

# POWERCASE 12 POWERCASE 16

AMPLIFIED STEREO MIXER

## SERVICE MANUAL Schematic Diagrams



CODE : 277082



## Index & Warnings

|  |    |
|--|----|
| Technical Specifications & Block Diagram                                     | 2  |
| Interconnections System (POWERCASE 12ch)                                     | 3  |
| Interconnections System (POWERCASE 16ch)                                     | 4  |
| Power Amplifier & Supply Board (POWERCASE 12ch)                              | 5  |
| Power Amplifier & Supply Board (POWERCASE 16ch)                              | 6  |
| Main Board (1/2) - 4 XLR Inputs Board - Master Output Board (POWERCASE 12ch) | 7  |
| Main Board (2/2)   | 8  |
| Main Board (1/2) - 8 XLR Inputs Board - Master Output Board (POWERCASE 16ch) | 9  |
| Main Board (2/2)   | 10 |
| Digital Reverb Board (III Ver.)  | 11 |
| Spare Parts List   | 12 |

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### 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.

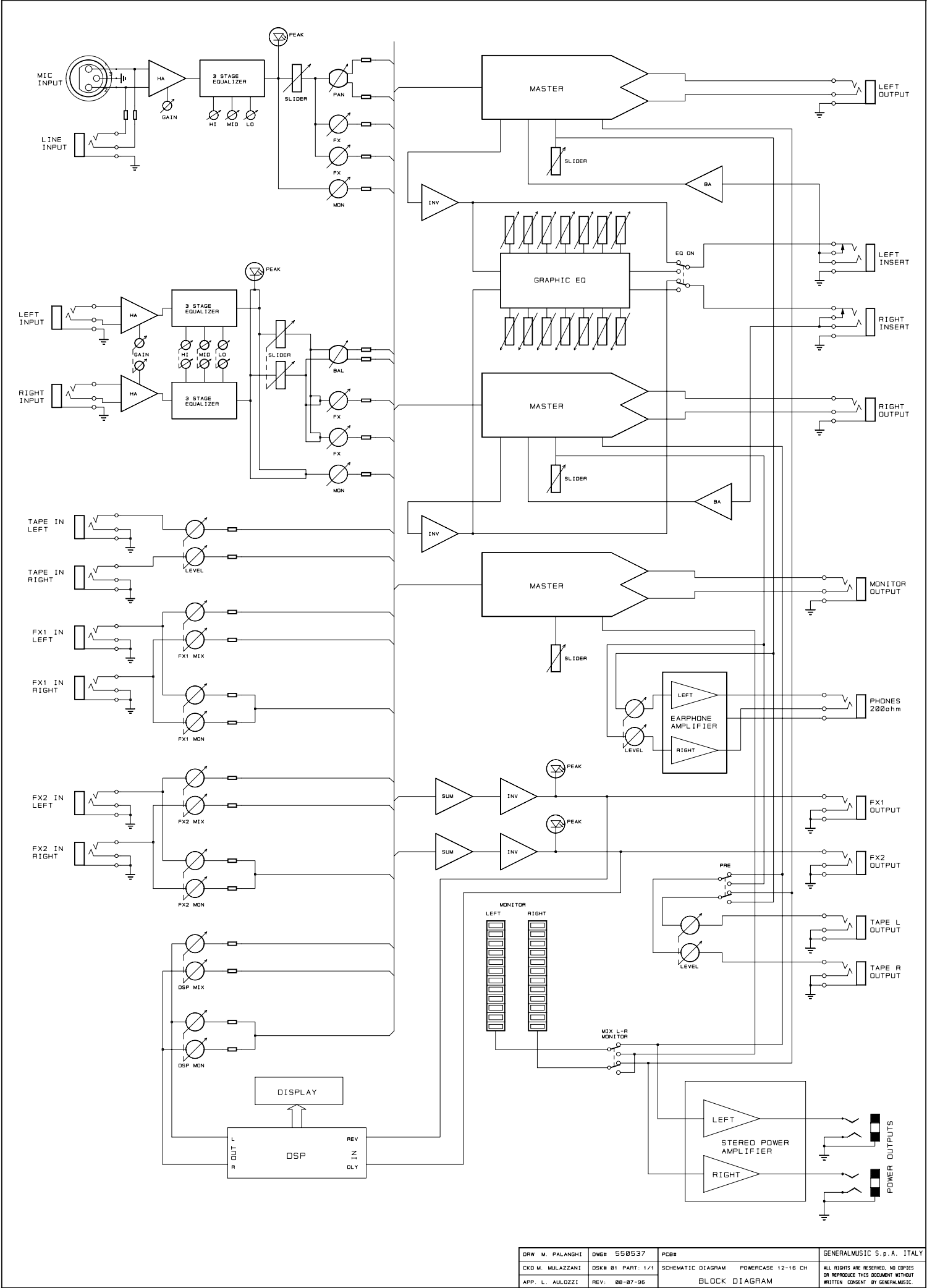
⬇ Chassis ground.



### ATTENTION

Observe precautions when handling electrostatic sensitive devices

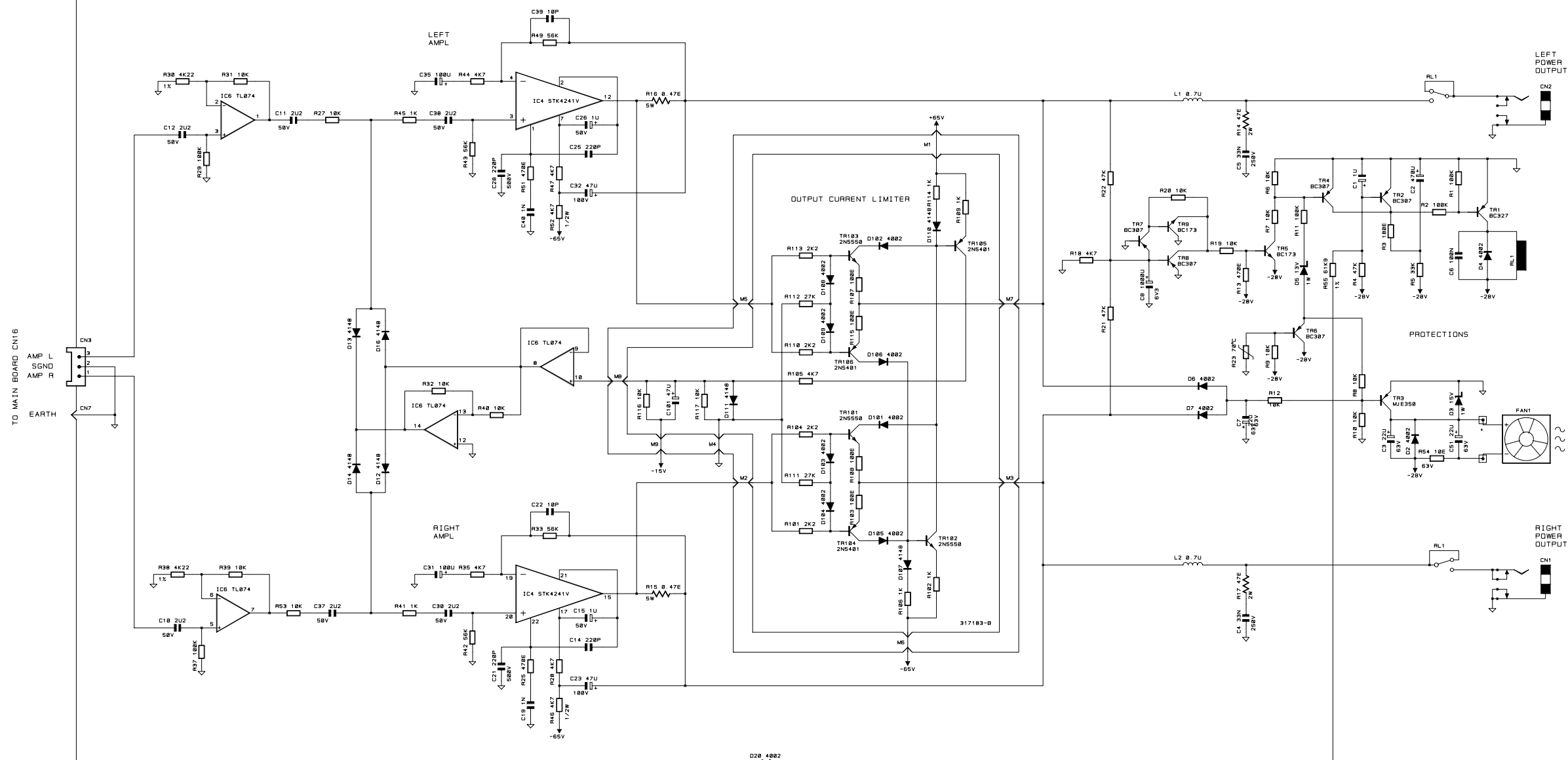
| SECTION        |                        | LEVEL & DATA        |
|----------------|------------------------|---------------------|
| INPUT CHANNELS |                        |                     |
| MONO channel   | sensitivity            | from -20dB to -50dB |
| MIC input      | gain                   | 30dB                |
|                | impedance              | 1.2KΩ               |
| MONO channel   | sensitivity            | from +10dB to -20dB |
| LINE input     | gain                   | 30dB                |
|                | impedance              | 10KΩ                |
| STEREO channel | sensitivity            | from +10dB to -30dB |
|                | gain                   | 40dB                |
|                | impedance              | 45KΩ                |
| EQ HIGH        | ±15dB 10kHz (Shelving) |                     |
| EQ MID         | ±15dB 1kHz (Peaking)   |                     |
| EQ LOW         | ±15dB 70kHz Shelving)  |                     |
| MASTER         |                        |                     |
| LINE OUT (L&R) | +4dB                   |                     |
| MONITOR OUT    | +4dB                   |                     |
|                |                        |                     |



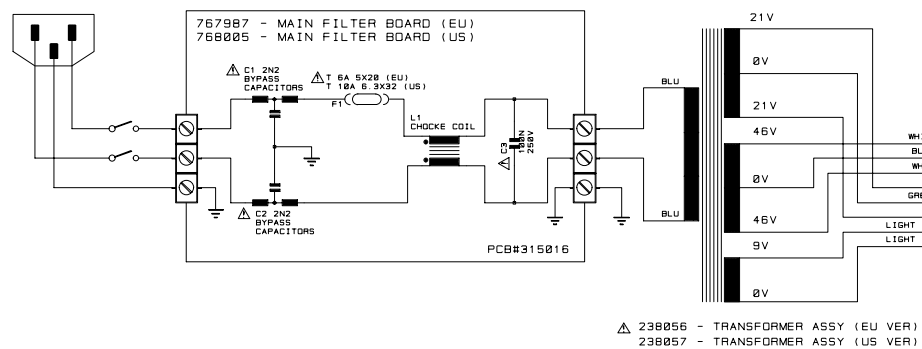
|                   |                    |                   |  |
|-------------------|--------------------|-------------------|--|
| DRW: M. PALANGHI  | DWG#: 550537       | PCB#              | GENERALMUSIC S.p.A. ITALY  |
| CKD: M. MULAZZANI | DSK#: 01 PART: 1/1 | SCHEMATIC DIAGRAM | POWERCASE 12-16 CH   |
| APP: L. AULIOZZI  | REV: 00-07-96      | BLOCK DIAGRAM     | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |



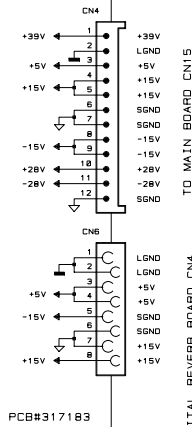
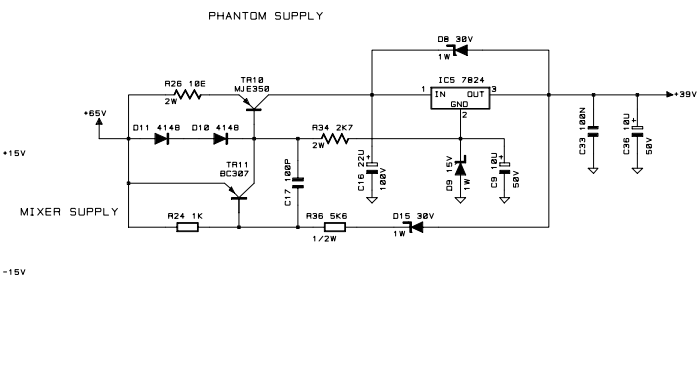
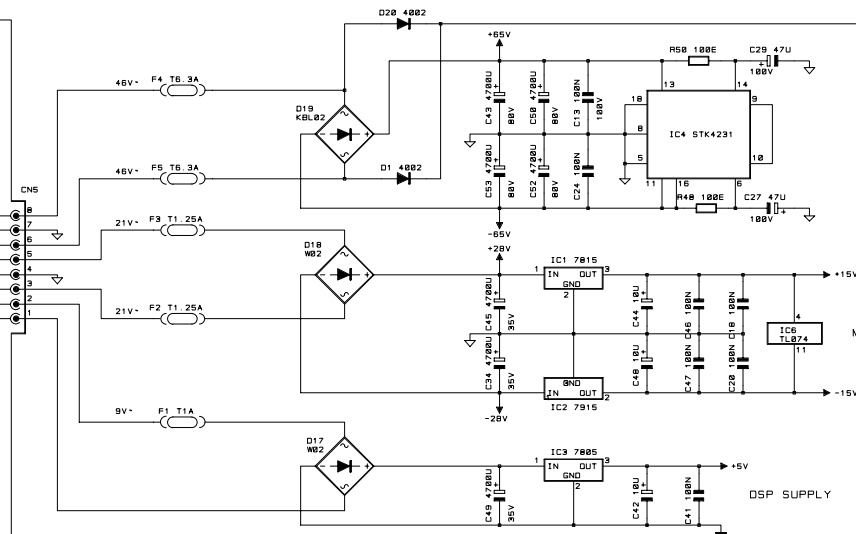
767998 - 2 x 150W POWER AMPLIFIER BOARD (EU VER)  
768001 - 2 x 150W POWER AMPLIFIER BOARD (US VER)



230VAC +/-20% 50Hz  
117VAC +/-20% 60Hz



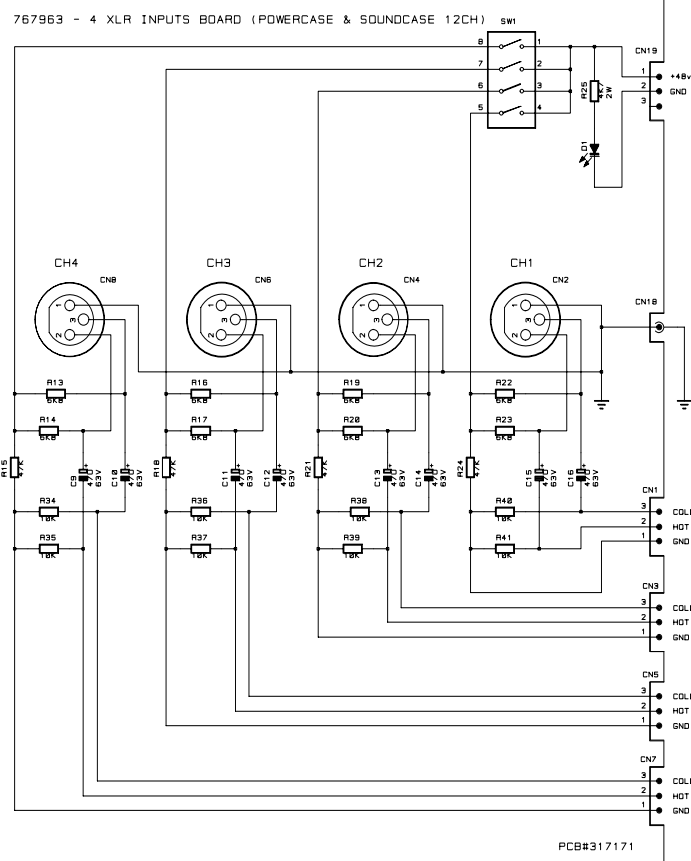
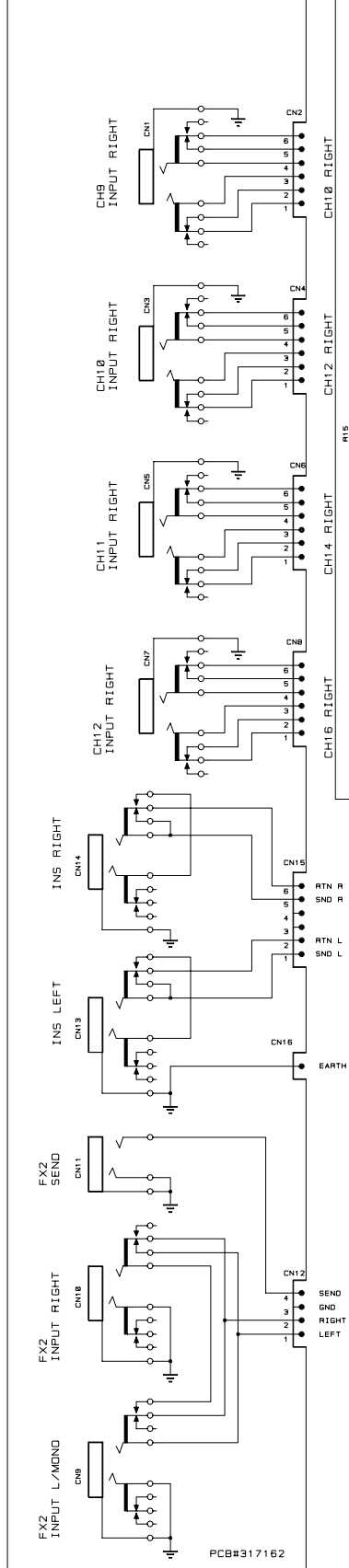
238056 - TRANSFORMER ASSY (EU VER)  
238057 - TRANSFORMER ASSY (US VER)



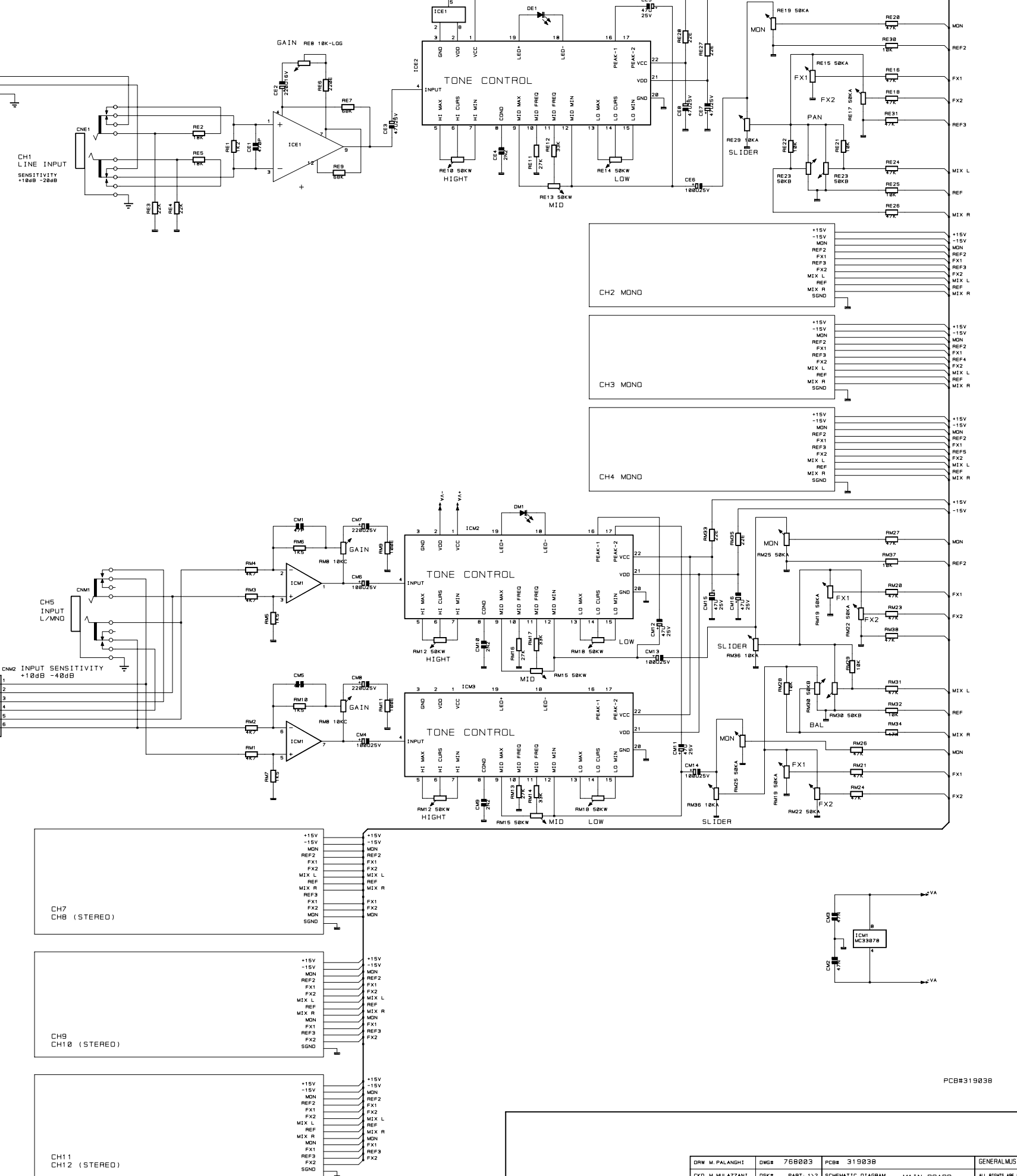
- NOTES :
- 1) ALL RESISTORS ARE 1/4W 5% UNLESS OTHERWISE SPECIFIED
  - 2) ALL CERAMIC CAPACITORS ARE 50V 10% UNLESS OTHERWISE SPECIFIED
  - 3) ALL POLYESTER CAPACITORS ARE 63V 10% UNLESS OTHERWISE SPECIFIED
  - 4) ALL VOLTAGES ARE MEASURED TO GROUND \* NOMINAL MAIN VOLTAGE WITH 20K1/V METER

|                 |             |                              |              |                                    |
|-----------------|-------------|------------------------------|--------------|------------------------------------|
| DRW M. PALANGHI | DWG# 550535 | PRINTED CIRCUIT CODE :       | 317183       | GENERALMUSIC S.p.A. ITALY          |
| CKD G. RICCI    | DISK: PART: | SCHEMATIC DIAGRAM            | POWERCASE 12 | ALL RIGHTS ARE RESERVED. NO COPIES |
| APP. I. BATELLI | REV:        | 2x150W POWER AMPLIFIER BOARD |              | OR REPRODUCE THIS DOCUMENT WITHOUT |
|                 |             |                              |              | WRITTEN CONSENT BY GENERALMUSIC.   |

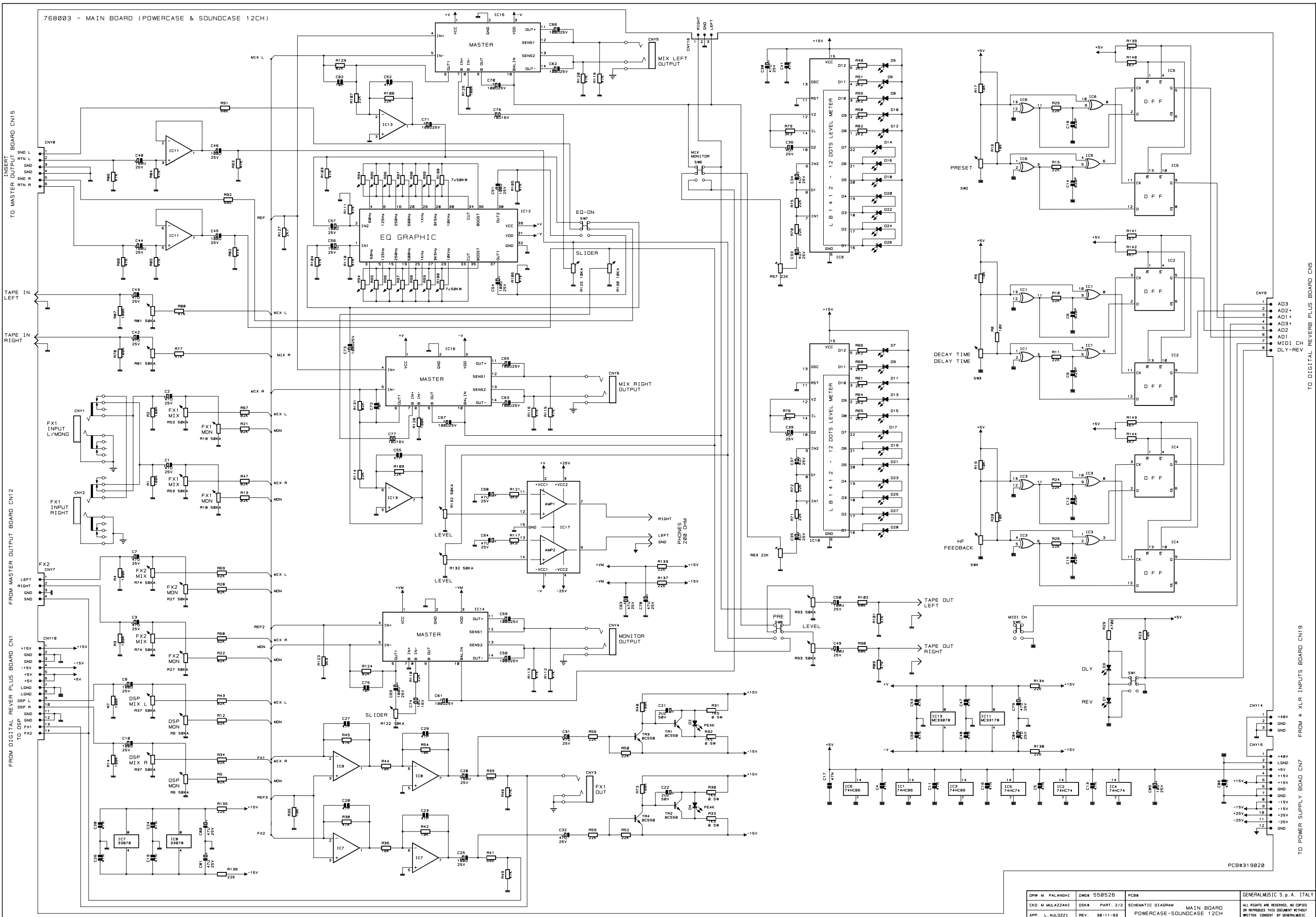
767966 - MASTER OUTPUTS BOARD



768003 - MAIN BOARD (POWERCASE/SOUNDCASE 12CH)



|                    |                 |                          |                                    |
|--------------------|-----------------|--------------------------|------------------------------------|
| DRW: M. PALANGHI   | DWG#: 768003    | PCB#: 319038             | GENERALMUSIC S.p.A. ITALY          |
| CKD: M. MULLAZZANI | DSK#: PART: 1/2 | SCHEMATIC DIAGRAM        | ALL RIGHTS ARE RESERVED. NO COPIES |
| APP: L. AULIOZZI   | REV: 03-07-96   | MAIN BOARD               | OR REPRODUCE THIS DOCUMENT WITHOUT |
|                    |                 | POWERCASE/SOUNDCASE 12CH | WRITTEN CONSENT BY GENERALMUSIC    |



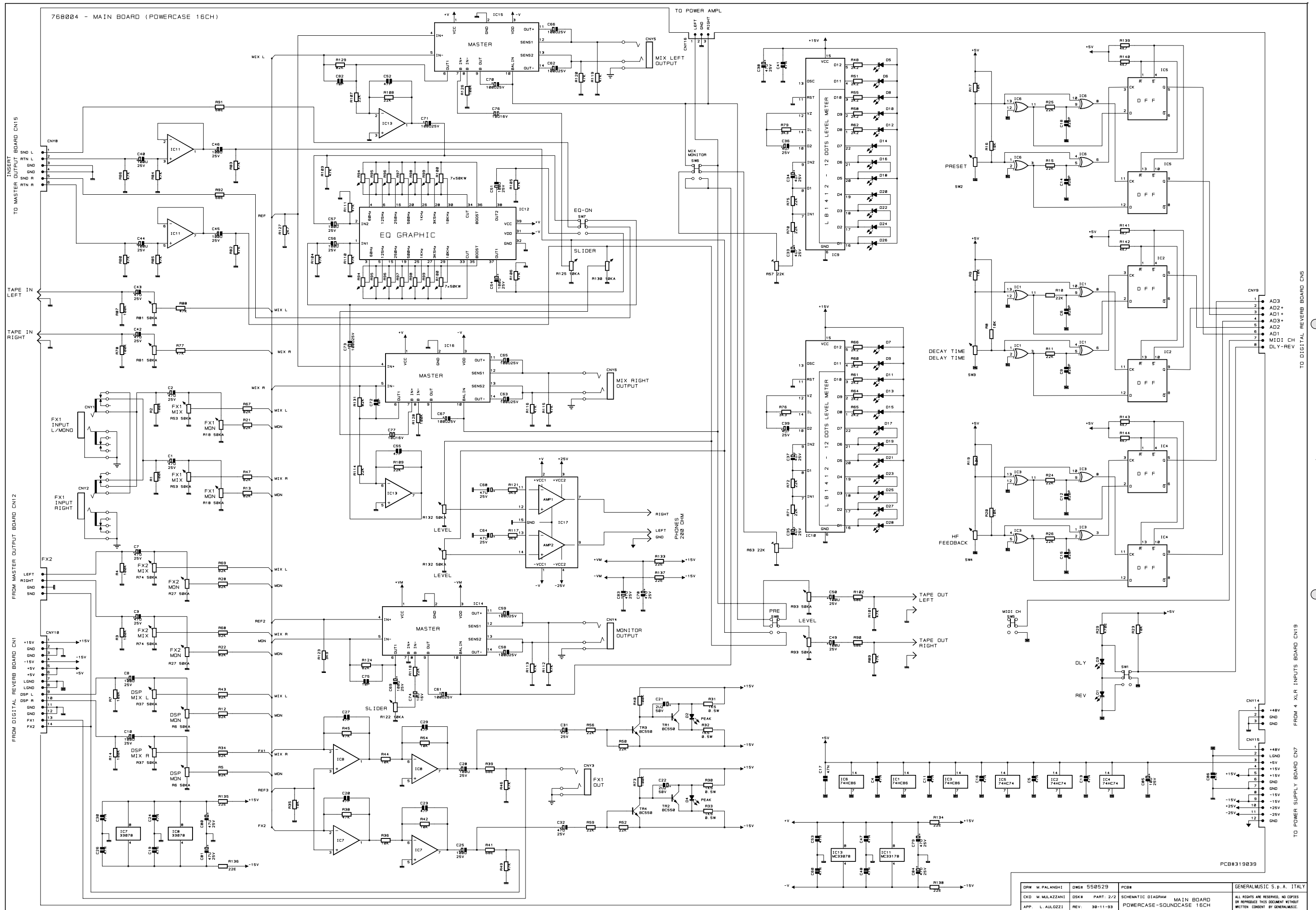














SPARE PARTS LIST

| Accessories          |   |
|----------------------|---|
| 277081               | Owner's Manual                                  |
| Various              |   |
| 667560               | Chassis (POWERCASE 16)                          |
| 667577               | Chassis (POWERCASE 12)                          |
| 667418               | Cover (POWERCASE 16)                            |
| 667417               | Cover (POWERCASE 12)                            |
| 657213               | Left side                                       |
| 657212               | Right Side                                      |
| 347242               | Handle (POWERCASE 16)                           |
| 347241               | Handle (POWERCASE 12)                           |
| 347028               | "System" foot                                   |
| 340435               | Adhesive Foot                                   |
| 340186               | Mains Cable Fixing                              |
| 238060               | Transformer 230V (POWERCASE 16) (EU)            |
| 238037               | Transformer 117V (POWERCASE 16) (US)            |
| 238056               | Transformer 230V (POWERCASE 12) (EU)            |
| 238057               | Transformer 117V (POWERCASE 12) (US)            |
| 110614               | Mains Socket                                    |
| 110278               | Main Switch                                     |
| 110018               | T6.3A Fuse 5x20mm (POWERCASE 16) (EU)           |
| 110027               | T10A Fuse 6.3x32mm (POWERCASE 16) (US)          |
| 110003               | T3.15A Fuse 5x20mm (POWERCASE 12) (EU)          |
| 110037               | T6.3A Fuse 6.3x32mm (POWERCASE 12) (US)         |
| 130297               | Mains Cord (Europe Version)                     |
| Mechanical Parts     |   |
| 347256               | Two-colored Switch Cup (Pantone 564)            |
| 347251               | Two-colored Knob (Pantone 5493)                 |
| 347250               | Two-colored Knob (Pantone 5473)                 |
| 347249               | Two-colored Knob (Pantone 564)                  |
| 347248               | Two-colored Knob (Pantone 562)                  |
| 347247               | Two-colored Knob (Pantone 556)                  |
| 177434               | Inner Panel (POWERCASE 16)                      |
| 177433               | Inner Panel (POWERCASE 12)                      |
| 177431               | Jack Support                                    |
| 177252               | Power Supply Board Fixing                       |
| 140241               | Red RCA Socket                                  |
| 140240               | Black RCA Socket                                |
| 140220               | Jack Slim H F Apj678 Adimpex                    |
| 667412               | Front Panel (POWERCASE 16)                      |
| 667411               | Front Panel (POWERCASE 12)                      |
| 657211               | Display Cover                                   |
| 657210               | LEDs Cover                                      |
| 347255               | Two-colored Slider Knob (Pantone 5493)          |
| 347254               | Two-colored Slider Knob (Pantone 5473)          |
| 347253               | Two-colored Slider Knob (Pantone 564)           |
| 347252               | Two-colored Slider Knob (Pantone 556)           |
| 080745               | 2x16 Characters Lcd Display                     |
| Digital Reverb Board |   |
| 758075               | Digital Reverb Board (III Version) (PCB#319057) |
| 230569               | * FL5R200PNT EMI Coil For Signal                |
| 141059               | * Con V M 9 C Mini Mate Burndy                  |
| 141058               | * Con V M 6 C Mini Mate Burndy                  |
| 141015               | * Con V F 14c P=1.27 Mmatch Amp                 |
| 141012               | * Con V F 8 C P=1.27 Mmatch Amp                 |
| 103021               | * Tda1309hn2 Bitstream Ad/Da Con                |
| 103016               | * 74hc373dw Octal D-Type Latch                  |
| 103015               | * 74hc164m 8bit S To P Shift Reg                |
| 103014               | * 74hc109d Soic Dual J-/K F-F                   |
| 103013               | * 74HC138 1 OF 8 DECODER SMD                    |
| 103010               | * 74hc04d Soic Hex Inverter                     |
| 103007               | * 74hc74d Soic Dual Flip-Flop                   |
| 103002               | * 74hc245dw Soic Octal Bus Transceiver          |
| 103001               | * 74hc08d Soic Quad 2-Input And Gate            |
| 100919               | * Mc33078 Dual Ln J-Fet Operational Amplifier   |
| 100642               | * Ts93c46 1Kbit Eeprom Memory                   |
| 100628               | * Rev2 Digital Reverb Processor                 |
| 100617               | * 74HC4040 12-Stage Binary Counter              |
| 100586               | * HM514256P10 Dynamic Ram 1mbit Ta=100ns        |
| 100579               | * 80C32 Cpu Fc=16MHz                            |
| 100066               | * Lm317 1.2v-37v 1.5a Adj Reg                   |
| 100035               | * 6N138 Optocoupler                             |
| 050492               | * 10Kx8 1/8w 5% Resistor Array                  |
| 042435               | * 432E 1/4w 1% Metalized Film Resistor          |
| 042405               | * 221E 1/4w 1% Metalized Film Resistor          |
| 010724               | * 16MHz Ceramic Resonator With Capacitors       |
| 010718               | * 32MHz Quartz Resonator                        |
| 010660               | * 470p 10% 50V X8 Cap Array                     |
| 557023               | Programed EPROM                                 |
| 100721               | * 27C512 Eprom 512Kbit Ta=200ns                 |

Mains Filter Board

|        |                                       |
|--------|---------------------------------------|
| 767987 | Mains Filter Board (PCB#315016) (EU)  |
| 768005 | Mains Filter Board (Pcb#315016) (US)  |
| 230565 | * 2.5mH 250V 3A AC Line Filter        |
| 140010 | * 3 Contacts P=10 Vert Terminal Block |
| 110113 | * Fuse Clip 5x20mm 6A max (EU)        |
| 110114 | * Fuse Clip 6.3x32mm 10A Max (US)     |
| 020493 | * 100n 250Vac MKP EMI Capacitor       |
| 010719 | * 2n2 250V 7A 20% AC Line Capacitor   |

2x250W Power Amplifier Board

|        |   |
|--------|---|
| 737063 | 2x250W Power Amplifier Board (EU)           |
| 737064 | 2x250W Power Amplifier Board (EU)           |
| 768067 | * 2x250W Power Amplifier Board (PCB#317205) |
| 230557 | ** 1uh Hor Coil For Amplifier               |
| 141132 | ** Con V M 10c P=5.08 Pa253 Gibi            |
| 141065 | ** Con H M 12c Mini Mate Burndy             |
| 141056 | ** Con V M 3 C Mini Mate Burndy             |
| 141012 | ** Con V F 8 C P=1.27 Mmatch Amp            |
| 140350 | ** Con V M 3 C Msf Lumberg                  |
| 110316 | ** Relay 24V / 1 Switch no 16A 250V         |
| 110119 | ** Fuse Clip 10A max (EU) (US)              |
| 110082 | ** T1A Fuse 6.3x32mm (US)                   |
| 110026 | ** T1.25A Fuse 6.3x32mm (US)                |
| 110022 | ** T8A Fuse 6.3x32mm (US)                   |
| 110021 | ** T5A Fuse 6.3x32mm (US)                   |
| 100019 | ** TI071 Ln J-Fet Op Amp                    |
| 090917 | ** MJE350 TO126 Pnp Transistor              |
| 090916 | ** MJE340 TO126 Npn Transistor              |
| 090201 | ** 2n5401 To92 Pnp Transistor               |
| 090200 | ** 2n5550 To92 Npn Transistor               |
| 090194 | ** BC560 TO92 LN Pnp Transistor             |
| 090183 | ** Bc550 To92 Ln Npn Transistor             |
| 080819 | ** Ptc 70 Pth59f04bg222ts                   |
| 080607 | ** Kbpc25 25a 200V Bridge Rec Dio           |
| 080606 | ** GBU8D 8A Rectifier Diodes Bridge         |
| 080342 | ** 30V 1w 5% Zener Diode                    |
| 080293 | ** 15V 1w 5% Zener Diode                    |
| 080282 | ** 13V 1w 5% Zener Diode                    |
| 080261 | ** 10V1w 5% Zener Diode                     |
| 080245 | ** 7V5 1w 5% Zener Diode                    |
| 080171 | ** Fe6b 6a 100V Fast Recovery Diode         |
| 080168 | ** W02M 1.5A Rectifier Diodes Bridge        |
| 080156 | ** 1N4002 1A 100V Rectifier Diode           |
| 080103 | ** 1N4148 100mA 75V Signal Diode            |
| 727421 | ** Fan Group                                |
| 110359 | *** Dc Fan 24v 80x25                        |
| 177586 | ** Jack Socket Support                      |
| 177248 | ** Tunnel Closer                            |
| 120819 | ** Fan Spacer                               |
| 110023 | ** T8A Fuse 5x20mm (EU)                     |
| 110020 | ** T5A Fuse 5x20mm (EU)                     |
| 110013 | ** T1.25A Fuse 5x20mm (EU)                  |
| 110011 | ** T1A Fuse 5x20mm (EU)                     |
| 100132 | ** 7824 +24V 1A Voltage Regulator           |
| 100060 | ** 7815 +15v 1a Voltage Regulator           |
| 100059 | ** 7805 +5v 1a Voltage Regulator            |
| 100049 | ** 7915 -15v 1a Voltage Regulator           |
| 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              |

2x150W Power Amplifier Board

|        |  |
|--------|--|
| 767998 | 2x150W Power Amplifier Board (PCB#317183) (EU) |
| 768001 | 2x150W Power Amplifier Board (PCB#317183) (US) |
| 141130 | * Con H M 8c P=5.08 Pa253 Gibi                 |
| 141065 | * Con H M 12c Mini Mate Burndy                 |
| 141061 | * Con H M 3 C Mini Mate Burndy                 |
| 141012 | * Con V F 8 C P=1.27 Mmatch Amp                |
| 140226 | * Jack Mono Asme An                            |
| 110307 | * Relay 24V / 2 Switch 5A 250V                 |
| 110113 | * Fuse Clip 5x20mm 6A max (EU)                 |
| 110114 | * Fuse Clip 6.3x32mm 10A Max (US)              |
| 100941 | * STK4241V 2x120w Hybrid Amplifi               |
| 100084 | * TL074 Quad J-Fet Operational Amplifier       |
| 090917 | * MJE350 TO126 Pnp Transistor                  |
| 090201 | * 2n5401 To92 Pnp Transistor                   |
| 090200 | * 2n5550 To92 Npn Transistor                   |
| 090192 | * BC307 TO92 Pnp Transistor                    |
| 090182 | * BC173C TO92 Npn Transistor                   |
| 090153 | * BC327 TO92 Pnp Transistor                    |

|        |  |
|--------|--|
| 080605 | * KBL02 4A 200V Bridge Rectifier Diode |
| 080342 | * 30V 1w 5% Zener Diode                |
| 080293 | * 15V 1w 5% Zener Diode                |
| 080282 | * 13V 1w 5% Zener Diode                |
| 080168 | * W02M 1.5A Rectifier Diodes Bridge    |
| 080156 | * 1N4002 1A 100V Rectifier Diode       |
| 080103 | * 1N4148 100mA 75V Signal Diode        |
| 042555 | * 4K22 1/4w 1% Metalized Film Resistor |
| 110358 | Dc Fan 24v 60x25                       |
| 110018 | T6.3A Fuse 5x20mm (EU)                 |
| 110013 | T1.25A Fuse 5x20mm (EU)                |
| 110011 | T1A Fuse 5x20mm (EU)                   |
| 110082 | T1A Fuse 6.3x32mm (US)                 |
| 110037 | T6.3A Fuse 6.3x32mm (US)               |
| 110026 | T1.25A Fuse 6.3x32mm (US)              |
| 100132 | 7824 +24V 1A Voltage Regulator         |
| 100060 | 7815 +15V 1A Voltage Regulator         |
| 100059 | 7805 +5V 1A Voltage Regulator          |
| 100049 | 7915 -15v 1a Voltage Regulator         |
| 080819 | Ptc 70 Pth59f04bg222ts                 |

Main Board

|        |  |
|--------|--|
| 768004 | Main Board (PCB#319039) (POWERCASE 16)           |
| 768003 | Main Board (PCB#319038) (POWERCASE 12)           |
| 347020 | * 15 LEDs Support                                |
| 340771 | * Led Spacer H=16,3mm                            |
| 141065 | * Con H M 12c Mini Mate Burndy                   |
| 141061 | * Con H M 3 C Mini Mate Burndy                   |
| 141056 | * Con V M 3 C Mini Mate Burndy                   |
| 141015 | * Con V F 14c P=1.27 Mmatch Amp                  |
| 141012 | * Con V F 8 C P=1.27 Mmatch Amp                  |
| 141011 | * Con V F 6 C P=1.27 Mmatch Amp                  |
| 141010 | * Con. Vert. Female 4 Contacts P=1.27 Match Amp. |
| 140397 | * 2sw 2pos V Slider Switch                       |
| 140231 | * Jack H F Socket S-G4617 Smk                    |
| 140220 | * Jack Slim H F Apj678 Adimpex                   |
| 110258 | * Encoder  |
| 102006 | * Hybrid St Graphic Equalizer                    |
| 102005 | * Hybrid 3 Band Tone Control                     |
| 102004 | * Hybrid Master & Bal Output                     |
| 102002 | * Hybrid Balanced Input Circuit                  |
| 102001 | * Hybrid Stereo Headphones Amp                   |
| 100927 | * Lb1412 12 Dots Level Meter                     |
| 100919 | * Mc33078 Dual Ln J-Fet Operational Amplifier    |
| 100918 | * Mc33178 Dual Op Amp                            |
| 100620 | * 74hc86 Quad 2-Input Exor Gate                  |
| 100614 | * 74HC74 Dual Flip-Flop                          |
| 090183 | * Bc550 To92 Ln Npn Transistor                   |
| 080733 | * Led 2.5x5mm Rect Diff Green                    |
| 080731 | * Led 2.5x5mm Rect Diff Red                      |
| 080706 | * Led 3mm 60deg Diffused Green                   |
| 080705 | * Led 3mm 60deg Diffused Red                     |
| 075802 | * 2x50Ka 14mm Vert. Rotary Pot                   |
| 075699 | * 50Ka 9mm Vert. Rotary Pot                      |
| 075615 | * 2x10Kc 14mm Vert. Rotary Pot                   |
| 075591 | * 10Kc 9mm Vert. Rotary Pot                      |
| 074761 | * 2x50Kb C.C. 14mm Vert. Rotary                  |
| 074753 | * 2x50Kw C.C. 14mm Vert. Rotary                  |
| 074698 | * 50Kw C.C. 9mm Vert. Rotary Pot                 |
| 073596 | * 2x10Ka 60mm Slider Pot Slim                    |
| 073574 | * 10Ka 60mm Slider Pot Slim                      |
| 072705 | * 2x50K W 30mm Slider Potentiometer              |
| 042537 | * 3K01 1/4w 1% Metalized Film Resistor           |

Master Outputs Board

|        |  |
|--------|--|
| 767966 | Master Outputs Board (PCB#317162)                |
| 141011 | * Con V F 6 C P=1.27 Mmatch Amp                  |
| 141010 | * Con. Vert. Female 4 Contacts P=1.27 Match Amp. |
| 140231 | * Jack H F Socket S-G4617 Smk                    |
| 140220 | * Jack Slim H F Apj678 Adimpex                   |

8 XLR Inputs Board

|        |                                  |
|--------|----------------------------------|
| 767964 | 8 XLR Inputs Board (PCB#317160)  |
| 141183 | * Xlr H F Norit Nc3fprho Neutrik |
| 141061 | * Con H M 3 C Mini Mate Burndy   |
| 141056 | * Con V M 3 C Mini Mate Burndy   |
| 080705 | * Led 3mm 60deg Diffused Red     |

4 XLR Inputs Board

|        |                                  |
|--------|----------------------------------|
| 767963 | 4 XLR Inputs Board (PCT#317171)  |
| 141183 | * Xlr H F Norit Nc3fprho Neutrik |
| 141061 | * Con H M 3 C Mini Mate Burndy   |
| 141056 | * Con V M 3 C Mini Mate Burndy   |
| 080705 | * Led 3mm 60deg Diffused Red     |

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.