

**SUB WOOFER AMPLIFIER (48W.OCL.)**  
CODE 671 **LEVEL 3**

This circuit gives excellent sound quality with low cost and easy application.

**Specification:**

- Power supply : +35VDC and -35VDC max./ more than 3A.
- Bandwidth frequency : 25 to 200 Hz
- Input sensitivity : 1Vrms.
- Input impedance : 100K $\Omega$
- Output power : 48Wrms class AB @ 4 or 8 $\Omega$
- Dimension : 4.53 x 2.48 inches.

**How it works:**

The circuit in figure shows the circuit's clear layout. The circuit consists of buffer amp circuit (IC1/1), low-pass filter circuit (IC1/2) and power amplifier 48 watts. The signal at "INPUT" point is fed to pin 3 of IC1/1, which is connected in buffer amp circuit. The signal output at pin 1 of IC1/1 is fed to pin 5 of IC1/2 through potentiometer VR2 and VR3. VR2 is used to adjust the signal to low-pass filter IC1/2 and VR3 is used to adjust the low frequency between 20 to 200Hz. The signal at pin 7 of IC1/2 is fed to the base of TR1 through R30 and C1. TR1 and TR2 are connected as a differential amplifier circuit. TR3 acts as pre-driver. TR8 and TR9 as drivers. TR10 and TR11 power-amplifier circuit. TR4 limits current. TR5 acts as set the bias for inert current. TR6 and TR7 prevent TR10 and TR11 from damage due for over current supply. This circuit is direct coupling designed. The low-frequency signal is fed to the base of TR1 through R30 and C1, causing TR1 to amplify of the signal with controlling by TR2. The signal at collector of TR1 is fed to the base of TR3. The signal from TR3 then will be fed to TR8 and TR10 for amplifier position input signal while TR9 and TR11 amplifier negative input signal. The amplifier signal will finally be transferred toward speakers.

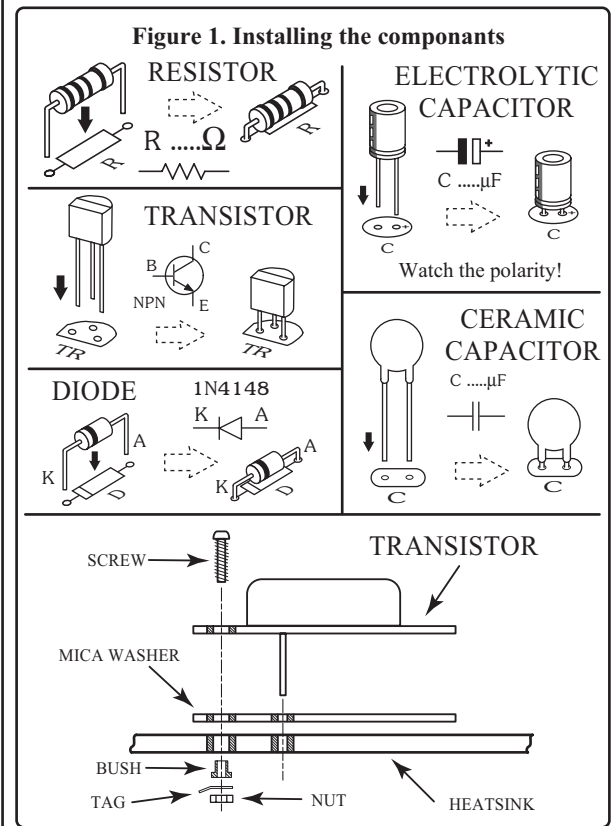
**PCB assembly:**

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a pair of pliers

to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

**Testing:**

In the circuit used transformer 24-0-24 adapting to DC 35-0-35. Adjusting VR1 to the center and adjusting VR2 max. counterclockwise. Giving the power supply to the circuit. Stopping the power supply if there is burst smelling. Measuring the voltage at "SP" point. Should be less than 0.5 volt. Under normal condition, connect the speaker with SP and input signal, then increasing the signal and listening the feedback. In order to adjust inert current, stop supply, take off speaker and jump input to ground, take off the collector of TR10. Then measuring current by meter, position pole connected at "+35V" point and negative pole at the collector of TR10. When finishing, give the power supply to the circuit. Adjust current at VR1 till we can read 40mA current, then taking off supply generator and reinstalling.



**Troubleshooting:**

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

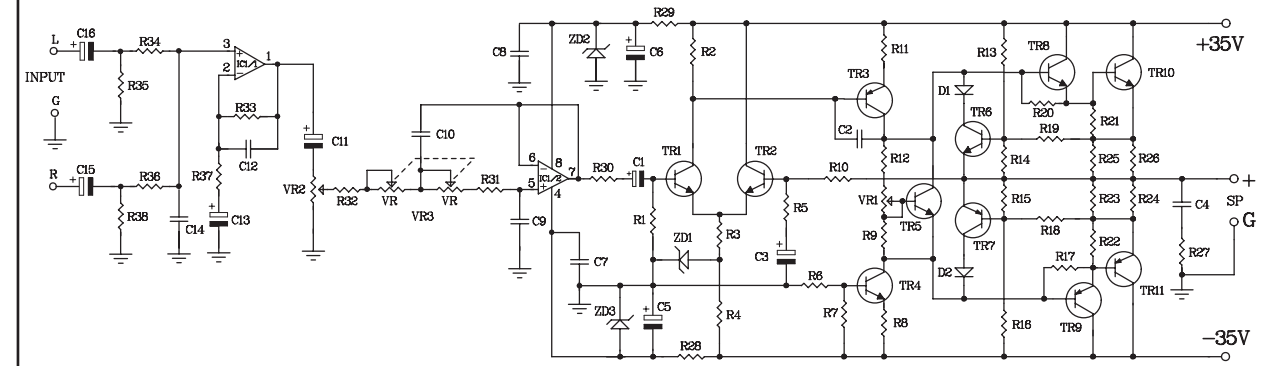


Figure 2. The sub woofer amplifier (48W OCL) circuit

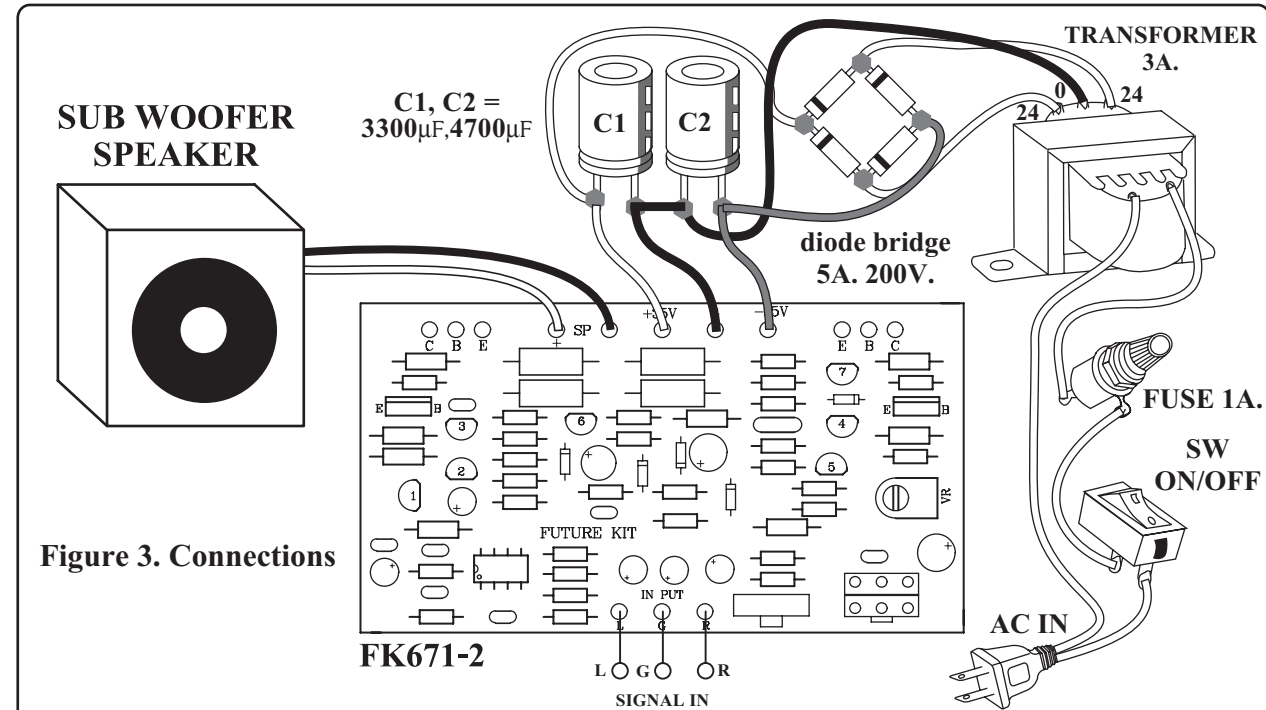
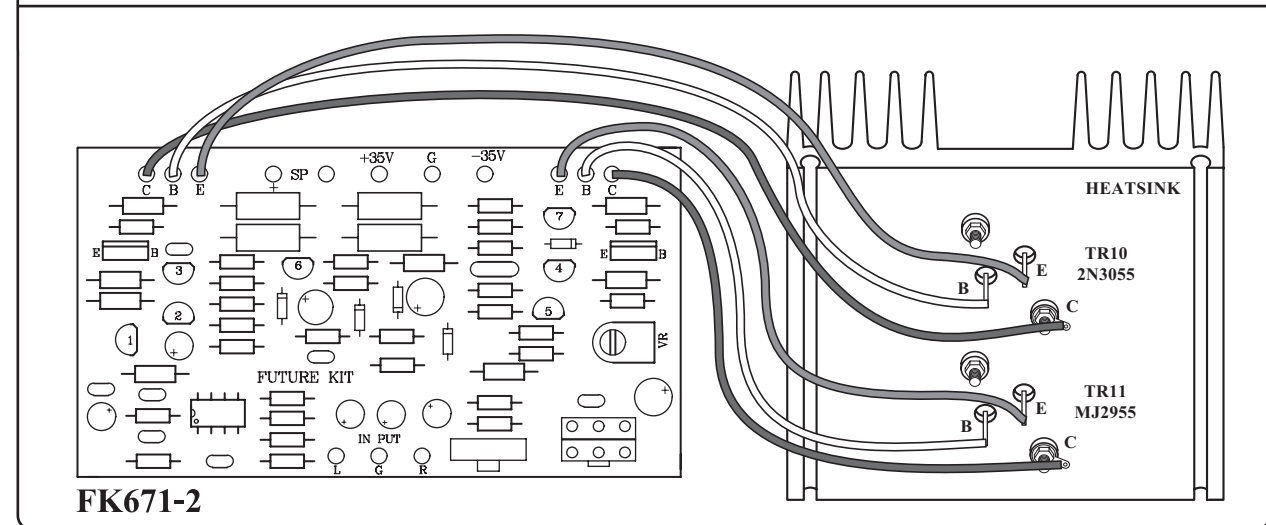


Figure 3. Connections



FK671-2