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# Series 200

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USER MANUAL

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**Soundcraft**

**SERIES 200 User Manual**

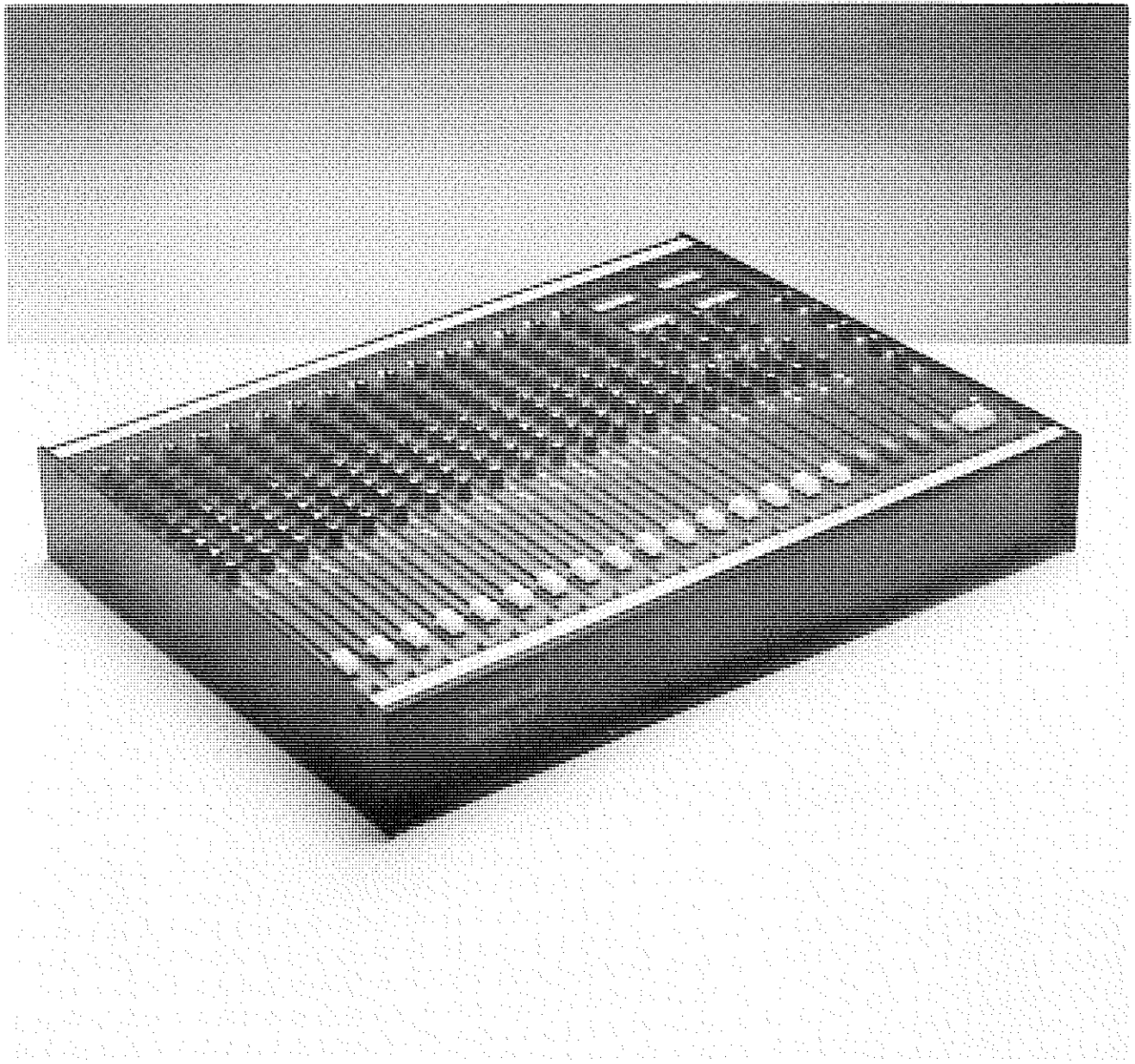
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## INTRODUCTION

This User Manual is designed to be of value both to the operator and the technician. For the operator there are flow diagrams and line drawings and suggestions for how to work and plug-up the console, as well as a detailed description of all the functions and sockets. For the technician there are circuit diagrams, descriptions of modifications for different operating levels and (for anyone with a Series 200.) general wiring practice suggestions.

Below is a brief description of the main points, and then there are separate sections for the main areas as detailed in the index.

### Brief Description

The Soundcraft Series 200 Console may be used for 2, 4, & 8 track recording, and for public address or monitor applications. The console has 4 main buses, 4 auxiliary outputs, dedicated mix outputs (left & right) and full monitoring facilities for 8 tracks. The monitor section may also be used for effects returns during mixdown. All inputs are electronically balanced to ensure very low noise.

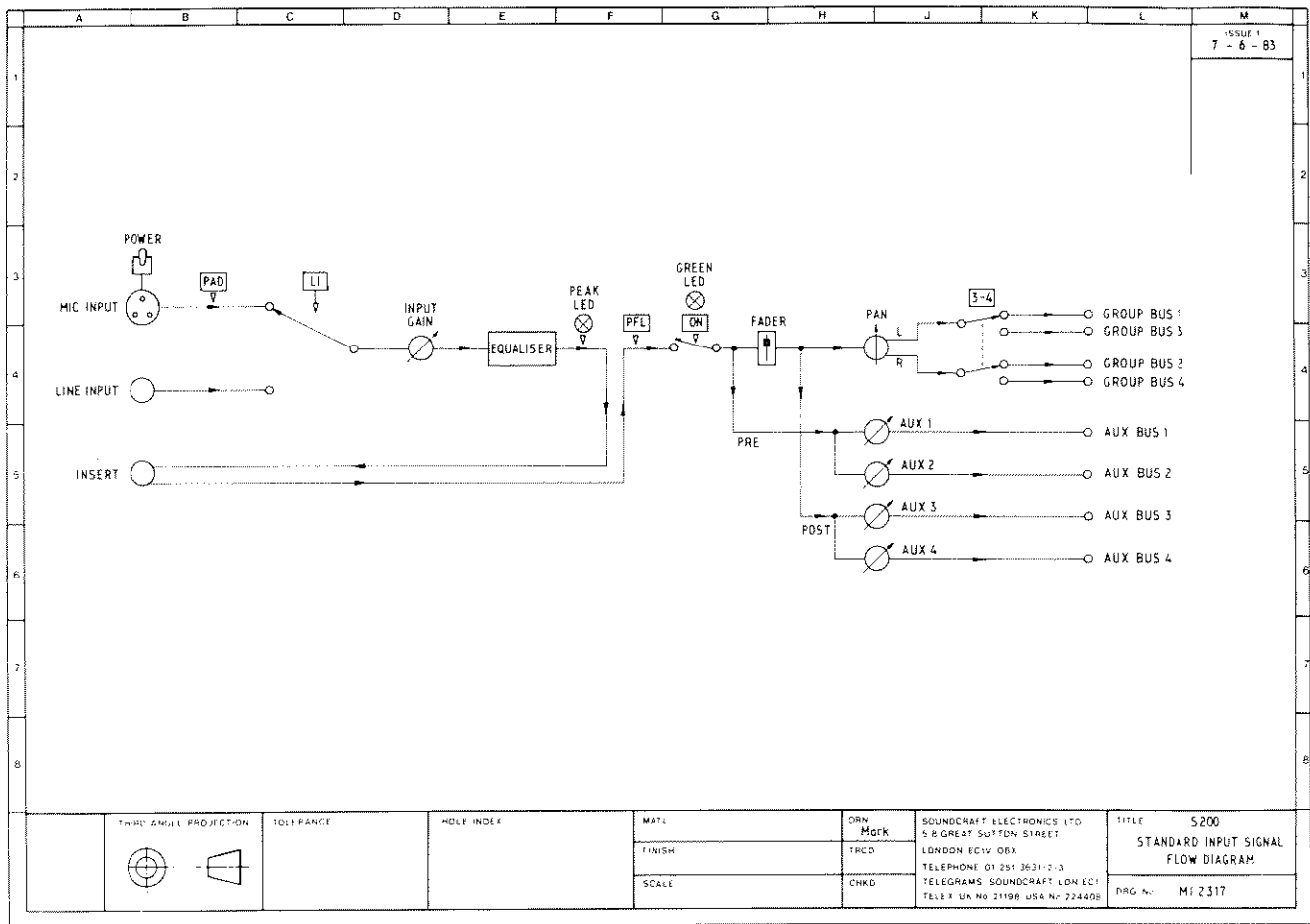
The use of electronic balancing reduces the degradation of signal quality which is introduced by more conventional transformer coupled designs, ensuring superior transient response, minimal phase shift and excellent common mode rejection even at high frequencies.

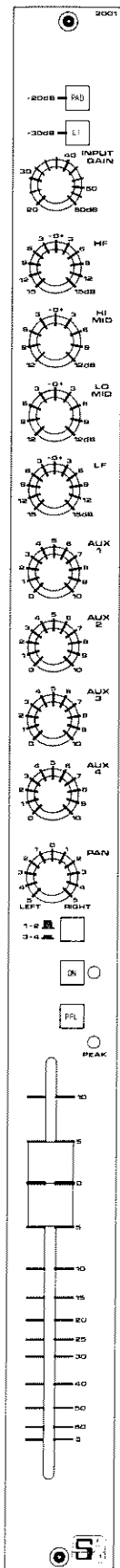
The main outputs are "Ground Compensated" to minimise hum or interference in differing environments, where earthing rules etc. may not always have been adhered to.

The Microphone input impedance is greater than 2K ohms, which will not cause any loading effects on normally used studio microphones. The high level line input has an input impedance of greater than 10K ohms, which is high enough to ensure that it will interface with all normal studio peripheral equipment without causing loading effects.

Metering is via 4 VUs reading group outputs 1-4. Meters 3 and 4 are switchable as a pair to read the monitor source. This may be either the stereo mix bus, 2-track return or any PFL or AFL signal.

The power supply is an external unit supplying the console with 17 volts positive and negative rails, and a + 48 volt rail for phantom power of microphones.





## THE INPUT MODULE

### Input Section

The input to this module may be from one of two sockets on the rear panel: a balanced Mic input, or a balanced Line level input. The selection is done with the switch LI.

When LI is UP, the input is MIC.

When LI is DOWN, the input is LINE.

INPUT GAIN is used to ensure that the source, whether Mic or Line sufficiently "drives" the module. If the source signal is too high, causing distortion, the level may be attenuated to match the working level of the module. If the source signal is too low, it may be boosted to reach the working level of the module.

To achieve the optimum working level for the module, and for the console, first set the fader(s) and the relevant group fader to unity gain, and then adjust the Input gain(s) so that you are sending sufficient level to tape for optimum signal to noise, without introducing distortion.

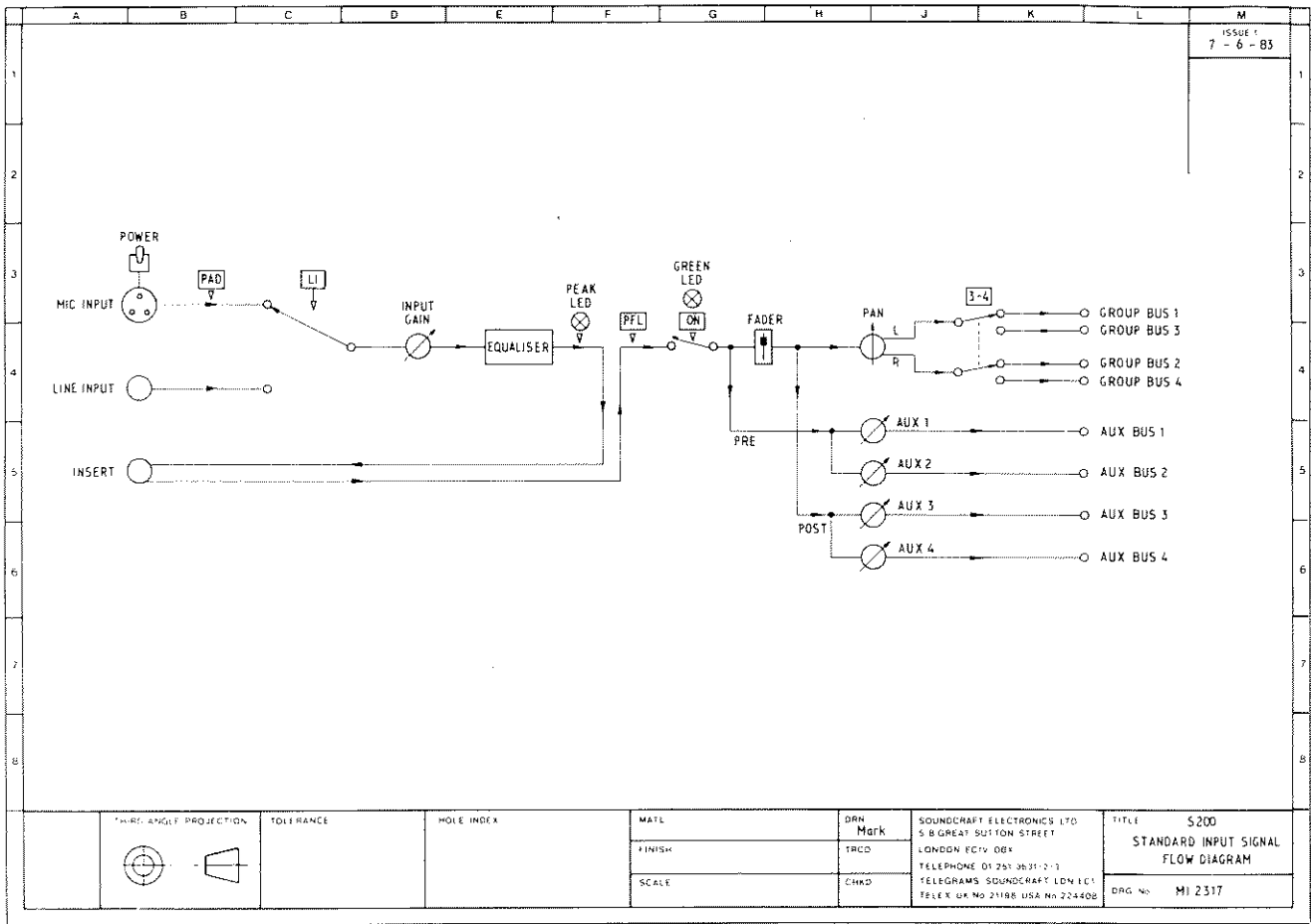
Sometimes, when using the Mic input, the attenuation obtained with Input Gain of high source levels, such as from high output capacitor microphones, is not enough. A PAD button is provided which introduces a further 20dB of attenuation into the Mic path only.

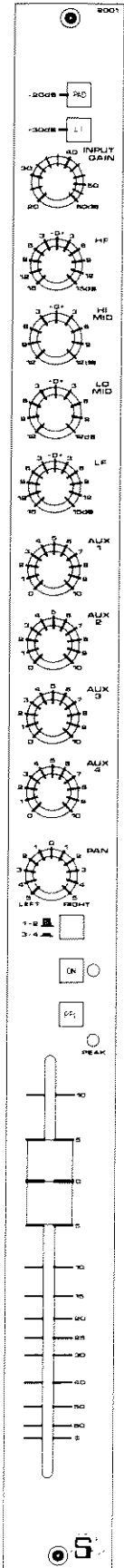
### The Equaliser

The equaliser available on each module is of four band, fixed frequency design. There are four controls, each with an OFF detent to allow easy zeroing.

- HF Provides 15dB of boost or cut at 12Khz. The control has a shelving action, which means that it also boosts the frequencies above it.
- HI MID Provides 15dB of boost or cut at 5Khz. The control has a peak action, which means that it only boosts a tight band of frequencies around 5Khz. The response curve looks like a bell.
- LO MID Provides 15dB of boost or cut at 250Hz. The control also has a peak action.
- LF Provides 15dB of boost or cut at 60Hz. The control has a shelving action which boosts the frequencies below 60Hz as well.







## Auxiliary Sends

Each module may send to each of the 4 auxiliary buses, the level to each bus being controlled by controls AUX 1, 2, 3 and 4.

The sends to auxiliary buses 1 and 2 are taken before the fader (PRE) but would be CUT if the module was turned OFF by the On/Off switch.

The sends to buses 3 and 4 are taken after the fader and after the On/Off switch (POST), so that if you pull the fader down, the level to your effect will also go down. With PRE sends 1 and 2 the level to your effect is controlled solely by AUX 1 and 2, and is not affected by the fader.

## Level Control and Routing

The overall level of the module is controlled by the long throw fader and is routed via the Pan pot to EITHER groups 1 and 2, OR groups 3 and 4. To send to group 1 only, for instance, you would hard pan left and leave the routing button up.

Groups 1 and 3 correspond to the left side of the pan pot, and groups 2 and 4 correspond to the right side. If the pan pot is kept at its centre detent, an equal amount of signal will be fed to both sides; ie. if groups 1 and 2 are selected, an equal amount will be sent to each.

The routing button routes to groups 1 and 2 when it is UP, and to 3 and 4 when it is DOWN.

## PFL and ON

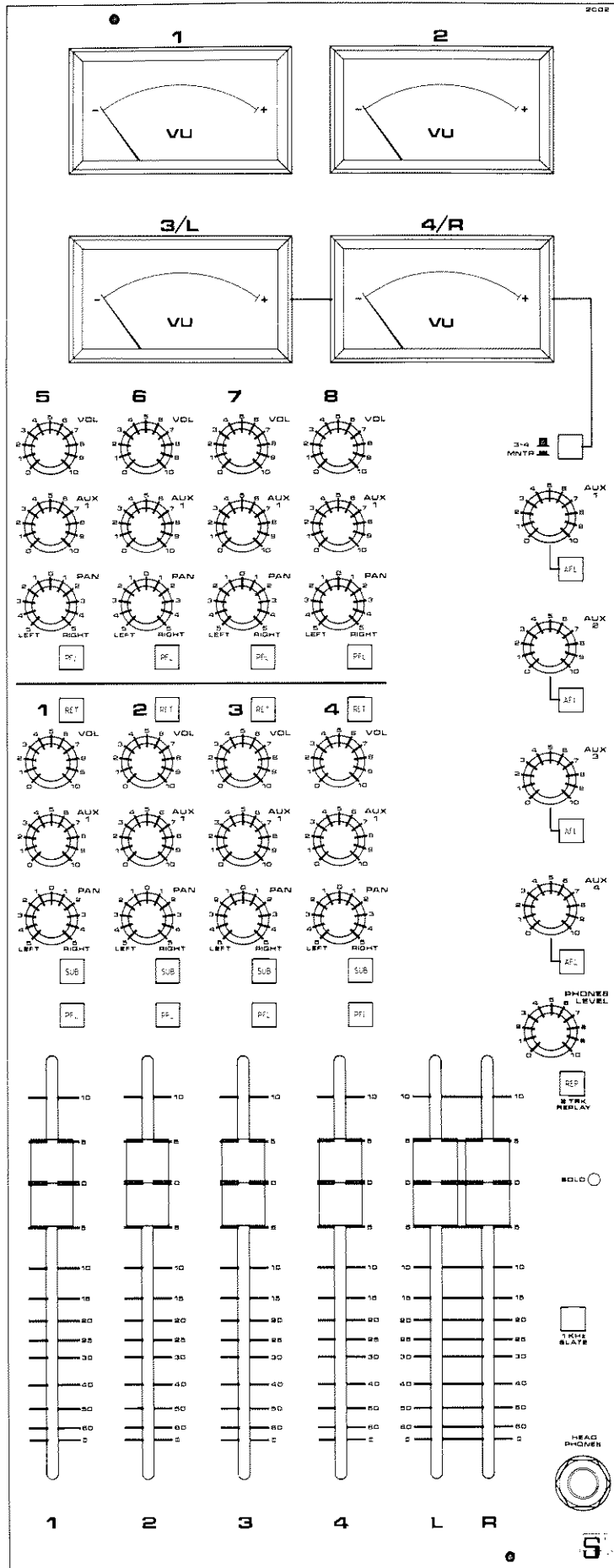
The ON button, when pressed DOWN, lights the green Led and switches the module on. When the button is UP, the signal path is CUT after the return from insert point, but before the fader. The PFL function is unaffected.

The PFL button, when DOWN, solos the signal from that module on the monitor (headphone output), along with any other modules which have their PFL button down. A red master solo Led will light whenever a PFL is selected, and the PFL signal is taken after the insert return, but BEFORE the ON switch.

## Peak

A peak Led will light should the signal in the module exceed +16dBm. This is at least 4dB BELOW clipping. The peak detector reads the level BEFORE the insert send.

MASTER SECTION



## **MASTER SECTION**

The Master Section contains:-

- Full 8-channel monitoring.
- 4 meters.
- 4 auxiliary master level controls.
- 4 group master faders.
- Master stereo faders; left and right.
- Slate 1Khz oscillator.
- Master phones level, and replay select.
- SUB and RET facilities.
- Solo Led.

### **The VU Meters**

These 4 VU meters usually monitor the outputs from the 4 main groups. Pressing the select button DOWN changes the function of the pair of meters 3 and 4. These will now monitor what is going to the headphones; This may be the main mix bus or the return from your master machine. 3 reads the left signal, and 4 reads the right signal.

If a PFL or AFL has been pressed then the meters will monitor the PFL/AFL buses which feed the headphones when one or more PFL/AFL button is pressed.

### **The Auxiliary Masters**

Each of the 4 auxiliary buses has its own master level control and solo facility. The solo is AFL (after fade listen) and works in the same way as the PFL system.

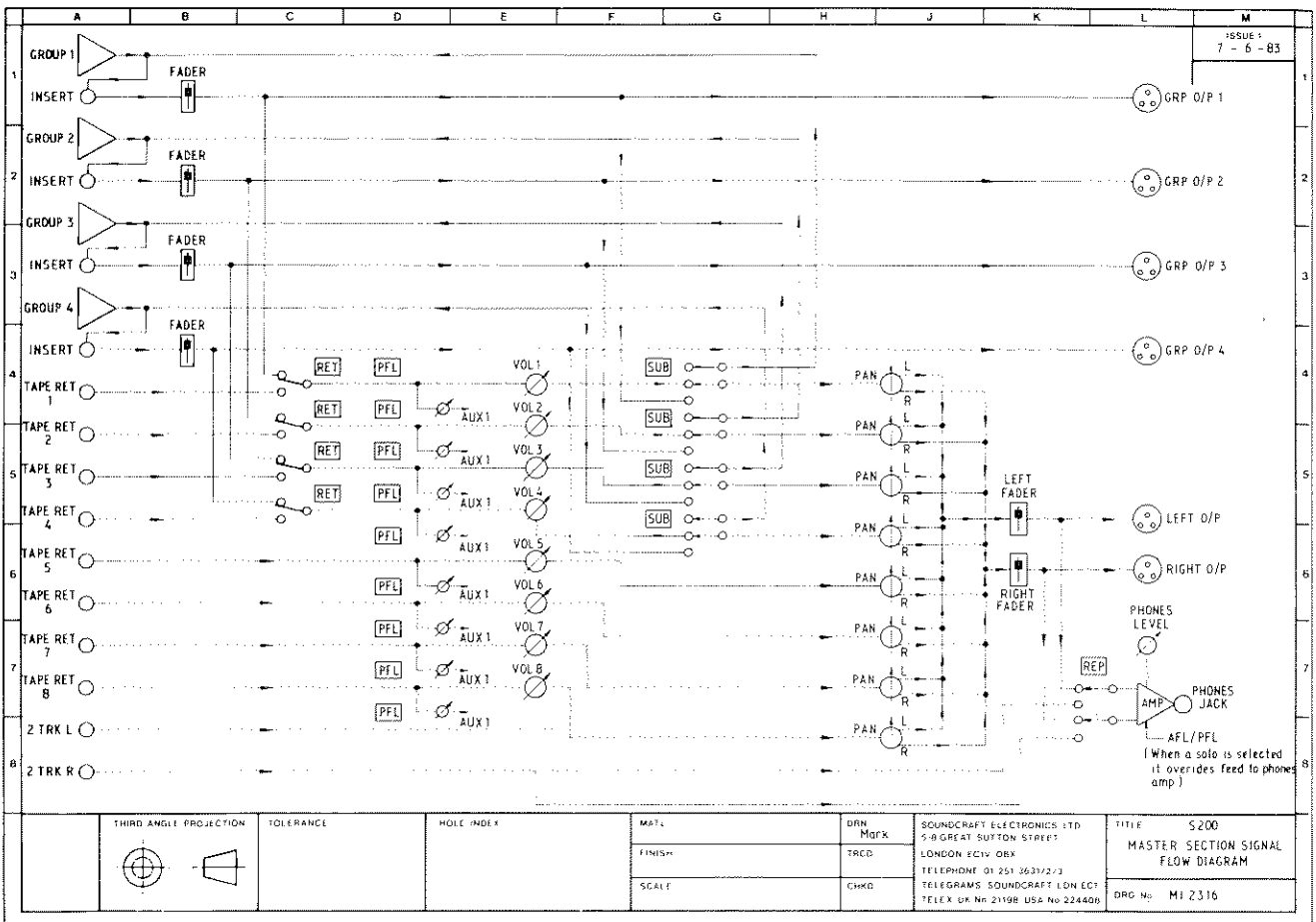
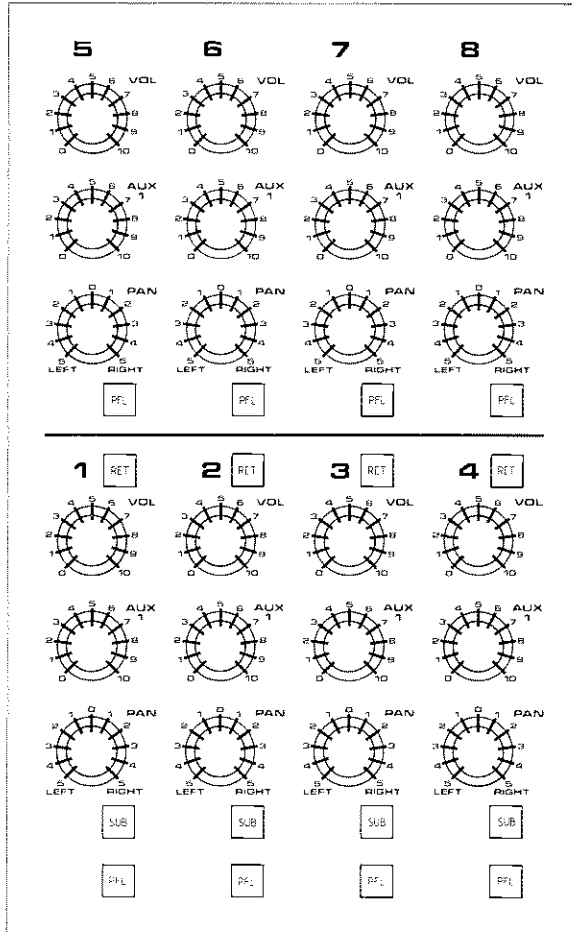
### **Phones Level and REP**

The level to the headphone socket is controlled by the PHONES LEVEL pot. The phones are usually fed from the main mix buses left and right, but may be fed with the output of your mixdown master machine by pressing REP. The headphone socket expects to see headphones of 200-400 ohms, but will drive 8 ohm ones if required.

### **1Khz SLATE**

When this button is pressed a 1Khz tone is fed simultaneously to the 4 group outputs and the mix outputs left and right, for line-up etc.

# MASTER SECTION DETAIL



## 8 TRACK MONITORING

Controls 5, 6, 7, and 8 are dedicated tape return monitors; ie. They only monitor the output of tracks 5, 6, 7, and 8 of the multitrack. Each track has a separate level control and pan pot to the mix buses left and right (which is heard in the phones,) a send to auxiliary bus number 1, and a PFL facility.

Since these controls access the mix bus, during mixdown they may be used to provide extra inputs to your mix. (Since the multitrack returns will probably be fed to input modules – see operation)

Controls 1, 2, 3, and 4 serve the function of dedicated tape returns for tracks 1, 2, 3, and 4 when their respective RET buttons are pressed. However, when the RET buttons are NOT down, each control monitors the group output below it; ie. what is leaving the console, not what is returning from the multitrack. The facilities are the same, except for the SUB buttons.

When a SUB button is pressed DOWN, the group fader below overrides the rotary control and accesses the mix bus via the pan pot. When mixing down you will need to route the input modules to, say 1 and 2, and then press the SUB buttons above groups 1 and 2 so that they feed the main mix buses, and consequently the master mixdown machine. (You would of course pan 1 hard left and 2 hard right)

The rotary control, although having been by-passed, is not redundant. If RET is pressed, it will control whatever input you have plugged into that tape return socket, and feed it to the group below. The meter will look at this signal NOT the group. This additional signal may be regarded as a separate input with level control and aux send which can only access ONE group; ie. for return 2, group 2.

### Group and Master Faders

The 4 long throw faders control the overall group outputs and the master faders L and R control the overall levels of the main stereo mix bus; left and right respectively.

### Solo Led

The Solo Led lights whenever a PFL or AFL button has been pressed.

## 8 TRACK OPERATION

The Series 200 is particularly suited to 8 track recording, since it has a full 8-track monitoring section, 4 auxiliary sends and a lot of flexibility.

Firstly, there are some suggestions for methods of operation, and then a section outlining the recommended way(s) to plug-up your equipment and general wiring information.

### Monitoring

The console was designed with headphone monitoring in mind, but it is perfectly feasible to monitor over a Hi-Fi system or similar, thus simulating a Control Room environment.

To do this, you simply connect the output from the headphone socket (stereo jack: tip left, ring right, sleeve common ground) to the auxiliary inputs of your Hi-fi amplifier. It may be necessary to turn the Phones level control right down to avoid overloading the input to your amplifier, and in some cases it may be necessary to fit a stereo attenuator in the lead between the two systems. Be sure to take care with earthing.

Try wherever possible to have only one earth point for your entire system, and NOT to have all your pieces of equipment earthed in separate places. This is almost guaranteed to give you mains hum; either 50 or 60 Hz depending upon where you live-see wiring.

### Recording – the first tracks

When laying the first tracks, you will normally have microphones plugged into the Input modules and then in turn you will want to route these to the 8-track machine. The routing switches may be used to send to up to 4 tracks at one time. This is usually enough, but you are not doomed if you want to record more than 4 tracks in one go. For instance you may need only to record 4 tracks, but would like to put the guide vocal on tape for reference.

To send more than 4 signals or groups of signals to the 8-track, you have 2 options: You may either use the auxiliary buses, if you are not currently using them for echo etc.; or you may take the signals direct from the insert points.

Using the auxiliary buses is the best option, since the auxiliary system is a very similar one to the groups. The circuitry is the same and there is an overall level control for each auxiliary bus, so that you could easily sum several signals and then have overall level control to tape. Effects and echo etc. are best added via the insert points if they are required, thus keeping the auxiliary sends free for recording groups.

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Using the insert points is not such an easy option, but probably a good one if you only need to send one signal and all the auxiliaries are busy. The insert send from the input module comes before the module fader, and so level control to tape will have to be done at the input to the multitrack. Note that the send on the insert socket is the ring of the stereo jack.

To monitor your sends to tape you normally use the level controls 1-4 on the monitor panel, making sure that the RET and SUB buttons are NOT pressed. This will allow you to listen to the 4 group sends from the console. The levels to tape are set via the 4 group faders and the rotary controls 1-4 do not affect the level to tape, only the level to monitor (Headphone socket).

It is probably best to send the first 4 tracks recorded to tracks 5-8 (1-4 and 5-8 are usually paralleled – the switching done on the multitrack remote) so that monitoring becomes clearer during overdub.

If you are recording more than 4 tracks in one go or do not send to tracks 5-8 first you will have to control your monitoring statuses from the multitrack remote – see below.

## **Overdubbing**

Therefore, when you have recorded the first 4 (or less) tracks, you will need to listen to them back. To do this you just use the rotary controls 5-8. Then when you add the next 4 tracks, these correspond to group faders 1-4.

As you send out these 4 groups (either together or individually) you monitor via rotary controls 1-4, and when you need to listen back to a particular track press the respective RET button.

## **Using the Multitrack controls**

If your session involves complication, such as repeated overdub, track-bouncing, or recording more than 4 tracks at once, then it is probably best to use the multitrack's own controls to determine your monitor status.

Press the 4 RET buttons and from then on the 8 rotary controls form a mix of all 8 outputs from the machine at any one time. When laying a track or tracks, switch the relevant channel(s) to INPUT for laying and switch them to OUTPUT for listening or overdubbing.  
(Remembering to make sure you're in Sync during all tracklaying)

## **Progressing towards Mix**

As your session progresses, the number of tracks being sent to at any time usually becomes no more than 2, and the number of Input channels being used also reduces. Assuming that you have enough

input modules which are unused, you can start preparing for you mix as you overdub. You may not necessarily mix straight away, but it is often useful to monitor via the Input modules so that Eq may be used and more than one auxiliary send accessed.

Reserve one of the pairs of groups for sending to the multitrack, and then route all the other input modules to the other pair. Say for example that 3-4 will be used to send the multitrack , and 1-2 will now form the monitor mix.

Plug up the outputs from the 8-track to 8 input modules (1-8 if possible for simplicity – they may already be plugged permanently – see plugging up) and turn down all the rotary controls 1-8. Press SUB above faders 1 and 2, set them to unity gain (0dB) and pan 1 hard left and 2 hard right. This pair of faders is now feeding the stereo mix bus and, consequently, the headphone output.

Now your monitoring can be done via the 8 input modules corresponding to the 8 tracks and the Input/output status is controlled at the machine. When overdubbing is complete, you are already set up to Mixdown.

## Mixing Down

Plugging-up and switching for mixing down has been described above, and it should be noted that the monitoring channels 5-8 may be used as effects returns as they directly access the stereo mix bus via their pan pots and respective level controls.

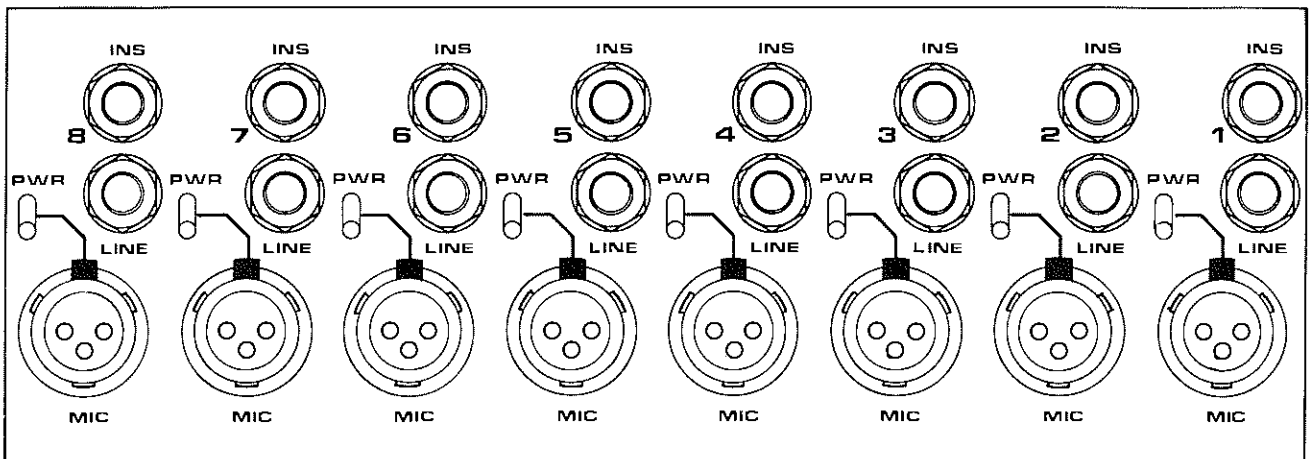
It is also possible to use monitoring channels 1-4 as effects returns, but the procedure is not as simple:-

Assuming that groups 1-2 are being used for mixing, and their SUB buttons are down, then by pressing RET on 3 and 4, they will also act as effects returns in the same way as channels 5-8, (because their SUB buttons are UP). Level controls 1 and 2 may also function as effects returns by pressing RET, but their pan controls are, of course, now working with the faders below. So the signal being fed into rotary control 1 only goes into group 1, and similarly 2 only goes into group 2. i.e. if these channels are used as effects returns, they can only feed left and right respectively. Therefore they are ideal as a stereo echo return or similar.

The same rules would apply to rotary controls 3 and 4 if their SUB buttons were pressed.

Note that the master faders control the send to the mixdown machine and also the feed to the headphone socket. The headphone socket then has a separate level control and amplifier, but you will not hear anything unless the master faders are up or the REP button is pressed. REP feeds the outputs from your mixdown machine directly to the headphone output.

### S 200 STANDARD INPUT CONNECTOR ASSEMBLY



## PLUGGING UP

There are two types of connector panel: the main Output panel, and the Input connector panel. There is always only one Output panel, but the Input panels each serve 8 input modules. So if you have a 16 Input console, you will have 2 input panels.

### Input Panel

As stated, the Input panel serves 8 input modules and the panel will be labelled accordingly: 1-8, 9-16, or 17-24. (24 is the maximum number of input modules) For each input there are 3 sockets and one switch: from top to bottom:-

**INS** This jack socket allows you to insert an external device such as a compressor or harmonizer into the signal path in the input module. The position in the path is post equaliser, but BEFORE the PFL, ON switch and fader.

The jack necessary is of the "stereo" type: The tip is the input back to the channel from your device: the ring is the send to the device and the sleeve is a common ground.

**LINE** This jack socket is the input to the module for "line" level signals. You may have this socket permanently connected to a synthesiser and the mic socket connected to a mic, the feed to the channel being controlled by the LI button.

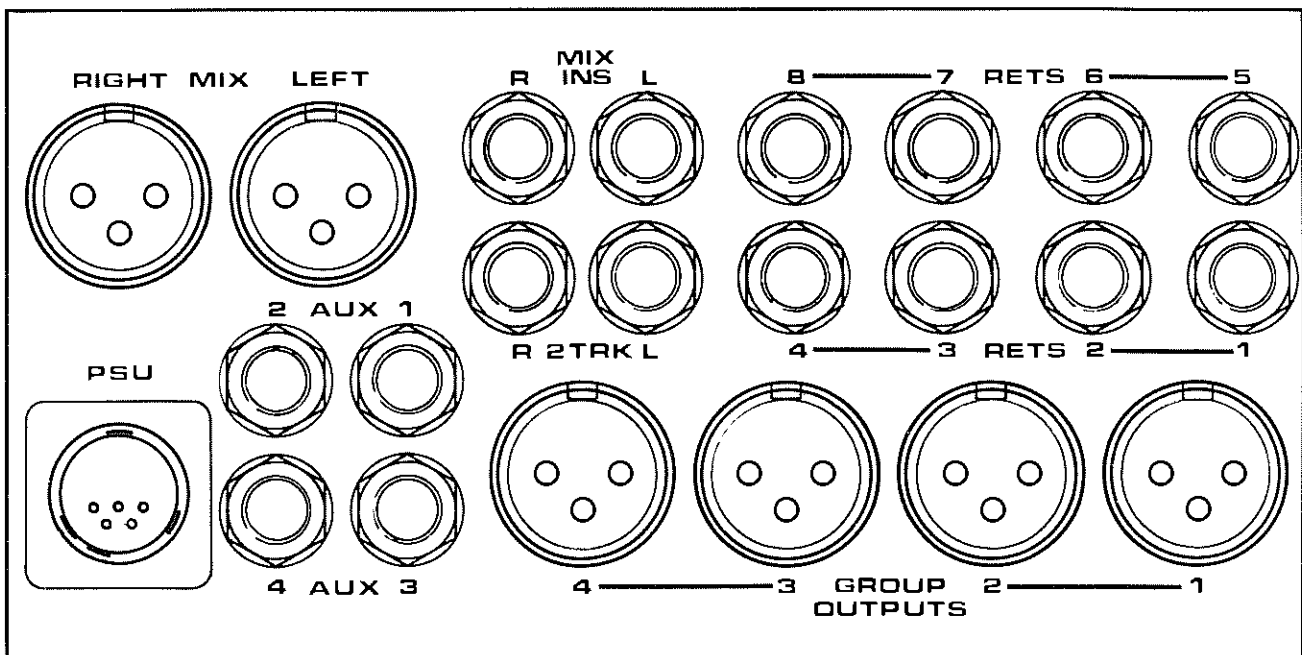
The jack required for this socket is again the "stereo" type: the input is balanced and so the tip and ring are "hot" and "cold" respectively and the sleeve is ground. You may also plug unbalanced equipment into this input, via a standard 1/4 jack, without adverse effect, (see wiring).

**MIC** This female XLR type socket is the balanced mic input, Pin 1 being ground. Pin 2 is "cold" and Pin 3 is "hot".

**PWR** The PWR switch provides phantom power of +48 volts for capacitor mics.

It is important to note that if you wish to use an unbalanced microphone (connect the "cold" pin to the ground) the PWR switch should be OFF.

S200 STANDARD OUTPUT  
CONNECTOR ASSEMBLY



## Output Panel

### Connections to your master machine:-

Your master machine for mixdown will be fed from the male XLR connectors marked Mix Left and Right and to monitor through the tape machine or listen to playback, you should connect the outputs of your tape machine to the stereo jack sockets 2 TRK L and R. All wiring conventions are as already described.

If your master machine is unbalanced, connect the "cold" pin (2) to the ground at the input to your machine, and a standard 1/4" jack from the outputs of the tape machine will suffice.

### Connections to Echo plates etc.:-

The 4 auxiliary sends appear, after master level control, as stereo jack sockets wired in the convention described. These may then be used to send to various devices such as echo and reverb, and the returns from these devices may be plugged into different places, depending upon how you are working. (Either into spare modules or the RETS inputs – see operation)

### Mix Inserts:-

An insert point similar to the insert point for each module is provided (and the socket is wired in the same way) for both the Left and Right mixdown paths. The point at which the insert appears in the signal path is just before the master level faders L and R.

### Connections to the 8 track machine:-

#### TO THE MACHINE:

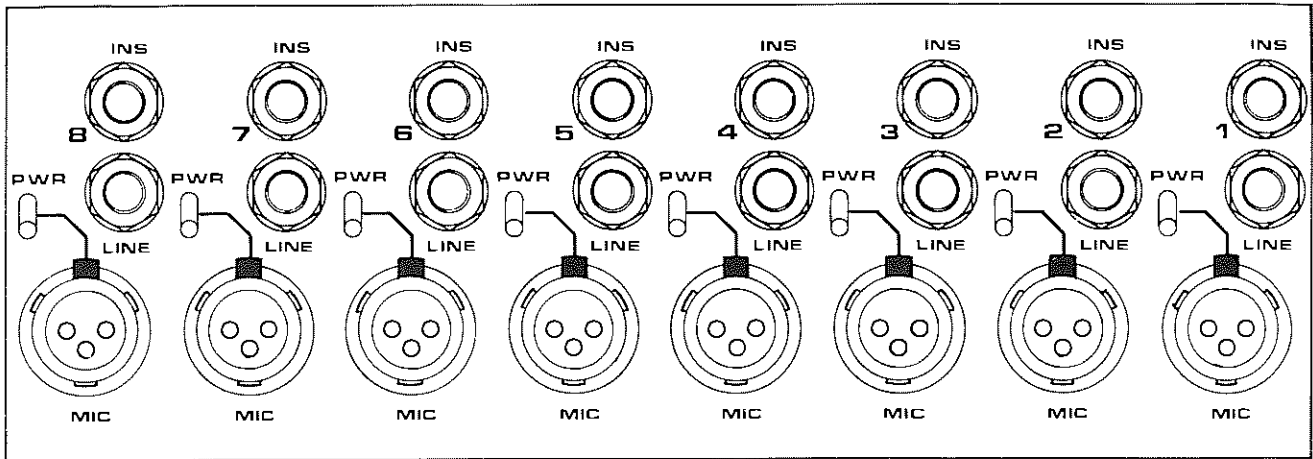
The console only has 4 output buses which appear as 4 male XLR connectors after master fader level control. So to feed all 8 tracks on the 8-track, you have several choices:-

You can parallel the connections of the inputs on the 8-track of tracks 1-4 and 5-8; using the tape machine's logic to ensure that you record on the correct tracks.

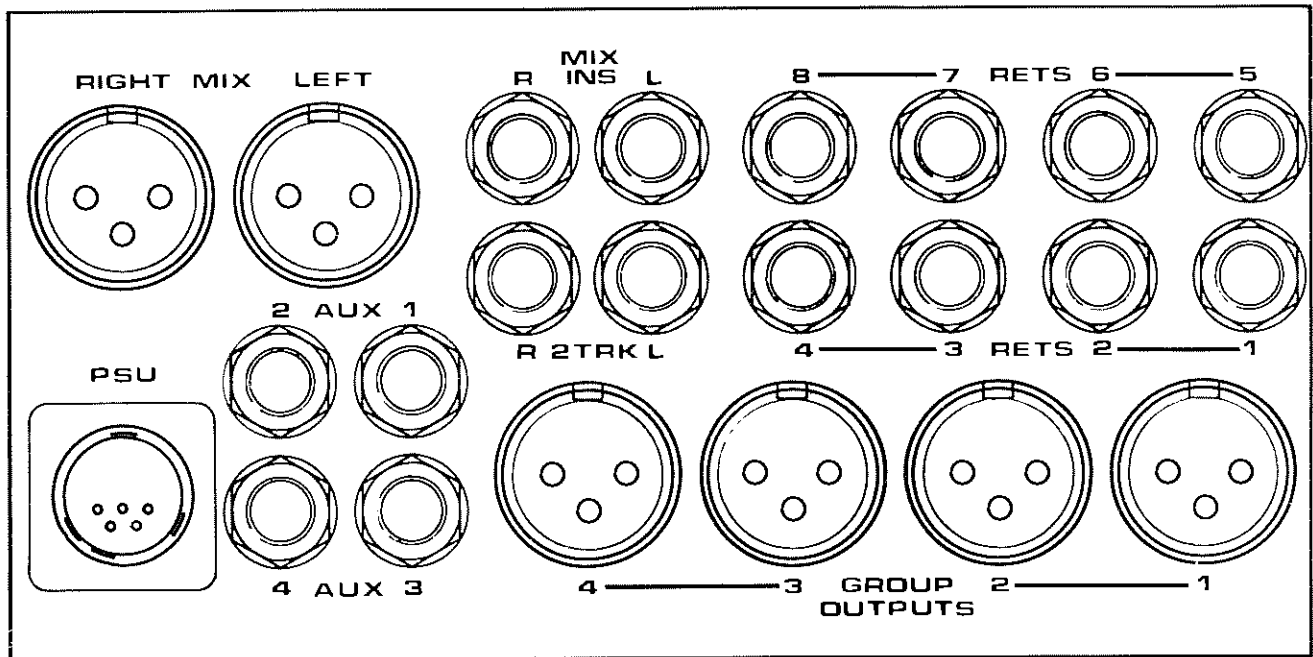
You can use a box which changes over the feeds either individually or all together; ie. 1-4 becomes 5-8 at the touch of a switch, or, more elaborately, individual switches change 1-5, 2-6, 3-7, and 4-8 respectively.

Or you can simply manually plug the correct outputs from the console into the inputs of the 8-track on an individual basis as the session progresses.

## S200 STANDARD INPUT CONNECTOR ASSEMBLY



## S200 STANDARD OUTPUT CONNECTOR ASSEMBLY



## FROM THE MACHINE:

During recording and overdubbing, you will usually monitor the 8-track with the monitor section at the right hand side of the console. (see Operation) and so during record, the outputs from your 8-track need to be connected into the 8 RETS stereo jack sockets (wiring convention as described).

During mixdown, you would normally connect the outputs of the 8-track to the Line inputs on modules 1-8 to make use of the input module's more extensive facilities, thus freeing the RETS inputs for effects returns etc.

It is perfectly feasible to parallel the outputs of the 8-track and to permanently connect one set to the RETS sockets and the other to the Line input sockets on modules 1-8. This is assuming that you have more than 8 input modules, so that during mixdown, you may bring effects returns etc. down individual input modules. (otherwise you would have to unplug the RETS inputs every time you mixed)

If you have an 8-track which has dedicated SYNC outputs, such as the SOUNDCRAFT 381, you would connect the SYNC outputs to RETS 1-8 and the PLAYBACK outputs to Line inputs 1-8.

## SUMMARY OF CONNECTORS USED

### **Stereo Jack EXCEPT headphone socket and INSERT points:-**

Tip: HOT.  
Ring: COLD.  
Sleeve: GROUND.

### **INSERT Stereo Jack:-**

Tip: Input (unbalanced) returning INTO module.  
Ring: Send (unbalanced) sending TO the external device.  
Sleeve: Common Ground.

### **Headphone Stereo Jack:**

Tip: Left output.  
Ring: Right output.  
Sleeve: Common Ground.

### **All XLR connectors:-**

Pin 1 : Ground.  
Pin 2 : Cold.  
Pin 3 : Hot.



## **WIRING**

To take full advantage of your Soundcraft Console, with its excellent signal to noise and low distortion figures, care must be taken that the environment into which you place your console does not degrade its performance.

Typical problems are hum, buzz, instability and radio interference. These are usually always problems which are NOT of the console's making. When finally traced, they turn out to be earth loops or an inferior earthing system. Indeed, in some areas the mains supply earth is inadequate and separate arrangements for earthing must be made.

A separate technical earth should be installed in these instances, and you should always check with your electricity supply company to ensure that you do not infringe any regulations.

The installation of a successful earthing system requires careful planning and strict adherence to the "rules". Outlined below are the main points, which we hope will assist you in establishing a good audio earthing system.

### **Central Earth**

To provide optimum performance, there should only be ONE earth point (Star Point) for the entire audio installation. Each separate piece of equipment should run a separate lead to this point for its earth. It is not good enough to "daisy chain" – joining several earths together on their way to the earth point is NOT correct.

### **Separate Supplies**

A separate mains feed should be used for the audio installation, and ONLY for the audio installation. You should take a separate feed from the distribution box and use another feed for any other mains outlets such as lighting, kettles, etc.

It may be necessary to install an isolating transformer for your audio supply, so that there is positively no interference from the other mains feeds. The transformer should be provided with a Faraday shield which should be connected to earth.

### **Location of equipment**

NEVER place audio equipment near the mains distribution box. Especially tape recorders, as these are particularly sensitive to electro-magnetic radiation.

## Racks

A rack full of balanced professional equipment may be earthed as a rack, with the rack being connected to the star point by a separate lead. ANY equipment which has either unbalanced inputs OR outputs should be isolated from the rack and earthed separately to the star point. (otherwise you will get an earth loop)

## Audio Connections

Having established your "star" system, then start connecting the various audio lines, listening for hum etc. as you go. If you do it this way, you should be able to isolate a problem quickly. It is probably best to use a logical sequence such as: multitrack, stereo tape recorders, monitors, echo sends one by one, effects units and finally microphone lines.

## Audio Shields

The screen should generally only be connected at ONE end of the cable and this is usually at the signal end. However there are a few exceptions and below is a table covering all the interconnection possibilities. If radio frequency seems to be a major problem, it is probably best to connect the screen via a 0.01 micro-farad capacitor.

The following table rules for ALL interconnections.

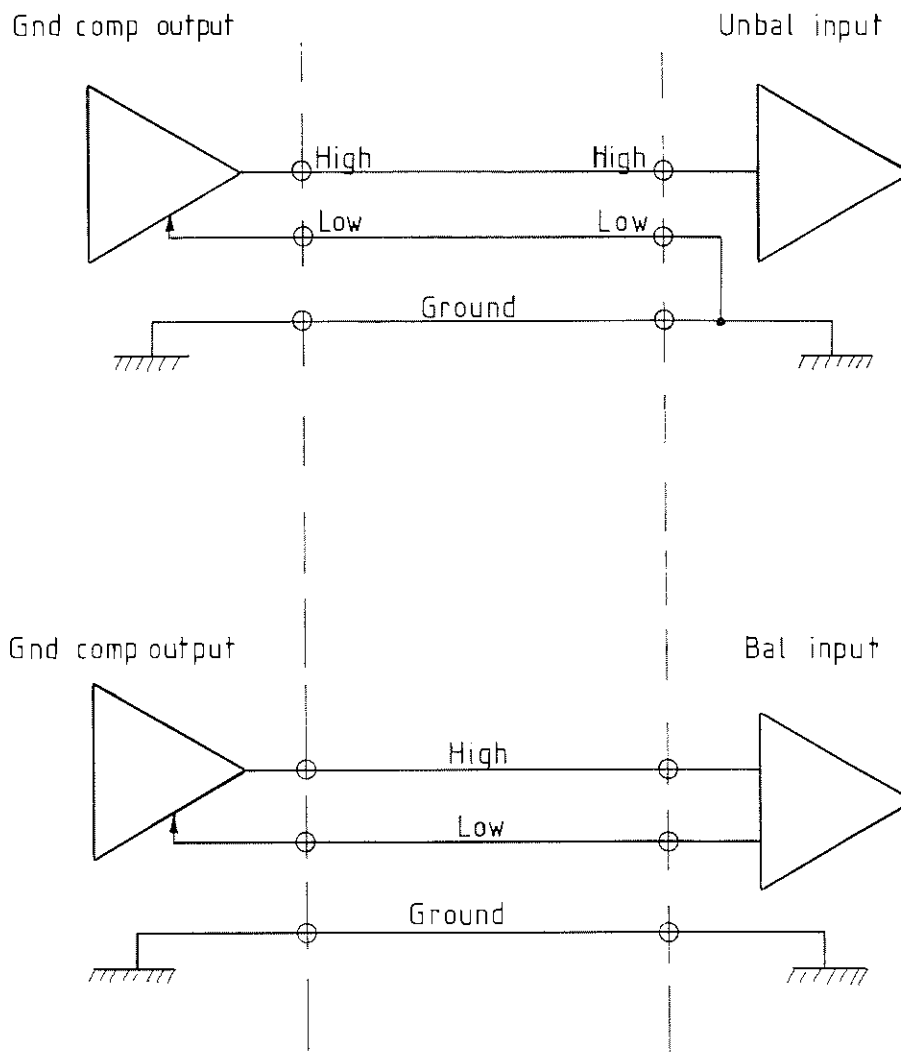
Type of equipment at the source of the cable.	Type of equipment at the cable's destination.	Connect the screen at this end.
Unbalanced	Unbalanced	Source
Unbalanced	Balanced	Source
Unbalanced	Differential	Source
Balanced (A)	Unbalanced	Destination
Balanced	Balanced	Source
Balanced (B)	Differential	Destination
Differential (C)	Unbalanced	Source
Differential	Balanced	Source
Differential	Differential	Source

(A) This is opposite to normal practice because the signal wires are referenced to the input earth NOT the output earth.

(B) If the output transformer is CENTRE TAPPED to earth then connect at SOURCE.

(C) 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.

WIRING FOR GROUND COMPENSATED OUTPUT



## Ground Compensated Outputs

The main outputs of the Series 200 are ground compensated, as already mentioned. When connecting a ground compensated output to an unbalanced destination, make sure that the cold lead is connected to earth at the DESTINATION end.(see diagram) The consideration for wiring the screen at only one end is not of such importance with a ground compensated output.

## INTERFACE LEVELS

The Series 200 is normally supplied to be compatible with standard professional equipment. ie. +4dBm (ref. 0.775 volt).

However, provision has been made to allow the user to operate with semi-professional tape machines etc. which operate at -10dBV (ref. 1.0 volt) or indeed to other levels.

The change in tape interface operating level is accomplished by reducing the console group output level, and increasing the console monitor return gain by an equal amount.

The following modification should be made to each output:-

GROUP OUTPUT:

- 1) Cut track across the position of RX1
- 2) Add resistor in position RX1. -2.2K ohms.
- 3) Add resistor in position Rx2. -750 Ohms.

MONITOR RETURN:

For normal Teac/Tascam operating level of -10dBV, R9 and R10 should be changed to 22K ohms.

If returns 5-8 are also to be used at this level, R24 and R25 should also be changed to 22K ohms.

POWER AMPLIFIERS are often rated at 300mV sensitivity for full output. In such cases, an attenuator should be installed at the input to the power amplifier to attenuate the +4dB level (1.228 volt) coming from the console, by approximately 10-15 dB.

This may be achieved by using a 2.2K ohm series resistor and 680 ohm shunt resistor across the amplifier's input.



## FUSE RATINGS

220-240 volts AC the fuse should be 1.6 amps 10mm ANTI-SURGE.

100-120 volts AC the fuse should be 3.15 amps 20mm ANTI-SURGE.

BEFORE SWITCHING ON ALWAYS CHECK THAT THE VOLTAGE SELECTOR IS SET CORRECTLY AND THAT THE FUSE IS CORRECT.

## POWER SUPPLY

The Series 200 power supply provides the following regulated supply rails;

- 1)  $\pm 17$  volts Audio
- 2) + 48 volts Phantom Power

If a power supply fault is suspected, first ensure that it really is the P.S.U. which is at fault, and not a short circuit in the console. This can be checked by disconnecting the P.S.U. from the console, and measuring the voltage at the connector. A load across the supply should be provided, to simulate the normal load conditions imposed by the console.

A 10 ohm, 20 watt resistor should be connected across each of the audio rails. The Phantom power supply can be loaded with a 2.2K ohm, 1 watt resistor.

The ripple and noise value of the various supply rails can now be measured, using a millivoltmeter or an oscilloscope.

If a fault is found to exist in the P.S.U. disconnect the mains supply and remove the cover. Check visually for any obvious problems, such as blown fuse, burnt components, etc. If nothing obvious is observed, reconnect the mains, and measure the voltages across the various electrolytic smoothing capacitors, which should be as follows:-

Audio Supply	C1	=	+ 26 volts
	C2	=	- 26 volts
Phantom Supply	C12	=	+ 59 volts

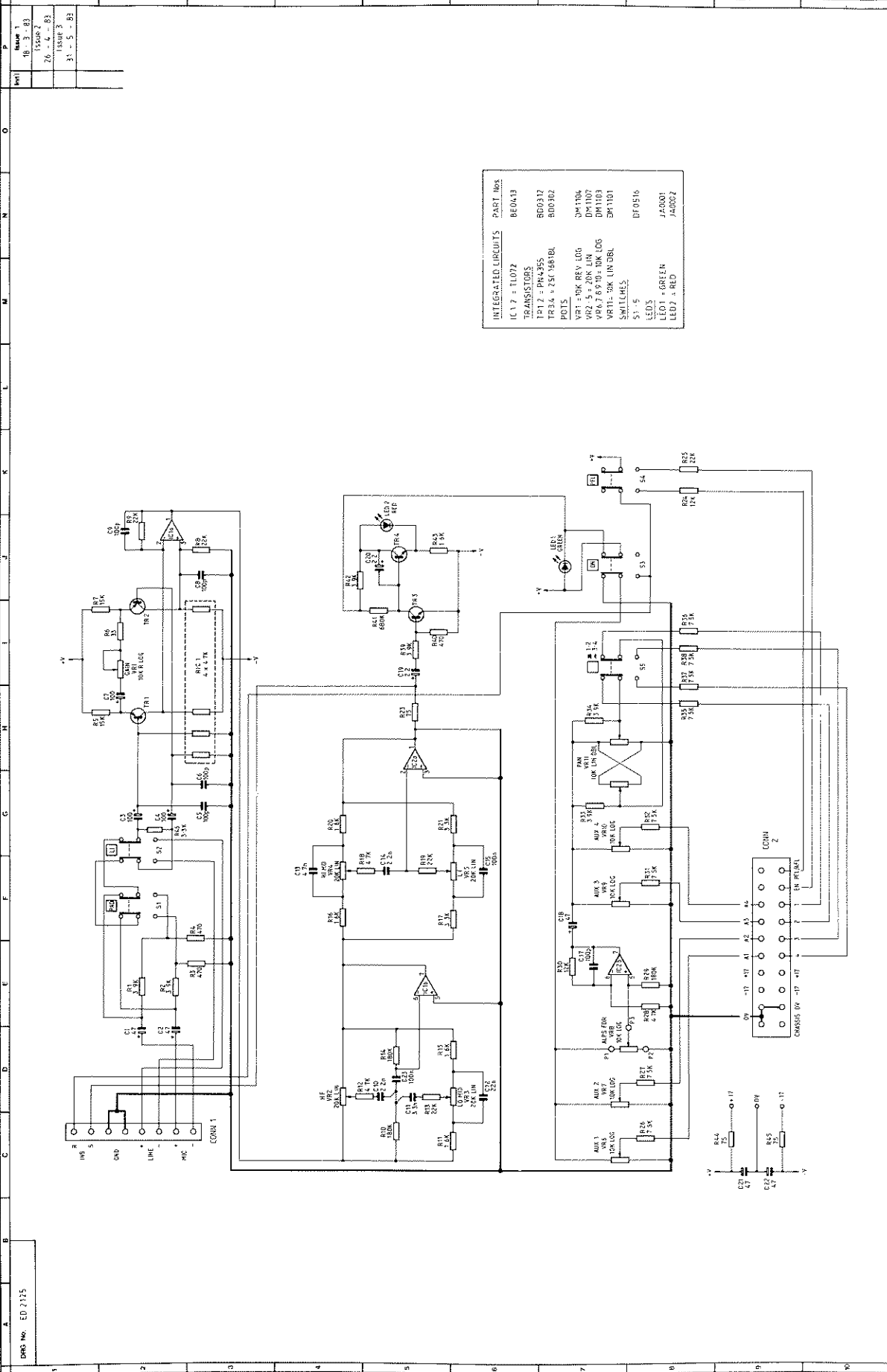
Differences of  $\pm 10\%$  are acceptable, due to variations in the incoming mains voltage. If satisfactory, the problem lies in the regulator section. If not however, check the bridge rectifier, smoothing capacitor and transformer for failure.

## GLOSSARY OF TERMS USED

<b>AFL</b>	After fade listen: this button will "solo" the signal (or ALL with their AFL buttons down) on the monitors, and the feed for this solo is taken AFTER the fader.
<b>Attenuate</b>	To reduce the electrical level or amount of gain.
<b>Auxiliary Send</b>	Extra output from the console, usually used for echo sends and foldback.
<b>Bus Wire</b>	carrying a signal or sum of a group of signals.
<b>Cold</b>	The negative going current of a signal. With 2 signal wires, one is positive going (hot), and the other is negative going (cold).
<b>Cut</b>	To cut a channel means to turn it OFF.
<b>dB (decibel)</b>	A logarithmic ratio used to represent voltage or power gain. The reference about which the ratio is made is usually stated.
<b>Ground</b>	Earth or screen of a cable when referring to connecting leads.
<b>Group Output</b>	The output of a group bus which is carrying a sum of all the signals assigned to that group number.
<b>Hot</b>	Positive going current of a signal. With 2 signal wires, one is positive going (hot), and the other is negative going (cold).
<b>Hz</b>	Measurement of frequency (Hertz) 1Hz = 1 cycle per second.
<b>Khz</b>	Measurement of frequency expressed to the power of 1000. ie. 1Khz = 1000 cycles per second.
<b>K ohm</b>	Measurement of electrical resistance expressed to the power of 1000. ie. 1K ohm = 1000 Ohms.
<b>Mains</b>	Local Electrical Supply.
<b>Ohm</b>	Measurement of electrical resistance.
<b>Overdubbing</b>	The process of recording new tracks on a multitrack tape recorder whilst listening back in synchronisation with previously recorded tracks.

<b>Pan Pot</b>	A pan pot places a signal across two stereo lines (left & right) turning it to the left will send all the signal to the left line, and to the right, all of the signal will be sent to the right side. If the pan pot is left at its centre detent, an equal amount of signal will be fed to both sides and the image in the stereo picture will appear to be central.
<b>PFL</b>	Pre Fade Listen: This button will “solo” the signal (or All with their PFL buttons down) on the monitors, and the feed for this solo is taken BEFORE the fader.
<b>Phantom Power</b>	A voltage (usually + 48 volts) across the microphone input to power capacitor microphones.
<b>POST</b>	POST means after the fader.
<b>PRE</b>	PRE means before the fader.
<b>Ring</b>	The connecting part in the middle of a stereo jack (it mates second).
<b>Signal to Noise Ratio</b>	The ratio between the level of signal and the level of unwanted noise.
<b>Sleeve</b>	The connecting part of a stereo jack which mates last and is always earth.
<b>Star Point</b>	A single point to which ALL earths are separately connected.
<b>Sync</b>	To be operating the multitrack machine from the synchronised head. ie. recording and playing back onto and from the same head.
<b>Tip</b>	The connecting part at the end of a stereo jack (it mates first).
<b>Track Bouncing</b>	Taking a group of previously recorded tracks and recording them as a group onto another track. eg. bouncing down 4 vocals from 4 tracks to just one track “frees” 3 tracks for fresh recording.





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**INTEGRATED CIRCUITS**

PART NOS

IC 1 - 7401

IC 2 - 7402

IC 3 - 7403

IC 4 - 7404

IC 5 - 7405

IC 6 - 7406

IC 7 - 7407

IC 8 - 7408

IC 9 - 7409

IC 10 - 7410

IC 11 - 7411

IC 12 - 7412

IC 13 - 7413

IC 14 - 7414

IC 15 - 7415

IC 16 - 7416

IC 17 - 7417

IC 18 - 7418

IC 19 - 7419

IC 20 - 7420

IC 21 - 7421

IC 22 - 7422

IC 23 - 7423

IC 24 - 7424

IC 25 - 7425

IC 26 - 7426

IC 27 - 7427

IC 28 - 7428

IC 29 - 7429

IC 30 - 7430

IC 31 - 7431

IC 32 - 7432

IC 33 - 7433

IC 34 - 7434

IC 35 - 7435

IC 36 - 7436

IC 37 - 7437

IC 38 - 7438

IC 39 - 7439

IC 40 - 7440

**TRANSISTORS**

T1 - BC107

T2 - BC108

T3 - BC109

T4 - BC107

T5 - BC108

T6 - BC109

T7 - BC107

T8 - BC108

T9 - BC109

T10 - BC107

T11 - BC108

T12 - BC109

T13 - BC107

T14 - BC108

T15 - BC109

T16 - BC107

T17 - BC108

T18 - BC109

T19 - BC107

T20 - BC108

T21 - BC109

T22 - BC107

T23 - BC108

T24 - BC109

T25 - BC107

T26 - BC108

T27 - BC109

T28 - BC107

T29 - BC108

T30 - BC109

T31 - BC107

T32 - BC108

T33 - BC109

T34 - BC107

T35 - BC108

T36 - BC109

T37 - BC107

T38 - BC108

T39 - BC109

T40 - BC107

**RESISTORS**

R1 - 10K

R2 - 10K

R3 - 10K

R4 - 10K

R5 - 10K

R6 - 10K

R7 - 10K

R8 - 10K

R9 - 10K

R10 - 10K

R11 - 10K

R12 - 10K

R13 - 10K

R14 - 10K

R15 - 10K

R16 - 10K

R17 - 10K

R18 - 10K

R19 - 10K

R20 - 10K

R21 - 10K

R22 - 10K

R23 - 10K

R24 - 10K

R25 - 10K

R26 - 10K

R27 - 10K

R28 - 10K

R29 - 10K

R30 - 10K

R31 - 10K

R32 - 10K

R33 - 10K

R34 - 10K

R35 - 10K

R36 - 10K

R37 - 10K

R38 - 10K

R39 - 10K

R40 - 10K

**CAPACITORS**

C1 - 100µF

C2 - 100µF

C3 - 100µF

C4 - 100µF

C5 - 100µF

C6 - 100µF

C7 - 100µF

C8 - 100µF

C9 - 100µF

C10 - 100µF

C11 - 100µF

C12 - 100µF

C13 - 100µF

C14 - 100µF

C15 - 100µF

C16 - 100µF

C17 - 100µF

C18 - 100µF

C19 - 100µF

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C22 - 100µF

C23 - 100µF

C24 - 100µF

C25 - 100µF

C26 - 100µF

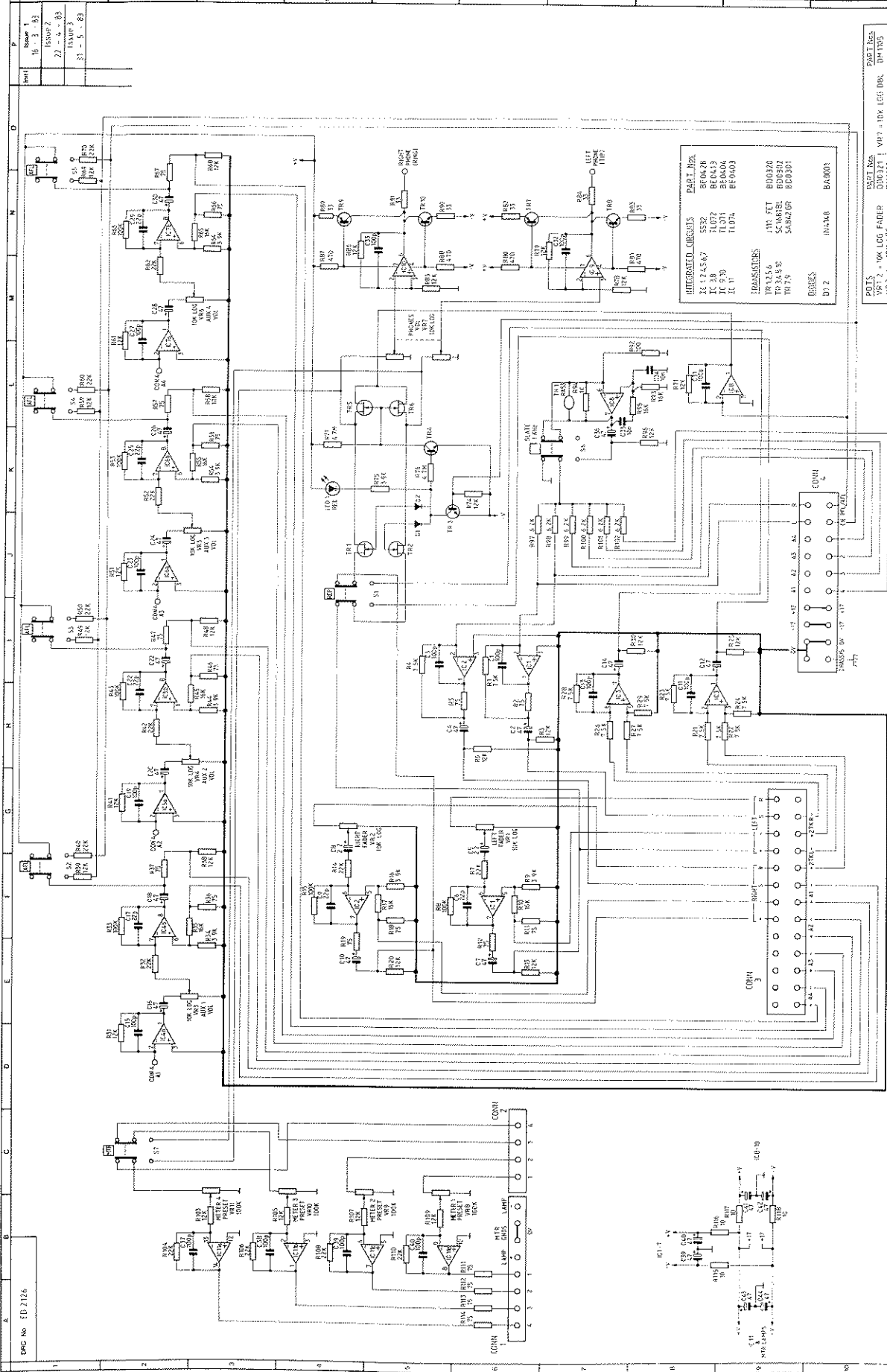
C27 - 100µF

C28 - 100µF

C29 - 100µF

C30 - 100µF

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DRG No.	ED 2125
TITLE	STEREO CIRCUIT
DRG	DRG
MATL.	FINISH
THIRD ANGLE PROJECTION	SCALE
TOLERANCE	All linear dimensions ±0.10mm All metric dimensions ±0.25mm All angles ±0.50° Unless otherwise stated
HOLE INDEX	
NOTES	All resistors in ohms unless otherwise stated
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	SOUNDSCRAFT ELECTRONICS LTD 8, R. GREAT SAUNDON STREET LONDON EC4N 6BK TELEPHONE 01-251-3631/2/3 TELEGRAMS SOUNDSCRAFT LON EC4 TELEX UK No. 21781 LIRA No. 01-2201



DPG No. ED 7126  
 Sheet 1 of 3  
 Issue 2  
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**INTEGRATED CIRCUITS**  
 PART Nos.  
 IC 1 5532  
 IC 2 5532  
 IC 3 5532  
 IC 4 5532

**TRANSISTORS**  
 T1 2N3638  
 T2 2N3638  
 T3 2N3638  
 T4 2N3638

**RESISTORS**  
 R1 10K  
 R2 10K  
 R3 10K  
 R4 10K  
 R5 10K  
 R6 10K  
 R7 10K  
 R8 10K  
 R9 10K  
 R10 10K  
 R11 10K  
 R12 10K  
 R13 10K  
 R14 10K  
 R15 10K  
 R16 10K  
 R17 10K  
 R18 10K  
 R19 10K  
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 R99 10K  
 R100 10K

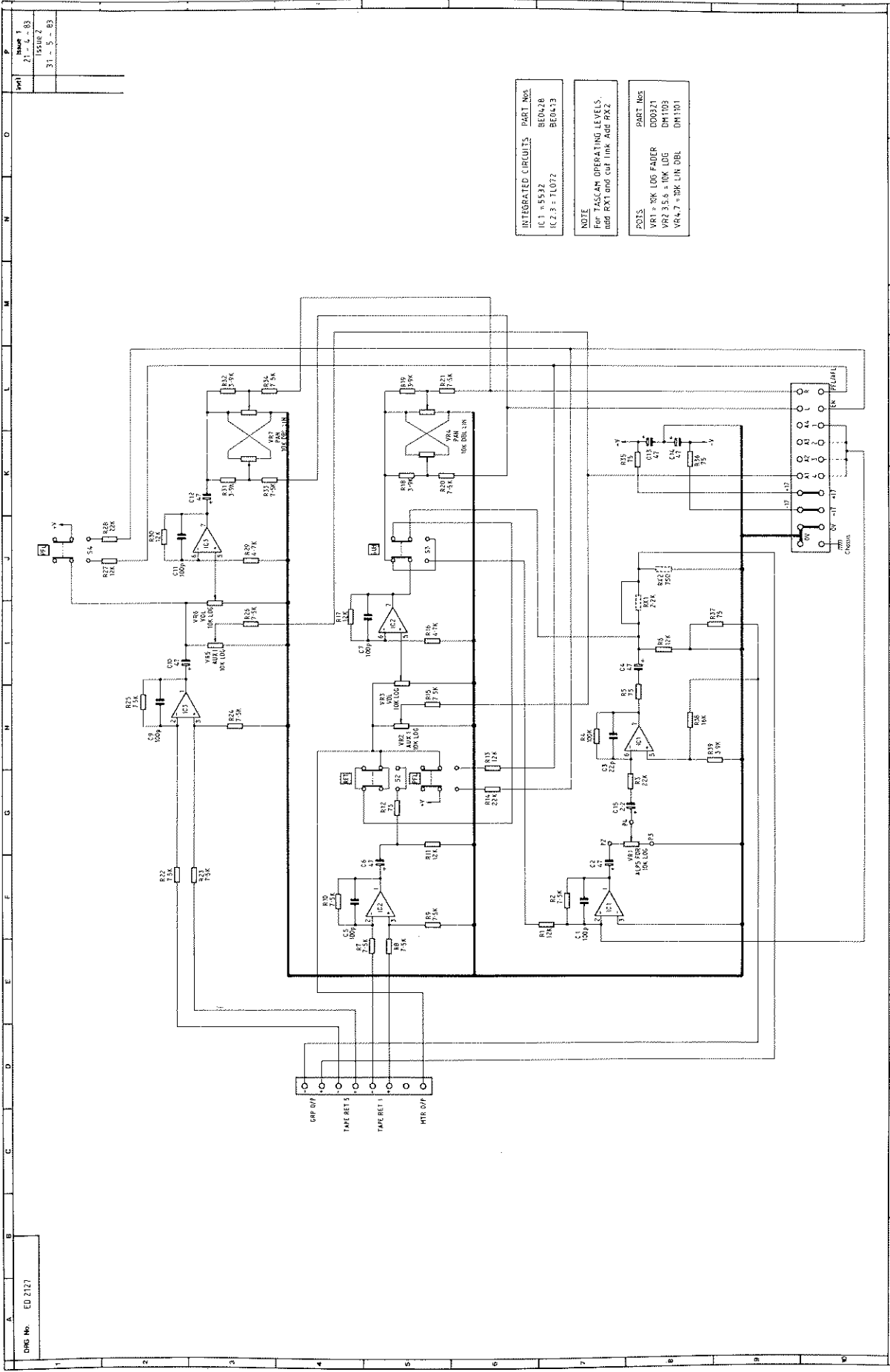
<b>DRG No.</b> ED 7126 <b>Sheet No.</b> 1 of 3 <b>Issue</b> 2 <b>Date</b> 27 - 4 - 83 <b>Issue 3</b> <b>Date</b> 27 - 5 - 83	<b>DRG No.</b> ED 7126 <b>Sheet No.</b> 1 of 3 <b>Issue</b> 2 <b>Date</b> 27 - 4 - 83 <b>Issue 3</b> <b>Date</b> 27 - 5 - 83	<b>DRG No.</b> ED 7126 <b>Sheet No.</b> 1 of 3 <b>Issue</b> 2 <b>Date</b> 27 - 4 - 83 <b>Issue 3</b> <b>Date</b> 27 - 5 - 83	<b>DRG No.</b> ED 7126 <b>Sheet No.</b> 1 of 3 <b>Issue</b> 2 <b>Date</b> 27 - 4 - 83 <b>Issue 3</b> <b>Date</b> 27 - 5 - 83
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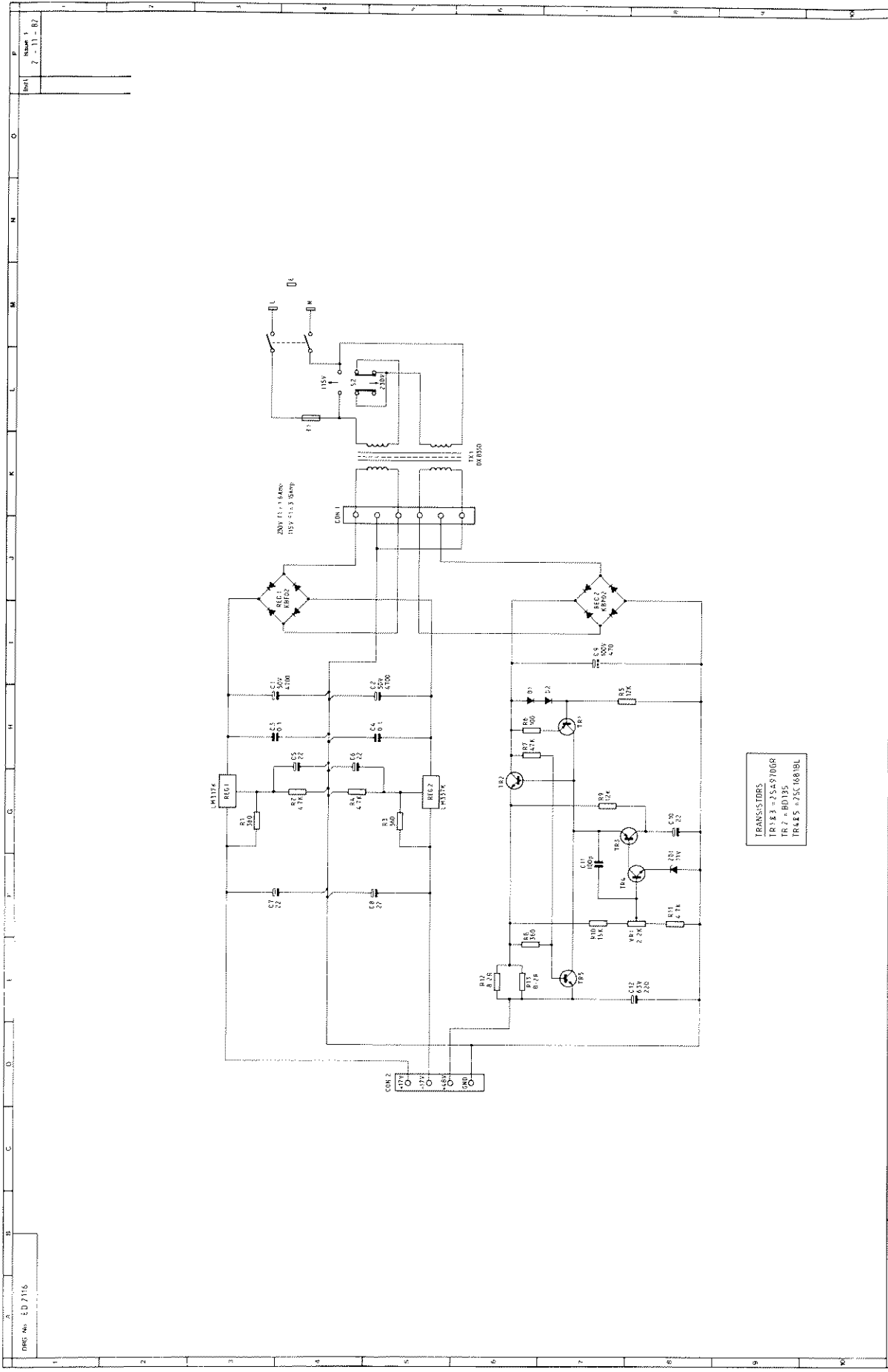
**Notes:**  
 All resistors in ohms  
 Capacitors in micro farads  
 Unless otherwise stated

**Tolerance:**  
 All imperial dimensions  $\pm 0.010$   
 All metric dimensions  $\pm 0.25mm$   
 All angles  $\pm 0.5^\circ$   
 Unless otherwise stated

**Scale:**  
 1:1



<p>DRG No. ED 2127</p>	<p>Sheet 21 - 4 - 81 15 REV. 83 31 - 5 - 83</p>	<p>INTEGRATED CIRCUITS PART NOS. IC1 - 5532 BE0428 IC2,3 - TL072 BE0473</p>	<p>NOTE For TASCAM OPERATING LEVELS. add RX1 and cut link Add RX2</p>	<p>PART NOS. VR1 - 5K LOG FADER DD0321 VR2 3.5 - 10K LDR DM103 VR4.7 - 5K LIN DBL DM101</p>	<p>TOLERANCE All imperial dimensions ± 0.010 All metric dimensions ± 0.25mm All angles ± 0.5° Unless otherwise stated.</p>	<p>THIRD ANGLE PROJECTION</p>	<p>MATL. FINISH</p>	<p>DRG No. ED 2127</p>
<p>NOTES All resistors in Ohms Capacitors in micro farads Unless otherwise stated</p>	<p>HOLE INDEX</p>	<p>COMBICRAFT ELECTRONICS LTD 9-8 GREAT SUTTON STREET LONDON EC7Y 6AK TELEPHONE 01-234-3031/3 TELEGRAMS SOUNDCRAFT LON EC1 TELEX UK No. 219R USA No. 01-2203</p>	<p>TITLE STANDARD OUTPUT CIRCUIT DIAGRAM FOR 513071</p>	<p>DRG No. ED 2127</p>				



TRANSISTORS  
 TR 2 = 75-5700R  
 TR 7 = BD135  
 TR 8, 9 = 75C-1681BL

DRS No. ED 7115 Issue 1 7-11-RZ	TITLE POWER SUPPLY P.I.B.	
	SOUNDCRAFT ELECTRONICS LTD 5-8 GREAT SAUNDON STREET LONDON EC1V 0RK TELEPHONE 01-252-8672/3 TELEGRAMS SOUNDCRAFT LON ECI TELEFAX No. 71081 ISB No. 01-2283	DRG No. ED 7116
	MKG TRKD CHND	MATL FINISH SCALE
THIRD ANGLE PROJECTION		TOLERANCE All Imperial Dimensions: ±0.010 All metric dimensions: ±0.25mm All angles: ±0.50° Unless otherwise stated
HOLE INDEX		NOTES All resistors in ohms All capacitors in micro farads Unless otherwise stated



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