

CODAR 13MHz T/R SeaSonde Setup

CODAR's new 13 MHz Transmit/Receive (T/R) SeaSonde is a single mast antenna system that transmits AND receives on the **same antenna elements**. The new Dome-style loopstick antenna also eliminates the need for side-whip elements. It is lightweight, weighing in at just over 110 pounds (50 kg) and can be easily installed by two people in just an hour or two.

Assembly Instructions

- Lay the wrapped mast down carefully and then slit the plastic wrap and tape with a razor knife in order to remove the cardboard wrapper.
- Cut the tape and remove the whip antenna from the fiberglass mast.
- Your SeaSonde antenna should come with two wooden support blocks. These will be packed in the box that contains the upper mast section and other antenna accessories.
- Pull out the excess packing material from the access port at the base of the mast and then carefully remove the inner mast section and its cardboard sleeve.
- Carefully cut the plastic wrap and remove the padding protecting the ends of the inner antenna mast element.
- Once the two ends are exposed, determine which end will be at the bottom of the mast and which will connect to the upper section of the mast that has the dome antenna attached to it.
- Squeeze a very small amount of silicone grease onto each of the connectors and then finger tighten the nuts onto the bulkhead fittings. We recommend Dow Corning DC-4 non-conductive silicone grease for all cable connections.
- Connect the three SMA fittings to their respective bulkhead fittings being careful that the numbers match. Number #1 (loop #1) should connect to #1 fitting, number #2 (loop #2) should connect to loop #2 and number #3, the dipole connector (sometimes referred to as the monopole) is connected to number #3 bulkhead fitting.

- Inspect the bulkhead SMA connectors on the upper aluminum mast section and gently tighten them up if the nuts or lock washers seem loose. It may be difficult (or impossible) to tighten the inner connector because of the soldered ferrite on the center dipole cable conductor.
- Finger tighten the SMA connectors then use a felt-tipped pen to put an index mark on the bulkhead fitting. Tighten the nut with a 5/16" wrench 30 degrees and no more. A 30 degree turn moves a point on the SMA nut just far enough to align the index mark with the center of the next flat surface on the nut. Over-tightening will change the impedance!
- Liberally coat the exposed Lexan coupler and the area around the brass terminal strip (embedded in the side of the coupler) with non-conductive silicone grease.
- Gently twist the aluminum pipe until the two screw holes in the top of the lower mast tube line up with the screw holes in the Lexan coupler. NOTE: One of the screw holes is much smaller than the other. The smaller screw hole should line up with the threaded brass terminal strip on the side of the Lexan coupler. The larger hole should line up with the corresponding hole on the opposite side of the coupler.
- Once the holes are aligned, gently slip the pipe onto the Lexan coupler and continue pushing until the aluminum mast is flush against the lip of the Lexan coupler.
- Align the small screw with the small hole and start threading it with a #2 Phillips screwdriver making sure that it does not cross thread. If needed, you can slip the pipe down far enough to clear the coupler and carefully enlarge the hole using a small rat-tail file or drill bit. Its best if you get both mast screws started before tightening them down.
- Once you have the small screw started, rotate the mast 180° and thread the Stainless Steel hex head 1/4" x 20 tpi bolt into the Lexan coupler. Do not over tighten this bolt as you can easily crack the Lexan coupler. Damage is less likely to occur if you use a 7/16 inch nut driver instead of a long-handled wrench. Once both screws are started, tighten them down "snugly" with minimal torque on the wrench.

- Go to the bottom end of the inner mast and pull the cables down so that they can be reached easily but still keeping them tucked up inside the end of the inner mast tube.
- Loosen the four nuts on the collar mounted attached to the top of the fiberglass mast.
- Pick up the inner mast assembly (with dome attached) and gently slide it into the fiberglass mast. You'll probably need to reach inside the access port and gently guide the end of the mast into the space created by the three spacer/guides mounted inside the mast near the bottom. CAUTION: There may be fiberglass splinters on the interior of the mast.
- Gently reach into the tube and pull out the cable ends and mount each bulkhead connector onto the bulkhead plate.
- At the dome-end of the antenna check the continuity between the metal base plate and the threaded metal mast stub on top of the dome. The resistance value should indicate an open circuit (that is no continuity) or an extremely high value in megohms.
- Insert the four hex head carriage bolts through the bottom of the plastic collar and slide the collar flush to allow the bolts to thread into the plastic ring mount on the bottom of the dome antenna.
- *Thread all four bolts with your fingers to make sure that they're not cross threading then use an open-end wrench to gently tighten them up flush. Tightening the bolts evenly all the way around will prevent the collar from being cocked which may cause cross threading.*
- Unscrew the 1" stainless steel nut from the threaded stub on top of the dome and then apply non-conductive silicone grease liberally to the threads. Put the nut back on the stub and thread it all the way down until it is flush with the dome.
- Coat the inside threads of the mast-whip antenna with silicone grease. Thread the whip onto the stub until it stops.
- Now turn the large nut counter-clockwise until it is firmly jammed against the whip fitting. Use a large wrench to **firmly tighten** the nut against the whip.

- Thread the two site guides into the two threaded hex-head screws that help to secure the bottom plate of the dome. These site markers are used to measure the antenna bearing (from a distance) once the antenna is erected.
- Remove the protective wooden cover from the base of the antenna.
- Inspect the 8 m-long ferrite antenna extension cable set for damage. CAUTION: the ferrites are very brittle and can be easily damaged if dropped onto a hard surface or stepped on.
- Carry the assembled 13MHz T/R antenna to its base.
- Fill the bulkhead connectors at the base of the mast with non-conductive silicone grease then connect the 8m ferrite extension cable. This cable can be pulled up through the bottom of the antenna mast so that it is accessible through the access port.
- Make **absolutely sure** that the loop #1 cable and loop #2 cable coming down from the dome are connected to the loop #1 and loop #2 cables on the ferrite extension cable.
- Stand the antenna upright and bolt it to its mount then secure the access port cover.
- Wipe off excess silicone grease and then wrap the connectors with the self-sealing electrical tape provided.
- Connect the receiver and transmitter and you're ready to go through the startup protocol.