HITACHI

No. 0412

CML153XW

SERVICE MANUAL

Data contained within this Service manual is subject to alteration for improvement.

Les données fournies dans le présent manuel d'entretien peuvent faire l'objet de modifications en vue de perfectionner le produit.

Die in diesem Wartungshandbuch enthaltenen Spezifikationen können sich zwecks Verbesserungen ändern.

CAUTION:

Before servicing this chassis, it is important that the service technician read the "Safety Precautions" and "Product Safety Notices" in this service manual.

ATTENTION:

Avant d'effectuer l'entretien du châassis, le technicien doit lire les «Précautions de sécurité» et les «Notices de sécurité du produit» présentés dans le présent manuel.

VORSICHT:

Vor Öffnen des Gehäuses hat der Service-Ingenieur die „Sicherheitshinweise" und „Hinweise zur Produktsicherheit" in diesem Wartungshandbuch zu lesen.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

TFT MONITOR
DECEMBER 2001

Warning !

1) Critical Components are marked with the symbol of # in the material list. For continued protection against Low Radiation, replace only with same part number.

2)  This symbol warns the personnel that un-insulated voltage within the unit may have sufficient magnitude to cause electric shock.

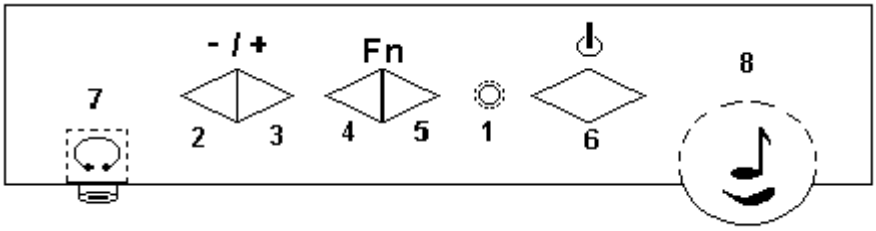
Therefore, it should be read carefully in order to avoid any problems.

1. ELECTRICAL REQUIREMENTS

A. LCD Panel Specification

Display:	15 inch (15" viewable image size): active matrix: thin film transistor (TFT): liquid crystal display (LCD): 0.297 mm dot pitch: R.G.B. Vertical stripe 200 cd//m^2 white luminance, typical: 300:1 contrast ratio, typical
Compatibility:	640 x 350: VGA-350 720 x 400: VGA text 640 x 400: VGA-GRAPH 640 x 480: VGA, 60Hz to 75 Hz vertical refresh rate 800 x 600: 56Hz to 75 Hz vertical refresh rate 1024 x 768 non-interlaced: 60Hz to 75 Hz vertical refresh rate
Synchronization Frequencies:	Horizontal: 24 kHz to 60 kHz Vertical: 56 Hz to 75 Hz (1024 x 768 is up to 75 Hz) Pixel Frequency: 21 Mhz to 78 Mhz
Resolution:	Horizontal: 1024 dots Vertical: 768 lines
Active Display Area:	Horizontal: 304.1 mm Vertical: 228.1 mm
Viewing Angles:	Up 40deg down 45deg (TYP) Left 60deg, Right 60deg (TYP) CR > 10
Display Colors:	6-bits driver
Power Supply:	AC 100 to 240V worldwide input, 50 / 60Hz
Power Consumption:	Typical: 25W on mode +10 / -25%
Environmental:	Operating temperature: 0ºC to 40ºC Storage temperature: -20ºC to 65ºC Storage humidity: 10%~90%

B. CONTROLS



LCD555-B05

B-1 Control panel (monitor front panel)

1. Power LED, (Please refer to C-2 LED definition table)
2. Adjust decrease.
3. Adjust increase
4. Function select counter-clockwise.
5. Function select clockwise.
6. Power ON/OFF switch, push to ON and push to OFF. (toggle switch)
7. Ear Phone Jack.
8. Volume Control.

C. Power Management

C-1 Power Management condition and status

State	Signals			Power	Video	LCD	LED
	Horizontal	Vertical	Video	Supply	Circuit		
On	Pulses	Pulses	Active	On	On	On	Green
Stand-by	No Pulses	Pulses	Blanking		Off	Off	Yellow
Suspend	Pulses	No Pulses					
Off	No pulses	No pulses	Blacking	On			Yellow
DC Power off	Don't care	Don't care	Don't care	Off	Off	Off	Off

C-2 LED definition Table

State	LED
On mode	Green
Stand-by	Yellow
Suspend	Yellow
Off mode	Yellow
DC power off	Dark
disconnection	1. Yellow(stand-by; suspend; off mode) 2. LED Dark (DC power off)

C-3 Power Consumption

Meet VESA DPMS Proposal

On mode	25 Wmax
Stand-by	5 Wmax
Suspend	5 Wmax
Off mode	5 Wmax
DC power off	5 Wmax
disconnection	5 Wmax

Measured from AC input end of AC power adapter, and not include audio at power-saving state

The stand-by, suspend and off mode recover to on mode about 3 seconds.

D. Display Modes FOR Inspections

D-1 Supported Timing(for Not supported timing will go to power saving mode)T

TIMING	FH(KHZ) FV(HZ)	SYNC POLARITY	TOTAL (DOT/LINE)	ACTIVE (DOT/LINE)	SYNC WIDTH (DOT/LINE)	FRONT PORCH (DOT/LINE)	BACK PORCH (DOT/LINE)	PIXEL FOREQ. (MHZ)
640x350 VGA-350	31.469	+	800	640	96	16	48	25.175
	70.087	–	449	350	2	37	60	
640x400 NEC PC9801	24.83	–	848	640	64	64	80	21.05
	56.42	–	440	400	8	7	25	
640x400 VGA-GRAPH	31.469	–	800	640	96	16	48	25.175
	70.087	+	449	400	2	12	35	
640x400 NEC PC9821	31.5	–	800	640	64	16	80	25.197
	70.15	–	449	400	2	13	34	
640x480 VGA-480	31.469	–	800	640	96	16	48	25.175
	59.94	–	525	480	2	10	33	
640x480 VESA-480-72Hz	37.861	–	832	640	40	16	120	31.5
	72.809	–	520	480	3	1	20	
640x480 VESA-480-75Hz	37.5	–	840	640	64	16	120	31.5
	75	–	500	480	3	1	16	
720x400 VGA-400-TEXT	31.469	–	900	720	108	18	54	28.322
	70.087	+	449	400	2	12	35	
800x600 SVGA	35.156	+	1024	800	72	24	128	36
	56.25	+	625	600	2	1	22	
800x600 VESA-600-60Hz	37.879	+	1056	800	128	40	88	40
	60.317	+	628	600	4	1	23	
800x600 VESA-600-72Hz	48.077	+	1040	800	120	56	64	50
	72.188	+	666	600	6	37	23	
800x600 VESA-600-75Hz	46.875	+	1056	800	80	16	160	49.5
	75	+	625	600	3	1	21	
832x624 APPLE MAC-800	49.725	-	1152	832	64	32	224	57.2832
	74.55	-	667	624	3	1	39	
1024x768 XGA	48.363	–	1344	1024	136	24	160	65
	60.004	–	806	768	6	3	29	
1024x768 COMPAQ-XGA	53.964	+	1328	1024	176	16	112	71.664
	66.132	+	816	768	4	8	36	
1024x768 VESA-768-70Hz	56.476	–	1328	1024	136	24	144	75
	70.069	–	806	768	6	3	29	
1024x768 VESA-768-75Hz	60.023	+	1312	1024	96	16	176	78.75
	75.029	+	800	768	3	1	28	

Note: Mode 640x350, cannot be expanded to full screen on vertical direction.

2. ADJUSTMENT CONDITIONS

A. Measuring Apparatuses Used

Necessary measuring equipment that for the adjustment of LA-1221JMW's MAIN PWB are following items.

Adjusted Video Generator.

Oscilloscope (more than 4 channels required)

DC voltmeter

Audio analyzer (Panasonic VP-7723A)

B. Input Signal

Input signal by using video signal generator with VGA Card port for this adjustment.

C. Indication

Input signal by using video signal generator with VGA Card port for this adjustment.

3. ADJUSTMENT of Power Supply

A. Adjustment of Switching Regulator (Adapter)

A-1 Specifications

Input voltage *AC 100 ~ 240Vac*

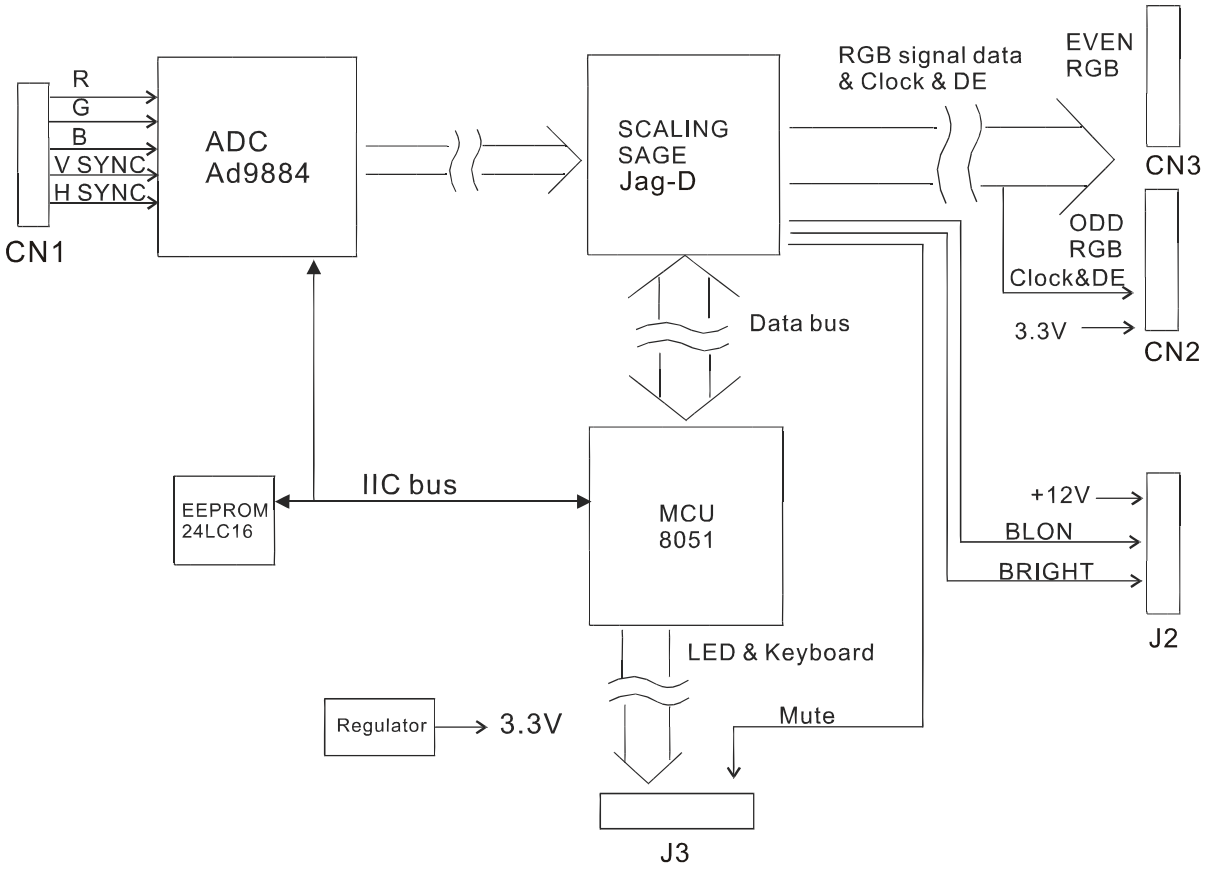
Rated input voltage *AC 90 ~ 264Vac*

Frequency *50 / 60 Hz*

Rated frequency *47 ~ 63 Hz*

DC output

Out voltage	+12V
Maximum output current	3.33A
Minimum output current	0A
Range of voltage Regulation	±5%

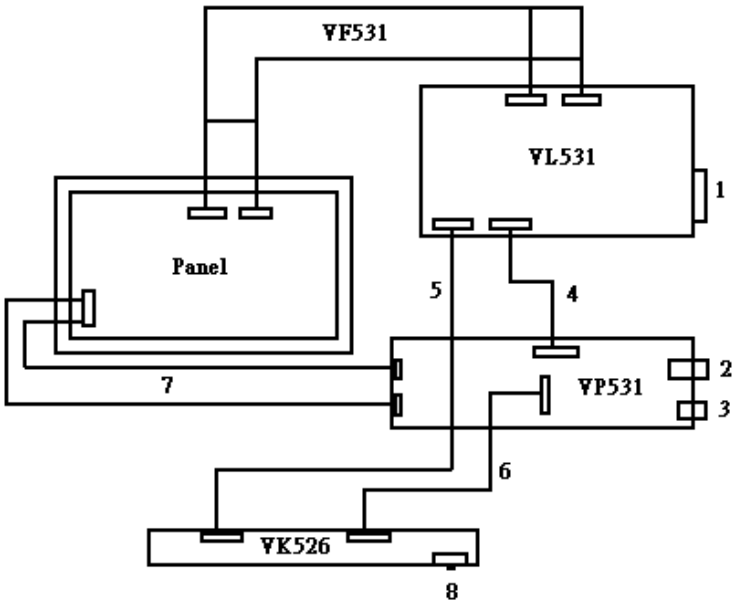


4. ADJUSTMENT OF BOARDS

Equipment is connected with boards to be inspected before adjustments. Refer to diagram below.

A. Connection Method

1. *R.G.B Signal Cable*
2. *Audio Signal Cable*
3. *DC Power Cable*
4. *Inverter Cable*
5. *Control Cable*
6. *Audio Cable*
7. *LCD Lamp Cable*
8. *EAR phone Cable*



5. VL-531 DISPLAY CONTROL BOARD

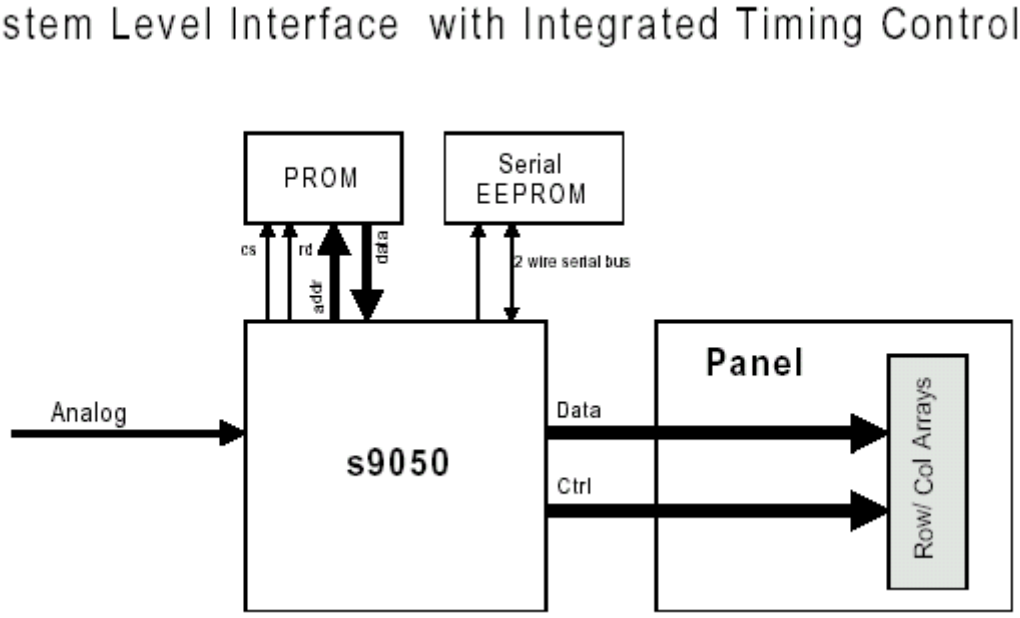
A. Description

The VL-531 display control board is design to directly convert the R.G.B signals from VGA Card D-sub port to optimum LCD timing signals so as to construct a high display quality LCD monitor.

B. Features

- On board sage chip to detect display timings and control user functions.
- Using sage chip to convert R.G.B signals to digital timing
- Using sage chip to offer full screen expansion function on non-XGA mode(Auto-Zoom).
- Support VESA DPMS function.
- Support DDC2B functions.

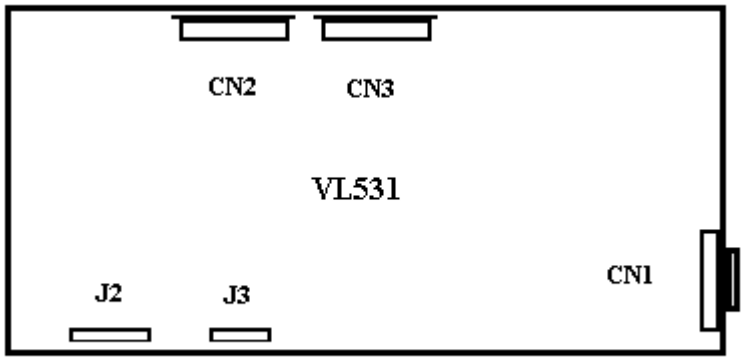
C. Block Diagram (Control CKT)



C-1 Sage Operation

The s9050-100 is highly-integrated display processors. It has an ADC/PLL block and a microprocessor integrated on a single chip. The cost-effective s9050-100 is suitable for the XGA and the s9050 for the SXGA market segment with smaller memory requirements. Other features include a brand new high-end scaler, Active Color Management, a flexible OSD, Autoadjust, SureSync™ and independent monitoring of the analog interface. A new standalone on-chip pattern generator has been incorporated to simplify the manufacture of monitors.

D. Connector Locations



E. Connector Type

Location	Type	Maker	Number of pins
CN1	DZ11A91-L8 P1.524	FEMALE	15
J2	96113-1003	E&T	10
J3	96113-0703	E&T	7
CN3	98210-4011	E&T	40
CN2	98210-4011	E&T	40

F. Connector pin assignment

F-1 CN1

Pin NO.	Signal	Comment
1	R-Video	Red Video Input.
2	G-Video	Green Video Input.
3	B-Video	Blue Video Input.
4	Ground	Ground
5	Ground	Ground
6	Ground	Ground.
7	Ground	Ground.
8	Ground	Ground
9	5V-DCC	DDC Power Input.
10	NC	NC
11	Ground	Ground
12	DDC-SDA	DDC 2B Data
13	HS	Horizontal Sync Input.
14	VS	Vertical Sync Input.
15	DDC-SCL	DDC 2B Clock

F-2 CN3

Terminal No.	Symbol	Function
1	VDD1	Digital Power Input (DC+3.3V)
2	VDD1	Digital Power Input (DC+3.3V)
3	GND	Ground
4	GND	Ground
5	0B5	Odd-dot Blue Data bit 5 (MSB)
6	0B4	Odd-dot Blue Data bit 4
7	0B3	Odd-dot Blue Data bit 3
8	0B2	Odd-dot Blue Data bit 2
9	0B1	Odd-dot Blue Data bit 1
10	0B0	Odd-dot Blue Data bit 0
11	GND	Ground
12	0G5	Odd-dot Green Data bit 5 (MSB)
13	0G4	Odd-dot Green Data bit 4
14	0G3	Odd-dot Green Data bit 3
15	0G2	Odd-dot Green Data bit 2
16	0G1	Odd-dot Green Data bit 1
17	0G0	Odd-dot Green Data bit 0 (LSB)
18	GND	Ground
19	0R5	Odd-dot Red Data bit 5 (MSB)
20	0R4	Odd-dot Red Data bit 4
21	0R3	Odd-dot Red Data bit 3
22	0R2	Odd-dot Red Data bit 2
23	0R1	Odd-dot Red Data bit 1
24	0R0	Odd-dot Red Data bit 0 (LSB)
25	GND	Ground
26	CPH2	Pixel Clock Input
27	GND	Ground
28	GND	Ground
29	NC	No connecting
30	NC	No connecting
31	VGH	Gate Driver High Voltage Input
32	NC	No connecting
33	VGL	Gate Driver Low Voltage Input
34	NC	No connecting
35	VGC	Gate Driver Common Voltage Input
36	NC	No connecting
37	NC	No connecting
38	NC	No connecting
39	GND	Ground
40	GND	Ground

F-3 CN2

Terminal No.	Symbol	Function	Terminal No.	Symbol	Function
1	VDD2	Analog Power Input (DC+9V)	31	POL	Source Driver Output Polarity Control
2	VDD2	Analog Power Input (DC+9V)	32	REV	Data Reverse Control Signal
3	GND	Ground	33	GND	Ground
4	GND	Ground	34	GND	Ground
5	EB5	Even-dot Blue Data bit 5(MSB)	35	STV1	Vertical start Pulse1
6	EB4	Even-dot Blue Data bit 4	36	STV2	Vertical start Pulse2
7	EB3	Even-dot Blue Data bit 3	37	CPV	Vertical Clock Input
8	EB2	Even-dot Blue Data bit 2	38	OE	Gate Driver Output Enable Signal
9	EB1	Even-dot Blue Data bit 1	39	GND	Ground
10	EB0	Even-dot Blue Data bit 0 (LSB)	40	GND	Ground
11	GND	Ground			
12	EG5	Even-dot Green Data bit 5 (MSB)			
13	EG4	Even-dot Green Data bit 4			
14	EG3	Even-dot Green Data bit 3			
15	EG2	Even-dot Green Data bit 2			
16	EG1	Even-dot Green Data bit 1			
17	EG0	Even-dot Green Data bit 0 (LSB)			
18	GND	Ground			
19	ER5	Even-dot Red Data bit 5 (MSB)			
20	ER4	Even-dot Red Data bit 4			
21	ER3	Even-dot Red Data bit 3			
22	ER2	Even-dot Red Data bit 2			
23	ER1	Even-dot Red Data bit 1			
24	ER0	Even-dot Red Data bit 0 (LSB)			
25	GND	Ground			
26	CPH1	Pixel Clock Input			
27	GND	Ground			
28	GND	Ground			
29	STH	Horizontal start Pulse			
30	LOAD	Source Driver Latch Pulse			

F-4 J2

Pin NO.	Signal	Comment
1	NONE	
2	LED-Y	Power saving mode
3	LED-G	Monitor is ON
4	GND	GND
5	KEY-UP	Function select counter-clockwise key
6	KEY-Down	Function select counter-clockwise key
7	KEY-R	Adjust up key
8	KEY-L	Adjust down key
9	KEY-POWER	Power ON/OFF key
10	GND	GND

F-5 J3

Pin NO.	Signal	Comment
1	+5V	VL531 power input
2	+5V	VL531 power input
3	GND	Ground
4	GND	Ground
5	BLON	Back Light ON/OFF.
6	MUTE	Audio amplifier control signal
7	BRIGHT	Brightness Adjustment.

6. VK-526 Control Panel and Audio Board

A. Description

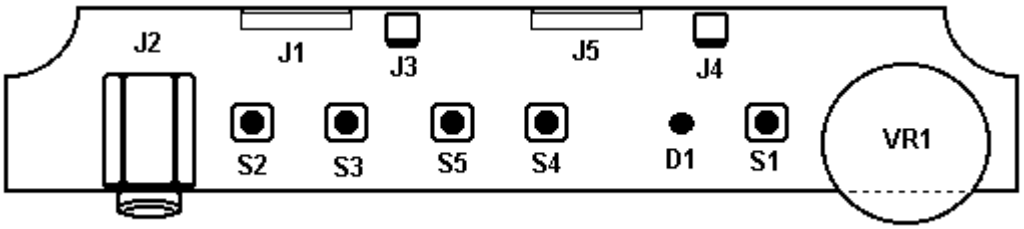
The VK-526 is designed to offer an user interfaced control panel which passes and receives signals to and from VP-531 power board .Also there is a stereo audio amplifier to drive a pair of speakers .When in power saving mode the audio circuit can be turned off by the control signal from VP-531 board.

B. Electrical characteristics (Tamb=25°)

Audio amplifier (Use Panasonic VP-7723A Audio Analyzor).

Item	Audio Input	Freq.	Spec.			Comment
			Min.	Typ.	Max.	
Input Voltage(V)			11.4	12	12.6	
Input Current(mA)				500	800	
Audio Voltage Gain	500mVrms	1KHz			10dB	Volume Max., load 8 Ω
Frequency Response	100mVrms	20Hz~20KHz	-3dB		+3dB	Volume Max., load 8 Ω
Signal to Noise ratio	500mVrms	1KHz			-60dB	Volume Max., load 8 Ω
Cross talk	100mVrms	1KHz			-30dB	Volume Max., load 8 Ω
Distortion	500mVrms	1KHz			1%	Volume Max., load 8 Ω
Output Watt.	500mVrms	1KHz			0.5W	Volume Max., load 8 Ω
Volume Control						Analog

C. Connector and Switch Locations



D. Connector type

Location	Type	Maker	Number of pins
J1	96113-1113	E&T	11
J2	SCJ-0348-C	SC	9
J3	87502-0200	ACES	2
J4	87502-0200	ACES	2
J5	96113-1013	E&T	10

E. Connector pin Assignment

E-1 J1

Pin NO.	*Signal*	*Comment*
1	*NONE*	
2	*GND*	*Ground*
3	*RIN-1*	*Audio volume adjust line IN R*
4	*LIN-1*	*Audio volume adjust line IN L*
5	*RIN-2*	*Audio volume adjust line OUT R*
6	*LIN-2*	*Audio volume adjust line OUT L*
7	*GND*	*Ground*
8	*R-EAR*	*EAR Phone out R*
9	*L-EAR*	*EAR Phone out L*
10	*ROUT*	*Speaker out R*
11	*LOUT*	*Speaker out L*

E-2 J2

Pin NO.	*Signal*	*Comment*
1	*NONE*	
2	*LED-Y*	*Power saving mode.*
3	*LED-G*	*Monitor on mode.*
4,10	*GND*	*Ground*
5	*KEY-UP*	*Function select up to VL-531*
6	*KEY-DOWN*	*Function select down to VL-531*
7	*KEY-R*	*Function select right to VL-531*
8	*KEY-L*	*Function select left to VL-531*
9	*KEY-PWR*	*Power ON/OFF signal to VL-531*

E-3 J3 and J4

Pin NO.	*Signal*	*Comment*
1	*GND*	*Ground*
2	*OUTL(OUTR)*	*Speaker out*

E-4 J2

Pin NO.	*Signal*	*I/O Comment*
1	*GND*	*Ground*
2	*LI 2*	*Earphone out L*
3	*RI 2*	*Earphone out R*
4	*LI 1*	*Earphone out L*
5	*LO*	*Speaker out L*
6	*NC*	*No connector*
7	*RI 1*	*Earphone out R*
8	*RO*	*Speaker out R*

E-5 Switch definition

Location	Definition
S1	Power ON/OFF
S2	*Function select by clockwise direction*
S3	*Function select by counter-clockwise direction*
S4	*Adjust up*
S5	*Adjust down*

E-6 LED definition

Location	Definition
D1	Green for ON mode; Yellow for DC power off; stand by; suspend and off mode.

E-7 Variable resistor

VR1: Volume control , clockwise for decreasing ; counter-clockwis for increasing

7. VP-531 POWER BOARD

A. Description

The VP-531 power board is designed for lighting up the back-lights of LCD module.

B. Electrical characteristics

B-1 FOR HANNSTAR PANEL

	MIN.	TYP.	MAX.	COMMENT
INPUT VOLTAGE	11.4V	12V	12.6V	
INPUT CURRENT	--------	0.85A	1A	Vin=12V MAX. BRIGHTNESS
NO LOAD BACKLIGHT VOLTAGE	--------	640V rms.	--------	
LAMP CURRENT	3mA rms.	6mA rms.	7mArms	
DRIVING FREQUENCY	40KHz	55KHz	70KHz	
EFFICIENCY	--------	75%	--------	Vin = 12V
Operating Life Time	50,000	-------	--------	Hours (noto)

Note:

Life time(Hr) can be defined as the time in which it continues to operate under the condition:
Ta=25±3°C, I_L=6.0Ma(ms) and f_L=30 KHz until one of the following event occurs:

1. When the brightness becomes 50%
2. When the startup voltage (Vs) at 0°C becomes higher than the maximal value of Vs specified above

B-2 DC/DC power

B.2.1 Input

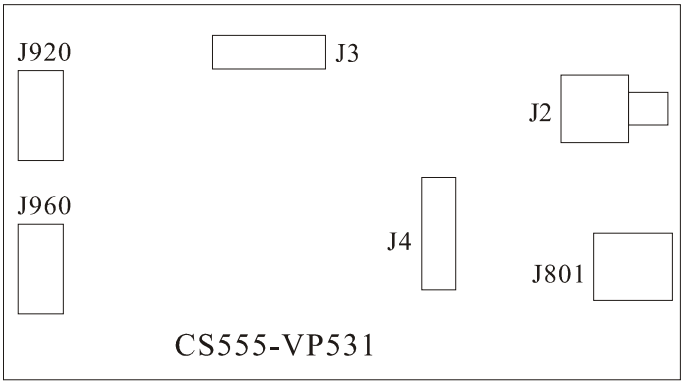
12V ±5% from adaptor

B.2.2 Output

Item	Output voltage	max. load	Min. load	tolerence	ripple & noise(max.)
Vcc	5V	1.2A	0.1A	±5%	150Vpp

B.2.3 Efficiency:78% typ. at maximum load.

C. Connector locations



C-1 Connector type VP-531

Location	Type	Maker	Number of pins
J920,J960	SM02 (8.0)B-BHS-1	JST	2
J3	96113-0702	E&T	7
J4	96113-1103	E&T	11
J2	SCJ-0345-I-X-S	SC	3
J801	SCD-014-I	SC	2

C-2 Connector pin assignment

C.2.1 J920 & J960 VP-531

Pin NO.	*Signal*	*Comment*
1	*LV*	*Low voltage (common)*
2	*HV*	*High voltage for lamp*

C.2.2 J3

Pin NO.	*Signal*	*Comment*
1,2	*Vcc*	*+5V*
5	*Ven*	*Back-light ON/OFF control , high active(3.3V)*
3,4	*GND*	
6	*MUTE1*	*Audio mute*
7	*Vbr:*	*BRITE Brightness (0-3.4V) control from VL-531* *0.7V for min. brightness*

C.2.3 J801 DC 12V INPUT

Pin No.	Signal	Comment
PIN1	+12V	From adapter output cable
PIN2	GND	From adapter output cable

C.2.4 J2

	Pin NO.	Signal	Comment
9.			
10.	*1*	*GND*	*Ground*
11.	*2*	*RIN*	*Audio R IN*
12.	*5*	*LIN*	*Audio L IN*

C.2.5 J4

	Pin No.	Signal	Comment
13.			
14.	*1*	*MUTE-1*	*Audio mute*
15.	*2*	*GND*	*Ground*
16.	*3*	*RIN-1*	*Audio volume adjust line INR*
17.	*4*	*LIN-1*	*Audio volume adjust line INL*
18.	*5*	*RIN-2*	*Audio volume adjust line OUTR*
19.	*6*	*LIN-2*	*Audio volume adjust line OUTL*
20.	*7*	*GND*	*Ground*
21.	*8*	*R-EAR*	*EAR Phone out R*
22.	*9*	*L-EAR*	*EAR Phone out L*
23.	*10*	*ROUT*	*speaker out R*
24.	*11*	*LOUT*	*soeaker out L*

8. CIRCUIT DESCRPTION

A. Micro-Controller Circuit

The U5 (s9050-100) is a system controller.

The Y1 is 14.318MHz XTAL.

B. Circuit of Plug and Play

Plug and play allows the serial communication of host PC and peripherals offering minimal configurations to end users. This monitor supports DDC2B communication protocal.

SDATA and VCLK are input to U4 (24LC21A).

C. System Clock

The Y1 (14.318MHz XTAL) supports U5 (Sage) reference clock.

D. Image Engine (Zoom)

The U5 (Sage) is a image engine that have following functions.

(1) The Sage is a IFM (Input Format Measurement)

(2) The Sage are both high guilty scalar and timing controller chip.

E. Power Regulator

(1)The U12(APL117) is 1A linear regulator that transfer input voltage from 5V to 3.3V supports U5.

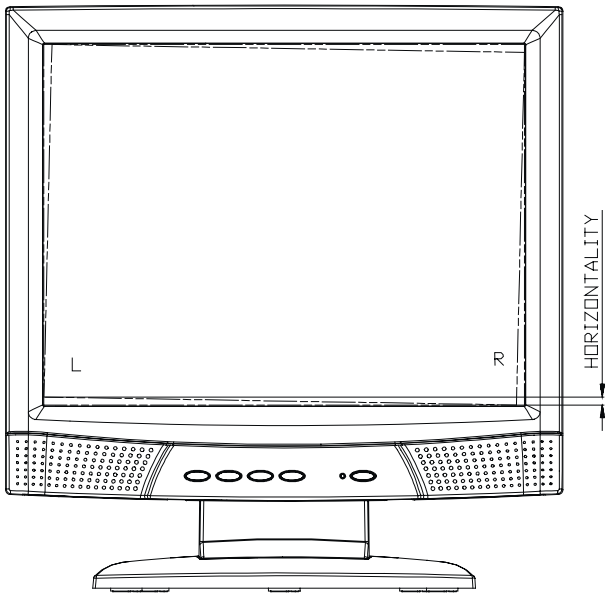
(2)The U13(AIC1084) is 5A linear regulator that transfer voltage from 5V to 3.3V supports U17 and Panel Vcc.

(3)The U14 (APL1117) is 1A linear regulator that transfer voltage from 5V to 2.5V.

(4)The U15 (APL1117) is 1A linear regulator that transfer voltage from 5V to 2.5V.

9. Introduction

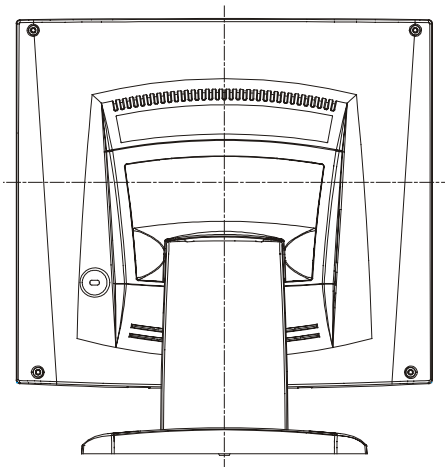
A. Front Panel Control and Led

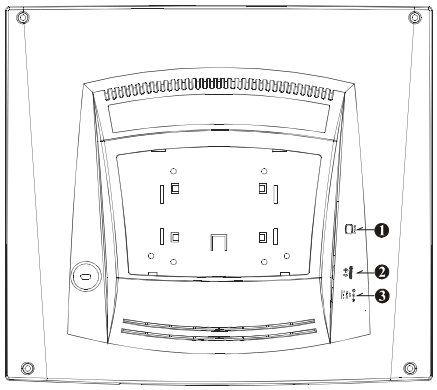


LCM555-E03

Front Panel Controls		
Item	**Control**	**Function**
1	Power Switch	Turns rhe monitor on and off.
2	Power LED	1. Green indicates monitor is turns on. 2. Yellow indicates DC power off. 3. Amber indicates stand-by, suspend, off mode.
3 4	Function Button	Launches OSD function menu circully
5	Plus Button	Selects and adjusts the functions
6	Minus Button	Selects and adjusts the functions

B. Rear Panel connector Input Signals

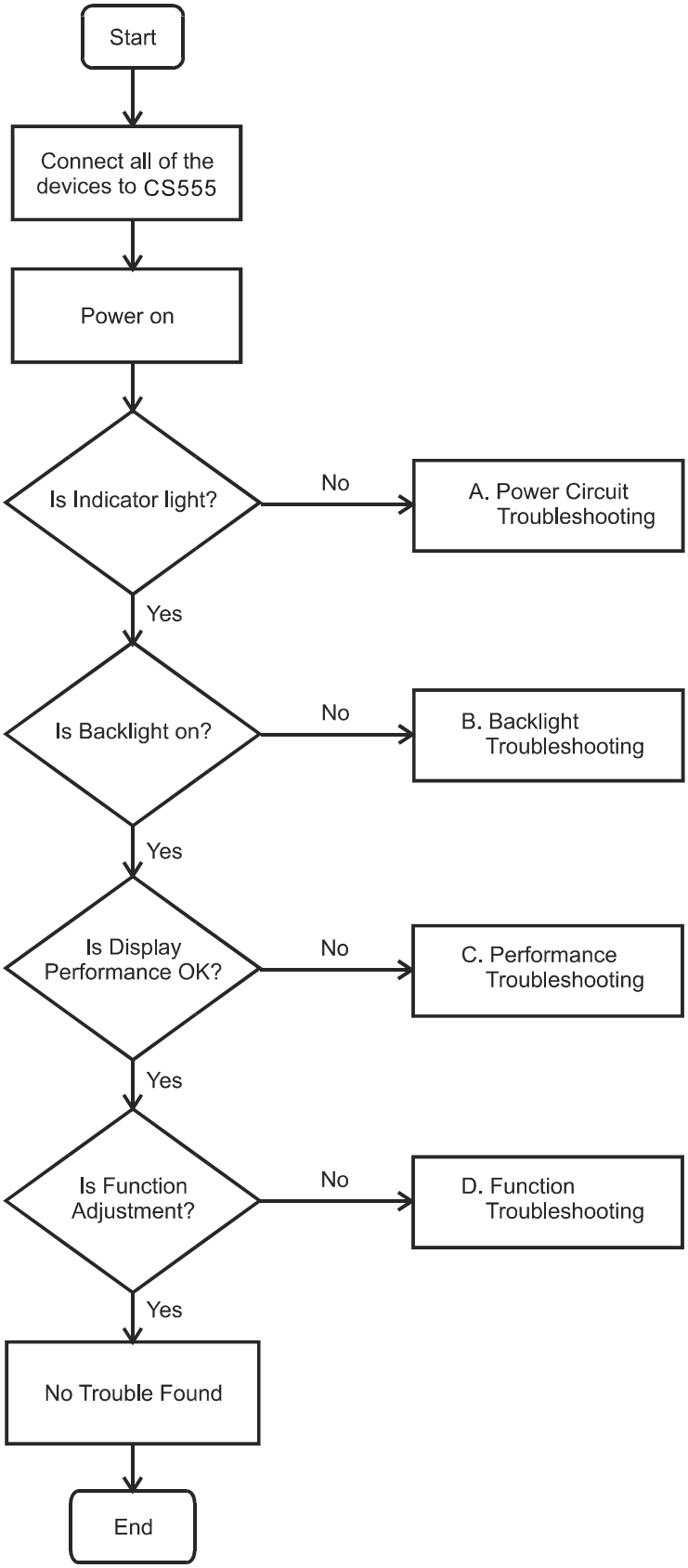




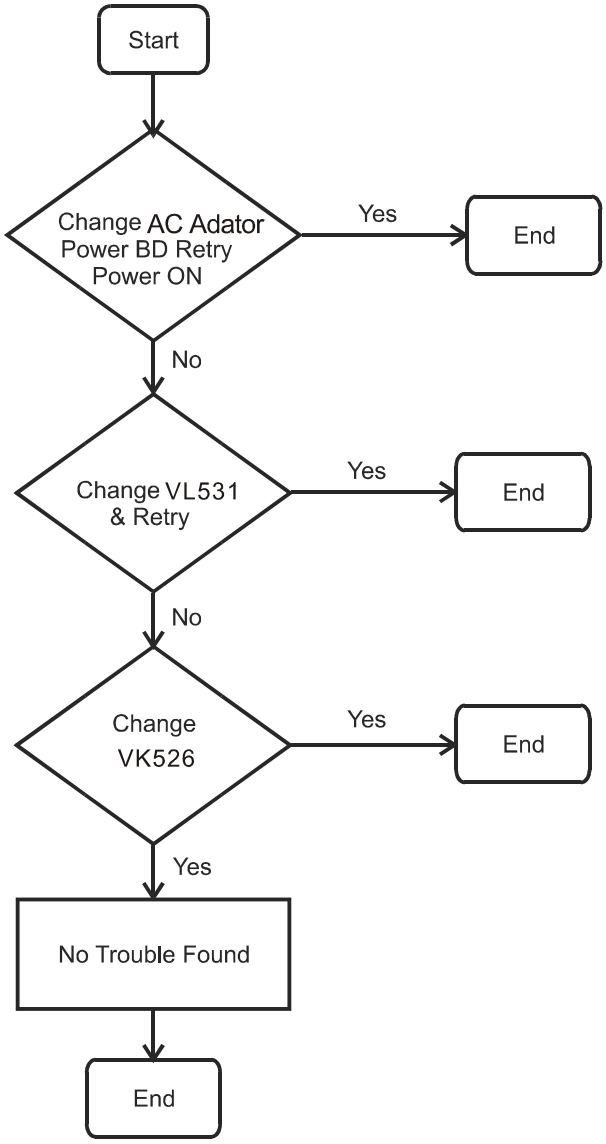
Rear Panel Cable and Connector		
Item	Cable / Connector	Function
1 D-SUB	Signal Connector	Connectors the video cable
2 AUDIO-IN	Audio Connector	Connector the audio cable
3 DC-IN 12V	Power Connector	Connectors the adapter cable

10. TROUBLESHOOTING

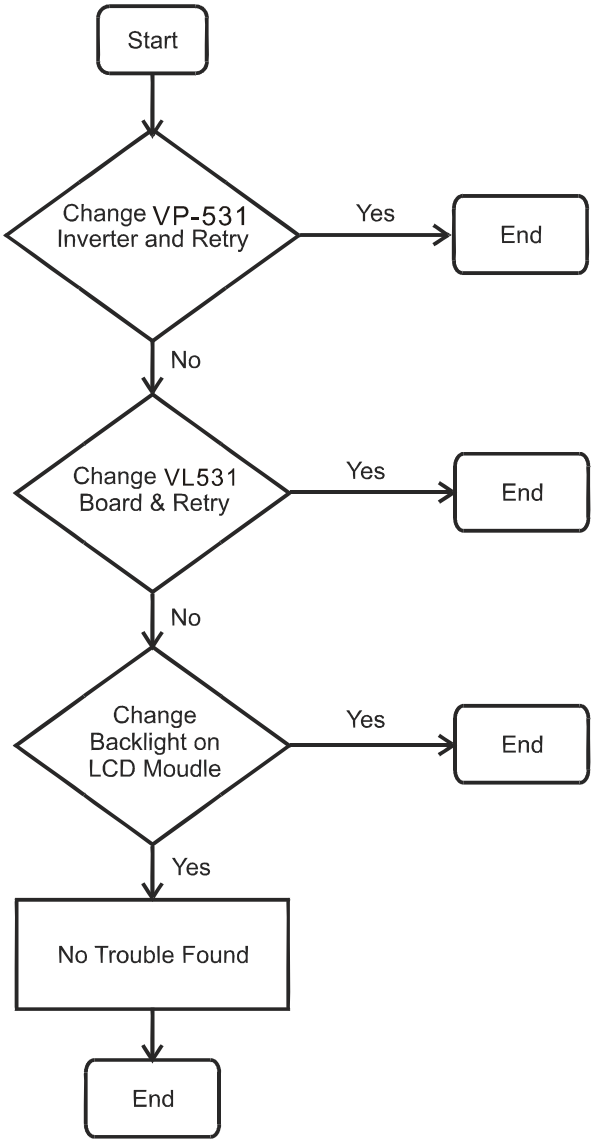
A. Main Procedure



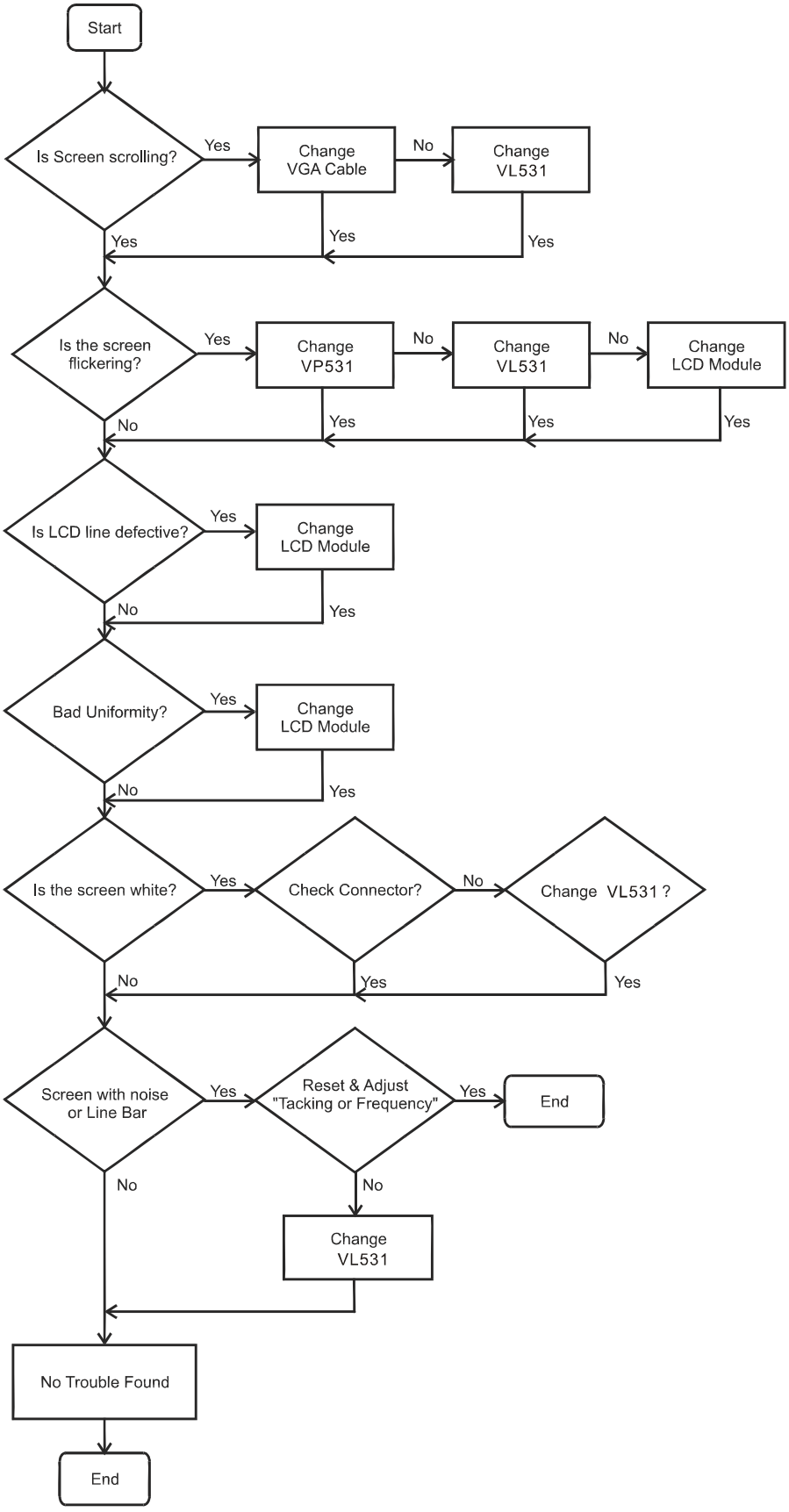
A-1 Power Circuit Troubleshooting



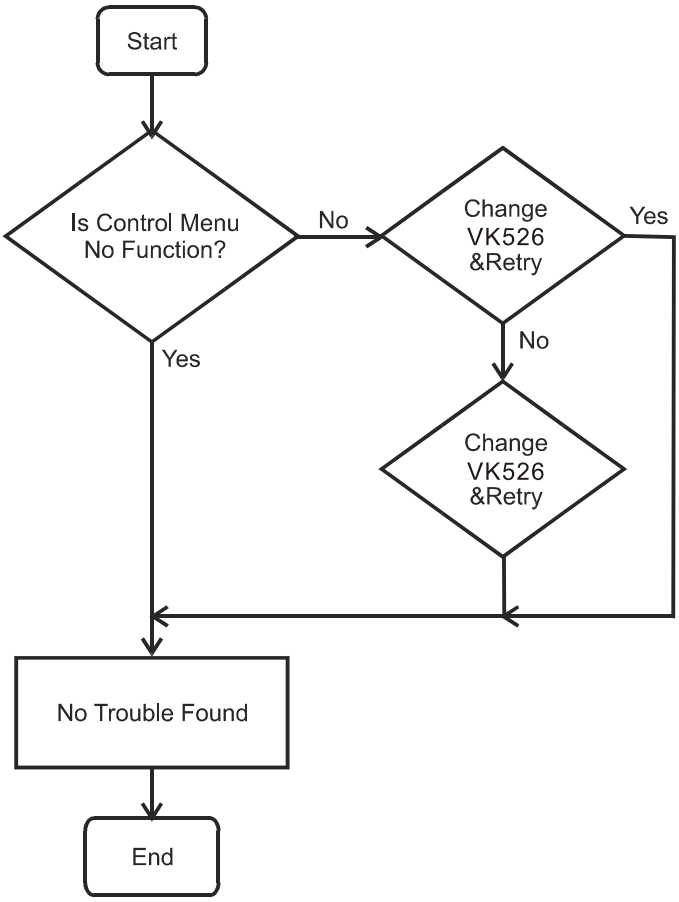
A-2 Backlights Troubleshooting



A-3 Performance Troubleshooting

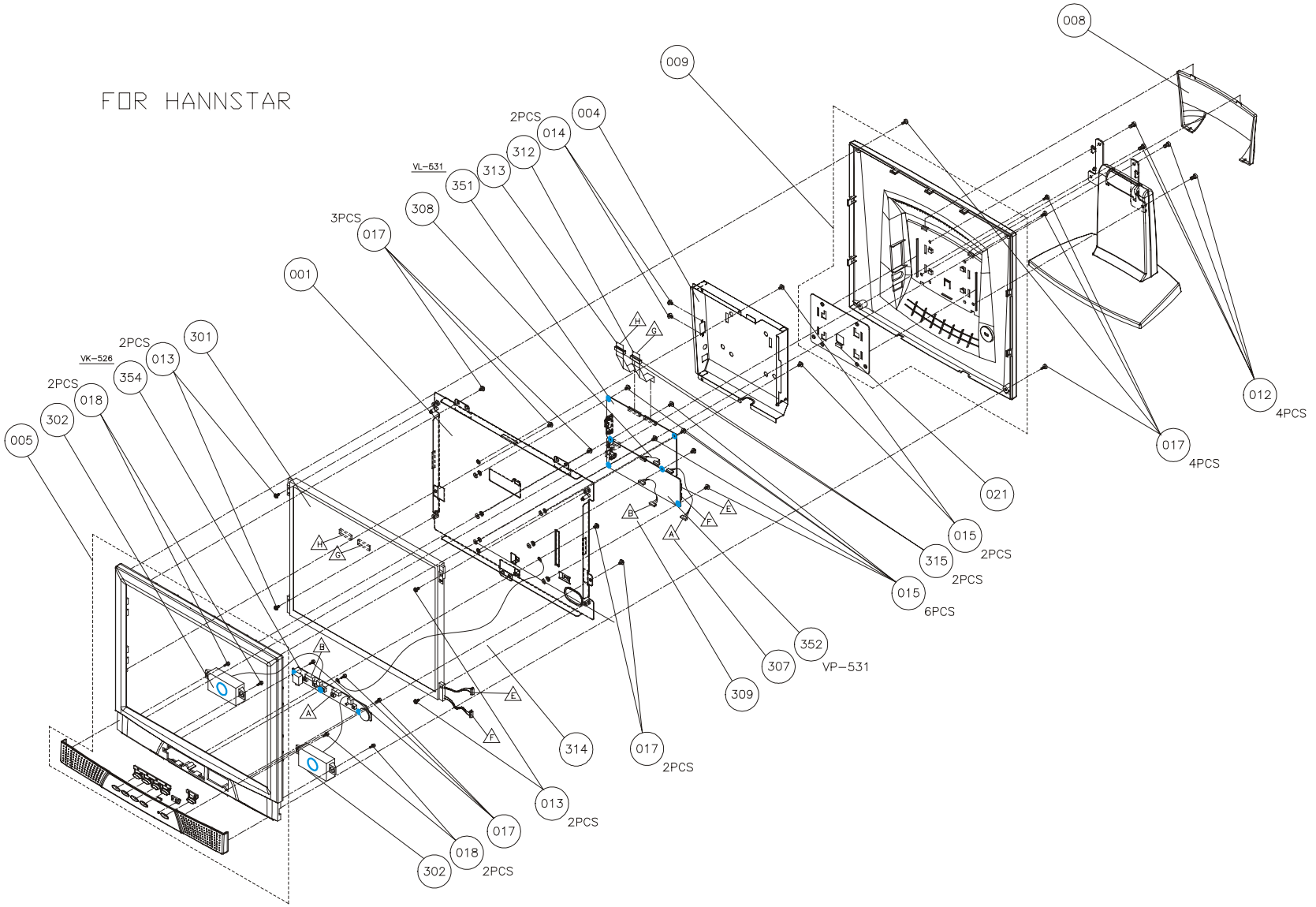


A-4 Function Troubleshooting



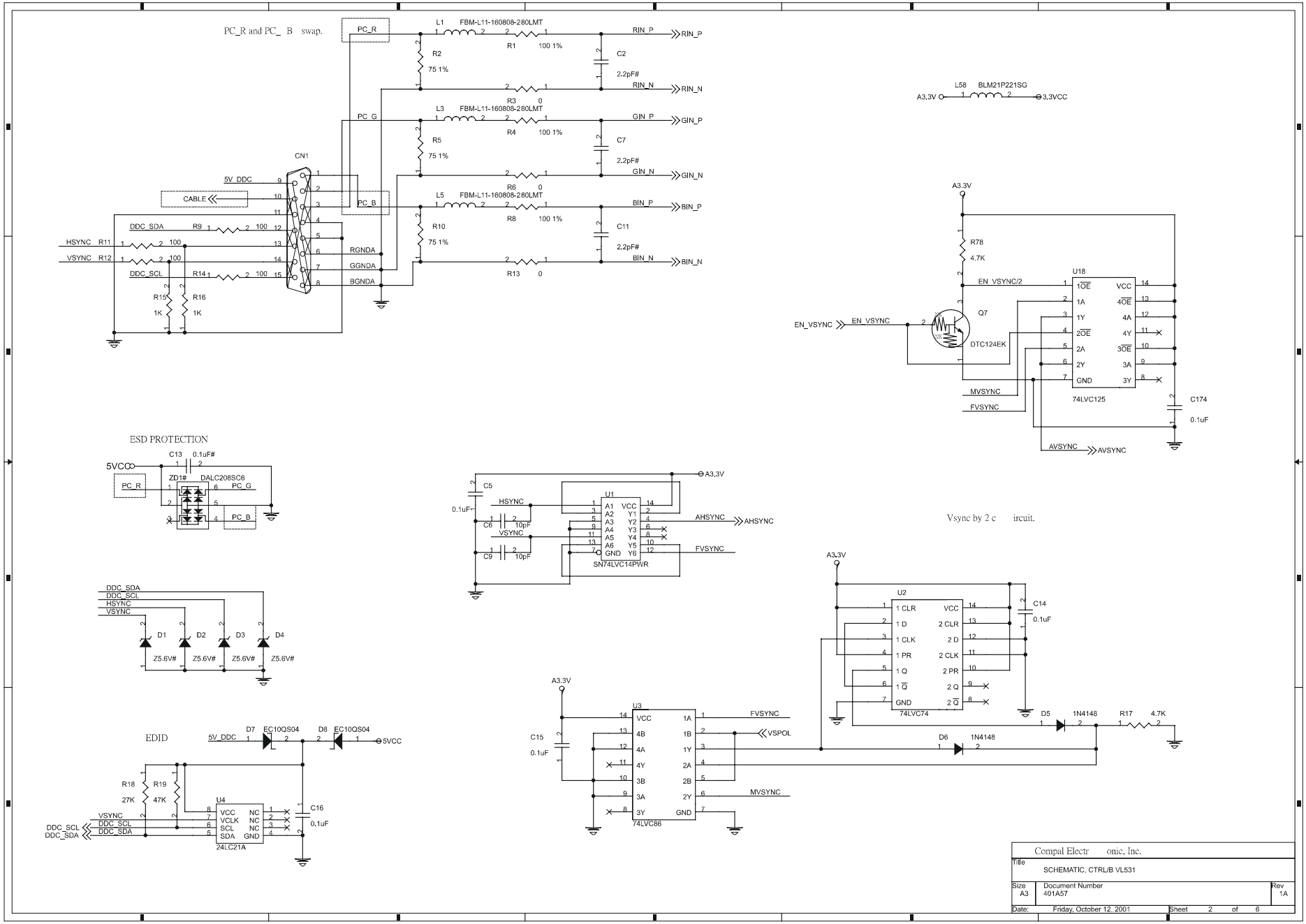
APPENDIX A: Display Unit Assembly

FOR REV RECORD SEE SHEET 1



SIZE	SHEET	DRAWING NO.	REV
A3	2	582630	1A

APPENDIX B: PCB ASSEMBLY



Compal Electr onic, Inc.		
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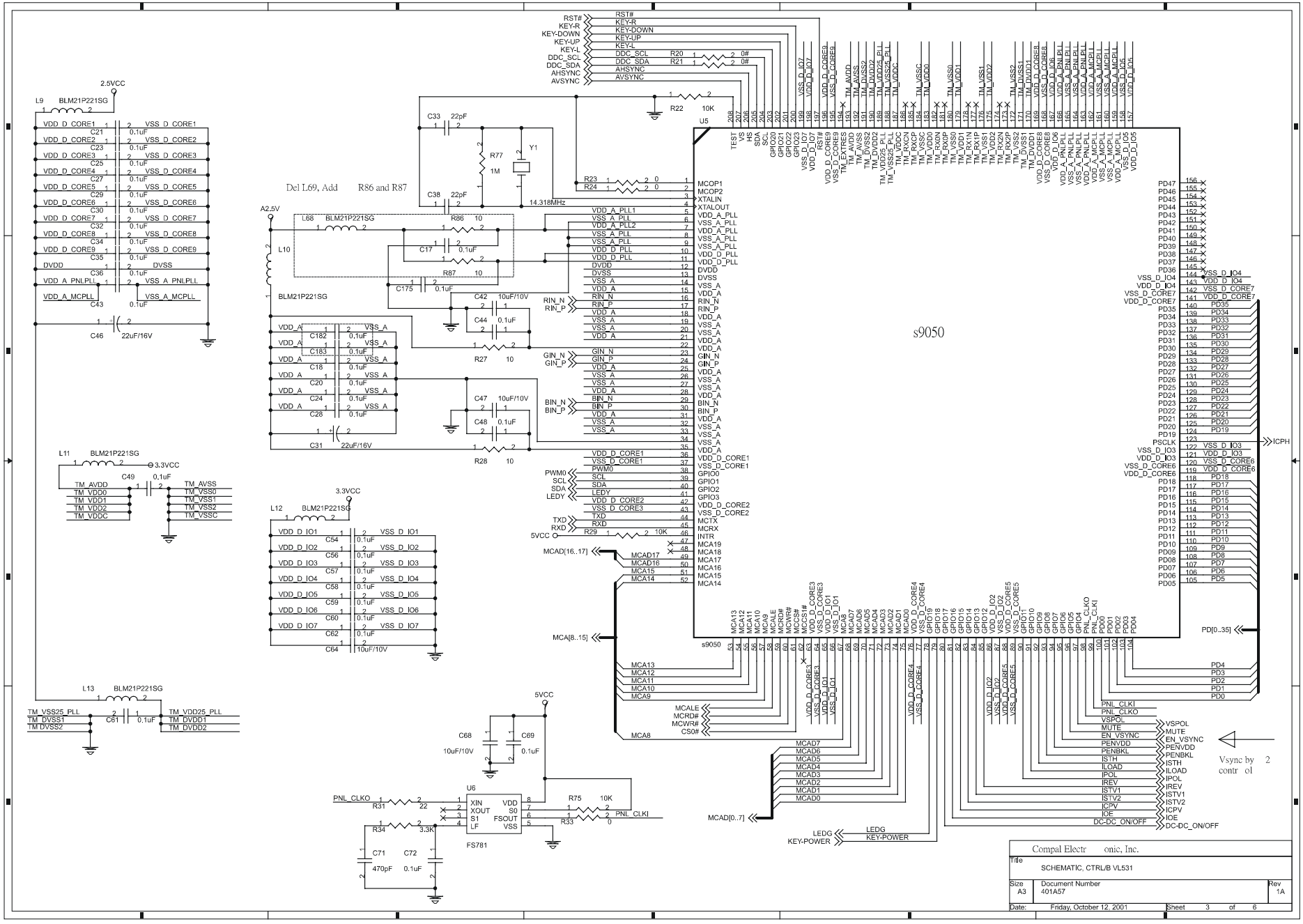
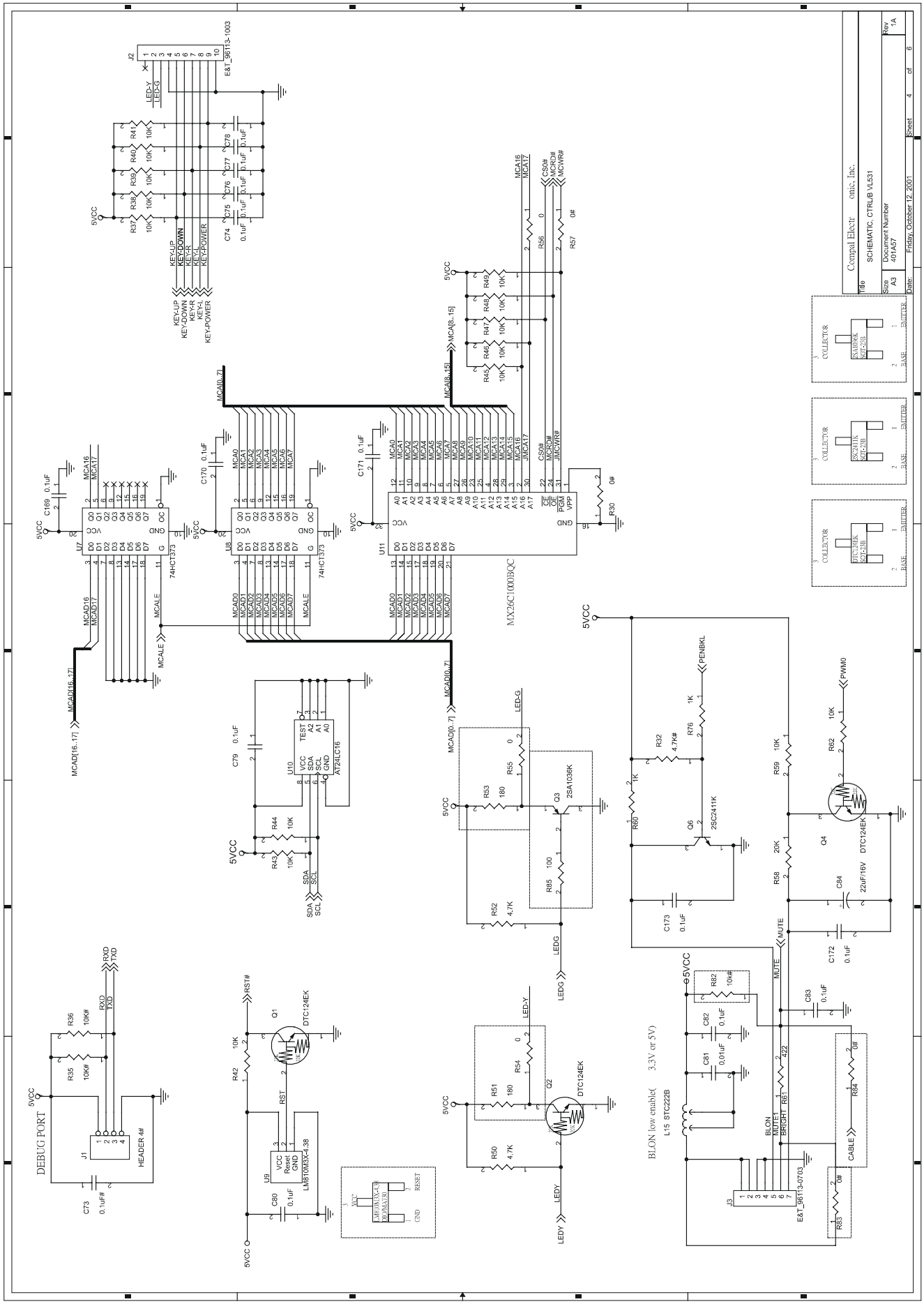
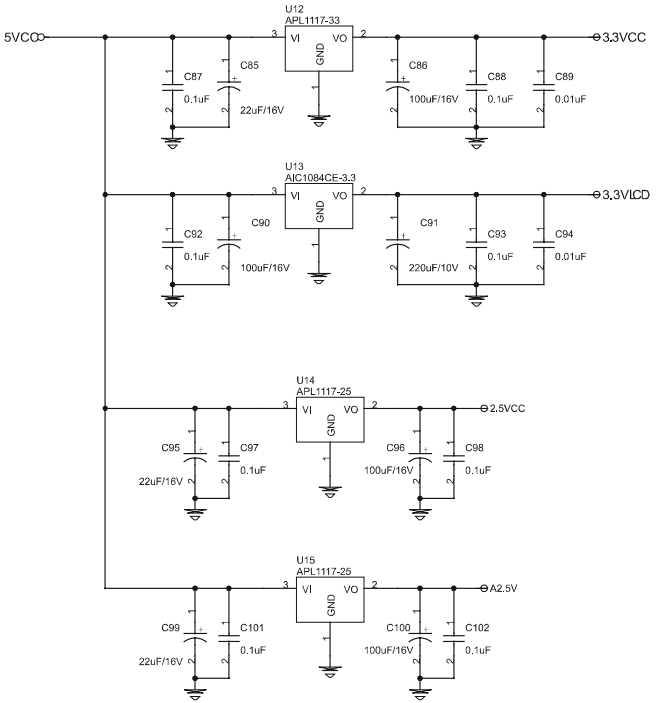
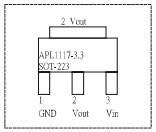
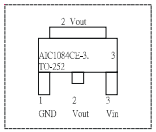
Size: A3	Document Number: 401A57	Rev: 1A
Date: Friday, October 12, 2001	Sheet 2 of 6	

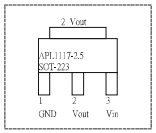

Del L69, Add R86 and R87
s9050
Vsync by 2 control
Compal Electronic, Inc.
SCHEMATIC, CTRL/B VL531
Size A3
Document Number 401A57
Rev 1A
Date: Friday, October 12, 2001
Sheet 3 of 6


Compal Electronic, Inc.
SCHEMATIC, CTRL/B VL531
Size A3
Document Number 401A57
Rev 1A
Date: Friday, October 12, 2001
Sheet 4 of 6
MX26C1000BQC
DEBUG PORT
HEADER 4#
BLON low enable(3.3V or 5V)
L15 STC2228
74HC373
AT24LC16
LM810M3X-4.38
DTC124EK
2SA1036K
2SC2411K
E&T_9613-1003
E&T_9613-0703
KEY-UP
KEY-DOWN
KEY-R
KEY-L
KEY-POWER
LED-Y
LED-G
LEDG
LEDY
MCAD[0..7]
MCAD[16..17]
MCA[0..7]
MCA[8..15]
MCA16
MCA17
MCALE
CS0#
MCRD#
MCWR#
SDA
SCL
RXD
TXD
RST#
PWM0
PENBKL
MUTE
BLON
MUTE1
BRIGHT
CABLE
COLLECTOR
BASE
EMITTER









Compal Electr onic, Inc.		
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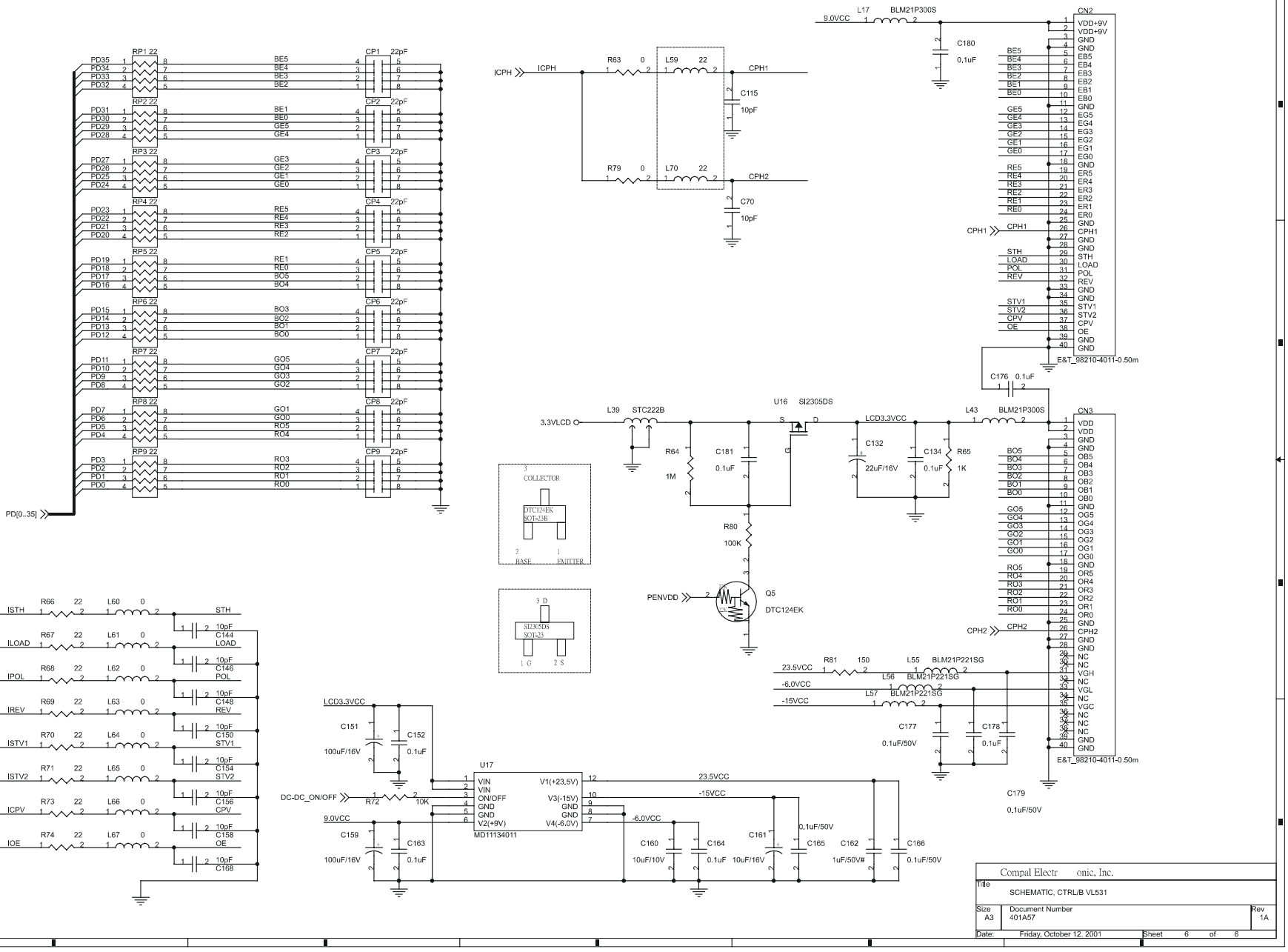
Date: Friday, October 12, 2001	Sheet 5 of 6	



Compal Electr onic, Inc.			
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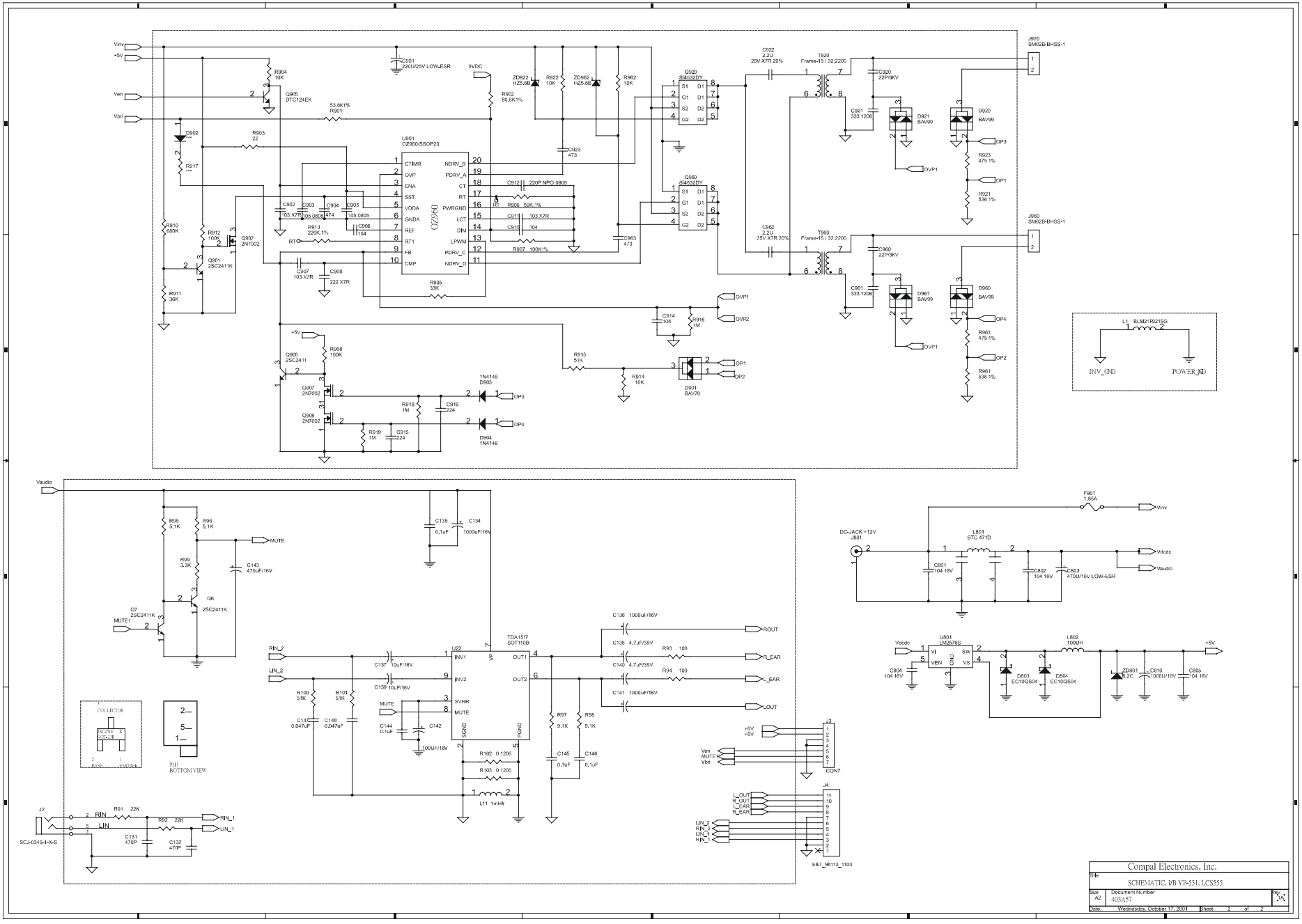
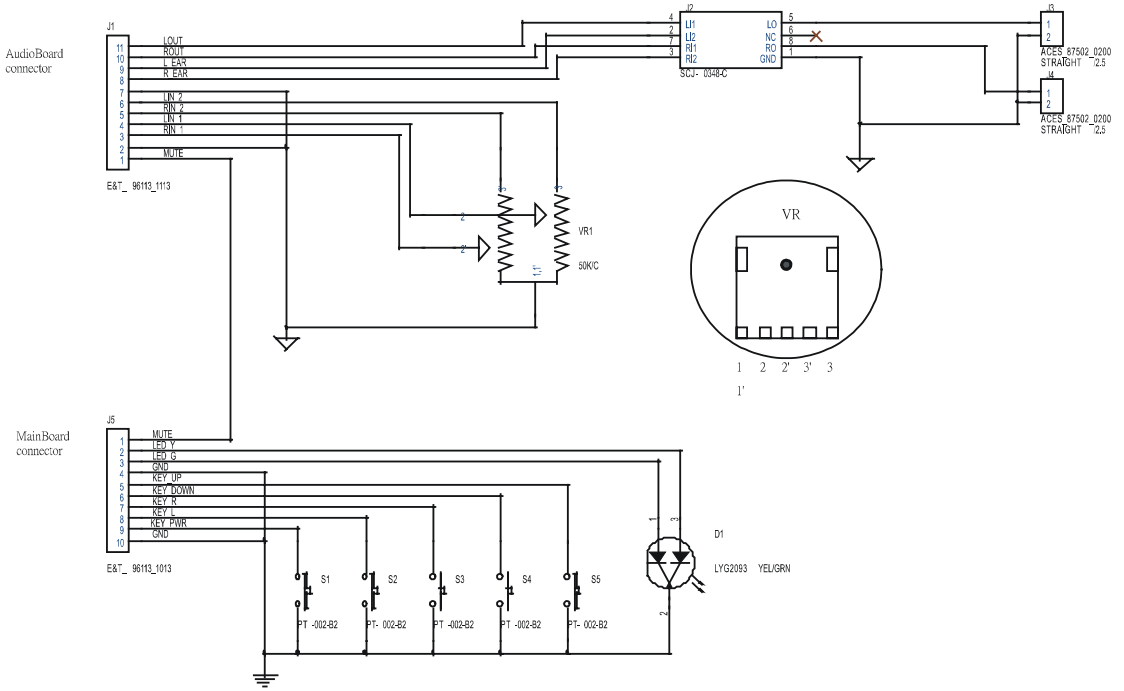
Size: A3	Document Number: 401A57		Rev: 1A
Date: Friday, October 12, 2001	Sheet 6 of 6		


Vinv
+5V
Ven
Vbri
5VDC
U901
OZ960/SSOP20
CTIMR
OVP
ENA
SST
VDDA
GNDA
REF
RT1
FB
CMP
NDRV_B
PDRV_A
CT
RT
PWRGND
LCT
DIM
LPWM
PDRV_C
NDRV_D
Q920
Q960
T920
T960
J920
J960
SIM02B-BHSS-1
D901
BAV70
D902
D903
D904
1N4148
OVP1
OVP2
OP1
OP2
OP3
OP4
L1 BLM21P221SG
INV_GND
POWER_GND
Vaudio
MUTE
MUTE1
Q6
Q7
2SC2411K
U22
TDA1517
SOT110B
INV1
INV2
SVRR
MUTE
SGND
PGND
OUT1
OUT2
RIN_2
LIN_2
ROUT
R_EAR
L_EAR
LOUT
L11 1mH
J2
SCJ-0345-1-X-S
RIN
LIN
RIN_1
LIN_1
J3
CON7
J4
E&T_98113_1103
F901
1.85A
DC-JACK +12V
J801
L801
STC 471D
Vdcdc
U801
LM2576S
L802
100UH
D803
EC10QS04
D804
EC10QS04
ZD801
6.2C
Compal Electronics, Inc.
SCHEMATIC, I/B VP-531, LCS555
Size A2
Document Number 403A57
Rev A
Date: Wednesday, October 17, 2001
Sheet 2 of 2



Compal Electronics,Inc.		
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Size: A4	Document Number: 404A36	Rev: 1A
Date: WED,3/30,2001	Sheet 1 of 1	

REPLACEMENT PARTS LIST

Replacement Parts – CML153XW

REF	DESCRIPTION	PART No.
	ADAPTER AC	PK100004910
001	CHASSIS	ECCM5513300
002	HINGE	ECCM5534100
003	BRACKET NECK	ECCM5535100
004	COVER EMI	EECM5523100
005	BEZEL ASSEMBLY	FACM553AK00
006	BEZEL NECK	FACM5531100
007	COVER NECK	FACM5532100
008	COVER HINGE	FACM5533100
009	COVER BACK ASSEMBLY	FACM5537100
011	STAND ASSEMBLY	FACM5539100
301	LCD MODULE HSD150SX82-C	AC600019000
307	CONNECTOR SET 10P	DC020147200
308	CONNECTOR SET 7P	DC020147800
309	CONNECTOR SET 11P	DC020143600
314	NET WIRE SET	NA200200200
315	CORE KING	DC150009600
316	FPC CS555 VF-531 REV1	DA3S555V000
351	PCB CONTROL VL-531	461A5788004
352	PCB I/B VP531 LCS555	453A5730001
354	PCB KEY RESISTOR VR	454A3630001
	CARTON	HB4CS555000
	CUSHION L	FJCM5514300
	CUSHION R	FJCM5515300
	HANDLE FOR CARTON	FCTLP2S0116
	NET WIRE SET	NA200150000
	RATING NP N-CS555	EJ4CS555100

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Fax: 02 9 230 9680
Email: hitachi.item@skynet.be

No. 0412
December 2001