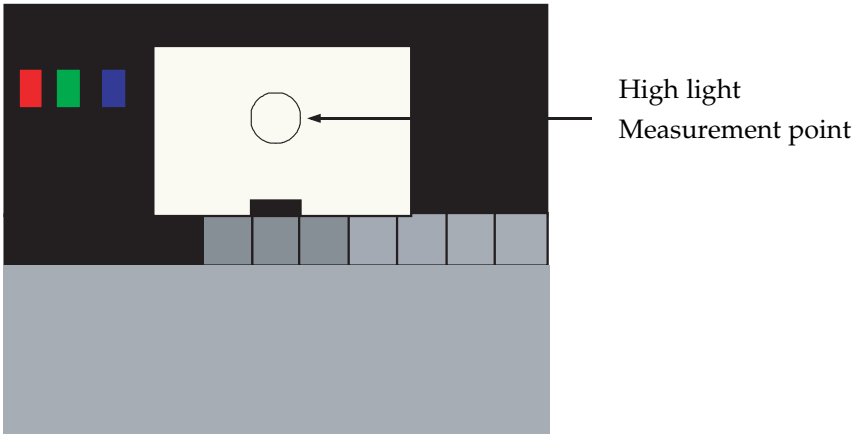
Picture 4-2 Toshiba ABL Pattern



d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)
- Adjust red gain ('x') and blue gain ('y') to the color coordinates.

* The green gain and sub - Contrast ('Y') are fixed to the default and are not adjusted.

Picture 4-3 Toshiba ABL Pattern



4-3-3 Option Table

Option	Default	Option 1	Option 2	Option 3	Remark
LNA	Off (FIX)	Off (FIX)	Off (FIX)	Off (FIX)	-
Vchip	On	On	Off	Off	-
Vchip Area	USA	USA+Canada	USA	USA+Canada	-
Melody Vloume	10	10	10	10	* Range : 0 ~ 19
Data	0A02	0A06	0A00	0A04	* 00** ~ 13**

4-3-4 PW565

* The PW565 output data are fixed to the default and are not adjusted.

Mode	Data
Red Gain	140
Green Gain	140
Blue Gain	140
Red Offset	140
Green Offset	140
Blue Offset	140

4-3-5 VPC 3230-MAIN

* The Data are fixed to the default and are not adjusted.

MODE	Data	MODE	Data
CT	32	PK	02
BR	95	VPK	07
ACC_SAT	8A	LPF2	01
TINT	32	CBW2	00
SATCb	3F	CBW	02
SATCr	1F	IFC	00
CIPTNT	17	LILVL	0B
CIPBR	C1	LDLY	07
CIPCT	0D	PKCOR	01
PFS	01		

4-3-6 ADC

*Adjust the R(Pr), G(Y), B(Pb) gain and offset to the basic level of DTV and PC Input signals.

Mode	PC	Mode	DTV
Red Gain	8C →Adjust	Pr Gain	A0 →Adjust
Green Gain	8C →Adjust	Y Gain	A0 →Adjust
Blue Gain	8C →Adjust	Pb Gain	A0 →Adjust
Red Offset	46 →Adjust	Pr Offset	43 →Adjust
Green Offset	46 →Adjust	Y Offset	45 →Adjust
Blue Offset	46 →Adjust	Pb Offset	42 →Adjust
Current	05		04
VCO	01		02

4-3-7 Test Pattern

* It is only displayed to a signal of the PW565 Data.

1) Luma Ramp (16 step)
2) Luma Ramp (128 Step)
3) White 16
4) White 240
5) Color Bar
6) RGB Ramp (32 Step)

4-3-8 Check sum

* XXXX : Displays the current check sum size of the MICOM.
(Varies depending on program update)

4-3-9 Reset

* Initializes the data in the MICOM. (Setto default value)
The values set in factory mode remain unchanged.

4-3-10 T_VIC17NUS_1006 06/10/2003 16:55:30

* Displays the MICOM program version

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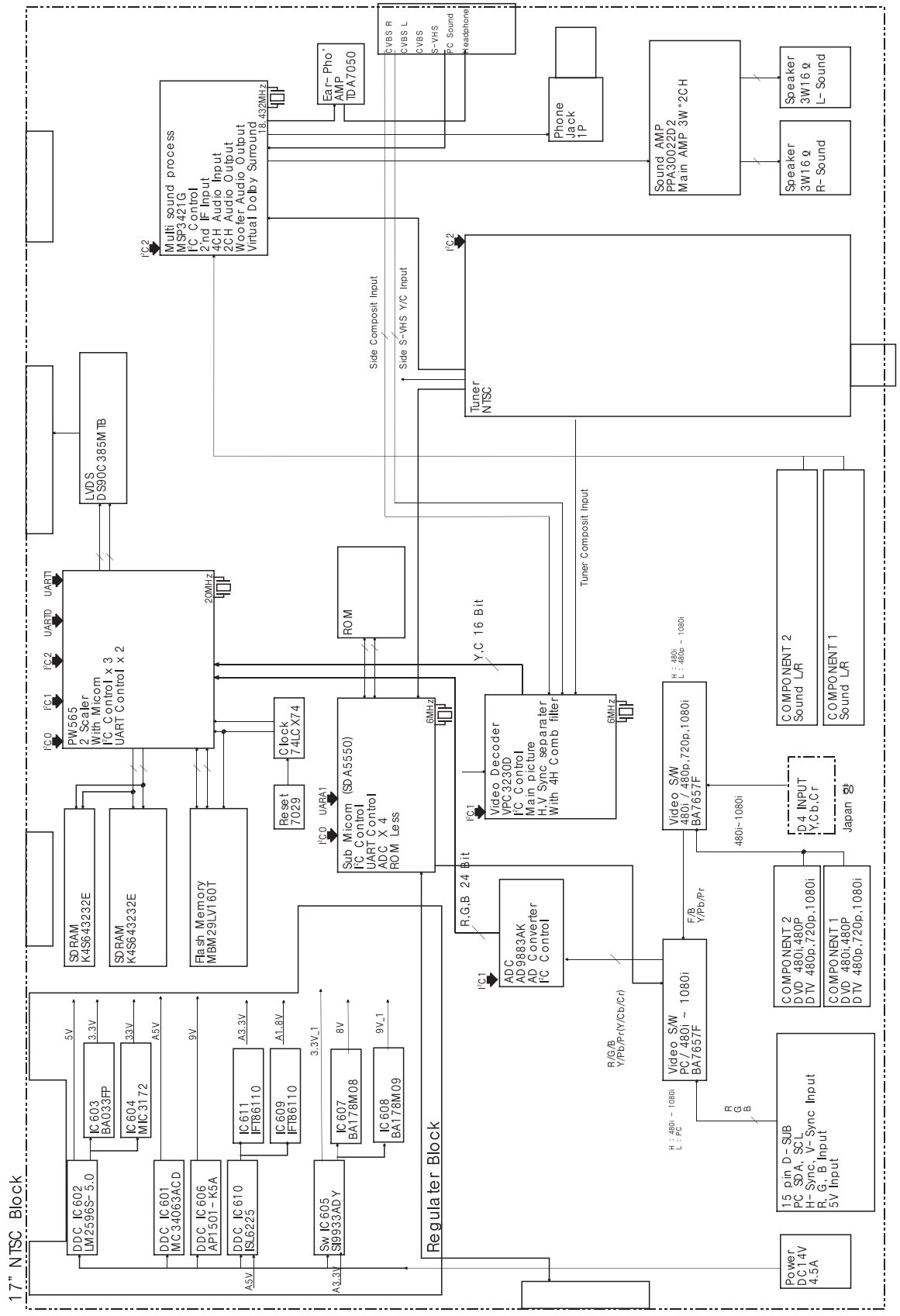
8 Block Diagram

✻ This Document can not be used without Samsung's authorization.



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3 Disassembly and Reassembly

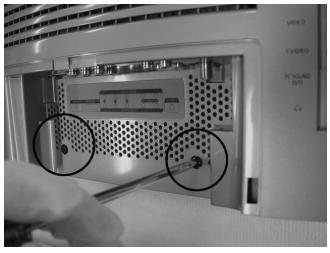
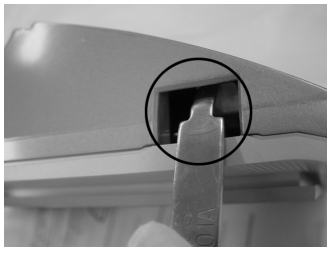
This section of the service manual describes the disassembly and reassembly procedures for the LTN1785W/LT-P1795W monitor.

WARNING: This monitor contains electrostatically sensitive devices. Use caution when handling these components.

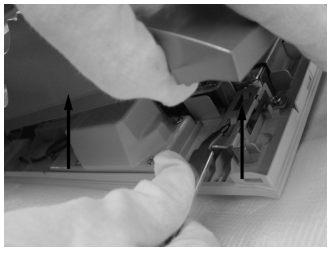
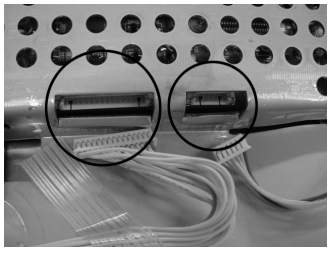
3-1 Disassembly

Cautions : 1. Disconnect the monitor from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. R/Cover opening jig : BH81-00001A

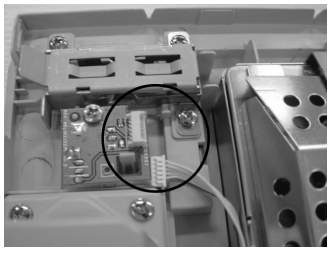
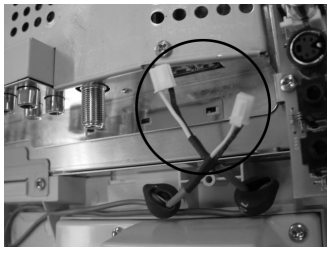

1. Loacte the monitor on the cushioned table with face down. Remove the stand from LCD-TV and pull the rear cover.

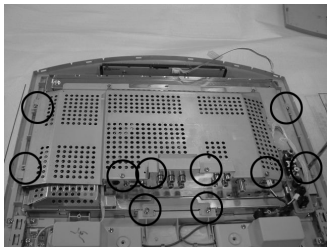
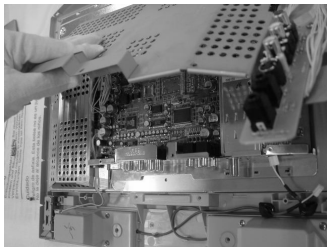
2. Remove 2 screws from the rear cover and remove rear cover by using opening jig.

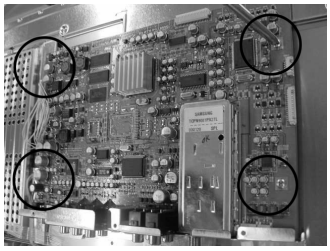
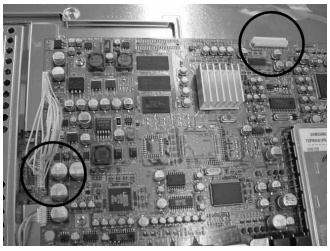
3. Lift up the rear cover and disconnect function cable and audio cable from the shield.

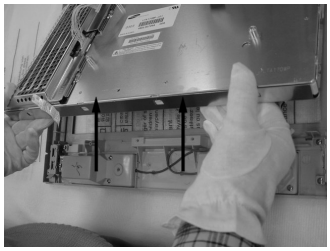
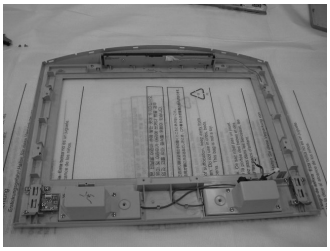
4. Disconnect IR cable and speaker cable from the shield. (see illustrations)

5. Remove 10 screws from the shield and lift up the shield. (see illustrations)

6. Remove 4 screws from the main board and disconnect cable. (see illustrations)

7. Lift up the panel.

3-2 Replacement Order of Lamp Assemblies

LCD panal may not be serviced. (Lamps are generally located at top and bottom of panel, which may be replaced.However,for the Victoria LTA170WP_L01 panel, the lamp is firmly soldered inside of the back panel. Therefore,servicing the lamp may cause a defective panel.Also,servicing lamp requires front glass removal, which may cause scratch and/or foreign materials on the glass.)

3-3 Reassembly

Reassembly procedures are in the reverse order of dissasembly procedures.

7 Parts List

❋ You can search for updated part codes through ITSELF web site.
URL : http://itself.sec.samsung.co.kr/

7-1 Part Lists

Description	Code No.
ASSY PCB MAIN	BN94 - 00491A
ASSY COVER FRONT	BN90 - 00584A
ASSY COVER REAR	BN90 - 00586A
LCD-PANEL	BN07 - 00119A
ADATOR	BN44 - 00074A
ASSY CHASSIS	BN91 - 00715A
ASSY SHIELD	BN91-00717A
ASSY BOARD P-AV/JACK	BN96 - 00503A
ASSY BOX	BN92 - 00926A
ASSY LABEL	BN92 - 00928A
REMOCON	BN59 - 00362B
ASSY ACCESSORY	BN96 - 00580X, BN96 - 00580W

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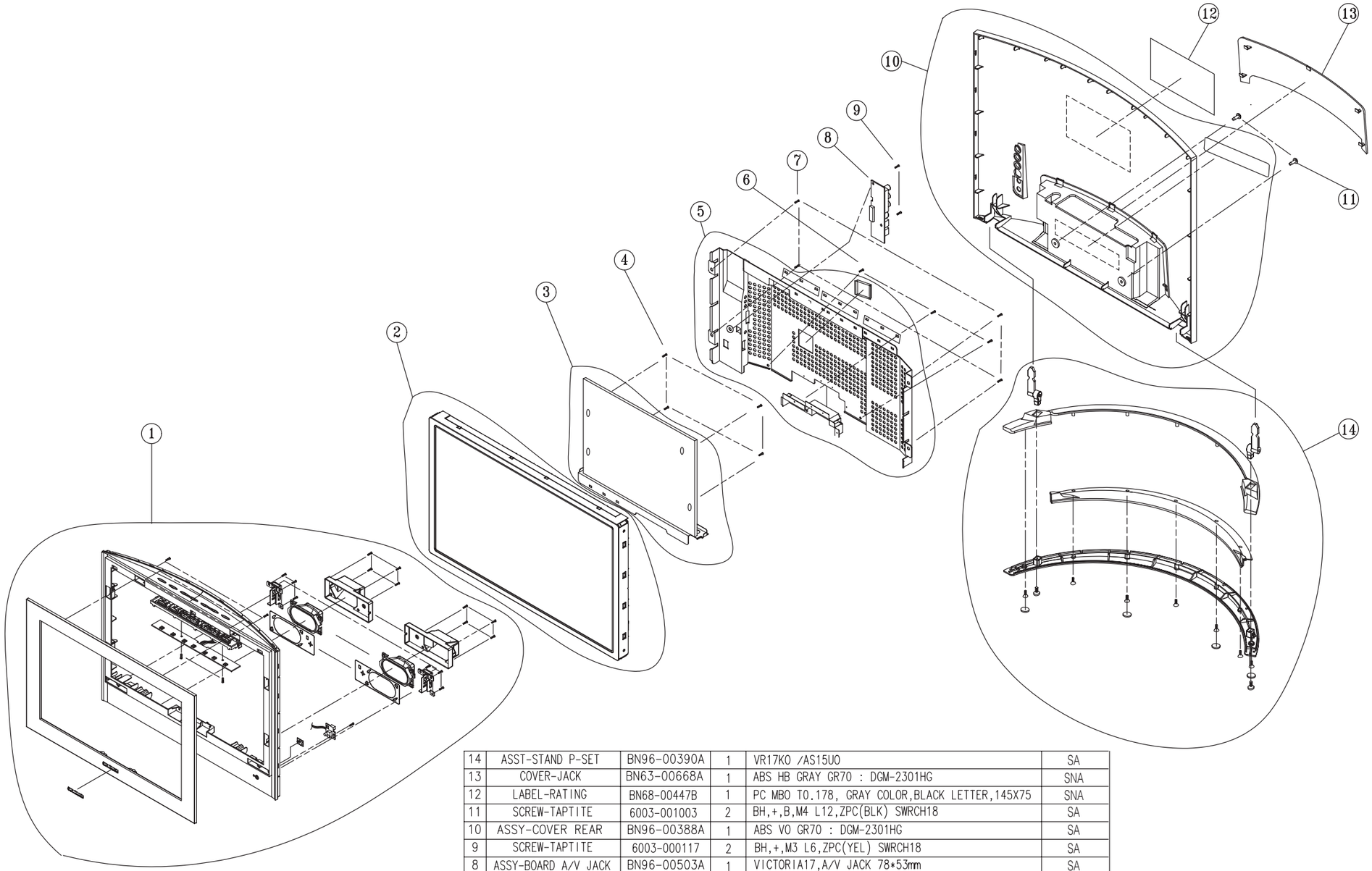
6 Exploded View and Parts List

❊ You can search for updated part codes through ITSELF web site.
URL : http://itself.sec.samsung.co.kr/



NO	PART NAME	CODE NO.	Q'TY	SPECIFICATION	REMARK
14	ASST-STAND P-SET	BN96-00390A	1	VR17K0 /AS15U0	SA
13	COVER-JACK	BN63-00668A	1	ABS HB GRAY GR70 : DGM-2301HG	SNA
12	LABEL-RATING	BN68-00447B	1	PC MB0 T0.178, GRAY COLOR,BLACK LETTER,145X75	SNA
11	SCREW-TAPTITE	6003-001003	2	BH,+,B,M4 L12,ZPC(BLK) SWRCH18	SA
10	ASSY-COVER REAR	BN96-00388A	1	ABS V0 GR70 : DGM-2301HG	SA
9	SCREW-TAPTITE	6003-000117	2	BH,+,M3 L6,ZPC(YEL) SWRCH18	SA
8	ASSY-BOARD A/V JACK	BN96-00503A	1	VICTORIA17,A/V JACK 78*53mm	SA
7	SCREW-TAPTITE	6003-000276	4	BH,+,M3 L10,ZPC(YEL) SWRCH18	SA
6	SCREW-TAPTITE	6003-000117	3	BH,+,M3 L6,ZPC(YEL) SWRCH18	SA
5	ASSY-SHIELD COVER	BN96-000389A	1	VICTRIA17,SECC T0.8	SNA
4	SCREW-TAPTITE	6003-000117	4	BH,+,M3 L6,ZPC(YEL) SWRCH18	SA
3	ASSY-MAIN,PCB	BN91-00715A	1	VR17K0	SA
2	PANEL	BN07-00119A	1	LTA170WP	SA
1	ASSY-COVER FRONT	BN96-00387A	1	ASSY	SNA

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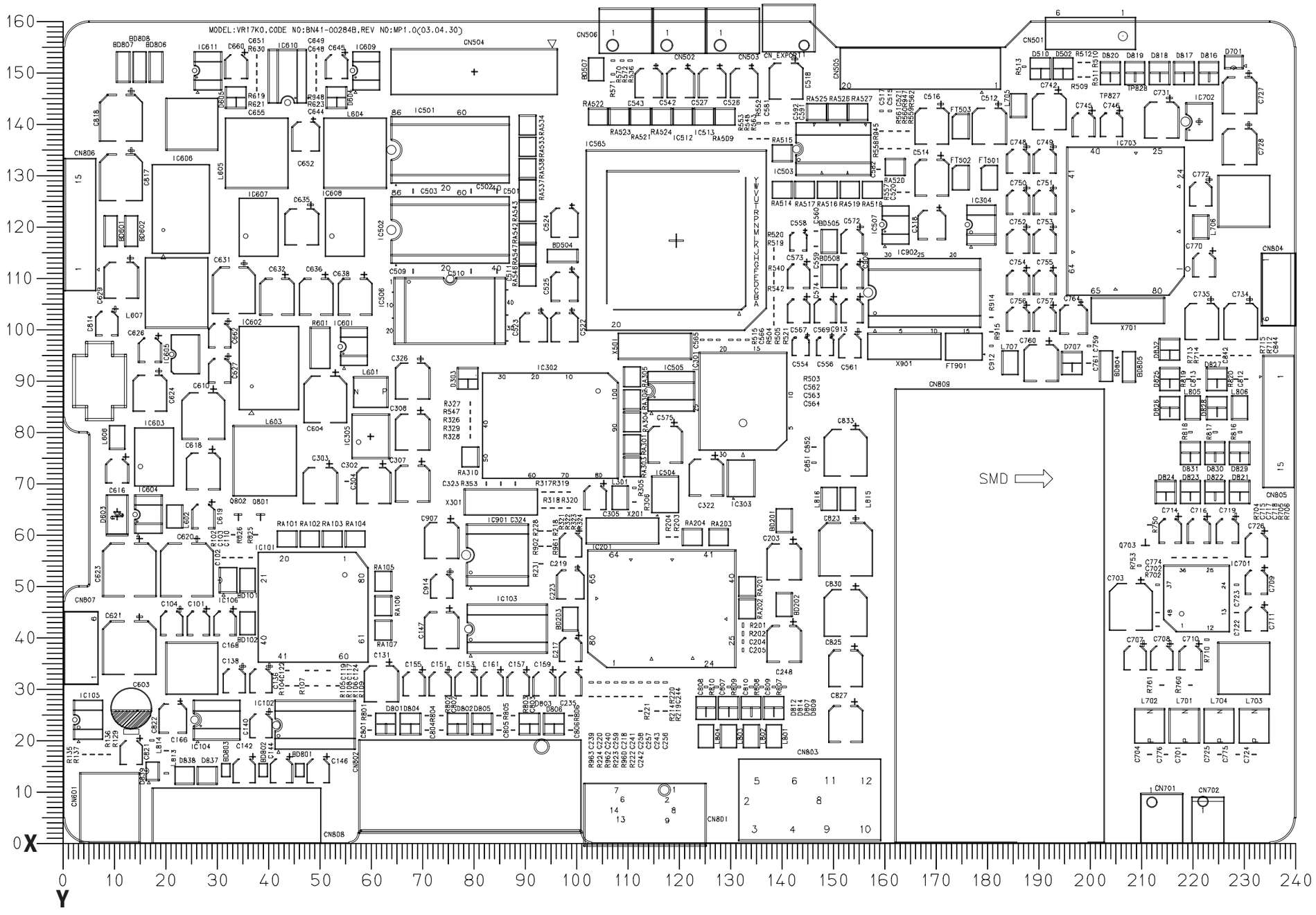
10 PCB Layout

10-1-1 Main PCB Layout Top



Loc. No.	Description	X	Y
DIODE			
D101	DIODE-ARRAY	21.27	24.61
D301	DIODE-ZENER	119.70	50.96
D302	DIODE-ZENER	105.73	50.33
D303	DIODE-ARRAY	78.80	90.40
D304	DIODE-ZENER	74.40	71.20
D305	DIODE-ZENER	132.00	71.20
D501	DIODE-ZENER	120.00	85.20
D502	DIODE-SWITCHING	194.80	150.80
D510	DIODE-SWITCHING	190.40	150.80
D601	DIODE-SCHOTTKY	59.20	88.00
D602	DIODE-RECTIFIER	33.20	73.60
D603	DIODE-RECTIFIER	10.40	64.00
D604	DIODE-SCHOTTKY	53.20	145.20
D605	DIODE-SCHOTTKY	33.60	145.20
D606	DIODE-RECTIFIER	38.30	143.40
D607	DIODE-RECTIFIER	26.40	106.80
D701	DIODE-ZENER	228.00	152.00
D702	DIODE-SWITCHING	229.20	142.80
D703	DIODE-ZENER	229.40	99.60
D704	DIODE-ZENER	221.80	99.60
D705	DIODE-ZENER	192.09	143.35
D706	DIODE-ZENER	222.25	113.83
D707	DIODE-ZENER	196.53	93.51
D801	DIODE-SWITCHING	62.80	23.20
D802	DIODE-SWITCHING	76.80	23.20
D803	DIODE-SWITCHING	90.80	23.20
D804	DIODE-SWITCHING	67.60	23.20
D805	DIODE-SWITCHING	81.60	23.20
D806	DIODE-SWITCHING	95.60	23.20
D807	DIODE-ZENER	134.00	26.40
D808	DIODE-ZENER	134.00	26.40
D809	DIODE-ZENER	138.40	26.40
D811	DIODE-ZENER	138.40	26.40
D812	DIODE-ZENER	125.20	26.40
D813	DIODE-ZENER	125.20	26.40
D814	DIODE-ZENER	129.60	26.40
D815	DIODE-ZENER	129.60	26.40
D816	DIODE-ZENER	223.20	150.00
D817	DIODE-ZENER	218.40	150.00
D818	DIODE-ZENER	213.60	150.00
D819	DIODE-ZENER	208.80	150.00
D820	DIODE-ZENER	204.00	150.00
D821	DIODE-ZENER	229.20	68.40
D822	DIODE-ZENER	224.40	68.40
D823	DIODE-ZENER	219.60	68.40
D824	DIODE-ZENER	214.80	68.40
D825	DIODE-ZENER	215.60	90.40
D826	DIODE-ZENER	215.60	84.80
D827	DIODE-ZENER	224.80	90.40
D828	DIODE-ZENER	224.80	84.80
D829	DIODE-ZENER	229.20	76.00
D830	DIODE-ZENER	224.40	76.00
D831	DIODE-ZENER	219.60	76.00
D832	DIODE-SWITCHING	215.58	96.05
D833	DIODE-SWITCHING	49.80	14.20
D834	DIODE-SWITCHING	42.40	14.20
D835	DIODE-SWITCHING	35.20	14.20
D837	DIODE-ZENER	28.00	13.20
D838	DIODE-ZENER	23.60	13.20
D839	DIODE-ZENER	17.20	14.00
D901	DIODE-ARRAY	184.80	101.20
IC			
IC101	IC-A/D CONVERTER	48.58	45.88
IC102	IC-VIDEO SWITCH	48.90	23.02
IC103	IC-VIDEO SWITCH	86.36	41.75
IC104	IC-CMOS LOGIC	29.85	23.97
IC105	IC-EEPROM	4.80	24.00
IC106	IC-POSI.FIXED REG.	32.00	51.20
IC201	IC-VIDEO PROCESS	116.52	45.56
IC301	IC-EPROM	132.40	86.00
IC302	IC-DECODER	94.80	81.20
IC303	IC-VOL. DETECTOR	132.00	71.20
IC304	IC-EEPROM	178.80	120.40
IC305	IC-POSI.FIXED REG.	59.80	79.20
IC501	IC-DRAM	75.25	135.00
IC502	IC-DRAM	75.25	119.40
IC503	IC-TRANSMITTER	150.00	135.20
IC504	IC-VOL. DETECTOR	117.20	68.00
IC505	IC-CMOS LOGIC	118.40	88.00
IC506	IC-FLASH MEMORY	75.25	103.55
IC507	IC-EEPROM	162.00	120.40
IC512	R-NETWORK	120.65	141.45
IC513	R-NETWORK	124.78	141.45
IC565	IC-LCD CONTROLLER	119.38	117.35
IC601	IC-DC/DC CONVERTER	56.52	96.68
IC602	IC-POSI.FIXED REG.	40.00	92.80
IC603	IC-POSI.FIXED REG.	17.60	75.60
IC604	IC-SWITCH REG.	16.40	64.00
IC605	FET-SILICON	23.60	95.20
IC606	IC-DC/DC CONVERTER	22.80	124.00
IC607	IC-POSI.FIXED REG.	38.00	120.40
IC608	IC-POSI.FIXED REG.	54.80	120.40
IC609	FET-SILICON	58.80	150.40
IC610	IC-PWM CONTROLLER	43.60	149.20
IC611	FET-SILICON	28.00	150.40
IC701	IC-AUDIO AMP	220.80	47.60
IC702	IC-AUDIO AMP	221.30	140.50
IC703	IC-SOUND PROCESSOR	207.01	121.13
IC901	IC-DECODER	84.46	56.04
IC902	IC MICOM	167.64	107.16
TRANSISTOR			
Q201	TR-SMALL SIGNAL	100.01	56.04
Q301	TR-SMALL SIGNAL	109.60	66.80
Q502	FET-SILICON	167.60	122.80
Q503	FET-SILICON	167.60	118.80
Q601	TR-SMALL SIGNAL	21.20	85.20
Q602	TR-SMALL SIGNAL	16.80	93.20
Q603	TR-SMALL SIGNAL	16.80	97.60
Q701	TR-SMALL SIGNAL	229.20	148.00
Q703	TR-SMALL SIGNAL	210.80	58.00
Q801	TR-SMALL SIGNAL	38.40	64.00
Q802	TR-SMALL SIGNAL	34.00	64.00
Q901	TR-SMALL SIGNAL	83.00	60.40
Q902	TR-SMALL SIGNAL	73.60	49.40

1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC Power Jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 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 covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):
   WARNING: Do not use an isolation transformer during this test.
   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

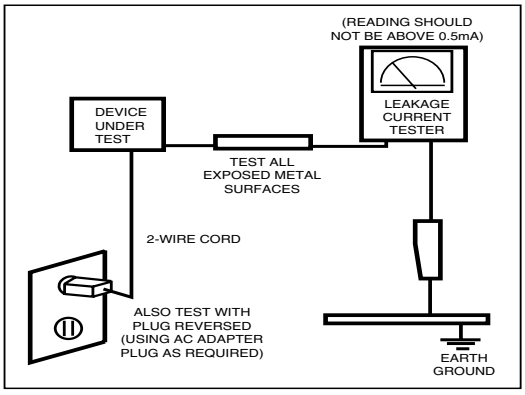


Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 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 are issued whenever appropriate.

1-2 Servicing Precautions

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

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
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. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

2 Product Specifications

2-1 Specifications

Item	Description	
LCD Panel	TFT-LCD panel, RGB vertical stripe, normaly, white 17-Inch viewable, 0.2895 mm pixel pitch	
Scanning Frequency	Horizontal : 30 kHz ~ 68 kHz (Automatic) Vertical : 56 Hz ~ 85 Hz (Automatic)	
Display Colors	16.7 Million colors	
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 768 Pixels	
Input Video Signal	Positive at 75 Ω	
Input Sync Signal	Type : Seperate H/V Level : TTL level	
Maximum Pixel Clock rate	70 MHz	
Active Display Horizontal/Vertical	376.56 mm / 274.32 mm	
AC power voltage & Frequency	AC 90 ~ 264 Volts, 50~60 Hz ± 3 Hz, DC 14V / 4.5A	
Power Consumption	70 W (Max)	
Set Dim (W x D x H) Package Dim	463.8 X 179.0 X 363.7 mm (18.3 X 7.0 X 14.3 Inches) After installation of Stand 463.8 X 87.7 X 345.0 mm (18.3 X 3.5 X 13.6 Inches) Without Stand 557.0 X 473.0 X 175.0 mm (21.9 X 18.6 X 6.9 Inches)	
Weight Set/Package	4.72 kg (10.4 lbs) / 7.22 kg (15.9 lbs)	
Environmental Considerations	Operating Temperature : 50 °F ~ 104 °F (10 °C ~ 40 °C) Operating Humidity : 10 % ~ 80 % Storage Temperature : -4 °F ~ 113 °F (-20 °C ~ 45 °C) Storage Humidity : 5 % ~ 95 %	
TV System	Tunning	Frequency Synthesize
	System	NTSC-M
	Sound	STEREO
Antena Input	75Ω	
Sound Characteristic	– MAX Internal speaker Out : Right => 3W Left => 3W	
	– BASS Control Range : -8 dB ~ + 8dB – TREBLE Control Range : -8 dB ~ +8 dB – Headphone Out : 5 mW max (400 m Vrms) – Output Frequency : 20 Hz ~15.2 Hz	

2-2 Pin Assignments

2-2-1 D-SUB

Pin	Separate
1	Red
2	Green
3	Blue
4	GND
5	GND (DDC Return)
6	GND-Red
7	GND-Green
8	GND-Blue
9	No Connection
10	GND-Sync./Self Test
11	GND
12	DDC Data
13	H-Sync.
14	V-Sync.
15	DDC Clock

2-2-2 DVD, DTV

RCA Green	Y
	GND
RCA Blue	Pb (Cb)
	GND
RCA Red	Pr (Cr)
	GND
RCA White	Audio L
	GND
RCA Red	Audio R
	GND

2-2-3 S-Video

Pin	Separate
1	GND
2	Y
3	C
4	GND
5	GND

2-2-4 A/V

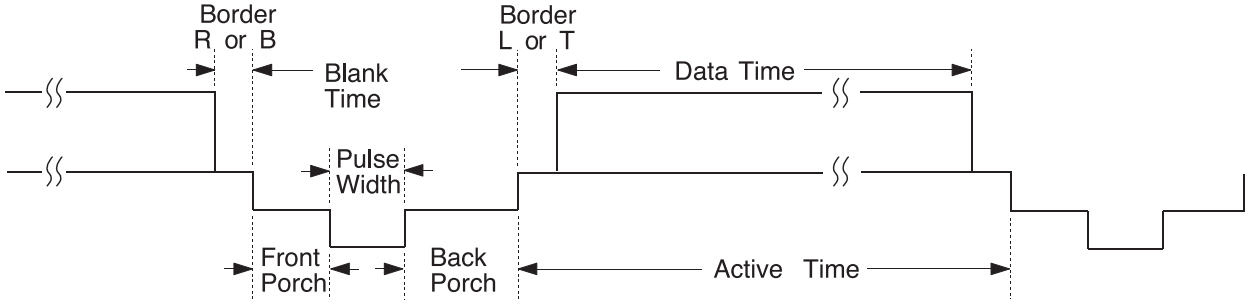
RCA Yellow	CVBS
RCA White	Audio L
	GND
RCA Red	Audio R
	GND

2-3 Timing Chart

This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

2-3-1 LCD Panel Mode1 mode

Timing No.	
Originator	GTF
Mode Name	1280/60Hz
Resolution (H x V)	1280x768
HORIZONTAL	
Frequency	47.700kHz
Total time	20.964μs
Active time	15.973μs
Blank time	4.992 μs
Border(L / R)	0.000 μs
Data time	15.964μs
Front porch	0.799 μs
Sync. width	1.697 μs
Back porch	2.496 μs
Sync. polarity	Negative
VERTICAL	
Frequency	60Hz
Total time	16.667ms
Active time	16.101ms
Blank time	0.566ms
Border(T / B)	0.000ms
Data time	16.101ms
Front porch	0.021ms
Sync. width	0.063 ms
Back porch	0.482 ms
Sync. polarity	Positive
Dot Clock	80.136MHz
Sync. Type	Separate
Scan Type*	N/I



2-3-1 Supported Modes (1)

Timing No.	2	3	11	17	32	42
Originator	IBM	IBM	VESA	STD	MAC	STD
Mode Name	VGA2	VGA3	640/72Hz	640/75Hz	640/67Hz	640/85Hz
Resolution (H x V)	720x400	640x480	640x480	640x480	640x480	640x480
HORIZONTAL						
Frequency	31.469kHz	31.469kHz	37.861kHz	37.500kHz	35.000kHz	43.269kHz
Total time	31.777μs	31.778μs	26.413μs	26.667μs	28.571μs	23.111μs
Active time	26.058μs	26.058μs	20.825μs	20.317μs	21.164μs	17.778μs
Blank time	5.720μs	5.720μs	5.588μs	6.350μs	7.407μs	5.333μs
Border(L / R)	0.318μs	0.318μs	0.254μs	0.000μs	0.000μs	0.000μs
Data time	25.422μs	25.422μs	20.317μs	20.317μs	21.164μs	17.778μs
Front porch	0.318μs	0.318μs	0.508μs	0.508μs	2.116μs	1.556μs
Sync. width	3.813μs	3.813μs	1.270μs	2.032μs	2.116μs	1.556μs
Back porch	1.589μs	1.589μs	3.810μs	3.810μs	3.175μs	2.222μs
Sync. polarity	Negative	Negative	Negative	Negative	Negative	Negative
VERTICAL						
Frequency	70.087Hz	59.940Hz	72.809Hz	75.000Hz	66.667Hz	85.008Hz
Total time	14.268ms	16.683ms	13.735ms	13.333ms	15.000ms	11.764ms
Active time	13.155ms	15.761ms	13.100ms	12.800ms	13.714ms	11.093ms
Blank time	1.113ms	0.922ms	0.635ms	0.533ms	1.286ms	0.671ms
Border(T/B)	0.222ms	0.254ms	0.211ms	0.000ms	0.000ms	0.000ms
Data time	12.711ms	15.253ms	12.678ms	12.800ms	13.714ms	11.093ms
Front porch	0.191ms	0.064ms	0.026ms	0.027ms	0.086ms	0.023ms
Sync. width	0.064ms	0.064ms	0.079ms	0.080ms	0.086ms	0.069ms
Back porch	0.858ms	0.794ms	0.528ms	0.427ms	1.114ms	0.578ms
Sync polarity	Positive	Negative	Negative	Negative	Negative	Negative
Dot Clock	28.322MHz	25.175MHz	31.500MHz	31.500MHz	30.240MHz	36.000MHz
Sync. Type	Separate	Separate	Separate	Separate	Separate	Separate
Scan Type*	N/I	N/I	N/I	N/I	N/I	N/I

2-3-1 Supported Modes (2)

Timing No.	12	13	14	18	43	33
Originator	VESA	VESA	STD	STD	VESA	MAC
Mode Name	800/56Hz	800/60Hz	800/72Hz	800/75Hz	800/85Hz	832/75Hz
Resolution (H x V)	800x600	800x600	800x600	800x600	800x600	832x624
HORIZONTAL						
Frequency	35.156kHz	37.879kHz	48.077kHz	46.875kHz	53.674kHz	49.726kHz
Total time	28.444μs	26.400μs	20.800μs	21.333 μs	18.631 μs	20.110 μs
Active time	22.222μs	20.000μs	16.000μs	16.162 μs	14.222 μs	14.524 μs
Blank time	6.222 μs	6.400 μs	4.800 μs	5.171 μs	4.409 μs	5.586 μs
Border(L / R)	0.000 μs	0.000 μs	0.000 μs	0.000 μs	0.000 μs	0.000 μs
Data time	22.222μs	20.000μs	16.000μs	16.162 μs	14.222 μs	14.524 μs
Front porch	0.667 μs	1.000 μs	1.120 μs	0.323 μs	0.569 μs	0.559 μs
Sync. width	2.000 μs	3.200 μs	2.400 μs	1.616 μs	1.138 μs	1.117 μs
Back porch	3.556 μs	2.200 μs	1.280 μs	3.232 μs	2.702 μs	3.910 μs
Sync. polarity	Positive or Negative	Positive	Positive	Positive	Positive	Negative
VERTICAL						
Frequency	56.250Hz	60.317Hz	72.188Hz	75.000Hz	85.061Hz	74.551Hz
Total time	17.778ms	16.579ms	13.853ms	13.333ms	11.756ms	13.414ms
Active time	17.067ms	15.840ms	12.480ms	12.800ms	11.179ms	12.549ms
Blank time	0.711ms	0.739ms	1.373ms	0.533ms	0.577ms	0.865ms
Border(T/B)	0.000ms	0.000ms	0.000ms	0.000ms	0.000ms	0.000ms
Data time	17.067ms	15.840ms	12.480ms	12.800ms	11.179ms	12.549ms
Front porch	0.028ms	0.026ms	0.770ms	0.021ms	0.019ms	0.020ms
Sync. width	0.057ms	0.106ms	0.125ms	0.064ms	0.056ms	0.060ms
Back porch	0.626ms	0.607ms	0.478ms	0.448ms	0.503ms	0.784ms
Sync polarity	Positive or Negative	Positive	Positive	Positive	Positive	Negative
Dot Clock	36.000MHz	40.000MHz	50.000MHz	49.500MHz	56.250MHz	57.284MHz
Sync. Type	Separate	Separate	Separate	Separate	Separate	Separate Compsite Sync.- on-G
Scan Type*	N/I	N/I	N/I	N/I	N/I	N/I

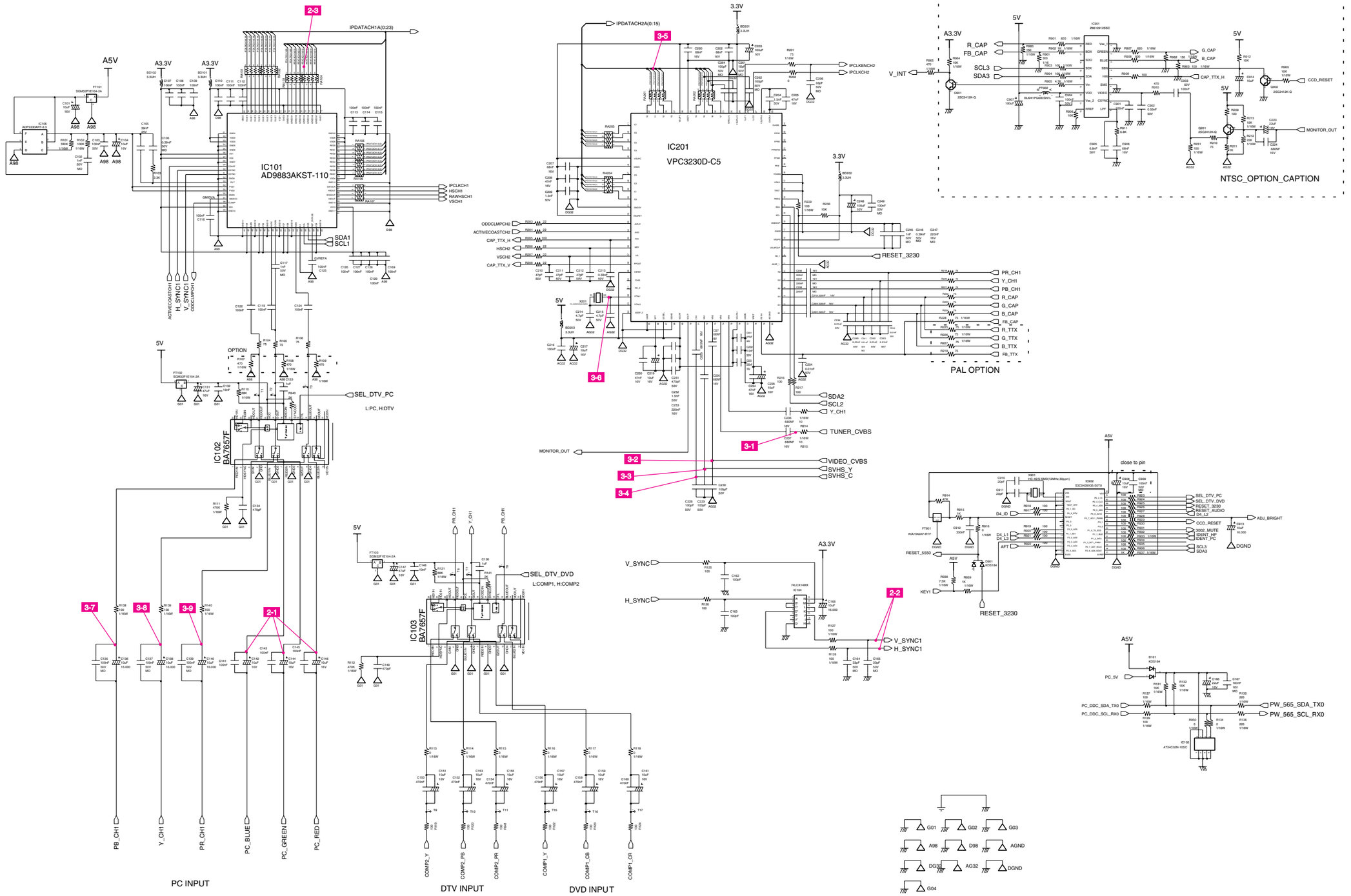
2-3-1 Supported Modes (3)

Timing No.	15	16	19	44
Originator	VESA	VESA	VESA	VESA
Mode Name	1024/60Hz	1024/70Hz	1024/75Hz	1024/85Hz
Resolution (H x V)	1024x768	1024x768	1024x768	1024x768
HORIZONTAL				
Frequency	48.363kHz	56.476kHz	60.023kHz	68.677kHz
Total time	20.677μs	17.707μs	16.660μs	14.561μs
Active time	15.754μs	13.653μs	13.003μs	10.836μs
Blank time	4.923μs	4.053 μs	3.777 μs	3.725μs
Border(L / R)	0.000μs	0.000μs	0.000μs	0.000μs
Data time	15.754μs	13.653μs	13.003μs	10.836μs
Front porch	0.369μs	0.320μs	0.323μs	0.508μs
Sync. width	2.092μs	1.813μs	1.219μs	1.016μs
Back porch	2.462μs	1.920μs	2.235μs	2.201μs
Sync. polarity	Negative	Negative	Positive	Positive
VERTICAL				
Frequency	60.004Hz	70.069Hz	75.029Hz	84.997Hz
Total time	16.666ms	14.272ms	13.328ms	11.765ms
Active time	15.880ms	13.599ms	12.795ms	11.183ms
Blank time	0.786ms	0.672ms	0.533ms	0.582ms
Border(T / B)	0.000ms	0.000ms	0.000ms	0.000ms
Data time	15.880ms	13.599ms	12.795ms	11.183ms
Front porch	0.062ms	0.053ms	0.017ms	0.015ms
Sync. width	0.124ms	0.106ms	0.050ms	0.044ms
Back porch	0.600ms	0.513ms	0.466ms	0.524ms
Sync polarity	Negative	Negative	Positive	Positive
Dot Clock	65.000MHz	75.000MHz	78.750MHz	94.500MHz
Sync. Type	Separate	Separate	Separate	Separate
Scan Type*	N/I	N/I	N/I	N/I

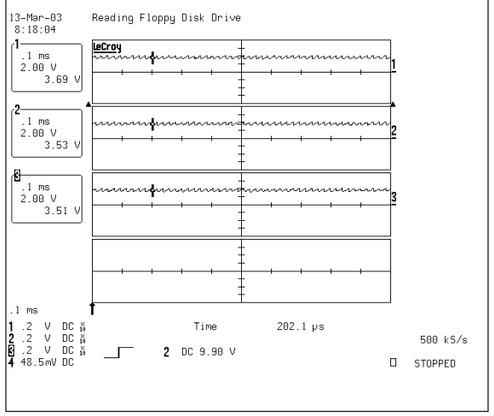
11 Schematic Diagrams

❊ This Document can not be used without Samsung's authorization.

11-1 Schematic Diagram



2-1



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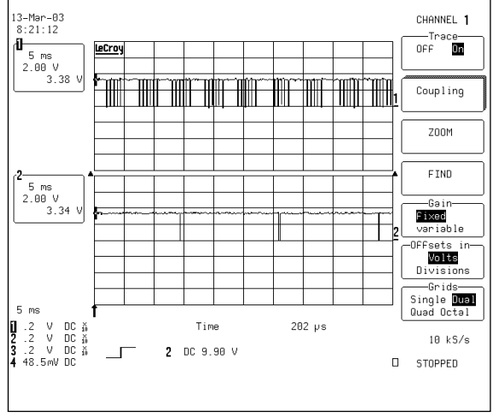

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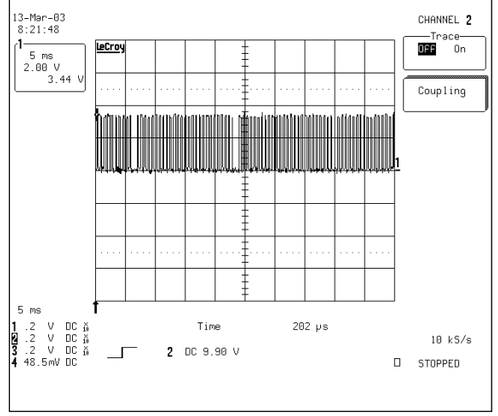

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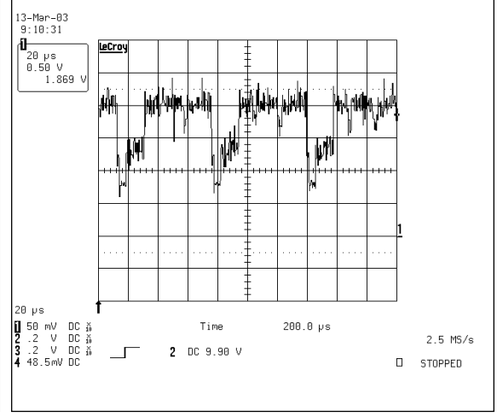
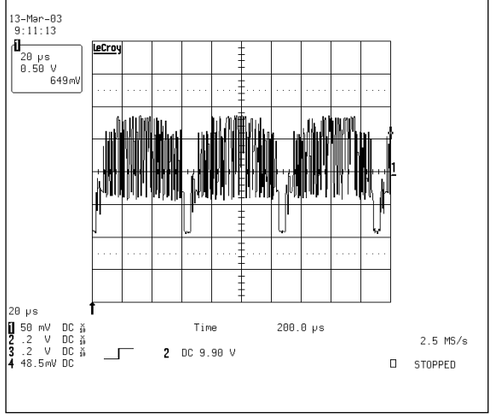
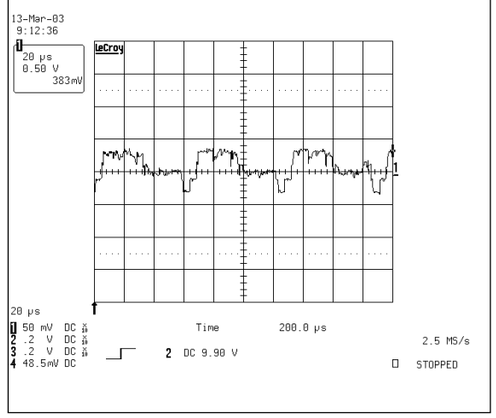


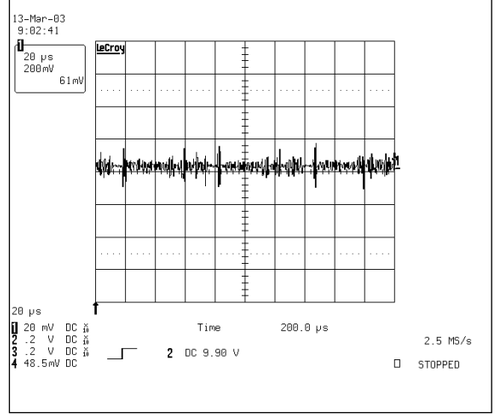
3-2



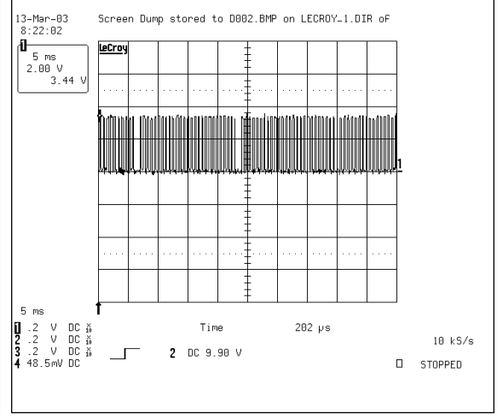
3-3



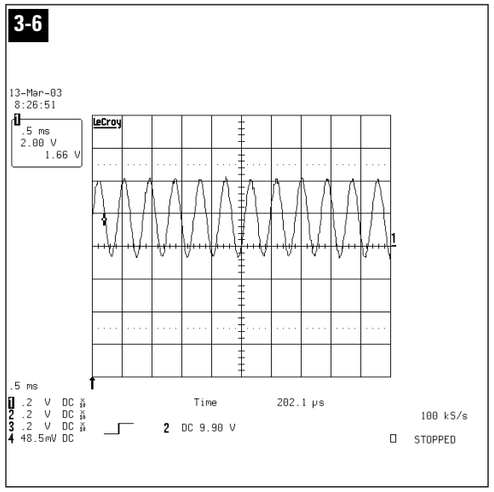
3-4



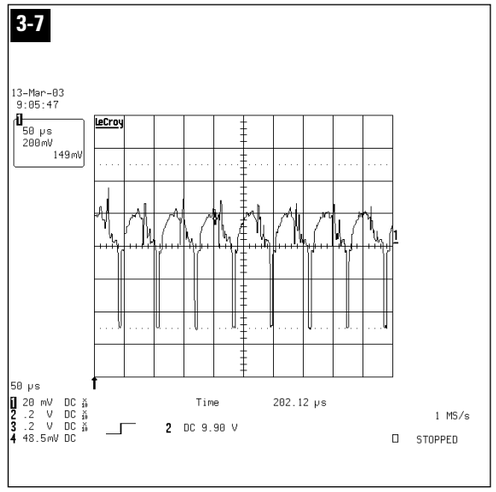
3-5



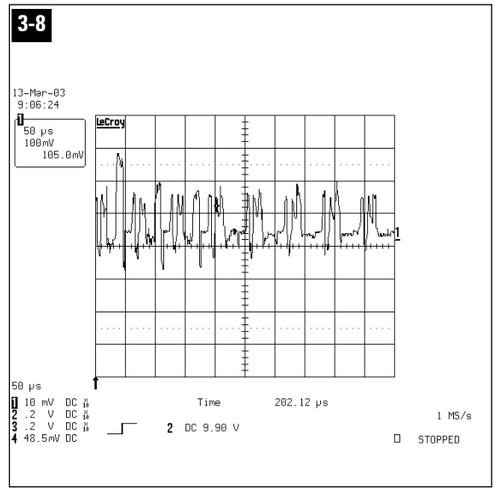
3-6



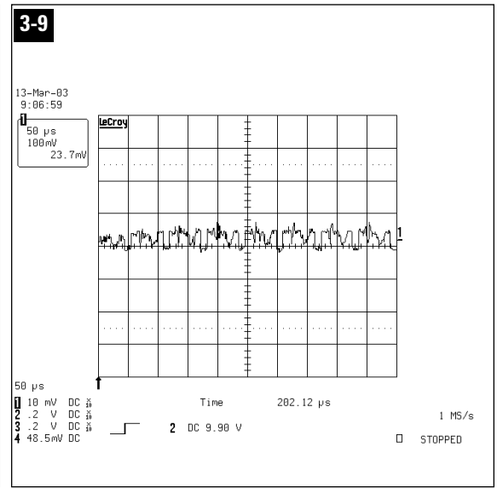
3-7



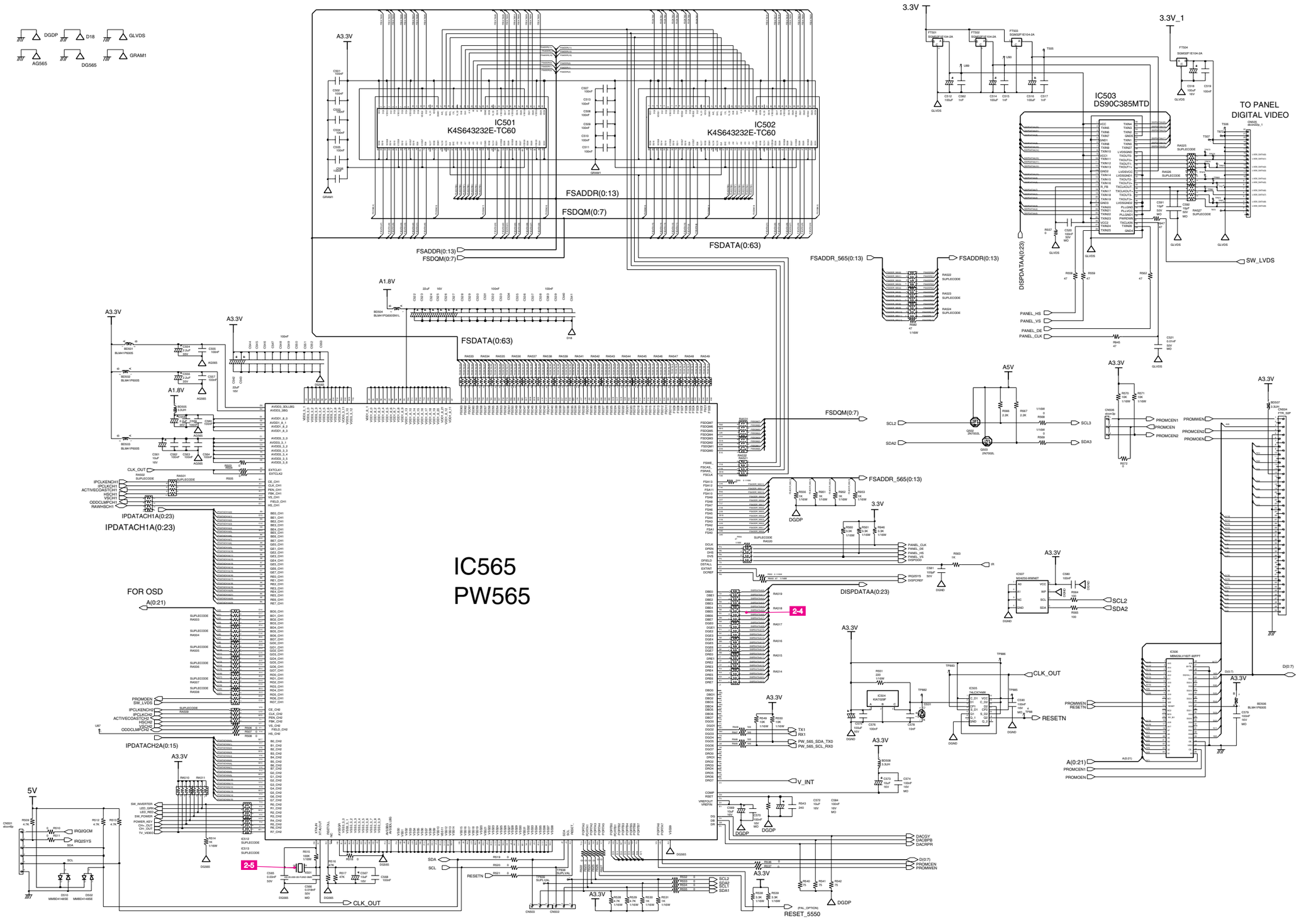
3-8



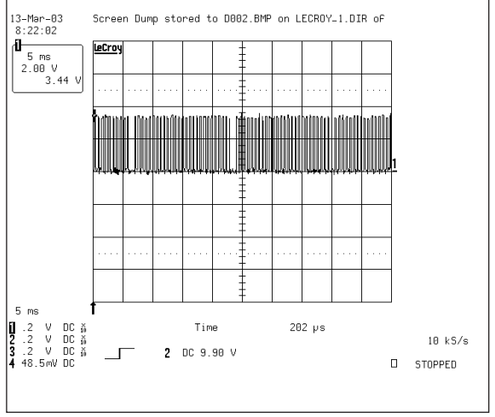
3-9



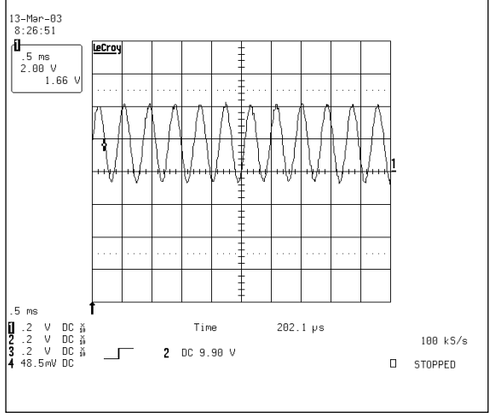
11-2 Schematic Diagram



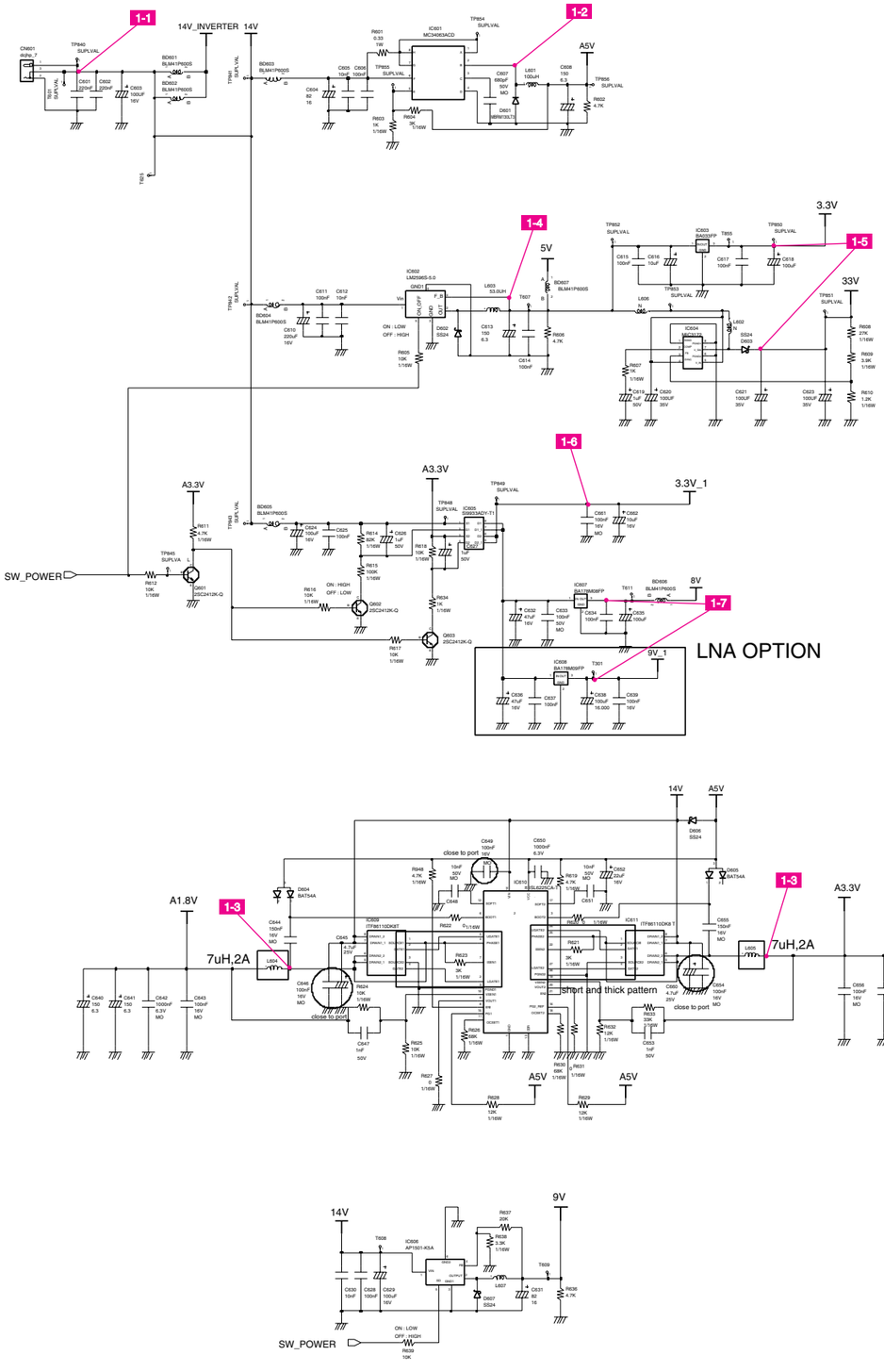
2-4

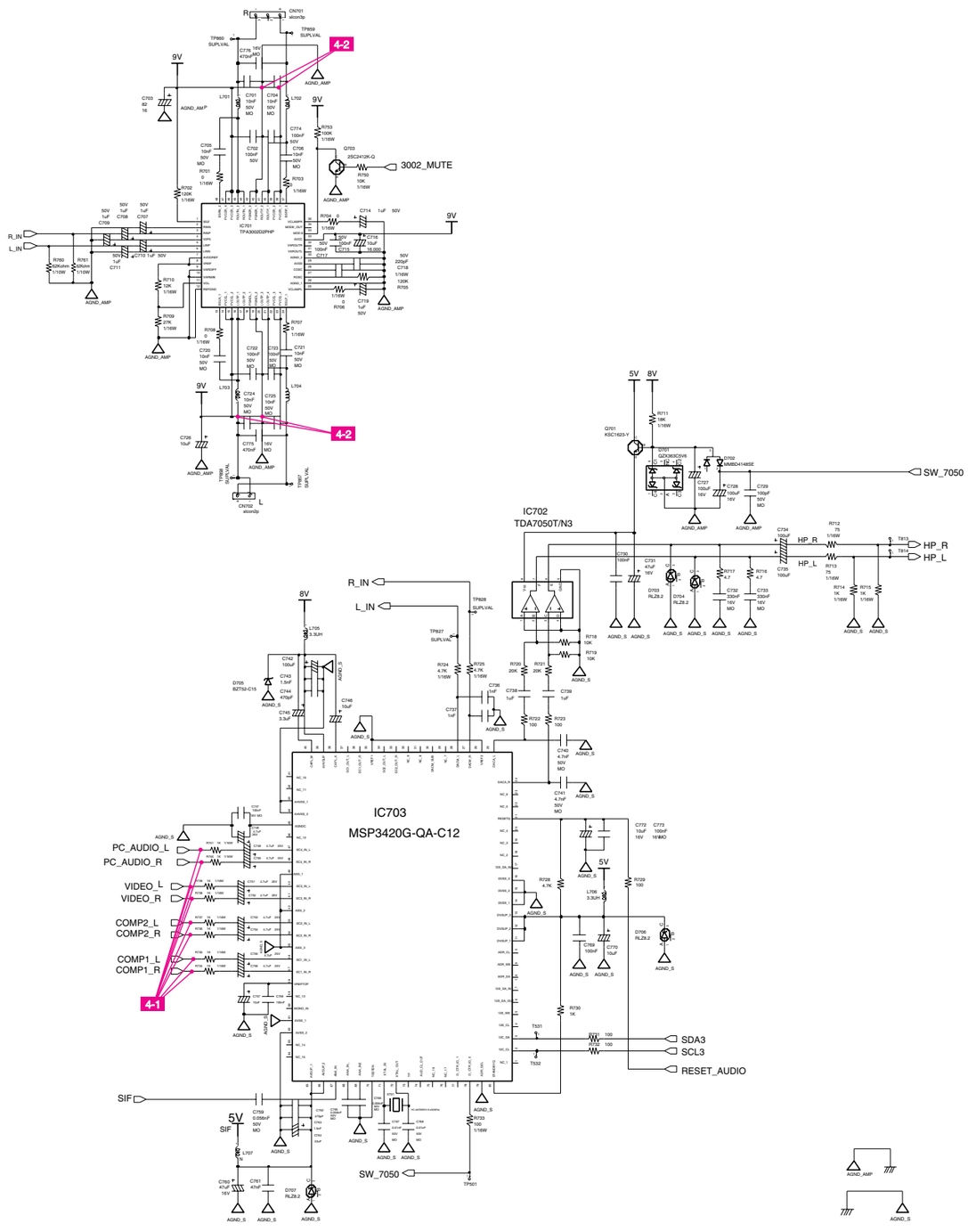

13-Mar-03
8:22:02
Screen Dump stored to D002.BMP on LECROY_1.DIR oF
5 ms
2.00 V
3.44 V
LeCroy
5 ms
1 .2 V DC
2 .2 V DC
3 .2 V DC
4 48.5mV DC
Time
202 µs
10 kS/s
2 DC 9.90 V
STOPPED

2-5

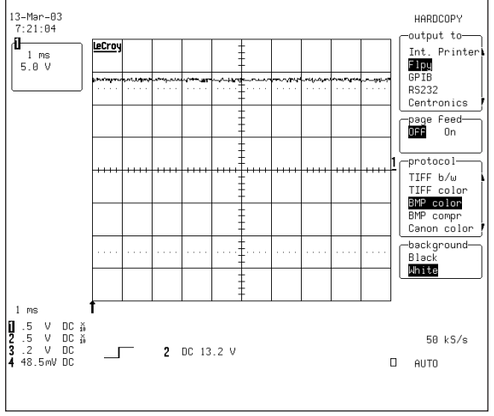

13-Mar-03
8:26:51
.5 ms
2.00 V
1.66 V
LeCroy
.5 ms
1 .2 V DC
2 .2 V DC
3 .2 V DC
4 48.5mV DC
Time
202.1 µs
100 kS/s
2 DC 9.90 V
STOPPED

11-3 Schematic Diagram

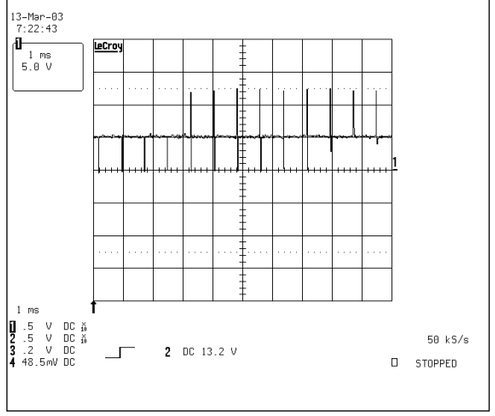




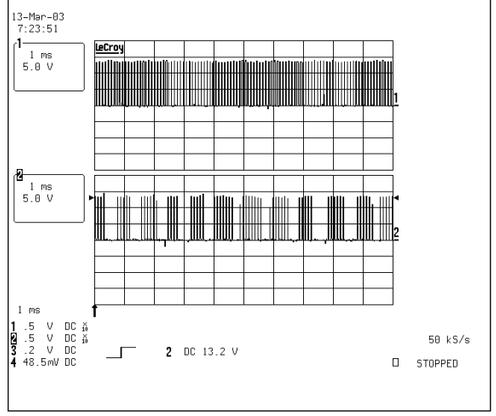
1-1



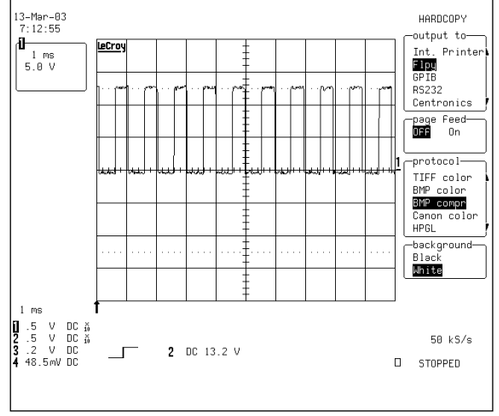
1-2



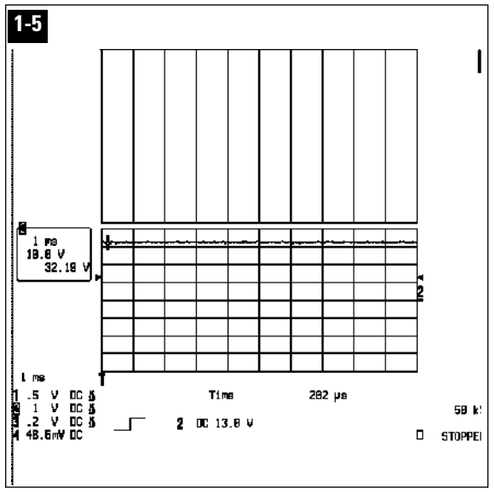
1-3



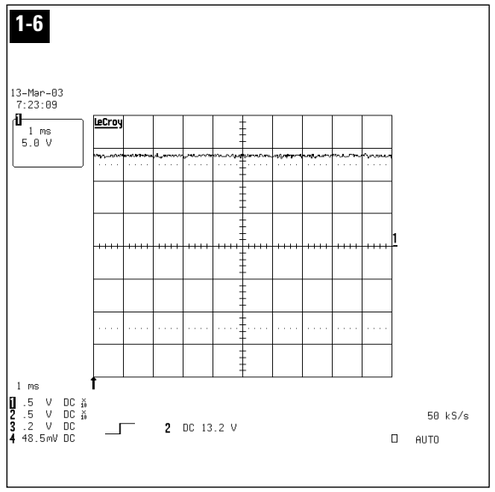
1-4



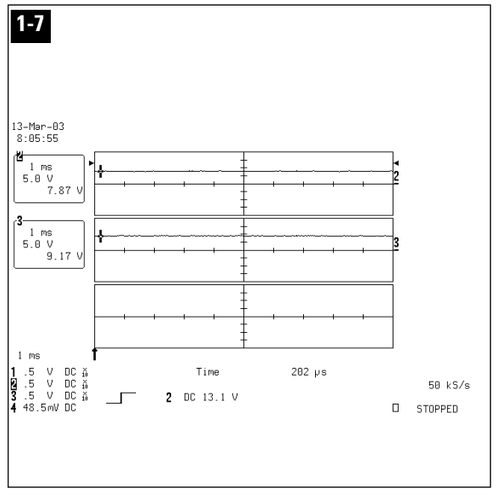
1-5



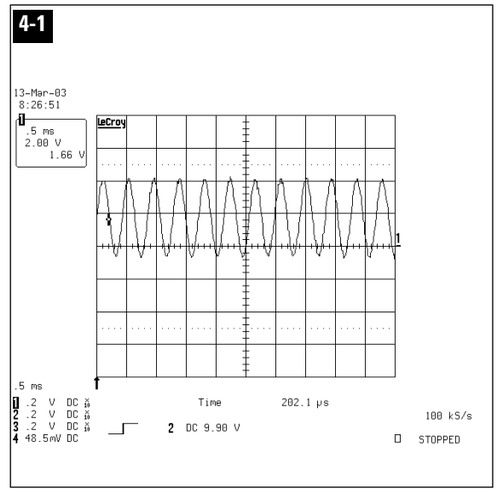
1-6



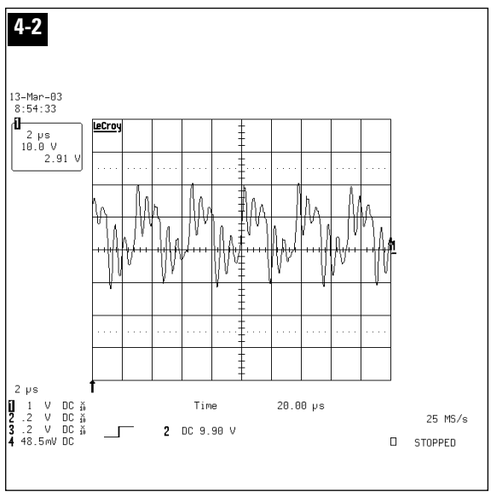
1-7



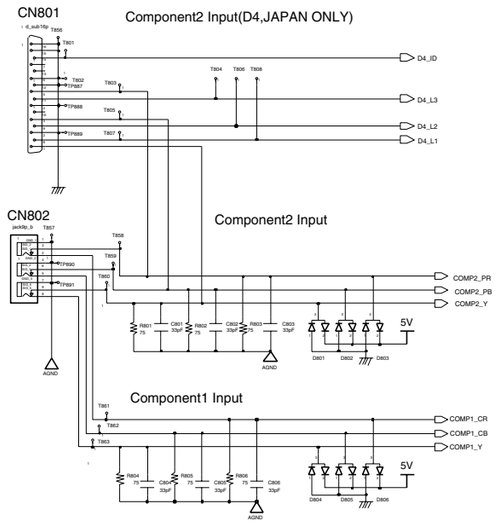
4-1

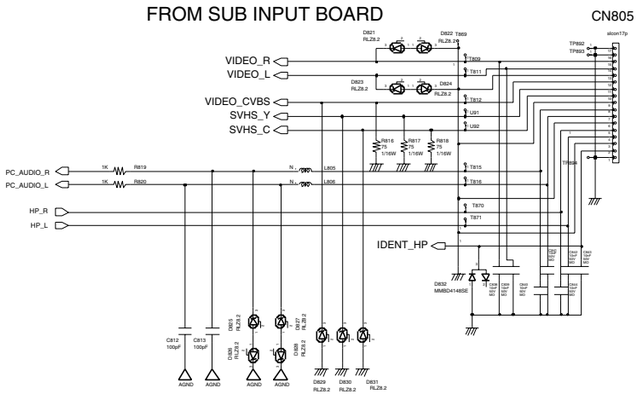


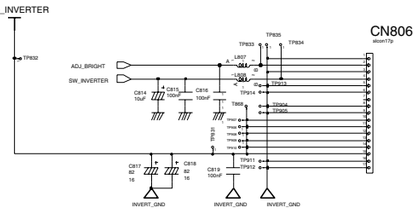
4-2

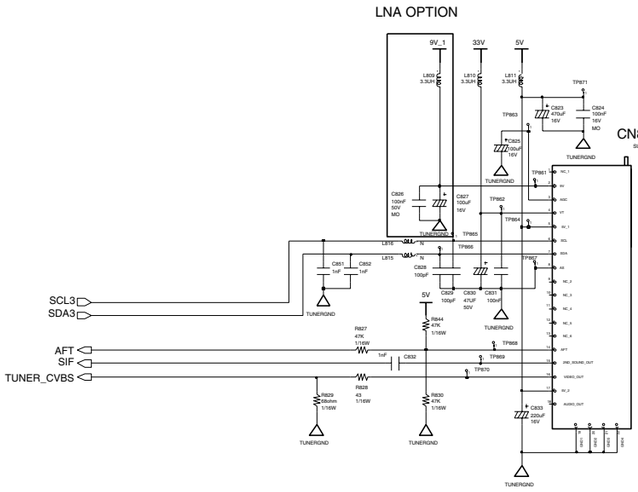


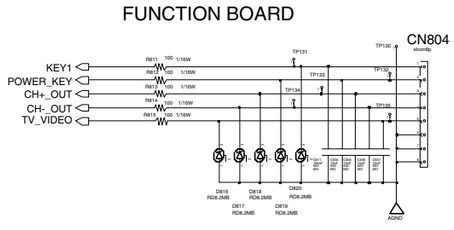
11-4 Schematic Diagram

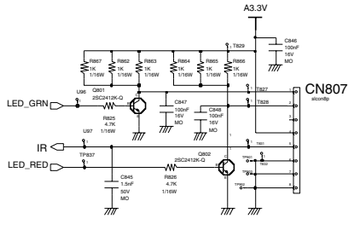


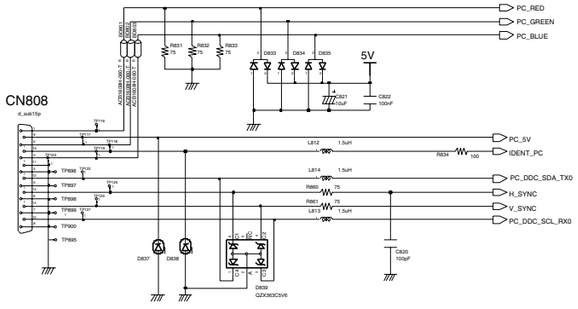


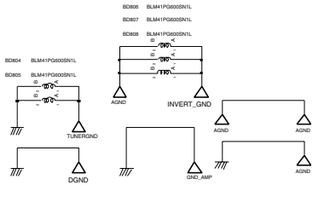








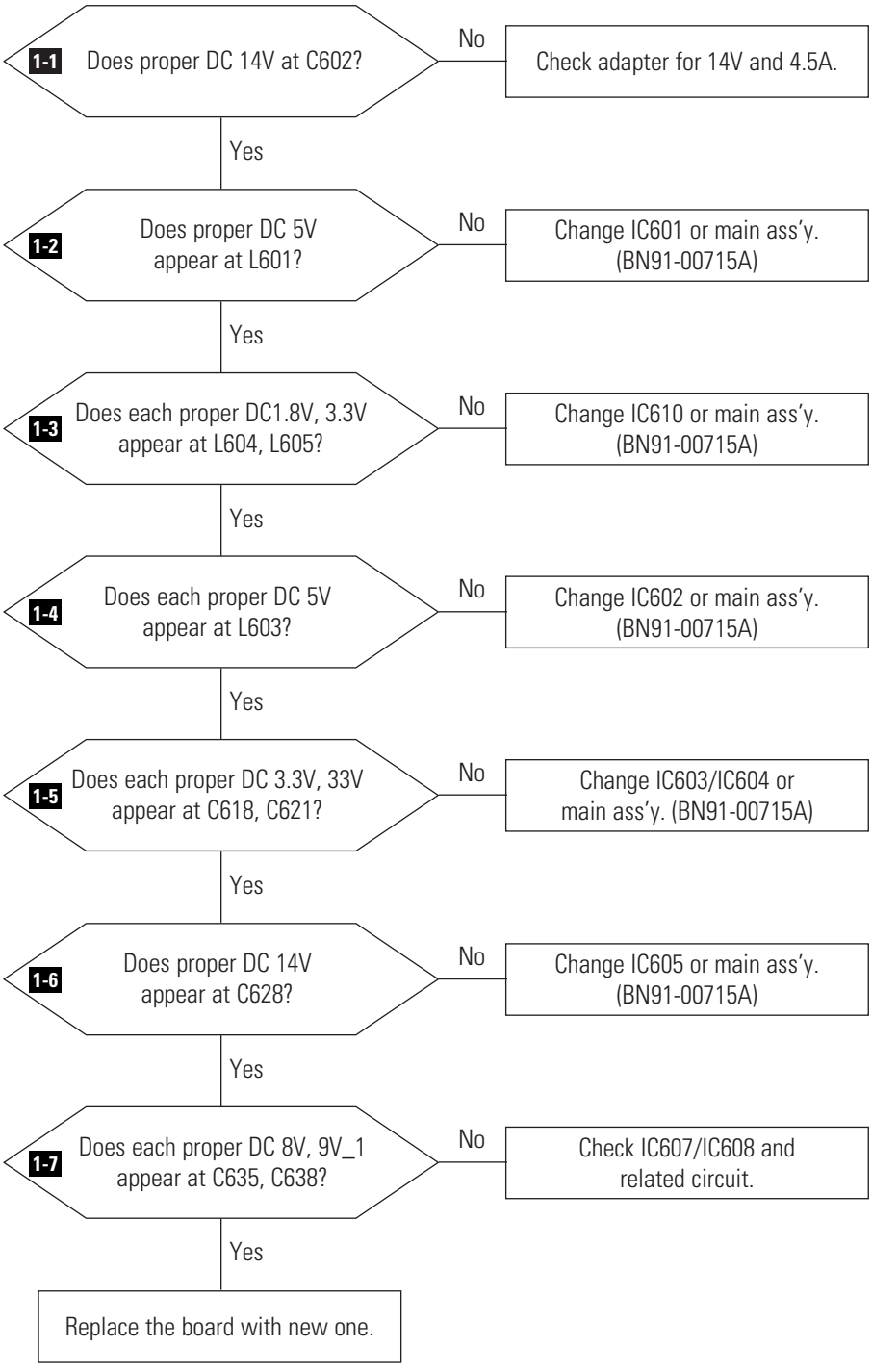




Memo

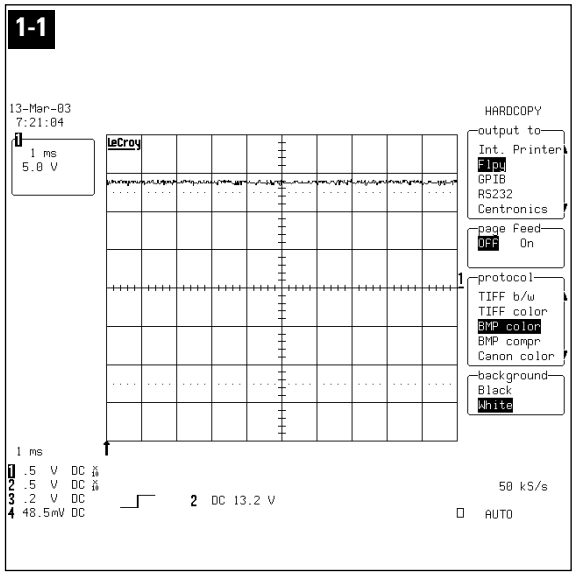
5 Troubleshooting

5-1 No Power

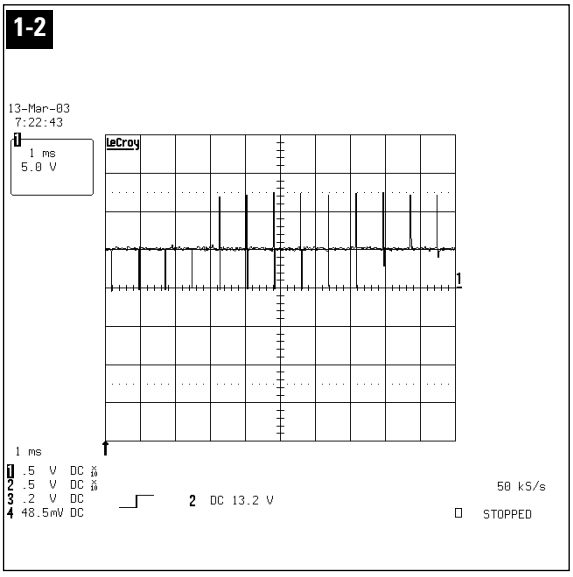


WAVEFORMS

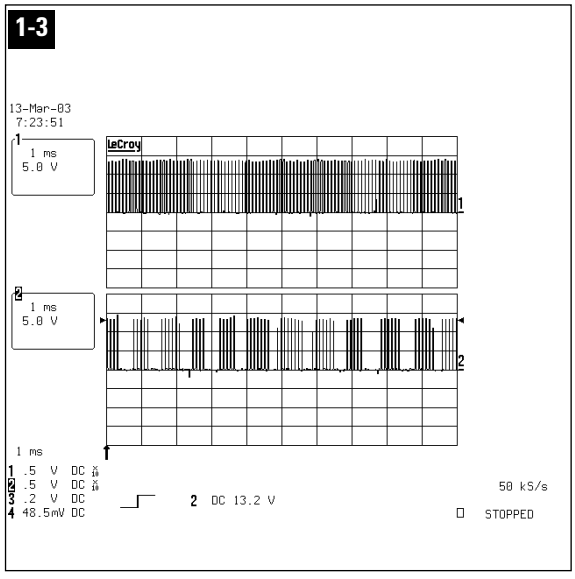
1-1



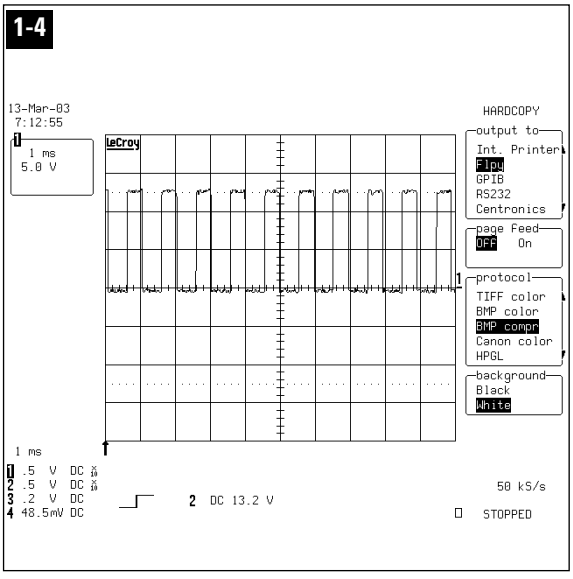
1-2



1-3

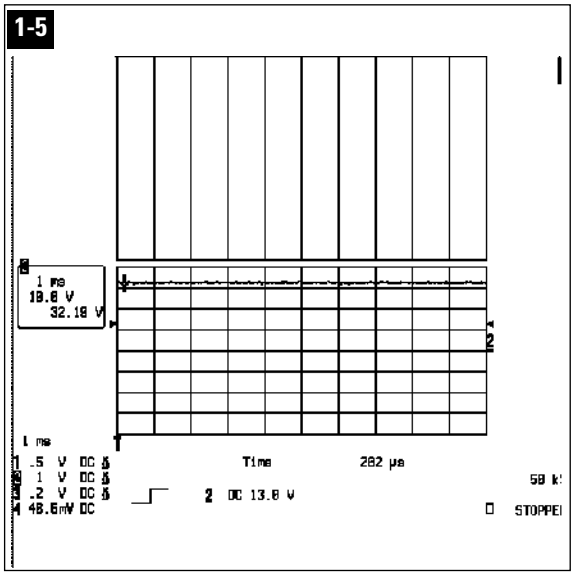


1-4

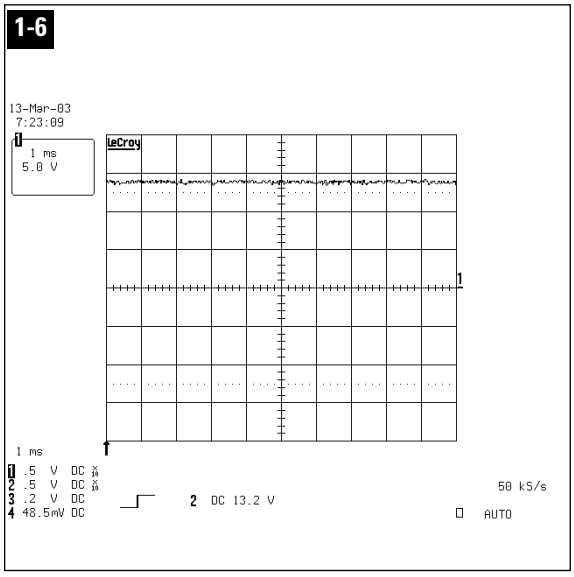


WAVEFORMS

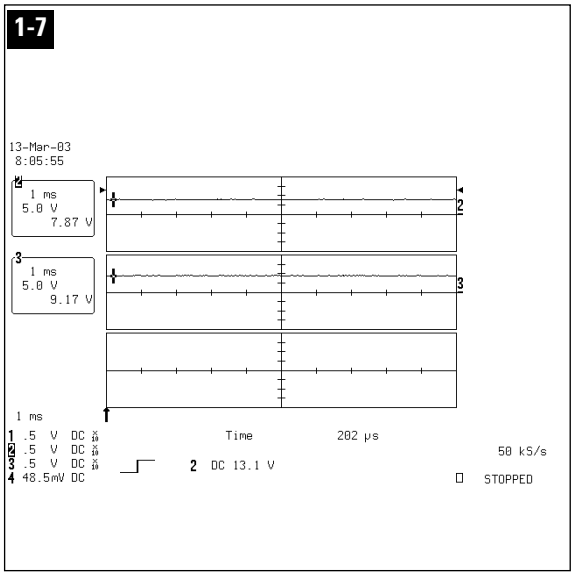
1-5



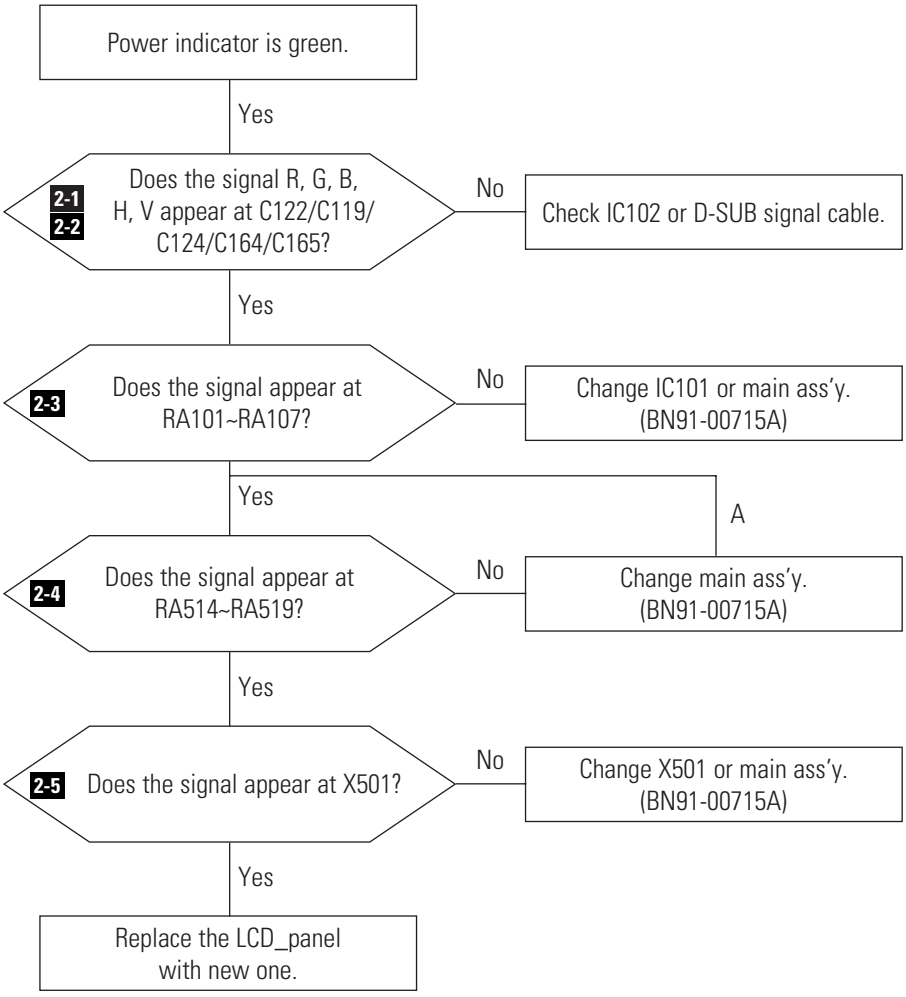
1-6



1-7

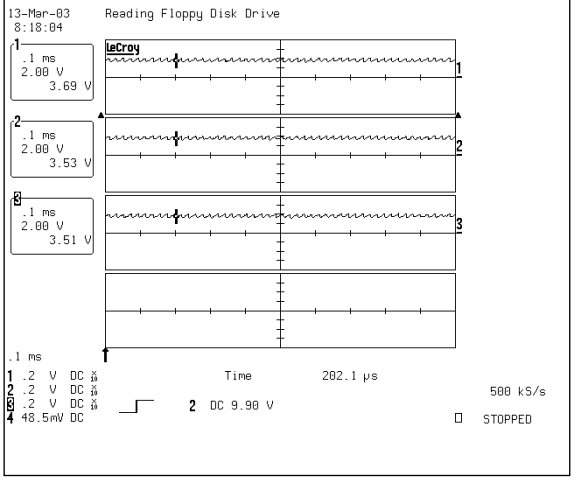


5-2 No PC Signal

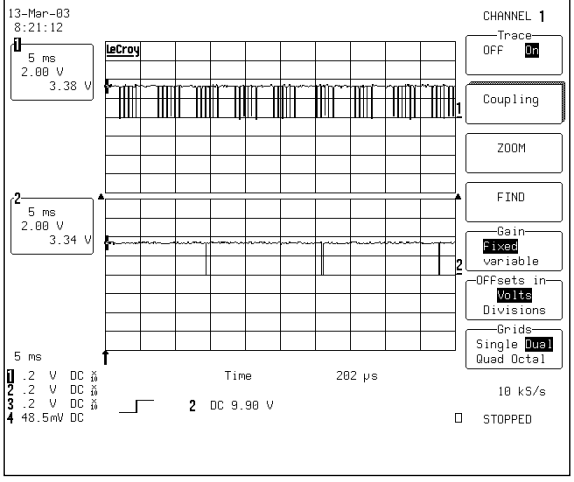


WAVEFORMS

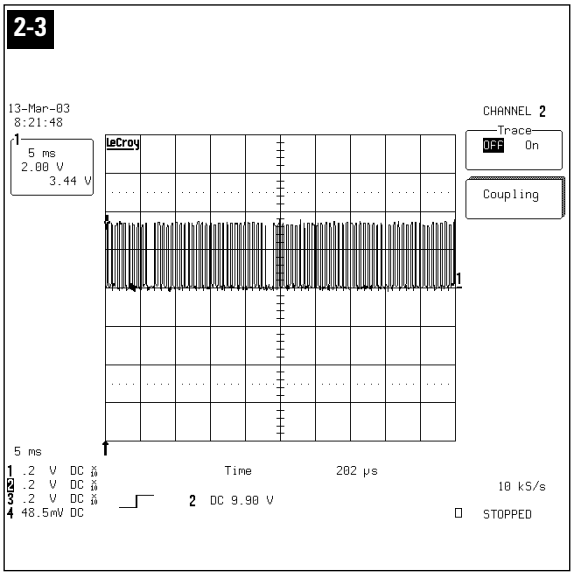
2-1



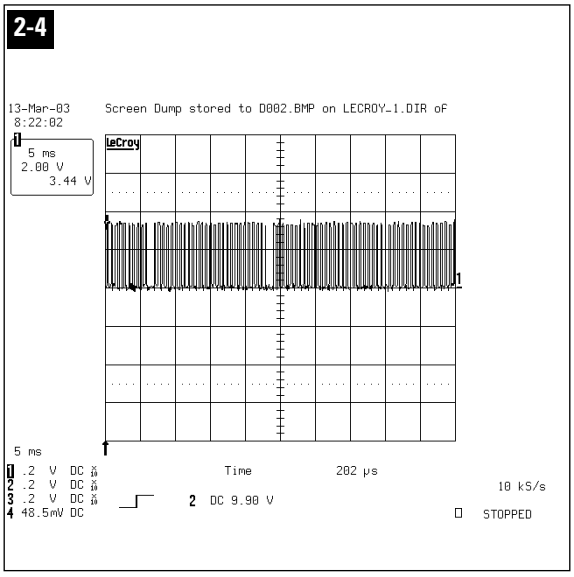
2-2



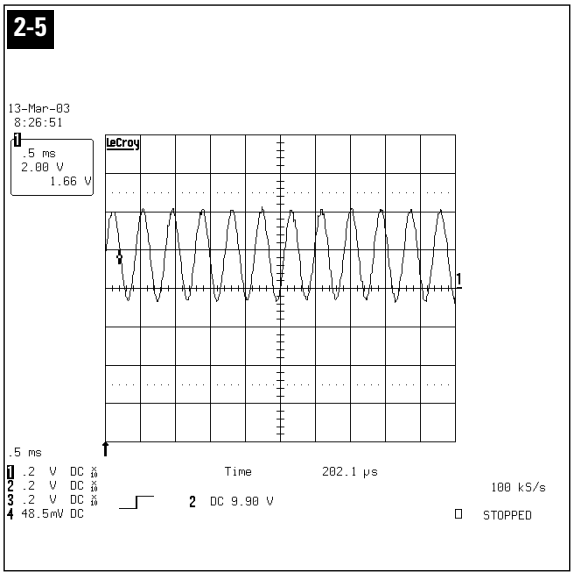
2-3



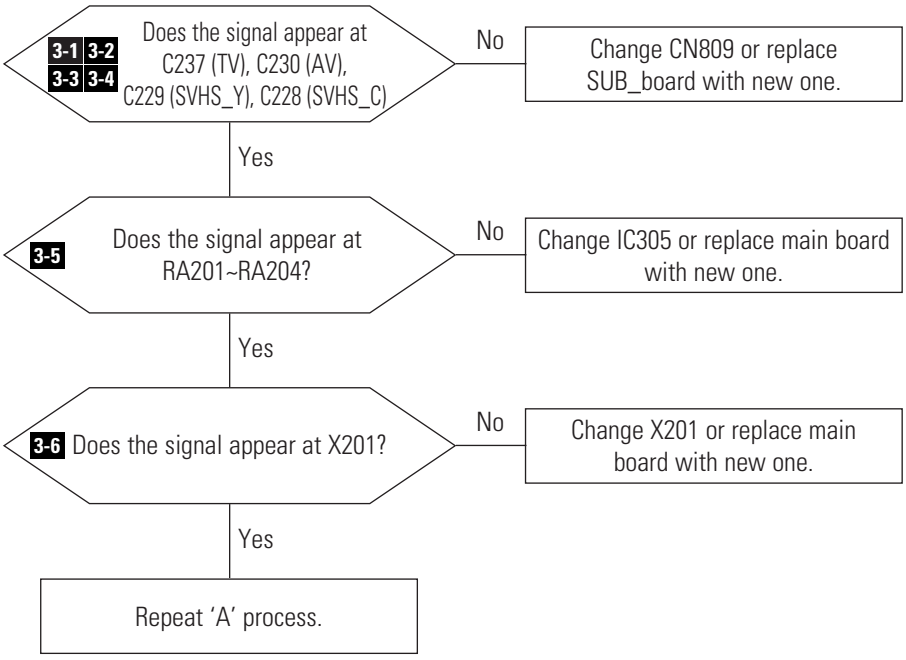
2-4



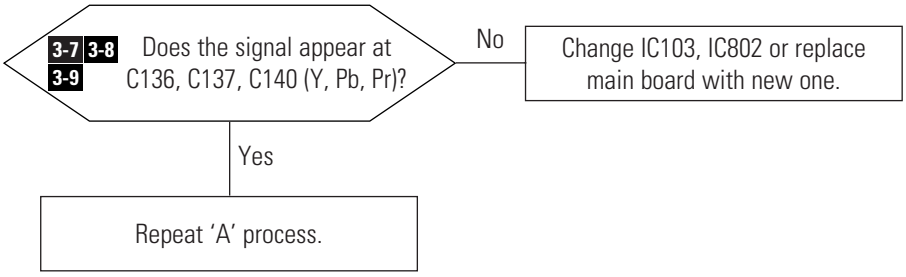
2-5



5-3-1 No Video (Tuner, AV CVBS, S-Video)

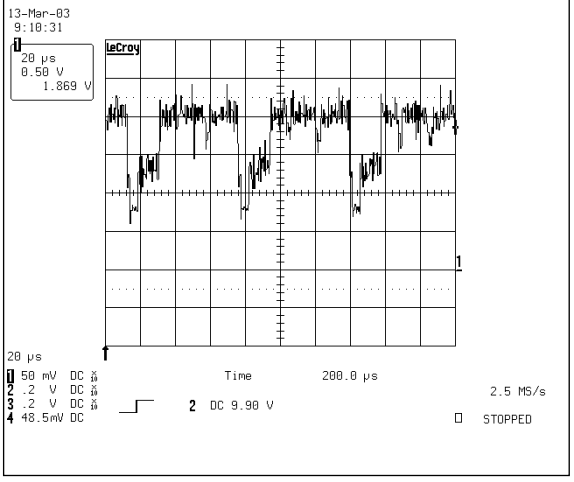


5-3-2 No Video (Component 1, 2 [408i, 480p, 720p, 1080i])

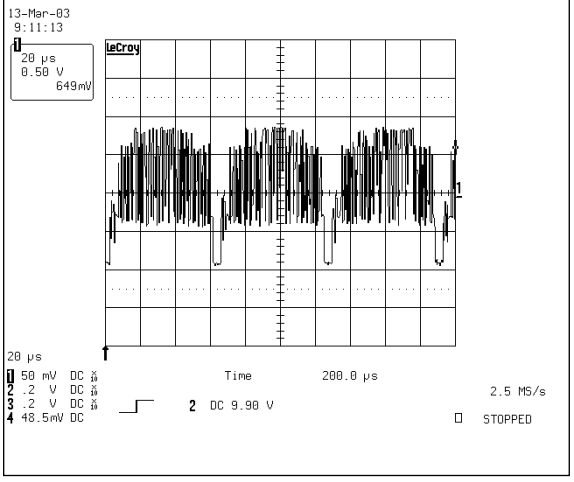


WAVEFORMS

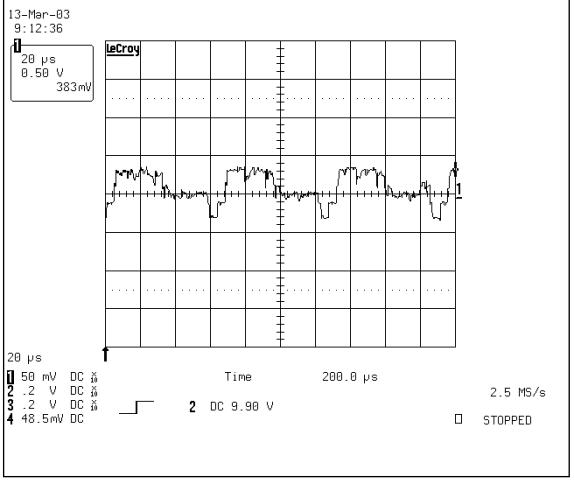
3-1



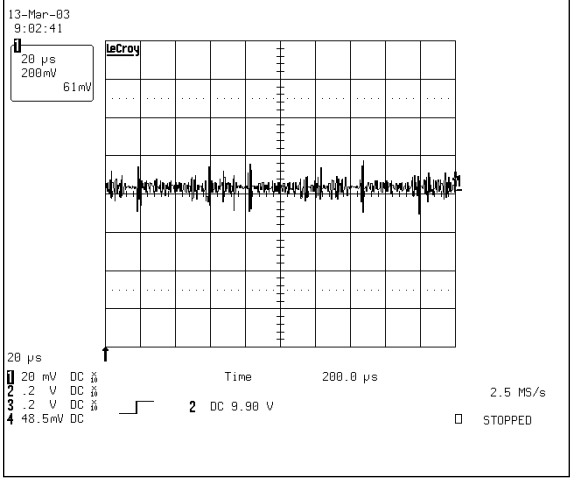
3-2



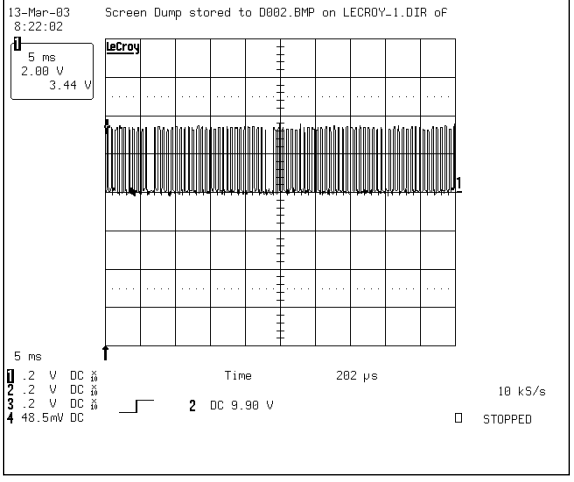
3-3



3-4

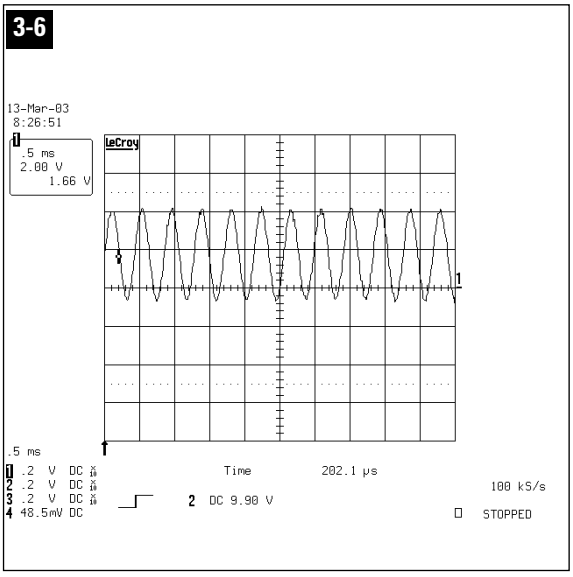


3-5

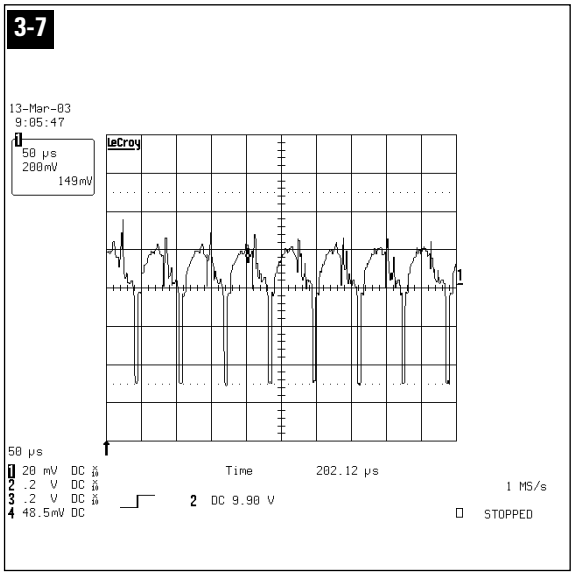


WAVEFORMS

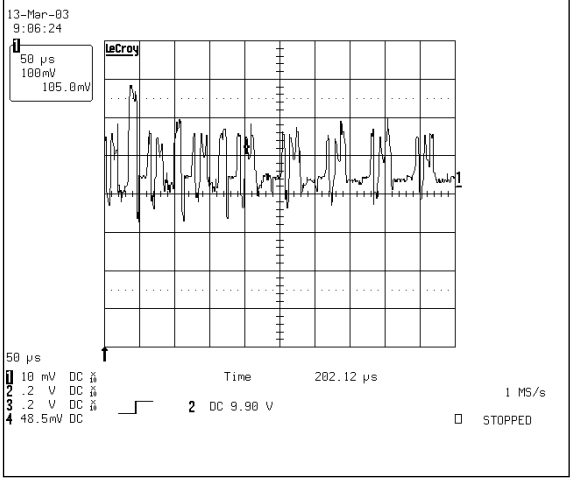
3-6



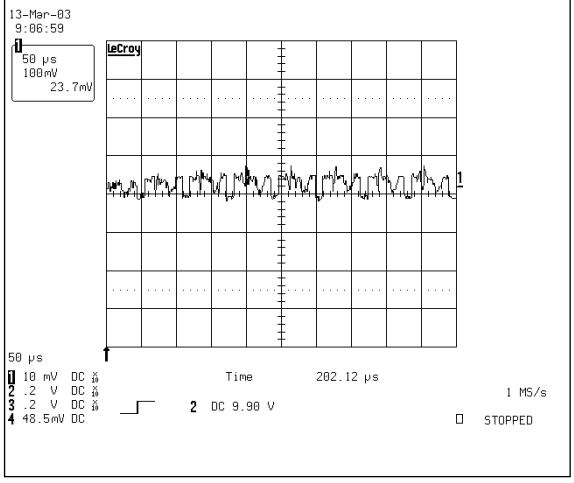
3-7



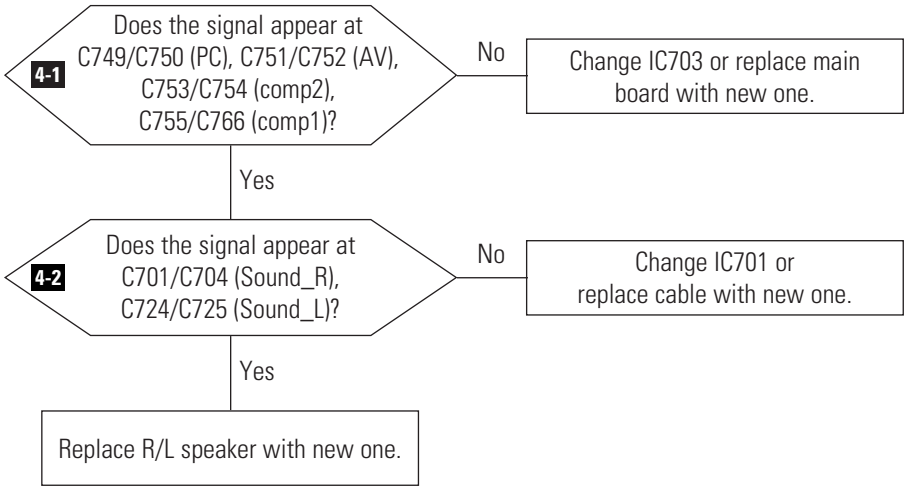
3-8



3-9

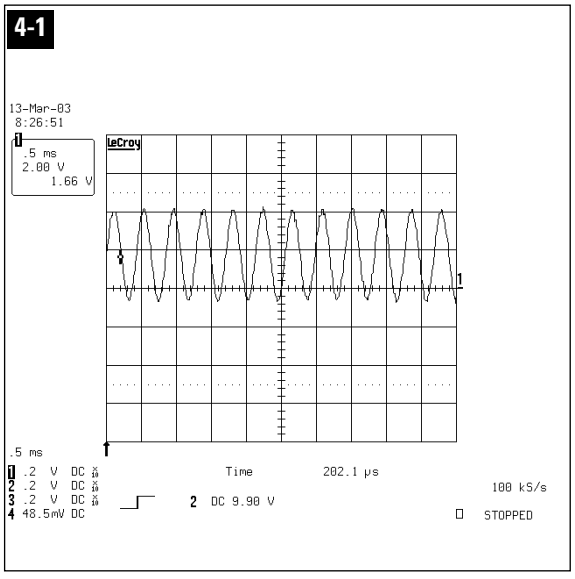


5-4 No Sound

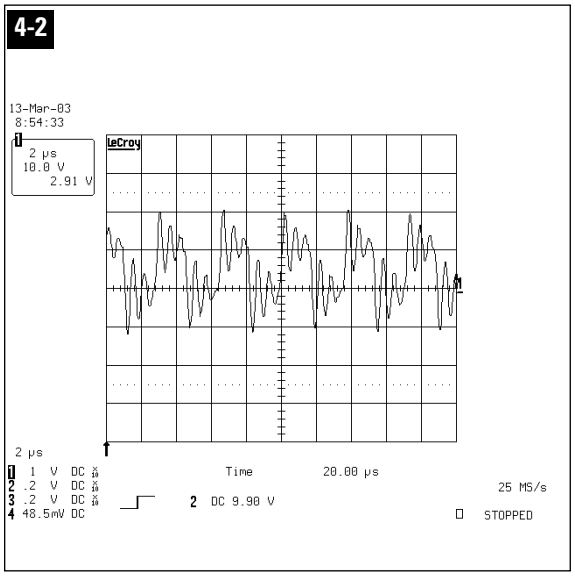


WAVEFORMS

4-1

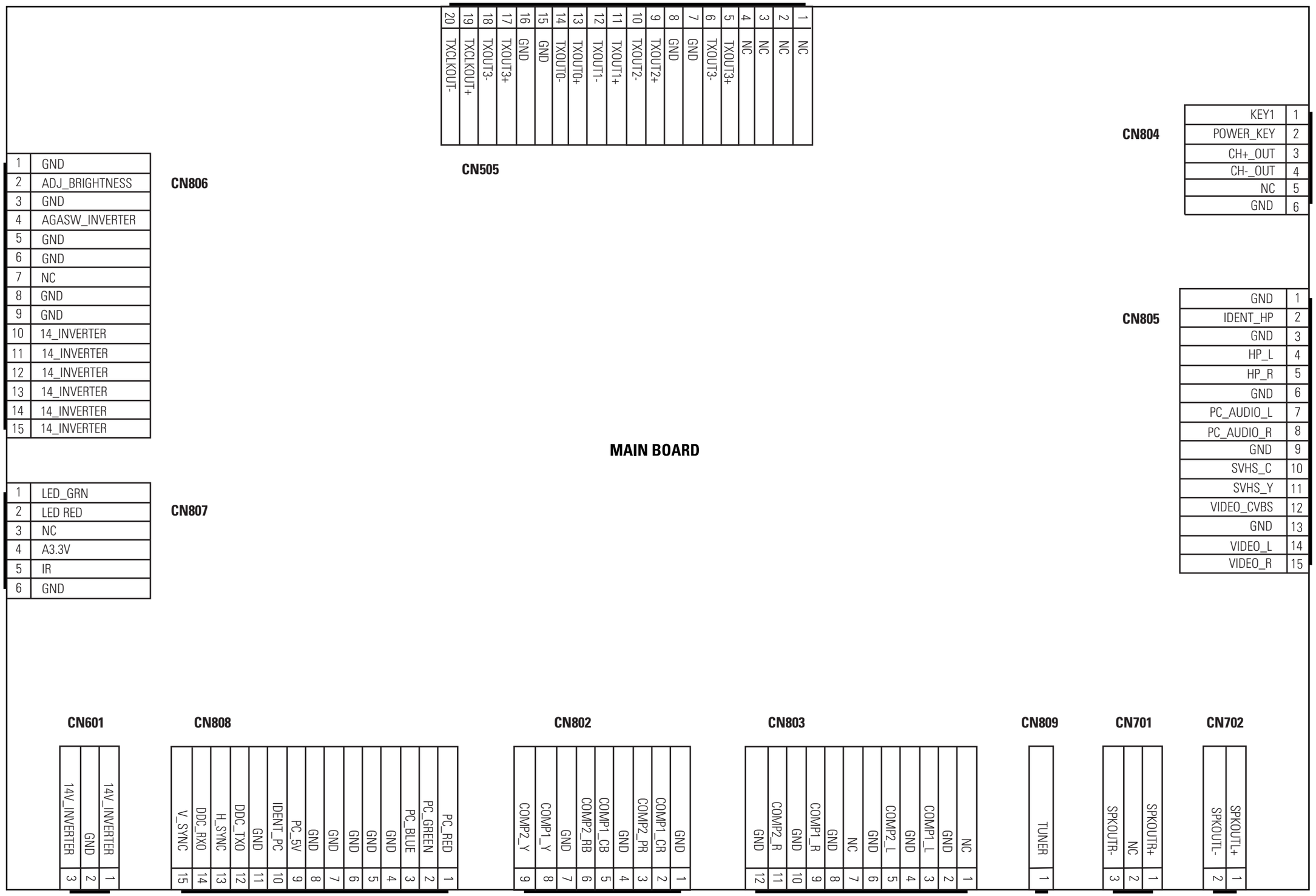


4-2



Memo

9 Wiring Diagram



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