Model No.: 21-043N Voice Changer

Note: you will need a low wattage soldering iron and a pair of side cutters for trimming lead wires.

Assembly instructions:

Before beginning, check the parts in this package against the parts list. This is a good time to familiarize yourself with these components.

Parts list for Voice Changer, in addition to the PC board:

Part I.D.	Description	Qty	Color code	Part I.D.	Description	Qty
R1	15K resistor	1	Brn,grn,ora,gold	EC1,EC2,EC3	100uf Elec capacitor	3
R2	3.3K resistor	1	Ora,ora,red,gold	ZD1	4.5V zener diode	1
R3	10Ω resistor	1	Brn,blk,blk,gold	IC1	Win8072	1
R4	4.7K resistor	1	Yel,vio, red, gold	IC2	LM386	1
R5	470Ω resistor	1	Yel, vio brn, gold	MIC	microphone	1
C1,C2,C4	104 ceramic cap	3		SW1/2/3/4/5	tact switch	5
C3	224 ceramic cap	1		9V+-	battery snap	1
C5	333 ceramic cap	1		SP	8Ω speaker	1
C6	82p ceramic cap	1			red wire	1
C7	22p ceramic cap	1			black wire	1
VR1	103 variable resistor	1			white wire	1
VR2	102 variable resistor	1				

NOTE:

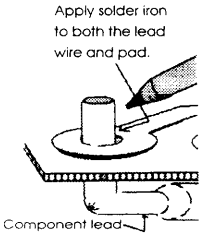
The IC's are mounted in an anti- static foam block. Leave them in the foam until you are ready to place them on the PC board permanently. When you remove them, FIRST touch your finger with a ground for a full second to remove any static in your body: try not to touch the IC pins. Static can damage these IC's . If you have a static wrist strap, connect it to ground and wear it during assembly.

The metal cabinet of your computer is also grounded. Touch one of them for a moment before handing the IC's; then don't move around much until the IC's are safely mounted.

NOTE: Solder quickly and carefully do not hold the hot soldering iron on the pad longer than necessary to melt the solder. Too much heat can damage the board or damage the component. Be careful not to bridge to another copper pad or trace. Good soldering is absolutely mandatory;for the circuit to work.

The resistors are small, cylindrical parts with color bands around the body. The bands are a code that identifies the value of the resistor. You may refer to the cloor band and what value it represents in "Component Matking Codes"

STEP 1. Note that the parts I.D. (identification) for each component have been printed on the PC board. This is the side of the board where you will mount parts. Soldering parts leads on the copper side, Do not mount parts on the copper side for this project.



Locate the R1 on the board, note that a resistor schematic symbol is shown clearly indicating where the lead wires go. It does not matter which lead wire goes in which hole. Place resistor R1 on the board by bending its lead wires at right angles so that they line up with the hole spacing and the resistor lays flat on the board. You can identify R1 using the color code in the "Component Marking Codes" When R1 is laying flat on the board with its lead wire protuding through to the other side, bend the leads on the copper side to hold it in place. Do not solder yet.

STEP 2. Mount the remaining resistors, R2 through R5 in their respective locations just as you did for R1resistor .

STEP 3. Solder all resistor leads.

STEP 4. Once all leads are soldered, trim them close to the board with side cutter, don't cut solder but do cut away any lead wire that you can see protruding from the solder. This is a good time to examine for bridges or poor soldering.

STEP 5. Mount the ED1 zener diode in the same way as you did the resistors. ED1 is a tiny glass cylinder with the black stripe around its body. It is polarity conscious; i.e. it must be mounted with correct polarity. The wavy bar at the end of the arrow on the circuit board corresponds to the black stripe.

STEP 6. Mount seven capacitors,bending the leads to hold them in place. Solder these and ED1as well trim the leads from these components after soldering.

> Note:
> Always mount low profile parts first and high profile parts later.

STEP 7. Mount the two integrated circuits, IC1and IC2. Two things are very important here:

a. avoid static discharge that could ruin the IC's; touch a ground for a moment before you remove the IC's from the anti-static foam. Try not to touch the leads, place them in the board and solder them, (this removes most of the sensitivity to ESD but continues to avoid static as possible.) If you have a grounded wrist strap, use it while handing the IC's.

b. Orientation must be correct. Note that the IC's have a notch on one end. To determine orientation,look at the P.C. Board(top view). The notches must be located as shown .

c. Soldr each contact carefully; do not trim any excess lead, leave it as is.

STEP 8. Mount the five switches, SW1 to SW5 Note they will tend to snap into the board and stay in place fairly well. Push all switches snugly against the board and then solder all leads. Do not trim excess leads.(The switches are self-orienting in this case: if it fits the mounting holes, it is correctly positioned).

STEP 9. Mount the VR1 VR2 potentiometer (variable resistor). It has three leads which will enter the enter the P.C. board only when you have it properly lined up Solder it in place.

STEP 10. Mount the microphone element. It will work best if it's ground side connects to the circuit ground.To identify: look at the bottom of the mike element; one lead has contact with the mike case; this is the ground side. Place the ground lead in the hole furthest from switch S4 and solder both leads in place. An alternate method of mounting the mike is to cut the Whi Te wire in half, strip the ends and then solder the leads in the holes marked "MIC. Then solder the wires to the Mike element.

STEP 11. Mount the remaining capacitors in place, bending their leads to hold them until you solder. Solder them in place and trim excess leads wire. Note that the electrolytic capaci tor must be inserted correctly; the negative lead wire is marked with a "-" minus sign and the board has a corresponding sign where that lead must go.

STEP 12. Connect the battery Snap's red wire to the + "positive " and the black wire to the "negative" so marked on the board. Solder them in place.

STEP 13. Strip about 1/4" from each end for the red and black wires. Connect one red and one black end to the board marked "SP" and the other ends to the speaker terminals (polarity is not important here).

Oparation :

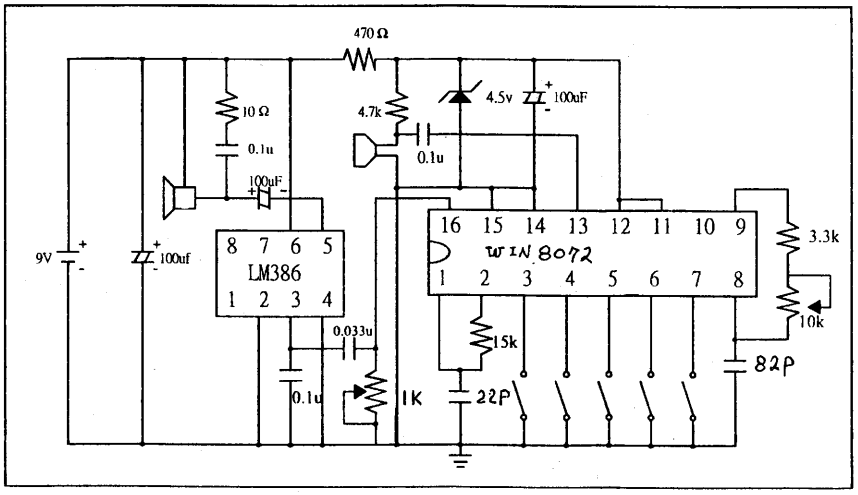
You are now ready to connect a 9V battery and test your project.

You are now ready to connect a 9V battery and test your project.

- To avoid squeal, the loudspeaker must be kept a distance from microphone.hone.
- VR1: adjust this VR to change the voice speed.
- VR2: adjust this VR to control volume.
- Push SW1, the voice changes up (higher tone).
- Push SW2, the voice changes down (lower tone).
- Push SW3, the voice changes down (lower vibrato sound).
- Push SW4, the voice changes up (up vibrato sound).
- Push SW5, the voice will be similar to a ROBOT.

MADE IN TAIWAN

CIRCUIT DIAGRAM



P. C. BOARD(TOP VIEW)