

P34

1W AUDIO MIXER/AMPLIFIER



A unit for mixing together up to four ACTION sound units into one speaker. The Mixer/Amplifier also has a power distribution connection which will drive up to four sound units, thus reducing the wiring required. The unit will need to be switched on whilst the model is operational. The individual sound simulators can be switched on by radio control as and when required. All current ACTION sound units can be run on 6 to 12 volts. The Steam Engine Sound P56 can be 6 volts or 12 volts. Two diesel engine sounds can be mixed but will give a very poor resultant sound.

Voltage requirement

Volume

Connections for power and inputs

Speaker

Speaker size

6 volt to 12 volt

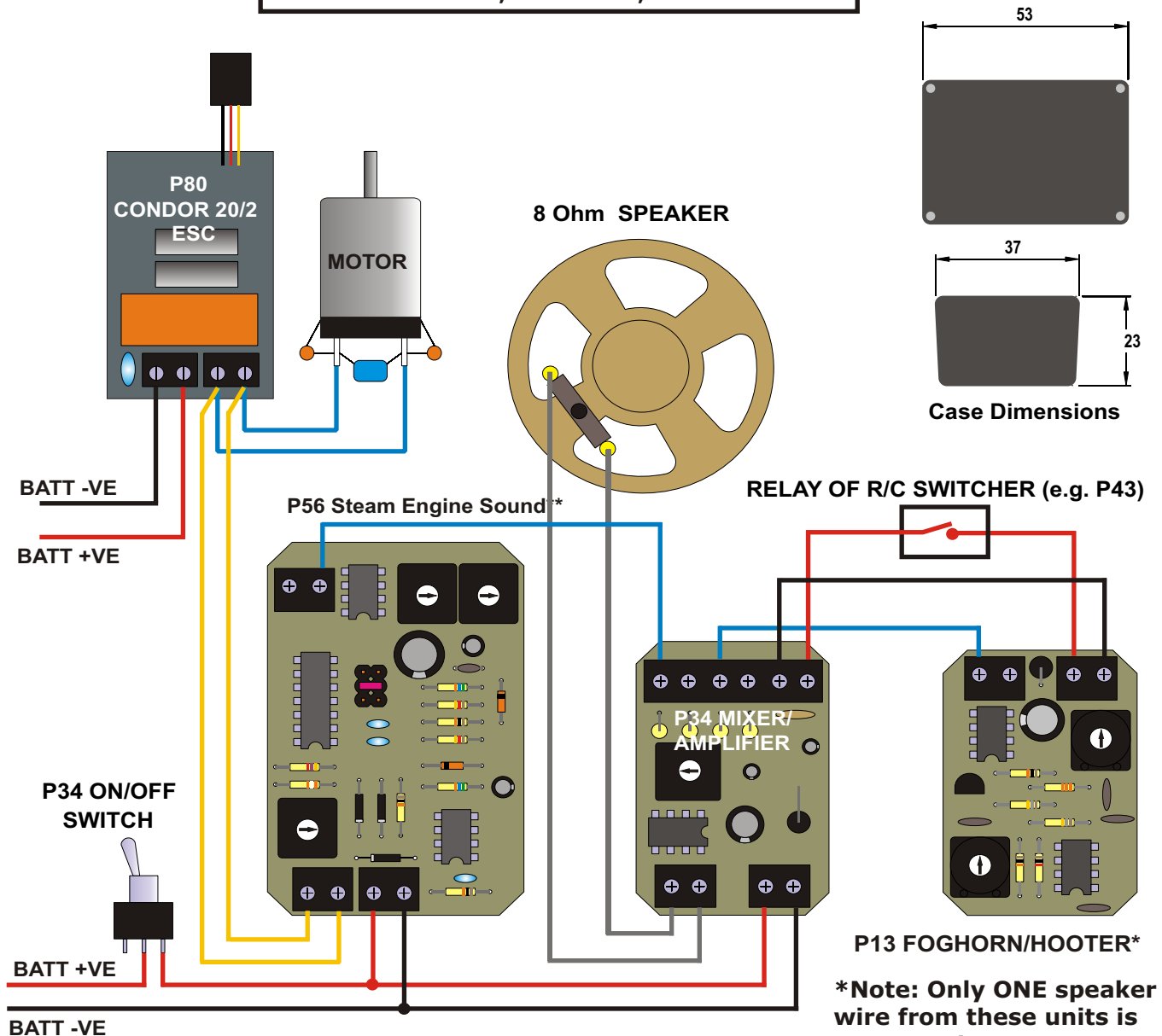
Adjustable

Screw connection

8 ohm impedance (not supplied)

As large as possible.

DRAWING SHOWS TYPICAL INSTALLATION OF ACTION SOUND UNITS. R/C SWITCHER SUCH AS P43 OR P44A SHOULD BE USED TO OPERATE HORNS, HOOTERS, WHISTLES ETC



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Voltage requirement
Volume
Connections for power and inputs
Case size
Speaker
Speaker size

6 volt to 12 volt
Adjustable
Screw connection
54mm x 38mm x 23mm
8 ohm impedance (not supplied)
As large as possible (See below).

CONNECTION AND USE

File or drill suitable slots/holes in the ABS case to permit the wiring access to the screw connector terminals without kinking; use Velcro pads to secure the case to the inside of the model.

Each sound unit should have only ONE speaker output screw terminal (either will do) connected to one of the INPUT connectors of the MIXER/AMPLIFIER (labeled 1 to 4). **Only one speaker terminal on each sound simulator should be connected. The other terminal must not be connected.**

Power leads for each sound should be connected to the battery or the mixer/amplifier POWER OUT connector block (+). You can fit a manual switch or a relay switcher into the positive leads to operate the sound units individually. Switches must NOT be fitted in the Negative power lines. The speaker should be capable of handling at least 1 Watt of power and must be 8Ω impedance. A 66mm speaker will handle most sounds but for sounds like steam horns & foghorns an absolute minimum of a 100mm speaker would be required.

The positive (+) and negative (-) POWER IN connector on the mixer/amplifier should be connected (via an on/off switch) to your main battery, ensuring that the polarity is correct. ALWAYS CHECK TWICE AND CONNECT ONCE.

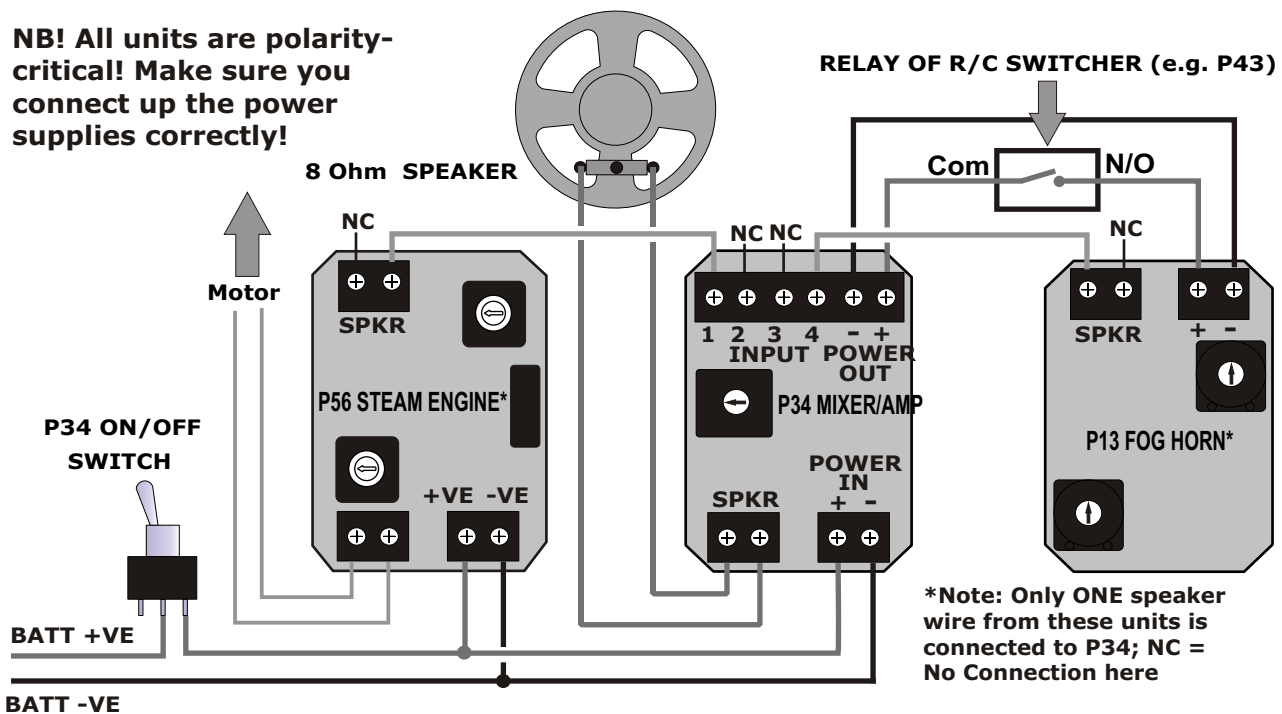
It is good practice to run separate wires right back to the battery for sound units to prevent noise generated by the motor from interfering with the sound circuits.

RECOVERY SERVICE

A recovery or repairs service ensures that you will not be left with a dead unit for any reason. The Service Charge for this kit is £11.00 including parts (including return shipping cost in UK). All returns should include full Credit Card details (Name & Address of cardholder, Card Number, Expiry Date, Card Security Number)

ACTION R/C ELECTRONICS, 1 Llwyn Bleddyn, Llanlechid, Bangor LL57 3EF, United Kingdom

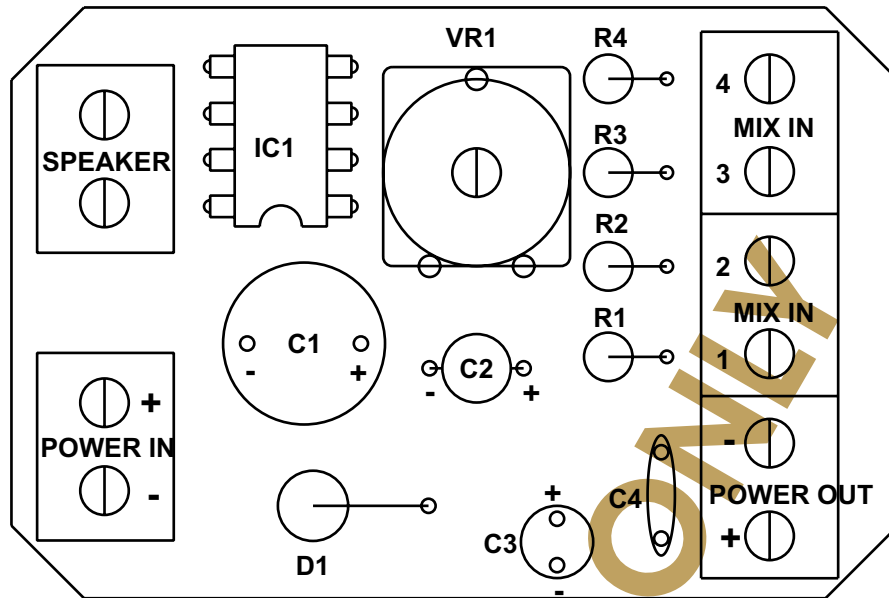
NB! All units are polarity-critical! Make sure you connect up the power supplies correctly!



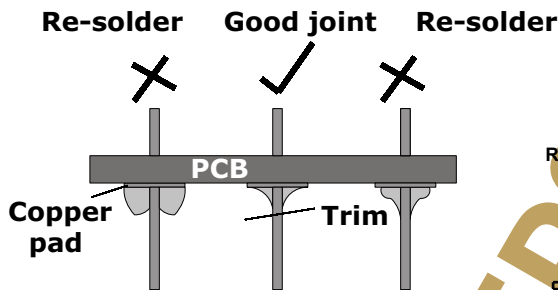
The small print.....
ACTION R/C Electronics guarantee all products to be free from manufacturing defects for 12 months from date of purchase. This does not cover suitability for specific applications; components worn or damaged by use, tampering or incorrect connection; alteration to original components; damage to batteries or other equipment through use; misuse, or shipping damage. Where goods are found to be faulty, the customer shall return them to ACTION R/C Electronics in their original condition and with their original instructions, packaging etc. Our liability is limited to repairing or replacing goods to their original specification and will not exceed the cost of the goods. By using the product the user accepts all liability. Where a fixed repair charge is applicable, ACTION R/C Electronics shall undertake repairs to the extent that they are judged economically viable. Where such is not the case then the customer will be offered the option of crediting the repair charge towards the cost of a new unit or having the faulty unit returned and the charge refunded (less the cost of return carriage). We reserve the right to modify this guarantee without notice.



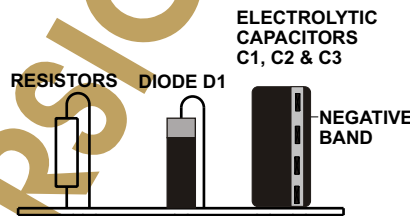
1W Audio Mixer/Amplifier
Instructions for Kit version



Component Layout



Soldering Tips



Component mounting



Resistor colour bands

PARTS LIST

- | | |
|----------|---|
| IC1 | TDA7052 IC + SOCKET |
| D1 | 1 AMP DIODES 1N4003 (BLACK PLASTIC/PRINTED BAR) |
| R1,2,3,4 | 100K RESISTOR 1/4 WATT (BROWN/BLACK/YELLOW) |
| VR1 | 4K7 MIN ENCLOSED HORIZONTAL PRESET |
| C1, | 220uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C2 | 1uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C3 | 100uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C4 | 0.1uF CERAMIC CAPACITOR (marked 104) |
| CONNS | 5 X TWIN SCREW CONNECTOR BLOCKS |
| CASE | TYPE RX2008 |
| PCB | TYPE P34A |

P34 Kit Instructions

REQUIREMENTS

This Sound Project is suitable for use with a 6 to 12 Volt power source. It will allow up to four sound simulators from the ACTION range to be mixed into one speaker. As well as mixing the sounds, it distributes the power to the sound simulators. It will drive any size speaker as long as it is an 8 Ohm device. See Speakers section in ACTION lists. It can be switched on and off with a small switch in the positive power lead; this will switch on the power available to all the sound simulators used. Each individual simulator will then require its own R/C switcher. See ACTION lists for Switchers.

PCB

The PCB for this Project is fully prepared and requires no additional work. It is manufactured from high grade Glass Fibre Board.

TOOLS

For construction you will require a soldering iron and flux cored solder; a small pair of wire cutters; a small screwdriver for adjustment and connections plus, as always in electronics construction, a good level of light.

PARTS

All the parts for the kit should be laid out on a clean surface so that they can be correctly identified. The Drawing will help with identification and polarisation (+ & - connections) .

- The resistors - rods with a wire at each end and a series of colour bands - are colour coded as directed in the Parts List. See also Resistor Colour Bands. All four resistors in this kit are 100K.
- The small black plastic diode D1 has a silver bar printed round one end; this band is clearly marked as a black band on the Component Mounting drawing. If bent as shown then fitted as per Component Layout, it will be correctly polarised i.e. with the silver band uppermost.
- The electrolytic capacitors C1, C2 & C3 are marked with the value and working voltage and a vertical bar with Negative signs on it which signifies which leg goes to the negative. The opposite leg of the capacitor, of course, goes to the positive. All capacitor polarisations are shown on Component Layout.
- The small ceramic capacitor C4 is non-polarised and can be fitted either way round. Note that it is marked 104.
- The 8-pin IC is marked with the type code, TDA7052.
- The IC has a moulded socket with 8 pins. You will note a small notch on one end; this should be soldered in as per the Component Layout. When the IC is fitted later it should also have the notch in the same orientation.
- The square black moulding with a screwdriver slot at the centre and three legs is an adjustable trimmer (VR1) .
- The five 2-pin Screw Connector Blocks for POWER IN, POWER OUT, MIX IN (x2) and SPEAKER, are easy to identify as the name describes them. The plastic mouldings can be interlocked and three of them should be joined for the POWER OUT and MIX IN to form a six-way block.

CONSTRUCTION TIPS

- Components can be fitted and soldered in any order. Low components fitted first will allow a more stable soldering position.
 - An IC socket is provided for IC1 device. It should be fitted to reduce handling of the IC; to remove the need to solder the IC pins, and to make it easy to replace if required for any reason. When fitting IC sockets ensure that the small notch at one end is in accordance with Components Layout drawing.
 - All resistors and the non-polarised capacitor C4 can be fitted either way round.
 - When fitting diode D1 ensure it is bent then fitted as shown. It will ensure that it is the right way round.
 - The polarity of capacitors C1, C2, C3 must be observed.
 - Ensure that the wires can be inserted into the connector blocks from the outside edge of the PCB.
 - When fitting the IC to its socket, ensure that the small notch at one end is the same as its socket and in accordance with the drawing. The rear of the board can now be cleaned with something like an old toothbrush and some spirit cleaner. Then check all over the soldered side of the board for good joints and no solder bridges between tracks.
 - Time now to tackle the case; not a lot to it really - its just a matter of enabling the wiring into the case for connection. You can just file a narrow slot the length of the connector blocks or file a notch out of the top of each end of the case at the appropriate positions. This is all that the case requires. Now you can fit the ACTION badge.

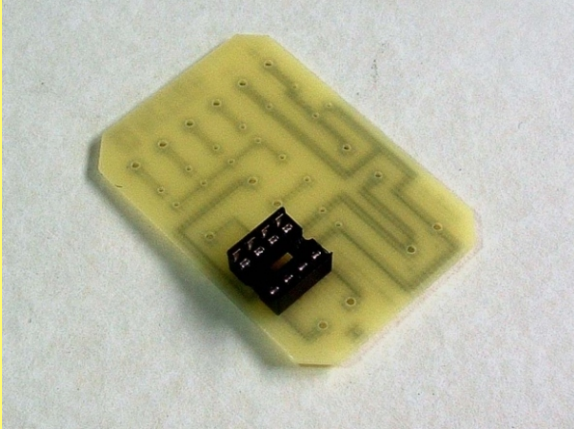
TESTING

Having built the unit it's simply a matter of connecting your speaker, power wires (from whatever battery pack you are using). You don't need a switch to test it initially; it can be connected to its battery and a "hum" will be heard if a finger is applied to one of the resistor wires. Do note that only one speaker connection from each sound simulator should be connected; the return wire is via the Negative connection which is now common to all sound simulators.

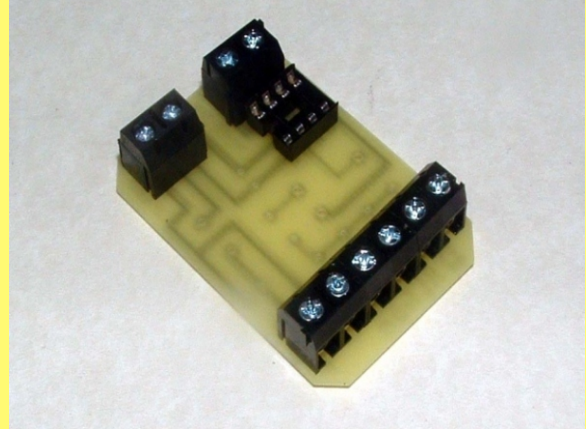
The volume controls on the sound simulators being mixed with this unit will now become pre-amplifier level controls. VR1 in the Mixer/Amplifier is now the Master Volume Control for your sound system.

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PHOTOGRAPHIC BUILD SEQUENCE FOR KIT VERSION ONLY



PICTURE 1: PCB with I/C socket fitted



PICTURE 2: Screw terminal blocks added



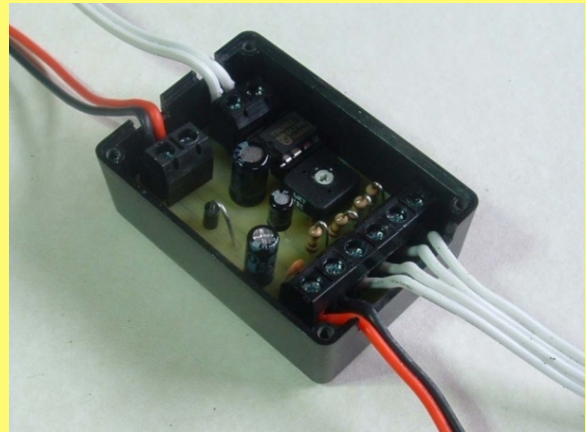
PICTURE 3: Resistors and diode fitted



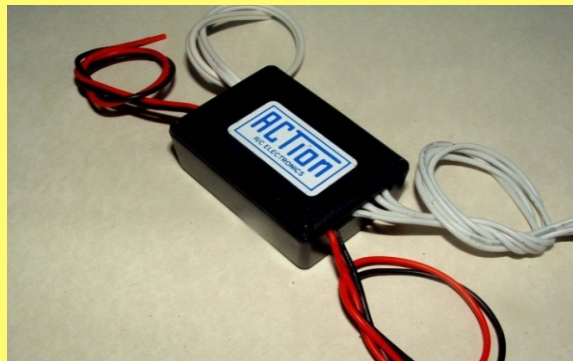
PICTURE 4: Capacitors fitted



PICTURE 5: Preset and I/C chip added.
ANTI-STATIC PRECAUTIONS REQUIRED!



PICTURE 6: File slots in case to suit cables



PICTURE 7: Finished unit, cased with sticker