

CQ-18T & CQ-12T



SERVICE MANUAL

ISSUE 1.2

DISTRIBUTOR USE ONLY

Copyright © 2023 Allen & Heath. All rights reserved.

ALLEN&HEATH

Allen & Heath Limited, Kernick Industrial Estate, Penryn, Cornwall, TR10 9LU, UK

<http://www.allen-heath.com>



Contents

Notices	3
Legal Notice	3
Servicing precautions – General Notes.....	3
Parts Identification CQ-18T	5
Parts List	5
.....	8
Circuit Board Layout CQ-18T	9
Circuit Board Identification CQ-18T.....	10
Parts Identification CQ-12T	14
Parts List	14
Circuit Board Layout CQ-12T	18
Circuit Board Identification CQ-12T.....	19
Servicing Information	23
Hot Melt Glue	23
Backup show.....	23
After replacing PCB parts Firmware Update must be done	23
CQ-18T & CQ12T- Resetting the unit.....	23
CQ18T & CQ12T - Updating firmware	24
CQ18T & CQ12T – Forced Firmware Update.....	25
CQ18T Network Setup	26
CQ12T Network Setup	26
Diagnostics.....	27
Disassembly Procedure	29
Removing Audio Bottom Type 2 Board	30
Removing Audio Top Board	31
Removing CPU	32
Removing Audio Connectors Board.....	33
Removing Surface Bottom Board	33
Removing Surface LHS Board.....	34
Removing Surface RHS Board	34
Removing COMMS Board	34
Removing LCD TFT Screen	35



004-1476KIT Assembly	36
Removing Antenna	37
Power Distribution.....	38
Routing Overview	40
PSU Circuit Diagram.....	42
Other Technical Information	43
Block Diagram	43
Specifications.....	43
Weights & Dimensions	43



Notices

Legal Notice

Allen & Heath retains ownership of all intellectual property in this document.

The information and materials presented in this document are provided as an information source only.

While every effort has been made to ensure the accuracy and completeness of the information, no guarantee is given, nor responsibility taken by Allen & Heath for errors or omissions in the data.

Allen & Heath is not liable for any loss or damage that may be suffered or incurred in any way as a result of acting on information in this document. The information is provided solely on the basis that readers will be responsible for making their own assessment regarding servicing requirements.

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 at 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 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 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 CQ-18T

Parts List

Chassis

Part Number	Description	Qty
AA11850	FRONT PNL CQ-18T	1
AA12309	SIDE TRIM CQ-18T RIGHT (Plastic)	1
AA11852	SIDE TRIM CQ-18T LEFT (Plastic)	1
AA11851	BASE PNL CQ-18T	1
AL12258	ANTENNA WIFI EXT.RUBBER	1
AJ12326	ANTENNA CLIP CQ18T	1
AA12500	SHIELD ANTENNA WIFI	1
AA11929	SIDE PNL CQ18T LEFT (Metal)	1
AA12202	SIDE PNL CQ18T RIGHT	1
004-1476KIT	KIT CQ LCD +FIT	1
AA11884	PNL CQ18T SCREEN SUPPORT (Included on 004-1476 KIT)	1
AJ12137	KNOB ENC.ILLUM.SML. TPE	3
AJ12138	KNOB ENC.ILLUM.LGE. TPE	1
AA11898	KEYMAT RUBBER CQ-18T SCREEN	1
AA12260	KEYMAT RUBBER CQ-18T SOFT	1
004-1240	FANA 60X60X10 12CM (AM12139)	1
AA12165	FAN GRILLE 60mm WIRE MATT	1
AB6952	CLAMP CABLE	1
AK7841	CLAMP CABLE FLAT TIE M3	1
AK11979	FEET FAST 20dia x10mm	4
AL8923	SWITCH MAINS	1

004-1476 KIT = Refer to the 'Removing LCD TFT Screen' Section for details

Screws

Part Number	Description	Qty
AB8172	NUT POT 9MM BLACK ZINC	4
AB7422	SCREW 2.7X9 AB TORX BK UH	18
AB9037	SCREW M3X5 TRUNC CSK TORX	32
AB0072	SCREW M3X6 PAN TORX BK PATCH	24
AB0102	NUT M3 NYLOCK	3
AB0188	NUT M4 NYLOCK	4



Cables

Part Number	Description	Qty
004-1416	WFMA CQ-18T SURF.-SGND	1
AH12710	CABLE WIFI COAX .280MM	1
004-1289	WFMA CQ-18T PWR SW.-CPU	1
004-1295	WFMA CQ-18T PWR SW.WIRE	1

PCB

Part Number	PCB	Description	Qty
004-1285	AG12321	PCBA CQ-18T POWER IN	1
004-1422	AG12677	PCBA CQ-18T/12T AUDIO TOP	1
004-1423	AG12678	PCBA CQ-18T AUDIO BTM T2	1
004-1218-1X	AG11875	PCBA CQ-18T CPU-RF UNLKD	1
004-1218-2X	AG11875	PCBA CQ-18T CPU-RF USA/CAN	1
004-1286	AG12323	PCBA CQ-18T/12T COMMS	1
004-1421	AG12676	PCBA CQ-18T CONNECTOR	1
004-1234	AG11950	PCBA CQ18T SURFACE LEFT	1
004-1233	AG11949	PCBA CQ-18T/12T SURFACE BTM	1
004-1420	AG12675	PCBA CQ-18T SURFACE RIGHT	1

Due to RF Regulations, CQ18T CPU for **USA** and **CANADA** must be ordered under part # **004-1218-2X**
For anywhere else, part # **004-1218-1X**

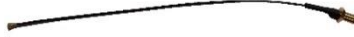
Other

Part Number	Description	Qty
AM12199	EXTERNAL PSU MODULE INLINE EDA6512	1
AA12671-1	DUST COVER PLUG USB A	1
AA12671-2	DUST COVER PLUG USB B	1
AA12671-3	DUST COVER PLUG RJ45	1
AA12671-4	DUST COVER PLUG SD	1
CQ18T-CASE	CQ18T Soft case	1
CQ18T-RK19*	CQ18T 19" Rack Mount Kit (CQ18T 19" Left & Right)	1

*CQ18T Rack Mount Ears are to be supplied only as CQ18T-RK19 (Rack Mount Kit), not individually.



AL12258 ANTENNA WIFI
EXT.RUBBER



AH12710 CABLE WIFI COAX



AA11929 SIDE PNL LEFT (Metal)
AA11852 SIDE TRIM LEFT (Plastic)



Touch Screen
004-1476KITX
KIT CQ LCD +FIT



AJ12137 KNOB



AJ12138 KNOB



AA11898 KEYMAT
RUBBER
CQ-18T SCREEN



AA12260 KEYMAT RUBBER
CQ-18T SOFT



004-1240 FANA
60X60X10 12CM



AL6893 Jack
Socket - On
Surface Right



AB8172 NUT
POT 9MM
BLACK ZINC



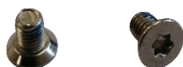
AB11989
PILLAR M3X11
HEX BRASS



AB11988
PILLAR
M3X6.5 HEX
BRASS I/S
7MM



AB7422 SCREW
2.7X9 AB TORX
BK UH



AB9037 SCREW
M3X5 TRUNC
CSK TORX



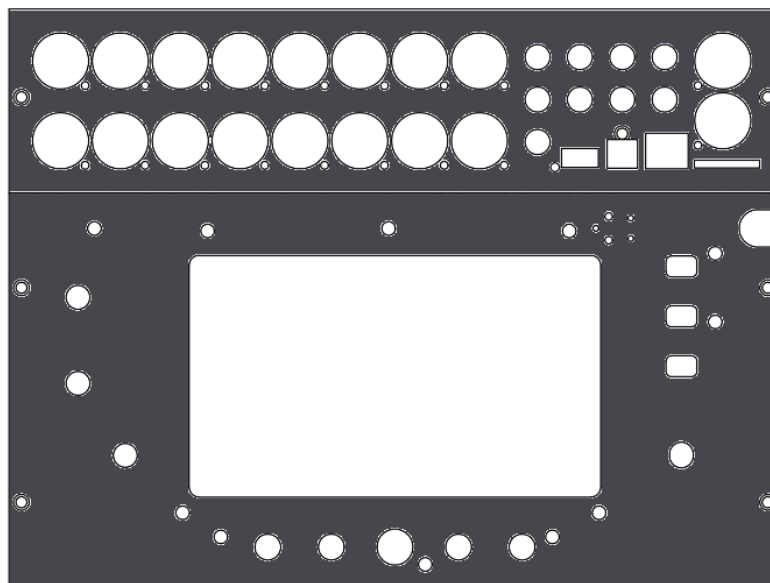
AB12365 SCREW
M4X8 CSK POZI
BK



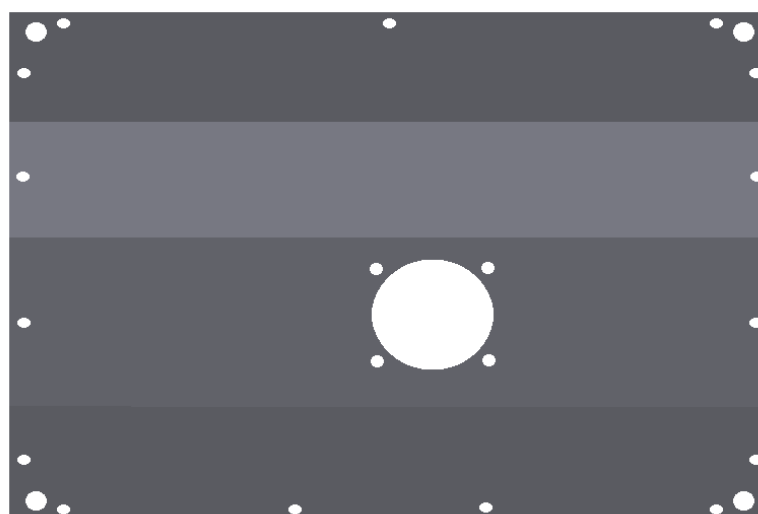
AB0072 SCREW
M3X6 PAN TORX
BK PATCH



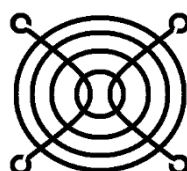
AB0102 NUT M3
NYLOCK



AA11850 - FRONT PNL CQ-18T



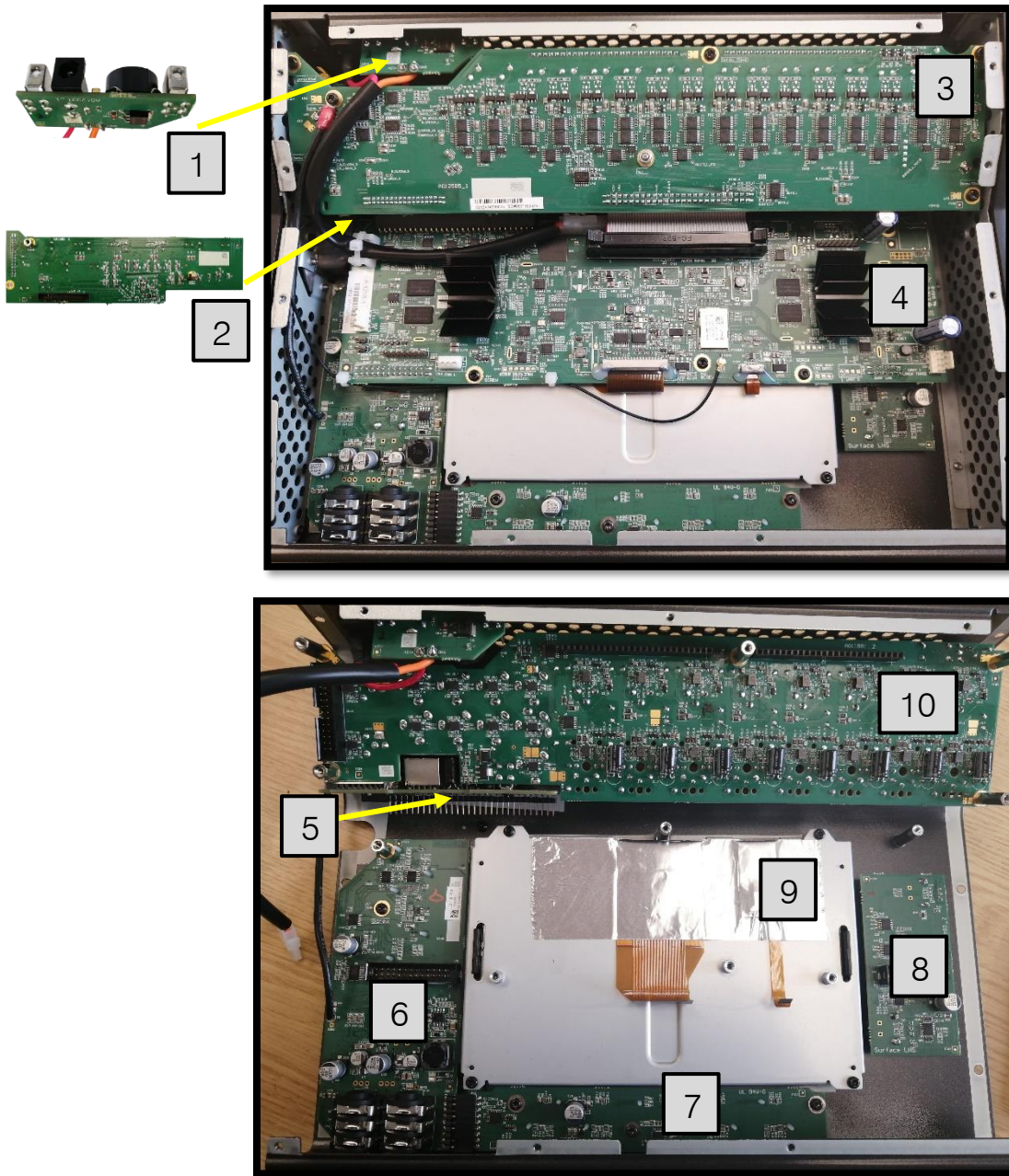
AA11851 - BASE PNL CQ-18T



AA12165 - FAN GRILLE 60mm



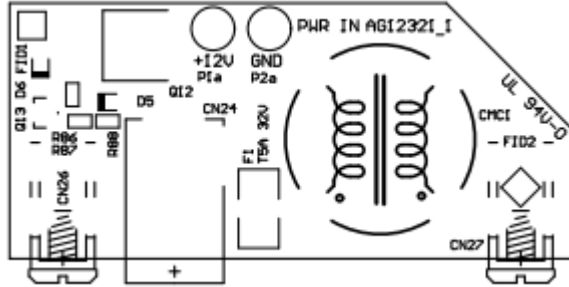
Circuit Board Layout CQ-18T



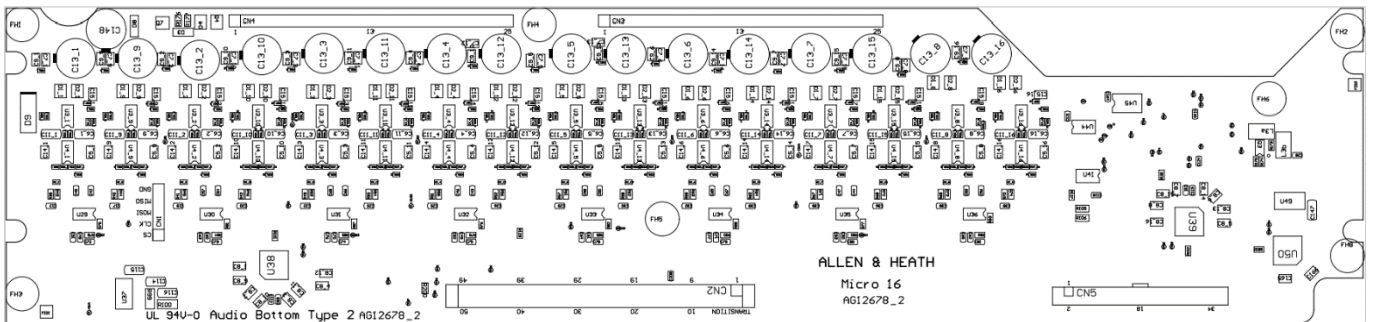
- 1.- Power In - 12v AG12321 - **004-1285**
- 2.- Audio Top Board - AG12677 - **004-1218-1X (ROW) 004-1218-2X (U.S & Canada)**
- 3.- Audio Bottom Type 2 Board - AG12678 - **004-1423**
- 4.- CPU Board - AG11875 - **004-1218**
- 5.- COMMs board - AG12323 - **004-1286**
- 6.- Surface RHS board - AG12675 - **004-1420**
- 7.- Surface bottom board - AG11949 - **004-1233**
- 8.- Surface LHS board - AG11950 – **004-1234**
- 9.- LCD TFT - **004-1476KIT**
- 10.- Audio Connectors Board - AG12676 - **004-1421**

Circuit Board Identification CQ-18T

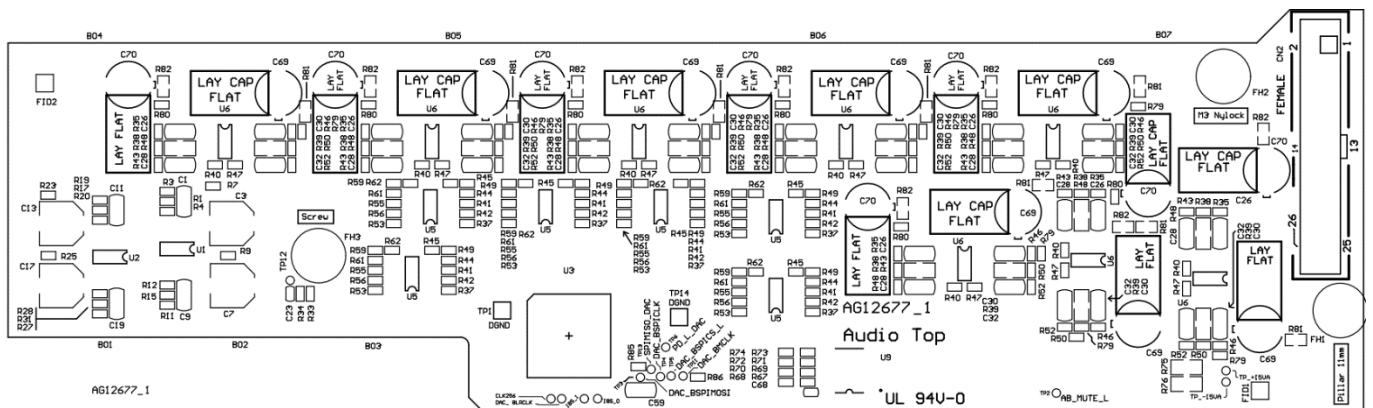
PCB	AG12321
Part Number	004-1285
Description	Power In



PCB	AG12678
Part Number	004-1423
Description	Audio Bottom



PCB	AG12677
Part Number	004-1422
Description	Audio Top



&

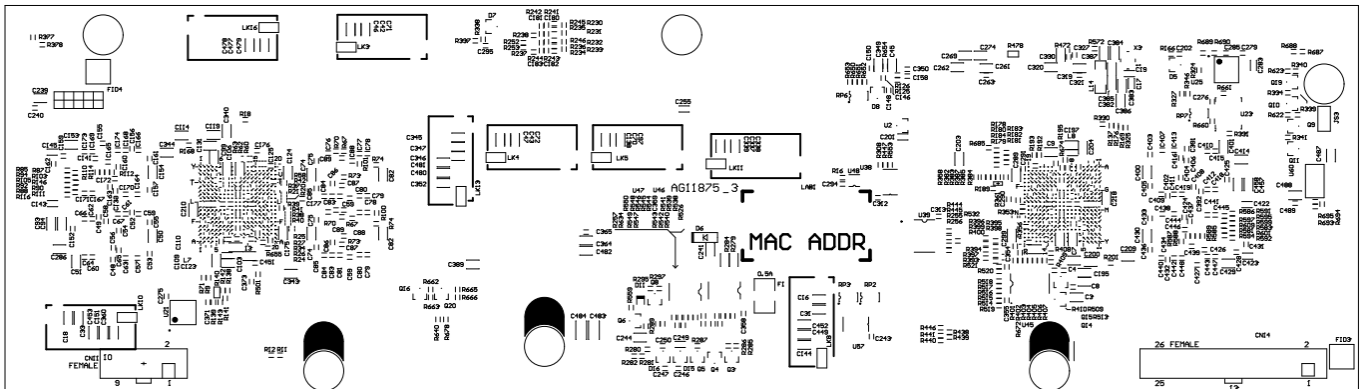
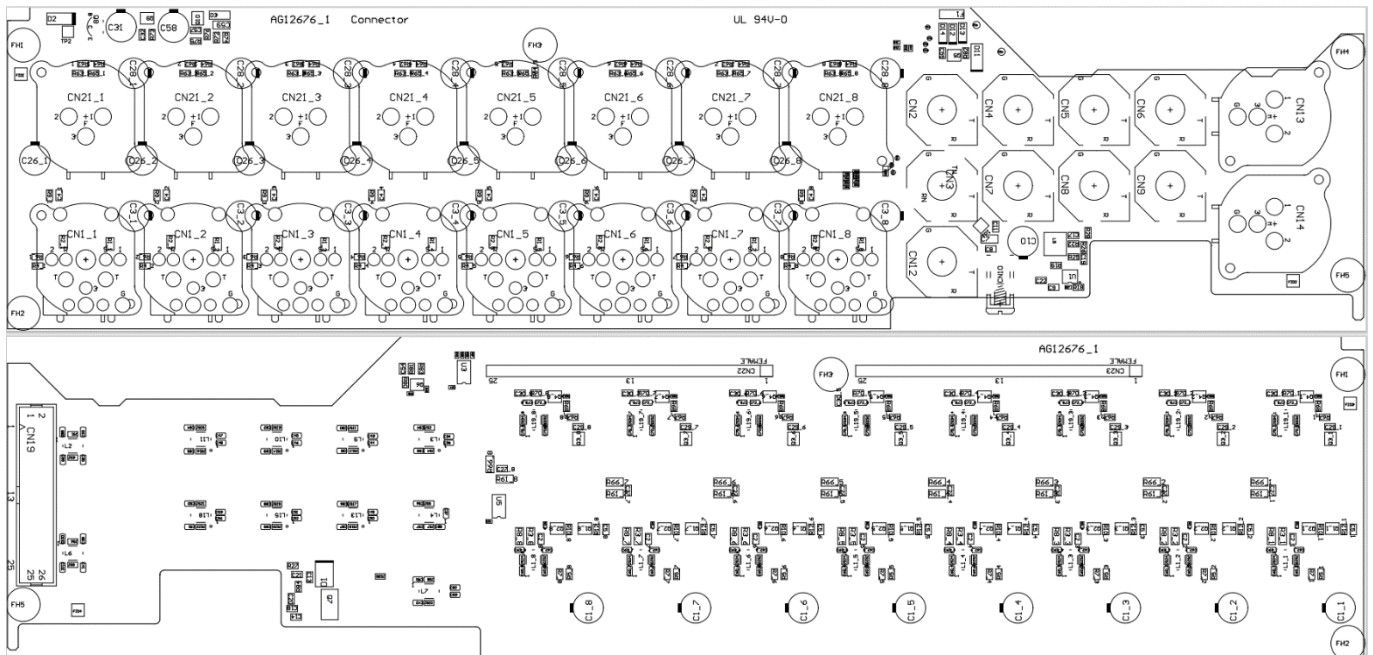


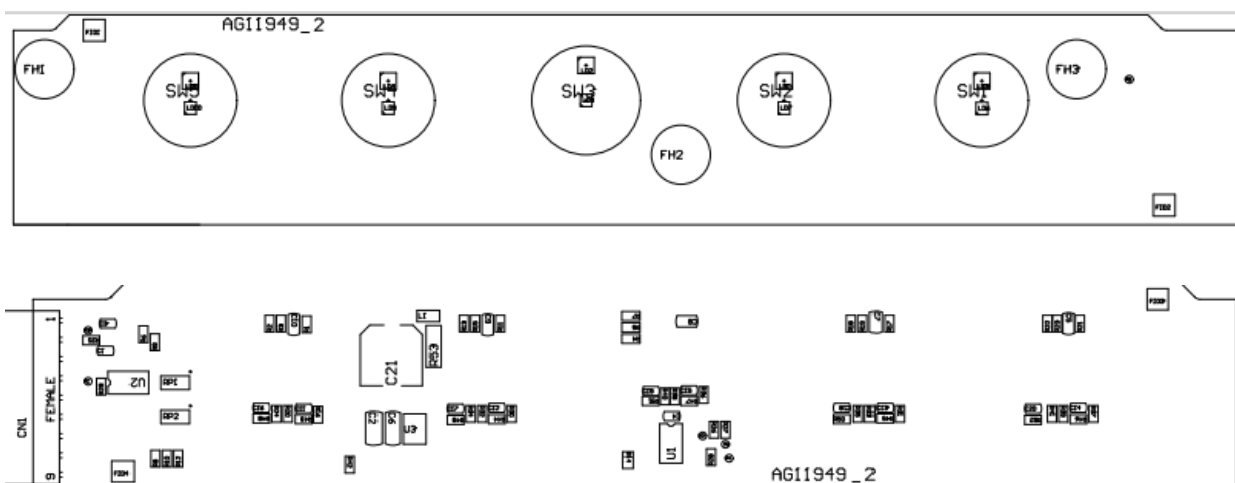
Diagram illustrating the internal circuitry of the AGI2323_2 device, showing components like capacitors (CN1, CN20, CN17), resistors, and a transformer (UL 94V-0).



PCB	AG12676
Part Number	004-1421
Description	Audio Connectors



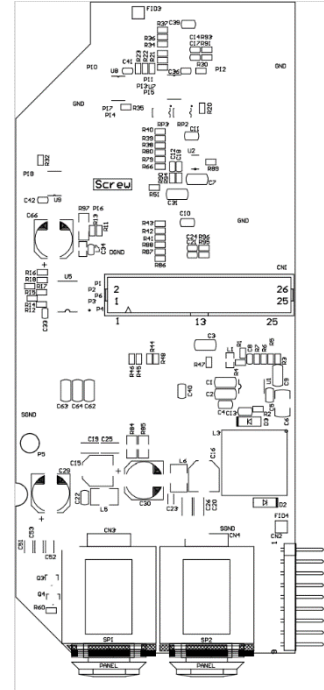
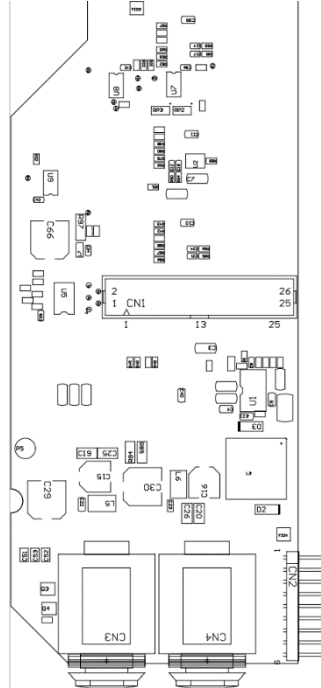
PCB	AG11949
Part Number	004-1233
Description	Surface Bottom



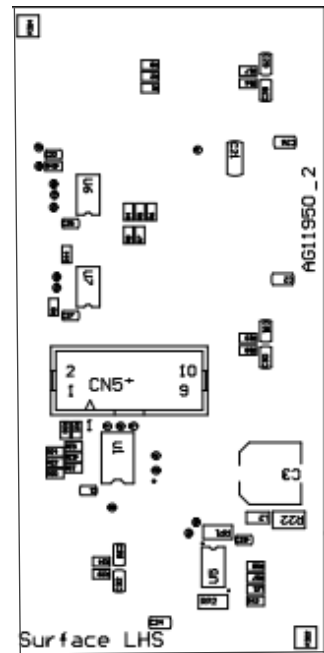
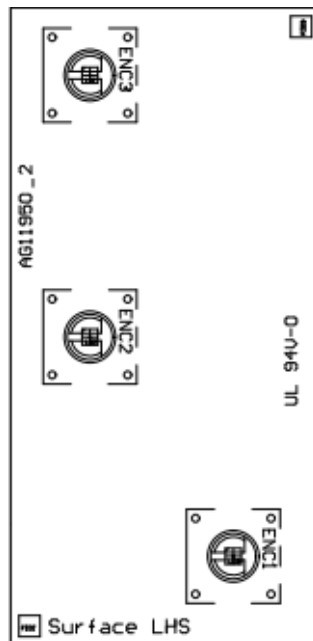
Parts Identification CQ-18T



PCB	AG12675
Part Number	004-1420
Description	Surface RHS



PCB	AG11950
Part Number	004-1234
Description	Surface LHS





Parts Identification CQ-12T

Parts List

Chassis

Part Number	Description	Qty
AA12093	FRONT PNL CQ-12T	1
AA12478	SIDE TRIM CQ12T RIGHT (Plastic)	1
AA11852	SIDE TRIM CQ-18T LEFT (Plastic)	1
AA11929	SIDE PNL CQ18T LEFT (Metal)	1
AA12479	SIDE PNL CQ12T RIGHT (Metal)	1
AA12094	BASE PNL CQ12T	1
004-1476KIT	KIT CQ LCD +FIT	1
AA11884	PNL CQ18T SCREEN SUPPORT	1
AA12222	BEZEL TFT LCD 7" CQ SCREEN	1
AE11984	MODULE LCD TFT CQ 7"	1
AJ12138	KNOB ENC.ILLUM.LGE. TPE	1
AA11898	KEYMAT RUBBER CQ-18T SCREEN	1
AA12260	KEYMAT RUBBER CQ-18T SOFT	1
004-1240	FANA 60X60X10 12CM (AM12139)	1
AA12165	FAN GRILLE 60mm	1
AA12515	FACIA CQ12T BLUETOOTH WIN	1
AK11979	FEET FAST 20DIA X10MM	4
AB6952	CLAMP CABLE	1
AL8923	SWITCH MAINS	1

004-1476 KIT = Refer to the 'Removing LCD TFT Screen' Section for details

Screws

Part Number	Description	Qty
AB8172	NUT POT 9MM BLACK ZINC	1
AB0188	NUT M4 NYLOCK	4
AB7422	SCREW 2.7X9 AB TORX BK UH	12
AB9037	SCREW M3X5 TRUNC CSK TORX	27
AB0072	SCREW M3X6 PAN TORX BK PATCH	24
AB0102	NUT M3 NYLOCK	6



Cables

Part Number	Description	Qty
004-1416	WFMA CQ18T SURF.-SGND	1
004-1295	WFMA CQ18T/12T PWR SW.WIRE	1
004-1340	WFMA CQ12T PWR SW.-CPU (Power to CPU)	1

PCB

Part Number	PCB	Description	Qty
004-1341	AG12321	PCBA CQ-12T POWER IN	1
004-1422	AG12677	PCBA CQ-18T/12T AUDIO TOP	1
004-1440	AG12739	PCBA CQ-12T AUDIO BTM T2	1
004-1216-1X	AG11863	PCBA CQ-12T CPU-RF UNLKD	1
004-1216-2X	AG11863	PCBA CQ-12T CPU-RF US/CAN	
004-1286	AG12323	PCBA CQ-18T/12T COMMS	1
004-1439	AG12738	PCBA CQ-12T CONNECTOR	1
004-1233	AG11949	PCBA CQ-18T/12T SURFACE BTM	1
004-1438	AG12737	PCBA CQ-12T SURFACE RIGHT	1
004-1412	AG12629	PCBA CQ12T BLUETOOTH T2	1

Due to RF Regulations, CQ12T CPU for **USA** and **CANADA** must be ordered under part # **004-1216-2X**
For anywhere else, part # **004-1216-1X**

Other

Part Number	Description	Qty
AM12199	EXTERNAL PSU MODULE INLINE EDA6512	1
CQ12T-CASE	CQ12T Soft case	1
CQ12T-RK19*	CQ12 19" Rack Mount Kit (CQ12T 19" Left & Right)	1

*CQ12T Rack Mount Ears are to be supplied only as CQ12T-RK19 (Rack Mount Kit), not individually.



AA12479 SIDE PNL RIGHT (Metal)
AA12478 SIDE TRIM RIGHT (Plastic)



AA11929 SIDE PNL LEFT (Metal)
AA11852 SIDE TRIM LEFT (Plastic)



Touch Screen
004-1476KIT
KIT CQ LCD +FIT



AJ12138 KNOB



AA11898 KEYMAT
RUBBER
CQ-18T SCREEN



AA12260 KEYMAT RUBBER
CQ-18T SOFT



004-1240 FANA
60X60X10 12CM



AL6893 Jack
Socket – On
Surface Right



AB8172 NUT
POT 9MM
BLACK ZINC



AB11989
PILLAR
M3X11 HEX
BRASS



AB11988
PILLAR
M3X6.5 HEX
BRASS I/S
7MM



AB7422 SCREW
2.7X9 AB TORX
BK UH



AB9037 SCREW
M3X5 TRUNC
CSK TORX



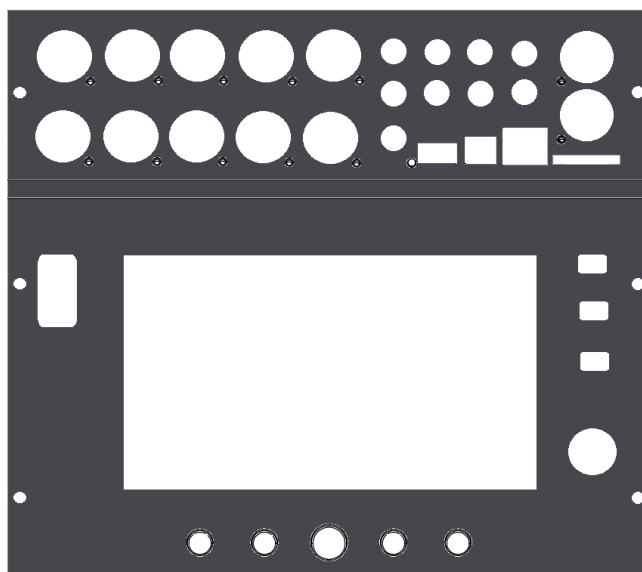
AB12365 SCREW
M4X8 CSK POZI
BK



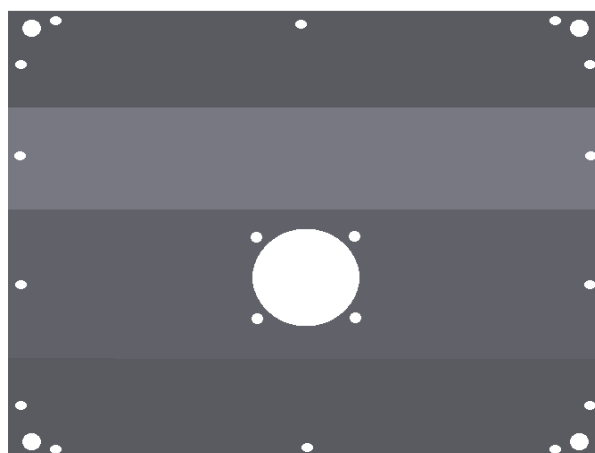
AB0072 SCREW
M3X6 PAN TORX
BK PATCH



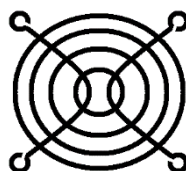
AB0102 NUT M3
NYLOCK



AA12093 - FRONT PNL CQ-12T



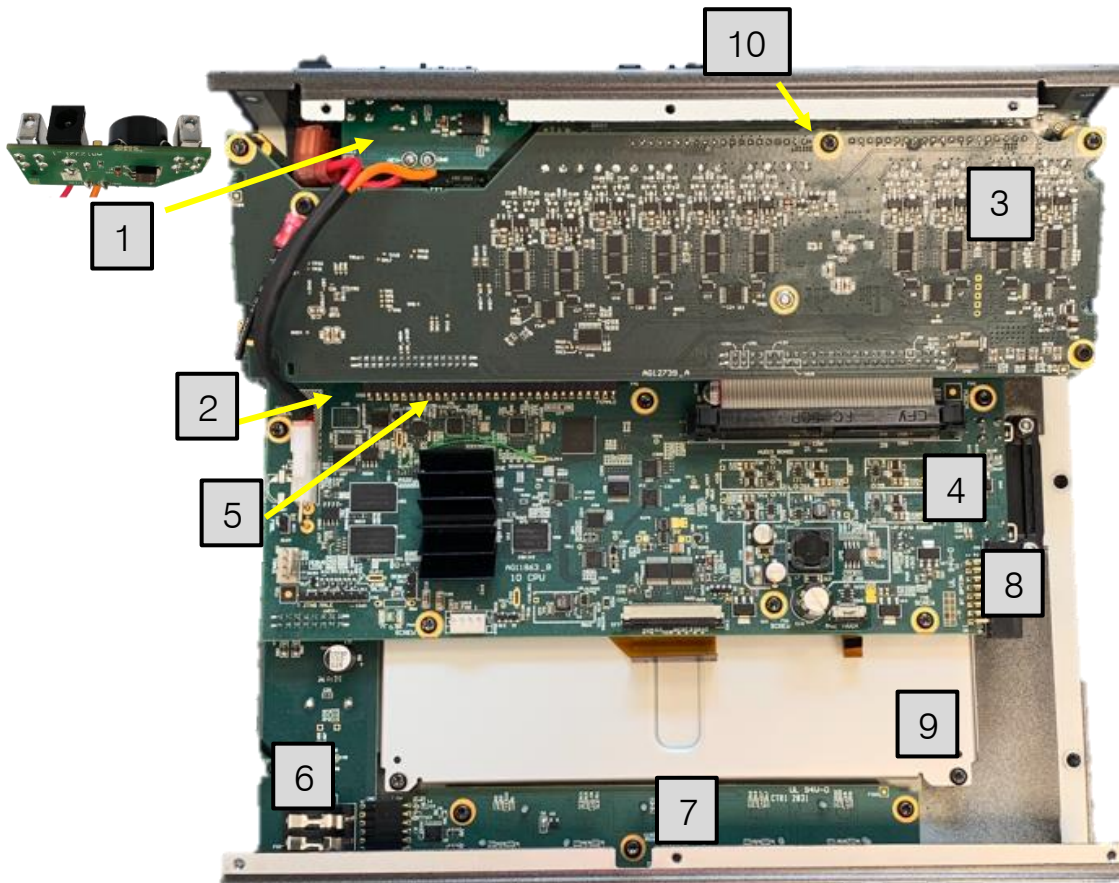
AA12094 - BASE PNL CQ12T



AA12165 - FAN GRILLE 60mm



Circuit Board Layout CQ-12T

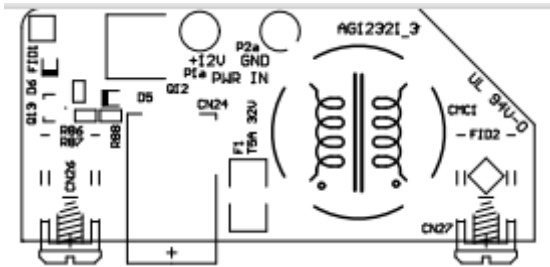


- 1.- Power In - 12v AG12321 - 004-1341
- 2.- Audio Top Board - AG12677 - 004-1422
- 3.- Audio Bottom Type 2 Board - AG12739 - 004-1440
- 4.- CPU Board - AG11863 - 004-1216
- 5.- COMMs board - AG12323 - 004-1286
- 6.- Surface RHS board - AG12737 - 004-1438
- 7.- Surface bottom board - AG11949 - 004-1233
- 8.- Bluetooth Board - AG12629 - 004-1412
- 9.- LCD TFT - 004-1476KIT
- 10.- Audio Connectors Board - AG12738 - 004-1439

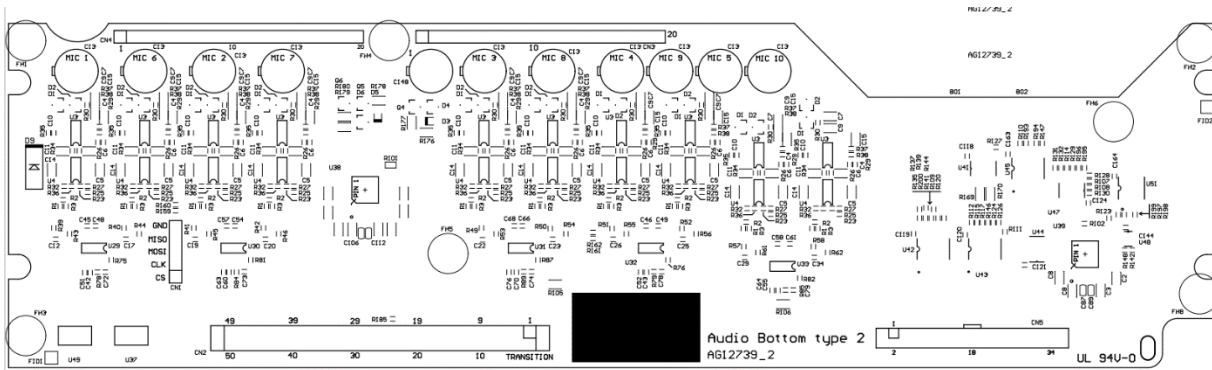


Circuit Board Identification CQ-12T

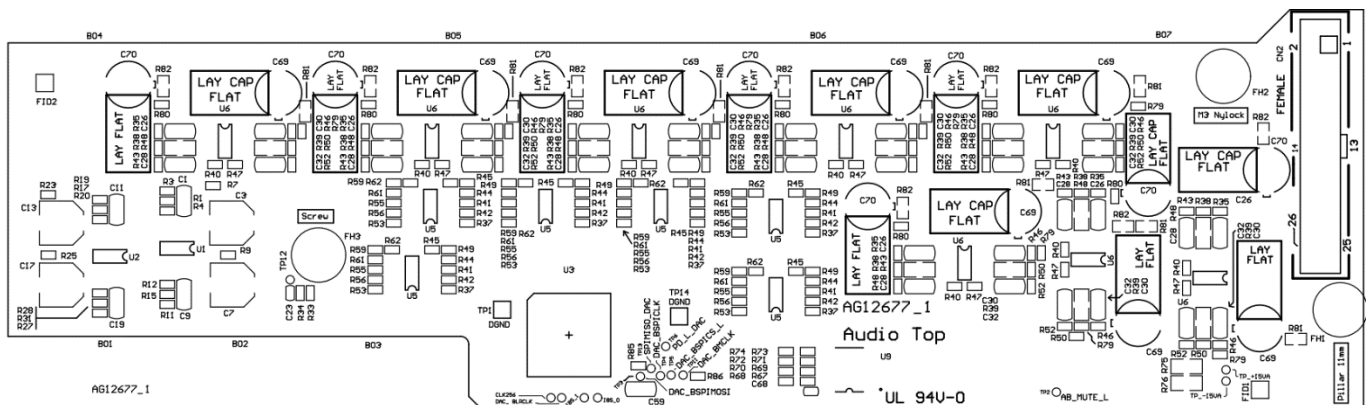
PCB	AG12321
Part Number	004-1341
Description	Power In



PCB	AG12739
Part Number	004-1440
Description	Audio Bottom



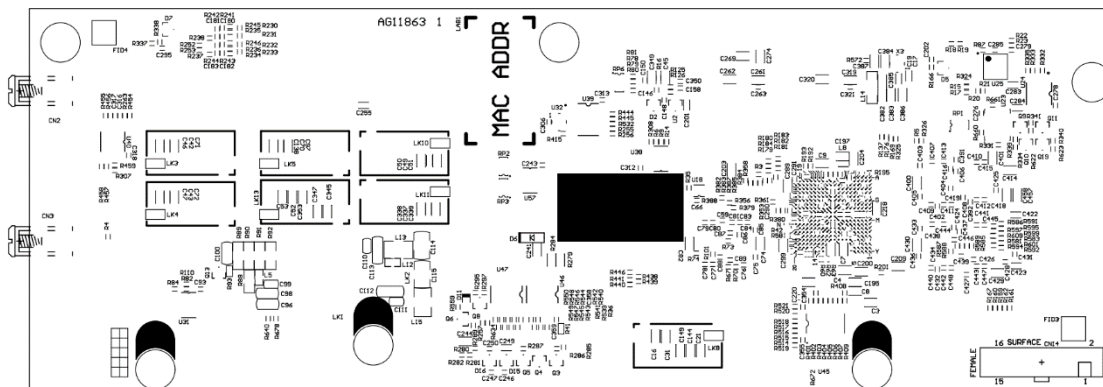
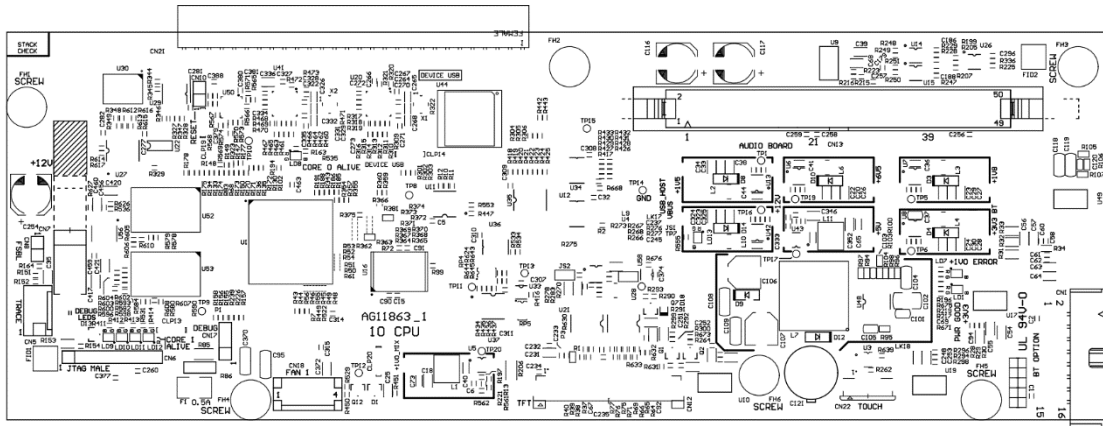
PCB	AG12677
Part Number	004-1422
Description	Audio Top



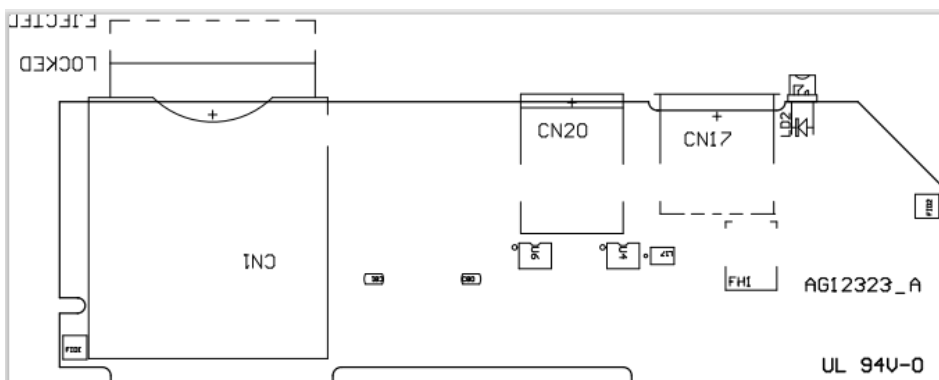
Parts Identification CQ-12T



PCB	AG11863
Part Number	004-1216-1X / 004-1216-2X
Description	CPU board

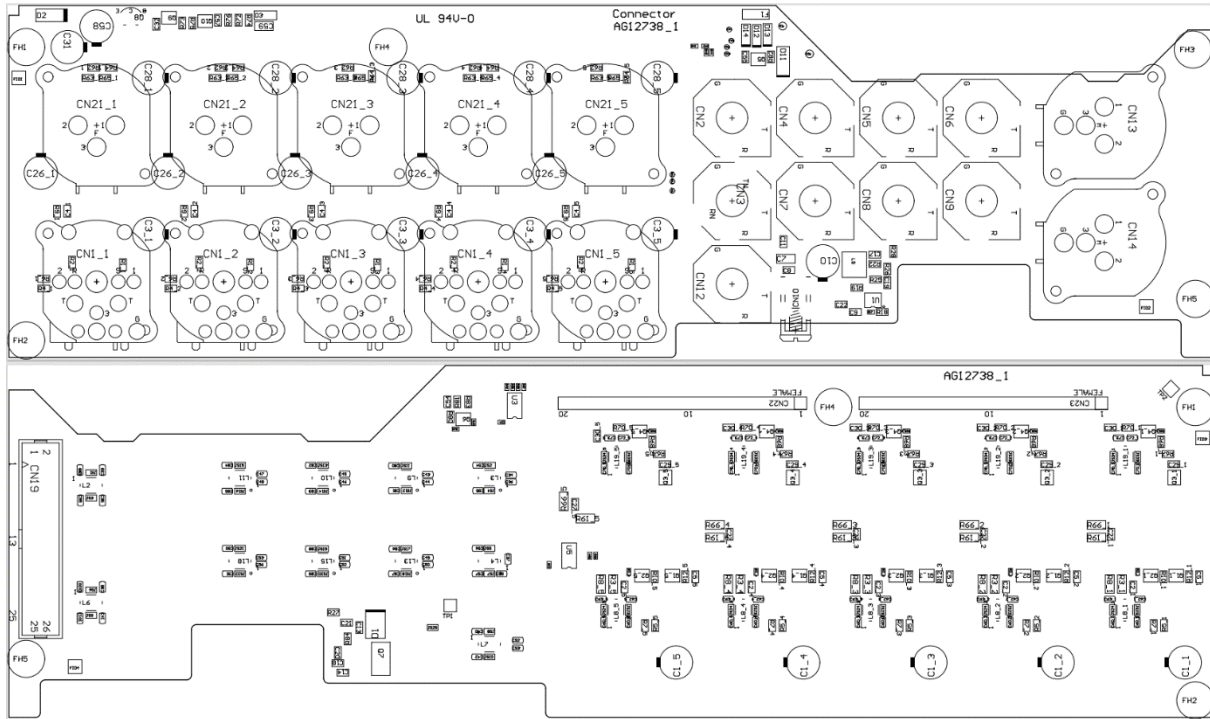


PCB	AG12323
Part Number	004-1286
Description	COMMs

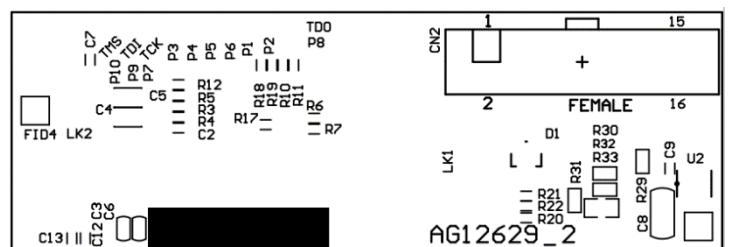
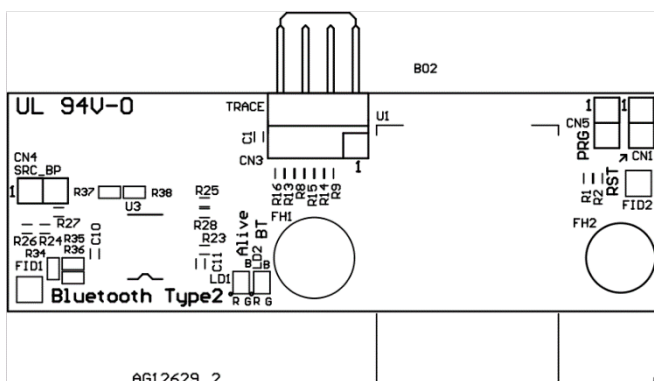


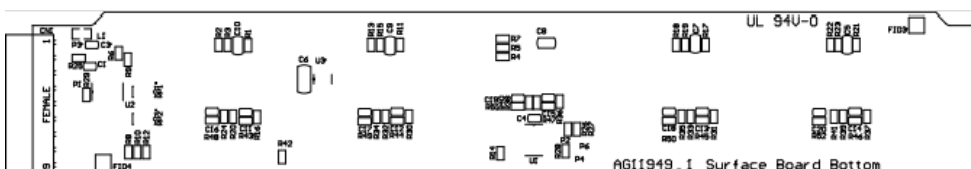
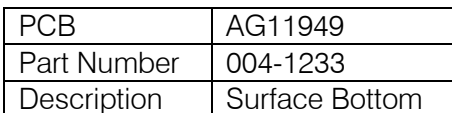


PCB	AG12738
Part Number	004-1439
Description	Audio connectors



PCB	AG12629
Part Number	004-1412
Description	Bluetooth



[illegible]



Servicing Information

Hot Melt Glue

Some connectors and wireforms/harnesses may be held in place with hot melt glue. You will need 99% Isopropyl Alcohol (propan-2-ol) to remove it. Follow these steps:

- Apply a small amount of 99% Isopropyl Alcohol to a swab and apply it to the edges of the glue
- Leave it for 20 seconds and then pick off the glue by hand or by using a tool that is of low risk to cause damage. Do not use excessive force. If the glue does not come off re-apply the Isopropyl Alcohol.
- Once the glue is removed from the connector release the wireform.
- Once the service/repair is complete re-apply the hot melt glue to secure the wireform in place.

Backup show

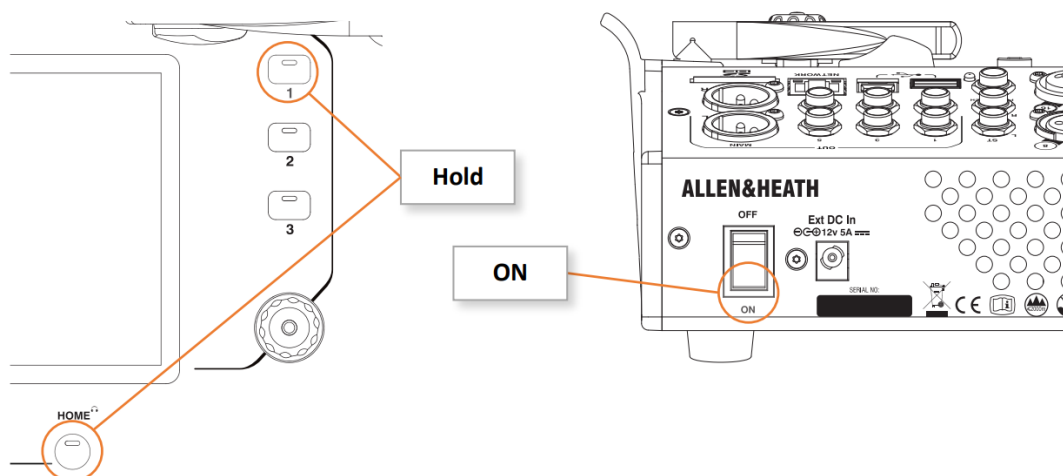
In order to preserve customer data, the settings should be stored and copied to two separate storage devices before attempting any resets or servicing.

After replacing PCB parts Firmware Update must be done

After replacement of and PCBs inside the unit the firmware will need to be updated to ensure that the correct firmware is installed in all parts of the unit.

CQ-18T & CQ12T- Resetting the unit

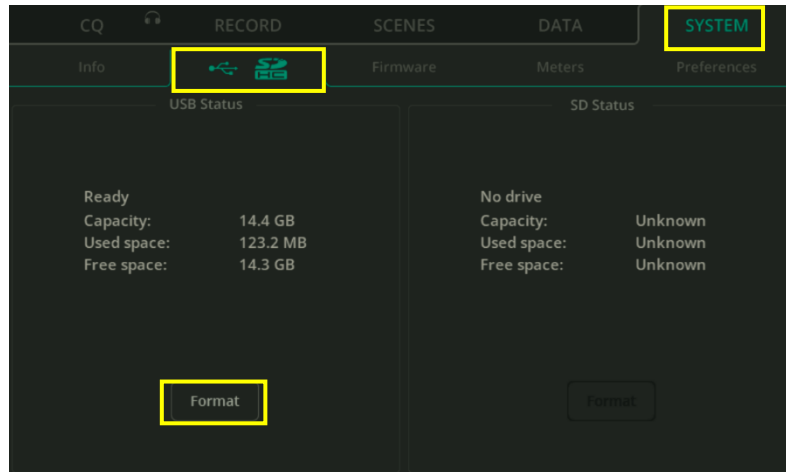
To carry out a full factory reset, hold the 'HOME' key and Soft Key '1' whilst powering on the unit and wait until it has fully booted.



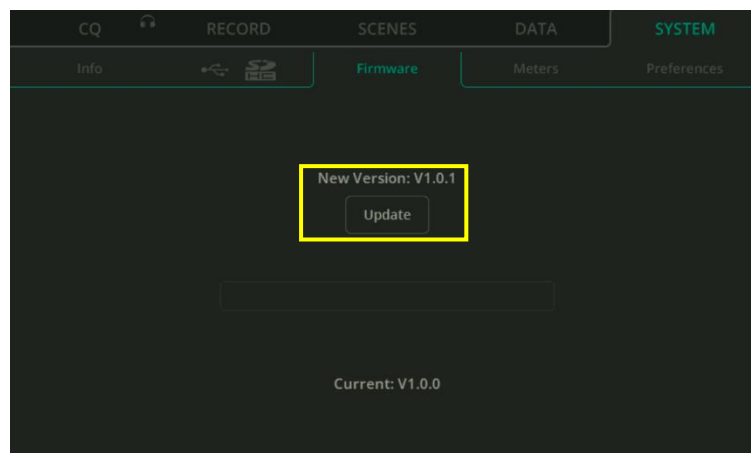


CQ18T & CQ12T - Updating firmware

- 1) Connect a USB drive to the CQ.
- 2) Press the 'HOME' key then use tabs to navigate to 'SYSTEM' > 'USB / SDHC' (shown as icons).

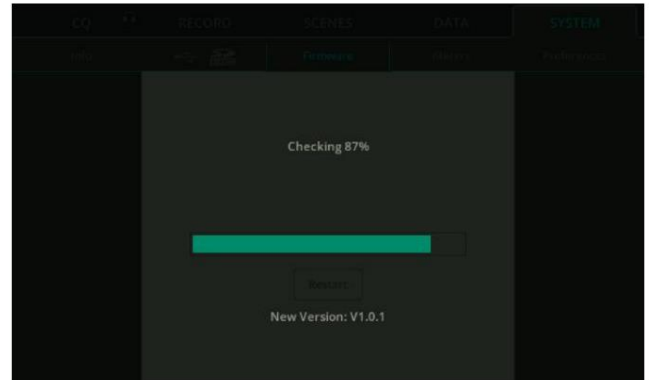
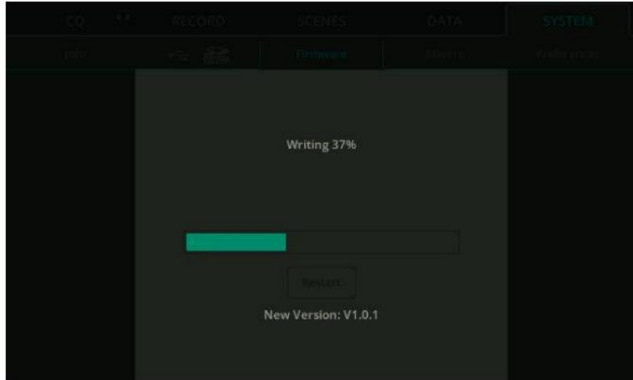


- 3) Under 'USB Status' the total capacity, used and free space on the drive is shown.
- 4) If the drive cannot be seen, remove and format it to a FAT32 file system using a computer before reconnecting to the CQ.
- 5) Press the 'Format' button to format the drive. This will clear all data on the drive and set up the correct folder structure for use with the CQ.
- 6) Once formatting is complete, disconnect the drive and connect it to a computer.
- 7) Download and unzip the latest version of firmware.
- 8) Copy the firmware file, which will have a name like 'CQ18tUPG_1_0_1_r1234.bin', to the root of the USB drive. Do not place it in any folder.
- 9) Ensure there is only one version of firmware on the drive and if any old versions have been deleted from the drive, that the Trash or Recycle Bin has been emptied.
- 10) Disconnect the drive from the computer and reconnect it to the CQ.
- 11) Press the 'HOME' key then use tabs to navigate to 'SYSTEM' > 'Firmware'.





- 12) The current firmware version will be shown at the bottom of the screen and the new version on the drive will be shown above the 'Update' button.
- 13) Check that the new version on the drive is correct, then touch the 'Update' button.

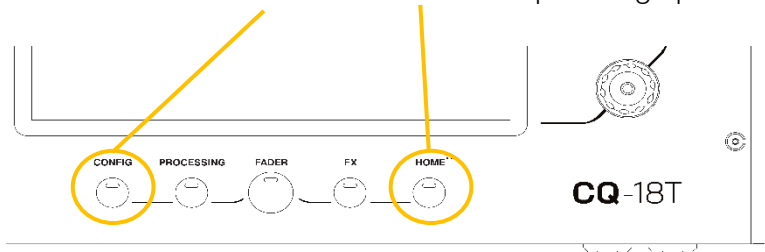


- 14) The firmware will be written and checked. This should take less than 3 minutes
- 15) When complete, a 'Success' screen will be shown with a '**Restart**' button.
- 16) Touch the '**Restart**' button to restart the CQ and complete the update.
- 17) Check the Firmware Version in the 'HOME' > 'SYSTEM' > 'Info' screen.
- 18) Optional (for Beta testing only) - Carry out a factory reset to prevent any issues due to stored data.

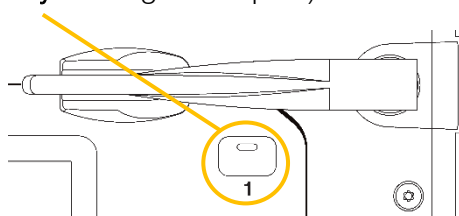
CQ18T & CQ12T – Forced Firmware Update

*** Ensure the above points 1) to 10) are completed ***

- 11) Press and hold **CONFIG** and **HOME** while powering up



- 12) If **soft key 1** goes **GREEN** go to step 13) Otherwise, go to step 14)
- 13) Press **soft key 1** and go to step 15)



- 14) Delete Firmware .bin file from USB key, then copy the Firmware .bin file again, start from step 11) (if you have hit point 14) more than once contact Support (Support@allen-heath.com)
- 15) Done.



CQ18T Network Setup

Remote control of the CQ is via either the built-in Wi-Fi or the Ethernet connection.

Only one of these can be enabled and used at a time.

Adjust network settings by navigating to '**CONFIG**' > '**CONTROLS & NETWORK**' > '**NETWORK**'.

On first boot or after a reset, network defaults are as follows:

Wi-Fi

- The SSID is **Visible**.
- The SSID is [CQ18T_XXXX] where XXXX are the last 4 digits of the serial number.
- Security is set to '**OPEN**', so no password is required to connect a device.
- Password is set to '**DefaultPassword**'

Note: This will be the password if Security is switched to '**WPA2**' but the password has not been changed.

- Country is set to '**World-Wide**' (depending on shipped firmware).
- Channel is set to '**AUTO**'.

Ethernet

- IP Settings are '**Automatic**'
 - The unit will be assigned an IP address by a DHCP server (e.g. a connected router), devices on the same network and in the same network range running CQ-MixPad can then connect to the unit.
 - If no address is provided, the CQ will automatically assign itself a local address. This allows for a direct connection to a computer using a network cable.

CQ12T Network Setup

Remote control of the CQ-12T is via the Ethernet connection.

Adjust network settings by navigating to '**CONFIG**' > '**CONTROLS & NETWORK**' > '**NETWORK**'.

On first boot or after a reset, the network default is as follows:

- IP Settings are '**Automatic**'
 - The unit will be assigned an IP address by a DHCP server (e.g. a connected router), devices on the same network and in the same network range running CQ-MixPad can then connect to the unit.
 - If no address is provided, the CQ will automatically assign itself a local address. This allows for a direct connection to a computer using a network cable

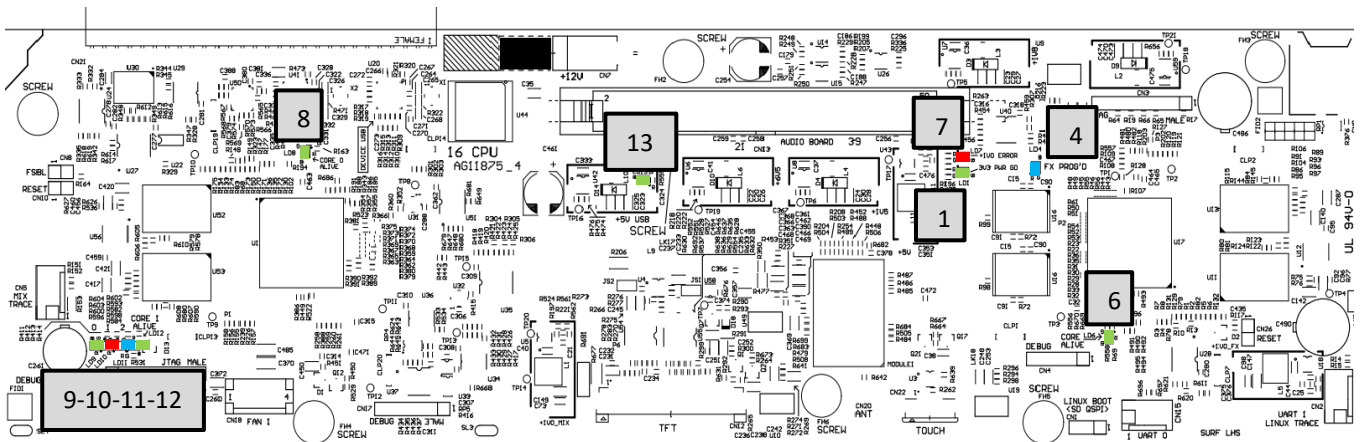


Diagnostics

A number of LED's are placed on the main CPU to help monitor activity on these board. This includes LED's for power rails, USB, and FPGA/DSP programmed and active.

Due to the presence of these LED's, there is less need for power rail test points.

Also supplied are routing overviews for Power Distribution and Control/Audio routing. Use these to identify associated PCB's when a fault occurs.



LD1 = On solid - Power good +3v3

LD4 = Heartbeat pattern - FX PROG +3v3 *(Only on CQ-18T)*

LD6A = Slow Blink - FX Alive +3v3 *(Only on CQ-18T)*

LD6B = Slow Blink - FX Alive +3v3 *(Only on CQ-18T)*

LD7 = Error +1v

(This led will light up red only when an error occurs)

LD8B = Heartbeat pattern - Core 0 Alive +3v3

LD8A = Heartbeat pattern - Core 0 Alive +3v3

LD9 = (Off on normal operation) Debug

LD10 = (Off on normal operation) Debug

LD11 = Heartbeat pattern – Debug

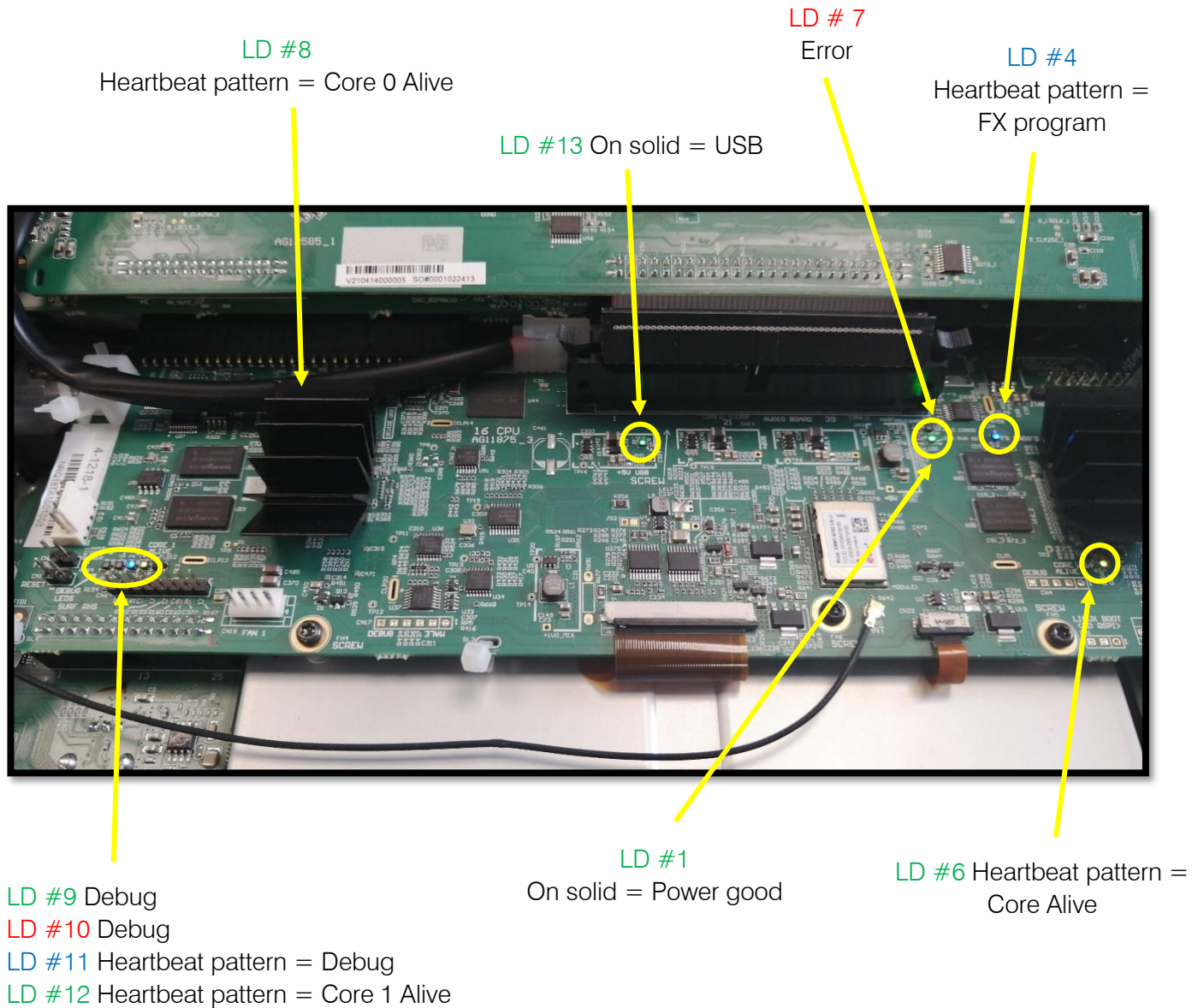
(For reference of A&H software development only)

LD12B = Heartbeat pattern - Core 1 Alive

LD12A = Heartbeat pattern - Core 1 Alive

(These LEDs will turn red if there's a problem with the Core)

LD13 = On solid - USB +5v



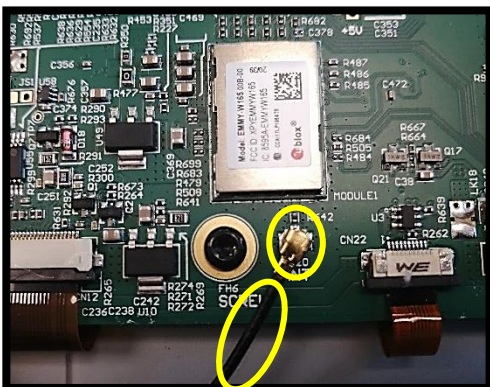
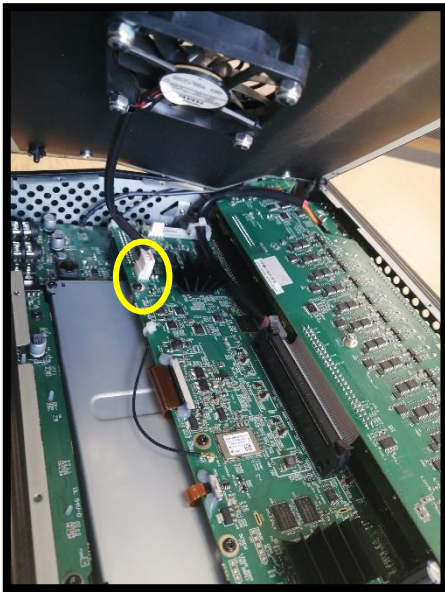
For reference of A&H software development only



Disassembly Procedure



- 1.- Remove the back cover
- 2.- When lifting the cover, disconnect the fan from the CPU board



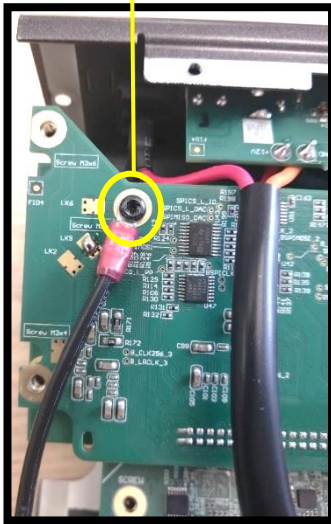
- 3.- Remove side panels
- 4.- Before removing the side side panel, the antenna cable that goes to the CPU board needs to be disconnected by carefully pulling the connector up.

The Antenna wire and connector are very delicate, please remove and place back in carefully. Make sure it does not get pinched by other PCBs



Removing Audio Bottom Type 2 Board

Ground cable

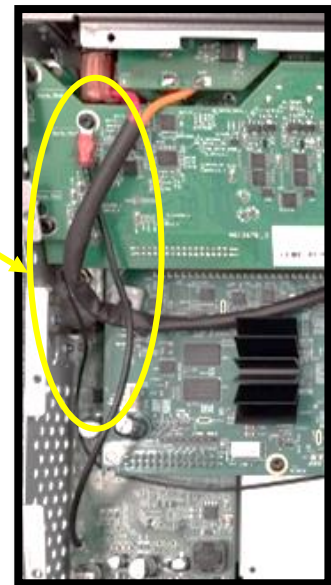


- 1.- Remove all 6 screws including the middle nut
- 2.- Remove the ribbon cable by pressing the side locks and lifting the connector
- 3.- Remove ground cable coming from Headphones, soft keys and main pod board
- 4.- Carefully lift the board (It has two connectors with 25 pins each at the back that need to be lifted)

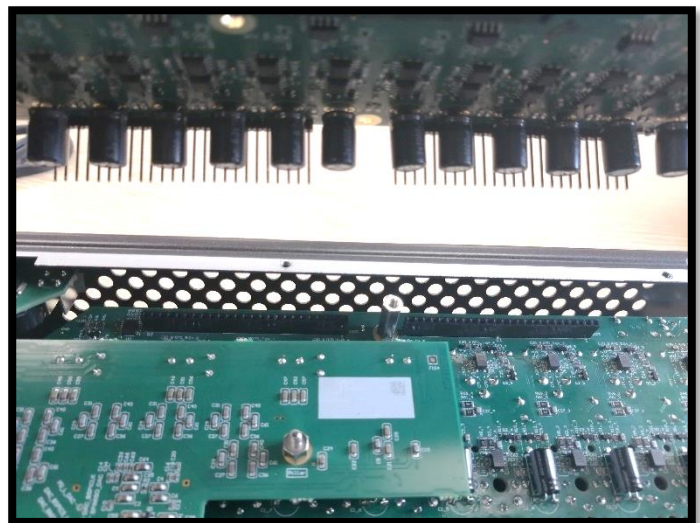
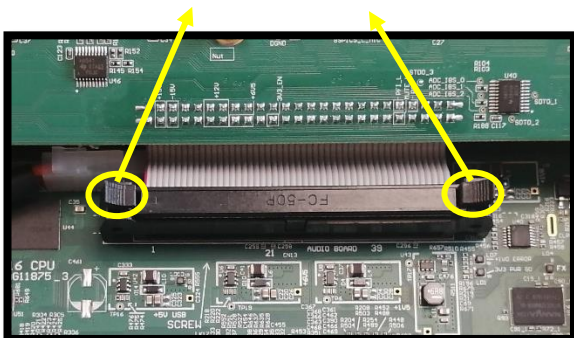
Note:

Kindly ensure that the routing of the ground cable is as follows.

This prevents the cable from getting caught when re-assembling the unit



Ribbon cable locks

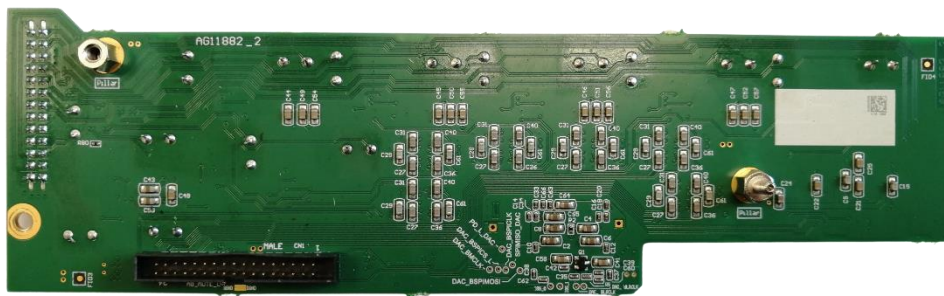
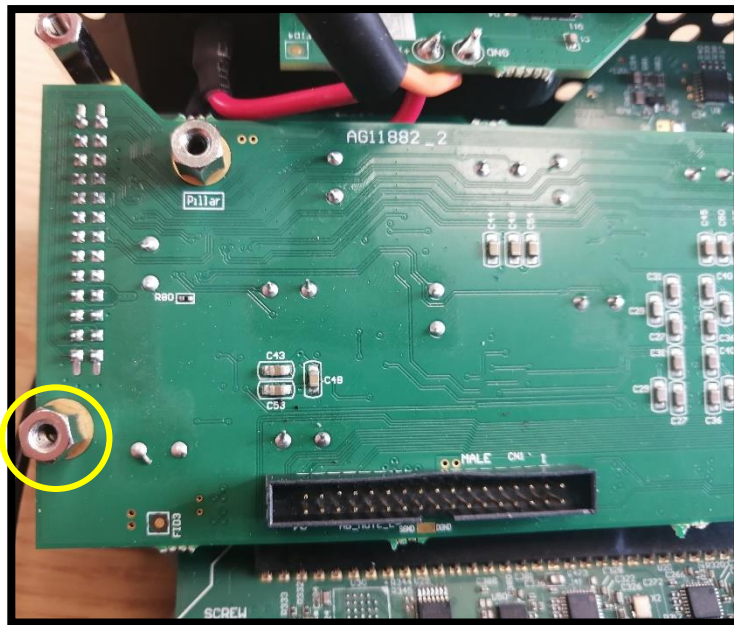




Removing Audio Top Board

- 1.- Remove left bottom pillar (Small pillar)
- 2.- Carefully lift up (It has a 26 pin connector on the side that needs to be lifted)

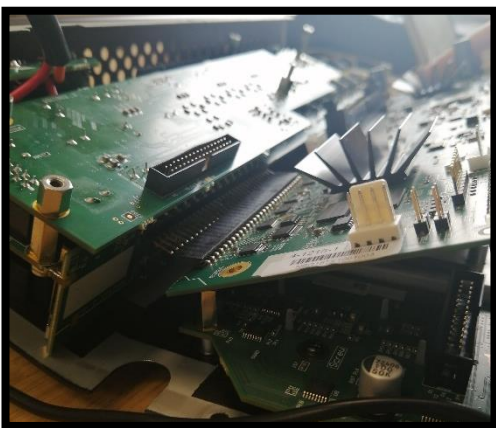
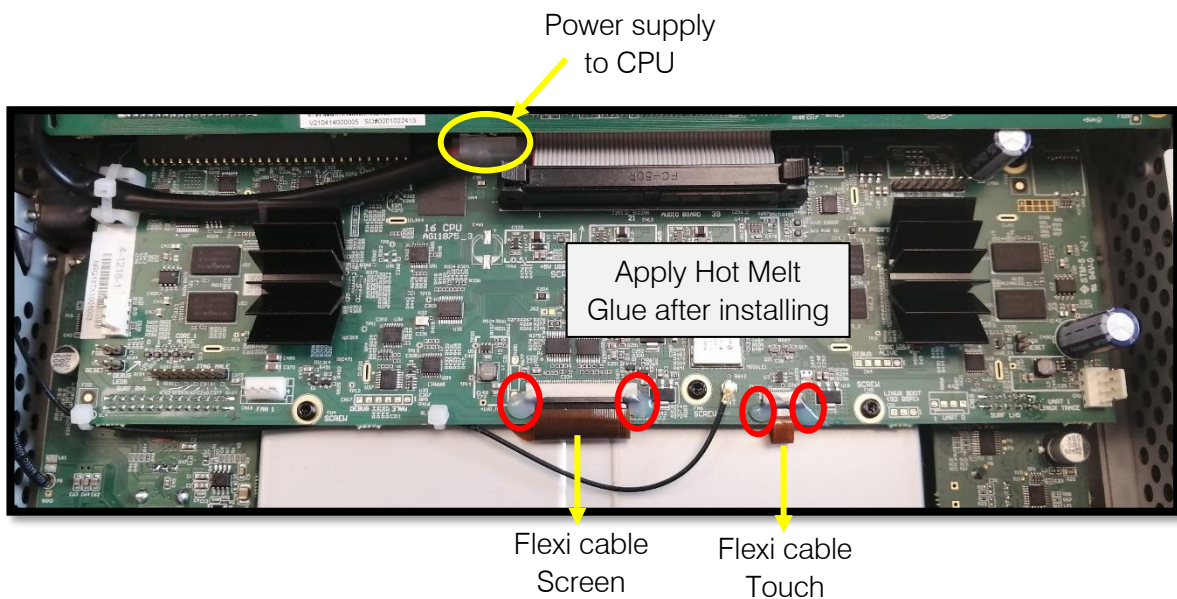
NOTE: Ground cable goes on the left side pillar, but on top of the Audio Bottom Type 2 board, not on top of this board.
Kindly ensure this is not pinched anywhere during re-assembly.





Removing CPU

- 1.- Disconnect the flexi cables by pulling the black lock of the IDC connector towards you and releasing the cable
(Big flexi cable = Screen / Small flexi cable = Touch)
- 2.- Remove the power cable of the CPU by releasing the top safety on the white connector and slightly pulling the connector out
- 3.- Remove 6 screws
(One hiding behind ribbon connector)
- 4.- Carefully lift the front side and pull towards you
(It has a 30 pins connector at the back that needs to be unplugged by pulling towards you)



To install the CPU board, incline the board to match the multi-pin connector. Once the pins are inside, lower the board to match the two other multi-pin connectors on the bottom



Removing Audio Connectors Board



- 1.- Remove all screws and nuts from all sockets
- 2.- Carefully pull board out



Removing Surface Bottom Board

- 1.- Remove the 3 screws and carefully pull to the right side (It has a 9 pin connector on the left side)
- 2.- If the matt has been removed or replaced, make sure is properly touching the surfacing by gently pulling the legs from the other side.





Removing Surface LHS Board

- 1.- Remove pods and nuts from the case
- 2.- The nuts are the only thing holding this board



Removing Surface RHS Board

(Surface bottom board needs to be removed first)

- 1.- Remove headphone nuts outside the case
- 2.- Remove pod and nut from case
- 3.- Remove single screw
- 4.- Remove pillar (Large pillar)
- 5.- Carefully pull up
- 6.- If the matt has been removed or replaced, make sure it is properly touching the surfacing by gently pulling the legs from the other side.



Removing COMMS Board

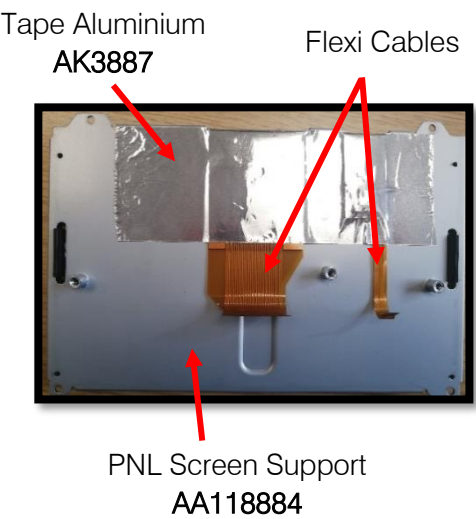
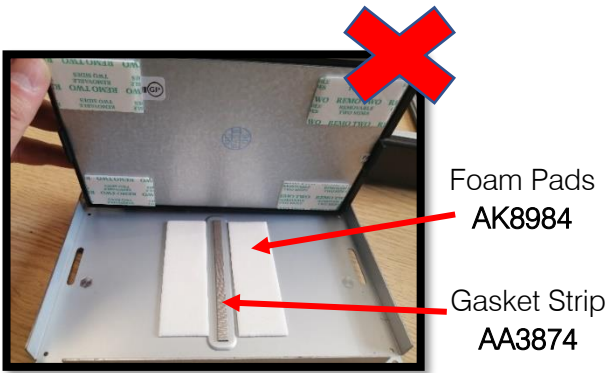
(Audio Connectors board needs to be removed first)

- 1.- Remove the inner screw
- 2.- Remove the outside screw above the USB B connector





Removing LCD TFT Screen



Do not raise the screen from the frame, as very thin flexi cables are wrapped around it.

If the touch screen needs to be replaced, spare part is supplied as an assembly kit (004-1476KIT), which includes the following:

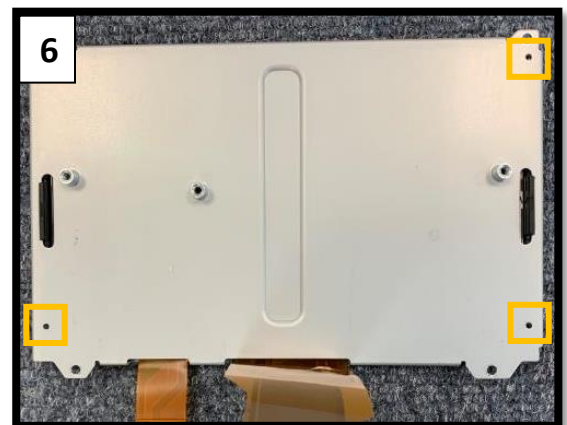
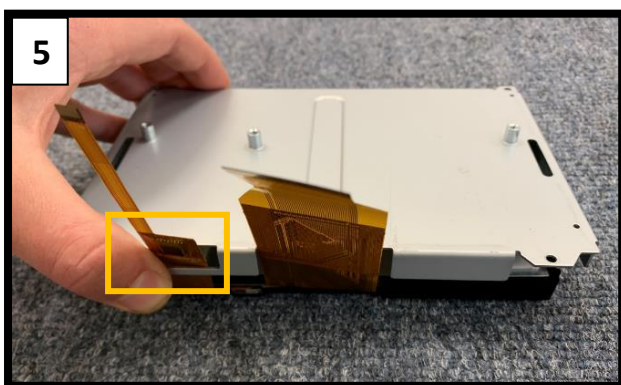
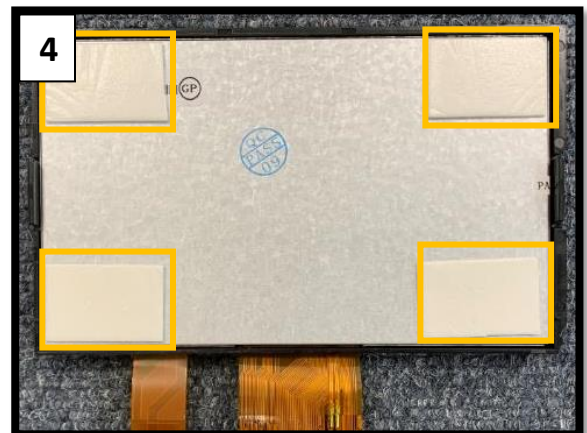
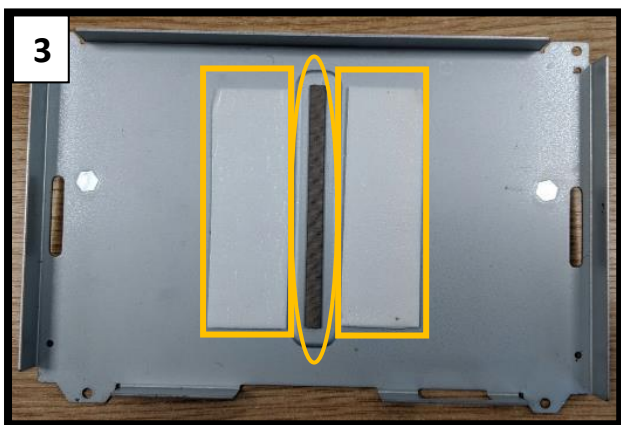
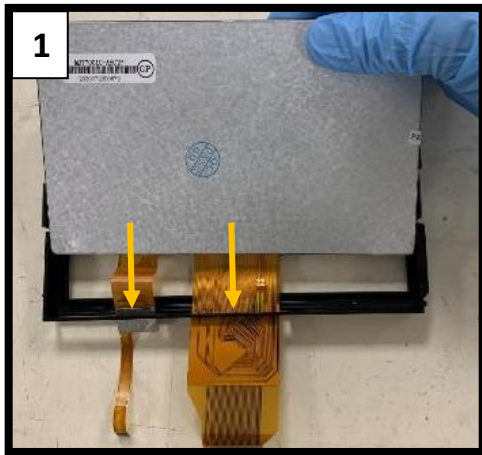
004-1476KIT	KIT CQ LCD +FIT	
AA11884	PNL CQ18T SCREEN SUPPORT	1
AA12222	BEZEL TFT LCD 7" CQ	1
AA3874	GASKET STRIP SCREEN EMI	1
AE11984	MODULE LCD TFT CQ 7" MDT7	1
AK3887	TAPE ALUMINIUM 45M REEL A	1
AK8984	FOAM PADS S/A D/S 25. 4X76	4

Note: 004-1476KIT shall be shipped already fully assembled.



004-1476KIT Assembly

If 004-1476KIT must be disassembled/assembled due to replacement of a single piece of the kit, kindly follow below procedure:

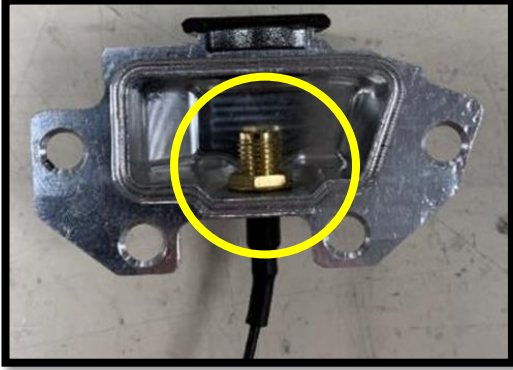




Removing Antenna

Remove Nut and Washer to replace Coax WiFi cable (AH12710)

When installing new cable, fit and secure Nut and Washer **TORQUE SETTING: 1.0Nm +/- 0.10Nm**

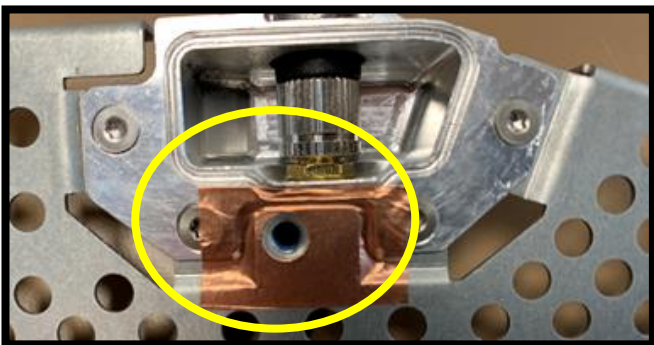


To replace aerial antenna, cover the metalwork to prevent from damaging and carefully untight by using only your fingers or pliers.



Please note:

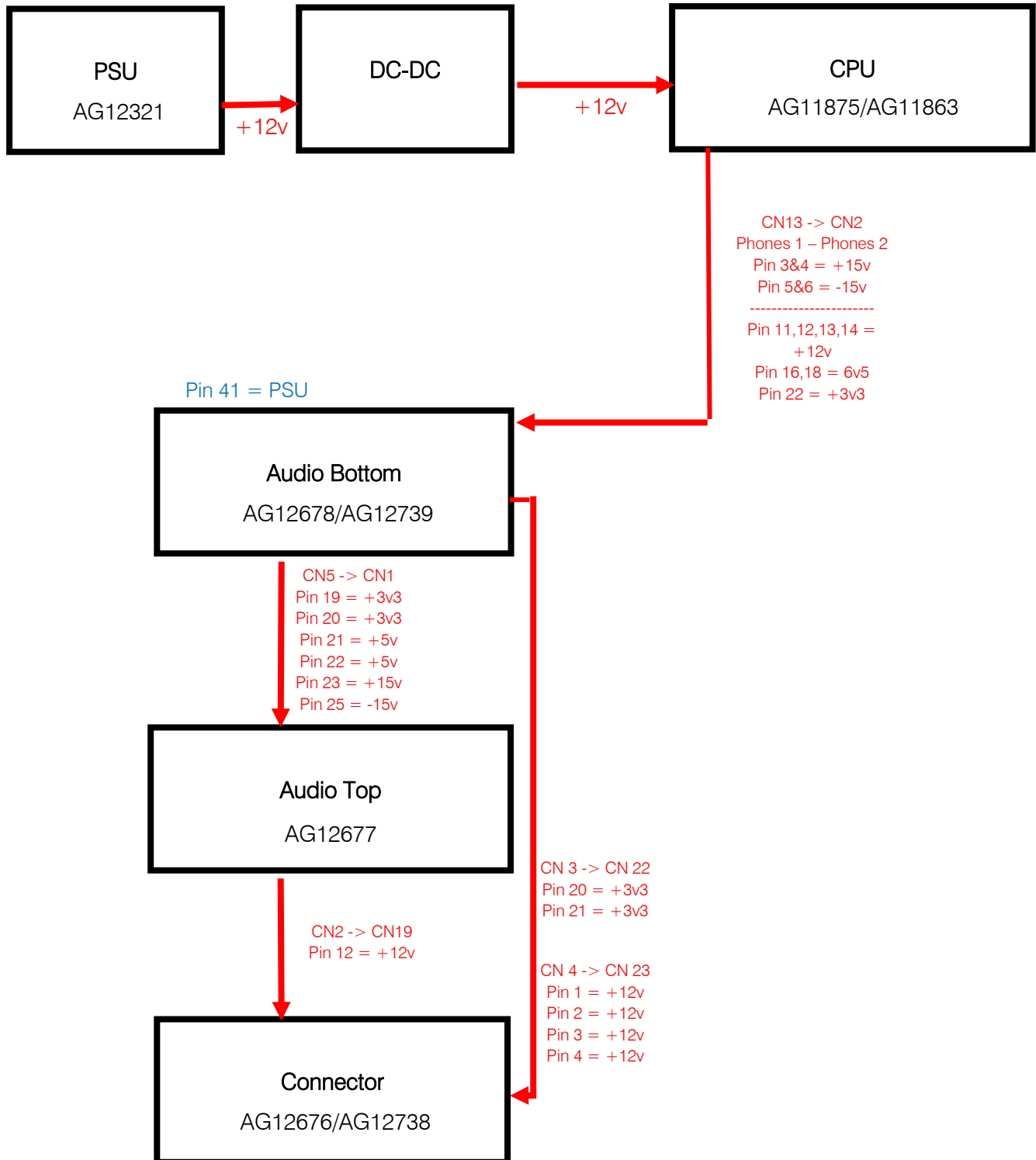
We do not advise nor recommend the use of pliers when tightening back the aerial, as this can cause serious damage and malfunction. Proceed to do this operation by tightening the aerial only with your fingers.

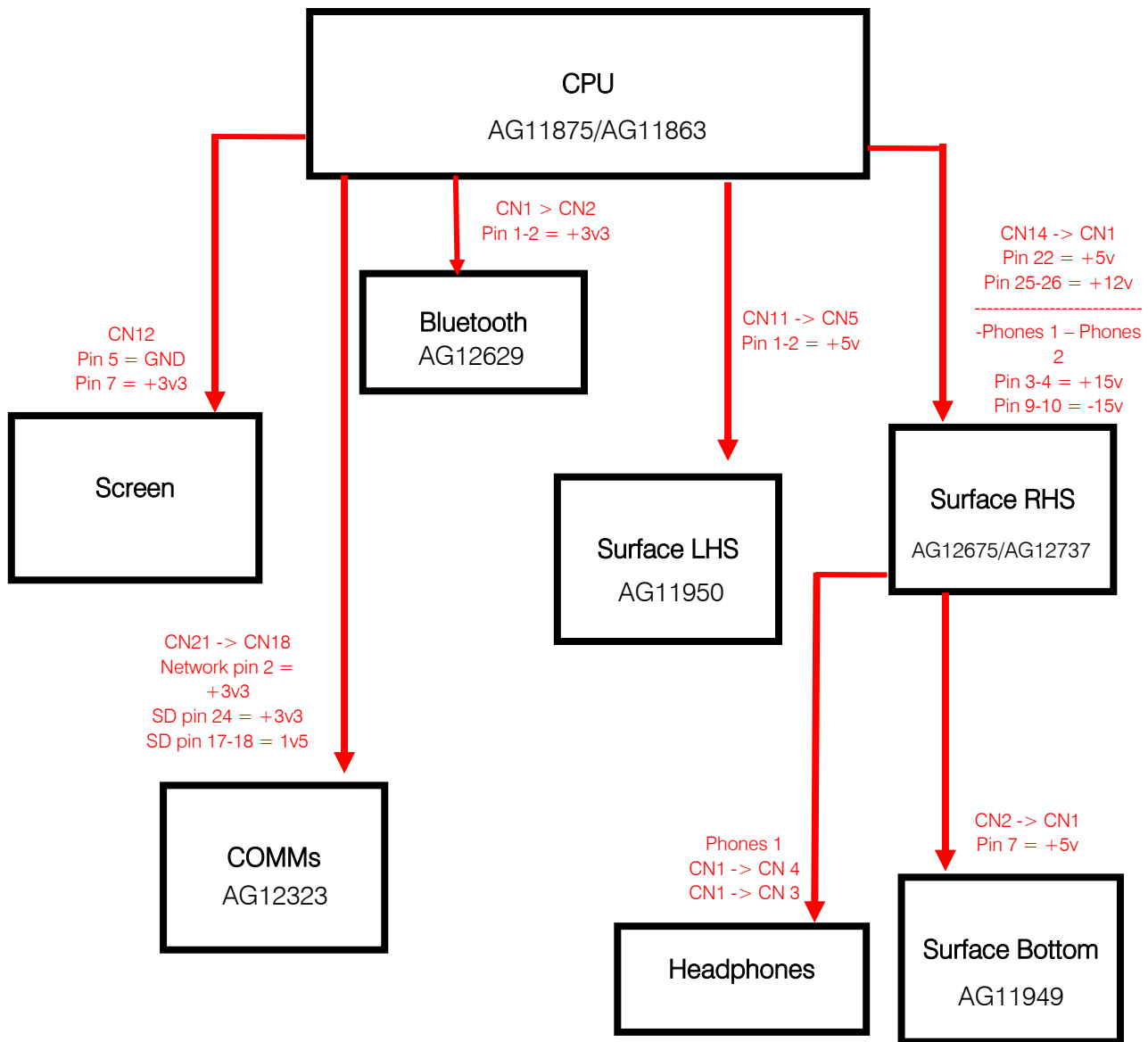


Under no circumstances should the copper cover be removed, this part of the assembly is essential to ensure proper operation of the antenna.



Power Distribution

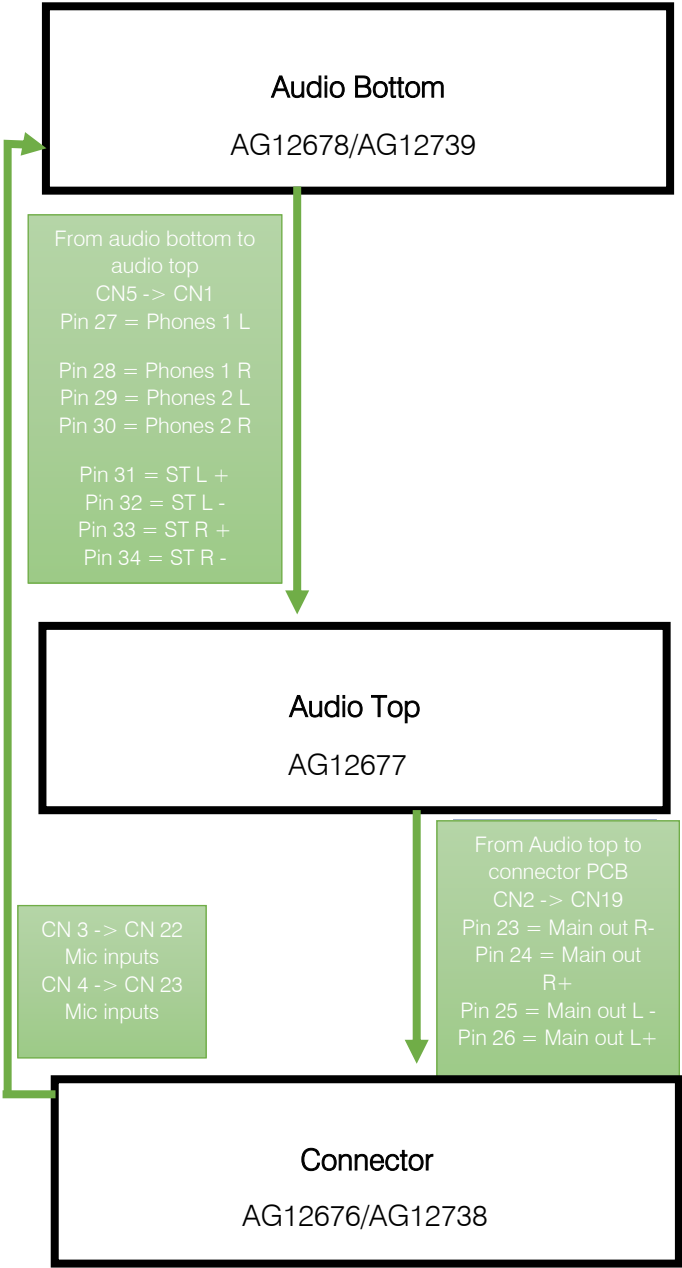
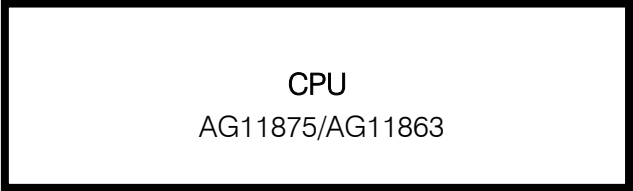






Routing Overview

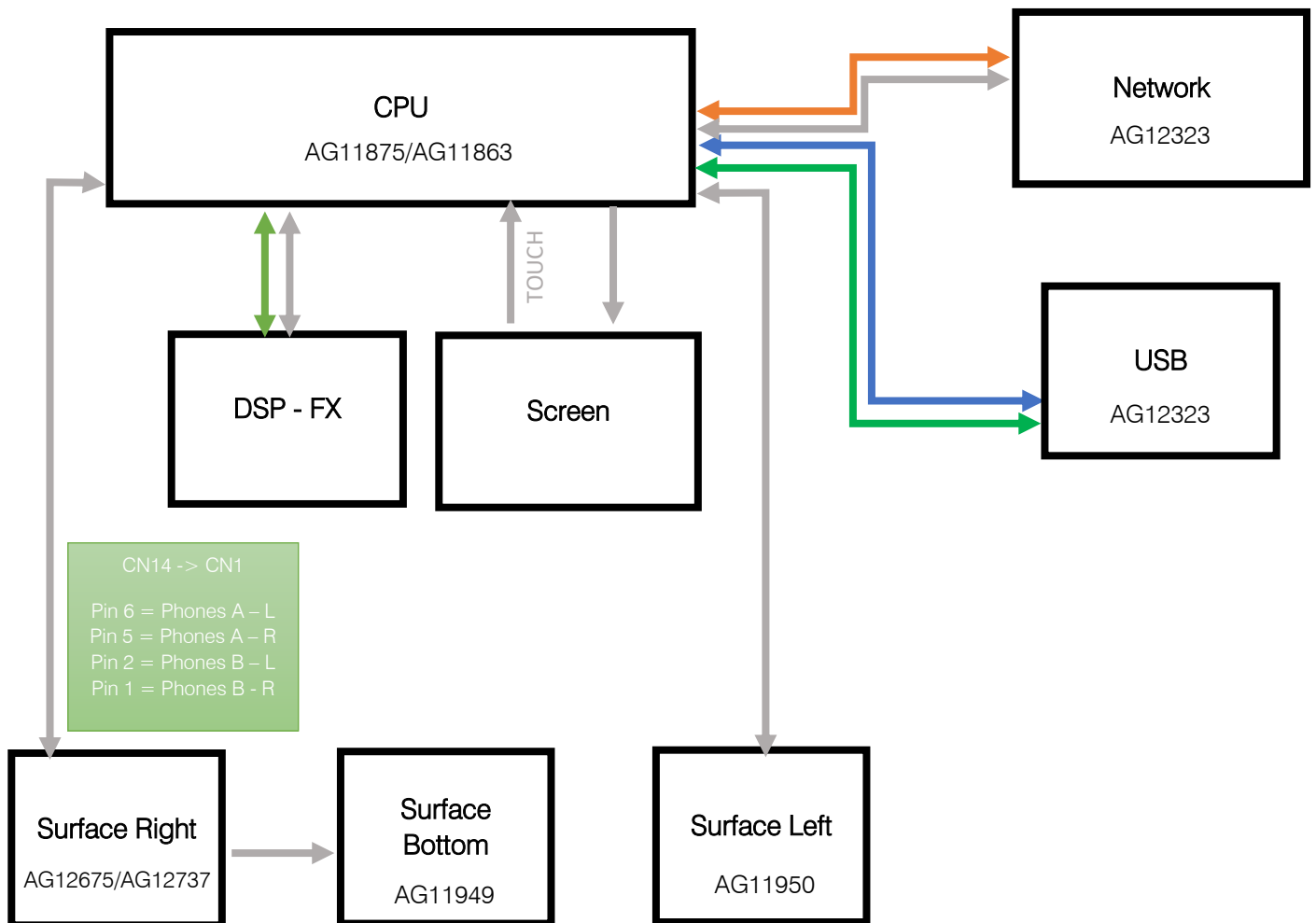
-  = Audio
-  = Control
-  = USB
-  = Ethernet



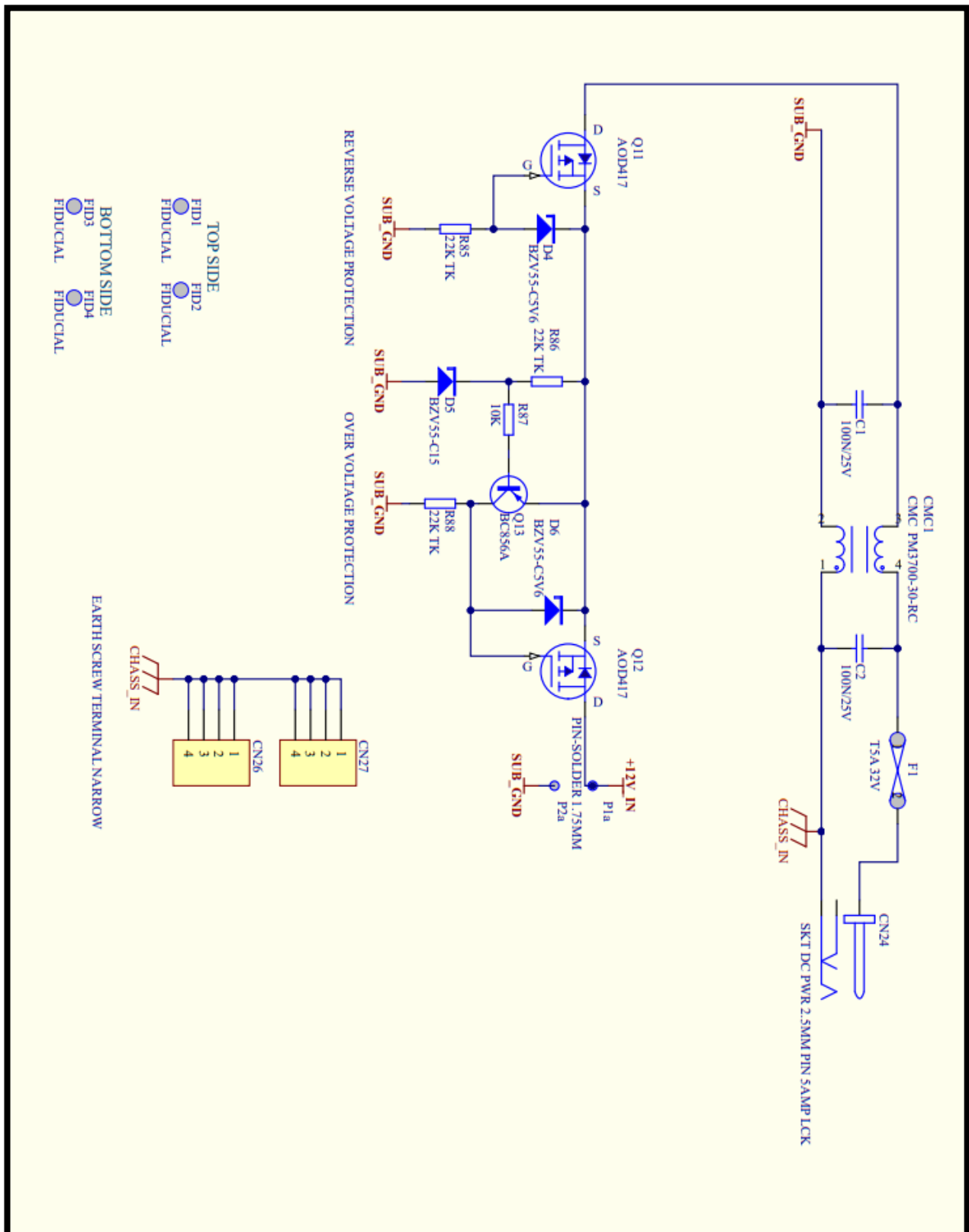
Routing Overview



- = Audio
- = Control
- = USB
- = Ethernet



42





Other Technical Information

Block Diagram

Specifications

Weights & Dimensions

All of this information is available to end users and can be found at the following location:

[CQ-12T - Allen & Heath \(allen-heath.com\)](https://allen-heath.com)

[CQ-18T - Allen & Heath \(allen-heath.com\)](https://allen-heath.com)

For further information please contact Allen&Heath Product Support

[Product Support - Allen & Heath \(allen-heath.com\)](https://allen-heath.com)