

DR66

6 In 6 OUT AUDIO SYSTEM

24-Bit Digital

Mix Processor



SERVICE MANUAL

PUBLICATION AP3137

HOW TO USE THIS MANUAL

This service manual is published in two sections:

Section A: contains the INSTALLATION / USER GUIDE which includes details of INSTALLATION, CALIBRATION and OPERATION for the **DR66**.

Section B: contains the SERVICE INFORMATION which includes details of SPARE PARTS & ASSEMBLIES and CIRCUIT BOARD DIAGRAMS for the **DR66**.

SECTION A



A

DR66 INSTALLATION / USER GUIDE



CAUTION

Refer all installation, calibration and service work to qualified service personnel.

SECTION B



B

DR66 SERVICE INFORMATION



CAUTION

Refer all installation, calibration and service work to qualified service personnel.



Warning to the Service Engineer

Allen & Heath warns that any unauthorised changes or modifications to the DR66 unit may invalidate the legal compliance of the unit and could void the user's authority to operate the equipment.

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Refer to SECTION A for information on installation, calibration and operation of the DR66.

INTRODUCTION

The information presented in this section of the manual is intended for competent technical personnel to carry out service and product support for the *DR66*. We assume that the reader is familiar with the related electronic theory and audio terminology, and is able to carry out basic servicing, fault-finding and repair of digital audio equipment of this type. Service personnel should also be familiar with audio systems, mains earthing and power requirements, as well as handling precautions.

For information on the installation, operation and application of the *DR66* please refer to section A of this manual.

Whilst we believe the information in this manual to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

SERVICE AND TECHNICAL SUPPORT

Under normal operating conditions the *DR66* does not require user maintenance or internal calibration. Any service work required should be carried out by qualified technical personnel only.

We are able to offer further product support through our worldwide distribution network. To help us provide an efficient service please quote the unit serial number, the date and place of purchase in any communication regarding this product.



SAFETY WARNING

Mains electricity is dangerous and can kill. Mains voltage is present within the unit. Except for installation and calibration, do not remove any covers with power connected. Do not carry out any work within the unit while it is powered. High voltage components are insulated for safety but should not be touched with power applied. The mains voltage setting is indicated on the AC mains input socket on the rear panel. Check that this matches your local supply. Check your mains wiring and earthing before switching on.

DO NOT REMOVE THE MAINS EARTH CONNECTION!

The chassis is always connected to mains earth. Audio 0V connects to the chassis internally. Should problems be encountered with ground loops, operate the audio ground lift switches on other equipment connected to the unit or disconnect the cable screens at one end. Refer to the section on 'EARTHING' in the User Guide.



WARNING

There is danger of explosion if the battery is incorrectly replaced.

Replace the battery with an Allen & Heath recommended part. Using a different battery, recharging or disassembling the battery may present a danger due to fire or explosion.

Dispose of used batteries promptly according to the manufacturer's instructions. Keep all batteries away from children.



IMPORTANT STATIC ELECTRICITY

PRECAUTIONS

Many of the components in the DR66 are extremely sensitive to static electricity. The following procedures reduce the possibility of damaging components:

1. Before handling any components or touching anything inside the unit, discharge your body's static electric charge by touching a grounded (earthed) surface. Wear a grounding wrist strap if one is available.
2. Do not remove parts from their antistatic containers or bags until you are ready to install them. When removing circuit boards (PCBs) or chips from a unit, immediately place them in an antistatic bag.
3. When handling PCBs, hold them by their edges and avoid touching the circuitry.
4. Do not slide PCBs or ICs over any surface.
5. Avoid having plastic, vinyl and foam in your work area.
6. Limiting your movements during service work reduces static electricity.

ORDERING A DR66 UNIT

To order a new unit please specify the model number and AC mains voltage required.

MODEL	DESCRIPTION	ORDER CODE
<i>DR66</i>	6 inputs 6 outputs	DR66/volts

ORDERING AN OPTION

To order an option please specify the model number.

DESCRIPTION	ORDER CODE
DR128/66 DSPD delay expander card	DR1-DSPD
DR66 DSP expander card	DR66-DSPX
DR66 SYSNET option	DR66-SNET

MANUALS, SOFTWARE AND SUPPORT DOCUMENTATION

DESCRIPTION	ORDER CODE
<i>DR66</i> User Guide	AP3138
<i>DR66</i> Service Manual	AP3137
<i>DR66</i> Brochure	AP3205
<i>DR66</i> WinDR Disk (1 of 3)	002-272
<i>DR66</i> WinDR Disk (2 of 3)	002-273
<i>DR66</i> WinDR Disk (3 of 3)	002-362

SERVICE TOOLS

The tools required to service the *DR66* range of products are standard to an electronics service workshop and are easily obtainable. The following items are necessary for disassembly and service access:

1-point Crosshead screwdriver (M3, 4AB)	AT0004
2-point Crosshead screwdriver (M4, 6AB)	AT0002
5mm AF Nutdriver (D type mountings)	

ORDERING AN ASSEMBLY

The following assemblies for the **DR66** are supplied fully tested. Please quote the description and order code for the part required.

Printed circuit (PCB) assemblies:

DESCRIPTION	ORDER CODE
DR1 CPU PCB assembly	002-184
DR66 Converter PCB assembly	002-298
Front Panel PCB assembly	002-300

IDC connector harnesses:

DESCRIPTION	ORDER CODE
26 way Mic / Line harness	AL2712
9 way RS232 harness	AL3198
16 way LCD display harness	AL3144
40 way Audio harness	AL3142
9 way CPU power harness	AL3141
26 way Front Panel harness	AL3143

Ordering a spares kit

It is recommended that the spares kit order code **002-293** is held and maintained by the service agent to enable in-field service repairs to the **DR66** independent of the ALLEN & HEATH factory. Commonly available items such as resistors, capacitors, tools and soldering equipment are not included. The contents of the kit are listed below. Individual spare parts may be ordered. Please quote the description and order code for the part required.

DESCRIPTION	ORDER CODE	QTY
<u>Fixings:</u>		
Fastfeet 20mm	AK0102	5
Joint Block Nylon	AB0253	5
M3 Half Nut	AB0094	5
Nylock Nut M3	AB0102	10
Pillar Snap-in 6mm Nylon	AB2233	10
Pillar Snap-in M2.5 x 8mm	AB2774	5
Pillar Support 6.4mm Nylon	AB2171	5
Screw 4 x 5/16 Poly Pan Pozi Black	AB2810	10
Screw 4AB x ¼ Pan Pozi Plated	AB0252	5
Screw 4AB x 5/16 CSK Pozi Black	AB0059	5
Screw 4UNC Hex D-Type	AB2189	5
Screw M3 x 10mm Pan Pozi Black	AB0076	5
Screw M3 x 12 Pan Pozi Black	AB0078	5
Screw M3 x 4mm Pan Pozi Black	AB0233	10
Screw M6 x 30mm CSK Allen Black	AB2327	5
Washer M3 Shakeproof	AB0244	5

Potentiometers, switches and connectors:

Button 12.5mm Square Black	AJ0348	10
Button Round Black	AJ2887	5
Button Round Grey	AJ2888	5
Phono Dual PCB Mount	AL0556	4
Pot 9mm 5KRD	AI8059	2
Switch 2PCO Momentary	AL8058	5
XLR 3 Pin Female PCB Mount	AL2414	5
XLR 3 Pin Male PCB Mount	AL2413	5

LEDs and Semiconductors:

IC CMOS 74HC165	AE2749	5
IC CMOS 74HC4094	AE2755	3
IC CMOS 74HCO3 4NAND2	AE0345	2
IC NE5532N OP-AMP	AE0221	10
IC RS232 MAX202CPE	AE2742	1
IC TL072 OP-AMP	AE0046	5
IC TLP521-4A OPTO QUAD	AE2748	5
LED 5 x 2mm Tri-colour	AE2754	10
Transistor 2SB737 PNP	AE8069	5
Transistor BC549 NPN	AE0020	5

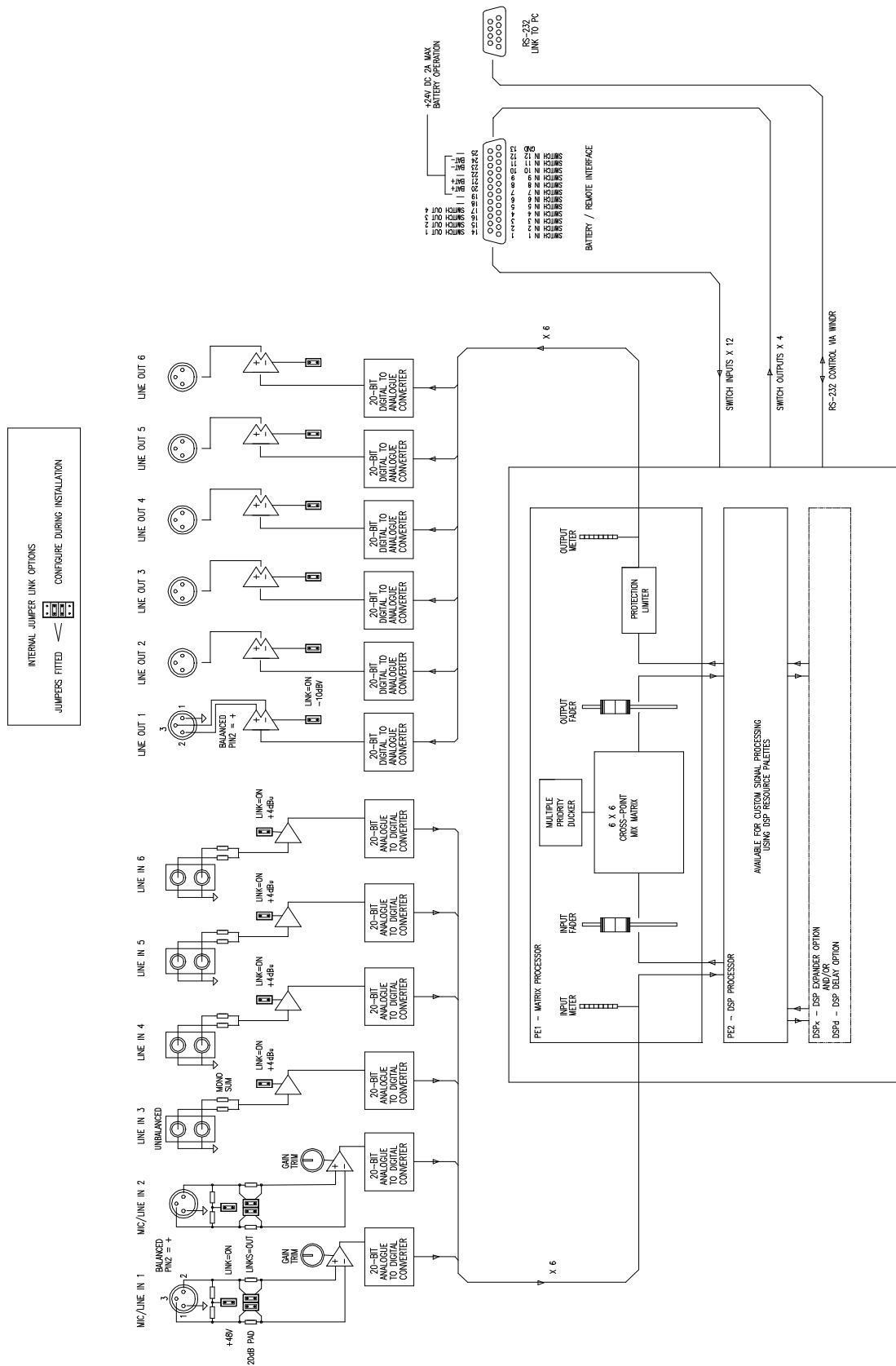
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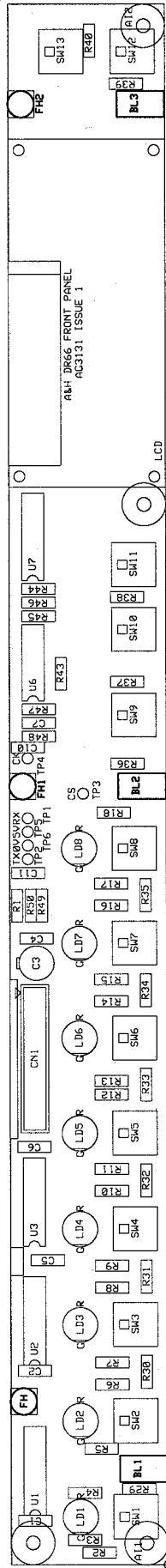
Diode SBYV28-100 UltraFast 3.5A	AE2947	5
IC Regulator 7805	AE0308	5
IC Regulator 7818	AE3155	5
IC Regulator LM2576T-5.0	AE2815	1
Inductor 220uH 3A S/SWITCH	AM3153	5
Insulating kit TO220	AA0693	5
Fuse 20mm T2.5A (Battery DC supply)	AL0311	5
Mains Fuse 20mm T315mA (UK)	AL0349	5
Mains Fuse 20mm T630mA (UK, EU)	AL0297	5
Mains lead IEC-2pin EURO	AH0205	-
Mains lead IEC-3pin UK	AH0206	-
Mains lead IEC-3pin US (C33)	AH0323	-
Transformer 25VA	AM3134	-

Miscellaneous:

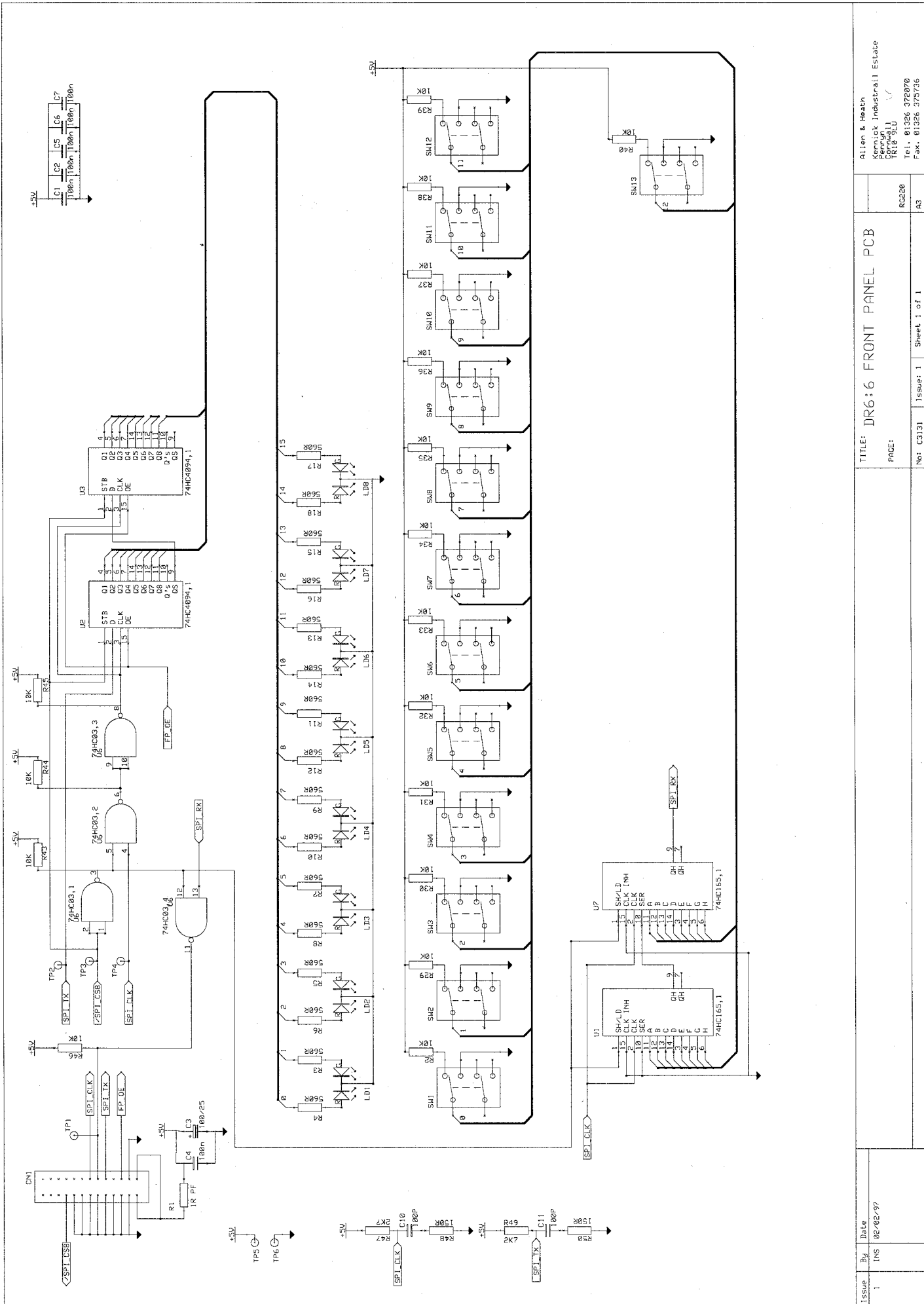
DR66 Packing assembly	002-294	-
DR66 Acrylic Fascia	AA3145	-
Rack Mounting brackets (per pair)	AA3150-LR	-
Front panel LCD display	AE2734	-
EMI filter 470pF 100V	AF3107	5
Jumper socket	AL0334	10
Inductor 150u 280mA	AM2970	5
Battery 3V 180mAh PCBV	AP2837	1

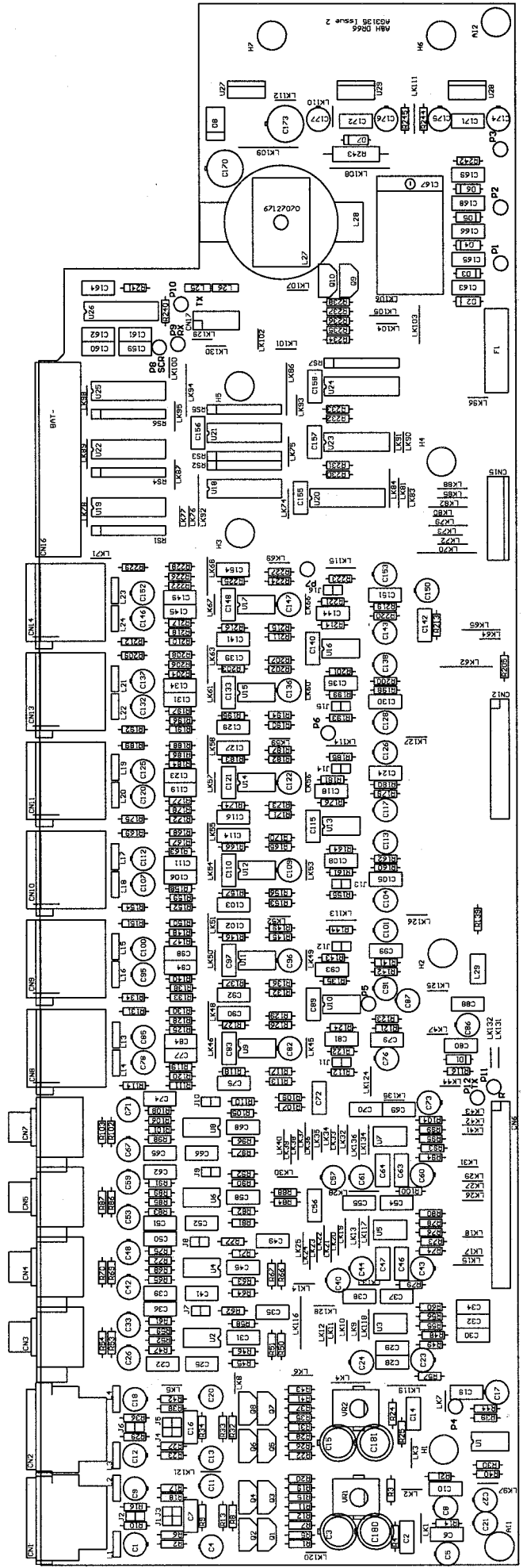
DR66 BLOCK DIAGRAM





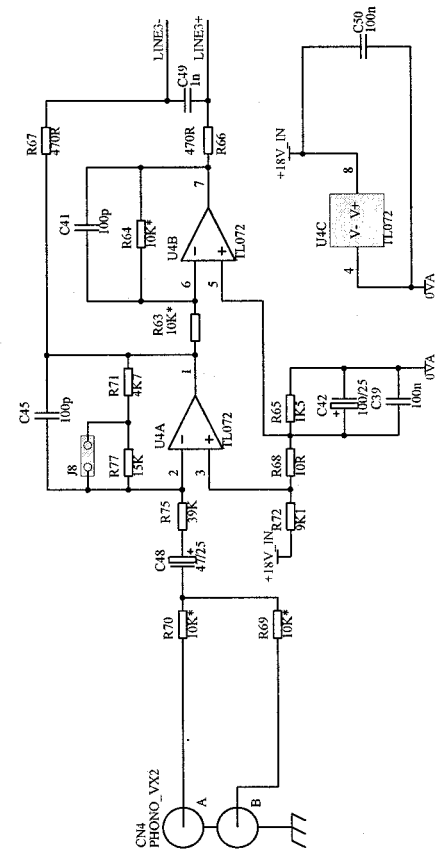
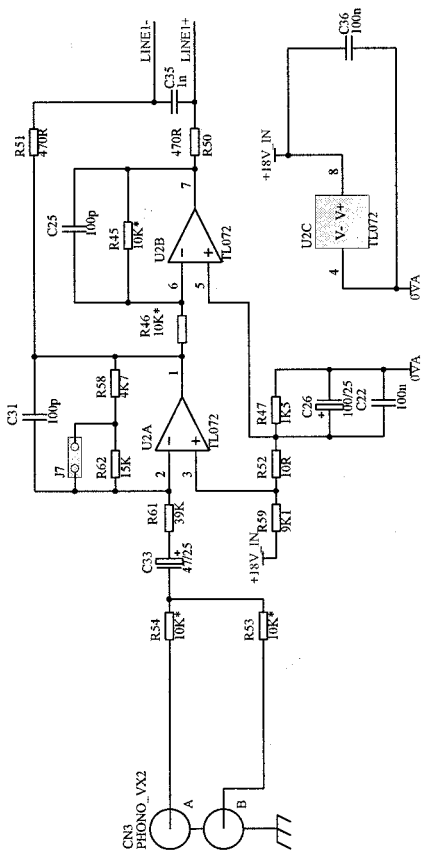
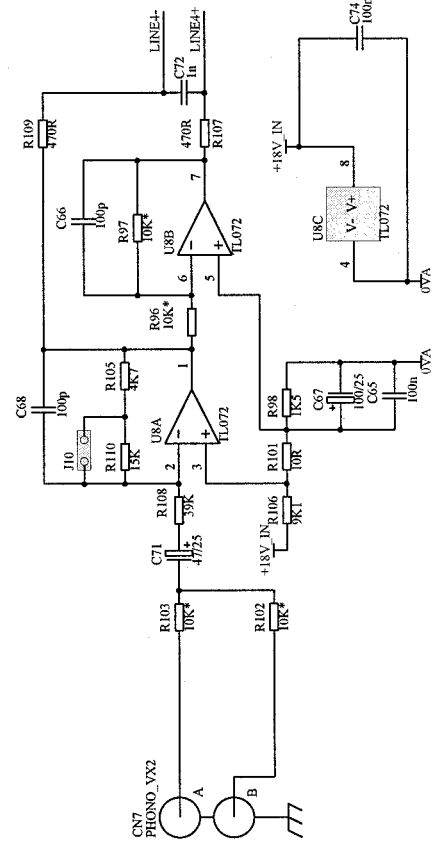
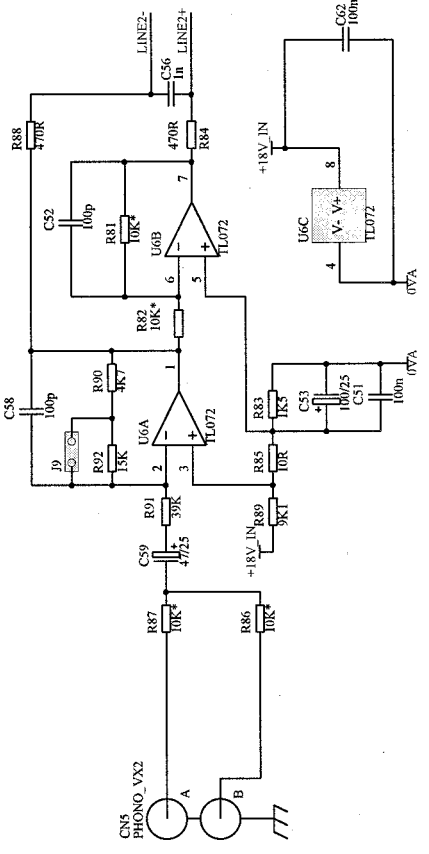
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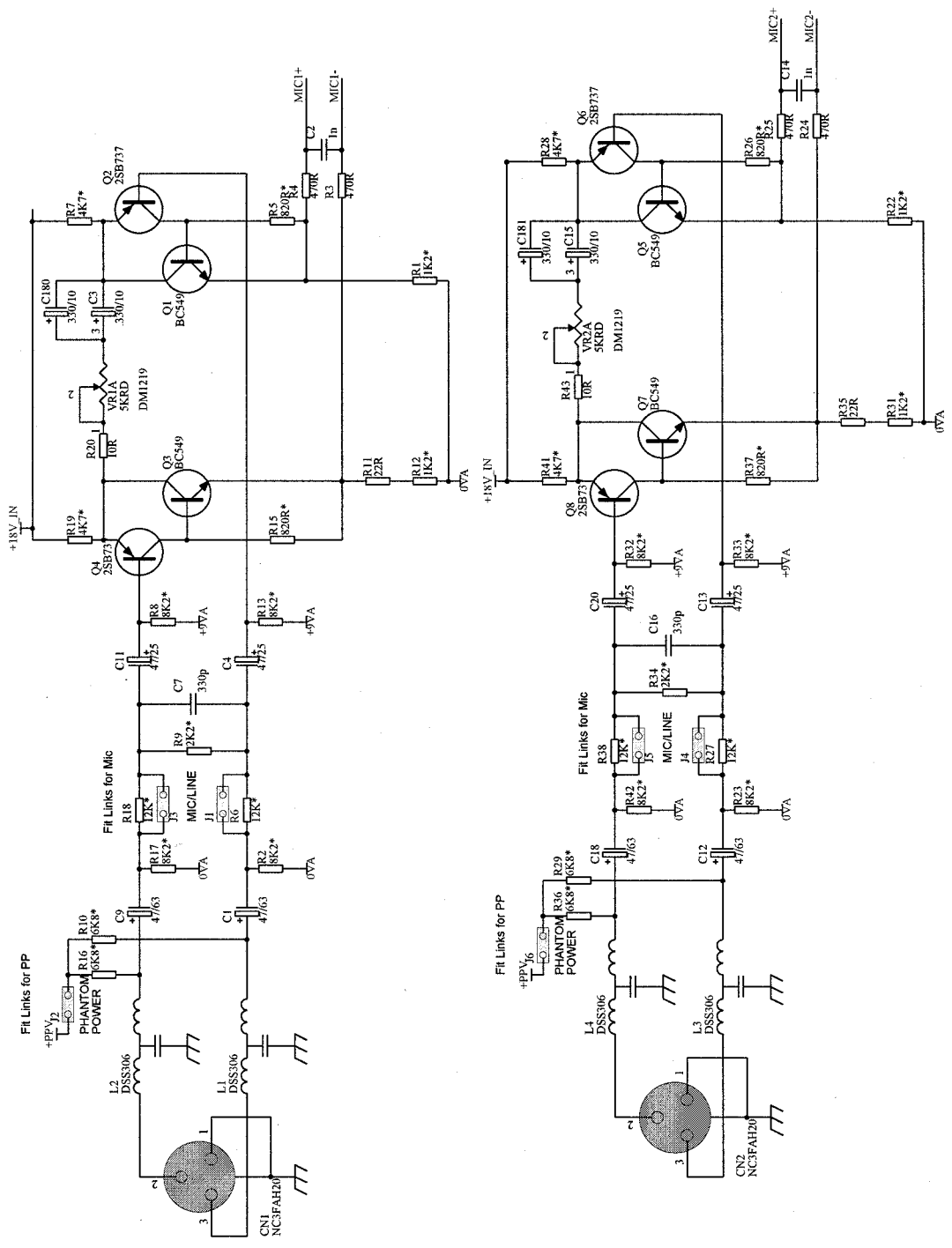




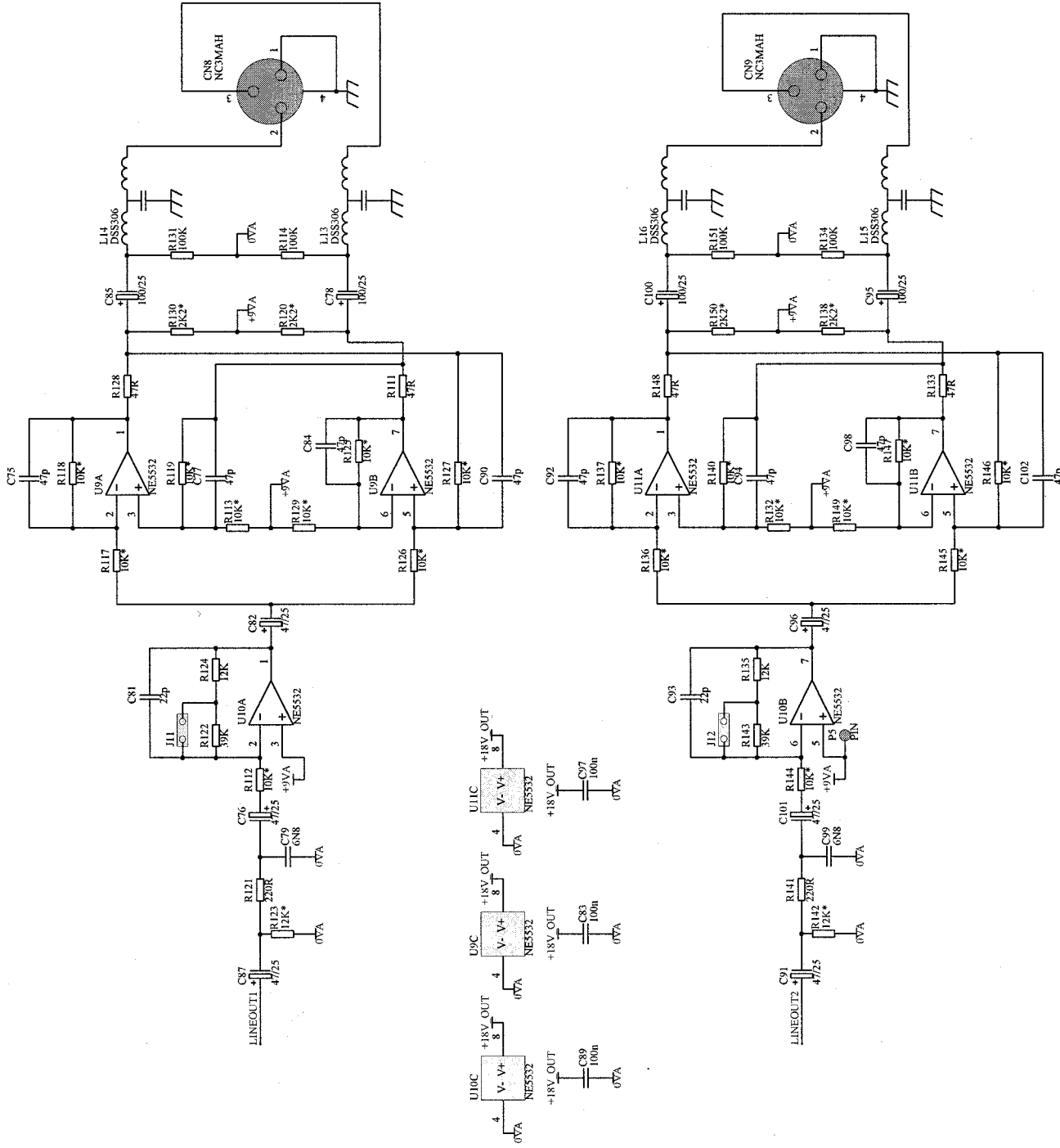
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B	INS	04/09/97
I	AAT	05/12/97





ISSUE	BY	DATE
A	INS	13/05/97
B	INS	04/09/97
I	AAT	05/12/97



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PAGE: BALANCED LINE OUTPUTS 1 & 2

ISSUE: 1

NO.: C3135

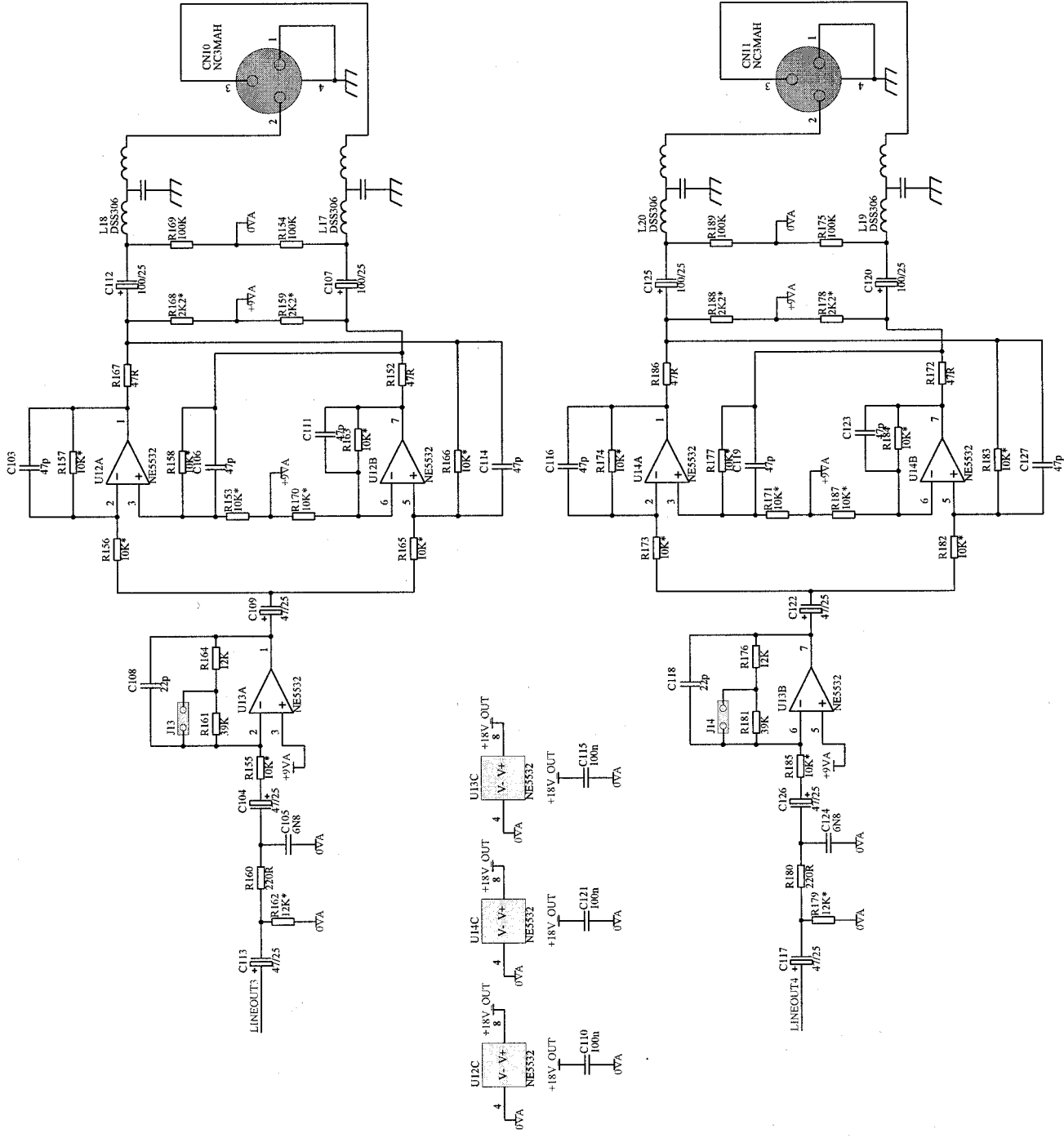
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A3

SHEET 4 OF 9

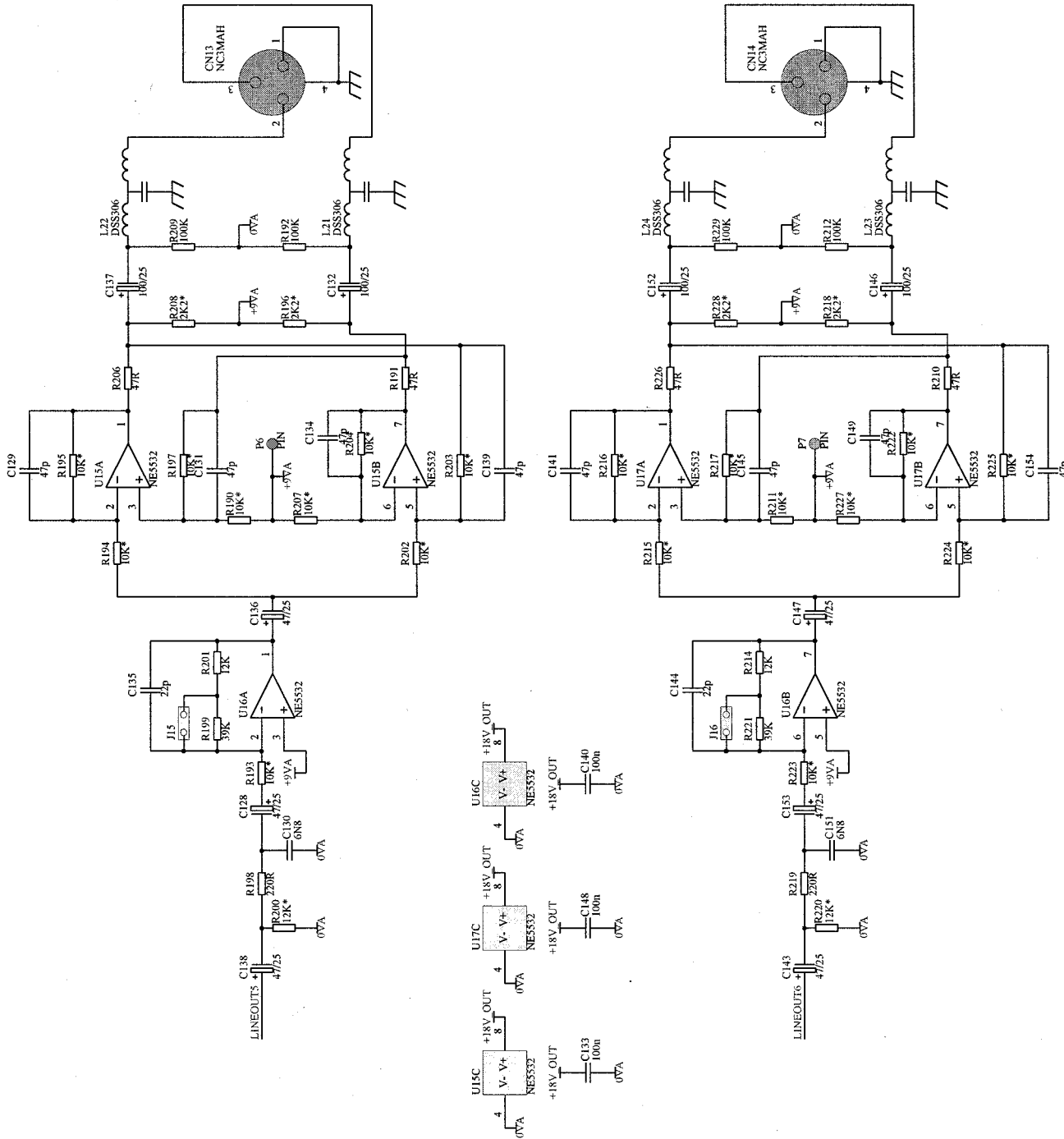


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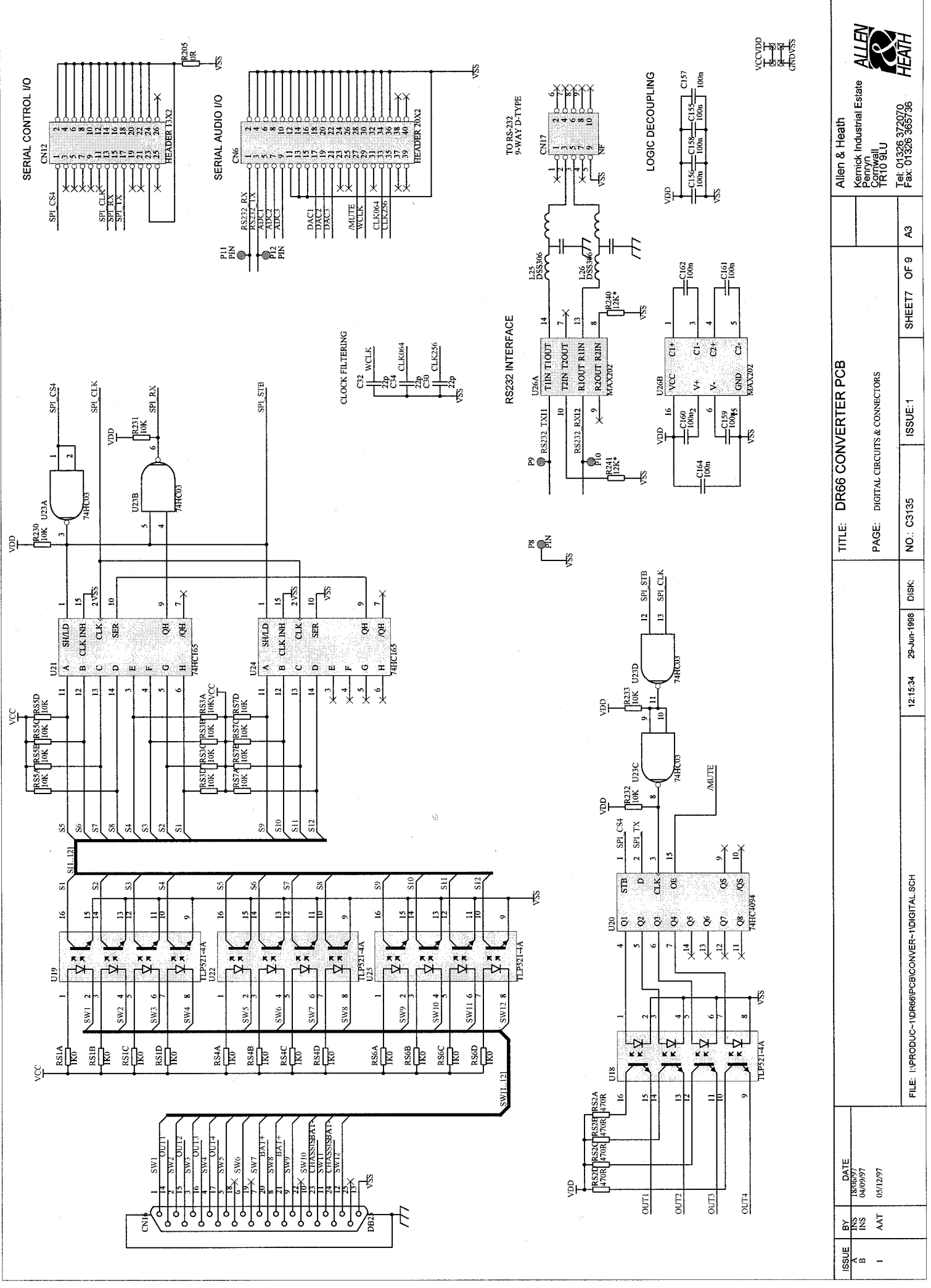


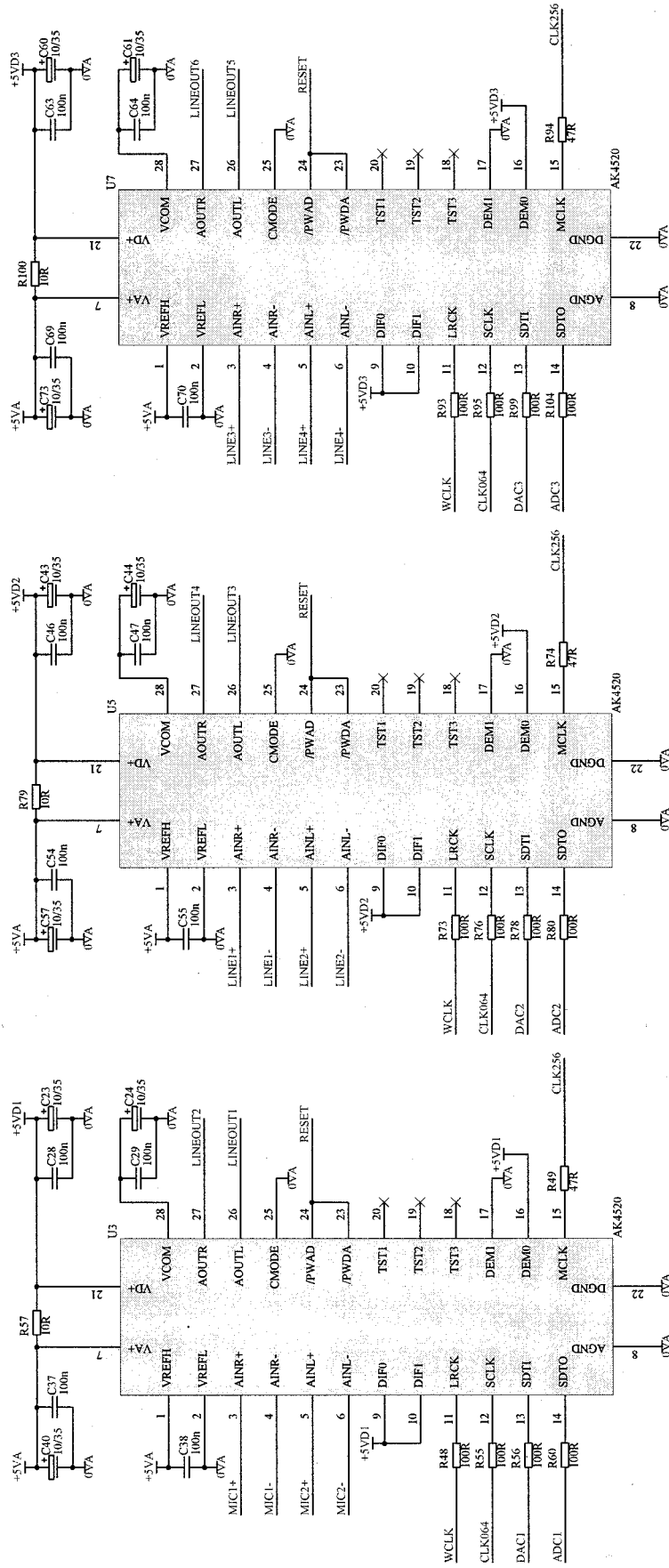
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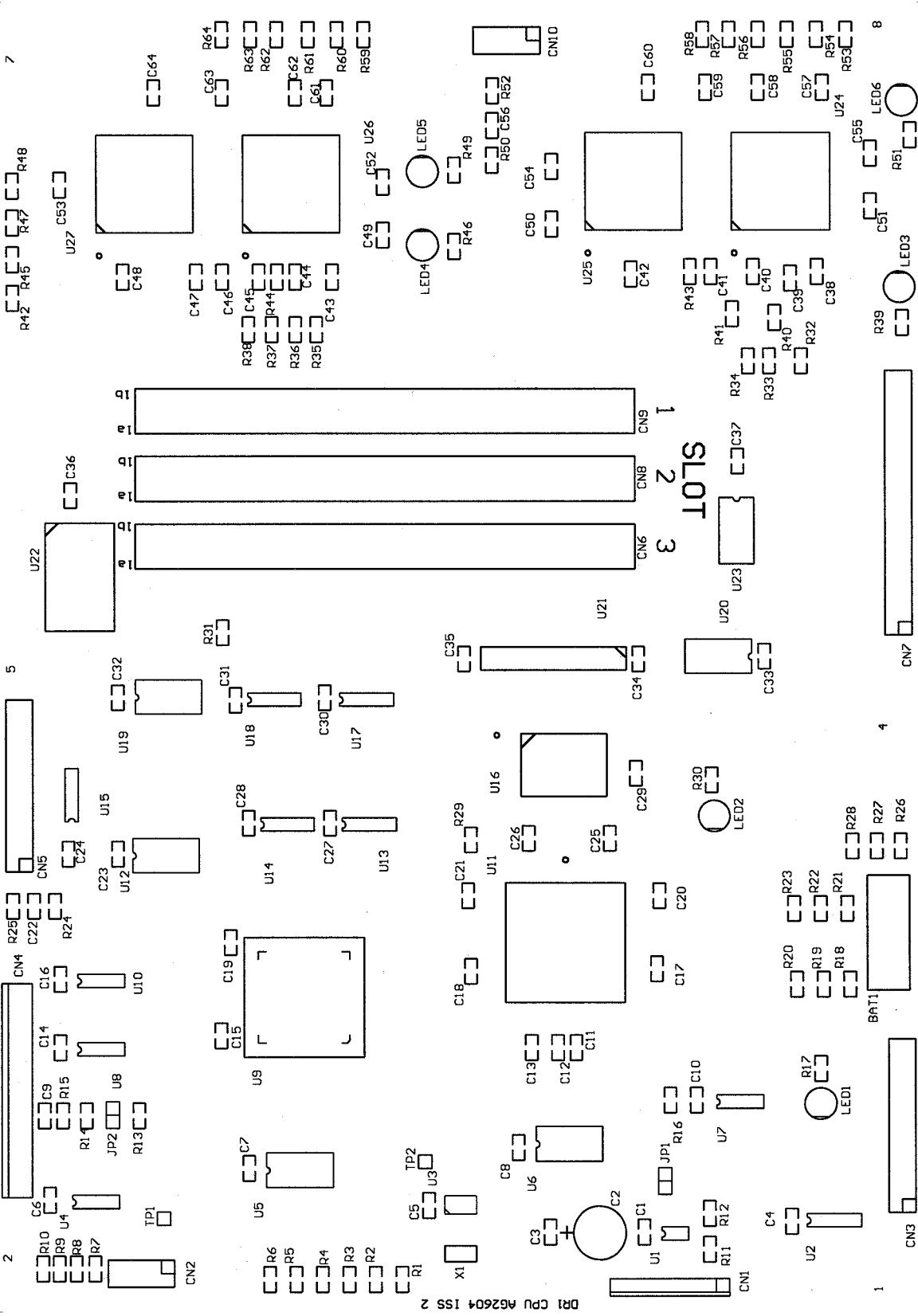
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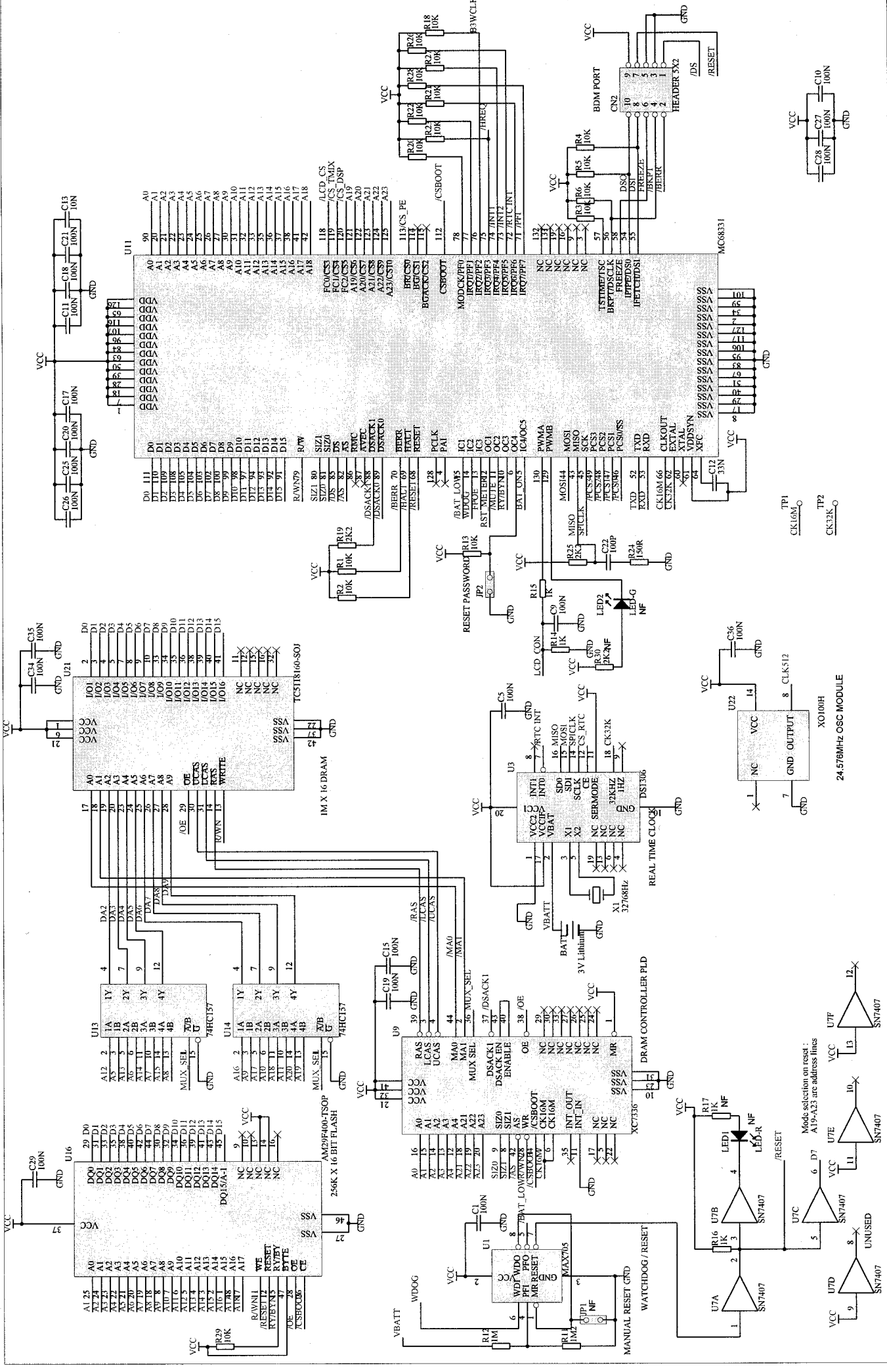
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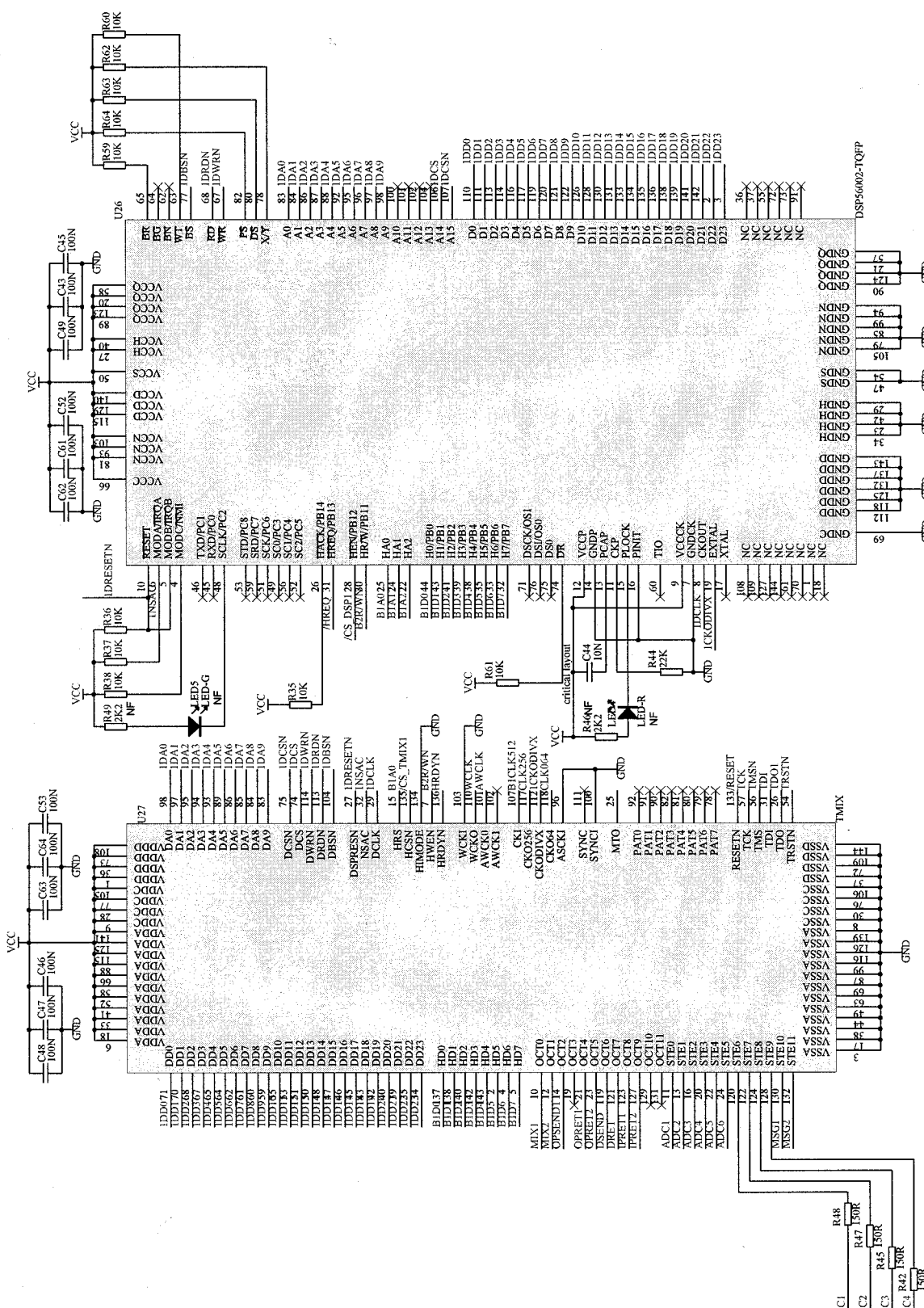
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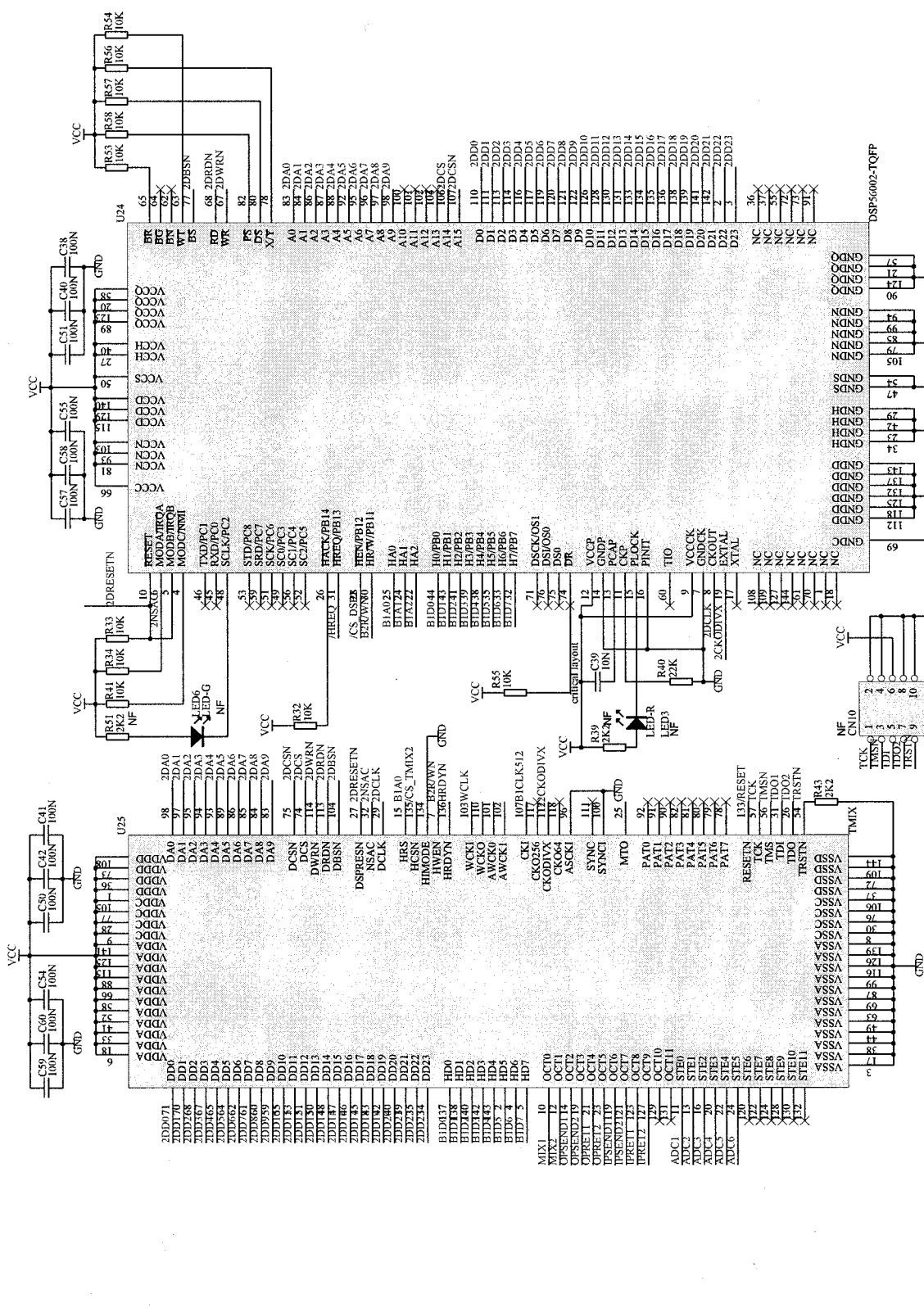
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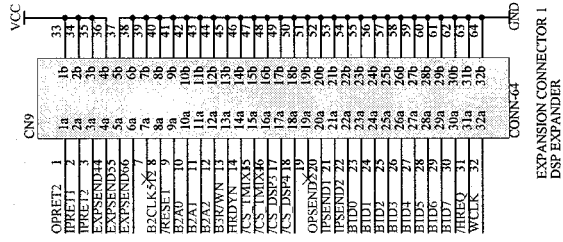
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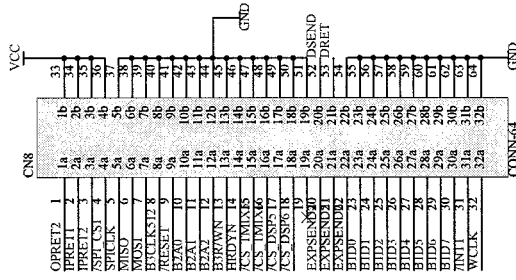


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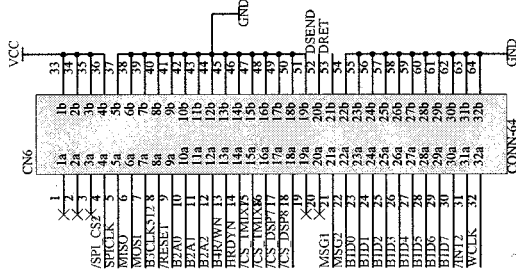




EXPANSION CONNECTOR 1
DSP EXPANDER



EXPANSION CONNECTOR 2
DSP EXPANDER OR DELAY EXPANDER



EXPANSION CONNECTOR 3
DELAY EXPANDER OR MESSAGE EXPANDER

ISSUE BY DATE
ISS 1 MISCOTT 13/3/97

FILE: L:\EXPON\SCH

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TITLE: DR1 CPU PCB
PAGE: EXPANDER CONNECTORS

NO.: C2604

ISSUE:ISS 1

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A3

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