

Service  
Service  
Service



# Service Manual



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3141 785 37200

Version 1.0



# PHILIPS



**MCM1110 SH 190 Content List (Version:1.0)**

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|           |     |             |      |

|  |  |  |  |
|--|--|--|--|
| CABINET  |  |  |  |
| Diemensions with Boxes ( wxhxd ) --mm X --mm X --mm  |  | Material : HIPS / ABS / POM / V2 / SAN |  |
| Diemensions without Boxes ( wxhxd ) __mm X __mm X __ |  | Finishing : Chrome Plate               |  |
| Weight ( inclusive packing )                         |  | Units in Masstercarton                 |  |
| Weight ( exclusive packing & batery )                |  | Units in Dealercarton                  |  |

|           |                              |  |  |
|-----------|------------------------------|--|--|
| Remarks : |                              |  |  |
| 1         | used into DCB146 all version |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |
|           |                              |  |  |

Remark :

| GENERAL PART 1 - FRONT PANNEL SPECIFICATION |                            |        |    |            |             |
|---|----------------------------|--------|----|------------|-------------|
| Class No                                    | <b>MCM1110 All Version</b> |        |    | Ver        | Issued Date |
|   |                            |        |    | 1          | 5-Sep-11    |
|   |                            |        |    | 2          | -----       |
|   |                            |        |    | 3          | -----       |
| NAME : DS.XIE                               |                            | 10     | 10 | SH 190 - 1 | A4          |
| CHECK:                                      |                            | DATE : |    |            |             |



|   |                            |                    |                   |                     |             |             |
|---|----------------------------|--------------------|-------------------|---------------------|-------------|-------------|
| <b>GENERAL DESCRIPTION</b>  |                            |                    |                   |                     |             |             |
| MICRO System with Digital Tuner, Clock Timer , ipod , RMS 2 x 5W Universal Class D Power Amplifier<br>Aux In and Remote Control |                            |                    |                   |                     |             |             |
| LIFETIME : 7 Years  |                            |                    |                   |                     |             |             |
| Class   | Tuner                      | Supply + Amplifier | Loudspeaker Boxes | Recorder            | Clock       | CD / MP3    |
| I   |                            |                    | X                 | X                   |             |             |
| II  | X                          | X                  |                   |                     | X           | X           |
| III   |                            |                    |                   |                     |             |             |
| Page  | 12                         | 4,5                | 4                 | 6                   | 7           | 8,9,10,11   |
| <b>SAFETY requirements</b>  |                            |                    |                   |                     |             |             |
| Version   | Safety                     |                    |                   | EMC                 |             |             |
| /98   | EN 60065                   |                    |                   | CISPR 13            |             |             |
| /55   | EN 60065                   |                    |                   | CISPR 13            |             |             |
| /12   | EN 60065                   |                    |                   | EN 55013 / EN 55020 |             |             |
| /05   | EN 60065                   |                    |                   | EN 55013 / EN 55020 |             |             |
| /79   | EN 60065                   |                    |                   | CISPR 13            |             |             |
| /61   | EN 60065                   |                    |                   | CISPR 13            |             |             |
| <b>RADIATION / IMMUNITY requirments ( EMC )</b>   |                            |                    |                   |                     |             |             |
| <b>CLIMATIC requirements</b>  |                            |                    |                   |                     |             |             |
| ALL climates : + 5 Dregree till + 35 Degree   |                            |                    |                   |                     |             |             |
| MODERATE climates : + N.A till N.A Degree   |                            |                    |                   |                     |             |             |
| <b>PERFORMANCE CLASSES</b>  |                            |                    |                   |                     |             |             |
| <b>POWER SUPPLY</b>   |                            |                    |                   |                     |             |             |
| MAINS ( A.C. )  |                            |                    |                   | 230 Vac ± 15 %      |             |             |
| Version   |                            |                    |                   | / 12 /05            |             |             |
| Voltage Selection   |                            |                    |                   | No                  |             |             |
| Frequency   |                            |                    |                   | 50 Hz               |             |             |
| <b>POWER CONSUMER</b>   |                            |                    |                   |                     |             |             |
| Standby :   |                            | < =1W              |                   |                     |             |             |
| ( DEMO mode " OFF " ) , NOM. A, INPUT   |                            | nc                 |                   |                     |             |             |
| Maximum :   |                            |                    |                   |                     |             |             |
| @ 1/8 Prated , NOM. A, INPUT  |                            | 25W                |                   |                     |             |             |
| ECO Power mode :  |                            | <=0.5W             |                   |                     |             |             |
| Q and R according to Product Division Rules   |                            |                    |                   |                     |             |             |
| Quality : 0.4 % ( Major ) 1.5 % ( Mirror )  |                            |                    |                   |                     |             |             |
| Reliability : 2.0 % ( C 42 )  |                            |                    |                   |                     |             |             |
| Tested according to General Test Instruction refer to PHILIPS standary ( UAN -D1591 )   |                            |                    |                   |                     |             |             |
| Measured according to PHILIPS standary ( UAN - L1059 ) unless other wise stated   |                            |                    |                   |                     |             |             |
| All not mentioned date, please refer to PHILIPS standary ( XUW - 0010 - MAR 1995 )  |                            |                    |                   |                     |             |             |
| DERIVED   |                            | REMARKS            |                   |                     | APPROBATION |             |
|   |                            |                    |                   |                     |             |             |
| Remarks   |                            |                    |                   |                     |             |             |
|   |                            |                    |                   |                     |             |             |
| <b>GENERAL PART 1 - GENERAL SPECIFICICATION</b>   |                            |                    |                   |                     |             |             |
| Class No  | <b>MCM1110 All Version</b> |                    |                   |                     | Ver         | Issued Date |
|   |                            |                    |                   |                     | 1           | 5-Sep-11    |
|   |                            |                    |                   |                     | 2           | #REF!       |
|   |                            |                    |                   |                     | 3           | #REF!       |
| NAME : DS.XIE   |                            | 10                 | 10                | SH 190 - 3          |             | A4          |
| CHECK   |                            | DATE :             |                   |                     |             |             |

|   |  |  |            |             |             |
|---|--|--|------------|-------------|-------------|
| TECHNICAL DESCRIPTION   |  |  |            |             |             |
| 2 x 5W , matching LOUDSPEAKER of 2 x 4ohm. One INPUT SOURCE, ( Digital Sound Control ).   |  |  |            |             |             |
| GENERAL PART  |  |  |            |             |             |
| OUTPUT stage Protection   | : NO                                   | Temperature                                    | : No.      | Shorcircuit | : Yes       |
| LoudSpeaker D.C. Protection   | : NO.                                  |  |            |             |             |
| INDICATORS  |  |  |            |             |             |
| Standby Mode Indicator  | : LCD display time                     |  |            |             |             |
| ECO Mode Indicator  | : N/A                                  |  |            |             |             |
| ELECTRICAL DATA   |  |  |            |             |             |
| DSC :   | Jazz,Rock,Clas,POP                     | Channel Differencer at -46dB                   | 3          | dB          |             |
| DBB   | ON/OFF                                 | Hum ( -20 Volume )(FILTER)                     | 3          | mv          |             |
| SIS :   | N/A                                    | Residual Noise ( Volume Minium )(FILTER)       | 1.5        | mv          |             |
| VAC :   | N/A                                    | Channel Separation ( at 1 kHz )                | ≥ 30       | dB          |             |
| WOOX :  | N/A                                    | Signal / Noise ( weighted )(FILTER)            | ≥ 50       | dB          |             |
| INTERCONNECTS   |  |  |            |             |             |
| Input Sensitivity ( ±3dB ) rated ouput power at 1 kHz   |  | Line Output Voltage ( *1 )                     |            |             |             |
| Tuner   | : FM 67.5KHz,AM 80% Modulation         | Line Out ( Left / Right )                      | N.A        |             |             |
| CD  | : -6 dB track ( Audio Disc 1, Trk 15 ) | Subwoofer Out                                  | N.A        |             |             |
| TAPE  | : N/A                                  | Headphone(at CD 0dB input)                     | N/A        |             |             |
| USB   | : N/A                                  | Digital Coaxial Out                            | N.A        |             |             |
| AUX   | : 500 mV ± 2 Db(lim:650mv)             | Booster Out                                    | N.A        |             |             |
| Microphone  | : N/A                                  |  |            |             |             |
| OUTPUT POWER ( *1 ) At THD = 10% , 1KHz sinewave  |  |  |            |             |             |
| Main Operation ( for DCB188/05/12 )   | : 5W, 2 Channels                       | ( At Cold Condition with 10% THD )             |            |             |             |
| Frequency Response:   | : 60Hz - 16KHz                         | ( At 500mV Output in FLAT Mode )               |            |             |             |
|   |  |  |            |             |             |
|   |  |  |            |             |             |
| LOUDSPEAKER ( BOXES )   |  | Please to package document of Speaker Box Assy |            |             |             |
|   |  |  |            |             |             |
| Rated Impedance   |  |  |            |             |             |
| Left / Right : 4 ohma at 63Hz to 20KHz  |  |  |            |             |             |
| Remarks   |  |  |            |             |             |
| (*1) Electrical parameters are to be measurment at specker terminals across 8 Ohr 4 Ohm load with rated input signal in AUX mode; DSC setting in Jazz mode with DBB OFF<br>At 10% THD DIST O/P POWER 2X5W |  |  |            |             |             |
| (2*) Input Sensity rated, Tuner is +/-6dB   |  |  |            |             |             |
| GENERAL PART 1 - GENERAL SPECIFICATION  |  |  |            |             |             |
| Class No  | MCM1110 All Version                    |  |            | Ver         | Issued Date |
|   |  |  |            | 1           | 5-Sep-11    |
|   |  |  |            | 2           | #REF!       |
|   |  | 3  | #REF!      |             |             |
| NAME : DS.XIE   | 10                                     | 10   | SH 190 - 4 | A4          |             |
| CHECK   | DATE :                                 |  |            |             |             |

AUDIO SIGNAL PROCESSING

MICRO System with Digital Tuner, Clock Timer ,ipod, 2 x 5W Universal Class D Power Amplifier

Aux In, Head Phone and Remote Control

1) DSC ( Digital Sound Control )

Select AUX as input source with the following set conditions:

Inject sine wave 600mV at 1 KHz to L/R channels of AUX-IN socket.

Set DSC to CLAS(Flat) mode and switch off DBB,OSM&INCREDIBLE SURROUND.

Refence level for DSC's without DBB on=500mW(Volume 15).

Refence level for DSC'S with DBB on=1V at the speaker terminal (Volume 15).

Inject sine wave 600mV to AUX-IN socet with frequencies indicated in Table 1.

Tabel 1a ( Tolerance  $\pm$  3dB ) without Test

| Frequency | DSC Modes with DBB Off |      |      |     |
|-----------|------------------------|------|------|-----|
|           | JAZZ                   | ROCK | CLAS | POP |
| 125 Hz    | 3                      | 7    | 0.1  | 5   |
| 1 kHz     | -0.3                   | 2    | 0    | 1.4 |
| 10 kHz    | -2.2                   | 2.5  | -0.3 | 2   |

Tabel 1b ( Tolerance  $\pm$  3dB ) without Test

| Frequency | DSC Modes with DBB ON |      |      |     |
|-----------|-----------------------|------|------|-----|
|           | JAZZ                  | ROCK | CLAS | POP |
| 125 Hz    | 8                     | 10   | 6    | 10  |
| 1 kHz     | 0.5                   | 2.4  | 0.6  | 2   |
| 10 kHz    | -0.2                  | 5    | 0.2  | 4   |

2) DBB ( Dynamic Bass Boot )

Select AUX as input source with the following set conditions :

Inject sine wave 600mV at 1kHz to L/R channels of AUX - IN socket.

Set DSC to CLAS(Flat) mode and switch off DBB,

Adjust volume level will be as 0dB reference.(Volume 15).

Tabel 2 ( Tolerance  $\pm$  3dB )

| Frequency | DBB OFF | DBB ON |
|-----------|---------|--------|
| 125 Hz    | 0       | + 6 dB |
|           |         |        |
|           |         |        |

Remarks

GENERAL PART 1 - GENERAL SPECIFICICATION

| Class No      |                            |        |    | Ver                      | Issued Date |
|---------------|----------------------------|--------|----|--------------------------|-------------|
|               | <b>MCM1110 All Version</b> |        |    | 1                        | 5-Sep-11    |
|               |                            |        |    | 2                        | #REF!       |
|               |                            |        |    | 3                        | #REF!       |
| NAME : DS.XIE |                            | 10     | 10 | SH 190 - 5               | A4          |
| CHECK         |                            | DATE : |    | ART Electronics Co. Ltd. |             |



TECHNIAL DESCRIPTION

USB - Part Specifications

GENERAL PART

| Description                             | Extern | Nom | Lim   | Unit |
|---|--------|-----|-------|------|
| Channel Unbalance                       |        | 3   | < ± 2 | dB   |
| Frequency Response ( 125 Hz - 16 kHz )  |        | 0   | ± 3   | dB   |
| Signal to Noise Ration ( Unweighted )   | FILTER | 55  | 50    | dB   |
| Signal to Noise Ration ( A - weighted ) | FILTER | 60  | 55    | dB   |
| Channel Separation 1KHz                 | FILTER | 50  | 45    | dB   |
| Hum & Noise (min vol )                  | FILTER |     | ≤1.5  | mv   |
| Hum & Noise (max vol )                  | FILTER |     | ≤3    | mv   |
| THD 1KHz                                | FILTER | 0.2 | 1     | %    |
|   |        |     |       |      |
|   |        |     |       |      |
|   |        |     |       |      |

Remark: Frequency response at VOLmax

USB SPECIFICATION

| Class No      |                            |       |    |            | Ver | Issued Date |
|---------------|----------------------------|-------|----|------------|-----|-------------|
|               | <b>MCM1110 All Version</b> |       |    |            | 1   | 5-Sep-11    |
|               |                            |       |    |            | 2   |             |
|               |                            |       |    |            | 3   |             |
| NAME : DS.XIE |                            | 10    | 10 | SH 190 - 6 |     | A4          |
| KT            |                            | CHECK |    |            |     |             |

TECHNIAL DESCRIPTION

SOFTWARE IMPLEMENTED CLOCK / TIMER FUNCTION WITH 32.768KHz QUARTZ OSCILLATOR.

GENERAL PART

|                      |   |  |
|----------------------|---|--|
| Timer Setting        | : | Clock and Timer  |
| Timer Wakeup Mode    | : | CD & Tuner mode  |
| Remarks Time Setting | : | 24hrs  |
| Volume at Wakeup     | : | Default Setting(VOL12)                                 |
| No of Timer Settings | : | 1  |
| Clock Accuracy       | : | Nom : 2 sec/day                      Limit : 4 sec/day |

INDICATORS

|              |   |     |
|--------------|---|-----|
| Display Type | : | LCD |
|--------------|---|-----|

Remark

CLOCK / TIMMER SPECIFICATION

| Class No      | MCM1110 All Version |        |    |            | Ver | Issued Date |
|---------------|---------------------|--------|----|------------|-----|-------------|
|               |                     |        |    |            | 1   | 5-Sep-11    |
|               |                     |        |    |            | 2   | #REF!       |
|               |                     |        |    |            | 3   | #REF!       |
| NAME : DS.XIE |                     | 10     | 10 | SH 190 - 7 |     | A4          |
| CHECK:        |                     | DATE : |    |            |     |             |

| TECHNICAL DESCRIPTION  |                          |                                 |       |                     |   |              |                  |      |
|--|--------------------------|---------------------------------|-------|---------------------|---|--------------|------------------|------|
| GENERAL PART   |                          |                                 |       |                     |   |              |                  |      |
| WAVE RANGE(/05 VERSION)                                      |                          | TOLERANCE                       |       |                     | TUNING GRID                               |              |                  |      |
| FM   | 87.5 - 108.00 MHz        | QUARTZ PRECISION                |       |                     | 50 kHz                                    |              |                  |      |
| AERIAL   |                          |                                 |       |                     |   |              |                  |      |
| FM   | : T TYPE ANT WIRE 75 Ohm |                                 |       |                     |   |              |                  |      |
| INDICATORS   |                          |                                 |       |                     |   |              |                  |      |
| LCD  |                          |                                 |       |                     |   |              |                  |      |
| ELECTRICAL DATA  |                          |                                 |       |                     |   |              |                  |      |
| DAB  |                          | Nom                             | Limit | Unit                | F.M.                                      | Nom          | Limit            | Unit |
| DAB Modes:Supports modes I,II,III,IV                         |                          |                                 |       | dB                  | - 3 dB Limiting Point                     | : 17         | 23.5             | dBf  |
| Frequency Range:Band III (174~240MHz)                        |                          |                                 |       | dB                  | Amplification Reverse                     | : 0          | -4               | dB   |
| Sensitivity:(EN50248)  |                          |                                 |       | dBm                 | Distortion ( RF 1mV, Frq Dev.75 kHz )     | : 2          | 3                | %    |
| Max In Signal:After Error Correction                         |                          |                                 |       | dBm                 | Stereo - 46 dB Quieting                   | : 46         | 49               | dBf  |
| Adjacent Channel Selectivity:(EN50248)                       |                          |                                 |       | dB                  | Crosstalk (RF1mV, Freq Dev. 67.5kHz )     | : 25         | 18               | dB   |
| Far-off Selectivity :(EN50248)                               |                          |                                 |       | dB                  | IF  | : 10.7       | ± 0.1            | MHz  |
| Acquisition Time after synchronization loss:                 |                          |                                 |       | S                   | Modulation Hum                            | : 50         | 40               | dB   |
| Signal to Noise with Filter (A-Wighted)                      |                          |                                 |       | dB                  | S/N Ratio                                 | : 45         | 40               | dB   |
| Channel Separation with Filter (A-Wighted)                   |                          |                                 |       | dB                  | Search Tuning Sensitivity(at stereo mode) | : 26         | +/-10            | dB   |
| Overall Distortion:  |                          |                                 |       | %                   |   |              |                  |      |
| Max Data bit rate :  |                          |                                 |       | bit/s               |   |              |                  |      |
| Wave Range   |                          | Noise Limited Sensitivity 26 dB |       | Image Rejection(dB) | IF Rejection(dB)                          | Large Signal | Selectivity (dB) |      |
| FM 90.1 MHz  | Nom.                     |                                 | 16dB  | 40                  | 65  | 116 dBf      | 24               |      |
|  | Lim.                     |                                 | 22dB  | 25                  | 45  | 108 dBf      | 20               |      |
| FM 98.1 MHz  | Nom.                     |                                 | 16dB  | 40                  | 65  | 116 dBf      | 24               |      |
|  | Lim.                     |                                 | 22dB  | 20                  | 45  | 108 dBf      | 20               |      |
| FM 106.1 MHz   | Nom.                     |                                 | 16dB  | 40                  | 65  | 116 dBf      | 24               |      |
|  | Lim.                     |                                 | 22dB  | 20                  | 45  | 108 dBf      | 20               |      |
|  |                          |                                 |       |                     |   |              |                  |      |
|  |                          |                                 |       |                     |   |              |                  |      |
|  |                          |                                 |       |                     |   |              |                  |      |
|  |                          |                                 |       |                     |   |              |                  |      |
|  |                          |                                 |       |                     |   |              |                  |      |
| Remarks : tuner FM -6dB max senscitivity for all about test. |                          |                                 |       |                     |   |              |                  |      |
| TUNER SPECIFICATION  |                          |                                 |       |                     |   |              |                  |      |
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|  |                          |                                 |       |                     |   | 1            | 5-Sep-11         |      |
|  |                          |                                 |       |                     |   | 2            |                  |      |
|  |                          |                                 |       |                     | 3   |              |                  |      |
| NAME :DS.XIE   |                          | 10                              | 10    | SH 190 - 8          |   | A4           |                  |      |
|  | CHECK:                   | DATE :                          |       |                     |   |              |                  |      |

|  |  |               |  |                 |             |
|--|--|---------------|--|-----------------|-------------|
| <b>TECHNIAL DESCRIPTION</b>  |  |               |  |                 |             |
| CD Part Specifications (CD MECHAISM SANYO DA11B3VF )   |  |               |  |                 |             |
|  | Input  | Output        | Motor                                    | Logic control   |             |
| Active components  |  |               |  |                 |             |
|  | Signal processing  | D/A converter | HF-preamplifier                          | Servo processor |             |
| Active components  |  |               |  |                 |             |
| <b>AUDIO part:</b> Measurement with Audio Signals Disc-1 7104 078 04911 on speakers or Headphone socket with nom.load                              |  |               |  |                 |             |
| Description  | Extern   | Nom           | Lim                                      | Unit            |             |
| De-emphasis  | 15us / 50us Switchable via Subcode information                   |               |  |                 |             |
| Frequency accuracy   |  | N/A           | ± 0.5                                    | %               |             |
| Channel Unbalance  |  | 2             | 3  | dB              |             |
| Frequency Response ( 125 Hz - 16 kHz )   |  | 0             | ± 3                                      | dB              |             |
| Signal to Noise Ration ( Unweighted )  | Filter   | 60            | 50                                       | dB              |             |
| Signal to Noise Ration ( A - weighted )  | Filter   | 65            | 55                                       | dB              |             |
| Crosstalk ( 1kHz )   | Filter   | 35            | 30                                       | dB              |             |
| Crosstalk ( 10kHz )  | Filter   | 30            | 16                                       | dB              |             |
| Hum & Noise (min vol )   | Filter   | --            | ≤1.5                                     | mv              |             |
| Hum & Noise (max vol )   | Filter   | --            | ≤3                                       | mv              |             |
| THD (1kHz -6dB)  | Filter   | 0.2           | <1                                       | %               |             |
| THD (10kHz -20dB)  | Filter   | <1            | <3                                       | %               |             |
| <b>REMARKS:</b>  |  |               |  |                 |             |
| 1. Amplification reserve for CD = +2dB (±2dB),Ref.Level for CD is a 0dB track instead of a -.6dB track.  |  |               |  |                 |             |
|  |  |               |  |                 |             |
| <b>Playability :(acc.To AR 30-05-239 )</b>   |  |               |  |                 |             |
|  | Limit  | Typical       | Test disc                                |                 |             |
| Wedge  | 600um  | 900um         | TNO 7, 9 of SBC 444A(7104 099 24990)     |                 |             |
| Eccentric  | 150um  | 200um         | TNO 1, 24 of 200um disc (7104 099 24960) |                 |             |
| Fingerprint  | No audible defect  |               | TNO 11 of Sub chassis 8A                 |                 |             |
| Black dot  | 500um  | 800um         | TNO 13 of SBC 444A (7104 099 24990)      |                 |             |
| Skew 0.6mm   | No audible defect  |               | TNO 1,6 of 0.6mm skew (7104 099 28260)   |                 |             |
| Bad HF track   | No audible defect  |               | TNO 8 of Sub chassis 8A                  |                 |             |
| Hwavy fingerprint  | No track jumper/plops  |               | TNO 10 of Sub chassis 8A                 |                 |             |
| Playback position  | Solid, Normal position (Set is located on a flat surface, floor) |               |  |                 |             |
| 1. Playback of above mentioned tracks possible without track loss or audible defects.  |  |               |  |                 |             |
| 2. Double black dot, max. diameter, thin/disk is according to PQR or AR 30-05-239  |  |               |  |                 |             |
| 3. This unit can playback (only) CD-R or CD-RW discs. For performance specification, Please refer to module specification of CD99 (3103 308 52190) |  |               |  |                 |             |
|  |  |               |  |                 |             |
| CD SPECIFICATION   |  |               |  |                 |             |
| Class No   | <b>MCM1110 All Version</b>                                       |               |  | Ver             | Issued Date |
|  |  |               |  | 1               | 5-Sep-11    |
|  |  |               |  | 2               | #REF!       |
|  |  |               |  | 3               | #REF!       |
| NAME : DS.XIE  | 10   | 10            | SH 190 - 9                               |                 | A4          |
|  | CHECK  | DATE :        |  |                 |             |



## 2.0 SAFETY INSTRUCTIONS

**(GB)** WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

**ESD****(NL)** WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

**(F)** ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

**(D)** WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

**(I)** AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(GB)**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

**(NL)**

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

**(F)**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisés les pièces de rechange identiques à celles spécifiées.

**(GB)** Warning !

Invisible laser radiation when open. Avoid direct exposure to beam.

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

**(S)** Varning !

Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

**(I)**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

**(SF)** Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

**DK** Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

**Caution: These servicing instructions are for use by qualified service personnel only.**

**To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.**

## 2.1 ESD PROTECTION

- レンズには絶対に触れないでください。
- DO NOT TOUCH THE LENS.
- LINSE NICHT BRÜHREN.
- NE PAS TOUCHER LA LENTILLE.

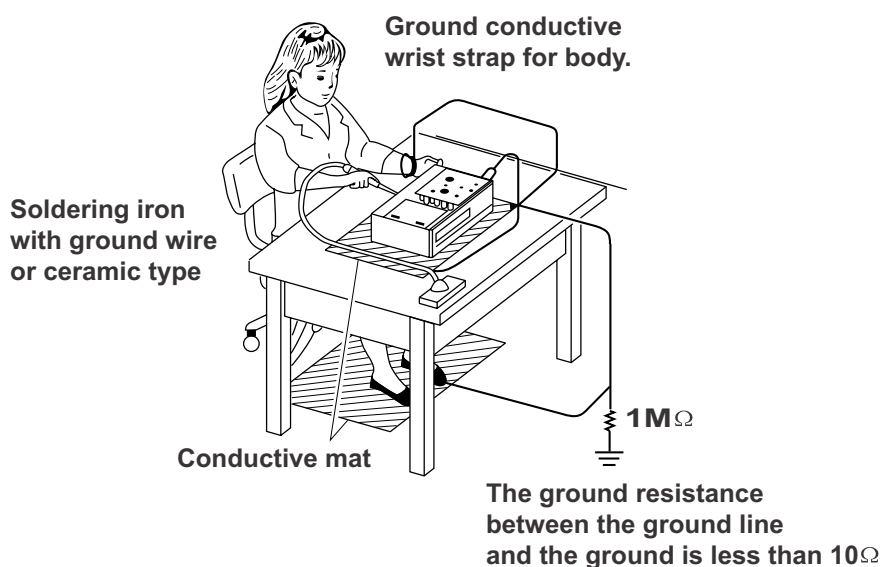
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of laser may be received.

### PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electrocity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode form damage by static electricity.

And also, the LSI and IC are same as above.



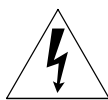
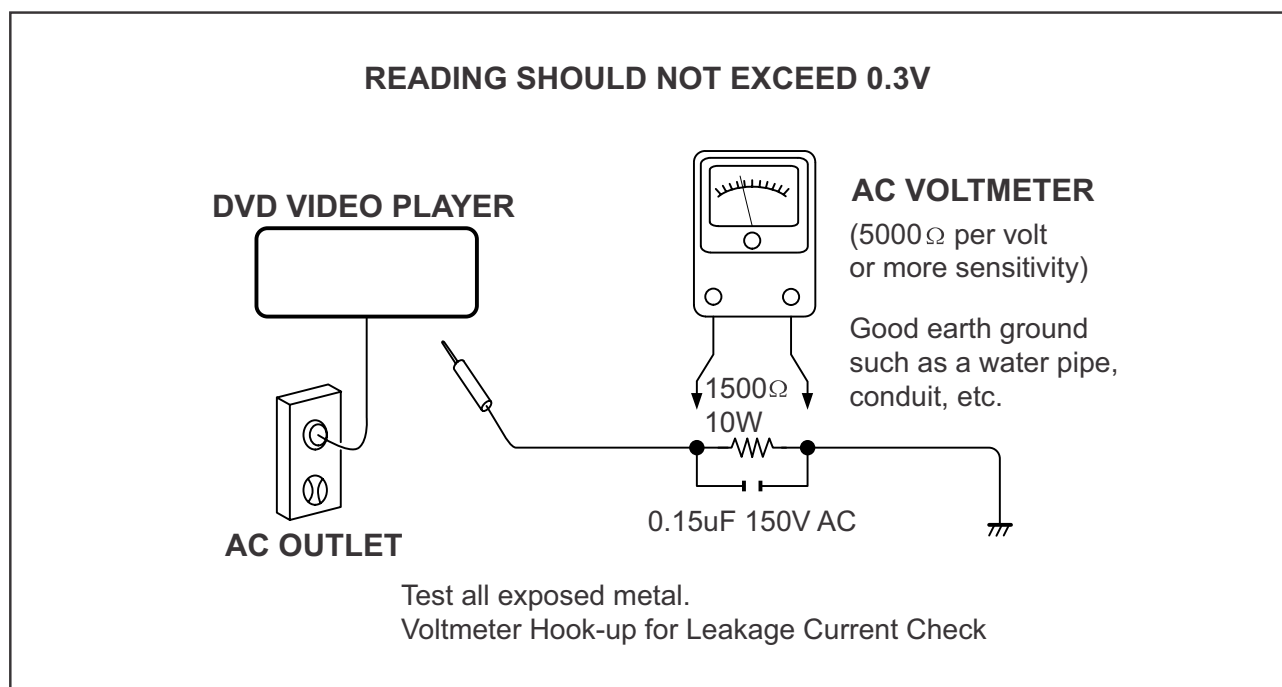
## SAFTY NOTICE

### SAFTY PRECAUTIONS

#### LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having  $5000\Omega$  per volt or more sensitivity. Connect a  $1500\Omega$  10W resistor, paralleled by a  $0.15\mu\text{F}$  150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

Measure the AC voltage across the  $1500\Omega$  resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3V. A reading exceeding 0.3V indicates that a dangerous potential exists, the fault must be located and corrected. Repeat the above test with the DVD VIDEO PLAYER power plug reversed. NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



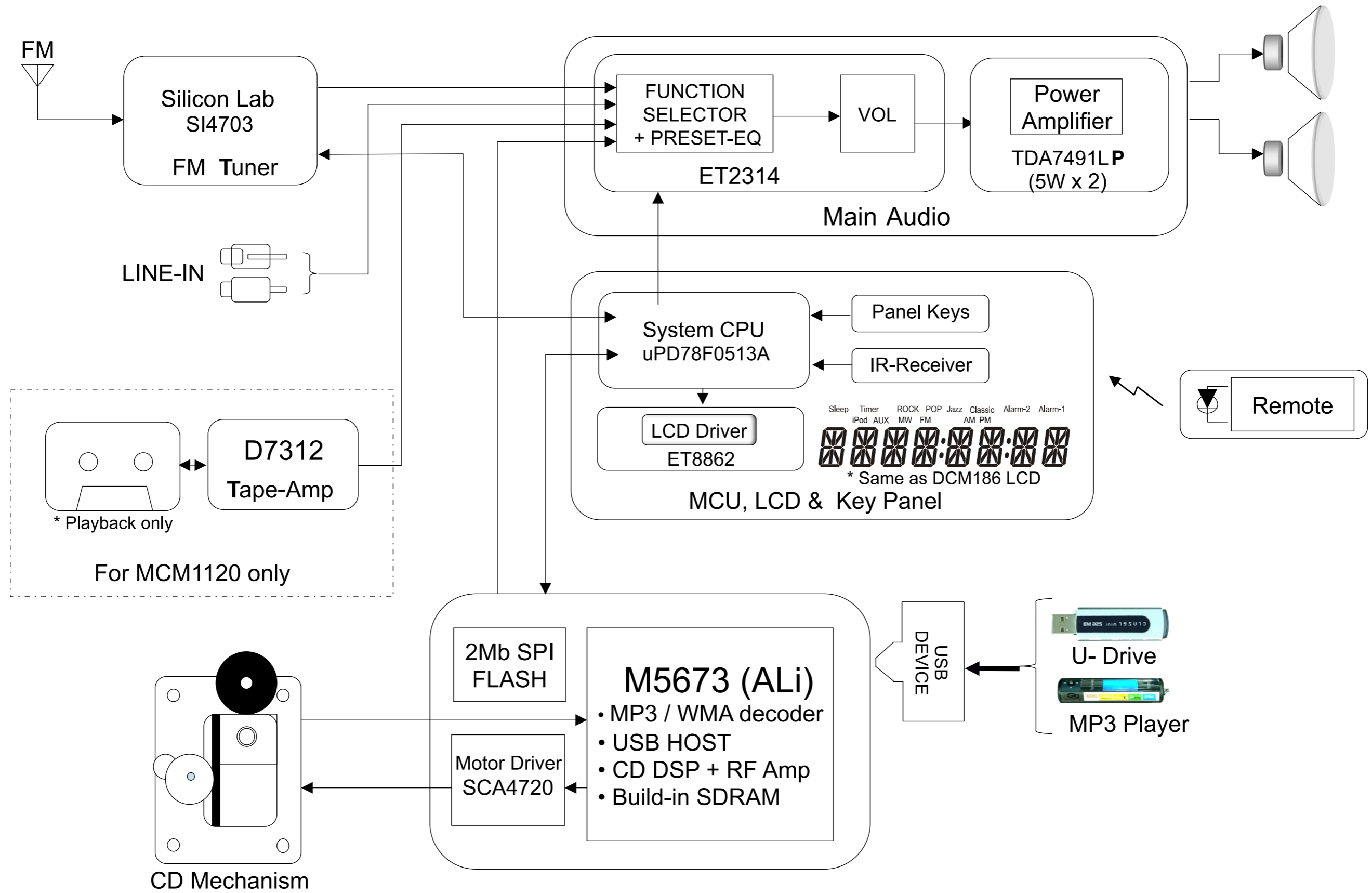
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



BLOCK DIAGRAM

3-1

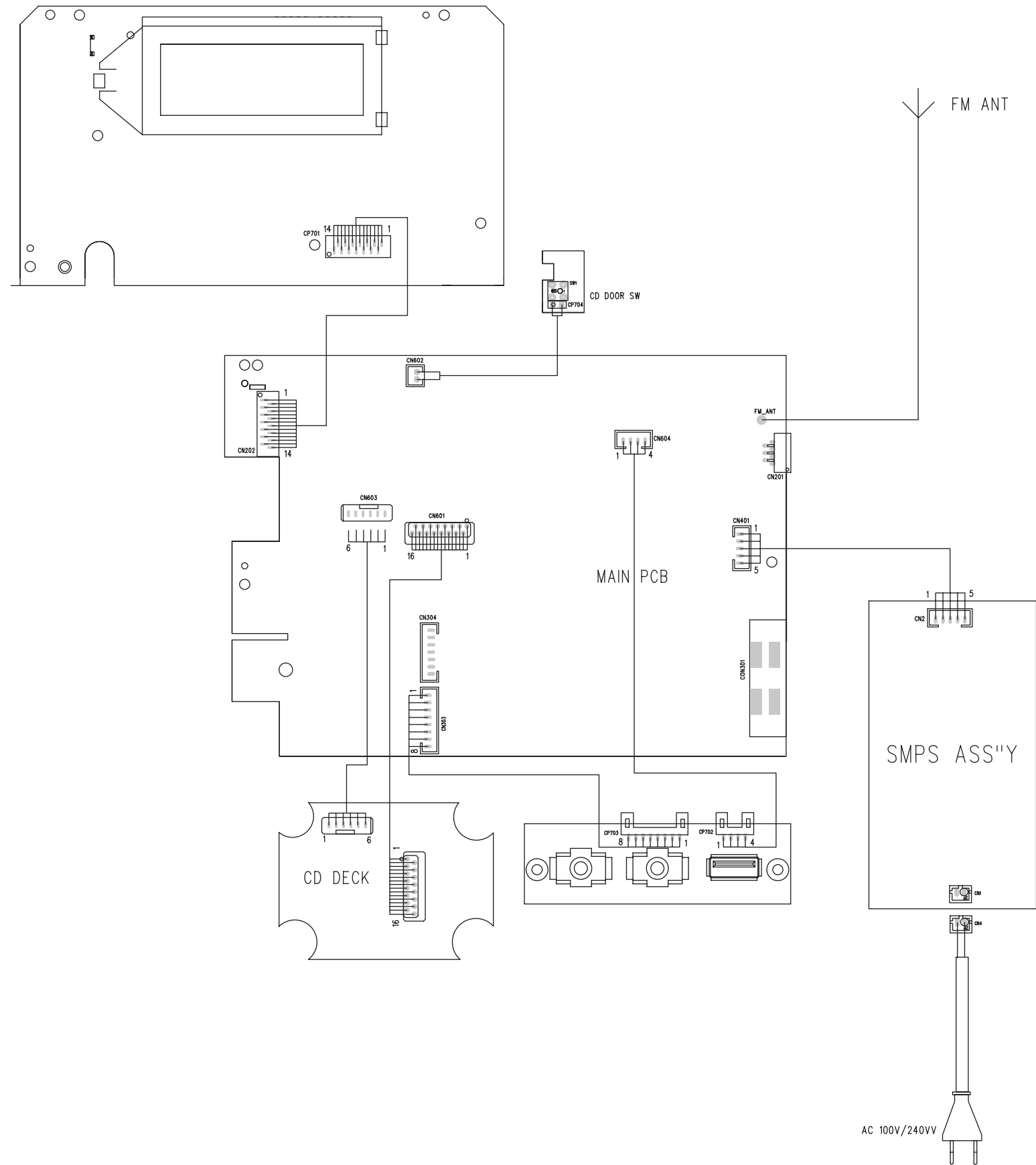
3-1



WIRING DIAGRAM

4-1

4-1

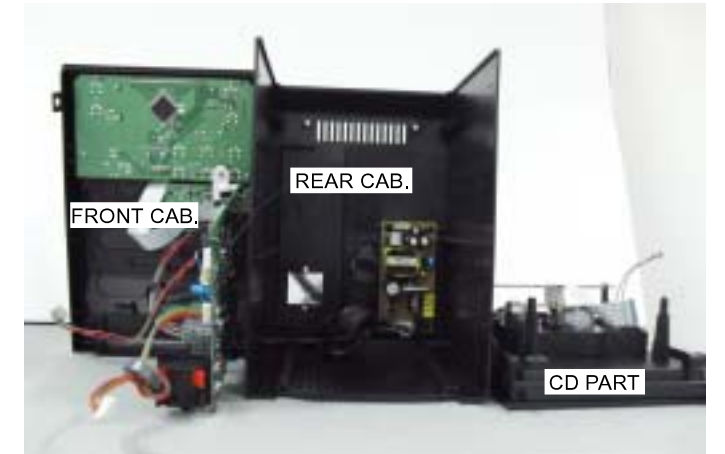
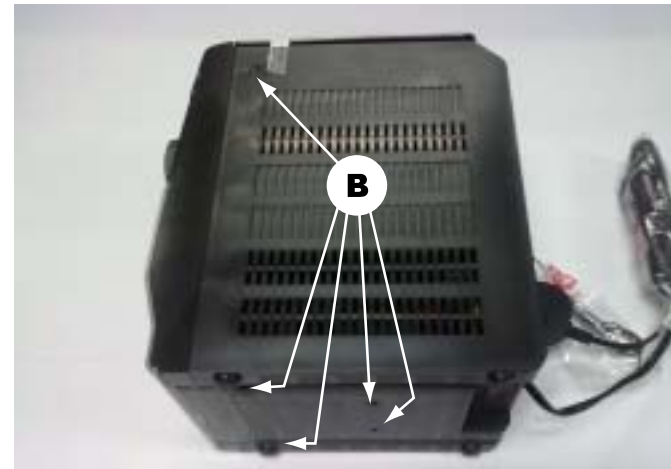


**DISASSEMBLY DIAGRAM**

Dismantling of the Rear Cabinet and CD part.

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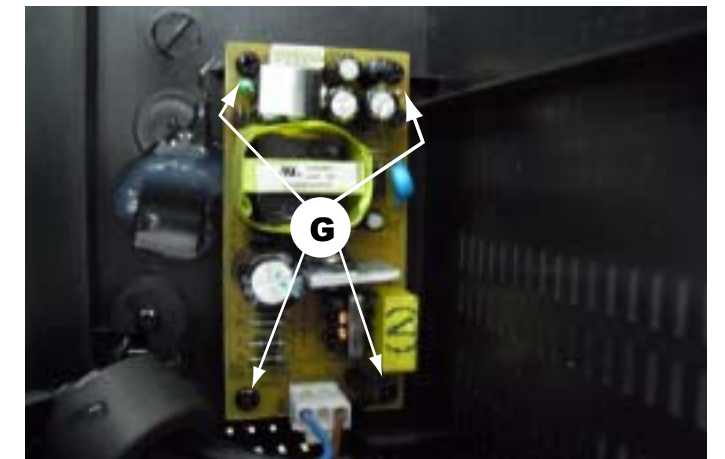
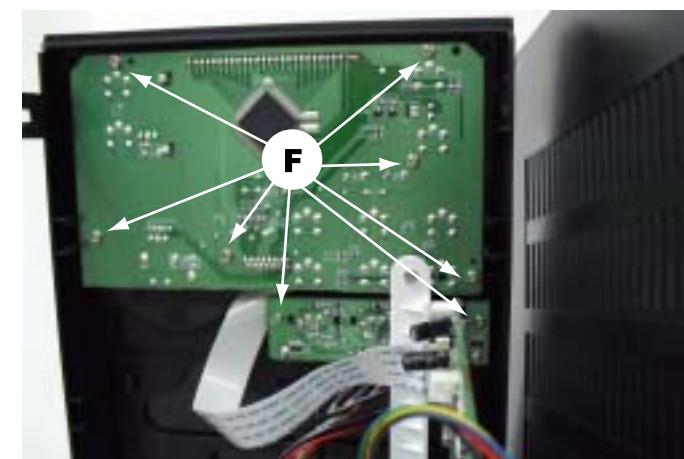
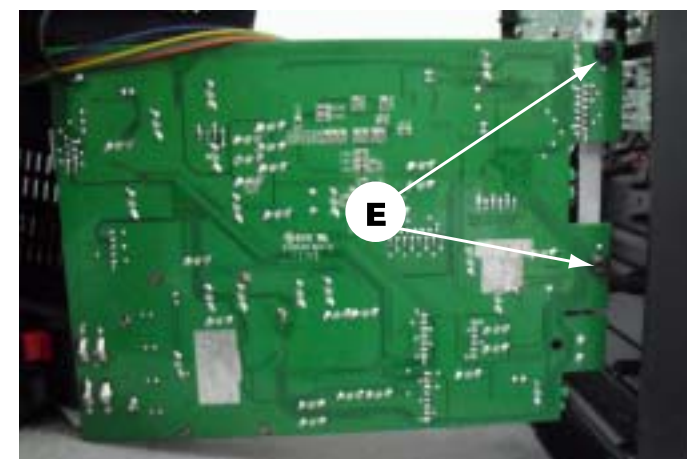
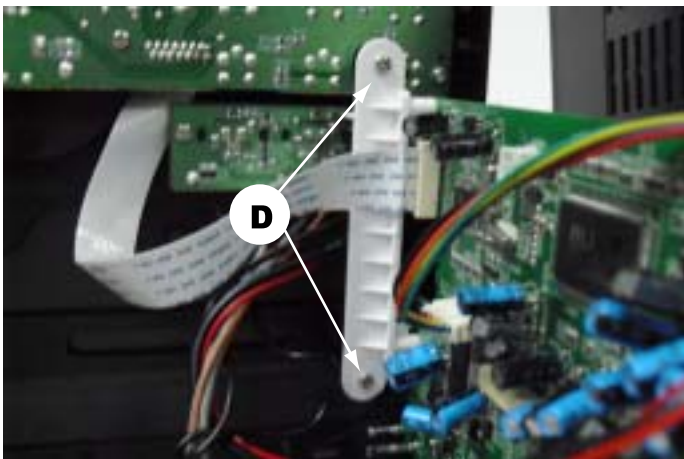
1) Remove 10 screws A&B&C as indicated to loosen the Rear Cabinet and CD part.

**Dismantling of the PCB Board**

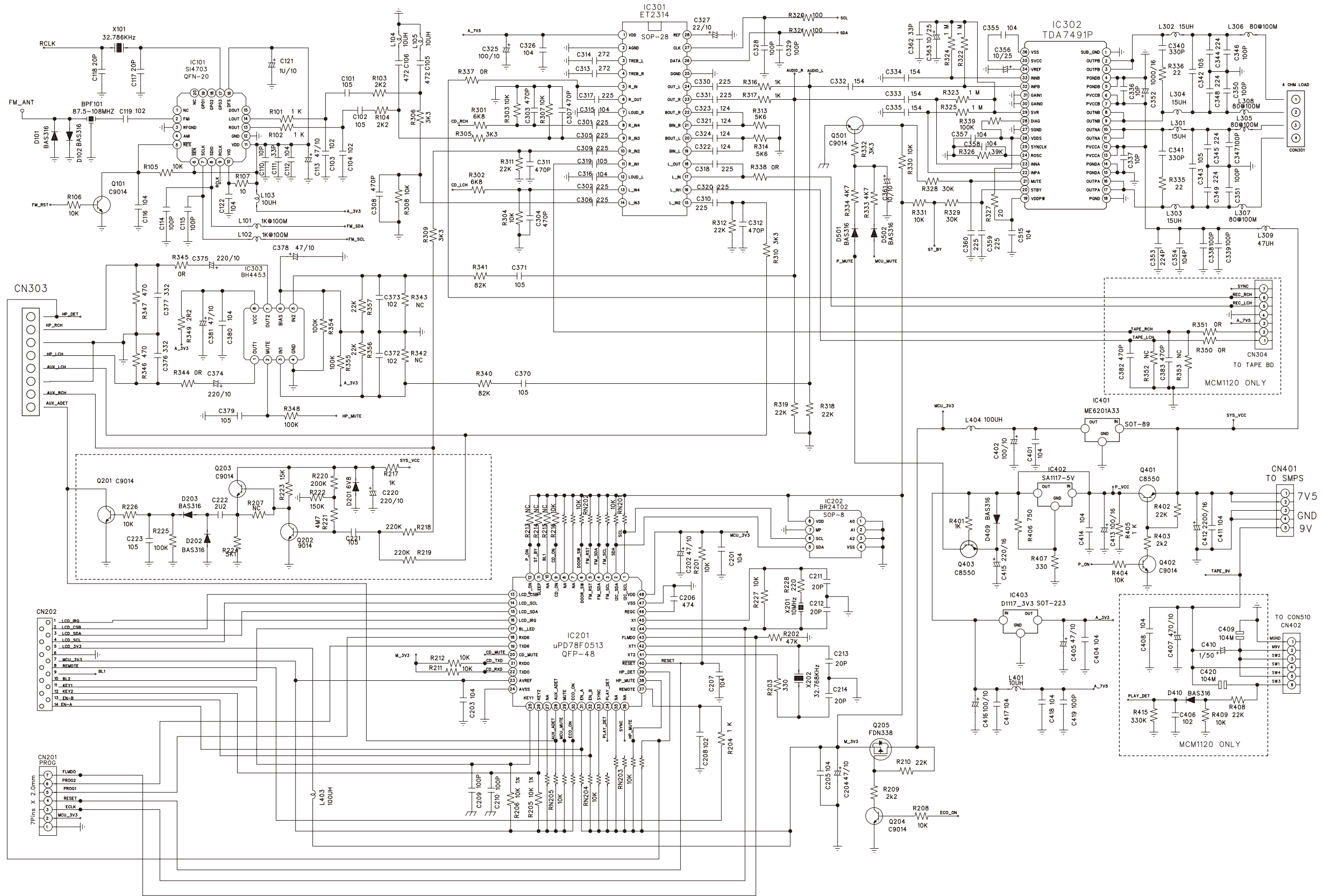
1) Remove 2 screws D and 2 screws E as indicated to loosen the Main Board.

2) Remove 8 screws F as indicated to loosen the Display Board.

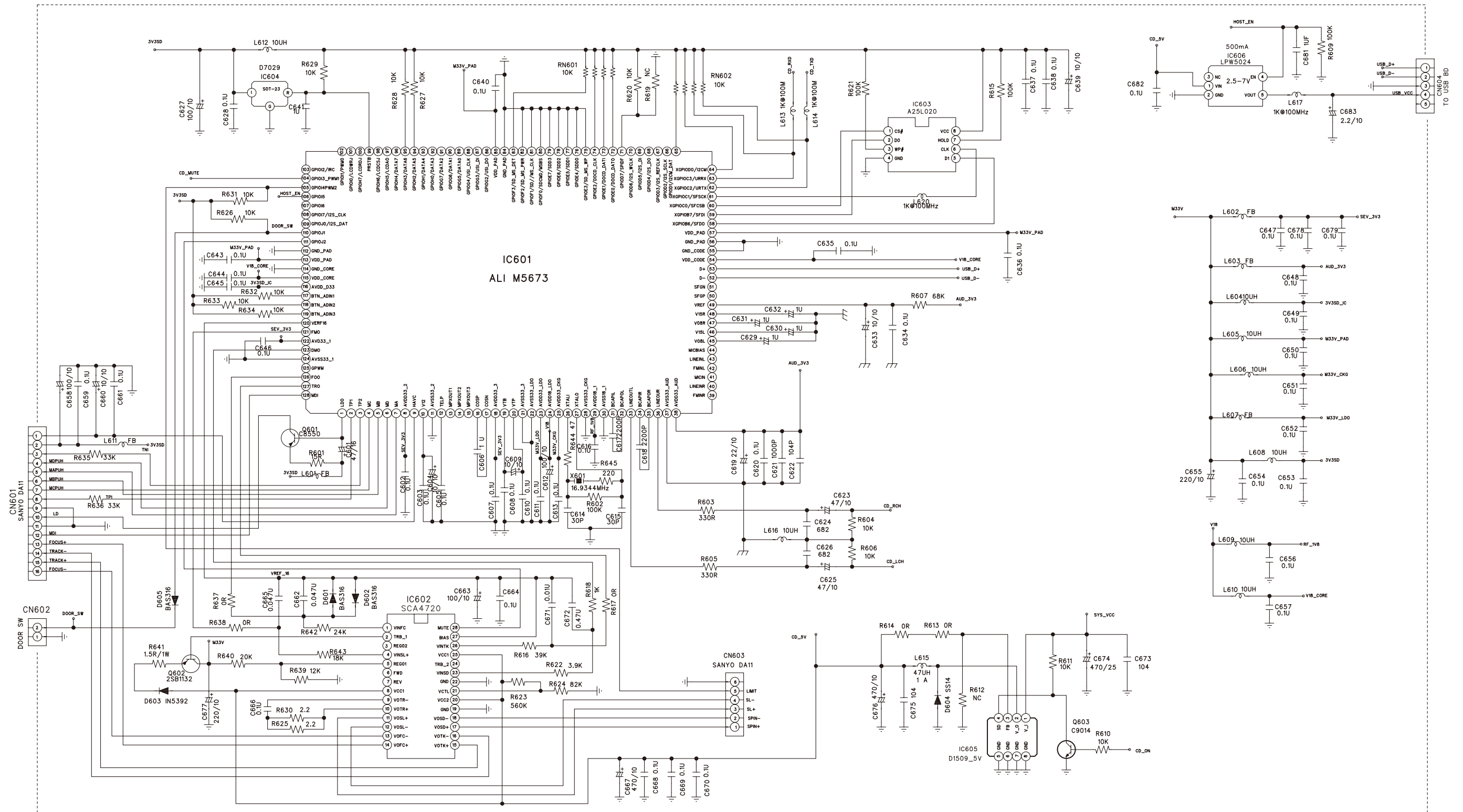
3) Remove 4 screws G as indicated to loosen the Smps module.



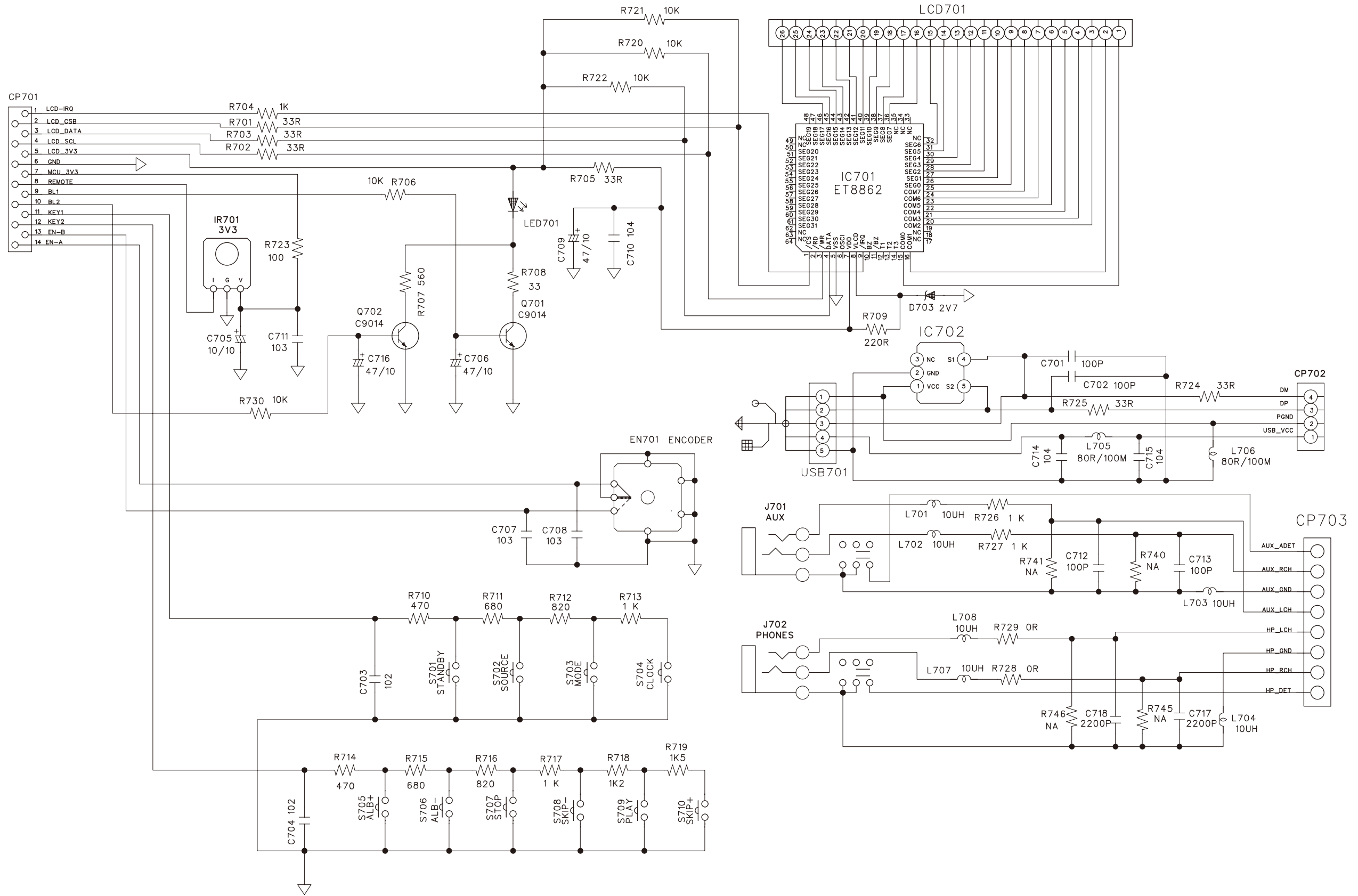
# CIRCUIT DIAGRAM - AMP/POWER BOARD



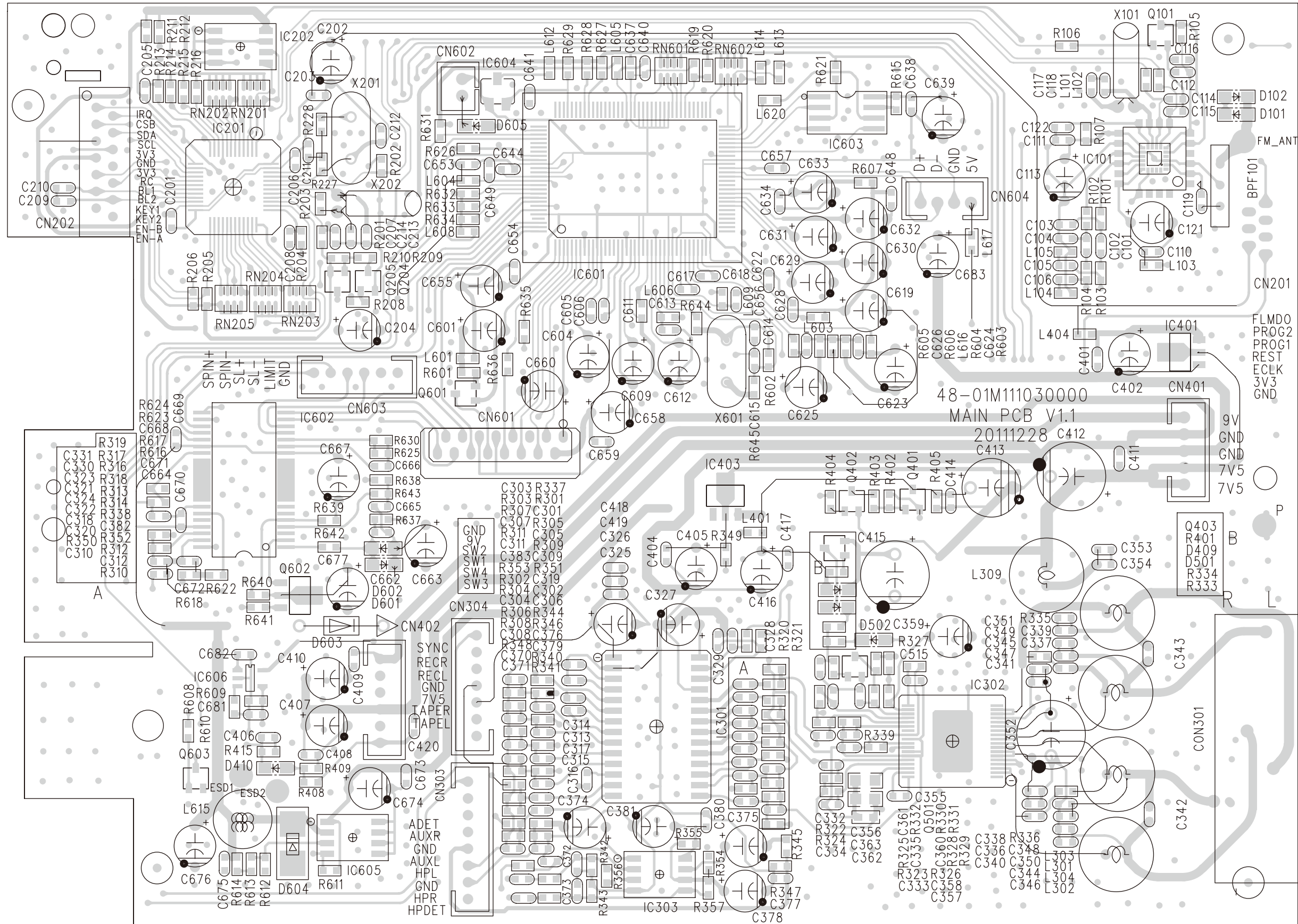
# CIRCUIT DIAGRAM - CD/USB BOARD



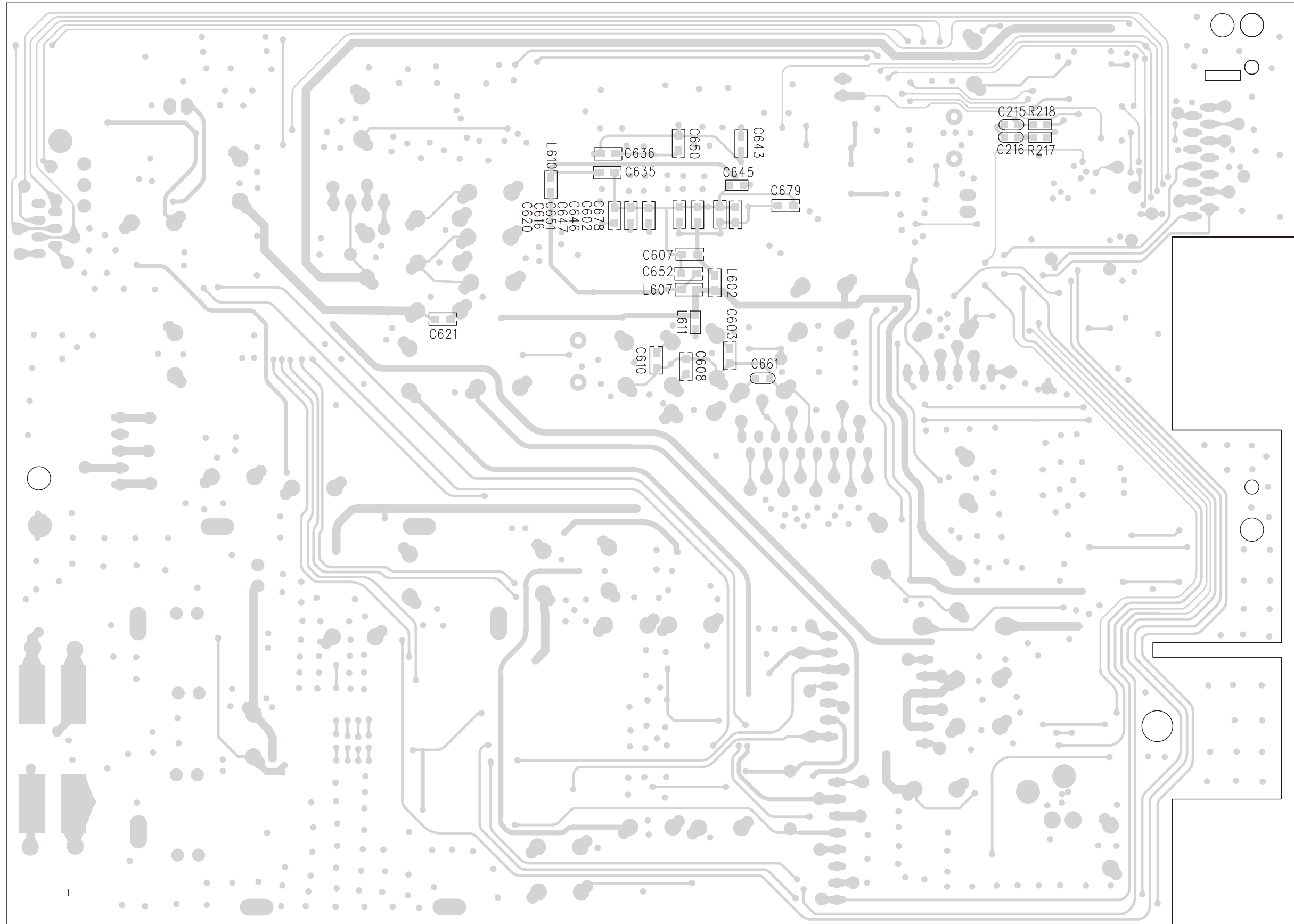
# CIRCUIT DIAGRAM - DISPLAY/KEY BOARD



LAYOUT DIAGRAM - MAIN BOARD  
TOP SIDE

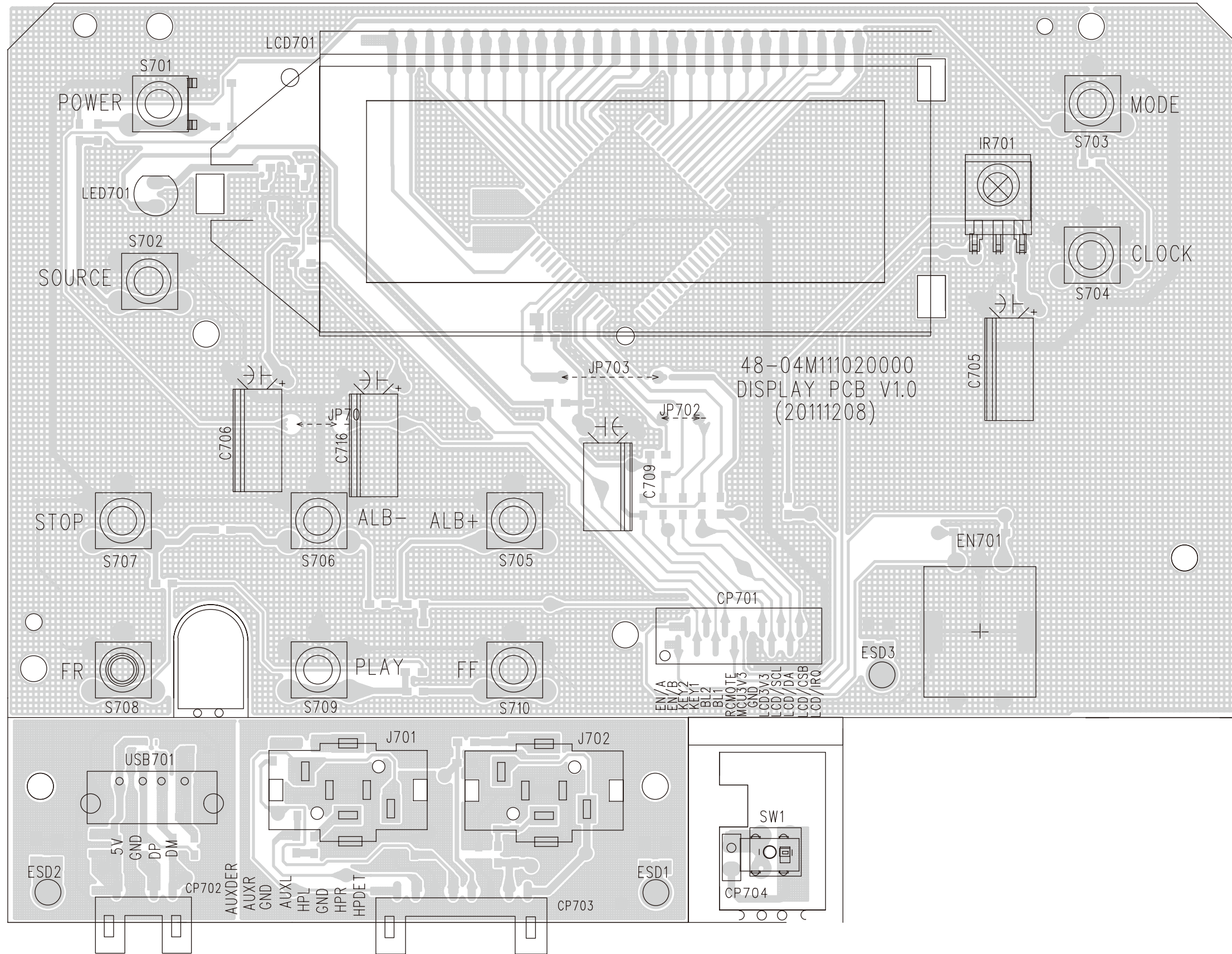


LAYOUT DIAGRAM - MAIN BOARD  
BOTTOM SIDE





LAYOUT DIAGRAM - DISPLAY BOARD  
TOP SIDE



LAYOUT DIAGRAM - DISPLAY BOARD  
BOTTOM SIDE

