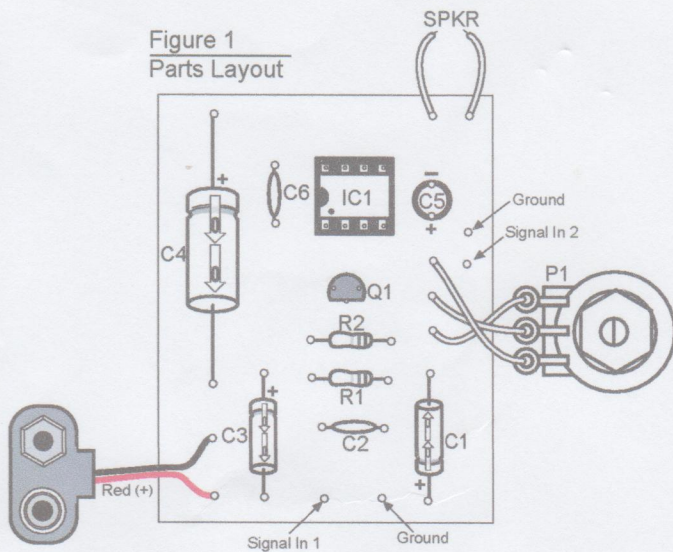


Kit Assembly Instructions

C6238 GENERAL PURPOSE AMPLIFIER KIT

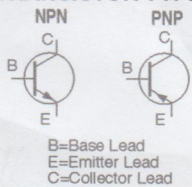
Figure 1
Parts Layout



PARTS LIST

C1, C3	_____	1µF Electrolytic Capacitor
C2, C6	_____	.01µF Disc Capacitor (103)
C4	_____	4.7µF Electrolytic Capacitor
C5	_____	22µF Electrolytic Capacitor
IC1	_____	LM386 (386) Amplifier IC
P1	_____	50KΩ Potentiometer
Q1	_____	2N3904 Transistor
R1	_____	33KΩ Resistor
R2	_____	10KΩ Resistor
SPKR	_____	Speaker
Misc.	_____	9V Snap, 8 Pin IC Socket, PC Board, Wire

TRANSISTOR TYPES



TRANSISTOR CASE

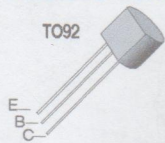


Figure 3
Transistor Information

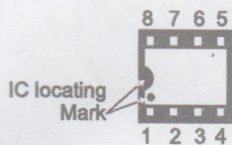
RESISTOR COLOR CODE

SEE (*) BELOW

BAND COLOR	1st DIGIT	2nd DIGIT	MULTIPLIER
BLACK	0	0	1
BROWN	1	1	10
RED	2	2	100
ORANGE	3	3	1,000 (K)
YELLOW	4	4	10,000
GREEN	5	5	100,000
BLUE	6	6	1,000,000 (M)
VIOLET	7	7	10,000,000
GREY	8	8	100,000,000
WHITE	9	9	1,000,000,000

*TOLERANCE: NO COLOR 20%; SILVER 10%; GOLD 5%

Figure 2
Resistor Color Code



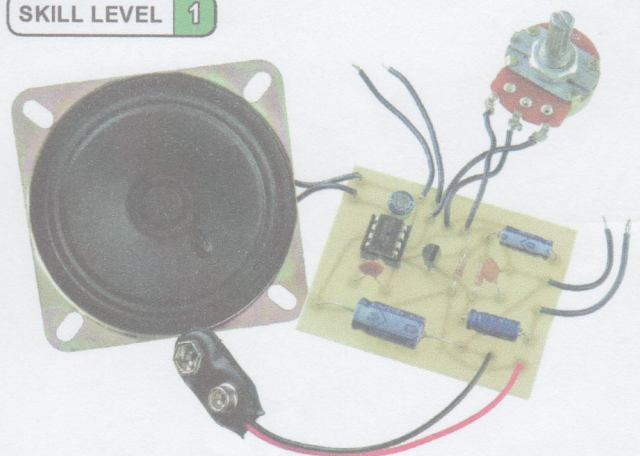
There are two different types of IC locating marks in common use. One is a dot in the lower left corner and the other is a small notch in the left center of the IC. Either mark is correct and some manufacturers even use both. Study the IC that is included with this kit to determine what mark is in use.

Figure 4
IC Locating Marks



C6238 - GENERAL PURPOSE AMPLIFIER KIT

SKILL LEVEL 1



SOLDERING PRECAUTIONS

The electronic components in this kit are solder plated. Solder contains lead and therefore, do not put components in your mouth. Always wash your hands after working with the components. Students under the age of 13 should not build this kit.

Assembly Instructions

C6238 GENERAL PURPOSE AMPLIFIER KIT

Page 2 of 2

Tools Needed for Assembly:

- Small Pencil type soldering iron (40 watts rating or less)
- Pair of wire cutters, a screwdriver & needle nose pliers
- Pair of safety goggles or safety eyeglasses
- Damp sponge
- Fresh Rosin or Resin Core Tin/Lead solder

ASSEMBLY INSTRUCTIONS

1. Assemble per Parts Layout (Figure 1), Parts List and Schematic (Figure 5) using resin or rosin core solder only. **Note:** Acid core solder cannot be used and will damage the kit.
2. Install capacitors C1, C3, C4, C5 observing polarity. Install disk capacitors C2 and C6 (no polarity). Install the IC socket. Install the speaker SPKR (no polarity). Install the potentiometer P1 observing the position of its leads.
3. Install transistor Q1 observing the flat side as shown in the Parts Layout. Install all resistors per Resistor Color Code. Install the battery snap observing polarity. Install the IC observing the position of its locating mark.
4. After assembly, recheck all connections and parts placement.
5. The kit features a high gain pre-amp stage and an IC power amplifier. If you wish to use the amplifier with higher level signals such as the output of many computers, use the signal input 2 (this connects your input signal directly to the power amplifier). If you wish to amplify weak signals such as microphones, phono cartridges, telephone pickups, etc., use signal input 1 (this connects your input signal to the pre-amp which amplifies the weak signal and then feeds it to the power amplifier).
6. To operate, connect a fresh 9V alkaline battery to the amplifier and adjust gain control. **NOTE:** Amplifier may squeal if microphone is located near speaker.

THEORY OF OPERATION

The C6238 General Purpose Amp Kit uses a 1 transistor pre-amp and an IC audio power amplifier chip (LM386) to amplify weak signals. The preamp consists of NPN transistor Q1. Resistors R1 and R2 provide correct biasing and capacitor C3 provides coupling from the base of Q1 to the input signal. Capacitor C2 is used for filtering and capacitor C1 couples the amplified signal to the gain control potentiometer P1. This control applies only the amount of amplified signal you wish to the input of the IC power amp and serves as a volume control. The power amp contains many internal transistors and is used to provide a high level amplified signal to the small speaker through coupling capacitor C5. Capacitor C6 sets the internal gain of IC1, and capacitor C4 is used to prevent "motorboating" or low frequency oscillation.

FOIL PATTERN OF PC BOARD

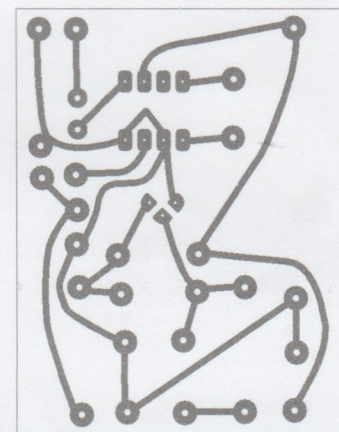
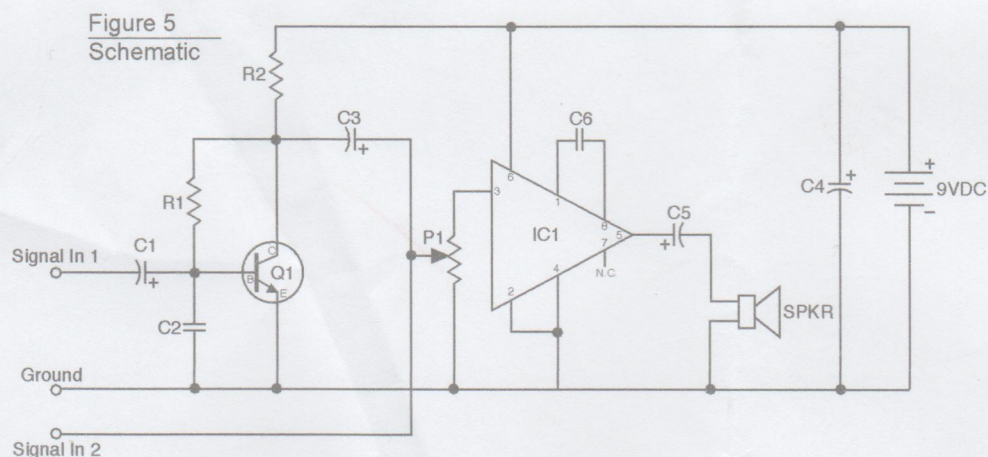


Figure 6
Foil Pattern

TROUBLE SHOOTING HINTS

1. **IMPORTANT:** If acid core solder was used the kit will be conducting voltage to various points where it should not and the kit will be **DESTROYED**.
PLEASE NOTE: We cannot repair any kit that was assembled using acid core solder!
2. Recheck all resistors against the Resistor Color Code and Parts Layout.
3. Look for solder bridges by comparing actual foil on PC board to the Foil Pattern (Figure 6).
4. Check for cold solder joints and reheat, adding solder to any suspect connections.
5. Make sure that the battery snap has been installed with polarity as shown. Is your battery good?
6. Check to make sure that the IC has been installed with locating mark(s) in direction shown.
7. Make sure that Q1 has been installed with flat side in direction shown.
8. Observe polarity on all electrolytic capacitors.
9. If your kit still does not operate re-check all assembly instructions. If everything is correct, return your kit per our repair policy.