

Prepare the telescoping pole tips for the 40/30 loop elements

- Extend the telescoping poles to full length by firmly “locking” each section of the pole in place. A good methodology is to position each half of the joint so that they are several inches apart (while still within each other), and then pull quickly and firmly. Do this for each joint of each pole.
- With poles fully extended, trim the end of the tip element of each pole so that the pole is 212.75 inches (540.4 cm) from the tip of the pole to the butt end, as shown in [figure 6.01](#). You need to trim **ONLY** the poles used for the 40/30 loops—if your antenna has 20m-6m straight elements, those do not need trimming. Use a hack saw or similar cutting blade that is suitable for fiberglass.
- Using the conical drill bit, chamfer the ends of the 40/30 poles as shown in [figure 6.02](#). [Figure 6.03](#) shows the proper angle to chamfer to. Be sure to clean out the interior of the fiberglass poles before continuing. Debris inside the telescoping poles can lead to failure of the EHU.

Secure polyolefin heat shrink to the telescoping pole joints

- Each telescoping pole uses 3 polyolefin heat shrink pieces (PN 10-1059-01). On a 20m-6m element half, 3 pieces are used and on a 40/30 element half, six pieces are used. Once finished, the seal is secure and waterproof. This product requires a heat gun for activation of the adhesive.
- When positioning the heat shrink, place it so that the joint of the telescoping pole is centered in the middle of the heat shrink. [Figure 6.04](#) below shows how this is done.
- Using a heat gun (hair dryers will NOT work), apply heat evenly around the entire area of heat shrink. Note: There are 4 blue colored lines imprinted on the tubing. The joint is considered done being heated and waterproof when the lines change color to a yellowish green. Each line needs to change in color to ensure even adhesion temperatures.

FIG. 6.01

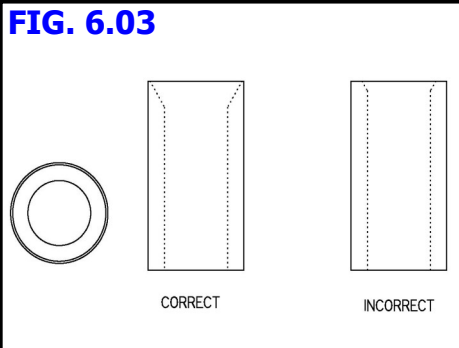
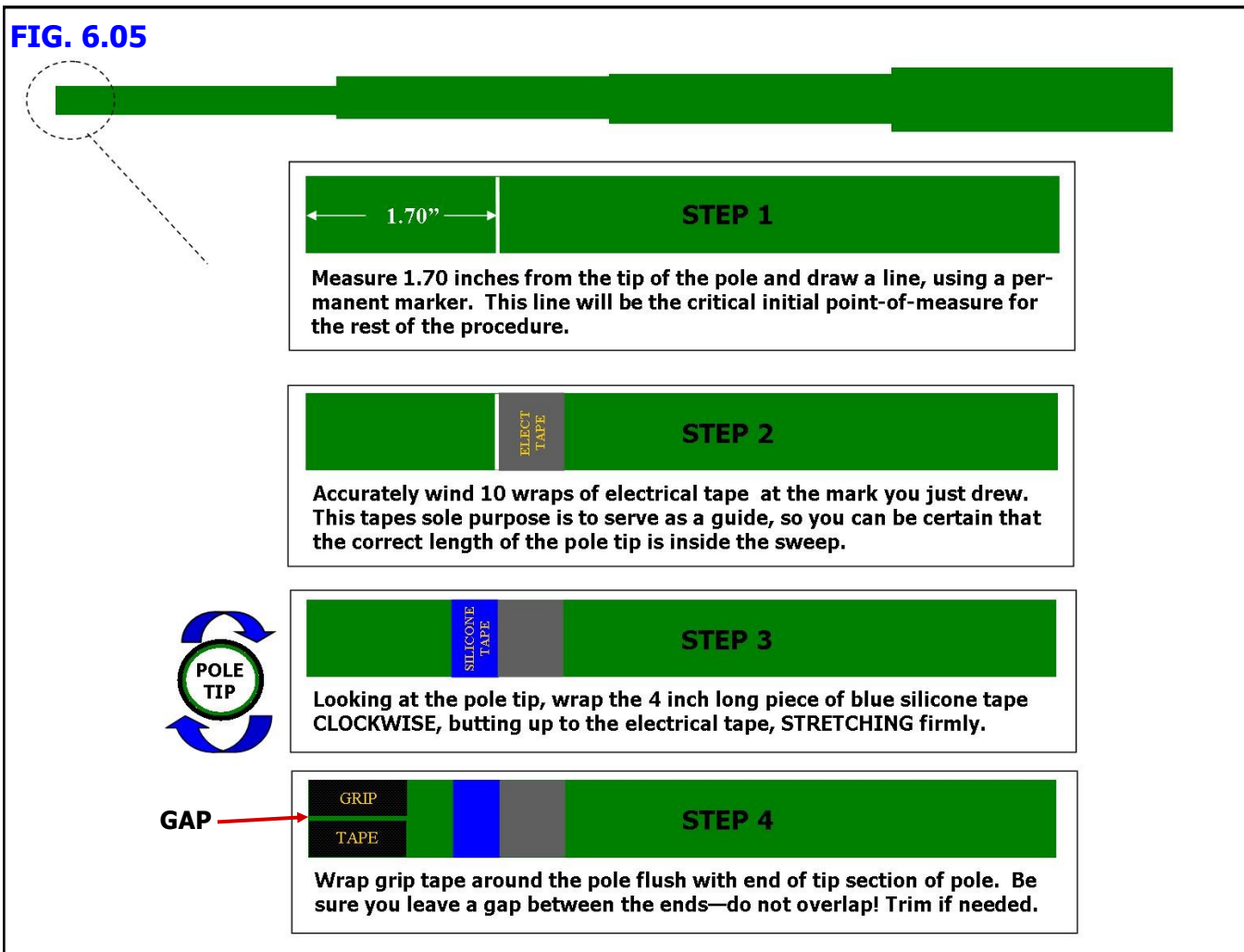


FIG. 6.04



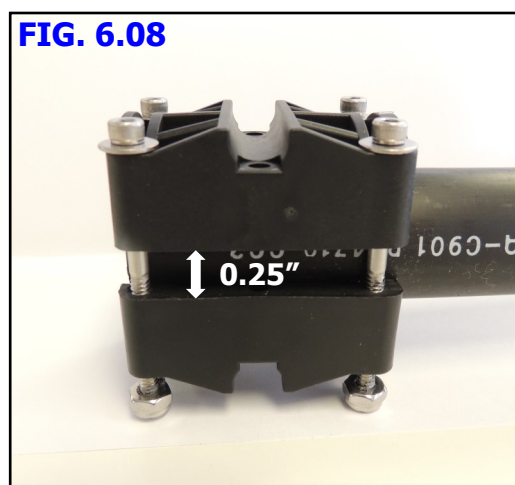
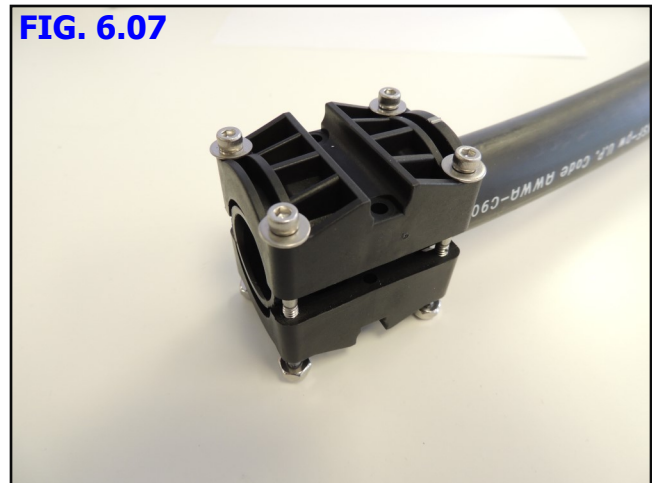
Prepare the pole tips for insertion into the loops

- Prepare each of the 40/30 telescoping poles as shown in [figure 6.05](#) for insertion into the plastic loops. The telescoping poles for the non-loop elements **DO NOT** require this preparation.
- Secure 10 wraps of electrical tape 1.70 inches (4.3cm) from the tip, as shown in [figure 6.05, Step 2](#). This is used as a measuring stop to be certain you insert the pole in the proper depth. It is important to NEATLY wrap the electrical tape so it has a clean edge.
- Cut a 4 inch piece of blue silicone wrap (PN 09-0007). **WITH THE TIP OF THE POLE POINTED TOWARDS YOU, WRAP THE SILICONE TAPE AROUND THE POLE IN A CLOCKWISE DIRECTION – THIS IS VERY IMPORTANT.** Try to make the silicone tape wrap so that it is flush with the electrical tape as shown in [figure 6.05, Step 3](#). Firmly pull the silicone tape as you go around the pole. The silicone tape will stick only to itself. This tape is used to form the seal between the pole tip and the plastic sweep tube. The silicone tape will deform as you pull it, to about half it's original width—try to keep the edges as even as possible while you wrap it onto the pole tip.
- Wrap the included 3M grip tape (PN 09-0013-cut) around the pole, flush with the edge as shown in [figure 6.05, Step 4](#). **BE SURE THERE IS NO OVERLAP OF THE GRIP TAPE** – it should be cut to the correct length at the factory but the OD of the poles varies slightly, so if there is overlap, **MAKE SURE YOU TRIM THE TAPE SO THERE IS A GAP**, as shown in [figure 6.05, Step 4](#).



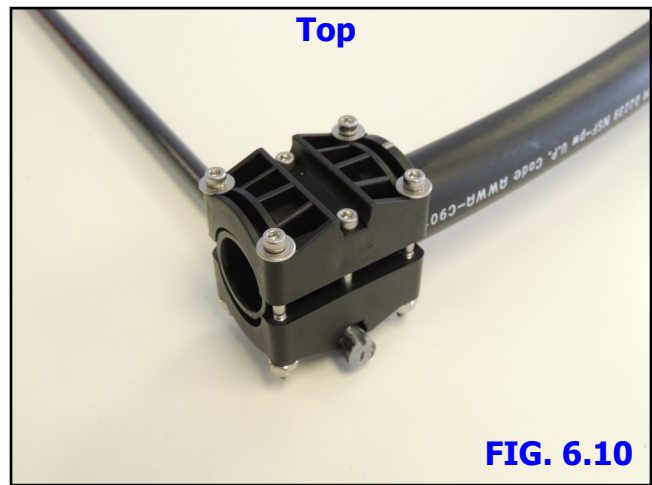
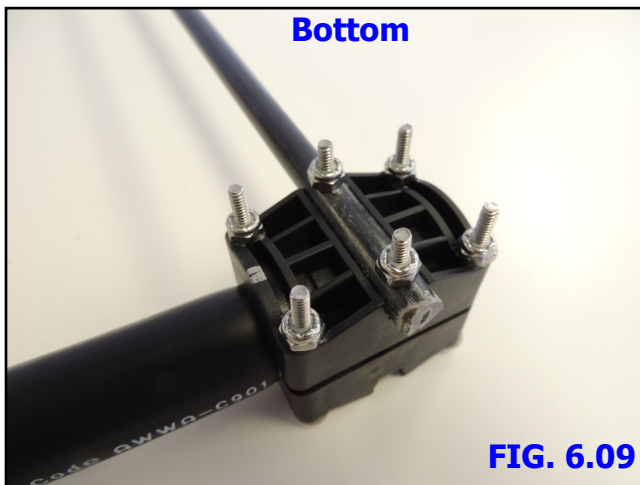
Attach the sweep couplers to the plastic sweep tubes

- Each of the sweep coupler halves (PN 10-1155-01) will have a notch in the mold on one side marked with silver sharpie. **IT IS CRITICAL THAT THESE NOTCHES ARE POINTING TOWARDS THE SWEEPS OR THEY WILL NOT WORK PROPERLY.** See figure 6.06 for the location of the mark. Be certain that each half of the coupler has the mark facing the sweep tube!
- Place the coupler halves on the end of the plastic sweep tubing as shown in figure 6.07. Insert four of the 6-32 x 2" socket head screw (PN 60-0186) with washer (PN 60-0016). Place the screws so that the threaded portion of the screw is facing downward. **BE SURE THAT THE DRAIN HOLES FOR THE PLASTIC SWEEP TUBE ARE POINTING DOWNWARD BEFORE INSTALLING THE COUPLERS.** Apply anti-seize to the threads and place the Nylock nuts on. Tighten using a 5/16" wrench to hold the nut and a 7/64" Allen Key to turn the screw. Tighten until there is approximately a 0.25" gap between the two coupler halves as shown in figure 6.08.
- Repeat on the other side of sweep tube.
- The couplers are designed to re-form the plastic sweep to lock them in place. Do not be alarmed if there is a need to exert a fair amount of force when tightening the screws—this is necessary in order to re-form the plastic sweep tubing.
- These screws will be completely tightened later, tightening to this point provides a framework for



Mount the fiberglass spreaders

- Mount the black fiberglass sweep spreaders (PN 10-1503-21) to the sweep couplers. There is a concave mounting area on each side of the plastic couplers. Position the fiberglass spreader so that the holes align with the clam shell couplers as shown in [figure 6.09](#). When installing the fiberglass spreader, you will want the spreader to be underneath the plastic coupler as shown in [figure 6.10](#). The spreaders will be longer than the couplers on each side of the loop. This is done on purpose to ensure plenty of fiberglass material is on each side of the screw.
- Insert a 6-32 x 2" socket head screw (PN 60-0186) through each of the coupler halves and the fiberglass rod. This screw must be placed so that the Nylock nut (PN 60-0014) is resting on the fiberglass material and the cap of the screw is resting inside the concave groove on the top of the sweep coupler. Refer to [figures 6.09](#) and [6.10](#) for detail. The screws are longer than necessary so that you can get the nut on in the initial stages.
- Tighten the Nylock nuts firmly. Be sure to use anti-seize on these screws or they will likely gall and have to be replaced.
- Repeat for each side of the plastic sweep.



Connect the telescoping poles to the plastic sweeps

- Insert the pole tip into the plastic coupler. If you cannot get the pole into the plastic sweep, it is probably because the plastic sweep material is too elongated still. This may seem counterintuitive, but tighten the plastic sweep couplers until the shape at the end becomes circular.
- As you push the tip inward, turn the pole clockwise in a corkscrew manner as shown in [figure 6.12](#), so that the tape does not unwind or kink during the process. Push the pole until the electrical tape butts up against the plastic coupler as shown in [figure 6.13](#). A small amount of the blue silicone tape may protrude out of the coupler joint.

Connect the telescoping poles to the plastic sweeps

- Finish tightening the four screws on the outside corners of the plastic coupler. Tighten evenly, in an automobile X type pattern as shown in [figure 6.14](#). If you do not tighten evenly, you may break the fastener. Once the outsides are firmly tight, tighten the two screws that hold the fiberglass spreader in place. [Figure 6.15](#) shows the suggested method for tightening the screws.
- When completely tightened, the sweep coupler halves should touch or almost touch, as shown in [figure 6.16](#). It is best to let the screws sit for a while and tighten in intervals in order to allow the plastic sweep material to reform. This also will reduce the chance of damaging the clamps or snapping a screw.
- [Figure 6.17](#) shows the completed sweep—repeat the process for each sweep.

