

# PortableSDR Assembly Instructions

*Get Ready:* Find a place to work. In addition to the included **Allen Wrenches**, you'll need needle-nose pliers and a Micro USB cable. Discharge any static electricity before working, and use a grounding strap on yourself.

## Notes:

Words in **Bold** refer to items on the parts list.

With all the screws on the PSDR, I recommend that you start them by setting them in the screw hole, and turning them backwards until the screw pops into the thread before screwing them in normally. Starting all the screws in a given step first, and then going back and tightening them will ensure that there is a good fit. None of the screws on the PSDR need to be overly tight. I turn the screws until they stop and then about 1/4 turn more.

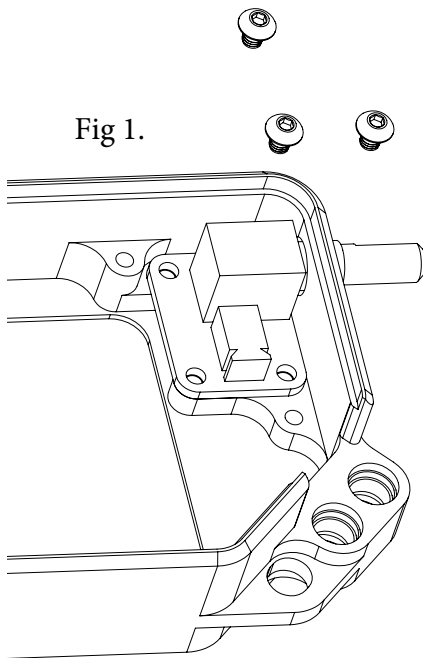


Fig 1.

1. *Install the **Encoder Board**:* Use three **Short Button Head** screws to secure the **Encoder Board** to the upper right hand corner of the **Housing**. (Fig 1.)

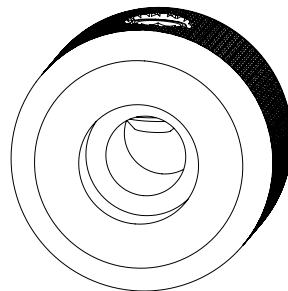


Fig 2a.

Note: **Knobs** are shipped with **Set Screw** inserted

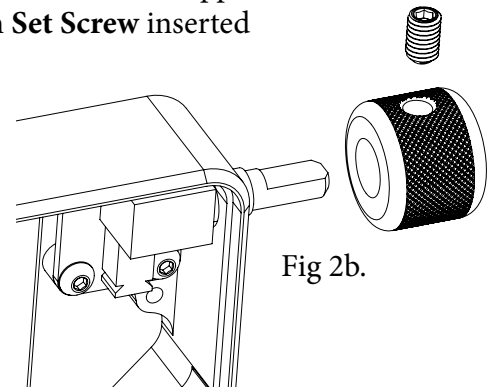
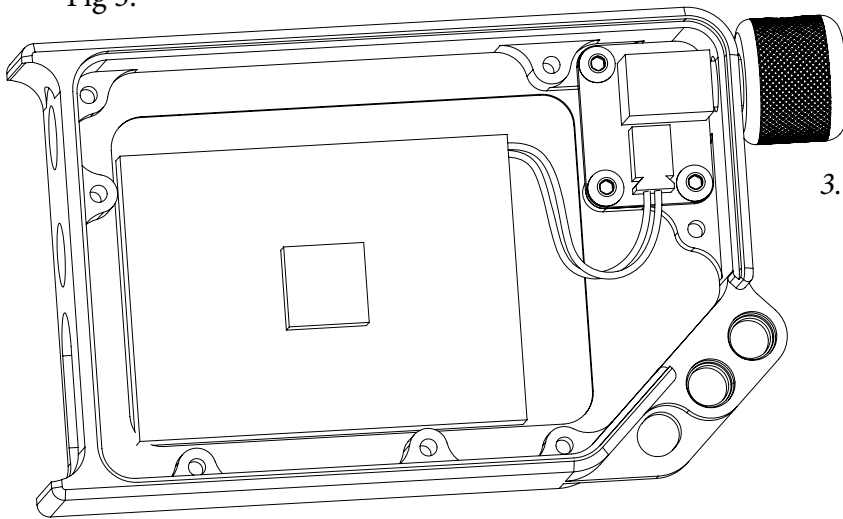


Fig 2b.

2. *Install the **Knob**:* Screw the **Set Screw** part-way into the **Knob** (far enough that you can see it on the inside of the **Knob** hole. See Fig 2a.), then slide the **Knob** onto the **Encoder** shaft with the set screw aligned to the flat part of the shaft. (Fig 2b.) Push it on as far as it will go. It will not touch the **Housing**, but should be pretty close. Use the larger **Allen Wrench** to tighten the **Set Screw** down (this is the only time you'll need the larger **Allen Wrench**). When tightening, hold the **Knob**, *not* the **Housing** (this would put a lot of stress on the **Encoder**). Verify that the **Knob** can turn and that you can feel it click when you push it in.

Fig 3.



3. *Install the Battery:* Plug the **Battery** it into the **Encoder Board** then place it in the lower left corner of the square pocket in the **Housing** with the wires in the upper right corner. Remove the backing on the **Foam** and stick the **Foam** to the center of the top of the **Battery**. (Fig 3.)

4. *Install the Main Board:* Remove the **Main Board** from it's packaging. Insert it into the **Housing** by angling the SMA connectors into their holes in the **Housing** (Fig 4.), then tilt the **Main Board** down onto the pins on the **Encoder Board**. Push on the upper right corner of the board until it firmly connects to the **Encoder Board** pins. If it doesn't set down mostly flat, the battery may have shifted.

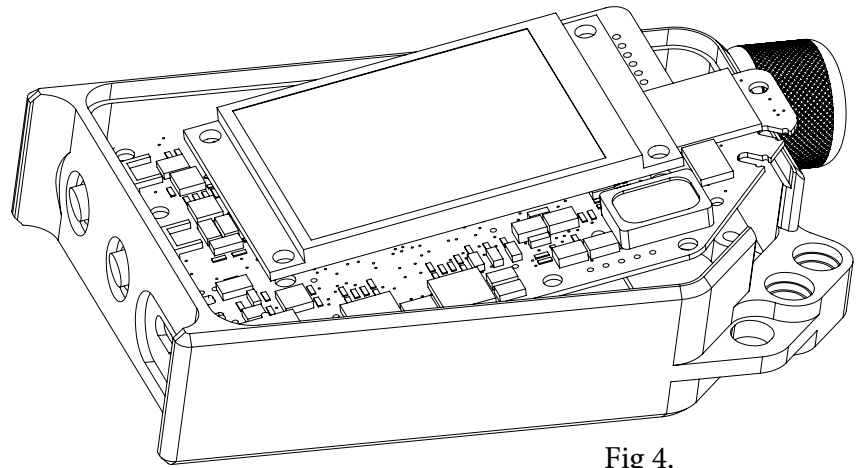


Fig 4.

### Note:

At this point, power is available to the **Main Board** so be careful not to drop screws into the **Main Board** or touch it with tools (well, don't do that anyway). Depending on the charge of the battery, the PSDR may power up, if it does, you can turn down the volume on the radio by turning the **Knob** counter clockwise.

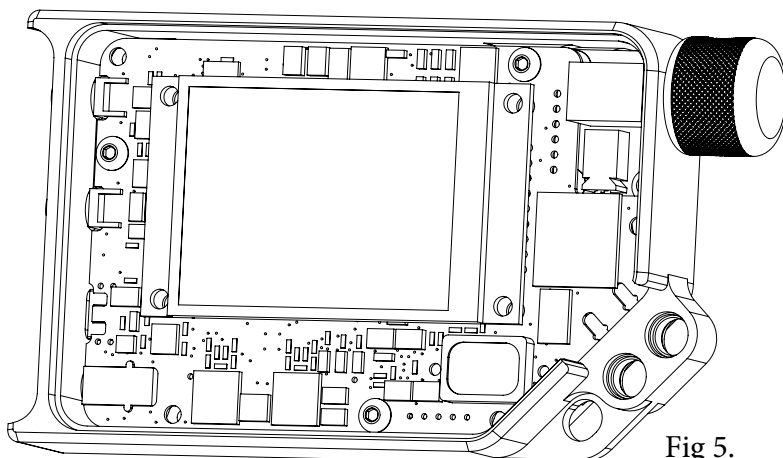
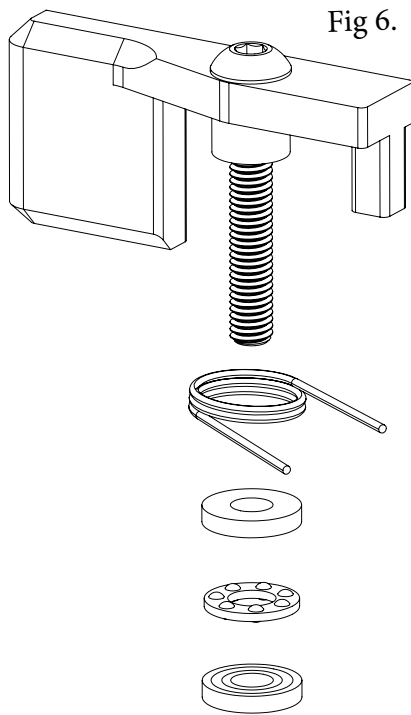


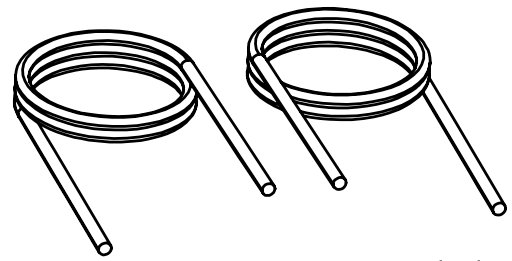
Fig 5.

5. *Secure the Main Board:* Screw the three **Short Button Head** screws partially into the three holes on the **Main Board** that have large gold-plated pads. Do not tighten them yet. Insert the Micro USB connector into the main board through the hole on the left side of the **Housing**. With that inserted, tighten down the **Short Button Head** screws (Fig 5). Verify that you can plug and unplug the Micro USB cable with minimal difficulty.

6. *Put together the **Right Paddle Assembly**:* Insert a **Long Button Head** screw into the hole on the **Right Paddle**. Find the **Spring** that is wound clockwise and place that up onto the small shaft on the **Right Paddle**. Next, place one of the **Bearing** surfaces (the part without the small balls) onto the **Long Button Head** screw with the flat side toward the **Right Paddle** and the side with the track facing out. Next place one of the **Bearing** ball sets onto the screw, followed by another **Bearing** surface part, this time with the track facing the balls. (Fig 6a.)



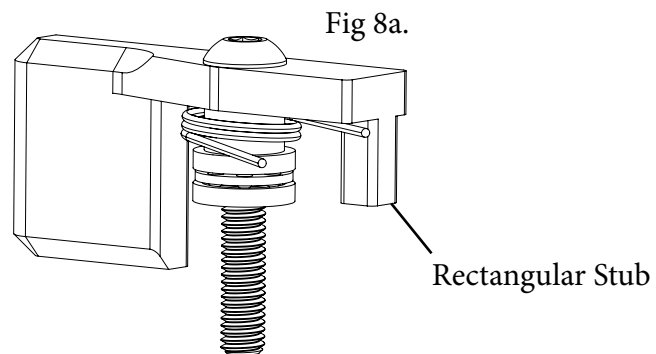
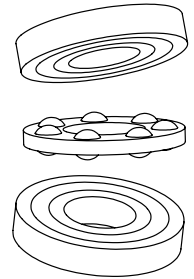
### Notes:



Clockwise

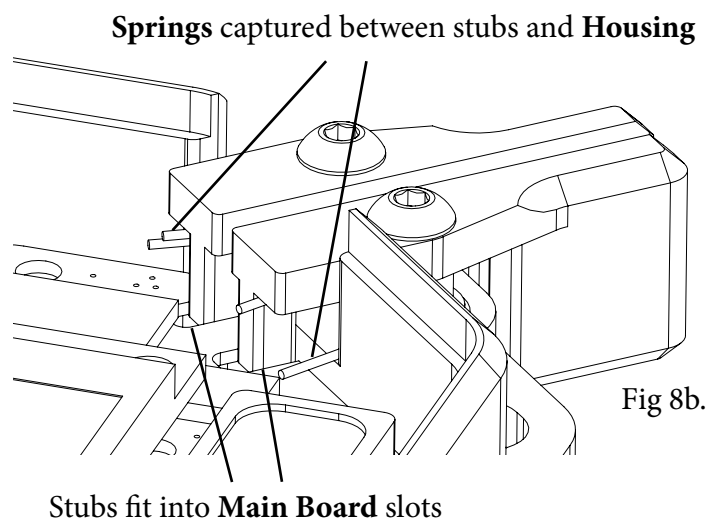
Counter-clockwise

In all places where **Bearings** are used, they are assembled with the ball part in the middle and a surface part on either side, with the tracks facing in toward the ball part, as illustrated.

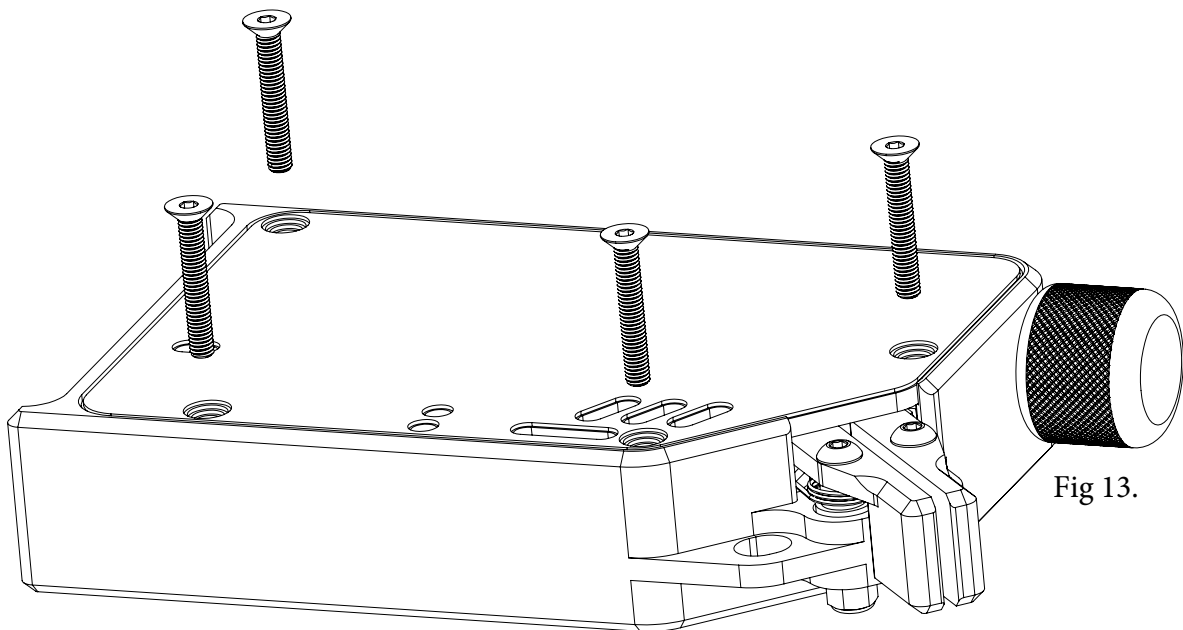


7. *Put together the **Left Paddle Assembly**:* Repeat the previous step with the **Left Paddle** and the counter-clockwise **Spring**.

8. *Install the **Right Paddle Assembly**:* Pick up the **Right Paddle Assembly** in one hand, pinching the **Spring** against the small rectangular stub (Fig 8a.) on the **Paddle**. Holding the PSDR in the other hand (probably easier if it's vertical) insert the **Right Paddle Assembly** into its hole on the **Housing**, ensuring that the **Spring** is captured in the slot of the **Housing**, and that the **Paddle** stub fits into the slot on the **Main Board**. (Fig 8b.)



9. *Securing the **Right Paddle** Assembly:* Holding the **Right Paddle** Assembly in place with a finger, turn the PSDR over. Put a **Bearing** onto the screw, first a **Bearing** surface, track up, then a **Bearing** ball part, then a **Bearing** surface, track down. Finally, screw the **Nut** onto the screw with your fingers. Don't tighten it yet.
10. *Installing and securing the **Left Paddle** Assembly:* Repeat the above steps for the **Left Paddle** Assembly.
11. *Tightening the **Right Paddle** Assembly:* Double check that the **Paddle** stubs are in the **Main Board** slots. Place the PSDR on the edge of your work surface and use needle nose pliers to grab the **Nut** on the **Right Paddle** Assembly. Holding the pliers securely, use the **Allen Wrench** to tighten the **Long Button Head** little by little until the **Paddle** is no longer able to wobble vertically (a very small amount is okay), but can still move easily when clicked. If the **Paddle** doesn't move easily, back the screw off a tiny amount until it does.
12. *Tightening the **Left Paddle** Assembly:* Repeat the previous steps for the **Left Paddle** Assembly. Verify that both **Paddles** feel solid, but have a nice click to them. (If the PSDR is powered up, clicking each paddle should cause two of the small squares in the upper right hand corner of the display to change color.)
13. *Installing the **Front Cover**:* Remove the protective cover on the LCD by peeling back on the green tab. Remove the protective film from the **Front Cover**. If there are any burrs they can usually be removed with a fingernail. Some **Front Covers** may have a little bit of oil on them from machining, if so, clean it off. The protective film can be used to pick up any dust on the **Front Cover**. Place the **Front Cover** onto the **Housing**. Use the four **Flat Head** screws to secure it. Don't overtighten the screws. (Fig 13.)



Enjoy your PortableSDR!  
Thank you for your support!