Classé

CP-47.5

PREAMPLIFIER

SERVICE MANUAL

v 1.0

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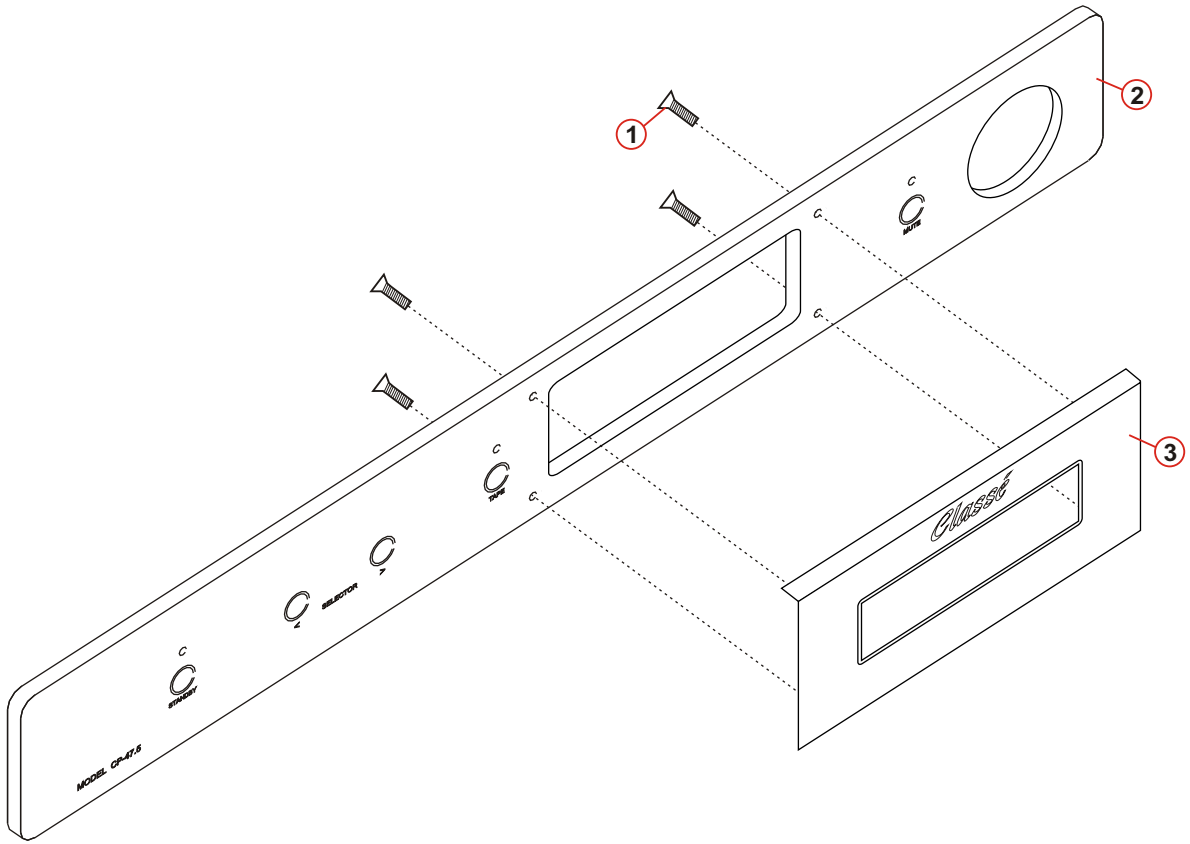
CP-47.5

MECHANICAL ASSEMBLY

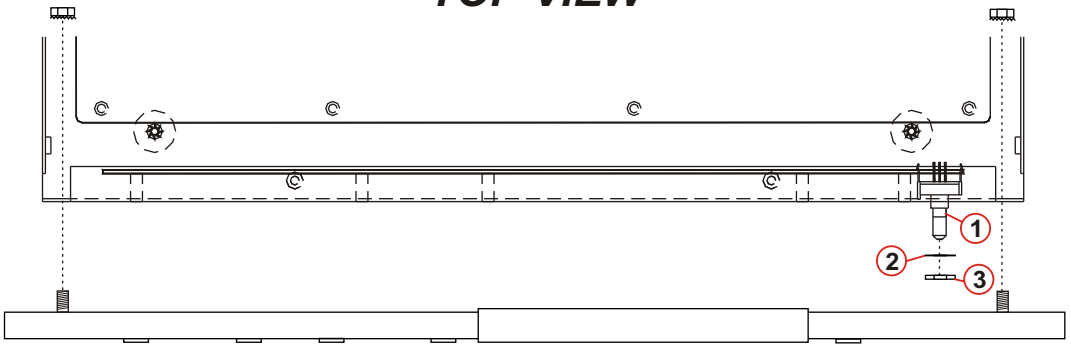
FACE PLATE ASSEMBLY

CP-47.5

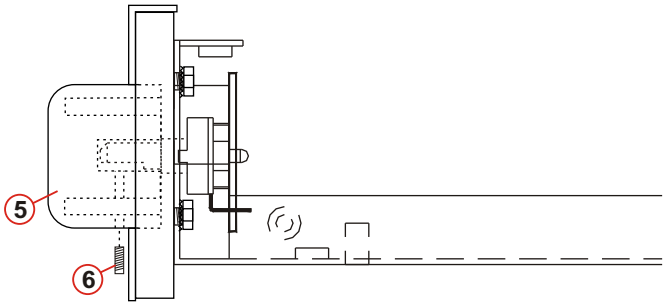


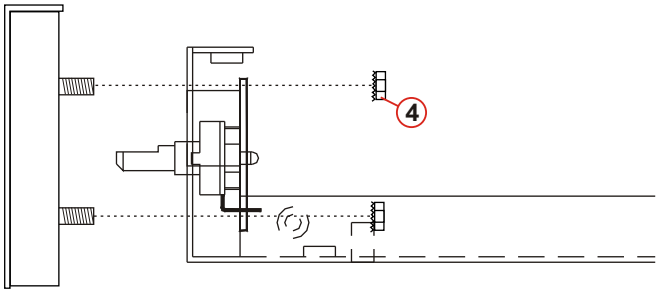
1 MS-2347 PHILIPS
2 L1A2XR01
3 L1A3XR02

TOP VIEW



SIDE VIEW 2



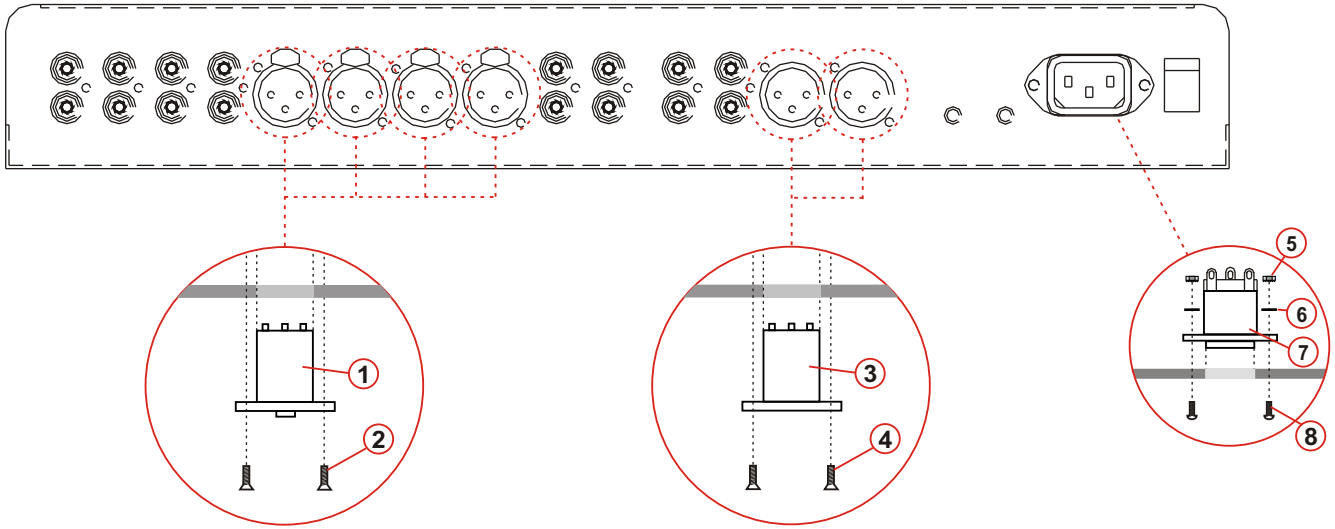


SIDE VIEW 1

1
2
3
4
5 L214XR01-S
6

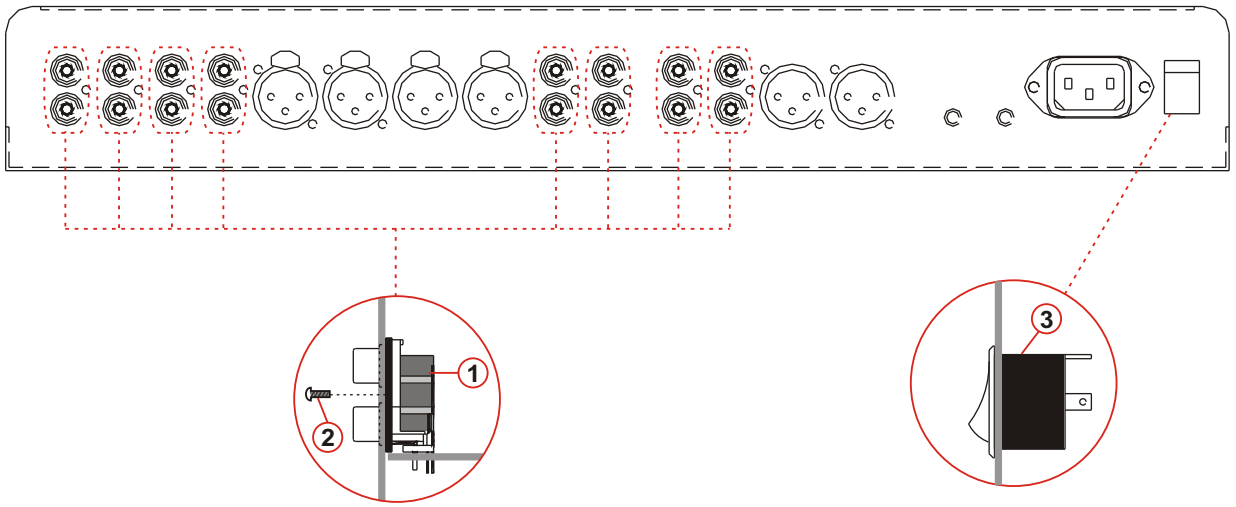
CHASSIS REAR VIEW

CP-47.5



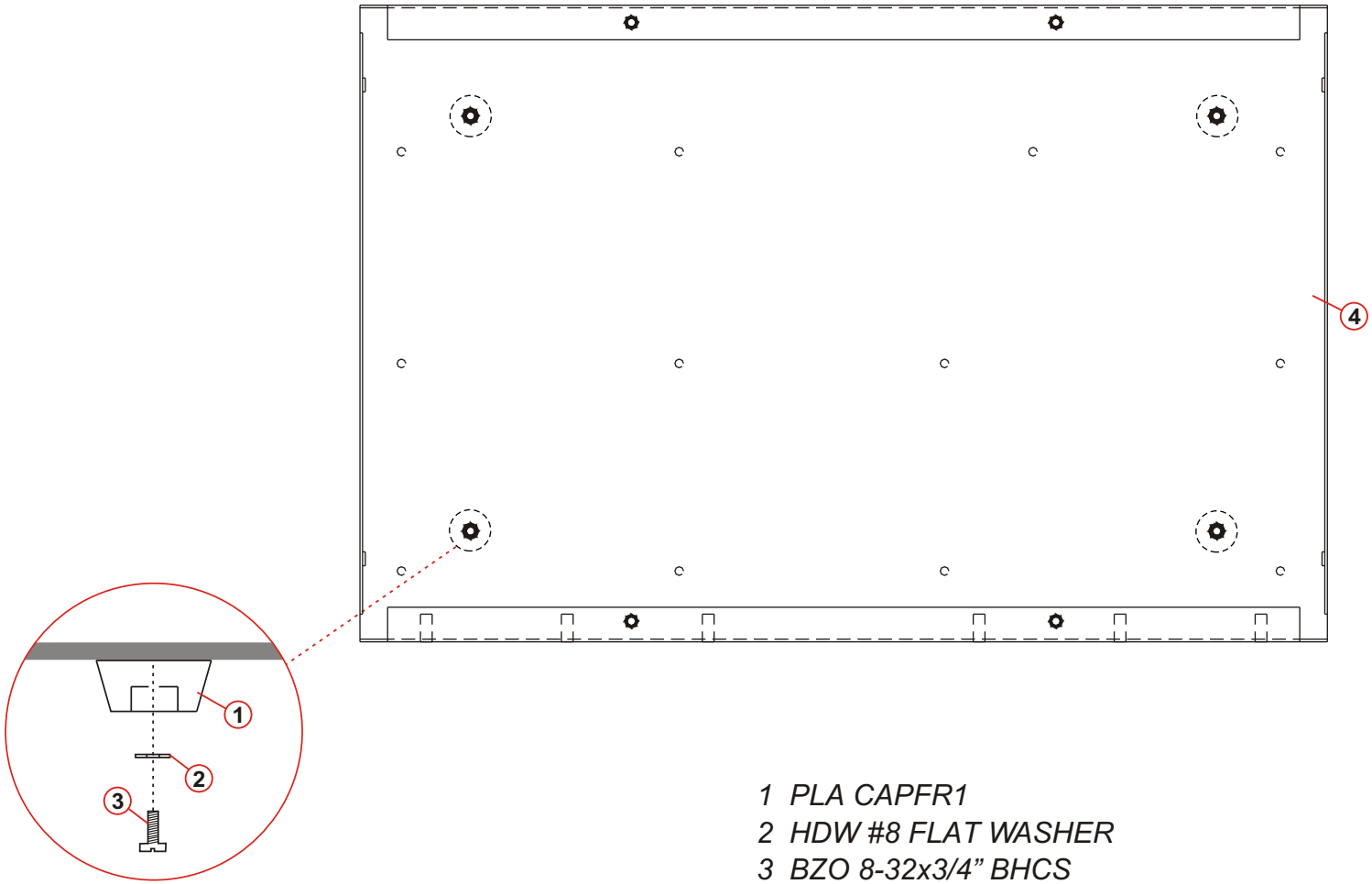
1
2
3
4
5
6
7
8

CHASSIS REAR VIEW



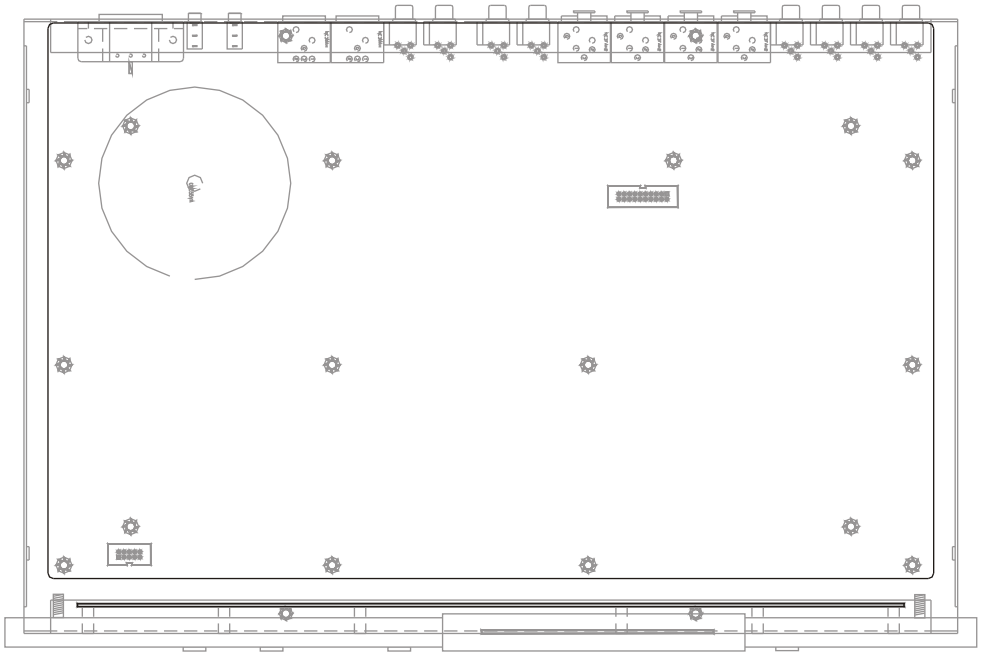
1
2
3

TOP VIEW



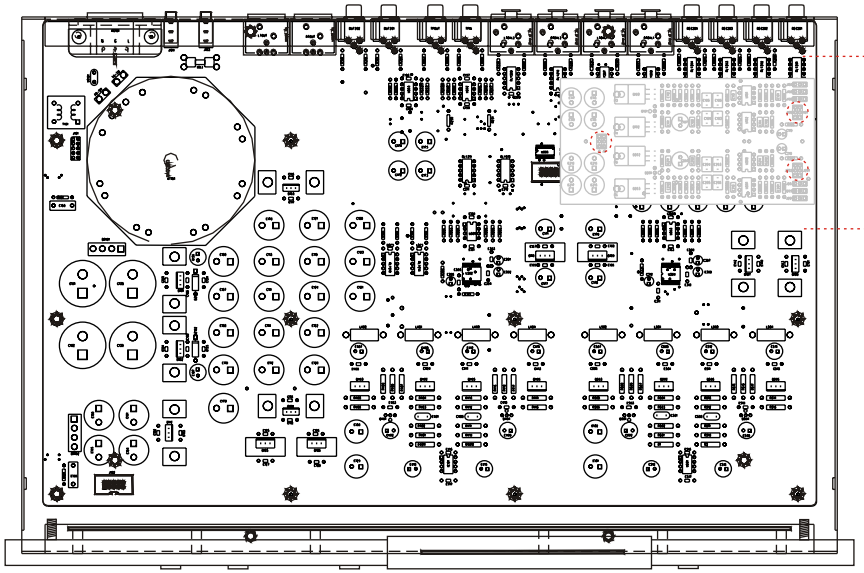
1 PLA CAPFR1
2 HDW #8 FLAT WASHER
3 BZO 8-32x3/4" BHCS
4 L1A1XR03

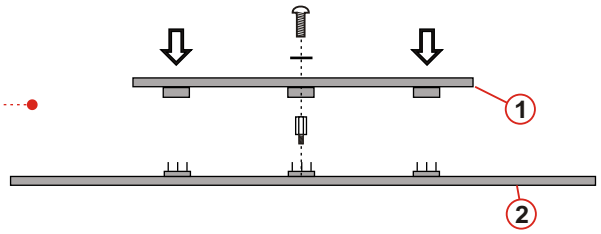
TOP VIEW



1 AVR BO51XR02
2 AVR BO50XR03
3 AVR BO1CXR00
4 TRANSFORMER

PHONO BOARD INSTALLATION



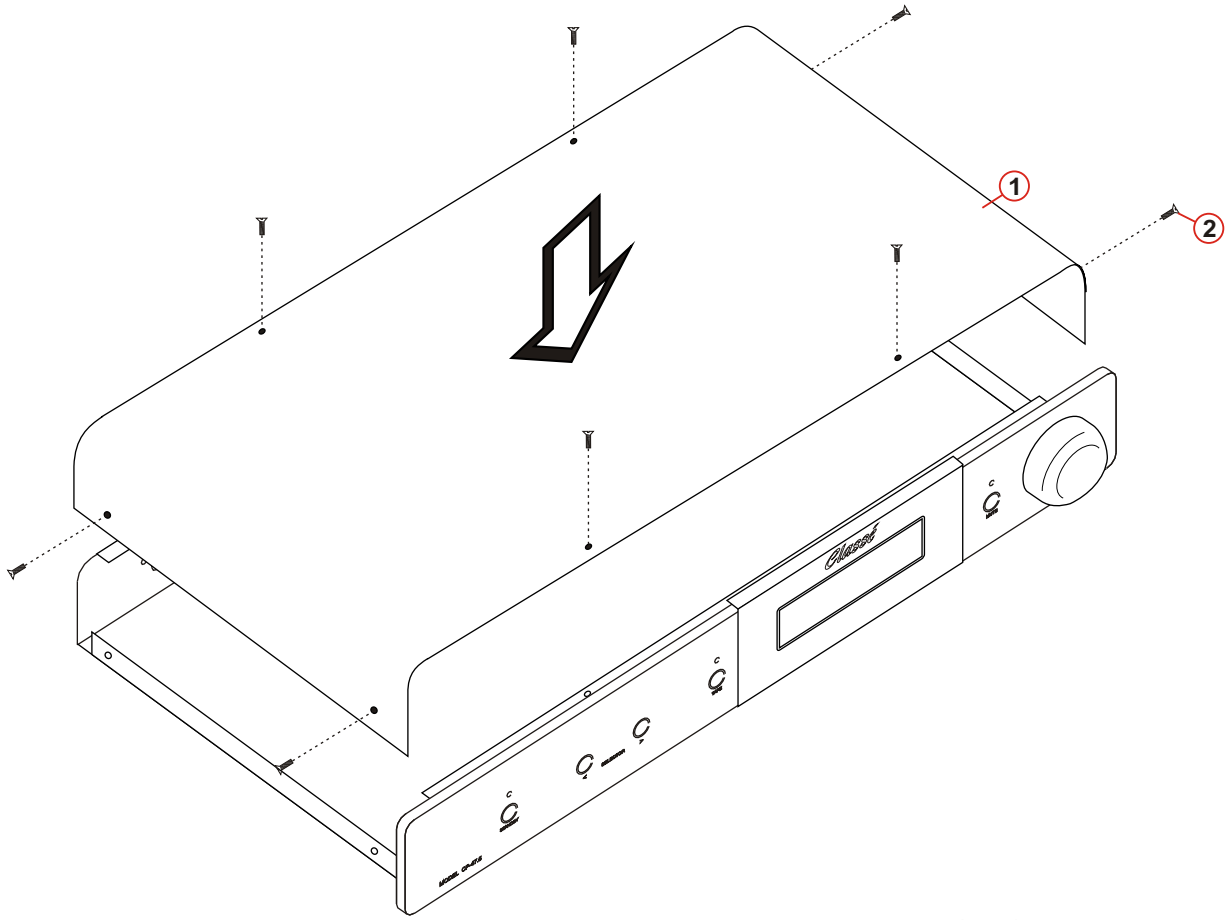


SIDE VIEW

1
2

SHIPPING AREA - FINAL ASSY

CP-47.5



1 L1A5XR00
2

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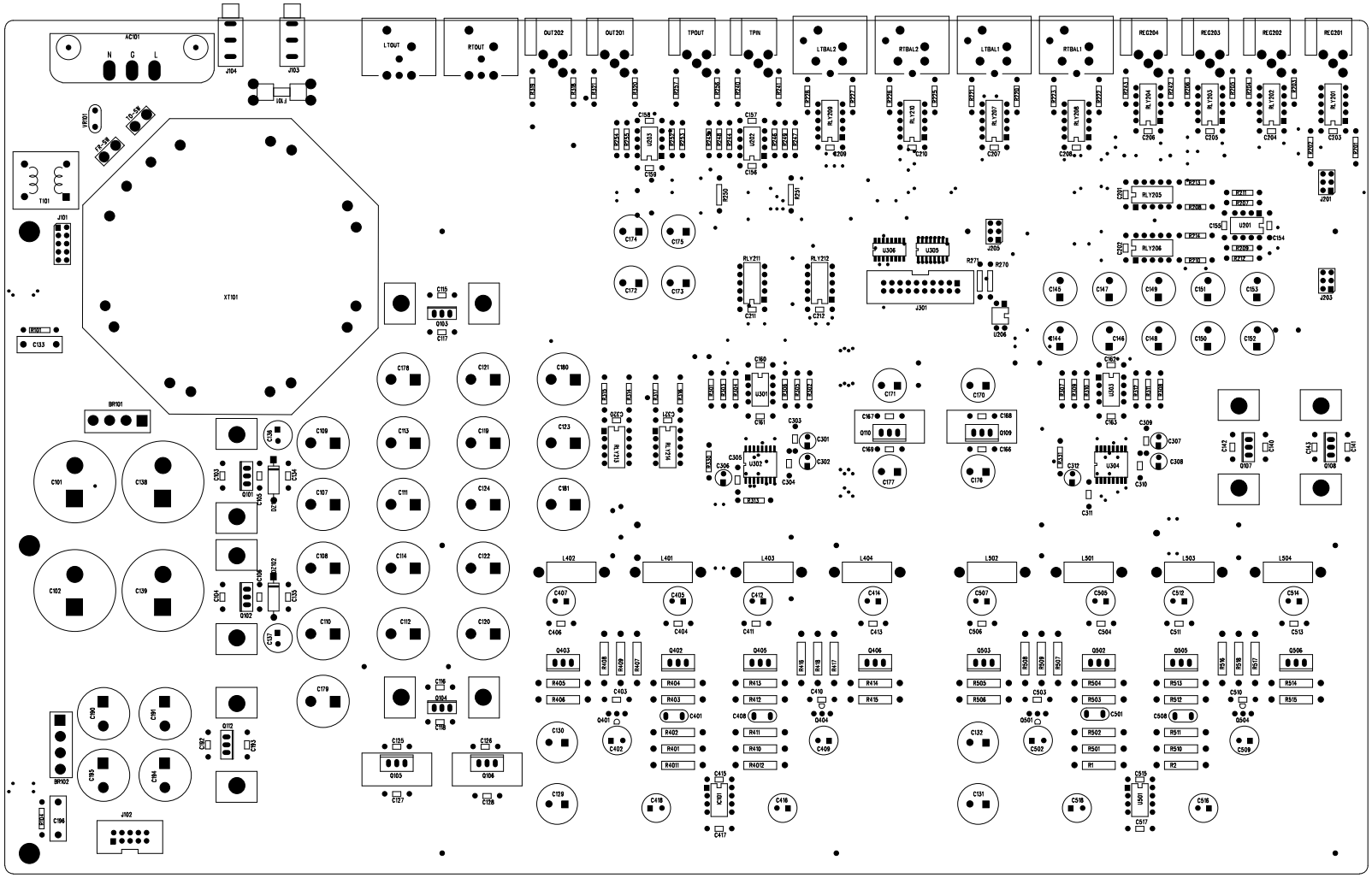
PC BOARDS



B1A2XR02 FRONT PCB

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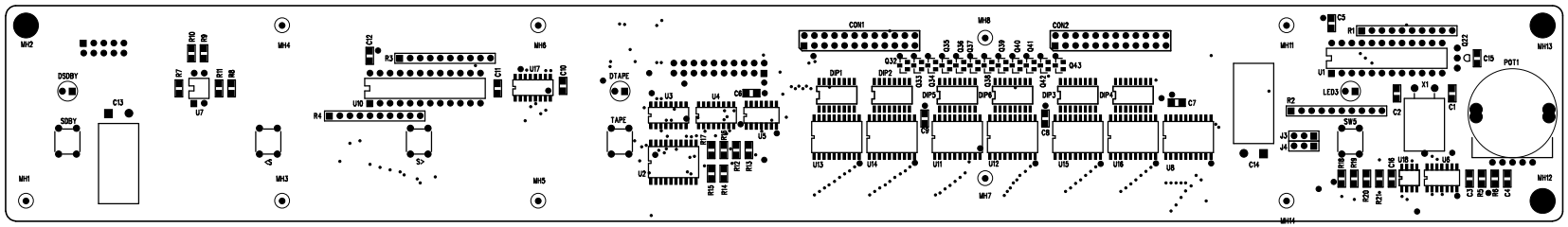
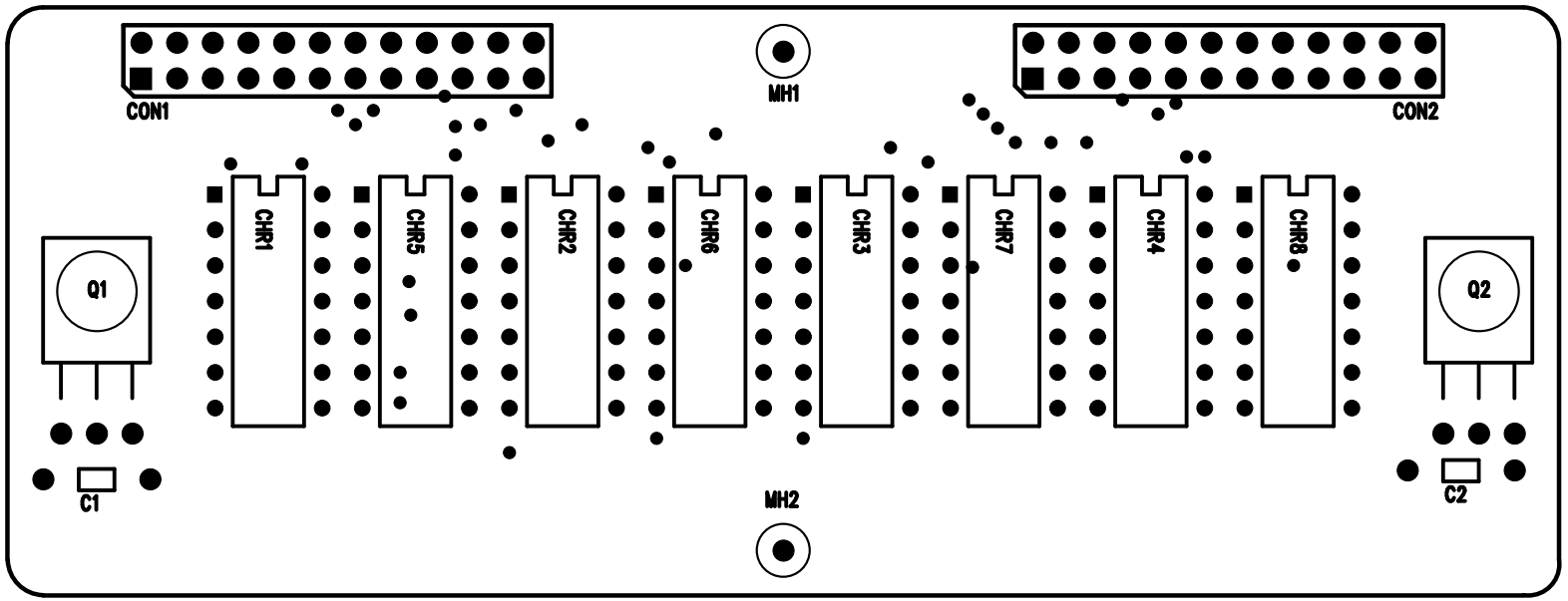
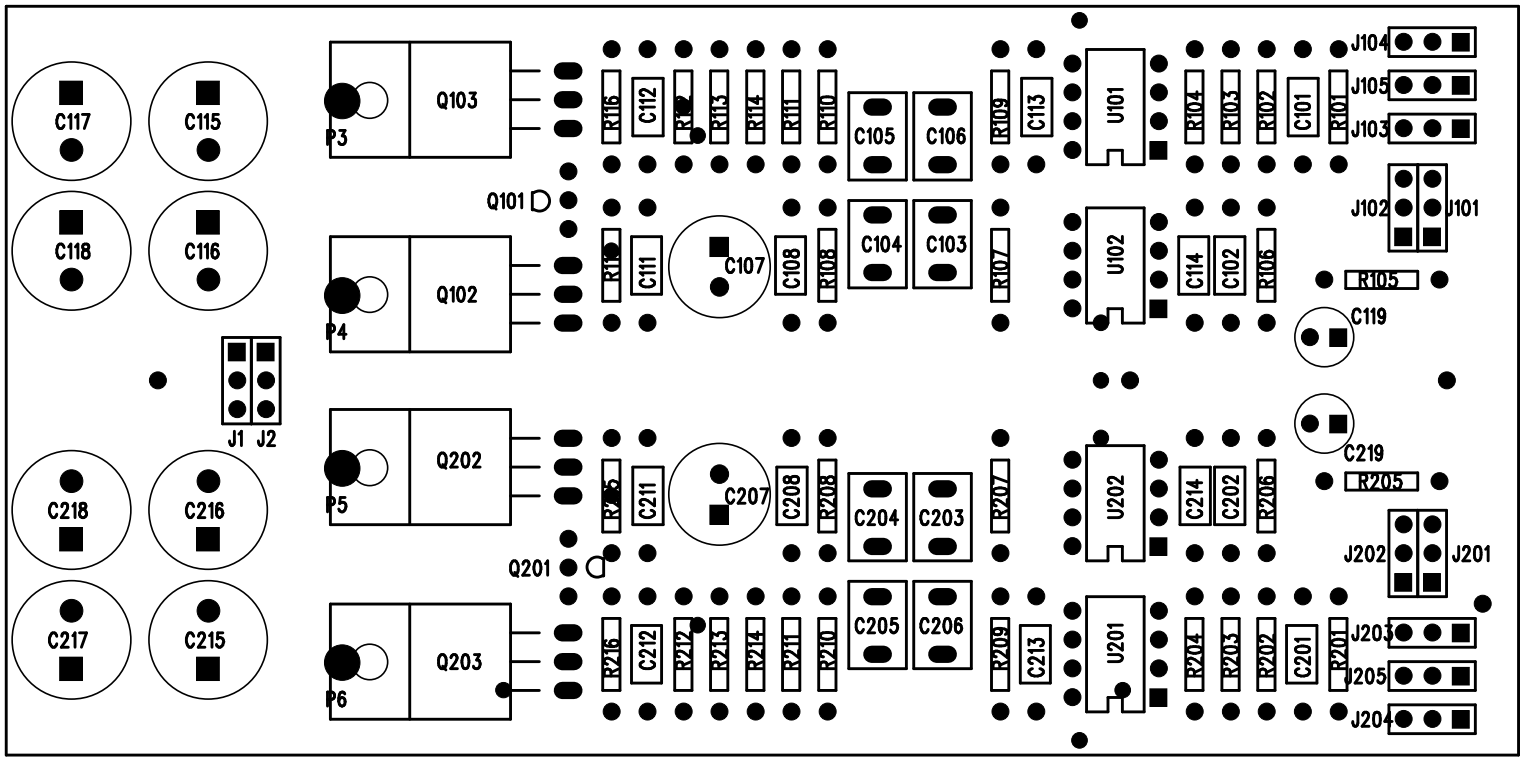



CON1
MH1
CON2
CHR1
CHR5
CHR2
CHR6
CHR3
CHR7
CHR4
CHR8
Q1
Q2
C1
C2
MH2


C117
C115
C118
C116
C218
C216
C217
C215
J1
J2
P3
P4
P5
P6
Q103
Q102
Q202
Q203
Q101
Q201
R116
C112
R112
R113
R114
R111
R110
C105
C106
C107
C108
R108
C104
C103
R109
C113
U101
R104
R103
R102
C101
R101
J104
J105
J103
J102
J101
R105
C119
C219
R205
J202
J201
J203
J205
J204
R107
U102
C114
C102
R106
R216
C212
R212
R213
R214
R211
R210
C205
C206
C211
C207
C208
R208
C204
C203
R207
U202
C214
C202
R206
R209
C213
U201
R204
R203
R202
C201
R201

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TESTING PROCEDURES

1-check all wires and components
2-Check screws and bolts
3-Connect the jumpers for 120 Volts
4-Turn the bias all the way to 0 volts
5-Connect the unit in bypass mode
6-Connect the unit with variable transformer
7-Connect speaker cables, regular and balanced inputs
8-Apply 10V AC from variable transformer and check the rail and driver voltages
9-If the unit is OK increase the voltage up to 120V
10-Turn off the unit and remove by pass
11-Turn on the unit and check the rails driver and offset
12-Check the sequence of relay clicking
13-Adjust the bias and offset
14-Check the protection circuit both channels
15-Check the signal with 8 and 4 load in
16-Regular, regular mono, balanced stereo and balanced mono
17-Check noise with small speaker and RCA shorted plug
18-Put in burning bench

1. Before final test unit was 4 days on burn-in-bench with music.
2. Take the unit from burn-in-bench to Q.C and play it immediately. Keep the line 120V A.C.
3. Check physically and check the components.
   -check all capacitor and devices direction. Capacitor stand up right way i.e. check co-solder.
   -check any missing parts.
   -check all fuse sockets.
   -check main board tight up with screw and washer.
   -check any screw missing.
   -check balance lock working smoothly.
   -check all output transistors position with pad.
   -check main transistors position with pad.
   -check main transformer tight very well.
4. Adjust bias 26mV for every output devices for both channels. Wait 7 to 8 minutes after each adjustment. Also adjust offset to 0mV.
5. Measure rail and pre-driver voltage.
6. Measure A.C voltage for bridge.
7. Measure supply voltage for relays. +15V and 15V for both channels. +12V and 12V.
8. Measure reference voltage 8.1V on both channels.
9. Measure reference voltage for protection 78V.
10. After setting the bias, connect load and input signal. Check output signal. Check phase with input signal.
11. Measure frequency response, slew rate, gain, signal to noise ratio.
12. Check the output signal from 20Hz to 20KH with load in following combination. Also measure the output power.
    Regegur-stereo
    Balance-stereo
    Regegur-mono
    Balance-mono
13. Check phone-jack.
14. Check protection on both channels.
15. Check noise with speaker.
16. Put the jumpers and varistor for required A.C voltage.
17. Plug unit again and check rail and pre-driver voltage.

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DIAGRAMS

MAINBOARD SUPPLY - B1A1XR04 (1)

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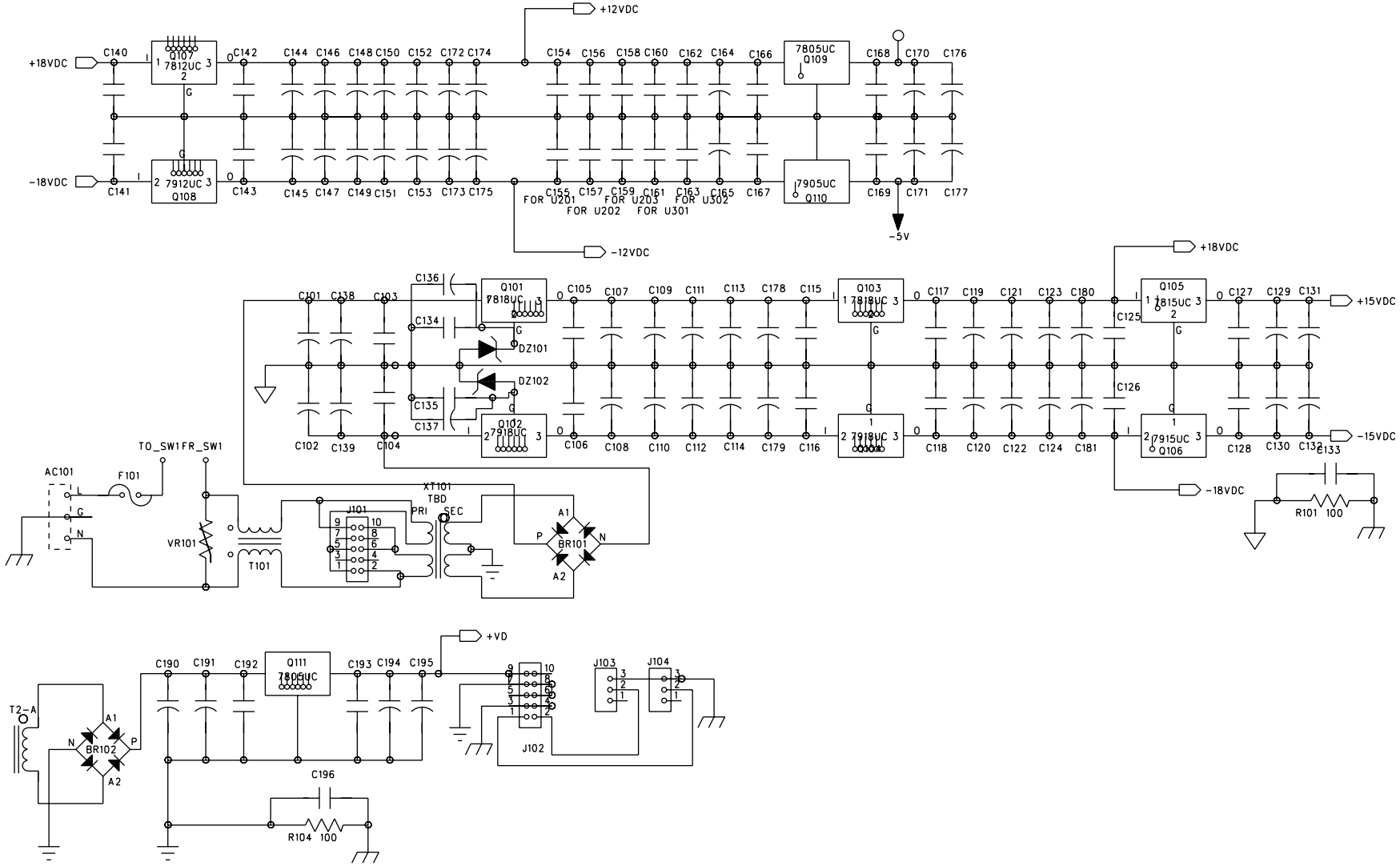
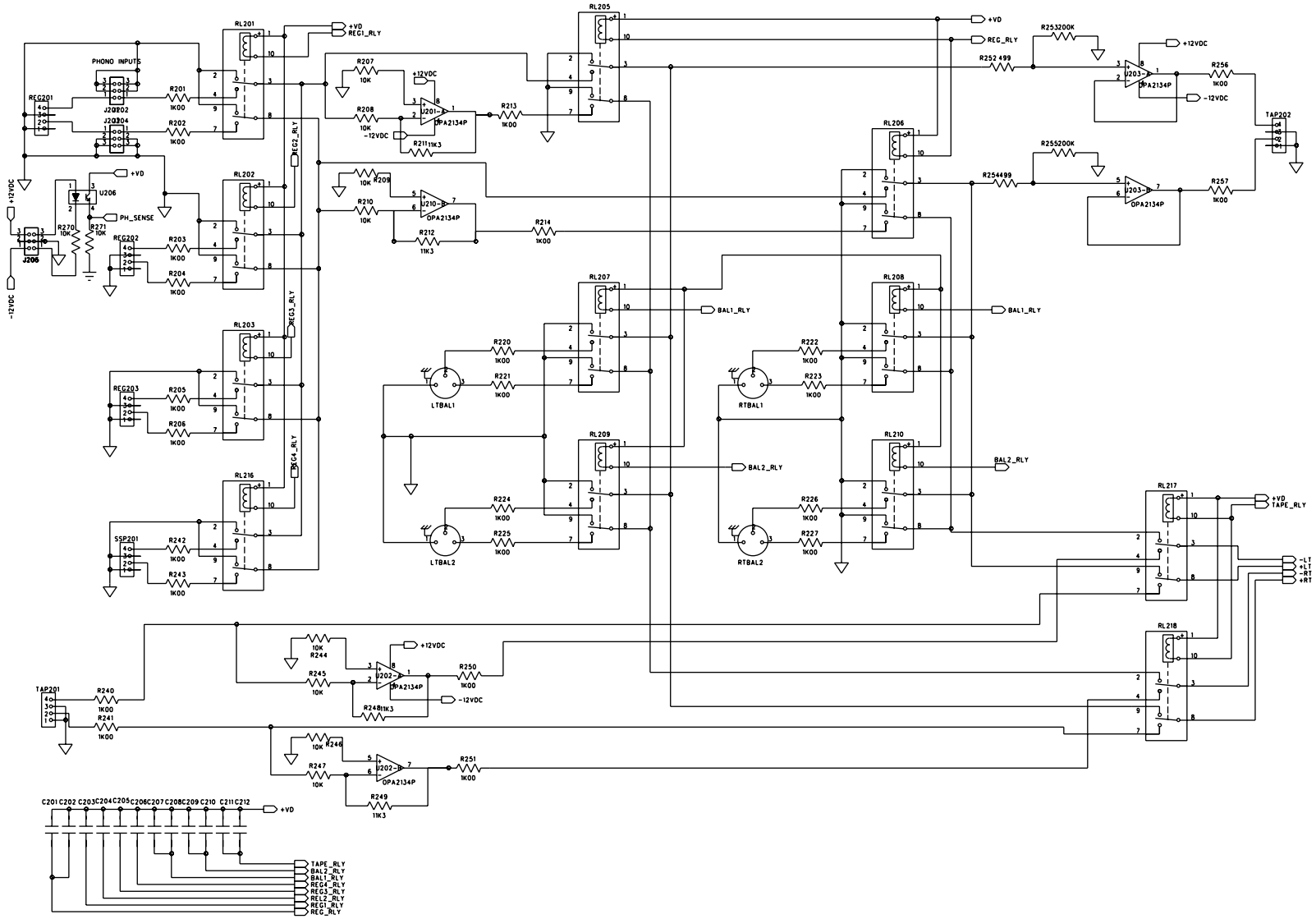
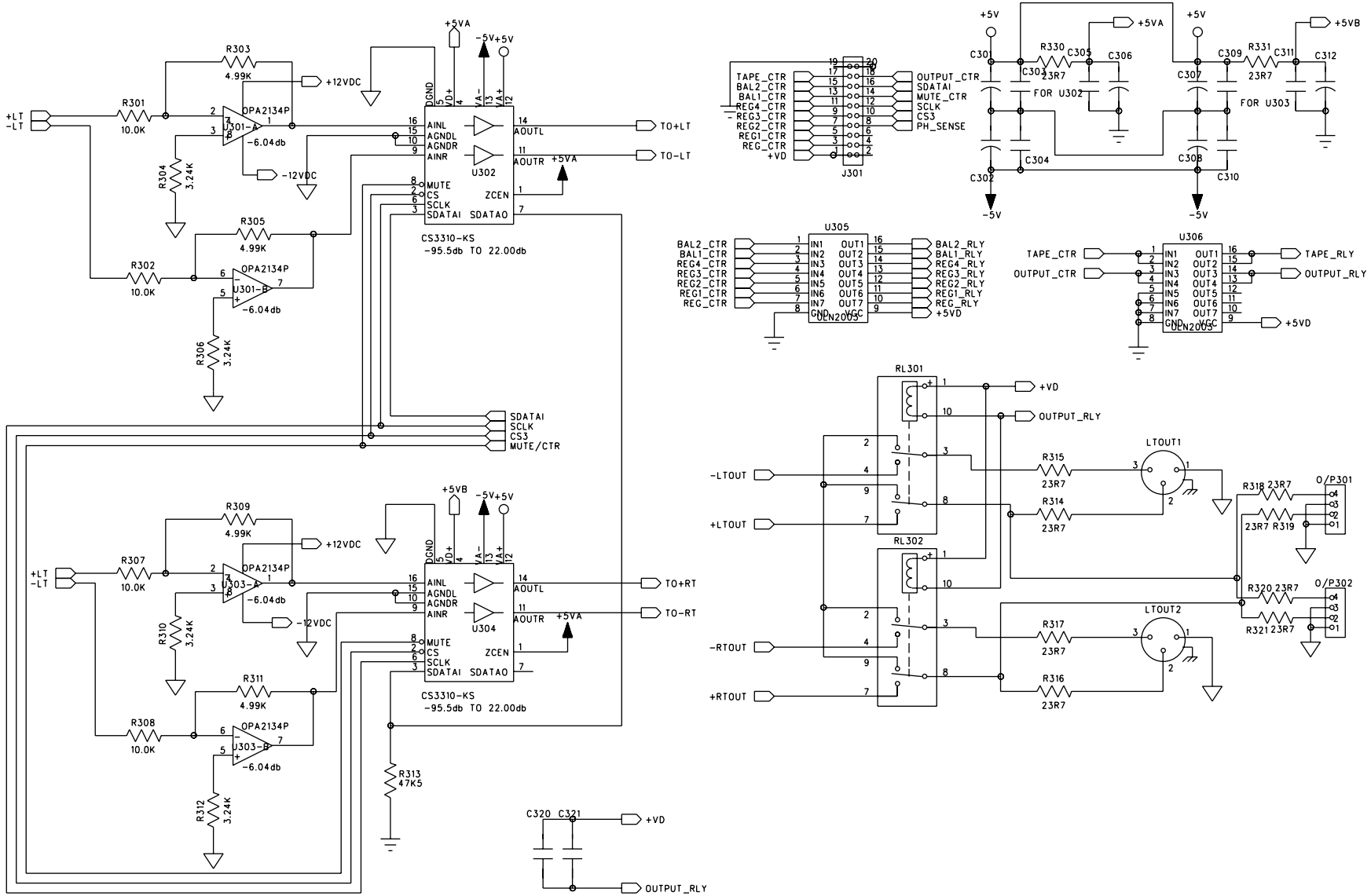


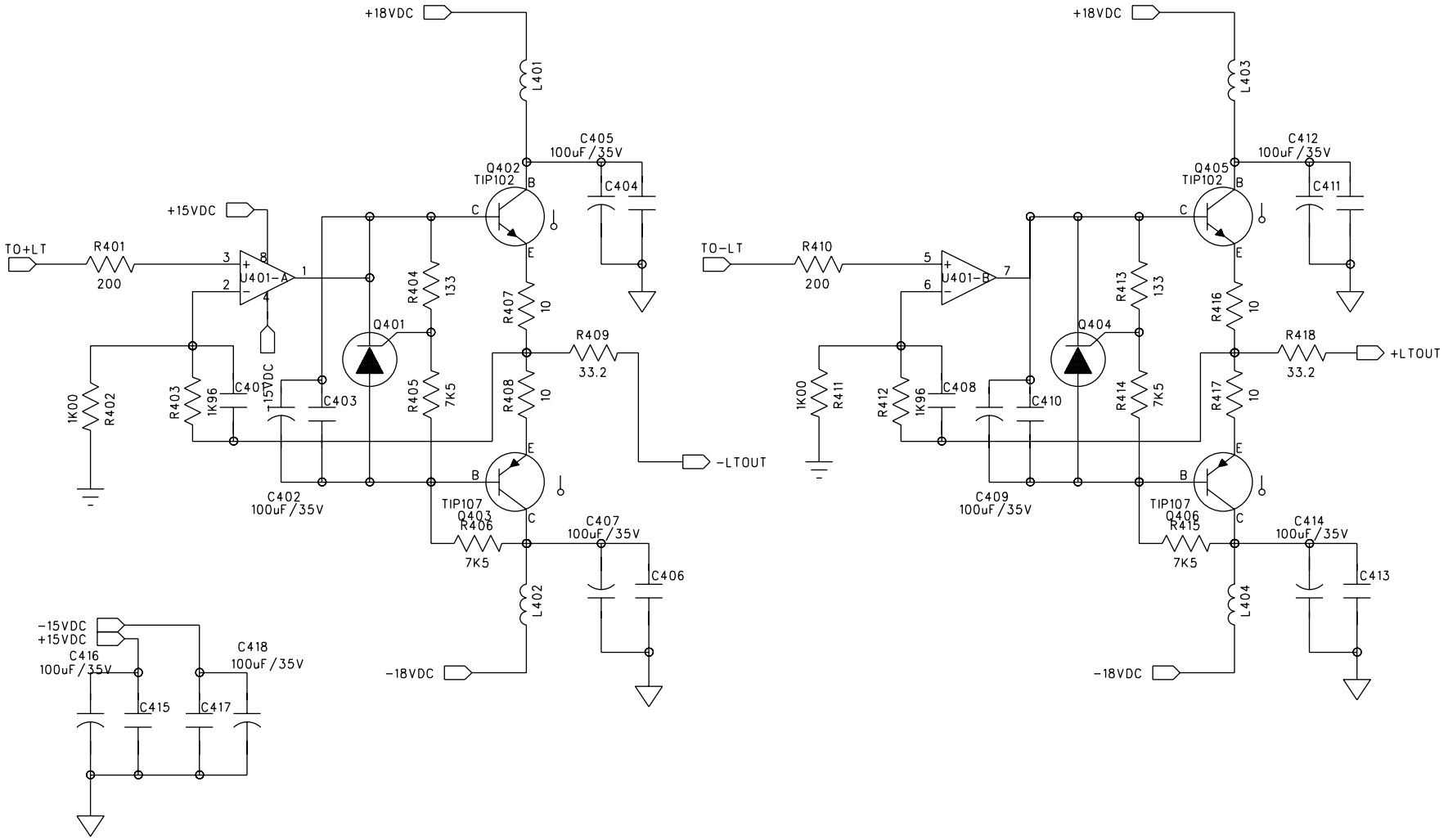
MAINBOARD INPUT - B1A1XR04 (2)

CP-47.5



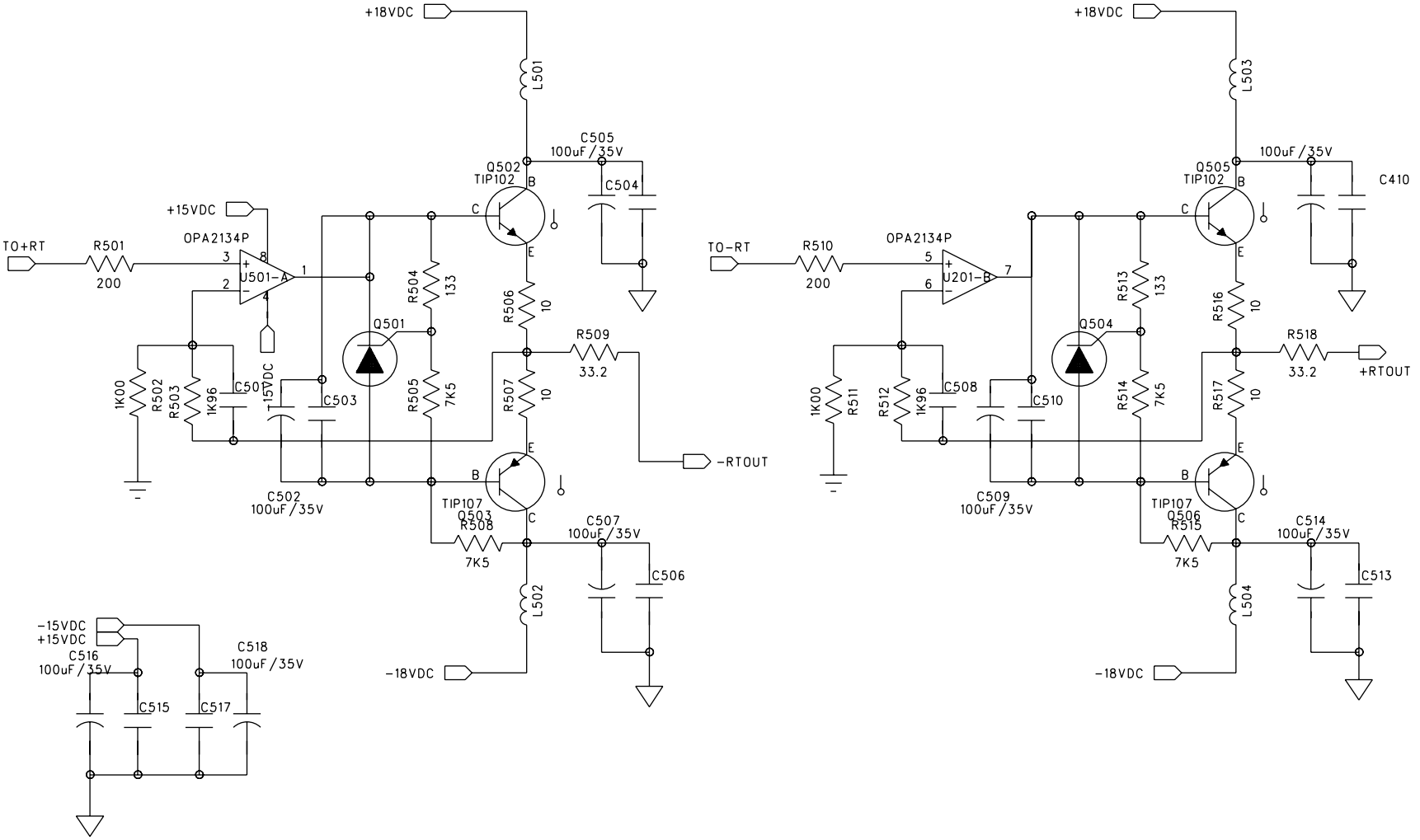

+5VA
-5V+5V
R303
4.99K
+12VDC
R301
10.0K
+LT
-LT
OPA2134P
U301-A
-6.04db
-12VDC
R304
3.24K
R305
4.99K
R302
10.0K
U301-B
-6.04db
R306
3.24K
DGND
VD+
VA-
VA+
AINL
AGNDL
AGNDR
AINR
AOUTL
AOUTR
U302
MUTE
CS
SCLK
SDATAI
SDATAO
ZCEN
CS3310-KS
-95.5db TO 22.00db
TO+LT
TO-LT
SDATAI
SCLK
CS3
MUTE/CTR
+5VB
R309
4.99K
+12VDC
R307
10.0K
U303-A
-6.04db
-12VDC
R310
3.24K
R311
4.99K
R308
10.0K
U303-B
-6.04db
R312
3.24K
R313
47K5
U304
CS3310-KS
-95.5db TO 22.00db
TO+RT
TO-RT
C320 C321
+VD
OUTPUT_RLY
TAPE_CTR
BAL2_CTR
BAL1_CTR
REG4_CTR
REG3_CTR
REG2_CTR
REG1_CTR
REG_CTR
+VD
OUTPUT_CTR
SDATAI
MUTE_CTR
SCLK
CS3
PH_SENSE
J301
+5V
+5VA
+5VB
C301
C302
C303
C304
C305
C306
C307
C308
C309
C310
C311
C312
R330
23R7
R331
23R7
FOR U302
FOR U303
-5V
U305
U306
IN1
IN2
IN3
IN4
IN5
IN6
IN7
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
GND
VCC
ULN2003
BAL2_RLY
BAL1_RLY
REG4_RLY
REG3_RLY
REG2_RLY
REG1_RLY
REG_RLY
TAPE_RLY
OUTPUT_RLY
RL301
RL302
-LTOUT
+LTOUT
-RTOUT
+RTOUT
LTOUT1
LTOUT2
R315
23R7
R314
23R7
R317
23R7
R316
23R7
R318 23R7
23R7 R319
R320 23R7
R321 23R7
O/P301
O/P302

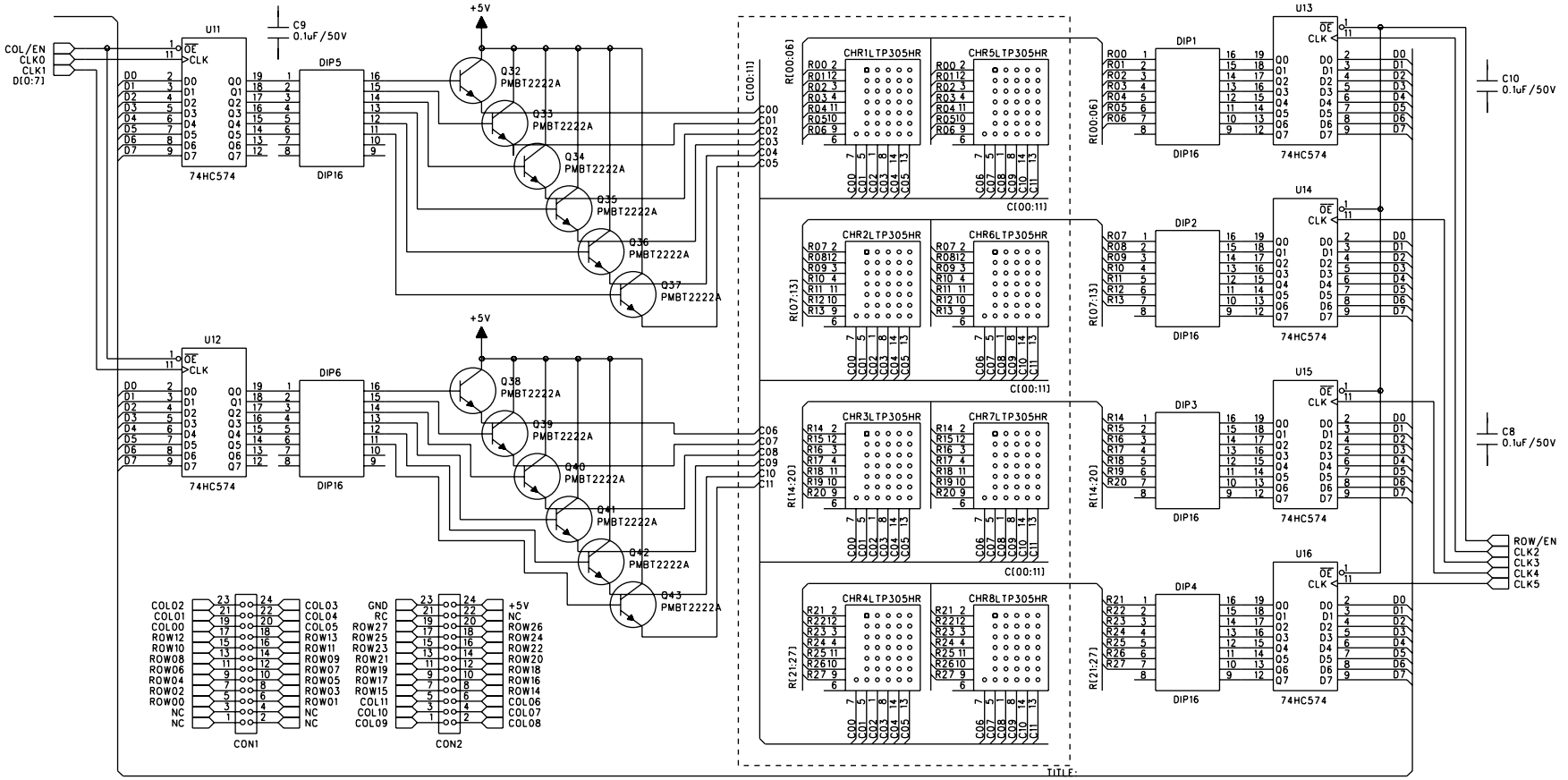
MAINBOARD PREAMP (LEFT) - B1A1XR04 (4)

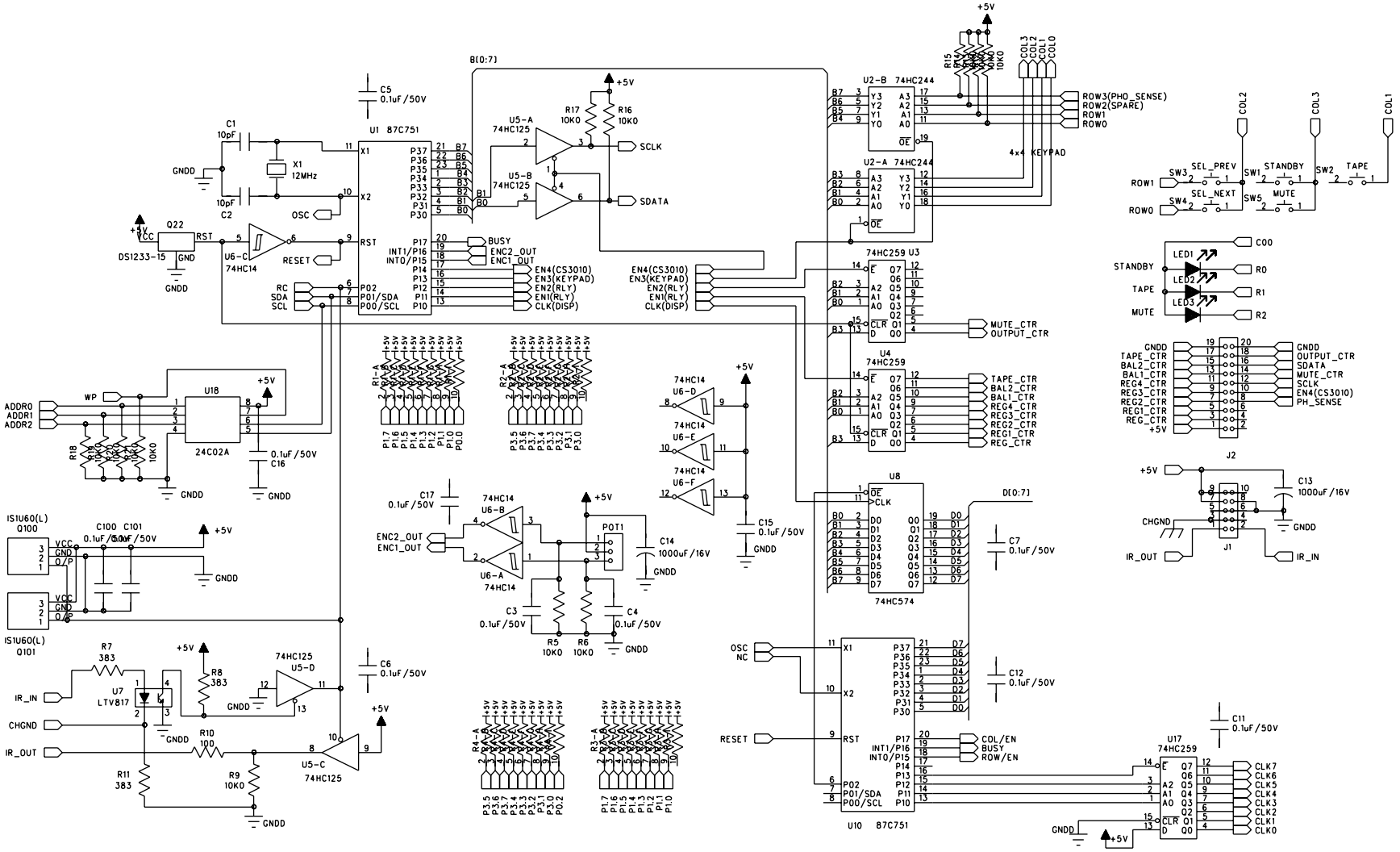


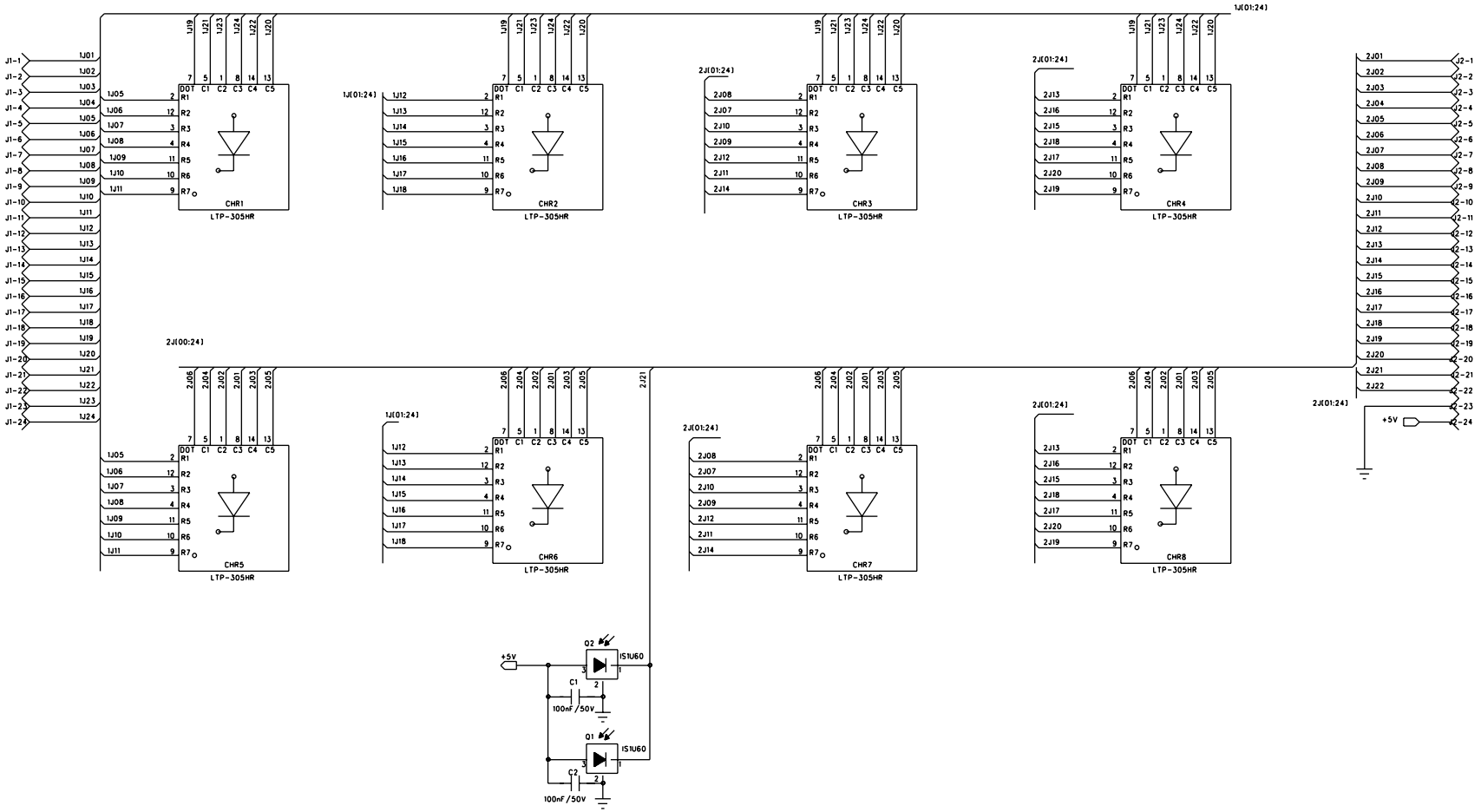
MAINBOARD PREAMP (RIGHT) - B1A1XR04 (5)

CP-47.5

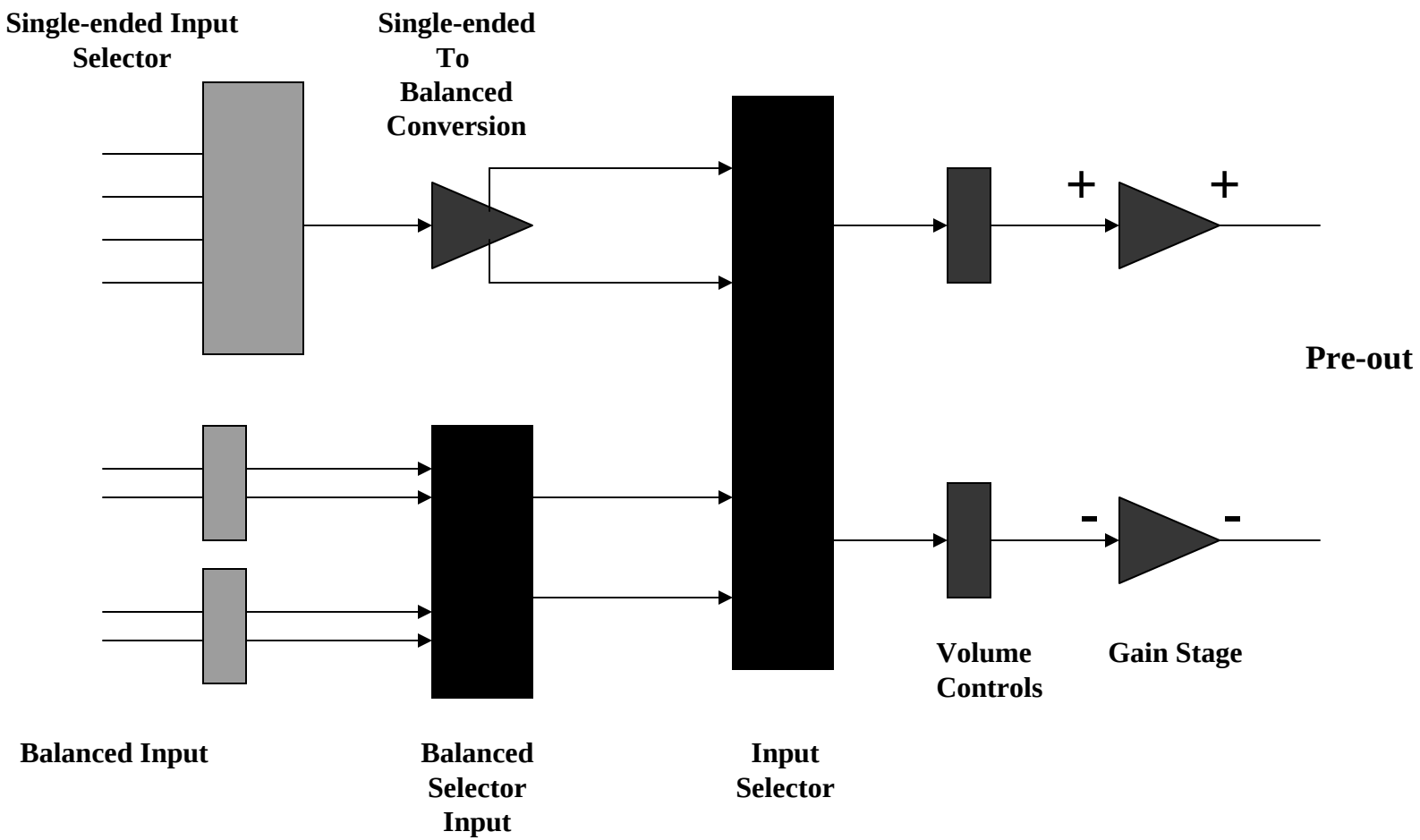



COL/EN
CLK0
CLK1
D[0:7]
U11
U12
74HC574
DIP5
DIP6
DIP16
C9
0.1uF/50V
+5V
Q32 PMBT2222A
Q33 PMBT2222A
Q34 PMBT2222A
Q35 PMBT2222A
Q36 PMBT2222A
Q37 PMBT2222A
Q38 PMBT2222A
Q39 PMBT2222A
Q40 PMBT2222A
Q41 PMBT2222A
Q42 PMBT2222A
Q43 PMBT2222A
C[00:11]
R[00:06]
R[07:13]
R[14:20]
R[21:27]
CHR1LTP305HR
CHR2LTP305HR
CHR3LTP305HR
CHR4LTP305HR
CHR5LTP305HR
CHR6LTP305HR
CHR7LTP305HR
CHR8LTP305HR
DIP1
DIP2
DIP3
DIP4
U13
U14
U15
U16
C10
0.1uF/50V
C8
0.1uF/50V
ROW/EN
CLK2
CLK3
CLK4
CLK5
CON1
CON2
COL02
COL01
COL00
ROW12
ROW10
ROW08
ROW06
ROW04
ROW02
ROW00
NC
COL03
COL04
COL05
ROW13
ROW11
ROW09
ROW07
ROW05
ROW03
ROW01
GND
RC
ROW27
ROW25
ROW23
ROW21
ROW19
ROW17
ROW15
COL11
COL10
COL09
+5V
ROW26
ROW24
ROW22
ROW20
ROW18
ROW16
ROW14
COL06
COL07
COL08
TITLE:


+5V
B[0:7]
U1 87C751
X1
12MHz
C1
10pF
C2
10pF
GNDD
OSC
RST
RESET
RC
SDA
SCL
P17
INT1/P16
INT0/P15
P14
P13
P12
P11
P10
P02
P01/SDA
P00/SCL
BUSY
ENC2_OUT
ENC1_OUT
EN4(CS3010)
EN3(KEYPAD)
EN2(RLY)
EN1(RLY)
CLK(DISP)
C5
0.1uF/50V
U5-A
74HC125
U5-B
74HC125
R17
10K0
R16
10K0
SCLK
SDATA
Q22
DS1233-15
VCC
GND
U6-C
74HC14
U2-B 74HC244
U2-A 74HC244
ROW3(PHO_SENSE)
ROW2(SPARE)
ROW1
ROW0
4x4 KEYPAD
R15
10K0
COL3
COL2
COL1
COL0
SW3
SW4
SW1
SW2
SW5
SEL_PREV
SEL_NEXT
STANDBY
MUTE
TAPE
74HC259 U3
MUTE_CTR
OUTPUT_CTR
U4
74HC259
TAPE_CTR
BAL2_CTR
BAL1_CTR
REG4_CTR
REG3_CTR
REG2_CTR
REG1_CTR
REG_CTR
LED1
LED2
LED3
C00
R0
R1
R2
GNDD
OUTPUT_CTR
SDATA
MUTE_CTR
SCLK
EN4(CS3010)
PH_SENSE
+5V
J2
J1
C13
1000uF/16V
CHGND
IR_OUT
IR_IN
U18
24C02A
WP
ADDR0
ADDR1
ADDR2
R18
10K0
C16
0.1uF/50V
R1-A
R2-A
P1.7
P1.6
P1.5
P1.4
P1.3
P1.2
P1.1
P1.0
P0.0
P3.5
P3.6
P3.7
P3.4
P3.3
P3.2
P3.1
P3.0
74HC14
U6-D
U6-E
U6-F
C15
0.1uF/50V
C17
0.1uF/50V
U6-B
U6-A
ENC2_OUT
ENC1_OUT
POT1
C14
1000uF/16V
C3
0.1uF/50V
C4
0.1uF/50V
R5
10K0
R6
10K0
U8
74HC574
D[0:7]
C7
0.1uF/50V
IS1U60(L)
Q100
Q101
C100
C101
0.1uF/50V
R7
383
R8
383
U7
LTV817
R10
100
R11
383
R9
10K0
U5-C
74HC125
U5-D
C6
0.1uF/50V
R4-A
R3-A
OSC
NC
RESET
U10 87C751
COL/EN
BUSY
ROW/EN
C12
0.1uF/50V
C11
0.1uF/50V
U17
74HC259
CLK7
CLK6
CLK5
CLK4
CLK3
CLK2
CLK1
CLK0


1J[01:24]
2J[01:24]
2J[00:24]
CHR1
CHR2
CHR3
CHR4
CHR5
CHR6
CHR7
CHR8
LTP-305HR
+5V
Q1
Q2
IS1U60
C1
C2
100nF/50V

CP-47.5 to Omega Block Diagram



CP-47.5 MAIN BOARD

(B101 X R03)

1. INSPECTION

A) Visually check all parts for: solder bridges or splashes, backwards or missing components and component orientation.

2. POWER SUPPLY VOLTAGES

A) Apply 30 VAC and check polarities
B) Apply 60 VAC and check voltages
C) Apply full blast 120 VAC

3. Q112 → 78T05
   C192 → +10V
   C193 → + 5V

4. Q102 → 7918
   C104 → -36V
   C106 → -24V
   C135 → -6V

3. Q101 → 7818
   C103 → +36V
   C105 → +24V
   C134 → +6V

4. Q103 → 7818
   C115 → +24V
   C117 → +18V

5. Q104 → 7918
   C116 → -24V
   C118 → -18V

6. Q105 → 7815
   C125 → +18V
   C127 → -15V

7. Q106 → 7915
   C126 → +18V
   C128 → -15V

8. Q110 → 7905
   C167 → -5V
   C169 → -12V

9. Q109→ 7805
   C168 → +5V
   C166 → +12V

10. Q107→ 7812
    C142 → +12V
    C140 → +18V

11. Q108 → 7912
    C143 → -12V
    C141 → -18V

12. TIP 107 → Q403, Q406, Q405, Q503, Q506, C406, C413, C506, C513, → -18V

13. TIP 102 → Q402, Q405, Q502, Q505, C404, C411, C504, C511, →+18V

14. U203,U202, U201, U301,U303 → OPA 2134

a) C159, C156, C154, C160, C162 → +12V
b) C158, C157, C155, C161, C163 → -12V

15. U302, U304 → CS3310

C305 → +5V	C311→ +5V
C304 → -5V	C310 → -5V
C303 → +5V	C309 → +5V

16. 1C101 → OPA2134
    C415 → +15V
    C417 → -15V

17. U501→ OPA2134
    C515 → +15V
    C517 → -15V

18. Q401, Q404, Q501, Q504 → TL431
    Measure across capacitors:
    C403, C410, C503, C510 → 2.5V

19. BIAS voltages→ 150MV to 200 MV
    Measure across resistors:
    R408, R407, R416, R417, R508, R507, R516, R517

20. Offset→ maximum + or – 10MV
    W/ Respect to GND
    T.P. lower pins on R409, R418, R509, R518

21. Tape out offset→ max (+) (-) 10MV

22. Check signals

CP47.5 DISPLAY

(B1A2 X R02)

1. INSPECTION:

a) Visually check all parts for: solder bridges of splashes, backwards or missing components, and component orientation.
b) Q1, Q2 1R receivers must be raised to 1/8”.

2. FUNCTIONS:

a) Install microchip-CP475R06 on U1 and DRV08R10 on U10.
b) Install all LEDs (green on mute and standby, red on tape).
c) Switch on the unit.
d) “Classé” will appear on display while green LED is flashing on DSDBY for 6 seconds and turn to standby mode.
e) Press SDBY switch – green LED switch off and display appears, relay must click.
f) Press selector switches up and down one at a time. Relays click every time you press selector switches. Check display for missing dot (s)
g) Press tape switch; relay clicks, red LED is on.
h) Press mute, green LED lights, no relay clicking.
i) Check volume manually.
j) Check remote control if the functions are working.

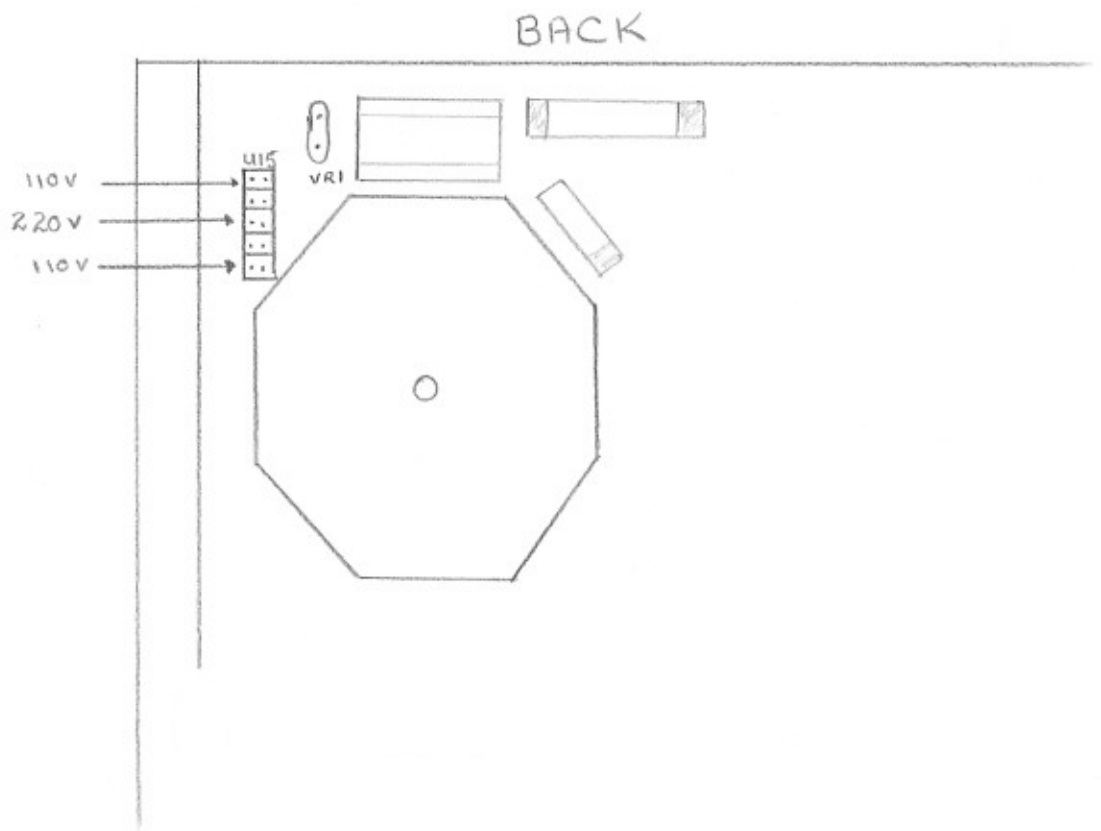
Model CP-47.5 Gain Reduction (9dB)

- Unplug the CP-47.5 completely from the AC line.
- Remove the top cover
- Un-solder resistors **R402, R411, R502, and R511** from the main PCB (picture below).
  Original value is RN60D2152.
- Replace these resistors with this **new value: RN60D3012.**
- Re-install the top cover and test unit.

R402 R411 R502 R511

FRONT

CP-47.5



110 VOLT = U15 SET JUMPERS TO 2 OUTSIDES = VARISTOR : 130V

220 VOLT = U15 SET JUMPERS TO 1 MIDDLE = VARISTOR : 250V

NOTE: If VARISTOR IS NOT AVAILABLE, OMIT IT.