# Pixie Switch
# Assembly Instructions

The Pixie switch was designed to switch between 4 frequencies on a Pixie transciever by replacing the crystal with this board. The board was designed with extra component areas to make a switch or prototyping area for the following uses:

- Chinese Super RM Rockmite "Octopus 2 crystal receiver front end switch.
- Adding an inductor in the extra crystal socket to provide a larger crystal bend in the Pixie oscillator.
- A 5th order Low Pass Filter can be created using the capacitor sockets and replacing the crystal positions with inductors.

A discussion of these potential alternative uses are included at the bottom of the instructions.

**KIT CONTENTS**

| | |
|---|---|
| 1 | Pixie Switch PCB |
| 1 | 2P4T Slide Switch |
| 1 | 3 pin straight header |
| 1 | 3 pin right angle header |
| 1 | 3 pin female header |
| 2" | Wire 22ga Solid |

Note: Crystals are sold seperately

**Construction notes:**

- Familiarize yourself with components using the included parts list.
  TIP: Not sure what part is what? We recommend picking up almost any fairly recent copy of the ARRL Handbook. The GQRP web site also has several good articles on component identification.
- Some parts in this kit may have been substituted with parts of a better quality. Alternates will be shown in the parts list with "SUB".
- The PCB top side contains most of the silk screen component legends. The bottom will typically contain board identificatin and version.
- All parts are mounted on the top side of the PCB ***except header P1.***
- Solder and trim the excess leads after installing each component. Be carefull when trimming leads and use eye protection! Some of the short header leads can fly into your eyes!
  TIP: Not sure how to solder? There are many excellent videos on the internet. Check out sites such as Sparkfun.com, adafruit.com, and electronics123.com

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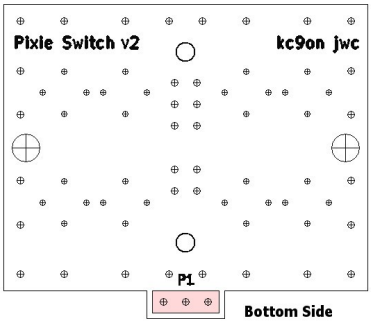
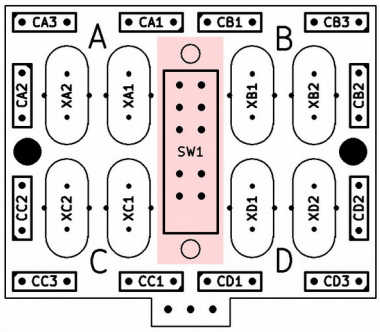
## Board Assembly – Pixie Switch

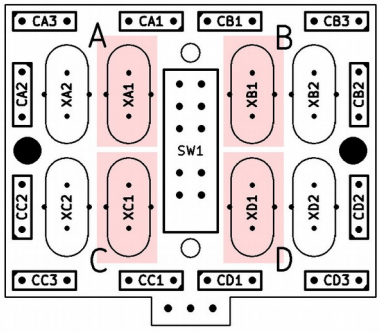
1. Determine if you want the Pixie Switch to be in a horizontal or vertical position. Install header P1 on the **BOTTOM** side of the circuit board using the appropriate 3 pin male header. Straight header for horizontal, right angle header for vertical. In the horizontal position the board may lay over the top of the Pixie but could cover the RIT trimmer. Make sure components from the Pixie does not touch the switch board in this position.




2. Install switch SW1 and solder.




3. Solder crystals (not supplied) to positions XA1, XB1, XC1, and XD1 as needed and trim the excess leads. Optionally add solder ground wires to crystals using the holes on the sides of the crystal positions and the excess lead clippings.



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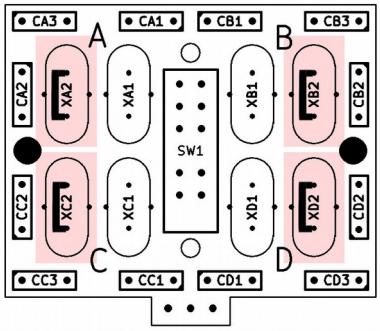
4. For a regular Pixie crystal switch solder jumper wires into XA2, XB2, XC2, and XD2 using .5" of stripped wire for each jumper.




Note: Capacitor positions are not used in the standard Pixie switch.

**This complete the Pixie Switch PCB Assembly.**

## Pixie Preparation:

1. Remove the crystal from Y1 from the Pixie and clear the holes.
2. Scrape some of the solder mask away from the ground plane area under positions C7 and C3. Lightly tin this area with solder.
3. On the 3 pin female header bend the middle pin to 90 degrees. Lightly tin the center pin.
4. Position the female header into the Y1 crystal area so that the middle bent pin touches the area previously scrapped and tinned. Note: you may need to trim the middle pin so that it does not touch the 2 capacitor pads.
5. Solder the middle pin in place on the top side of the board. Then solder the 2 remaining pins on the bottom side.
6. Plug the Pixie switch into the Pixie. The switch can be plugged in backwards or forwards.

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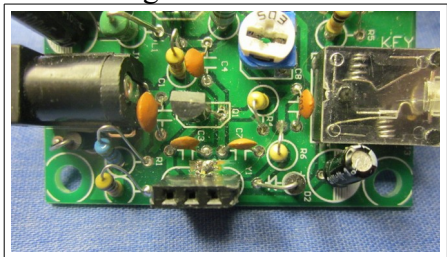
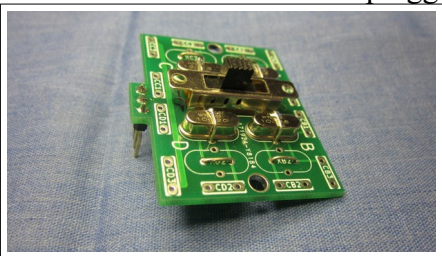
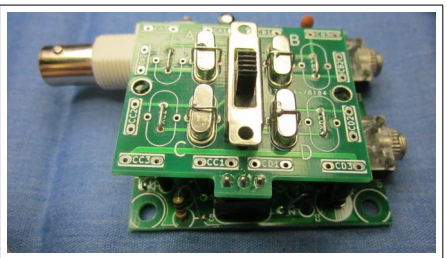
|---|---|---|
|  |  |  |
| Header installed on Pixie | Completed Pixie Switch for 30M | Pixie switch mounted |

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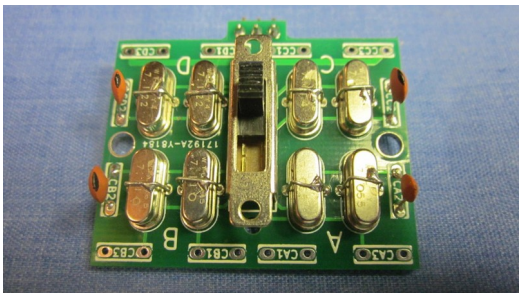
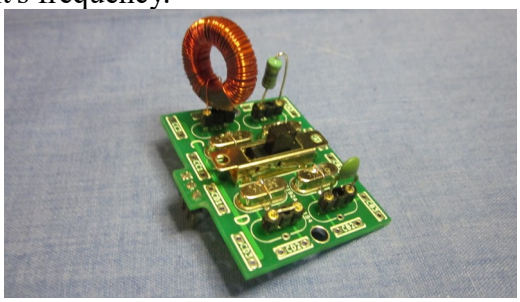
## Alternative Uses:

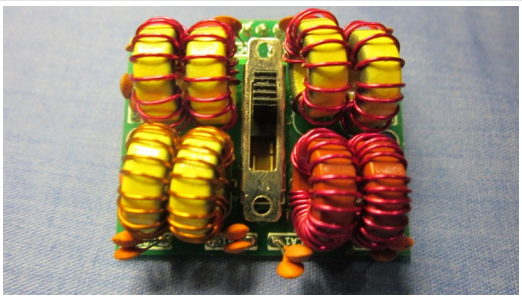
Super RM Rockmite (Octopus) Front end switch can be created utilizing 2 crystals per frequency along with a capacitor in the center position (33pF for 40M).

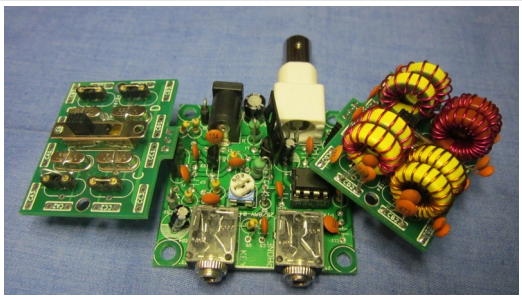


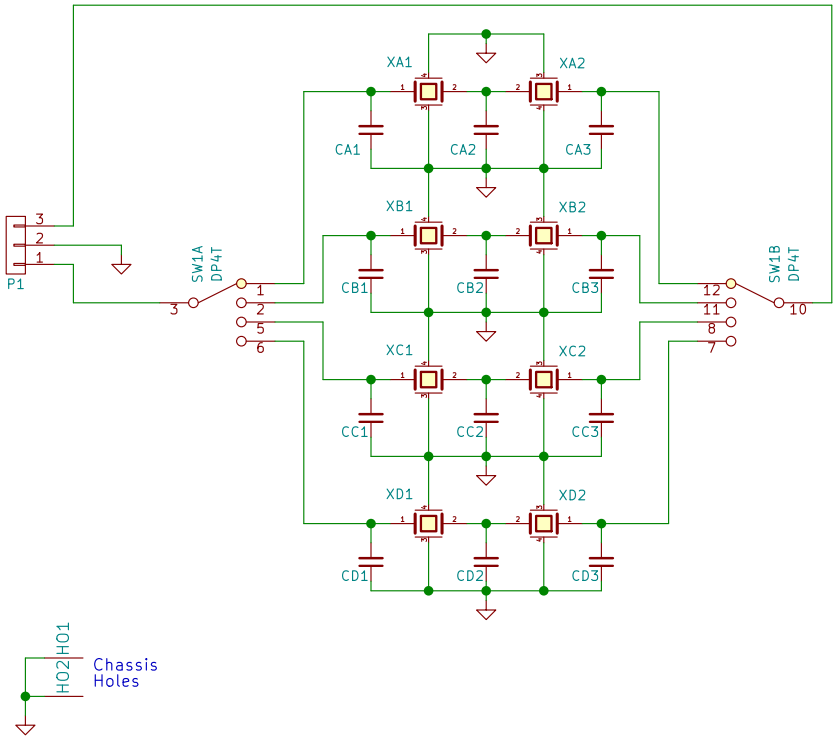
Crystal bending – by adding a capacitor or inductor in the X*2 positions will allow the crystal to be pulled farther away from it's frequency.



Low Pass filter for band switching can be obtained by using the crystal socket areas for the inductors along with the capacitor areas. For a 3 pole filter use the X*1 socket areas for the inductor along with the C*1 and C*3 areas for the capacitors, place a jumper in the X*2 socket areas. For a 5 pole filter use all 3 capacitor areas along with both crystal areas for the inductors.








kc9on jwc

**3rdPlanetSolar**

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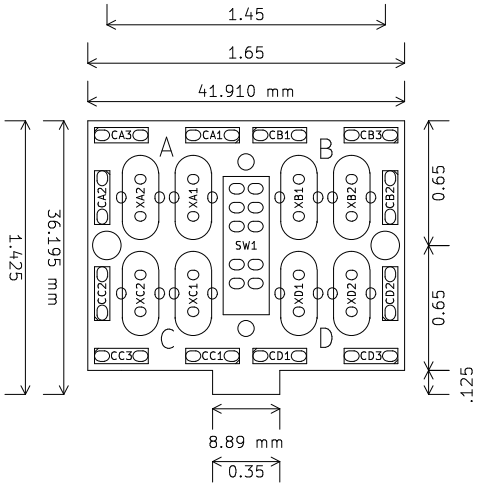


Drawing in inches unless noted

| | | |
|---|---|---|
| kc9on jwc<br>3rdPlanetSolar | | |
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