

Service Manual

Model: OEX-400



www.altoproaudio.com

Version: 1.2

CONTENT

1. Introduction.....	1
2. Specification.....	2
3. Block Diagram.....	4
4. Schematic Diagram.....	5
5. Wiring Diagram.....	10
6. Printed Circuit Board.....	11
7. Exploded View & Mechanical Parts List.....	14
8. Electrical Parts List.....	19

1. Introduction

- Trolley appearance
- 2 (two-SPEAKER) + 1 (7-channel mixer super combination)
- One-way full-range speaker system
- 4 XLR MIC input with ultra low noise microphone pre-amplifiers and +48V PHANTOM power
- 1 stereo LINE input
- Warm, natural 2-band EQ for each channel
- Precision level control
- 24-bit DSP effects with powerful algorithms (16 presets)
- Extremely high headroom offering excellent dynamic range
- Plastic reinforced cabinet (polypropilene)
- 350W (EIAJ) of Power
- Two 10m speaker cables
- Two folding speaker
- Compartment for store following accessories:

Accessory List:

Folding speaker	2 × 10"
Power cord	1 × IEC power cord
Customized Speaker Cable	2 × 10m
MIC	2 × 5m

2. Technical Specification

- Mixer Section

Mono input channels (CH1~3)	Microphone input	Electronically balanced, discrete input configuration
	Frequency response	10Hz to 50KHZ, +/- 3dB
	Distortion (THD&N)	0.04% at 0dBu, 1KHz
	Input level	-15dBu
	SNR(Signal to Noise Ratio)	> 94dB
	Line input	Electronically balanced/unbalanced
	Frequency response	10Hz to 50KHZ, +/- 3dB
	Distortion (THD&N)	0.015% at 0dBu, 1KHz(DSP EFFECT OFF, TAPE OUT)
	Input level	0dBu
Stereo input channels (CH4~7)	Line input	Balanced/Unbalanced
	TAPE input	Unbalanced, RCA phone
	Input level	0dBu
	Frequency response	10Hz to 50KHZ, +/- 3dB
	Distortion (THD&N)	0.015% at 0dBu, 1KHz(DSP EFFECT OFF, TAPE OUT)
Impedances	Microphone input	3.9K Ω
	All other inputs	10K Ω or greater
	Tape out	2.2K Ω
	All other outputs	120 Ω
Equalization	Hi shelving	+/- 15dB@12KHz
	Low shelving	+/- 15dB@80KHz
	7-band graphic (Main Mix)	+/- 15dB@63Hz, 160Hz, 400Hz, 1KHz, 2.5KHz, 6.3KHz, 16KHz
DSP Section	A/D and D/A converters	24bit
	DSP resolution	24bit
	Type of effects	HALL, ROOM, VOCAL, PLATE, STEREO DELAY REV+DELAY, and REV+CHORUS combinations
	Presets	16
	Controls	16-position PRESET selector
		CLIP LED MUTE SWITCH with LED indicator
Main Mix Section	Noise (Bus noise)	Fader 0 dB, channels muted: -85dBr (ref.: +4dBu)
		Fader 0 dB, all input channels assigned and set to UNITY gain: -81dBr(ref.: +4dBu)
	MONITOR out	Output level:0dB
		Max out +22dBu unbalanced, 1/4" stereo jacks
		4 element LED display:-30/-10/0/+10dB
	MASTER	Output level:0dB (AMP INPUT LEVEL)
		4 element LED display:-30/-10/0/+10dB
	FX Sends output	Output level:0dB
		Max out +22dBu unbalanced, 1/4" jacks
	Aux return	Input level:0dBu, 1/4" stereo jacks
	Tape out	Output level:0dBu
	Headphones output	Min impedance:32 Ω
		Output level:2 \times 150mW

- **Speaker Section**

Passive System Type	2-way Coax vented box
Continuous Power	150Watt AES Standard
Peak Power	300Watt Peak
Max SPL at 1M	117.5dB SPL calculated
Frequency Response	65Hz / 20kHz at -10dB
Impedance	8Ω nominal
Crossover Frequency	2.3kHz / 12dB/Oct
Protection	Electronic on the Driver
Coaxial Type Low Frequency Device	10" Woofer / 2" Voice Coil
High Frequency Device	1" Neodymium Driver / 1" Voice Coil
Coverage H×V	70° H×70° V Spherical horn
Connectors	Power Input with mono Jack

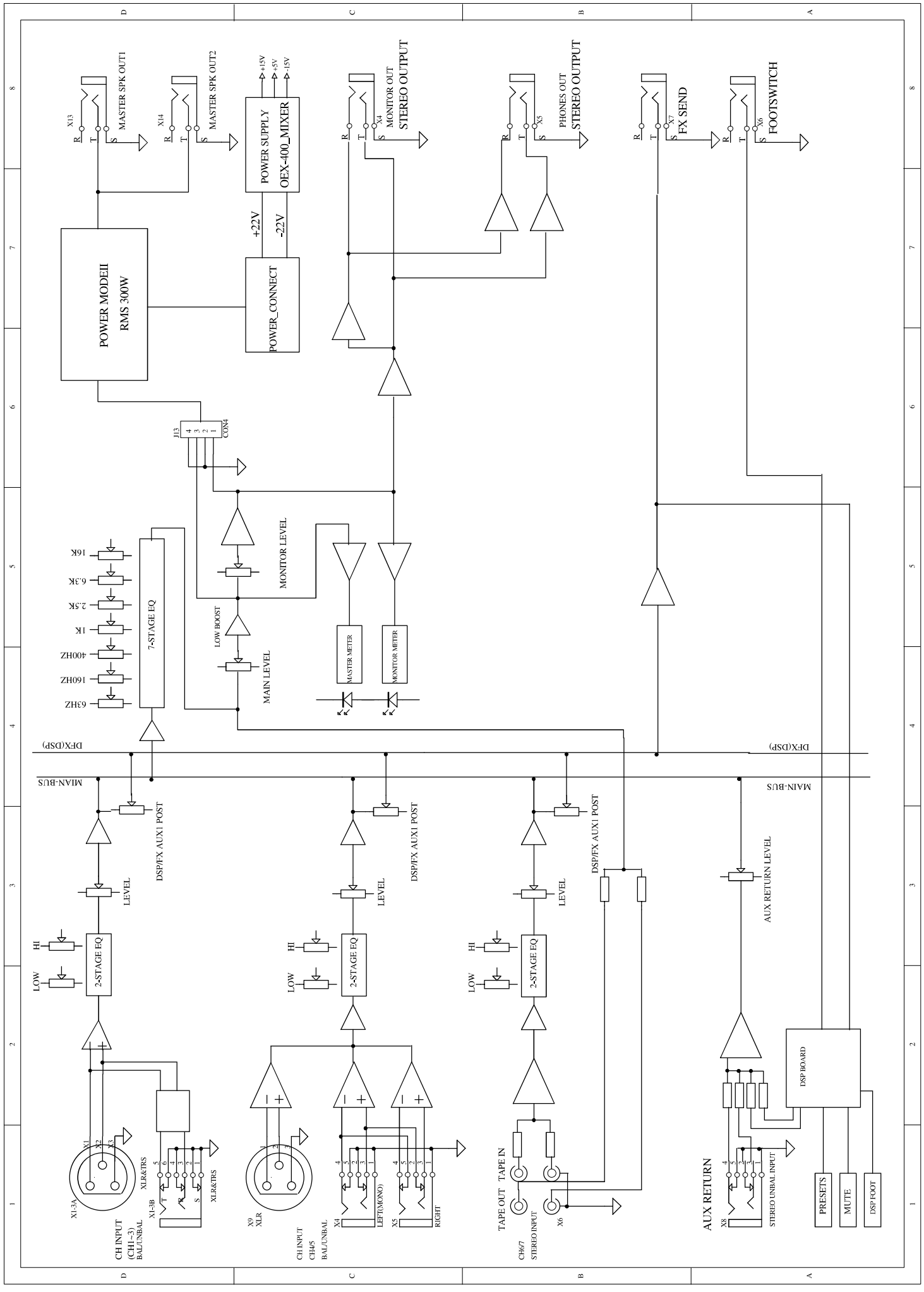
- **Power Section**

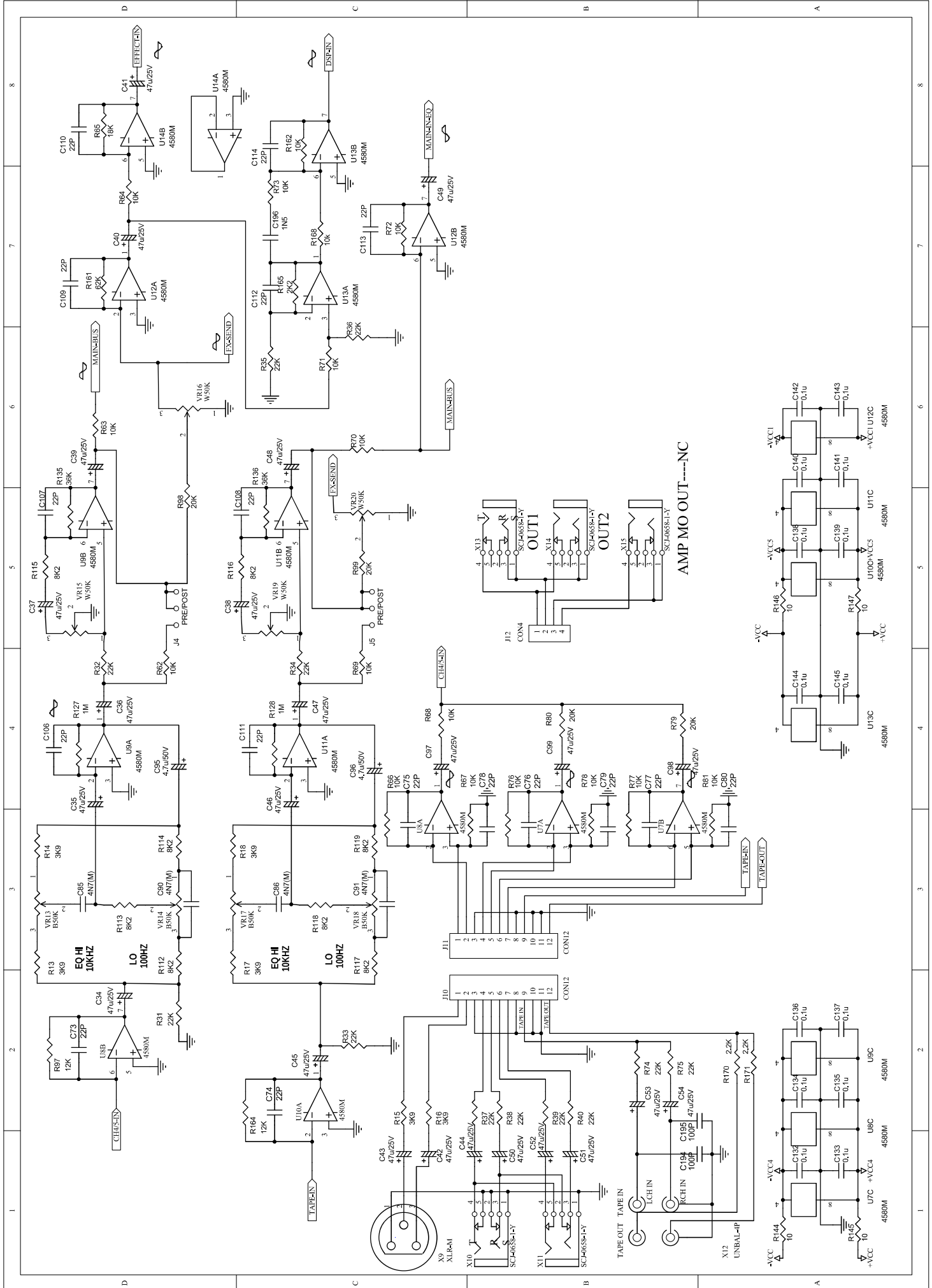
Cabinet	Plastic Reinforced Polypropylene /Metal Grille/Integrated Handle
Output Power	350WATT EIAJ (300WATT RMS)
Impedance	4Ω Load
S/N ratio	>110 dB/A
Distortion	<0.05%(THD, DIM, SMPTE)
Gain	32dB
Bandwidth	10Hz to 50kHz
Protections	Overload / Short Circuit / Soft Clip Limiter / Thermal Protection Fan Cooling

- **Physical**

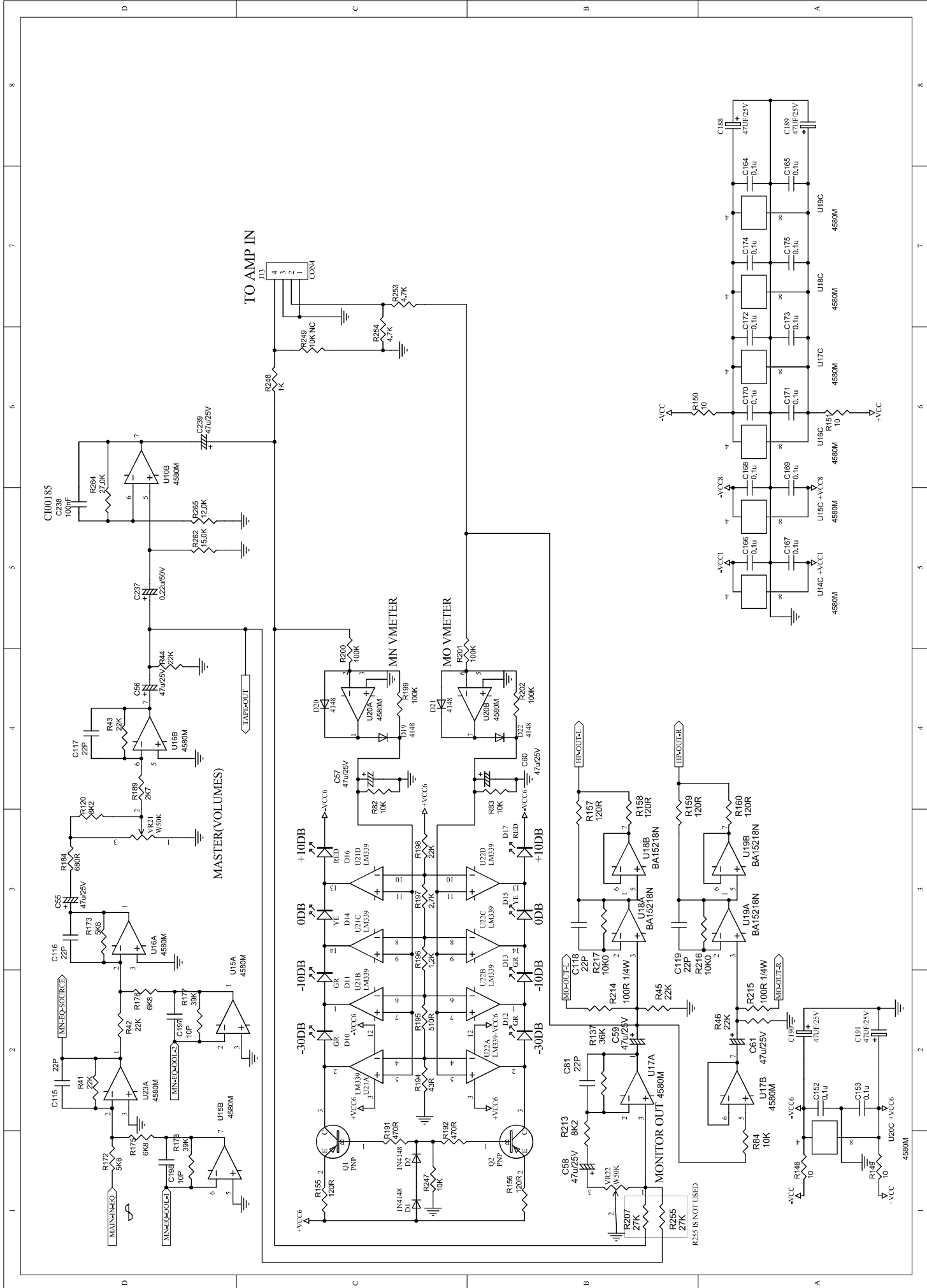
Dimensions H×W×D	984*440*460mm(38.7"×17.3"×18.1")
Net Weight (lbs/kg)	17.0kg
Cross Weight	27.0Kg

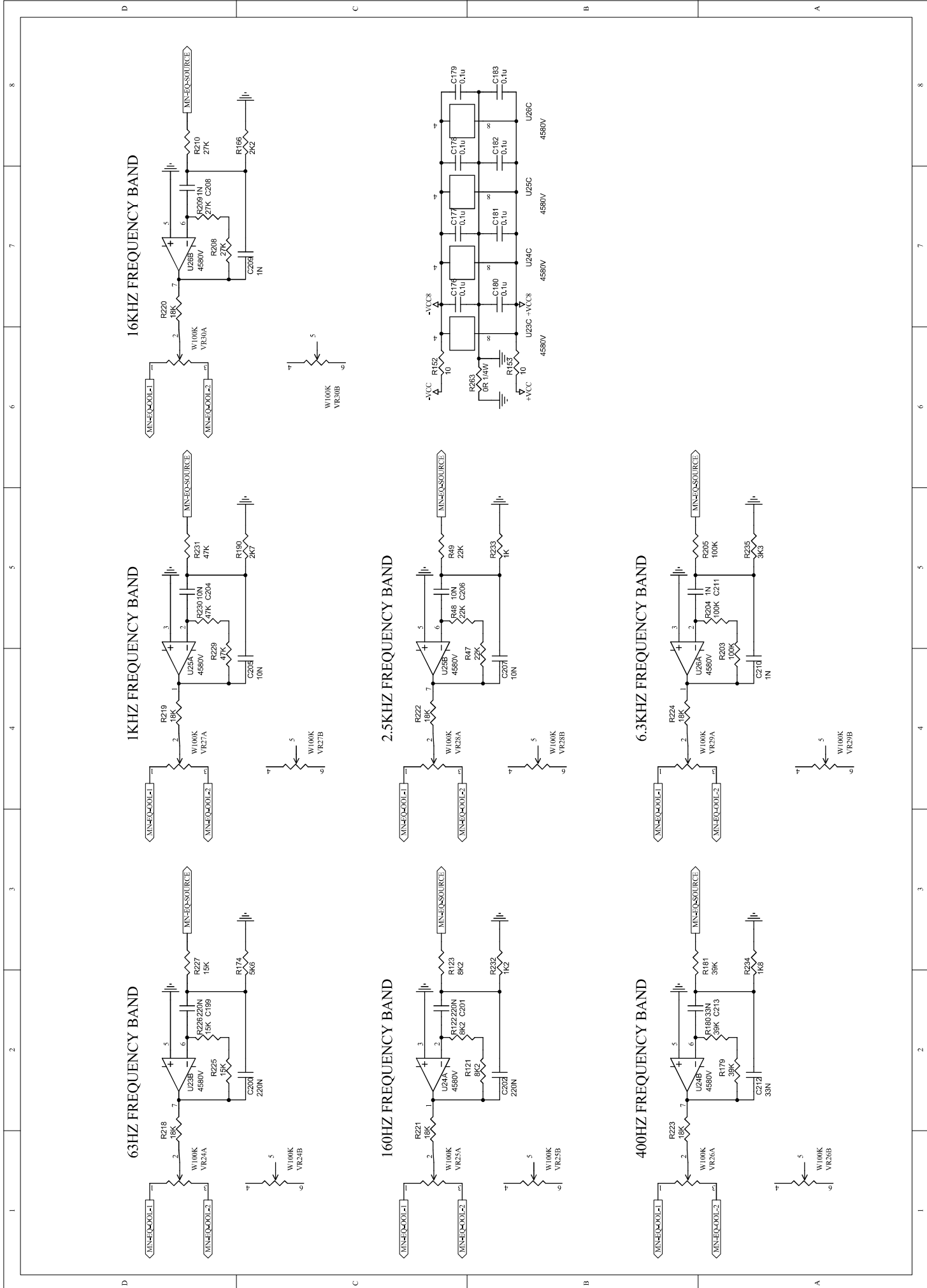
3. Block Diagram

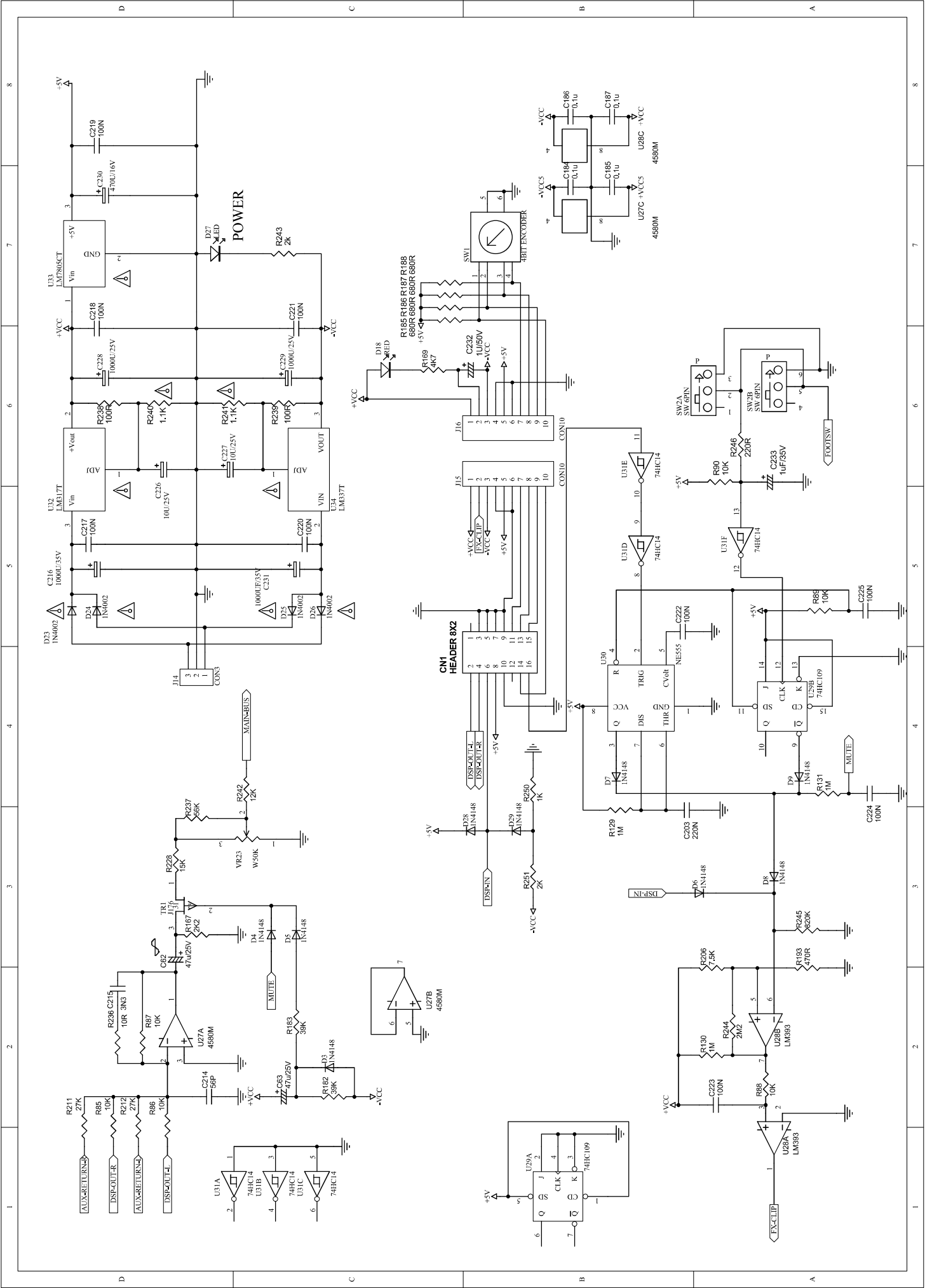




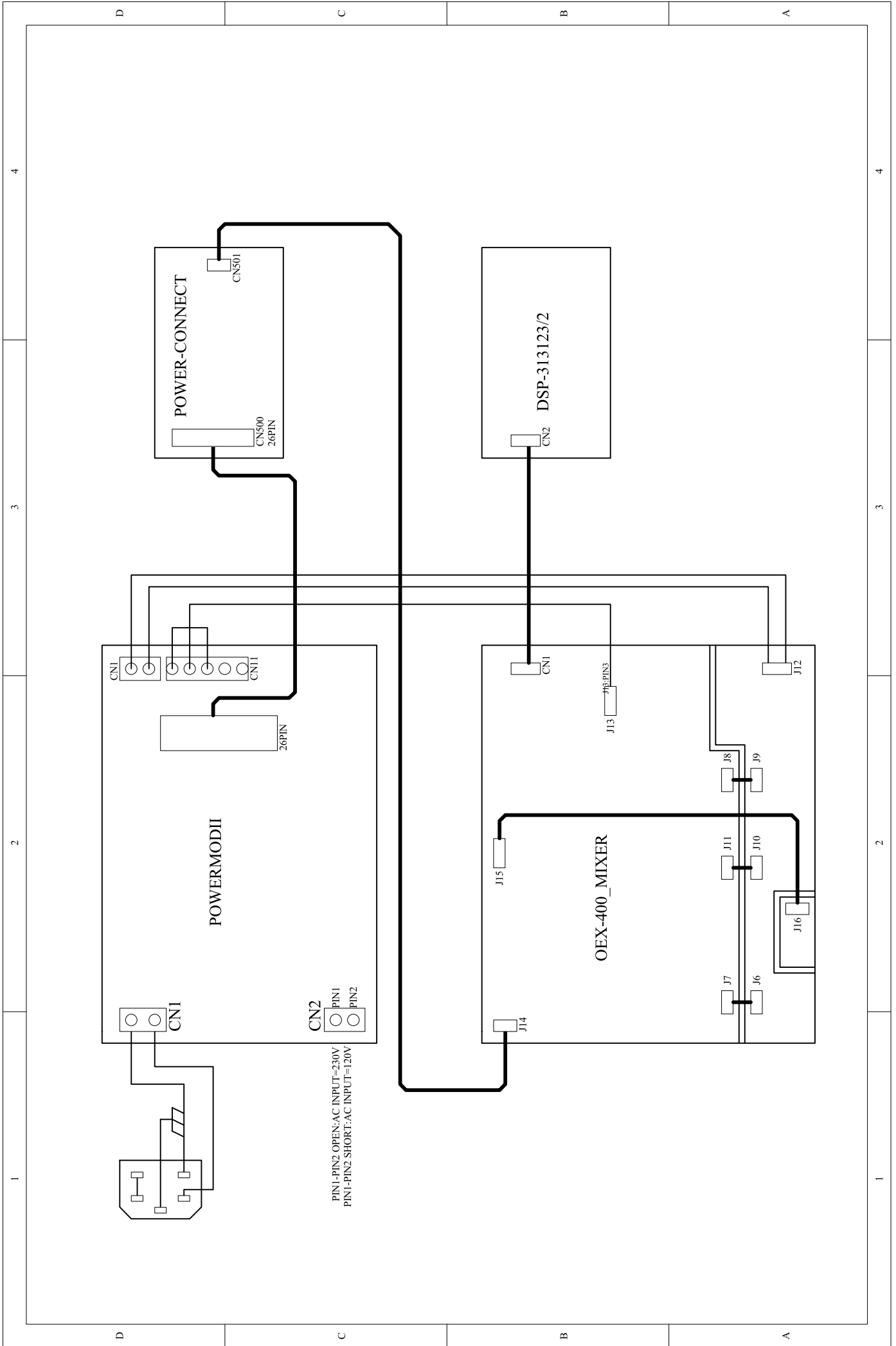
AMP MO OUT----NC



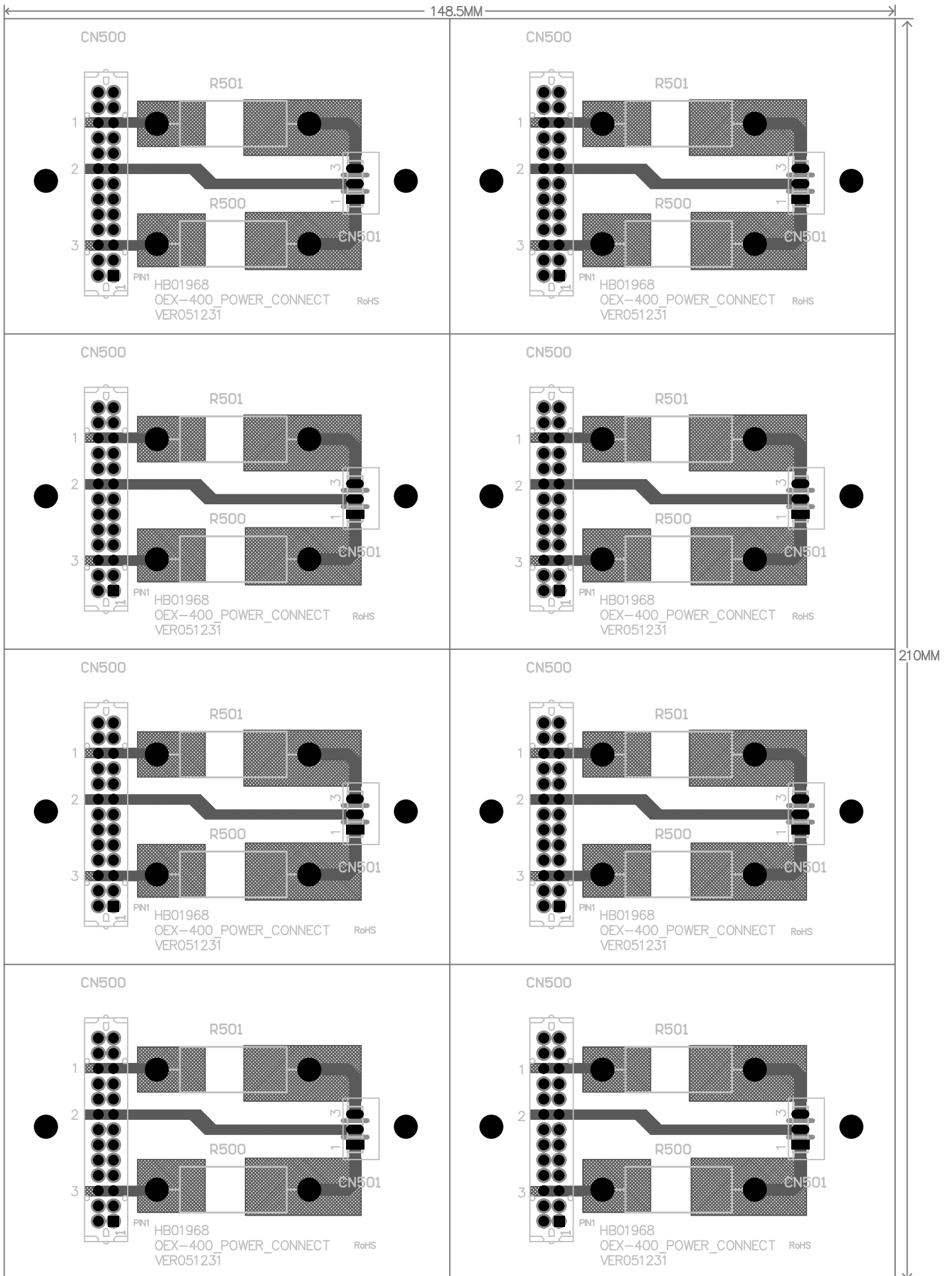


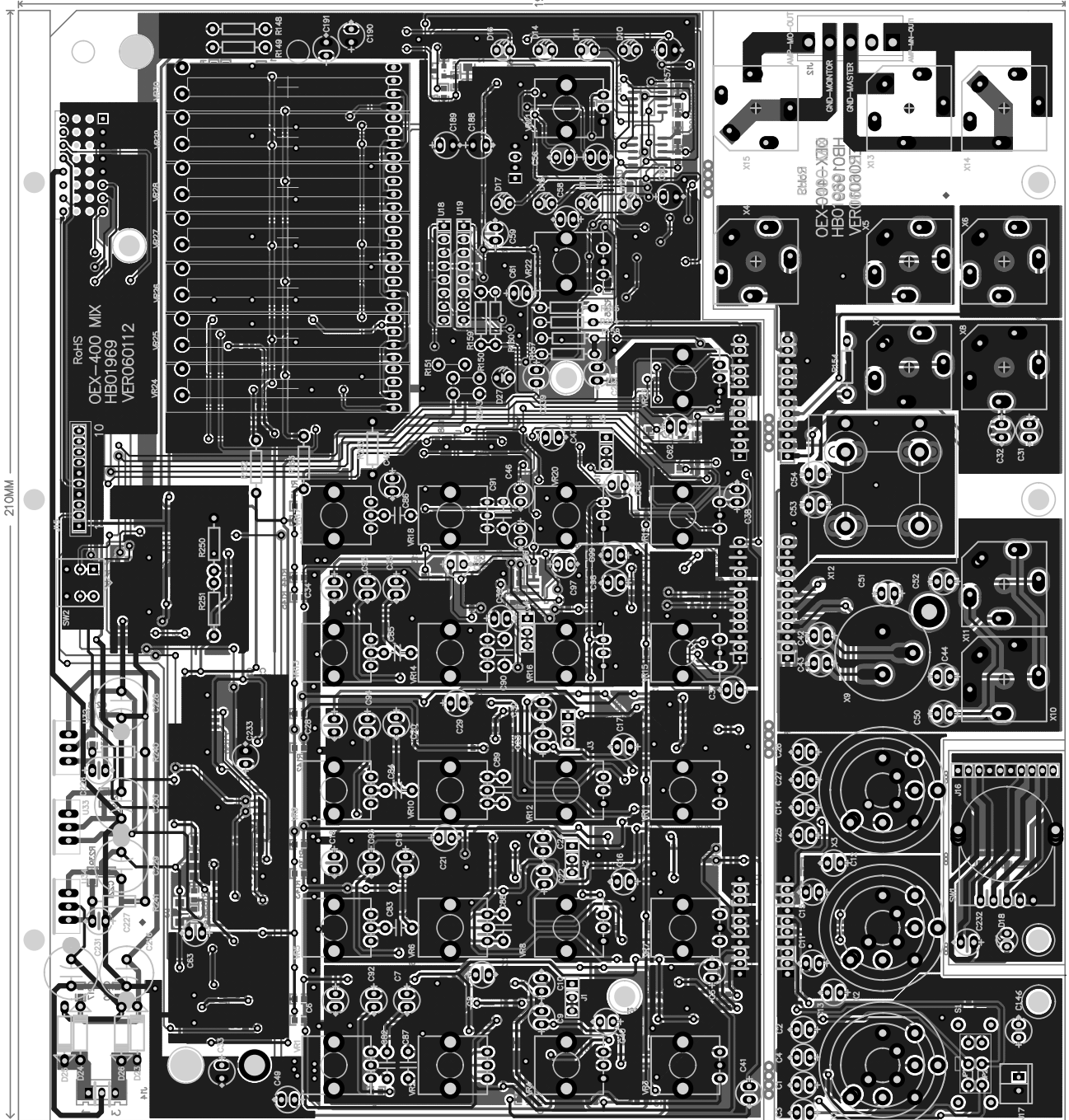


5. Wiring Diagram



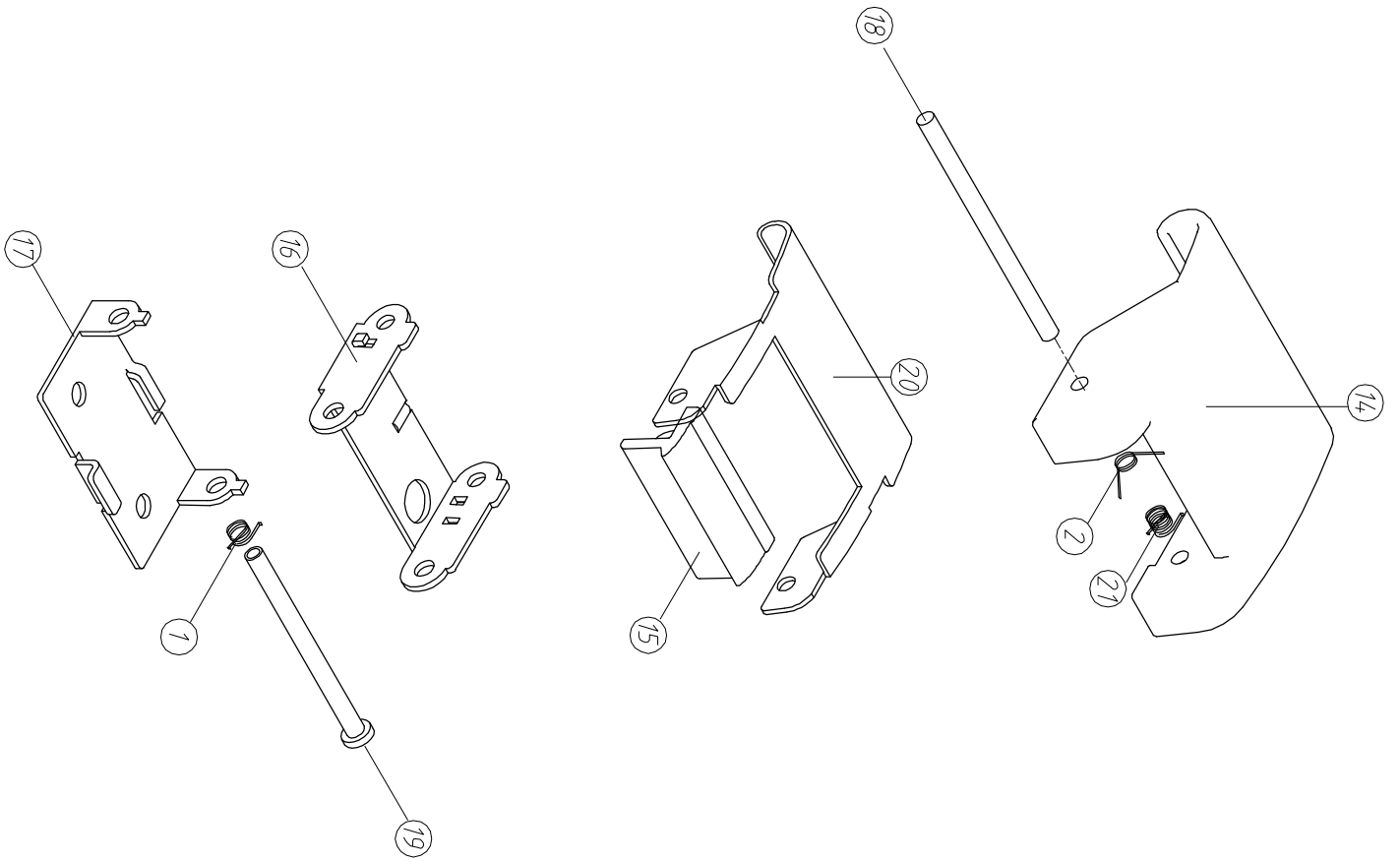
6. Printed Circuit Board

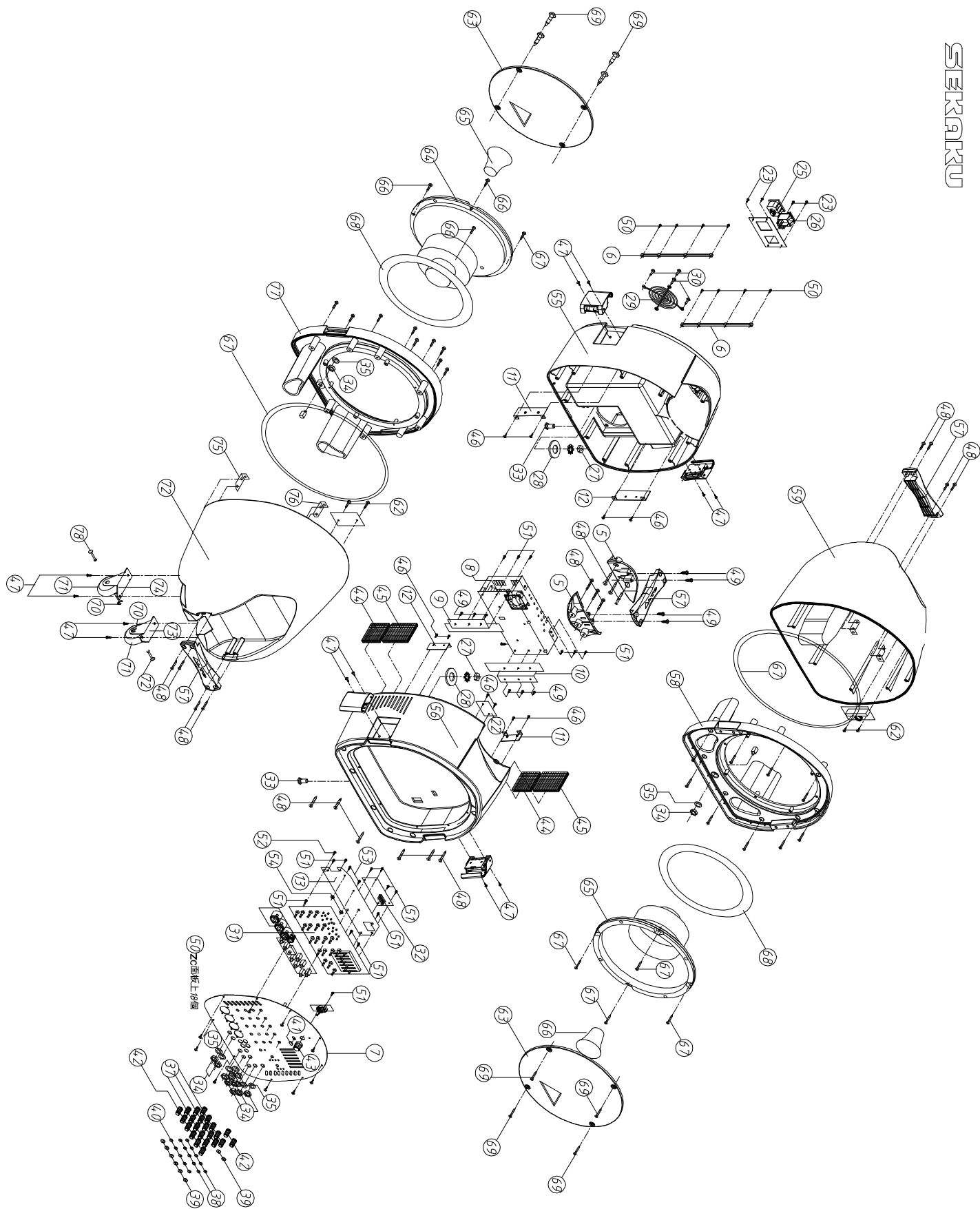




7. Exploded Views & Mechanical Parts List

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Part List

Mechanical Parts List				
No.	Item NO.	Item Description	Specification	pcs
1	MK00109	spring	FAS10-09	4
2	MK00108	spring	FAS10-10	4
3	MF00021	washer	8*φ23*2t	2
4	MG00079	screw	M4*16*0.7PH	2
5	NI04007	fixed board	OEX-400-12	2
6	NI04012	fixed board	OEX-400-13	2
7	MA05828	ZC-panel-SR#2000 5204 silver gray	OEX-400 ALTO_V1.0	1
8	MI03373	ZC-fixed board	OEX400 230V~50Hz_V1.0	1
9	MI03193	fixed bracket-left	OEX-400-14	1
10	MI03192	fixed bracket-right	OEX-400-18	1
11	MI03198	fixed bracket	OEX-400-19	2
12	MI03197	fixed bracket	OEX-400-20	2
13	MI03196	fixed bracket	OEX-400-21	1
14	NI04013	top cover	FAS10-01	4
15	NI04014	button	FAS10-02	4
16	MI03201	fixed bracket	FAS10-03	4
17	MI03202	fixed bracket	FAS10-04	4
18	MK00107	fixed bolt	FAS10-05	4
19	MG00647	fixed shaft	FAS10-06	4
20	MI03203	fixed bracket	FAS10-07	4
21	MK00110	spring	FAS10-08	4
22	HK06527	K-PC board	P-OEX-400-POWER_CONNECT	1
23	MG00073	black-plated screw-pan head-iron board	M3*14	4
24	MF00038	spring washer-Zn plated	4*φ7*1t	1
25	HC00331	AC socket-RS	RF-2004	1
26	HI00022	power supply switch	4P R13-69A	1
27	ME00094	nut	M8*1.25PH(shake-proof washer enclosed)	2
28	MF00079	ZE-washer-Zn	32*φ9*2t PAM-5	2
29	MD00444	fans protective cover	80*80mm(K-G08A05-4HA)	1
30	MG00031	black-plated screw	M4*12	4
31	HK06477	K-PC board	P-OEX-400-MIX-DIP	1
32	HK05010	K-PC board	P-31323-DIP(PBM4)	1
33	MG00370	black-plated screw	M8*14.2*1.25PH	2

34	ME00060	MIC socket-HC00125 accessory	hexagon JY-6351G-02-250	11
35	MF00061	T-MIC socket washer-HC00125	circularity JY-6351G-02-250	9
36	NI02957	button-ABS	9.8*5.5*11.2mm black_V1.0	1
37	NI00359	plastic knob	10*16.5 COOL GRAY 8C	15
38	NI02252	knob cap	7*3.5 072C blue	10
39	NI02677	knob cap	8.5*4 534C blue	8
40	NI02867	knob cap	red	5
41	NI01863	button-RS	φ 5.5*W10*7.5 black	1
42	NI00399	plastic knob	φ 11*19mm COOL GRAY 8C	8
43	NI02386	plastic knob	φ 14*13mm	1
44	ND00682	foam-RS	70*25*4t black	2
45	ND00683	foam-RS	100*70*4t black	2
46	MG00063	black plated screw-flat-iron board	M3*12	10
47	MG00503	black plated screw-pill	M4*12*0.7PH_V1.0	8
48	MG00352	black plated screw-pill-iron board	M4*25	29
49	MG00351	black plated screw-pill-iron board	M4*16	10
50	MG00061	black plated screw-pill-iron board	M3*10	26
51	MG00041	black plated screw-pill	M3*6	17
52	MG00160	Ni screw-pill	M3*6	1
53	MG00166	Ni screw-pill	M3*10	2
54	ME00015	Nut-RS	3mm	2
55	NI04005	panel BOX	OEX-400-01	1
56	NI04006	panel MIX	OEX-400-02	1
57	NI04008	handle	OEX-400-10	3
58	NI04011	speaker front panel	OEX-400 135*336.2*342.63_V1.0	1
59	NI04010	speaker rear panel	OEX-400 285.77*333.35*344.6_V1.0	1
60	HC00125	MIC socket-RS	JY-6351G-02-250	2
61	HK06258	K-PC board	P-OEX400_XOVER	2
62	MG00582	black-plated screw	M3*12	4
63	MD00747	ZB-grill	OEX-400_V1.0	2
64	HK06401	K-speaker	10" 120W 6Ω (10" COAXIAL OEX400)	2
65	HG00213	Tweeter speaker head-RS	10" 120W 6Ω (10" COAXIAL OEX400)	2
66	MG00675	black-plated screw-RS	M4*15mm_V1.0	8
67	NI04027	O shape loop-black rubber	OEX-400 φ1.7*1105_V1.0	2
68	ND00706	EV foam-RS	760*12*1.5mm black_V1.0	2
69	MG00488	screw		8
70	MF00120	E shape latch-RS	M5(φ11*φ5*0.6t)_V1.0	2

71	MI03162	wheel	WDA-250 ϕ 59*18_V1.0	2
72	MG00640	fixed shaft	ϕ 10*31.5_V1.0	1
73	MI03189	ZB-fixed bracket	OEX-400 right_V1.0	1
74	MI03187	ZB-fixed bracket	OEX-400 left_V1.0	1
75	MI03184	ZD-fixed bracket-OEX400-09	OEX-400 1.5t*93*28*20 right_V1.0	1
76	MI03185	ZD-fixed bracket-OEX400-08	OEX-400 1.5t*93*28*20 left_V1.0	1
77	NI04011	speaker panel	OEX-400 135*336.2*342.63_V1.0	1
78	NI04009	speaker rear panel	OEX-400 285.75*332.97*344.66 rear_V1.0	1