

- Runs on 6 to 12 volts.
- Drives any speaker.
- Two volume levels, 250 mW and 5 Watts.
- Easy to build two transistor circuit teaches too!
- Kids love it!

# *Realistic POLICE SIREN KIT*

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*Duplicates the upward and downward wail of a police siren. Great for alarms, kids toys, bikes, go-karts, etc. Easily built by all ages!*



**Kit No. SM3**

## **INTRODUCTION TO THE SM3**

The Ramsey SM3 will duplicate the sound of a police siren at a low (200 mw) or high (2 watts) volume depending upon construction. Closing a pushbutton switch will cause the siren to "wail" up in frequency and opening the button will cause it to "coast" down in frequency. You'll find plenty of uses for the SM3. Kids love to play fire truck or ambulance on their bikes and wagons (Mom will appreciate the low volume setting here!) and there are the obvious uses for alarms and alerting.

## **PARTS LIST FOR THE SM3**

- ❑ 1 .01 or .02 uf disc capacitor [if .01: marked .01, 103, or 10 nF if .02: marked .02, 203, or 20 nF], (C1)
- ❑ 1 47 uF electrolytic capacitor, (C2)
- ❑ 2 47K resistor [yellow-violet-orange] (R1, R2)
- ❑ 1 1.5K resistor [brown-green-red] (R3)
- ❑ 1 PNP power transistor [green] (Q1)
- ❑ 1 NPN transistor [small black] (Q2)
- ❑ 1 SM3 PC board

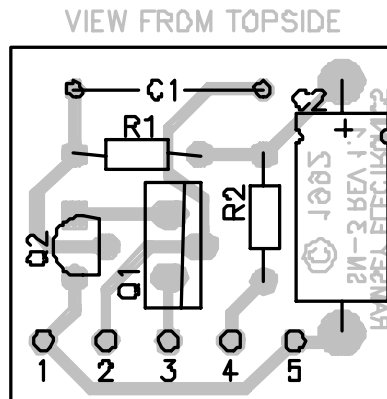
## ASSEMBLING THE SM3

Installing and soldering six parts on a small PC board doesn't seem like much of a task, but there is still the possibility for error, so follow our step-by-step directions and you'll be "wailing" real soon!

When we say to install a part, we mean:

- Carefully select the right part and insert it in the PC board.
- Gently press it fully down to the board surface.
- Solder the lead wires - and don't be afraid of using too much heat for a good solid connection.
- Clip or trim off the excess component lead wire.

### SM3 parts layout



SM3—3

- ❑ 1. Orient the PC board as shown in the parts layout diagram with the five larger "pad" areas in a row along the bottom.
- ❑ 2. Install C2, 47 uF. Observe polarity. Electrolytic capacitors have polarity markings. Generally, capacitors will indicate the ( - ) with a black stripe or arrow, while PC boards will usually show the ( + ) hole.
- ❑ 3. Install R2, 47K (yellow-violet-orange).
- ❑ 4. Install C1, .01 or .02 uF. The holes for C2 are spaced far apart (you'll see why later) so just stretch C1's leads to fit.
- ❑ 5. Install R1, 47K (yellow-violet-orange).
- ❑ 6. Install Q1, green power transistor. The metal back-side of Q1 must face as shown or your siren won't work.
- ❑ 7. Install Q2, the black NPN transistor. Transistors always have to be installed in a certain way. Be sure you position the flat side as shown.
- ❑ 8. Check your work - especially the soldering. Let's hook it up!

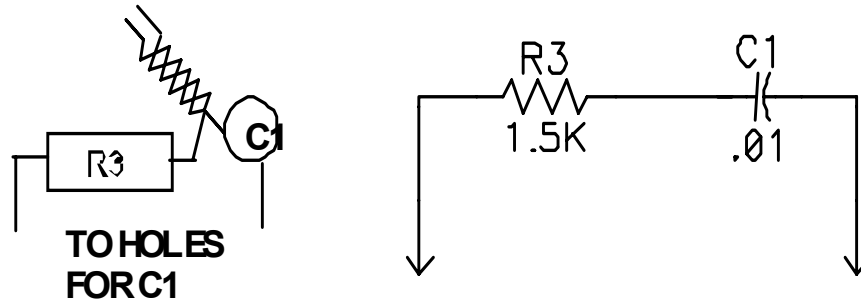
## **TESTING THE SM3**

For testing your SM3 you'll need:

- A speaker with an impedance from 3 to 45 ohms. Any style will do, but a horn type will give the most volume.
  - Power source from 9 to 12 volts DC. A 9 volt battery will suffice for now.
  - Pushbutton switch. A doorbell button works well, but simply touching two wires together will do.
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- ❑ 1. Connect up the speaker to points 1 and 2.
  - ❑ 2. Connect your pushbutton (or wires to touch) between point 4 and point 3 (the + power connection).
  - ❑ 3. Connect ( + ) power to point 3 and ( - ) ground to point 5.
  - ❑ 4. Depress the button and you'll hear the characteristic upward wail of the police siren.

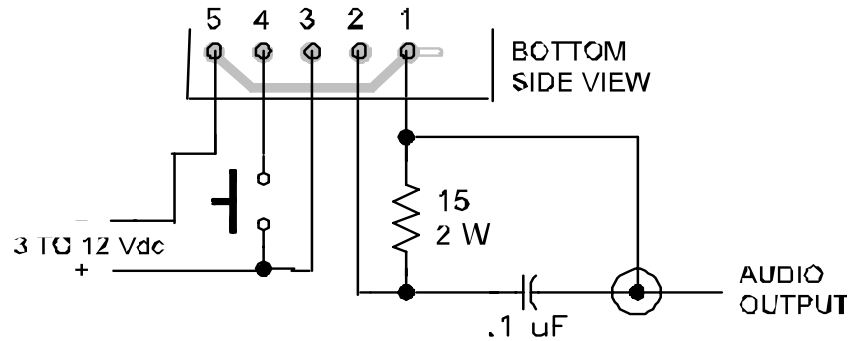
## MODIFICATIONS

- **HIGHER VOLUME:** To increase the volume level, we add a resistor in series with C1 (that's why we have the holes spaced farther apart!) Simply unsolder one end of C1 and connect to R3, 1.5K (brown-green-red) as shown:



**YELPING SIREN:** To make your siren sound like the yelping type (and get a tired pushbutton finger, too!), change C2 from 47 uF to a smaller value such as 5 or 10 uF. Experiment with different values for the right rate. You may find extra capacitors in old radios or other devices. If need be, you can even buy them new at Radio Shack for about 69 cents a pair!

- **COUPLING THE AUDIO OUT TO A MICROPHONE INPUT:** The SM3's audio can be easily coupled into a microphone input for a PA system or radio. You only need to simulate a speaker connected and add an audio coupling capacitor. Both parts are available at Radio Shack.



## **FINISHING TOUCHES**

Your siren can be easily mounted in most any handy box or enclosure. A coffee or juice can makes a dandy enclosure for speaker, battery, siren and pushbutton. Use your imagination, and see how much use and fun you can get for such a small kit investment! We hope you enjoyed this entry level Ramsey kit. Our catalog is loaded with lots of fun kits that you can build, from FM Stereo Transmitters to complete Two-Way Ham Radio Transceivers. Call or write for a catalog today!



### **The Ramsey Kit Warranty**

Please read carefully BEFORE assembling your kit. All Ramsey kits will work if assembled properly. The very fact that your kit includes this new manual is your assurance that a team of knowledgeable people have field-tested several "copies" of this kit straight from the Ramsey inventory. If you need help, please read through your manual carefully, all information required to properly build and test your kit is contained within the pages!

1. DEFECTIVE PARTS: It's always easy to blame a part for a problem in your kit, Before you conclude that a part may be bad, thoroughly check your work. All our kit parts carry the Ramsey Electronics Warranty that they are free from defects for a full ninety (90) days from the date of purchase. Defective parts will be replaced promptly at our expense. If you suspect any part to be defective, please mail it to our factory for testing and replacement. Please send only the defective part(s), not the entire kit. Don't be afraid of telling us that you 'blew-it', we're all human and in most cases, replacement parts are very reasonably priced.

2. MISSING PARTS: Before assuming a part value is incorrect, check the parts listing carefully to see if it is a critical value such as a specific coil or IC, or whether a RANGE of values is suitable (such as "100 to 500 uf"). Often times, common sense will solve a mysterious missing part problem. If you're missing five 10K ohm resistors and received five extra 1K resistors, you can pretty much be assured that the '1K ohm' resistors are actually the 'missing' 10 K parts. If you believe we packed an incorrect part or omitted a part, please write or call us with information on the part you need and proof of kit purchase.

3. FACTORY REPAIR OF ASSEMBLED KITS: To qualify for Ramsey Electronics factory repair, kits MUST: 1. NOT be assembled with acid core solder or flux. 2. NOT be modified in any manner. 3. BE returned in fully-assembled form, not partially assembled. 4. BE accompanied by the proper repair fee. No repair will be undertaken until we have received the MINIMUM (1/2 hour) repair fee of \$18.00, or authorization to charge it to your credit card account. 5. INCLUDE a description of the problem and legible return address. DO NOT send a separate letter; include all correspondence with the unit. Please do not include your own hardware such as non-Ramsey cabinets, knobs, cables, external battery packs and the like. Ramsey Electronics, Inc., reserves the right to refuse repair on ANY item in which we find excessive problems or damage due to construction methods. To assist customers in such situations, Ramsey Electronics, Inc., reserves the right to solve their needs on a case-by-case basis. The repair is \$36.00 per hour, regardless of the cost of the kit. Please understand that our technicians are not volunteers and that set-up, testing, diagnosis, repair and repacking and paperwork can take nearly an hour of paid employee time on even a simple kit. Of course, if we find that a part was defective in manufacture, there will be no charge to repair your kit (But please realize that our technicians know the difference between a defective part and parts burned out or damaged through improper use or assembly).

4. REFUNDS: You are given ten (10) days to examine our products. If you are not satisfied, you may return your unassembled kit with all the parts and instructions and proof of purchase to the factory for a full refund. The return package should be packed securely. Insurance is recommended. Please do not cause needless delays, read all information carefully.



**RAMSEY TRANSMITTER KITS**

- FM10A FM Stereo Transmitter
- TV6 Television Transmitter

**RAMSEY RECEIVER KITS**

- FR1 FM Broadcast Receiver
- AR1 Aircraft Band Receiver
- SR2 Shortwave Receiver
- AA7 Active Antenna
- SC1 Shortwave Converter

**RAMSEY HOBBY KITS**

- SG7 Personal Speed Radar
- SS70A Speech Scrambler
- SP1 Speakerphone
- MD3 Microwave Motion Detector
- PH14 Peak Hold Meter
- TG1 DTMF Tone Grabber

**RAMSEY AMATEUR RADIO KITS**

- DDF1 Doppler Direction Finder
- HR Series HF All Mode Receivers
- QRP Series HF CW Transmitters
- CW7 CW Keyer
- CPO3 Code Practice Oscillator
- QRP Power Amplifiers

**RAMSEY MINI-KITS**

Many other kits are available for hobby, school, Scouts and just plain FUN. New kits are always under development. Write or call for our free Ramsey catalog.

**Call or write for our full line catalog!**

**TOTAL SOLDER POINTS**

21

**ESTIMATED ASSEMBLY**

**TIME**

Beginner .....0.6 hrs

Intermediate .....0.4 hrs

Advanced .....0.3 hrs

**REQUIRED TOOLS**

- Soldering Iron Ramsey WLC100
- Thin Rosin Core Solder Ramsey RTS12
- Needle Nose Pliers Ramsey MPP4 or RTS05
- Small Diagonal Cutters Ramsey RTS04
- <OR> Technician's Tool Kit TK405

**ADDITIONAL SUGGESTED ITEMS**

- Holder for PC Board/Parts Ramsey HH3
- Desoldering Braid Ramsey RTS08
- Digital Multimeter Ramsey M133



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