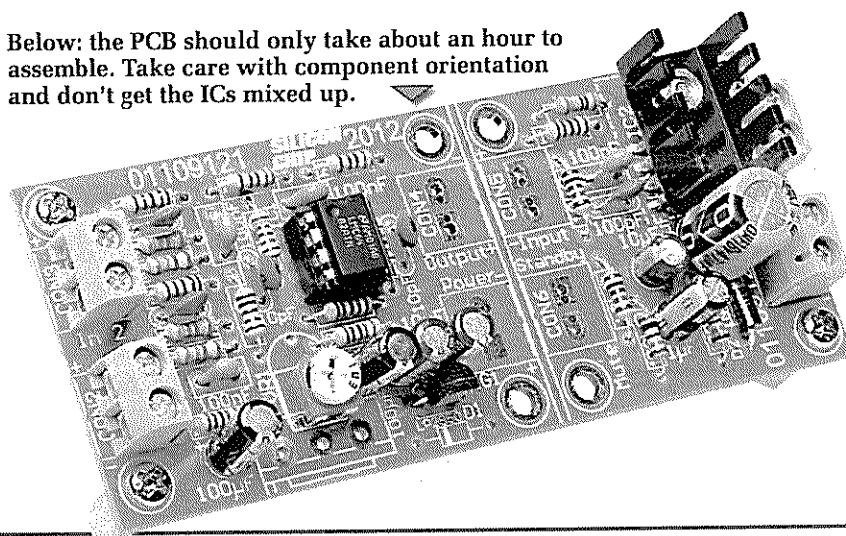


Fig.2: PCB overlay diagram for the Pre-Champion (left) and Champion (right). Potentiometer VR1 can be used for an externally accessible volume control or trimpot VR2 can be fitted instead for a one-time adjustment. A small heatsink is normally fitted to amplifier IC2 as it can dissipate quite a bit of power at higher supply voltages and output power levels.

Below: the PCB should only take about an hour to assemble. Take care with component orientation and don't get the ICs mixed up.



to be shut off while leaving the amplifier running, in case you just want to temporarily shut off the sound. This, however, is an active high function, ie, pin 4 is pulled up to  $V_{CC}$  to enable the muting. For convenience, we have arranged the circuit so that the two control inputs at CON6 are both active-low and can be driven in the same manner.

The capacitor from pin 4 (mute) to ground is a lower value than for standby, at  $1\mu F$ , but the  $100k\Omega$  pull-down resistor is the same value as the  $100k\Omega$  pull-up resistor for the standby pin. This ensures that when power is removed, the mute function engages before the amplifier goes into standby, preventing switch-off thumps.

IC2 has its own  $100\mu F$  bypass capaci-

tor plus a Schottky diode for reverse polarity protection. If the two units are built on a single PCB, power can be applied to CON8 for both the Champion and Pre-Champion. In this case, CON1 and D1 may be omitted. CON4 and CON5 can also be left out as the output tracks from the Pre-Champion feed straight into the input of the Champion.

## Construction

The PCB measures  $100 \times 41\text{mm}$  and is coded 01109121/2. If you wish to build the Champion and its preamplifier separately (or build just one of these), cut the board between the dashed lines using a hacksaw.

The following instructions apply whether you are building one or both of the PCBs; simply repeat for each separate board.

Fig.2 shows the parts layout on the PCB. Start by fitting all the resistors. A colour code table is provided for convenience but you should check each one with a DMM before fitting it as some colours can be difficult to distinguish.

Follow with D2 but note that D1 will also have to be fitted if you build the preamp separately. Make sure that the diode(s) are orientated as shown.

Next, fit the ICs with the pin 1 dot or notch in the direction shown, ie, towards the top of the PCB. You can use a socket for the op amp but for best heat dissipation, the AN7511 should be soldered directly into circuit. Make sure that it's sitting all the way down

Table 2: Capacitor Codes

Value	$\mu F$ Value	IEC Code	EIA Code
470nF	$0.47\mu F$	470n	474
100nF	$0.1\mu F$	100n	104
100pF	NA	100p	101
10pF	NA	10p	10

Table 1: Resistor Colour Codes

	No.	Value	4-Band Code (1%)	5-Band Code (1%)
□	4	$2.2M\Omega$	red red green brown	red red black yellow brown
□	1	$1M\Omega$	brown black green brown	brown black black yellow brown
□	2	$100k\Omega$	brown black yellow brown	brown black black orange brown
□	2	$22k\Omega$	red red orange brown	red red black red brown
□	2	$10k\Omega$	brown black orange brown	brown black black red brown
□	2	$2.2k\Omega$	red red red brown	red red black brown brown
□	2	$1k\Omega$	brown black red brown	brown black black brown brown
□	2	$100\Omega$	brown black brown brown	brown black black black brown