"Cable Controversy"

Exploding some audio myths.

Since Greg Weaver's first article about P.W.B. Foils a year ago, many people who have come new to our concepts, and who have tried the Foil and heard improvements to their sound have been requesting more information, more insight into our concepts because they, quite frankly, have not been able to come to terms with the improvements in the sound that they have been 'experiencing' after using our techniques. I know that words themselves are just not sufficient to enable people to understand and that they will have to do some experiments to gain a further insight into what is actually going on. I have therefore chosen one particular area which has had a lot of publicity in the audio magazines i.e. all manner of different, specially designed cables and wires which have been reported to 'improve' the sound. I have listed many of these below.

1) Solid single core copper.

2) Stranded copper

3) multi fine stranded

4) twisted,

5) plaited

6) Litz wire

7) shielded

8) Low resistance

9) High capacitance/Low inductance

10) Low capacitance

11) High inductance

12) Low inductance

13) directional

14) Oxygen free copper

15) single crystal copper

16) Rectangular copper conductors

17) Hollow, oval copper conductors.

18) Light filled

19) Water filled

20) Cryogenically frozen

21) Carbon

22) Silver

23) Silver coated copper.

24) Cryogenically frozen silver wire.

But, when you conduct the experiments I detail below, the results throw up far more questions than they answer.

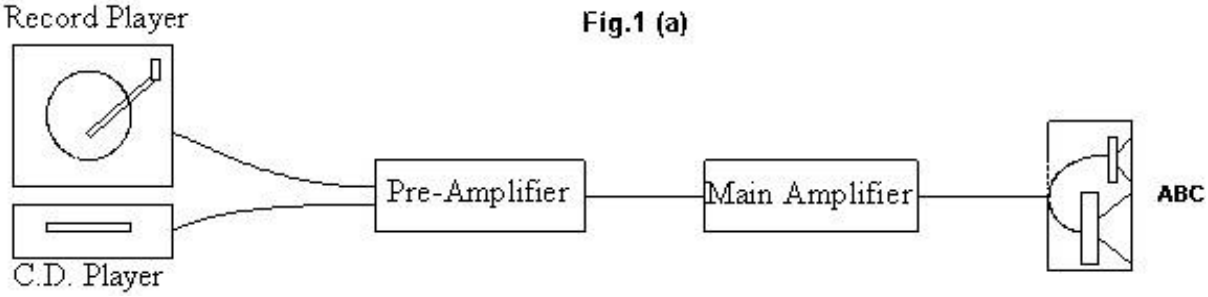
For the purpose of this exercise, we will call any one of the descriptions you chose from this list the "Special A to B interconnect cable" or the "Special A to B speaker wire".

Any one of these listed has been claimed as the reason why a particular cable or wire 'improved' the sound. Let us now look at some experiments.

Experiment One.

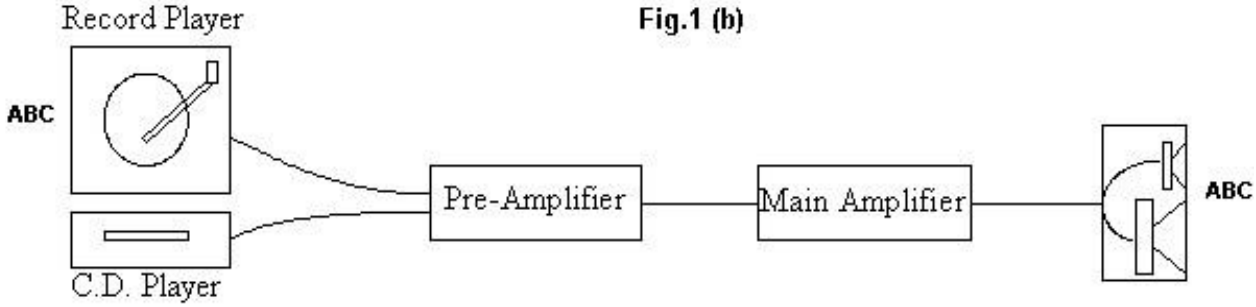
We have a standard audio system with standard copper wire throughout. We listen to a disc (from whatever source - CD or vinyl record player) and we hear information come into the room through the loudspeakers. Let us call this information ABC. (Fig.1 a.)

Fig.1 (a)



If we can hear this information ABC coming from the loudspeakers, then obviously this information must be on the disc and must have come all the way through the audio system. (Fig.1 b)

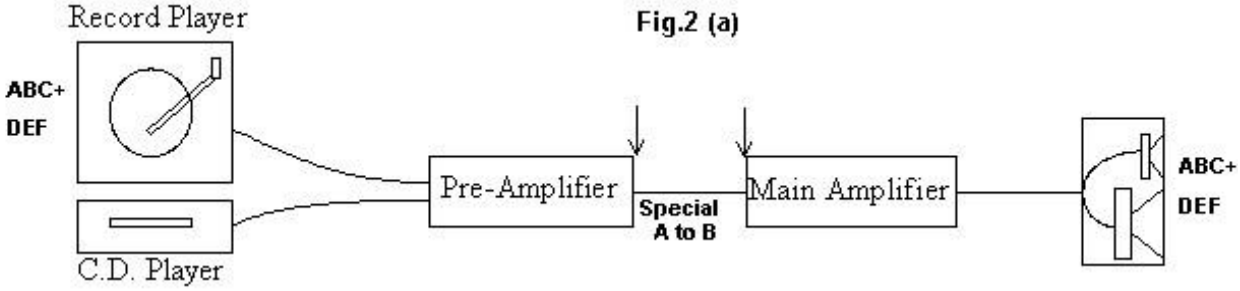
Fig.1 (b)



Experiment Two.

If we now substitute the standard copper interconnect cable between the pre amplifier and the amplifier for a Special A to B interconnect cable and listen again, and if we can now hear an improvement in the sound this means that we are hearing more information from the speakers. Let us call this new additional information, Information DEF. Now, with the Special A to B interconnect cable in place we are now getting information ABD + DEF coming through the audio system - this also means that information DEF as well as ABC must be on the disc. (Fig.2 a)

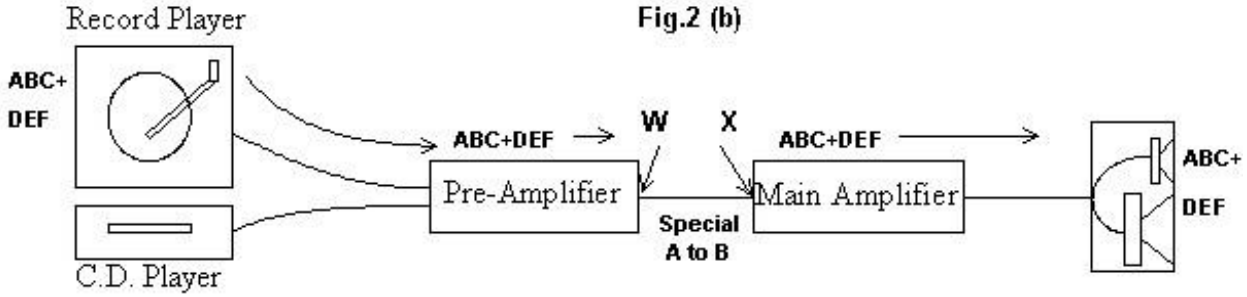
Fig.2 (a)



But, if we are now hearing this new information ABC + DEF with the Special A to B interconnect cable in place and we did not hear this information DEF before, then it has always been presumed that the standard copper interconnect between pre-amplifier and amplifier was adequate at handling information ABC but was not adequate at handling the additional information DEF.

But, for the Special A to B interconnect to be able to handle the additional information DEF, this information DEF must have reached point W and then progressed, from point X onwards, through the rest of the audio system. (Fig.2 b) This means that information ABC + DEF is being handled perfectly OK by the normal standard copper circuitry from the pick up cartridge, along the pick up arm (or through the CD player), along the record player/CD player to pre-amplifier standard copperinterconnect to point W, then from point X through the standard copper circuitry of the amplifier, along metres of normal standard copper speaker wire, along normal standard copper wire inside the speaker cabinet, through the standard copper circuitry of the crossover network through to the speaker drive units !! Which means that the rest of the standard copper wire is quite capable of handling information ABC + DEF perfectly OK. (and this includes the metres of normal standard copper speaker wire).

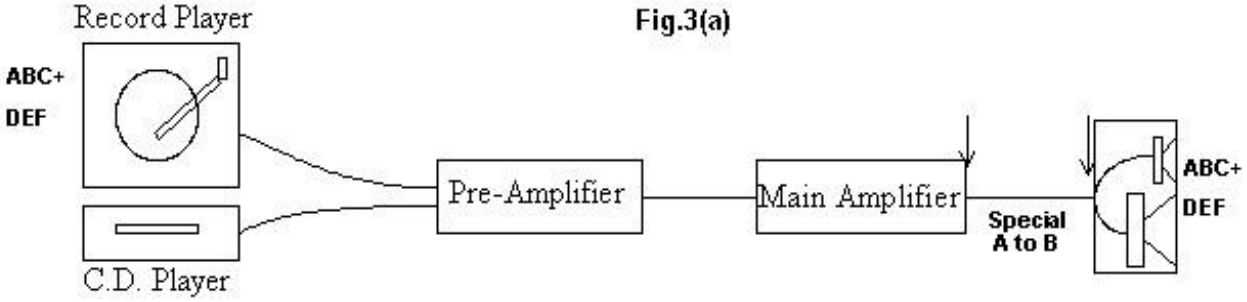
Fig.2 (b)



Experiment Three.

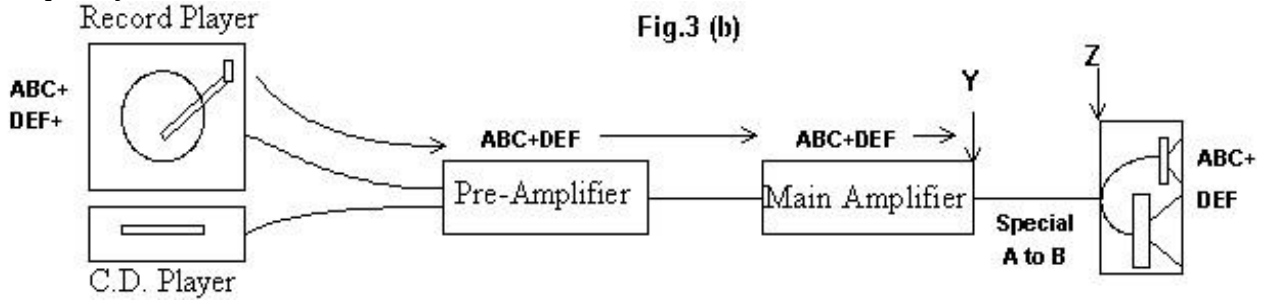
If we now change the Special A to B interconnect back to the normal standard copper interconnect between pre-amplifier and amplifier and listen again, we are back only hearing information ABC. (Fig.1 b). If we leave the normal standard copper interconnect in place between the pre-amplifier and amplifier but now change the 3 to 4 metres of normal standard copper speaker wire for a Special A to B speaker wire and listen, and again hear an improvement in the sound, this means that we are hearing more information. Let us call this additional information, Information DEF. (Fig.3 a)

Fig.3(a)



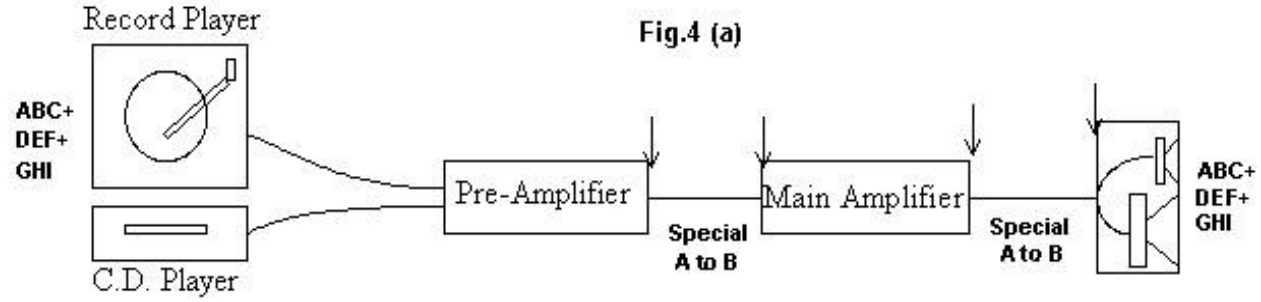
Because we had not been able to hear information DEF before (with the standard copper speaker wire in the audio system), it has always been presumed that the normal 3 to 4 metres

of standard copper speaker wire was not capable of handling the information DEF and that the Special A to B speaker wire is now capable of handling information DEF. But, the previous experiment No. 2. contradicted that myth - the normal copper speaker wire was shown to be quite capable of handling information DEF !! But, for the Special A to B speaker wire to handle information DEF, this information DEF must also have come through all the normal standard copper wire to point Y and, from point Z, must then have gone through the normal copper wire and the normal copper circuitry in the crossover network inside the loudspeaker for you to be able to hear this information coming out of the speakers. (Fig.3 b) AND, this also means that the normal standard copper interconnect between pre-amplifier and amplifier (the very interconnect which had been presumed to be incapable of handling information DEF) IS, IN FACT, now shown to be handling information DEF perfectly adequately.



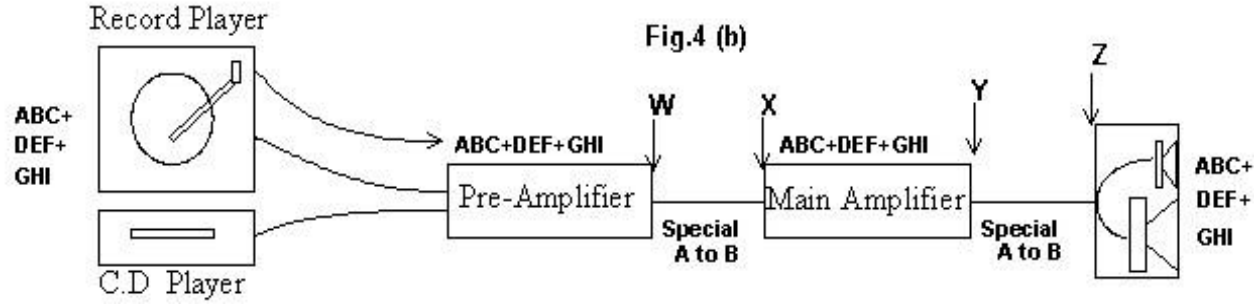
Experiment Four.

If we now carry on with the experiments by leaving the Special A to B speaker wire in place and change the standard copper interconnect between pre-amplifier and amplifier again for a Special A to B interconnect and listen, and if we are now be able to hear a further improvement in the sound - which means that we are now hearing yet more information. This time we will call this additional information, Information GHI. (Fig.4 a).



However, this means that information GHI must also be on the disc and, for us to hear this information coming out of the speakers, it must have travelled through the normal standard copper wire of the cartridge, the pickup arm/or CD player, through the standard copper interconnect between record player or CD player to pre-amplifier, through the standard copper wiring and circuitry of the pre-amplifier to point W and from point X through the standard copper wiring and circuitry of the amplifier. through the Special A to B speaker wire, through the standard copper wiring and crossover network inside the speaker and out into the room. (Fig.4b). Quite importantly, it means that information ABC+DEF+GHI has been handled quite adequately by the standard record player/CD player to pre-amplifier interconnect. You can change this experiment around and leave the standard pre-amplifier to

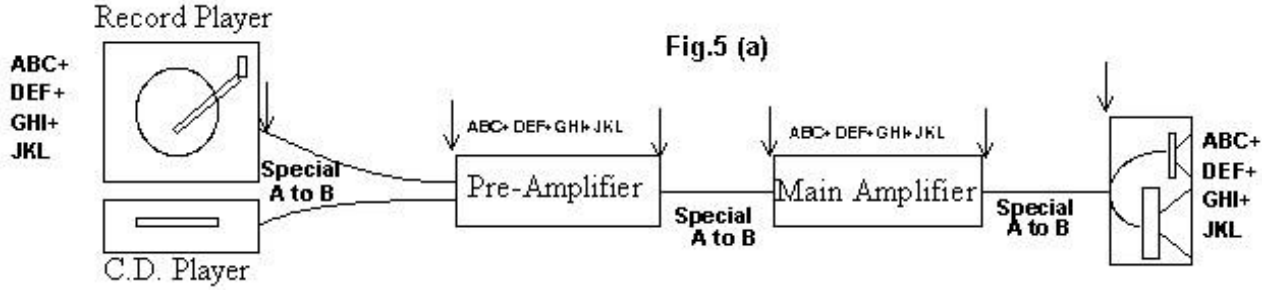
amplifier interconnect in place and change the standard interconnect connecting the record player/CD player to pre-amplifier for a Special A to B interconnect and 'hear' information ABC+DEF+GHI. This shows that the standard pre-amplifier to amplifier interconnect is quite capable of handling information ABC+DEF+GHI.



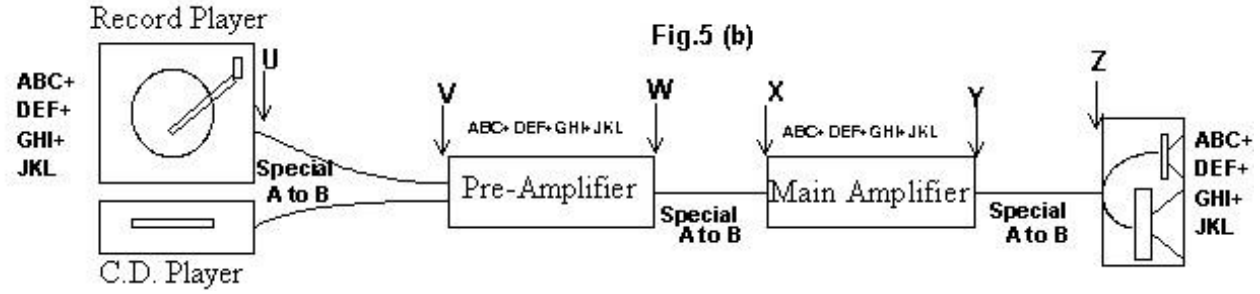
If we continue with the experiments.

Experiment Five.

If we leave the Special A to B interconnect connecting the pre-amplifier to the amplifier and we leave the Special A to B speaker wire in the system and we now change the standard copper interconnect connecting the record player/CD player to the pre-amplifier for another Special A to B interconnect and listen again, if we now have an even further improvement in the sound, this means that we are now hearing even further information. We will call this even further information, Information JKL. (Fig.5 a.)



This now means that the normal standard copper wiring of the cartridge, pickup arm or CD player is handling information ABC + DEF + GHI + JKL up to point U and from point V through the normal standard copper circuitry of the pre-amplifier, along the Special A to B interconnect, through the normal standard copper circuitry of the amplifier, along the Special A to B speaker wire, along the copper wire and through the standard copper circuitry of the crossover network inside the loudspeaker cabinet and into the room (Fig.5 b).



To condense all this down. What had been presumed as incapable of 'handling' information ABC + DEF + GHI + JKL (i.e. normal standard copper wire and standard circuitry) is now shown to be quite capable of handling all this additional information !!

To enlarge on this 'information aspect' further let me put some body to it.

Let us imagine that when we play a disc on a standard audio system, we get enough information (ABC) to tell us that we are listening to an orchestra playing a Beethoven Symphony. Now, by replacing the standard interconnect for a Special A to B interconnect in between the pre-amplifier and the amplifier we now 'hear' the additional information of the 'ambience of the hall' which the orchestra is playing in (which we had not heard before) i.e. information DEF. If we can hear this information coming out of the loudspeakers into the room, this means that this additional information DEF must be on the disc and must have come through the whole audio system. If we substitute a further Special A to B interconnect for the normal standard copper interconnect connecting the record player/CD player to the pre-amplifier and we hear the further information of the 'body' of the solo cello (which we had not heard before) i.e. information GHI. Again, if we can hear this information GHI, then this information GHI must be on the disc. If we now substitute the normal standard copper speaker wire for a Special A to B speaker wire and hear yet more information - the sustain of the cello strings (which we had not heard before) i.e. Information JKL.Again, this information JKL must be on the disc. And, again, the information ABC + DEF + GHI + JKL has been shown to be handled perfectly adequately by the standard cartridge, standard pick up arm, standard record player/CD player, standard copper wiring and circuitry inside the pre-amplifier, standard copper wiring and circuitry inside the amplifier, standard copper wiring and crossover network circuitry inside the loudspeakers.

If people think that this is too simplistic a description of what actually happens and they believe that different cables have been especially designed to 'deal with' specific problems, then I will describe the experiments differently. I will take as the basis an engineer designing a cable specifically to 'deal with' the high frequencies, another engineer designing a cable specifically to 'deal with' the mid frequencies and yet another engineer designing a cable specifically to 'deal with' bass frequencies. Let us imagine a Special A to B interconnect for connecting between the record player/CD player and pre-amplifier which has been designed to 'deal with' the high frequencies and we will call the high frequencies information DEF.

Experiment Six.

As described previously, we start with the standard audio system with standard copper cables and wires and listen. The information we hear is information ABC. (Fig.1b)

We change the standard copper interconnect connecting the record player/CD player and pre-amplifier for the Special A to B interconnect and listen. We now hear better high frequencies than we had heard previously (Information DEF). But, if you can hear information DEF coming out of the loudspeakers, then that means that information DEF must be on the disc, must have come through the normal standard copper wire of the pick up cartridge, pick up arm or CD player to point U, along the Special A to B interconnect to point V, must have travelled through the standard copper wire and copper circuitry of the pre-amplifier, along the standard copper interconnect between pre-amplifier and amplifier, through the standard

copper wire and copper circuitry of the amplifier, along the standard copper speaker wire and along the standard copper wire and standard crossover network circuitry inside the loudspeakers. (Fig.6.)

Experiment Six shows that all the rest of the standard copper wiring and copper circuitry is also quite capable of 'dealing with' the information of the higher frequencies (Information DEF).

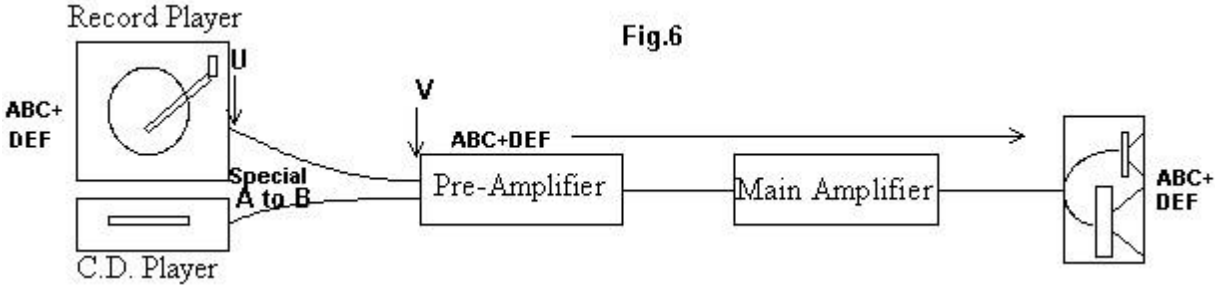


Fig.6

Experiment Seven.

If we leave the Special A to B interconnect connecting the record player/CD player to the pre-amplifier and now replace the standard copper interconnect connecting the pre-amplifier to amplifier (which in Experiment Six had been shown to be handling information DEF quite adequately)with a Special A to B interconnect designed to 'deal with' the mid frequencies and listen, we now hear additional information (Information GHI). But, if you can hear information GHI coming out of the loudspeakers, then this means that all the rest of the cables, wiring and equipment is handling information GHI quite adequately AND it also shows that the Special A to B interconnect between record player/CD player can handle the information GHI quite adequately. In fact, if you changed the Special A to B interconnect between the record player/CD player back to the standard copper interconnect, the standard copper interconnect would also still be seen to be handling information GHI quite adequately !!! (Fig.7.)

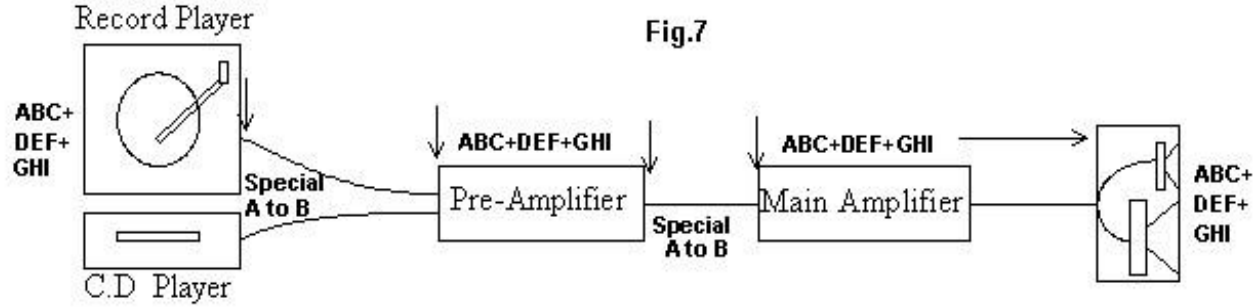


Fig.7

Experiment Eight.

If we leave both of the Special A to B interconnects in place and change the standard copper speaker wire (which in experiments Six and Seven had been shown to be handling information DEF and GHI quite adequately) for a Special A to B speaker wire designed to 'deal with' the low frequencies and listen, we now hear additional information (Information JKL). But, if you can hear information JKL coming out of the loudspeakers, then this means

that all the rest of the standard copper wiring and standard circuitry in the equipment is handling information JKL quite adequately. (Fig.8.)

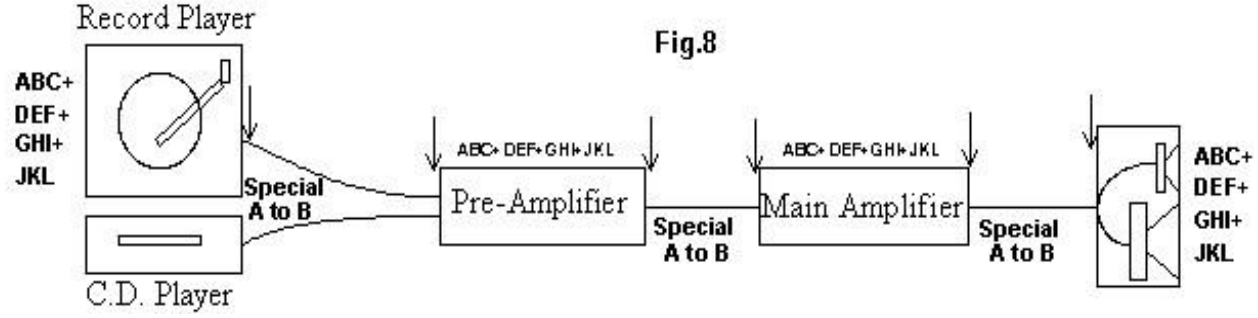


Fig.8

All the experiments Six, Seven and Eight are showing that the standard pick up cartridge, the standard pick up arm, the standard record player/CD player, the standard copper wiring and standard copper circuitry in the pre-amplifier, the standard copper wiring and standard copper circuitry in the amplifier, the standard copper wiring and standard copper circuitry of the crossover network inside the loudspeaker cabinets are ALL CAPABLE OF HANDLING, QUITE WELL, INFORMATION ABD+ DEF+ GHI+ JKL.

But, the results of the experiments Six, Seven and Eight contradict the belief structure of much of the High End audio industry, because the prevailing belief structure of the High End audio industry is that normal, standard copper wiring and normal standard copper circuitry is just not capable of handling all this wealth of information.

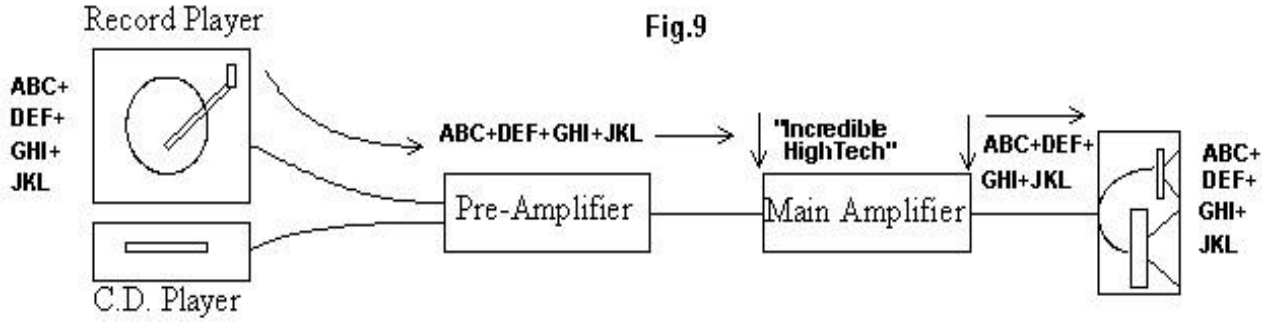
I have read a few articles regarding changing the normal standard AC power cord for such items of equipment as amplifiers and that improvements in the sound have been perceived by doing so. But, exactly the same reasoning that I have used earlier applies here also. If changing the AC power cord to an amplifier results in more information being heard from the loudspeakers, then this means that the normal standard record player/CD player with it's normal standard AC power cord and the normal standard pre-amplifier with it's normal standard AC power cord have also been able to 'deal with' this additional information perfectly adequately.

I would like to look now at another aspect of the audio industry - the audio magazines and audio equipment reviewers.

Let us imagine the reviewer has been asked by an audio magazine to review the £10,000 "Incredible HighTech" amplifier. The designer of the "Incredible HighTech" amplifier claims that the price of the amplifier is high because he (the designer) is using special, very expensive silver wire wound transformers and he also claims that if you want to hear a wealth of information, then the only way to hear it is to use the "Incredible HighTech" amplifier. The reviewer listens to this "Incredible HighTech" amplifier in place of his normal standard amplifier in his standard audio system.

He reports hearing a considerable amount of new information, information that he has not heard before through his standard audio system.

Let us call this information he can now hear Information ABC + DEF + GHI + JKL. (Fig.9)



The usual belief structure of the High End audio industry is that this result shows that the reviewer's normal standard amplifier was not capable of 'handling' information DEF + GHI + JKL.

But, for the reviewer to hear information ABC + DEF + GHI + JKL, this information MUST HAVE COME THROUGH THE REST OF HIS STANDARD AUDIO EQUIPMENT and this also means that this information must have come through his normal, STANDARD pre-amplifier to reach the "Incredible HighTech" amplifier.

But, the reviewer is not shocked !! he is not knocked back on his heels !! He does not say "Wait one moment, if I can hear this additional information, then the rest of my equipment has now been shown to be quite capable of handling this additional information - which, for the past few years, I had firmly believed was not capable of. I had firmly believed that my normal standard pre-amplifier was not capable of doing so".

Let us progress further.

If the reviewer changes back to his normal standard amplifier he is no longer able to hear the additional information of DEF + GHI + JKL but, next, he listens to the £16,000 "Super Smooth" pre-amplifier in place of his normal standard pre-amplifier. The reason the designer of the "Super Smooth" pre-amplifier gives for the high price and better sound of his pre-amplifier is that he has had made and uses some very special capacitors throughout his pre-amplifier. With the "Super Smooth" pre-amplifier in his system, the reviewer now hears the additional information DEF + GHI + JKL again (Fig. 10) But, if he can now hear information DEF + GHI + JKL coming out of his loudspeakers, then this means that his normal STANDARD AMPLIFIER is now being shown to be quite capable of being able to handle information DEF + GHI + JKL, which, from the previous experiment with the "Incredible HighTech" amplifier, he had believed was not capable of doing so. In fact, these last two experiments show that all the standard copper wire, standard copper interconnects, standard copper circuitry in the standard equipment, standard copper loudspeaker wire, standard copper wire and copper crossover network circuitry inside the loudspeaker cabinets ARE ALL QUITE CAPABLE of handling information ABC + DEF + GHI + JKL - which

contradicts the belief structure of much of the audio industry !!!

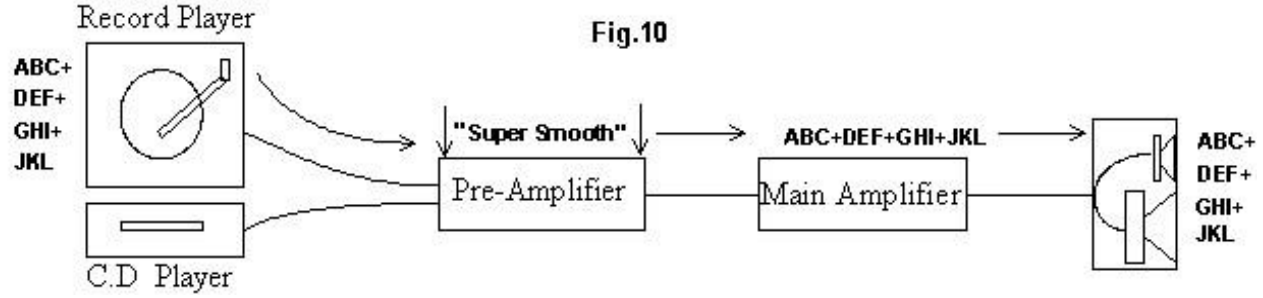


Fig.10

If the reviewer is not shocked, is not 'knocked back on his heels' at the results of these experiments, why not ? If he IS shocked but chooses not to say anything in his review, why not ?

Let us have a look at the role of the audio magazines. The audio magazines depend on the advertising revenue from the manufacturers wanting to sell new equipment for the magazine's survival. The audio magazines depend on the advertising revenue from audio retailers wanting to sell new equipment. It now becomes obvious, surely, that the audio magazines do not want reviewers stating that they have suddenly realised that their normal standard equipment and normal standard cabling and wiring, after believing otherwise for many years, is quite capable of handling a considerable wealth of information, thereby challenging the belief structure of the High End audio industry !!!

Much of the belief structure of the Hi-Fi Industry is that of a "the weak link in the chain" and this "weak link" is variously, at different times, believed to be the wiring or cabling, or different items of equipment, or the actual recording. If the belief is that it is a particular (standard) wire or cable which is the "weak link" then the experiments with the "Incredible HighTech" amplifier and the "Super Smooth" pre-amplifier show that standard wires and cables CAN handle a wealth of information. If the belief is that it is a particular standard item of equipment which is the "weak link", then the experiments with the interconnects show that standard items of equipment CAN handle a wealth of information.

Let us have a look more closely at this belief structure.

On cabling and wiring.

The belief structure of quite a large majority of the audio industry is as quoted in one issue of Hi-Fi News in 1984.

"How could a few metres of properly specified cable make a ha'p'orth of difference to an audio system which relies on program which has already passed through a number of lengthy cable runs and interconnections before mastering ?"

Much of this attitude was personified by a talk given to the Audio Engineering Society in 1985 by Peter Baxandall - when he said that there were a number of things which he was 'simply not inclined to believe in', and, things that he regarded as 'an awful bore and a waste of time', - which he listed.

To quote from the Hi-Fi News May 1985 issue.

1, Peter Baxandall believed that any well-designed amplifier... (when not allowed to overload in any manner and when the comparison is made on a fair basis), it will sound exactly the same as any other well-designed high quality amplifier. He did not believe that by paying, say, £2,000 for a super luxurious craftsman-built amplifier, you will obtain that little bit extra refinement of sound that you could reasonably expect to obtain for, say, £300.

3. He did not believe that the type or quality of dielectric used in LF coupling capacitors is of any significance whatsoever.

4. He did not believe that the use of expensive, special loudspeaker cable - with or without lead tubes, no matter which way round they are connected - confers any sonic benefit whatever.

5. He believed that all this recent business about single-crystal, high purity, oxygen-free, connecting cable is just a load of absolute hogwash."

Peter Baxandall's view is, I know, shared by quite a number of people in the audio industry and because of this rigid, blinkered approach, they refuse to investigate any further reports of many unusual things 'changing' the sound.

But, because these people are so blinkered by what they believe, they therefore refuse to take any notice of the people who say, quite honestly, that they can 'hear' changes in the sound by substituting certain cables, wires, components and items of equipment - and that in so many cases, the change to the sound is perceived as an improvement. Robert Harley brought this blinkered approach very much into focus in an article he wrote for the audio magazine Stereophile in October 1990. This article "The Cryogenic Compact Disc" is, in my opinion, one of the most significant articles in the history of audio.

Amongst other comments, Robert Harley says ".....if *any* tweak has even the *slightest* audible effect, conventional digital audio theory is turned upside down. More important, however, the widespread acceptance and belief in CD tweaks may make skeptical engineers *listen* for themselves, perhaps sparking an investigation into why they work....."

Also contained within this article by Robert Harley is another very important sentence -

"In addition to CDs and LPs, the (freezing) process has been used on Laser-format video discs, speaker cable, interconnects, integrated circuits, and musical instrument strings"

Within the experiments I described earlier, you can substitute the changing of the standard copper interconnects for the Special A to B interconnects and use, instead of the Special A to B interconnects, standard copper interconnects which have been through the 'freezing' process. You can, in very many cases, gain more improvements in the sound using a standard interconnect which has been through the freezing process than you can by using a 'non frozen' Special A to B interconnect. Incidentally, you do not need to use the extremely low temperatures of cryogenic freezing - you can use a normal domestic deep freezer providing you follow certain procedures (but this whole 'freezing' saga is another long story). See our web site www.pwbelectronics.co.uk

From our (P.W.B.) vast experience and considerable experiments, we believe that the people who claim that they can hear changes in the sound and that in many cases these changes are improvements are correct., but we believe that their explanations as to why this happens have not been thought out fully.

What the experiments I have described show is what actually happens - that a wealth of information (a considerable amount more information than has hitherto been realised) IS on the disc, CAN AND DOES travel quite adequately through standard cabling, components, equipment and into the room AND HAS BEEN PRESENT IN THE ROOM ALL THE TIME - but our (P.W.B.) concept is that we (human beings) are not able to perceive it all - because of ----------.

Now the P.W.B. Concept.

We believe that throughout millions of years of evolution, all the creatures from the very earliest of creatures had to be able to read (sense) energy patterns in the environment, to be able to make sense of these energy patterns in order to know what action to take, in order to survive.

That we have evolved from these early creatures and still retain the ability (and, in fact the necessity) to read (sense) these environmental energy patterns.

That, because of the modern environment (electricity has only been with us just over 100 years and plastics etc (different mixes of chemicals) since the 1930's) we have never evolved the ability to 'deal with' these (new, strange) energy patterns.

But, nevertheless, subconsciously, we are still attempting to resolve these energy patterns and anything we cannot resolve causes us to remain under tension. Or, we are actually interpreting these (new, strange) energy patterns to mean, 'danger', 'predator', 'intruder' and we therefore remain under tension because we can never resolve them.

That because of everything in the modern environment (and this includes the very audio equipment and wiring) and because of the resulting tension we (human beings) are under, we cannot perceive correctly all the information which IS IN THE ROOM and which has been in the room all the time we are attempting to listen. This is why the more you treat items of equipment, wiring and cabling and objects in the environment to give a 'friendly' 'relaxing' energy pattern the more the quality of the sound improves, the more the quality of the TV picture improves and why live music sounds so much better.

Now, for example, say we (human beings) are interpreting the (environmental) energy pattern from copper (as a metal) in a certain way (i.e. danger) and we change the copper wire to the metal silver and we 'hear' an improvement in the perception of the sound, we (at P.W.B.) believe that this is because we (human beings) must be reacting less adversely to the energy pattern created by the metal silver, therefore being under less tension, therefore being able to perceive more of the information which is already in the room. In other words, the 'better' sound has nothing to do with the actual signal being handled more effectively by the silver wire. The 'better' sound has been there, in the room, all the time - WE (human beings) have just not been able to perceive it.

Ditto, different cable structures, different cable configurations, different directionality in cables, different capacitance, different resistance, different metals used as conductors, different components, different circuits, different chemical mixes, different this, different that. If manufacturers do not realise that this is what is happening, then they will continue to go down the expensive path of "more exotic materials"., "more complicated circuitry"., "more sophisticated measuring instruments in an attempt to prove that it is the signal being 'handled better'."

What is happening is that if we hear the 'sound' improve, it means that we (human beings) are reacting less adversely to whatever is the latest change we have just made. The reason why such as the freezing technique 'improves' the sound is because freezing an object changes the energy pattern of that object and we (human beings) react less adversely to the 'changed' energy pattern.

Once you realise that this is what is most likely to be happening and you understand what techniques and treatments to use, then what you can do is to 'treat' the cables, wires, components, equipment and listening environment to give them different 'energy patterns' which we (human beings) are able to interpret as 'friendly'., 'acceptable'., 'reassuring' and 'relaxing'. Once you do this, the human being can relax, be under less tension and hear (perceive) more of the information which is already in the room !!

When you have done the experiments I have described and realised, bit by bit, that each part of a standard audio system is quite capable of 'dealing with' a considerable amount more of the information from the source than has been believed, many of the reports of seemingly weird things 'changing' the sound begin to seem not so 'weird'. But, what has happened is that so many people, over the past decades, have struggled to explain these various happenings by bending, squeezing and stretching conventional electronic and acoustic theories and end up tying themselves in knots in the process. Yet far more people in the audio industry just say "It cannot happen, therefore it does not happen - end of discussion".

If some engineers believe that the answer to the problems of wires and cables is to use (say) oxygen free copper, then these engineers will go down that research path to the exclusion of all other considerations. These engineers will believe that the oxygen free copper is handling the signal better and therefore will go on to use this method as a conductor everywhere - not realising that such a mundane thing as changing the chemical mixture of the insulation material or even changing the colour of the insulation material will change the 'sound' of that cable or wire - even though it is still using 'oxygen free' copper!!!

If some engineers believe that static is a problem, then these engineers will go along the path of searching for the best anti static solution or the best anti static chemical to the exclusion of all other considerations. 20 years ago, we used a particular liquid which had been manufactured for dealing with the static on vinyl records but, after using it, we realised that the sound had got worse!! Yes, it had dealt with the static problem on the vinyl records but had made the sound a considerable amount worse - so what was the point of using it to deal with one problem only to create another even worse one ?

The clues of what is actually happening in the area of what produces good sound have been around for quite a long time but because of the different mind sets of the different sections of the audio industry, they have gone unnoticed and unrecognised.

Finally, to illustrate our (P.W.B.) concepts.

We at P.W.B. believe

* That everything in the modern environment - including the very Hi-Fi equipment - creates conditions which we (human beings) react adversely to.

* That this reaction results in us going under tension because we cannot resolve these (strange) energy patterns correctly.

* This 'going under tension' means that we (human beings) cannot perceive correctly all the information which is available in the room.

* That a considerable wealth of information IS 'handled' perfectly adequately by normal, standard Hi-Fi equipment and this information has therefore passed through the equipment and into the room.

* But, we (human beings) cannot perceive all this information correctly and that is why, in my illustration below, I have put the additional information, coming from the loudspeakers into the room, in brackets, because that is where the information is - already in the room !! (Fig 11)

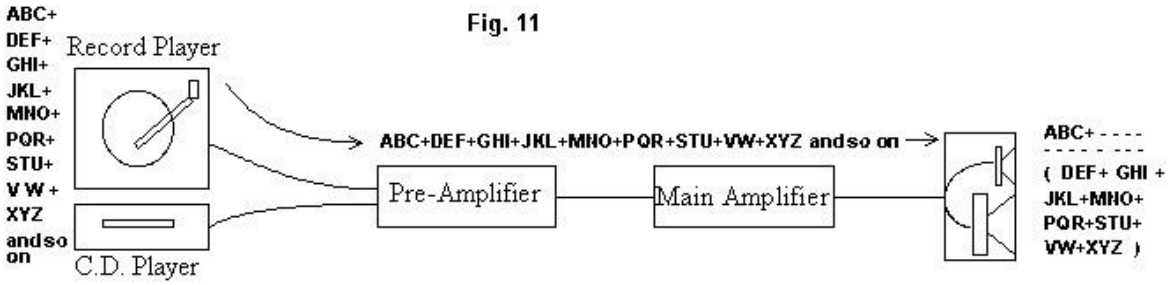


Fig. 11

But, if you begin to specially treat objects in the environment (which also includes the Hi-Fi equipment) and you superimpose onto these objects a 'friendly', 'relaxing' energy pattern - one which allows us to begin to relax, to be under less tension, then you can perceive more of the information which is in the room !!

The more experiments you are prepared to do, the more you will realise that we (human beings) react differently to different materials, to different colours, to different component layouts, to different shapes, to different angles, and especially to different chemicals and chemical mixes - such as bextrene., P.V.C., polythene., polyethylene., polystyrene., polyurethane., polypropylene., polyalkene., P.T.F.E., Teflon., acrylic., nylon., perspex., BAF., adhesives., paints., lacquers and so on - the list is endless.

As one example.

Many people have used PTFE as an insulation material for cables etc and claim that this improves the sound. The engineers believe that the sound is better because PTFE must be acting as a 'better' dielectric. The reason why PTFE 'sounds' better has probably nothing whatsoever to do with it's dielectric properties but it is because we (human beings) react less

adversely to the chemical mix of PTFE than we do to, say, the chemical mix of PVC ! When you realise this, then so many things which happen in audio begin to make more sense.

But, changing the energy patterns which we react adversely to can be achieved relatively easily. To exaggerate here slightly. It does not require (say) the demolishing of half a mountain to obtain a few kilograms of a rare exotic material, you just need to know what techniques to use to create a 'friendly', 'relaxing', energy pattern.

To prove what I have just said previously, you can carry out the following experiment.

Listen to a cable or wire made from copper with a PTFE insulation. Then listen to an identical copper cable or wire but this time with an insulation of PVC. The sound will be perceived as better when using the cable or wire with the PTFE insulation. The presumption here would normally be that the sound is better because the PTFE insulation is a better dielectric. But, now using the cable or wire with PVC insulation, if you apply P.W.B. Cream-Electret to the PVC insulation, the perceived sound from this 'Creamed' cable will be even better than when using the (untreated) cable or wire with PTFE insulation !! What you have done by using the Cream-Electret is to superimpose, onto the PVC insulation, a 'friendly', 'relaxing', 'acceptable' energy pattern, allowing us (human beings) to be under less tension, to be able to perceive more of the information which is in the room.