

ALLEN & HEATH

XONE: 96



SERVICE MANUAL

ISSUE 2.1

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ALLEN & HEATH

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Notices

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Servicing precautions – General Notes

- Service Personnel:** Service work should be carried out by technically qualified personnel only. Mains power is dangerous and can kill. Do not attempt to work on a linear or switched mode power supply if you are not suitably qualified to do so. Do not attempt to repair surface mount circuit assemblies unless you are suitably qualified and have the necessary facilities to do so. Replacement circuit assemblies can be ordered.
- Service Facilities:** Ensure a suitably sized worksurface is available. Ensure this is clear of dirt, debris and obstructions which may damage the equipment surfaces. Ensure adequate lighting. Use the correct tools for the job and ensure that they are in good working order. Ensure all workshop safety requirements are adhered to.
- Safety Information:** Failure to follow the appropriate service and safety procedures may result in personal injury. You must read and adhere to the Safety instructions available in the box with the finished goods or available to service centres via your Asset Library login.
- Service information:** Check that you have all the information you need before starting the service job. Refer to the Allen & Heath website for user facing information such as firmware guides (including block diagrams), weights and dimensions and Technical Spec Data Sheets at www.allen-heath.com. For any other information contact Allen & Heath Product Support at <https://support.allen-heath.com>.
- Saving Data:** In order to preserve the customer data, you should save any console data onto two separate USB devices if applicable.
- Mains Power:** Connect the equipment to mains power only of the type described in the user guide and marked on the rear panel. The power source must provide a good ground connection. Ensure you always use an isolation transformer when working on any mains power supply unit.
- Mains Cord and Fuse:** Use the correct power cord as supplied with the equipment. Do not remove or tamper with the ground connection in the power cord. Heed the important mains plug wiring instructions in the Safety Instructions sheet. Always replace the equipment mains fuse with the correct type and rating as marked on the equipment panel.



- Static Discharge: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated before commencing servicing
- Opening the unit: Switch off and remove the mains power cord before opening the equipment. Ensure all power supply covers and safety shields are in place before applying power with the unit open for diagnostic fault finding.
- Fault finding: In-warranty faults should be corrected by board swapping. If attempting an out of warranty repair at a component level, replace suspected faulty components only with those specified by Allen & Heath. The use of lower grade alternatives may degrade the performance or risk damage to the equipment.
- Closing the unit: Before finishing, check the quality and accuracy of the service work carried out. Remove any dirt or debris as this may cause equipment failure in the future. Ensure all assemblies, harnesses and connectors are correctly aligned, plugged in and cable tied. Ensure that jumper settings and control configurations are correctly set according to the requirements of the customer.
- Testing the unit: Before operating the equipment, read and adhere to the Safety Instructions for the unit. Test that the service work has been successfully carried out.
- Shipping the unit: Use adequate packing such as the original packaging or purpose designed flight case if you need to ship the unit. To avoid injury to yourself or damage to the equipment take care when lifting, moving or carrying the equipment.
- Important: Information provided is believed to be accurate, but research is ongoing, and improvements or changes can be made to the unit without notice. If you have any questions, please contact Product Support at <https://support.allen-heath.com>.
- Battery Handling: Batteries can explode with improper handling. Follow the following precautions if a battery is fitted to this product.
- Battery replacement should be performed by qualified service personnel.
 - Always replace with batteries of the same type.
 - When installing on the PCB by soldering, solder using the connection terminals provided on the battery cells.
 - Never solder directly onto the cells. Perform soldering as quickly as possible.
 - Never reverse the battery polarity when installing.
 - Do not short the batteries.
 - Do not attempt to recharge batteries.
 - Do not disassemble the batteries.
 - Never heat batteries or throw them into fire.



Parts Identification XONE:96

More information, including component locations, is included in the Xone:96 Parts Identification Guide available from the Allen & Heath Resource space:

<https://allenandheath.resourcespace.com/?r=4368>

Parts List

PCBA

Part Number	PCB Number	Description	Qty
004-962	AG11134	SOUNDCARD NOTE: see page 14. Ref: RECN4845	1
004-1386	AG12655	'TYPE 2' SOUNDCARD NOTE: see page 14. Ref: RECN4845	
004-963	AG11135	DIGITAL I/O CONN	1
004-965	AG11140	MIC RTN 1	1
004-966	AG11141	STEREO INPUT	4
004-967	AG11142	FILTER 1	1
004-968	AG11143	FILTER 2	1
004-969	AG11144	SLAVE	1
004-970	AG11145	CONNECTOR	1
004-972	AG11147	MASTER	1
004-988	AG11183	CUE B	1
004-997	AG11140	MIC RTN 2	1
004-999	AG11251	STEREO CHANNEL FADER	4
004-1006	AG11251	MIC.CH.FDR	2
004-1005	AG11258	HEADPHONE	1
004-1442	AG11188	PSU	1

Screws

Part Number	Description	Qty
AB0072	SCREW M3X6 PAN TORX BK	51
AB4393	SCREW 2.5X6 PAN POZI PLASTITE	2
AB5564	SCREW M3X12 PAN TORX BK UHP	2
AB5836	SCREW M3X6 CSK POZI BK UHP PAT	2
AB7422	SCREW 2.7X9 AB TORX BK UHP	13
AB8592	SCREW M3X5 TRUNC CSK TORX BK	38



Chassis

Part Number	Description	Qty
AA11221	BASE XONE:96	1
AA11222	FRONT PANEL XONE:96	1
AA11223	REART PANEL XONE:96	1
AA11224	TOP PANEL XONE:96	1

Cables

Part Number	Description	Qty
AH11587	CABLE USB 'CLIK-M''Y'0.28/0.23	1
AL11205	WFMA XONE:96 PSU-S'CARD PWR	1
AL11207	WFMA XONE:96 SLAVE-XFDR	1

Other

Part Number	Description	Qty
AA11220	KEYMAT RUBBER XONE:96	1
AA11225	SHIELD XONE:96 PSU SHIELD+HEAT	NOTE: see page 9. Ref: RECN4489A 1
AA12050	SHIELD XONE:96 PSU V2 62368	NOTE: see page 9. Ref: RECN4489A 1
AA12051	HEATSINK XONE:96 PSU 62368	NOTE: see page 9. Ref: RECN4489A 1
AB8172	NUT POT 9MM BLACK ZINC	23
AB8831	RIVET PLAST SNAP 4MM BLK	4
AI11234	FDR 60MM 10KAX2(T)	2
AI11235	FDR 60MM 100KBX2(A)	4
AI11470	FDR 41.5MM 10K LIN CD'BLK'	1
AI5317	POT 9MM 20KBX4 CD +NUT	22
AI8006	POT 14MM 20KBX2 CD 203B	4
AI8007	POT 14MM 20KKX2 203K	16
AI11149	POT 9MM 20KBX2 CD +NUT	8



Other continued

Part Number	Description	Qty
AI11150	POT 9MM 20KKX2 +NUT	2
AI11215	POT 9MM 20KBX4 +NUT	4
AI11359	POT 9MM 20KBX2 +NUT	2
SNUT	POT NUT SILVER	38
AJ5388	PUSH BTN ROUND BLK 5MM	10
AJ5320	KNOB FDR BK-WH.L XONE	5
AJ7211	PUSH BTN SQ WHT 5.5MM POM	4
AJ7304	KNOB BK-WH.L SOFT SML	34
AJ7305	KNOB BK-WH.LS SOFT LGE	26
AJ9015	KNOB FDR 12MM BK-WH T	2
AJ11230	KNOB D-SHFT CHR.-RD.L RECESS	7
AJ11231	LIGHTPIPE XONE:96 ARRAY	8
AJ13304	LIGHTPIPE XONE:96 CUE BUTTON V2 See page 11 for important info	16
AJ11233	PUSH BTN XONE:96 CAP CUE	16
AK8830	FEET FAST 40DIA.SHOCK/VIBR.BLK	4
AL5328	SW.TOG SPDT M7 CEN.OFF	5
AL8106	TERM.POST EARTH 2BA NICKEL	2
AL8797	PLUG BLANK RJ45 BLACK	1
AL11139	SW.TOG DPDT CENT.OFF	1
AL11555	JACK SKT ST PCB MET+NUT	2
AL11927	PHONO PLUG SHORTING NICKEL RCA	8
AL0374	SW.2PCO MOM	16
AL5328	SW.TOG SPDT M7 CEN.OFF	11
AL6824-1	SW.2PCO LATCH ZED	15
AL10976	SW.ROTARY 4WY SRBM 2POLE	6

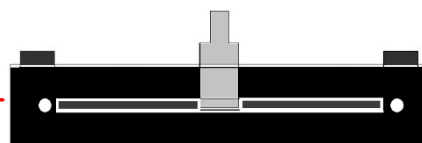
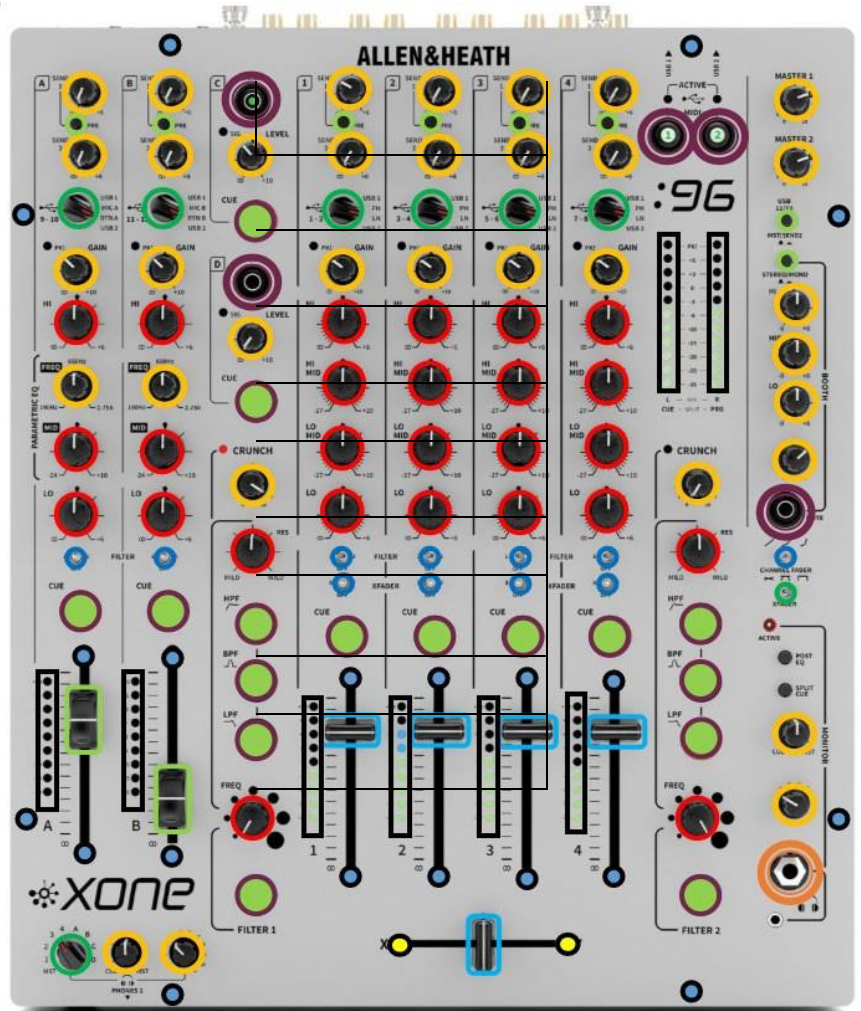
Accessories

Part Number	Description	Qty
004-999X	STEREO CHANNEL FADER	4
004-1006X	PCBA XONE:96 MIC.CH.FDR	2
AI11470	XONE:96.INNO.FADER	1



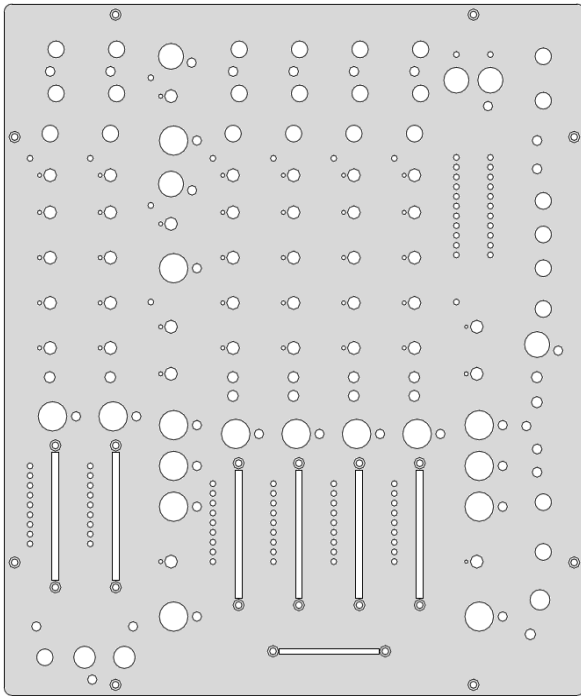
Parts Identification

ICON	Description	Part #
	KEYMAT RUBBER XONE:96	AA11220
	KNOB BK-WH.LS SOFT LGE	AJ7305
	KNOB D-SHFT	AJ11230
	KNOB BK-WH.L SOFT SML	AJ7304
	JACK SKT ST PCB MET+NUT	AL11555
	KNOB FDR BK-WH.L XONE	AJ5320
	KNOB FDR 12MM BK-WH	AJ9015
	SW.TOG SPDT M7 CEN OFF	AL5328
	LIGHTPIPE XONE:96 CUE	AJ11232 AJ13304
	PUSH BTN XONE:96 CAP CUE	AJ11233
	SCREW M3X5 TRUNC CSK TORX BK	AB8592
	SCREW M3X6 CSK POZI BK	AB5386
	NUT POT 9MM BLACK ZINC	AB8172
	POT NUT SILVER	SNUT
	PUSH BTN ROUND BLK 5MM	AJ5388
	SW.TOG DPDT CENT.OFF	AL11139
	LIGHTPIPE XONE:96 ARRAY	AJ11231
	MIC CH. FADER	004-1006
	MIC CH. POTENTIOMETER	AI11234
	ST. CH. FADER	004-999
	ST. CH. POTENTIOMETER	AI11235
	X-FADER	AI11470

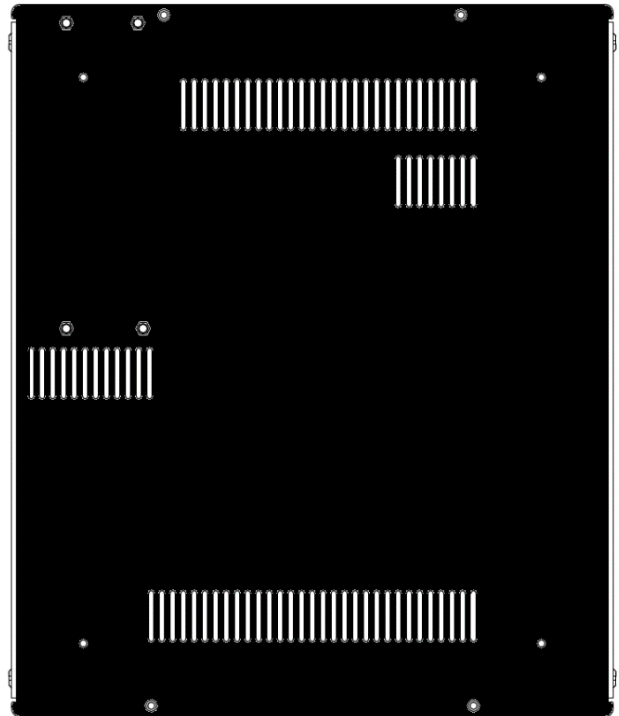




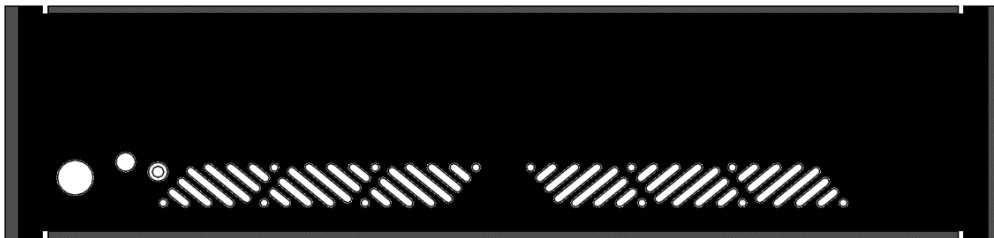
Metalwork



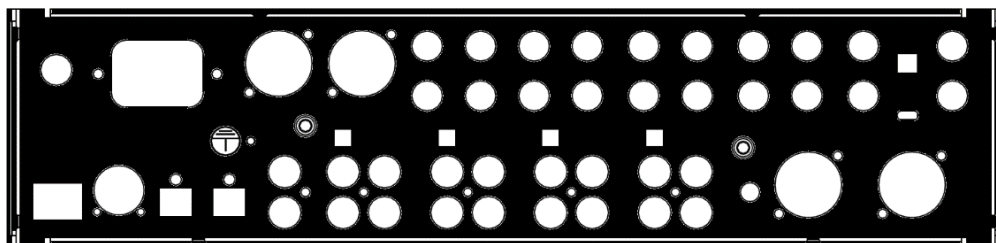
AA11224 TOP PNL XONE:96



AA11221 BASE XONE:96



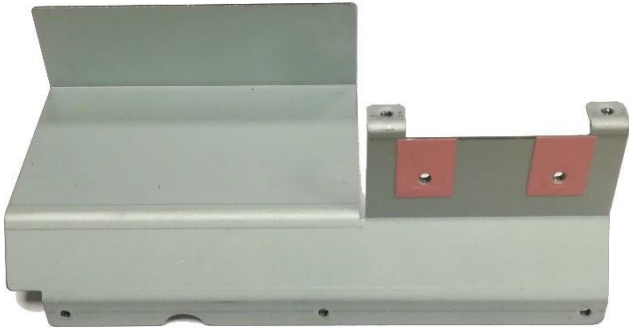
AA11222 FRONT PNL XONE:96



AA11223 REAR PNL XONE:96



Parts Identification continued ...



AA11225 SHIELD XONE:96 PSU SHIELD+HEATSINK *



AA12050 SHIELD XONE:96 PSU V2 *

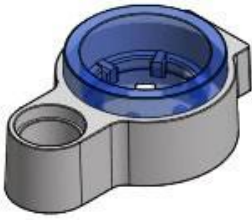


AA12051 HEATSINK XONE:96 PSU 62368 *

*** COMPATIBILITY NOTE: AA11225 replaces AA12050 and AA12051, from X96X-001004781 and above.
Ref: REC4489A.**



Parts Identification continued ...



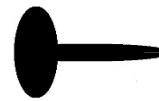
AJ13304 LIGHTPIPE XONE:96 CUE BUTTON V2

COMPATIBILITY NOTE:

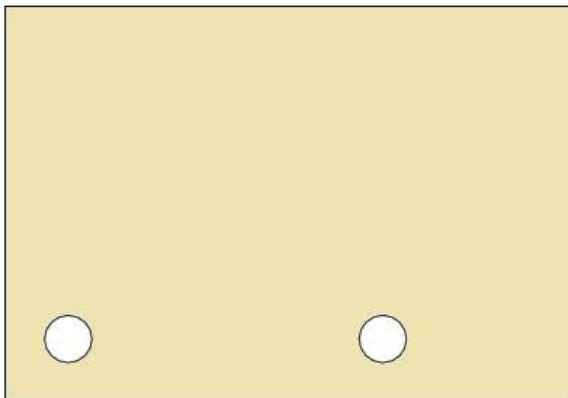
V2 part **AJ13304** replaces V1 **AJ11232 (now obsolete)**.
 When replacing components on units X96X-001008970
 and earlier. A full replacement must be applied for
 common parameters on the mixer. For full details, please
 refer to [REC5119](#).



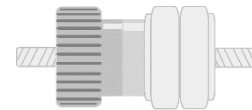
AK8830 FEET FAST 40DIA.SHOCK/VIBR.BLK



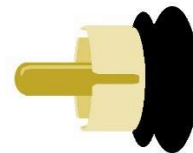
AB8831 RIVET PLAST SNAP 4MM BLK



AA11226 INSUL.POLYFILM XONE:96 PSU



AL8106 TERM.POST EARTH 2BA



AL11927 PHONO PLUG SHORTING



AL11205 WFMA XONE:96 PSU - S'CARD



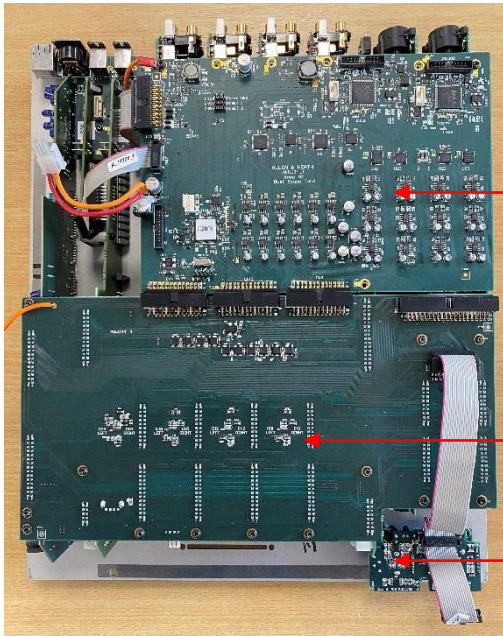
AL8797 PLUG BLANK RJ45 BLACK



AH11587 CABLE USB 'CLIK-M



Circuitboard layout



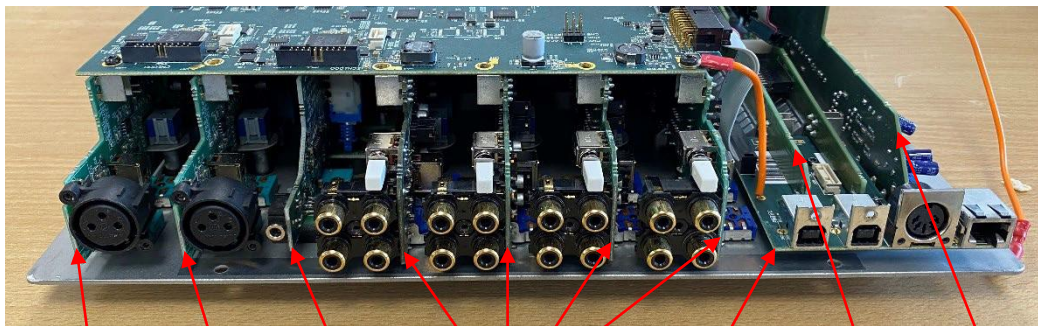
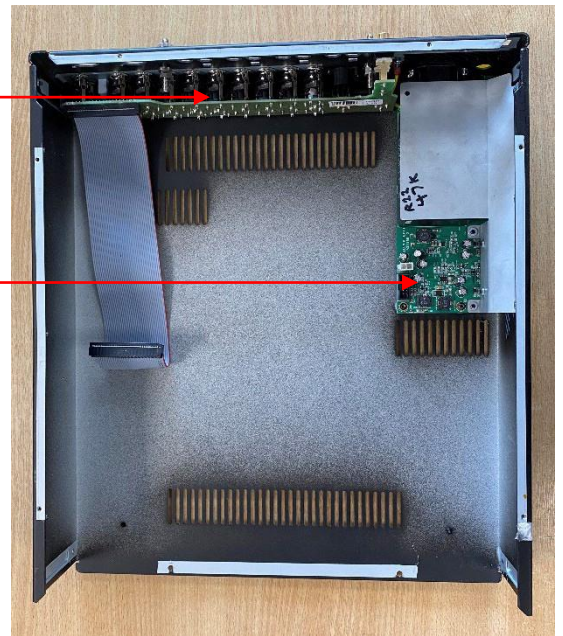
004-970

004-1386

004-1442

004-969

004-988



004-965

004-997

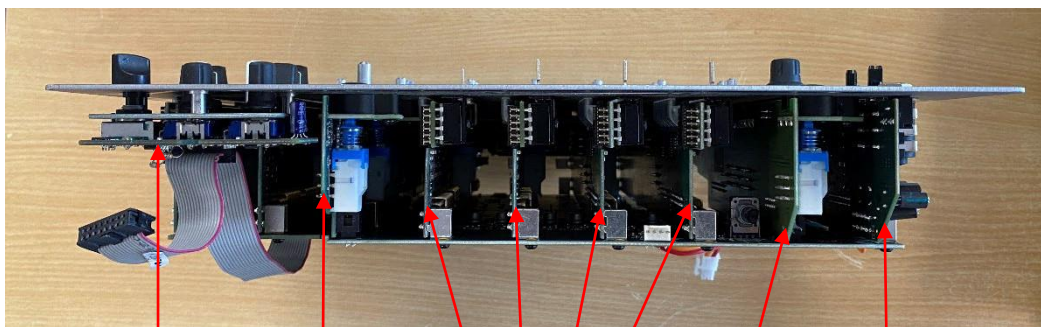
004-967

004-966

004-963

004-968

004-972



004-988

004-967

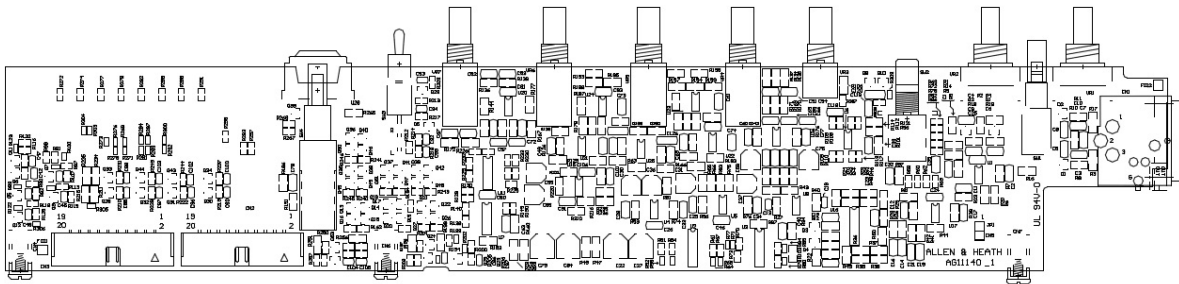
004-999

004-968

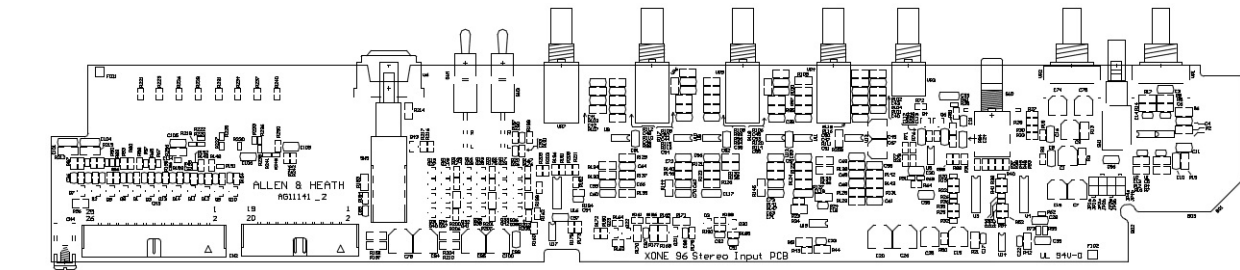
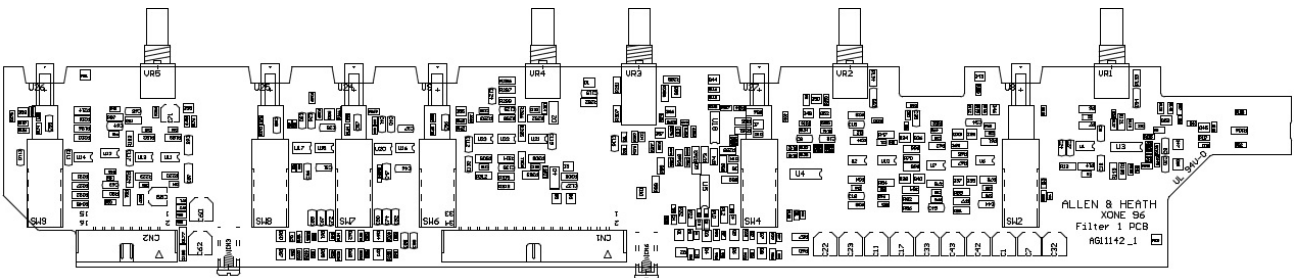
004-972



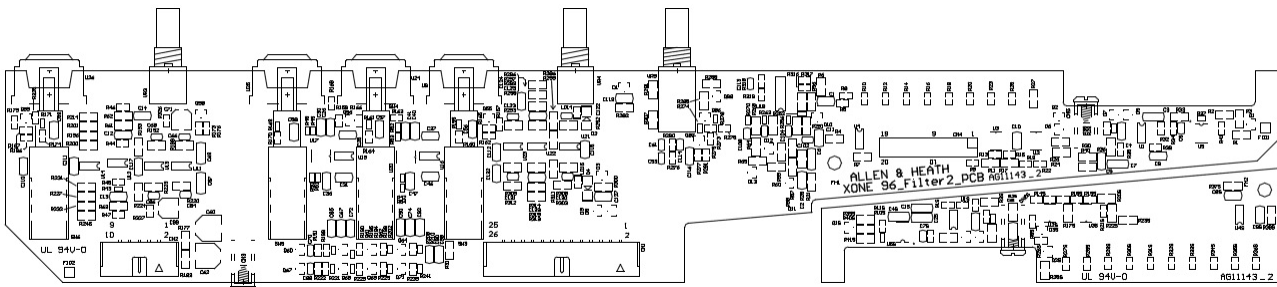
Circuit Board Identification XONE:96



MIC RTN 1 Assembly: 004-965..... (PCB AG11140)
MIC RTN 2 Assembly: 004-997..... (PCB AG11140)



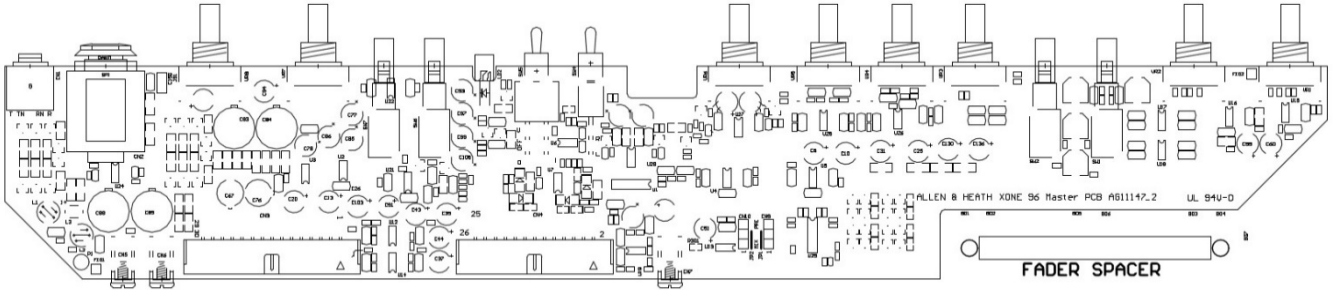
STEREO INPUT 1-4 Assembly: 004-966..... (PCB AG11141)



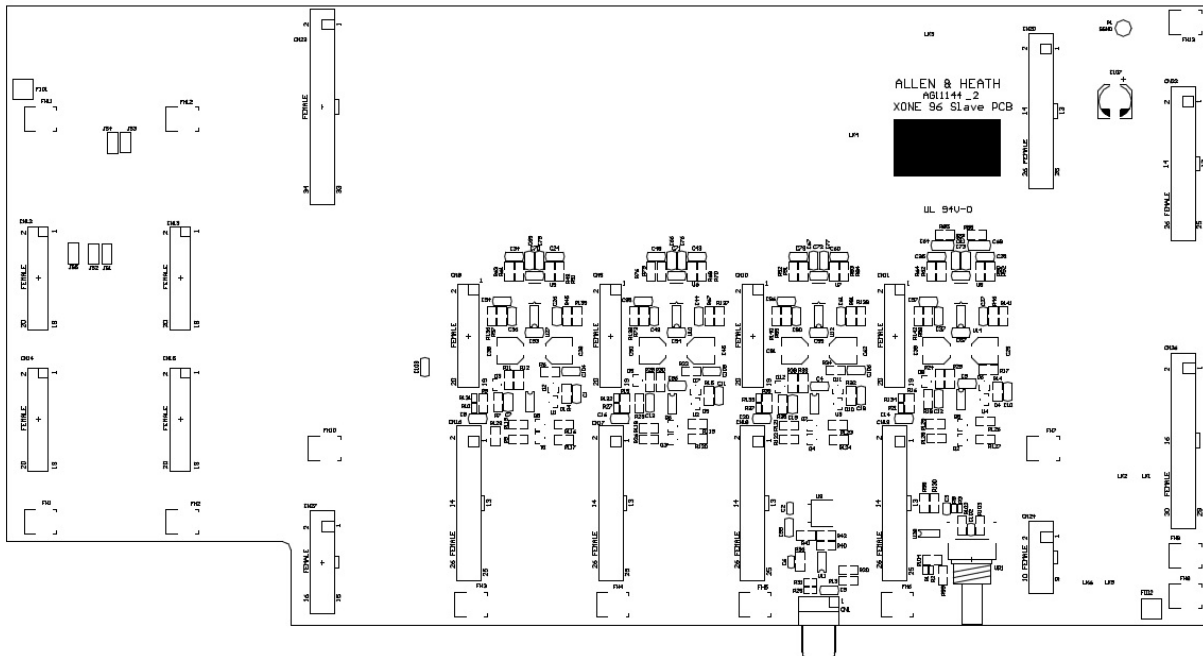
FILTER 1 V2 Assembly: 004-967..... (PCB AG11142)
FILTER 1 V2 Assembly: 004-968 (PCB AG11142)



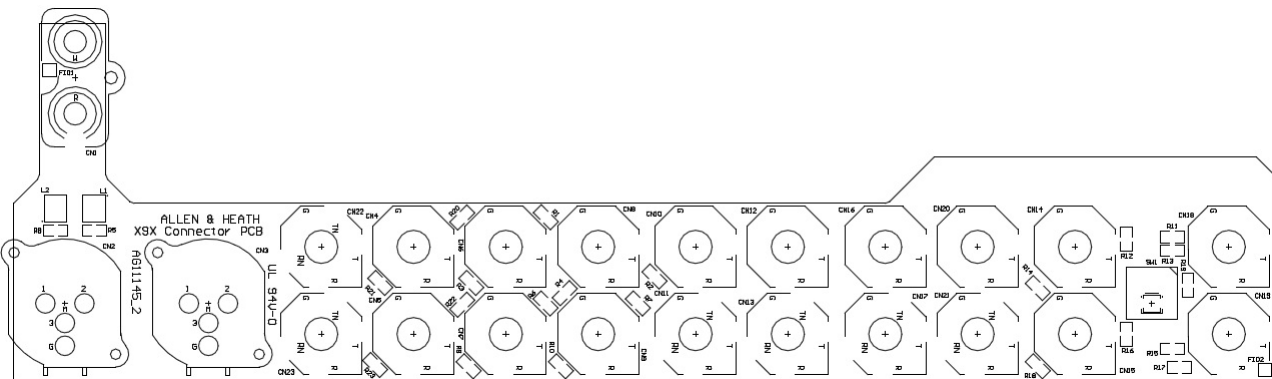
Xone:96 Circuit Board Identification continued



MASTER Assembly: 004-972.....(PCB AG11147)



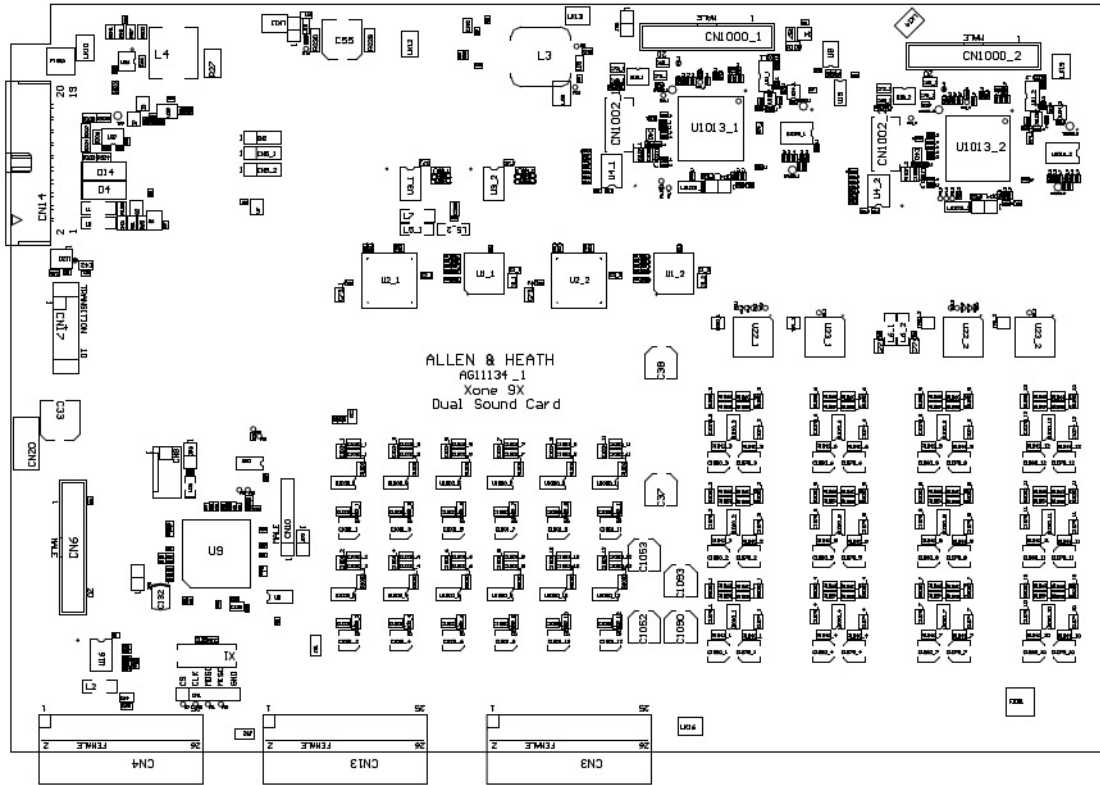
SLAVE Assembly: 004-969.....(PCB AG11144)



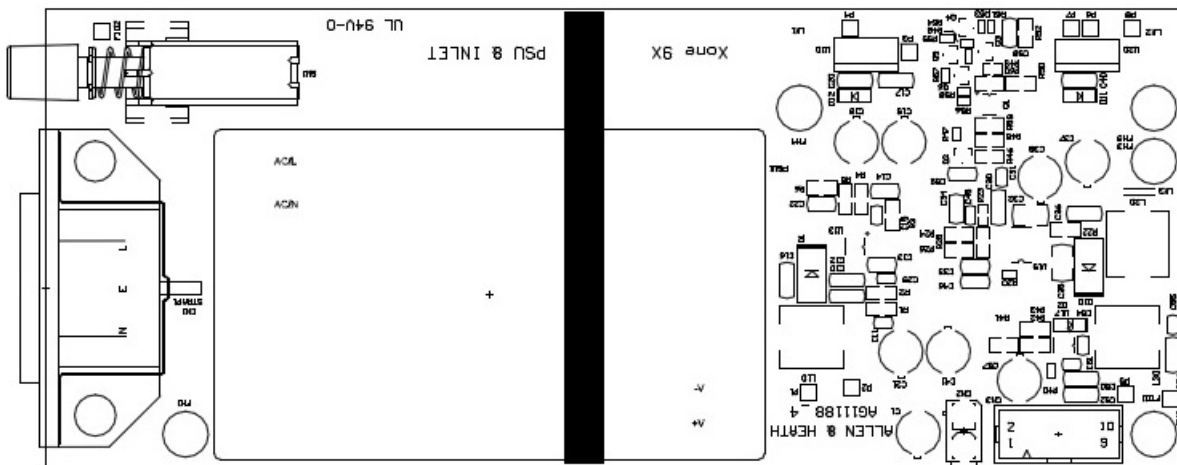
CONNECTOR Assembly: 004-970.....(PCB AG11145)



Xone:96 Circuit Board Identification continued



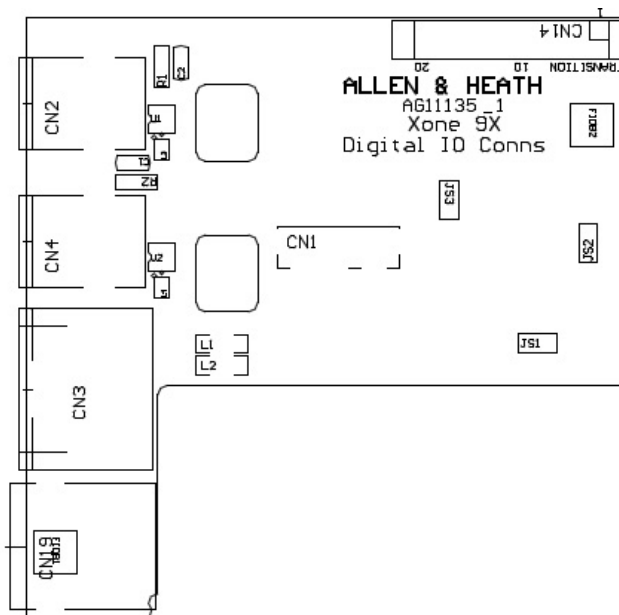
- SOUNDCARD Assembly: 004-962..... (PCB AG11134)
- 'TYPE 2' SOUNDCARD Assembly: 004-1386*..... (PCB AG12655)
- * 'Drop-in' alternative for 004-962. Reference: RECN4845



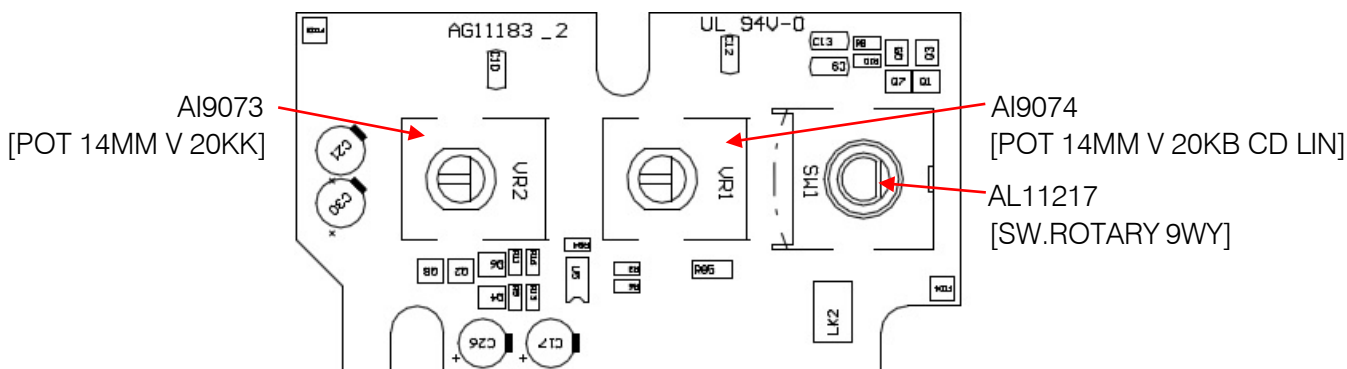
- PSU Assembly 004-1442X..... (PCB AG11188)



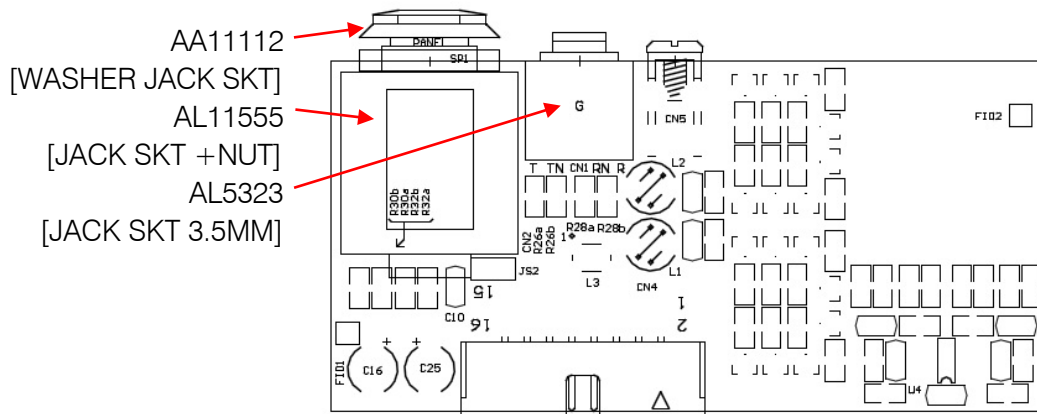
Xone:96 Circuit Board Identification continued



DIGITAL I/O CONN Assembly 004-963..... (PCB AG11135)



CUE B Assembly 004-988..... (PCB AG11183)

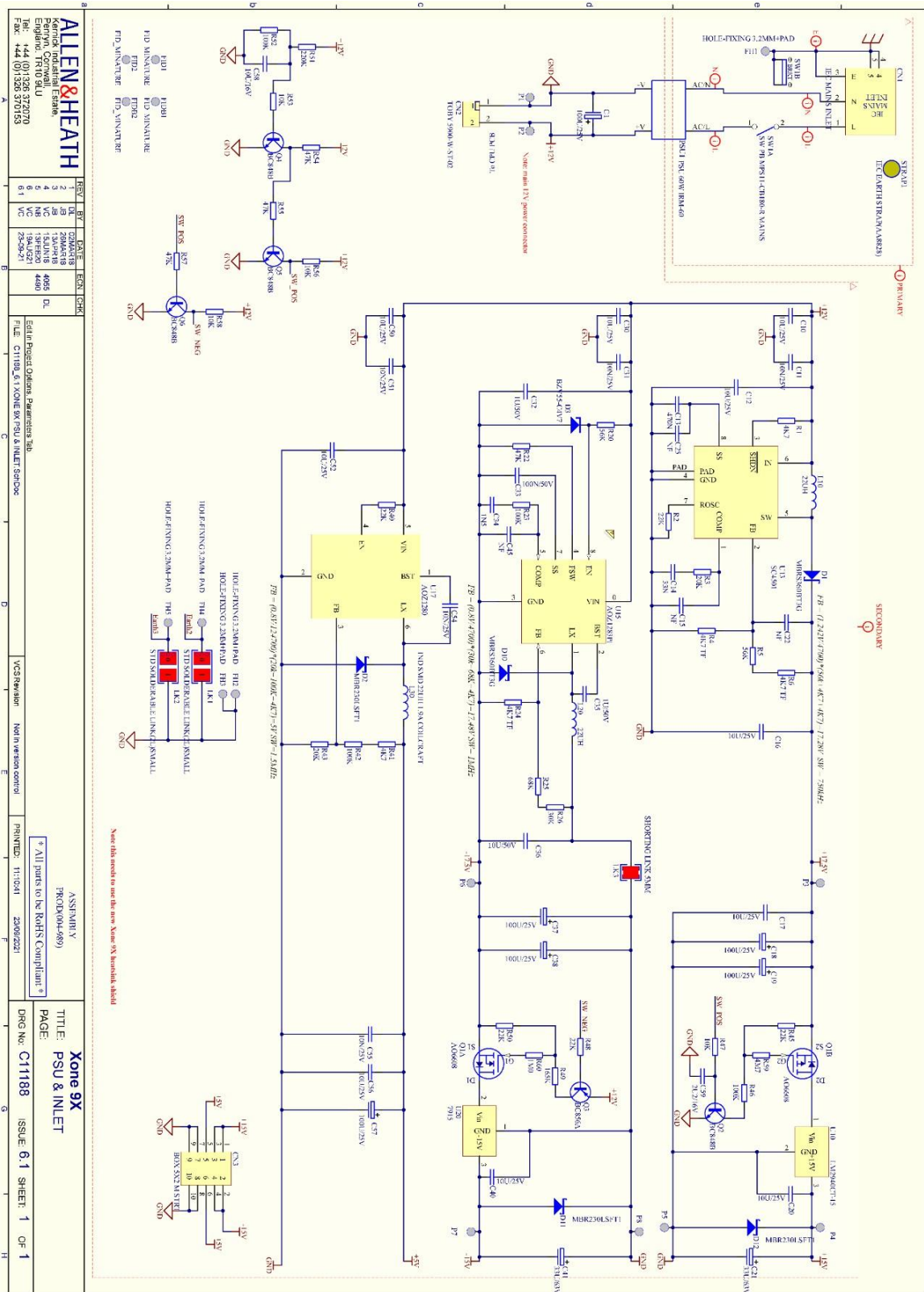


HEADPHONE Assembly 004-1005..... (PCB AG11258)



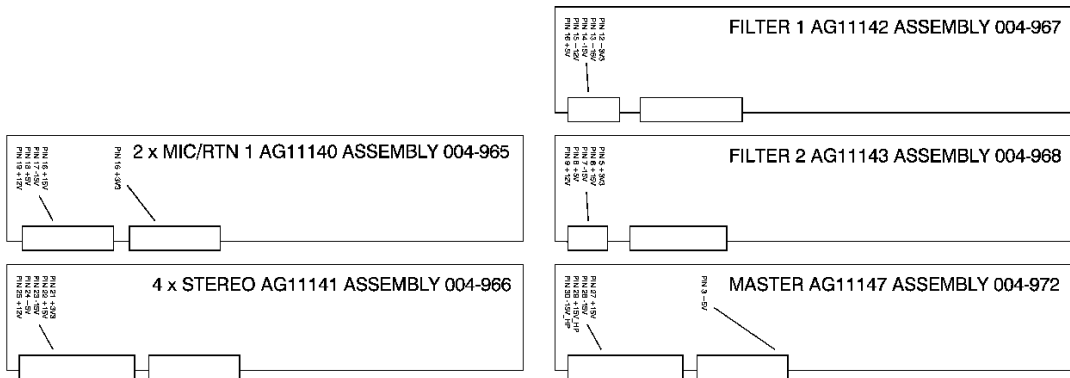
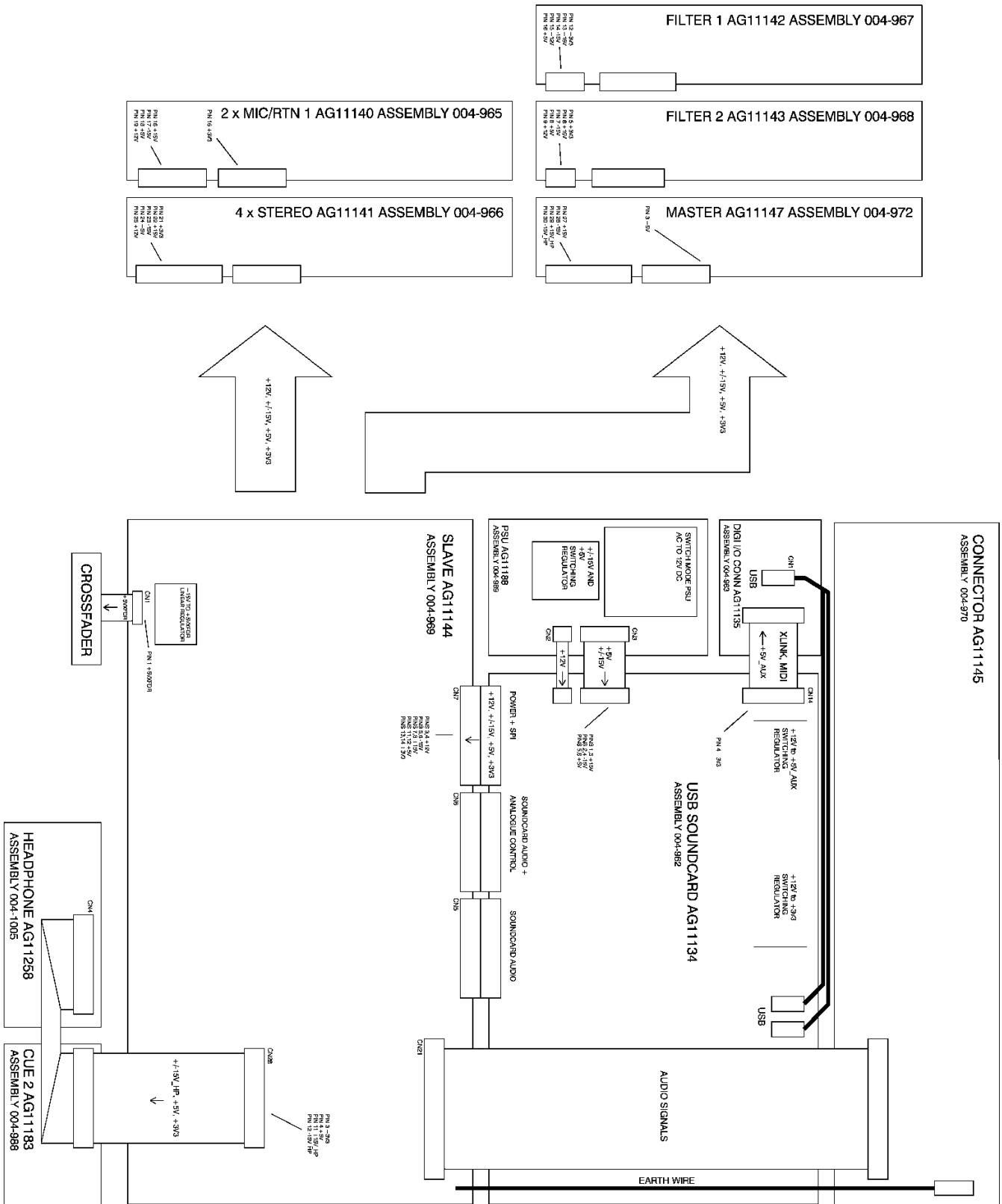
PSU Circuit Diagram

PSU Circuit Diagram





Connectivity Chart and Pin Assignments





Servicing Information XONE:96

Important Information and things that should be done while the unit is in service

RECNs

Please refer to the full RECN document, via hyperlinks below, for detailed information on engineering changes that should be reviewed and may require implementation when servicing the mixer.

[REC4489A](#): Xone96. New 2-part PSU shield

[REC4490](#): Xone96. PSU & INLET up-issue. AG11188_5

[REC4778](#): New PSU spares assembly. 004-1442X

[REC4845](#): Xone96. Type 2 soundcard

[REC4867](#): PSU up-issue. AG11188_6

[REC4868](#): Xone96. Rear panel up-issue. AA11223_3

[REC5119](#): New Xone 96 Lightpipe Button V2

Replacing Stereo channel faders 1 – 4

This information can be found in the Xone96 Replacing Faders document and can be made available to end-users

<https://allenandheath.resourcespace.com/?r=2139>

Crossfader calibration

This information can be found in the Xone96 Crossfader Calibration Instructions document

<https://allenandheath.resourcespace.com/?r=2137>

And is available online for end-users

https://www.allen-heath.com/media/X96_XFADER-calibration.pdf

Mic clean-feed jumper settings

XONE:96 implements a 'clean feed' bus for MIC inputs; by default MIC A and MIC B inputs do not route to the Booth and Record outputs. The Xone96 Clean-feed fitting/removal instruction service guide documents instructions to enable or disable the clean feed system using internal jumpers

<https://allenandheath.resourcespace.com/?r=4151>



Disassembly Procedure

- Ensure power switch on the mixer's rear panel is turned OFF and the mains cable is disconnected from AC mains supply and mixer's IEC socket.
- Place the mixer face-up on a clean surface.
- Remove and retain 8 Torx screws securing the top panel to the mixer chassis.
- Remove and retain 13 screws from the rear connector panel, as shown below



- Remove and retain 6 Torx screws securing the front panel to the chassis and base.
- Lift the front panel forward away from the chassis to access and, with care, disconnect the grey harness connecting the top panel to the PHONES 2 assembly.
- Lift the front edge of the top panel upwards to access and, with care disconnect the grey harness connecting the PSU to the SOUND CARD assembly.
- Disconnect the grey harness connecting the CONNECTOR to the SLAVE assembly.
- Disconnect the orange earth wireform from the CONNECTOR assembly.
- Disconnect the red and orange DC cable from the PSU assembly.
- Separate the top panel completely from the chassis.

Further information on disassembly, reassembly and part placement is included in Xone96 Build Docs;

AH-M0828 - Front Panel Sub-Assembly; <https://allenandheath.resourcespace.com/?r=2129>

AH-M0829 - Rear Panel Sub-Assembly; <https://allenandheath.resourcespace.com/?r=2133>

AH-M0830 - Base & Rear Panel Sub-Assembly; <https://allenandheath.resourcespace.com/?r=2130>

AH-M0831 - Top Panel PCBAs Sub-Assembly; <https://allenandheath.resourcespace.com/?r=2134>

AH-M0832 - Top Panel Sub-Assembly; <https://allenandheath.resourcespace.com/?r=2131>

AH-M0833 - Complete Assembly; <https://allenandheath.resourcespace.com/?r=2135>

AH-M0839 - Pack Assembly; <https://allenandheath.resourcespace.com/?r=2132>



Other Technical Information

Block Diagram, Specifications, Weights & Dimensions

All of this information can be found in the Xone:96 User Guide and is available online for end-users.

https://www.allen-heath.com/media/AP11645_2_XONE_96_USER_GUIDE.pdf

For Block Diagram, refer to Page 34

For Specifications, refer to Page 35-36

For Weights & Dimensions, refer to Page 37

Weights and Dim's are also found under the DOCUMENTS tab on the Xone:96 page of the A&H website:

https://www.allen-heath.com/media/XONE_96-WEIGHTS-AND-DIMS.pdf

For further assistance please contact Allen&Heath Product Support

<https://support.allen-heath.com>

support@allen-heath.com