

FEWJ

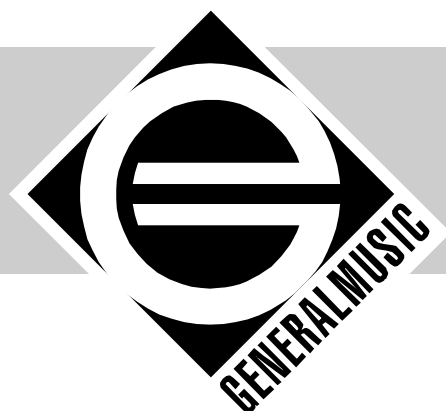
TWIN 10 TWIN 14



AUDIO MIXING CONSOLE

SERVICE MANUAL

Schematic Diagrams



CODE : 277303



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GENERALMUSIC S.p.A. Sales Division: 47048 S.Giovanni in Marignano (RN) ITALY - Via delle Rose, 12 - tel. 0541/959511 - fax 550555 GMUSIC I - fax 0541/957404



Notice

Service must be carried out by qualified personnel only. Any tampering carried out by unqualified personnel during the guarantee period will forfeit the right to guarantee.

For a correct operation of the instrument, after having switched off, be careful to wait at least 3 seconds before switching on again. To improve the device's specifications, the schematic diagrams may be subject to change without prior notice.

Schematic Notes

⚠ All components marked by this symbol have special safety characteristics, when replacing any of these components use only manufacturer's specified parts.

The (μ) micro symbol of capacitance value is substituted by U. The (Ω) omega symbol of resistance value is substituted by E. The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified. All resistors are 1/8W unless otherwise specified. All switches shown in the "OFF" position. All DC voltages measured to ground with a voltmeter 20KOhm/V.

← Soldering point.

• Male connector.

⊖ Female connector.

⚡ M/F faston connector.

□ Test point.

⬭ Flag joined with one or more flags with the same signal name inscribed.

⬆ Supply voltage.

⬇ Logic supply ground.

⬇ Analog supply ground.

⬇ Signal ground.

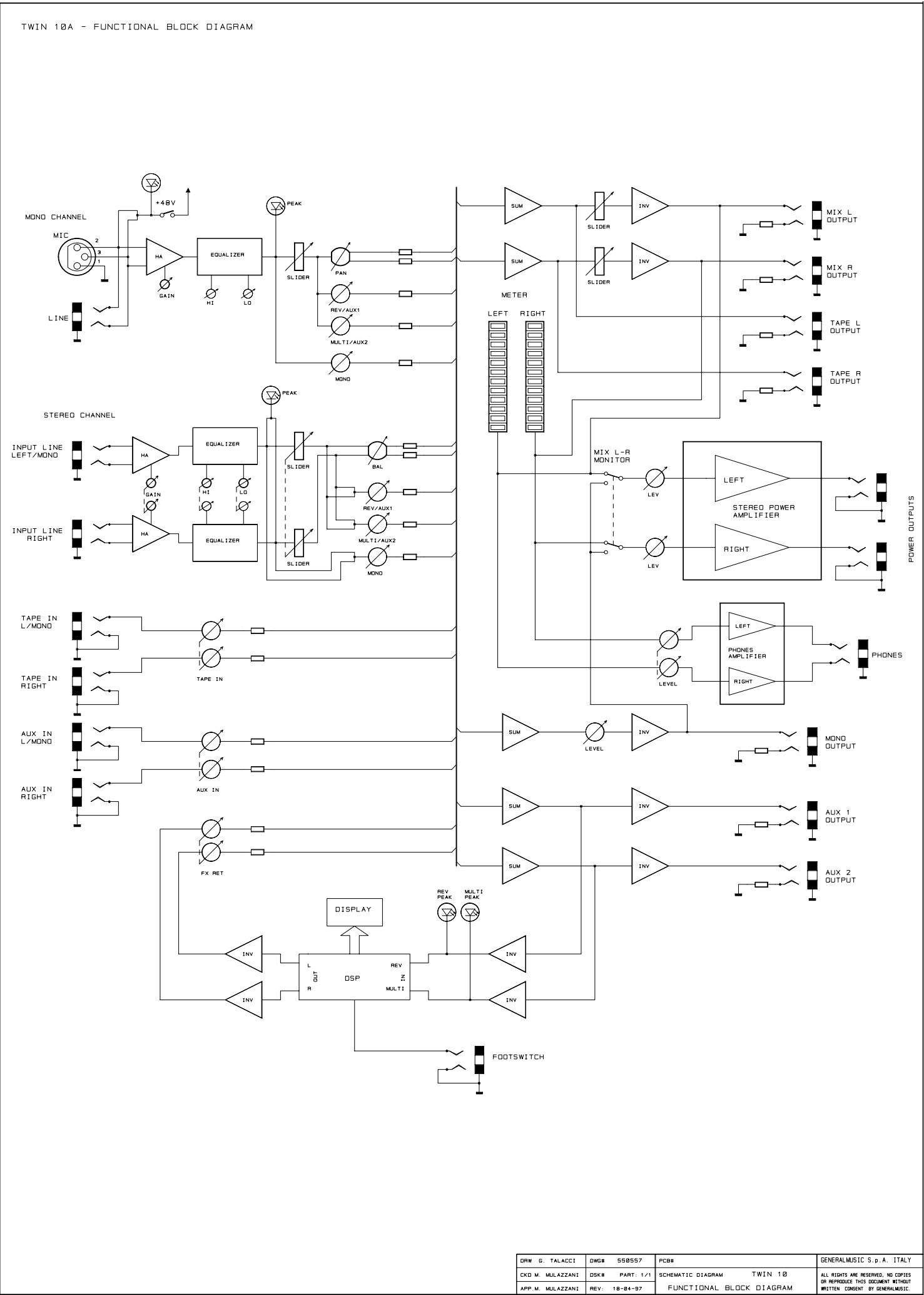
⬇ Chassis ground.

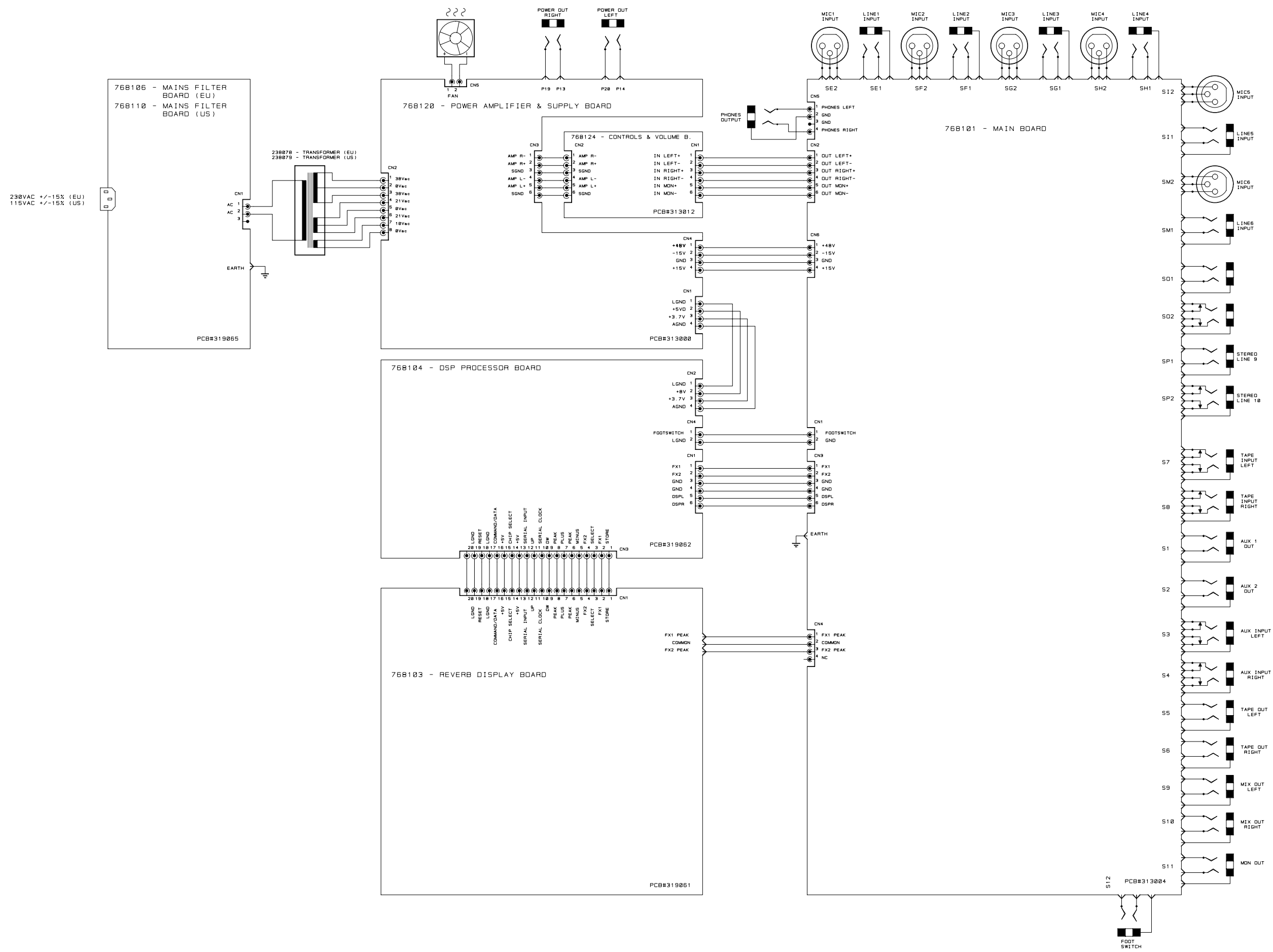


ATTENTION

Observe precautions when handling electrostatic sensitive devices

TECHNICAL SPECIFICATIONS				
SECTION		LEVELS & DATA		CONNECTORS
MONO INPUT CHANEL				
MIC input	sensitivity	from -10 to -40dB		Balanced XLR_F
	Gain	30dB		
	impedence	1Kohms		
LINE input	sensitivity	from +10 to -20dB		Balanced JACK
	Gain	30dB		
	impedence	10Kohms		
Equalizer	HI	±15 dB @ 10kHz		
	LOW	±15 dB @ 70Hz		
LINE input	sensitivity	from +10 to -20dB		2 Balanced JACKS
	impedence	10Kohms		
Equalizer	HI	±15 dB @ 10kHz		
	LOW	±15 dB @ 70Hz		
MASTER SECTION				
MASTER output level		+4dB		2 Balanced JACKS
MONITOR output level		+4dB		Balanced JACK
AUX OUT output level		+4dB		2 Balanced JACKS
AUX IN input level		0dB		2 unbalanced JACKS
TAPE OUT output level		0dB		2 unbalanced JACKS
TAPE IN input level		0dB		2 unbalanced JACKS
POWER AMPLIFIER				
Power output (IHF)				
Tone burst 10%/20ms		TWIN 10	200W/4ohms	2 x JACK
THD max 0,1%		TWIN 14	350W/4ohms	2 x SPEAKON
Both channels				
Power output (FTC)				
20Hz - 20kHz		TWIN 10	180W/4ohms	2 x JACK
THD max 0,1%		TWIN 14	300W/4ohms	2 x SPEAKON
Both channels				
GENERAL SPECIFICATIONS				
TOTAL HARMONIC DISTORTION		<0,1% FROM 20Hz to 20KHz		
CROSS-TALK	STEREO separation	>-7dB @ 1KHz, >-70dB @ 10KHz		
	FADER	>-88dB @ 1KHz, >-83dB @ 10KHz		
S/N RATIO	(all fader closed)	-105 dB		
	(rated MIX fader)	-95 dB		
	(rated MIX fader +1h)	-85 dB		
WEIGHT	TWIN 10	13,5kg		
	TWIN 14	18,4kg		
DIMENSIONS	TWIN 10	350x100x320 mm (LxHxD)		
	TWIN 14	450x130x320 mm (LxHxD)		





BIAS ADJUSTMENT

Instruments, materials and tools:

- Audio Generator
- Dual Trace Oscilloscope (earth ground floating)
- Digital Voltmeter (or Multimeter)
- 2x4E 220W Resistor
- Temperature Meter

Setup:

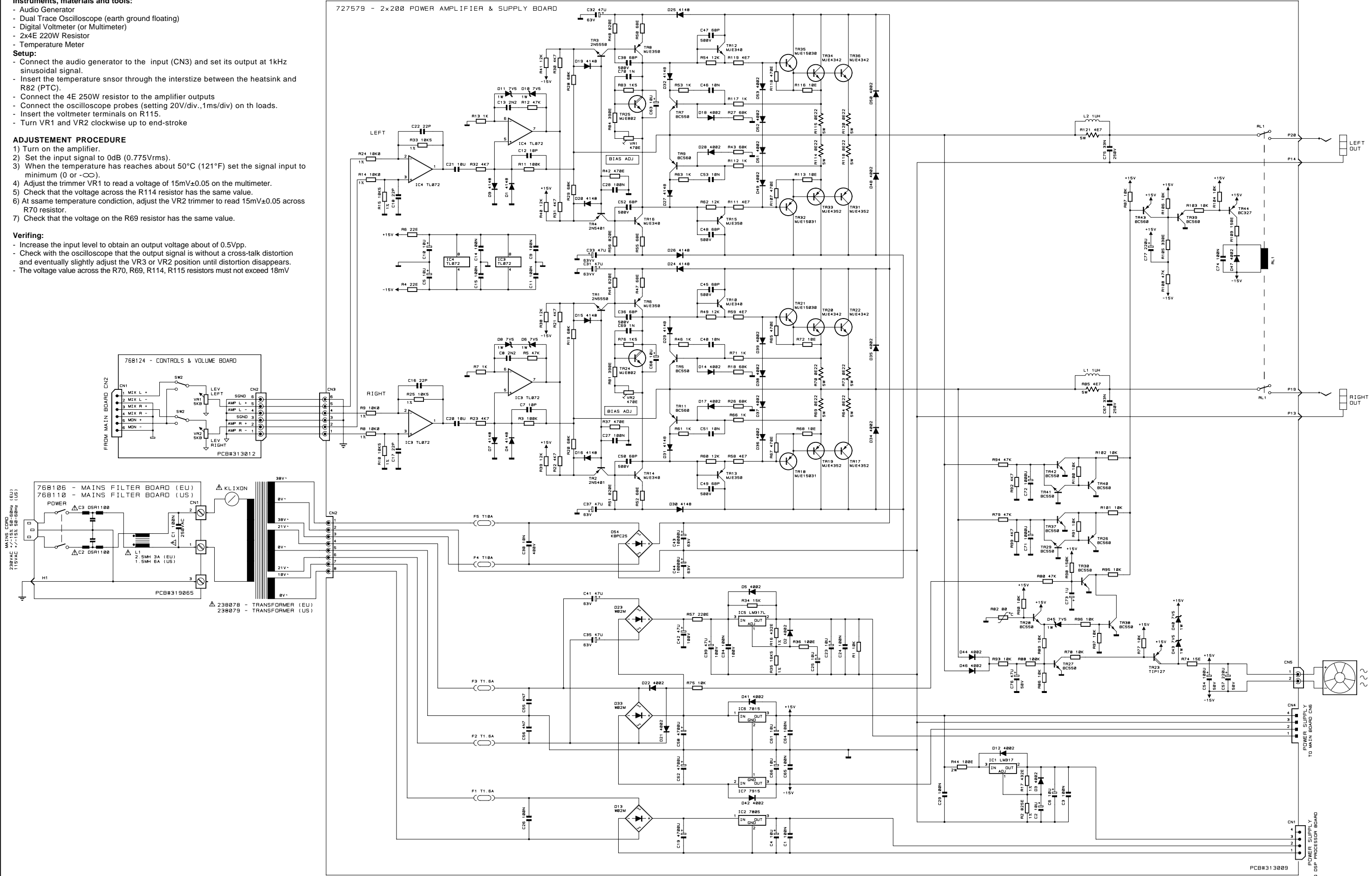
- Connect the audio generator to the input (CN3) and set its output at 1kHz sinusoidal signal.
- Insert the temperature snsr through the interstize between the heatsink and R82 (PTC).
- Connect the 4E 250W resistor to the amplifier outputs
- Connect the oscilloscope probes (setting 20V/div.,1ms/div) on th loads.
- Insert the voltmeter terminals on R115.
- Turn VR1 and VR2 clockwise up to end-stroke

ADJUSTEMENT PROCEDURE

- 1) Turn on the amplifier.
- 2) Set the input signal to 0dB (0.775Vrms).
- 3) When the temperature has reaches about 50°C (121°F) set the signal input to minimum (0 or -∞).
- 4) Adjust the trimmer VR1 to read a voltage of 15mV±0.05 on the multimeter.
- 5) Check that the voltage across the R114 resistor has the same value.
- 6) At ssame temperature condiction, adjust the VR2 trimmer to read 15mV±0.05 across R70 resistor.
- 7) Check that the voltage on the R69 resistor has the same value.

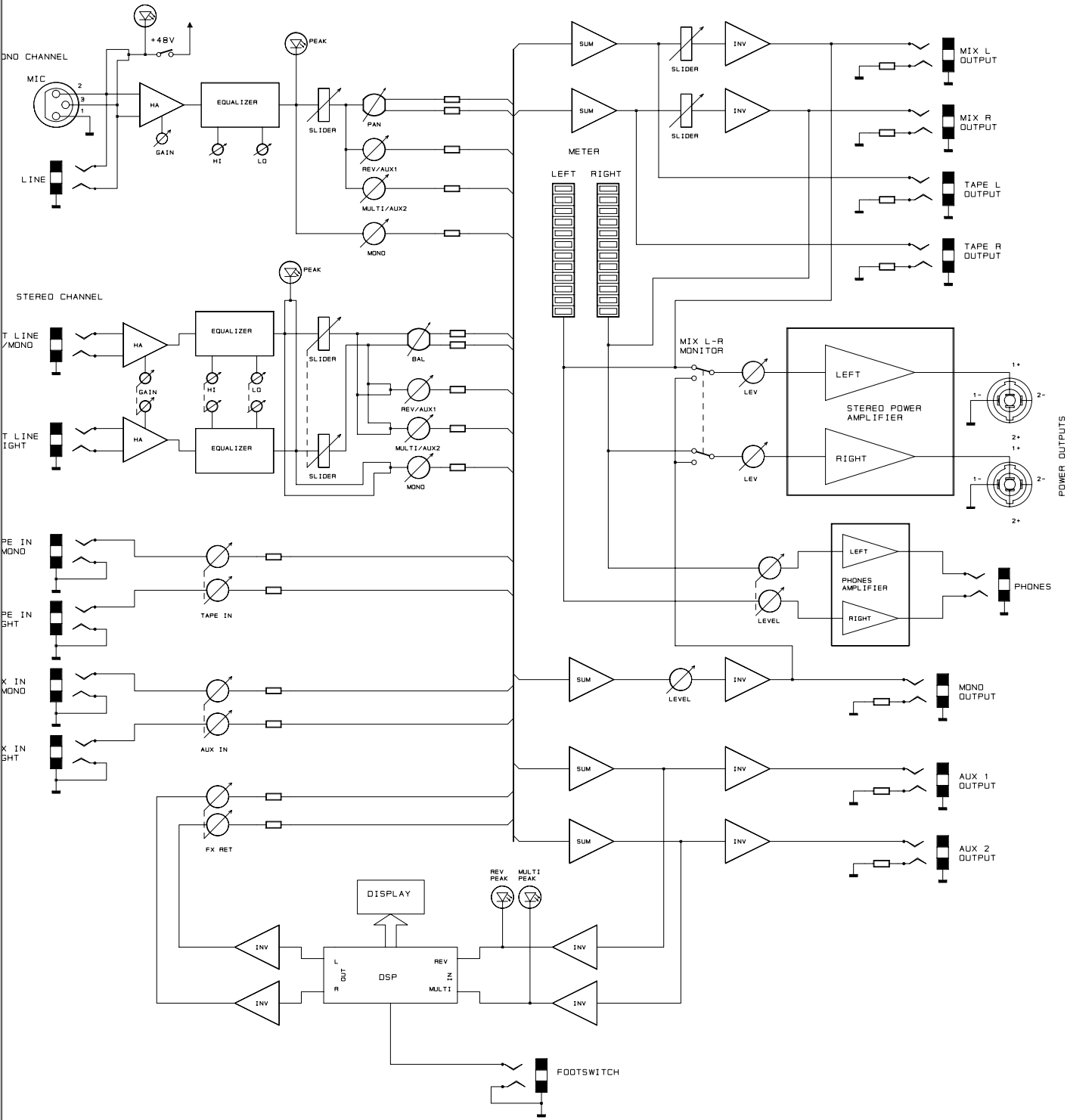
Verifying:

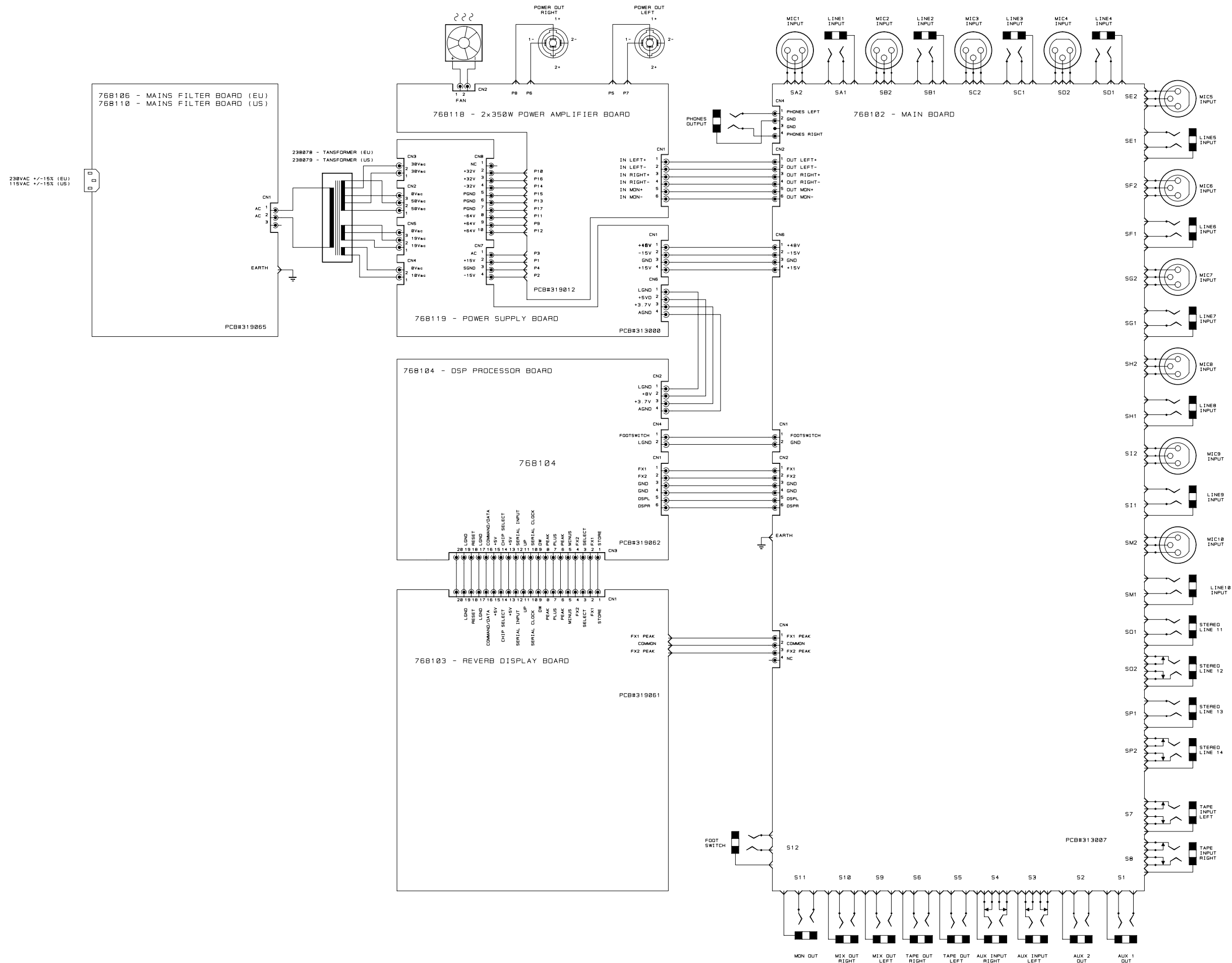
- Increase the input level to obtain an output voltage about of 0.5Vpp.
- Check with the oscilloscope that the output signal is without a cross-talk distortion and eventually slightly adjust the VR3 or VR2 position until distortion disappears.
- The voltage value across the R70, R69, R114, R115 resistors must not exceed 18mV

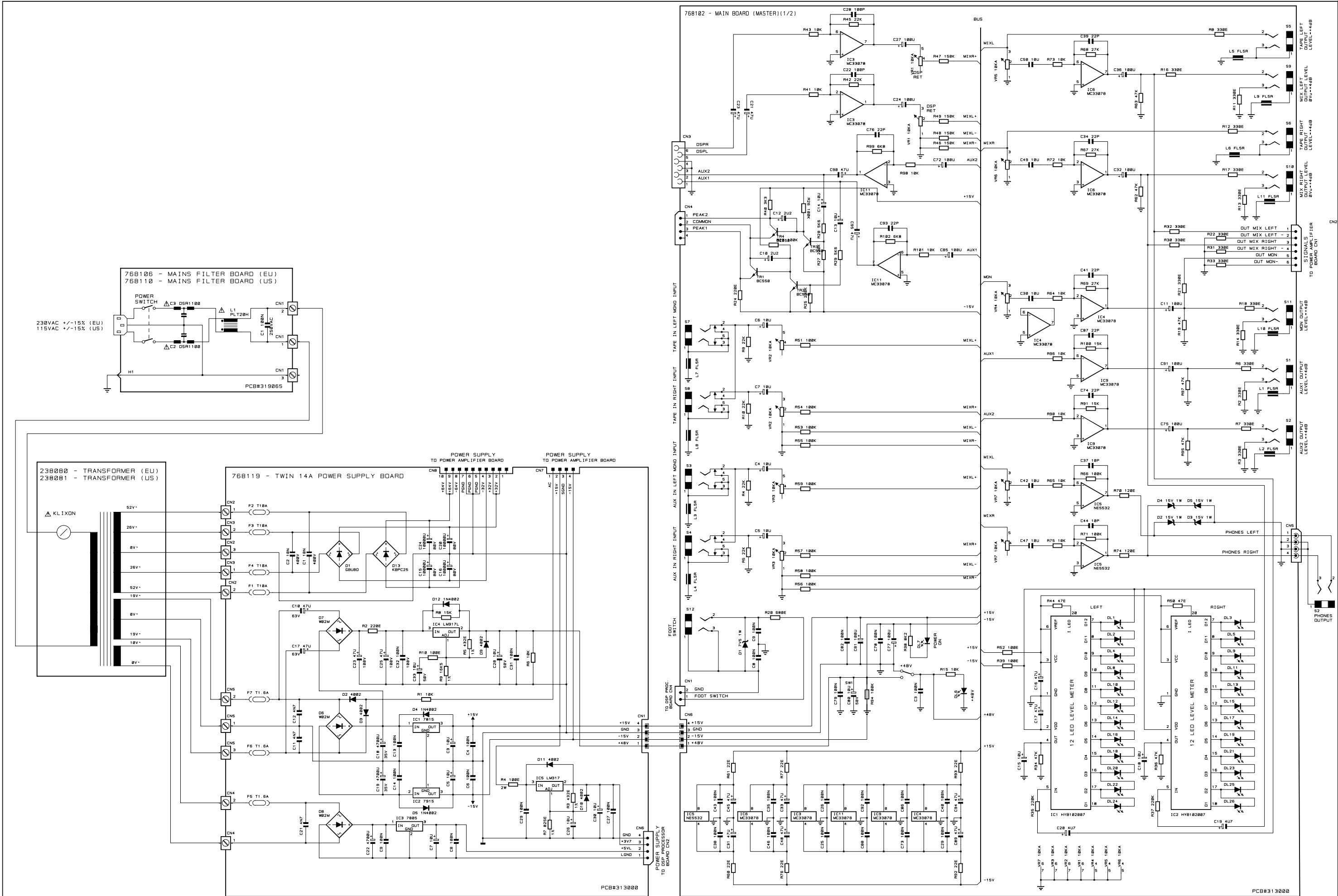


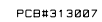
DRW G. TALACCI	DWG# 550559	PCB# 313009 + 313012 + 313065	GENERALMUSIC S.p.A. ITALY
CKD M. MALAZZANI	DSK# 58 PART: 1/1	SCHMATIC DIAGRAM TWIN 10A	ALL RIGHTS ARE RESERVED. NO COPIES
APP L. ALOZZI	REV: 18-04-97	POWER AMPLIFIER & SUPPLY BOARD	OR REPRODUCE THIS DOCUMENT WITHOUT
		MAINS FILTER BOARD - CONTR. & VOL.	WRITTEN CONSENT BY GENERALMUSIC

N 14 - FUNCTIONAL BLOCK DIAGRAM







9 □

BIAS ADJUSTMENT

Instruments, materials and tools:

- Audio Generator
- Dual Trace Oscilloscope (earth ground floating)
- Digital Voltmeter (or Multimeter)
- 2x4E 220W Resistor
- Temperature Meter

Setup:

- Connect the audio generator to the input (CN1) and set its output at 1kHz sinusoidal signal.
- Insert the temperature snsr through the interstize between the heatsink and R119 (PTC).
- Connect the 4E 250W resistor to the amplifier outputs
- Connect the oscilloscope probes (setting 20V/div.,1ms/div) on th loads.
- Insert the voltmeter terminals on R146.
- Turn VR1 and VR4 clockwise up to end-stroke

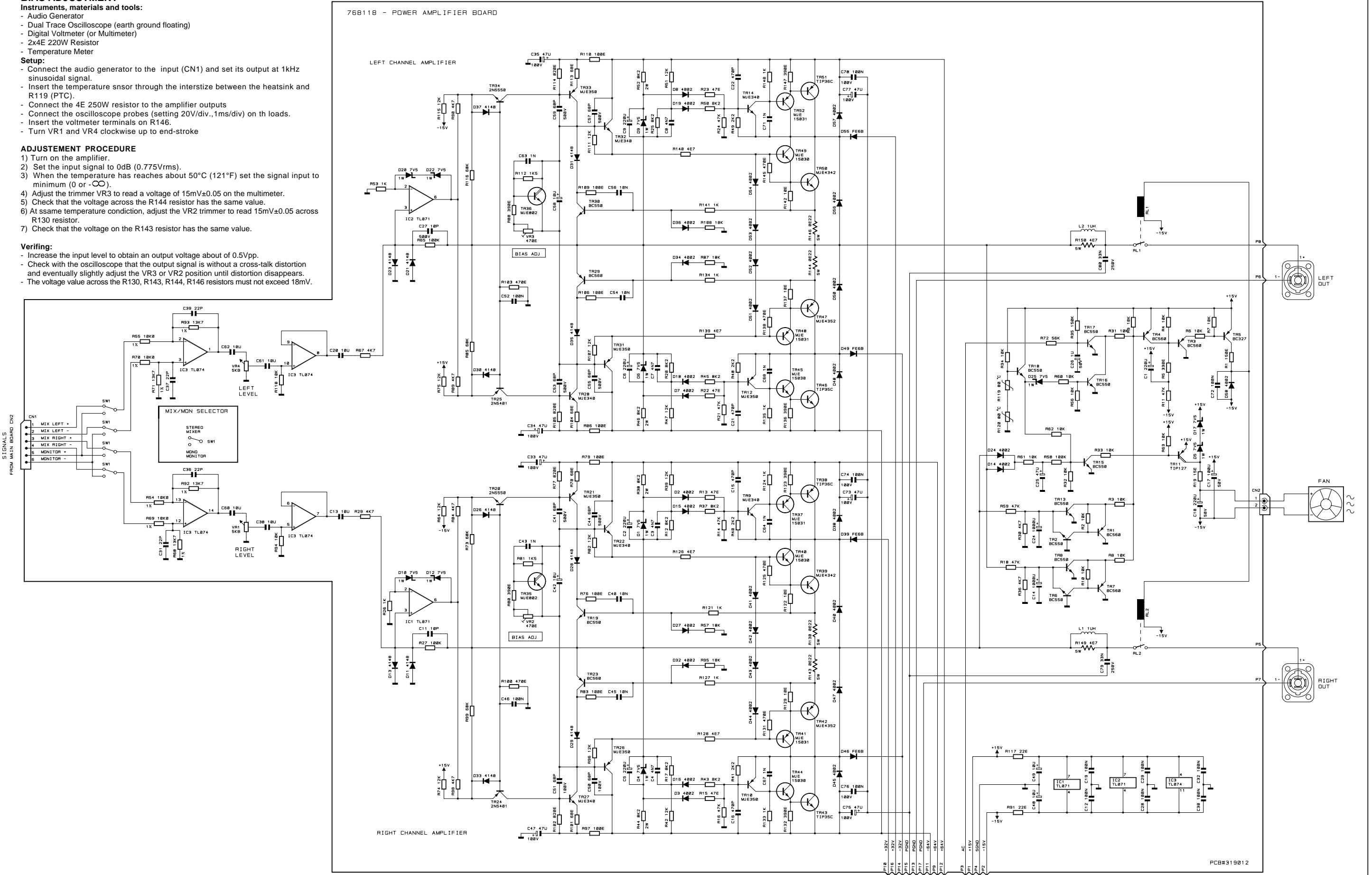
ADJUSTEMENT PROCEDURE

- 1) Turn on the amplifier.
- 2) Set the input signal to 0dB (0.775Vrms).
- 3) When the temperature has reaches about 50°C (121°F) set the signal input to minimum (0 or -∞).
- 4) Adjust the trimmer VR3 to read a voltage of 15mV±0.05 on the multimeter.
- 5) Check that the voltage across the R144 resistor has the same value.
- 6) At ssame temperature condiction, adjust the VR2 trimmer to read 15mV±0.05 across R130 resistor.
- 7) Check that the voltage on the R143 resistor has the same value.

Verifying:

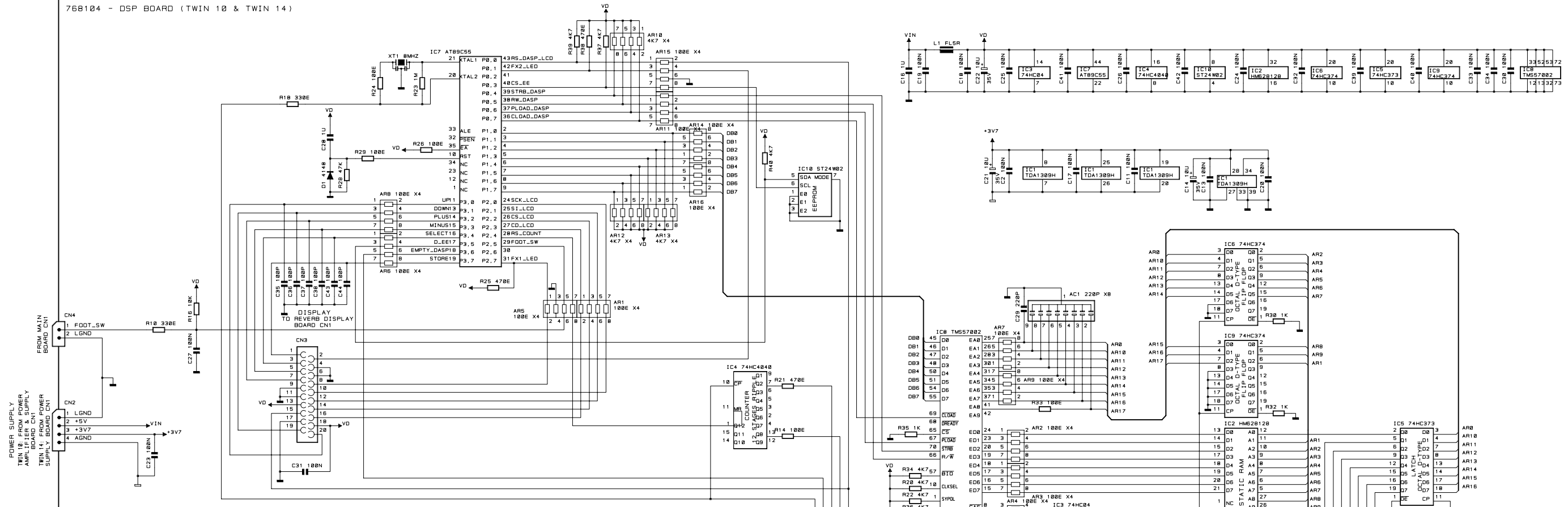
- Increase the input level to obtain an output voltage about of 0.5Vpp.
- Check with the oscilloscope that the output signal is without a cross-talk distortion and eventually slightly adjust the VR3 or VR2 position until distortion disappears.
- The voltage value across the R130, R143, R144, R146 resistors must not exceed 18mV.

768118 - POWER AMPLIFIER BOARD

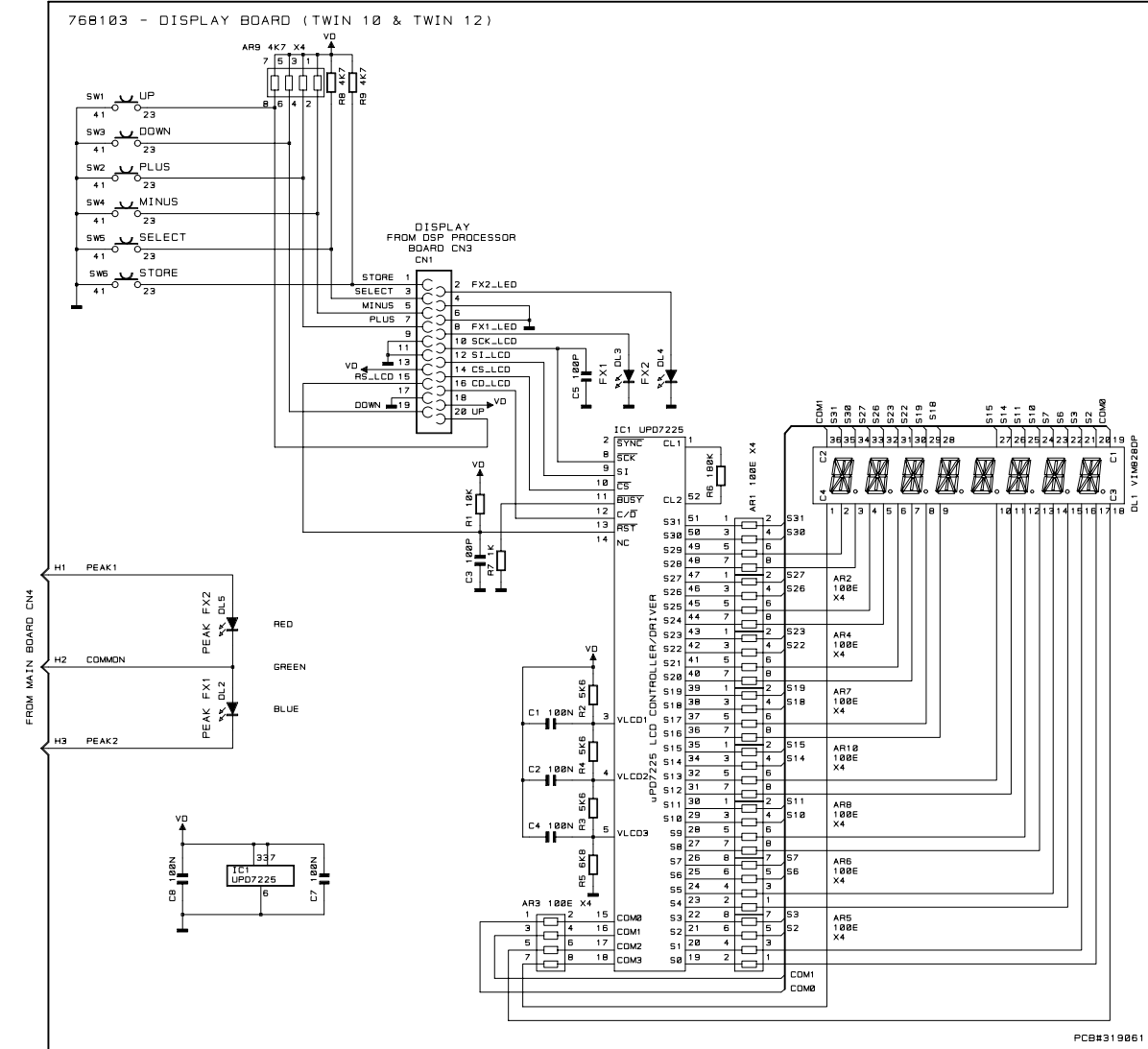


POWER SUPPLIES		POWER SUPPLIES		POWER SUPPLIES	
FORM POWER SUPPLY BOARD CN8		FORM POWER SUPPLY BOARD CN7		FORM POWER SUPPLY BOARD CN7	
DW 1. BATELLI	DW 550565	PRINTED CIRCUIT CODE	319012	GENERAL MUSIC S.p.A. ITALY	
CKD 1. BATELLI	DISK: 50 PART: 1/1	SCHEMATIC DIAGRAM	TWIN 14A	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCTIONS OF THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERAL MUSIC	
APP 1. BATELLI	REV: 18-04-97	2X350W POWER AMPLIFIER BOARD			

768104 - DSP BOARD (TWIN 10 & TWIN 14)

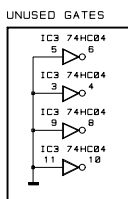
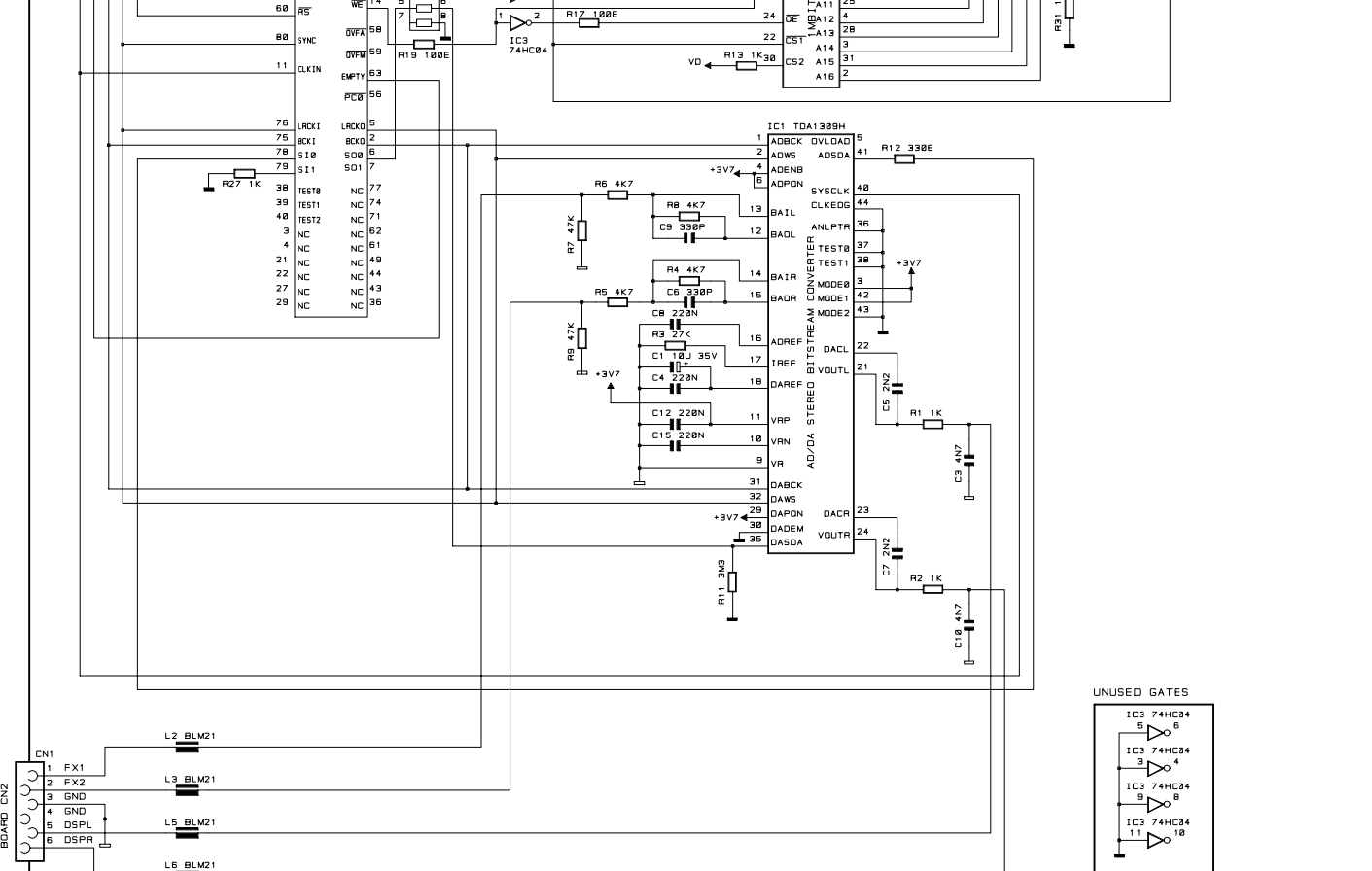


768103 - DISPLAY BOARD (TWIN 10 & TWIN 12)



PCB#319061

SIGNALS
TWIN 10: FROM MAIN
BOARD CN1
TWIN 14: FROM MAIN
BOARD CN2



PCB#319062

SPARE PARTS LIST

ACCESSORIES

277301 User's Manual

MIXER TWIN 10

VARIOUS

667627	Painted Metal Cover	
667584	Chassis	
657213	Left Side	
657212	Right Side	
347349	Handle	
347028	Rubber Food (SYSTEM)	
340435	Adhesive Foot	
340186	Mains Cable Fixing	
238078	Transformer (EU)	
238079	Transformer (115V)	
110030	T10A Fuse 5x20mm (EU)	
110012	T1.6A Fuse 5x20mm (EU)	
110055	T1.6A Fuse 6.3x32mm (US)	
110027	T10A Fuse 6.3x32mm (US)	
130297	Mains Cord (EU)	
130283	Mains Cord (US)	
667585	Front Panel	
657249	Display Plastic Cover	
347354	Gray/Yellow Slider Knob	<STEREO CHANNELS>
347343	Gray/White Slider Knob	<MONO CHANNELS>
347342	Gray/Red Slider Knob	<MASTER>
347336	Effects' Pad	
340186	Mains Cable Fixing	
177643	Shield	

Controls & Volume Board

768124	*	Controls & Volume Board (PCB#313012)
110299	**	4 Switches 2 Positions Hor Slider Switch
074570	**	5K lin. 31 clicks Potentiometer

2X220W Power Amplifier & Supply Board

768120	*	2X220W Power Amplifier Board (PCB#313009)
230557	**	1uh Hor Coil For Amplifier
141130	**	Con H M 8c P=5.08 Pa253 Gibi
110307	**	Relay 24V / 2 Switch 5A 250V
110119	**	Fuse Clip 10A max (EU) (US)
100959	**	LM3171,2V-37V 0.1A Adjustable Regulator
100066	**	LM317 1.2-37V 1.5A Adjustable Regulator
100061	**	TL072 Dual J-Fet Operational Amplifier
100060	**	7815 +15V 1A Voltage Regulator
100059	**	7805 +5V 1A Voltage Regulator
100049	**	7915 -15v 1a Voltage Regulator
090917	**	MJE350 TO126 Pnp Transistor
090916	**	MJE340 TO126 Npn Transistor
090558	**	TIP127 TO220 Pnp Darlington Transistor
090201	**	2n5401 TO92 Pnp Transistor
090200	**	2n5550 TO92 Npn Transistor
090194	**	BC560 TO92 LN Pnp Transistor
090183	**	Bc550 TO92 Ln Npn Transistor
090153	**	BC327 TO92 Pnp Transistor
080245	**	7V5 1w 5% Zener Diode
080168	**	W02M 1.5A Rectifier Diodes Bridge
080156	**	1N4002 1A 100V Rectifier Diode
080103	**	1N4148 100mA 75V Signal Diode
070106	**	470e 20% Horizontal Linear Trimmer
030883	**	10000UF 63V 20% Vert Electrolytic Capacitor
030858	**	4700u 25V 20% Vert Electrolytic Capacitor
030715	**	1000u 6v3 20% Vert Electrolytic Capacitor
727567	*	Fan Assembly
110363	**	DC 24V Fan (80x32)
090920	**	Mje803 To126 Npn Darl Transistor
090919	*	Mje15031 To220 Pnp Transistor
090918	*	MJE15030 TO220 Npn Transistor
090913	*	MJE4352 TO218 Pnp Transistor
090912	*	MJE4342 TO218 Npn Transistor
080820	*	Ptc 80 Pth59f04bf222ts
667608	*	Power Amplifier Connector Support
659027	*	Cyl. Knob White Cap

Main Board

768101	*	Main Board (PCB#313004)	
347353	**	Gray/Yellow Knob	<PAN><BAL>
347348	**	Gray/White Knob	<REV/AUX><MULTI AUX><AUX IN><EFX>
347346	**	Gray/Black Knob	<MONITOR><TAPE IN>
347345	**	Gray/Blu Knob	<HIGH><LOW>

347344	**	Gray/Red Knob	<PHONES><GAIN>
347334	**	12 Leds Plastic Cover	
347333	**	12 Leds Plastic Supplort	
230569	**	FL5R200PNT EMI Coil For Signal	
141185	**	Xlr V F Norit Ntnc3fpr Neutrik	
140237	**	Jack V F Socket Nj5fdv Neutrik	
140236	**	Jack V F Socket Nj3fdv Neutrik	
110267	**	1Switches 2 Positions Hor Slider Switch	
102011	**	Hybryd Balanced Inputs & Tone Controls	
102007	**	Hybrid 12 Led Level Meter	
100923	**	NE5532A Dual LN Operational Amplifier	
100919	**	MC33078 Dual LN J-Fet Operational Amplifier	
090183	**	Bc550 To92 Ln Npn Transistor	
080733	**	Led 2.5x5mm Rect Diff Green	
080731	**	Led 2.5x5mm Rect Diff Red	
080705	**	Led 3mm 60deg Diffused Red	
080293	**	15V 1w 5% Zener Diode	
080245	**	7V5 1w 5% Zener Diode	
080232	**	5V1 0.5W 5% Zener Diode	
075750	**	2x50Ka 9mm Vert. Rotary Pot.	[STEREO]<MON><REV/AUX><MULTI/AUX2>
075699	**	50Ka 9mm Vert. Rotary Pot	[MONO]<MON><REV/AUX><MULTI/AUX2>
075615	**	2x10Kc 14mm Vert. Rotary Pot	[STEREO CH.]<GAIN>
075613	**	2x10Ka 9mm Vert. Rotary Pot	<FX RET><TAPE IN><AUX IN><PHONES>
075591	**	10Kc 9mm Vert. Rotary Pot	[MONO CH.]<GAIN>
075590	**	10Ka 9mm Vert. Rotary Pot	<MONITOR>
074761	**	2x50Kb C.C. 14mm Vert. Rotary	[STEREO CH.]<HIGH><LOW>
074696	**	50Kb C.C. 9mm Vert. Rotary Pot	[MONO]<HIGH><LOW>[STEREO]<BAL>
073597	**	2x10Ka 45mm Slider Pot Slim	[STEREO CH.] sliders
073579	**	10Ka 45mm Slider Pot Slim	[MONO CH.] sliders,<MIX L><MIX R>

MIXER TWIN 14

VARIOUS

667628	Painted Metal cover	
667582	Chassis	
657213	Left Side	
657212	Right Side	
347350	Handle	
347028	Rubber Foot (SYSTEM)	
340435	Adhesive Foot	
340186	Mains Cable Fixing	
238080	Transformer (EU)	
238081	Transformer (US)	
110030	T10A Fuse 5x20mm (EU)	
110012	T1.6A Fuse 5x20mm (EU)	
110055	T1.6A Fuse 6.3x32mm (US)	
110027	T10A Fuse 6.3x32mm (US)	
210215	Adhesive Rubber	
277301	User's Manual	
130297	Mains Cord (EU)	
130283	Mains Cord (US)	
667583	Front Panel	
657249	Display Plastic Cover	
347354	Gray/Yellow Slider Knob	<STEREO CHANNELS>
347343	Gray/White Slider Knob	<MONO CHANNELS>
347342	Gray/Red Slider Knob	<MASTER>
347336	Effects' Pad	
340186	Mains Cable Fixing	
177643	Shield	

Main Board

68102	*	Main Board (230V) (PCB#313007)	
347353	**	Gray/Yellow Knob	<PAN><BAL>
347348	**	Gray/White Knob	<REV/AUX><MULTI AUX><AUX IN><EFX>
347346	**	Gray/Black Knob	<MONITOR><TAPE IN>
347345	**	Gray/Blu Knob	<HIGH><LOW>
347344	**	Gray/Red Knob	<PHONES><GAIN>
347334	**	12 Leds Plastic Cover	
347333	**	12 Leds Plastic Supplort	
230569	**	FL5R200PNT EMI Coil For Signal	
141185	**	Xlr V F Norit Ntn3fpr Neutrik	
141011	**	6 Contacts Vert Female Connector	
142037	**	Jack V F Socket Nj5fdv Neutrik	
142036	**	Jack V F Socket Nj3fdv Neutrik	
110267	**	1Switches 2 Positions Hor Slider Switch	
102011	**	Hybryd Balanced Inputs & Tone Controls	
102007	**	Hybrid 12 Led Level Meter	
100923	**	NE5532A Dual LN Operational Amplifier	
100919	**	MC33078 Dual LN J-Fet Operational Amplifier	
090183	**	Bc550 T092 Ln Npn Transistor	
080733	**	Led 2.5x5mm Rect Diff Green	
080731	**	Led 2.5x5mm Rect Diff Red	
080705	**	Led 3mm 60deg Diffused Red	
080293	**	15V 1w 5% Zener Diode	
080245	**	7V5 1w 5% Zener Diode	
080232	**	5V1 0.5W 5% Zener Diode	
075750	**	2x50Ka 9mm Vert. Rotary Pot.	[STEREO]<MON><REV/AUX><MULTI/AUX2>
075699	**	50Ka 9mm Vert. Rotary Pot	[MONO]<MON><REV/AUX><MULTI/AUX2>
075615	**	2x10Kc 14mm Vert. Rotary Pot	[STEREO CH.]<GAIN>
075613	**	2x10Ka 9mm Vert. Rotary Pot	<FX RET><TAPE IN><AUX IN><PHONES>
075591	**	10Kc 9mm Vert. Rotary Pot	[MONO CH.]<GAIN>
075590	**	10Ka 9mm Vert. Rotary Pot	<MONITOR>
074761	**	2x50Kb C.C. 14mm Vert. Rotary	[STEREO CH.]<HIGH><LOW>
074696	**	50Kb C.C. 9mm Vert. Rotary Pot	[MONO]<HIGH><LOW>[STEREO]<BAL>
073597	**	2x10Ka 45mm Slider Pot Slim	[STEREO CH.] sliders
073579	**	10Ka 45mm Slider Pot Slim	[MONO CH.] sliders,<MIX L><MIX R>

Power Supply Board

768119	*	Power Supply Board (PCB#313000)
140085	**	2 Contacts P=10 Vert Terminal Block
140010	**	3 Contacts P=10 Vert Terminal Block
110119	**	Fuse Clip 10A max (EU) (US)
100959	**	LM3171,2V-37V 0.1A Adjustable Regulator
100066	**	LM317 1.2-37V 1.5A Adjustable Regulator
080168	**	W02M 1.5A Rectifier Diodes Bridge
080156	**	1N4002 1A 100V Rectifier Diode
030884	**	10000uF 80V Snap-In Electrolytic Capacitor
030882	**	10000uF 50V Snap-In Electrolytic Capacitor
030856	**	4700uF 25V Snap-In Electrolytic Capacitor
030554	**	4700u 35v 20% Snap-In Electrolytic Capacitor
110363	**	DC 24V Fan (80x32)
100060	*	7815 +15V 1A Voltage Regulator
100059	*	7805 +5V 1A Voltage Regulator
100049	*	7915 -15v 1a Voltage Regulator
080607	*	Kbpс25 25a 200V Bridge Rec Dio
080606	*	GBU8D 8A Rectifier Diodes Bridge

2x350W Power Amplifier Board

768118	*	2x350W Power Amplifier Board (PCB#319012)
230556	**	1uh Vert Coil For Amplifier
210215	**	Adhesive Rubber
110316	**	Relay 24V / 1 Switch no 16A 250V
110299	**	4 Switches 2 Positions Hor Slider Switch
100084	**	TL074 Quad J-Fet Operational Amplifier
100019	**	TI071 Ln J-Fet Op Amp
090917	**	MJE350 TO126 Pnp Transistor
090916	**	MJE340 TO126 Npn Transistor
090558	**	TIP127 TO220 Pnp Darlington Transistor
090201	**	2n5401 To92 Pnp Transistor
090200	**	2n5550 To92 Npn Transistor
090194	**	BC560 TO92 LN Pnp Transistor
090183	**	Bc550 To92 Ln Npn Transistor
090153	**	BC327 TO92 Pnp Transistor
080245	**	7V5 1w 5% Zener Diode
080171	**	Fe6b 6a 100V Fast Recovery Diode
080156	**	1N4002 1A 100V Rectifier Diode
080103	**	1N4148 100mA 75V Signal Diode
074570	**	5K lin. 31 clicks Potentiometer
070106	**	470e 20% Horizontal Linear Trimmer
030715	**	1000u 6v3 20% Vert Electrolytic Capacitor
667589	*	Power Supply Connector Support
659027	*	Cyl. Knob White Cap
090920	*	Mje803 To126 Npn Darl Transistor
090919	*	Mje15031 To220 Pnp Transistor
090918	*	MJE15030 TO220 Npn Transistor
090913	*	MJE4352 TO218 Pnp Transistor
090912	*	MJE4342 TO218 Npn Transistor
090863	*	TIP36C TO218 Pnp Transistor
090862	*	TIP35C TO218 Npn Transistor
080820	*	Ptc 80 Pth59f04bf222ts

Common Boards

768104	DSP Processor Board (PCB#319062)	
141018	*	20 Contacts Vert Female Connector
141011	*	6 Contacts Vert Female Connector
140918	*	2 Contacts Hor Male Connector
140872	*	4 Contacts Hor Male Connector
105007	*	TMS57002 CMOS DIGIT.SIGNAL PROCESSORS
104019	*	ST24W02 Smd 2Kbit Serial Access EEprom
104000	*	HM628128LFP7 SOP 1Mbit (128Kx8) Static Ram
103025	*	74HC4040 12-STAGE BINARY COUNTER
103021	*	TDA1309HN2 Bitstream Ad/Da Converter
103016	*	74HC373DW SOIC Octal D-Type Latch
103010	*	74HC04D SOIC Hex Inverter
103003	*	74HC374DW Soic Octal D-Type Flip-Flop
081000	*	PMLL4148 Smd 100mA 75V Signal Diode
055101	*	4K7 X4 1/16w 5% Smd Resistor Array
055100	*	100E X4 1/16w 5% Smd Resistor Array
030931	*	10u 35v 20% Electrolytic Tantalum Capacitor
010735	*	8MHz Quarz
010662	*	220p 10% 50V X8 Cap Array
768103	Reverb Display Board (PCB#319061)	
140529	*	Microswitch 12V 50mA 0.25mm
103027	*	UPD7225 PROGRAM.LCD CONTR.DRIVER SMD
080751	*	8 Ch. 14 Segments LCD Display
080706	*	Led 3mm 60deg Diffused Green
080705	*	Led 3mm 60deg Diffused Red
055101	*	4K7 X4 1/16w 5% Smd Resistor Array
055100	*	100E X4 1/16w 5% Smd Resistor Array
768106	Mains Filter Board (EU) (PCB#319065)	
768110	Mains Filter Board (US) (PCB#319065)	
230565	*	2.5mH 250V 3A AC Line Filter (EU)
230573	*	1.8mh 250V 6a Ac Line Filter (US)
140010	*	3 Contacts P=10 Vert Terminal Block
020493	*	100n 250Vac MKP EMI Capacitor "Siemens"
010719	*	2n2 250Vac 7A 20% AC Line "Y" Filter "Murata"
667588	Mains filter Board Support	
110614	Mains Socket	
110291	Power Switch	

Notes:

Each spare part is single quantity unless otherwise specified

Asterisk prefix explanation:

Omitted = First level spare part.

One asterisk = Second level, part of previous listed first level part.

Two asterisk = Third level, part of previous listed second level part.

Three asterisk =.....

Any request for not above mentioned part must encompass specific description including:

- 1) Model name,
- 2) Section,
- 3) Module code,
- 4) Reference name,
- 5) Quantity number.