

4SQRP “Cootie” Single Lever Paddle

Assembly Manual v.1.00

Four State QRP Group

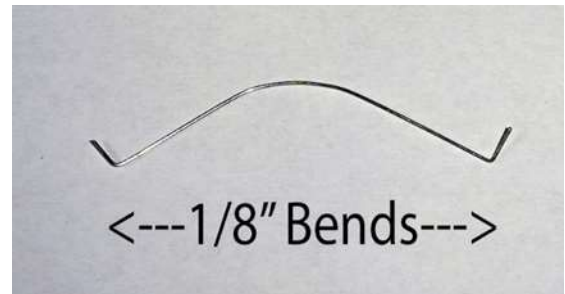
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Cripe NMOS**

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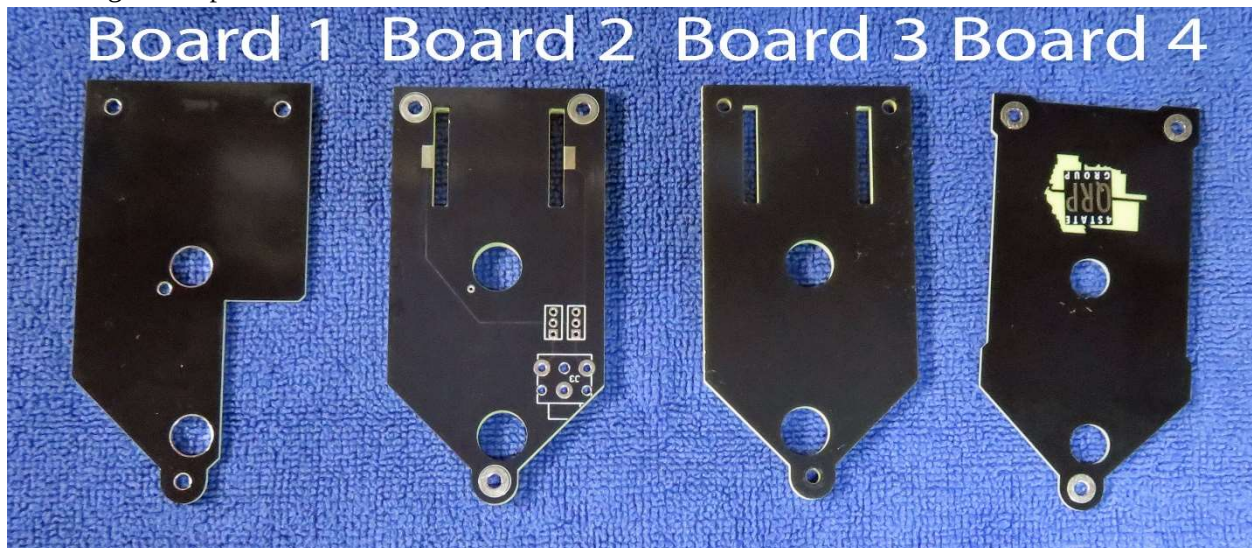


Step 1 - Inventory Parts and Identify the four PC Boards

Check your parts against the parts list in this manual to be sure all are included. In your kit, there is a 1” piece of very thin spring steel wire. Bend 1/8” of each end 90 degrees pointing in the same direction and bend it into a curve as shown in the photo. The spring will be shorter than in the photo. Keep this in a safe place as it can easily be lost. Using a magnet can help secure it and retrieve it for assembly.



There are four PC boards in this kit. Orient them and identify them according to this photo.



Board #1 is thinner and has a notch to clear the solder pads from the jack and pin headers

Board #2 is thicker and has parts outlines silk screened on it and has PCB circuit traces.

Board #3 is thicker and has no silk screen or PCB traces on it

Board #4 is the thinner board with the 4SQRP logo



There are two small square shaped thicker boards that will be used for contact mounting.

The Paddle board has the finger grip on one end and can be mounted with the end pointing up or down, depending on your preference.

The Flapper board is long and thin and has multiple holes.

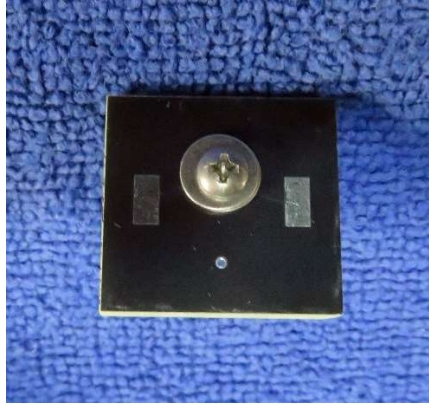
Step 2 – Connector Assembly



Using Board #2, mount the 1/8" jack on the printed silk screened side. Be sure to use a higher heat setting for your soldering iron as the thicker board requires more heat to allow the solder to flow properly. Solder the two 3-pin headers to Board #2 next to the jack. The pins come out about level with the bottom of the thicker board, so be sure to use plenty of heat and solder on the pins. If soldering the pins correctly, you will see the solder being absorbed into the holes. Once they are soldered into place, place the shunts onto the headers. To select "normal" paddle wiring, place the shunts on the two pins farthest from the jack on each header. Placing the shunts on the two forward pins on each header results in "reverse" wiring. Note that in the photo, the shunts are in the "reverse" position.

Step 3 – Contact Board Assembly

On each of the two Contact Boards, take a 9/16" 4-40 screw and place two washers on the screw. Then insert the screw from the trace side of the Contact Board and place an internal star washer on the other side of the board along with a 4-40 nut and tighten the nut. With both washers on the head side of the screws, the spacing will be wide. Removing one or both washers on each side allows you to change the

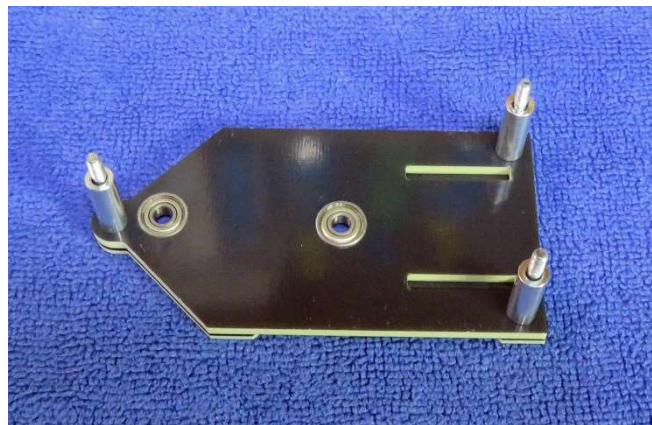


gap on each side separately after assembly.



Step 4 - Bearing Assembly

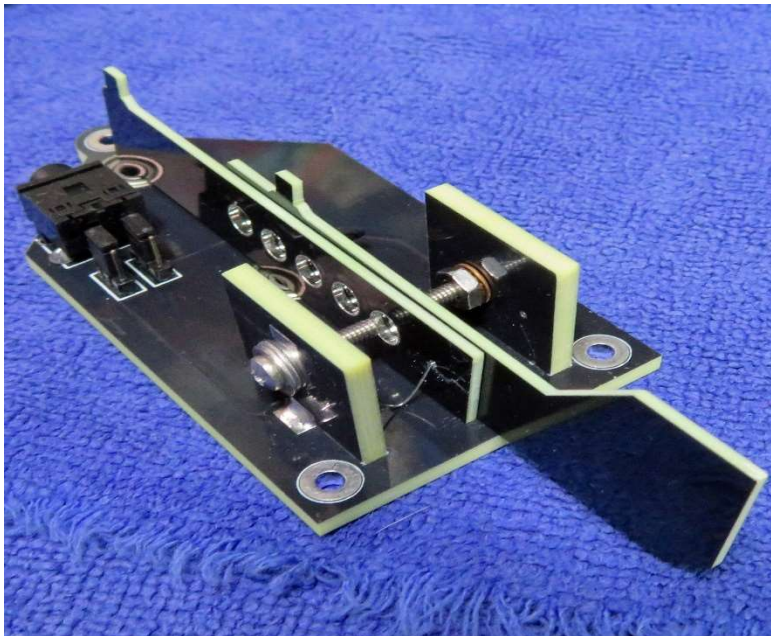
Insert the four bearings into the holes in Boards #2 and #3. They may be a tight fit. If too tight, very lightly sand the inside of the hole. It won't take much effort to enlarge it if needed. Most often they will press exactly into place. Take Board #4 and pass the three longer screws from the logo side and turn this assembly upside down and place on your work surface. To avoid scratching the top surface of the logo board, use a mouse mat or a towel under the board. Place Board #3 over the top of Board #4, making sure that the bearing hole near the apex point is offset slightly to the right of the top center hole and aligns with the bearing hole on Board #4. Note that the bearings will not pass through the holes on Board #4 but will align with those holes if mounted correctly. Slide the three aluminum spacers over the three screws.



Step 5 - Paddle Assembly

There is a short piece of stranded wire included in the kit. Strip about 1/8" of insulation from each end. Solder one end of the wire to the hole on the center of Board #2. At this point, you may choose whether to have the paddle grip pointing up or down. Once you have chosen the orientation, solder the other end of the wire to the small hole near the center of the Paddle board and trim any excess from both solder connections. Set Board #2 on your work surface. The Contact Mount boards have the screws slightly

offset to one side. Insert a Contact Mount board into the slot on the left side of Board #2. The screw should be on the side of the Contact Mount board closest to the apex point of the assembly and the screw threads should point towards the center of Board #2. You will also see the shiny solder pads on Board #2 and the Contact Mount board line up. Insert the Flapper board into the bearing at the apex of the assembly. Carefully insert the spring into the small holes in the Flapper and Contact Mount boards. You might need to bend the spring a bit in the



center to get it to fit. Insert the Paddle Board to the right of the Flapper and make sure the tab is inserted in the bearing in the center of Board #2. Insert the other Contact Mount assembly into the remaining slot in Board #2, making sure again that the screw threads are pointing inward and the screw offset is on the side facing the apex of the board.

Step 6 - Final Assembly

Carefully lift the Board #2 assembly and place it over the three screws

coming from the Board #3 and 4 assembly. Make sure all of the parts, including the Paddle and Flapper align with the bearings on both the top and bottom boards. Be sure the Contact Mounts fit into the slots as well. Place Board #1 over the top of this assembly, making sure to align the notch over the soldered connections of Board #2. Screw the three magnets onto the three screws, making sure the ringed side is facing outward. This is important as only the ringed side of the magnets will adhere to a metal surface. Once everything is tightened and secure, be sure the paddle moves freely. Once everything is in place, solder the pads between the Contact Mount boards and Board #2. Connect a 3-conductor standard 1/8" stereo cable between the jack and your keyer or radio.



Parts List

QTY	Description
1	Paddle
1	Flapper
2	Contact Mount board
1	Board 1
1	Board 2
1	Board 3
1	Board 4
4	Ball Bearing Assy
3	Magnet
3	31mm screw
3	18mm spacer
1	1/8" jack
2	3 pin header
2	Shunt
1	1.0" spring wire
1	1" 26 AWG wire
2	4-40 nut
2	4-40 x 9/16" screw
2	#4 internal tooth lock washer
4	#4 flat washer