

Don't buy a new amplifier . . .

Build this CD Adaptor

Inexpensive and easy to build, this CD Adaptor will match your fancy new compact disc player to your stereo amplifier. All you need is a switch, a few resistors and four RCA sockets.

by COLIN DAWSON

Compact disc players have become enormously popular, with many people buying them for their convenience as much as for their sound quality. But beware! Your fancy new CD player might not be compatible with your amplifier.

While it is true that many amplifiers do not have the performance to take full advantage of a CD player's potential, this is not the main factor affecting compatibility. The problem is that the signal level from the CD player may exceed the maximum level permitted for the amplifier input.

Let's take a closer look at this. Prior to the advent of CD players, the auxiliary inputs on most amplifiers were rated at about 500mV sensitivity. This means that a signal of 500mV RMS must be fed in for the amplifier to deliver its rated output.

And that's where the problem comes in. Compact disc player manufacturers seem to have standardized on a 2V output level and this can overload the auxiliary inputs of some amplifiers. This particularly applies to low-cost amplifier systems where the volume control follows the tone control circuitry. The result is unpleasant distortion regardless of the volume control setting.

Where the volume control comes straight after the auxiliary input, the fact that the CD player signal is so high still causes a problem because the vol-

ume control has to be at such a low setting for normal listening levels. At such low settings the volume control will probably have very poor channel balance, as well as being quite "savage" in action. Fortunately, there is a simple cure.

The circuit

Basically, all that is needed is a resistive attenuator between the CD player and the amplifier. In this instance, we've taken the concept a little further

by devising a switchable attenuator. The circuit is shown in Fig.1.

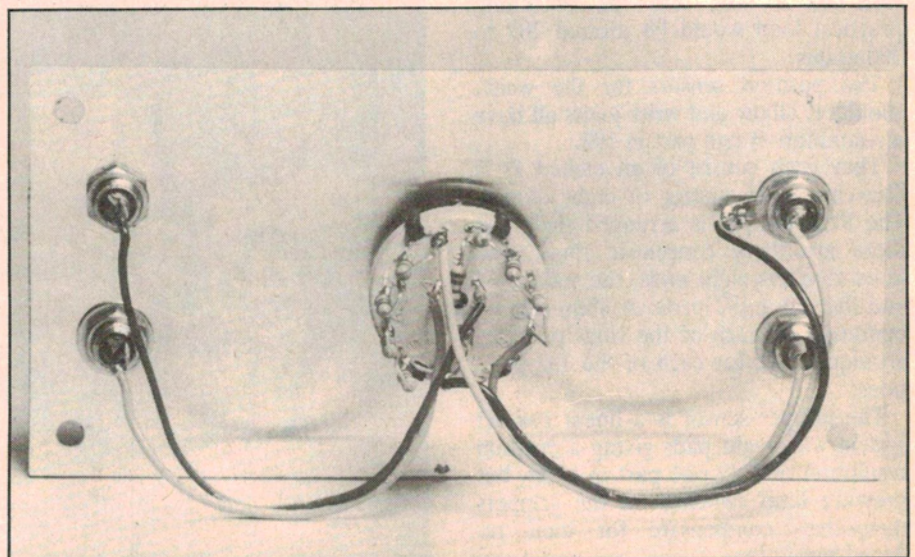
As shown, the output of our CD Adaptor is switchable between four levels. In addition to the full 2V output, there are three levels of attenuation. These correspond to output levels of 1V, 600mV and 300mV respectively.

While much the same result could be achieved using only a dual gang potentiometer, the matching between the tracks on most pots is not up to standard. In addition, there is always the risk that the pot will become noisy.

The use of a switchable attenuator makes this a virtually universal circuit. It can be used to match a CD player to almost any amplifier without any component changes.

Construction

Because the circuit is so simple, we have not bothered to design a printed



Compare this inside view with the wiring diagram at far right.



The circuit is built into a low-cost plastic case.

circuit board. All of the resistors are mounted on the back of the switch as shown in the wiring diagram (Fig.2).

The prototype was mounted in a plastic project box measuring 130 x 67 x 40mm. Use the type with an aluminium lid as this can be used for the circuit earth. In addition to the rotary switch, the only other components required are the input and output RCA sockets.

Most of the constructional details can be gleaned from the photographs and the wiring diagram. Note that the resistors should be mounted close to the switch terminals so that they will clear

the bottom of the box.

Artwork for the front panel is reproduced actual size with this article and can be used as a drilling template for the front panel. A self-adhesive label made from photosensitive aluminium (Scotchcal) could also be used if available.

Although the lid of the box serves as the signal earth, the attenuator circuit also needs an earth. We made this connection via an earth lug attached to one of the input sockets. Use light-duty hook-up wire to complete the wiring connections between the switches and the sockets.

PARTS LIST

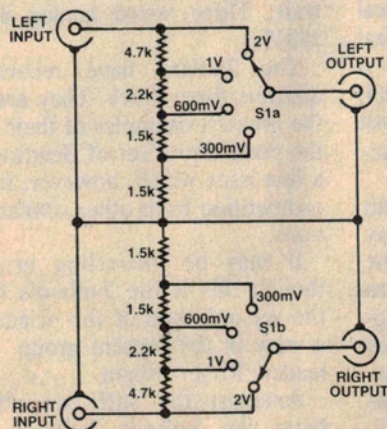
- 1 3-pole 4-position rotary switch
- 1 plastic project box, 130 x 67 x 40mm
- 4 panel-mounting RCA sockets (2 red, 2 black)
- 1 Scotchcal artwork (optional)
- 5 80mm lengths insulated hook-up wire

Resistors (0.25W, 5%)
 2 x 4.7k Ω , 2 x 2.2k Ω , 4 x 1.5k Ω

Testing

To test the circuit, connect the outputs from your CD player to the CD Adaptor inputs. The output terminals of the CD Adaptor go to the amplifier auxiliary inputs. Switch on and check that the audio level shifts dramatically each time you alter the switch setting.

The correct switch setting can easily be found by trial and error. All you have to do is switch the level back until the signal is free of obvious distortion. At the same time, the audio level from the amplifier should be about the same as for other signal sources (volume control kept constant). EA



EA CD ADAPTOR
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Fig.1: here is the full circuit diagram.

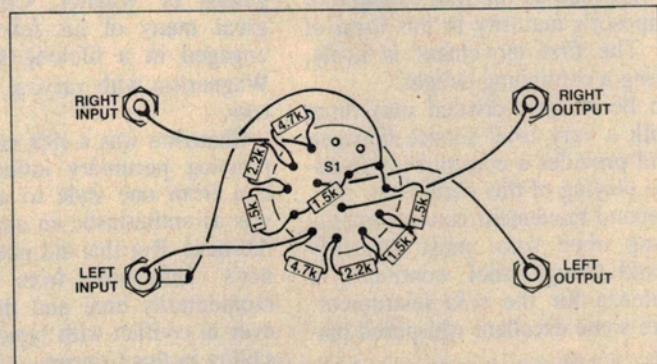


Fig.2: construction is easy — just follow this simple wiring diagram.