

P55

ASDIC SOUND REPEATER



REQUIREMENTS

This Sound Project is suitable for use with a 6 to 12 Volt power source. It produces the well known 'Ping' sound with reverberation and small echo sounds. Due to the high frequency nature of the sound, speakers of 2 inch to 3 inch with a Mylar Cone and 8 Ohms impedance will be ideal (see speakers in ACTION lists). It can be switched on and off with a small switch in the positive power lead but will require a 'Switcher' if R/C control is required (see ACTION lists for Switchers).

IC AND TRANSISTOR DESIGN

Voltage requirement

6 volt to 12 volt

'Ping' repeat rate

Adjustable

Volume

Adjustable

Connections

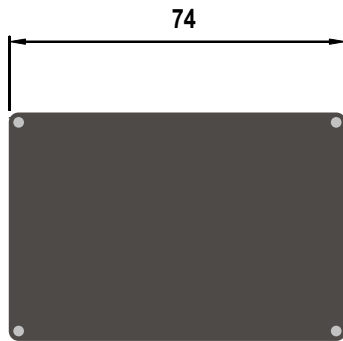
Screw connection

Speaker impedance required

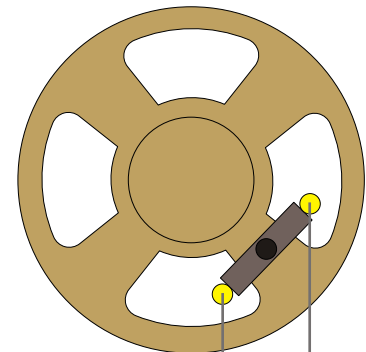
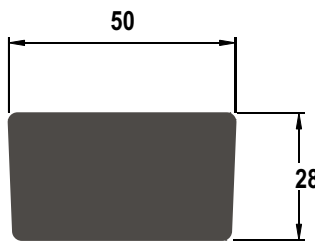
8 ohms

Speaker size recommended

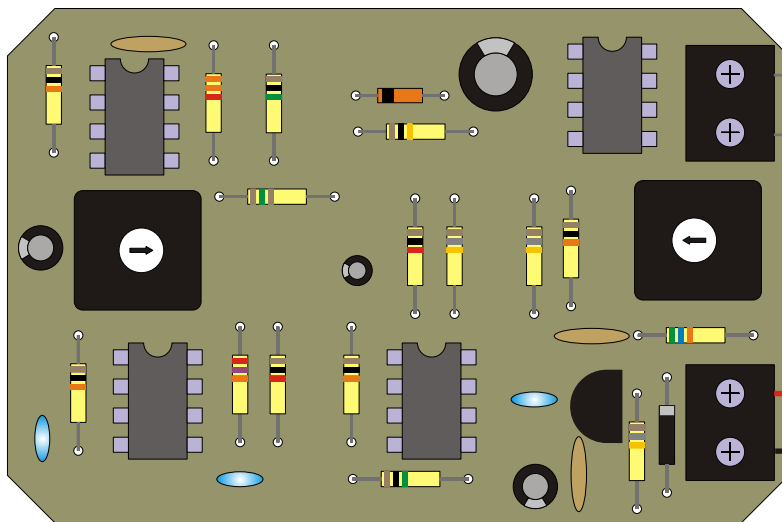
Minimum 2 inch mylar cone (not supplied)



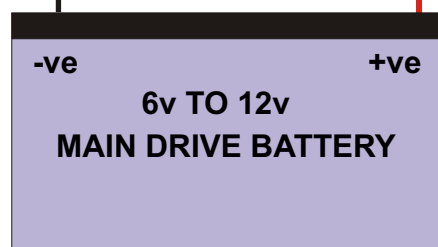
Case Dimensions



SPEAKER



ON/OFF OR RC SWITCH



P55

ASDIC SOUND REPEATER



This Sound Project is suitable for use with a 6 to 12 Volt power source. It produces the well known 'Ping' sound with reverberation and small echo sounds. Due to the high frequency nature of the sound, speakers of 2 inch to 3 inch with a Mylar Cone and 8 Ohms impedance will be ideal (see speakers in ACTION lists). It can be switched on and off with a small manual switch in the positive power lead but will require a radio-controlled switch R/C control is required. The drawing shows an ACTION P43 in this role.

Voltage requirement	6 volt to 12 volt
'Ping' repeat rate	Adjustable
Volume	Adjustable
Connections	Screw connection
Case size	74mm x 50mm x 28mm
Speaker impedance required	8 ohms
Speaker size recommended	Minimum 2 inch mylar cone (not supplied)

SETUP

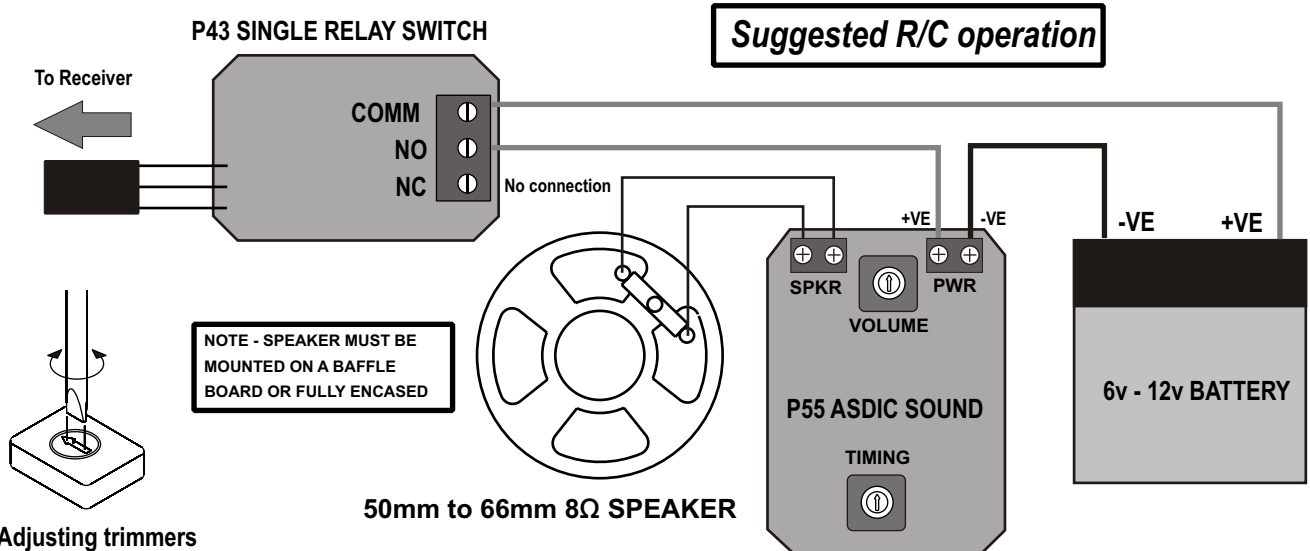
1. Connect the SPEAKER terminals to your speaker
2. Connect the positive (+) POWER terminal to the positive of the battery.
3. Connect the negative (-) POWER terminal to the negative of the battery.
4. The Timing trimmer control should be adjusted to the rate you require, using a fine screwdriver.
5. The other trimmer adjusts the volume.

Drill suitable holes in the ABS case to allow the wires to access the screw terminal connector blocks, and use Velcro pads to secure the case to the inside of the model.

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 £13.00 including parts (including return shipping cost IN UK). Overseas returns should include full Credit Card details (name & Address of cardholder, Card Number, Expiry Date, 3 digit Card security number)

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



*Adjusting trimmers

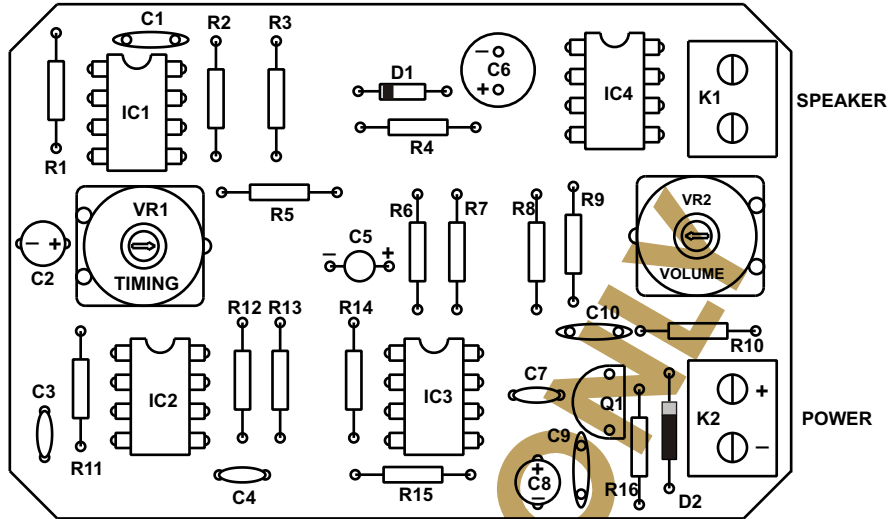
Sound units are polarity-critical! Take care to connect the battery correctly!

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.

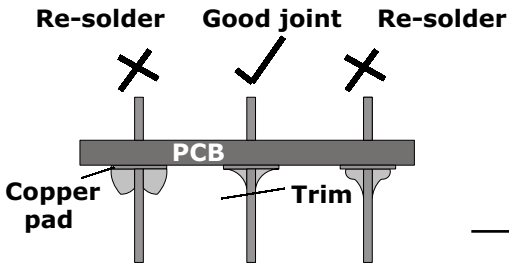


P55 ASDIC SOUND SIMULATOR

Instructions for kit version & Wiring diagram



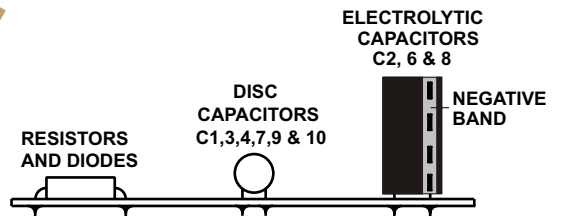
Components Layout



Soldering Tips



Resistor colour bands



Component mounting details

PARTS LIST

- | | |
|------------|---|
| IC1,2,3 | 555 IC + SOCKET |
| IC4 | TDA7052 IC + SOCKET |
| Q1 | 2N3904 TRANSISTOR |
| D2 | 1 AMP DIODES 1N4003 (BLACK PLASTIC/PRINTED BAR) |
| D1 | 1N4148 SIGNAL DIODE (SMALL GLASS CASE/DARK BAR) |
| R1,9,11,14 | 10K RESISTOR 1/4 WATT (BROWN/BLACK/ORANGE) |
| R2 | 3K3 RESISTOR 1/4 WATT (ORANGE/ORANGE/RED) |
| R3,15 | 1M RESISTOR 1/4 WATT (BROWN/BLACK/GREEN) |
| R4 | 100K RESISTOR 1/4 WATT (BROWN/BLACK/YELLOW) |
| R5 | 150 OHM RESISTOR 1/4 WATT (BROWN/GREEN/BROWN) |
| R6,13 | 1K RESISTOR 1/4 WATT (BROWN/BLACK/RED) |
| R7,8,16 | 180K RESISTOR 1/4 WATT (BROWN/GREY/YELLOW) |
| R10 | 56K RESISTOR 1/4 WATT (GREEN/BLUE/ORANGE) |
| R12 | 27K RESISTOR 1/4 WATT (RED/MAUVE/ORANGE) |
| VR1 | 1M MIN ENCLOSED HORIZONTAL PRESET |
| VR2 | 4K7 MIN ENCLOSED HORIZONTAL PRESET |
| C1,9,10 | 0.1uF CERAMIC CAPACITOR (marked 104) |
| C3,4,7 | 0.01uF CERAMIC CAPACITOR (marked 103) |
| C2 | 4.7uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C5 | 2.2uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C6 | 220uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| C8 | 47uF MIN RADIAL ELECTROLYTIC CAPACITOR |
| K1,2 | TWIN SCREW CONNECTOR BLOCKS |
| CASE | TYPE RX2010 plus ACTION logo |
| PCB | TYPE P55 |

P55 KIT INSTRUCTIONS

This Sound Project is suitable for use with a 6 to 12 Volt power source. It produces the well known 'Ping' sound with reverberation and small echo sounds. Due to the high frequency nature of the sound, speakers of 2 inch to 3 inch with a Mylar Cone and 8 Ohms impedance will be ideal (see speakers in ACTION lists). It can be switched on and off with a small switch in the positive power lead but will require a 'Switcher' if R/C control is required (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 may 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 the Resistor Colour Bands drawing which will tell you the order in which to read the bands shown in brackets in the Parts List.
- The small black plastic diode D2 has a silver bar printed round one end; this band is shown as a black band on the layout drawing. The small glass diode D1 has a dark band at one end; again the band is clearly marked on the drawing.
- The electrolytic capacitors C2, C5, C6 and C8 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 the drawing.
- The small ceramic capacitors C1, C3, C7, C9 & C10 are non-polarised and can be fitted either way round. Note that C1 & C9 are marked 104 and the others are marked 103.
- The four 8-pin ICs are marked with their type codes, as is Q1, the Transistor. IC1 to IC3 are NE555N or similar (the letters in front and behind will depend on the manufacturer); IC4 is a TDA7052; see the drawing together with the Parts List.
- Each 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 drawing, then the ICs fitted later should also have their notch in the same orientation ensuring that they are the right way round.
- The square black mouldings with a screwdriver slot at the centre and three legs, are adjustable trimmers (VR1 & VR2). Each have different values.
- The 2-pin screw connector blocks K1 & K2 are easy to identify.

CONSTRUCTION TIPS

- Components can be fitted and soldered in any order. Low components fitted first will allow a more stable soldering position.
- IC sockets are provided for all four IC devices. They should be fitted to reduce handling of ICs, to remove the need to solder their pins, and make them easy to replace if required for any reason.
- When fitting IC sockets, ensure that the small notch at one end is in accordance with the drawing illustration.
- All resistors and the remaining non-polarised capacitors can be fitted either way round, just ensure that the correct value goes in the right place. See Parts List and the drawing.
- When fitting D1 & D2 ensure the band is as per the drawing. It is a polarisation mark and will ensure that they are the right way round.
- When installing VR1 and VR2, note that they are not the same value. VR1 is 1 M Ω and VR2 is 4.7K Ω .
- The polarity of capacitors C2, C5, C6 and C8 must be observed, see Mounting Detail on the drawing .
- When fitting the screw connector blocks, ensure that the wires which will connect to them can be inserted from the outside edge of the PCB.
- Fit and solder transistor Q1, cutting off spare wires, then fit the ICs in their sockets as the last operation in the construction. 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 two way 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

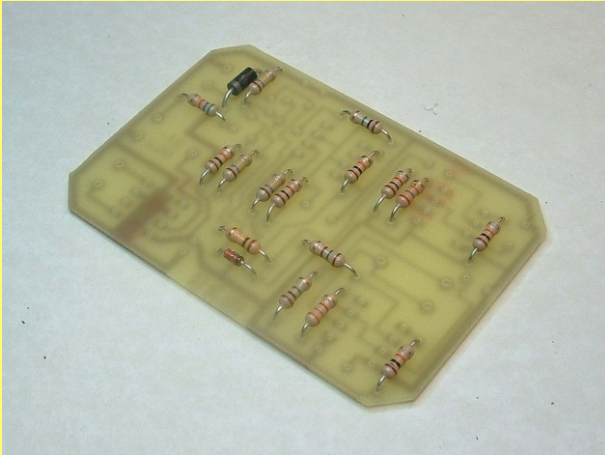
Having built the unit it's simply a matter of connecting your speaker and the power wires from whatever battery pack you are using. You don't need a switch to test it initially; it can be connected to its battery and the sound will be heard. Adjust the VR1 to give the repeat rate you require and VR2 to set the volume or sound output level.

A speaker size of about 55mm - 90mm diameter will suffice. A speaker, as you are probably aware, requires a case or rather an enclosure of some kind to present the best sound. The absolute minimum requirement is a baffle; a flat piece of plywood, plasticard or similar about twice the speaker cone area with a hole cut, almost as big in diameter as the speaker, which should be fastened to it. Evostick or other contact adhesive gives a good bond in most cases. You will need an opening to the outside to hear the sound through.

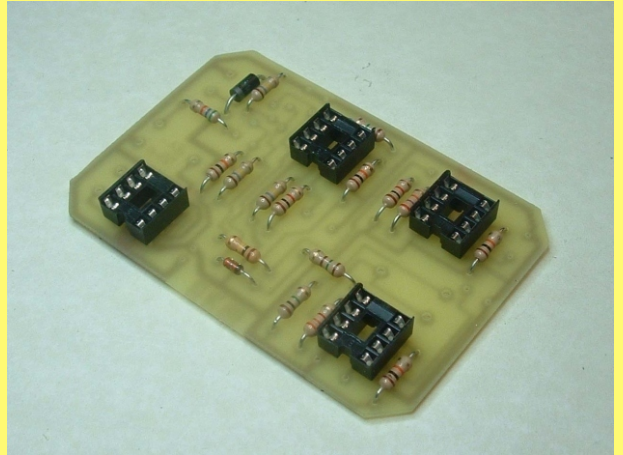
This sound project should have its own speaker. Mixing with other ACTION sound units into one speaker is possible by using a P34 Mixer/Amplifier, which will allow up to 4 sounds to be mixed; or a P97 6Watt Mixer/Booster, which does the same but adds a lot of extra power!

P55 ASDIC SOUND UNIT

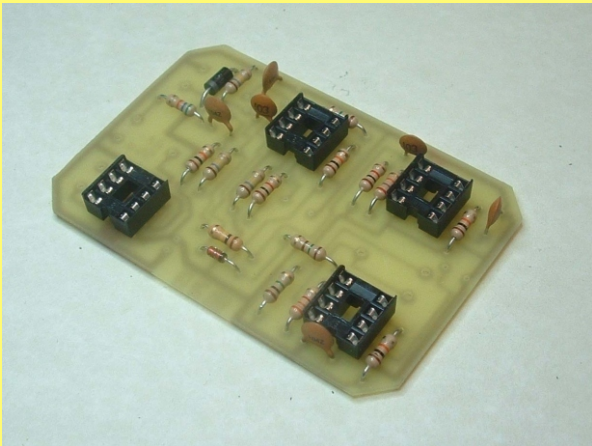
PHOTOGRAPHIC BUILD SEQUENCE FOR KIT VERSION ONLY



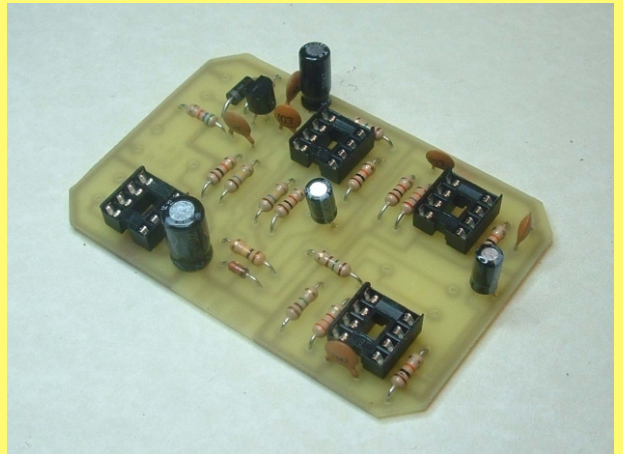
PICTURE 1: PCB with resistors and diodes fitted



PICTURE 2: Four x I/C sockets added



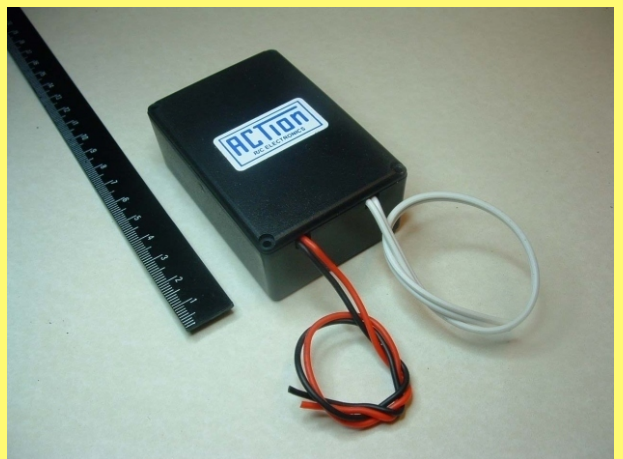
PICTURE 3: Ceramic capacitors added



PICTURE 4: Electrolytic capacitors & transistor Q1 added



PICTURE 5: Fit screw terminal blocks & presets; plug in 4 x I/C chips last. NOTE! ANT-STATIC PRECAUTIONS REQUIRED



PICTURE 6: File slots in case for leads. Fit lid and sticker.