3D Operating Notes

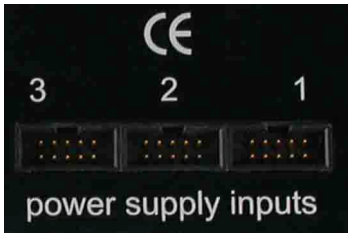
Before switching on the 3D Pre-Amplifier check the following settings on the power supply and the pre-amplifier.

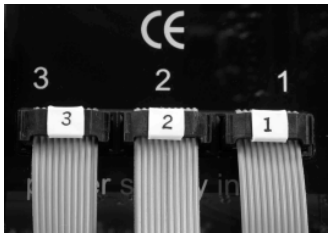
The 3D Pre-Amplifier Power Supply.
Three types of power supply have been designed for the 3D Pre-Amplifer. They are named 3D Primus, 3D Twin and 3D Six and they can also be indentified numerically as 1, 2 and 6. The power supply complexity, the connection pattern in the pre-amplifier and accuracy of setup are factors that distinguish the three pre-amp models.

Check that the Power Supply is set to the correct mains voltage. A rotary switch sets the mains voltage between 120 volts or 220 volts and this can be found on the back panel of the power supply within the group of controls located on the IEC mains input panel. The selected voltage is set by turning the rotary switch with a screwdriver. Also on this panel is the mains on-off switch and the mains fuse.

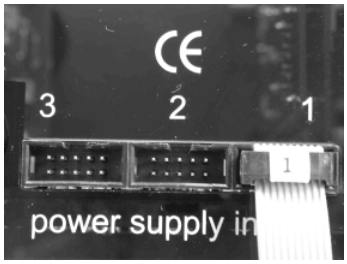
When the voltage is changed the mains fuse should also be changed to allow for the difference in current drawn by the power supply at high and low mains voltages. Fuse ratings are 1 amp medium blow at 220 volts and 2 amp medium blow at 120 volts. If the power supply is plugged into the higher voltage when set to accept the lower one the mains fuse will blow.

Before switching on the power supply plug the flat ribbon cable/cables into the pre-amplifier's rear panel ten-way power supply sockets- taking note of the following points.
The pre-amplifier sockets are numbered 1, 2 and 3 and in the case of the Six power supply and Six Pre-amplifier with the Six distribution board all three sockets are connected to three ribbon cables. In this case it is important to ensure that the plugs on the ribbon cables are number matched to the sockets on the pre-amplifier as shown below to ensure correct performance.



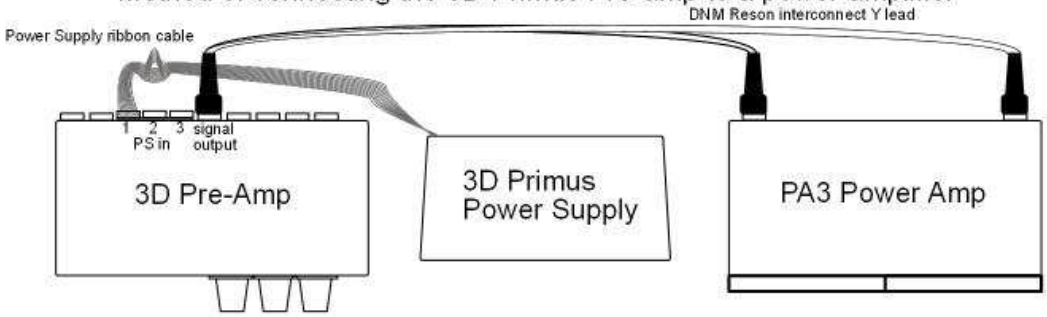


In the case of the Twin and Primus supplies there is only one ribbon cable and this is plugged into the number 1 input as shown below. If it is accidently plugged into one of the other inputs sockets 2 or 3 no harm will be done but no power will reach the pre-amplifier.

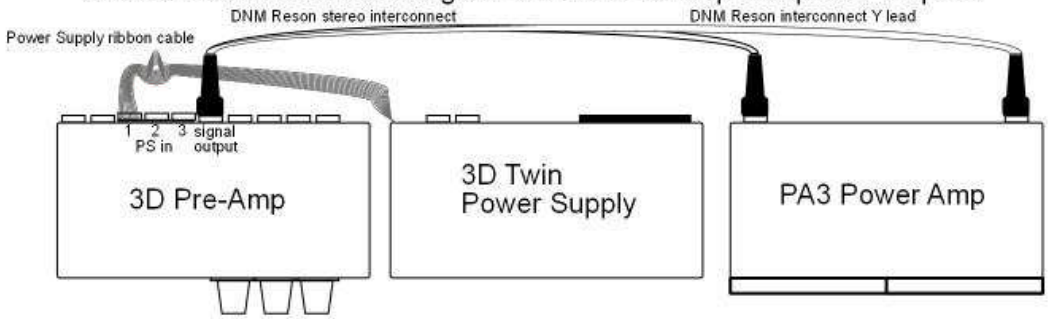


Connecting the 3D pre-amplifier to the power amplifier.
Normally the 3D Pre-Amplifier's signal output socket should be connected to the power amplifier directly as shown in the illustrations below.

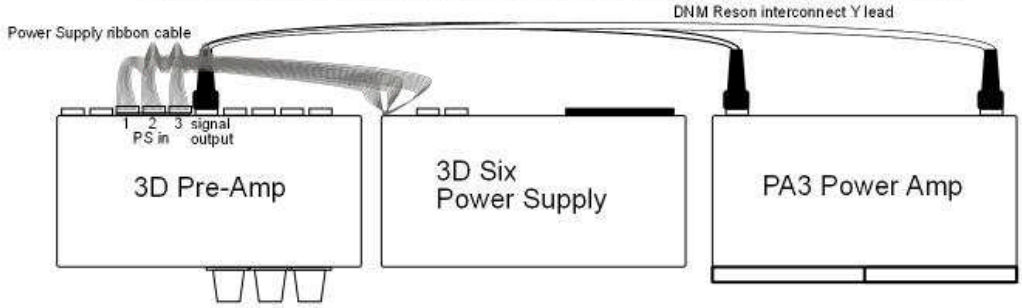
Method of connecting the 3D Primus Pre-amp to a power amplifier



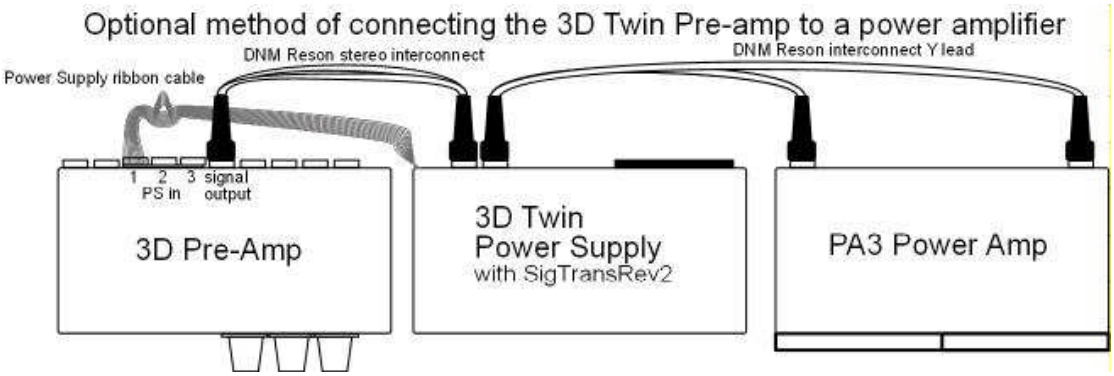
Normal method of connecting the 3D Twin Pre-amp to a power amplifier

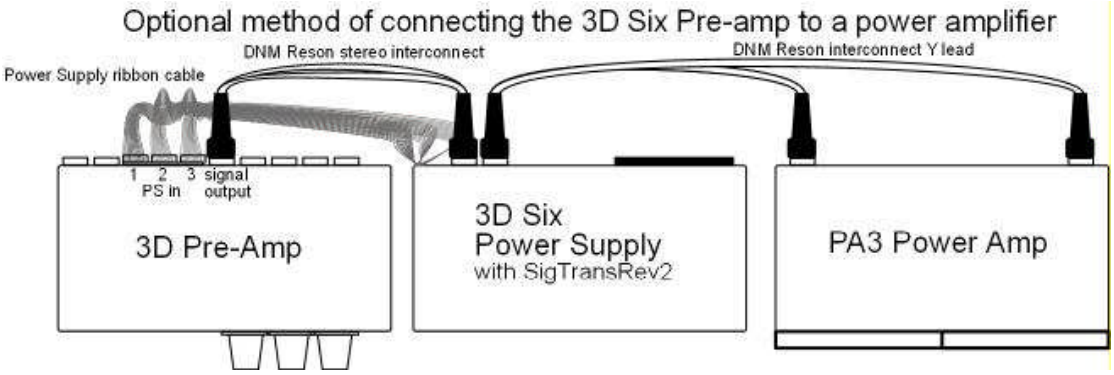


Normal method of connecting the 3D Six Pre-amp to a power amplifier



The 3D Twin or Six Pre-Amplifier output signal should normally be connected directly to the power amplifier as shown on page 2. In a system setup where it is more convenient to route the signal via the power supply extra Din sockets are provided on the power supply for this purpose. The power supply must be fitted with“Signal Transfer Board Rev2”(marked in copper on the signal transfer board underneath the power supply motherboard).
This optional way of connecting may be preferred to obtain the shortest cable arrangement or for convenience of equipment layout.





It will be necessary to use a shielded co-axial cable for the pre-amplifier to power-amplifier connection in situations where hum pickup may be likely, as in the case of a valve power amplifier with a high input impedance. This cable can be supplied by DNM Design.

3D compatibility with earlier DNM power amplifiers and with other types of power amplifier.

To use a DNM PA1 power amplifier with the 3D pre-amplifer first connect the pre-amplifer's output to the 3D power supply and then use the DNM interconnect cable originally supplied with the power amplifer to route the signal from the 3D power supply to the power amplifier.

To use the PA2 or PA2B with the 3D pre-amplifer connect the pre-amplifer output directly to the power amplifier inputs using the DNM cable originally supplied with the power amplifiers.

The 3D pre-amplifier has output capabilities that make it universal, so it can be used with most types of power amplifier including valve amplifiers. In the case of a high impedance interface it will be necessary to use shielded cables between the pre-amplifier and the power amplifier. This can be done by using two small diameter co-axial cables wired into the 3D's Din plug (connected as shown on the pre-amplifier's back panel) and at the other end connected to each phono plug in the normal way.

Use the switch settings for DNM PA1/PA3 with all non-balanced power amplifiers that have a ground referenced input. This applies to most amplifers the 3D is likely to be connected to. High quality balanced power amplifiers will usually have switchable inputs to allow for balanced or unbalanced drive. Although the 3D can simulate a balanced output it is designed to work with the DNM PA2 and the settings may not suit other balanced designs. For certainty with balanced power amplifiers it is recommended to use the unbalanced option and set the 3D to PA1/3 settings. Use of the PA2 "balanced" output settings with non-DNM power amplifers may result in hum problems.

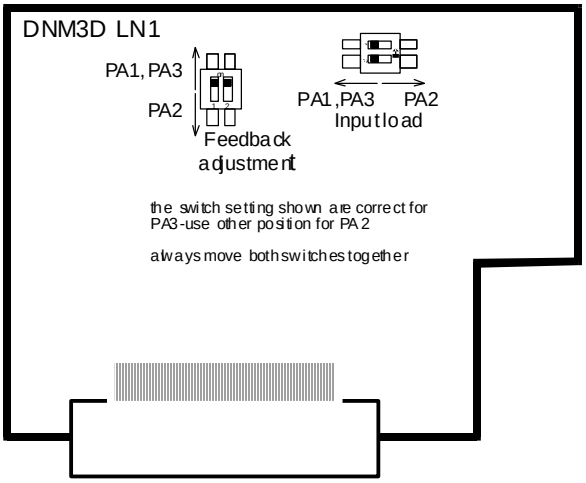
For use with the PA2 the 3D pre-amplifier will need its internal switches re-setting to match its output and muting functions to suit the PA2. The 3D switch settings for this are shown in the illustrations below and **please note that the settings made for all the pcbs should be used for the group of 4 switches exactly as described and not mixed.**

It is necessary to remove the pre-amplifier's outer sleeve to reset the switches on the printed circuits. This is easily done by undoing **a single plastic fixing screw** in the base of the sleeve and **removing the four rubber feet** by pulling them out of their holes in the sleeve. **Take precautions to prevent the pre-amplifer from accidentally sliding out of its sleeve during this operation.**

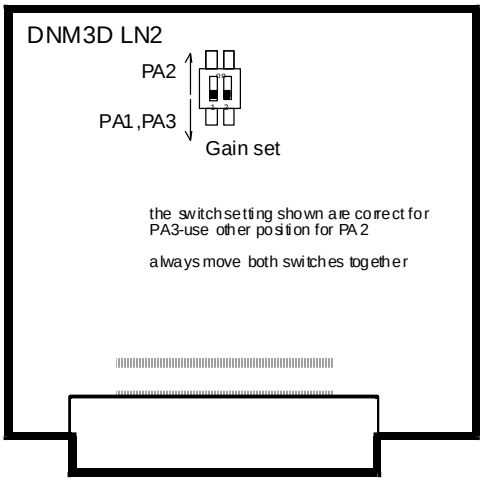
To replace the sleeve first ensure that **the sleeve fixing hole will be near the front edge of the pre-amp** when assembled and then, keeping the pre-amplifier the "right-way up" (to reduce the possibility of scratching the more visible inside top of the sleeve) carefully slide the pre-amplifier chassis back into the sleeve. Then fit the fixing screw back in and tighten only to finger tightness and then re-fit the four rubber feet-if necessary lubricate them with a small amount of lubricant (like a liquid detergent) to ease them into the fixing holes.

The switches on the line boards LN1 and LN2 are near the top so they can be easily set with the boards plugged into the chassis.

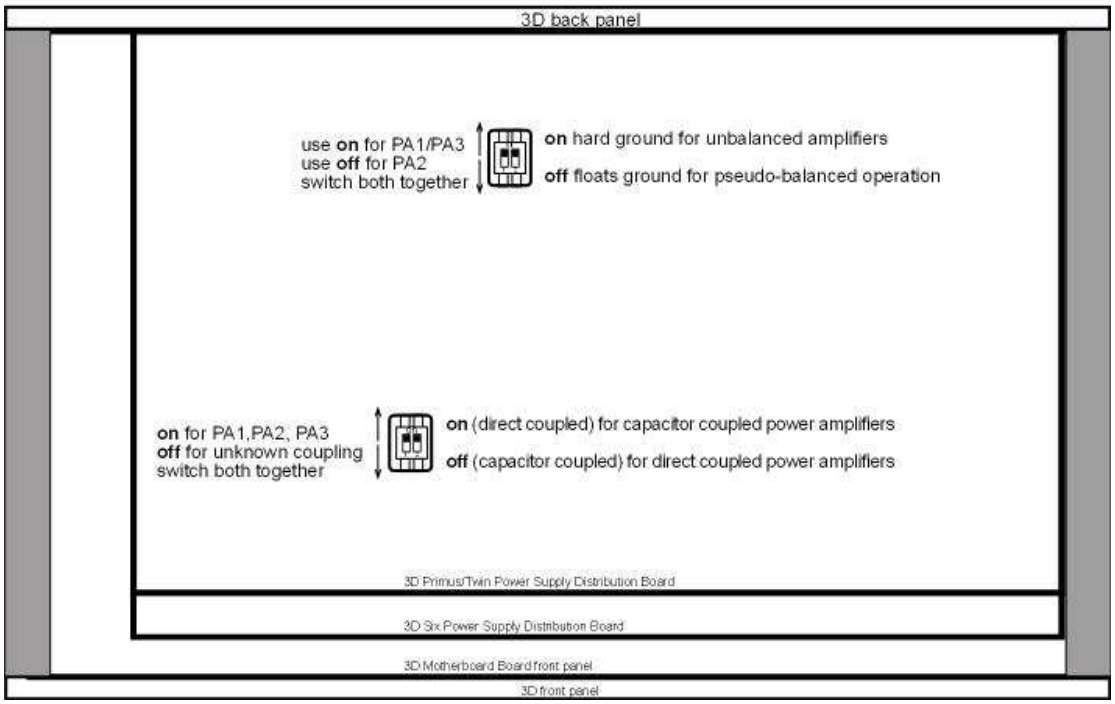
DNM3D LN1 switch settings for PA1, PA3 and unbalanced amplifiers



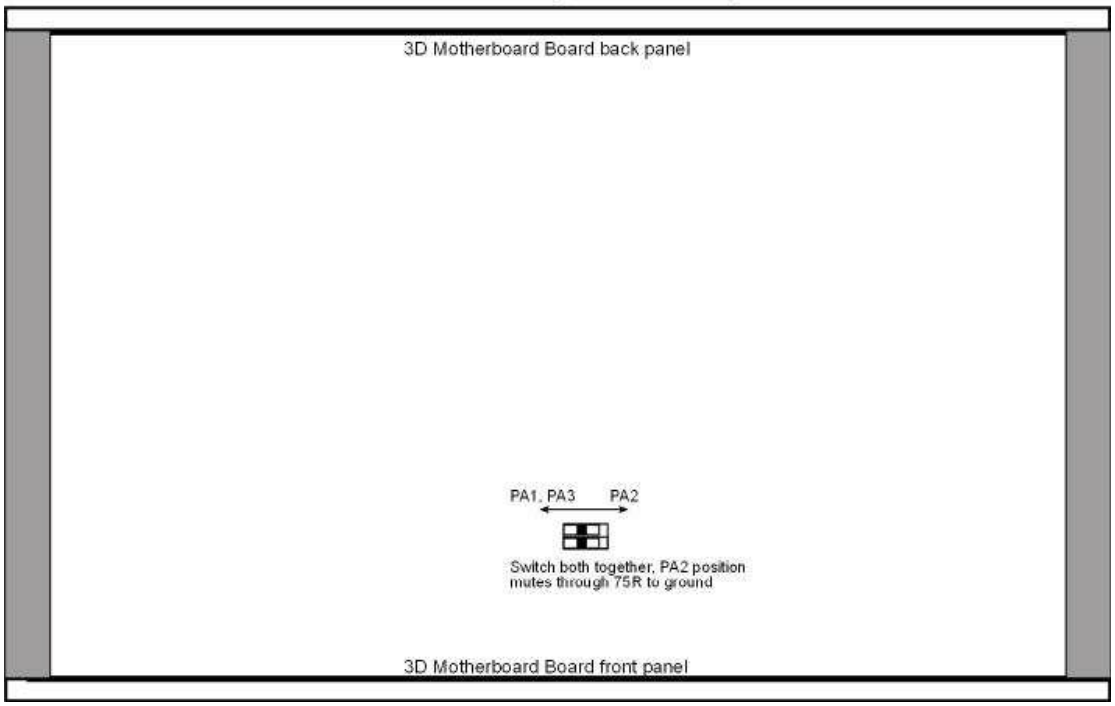
DNM3D LN2 switch setting for PA1, PA3 and unbalanced amplifiers



3D Motherboard switch settings for use with PA, PA3 unbalanced and PA2 balanced amplifiers
switches viewed from underneath motherboard



3D Motherboard switch settings viewed from top of motherboard

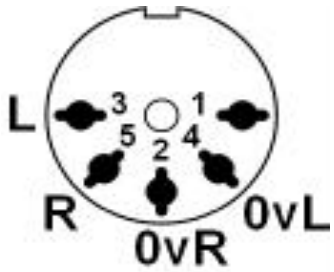


Before finishing connecting the pre-amplifier to the rest of the hi-fi system ensure that the cables that link the pre-amplifier to the signal sources are connected. If the previous pre-amplifer used was a DNM series 3 or later the existing cables will be broadly compatible with the 3D (except for points (1) and (2) following) which must be checked.

When making cables please read this note because of the non-standard Din connection pattern used by DNM.

All DNM Pre-Amplifiers with Din connectors have always used Pin 4 (conventionally used for tape record out) as a second ground allowing two separate ground lines. Consequently there are two Tape Din sockets on the DNM, one for (replay) an input and one for (record) an output.

DNM use four of the five pins in the Din socket to provide a separate signal feed and ground for each channel, for sound quality reasons.
For best performance on the DNM 3D **it is important to ensure that Pin 4 is connected as the left channel 0 volt line and Pin 2 the right channel 0 volt line.** This is clarified in the illustration of the Din socket connection pattern below, showing the Din socket as viewed from the side accepting the plug, so the plug pattern is exactly the same when viewed from the solder side.



The screen print on the rear panel of the DNM 3D Pre-Amplifier shows the same pattern but does not allocate the ground pin numbers used for the left and right channel. When making up cables with Din plugs for 3D **input and output** connections please follow the connection pattern shown above.

Cables connected to the output of all DNM Pre-Amplifiers must be low capacitance high inductance types for best results. The DNM ribbon interconnect is strongly recommended, other higher capacitance cables will degrade the audio performance.

The screen print on the rear panel of the DNM 3D Pre-Amplifier shows the same pattern but it does not allocate the ground pin numbers used for the left and right channel. **For maximum performance from the DNM 3D it is important, when making up the Din plug input and output connections, to follow the connection pattern shown above.**

Two turntables can be used with the 3D pre-amplifier if the optional RIAA disc amplifiers are fitted. Depending on the amplifiers fitted into the 3D, the disc inputs can be any combination of moving coil or moving magnet.
The two disc input Din connectors on the back panel, Disc 1 and Disc 2 use the same wiring pattern as the other inputs.
(2) On the DNM 3D pre-amplifier, for minimum hum it is particularly important to connect the ground return (negative) connections to the correct pin number on the Din sockets.

There are normally 4 wires coming from the pickup cartridge plus one extra wire from the metal of the tone arm. The 4 wires from the cartridge are divided as follows:- 2 positive wires, left and right channels and 2 ground wires, left and right channels.
The normal colour convention for a pickup cartridge is:-

white is positive left channel
blue is ground (negative) left channel
red is positive right channel
green is ground (negative) right channel

(2) For the two ground connections on the disc input of the pre-amp:
the blue left channel negative from the cartridge goes to pin 4.
the green right channel negative goes to pin 2.

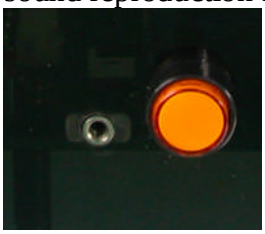
For the two positive connections on the disc input of the pre-amp:
the white left channel positive goes to pin 3.
the red right channel positive goes to pin 5.

Only pin 1 needs to be connected to the tonearm lead. This connection can optionally be made using a 2mm solid or sprung pin connector the socket for which is concealed behind each din socket. These are accessible through holes in the back panel and each position is marked 0v. They are clearly marked on the back panel as shown in the photo below.

Once everything is connected up the DNM is very simple to operate. Ensure that the mute button is out (muted) and that both volume controls are set fully anti-clockwise before selecting the source using the rotary selector switch. Push in the mute button (de-mute) and slowly turn each of the volume controls clockwise until the required listening level is reached

There are three new controls on the DNM 3D pre-amplifier.

Between the two volume controls a switch to makes the pre-amplifier send mono signal to the power amplifier in the right hand position (toggle switch) or the out position (push button switch). This control is useful to centre the image when playing gimmicky recordings made in the early days of stereo with signal routed through each channel in an erratic way. Also the mono setting allows use of only one volume control to playing through a single speaker, giving more accurate sound reproduction for recordings that were intended to be played in that way.



A new 3.5mm jack socket is fitted on the front panel of the 3D to allow headphones to be driven directly from the pre-amplifier. The headphone output is used when the main output is muted, the signal is then routed only to the headphones. The headphone output can drive moving coil headphones with input impedance ranging from 35 ohms to 300 ohms or higher. The headphones are driven directly by the 3D's discrete line amplifiers, so the sound quality available from this source is very high. Headphone signal can be stereo or mono and the channel levels can be individually set. This output gives powerful low distortion sound into wide-band headphones, so the headphone output level is intentionally set lower than the main output to reduce the risk of accidentally playing back too loud and damaging the hearing.

The third new control is the toggle switch to the left of the headphone socket that is used to select between two sets on RIAA disc boards, disc input 1 and 2- when fitted.

The new toggle switch is used when the the main rotary selector is set to “Disc”. The 3D pre-amplifier can therefore accept inputs from two turntables and the toggle switch selects between the two. The switch “up” position selects the left hand set selecting the turntable plugged into Disc 1 input socket and the down positions selects the right hand set which is the Disc 2 input socket.

Inside the pre-amplifer (viewing from the front of the pre-amp) from left-to-right there are motherboard slots for up to 2 pairs of RIAA amplifier boards, moving coil or moving magnet in any combination. From left to right-- the left set are left and right channel and they are selected in the “up” position of the front panel toggle switch. The next pair towards the right are another set of RIAA boards selected by the “down” position on the front panel toggle switch. Please note that the centre position of this switch is “off” for all the RIAA boards and no signal will get through to the main rotary selector.

DNM RIAA boards can be supplied as moving coil or moving magnet types, so the two turntables in a DNM 3D system could be any combination of types. **In the event that selecting “Disc” seems to produce no output** ensure that the toggle switch is in the correct position for the boards fitted in the pre-amplifier.