



# QUAD

## SERVICE MANUAL

### MODEL QUAD 99 PRE-AMPLIFIER

QUAD 99 PRE-AMPLIFIER

#### 1. SPECIFICATIONS

| <b>Aux. &amp; Tape Inputs</b> |                                  |
|-------------------------------|----------------------------------|
| Sensitivity                   | 100,300 or 775mV                 |
| Signal to Noise Ratio         | >97dB(A) ref 775mV               |
| Distortion                    | <0.002%                          |
| <b>Phono Inputs MM(MC)</b>    |                                  |
| Sensitivity                   | 1,3 or 7.75mV (100,300 or 775uV) |
| Signal to Noise Ratio         | 78dB(A) ref 7.75mV (775uV)       |
| Distortion                    | <0.05% (0.01%)                   |
| <b>Pre Amp Output</b>         |                                  |
| Level                         | 775mV (3.3 volts maximum)        |
| Source Impedance              | 100 Ohms                         |
| <b>AMPBUS Output</b>          |                                  |
| Level                         | 2 volts (8 volts maximum)        |
| Source Impedance              | 20 Ohms                          |
| <b>Tape Output</b>            |                                  |
| Level                         | 100,300,775mV (10 volts maximum) |
| Source Impedance              | 330 Ohms                         |
| All inputs except MM & MC     | 10Hz to 20kHz +0dB/-0.3dB        |
|                               | 3Hz to 56kHz +0dB/-3dB           |
| MM & MC inputs                | 20Hz to 20kHz +/-0.5dB           |
|                               | 7Hz to 53kHz +0.5dB/-3dB         |
| <b>Dimensions</b>             | 70mm × 321mm × 310mm(H × W × D)  |
| <b>Weight</b>                 | 4.42kgs                          |

The following abbreviations are used:

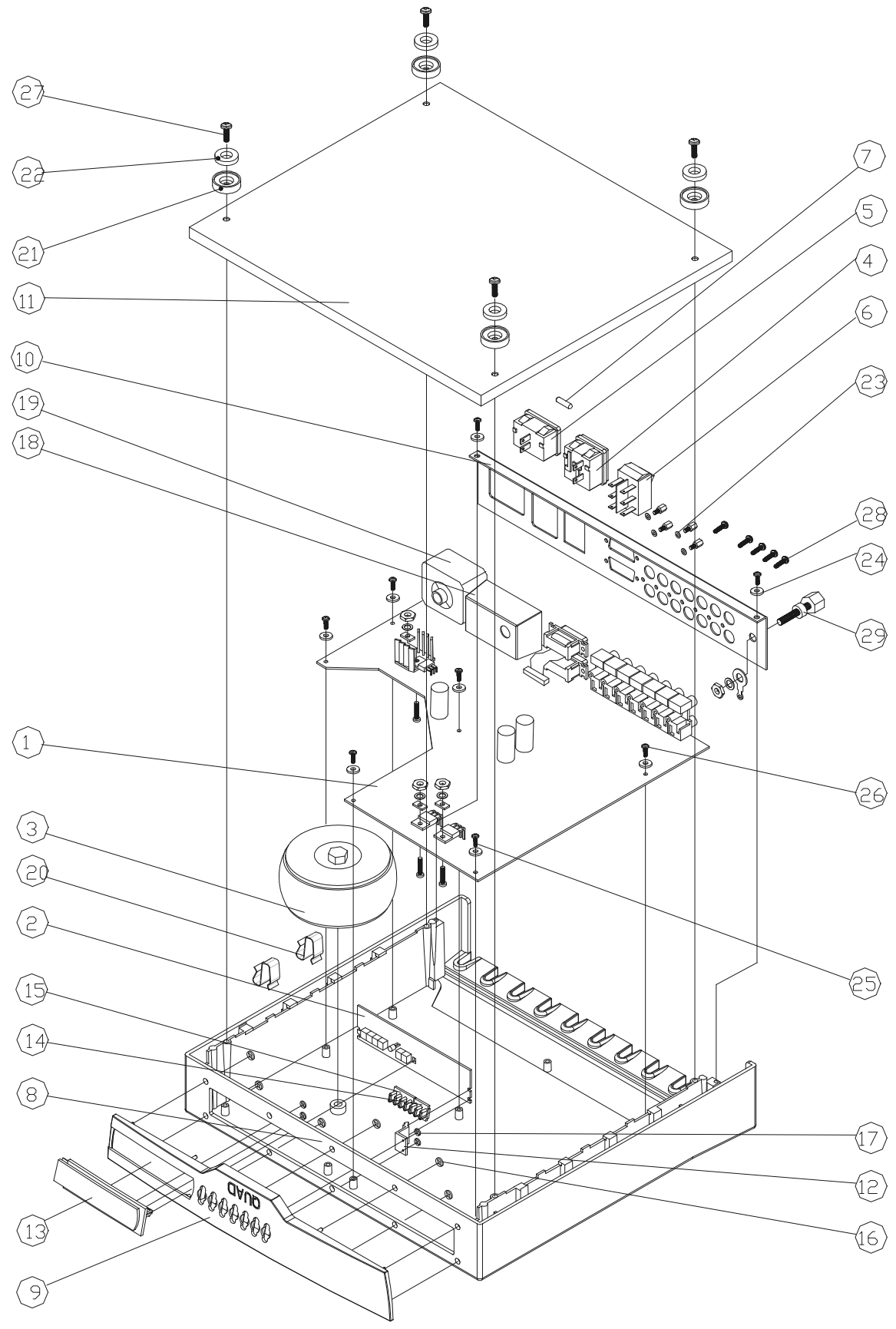
**RIAA** Recording Industry Association of America

**MM** Moving magnet cartridge

**MC** Moving coil cartridge

## 2. ASSEMBLY SKETCH

QUAD 99 PRE-AMPLIFIER



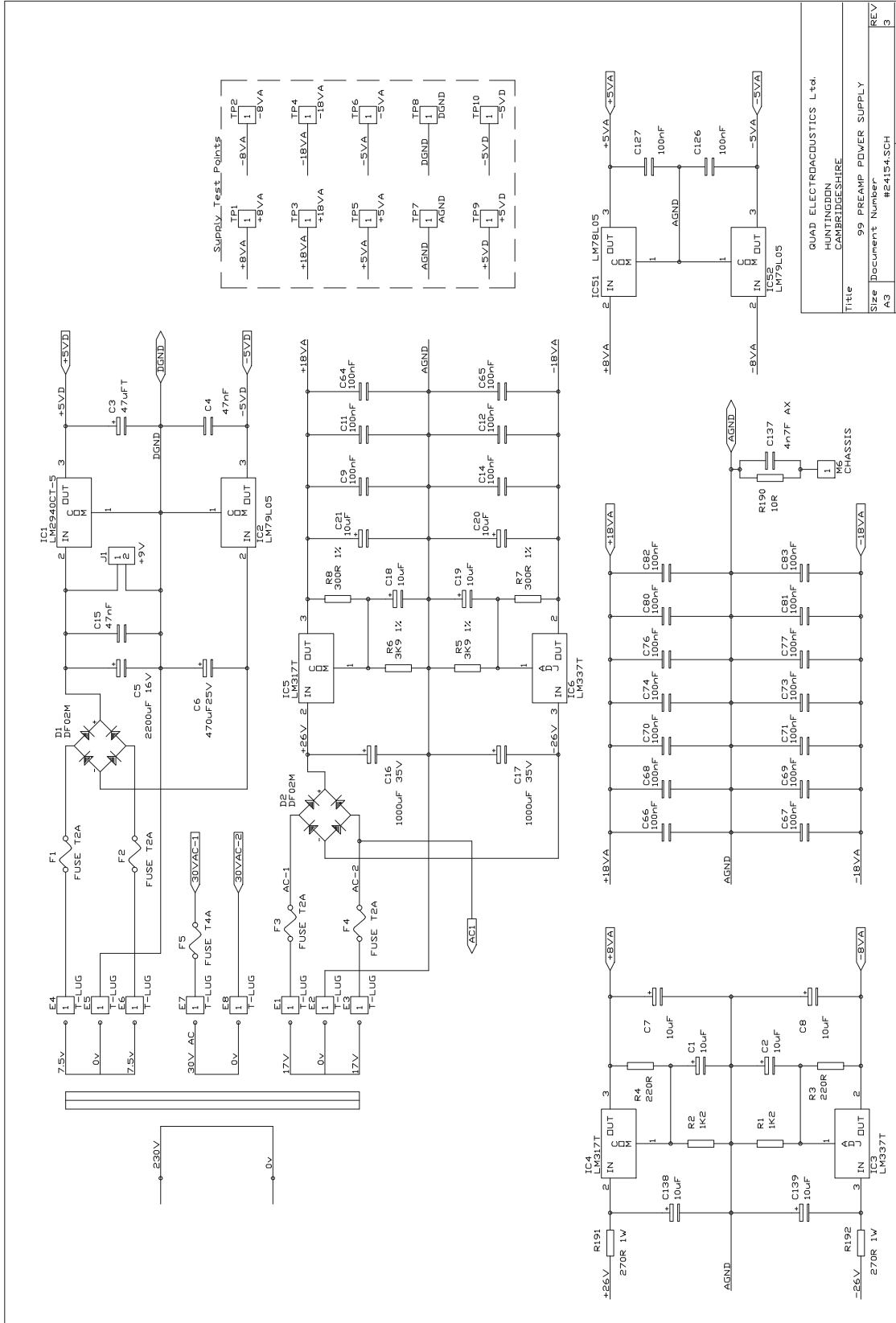
### 3. ASSEMBLY PARTS LIST

QUAD 99 PRE-AMPLIFIER

| R/P | P/N             | PART NAME          | DESCRIPTION       | QUA |
|-----|-----------------|--------------------|-------------------|-----|
| 1   | 088-1118001000  | AMPLIFIER P.C.B    |                   | 1   |
| 2   | 088-1118003500  | DISPLAY P.C.B      |                   | 1   |
| 3   | 022-2000802060  | TRANSFORMER        |                   | 1   |
| 4   | 044-1800000000  | SOCKET             |                   | 1   |
| 5   | 044-1500000000  | SOCKET             |                   | 1   |
| 6   | 041-2191000000  | SWITCH             |                   | 1   |
| 7   | 031-4200504121  | FUSE               |                   | 1   |
| 8   | 302-1115000001  | TOP COVER          |                   | 1   |
| 9   | 300-1178000001  | FRONT PANEL        |                   | 1   |
| 10  | 301-1118000001  | REAR PANEL         |                   | 1   |
| 11  | 303-1115000001  | BOTTOM COVER       |                   | 1   |
| 12  | 205-1117000001  | PCB SUPPORT        |                   | 1   |
| 13  | 273-1116000001  | F/PANEL WINDOW     |                   | 1   |
| 14  | 211-1176000001  | 3 BUTTON PAD       |                   | 1   |
| 15  | 211-1177000001  | 4 BUTTON PAD       |                   | 1   |
| 16  | 384-0850211100  | CLAW RING          | 8.5*2.1           | 8   |
| 17  | 384-0630161100  | CLAW RING          | 6.3*1.6           | 4   |
| 18  | 278-1175000120  | POWER BOX          |                   | 1   |
| 19  | 391-1178000001  | SOCKET BUSH        | AM-FIECB/PRE      | 1   |
| 20  | 318-1175000001  | IC CLIP            |                   | 2   |
| 21  | 226-0180450511  | FOOT               |                   | 4   |
| 22  | 231-2016006300  | SELF-ADHESIVE FOOT |                   | 4   |
| 23  | 521-3005060500A | WASHER             | M3*5*0.6Cu        | 11  |
| 24  | 521-4009060300A | WASHER             | M4*9*0.6Zn        | 2   |
| 25  | 537-2501060801A | SCREW              | MP(+)2.5*6 BZn D  | 2   |
| 26  | 533-3001060301A | SCREW              | MT(+)3*6 Zn D     | 5   |
| 27  | 536-4001060301A | SCREW              | MT(+)4*6 Zn D     | 6   |
| 28  | 526-3012090811A | SCREW              | SB(+)3*9 DC H BZn | 5   |
| 29  | 046-3100000000  | TEAMINAL           |                   | 1   |

# 4. SCHEMATIC DIAGRAM

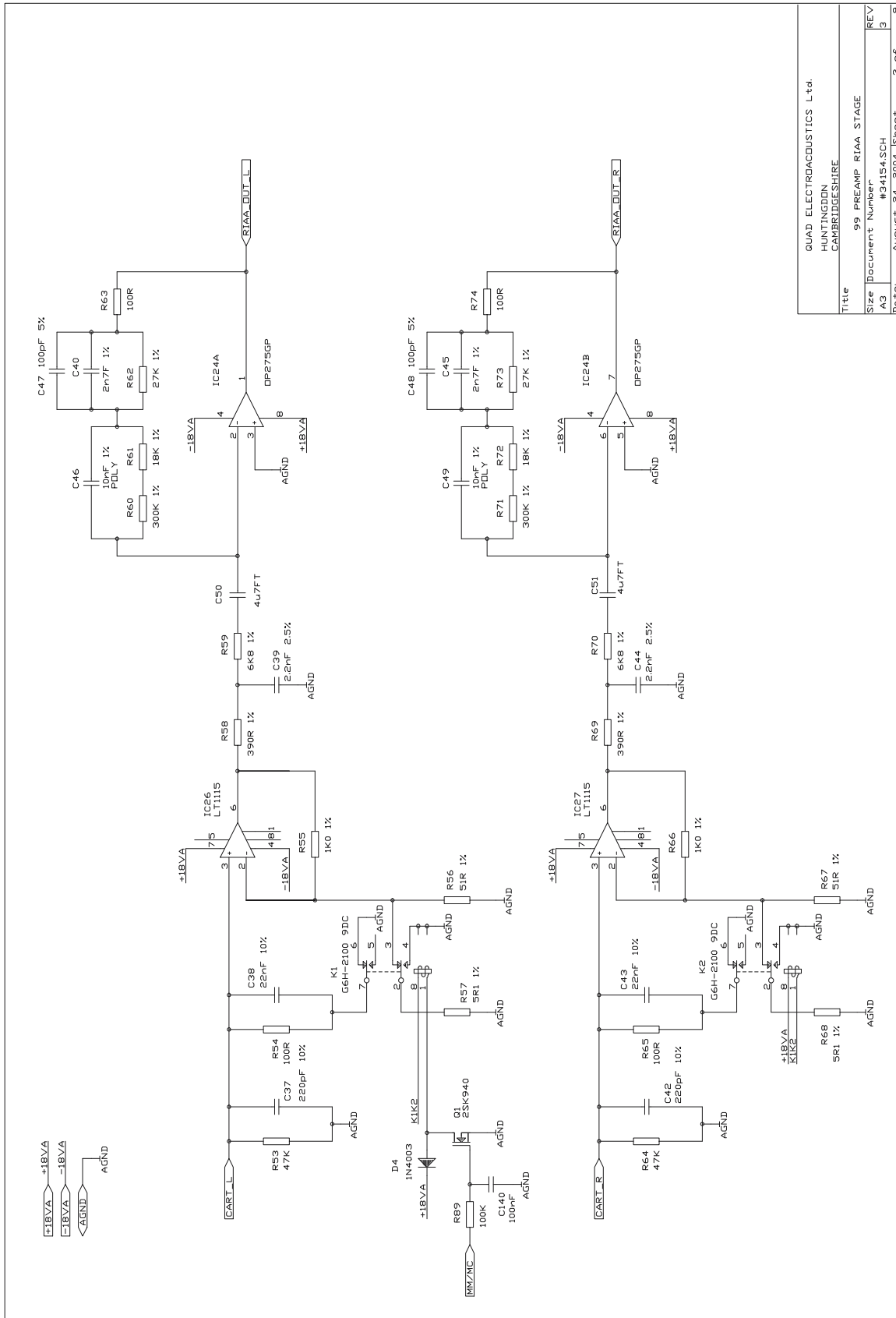
## QUAD 99 PRE-AMPLIFIER



|                              |                               |
|------------------------------|-------------------------------|
| QUAD ELECTROACOUSTICS Ltd.   |                               |
| HUNTINGDON<br>CAMBRIDGESHIRE |                               |
| Title                        | 99 PREAMP POWER SUPPLY        |
| Size                         | Document Number #24154.SCH    |
| REV                          | A3                            |
| Date                         | August 24, 2004 1Sheet 2 of 9 |

# 4. SCHEMATIC DIAGRAM

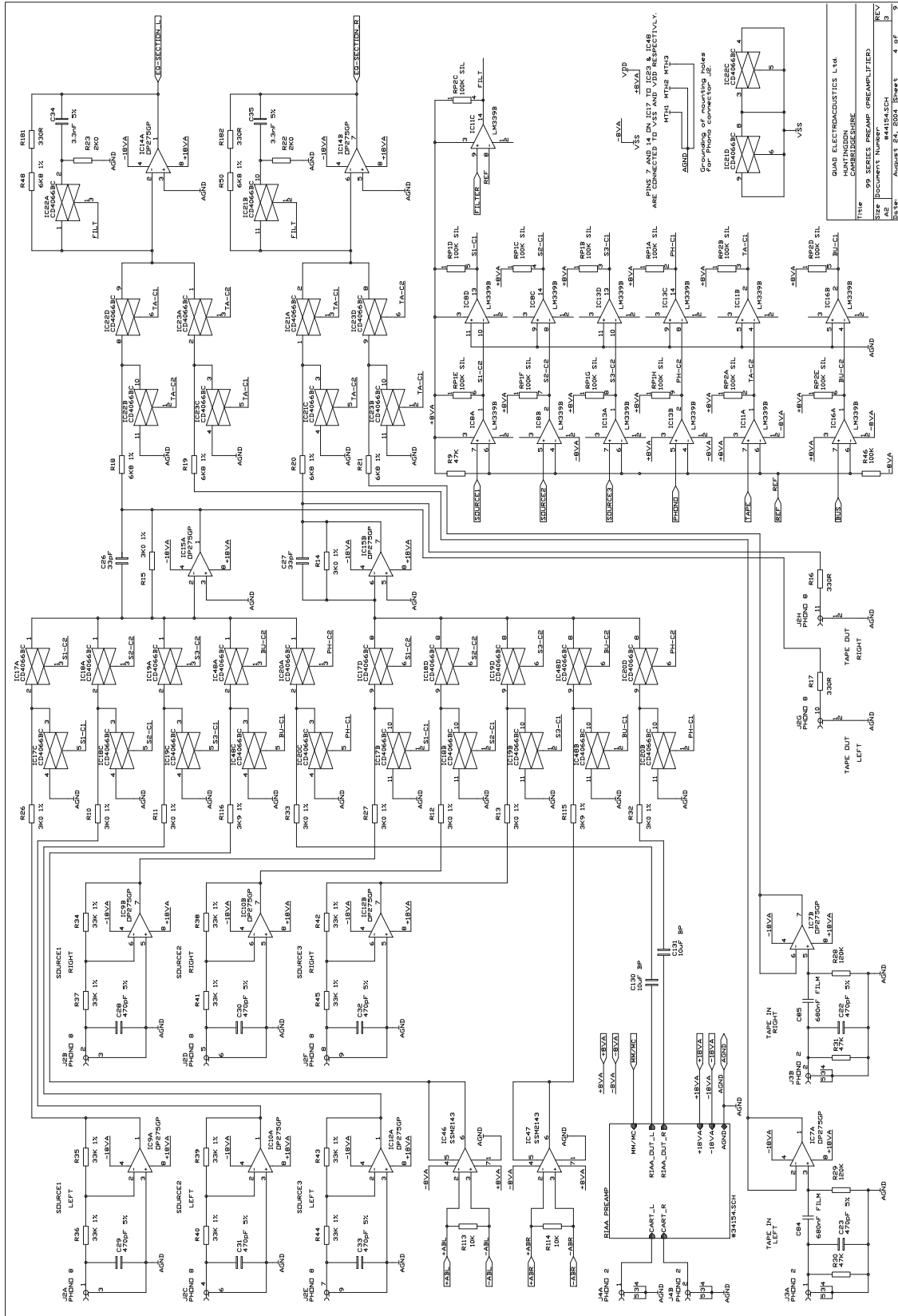
## QUAD 99 PRE-AMPLIFIER



|                              |                              |
|------------------------------|------------------------------|
| QUAD ELECTROACOUSTICS L.td.  |                              |
| HUNTINGDON<br>CAMBRIDGESHIRE |                              |
| Title                        | 99 PREAMP RIAA STAGE         |
| Size                         | Document Number              |
| A3                           | #24154.SCH                   |
| Date:                        | August 24, 2004 Sheet 3 of 3 |

# 4. SCHEMATIC DIAGRAM

## QUAD 99 PRE-AMPLIFIER

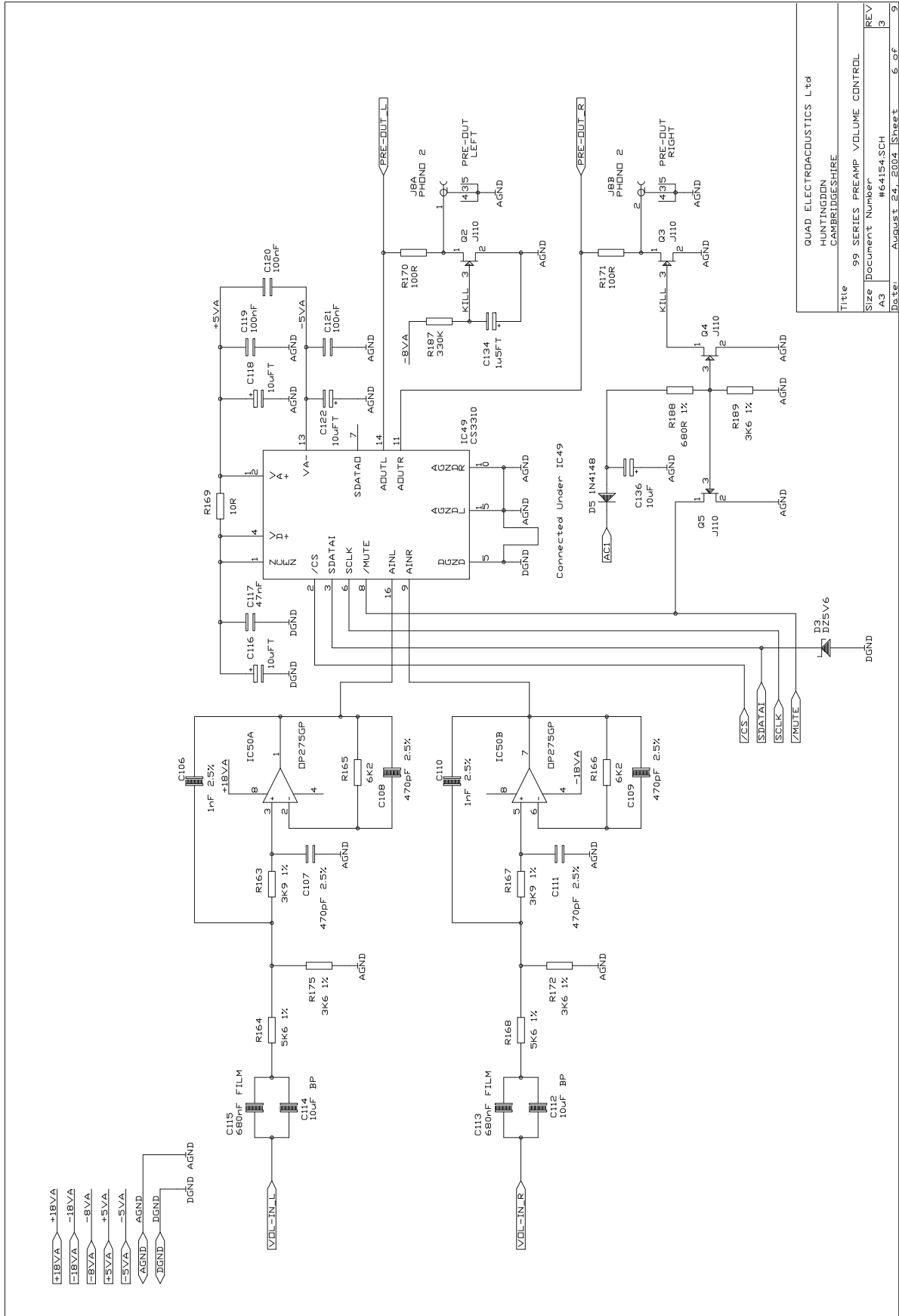


|     |     |        |
|-----|-----|--------|
| REV | 0   | 4 of 5 |
| REV | 1   |        |
| REV | 2   |        |
| REV | 3   |        |
| REV | 4   |        |
| REV | 5   |        |
| REV | 6   |        |
| REV | 7   |        |
| REV | 8   |        |
| REV | 9   |        |
| REV | 10  |        |
| REV | 11  |        |
| REV | 12  |        |
| REV | 13  |        |
| REV | 14  |        |
| REV | 15  |        |
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| REV | 19  |        |
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| REV | 28  |        |
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| REV | 38  |        |
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| REV | 83  |        |
| REV | 84  |        |
| REV | 85  |        |
| REV | 86  |        |
| REV | 87  |        |
| REV | 88  |        |
| REV | 89  |        |
| REV | 90  |        |
| REV | 91  |        |
| REV | 92  |        |
| REV | 93  |        |
| REV | 94  |        |
| REV | 95  |        |
| REV | 96  |        |
| REV | 97  |        |
| REV | 98  |        |
| REV | 99  |        |
| REV | 100 |        |



# 4. SCHEMATIC DIAGRAM

## QUAD 99 PRE-AMPLIFIER

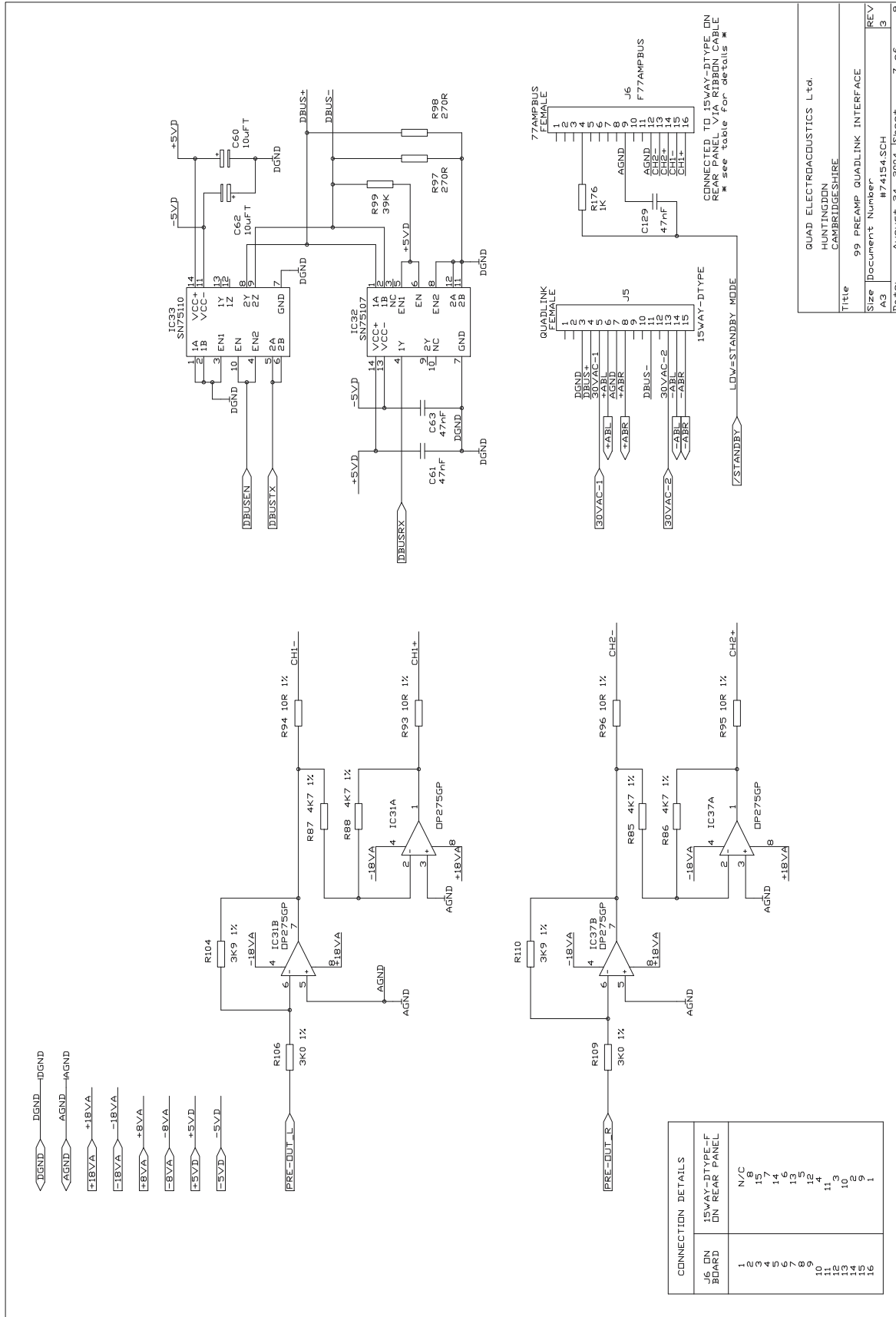


|                              |                                 |
|------------------------------|---------------------------------|
| QUAD ELECTROACOUSTICS Ltd    |                                 |
| HUNTINGDON<br>CAMBRIDGESHIRE |                                 |
| Title                        | 99 SERIES PREAMP VOLUME CONTROL |
| Size                         | Document Number #64154.SCH      |
| REV                          | 3                               |
| Date                         | August 23, 2003 Sheet 6 of 9    |



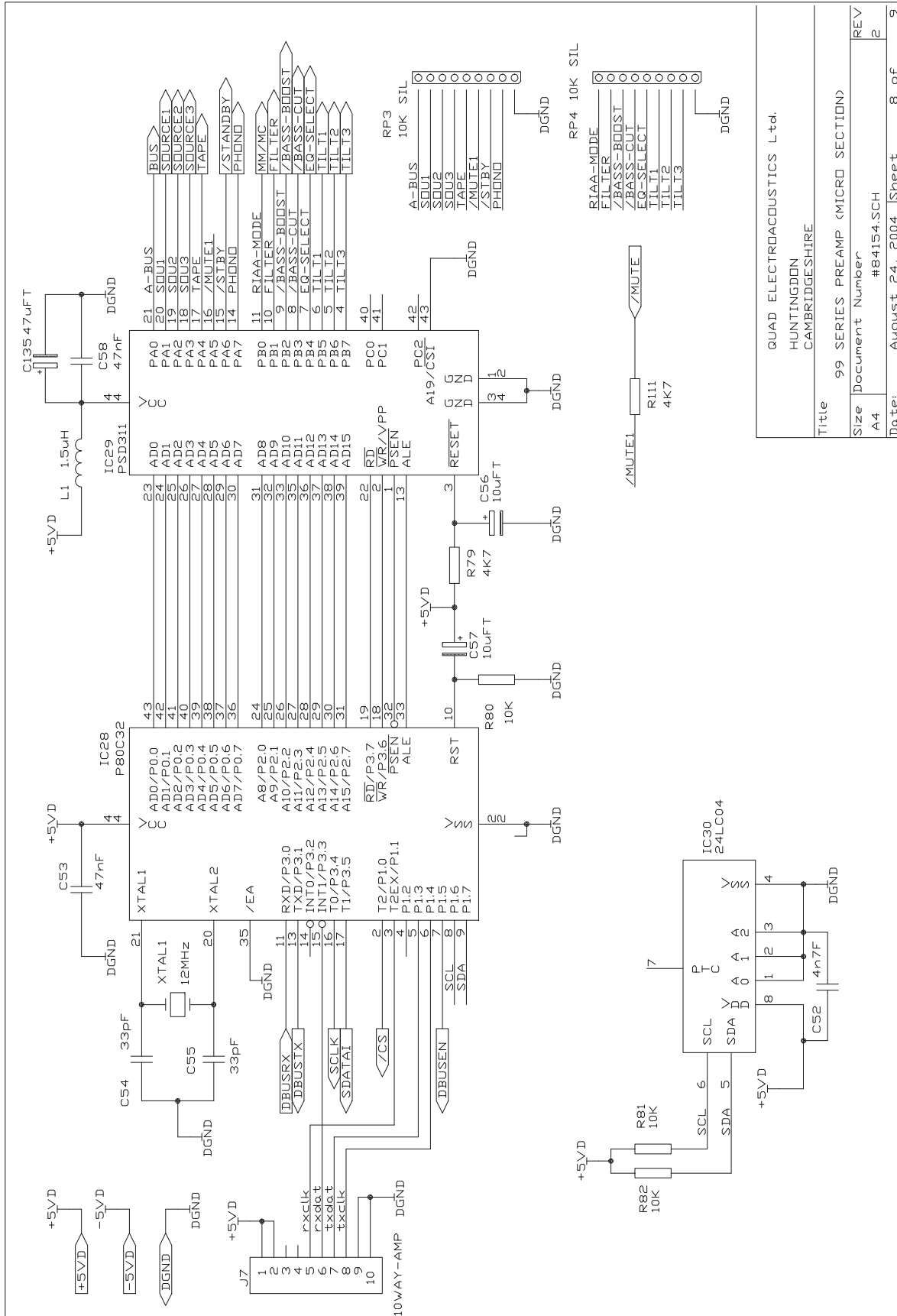
# 4. SCHEMATIC DIAGRAM

## QUAD 99 PRE-AMPLIFIER



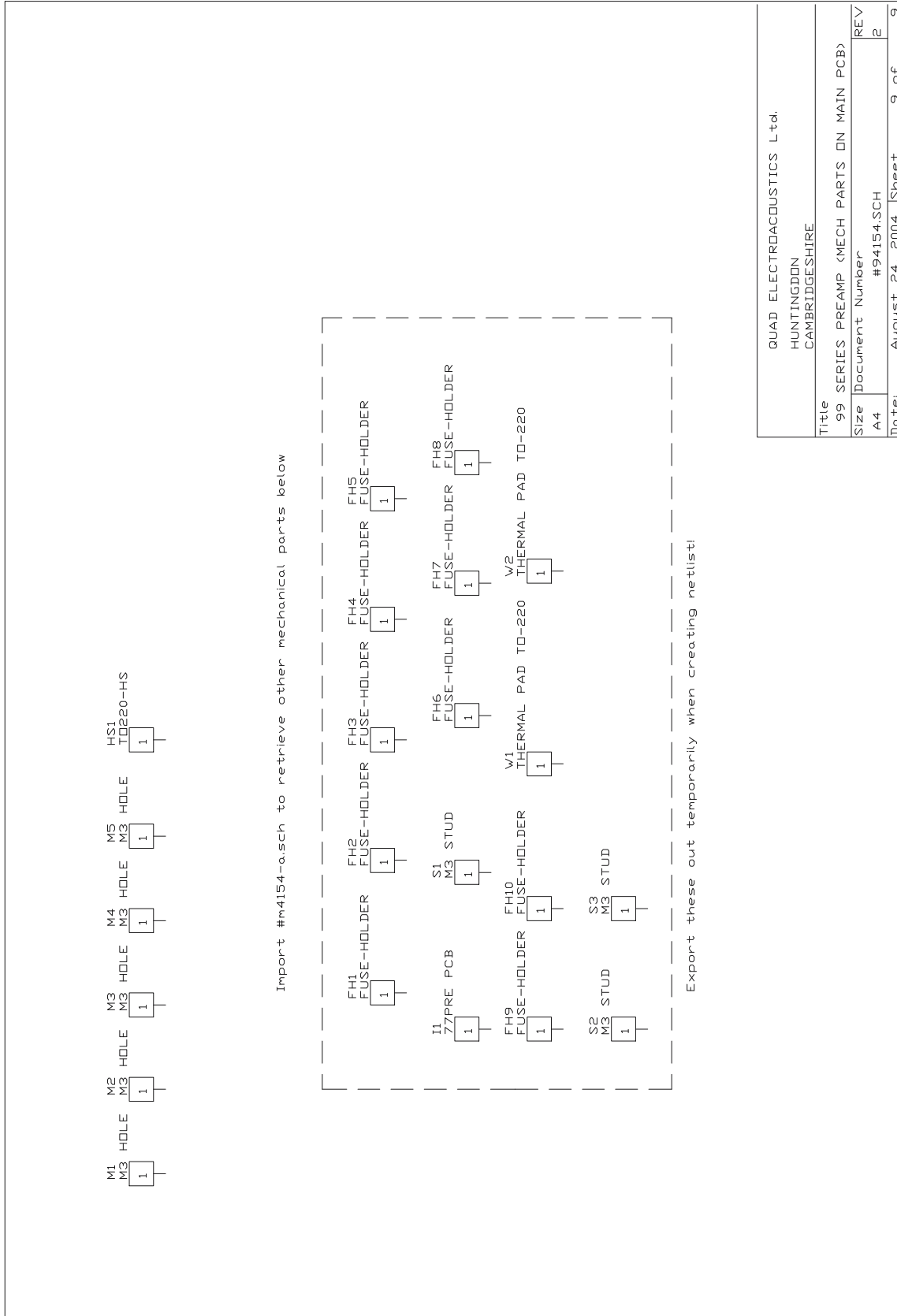
# 4. SCHEMATIC DIAGRAM

## QUAD 99 PRE-AMPLIFIER



|  |                            |
|--|----------------------------|
| QUAD ELECTROACOUSTICS Ltd.             |                            |
| HUNTINGDON<br>CAMBRIDGESHIRE           |                            |
| Title 99 SERIES PREAMP (MICRO SECTION) |                            |
| Size A4                                | Document Number #84154.SCH |
| Date: August 24, 2004                  | Sheet 8 of 9               |
| REV 2                                  |                            |

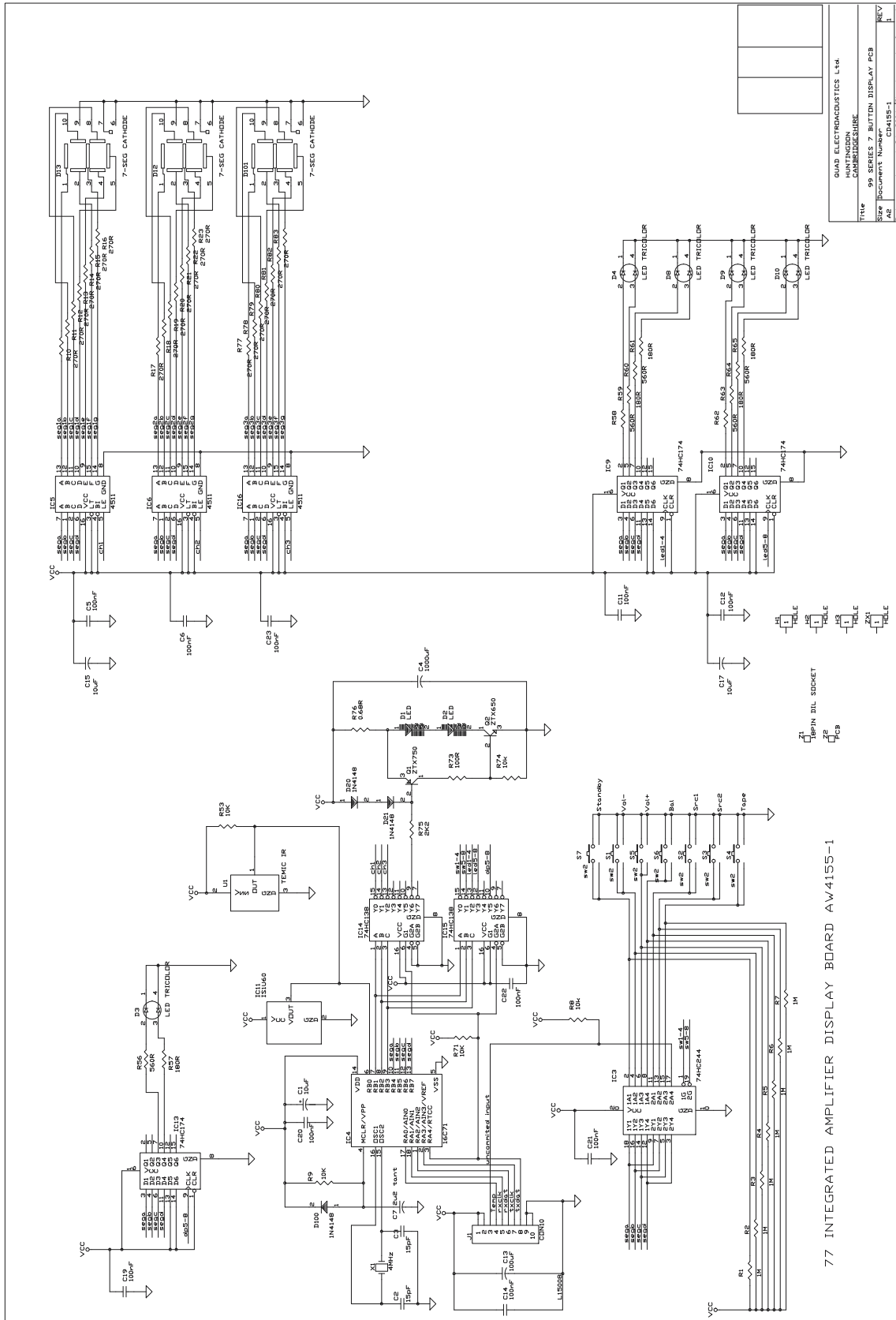
# 4. SCHEMATIC DIAGRAM





# 4. SCHEMATIC DIAGRAM

## QUAD 99 PRE-AMPLIFIER



77 INTEGRATED AMPLIFIER DISPLAY BOARD AW4155-1

QUAD ELECTRODYNAMICS, L.A.  
HUNTINGTON  
CORPORATION  
99 SERIES 7 BUTTON DISPLAY PCB  
Doc# Document Number: AW 4155-1  
REV  
DATE August 82, Rev. 3 Stage 3

## 5. ELECTRONIC PARTS LIST

QUAD 99 PRE-AMPLIFIER

| R/P | P/N            | PART NAME | DESCRIPTION  | REF/N                                      |
|-----|----------------|-----------|--------------|--|
| 1   | 053-1118001610 | P.C.B     |              | PCB1                                       |
| 2   | 001-5109205010 | RESISTOR  | 5R1 1/4W1%   | R57,68                                     |
| 3   | 001-1000306050 | RESISTOR  | 10ohm1/2W J  | R169,190                                   |
| 4   | 001-1000205010 | RESISTOR  | 12ohm1/4W 1% | R93~96                                     |
| 5   | 001-5100205010 | RESISTOR  | 51R1/4W1%    | R56,67                                     |
| 6   | 001-1001205010 | RESISTOR  | 100ohm1/4W F | R54,63,65,74,170,171                       |
| 7   | 001-2201205010 | RESISTOR  | 220ohm1/4W F | R3,4                                       |
| 8   | 001-2701205010 | RESISTOR  | 270ohm1/4W F | R97,98                                     |
| 9   | 001-2701307050 | RESISTOR  | 270ohm1W J   | R191,192                                   |
| 10  | 001-3001205010 | RESISTOR  | 300ohm1/4W F | R7,8                                       |
| 11  | 001-3301205010 | RESISTOR  | 330ohm1/4W F | R16,17,181,182                             |
| 12  | 001-3901205010 | RESISTOR  | 390ohm1/4W F | R58,69                                     |
| 13  | 001-6801205010 | RESISTOR  | 680ohm1/4W F | R188                                       |
| 14  | 001-9101205010 | RESISTOR  | 910R1/4W1%   | R122~127,141~146                           |
| 15  | 001-1002205010 | RESISTOR  | 1K1/4W F     | R55,66,176                                 |
| 16  | 001-1202205010 | RESISTOR  | 1.2K1/4W F   | R1,2                                       |
| 17  | 001-1302205010 | RESISTOR  | 1K3 1/4W F   | R120,121,138,139                           |
| 18  | 001-2002205010 | RESISTOR  | 2K 1/4W F    | R22,23                                     |
| 19  | 001-3002205010 | RESISTOR  | 3K1/4W F     | R10~15,R26,27,32,33,106,109                |
| 20  | 001-3602205010 | RESISTOR  | 3K6 1/4W1%   | R172,175,189                               |
| 21  | 001-3902205010 | RESISTOR  | 3.9K1/4W F   | R5,6,115,116,163,167                       |
| 22  | 001-4702205010 | RESISTOR  | 4.7K 1/4W F  | R85~88,79,111                              |
| 23  | 001-5602205010 | RESISTOR  | 5.6K-1/4W-F  | R148,160,164,168                           |
| 24  | 001-6202205010 | RESISTOR  | 6K2 1/4W1%   | R165,166                                   |
| 25  | 001-6802205010 | RESISTOR  | 6.8K1/4W F   | R18~21,48,50,59,70,104,110,117,130,134,135 |
| 26  | 001-8202205010 | RESISTOR  | 8.2K1/4W F   | R147,149,151,159,161,162,183~186           |
| 27  | 001-1003205010 | RESISTOR  | 10K1/4W F    | R80~82,113,114                             |
| 28  | 001-1103205010 | RESISTOR  | 11K1/4W F    | R150,152~158                               |
| 29  | 001-1203205010 | RESISTOR  | 12K1/4W F    | R119,128,132,137                           |

## 5. ELECTRONIC PARTS LIST

QUAD 99 PRE-AMPLIFIER

|    |                |           |                  |                           |
|----|----------------|-----------|------------------|---------------------------|
| 30 | 001-1303205010 | RESISTOR  | 13K1/4W1%        | R118,129,133,136          |
| 31 | 001-1803205010 | RESISTOR  | 18K1/4W F        | R61,72                    |
| 32 | 001-2703205010 | RESISTOR  | 27K1/4W F        | R62,73                    |
| 33 | 001-3303205010 | RESISTOR  | 33K1/4W F        | R34~45                    |
| 34 | 001-3903205010 | RESISTOR  | 39K1/4W F        | R99                       |
| 35 | 001-4703205010 | RESISTOR  | 47K 1/4W F       | R9,30,31,53,64,179        |
| 36 | 001-1004205010 | RESISTOR  | 100K1/4W F       | R46,89,180                |
| 37 | 001-1204205010 | RESISTOR  | 120K1/4W F       | R28,29                    |
| 38 | 001-3004205010 | RESISTOR  | 300K1/4W1%       | R60,71                    |
| 39 | 001-3304205010 | RESISTOR  | 330K1/4W F       | R187                      |
| 40 | 001-1005205010 | RESISTOR  | 1M1/4W F         | R131,140                  |
| 41 | 003-1004092202 | RESISTORS | RA1/8W9A100K2%   | RP1,2,5                   |
| 42 | 003-1003092202 | RESISTORS | RA1/8W9A10K G    | RP3,4                     |
| 43 | 008-3300010008 | CAPACITOR | 33pF100V2%       | C26,27,54,55              |
| 44 | 008-6800010008 | CAPACITOR | 68pF100V2%       | C90,101                   |
| 45 | 013-1010310507 | CAPACITOR | 100pF 100V 5%    | C47,48                    |
| 46 | 013-2210220507 | CAPACITOR | 220pF 63V 10%    | C37,42                    |
| 47 | 016-2710802201 | CAPACITOR | 270pF63V5%       | C132,133                  |
| 48 | 016-4710832201 | CAPACITOR | 470PF 63V 2.5%   | C107,108,109,111          |
| 49 | 016-4710802201 | CAPACITOR | 470pF 63V 5%     | C22,23,28~33              |
| 50 | 016-1020832201 | CAPACITOR | 1nF63V2.5%       | C106,110                  |
| 51 | 016-2220832201 | CAPACITOR | 2.2nF63V2.5%     | C39,44                    |
| 52 | 016-2720852201 | CAPACITOR | 2.7nF63V1%       | C40,45                    |
| 53 | 016-3320802201 | CAPACITOR | 3.3nF63V5%       | C34,35                    |
| 54 | 009-4721008110 | CAPACITOR | 4.7nF 100V20%    | C52                       |
| 55 | 009-4721008000 | CAPACITOR | 4.7nF 100V20%    | C137                      |
| 56 | 014-1030211028 | CAPACITOR | 10uF63V10%       | C86,88,99,102             |
| 57 | 014-2230211028 | CAPACITOR | 22nF63V10%       | C38,43,92,96              |
| 58 | 014-3330200028 | CAPACITOR | 33nF63V5%        | C87,89,100,103            |
| 59 | 014-4740211028 | CAPACITOR | 470nF63V10%      |                           |
| 60 | 009-4731009110 | CAPACITOR | 47nF100V-20%+80% | C4,15,53,58,61,63,117,129 |

## 5. ELECTRONIC PARTS LIST

QUAD 99 PRE-AMPLIFIER

|    |                |                 |                 |   |
|----|----------------|-----------------|-----------------|---|
| 61 | 013-1030200506 | CAPACITOR       | PS 10nF63V1%    | C46,49  |
| 62 | 014-1040211028 | CAPACITOR       | 100uF63V10%     | C9,11,12,14,64~71,73,74,76,77,80~83,91,95,119,120,126,127,140,121 |
| 63 | 014-2240211028 | CAPACITOR       | 220nF63V10%     | C93,94  |
| 64 | 014-6840211028 | CAPACITOR       | 680nF63V10%     | C84,85,113,115  |
| 65 | 014-1050200028 | CAPACITOR       | 1uF63V5%        | C104,106  |
| 66 | 011-1552502220 | CAPACITOR       | 1.5uF25V20%     | C134  |
| 67 | 011-4751002220 | CAPACITOR       | 4.7uF10V20%     | C50,51  |
| 68 | 006-1004051163 | CAPACITOR       | SM10u50V20%     | C1,2,7,8,18~21,136,138,139  |
| 69 | 006-1004051162 | CAPACITOR       | 10UF/50V        | C112,114,130,131  |
| 70 | 011-1060632220 | CAPACITOR       | 10uF6V3 20%     | C56,57,60,62,116,118,122  |
| 71 | 011-4760632220 | CAPACITOR       | 47uF6V3 20%     | C3,135  |
| 72 | 006-4714101743 | CAPACITOR       | 25V470u20%      | C6  |
| 73 | 006-1024132053 | CAPACITOR       | 1000uF35V20%    | C16,17  |
| 74 | 006-2224132033 | CAPACITOR       | SM2200i F16V20% | C5  |
| 75 | 067-1104148000 | DIODE           | 1N4148          | D5  |
| 76 | 067-2204003000 | DIODE           | 1N4003          | D4  |
| 77 | 034-3442000108 | BRIDGE DIODES   | DF02M           | D1,2  |
| 78 | 067-3305232000 | DIODE           | 5.6V1/2W 1N5232 | D3  |
| 79 | 018-0500940115 | AUDION          | 2SK940 TO-92    | Q1  |
| 80 | 018-2800110115 | S.M.TRANSISTORS | J110 TO-92      | Q2~5  |
| 81 | 017-2030000000 | IC              | MC14066BCP      | IC17~23,42,43,48,53   |
| 82 | 017-1420000000 | IC              | CS3310-KP DIP   | IC49  |
| 83 | 017-1200000000 | IC              | SSM2143P DIP    | IC46,47   |
| 84 | 017-0340000000 | IC              | 0P275GP         | IC7,9,10,12,14,15,24,31,37,40,41,44,50                            |
| 85 | 017-1750000000 | IC              | LT1115CN8       | IC26,27   |
| 86 | 017-1270000000 | IC              | LM78L05         | IC51  |
| 87 | 017-1510000000 | IC              | LM79L05         | IC2,52  |



## 5. ELECTRONIC PARTS LIST

QUAD 99 PRE-AMPLIFIER

|     |                |              |                         |                  |
|-----|----------------|--------------|-------------------------|------------------|
| 88  | 017-1760000000 | IC           | LM2940CT-5              | IC1              |
| 89  | 017-2010000000 | IC           | MC14051BCP              | IC38,39          |
| 90  | 017-1380000000 | IC           | LM317T(1.5A) TO-220     | IC4,5            |
| 91  | 017-1390000000 | IC           | LM337T(1.5A) TO-220     | IC3,6            |
| 92  | 017-0460000000 | IC           | LM339N                  | IC8,11,13,16,45  |
| 93  | 017-1770000000 | IC           | 24LC04B/P DIP-8         | IC30             |
| 94  | 017-1800000000 | IC           | P80C32 PLCC-44          | IC28             |
| 95  | 017-1780000000 | IC           | SN75107BN DIP-14        | IC32             |
| 96  | 017-1790000000 | IC           | SN75110AN DIP-14        | IC33             |
| 97  | 017-2540000000 | IC           | 311-B-15J AM-IC PSD/311 | IC29             |
| 98  | 026-1594102072 | COIL         | AL1745-1R5K             | L1               |
| 99  | 024-1090101015 | RELAYS       | G6H-2-100 9VDC          | K1,2             |
| 100 | 051-3500000000 | SOCKET       | YKC21-3152(GOLD)        | J2               |
| 101 | 051-4100000000 | SOCKET       | YKC21-3172(GOLD)        | J3,4,8           |
| 102 | 813-0030000000 | I/O SOCKET   | 5DAX15PNTD 15WAY        | J5               |
| 103 | 055-2216040528 | WIRE         | 16WAY RIBBON            | J6               |
| 104 | 055-2310070566 | WIRES        | 10WAY RIBBON            | J7               |
| 105 | 059-1200001111 | CRYSTAL      | HC-49U 12.0M            | XTAL1            |
| 106 | 058-4432000000 | SOCKET       | H2071Z01                | SK1,2            |
| 107 | 031-4200507121 | FUSE         | 50T020H                 | F1~4             |
| 108 | 031-4200512121 | FUSE         | 50T040H                 | F5               |
| 109 | 050-0100070211 | FUSES HOLDER | FUC-2                   | F1~5             |
| 110 | 086-1500000000 | TERMINAL     | H2071Z01                | E1~8             |
| 1   | 088-1118003500 | DIPLAY P.C.B |                         |                  |
| 2   | 053-1118001635 | P.C.B        |                         |                  |
| 3   | 002-1003033050 | RESISTOR     | 10K1/8W J1206           | R63~77,90,99,100 |
| 4   | 002-2701033050 | RESISTOR     | 270ohm1/8W J1206        | R1~3,20~48       |
| 5   | 002-3901033050 | RESISTOR     | 390ohm1/8W J1206        | R51~55,86        |
| 6   | 002-5601033050 | RESISTOR     | 560ohm1/8W J            | R14,16,19,49,104 |
| 7   | 002-1801033050 | RESISTOR     | 180ohm1/8W J            | R15,17,18,50,105 |
| 8   | 002-1002033050 | RESISTOR     | 1K1/8W J1206            | R91,92           |
| 9   | 002-1004033050 | RESISTOR     | 100K1/8W J1206          | R56~62           |

## 5. ELECTRONIC PARTS LIST

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QUAD 99 PRE-AMPLIFIER

|    |                |                 |                      |            |
|----|----------------|-----------------|----------------------|------------|
| 10 | 007-1004073010 | CAPACITOR       | 100nF6.3V20%1206     | C5,9~19,24 |
| 11 | 010-1060632010 | CAPACITOR       | 10uF6.3V20%3216L(S)  | C1,20~22   |
| 12 | 010-2250632010 | CAPACITOR       | 2.2uF6.3V20%3216L(S) | C4         |
| 13 | 007-2200073060 | CAPACITOR       | 22pF50V20%           | C2,3       |
| 14 | 067-2204148110 | DIODE           | DL4148               | D22        |
| 15 | 017-1990000000 | IC              | 74HC138DS016 4*10    | IC2        |
| 16 | 017-2000000000 | IC              | 74HC165DS016 4*10    | U3         |
| 17 | 017-2690000000 | IC              | 74HC574S016 6.3*13   | U4~11      |
| 18 | 810-0010000000 | LED             | EL-11-22SRUGC/TR8    | D8~11      |
| 19 | 011-1070632220 | CAPACITOR       | 100uF63V10%          | C7         |
| 20 | 017-2430000000 | IC              | 16C711-04/P          | IC1        |
| 21 | 059-4000001113 | CRYSTAL         | HC49S 4MHZ           | X1         |
| 22 | 018-3200653115 | S.M.TRANSISTORS | ZTX653 TO-92         | Q2,3       |
| 23 | 811-0010000000 | DIODE           | SB-2181CG            | D8~11,24   |
| 24 | 058-1811000000 | IC HOLDER       | IC HOLDER            | IC1        |
| 25 | 812-0010000000 | CONNECTOR       | 1-215079-0           | J1         |
| 26 | 017-2020000000 | IC              | TFMS5380             | U1         |

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