SOUNDCRAFT Europa

Technical Manual

Soundcraft

This equipment complies with the EMC Directive 89/336/EEC

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Microphone Input

Electronically Balanced (Transformer Optional)	
Input Impedance	>2kΩ
Maximum Input Level	+18dBu
Sensitivity Range	-2 to -70dBu
CMRR	>80dB at maximum gain, 1kHz
EIN 150Ω source	<-128dBu at max. gain

Line Input

Electronically Balanced	
Input Impedance	>10kΩ
Maximum Input Level	+27dBu
Sensitivity Range	-20 to +10dBu
CMRR	>40dB at +4dBu sensitivity, 1kHz
EIN 150Ω source	-90dBu at +4dBu sensitivity

Insert

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into 600Ω
Insert Return Impedance	20kΩ

Equaliser

4-Band, Fully Parametric	
Boost/Cut Range	+/-15dB
Q (peak)	0.5 - 3
HF (Switchable Peak/Shelving)	
Frequency Range	1kHz - 16kHz
HIGH MID	
Frequency Range	500Hz - 8kHz
LOW MID	
Frequency Range	70Hz - 1.1kHz
LF (Switchable Peak/Shelving)	
Frequency Range	30Hz - 480Hz
High Pass Filter	2nd Order, 30Hz - 600Hz
Low Pass Filter	2nd Order, 1kHz - 20kHz

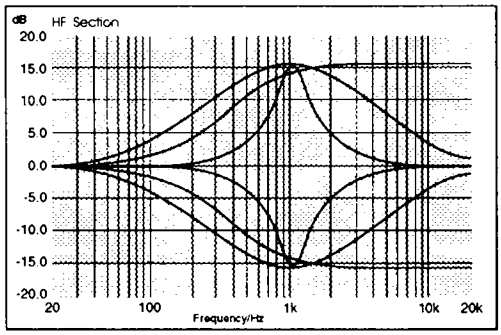
Line Out

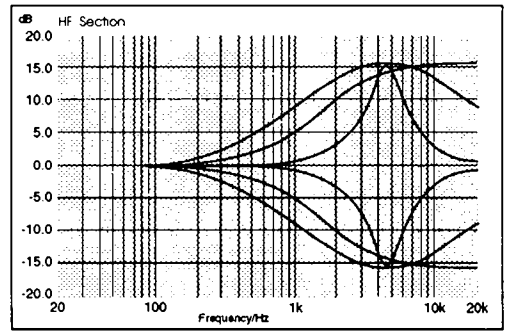
Electronically Balanced	
Nominal Output level	+4dBu
Maximum Output Level	+26dBu into 600Ω

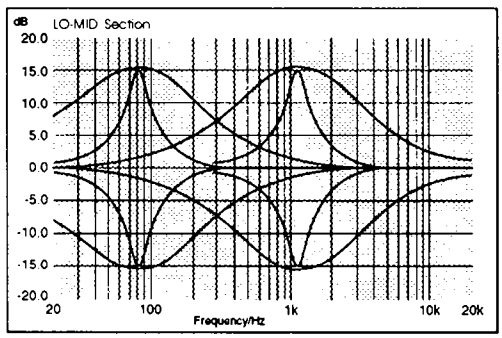
General

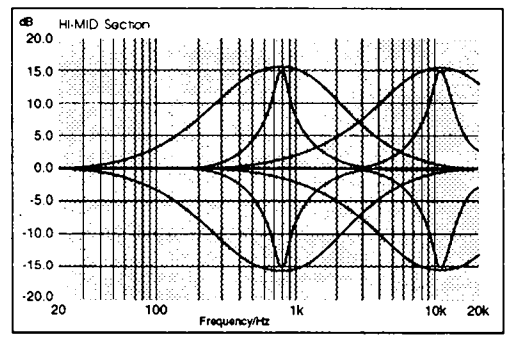
Mute Off Ratio	>100dB (1kHz)
Fader Off Ratio	>80dB (1kHz)
Panpot Crosstalk	>80dB (1kHz)
Routing Off Ratio	>100dB (1kHz)
Aux Send Off Ratio	>80dB (1kHz)
Aux Cut Off Ratio	>95dB (1kHz)
THD	<0.025% (1kHz) <0.05% (10Khz)
THD (VCA bypassed)	<0.005% (1kHz) <0.025(10kHz)

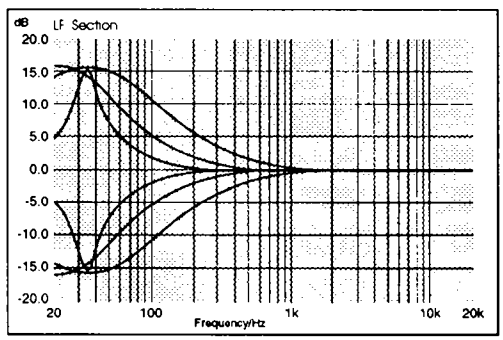
Frequency Response Curves of the Equaliser

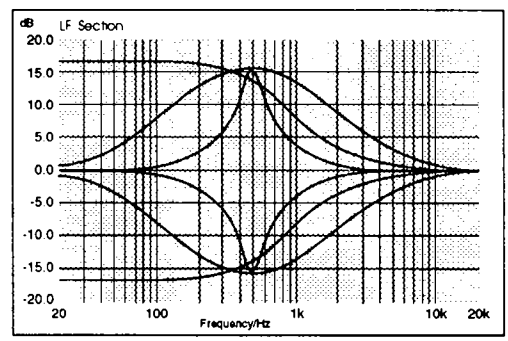












Group Output/Stereo FX Return/Aux Master - Specification

Group Section

Group Insert

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into 600Ω
Insert Return Impedance	20kΩ

Group Output

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into 600Ω
Group Bus Residual Noise	-90dBu
Group Noise	-80dBu
(40 Channels Routed)	
THD at +20dBu	1kHz: 0.005%
	10kHz: 0.020%

Group Direct Input

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+27dBu
Input Impedance	600Ω

Auxiliary Master

Auxiliary Output

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into 600Ω
Output Noise	-80dBu
(40 Channel Console)	
THD at +20dBu	1kHz: 0.005%
	10kHz: 0.020%

Auxiliary Direct Input

Electronically Balanced	
Nominal Input Level	+4dBu
Maximum Input Level	+27dBu
Input Impedance	600Ω

Stereo Effects Return

Input

Electronically Balanced	
Input Impedance	20kΩ
Sensitivity	-20dBu to +10dBu
Maximum Input Level	21dB above nominal
CMRR at +4dBu sensitivity	40dB (1kHz)

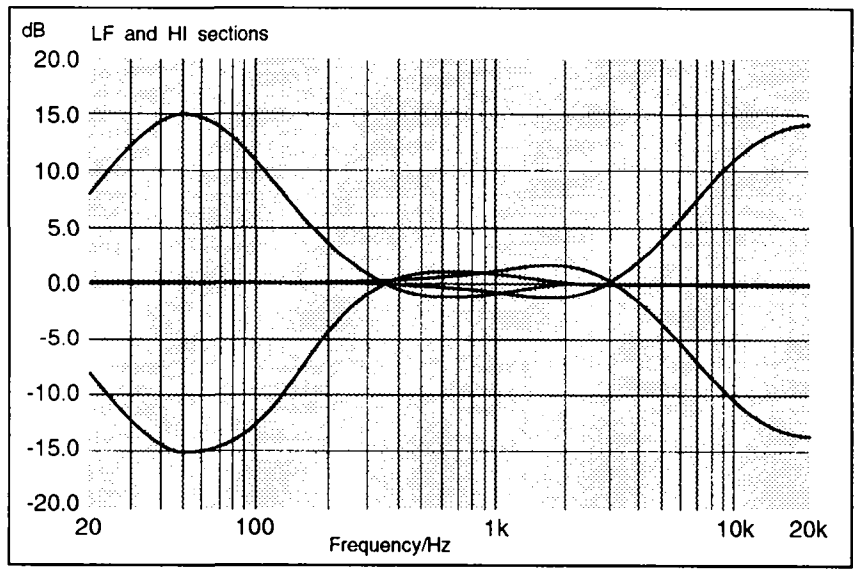
EQ Section

HF	Second Order, Shelving
Max Boost/Cut	15dB
Shelving Frequency	12kHz
LF	Second Order, Shelving with VLF roll-off
Shelving Frequency	60Hz
VLF Roll-off	30Hz

General

Mute Off Ratio	>90dB (1kHz)
Fader Off Ratio	>80dB (1kHz)
Panpot Crosstalk	<-60dB (1kHz)
Routing Off Ratio	>100dB (1kHz)
THD	<0.005% (1kHz) <0.02% (10kHz)

Frequency Response Curves of the Equaliser



Master Module - Specification

Mix Section

Mix Inserts

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into >600Ω
Insert Return Impedance	20kΩ

Mix Outputs

Electronically Balanced	
Nominal Output level	+4dBu
Maximum Output Level	+26dBu into >600Ω
Mix Bus Residual Noise	-90dBu
Mix Noise	-80dBu
(40 Channels Routed)	
THD at +20dBu	1kHz: 0.005%
	10kHz: 0.020%

Mix Direct Inputs

Electronically Balanced	
Nominal Input Level	+4dBu
Maximum Input Level	+27dBu
Input Impedance	600Ω

Alternate PA Output

Electronically balanced	
Nominal Output Level	+4dBu
Maximum Output Level	+26dBu into 600Ω

Monitor Section

Control Room Output

Electronically balanced	
Nominal Output Level	+4dBu
Maximum Output level	+26dBu into >600Ω

Headphones Output

Unbalanced	
Maximum Output	150mW into 8Ω
	+20dBu into 600Ω
Maximum Gain	+16dB ref Mix Output

2-Track Returns

Electronically Balanced	
Input Impedance	20kΩ
Sensitivity	+4dBu or -10dBV
Maximum Input Level	21dB above nominal
CMRR at +4dBu sensitivity	40dB (1kHz)

EQ Section (2-Track B)

HF	Second Order, Shelving
Maximum Boost/Cut	15dB
Shelving Frequency	12kHz
LF	Second Order, Shelving with VLF roll-off
Maximum Boost/Cut	15dB
Shelving Frequency	60Hz
VLF Roll-off	30Hz

Listen and Talkback Microphone Inputs

Listen Microphone Input

Stereo, Electronically Balanced	
Sensitivity Range	-20dBu to -55dBu
Input Impedance	2kΩ
Phantom Power (link Enabled)	+48V

Talkback Microphone Input

Electronically Balanced	
Sensitivity Range	-20dBu to -55dBu
Input Impedance	2kΩ

SPECIFICATION NOTES AND CONDITIONS

A The console has a nominal output level of +4dBu: all input sensitivities are relative to this: i.e. with line input gain set to '0', an input of 0dBu, will give an output of +4dBu at any group or mix output and, a sensitivity of +4dBu gives unity gain from input to output.

B Noise measurements are taken with 22Hz-22kHz bandwidth, average reading response.

C Distortion measurements are made with an input of +20dBu (line inputs at unity gain) giving an output of +20dBu. The analyser reads THD+N with an average response, over a 10Hz-30kHz bandwidth.

D Frequency response and E.Q. measurements are made with an input of 0dBu to line inputs at unity gain, outputs are quoted relative to 0dBu.

E Crosstalk and rejection measurements are made with an input level of +20dBu (line inputs at unity gain) giving an output of +20dBu on the active signal path. The ratio quoted is relative to +20dBu output.

F Gain tolerance +/-1.5dB or 10% of indicated value, which ever is the greater.

G Mix noise figures are stated in two ways:

- Bus residual noise: Noise measured at the output with faders at unity and no channels routed.
- Mix bus noise: Noise measured at the output with 40 channels routed, faders down.

2. Statutary Notices

Warranty *2.2*

Warranty

1. **Soundcraft** means Soundcraft Electronics Ltd.

   End User means the person who first puts the equipment into regular operation.

   Dealer means the person other than Soundcraft (if any) from whom the End User purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft or its accredited Distributor.

   Equipment means the equipment supplied with this manual.

2 If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace the defective components. Any components replaced will become the property of Soundcraft.

3 Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.

4 This warranty shall only be available if:

   a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and

   b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and

   c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and

   d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.

5. Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.

6. The benefit of this Warranty may not be assigned by the End User.

7. End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.

3. Technical Description - Introduction

System Overview 3.2

Precautions and safety instructions 3.4

System Overview

General

Europa is an outstandingly rugged and versatile Live Sound console, developed from Soundcraft's proven experience in the sound reinforcement industry.

A choice of Mono or Stereo Input modules provide access to a full eight groups, stereo and mono busses and twelve aux sends. The input modules incorporate selection to any of eight mute groups, and control via single or multiple VCA groups. Every channel is provided with comprehensive 4-band parametric Equalisation and a Noise Gate plus balanced sends and returns throughout the console. All switches are illuminated for clarity and the rear panels include provision for integral lighting for the control surface.

Europa is designed to allow two consoles to be linked in a master/slave configuration, with opto-isolated control signals and balanced, buffered audio connections for maximum noise immunity. Console linking includes all main outputs plus groups, mutes, solos, auxes, VCAs, the LIVE facility, PFL and AFL. Provision is made for a variety of multiway connectors to be mounted on recessed rear panels for ease of cabling.

Frame Sizes

Europa is available in three frame sizes, all with eight groups as standard and eight stereo effects returns. The optional Matrix output modules provide additional versatility, and include separate external inputs to provide extra submixes.

Frame sizes are as follows:

- 24 Input Channels
- 32 Input Channels
- 40 Input Channels

Choice of Input Modules

Mono or Stereo Input modules are available, each offering the following facilities:

- Routing to eight output groups, L & R or Mono
- 12 Aux Sends
- Control via single or multiple VCA Groups, or 8 Mute Groups
- 4-band parametric EQ, plus High and Low Pass Filters
- Noise Gate
- Balanced Sends and Returns

Frame Construction

The console is built of sturdy extrusions with end plates and cross-members specifically designed to avoid twisting. Extrusions form handles which run the entire length of the desk, front and back, making it easier to lift.

Power Supply

The Europa console requires one CPS750 and one CPS550 suply. Different configurations of power connector are used for the two supplies to prevent incorrect connection.

Precautions and Safety Instructions

General Precautions

Avoid storing or using the mixing console in conditions of excessive heat or cold, or in positions where it is likely to be subject to vibration, dust or moisture. Do not use any liquids to clean the fascia of the unit: a soft dry brush is ideal. Use only water or ethyl alcohol to clean the trim and scribble strips. Other solvents may cause damage to paint or plastic parts.

Avoid using the console close to strong sources of electromagnetic radiation (e.g. video monitors, high power electric cabling): this may cause degradation of the audio quality due to induced voltages in connecting leads and chassis. For the same reason, always site the console power supply away from the unit .

Caution! **In all cases, refer servicing to qualified personnel.**

Handling and Transport

The console is supplied in a rugged cardboard box. If it is necessary to move it any distance after installation it is recommended that this packing is used to protect it. Be sure to disconnect all cabling before moving. If the console is to be regularly moved (e.g. for touring) we recommend that it is installed in a foam lined flight case. At all times avoid applying excessive force to any knobs, switches or connectors.

Power supplies & cables

Always make sure that the power supply has been set to the same source voltage as the mains supply.

Always use the power supply and power cable supplied with the mixer: the use of alternative supplies may cause damage and voids the warranty; the extension of power cables may result in malfunction of the mixing console.

Warning! **Always switch the power supply off before connecting or disconnecting the console power cable, removing or installing modules, and servicing. In the event of an electrical storm, or large mains voltage fluctuations, immediately switch off the PSU and unplug from the mains.**

Always ensure that that you use the correct size of power supply for your console. Each Europa console requires one CPS750 and one CPS550 suply. Different configurations of power connector are used for the two supplies to prevent incorrect connection.

If power supplies are to be mounted in flight case racks, ensure that adequate ventilation or forced cooling is provided before attempting to use the console.

Signal Levels

It is important to supply the correct input levels to the console, otherwise signal-to-noise ratio or distortion performance may be degraded; and in extreme cases damage to the internal circuitry may result. Likewise, on all balanced inputs avoid sources with large common mode DC, AC or RF voltages, as these will reduce the available signal range on the inputs. Note that 0dBu = 0.775V RMS.

The microphone input is designed for use with balanced low impedance (150 or 200Ω) microphones.

Caution! **DO NOT use unbalanced microphones or battery powered condenser microphones with the +48V phantom power switched on: degraded performance or damage to the microphone may result.**

The sensitivity of the microphone input is variable from -2dBu to -70dBu (for +4dBu at the Stereo Mix outputs).

The line input has a sensitivity variable between -20dBu and +10dBu, and can also handle a maximum input level up to 27dBu. Note that the maximum input level for unbalanced inputs is 6dB less than that for balanced signals, so very high level unbalanced signals (e.g. loudspeaker outputs of power amplifiers) may cause distortion. The input impedance is 10kΩ, balanced.

The Direct Inputs are similar to the Line Inputs, with a nominal +4dBu input level, a maximum input level of +27dBu, but have an input impedance of 600Ω.

All Insert Returns are balanced, with an input impedance of 20kΩ. Nominal input level is +4dBu, with a maximum of +27dBu.

All outputs are balanced, nominal +4dBu and can drive a maximum of +26dBu into a load greater than 600Ω.

The Headphone output can drive +20dBu into 600Ω (150mW into 8Ω).

4. Functional Descriptions

Overview of Modules & Operation 4.1

Mono Input Module 4.3

Output Group/ Stereo FX Return/ Aux Master Module 4.9

Master Module 4.15

VCA and Mute System 4.23

Overview of Modules & Operation

All Europa frames may be fitted with a choice of Mono or Stereo Input modules, both of which incorporate VCA and Mute grouping in the separate fader modules.

All frames comprise a centre section of eight Group Output/Stereo FX Return/ Aux Master modules, below which are fitted eight VCA Group fader modules. The Aux master sections of these modules provide summing for Auxs 1-8, and the remaining Aux Masters 9-12 are adjacent at the top of the larger master module.

The Master module houses the L, R and Mono master faders, plus monitoring, power supply indicators, oscillator and talkback. The VCA Grand Master, VCA and Mute system selection and Mute Masters are fitted below the master module.

The VCA grouping system allows several channels to be placed under the control of a single group fader, allowing the operator to change the level of that group of signals in the mix while maintaining their relative levels the same. The channels may be muted or soloed (AFL or Solo-in-Place) *as a group* from the central VCA Group fader module. A VCA Group therefore provides very similar facilities to an audio subgroup, while greatly simplifying the signal path.

Eight VCA groups are provided as standard, and each of these may be assigned to the Grand Master fader allowing , if required, the entire console to be controlled by a single fader. To increase the flexibility of the system yet further, channels may be assigned to several VCA Groups simultaneously using the VCA MODE (MULT) facility.

While the VCA Group system provides *proportional* control of channels as a group, the complementary Mute system allows the mute status *only* of channels to be controlled in groups from centrally positioned master buttons.

The VCA and Mute systems work together with the local CUT buttons to provide several ways of controlling the electronic mute circuitry in the channels:

- Local control using the CUT switch
- On/Off control using the MUTE MASTER switches
- Proportional control using a VCA GROUP
- Automatic muting by the SOLO-IN-PLACE system

The channel will be turned OFF if any of the above produces a mute signal, and the CUT button illuminates to show that the channel is muted.

The following sections describe the front panel controls, followed by a detailed description of the VCA, Mute and Solo systems.

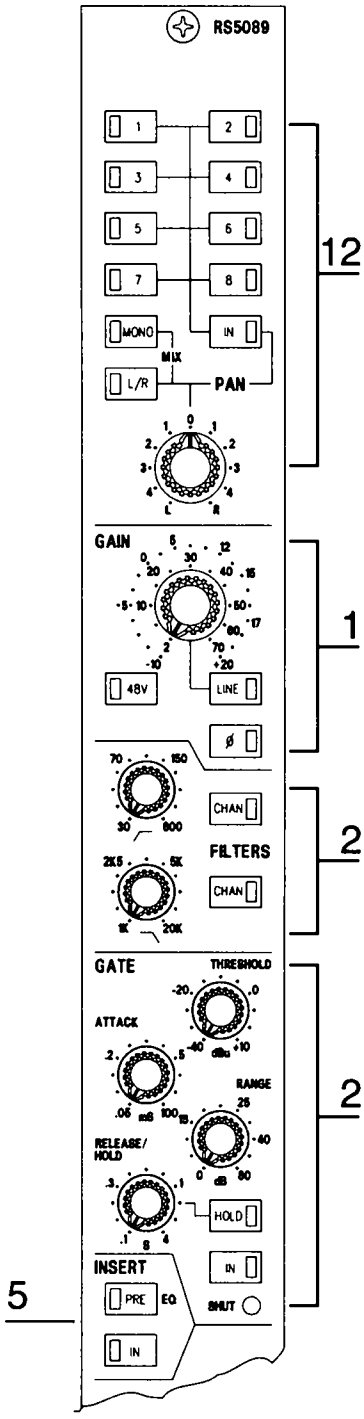
Mono Input Module

Description

Operation

and Specifications

Mono Input Module



Input Stage

1 The input stage has mic and line inputs, sharing a common **GAIN** control with a sensitivity range of -2dBu to -70dBu on the Mic input, and +10dBu to -20dBu on the Line input. The mic connects via an XLR on the rear panel and the module may be optionally fitted with transformer coupling - refer to your dealer for suitable transformers.

The **+48V** switch feeds 48V phantom power to the mic input.

The **LINE** switch selects the Line input jack socket. The console may be optionally fitted with Line Input transformers - refer to your dealer for more information.

The **Ø** switch reverses the phase of the selected input to compensate for conflicting microphone position or to check for crossed wiring. This switch should normally be released.

Filters

2 There are separate second-order highpass and lowpass filters.

Highpass cut-off frequency is variable from 30 to 600Hz by the frequency control By default it is in the sidechain of the noise gate but can be switched in to the channel path by the **CHAN** switch. Lowpass cut-off frequency is variable from 1kHz to 20kHz by the frequency control. By default it is in the sidechain of the noise gate, but can be switched in to the channel path by the **CHAN** switch.

Noise Gate

3 A Noise Gate is placed in the signal path by pressing the **IN** switch. Its sidechain is normally fed from the output of the module's input amplifier, but can be sourced externally via the **S/CHAIN** jack socket on the rear panel, and this breaks the normalled connection. The channel's HIGH PASS and LOW PASS filters are normally resident in the sidechain, except when the **CHAN** switches are pressed as described above. The attenuation range of the gate is variable from 0db to -80dB by the **RANGE** control.

The **THRESHOLD** control allows the gate opening point to be adjusted from -40dB to +10dB referred to sidechain input level.

GATE ATTACK varies the time it takes the gate to start operating from 0.05mS to 100mS.

RELEASE/HOLD allows the recovery time from gating to be varied from 0.1 to 4 seconds.

The **HOLD** switch puts it into Hold mode: the release time is fixed at 0.1 seconds, and the **RELEASE/HOLD** control varies the hold time i.e. delay before the onset of gain reduction.

A red **SHUT** LED gives visual indication of the status of the gate: it illuminates when the gate is shut. When the gate is switched out of circuit, the LED is held off.

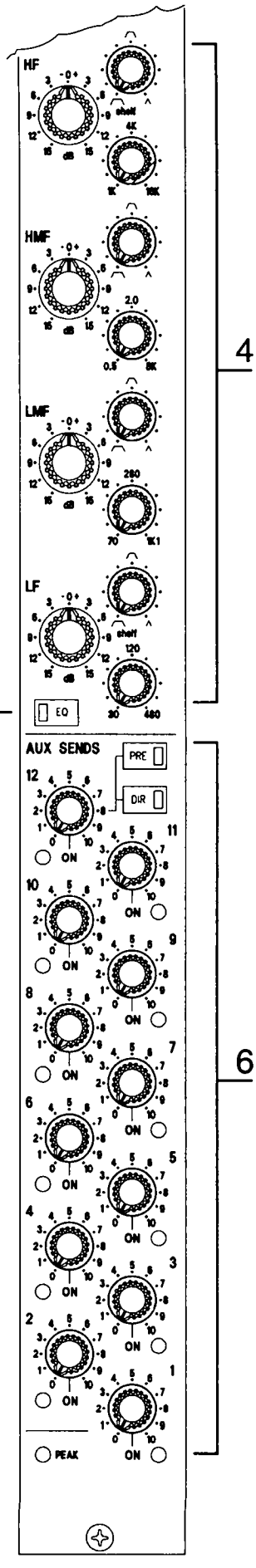
Equaliser

4 The Equaliser is a four band fully parametric design, and is placed in the signal path by the **EQ** switch. When the EQ is switched out of circuit, its input is grounded.

All four bands have:

- A centre detented **CUT/BOOST** control giving +/-15dB of control.
- A **FREQUENCY** control with 16:1 ranges:
  HF 1kHz...16kHz
  HMF 500Hz..8kHz
  LMF 70Hz...1k1Hz
  LF 30Hz...480Hz
- A variable **Q** control with a range of approx 0.5 to 3.

The **HF and LF Q** controls each have a switch at their anti-clockwise end that puts the section into **SHELF** mode.



Insert Point

5 The default settings for the channel insert is post-EQ and bypassed, but can be switched pre-EQ by the **PRE (EQ)** switch, and into circuit by the **IN** switch. Only the return is switched, the send always has signal present. Both send and return jacks are electronically balanced at a nominal level of +4dBu.

Auxiliary Sends

6 Twelve auxiliary sends are provided. Each has a rotary **LEVEL** control.

Electronic cut circuitry is operated by pressing the level knob to activate a momentary switch. **ON** status is indicated by illumination of the green LED below each level control.

PRE/POST sourcing is globally selected for each aux bus by the **PRE** switch on its corresponding Aux Master module. The source is PRE when the LED is illuminated.

However, to allow for the occasional need for a particular aux bus to be fed from mixed PRE and POST sources, AUX 12 has a local **PRE** switch, which locally reverses the master selection. The PRE LED illuminates when the state is PRE.

Direct Output

A post fade (nominal +4dBu) electronically balanced direct output is provided. Pressing the **DIR** switch allows the direct out to be controlled by the AUX 12 pot. When in DIR mode, the **PRE** switch determines the source of the direct output. The LED glows when the selection is PRE fade. When DIR is active, PRE is not affected by Aux Master 12 global pre/post selection.

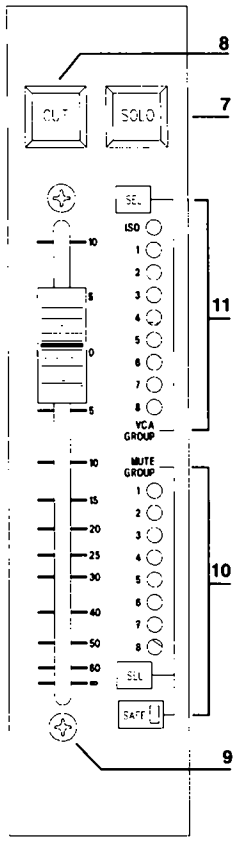
Channel Status

7 The illuminated, electronically latching **SOLO** switch, in conjunction with the Solo-in-Place status switch on the Master module allows the monitoring of individual channels. If Solo-in-Place is NOT selected pressing the SOLO switch on the channel feeds the channel signal to the **PFL** bus and automatically switches the monitoring to PFL mode. If Solo-in-Place is selected, pressing the SOLO switch does not PFL the channel, buts cuts all other inputs, unless they have been made safe by selecting **ISO** (see below), leaving only the selected channel in the mix.

If the channel is selected to ISO, *and* Solo-in-Place is selected, pressing the SOLO switch **AFL**'s the channel in stereo and automatically switches the monitoring to AFL mode, without cutting any other channels. This is the significant difference between the *non-destructive* AFL mode of soloing and the *destructive* Solo-in-Place. For safety during performance, pressing the **LIVE** button on the Master module inhibits the Solo-in-Place system.

8 Pressing the **CUT** switch will always mute the channel via the soft muting circuit. Note that the CUT status of the channel is also affected by the Mute group, VCA group and SOLO systems as described below.

9 The channel **FADER** sets the level of the channel signal sent to the mix or group outputs via the PAN control (if selected) and any Aux sends selected to POST FADE. The fader has 10dB of gain at the top of its travel.



Mute Grouping

10 The CUT status of a single channel or group of channels may be controlled by eight MUTE MASTER switches on the master fader panel each providing master control of a **MUTE GROUP**.

Mute groups are assigned as follows:

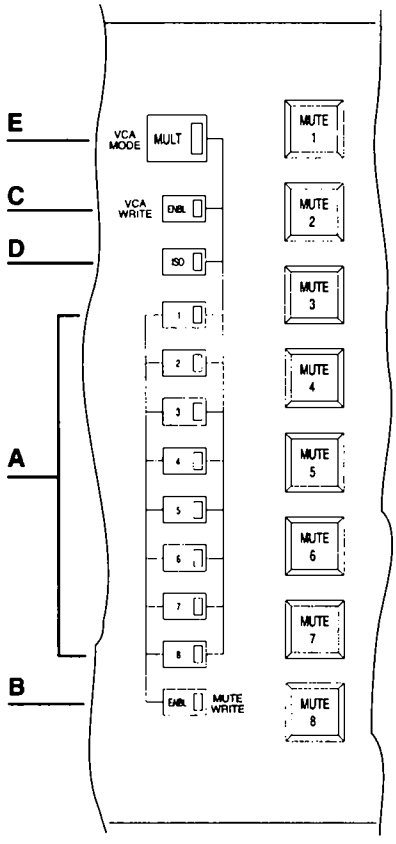
- Select the required group on the set-up switches (A)on the master panel.
- Arm the system by pressing (MUTE WRITE) **ENBL** (B).
- Assign the selected channel to the selected Mute Groups by pressing the momentary **SEL** switch on the channel fader module. The corresponding Mute Group LEDs will illuminate to show the current assignment.

The channel may be removed from the Mute Group system by pressing **SAFE**, which illuminates when active.

Pressing a Mute Master switch will mute any channels selected to the group, and their MUTE switches will flash to indicate that a non-local mute is active.

VCA Grouping

11 The console has VCA channel faders fitted as standard and these may be assigned to the control of single or multiple **VCA GROUP** faders. The VCA Group faders may similarly be placed under the overall control of the **GRAND MASTER** fader.



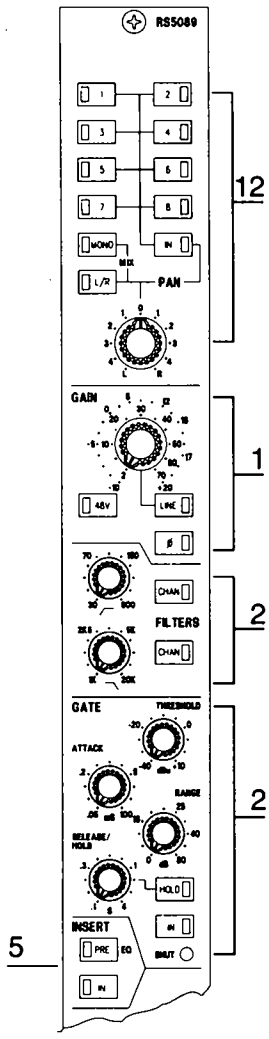
Single VCA Groups are assigned as follows:

- Arm the system by pressing (VCA WRITE) **ENBL** (C) on the master panel.
- Select the required group using the set-up switches (A) on the master panel.
- Assign the required channels to the group by pressing the momentary channel **SEL** switch. The corresponding VCA Group LED will illuminate to show the current assignment.

The **ISOLATE** function is selected in the same way, except that the **ISO** set-up switch is pressed instead of a group selection. This mode completely isolates the channel from Solo-in-Place mutes, i.e. it is a **SOLO SAFE** status.

Multiple VCA Groups are assigned as follows:

- Press the (VCA MODE) **MULT** switch on the master panel to disable the intercancelling action of the set-up switches.
- Arm the system by pressing (VCA WRITE) **ENBL** (C) on the master panel.
- Select the required groups using the set-up switches (A) on the master panel.
- Assign the required channels to the groups by pressing the momentary channel **SEL** switch. The corresponding VCA Group LEDs will illuminate to show the current assignment.



Moving a VCA group fader varies the level of all channels in the group proportionately. Pressing the VCA Group **CUT** will mute all channels selected to the group, and while the VCA Group CUT will be lit constantly, the channel CUT switches flash to indicate that a non-local mute is action.

Pressing the VCA Group **SOLO** with Solo-in-Place NOT selected will produce a stereo AFL of all channels selected to the group. If Solo-in-Place is active, pressing the VCA Group **SOLO** will cut all channels *not selected* to the group or *isolated* by setting them to ISO.

Group Routing

12 The routing matrix is at the top of the module, and allows the channel post-fade signal to be fed to the eight group and three mix busses (Left, Right and Mono).

All busses are differential with balanced drive. Routing to the L & R busses is by the **L/R** switch. These busses are sourced after the centre detented **PAN** control, but before the (PAN) **IN** switch, and are therefore always affected by the panpot.

When the **MONO** switch is pressed, the pre-pan signal is routed to the mono bus. Pressing (PAN) **IN** switches the pan pot into circuit and allows left/right panning between odd/even groups. Rotation fully anticlockwise pans to odd groups, rotation clockwise pans to even groups.

13 A red **PEAK** LED illuminates when there is a level of +14dBu on any of the inputs of its driver, which are:

- Output of Mic/Line amplifier
- Output of the EQ
- Insert Return
- Output of fader buffer

Metering

A meter take-off point is provided that can be link-selected to read either the output of the Mic/Line amplifier (default) or the output of the EQ. Channel metering is by means of a 16 segment LED bargraph located above the channel in the meter bay.

Group Output

Stereo FX Return

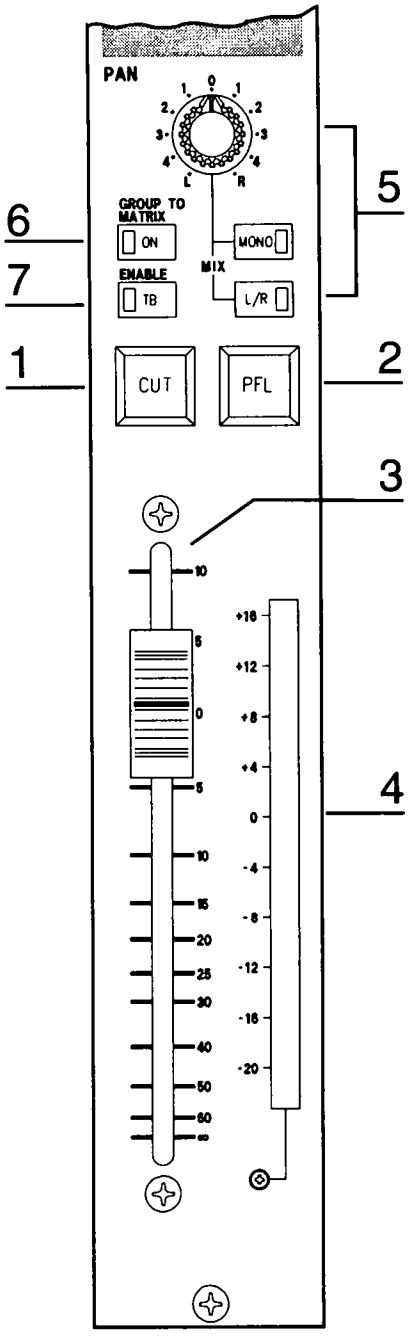
Aux Master

Description

Operation

and Specifications

Output Group



This comprises a group summing amplifier, group insert, the group fader with associated PFL and CUT switches, Talkback, and a PAN control with routing to Mix L/R, MONO and Matrix.

Group Path

The summing amplifier is of the low noise, balanced virtual earth type: it's output feeds the insert send (balanced, nominal level +4dBu).

1 The balanced insert return feeds the **CUT** switch, which is electronically latching.

2 The PFL switch allows the post-CUT, pre-fade signal to be monitored.

3 The fader sets the group output level and has 10dB of gain at the top of its travel.

4 The post-fade, post-CUT signal feeds the 20-segment LED **METER** adjacent to the group fader. An alignment pot is accessible through a small hole below the LED column.

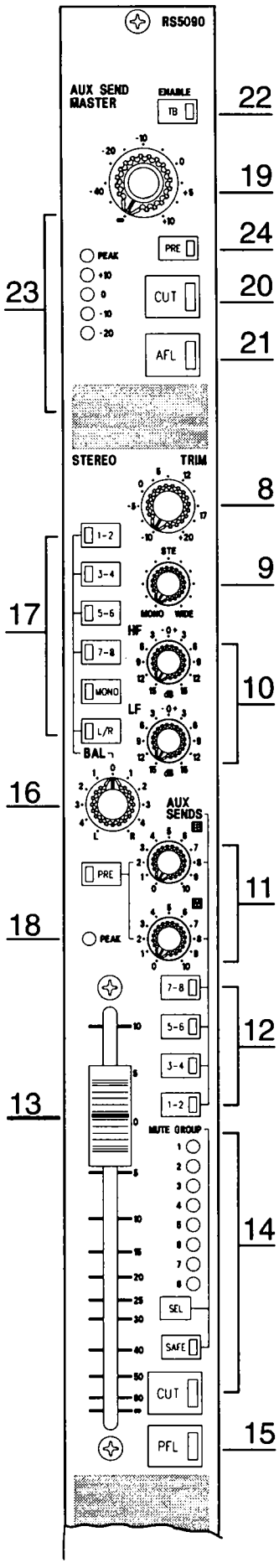
5 The post-fade signal feeds the passive **PAN** pot . The panned outputs are fed to the main Mix bus through the (MIX) **L/R** switch . The feed to the MONO bus is enabled by the (MIX) **MONO** switch, and is sourced pre the PAN pot.

6 The post-fade feed from the group to the optional matrix output modules is enabled by the (GROUP TO MATRIX) **ON** switch.

7 Pressing the latching (ENABLE) **TB** switch routes the talkback signal into the group immediately before the balanced output. It sums with the group signal and is not affected by the CUT switch or fader. Group Talkback does not route to the matrix.

The electronically balanced group output appears on the rear panel on a male XLR connector at a nominal level of +4dBu. Transformer coupling can be provided, the transformers being located in the bottom of the console frame.

Stereo Effects Return (FXR)



Although referred to as an Effects Return, this is a versatile stereo input equally suited to stereo machine or submix inputs as to effects. Eight stereo Effects Returns are fitted as standard.

Input stage

The inputs are via a pair of jack sockets on the rear connector panel. Transformer coupling can be provided, the transformers being located in the bottom of the console frame.

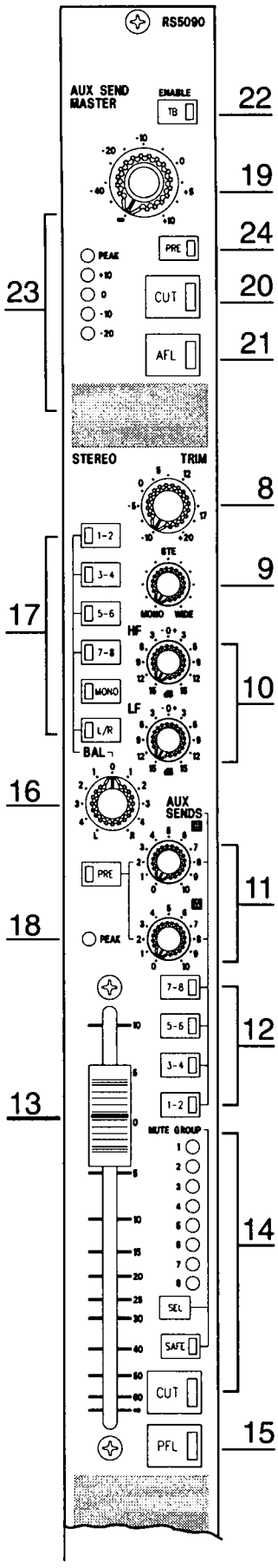
8 The input **TRIM** control allows the sensitivity of the balanced line level inputs to be adjusted over a range +10dBu to -20dBu.

A 16 segment meter located in the meter bay above the Group module reads the output of the TRIM circuit. The meter reads both Left and Right signals and displays the highest level.

9 A pre-EQ, centre detented **WIDTH** control varies the width of the stereo image from mono (anticlockwise) through stereo at the centre detent to phase-enhanced wide stereo (clockwise).

Equalisation

10 Two band equalisation is provided. The centre detented **HF** and **LF** shelving controls give 15dB cut and boost at fixed turnover frequencies of 12kHz and 60Hz respectively.



Auxiliary sends

11 There are two **AUX SEND** controls, normally sourced from a post-fade mono sum, though linkable for stereo sourcing, and switchable to pre-fade by the **PRE** switch.

12 The outputs of these level controls can be routed to aux busses 1-8 in pairs by the **AUX ROUTING** switches. More than one pair may be selected if required. If selected for mono sourcing, the upper control feed the odd-numbered busses and the lower control feeds the even-numbered busses. When the source is selected to stereo the upper knob controls the left signal to odd busses, and the lower knob feeds the right signal to even busses.

FXR Status

13 The effects return **FADER** is a 100mm stereo unit, with 10dB of gain at the top.

14 The illuminated **CUT** switch, together with the the 8 mute groups, control whether the FX Return is ON or muted. Pressing the CUT switch will always mute the signal. Assigning the Return to one or more Mute Groups allows the signal to be muted by the corresponding Mute Masters.

Mute groups are assigned as follows:

- Select the required group on the set-up switches on the master panel.
- Arm the system by pressing (MUTE WRITE) **ENBL**.
- Assign the required Returns to the selected Mute Group by pressing the momentary **SEL** switch beside the Return fader. The corresponding Mute Group LEDs will illuminate to show the current assignment.

The Return may be removed from the Mute Group system by pressing **SAFE**, which illuminates when active.

15 Pressing the **PFL** switch allows direct monitoring of the signal at the top of the fader and automatically switches the monitoring to AFL/PFL mode.

16 The post-fade signal feeds the centre detented active **BAL** (balance) control which has unity gain for both paths of the stereo signal in the centre position.

17 The outputs of the BAL control feed the **ROUTING SWITCHES** which route in pairs to groups 1-2, 3-4, 5-6, 7-8, and via the **L/R** switch to the stereo mix bus. Pressing the **MONO** switch feeds a post-fade, pre-balance mono sum to the mono bus.

18 The red **PEAK** LED senses at 2 points:

- The output of the input amplifier.
- The post-EQ, pre-fade signal.

It illuminates when the internal level of either the left or right channel exceeds +14dBu.

Aux Master

The console has 12 identical Aux Send Masters. One is located on each of the 8 Group/FXR/Aux modules, the remaining 4 are located on the Master module. The output signal is electronically balanced at a nominal level of +4dBu. Transformer coupling can be provided, the transformers being located in the bottom of the console frame.

Each Aux Send Master comprises:

19 A ground-compensated summing amplifier with an integral **LEVEL** control giving a maximum gain of +10dB referred to the +4dBu output.

20 The illuminated **CUT** switch mutes the output of the Aux Master.

21 Pressing the pre-cut **AFL** switch allows monitoring of the Aux output, and automatically switches the monitoring to AFL/PFL mode. This function is not affected by the setting of the Solo-in-Place switch on the Master module.

22 Pressing the latching (ENABLE) **TB** switch routes the talkback signal into the Aux master when Talkback to Aux is selected on the master module. Talkback is summed with the Aux signal immediately before the balanced output and is not therefore affected by the CUT switch or Aux Send Master.

23 A 5 segment LED **METER** is provided, driven from before the balanced output circuit.

24 Global pre/post switching of the mono and stereo input Aux sends is controlled by the **PRE** switch. Note that on Aux Bus 12 this selection may be reversed by pressing the channel Aux 12 PRE switch, allowing mixed PRE/POST sources to be mixed to a single Aux send.

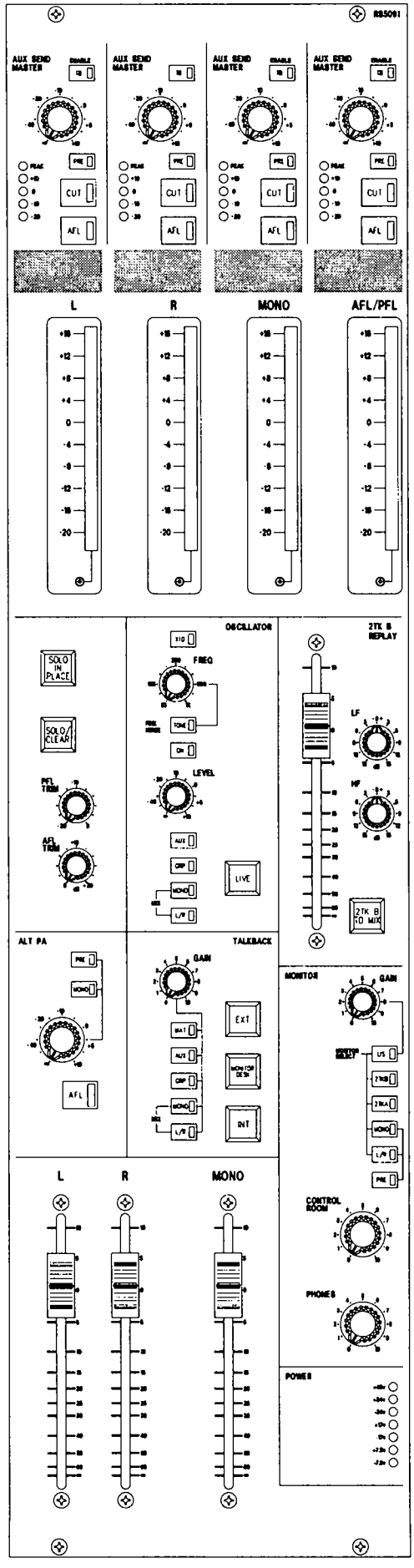
A VCA Group fader is located on a separate module below the Group/FXR/Aux Master module. This is described in detail in the VCA & Mute Group section later in this manual.

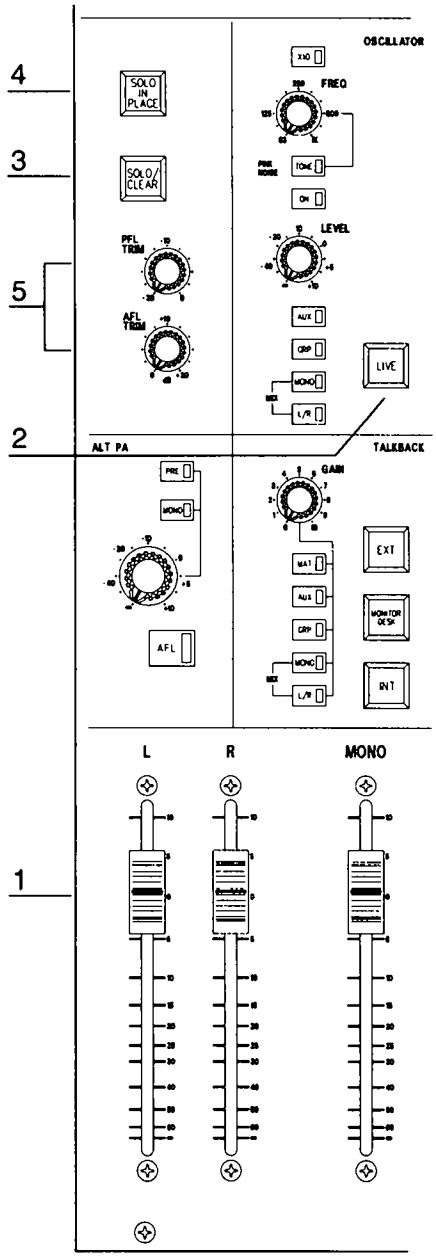
Master Module

Description

Operation

and Specifications


AUX SEND MASTER
PRE
CUT
AFL
L
R
MONO
AFL/PFL
SOLO IN PLACE
SOLO/ CLEAR
PFL TRIM
AFL TRIM
OSCILLATOR
FREQ
TONE
LEVEL
LIVE
2TK B REPLAY
LF
HF
2TK B TO MIX
ALT PA
TALKBACK
GAIN
EXT
INT
MONITOR
CONTROL ROOM
PHONES
POWER



Aux Masters 9 - 12

These are functionally identical to Aux Masters 1-8 and are described fully in the previous chapter.

L, R and MONO Mix Paths

1 The balanced L, R and Mono mix busses are summed and the outputs feed the electronically balanced insert sends. These are at a nominal level of +4dBu. The insert return amps are also balanced, and feed the top of the main output **FADERS**. These have +10dB gain at the top of their travel.

The post-fade signals feed the 20-segment LED **METERS** and electronically balanced output buffers.

The rear panel XLRs are at a nominal level of +4dBu. Transformer output coupling can be provided, the transformers being located in the bottom of the console frame.

PFL, AFL and SOLO

The PFL/AFL and SOLO systems have two modes of operation:

- PFL or AFL - non-destructive solo
- SOLO-IN-PLACE (SIP) - destructive solo

2 Since SIP is can have a disastrous effect on the mix if caused accidently, it is disabled when the console is put into LIVE status by the **LIVE** switch.

The LIVE switch cancels oscillator ON as well as SOLO-IN-PLACE. It cuts the 2TK B REPLAY TO MIX, and inhibits talkback to all destinations e xcept EXT and Monitor Desk Talkback.

LIVE also disables the MUTE WRITE and VCA WRITE systems to prevent accidental modification of existing assignments.

3 **SOLO CLEAR** cancels all solos, PFLs and AFLs which have been selected on the console.

4 Pressing **SOLO IN PLACE** switches the console from non-destructive AFL/PFL to destructive Solo-in-Place. The flip-up safety cover prevents accidental operation, and an internal link is provide to disable the facility if required. Pressing **LIVE** also disables the SIP facility.

Since the action of the AFL/PFL/SOLO system is determined by a combination of controls, the following sections describe each their effect on each module:

Solo-in-Place not Selected

Inputs Pressing SOLO on any channel switches the monitoring (control-room output or headphones) to listen to the pre-fade, pre-mute signal in the channel. The SOLO switch on the input lights steadily, and the SOLO CLEAR switch flashes to indicate an active PFL/AFL.

Aux & Matrix Masters Pressing AFL on any Auxiliary Master or Matrix Master switches the monitoring to listen to the post-fade signal on that master. The AFL switch lights steadily, and the SOLO CLEAR switch flashes.

Stereo Returns & Groups Pressing PFL on a stereo return or group switches the monitoring to listen to the pre-fade signal on the return or group. The PFL button lights steadily, and the SOLO CLEAR switch flashes.

VCA Group Modules Pressing SOLO on any VCA master will set all inputs assigned to that VCA group to AFL: the monitoring switches over to listen to the stereo post-fade, post-pan signal. The SOLO switches on the affected inputs flash, the SOLO switch on the VCA master lights steadily, and the SOLO CLEAR switch flashes.

Solo-in-Place Selected

Inputs Pressing SOLO on any input mutes all other inputs unless they are selected to be isolated. On the inputs that are cut and affected VCA groups , the CUT switches flash. On the SOLO'd input, the SOLO switch lights steadily. On the master, the SOLO-IN-PLACE switch flashes to indicate an active SIP, and the SOLO CLEAR switch lights steadily.

Pressing SOLO on an input selected to ISO does not cut the other channels. Monitoring is switched over to listen to the stereo, after-fade signal from the SOLO'd channel. The SOLO switch lights steadily. The SOLO-IN-PLACE switch on the master flashes, and the SOLO CLEAR switch lights steadily.

Aux & Matrix Masters, Stereo Returns & Groups Pressing AFL on an Auxiliary or Matrix Master, or PFL on a Stereo Return, operates in the same way as when SIP is not selected. The monitoring is switched over to the PFL or AFL signal, and the PFL or AFL switches lights steadily. The SOLO-IN-PLACE switch on the master module lights steadily, and the SOLO CLEAR switch flashes.

VCA Group Modules Pressing SOLO on a VCA master mutes all inputs except those assigned to that VCA group or that are isolated. On all cut inputs and VCA groups, the CUT switches flash. On all inputs selected to the SOLO'd VCA group, the SOLO switch flashes. On the VCA master, the SOLO switch lights continuously. The SOLO-IN-PLACE switch on the master module flashes, and the SOLO CLEAR switch lights steadily.

PFL / AFL

The PFL, AFL Left and AFL Right buses have balanced external inputs (on a 90-way EDAC) for receiving signals from a slave console. These signals are individually summed into their respective buses, and each bus has an electronically balanced output for interfacing to a Master console (or other external device). The balanced outputs are pre the trim controls.

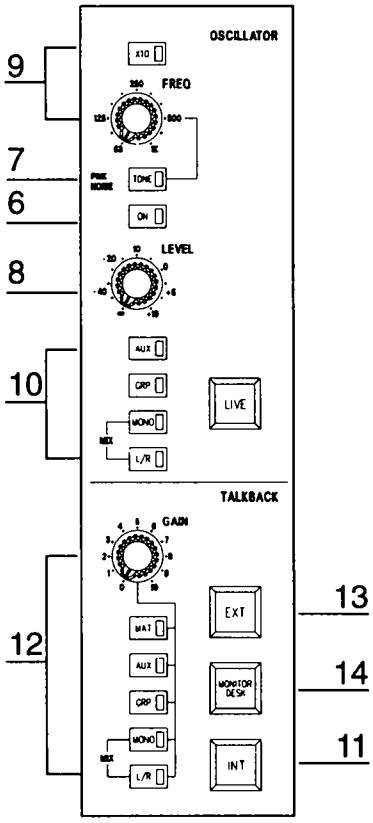
5 The level of the PFL and AFL signals can be adjusted by their respective **TRIM** controls.

- PFL TRIM gives -20...0dB range of control.
- AFL TRIM gives 0...+20dB range of control.

The 20-segment AFL/PFL meter (**22**) reads the AFL or PFL signal before the trim controls so that a true level is displayed. Where the AFL signal is in stereo, the higher of the Left or Right signals is diplayed.

Oscillator

The oscillator normally produces pink noise, but can be switched to produce a sinusoidal output, the frequency being variable from 63Hz to 10kHz. The output may be internally routed to auxes, groups and mix, as well as being available on a rear panel connector.



6 The ON switch is electronically latching. It is reset to OFF and held in that status by operating the **LIVE** switch. When LIVE is de-selected, the oscillator remains OFF.

7 The oscillator normally provides pink noise: to get sine wave tone the **TONE** switch is pressed which enables the sine wave generator.

8 The **LEVEL** control sets the oscillator output level and is variable from infinity to +10dBu.

9 The frequency of the sine wave oscillator is variable from 63Hz to 1kHz by the **FREQ** control: the **X10** switch multiplies this up to cover the range 630Hz to 10kHz.

10 Illuminated mechanically latching pushbutton switches route the oscillator to Auxes, Groups, Mix L/R and Mono busses. The LEDs flash only when the oscillator is on.

A dedicated rear panel output is provided and this is active only when the oscillator is switched ON.

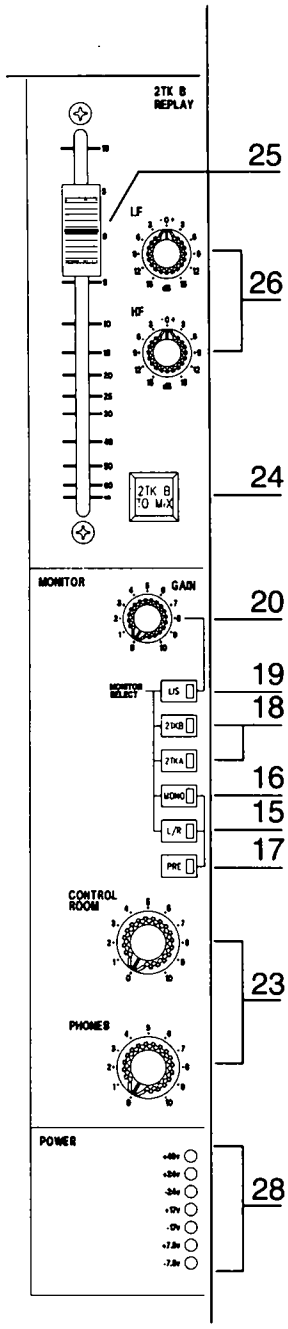
Talkback System

11 Internal talkback is initiated by the **INT** switch and can be routed to Groups, Matrix outputs, L/R and Mono mix outputs, and Aux sends.

12 Selection of the internal talkback destination is by five switches:

- Talk to Matrix and Aux switches are latching.
- Talk to Groups, Mix L/R and Mix Mono switches momentary.

13 External talkback is bi-directional and enabled by the **EXT** switch. Balanced line in and line out are provided, at a nominal level of +4dBu. When the external talkback input is active and feeding the moniitors, the main monitor signal is dimmed by 20dB.



14 Talkback to **MONITOR DESK** uses a standard_Soundcraft interface, and is intended to link to a compatible Soundcraft monitor console. Monitor TB Input and Output XLRs are on the rear connector panel.

A gooseneck Talkback mic can be mounted in a socket in the blank module adjacent to the master module or a handheld or headset mic may be plugged into a rear panel socket. The level of the mic is set by the talkback **GAIN** control, and is variable from +20dB to +55dB.

Monitor

The monitor system allows the engineer to listen to a variety of sources on monitor loudspeakers or headphones. Multiple sources may be selected if required.

15 Mix **L/R** switch routes the mix signal in stereo to the monitors.

16 **MONO** allows monitoring of the Mono signal.

17 The **PRE** switch allows monitoring of the mix signals to be sourced pre the L, R and Mono main mix faders.

18 Selects external monitor returns **2TKA** (2 track return A) or **2TKB** (2 track return B), both of which are balanced inputs. Individual internal switching for +4dBu or -10dBV nominal operating level is provided to suit both professional and semi-professional equipment.

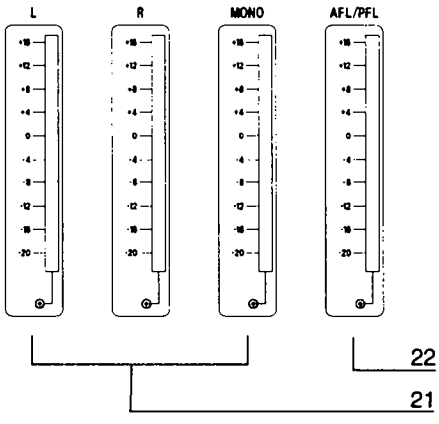
19 **LIS** selects an input for a stereo listen mic.

20 The gain of the listen mic input is controlled by the adjacent **GAIN** pot, and is variable from +20dB to +55dB. +48V phantom power is available by selecting an internal link.

Metering

21 20-segment LED meters follow the Left & Right monitor source switches. The 20-segment LED Mono meter follows the Mono Mix output signal.

22 20-segment AFL/PFL meter reads the AFL or PFL signal before the trim controls so that a true level is displayed. Where the AFL signal is in stereo, the higher of the Left or Right signals is diplayed.



The L & R VU meters in the overbridge follow the Mix L & R.

Output Control

Left & Right monitor outputs are provided to drive control room power amps/loudspeakers. The XLR outputs are fitted on the master connector panel, and are electronically balanced at a nominal level of +4dBu.

Two headphones output jacks are provided: one in the same blank module as the talkback mic, and the other on the master rear panel.

23 The monitor and headphone outputs share the source selector, but have independent output level controls: The monitor output level control has a gain of +10dB, the headphone level control has a gain that gives full rated output with the mix bus at nominal.

- Nominal: +4dBu at Mix outputs.
- Output capability: 150mW into 8Ω or +20dBu into 600Ω.

The EXT Talkback feed into the console is summed into the monitor feeds pre the level controls. When active, talkback will dim the existing signal by 20dB.

2-Track B Replay

The 2TKB replay controls allow signal the from 2 track return B to be fed to the mix outputs, typically for use as a source for pre-show music. The signal is fed to the main outputs after the main faders, enabling music to be played to the audience while a soundcheck is being completed, with the main faders down and the main monitoring selected to PRE (**17**). Any extraneous noises created by the soundcheck are therefore not heard on the main P.A.

24 The **2 TK B TO MIX** switch routes the signal to Mix L and R outputs. An internal jumper allows a mono sum to be fed to the Mono bus.

25 The 100mm **FADER** sets the level of the 2TKB TO MIX signal after the main faders.

26 A two band EQ is provided, typically for sweetening poor quality cassette tapes. The HF and LF shelving controls have turnover frequencies of 12kHz and 60Hz respectively. 15dB cut or boost is available on each control.

ALT PA

27 Pre-settable jumpers inside the module source the ALT PA from either the L&R MIX outputs, or from the MONO MIX output. The default source is post the Main faders, but can be sourced pre by pressing the **PRE** switch, and the normally stereo output can be switched to mono by pressing the **MONO** switch.

The rotary **FADER** has +10dB gain at full clockwise rotation, and allows level adjustment of the electronically balanced outputs, which give a nominal level of +4dBu at the rear panel XLR connectors.

The **AFL** switch allows monitoring of the stereo post-fade signal.

Power Supply Monitor

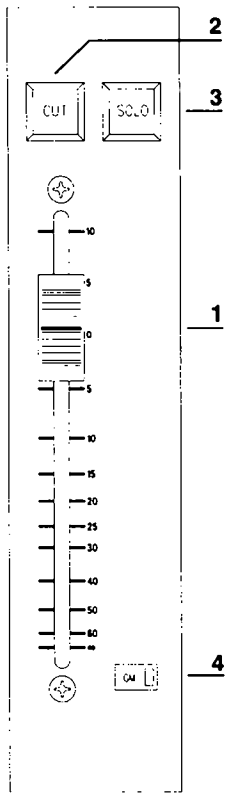
28 Seven LEDs monitor the presence of the various supply rail voltages provided by the power supplies. Any abnormal indication on these LEDs should be investigated immediately to avoid the risk of a failure during live performance.

VCA and Mute System

Description

and Operation

VCA & Mute Master Modules



VCA Sub-Group System

The VCA grouping system allows several channels (a group) to be placed under the control of one group fader, allowing the operator to change the level of that group of signals in the mix but keeping the relative levels of the channels the same, without having to move each of the channel faders individually. Also it permits the muting and soloing (destructive or non-destructive) of the group. In this way, the VCA group fulfils most of the functions of audio subgrouping, but at the same time greatly simplifying the audio signal path.

The VCA Grouping system on Europa allows the creation of up to eight **VCA GROUPS** controlling Mono Inputs and Stereo Inputs. In addition, a VCA group itself may be assigned to the **GRAND MASTER**, allowing the overall control of multiple VCA Groups using a single centrally-positioned fader.

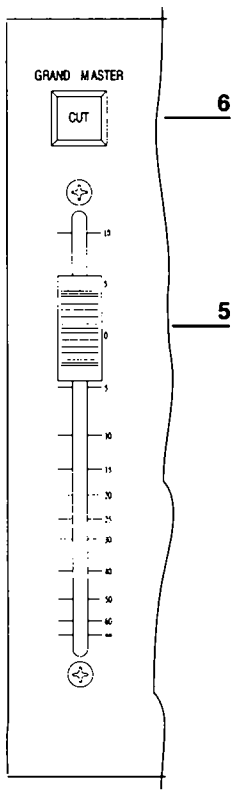
1 The **VCA MASTER FADER** controls the level of the pre-fade signals in the assigned channels.

2 Pressing the **CUT** switch on the VCA master will mute all channels assigned to that group. In this case the CUT switch on the VCA master lights continuously, and the CUT switches on the channels flash to show that a non-local mute is active.

3 If the console is in **SOLO-IN-PLACE** mode, pressing the **SOLO** switch on the VCA master will mute all inputs except those in the VCA group, and those made solo-safe by setting them to ISO.

When the console is not in SIP mode pressing SOLO causes all the assigned channels in the group to generate a stereo AFL.

4 Each of the VCA Group Masters may be assigned to the Grand Master by pressing the **GM** on that master.



5 The **GRAND MASTER FADER** proportionately controls all channels assigned to groups on which **GM** is pressed, with the balance still set by the Channel fader and VCA Master faders.

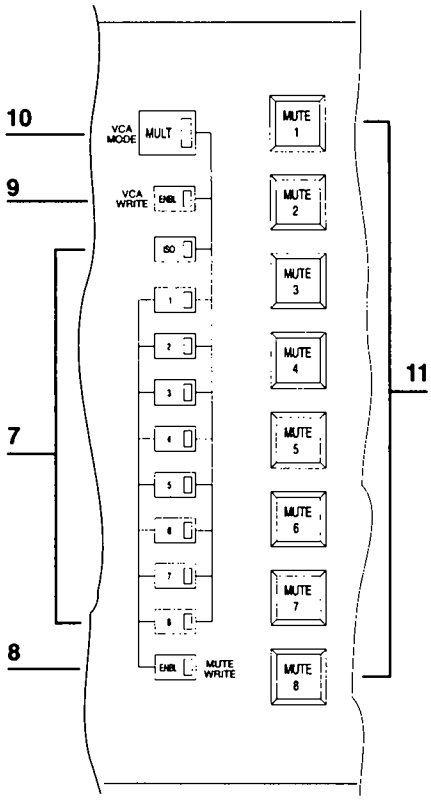
6 When the Grand Master **CUT** switch is pressed, all channels assigned to a VCA group which in turn is assigned to the Grand Master are muted. The Grand Master CUT switch lights steadily, and both the channel CUT and VCA master CUT switches flash to show that a non-local mute is active.

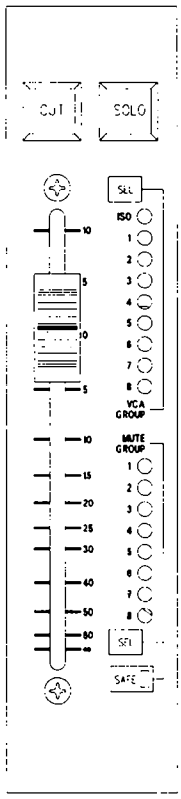
Mute And VCA Assignment

Channels are assigned to Mute and VCA groups froma central programming panel below the master module.

MUTE GROUPS are assigned as follows:

- Select the required group on the set-up switches (**7**)on the master panel.
- Arm the system by pressing (MUTE WRITE) **ENBL** (**8**).
- Assign the selected channel to the selected Mute Groups by pressing the momentary **SEL** switch on the channel fader module. The corresponding Mute Group LEDs will illuminate to show the current assignment.





The channel may be removed from the Mute Group system by pressing **SAFE**, which illuminates when active.

This is entirely independent of the **MUTE MASTERS**, allowing the mute_set-up to be altered without changing the MUTE MASTERS. If the (VCA WRITE) ENBL switch is already active when (MUTE WRITE) ENBL is pressed, it is cancelled.

Pressing a Mute Master switch will mute any channels selected to the group, and their MUTE switches will flash to indicate that a non-local mute is active.

SINGLE VCA GROUPS are assigned as follows:

- Arm the system by pressing (VCA WRITE) **ENBL** (**9**) on the master panel. If the (MUTE WRITE) ENBL switch is already active, it is cancelled.
- Select the required group using the set-up switches (**7**) on the master panel.
- Assign the required channels to the group by pressing the momentary channel **SEL** switch. The corresponding VCA Group LED will illuminate to show the current assignment.

The **ISOLATE** function is selected in the same way, except that the **ISO** set-up switch is pressed instead of a group selection. This mode completely isolates the channel from Solo-in-Place mutes, i.e. it is a **SOLO SAFE** status.

When no VCA group is assigned on a channel, the VCA circuit is automatically bypassed.

MULTIPLE VCA GROUPS are assigned as follows:

- Press the (VCA MODE) **MULT** switch (**10**) on the master panel to disable the intercancelling action of the set-up switches.
- Arm the system by pressing (VCA WRITE) **ENBL** (**9**) on the master panel.
- Select the required groups using the set-up switches (**7**) on the master panel.

Assign the required channels to the groups by pressing the momentary channel **SEL** switch. The corresponding VCA Group LEDs will illuminate to show the current assignment.

Re-entering single-assignment mode does not affect previously assigned channels, which may still be multiply assigned, thus avoiding the accidental loss of multiple assignments.

Mute and VCA Interactions

To simplify operation of the Mute and VCA systems, the following interactions occur when switching between Mute,VCA single assignment and VCA multiple assignment modes:

- In single-assignment mode, enabling VCA WRITE resets the SET-UP switches.
- In multiple-assignment mode, enabling VCA WRITE does not reset the SET- UP switches.

- The ISO button is cancelled if MUTE WRITE is enabled.
- When neither VCA nor Mute write is enabled, any of the SET-UP switches may be selected. However, when enabling either system, they may be cancelled according to the rules above.
- The MUTE WRITE and VCA WRITE enables are disabled when the console is in LIVE status, to prevent accidental modification of the channel assignment. An optional facility is also provided via a 2-pin Methode connector for connection to a key-switch. When the 2 pins are shorted, the VCA and Mute Write enables are disabled.
- The channel Mute and VCA assignments are retained at power-down by battery-backed storage.
- The VCA, Mute and write enable functions of the master assignment section in the master module are reset at power-down. This presents the user with a clear control surface when the desk is powered-up.

The VCA and Mute systems work together with the local CUT buttons to provide several ways of controlling the electronic mute circuitry in the channels:

- Local control using the CUT switch
- On/Off control using the MUTE MASTER switches
- Proportional control using a VCA GROUP
- Automatic muting by the SOLO-IN-PLACE system

The channel will be turned OFF if any of the above produces a mute signal, and the CUT button illuminates to show that the channel is muted.

5. Module Block Diagrams

Mono Input Module 5.2

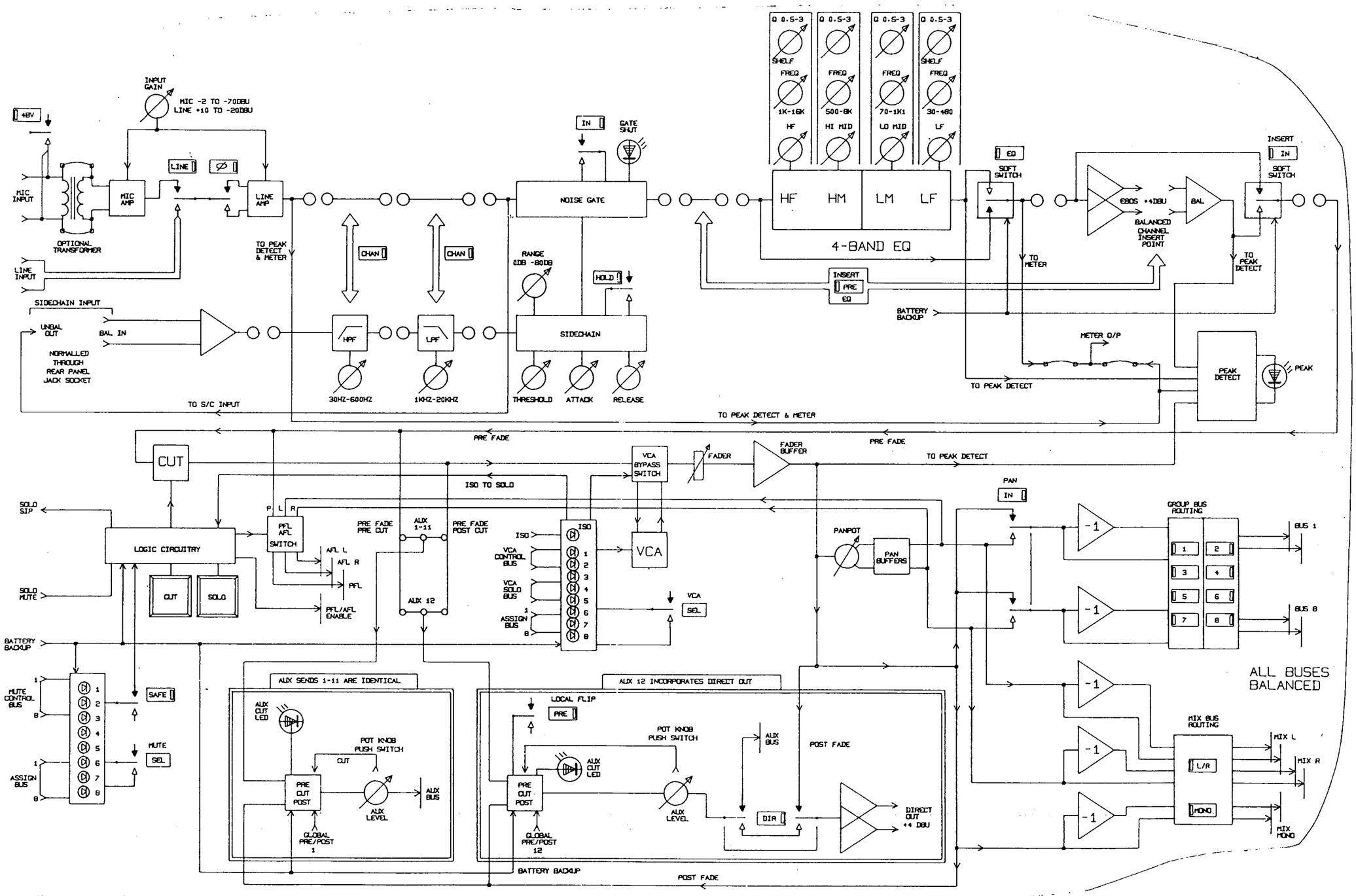
Output Group 5.3

Stereo FX Return 5.4

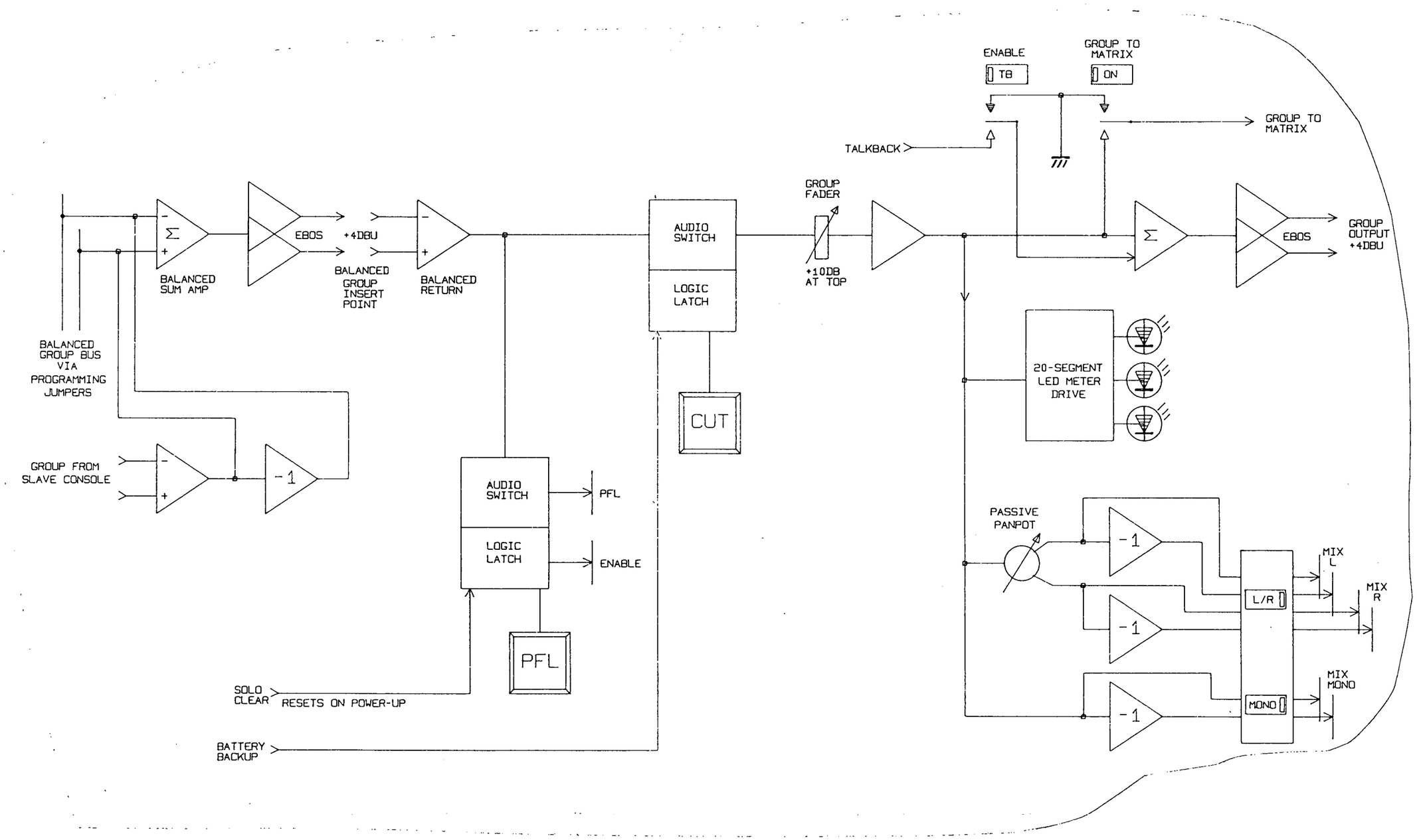
Aux Master 5.5

Master Module 5.6

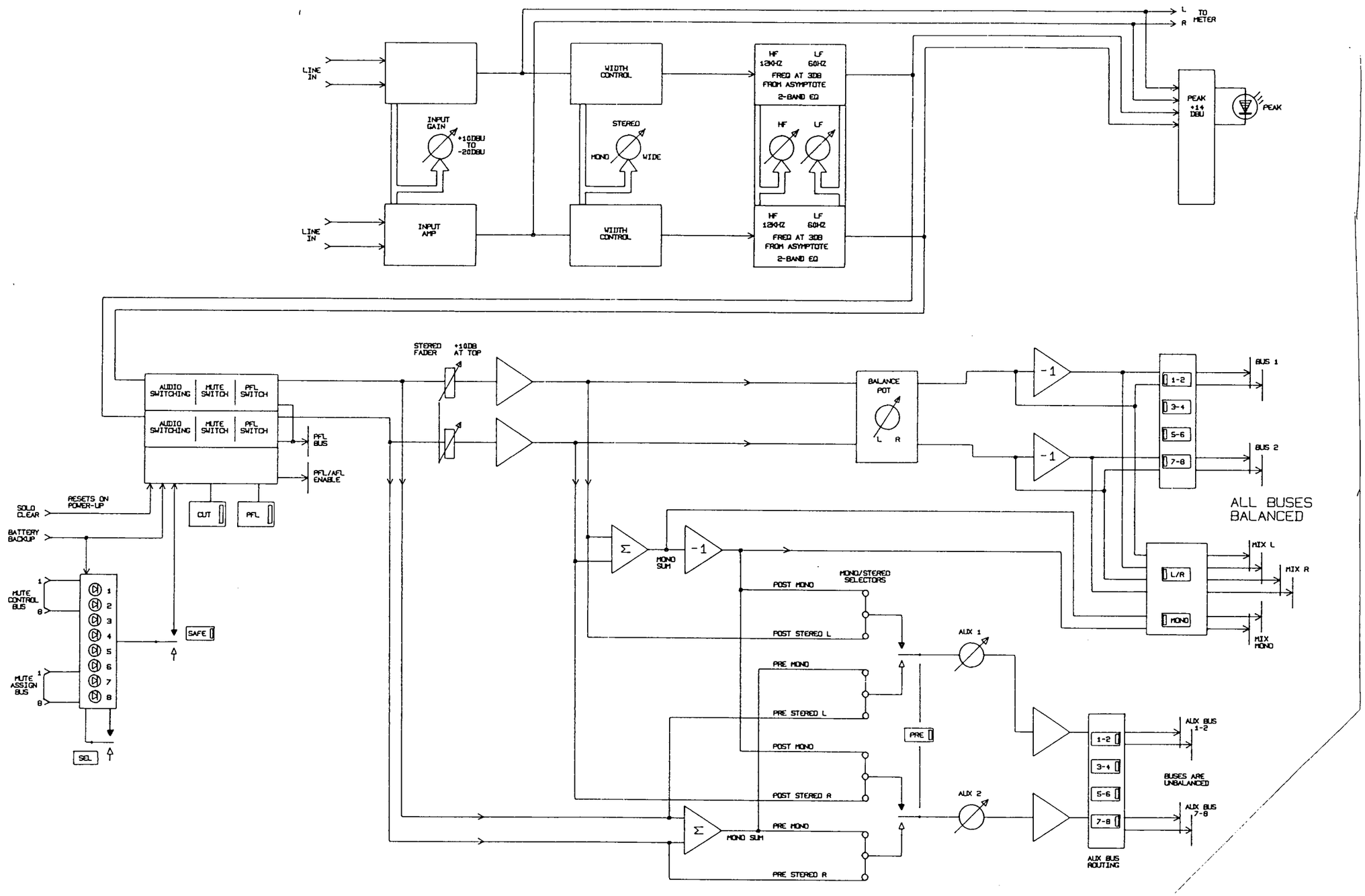
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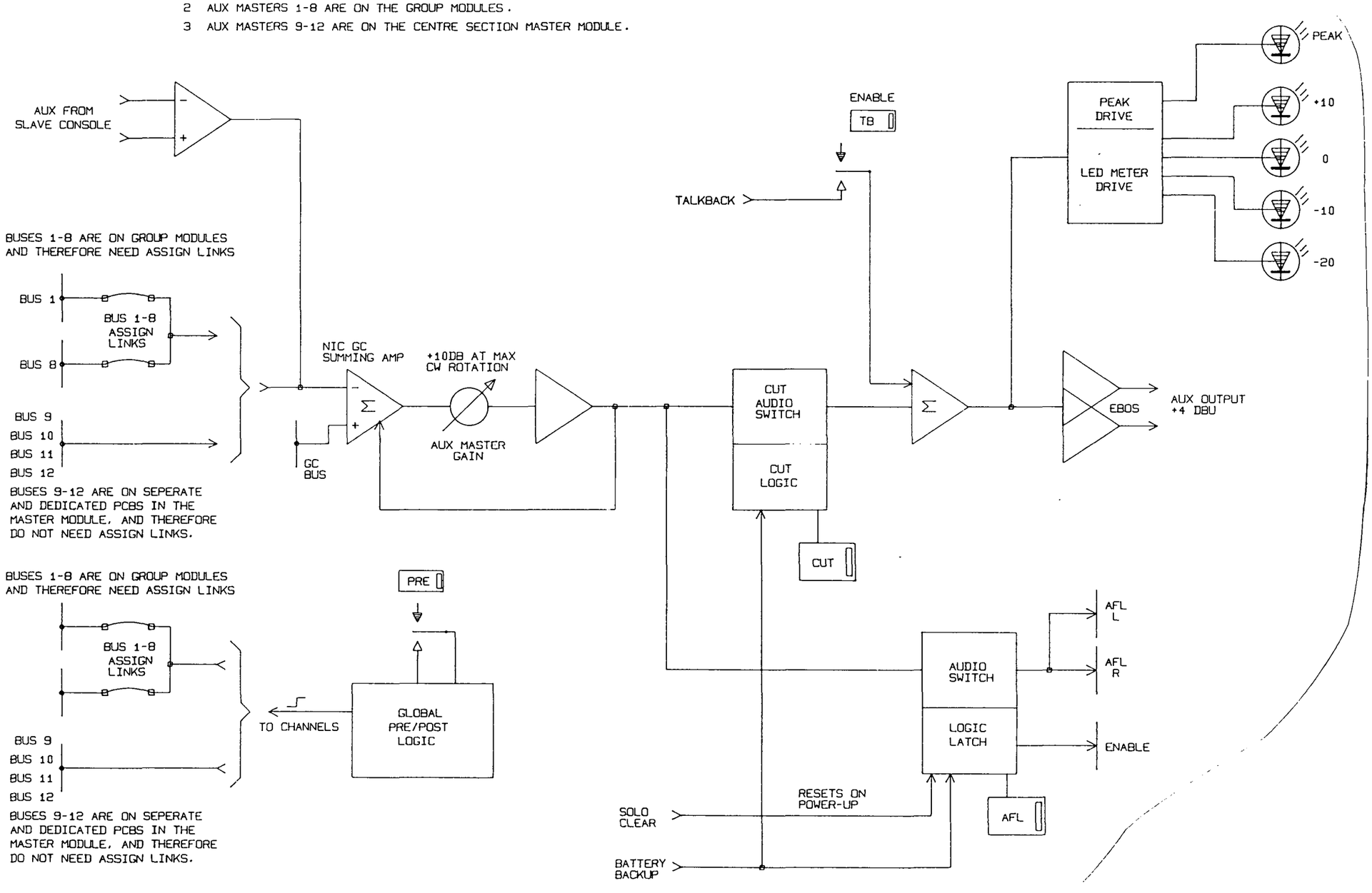


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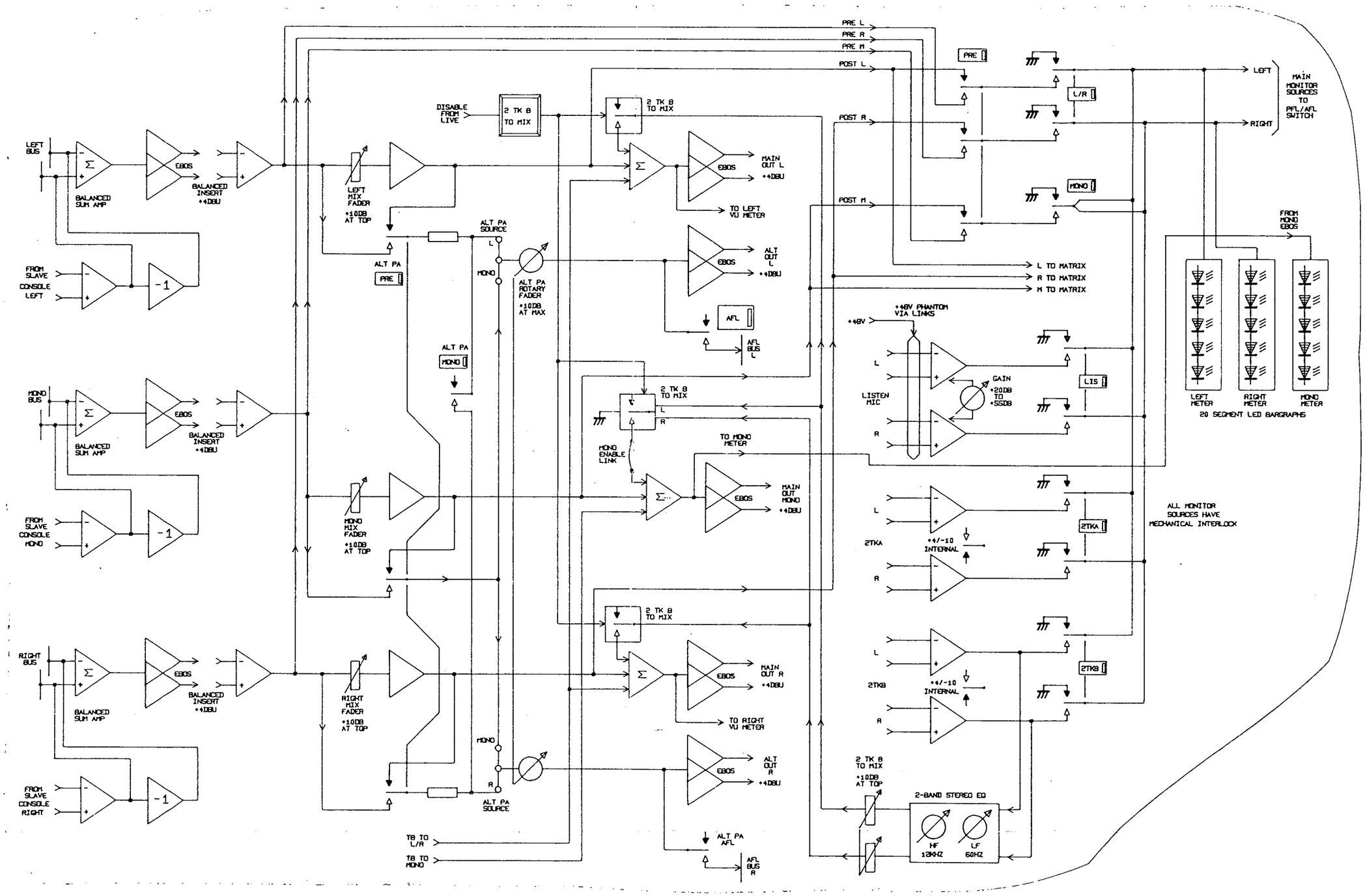


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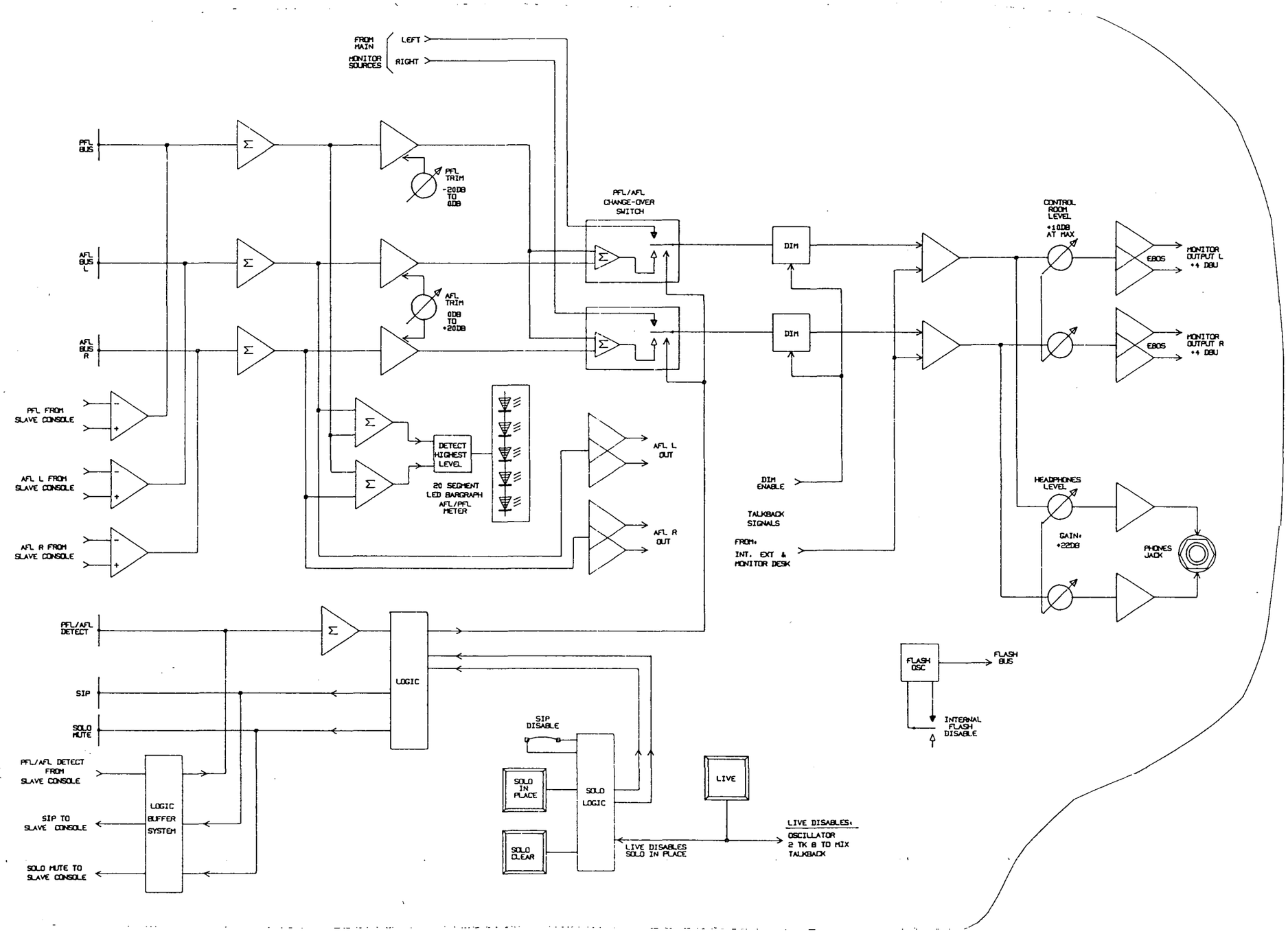
NOTES 1 12 AUX MASTERS EXIST. ONLY 1 IS SHOWN.
2 AUX MASTERS 1-8 ARE ON THE GROUP MODULES.
3 AUX MASTERS 9-12 ARE ON THE CENTRE SECTION MASTER MODULE.



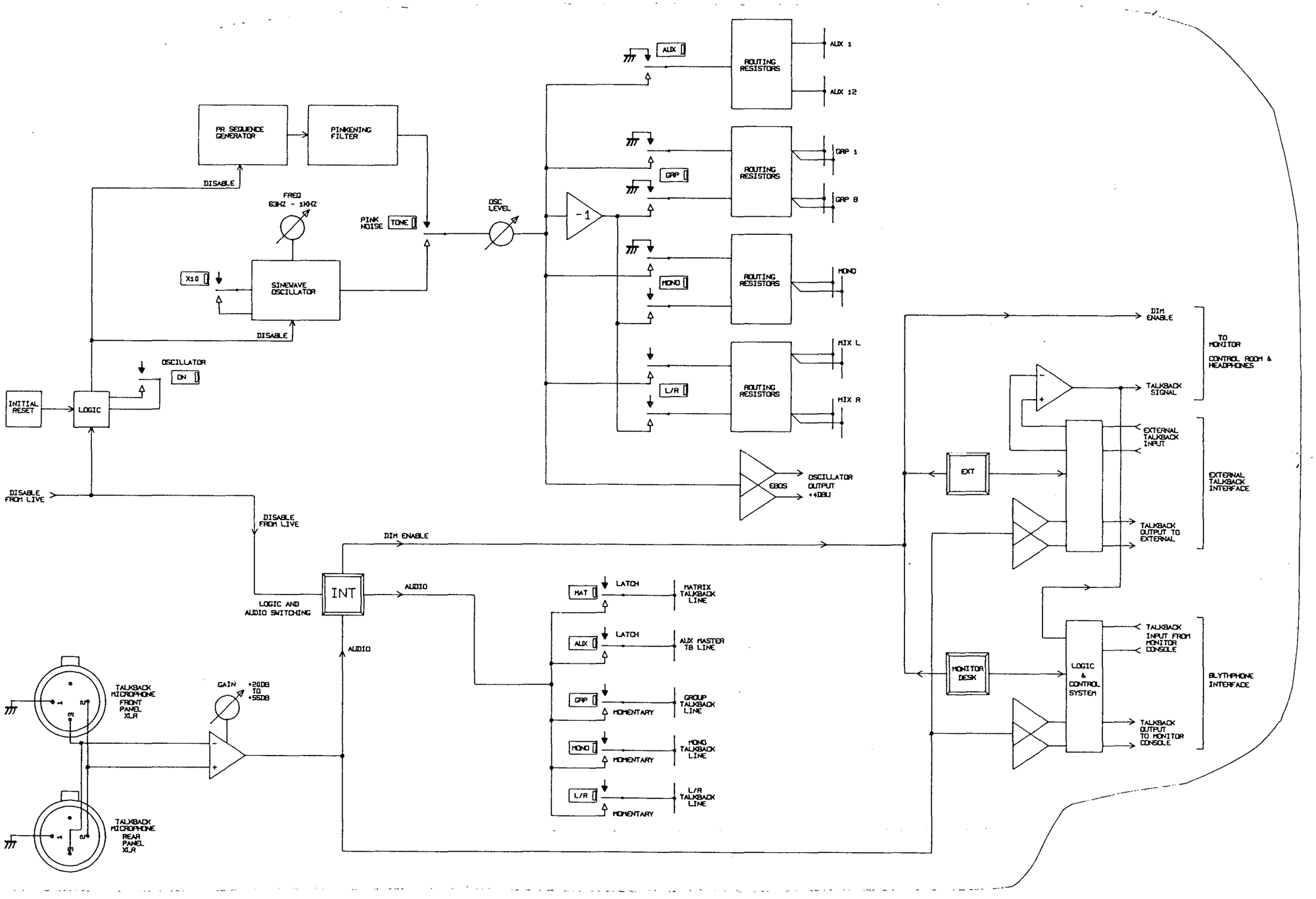
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6. Circuit Descriptions

Mono Input Module 6.2

Stereo Input Module 6.8

Matrix Output Module 6.12

Master 4 PCB 6.14

Master 1 PCB 6.17

Master 2 PCB 6.21

Mute Master 6.26

VCA Master 6.27

VCA/Mute Assign Board 6.29

4-Channel LED Meter Card 6.32

PSU Interface Board 6.33

Fader Tray Circuitry 6.34

Analogue Interface Board 6.37

Digital Interface Board 6.38

Fader Input Board 6.40

Circuit Description

Input Stage

The mono input accepts microphone and line level signals. Phantom power (+48V) is provided to power capacitor microphones via resistors **R1,R2**, and capacitors **C6,C7** block the +48V DC from the microphone amp.

The input amplifier is divided into two stages, the microphone amplifier, and the line level amplifier. Microphone signals pass through both stages, whilst signals from the line input pass only through the second stage.

The **microphone amplifier** is a discrete, transformerless design built around 2SB737 transistors for low noise and high common mode rejection ratio. The transistors **TR1,TR2** form a differential pair, biasing is provided by **R6,R7,R11,R12**. The two collector signals are fed into a differential amp, built around **IC1-B** (TL072). Negative feedback for the inverting input is provided by **R13**. **IC1- A** acts as a unity-gain inverter to give negative feedback to the non-inverting input via **R8**. The gain of this stage is controlled by **VR2-A** and **R9**, and is variable between 2dB and 50dB. Diodes **D4,D5** prevent the transistors differential collector voltage exceeding 0.6V. Diodes **D1,D2,D3,D7** protect the input amplifier from excessive transients, usually caused by the phantom power being turned on. **D2,D3** prevent the inputs of **IC1-B** from exceeding the negative rail, which could cause the output of the IC to "latch up" at one of the rails, **D1,D7** prevent excessive reverse biasing of the base-emitter junctions of **TR1,TR2**. **D6** prevents **C4** from reverse biasing damage due to high input transients ie. when the phantom power is switched on.

The line level amplifier is built around **IC2**. This is a differential amplifier with gain controlled by **VR2-B**. **SW2** selects between line input and output of the microphone amplifier. When the microphone input is selected, the line level amplifier acts as a single-ended inverting stage, with the non-inverting input tied to ground by **SW6-D**. **IC2-A** acts as the inverter, **VR2-B** controls gain by varying the amount of feedback and is buffered by **IC2-B**. The gain range is set by **R24** and **R25** to 20dB. This, combined with the gain of the microphone amplifier, gives a gain range of +2dB to +70dB without the use of a pad. When the line input is selected, the input to the line level amplifier is via **R16,R17**, and **IC2-A** acts as a differential amplifier. Gain is set by **VR2-B** as before, but **R25** is shorted to ground via **SW6-D**, giving a gain variable from -12dB to +18dB.

The **PHASE** switch operates by swapping the inputs to the line level amplifier **IC2-A**.

After the input stage, the signal is fed to the HPF and LPF filters. Both of these filters are normally sourced from the Noise-gate sidechain signal (see noise-gate later), but can be independently "flipped" between the sidechain input and the audio path, by **SW8** and **SW9**. The circuitry for the HPF and LPF is found on the LH pcb. The filters are second-order and have variable cut- off frequency. The HPF is configured around **IC1-B** and operates at a nominal level 6dB below the nominal internal level of -2dBu, this level change is to prevent anomalous clipping in **IC1-B**. **R1,R2** attenuate the signal by 6dB, whilst the feedback resistors **R5,R6** give +6dB of gain. **C1,C2** with **VR14** set the turn over frequency, variable from 30 to 600 Hz. **R3,R4** set the endstop frequency. The response is Butterworth maximally-flat with a slope of 12dB/octave. The LPF is built around **IC1-A** and has unity gain (below the cut-off frequency). **VR13** in conjunction with **C3,C4** set the cut-off frequency, **R7,R8** set the endstop frequency. The cut- off frequency is variable from 1 to 20KHz. Again the filter response is Butterworth maximally-flat with a slope of 12dB/octave.

After the LPF the signal is fed to the **NOISE-GATE**. The signal is split, feeding both the noise-gate audio circuitry, and the noise- gate sidechain circuitry. The audio section of the noise-gate is on the RH pcb, whilst the sidechain is on the LH pcb. The sidechain is only driven when the noise-gate is selected by pressing **SW11**, and is normally fed by the post LPF/HPF signal. An independent "keying" signal can be inserted to feed the sidechain. There is a differential amplifier for the sidechain insert signal, built around **IC5-A**. The threshold level is controlled by **VR3-A** located on the RH pcb. This control acts as a divider, varying the amount of signal that gets fed to the sidechain circuitry on the LH pcb. The threshold level is variable from -40dBu to +10dBu. **IC2-A** forms an amplifier with again of 32dB until the output of the amplifier reaches 1.2V peak. Then **D1,D2,D3,D4** limit the gain to unity, greatly reducing the potential for high transient levels in the sidechain amplifier. **IC2-B** and **IC3-A** form a full-wave rectifier and **IC3-B** forms a comparator, whose threshold is set to 0.2V by **R16** and **R18**. Hysteresis is provided by **R17**. The HOLD time is adjusted by **VR11-A** which varies the constant current to charge **C7**. Fast discharge of **C7** is provided by **D9** to ensure quick attack time. When **IC4-A** output goes low, **TR2,TR3** are turned on and **C9** is quickly charged to 0V through **VR12-A** and **R229**, opening the noise- gate. **VR12-A** varies the attack time from 0.05mS to 100mS. When the output of **IC4-A** goes high, **TR2,TR3** are turned off (protected by **D11**), **TR4** turns on and **C9** is discharged through **TR5** and **VR11-B** and closes the gate. **VR11-B** varies the release time from 0.1 to 4 seconds. The **HOLD** switch **SW10**, on the RH pcb, changes the release response from a gradual reduction in gain over the release time, to a chosen delay (set by **VR11**) before the onset of gain reduction, followed by a set release time of 0.1 seconds.

The audio signal path through the noise-gate is on the RH pcb. The signal passes through buffer **IC3-A** and is attenuated by 30dB by resistors **R32,R33**. A low noise amplifier is formed by **TR3** and **IC4- A** who's gain is unity when **TR5** FET is turned off by the sidechain, and 30dB when **TR5** is turned on. **IC4-B** maintains the DC condition of **IC4-A** to 0V. **IC3-B** applies 0.5 times V_{DC} to V_{DS} to reduce the FET distortion and also modifies the on-state gate voltage to 0.3V positive. The noise-gate attenuation is enhanced by summing an anti-phase signal to the effective inverting input of the gate amplifier through **R34** and **PR1**. **VR4-A** acts as a range control, varying the depth of gating from 0dB to -80dB or better. **PR1** is adjusted for maximum depth. The signal output is then buffered by **IC40-A**.

The noise-gate circuit is followed by the **EQ** and the balanced **INSERT**. The insert point can be taken pre EQ or post EQ. The insert is normally post the EQ, until **SW3** is selected. The insert is fully balanced and is accessed via two jacks on the rear panel. The insert send and return is located on the LH pcb. The SEND is built around **IC6** in the form of an EBOS balanced/unbalanced output driver with cross-coupled feedback provided by **R111** and **R113**. **PR2** sets the balance and the same output level is maintained whether balanced or unbalanced loads are connected. The insert RETURN is built around **IC5-B** in the form of a differential amplifier with a gain of -6dB. The insert can be switched in or out of circuit, by means of an electronic switching circuit on the RH pcb. The switching is done by means of series and shunt FETs **TR11,TR12,TR13,TR14** in the virtual-earth input of a unity gain amplifier **IC35-A**. The control of these switching FETs is by +/- 7.5V logic. Diodes **D23,D24,D25,D26** prevent the drive to the gates of the FETs from going above +0.6V, whilst **R97,R98** and **C26,C27** slew the control voltages for smoother switching. The control voltage originates from a latch implemented by **IC9-A,IC9-B**. The state of the insert in/out has to be maintained, even when the console is powered down, so **IC9** is powered from the battery back- up supply. To prevent excessive current drain, the output of the latch goes through a non-inverting tri-state buffer **IC28-A**, whose output changes to high impedance when its tri-state enable pin is held low. For later automation options, the latch can be switched externally via **R53**. This form of latch is used extensively on this module and other modules.

The EQ is four band fully parametric, with the HF and LF sections also having a shelf mode. The LF and HF are switched to shelf response, by means of switches at the anti-clockwise endstop of the Q pots. Each section has a similar boost and cut control, located on the LH pcb. The HF,HMF,LMF,LF boost/cut are based around **IC6-A** & **VR7-A**, **IC6-B** & **VR8-A**, **IC7-A** & **VR9-A** and **IC7-B** & **VR10-A** on the LH pcb. The relevant control selects feedforward or feedback from before or after the associated inverter amplifier stage. The two mid bands are identical in operation and circuit design, differing only in the value of the frequency determining capacitors **C35,C36** in the LMF and **C37,C38** in the HMF band. They are both parametric equalisers, with state-variable filters in the sidepath. These filters have a fully variable centre-frequency and Q (bandwidth). In the LMF band, feedforward/feedback is taken by **VR8** around the inverting stage created by IC6-B (LH pcb), and fed to the state-variable filter via R65 (LH pcb). The filter bandpass output is taken from **IC9-B** (RH pcb), attenuated by 6dB by **R70,R86**, and applied to the non-inverting input of **IC6-B**, to produce boost/cut over a defined band of frequencies. The state-variable filter is composed of adder/subtractor **IC9-A**, and integrators **IC9- B** and **IC11-A**. The related capacitors **C35,C36**, define the basic frequency range, while **VR10-A,B**, provide the centre-frequency tuning. **R84,R85** define the tuning range. Feedback to the adder/subtractor is via **R81,R83**, and is controlled by **VR9-A** to set the Q. This circuit description can be applied to the HMF band also.

The LF and HF sections are also very similar, both are parametric equalisers, with state-variable filters in the sidepath, and the above circuit description can be applied, but with the filter bandpass feed to the non-inverting input of the boost/cut inverters (**IC6-A** & **IC7-B**), taken via the **PEAK** switches incorporated into the endstop of the Q control pot. The peak/shelf switches configured, so that the filters response is normally peak, until the Q control pot is rotated fully anti-clockwise, then the response is switched to shelf mode. When in shelf mode, the LF band-pass output of **IC7-B** is mixed with the output of one of the integrators, the LPF half of the band-pass filter (the output of **IC8-A**). The mixing is done by **IC8-B** with **R72,R74** setting the summing gain for the integrator output. **R73,R75** set the summing gain for the band-pass output. The HF shelf mode is similar, except that the bandpass output of **IC12-B** is mixed with the HPF integrator output of **IC12-A**, **R99,R101** setting the gain for this signal, whilst **R100,R102** set the gain for the bandpass output.

The EQ in/out switching is identical to the circuit described in the insert in/out switching above. This circuit is based around **IC8-B** & **TR15,16,17,18** on the LH pcb. The output of the switching circuit is followed by **IC8-A**, which corrects the 180^0 phase error caused by the EQ circuit.

The EQ is followed by the **MUTE** block on the LH pcb. This is built around **IC10-A** and FETs **TR21,TR22**. **TR22** is in series with the virtual earth input of **IC10-A**, whilst **TR21** shunts the signal to ground, via **C38**. The FETs are controlled by a +/-7.5V logic signal sent from the fader pcb. They configured so that when either of the FETs are on. The other is off, so that the signal passes through to the inverting input of **IC10-A** unaffected, or it is taken to ground via **R123**. The control voltages are slewed by **R119,C39** and **R120,C40** for quieter switching. **D34,D33** prevent the gates of the FETs from being taken to more than +0.6V. R125 with **C38** form a feedback network that prevents any offset voltages on the output of **IC10-A** from causing clicks.

The output of the mute block is fed to the VCA **IC15**. The VCA is located in the virtual earth of **IC10-B**. **IC10-B** is configured as a unity gain inverter. The phase through this section is maintained correctly, as the VCA has an inverting affect. The gain/voltage ratio of the VCA is 5.9mV/dB, with 0V giving 0dB gain through the VCA. The VCA control voltage arrives onto the input module from the fader pcb. At this point, the control voltage can range from - 7.5 to +0.6V, this would give a gain range of +1270dB to -100dB which is not practical, so the control voltage is divided by -10, to give a more useful range of +10dB to -127dB, note the polarity change, as the control voltage is connected to the negative control input of the VCA. The divider is built around **IC11-A** and also uses a reference voltage from the fader pcb, for compensation for any ground differences between the input module and the fader pcb. As -127dB is unnecessary attenuation, and can cause an apposite affect to the desired attenuation, the incoming control voltage is clamped to -5V, to give a final attenuation of approximately -85dB. This is implemented by an active clamp built around **R238** and **D39**. As there can be a state when more than one VCA MASTER is controlling the input VCA, thus making the control voltage higher than 0.6V, there is another clamp, in the form of a diode **D35** in the feedback of **IC11-A**. Due to the internal construction of the VCA, small mismatches can cause asymmetries in the output, leading to distortion. To reduce these asymmetries, a static voltage is applied to pins 2 and 4 of the VCA. **PR1** via **R129** sets this voltage, which will be different for different VCAs, and will need to be re-adjusted if the VCA is replaced.

The VCA can be switched in or out of circuit, and this done by two FETs **TR23,TR24**. The control voltage for this is sent from the fader pcb. As the FETs are not switching at a virtual earth point, the control voltages need to be converted from +/-7.5V to +/-17V. This is done by transistors **TR25,TR26**.

After the VCA stage, the signal is fed to the fader pcb, where it passes through the fader and post fader amplifier. This circuit is described in the fader pcb circuit description.

The post fade signal feeds the pan control, which x-fades the signal between the left and right busses. There is a non-inverting post pan buffer (RH pcb) for each side of the pan control output, built around **IC17-A,IC17-B**. The pan buffer has 1.5dB gain when fully panned, and the signal is attenuated by 4.5dB when the pan control is central (6dB from full pan to centre). The mix routing switch is located on the LH pcb. The left and right post pan signals are split and one half is inverted by **IC12**, to create a balanced send for both left and right signals.

The group bus sends can be switched pre or post the pan control by the pan switch **SW5**. When the groups are sourced from pre the pan control, the level will be a nominal level of -2dBu, when the source is post pan control, the level will be -0.5dBu when fully panned, due to the 1.5dB gain in the pan buffers. The groups sends are fully buffered by IC20 on the RH pcb and **IC13** on the LH pcb. the buffers also create a fully balanced send to the group busses.

The mono send is always fed by the post fader signal, and is also balanced. **IC29-A** creates the negative phase.

There are 12 **auxiliary sends**, which are identical except for auxiliary 12. The auxiliaries can be sourced either pre fade or post fade. This is controlled by global **PRE** switches located on the 12 aux masters found on the GROUP modules and MASTER module. The auxiliaries are normally post fade unless these switches are pressed. When in pre-fade state, the auxiliaries can be jumper selected (using jumpers **J1,2,3,4**) to be pre or post the mute block. Aux 12 also has a PRE switch **SW12** on the RH pcb. This switch swaps the current state of AUX 12 from pre to post, or post to pre, depending on the state of the global pre switch. This is implemented **IC16-D**, a exclusive-OR gate. The current state is shown by the state of the switches internal LED. When the switch is illuminated, the state is pre fade whether the switch has been pressed or not. **AUX 12** can also be switched by the **DIR** switch **SW13**, to feed the direct output. When DIR is pressed, the global pre/post control does not affect the state of aux 12, only the local pre/post switch (**SW13**) has any affect. Also when DIR is pressed, the feed from aux 12 pot, is disconnected from the aux 12 bus. All the auxiliaries are electronically switched on or off by latches, as described in the **INSERT** in/out circuit description above. They are also battery backed, and can be controlled by a remote source. The muting is not implemented by FETs though, 4053 switches are used. These are 3-pole 2-way electronic switches. They also control whether the auxiliary source is pre or post fader. When the aux is pre fade, the post fade signal is taken to ground via a 10K resistor, and when the source is post fade, the pre fade signal is taken to ground via a 10K resistor. These resistors also act as the input resistors to the aux drive amplifiers. These amplifiers are fed from the switched output of the 4053s, and are unity gain inverters. There is also a 22K resistor and 47uF capacitor feedback network to reduce any DC offsets on the output of the inverters. The output is fed to the aux send pots which in turn feed the aux routing resistors. The aux summing amplifiers found on the GROUP and MASTER modules are inverting, so the busses are sent out of phase. The on/off state of the auxiliaries is controlled by momentary switches built into each aux pot, and a green LED next to each aux pot is illuminated when the aux is on.

There is a **DIRECT** output, which is accessed on the rear panel. This is a fully balanced EBOS output, as used on the **INSERT** send described previously. The source for the direct output is normally the post fader signal, but when the DIR switch **SW13** is pressed, the source is changed to the output of the aux 12 send pot. As the aux sends are out of phase, **IC37-A** is needed to invert the signal to correct this. When the DIR switch is pressed, the aux 12 global pre/post switching has no affect, only the local PRE switch (**SW12**) can have any affect. When the PRE switch is pressed, the source for the direct output is pre fade.

There are three different **SOLO** signals sent by the input module, PFL,AFL left and AFL right. The source for the PFL send is the output of the **EQ/INSERT** switch **SW3-A**, which is pre fader, pre mute block. The sources for the stereo AFL sends, are the outputs of the **PAN** buffers **IC17-A,IC17-B**. All the SOLO signals are switched by 4066 analogue switches. The control for these switches, originates from the fader pcb, in the form of two logic control lines, "AFL SW" and "PFL SW", both of which are active low. There can only be one form of solo at one time, so there could never be a PFL sent, whilst an AFL was active, or vice versa. **IC16-A** and **IC16-C** act as simple inverters, while **IC16-B** creates a logic signal, when either solo is active. This control signal is sent to the solo monitoring on the master module, to show that the input is sending it a solo signal.

There is a multi-point peak detect circuit, built around **IC5-A**. This has four sense points, at the output of the input amplifier, the output of the EQ, the output of the insert return amplifier and the output of the post fader amplifier. Each of these signals are fed to a pair of connected diodes, **D14** to **D18,D15** to **D19,D16** to **D20** and **D17** to **D21**. The cathodes of diodes **D14,15,16,17** are all connected to a voltage divider network. Whilst the anodes of **D18,19,20,21** are all connected to another voltage divider network.

The two inputs to **IC5-A** are connected to two other points in the divider networks. The +ve input to the network connected to the anodes, the -ve to the network connected to the cathodes (ie. one in each divider). When the signal level at any of the four sense points, is lower than the set level on the dividers, the differential voltage on the input of **IC5-A** is small and positive, so the output of **IC5-A** is high, **D22** does not conduct, so **TR6** is switched on, and the peak led **LD1** is not lit. When the signal level at any of the sense points is greater than the set voltage level (above +14dBu), the differential voltage on the input of **IC5-A** becomes large and negative, causing the output to drop, which in turn causes **D22** to conduct, and **TR6** is switched off, thus causing **LD1** to be illuminated.

All of the LEDs are connected together in constant current chains. This reduces the amount of current required by the module. There are three constant current chains, based around pnp transistor current sources, a 100R resistor setting the current at 6mA. Chain 1 (RH pcb) is based around **TR7, R131** (RH pcb) and feeds **LD6, LD7, LD8, LD9, LD10, LD11, LD15, LD16, LD17, LD18, LD19** and **LD20**. Chain 2 (RH & LH pcb) is based around **TR6,R132** (RH pcb) and feeds **LD1,LD2,LD3,LD4,LD5** on RH pcb, then crosses to LH pcb and feeds **LD11,LD10,LD9,LD8** then crosses back to the RH pcb to **LD13,LD14,LD14**. The third chain is located on the LH pcb, and is built around **TR19,R117** (LH pcb) and feeds the LEDs **LD12, LD13, LD14, LD15, LD16, LD17, LD1, LD2, LD3, LD4, LD5, LD6** and **LD7**.

Stereo Input Module

Circuit Description

The module is similar to the standard input module described previously. It has no mic input, but has a pair of stereo line inputs, A and B. The default is A, but by pressing the I/P B switch, **SW7** on the RH pcb, B is selected. The inputs are accessed on the rear panel, A via XLRs, B via jacks.

As the left and right stereo paths are almost identical, only the left hand circuit will be described.

Before the gain control, there is a phase switch, SW8, which swaps the inputs to the line input amplifier, **IC2**. NOTE; this only affects the left input signal.

The line level amplifier is built around **IC2**. This is a differential amplifier with gain controlled by **VR2-A**. The input to the line level amplifier is via **R9,R10**. **VR2-A** controls the gain by varying the amount of feedback, and is buffered by **IC1-A**. The gain range is set by **R17**, giving a gain variable from -12dB to +18dB.

The L & R mono switches, **SW9,SW10**, allow either, or both, of the stereo input signals to act as source for the left and right channels of the stereo input. When either switch is selected, the action of the stereo width control, **VR3**, is negated.

The stereo **WIDTH** control, **VR3**, varies the width of the stereo image from mono to phase-enhanced stereo, the detent representing normal stereo width. With the control set to the centre position, signal from the right hand input amplifier passes through **R22**, but is grounded via the centre tap of **VR3**. **IC4-A** acts as a non-inverting amplifier for the left hand only. With **VR3** set to mono, signals from both left and right paths are added together through **R21,R22**. With the control set to WIDE, signal from the right hand input amplifier is summed in anti-phase with the left hand signal, so increasing the stereo image.

Stereo highpass and lowpass filters are provided, identical in operation to those in the standard input module, with the exception of their stereo capability. The filters are switched into the signal path by their associated IN switch, **SW11,SW12**. The circuitry for the HPF and LPF is found on the RH pcb. The filters are second-order and have variable cut-off frequency. The HPF is configured around **IC5-B** and operates at a nominal level 6dB below the nominal internal level of -2dBu, this level change is to prevent anomalous clipping in **IC5B**. **R38,R39** attenuate the signal by 6dB, whilst the feedback resistors **R42,R43** give +6dB of gain. **C13,C14** with **VR4** set the turn over frequency, variable from 30 to 600 Hz. **R40,R41** set the endstop frequency. The response is Butterworth maximally-flat with a slope of 12dB/octave. The LPF is built around **IC6-B** and has unity gain (below the cut-off frequency). **VR5** in conjunction with **C16,C17** set the cut-off frequency, **R45,R46** set the endstop frequency. The cut-off frequency is variable from 1 to 20KHz. Again the filter response is Butterworth maximally-flat with a slope of 12dB/octave.

There is an optional balanced **INSERT** (LH PCB). This is put into circuit by fitting jumpers, **J2,J4**, which route the signal via the inserts. The insert is fully balanced and is accessed via two 6- way connectors **CN5,CN6**, found on the LH PCB. The pin-outs for these connectors is the same configuration, as used on the master rearcon PCB. The insert **SEND** is built around **IC15** in the form of an EBOS balanced/unbalanced output driver with cross-coupled feedback provided by **R19** and **R48**. **PR1** sets the balance and the same output level is maintained whether balanced or unbalanced loads are connected. The insert **RETURN** is built around **IC17-A** in the form of a differential amplifier with a gain of -6dB. The insert is an option, and the components for it are not normally fitted.

The equaliser is a 4-band sweep frequency design. The two mid bands have a peak/dip characteristic with a Q of approximately 1. The HF and LF sections are normally shelving, but each has a peak switch that changes it to peak/dip response. All bands offer +/- 15dB boost/cut, and have a 16:1 frequency range.

The HMF section is formed around **IC9-B**. **R89,R90** form an inverting amplifier stage. **VR9-B** on the LH PCB, adds some positive (boost) or negative (cut) feedback to the non-inverting input, via a bandpass filter, formed by **C37,VR7-A,R86** and **C38,VR7-B,R87**.

The LMF section is identically configured around **IC10-A,VR8** and **VR8** (LH PCB). The larger values of **C39,C40** giving lower operating frequencies.

The HF section is normally in shelf response, unless the **PEAK** switch, **SW13** (RH pcb), is pressed. The HF section is built around **IC7** which forms a straight forward inverting amplifier with unity gain when **VR10-A** (LH PCB) is in its central position. If **VR10-A** is turned clockwise, the positive feedback is applied to **VR10-A** through **IC7-A**, and the frequency sweep circuit consisting of **C43** and the resistor/capacitor network **R76,C35** and **VR6-B**. Pressing the PEAK switch, **SW13**, adds another pole in the form of **C34,VR6-A** and **R75** to the feedback path, to form a bandpass network and the HF EQ becomes peaking. **SW13-B** switches out the potential divider resistor **R73** to give the correct level of feedback for the peak/shelf responses. **C32** reduces the DC current through **R73**, so reducing the click when the PEAK switch is pressed.

The LF EQ circuit is switchable between peaking and shelving responses by **SW2** (LH PCB). When the cut/boost control **VR7** is central, then **IC11-B** forms an inverting amplifier with unity gain. When **VR7** is turned anti-clockwise with the PEAK switch, **SW2** (LH PCB), not pressed, then negative feedback is applied to **IC11-B** pin 5 through **R41** (LH PCB) and then **VR9,R104,C41** network on the right hand board. When the PEAK switch is pressed, **C27** (LH PCB) is switched in circuit to form another pole of the filter network, which reduces the feedback to **IC11-B** at low frequencies varied by **VR9** on the right hand board.

HF is variable from 1 to 16KHz, HMF from 500 Hz to 8KHz, LMF from 70 Hz to 1100 Hz and LF from 30 Hz to 480 Hz.

The EQ in/out switching is done by means of series and shunt FETs **TR1,TR2,TR3,TR4** in the virtual-earth input of a unity gain amplifier **IC12-A**. The control of these switching FETs is by +/- 7.5V logic. Diodes **D1,D2,D3,D4** prevent the drive to the gates of the FETs from going above +0.6V, whilst **R122,R123** and **C60,C61** slew the control voltages for smoother switching. The control voltage originates from a latch implemented by **IC14-E,IC14-F** (LH PCB). The state of the insert in/out has to be maintained, even when the console is powered down, so **IC14** is powered from the battery back- up supply. To prevent excessive current drain, the output of the latch goes through a non-inverting tri-state buffer **IC3-D** (LH PCB), whose output changes to high impedance when its tri-state enable pin is held low. For later automation options, the latch can be switched externally via **R45**. This form of latch is used extensively on this module and other modules.

The EQ is followed by the **MUTE** block. This is built around **IC14-B** and FETs **TR11,TR12**. **TR11** is in series with the virtual earth input of **IC14-B**, whilst **TR12** shunts the signal to ground, via **C38**. The FETs are controlled by a +/-7.5V logic signal sent from the fader PCB. They are configured so that when either of the FETs are on, the other is off, so that the signal passes through to the inverting input of **IC14-B** unaffected, or it is taken to ground via **R149**. The control voltages are slewed by **R144,C66** and **R142,C64** for quieter switching. **D10,D11** prevent the gates of the FETs from being taken to more than +0.6V. **R151** with **C65** form a feedback network that prevents any offset voltages on the output of **IC14-B** from causing clicks.

The VCA control offers identical facilities to that on the standard input module. All the VCA circuitry is on the LH PCB. The VCA, **IC21**, is located in the virtual earth of **IC19-A**. **IC19-A** is configured as a unity gain inverter. The phase through this section is maintained correctly, as the VCA has an inverting affect. The gain/voltage ratio of the VCA is 5.9mV/dB, with 0V giving 0dB gain through the VCA. The VCA control voltage arrives onto the input module from the fader PCB. At this point, the control voltage can range from -7.5 to +0.6V, this would give a gain range of +1270dB to -100dB which is not practical, so the control voltage is divided by -10, to give a more useful range of +10dB to -127dB, note the polarity change, as the control voltage is connected to the negative control input of the VCA. The divider is built around **IC18-A** and also uses a reference voltage from the fader PCB, for compensation for any ground differences between the input module and the fader PCB. As -127dB is unnecessary attenuation, and can cause an apposite affect to the desired attenuation, the incoming control voltage is clamped to -5V, to give a final attenuation of approximately -85dB. This is implemented by an active clamp built around **R238** and **D39**. As there can be a state when more than one VCA MASTER is controlling the input VCA, thus making the control voltage higher than 0.6V, there is another active clamp, in the form of a 5 volt zener diode, **DZ1**, and **R124**, which create a constant -5 volts to the non-inverting input of **IC18-B**, **D7** is connected between the output and inverting input of **IC18-B**, so that if the VCA control voltage is lower than -5V, the diode is forward biased, making **IC18-B** into a non- inverting buffer. Due to the internal construction of the VCA, small mismatches can cause asymmetries in the output, leading to distortion. To reduce these asymmetries, a static voltage is applied to pins 2 and 4 of the VCA. **PR3** via **R103** sets this voltage, which will be different for different VCAs, and will need to be re-adjusted if the VCA is replaced.

The VCA can be switched in or out of circuit, and this done by FETs **TR10,TR11,TR12,TR13** and **IC20-A** (RH PCB), as described in the EQ in/out circuit previously. The control voltage for this is sent from the fader PCB.

The full twelve aux sends are provided, as per the standard input module, the feeds being a sum of left and right stereo signals. The mono sum is produced by **IC17-A** (RH PCB) for the pre mute source, and by **IC17-A,IC19-A** (RH PCB) for the post mute source. **J5,6,7,8** select the required mode. The post fade aux source is taken off the MONO send, the output of **IC20-A** (RH PCB). The pre/post switching is also as the standard input module, controlled by global PRE switches located on the 12 aux masters found on the GROUP modules and MASTER module. The auxiliaries are normally post fade unless these switches are pressed. Aux 12 also has a PRE switch **SW14** on the RH PCB. This switch swaps the current state of AUX 12 from pre to post, or post to pre, depending on the state of the global pre switch. This is implemented **IC26-A**, an exclusive-OR gate. The current state is shown by the state of the switches internal LED. When the switch is illuminated, the state is pre fade whether the switch has been pressed or not. All the auxiliaries are electronically switched on or off by latches (the control for these latches normally coming from momentary switches, built into the aux send pots), as described in the EQ in/out circuit description above. They are also battery backed, and can be controlled by a remote source. The muting is not implemented by FETs though, 4053 switches are used. These are 3-pole 2-way electronic switches. They also control whether the auxiliary source is pre or post fader. When the aux is pre fade, the post fade signal is taken to ground via a 10K resistor, and when the source is post fade, the pre fade signal is taken to ground via a 10K resistor. These resistors also act as the input resistors to the aux drive amplifiers. These amplifiers are fed from the switched output of the 4053s, and are unity gain inverters. There is also a 22K resistor and 47uF capacitor feedback network to reduce any DC offsets on the output of the inverters. The output is fed to the aux send pots which in turn feed the aux routing resistors. The aux summing amplifiers found on the GROUP and MASTER modules are inverting, so the busses are sent out of phase.

The post fader signal returning from the fader PCB, is fed to the centre-detented balance control **VR1**, and **IC21** the PAN buffer. The PAN buffer is non-inverting, and has a gain of 6dB when the balance pot is fully anti-clockwise, and a gain of 1.5dB when the balance pot is in the central position. This central gain is set by the positive feedback network produced by **R235,R237**. The outputs of the pan buffers are used for the AFL solo source, and to feed the group and mix busses. Note, the balance control is always in circuit. The pan buffers feed the negative busses, whilst the inverter **IC22-A** feeds the positive busses. The routing is switched in stereo pairs, i.e. groups 1/2, 3/4 etc. The mono signal is derived by **IC20-A** summing the stereo signal prior to the balance control. This is also the source for the post fade aux sends. To maintain the correct level for the mono bus send, **IC20-A** has a gain of -4.5dB.

The fader section is identical to that used for the standard input module, except for the FADER START ENABLE switch. When this switch is selected, a +7.5V logic level is sent from the fader PCB, as soon as the fader is moved from the lower end-stop, and switches **TR24** on the RH PCB. TR24 in turn switches the internal transistor of **IC40** (an opto-coupler). The output of the opto-coupler is accessed on the stereo input rearcon. **D41** is a reverse protection diode, and **R342** limit the current through the opto-coupler. When the fader is moved from the endstop, there is continuity between the two contacts on the rearcon.

There are three different SOLO signals sent by the input module, PFL,AFL left and AFL right. The source for the PFL send is the output of **IC17-A**, the pre-fade aux source which is pre fader, pre mute block. The sources for the stereo AFL sends, are the outputs of the PAN buffers **IC21-A,IC21-B**. All the SOLO signals are switched by 4066 analogue switches. The control for these switches, originates from the fader PCB, in the form of two logic control lines, "AFL SW" and "PFL SW", both of which are active low. There can only be one form of solo at one time, so there could never be a PFL sent, whilst an AFL was active, or vice versa. **IC26-B** and **IC16-C** act as simple inverters, while **IC26-D** creates a logic signal "PFL ENABLE", when either solo is active. This control signal is sent to the solo monitoring on the master module, to show that the input is sending it a solo signal.

There is a multi-point peak detect circuit, built around **IC23-A** (RH PCB). This has three pairs of sense points (three for left signal path and three right), at the output of the input amplifier, the output of the EQ, and the output of the post fader amplifier (pre balance control). The circuit used is identical in operation to that used on the standard input module.

Matrix Output Module

Circuit Description

The matrix output module is made up of two identical output sections, an upper output section and a lower output section. The lower section has half of its circuitry built onto the matrix PCB in the fader module. Both sections are kept completely separate electrically.

As both of the sections are identical in operation and circuit, only the upper matrix circuit will be described.

The matrix input receives signals from stereo left and right, mono and groups. These signals all arrive on the module via one connector, **CN6**, from the rear panel. This connector also carries the output signals back to the matrix rear panel. There is also an additional input to each matrix output section, accessed by a jack socket on the rear panel. This is a balanced input, and is taken to a differential amplifier, **IC1-A**. This amplifier normally has a gain of -6dB, to work with nominal input levels of +4dBu, but can be switched, by **SW1-A**, to a gain of approx. +5.5dB, to work with nominal input levels of -10dBv. Therefore there are 12 inputs to the matrix output section overall.

Each of the 12 inputs goes to a separate input level control, in the form of a 10K log pot (**VR1-8** on main PCB and **VR1-4** on sub- PCB). The output of each pot is taken, via a 22K routing resistor, to a summing amplifier, built around **IC2-A**. **R19** provides DC feedback, and **R20** provides AC feedback. This gives an overall gain of -6dB. This reduced gain improves the head-room in the summing amplifier, reducing the chance of clipping.

The output of the summing amplifier goes to the top of the matrix output fader (10K log 100mm fader). The post fader amplifier is non-inverting, with a gain of +16dB. This corrects the previous 6dB attenuation, and gives a possible 10dB gain from the fader.

The output of the post fade amplifier goes to the electronic mute block. The mute block is controlled by the same type of circuitry as used on the standard input module, for control of the auxiliary mutes and the EQ in/out. It has a bi-stable latch, made out of two inverters, **IC5-E,IC5-F** which feeds into a non-inverting tri-state buffer, **IC6-D**. The state of this latch is maintained even when the console is powered-down, by using the battery back-up supply. The output of the tri-state buffer controls the shunt FET in the mute block, **TR1**. The output of the tri-state buffer is also connected to **IC8-D**, which creates another inverted control voltage to switch the series FET in the mute block, **TR2. R56,R57,C22,C23** slew the control voltages for quieter switching. **D4,D5** keep the gate voltage from rising above 0V. The two 10M resistors **R59,R60** give a small positive gate voltage to the series FET when it is on, to give better distortion through the mute block.

Both the MUTE switch and the AFL switch are momentary switches with built in LEDs, and connect to the module via 4-way methode connectors.

After the mute block, the signal is inverted and the TALKBACK signal (if any present) is summed into the signal by **IC11-B**. **SW2-A** TB ENABLE, allows any talkback signal present, to pass through to this summing stage.

The output of **IC11-B** feeds the matrix balanced output, and also the matrix meter source is taken from this point. The matrix output is fully balanced and is accessed via an XLR on the rear panel. The output is built around **IC13-A,IC13-B** in the form of an EBOS balanced/unbalanced output driver with cross-coupled feedback provided by **R74** and **R76**. **PR1** sets the balance and the same output level is maintained whether balanced or unbalanced loads are connected.

There is an AFL left and AFL right send from this module. The same signal is sent to both busses. The signal is post fade, and is switched by a 4066 (**IC7**) analogue switch. The control for this switch is provided by an electronic latch, similar to that used for the mute block, but this latch is not battery backed-up. 4011 NAND gates are used, so that the latch can be reset externally, by the "SOLO CLEAR" logic line connected to pin 9 **IC8-C**.

The meter is a 20-segment peak/ave type as used on the master module. **PR3** adjusts the amount of signal that is fed to the meter rectifier, compensating for any tolerance differences in components. The meter circuitry is powered between the -24V rail and meter ground, and an arbitrary meter reference of -16V is created by a voltage divider, **R119,R120**, and buffered by **IC15-B**. The meter rectifier, **IC15-A**, uses this voltage as a meter reference. If **J1** is fitted, the meter is in peak mode, then a fast attack response is provided by **C54** charging up through **R116**, and a slow decay time is set by **C54** discharging through **R118,R142. D6,7** being reverse biased and **R115** being of a value so high, as not to affect the decay time too much. If **J2** is fitted, the attack time is set by **C54** charging through **R142**. The output from the rectifier is fed to the comparator inputs, and compared to the reference voltages created by the voltage ladder, **R121 - R141**. The meter LEDs are split up into two chains, each with its own 6 mA current source. **TR10,TR7** make up one source, while **TR8,TR9 make up the other. The current chains are joined up at the top, and connected to the AFL switch LEDs and MUTE switch LEDs, as these need 12mA to drive them adequately.**

Master 4 PCB

Circuit Description

This PCB is one of the four that make up the master module. It is situated at the extreme RH side of the module. It handles the monitor sources, Aux Master 12, Headphone output and Solo metering.

Where there are two identical signal paths for stereo signals, only the left signal path will be described.

There are two 2-track inputs, **2TKA** and **2TKB**. Both are balanced stereo inputs, accessed on the master rearpanel, **2TKA** via two jacks, **2TKB** via two female XLRs. The balanced inputs go to identical differential amplifiers, built around **IC1,IC2**. The amplifiers have two gain settings for compatibility with professional and "domestic" tape machines. **SW11** (2TKA input) alters the amount of feedback to the inverting input of the amplifier, giving a gain of -6dB when the switch is at the "+4" setting, and a gain of +5.8dB when the switch is in the "-10" setting. This is the same for 2TKA left and right inputs, and 2TKB left and right inputs. **SW7-A,SW7-C** routes 2TKA to the monitors, whilst **SW6-A,SW6-C** routes 2TKB to the monitors. The 2TKB stereo signal can also be routed to the MIX L&R path (post mix faders). Before it is sent to MIX, it passes through a unity gain inverting amplifier to produce the correct phase, and then to a simple two band EQ stage (as used on the stereo FX returns). The EQ is built around **IC3-A,IC3-B**, in the form of two second order shelving EQs, with set cut-off frequencies. **VR2** varies the amount of feedback/feedforward to the inverting input of the IC, for the HF cut/boost control, whilst **VR3** varies the amount of feedback/feedforward to the non-inverting input of the IC, for the LF cut/boost control. **C17,C18,R41,R43** set the cut-off frequency (2TKB left) for the HF, **C13,C15,R39** set the cut-off of the LF. **C11** also acts to roll off the very low frequencies. The output of this EQ section goes to the top of the "2TKB to MIX" fader, which then passes through the post fader amplifier. This is a non-inverting amplifier with a gain of +10dB. The signal is now sent to master 3 PCB, to be added to the MIX path (and also to MONO if so configured). The switching for this is implemented on master 3, but the logic for this is produced on master 4 PCB. A bi-stable latch is made up of two NAND gates, **IC16-A,IC16-B**, the switch for the latch is mounted on the master module fascia, and connected to the PCB via a four-way connector **CN7**. This form of latch is used extensively on other modules. As the latch is not battery-backed, there is a reset circuit that resets the latch when the console is powered up. This consists of **R327,C120** and **D16**. When the LIVE switch is pressed, 2TKB to MIX switch latch is also reset.

There is a stereo LISTEN MIC input, also accessed by XLRs on the master rear panel, which can be routed to the monitors. This consists of two identical balanced mic inputs, with one gain pot controlling both circuits. The first stage of the circuit is identical to that used on the standard input, except that it has a set gain of +30dB, set by **R69,R70,R73**. This stage is followed by a variable gain stage built around **IC7-A,IC7-B**. This active gain stage is used, as it provides superior noise and headroom performance, as well as optimising stereo balance as the gain is altered. **IC7-A** is a unity-gain buffer, preventing loading of the pot, while shunt-inverting stage **IC7-B** defines the maximum gain, by the ratio of **R83** to **R85**. The listen mic signal is routed to the monitors via **R89,R90** by **SW5**.

The other sources monitored are MIX L, MIX R and MONO, all switchable pre fader or post fader. Each of these signals is routed to the monitors via 10K resistors.

IC38-A sums the selected monitor sources for the left monitor channel, while **IC38-B** sums the right monitor sources. At the outputs off **IC38** a stereo signal is split off to the monitor meters on master 1 and master 2. **IC39-A** and **IC39-B** maintain the correct phase through the signal path.

When a SOLO is active, the monitors are automatically switched over to listen to the solo signal. This switch-over is implemented by analogue switches (4066) in the virtual-earth of a unity-gain inverter **IC9-A**. The analogue switches are configured, so that the unwanted signal is shunted to ground by **IC17-B** (solo) or **IC17-D** (monitor), via **C52** or **C55**, whilst the desired signal passes through the series switches **IC17-A** (solo) or **IC17-C** (monitor). **R104** reduces the effects of dc offsets on the output of **IC9-A**. The control for the switches comes from master 1 PCB. **IC16-D** creates the required opposite control signal.

When a TALKBACK has been activated, the monitor outputs are dimmed by 20dB, and the talkback signal is added to the monitor path, pre the level controls. This is implemented by shunting some of the signal to ground via **R108** and a FET **TR5**. The amount of attenuation is set by the divider network formed by **R108** and **R106**. The control for **TR5** is sent from master PCB 2, and is fed to the top of the voltage divider formed by **R368** and **R369**. The talkback signal is added to the monitor by **IC10-A**.

The same monitor signal is sent to the headphones, as to the main monitor outputs, but they have separate level controls. The same type of active level control is used, as described previously for the LISTEN mic level control.

The monitor outputs are built around **IC14-A,IC14-B** in the form of EBOS balanced/unbalanced output drivers, with cross-coupled feedback provided by **R127** and **R129**. **PR2** sets the balance and the same output level is maintained whether balanced or unbalanced loads are connected.

The headphone driver is based on **IC12-A.** It uses discrete paralleled transistors **TR7,TR8,TR11,TR12** to increase the current output capability of **IC12-A**. The transistors are included in the amplifier feedback path by **R152,R154**. These, together with **R150** give the amplifier a gain of +22dB. To avoid crosstalk due to the large currents that flow, when driving low impedance headphones, the power to the headphone drivers is sent to master 4 PCB separately from the PSU distribution PCB, via **CN5**, and separately de-coupled by **C95** and **C96**. The headphones ground is also kept separate back to the ground star point.

There are seven power supply status indicators, for all the supply rails. Each of these are switched separately by transistors, which constantly monitor the level of the supply rails. As there are three +17V rails, and three -17V rails, there are three separate switching transistors for each. When the voltage level drops below 90% of the required level, the power status LEDs switch OFF.

There is a SOLO meter on this PCB, that indicates the level of either a PFL or stereo AFL. As there is only one meter for the stereo AFL, the meter rectifier looks at both of the stereo signals, and shows the highest level. As the meter supply is 0V and -24V, a central reference voltage, of -12V is created by **IC28- A** and the voltage divider created by **R266,R267**. The meter is very similar to those used on many SOUNDCRAFT mixing consoles, each meter LED is driven by a comparator, which compares the output of the meter rectifier with a set voltage. These voltages are produced by the meter ladder created by resistors **R241 - R260** connected between the meter supplies. As there are two input signals to the meter, two rectifier circuits are used, based around **IC26** and **IC27**. The output of each rectifier circuit passes through diodes **D11** and **D12**, which only let the signal with the highest level drive the meter.

AUXILIARY 12 summing amplifier, mute block and output EBOS are situated on master 4 PCB. This circuit is identical in operation the the other auxiliaries on the group PCBs and other master PCBs. The summing amplifier is composed of **TR28,TR29** and **IC36,IC29**. **TR28** accepts the virtual-earth bus at its emitter, via **C140**, while **TR29** forms the other half of the balanced circuitry. This gives good linearity and rejection of supply-rail disturbances. Emitter resistors **R331,R332** are de-coupled from supply by **R330,C139**. Collector loads **R336,R337** are de-coupled by **R338,C127**. The signals at the collectors are subtracted by **IC36-B**, which provides the combined output signal through DC-blocker **C128**. The main feedback path that creates the virtual-earth is via **R335,IC36-A** and **R333**. **C124,C125,C126** give HF stability. The level is set by **VR1**, followed by postamp **IC29-A**. The basic gain of this stage is set by **R287,R288**. The signal is passed back via **C11** and attenuator **R339,R340** to the non-inverting input of **IC36-A**. **IC36-A** is a feedback inverter. The summing amp is run at low gain, giving high headroom, but with its gain increasing as the level control is advanced. Therefore there is no noise penalty at low gain, as it is not necessary to have a high gain postamp after the level control to restore the total gain.

The summing amp/level control is followed by the AUX MUTE block. This circuit is the normal soundcraft electronic mute block, as used extensively in the rest of the console. This is built around **IC30-A** and FETs **TR34,TR35**. **TR34** is in series with the virtual earth input of **IC30-A**, whilst **TR35** shunts the signal to ground, via **C115**. The FETs are controlled by a +/-7.5V logic signal sent from the AUX CUT latch. They configured so that when either of the FETs are on. The other is off, so that the signal passes through to the inverting input of **IC30-A** unaffected, or it is taken to ground via **R290**. The control voltages are slewed by **R305,C121** and **R306,C138** for quieter switching. **D20,D21** prevent the gates of the FETs from being taken to more than +0.6V. **R292** with **C115** form a feedback network that prevents any offset voltages on the output of **IC30-A** from causing clicks. The AUX CUT latch is built around **IC31-A,IC31-B,IC32-A** and **IC34-C**. It is identical to that used on the 2TKB to MIX latch, except that there is no power ON reset as the latch is battery-backed.

The AUX mute block IC is also used to sum in the TALKBACK to AUX signal, via **R289**. The talkback signal is only allowed to reach this stage, when the TALKBACK ENABLE switch **S1** is pressed.

The signal is finally sent to the AUX 12 output EBOS. The EBOS circuit is identical to that used for the main monitor outputs, described previously.

There is an AFL send from the AUX circuit. It is sourced from pre mute block. The signal is split and sent to both left and right AFL busses, via **R293** and **R294.** The signals are switched by 4066 analogue switches, as used in the monitor/solo selection to the main monitors. The control for these switches comes from an electronic latch, similar to that used for the 2TKB to MIX latch. The latch can be reset (to solo OFF) by an external signal, SOLO CLEAR (active low).

All AUX 12s can be switched pre or post fade, by one global switch **S2**, on the master 4 PCB. The control line is high (+7.5V) when the auxiliaries are pre fade. When **S2** is pressed, **TR31** is switched on, the control line goes low (-7.5V), and the auxiliaries are switched to post fade.

Master 1 PCB

Circuit Description

Master 1 contains the PFL and AFL summing amplifiers, the ALT PA output control, the left hand output metering, and AUX 9 control circuitry. It is connected to the other masters by the 50-way master interlink loom, and also connects to the upper motherloom ,via **CN3**, and the master output rear conn, via **CN5**. A spade terminal supplies the board with its own ground reference.

IC1 and associating circuitry provide a low frequency sine wave that drives the flash bus. The non-inverting inputs of the op- amp are held to the -7V5 rail, so that the output swings uniformly about -7V5 to provide an easy signal to interface to the logic circuitry.

The soloclear button which is situated on the master panel enables the user to reset all the solos on the desk. This button is connected to master board 1 via **CN1**. The SOLOCLEAR output is an active high signal, and can be set in two ways. Firstly, on power up the solos are required to be reset and this achieved by **R17** and **C5** providing a quickly rising ramp to **IC4-c.** This in turn blips the SOLOCLEAR line high momentarily. Secondly, pressing the soloclear button causes SOLOCLEAR to go high as long as the button is held down. The soloclear button is put in series with an inverted version of the MASTER/SLAVE line, so that when the desk is in master, pressing the button causes the input to **IC4-c** to go low. This results in the SOLOCLEAR line to go high. If the desk is set for slave, then the output of **IC3-e** is high and pressing the soloclear button makes no difference to the output of **IC4-c**.

The solo in place (SIP) button is also connected to master board 1. It operates a latch based around **IC4-b** and **IC3-c** and is connected via **CN2**. The output of the latch is diode OR'd on to the SIP line. An active SIP being represented by +7V5. The SIP latch may be inhibited by several sources. Fitting a jumper in **J1** will hold pin 6 of **IC4** low disabling the SIP function. As does taking LIVE high or MASTER/SLAVE low. Powering up the desk will initially reset the latch via **C5** and **R17**.

Both SIP and soloclear buttons are illuminated and from these the user may see at a glance what is happening to the solo system. SIP only lights steadily when pressed and only flashes when SOLOMUTE goes low, ie. there is an active SIP solo in operation. The LED under the soloclear button will light steadily when a SIP solo is present unless there is an active AFL or PFL, whereupon it will start flashing, ie. when the monitor outputs are listening to a solo'd input. If the desk is not in SIP, then soloclear will only flash if an AFL or PFL is active.

Each input is connected to the PFL enable line, this is a virtual earth summing junction which runs along the upper motherloom. When an input is solo'd a small positive current is injected on to this bus. **IC2-a** is a very high gain summing amplifier and its output swings low when a solo is detected. The output swing is restricted by **D17**, a 9V1 zener diode, to prevent the op-amp's output from saturating. **TR1** converts this output into a signal compatible with the logic circuitry. **D13** provides a diode OR function so that the digital interface board can also control this line which is called AFL/PFLEN. AFL/PFLEN may therefore go high whenever a master's inputs are or a connected slave's inputs are PFL'd or AFL'd.

The SIP and Solo logic block takes the three solo signals, SIP (active high), SOLOMUTE (active low) and AFL/PFLEN (active high), and controls the SIP and soloclear LEDs. **TR2** converts the sinusoidal flash bus to logic levels. The LEDs are part of a chain controlled by a constant current source based around **TR3**. **R25** sets the current to be approximately 12mA.

Master 1 PCB contains the AFL and PFL summing amplifiers. The AFL and PFL busses run along the length of the upper motherloom and each bus is differential in nature. **IC7** makes up the differential summing amplifier for the AFL left signal, **IC8** for AFL right and **IC9** for PFL. The operation is identical for all three circuits and the gain is set so that the overall amplification of the signal is 0dB. The outputs are then individually fed to three electronically balanced output stages(EBOS), based around **IC13, IC15** and **IC16**. Each output is connected to the master output rear conn. via **CN5**.

The desk provides the user with trim controls to adjust the level of the AFL and PFL signals to the monitor speakers. The AFL trim alters the gain from 0dB to +20dB for both AFL channels, while the PFL trim alters the gain of the PFL signal by -20dB to 0dB. The AFL trim is based around two active gain stages, **IC10-a, IC11-a** and associating components. The PFL trim, however, consists of a simple attenuator network followed by a buffer, **IC12.** The outputs are then summed together by **IC10-b** and **IC11-b** to produce two outputs PFL and AFL(LEFT), and PFL and AFL(RIGHT). These are then sent to master board 4 via the 50-way interlink loom.

An alternate power amplifier output is provided on the Europa. This allows a second output that can be gain controlled of either pre or post mono, or pre or post stereo mix outputs. A sum button is also provided so that the stereo outputs can be summed together for mono operation. The output may also be AFL'd.

The ALT PA receives the audio signals from the interlink loom. The PRE button, **S3**, switches between the pre and post signals. **J2** and **J3**, select whether the output is either from the mono or stereo mix paths. **IC35-a** and associating circuitry sum together the selected stereo source which is then inverted back to the correct phase by **IC35-b**. The final output, once dc decoupled by **C117**, can be heard at the ALT PA output by pressing **S4**. The jumper selected input source is passed onto the fader, **VR3**, the wiper of which connects to a standard +10dB non-inverting amplifier, based around **IC16**. The ALT PA outputs are electronically balanced and this is achieved by the usual EBOS circuit, **IC17** for the left hand output and **IC18** for the right.

The AFL control is provided by a latch based around **IC4-d** and **IC3-d**. AFL CONTROL goes high when active, and **D18** and **R28** inject a positive current into the PFL DET bus. notAFL CONTROL drives **TR6** thus illuminating the LED under the AFL button when low. The outputs of **IC16** are first decoupled by **C55** and **C56**, for left and right channels respectively, then sent through **R98** and **R99** before being switched onto the AFL bus by **IC19**.

Master 1 PCB contains the left hand monitor meter. The circuit is almost identical to those on master boards 2 and 3, and features a 20 segment LED display selectable to peak or average ballistics. The audio signal, METER L, is derived from the master rear conn. via **CN5**, and is level controlled by **PR6** to facilitate calibration of the display. The meter circuitry is powered from the -24V rail and ground, but for the meter to function correctly a third rail must be formed. This is generated by **IC25**, and is set to be around -16V by **R158** and **R159**. This output is called MREF and is distributed along the master interlink for use by boards 2 and 3. The first stage is a precision rectifier built around the other half of **IC25**. The output of the rectifier charges **C71**, the time constant depending on the position of jumper **J4**. If peak is selected, **C71** will hold the peak value of the half-wave rectified signal then slowly discharge at a rate determined by **R130** and **R135**. If average is selected then **C71** will charge to a voltage that is proportional to the average of the incoming signal.

Whichever is selected, the voltage across **R135** is sensed by the non-inverting inputs of five quad comparators. Each individual comparator has its own reference voltage generated at one point of a resistor ladder. Current sources drive the LEDs to maintain constant current at around 6mA. The top end of these chains are connected to other LEDs on the board to minimise the total current drawn from +/-24V rail, this means that 12 LEDs can run off just 6mA. With no input signal to the rectifier, the output to the comparators is equal to MREF, ie. -16V. This means that all the comparators are turned on. The output stage of the device is an open collector NPN transistor, thus **IC20-a** sinks all the current from the source and no current flows through the LED chain. As the input voltage rises, so does the rectifiers output and, one by one, the comparators are turned off, as the voltage applied to the non-inverting pin exceeds that at the inverting pin. As each comparator turns off the current from the source must flow through its associated LED and hence the ladder illuminates.

Every master has an Aux. Master at the top of the board, it enables the user to control the gain, cut and AFL the channel. Also, it selects where the channel is sourced in the input, either pre or post fade. Pressing the TB switch routes the talkback signal to the aux. master output, but it is unaffected by AFL and cut.

Master 1 PCB, although it has the switches to control aux master 9, does not contain all of the summing amplifier or the electronically balanced output stage required for a fully functional aux master. These are actually on Master 3 PCB, and are connected via the 50-way interlink. The summing amplifier's gain is actively controlled, this means a proportion of the output is fed back to the input via a buffered fader. It is this post fade amplifier that fits on board 1. **VR4** controls the level of feedback, and thus controls the overall gain of the stage. **IC28** and associating circuitry implement a +10dB post-fade amplifier whose output is split, firstly to the front end of the summing amp on board 3, secondly, to the mute block circuit based around **IC29** and finally, to the AFL busses via an analogue switch network, **IC30**.

The mute block is based around an inverting stage with unity gain set by input resistor, **R183** and feedback resistor, **R184**. When the channel is not muted, FET **TR39** is not conducting, ie. its gate is low, and TR40 is conducting, ie. its gate is approximately 0V. Thus **IC29** acts as normal inverting amplifier. The output is fed to Master 3 PCB, via the 50-way interlink, and also to the 5 segment meter PCB. This small PCB is attached to the master 1 board and displays the audio level at the output of the mute block.

When the channel is muted, **TR39** is turned on, grounding the signal from **R183,** while **TR40** is off, disconnecting **R183** from the op-amp's input. **TR39** and **TR40** are controlled by the AUX CUT switch, **S8-a**, which operates a battery backed latch built around **IC31-a** and **IC31-b**. **IC26-a** is a tri-state buffer which isolates the battery backed logic from the rest of the desk when the power is removed. A high on the output of this ic means an active cut. The network around **D14** and **D16** produce the signals that control the turn on and turn off of the mute block FETs. This ensures that the application of a mute does not cause an audible click but fades the audio signal down in about 10mS. To indicate an active cut, **LED 25** and **26**, are illuminated by **TR14** turning off, diverting the current generated by the constant current source based around **TR12** and **TR41**, through the LED.

This current source also provides the necessary drive to the 5 segment meter PCB's LED chain via a 6-way flexible strip, **CN7**.

The mute block also is used to sum the talkback signal onto the aux output. This is enabled by pressing the TB switch, **S7**, allowing the TB TO AUX line through **R185**. Because **R185** joins directly to pin 2 of **IC29**, it is unaffected by the status of the cut latch.

The AFL switching is controlled by another latch, **IC27-c** and **IC27-d**, which is operated by **S5-a** the AFL button. An active AFL causes AFL to go high and a small positive current to be injected on the PFL DET bus via **D15** and **R171**. **LED27** and **28** are illuminated by notAFL going low and switching off **TR11**. The latch is reset by the notSOLOCLEAR line going low, this always happens on power up so there is no need to battery back **IC27**.

So that another desk may be connected to the Europa as a slave, additional inputs are required for connection onto the PFL and AFL busses. This is provided by three differential amplifiers based around **IC32** and **IC33**, that connect to the rear panel via **CN5**. **R210** to **R215** prevent the inputs from floating and therefore make them less susceptible to unwanted pick-up of noise if a slave desk is not fitted. Each amplifier is configured for a balanced gain of 0dB. **R216** to **R218** connect the op-amps' outputs onto the busses after they have been ac coupled by **C92** to **C94**.

Three separately decoupled supplies are used for the audio circuits to minimise any cross talk between individual circuit blocks.

Master 2 PCB

Circuit Description

Master 2 PCB contains the oscillator, pink noise generator, talkback circuitry, right hand output metering and AUX 10 control circuitry. It is connected to the other masters by the 50-way master interlink loom, and also connects to the upper motherloom ,via **CN5**, and the master output rear conn., via **CN7**. A spade terminal supplies the board with its own ground reference.

The Europa is configured primarily to generate pink noise for system alignment and set up, but can also produce a sine wave output over two frequency bands of 63Hz - 1.1kHz and 630Hz - 11kHz. The output may be routed to the auxes, mix and group outputs, and can be set from full attenuation to +8dBu internal. It is also available on the rear panel as a balanced output to maximum level of +14dBu.

The oscillator is enabled by a soft switch **S3-a**, which operates a simple latch based around **IC21-b** and **IC4-d**, the latter of which is configured as an invertor. The latch may be reset by taking notINTRST low which happens on power up and when LIVE is active. **IC4-d**'s output, when high, enables a high frequency oscillator built around **IC4-a** and **b**. This operates at around 80kHz and its square wave output is fed into **IC5. IC5** is a 17 stage shift register and is configured to produce a random set of pulses which when listened to, sounds very much like white noise. The circuit does not actually produce a true random output but recycles a set pattern again and again. However, the recycling time is long enough compared to the frequencies of interest, ie. the audible range, that it is suitable for use in the Europa. This type of circuit is called a pseudo-random noise generator.

White noise has broad flat frequency spectrum but for use with spectrum analysers pink noise is preferred. This noise has a gently sloping spectrum of -3dB per octave. This means that each octave has equal power contained within it. The white noise from **IC5** is first buffered by **IC6-a** and then passed into a 5-stage damped filter. This filter has the required response of -3dB/octave and works by fragmenting the audio band in to five parts. Ordinary single resistor/capacitor combinations cause a -6dB/octave roll off of frequency but this would be too great. However, if the filter is damped by an additional resistor this reduces the roll off at a certain frequency. By arranging a cascade of these filters, each one filtering a different part of the frequency range, the -3dB /octave response can be approximated. The filtered output is then amplified by **IC6-b** to give the same apparent loudness as the oscillator's output and then ac coupled to the tone switch, **S2-b**. The coupling capacitor, **C17**, is a non-polar type because the output of the pink noise filter can be at either a high positive or negative voltage when the noise is turned off.

The oscillator is a Wien bridge type built around **IC1** and **IC2**. **IC1-b** and **IC2** form two integrating amplifiers with time constants determined by **VR1** and the position of **S1**. Positive feedback is provided by R6 and the amplitude is maintained constant by **TR2** which turns on when the amplitude at the output of **IC1-b** reaches 7V positive or negative. The output is thus +16dBu and this is decoupled by **C20** and **R36** before being sent to **S2-b**.

The source selected by the tone switch is passed on to **VR2** which controls the eventual level of oscillator/tone output. The main busses within the Europa are balanced therefore both inverting and non-inverting phases must be formed. **IC7-a** buffers the wiper of **VR2** to produce the non-inverting output, while **IC7-b** inverts this to produce the other phase. The groups and mix busses are present on the upper motherloom, so the oscillator's output can be directly switched onto these busses via the slate resistors, **R46** to **64**. The aux. busses are not on the upper motherloom and thus the inverted phase signal is sent to Master 3 PCB, via the 50-way interlink, where it is summed on to the lower motherloom at the appropriate points.

A balanced output on the rear conn. is driven from an EBOS built around **IC8**. The gain of this stage is different to the one normally used in the Europa, but it is organised to give a maximum of +14dBu when the tone is selected and the level control is full clockwise. **PR4** adjusts the relative output levels of each phase.

All the switches on the master panel are illuminated by LEDs and to conserve power the LEDs are operated in constant current chains. A particular LED may be then turned off by shorting it either with a transistor or a pole of a switch. This method therefore does not break the chain if one LED is extinguished. The tone/noise generator has seven LEDs and these are in two chains. **LD3** to **LD7** have their own chain which runs off +/-7V5. The constant current is generated by **TR35** and is set by VREF, a 1V2 voltage reference derived elsewhere on the board. **LD3** flashes when the oscillator is on and is controlled by **TR4** and **TR5**. When the output of **IC4-d** is high **TR5** is off thus allowing the LED to be controlled by **TR4**. **TR4** is connected to FLASH, a low frequency square wave derived from **TR33**, shown elsewhere on the circuit diagram. **TR33** and its associating circuitry provide an interface with the flash bus and this then modulates the LED current to produce a flash that is synchronised to any other flashing LED on the desk.

LD4 to **LD7** illuminate the tone/noise routing switches. If any of these is pressed the LED will light steadily. If the tone or noise generator is then switched on, any selected routing switch will start to flash. **TR7**, which is turned on when the tone/noise is selected, is in series with **TR6**, which is modulated by the FLASH line. Thus, if the **TR7** is off, the LEDs are controlled by their associating switches. Once **TR7** turns on then the current is diverted from the LEDs by **TR6** in time with the flash bus.

LD1 and **LD2** are also connected to a chain, the source of which is elsewhere on the board.

Master board 2 contains the bulk of the talk back circuitry. The talk back microphone input is on the rear conn. and is connected to the board via **CN7**. Because of the distance between this connector and the talk back circuitry, a screened pair is used to connect them together. The microphone signal is first amplified by a differential pre-amp built around **TR22, TR23** and **IC9-a**. It is similar to the usual Soundcraft microphone amplifier except that it does not incorporate active feedback. In this simpler design **VR3** controls the gain from 20dB to 55dB. **C36** decouples the output, but to provide a low impedance at dc for the following stages, the decoupled signal is buffered by **IC9-b.**

On the Europa the user can route the talkback signal to the matrix, the auxes, the groups and the mono and mix busses. This is internal routing but the signal can also be routed externally to the monitor or external outputs.

The internal routing path starts with a mute block based around **IC28**. It is controlled by a latch built around **IC3-d** and **IC14-e**. This is connected to the illuminated INT switch on the front panel via **CN3**. When this is pressed, INT goes high turning off **TR14** and allowing a current through the LED in the switch assembly. The switch then lights steadily. Pressing the switch again causes the latch to flip state and INT is taken low. Pin 11 of **IC3-d** is effectively notINT, and therefore goes low when active. This turns off **TR9** which drives DIM ENABLE high via **D11**. This signal is sent to master board 4 to dim the monitor outputs. **TR9** and the following invertor, **TR8** control the mute block. The networks based around **D8** and **D10** provide the correct drive signals for **TR19** and **20**. The voltages are ramped up and down at a specified rate, around 10mS, to reduce audible clicks on the output when the mute block changes state. When the channel is muted, **TR19** is turned on grounding the signal from **R95**, while **TR20** is off disconnecting **R95** from the inverting input of **IC28**. When the channel is on, **TR20** is on while **TR19** is off. The mute block then acts as a normal invertor, passing the audio signal to **C38**.

This signal is not routed directly on to the busses but connects to master board 4 via the 50-way interlink. This is essential for the auxes as the aux busses are only present on the lower motherloom of which master board 2 has no connection. For the mix busses, by taking it directly to the final stage of the audio path enables the user to operate the talkback system even with the mix faders down. All the routing switches, **S8** to **12** are illuminated, and when not selected they hold the switched output to a clean ground. The signal to the aux. busses has to be inverted before it is switched and this is performed by **IC13-b**.

The external talkback output is controlled by the illuminated push button, EXT, via **CN1**. It drives latch built around **IC3-a** and **IC14-f**. Pin 12 of **IC14-f** drives **TR12** so that when the latch is set the LED in the switch lights steadily. The output of the other IC drives **R167, R168** and **TR24** which form a simple level shifter that converts the +/-7V5 logic signal to one that swings +/-17V. This output is used in three ways. Firstly, it takes DIM ENABLE high via **D6**. Secondly, it controls **TR17**, which when turned on, allows the amplified microphone signal from **IC9-b** to drive the EBOS built around **IC11**. Thus when the EXT button is pressed the talkback signal is present on the external talkback output on the rear conn.

Thirdly, the EXT button also allows an external input into the desk. This input is derived from the rear conn and is first put through a differential amplifier based around **IC10-a**. The single ended output is then fed to **TR18**, a FET which is controlled by the signal from **TR24** via **D8**. The switched audio signal is then sent to a two input summer based around **IC13-a**. The final output, MONITOR TALKBACK, is fed to master board 4 via the 50-way interlink. The other input to the summer is from the monitor input, which will be discussed later.

The final talkback push button on the master is the MON switch, this forms part of the Soundcraft monitor interface system which allows other desks with suitable inputs and outputs to communicate with each other. The illuminated MON button operates a latch built around **IC3-c** and **IC14-a** via **CN2**. The output of **IC3-c** goes low when MON is active and drives the level shifter, **TR25**, to generate a +/-17V output swing. This output feeds DIM ENABLE via **D12**, and drives **TR16** via **D15** to illuminate the MON button when active. It also controls **TR21** and **TR27**. **TR21** allows the audio talkback signal through to the EBOS built around **IC12**. **TR27** is an invertor that drives **TR26** which when on, ie. MON is active, enables **C58** to charge up via **D16** and **R162**. This voltage which eventually rises to about +17V in four seconds is added to the EBOS outputs. Thus at the monitor desk output there is the audio talkback signal superimposed on +17V. When the MON switch is pressed again the latch changes state and the audio signal is disconnected from the EBOS input. **TR27** and **TR26** are both turned off and **C58** is discharged via **TR15**, **D17** and **R161**. The resultant monitor desk output then drops back down to zero volts.

The monitor desk input is to be used with a compatible output which is similar in operation to the one described above. This then allows the incoming audio signal to be routed on to the Europa's monitor outputs. The +17V offset that will also be present is detected and the other channels routed to the monitors are dimmed by 20dB. This signal will also illuminate the EXT push button and if chosen will also activate the monitor desk output as if the EXT button had been pressed.

A differential amplifier built around **IC10-b** buffers the audio input and feeds it to the two input summer before being sent to master board 4. **C41, C42** and the balanced input provide a good rejection of the DC offset sent by the transmitting desk. However, because of mismatches and component tolerances the rejection is not perfect, hence the offset is introduced slowly as previously discussed. **TR13** and associating circuitry provide the means to detect the offset. **TR10** and **11** convert this signal to a compatible voltage output to drive DIM ENABLE, via **D18**, and illuminate the EXT LED, via **D14.** If **J1** is in position then the monitor desk output is enabled whenever the offset is received.

Master 2 PCB contains the left hand monitor meter. The circuit is almost identical to those on master boards 1 and 3, and features a 20 segment LED display selectable to peak or average ballistics. The audio signal, METER L, is derived from the master rear conn. via **CN7**, and is level controlled by **PR3** to facilitate calibration of the display. The meter circuitry is powered from the -24V rail and ground, but for the meter to function correctly a third rail is used. This is generated by master board 1, and is set to be around -16V. This output is called MREF and is present on the master interlink. The first stage is a precision rectifier built around **IC15**. The output of the rectifier charges **C65**, the time constant depending on the position of jumper **J2**. If peak is selected, **C65** will hold the peak value of the half-wave rectified signal then slowly discharge at a rate determined by **R182** and **R183**. If average is selected then **C65** will charge to a voltage that is proportional to the average of the incoming signal.

Whichever is selected, the voltage across **R183** is sensed by the non-inverting inputs of five quad comparators. Each individual comparator has its own reference voltage generated at one point of a resistor ladder. Current sources drive the LEDs to maintain constant current at around 6mA. The top end of these chains are connected to other LEDs on the board to minimise the total current drawn from +/-24V rail, this means that 14 LEDs can run off just 6mA. With no input signal to the rectifier, the output to the comparators is equal to MREF, ie. -16V. This means that all the comparators are turned on. The output stage of the device is an open collector NPN transistor, thus **IC16-d** sinks all the current from the source and no current flows through the LED chain. As the input voltage rises, so does the rectifiers output and, one by one, the comparators are turned off, as the voltage applied to the non-inverting pin exceeds that at the inverting pin. As each comparator turns off the current from the source must flow through its associated LED and hence the ladder illuminates.

The illuminated LIVE button on the master panel is connected to a latch built around **IC21-a** and **c** via **CN4**. Pressing Live causes pin 10 to go high which forces LIVE to go high through **D13**. If the desk is in slave mode then the desk's live function is disabled by inhibiting the latch by taking notLRST low. Thus, LIVE may be now controlled by an external source through the digital interface board. The LED is driven from a constant current chain which is also used to drive all the talkback LEDs. The current is set to around 12mA by **D24, D25** and **R216**. The voltage across the diodes, VREF, is also used by the current generator in the oscillator section.

Power on reset for the talkback latches, oscillator and Live functions is provided by **R212** and **C68**. This blips the associating reset lines low initially after power up, so the user is presented with a clear control panel when he first switches on. notRST is the simple reset line, but for the Live latch notLRST is created and for the oscillator and INT latches, notINTRST is used. **IC21-d** and **IC14-d** produce notLRST which is held low when the desk is in slave mode. notINRST is taken low when LIVE is active, so that the oscillator and internal talkback functions are disabled when the Live is pressed.

Every master has an aux. master at the top of the board, it enables the user to control the gain, cut and AFL the channel. Also, it selects where the channel is sourced in the input, either pre or post fade. Pressing the TB switch routes the talkback signal to the aux. master output, but it is unaffected by AFL and cut.

Master 2 PCB, although it has the switches to control aux master 10, does not contain all of the summing amplifier or the electronically balanced output stage required for a fully functional aux master. These are actually on master 3 PCB, and are connected via the 50-way interlink. The summing amplifier's gain is actively controlled, this means a proportion of the output is fed back to the input via a buffered fader. It is this post fade amplifier that fits on board 2. **VR4** controls the level of feedback, and thus controls the overall gain of the stage. **IC25** and associating circuitry implement a +10dB post-fade amplifier whose output is split, firstly to the front end of the summing amp on board 3, secondly, to the mute block circuit based around **IC26** and finally, to the AFL busses via an analogue switch network, **IC27**.

The mute block, which is similar to the one described in the talkback section, is based around an inverting stage with unity gain set by input resistor, **R237** and feedback resistor, **R238**. When the channel is not muted, FET **TR38** is non-conducting, ie. its gate is low, and **TR40** is conducting, ie. its gate is approximately 0V. Thus **IC26** acts as normal inverting amplifier. The output is fed to Master 3 PCB, via the 50-way interlink, and also to the 5 segment meter pcb. This small PCB is attached to the master 2 board and displays the audio level at the output of the mute block.

When the channel is muted, **TR38** is turned on, grounding the signal from **R237**, while **TR40** is off, disconnecting **R237** from the op-amp's input. **TR38** and **TR40** are controlled by the AUX CUT switch, **S13-a**, which operates a battery backed latch built around **IC22-a** and **IC22-b**. **IC23-a** is a tri-state buffer which isolates the battery backed logic from the rest of the desk when the power is removed. A high on the output of this ic means an active cut. The network around **D27** and **D28** produce the signals that control the turn on and turn off of the mute block FETs. This ensures that the application of a mute does not cause an audible click but fades the audio signal down in about 10mS. To indicate an active cut, **LED33** and **34**, are illuminated by **TR36** turning off, diverting the current generated by the constant current source based around **TR41** and **TR42**, through the LED.

This current source also provides the necessary drive to the 5 segment meter PCB's LED chain via a 6-way flexible strip, **CN9**.

The mute block also is used to sum the talkback signal onto the aux output. This is enabled by pressing the TB switch, **S16-b**, allowing the TB TO AUX line through **R238**. Because **R238** joins directly to pin 2 of **IC26**, it is unaffected by the status of the cut latch.

The AFL switching is controlled by another latch, **IC24-b** and **IC24-c**, which is operated by **S14-a** the AFL button. An active AFL causes AFL to go high and a small positive current to be injected on the PFL DET bus via **D26** and **R243**. **LED35** and **36** are illuminated by notAFL going low and switching off **TR37**. The latch is reset by the notSOLOCLEAR line going low, this always happens on power up so there is no need to battery back **IC24**.

Two separately decoupled supplies are used for the audio circuits to minimise any cross talk between individual circuit blocks.

Mute Master

Circuit Description

The mute master controls the eight mute busses that run the length of the desk via the fader motherloom. It comprises of eight identical latches, each controlled by a push button on the front panel with a LED displaying the status of the bus.

Power is derived directly from the PSU distribution board on the base panel of the desk. The mute master board effectively acts as a second distribution board for the fader circuitry, supplying not only its power but also routing a variety of digital control lines. A 34-way link connects the board with the PSU distribution board.

Mute bus number 1 is controlled by **IC1-A** and **IC4-A**, a simple latch which can be toggled on or off by a push switch connected to the board by **CN1**, a 4-way Methode connector. Taking pin 2 of **IC4-A** high creates an active mute on that bus. As with most digital control lines in the Europa, the mute busses are diode OR'd onto the bus. This is so that, when in slave mode the latches can be inhibited and the bus can be controlled from an external source.

Inhibiting the latch can be done by taking pin 1 low on **IC1-A**. This is done initially on power up so that the user is presented with a clear control panel when he first turns the desk on, and also when in slave mode to disable the whole mute master. This reset facility is provided by **IC3-C** and **IC3-D**, and MASTER/SLAVE comes from the 16-way VCA master motherloom.

Each push switch has a built in LED and each is connected with the drive circuitry via the relevant 4-way Methode.The LEDs are driven from two identical chains, each of which has a constant current of 12mA going through it. The LEDs are turned off by transistors connected in parallel with them. If a mute bus goes high, the LED control line goes low and the transistor turns off, therefore all the current has to go through the LED, thus illuminating the push button on the front panel.

VCA Master

Circuit Description

The VCA group master provides the cut and solo signals to the fader motherloom to be used by an assigned input channel. It also provides a control voltage that will determine the gain of that input's VCA.

The board consists of four sections, the cut latch, the solo latch and SOLOSIP bus driver, the VCA control voltage circuitry, and the LED control logic.

The board requires two sets of power rails, +/-7V5 which comes from the fader motherloom and +/-17V which comes from the VCA master motherloom. The latter is connected to all the VCA masters, mute master, grand master and analogue interface PCBs.

The solo latch is based around **IC1-A** and **IC2-B**, and is controlled by the solo button on the front panel via connections SOLO1 and SOLO2. An active solo creates a high on pin 4 of **IC2-B**. When the desk is in SIP, **IC1-B** allows the solo command through to the SOLOSIP bus via **IC2-C** and the pull-down transistor, **TR1**. Thus in SIP mode if a solo is pressed the SOLOSIP bus is pulled low. **IC2-C** also produces an output SOL which goes high with an active SIP solo and will be discussed later.

Whether the desk is SIP mode or not, a VCA master provides a solo signal direct to the fader motherloom. This is derived from the solo latch and is diode OR'd onto the bus. A jumper selects which of the VCA solo busses is to be utilised, VCA master number 1 uses VCASOL1.

The solo latch can be reset from the Grand Master board by GRPSOLOCLEAR which goes high to disable the solo output. This is used in three modes. The first is power up reset which presents the user with a clear solo system when he first turns the desk on. The second is Soloclear, a button on the master panel, which clears all solos when pressed. The third is the master/slave option, as when the desk is in slave mode all VCA master functions are inhibited.

The cut latch is based around **IC6-C** and **IC5-B**, and is controlled by the cut button on the front panel via CUT1 and CUT2. It is battery backed, as with all the cuts on the desk, so therefore its output must be isolated from the rest of the desk when the power is switched off. This is provided by **IC3-A**, an analogue switch, which is on under normal operations and off when the power is removed. It is controlled by TRI-EN from the fader motherloom, which is buffered and inverted by **IC5-F**. The latch may be inhibited by a signal, not GRPOFF(BAT) from the grand master via the VCA master motherloom. This only operates when the desk is in slave mode and is active low. It is suffixed "BAT" because it runs off the battery backed supply, thus it needs no extra interfacing to drive battery backed logic.

The control voltage to drive the selected inputs comes from one of three sources, the local VCA fader, the grand master fader when selected, or the cut signal. The latter disregards the fader voltage and applies a steady 7V5 at the output. The selected input can sense this and thus produces a VCA cut.

The local VCA fader is situated next to the board in the VCA master assembly and is connected via FTOP, FBOT and FWIP. FTOP and FBOT are reference voltages generated by the grand master pcb, they are +600mV and -5V, and represent the top and the bottom of the fader track respectively. FWIP is the wiper connection and is sent to a summing amplifier based around **IC4-A**. The grand master fader voltage is switched by **SW1-B**, GM on the front panel, and also sent to the summing amplifier. At the output of **IC4-A** the resultant sum of the two fader voltages is present and can be anything from -1V2 to +10V. However, this range is to big for a VCA to effectively use and could cause trouble for the analogue switching on the input fader boards. **IC8-A**, **D4** and **R34** act as an active zener and prevent the summed voltage from going above +5V. **IC8-B** inverts the -5V reference and the resultant +5V is used to control the active zener's cut-off point. The clamped voltage is sent to an analogue switch, **IC3-D**, and if the switch is on then it is passed on to the fader bus driver, **IC4-B**. Jumpers then select which of the eight VCA busses is to be used. VCA master 1 uses VCA1. The analogue switch is controlled so that it is only on when there is not a cut and the desk is in master mode. This decision is carried out by **IC6-B**, **IC6- C**, **IC5-D** and **IC5-E**. If a cut is detected then **IC3-D** is turned off, and **IC3-C** is turned on, thus allowing a filtered version of the +7V5 rail onto the VCA bus. The input detects this as a VCA cut and acts accordingly.

If the desk is put into slave mode then both switches are turned off and the VCA bus driver is connected to the external VCA voltage from the analogue interface board via **R37** . This information is sent along the VCA master motherloom and is jumper selectable to a particular channel. VCA master 1 goes to EXTVCA1.

When a VCA master is assigned to the grand master fader, it also receives cut information from the GM cut button. GMCUT is present on fader motherloom and goes high when a grand master cut is active. **SW1-A** performs two functions, when pressed it allows GMCUT to control the cut circuitry and secondly, the GM line then floats high which turns off **TR4** and lights **LD1**. The user is then made aware that the grand master has been selected for this VCA master. **IC2-D**, **IC2-F** and **IC1-D** act as a simple OR function so that a GM cut or a local cut will both switch the output control voltage to +7V5.

IC3 is powered from the battery backed supply and therefore its control inputs must also at this level, ie. **IC5** and **IC6** are driven off the battery backed supply. **IC3-B** is used to isolate **IC5** and **IC6** from the output of **IC1-D** when the desk is powered down.

To give the effect that a VCA master is akin to an audio sub- group, the cut and solo LEDs must respond in a similar way to that of an input. Thus the CUT LED must light steadily when a local cut is active, and flash for a non local function such as grand master cut or a SIP solo. **IC7-A** checks if SOLOMUTE has gone low, if it has and SOL is low also, ie. the local solo not has been pressed, the cut LED will flash. If SOL is high then the cut LED will not light but the solo one will, courtesy of **TR5** turning off. **IC7-B** allows a grand master cut, when high, to also flash the cut LED. The flashing is achieved by **TR2** squaring the sine wave flash bus and modulating the logical signal from **IC7-C** with **IC1-C**, a NAND gate.

When a local cut has been initiated , **IC7-D** will overide any flashing signal and light the LED steadily.

VCA/Mute Assign Board

Circuit Description

The VCA/mute assign board allows the user to program an input with chosen VCA and mute groups. It also provides the reference voltages and master/slave control lines for the VCA masters and the grand master fader and cut switch.

It receives its power from two sources, +/-7V5 from the fader motherloom and +/-17V from the VCA master motherloom.

The assigning latches,1 to 8, are identical circuits so ASSIGN 1 will be described only. **IC1-D** and **IC2-F** make up a basic toggle controlled by **SW1-B**, the push switch on the front panel. The latch has two outputs, PROGLATCH1, which controls that channel's LED and which goes to the single assign logic circuitry, and ASSIGN1 which is the buffered output to the fader motherloom. The latch is powered from the usual +/-7V5 rails but the assign latches in each input channel are battery backed. Therefore, the buffered output must also be battery backed and this is achieved by using a Schmitt trigger, **IC8-A**, running off the battery backed supply. In normal operation the device behaves as a inverter, but when power is removed its input level collapses to zero volts. However, the Schmitt trigger's transfer function means that this does not produce an inconsistent output, and the ASSIGN bus is taken high.

Two modes of assignment are allowed multiple and single. The former allows any number of assigning channels to be set, this is automatically done for mute group assignments but for VCA assignments, the MULT button has to be pressed in. Single assignment is the preferred method of programming inputs to VCA groups and this will not allow any more than one assigning channel to be set.

IC7-A and associating circuitry can detect if more than one assigning channel has been selected. **RP1**, an eight way commoned 100k resistor pack sums all the logic levels of the assigning channels together to generate a voltage at pin 2 of the op-amp. If one channel is set and the others are low, the voltage produced is approximately -5V8. If only two are high, then the voltage is -4V2. **IC7-A** is configured as a comparator with a threshold of about -5V. So when only one channel is set, the comparators output is high, but if another channel is set then the output swings low. **TR2** converts the op-amps output to logic levels, a high now representing a reset signal. If the user is not assigning VCAs, then **TR1** holds down the reset signal so any number of channels may be selected. The MULT button effectively disconnects all the reset circuitry, except for the additional line 1-8RST, which will be discussed later, and allows the latches to be programmed freely.

Each assign latch may be independently reset, for assign channel 1 taking pin 12 on **IC1-D** low will cause that assign bus to go low. Pressing **SW1-A** disconnects the latch from the reset line from **IC5-B**. In single assignment mode the reset line is sent low whenever more than two channels are selected, thus resetting the unwanted channel. If the switches did not disconnect the latches from the reset signal then all the latches would reset including the one the user had just pressed.

The ISO assign latch is based around **IC3-D** and **IC2-C** and like the others has two outputs, ISO which controls the LED and ISO ASSIGN which connects to the fader motherloom. The latch can be reset by two lines, MUTWR and PWRST.

The assign board can be set to either program mute or VCA assignments. It cannot do both at the same time. **IC1-A** and **IC4-D** comprise the mute write enable latch. It has three outputs, MUTWR, which controls the LED under **SW10**, MUTWRBUS which connects to the fader motherloom and a fast pulse output used to reset the VCA write enable latch. **C13** and **RP7-D** generate the pulse from the MUTWR output, and this blips high the instant MUTWR goes high. **D1** prevents any negative going spikes when MUTWR returns low. The mute write enable switch is in series with a pole of the VCA write enable switch, so that it would not be possible to set both the mute and VCA write enable lines high at the same time. **C23** was inserted to reduce any spurious triggering of the latch. To reduce the chance of accidental erasure when the power is off the MUTWR BUS is actively held low. This is achieved by disconnecting **IC9-C** from the latch circuitry with **IC11-A** and tying its input high when the power is removed. **IC11-A**, an analogue switch, is controlled by TRI-EN a signal generated on the PSU distribution board which goes high when the desk's power is cut.

The VCA write enable latch is identical in operation to the mute one, except it has an additional output, notVCAWR, which is used to disable the single assignment mode. Both latches are reset by WRST which will be discussed later.

IC6-A is used as an inverter for the power on reset pulse which blips high for a short while after turning on the power. This is PWRST and directly resets all the latches on the assign board. The write enable latches are reset by WRST, which is a function of three things. Firstly, the aforementioned PWRST. Secondly, LIVE, an active high signal derived from the master panel on the desk which is user switchable. Thirdly, from a 2-way Methode which can be connected to a key-switch thus enabling the user to write protect the desk to prevent unauthorised reassignment.

1-8RST resets the eight assigning channels and is controlled by PWRST and the MULT button if VCAWR is high. This means that when in single assignment mode pressing VCA write enable will reset the latches. However, if the MULT button is down, the latches are not reset.

The VCA/mute assign board also contains the voltage references for the VCA masters and grand master. **IC14**, a precision +5V reference, is first inverted by **IC7-D** to -5V. This voltage is then sent down the VCA master motherloom. By scaling down and inverting this by **IC7-C** and associating components, +600mV is created and this is sent to the fader motherloom. Both these references are sent to the grand master fader via GMBOT and GMSEND respectively.

The fader wiper is returned back to the board via GMWIP and buffered by a voltage follower, **IC7-B**.

The grand master cut button operates a latch based around **IC13-B** and **IC13-C**. It is battery backed so its output is isolated from the rest of the logic when power is removed. **IC11-D** provides this tri-state function and is operated by TRI-EN. It goes high when the power is removed from the +7V5 rail. The latch may be reset by notGRPOFF(BAT). This is generated by **IC9-F** and **IC13-A**. It is function of master/slave and notTRI-EN. When in master mode notGRPOFF(BAT) is high and the latch operates normally, but in slave mode it is low, causing the grand master function to be disabled. However, when the desk is switched off, the master/slave line is taken low. **IC13-A** prevents this from resetting the grand master cut status, by using notTRI-EN to inhibit the notMASTER/SLAVE signal. notGRPOFF(BAT) is sent down the VCA master motherloom to all the VCA masters.

The VCA masters are also controlled by GRPSOLOCLEAR, an active high signal which resets the solos on each master. It is generated by **IC12-D** and is set when either SOLOCLEAR or notMASTER/SLAVE are high. SOLOCLEAR is user controlled logic line that goes high when the soloclear button is pressed on the master panel of the desk.

The LEDs under every push button are driven from one of three constant current (6mA) chains. Each LED has its own drive transistor which when turned off allows the current to flow through the LED, thus illuminating the switch. **TR18** controls the grand master cut LED which runs off two chains, this means that when the transistor is off there is double the current flowing through the LED.

4-Channel LED Meter Card

Circuit Description

The 4-channel meter card is situated above every group of four inputs or group/effects return modules in the Europa frame. Each channel is a 16 segment LED display with jumper selectable peak or average meter ballistics. There are two build states, one for use with mono inputs and the other for use with the stereo outputs. For the stereo version, the meter displays the highest of the two signals.

The board is powered from ground and -24V and this is supplied from an eight way 0.1" Methode connector. All the meter cards to the right of the master panel are powered from one chain initially fed from the PSU distribution board . The meter cards to the left of the master panel are connected to a different chain but connected to the same rails on the PSU distribution board. Another ground and +24V are also present on the board but these are fed to a 10-way ribbon cable which links to the rearcon PCB situated on the back of the desk. It is this cable that also carries the audio signal to the meter circuitry.

To function correctly the meter circuits require a split supply, ie. both a positive and negative rail with respect to a common reference. As only -24V is available, an additional rail must be generated by the board itself. **IC3-A** provides a steady -12V by buffering an attenuated and filtered version of the -24V rail. This in effect has created a +/-12V supply with respect to the output of **IC3-A**.

Each meter channel is identical, so the first channel will be described only. The right hand audio signal, fed from the 10-way link, is first decoupled by **C6**. This is essential as the following circuitry is referenced to -12V not ground. The first stage is a precision half-wave rectifier built around **IC1-A**. The output of the rectifier is smoothed by **R4** and **C1** to provide a dc voltage that is proportional to the average level of the input signal. The output of **IC1-A** is also used to charge up **C2** via **D3** and **R5**, and the voltage level stored on **C2** is thus the peak level of the input signal. Either of these may be selected by **J1** to be passed to the next section. The left hand audio channel takes a similar path, with **IC2-A** acting as the rectifier. **IC1-B** and **IC2-B** provide the highest level detect circuitry. Each one is a precision rectifier, and this type of circuit can only source current not sink. Therefore, if two are joined together at their outputs, only the one with the highest output voltage will determine the final output level. **PR1** performs two functions, firstly it enables the meters to be calibrated, but also it acts as a pull down resistor for the rectifiers.

For mono applications only the right hand channels are used, the other components are not fitted. The meters then only respond to the one signal.

The voltage on the wiper of **PR1** is then fed to the non- inverting inputs of four quad comparators. Each individual comparator has its own reference voltage generated at one point of a resistor ladder. Current sources drive the LEDs to maintain constant current, to reduce coupling of the audio signal onto power rails. With no input voltage, all the comparators are turned on. The output stage of the comparator ic is an open collector NPN transistor, thus **IC7-D** sinks all the current from the source and no current flows through the LED ladder. As the input voltage rises, so does the DC signal from the highest level detector and, one by one, the comparators are turned off, as the voltage applied to the non-inverting pin exceeds that at the inverting pin. As each comparator turns off the current from the source must flow through its associated LED and hence the ladder illuminates.

PSU Interface Board

Circuit Description

The PSU interface board acts as a distribution network for the two power supplies needed to drive a complete Europa desk. It takes all the regulated rails from the SRC connectors on the back panel of the console and connects them to the relevant looms that drive the various boards. The power is divided up in a fashion that does not overload the individual PSU or stress a particular loom. The board also provides through connections for different sections of the same motherloom, for example, the left hand lower motherloom is identical to the right hand motherloom except for the power supply rails.

The board contains two blocks of circuitry, the Littlite dimmer control and the battery back up supply. The latter drives all the latches that retain the cut states, VCA and mute assignments of each channel. However, to protect battery backed circuitry within each module from driving unpowered logic, a control line is required to isolate these outputs when the desk is switched off. This is TRI-STATE ENABLE, which when high effectively tri-states the output of each battery backed latch. It is sent along the fader motherloom for use by the assign and fader input modules. A notTRI-STATE ENABLE is also available which is used by the output modules for the same purpose.

The battery is 6V2 NiCad rechargeable cell that is mounted on the board. Its negative end is connected directly to the -7V5 rail and thus produces a voltage of -1V3 with respect to a powered console's ground. When the desk is on, the battery is charged by **D1** and **R1**, and the battery backed supply is driven from the +7V5 rail via **D3**. When the power is removed, the +/-7V5 rails collapse and the battery's negative end rises to ground. The battery ceases to be charged and now supplies the +7V5(BAT) rail through **D2**. This rail is now only about +5V6 but is still enough to drive the CMOS logic so that the present logic state is retained.

TRI-STATE ENABLE is generated by **TR1** which when its base voltage falls below 600mV turns off and allows its collector to rise to the battery backed voltage. **R2** and **R3** select the voltage to which the supply has to fall before **TR1** turns off. This is approximately 9V6 above the -7V5 rail, ie. +2V1 above ground. The inverted output is generated by **TR2** which turns off when **TR1**'s collector goes high, thus forcing notTRI-STATE ENABLE low.

A Littlite dimmer facility is provided on the Europa, which enables the voltage to the 5-pin XLRs on the rear conn panels to be varied from nearly zero to a maximum of 12V. The dimmer uses the +15V supply from the CPS770 and then drops this to the desired output. The design is based on a three terminal regulator, the LM338, though because of heat dissipation it is not fitted on the PCB but bolted to part of the consoles frame. It is connected to the board via a three way wireform terminating at **CN17**. The dimmer control itself is fitted to the right hand divider assembly and consists of a stereo 10K pot with both tracks connected in parallel. The reason for this is two fold, firstly it provides a 5K variable resistor, which interfaces simply with the LM338, and secondly by joining the pot's pins together, stronger termination points are made for the connecting wireform. The pot is joined to the dimmer circuitry by **CN16**.

The regulators output is always 1V2 higher than its adjust pin, pin 1 on **CN17**. Therefore when the pot is at its minimum value, ie. full anti-clockwise, the adjust pin is at ground potential giving a 1V2 output. If the pot is at its maximum value, the adjust pin is set by **R29** to be about 10V8. Thus the maximum output should be no higher than 12V. If for some reason the pot becomes disconnected **D6**, a 11V Zener diode, holds the adjust pin at 11V and so the output does not rise above 12V2 which could damage any connected Littlite.

Fader Tray Circuitry

Circuit Description

The Europa fader tray contains the fader input board, VCA masters, mute master, interfaces and the assign board. It does not, however, contain the VCAs themselves, as these are situated on the relevant input board. All the boards are connected to the fader motherloom which carries all the digital busses, control voltages and the logic supply rails. Each input fader module is connected to its relevant input by the input fader loom, a 16-way cable supplying the audio rails to the fader module and sending the control signals to the input module. The VCA masters have another connection from the assign and analogue interface board in the the form of the VCA master motherloom. This 16-way cable carries the audio rails to the masters and sends the external control voltages from the interface board. The mute master also acts as a distribution board for the fader tray circuitry, taking the power and other digital control lines from the PSU distribution board and connecting them to the fader motherloom.

The VCA system will discussed first. Each input can select any combination of the eight VCA busses that are present on the fader motherloom. These are labelled VCA1 to VCA8. They are derived from the VCA masters, each one selected to drive a particular bus by the location of a jumper on the board. The VCA bus voltage varies from -600mV, which represents +10dB of gain from the VCA, to +5V, which gives full attenuation. However, when a VCA master is cut then the VCA bus voltage rises to above +7V. This is detected by the input fader module and a signal, notMUTE, is sent up the input fader loom to the input module. Whenever this line goes low the input module will always mute.

If an input has no VCA selections made then a logic line from the input fader module, NOTASS, goes high. This is sent up to the input module, via the input fader motherloom, and will take the VCA out of the audio path thus reducing any unnecessary distortion.

The input fader module sums all the selected VCA busses together and outputs them as VCASUM to be sent to the input module via the input fader loom. However, the summing process also inverts the voltages, so that now +600mV represents +10dB of gain and -5V gives full attenuation. If more than one VCA bus has been selected then it is very possible that VCASUM actually varies by more than the above values. For example, if two VCA masters have been assigned and both are set to give maximum attenuation, then VCASUM will equal -10V. The input board features a clamping circuit so that this excess voltage is never seen by the VCA circuit.

In the Europa, a grand master facility is provided. This is situated on the assign board and has two outputs, GMCUT and GMFADER. Both are sent to the fader motherloom. GMCUT is a logic signal that goes high when the grand master cut button is pressed. GMFADER is a buffered voltage output directly derived from the grand master fader. It varies from +600mV at the top of the fader, ie. +10dB, to -5V at the bottom representing full attenuation. The assign board also generates the reference voltages required for all the VCA faders. +600mV is sent along the fader motherloom and -5V is sent along the VCA master motherloom.

The VCA masters, as far as controlling the VCAs is concerned, can be considered as a two input summing amp. One of its inputs is derived from the wiper of the VCA master fader. The top end of the fader track is connected to the +600mV reference and the bottom end to the -5V reference, which produces the required range of +10dB to -84dB from the VCA. The other input is GMFADER, which is switched off if grand master has not been selected, and can control the VCA over a similar range on its own. However, when summed the output voltage could then vary from -120mV to +10V. This would not only be too great for the VCA to handle but any voltage above 7V would be interpreted by an input as a VCA cut signal. Therefore a clamping circuit is used to restrict the voltage to a smaller range.

After the clamp the fader voltage is fed to a electronically controlled switch. This switch is on in normal VCA operation and thus allows the fader voltage to be sent to the bus driver before being put onto the fader motherloom. However, this switch is turned off when a VCA master is cut. This enables another switch to open and apply a +7V5 volt signal to the bus driver. The VCA bus now carries VCA cut information to the selected inputs.

When a desk is operated in slave mode, the VCA bus must be controlled from the master desk. All the bus information comes through the fader interface PCB on the back of the desk. It is then sent to the analogue interface board via the analogue interface loom. If the desk is in slave mode then all the VCA and grand masters are inhibited. Three logic signals control this, MASTER/SLAVE, GRPSOLOCLEAR and notGRPOFF(BAT). The former is generated by the fader interface board and directly controlled by the rotary switch. The other two are generated by the assign board but are derivatives of the MASTER/SLAVE line. The GRPSOLOCLEAR controls only the VCA solo buttons, and therefore also incorporates the soloclear function and thus it also goes high whenever the soloclear button is pressed. notGRPOFF(BAT) is an active low signal that inhibits the VCA cut buttons. It has its own line because it is driving battery backed logic and must maintain its state when the power is removed.

When in slave mode, notGRPOFF(BAT) is low, and the switches controlling the source of the VCA bus driver are both off. Thus the analogue interface board via the VCA master motherloom has the sole connection to the VCA bus driver, allowing the master desk to control the VCA fader system. These connections are EXTVCA1 to 8.

The VCA system has its own ground, VCAREF, and this runs the length of the fader motherloom from a termination at the console's star point. It is used by the assign board, analogue interface board, VCA masters and input fader modules. The VCA summing amp in the input fader module has a differential input and this is connected to VCAREF to produce VCASUM which is referenced to the local ground.

The solo system on the Europa provides both non-destructive, ie. PFL and AFL, and solo in place monitoring. This is controlled by the input fader modules and master boards 1 and 4. When the desk is not in "solo in place" mode (SIP), only AFL or PFL are available. Pressing solo on any input fader module causes the monitor outputs to listen only to that channel's pre-fade pre-mute signal, this is PFL. The mix outputs are unaffected. Pressing AFL on an aux master or a stereo return causes the monitoring to pick up the post fade signal from that channel. If an input has been assigned to a VCA master and that VCA master is then solo'd, the input is then AFL'd. When an AFL or a PFL is in progress the soloclear button flashes. All solos may be cleared by pressing this button.

When SIP is selected, pressing solo on any input will mute all the other inputs unless they are programmed ISO, ie. isolated. If solo is pressed on an ISO'd channel that channel is AFL'd and the other channels are unaffected. Pressing solo on a VCA master, mutes all the inputs except those assigned to that VCA group - or those that are isolated. When SIP is selected the SIP button is lit steadily, but if there is a solo then the LED will start flashing and the soloclear button will light. If an AFL or PFL is also present, then the soloclear button will start flashing.

When not in SIP, pressing solo on an input causes the notPFL logic line on the input fader module to go low. This is sent up to the input module via the input fader loom. When a VCA master's solo button is pressed, the relevant VCASOL line on the fader motherloom is taken high. Each VCA master has its own VCASOL line, the actual one determined by the position of a jumper on the board. All the input fader modules listen to these lines and if they have been selected to a solo'd VCA master they will take the notAFL line low. This, like the notPFL signal, is sent up to the input via the input fader loom.

When the input module receives an active AFL or PFL signal it sends the appropriate audio signal down the AFL or PFL virtual earth busses. It also, injects a positive signal into the PFLEN bus. This is a another virtual earth which runs the length of the upper motherloom. The positive current is detected by a circuit on master board 1 and this controls the soloclear button's LED. It also outputs a logic control line, PFL/AFLEN, which is used by master board 4 to switch over the monitor outputs from the mix to the AFL/PFL signal. PFL/AFLEN is also sent to the digital interface board and can be used as an output when the desk is in slave mode or as an input if in master mode.

When solo in place is selected the SIP line, derived from master board 1 or the digital interface board, goes high. This is sent down the fader motherloom to the VCA masters and the input fader modules. When a solo is pressed on an input that is not been programmed ISO, the SOLOSIP line, on the fader motherloom, is taken low by an open collector transistor on the board. The notAFL and notPFL lines to the input module are left high. When SOLOSIP goes low, or a connected desk's SOLOSIP goes low, the digital interface board will drive the SOLOMUTE bus low. The SOLOMUTE bus runs along the length of the fader motherloom and when not in SIP is always high, but whenever this line goes low then the fader input modules will mute the inputs by taking notMUTE low. However, if an input has been assigned ISO, SOLOMUTE will not mute the channel. Likewise, an ISO'd input is not able to control the SOLOMUTE bus, as ISO effectively detaches an input from the whole solo system. If solo is pressed on an input that is ISO then an AFL results, ie. notAFL is taken low.

If SIP is active then pressing a solo on a VCA master will cause the SOLOSIP line to be pulled down, but the associated VCASOL line is taken high. The logic in the input fader modules can detect this, so only inputs that are not part of that VCA group will be muted.

The battery backed logic, the assigning latches and cut buttons in the fader tray, are fed from -7V5 and +7V5(BAT). When the power is switched off, the negative rail collapses to ground and the positive falls to the battery voltage of 6V2. This only supplies a small part of the desk's logic and these circuits must be isolated from the rest of the desk when the power is removed. This is achieved by using analogue switches on the cut latches and utilising the tri-state outputs of the assigning circuitry. This isolation process is enabled by TRI-EN, an active high signal derived from the PSU distribution board. It goes high when the +7V5 rail drops below a certain value. An inverted and buffered version, notTRI-EN, is sent up to the input module via the input fader motherloom that isolates the twelve aux. cut latches on power down.

To keep all the flashing LEDs in synchronisation a flash bus is used. This is a low frequency sine wave of about 5V peak to peak with an offset of -7V5 generated by master board 1. It is passed onto the fader motherloom as FLASH.

The mute master controls the eight mute busses MUTE1 to MUTE8. These are logic lines that are sent along the fader motherloom, a high represents an active mute on that channel. In slave mode the mute master is inhibited and the digital interface can control the mute busses on command from a connected master desk. If on an input, a selected mute group becomes active then the input fader module takes notMUTE low, which silences the input channel. The input fader module has a mute safe switch and when this is pressed the module ignores the state of the mute busses and notMUTE remains high.

Analogue Interface Board

Circuit Description

This board allows the Europa to transmit or receive control voltages for the VCA system. It also contains the relay switching that drives the opto-coupled digital interface board. It has three connectors, firstly to the fader motherloom, which carries the VCA busses. Secondly, the VCA master motherloom, from which the board derives its +/-17V power and through which it sends the received VCA bus information. Thirdly, there is another 16-way ribbon cable, connecting to the EDAC on the rear panel. It is on this EDAC pcb assembly that the selector switch resides, the position of which determines whether the desk is in master or slave mode.

There are three relay packages on this board, each one a 4- pole change-over device. TR1 drives the relay's coils and is controlled by MASTER/SLAVE. A high on this line represents MASTER, and this turns on TR1 thus pulling down its collector and activating the relays. **D1**, **2** and **3** protect the transistor from the back EMF when the relay is switched off, either on power down or when the slave mode is selected.

The eight VCA bus interfaces are identical in operation, so the one controlling VCA1 will be discussed only. In master mode, the desk transmits control voltages. **RLA1-A** is on, so VCA1 is coupled, via **R1**, to VCACNTRL1, the signal available on the EDAC. **IC6-a**, an analogue switch is off, because notMASTER/SLAVE is low. This means that any voltage present on the output of **IC1-A** is not coupled to EXTVCA1. EXTVCA1 goes, via the VCA master motherloom, to the VCA masters where it is directly fed into a buffer that drives VCA1 on the fader motherloom. VCAREF, the VCA system's own ground reference, is also fed to the EDAC via **RLA3-C** to VCAREF CNTRL. **R1** is required so that if the EDAC is shorted for some reason the VCA1 bus is not harmed.

If the desk is put into slave mode, then the relays are switched off. This connects VCACNTRL1 with the non-inverting input of a differential amplifier based around **IC1-A**. The inverting input is now connected to VCAREF CNTRL. If another desk has been plugged in, and it has been correctly set to master, then the output of **IC1-A** should be equivalent to its VCA1 bus. **IC5-A** will now be on, allowing this voltage to be sent to the VCA master to be buffered before being put onto the fader motherloom.

When the desk is off the relays are obviously unenergised, this means that the EDAC is connected to the differential amplifiers only. The input resistors are high enough so that if a powered up master desk was still connected, then no harm would result to either desk. If analogue switches had been used instead of relays, which would be the cheaper option, damage to the unpowered desk would almost certainly result.

RLA3-A,B are configured so that when in master mode, power can be sent to the opto-couplers on the digital interface board. The switched supply is sent to the other board via the EDAC assembly.

Digital Interface Board

Circuit Description

The digital interface board is situated below the master panel in the fader tray. It contains the necessary circuitry to process all the digital control lines within the Europa so they may be externally controlled by, or sent out to, another desk. It is connected to the fader motherloom, **CN4**, and via the digital interface link, **CN3**, to the fader interface board. A small 2-way Methode is also used that connects to the Assign board, this carries the LIVE and PFL/AFLEN signals.

The board is effectively an opto-isolated buffer that may be set either, to receive if in slave, or to transmit if in master. It is connected to the other desk via the EDAC board on the back panel, which also carries VCA control voltage information from the analogue interface board. It has to interface the mute busses, VCA master solo busses, SOLOCLEAR, LIVE, SIP, PFL/AFLEN, SOLOMUTE and SIPSOLO. Much of the circuitry consists of the same circuit block repeated, however, the SOLOMUTE and SIPSOLO require a different approach.

Mute bus number 1 will be described in detail, the operation of most of the other lines is identical. If MASTER/SLAVE is high, the desk is set to master mode. This causes the relays on the analogue board to provide +/-7V5 (RELAY) and this is sent via the fader interface board to the digital interface board. This supplies the external side of the opto-isolators, as well as being sent to the other desk's digital interface board to power its opto-isolators. When MASTER/SLAVE is high, **IC1-B** acts as a buffer to MUTEBUS1. Thus the LED in **OP1-B**, will illuminate whenever MUTEBUS1 is high. An opto-isolator works so that whenever its LED is on, its output transistor turns on also and pulls the collector low. For **OP1-B** this means that pin 10 is pulled to the -7V5 (RELAY) rail when MUTEBUS1 goes high. When MUTEBUS1 is low then pin 10 is high pulled up by **R2**. It is this signal that is sent to the other desk as MUTE CNTRL1.

If the desk is in slave mode, then MASTER/SLAVE is low. This causes **IC1-B**'s output to go low, thus **OP1-B**'s LED is turned off, no matter what state MUTEBUS 1 is in. However, pin 1 on **IC1-A** is high therefore any logic level on pin 2 is passed on to the mute bus via **D1**. In slave mode the mute master is turned off, therefore **IC1-A** will have direct control over MUTEBUS1. Pin 2 of **IC1-A** is held high by **R1** but it can be actively pulled low by turning on the output transistor of **OP1-A**. This is achieved by taking MUTE CNTRL1 high. Thus a connected desk in master mode may directly control the mute bus. +/-7V5 (RELAY) no longer come from the host desk's analogue interface board but from the connected desk's output EDAC, thus maintaining power to the interface electronics. The logic levels between the desks will be limited to the forward drop of the opto's LEDs which is around 1V2, and because of the inherent inversion of the opto isolator all the logic at the interface boundary is active low. The VCA solos, LIVE and SIP lines are identical circuit blocks to MUTEBUS1. PFL/AFLEN is almost the same, the only difference being that when the desk is in master, this block actually receives information and transmits when in slave.

The SOLOSIP and SOLOMUTE lines are dealt with rather more differently. Both of these are active low. The SOLOSIP being pulled down by an open collector transistor when any SIP solo is present, and SOLOMUTE, which when low causes any un-solo'd input to mute. Whether in slave or master both of these lines operate the same way. If a desk is in master and not connected to another, then SOLOSIP and SOLOMUTE are the same. This is because when SOLOSIP goes low, SOLOMUTE must also go low to silence the non-solo'd inputs. The circuit achieves this first by inverting SOLOSIP with **IC11-B** and driving the LED in **IC12- B**. Thus the LED is turned on whenever there is an active SIP solo. This in turn pulls the SOLOSIP CNTRL line low and the LED in **IC12-A** turns off. The transistor in **IC12-A** also turns off thus the input to **IC11-A** goes high and SOLOMUTE goes low. If we now attach another desk, then any time SOLOMUTE CNTRL is pulled low either by **IC12-B** or by the other desk's equivalent of **IC12-B**, then SOLOMUTE is taken low.

If for some reason an unconnected desk is set to slave then no power is assigned to the +/-7V5 (RELAY) rails. This then means that all the lines are taken high except for SOLOMUTE. When SOLOMUTE is high all the inputs will be silenced thus there is no way a desk may be operated until it is set correctly.

Fader Input Board

Circuit Description

The input fader board controls the input modules by providing CUT and SOLO information and the control voltage for the VCA circuitry within the input module. This board also contains two post fade amplifiers and can be used for either stereo or mono inputs.

The board derives its power from two sources. The logic runs off +/-7V5 and this comes from the 50-way fader motherloom that runs the entire length of the console. The audio circuitry requires +/- 17V and this is provided by the associated input module via a 16- way link.

There are eight mute groups on the Europa and each input can be programmed to any one of these. This is achieved by selecting the desired groups on the master panel and then by pressing the SEL button on the relevant input fader. The assign busses are derived directly from the 50-way fader motherloom and are active high, +7V5 representing a selected mute group. Referring to the circuit diagram, sheet 1. **IC5** is an eight bit latch and is connected so that when pin 11 is taken high, by having MUTSEL high and the SEL button pressed, the input data is taken to the ic's outputs. These are now the selected mute groups for this particular input and are displayed on the front panel, LEDs 2 to 9. Each LED is part of a chain, see the circuit diagram sht.2, with 6mA going through it. When the transistors that are connected in parallel with each LED are turned on, the LED is turned off. Each of these transistors are driven by the latches outputs via 100k resistors. These outputs are called MUTSEL 1 to 8.

IC8, **9** and **10** form an 8-bit logic comparator, the output of which will go high if the MUTSEL lines are the same as the MUTE bus lines, which are sent down the fader motherloom. This will indicate that one or more of the selected mute groups have been activated. The comparator's output is called MUT and will be discussed in more detail later.

VCA group assignment is performed in a similar way to that of the mutes, IC4 is the latch and its outputs are labelled VCASEL 1 to 8. These like the mute circuitry drive transistors in the LED chain so that the selected outputs are made visible to the user, LEDs 10 to 17. The VCASEL lines are used in three ways.

Firstly if there are no VCAs selected, all the VCASEL lines are low so the output of **IC13**, an 8-input NAND gate goes high. If any one of these goes high,ie. a VCA has been selected by the user, **IC13**'s output goes low. This line is called NOTASS, and directly controls the input module's VCA by-pass circuitry. When NOTASS is high the VCA is by-passed and taken out of the audio path.

Secondly, the VCASEL lines are used to select which of the VCA master control voltages, present on the fader motherloom, are used to drive the VCA. When a VCASEL line is high it turns on the relevant analogue switch associated with that VCA group and allows the control voltage to be summed and inverted by **IC15**. Any combination of VCA groups may be selected and the resultant sum, minus any voltage present on VCAREF, is then sent up to the input module as VCASUM. Any noise picked up by any of the VCA group lines will also be present on VCAREF so the overall noise of VCASUM will be reduced.

The selected control voltages are also fed individually to one of eight comparators, **IC1** and **2**. These devices hold their output low when the voltage on the inverting input exceeds that on the non-inverting input. Each comparator's output is connected together to form a wire-OR function with **R4**, thus when any of devices is triggered all the outputs are pulled low. The output is inverted by **IC22-E** and labelled VCACUT to be used elsewhere in the module. The non-inverting input is held at around 6V5 by **R8** and **R9**, thus if a selected VCA group line goes above 6V5 the output VCACUT is taken high. As the name suggests this occurs only when CUT is pressed on a selected VCA group.

The third function of the VCASEL lines control the VCA solo detect circuit. This comprises of **IC11**, **12** & **13**, and works in a similar way to the mute logic comparator described earlier. Each VCA group has its own dedicated VCASOL line that goes high when its SOLO button is pressed. The solo detect circuit compares the VCASEL lines with the incoming VCASOL lines. If the two are the same then a selected VCA group has its SOLO button pressed and SELSOL, pin 13 of **IC13**, goes high.

Pressing the CUT switch on an input fader module activates the cut latch based around **IC3-A** & **IC3-C**. This section is battery backed, thus **IC3** is powered continually even when the desk is off. This means its outputs must be isolated from the rest of the logic when the power is removed. This isolation is provided by one half of an analogue switch pack, **IC21-A** & **IC21-B**, which open when notTRI-EN goes low. TRI-EN is controlled by the psu distribution board elsewhere in the desk and goes high in the event of power down. CUT goes high when active, notCUT does the opposite.

The 8-bit latches, **IC4** and **IC5** are also battery backed and these incorporate their own isolation in the form of tri-state outputs controlled by TRI-EN. Thus all mute and VCA assignments remain intact.

An input channel may be rendered immune to SIP mutes by setting it ISO. The function forms part of the VCA assignment section and is thus centrally programmed. The setting is stored in a battery backed one-bit latch based around **IC17** and isolated from the rest of the logic by the other half of **IC21**. Once again the analogue switch is controlled by notTRI-EN. The input to the latch comes direct from the fader motherloom, ISO ASSIGN and this is passed onto the output when WREN is high. WREN only goes high when the VCA write enable button is lit on the master and the inputs VCA sel button is pressed. The outputs of the latch are ISOL and notISOL and these are used elsewhere on this board.

An input may be muted by several sources:

- Local cut by pressing the CUT button
- SIP mute
- VCA group cut
- Mute master

IC20, **IC18-C**, **IC18-D** and **IC16-A** process the relevant signals to produce the notMUTE signal required by the input channel. Taking this line low causes the mute block in the input module to cut the audio signal to the channel fader. As previously discussed, when a selected mute group is active then the signal MUT is taken high. **IC18-C**, an AND gate, will allow this signal to activate the mute block if notSAFE is high. NotSAFE is derived from the SAFE switch and is normally low until pressed. Thus when pressed the mute master has no control over the input channel.

VCACUT directly controls the notMUTE signal, whenever VCACUT goes high, ie. a selected VCA group's cut button is pressed, notMUTE goes low. CUT also directly controls notMUTE so that when CUT goes high, MUT goes low.

A solo in place mute is activated by the SOLOMUTE BUS line being pulled low, which in turn makes SOLOMUTE go high. Whenever SOLOMUTE goes high the input channel will mute unless: it's own SOLO button has been pressed, SOLO is high; a selected VCA group has been SOLO'd, VCASOL is high; or the input has been programmed ISO, ISOL is high. This is all achieved by **IC20-B** and **IC18-D**.

The solo button operates a latch based around **IC23-A** & **IC22-D** and this gives two outputs, SOLO and notSOLO. SOLO goes high for an active solo. To operate a SIP mute, an input must satisfy three criteria, firstly the solo button must be pressed, secondly the desk must be SIP mode by setting SIP high and finally the input must not be ISO. If these are met SOL goes high and this drives an open collector transistor, **TR27**, to pull down the SIPSOLO bus which runs along the fader motherloom. If SOLO is high when in SIP, but ISO is set then **IC16-B** produces an active AFL command which is sent to the input module. If SIP is not set, then pressing the solo button causes an active PFL command. If a solo is pressed on an assigned VCA group, SELSOL is high and if SIP is not active this causes an AFL. **IC19-D** is configured so that if both the channel is solo'd and an assigned VCA group then an AFL will prevail.

SIPSOLO and SOLOMUTE BUS are essentially the same signal but are kept separate so that the digital interface can also control the SOLOMUTE BUS when an external desk is connected as master or slave. The digital interface does not control the SIPSOLO bus but does use it as in input to send to the connected desk. If the desk is used on its own then SIPSOLO is always the same as SOLOMUTE BUS.

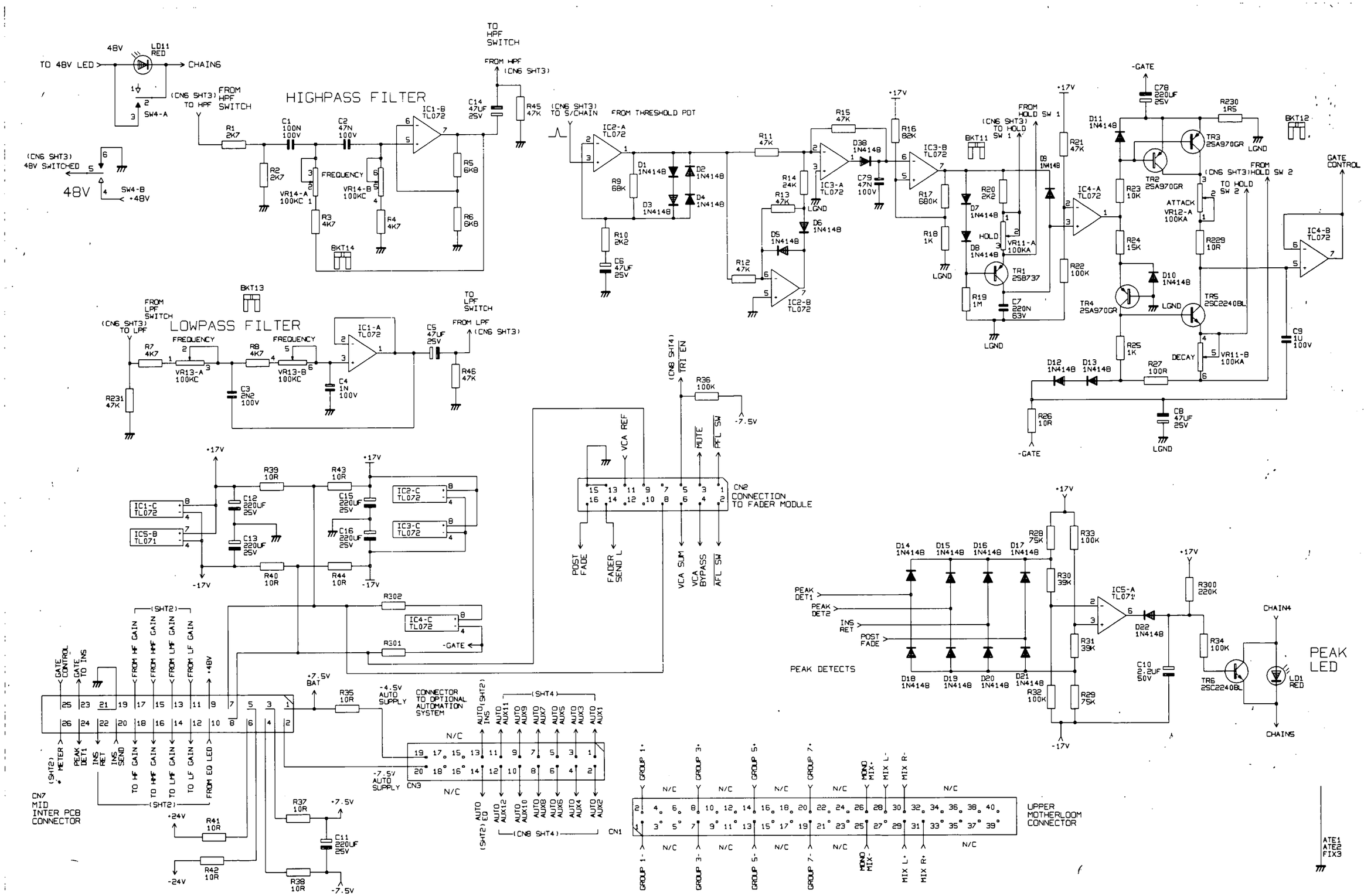
The cut and solo buttons are illuminated and are controlled by **IC16-C,D** and **IC23-B,D** respectively. They are configured so that a local control of their function, ie. pressing the button itself, produces a steady glow, but a non local control produces a flashing display. Thus a VCA group cut flashes the LED, but pressing the button will make it light solidly. **TR20** senses the flash bus and produces a low frequency square-wave at logic levels to drive **IC16-D** and **IC23-B**.

IC24, a 5532 op-amp provides 10dB of gain for the post-fader audio signal. This signal is then piped back up the 16-way link to the input module. Two channels have been provided though only the left hand side is used for the mono versions of the input. Also provided only for the stereo input only is the fader start switch enable button, this simply allows the fader switch to be turned off before being sent to a two-way methode, **CN5**.

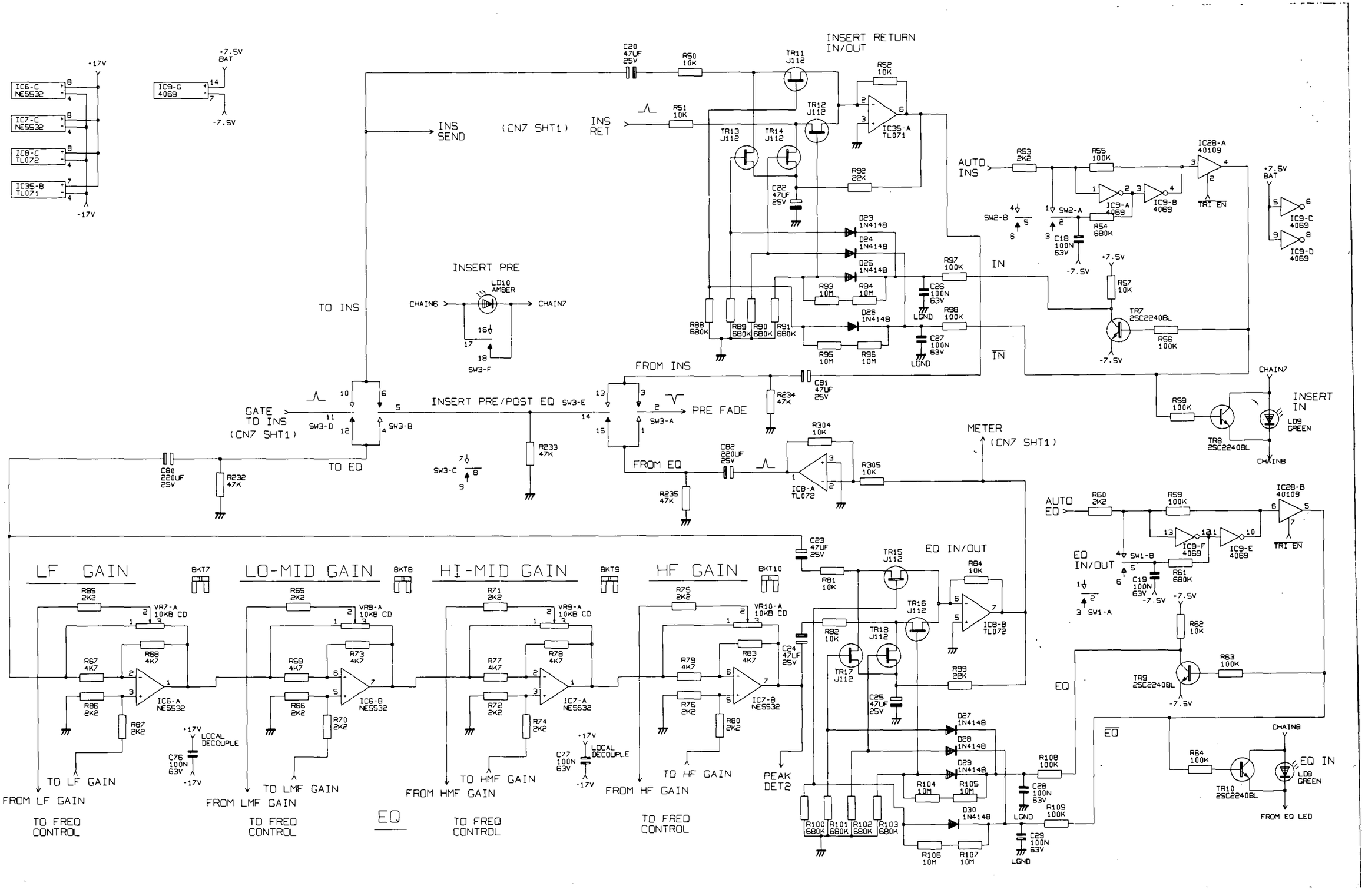
7. Circuit Diagrams

I/P LH PCB ED2986 7.2
I/P PH PCB ED2987 7.6
FDR PCB ED2988 7.10
GRP FX LH PCB ED2989 7.12
GRP FX RH PCB ED2990 7.14
PSU I/F PCB ED2992 7.19
I/P RR CON PCB ED2993 7.21
O/P RR CON PCB ED2994 7.22
VCA GRP MAST PCB ED2995 7.24
Master RR CON PCB ED2996 7.25
5-Segment MTR PCB ED2997 7.26
Meter PCB ED2998 7.27
VCA Mute Assign PCB ED2999 7.31
Mute Master PCB 4 SC3000 7.33
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Ster I/P RH PCB ED3141 7.69
Ster I/P RR CON PCB ED3142 7.74
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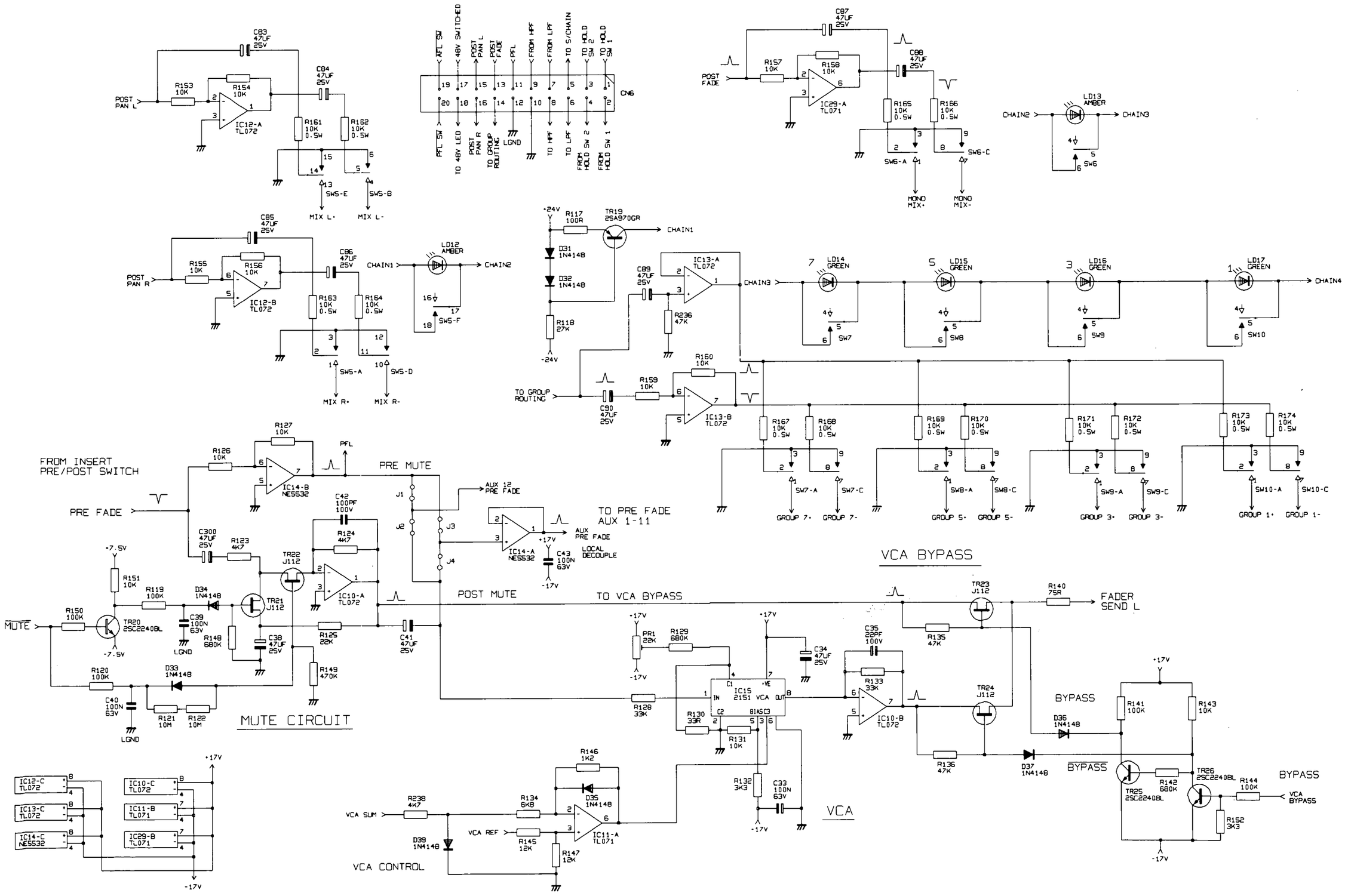
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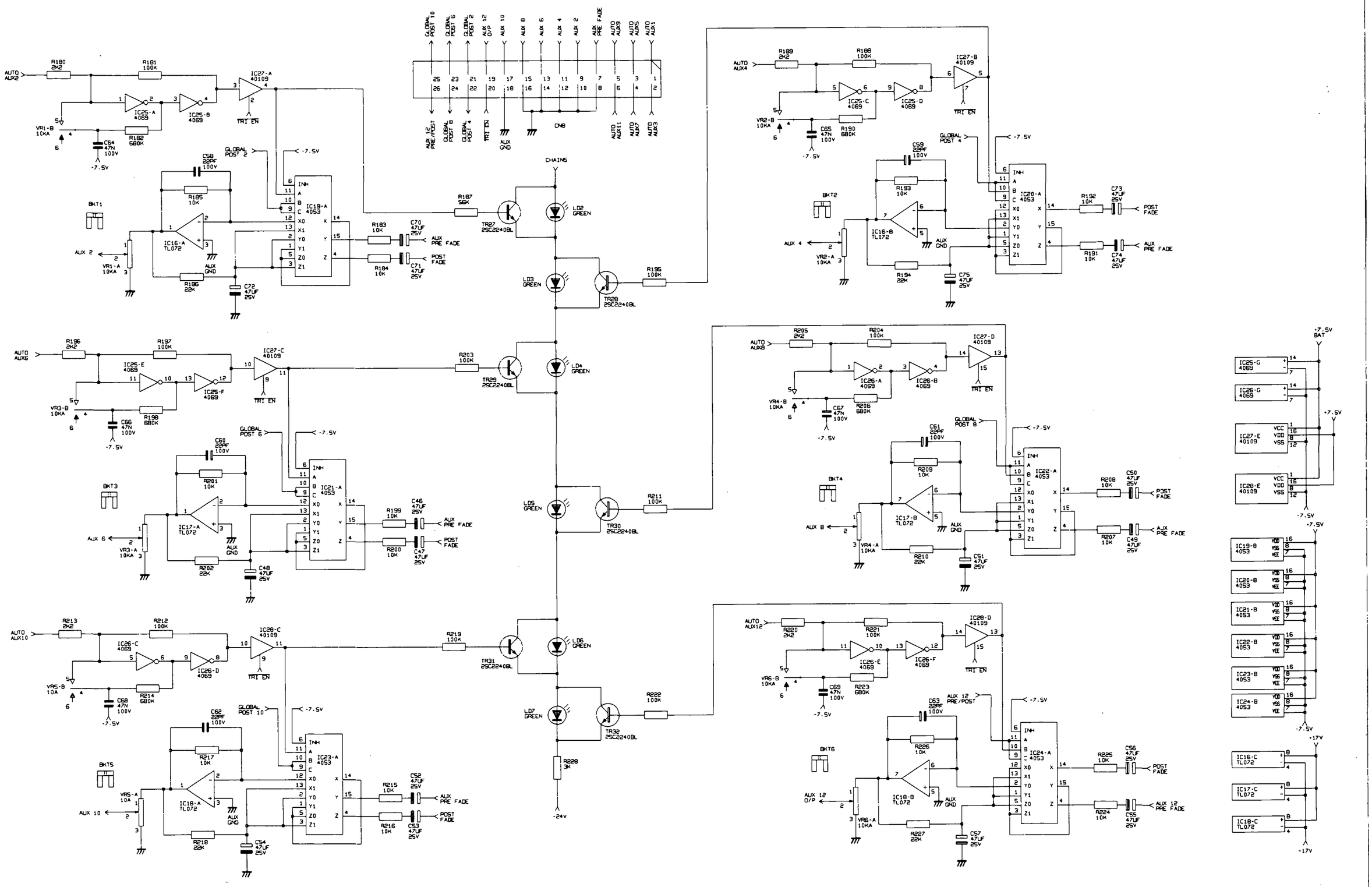
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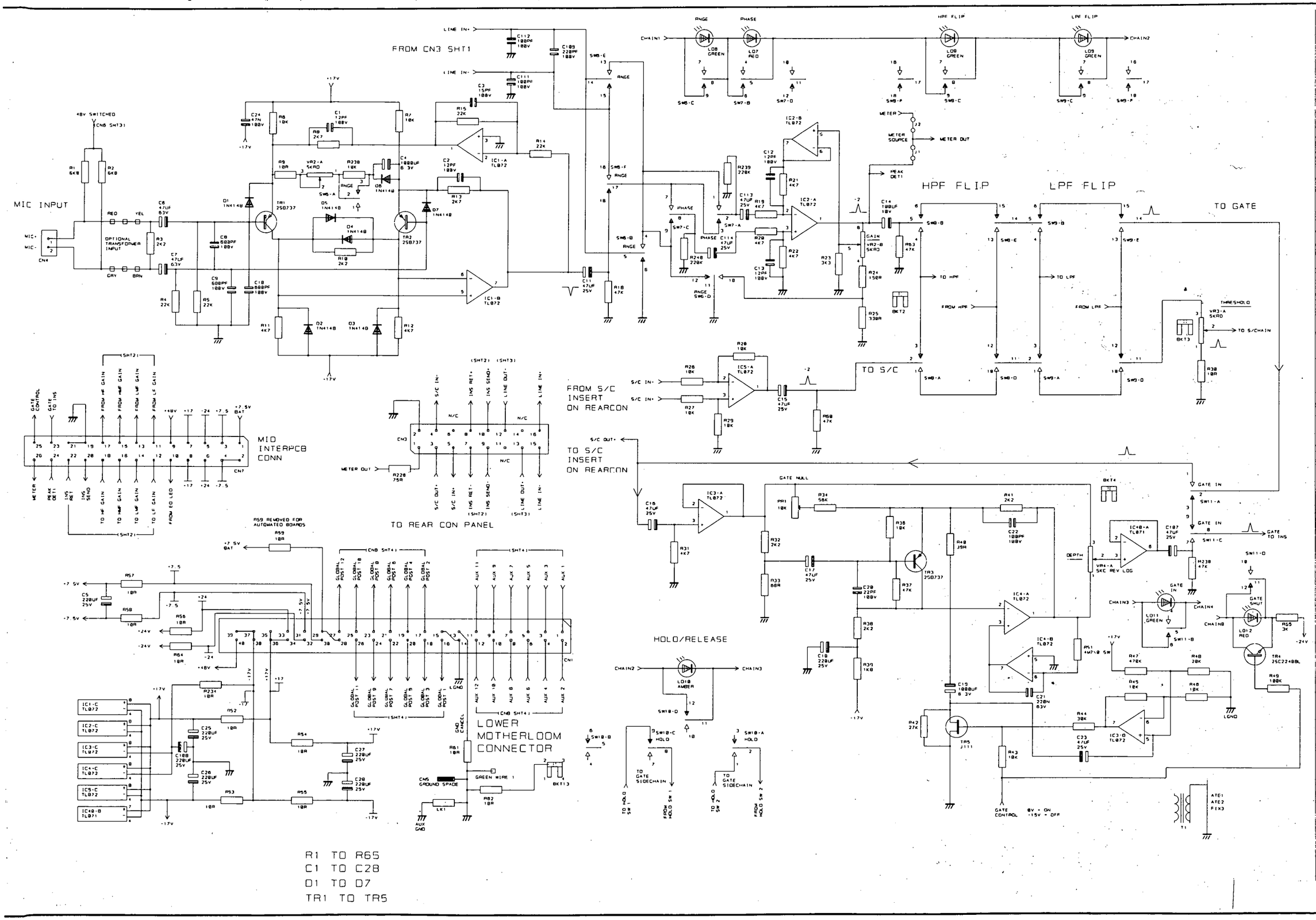
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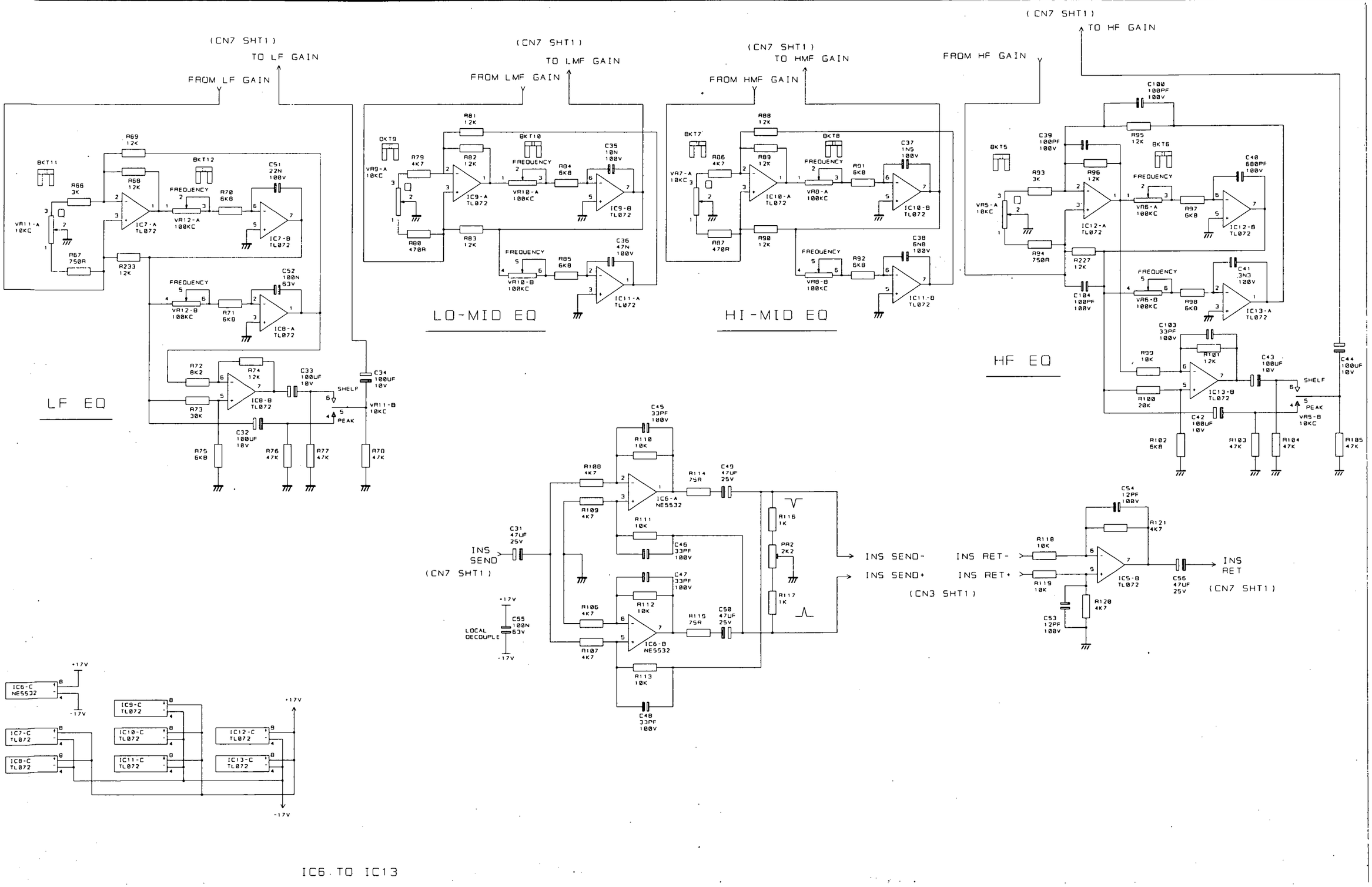
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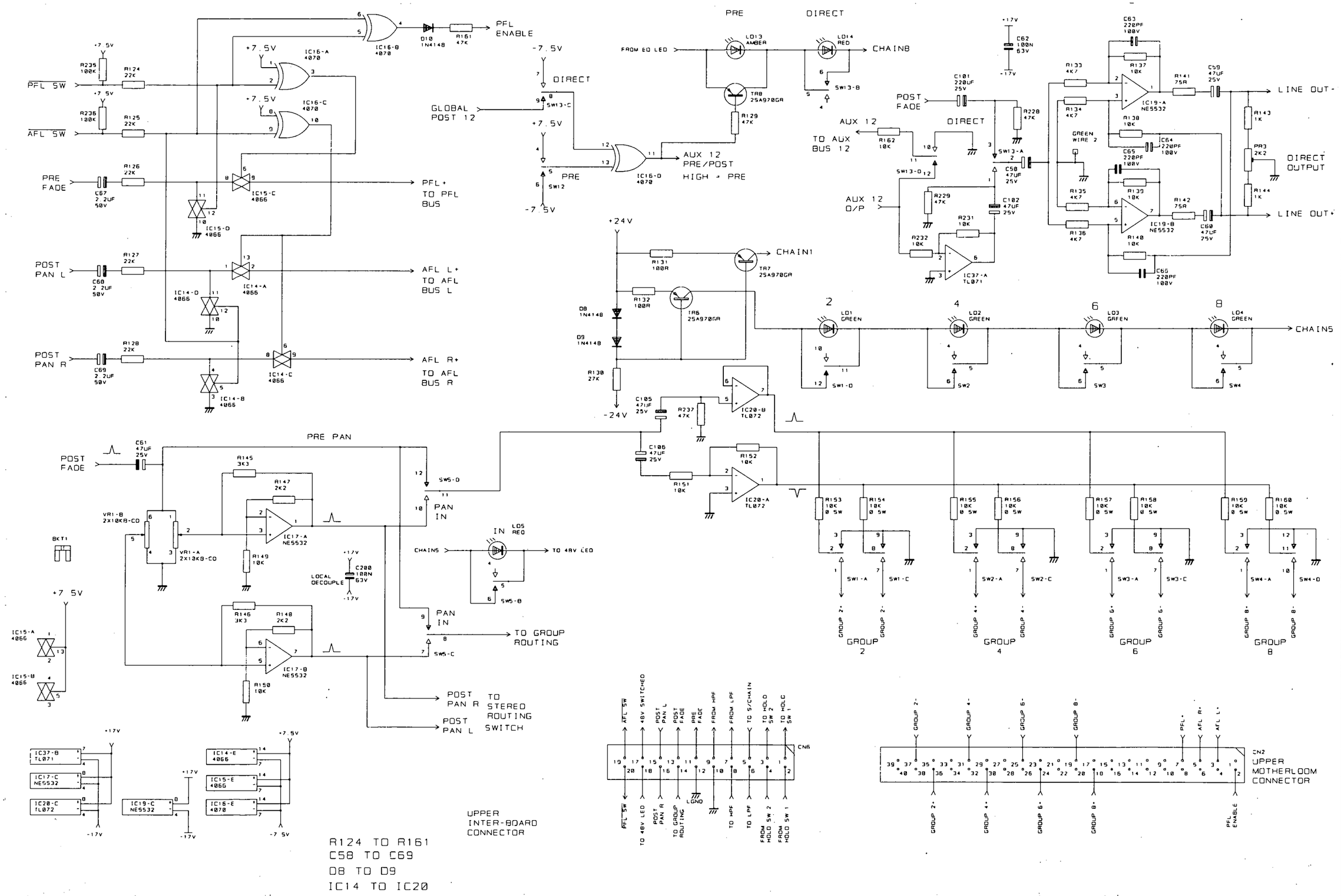
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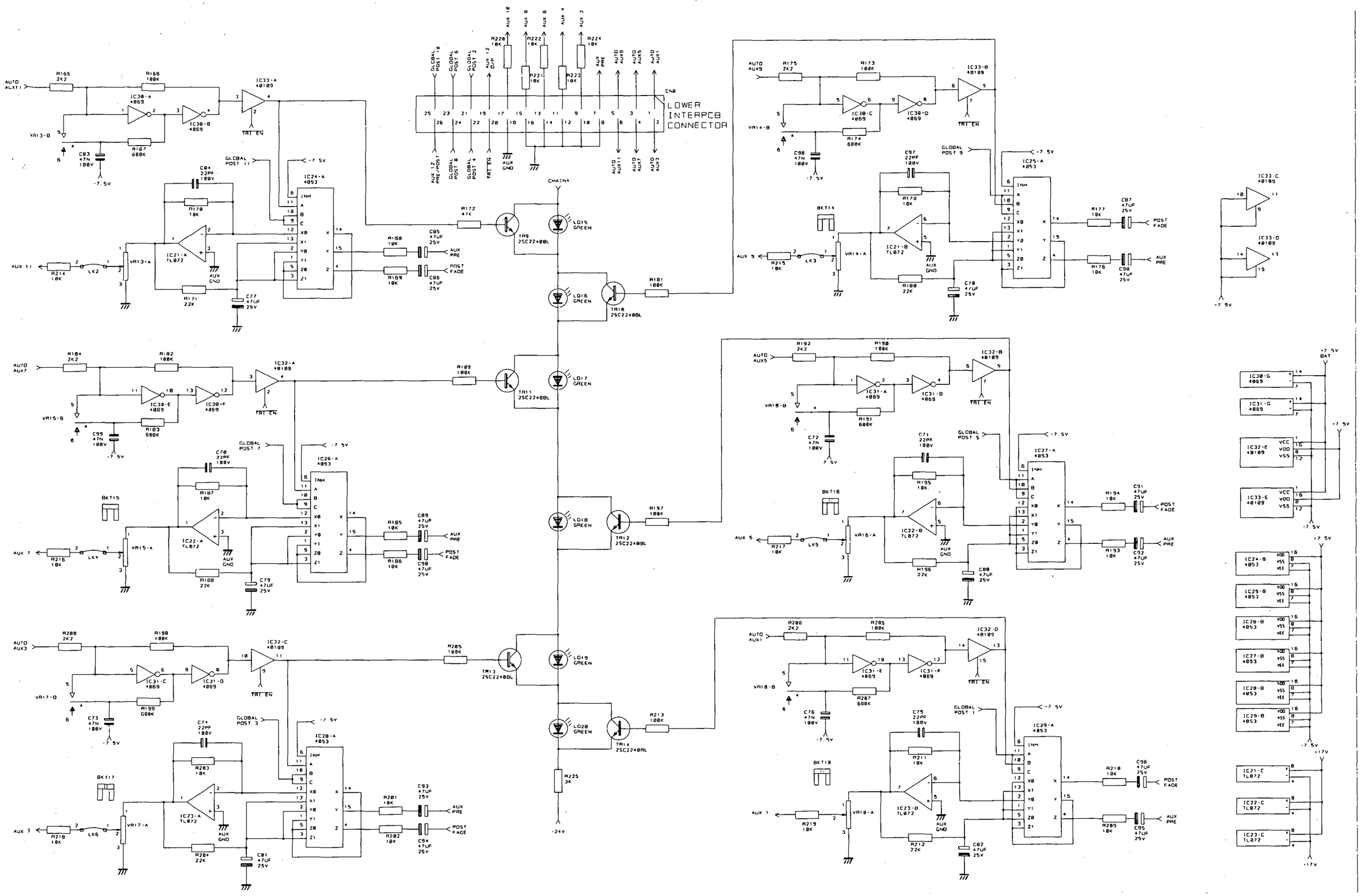
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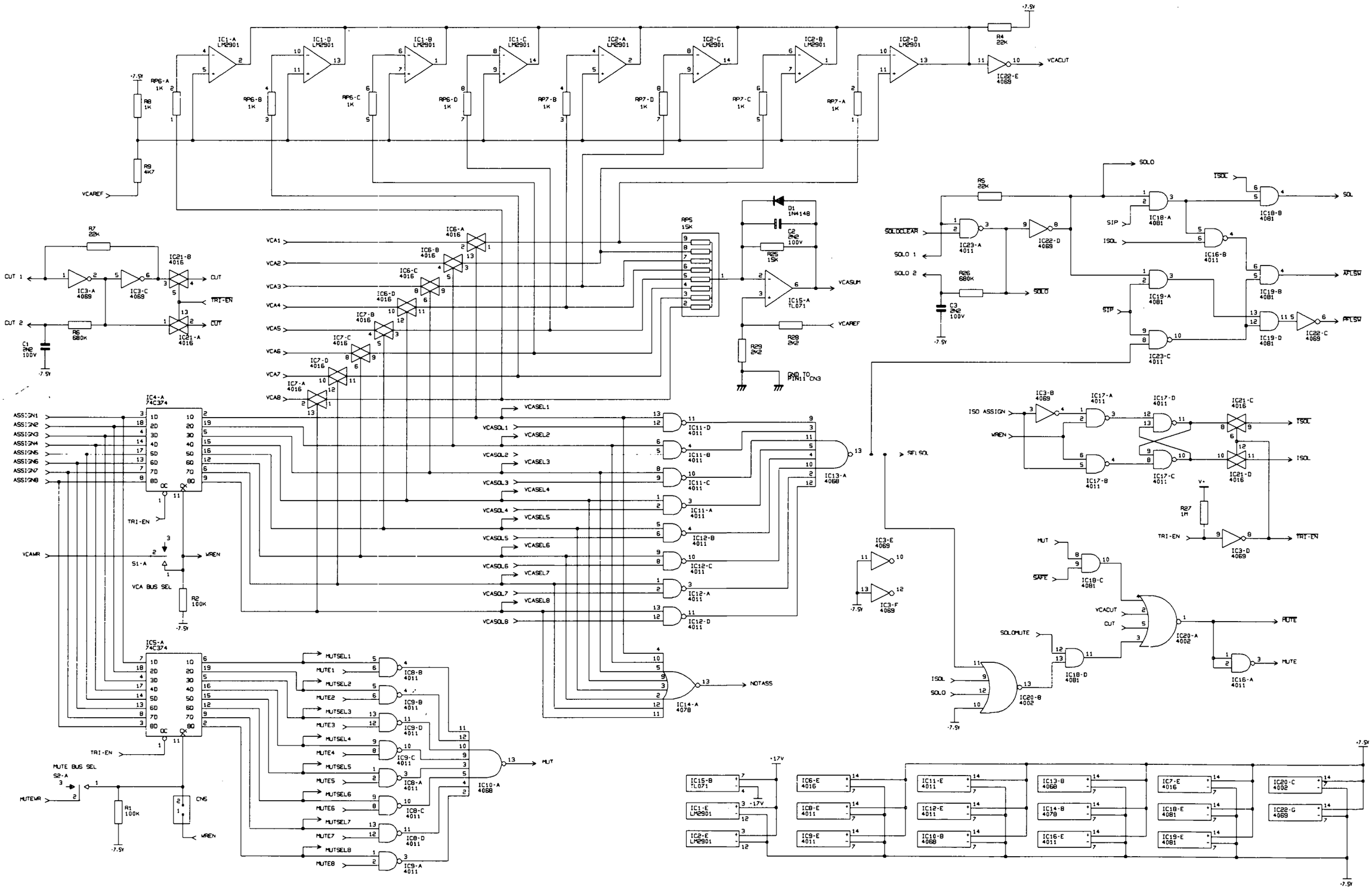
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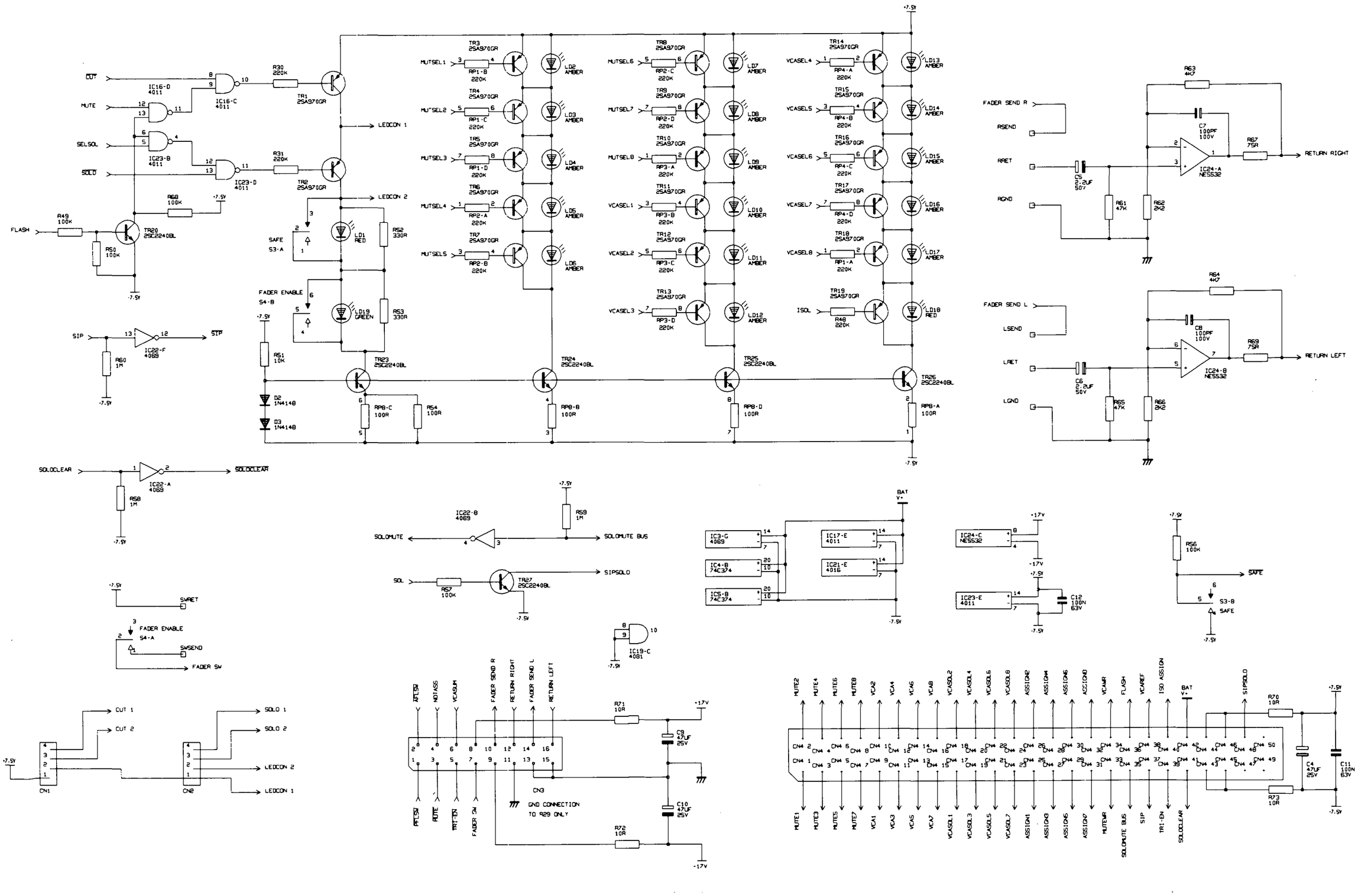
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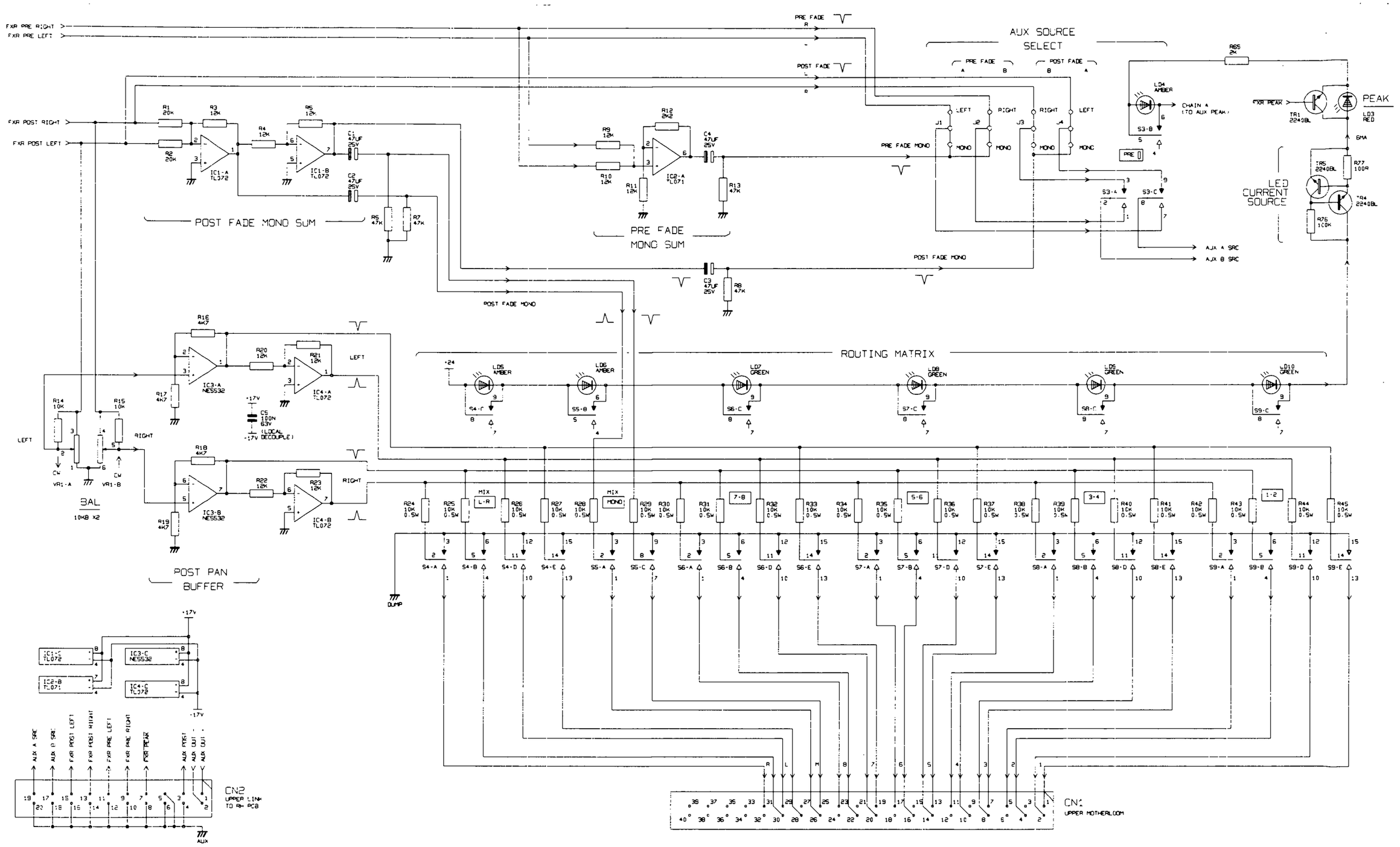
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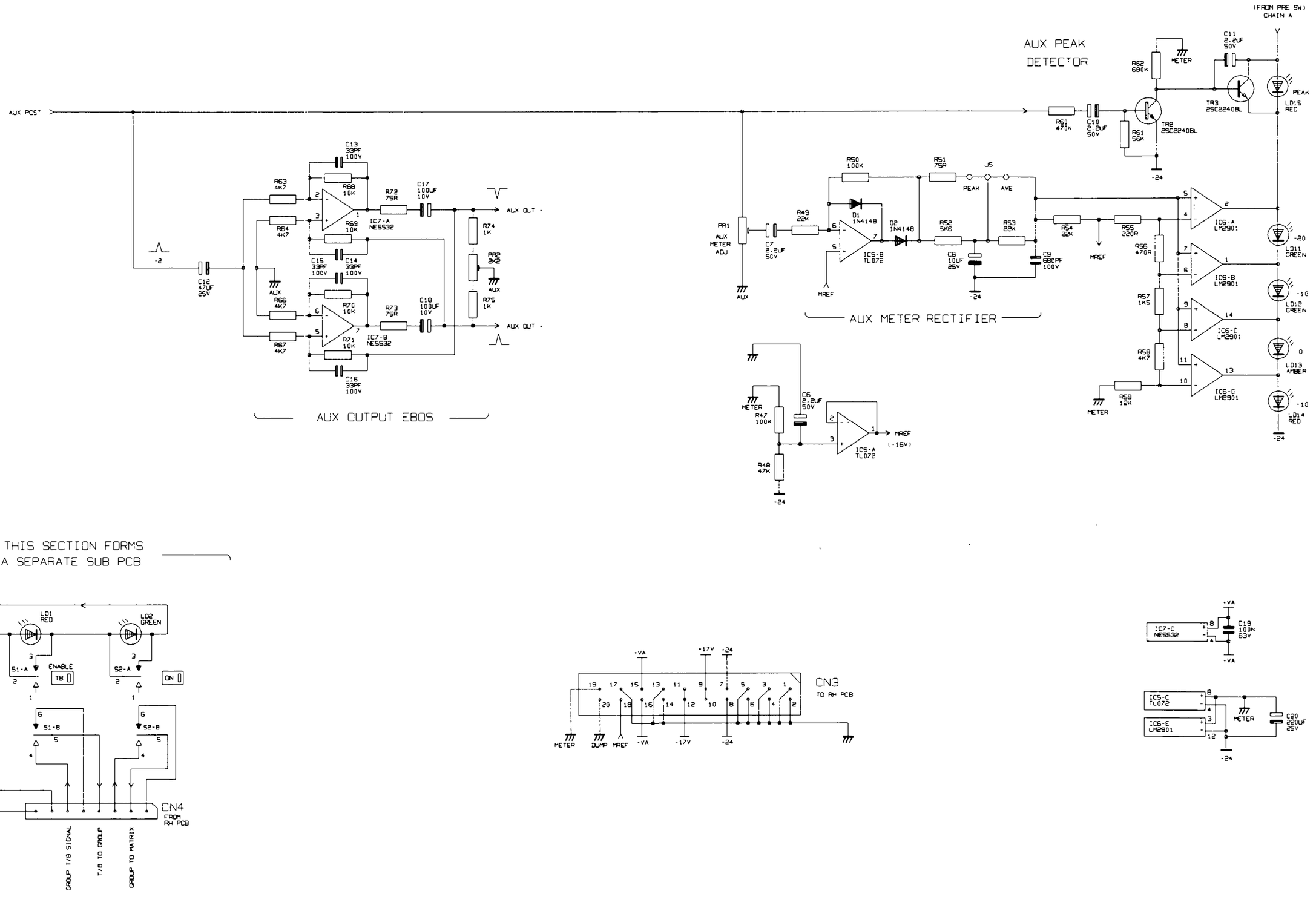
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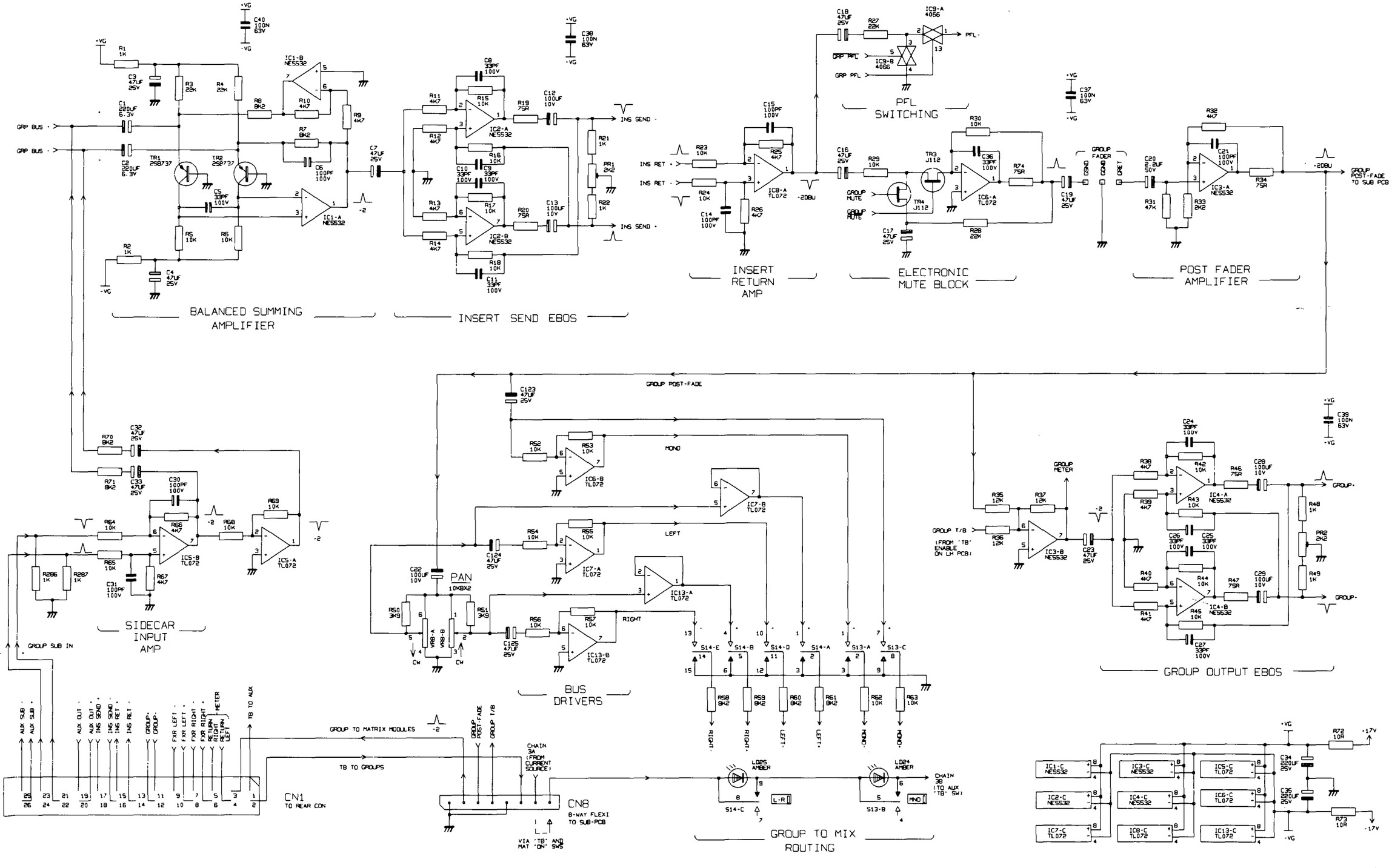
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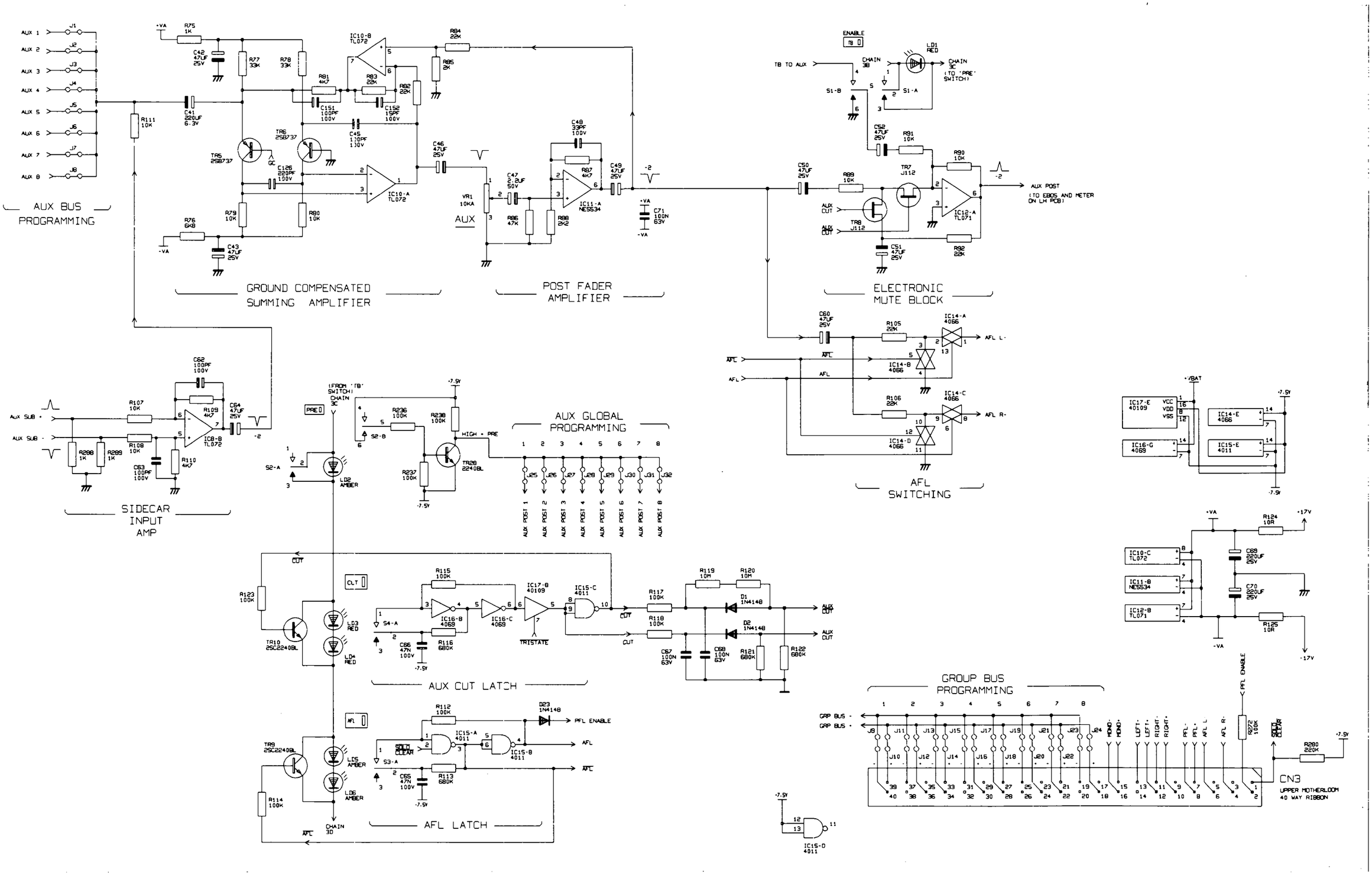
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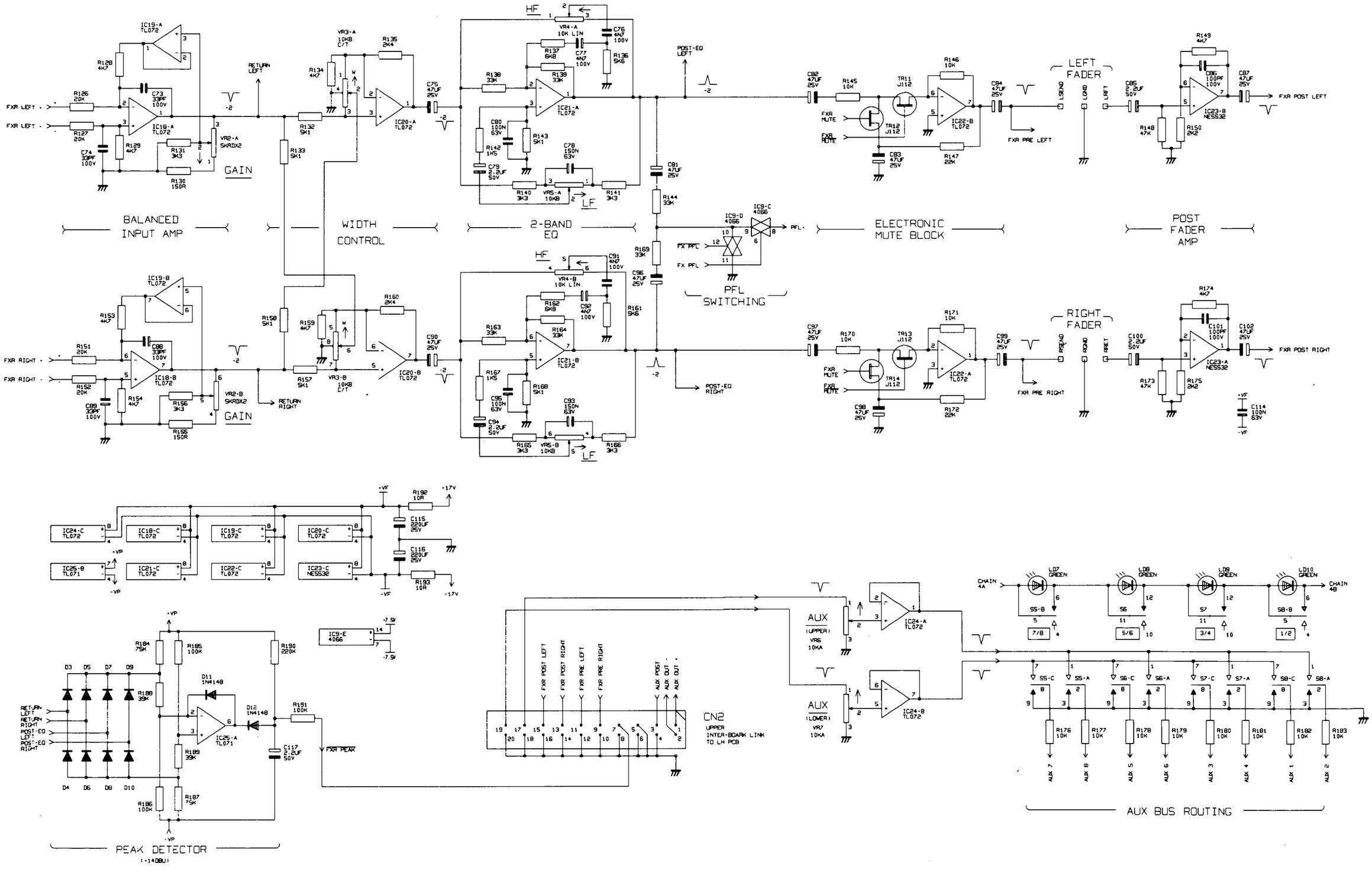
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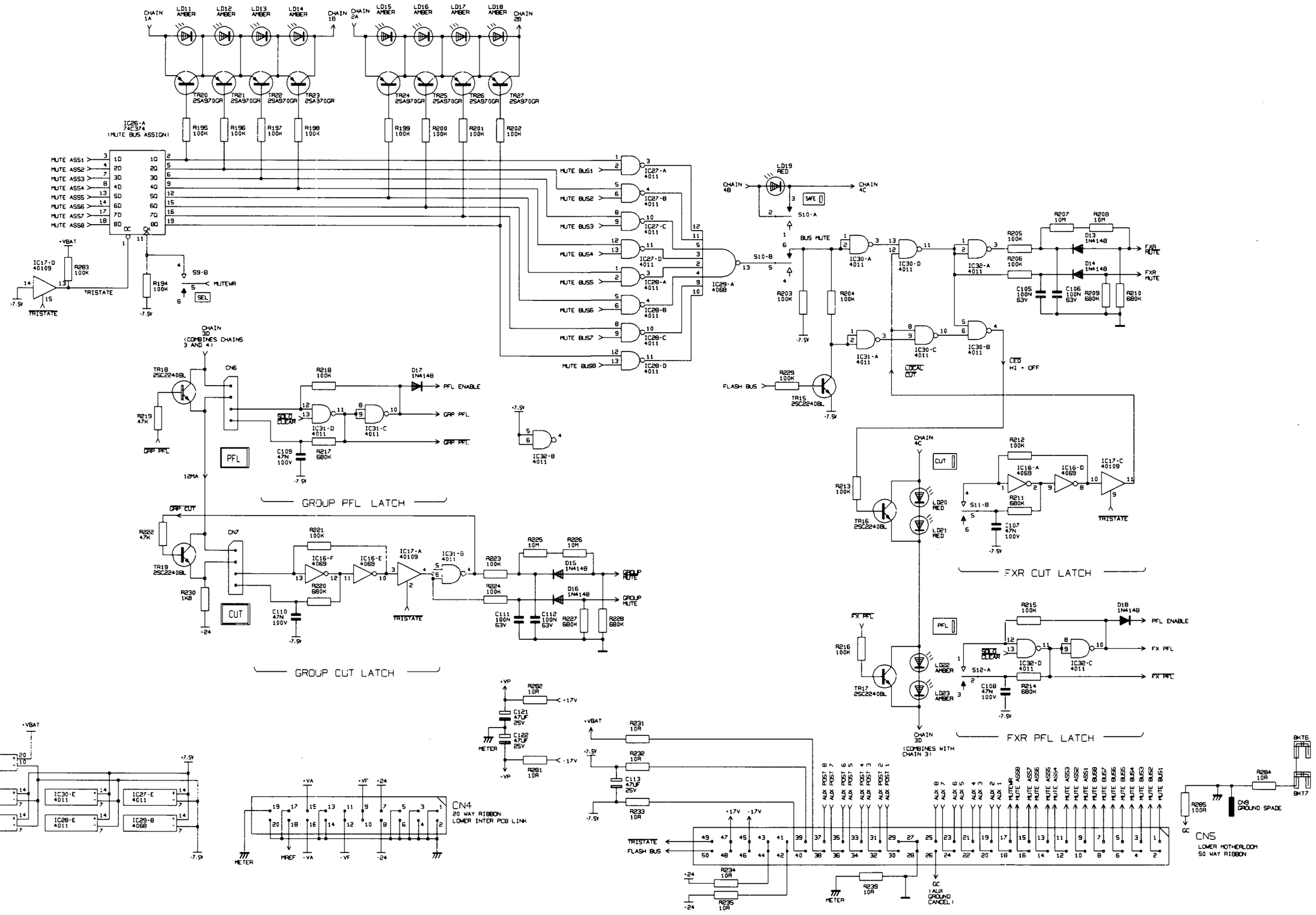
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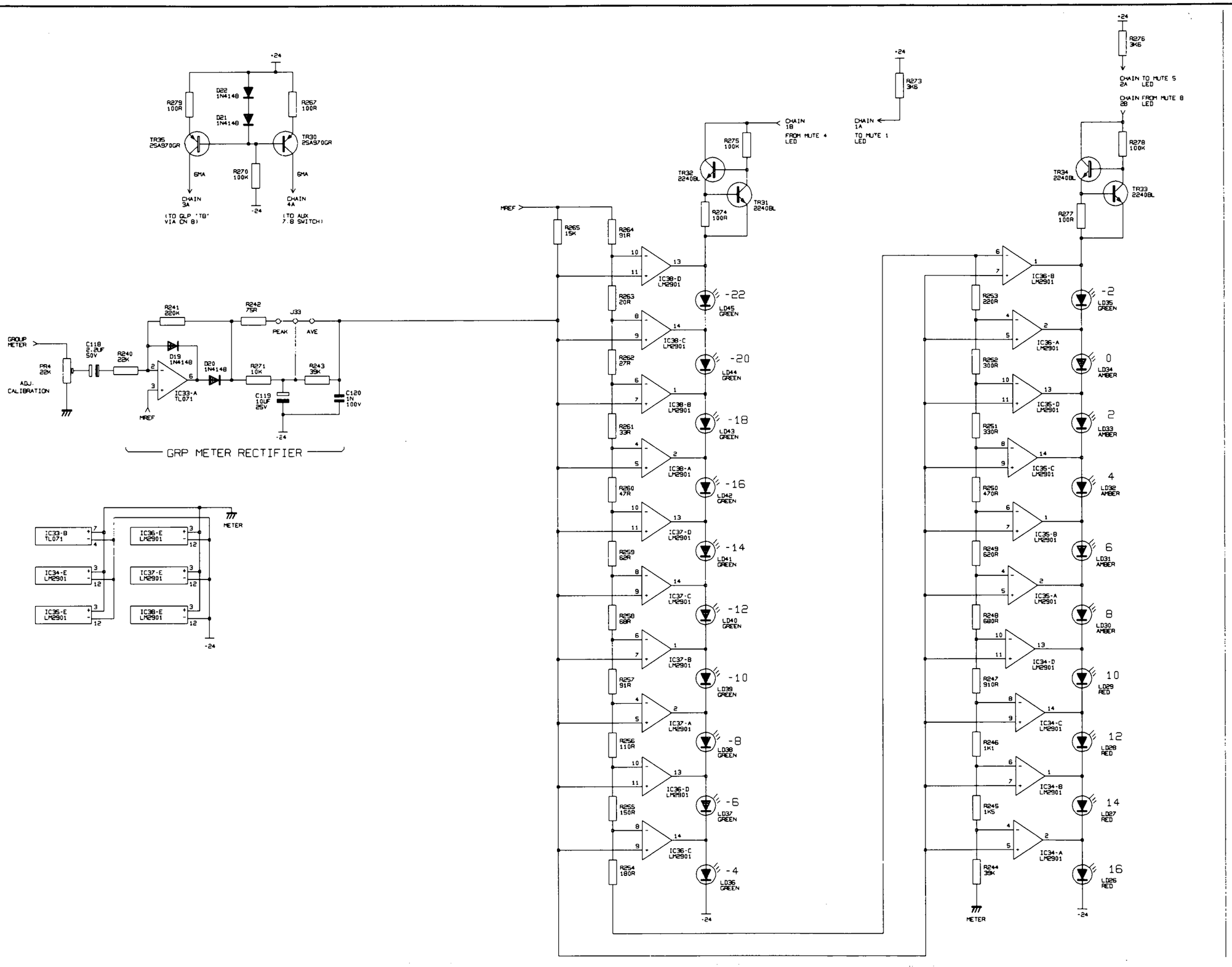
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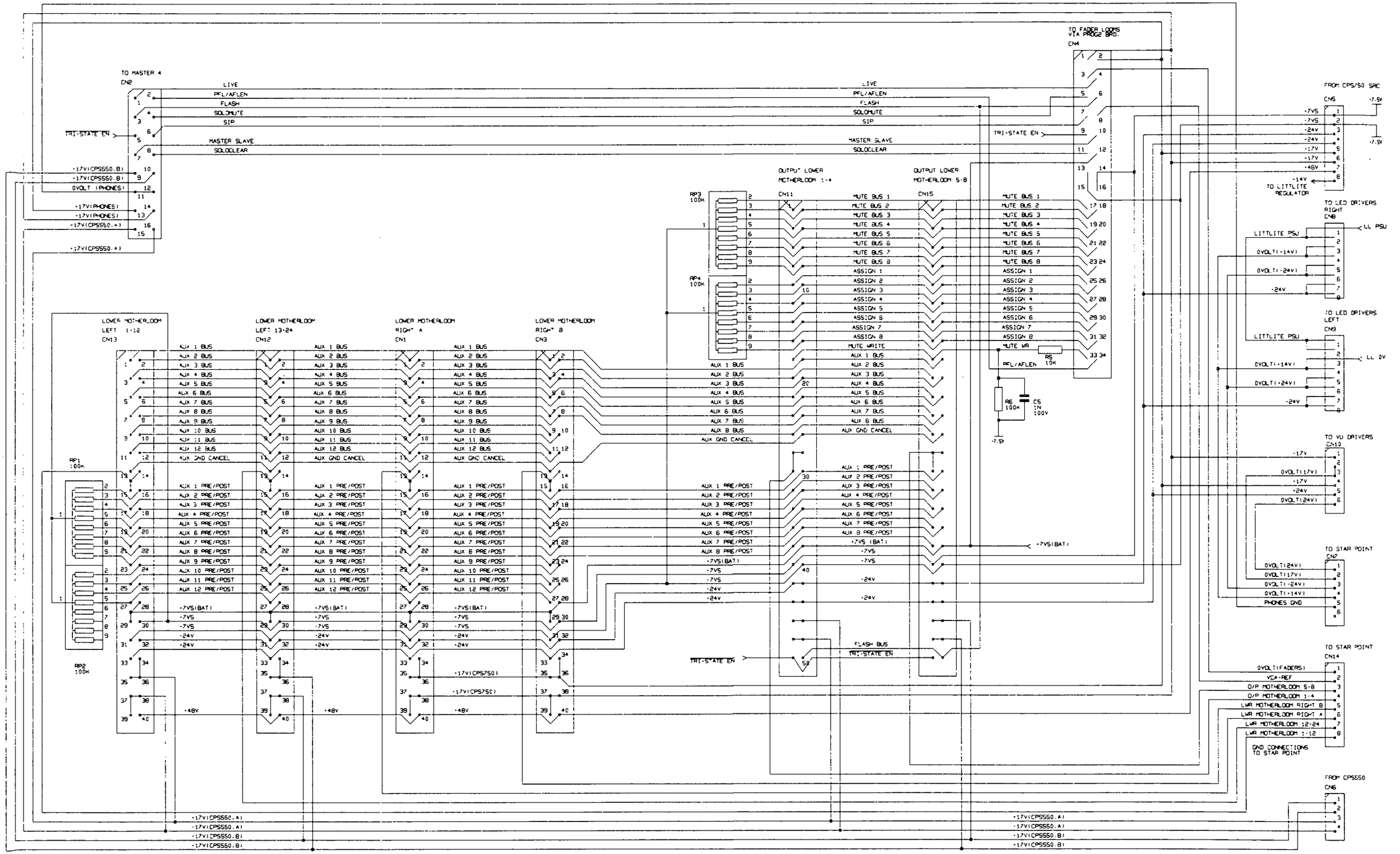
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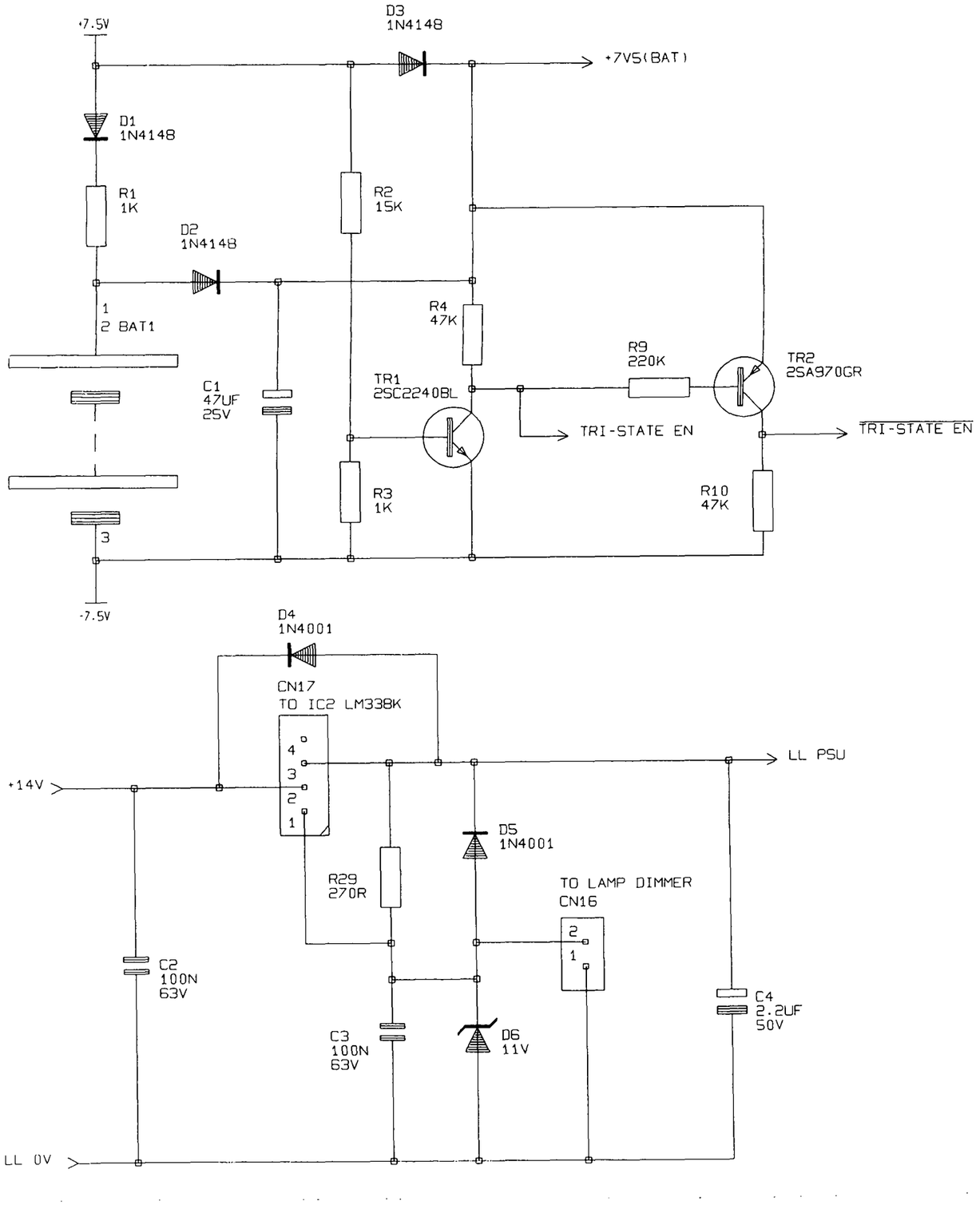
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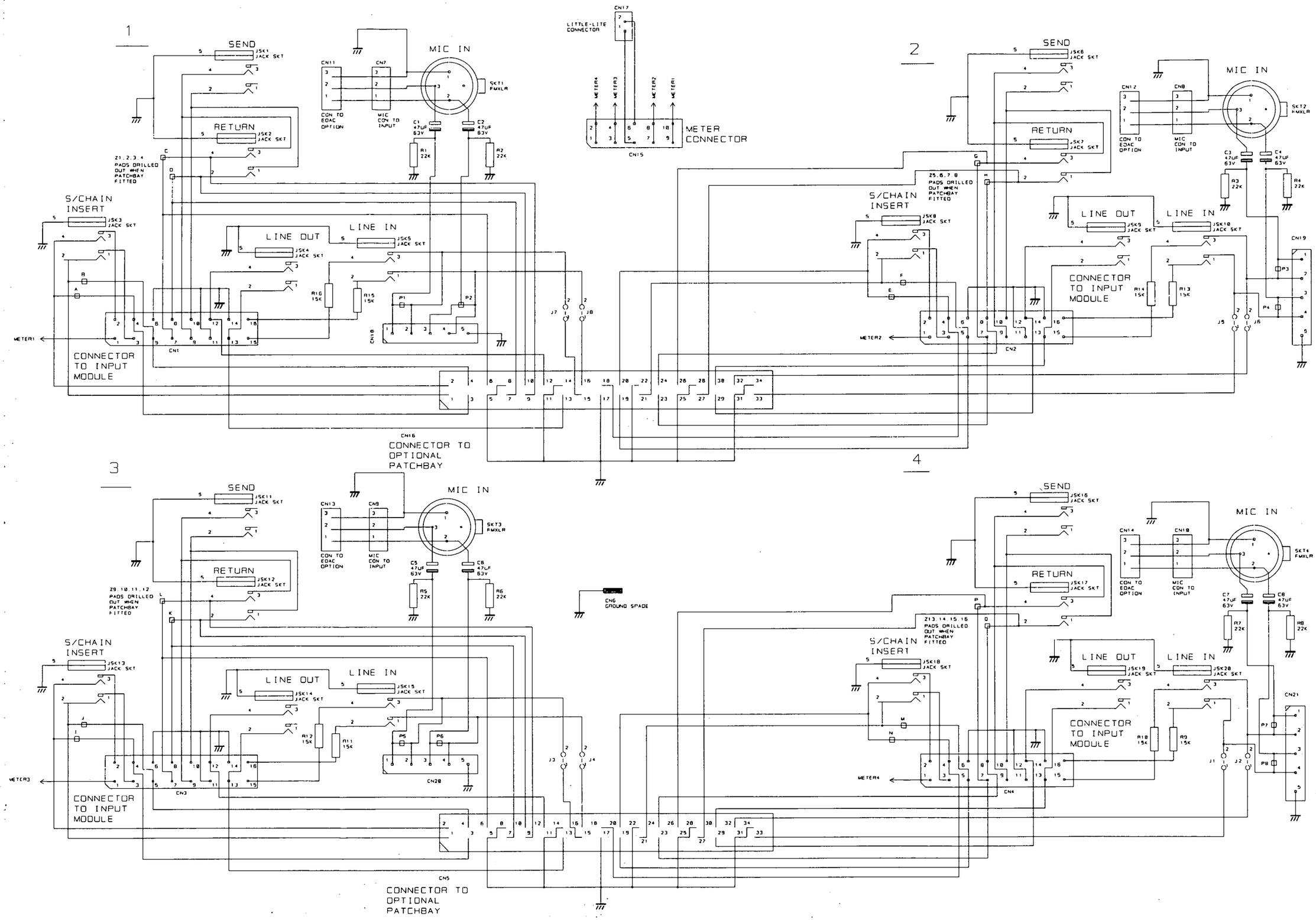
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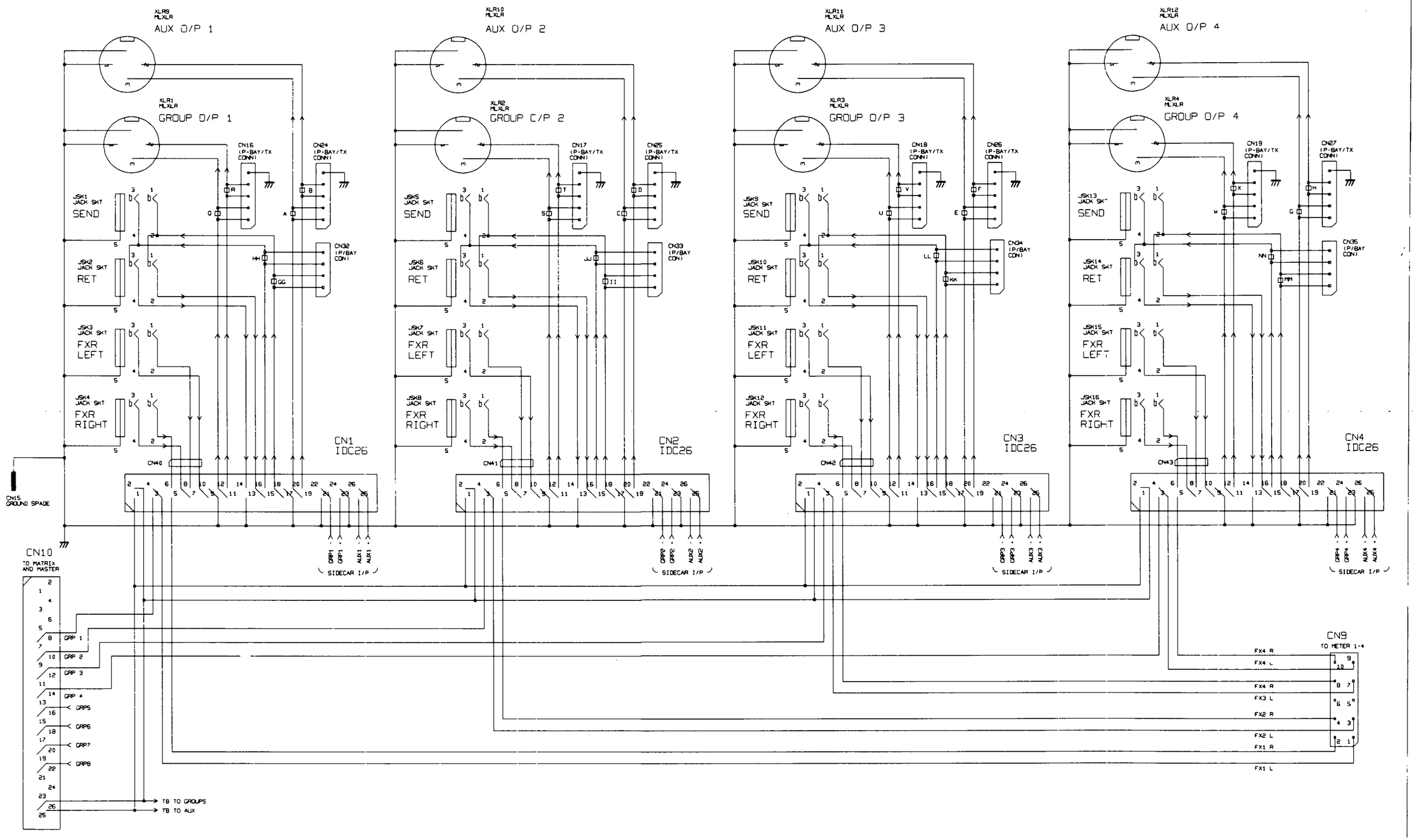
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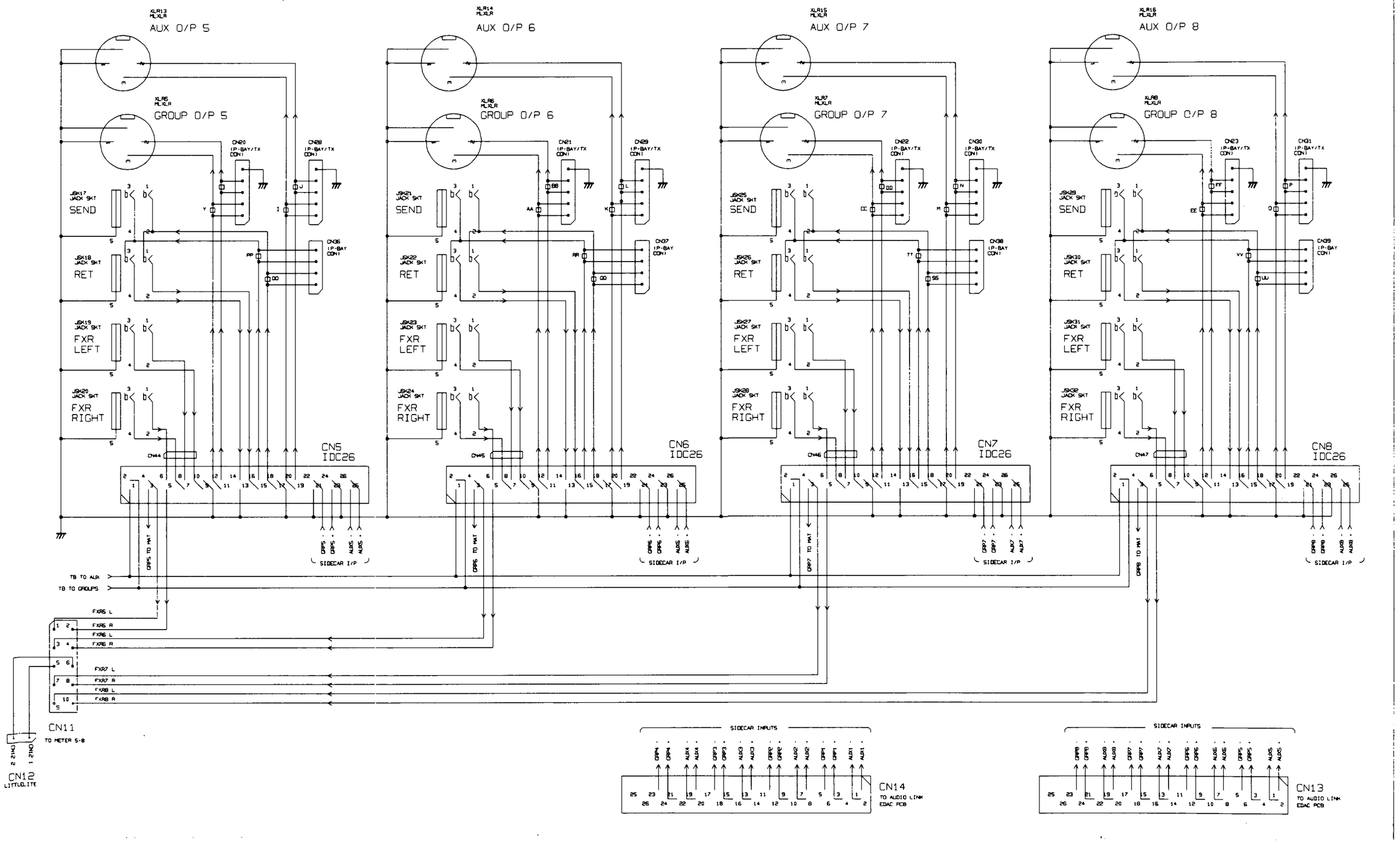
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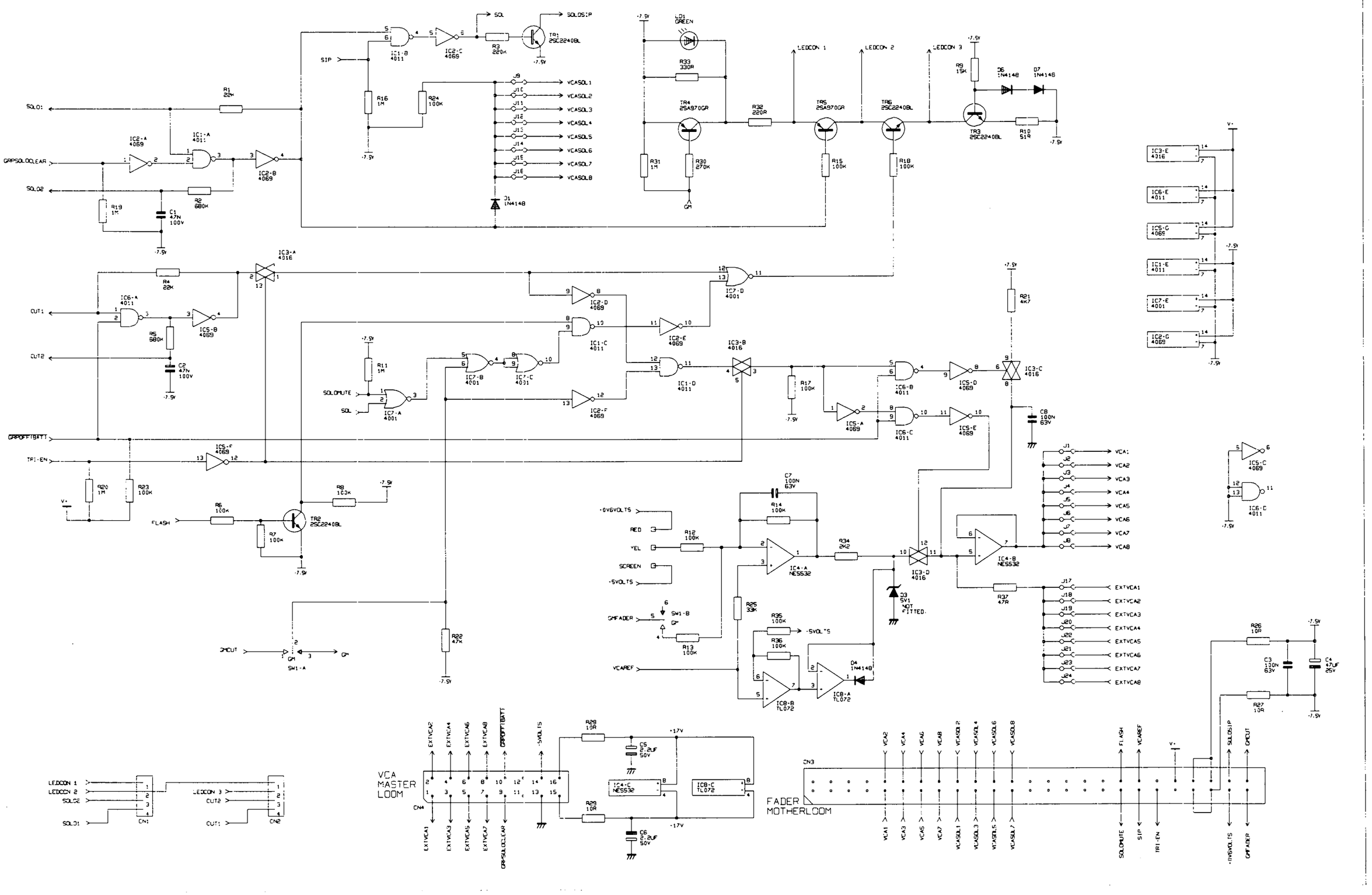
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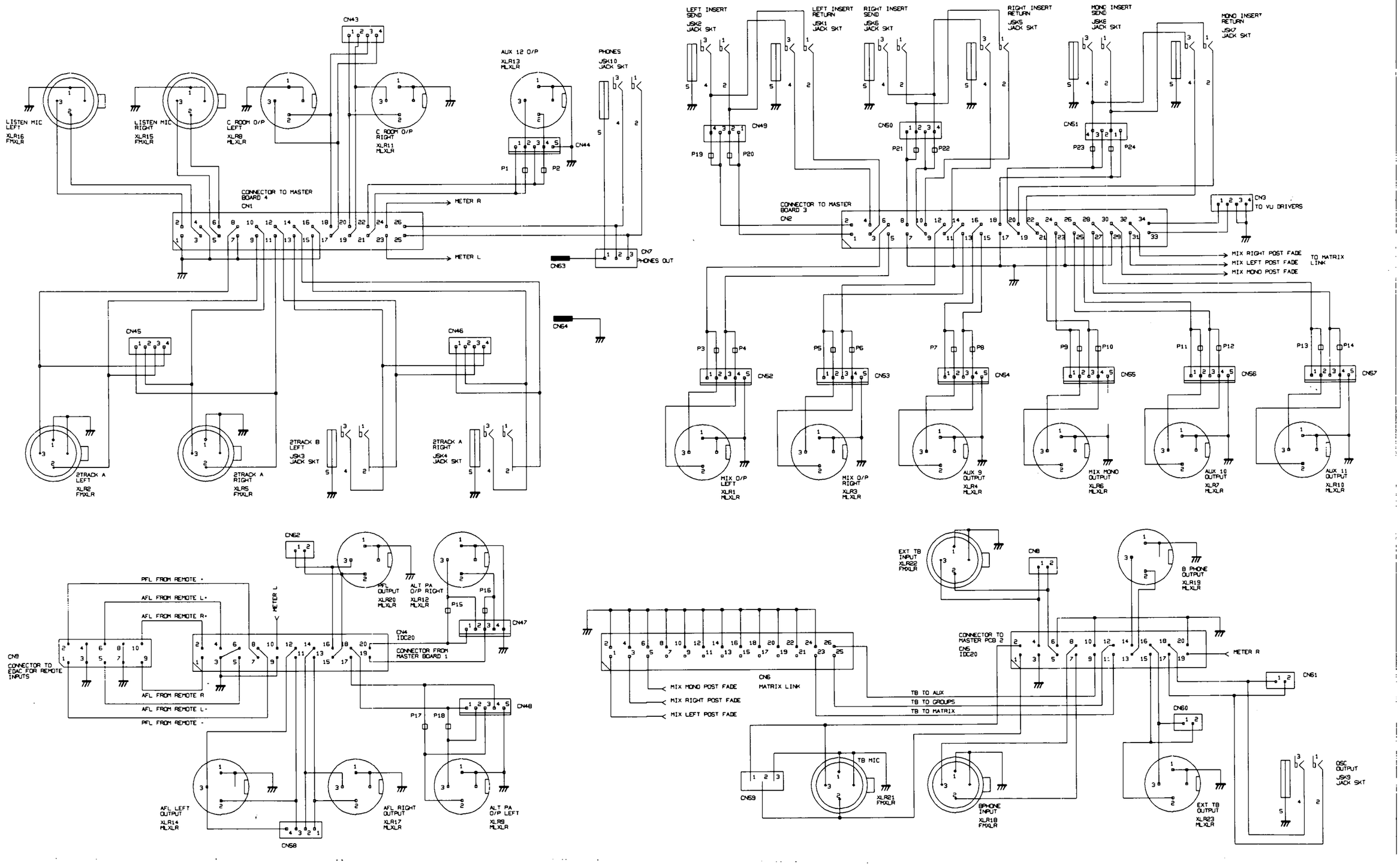
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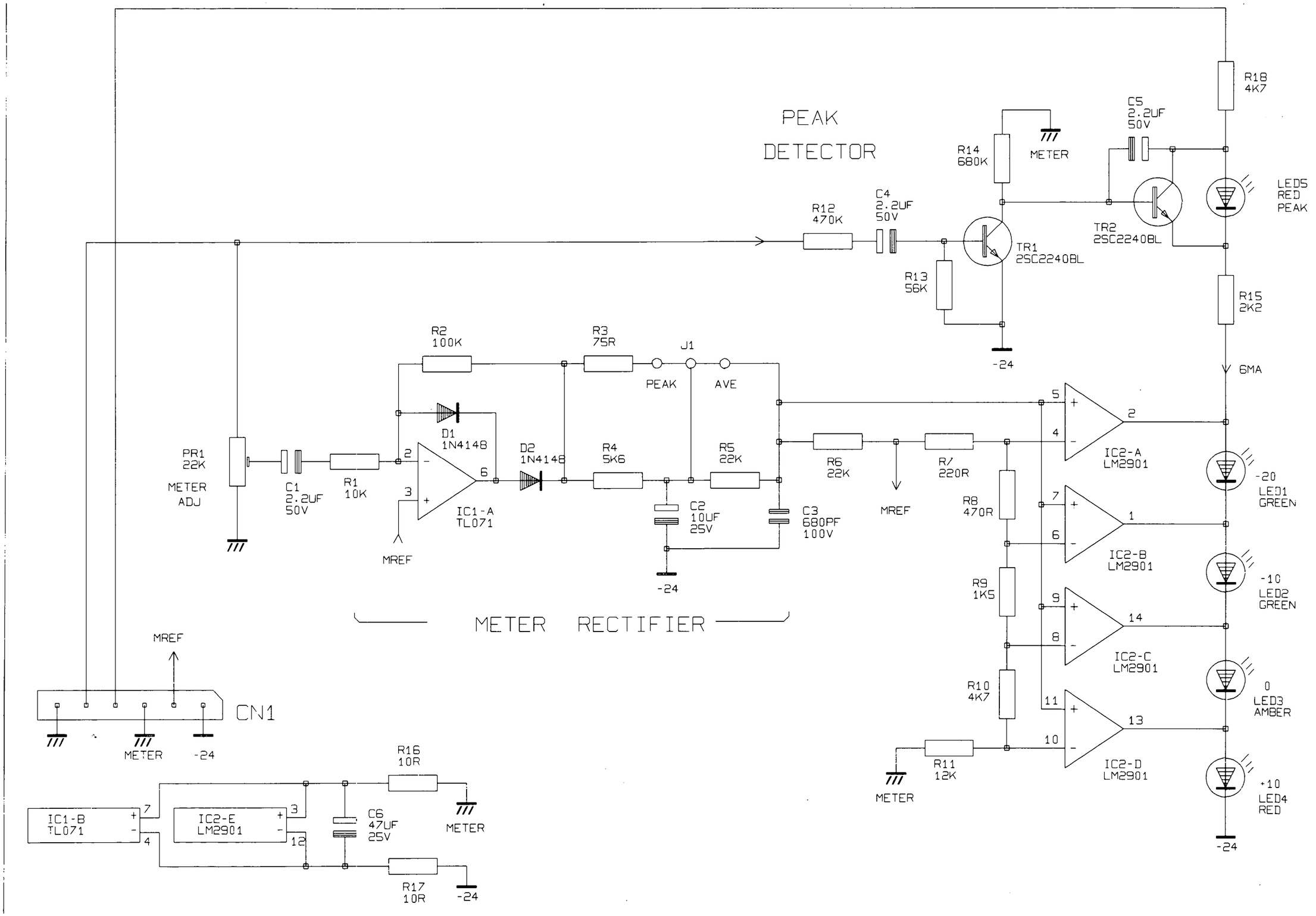
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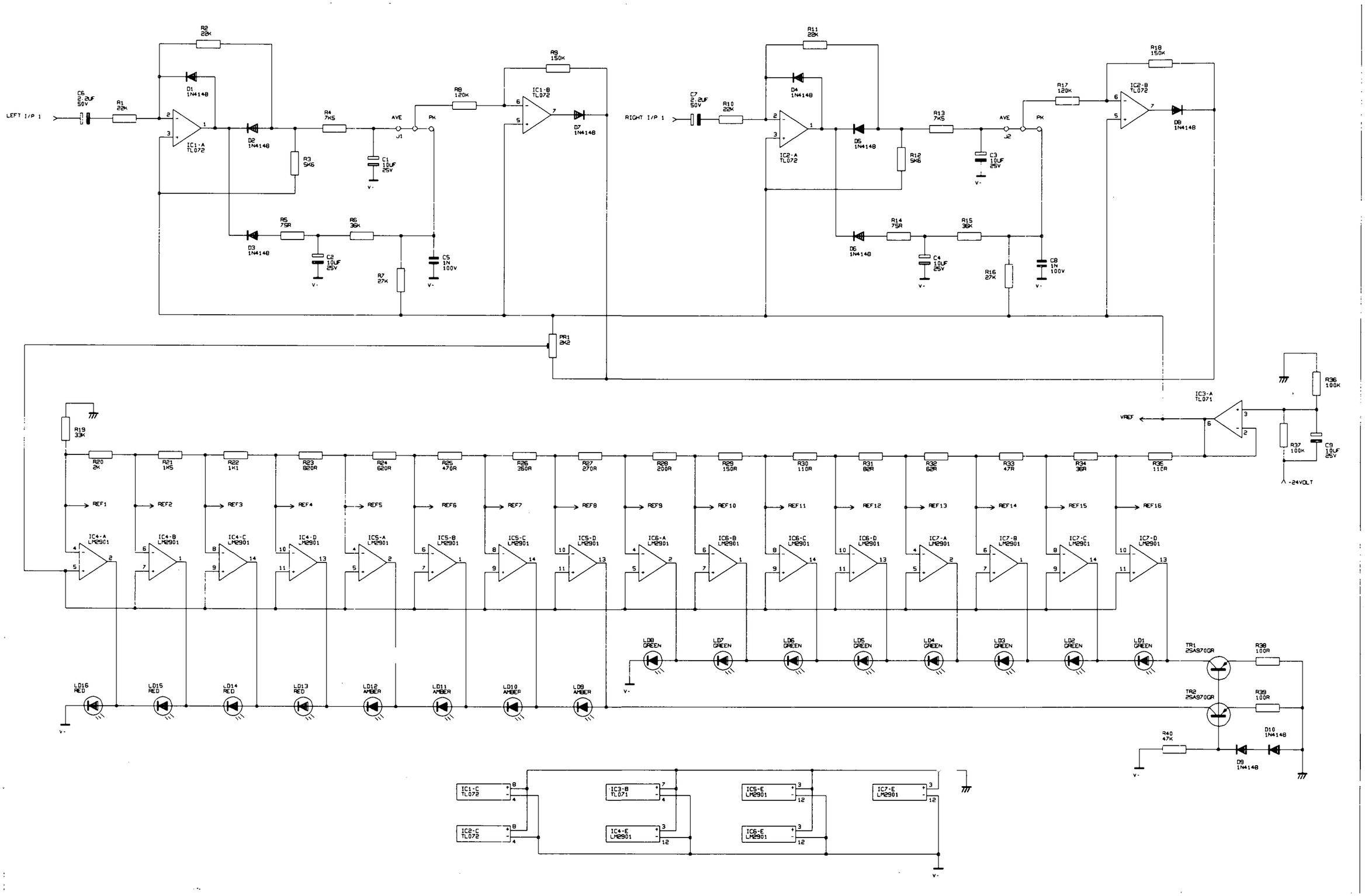
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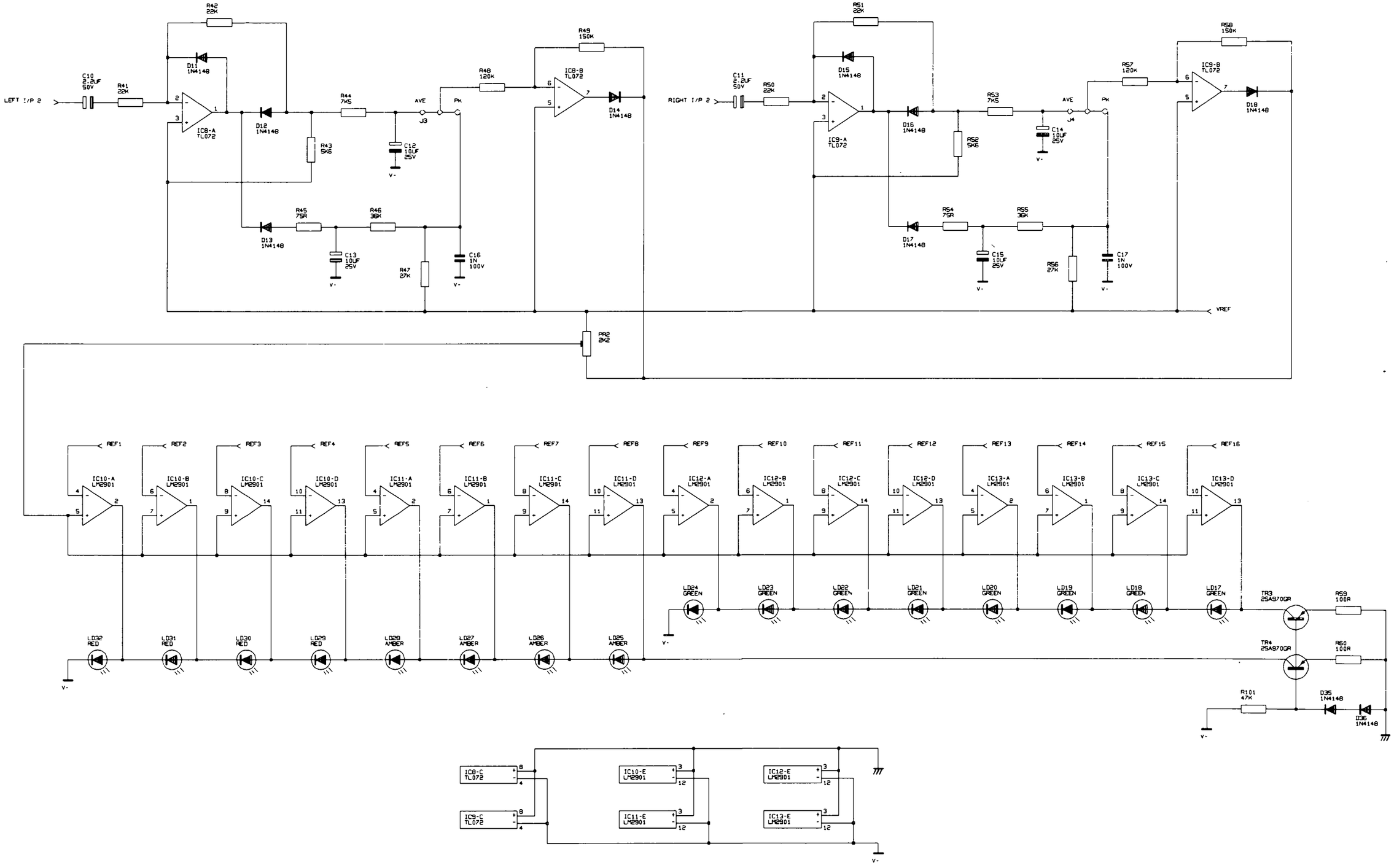
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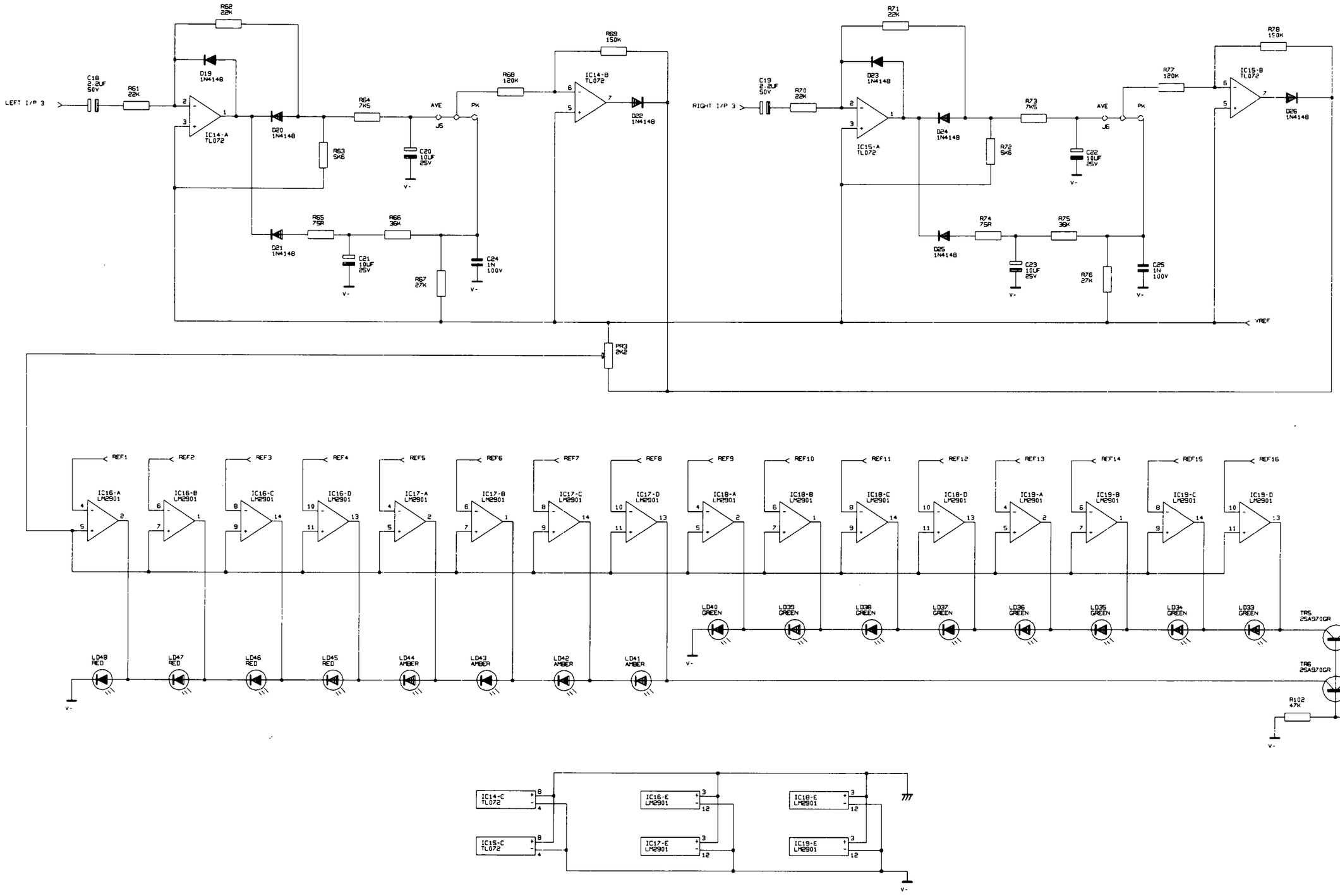
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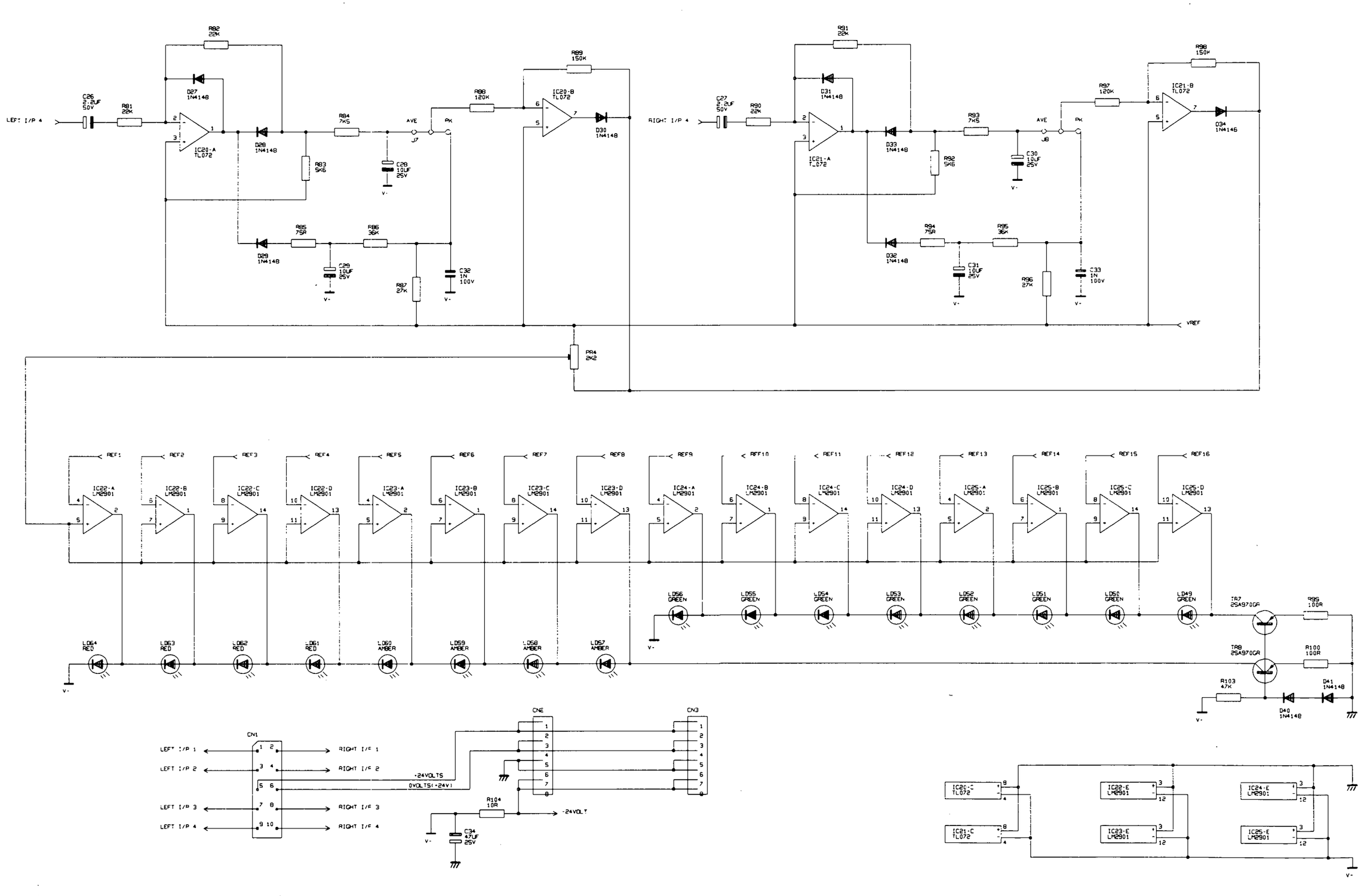
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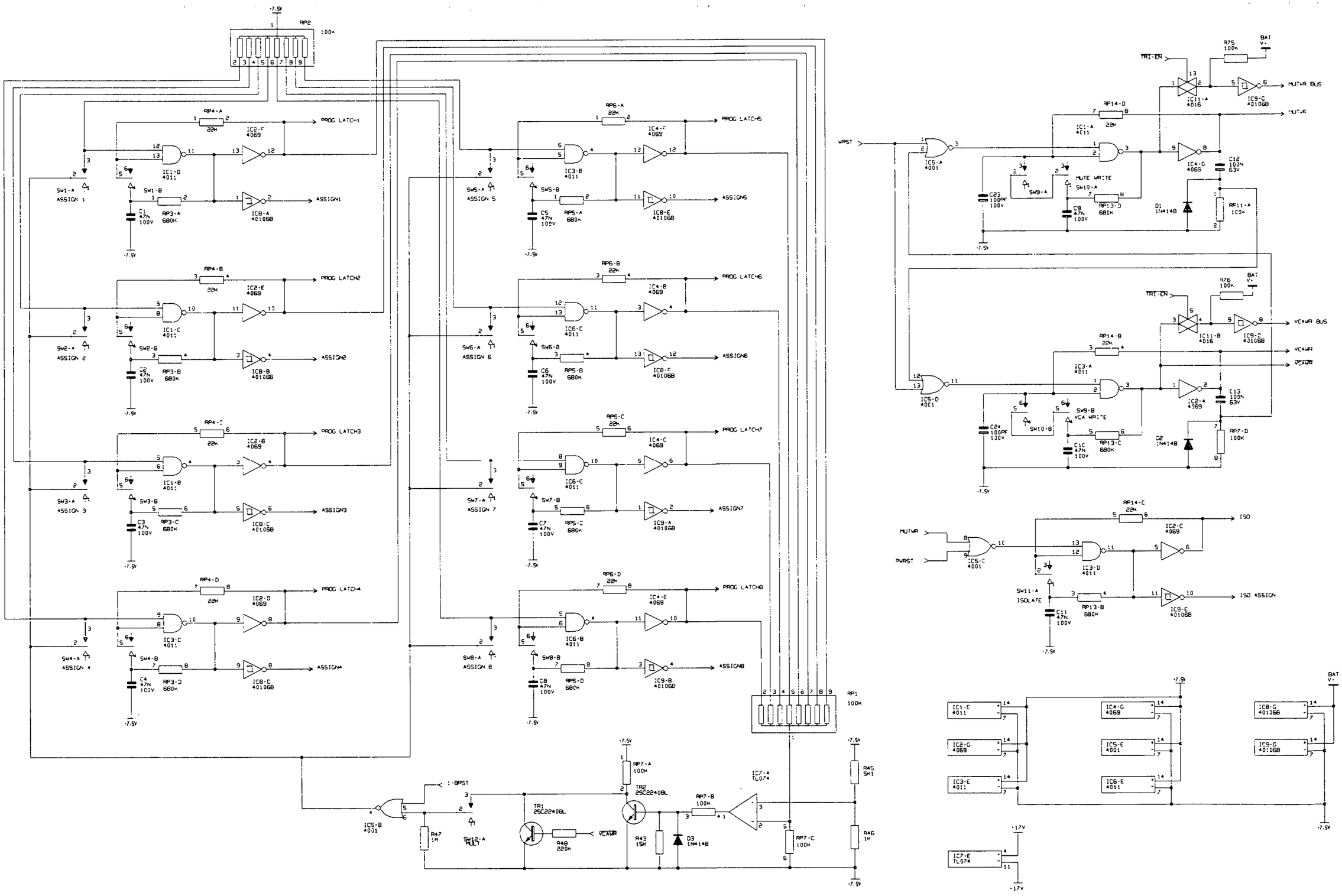
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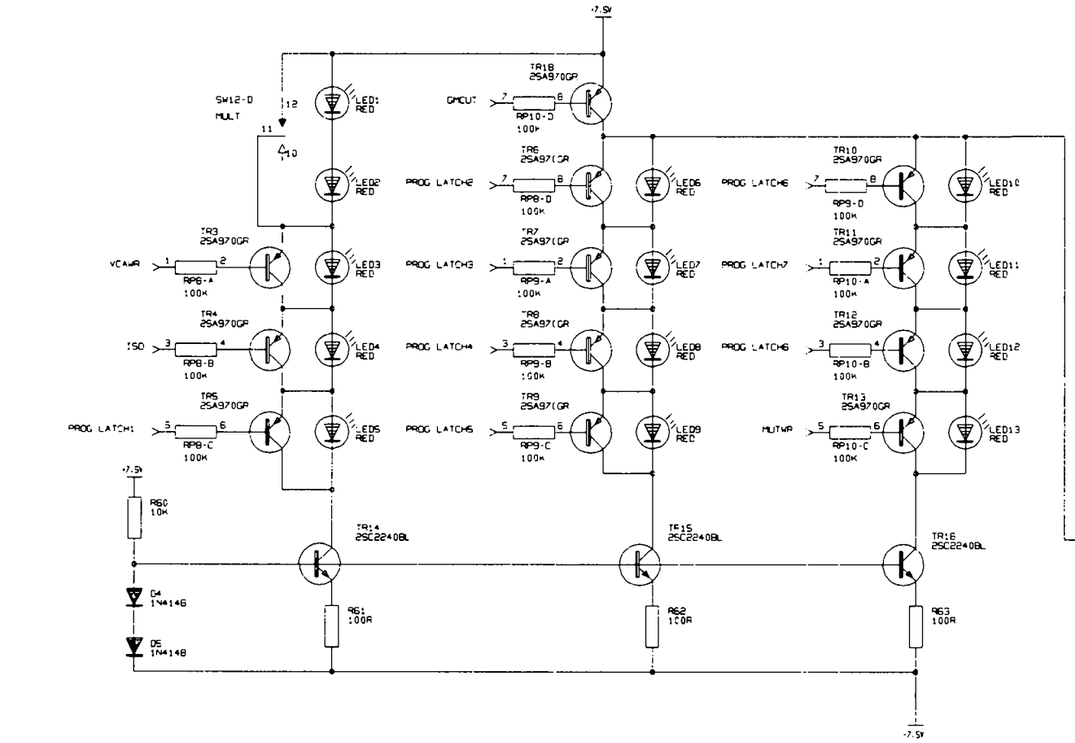
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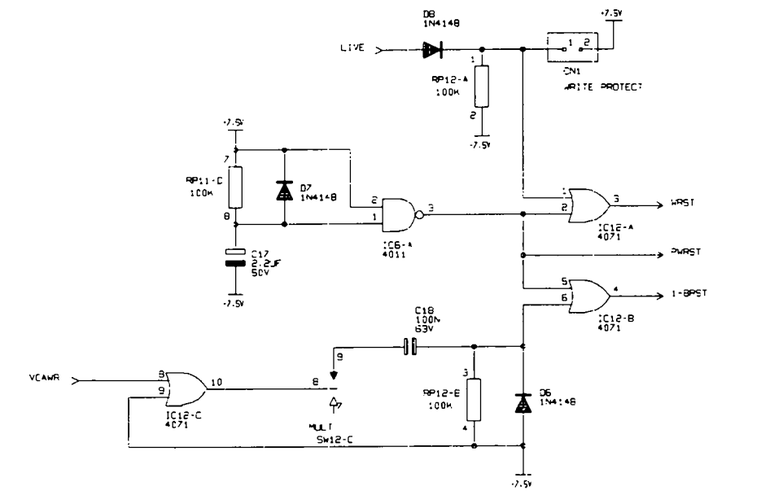


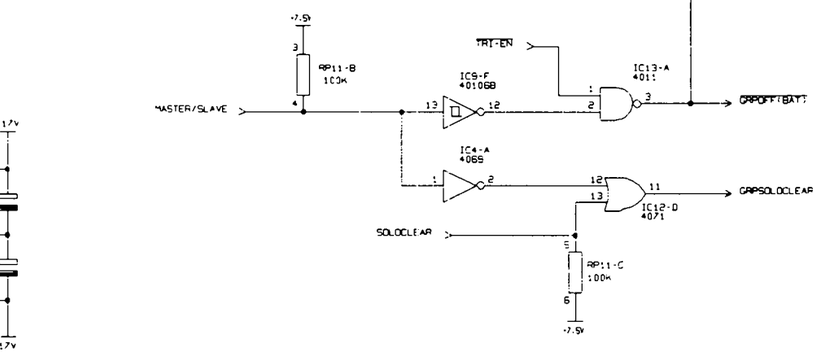
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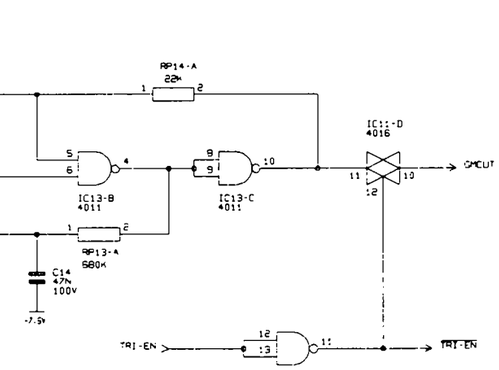


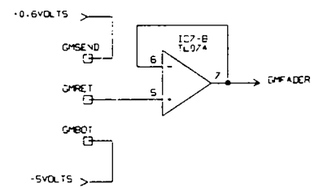
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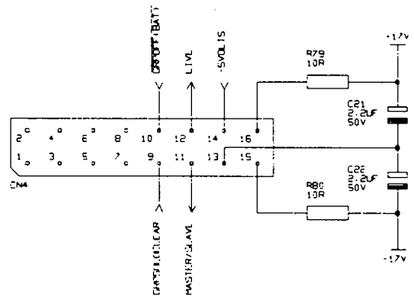


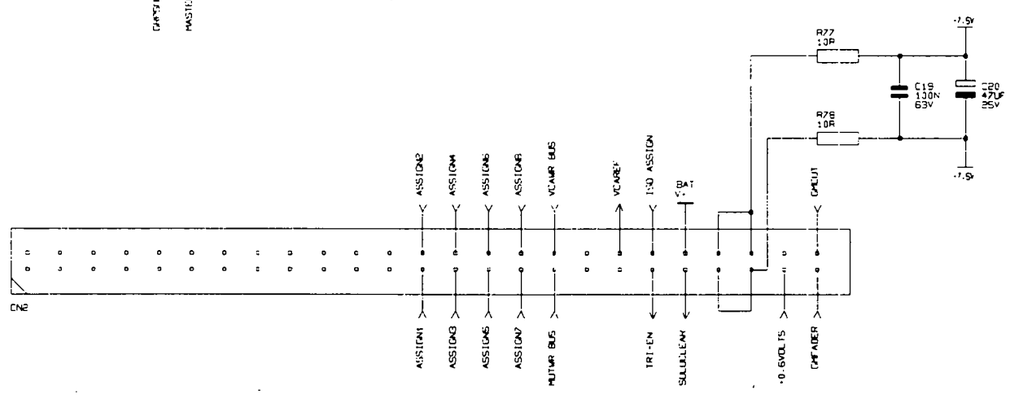


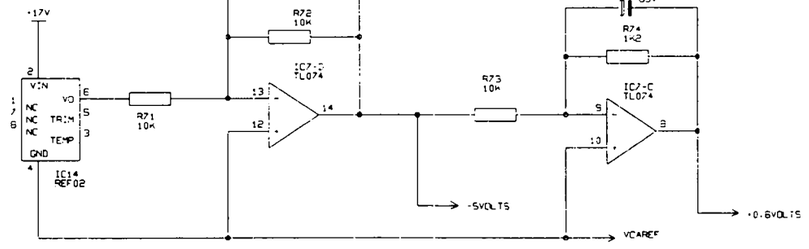


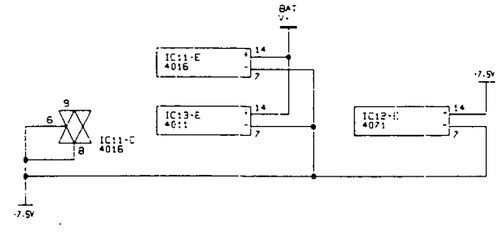




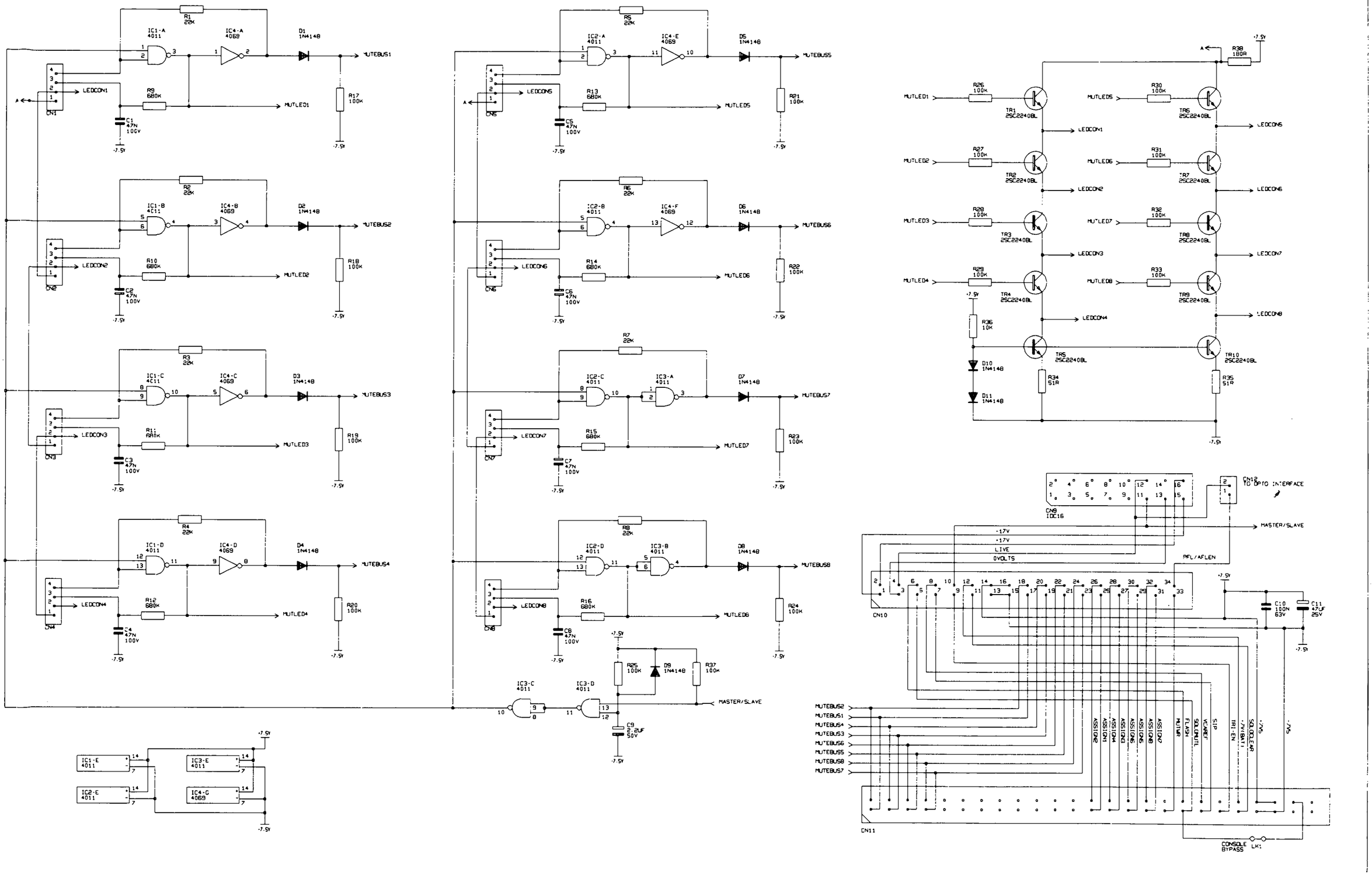




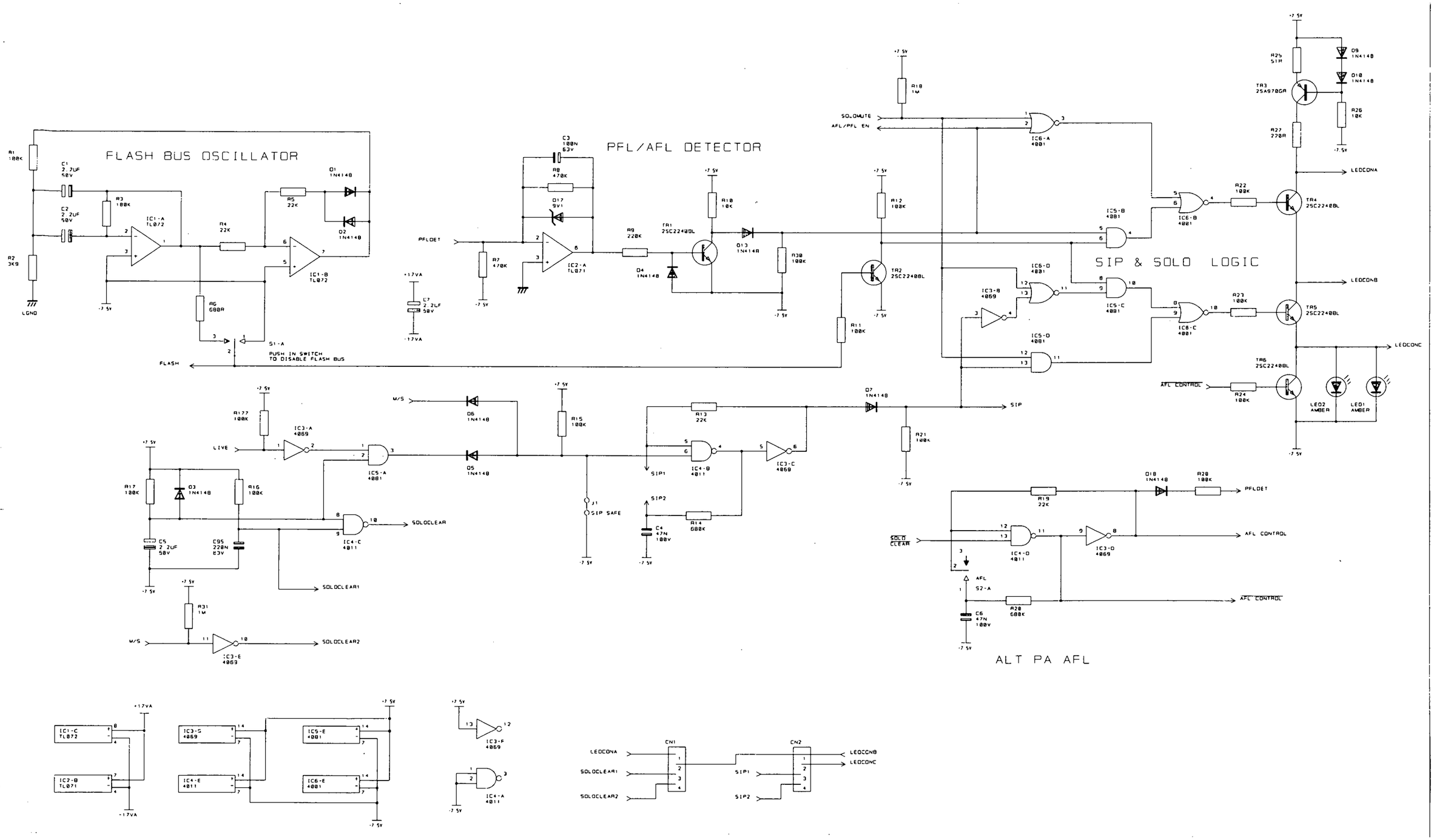




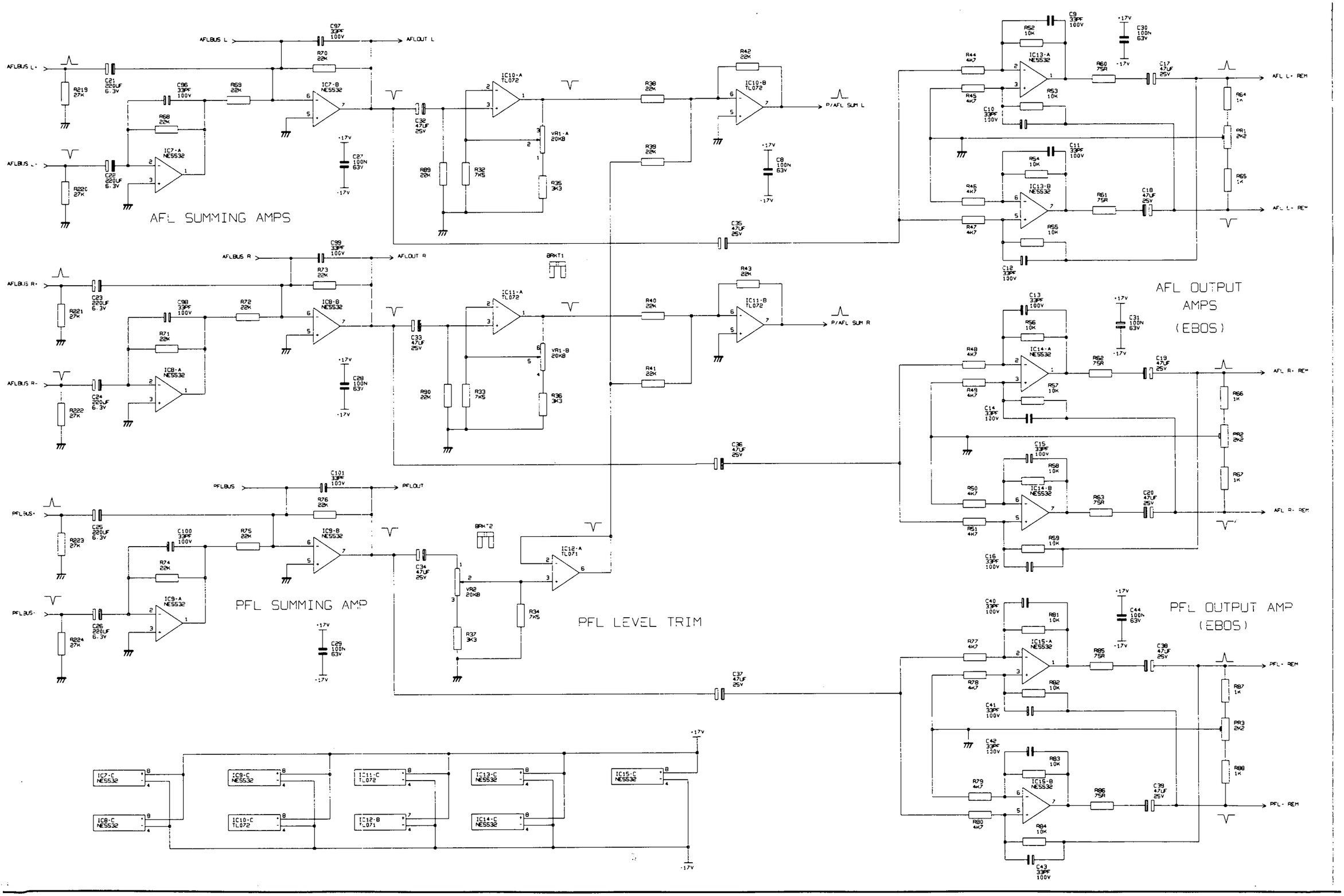
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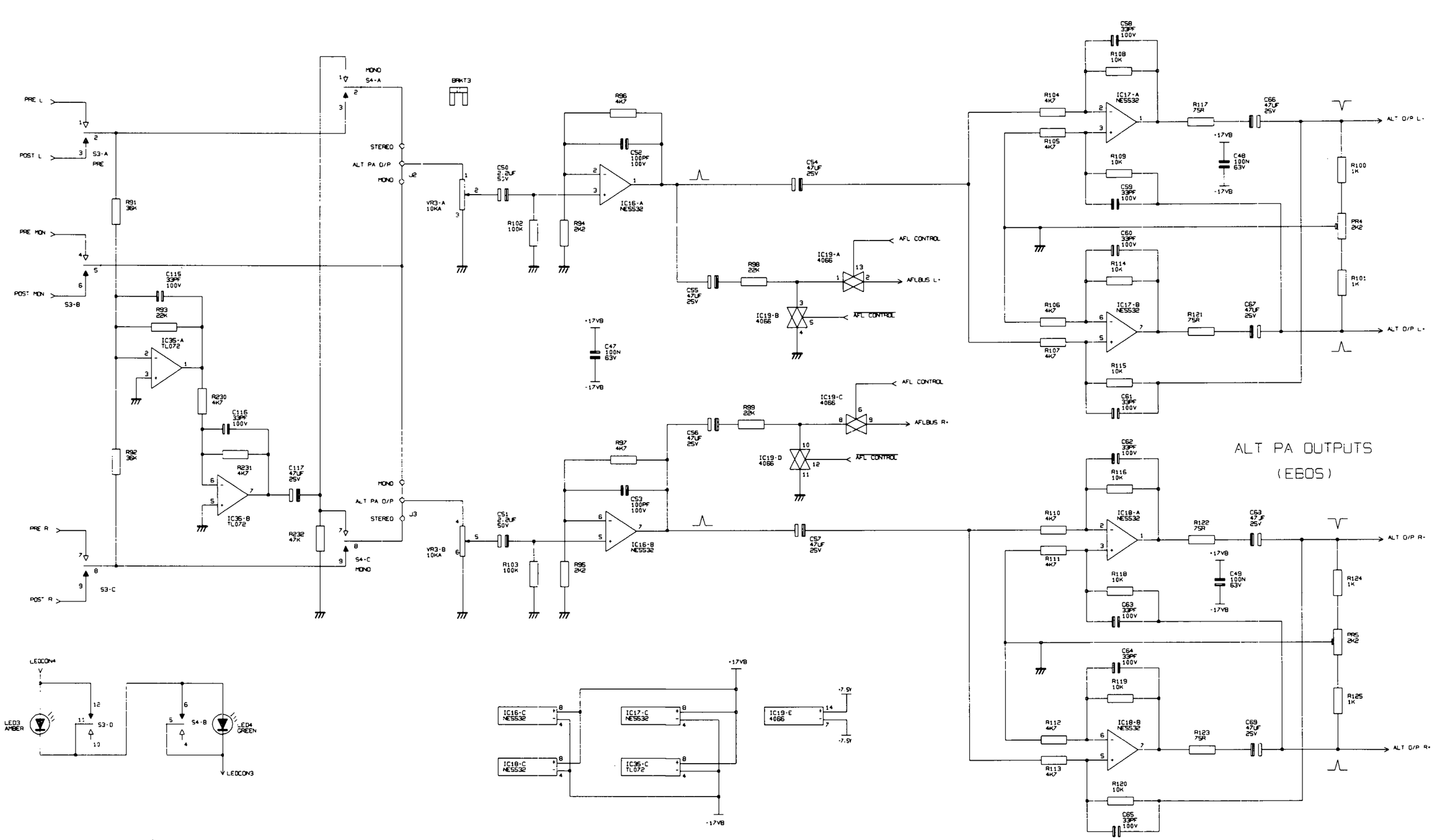
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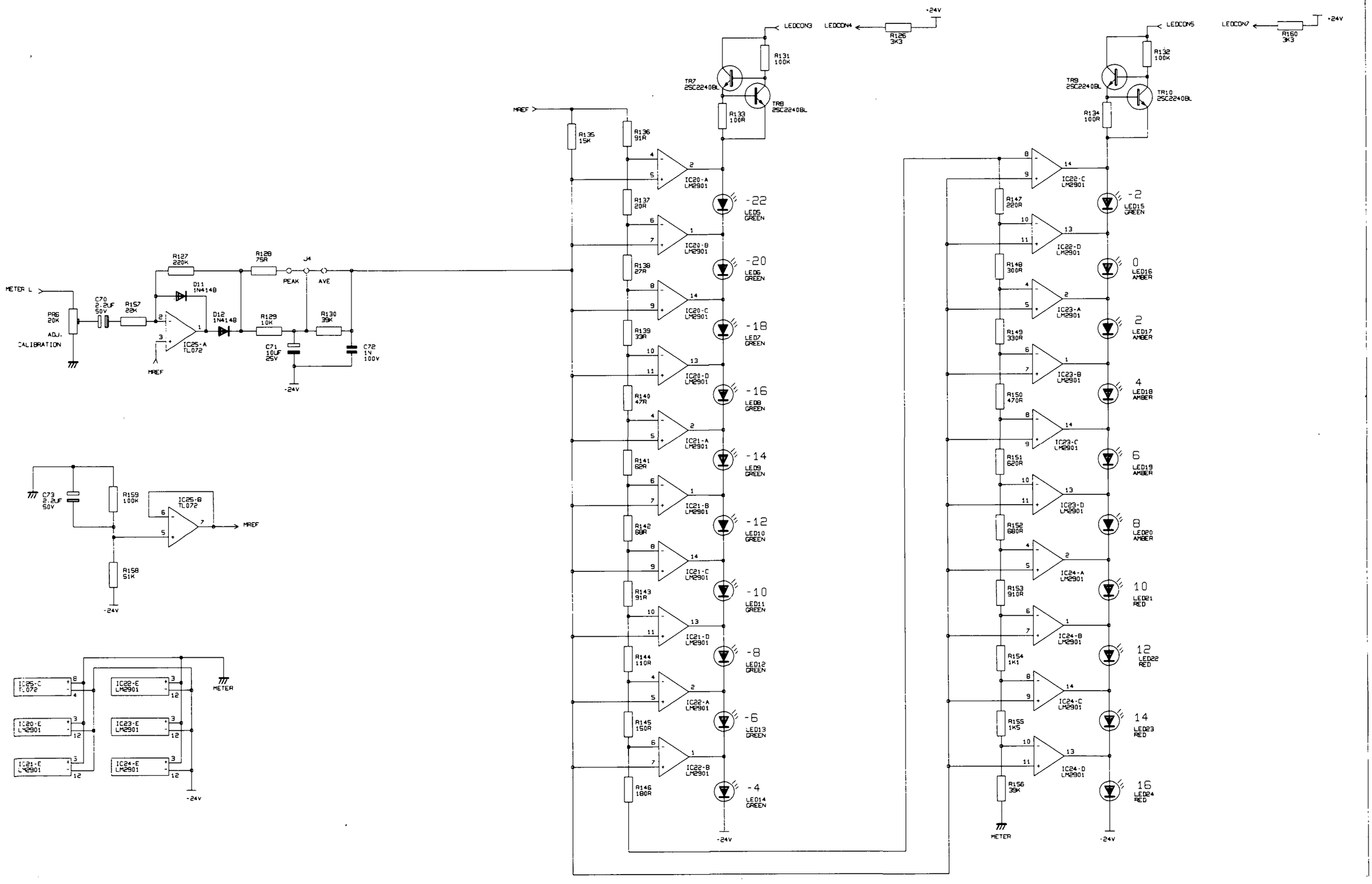
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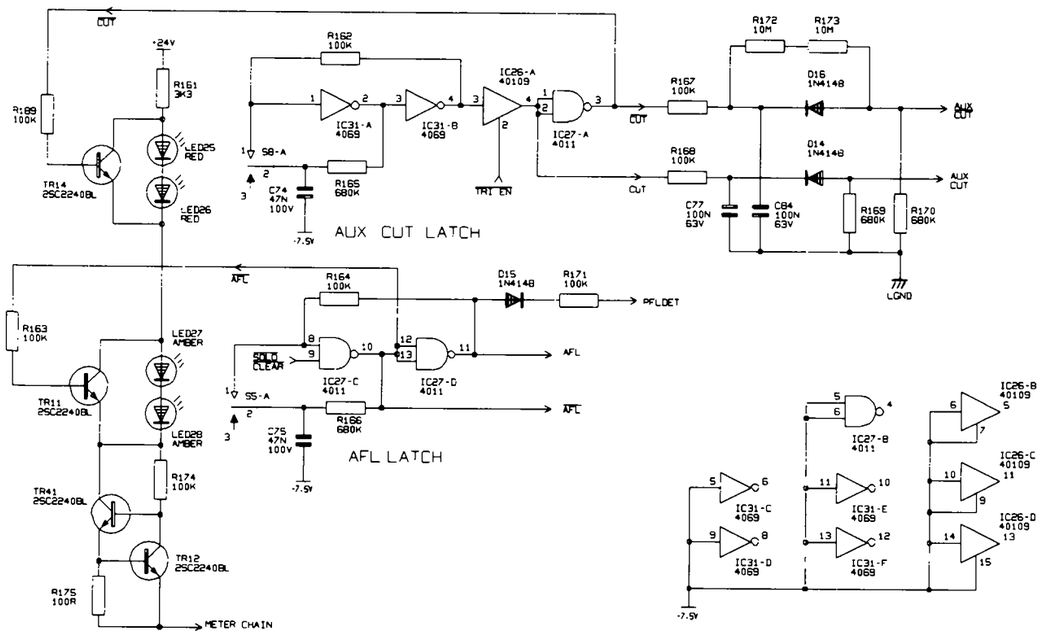
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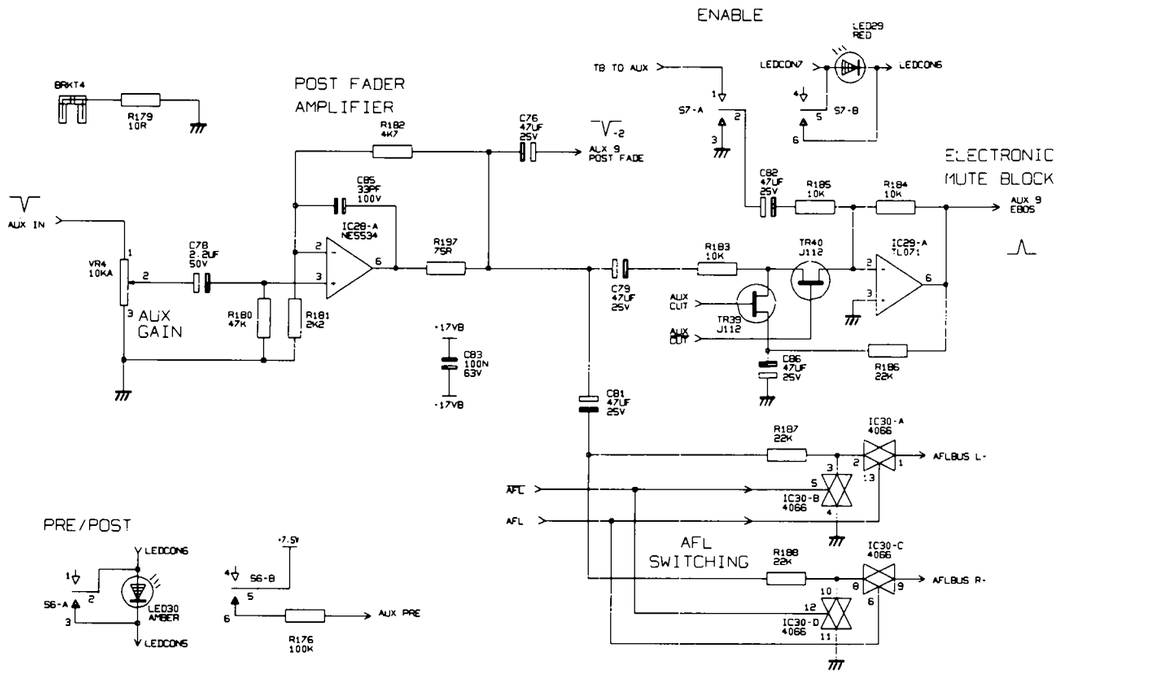


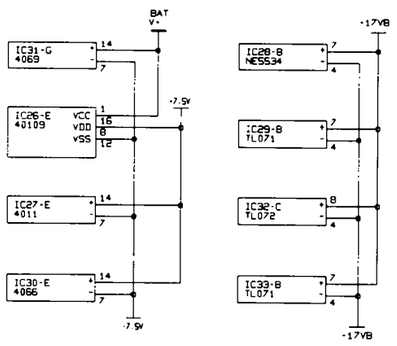
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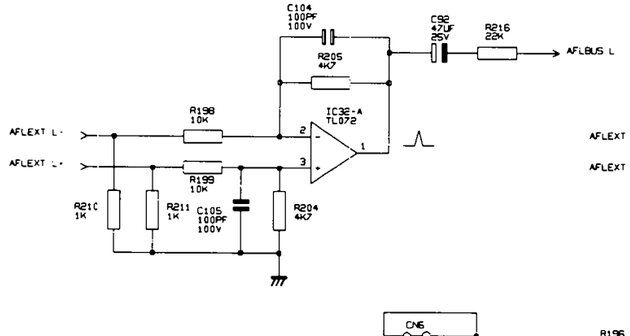


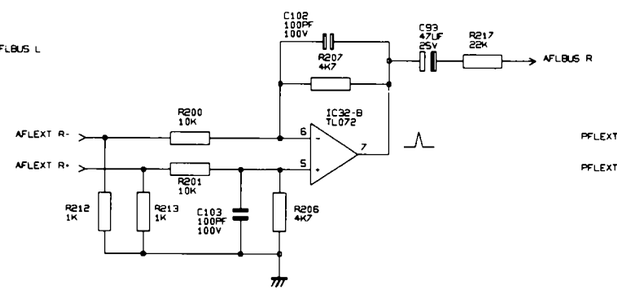
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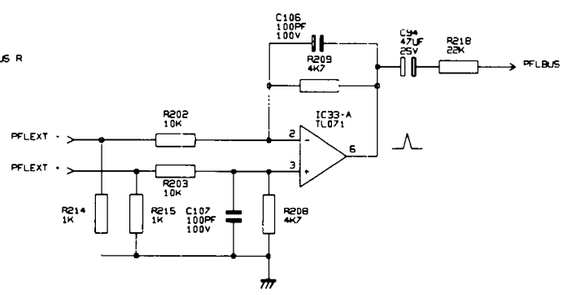


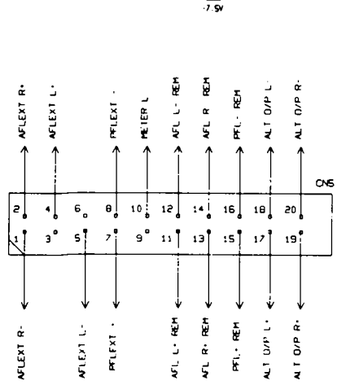


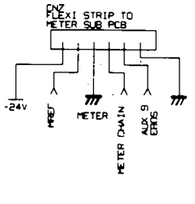


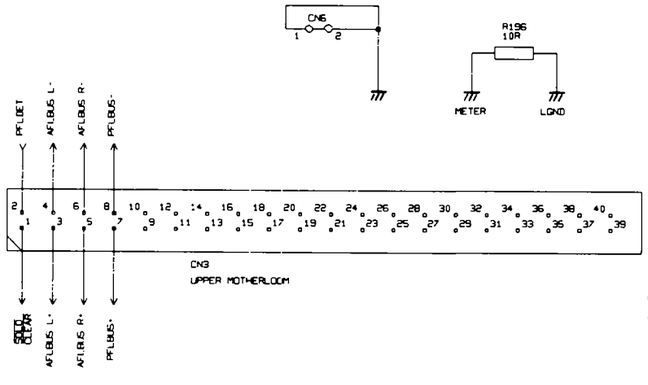


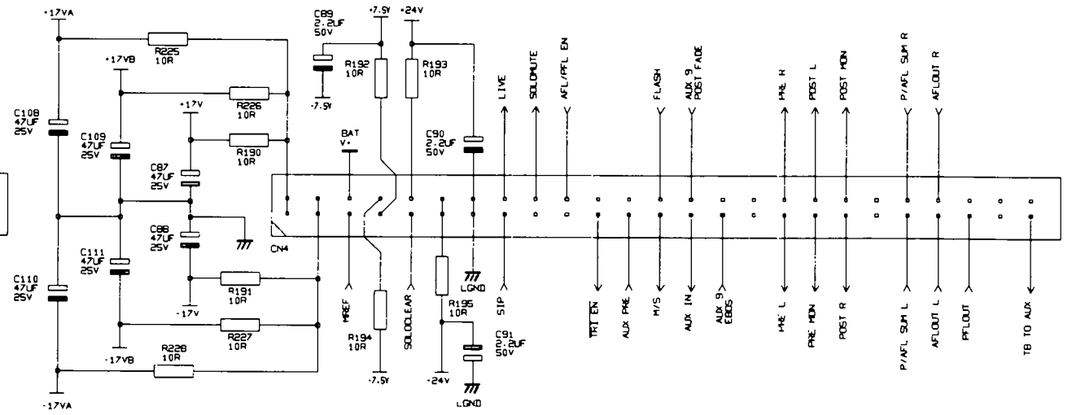




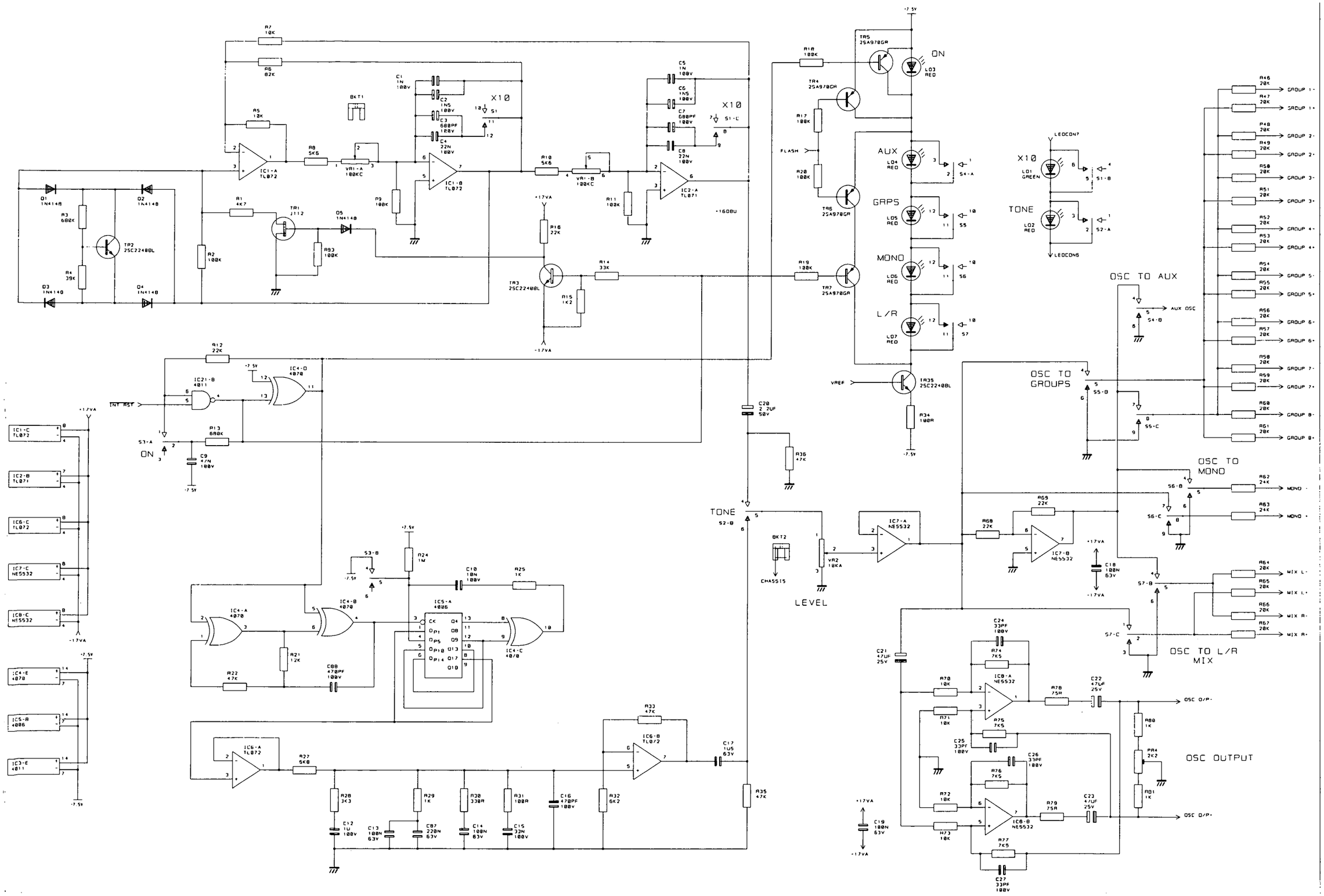




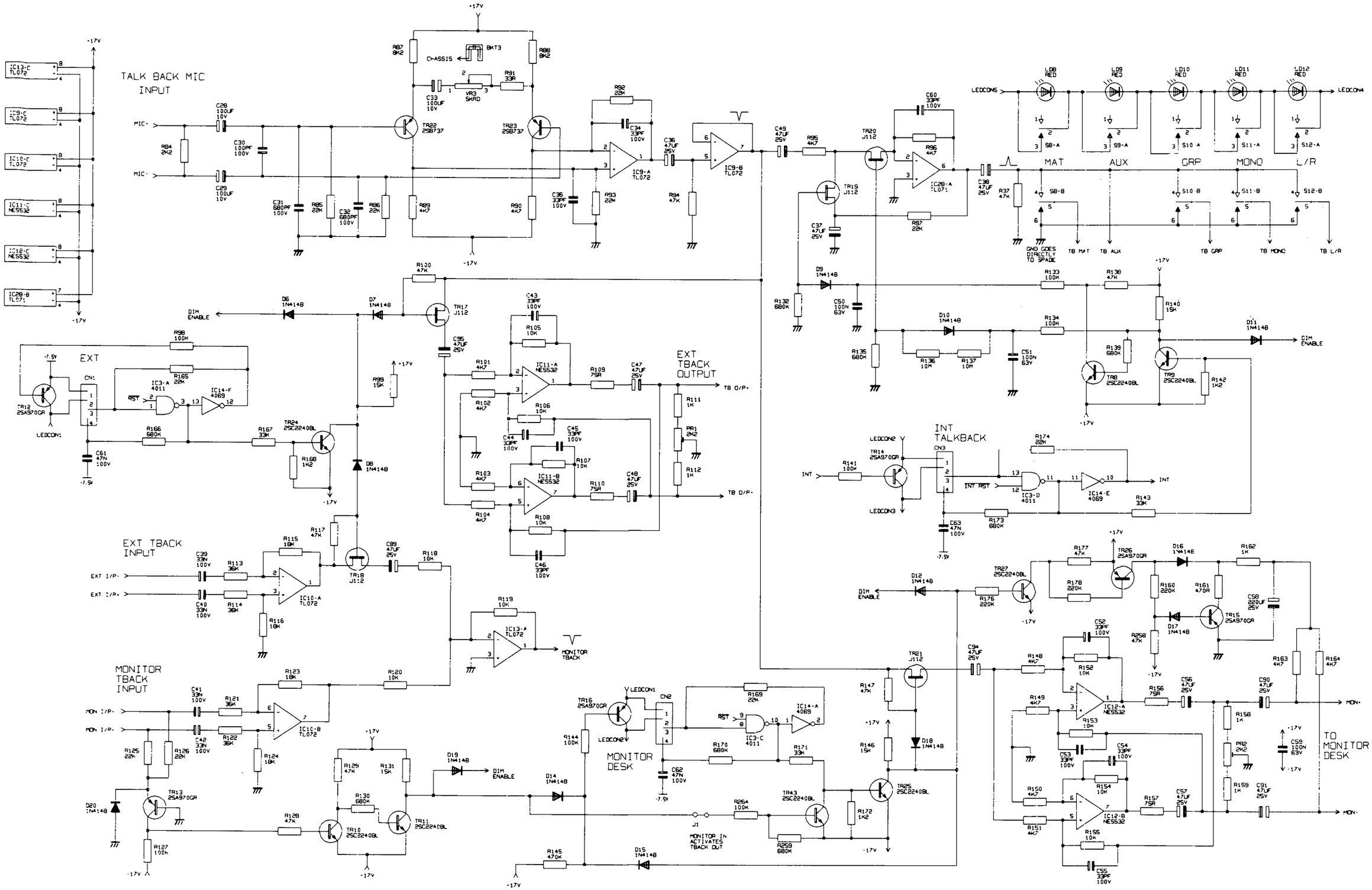




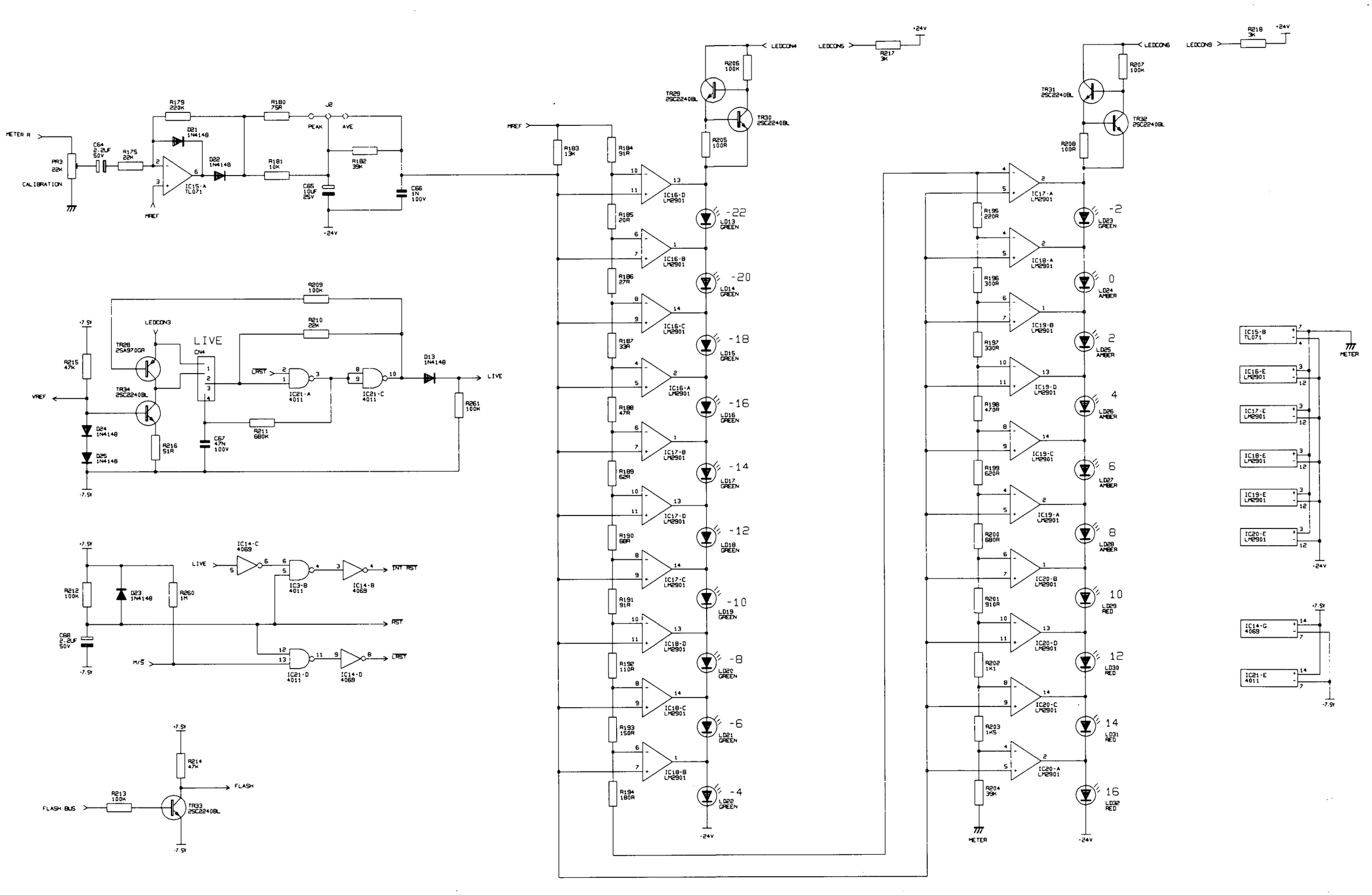
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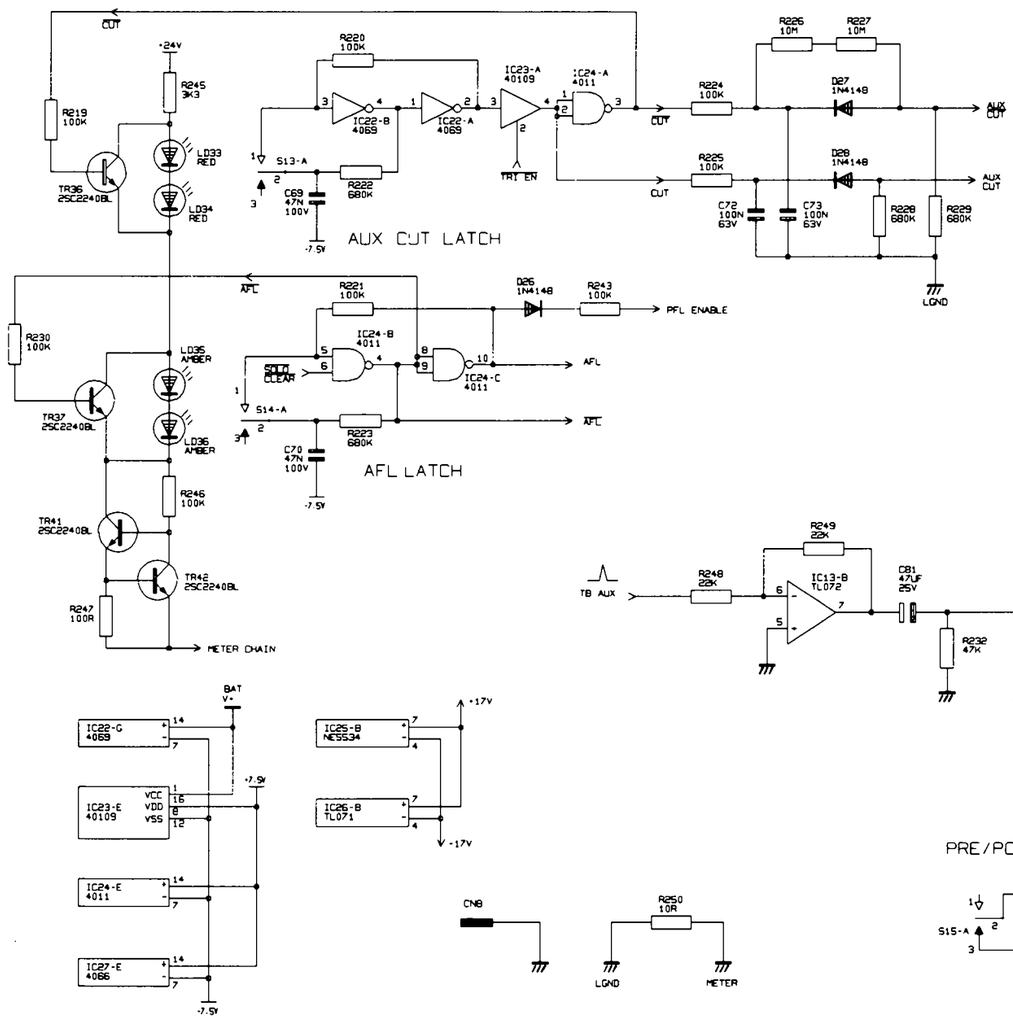
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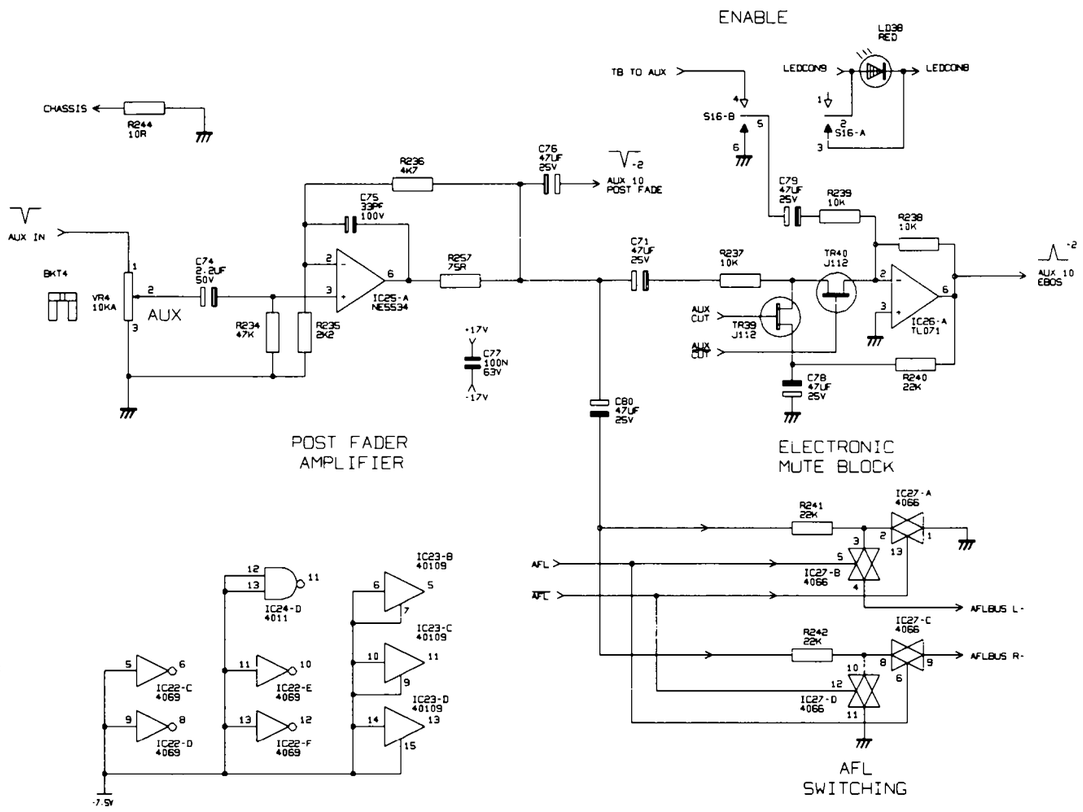


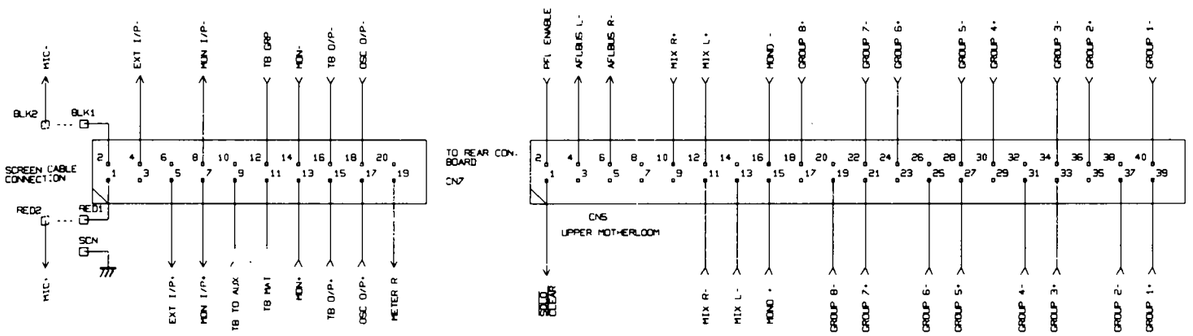
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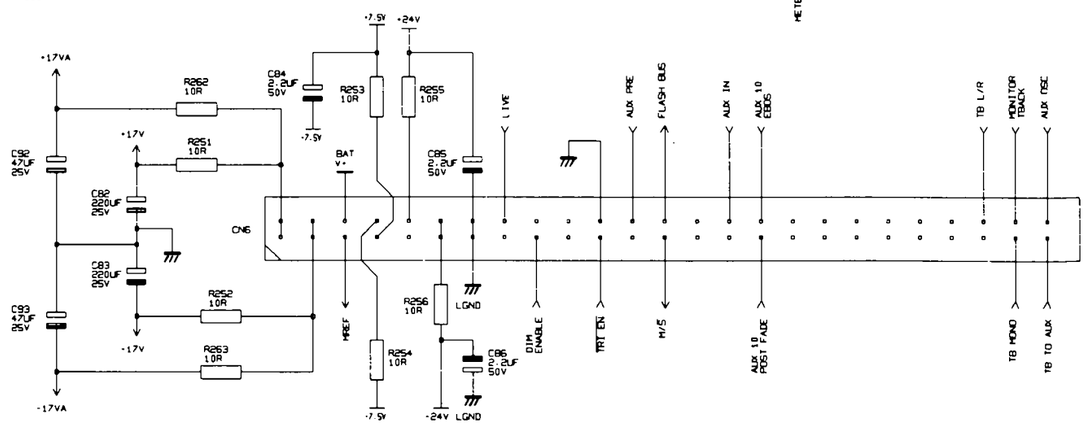


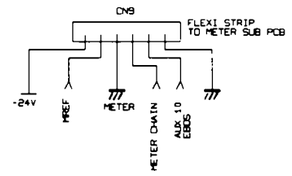
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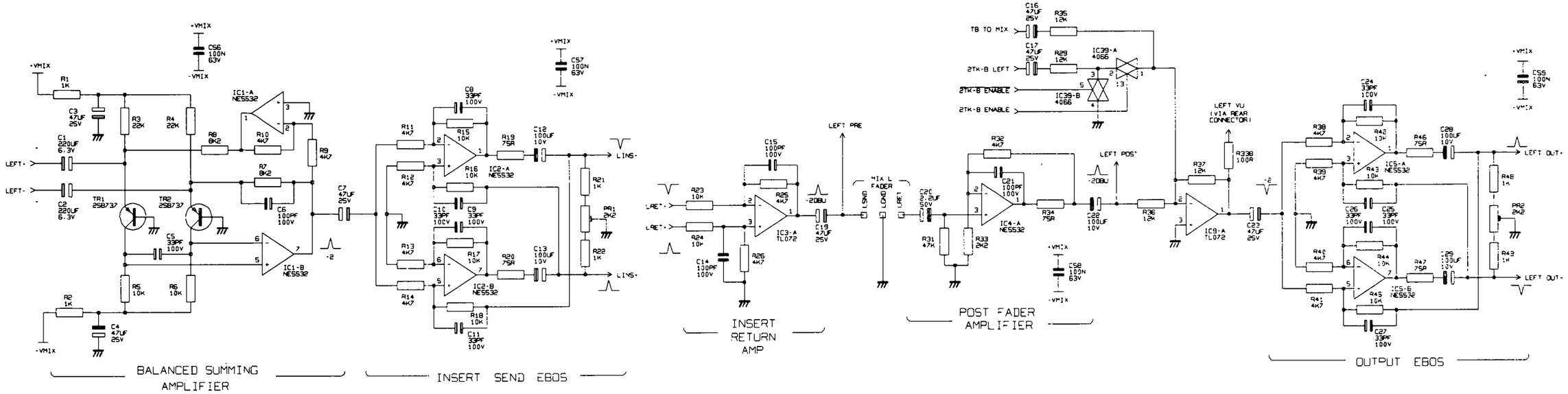




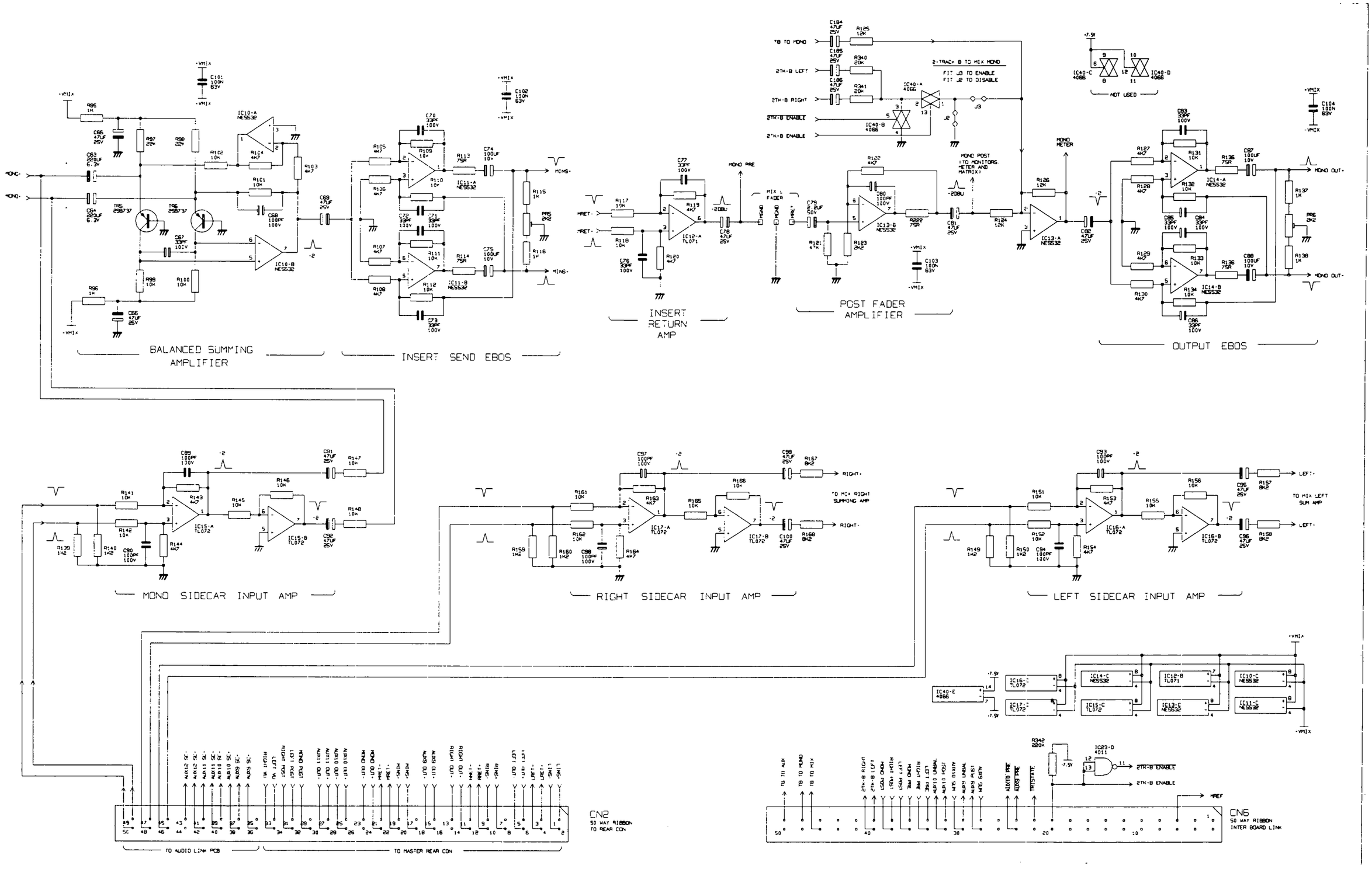




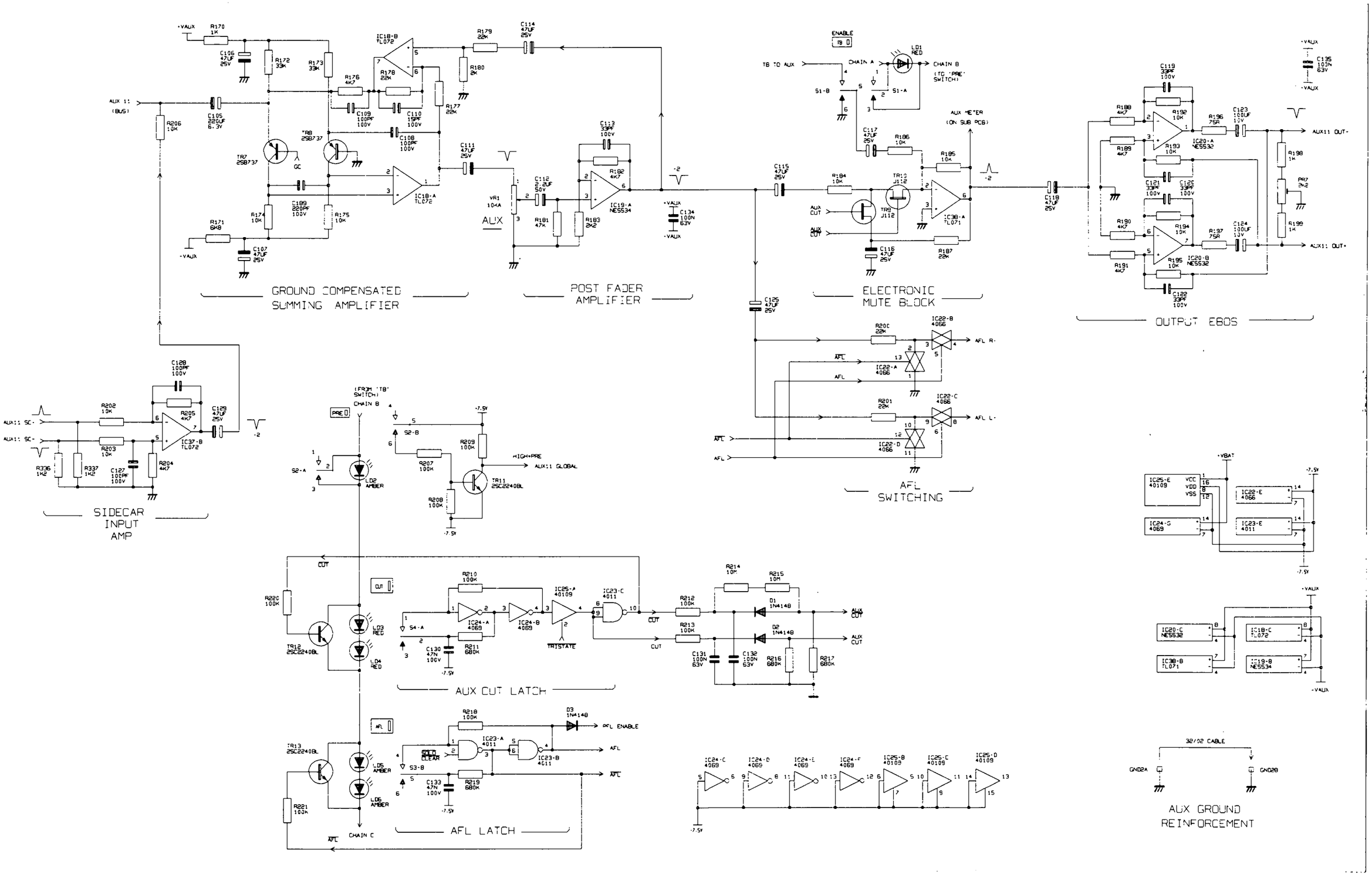
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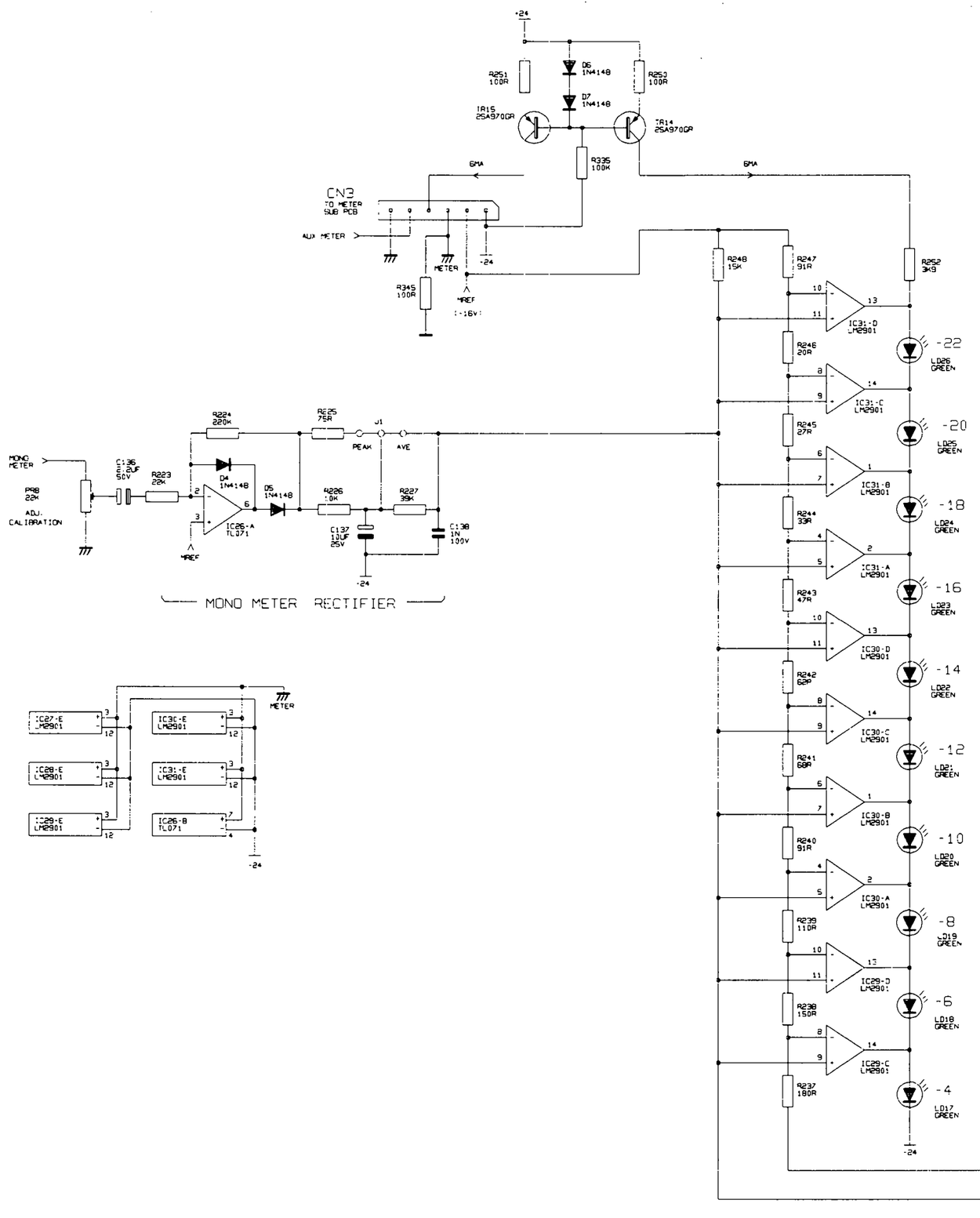
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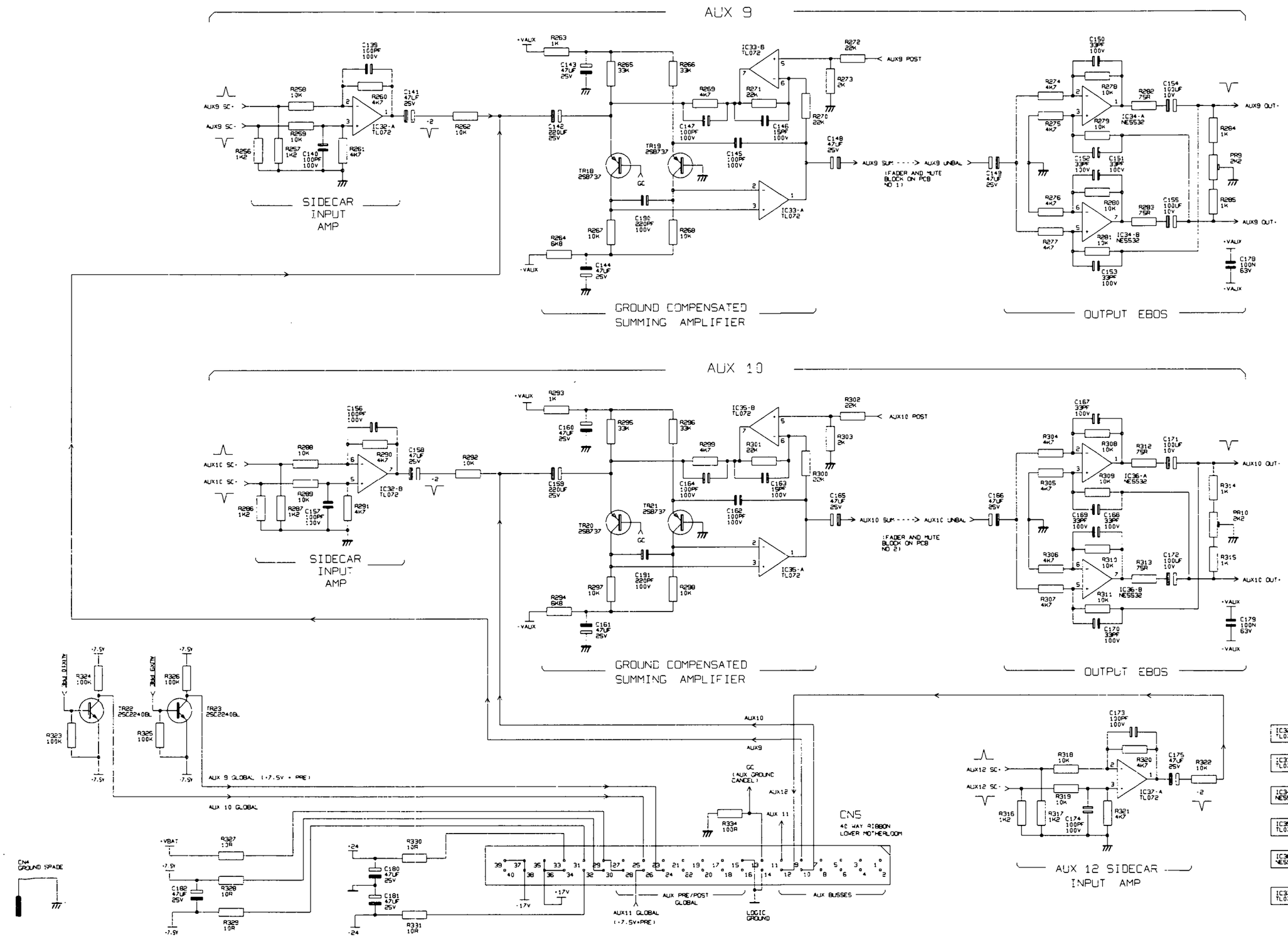
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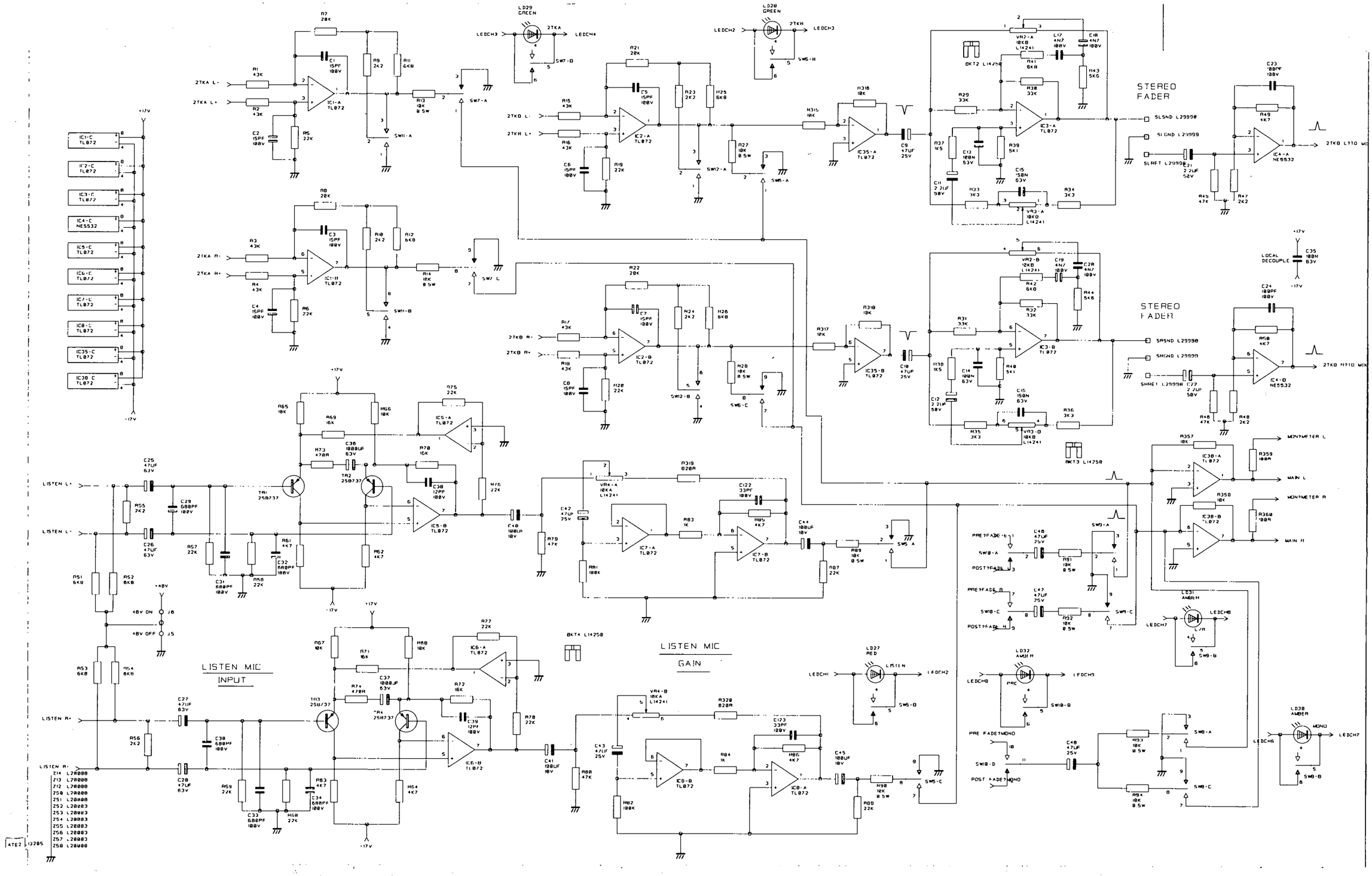
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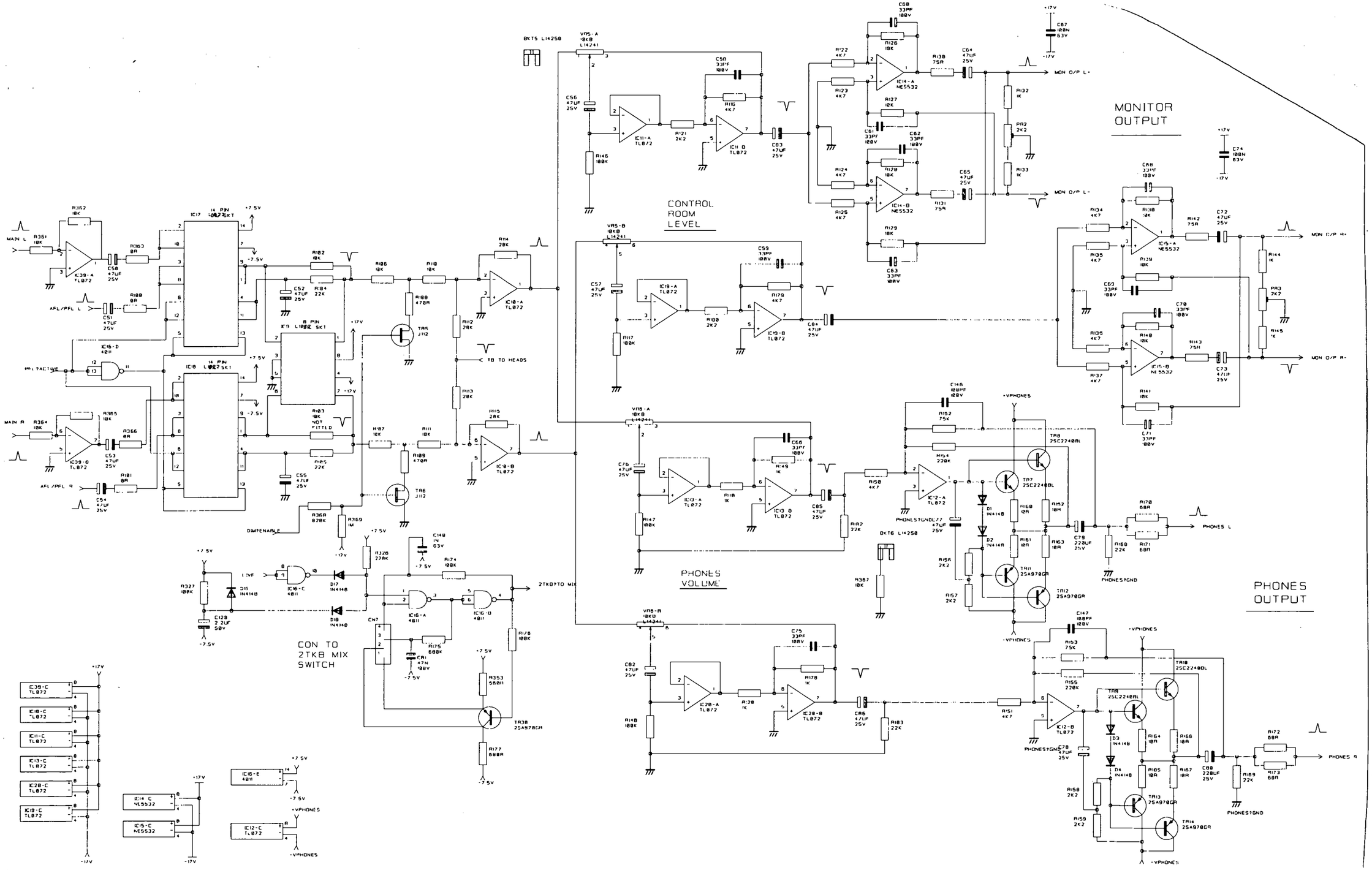
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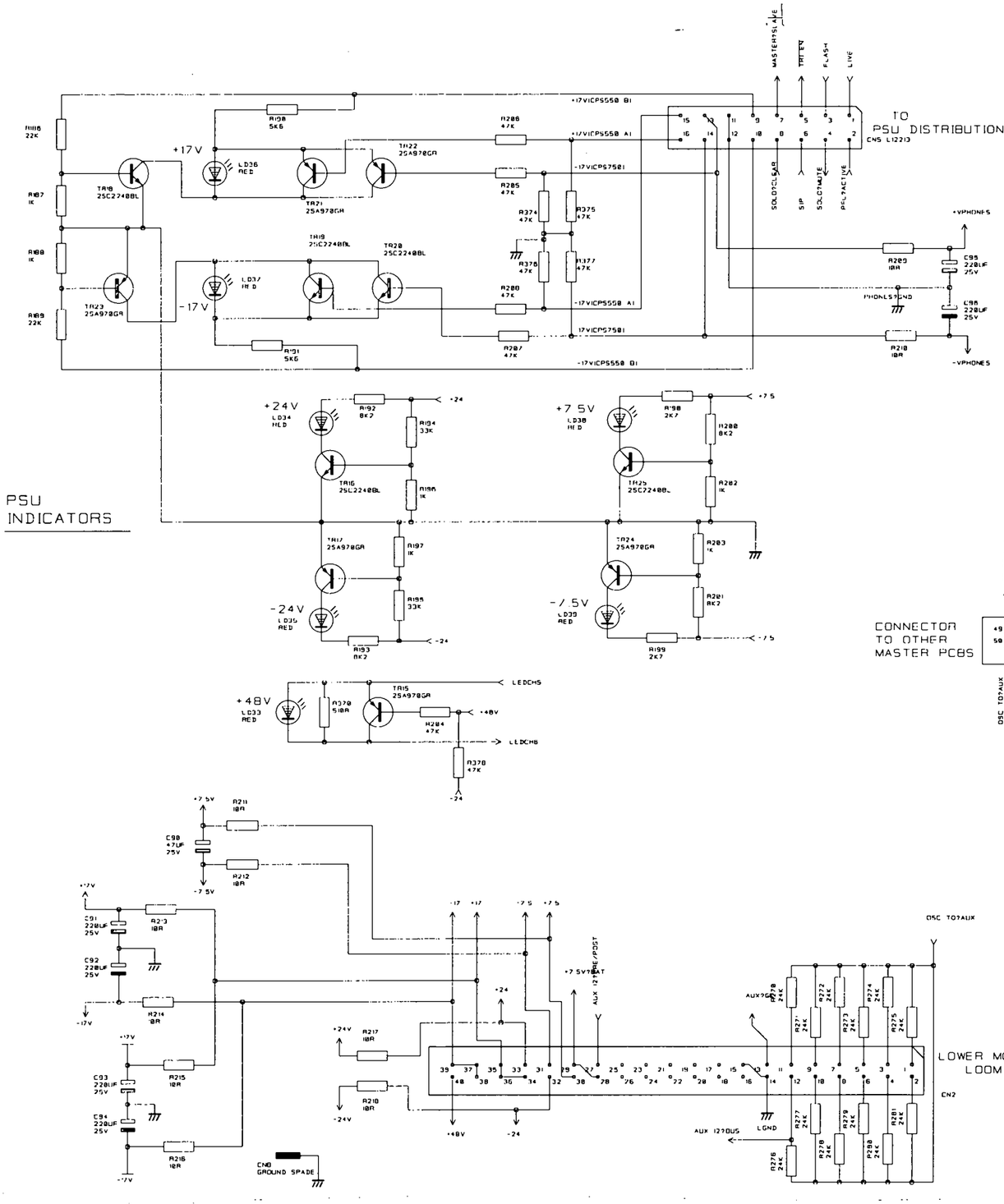
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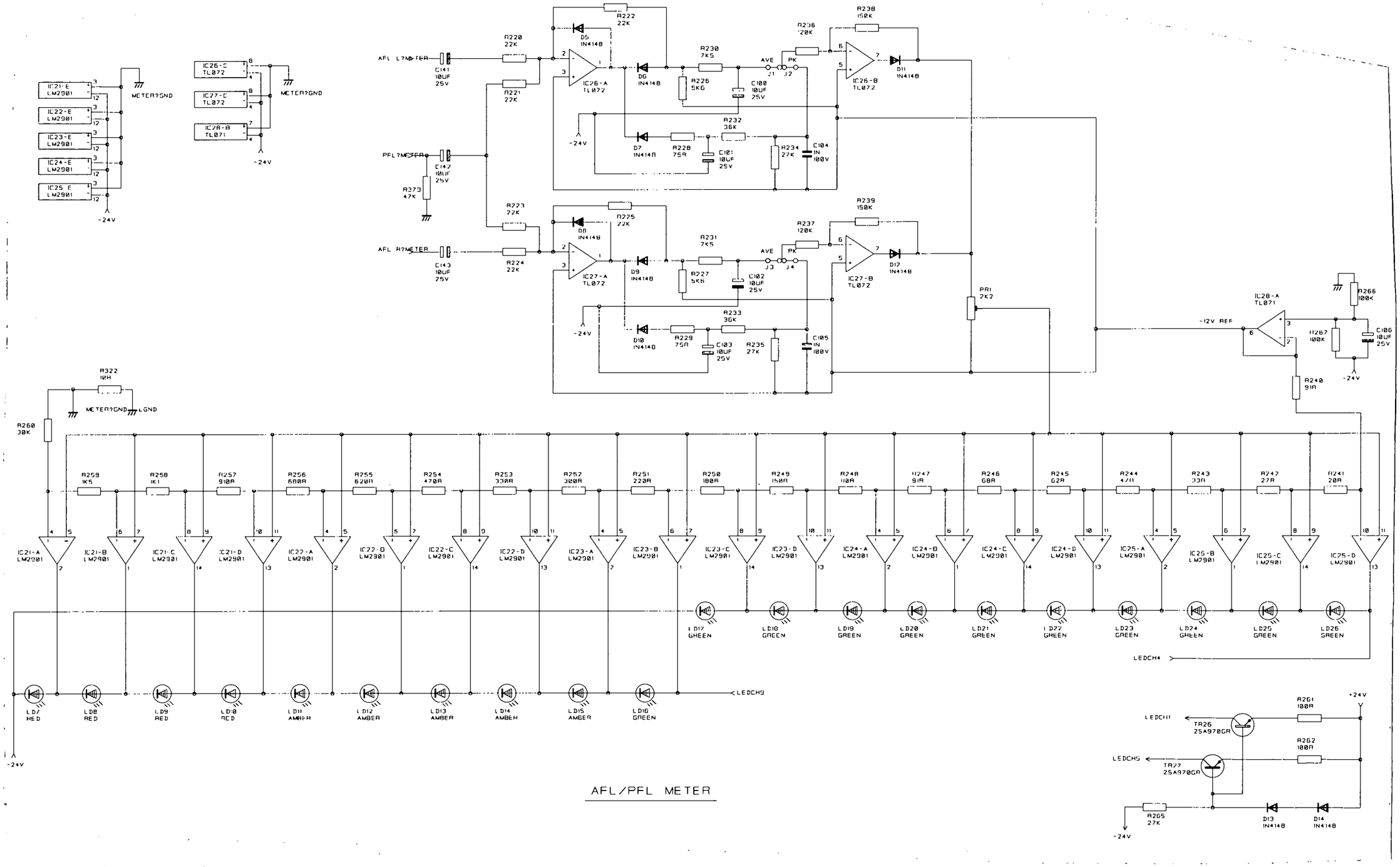
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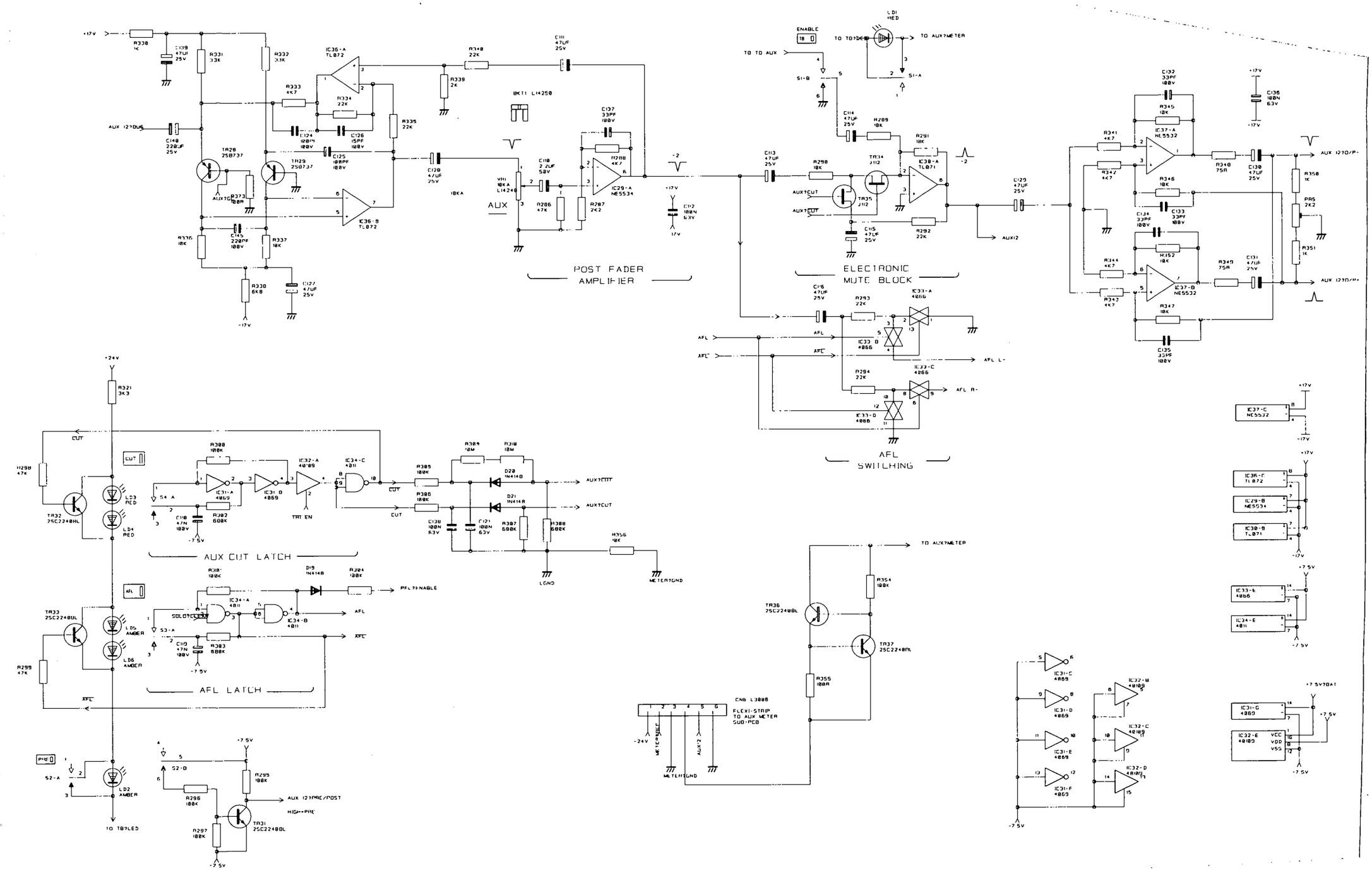


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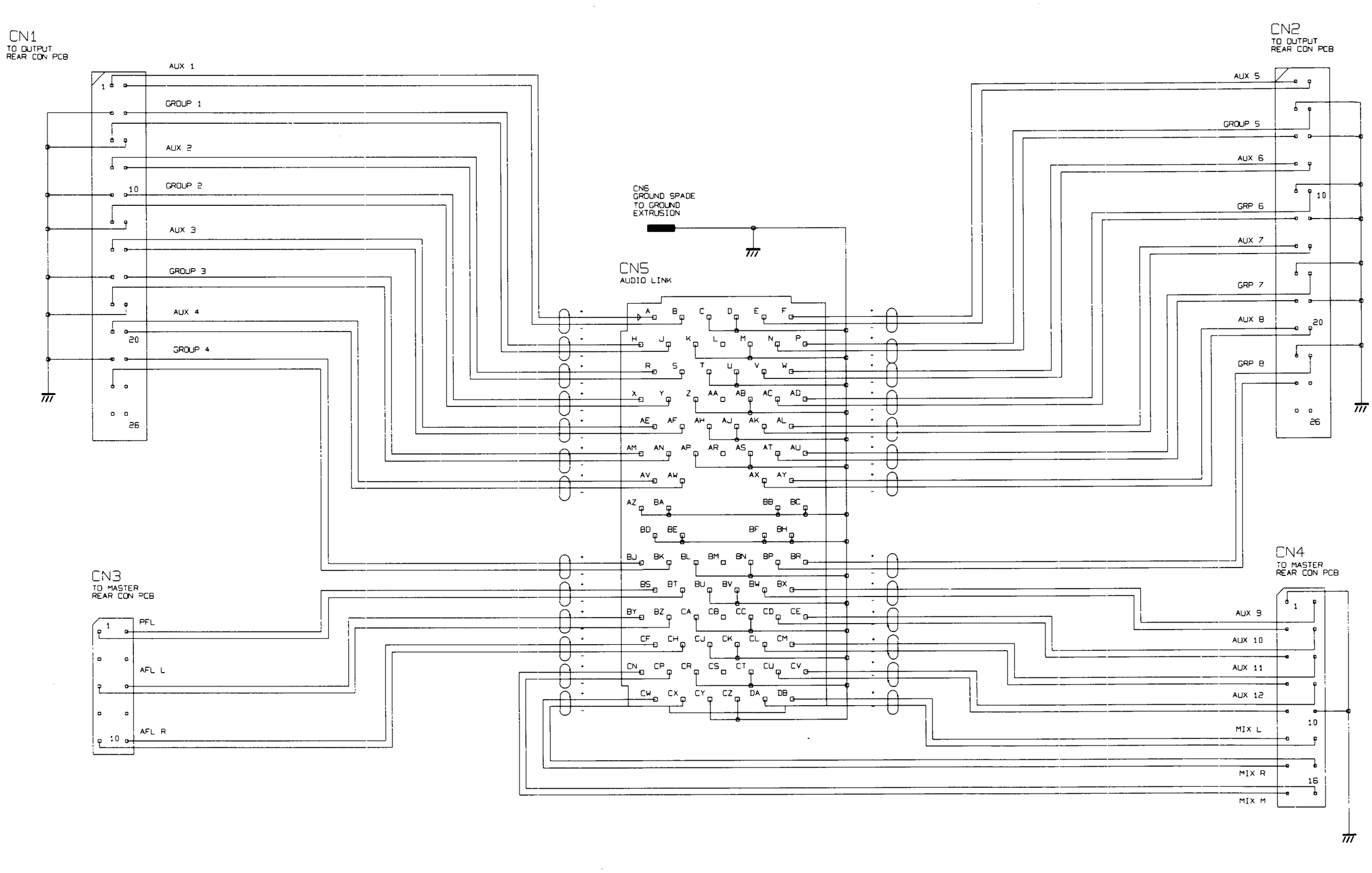


AFL/PFL METER

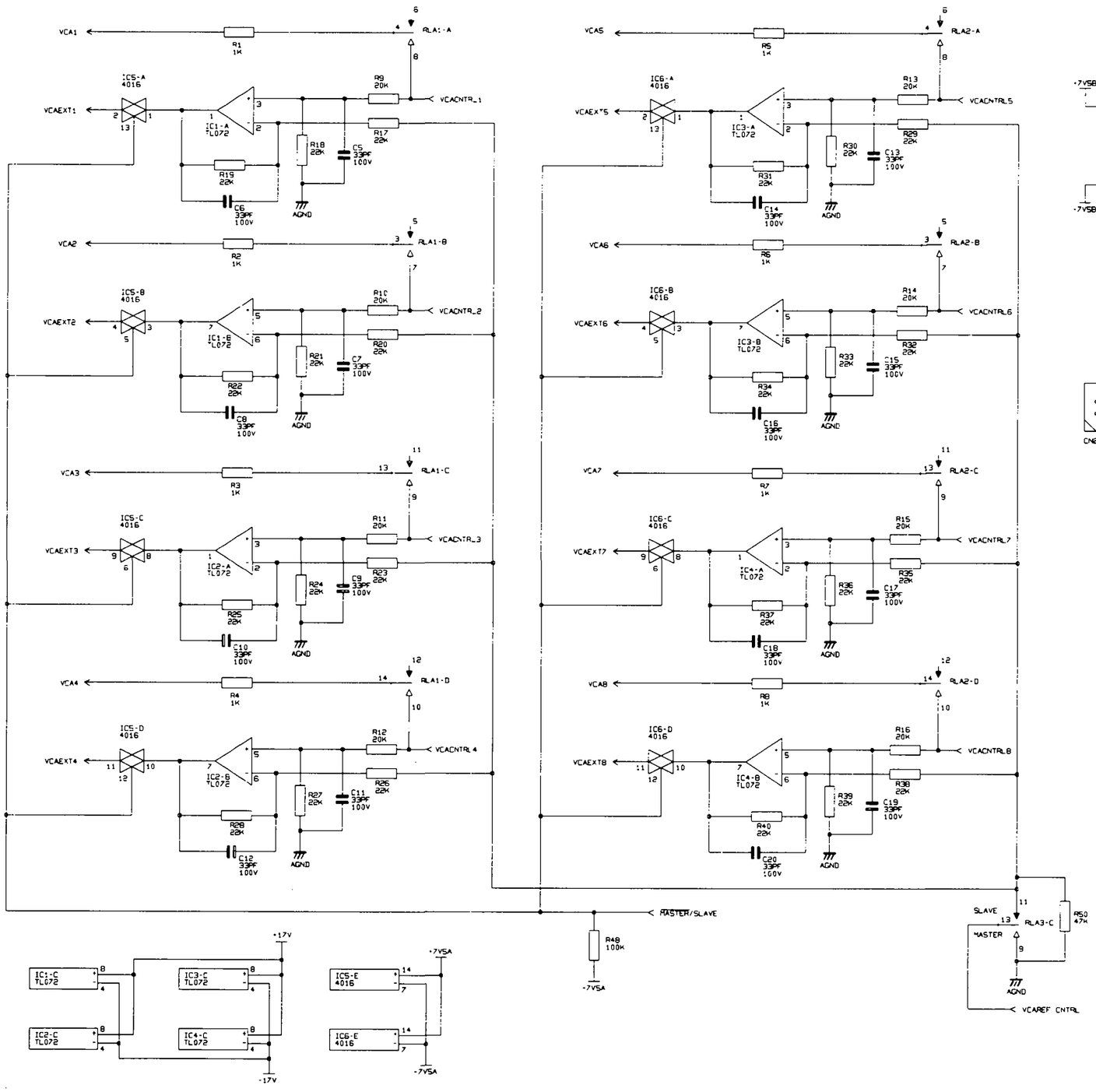
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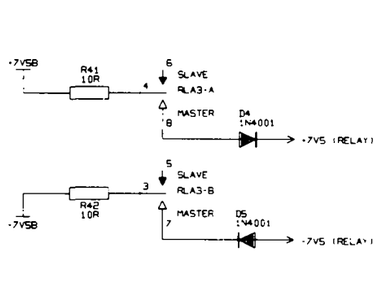


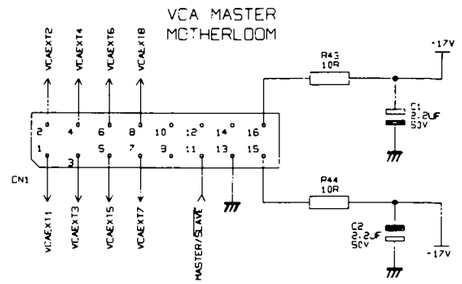
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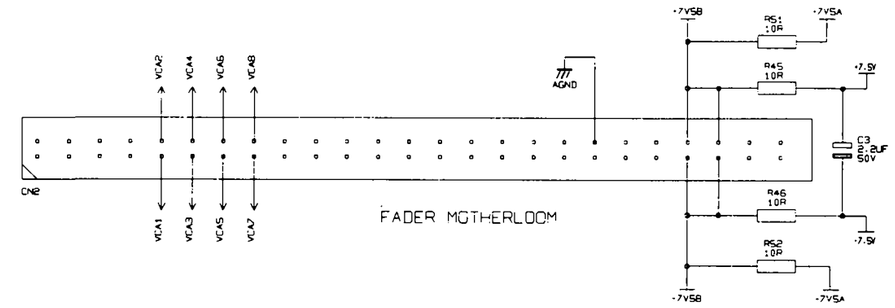


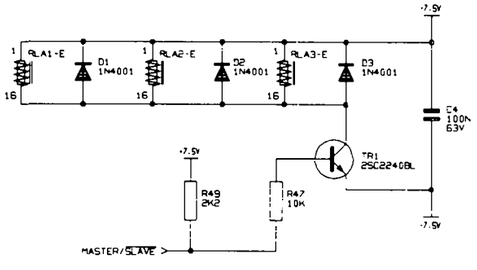
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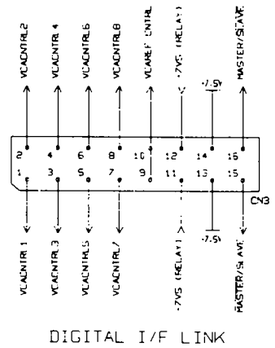




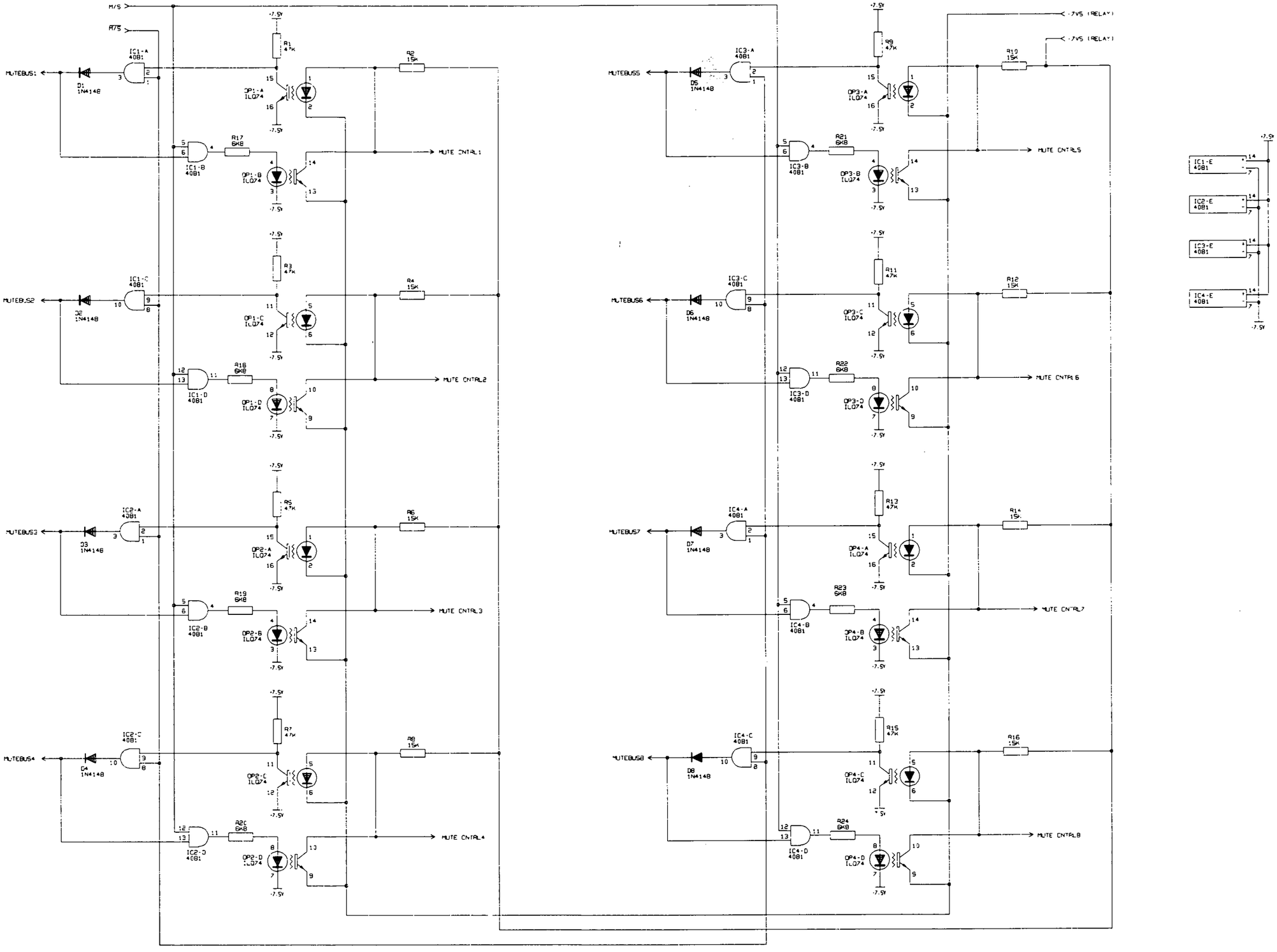




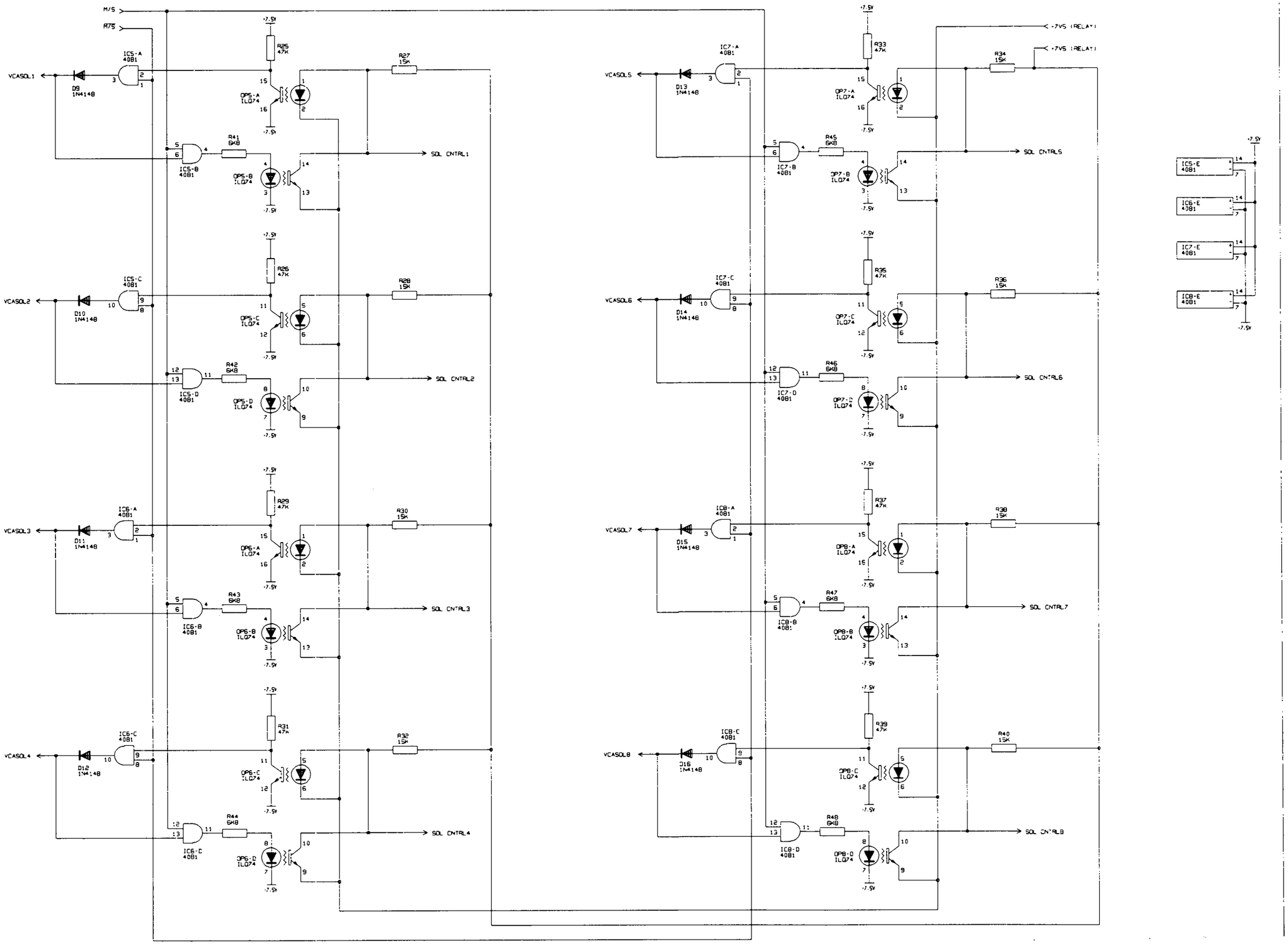




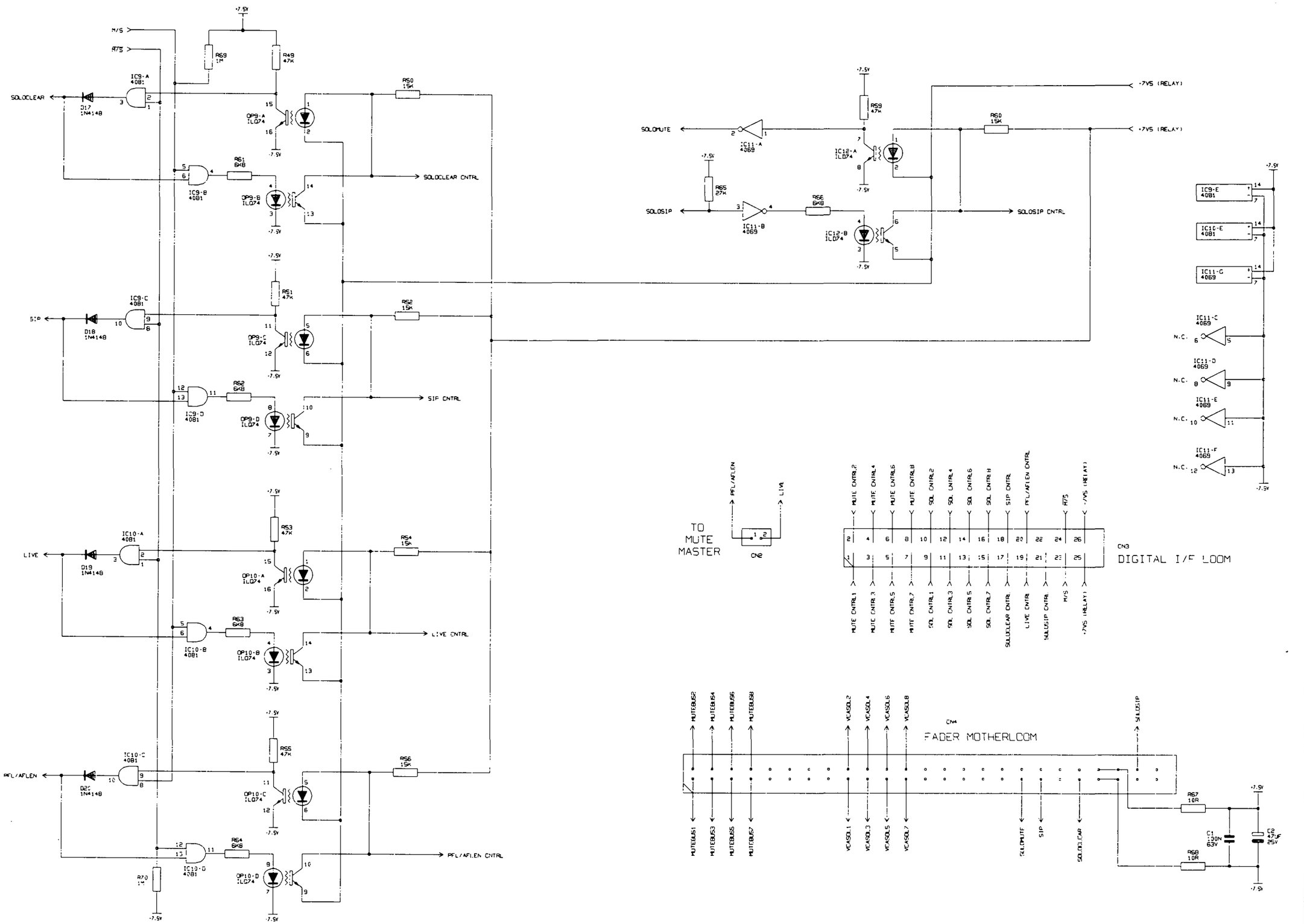
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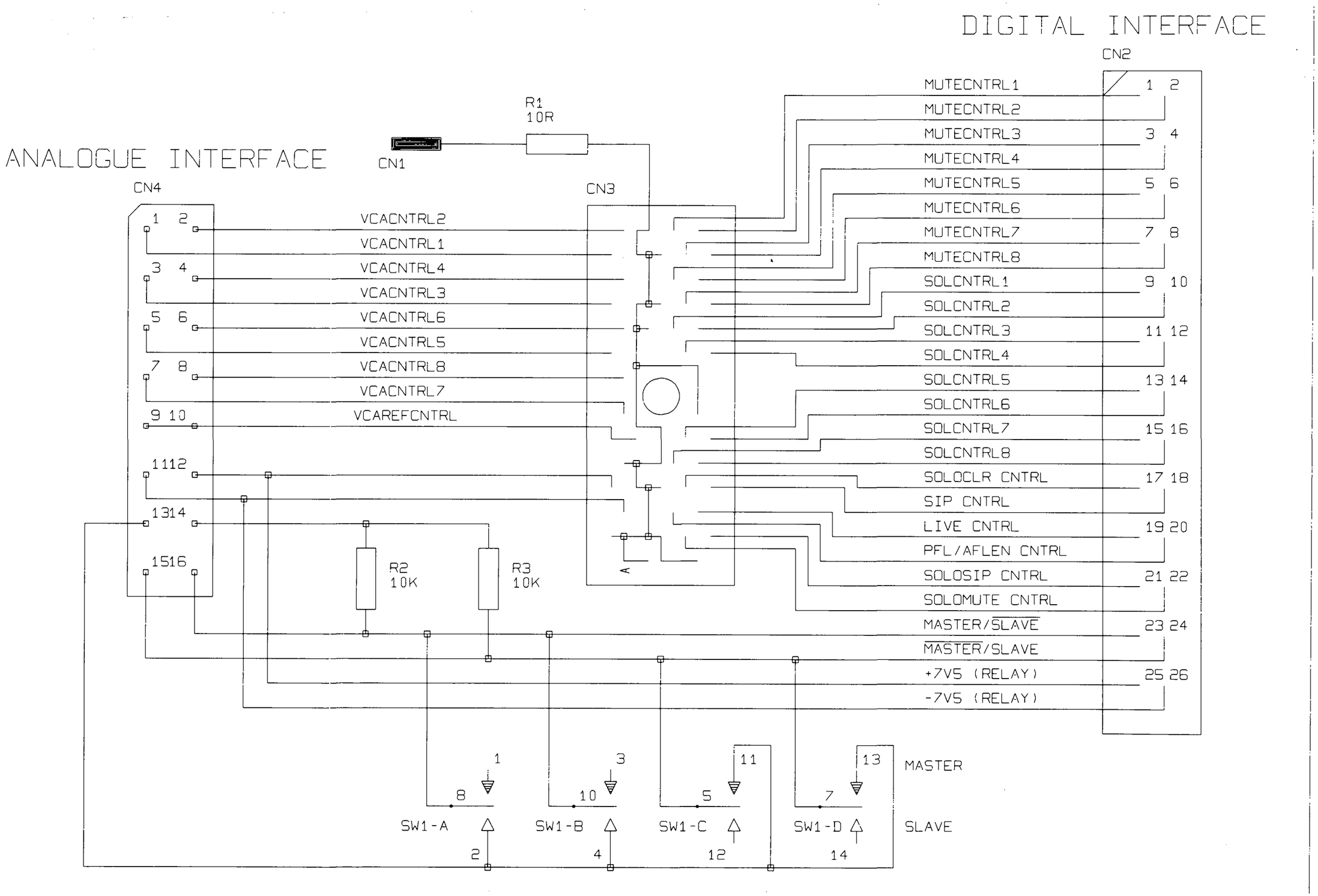
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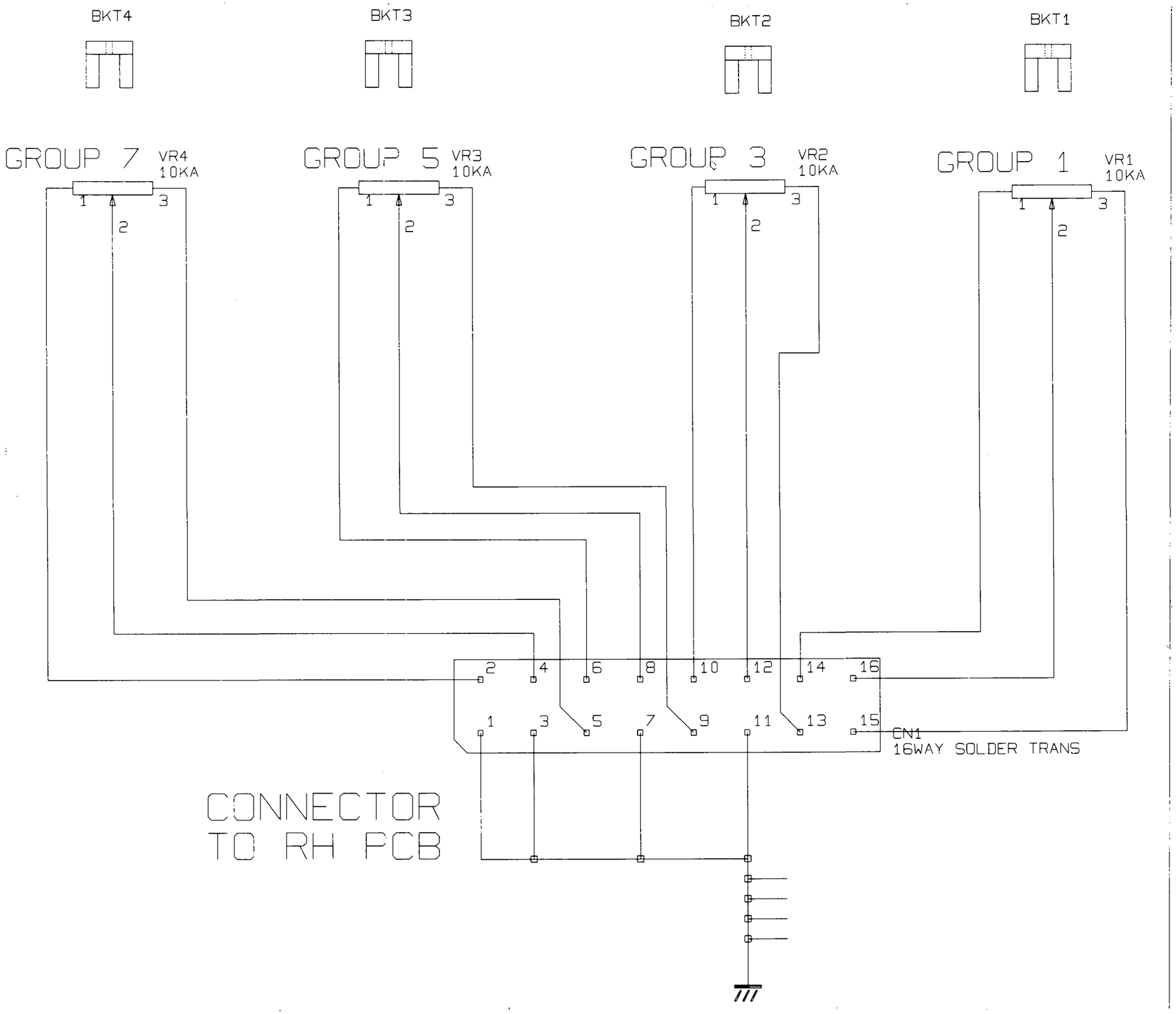
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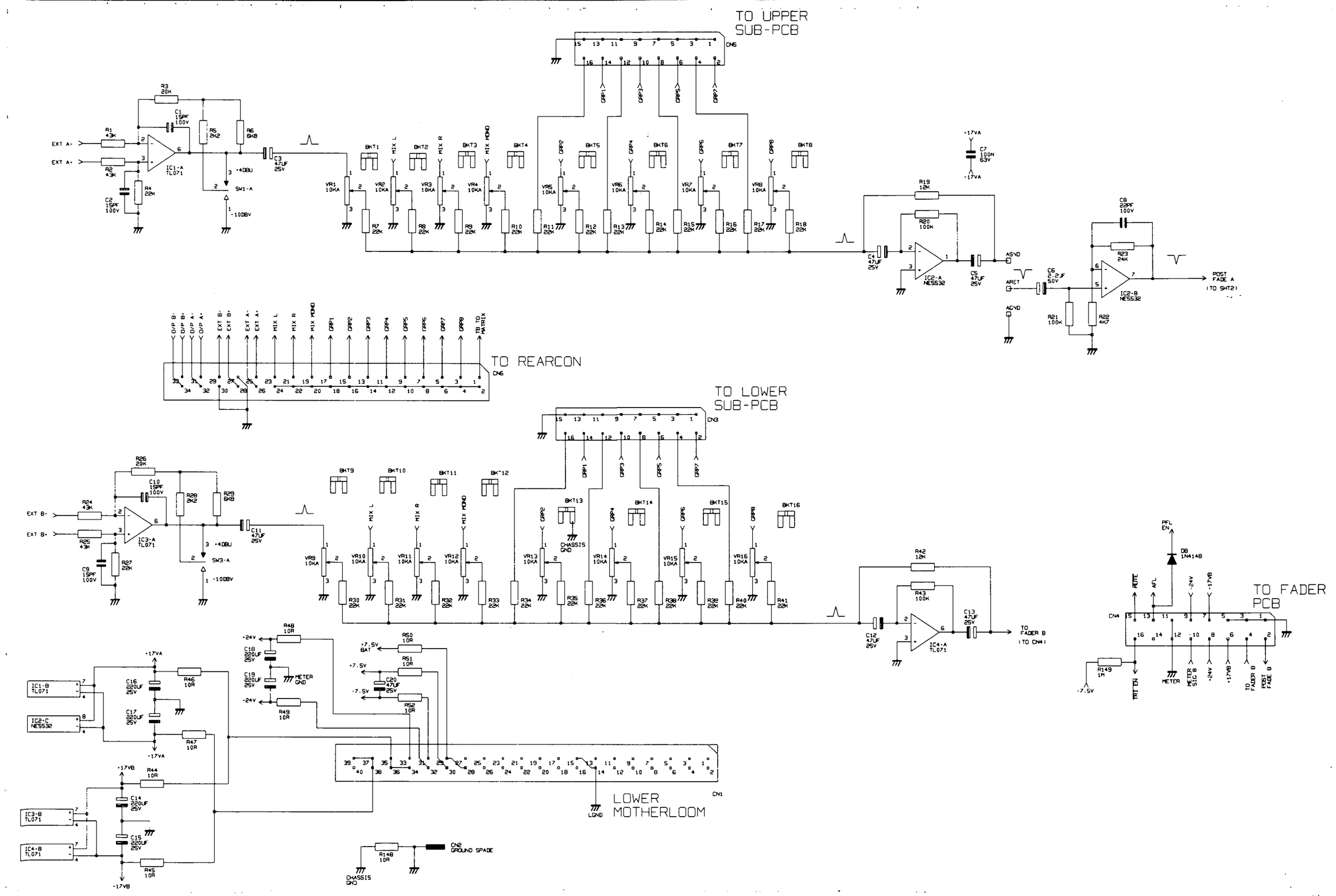
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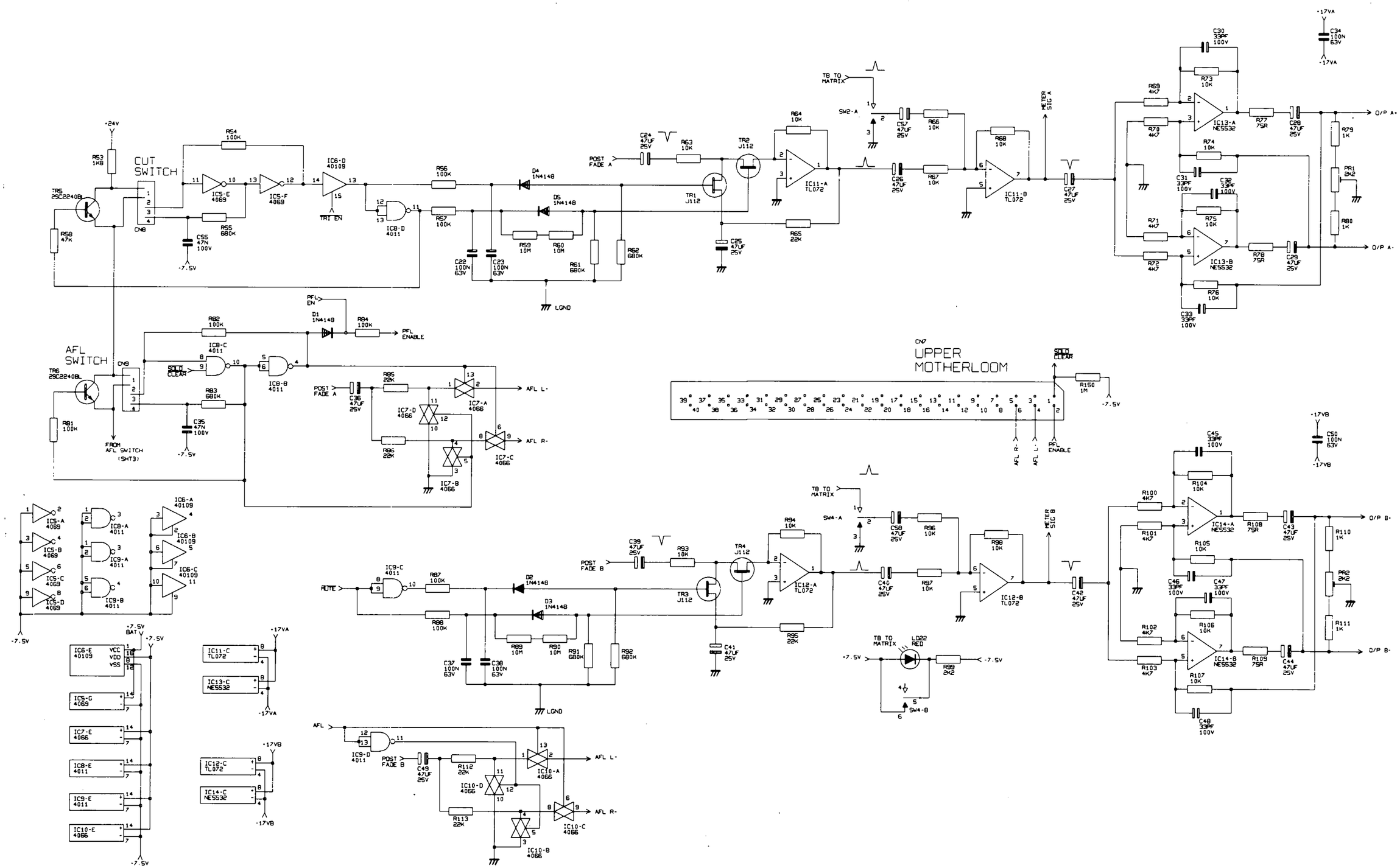
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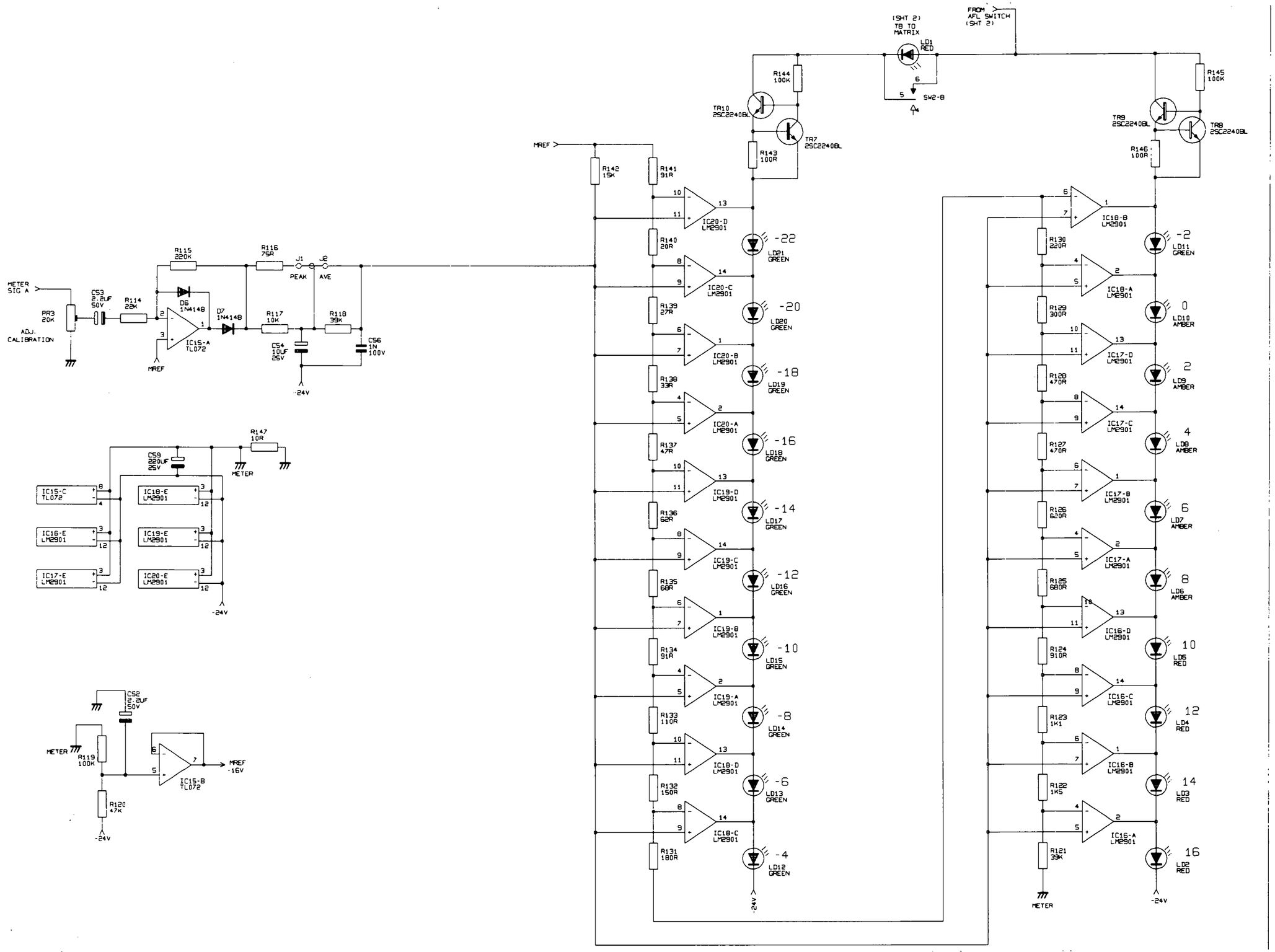
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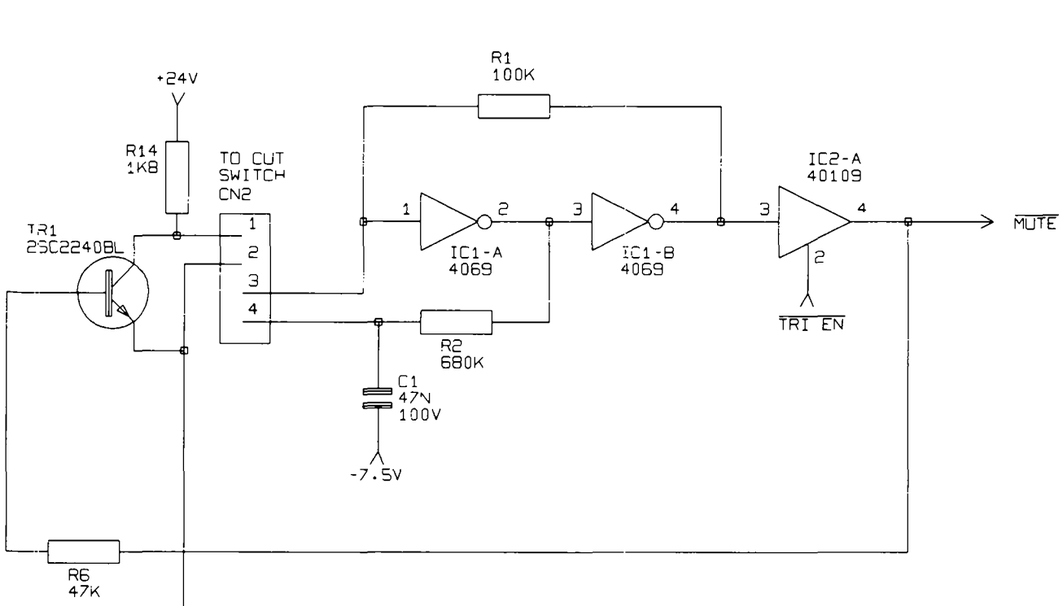
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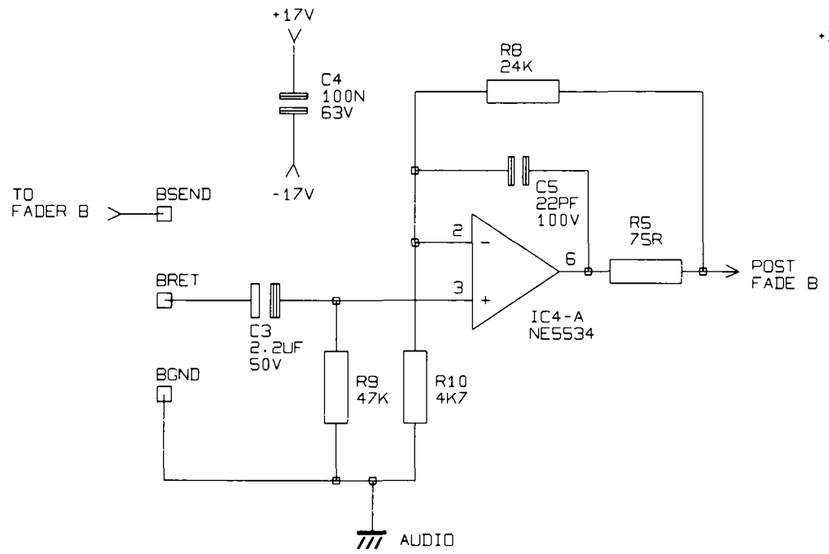


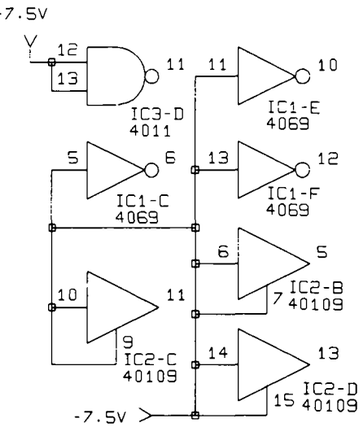
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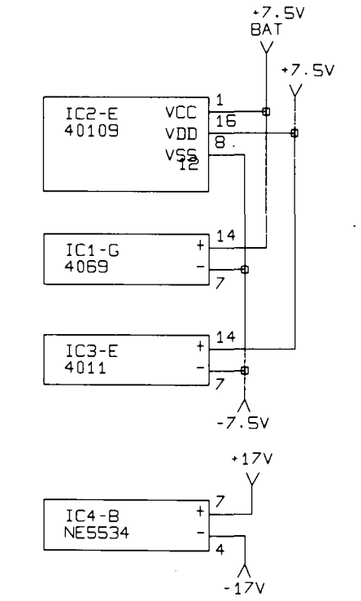


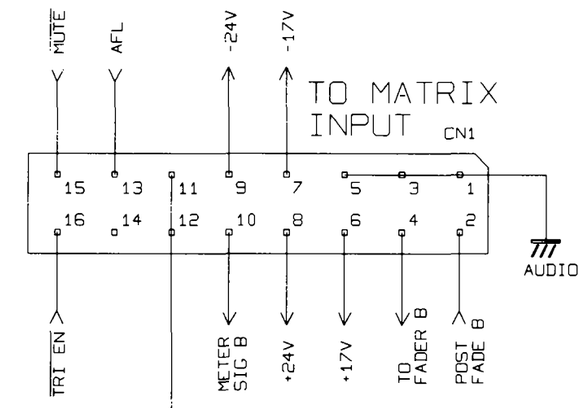
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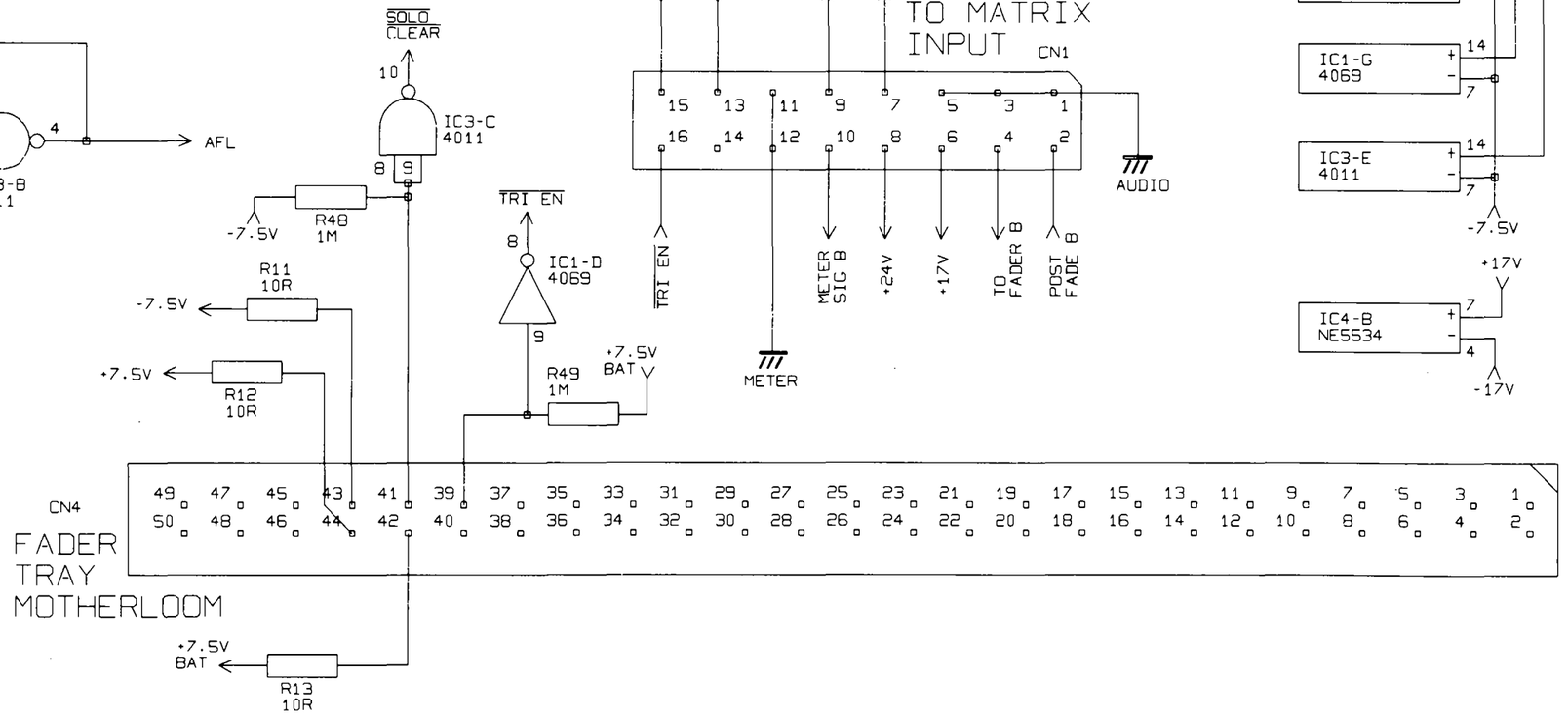




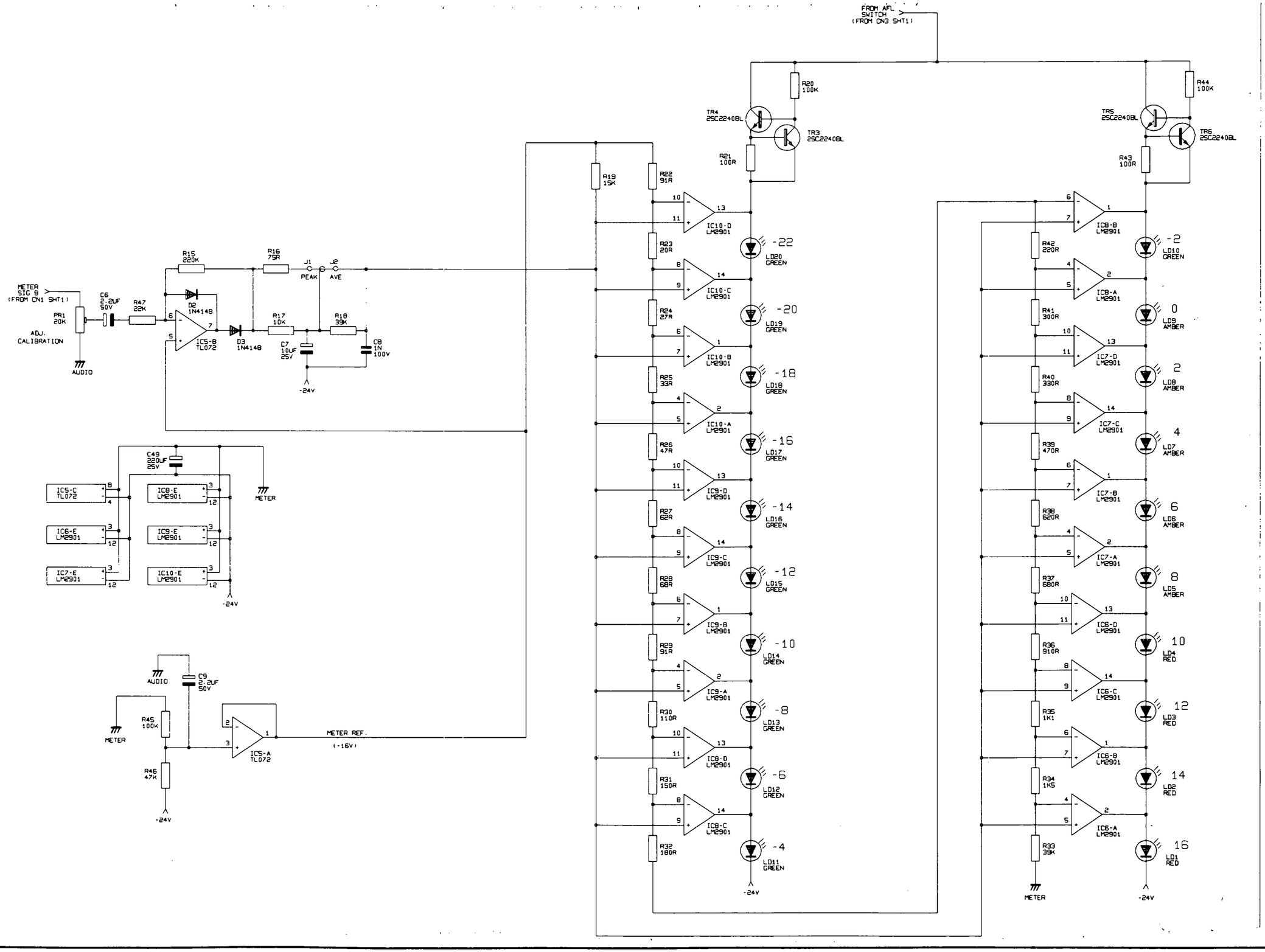




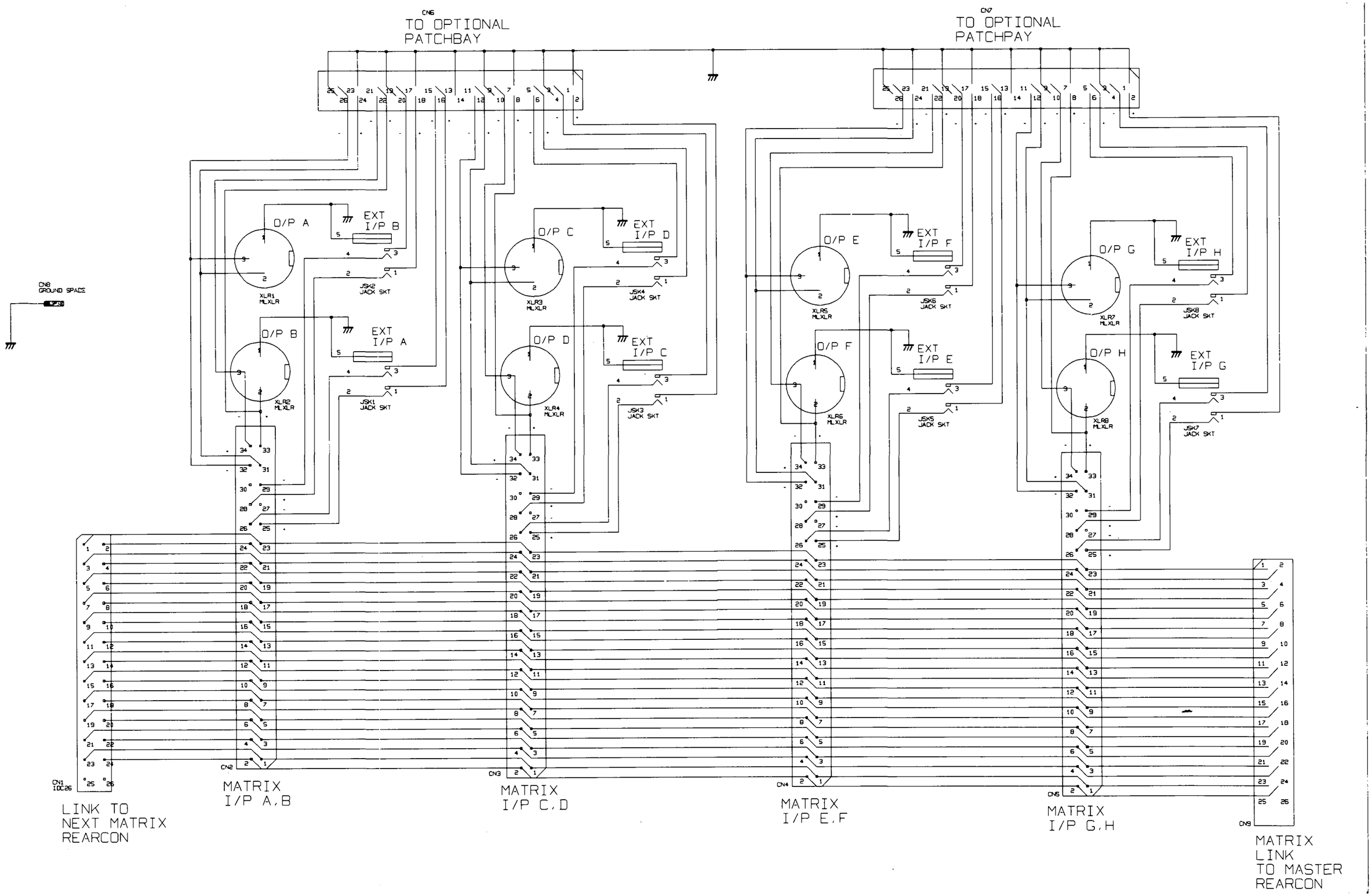




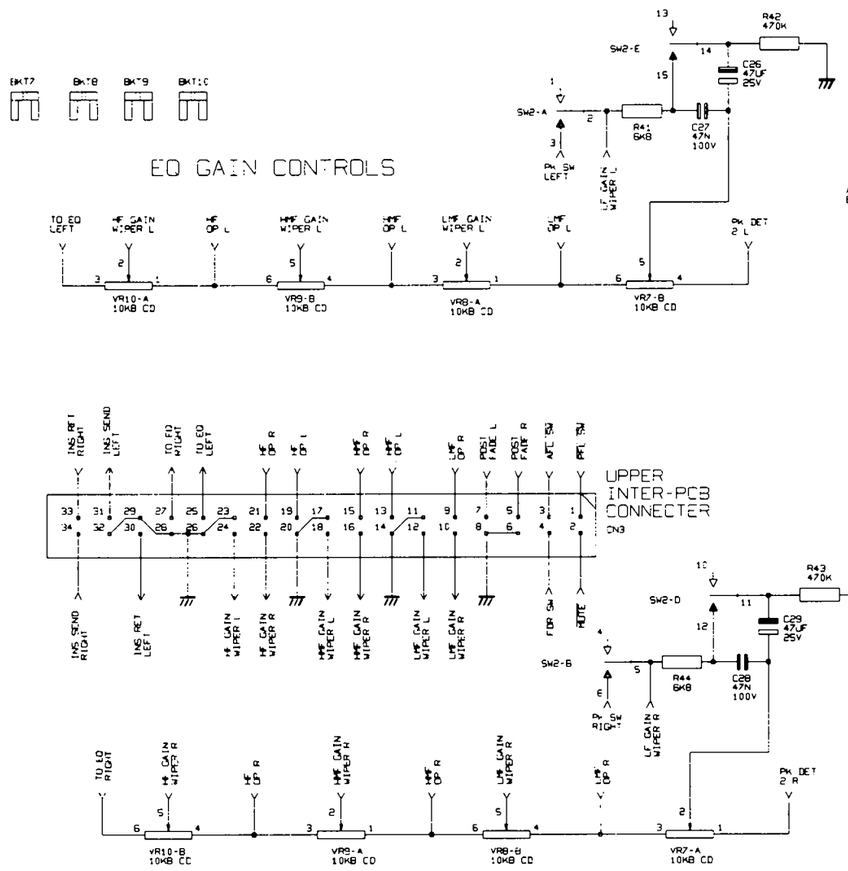
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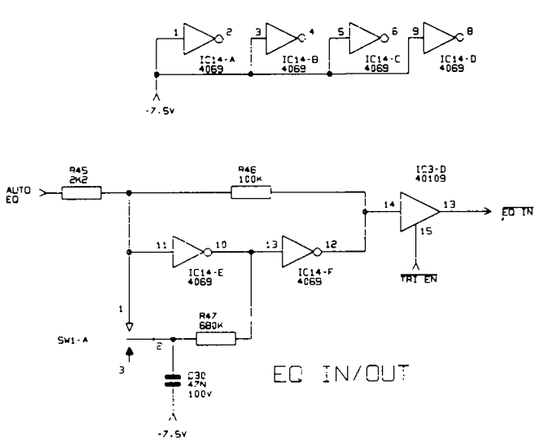


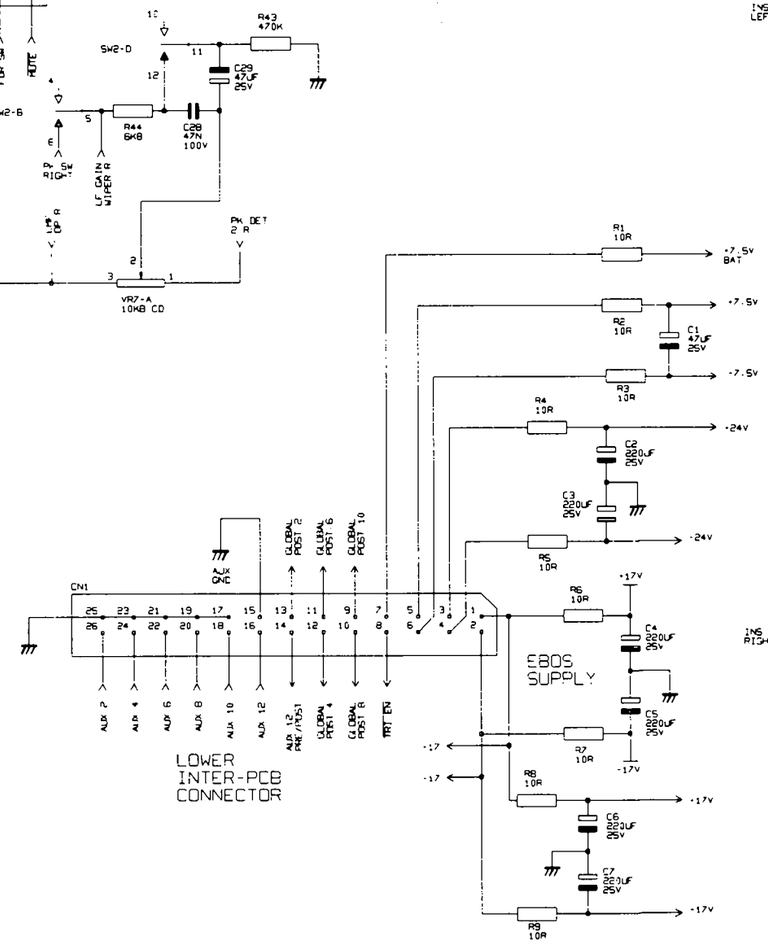
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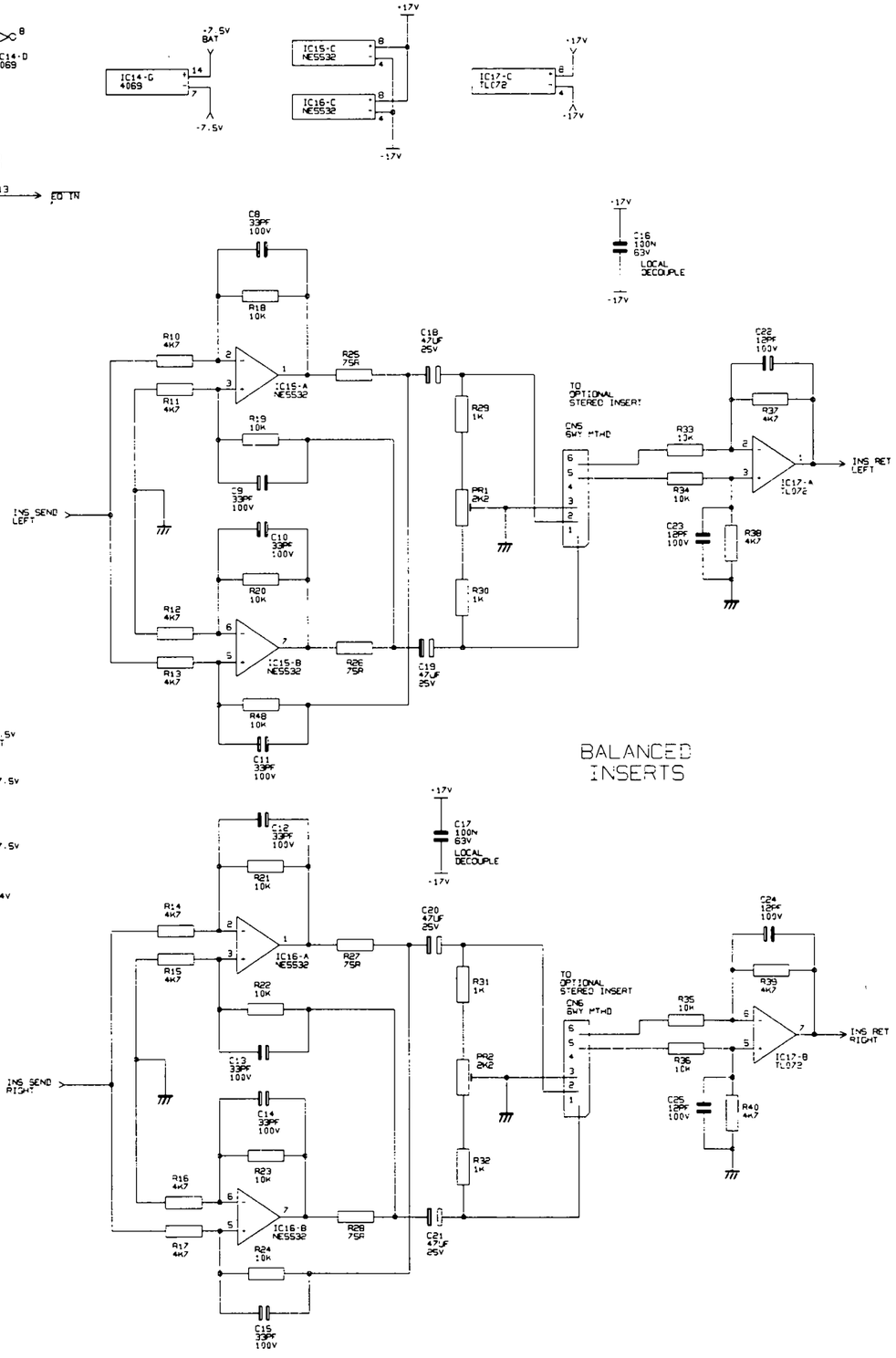


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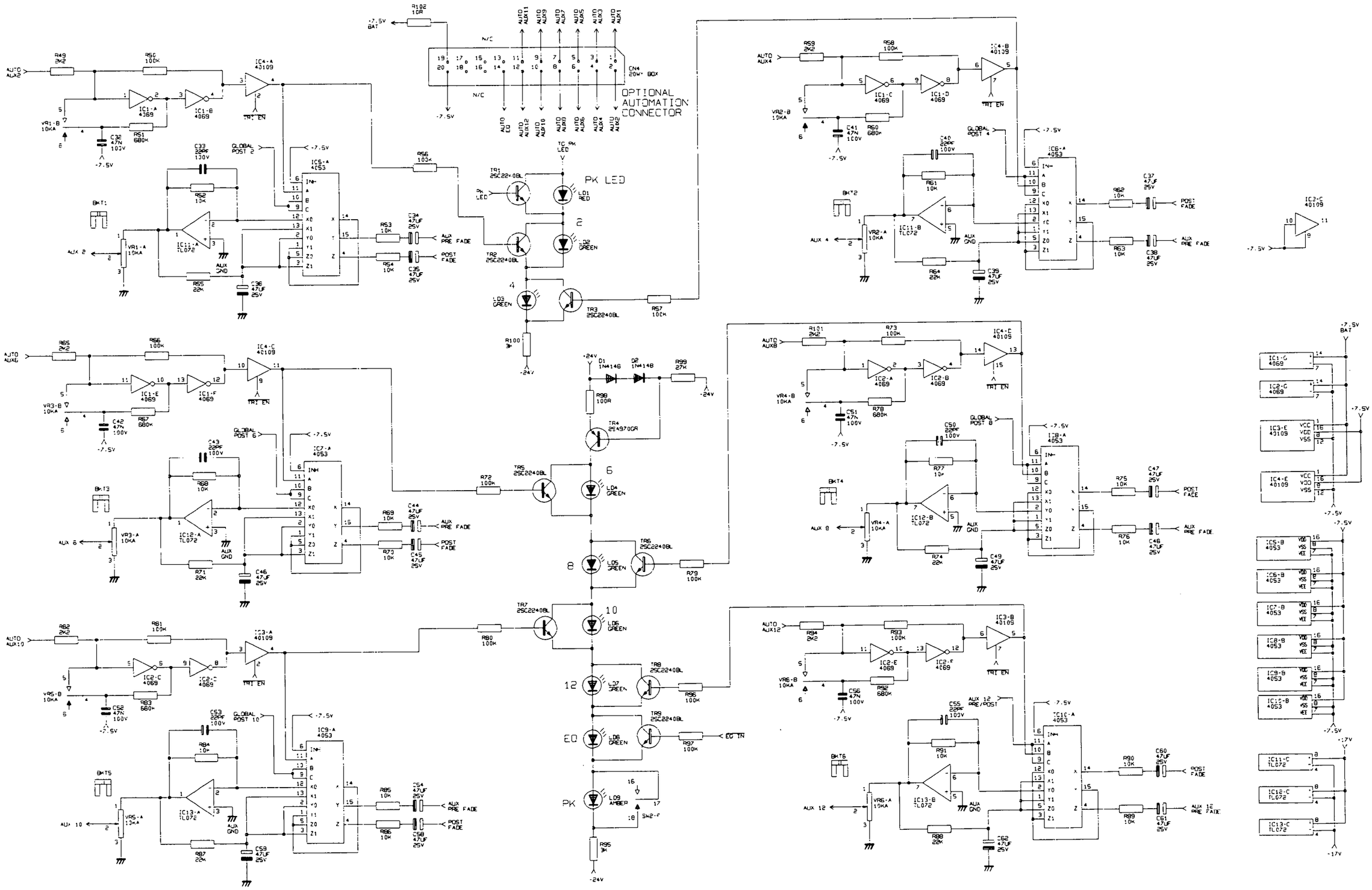




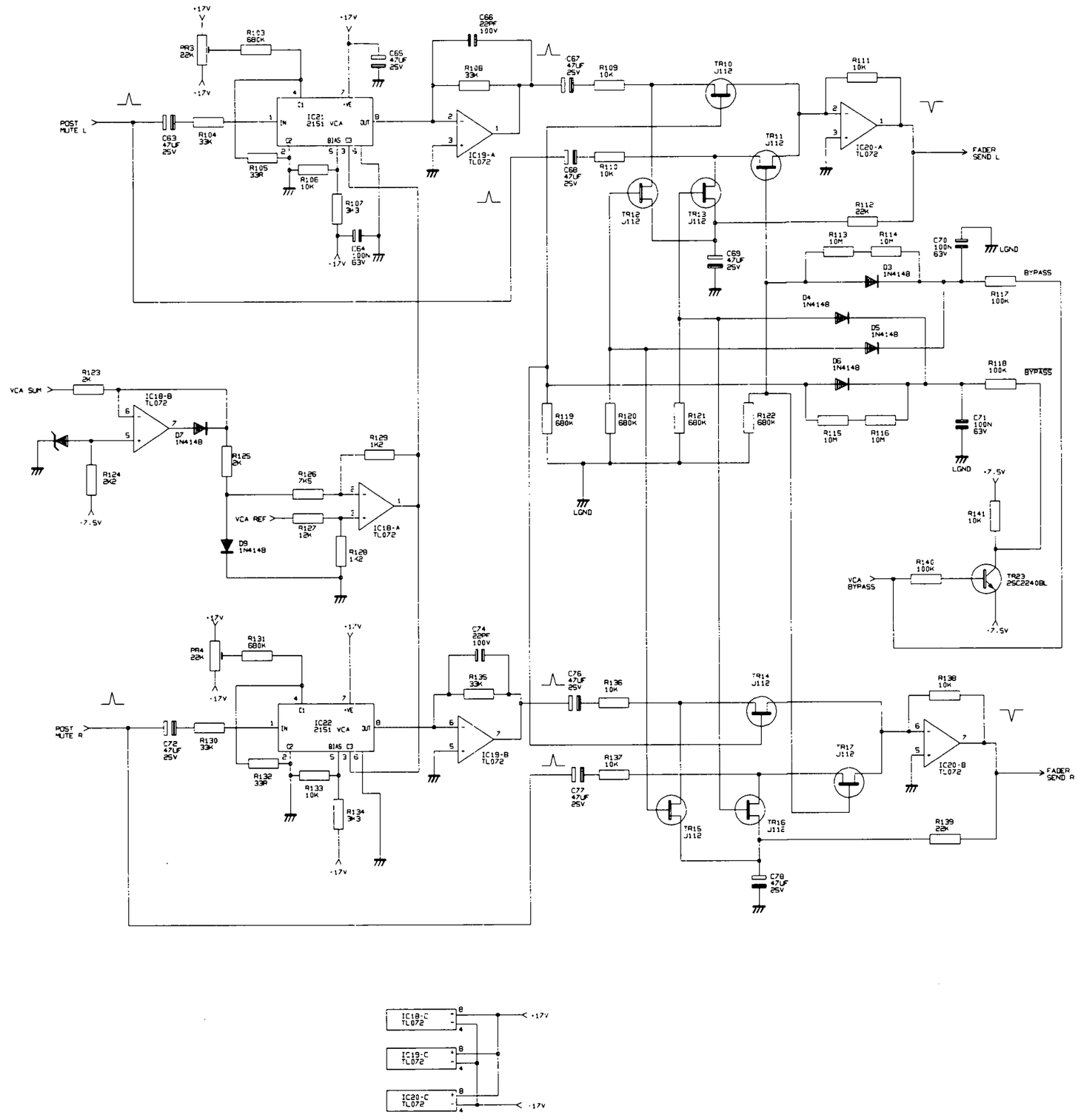


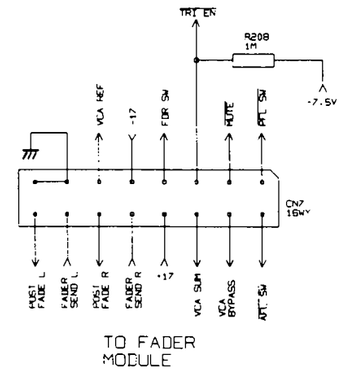


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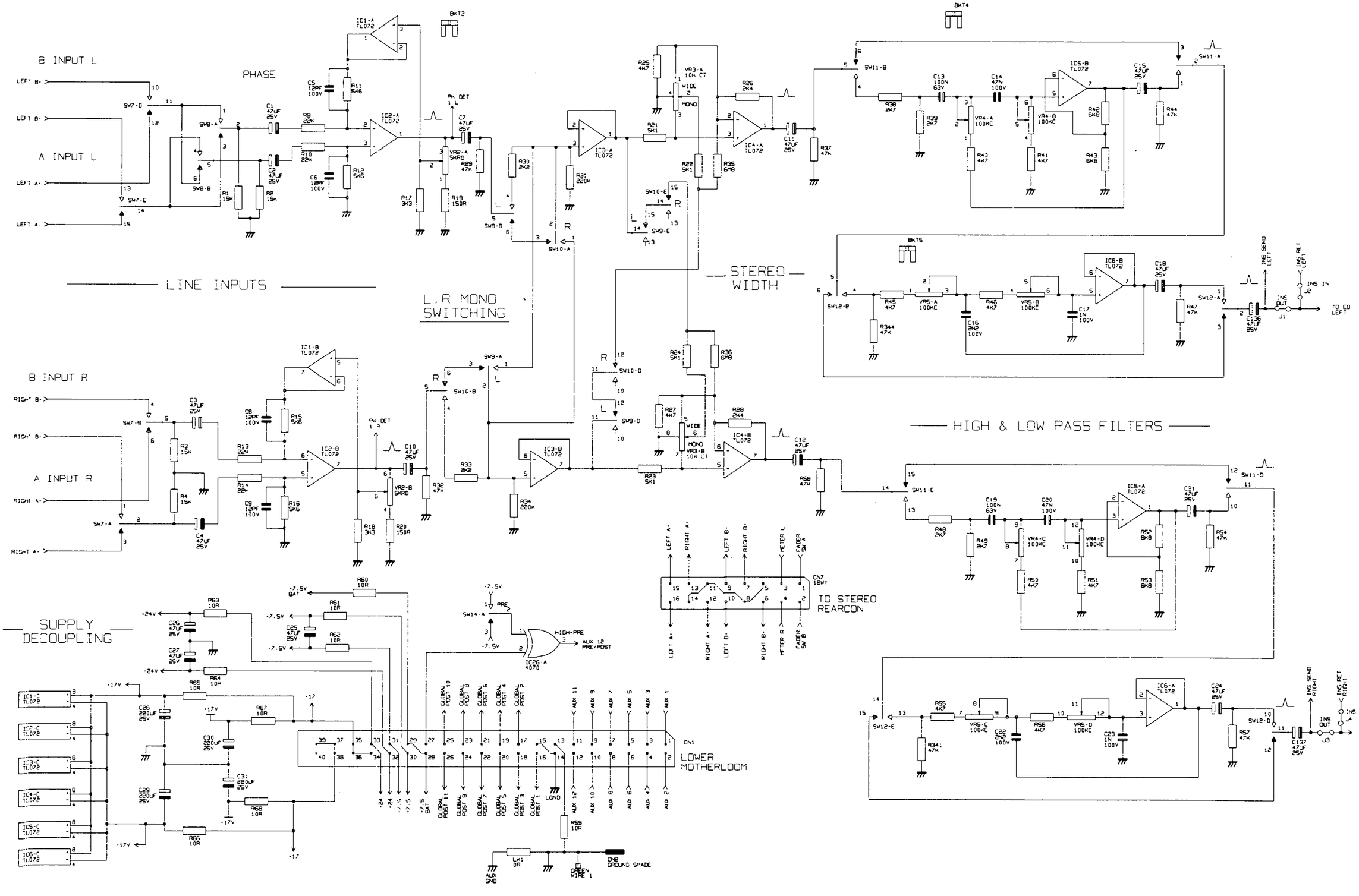
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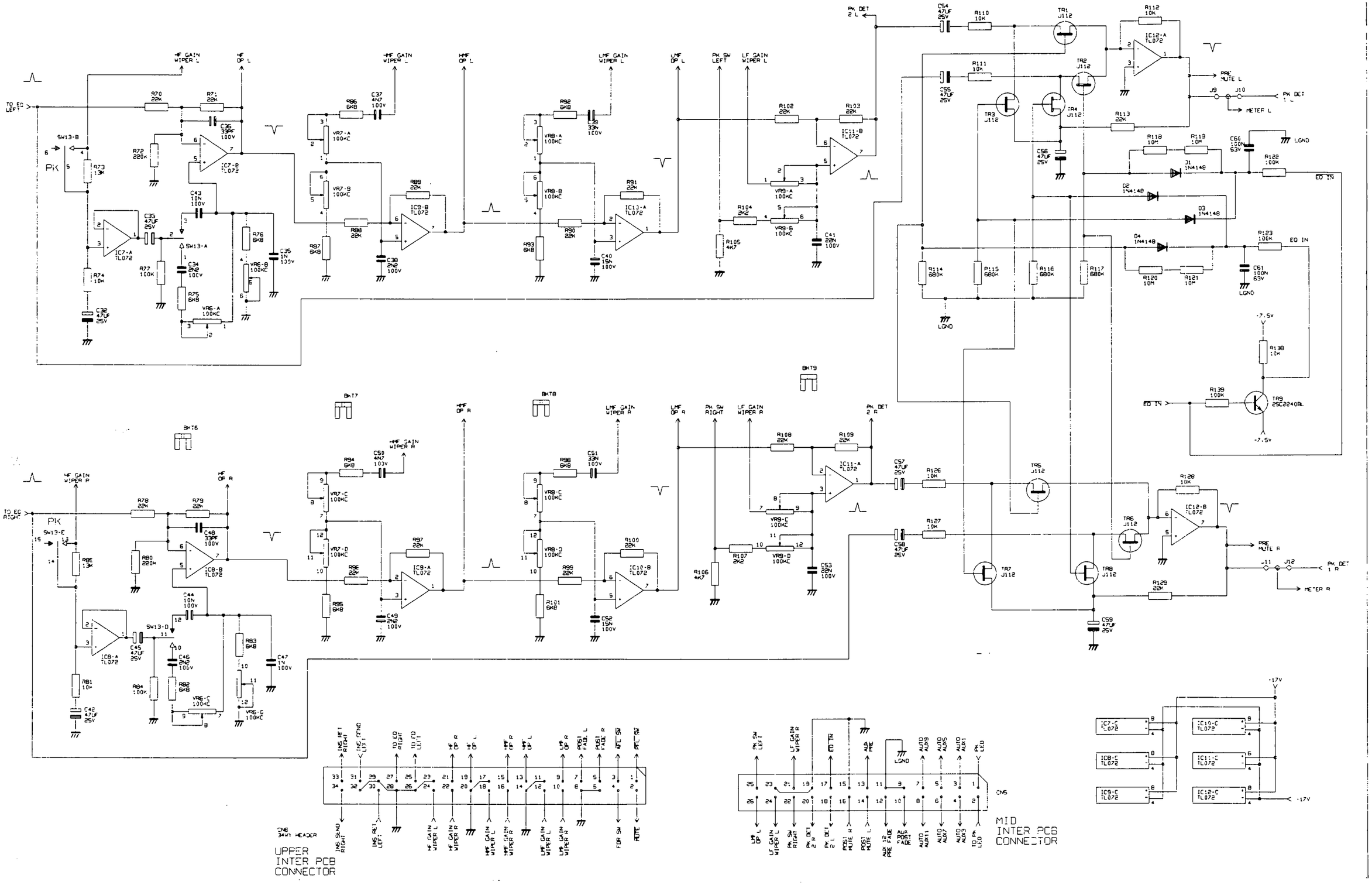


TO FADER MODULE

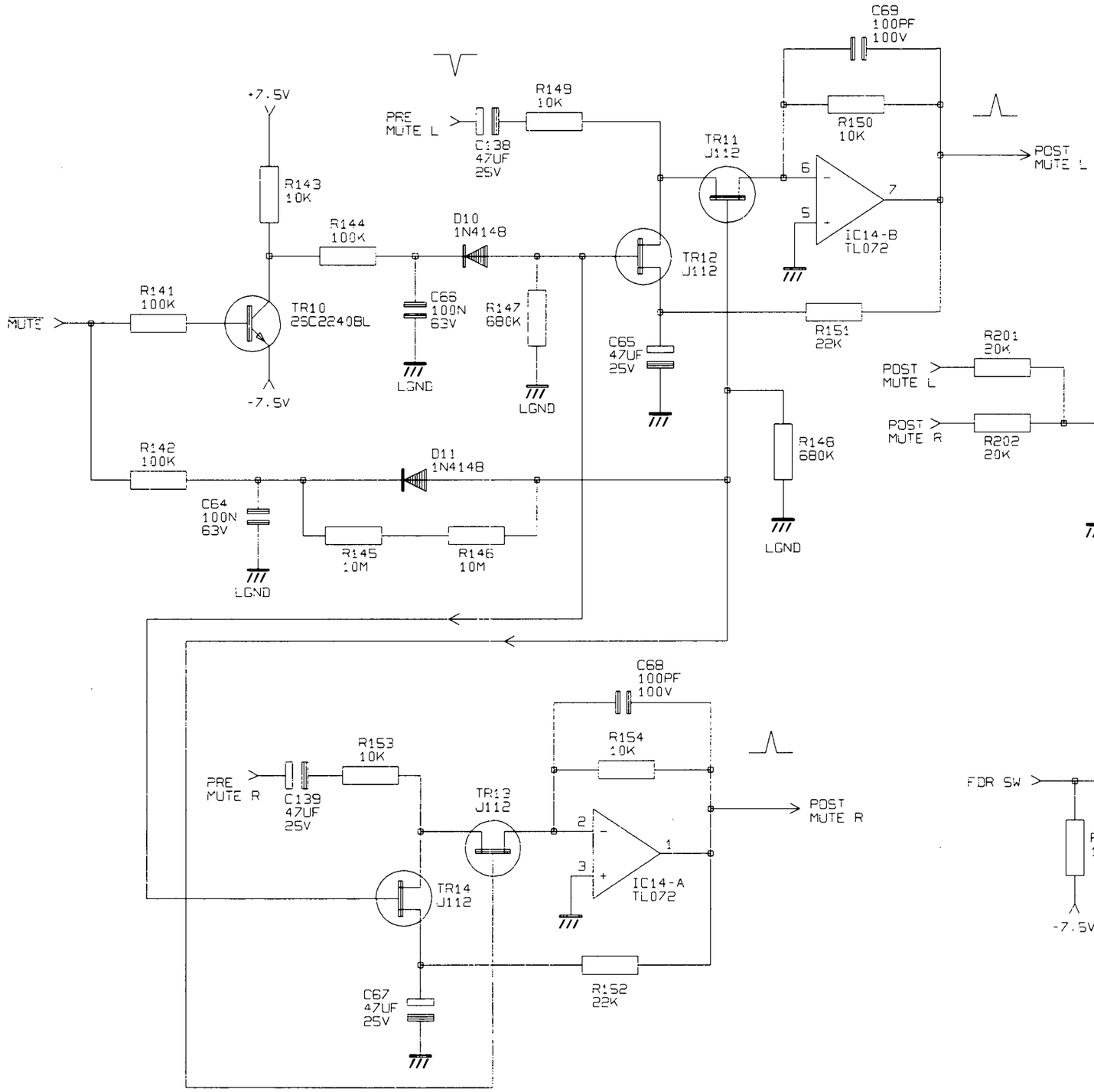
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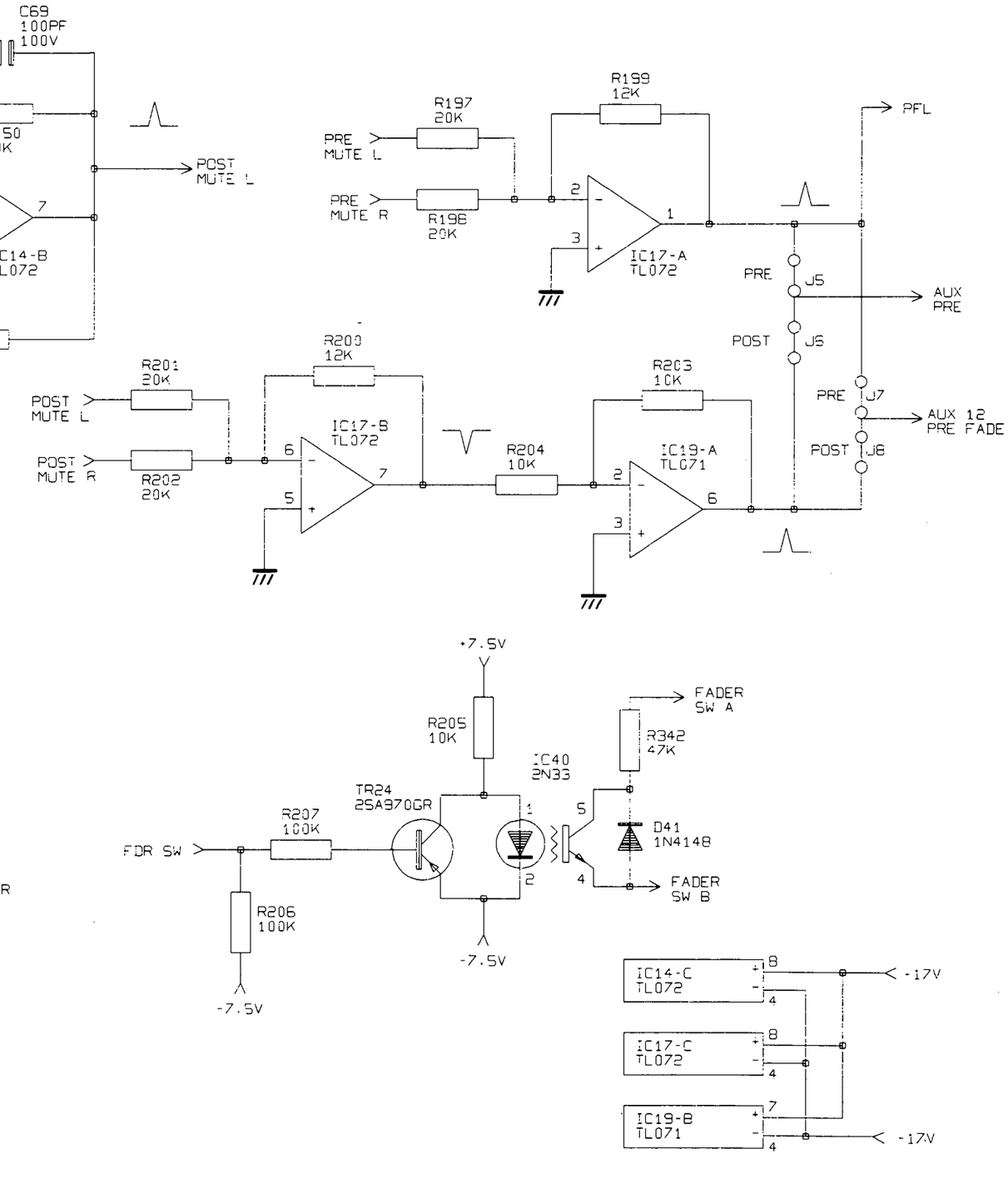


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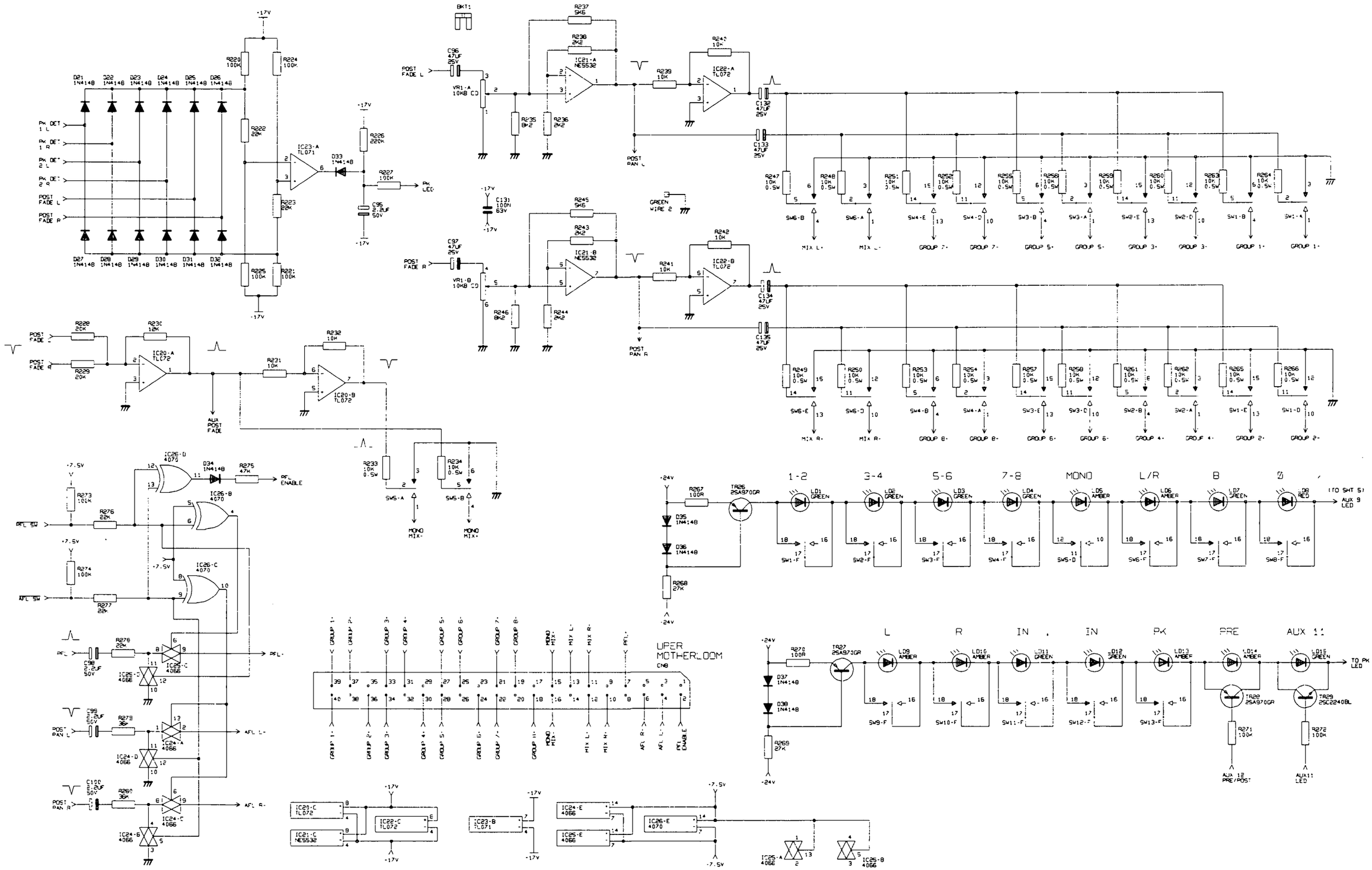


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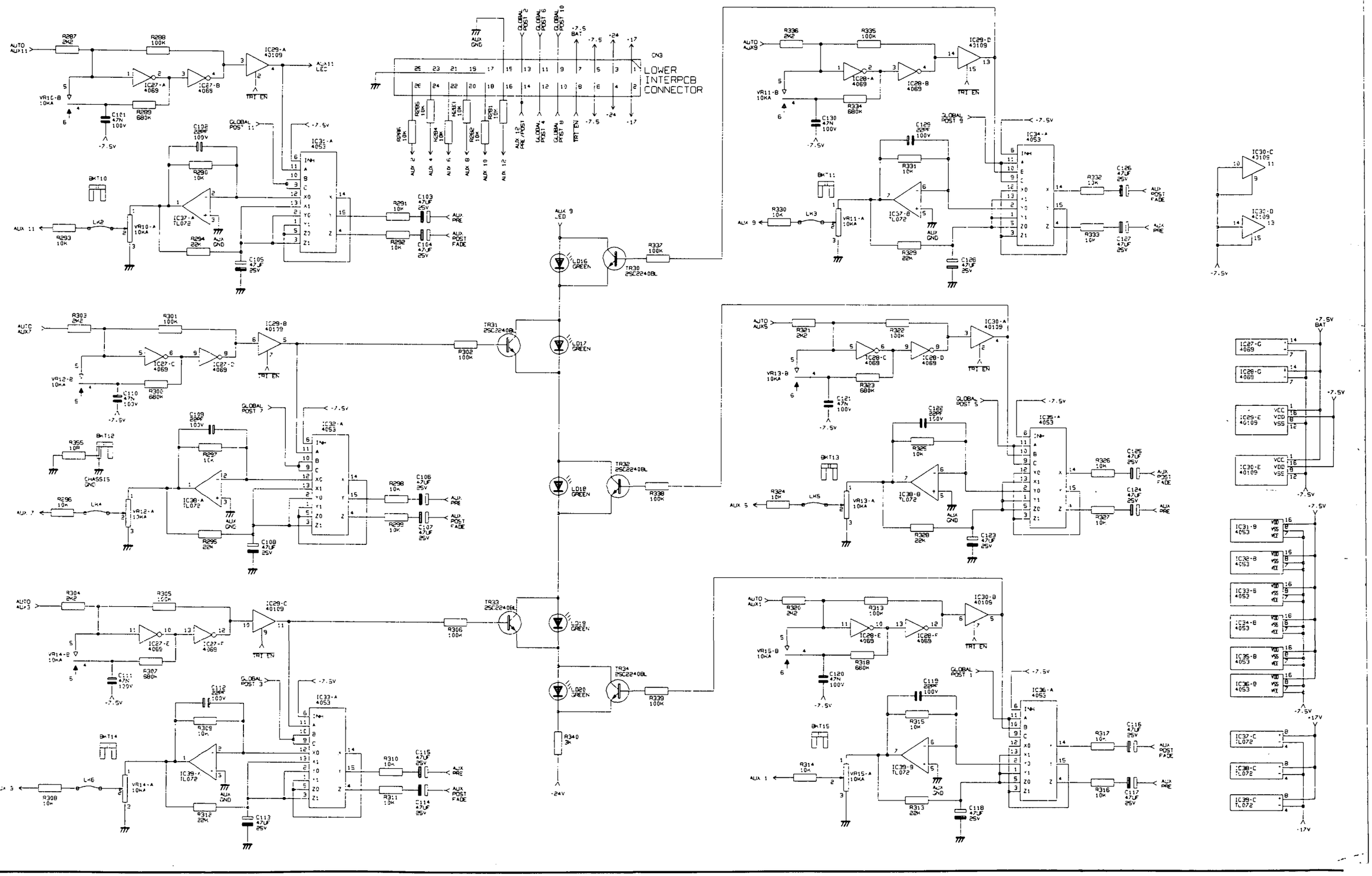




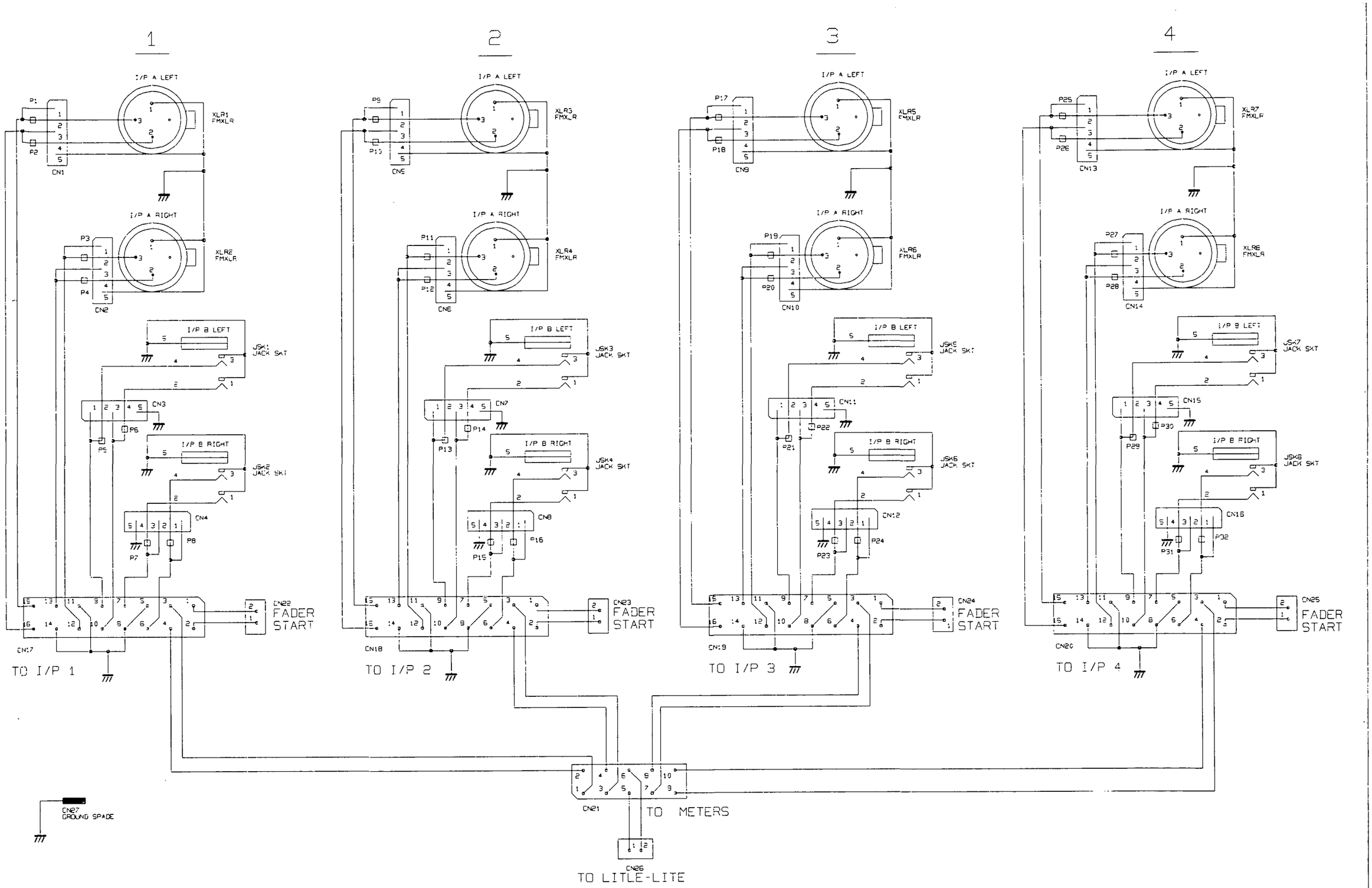
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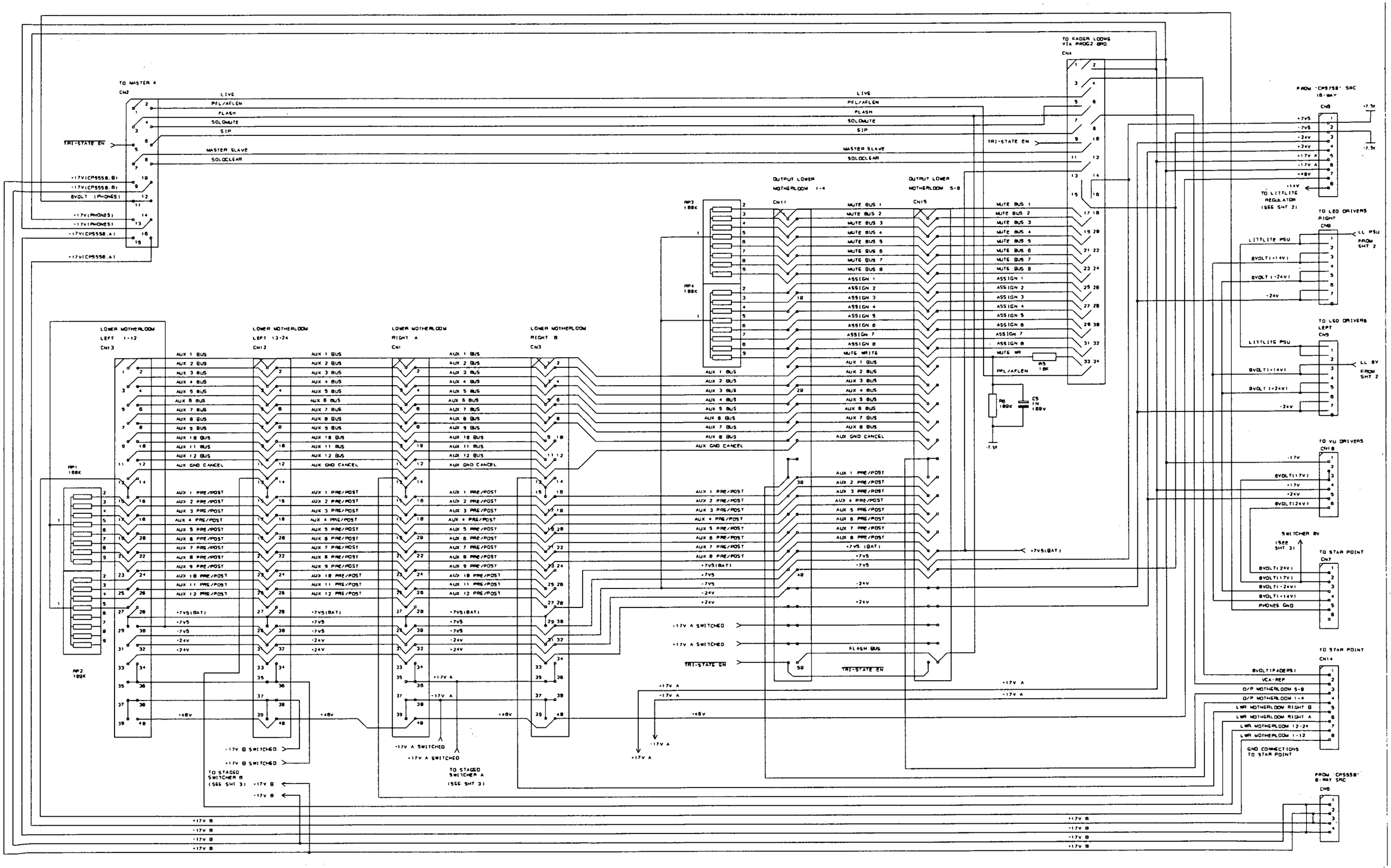
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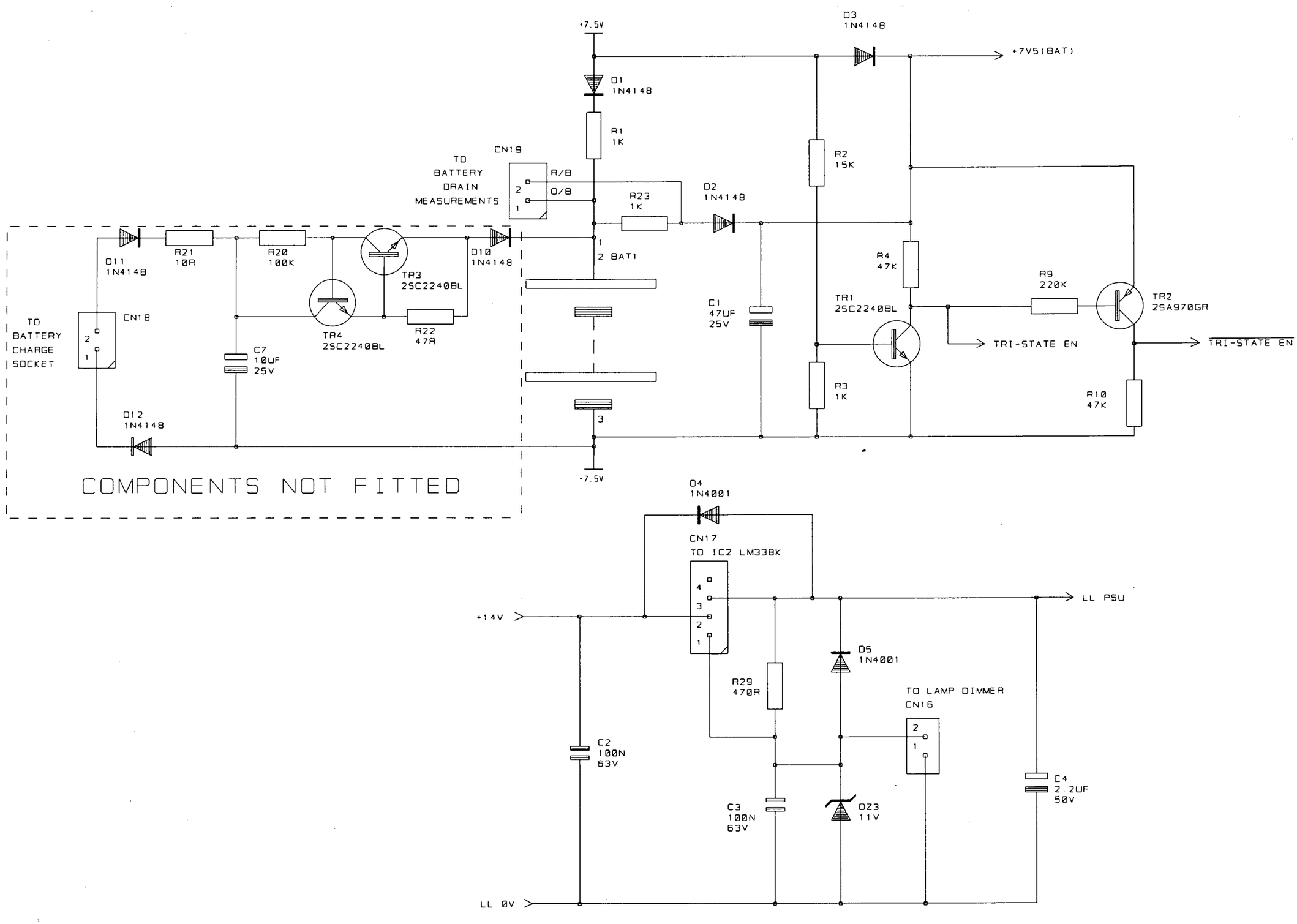
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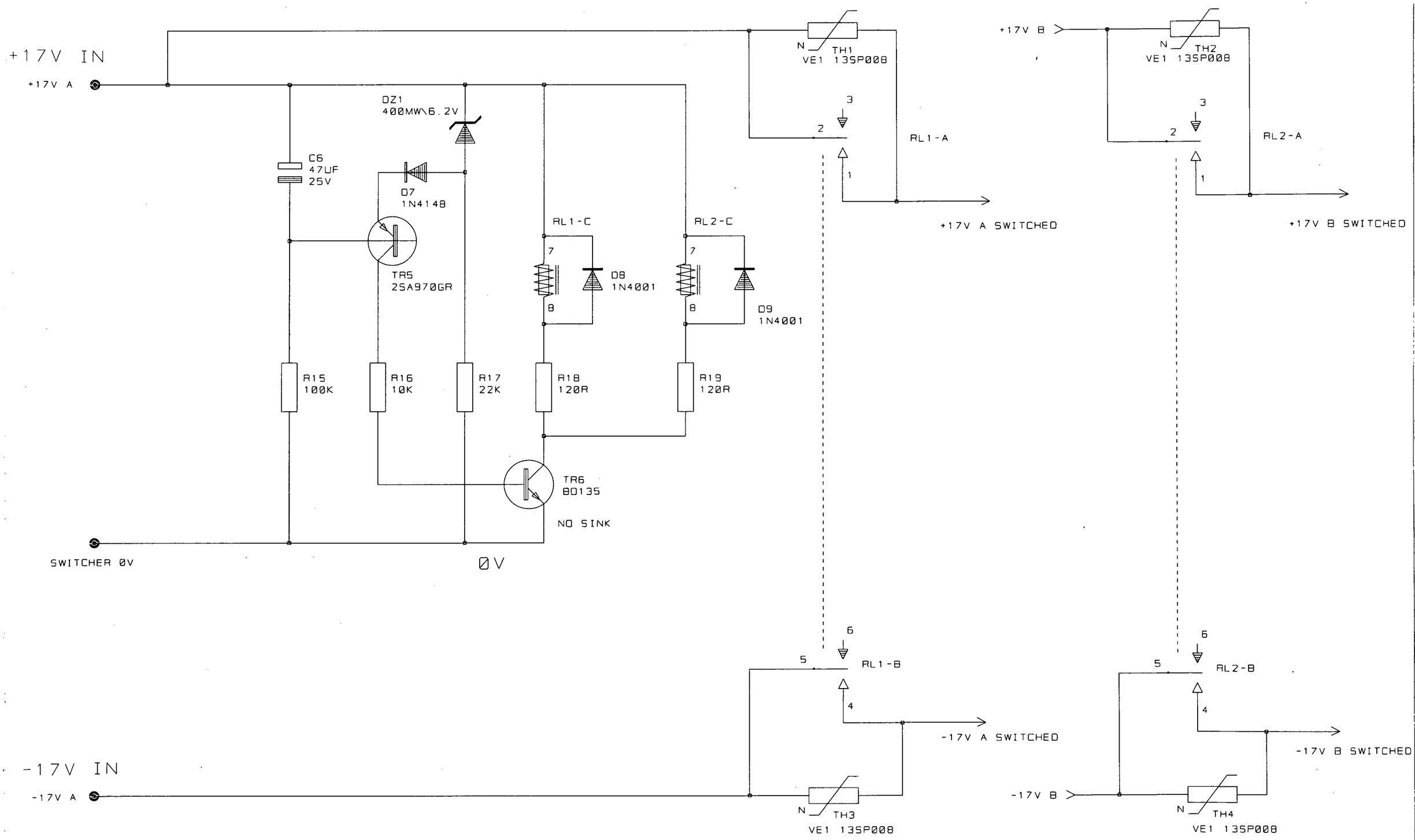
CN12,13 BOTH RUN OFF SWITCHED 17V B

CN1,3 BOTH RUN OFF SWITCHED 17V A

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8. Maintenance

Introduction 8.2

Fault Finding 8.3

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Introduction

Every console that leaves Soundcraft undergoes a thorough testing at all stages of manufacture. These tests include individual testing of every function on all the PCB's, a thorough testing of all the functions of the completed mixer, a soak test of two hours before the final test (which consists of listening, measuring and mechanical function checks) prior to packaging and shipment. In this way we try to ensure that any faulty components show up long before the console leaves the company. Thus a long and trouble-free life can be expected.

Although all Soundcraft consoles have been designed with long-term reliability in mind, it is inevitable that occasional maintenance will be required. However, due to the amount of attention given to the problems of maintenance during the design stages of this console, and the modular construction, servicing tends to be extremely simple to carry out, with the minimum of test equipment needed to isolate and rectify faults.

With the exception of the electronically balanced microphone amplifier, and the hybrid discrete/op amp summing amps, all signal electronics are configured around high slew rate, low noise integrated circuits. The microphone amplifier is a proprietary design, utilising a discrete transistor, low noise cancelling front end.

The use of integrated circuits means that the majority of audio faults can be repaired by simply replacing the I.C., having first isolated the fault to a particular stage in the signal chain. The isolation can often be done without even having to remove the module from the console, by judicious use of insert points, and/or switching the module to various modes. As with all servicing, a good knowledge of signal flow is necessary for best results, and a time spent becoming thoroughly familiar with the console block diagrams will be very helpful.

Basic Principles

Each module should be viewed as a number of signal blocks, through which the signal must flow. If the signal appears at the input to a block, but not at the output, then the fault clearly lies within that block. By dividing a module into individual sections, what may at first appear to be an extremely complicated piece of equipment can be simplified into a series of sequential stages. This is the basic first move in all types of fault finding, and usually requires no more than a certain amount of logical thought. Servicing a console is more a matter of clear thinking and having an understanding of what should be happening, than having a highly developed technical knowledge.

To illustrate the method of logical fault finding, let us assume that we have a non-functioning input module, in both microphone and line modes.

- The first step is to ensure that a fault really does exist! Check that the module is in the correct mode of operation, and that no jacks are inserted in the insert points which may be interrupting the signal flow. Check also that the expected input signal is actually present by plugging it into another module.
- If in doubt about the module operation, set up an adjacent module in exactly the same way, which will allow a direct comparison between a working and possible non-working module.
- Route the channel directly to L/R, so that the channel may be monitored in the normal way. Using an oscillator set it to approximately 1kHz and patch the oscillator signal into the channel Line Input. If all is well, an undistorted signal should now be heard. More likely, because of the fault, it won't.

Large sections of the module circuitry can be by-passed by monitoring the signal at the insert sends, or by switching the EQ in or out.

If by-passing a section causes the signal to re-appear, then the fault is located in that section, and can be traced at component level, by removing the module from the console frame.

Removing Modules

Warning! **Always check that power has been removed from the console before attempting to release or remove modules from the frame.**

First remove the top and bottom ident strips to reveal the module screws. Remove the 2 module retaining screws, which will allow the module to be carefully withdrawn from the console.

The ribbon cable looms connecting to the module will now be exposed and may be detached from the module. Take care not to impose unnecessary strain on the cables or the connectors during this process. There is enough spare cable between the modules to allow them to be laid on the surface of the adjacent modules. In a similar awy the rear connector panels may be separately removed from the console if required.

With the module extended on the mother loom, access is now available to all parts of the module, and the signal may be traced through the various stages, using an oscilloscope, millivoltmeter, or even high impedance headphones.

Refer to the Module Block Diagram which shows the signal flow through the module and the Circuit Diagram. When a point is reached where the signal is not present, or is distorted, the suspected faulty components can be checked out and if necessary replaced. Integrated circuits, due to their internal complexity, are the most likely cause of problems, followed by mechanical components such as switches and faders, which are susceptible to physical contamination from oxidisation, dust and liquids.

Internal Jumper Settings

Main PCB

Ident	Function	Default
J1	Group Meter Peak/Average	Peak
J2	2-TK B To Mono Enable	Fitted
J3	2-TK B To Mono Disable	Not Fitted

Aux Meter Sub-PCB

Ident	Function	Default
J1	Meter Peak/Average	Peak

Group/FXR

RIGHT HAND PCB

Ident	Function	Default
J1	Aux Bus 1 Programming	Depends On Module Position
J2	Aux Bus 2 Programming	
J3	Aux Bus 3 Programming	
J4	Aux Bus 4 Programming	
J5	Aux Bus 5 Programming	
J6	Aux Bus 6 Programming	
J7	Aux Bus 7 Programming	
J8	Aux Bus 8 Programming	
J9	Group Bus 1- Programming	Depends On Module Position
J10	Group Bus 1+ Programming	
J11	Group Bus 2- Programming	
J12	Group Bus 2+ Programming	
J13	Group Bus 3- Programming	
J14	Group Bus 3+ Programming	
J15	Group Bus 4- Programming	
J16	Group Bus 4+ Programming	
J17	Group Bus 5- Programming	
J18	Group Bus 5+ Programming	
J19	Group Bus 6- Programming	
J20	Group Bus 6+ Programming	
J21	Group Bus 7- Programming	
J22	Group Bus 7+ Programming	
J23	Group Bus 8- Programming	
J24	Group Bus 8+ Programming	

Ident	Function	Default
J25	Aux Global Pre 1 Program	Depends On Module Position
J26	Aux Global Pre 2 Program	
J27	Aux Global Pre 3 Program	
J28	Aux Global Pre 4 Program	
J29	Aux Global Pre 5 Program	
J30	Aux Global Pre 6 Program	
J31	Aux Global Pre 7 Program	
J32	Aux Global Pre 8 Program	
J33	Group Meter Peak/ave	Peak

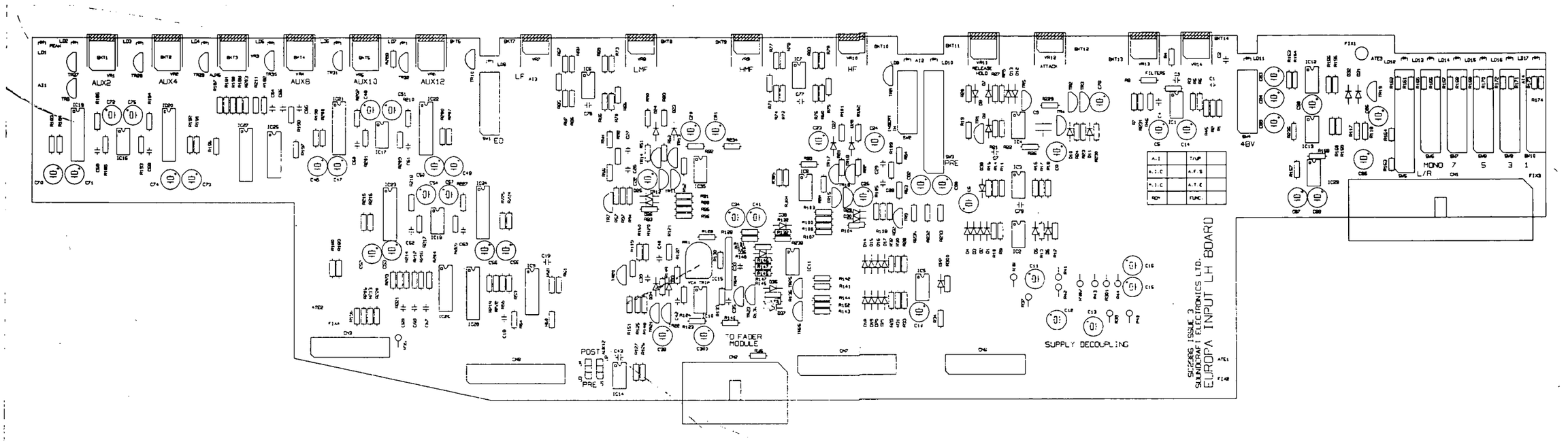
LH PCB

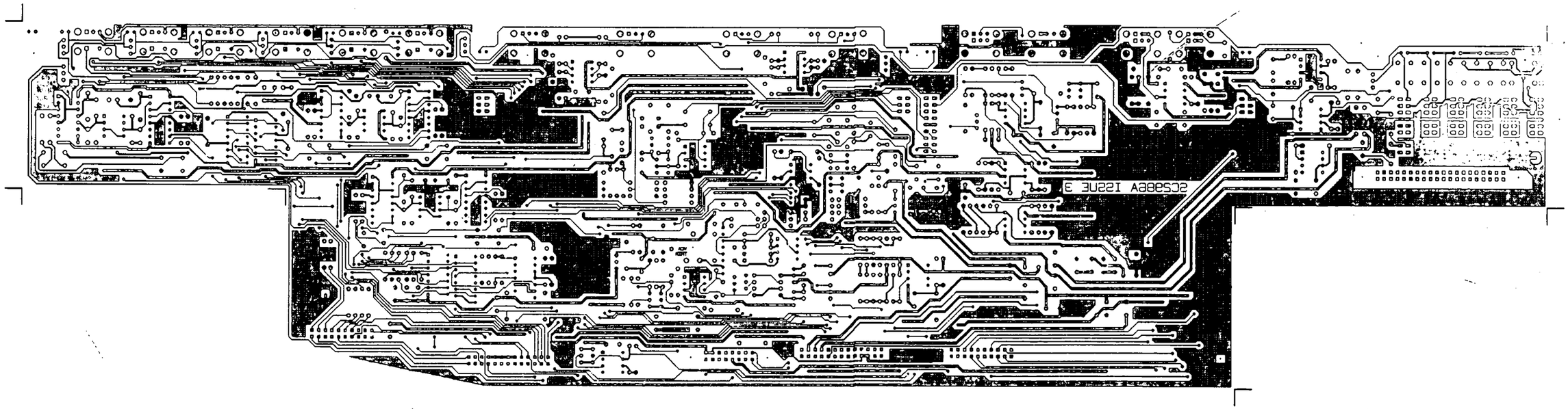
Ident	Function	Default
J1	Aux Send A Source (Pre)	
J2	Aux Send B Source (Pre)	
J3	Aux Send B Source (Post)	
J4	Aux Send A Source (Post)	
J5	Aux Meter Peak/Ave	Peak

9. PCB Layouts

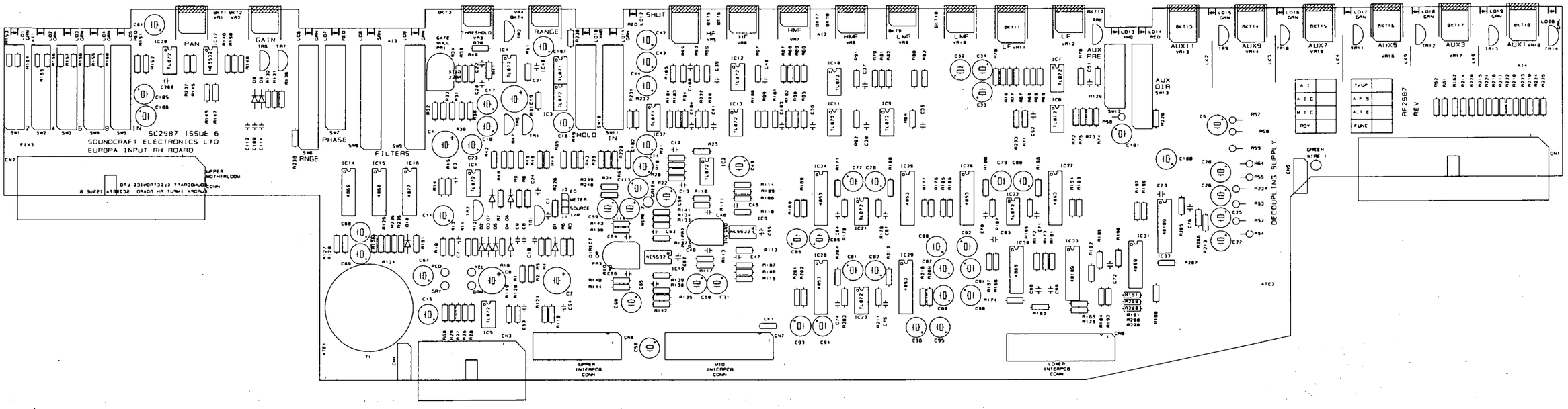
I/P LH PCB SC2986 9.2
I/P PH PCB SC2987 9.3
FDR PCB SC2988 9.4
GRP FX LH PCB SC2989 9.5
GRP FX RH PCB SC2990 9.6
PSU I/F PCB SC2992 9.7
I/P RR CON PCB SC2993 9.8
O/P RR CON PCB SC2994 9.9
VCA GRP MAST PCB SC2995 9.10
Master RR CON PCB SC2996 9.11
5-Segment MTR PCB SC2997 9.12
Meter PCB SC2998 9.13
VCA Mute Assign PCB SC2999 9.14
Mute Master PCB 4 SC3000 9.15
Master PCB 1 SC3001 9.16
Master PCB 2 SC3002 9.17
Master PCB 3 SC3003 9.18
Master PCB 4 SC3004 9.19
Audio Link PCB SC3051 9.20
Digital INTFC PCB SC3052 9.21
Analogue I/F PCB SC3053 9.22
FDR INTFC PCB SC3054 9.23
Matrix SUB-PCB SC3072 9.24
Matrix RH PCB SC3073 9.25
Matrix FDR PCB SC3074 9.26
Matrix RR Con PCB SC3075 9.27
Stereo I/P LH PCB SC3140 9.28
Stereo I/P RH PCB SC3141 9.29
Stereo I/P RR Con PCB SC3142 9.30
CPS950 DIST PSU PCB SC3231 9.31

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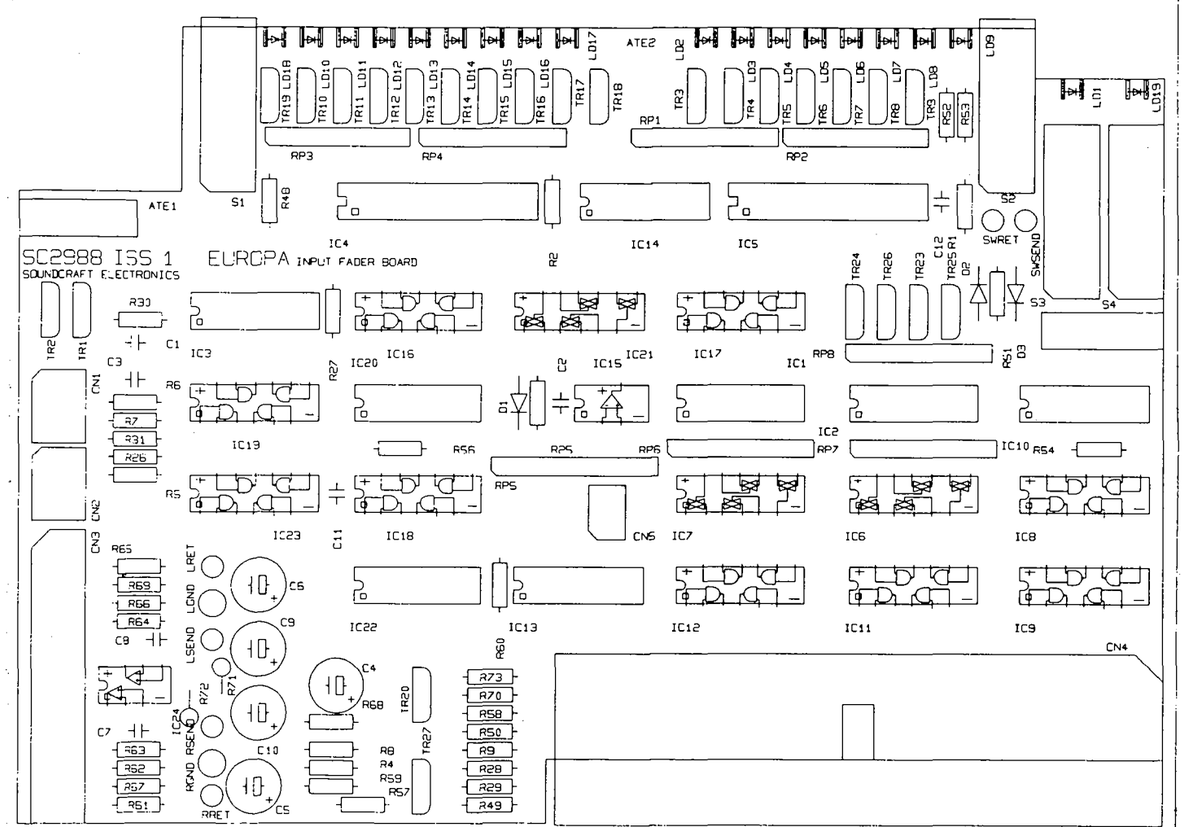


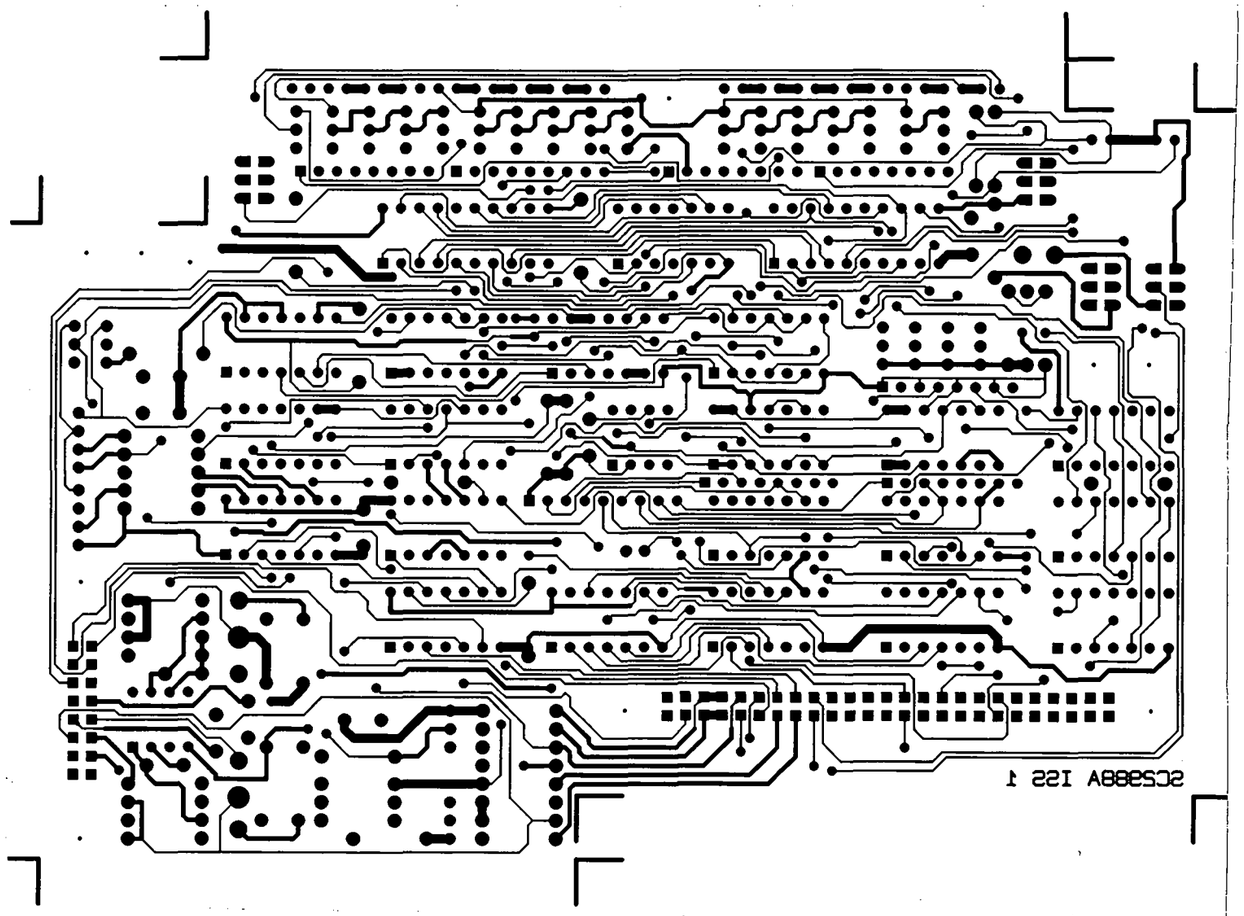


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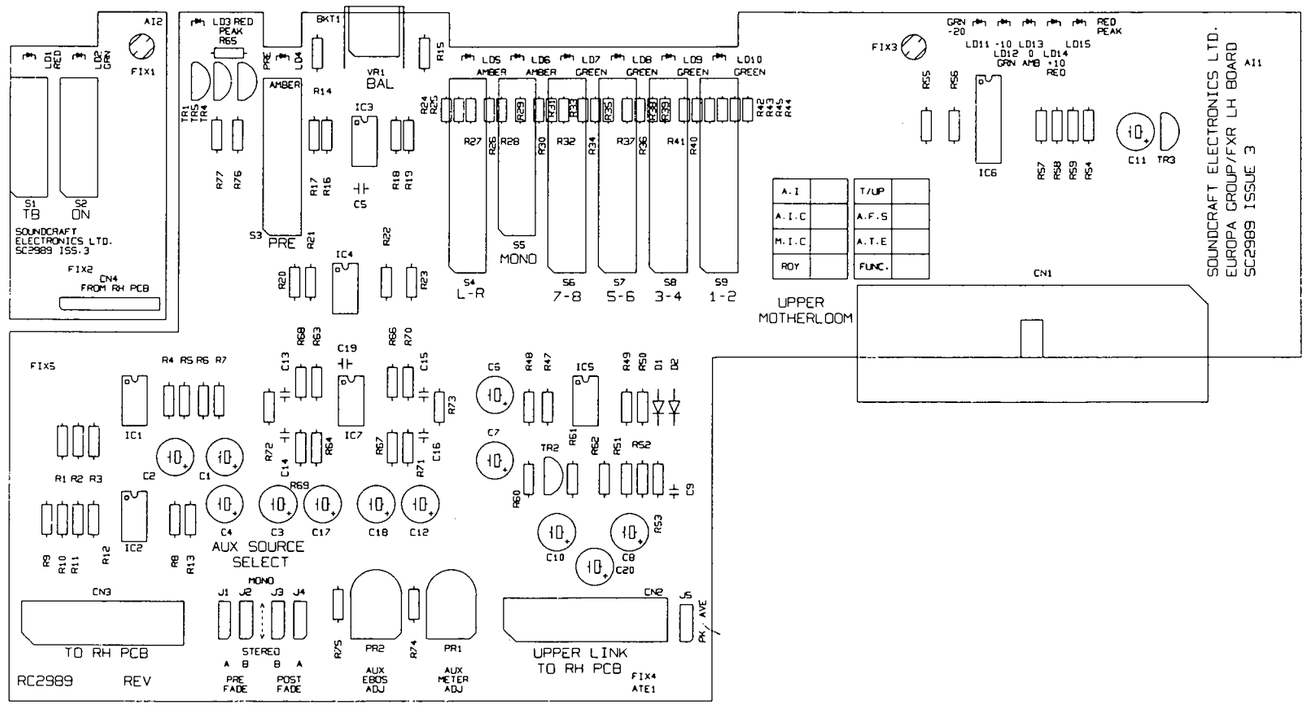


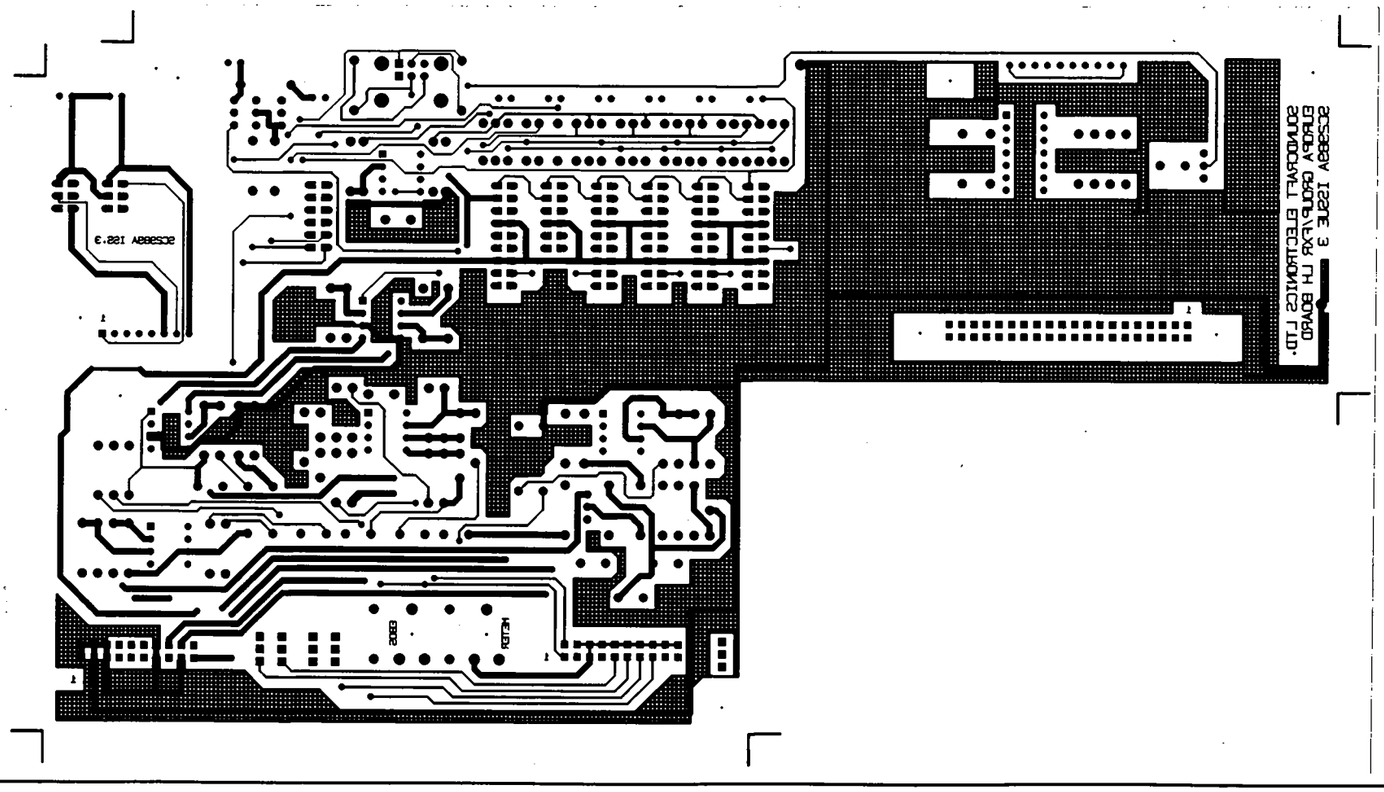
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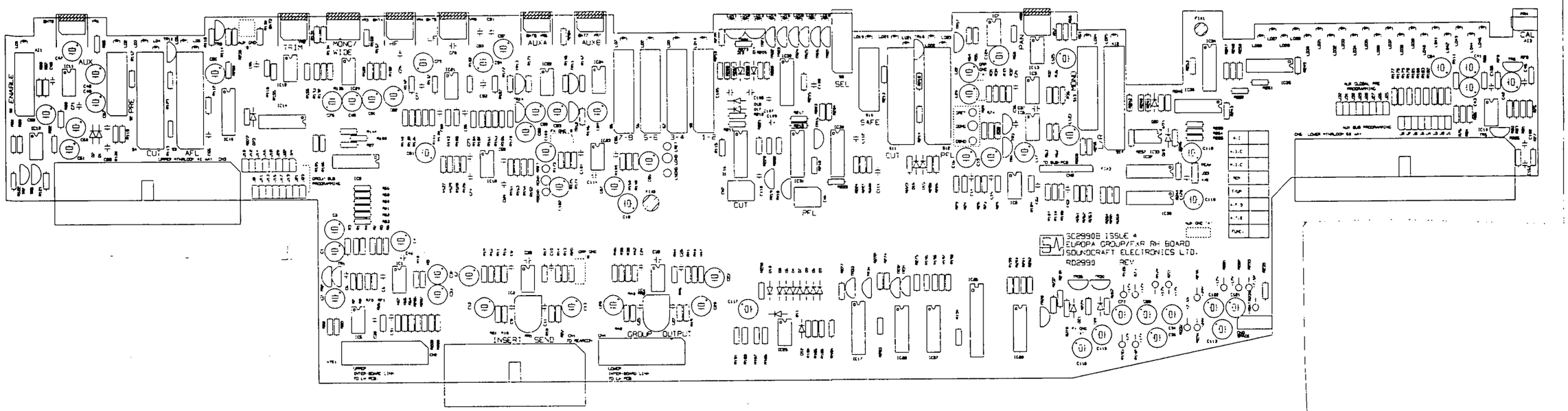


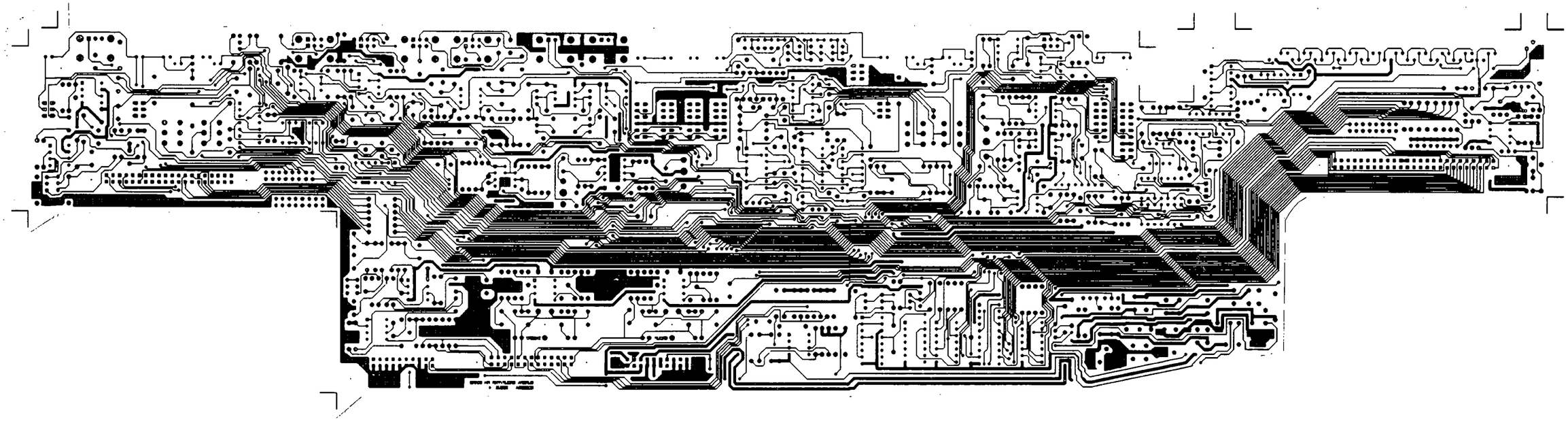
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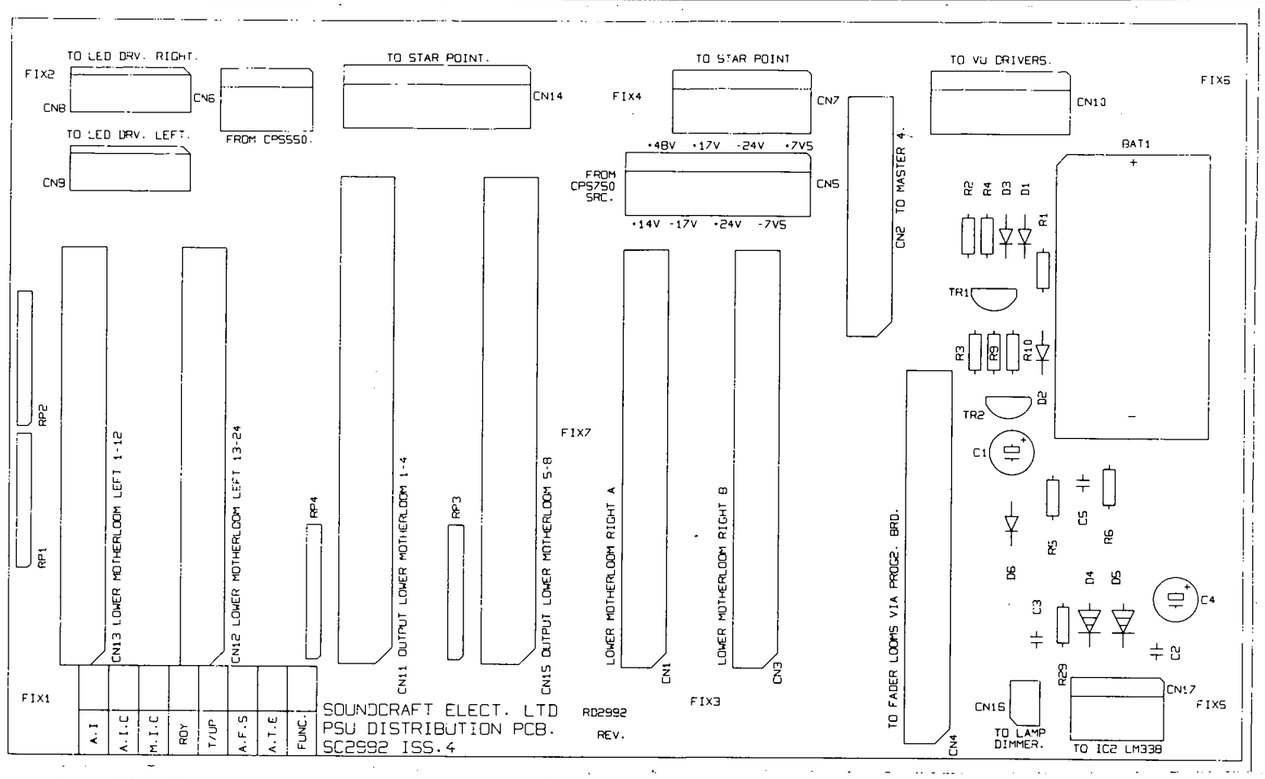


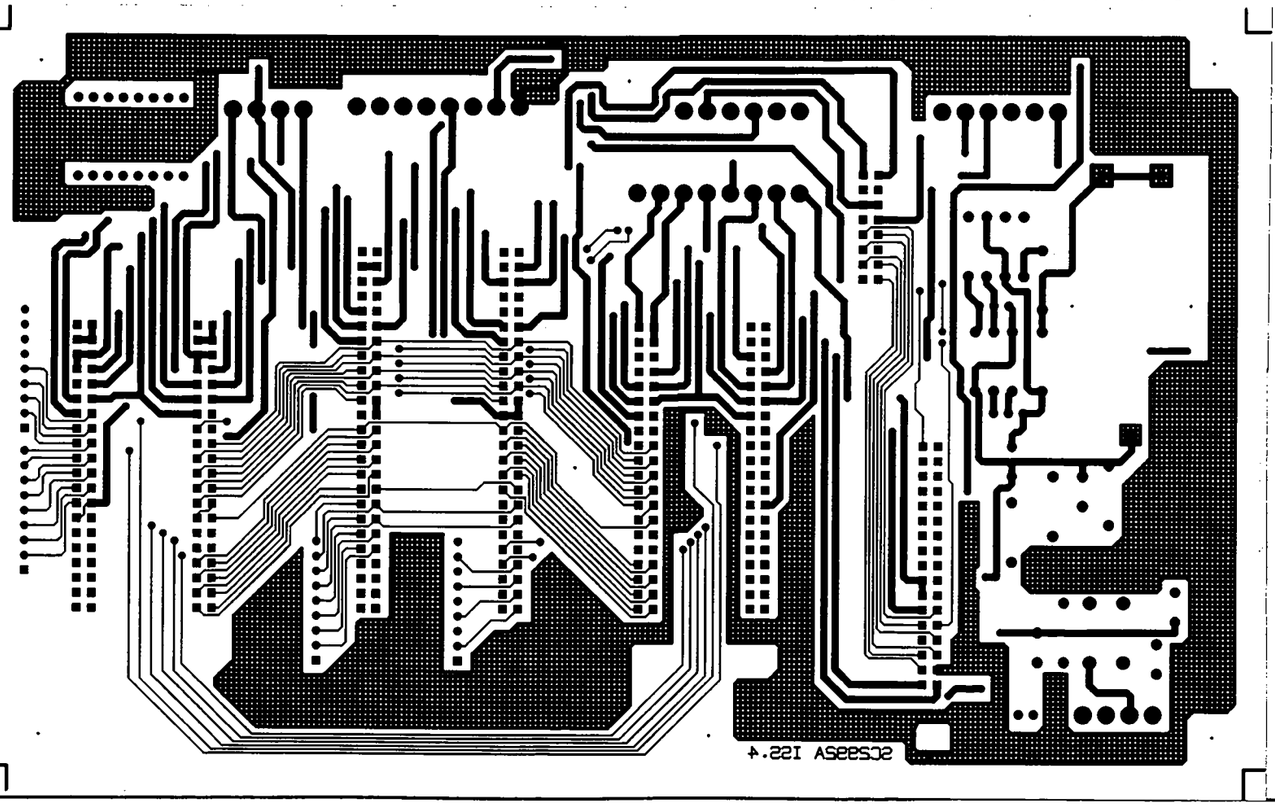
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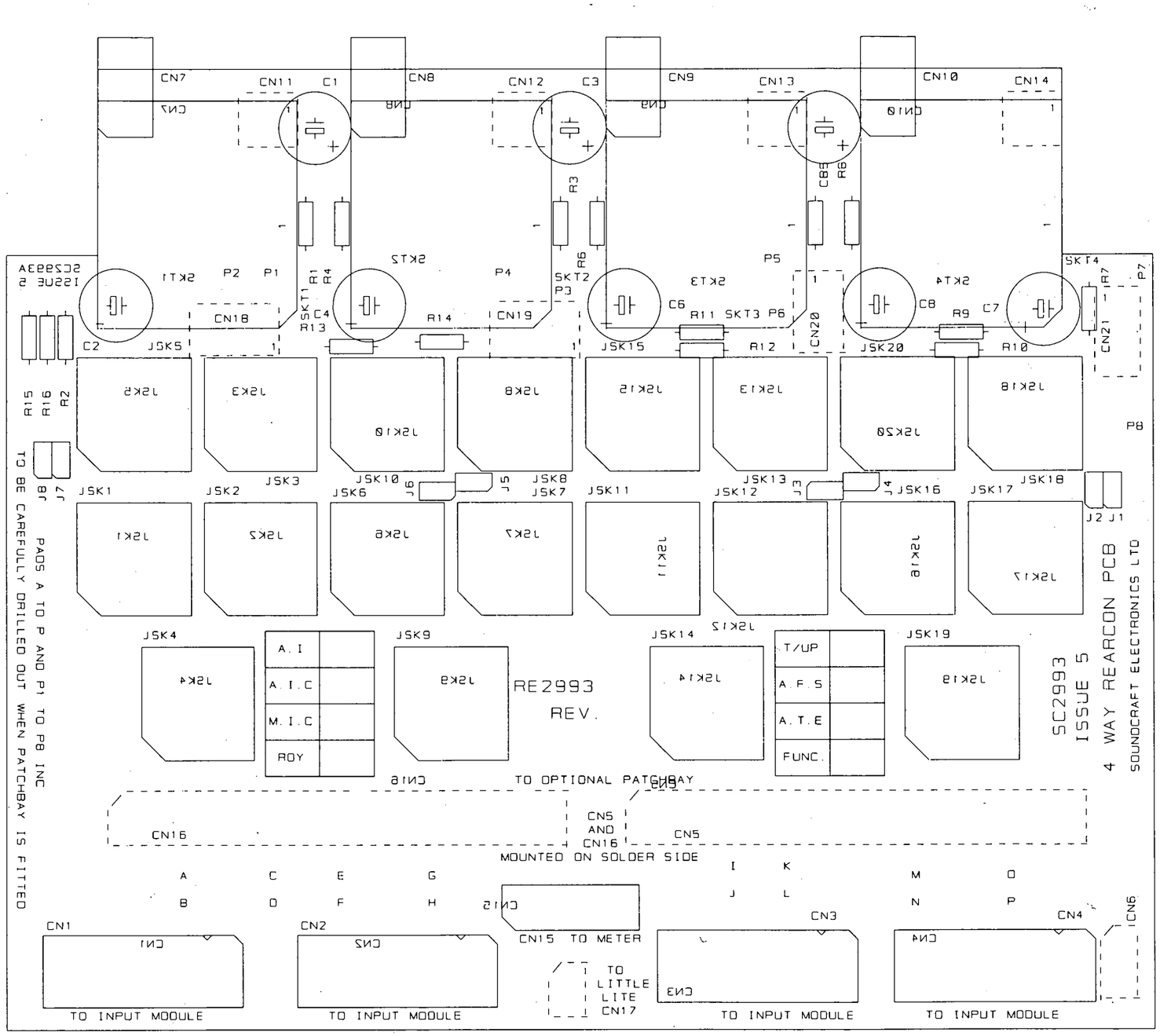


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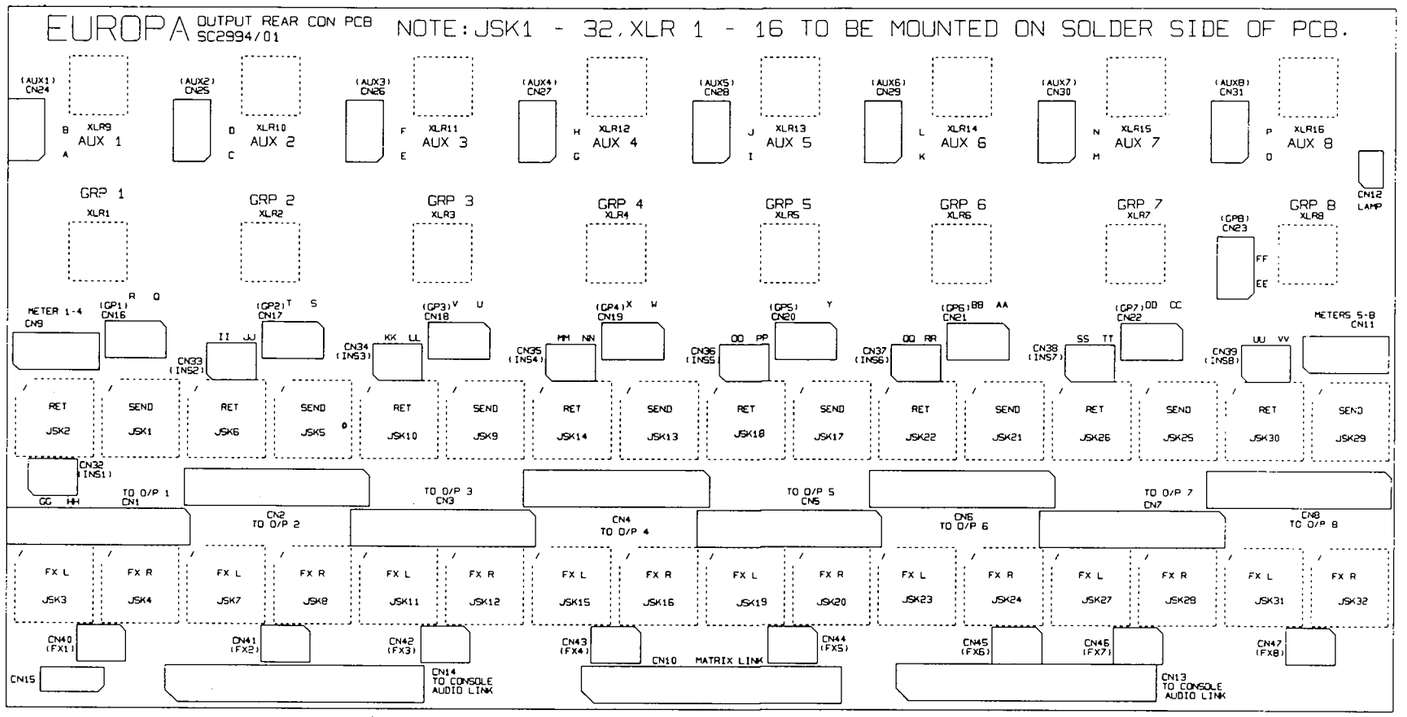


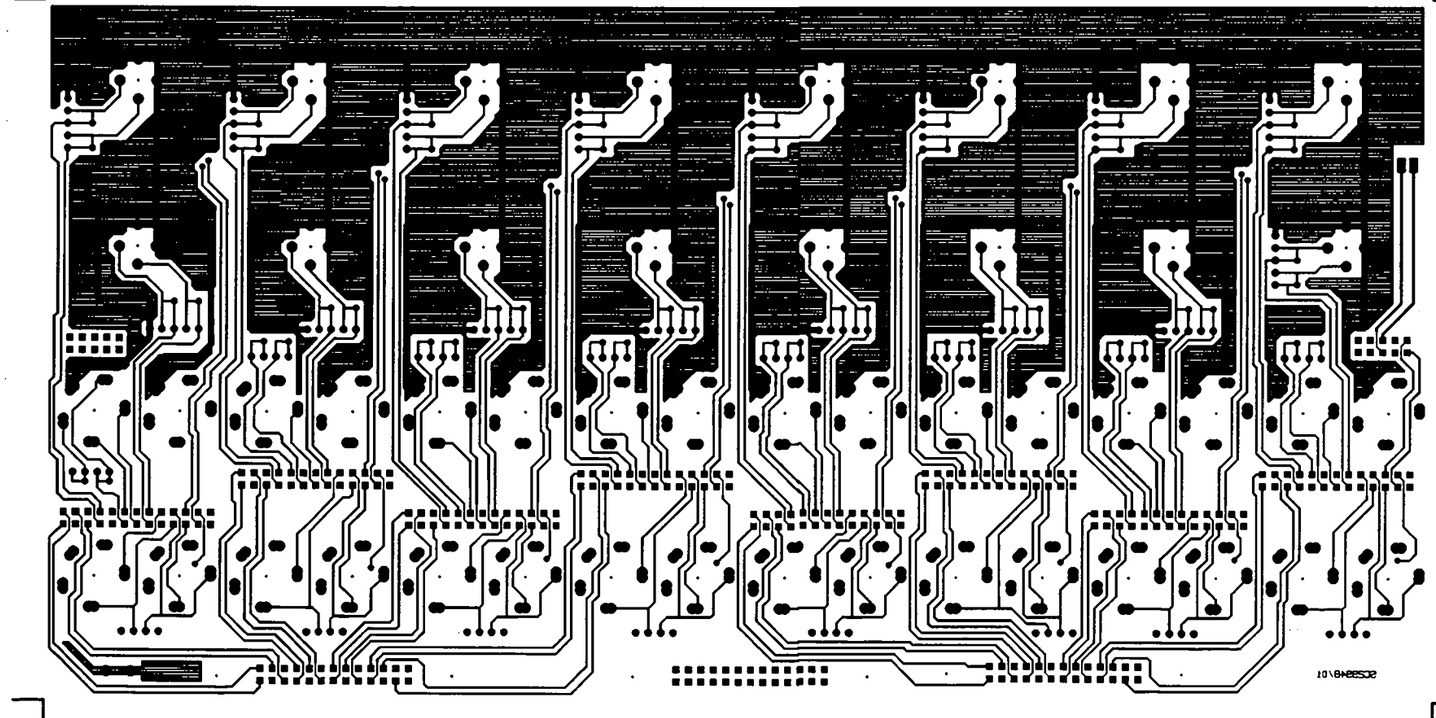


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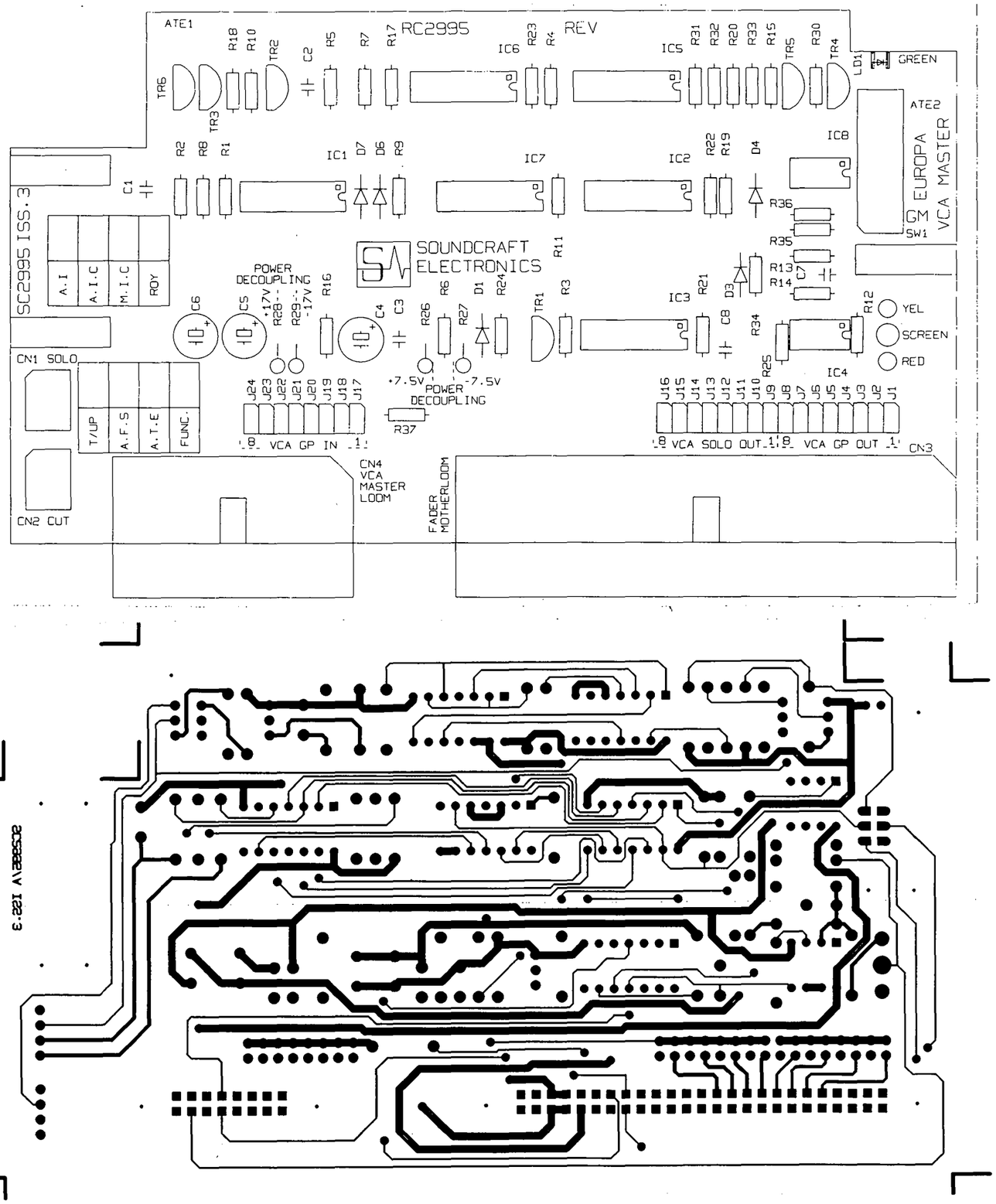


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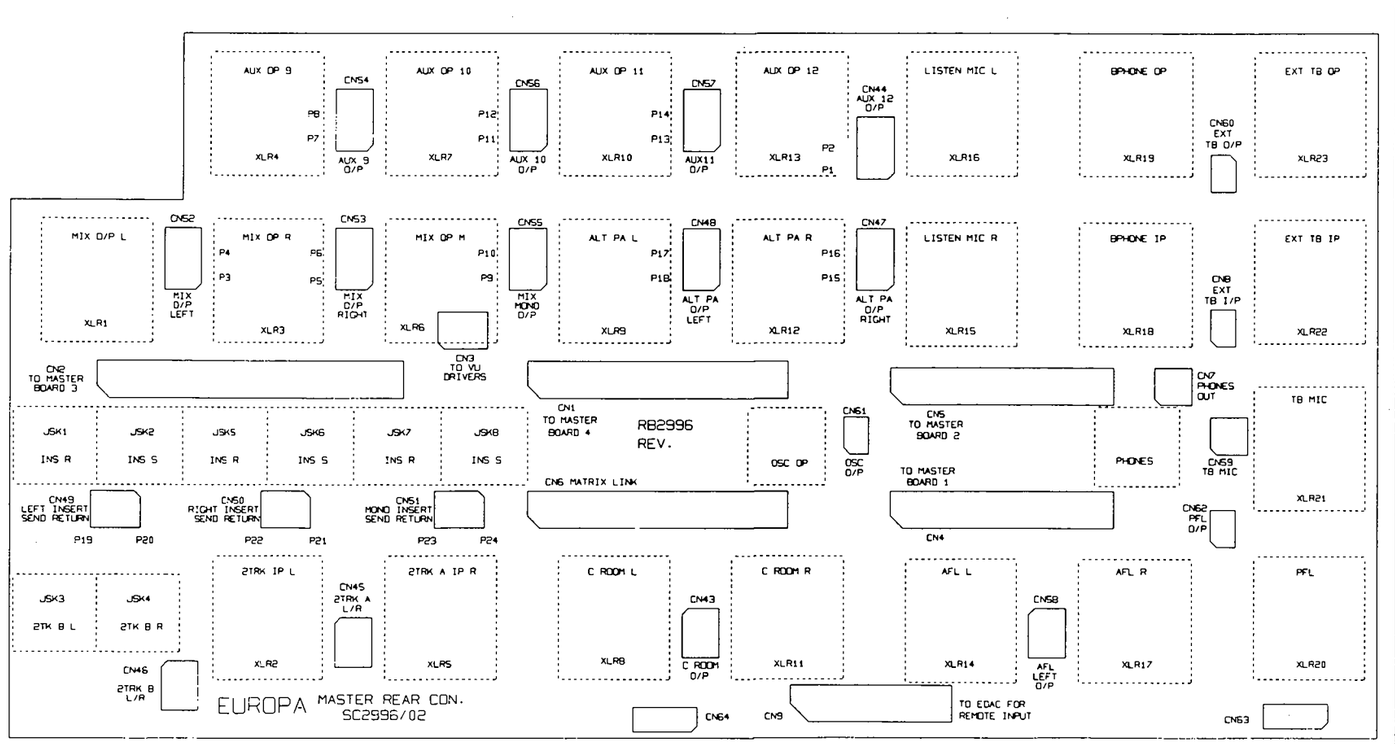


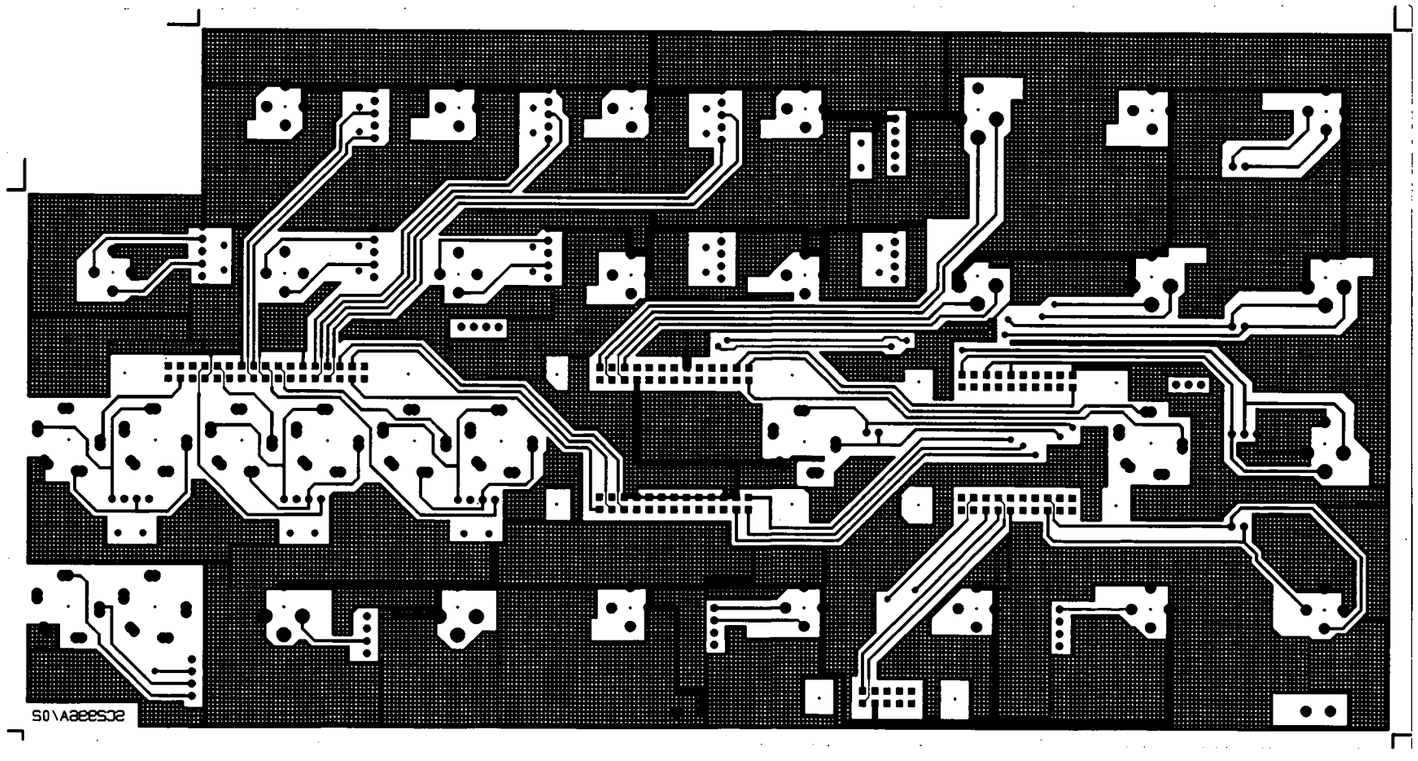


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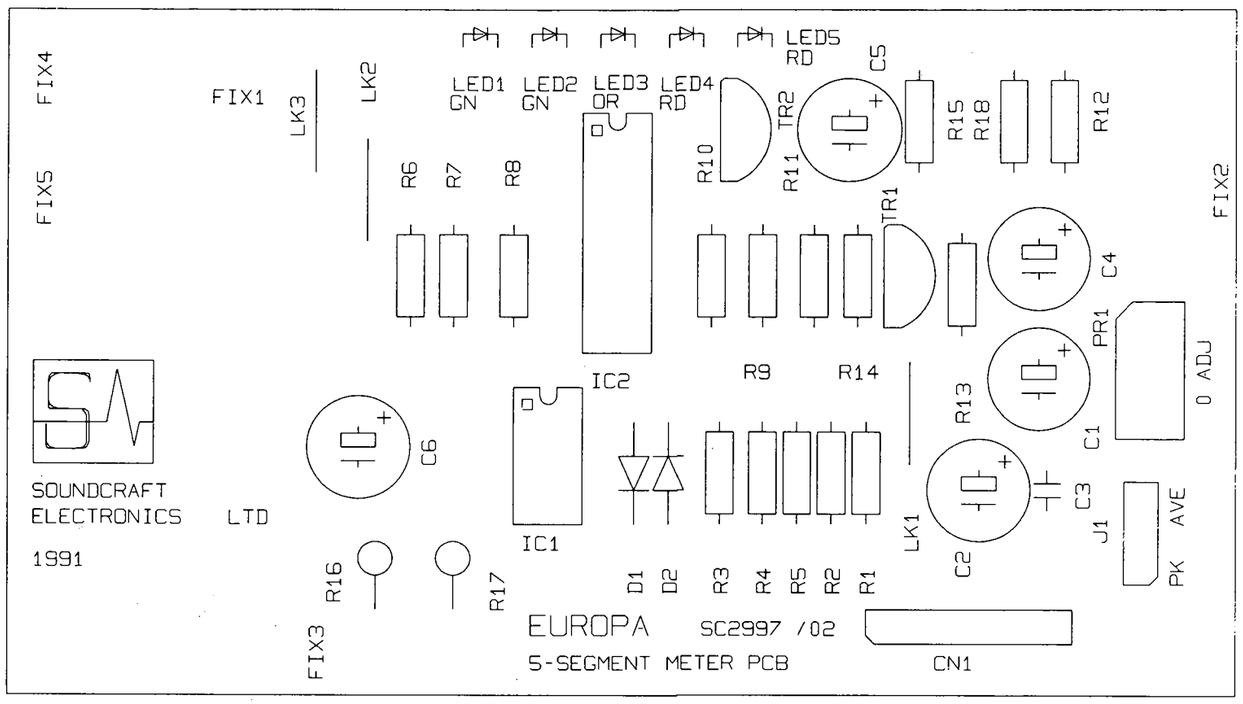


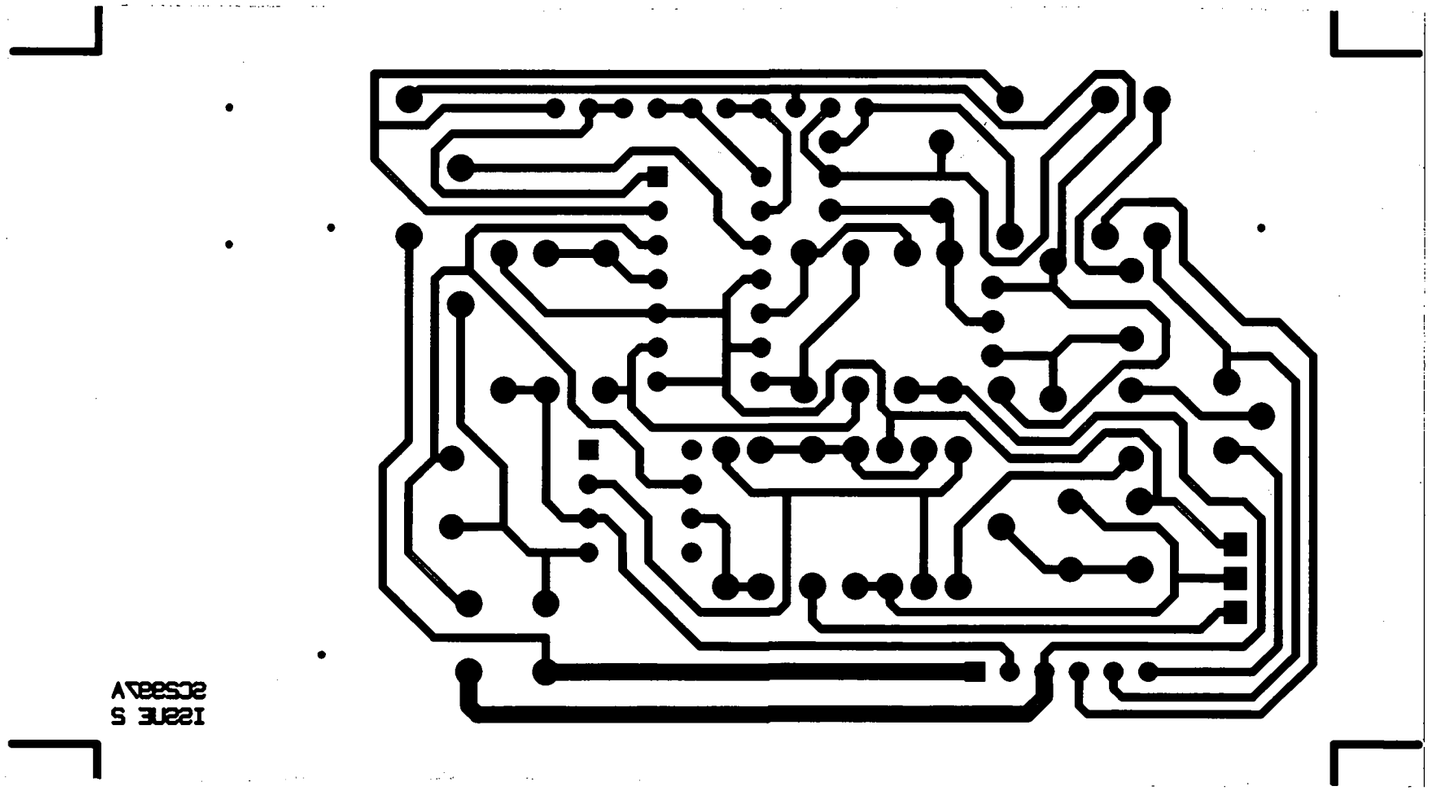
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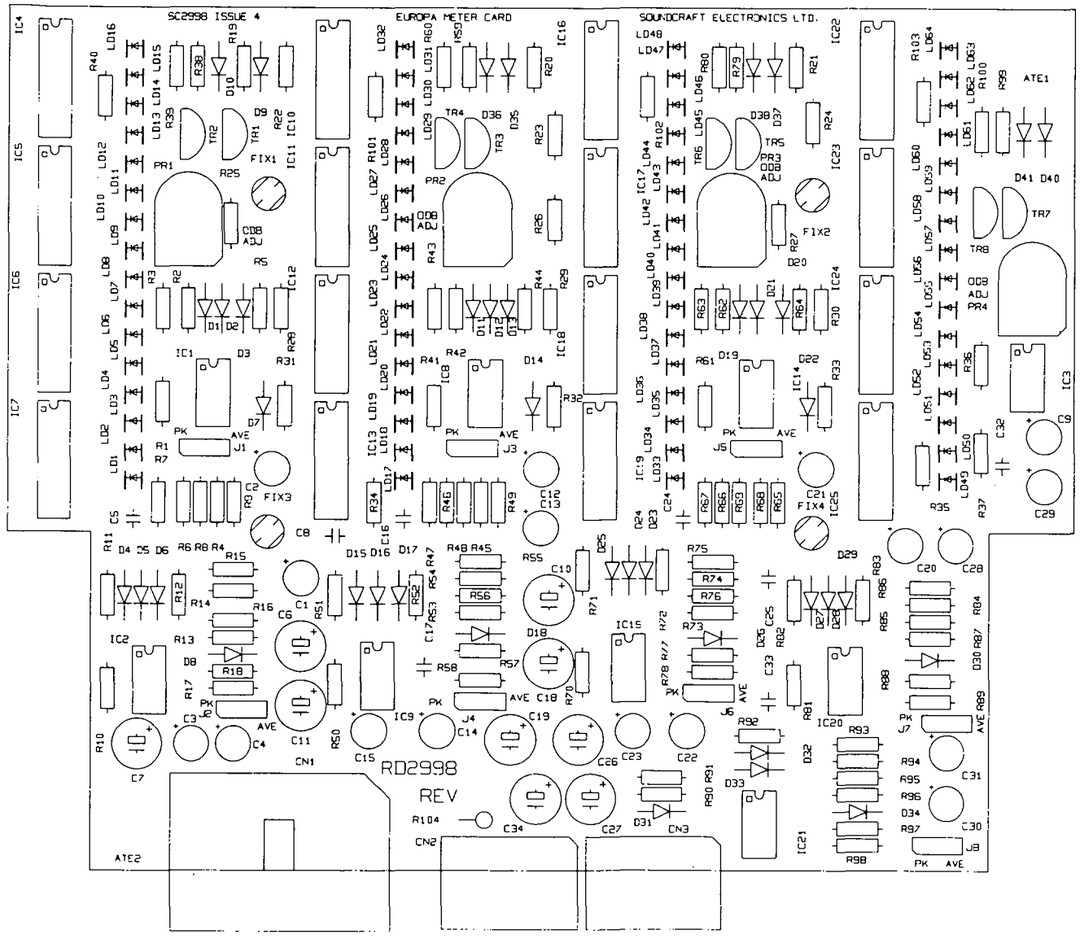


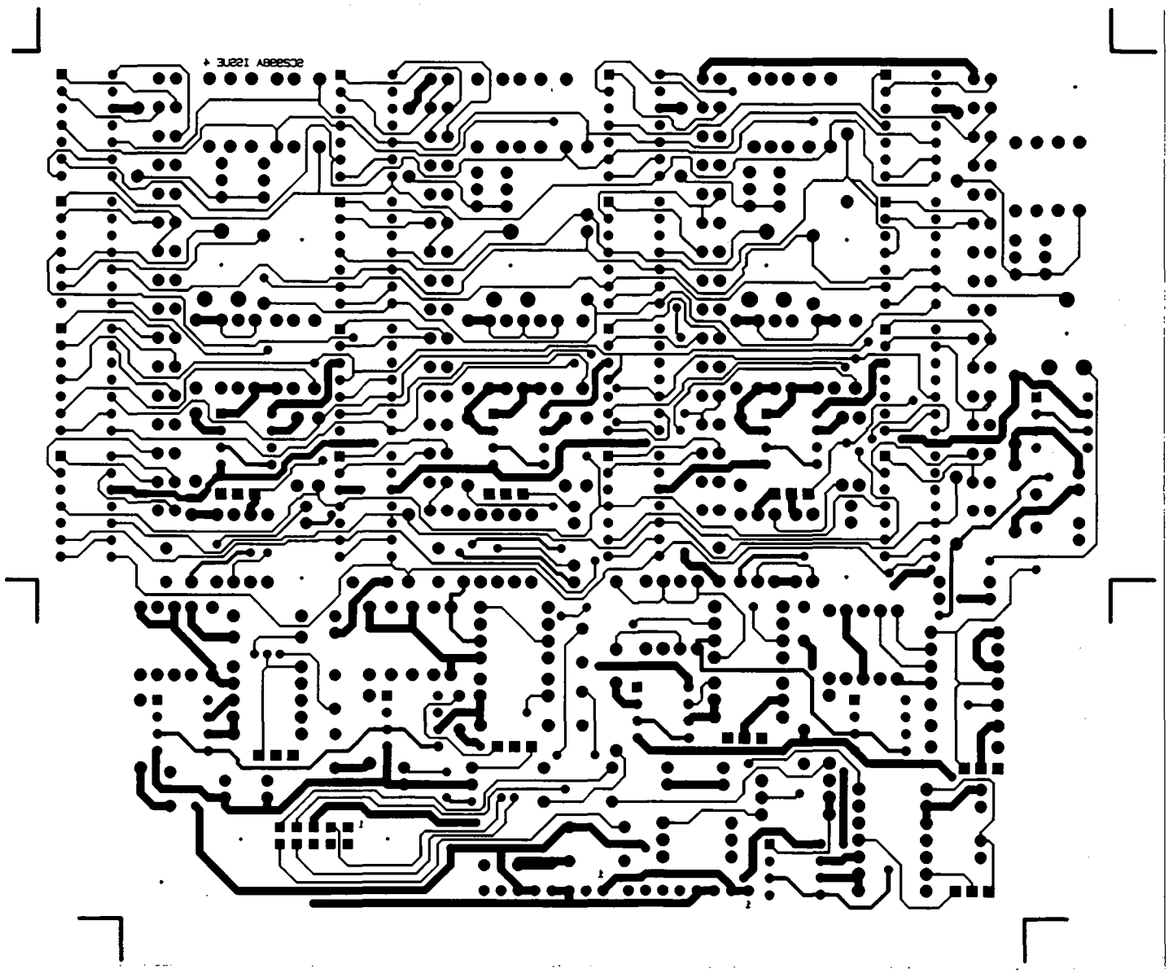
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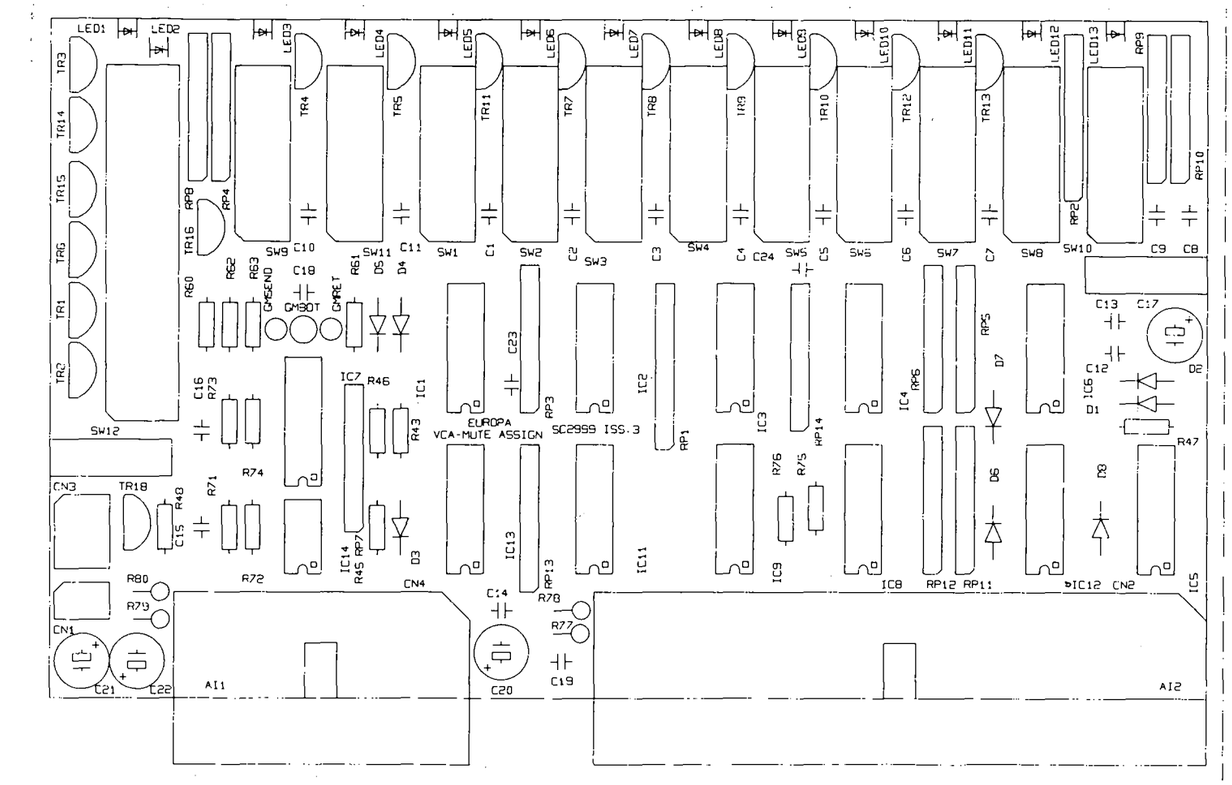


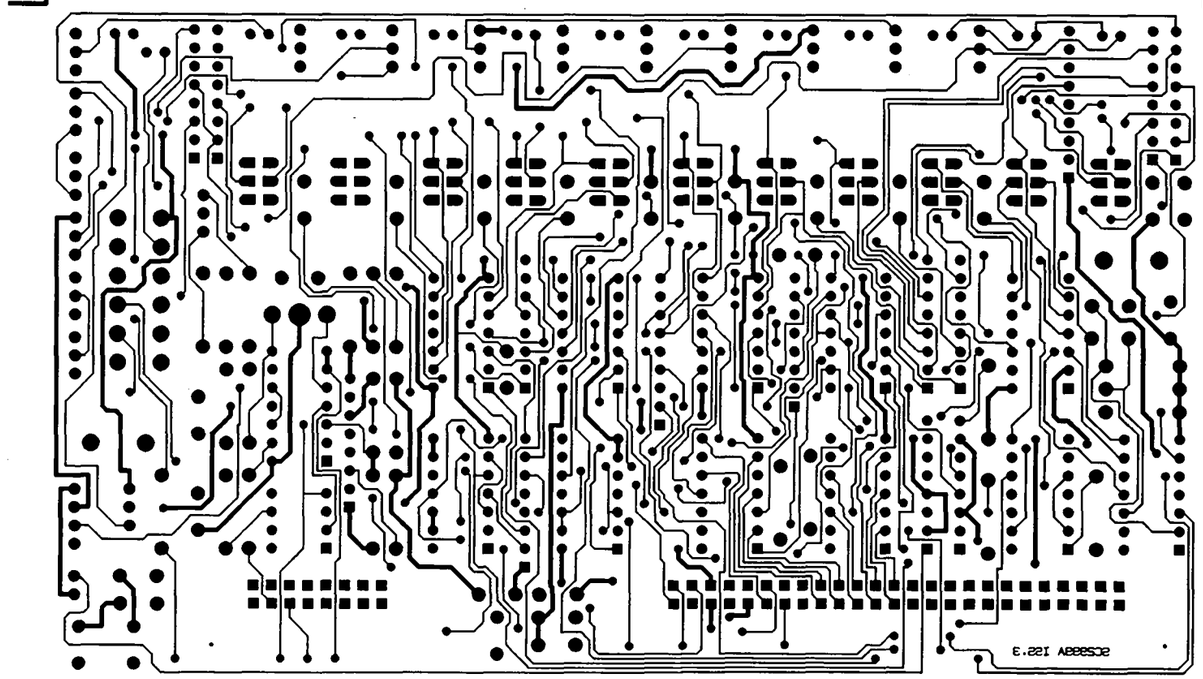
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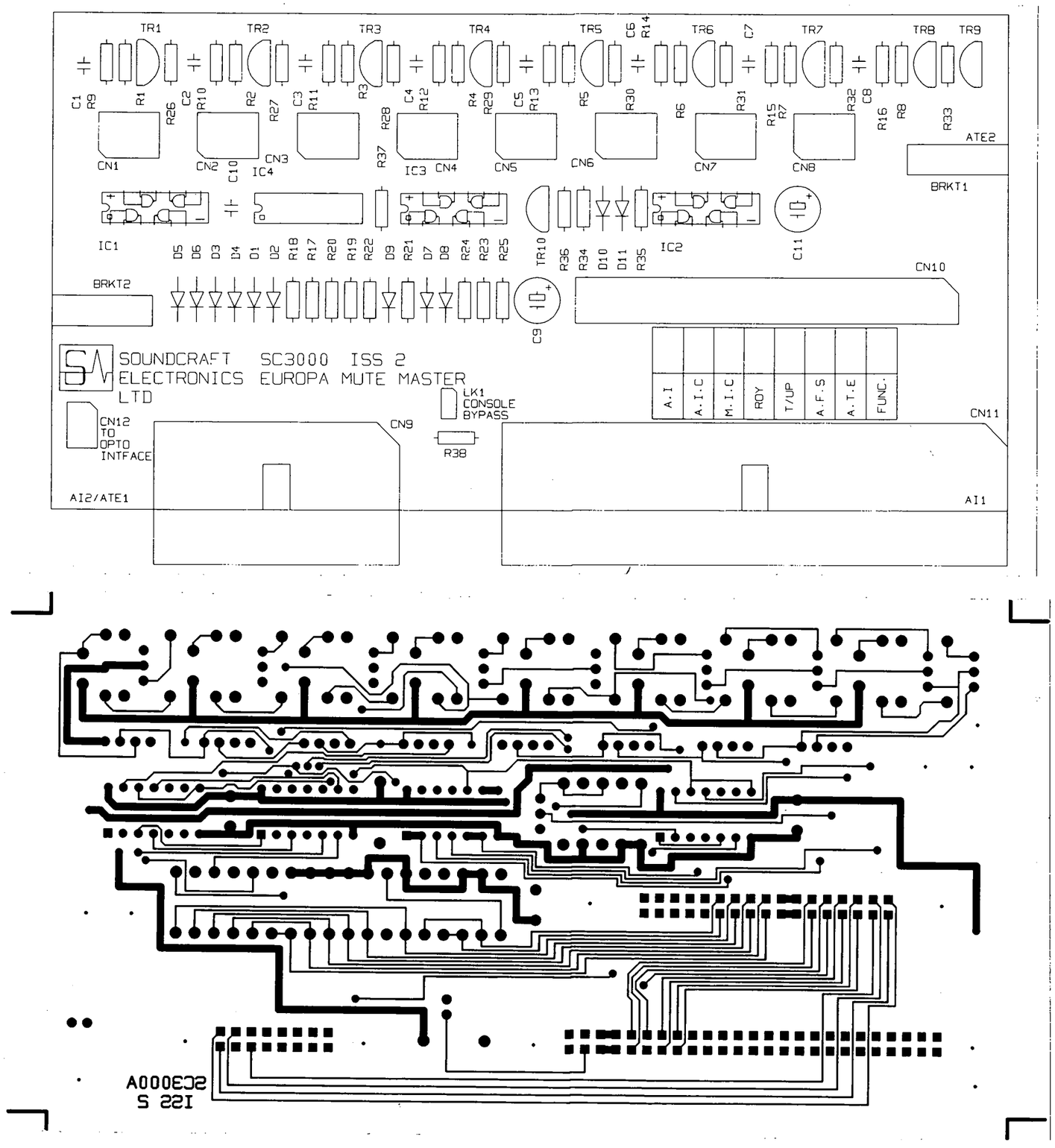


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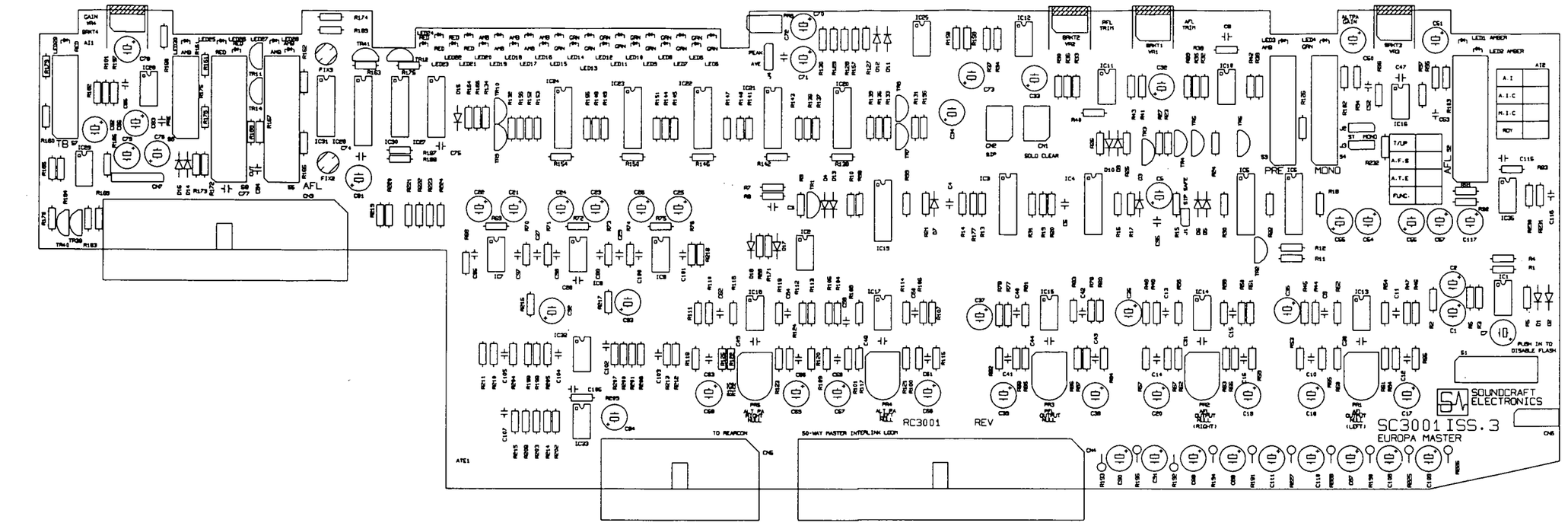


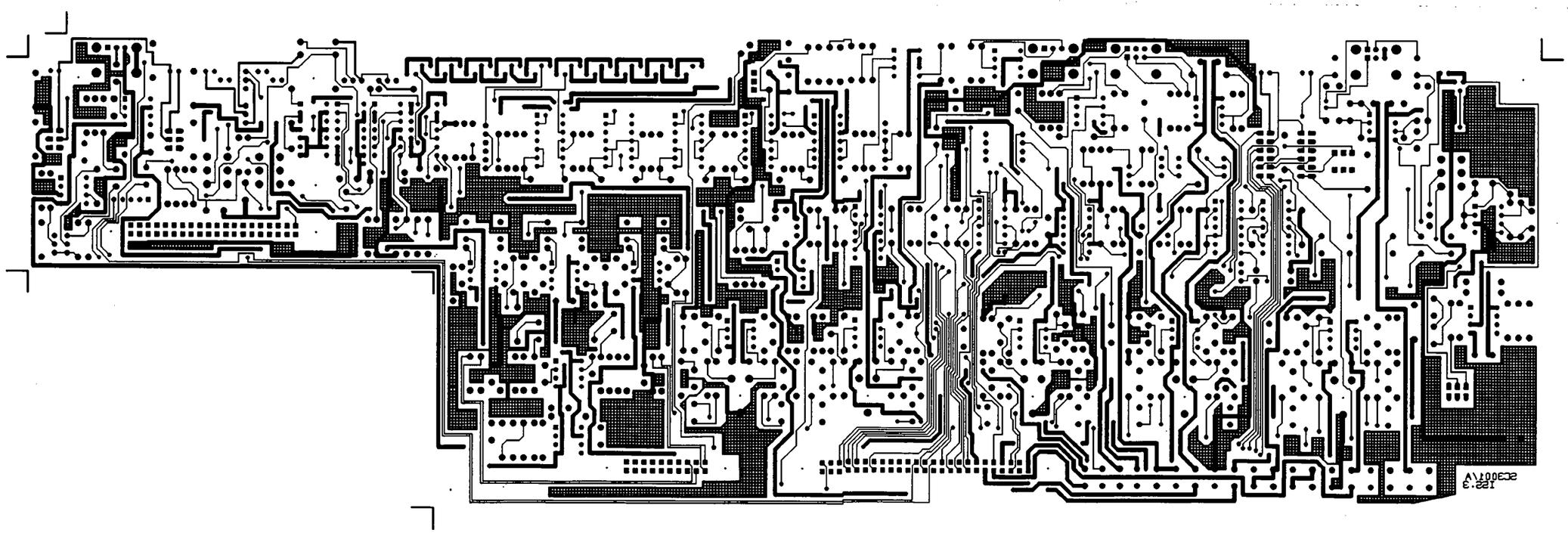


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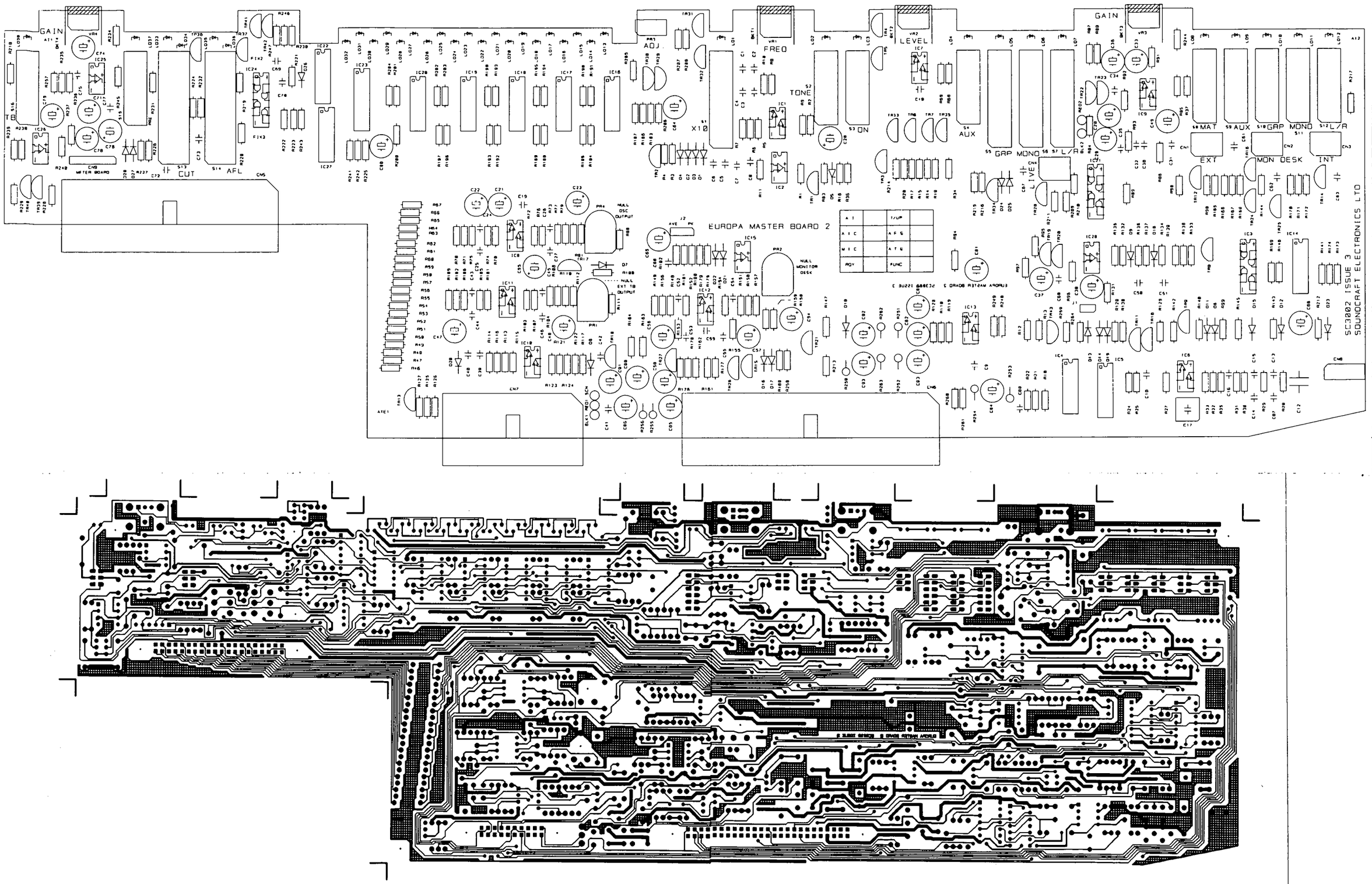


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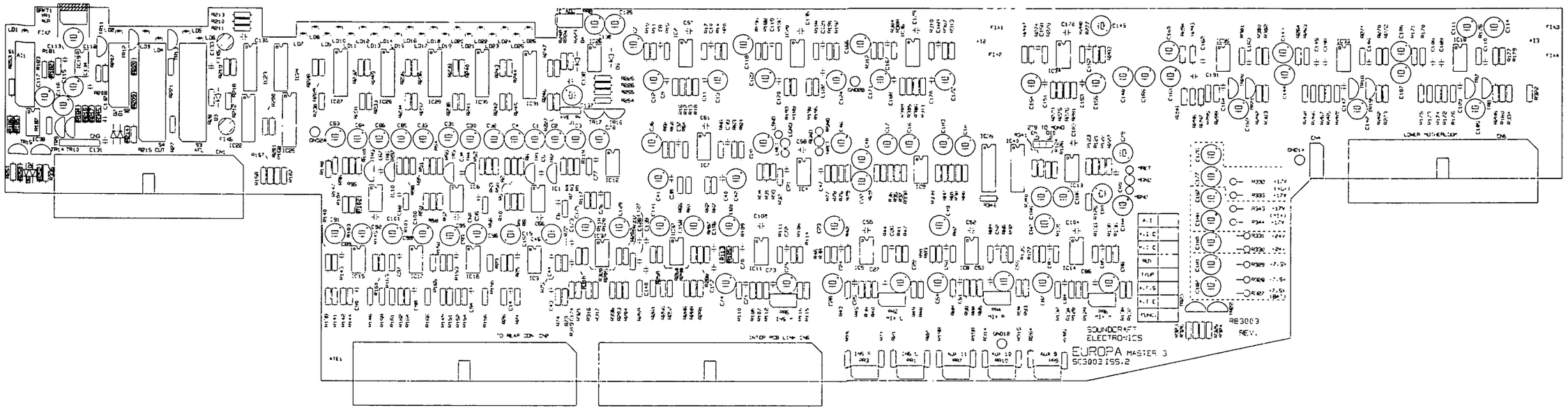


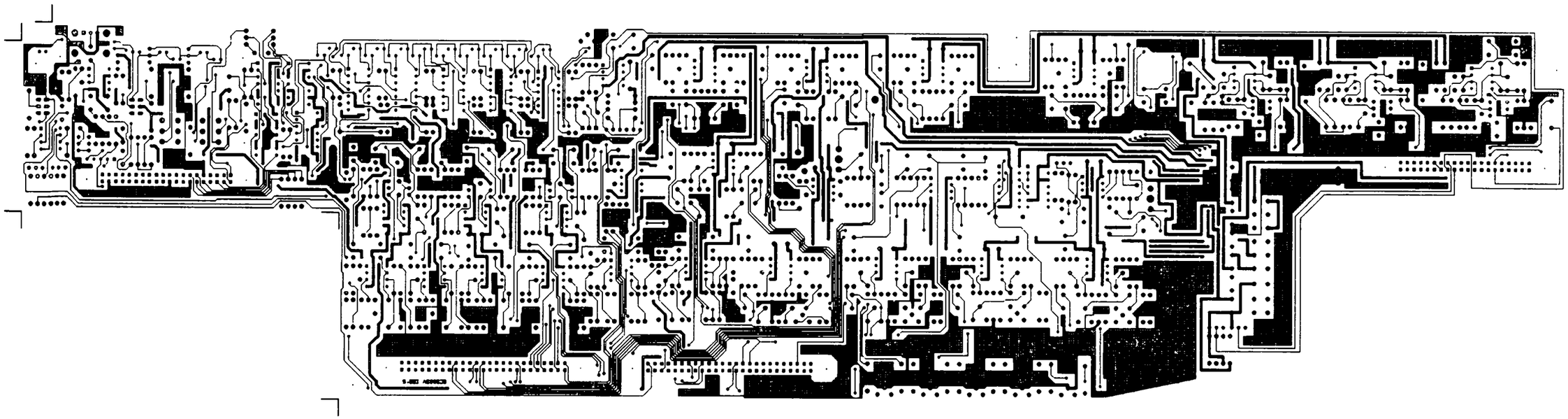


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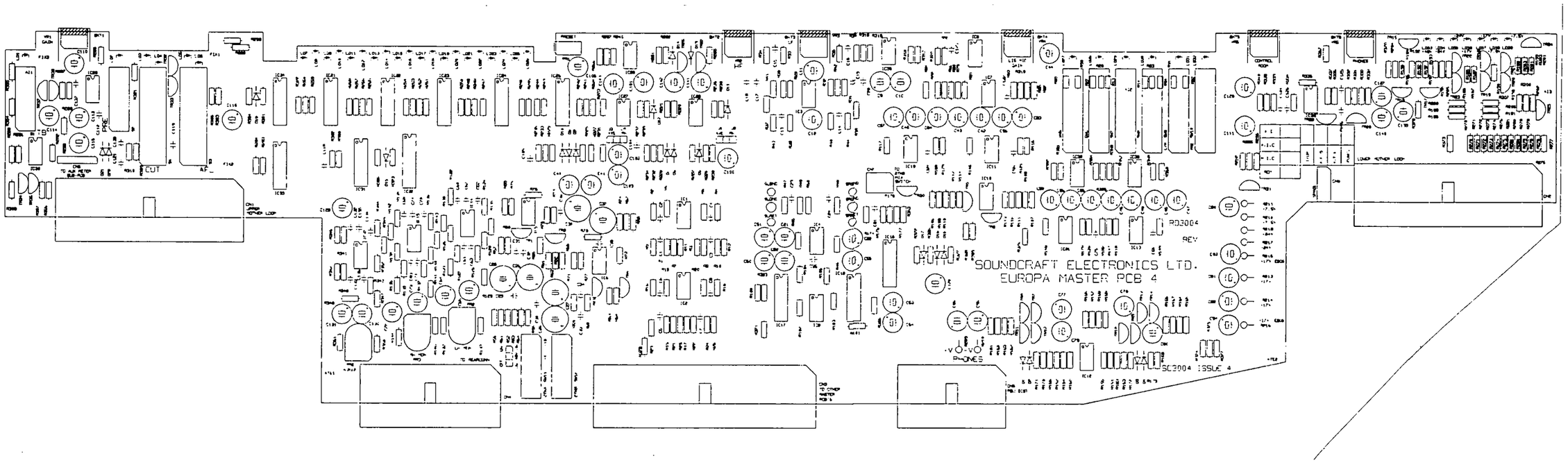


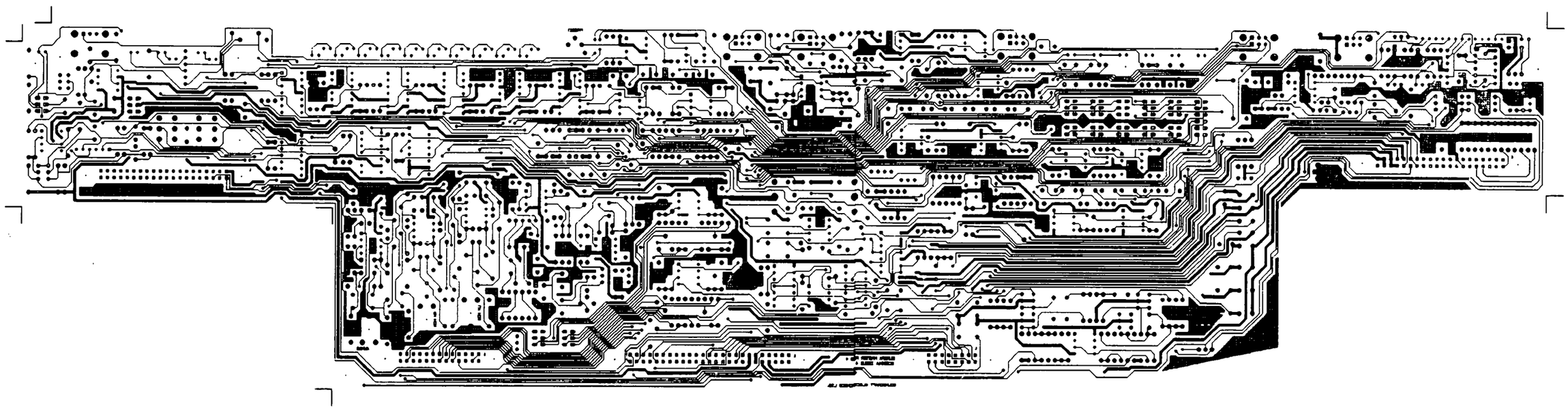
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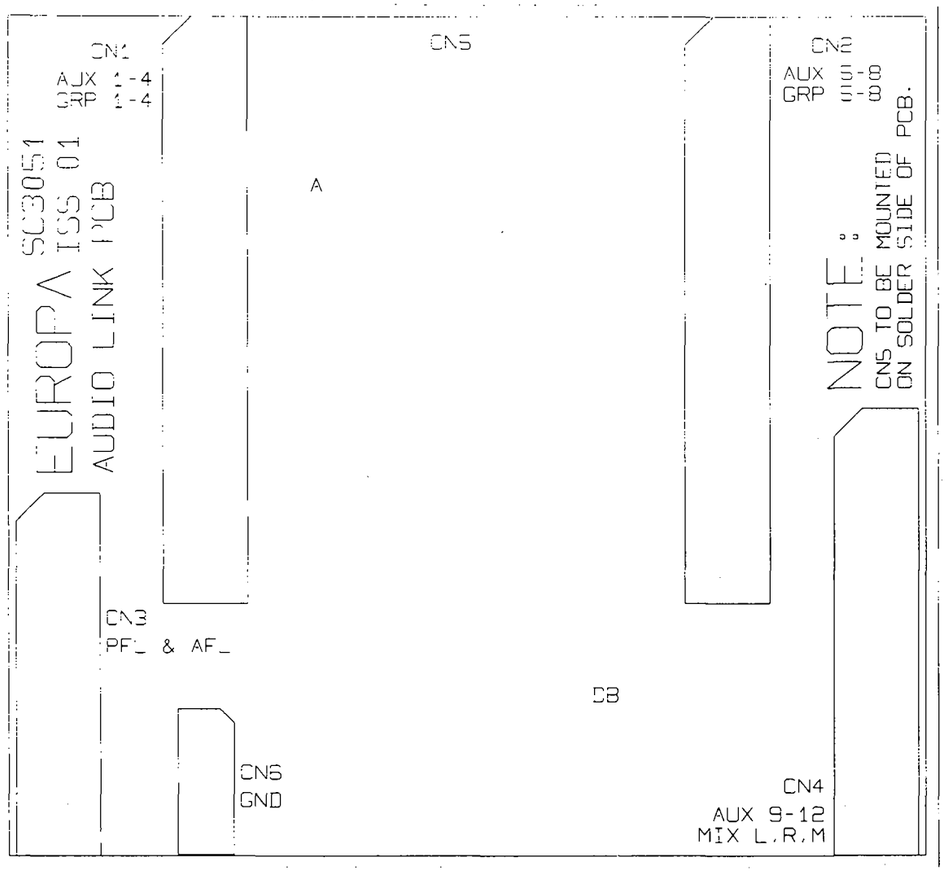


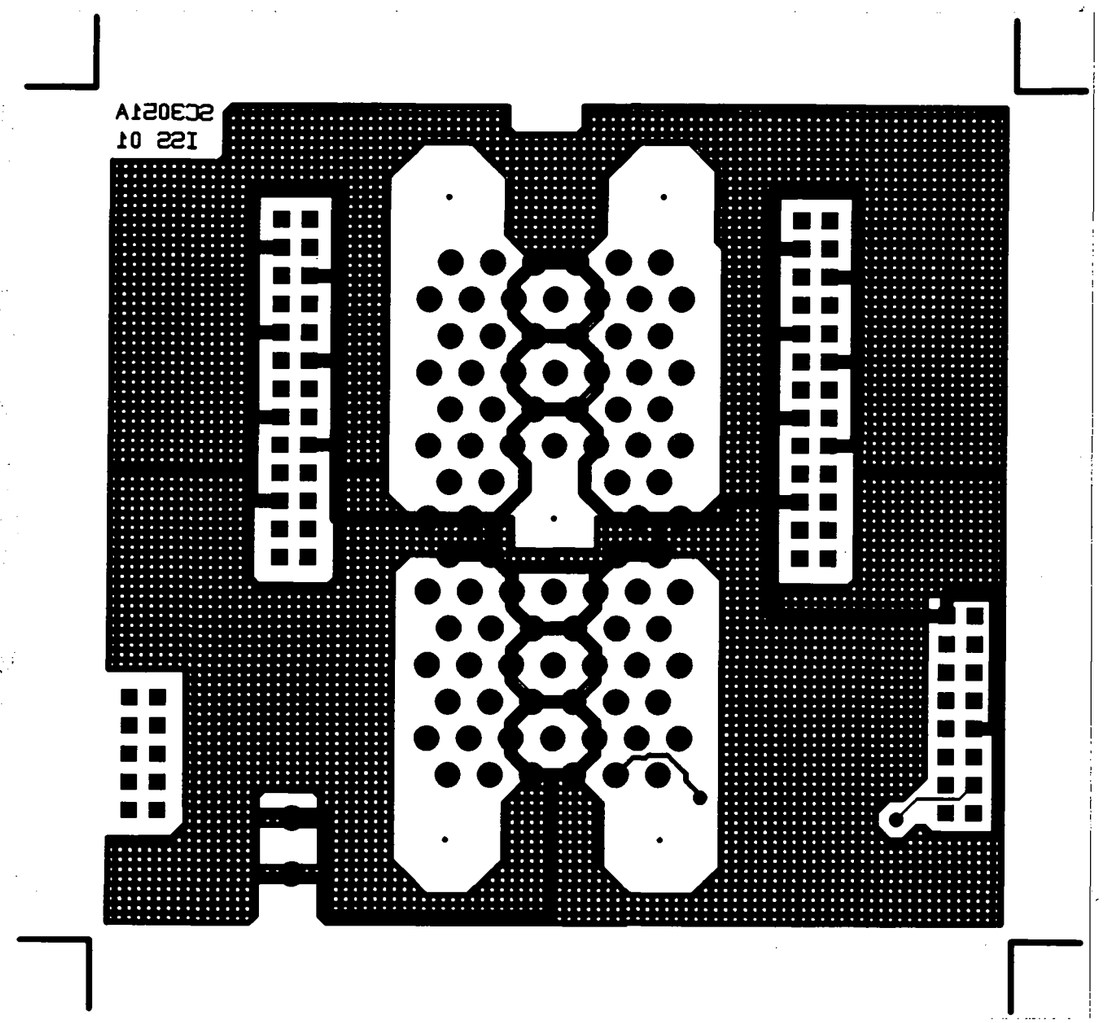
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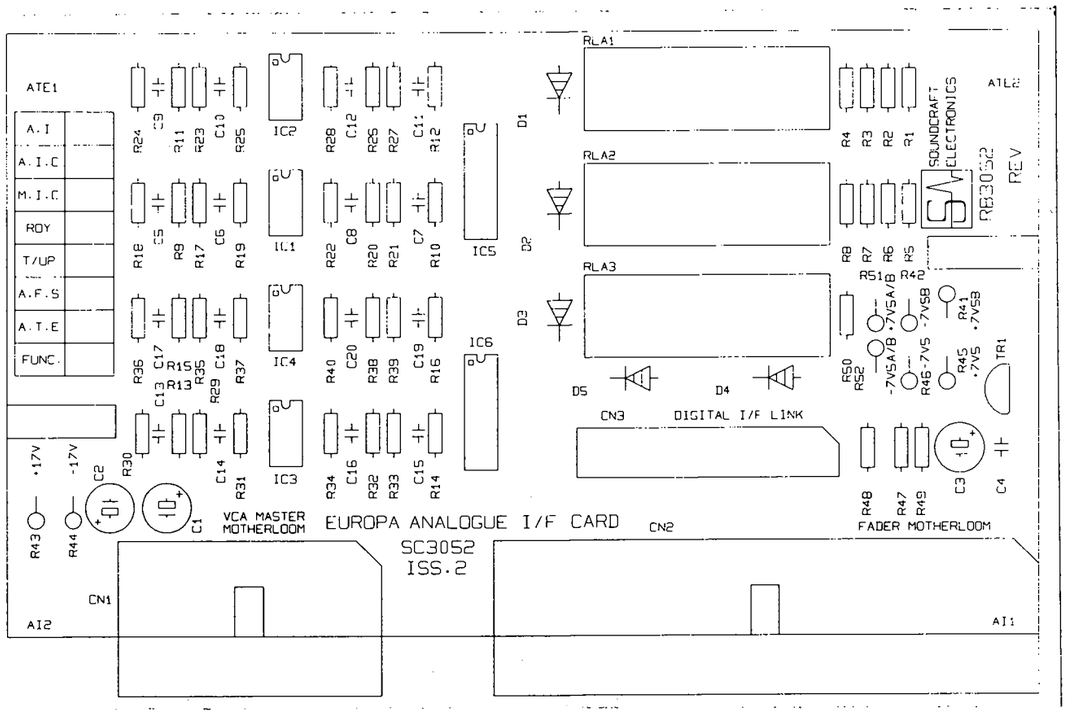


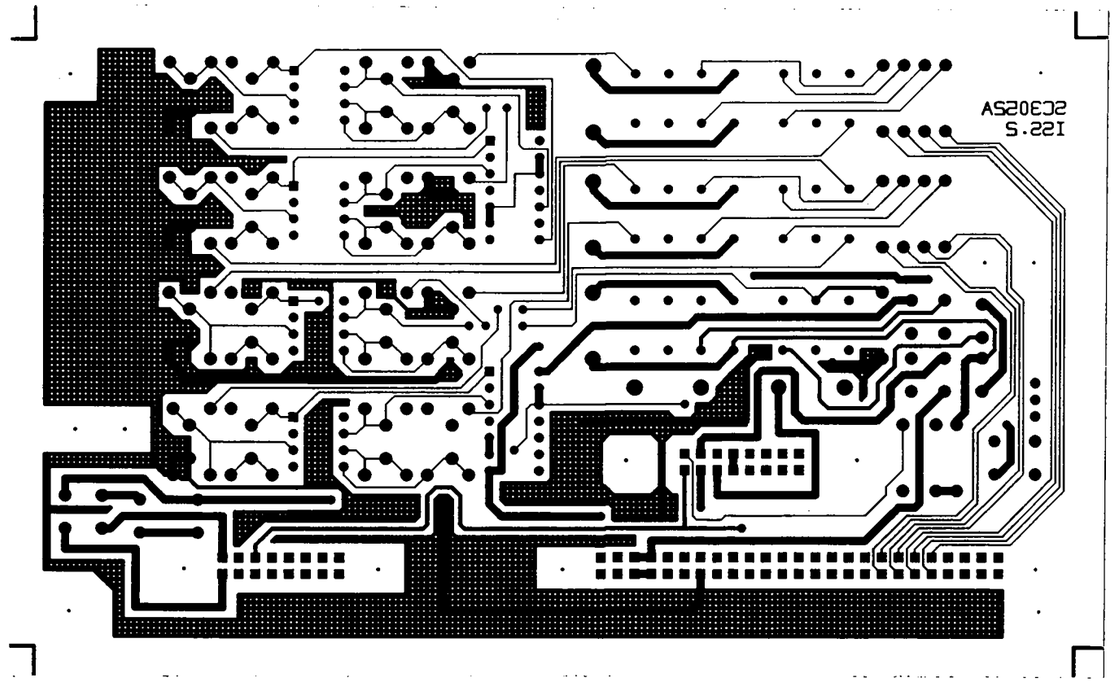
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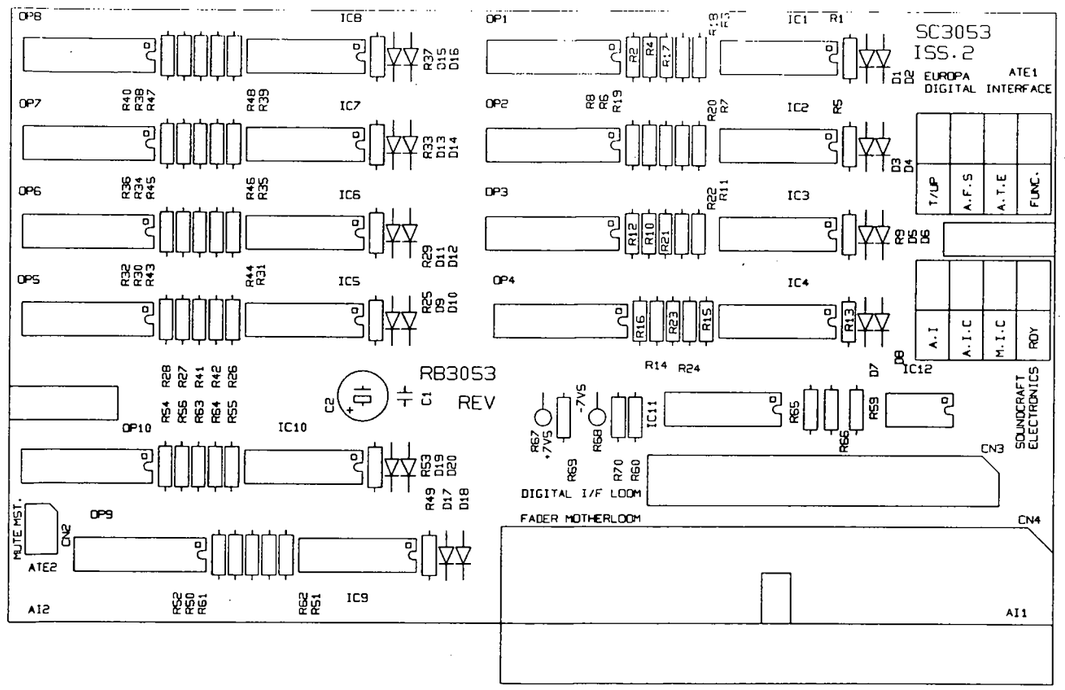


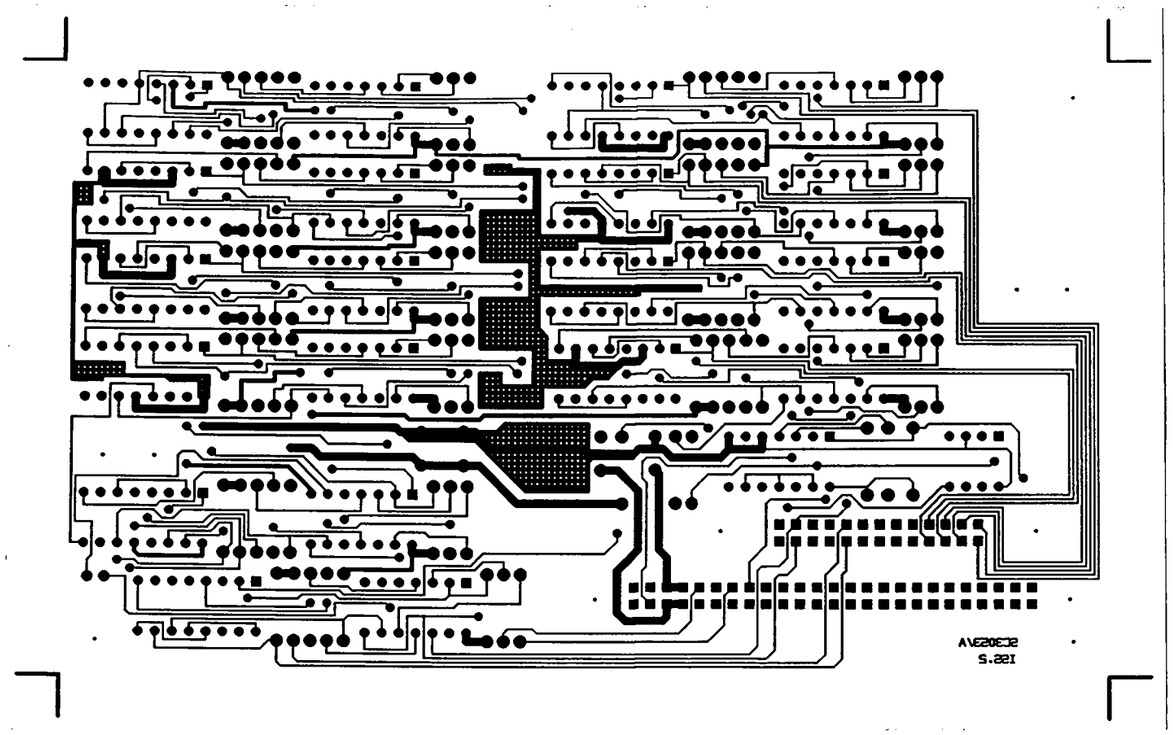
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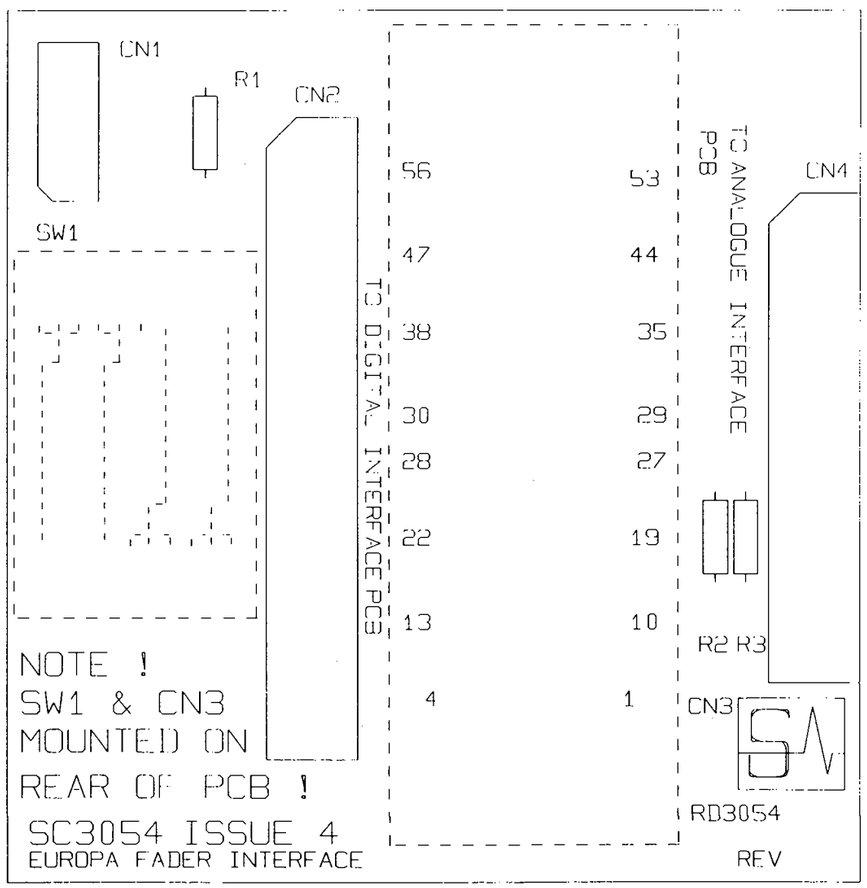


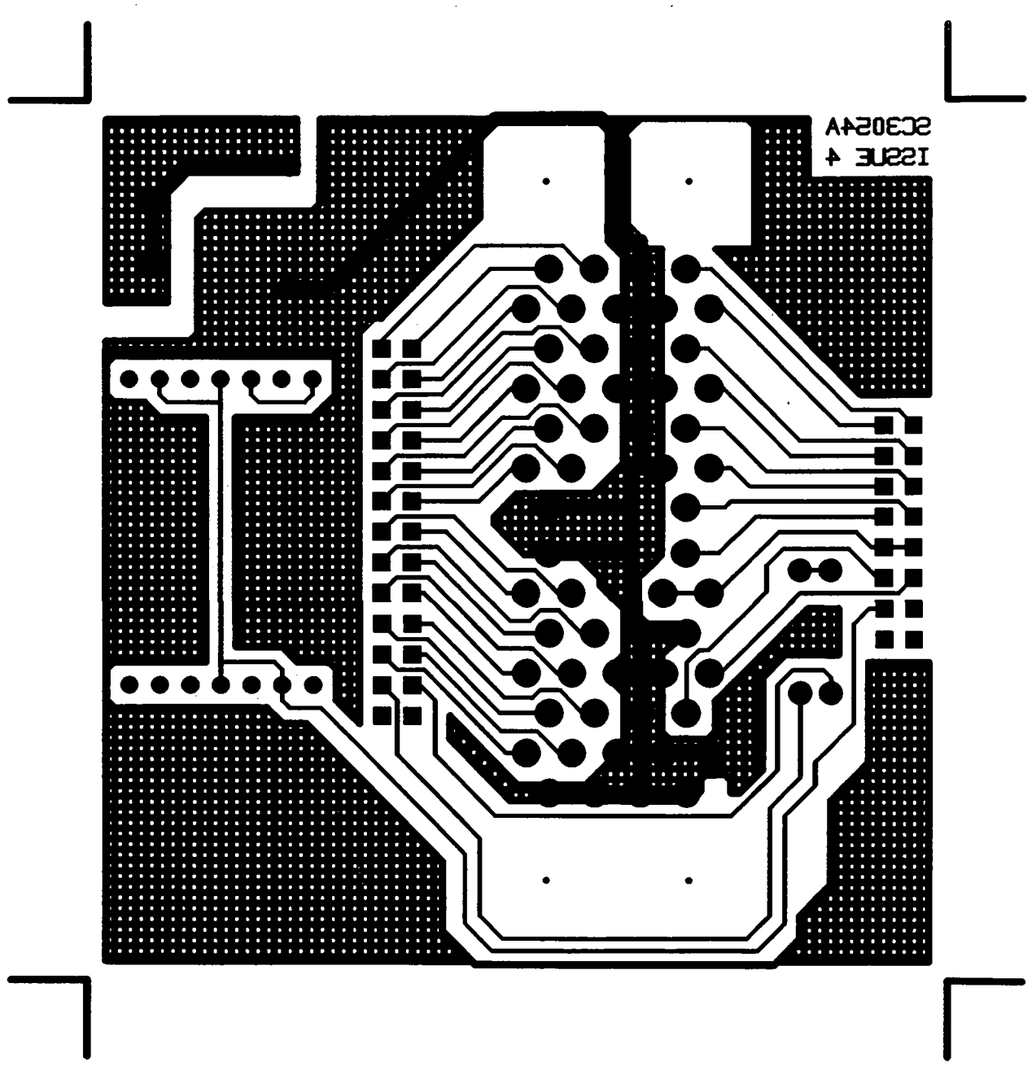
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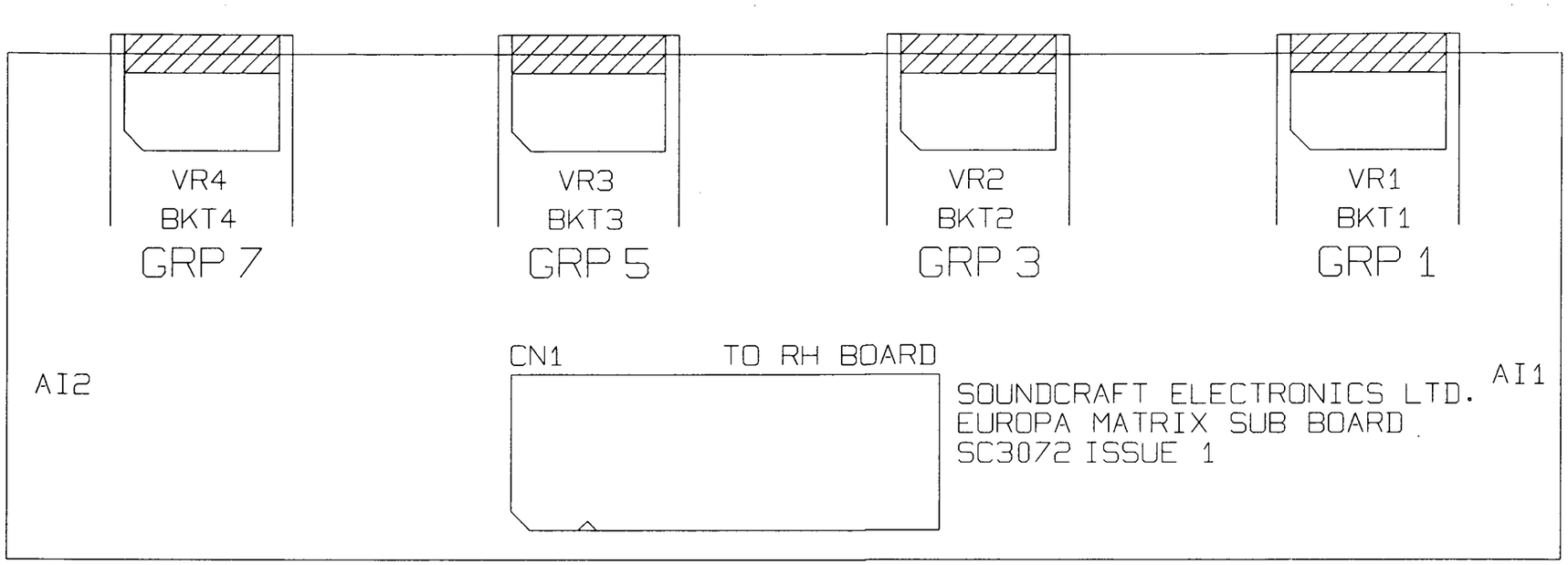


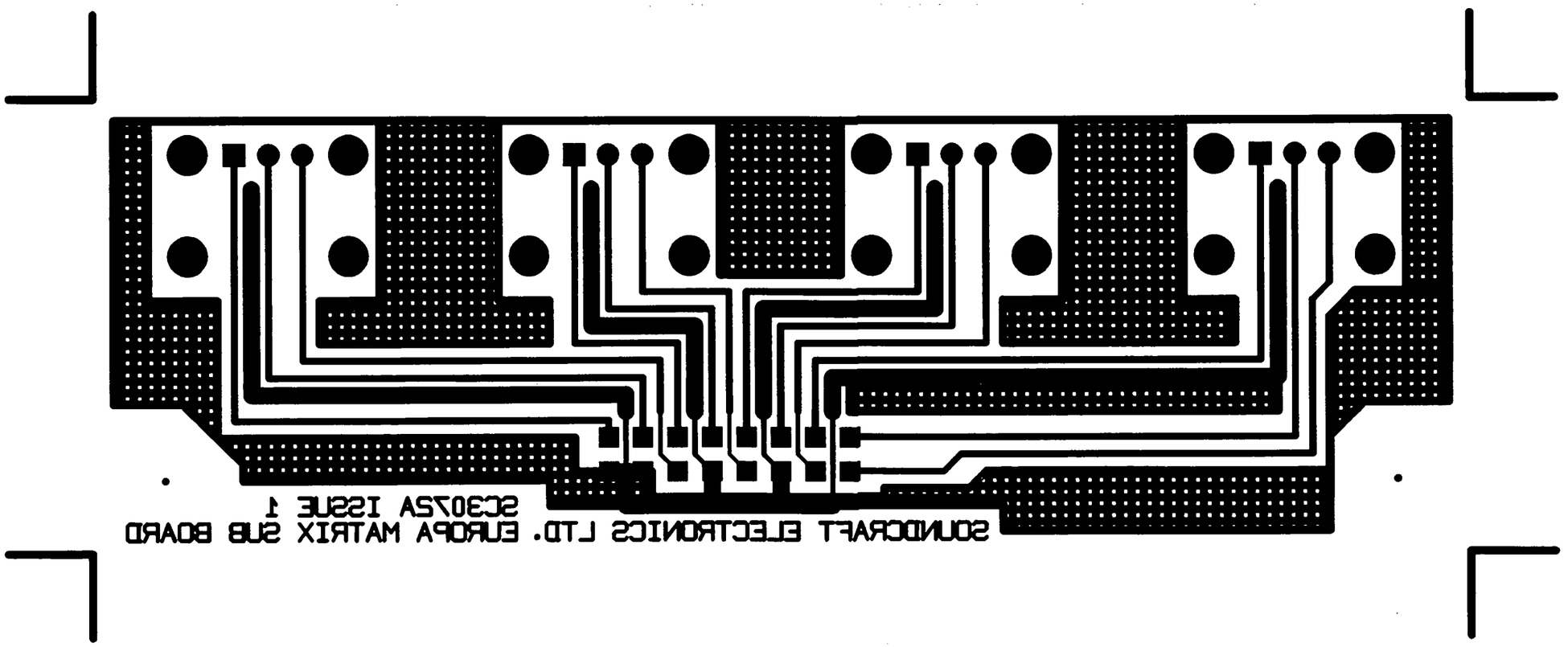
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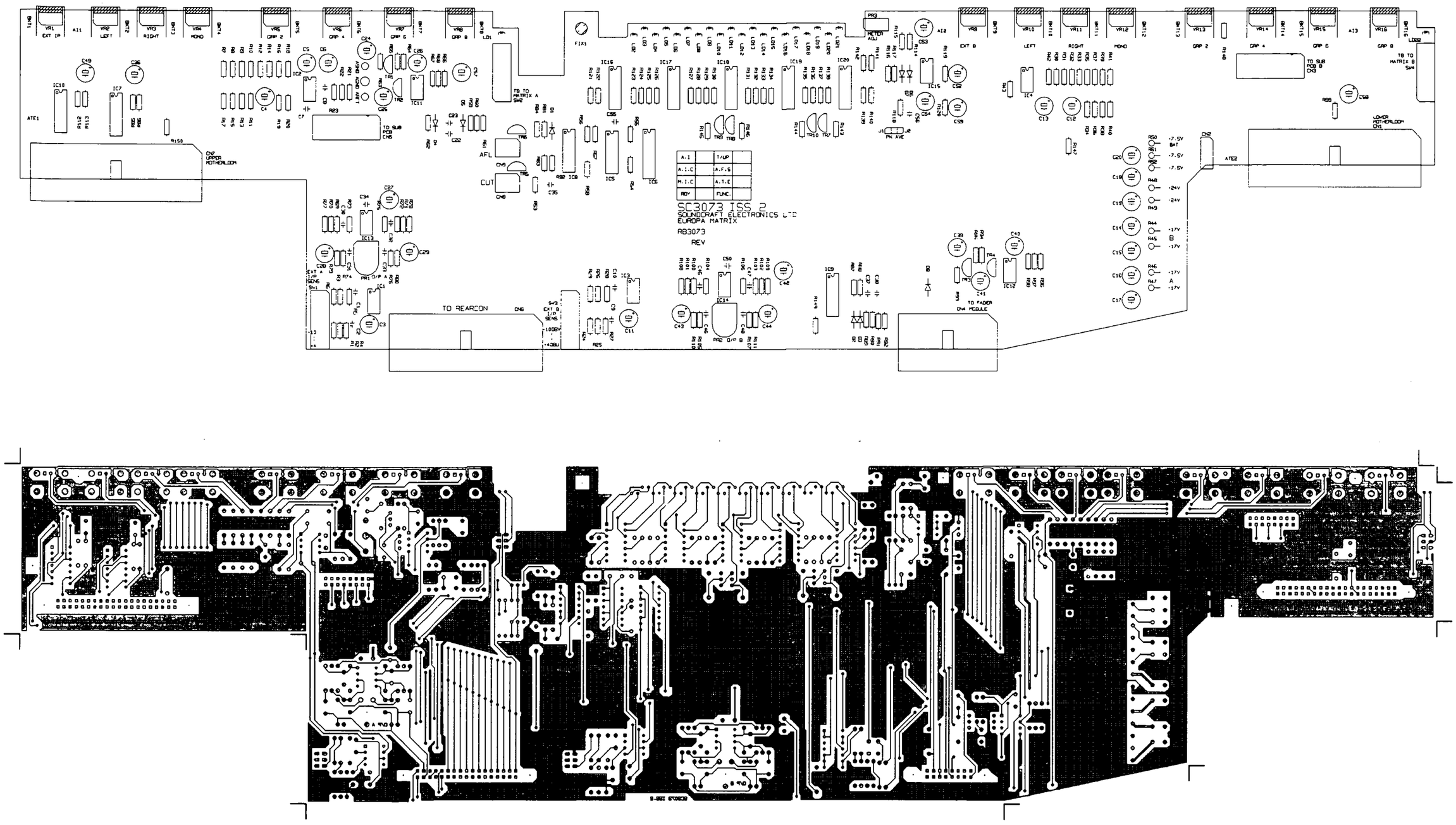


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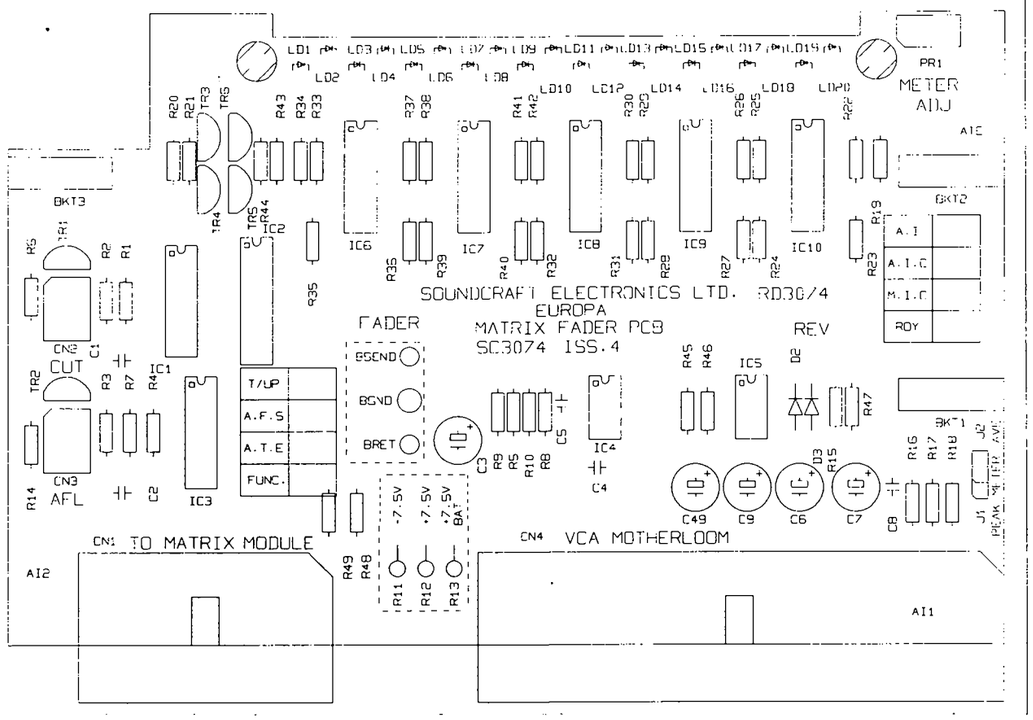


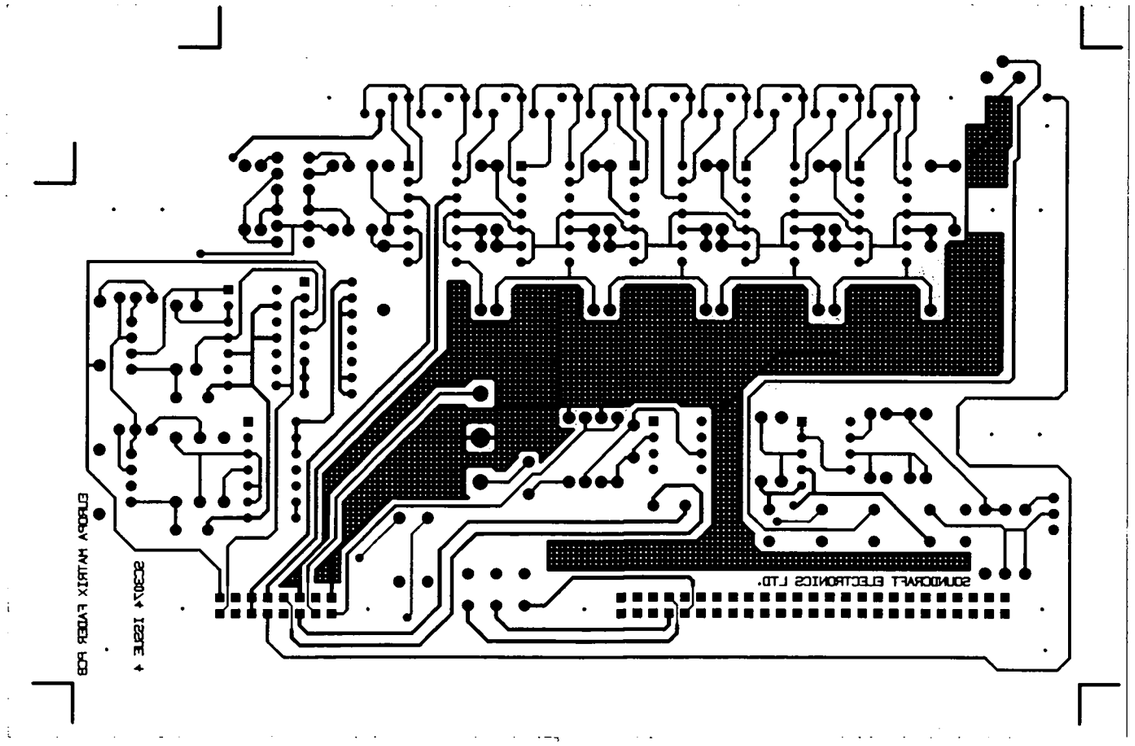


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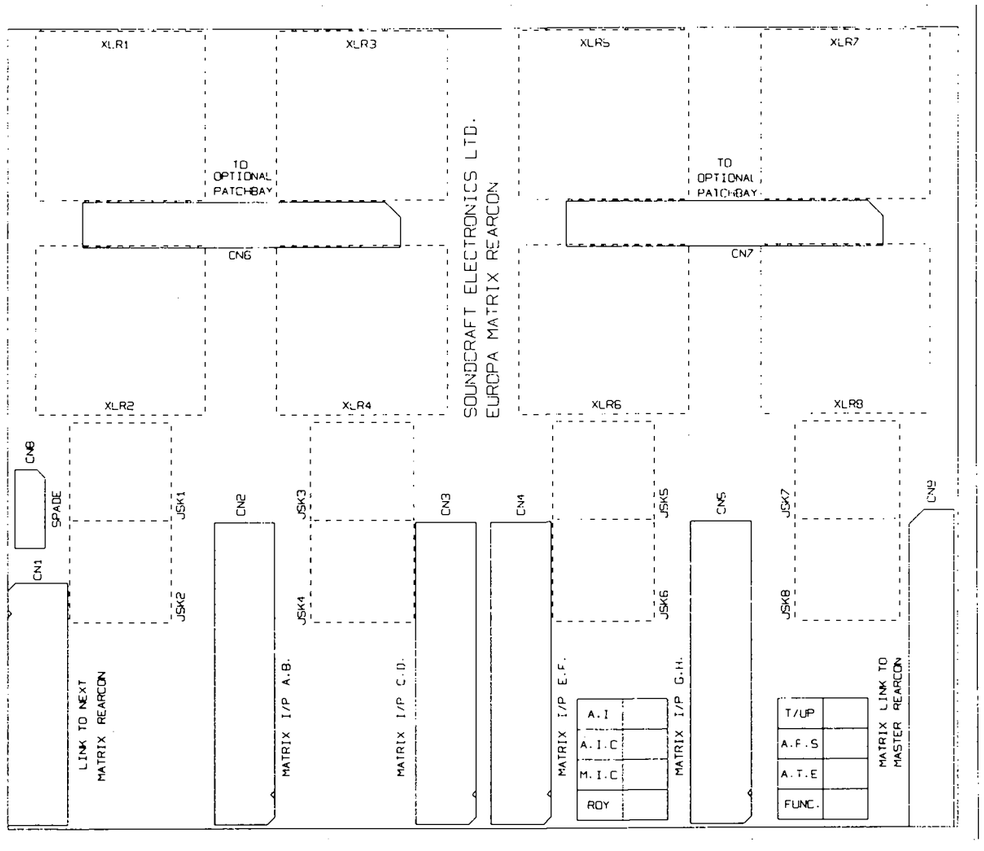


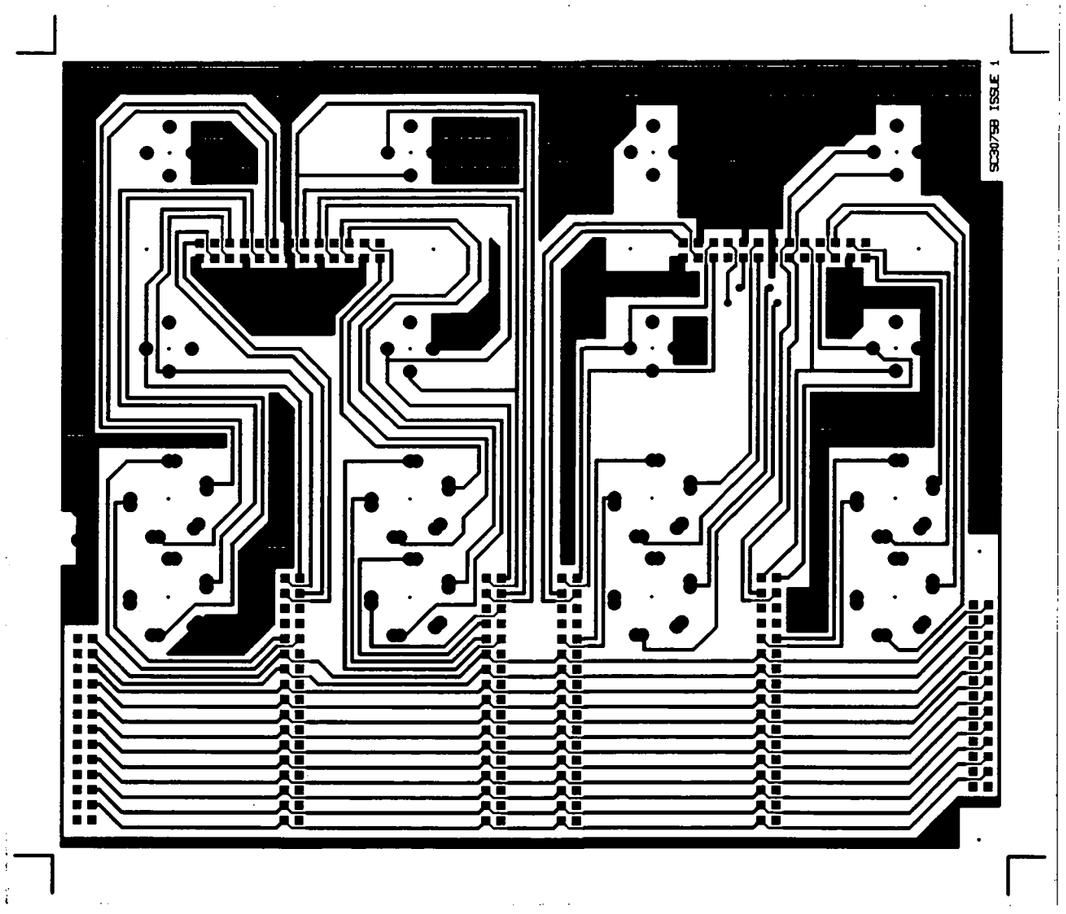
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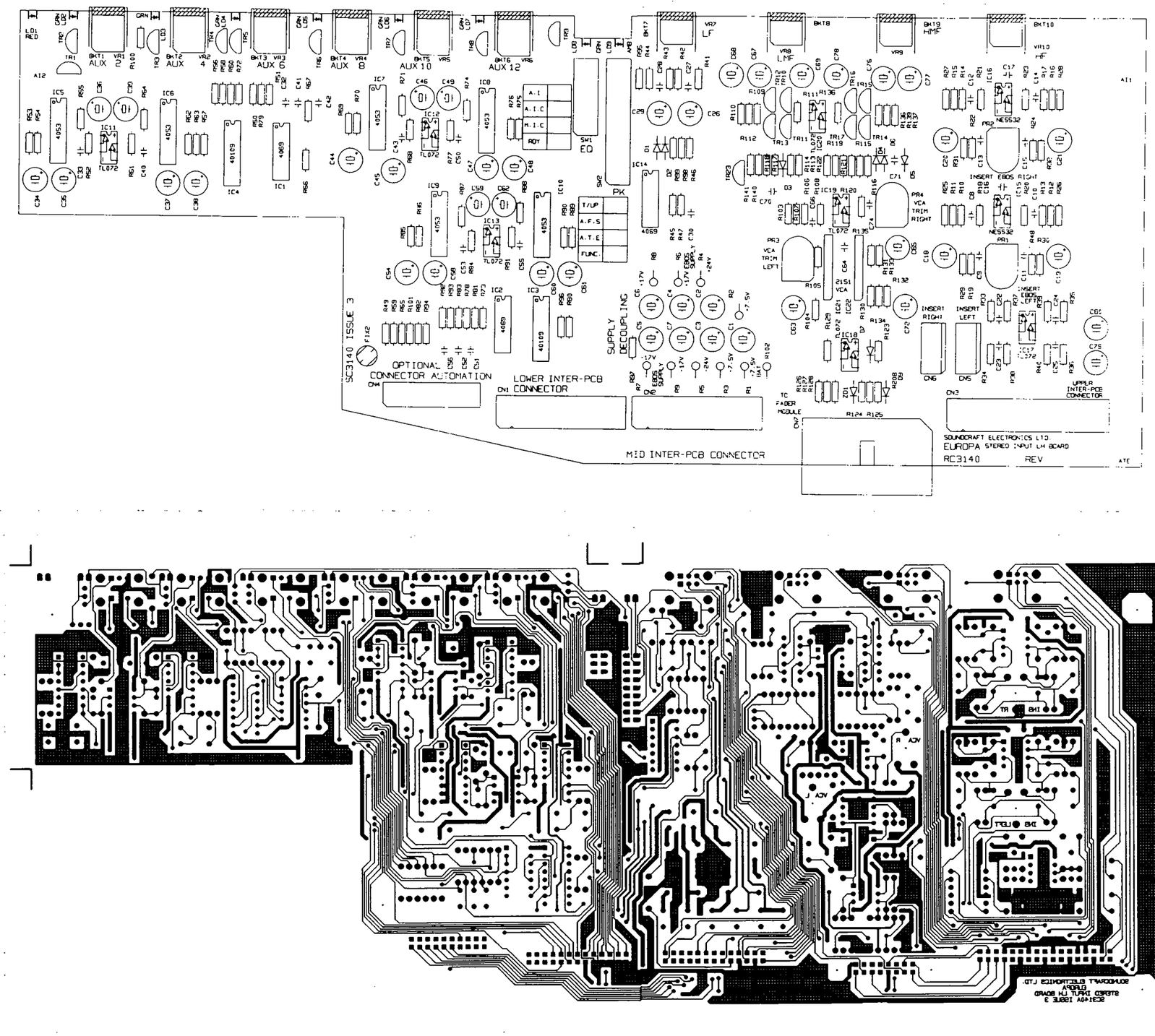


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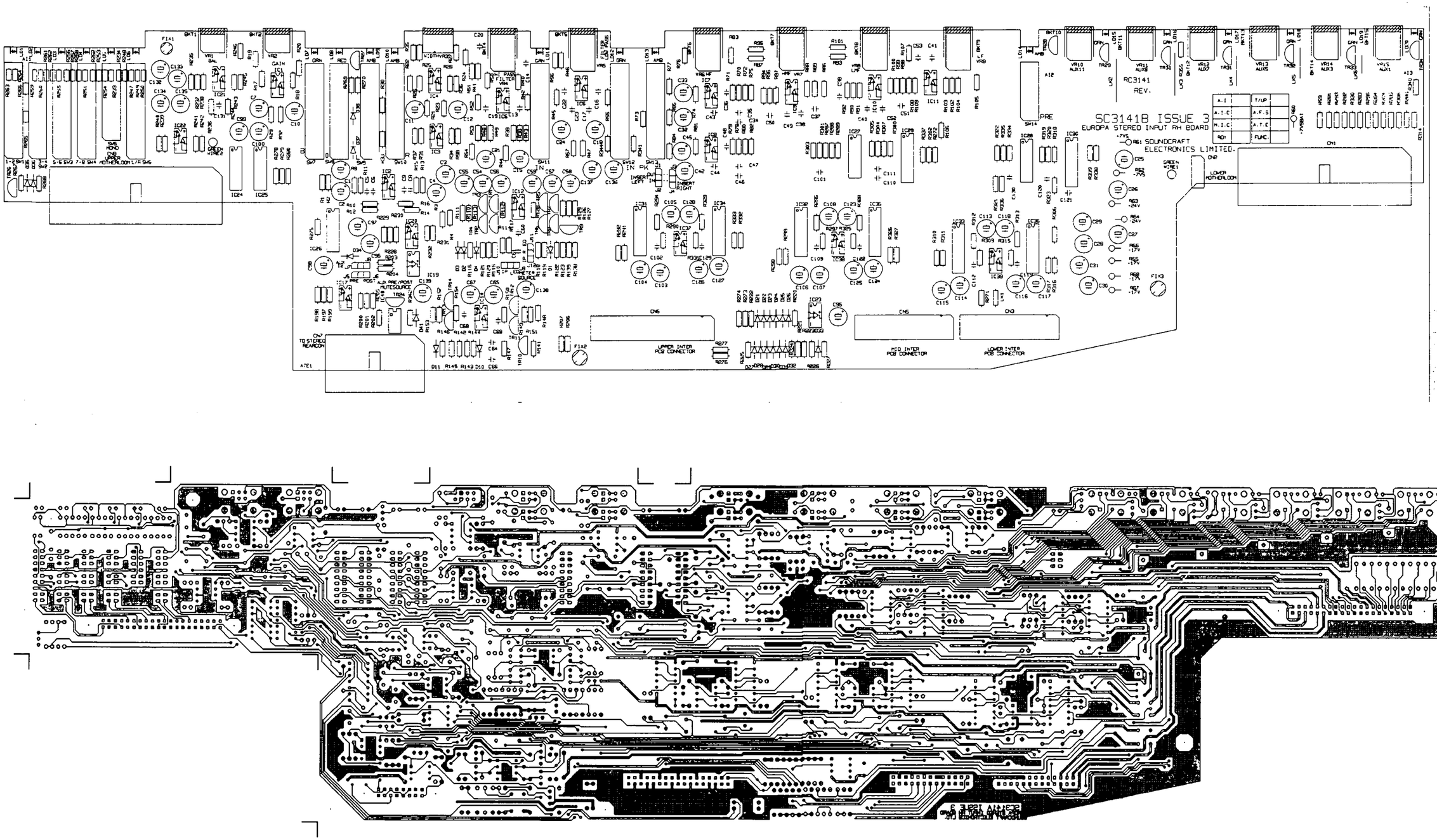




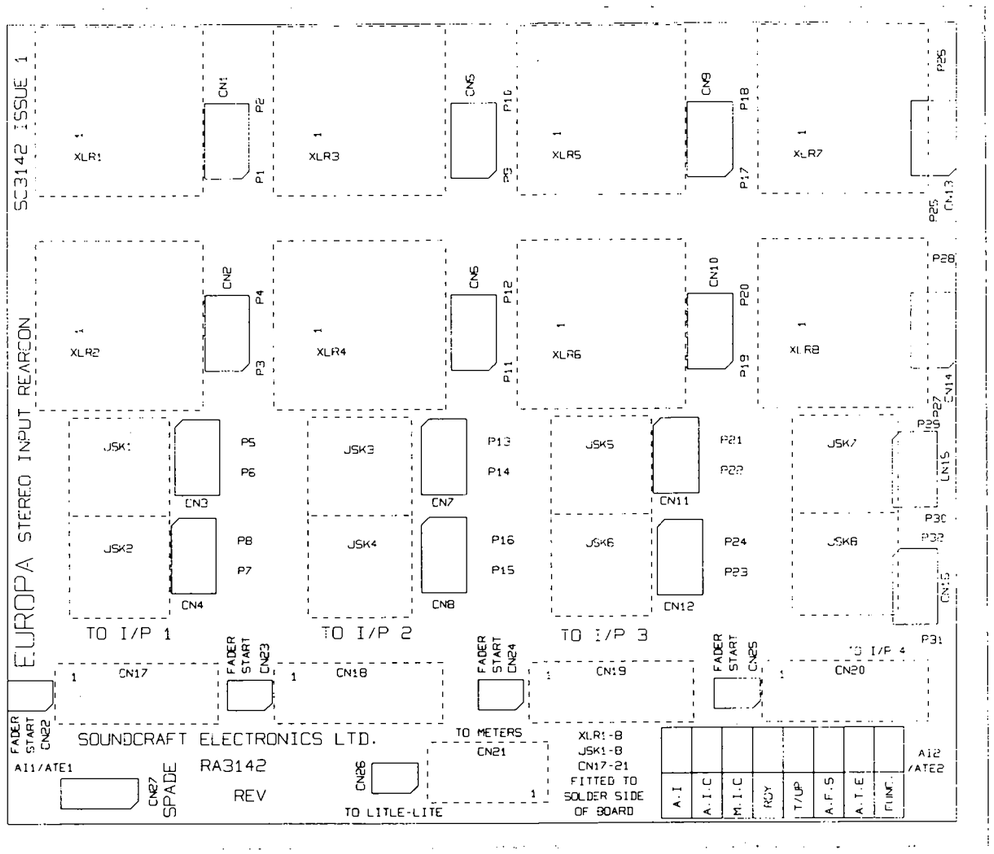
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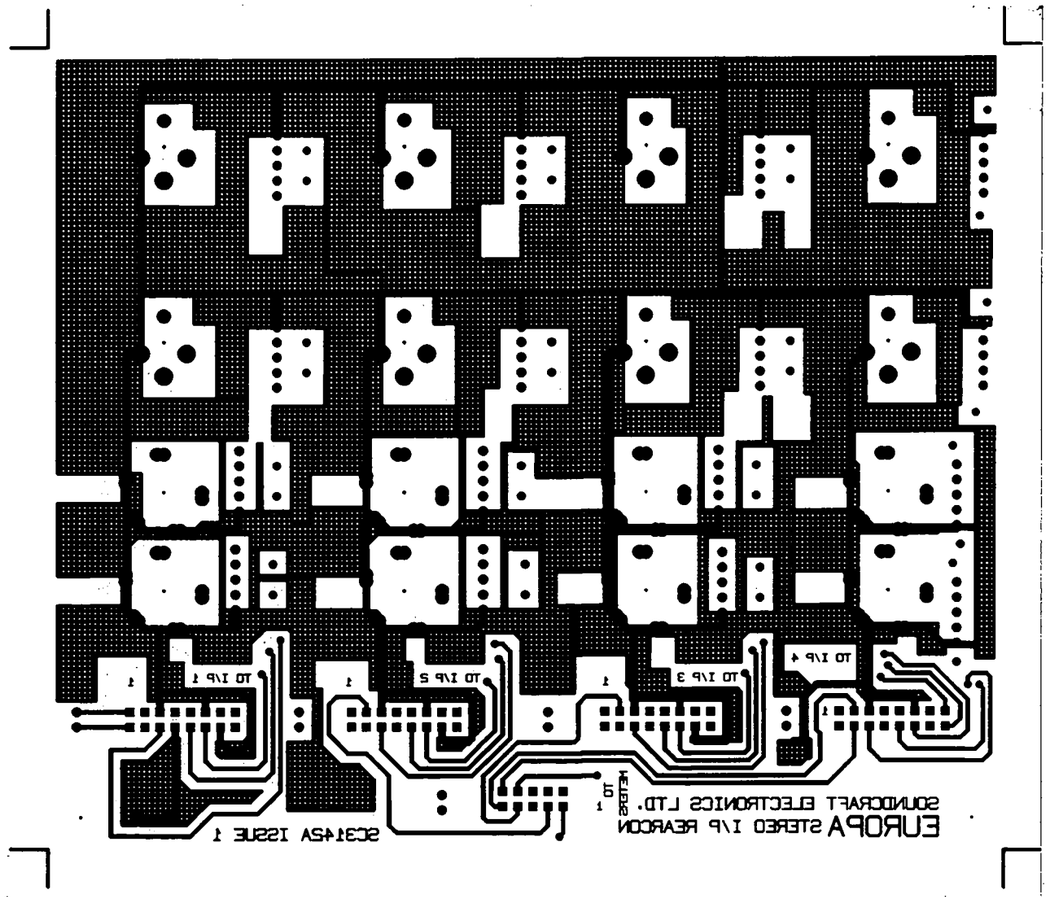


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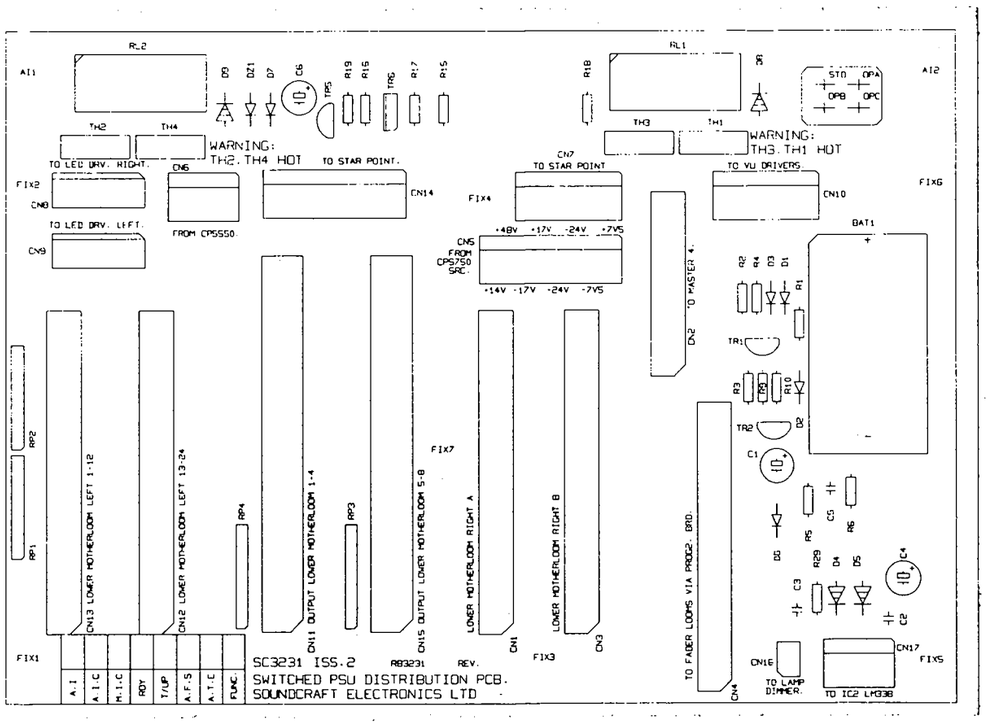


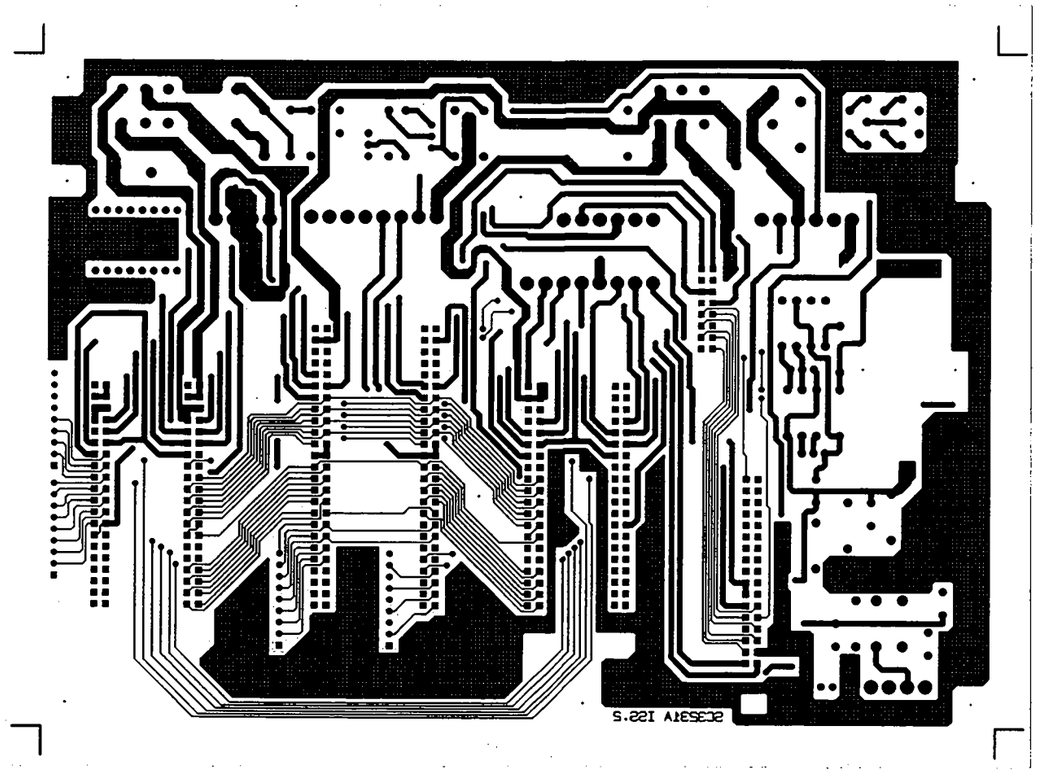
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10. Installation

Dimensions 10.2

Mains Installation 10.5

General Wiring Procedure 10.6

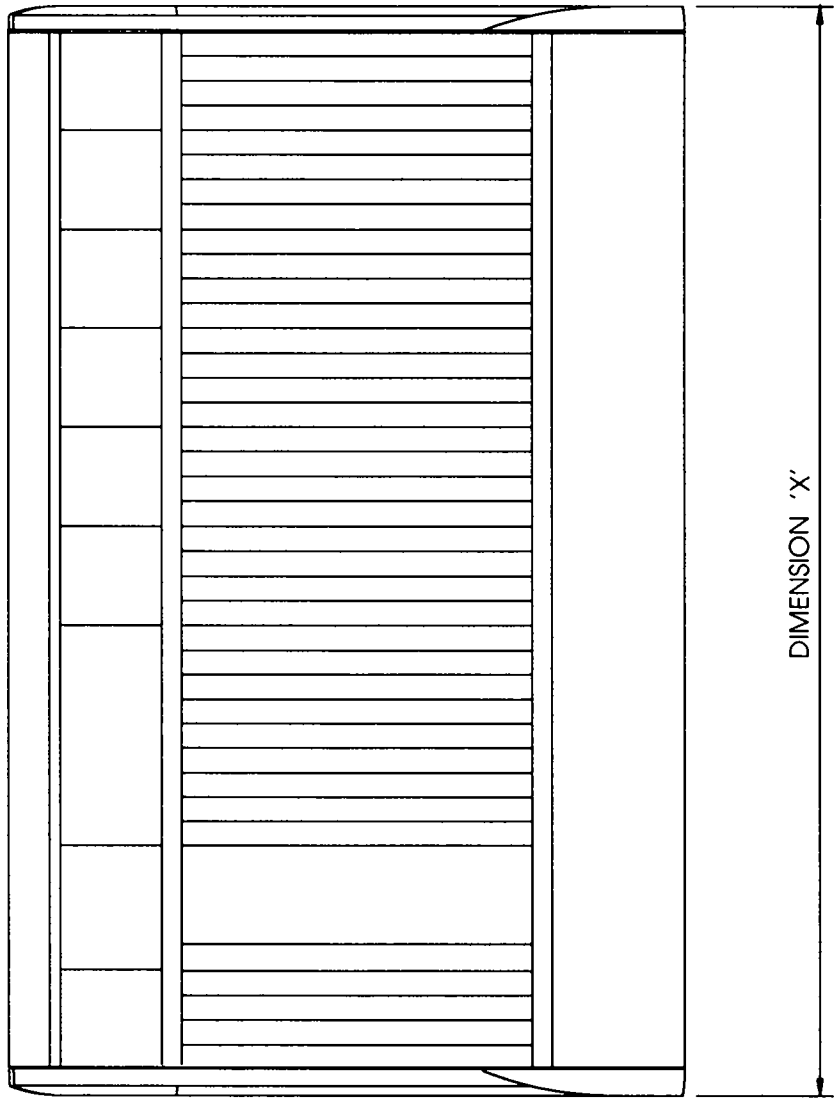
Connections and Connectors

PSU Connections 10.7

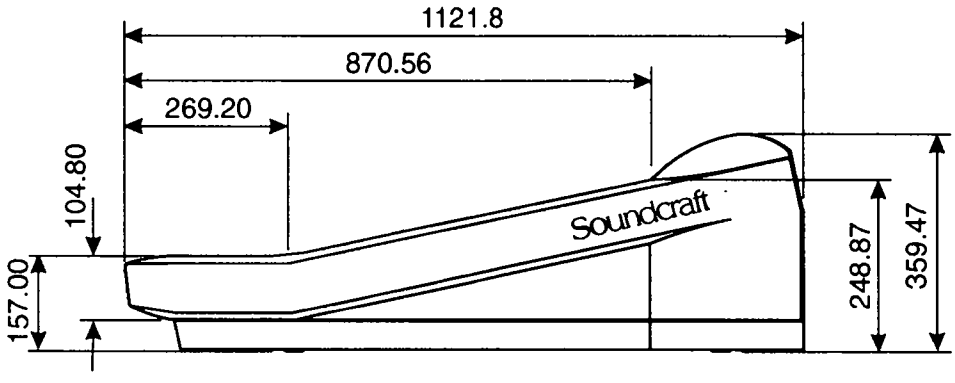
Wiring Conventions 10.8

Connector Pinouts 10.9

Dimensions



CONSOLE	DIMENSION 'X'
24 CH	1794.88
32 CH	2120.00
40 CH	2445.12



Mains Installation

Before switching on the Europa console, check that the mains voltage selector on the power supply units is set to the correct mains voltage for your area and that the fuse is of the correct rating, and this is clearly marked on the power supplies.

Warning! **Do not replace the fuses with any other type, as this could become a safety hazard and will void the warranty.**

General Wiring Procedures

To take full advantage of the excellent signal to noise ratio and low distortion of Soundcraft consoles care must be taken to ensure that incorrect installation and wiring does not degrade the performance of the desk. Hum, buzz, instability and Radio Frequency interference can usually be traced to earth loops and inferior earthing systems. In some areas, especially heavily industrial areas, the incoming mains earth will not be adequate and a separate technical earth for all the audio equipment must be supplied. However, check with your local electricity supply company to ensure that safety regulations are not infringed or negated.

The successful, hum free, installation of a system requires forethought, and the establishment of a set of ground rules, which must be consistently adhered to at all stages of installation.

Initial Wiring Considerations

A For optimum performance, it is essential for the earthing system to be clean and noise free, as all signals are referenced to this earth. A central point should be decided on for the main earth point system, and all earths should be 'star fed' from this point. It is common electrical practice to 'daisy chain' the earths to all electrical outlets but this method is unsuitable for audio installations. The preferred method is to run an individual earth wire from each outlet, back to the system star point to provide a safety earth screen reference for each piece of equipment.

A separate earth wire should also be run from each equipment rack and area, to the star point. This may or may not be used depending on circumstances, but it is easier to install in the first place, than later when problems arise.

The location of the star point should be convenient, easily accessible place preferably at the rear of the console, or in the main equipment rack.

B Install separate 'clean' and 'dirty' mains outlets, wired individually back to the incoming mains distribution box. Use the 'clean' supply for all audio equipment and the 'dirty' supply for all lighting, vending machines etc. Never mix the two systems.

C If necessary, to provide sufficient isolation from mains borne interference, install an isolating transformer. This should be provided with a Faraday Shield which must be connected with earth.

D Never locate the incoming mains distribution box near audio equipment, especially tape recorders, which are very sensitive to electro–magnetic fields.

E Ensure that all equipment racks are connected to earth, via a separate wire back to the star point.

F Equipment which has unbalanced inputs and outputs may need to be isolated from the rack to prevent earth loops.

Audio Wiring

Having provided all equipment with power and earthing connections, consideration must be given to the method of providing audio interconnection and adequate screening of those interconnections. This must be done in a logical sequence to avoid problems and assist in the localisation of problem equipment.

A Connect the Control Room Monitor system to the console and check for any hum, buzz, or RFI. Only when you are satisfied with the quietness of the console and the monitor system should you proceed with the next step.

B Connect multitrack tape recorder, via the noise reduction system, if in use, and again check that the system is still clean.

C Connect stereo tape recorders, studio monitors echo and foldback sends one at a time, checking and isolating any connection which degrades performance.

D Connect all other peripheral devices.

E Connect all microphone lines.

By following this sequence much time and future trouble will be saved, and the result will be a quiet, stable system.

Shielding

Audio equipment is supplied with a variety of input and output configurations, which must be taken into consideration when deciding where the screen connections should be made. There are three sources of unwanted signal being impressed on the screen, which are as follows:

A Extraneous electrostatic or electromagnetic fields.

B Noise and interference on the earth line.

C Capacitive coupling between the screen and signal wires.

To minimise the adverse affects of the unwanted coupling to the signal wires, it is important that the screen is connected at one end only, i.e. the screen must not carry any signal current. Any signal on the wires within the screen will be capacitively coupled to the screen. This current will ultimately be returned to the source of the signal, either directly, if the screen is connected at the signal source end, or indirectly via the earthing system, if the signal is connected at the signal destination end. The indirect connection will cause an increase in high frequency cross-talk, and should be avoided wherever possible.

Therefore, in general, always connect the shield only at the signal source end. In high RF areas, the screen can also be connected to earth via a 0.01µF capacitor. This will present a short circuit at RF frequencies, thus lowering the effective shield impedance to ground. However, at low audio frequencies the reactance of the capacitor will be sufficiently high not to cause an earth loop problem.

Combinations of unbalanced, balanced and electronically balanced, (differential), systems mean that there are nine interconnection permutations.

The optimum connection for the screen in each case is shown in Table 1 overleaf.

Table 1

	Output	Input	Screen
1	Unbalanced	Unbalanced	Source
2	Unbalanced	Balanced	Source
3	Unbalanced	Differential	Source
4	Balanced (Note 1)	Unbalanced	Destination
5	Balanced	Balanced	Source
6	Balanced (Note 2)	Differential	Destination
7	Differential (Note 3)	Unbalanced	Source
8	Differential	Balanced	Source
9	Differential	Differential	Source

Notes on Table 1

1 The shield is connected to the destination earth point, which is opposite to normal practice, because the siganl wires being shielded are reference to the input earth, not the output earth.

2 If the output transformer is centre tapped to earth, the screen should be connected at the source.

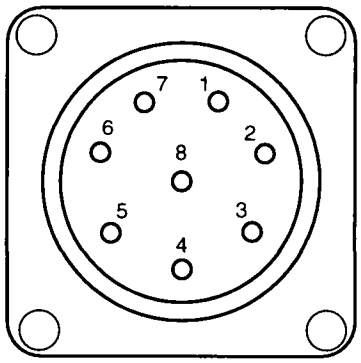
3 When an active differential output is operated in unbalanced mode, it is very important that the output current returns to earth via the shortest, least reactive route. Check for instability at the output.

Points to Remember

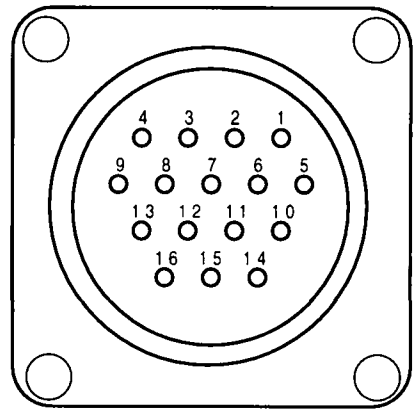
- In all cases, use good quality twin screened audio cable. Check for instability at the output.
- Always connect both conductors at both ends, and ensure that the screen is only connected at one end.
- Do not disconnect the mains earth fromeach piece of equipment. This is needed to provide both safety and screen returns to the system star point.
- Equipment which has balanced inputs and outputs may need to be electrically isolated from the equipment rack and/or other equipment, to avoid earth loops.

It is important to remember that all equipment which is connected to the mains is a potential source of hum and interference and may radiate both electrostatic or electromagnetic radiation. In addition, the mains will also act as a carrier for many forms of RF interference generated by electric motors, air-conditioning units, thyristor light dimmers etc. Unless the earth system is clean, all attempts to improve hum noise levels will be futile. In extreme cases there will be no alternative but to provide a completely separate and independant 'technical earth' to replace the incoming 'noisy earth'. However, always consult your local electricity supply authority to ensure that safety regulations are not being infringed.

PSU Connections



8-W SRC Connector



16-Way SRC Connector

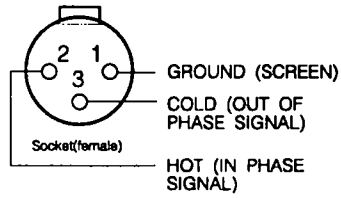
PIN No.	WIRE COLOUR	DESCRIPTION
1	Brown	+ 17V Audio Supply A
2	Green	Ground Audio Supply A
3	Blue	-17V Audio Supply A
4	Brown	+ 17V Audio Supply B
5	Green	Ground Audio Supply B
6	Blue	-17V Audio Supply B
7	Green/Yellow	Mains Chassis Ground
8	-	No Connection

PIN No.	Wire Colour	Description
1	Brown	+ 17 Volts
2	Red	+ 7.5 Volts
3	Blue	-17 Volts
4	Green	0V (+/-17 Volts)
5	Black	-7.5 Volts
6	Green	0V (+ 7.5 Volts)
7	Green	0V (+ 24 Volts)
8	Green	0V (-24 Volts)
9	Green	0V (-7.5 Volts)
10	Orange	+ 48 Volts
11	Violet	+ 24 Volts
12	White	-24 Volts
13	Green	0V (+ 48 Volts)
14	Yellow/Green	Chassis Ground
15	Green	0V (+ 15V)
16	Grey	+ 15V

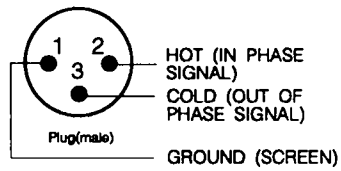
Wiring Conventions

The standard Europa console uses two different types of audio connector, 3 pin XLR (top diagram) and ¼" three pole (A gauge or stereo) jacks. The latter are used in several different configurations, as shown below. In addition, 4-pin XLR connectors are provided on the rear panel to supply desk lights.

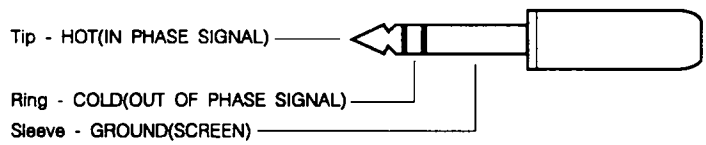
MICROPHONE INPUTS
2 TRACK A INPUT



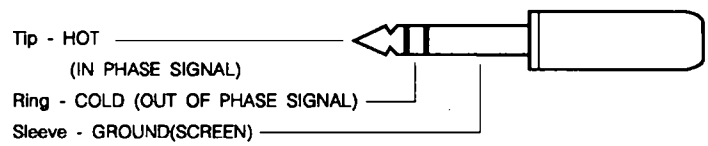
MIX L,R & MONO OUTPUTS
T/B, PFL, AFL & C/ROOM OUTPUTS
GROUP, AUX & ALT OUTPUTS



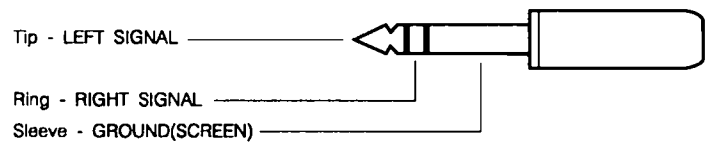
¼" 'A' Gauge Stereo Jack Plug used as balanced input:
line inputs, 2 Track B Inputs, insert returns, s/chain input & FX return inputs



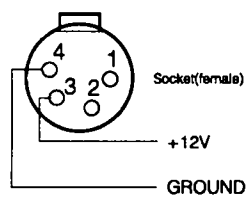
¼" 'A' Gauge Stereo Jack Plug used as balanced output:
insert sends, direct outputs & oscillator output



¼" 'A' Gauge Stereo Jack Plug used as a stereo output: headphones



GOOSENECK LAMP SUPPLY



Master PCB4 SC3004

CN1 - 40WY UPPER MOTHERLOOM

1	Solo Clear	Logic Signal
2	PFL Enable	Logic Signal
3	Not Connected	
4	AFL Signal L-	
5	Not Connected	
6	AFL Signal R	
7 - 40	Not Connected	

CN2 - LOWER MOTHERLOOM

1	Aux 1 Bus
2	Aux 2 Bus
3	Aux 3 Bus
4	Aux 4 Bus
5	Aux 5 Bus
6	Aux 6 Bus
7	Aux 7 Bus
8	Aux 8 Bus
9	Aux 9 Bus
10	Aux 10 Bus
11	Aux 11 Bus
12	Aux 12 Bus
13	Aux Ground Cancel
14	Logic Ground
15	Logic Ground
16 - 26	Not Connected
27	Aux 12 Pre/post Logic Control
28	+7.5V BAT
29	+7.5V BAT
30	+7.5V
31	-7.5V
32	-24V
33	+24V
34	+17V
35	+17V
36	+17V
37	-17V
38	-17V
39	-17V
40	+48V

CN3 - 50WY MASTER PCBS LINK

1	+17V	
2	+17V	
3	-17V	
4	-17V	
5	Meter REF. -16V	
6	+7.5V BAT	
7	+7.5V	
8	-7.5V	
9	Solo Clear	Logic Signal
10	+24V	
11	-24V	
12	-24V	
13	Logic Ground	
14	Logic Ground	
15	Solo In Place	Logic Signal
16	Live	Logic Signal
17	Dim Enable	Logic Signal
18	Solo Mute	Logic Signal
19	2TKB To Mix	Logic Signal
20	AFL Active	Logic Signal
21	Tri-state Enable	Logic Signal
22	Not Connected	
23	Not Connected	
24	Not Connected	
25	Master/slave	Logic Signal
26	Flash Bus	
27	Not Connected	
28	Not Connected	
29	Not Connected	
30	Not Connected	
31	Not Connected	
32	Not Connected	
33	Pre Fade Mix L	
34	Pre Fade Mix R	
35	Pre Fade Mix Mono	
36	Post Fade Mix L	
37	Post Fade Mix R	
38	Post Fade Mix Mono	
39	2TKB L To Mix L	
40	2TKB R To Mix R	
41	AFL/PFL L To Monitors	
42	AFL/PFL R To Monitors	
43	AFL L To Meter	
44	AFL R To Meter	
45	PFL To Meter	
46	Not Connected	
47	Not Connected	
48	Talkback To Headphones	
49	Talkback To Aux 12	
50	Oscillator To Auxs.	

CN4 - 26WY CONNECTION TO MASTER REARCON

1	Shield
2	Listen Mix I/P L-
3	Listen Mix I/P L+
4	Shield
5	Listen Mix I/P R-
6	Listen Mix I/P R+
7	Shield
8	2TK A I/P L-
9	2TK A I/P L+
10	2TK A I/P R-
11	2TK A I/P R+
12	2TK B I/P L-
13	2TK B I/P L+
14	2TK B I/P R-
15	2TK B I/P R+
16	Shield
17	Mon O/P L-
18	Mon O/P L+
19	Mon O/P R-
20	Mon O/P R+
21	Aux 12 O/P -
22	Aux 12 O/P +
23	Monitor Meter L
24	Monitor Meter R
25	Phones O/P L
26	Phones O/P R

CN5 - 16WY TO PSU DISTRIBUTION PCB

1	Live	Logic Signal
2	Pfl Active	Logic Signal
3	Flash Bus	
4	Solo Mute	Logic Signal
5	Tri-state Enable	Logic Signal
6	Solo In Place	Logic Signal
7	Master/slave	Logic Signal
8	Solo Clear	Logic Signal
9	+17v From Cps550 B	
10	-17v From Cps550 B	
11	Phones Ground	
12	Phones Ground	
13	+17v From Cps750	
14	-17v From Cps750	
15	-17v From Cps550 A	
16	+17v From Cps550 A	

CN6 - 6WY FLEXI-STRIP TO AUX METER

1	-24V
2	-16V Meter REF
3	Meter Ground

R31	MF 0.25W RES 2% 1M	AD0521
R32	MF 0.25W RES 2% 7K5	AD0470
R33	MF 0.25W RES 2% 7K5	AD0470
R34	MF 0.25W RES 2% 7K5	AD0470
R35	MF 0.25W RES 2% 3K3	AD0461
R36	MF 0.25W RES 2% 3K3	AD0461
R37	MF 0.25W RES 2% 3K3	AD0461
R38	MF 0.25W RES 2% 22K	AD0481
R39	MF 0.25W RES 2% 22K	AD0481
R40	MF 0.25W RES 2% 22K	AD0481
R41	MF 0.25W RES 2% 22K	AD0481
R42	MF 0.25W RES 2% 22K	AD0481
R43	MF 0.25W RES 2% 22K	AD0481
R44	MF 0.25W RES 2% 4K7	AD0465
R45	MF 0.25W RES 2% 4K7	AD0465
R46	MF 0.25W RES 2% 4K7	AD0465
R47	MF 0.25W RES 2% 4K7	AD0465
R48	MF 0.25W RES 2% 4K7	AD0465
R49	MF 0.25W RES 2% 4K7	AD0465
R50	MF 0.25W RES 2% 4K7	AD0465
R51	MF 0.25W RES 2% 4K7	AD0465
R52	MF 0.25W RES 2% 10K	AD0473
R53	MF 0.25W RES 2% 10K	AD0473
R54	MF 0.25W RES 2% 10K	AD0473
R55	MF 0.25W RES 2% 10K	AD0473
R56	MF 0.25W RES 2% 10K	AD0473
R57	MF 0.25W RES 2% 10K	AD0473
R58	MF 0.25W RES 2% 10K	AD0473
R59	MF 0.25W RES 2% 10K	AD0473
R60	MF 0.25W RES 2% 75R	AD0422
R61	MF 0.25W RES 2% 75R	AD0422
R62	MF 0.25W RES 2% 75R	AD0422
R63	MF 0.25W RES 2% 75R	AD0422
R64	MF 0.25W RES 2% 1K	AD0449
R65	MF 0.25W RES 2% 1K	AD0449
R66	MF 0.25W RES 2% 1K	AD0449
R67	MF 0.25W RES 2% 1K	AD0449
R68	MF 0.25W RES 2% 22K	AD0481
R69	MF 0.25W RES 2% 22K	AD0481
R70	MF 0.25W RES 2% 22K	AD0481
R71	MF 0.25W RES 2% 22K	AD0481
R72	MF 0.25W RES 2% 22K	AD0481
R73	MF 0.25W RES 2% 22K	AD0481
R74	MF 0.25W RES 2% 22K	AD0481
R75	MF 0.25W RES 2% 22K	AD0481
R76	MF 0.25W RES 2% 22K	AD0481
R77	MF 0.25W RES 2% 4K7	AD0465
R78	MF 0.25W RES 2% 4K7	AD0465
R79	MF 0.25W RES 2% 4K7	AD0465
R80	MF 0.25W RES 2% 4K7	AD0465
R81	MF 0.25W RES 2% 10K	AD0473
R82	MF 0.25W RES 2% 10K	AD0473
R83	MF 0.25W RES 2% 10K	AD0473
R84	MF 0.25W RES 2% 10K	AD0473
R85	MF 0.25W RES 2% 75R	AD0422
R86	MF 0.25W RES 2% 75R	AD0422
R87	MF 0.25W RES 2% 1K	AD0449
R88	MF 0.25W RES 2% 1K	AD0449
R89	MF 0.25W RES 2% 22K	AD0481

8	Group 5 From Sub-PCB	
9	GND	
10	Group 3 To Sub-PCB	
11	GND	
12	Group 3 From Sub-PCB	
13	GND	
14	Group 1 To Sub-PCB	
15	GND	
16	Group 1 From Sub-PCB	

CN4 - FADER PCB

1	GND	
2	Matrix B Post Fade	
3	GND	
4	Matrix B Pre Fade	
5	GND	
6	+17V	
7	-17V	
8	+24V	
9	-24V	
10	Matrix B Meter Signal	
11	Meter GND	
12	METER Gnd	
13	AFL	Logic Signal
14	Not Connected	
15	Mute	Logic Signal
16	Tri-state Enable	Logic Signal

CN5 - TO UPPER SUB-PCB

1	GND
2	Group 7 To Sub-PCB
3	GND
4	Group 7 From Sub-PCB
5	GND
6	Group 5 To Sub-PCB
7	GND
8	Group 5 From Sub-PCB
9	GND
10	Group 3 To Sub-PCB
11	GND
12	Group 3 From Sub-PCB
13	GND
14	Group 1 To Sub-PCB
15	GND
16	Group 1 From Sub-PCB

CN6 - TO MATRIX REARCON

1	Talkback To Matrix
2	GND
3	Group 8 To Matrix
4	GND
5	Group 7 To Matrix
6	GND
7	Group 6 To Matrix
8	GND
9	Group 5 To Matrix
10	GND
11	Group 4 To Matrix
12	GND
13	Group 3 To Matrix
14	GND
15	Group 2 To Matrix
16	GND
17	Group 1 To Matrix
18	GND
19	Mix Mono To Matrix
20	GND
21	Mix R To Matrix
22	GND
23	Mix L To Matrix
24	GND
25	External I/P A+
26	External I/P A-
27	GND
28	External I/P B+
29	External I/P B-
30	GND
31	Matrix O/P A+
32	Matrix O/P A-
33	Matrix O/P B+
34	Matrix O/P B-

CN7 - UPPER MOTHERLOOM

1	Solo Clear	Logic Signal
2	PFL Enable	Logic Signal
3	Not Connected	
4	ALF L-	
5	Not Connected	
6	AFL R-	
7 - 40	Not Connected	

CN8 - TO CUT SWITCH

1	To Switch LED
2	From Switch LED
3	Switch Contact
4	Switch Contact

CN9 - TO AFL SWITCH

1	To Switch LED
2	From Switch LED
3	Switch Contact
4	Switch Contact

Matrix Fader PCB SC3074

CN1 - TO MATRIX O/P

1 - 38	Not Connected	
39	Tri-state Enable	Logic Signal
40	Not Connected	
41	Solo Clear	Logic Signal
42	+7.5V BAT	
43	-7.5V	
44	+7.5V	
45 - 50	Not Connected	

CN2 - TO CUT SWITCH

1	To Switch LED
2	From Switch LED
3	Switch Contact
4	Switch Contact

CN3 - TO AFL SWITCH

1	To Switch LED
2	From Switch LED
3	Switch Contact
4	Switch Contact

Matrix Rearcon SC3075

CN1 - LINK TO NEXT MATRIX REARCON
CN9 - LINK TO MASTER REARCON

1	Mix L To Matrix
2	GND Shield
3	Mix R To Matrix
4	GND Shield
5	Mix Mono To Matrix
6	GND Shield
7	Group 1 Signal To Matrix
8	GND Shield
9	Group 2 Signal To Matrix
10	GND Shield

11 Group 3 Signal To Matrix
12 GND Shield
13 Group 4 Signal To Matrix
14 GND Shield
15 Group 5 Signal To Matrix
16 GND Shield
17 Group 6 Signal To Matrix
18 GND Shield
19 Group 7 Signal To Matrix
20 GND Shield
21 Group 8 Signal To Matrix
22 GND Shield
23 Talkback Signal To Matrix
24 GND Shield
25 Not Connected
26 Not Connected

CN2, 3, 4, 5 - TO MATRIX O/P PCB

1 Talkback To Matrix
2 GND Shield
2 GND
3 Group 8 To Matrix
4 GND
5 Group 7 To Matrix
6 GND
7 Group 6 To Matrix
8 GND
9 Group 5 To Matrix
10 GND
11 Group 4 To Matrix
12 GND
13 Group 3 To Matrix
14 GND
15 Group 2 To Matrix
16 GND
17 Group 1 To Matrix
18 GND
19 Mix Mono To Matrix
20 GND
21 Mix R To Matrix
22 GND
23 Mix L To Matrix
24 GND
25 External I/P A+
26 External I/P A-
27 GND
28 External I/P B+
29 External I/P B-
30 GND
31 Matrix O/P A+
32 Matrix O/P A-
33 Matrix O/P B+

34 Matrix O/P B-

CN6, 7 - TO OPTIONAL PATCHBAY (matrix modules 1, 2 to CN6 3, 4 to CN7)

1 GND
2 EXT I/P A+ (module 1 CN6, module 3 CN7)
3 EXT I/P A- (module 1 CN6, module 3 CN7)
4 GND
5 EXT I/P B+ (module 1 CN6, module 3 CN7)
6 EXT I/P B- (module 1 CN6, module 3 CN7)
7 GND
8 Matrix O/P B+ (module 1 CN6, module 3 CN7)
9 Matrix O/P B- (module 1 CN6, module 3 CN7)
10 GND
11 Matrix O/P A+ (module 1 CN6, module 3 CN7)
12 Matrix O/P A- (module 1 CN6, module 3 CN7)
13 GND
14 GND
15 EXT I/P A+ (module 2 CN6, module 4 CN7)
16 EXT I/P A- (module 2 CN6, module 4 CN7)
17 GND
18 EXT I/P B+ (module 2 CN6, module 4 CN7)
19 EXT I/P B- (module 2 CN6, module 4 CN7)
20 GND
21 Matrix O/P B+ (module 2 CN6, module 4 CN7)
22 Matrix O/P B- (module 2 CN6, module 4 CN7)
23 GND
24 Matrix O/P A+ (module 2 CN6, module 4 CN7)
25 Matrix O/P A- (module 2 CN6, module 4 CN7)
26 GND

CN8 - GROUND SPADE

Matrix O/P Sub-PCB SC3072

CN1 - CONNECTOR TO O/P PCB

1 GND
2 Group 7 Signal From O/P PCB
3 GND
4 Group 7 Signal To O/P PCB
5 GND
6 Group 5 Signal To O/P PCB
7 GND
8 Group 5 Signal To O/P PCB
9 GND
10 Group 3 Signal From O/P PCB
11 GND
12 Group 3 Signal To O/P PCB

13 GND
14 Group 1 Signal From O/P PCB
15 GND
16 Group 1 Signal To O/P PCB

PSU Interface PCB

CN7 GROUND CONNECTIONS

1 Logic Ground (assign System)
2 O/P Motherloom Logic Ground
3 "littlelite" Ground
4 O/Bridge Bargraph Ground
5 VCA Reference
6 Logic Ground (lower M/Loom R)
7 Logic Ground (lower M/Loom L)
8 VU Meter Audio Ground
9 VU Meter Illumination Ground
10 Phones Ground

CN6 PSU B SUPPLY TO PSU INTERFACE PCB

1	-17v Supply B	Blue
2	+17v Supply B	Brown
3	+17v Supply A	Brown
4	-17v Supply A	Blue

LED BARGRAPH SUPPLY

CN8 - RH OVERBRIDGE
CN9 - LH OVERBRIDGE

1 "littlelite" Supply
2 "littlelite" Supply
3 "littlelite" Ground
4 "littlelite" Ground
5 LED Meter Ground
6 LED Meter Ground
7 -24V
8 -24V

VU METER SUPPLY

1	-17V	BLUE
2	GND	GRN
3	GND	GRN
4	+17V	BR
5	+24V	PU
6	GND	GRN

FADER MOTHERLOOM - 50WAY IDC

1	Mute Bus 1	
2	Mute Bus 2	
3	Mute Bus 3	
4	Mute Bus 4	
5	Mute Bus 5	
6	Mute Bus 6	
7	Mute Bus 7	
8	Mute Bus 8	
9	NC	(VCA BUS 1)
10	NC	(VCA BUS 2)
11	NC	(VCA BUS 3)
12	NC	(VCA BUS 4)
13	NC	(VCA BUS 5)
14	NC	(VCA BUS 6)
15	NC	(VCA BUS 7)
16	NC	(VCA BUS 8)
17	NC	(VCA S0LO 1)
18	NC	(VCA SOLO 2)
19	NC	(VCA SOLO 3)
20	NC	(VCA SOLO 4)
21	NC	(VCA SOLO 5)
22	NC	(VCA SOLO 6)
23	NC	(VCA SOLO 7)
24	NC	(VCA SOLO 8)
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	
33	Mute Write	
34	NC	(vca Write)
35	SOLOMUTE (active Low)	
36	Flash Bus	
37	SIP	
38	VCA Reference Gnd	
39	Tristate Enable	
40	NC	(isolate Assign)
41	Soloclear	
42	+7V5 Battery Backed Supply	
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7v5 LOGIC SUPPLY	
47	NC	(+0V6 Reference)
48	SOLOSIP	(Active Low)
49	NC	(GM Fader Voltage)
50	NC	(GM CUT)

VCA MASTER LOOM - 16WAY

1	NC	(EXTVCA 1)
2	NC	(EXTVCA 2)
3	NC	(EXTVCA 3)
4	NC	(EXTVCA 4)
5	NC	(EXTVCA 5)
6	NC	(EXTVCA 6)
7	NC	(EXTVCA 7)
8	NC	(EXTVCA 8)
9	NC	(GRPSOLOCLEAR)
10	NC	(GRPOFF (BAT))
11	MASTER/SLAVE	(MASTER = HIGH)
12	LIVE	
13	GND	
14	NC	(-5VOLT Reference)
15	-17VOLT	
16	+17VOLT	

FADER CIRCUITRY SUPPLY LINK - 34WAY

1	-17VOLTS	
2	+17VOLTS	
3	0VOLTS	
4	LIVE	
5	MASTER/SLAVE	(MASTER = HIGH)
6	FLASH	
7	SIP	
8	VCA Reference GND	
9	Tristate Enable	
10	SOLOSIP (ACTIVE LOW)	
11	SOLOCLEAR	
12	+7V5 Battery Backed Supply	
13	-7V5 Logic Supply	
14	+7V5 Logic Supply	
15	-7V5 Logic Supply	
16	+7V5 Logic Supply	
17	Mute Bus 1	
18	Mute Bus 2	
19	Mute Bus 3	
20	Mute Bus 4	
21	Mute Bus 5	
22	Mute Bus 6	
23	Mute Bus 7	
24	Mute Bus 8	
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	

33 Mute Write
34 PFL/AFL Enable

DIGITAL I/O BOARD TO MUTE MASTER - 2 WAY METHODE

1 PFL/AFL Enable
2 LIVE

Input Fader PCB

FADER MOTHERLOOM - 50WAY IDC

1 Mute Bus 1
2 Mute Bus 2
3 Mute Bus 3
4 Mute Bus 4
5 Mute Bus 5
6 Mute Bus 6
7 Mute Bus 7
8 Mute Bus 8
9 VCA Bus 1
10 VCA Bus 2
11 VCA Bus 3
12 VCA Bus 4
13 VCA Bus 5
14 VCA Bus 6
15 VCA Bus 7
16 VCA Bus 8
17 VCA Solo 1
18 VCA Solo 2
19 VCA Solo 3
20 VCA Solo 4
21 VCA Solo 5
22 VCA Solo 6
23 VCA Solo 7
24 VCA Solo 8
25 Assign Bus 1
26 Assign Bus 2
27 Assign Bus 3
28 Assign Bus 4
29 Assign Bus 5
30 Assign Bus 6
31 Assign Bus 7
32 Assign Bus 8
33 Mute Write
34 VCA Write
35 Solomute (active Low)
36 Flash Bus
37 SIP
38 VCA Reference GND
39 Tristate Enable

40	Isolate Assign	
41	SOLOCLEAR	
42	+7V5 Battery Backed Supply	
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7V5 Logic Supply	
47	NC	(+0V6 Reference)
48	SOLOSIP	(Active Low)
49	NC	(GM Fader Voltage)
50	NC	(GM CUT)

JUMPER BETWEEN INPUT FADER PCB AND INPUT PCBS - 16WAY

1	PFL SW	(Active Low)
2	AFL SW	(Active Low)
3	MUTE	(Active Low)
4	NOTASS	(Active High To Bypass VCA)
5	Tristate Enable	(Active Low)
6	VCA Sum	
7	Fader Switch	(Only Used On Stereo I/P Modules)
8	+17Volt	
9	-17Volt	
10	Fader Send Right	
11	GND To VCA Circuitry	
12	Return Right	
13	GND	
14	Fader Send Left	
15	GND	
16	Return Left	

FADER MOTHERLOOM - 50 WAY IDC

1	Mute Bus 1	
2	Mute Bus 2	
3	Mute Bus 3	
4	Mute Bus 4	
5	Mute Bus 5	
6	Mute Bus 6	
7	Mute Bus 7	
8	Mute Bus 8	
9	NC	(VCA Bus 1)
10	NC	(VCA Bus 2)
11	NC	(VCA Bus 3)
12	NC	(VCA Bus 4)
13	NC	(VCA Bus 5)
14	NC	(VCA Bus 6)
15	NC	(VCA Bus 7)
16	NC	(VCA Bus 8)
17	VCA Solo 1	
18	VCA Solo 2	
19	VCA Solo 3	
20	VCA Solo 4	
21	VCA Solo 5	
22	VCA Solo 6	
23	VCA Solo 7	
24	VCA Solo 8	
25	NC	(Assign Bus 1)
26	NC	(Assign Bus 2)
27	NC	(Assign Bus 3)
28	NC	(Assign Bus 4)
29	NC	(Assign Bus 5)
30	NC	(Assign Bus 6)
31	NC	(Assign Bus 7)
32	NC	(Assign Bus 8)
33	NC	(MUTE WRITE)
34	NC	(VCA WRITE)
35	SOLOMUTE	
36	NC	(Flash Bus)
37	SIP	
38	NC	(VCA Reference GND)
39	NC	(Tristate Enable)
40	NC	(Isolate Assign)
41	SOLOCLEAR	
42	NC	(+7V5 BATTERY BACKED SUPPLY)
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7V5 Logic Supply	
47	NC	(+0V6 Reference)
48	SOLOSIP	(Active Low)
49	NC	(GM Fader Voltage)
50	NC	(GM CUT)

DIGITAL I/O BOARD TO MUTE MASTER - 2WAY METHODE

1	PFL/AFL Enable
2	LIVE

DIGITAL I/O BOARD TO REAR CONNECTOR FOR SLAVE DESK -26WY IDC

1	Mute Control 1	(input/Output Line To Remote Desk)
2	Mute Control 2	
3	Mute Control 3	
4	Mute Control 4	
5	Mute Control 5	
6	Mute Control 6	
7	Mute Control 7	
8	Mute Control 8	
9	Solo Control 1	
10	Solo Control 2	
11	Solo Control 3	
12	Solo Control 4	
13	Solo Control 5	
14	Solo Control 6	
15	Solo Control 7	
16	Solo Control 8	
17	SOLOCLEAR Control	
18	SIP Control	
19	LIVE Control	
20	PFL/AFL Control	
21	SOLOSIP Control	
22	SOLOMUTE Control	
23	Master/slave	(master = High)
24	Master/slave	(master = Low)
25	+7V5 (Relay)	Relay Switched To Drive The Optos
26	-7V5 (Relay)	Relay Switched To Drive The Optos

4 Way LED Meter Card

JUMPER TO PSU BOARD OR ADJACENT CARD - 2 OFF 8WAY 0.1" METHODE

1	+24V
2	+24V
3	0Volt (+24V)
4	0Volt (+24V)
5	0Volt (-24V)
6	0Volt (-24V)
7	-24V
8	-24V

LINK FROM REAR CONNECTOR PCB - 10WAY IDC

1	Left I/P 1
2	Right I/P 1
3	Left I/P 2
4	Right I/P 2
5	+24V
6	0Volt (+24V)
7	Left I/P 3
8	Right I/P 3
9	Left I/P 4
10	Right I/P 4

Fader Tray

FADER MOTHERLOOM - 50WAY IDC

1	Mute Bus 1
2	Mute Bus 2
3	Mute Bus 3
4	Mute Bus 4
5	Mute Bus 5
6	Mute Bus 6
7	Mute Bus 7
8	Mute Bus 8
9	VCA Bus 1
10	VCA Bus 2
11	VCA Bus 3
12	VCA Bus 4
13	VCA Bus 5
14	VCA Bus 6
15	VCA Bus 7
16	VCA Bus 8
17	VCA Solo 1
18	VCA Solo 2
19	VCA Solo 3
20	VCA Solo 4
21	VCA Solo 5
22	VCA Solo 6
23	VCA Solo 7

24	VCA Solo 8	
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	
33	Mute Write	
34	VCA Write	
35	SOLOMUTE (Active Low)	
36	Flash Bus	
37	SIP	
38	VCA Reference GND	
39	Tristate Enable	
40	Isolate Assign	
41	SOLOCLEAR	
42	+7V5 Battery Backed Supply	
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7V5 Logic Supply	
47	+0V6 Reference	
48	SOLOSIP	(Active Low)
49	GM Fader Voltage	
50	GM CUT	

JUMPER BETWEEN INPUT FADER PCB AND INPUT PCBS - 16WAY

1	PFL SW	(Active Low)
2	AFL SW	(Active Low)
3	MUTE	(Active Low)
4	NOTASS	(Active High To Bypass VCA)
5	Tristate Enable	(Active Low)
6	VCA Sum	
7	Fader Switch	
8	+17Volt	
9	-17Volt	
10	Fader Send Right	
11	GND To VCA Circuitry	
12	Return Right	
13	GND	
14	Fader Send Left	
15	GND	
16	Return Left	

VCA MASTER LOOM - 16WAY

1	EXTVCA 1	(Ext. VCA Control Voltage From I/O board)
2	EXTVCA 2	
3	EXTVCA 3	
4	EXTVCA 4	

5	EXTVCA 5	
6	EXTVCA 6	
7	EXTVCA 7	
8	EXTVCA 8	
9	GRPSOLOCLEAR	
10	GRPOFF (BAT)	(Active Low And Battery Backed)
11	MASTER/SLAVE	(Master = High)
12	LIVE	
13	GND	
14	-5Volt Reference	
15	-17Volt	
16	+17Volt	

FADER CIRCUITRY SUPPLY LINK - 34WAY

1	-17Volts	
2	+17Volts	
3	0Volts	
4	LIVE	
5	Master/Slave	(master = High)
6	Flash	
7	SIP	
8	VCA Reference GND	
9	Tristate Enable	
10	SOLOSIP	(Active Low)
11	SOLOCLEAR	
12	+7V5 Battery Backed Supply	
13	-7V5 Logic Supply	
14	+7V5 Logic Supply	
15	-7V5 Logic Supply	
16	+7V5 Logic Supply	
17	Mute Bus 1	
18	Mute Bus 2	
19	Mute Bus 3	
20	Mute Bus 4	
21	Mute Bus 5	
22	Mute Bus 6	
23	Mute Bus 7	
24	Mute Bus 8	
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	
33	Mute Write	
34	PFL/AFL Enable	

MASTER BOARD 4 TO PSU BOARD JUMPER - 16WAY

1	Live	
2	PFL/AFL Enable	
3	Flash	
4	SOLOMUTE	(Active Low)
5	Tristate Enable	
6	SIP	
7	Master/Slave	(master = High)
8	SOLOCLEAR	
9	+17V	
10	-17V	
11	0Volt For Headphone Amplifiers	
12	0Volt For Headphone Amplifiers	
13	+17V For Headphone Amplifiers	
14	-17V For Headphone Amplifiers	
15	+17V	
16	-17V	

CPS 750 SRC TO PSPU BOARD - 8WAY 0.156" MOLEX

1	+7V5
2	-7V5
3	-24V
4	+24V
5	+17V
6	-17V
7	+48V
8	Not Connected

CPS 550 SRC TO PSU BOARD - 4WAY 0.156" MOLEX

1	-17V A
2	+17V A
3	-17V B
4	+17V B

LED DRIVER BOARD TO PSU BOARD - 8WAY 0.1" METHODE

1	+24V
2	+24V
3	0Volt (+24V)
4	0Volt (+24V)
5	0Volt (-24V)
6	0Volt (-24V)
7	-24V
8	-24V

VU DRIVERS TO PSU BOARD - 6WAY METHODE

1	-17V
2	0Volt (-17V)
3	0Volt (-17V)
4	+17V
5	+24V
6	0Volt (+24V)

DIGITAL I/O BOARD TO MUTE MASTER - 2WAY METHODE

1	PFL/AFL Enable
2	Live

DIGITAL I/O BOARD TO REAR CONNECTOR FOR SLAVE DESK - 26WY IDC

1	Mute Control 1	(input/output Line To Remote Desk)
2	Mute Control 2	
3	Mute Control 3	
4	Mute Control 4	
5	Mute Control 5	
6	Mute Control 6	
7	Mute Control 7	
8	Mute Control 8	
9	Solo Control 1	
10	Solo Control 2	
11	Solo Control 3	
12	Solo Control 4	
13	Solo Control 5	
14	Solo Control 6	
15	Solo Control 7	
16	Solo Control 8	
17	Soloclear Control	
18	SIP Control	
19	LIVE Control	
20	PFL/AFL Control	
21	SOLOSIP Control	
22	SOLOMUTE Control	
23	Master/Slave	(Master = High)
24	Master/Slave	(Master = Low)
25	+7V5 (Relay)	Relay Switched To Drive The Optos
26	-7V5 (Relay)	Relay Switched To Drive The Optos

VCA CONTROL VOLTAGE I/O BOARD TO REAR CONNECTOR -16WAY

1	VCA Control 1
2	VCA Control 2
3	VCA Control 3
4	VCA Control 4
5	VCA Control 5

6	VCA Control 6	
7	VCA Control 7	
8	VCA Control 8	
9	VCA Reference Control	
10	VCA Reference Control	
11	-7V5 (Relay)	
12	+7V5 (Relay)	
13	-7V5 Logic Supply	
14	+7V5 Logic Supply	
15	Master/Slave	(Master = Low)
16	Master/Slave	(Master = High)

MASTER BOARD 1 TO REAR CONN PCB - 16WAY IDC

1	AFLEXT R-	From Remote Desk
2	AFLEXT R+	Via Rear Connector PCB
3	AFLEXT L-	
4	AFLEXT L+	
5	PFLEXT -	
6	PFLEXT +	
7	AFL L+ Remote	
8	AFL L- Remote	
9	AFL R+ Remote	
10	AFL R- Remote	
11	PFL+ Remote	
12	PFL- Remote	
13	ALT O/P L+	
14	ALT O/P L-	
15	ALT O/P R+	
15	ALT O/P R-	

MASTER BOARD 2 TO REAR CONN PCB - 16WAY IDC

1	MIC+	From Talkback
2	MIC-	Microphone
3	GND	
4	EXT I/P+	From External Intercom
5	EXT I/P-	System, eg; Blythephone
6	MON I/P-	From Monitor Desk
7	MON I/P+	
8	TB To Aux	
9	TB To Matrix	
10	TB To Group	
11	MON +	
12	MON -	
13	TB O/P+	
14	TB O/P-	
15	OSC O/P+	
16	OSC O/P-	

FADER MOTHERLOOM - 50WAY IDC

1	NC	(Mute Bus 1)
2	NC	(Mute Bus 2)
3	NC	(Mute Bus 3)
4	NC	(Mute Bus 4)
5	NC	(Mute Bus 5)
6	NC	(Mute Bus 6)
7	NC	(Mute Bus 7)
8	NC	(Mute Bus 8)
9	NC	(VCA Bus 1)
10	NC	(VCA Bus 2)
11	NC	(VCA Bus 3)
12	NC	(VCA Bus 4)
13	NC	(VCA Bus 5)
14	NC	(VCA Bus 6)
15	NC	(VCA Bus 7)
16	NC	(VCA Bus 8)
17	NC	(VCA Solo 1)
18	NC	(VCA Solo 2)
19	NC	(VCA Solo 3)
20	NC	(VCA Solo 4)
21	NC	(VCA Solo 5)
22	NC	(VCA Solo 6)
23	NC	(VCA Solo 7)
24	NC	(VCA Solo 8)
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	
33	Mute Write	
34	VCA Write	
35	NC	(SOLOMUTE)
36	NC	(Flash Bus)
37	NC	(SIP)
38	VCA Reference GND	
39	Tristate Enable	
40	Isolate Assign	
41	SOLOCLEAR	
42	+7V5 Battery Backed Supply	
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7V5 Logic Supply	
47	+0V6 Reference	
48	NC	(SOLOSIP)
49	GM Fader Voltage	
50	GM CUT	

VCA MASTER LOOM - 16WAY

1	NC	(EXTVCA 1)
2	NC	(EXTVCA 2)
3	NC	(EXTVCA 3)
4	NC	(EXTVCA 4)
5	NC	(EXTVCA 5)
6	NC	(EXTVCA 6)
7	NC	(EXTVCA 7)
8	NC	(EXTVCA 8)
9	GRPSOLOCLEAR	
10	GRPOFF (BAT)	(Active Low And Battery Backed)
11	Master/Slave	(Master = High)
12	LIVE	
13	GND	
14	-5VOLT Reference	
15	-17Volt	
16	+17Volt	

Analogue Interface Board

FADER MOTHERLOOM - 50WAY IDC

1	NC	(Mute Bus 1)
2	NC	(Mute Bus 2)
3	NC	(Mute Bus 3)
4	NC	(Mute Bus 4)
5	NC	(Mute Bus 5)
6	NC	(Mute Bus 6)
7	NC	(Mute Bus 7)
8	NC	(Mute Bus 8)
9	VCA Bus 1	
10	VCA Bus 2	
11	VCA Bus 3	
12	VCA Bus 4	
13	VCA Bus 5	
14	VCA Bus 6	
15	VCA Bus 7	
16	VCA Bus 8	
17	NC	(VCA Solo 1)
18	NC	(VCA Solo 2)
19	NC	(VCA Solo 3)
20	NC	(VCA Solo 4)
21	NC	(VCA Solo 5)
22	NC	(VCA Solo 6)
23	NC	(VCA Solo 7)
24	NC	(VCA Solo 8)
25	NC	(Assign Bus 1)
26	NC	(Assign Bus 2)
27	NC	(Assign Bus 3)
28	NC	(Assign Bus 4)

29	NC	(Assign Bus 5)
30	NC	(Assign Bus 6)
31	NC	(Assign Bus 7)
32	NC	(Assign Bus 8)
33	NC	(Mute Write)
34	NC	(VCA Write)
35	NC	(SOLOMUTE)
36	NC	(Flash Bus)
37	NC	(SIP)
38	VCA Reference GND	
39	NC	(Tristate Enable)
40	NC	(ISOLATE ASSIGN)
41	NC	(SOLOCLEAR)
42	NC	(+7V5 Battery Backed Supply)
43	-7V5 Logic Supply	
44	+7V5 Logic Supply	
45	-7V5 Logic Supply	
46	+7V5 Logic Supply	
47	NC	(+0V6 Reference)
48	NC	(SOLOSIP)
49	NC	(GM Fader Voltage)
50	NC	(GM CUT)

VCA MASTER LOOM - 16WAY

1	EXTVCA 1	(Ext.VCA Control Voltage From I/O Board)
2	EXTVCA 2	
3	EXTVCA 3	
4	EXTVCA 4	
5	EXTVCA 5	
6	EXTVCA 6	
7	EXTVCA 7	
8	EXTVCA 8	
9	NC	(GRPSOLOCLEAR)
10	NC	(GRPOFF (BAT))
11	Master/Slave	(Master = High)
12	NC	(LIVE)
13	GND	
14	NC	(-5VOLT Reference)
15	-17VOLT	
16	+17VOLT	

VCA CONTROL VOLTAGE I/O BOARD TO REAR CONNECTOR - 16WAY

1	VCA Control 1
2	VCA Control 2
3	VCA Control 3
4	VCA Control 4
5	VCA Control 5
6	VCA Control 6
7	VCA Control 7
8	VCA Control 8

9	VCA Reference Control	
10	VCA Reference Control	
11	-7V5 (Relay)	
12	+7V5 (Relay)	
13	-7V5 Logic Supply	
14	+7V5 Logic Supply	
15	Master/Slave	(Master = Low)
16	Master/Slave	(Master = High)

PSU Distribution Board

OUTPUT LOWER MOTHERLOOM - 50WAY IDC

1	Mute Bus 1
2	Mute Bus 2
3	Mute Bus 3
4	Mute Bus 4
5	Mute Bus 5
6	Mute Bus 6
7	Mute Bus 7
8	Mute Bus 8
9	Assign Bus 1
10	Assign Bus 2
11	Assign Bus 3
12	Assign Bus 4
13	Assign Bus 5
14	Assign Bus 6
15	Assign Bus 7
16	Assign Bus 8
17	Mute Write
18	Aux Bus 1
19	Aux Bus 2
20	Aux Bus 3
21	Aux Bus 4
22	Aux Bus 5
23	Aux Bus 6
24	Aux Bus 7
25	Aux Bus 8
26	Aux GND Cancel
27	Output Motherloom GND
28	Output Motherloom GND
29	Output Motherloom GND
30	Aux Pre/Post 1
31	Aux Pre/Post 2
32	Aux Pre/Post 3
33	Aux Pre/Post 4
34	Aux Pre/Post 5
35	Aux Pre/Post 6
36	Aux Pre/Post 7
37	Aux Pre/Post 8
38	+7V5 Battery Backed Supply

39	+7V5 Logic Supply
40	-7V5 Logic Supply
41	-24V
42	-24V
43	+24V
44	+24V
45	-17V
46	-17V
47	+17V
48	+17V
49	Tristate Enable
50	Flash Bus

FADER CIRCUITRY SUPPLY LINK - 34WAY

1	-17Volts	
2	+17Volts	
3	0Volts	
4	Live	
5	Master/Slave	(Master = High)
6	Flash	
7	SIP	
8	VCA Reference GND	
9	Tristate Enable	
10	SOLOSIP	(Active Low)
11	SOLOCLEAR	
12	+7V5 Battery Backed Supply	
13	-7V5 Logic Supply	
14	+7V5 Logic Supply	
15	-7V5 Logic Supply	
16	+7V5 Logic Supply	
17	Mute Bus 1	
18	Mute Bus 2	
19	Mute Bus 3	
20	Mute Bus 4	
21	Mute Bus 5	
22	Mute Bus 6	
23	Mute Bus 7	
24	Mute Bus 8	
25	Assign Bus 1	
26	Assign Bus 2	
27	Assign Bus 3	
28	Assign Bus 4	
29	Assign Bus 5	
30	Assign Bus 6	
31	Assign Bus 7	
32	Assign Bus 8	
33	Mute Write	
34	PFL/AFL Enable	

MASTER BOARD 4 TO PSU BOARD JUMPER - 16WAY

1	Live	
2	PFL/AFL Enable	
3	Flash	
4	SOLOMUTE	(Active Low)
5	Tristate Enable	
6	SIP	
7	Master/Slave	(Master = High)
8	SOLOCLEAR	
9	+17V	
10	-17V	
11	0Volt For Headphone Amplifiers	
12	0Volt For Headphone Amplifiers	
13	+17V For Headphone Amplifiers	
14	-17V For Headphone Amplifiers	
15	+17V	
16	-17V	

CPS 750 SRC TO PSU BOARD - 8WAY 0.156" MOLEX

1	+7V5
2	-7V5
3	-24V
4	+24V
5	+17V
6	-17V
7	+48V
8	Not Connected

CPS 550 SRC TO PSU BOARD - 4 WAY 0.156" MOLEX

1	-17V A
2	+17V A
3	-17V B
4	+17V B

LED DRIVER BOARD TO PSU BOARD - 8WAY 0.1" METHODE

1	+24V
2	+24V
3	0Volt (+24V)
4	0Volt (+24V)
5	0Volt (-24V)
6	0Volt (-24V)
7	-24V
8	-24V

VU DRIVERS TO PSU BOARD - 6WAY METHODE

1	-17V
2	0Volt (-17V)
3	0Volt (-17V)
4	+17V
5	+24V
6	0Volt (+24V)

LOWER MOTHERLOOM LEFT/RIGHT - 40WAY IDC

1	Aux Bus 1
2	Aux Bus 2
3	Aux Bus 3
4	Aux Bus 4
5	Aux Bus 5
6	Aux Bus 6
7	Aux Bus 7
8	Aux Bus 8
9	Aux Bus 9
10	Aux Bus 10
11	Aux Bus 11
12	Aux Bus 12
13	Aux GND Cancel
14	GND To PSU Star Point
15	GND To PSU Star Point
16	Aux Pre/Post 1
17	Aux Pre/Post 2
18	Aux Pre/Post 3
19	Aux Pre/Post 4
20	Aux Pre/Post 5
21	Aux Pre/Post 6
22	Aux Pre/Post 7
23	Aux Pre/Post 8
24	Aux Pre/Post 9
25	Aux Pre/Post 10
26	Aux Pre/Post 11
27	Aux Pre/Post 12
28	+7V5 Battery Backed Supply
29	+7V5 Battery Backed Supply
30	+7V5
31	+7V5
32	-7V5
33	-7V5
34	-24V
35	+24V
36	+17V (CPS 750)
37	+17V (CPS 750)
38	-17V (CPS 750)
39	-17V (CPS 750)
40	+48V

GROUND RETURN TO PSU STAR POINT - 10WAY 0.156" MOLEX

1	0Volt To Assign And VCA Master Boards
2	0Volt To Output Motherloom
3	0Volt (LED -24V)
4	0Volt (LED +24V)
5	VCA Reference GND
6	0Volt To Right Hand Lower Motherloom
7	0Volt To Left Hand Lower Motherloom
8	0Volt (VU Driver 17V)
9	0Volt (VU Driver 24V)
10	0Volt To Phones Amplifiers

Master Board 2

MASTER INTERBOARD LINK - 50WAY IDC

1	+17V	
2	+17V	
3	-17V	
4	-17V	
5	Meter Reference	
6	+7V5 Battery Backed Supply	
7	+7V5	
8	-7V5	
9	+24V	
10	+24V	
11	-24V	
12	-24V	
13	Logic GND	
14	Logic GND	
15	NC	(SIP)
16	LIVE	
17	DIM Enable	
18	NC	(SOLOMUTE)
19	NC	(2TB To Mix Enable)
20	NC	(PFL/AFL Active)
21	Tristate Enable	(Active Low)
22	Clean Back Ground	
23	NC	(Aux 9 Global Pre/Post)
24	Aux 10 Global Pre/Post	
25	NC	(Master/Slave)
26	Flash	
27	NC	(Aux 9 Sum Amp Output)
28	NC	(Aux 9 Post Fade)
29	NC	(Aux 9 Output)
30	Aux 10 Sum Amp Output	
31	Aux 10 Post Fade	
32	Aux 10 Output	
33	NC	(Mix L Pre Fade)
34	NC	(Mix R Pre Fade)

35	NC	(Mix Mono Pre Fade)
36	NC	(Mix L Post Fade)
37	Mix R Post Fade	
38	NC	(Mix Mono Post Fade)
39	NC	(2TK-B L)
40	NC	(2TK-B R)
41	NC	(AFL/PFL L)
42	NC	(AFL/PFL R)
43	NC	(AFL L Meter)
44	NC	(AFL R Meter)
45	NC	(PFL Meter)
46	TB To Mix L/R	
47	TB To Mix Mono	
48	TB To Monitors	
49	TB To Aux	
50	Oscillator To Auxes	

MASTER BOARD 2 TO REAR CONN PCB - 16WAY IDC

1	MIC+	From Talkback
2	MIX-	Microphone
3	GND	
4	EXT I/P+	From External Intercom
5	EXT I/P-	System, eg; Blythephone
6	MON I/P-	From Monitor Desk
7	MON I/P+	
8	TB To Aux	
9	TB To Matrix	
10	TB To Group	
11	MON +	
12	MON -	
13	TB O/P+	
14	TB O/P -	
15	OSC O/P+	
16	OSC O/P -	

UPPER MOTHERLOOM - 40WAY IDC

1	SOLOCLEAR	(Active Low)
2	PFL Enable	
3	NC	(AFL Left +)
4	AFL Left -	
5	NC	(AFL Right +)
6	AFL Right -	
7	NC	(PFL +)
8	NC	(PFL -)
9	NC	(GND)
10	Mix Right +	
11	Mix Right -	
12	Mix Left +	
13	Mix Left -	
14	NC	(GND)
15	Mix Mono +	

16	Mix Mono -	
17	NC	(GND)
18	Group 8 +	
19	Group 8 -	
20	NC	(GND)
21	Group 7 +	
22	Group 7 -	
23	NC	(GND)
24	Group 6 +	
25	Group 6 -	
26	NC	(GND)
27	Group 5 +	
28	Group 5 -	
29	NC	(GND)
30	Group 4 +	
31	Group 4 -	
32	NC	(GND)
33	Group 3 +	
34	Group 3 -	
35	NC	(GND)
36	Group 2 +	
37	Group 2 -	
38	NC	(GND)
39	Group 1 +	
40	Group 1 -	

6 WAY FLEXI STRIP TO METER SUB PCB

1	-24V
2	Meter Reference
3	GND (Meter)
4	Meter LED Chain
5	Aux 10 Output
6	GND

MASTER INTERBOARD LINK - 50WAY IDC

1	+17V	
2	+17V	
3	-17V	
4	-17V	
5	Meter Reference	
6	+7V5 Battery Backed Supply	
7	+7V5	
8	-7V5	
9	+24V	
10	+24V	
11	-24V	
12	-24V	
13	Logic GND	
14	Logic GND	
15	SIP	
16	Live	
17	NC	(DIM Enable)
18	SOLOMUTE	
19	NC	(2TB To Mix Enable)
20	PFL/AFL Active	
21	Tristate Enable	(Active Low)
22	NC	(Clean Back Ground)
23	AUX 9 Global Pre/Post	
24	NC	(AUX 10 Global Pre/Post)
25	Master/Slave	(Master = High)
26	FLASH	
27	AUX 9 Sum Amp Output	
28	AUX 9 Post Fade	
29	AUX 9 Output	
30	NC	(AUX 10 Sum Amp Output)
31	NC	(AUX 10 Post Fade)
32	NC	(AUX 10 Output)
33	Mix L Pre Fade	
34	Mix R Pre Fade	
35	Mix Mono Pre Fade	
36	Mix L Post Fade	
37	Mix R Post Fade	
38	Mix Mono Post Fade	
39	NC	(2TK-B L)
40	NC	(2TK-B R)
41	AFL/PFL L	
42	AFL/PFL R	
43	AFL L Meter	
44	AFL R Meter	
45	PFL Meter	
46	NC	(TB To MIX L/R)
47	NC	(TB To MIX MONO)
48	NC	(TB To MONITORS)
49	NC	(TB To AUX)
50	Oscillator To Auxes	

LINK TO REAR CONN PCB - 16 WAY IDC

1	AFLEXT R-	From Remote Desk
2	AFLEXT R+	Via Rear Connector PCB
3	AFLEXT L-	
4	AFLEXT L+	
5	PFLEXT -	
6	PFLEXT +	
7	AFL L+ Remote	
8	AFL L- Remote	
9	AFL R+ Remote	
10	AFL R- Remote	
11	PFL+ Remote	
12	PFL- Remote	
13	ALT O/P L+	
14	ALT O/P L-	
15	ALT O/P R+	
16	ALT O/P R-	

UPPER MOTHERLOOM - 40WAY IDC

1	SOLOCLEAR	(Active Low)
2	PFL Enable	
3	AFL Left +	
4	AFL Left -	
5	AFL Right +	
6	AFL Right -	
7	PFL +	
8	PFL -	
9	NC	(GND)
10	NC	(MIX Right +)
11	NC	(MIX Right -)
12	NC	(MIX Left +)
13	NC	(MIX Left -)
14	NC	(GND)
15	NC	(MIX Mono +)
16	NC	(MIX Mono -)
17	NC	(GND)
18	NC	(Group 8 +)
19	NC	(Group 8 -)
20	NC	(GND)
21	NC	(Group 7 +)
22	NC	(Group 7 -)
23	NC	(GND)
24	NC	(Group 6 +)
25	NC	(Group 6 -)
26	NC	(GND)
27	NC	(Group 5 +)
28	NC	(Group 5 -)
29	NC	(GND)
30	NC	(Group 4 +)
31	NC	(Group 4 -)
32	NC	(GND)

33	NC	(Group 3 +)
34	NC	(Group 3 -)
35	NC	(GND)
36	NC	(Group 2 +)
37	NC	(Group 2 -)
38	NC	(GND)
39	NC	(Group 1 +)
40	NC	(Group 1 -)

6 WAY FLEXI STRIP TO METER SUB PCB

1	-24V
2	Meter Reference
3	GND (Meter)
4	Meter LED Chain
5	AUX 10 Output
6	GND

Audio Link EDAC Cable

90 WAY FEMALE EDAC CONNECTOR TO 26 3-WAY FEMALE XLRs.

OVERALL LENGTH: 5M

Each signal pair (hot + and cold -) is shielded individually, the shield/drain wire being connected as shown below. This gives 26 shielded pairs. each shielded pair is connected to a separate XLR. The XLR "tails" should be about 1m long.

EDAC	XLRs	SIGNAL
A	PIN 2	AUX 1 +
B	PIN 3	AUX 1 -
C	PIN 1	SHIELD (GND)
D	PIN 1	SHIELD (GND)
E	PIN 3	AUX 5 -
F	PIN 2	AUX 5 +
H	PIN 2	GROUP 1 +
J	PIN 3	GROUP 1 -
K	PIN 1	SHIELD (GND)
L	N/C	
M	PIN 1	SHIELD (GND)
N	PIN 3	GROUP 5 -
P	PIN 2	GROUP 5 +
R	PIN 2	AUX 2 +

S	PIN 3	AUX 2 -
T	PIN 1	SHIELD (GND)
U	PIN 1	SHIELD (GND)
V	PIN 3	AUX 6 -
W	PIN 2	AUX 6 +
X	PIN 2	GROUP 2 +
Y	PIN 3	GROUP 2 -
Z	PIN 1	SHIELD (GND)
AA	N/C	
AB	PIN 1	SHIELD (GND)
AC	PIN 3	GROUP 6 -
AD	PIN 2	GROUP 6 +
AE	PIN 2	AUX 3 +
AF	PIN 3	AUX 3 -
AH	PIN 1	SHIELD (GND)
AF	PIN 1	SHIELD (GND)
AK	PIN 3	AUX 7 -
AL	PIN 2	AUX 7 +
AM	PIN 2	GROUP 3 +
AN	PIN 3	GROUP 3 -
AP	PIN 1	SHIELD (GND)
AR	N/C	
AS	PIN 1	SHIELD (GND)
AT	PIN 3	GROUP 7 -
AU	PIN 2	GROUP 7 +
AV	PIN 2	AUX 4 +
AW	PIN 3	AUX 4 -
BA	PIN 1	SHIELD (GND)
AX	PIN 2	AUX B +
AY	PIN 3	AUX B -
BB	PIN 1	SHIELD (GND)
AZ	N/C	
BC	N/C	
BD	N/C	
BE	N/C	
BF	N/C	
BH	N/C	

BJ	PIN 2	GROUP 4 +
BK	PIN 3	GROUP 4 -
BL	PIN 1	SHIELD (GND)
BM	N/C	
BN	PIN 1	SHIELD (GND)
BP	PIN 3	GROUP 8 -
BR	PIN 2	GROUP 8 +
BS	PIN 2	PFL +
BT	PIN 3	PFL -
BU	PIN 1	SHIELD (GND)
BV	PIN 1	SHIELD (GND)
BW	PIN 3	AUX 9 -
BX	PIN 2	AUX 9 +
BY	PIN 2	AFL LEFT +
BZ	PIN 3	AFL LEFT -
CA	PIN 1	SHIELD (GND)
CB	N/C	
CC	PIN 1	SHIELD (GND)
CD	PIN 3	AUX 10 -
CE	PIN 2	AUX 10 +
CF	PIN 2	AFL RIGHT +
CH	PIN 3	AFL RIGHT -
CJ	PIN 1	SHIELD (GND)
CK	PIN 1	SHIELD (GND)
CL	PIN 3	AUX 11 -
CM	PIN 2	AUX 11 +
CN	PIN 2	MIX MONO +
CP	PIN 3	MIX MONO -
CR	PIN 1	SHIELD (GND)
CS	N/C	
CT	PIN 1	SHIELD (GND)
CU	PIN 3	AUX 12 -
CV	PIN 2	AUX 12 +
CW	PIN 2	MIX RIGHT +
CX	PIN 3	MIX RIGHT -
CY	PIN 1	SHIELD (GND)

CZ	PIN 1	SHIELD (GND)
DA	PIN 3	MIX LEFT -
DB	PIN 2	MIX LEFT +

Audio Link EDAC

OUTPUT MODULES 1 - 4 CN1

Pin No.	Signal	Notes
1	AUX 1 +	
2	AUX 1 -	
3	GND	Shield
4	GROUP 1 +	
5	GROUP 1 -	
6	GND	Shield
7	AUX 2 +	
8	AUX 2 -	
9	GND	Shield
10	GROUP 2 +	
11	GROUP 2 -	
12	GND	Shield
13	AUX 3 +	
14	AUX 3 -	
15	GND	Shield
16	GROUP 3 +	
17	GROUP 3 -	
18	GND	Shield
19	AUX 4 +	
20	AUX 4 -	
21	GND	Shield
22	GROUP 4 +	
23	GROUP 4 -	
24	N/C	
25	N/C	
26	N/C	

OUTPUT MODULES 5 - 8 CN2

Pin No.	Signal	Notes
1	AUX 5 +	
2	AUX 5 -	
3	GND	Shield
4	GROUP 5 +	
5	GROUP 5 -	
6	GND	Shield
7	AUX 6 +	
8	AUX 6 -	
9	GND	Shield

10	GROUP 6 +	
11	GROUP 6 -	
12	GND	Shield
13	AUX 7 +	
14	AUX 7 -	
15	GND	Shield
16	GROUP 7 +	
17	GROUP 7 -	
18	GND	Shield
19	AUX 8 +	
20	AUX 8 -	
21	GND	Shield
22	GROUP 8 +	
23	GROUP 8 -	
24	N/C	
25	N/C	
26	N/C	

AUX AND MIX CN4

Pin No.	Signal	Notes
1	GROUND	Shield
2	AUX 9 S/C IN +	
3	AUX 9 S/C IN -	
4	AUX 10 S/C IN +	
5	AUX 10 S/C IN -	
6	AUX 11 S/C IN +	
7	AUX 11 S/C IN -	
8	AUX 12 S/C IN +	
9	AUX 12 S/C IN -	
10	GROUND	Shield
11	MIX LEFT S/C IN +	
12	MIX LEFT S/C IN -	
13	MIX RIGHT S/C IN +	
14	MIX RIGHT S/C IN -	
15	MIX MONO S/C IN +	
16	MIX MONO S/C IN -	

PFL AND AFL CN3

Pin No.	Signal	Notes
1	PFL S/C IN -	
2	PFL S/C IN +	
3	N/C	Shield (Ground On Rear Con)
4	N/C	Shield (Ground On Rear Con)
5	AFL LEFT S/C IN -	
6	AFL LEFT S/C IN +	
7	N/C	Shield (Ground On Rear Con)
8	N/C	SHIELD (GROUND ON REAR CON)
9	AFL RIGHT S/C IN -	
10	AFL RIGHT S/C IN +	

GROUND SPADE CN6

AUDIO LINK 90-WAY EDAC CN5

A	AUX 1 +
B	AUX 1 -
C	GND
D	GND
E	AUX 5 -
F	AUX 5 +
H	GROUP 1 +
J	GROUP 1 -
K	GND
L	N/C
M	GND
N	GROUP 5 -
P	GROUP 5 +
R	AUX 2 +
S	AUX 2 -
T	GND
U	GND
V	AUX 6 -
W	AUX 6 +
X	GROUP 2 +
Y	GROUP 2 -
Z	GND
AA	N/C
AB	GND
AC	GROUP 6 -
AD	GROUP 6 +
AE	AUX 3 +
AF	AUX 3 -
AH	GND
AJ	GND
AK	AUX 7 -
AL	AUX 7 +
AM	GROUP 3 +
AN	GROUP 3 -
AP	GND
AR	N/C
AS	GND
AT	GROUP 7 -
AU	GROUP 7 +
AV	AUX 4 +
AW	AUX 4 -
AX	AUX 8 +
AY	AUX 8 -
AZ	GND
BA	GND
BB	GND
BC	GND
BD	GND

BE	GND
BF	GND
BH	GND
BJ	GROUP 4 +
BK	GROUP 4 -
BL	GND
BM	N/C
BN	GND
BP	GROUP 8 -
BR	GROUP 8 +
BS	PFL +
BT	PFL -
BU	GND
BV	GND
BW	AUX 9 -
BX	AUX 9 +
BY	AUX 9 -
BX	AUX 9 +
BY	AFL LEFT +
BZ	AFL LEFT -
CA	GND
CB	N/C
CC	GND
CD	AUX 10 -
CE	AUX 10 +
CF	AFL RIGHT +
CH	AFL RIGHT -
CJ	GND
CK	GND
CL	AUX 11 -
CM	AUX 11 +
CN	MIX MONO +
CP	MIX MONO -
CR	GND
CS	N/C
CT	GND
CU	AUX 12 -
CV	AUX 12 +
CW	MIX RIGHT +
CX	MIX RIGHT -
CY	GND
CZ	GND
DA	MIX LEFT -
DB	MIX LEFT +

Master PCB No 3

INTER-BOARD LINK CN6

Pin No.	Signal	Notes
1	N/C	(+17V To Nos 1 & 2)
2	N/C	(+17V To Nos 1 & 2)
3	N/C	(-17V To Nos 1 & 2)
4	N/C	(-17V To Nos 1 & 2)
5	Meter Reference	-16V (From NO 1)
6	N/C	(+7.5V BAT To Nos 1 & 2)
7	N/C	(+7.5V To Nos 1 & 2)
8	N/C	(-7.5V To Nos 1 & 2)
9	N/C	(+24V To Nos 1 & 2)
10	N/C	(+24V To Nos 1 & 2)
11	N/C	(-24V To Nos 1 & 2)
12	N/C	(-24V To Nos 1 & 2)
13	N/C	(LGND To Nos 1 & 2)
14	N/	(LGND To Nos 1 & 2)
15	N/C	(SIP)
17	N/C	(LIVE)
16	N/C	(DIM Enable)
18	N/C	(SOLO Mute)
19	2TB To MIX Enable	
20	N/C	(PFL/AFL Active)
21	Tristate Enable	(Active Low)
22	Clean Back Ground	
23	AUX 9 Global Pre	
24	AUX 10 Global Pre	
25	N/C	(Master/Slave)
26	N/C	(Flash)
27	AUX 9 Sum Amp OP	
28	AUX 9 Post Fade	
29	AUX 9 O/P	Unbalanced, -2dBu
30	AUX 10 Sum Amp OP	
31	AUX 10 Post Fade	
32	AUX 10 O/P	Unbalanced, -2dBu
33	MIX L Pre Fade	
34	MIX R Pre Fade	
35	MIX Mono Pre Fade	
36	MIX L Post Fade	
37	MIX R Post Fade	
38	MIX Mono Post Fade	
39	2TK-B L	
40	2TK-B R	
41	N/C	(AFL/PFL L)
42	N/C	(AFL/PFL R)
43	N/C	(AFL L Meter)
44	N/C	(AFL R Meter)
45	N/C	(PFL Meter)
46	TB To MIX L/R	
47	TB To MIX Mono	
48	N/C	(TB To Monitors)

49	TB TO AUX	
50	N/C	(OSC To Auxes)

TO REAR CONNECTOR PANEL CN2

Pin No.	Signal	Notes
1	MIX LEFT INS SEND +	
2	MIX LEFT INS SEND -	
3	MIX LEFT INS RETURN +	
4	MIX LEFT INS RETURN -	
5	MIX LEFT O/P +	
6	MIX LEFT O/P -	
7	N/C	Ground On Rear Con
8	MIX RIGHT INS SEND +	
9	MIX RIGHT INS SEND -	
10	MIX RIGHT INS RETURN +	
11	MIX RIGHT INS RETURN -	
12	MIX RIGHT O/P +	
13	MIX RIGHT O/P -	
14	N/C	Ground On Rear Con
15	AUX 9 O/P +	
17	AUX 9 O/P -	
16	N/C	Ground On Rear Con
18	MIX MONO INS SEND +	
19	MIX MONO INS SEND -	
20	MIX MONO INS RETURN +	
21	MIX MONO INS RETURN -	
22	MIX MONO O/P +	
23	MIX MONO O/P -	
24	N/C	Ground On Rear Con
25	AUX 10 O/P +	
26	AUX 10 O/P -	
27	AUX 11 O/P +	
28	AUX 11 O/P -	
29	N/C	Ground On Rear Con
30	MIX MONO POST FADE	TO MATRIX
31	MIX LEFT POST FADE	TO MATRIX
32	MIX RIGHT POST FADE	TO MATRIX
33	MIX LEFT POST FADE	TO VU METER
34	MIX RIGHT POST FADE	TO VU METER
35	N/C	Ground On Rear Con
36	AUX 9 S/C IN +	
37	AUX 9 S/C IN -	
38	AUX 10 S/C IN +	
39	AUX 10 S/C IN -	
40	AUX 11 S/C IN +	
41	AUX 11 S/C IN -	
42	AUX 12 S/C IN +	
43	AUX 12 S/C IN -	
44	N/C	Ground On Rear Con
45	MIX LEFT S/C IN +	
46	MIX LEFT S/C IN -	
47	MIX RIGHT S/C IN +	

48	MIX RIGHT S/C IN -
49	MIX MONO S/C IN +
50	MIX MONO S/C IN -

LINK AUX METER SUB-PCB
CN3 CN1 - SUB PCB (SC2997)

Pin No.	Signal	Notes
1	-24V	
2	Meter Reference	-16V
3	Meter Ground	
4	LED Chain Top	
5	Signal	
6	Audio Ground	

LOWER MOTHERLOOM CN5

Pin No.	Signal	Notes
1	AUX 1 Bus	
2	AUX 2 Bus	
3	AUX 3 Bus	
4	AUX 4 Bus	
5	AUX 5 Bus	
6	AUX 6 Bus	
7	AUX 7 Bus	
8	AUX 8 Bus	
9	AUX 9 Bus	
10	AUX 10 Bus	
11	AUX 11 Bus	
12	AUX 12 Bus	
13	AUX Ground Cancel	
14	Logic Ground	
15	Logic Ground	
16	AUX 1 Global Pre/Post	
17	AUX 2 Global Pre/Post	
18	AUX 3 Global Pre/Post	
19	AUX 4 Global Pre/Post	
20	AUX 5 Global Pre/Post	
21	AUX 6 Global Pre/Post	
22	AUX 7 Global Pre/Post	
23	AUX 8 Global Pre/Post	
24	AUX 9 Global Pre/Post	
25	AUX 10 Global Pre/Post	
26	AUX 11 Global Pre/Post	
27	AUX 12 Global Pre/Post	
28	+7.5V (Battery)	
29	+7.5V (Battery)	
30	+7.5V	
31	+7.5V	
32	-7.5V	
33	-7.5V	

34	-24V
35	+24V
36	+17V
37	+17V
38	-17V
39	-17V
40	+48V

UPPER MOTHERLOOM CN1

Pin No.	Signal	Notes
1	SOLO Clear	Active = -7.5V
2	PFL Enable	
3	N/C	
4	AFL Left -	
5	N/C	
6	AFL Right -	
7	N/C	
8	N/C	
9	Audio Ground	Shield
10	MIX Right +	
11	MIX Right -	
12	MIX Left +	
13	MIX Left -	
14	Audio Ground	Shield
15	MIX Mono +	
16	MIX Mono -	
17	Audio Ground	Shield
18	N/C	
19	N/C	
20	Audio Ground	Shield
21	N/C	
22	N/C	
23	Audio Ground	Shield
24	N/C	
25	N/C	
26	Audio Ground	Shield
27	N/C	
28	N/C	
29	Audio Ground	Shield
30	N/C	
31	N/C	
32	Audio Ground	Shield
33	N/C	
34	N/C	
35	Audio Ground	Shield
36	N/C	
37	N/C	
38	Audio Ground	Shield
39	N/C	
40	N/C	

LOWER INTER-BOARD LINK
CN4 - RH PCB, CN3 - LH PCB

Pin No.	Signal	Notes
1	Audio Ground	
2	Audio Ground	
3	Audio Ground	
4	Audio Ground	
5	Audio Ground	
6	Audio Ground	
7	+24V	
8	-24V	
9	+17V	
10	+17V	
11	-17V	
12	-17V	
13	Audio Ground	
14	Audio Ground	
15	+17V (Auxiliary)	
16	-17V (Auxiliary)	
17	Audio Ground	
18	Meter Ref (-16V)	
19	Meter Ground	
20	Audio Ground	

UPPER INTER-BOARD LINK
CN2 - RH PCB CN2 - LH PCB

Pin No.	Signal	Notes
1	Aux Out +	
2	Aux Out -	
3	Aux Post Fade	
4	Audio Ground	
5	Audio Ground	
6	Audio Ground	
7	FXR Peak	-17v = LED On
8	Audio Ground	
9	FXR Pre-fade Right	
10	Audio Ground	
11	FXR Pre-fade Left	
12	Audio Ground	
13	FXR Post-fade Right	
14	Audio Ground	
15	FXR Post-fade Left	
16	AUdio Ground	
17	Aux B (upper) Source	Out Of Phase
18	Audio Ground	
19	Aux A (lower) Source	Out Of Phase
20	Audio Ground	

TO REAR CONNECTOR PANEL CN1 - RH PCB

Pin No.	Signal	Notes
1	TB To Groups	
2	TB To Auxes	
3	Group Feed To Matrix	
4	FXR Meter Output Left	
5	FXR Meter Output Right	
6	FXR Input Right +	
7	FXR Input Right -	
8	FXR Input Left +	
9	FXR Input Left -	
10	N/C	GROUNDED ON REAR CON
11	GROUP OUT -	
12	GROUP OUT +	
13	N/C	GROUNDED ON REAR CON
14	GROUP INSERT RETURN -	
15	GROUP INSERT RETURN +	
16	GROUP INSERT SEND -	
17	GROUP INSERT SEND +	
18	N/C	GROUNDED ON REAR CON
19	AUX OUT -	
20	AUX OUT +	
21	N/C	GROUNDED ON REAR CON
22	GROUP SUB IN -	
23	GROUP SUB IN +	
24	N/C	GROUNDED ON REAR CON
25	AUX SUB IN -	
26	AUX SUB IN +	

LINK TO SUB-PCB CN8 - RH PCB CN4 - LH PCB

PIN NO.	SIGNAL	NOTES
1	AUDIO GROUND	
2	GROUP TO MATRIX	
3	GROUP POST FADE	
4	GROUP TALKBACK	
5	TB TO GROUPS	
6	AUDIO GROUND	
7	SUB PCB LED CHAIN TOP	
8	SUB PCB LED CHAIN BOTTOM	

FXR PFL SWITCH CN6 - RH PCB

PIN NO.	SIGNAL	NOTES
1	ILLUMINATION +VE	
2	ILLUMINATION -VE	
3	SWITCH CONTACT (N/O)	
4	SWITCH CONTACT (N/O)	

FXR CUT SWITCH CN7 - RH PCB

Pin No.	Signal	Notes
1	Illumination +VE	
2	Illumination -VE	
3	Switch Contact (N/O)	
4	Switch Contact (N/O)	

LOWER MOTHERLOOM CN5 - RH PCB

Pin No.	Signal	Notes
1	Mute Bus 1	
2	Mute Bus 2	
3	Mute Bus 3	
4	Mute Bus 4	
5	Mute Bus 5	
6	Mute Bus 6	
7	Mute Bus 7	
8	Mute Bus 8	
9	Mute Assign 1	
10	Mute Assign 2	
11	Mute Assign 3	
12	Mute Assign 4	
13	Mute Assign 5	
14	Mute Assign 6	
15	Mute Assign 7	
16	Mute Assign 8	
17	Mute Write Enable	
18	AUX 1	RS = 10K, Out Of Phase
19	AUX 2	RS = 10K, Out Of Phase
20	AUX 3	RS = 10K, Out Of Phase
21	AUX 4	RS = 10K, Out Of Phase
22	AUX 5	RS = 10K, Out Of Phase
23	AUX 6	RS = 10K, Out Of Phase
24	AUX 7	RS = 10K, Out Of Phase
25	AUX 8	RS = 10K, Out Of Phase
26	Aux Ground Cancel	
27	Logic Ground	
28	Logic Ground	
29	Logic Ground	
30	Aux Global Pre/Post 1	
31	Aux Global Pre/Post 2	
32	Aux Global Pre/Post 3	
33	Aux Global Pre/Post 4	
34	Aux Global Pre/Post 5	
35	Aux Global Pre/Post 6	
36	Aux Global Pre/Post 7	
37	Aux Global Pre/Post 8	
38	+7.5V (Battery)	-2V When Battery Backed
39	+7.5V	
40	-7.5V	
41	-24V	
42	-24V	

43	+24V	
44	+24V	
45	-17V	
46	-17V	
47	+17V	
48	+17V	
49	Tri-State Enable	High When Battery Backed
50	Flash Bus	2HZ, 2V P-P Around -7.5V

UPPER MOTHERLOOM CN3 - RH PCB

Pin No.	Signal	Notes
1	Solo Clear	Active = -7.5V
2	PFL/AFL Enable	
3	N/C	AFL R + On Input
4	AFL R -	
5	N/C	AFL L + On Input
6	AFL L -	
7	PFL +	
8	PFL -	
9	N/C	Shield (Ground On Master)
10	MIX RIGHT +	
11	MIX RIGHT -	
12	MIX LEFT +	
13	MIX LEFT -	
14	N/C	Shield (Ground On Master)
15	MIX MONO +	
16	MIX MONO -	
17	N/C	Shield (ground On Master)
18	GROUP 8 +	
19	GROUP 8 -	
20	N/C	Shield (ground On Master)
21	GROUP 7 +	
22	GROUP 7 -	
23	N/C	Shield (Ground On Master)
24	GROUP 6 +	
25	GROUP 6 -	
26	N/C	Shield (Ground On Master)
27	GROUP 5 +	
28	GROUP 5 -	
29	N/C	Shield (Ground On Master)
30	GROUP 4 +	
31	GROUP 4 -	
32	N/C	Shield (Ground On Master)
33	GROUP 3 +	
34	GROUP 3 -	
35	N/C	Shield (Ground On Master)
36	GROUP 2+	

37	GROUP 2 -	
38	N/C	Shield (Ground On Master)
39	GROUP 1 +	
40	GROUP 1 -	

UPPER MOTHERLOOM CN1 - LH PCB

Pin No.	Signal	Notes
1	GROUP 1 -	
2	GROUP 1 +	
3	N/C	Shield (Ground On Master)
4	GROUP 2 -	
5	GROUP 2 +	
6	N/C	Shield (Ground On Master)
7	GROUP 3 -	
8	GROUP 3 +	
9	N/C	Shield (Ground On Master)
10	GROUP 4 -	
11	GROUP 4 +	
12	N/C	Shield (Ground On Master)
13	GROUP 5 -	
14	GROUP 5 +	
15	N/C	Shield (Ground On Master)
16	GROUP 6 -	
17	GROUP 6 +	
18	N/C	Shield (GROUND ON MASTER)
19	GROUP 7 -	
20	GROUP 7 +	
21	N/C	Shield (Ground On Master)
22	GROUP 8 -	
23	GROUP 8 +	
24	N/C	Shield (Ground On Master)
25	MIX MONO -	
26	MIX MONO +	
27	N/C	Shield (Ground On Master)
28	MIX LEFT -	
29	MIX LEFT +	
30	MIX RIGHT -	
31	MIX RIGHT +	
32	N/C	Shield (Ground On Master)
33	N/C	
34	N/C	
35	N/C	
36	N/C	
37	N/C	
38	N/C	
39	N/C	
40	N/C	

Output Rear Con

TO OUTPUT MODULE

CN1 - GROUP 1	CN5 - GROUP 5
CN2 - GROUP 2	CN6 - GROUP 6
CN3 - GROUP 3	CN7 - GROUP 7
CN4 - GROUP 4	CN8 - GROUP 8

Pin No.	Signal	Notes
11	TB To Auxes	
2	TB To Groups	
3	Group Feed To Matrix	
4	FXR Meter Output Left	
5	FXR Meter Output Right	
6	FXR Input Right +	
7	FXR Input Right -	
8	FXR Input Left +	
9	FXR Input Left -	
10	Ground	Shield
11	Group Out -	
12	Group Out +	
13	Ground	Shield
14	Group Insert Return -	
15	Group Insert Return +	
16	Group Insert Send -	
17	Group Insert Send +	
18	Ground	Shield
19	Aux Out -	
20	Aux Out +	
21	Ground	Shield
22	Group Sub In -	
23	Group Sub In +	
24	Ground	Shield
25	Aux Sub In -	
26	Aux Sub In +	

MATRIX LINK CN10

Pin No.	Signal	Notes
1	N/C	
2	N/C	Ground On Master Rear Con
3	N/C	
4	N/C	Ground On Master Rear Con
5	N/C	
6	N/C	Ground On Master Rear Con
7	Group 1	
8	N/C	Ground On Master Rear Con
9	Group 2	
10	N/C	Ground On Master Rear Con
11	Group 3	
12	N/C	Ground On Master Rear Con
13	Group 4	
14	N/C	Ground On Master Rear Con
15	Group 5	

16	N/C	Ground On Master Rear Con
17	Group 6	
18	N/C	Ground On Master Rear Con
19	Group 7	
20	N/C	Ground On Master Rear Con
21	Group 8	
22	N/C	Ground On Master Rear Con
23	N/C	
24	N/C	Ground On Master Rear Con
25	TB To Groups	
26	TB To Auxes	

METER WIREFORM

CN9 (OUTPUTS 1-40)
CN11 (OUTPUTS 5-8)

Pin No.	Signal	Notes
1	Meter 1 Left	
2	Meter 1 Right	
3	Meter 2 Left	
4	Meter 2 Right	
5	+12V For Littlelite	Not Used On 1-4
6	Ground For Littlelite	Not Used On 1-4
7	Meter 3 Left	
8	Meter 3 Right	
9	Meter 4 Left	
10	Meter 4 Right	

LAMP (LITTLELITE) WIREFORM CN12

Pin No.	Signal	Notes
1	+12V	
2	Ground	

SIDECAR INTERFACE LINK CN13

Pin No.	Signal	Notes
1	AUX 1 +	
2	AUX 1 -	
3	N/C	Shield
4	Group 1 +	
5	Group 1 -	
6	N/C	Shield
7	AUX 2 +	
8	AUX 2 -	
9	N/C	Shield
10	Group 2 +	
11	Group 2 -	
12	N/C	Shield
13	AUX 3 +	
14	AUX 3 -	
15	N/C	Shield

16	Group 3 +	
17	Group 3 -	
18	N/C	Shield
19	AUX 4 +	
20	AUX 4 -	
21	N/C	Shield
22	Group 4 +	
23	Group 4 -	
24	N/C	
25	N/C	
26	N/C	

SIDECAR INTERFACE LINK CN14

Pin No.	Signal	Notes
1	AUX 5 +	
2	AUX 5 -	
3	N/C	Shield
4	Group 5 +	
5	Group 5 -	
6	N/C	Shield
7	AUX 6 +	
8	AUX 6 -	
9	N/C	Shield
10	Group 6 +	
11	Group 6 -	
12	N/C	Shield
13	AUX 7 +	
14	AUX 7 -	
15	N/C	Shield
16	Group 7 +	
17	Group 7 -	
18	N/C	Shield
19	AUX 8 +	
20	AUX 8 -	
21	N/C	Shield
22	Group 8 +	
23	Group 8 -	
24	N/C	
25	N/C	
26	N/C	

OUTPUT TRANSFORMER/PATCHBAY WIRING

CN16 - GROUP 1	CN17 - GROUP 2
CN18 - GROUP 3	CN19 - GROUP 4
CN20 - GROUP 5	CN21 - GROUP 6
CN22 - GROUP 7	CN23 - GROUP 8
CN24 - AUX 1	CN25 - AUX 2
CN26 - AUX 3	CN27 - AUX 4
CN28 - AUX 5	CN29 - AUX 6
CN30 - AUX 7	CN31 - AUX 8

Pin No.	Signal	Notes
1	Signal Cold (Tx Pri. -)	From Module
2	Signal Cold (Tx Sec. -)	To XLR Pin 3
3	Signal Hot (Tx Pri. +)	From Module
4	Signal Hot (Tx Sec. +)	To XLR Pin 2
5	Ground (Tx Shield)	

INSERT PATCHBAY WIRING

CN32 - GROUP 1	CN33 - GROUP 2
CN34 - GROUP 3	CN35 - GROUP 4
CN36 - GROUP 5	CN37 - GROUP 6
CN38 - GROUP 7	CN39 - GROUP 8

Pin No.	Signal	Notes
1	Send Hot	
2	Return Hot	
3	Send Cold	
4	Return Cold	

INPUT/OUTPUT PATCHBAY WIRING

CN40 - FXR 1	CN41 - FXR 2
CN42 - FXR 3	CN43 - FXR 4
CN44 - FXR 5	CN45 - FXR 6
CN46 - FXR 7	CN47 - FXR 8

Pin No.	Signal	Notes
1	Right Hot	
2	Right Cold	
3	Left Hot	
4	Left Cold	

INPUT TRANSFORMER/PATCHBAY WIRING

Pin No.	Signal	Notes
1	Signal Cold (Tx SEC. -)	To Module
2	Signal Cold (Tx PRI. -)	From XLR Pin 3
3	Signal Hot (Tx SEC. +)	To Module
4	Signal Hot (Tx PRI. +)	From XLR Pin 2
5	Ground (Tx Shield)	

11. Spare Parts

I/P LH PCB	RD2986	11.3
I/P RH PCB	RD2987	11.10
FDR PCB	RA2988	11.19
GRP FX LH PCB	RC2989	11.21
GRP FX RH PCB	RD2990	11.24
PSU I/F PCB	RD2992	11.34
I/P RR CON PCB	RB2993	11.35
O/P RR CON PCB	RA2994	11.35
VCA GRP MAST PCB	RD2995	11.36
Master RR CON PCB	RB2996	11.37
5-Segment MTR PCB	RB2997	11.37
Meter PCB	RD2998	11.38
Meter PCB/A	RD2998a	11.42
VCA Mute Assign PCB	RC2999	11.48
Mute master PCB 4	RB3000	11.50
Master PCB 1	RC3001	11.52
Master PCB 2	RC3002	11.61
Master PCB 3	RB3003	11.69
Master PCB 4	RD3004	11.80
Audio Link PCB	RA3051	11.91
Analogue I/F PCB	RB3052	11.91
Digital INTFC PCB	RB3053	11.93
FDR INTFC PCB	RC3054	11.95
Matrix SUB-PCB	RA3072	11.94
Matrix RH PCB	RB3073	11.95
Matrix FDR PCB	RC3074	11.98
Matrix RR CON PCB	RA3075	11.100
Ster I/P LH PCB	RC3140	11.101
Ster I/P RH PCB	RC3141	11.105
Ster I/P RR CON PCB	RA3142	11.115
CPS950 DIST PSU PCB	RB3231	11.114
Input Module Assy	RS5089	11.116
Output Module Assy	RS5090	11.118
Master Module Assy	RS5091	11.119
Input Fader Assy	RS5092	11.121
VCA Master Assy	RS5093	11.121

VCA Fader Assy	RS5094	11.122
Stereo Input Assy	RS5095	11.122
Matrix Module Assy	RS5096	11.123
Stereo Fader Assy	RS5097	11.124
Matrix Fader Assy	RS5098	11.124
40 Channel Console Assy	RW1324	11.125
40 Channel Console (tested)	RY1324	11.126

I/P LH PCB

I/P LH PCB RD2986

IDENT	DESCRIPTION	PART No.
C1	POLY-CAP 5MM 5% 63V 100N	CC0252
C2	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	POLY-CAP 5MM 5% 100V 2N2	CC0240
C4	POLY-CAP 5MM 5% 100V 1N	CC0238
C5	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C6	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C7	POLY-CAP 5MM 5% 63V 220N	CC0255
C8	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C9	SIEMANS IMFD.J. 100V 10MM	CC0268
C10	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C11	VERT ELEC 220 MF 25V	CE0422
C12	VERT ELEC 220 MF 25V	CE0422
C13	VERT ELEC 220 MF 25V	CE0422
C14	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C15	VERT ELEC 220 MF 25V	CE0422
C16	VERT ELEC 220 MF 25V	CE0422
C18	POLY-CAP 5MM 5% 63V 100N	CC0252
C19	POLY-CAP 5MM 5% 63V 100N	CC0252
C20	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C22	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C23	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C24	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C25	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C26	POLY-CAP 5MM 5% 63V 100N	CC0252
C27	POLY-CAP 5MM 5% 63V 100N	CC0252
C28	POLY-CAP 5MM 5% 63V 100N	CC0252
C29	POLY-CAP 5MM 5% 63V 100N	CC0252
C33	POLY-CAP 5MM 5% 63V 100N	CC0252
C34	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C35	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C38	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C39	POLY-CAP 5MM 5% 63V 100N	CC0252
C40	POLY-CAP 5MM 5% 63V 100N	CC0252
C41	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C42	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C43	POLY-CAP 5MM 5% 63V 100N	CC0252
C46	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C47	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C48	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C51	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C52	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C53	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C54	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C55	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C57	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C58	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C59	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C60	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C61	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004

C62	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C63	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C64	POLY-CAP 5MM 5% 100V 47N	CC0248
C65	POLY-CAP 5MM 5% 100V 47N	CC0248
C66	POLY-CAP 5MM 5% 100V 47N	CC0248
C67	POLY-CAP 5MM 5% 100V 47N	CC0248
C68	POLY-CAP 5MM 5% 100V 47N	CC0248
C69	POLY-CAP 5MM 5% 100V 47N	CC0248
C70	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C71	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C72	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C73	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C74	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C75	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C76	POLY-CAP 5MM 5% 63V 100N	CC0252
C77	POLY-CAP 5MM 5% 63V 100N	CC0252
C78	VERT ELEC 220 MF 25V	CE0422
C79	POLY-CAP 5MM 5% 63V 100N	CC0252
C80	VERT ELEC 220 MF 25V	CE0422
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 220 MF 25V	CE0422
C83	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C84	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C85	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C86	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C87	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C88	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C89	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C90	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C91	0.6MM TCW LINK BANDOLIERED	LE0406
C300	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN3	T&B CN IDC 20WY LW PRFL VRT ML	FA0086
CN6	SPHYR 20 PIN 3"BRD WFM(MI3297)	RV2316
CN7	SPHYR 26 PIN 3"BRD WFM(MI3296)	RV2317
CN8	SPHYR 26 PIN 3"BRD WFM(MI3296)	RV2317
D1	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC TL072CP	BE0413
IC5	8WY DIL IC SOCKET	FF0718
IC5	SGL OP AMP IC TL071CP	BE0404
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC TL072CP	BE0413
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC TL072CP	BE0413
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	14WY DIL IC SOCKET	FF0719
IC9	4069 HEX INVERTER	BF0515
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413

IC11	8WY DIL IC SOCKET	FF0718
IC11	SGL OP AMP IC TL071CP	BE0404
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC TL072CP	BE0413
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC NE5532	BE0428
IC15	8WY SIL SKT (MADE FROM FF0538)	FF0620
IC15	DBX 1252HA2 VCA	BE0453
IC16	8WY DIL IC SOCKET	FF0718
IC16	DUAL OP AMP IC TL072CP	BE0413
IC17	8WY DIL IC SOCKET	FF0718
IC17	DUAL OP AMP IC TL072CP	BE0413
IC18	8WY DIL IC SOCKET	FF0718
IC18	DUAL OP AMP IC TL072CP	BE0413
IC19	16WY DIL IC SOCKET	FF0720
IC19	4053 3P C/D ANALOGUE SW	BF0573
IC20	16WY DIL IC SOCKET	FF0720
IC20	4053 3P C/D ANALOGUE SW	BF0573
IC21	16WY DIL IC SOCKET	FF0720
IC21	4053 3P C/D ANALOGUE SW	BF0573
IC22	16WY DIL IC SOCKET	FF0720
IC22	4053 3P C/D ANALOGUE SW	BF0573
IC23	16WY DIL IC SOCKET	FF0720
IC23	4053 3P C/D ANALOGUE SW	BF0573
IC24	16WY DIL IC SOCKET	FF0720
IC24	4053 3P C/D ANALOGUE SW	BF0573
IC25	14WY DIL IC SOCKET	FF0719
IC25	4069 HEX INVERTER	BF0515
IC26	14WY DIL IC SOCKET	FF0719
IC26	4069 HEX INVERTER	BF0515
IC27	16WY DIL IC SOCKET	FF0720
IC27	40109 QUAD VLTG LVL SHIFTER	BF0520
IC28	16WY DIL IC SOCKET	FF0720
IC28	40109 QUAD VLTG LVL SHIFTER	BF0520
IC29	8WY DIL IC SOCKET	FF0718
IC29	SGL OP AMP IC TL071CP	BE0404
IC35	8WY DIL IC SOCKET	FF0718
IC35	SGL OP AMP IC TL071CP	BE0404
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD3	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD4	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD5	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD6	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD8	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD9	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD10	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD11	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD12	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD13	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD14	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD15	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058

MD5772	9MM POT BRKT W/PIPS	PZ2290
PR1	CERMET TRIMMER HORIZ 9OH 22K	DE0403
R1	MF 0.25W RES 2% 2K7	AD0459
R2	MF 0.25W RES 2% 2K7	AD0459
R3	MF 0.25W RES 2% 4K7	AD0465
R4	MF 0.25W RES 2% 4K7	AD0465
R5	MF 0.25W RES 2% 6K8	AD0469
R6	MF 0.25W RES 2% 6K8	AD0469
R7	MF 0.25W RES 2% 4K7	AD0465
R8	MF 0.25W RES 2% 4K7	AD0465
R9	MF 0.25W RES 2% 68K	AD0493
R10	MF 0.25W RES 2% 2K2	AD0457
R11	MF 0.25W RES 2% 150K	AD0501
R12	MF 0.25W RES 2% 150K	AD0501
R13	MF 0.25W RES 2% 150K	AD0501
R14	MF 0.25W RES 2% 75K	AD0494
R15	MF 0.25W RES 2% 150K	AD0501
R16	MF 0.25W RES 2% 82K	AD0495
R17	MF 0.25W RES 2% 220K	AD0505
R18	MF 0.25W RES 2% 1K	AD0449
R19	MF 0.25W RES 2% 1M	AD0521
R20	MF 0.25W RES 2% 2K2	AD0457
R21	MF 0.25W RES 2% 47K	AD0489
R22	MF 0.25W RES 2% 100K	AD0497
R23	MF 0.25W RES 2% 10K	AD0473
R24	MF 0.25W RES 2% 15K	AD0477
R25	MF 0.25W RES 2% 1K	AD0449
R26	MF 0.25W RES 2% 10R	AD0401
R27	MF 0.25W RES 2% 2K	AD0456
R28	MF 0.25W RES 2% 75K	AD0494
R29	MF 0.25W RES 2% 75K	AD0494
R30	MF 0.25W RES 2% 39K	AD0487
R31	MF 0.25W RES 2% 39K	AD0487
R32	MF 0.25W RES 2% 100K	AD0497
R33	MF 0.25W RES 2% 100K	AD0497
R34	MF 0.25W RES 2% 100K	AD0497
R35	RES MF 10R 2% 0.25W RADIAL	AV0001
R36	MF 0.25W RES 2% 100K	AD0497
R37	RES MF 10R 2% 0.25W RADIAL	AV0001
R38	RES MF 10R 2% 0.25W RADIAL	AV0001
R39	RES MF 10R 2% 0.25W RADIAL	AV0001
R40	RES MF 10R 2% 0.25W RADIAL	AV0001
R41	RES MF 10R 2% 0.25W RADIAL	AV0001
R42	RES MF 10R 2% 0.25W RADIAL	AV0001
R43	RES MF 10R 2% 0.25W RADIAL	AV0001
R44	RES MF 10R 2% 0.25W RADIAL	AV0001
R45	MF 0.25W RES 2% 47K	AD0489
R46	MF 0.25W RES 2% 47K	AD0489
R50	MF 0.25W RES 2% 10K	AD0473
R51	MF 0.25W RES 2% 10K	AD0473
R52	MF 0.25W RES 2% 10K	AD0473
R53	MF 0.25W RES 2% 2K2	AD0457
R54	MF 0.25W RES 2% 680K	AD0517
R55	MF 0.25W RES 2% 100K	AD0497
R56	MF 0.25W RES 2% 100K	AD0497
R57	MF 0.25W RES 2% 10K	AD0473
R58	MF 0.25W RES 2% 100K	AD0497
R59	MF 0.25W RES 2% 100K	AD0497

R60	MF 0.25W RES 2% 2K2	AD0457
R61	MF 0.25W RES 2% 680K	AD0517
R62	MF 0.25W RES 2% 10K	AD0473
R63	MF 0.25W RES 2% 100K	AD0497
R64	MF 0.25W RES 2% 100K	AD0497
R65	MF 0.25W RES 2% 2K2	AD0457
R66	MF 0.25W RES 2% 2K2	AD0457
R67	MF 0.25W RES 2% 4K7	AD0465
R68	MF 0.25W RES 2% 4K7	AD0465
R69	MF 0.25W RES 2% 4K7	AD0465
R70	MF 0.25W RES 2% 2K2	AD0457
R71	MF 0.25W RES 2% 2K2	AD0457
R72	MF 0.25W RES 2% 2K2	AD0457
R73	MF 0.25W RES 2% 4K7	AD0465
R74	MF 0.25W RES 2% 2K2	AD0457
R75	MF 0.25W RES 2% 2K2	AD0457
R76	MF 0.25W RES 2% 2K2	AD0457
R77	MF 0.25W RES 2% 4K7	AD0465
R78	MF 0.25W RES 2% 4K7	AD0465
R79	MF 0.25W RES 2% 4K7	AD0465
R80	MF 0.25W RES 2% 2K2	AD0457
R81	MF 0.25W RES 2% 10K	AD0473
R82	MF 0.25W RES 2% 10K	AD0473
R83	MF 0.25W RES 2% 4K7	AD0465
R84	MF 0.25W RES 2% 10K	AD0473
R85	MF 0.25W RES 2% 2K2	AD0457
R86	MF 0.25W RES 2% 2K2	AD0457
R87	MF 0.25W RES 2% 2K2	AD0457
R88	MF 0.25W RES 2% 680K	AD0517
R89	MF 0.25W RES 2% 680K	AD0517
R90	MF 0.25W RES 2% 680K	AD0517
R91	MF 0.25W RES 2% 680K	AD0517
R92	MF 0.25W RES 2% 22K	AD0481
R93	CF 0.25W RES 5% 10M BL	AC0341
R94	CF 0.25W RES 5% 10M BL	AC0341
R95	CF 0.25W RES 5% 10M BL	AC0341
R96	CF 0.25W RES 5% 10M BL	AC0341
R97	MF 0.25W RES 2% 100K	AD0497
R98	MF 0.25W RES 2% 100K	AD0497
R99	MF 0.25W RES 2% 22K	AD0481
R100	MF 0.25W RES 2% 680K	AD0517
R101	MF 0.25W RES 2% 680K	AD0517
R102	MF 0.25W RES 2% 680K	AD0517
R103	MF 0.25W RES 2% 680K	AD0517
R104	CF 0.25W RES 5% 10M BL	AC0341
R105	CF 0.25W RES 5% 10M BL	AC0341
R106	CF 0.25W RES 5% 10M BL	AC0341
R107	CF 0.25W RES 5% 10M BL	AC0341
R108	MF 0.25W RES 2% 100K	AD0497
R109	MF 0.25W RES 2% 100K	AD0497
R117	MF 0.25W RES 2% 100R	AD0425
R118	MF 0.25W RES 2% 27K	AD0483
R119	MF 0.25W RES 2% 100K	AD0497
R120	MF 0.25W RES 2% 100K	AD0497
R121	CF 0.25W RES 5% 10M BL	AC0341
R122	CF 0.25W RES 5% 10M BL	AC0341
R123	MF 0.25W RES 2% 4K7	AD0465
R124	MF 0.25W RES 2% 4K7	AD0465

R125	MF 0.25W RES 2% 22K	AD0481
R126	MF 0.25W RES 2% 10K	AD0473
R127	MF 0.25W RES 2% 10K	AD0473
R128	MF 0.25W RES 2% 33K	AD0485
R129	MF 0.25W RES 2% 680K	AD0517
R130	MF 0.25W RES 2% 33R	AD0413
R131	MF 0.25W RES 2% 10K	AD0473
R132	MF 0.25W RES 2% 3K3	AD0461
R133	MF 0.25W RES 2% 33K	AD0485
R134	MF 0.25W RES 2% 6K8	AD0469
R135	MF 0.25W RES 2% 47K	AD0489
R136	MF 0.25W RES 2% 47K	AD0489
R140	MF 0.25W RES 2% 75R	AD0422
R141	MF 0.25W RES 2% 100K	AD0497
R142	MF 0.25W RES 2% 680K	AD0517
R143	MF 0.25W RES 2% 10K	AD0473
R144	MF 0.25W RES 2% 100K	AD0497
R145	MF 0.25W RES 2% 12K	AD0475
R146	MF 0.25W RES 2% 1K2	AD0451
R147	MF 0.25W RES 2% 1K2	AD0451
R148	MF 0.25W RES 2% 680K	AD0517
R149	MF 0.25W RES 2% 470K	AD0513
R150	MF 0.25W RES 2% 100K	AD0497
R151	MF 0.25W RES 2% 10K	AD0473
R152	MF 0.25W RES 2% 3K3	AD0461
R153	MF 0.25W RES 2% 10K	AD0473
R154	MF 0.25W RES 2% 10K	AD0473
R155	MF 0.25W RES 2% 10K	AD0473
R156	MF 0.25W RES 2% 10K	AD0473
R157	MF 0.25W RES 2% 10K	AD0473
R158	MF 0.25W RES 2% 10K	AD0473
R159	MF 0.25W RES 2% 10K	AD0473
R160	MF 0.25W RES 2% 10K	AD0473
R161	MINI-RES MF 1/8W 2% 10K	AR1673
R162	MINI-RES MF 1/8W 2% 10K	AR1673
R163	MINI-RES MF 1/8W 2% 10K	AR1673
R164	MINI-RES MF 1/8W 2% 10K	AR1673
R165	MINI-RES MF 1/8W 2% 10K	AR1673
R166	MINI-RES MF 1/8W 2% 10K	AR1673
R167	MINI-RES MF 1/8W 2% 10K	AR1673
R168	MINI-RES MF 1/8W 2% 10K	AR1673
R169	MINI-RES MF 1/8W 2% 10K	AR1673
R170	MINI-RES MF 1/8W 2% 10K	AR1673
R171	MINI-RES MF 1/8W 2% 10K	AR1673
R172	MINI-RES MF 1/8W 2% 10K	AR1673
R173	MINI-RES MF 1/8W 2% 10K	AR1673
R174	MINI-RES MF 1/8W 2% 10K	AR1673
R180	MF 0.25W RES 2% 2K2	AD0457
R181	MF 0.25W RES 2% 100K	AD0497
R182	MF 0.25W RES 2% 680K	AD0517
R183	MF 0.25W RES 2% 10K	AD0473
R184	MF 0.25W RES 2% 10K	AD0473
R185	MF 0.25W RES 2% 10K	AD0473
R186	MF 0.25W RES 2% 22K	AD0481
R187	MF 0.25W RES 2% 47K	AD0489
R188	MF 0.25W RES 2% 100K	AD0497
R189	MF 0.25W RES 2% 2K2	AD0457
R190	MF 0.25W RES 2% 680K	AD0517

R191	MF 0.25W RES 2% 10K	AD0473
R192	MF 0.25W RES 2% 10K	AD0473
R193	MF 0.25W RES 2% 10K	AD0473
R194	MF 0.25W RES 2% 22K	AD0481
R195	MF 0.25W RES 2% 100K	AD0497
R196	MF 0.25W RES 2% 2K2	AD0457
R197	MF 0.25W RES 2% 100K	AD0497
R198	MF 0.25W RES 2% 680K	AD0517
R199	MF 0.25W RES 2% 10K	AD0473
R200	MF 0.25W RES 2% 10K	AD0473
R201	MF 0.25W RES 2% 10K	AD0473
R202	MF 0.25W RES 2% 22K	AD0481
R203	MF 0.25W RES 2% 100K	AD0497
R204	MF 0.25W RES 2% 100K	AD0497
R205	MF 0.25W RES 2% 2K2	AD0457
R206	MF 0.25W RES 2% 680K	AD0517
R207	MF 0.25W RES 2% 10K	AD0473
R210	MF 0.25W RES 2% 22K	AD0481
R211	MF 0.25W RES 2% 100K	AD0497
R212	MF 0.25W RES 2% 100K	AD0497
R213	MF 0.25W RES 2% 2K2	AD0457
R214	MF 0.25W RES 2% 680K	AD0517
R218	MF 0.25W RES 2% 22K	AD0481
R219	MF 0.25W RES 2% 100K	AD0497
R220	MF 0.25W RES 2% 2K2	AD0457
R221	MF 0.25W RES 2% 100K	AD0497
R222	MF 0.25W RES 2% 100K	AD0497
R223	MF 0.25W RES 2% 680K	AD0517
R227	MF 0.25W RES 2% 22K	AD0481
R228	MF 0.25W RES 2% 3K	AD0460
R229	MF 0.25W RES 2% 10R	AD0401
R230	MF 0.25W RES 2% 1R5	AD0399
R231	MF 0.25W RES 2% 47K	AD0489
R232	MF 0.25W RES 2% 47K	AD0489
R233	MF 0.25W RES 2% 47K	AD0489
R234	MF 0.25W RES 2% 47K	AD0489
R235	MF 0.25W RES 2% 47K	AD0489
R236	MF 0.25W RES 2% 47K	AD0489
R238	MF 0.25W RES 2% 4K7	AD0465
R300	MF 0.25W RES 2% 220K	AD0505
R301	RES MF 10R 2% 0.25W RADIAL	AV0001
R302	RES MF 10R 2% 0.25W RADIAL	AV0001
SC2986	EUROPA I/P LH PCB	GD2986
SW1	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW2	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW3	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW4	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SW5	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW6	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW7	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW8	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW9	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW10	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
TR1	PNP TRANS 2SB737 LOW RBB	BD0346
TR2	PNP TRANS 2SA970GR (TAPED)	BD0301
TR3	PNP TRANS 2SA970GR (TAPED)	BD0301
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302

TR6	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR7	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	FET SWITCH J112 (TAPED)	BD0322
TR12	FET SWITCH J112 (TAPED)	BD0322
TR13	FET SWITCH J112 (TAPED)	BD0322
TR14	FET SWITCH J112 (TAPED)	BD0322
TR15	FET SWITCH J112 (TAPED)	BD0322
TR16	FET SWITCH J112 (TAPED)	BD0322
TR17	FET SWITCH J112 (TAPED)	BD0322
TR18	FET SWITCH J112 (TAPED)	BD0322
TR19	PNP TRANS 2SA970GR (TAPED)	BD0301
TR20	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR21	FET SWITCH J112 (TAPED)	BD0322
TR22	FET SWITCH J112 (TAPED)	BD0322
TR23	FET SWITCH J112 (TAPED)	BD0322
TR24	FET SWITCH J112 (TAPED)	BD0322
TR25	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR26	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR27	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR28	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR29	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR30	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR31	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR32	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR2	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR3	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR4	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR5	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR6	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR7	ALPS 9MM(SB) 10K LIN CD	DM1142
VR8	ALPS 9MM(SB) 10K LIN CD	DM1142
VR9	ALPS 9MM(SB) 10K LIN CD	DM1142
VR10	ALPS 9MM(SB) 10K LIN CD	DM1142
VR11	ALPS 9MM(SB) 2X100K LOG A	DM1153
VR12	ALPS 9MM (SB)100K LOG A	DM1158
VR13	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR14	ALPS 9MM(SB) 2X100K RLG C	DM1154
	0.6MM TCW LINK BANDOLIERED	LE0406

I/P RH PCB

	I/P RH PCB	RD2987
IDENT	**DESCRIPTION**	**PART No.**
C1	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C2	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C3	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C4	VERT ELEC 1000UF/10V	CE0439
C5	VERT ELEC 220 MF 25V	CE0422
C6	VERT ELEC 0.2" 47UF 63V	CE0402
C7	VERT ELEC 0.2" 47UF 63V	CE0402
C8	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C9	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C10	C/C 0.2"TAPED 100V 680PF(N68)	CA0009

C11	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C12	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C13	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C14	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C15	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C16	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C17	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C18	VERT ELEC 220 MF 25V	CE0422
C19	VERT ELEC 1000UF/10V	CE0439
C20	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C21	POLY-CAP 5MM 5% 63V 220N	CC0255
C22	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C23	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C24	POLY-CAP 5MM 5% 100V 47N	CC0248
C25	VERT ELEC 220 MF 25V	CE0422
C26	VERT ELEC 220 MF 25V	CE0422
C27	VERT ELEC 220 MF 25V	CE0422
C28	VERT ELEC 220 MF 25V	CE0422
C31	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C32	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C33	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C34	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C35	POLY-CAP 5MM 5% 100V 10N	CC0244
C36	POLY-CAP 5MM 5% 100V 47N	CC0248
C37	POLY-CAP 5MM 5% 100V 1N	CC0238
C38	POLY-CAP 5MM 5% 100V 4N7	CC0242
C39	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C40	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C41	POLY-CAP 5MM 5% 100V 3N3	CC0241
C42	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C43	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C44	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C45	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C46	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C47	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C48	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C51	POLY-CAP 5MM 5% 100V 22N	CC0246
C52	POLY-CAP 5MM 5% 63V 100N	CC0252
C53	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C54	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C55	POLY-CAP 5MM 5% 63V 100N	CC0252
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C58	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C59	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C60	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C61	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C62	POLY-CAP 5MM 5% 63V 100N	CC0252
C63	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C64	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C65	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C66	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C67	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C68	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C69	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C70	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C71	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C72	POLY-CAP 5MM 5% 100V 47N	CC0248

C73	POLY-CAP 5MM 5% 100V 47N	CC0248
C74	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C75	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C76	POLY-CAP 5MM 5% 100V 47N	CC0248
C77	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C78	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C79	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C80	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C83	POLY-CAP 5MM 5% 100V 47N	CC0248
C84	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C85	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C86	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C87	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C88	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C89	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C90	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C91	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C92	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C93	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C94	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C95	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C96	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C97	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C98	POLY-CAP 5MM 5% 100V 47N	CC0248
C99	POLY-CAP 5MM 5% 100V 47N	CC0248
C100	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C101	VERT ELEC 220 MF 25V	CE0422
C102	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C103	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C104	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C105	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C106	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C107	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C108	VERT ELEC 220 MF 25V	CE0422
C200	POLY-CAP 5MM 5% 63V 100N	CC0252
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN3	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN4	MTHD.1"2WY R/A LCKG ML HDR S12	FF0648
CN5	1/4" PC MNTG BLADE HORIZ	FF0555
CN6	T&B CN IDC 20WY LW PRFL VRT ML	FA0086
CN7	T&B IDC 26WY VERT ML BOX HDR	FA0096
CN8	T&B IDC 26WY VERT ML BOX HDR	FA0096
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718

IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC TL072CP	BE0413
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC NE5532	BE0428
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC TL072CP	BE0413
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC TL072CP	BE0413
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	14WY DIL IC SOCKET	FF0719
IC14	4066 QUAD ANALOGUE SWITCH	BF0507
IC15	14WY DIL IC SOCKET	FF0719
IC15	4066 QUAD ANALOGUE SWITCH	BF0507
IC16	14WY DIL IC SOCKET	FF0719
IC16	4070 QUAD EXCLUSIVE OR	BF0516
IC17	8WY DIL IC SOCKET	FF0718
IC17	DUAL OP AMP IC NE5532	BE0428
IC19	8WY DIL IC SOCKET	FF0718
IC19	DUAL OP AMP IC NE5532	BE0428
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	8WY DIL IC SOCKET	FF0718
IC21	DUAL OP AMP IC TL072CP	BE0413
IC22	8WY DIL IC SOCKET	FF0718
IC22	DUAL OP AMP IC TL072CP	BE0413
IC23	8WY DIL IC SOCKET	FF0718
IC23	DUAL OP AMP IC TL072CP	BE0413
IC24	16WY DIL IC SOCKET	FF0720
IC24	4053 3P C/D ANALOGUE SW	BF0573
IC25	16WY DIL IC SOCKET	FF0720
IC25	4053 3P C/D ANALOGUE SW	BF0573
IC26	16WY DIL IC SOCKET	FF0720
IC26	4053 3P C/D ANALOGUE SW	BF0573
IC27	16WY DIL IC SOCKET	FF0720
IC27	4053 3P C/D ANALOGUE SW	BF0573
IC28	16WY DIL IC SOCKET	FF0720
IC28	4053 3P C/D ANALOGUE SW	BF0573
IC29	16WY DIL IC SOCKET	FF0720
IC29	4053 3P C/D ANALOGUE SW	BF0573
IC30	14WY DIL IC SOCKET	FF0719
IC30	4069 HEX INVERTER	BF0515
IC31	14WY DIL IC SOCKET	FF0719
IC31	4069 HEX INVERTER	BF0515
IC32	16WY DIL IC SOCKET	FF0720

IC32	40109 QUAD VLTG LVL SHIFTER	BF0520
IC33	16WY DIL IC SOCKET	FF0720
IC33	40109 QUAD VLTG LVL SHIFTER	BF0520
IC37	8WY DIL IC SOCKET	FF0718
IC37	SGL OP AMP IC TL071CP	BE0404
IC40	8WY DIL IC SOCKET	FF0718
IC40	SGL OP AMP IC TL071CP	BE0404
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD3	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD4	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD5	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD6	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD7	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD8	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD9	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD10	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD11	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD12	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD13	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD14	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD15	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD18	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD20	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LK1	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK2	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK3	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK4	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK5	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK6	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	CERMET TRIMMER HORIZ 90H 10K	DE0402
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 6K8	AD0469
R2	MF 0.25W RES 2% 6K8	AD0469
R3	MF 0.25W RES 2% 2K2	AD0457
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 10K	AD0473
R7	MF 0.25W RES 2% 10K	AD0473
R8	MF 0.25W RES 2% 2K7	AD0459
R9	MF 0.25W RES 2% 10R	AD0401
R10	MF 0.25W RES 2% 2K2	AD0457
R11	MF 0.25W RES 2% 4K7	AD0465
R12	MF 0.25W RES 2% 4K7	AD0465
R13	MF 0.25W RES 2% 2K7	AD0459
R14	MF 0.25W RES 2% 22K	AD0481
R15	MF 0.25W RES 2% 22K	AD0481
R16	MF 0.25W RES 2% 15K	AD0477
R17	MF 0.25W RES 2% 15K	AD0477
R18	MF 0.25W RES 2% 47K	AD0489
R19	MF 0.25W RES 2% 4K7	AD0465

R20	MF 0.25W RES 2% 4K7	AD0465
R21	MF 0.25W RES 2% 4K7	AD0465
R22	MF 0.25W RES 2% 4K7	AD0465
R23	MF 0.25W RES 2% 3K3	AD0461
R24	MF 0.25W RES 2% 150R	AD0429
R25	MF 0.25W RES 2% 330R	AD0437
R26	MF 0.25W RES 2% 10K	AD0473
R27	MF 0.25W RES 2% 10K	AD0473
R28	MF 0.25W RES 2% 10K	AD0473
R29	MF 0.25W RES 2% 10K	AD0473
R30	MF 0.25W RES 2% 10R	AD0401
R31	MF 0.25W RES 2% 22K	AD0481
R32	MF 0.25W RES 2% 2K2	AD0457
R33	MF 0.25W RES 2% 68R	AD0421
R34	MF 0.25W RES 2% 56K	AD0491
R36	MF 0.25W RES 2% 10K	AD0473
R37	MF 0.25W RES 2% 47K	AD0489
R38	MF 0.25W RES 2% 2K2	AD0457
R39	MF 0.25W RES 2% 1K8	AD0455
R40	MF 0.25W RES 2% 39R	AD0415
R41	MF 0.25W RES 2% 2K2	AD0457
R42	MF 0.25W RES 2% 27K	AD0483
R43	MF 0.25W RES 2% 10K	AD0473
R44	MF 0.25W RES 2% 30K	AD0484
R45	MF 0.25W RES 2% 10K	AD0473
R46	MF 0.25W RES 2% 10K	AD0473
R47	MF 0.25W RES 2% 470K	AD0513
R48	MF 0.25W RES 2% 20K	AD0480
R49	MF 0.25W RES 2% 100K	AD0497
R51	MF 0.25W RES 2% 4M7	AD0530
R52	RES MF 10R 2% 0.25W RADIAL	AV0001
R53	RES MF 10R 2% 0.25W RADIAL	AV0001
R54	RES MF 10R 2% 0.25W RADIAL	AV0001
R55	RES MF 10R 2% 0.25W RADIAL	AV0001
R56	RES MF 10R 2% 0.25W RADIAL	AV0001
R57	RES MF 10R 2% 0.25W RADIAL	AV0001
R58	RES MF 10R 2% 0.25W RADIAL	AV0001
R59	RES MF 10R 2% 0.25W RADIAL	AV0001
R60	MF 0.25W RES 2% 47K	AD0489
R61	MF 0.25W RES 2% 10R	AD0401
R62	MF 0.25W RES 2% 10R	AD0401
R63	MF 0.25W RES 2% 47K	AD0489
R64	RES MF 10R 2% 0.25W RADIAL	AV0001
R65	MF 0.25W RES 2% 3K	AD0460
R66	MF 0.25W RES 2% 3K	AD0460
R67	MF 0.25W RES 2% 750R	AD0446
R68	MF 0.25W RES 2% 12K	AD0475
R69	MF 0.25W RES 2% 12K	AD0475
R70	MF 0.25W RES 2% 6K8	AD0469
R71	MF 0.25W RES 2% 6K8	AD0469
R72	MF 0.25W RES 2% 8K2	AD0471
R73	MF 0.25W RES 2% 30K	AD0484
R74	MF 0.25W RES 2% 12K	AD0475
R75	MF 0.25W RES 2% 6K8	AD0469
R76	MF 0.25W RES 2% 47K	AD0489
R77	MF 0.25W RES 2% 47K	AD0489
R78	MF 0.25W RES 2% 47K	AD0489
R79	MF 0.25W RES 2% 4K7	AD0465
R80	MF 0.25W RES 2% 470R	AD0441

R81	MF 0.25W RES 2% 12K	AD0475
R82	MF 0.25W RES 2% 12K	AD0475
R83	MF 0.25W RES 2% 12K	AD0475
R84	MF 0.25W RES 2% 6K8	AD0469
R85	MF 0.25W RES 2% 6K8	AD0469
R86	MF 0.25W RES 2% 4K7	AD0465
R87	MF 0.25W RES 2% 470R	AD0441
R88	MF 0.25W RES 2% 12K	AD0475
R89	MF 0.25W RES 2% 12K	AD0475
R90	MF 0.25W RES 2% 12K	AD0475
R91	MF 0.25W RES 2% 6K8	AD0469
R92	MF 0.25W RES 2% 6K8	AD0469
R93	MF 0.25W RES 2% 3K	AD0460
R94	MF 0.25W RES 2% 750R	AD0446
R95	MF 0.25W RES 2% 12K	AD0475
R96	MF 0.25W RES 2% 12K	AD0475
R97	MF 0.25W RES 2% 6K8	AD0469
R98	MF 0.25W RES 2% 6K8	AD0469
R99	MF 0.25W RES 2% 10K	AD0473
R100	MF 0.25W RES 2% 20K	AD0480
R101	MF 0.25W RES 2% 12K	AD0475
R102	MF 0.25W RES 2% 6K8	AD0469
R103	MF 0.25W RES 2% 47K	AD0489
R104	MF 0.25W RES 2% 47K	AD0489
R105	MF 0.25W RES 2% 47K	AD0489
R106	MF 0.25W RES 2% 4K7	AD0465
R107	MF 0.25W RES 2% 4K7	AD0465
R108	MF 0.25W RES 2% 4K7	AD0465
R109	MF 0.25W RES 2% 4K7	AD0465
R110	MF 0.25W RES 2% 10K	AD0473
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 10K	AD0473
R113	MF 0.25W RES 2% 10K	AD0473
R114	MF 0.25W RES 2% 75R	AD0422
R115	MF 0.25W RES 2% 75R	AD0422
R116	MF 0.25W RES 2% 1K	AD0449
R117	MF 0.25W RES 2% 1K	AD0449
R118	MF 0.25W RES 2% 10K	AD0473
R119	MF 0.25W RES 2% 10K	AD0473
R120	MF 0.25W RES 2% 4K7	AD0465
R121	MF 0.25W RES 2% 4K7	AD0465
R124	MF 0.25W RES 2% 22K	AD0481
R125	MF 0.25W RES 2% 22K	AD0481
R126	MF 0.25W RES 2% 22K	AD0481
R127	MF 0.25W RES 2% 22K	AD0481
R128	MF 0.25W RES 2% 22K	AD0481
R129	MF 0.25W RES 2% 47K	AD0489
R130	MF 0.25W RES 2% 27K	AD0483
R131	MF 0.25W RES 2% 100R	AD0425
R132	MF 0.25W RES 2% 100R	AD0425
R133	MF 0.25W RES 2% 4K7	AD0465
R134	MF 0.25W RES 2% 4K7	AD0465
R135	MF 0.25W RES 2% 4K7	AD0465
R136	MF 0.25W RES 2% 4K7	AD0465
R137	MF 0.25W RES 2% 10K	AD0473
R138	MF 0.25W RES 2% 10K	AD0473
R139	MF 0.25W RES 2% 10K	AD0473
R140	MF 0.25W RES 2% 10K	AD0473

R141	MF 0.25W RES 2% 75R	AD0422
R142	MF 0.25W RES 2% 75R	AD0422
R143	MF 0.25W RES 2% 1K	AD0449
R144	MF 0.25W RES 2% 1K	AD0449
R145	MF 0.25W RES 2% 3K3	AD0461
R146	MF 0.25W RES 2% 3K3	AD0461
R147	MF 0.25W RES 2% 2K2	AD0457
R148	MF 0.25W RES 2% 2K2	AD0457
R149	MF 0.25W RES 2% 10K	AD0473
R150	MF 0.25W RES 2% 10K	AD0473
R151	MF 0.25W RES 2% 10K	AD0473
R152	MF 0.25W RES 2% 10K	AD0473
R153	MINI-RES MF 1/8W 2% 10K	AR1673
R154	MINI-RES MF 1/8W 2% 10K	AR1673
R155	MINI-RES MF 1/8W 2% 10K	AR1673
R156	MINI-RES MF 1/8W 2% 10K	AR1673
R157	MINI-RES MF 1/8W 2% 10K	AR1673
R158	MINI-RES MF 1/8W 2% 10K	AR1673
R159	MINI-RES MF 1/8W 2% 10K	AR1673
R160	MINI-RES MF 1/8W 2% 10K	AR1673
R161	MF 0.25W RES 2% 47K	AD0489
R162	MF 0.25W RES 2% 10K	AD0473
R165	MF 0.25W RES 2% 2K2	AD0457
R166	MF 0.25W RES 2% 100K	AD0497
R167	MF 0.25W RES 2% 680K	AD0517
R168	MF 0.25W RES 2% 10K	AD0473
R169	MF 0.25W RES 2% 10K	AD0473
R170	MF 0.25W RES 2% 10K	AD0473
R171	MF 0.25W RES 2% 22K	AD0481
R172	MF 0.25W RES 2% 47K	AD0489
R173	MF 0.25W RES 2% 100K	AD0497
R174	MF 0.25W RES 2% 680K	AD0517
R175	MF 0.25W RES 2% 2K2	AD0457
R176	MF 0.25W RES 2% 10K	AD0473
R177	MF 0.25W RES 2% 10K	AD0473
R178	MF 0.25W RES 2% 10K	AD0473
R180	MF 0.25W RES 2% 22K	AD0481
R181	MF 0.25W RES 2% 100K	AD0497
R182	MF 0.25W RES 2% 100K	AD0497
R183	MF 0.25W RES 2% 680K	AD0517
R184	MF 0.25W RES 2% 2K2	AD0457
R185	MF 0.25W RES 2% 10K	AD0473
R188	MF 0.25W RES 2% 22K	AD0481
R189	MF 0.25W RES 2% 100K	AD0497
R190	MF 0.25W RES 2% 100K	AD0497
R191	MF 0.25W RES 2% 680K	AD0517
R192	MF 0.25W RES 2% 2K2	AD0457
R196	MF 0.25W RES 2% 22K	AD0481
R197	MF 0.25W RES 2% 100K	AD0497
R198	MF 0.25W RES 2% 100K	AD0497
R199	MF 0.25W RES 2% 680K	AD0517
R200	MF 0.25W RES 2% 2K2	AD0457
R204	MF 0.25W RES 2% 22K	AD0481
R205	MF 0.25W RES 2% 100K	AD0497
R206	MF 0.25W RES 2% 100K	AD0497
R207	MF 0.25W RES 2% 680K	AD0517
R208	MF 0.25W RES 2% 2K2	AD0457
R212	MF 0.25W RES 2% 22K	AD0481

R213	MF 0.25W RES 2% 100K	AD0497
R225	MF 0.25W RES 2% 3K	AD0460
R226	MF 0.25W RES 2% 75R	AD0422
R227	MF 0.25W RES 2% 12K	AD0475
R228	MF 0.25W RES 2% 47K	AD0489
R229	MF 0.25W RES 2% 47K	AD0489
R230	MF 0.25W RES 2% 47K	AD0489
R233	MF 0.25W RES 2% 12K	AD0475
R234	RES MF 10R 2% 0.25W RADIAL	AV0001
R235	MF 0.25W RES 2% 100K	AD0497
R236	MF 0.25W RES 2% 100K	AD0497
R237	MF 0.25W RES 2% 47K	AD0489
SC2987	EUROPA I/P RH PCB	GD2987
SW1	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW2	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW3	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW4	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW6	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW7	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW8	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW9	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW10	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW11	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW12	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SW13	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
TR1	PNP TRANS 2SB737 LOW RBB	BD0346
TR2	PNP TRANS 2SB737 LOW RBB	BD0346
TR3	PNP TRANS 2SB737 LOW RBB	BD0346
TR4	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR5	FET SWITCH J111 (TAPED)	BD0320
TR6	PNP TRANS 2SA970GR (TAPED)	BD0301
TR7	PNP TRANS 2SA970GR (TAPED)	BD0301
TR8	PNP TRANS 2SA970GR (TAPED)	BD0301
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR12	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR13	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR14	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB/L) 2X10K LIN CD	DM1164
VR2	ALPS 9MM (SB/L) 2X5K RD	DM1165
VR3	ALPS 9MM(SB) 5K RD	DM1139
VR4	ALPS 9MM(SB) 5K RD	DM1139
VR5	ALPS 9MM (SB)10K RLG C ROT SW	DM1160
VR6	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR7	ALPS 9MM (SB) 10K RLG C	DM1159
VR8	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR9	ALPS 9MM (SB) 10K RLG C	DM1159
VR10	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR11	ALPS 9MM (SB)10K RLG C ROT SW	DM1160
VR12	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR13	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR14	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR15	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR16	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR17	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR18	ALPS 9MM (SB)10K LOG A MOM SW	DM1161

FDR PCB

	FDR PCB	RA2988
IDENT	**DESCRIPTION**	**PART No.**
C1	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	POLY-CAP 5MM 5% 100V 47N	CC0248
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C8	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C9	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C10	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C11	POLY-CAP 5MM 5% 63V 100N	CC0252
C12	POLY-CAP 5MM 5% 63V 100N	CC0252
CN1	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN3	G80 IDC 16WY VERT ML LTCH HDR	FA0092
CN4	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN5	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
D1	MICRO-BOX 5MM 5% 100V 1.5MF	CC0266
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	QUAD COMPARATOR IC LM2901	BE0410
IC2	14WY DIL IC SOCKET	FF0719
IC2	QUAD COMPARATOR IC LM2901	BE0410
IC3	14WY DIL IC SOCKET	FF0719
IC3	4069 HEX INVERTER	BF0515
IC4	20WY DIL IC SKT DUAL WIPE TIN	FF0722
IC4	OCTAL LATCH 74C374	BG0604
IC5	20WY DIL IC SKT DUAL WIPE TIN	FF0722
IC5	OCTAL LATCH 74C374	BG0604
IC6	14WY DIL IC SOCKET	FF0719
IC6	4066 QUAD ANALOGUE SWITCH	BF0507
IC7	14WY DIL IC SOCKET	FF0719
IC7	4066 QUAD ANALOGUE SWITCH	BF0507
IC8	14WY DIL IC SOCKET	FF0719
IC8	4011 QUAD 2 I/P NAND	BF0502
IC9	14WY DIL IC SOCKET	FF0719
IC9	4011 QUAD 2 I/P NAND	BF0502
IC10	14WY DIL IC SOCKET	FF0719
IC10	4068 8 I/P NAND GATE	BF0525
IC11	14WY DIL IC SOCKET	FF0719
IC11	4011 QUAD 2 I/P NAND	BF0502
IC12	14WY DIL IC SOCKET	FF0719
IC12	4011 QUAD 2 I/P NAND	BF0502
IC13	14WY DIL IC SOCKET	FF0719
IC13	4068 8 I/P NAND GATE	BF0525
IC14	14WY DIL IC SOCKET	FF0719
IC14	4078 8 I/P NOR	BF0599
IC15	8WY DIL IC SOCKET	FF0718
IC15	SGL OP AMP IC TL071CP	BE0404
IC16	14WY DIL IC SOCKET	FF0719
IC16	4011 QUAD 2 I/P NAND	BF0502
IC17	14WY DIL IC SOCKET	FF0719
IC17	4011 QUAD 2 I/P NAND	BF0502
IC18	14WY DIL IC SOCKET	FF0719
IC18	4081 QUAD 2 I/P AND GATE	BF0527
IC19	14WY DIL IC SOCKET	FF0719

IC19	4081 QUAD 2 I/P AND GATE	BF0527
IC20	14WY DIL IC SOCKET	FF0719
IC20	4002 DUAL 4 INPUT NOR GATE	BF0534
IC21	14WY DIL IC SOCKET	FF0719
IC21	4016 QUAD ANALOGUE SWITCH	BF0505
IC22	14WY DIL IC SOCKET	FF0719
IC22	4069 HEX INVERTER	BF0515
IC23	14WY DIL IC SOCKET	FF0719
IC23	4011 QUAD 2 I/P NAND	BF0502
IC24	8WY DIL IC SOCKET	FF0718
IC24	DUAL OP AMP IC NE5532	BE0428
LED1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED2	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED18	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
R1	MF 0.25W RES 2% 100K	AD0497
R2	MF 0.25W RES 2% 100K	AD0497
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 680K	AD0517
R7	MF 0.25W RES 2% 22K	AD0481
R8	MF 0.25W RES 2% 1K	AD0449
R9	MF 0.25W RES 2% 22K	AD0481
R25	MF 0.25W RES 2% 15K	AD0477
R26	MF 0.25W RES 2% 680K	AD0517
R27	MF 0.25W RES 2% 1M	AD0521
R28	MF 0.25W RES 2% 2K2	AD0457
R29	MF 0.25W RES 2% 2K2	AD0457
R30	MF 0.25W RES 2% 100K	AD0497
R31	MF 0.25W RES 2% 100K	AD0497
R48	MF 0.25W RES 2% 100K	AD0497
R49	MF 0.25W RES 2% 100K	AD0497
R50	MF 0.25W RES 2% 100K	AD0497
R51	MF 0.25W RES 2% 10K	AD0473
R52	MF 0.25W RES 2% 330R	AD0437
R53	MF 0.25W RES 2% 330R	AD0437
R54	MF 0.25W RES 2% 100R	AD0425
R56	MF 0.25W RES 2% 100K	AD0497
R57	MF 0.25W RES 2% 100K	AD0497
R58	MF 0.25W RES 2% 1M	AD0521
R59	MF 0.25W RES 2% 1M	AD0521
R60	MF 0.25W RES 2% 1M	AD0521
R61	MF 0.25W RES 2% 47K	AD0489
R62	MF 0.25W RES 2% 2K2	AD0457
R63	MF 0.25W RES 2% 4K7	AD0465
R64	MF 0.25W RES 2% 4K7	AD0465
R65	MF 0.25W RES 2% 47K	AD0489
R66	MF 0.25W RES 2% 2K2	AD0457
R67	MF 0.25W RES 2% 75R	AD0422
R68	MF 0.25W RES 2% 100K	AD0497
R69	MF 0.25W RES 2% 75R	AD0422
R70	MF 0.25W RES 2% 10R	AD0401
R71	RES MF 10R 2% 0.25W RADIAL	AV0001
R72	RES MF 10R 2% 0.25W RADIAL	AV0001
R73	MF 0.25W RES 2% 10R	AD0401
RP1	8P SIL 4X100K RES NETWORK	AZ2218
RP2	8P SIL 4X100K RES NETWORK	AZ2218
RP3	8P SIL 4X100K RES NETWORK	AZ2218
RP4	8P SIL 4X100K RES NETWORK	AZ2218

RP5	9P SIL 8X15K RES NETWORK	AZ2253
RP6	8P SIL 4X1K RES NETWORK	AZ2255
RP7	8P SIL 4X1K RES NETWORK	AZ2255
RP8	8P SIL 4X100R RES NETWORK	AZ2252
SC2988	EUROPA FDR I/P PCB	GA2988
SW1	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW2	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW3	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
TR1	PNP TRANS 2SA970GR (TAPED)	BD0301
TR20	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR23	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR24	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR25	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR26	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR27	NPN TRANS 2SC2240BL(TAPED)	BD0302
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114

GRP FX LH PCB

	GRP FX LH PCB	RC2989
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C2	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C3	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	POLY-CAP 5MM 5% 63V 100N	CC0252
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C8	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C9	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C10	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C11	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C12	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C13	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C14	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C15	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C16	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C17	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C18	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C19	POLY-CAP 5MM 5% 63V 100N	CC0252
C20	VERT ELEC 220 MF 25V	CE0422
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	3200 20PIN 3"BRD LINK WFM	RV2362
CN3	3200 20PIN 3"BRD LINK WFM	RV2362
CN4	T&B 2" 8WY FLEX STRIP	LC0201
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	SGL OP AMP IC TL071CP	BE0404
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC NE5532	BE0428
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC TL072CP	BE0413
IC5	8WY DIL IC SOCKET	FF0718

IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	14WY DIL IC SOCKET	FF0719
IC6	QUAD COMPARATOR IC LM2901	BE0410
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC NE5532	BE0428
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J3	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J4	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J5	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LED1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED4	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED6	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED8	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED9	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED13	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED14	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED15	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
MD5772	9MM POT BRKT W/PIPS	PZ2290
PR1	CERMET TRIMMER HORIZ 9OH 22K	DE0403
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 20K	AD0480
R2	MF 0.25W RES 2% 20K	AD0480
R3	MF 0.25W RES 2% 12K	AD0475
R4	MF 0.25W RES 2% 12K	AD0475
R5	MF 0.25W RES 2% 12K	AD0475
R6	MF 0.25W RES 2% 47K	AD0489
R7	MF 0.25W RES 2% 47K	AD0489
R8	MF 0.25W RES 2% 47K	AD0489
R9	MF 0.25W RES 2% 12K	AD0475
R10	MF 0.25W RES 2% 12K	AD0475
R11	MF 0.25W RES 2% 12K	AD0475
R12	MF 0.25W RES 2% 2K2	AD0457
R13	MF 0.25W RES 2% 47K	AD0489
R14	MF 0.25W RES 2% 10K	AD0473
R15	MF 0.25W RES 2% 10K	AD0473
R16	MF 0.25W RES 2% 4K7	AD0465
R17	MF 0.25W RES 2% 4K7	AD0465
R18	MF 0.25W RES 2% 4K7	AD0465
R19	MF 0.25W RES 2% 4K7	AD0465
R20	MF 0.25W RES 2% 12K	AD0475
R21	MF 0.25W RES 2% 12K	AD0475
R22	MF 0.25W RES 2% 12K	AD0475
R23	MF 0.25W RES 2% 12K	AD0475
R24	MINI-RES MF 1/8W 2% 10K	AR1673
R25	MINI-RES MF 1/8W 2% 10K	AR1673
R26	MINI-RES MF 1/8W 2% 10K	AR1673
R27	MINI-RES MF 1/8W 2% 10K	AR1673
R28	MINI-RES MF 1/8W 2% 10K	AR1673
R29	MINI-RES MF 1/8W 2% 10K	AR1673
R30	MINI-RES MF 1/8W 2% 10K	AR1673
R31	MINI-RES MF 1/8W 2% 10K	AR1673
R32	MINI-RES MF 1/8W 2% 10K	AR1673
R33	MINI-RES MF 1/8W 2% 10K	AR1673
R34	MINI-RES MF 1/8W 2% 10K	AR1673

R35	MINI-RES MF 1/8W 2% 10K	AR1673
R36	MINI-RES MF 1/8W 2% 10K	AR1673
R37	MINI-RES MF 1/8W 2% 10K	AR1673
R38	MINI-RES MF 1/8W 2% 10K	AR1673
R39	MINI-RES MF 1/8W 2% 10K	AR1673
R40	MINI-RES MF 1/8W 2% 10K	AR1673
R41	MINI-RES MF 1/8W 2% 10K	AR1673
R42	MINI-RES MF 1/8W 2% 10K	AR1673
R43	MINI-RES MF 1/8W 2% 10K	AR1673
R44	MINI-RES MF 1/8W 2% 10K	AR1673
R45	MINI-RES MF 1/8W 2% 10K	AR1673
R47	MF 0.25W RES 2% 100K	AD0497
R48	MF 0.25W RES 2% 47K	AD0489
R49	MF 0.25W RES 2% 22K	AD0481
R50	MF 0.25W RES 2% 220K	AD0505
R51	MF 0.25W RES 2% 75R	AD0422
R52	MF 0.25W RES 2% 5K6	AD0467
R53	MF 0.25W RES 2% 22K	AD0481
R54	MF 0.25W RES 2% 22K	AD0481
R55	MF 0.25W RES 2% 220R	AD0433
R56	MF 0.25W RES 2% 470R	AD0441
R57	MF 0.25W RES 2% 1K5	AD0453
R58	MF 0.25W RES 2% 4K7	AD0465
R59	MF 0.25W RES 2% 12K	AD0475
R60	MF 0.25W RES 2% 470K	AD0513
R61	MF 0.25W RES 2% 56K	AD0491
R62	MF 0.25W RES 2% 680K	AD0517
R63	MF 0.25W RES 2% 4K7	AD0465
R64	MF 0.25W RES 2% 4K7	AD0465
R65	MF 0.25W RES 2% 2K	AD0456
R66	MF 0.25W RES 2% 4K7	AD0465
R67	MF 0.25W RES 2% 4K7	AD0465
R68	MF 0.25W RES 2% 10K	AD0473
R69	MF 0.25W RES 2% 10K	AD0473
R70	MF 0.25W RES 2% 10K	AD0473
R71	MF 0.25W RES 2% 10K	AD0473
R72	MF 0.25W RES 2% 75R	AD0422
R73	MF 0.25W RES 2% 75R	AD0422
R74	MF 0.25W RES 2% 1K	AD0449
R75	MF 0.25W RES 2% 1K	AD0449
R76	MF 0.25W RES 2% 100K	AD0497
R77	MF 0.25W RES 2% 100R	AD0425
S1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S2	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S3	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S4	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
S5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S6	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
S7	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
S8	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
S9	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SC2989	EUROPA GRP FX LH PCB	GC2989
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR4	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM(SB) 2X10K LIN CD	DM1146

GRP FX RH PCB

	GRP FX RH PCB	RD2990
INDENT	**DESCRIPTION**	**PART No.**
	32/0.2 GREEN WIRE	LA0015
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114
C1	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C2	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C3	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C6	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C7	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C8	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C9	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C10	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C11	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C12	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C13	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C14	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C15	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C16	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C17	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C18	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C19	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C20	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C21	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C22	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C23	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C24	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C25	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C26	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C27	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C28	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C29	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C30	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C31	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C32	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C33	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C34	VERT ELEC 220 MF 25V	CE0422
C35	VERT ELEC 220 MF 25V	CE0422
C36	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C37	POLY-CAP 5MM 5% 63V 100N	CC0252
C38	POLY-CAP 5MM 5% 63V 100N	CC0252
C39	POLY-CAP 5MM 5% 63V 100N	CC0252
C40	POLY-CAP 5MM 5% 63V 100N	CC0252
C41	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C42	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C43	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C45	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C46	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C47	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C48	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C48	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C51	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C52	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C60	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C62	C/C 0.2"TAPED 100V 100PF(N10)	CA0006

C63	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C64	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C65	POLY-CAP 5MM 5% 100V 47N	CC0248
C66	POLY-CAP 5MM 5% 100V 47N	CC0248
C67	POLY-CAP 5MM 5% 63V 100N	CC0252
C68	POLY-CAP 5MM 5% 63V 100N	CC0252
C69	VERT ELEC 220 MF 25V	CE0422
C70	VERT ELEC 220 MF 25V	CE0422
C71	POLY-CAP 5MM 5% 63V 100N	CC0252
C73	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C74	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C75	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C76	POLY-CAP 5MM 5% 100V 4N7	CC0242
C77	POLY-CAP 5MM 5% 100V 4N7	CC0242
C78	POLY-CAP 5MM 5% 63V 150N	CC0261
C79	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C80	POLY-CAP 5MM 5% 63V 100N	CC0252
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C83	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C84	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C85	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C86	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C87	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C88	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C89	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C90	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C91	POLY-CAP 5MM 5% 100V 4N7	CC0242
C92	POLY-CAP 5MM 5% 100V 4N7	CC0242
C93	POLY-CAP 5MM 5% 63V 150N	CC0261
C94	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C95	POLY-CAP 5MM 5% 63V 100N	CC0252
C96	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C97	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C98	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C99	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C100	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C101	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C102	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C105	POLY-CAP 5MM 5% 63V 100N	CC0252
C106	POLY-CAP 5MM 5% 63V 100N	CC0252
C107	POLY-CAP 5MM 5% 100V 47N	CC0248
C108	POLY-CAP 5MM 5% 100V 47N	CC0248
C109	POLY-CAP 5MM 5% 100V 47N	CC0248
C110	POLY-CAP 5MM 5% 100V 47N	CC0248
C111	POLY-CAP 5MM 5% 63V 100N	CC0252
C112	POLY-CAP 5MM 5% 63V 100N	CC0252
C113	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C114	POLY-CAP 5MM 5% 63V 100N	CC0252
C115	VERT ELEC 220 MF 25V	CE0422
C116	VERT ELEC 220 MF 25V	CE0422
C117	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C118	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C119	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C120	POLY-CAP 5MM 5% 100V 1N	CC0238
C121	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C122	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C123	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C124	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C125	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C126	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
C151	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C152	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
CN1	G80 IDC 26WY R/A LATCHD ML HDR	FA0063
CN2	T&B CN IDC 20WY LW PRFL VRT ML	FA0086
CN3	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN4	T&B CN IDC 20WY LW PRFL VRT ML	FA0086
CN5	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN6	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN7	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN8	8WY SIL SKT (MADE FROM FF0538)	FF0620
CN9	1/4" PC MNTNG BLADE VERT	FF0676
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
D12	DIODE 1N4148	BA0001
D13	DIODE 1N4148	BA0001
D14	DIODE 1N4148	BA0001
D15	DIODE 1N4148	BA0001
D16	DIODE 1N4148	BA0001
D17	DIODE 1N4148	BA0001
D18	DIODE 1N4148	BA0001
D19	DIODE 1N4148	BA0001
D20	DIODE 1N4148	BA0001
D21	DIODE 1N4148	BA0001
D22	DIODE 1N4148	BA0001
D23	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC NE5532	BE0428
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC NE5532	BE0428
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC NE5532	BE0428
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC NE5532	BE0428
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC TL072CP	BE0413
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC TL072CP	BE0413
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	14WY DIL IC SOCKET	FF0719
IC9	4066 QUAD ANALOGUE SWITCH	BF0507
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	SGL OP AMP IC TDA1034/NE5534	BE0407
IC12	8WY DIL IC SOCKET	FF0718

IC12	SGL OP AMP IC TL071CP	BE0404
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	14WY DIL IC SOCKET	FF0719
IC14	4066 QUAD ANALOGUE SWITCH	BF0507
IC15	14WY DIL IC SOCKET	FF0719
IC15	4011 QUAD 2 I/P NAND	BF0502
IC16	14WY DIL IC SOCKET	FF0719
IC16	4069 HEX INVERTER	BF0515
IC17	16WY DIL IC SOCKET	FF0720
IC17	40109 QUAD VLTG LVL SHIFTER	BF0520
IC18	8WY DIL IC SOCKET	FF0718
IC18	DUAL OP AMP IC TL072CP	BE0413
IC19	8WY DIL IC SOCKET	FF0718
IC19	DUAL OP AMP IC TL072CP	BE0413
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	8WY DIL IC SOCKET	FF0718
IC21	DUAL OP AMP IC TL072CP	BE0413
IC22	8WY DIL IC SOCKET	FF0718
IC22	DUAL OP AMP IC TL072CP	BE0413
IC23	8WY DIL IC SOCKET	FF0718
IC23	DUAL OP AMP IC NE5532	BE0428
IC24	8WY DIL IC SOCKET	FF0718
IC24	DUAL OP AMP IC TL072CP	BE0413
IC25	8WY DIL IC SOCKET	FF0718
IC25	SGL OP AMP IC TL071CP	BE0404
IC26	20WY DIL IC SKT DUAL WIPE TIN	FF0722
IC26	OCTAL LATCH 74C374	BG0604
IC27	14WY DIL IC SOCKET	FF0719
IC27	4011 QUAD 2 I/P NAND	BF0502
IC28	14WY DIL IC SOCKET	FF0719
IC28	4011 QUAD 2 I/P NAND	BF0502
IC29	14WY DIL IC SOCKET	FF0719
IC29	4068 8 I/P NAND GATE	BF0525
IC30	14WY DIL IC SOCKET	FF0719
IC30	4011 QUAD 2 I/P NAND	BF0502
IC31	14WY DIL IC SOCKET	FF0719
IC31	4011 QUAD 2 I/P NAND	BF0502
IC32	14WY DIL IC SOCKET	FF0719
IC32	4011 QUAD 2 I/P NAND	BF0502
IC33	8WY DIL IC SOCKET	FF0718
IC33	SGL OP AMP IC TL071CP	BE0404
IC34	14WY DIL IC SOCKET	FF0719
IC34	QUAD COMPARATOR IC LM2901	BE0410
IC35	14WY DIL IC SOCKET	FF0719
IC35	QUAD COMPARATOR IC LM2901	BE0410
IC36	14WY DIL IC SOCKET	FF0719
IC36	QUAD COMPARATOR IC LM2901	BE0410
IC37	14WY DIL IC SOCKET	FF0719
IC37	QUAD COMPARATOR IC LM2901	BE0410
IC38	14WY DIL IC SOCKET	FF0719
IC38	QUAD COMPARATOR IC LM2901	BE0410
J25	.1" 16WY D.I.L. HDR	FF0693
J33	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LED1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED2	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED4	T1 3MM S.BRT LED RED PRF.LONG	JA0061

LED5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED6	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED8	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED9	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED10	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED11	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED12	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED13	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED14	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED15	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED16	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED17	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED18	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED19	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED20	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED21	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED22	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED23	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED24	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED25	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED26	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED27	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED28	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED29	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED30	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED31	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED32	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED33	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED34	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED35	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED36	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED37	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED38	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED39	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED40	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED41	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED42	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED43	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED44	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED45	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR4	TRIMMER VERT 3306W- 20K	DE0430
R1	MF 0.25W RES 2% 1K	AD0449
R2	MF 0.25W RES 2% 1K	AD0449
R3	MF 0.25W RES 2% 22K	AD0481
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 10K	AD0473
R6	MF 0.25W RES 2% 10K	AD0473
R7	MF 0.25W RES 2% 8K2	AD0471
R8	MF 0.25W RES 2% 8K2	AD0471
R9	MF 0.25W RES 2% 4K7	AD0465
R10	MF 0.25W RES 2% 4K7	AD0465
R11	MF 0.25W RES 2% 4K7	AD0465
R12	MF 0.25W RES 2% 4K7	AD0465

R13	MF 0.25W RES 2% 4K7	AD0465
R14	MF 0.25W RES 2% 4K7	AD0465
R15	MF 0.25W RES 2% 10K	AD0473
R16	MF 0.25W RES 2% 10K	AD0473
R17	MF 0.25W RES 2% 10K	AD0473
R18	MF 0.25W RES 2% 10K	AD0473
R19	MF 0.25W RES 2% 75R	AD0422
R20	MF 0.25W RES 2% 75R	AD0422
R21	MF 0.25W RES 2% 1K	AD0449
R22	MF 0.25W RES 2% 1K	AD0449
R23	MF 0.25W RES 2% 10K	AD0473
R24	MF 0.25W RES 2% 10K	AD0473
R25	MF 0.25W RES 2% 4K7	AD0465
R26	MF 0.25W RES 2% 4K7	AD0465
R27	MF 0.25W RES 2% 22K	AD0481
R28	MF 0.25W RES 2% 22K	AD0481
R29	MF 0.25W RES 2% 10K	AD0473
R30	MF 0.25W RES 2% 10K	AD0473
R31	MF 0.25W RES 2% 47K	AD0489
R32	MF 0.25W RES 2% 4K7	AD0465
R33	MF 0.25W RES 2% 2K2	AD0457
R34	MF 0.25W RES 2% 75R	AD0422
R35	MF 0.25W RES 2% 12K	AD0475
R36	MF 0.25W RES 2% 12K	AD0475
R37	MF 0.25W RES 2% 12K	AD0475
R38	MF 0.25W RES 2% 4K7	AD0465
R39	MF 0.25W RES 2% 4K7	AD0465
R40	MF 0.25W RES 2% 4K7	AD0465
R41	MF 0.25W RES 2% 4K7	AD0465
R42	MF 0.25W RES 2% 10K	AD0473
R43	MF 0.25W RES 2% 10K	AD0473
R44	MF 0.25W RES 2% 10K	AD0473
R45	MF 0.25W RES 2% 10K	AD0473
R46	MF 0.25W RES 2% 75R	AD0422
R47	MF 0.25W RES 2% 75R	AD0422
R48	MF 0.25W RES 2% 1K	AD0449
R49	MF 0.25W RES 2% 1K	AD0449
R50	MF 0.25W RES 2% 3K9	AD0463
R52	MF 0.25W RES 2% 10K	AD0473
R53	MF 0.25W RES 2% 10K	AD0473
R54	MF 0.25W RES 2% 10K	AD0473
R55	MF 0.25W RES 2% 10K	AD0473
R56	MF 0.25W RES 2% 10K	AD0473
R57	MF 0.25W RES 2% 10K	AD0473
R58	MF 0.25W RES 2% 8K2	AD0471
R59	MF 0.25W RES 2% 8K2	AD0471
R60	MF 0.25W RES 2% 8K2	AD0471
R61	MF 0.25W RES 2% 8K2	AD0471
R62	MF 0.25W RES 2% 10K	AD0473
R63	MF 0.25W RES 2% 10K	AD0473
R64	MF 0.25W RES 2% 10K	AD0473
R65	MF 0.25W RES 2% 10K	AD0473
R66	MF 0.25W RES 2% 4K7	AD0465
R67	MF 0.25W RES 2% 4K7	AD0465
R68	MF 0.25W RES 2% 10K	AD0473
R69	MF 0.25W RES 2% 10K	AD0473
R70	MF 0.25W RES 2% 8K2	AD0471
R71	MF 0.25W RES 2% 8K2	AD0471

R72	RES MF 10R 2% 0.25W RADIAL	AV0001
R73	RES MF 10R 2% 0.25W RADIAL	AV0001
R74	MF 0.25W RES 2% 75R	AD0422
R75	MF 0.25W RES 2% 1K	AD0449
R76	MF 0.25W RES 2% 6K8	AD0469
R77	MF 0.25W RES 2% 33K	AD0485
R78	MF 0.25W RES 2% 33K	AD0485
R79	MF 0.25W RES 2% 10K	AD0473
R80	MF 0.25W RES 2% 10K	AD0473
R81	MF 0.25W RES 2% 4K7	AD0465
R82	MF 0.25W RES 2% 22K	AD0481
R83	MF 0.25W RES 2% 22K	AD0481
R84	MF 0.25W RES 2% 22K	AD0481
R85	MF 0.25W RES 2% 2K	AD0456
R86	MF 0.25W RES 2% 47K	AD0489
R87	MF 0.25W RES 2% 4K7	AD0465
R88	MF 0.25W RES 2% 2K2	AD0457
R89	MF 0.25W RES 2% 10K	AD0473
R90	MF 0.25W RES 2% 10K	AD0473
R91	MF 0.25W RES 2% 10K	AD0473
R92	MF 0.25W RES 2% 22K	AD0481
R105	MF 0.25W RES 2% 22K	AD0481
R106	MF 0.25W RES 2% 22K	AD0481
R107	MF 0.25W RES 2% 10K	AD0473
R108	MF 0.25W RES 2% 10K	AD0473
R109	MF 0.25W RES 2% 4K7	AD0465
R110	MF 0.25W RES 2% 4K7	AD0465
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 100K	AD0497
R113	MF 0.25W RES 2% 680K	AD0517
R114	MF 0.25W RES 2% 100K	AD0497
R115	MF 0.25W RES 2% 100K	AD0497
R116	MF 0.25W RES 2% 680K	AD0517
R117	MF 0.25W RES 2% 100K	AD0497
R118	MF 0.25W RES 2% 100K	AD0497
R119	CF 0.25W RES 5% 10M BL	AC0341
R120	CF 0.25W RES 5% 10M BL	AC0341
R121	MF 0.25W RES 2% 680K	AD0517
R122	MF 0.25W RES 2% 680K	AD0517
R123	MF 0.25W RES 2% 100K	AD0497
R124	RES MF 10R 2% 0.25W RADIAL	AV0001
R125	RES MF 10R 2% 0.25W RADIAL	AV0001
R126	MF 0.25W RES 2% 20K	AD0480
R127	MF 0.25W RES 2% 20K	AD0480
R128	MF 0.25W RES 2% 4K7	AD0465
R129	MF 0.25W RES 2% 4K7	AD0465
R130	MF 0.25W RES 2% 150R	AD0429
R131	MF 0.25W RES 2% 3K3	AD0461
R132	MF 0.25W RES 2% 5K1	AD0466
R133	MF 0.25W RES 2% 5K1	AD0466
R134	MF 0.25W RES 2% 4K7	AD0465
R135	MF 0.25W RES 2% 2K4	AD0458
R136	MF 0.25W RES 2% 5K6	AD0467
R137	MF 0.25W RES 2% 6K8	AD0469
R138	MF 0.25W RES 2% 33K	AD0485
R139	MF 0.25W RES 2% 33K	AD0485
R140	MF 0.25W RES 2% 3K3	AD0461
R141	MF 0.25W RES 2% 3K3	AD0461

R142	MF 0.25W RES 2% 1K5	AD0453
R143	MF 0.25W RES 2% 5K1	AD0466
R144	MF 0.25W RES 2% 33K	AD0485
R145	MF 0.25W RES 2% 10K	AD0473
R146	MF 0.25W RES 2% 10K	AD0473
R147	MF 0.25W RES 2% 22K	AD0481
R148	MF 0.25W RES 2% 47K	AD0489
R149	MF 0.25W RES 2% 4K7	AD0465
R150	MF 0.25W RES 2% 2K2	AD0457
R151	MF 0.25W RES 2% 20K	AD0480
R152	MF 0.25W RES 2% 20K	AD0480
R153	MF 0.25W RES 2% 4K7	AD0465
R154	MF 0.25W RES 2% 4K7	AD0465
R155	MF 0.25W RES 2% 150R	AD0429
R156	MF 0.25W RES 2% 3K3	AD0461
R157	MF 0.25W RES 2% 5K1	AD0466
R158	MF 0.25W RES 2% 5K1	AD0466
R159	MF 0.25W RES 2% 4K7	AD0465
R160	MF 0.25W RES 2% 2K4	AD0458
R161	MF 0.25W RES 2% 5K6	AD0467
R162	MF 0.25W RES 2% 6K8	AD0469
R163	MF 0.25W RES 2% 33K	AD0485
R164	MF 0.25W RES 2% 33K	AD0485
R165	MF 0.25W RES 2% 3K3	AD0461
R166	MF 0.25W RES 2% 3K3	AD0461
R167	MF 0.25W RES 2% 1K5	AD0453
R168	MF 0.25W RES 2% 5K1	AD0466
R169	MF 0.25W RES 2% 33K	AD0485
R170	MF 0.25W RES 2% 10K	AD0473
R172	MF 0.25W RES 2% 22K	AD0481
R173	MF 0.25W RES 2% 47K	AD0489
R174	MF 0.25W RES 2% 4K7	AD0465
R175	MF 0.25W RES 2% 2K2	AD0457
R184	MF 0.25W RES 2% 75K	AD0494
R185	MF 0.25W RES 2% 100K	AD0497
R186	MF 0.25W RES 2% 100K	AD0497
R187	MF 0.25W RES 2% 75K	AD0494
R188	MF 0.25W RES 2% 39K	AD0487
R189	MF 0.25W RES 2% 39K	AD0487
R190	MF 0.25W RES 2% 220K	AD0505
R191	MF 0.25W RES 2% 100K	AD0497
R191	MF 0.25W RES 2% 100K	AD0497
R192	RES MF 10R 2% 0.25W RADIAL	AV0001
R193	RES MF 10R 2% 0.25W RADIAL	AV0001
R194	MF 0.25W RES 2% 100K	AD0497
R195	MF 0.25W RES 2% 100K	AD0497
R196	MF 0.25W RES 2% 100K	AD0497
R197	MF 0.25W RES 2% 100K	AD0497
R198	MF 0.25W RES 2% 100K	AD0497
R199	MF 0.25W RES 2% 100K	AD0497
R200	MF 0.25W RES 2% 100K	AD0497
R201	MF 0.25W RES 2% 100K	AD0497
R202	MF 0.25W RES 2% 100K	AD0497
R203	MF 0.25W RES 2% 100K	AD0497
R204	MF 0.25W RES 2% 100K	AD0497
R205	MF 0.25W RES 2% 100K	AD0497
R206	MF 0.25W RES 2% 100K	AD0497
R207	CF 0.25W RES 5% 10M BL	AC0341
R208	CF 0.25W RES 5% 10M BL	AC0341

R209	MF 0.25W RES 2% 680K	AD0517
R210	MF 0.25W RES 2% 680K	AD0517
R211	MF 0.25W RES 2% 680K	AD0517
R212	MF 0.25W RES 2% 100K	AD0497
R213	MF 0.25W RES 2% 100K	AD0497
R214	MF 0.25W RES 2% 680K	AD0517
R215	MF 0.25W RES 2% 100K	AD0497
R216	MF 0.25W RES 2% 100K	AD0497
R217	MF 0.25W RES 2% 680K	AD0517
R218	MF 0.25W RES 2% 100K	AD0497
R219	MF 0.25W RES 2% 47K	AD0489
R220	MF 0.25W RES 2% 680K	AD0517
R221	MF 0.25W RES 2% 100K	AD0497
R222	MF 0.25W RES 2% 47K	AD0489
R223	MF 0.25W RES 2% 100K	AD0497
R224	MF 0.25W RES 2% 100K	AD0497
R225	CF 0.25W RES 5% 10M BL	AC0341
R226	CF 0.25W RES 5% 10M BL	AC0341
R227	MF 0.25W RES 2% 680K	AD0517
R228	MF 0.25W RES 2% 680K	AD0517
R230	MF 0.25W RES 2% 1K8	AD0455
R231	RES MF 10R 2% 0.25W RADIAL	AV0001
R232	RES MF 10R 2% 0.25W RADIAL	AV0001
R233	RES MF 10R 2% 0.25W RADIAL	AV0001
R234	RES MF 10R 2% 0.25W RADIAL	AV0001
R235	RES MF 10R 2% 0.25W RADIAL	AV0001
R239	MF 0.25W RES 2% 10R	AD0401
R240	MF 0.25W RES 2% 22K	AD0481
R241	MF 0.25W RES 2% 220K	AD0505
R242	MF 0.25W RES 2% 75R	AD0422
R243	MF 0.25W RES 2% 39K	AD0487
R244	MF 0.25W RES 2% 39K	AD0487
R245	MF 0.25W RES 2% 1K5	AD0453
R246	MF 0.25W RES 2% 1K1	AD0450
R247	MF 0.25W RES 2% 910R	AD0448
R248	MF 0.25W RES 2% 680R	AD0445
R249	MF 0.25W RES 2% 620R	AD0444
R250	MF 0.25W RES 2% 470R	AD0441
R251	MF 0.25W RES 2% 330R	AD0437
R252	MF 0.25W RES 2% 300R	AD0436
R253	MF 0.25W RES 2% 220R	AD0433
R254	MF 0.25W RES 2% 180R	AD0431
R255	MF 0.25W RES 2% 150R	AD0429
R256	MF 0.25W RES 2% 110R	AD0426
R257	MF 0.25W RES 2% 91R	AD0424
R258	MF 0.25W RES 2% 68R	AD0421
R259	MF 0.25W RES 2% 62R	AD0420
R260	MF 0.25W RES 2% 47R	AD0417
R261	MF 0.25W RES 2% 33R	AD0413
R262	MF 0.25W RES 2% 27R	AD0411
R263	MF 0.25W RES 2% 20R	AD0408
R264	MF 0.25W RES 2% 91R	AD0424
R265	MF 0.25W RES 2% 15K	AD0477
R267	MF 0.25W RES 2% 100R	AD0425
R273	MF 0.25W RES 2% 3K6	AD0462
R274	MF 0.25W RES 2% 100R	AD0425
R276	MF 0.25W RES 2% 3K6	AD0462
R277	MF 0.25W RES 2% 100R	AD0425
R279	MF 0.25W RES 2% 100R	AD0425

R280	MF 0.25W RES 2% 220K	AD0505
R281	RES MF 10R 2% 0.25W RADIAL	AV0001
R282	RES MF 10R 2% 0.25W RADIAL	AV0001
R284	MF 0.25W RES 2% 10R	AD0401
R285	MF 0.25W RES 2% 100R	AD0425
R286	MF 0.25W RES 2% 1K	AD0449
R287	MF 0.25W RES 2% 1K	AD0449
R288	MF 0.25W RES 2% 1K	AD0449
R289	MF 0.25W RES 2% 1K	AD0449
S9	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SC2990	EUROPA GRP FX RH PCB	GD2990
SW1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SW2	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SW3	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SW4	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SW5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW6	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW7	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW8	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW10	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SW11	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SW12	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SW13	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW14	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
TR1	PNP TRANS 2SB737 LOW RBB	BD0346
TR2	PNP TRANS 2SB737 LOW RBB	BD0346
TR3	FET SWITCH J112 (TAPED)	BD0322
TR4	FET SWITCH J112 (TAPED)	BD0322
TR5	PNP TRANS 2SB737 LOW RBB	BD0346
TR6	PNP TRANS 2SB737 LOW RBB	BD0346
TR7	FET SWITCH J112 (TAPED)	BD0322
TR8	FET SWITCH J112 (TAPED)	BD0322
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	FET SWITCH J112 (TAPED)	BD0322
TR12	FET SWITCH J112 (TAPED)	BD0322
TR13	FET SWITCH J112 (TAPED)	BD0322
TR14	FET SWITCH J112 (TAPED)	BD0322
TR15	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR16	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR17	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR18	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR19	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR20	PNP TRANS 2SA970GR (TAPED)	BD0301
TR21	PNP TRANS 2SA970GR (TAPED)	BD0301
TR22	PNP TRANS 2SA970GR (TAPED)	BD0301
TR23	PNP TRANS 2SA970GR (TAPED)	BD0301
TR24	PNP TRANS 2SA970GR (TAPED)	BD0301
TR25	PNP TRANS 2SA970GR (TAPED)	BD0301
TR26	PNP TRANS 2SA970GR (TAPED)	BD0301
TR27	PNP TRANS 2SA970GR (TAPED)	BD0301
TR28	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR30	PNP TRANS 2SA970GR (TAPED)	BD0301
TR31	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR32	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR33	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR34	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR35	PNP TRANS 2SA970GR (TAPED)	BD0301
VR1	ALPS 9MM (SB/L)10K LOG A	DM1162

PSU I/F PCB

	PSU I/F PCB	RD2992
INDENT	**DESCRIPTION**	**PART NO.**
BAT1	BATTERY NI-CAD 6.2V 250MA/H	ZZ2733
C1	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C2	POLY-CAP 5MM 5% 63V 100N	CC0252
C3	POLY-CAP 5MM 5% 63V 100N	CC0252
C4	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C5	POLY-CAP 5MM 5% 100V 1N	CC0238
CN1	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN2	G80 IDC 16WY VERT ML LTCH HDR	FA0092
CN3	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN4	G80 IDC 34WY VERT LATCHED HDR	FA0043
CN5	CON MTA 156 8WY ML HDR LTCHD	FC0245
CN6	CON MTA156 4WY ML HDR LTCHD	FC0247
CN7	CON MTA156 6WY ML HDR LTCHD	FC0242
CN8	MTHD 8WY.1" ML LCKNG PLRSD HDR	FF0569
CN9	MTHD 8WY.1" ML LCKNG PLRSD HDR	FF0569
CN10	CON MTA156 6WY ML HDR LTCHD	FC0242
CN11	G80 IDC 50WY VERT LTCH ML HDR	FA0131
CN12	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN13	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN14	CON MTA 156 8WY ML HDR LTCHD	FC0245
CN15	G80 IDC 50WY VERT LTCH ML HDR	FA0131
CN16	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN17	CON MTA156 4WY ML HDR LTCHD	FC0247
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4001	BA0005
D5	DIODE 1N4001	BA0005
D6	ZENER DIODE 400MW 11V	BB0106
R1	MF 0.25W RES 2% 1K	AD0449
R2	MF 0.25W RES 2% 15K	AD0477
R3	MF 0.25W RES 2% 1K	AD0449
R4	MF 0.25W RES 2% 47K	AD0489
R5	MF 0.25W RES 2% 10K	AD0473
R6	MF 0.25W RES 2% 100K	AD0497
R9	MF 0.25W RES 2% 220K	AD0505
R10	MF 0.25W RES 2% 47K	AD0489
R29	MF 0.25W RES 2% 470R	AD0441
RP1	9P SIL 8X100K RES NETWORK	AZ2257
RP2	9P SIL 8X100K RES NETWORK	AZ2257
RP3	9P SIL 8X100K RES NETWORK	AZ2257
RP4	9P SIL 8X100K RES NETWORK	AZ2257
SC2992	EUROPA PSU I/F PCB	GD2992
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	PNP TRANS 2SA970GR (TAPED)	BD0301
	CABLE TIE 4.3"	LF0501

I/P RR CON PCB

	I/P RR CON PCB	RB2993
INDENT	**DESCRIPTION**	**PART No.**
CN6	1/4" PC MNTNG BLADE VERT	FF0676
CN7	MTHD .1" 3WY R/A ML HDR S12	FF0655
CN8	MTHD .1" 3WY R/A ML HDR S12	FF0655
CN9	MTHD .1" 3WY R/A ML HDR S12	FF0655
CN10	MTHD .1" 3WY R/A ML HDR S12	FF0655
CN17	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
JSK1	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK2	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK3	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK4	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK5	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK6	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK7	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK8	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK9	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK10	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK11	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK12	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK13	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK14	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK15	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK16	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK17	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK18	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK19	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK20	JCK SKT STR/BRK 114B/PC MTL	FH0734
MI3384	EUROPA I/P RR CON LOOM	RV2349
MI3385	EUROPA I/P RR CON MTR LOOM	RV2350
SC2993	EUROPA 4WY RR CON PCB	GB2993
SKT1	M2X4MM PAN POZI BLACK SCREW	NA0149
SKT1	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
SKT2	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
SKT3	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
SKT4	NTRK 3WY FML PC MNT THRED4FLNG	FK0943

O/P RR CON PCB

	O/P RR CON PCB	RA2994
INDENT	**DESCRIPTION**	**PART No.**
CN10	G80 IDC 26WY VERT LTCH HDR	FA0066
CN12	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN13	G80 IDC 26WY VERT LTCH HDR	FA0066
CN14	G80 IDC 26WY VERT LTCH HDR	FA0066
CN15	1/4" PC MNTNG BLADE VERT	FF0676
JSK1	JCK SKT STR/BRK 114B/PC MTL	FH0734
MI3385	EUROPA I/P RR CON MTR LOOM	RV2350
MI3387	EUROPA O/P RR CON LOOM ODD	RV2366
MI3388	EUROPA O/P RR CON LM(EVEN)	RV2392
SC2994	EUROPA O/P RR CON PCB	GA2994
XLR1	M2X4MM PAN POZI BLACK SCREW	NA0149
XLR1	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
	M2X4MM PAN POZI BLACK SCREW	NA0149

VCA GRP MAST PCB

	VCA GRP MAST PCB	RD2995
INDENT	**DESCRIPTION**	**PART No.**
C1	POLY-CAP 5MM 5% 100V 47N	CC0248
C2	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	POLY-CAP 5MM 5% 63V 100N	CC0252
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	POLY-CAP 5MM 5% 63V 100N	CC0252
C8	POLY-CAP 5MM 5% 63V 100N	CC0252
CN1	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN3	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN4	G80 1DC 16WY R/A LTCH ML HDR	FA0073
D1	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	4011 QUAD 2 I/P NAND	BF0502
IC2	14WY DIL IC SOCKET	FF0719
IC2	4069 HEX INVERTER	BF0515
IC3	14WY DIL IC SOCKET	FF0719
IC3	4016 QUAD ANALOGUE SWITCH	BF0505
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC NE5532	BE0428
IC5	14WY DIL IC SOCKET	FF0719
IC5	4069 HEX INVERTER	BF0515
IC6	14WY DIL IC SOCKET	FF0719
IC6	4011 QUAD 2 I/P NAND	BF0502
IC7	14WY DIL IC SOCKET	FF0719
IC7	4001 QUAD 2 I/P NOR	BF0501
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
J1	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J9	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J17	HONDA .1" 2WY JUMPER (GOLD)	FF0614
LD1	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
R1	MF 0.25W RES 2% 22K	AD0481
R2	MF 0.25W RES 2% 680K	AD0517
R3	MF 0.25W RES 2% 220K	AD0505
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 680K	AD0517
R6	MF 0.25W RES 2% 100K	AD0497
R7	MF 0.25W RES 2% 100K	AD0497
R8	MF 0.25W RES 2% 100K	AD0497
R9	MF 0.25W RES 2% 15K	AD0477
R10	MF 0.25W RES 2% 51R	AD0418
R11	MF 0.25W RES 2% 1M	AD0521
R12	MF 0.25W RES 2% 100K	AD0497
R13	MF 0.25W RES 2% 100K	AD0497
R14	MF 0.25W RES 2% 100K	AD0497
R15	MF 0.25W RES 2% 100K	AD0497
R16	MF 0.25W RES 2% 1M	AD0521
R17	MF 0.25W RES 2% 100K	AD0497
R18	MF 0.25W RES 2% 100K	AD0497
R19	MF 0.25W RES 2% 1M	AD0521
R20	MF 0.25W RES 2% 1M	AD0521
R21	MF 0.25W RES 2% 4K7	AD0465

Master RR CON PCB

	Master RR CON PCB	RB2996
INDENT	**DESCRIPTION**	**PART No.**
CN1	G80 IDC 26WY VERT LTCH HDR	FA0066
CN2	G80 IDC 34WY VERT LATCHED HDR	FA0043
CN3	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN4	G80 20WY VERT ML HDR LATCH	FA0085
CN5	G80 20WY VERT ML HDR LATCH	FA0085
CN6	G80 IDC 26WY VERT LTCH HDR	FA0066
CN7	MTHD 3WY .1" ML LCKG PLRSD HDR	FF0627
CN9	G80 IDC 10WY VERT LTCH ML HDR	FA0088
CN59	MTHD 3WY .1" ML LCKG PLRSD HDR	FF0627
CN63	1/4" PC MNTNG BLADE VERT	FF0676
CN64	1/4" PC MNTNG BLADE VERT	FF0676
JSK1	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK2	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK3	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK4	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK5	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK6	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK7	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK8	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK9	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK10	JCK SKT STR/BRK 114B/PC MTL	FH0734
SC2996	EUROPA MAST RR CON PCB	GB2996
XLR1	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR2	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR3	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR4	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR5	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR6	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR7	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR8	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR9	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR10	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR11	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR12	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR13	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR14	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR15	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR16	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR17	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR18	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR19	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR20	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR21	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR22	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR23	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944

5-Segment MTR PCB

	5-Segment MTR PCB	RD2998
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C2	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C3	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C4	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C5	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C6	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	6WY 2" FLEXI-STRIP	LC0236

D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
IC1	SGL OP AMP IC TL071CP	BE0404
IC2	QUAD COMPARATOR IC LM2901	BE0410
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LED1	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED3	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED4	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED5	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
PR1	TRIMMER VERT 3306W- 20K	DE0430
R1	MF 0.25W RES 2% 22K	AD0481
R2	MF 0.25W RES 2% 220K	AD0505
R3	MF 0.25W RES 2% 75R	AD0422
R4	MF 0.25W RES 2% 5K6	AD0467
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 22K	AD0481
R7	MF 0.25W RES 2% 220R	AD0433
R8	MF 0.25W RES 2% 470R	AD0441
R9	MF 0.25W RES 2% 1K5	AD0453
R10	MF 0.25W RES 2% 4K7	AD0465
R11	MF 0.25W RES 2% 12K	AD0475
R12	MF 0.25W RES 2% 470K	AD0513
R13	MF 0.25W RES 2% 56K	AD0491
R14	MF 0.25W RES 2% 680K	AD0517
R15	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
R16	RES MF 10R 2% 0.25W RADIAL	AV0001
R17	RES MF 10R 2% 0.25W RADIAL	AV0001
R18	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
SC2997	EUROPA 5-SEGMENT MTR PCB	GB2997
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302

Meter PCB

	Meter PCB	RD2998
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 10MF 50V	CE0419
C2	VERT ELEC 10MF 50V	CE0419
C5	POLY-CAP 5MM 5% 100V 1N	CC0238
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C9	VERT ELEC 10MF 50V	CE0419
C10	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C12	VERT ELEC 10MF 50V	CE0419
C13	VERT ELEC 10MF 50V	CE0419
C16	POLY-CAP 5MM 5% 100V 1N	CC0238
C18	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C20	VERT ELEC 10MF 50V	CE0419
C21	VERT ELEC 10MF 50V	CE0419
C24	POLY-CAP 5MM 5% 100V 1N	CC0238
C26	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C28	VERT ELEC 10MF 50V	CE0419
C29	VERT ELEC 10MF 50V	CE0419
C32	POLY-CAP 5MM 5% 100V 1N	CC0238
C34	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	G80 IDC 10WY R/A LTCHD HDR	FA0058
CN2	MTHD.1"8WY R/A LCKG ML HDR S12	FF0647

CN3	MTHD.1"8WY R/A LCKG ML HDR S12	FF0647
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
D12	DIODE 1N4148	BA0001
D13	DIODE 1N4148	BA0001
D14	DIODE 1N4148	BA0001
D19	DIODE 1N4148	BA0001
D20	DIODE 1N4148	BA0001
D21	DIODE 1N4148	BA0001
D22	DIODE 1N4148	BA0001
D27	DIODE 1N4148	BA0001
D28	DIODE 1N4148	BA0001
D29	DIODE 1N4148	BA0001
D30	DIODE 1N4148	BA0001
D35	DIODE 1N4148	BA0001
D36	DIODE 1N4148	BA0001
D37	DIODE 1N4148	BA0001
D38	DIODE 1N4148	BA0001
D40	DIODE 1N4148	BA0001
D41	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	SGL OP AMP IC TL071CP	BE0404
IC4	14WY DIL IC SOCKET	FF0719
IC4	QUAD COMPARATOR IC LM2901	BE0410
IC5	14WY DIL IC SOCKET	FF0719
IC5	QUAD COMPARATOR IC LM2901	BE0410
IC6	14WY DIL IC SOCKET	FF0719
IC6	QUAD COMPARATOR IC LM2901	BE0410
IC7	14WY DIL IC SOCKET	FF0719
IC7	QUAD COMPARATOR IC LM2901	BE0410
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC10	14WY DIL IC SOCKET	FF0719
IC10	QUAD COMPARATOR IC LM2901	BE0410
IC11	14WY DIL IC SOCKET	FF0719
IC11	QUAD COMPARATOR IC LM2901	BE0410
IC12	14WY DIL IC SOCKET	FF0719
IC12	QUAD COMPARATOR IC LM2901	BE0410
IC13	14WY DIL IC SOCKET	FF0719
IC13	QUAD COMPARATOR IC LM2901	BE0410
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC TL072CP	BE0413
IC16	14WY DIL IC SOCKET	FF0719
IC16	QUAD COMPARATOR IC LM2901	BE0410
IC17	14WY DIL IC SOCKET	FF0719
IC17	QUAD COMPARATOR IC LM2901	BE0410
IC18	14WY DIL IC SOCKET	FF0719
IC18	QUAD COMPARATOR IC LM2901	BE0410
IC19	14WY DIL IC SOCKET	FF0719
IC19	QUAD COMPARATOR IC LM2901	BE0410
IC20	8WY DIL IC SOCKET	FF0718

IC20	DUAL OP AMP IC TL072CP	BE0413
IC22	14WY DIL IC SOCKET	FF0719
IC22	QUAD COMPARATOR IC LM2901	BE0410
IC23	14WY DIL IC SOCKET	FF0719
IC23	QUAD COMPARATOR IC LM2901	BE0410
IC24	14WY DIL IC SOCKET	FF0719
IC24	QUAD COMPARATOR IC LM2901	BE0410
IC25	14WY DIL IC SOCKET	FF0719
IC25	QUAD COMPARATOR IC LM2901	BE0410
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J1	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J3	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J3	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J5	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J5	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J7	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J7	HONDA .1" 2WY JUMPER (GOLD)	FF0614
LED1	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED2	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED3	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED4	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED5	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED6	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED7	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED8	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED9	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED10	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED11	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED12	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED13	T1 3MM SUPERBRIGHT LED RED	JA0041
LED14	T1 3MM SUPERBRIGHT LED RED	JA0041
LED15	T1 3MM SUPERBRIGHT LED RED	JA0041
LED16	T1 3MM SUPERBRIGHT LED RED	JA0041
LED17	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED18	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED19	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED20	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED21	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED22	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED23	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED24	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED25	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED26	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED27	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED28	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED29	T1 3MM SUPERBRIGHT LED RED	JA0041
LED30	T1 3MM SUPERBRIGHT LED RED	JA0041
LED31	T1 3MM SUPERBRIGHT LED RED	JA0041
LED32	T1 3MM SUPERBRIGHT LED RED	JA0041
LED33	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED34	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED35	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED36	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED37	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED38	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED39	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED40	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED41	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED42	T1 3MM SUPERBRIGHT LED AMBER	JA0044

LED43	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED44	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED45	T1 3MM SUPERBRIGHT LED RED	JA0041
LED46	T1 3MM SUPERBRIGHT LED RED	JA0041
LED47	T1 3MM SUPERBRIGHT LED RED	JA0041
LED48	T1 3MM SUPERBRIGHT LED RED	JA0041
LED49	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED50	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED51	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED52	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED53	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED54	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED55	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED56	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED57	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED58	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED59	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED60	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED61	T1 3MM SUPERBRIGHT LED RED	JA0041
LED62	T1 3MM SUPERBRIGHT LED RED	JA0041
LED63	T1 3MM SUPERBRIGHT LED RED	JA0041
LED64	T1 3MM SUPERBRIGHT LED RED	JA0041
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR4	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 22K	AD0481
R2	MF 0.25W RES 2% 22K	AD0481
R3	MF 0.25W RES 2% 5K6	AD0467
R4	MF 0.25W RES 2% 7K5	AD0470
R5	MF 0.25W RES 2% 75R	AD0422
R6	MF 0.25W RES 2% 36K	AD0486
R7	MF 0.25W RES 2% 27K	AD0483
R8	MF 0.25W RES 2% 120K	AD0499
R9	MF 0.25W RES 2% 150K	AD0501
R19	MF 0.25W RES 2% 33K	AD0485
R20	MF 0.25W RES 2% 2K	AD0456
R21	MF 0.25W RES 2% 1K5	AD0453
R22	MF 0.25W RES 2% 1K1	AD0450
R23	MF 0.25W RES 2% 820R	AD0447
R24	MF 0.25W RES 2% 620R	AD0444
R25	MF 0.25W RES 2% 470R	AD0441
R26	MF 0.25W RES 2% 360R	AD0438
R27	MF 0.25W RES 2% 270R	AD0435
R28	MF 0.25W RES 2% 200R	AD0432
R29	MF 0.25W RES 2% 150R	AD0429
R30	MF 0.25W RES 2% 110R	AD0426
R31	MF 0.25W RES 2% 82R	AD0423
R32	MF 0.25W RES 2% 62R	AD0420
R33	MF 0.25W RES 2% 47R	AD0417
R34	MF 0.25W RES 2% 36R	AD0414
R35	MF 0.25W RES 2% 110R	AD0426
R36	MF 0.25W RES 2% 100K	AD0497
R37	MF 0.25W RES 2% 100K	AD0497
R38	MF 0.25W RES 2% 100R	AD0425
R39	MF 0.25W RES 2% 100R	AD0425
R40	MF 0.25W RES 2% 47K	AD0489
R41	MF 0.25W RES 2% 22K	AD0481
R42	MF 0.25W RES 2% 22K	AD0481

R43	MF 0.25W RES 2% 5K6	AD0467
R44	MF 0.25W RES 2% 7K5	AD0470
R45	MF 0.25W RES 2% 75R	AD0422
R46	MF 0.25W RES 2% 36K	AD0486
R47	MF 0.25W RES 2% 27K	AD0483
R48	MF 0.25W RES 2% 120K	AD0499
R49	MF 0.25W RES 2% 150K	AD0501
R59	MF 0.25W RES 2% 100R	AD0425
R60	MF 0.25W RES 2% 100R	AD0425
R61	MF 0.25W RES 2% 22K	AD0481
R62	MF 0.25W RES 2% 22K	AD0481
R63	MF 0.25W RES 2% 5K6	AD0467
R64	MF 0.25W RES 2% 7K5	AD0470
R65	MF 0.25W RES 2% 75R	AD0422
R66	MF 0.25W RES 2% 36K	AD0486
R67	MF 0.25W RES 2% 27K	AD0483
R68	MF 0.25W RES 2% 120K	AD0499
R69	MF 0.25W RES 2% 150K	AD0501
R79	MF 0.25W RES 2% 100R	AD0425
R80	MF 0.25W RES 2% 100R	AD0425
R81	MF 0.25W RES 2% 22K	AD0481
R82	MF 0.25W RES 2% 22K	AD0481
R83	MF 0.25W RES 2% 5K6	AD0467
R84	MF 0.25W RES 2% 7K5	AD0470
R85	MF 0.25W RES 2% 75R	AD0422
R86	MF 0.25W RES 2% 36K	AD0486
R87	MF 0.25W RES 2% 27K	AD0483
R88	MF 0.25W RES 2% 120K	AD0499
R89	MF 0.25W RES 2% 150K	AD0501
R99	MF 0.25W RES 2% 100R	AD0425
R100	MF 0.25W RES 2% 100R	AD0425
R101	MF 0.25W RES 2% 47K	AD0489
R102	MF 0.25W RES 2% 47K	AD0489
R103	MF 0.25W RES 2% 47K	AD0489
R104	RES MF 10R 2% 0.25W RADIAL	AV0001
SC2998	EUROPA MTR PCB	GD2998
TR1	PNP TRANS 2SA970GR (TAPED)	BD0301
TR2	PNP TRANS 2SA970GR (TAPED)	BD0301
TR3	PNP TRANS 2SA970GR (TAPED)	BD0301
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	PNP TRANS 2SA970GR (TAPED)	BD0301
TR6	PNP TRANS 2SA970GR (TAPED)	BD0301
TR7	PNP TRANS 2SA970GR (TAPED)	BD0301
TR8	PNP TRANS 2SA970GR (TAPED)	BD0301

Meter PCB

	Meter PCB	RD2998A
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 10MF 50V	CE0419
C2	VERT ELEC 10MF 50V	CE0419
C3	VERT ELEC 10MF 50V	CE0419
C4	VERT ELEC 10MF 50V	CE0419
C5	POLY-CAP 5MM 5% 100V 1N	CC0238
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C8	POLY-CAP 5MM 5% 100V 1N	CC0238
C9	VERT ELEC 10MF 50V	CE0419

C10	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C11	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C12	VERT ELEC 10MF 50V	CE0419
C13	VERT ELEC 10MF 50V	CE0419
C14	VERT ELEC 10MF 50V	CE0419
C15	VERT ELEC 10MF 50V	CE0419
C16	POLY-CAP 5MM 5% 100V 1N	CC0238
C17	POLY-CAP 5MM 5% 100V 1N	CC0238
C18	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C19	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C20	VERT ELEC 10MF 50V	CE0419
C21	VERT ELEC 10MF 50V	CE0419
C22	VERT ELEC 10MF 50V	CE0419
C23	VERT ELEC 10MF 50V	CE0419
C24	POLY-CAP 5MM 5% 100V 1N	CC0238
C25	POLY-CAP 5MM 5% 100V 1N	CC0238
C26	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C27	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C28	VERT ELEC 10MF 50V	CE0419
C29	VERT ELEC 10MF 50V	CE0419
C30	VERT ELEC 10MF 50V	CE0419
C31	VERT ELEC 10MF 50V	CE0419
C32	POLY-CAP 5MM 5% 100V 1N	CC0238
C33	POLY-CAP 5MM 5% 100V 1N	CC0238
C34	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	G80 IDC 10WY R/A LTCHD HDR	FA0058
CN2	MTHD.1"8WY R/A LCKG ML HDR S12	FF0647
CN3	MTHD.1"8WY R/A LCKG ML HDR S12	FF0647
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
D12	DIODE 1N4148	BA0001
D13	DIODE 1N4148	BA0001
D14	DIODE 1N4148	BA0001
D15	DIODE 1N4148	BA0001
D16	DIODE 1N4148	BA0001
D17	DIODE 1N4148	BA0001
D18	DIODE 1N4148	BA0001
D19	DIODE 1N4148	BA0001
D20	DIODE 1N4148	BA0001
D21	DIODE 1N4148	BA0001
D22	DIODE 1N4148	BA0001
D23	DIODE 1N4148	BA0001
D24	DIODE 1N4148	BA0001
D25	DIODE 1N4148	BA0001
D26	DIODE 1N4148	BA0001
D27	DIODE 1N4148	BA0001
D28	DIODE 1N4148	BA0001
D29	DIODE 1N4148	BA0001
D30	DIODE 1N4148	BA0001
D31	DIODE 1N4148	BA0001

D32	DIODE 1N4148	BA0001
D33	DIODE 1N4148	BA0001
D34	DIODE 1N4148	BA0001
D35	DIODE 1N4148	BA0001
D36	DIODE 1N4148	BA0001
D37	DIODE 1N4148	BA0001
D38	DIODE 1N4148	BA0001
D40	DIODE 1N4148	BA0001
D41	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	SGL OP AMP IC TL071CP	BE0404
IC4	14WY DIL IC SOCKET	FF0719
IC4	QUAD COMPARATOR IC LM2901	BE0410
IC5	14WY DIL IC SOCKET	FF0719
IC5	QUAD COMPARATOR IC LM2901	BE0410
IC6	14WY DIL IC SOCKET	FF0719
IC6	QUAD COMPARATOR IC LM2901	BE0410
IC7	14WY DIL IC SOCKET	FF0719
IC7	QUAD COMPARATOR IC LM2901	BE0410
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	14WY DIL IC SOCKET	FF0719
IC10	QUAD COMPARATOR IC LM2901	BE0410
IC11	14WY DIL IC SOCKET	FF0719
IC11	QUAD COMPARATOR IC LM2901	BE0410
IC12	14WY DIL IC SOCKET	FF0719
IC12	QUAD COMPARATOR IC LM2901	BE0410
IC13	14WY DIL IC SOCKET	FF0719
IC13	QUAD COMPARATOR IC LM2901	BE0410
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC TL072CP	BE0413
IC15	8WY DIL IC SOCKET	FF0718
IC15	DUAL OP AMP IC TL072CP	BE0413
IC16	14WY DIL IC SOCKET	FF0719
IC16	QUAD COMPARATOR IC LM2901	BE0410
IC17	14WY DIL IC SOCKET	FF0719
IC17	QUAD COMPARATOR IC LM2901	BE0410
IC18	14WY DIL IC SOCKET	FF0719
IC18	QUAD COMPARATOR IC LM2901	BE0410
IC19	14WY DIL IC SOCKET	FF0719
IC19	QUAD COMPARATOR IC LM2901	BE0410
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	8WY DIL IC SOCKET	FF0718
IC21	DUAL OP AMP IC TL072CP	BE0413
IC22	14WY DIL IC SOCKET	FF0719
IC22	QUAD COMPARATOR IC LM2901	BE0410
IC23	14WY DIL IC SOCKET	FF0719
IC23	QUAD COMPARATOR IC LM2901	BE0410
IC24	14WY DIL IC SOCKET	FF0719
IC24	QUAD COMPARATOR IC LM2901	BE0410
IC25	14WY DIL IC SOCKET	FF0719
IC25	QUAD COMPARATOR IC LM2901	BE0410

J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J1	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J3	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J4	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J5	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J6	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J7	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J8	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LED1	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED2	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED3	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED4	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED5	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED6	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED7	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED8	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED9	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED10	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED11	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED12	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED13	T1 3MM SUPERBRIGHT LED RED	JA0041
LED14	T1 3MM SUPERBRIGHT LED RED	JA0041
LED15	T1 3MM SUPERBRIGHT LED RED	JA0041
LED16	T1 3MM SUPERBRIGHT LED RED	JA0041
LED17	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED18	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED19	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED20	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED21	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED22	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED23	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED24	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED25	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED26	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED27	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED28	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED29	T1 3MM SUPERBRIGHT LED RED	JA0041
LED30	T1 3MM SUPERBRIGHT LED RED	JA0041
LED31	T1 3MM SUPERBRIGHT LED RED	JA0041
LED32	T1 3MM SUPERBRIGHT LED RED	JA0041
LED33	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED34	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED35	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED36	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED37	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED38	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED39	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED40	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED41	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED42	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED43	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED44	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED45	T1 3MM SUPERBRIGHT LED RED	JA0041
LED46	T1 3MM SUPERBRIGHT LED RED	JA0041
LED47	T1 3MM SUPERBRIGHT LED RED	JA0041
LED48	T1 3MM SUPERBRIGHT LED RED	JA0041
LED49	T1 3MM SUPERBRIGHT LED GREEN	JA0042

LED50	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED51	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED52	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED53	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED54	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED55	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED56	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LED57	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED58	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED59	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED60	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LED61	T1 3MM SUPERBRIGHT LED RED	JA0041
LED62	T1 3MM SUPERBRIGHT LED RED	JA0041
LED63	T1 3MM SUPERBRIGHT LED RED	JA0041
LED64	T1 3MM SUPERBRIGHT LED RED	JA0041
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR4	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 22K	AD0481
R2	MF 0.25W RES 2% 22K	AD0481
R3	MF 0.25W RES 2% 5K6	AD0467
R4	MF 0.25W RES 2% 7K5	AD0470
R5	MF 0.25W RES 2% 75R	AD0422
R6	MF 0.25W RES 2% 36K	AD0486
R7	MF 0.25W RES 2% 27K	AD0483
R8	MF 0.25W RES 2% 120K	AD0499
R9	MF 0.25W RES 2% 150K	AD0501
R10	MF 0.25W RES 2% 22K	AD0481
R11	MF 0.25W RES 2% 22K	AD0481
R12	MF 0.25W RES 2% 5K6	AD0467
R13	MF 0.25W RES 2% 7K5	AD0470
R14	MF 0.25W RES 2% 75R	AD0422
R15	MF 0.25W RES 2% 36K	AD0486
R16	MF 0.25W RES 2% 27K	AD0483
R17	MF 0.25W RES 2% 120K	AD0499
R18	MF 0.25W RES 2% 150K	AD0501
R19	MF 0.25W RES 2% 33K	AD0485
R20	MF 0.25W RES 2% 2K	AD0456
R21	MF 0.25W RES 2% 1K5	AD0453
R22	MF 0.25W RES 2% 1K1	AD0450
R23	MF 0.25W RES 2% 820R	AD0447
R24	MF 0.25W RES 2% 620R	AD0444
R25	MF 0.25W RES 2% 470R	AD0441
R26	MF 0.25W RES 2% 360R	AD0438
R27	MF 0.25W RES 2% 270R	AD0435
R28	MF 0.25W RES 2% 200R	AD0432
R29	MF 0.25W RES 2% 150R	AD0429
R30	MF 0.25W RES 2% 110R	AD0426
R31	MF 0.25W RES 2% 82R	AD0423
R32	MF 0.25W RES 2% 62R	AD0420
R33	MF 0.25W RES 2% 47R	AD0417
R34	MF 0.25W RES 2% 36R	AD0414
R35	MF 0.25W RES 2% 110R	AD0426
R36	MF 0.25W RES 2% 100K	AD0497
R37	MF 0.25W RES 2% 100K	AD0497
R38	MF 0.25W RES 2% 100R	AD0425
R39	MF 0.25W RES 2% 100R	AD0425

R40	MF 0.25W RES 2% 47K	AD0489
R41	MF 0.25W RES 2% 22K	AD0481
R42	MF 0.25W RES 2% 22K	AD0481
R43	MF 0.25W RES 2% 5K6	AD0467
R44	MF 0.25W RES 2% 7K5	AD0470
R45	MF 0.25W RES 2% 75R	AD0422
R46	MF 0.25W RES 2% 36K	AD0486
R47	MF 0.25W RES 2% 27K	AD0483
R48	MF 0.25W RES 2% 120K	AD0499
R49	MF 0.25W RES 2% 150K	AD0501
R50	MF 0.25W RES 2% 22K	AD0481
R51	MF 0.25W RES 2% 22K	AD0481
R52	MF 0.25W RES 2% 5K6	AD0467
R53	MF 0.25W RES 2% 7K5	AD0470
R54	MF 0.25W RES 2% 75R	AD0422
R55	MF 0.25W RES 2% 36K	AD0486
R56	MF 0.25W RES 2% 27K	AD0483
R57	MF 0.25W RES 2% 120K	AD0499
R58	MF 0.25W RES 2% 150K	AD0501
R59	MF 0.25W RES 2% 100R	AD0425
R60	MF 0.25W RES 2% 100R	AD0425
R61	MF 0.25W RES 2% 22K	AD0481
R62	MF 0.25W RES 2% 22K	AD0481
R63	MF 0.25W RES 2% 5K6	AD0467
R64	MF 0.25W RES 2% 7K5	AD0470
R65	MF 0.25W RES 2% 75R	AD0422
R66	MF 0.25W RES 2% 36K	AD0486
R67	MF 0.25W RES 2% 27K	AD0483
R68	MF 0.25W RES 2% 120K	AD0499
R69	MF 0.25W RES 2% 150K	AD0501
R70	MF 0.25W RES 2% 22K	AD0481
R71	MF 0.25W RES 2% 22K	AD0481
R72	MF 0.25W RES 2% 5K6	AD0467
R73	MF 0.25W RES 2% 7K5	AD0470
R74	MF 0.25W RES 2% 75R	AD0422
R75	MF 0.25W RES 2% 36K	AD0486
R76	MF 0.25W RES 2% 27K	AD0483
R77	MF 0.25W RES 2% 120K	AD0499
R78	MF 0.25W RES 2% 150K	AD0501
R79	MF 0.25W RES 2% 100R	AD0425
R80	MF 0.25W RES 2% 100R	AD0425
R81	MF 0.25W RES 2% 22K	AD0481
R82	MF 0.25W RES 2% 22K	AD0481
R83	MF 0.25W RES 2% 5K6	AD0467
R84	MF 0.25W RES 2% 7K5	AD0470
R85	MF 0.25W RES 2% 75R	AD0422
R86	MF 0.25W RES 2% 36K	AD0486
R87	MF 0.25W RES 2% 27K	AD0483
R88	MF 0.25W RES 2% 120K	AD0499
R89	MF 0.25W RES 2% 150K	AD0501
R90	MF 0.25W RES 2% 22K	AD0481
R91	MF 0.25W RES 2% 22K	AD0481
R92	MF 0.25W RES 2% 5K6	AD0467
R93	MF 0.25W RES 2% 7K5	AD0470
R94	MF 0.25W RES 2% 75R	AD0422
R95	MF 0.25W RES 2% 36K	AD0486
R96	MF 0.25W RES 2% 27K	AD0483
R97	MF 0.25W RES 2% 120K	AD0499

R98	MF 0.25W RES 2% 150K	AD0501
R99	MF 0.25W RES 2% 100R	AD0425
R100	MF 0.25W RES 2% 100R	AD0425
R101	MF 0.25W RES 2% 47K	AD0489
R102	MF 0.25W RES 2% 47K	AD0489
R103	MF 0.25W RES 2% 47K	AD0489
R104	RES MF 10R 2% 0.25W RADIAL	AV0001
SC2998	EUROPA MTR PCB	GD2998
TR1	PNP TRANS 2SA970GR (TAPED)	BD0301
TR2	PNP TRANS 2SA970GR (TAPED)	BD0301
TR3	PNP TRANS 2SA970GR (TAPED)	BD0301
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	PNP TRANS 2SA970GR (TAPED)	BD0301
TR6	PNP TRANS 2SA970GR (TAPED)	BD0301
TR7	PNP TRANS 2SA970GR (TAPED)	BD0301
TR8	PNP TRANS 2SA970GR (TAPED)	BD0301

VCA Mute Assign PCB

VCA Mute Assign PCB RC2999

INDENT	DESCRIPTION	PART No.
C1	POLY-CAP 5MM 5% 100V 47N	CC0248
C2	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	POLY-CAP 5MM 5% 100V 47N	CC0248
C4	POLY-CAP 5MM 5% 100V 47N	CC0248
C5	POLY-CAP 5MM 5% 100V 47N	CC0248
C6	POLY-CAP 5MM 5% 100V 47N	CC0248
C7	POLY-CAP 5MM 5% 100V 47N	CC0248
C8	POLY-CAP 5MM 5% 100V 47N	CC0248
C9	POLY-CAP 5MM 5% 100V 47N	CC0248
C10	POLY-CAP 5MM 5% 100V 47N	CC0248
C11	POLY-CAP 5MM 5% 100V 47N	CC0248
C12	POLY-CAP 5MM 5% 63V 100N	CC0252
C13	POLY-CAP 5MM 5% 63V 100N	CC0252
C14	POLY-CAP 5MM 5% 100V 47N	CC0248
C15	POLY-CAP 5MM 5% 63V 100N	CC0252
C16	POLY-CAP 5MM 5% 63V 100N	CC0252
C17	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C18	POLY-CAP 5MM 5% 63V 100N	CC0252
C19	POLY-CAP 5MM 5% 63V 100N	CC0252
C20	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C21	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C22	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C23	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C24	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
CN1	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN2	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN3	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN4	G80 1DC 16WY R/A LTCH ML HDR	FA0073
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4148	BA0001

IC1	14WY DIL IC SOCKET	FF0719
IC1	4011 QUAD 2 I/P NAND	BF0502
IC2	4069 HEX INVERTER	BF0515
IC3	4011 QUAD 2 I/P NAND	BF0502
IC4	4069 HEX INVERTER	BF0515
IC5	4001 QUAD 2 I/P NOR	BF0501
IC6	4011 QUAD 2 I/P NAND	BF0502
IC7	QUAD OP AMP IC TL074	BE0403
IC8	40106BCN HEX INVERTER	BF0539
IC9	40106BCN HEX INVERTER	BF0539
IC11	4016 QUAD ANALOGUE SWITCH	BF0505
IC12	4071B QUAD 2 I/P OR	BF0540
IC13	4011 QUAD 2 I/P NAND	BF0502
IC14	8WY DIL IC SOCKET	FF0718
IC14	REF02HP VOLTAGE REF	BE0463
LED1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED2	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED4	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED6	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED7	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED8	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED9	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED10	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED11	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED12	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED13	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
R43	MF 0.25W RES 2% 15K	AD0477
R45	MF 0.25W RES 2% 5K1	AD0466
R46	MF 0.25W RES 2% 1K	AD0449
R47	MF 0.25W RES 2% 1M	AD0521
R48	MF 0.25W RES 2% 100K	AD0497
R60	MF 0.25W RES 2% 10K	AD0473
R61	MF 0.25W RES 2% 100R	AD0425
R62	MF 0.25W RES 2% 100R	AD0425
R63	MF 0.25W RES 2% 100R	AD0425
R71	MF 0.25W RES 2% 10K	AD0473
R72	MF 0.25W RES 2% 10K	AD0473
R73	MF 0.25W RES 2% 10K	AD0473
R74	MF 0.25W RES 2% 1K2	AD0451
R75	MF 0.25W RES 2% 100K	AD0497
R76	MF 0.25W RES 2% 100K	AD0497
R77	RES MF 10R 2% 0.25W RADIAL	AV0001
R78	RES MF 10R 2% 0.25W RADIAL	AV0001
R79	RES MF 10R 2% 0.25W RADIAL	AV0001
R80	RES MF 10R 2% 0.25W RADIAL	AV0001
RP1	9P SIL 8X100K RES NETWORK	AZ2257
RP2	9P SIL 8X100K RES NETWORK	AZ2257
RP3	8P SIL 4X680K RES NETWORK	AZ2256
RP4	8P SIL 4X22K RES NETWORK	AZ2240
RP5	8P SIL 4X680K RES NETWORK	AZ2256
RP6	8P SIL 4X22K RES NETWORK	AZ2240
RP7	8P SIL 4X100K RES NETWORK	AZ2218
RP8	8P SIL 4X100K RES NETWORK	AZ2218
RP9	8P SIL 4X100K RES NETWORK	AZ2218
RP10	8P SIL 4X100K RES NETWORK	AZ2218
RP11	8P SIL 4X100K RES NETWORK	AZ2218

RP12	8P SIL 4X100K RES NETWORK	AZ2218
RP13	8P SIL 4X680K RES NETWORK	AZ2256
RP14	8P SIL 4X22K RES NETWORK	AZ2240
SC2999	EUROPA VCA MUTE ASSIGN PCB	GC2999
SW1	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW2	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW3	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW4	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW5	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW6	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW7	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW8	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW9	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW10	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW11	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW12	ALPS (SUN TYPE)4 POLE PUSH SWT	DF0517
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	PNP TRANS 2SA970GR (TAPED)	BD0301
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	PNP TRANS 2SA970GR (TAPED)	BD0301
TR6	PNP TRANS 2SA970GR (TAPED)	BD0301
TR7	PNP TRANS 2SA970GR (TAPED)	BD0301
TR8	PNP TRANS 2SA970GR (TAPED)	BD0301
TR9	PNP TRANS 2SA970GR (TAPED)	BD0301
TR10	PNP TRANS 2SA970GR (TAPED)	BD0301
TR11	PNP TRANS 2SA970GR (TAPED)	BD0301
TR12	PNP TRANS 2SA970GR (TAPED)	BD0301
TR13	PNP TRANS 2SA970GR (TAPED)	BD0301
TR14	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR15	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR16	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR18	PNP TRANS 2SA970GR (TAPED)	BD0301
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114

Mute Master PCB 4

	Mute Master PCB 4	RB3000
INDENT	**DESCRIPTION**	**PART NO.**
C1	POLY-CAP 5MM 5% 100V 47N	CC0248
C2	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	POLY-CAP 5MM 5% 100V 47N	CC0248
C4	POLY-CAP 5MM 5% 100V 47N	CC0248
C5	POLY-CAP 5MM 5% 100V 47N	CC0248
C6	POLY-CAP 5MM 5% 100V 47N	CC0248
C7	POLY-CAP 5MM 5% 100V 47N	CC0248
C8	POLY-CAP 5MM 5% 100V 47N	CC0248
C9	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C10	POLY-CAP 5MM 5% 63V 100N	CC0252
C11	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN3	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN4	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN5	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN6	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN7	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN8	MTHD .1" 4WY VERT LCKG ML HDR	FF0638

CN9	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN10	G80 IDC 34WY VERT LATCHED HDR	FA0043
CN11	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN12	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	4011 QUAD 2 I/P NAND	BF0502
IC2	14WY DIL IC SOCKET	FF0719
IC2	4011 QUAD 2 I/P NAND	BF0502
IC3	14WY DIL IC SOCKET	FF0719
IC3	4011 QUAD 2 I/P NAND	BF0502
IC4	14WY DIL IC SOCKET	FF0719
IC4	4069 HEX INVERTER	BF0515
LK1	HONDA .1" 2WY SIL HDR (GOLD)	FF0613
R1	MF 0.25W RES 2% 22K	AD0481
R2	MF 0.25W RES 2% 22K	AD0481
R3	MF 0.25W RES 2% 22K	AD0481
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 22K	AD0481
R7	MF 0.25W RES 2% 22K	AD0481
R8	MF 0.25W RES 2% 22K	AD0481
R9	MF 0.25W RES 2% 680K	AD0517
R10	MF 0.25W RES 2% 680K	AD0517
R11	MF 0.25W RES 2% 680K	AD0517
R12	MF 0.25W RES 2% 680K	AD0517
R13	MF 0.25W RES 2% 680K	AD0517
R14	MF 0.25W RES 2% 680K	AD0517
R15	MF 0.25W RES 2% 680K	AD0517
R16	MF 0.25W RES 2% 680K	AD0517
R17	MF 0.25W RES 2% 100K	AD0497
R18	MF 0.25W RES 2% 100K	AD0497
R19	MF 0.25W RES 2% 100K	AD0497
R20	MF 0.25W RES 2% 100K	AD0497
R21	MF 0.25W RES 2% 100K	AD0497
R22	MF 0.25W RES 2% 100K	AD0497
R23	MF 0.25W RES 2% 100K	AD0497
R24	MF 0.25W RES 2% 100K	AD0497
R25	MF 0.25W RES 2% 100K	AD0497
R26	MF 0.25W RES 2% 100K	AD0497
R27	MF 0.25W RES 2% 100K	AD0497
R28	MF 0.25W RES 2% 100K	AD0497
R29	MF 0.25W RES 2% 100K	AD0497
R30	MF 0.25W RES 2% 100K	AD0497
R31	MF 0.25W RES 2% 100K	AD0497
R32	MF 0.25W RES 2% 100K	AD0497
R33	MF 0.25W RES 2% 100K	AD0497
R34	MF 0.25W RES 2% 51R	AD0418
R35	MF 0.25W RES 2% 51R	AD0418

R36	MF 0.25W RES 2% 10K	AD0473
R37	MF 0.25W RES 2% 100K	AD0497
R38	MF 0.25W RES 2% 180R	AD0431
SC3000	EUROPA MUTE MASTER PCB	GB3000
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR4	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR6	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR7	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302

Master PCB 1

	Master PCB 1	RC3001
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C2	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C3	POLY-CAP 5MM 5% 100V 1N	CC0238
C4	POLY-CAP 5MM 5% 100V 47N	CC0248
C5	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C6	POLY-CAP 5MM 5% 100V 47N	CC0248
C7	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C8	POLY-CAP 5MM 5% 63V 100N	CC0252
C9	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C10	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C11	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C12	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C13	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C14	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C15	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C16	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C17	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C18	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C19	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C20	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C21	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C22	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C23	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C24	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C25	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C26	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C27	POLY-CAP 5MM 5% 63V 100N	CC0252
C28	POLY-CAP 5MM 5% 63V 100N	CC0252
C29	POLY-CAP 5MM 5% 63V 100N	CC0252
C30	POLY-CAP 5MM 5% 63V 100N	CC0252
C31	POLY-CAP 5MM 5% 63V 100N	CC0252
C32	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C33	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C34	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C35	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C36	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C37	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C38	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C39	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C40	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C41	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C42	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C43	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C44	POLY-CAP 5MM 5% 63V 100N	CC0252
C47	POLY-CAP 5MM 5% 63V 100N	CC0252
C48	POLY-CAP 5MM 5% 63V 100N	CC0252
C49	POLY-CAP 5MM 5% 63V 100N	CC0252
C50	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C51	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C52	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C53	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C54	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C55	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C57	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C58	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C59	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C60	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C61	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C62	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C63	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C64	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C65	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C66	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C67	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C68	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C69	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C70	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C71	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C72	POLY-CAP 5MM 5% 100V 1N	CC0238
C73	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C74	POLY-CAP 5MM 5% 100V 47N	CC0248
C75	POLY-CAP 5MM 5% 100V 47N	CC0248
C76	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C77	POLY-CAP 5MM 5% 63V 100N	CC0252
C78	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C79	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C83	POLY-CAP 5MM 5% 63V 100N	CC0252
C84	POLY-CAP 5MM 5% 63V 100N	CC0252
C85	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C86	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C87	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C88	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C89	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C90	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C91	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C92	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C93	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C94	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C95	POLY-CAP 5MM 5% 63V 220N	CC0255
C96	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C97	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C98	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C99	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C100	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C101	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005

C102	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C103	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C104	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C105	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C106	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C107	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C108	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C109	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C110	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C111	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C115	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C116	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C117	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN3	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN4	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN5	G80 IDC 20WY R/A LTCHD HDR	FA0060
CN6	1/4" PC MNTG BLADE HORIZ	FF0555
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
D12	DIODE 1N4148	BA0001
D13	DIODE 1N4148	BA0001
D14	DIODE 1N4148	BA0001
D15	DIODE 1N4148	BA0001
D16	DIODE 1N4148	BA0001
D17	ZENER DIODE 400MW 9V1	BB0105
D18	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	SGL OP AMP IC TL071CP	BE0404
IC3	14WY DIL IC SOCKET	FF0719
IC3	4069 HEX INVERTER	BF0515
IC4	14WY DIL IC SOCKET	FF0719
IC4	4011 QUAD 2 I/P NAND	BF0502
IC5	14WY DIL IC SOCKET	FF0719
IC5	4081 QUAD 2 I/P AND GATE	BF0527
IC6	14WY DIL IC SOCKET	FF0719
IC6	4001 QUAD 2 I/P NOR	BF0501
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC NE5532	BE0428
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC NE5532	BE0428
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC NE5532	BE0428
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	8WY DIL IC SOCKET	FF0718

IC12	SGL OP AMP IC TL071CP	BE0404
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC NE5532	BE0428
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC NE5532	BE0428
IC15	8WY DIL IC SOCKET	FF0718
IC15	DUAL OP AMP IC NE5532	BE0428
IC16	8WY DIL IC SOCKET	FF0718
IC16	DUAL OP AMP IC NE5532	BE0428
IC17	8WY DIL IC SOCKET	FF0718
IC17	DUAL OP AMP IC NE5532	BE0428
IC18	8WY DIL IC SOCKET	FF0718
IC18	DUAL OP AMP IC NE5532	BE0428
IC19	14WY DIL IC SOCKET	FF0719
IC19	4066 QUAD ANALOGUE SWITCH	BF0507
IC20	14WY DIL IC SOCKET	FF0719
IC20	QUAD COMPARATOR IC LM2901	BE0410
IC21	14WY DIL IC SOCKET	FF0719
IC21	QUAD COMPARATOR IC LM2901	BE0410
IC22	14WY DIL IC SOCKET	FF0719
IC22	QUAD COMPARATOR IC LM2901	BE0410
IC23	14WY DIL IC SOCKET	FF0719
IC23	QUAD COMPARATOR IC LM2901	BE0410
IC24	14WY DIL IC SOCKET	FF0719
IC24	QUAD COMPARATOR IC LM2901	BE0410
IC25	8WY DIL IC SOCKET	FF0718
IC25	DUAL OP AMP IC TL072CP	BE0413
IC26	16WY DIL IC SOCKET	FF0720
IC26	40109 QUAD VLTG LVL SHIFTER	BF0520
IC27	14WY DIL IC SOCKET	FF0719
IC27	4011 QUAD 2 I/P NAND	BF0502
IC28	8WY DIL IC SOCKET	FF0718
IC28	SGL OP AMP IC TDA1034/NE5534	BE0407
IC29	8WY DIL IC SOCKET	FF0718
IC29	SGL OP AMP IC TL071CP	BE0404
IC30	14WY DIL IC SOCKET	FF0719
IC30	4066 QUAD ANALOGUE SWITCH	BF0507
IC31	14WY DIL IC SOCKET	FF0719
IC31	4069 HEX INVERTER	BF0515
IC32	8WY DIL IC SOCKET	FF0718
IC32	DUAL OP AMP IC TL072CP	BE0413
IC33	8WY DIL IC SOCKET	FF0718
IC33	SGL OP AMP IC TL071CP	BE0404
IC35	8WY DIL IC SOCKET	FF0718
IC35	DUAL OP AMP IC TL072CP	BE0413
J1	HONDA .1" 2WY SIL HDR (GOLD)	FF0613
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J3	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J4	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LED1	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED2	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED3	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED4	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED5	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED6	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED8	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED9	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058

LED10	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED11	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED12	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED13	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED14	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LED15	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LED16	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED17	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED18	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED19	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED20	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED21	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED22	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED23	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED24	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED25	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED26	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LED27	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LED28	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LED29	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LED30	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR4	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR5	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR6	TRIMMER VERT 3306W- 20K	DE0430
R1	MF 0.25W RES 2% 100K	AD0497
R2	MF 0.25W RES 2% 3K9	AD0463
R3	MF 0.25W RES 2% 180K	AD0503
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 680R	AD0445
R7	MF 0.25W RES 2% 470K	AD0513
R8	MF 0.25W RES 2% 470K	AD0513
R9	MF 0.25W RES 2% 220K	AD0505
R10	MF 0.25W RES 2% 10K	AD0473
R11	MF 0.25W RES 2% 100K	AD0497
R12	MF 0.25W RES 2% 100K	AD0497
R13	MF 0.25W RES 2% 22K	AD0481
R14	MF 0.25W RES 2% 680K	AD0517
R15	MF 0.25W RES 2% 100K	AD0497
R16	MF 0.25W RES 2% 100K	AD0497
R17	MF 0.25W RES 2% 100K	AD0497
R18	MF 0.25W RES 2% 1M	AD0521
R19	MF 0.25W RES 2% 22K	AD0481
R20	MF 0.25W RES 2% 680K	AD0517
R21	MF 0.25W RES 2% 100K	AD0497
R22	MF 0.25W RES 2% 100K	AD0497
R23	MF 0.25W RES 2% 100K	AD0497
R24	MF 0.25W RES 2% 100K	AD0497
R25	MF 0.25W RES 2% 51R	AD0418
R26	MF 0.25W RES 2% 10K	AD0473
R27	MF 0.25W RES 2% 220R	AD0433
R28	MF 0.25W RES 2% 100K	AD0497
R30	MF 0.25W RES 2% 100K	AD0497

R31	MF 0.25W RES 2% 1M	AD0521
R32	MF 0.25W RES 2% 7K5	AD0470
R33	MF 0.25W RES 2% 7K5	AD0470
R34	MF 0.25W RES 2% 7K5	AD0470
R35	MF 0.25W RES 2% 3K3	AD0461
R36	MF 0.25W RES 2% 3K3	AD0461
R37	MF 0.25W RES 2% 3K3	AD0461
R38	MF 0.25W RES 2% 22K	AD0481
R39	MF 0.25W RES 2% 22K	AD0481
R40	MF 0.25W RES 2% 22K	AD0481
R41	MF 0.25W RES 2% 22K	AD0481
R42	MF 0.25W RES 2% 22K	AD0481
R43	MF 0.25W RES 2% 22K	AD0481
R44	MF 0.25W RES 2% 4K7	AD0465
R45	MF 0.25W RES 2% 4K7	AD0465
R46	MF 0.25W RES 2% 4K7	AD0465
R47	MF 0.25W RES 2% 4K7	AD0465
R48	MF 0.25W RES 2% 4K7	AD0465
R49	MF 0.25W RES 2% 4K7	AD0465
R50	MF 0.25W RES 2% 4K7	AD0465
R51	MF 0.25W RES 2% 4K7	AD0465
R52	MF 0.25W RES 2% 10K	AD0473
R53	MF 0.25W RES 2% 10K	AD0473
R54	MF 0.25W RES 2% 10K	AD0473
R55	MF 0.25W RES 2% 10K	AD0473
R56	MF 0.25W RES 2% 10K	AD0473
R57	MF 0.25W RES 2% 10K	AD0473
R58	MF 0.25W RES 2% 10K	AD0473
R59	MF 0.25W RES 2% 10K	AD0473
R60	MF 0.25W RES 2% 75R	AD0422
R61	MF 0.25W RES 2% 75R	AD0422
R62	MF 0.25W RES 2% 75R	AD0422
R63	MF 0.25W RES 2% 75R	AD0422
R64	MF 0.25W RES 2% 1K	AD0449
R65	MF 0.25W RES 2% 1K	AD0449
R66	MF 0.25W RES 2% 1K	AD0449
R67	MF 0.25W RES 2% 1K	AD0449
R68	MF 0.25W RES 2% 22K	AD0481
R69	MF 0.25W RES 2% 22K	AD0481
R70	MF 0.25W RES 2% 22K	AD0481
R71	MF 0.25W RES 2% 22K	AD0481
R72	MF 0.25W RES 2% 22K	AD0481
R73	MF 0.25W RES 2% 22K	AD0481
R74	MF 0.25W RES 2% 22K	AD0481
R75	MF 0.25W RES 2% 22K	AD0481
R76	MF 0.25W RES 2% 22K	AD0481
R77	MF 0.25W RES 2% 4K7	AD0465
R78	MF 0.25W RES 2% 4K7	AD0465
R79	MF 0.25W RES 2% 4K7	AD0465
R80	MF 0.25W RES 2% 4K7	AD0465
R81	MF 0.25W RES 2% 10K	AD0473
R82	MF 0.25W RES 2% 10K	AD0473
R83	MF 0.25W RES 2% 10K	AD0473
R84	MF 0.25W RES 2% 10K	AD0473
R85	MF 0.25W RES 2% 75R	AD0422
R86	MF 0.25W RES 2% 75R	AD0422
R87	MF 0.25W RES 2% 1K	AD0449
R88	MF 0.25W RES 2% 1K	AD0449
R89	MF 0.25W RES 2% 22K	AD0481

R90	MF 0.25W RES 2% 22K	AD0481
R91	MF 0.25W RES 2% 36K	AD0486
R92	MF 0.25W RES 2% 36K	AD0486
R93	MF 0.25W RES 2% 22K	AD0481
R94	MF 0.25W RES 2% 2K2	AD0457
R95	MF 0.25W RES 2% 2K2	AD0457
R96	MF 0.25W RES 2% 4K7	AD0465
R97	MF 0.25W RES 2% 4K7	AD0465
R98	MF 0.25W RES 2% 22K	AD0481
R99	MF 0.25W RES 2% 22K	AD0481
R100	MF 0.25W RES 2% 1K	AD0449
R101	MF 0.25W RES 2% 1K	AD0449
R102	MF 0.25W RES 2% 100K	AD0497
R103	MF 0.25W RES 2% 100K	AD0497
R104	MF 0.25W RES 2% 4K7	AD0465
R105	MF 0.25W RES 2% 4K7	AD0465
R106	MF 0.25W RES 2% 4K7	AD0465
R107	MF 0.25W RES 2% 4K7	AD0465
R108	MF 0.25W RES 2% 10K	AD0473
R109	MF 0.25W RES 2% 10K	AD0473
R110	MF 0.25W RES 2% 4K7	AD0465
R111	MF 0.25W RES 2% 4K7	AD0465
R112	MF 0.25W RES 2% 4K7	AD0465
R113	MF 0.25W RES 2% 4K7	AD0465
R114	MF 0.25W RES 2% 10K	AD0473
R115	MF 0.25W RES 2% 10K	AD0473
R116	MF 0.25W RES 2% 10K	AD0473
R117	MF 0.25W RES 2% 75R	AD0422
R118	MF 0.25W RES 2% 10K	AD0473
R119	MF 0.25W RES 2% 10K	AD0473
R120	MF 0.25W RES 2% 10K	AD0473
R121	MF 0.25W RES 2% 75R	AD0422
R122	MF 0.25W RES 2% 75R	AD0422
R123	MF 0.25W RES 2% 75R	AD0422
R124	MF 0.25W RES 2% 1K	AD0449
R125	MF 0.25W RES 2% 1K	AD0449
R126	MF 0.25W RES 2% 3K3	AD0461
R127	MF 0.25W RES 2% 220K	AD0505
R128	MF 0.25W RES 2% 75R	AD0422
R129	MF 0.25W RES 2% 10K	AD0473
R130	MF 0.25W RES 2% 39K	AD0487
R131	MF 0.25W RES 2% 100K	AD0497
R132	MF 0.25W RES 2% 100K	AD0497
R133	MF 0.25W RES 2% 100R	AD0425
R134	MF 0.25W RES 2% 100R	AD0425
R135	MF 0.25W RES 2% 15K	AD0477
R136	MF 0.25W RES 2% 91R	AD0424
R137	MF 0.25W RES 2% 20R	AD0408
R138	MF 0.25W RES 2% 27R	AD0411
R139	MF 0.25W RES 2% 33R	AD0413
R140	MF 0.25W RES 2% 47R	AD0417
R141	MF 0.25W RES 2% 62R	AD0420
R142	MF 0.25W RES 2% 68R	AD0421
R143	MF 0.25W RES 2% 91R	AD0424
R144	MF 0.25W RES 2% 110R	AD0426
R145	MF 0.25W RES 2% 150R	AD0429
R146	MF 0.25W RES 2% 180R	AD0431
R147	MF 0.25W RES 2% 220R	AD0433

R148	MF 0.25W RES 2% 300R	AD0436
R149	MF 0.25W RES 2% 330R	AD0437
R150	MF 0.25W RES 2% 470R	AD0441
R151	MF 0.25W RES 2% 620R	AD0444
R152	MF 0.25W RES 2% 680R	AD0445
R153	MF 0.25W RES 2% 910R	AD0448
R154	MF 0.25W RES 2% 1K1	AD0450
R155	MF 0.25W RES 2% 1K5	AD0453
R156	MF 0.25W RES 2% 39K	AD0487
R157	MF 0.25W RES 2% 22K	AD0481
R158	MF 0.25W RES 2% 51K	AD0490
R159	MF 0.25W RES 2% 100K	AD0497
R160	MF 0.25W RES 2% 3K3	AD0461
R161	MF 0.25W RES 2% 3K3	AD0461
R162	MF 0.25W RES 2% 100K	AD0497
R163	MF 0.25W RES 2% 100K	AD0497
R164	MF 0.25W RES 2% 100K	AD0497
R165	MF 0.25W RES 2% 680K	AD0517
R166	MF 0.25W RES 2% 680K	AD0517
R167	MF 0.25W RES 2% 100K	AD0497
R168	MF 0.25W RES 2% 100K	AD0497
R169	MF 0.25W RES 2% 680K	AD0517
R170	MF 0.25W RES 2% 680K	AD0517
R171	MF 0.25W RES 2% 100K	AD0497
R172	CF 0.25W RES 5% 10M BL	AC0341
R173	CF 0.25W RES 5% 10M BL	AC0341
R174	MF 0.25W RES 2% 100K	AD0497
R175	MF 0.25W RES 2% 100R	AD0425
R176	MF 0.25W RES 2% 100K	AD0497
R177	MF 0.25W RES 2% 1M	AD0521
R179	MF 0.25W RES 2% 10R	AD0401
R180	MF 0.25W RES 2% 47K	AD0489
R181	MF 0.25W RES 2% 2K2	AD0457
R182	MF 0.25W RES 2% 4K7	AD0465
R183	MF 0.25W RES 2% 10K	AD0473
R184	MF 0.25W RES 2% 10K	AD0473
R185	MF 0.25W RES 2% 10K	AD0473
R186	MF 0.25W RES 2% 22K	AD0481
R187	MF 0.25W RES 2% 22K	AD0481
R188	MF 0.25W RES 2% 22K	AD0481
R189	MF 0.25W RES 2% 100K	AD0497
R190	RES MF 10R 2% 0.25W RADIAL	AV0001
R191	RES MF 10R 2% 0.25W RADIAL	AV0001
R192	RES MF 10R 2% 0.25W RADIAL	AV0001
R193	RES MF 10R 2% 0.25W RADIAL	AV0001
R194	RES MF 10R 2% 0.25W RADIAL	AV0001
R195	RES MF 10R 2% 0.25W RADIAL	AV0001
R196	MF 0.25W RES 2% 10R	AD0401
R197	MF 0.25W RES 2% 75R	AD0422
R198	MF 0.25W RES 2% 10K	AD0473
R199	MF 0.25W RES 2% 10K	AD0473
R200	MF 0.25W RES 2% 10K	AD0473
R201	MF 0.25W RES 2% 10K	AD0473
R202	MF 0.25W RES 2% 10K	AD0473
R203	MF 0.25W RES 2% 10K	AD0473
R204	MF 0.25W RES 2% 4K7	AD0465
R205	MF 0.25W RES 2% 4K7	AD0465
R206	MF 0.25W RES 2% 4K7	AD0465

R207	MF 0.25W RES 2% 4K7	AD0465
R208	MF 0.25W RES 2% 4K7	AD0465
R209	MF 0.25W RES 2% 4K7	AD0465
R210	MF 0.25W RES 2% 1K	AD0449
R211	MF 0.25W RES 2% 1K	AD0449
R212	MF 0.25W RES 2% 1K	AD0449
R213	MF 0.25W RES 2% 1K	AD0449
R214	MF 0.25W RES 2% 1K	AD0449
R215	MF 0.25W RES 2% 1K	AD0449
R216	MF 0.25W RES 2% 22K	AD0481
R217	MF 0.25W RES 2% 22K	AD0481
R218	MF 0.25W RES 2% 22K	AD0481
R219	MF 0.25W RES 2% 27K	AD0483
R220	MF 0.25W RES 2% 27K	AD0483
R221	MF 0.25W RES 2% 27K	AD0483
R222	MF 0.25W RES 2% 27K	AD0483
R223	MF 0.25W RES 2% 27K	AD0483
R224	MF 0.25W RES 2% 27K	AD0483
R225	RES MF 10R 2% 0.25W RADIAL	AV0001
R226	RES MF 10R 2% 0.25W RADIAL	AV0001
R227	RES MF 10R 2% 0.25W RADIAL	AV0001
R228	RES MF 10R 2% 0.25W RADIAL	AV0001
R230	MF 0.25W RES 2% 4K7	AD0465
R231	MF 0.25W RES 2% 4K7	AD0465
R232	MF 0.25W RES 2% 47K	AD0489
S1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S2	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S3	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S4	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S5	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S6	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S7	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S8	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SC3001	EUROPA MASTER PCB 1	GC3001
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	PNP TRANS 2SA970GR (TAPED)	BD0301
TR4	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR6	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR7	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR12	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR14	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR39	FET SWITCH J112 (TAPED)	BD0322
TR40	FET SWITCH J112 (TAPED)	BD0322
TR41	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM(SB) 2X20K LIN	DM1152
VR2	ALPS 9MM(SB) 20K LIN	DM1151
VR3	ALPS 9MM (SB/L) 2X10K LOG A	DM1173
VR4	ALPS 9MM (SB/L)10K LOG A	DM1162

Master PCB 2

	Master PCB2	RC3002
INDENT	**DESCRIPTION**	**PART No.**
	NEK 1PR SCREENED CABLE	LB0110
C1	POLY-CAP 5MM 5% 100V 1N	CC0238
C2	MICRO-BOX 5MM 5% 100V 1N5	CC0239
C3	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C4	POLY-CAP 5MM 5% 100V 22N	CC0246
C5	POLY-CAP 5MM 5% 100V 1N	CC0238
C6	MICRO-BOX 5MM 5% 100V 1N5	CC0239
C7	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C8	POLY-CAP 5MM 5% 100V 22N	CC0246
C9	POLY-CAP 5MM 5% 100V 47N	CC0248
C10	POLY-CAP 5MM 5% 100V 10N	CC0244
C12	SIEMANS IMFD.J. 100V 10MM	CC0268
C13	POLY-CAP 5MM 5% 63V 100N	CC0252
C14	POLY-CAP 5MM 5% 63V 100N	CC0252
C15	POLY-CAP 5MM 5% 100V 33N	CC0247
C16	C/C0.2"TAPED 100V 470PF(N47)	CA0008
C17	MICRO-BOX 5MM 5% 100V 1.5MF	CC0266
C18	POLY-CAP 5MM 5% 63V 100N	CC0252
C19	POLY-CAP 5MM 5% 63V 100N	CC0252
C20	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C21	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C22	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C23	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C24	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C25	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C26	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C27	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C28	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C29	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C30	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C31	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C32	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C33	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C34	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C35	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C36	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C37	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C38	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C39	POLY-CAP 5MM 5% 100V 33N	CC0247
C40	POLY-CAP 5MM 5% 100V 33N	CC0247
C41	POLY-CAP 5MM 5% 100V 33N	CC0247
C42	POLY-CAP 5MM 5% 100V 33N	CC0247
C43	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C44	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C45	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C46	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C47	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C48	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	POLY-CAP 5MM 5% 63V 100N	CC0252
C51	POLY-CAP 5MM 5% 63V 100N	CC0252
C52	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C53	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C54	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C55	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C57	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C58	VERT ELEC 220 MF 25V	CE0422
C59	POLY-CAP 5MM 5% 63V 100N	CC0252
C60	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C61	POLY-CAP 5MM 5% 100V 47N	CC0248
C62	POLY-CAP 5MM 5% 100V 47N	CC0248
C63	POLY-CAP 5MM 5% 100V 47N	CC0248
C64	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C65	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C66	POLY-CAP 5MM 5% 100V 1N	CC0238
C67	POLY-CAP 5MM 5% 100V 47N	CC0248
C68	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C69	POLY-CAP 5MM 5% 100V 47N	CC0248
C70	POLY-CAP 5MM 5% 100V 47N	CC0248
C71	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C72	POLY-CAP 5MM 5% 63V 100N	CC0252
C73	POLY-CAP 5MM 5% 63V 100N	CC0252
C74	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C75	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C76	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C77	POLY-CAP 5MM 5% 63V 100N	CC0252
C78	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C79	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C80	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 220 MF 25V	CE0422
C83	VERT ELEC 220 MF 25V	CE0422
C84	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C85	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C86	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C87	POLY-CAP 5MM 5% 63V 220N	CC0255
C88	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
C89	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C90	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C91	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C92	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C93	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C94	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C95	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN3	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN4	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN5	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN6	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN7	G80 IDC 20WY R/A LTCHD HDR	FA0060
CN8	1/4" PC MNTG BLADE HORIZ	FF0555
D1	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	SGL OP AMP IC TL071CP	BE0404
IC3	14WY DIL IC SOCKET	FF0719
IC3	4011 QUAD 2 I/P NAND	BF0502
IC4	14WY DIL IC SOCKET	FF0719
IC4	4070 QUAD EXCLUSIVE OR	BF0516
IC5	14WY DIL IC SOCKET	FF0719
IC5	4006 17 STAGE SHIFT REGISTER	BF0600
IC6	8WY DIL IC SOCKET	FF0718

IC6	DUAL OP AMP IC TL072CP	BE0413
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC NE5532	BE0428
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC NE5532	BE0428
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC NE5532	BE0428
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC NE5532	BE0428
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	14WY DIL IC SOCKET	FF0719
IC14	4069 HEX INVERTER	BF0515
IC15	8WY DIL IC SOCKET	FF0718
IC15	SGL OP AMP IC TL071CP	BE0404
IC16	14WY DIL IC SOCKET	FF0719
IC16	QUAD COMPARATOR IC LM2901	BE0410
IC17	14WY DIL IC SOCKET	FF0719
IC17	QUAD COMPARATOR IC LM2901	BE0410
IC18	14WY DIL IC SOCKET	FF0719
IC18	QUAD COMPARATOR IC LM2901	BE0410
IC19	14WY DIL IC SOCKET	FF0719
IC19	QUAD COMPARATOR IC LM2901	BE0410
IC20	14WY DIL IC SOCKET	FF0719
IC20	QUAD COMPARATOR IC LM2901	BE0410
IC21	14WY DIL IC SOCKET	FF0719
IC21	4011 QUAD 2 I/P NAND	BF0502
IC22	14WY DIL IC SOCKET	FF0719
IC22	4069 HEX INVERTER	BF0515
IC23	16WY DIL IC SOCKET	FF0720
IC23	40109 QUAD VLTG LVL SHIFTER	BF0520
IC24	14WY DIL IC SOCKET	FF0719
IC24	4011 QUAD 2 I/P NAND	BF0502
IC25	8WY DIL IC SOCKET	FF0718
IC25	SGL OP AMP IC TDA1034/NE5534	BE0407
IC26	8WY DIL IC SOCKET	FF0718
IC26	SGL OP AMP IC TL071CP	BE0404
IC27	14WY DIL IC SOCKET	FF0719
IC27	4066 QUAD ANALOGUE SWITCH	BF0507
IC28	8WY DIL IC SOCKET	FF0718
IC28	SGL OP AMP IC TL071CP	BE0404
J1	HONDA .1" 2WY SIL HDR (GOLD)	FF0613
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD2	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD4	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD5	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD6	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD7	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD8	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD9	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD10	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD11	T1 3MM S.BRT LED RED PRF.SHORT	JA0060

LD12	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD13	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD15	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD17	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD19	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD21	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD23	T1 3MM SUPERBRIGHT LED GREEN	JA0042
LD25	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LD27	T1 3MM SUPERBRIGHT LED AMBER	JA0044
LD29	T1 3MM SUPERBRIGHT LED RED	JA0041
LD31	T1 3MM SUPERBRIGHT LED RED	JA0041
LD33	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD34	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD35	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD36	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD37	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD38	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	TRIMMER VERT 3306W- 20K	DE0430
PR4	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 4K7	AD0465
R2	MF 0.25W RES 2% 100K	AD0497
R3	MF 0.25W RES 2% 680K	AD0517
R4	MF 0.25W RES 2% 39K	AD0487
R5	MF 0.25W RES 2% 10K	AD0473
R6	MF 0.25W RES 2% 82K	AD0495
R7	MF 0.25W RES 2% 10K	AD0473
R8	MF 0.25W RES 2% 5K6	AD0467
R9	MF 0.25W RES 2% 100K	AD0497
R10	MF 0.25W RES 2% 5K6	AD0467
R11	MF 0.25W RES 2% 100K	AD0497
R12	MF 0.25W RES 2% 22K	AD0481
R13	MF 0.25W RES 2% 680K	AD0517
R14	MF 0.25W RES 2% 33K	AD0485
R15	MF 0.25W RES 2% 1K2	AD0451
R16	MF 0.25W RES 2% 22K	AD0481
R17	MF 0.25W RES 2% 100K	AD0497
R18	MF 0.25W RES 2% 100K	AD0497
R19	MF 0.25W RES 2% 100K	AD0497
R20	MF 0.25W RES 2% 100K	AD0497
R21	MF 0.25W RES 2% 12K	AD0475
R22	MF 0.25W RES 2% 150K	AD0501
R24	MF 0.25W RES 2% 1M	AD0521
R25	MF 0.25W RES 2% 1K	AD0449
R27	MF 0.25W RES 2% 6K8	AD0469
R28	MF 0.25W RES 2% 3K3	AD0461
R29	MF 0.25W RES 2% 1K	AD0449
R30	MF 0.25W RES 2% 330R	AD0437
R31	MF 0.25W RES 2% 100R	AD0425
R32	MF 0.25W RES 2% 6K2	AD0468
R33	MF 0.25W RES 2% 47K	AD0489
R34	MF 0.25W RES 2% 100R	AD0425
R35	MF 0.25W RES 2% 47K	AD0489
R36	MF 0.25W RES 2% 47K	AD0489
R37	MF 0.25W RES 2% 47K	AD0489

R46	MF 0.25W RES 2% 20K	AD0480
R47	MF 0.25W RES 2% 20K	AD0480
R48	MF 0.25W RES 2% 20K	AD0480
R49	MF 0.25W RES 2% 20K	AD0480
R50	MF 0.25W RES 2% 20K	AD0480
R51	MF 0.25W RES 2% 20K	AD0480
R52	MF 0.25W RES 2% 20K	AD0480
R53	MF 0.25W RES 2% 20K	AD0480
R54	MF 0.25W RES 2% 20K	AD0480
R55	MF 0.25W RES 2% 20K	AD0480
R56	MF 0.25W RES 2% 20K	AD0480
R57	MF 0.25W RES 2% 20K	AD0480
R58	MF 0.25W RES 2% 20K	AD0480
R59	MF 0.25W RES 2% 20K	AD0480
R60	MF 0.25W RES 2% 20K	AD0480
R61	MF 0.25W RES 2% 20K	AD0480
R62	MF 0.25W RES 2% 24K	AD0482
R63	MF 0.25W RES 2% 24K	AD0482
R64	MF 0.25W RES 2% 20K	AD0480
R65	MF 0.25W RES 2% 20K	AD0480
R66	MF 0.25W RES 2% 20K	AD0480
R67	MF 0.25W RES 2% 20K	AD0480
R68	MF 0.25W RES 2% 22K	AD0481
R69	MF 0.25W RES 2% 22K	AD0481
R70	MF 0.25W RES 2% 10K	AD0473
R71	MF 0.25W RES 2% 10K	AD0473
R72	MF 0.25W RES 2% 10K	AD0473
R73	MF 0.25W RES 2% 10K	AD0473
R74	MF 0.25W RES 2% 7K5	AD0470
R75	MF 0.25W RES 2% 7K5	AD0470
R76	MF 0.25W RES 2% 7K5	AD0470
R77	MF 0.25W RES 2% 7K5	AD0470
R78	MF 0.25W RES 2% 75R	AD0422
R79	MF 0.25W RES 2% 75R	AD0422
R80	MF 0.25W RES 2% 1K	AD0449
R81	MF 0.25W RES 2% 1K	AD0449
R83	MF 0.25W RES 2% 100K	AD0497
R84	MF 0.25W RES 2% 2K2	AD0457
R85	MF 0.25W RES 2% 22K	AD0481
R86	MF 0.25W RES 2% 22K	AD0481
R87	MF 0.25W RES 2% 8K2	AD0471
R88	MF 0.25W RES 2% 8K2	AD0471
R89	MF 0.25W RES 2% 4K7	AD0465
R90	MF 0.25W RES 2% 4K7	AD0465
R91	MF 0.25W RES 2% 33R	AD0413
R92	MF 0.25W RES 2% 22K	AD0481
R93	MF 0.25W RES 2% 22K	AD0481
R94	MF 0.25W RES 2% 47K	AD0489
R95	MF 0.25W RES 2% 4K7	AD0465
R96	MF 0.25W RES 2% 4K7	AD0465
R97	MF 0.25W RES 2% 22K	AD0481
R98	MF 0.25W RES 2% 100K	AD0497
R99	MF 0.25W RES 2% 15K	AD0477
R100	MF 0.25W RES 2% 47K	AD0489
R101	MF 0.25W RES 2% 4K7	AD0465
R102	MF 0.25W RES 2% 4K7	AD0465
R103	MF 0.25W RES 2% 4K7	AD0465
R104	MF 0.25W RES 2% 4K7	AD0465
R105	MF 0.25W RES 2% 10K	AD0473

R106	MF 0.25W RES 2% 10K	AD0473
R107	MF 0.25W RES 2% 10K	AD0473
R108	MF 0.25W RES 2% 10K	AD0473
R109	MF 0.25W RES 2% 75R	AD0422
R110	MF 0.25W RES 2% 75R	AD0422
R111	MF 0.25W RES 2% 1K	AD0449
R112	MF 0.25W RES 2% 1K	AD0449
R113	MF 0.25W RES 2% 36K	AD0486
R114	MF 0.25W RES 2% 36K	AD0486
R115	MF 0.25W RES 2% 18K	AD0479
R116	MF 0.25W RES 2% 18K	AD0479
R117	MF 0.25W RES 2% 47K	AD0489
R118	MF 0.25W RES 2% 10K	AD0473
R119	MF 0.25W RES 2% 10K	AD0473
R120	MF 0.25W RES 2% 10K	AD0473
R121	MF 0.25W RES 2% 36K	AD0486
R122	MF 0.25W RES 2% 36K	AD0486
R123	MF 0.25W RES 2% 18K	AD0479
R124	MF 0.25W RES 2% 18K	AD0479
R125	MF 0.25W RES 2% 22K	AD0481
R126	MF 0.25W RES 2% 22K	AD0481
R127	MF 0.25W RES 2% 100K	AD0497
R128	MF 0.25W RES 2% 47K	AD0489
R129	MF 0.25W RES 2% 47K	AD0489
R130	MF 0.25W RES 2% 680K	AD0517
R131	MF 0.25W RES 2% 15K	AD0477
R132	MF 0.25W RES 2% 680K	AD0517
R133	MF 0.25W RES 2% 100K	AD0497
R134	MF 0.25W RES 2% 100K	AD0497
R135	MF 0.25W RES 2% 680K	AD0517
R136	CF 0.25W RES 5% 10M BL	AC0341
R137	CF 0.25W RES 5% 10M BL	AC0341
R138	MF 0.25W RES 2% 47K	AD0489
R139	MF 0.25W RES 2% 680K	AD0517
R140	MF 0.25W RES 2% 15K	AD0477
R141	MF 0.25W RES 2% 100K	AD0497
R142	MF 0.25W RES 2% 1K2	AD0451
R143	MF 0.25W RES 2% 33K	AD0485
R144	MF 0.25W RES 2% 100K	AD0497
R145	MF 0.25W RES 2% 470K	AD0513
R146	MF 0.25W RES 2% 15K	AD0477
R147	MF 0.25W RES 2% 47K	AD0489
R148	MF 0.25W RES 2% 4K7	AD0465
R149	MF 0.25W RES 2% 4K7	AD0465
R150	MF 0.25W RES 2% 4K7	AD0465
R151	MF 0.25W RES 2% 4K7	AD0465
R152	MF 0.25W RES 2% 10K	AD0473
R153	MF 0.25W RES 2% 10K	AD0473
R154	MF 0.25W RES 2% 10K	AD0473
R155	MF 0.25W RES 2% 10K	AD0473
R156	MF 0.25W RES 2% 75R	AD0422
R157	MF 0.25W RES 2% 75R	AD0422
R158	MF 0.25W RES 2% 1K	AD0449
R159	MF 0.25W RES 2% 1K	AD0449
R160	MF 0.25W RES 2% 220K	AD0505
R161	MF 0.25W RES 2% 470R	AD0441
R162	MF 0.25W RES 2% 1K	AD0449
R163	MF 0.25W RES 2% 4K7	AD0465
R164	MF 0.25W RES 2% 4K7	AD0465

R165	MF 0.25W RES 2% 22K	AD0481
R166	MF 0.25W RES 2% 680K	AD0517
R167	MF 0.25W RES 2% 33K	AD0485
R168	MF 0.25W RES 2% 1K2	AD0451
R169	MF 0.25W RES 2% 22K	AD0481
R170	MF 0.25W RES 2% 680K	AD0517
R171	MF 0.25W RES 2% 33K	AD0485
R172	MF 0.25W RES 2% 1K2	AD0451
R173	MF 0.25W RES 2% 680K	AD0517
R174	MF 0.25W RES 2% 22K	AD0481
R175	MF 0.25W RES 2% 22K	AD0481
R176	MF 0.25W RES 2% 220K	AD0505
R177	MF 0.25W RES 2% 47K	AD0489
R178	MF 0.25W RES 2% 220K	AD0505
R179	MF 0.25W RES 2% 220K	AD0505
R180	MF 0.25W RES 2% 75R	AD0422
R181	MF 0.25W RES 2% 10K	AD0473
R182	MF 0.25W RES 2% 39K	AD0487
R183	MF 0.25W RES 2% 13K	AD0476
R184	MF 0.25W RES 2% 91R	AD0424
R185	MF 0.25W RES 2% 20R	AD0408
R186	MF 0.25W RES 2% 27R	AD0411
R187	MF 0.25W RES 2% 33R	AD0413
R188	MF 0.25W RES 2% 47R	AD0417
R189	MF 0.25W RES 2% 62R	AD0420
R190	MF 0.25W RES 2% 68R	AD0421
R191	MF 0.25W RES 2% 91R	AD0424
R192	MF 0.25W RES 2% 110R	AD0426
R193	MF 0.25W RES 2% 150R	AD0429
R194	MF 0.25W RES 2% 180R	AD0431
R195	MF 0.25W RES 2% 220R	AD0433
R196	MF 0.25W RES 2% 300R	AD0436
R197	MF 0.25W RES 2% 330R	AD0437
R198	MF 0.25W RES 2% 470R	AD0441
R199	MF 0.25W RES 2% 620R	AD0444
R200	MF 0.25W RES 2% 680R	AD0445
R201	MF 0.25W RES 2% 910R	AD0448
R202	MF 0.25W RES 2% 1K1	AD0450
R203	MF 0.25W RES 2% 1K5	AD0453
R204	MF 0.25W RES 2% 39K	AD0487
R205	MF 0.25W RES 2% 100R	AD0425
R206	MF 0.25W RES 2% 100K	AD0497
R207	MF 0.25W RES 2% 100K	AD0497
R208	MF 0.25W RES 2% 100R	AD0425
R209	MF 0.25W RES 2% 100K	AD0497
R210	MF 0.25W RES 2% 22K	AD0481
R211	MF 0.25W RES 2% 680K	AD0517
R212	MF 0.25W RES 2% 100K	AD0497
R213	MF 0.25W RES 2% 100K	AD0497
R214	MF 0.25W RES 2% 47K	AD0489
R215	MF 0.25W RES 2% 10K	AD0473
R216	MF 0.25W RES 2% 51R	AD0418
R217	MF 0.25W RES 2% 3K	AD0460
R218	MF 0.25W RES 2% 3K	AD0460
R219	MF 0.25W RES 2% 100K	AD0497
R220	MF 0.25W RES 2% 100K	AD0497
R221	MF 0.25W RES 2% 100K	AD0497
R222	MF 0.25W RES 2% 680K	AD0517

R223	MF 0.25W RES 2% 680K	AD0517
R224	MF 0.25W RES 2% 100K	AD0497
R225	MF 0.25W RES 2% 100K	AD0497
R226	CF 0.25W RES 5% 10M BL	AC0341
R227	CF 0.25W RES 5% 10M BL	AC0341
R228	MF 0.25W RES 2% 680K	AD0517
R229	MF 0.25W RES 2% 680K	AD0517
R230	MF 0.25W RES 2% 100K	AD0497
R231	MF 0.25W RES 2% 100K	AD0497
R232	MF 0.25W RES 2% 47K	AD0489
R234	MF 0.25W RES 2% 47K	AD0489
R235	MF 0.25W RES 2% 2K2	AD0457
R236	MF 0.25W RES 2% 4K7	AD0465
R237	MF 0.25W RES 2% 10K	AD0473
R238	MF 0.25W RES 2% 10K	AD0473
R239	MF 0.25W RES 2% 10K	AD0473
R240	MF 0.25W RES 2% 22K	AD0481
R241	MF 0.25W RES 2% 22K	AD0481
R242	MF 0.25W RES 2% 22K	AD0481
R243	MF 0.25W RES 2% 100K	AD0497
R244	MF 0.25W RES 2% 10R	AD0401
R245	MF 0.25W RES 2% 3K3	AD0461
R246	MF 0.25W RES 2% 100K	AD0497
R247	MF 0.25W RES 2% 100R	AD0425
R248	MF 0.25W RES 2% 22K	AD0481
R249	MF 0.25W RES 2% 22K	AD0481
R250	RES MF 10R 2% 0.25W RADIAL	AV0001
R251	RES MF 10R 2% 0.25W RADIAL	AV0001
R252	RES MF 10R 2% 0.25W RADIAL	AV0001
R253	RES MF 10R 2% 0.25W RADIAL	AV0001
R254	RES MF 10R 2% 0.25W RADIAL	AV0001
R255	RES MF 10R 2% 0.25W RADIAL	AV0001
R256	RES MF 10R 2% 0.25W RADIAL	AV0001
R257	MF 0.25W RES 2% 75R	AD0422
R258	MF 0.25W RES 2% 47K	AD0489
R259	MF 0.25W RES 2% 680K	AD0517
R260	MF 0.25W RES 2% 1M	AD0521
R261	MF 0.25W RES 2% 100K	AD0497
R262	RES MF 10R 2% 0.25W RADIAL	AV0001
R263	RES MF 10R 2% 0.25W RADIAL	AV0001
R264	MF 0.25W RES 2% 100K	AD0497
S1	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S2	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S3	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
S4	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S6	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S7	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
S8	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S9	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S10	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
S11	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
S12	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
S13	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S14	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S15	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S16	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SC3002	EUROPA MASTER PCB2	GC3002

TR1	FET SWITCH J112 (TAPED)	BD0322
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	PNP TRANS 2SA970GR (TAPED)	BD0301
TR6	PNP TRANS 2SA970GR (TAPED)	BD0301
TR7	PNP TRANS 2SA970GR (TAPED)	BD0301
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR12	PNP TRANS 2SA970GR (TAPED)	BD0301
TR13	PNP TRANS 2SA970GR (TAPED)	BD0301
TR14	PNP TRANS 2SA970GR (TAPED)	BD0301
TR15	PNP TRANS 2SA970GR (TAPED)	BD0301
TR16	PNP TRANS 2SA970GR (TAPED)	BD0301
TR17	FET SWITCH J112 (TAPED)	BD0322
TR18	FET SWITCH J112 (TAPED)	BD0322
TR19	FET SWITCH J112 (TAPED)	BD0322
TR20	FET SWITCH J112 (TAPED)	BD0322
TR21	FET SWITCH J112 (TAPED)	BD0322
TR22	PNP TRANS 2SB737 LOW RBB	BD0346
TR23	PNP TRANS 2SB737 LOW RBB	BD0346
TR24	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR25	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR26	PNP TRANS 2SA970GR (TAPED)	BD0301
TR27	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR28	PNP TRANS 2SA970GR (TAPED)	BD0301
TR29	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR30	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR31	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR32	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR33	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR34	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR35	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR36	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR37	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR39	FET SWITCH J112 (TAPED)	BD0322
TR40	FET SWITCH J112 (TAPED)	BD0322
TR41	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR42	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR43	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM(SB) 2X100K RLG C	DM1154
VR2	ALPS 9MM(SB) 10K LOG A	DM1144
VR3	ALPS 9MM(SB) 5K RD	DM1139
VR4	ALPS 9MM (SB/L)10K LOG A	DM1162

Master PCB 3

	Master PCB 3	RB3003
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C2	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C3	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C6	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C7	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C8	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C9	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C10	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C11	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C12	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C13	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C14	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C15	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C16	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C17	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C18	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C19	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C20	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C21	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C22	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C23	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C24	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C25	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C26	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C27	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C28	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C29	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C30	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C31	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C32	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C33	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C34	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C35	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C36	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C37	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C38	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C39	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C40	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C41	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C42	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C43	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C44	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C45	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C46	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C47	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C48	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C51	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C52	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C53	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C54	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C55	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C56	POLY-CAP 5MM 5% 63V 100N	CC0252
C57	POLY-CAP 5MM 5% 63V 100N	CC0252
C59	POLY-CAP 5MM 5% 63V 100N	CC0252
C59	POLY-CAP 5MM 5% 63V 100N	CC0252
C60	POLY-CAP 5MM 5% 63V 100N	CC0252
C61	POLY-CAP 5MM 5% 63V 100N	CC0252
C62	POLY-CAP 5MM 5% 63V 100N	CC0252
C63	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C64	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C65	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C66	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C67	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C68	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C69	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C70	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C71	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C72	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C73	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C74	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C75	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C76	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C77	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C78	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C79	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C80	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C81	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C82	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C83	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C84	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C85	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C86	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C87	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C88	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C89	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C90	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C91	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C92	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C93	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C94	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C95	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C96	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C97	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C98	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C99	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C100	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C101	POLY-CAP 5MM 5% 63V 100N	CC0252
C102	POLY-CAP 5MM 5% 63V 100N	CC0252
C103	POLY-CAP 5MM 5% 63V 100N	CC0252
C104	POLY-CAP 5MM 5% 63V 100N	CC0252
C105	VERT ELEC 220MF 6.3V 6 X 11MM	CE0423
C106	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C107	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C108	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C109	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C110	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C111	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C112	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C113	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C114	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C115	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C116	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C117	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C118	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C119	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C120	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C121	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C122	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C123	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C124	VERT ELEC 0.2" TPD 100MF 10V	CE0403

C125	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C127	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C128	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C129	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C130	POLY-CAP 5MM 5% 100V 47N	CC0248
C131	POLY-CAP 5MM 5% 63V 100N	CC0252
C132	POLY-CAP 5MM 5% 63V 100N	CC0252
C133	POLY-CAP 5MM 5% 100V 47N	CC0248
C134	POLY-CAP 5MM 5% 63V 100N	CC0252
C135	POLY-CAP 5MM 5% 63V 100N	CC0252
C136	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C137	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C138	POLY-CAP 5MM 5% 100V 1N	CC0238
C139	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C140	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C141	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C142	VERT ELEC 220 MF 25V	CE0422
C145	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C146	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C147	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C150	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C151	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C152	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C153	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C154	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C155	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C156	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C157	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C159	VERT ELEC 220 MF 25V	CE0422
C162	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C163	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C164	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C171	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C172	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C173	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C174	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C176	VERT ELEC 220 MF 25V	CE0422
C177	VERT ELEC 220 MF 25V	CE0422
C178	POLY-CAP 5MM 5% 63V 100N	CC0252
C179	POLY-CAP 5MM 5% 63V 100N	CC0252
C187	VERT ELEC 220 MF 25V	CE0422
C188	VERT ELEC 220 MF 25V	CE0422
C189	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
C190	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
C191	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN4	1/4" PC MNTG BLADE HORIZ	FF0555
CN5	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN6	G80 IDC 50WY R/A LTCH ML HDR	FA0130
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
GND1	32/0.2 GREEN WIRE	LA0015

IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC NE5532	BE0428
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC NE5532	BE0428
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC NE5532	BE0428
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC NE5532	BE0428
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC NE5532	BE0428
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC NE5532	BE0428
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC NE5532	BE0428
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC NE5532	BE0428
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC NE5532	BE0428
IC12	8WY DIL IC SOCKET	FF0718
IC12	SGL OP AMP IC TL071CP	BE0404
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC NE5532	BE0428
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC NE5532	BE0428
IC15	8WY DIL IC SOCKET	FF0718
IC15	DUAL OP AMP IC TL072CP	BE0413
IC16	8WY DIL IC SOCKET	FF0718
IC16	DUAL OP AMP IC TL072CP	BE0413
IC17	8WY DIL IC SOCKET	FF0718
IC17	DUAL OP AMP IC TL072CP	BE0413
IC18	8WY DIL IC SOCKET	FF0718
IC18	DUAL OP AMP IC TL072CP	BE0413
IC19	8WY DIL IC SOCKET	FF0718
IC19	SGL OP AMP IC TDA1034/NE5534	BE0407
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC NE5532	BE0428
IC22	14WY DIL IC SOCKET	FF0719
IC22	4066 QUAD ANALOGUE SWITCH	BF0507
IC23	14WY DIL IC SOCKET	FF0719
IC23	4011 QUAD 2 I/P NAND	BF0502
IC24	14WY DIL IC SOCKET	FF0719
IC24	4069 HEX INVERTER	BF0515
IC25	16WY DIL IC SOCKET	FF0720
IC25	40109 QUAD VLTG LVL SHIFTER	BF0520
IC26	8WY DIL IC SOCKET	FF0718
IC26	SGL OP AMP IC TL071CP	BE0404
IC27	14WY DIL IC SOCKET	FF0719
IC27	QUAD COMPARATOR IC LM2901	BE0410
IC28	14WY DIL IC SOCKET	FF0719
IC28	QUAD COMPARATOR IC LM2901	BE0410
IC29	14WY DIL IC SOCKET	FF0719
IC29	QUAD COMPARATOR IC LM2901	BE0410
IC30	14WY DIL IC SOCKET	FF0719
IC30	QUAD COMPARATOR IC LM2901	BE0410
IC31	14WY DIL IC SOCKET	FF0719

IC31	QUAD COMPARATOR IC LM2901	BE0410
IC32	8WY DIL IC SOCKET	FF0718
IC32	DUAL OP AMP IC TL072CP	BE0413
IC33	DUAL OP AMP IC TL072CP	BE0413
IC34	8WY DIL IC SOCKET	FF0718
IC34	DUAL OP AMP IC NE5532	BE0428
IC35	8WY DIL IC SOCKET	FF0718
IC35	DUAL OP AMP IC TL072CP	BE0413
IC36	8WY DIL IC SOCKET	FF0718
IC36	DUAL OP AMP IC NE5532	BE0428
IC37	8WY DIL IC SOCKET	FF0718
IC37	DUAL OP AMP IC TL072CP	BE0413
IC38	8WY DIL IC SOCKET	FF0718
IC38	SGL OP AMP IC TL071CP	BE0404
IC39	14WY DIL IC SOCKET	FF0719
IC39	4066 QUAD ANALOGUE SWITCH	BF0507
IC40	14WY DIL IC SOCKET	FF0719
IC40	4066 QUAD ANALOGUE SWITCH	BF0507
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD2	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD4	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD6	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD7	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD8	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD9	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD10	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD11	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD12	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD13	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD14	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD15	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD18	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD20	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD21	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD22	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD23	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD24	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD25	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD26	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	CERMET TRIMMER VERT 2K2	DE0417
PR2	CERMET TRIMMER VERT 2K2	DE0417
PR3	CERMET TRIMMER VERT 2K2	DE0417
PR4	CERMET TRIMMER VERT 2K2	DE0417
PR5	CERMET TRIMMER VERT 2K2	DE0417
PR6	CERMET TRIMMER VERT 2K2	DE0417
PR7	CERMET TRIMMER VERT 2K2	DE0417
PR8	TRIMMER VERT 3306W- 20K	DE0430
PR9	CERMET TRIMMER VERT 2K2	DE0417
PR10	CERMET TRIMMER VERT 2K2	DE0417
R1	MF 0.25W RES 2% 1K	AD0449
R2	MF 0.25W RES 2% 1K	AD0449
R3	MF 0.25W RES 2% 22K	AD0481

R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 10K	AD0473
R6	MF 0.25W RES 2% 10K	AD0473
R7	MF 0.25W RES 2% 8K2	AD0471
R8	MF 0.25W RES 2% 8K2	AD0471
R9	MF 0.25W RES 2% 4K7	AD0465
R10	MF 0.25W RES 2% 4K7	AD0465
R11	MF 0.25W RES 2% 4K7	AD0465
R12	MF 0.25W RES 2% 4K7	AD0465
R13	MF 0.25W RES 2% 4K7	AD0465
R14	MF 0.25W RES 2% 4K7	AD0465
R15	MF 0.25W RES 2% 10K	AD0473
R16	MF 0.25W RES 2% 10K	AD0473
R17	MF 0.25W RES 2% 10K	AD0473
R18	MF 0.25W RES 2% 10K	AD0473
R19	MF 0.25W RES 2% 75R	AD0422
R20	MF 0.25W RES 2% 75R	AD0422
R21	MF 0.25W RES 2% 1K	AD0449
R22	MF 0.25W RES 2% 1K	AD0449
R23	MF 0.25W RES 2% 10K	AD0473
R24	MF 0.25W RES 2% 10K	AD0473
R25	MF 0.25W RES 2% 4K7	AD0465
R26	MF 0.25W RES 2% 4K7	AD0465
R27	MF 0.25W RES 2% 220K	AD0505
R28	MF 0.25W RES 2% 100K	AD0497
R29	MF 0.25W RES 2% 12K	AD0475
R30	MF 0.25W RES 2% 12K	AD0475
R31	MF 0.25W RES 2% 47K	AD0489
R32	MF 0.25W RES 2% 4K7	AD0465
R33	MF 0.25W RES 2% 2K2	AD0457
R34	MF 0.25W RES 2% 75R	AD0422
R35	MF 0.25W RES 2% 12K	AD0475
R36	MF 0.25W RES 2% 12K	AD0475
R37	MF 0.25W RES 2% 12K	AD0475
R38	MF 0.25W RES 2% 4K7	AD0465
R39	MF 0.25W RES 2% 4K7	AD0465
R40	MF 0.25W RES 2% 4K7	AD0465
R41	MF 0.25W RES 2% 4K7	AD0465
R42	MF 0.25W RES 2% 10K	AD0473
R43	MF 0.25W RES 2% 10K	AD0473
R44	MF 0.25W RES 2% 10K	AD0473
R45	MF 0.25W RES 2% 10K	AD0473
R46	MF 0.25W RES 2% 75R	AD0422
R47	MF 0.25W RES 2% 75R	AD0422
R48	MF 0.25W RES 2% 1K	AD0449
R49	MF 0.25W RES 2% 1K	AD0449
R50	MF 0.25W RES 2% 1K	AD0449
R51	MF 0.25W RES 2% 1K	AD0449
R52	MF 0.25W RES 2% 22K	AD0481
R53	MF 0.25W RES 2% 22K	AD0481
R54	MF 0.25W RES 2% 10K	AD0473
R55	MF 0.25W RES 2% 10K	AD0473
R56	MF 0.25W RES 2% 8K2	AD0471
R57	MF 0.25W RES 2% 8K2	AD0471
R58	MF 0.25W RES 2% 4K7	AD0465
R59	MF 0.25W RES 2% 4K7	AD0465
R60	MF 0.25W RES 2% 4K7	AD0465
R61	MF 0.25W RES 2% 4K7	AD0465
R62	MF 0.25W RES 2% 4K7	AD0465

R63	MF 0.25W RES 2% 4K7	AD0465
R64	MF 0.25W RES 2% 10K	AD0473
R65	MF 0.25W RES 2% 10K	AD0473
R66	MF 0.25W RES 2% 10K	AD0473
R67	MF 0.25W RES 2% 10K	AD0473
R68	MF 0.25W RES 2% 75R	AD0422
R69	MF 0.25W RES 2% 75R	AD0422
R70	MF 0.25W RES 2% 1K	AD0449
R71	MF 0.25W RES 2% 1K	AD0449
R72	MF 0.25W RES 2% 10K	AD0473
R73	MF 0.25W RES 2% 10K	AD0473
R74	MF 0.25W RES 2% 4K7	AD0465
R75	MF 0.25W RES 2% 4K7	AD0465
R76	MF 0.25W RES 2% 47K	AD0489
R77	MF 0.25W RES 2% 4K7	AD0465
R78	MF 0.25W RES 2% 2K2	AD0457
R79	MF 0.25W RES 2% 75R	AD0422
R80	MF 0.25W RES 2% 12K	AD0475
R81	MF 0.25W RES 2% 12K	AD0475
R82	MF 0.25W RES 2% 12K	AD0475
R83	MF 0.25W RES 2% 4K7	AD0465
R84	MF 0.25W RES 2% 4K7	AD0465
R85	MF 0.25W RES 2% 4K7	AD0465
R86	MF 0.25W RES 2% 4K7	AD0465
R87	MF 0.25W RES 2% 10K	AD0473
R88	MF 0.25W RES 2% 10K	AD0473
R89	MF 0.25W RES 2% 10K	AD0473
R90	MF 0.25W RES 2% 10K	AD0473
R91	MF 0.25W RES 2% 75R	AD0422
R92	MF 0.25W RES 2% 75R	AD0422
R93	MF 0.25W RES 2% 1K	AD0449
R94	MF 0.25W RES 2% 1K	AD0449
R95	MF 0.25W RES 2% 1K	AD0449
R96	MF 0.25W RES 2% 1K	AD0449
R97	MF 0.25W RES 2% 22K	AD0481
R98	MF 0.25W RES 2% 22K	AD0481
R99	MF 0.25W RES 2% 10K	AD0473
R100	MF 0.25W RES 2% 10K	AD0473
R101	MF 0.25W RES 2% 10K	AD0473
R102	MF 0.25W RES 2% 10K	AD0473
R103	MF 0.25W RES 2% 4K7	AD0465
R104	MF 0.25W RES 2% 4K7	AD0465
R105	MF 0.25W RES 2% 4K7	AD0465
R106	MF 0.25W RES 2% 4K7	AD0465
R107	MF 0.25W RES 2% 4K7	AD0465
R108	MF 0.25W RES 2% 4K7	AD0465
R109	MF 0.25W RES 2% 10K	AD0473
R110	MF 0.25W RES 2% 10K	AD0473
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 10K	AD0473
R113	MF 0.25W RES 2% 75R	AD0422
R114	MF 0.25W RES 2% 75R	AD0422
R115	MF 0.25W RES 2% 1K	AD0449
R116	MF 0.25W RES 2% 1K	AD0449
R117	MF 0.25W RES 2% 10K	AD0473
R118	MF 0.25W RES 2% 10K	AD0473
R119	MF 0.25W RES 2% 4K7	AD0465
R120	MF 0.25W RES 2% 4K7	AD0465
R121	MF 0.25W RES 2% 47K	AD0489

R122	MF 0.25W RES 2% 4K7	AD0465
R123	MF 0.25W RES 2% 2K2	AD0457
R124	MF 0.25W RES 2% 12K	AD0475
R125	MF 0.25W RES 2% 12K	AD0475
R126	MF 0.25W RES 2% 12K	AD0475
R127	MF 0.25W RES 2% 4K7	AD0465
R131	MF 0.25W RES 2% 10K	AD0473
R132	MF 0.25W RES 2% 10K	AD0473
R135	MF 0.25W RES 2% 75R	AD0422
R136	MF 0.25W RES 2% 75R	AD0422
R137	MF 0.25W RES 2% 1K	AD0449
R138	MF 0.25W RES 2% 1K	AD0449
R139	MF 0.25W RES 2% 1K2	AD0451
R140	MF 0.25W RES 2% 1K2	AD0451
R149	MF 0.25W RES 2% 1K2	AD0451
R150	MF 0.25W RES 2% 1K2	AD0451
R157	MF 0.25W RES 2% 8K2	AD0471
R158	MF 0.25W RES 2% 8K2	AD0471
R159	MF 0.25W RES 2% 1K2	AD0451
R160	MF 0.25W RES 2% 1K2	AD0451
R167	MF 0.25W RES 2% 8K2	AD0471
R168	MF 0.25W RES 2% 8K2	AD0471
R170	MF 0.25W RES 2% 1K	AD0449
R171	MF 0.25W RES 2% 6K8	AD0469
R172	MF 0.25W RES 2% 33K	AD0485
R173	MF 0.25W RES 2% 33K	AD0485
R177	MF 0.25W RES 2% 22K	AD0481
R178	MF 0.25W RES 2% 22K	AD0481
R179	MF 0.25W RES 2% 22K	AD0481
R180	MF 0.25W RES 2% 2K	AD0456
R181	MF 0.25W RES 2% 47K	AD0489
R183	MF 0.25W RES 2% 2K2	AD0457
R187	MF 0.25W RES 2% 22K	AD0481
R196	MF 0.25W RES 2% 75R	AD0422
R197	MF 0.25W RES 2% 75R	AD0422
R198	MF 0.25W RES 2% 1K	AD0449
R199	MF 0.25W RES 2% 1K	AD0449
R200	MF 0.25W RES 2% 22K	AD0481
R201	MF 0.25W RES 2% 22K	AD0481
R207	MF 0.25W RES 2% 100K	AD0497
R208	MF 0.25W RES 2% 100K	AD0497
R209	MF 0.25W RES 2% 100K	AD0497
R210	MF 0.25W RES 2% 100K	AD0497
R211	MF 0.25W RES 2% 680K	AD0517
R212	MF 0.25W RES 2% 100K	AD0497
R213	MF 0.25W RES 2% 100K	AD0497
R214	CF 0.25W RES 5% 10M BL	AC0341
R215	CF 0.25W RES 5% 10M BL	AC0341
R216	MF 0.25W RES 2% 680K	AD0517
R217	MF 0.25W RES 2% 680K	AD0517
R218	MF 0.25W RES 2% 100K	AD0497
R219	MF 0.25W RES 2% 680K	AD0517
R220	MF 0.25W RES 2% 47K	AD0489
R221	MF 0.25W RES 2% 100K	AD0497
R222	MF 0.25W RES 2% 75R	AD0422
R223	MF 0.25W RES 2% 22K	AD0481
R224	MF 0.25W RES 2% 220K	AD0505
R225	MF 0.25W RES 2% 75R	AD0422
R227	MF 0.25W RES 2% 39K	AD0487

R228	MF 0.25W RES 2% 39K	AD0487
R229	MF 0.25W RES 2% 1K5	AD0453
R230	MF 0.25W RES 2% 1K1	AD0450
R231	MF 0.25W RES 2% 910R	AD0448
R232	MF 0.25W RES 2% 680R	AD0445
R233	MF 0.25W RES 2% 470R	AD0441
R234	MF 0.25W RES 2% 330R	AD0437
R235	MF 0.25W RES 2% 300R	AD0436
R236	MF 0.25W RES 2% 220R	AD0433
R237	MF 0.25W RES 2% 180R	AD0431
R238	MF 0.25W RES 2% 150R	AD0429
R239	MF 0.25W RES 2% 110R	AD0426
R240	MF 0.25W RES 2% 91R	AD0424
R241	MF 0.25W RES 2% 68R	AD0421
R242	MF 0.25W RES 2% 62R	AD0420
R243	MF 0.25W RES 2% 47R	AD0417
R244	MF 0.25W RES 2% 33R	AD0413
R245	MF 0.25W RES 2% 27R	AD0411
R246	MF 0.25W RES 2% 20R	AD0408
R247	MF 0.25W RES 2% 91R	AD0424
R248	MF 0.25W RES 2% 15K	AD0477
R249	MF 0.25W RES 2% 620R	AD0444
R250	MF 0.25W RES 2% 100R	AD0425
R251	MF 0.25W RES 2% 100R	AD0425
R252	MF 0.25W RES 2% 3K9	AD0463
R253	MF 0.25W RES 2% 3K	AD0460
R254	MF 0.25W RES 2% 100K	AD0497
R255	MF 0.25W RES 2% 100R	AD0425
R256	MF 0.25W RES 2% 1K2	AD0451
R257	MF 0.25W RES 2% 1K2	AD0451
R263	MF 0.25W RES 2% 1K	AD0449
R264	MF 0.25W RES 2% 6K8	AD0469
R265	MF 0.25W RES 2% 33K	AD0485
R266	MF 0.25W RES 2% 33K	AD0485
R270	MF 0.25W RES 2% 22K	AD0481
R271	MF 0.25W RES 2% 22K	AD0481
R272	MF 0.25W RES 2% 22K	AD0481
R273	MF 0.25W RES 2% 2K	AD0456
R282	MF 0.25W RES 2% 75R	AD0422
R283	MF 0.25W RES 2% 75R	AD0422
R284	MF 0.25W RES 2% 1K	AD0449
R285	MF 0.25W RES 2% 1K	AD0449
R286	MF 0.25W RES 2% 1K2	AD0451
R287	MF 0.25W RES 2% 1K2	AD0451
R293	MF 0.25W RES 2% 1K	AD0449
R294	MF 0.25W RES 2% 6K8	AD0469
R295	MF 0.25W RES 2% 33K	AD0485
R296	MF 0.25W RES 2% 33K	AD0485
R300	MF 0.25W RES 2% 22K	AD0481
R301	MF 0.25W RES 2% 22K	AD0481
R302	MF 0.25W RES 2% 22K	AD0481
R303	MF 0.25W RES 2% 2K	AD0456
R312	MF 0.25W RES 2% 75R	AD0422
R313	MF 0.25W RES 2% 75R	AD0422
R314	MF 0.25W RES 2% 1K	AD0449
R315	MF 0.25W RES 2% 1K	AD0449
R316	MF 0.25W RES 2% 1K2	AD0451
R317	MF 0.25W RES 2% 1K2	AD0451
R323	MF 0.25W RES 2% 100K	AD0497

R324	MF 0.25W RES 2% 100K	AD0497
R325	MF 0.25W RES 2% 100K	AD0497
R326	MF 0.25W RES 2% 100K	AD0497
R327	RES MF 10R 2% 0.25W RADIAL	AV0001
R328	RES MF 10R 2% 0.25W RADIAL	AV0001
R329	RES MF 10R 2% 0.25W RADIAL	AV0001
R330	RES MF 10R 2% 0.25W RADIAL	AV0001
R331	RES MF 10R 2% 0.25W RADIAL	AV0001
R332	RES MF 10R 2% 0.25W RADIAL	AV0001
R333	RES MF 10R 2% 0.25W RADIAL	AV0001
R334	MF 0.25W RES 2% 100R	AD0425
R335	MF 0.25W RES 2% 100K	AD0497
R336	MF 0.25W RES 2% 1K2	AD0451
R337	MF 0.25W RES 2% 1K2	AD0451
R338	MF 0.25W RES 2% 100R	AD0425
R339	MF 0.25W RES 2% 100R	AD0425
R340	MF 0.25W RES 2% 20K	AD0480
R341	MF 0.25W RES 2% 20K	AD0480
R342	MF 0.25W RES 2% 220K	AD0505
R343	RES MF 10R 2% 0.25W RADIAL	AV0001
R344	RES MF 10R 2% 0.25W RADIAL	AV0001
R345	MF 0.25W RES 2% 100R	AD0425
S1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S2	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S3	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S4	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
SC3003	EUROPA PCB MASTER PCB3	GB3003
TR1	PNP TRANS 2SB737 LOW RBB	BD0346
TR2	PNP TRANS 2SB737 LOW RBB	BD0346
TR3	PNP TRANS 2SB737 LOW RBB	BD0346
TR4	PNP TRANS 2SB737 LOW RBB	BD0346
TR5	PNP TRANS 2SB737 LOW RBB	BD0346
TR6	PNP TRANS 2SB737 LOW RBB	BD0346
TR7	PNP TRANS 2SB737 LOW RBB	BD0346
TR8	PNP TRANS 2SB737 LOW RBB	BD0346
TR9	FET SWITCH J112 (TAPED)	BD0322
TR10	FET SWITCH J112 (TAPED)	BD0322
TR11	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR12	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR13	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR14	PNP TRANS 2SA970GR (TAPED)	BD0301
TR15	PNP TRANS 2SA970GR (TAPED)	BD0301
TR16	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR17	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR18	PNP TRANS 2SB737 LOW RBB	BD0346
TR19	PNP TRANS 2SB737 LOW RBB	BD0346
TR20	PNP TRANS 2SB737 LOW RBB	BD0346
TR21	PNP TRANS 2SB737 LOW RBB	BD0346
TR22	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR23	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB/L)10K LOG A	DM1162
	32/0.2 GREEN WIRE	LA0015
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114

	Master PCB 4	RD3004
INDENT	**DESCRIPTION**	**PART No..**
C1	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C2	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C3	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C4	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C5	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C6	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C7	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C8	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C9	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C10	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C11	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C12	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C13	POLY-CAP 5MM 5% 63V 100N	CC0252
C14	POLY-CAP 5MM 5% 63V 100N	CC0252
C15	POLY-CAP 5MM 5% 63V 150N	CC0261
C16	POLY-CAP 5MM 5% 63V 150N	CC0261
C17	POLY-CAP 5MM 5% 100V 4N7	CC0242
C18	POLY-CAP 5MM 5% 100V 4N7	CC0242
C19	POLY-CAP 5MM 5% 100V 4N7	CC0242
C20	POLY-CAP 5MM 5% 100V 4N7	CC0242
C21	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C22	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C23	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C24	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C25	VERT ELEC 0.2" 47UF 63V	CE0402
C26	VERT ELEC 0.2" 47UF 63V	CE0402
C27	VERT ELEC 0.2" 47UF 63V	CE0402
C28	VERT ELEC 0.2" 47UF 63V	CE0402
C29	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C30	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C31	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C32	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C33	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C34	C/C 0.2"TAPED 100V 680PF(N68)	CA0009
C35	POLY-CAP 5MM 5% 63V 100N	CC0252
C36	VERT ELEC 1000UF/10V	CE0439
C37	VERT ELEC 1000UF/10V	CE0439
C38	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C39	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C40	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C41	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C42	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C43	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C44	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C45	VERT ELEC 0.2" TPD 100MF 10V	CE0403
C46	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C47	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C48	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C51	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C52	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C53	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C54	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C55	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C57	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C58	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005

C59	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C60	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C61	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C62	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C63	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C64	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C65	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C66	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C67	POLY-CAP 5MM 5% 63V 100N	CC0252
C68	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C69	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C70	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C71	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C72	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C73	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C74	POLY-CAP 5MM 5% 63V 100N	CC0252
C75	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C76	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C77	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C78	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C79	VERT ELEC 220 MF 25V	CE0422
C80	VERT ELEC 220 MF 25V	CE0422
C81	POLY-CAP 5MM 5% 100V 47N	CC0248
C82	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C83	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C84	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C85	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C86	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C90	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C91	VERT ELEC 220 MF 25V	CE0422
C92	VERT ELEC 220 MF 25V	CE0422
C93	VERT ELEC 220 MF 25V	CE0422
C94	VERT ELEC 220 MF 25V	CE0422
C95	VERT ELEC 220 MF 25V	CE0422
C96	VERT ELEC 220 MF 25V	CE0422
C100	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C101	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C102	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C103	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C104	POLY-CAP 5MM 5% 100V 1N	CC0238
C105	POLY-CAP 5MM 5% 100V 1N	CC0238
C106	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C110	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C111	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C112	POLY-CAP 5MM 5% 63V 100N	CC0252
C113	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C114	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C115	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C116	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C118	POLY-CAP 5MM 5% 100V 47N	CC0248
C119	POLY-CAP 5MM 5% 100V 47N	CC0248
C120	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C121	POLY-CAP 5MM 5% 63V 100N	CC0252
C122	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C123	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C124	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C125	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C126	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C127	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C128	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C129	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C130	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C132	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C133	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C134	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C135	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C136	POLY-CAP 5MM 5% 63V 100N	CC0252
C137	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C138	POLY-CAP 5MM 5% 63V 100N	CC0252
C140	VERT ELEC 220 MF 25V	CE0422
C141	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C142	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C143	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C145	C/C 0.2"TAPED 100V 220PF(N22)	CA0007
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN3	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN4	G80 IDC 26WY R/A LATCHD ML HDR	FA0063
CN5	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN7	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN8	1/4" PC MNTG BLADE HORIZ	FF0555
D1	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC NE5532	BE0428
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC TL072CP	BE0413
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC TL072CP	BE0413
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC TL072CP	BE0413
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC NE5532	BE0428
IC15	8WY DIL IC SOCKET	FF0718
IC15	DUAL OP AMP IC NE5532	BE0428
IC16	14WY DIL IC SOCKET	FF0719
IC16	4011 QUAD 2 I/P NAND	BF0502
IC17	14WY DIL IC SOCKET	FF0719
IC17	4066 QUAD ANALOGUE SWITCH	BF0507
IC18	14WY DIL IC SOCKET	FF0719

IC18	4066 QUAD ANALOGUE SWITCH	BF0507
IC19	8WY DIL IC SOCKET	FF0718
IC19	DUAL OP AMP IC TL072CP	BE0413
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	14WY DIL IC SOCKET	FF0719
IC21	QUAD COMPARATOR IC LM2901	BE0410
IC22	14WY DIL IC SOCKET	FF0719
IC22	QUAD COMPARATOR IC LM2901	BE0410
IC23	14WY DIL IC SOCKET	FF0719
IC23	QUAD COMPARATOR IC LM2901	BE0410
IC24	14WY DIL IC SOCKET	FF0719
IC24	QUAD COMPARATOR IC LM2901	BE0410
IC25	14WY DIL IC SOCKET	FF0719
IC25	QUAD COMPARATOR IC LM2901	BE0410
IC26	8WY DIL IC SOCKET	FF0718
IC26	DUAL OP AMP IC TL072CP	BE0413
IC27	8WY DIL IC SOCKET	FF0718
IC27	DUAL OP AMP IC TL072CP	BE0413
IC28	8WY DIL IC SOCKET	FF0718
IC28	SGL OP AMP IC TL071CP	BE0404
IC29	8WY DIL IC SOCKET	FF0718
IC29	SGL OP AMP IC TDA1034/NE5534	BE0407
IC30	8WY DIL IC SOCKET	FF0718
IC30	SGL OP AMP IC TL071CP	BE0404
IC31	14WY DIL IC SOCKET	FF0719
IC31	4069 HEX INVERTER	BF0515
IC32	16WY DIL IC SOCKET	FF0720
IC32	40109 QUAD VLTG LVL SHIFTER	BF0520
IC33	14WY DIL IC SOCKET	FF0719
IC33	4066 QUAD ANALOGUE SWITCH	BF0507
IC34	14WY DIL IC SOCKET	FF0719
IC34	4011 QUAD 2 I/P NAND	BF0502
IC35	8WY DIL IC SOCKET	FF0718
IC35	DUAL OP AMP IC TL072CP	BE0413
IC36	8WY DIL IC SOCKET	FF0718
IC36	DUAL OP AMP IC TL072CP	BE0413
IC37	8WY DIL IC SOCKET	FF0718
IC37	DUAL OP AMP IC NE5532	BE0428
IC38	8WY DIL IC SOCKET	FF0718
IC38	DUAL OP AMP IC TL072CP	BE0413
IC39	8WY DIL IC SOCKET	FF0718
IC39	DUAL OP AMP IC TL072CP	BE0413
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD2	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD4	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD6	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD7	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD8	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD9	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD10	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD11	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD12	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD13	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD14	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062

LD15	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD18	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD20	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD21	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD22	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD23	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD24	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD25	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD26	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD27	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD28	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD29	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD30	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD31	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD32	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD33	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD34	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD35	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD36	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD37	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD38	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD39	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
PR1	BOURNES TRIMMER VERT 2K	DE0432
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR5	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
R1	MF 0.25W RES 2% 43K	AD0488
R2	MF 0.25W RES 2% 43K	AD0488
R3	MF 0.25W RES 2% 43K	AD0488
R4	MF 0.25W RES 2% 43K	AD0488
R5	MF 0.25W RES 2% 22K	AD0481
R6	MF 0.25W RES 2% 22K	AD0481
R7	MF 0.25W RES 2% 20K	AD0480
R8	MF 0.25W RES 2% 20K	AD0480
R9	MF 0.25W RES 2% 2K2	AD0457
R10	MF 0.25W RES 2% 2K2	AD0457
R11	MF 0.25W RES 2% 6K8	AD0469
R12	MF 0.25W RES 2% 6K8	AD0469
R13	MINI-RES MF 1/8W 2% 10K	AR1673
R14	MINI-RES MF 1/8W 2% 10K	AR1673
R15	MF 0.25W RES 2% 43K	AD0488
R16	MF 0.25W RES 2% 43K	AD0488
R17	MF 0.25W RES 2% 43K	AD0488
R18	MF 0.25W RES 2% 43K	AD0488
R19	MF 0.25W RES 2% 22K	AD0481
R20	MF 0.25W RES 2% 22K	AD0481
R21	MF 0.25W RES 2% 20K	AD0480
R22	MF 0.25W RES 2% 20K	AD0480
R23	MF 0.25W RES 2% 2K2	AD0457
R24	MF 0.25W RES 2% 2K2	AD0457
R25	MF 0.25W RES 2% 6K8	AD0469
R26	MF 0.25W RES 2% 6K8	AD0469
R27	MINI-RES MF 1/8W 2% 10K	AR1673

R28	MINI-RES MF 1/8W 2% 10K	AR1673
R29	MF 0.25W RES 2% 33K	AD0485
R30	MF 0.25W RES 2% 33K	AD0485
R31	MF 0.25W RES 2% 33K	AD0485
R32	MF 0.25W RES 2% 33K	AD0485
R33	MF 0.25W RES 2% 3K3	AD0461
R34	MF 0.25W RES 2% 3K3	AD0461
R35	MF 0.25W RES 2% 3K3	AD0461
R36	MF 0.25W RES 2% 3K3	AD0461
R37	MF 0.25W RES 2% 1K5	AD0453
R38	MF 0.25W RES 2% 1K5	AD0453
R39	MF 0.25W RES 2% 5K1	AD0466
R40	MF 0.25W RES 2% 5K1	AD0466
R41	MF 0.25W RES 2% 6K8	AD0469
R42	MF 0.25W RES 2% 6K8	AD0469
R43	MF 0.25W RES 2% 5K6	AD0467
R44	MF 0.25W RES 2% 5K6	AD0467
R45	MF 0.25W RES 2% 47K	AD0489
R46	MF 0.25W RES 2% 47K	AD0489
R47	MF 0.25W RES 2% 2K2	AD0457
R48	MF 0.25W RES 2% 2K2	AD0457
R49	MF 0.25W RES 2% 4K7	AD0465
R50	MF 0.25W RES 2% 4K7	AD0465
R51	MF 0.25W RES 2% 6K8	AD0469
R52	MF 0.25W RES 2% 6K8	AD0469
R53	MF 0.25W RES 2% 6K8	AD0469
R54	MF 0.25W RES 2% 6K8	AD0469
R55	MF 0.25W RES 2% 2K2	AD0457
R56	MF 0.25W RES 2% 2K2	AD0457
R57	MF 0.25W RES 2% 22K	AD0481
R58	MF 0.25W RES 2% 22K	AD0481
R59	MF 0.25W RES 2% 22K	AD0481
R60	MF 0.25W RES 2% 22K	AD0481
R61	MF 0.25W RES 2% 4K7	AD0465
R62	MF 0.25W RES 2% 4K7	AD0465
R63	MF 0.25W RES 2% 4K7	AD0465
R64	MF 0.25W RES 2% 4K7	AD0465
R65	MF 0.25W RES 2% 10K	AD0473
R66	MF 0.25W RES 2% 10K	AD0473
R67	MF 0.25W RES 2% 10K	AD0473
R68	MF 0.25W RES 2% 10K	AD0473
R69	MF 0.25W RES 2% 16K	AD0478
R70	MF 0.25W RES 2% 16K	AD0478
R71	MF 0.25W RES 2% 16K	AD0478
R72	MF 0.25W RES 2% 16K	AD0478
R73	MF 0.25W RES 2% 470R	AD0441
R74	MF 0.25W RES 2% 470R	AD0441
R75	MF 0.25W RES 2% 22K	AD0481
R76	MF 0.25W RES 2% 22K	AD0481
R77	MF 0.25W RES 2% 22K	AD0481
R78	MF 0.25W RES 2% 22K	AD0481
R79	MF 0.25W RES 2% 47K	AD0489
R80	MF 0.25W RES 2% 47K	AD0489
R81	MF 0.25W RES 2% 100K	AD0497
R82	MF 0.25W RES 2% 100K	AD0497
R83	MF 0.25W RES 2% 1K	AD0449
R84	MF 0.25W RES 2% 1K	AD0449
R85	MF 0.25W RES 2% 4K7	AD0465

R86	MF 0.25W RES 2% 4K7	AD0465
R87	MF 0.25W RES 2% 22K	AD0481
R88	MF 0.25W RES 2% 22K	AD0481
R89	MINI-RES MF 1/8W 2% 10K	AR1673
R90	MINI-RES MF 1/8W 2% 10K	AR1673
R91	MINI-RES MF 1/8W 2% 10K	AR1673
R92	MINI-RES MF 1/8W 2% 10K	AR1673
R93	MINI-RES MF 1/8W 2% 10K	AR1673
R94	MINI-RES MF 1/8W 2% 10K	AR1673
R100	MF 0.25W RES 2% 10K	AD0473
R101	MF 0.25W RES 2% 10K	AD0473
R102	MF 0.25W RES 2% 10K	AD0473
R103	MF 0.25W RES 2% 10K	AD0473
R104	MF 0.25W RES 2% 22K	AD0481
R105	MF 0.25W RES 2% 22K	AD0481
R106	MF 0.25W RES 2% 10K	AD0473
R107	MF 0.25W RES 2% 10K	AD0473
R108	MF 0.25W RES 2% 470R	AD0441
R109	MF 0.25W RES 2% 470R	AD0441
R110	MF 0.25W RES 2% 10K	AD0473
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 20K	AD0480
R113	MF 0.25W RES 2% 20K	AD0480
R114	MF 0.25W RES 2% 20K	AD0480
R115	MF 0.25W RES 2% 20K	AD0480
R116	MF 0.25W RES 2% 4K7	AD0465
R117	MF 0.25W RES 2% 100K	AD0497
R118	MF 0.25W RES 2% 1K	AD0449
R120	MF 0.25W RES 2% 1K	AD0449
R121	MF 0.25W RES 2% 2K2	AD0457
R122	MF 0.25W RES 2% 4K7	AD0465
R123	MF 0.25W RES 2% 4K7	AD0465
R124	MF 0.25W RES 2% 4K7	AD0465
R125	MF 0.25W RES 2% 4K7	AD0465
R126	MF 0.25W RES 2% 10K	AD0473
R127	MF 0.25W RES 2% 10K	AD0473
R128	MF 0.25W RES 2% 10K	AD0473
R129	MF 0.25W RES 2% 10K	AD0473
R130	MF 0.25W RES 2% 75R	AD0422
R131	MF 0.25W RES 2% 75R	AD0422
R132	MF 0.25W RES 2% 1K	AD0449
R133	MF 0.25W RES 2% 1K	AD0449
R134	MF 0.25W RES 2% 4K7	AD0465
R135	MF 0.25W RES 2% 4K7	AD0465
R136	MF 0.25W RES 2% 4K7	AD0465
R137	MF 0.25W RES 2% 4K7	AD0465
R138	MF 0.25W RES 2% 10K	AD0473
R139	MF 0.25W RES 2% 10K	AD0473
R140	MF 0.25W RES 2% 10K	AD0473
R141	MF 0.25W RES 2% 10K	AD0473
R142	MF 0.25W RES 2% 75R	AD0422
R143	MF 0.25W RES 2% 75R	AD0422
R144	MF 0.25W RES 2% 1K	AD0449
R145	MF 0.25W RES 2% 1K	AD0449
R146	MF 0.25W RES 2% 100K	AD0497
R147	MF 0.25W RES 2% 100K	AD0497
R148	MF 0.25W RES 2% 100K	AD0497
R149	MF 0.25W RES 2% 1K	AD0449

R150	MF 0.25W RES 2% 4K7	AD0465
R151	MF 0.25W RES 2% 4K7	AD0465
R152	MF 0.25W RES 2% 75K	AD0494
R153	MF 0.25W RES 2% 75K	AD0494
R154	MF 0.25W RES 2% 220K	AD0505
R155	MF 0.25W RES 2% 220K	AD0505
R156	MF 0.25W RES 2% 2K2	AD0457
R157	MF 0.25W RES 2% 2K2	AD0457
R158	MF 0.25W RES 2% 2K2	AD0457
R159	MF 0.25W RES 2% 2K2	AD0457
R160	MF 0.25W RES 2% 10R	AD0401
R161	MF 0.25W RES 2% 10R	AD0401
R162	MF 0.25W RES 2% 10R	AD0401
R163	MF 0.25W RES 2% 10R	AD0401
R164	MF 0.25W RES 2% 10R	AD0401
R165	MF 0.25W RES 2% 10R	AD0401
R166	MF 0.25W RES 2% 10R	AD0401
R167	MF 0.25W RES 2% 10R	AD0401
R168	MF 0.25W RES 2% 22K	AD0481
R169	MF 0.25W RES 2% 22K	AD0481
R170	MF 0.25W RES 2% 68R	AD0421
R171	MF 0.25W RES 2% 68R	AD0421
R172	MF 0.25W RES 2% 68R	AD0421
R173	MF 0.25W RES 2% 68R	AD0421
R174	MF 0.25W RES 2% 100K	AD0497
R175	MF 0.25W RES 2% 680K	AD0517
R176	MF 0.25W RES 2% 100K	AD0497
R177	MF 0.25W RES 2% 680R	AD0445
R178	MF 0.25W RES 2% 1K	AD0449
R179	MF 0.25W RES 2% 4K7	AD0465
R180	MF 0.25W RES 2% 2K2	AD0457
R182	MF 0.25W RES 2% 22K	AD0481
R183	MF 0.25W RES 2% 22K	AD0481
R186	MF 0.25W RES 2% 22K	AD0481
R187	MF 0.25W RES 2% 1K	AD0449
R188	MF 0.25W RES 2% 1K	AD0449
R189	MF 0.25W RES 2% 22K	AD0481
R190	MF 0.25W RES 2% 5K6	AD0467
R191	MF 0.25W RES 2% 5K6	AD0467
R192	MF 0.25W RES 2% 8K2	AD0471
R193	MF 0.25W RES 2% 8K2	AD0471
R194	MF 0.25W RES 2% 33K	AD0485
R195	MF 0.25W RES 2% 33K	AD0485
R196	MF 0.25W RES 2% 1K	AD0449
R197	MF 0.25W RES 2% 1K	AD0449
R198	MF 0.25W RES 2% 2K7	AD0459
R199	MF 0.25W RES 2% 2K7	AD0459
R200	MF 0.25W RES 2% 8K2	AD0471
R201	MF 0.25W RES 2% 8K2	AD0471
R202	MF 0.25W RES 2% 1K	AD0449
R203	MF 0.25W RES 2% 1K	AD0449
R204	MF 0.25W RES 2% 47K	AD0489
R205	MF 0.25W RES 2% 47K	AD0489
R206	MF 0.25W RES 2% 47K	AD0489
R207	MF 0.25W RES 2% 47K	AD0489
R208	MF 0.25W RES 2% 47K	AD0489
R209	RES MF 10R 2% 0.25W RADIAL	AV0001
R210	RES MF 10R 2% 0.25W RADIAL	AV0001

R211	RES MF 10R 2% 0.25W RADIAL	AV0001
R212	RES MF 10R 2% 0.25W RADIAL	AV0001
R213	RES MF 10R 2% 0.25W RADIAL	AV0001
R214	RES MF 10R 2% 0.25W RADIAL	AV0001
R215	RES MF 10R 2% 0.25W RADIAL	AV0001
R216	RES MF 10R 2% 0.25W RADIAL	AV0001
R217	RES MF 10R 2% 0.25W RADIAL	AV0001
R218	RES MF 10R 2% 0.25W RADIAL	AV0001
R220	MF 0.25W RES 2% 22K	AD0481
R221	MF 0.25W RES 2% 22K	AD0481
R222	MF 0.25W RES 2% 22K	AD0481
R223	MF 0.25W RES 2% 22K	AD0481
R224	MF 0.25W RES 2% 22K	AD0481
R225	MF 0.25W RES 2% 22K	AD0481
R226	MF 0.25W RES 2% 5K6	AD0467
R227	MF 0.25W RES 2% 5K6	AD0467
R228	MF 0.25W RES 2% 75R	AD0422
R229	MF 0.25W RES 2% 75R	AD0422
R230	MF 0.25W RES 2% 7K5	AD0470
R231	MF 0.25W RES 2% 7K5	AD0470
R232	MF 0.25W RES 2% 36K	AD0486
R233	MF 0.25W RES 2% 36K	AD0486
R234	MF 0.25W RES 2% 27K	AD0483
R235	MF 0.25W RES 2% 27K	AD0483
R236	MF 0.25W RES 2% 120K	AD0499
R237	MF 0.25W RES 2% 120K	AD0499
R238	MF 0.25W RES 2% 150K	AD0501
R239	MF 0.25W RES 2% 150K	AD0501
R240	MF 0.25W RES 2% 91R	AD0424
R241	MF 0.25W RES 2% 20R	AD0408
R242	MF 0.25W RES 2% 27R	AD0411
R243	MF 0.25W RES 2% 33R	AD0413
R244	MF 0.25W RES 2% 47R	AD0417
R245	MF 0.25W RES 2% 62R	AD0420
R246	MF 0.25W RES 2% 68R	AD0421
R247	MF 0.25W RES 2% 91R	AD0424
R248	MF 0.25W RES 2% 110R	AD0426
R249	MF 0.25W RES 2% 150R	AD0429
R250	MF 0.25W RES 2% 180R	AD0431
R251	MF 0.25W RES 2% 220R	AD0433
R252	MF 0.25W RES 2% 300R	AD0436
R253	MF 0.25W RES 2% 330R	AD0437
R254	MF 0.25W RES 2% 470R	AD0441
R255	MF 0.25W RES 2% 620R	AD0444
R256	MF 0.25W RES 2% 680R	AD0445
R257	MF 0.25W RES 2% 910R	AD0448
R258	MF 0.25W RES 2% 1K1	AD0450
R259	MF 0.25W RES 2% 1K5	AD0453
R260	MF 0.25W RES 2% 30K	AD0484
R261	MF 0.25W RES 2% 100R	AD0425
R262	MF 0.25W RES 2% 100R	AD0425
R265	MF 0.25W RES 2% 27K	AD0483
R266	MF 0.25W RES 2% 100K	AD0497
R267	MF 0.25W RES 2% 100K	AD0497
R270	MF 0.25W RES 2% 24K	AD0482
R271	MF 0.25W RES 2% 24K	AD0482
R272	MF 0.25W RES 2% 24K	AD0482
R273	MF 0.25W RES 2% 24K	AD0482

R274	MF 0.25W RES 2% 24K	AD0482
R275	MF 0.25W RES 2% 24K	AD0482
R276	MF 0.25W RES 2% 24K	AD0482
R277	MF 0.25W RES 2% 24K	AD0482
R278	MF 0.25W RES 2% 24K	AD0482
R279	MF 0.25W RES 2% 24K	AD0482
R280	MF 0.25W RES 2% 24K	AD0482
R281	MF 0.25W RES 2% 24K	AD0482
R286	MF 0.25W RES 2% 47K	AD0489
R287	MF 0.25W RES 2% 2K2	AD0457
R288	MF 0.25W RES 2% 4K7	AD0465
R289	MF 0.25W RES 2% 10K	AD0473
R290	MF 0.25W RES 2% 10K	AD0473
R291	MF 0.25W RES 2% 10K	AD0473
R292	MF 0.25W RES 2% 22K	AD0481
R293	MF 0.25W RES 2% 22K	AD0481
R294	MF 0.25W RES 2% 22K	AD0481
R295	MF 0.25W RES 2% 100K	AD0497
R296	MF 0.25W RES 2% 100K	AD0497
R297	MF 0.25W RES 2% 100K	AD0497
R298	MF 0.25W RES 2% 47K	AD0489
R299	MF 0.25W RES 2% 100K	AD0497
R300	MF 0.25W RES 2% 100K	AD0497
R301	MF 0.25W RES 2% 100K	AD0497
R302	MF 0.25W RES 2% 680K	AD0517
R303	MF 0.25W RES 2% 680K	AD0517
R304	MF 0.25W RES 2% 100K	AD0497
R305	MF 0.25W RES 2% 100K	AD0497
R306	MF 0.25W RES 2% 100K	AD0497
R307	MF 0.25W RES 2% 680K	AD0517
R308	MF 0.25W RES 2% 680K	AD0517
R309	CF 0.25W RES 5% 10M BL	AC0341
R310	CF 0.25W RES 5% 10M BL	AC0341
R315	MF 0.25W RES 2% 10K	AD0473
R316	MF 0.25W RES 2% 10K	AD0473
R317	MF 0.25W RES 2% 10K	AD0473
R318	MF 0.25W RES 2% 10K	AD0473
R319	MF 0.25W RES 2% 820R	AD0447
R320	MF 0.25W RES 2% 820R	AD0447
R321	MF 0.25W RES 2% 3K	AD0460
R322	MF 0.25W RES 2% 10R	AD0401
R323	MF 0.25W RES 2% 100K	AD0497
R326	MF 0.25W RES 2% 220K	AD0505
R327	MF 0.25W RES 2% 100K	AD0497
R330	MF 0.25W RES 2% 1K	AD0449
R331	MF 0.25W RES 2% 33K	AD0485
R332	MF 0.25W RES 2% 33K	AD0485
R333	MF 0.25W RES 2% 4K7	AD0465
R334	MF 0.25W RES 2% 22K	AD0481
R335	MF 0.25W RES 2% 22K	AD0481
R336	MF 0.25W RES 2% 10K	AD0473
R337	MF 0.25W RES 2% 10K	AD0473
R338	MF 0.25W RES 2% 6K8	AD0469
R339	MF 0.25W RES 2% 2K	AD0456
R340	MF 0.25W RES 2% 22K	AD0481
R341	MF 0.25W RES 2% 4K7	AD0465
R342	MF 0.25W RES 2% 4K7	AD0465
R343	MF 0.25W RES 2% 4K7	AD0465

R344	MF 0.25W RES 2% 4K7	AD0465
R345	MF 0.25W RES 2% 10K	AD0473
R346	MF 0.25W RES 2% 10K	AD0473
R348	MF 0.25W RES 2% 75R	AD0422
R349	MF 0.25W RES 2% 75R	AD0422
R350	MF 0.25W RES 2% 1K	AD0449
R351	MF 0.25W RES 2% 1K	AD0449
R353	MF 0.25W RES 2% 560R	AD0443
R354	MF 0.25W RES 2% 100K	AD0497
R355	MF 0.25W RES 2% 100R	AD0425
R359	MF 0.25W RES 2% 100R	AD0425
R360	MF 0.25W RES 2% 100R	AD0425
R368	MF 0.25W RES 2% 220K	AD0505
R369	MF 0.25W RES 2% 220K	AD0505
R370	MF 0.25W RES 2% 510R	AD0442
R371	CF 0.25W RES 5% 1M BL	AC0321
R372	MF 0.25W RES 2% 100K	AD0497
R373	MF 0.25W RES 2% 100R	AD0425
R374	MF 0.25W RES 2% 47K	AD0489
R375	MF 0.25W RES 2% 47K	AD0489
R376	MF 0.25W RES 2% 47K	AD0489
R377	MF 0.25W RES 2% 47K	AD0489
R378	MF 0.25W RES 2% 47K	AD0489
R379	MF 0.25W RES 2% 47K	AD0489
S1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S2	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S3	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S4	ALPS (SUN) 2 POLE PUSH SWT MOM	DF0520
S11	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
S12	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
SC3004	EUROPA MASTER PCB4	GD3004
SW5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW6	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW7	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW8	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW9	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW10	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
TR1	PNP TRANS 2SB737 LOW RBB	BD0346
TR2	PNP TRANS 2SB737 LOW RBB	BD0346
TR3	PNP TRANS 2SB737 LOW RBB	BD0346
TR4	PNP TRANS 2SB737 LOW RBB	BD0346
TR5	FET SWITCH J112 (TAPED)	BD0322
TR6	FET SWITCH J112 (TAPED)	BD0322
TR7	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	PNP TRANS 2SA970GR (TAPED)	BD0301
TR12	PNP TRANS 2SA970GR (TAPED)	BD0301
TR13	PNP TRANS 2SA970GR (TAPED)	BD0301
TR14	PNP TRANS 2SA970GR (TAPED)	BD0301
TR15	PNP TRANS 2SA970GR (TAPED)	BD0301
TR16	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR17	PNP TRANS 2SA970GR (TAPED)	BD0301
TR18	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR19	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR20	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR21	PNP TRANS 2SA970GR (TAPED)	BD0301

TR22	PNP TRANS 2SA970GR (TAPED)	BD0301
TR23	PNP TRANS 2SA970GR (TAPED)	BD0301
TR24	PNP TRANS 2SA970GR (TAPED)	BD0301
TR25	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR26	PNP TRANS 2SA970GR (TAPED)	BD0301
TR27	PNP TRANS 2SA970GR (TAPED)	BD0301
TR28	PNP TRANS 2SB737 LOW RBB	BD0346
TR29	PNP TRANS 2SB737 LOW RBB	BD0346
TR30	PNP TRANS 2SA970GR (TAPED)	BD0301
TR31	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR32	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR33	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR34	FET SWITCH J112 (TAPED)	BD0322
TR35	FET SWITCH J112 (TAPED)	BD0322
TR36	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR37	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB/L)10K LOG A	DM1162
VR2	ALPS 9MM(SB) 2X10K LIN CD	DM1146
VR3	ALPS 9MM(SB) 2X10K LIN CD	DM1146
VR4	ALPS 9MM (SB/L) 2X10K LIN	DM1163
VR5	ALPS 9MM (SB/L) 2X10K LIN	DM1163
VR6	ALPS 9MM (SB/L) 2X10K LIN	DM1163

Audio Link PCB

	Audio Link PCB	RA3051
INDENT	**DESCRIPTION**	**PART No.**
CN3	G80 IDC 10WY VERT LTCH ML HDR	FA0088
CN4	G80 IDC 16WY VERT ML LTCH HDR	FA0092
CN5	ELCO 90WY PC MNT ML RECEPTACLE	FL1075
CN6	1/4" PC MNTNG BLADE VERT	FF0676
SC3051	EUROPA AUDIO LINK PCB	GA3051
	G80 IDC 26WY VERT LTCH HDR	FA0066

Analogue I/F PCB

	Analogue I/F PCB	RB3052
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C2	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C3	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C4	POLY-CAP 5MM 5% 63V 100N	CC0252
C5	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C6	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C7	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C8	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C9	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C10	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C11	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C12	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C13	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C14	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C15	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C16	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C17	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C18	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005

C19	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C20	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
CN1	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN2	G80 IDC 50WY R/A LTCH ML HDR	FA0130
CN3	G80 IDC 16WY VERT ML LTCH HDR	FA0092
D1	DIODE 1N4001	BA0005
D2	DIODE 1N4001	BA0005
D3	DIODE 1N4001	BA0005
D4	DIODE 1N4001	BA0005
D5	DIODE 1N4001	BA0005
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC TL072CP	BE0413
IC5	14WY DIL IC SOCKET	FF0719
IC5	4016 QUAD ANALOGUE SWITCH	BF0505
IC6	14WY DIL IC SOCKET	FF0719
IC6	4016 QUAD ANALOGUE SWITCH	BF0505
R1	MF 0.25W RES 2% 1K	AD0449
R2	MF 0.25W RES 2% 1K	AD0449
R3	MF 0.25W RES 2% 1K	AD0449
R4	MF 0.25W RES 2% 1K	AD0449
R5	MF 0.25W RES 2% 1K	AD0449
R6	MF 0.25W RES 2% 1K	AD0449
R7	MF 0.25W RES 2% 1K	AD0449
R8	MF 0.25W RES 2% 1K	AD0449
R9	MF 0.25W RES 2% 20K	AD0480
R10	MF 0.25W RES 2% 20K	AD0480
R11	MF 0.25W RES 2% 20K	AD0480
R12	MF 0.25W RES 2% 20K	AD0480
R13	MF 0.25W RES 2% 20K	AD0480
R14	MF 0.25W RES 2% 20K	AD0480
R15	MF 0.25W RES 2% 20K	AD0480
R16	MF 0.25W RES 2% 20K	AD0480
R17	MF 0.25W RES 2% 22K	AD0481
R18	MF 0.25W RES 2% 22K	AD0481
R19	MF 0.25W RES 2% 22K	AD0481
R20	MF 0.25W RES 2% 22K	AD0481
R21	MF 0.25W RES 2% 22K	AD0481
R22	MF 0.25W RES 2% 22K	AD0481
R23	MF 0.25W RES 2% 22K	AD0481
R24	MF 0.25W RES 2% 22K	AD0481
R25	MF 0.25W RES 2% 22K	AD0481
R26	MF 0.25W RES 2% 22K	AD0481
R27	MF 0.25W RES 2% 22K	AD0481
R28	MF 0.25W RES 2% 22K	AD0481
R29	MF 0.25W RES 2% 22K	AD0481
R30	MF 0.25W RES 2% 22K	AD0481
R31	MF 0.25W RES 2% 22K	AD0481
R32	MF 0.25W RES 2% 22K	AD0481
R33	MF 0.25W RES 2% 22K	AD0481
R34	MF 0.25W RES 2% 22K	AD0481
R35	MF 0.25W RES 2% 22K	AD0481
R36	MF 0.25W RES 2% 22K	AD0481

R37	MF 0.25W RES 2% 22K	AD0481
R38	MF 0.25W RES 2% 22K	AD0481
R39	MF 0.25W RES 2% 22K	AD0481
R40	MF 0.25W RES 2% 22K	AD0481
R41	MF 0.25W RES 2% 10R	AD0401
R42	MF 0.25W RES 2% 10R	AD0401
R43	MF 0.25W RES 2% 10R	AD0401
R44	MF 0.25W RES 2% 10R	AD0401
R45	MF 0.25W RES 2% 10R	AD0401
R46	MF 0.25W RES 2% 10R	AD0401
R47	MF 0.25W RES 2% 12K	AD0475
R48	MF 0.25W RES 2% 100K	AD0497
R49	MF 0.25W RES 2% 2K2	AD0457
R50	MF 0.25W RES 2% 47K	AD0489
R51	MF 0.25W RES 2% 10R	AD0401
R52	MF 0.25W RES 2% 10R	AD0401
RLA1	RELAY 4PCO 12V SDS	DZ2216
RLA2	RELAY 4PCO 12V SDS	DZ2216
RLA3	RELAY 4PCO 12V SDS	DZ2216
SC3052	EUROPA ANALOGUE I/F PCB	GB3052
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302

Digital INTFC PCB

Digital INTFC PCB RB3053

INDENT	DESCRIPTION	PART No.
C1	POLY-CAP 5MM 5% 63V 100N	CC0252
C2	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN2	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN3	G80 IDC 26WY VERT LTCH HDR	FA0066
CN4	G80 IDC 50WY R/A LTCH ML HDR	FA0130
D1	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	4081 QUAD 2 I/P AND GATE	BF0527
IC11	4069 HEX INVERTER	BF0515
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OPTO COUPLER RS308-613	BD0331
OP1	16WY DIL IC SOCKET	FF0720
OP1	QUAD OPTO COUPLER RS307-064	BD0332
R1	MF 0.25W RES 2% 47K	AD0489
R2	MF 0.25W RES 2% 15K	AD0477
R3	MF 0.25W RES 2% 47K	AD0489
R4	MF 0.25W RES 2% 15K	AD0477
R5	MF 0.25W RES 2% 47K	AD0489
R6	MF 0.25W RES 2% 15K	AD0477
R7	MF 0.25W RES 2% 47K	AD0489
R8	MF 0.25W RES 2% 15K	AD0477
R9	MF 0.25W RES 2% 47K	AD0489
R10	MF 0.25W RES 2% 15K	AD0477
R11	MF 0.25W RES 2% 47K	AD0489
R12	MF 0.25W RES 2% 15K	AD0477
R13	MF 0.25W RES 2% 47K	AD0489
R14	MF 0.25W RES 2% 15K	AD0477
R15	MF 0.25W RES 2% 47K	AD0489
R16	MF 0.25W RES 2% 15K	AD0477
R17	MF 0.25W RES 2% 6K8	AD0469
R18	MF 0.25W RES 2% 6K8	AD0469
R19	MF 0.25W RES 2% 6K8	AD0469

R20	MF 0.25W RES 2% 6K8	AD0469
R21	MF 0.25W RES 2% 6K8	AD0469
R22	MF 0.25W RES 2% 6K8	AD0469
R23	MF 0.25W RES 2% 6K8	AD0469
R24	MF 0.25W RES 2% 6K8	AD0469
R25	MF 0.25W RES 2% 47K	AD0489
R26	MF 0.25W RES 2% 47K	AD0489
R27	MF 0.25W RES 2% 15K	AD0477
R28	MF 0.25W RES 2% 15K	AD0477
R29	MF 0.25W RES 2% 47K	AD0489
R30	MF 0.25W RES 2% 15K	AD0477
R31	MF 0.25W RES 2% 47K	AD0489
R32	MF 0.25W RES 2% 15K	AD0477
R33	MF 0.25W RES 2% 47K	AD0489
R34	MF 0.25W RES 2% 15K	AD0477
R35	MF 0.25W RES 2% 47K	AD0489
R36	MF 0.25W RES 2% 15K	AD0477
R37	MF 0.25W RES 2% 47K	AD0489
R38	MF 0.25W RES 2% 15K	AD0477
R39	MF 0.25W RES 2% 47K	AD0489
R40	MF 0.25W RES 2% 15K	AD0477
R41	MF 0.25W RES 2% 6K8	AD0469
R42	MF 0.25W RES 2% 6K8	AD0469
R43	MF 0.25W RES 2% 6K8	AD0469
R44	MF 0.25W RES 2% 6K8	AD0469
R45	MF 0.25W RES 2% 6K8	AD0469
R46	MF 0.25W RES 2% 6K8	AD0469
R47	MF 0.25W RES 2% 6K8	AD0469
R48	MF 0.25W RES 2% 6K8	AD0469
R49	MF 0.25W RES 2% 47K	AD0489
R50	MF 0.25W RES 2% 15K	AD0477
R51	MF 0.25W RES 2% 47K	AD0489
R52	MF 0.25W RES 2% 15K	AD0477
R53	MF 0.25W RES 2% 47K	AD0489
R54	MF 0.25W RES 2% 15K	AD0477
R55	MF 0.25W RES 2% 47K	AD0489
R56	MF 0.25W RES 2% 15K	AD0477
R59	MF 0.25W RES 2% 47K	AD0489
R60	MF 0.25W RES 2% 15K	AD0477
R61	MF 0.25W RES 2% 6K8	AD0469
R62	MF 0.25W RES 2% 6K8	AD0469
R63	MF 0.25W RES 2% 6K8	AD0469
R64	MF 0.25W RES 2% 6K8	AD0469
R65	MF 0.25W RES 2% 27K	AD0483
R66	MF 0.25W RES 2% 6K8	AD0469
R67	MF 0.25W RES 2% 10R	AD0401
R68	MF 0.25W RES 2% 10R	AD0401
R69	MF 0.25W RES 2% 1M	AD0521
R70	MF 0.25W RES 2% 1M	AD0521
SC3053	EUROPA DIGITAL I/F PCB	GB3053

FDR INTFC PCB

	FDR INTFC PCB	RC3054
INDENT	**DESCRIPTION**	**PART No.**
CN1	G80 IDC 16WY VERT ML LTCH HDR	FA0092
CN3	VARELCO 56WY ML PCB MNT	FL1060
CN4	1/4" PC MNTNG BLADE VERT	FF0676
R2	MF 0.25W RES 2% 10K	AD0473
R3	MF 0.25W RES 2% 10K	AD0473
SC3054	EUROPA FDR INTFC PCB	GC3054
	G80 IDC 26WY VERT LTCH HDR	FA0066
	MF 0.25W RES 2% 10R	AD0401
	SWITCH ROTARY 4 POLE C/O	DH0704

Matrix RH PCB

	Matrix RH PCB	RB3073
INDENT	**DESCRIPTION**	**PART No.**
C1	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C2	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C3	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	POLY-CAP 5MM 5% 63V 100N	CC0252
C8	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C9	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C10	C/CAP 0.2" PRFRM TPD 100V 15PF	CA0003
C14	VERT ELEC 220 MF 25V	CE0422
C22	POLY-CAP 5MM 5% 63V 100N	CC0252
C23	POLY-CAP 5MM 5% 63V 100N	CC0252
C30	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C34	POLY-CAP 5MM 5% 63V 100N	CC0252
C35	POLY-CAP 5MM 5% 100V 47N	CC0248
C37	POLY-CAP 5MM 5% 63V 100N	CC0252
C38	POLY-CAP 5MM 5% 63V 100N	CC0252
C50	POLY-CAP 5MM 5% 63V 100N	CC0252
C52	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C53	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C54	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C55	POLY-CAP 5MM 5% 100V 47N	CC0248
C56	POLY-CAP 5MM 5% 100V 1N	CC0238
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	1/4" PC MNTNG BLADE VERT	FF0676
CN3	T&B CON IDC 16WY LW PRF VRT ML	FA0068
CN4	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN5	T&B CON IDC 16WY LW PRF VRT ML	FA0068
CN6	G80 IDC 34WY R/A LTCHD HDR	FA0044
CN7	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN8	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN9	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
D1	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	SGL OP AMP IC TL071CP	BE0404
IC2	DUAL OP AMP IC NE5532	BE0428
IC3	SGL OP AMP IC TL071CP	BE0404
IC4	SGL OP AMP IC TL071CP	BE0404
IC5	14WY DIL IC SOCKET	FF0719
IC5	4069 HEX INVERTER	BF0515
IC6	16WY DIL IC SOCKET	FF0720

IC6	40109 QUAD VLTG LVL SHIFTER	BF0520
IC7	14WY DIL IC SOCKET	FF0719
IC7	4066 QUAD ANALOGUE SWITCH	BF0507
IC8	4011 QUAD 2 I/P NAND	BF0502
IC9	4011 QUAD 2 I/P NAND	BF0502
IC10	4066 QUAD ANALOGUE SWITCH	BF0507
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	DUAL OP AMP IC TL072CP	BE0413
IC13	DUAL OP AMP IC NE5532	BE0428
IC14	DUAL OP AMP IC NE5532	BE0428
IC15	DUAL OP AMP IC TL072CP	BE0413
IC16	QUAD COMPARATOR IC LM2901	BE0410
IC17	QUAD COMPARATOR IC LM2901	BE0410
IC18	QUAD COMPARATOR IC LM2901	BE0410
IC19	QUAD COMPARATOR IC LM2901	BE0410
IC20	QUAD COMPARATOR IC LM2901	BE0410
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD2	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD3	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD4	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD5	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD6	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD7	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD8	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD9	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD10	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD11	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD12	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD13	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD14	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD15	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD16	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD17	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD21	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD22	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
MD5772	9MM POT BRKT W/PIPS	PZ2290
PR1	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR2	CERMET TRIMMER HORIZ 9OH 2K2	DE0401
PR3	TRIMMER VERT 3306W- 20K	DE0430
R1	MF 0.25W RES 2% 43K	AD0488
R2	MF 0.25W RES 2% 43K	AD0488
R3	MF 0.25W RES 2% 20K	AD0480
R4	MF 0.25W RES 2% 22K	AD0481
R5	MF 0.25W RES 2% 2K2	AD0457
R6	MF 0.25W RES 2% 6K8	AD0469
R7	MF 0.25W RES 2% 22K	AD0481
R19	MF 0.25W RES 2% 12K	AD0475
R20	MF 0.25W RES 2% 100K	AD0497
R21	MF 0.25W RES 2% 100K	AD0497
R22	MF 0.25W RES 2% 4K7	AD0465
R23	MF 0.25W RES 2% 24K	AD0482
R24	MF 0.25W RES 2% 43K	AD0488
R25	MF 0.25W RES 2% 43K	AD0488
R26	MF 0.25W RES 2% 20K	AD0480
R28	MF 0.25W RES 2% 2K2	AD0457
R29	MF 0.25W RES 2% 6K8	AD0469

R42	MF 0.25W RES 2% 12K	AD0475
R43	MF 0.25W RES 2% 100K	AD0497
R44	RES MF 10R 2% 0.25W RADIAL	AV0001
R53	MF 0.25W RES 2% 1K8	AD0455
R54	MF 0.25W RES 2% 100K	AD0497
R55	MF 0.25W RES 2% 680K	AD0517
R56	MF 0.25W RES 2% 100K	AD0497
R57	MF 0.25W RES 2% 100K	AD0497
R58	MF 0.25W RES 2% 47K	AD0489
R59	CF 0.25W RES 5% 10M BL	AC0341
R60	CF 0.25W RES 5% 10M BL	AC0341
R61	MF 0.25W RES 2% 680K	AD0517
R62	MF 0.25W RES 2% 680K	AD0517
R63	MF 0.25W RES 2% 10K	AD0473
R64	MF 0.25W RES 2% 10K	AD0473
R66	MF 0.25W RES 2% 10K	AD0473
R67	MF 0.25W RES 2% 10K	AD0473
R68	MF 0.25W RES 2% 10K	AD0473
R69	MF 0.25W RES 2% 4K7	AD0465
R70	MF 0.25W RES 2% 4K7	AD0465
R71	MF 0.25W RES 2% 4K7	AD0465
R72	MF 0.25W RES 2% 4K7	AD0465
R73	MF 0.25W RES 2% 10K	AD0473
R74	MF 0.25W RES 2% 10K	AD0473
R75	MF 0.25W RES 2% 10K	AD0473
R76	MF 0.25W RES 2% 10K	AD0473
R77	MF 0.25W RES 2% 75R	AD0422
R78	MF 0.25W RES 2% 75R	AD0422
R79	MF 0.25W RES 2% 1K	AD0449
R80	MF 0.25W RES 2% 1K	AD0449
R81	MF 0.25W RES 2% 100K	AD0497
R82	MF 0.25W RES 2% 100K	AD0497
R83	MF 0.25W RES 2% 680K	AD0517
R84	MF 0.25W RES 2% 100K	AD0497
R87	MF 0.25W RES 2% 100K	AD0497
R88	MF 0.25W RES 2% 100K	AD0497
R89	CF 0.25W RES 5% 10M BL	AC0341
R90	CF 0.25W RES 5% 10M BL	AC0341
R91	MF 0.25W RES 2% 680K	AD0517
R92	MF 0.25W RES 2% 680K	AD0517
R93	MF 0.25W RES 2% 10K	AD0473
R94	MF 0.25W RES 2% 10K	AD0473
R96	MF 0.25W RES 2% 10K	AD0473
R97	MF 0.25W RES 2% 10K	AD0473
R98	MF 0.25W RES 2% 10K	AD0473
R99	MF 0.25W RES 2% 2K2	AD0457
R100	MF 0.25W RES 2% 4K7	AD0465
R101	MF 0.25W RES 2% 4K7	AD0465
R102	MF 0.25W RES 2% 4K7	AD0465
R103	MF 0.25W RES 2% 4K7	AD0465
R104	MF 0.25W RES 2% 10K	AD0473
R105	MF 0.25W RES 2% 10K	AD0473
R106	MF 0.25W RES 2% 10K	AD0473
R107	MF 0.25W RES 2% 10K	AD0473
R108	MF 0.25W RES 2% 75R	AD0422
R109	MF 0.25W RES 2% 75R	AD0422
R110	MF 0.25W RES 2% 1K	AD0449
R111	MF 0.25W RES 2% 1K	AD0449
R115	MF 0.25W RES 2% 220K	AD0505

R116	MF 0.25W RES 2% 75R	AD0422
R117	MF 0.25W RES 2% 10K	AD0473
R118	MF 0.25W RES 2% 39K	AD0487
R119	MF 0.25W RES 2% 100K	AD0497
R120	MF 0.25W RES 2% 47K	AD0489
R121	MF 0.25W RES 2% 39K	AD0487
R122	MF 0.25W RES 2% 1K5	AD0453
R123	MF 0.25W RES 2% 1K1	AD0450
R124	MF 0.25W RES 2% 910R	AD0448
R125	MF 0.25W RES 2% 680R	AD0445
R126	MF 0.25W RES 2% 620R	AD0444
R127	MF 0.25W RES 2% 470R	AD0441
R128	MF 0.25W RES 2% 470R	AD0441
R129	MF 0.25W RES 2% 300R	AD0436
R130	MF 0.25W RES 2% 220R	AD0433
R131	MF 0.25W RES 2% 180R	AD0431
R132	MF 0.25W RES 2% 150R	AD0429
R133	MF 0.25W RES 2% 110R	AD0426
R134	MF 0.25W RES 2% 91R	AD0424
R135	MF 0.25W RES 2% 68R	AD0421
R136	MF 0.25W RES 2% 62R	AD0420
R137	MF 0.25W RES 2% 47R	AD0417
R138	MF 0.25W RES 2% 33R	AD0413
R139	MF 0.25W RES 2% 27R	AD0411
R140	MF 0.25W RES 2% 20R	AD0408
R141	MF 0.25W RES 2% 91R	AD0424
R142	MF 0.25W RES 2% 15K	AD0477
R143	MF 0.25W RES 2% 100R	AD0425
R144	MF 0.25W RES 2% 100K	AD0497
R145	MF 0.25W RES 2% 100K	AD0497
R146	MF 0.25W RES 2% 100R	AD0425
R147	MF 0.25W RES 2% 10R	AD0401
R148	MF 0.25W RES 2% 10R	AD0401
R149	MF 0.25W RES 2% 1M	AD0521
R150	MF 0.25W RES 2% 1M	AD0521
SC3073	EUROPA MATRIX RH PCB	GB3073
SW1	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
TR1	FET SWITCH J112 (TAPED)	BD0322
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM(SB) 10K LOG A	DM1144
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114

Matrix FDR PCB

	Matrix FDR PCB	RC3074
INDENT	**DESCRIPTION**	**PART No.**
C1	POLY-CAP 5MM 5% 100V 47N	CC0248
C2	POLY-CAP 5MM 5% 100V 47N	CC0248
C3	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C4	POLY-CAP 5MM 5% 63V 100N	CC0252
C5	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C6	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C7	VERT ELEC 0.2"TPD L-L 10MF 25V	CE0417
C8	POLY-CAP 5MM 5% 100V 1N	CC0238
C9	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C49	VERT ELEC 220 MF 25V	CE0422
CN1	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN2	MTHD .1" 4WY VERT LCKG ML HDR	FF0638

CN3	MTHD .1" 4WY VERT LCKG ML HDR	FF0638
CN4	G80 IDC 50WY R/A LTCH ML HDR	FA0130
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	4069 HEX INVERTER	BF0515
IC2	16WY DIL IC SOCKET	FF0720
IC2	40109 QUAD VLTG LVL SHIFTER	BF0520
IC3	14WY DIL IC SOCKET	FF0719
IC3	4011 QUAD 2 I/P NAND	BF0502
IC4	8WY DIL IC SOCKET	FF0718
IC4	SGL OP AMP IC TDA1034/NE5534	BE0407
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	14WY DIL IC SOCKET	FF0719
IC6	QUAD COMPARATOR IC LM2901	BE0410
IC7	14WY DIL IC SOCKET	FF0719
IC7	QUAD COMPARATOR IC LM2901	BE0410
IC8	14WY DIL IC SOCKET	FF0719
IC8	QUAD COMPARATOR IC LM2901	BE0410
IC9	14WY DIL IC SOCKET	FF0719
IC9	QUAD COMPARATOR IC LM2901	BE0410
IC10	14WY DIL IC SOCKET	FF0719
IC10	QUAD COMPARATOR IC LM2901	BE0410
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
J2	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD2	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD3	T1 3MM S.BRT LED RED PRF.LONG	JA0061
LD4	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD5	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD6	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD7	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD8	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD9	T1 3MM S.BRT LED AMB PRF.LONG	JA0063
LD10	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD11	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD12	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD13	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD14	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD15	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD18	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.LONG	JA0059
LD20	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
PR1	TRIMMER VERT 3306W- 20K	DE0430
R1	MF 0.25W RES 2% 100K	AD0497
R2	MF 0.25W RES 2% 680K	AD0517
R3	MF 0.25W RES 2% 680K	AD0517
R4	MF 0.25W RES 2% 100K	AD0497
R5	MF 0.25W RES 2% 75R	AD0422
R6	MF 0.25W RES 2% 47K	AD0489
R7	MF 0.25W RES 2% 100K	AD0497
R8	MF 0.25W RES 2% 24K	AD0482
R9	MF 0.25W RES 2% 47K	AD0489
R10	MF 0.25W RES 2% 4K7	AD0465
R11	RES MF 10R 2% 0.25W RADIAL	AV0001

R12	RES MF 10R 2% 0.25W RADIAL	AV0001
R13	RES MF 10R 2% 0.25W RADIAL	AV0001
R14	MF 0.25W RES 2% 1K8	AD0455
R15	MF 0.25W RES 2% 220K	AD0505
R16	MF 0.25W RES 2% 75R	AD0422
R17	MF 0.25W RES 2% 10K	AD0473
R18	MF 0.25W RES 2% 39K	AD0487
R19	MF 0.25W RES 2% 15K	AD0477
R20	MF 0.25W RES 2% 100K	AD0497
R21	MF 0.25W RES 2% 100R	AD0425
R22	MF 0.25W RES 2% 91R	AD0424
R23	MF 0.25W RES 2% 20R	AD0408
R24	MF 0.25W RES 2% 27R	AD0411
R25	MF 0.25W RES 2% 33R	AD0413
R26	MF 0.25W RES 2% 47R	AD0417
R27	MF 0.25W RES 2% 62R	AD0420
R28	MF 0.25W RES 2% 68R	AD0421
R29	MF 0.25W RES 2% 91R	AD0424
R30	MF 0.25W RES 2% 110R	AD0426
R31	MF 0.25W RES 2% 150R	AD0429
R32	MF 0.25W RES 2% 180R	AD0431
R33	MF 0.25W RES 2% 39K	AD0487
R34	MF 0.25W RES 2% 1K5	AD0453
R35	MF 0.25W RES 2% 1K1	AD0450
R36	MF 0.25W RES 2% 910R	AD0448
R37	MF 0.25W RES 2% 680R	AD0445
R38	MF 0.25W RES 2% 620R	AD0444
R39	MF 0.25W RES 2% 470R	AD0441
R40	MF 0.25W RES 2% 330R	AD0437
R41	MF 0.25W RES 2% 300R	AD0436
R42	MF 0.25W RES 2% 220R	AD0433
R43	MF 0.25W RES 2% 100R	AD0425
R44	MF 0.25W RES 2% 100K	AD0497
R45	MF 0.25W RES 2% 100K	AD0497
R46	MF 0.25W RES 2% 47K	AD0489
R47	MF 0.25W RES 2% 22K	AD0481
R48	MF 0.25W RES 2% 1M	AD0521
R49	MF 0.25W RES 2% 1M	AD0521
SC3074	EUROPA MATRIX FDR PCB	GC3074
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR4	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR6	NPN TRANS 2SC2240BL(TAPED)	BD0302
	HEAVY DUTY TWN 7/0.2 SCRND CBL	LB0114

Matrix RR CON PCB

	Matrix RR CON PCB	RA3075
INDENT	**DESCRIPTION**	**PART No.**
CN1	EUROPA MATRIX 26WY RR CON WFM	RV2437
CN8	1/4" PC MNTNG BLADE VERT	FF0676
JSK1	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK2	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK3	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK4	JCK SKT STR/BRK 114B/PC MTL	FH0734

JSK5	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK6	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK7	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK8	JCK SKT STR/BRK 114B/PC MTL	FH0734
MI3020	SAC200 SOURCE SELECT LM 520MM	RV2110
SC3075	EUROPA MATRIX RR CON PCB	GA3075
XLR1	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR2	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR3	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR4	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR5	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR6	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR7	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944
XLR8	NTRK 3WY ML PC MNT THREAD4FLNG	FK0944

Ster I/P LH PCB

	Ster I/P LH PCB	RC3140
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C2	VERT ELEC 220 MF 25V	CE0422
C3	VERT ELEC 220 MF 25V	CE0422
C6	VERT ELEC 220 MF 25V	CE0422
C7	VERT ELEC 220 MF 25V	CE0422
C26	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C27	POLY-CAP 5MM 5% 100V 47N	CC0248
C28	POLY-CAP 5MM 5% 100V 47N	CC0248
C29	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C30	POLY-CAP 5MM 5% 100V 47N	CC0248
C32	POLY-CAP 5MM 5% 100V 47N	CC0248
C33	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C34	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C35	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C36	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C37	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C38	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C39	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C40	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C41	POLY-CAP 5MM 5% 100V 47N	CC0248
C42	POLY-CAP 5MM 5% 100V 47N	CC0248
C43	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C44	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C45	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C46	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C47	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C48	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C49	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C50	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C51	POLY-CAP 5MM 5% 100V 47N	CC0248
C52	POLY-CAP 5MM 5% 100V 47N	CC0248
C53	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C54	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C55	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C56	POLY-CAP 5MM 5% 100V 47N	CC0248
C58	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C59	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C60	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C61	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C62	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C63	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C64	POLY-CAP 5MM 5% 63V 100N	CC0252
C65	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C66	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C67	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C68	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C69	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C70	POLY-CAP 5MM 5% 63V 100N	CC0252
C71	POLY-CAP 5MM 5% 63V 100N	CC0252
C72	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C74	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C76	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C77	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C78	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C79	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C80	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	SPHYR 26 PIN 3"BRD WFM(MI3296)	RV2317
CN2	SPHYR 26 PIN 3"BRD WFM(MI3296)	RV2317
CN3	S30 INTER-PCB CABLE ASS TYPE D	RV2472
CN7	G80 1DC 16WY R/A LTCH ML HDR	FA0073
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D5	DIODE 1N4148	BA0001
D6	DIODE 1N4148	BA0001
D7	DIODE 1N4148	BA0001
D9	DIODE 1N4148	BA0001
IC1	14WY DIL IC SOCKET	FF0719
IC1	4069 HEX INVERTER	BF0515
IC2	14WY DIL IC SOCKET	FF0719
IC2	4069 HEX INVERTER	BF0515
IC3	16WY DIL IC SOCKET	FF0720
IC3	40109 QUAD VLTG LVL SHIFTER	BF0520
IC4	16WY DIL IC SOCKET	FF0720
IC4	40109 QUAD VLTG LVL SHIFTER	BF0520
IC5	16WY DIL IC SOCKET	FF0720
IC5	4053 3P C/D ANALOGUE SW	BF0573
IC6	16WY DIL IC SOCKET	FF0720
IC6	4053 3P C/D ANALOGUE SW	BF0573
IC7	16WY DIL IC SOCKET	FF0720
IC7	4053 3P C/D ANALOGUE SW	BF0573
IC8	16WY DIL IC SOCKET	FF0720
IC8	4053 3P C/D ANALOGUE SW	BF0573
IC9	16WY DIL IC SOCKET	FF0720
IC9	4053 3P C/D ANALOGUE SW	BF0573
IC10	16WY DIL IC SOCKET	FF0720
IC10	4053 3P C/D ANALOGUE SW	BF0573
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC TL072CP	BE0413
IC13	8WY DIL IC SOCKET	FF0718
IC13	DUAL OP AMP IC TL072CP	BE0413
IC14	14WY DIL IC SOCKET	FF0719
IC14	4069 HEX INVERTER	BF0515

IC18	8WY DIL IC SOCKET	FF0718
IC18	DUAL OP AMP IC TL072CP	BE0413
IC19	8WY DIL IC SOCKET	FF0718
IC19	DUAL OP AMP IC TL072CP	BE0413
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	8WY SIL SKT (MADE FROM FF0538)	FF0620
IC21	DBX 1252HA2 VCA	BE0453
IC22	8WY SIL SKT (MADE FROM FF0538)	FF0620
IC22	DBX 1252HA2 VCA	BE0453
LD1	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD3	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD4	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD5	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD6	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD8	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD9	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
MD5772	9MM POT BRKT W/PIPS	PZ2290
PR3	CERMET TRIMMER HORIZ 9OH 22K	DE0403
PR4	CERMET TRIMMER HORIZ 9OH 22K	DE0403
R1	RES MF 10R 2% 0.25W RADIAL	AV0001
R2	RES MF 10R 2% 0.25W RADIAL	AV0001
R3	RES MF 10R 2% 0.25W RADIAL	AV0001
R4	RES MF 10R 2% 0.25W RADIAL	AV0001
R5	RES MF 10R 2% 0.25W RADIAL	AV0001
R8	RES MF 10R 2% 0.25W RADIAL	AV0001
R9	RES MF 10R 2% 0.25W RADIAL	AV0001
R41	MF 0.25W RES 2% 6K8	AD0469
R42	MF 0.25W RES 2% 470K	AD0513
R43	MF 0.25W RES 2% 470K	AD0513
R44	MF 0.25W RES 2% 6K8	AD0469
R45	MF 0.25W RES 2% 2K2	AD0457
R46	MF 0.25W RES 2% 100K	AD0497
R47	MF 0.25W RES 2% 680K	AD0517
R49	MF 0.25W RES 2% 2K2	AD0457
R50	MF 0.25W RES 2% 100K	AD0497
R51	MF 0.25W RES 2% 680K	AD0517
R52	MF 0.25W RES 2% 10K	AD0473
R53	MF 0.25W RES 2% 10K	AD0473
R54	MF 0.25W RES 2% 10K	AD0473
R55	MF 0.25W RES 2% 22K	AD0481
R56	MF 0.25W RES 2% 100K	AD0497
R57	MF 0.25W RES 2% 100K	AD0497
R58	MF 0.25W RES 2% 100K	AD0497
R59	MF 0.25W RES 2% 2K2	AD0457
R60	MF 0.25W RES 2% 680K	AD0517
R61	MF 0.25W RES 2% 10K	AD0473
R62	MF 0.25W RES 2% 10K	AD0473
R63	MF 0.25W RES 2% 10K	AD0473
R64	MF 0.25W RES 2% 22K	AD0481
R65	MF 0.25W RES 2% 2K2	AD0457
R66	MF 0.25W RES 2% 100K	AD0497
R67	MF 0.25W RES 2% 680K	AD0517
R68	MF 0.25W RES 2% 10K	AD0473
R69	MF 0.25W RES 2% 10K	AD0473
R70	MF 0.25W RES 2% 10K	AD0473

R71	MF 0.25W RES 2% 22K	AD0481
R72	MF 0.25W RES 2% 100K	AD0497
R73	MF 0.25W RES 2% 100K	AD0497
R74	MF 0.25W RES 2% 22K	AD0481
R75	MF 0.25W RES 2% 10K	AD0473
R76	MF 0.25W RES 2% 10K	AD0473
R77	MF 0.25W RES 2% 10K	AD0473
R78	MF 0.25W RES 2% 680K	AD0517
R79	MF 0.25W RES 2% 100K	AD0497
R80	MF 0.25W RES 2% 100K	AD0497
R81	MF 0.25W RES 2% 100K	AD0497
R82	MF 0.25W RES 2% 2K2	AD0457
R83	MF 0.25W RES 2% 680K	AD0517
R84	MF 0.25W RES 2% 10K	AD0473
R85	MF 0.25W RES 2% 10K	AD0473
R86	MF 0.25W RES 2% 10K	AD0473
R87	MF 0.25W RES 2% 22K	AD0481
R88	MF 0.25W RES 2% 22K	AD0481
R89	MF 0.25W RES 2% 10K	AD0473
R90	MF 0.25W RES 2% 10K	AD0473
R91	MF 0.25W RES 2% 10K	AD0473
R92	MF 0.25W RES 2% 680K	AD0517
R93	MF 0.25W RES 2% 100K	AD0497
R94	MF 0.25W RES 2% 2K2	AD0457
R95	MF 0.25W RES 2% 3K	AD0460
R96	MF 0.25W RES 2% 100K	AD0497
R97	MF 0.25W RES 2% 100K	AD0497
R98	MF 0.25W RES 2% 100R	AD0425
R99	MF 0.25W RES 2% 27K	AD0483
R100	MF 0.25W RES 2% 3K	AD0460
R101	MF 0.25W RES 2% 2K2	AD0457
R102	RES MF 10R 2% 0.25W RADIAL	AV0001
R103	MF 0.25W RES 2% 680K	AD0517
R104	MF 0.25W RES 2% 33K	AD0485
R105	MF 0.25W RES 2% 33R	AD0413
R106	MF 0.25W RES 2% 10K	AD0473
R107	MF 0.25W RES 2% 3K3	AD0461
R108	MF 0.25W RES 2% 33K	AD0485
R109	MF 0.25W RES 2% 10K	AD0473
R110	MF 0.25W RES 2% 10K	AD0473
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 22K	AD0481
R113	CF 0.25W RES 5% 10M BL	AC0341
R114	CF 0.25W RES 5% 10M BL	AC0341
R115	CF 0.25W RES 5% 10M BL	AC0341
R116	CF 0.25W RES 5% 10M BL	AC0341
R117	MF 0.25W RES 2% 100K	AD0497
R118	MF 0.25W RES 2% 100K	AD0497
R119	MF 0.25W RES 2% 680K	AD0517
R120	MF 0.25W RES 2% 680K	AD0517
R121	MF 0.25W RES 2% 680K	AD0517
R122	MF 0.25W RES 2% 680K	AD0517
R123	MF 0.25W RES 2% 2K	AD0456
R124	MF 0.25W RES 2% 2K2	AD0457
R125	MF 0.25W RES 2% 2K	AD0456
R126	MF 0.25W RES 2% 7K5	AD0470
R127	MF 0.25W RES 2% 12K	AD0475
R128	MF 0.25W RES 2% 1K2	AD0451

R129	MF 0.25W RES 2% 1K2	AD0451
R130	MF 0.25W RES 2% 33K	AD0485
R131	MF 0.25W RES 2% 680K	AD0517
R132	MF 0.25W RES 2% 33R	AD0413
R133	MF 0.25W RES 2% 10K	AD0473
R134	MF 0.25W RES 2% 3K3	AD0461
R135	MF 0.25W RES 2% 33K	AD0485
R136	MF 0.25W RES 2% 10K	AD0473
R137	MF 0.25W RES 2% 10K	AD0473
R138	MF 0.25W RES 2% 10K	AD0473
R139	MF 0.25W RES 2% 22K	AD0481
R140	MF 0.25W RES 2% 100K	AD0497
R141	MF 0.25W RES 2% 10K	AD0473
R208	MF 0.25W RES 2% 1M	AD0521
SC3140	EUROPA STER I/P LH PCB	GC3140
SW1	ALPS SUJ 2 POLE PUSH SWT (MOM)	DF0528
SW2	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR3	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR4	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR6	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR7	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR8	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	FET SWITCH J112 (TAPED)	BD0322
TR11	FET SWITCH J112 (TAPED)	BD0322
TR12	FET SWITCH J112 (TAPED)	BD0322
TR13	FET SWITCH J112 (TAPED)	BD0322
TR14	FET SWITCH J112 (TAPED)	BD0322
TR15	FET SWITCH J112 (TAPED)	BD0322
TR16	FET SWITCH J112 (TAPED)	BD0322
TR17	FET SWITCH J112 (TAPED)	BD0322
TR23	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR2	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR3	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR4	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR5	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR6	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR7	ALPS 9MM(SB) 2X10K LIN CD	DM1146
VR8	ALPS 9MM(SB) 2X10K LIN CD	DM1146
VR9	ALPS 9MM(SB) 2X10K LIN CD	DM1146
VR10	ALPS 9MM(SB) 2X10K LIN CD	DM1146
ZD1	ZENER DIODE 400MW 5.1V	BB0102

Ster I/P RH PCB

	Ster I/P RH PCB	RC3141
INDENT	**DESCRIPTION**	**PART No.**
C1	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C2	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C3	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C4	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C5	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C6	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C7	VERT ELEC 0.2" TPD 47MF 25V	CE0401

C8	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C9	C/CAP 0.2" PRFRM TPD 100V 12PF	CA0002
C10	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C11	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C12	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C13	POLY-CAP 5MM 5% 63V 100N	CC0252
C14	POLY-CAP 5MM 5% 100V 47N	CC0248
C15	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C16	POLY-CAP 5MM 5% 100V 2N2	CC0240
C17	POLY-CAP 5MM 5% 100V 1N	CC0238
C18	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C19	POLY-CAP 5MM 5% 63V 100N	CC0252
C20	POLY-CAP 5MM 5% 100V 47N	CC0248
C21	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C22	POLY-CAP 5MM 5% 100V 2N2	CC0240
C23	POLY-CAP 5MM 5% 100V 1N	CC0238
C24	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C25	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C26	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C27	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C28	VERT ELEC 220 MF 25V	CE0422
C29	VERT ELEC 220 MF 25V	CE0422
C30	VERT ELEC 220 MF 25V	CE0422
C31	VERT ELEC 220 MF 25V	CE0422
C32	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C33	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C34	POLY-CAP 5MM 5% 100V 2N2	CC0240
C35	POLY-CAP 5MM 5% 100V 1N	CC0238
C36	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C37	POLY-CAP 5MM 5% 100V 4N7	CC0242
C38	POLY-CAP 5MM 5% 100V 2N2	CC0240
C39	POLY-CAP 5MM 5% 100V 33N	CC0247
C40	POLY-CAP 5MM 5% 100V 15N	CC0245
C41	POLY-CAP 5MM 5% 100V 22N	CC0246
C42	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C43	POLY-CAP 5MM 5% 100V 10N	CC0244
C44	POLY-CAP 5MM 5% 100V 10N	CC0244
C45	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C46	POLY-CAP 5MM 5% 100V 2N2	CC0240
C47	POLY-CAP 5MM 5% 100V 1N	CC0238
C48	C/CAP 0.2" PRFRM TPD 100V 33PF	CA0005
C49	POLY-CAP 5MM 5% 100V 2N2	CC0240
C50	POLY-CAP 5MM 5% 100V 4N7	CC0242
C51	POLY-CAP 5MM 5% 100V 33N	CC0247
C52	POLY-CAP 5MM 5% 100V 15N	CC0245
C53	POLY-CAP 5MM 5% 100V 22N	CC0246
C54	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C55	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C56	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C57	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C58	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C59	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C60	POLY-CAP 5MM 5% 63V 100N	CC0252
C61	POLY-CAP 5MM 5% 63V 100N	CC0252
C64	POLY-CAP 5MM 5% 63V 100N	CC0252
C65	PHILLIPS 47MF 25V CAP	CE0438
C66	POLY-CAP 5MM 5% 63V 100N	CC0252
C67	PHILLIPS 47MF 25V CAP	CE0438
C68	C/C 0.2"TAPED 100V 100PF(N10)	CA0006

C69	C/C 0.2"TAPED 100V 100PF(N10)	CA0006
C95	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C96	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C97	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C98	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C99	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C100	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C101	POLY-CAP 5MM 5% 100V 47N	CC0248
C102	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C103	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C104	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C105	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C106	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C107	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C108	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C109	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C110	POLY-CAP 5MM 5% 100V 47N	CC0248
C111	POLY-CAP 5MM 5% 100V 47N	CC0248
C112	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C113	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C114	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C115	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C116	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C119	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C120	POLY-CAP 5MM 5% 100V 47N	CC0248
C121	POLY-CAP 5MM 5% 100V 47N	CC0248
C122	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C129	C/CAP 0.2" PRFRM TPD 100V 22PF	CA0004
C130	POLY-CAP 5MM 5% 100V 47N	CC0248
C131	POLY-CAP 5MM 5% 63V 100N	CC0252
C138	PHILLIPS 47MF 25V CAP	CE0438
C139	PHILLIPS 47MF 25V CAP	CE0438
CN1	G80 IDC 40WY R/A LTCH ML HDR	FA0071
CN2	1/4" PC MNTG BLADE HORIZ	FF0555
CN3	T&B IDC 26WY VERT ML BOX HDR	FA0096
CN5	T&B IDC 26WY VERT ML BOX HDR	FA0096
CN6	T&B CN IDC 34WY LW PRFL VRT ML	FA0087
CN7	G80 1DC 16WY R/A LTCH ML HDR	FA0073
CN8	G80 IDC 40WY R/A LTCH ML HDR	FA0071
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001
D3	DIODE 1N4148	BA0001
D4	DIODE 1N4148	BA0001
D10	DIODE 1N4148	BA0001
D11	DIODE 1N4148	BA0001
D21	DIODE 1N4148	BA0001
D22	DIODE 1N4148	BA0001
D23	DIODE 1N4148	BA0001
D24	DIODE 1N4148	BA0001
D25	DIODE 1N4148	BA0001
D26	DIODE 1N4148	BA0001
D27	DIODE 1N4148	BA0001
D28	DIODE 1N4148	BA0001
D29	DIODE 1N4148	BA0001
D30	DIODE 1N4148	BA0001
D31	DIODE 1N4148	BA0001
D32	DIODE 1N4148	BA0001
D33	DIODE 1N4148	BA0001
D34	DIODE 1N4148	BA0001

D35	DIODE 1N4148	BA0001
D36	DIODE 1N4148	BA0001
D37	DIODE 1N4148	BA0001
D38	DIODE 1N4148	BA0001
D41	DIODE 1N4148	BA0001
IC1	8WY DIL IC SOCKET	FF0718
IC1	DUAL OP AMP IC TL072CP	BE0413
IC2	8WY DIL IC SOCKET	FF0718
IC2	DUAL OP AMP IC TL072CP	BE0413
IC3	8WY DIL IC SOCKET	FF0718
IC3	DUAL OP AMP IC TL072CP	BE0413
IC4	8WY DIL IC SOCKET	FF0718
IC4	DUAL OP AMP IC TL072CP	BE0413
IC5	8WY DIL IC SOCKET	FF0718
IC5	DUAL OP AMP IC TL072CP	BE0413
IC6	8WY DIL IC SOCKET	FF0718
IC6	DUAL OP AMP IC TL072CP	BE0413
IC7	8WY DIL IC SOCKET	FF0718
IC7	DUAL OP AMP IC TL072CP	BE0413
IC8	8WY DIL IC SOCKET	FF0718
IC8	DUAL OP AMP IC TL072CP	BE0413
IC9	8WY DIL IC SOCKET	FF0718
IC9	DUAL OP AMP IC TL072CP	BE0413
IC10	8WY DIL IC SOCKET	FF0718
IC10	DUAL OP AMP IC TL072CP	BE0413
IC11	8WY DIL IC SOCKET	FF0718
IC11	DUAL OP AMP IC TL072CP	BE0413
IC12	8WY DIL IC SOCKET	FF0718
IC12	DUAL OP AMP IC TL072CP	BE0413
IC14	8WY DIL IC SOCKET	FF0718
IC14	DUAL OP AMP IC TL072CP	BE0413
IC17	8WY DIL IC SOCKET	FF0718
IC17	DUAL OP AMP IC TL072CP	BE0413
IC19	8WY DIL IC SOCKET	FF0718
IC19	SGL OP AMP IC TL071CP	BE0404
IC20	8WY DIL IC SOCKET	FF0718
IC20	DUAL OP AMP IC TL072CP	BE0413
IC21	8WY DIL IC SOCKET	FF0718
IC21	DUAL OP AMP IC TL072CP	BE0413
IC22	8WY DIL IC SOCKET	FF0718
IC22	DUAL OP AMP IC TL072CP	BE0413
IC23	8WY DIL IC SOCKET	FF0718
IC23	SGL OP AMP IC TL071CP	BE0404
IC24	14WY DIL IC SOCKET	FF0719
IC24	4066 QUAD ANALOGUE SWITCH	BF0507
IC25	14WY DIL IC SOCKET	FF0719
IC25	4066 QUAD ANALOGUE SWITCH	BF0507
IC26	14WY DIL IC SOCKET	FF0719
IC26	4070 QUAD EXCLUSIVE OR	BF0516
IC27	14WY DIL IC SOCKET	FF0719
IC27	4069 HEX INVERTER	BF0515
IC28	14WY DIL IC SOCKET	FF0719
IC28	4069 HEX INVERTER	BF0515
IC29	16WY DIL IC SOCKET	FF0720
IC29	40109 QUAD VLTG LVL SHIFTER	BF0520
IC30	16WY DIL IC SOCKET	FF0720
IC30	40109 QUAD VLTG LVL SHIFTER	BF0520
IC31	16WY DIL IC SOCKET	FF0720
IC31	4053 3P C/D ANALOGUE SW	BF0573

IC32	16WY DIL IC SOCKET	FF0720
IC32	4053 3P C/D ANALOGUE SW	BF0573
IC33	16WY DIL IC SOCKET	FF0720
IC33	4053 3P C/D ANALOGUE SW	BF0573
IC34	16WY DIL IC SOCKET	FF0720
IC34	4053 3P C/D ANALOGUE SW	BF0573
IC35	16WY DIL IC SOCKET	FF0720
IC35	4053 3P C/D ANALOGUE SW	BF0573
IC36	16WY DIL IC SOCKET	FF0720
IC36	4053 3P C/D ANALOGUE SW	BF0573
IC37	8WY DIL IC SOCKET	FF0718
IC37	DUAL OP AMP IC TL072CP	BE0413
IC38	8WY DIL IC SOCKET	FF0718
IC38	DUAL OP AMP IC TL072CP	BE0413
IC39	8WY DIL IC SOCKET	FF0718
IC39	DUAL OP AMP IC TL072CP	BE0413
IC40	6WY DIL SOCKET (GOLD)	FF0615
IC40	OPTO COUPLER 4N33	BD0321
J1	.1" 3WY SIL HDR(GLD)2.54MM PIN	FF0637
LD1	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD2	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD3	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD4	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD5	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD6	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD7	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD8	T1 3MM S.BRT LED RED PRF.SHORT	JA0060
LD9	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD10	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD11	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD12	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD13	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD14	T1 3MM S.BRT LED AMB PRF.SHORT	JA0062
LD15	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD16	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD17	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD18	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD19	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LD20	T1 3MM S.BRT LED GRN PRF.SHORT	JA0058
LK1	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK2	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK3	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK4	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK5	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
LK6	ZERO OHM RESISTOR (METAL SLUG)	AZ2222
MD5772	9MM POT BRKT W/PIPS	PZ2290
MD6099	9MM POT BRKT W/PIPS(12.5 BODY)	PZ2289
R1	MF 0.25W RES 2% 15K	AD0477
R2	MF 0.25W RES 2% 15K	AD0477
R3	MF 0.25W RES 2% 15K	AD0477
R4	MF 0.25W RES 2% 15K	AD0477
R9	MF 0.25W RES 2% 22K	AD0481
R10	MF 0.25W RES 2% 22K	AD0481
R11	MF 0.25W RES 2% 5K6	AD0467
R12	MF 0.25W RES 2% 5K6	AD0467
R13	MF 0.25W RES 2% 22K	AD0481
R14	MF 0.25W RES 2% 22K	AD0481
R15	MF 0.25W RES 2% 5K6	AD0467
R16	MF 0.25W RES 2% 5K6	AD0467

R17	MF 0.25W RES 2% 3K3	AD0461
R18	MF 0.25W RES 2% 3K3	AD0461
R19	MF 0.25W RES 2% 150R	AD0429
R20	MF 0.25W RES 2% 150R	AD0429
R21	MF 0.25W RES 2% 5K1	AD0466
R22	MF 0.25W RES 2% 5K1	AD0466
R23	MF 0.25W RES 2% 5K1	AD0466
R24	MF 0.25W RES 2% 5K1	AD0466
R25	MF 0.25W RES 2% 4K7	AD0465
R26	MF 0.25W RES 2% 2K4	AD0458
R27	MF 0.25W RES 2% 4K7	AD0465
R28	MF 0.25W RES 2% 2K4	AD0458
R29	MF 0.25W RES 2% 47K	AD0489
R30	MF 0.25W RES 2% 2K2	AD0457
R31	MF 0.25W RES 2% 220K	AD0505
R32	MF 0.25W RES 2% 47K	AD0489
R33	MF 0.25W RES 2% 2K2	AD0457
R34	MF 0.25W RES 2% 220K	AD0505
R35	MF 0.25W RES 2% 4M7	AD0530
R36	MF 0.25W RES 2% 4M7	AD0530
R37	MF 0.25W RES 2% 47K	AD0489
R38	MF 0.25W RES 2% 2K7	AD0459
R39	MF 0.25W RES 2% 2K7	AD0459
R40	MF 0.25W RES 2% 4K7	AD0465
R41	MF 0.25W RES 2% 4K7	AD0465
R42	MF 0.25W RES 2% 6K8	AD0469
R43	MF 0.25W RES 2% 6K8	AD0469
R44	MF 0.25W RES 2% 47K	AD0489
R45	MF 0.25W RES 2% 4K7	AD0465
R46	MF 0.25W RES 2% 4K7	AD0465
R47	MF 0.25W RES 2% 47K	AD0489
R48	MF 0.25W RES 2% 2K7	AD0459
R49	MF 0.25W RES 2% 2K7	AD0459
R50	MF 0.25W RES 2% 4K7	AD0465
R51	MF 0.25W RES 2% 4K7	AD0465
R52	MF 0.25W RES 2% 6K8	AD0469
R53	MF 0.25W RES 2% 6K8	AD0469
R54	MF 0.25W RES 2% 47K	AD0489
R55	MF 0.25W RES 2% 4K7	AD0465
R56	MF 0.25W RES 2% 4K7	AD0465
R57	MF 0.25W RES 2% 47K	AD0489
R58	MF 0.25W RES 2% 47K	AD0489
R59	MF 0.25W RES 2% 10R	AD0401
R60	RES MF 10R 2% 0.25W RADIAL	AV0001
R61	RES MF 10R 2% 0.25W RADIAL	AV0001
R62	RES MF 10R 2% 0.25W RADIAL	AV0001
R63	RES MF 10R 2% 0.25W RADIAL	AV0001
R64	RES MF 10R 2% 0.25W RADIAL	AV0001
R65	RES MF 10R 2% 0.25W RADIAL	AV0001
R66	RES MF 10R 2% 0.25W RADIAL	AV0001
R67	RES MF 10R 2% 0.25W RADIAL	AV0001
R68	RES MF 10R 2% 0.25W RADIAL	AV0001
R70	MF 0.25W RES 2% 22K	AD0481
R71	MF 0.25W RES 2% 22K	AD0481
R72	MF 0.25W RES 2% 220K	AD0505
R73	MF 0.25W RES 2% 13K	AD0476
R74	MF 0.25W RES 2% 10K	AD0473
R75	MF 0.25W RES 2% 6K8	AD0469
R76	MF 0.25W RES 2% 6K8	AD0469

R77	MF 0.25W RES 2% 100K	AD0497
R78	MF 0.25W RES 2% 22K	AD0481
R79	MF 0.25W RES 2% 22K	AD0481
R80	MF 0.25W RES 2% 220K	AD0505
R81	MF 0.25W RES 2% 10K	AD0473
R82	MF 0.25W RES 2% 6K8	AD0469
R83	MF 0.25W RES 2% 6K8	AD0469
R84	MF 0.25W RES 2% 100K	AD0497
R85	MF 0.25W RES 2% 13K	AD0476
R86	MF 0.25W RES 2% 6K8	AD0469
R87	MF 0.25W RES 2% 6K8	AD0469
R88	MF 0.25W RES 2% 22K	AD0481
R89	MF 0.25W RES 2% 22K	AD0481
R90	MF 0.25W RES 2% 22K	AD0481
R91	MF 0.25W RES 2% 22K	AD0481
R92	MF 0.25W RES 2% 6K8	AD0469
R93	MF 0.25W RES 2% 6K8	AD0469
R94	MF 0.25W RES 2% 6K8	AD0469
R95	MF 0.25W RES 2% 6K8	AD0469
R96	MF 0.25W RES 2% 22K	AD0481
R97	MF 0.25W RES 2% 22K	AD0481
R98	MF 0.25W RES 2% 6K8	AD0469
R99	MF 0.25W RES 2% 22K	AD0481
R100	MF 0.25W RES 2% 22K	AD0481
R101	MF 0.25W RES 2% 6K8	AD0469
R102	MF 0.25W RES 2% 22K	AD0481
R103	MF 0.25W RES 2% 22K	AD0481
R104	MF 0.25W RES 2% 2K2	AD0457
R105	MF 0.25W RES 2% 4K7	AD0465
R106	MF 0.25W RES 2% 4K7	AD0465
R107	MF 0.25W RES 2% 2K2	AD0457
R108	MF 0.25W RES 2% 22K	AD0481
R109	MF 0.25W RES 2% 22K	AD0481
R110	MF 0.25W RES 2% 10K	AD0473
R111	MF 0.25W RES 2% 10K	AD0473
R112	MF 0.25W RES 2% 10K	AD0473
R113	MF 0.25W RES 2% 22K	AD0481
R114	MF 0.25W RES 2% 680K	AD0517
R115	MF 0.25W RES 2% 680K	AD0517
R116	MF 0.25W RES 2% 680K	AD0517
R117	MF 0.25W RES 2% 680K	AD0517
R118	CF 0.25W RES 5% 10M BL	AC0341
R119	CF 0.25W RES 5% 10M BL	AC0341
R120	CF 0.25W RES 5% 10M BL	AC0341
R121	CF 0.25W RES 5% 10M BL	AC0341
R122	MF 0.25W RES 2% 100K	AD0497
R123	MF 0.25W RES 2% 100K	AD0497
R126	MF 0.25W RES 2% 10K	AD0473
R127	MF 0.25W RES 2% 10K	AD0473
R128	MF 0.25W RES 2% 10K	AD0473
R129	MF 0.25W RES 2% 22K	AD0481
R138	MF 0.25W RES 2% 10K	AD0473
R139	MF 0.25W RES 2% 100K	AD0497
R141	MF 0.25W RES 2% 100K	AD0497
R142	MF 0.25W RES 2% 100K	AD0497
R143	MF 0.25W RES 2% 10K	AD0473
R144	MF 0.25W RES 2% 100K	AD0497
R145	CF 0.25W RES 5% 10M BL	AC0341
R146	CF 0.25W RES 5% 10M BL	AC0341

R147	MF 0.25W RES 2% 680K	AD0517
R148	MF 0.25W RES 2% 680K	AD0517
R149	MF 0.25W RES 2% 10K	AD0473
R150	MF 0.25W RES 2% 10K	AD0473
R151	MF 0.25W RES 2% 22K	AD0481
R152	MF 0.25W RES 2% 22K	AD0481
R153	MF 0.25W RES 2% 10K	AD0473
R154	MF 0.25W RES 2% 10K	AD0473
R197	MF 0.25W RES 2% 20K	AD0480
R198	MF 0.25W RES 2% 20K	AD0480
R199	MF 0.25W RES 2% 12K	AD0475
R200	MF 0.25W RES 2% 12K	AD0475
R201	MF 0.25W RES 2% 20K	AD0480
R202	MF 0.25W RES 2% 20K	AD0480
R203	MF 0.25W RES 2% 10K	AD0473
R204	MF 0.25W RES 2% 10K	AD0473
R205	MF 0.25W RES 2% 10K	AD0473
R206	MF 0.25W RES 2% 22K	AD0481
R207	MF 0.25W RES 2% 4K7	AD0465
R220	MF 0.25W RES 2% 100K	AD0497
R221	MF 0.25W RES 2% 100K	AD0497
R222	MF 0.25W RES 2% 22K	AD0481
R223	MF 0.25W RES 2% 22K	AD0481
R224	MF 0.25W RES 2% 100K	AD0497
R225	MF 0.25W RES 2% 100K	AD0497
R226	MF 0.25W RES 2% 220K	AD0505
R227	MF 0.25W RES 2% 100K	AD0497
R228	MF 0.25W RES 2% 20K	AD0480
R229	MF 0.25W RES 2% 20K	AD0480
R230	MF 0.25W RES 2% 12K	AD0475
R231	MF 0.25W RES 2% 10K	AD0473
R232	MF 0.25W RES 2% 10K	AD0473
R233	MINI-RES MF 1/8W 2% 10K	AR1673
R234	MINI-RES MF 1/8W 2% 10K	AR1673
R235	MF 0.25W RES 2% 8K2	AD0471
R236	MF 0.25W RES 2% 2K2	AD0457
R237	MF 0.25W RES 2% 5K6	AD0467
R238	MF 0.25W RES 2% 2K2	AD0457
R239	MF 0.25W RES 2% 10K	AD0473
R240	MF 0.25W RES 2% 10K	AD0473
R241	MF 0.25W RES 2% 10K	AD0473
R242	MF 0.25W RES 2% 10K	AD0473
R243	MF 0.25W RES 2% 2K2	AD0457
R244	MF 0.25W RES 2% 2K2	AD0457
R245	MF 0.25W RES 2% 5K6	AD0467
R246	MF 0.25W RES 2% 8K2	AD0471
R247	MINI-RES MF 1/8W 2% 10K	AR1673
R248	MINI-RES MF 1/8W 2% 10K	AR1673
R249	MINI-RES MF 1/8W 2% 10K	AR1673
R260	MINI-RES MF 1/8W 2% 10K	AR1673
R261	MINI-RES MF 1/8W 2% 10K	AR1673
R262	MINI-RES MF 1/8W 2% 10K	AR1673
R263	MINI-RES MF 1/8W 2% 10K	AR1673
R264	MINI-RES MF 1/8W 2% 10K	AR1673
R265	MINI-RES MF 1/8W 2% 10K	AR1673
R266	MINI-RES MF 1/8W 2% 10K	AR1673
R267	MF 0.25W RES 2% 100R	AD0425
R268	MF 0.25W RES 2% 27K	AD0483
R269	MF 0.25W RES 2% 27K	AD0483

R270	MF 0.25W RES 2% 100R	AD0425
R271	MF 0.25W RES 2% 100K	AD0497
R272	MF 0.25W RES 2% 100K	AD0497
R273	MF 0.25W RES 2% 100K	AD0497
R274	MF 0.25W RES 2% 100K	AD0497
R275	MF 0.25W RES 2% 47K	AD0489
R276	MF 0.25W RES 2% 22K	AD0481
R277	MF 0.25W RES 2% 22K	AD0481
R278	MF 0.25W RES 2% 22K	AD0481
R279	MF 0.25W RES 2% 36K	AD0486
R280	MF 0.25W RES 2% 36K	AD0486
R281	MF 0.25W RES 2% 10K	AD0473
R282	MF 0.25W RES 2% 10K	AD0473
R283	MF 0.25W RES 2% 10K	AD0473
R284	MF 0.25W RES 2% 10K	AD0473
R285	MF 0.25W RES 2% 10K	AD0473
R286	MF 0.25W RES 2% 10K	AD0473
R287	MF 0.25W RES 2% 2K2	AD0457
R288	MF 0.25W RES 2% 100K	AD0497
R289	MF 0.25W RES 2% 680K	AD0517
R290	MF 0.25W RES 2% 10K	AD0473
R294	MF 0.25W RES 2% 22K	AD0481
R295	MF 0.25W RES 2% 22K	AD0481
R300	MF 0.25W RES 2% 680K	AD0517
R301	MF 0.25W RES 2% 100K	AD0497
R302	MF 0.25W RES 2% 100K	AD0497
R303	MF 0.25W RES 2% 2K2	AD0457
R304	MF 0.25W RES 2% 2K2	AD0457
R305	MF 0.25W RES 2% 100K	AD0497
R306	MF 0.25W RES 2% 100K	AD0497
R307	MF 0.25W RES 2% 680K	AD0517
R312	MF 0.25W RES 2% 22K	AD0481
R313	MF 0.25W RES 2% 22K	AD0481
R318	MF 0.25W RES 2% 680K	AD0517
R319	MF 0.25W RES 2% 100K	AD0497
R320	MF 0.25W RES 2% 2K2	AD0457
R321	MF 0.25W RES 2% 2K2	AD0457
R322	MF 0.25W RES 2% 100K	AD0497
R323	MF 0.25W RES 2% 680K	AD0517
R334	MF 0.25W RES 2% 680K	AD0517
R335	MF 0.25W RES 2% 100K	AD0497
R336	MF 0.25W RES 2% 2K2	AD0457
R337	MF 0.25W RES 2% 100K	AD0497
R338	MF 0.25W RES 2% 100K	AD0497
R339	MF 0.25W RES 2% 100K	AD0497
R340	MF 0.25W RES 2% 3K	AD0460
R341	MF 0.25W RES 2% 47K	AD0489
R342	MF 0.25W RES 2% 470R	AD0441
R342	MF 0.25W RES 2% 47K	AD0489
R344	MF 0.25W RES 2% 47K	AD0489
R355	MF 0.25W RES 2% 10R	AD0401
SC3141	EUROPA STER I/P RH PCB	GC3141
SW1	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW2	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW3	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW4	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW5	ALPS SUJ 4POLE PSH SWT (LTCHG)	DF0530
SW6	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW7	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531

SW8	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW9	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW10	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW11	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW12	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW13	ALPS SUJ 6POLE PSH SWT (LTCHG)	DF0531
SW14	ALPS SUJ 2POLE PSH SWT (LTCHG)	DF0529
TR1	FET SWITCH J112 (TAPED)	BD0322
TR2	FET SWITCH J112 (TAPED)	BD0322
TR3	FET SWITCH J112 (TAPED)	BD0322
TR4	FET SWITCH J112 (TAPED)	BD0322
TR5	FET SWITCH J112 (TAPED)	BD0322
TR6	FET SWITCH J112 (TAPED)	BD0322
TR7	FET SWITCH J112 (TAPED)	BD0322
TR8	FET SWITCH J112 (TAPED)	BD0322
TR9	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR10	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR11	FET SWITCH J112 (TAPED)	BD0322
TR12	FET SWITCH J112 (TAPED)	BD0322
TR13	FET SWITCH J112 (TAPED)	BD0322
TR14	FET SWITCH J112 (TAPED)	BD0322
TR24	PNP TRANS 2SA970GR (TAPED)	BD0301
TR26	PNP TRANS 2SA970GR (TAPED)	BD0301
TR27	PNP TRANS 2SA970GR (TAPED)	BD0301
TR28	PNP TRANS 2SA970GR (TAPED)	BD0301
TR29	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR30	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR31	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR32	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR33	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR34	NPN TRANS 2SC2240BL(TAPED)	BD0302
VR1	ALPS 9MM (SB/L) 2X10K LIN CD	DM1164
VR2	ALPS 9MM (SB/L) 2X5K RD	DM1165
VR3	ALPS 9MM(SB) 2X10K LIN CD TAP	DM1147
VR4	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR5	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR6	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR7	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR8	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR9	ALPS 9MM(SB) 4X100K RLG C	DM1155
VR10	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR11	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR12	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR13	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR14	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
VR15	ALPS 9MM (SB)10K LOG A MOM SW	DM1161
	32/0.2 GREEN WIRE	LA0015

Ster I/P RR CON PCB

Ster I/P RR CON PCB RA3142

INDENT	DESCRIPTION	PART No.
CN22	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN23	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN24	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN25	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN26	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN27	1/4" PC MNTNG BLADE VERT	FF0676
JSK1	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK2	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK3	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK4	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK5	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK6	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK7	JCK SKT STR/BRK 114B/PC MTL	FH0734
JSK8	JCK SKT STR/BRK 114B/PC MTL	FH0734
MI3384	EUROPA I/P RR CON LOOM	RV2349
MI3385	EUROPA I/P RR CON MTR LOOM	RV2350
SC3142	EUROPA STER I/P RR CON PCB	GA3142
XLR1	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR2	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR3	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR4	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR5	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR6	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR7	NTRK 3WY FML PC MNT THRED4FLNG	FK0943
XLR8	NTRK 3WY FML PC MNT THRED4FLNG	FK0943

CPS950 DIST PSU PCB

CPS950 DIST PSU PCB RB3231

INDENT	DESCRIPTION	PART No.
BAT1	BATTERY NI-CAD 6.2V 250MA/H	ZZ2733
C1	VERT ELEC 0.2" TPD 47MF 25V	CE0401
C2	POLY-CAP 5MM 5% 63V 100N	CC0252
C3	POLY-CAP 5MM 5% 63V 100N	CC0252
C4	VERT ELEC 0.2"TPD 2.2MF 50V	CE0416
C5	POLY-CAP 5MM 5% 100V 1N	CC0238
C6	VERT ELEC 0.2" TPD 47MF 25V	CE0401
CN1	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN2	G80 IDC 16WY VERT ML LTCH HDR	FA0092
CN3	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN4	G80 IDC 34WY VERT LATCHED HDR	FA0043
CN5	CON MTA 156 8WY ML HDR LTCHD	FC0245
CN6	CON MTA156 4WY ML HDR LTCHD	FC0247
CN7	CON MTA156 6WY ML HDR LTCHD	FC0242
CN8	MTHD 8WY.1" ML LCKNG PLRSD HDR	FF0569
CN9	MTHD 8WY.1" ML LCKNG PLRSD HDR	FF0569
CN10	CON MTA156 6WY ML HDR LTCHD	FC0242
CN11	G80 IDC 50WY VERT LTCH ML HDR	FA0131
CN12	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN13	G80 IDC 40WY VERT LTCH ML HDR	FA0082
CN14	CON MTA 156 8WY ML HDR LTCHD	FC0245
CN15	G80 IDC 50WY VERT LTCH ML HDR	FA0131
CN16	MTHD .1" 2WY VERT LCKNG ML HDR	FF0641
CN17	CON MTA156 4WY ML HDR LTCHD	FC0247
D1	DIODE 1N4148	BA0001
D2	DIODE 1N4148	BA0001

D3	DIODE 1N4148	BA0001
D4	DIODE 1N4001	BA0005
D5	DIODE 1N4001	BA0005
D7	DIODE 1N4148	BA0001
D8	DIODE 1N4001	BA0005
D9	DIODE 1N4001	BA0005
DZ1	ZENER DIODE 400MW 6.2V	BB0104
DZ3	ZENER DIODE 400MW 11V	BB0106
R1	MF 0.25W RES 2% 1K	AD0449
R2	MF 0.25W RES 2% 15K	AD0477
R3	MF 0.25W RES 2% 1K	AD0449
R4	MF 0.25W RES 2% 47K	AD0489
R5	MF 0.25W RES 2% 10K	AD0473
R6	MF 0.25W RES 2% 100K	AD0497
R9	MF 0.25W RES 2% 220K	AD0505
R10	MF 0.25W RES 2% 47K	AD0489
R15	MF 0.25W RES 2% 100K	AD0497
R16	MF 0.25W RES 2% 10K	AD0473
R17	MF 0.25W RES 2% 22K	AD0481
R18	MF 0.25W RES 2% 120R	AD0427
R19	MF 0.25W RES 2% 120R	AD0427
R29	MF 0.25W RES 2% 470R	AD0441
RL1	RELAY 270R 5A DPDT 12VDC	DZ2221
RL2	RELAY 270R 5A DPDT 12VDC	DZ2221
RP1	9P SIL 8X100K RES NETWORK	AZ2257
RP2	9P SIL 8X100K RES NETWORK	AZ2257
RP3	9P SIL 8X100K RES NETWORK	AZ2257
RP4	9P SIL 8X100K RES NETWORK	AZ2257
SC3231	EUROPA CPS950 DIST PSU PCB	GB3231
TH1	INRUSH SUPPRESSOR UEI 13SP008	AZ2267
TH2	INRUSH SUPPRESSOR UEI 13SP008	AZ2267
TH3	INRUSH SUPPRESSOR UEI 13SP008	AZ2267
TH4	INRUSH SUPPRESSOR UEI 13SP008	AZ2267
TR1	NPN TRANS 2SC2240BL(TAPED)	BD0302
TR2	PNP TRANS 2SA970GR (TAPED)	BD0301
TR5	PNP TRANS 2SA970GR (TAPED)	BD0301
TR6	NPN TRANS BD135	BD0317

Input Module Assy

	Input Module Assy	RS5089
INDENT	**DESCRIPTION**	**PART No.**
J2	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J4	HONDA .1" 2WY JUMPER (GOLD)	FF0614
MD5780	9MM POT LOCKING NUT(MOULDED)	NB0157
MD5952	EUROPA I/P MOD FSC	PJ1160
SW1	ILL LH PUSH BTN "EQ" L/GRY	KB1342
SW1	ILLUM PUSH BTN L/GRY "2"	KB0887
SW2	ILL LH PUSH BTN "IN"L/GRY	KB1341
SW2	ILLUM PUSH BTN L/GRY "4"	KB0889
SW3	ILLUM LH PUSH BTN L/GRY "PRE"	KB1080
SW3	ILLUM PUSH BTN L/GRY "6"	KB0891
SW4	ILL LH PUSH BTN "+48V"L/GRY	KB1340
SW4	ILLUM PUSH BTN L/GRY "8"	KB0893
SW5	ILL LH PUSH BTN "L/R" L/GRY	KB1339
SW5	ILLUM PUSH BTN L/GRY "IN"	KB0869
SW6	ILL LH PUSH BTN "MONO" L/GRY	KB1338
SW6	ILLUM PUSH BTN L/GRY "LINE"	KB0871

SW7	ILLUM LH PUSH BTN L/GRY "7"	KB0892
SW7	ILLUM PUSH BTN L/GRY "PHASE"	KB0850
SW8	ILLUM LH PUSH BTN L/GRY "5"	KB0890
SW8	ILLUM PUSH BTN "CHAN" L/GREY	KB1315
SW9	ILLUM LH PUSH BTN L/GRY "3"	KB0888
SW9	ILLUM PUSH BTN "CHAN" L/GREY	KB1315
SW10	ILLUM LH PUSH BTN L/GRY "1"	KB0886
SW10	ILLUM PUSH BTN "HOLD" L/GREY	KB1316
SW11	ILLUM PUSH BTN L/GRY "IN"	KB0869
SW12	ILLUM PUSH BTN L/GRY "PRE"	KB0877
SW13	ILLUM PUSH BTN "DIR" L/GREY	KB1317
VR1	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
VR2	14MM RED PTR SP/GRY KNOB DOMED	KA0107
VR5	11MM WHT PTR SP/GRY KNOB DOMED	KA0101
VR7	11MM WHT PTR SP/GRY KNOB DOMED	KA0101
VR7	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
VR8	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
VR9	11MM WHT PTR SP/GRY KNOB DOMED	KA0101
VR9	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
VR10	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
VR11	11MM GRN PTR SP/GRY KNOB DOMED	KA0100
VR11	11MM WHT PTR SP/GRY KNOB DOMED	KA0101
VR12	11MM GRN PTR SP/GRY KNOB DOMED	KA0100
VR13	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
VR14	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
	11MM GRN PTR SP/GRY KNOB DOMED	KA0100
	11MM GRN PTR SP/GRY KNOB DOMED	KA0100
	11MM WHT PTR SP/GRY KNOB DOMED	KA0101
	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
	14MM RED PTR SP/GRY KNOB DOMED	KA0107
	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
	9MM POT LOCKING NUT(MOULDED)	NB0157
	EUROPA AUX BLUE R/KNOB	KA0120
	EUROPA I/P LH PCB ASSY	RC2986
	EUROPA I/P MOD FSC	PJ1160
	EUROPA I/P RH PCB ASSY	RC2987
	HONDA .1" 2WY JUMPER (GOLD)	FF0614
	HONDA .1" 2WY JUMPER (GOLD)	FF0614
	ILL LH PUSH BTN "+48V"L/GRY	KB1340
	ILL LH PUSH BTN "EQ" L/GRY	KB1342
	ILL LH PUSH BTN "IN"L/GRY	KB1341
	ILL LH PUSH BTN "L/R" L/GRY	KB1339
	ILL LH PUSH BTN "MONO" L/GRY	KB1338
	ILLUM LH PUSH BTN L/GRY "1"	KB0886
	ILLUM LH PUSH BTN L/GRY "3"	KB0888
	ILLUM LH PUSH BTN L/GRY "5"	KB0890
	ILLUM LH PUSH BTN L/GRY "7"	KB0892
	ILLUM LH PUSH BTN L/GRY "PRE"	KB1080
	ILLUM PUSH BTN "CHAN" L/GREY	KB1315
	ILLUM PUSH BTN "DIR" L/GREY	KB1317
	ILLUM PUSH BTN "HOLD" L/GREY	KB1316
	ILLUM PUSH BTN L/GRY "2"	KB0887
	ILLUM PUSH BTN L/GRY "4"	KB0889
	ILLUM PUSH BTN L/GRY "6"	KB0891
	ILLUM PUSH BTN L/GRY "8"	KB0893
	ILLUM PUSH BTN L/GRY "IN"	KB0869
	ILLUM PUSH BTN L/GRY "LINE"	KB0871

	ILLUM PUSH BTN L/GRY "PHASE"	KB0850
	ILLUM PUSH BTN L/GRY "PRE"	KB0877
	M3 X 27MM TAPPED PILLAR HEX	ND0335
	M3 X 4MM PAN POZI SCW ZNC&PASS	NA0118
	NO.4X1/4" PAN POZI BLK S/T	NA0068

Output Module Assy

	Output Module Assy	RS5090

INDENT	DESCRIPTION	PART No.
FIX2	M3 X 27MM TAPPED PILLAR HEX	ND0335
FIX3	M3 BLACK NYLON WASHER	NC0231
FIX3	M3 X 27MM TAPPED PILLAR HEX	ND0335
MD5749	SPACER FDR M3 THREADED	ND0364
MD5780	9MM POT LOCKING NUT(MOULDED)	NB0157
MD5954	EUROPA O/P MOD FSC	PJ1159
MD6084	EUROPA LED BAR WINDOW	PK2226
MD6396	EUROPA LED WINDOW BRACKET	PH1007
MI3381	EUROPA MYMA SWT ASSY LONG RED	RU1745
MI3382	EUROPA MYMA SWT ASSY LONG YELL	RU1747
SW1	ILL LH PUSH BTN"TB"L/GRY	KB1347
SW1	ILLUM PUSH BTN "TB" L/GREY	KB1318
SW2	ILLUM LH PUSH BTN L/GRY "ON"	KB1082
SW2	ILLUM PUSH BTN L/GRY "PRE"	KB0877
SW3	ILLUM LH PUSH BTN L/GRY "PRE"	KB1080
SW3	LGE ILL,PUSH BTN"AFL"L/GRY	KB1349
SW4	ILL LH PUSH BTN "L/R" L/GRY	KB1339
SW5	ILL LH PUSH BTN "MONO" L/GRY	KB1338
SW5	ILLUM PUSH BTN "7-8" L/GREY	KB1322
SW6	ILL LH PUSH BTN"7-8"L/GRY	KB1346
SW6	ILLUM PUSH BTN "5-6" L/GREY	KB1321
SW7	ILL LH PUSH BTN "5-6" L/GRY	KB1345
SW7	ILLUM PUSH BTN "3-4" L/GREY	KB1320
SW8	ILL LH PUSH BTN "3-4" L/GRY	KB1344
SW8	ILLUM PUSH BTN "1-2" L/GREY	KB1319
SW9	ILL LH PUSH BTN "1-2" L/GRY	KB1343
SW9	SUJ CLEARANCE BTN"SEL"L/GRY	KB1348
SW10	ILLUM PUSH BTN L/GRY "SAFE"	KB0880
SW12	LGE ILLUM PUSH BTN L/GRY "PFL"	KB1252
SW13	ILLUM PUSH BTN L/GRY "MONO"	KB0873
SW14	ILLUM PUSH BTN "L-R" L/GREY	KB1323
VR1	17MM BLU PTR SP/GRY KNOB DOMED	KA0110
VR2	14MM RED PTR SP/GRY KNOB DOMED	KA0107
VR3	11MM YEL PTR SP/GRY KNOB DOMED	KA0102
VR4	11MM GRY PTR SP/GRY KNOB DOMED	KA0103
VR5	11MM GRY PTR SP/GRY KNOB DOMED	KA0103
VR6	11MM BLU PTR SP/GRY KNOB DOMED	KA0099
VR7	11MM BLU PTR SP/GRY KNOB DOMED	KA0099
VR8	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
	11MM BLU PTR SP/GRY KNOB DOMED	KA0099
	11MM GRY PTR SP/GRY KNOB DOMED	KA0103
	11MM YEL PTR SP/GRY KNOB DOMED	KA0102
	14MM RED PTR SP/GRY KNOB DOMED	KA0107
	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
	17MM BLU PTR SP/GRY KNOB DOMED	KA0110
	9MM POT LOCKING NUT(MOULDED)	NB0157

	ALPS 100MM STR FDR SAD12C (NL)	DD0322
	ALPS 10K 100MM MONO SAD12C(NL)	DD0321
	EUROPA GRP FX O/P LH PCB ASSY	RC2989
	EUROPA LED BAR WINDOW	PK2226
	EUROPA LED WINDOW BRACKET	PH1007
	EUROPA MYMA SWT ASSY LONG RED	RU1745
	EUROPA MYMA SWT ASSY LONG YELL	RU1747
	EUROPA O/P MOD FSC	PJ1159
	EUROPA O/P RH PCB ASSY	RD2990
	HONDA .1" 2WY JUMPER (GOLD)	FF0614
	ILL LH PUSH BTN "1-2" L/GRY	KB1343
	ILL LH PUSH BTN "3-4" L/GRY	KB1344
	ILL LH PUSH BTN "5-6" L/GRY	KB1345
	ILL LH PUSH BTN "L/R" L/GRY	KB1339
	ILL LH PUSH BTN "MONO" L/GRY	KB1338
	ILL LH PUSH BTN"7-8"L/GRY	KB1346
	ILL LH PUSH BTN"TB"L/GRY	KB1347
	ILLUM LH PUSH BTN L/GRY "ON"	KB1082
	ILLUM LH PUSH BTN L/GRY "PRE"	KB1080
	ILLUM PUSH BTN "1-2" L/GREY	KB1319
	ILLUM PUSH BTN "3-4" L/GREY	KB1320
	ILLUM PUSH BTN "5-6" L/GREY	KB1321
	ILLUM PUSH BTN "7-8" L/GREY	KB1322
	ILLUM PUSH BTN "L-R" L/GREY	KB1323
	ILLUM PUSH BTN "TB" L/GREY	KB1318
	ILLUM PUSH BTN L/GRY "MONO"	KB0873
	ILLUM PUSH BTN L/GRY "PRE"	KB0877
	ILLUM PUSH BTN L/GRY "SAFE"	KB0880
	LGE ILL,PUSH BTN"AFL"L/GRY	KB1349
	LGE ILLUM PUSH BTN L/GRY "PFL"	KB1252
	M3 NYLON INSERT NUT	NB0113
	M3 X 4MM PAN POZI SCW ZNC&PASS	NA0118
	M7 FIBRE WASHER 1MM THK 9.500	NC0266
	MYMA DIFFUSER "CUT"	KB1381
	MYMA DIFFUSER "PFL"	KB1394
	MYMA LENS RED	KB1377
	MYMA LENS YELLOW	KB1522
	NO.4X1/4" PAN POZI BLK S/T	NA0068
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SIF LOW PROFILE RED FDR KNOB	KA0063

Master Module Assy

	Master Module Assy	RS5091
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5780	9MM POT LOCKING NUT(MOULDED)	NB0157
MD5837	SPHYR MODULE PCB INSULATOR	PZ2276
MD6084	EUROPA LED BAR WINDOW	PK2226
MD6085	EUROPA LED WINDOW BRKT	PH0943
MD6117	EUROPA MASTER PCB BRKT	PG1009
MD6161	EUROPA MASTER SPOT WELD ASSY	PJ1152
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3379	EUROPA MYMA SWT ASSY GRN	RU1743
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
MI3392	EUROPA MAST 50WY LINK LOOM	RV2365
	14MM BLK PTR SP/GRY KNOB DOMED	KA0104
	14MM GRN PTR SP/GRY KNOB DOMED	KA0106

14MM GRY PTR SP/GRY KNOB DOMED	KA0105
14MM RED PTR SP/GRY KNOB DOMED	KA0107
17MM BLU PTR SP/GRY KNOB DOMED	KA0110
17MM RED PTR SP/GRY KNOB DOMED	KA0109
9MM POT LOCKING NUT(MOULDED)	NB0157
ALPS 100MM STR FDR SAD12C (NL)	DD0322
ALPS 10K 100MM MONO SAD12C(NL)	DD0321
EUROPA 5SEG MTR PCB ASSY	RB2997
EUROPA LED BAR WINDOW	PK2226
EUROPA LED WINDOW BRKT	PH0943
EUROPA MAST 50WY LINK LOOM	RV2365
EUROPA MASTER 4 PCB ASSY	RD3004
EUROPA MASTER PCB BRKT	PG1009
EUROPA MASTER PCB1 ASSY	RC3001
EUROPA MASTER PCB2 ASSY	RC3002
EUROPA MASTER PCB3 ASSY	RB3003
EUROPA MASTER SPOT WELD ASSY	PJ1152
EUROPA MYMA SWT ASSY GRN	RU1743
EUROPA MYMA SWT ASSY RED	RU1742
EUROPA MYMA SWT ASSY YELLOW	RU1744
ILLUM PUSH "AUX" L/GREY	KB1327
ILLUM PUSH BTN "L-R" L/GREY	KB1323
ILLUM PUSH BTN "LIS" L/GREY	KB1330
ILLUM PUSH BTN "MAT" L/GREY	KB1329
ILLUM PUSH BTN "TONE "L/GREY	KB1325
ILLUM PUSH BTN "TB" L/GREY	KB1318
ILLUM PUSH BTN L/GREY "ON"	KB0848
ILLUM PUSH BTN L/GRY "2TA"	KB0917
ILLUM PUSH BTN L/GRY "2TB"	KB0918
ILLUM PUSH BTN L/GRY "MONO"	KB0873
ILLUM PUSH BTN L/GRY "PRE"	KB0877
ILLUM PUSH BTN L/GRY "X10"	KB0921
ILLUM PUSH BTN L/GRY"GRP"	KB0868
LGE ILL PUSH BTN "10"L/GRY	KB1360
LGE ILL PUSH BTN"11"L/GRY	KB1361
LGE ILL PUSH BTN"12"L/GRY	KB1362
LGE ILL PUSH BTN"9"L/GRY	KB1359
LGE ILL,PUSH BTN"AFL"L/GRY	KB1349
M3 PLAIN NUT	NB0122
M3 S/PROOF WASHER	NC0221
M3 X 27MM TAPPED PILLAR HEX	ND0335
M3 X 4MM PAN POZI SCW ZNC&PASS	NA0118
M3X6MM PAN POZI BLK SCREW	NA0084
M7 FIBRE WASHER 1MM THK 9.500	NC0266
MYMA DIFFUSER "2TB-MIX"	KB1391
MYMA DIFFUSER "EXT"	KB1397
MYMA DIFFUSER "INT"	KB1398
MYMA DIFFUSER "LIVE"	KB1390
MYMA DIFFUSER "MON"	KB1399
MYMA DIFFUSER "SIP"	KB1380
MYMA DIFFUSER "SOLO CLR"	KB1395
MYMA LENS CLEAR	KB1378
MYMA LENS RED	KB1377
MYMA LENS YELLOW	KB1522
SCREW CSK M3X4MM POZI ST BLACK	NA0284
SIF LOW PROFLE BL-193 FDR KNOB	KA0067
SIF LOW/PRF YEL-195 FDR KNOB	KA0066
SPACER FDR M3 THREADED	ND0364
SPHYR MODULE PCB INSULATOR	PZ2276

Input Fader Assy

	Input Fader Assy	RS5092
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5870	M2 PCB MOUNTING BLOCK	ND0363
MD5953	EUROPA I/P FDR SPOT WELD ASSY	PJ1116
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ALPS 10K 100MM MONO SAD12C(NL)	DD0321
	EUROPA FDR I/P PCB ASSY	RA2988
	EUROPA I/P FDR SPOT WELD ASSY	PJ1116
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ILLUM PUSH BTN L/GRY "SAFE"	KB0880
	M2 PCB MOUNTING BLOCK	ND0363
	MYMA DIFFUSER "CUT"	KB1381
	MYMA DIFFUSER "SOLO"	KB1396
	MYMA LENS RED	KB1377
	MYMA LENS YELLOW	KB1522
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SCREW PAN M2X5MM POZI ST ZINC	NA0286
	SIF LOW PROFILE WHITE FDR KNOB	KA0062
	SPACER FDR M3 THREADED	ND0364
	SUJ CLEARANCE BTN"SEL"L/GRY	KB1348
	WASHER M2 INTERNAL SHAKE PROOF	NC0267

VCA Master Assy

	VCA Master Assy	RS5093
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5870	M2 PCB MOUNTING BLOCK	ND0363
MD5955	EUROPA VCA MST SPOT WELD ASSY	PJ1187
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ALPS VCA FDR 10K	DD0341
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA MYMA SWT ASSY YELLOW	RU1744
	EUROPA VCA MASTER PCB ASSY	RC2995
	EUROPA VCA MST SPOT WELD ASSY	PJ1187
	HONDA .1" 2WY JUMPER (GOLD)	FF0614
	ILLUM PUSH BTN "GM" L/GREY	KB1337
	M2 PCB MOUNTING BLOCK	ND0363
	MYMA DIFFUSER "CUT"	KB1381
	MYMA DIFFUSER "SOLO"	KB1396
	MYMA LENS RED	KB1377
	MYMA LENS YELLOW	KB1522
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SCREW PAN M2X5MM POZI ST ZINC	NA0286
	SIF LOW PROFILE RED FDR KNOB	KA0063
	SPACER FDR M3 THREADED	ND0364
	WASHER M2 INTERNAL SHAKE PROOF	NC0267

VCA Fader Assy

	VCA Fader Assy	RS5094
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5870	M2 PCB MOUNTING BLOCK	ND0363
MD6057	EUROPA MAST FDR SPOT WELD ASSY	PJ1186
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3381	EUROPA MYMA SWT ASSY LONG RED	RU1745
MI3383	EUROPA MUTE MST/DIGITAL IF WFM	RV2391
	ALPS VCA FDR 10K	DD0341
	EUROPA ANALOG I/F PCB ASSY	RB3052
	EUROPA DIGITAL I/F PCB ASSY	RB3053
	EUROPA MAST FDR SPOT WELD ASSY	PJ1186
	EUROPA MUTE MASTER PCB ASSY	RB3000
	EUROPA MUTE MST/DIGITAL IF WFM	RV2391
	EUROPA MYMA SWT ASSY LONG RED	RU1745
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA VCA/MUTE PCB ASSY	RC2999
	ILLUM PUSH BTN "1" L/GREY	KB1332
	ILLUM PUSH BTN "3" L/GREY	KB1333
	ILLUM PUSH BTN "5" L/GREY	KB1334
	ILLUM PUSH BTN "7" L/GREY	KB1335
	ILLUM PUSH BTN "ENBL" L/GREY	KB1331
	ILLUM PUSH BTN "ISO" L/GREY	KB1324
	ILLUM PUSH BTN L/GRY "2"	KB0887
	ILLUM PUSH BTN L/GRY "4"	KB0889
	ILLUM PUSH BTN L/GRY "6"	KB0891
	ILLUM PUSH BTN L/GRY "8"	KB0893
	LGE IL PUSH BTN"MULT"L/GRY	KB1350
	M2 PCB MOUNTING BLOCK	ND0363
	MYMA DIFFUSER "CUT"	KB1381
	MYMA DIFFUSER "MUTE1"	KB1382
	MYMA DIFFUSER "MUTE2"	KB1383
	MYMA DIFFUSER "MUTE3"	KB1384
	MYMA DIFFUSER "MUTE4"	KB1385
	MYMA DIFFUSER "MUTE5"	KB1386
	MYMA DIFFUSER "MUTE6"	KB1387
	MYMA DIFFUSER "MUTE7"	KB1388
	MYMA DIFFUSER "MUTE8"	KB1389
	MYMA LENS RED	KB1377
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SCREW PAN M2X5MM POZI ST ZINC	NA0286
	SIF LOW/PRF YEL-195 FDR KNOB	KA0066
	SPACER FDR M3 THREADED	ND0364
	WASHER M2 INTERNAL SHAKE PROOF	NC0267

Stereo Input Assy

	Stereo Input Assy	RS5095
INDENT	**DESCRIPTION**	**PART No.**
J1	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J3	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J6	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J8	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J10	HONDA .1" 2WY JUMPER (GOLD)	FF0614
J12	HONDA .1" 2WY JUMPER (GOLD)	FF0614
MD5780	9MM POT LOCKING NUT(MOULDED)	NB0157
MD6415	EUROPA STER MOD FSC	PJ1206

	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
	11MM YEL PTR SP/GRY KNOB DOMED	KA0102
	14MM GRY PTR SP/GRY KNOB DOMED	KA0105
	14MM RED PTR SP/GRY KNOB DOMED	KA0107
	14MM YEL PTR SP/GRY KNOB DOMED	KA0108
	9MM POT LOCKING NUT(MOULDED)	NB0157
	EUROPA AUX BLUE R/KNOB	KA0120
	EUROPA STER I/P LH PCB ASSY	RC3140
	EUROPA STER MOD FSC	PJ1206
	EUROPA STEREO I/P RH PCB ASSY	RC3141
	ILL LH PUSH BTN "EQ" L/GRY	KB1342
	ILLUM LH PUSH BTN"PK"L/GRY	KB1588
	ILLUM PUSH BTN "1-2" L/GREY	KB1319
	ILLUM PUSH BTN "3-4" L/GREY	KB1320
	ILLUM PUSH BTN "5-6" L/GREY	KB1321
	ILLUM PUSH BTN "7-8" L/GREY	KB1322
	ILLUM PUSH BTN "L-R" L/GREY	KB1323
	ILLUM PUSH BTN L/GRY "B"	KB0852
	ILLUM PUSH BTN L/GRY "IN"	KB0869
	ILLUM PUSH BTN L/GRY "MONO"	KB0873
	ILLUM PUSH BTN L/GRY "PHASE"	KB0850
	ILLUM PUSH BTN L/GRY "PK"	KB0879
	ILLUM PUSH BTN L/GRY "PRE"	KB0877
	ILLUM RH PUSH BTN "L" L/GREY	KB1373
	ILLUM RH PUSH BTN "R" L/GREY	KB1374
	M3 X 27MM TAPPED PILLAR HEX	ND0335
	M3 X 4MM PAN POZI SCW ZNC&PASS	NA0118
	NO.4X1/4" PAN POZI BLK S/T	NA0068

Matrix Module Assy

	Matrix Module Assy	RS5096
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5780	9MM POT LOCKING NUT(MOULDED)	NB0157
MD6084	EUROPA LED BAR WINDOW	PK2226
MD6085	EUROPA LED WINDOW BRKT	PH0943
MD6303	EUROPA MATRIX MOD FSC	PJ1169
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
	11MM BLK PTR SP/GRY KNOB DOMED	KA0098
	11MM GRY PTR SP/GRY KNOB DOMED	KA0103
	11MM YEL PTR SP/GRY KNOB DOMED	KA0102
	9MM POT LOCKING NUT(MOULDED)	NB0157
	ALPS 10K 100MM MONO SAD12C(NL)	DD0321
	EUROPA LED BAR WINDOW	PK2226
	EUROPA LED WINDOW BRKT	PH0943
	EUROPA MATRIX MOD FSC	PJ1169
	EUROPA MATRIX O/P RH PCB ASSY	RB3073
	EUROPA MATRIX SUB-PCB ASSY	RA3072
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ILLUM PUSH BTN "TB" L/GREY	KB1318
	M3 PLAIN NUT	NB0122
	MYMA DIFFUSER "AFL"	KB1393
	MYMA DIFFUSER "CUT"	KB1381
	MYMA LENS RED	KB1377

	MYMA LENS YELLOW	KB1522
	NO.4X1/4" PAN POZI BLK S/T	NA0068
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SIF LOW PROFILE RED FDR KNOB	KA0063

Stereo Fader Assy

	Stereo Fader Assy	RS5097
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5870	M2 PCB MOUNTING BLOCK	ND0363
MD6416	EUROPA STER FDR SPOT WELD ASSY	PJ1205
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ALPS 100MM K A FDR 2X10K + SWT	DD0345
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA MYMA SWT ASSY YELLOW	RU1744
	EUROPA STER FDR SPOT WELD ASSY	PJ1205
	EUROPA STER I/P FDR PCB ASSY	RA2988
	ILLUM PUSH BTN "ENBL" L/GREY	KB1331
	ILLUM PUSH BTN L/GRY "SAFE"	KB0880
	M2 PCB MOUNTING BLOCK	ND0363
	MYMA DIFFUSER "CUT"	KB1381
	MYMA DIFFUSER "SOLO"	KB1396
	MYMA LENS RED	KB1377
	MYMA LENS YELLOW	KB1522
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SCREW PAN M2X5MM POZI ST ZINC	NA0286
	SIF LOW PROFLE BL-193 FDR KNOB	KA0067
	SPACER FDR M3 THREADED	ND0364
	SUJ CLEARANCE BTN"SEL"L/GRY	KB1348
	WASHER M2 INTERNAL SHAKE PROOF	NC0267

Matrix Fader Assy

	Matrix Fader Assy	RS5098
INDENT	**DESCRIPTION**	**PART No.**
MD5749	SPACER FDR M3 THREADED	ND0364
MD5870	M2 PCB MOUNTING BLOCK	ND0363
MD6084	EUROPA LED BAR WINDOW	PK2226
MD6085	EUROPA LED WINDOW BRKT	PH0943
MD6304	EUROPA MAT FDR SPOT WELD ASSY	PJ1170
MI3378	EUROPA MYMA PUSH SWT WFM-RED	RV2352
MI3378	EUROPA MYMA SWT ASSY RED	RU1742
MI3380	EUROPA MYMA SWT ASSY YELLOW	RU1744
	ALPS 10K 100MM MONO SAD12C(NL)	DD0321
	EUROPA LED BAR WINDOW	PK2226
	EUROPA LED WINDOW BRKT	PH0943
	EUROPA MAT FDR SPOT WELD ASSY	PJ1170
	EUROPA MATRIX FDR PCB ASSY	RC3074
	EUROPA MYMA PUSH SWT WFM-RED	RV2352
	EUROPA MYMA SWT ASSY RED	RU1742
	EUROPA MYMA SWT ASSY YELLOW	RU1744
	HONDA .1" 2WY JUMPER (GOLD)	FF0614
	M2 PCB MOUNTING BLOCK	ND0363
	M3 NYLON INSERT NUT	NB0113

	MYMA DIFFUSER "AFL"	KB1393
	MYMA DIFFUSER "CUT"	KB1381
	MYMA LENS RED	KB1377
	MYMA LENS YELLOW	KB1522
	SCREW CSK M3X4MM POZI ST BLACK	NA0284
	SCREW PAN M2X5MM POZI ST ZINC	NA0286
	SIF LOW PROFILE RED FDR KNOB	KA0063
	SPACER FDR M3 THREADED	ND0364
	WASHER M2 INTERNAL SHAKE PROOF	NC0267

40 Channel Console Assy

	40 Channel Console Assy	RW1324

INDENT	DESCRIPTION	PART No.
MD5963	EUROPA 40CH TP&BTM TRIM EXTRU	PE1038
MD5968	EUROPA 40CH LWR FDR TRIM EXTRU	PE1035
MD6095	EUROPA 1-20 IDENT STRIP	PK2206
MD6096	EUROPA 21-24 I/P&1-8GRPS IDENT	PK2207
MD6098	EUROPA 25-40 IDENT STRIP	PK2209
MD6101	EUROPA 20WY BLNK IDENT STRIP	PK2210
MD6102	EUROPA BLANK MOD FSC	PH0905
MD6227	EUROPA 4WY FDR BLNK PNL	PC0946
MI3660	EUROPA UPPER M/LOOM EXTENDER	RV2614
MI3661	EUROPA LOWER M/LOOM EXTENDER	RV2615
MI3662	EUROPA 50WY BUS EXTENDER	RV2616
MI3663	EUROPA 16WY EXTENDER	RV2617
	CPS550/B POWER SUPPLY	RW1369
	CPS770 POWER SUPPLY	RW1399
	EUROPA 1-20 IDENT STRIP	PK2206
	EUROPA 16WY EXTENDER	RV2617
	EUROPA 20WY BLNK IDENT STRIP	PK2210
	EUROPA 21-24 I/P&1-8GRPS IDENT	PK2207
	EUROPA 25-40 IDENT STRIP	PK2209
	EUROPA 40CH CONSOLE TESTED	RY1324
	EUROPA 40CH DUST COVER	TZ2342
	EUROPA 40CH LWR FDR TRIM EXTRU	PE1035
	EUROPA 40CH TP&BTM TRIM EXTRU	PE1038
	EUROPA 40CH WOODEN CRATE	TA0196
	EUROPA 4WY FDR BLNK PNL	PC0946
	EUROPA 50WY BUS EXTENDER	RV2616
	EUROPA BLANK MOD FSC	PH0905
	EUROPA LOWER M/LOOM EXTENDER	RV2615
	EUROPA TECHNICAL MANUAL	ZZ2749
	EUROPA UPPER M/LOOM EXTENDER	RV2614
	EUROPA USER GUIDE	ZZ2741
	M3.5X10MM CSK POZI SCREW	NA0088
	M3.5X8MM PAN POZI BLK SCREW	NA0087
	NTRK FML METAL EJECTOR	FK0939

40 Channel Console (tested)

INDENT	DESCRIPTION	PART No.
	40 Channel Console (tested)	RY1324
	EUROPA 40CH WIRED FRM ASSY	RR1127
	EUROPA 4WY FDR/VCA MOD ASSY	RS5092
	EUROPA I/P MOD ASSY	RS5089
	EUROPA MASTER MOD ASSY	RS5091
	EUROPA MUTES/GM MOD ASSY	RS5094
	EUROPA O/P MOD ASSY	RS5090
	EUROPA VCA MASTER MOD ASSY	RS5093
	LGE ILL PUSH BTN"1"L/GRY	KB1351
	LGE ILL PUSH BTN"2"L/GRY	KB1352
	LGE ILL PUSH BTN"3"L/GRY	KB1353
	LGE ILL PUSH BTN"4"L/GRY	KB1354
	LGE ILL PUSH BTN"5"L/GRY	KB1355
	LGE ILL PUSH BTN"6"L/GRY	KB1356
	LGE ILL PUSH BTN"7"L/GRY	KB1357
	LGE ILL PUSH BTN"8"L/GRY	KB1358

13. Appendices