

Soundcraft

200SR

USER MANUAL

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SOUNDCRAFT SERIES 200SR MIXING CONSOLE

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*Note

CPS 450 Power Supply has a seperate USER MANUAL

2.00 SOUNDCRAFT SERIES 200SR CONSOLE

GENERAL DESCRIPTION

The Soundcraft Series 200SR is designed primarily for public address and monitor applications.

The console has 4 main buses, 4 auxiliary outputs and dedicated mix outputs. All inputs are electronically balanced.

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.

All outputs are "GROUND COMPENSATED" to minimise hum or interference in differing environments, where earthing rules, etc may not always have been adhered to.

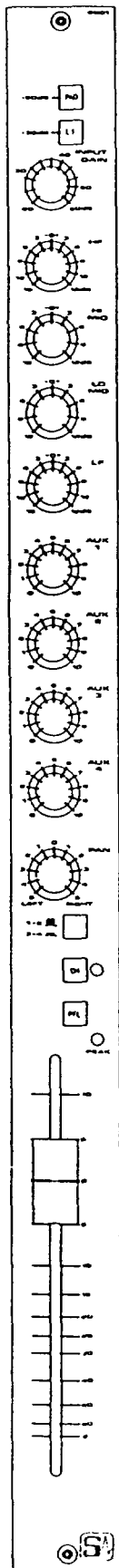
The Microphone Input impedance is approximately 2kOhms, which provides optimum loading effects for any normally used microphone. The Line level Input has an input impedance of greater than 10kOhms, which is high enough to ensure that it will interface with most studio peripheral equipment without causing 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, the 2-track return or any PFL/AFL signal.

The power supply is an external unit supplying the console with 17volts positive and negative rails and +48V Phantom Power supply.

The console is designed to work at +4dBu.

The console is available with 8, 16, or 24 input modules. There is also an optional rack mounting version with a maximum of 8 input modules.



2.01 INPUT MODULE

1. Channel Input Section

The Channel can be operated in either Mic or Line Input modes. Both the Mic Input and the Line Input are electronically balanced for optimum low noise performance.

Mic Input impedance is greater than 2kOhms and Line Input impedance is greater than 10kOhms.

a) LINE

The high level Line Input is selected by pressing the LINE button. Tape returns should be re-patched into the Line Input socket for remix purposes.

b) INPUT GAIN

The 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.

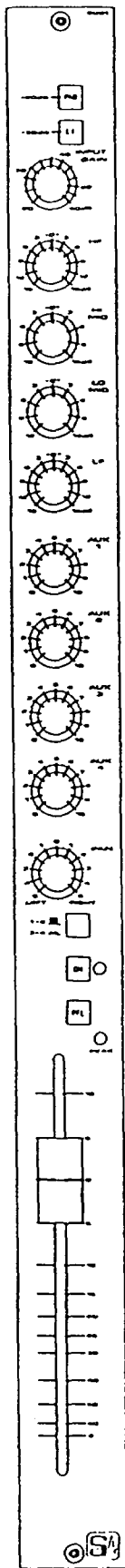
+48V phantom power is available as a switch on the input rear connector panel.

2. Equaliser Section

The Equaliser on each module is a 4-band, fixed frequency design. All amplitude pots are centre detented for easy zeroing.

a) HF

Provides 15dB of boost or cut at 12kHz. The control has a "shelving" characteristic, ie. The slope of the EQ curve does not keep rising with frequency but having reached the desired amount, flattens out or "shelves" from that frequency on.



- b) **HI MID**
15dB of boost or cut is available at 5kHz with a "peak/dip" characteristic. ie. Having reached maximum amplitude (or minimum in the case of cut), the amplitude response returns to zero on either side of that frequency. The shape of the curve, when plotted, gives a characteristic bell shape.
- c) **LO MID**
15dB of boost or cut is available at 250Hz with a "peak/dip" characteristic.
- d) **LF**
15dB of boost or cut is available at 60Hz with a "shelving" characteristic.

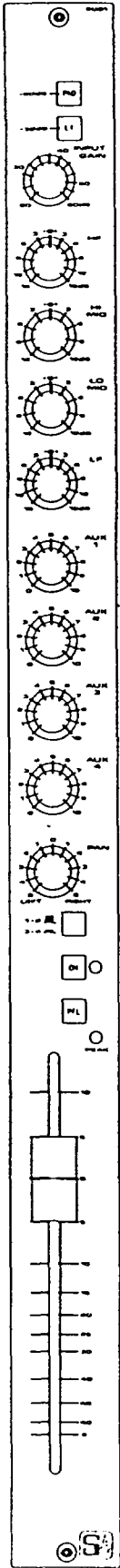
3. Auxiliary section

There are four auxiliary sends available for use as echo, foldback or other auxiliary effects units.

4. Routing Section

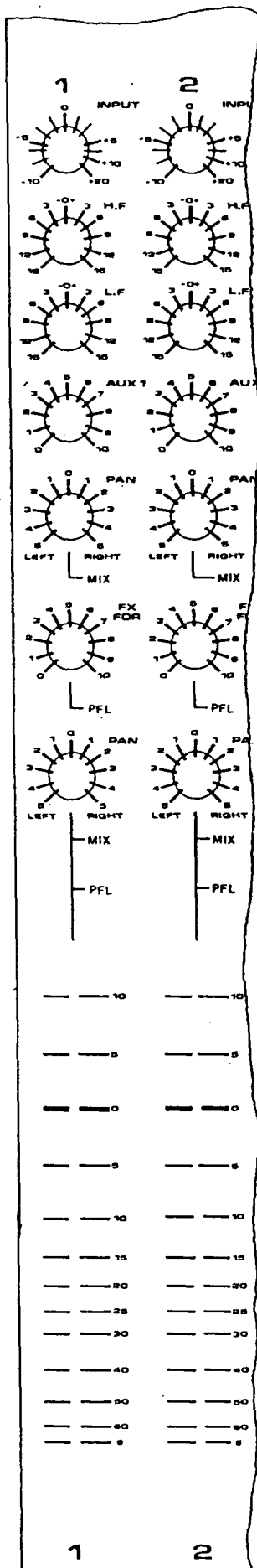
The channel input can be routed to either groups 1-2 or groups 3-4.

- a) **PAN POT**
The pan pot is a centre detented control, with a loss of 4.5dB at its centre point. This is a compromise between the 3dB loss required for constant power panning and the 6dB loss required for constant voltage panning.
- b) **ROUTING**
Pressing the routing button will route the channel input signal to groups 3 and 4. By panning left the signal may be routed to odd numbered groups and by panning right the signal may be routed to even numbered groups.



5. Channel status section

- a) ON
The channel "ON" status is indicated by a green LED.
- b) PFL
Pressing PFL (Pre-fade listen) solos the signal from that module on the monitor/headphone outputs, along with any other modules that have their PFL button down. The PFL signal is taken after the insert return but before the ON switch.
- c) PEAK
The PEAK LED illuminates when the signal level at the insert send point is 4dB below clipping.
- d) CHANNEL FADER
The Channel fader is a long throw linear fader. Infinity cut off is greater than 90dB.



2.02 MASTER MODULE

The Master module contains the VU meters, the Group>Returns sections, the Auxiliary masters and the head phone monitor section.

1. VU meters

The four VU meters usually monitor the outputs from the 4 groups, or FX returns. Pressing the MNTR button changes the function of meters 3 and 4. These may now be used to monitor the main mix bus, or the auxiliaries, 3 reads left and 4 reads right.

If PFL or AFL has been pressed then the meters will monitor the PFL/AFL buses which feed the headphones.

2. Group/FX Return section

The Group/FX Return section handles the functions of an FX return and Group output.

FX RETURN

a) Input gain

An input gain of -10dB to +20dB is available to ensure that the incoming line level signal "drives" the modules sufficiently.

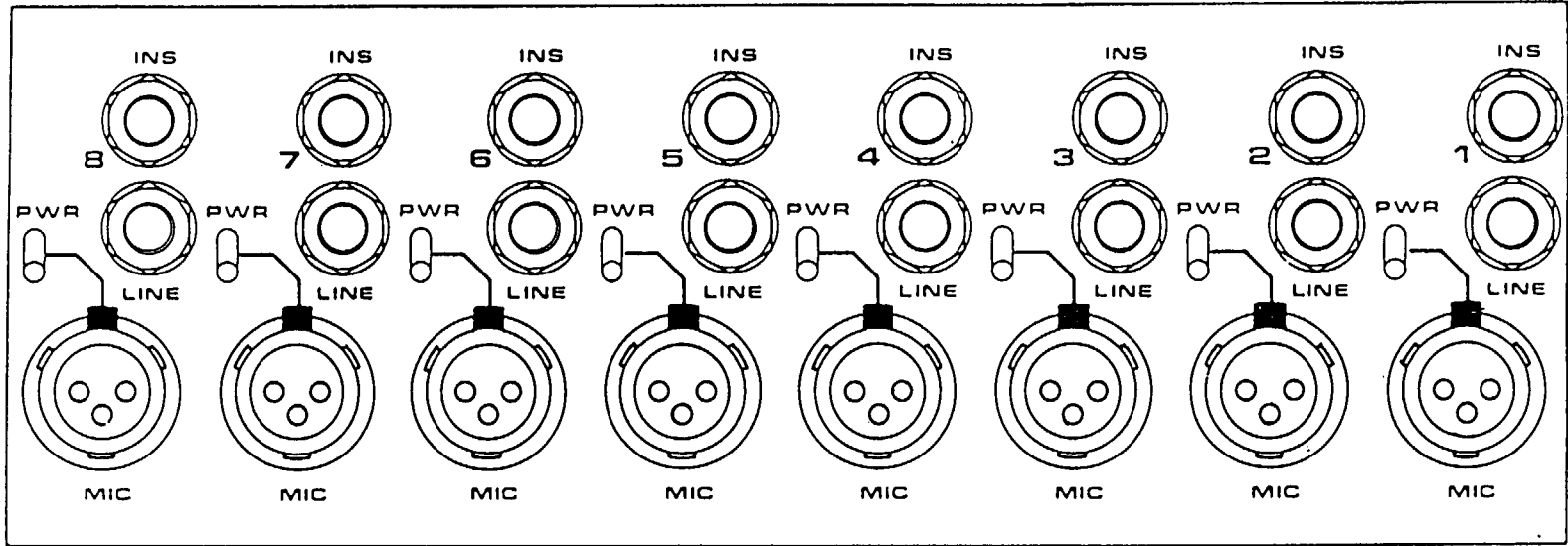
b) Equaliser section

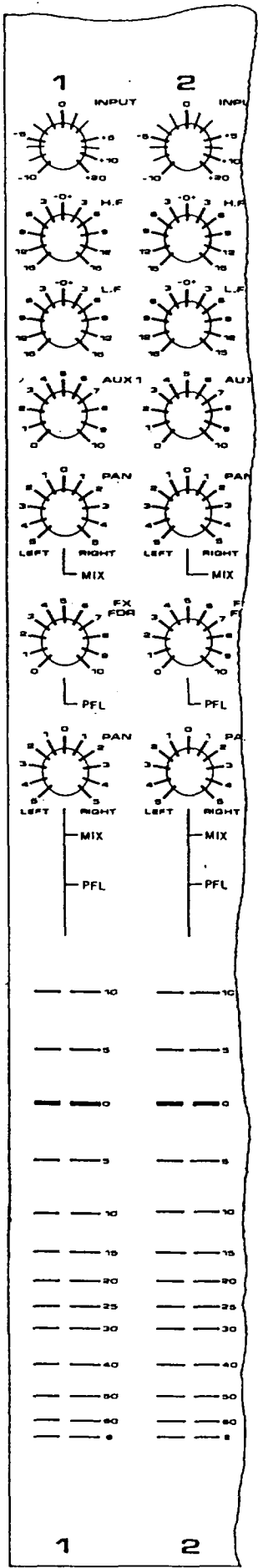
A two band equaliser is available with fixed turn over frequencies. Both HF and LF have a shelving characteristic. Ie. The slope of the EQ curve does not keep rising with frequency but having reached its desired amount, flattens out or "shelves" from that frequency on.

HF turnover frequency is at 10kHz and LF turn over is at 60Hz

c) Aux 1

The auxiliary send is post fader and may be used to provide headphone mixes during recording and overdubbing.





d) PAN

The PAN control allows the FX return signal to be panned to the correct position in the stereo mix when the MIX button is pressed.

e) MIX

Pressing the MIX button routes the output from the pan pot to the main stereo mix bus.

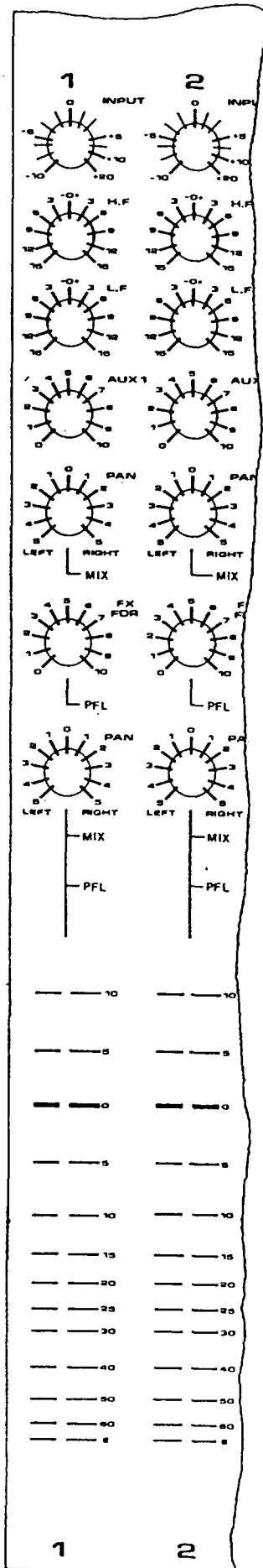
When MIX is not pressed the signal can either be routed to the relevant group by installing jumper J2 or is removed from both the mix and group buses by installing jumper J1. (See drawing number ED2567 and MI2545.) The console leaves the factory with jumper J2 installed.

f) FX FDR

A rotary fader is provided calibrated 0-10 for the FX return signal.

g) PFL

PFL solos the FX return signal.



GROUP OUTPUT

a) PAN

The PAN control allows the Group output signal to be panned to the correct position in the stereo mix.

b) MIX

Routes the signal from the pan pot to the main stereo mix bus.

c) PFL

PFL solos the Group output signal.

GROUP FADERS

The 4 long throw, linear faders control the overall group output levels.

3. Auxiliary master section

Each of the four auxiliary buses has its own master level control and an AFL select. The AFL works in the same way as the PFL bus. eg. AFL solos the signal from that Auxiliary master on the headphones output along with any other PFL or AFL selected.

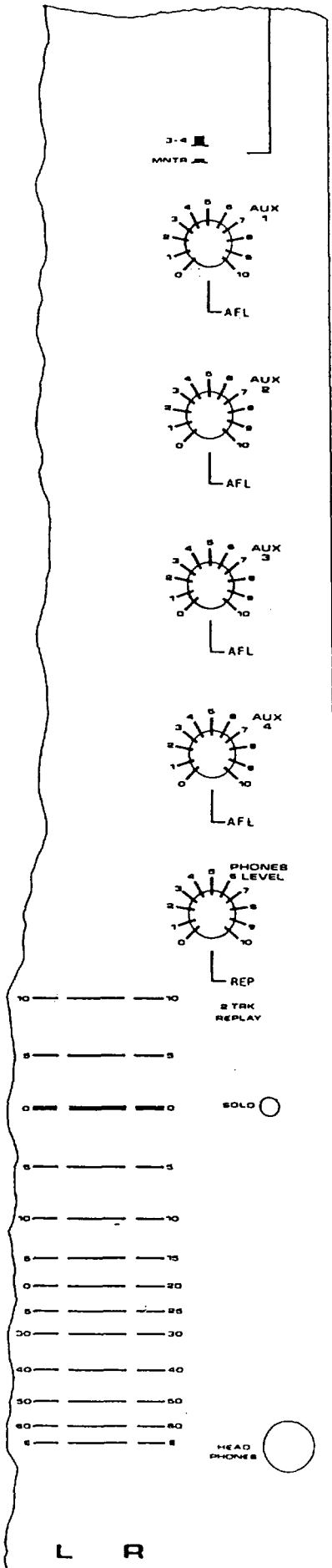
4. Monitor section

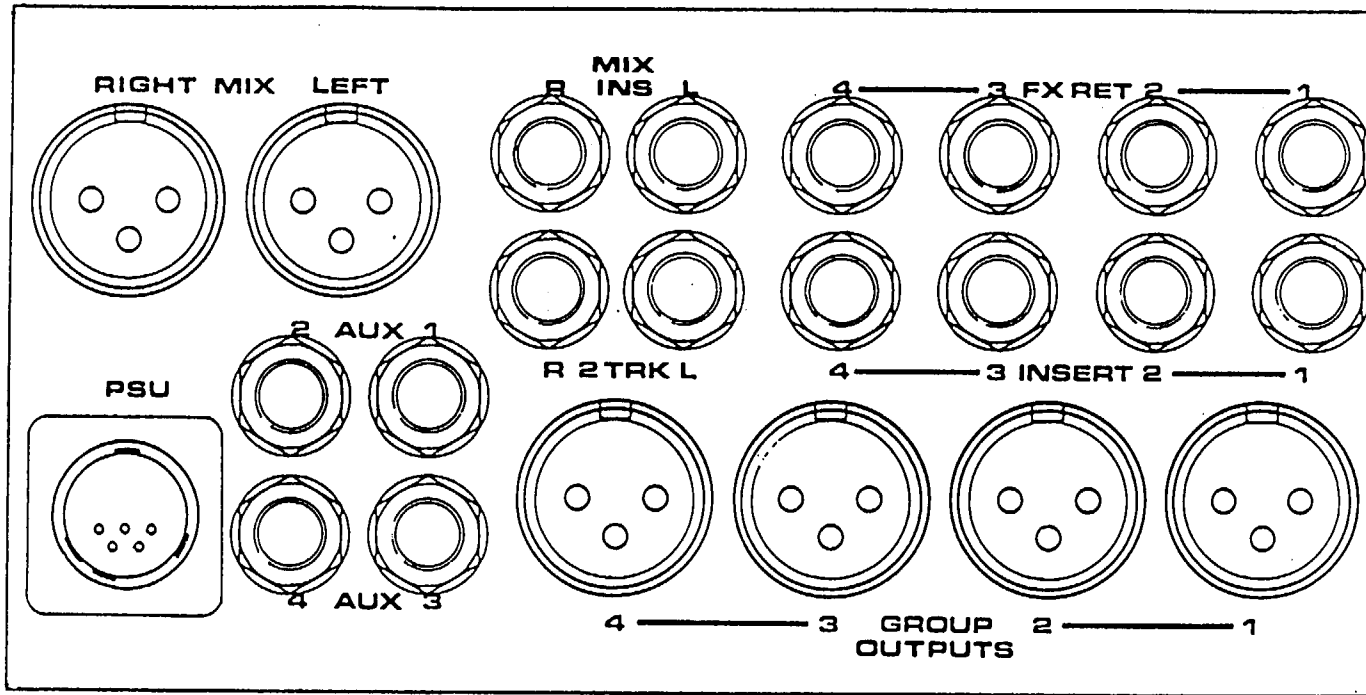
a) Phones level

The level to the headphones socket is controlled by the PHONES LEVEL pot. The phones are usually fed from the main mix bus, but may be fed from the output of a 2-track tape machine by pressing the 2-track replay button. The headphone socket expects to see headphones of 200-400 ohms. The output devices are unsuitable for driving low impedance headphones or loud speakers.

b) REP

This allows the signal from the 2-track master machine to be routed to the headphones.





3.00 CONNECTIONS AND WIRING

There are two types of standard connector panel on the Series 200SR console. These are the Input connector panel and the main output connector panel. There is always one output panel, but the input panels each serve 8 input modules. So if you have a 16 input console you will have two input panels.

If you have the rack mounting version the input and output connection panels are not separate.

3.01 INPUT CONNECTION PANEL

The Input panel serves 8 Input modules and the panel is labelled accordingly. ie. 1-8, 9-16 etc.

a) INS

These standard stereo jacks carry both the insert send and the insert return signals. Under normal conditions with nothing inserted the signal is normalled through the jack socket and thus inserting a jack will automatically break this link.

The insert point is post EQ but BEFORE the PFL, ON switch and fader.

Tip: Insert return (Unbalanced)
Ring: Insert send (Unbalanced)
Sleeve: COMMON GROUND

b) LINE

These standard stereo jacks carry the balanced Line Input, and are wired as follows:-

Tip: HOT (In phase signal)
Ring: COLD (Out of phase signal)
Sleeve: GROUND

c) MIC

These carry the balanced microphone inputs and are wired as follows:-

Pin 1: GROUND
Pin 2: COLD (Out of phase signal)
Pin 3: HOT (In phase signal)

d) PWR

The PWR switch provides phantom power of +48 volts for condensor microphones.

3.02 OUTPUT CONNECTION PANEL

a) GROUP OUTPUTS 1-4

These carry the signal from the Group Outputs and are Ground Compensated, they are wired as follows:-

Pin 1: GROUND
Pin 2: COLD
Pin 3: HOT

b) FX RETURNS

These standard stereo jack sockets carry the FX Returns and are electronically balanced. They are wired as follows:-

Tip: HOT (In phase signal)
Ring: COLD (Out of phase signal)
Sleeve: GROUND

c) GROUP INSERTS

These standard stereo jack sockets carry the Group insert sends and returns.

Tip: Insert return (unbalanced)
Ring: Insert send (unbalanced)
Sleeve: COMMON GROUND

d) MIX INSERTS

This standard stereo jack socket allows the Mix bus to be accessed immediately before the Master Faders, and is wired as follows:-

Tip: Insert return (Unbalanced)
Ring: Insert send (Unbalanced)
Sleeve: COMMON GROUND

e) 2-TRACK RETURNS

These standard stereo jacks carry 2-track returns and are wired as follows:-

Tip: HOT (In phase signal)
Ring: COLD (Out of phase signal)
Sleeve: GROUND

f) AUX OUTPUTS

These are standard stereo jack sockets for the Auxiliary masters and are ground compensated. (MI2426).

Tip: HOT
Ring: COLD
sleeve: GROUND

g) MIX OUTPUTS

These sockets carry the main stereo outputs and are ground compensated. They are wired as follows:-

Pin 1: GROUND
Pin 2: COLD (Out of phase signal)
Pin 3: HOT (In phase signal)

3.03 GENERAL WIRING PROCEDURE

To take full advantage of your Soundcraft Console, with its excellent signal to noise ratio 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 problems which are NOT of the console's making. When finally traced, they often 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 adherence to the "rules". Outlined below are the main points which should 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 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. A separate feed should be taken from the distribution box and no other feed used for any other mains outlets such as lighting, kettles etc.

It may be necessary to install an isolating transformer for the audio supply, so that there is positively no interference from the other mains feed. 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 Connection

Having established the "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 machines, 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.

Combinations of unbalanced, balanced and electronically balanced, (differential), systems mean that there are nine interconnection permutations. The optimum of the screen in each case is shown in Table 1.

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 |

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

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

Note 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.

N.B.

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

Ground Compensated Outputs

The main outputs of the Series 200SR 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. The consideration for wiring the screen at only one end is not of such importance with a ground compensated output. (See MI2426)

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 10-15dB.

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

3.04 FUSE RATINGS

220-240 volts AC the fuse should be 3.15 amps 20mm anti-surge.

100-120 volts AC the fuse should be 6.3 amps 20mm anti-surge.

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

4.00 P.A. APPLICATIONS

The Soundcraft Series 200SR is an ideal small console for live sound work, either;

- a) providing stage foldback for musicians
- OR
- b) as the front of house desk in a small set up.

To use the Series 200SR as a monitor console all instruments are connected to the console via microphones or D/I boxes, in the usual way. Each output would then be assigned to one or more monitor loudspeaker on the stage.

eg. Mix L and R output might feed the sidefills whilst Groups 1-4 may be used to feed the individual musicians monitors.

The Auxiliaries may also be used if more than 6 monitor sends are required.

Signals from Effects devices are routed back into the console via the FX returns sockets on the rear connector panel.

The operator's monitor is provided by the Phones output.

When used in a small P.A. system the main Mix outputs of the Series 200SR can provide the sends for the main PA. Effects Returns can be routed to the mix bus by using the FX returns.

Should the Series 200SR be required to provide both the main PA sends and foldback sends then the main mix outputs provide the front of house PA whilst the Auxiliaries may be used to provide the foldback sends, taking the signal for the foldback from the Auxiliary outputs. Using the Auxiliaries for foldback sends allows the Returns to be used for FX Returns on the main PA.

5.00 MAINTENANCE

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 48 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.

5.01 General Fault Finding

With the exception of the electronically balanced microphone amplifier, all signal electronics are configured around high slew rate, low noise integrated circuits. The microphone amplifier is a proprietary design, utilizing a discrete transistor, noise cancelling front end, differentially summed via a low noise integrated circuit.

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 the basic signal flow is necessary for best results. 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 lies within that block. By dividing a module into individual sections, what at first appears 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.

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.

Large sections of the module circuitry can be by-passed by monitoring the signal at the insert send.

If bypassing a section causes the signal to re-appear, then the fault is located in that section, which can then be traced at component level, by removing the module from the console frame, and reconnecting it via extender cables.

With the module installed on extender cables, 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 Block Schematic which shows the signal flow through the modules. When a point is reached where the signal is not present, or is distorted, the probable 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.

5.02 Removing Modules

Remove the 2 module retaining screws, which will allow the module to be carefully withdrawn from the console. The ribbon cable will now be exposed, and may be detached from the module. The module will still have some cables attached, but these are sufficiently long to allow the module to be completely withdrawn from the console. Extender cables can now be plugged into the main ribbon cable, and the module, taking care not to twist the extender cable. It is recommended that modules should NOT be plugged in or unplugged with the power switched ON.

5.03 METER ALIGNMENT

Each VU meter has its own individual drive card on the master RH PCB.

0VU is normally adjusted to indicate a line level of +4dBu ie. a level of 1.228 volts. However, it can be re-adjusted to indicate a different line level, if required, by the pre-set potentiometer on the card.

Connect a millivoltmeter to the group output. Route the oscillator to the group and adjust the group output level to read the required level on the millivoltmeter. (Normally this would be +4dBu). Adjust the VU drive pre-set to indicate 0VU on the VU meter and repeat for all other groups.

5.04 LAMP REPLACEMENT

Illumination of the VU meters is provided by 1 lamp in each meter, these are 12 volt lamps. The lamps in each pair of meters are wired in series and powered by the +17 volt audio supply. A series resistor in each meter pair provides turn on current limiting to prolong the lamp life.

To replace the lamp remove the VU meter from the panel. This is achieved by the following method:-

1. Remove the group/master module from the console.
2. Unscrew the four screws through the PCB and remove the connecting cable.
3. The meter assembly can now be removed from the module.
4. Remove the front from the meter(s) and replace the bulb.
5. To replace the assembly reverse the above procedure.

5.05 Power Supply Servicing

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

- i) +/- 17 volts, Audio
- ii) +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 supply rails. The phantom power supply can be loaded with a 2.2kOhm, 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 = +26volts
 C2 = -26volts

Phantom Supply C12 = +59volts

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.

6.00 GLOSSARY OF TERMS USED

| | |
|------------------|--|
| AFL | 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. |
| Attenuate | To reduce the electrical level or amount of gain. |
| Auxiliary Send | Extra output from the console, usually used for echo sends and foldback. |
| Bus | Wire carrying a signal or sum of a group of signals. |
| Cold | The negative going current of a signal. With 2 signal wires, one is positive going (hot), and the other is negative going.(cold) |
| Cut | To cut a channel means to turn it OFF. |
| dB (decibel) | A logarithmic ratio used to represent voltage or power gain. The reference about which the ratio is made is usually stated. |
| Ground | Earth or screen of a cable when referring to connecting leads. |
| Group Output | The output of a group bus which is carrying a sum of all the signals assigned to that group number. |
| Hot | Positive going current of a signal. With 2 signal wires, one is positive going (hot), and the other is negative going.(cold) |
| Hz | Measurement of frequency (Hertz) 1Hz = 1 cycle per second. |
| Insert | An insert point allows peripheral equipment to be introduced into the signal path. |
| Khz | Measurement of frequency expressed to the power of 1000.i.e. 1Khz = 1000 cycles per second. |
| kOhm | Measurement of electrical resistance expressed to the power of 1000.i.e. 1 kOhm = 1000 Ohms. |
| Mains | Local Electrical Supply. |
| Multitrack Logic | Either the multitrack machine's monitor switching or its safe/record switching. |

Ohm Measurement of electrical resistance.

Overdubbing The process of recording new tracks on a multitrack tape recorder whilst listening back in synchronisation with previously recorded tracks.

Pan Pot 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 when turned to the right, all the signal will be sent to the right side. If the pan pot is at its centre detent, an equal amount of signal will be fed to both sides and the image in the stereo picture will be central.

PFL 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.

Phantom Power A voltage (usually +48 Volts) across the microphone input to power capacitor microphones.

Post Post means after the fader.

Pre Pre means before the fader.

Ring The connecting part in the middle of a stereo jack, (it mates second).

Signal to Noise Ratio The ratio between the level of signal and the level of unwanted noise.

Sleeve The connecting part of a stereo jack which mates last and is always earth.

Star Point A single point to which ALL earths are separately connected.

Sync Mode Used whilst overdubbing; previously recorded tracks are played back through the record head whilst you record on other tracks.

Tip The connecting part at the end of a stereo jack, (it mates first).

Track Bouncing Taking a group of previously recorded tracks and recording them as a group onto another track. e.g. bouncing down 4 vocals from 4 tracks to just one track "frees" 3 tracks for fresh recording.

7.00 SOUNDCRAFT RECOMMENDED WARRANTY

(This warranty applies to sales within the UK and should form the basis of the warranty offered by the overseas vendor of Soundcraft products.)

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 (but not faulty design) 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 at its option 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 with 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 which they may be entitled against the seller of the Equipment.