

# ARRL's Introduction to Radio Receiver Kit

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**ARRL**  
The National Association for  
Amateur Radio®

## Introduction

This kit is a tunable and volume-controlled radio receiver with a frequency range of approximately 65 MHz to 140 Mhz. It can pick up transmissions from nearby FM radio stations, Air Traffic Control Towers, and similar transmitting sources.

The circuit consists of a wire **antenna**, a **front end** with a hand-coiled 0.12uH inductor for high Q, a trimmer capacitor for frequency **tuning**, and an op amp and potentiometer for signal **amplification** and volume control. The radio is powered with a 9-volt battery. An earbud-style headphone is included.

## Instructions and Tips

You'll need a soldering iron, solder, wire cutter, protective eyewear, and some other basic tools. Detailed assembly instructions, schematic, and videos (coming soon) can be found online: [www.arrl.org/radiokit](http://www.arrl.org/radiokit). Begin assembly by soldering smaller parts first, and by working from the middle of the board to the outside. The leads for the battery clip and antenna can be soldered last.

**WARNING:** Please wear safety goggles.  
This kit requires soldering and clipping leads.

**Ordering:** 888-277-5289 | [www.arrl.org/shop](http://www.arrl.org/shop)

**Support is provided by** [ARRL@radiosinc.com](mailto:ARRL@radiosinc.com)

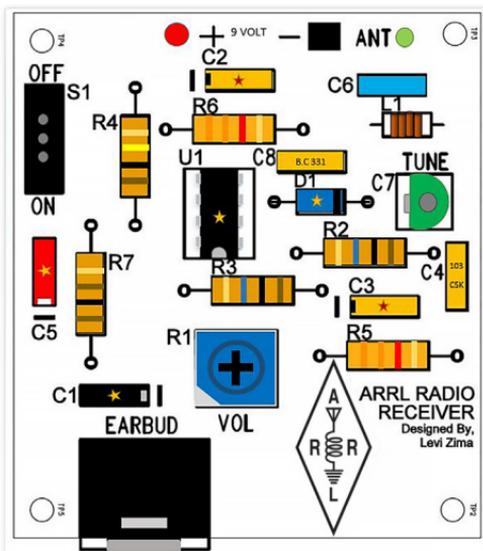
## Parts List. Inventory all the parts in your kit before installing.

Qty	Value/Part #	Description	Ref Des	Identification*	Inv	Inst
1	100 k $\Omega$	Potentiometer	R1	3-pin blu resistor		
2	10 M $\Omega$	Resistor, 1/2 W	R2, R3	Brn-blk-blu-gold		
1	100 k $\Omega$	Resistor, 1/2 W	R4	Brn-blk-yel-gold		
2	3.3 k $\Omega$	Resistor, 1/2 W	R5, R6	Org-org-red-gold		
1	100 $\Omega$	Resistor, 1/2 W	R7	Brn-blk-brn-gold		
1	10uF	Elect. Capacitor	C1	Blk w/ wht line		
2	1uF	Elect. Capacitor	C2, C3	Gold w/ blk line		
1	10nF	Capacitor, mono	C4	Yel, marked 103 bigger than C8		
1	100uF	Elect. Capacitor	C5	Red w/ wht line		
1	1.5pF	Capacitor, mono	C6	Blue marked 1R5		
1	6.5-30pF	Trimmer Capacitor	C7	2-pin green Cap		
1	1N5711	Diode	D1	Blue w/ blk line		
1	330pF	Capacitor, mono	C8	Yel, marked 331 smaller than C4		
1	0.12uH	Inductor Coil	L1	Large bronze enamel coil		
1	K12C15N	ON-OFF Switch	S1	3-pin blk switch		
1	LM358	8 pin Op-Amp	U1	8-pin; notch or engraved circle marks pin 1 for correct direction		
1	CEP-2242	Earphone Jack	SPKR1	3-pin earphone jack		
1	TL-5902	Snap Battery Clip	BAT1	9 V battery clip		
1	Antenna	18 Gauge Wire	ANT1	10" 18-gauge green wire		
1	PCB	Printed Circuit Board	N/A	circuit board		

\* actual parts may have some variation in color or marking

## Board Layout

★ Indicates when the orientation of the component is vital.



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