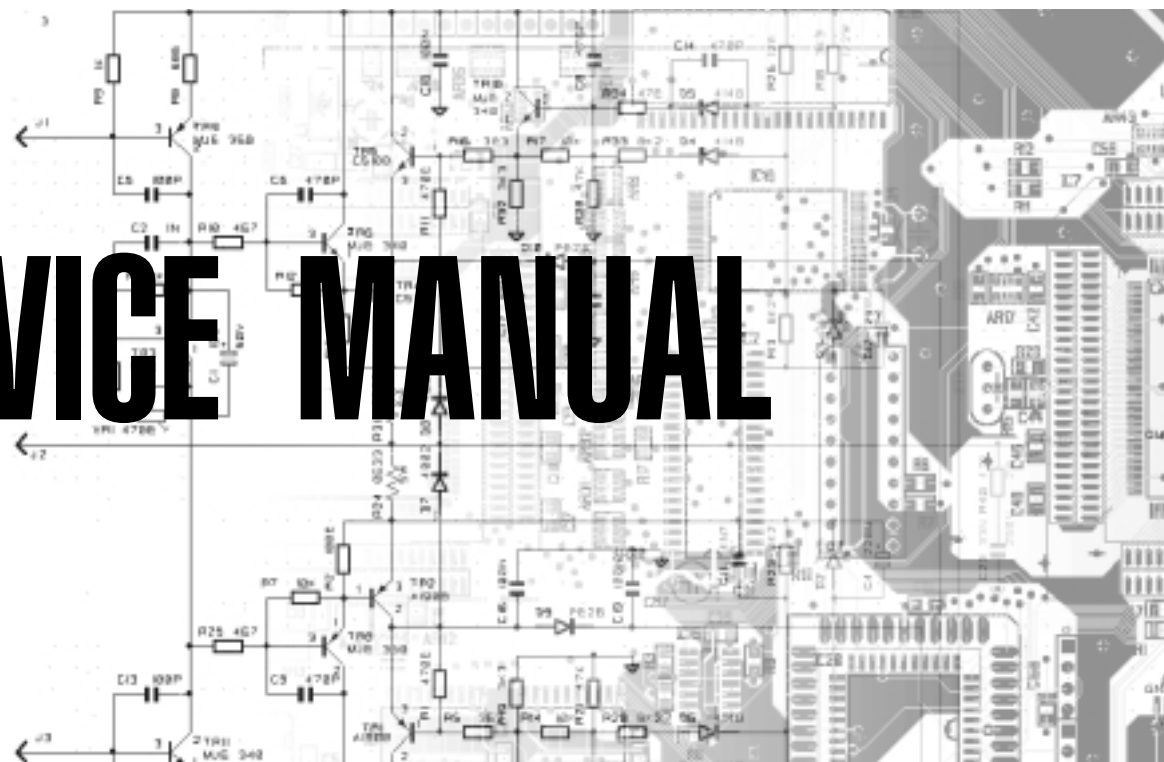




FX 22

40-bit DUAL STEREO
DIGITAL EFFECT PROCESSOR

SERVICE MANUAL



Index

- 2 Technical Specifications & Preset Table
- 3 Controls & Rear Panels
- 4 Schematic Diagram
- 5 Timing Table & Spare Part List

Warnings



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.



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.

↑ Supply voltage.

□ Test point.

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

⏏ Logic supply ground.

⏏ Analog supply ground.

⏏ Chassis ground.

⏏ Earth ground.



ATTENTION

Observe precautions when handling electrostatic sensitive devices.

Address



GENERALMUSIC S.p.A. Sales Division: 47842 S.Giovanni in Marignano (RN) ITALY - Via delle Rose, 12

Phone +39(0)541/959511 - Fax +39(0)541/957404 - GENERALMUSIC on the NET: <http://www.generalmusic.com>



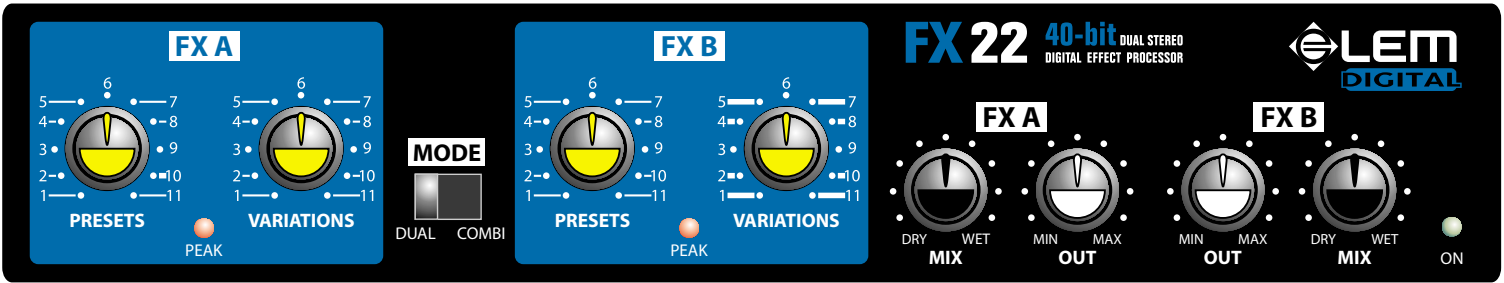
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FX 22 • TECHNICAL SPECIFICATIONS	
INPUT section	
Connectors	2 x JACK 1/4" unbalanced
Input sensitivity	0 dB / 0.775 V
Max. input level	+12 dB
Impedance	47 kOhms
OUTPUT section	
Connectors	2 x JACK 1/4" unbalanced
Nominal output level	0 dB
Max. output level	+12 dB
Impedance	1 kOhms
DSP section	
A/D converters	20 bit
D/A converters	24 bit
Internal dynamics	40 bit
Sampling frequency	48 kHz
Features	
Configurations	DUAL STEREO / COMBI
Type of effects	Hall, Room, Vocal, Plate & Gate Reverbs - Delay - Chorus - Flanger - Phaser - Rotary
Presets	121 + 121
Controls	PRESET BANK & VARIATIONS selectors
	DUAL/COMBI selector
	MIX & OUTPUT controls
	LED PEAK & POWER ON
MUTE FOOTSWITCH connector	
General Specifications	
Frequency response	20 Hz - 20 kHz
Dynamic range	102 dB
Distortion (THD)	0.06% @ 1 kHz (dry)
Power supply	AC/DC ADAPTER 12V / 500 mA
Dimensions	210 x 40 x 170 mm (WxHxD)
Weight	1.2 kg

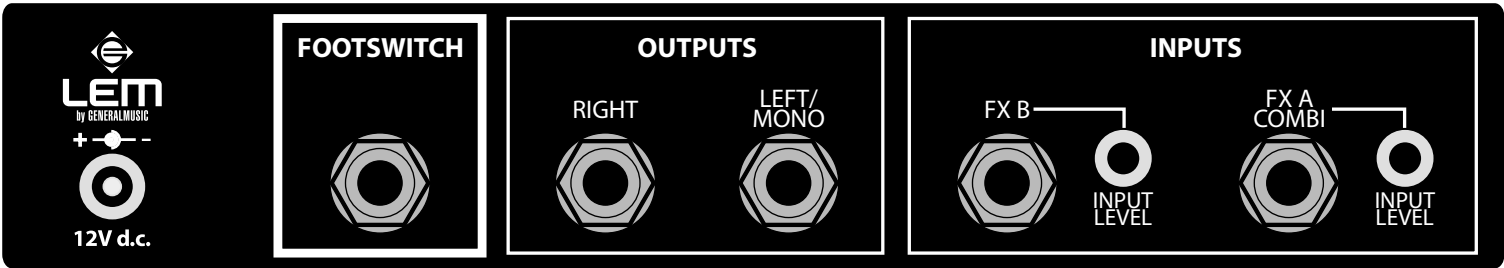
FX 22 - PRESET TABLE					
1 BRIGHT HALL					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Large Hall	22	2.4	54	6.94
2	Mid Hall	14	1.5	38	6.94
3	Small Hall	12	0.7	20	8.98
4	Concert Hall	35	0.9	45	3.21
5	Brass Hall	40	1.7	50	8.98
6	Crystal Mid	22	1.7	35	thru
7	Crystal Small	22	1	27	thru
8	Choir Large	40	2.4	50	11.6
9	Choir Mid	16	1.7	38	11.6
10	Percussion Mid	16	1.7	35	8.98
11	Percussion Small	20	1.7	5	8.98
2 WARM HALL					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Large Hall	23	2.9	55	1.49
2	Mid Hall	14	1.7	38	1.92
3	Small Hall	11	0.7	22	1.49
4	Large Acoustic	20	1.7	45	1.92
5	Small Acoustic	15	1.5	25	2.49
6	Concert Hall	35	0.9	45	1.15
7	Horn Hall	50	2.1	40	5.37
8	Cathedral	50	6.1	55	1.49
9	Jazz Club	12	0.6	22	1.92
10	Stadium	50	2.4	55	0.53
11	Theatre	50	1.5	55	0.53
3 ROOM					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Large Room	15	2.4	57	8.98
2	Mid Room	15	1.7	45	5.37
3	Small Room	7	0.8	25	2.49
4	Tom Room	8	1.3	35	8.98
5	BD Room	7	0.8	25	5.37
6	SD Room 1	4	1.7	35	1.15
7	SD Room 2	6	0.9	35	1.15
8	Small Wood	9	1	30	3.21
9	Bright Room	9	1.2	30	8.98
10	Dark Room	12	1.2	25	0.53
11	Studio	8	0.8	15	1.49
4 VOCAL					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Female Slow	70	2.9	70	3.21
2	Female Mid	40	1	55	1,15
3	Female Fast	30	0.9	15	3.21
4	Male Slow	70	2.9	70	4.16
5	Male Mid	40	1	55	0.69
6	Male Fast	30	0.9	15	4.16
7	Backing Vox 1	70	0.7	50	6.94
8	Backing Vox 2	40	0.6	50	8.98
9	Backing Vox 3	10	1.3	35	1.15
10	Child Slow	40	1.7	50	2.49
11	Child Fast	15	0.9	28	1.15
5 PLATE					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Drums Small	6	0.9	10	6.94
2	Drums Mid	8	1.2	22	5.37
3	Drums Large	40	3.6	22	8.98
4	Piano Small	15	0.6	5	11.6
5	Piano Mid	25	2.1	42	11.6
6	Piano Large	20	1.3	42	5.37
7	Vocal Small	15	1	15	1.15
8	Vocal Mid	33	2.1	45	6.94
9	Vocal Large	70	3.6	60	5.37
10	Choir Small	14	1	20	6.94
11	Choir Large	35	2.1	45	6.94
6 GATE					
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter
1	Drums Gate 1	8	1.5	27	6.94
2	Drums Gate 2	8	1.2	22	5.37
3	SD Gate	6	0.9	35	1.15
4	BD Gate	7	0.8	25	5.37
5	Percussion Gate	7	1.2	23	6.94
6	Vocal Gate	40	0.6	80	8.98
7	Brass Gate	40	1.7	50	8.98
8	Rhythm Gate	20	1.5	30	8.98
9	Long Gate	8	1.5	27	6.94

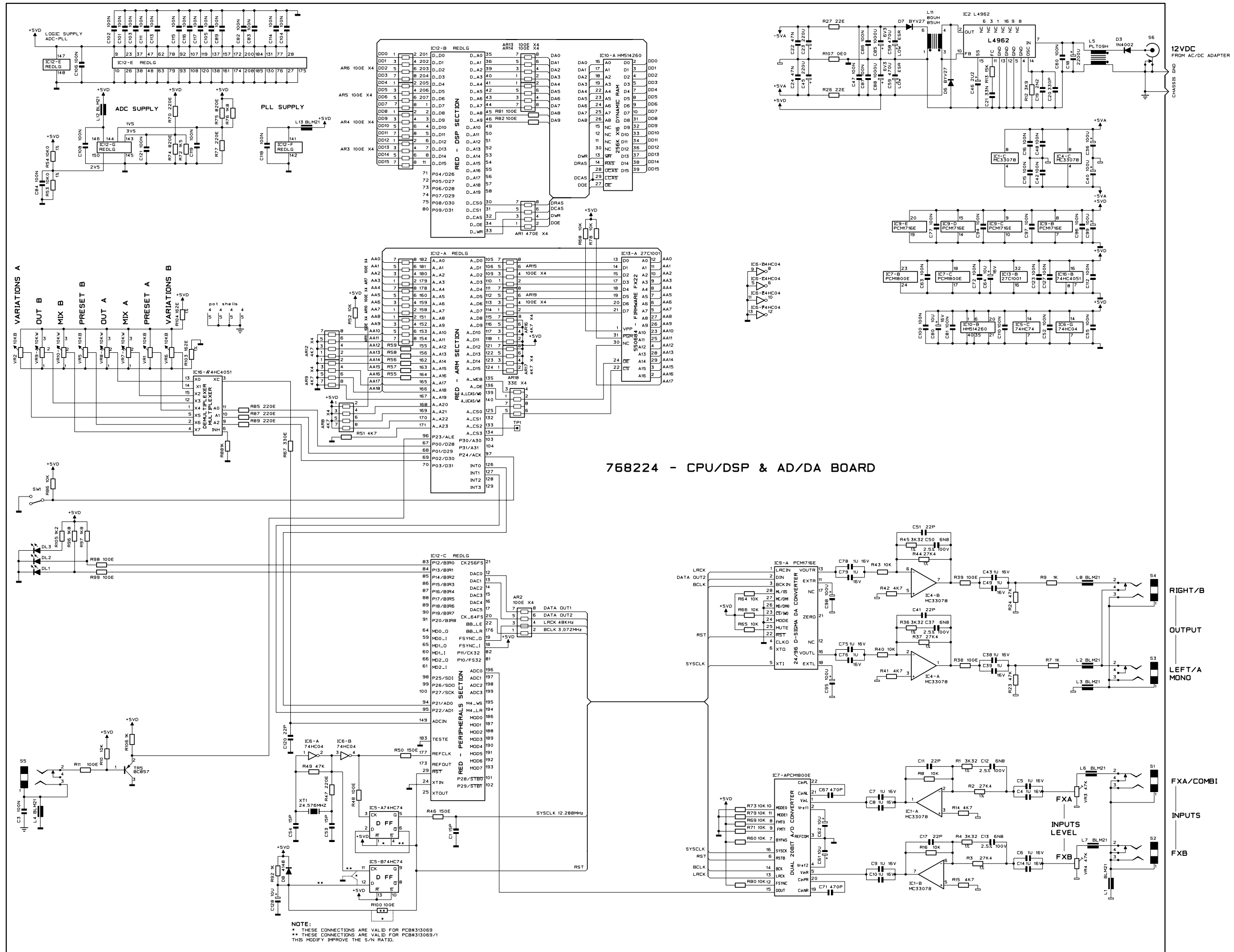
FX 22 - PRESET TABLE									
10	Strong Cut 1	10	1.2	20	3.21				
11	Strong Cut 2	10	0.8	20	3.21				
7 DELAY									
No.	Variation	Left Delay	Right Delay	Left F.B.	Right F.B.				
1	Stereo 75 bpm	200	400	47%	23%				
2	Stereo 110 bpm	272	545	47%	23%				
3	Stereo 120 bpm	250	500	50%	23%				
4	Stereo 132 bpm	227	454	50%	23%				
5	Stereo 160 bpm	187.5	375	50%	23%				
6	Bounce 100 bpm	300	150	0%	0%				
7	Bounce 120 bpm	500	250	0%	0%				
8	Tape Back	35	75	10%	10%				
9	R&R	70	80	19%	18%				
10	Robotica	20	10	50%	58%				
11	Tube	35	35	53%	52%				
8 CHORUS / FLANGER									
No.	Variation	Mod. Freq.	Mod. Depth	Pan. Depth	Left F.B.	Right F.B.			
1	Vocal Chorus 1	0.7	0.8	0					
2	Vocal Chorus 2	1.5	0.675	0.14					
3	Guitar Chorus 1	0.6	0.615	0.29					
4	Guitar Chorus 2	0.3	0.87	0.25					
5	Rich Chorus	1	0.87	0.29					
6	Vibra Chorus	5.2	0.165	0.045					
7	Moving Flanger	1.5	0.255	0.475	60%	60%			
8	Guitar Flanger	1.5	0.43	0	58%	57%			
9	Rich Flanger	1.5	0.665	0.43	68&	48%			
10	Large Flanger	0.1	0.895	0.165	68%	75%			
11	Under Water	4.7	0.86	0.545	58&	77%			
9 PHASER / ROTARY									
No.	Variation	Mod. Freq.	Mod. Depth	F.B.	LPF	Fast/Slow			
1	Fast Phaser	6.1/0.8	0.675	65%	-19				
2	Mid Phaser	0.8	0.675	65%	-19				
3	Slow Phaser	0.5/0.8	0.675	65%	-19				
4	Funky Phaser	1/2	0.58/0.575	31%	-6				
5	Large Phaser	0.5/0.2	1	79%/78%	-6				
6	Slow Rotary						SLOW		
7	Fast Rotary						FAST		
8	Fast Tremolo	0	0	0	0				
9	Slow Tremolo	0	0	0	0				
10	Hard Rotation	16.3/19.6	0.43/0.44	55%/53%	0				
11	Sweet Rotation	3.8/11.2	0.43/0.115	31%/33%	0				
10 REVERB + DELAY									
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter	Left Delay	Right Delay	Left F.B.	Right F.B.
1	Heavy Vocals	5	4.5	30	3.21	300	150	24%	60%
2	Soft Vocals	20	1	15	6.94	111.20	150	0	0
3	Percussion Hall	16	1.7	35	8.98	200	100	45%	45%
4	Small Reflections	16	1	15	8.98	100	90	5%	5%
5	Plate Delay	18	1.7	20	8.98	300	150	38%	60%
6	Speed Room	18	2.4	14	24	340	112	16%	38%
7	Gymnasium	225	1.5	20	6.94	200	209.29	38%	38%
8	Smooth Church	20	2.1	38	3.21	150	250	54%	29%
9	Backing Vox	20	1.7	30	6.94	111.20	150	0	0
10	Back Gate	5.	0.6	10	6.94	200	300	0	0
11	Guitar Box	5	1.7	30	6.94	10	8	71%	71%
11 REVERB + CHORUS									
No.	Variation	Pre-delay	Rev Time	Room Size	HF filter	Mod. Freq.	Mod. Depth	Mod. Pan	
1	Heavy Vocals	15	2.1	20	1.15	0.6	0.86	0.6	
2	Soft Vocals	8	1	40	4.16	0.6	0.675	0.6	
3	Backing Vox 1	38	1.2	43	8.98	2.4	0.835	0.37	
4	Backing Vox 2	125	2.1	20	8.98	2.4	0.63	0	
5	Guitar Combo	8	1.2	30	8.98	1	0.835	0.395	
6	Electric Hall	15	1.7	30	5.37	7.1	0.475	0.755	
7	Soft Chords	10	1.3	15	11.6	1	1	0.475	
8	Room Combo	15	0.8	30	1.49	8.9	0.475	0	
9	New Gothic	5	2.9	40	1.49	1.5	0.475	0.755	
10	Ambience	50	2.1	20	8.98	2.4	0.63	0	
11	Reflections	125	1.2	10	8.98	0.6	0.835	0.475	

CONTROLS PANEL



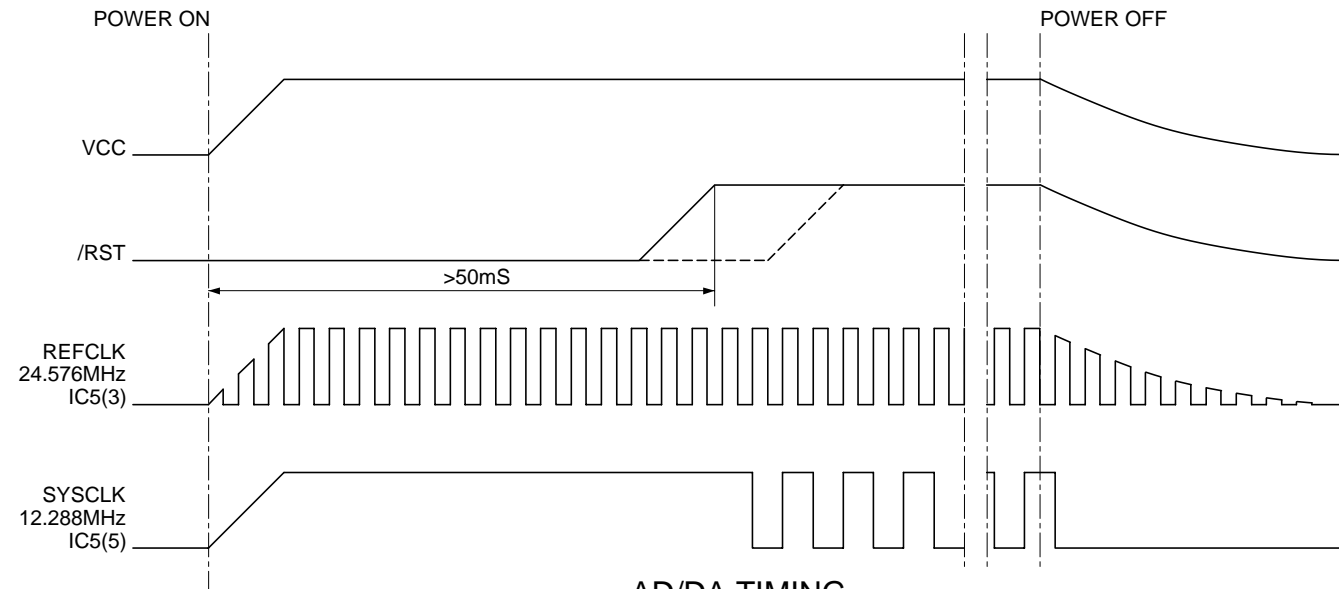
REAR PANEL



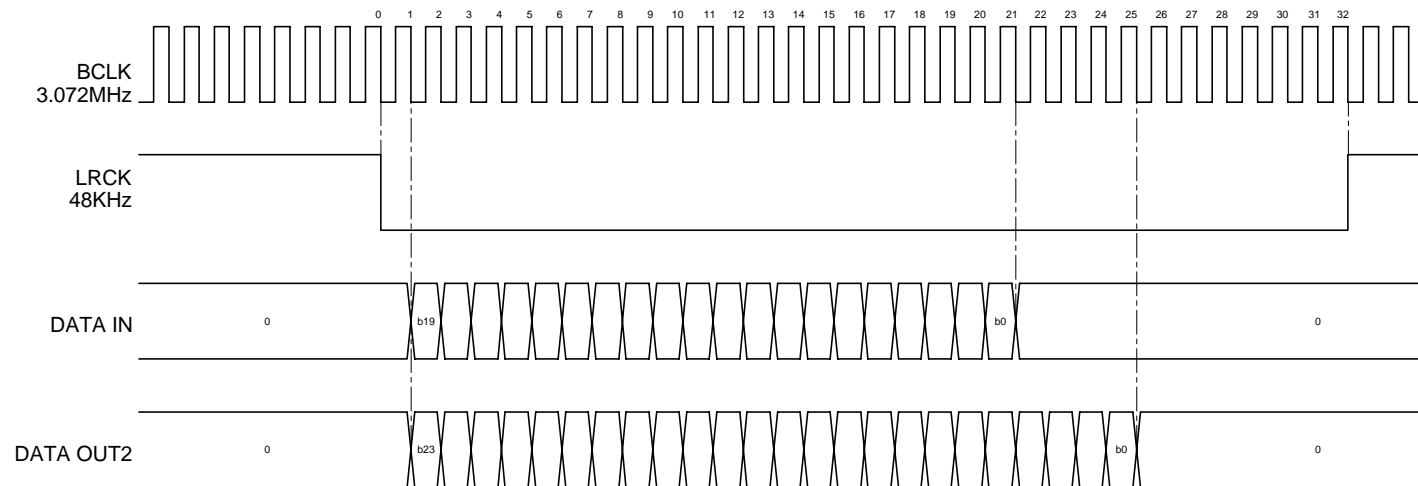


768224 - CPU/DSP & AD/DA BOARD

POWER & RESET TIMING



AD/DA TIMING



DRW BOCCATO	DWG# 550666	PCB#	GENERALMUSIC S.p.A. ITALY
CKD L.GIBIN	DISK: 6 PRT: 1/1	TIMING TABLE	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. GAZZILLI	REV: 29/01/01		

Spare Part List

Code	Description
Optional Accessories	
970294	Rack Support
Accessories	
SKK888022	230Vac/12Vdc-500mA AC/DC Adapter
SKK888023	115Vac/12Vdc-500mA AC/DC Adapter
277347	Owner's Manual (Italian/English)

Accessories

SKK888022	230Vac/12Vdc-500mA AC/DC Adapter
SKK888023	115Vac/12Vdc-500mA AC/DC Adapter
277347	Owner's Manual (Italian/English)

FX22 Digital Effect

SKK768224	Main Board (Pcb# SKK313069/1)
550684	* 27C1001 1Mbit Eprom "FX22 Firmware"
250524	* 25x25mm Thermoconductor Adhesive
231000	* BLM21A102STP Smd EMI Coil For Signal
230559	* 20uH 50V 3A Dc Line Filter
230523	* 80-85uH Switching Dual Coil
177736	* Controls Back Plate
177690	* Heatsink
171039	* Ground Leaf
140606	* 32pin IC Socket
140220	* Jack Slim Horizontal S-F Socket APJ678 Adimpex
140211	* Dc Horizontal Male Socket
120276	* B2.9x6.5mm Screw
110267	* 1sw 2pos Horizontal Slider Switch
106001	* MC33078P SOIC Dual Low Noise Op. Amp.
105008	* RED208 Risc Cpu and Dsp
104003	* HM514260JP SOJ 4Mbit Dynamic Ram Ta=70ns
103043	* PCM1716 24 Bit Stereo Dac
103042	* PCM1800 20 Bit Stereo Adc
103017	* 74HC4051DW SOIC 8ch Analog Multiplexer
103010	* 74HC04D SOIC Hex Inverter
103007	* 74HC74D SOIC Dual Flip-Flop
100901	* L4962 5-40V 1.5A Switching Regulator
091001	* BC857 T0236 Smd Pnp Transistor
081000	* PMLL1418 Smd 100mA 75V Signal Diode
080706	* Led 3mm 60deg Diffused Green
080705	* Led 3mm 60deg Diffused Red
080170	* BYV27 2A 100V Fast Recovery Diode
080156	* 1N4002 1A 100V Rectifier Diode
SKK074000	* 10KB Hor Rotary Potentiometer
074590	* 10KW Hor Rotary Potentiometer w/click
SKK074001	* 10KB Hor Rotary Potentiometer w/11click
SKK070000	* 47K 20% Ver Linear Trimmer +Knob
055103	* 470E X4 1/16w 5% Smd Resistor Array
055102	* 33E X4 1/16w 5% Smd Resistor Array
055101	* 4K7 X4 1/16w 5% Smd Resistor Array
055100	* 100E X4 1/16w 5% Smd Resistor Array
055056	* 47K 1/16w 5% Smd Resistor 0603
055050	* 15K 1/16w 5% Smd Resistor 0603
055048	* 10K 1/16w 5% Smd Resistor 0603
055044	* 4K7 1/16w 5% Smd Resistor 0603
055043	* 3K9 1/16w 5% Smd Resistor 0603
055039	* 1K8 1/16w 5% Smd Resistor 0603
055038	* 1K5 1/16w 5% Smd Resistor 0603
055036	* 1K 1/16w 5% Smd Resistor 0603
055035	* 820E 1/16w 5% Smd Resistor 0603
055030	* 330E 1/16w 5% Smd Resistor 0603
055028	* 220E 1/16w 5% Smd Resistor 0603
055026	* 150E 1/16w 5% Smd Resistor 0603
055024	* 100E 1/16w 5% Smd Resistor 0603
055012	* 10E 1/16w 5% Smd Resistor 0603
052039	* 1K8 1/8w 5% Resistor
050171	* 22E 1/4W 5% Resistor
042655	* 27K4 1/4W 1% Metalized Film Resistor
042632	* 18K2 1/4W 1% Metalized Film Resistor
042605	* 10K0 1/4W 1% Metalized Film Resistor
042385	* 162E 1/4W 1% Metalized Film Resistor
042260	* 0E 1/4W Resistor
030950	* 470u 16V 20% Low Esr Vert Electrolytic Capacitor
030805	* 2200u 25V 20% Vert Electrolytic Capacitor
030715	* 1000u 6v3 20% Vert Electrolytic Capacitor
030565	* 220u 25V 20% Vert Electrolytic Capacitor
030485	* 100u 25V 20% Vert Electrolytic Capacitor
030245	* 10u 50V 20% Vert Electrolytic Capacitor
030082	* 2u2 50V 20% Vert Electrolytic Capacitor
031000	* 10u 16V 20% SMD Vert Electrolytic Capacitor
022002	* 1n5 2.5% 100V MKP Polypropylene Capacitor
021020	* 47n 63V 10% MKT Polyester Capacitor
021018	* 33n 63V 10% MKT Polyester Capacitor
021004	* 2n2 63V 10% MKT Polyester Capacitor
011103	* 1u 16V 10% Smd CL2 X7R 1206
011260	* 100n 16V 10% Smd CL2 X7R 0603
011232	* 470p 16V 10% Smd CL2 X7R 0603
011230	* 330p 16V 10% Smd CL2 X7R 0603
011216	* 22p 16V 10% Smd CL2 X7R 0603

011214	*	15p 16V 10% Smd CL2 X7R 0603
010722	*	24.576MHz Quartz Resonator
SKK667718		Cover
SKK667717		Chassis
347399		Yellow Knob
347398		White Knob
347397		Black Knob
340329		Rubber Bush for Cable
120276		B2.9x6.5mm Screw
120029		M3x6tc Black Screw

Note:

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 name,
- 3) Module code,
- 4) Reference name,
- 5) Quantity number.

MEMO