

# INTERNATIONAL ANTENNA COMPANY



## STEALTH BAZOOKA SB-40 INSTALLATION INSTRUCTIONS

**WARNING: DO NOT INSTALL THE STEALTH BAZOOKA WHERE ANY PART OF THE FLAGPOLE CAN COME INTO CONTACT WITH OVERHEAD POWER LINES DURING INSTALLIATION OR IN THE COURSE OF NORMAL FLEXING AFTER INSTALLATION FOR SUCH CONTACT CAN RESULT IN DAMAGE TO PROPERTY, BODILY INJURY OR EVEN DEATH.**

**NOTE: PLEASE CONSULT THE A.R.R.L HANDBOOK FOR ADDITIONAL SAFETY PROCEDURES WHEN WORKING WITH ANTENNAS AND ASSOCIATED ELECTRICAL EQUIPMENT.**

**NOTE: IT IS RECOMMENDED TO READ ALL INSTRUCTIONS THOROUGHLY BEFORE PROCEEDING TO ASSEMBLY.**

NOTE: FIRST SURVEY YOUR LOCATION TO SELECT THE BEST SITE FOR THE **STEALTH BAZOOKA** FLAGPOLE ANTENNA. IT IS RECOMMENDED THAT YOU SELECT A LOCATION AWAY FROM OBJECTS WHERE PERFORMANCE MAY BE DEGRADED SUCH AS A HOUSE WITH ALUMINUM SIDING OR METAL FENCE. TAKE INTO CONSIDERATION THAT THE **STEALTH BAZOOKA** ANTENNA WILL REQUIRE A GROUND RADIAL SYSTEM EXTENDING OUT FROM THE ANTENNA 16 FEET IN ALL DIRECTIONS.

## REQUIRED TOOLS AND MATERIALS

Flat blade screwdriver, Phillips blade screwdriver and pliers. A 3/8 inch and 7/16 inch open-end wrench or nut driver. Clear PVC cement (plumbing grade)

### PARTS LIST

<u>Description</u>	<u>Qty</u>
<u>Lower Base Factory Assembled (includes)</u>	
Antenna Element Assembly	1
Tube PVC 5 Ft 2.000 ID	1
Tube Aluminum 3 Ft Base Assy.	1
<u>Middle and Top Assembly (includes)</u>	
Tube PVC 6 Ft 2.000 ID	2
Gold Ball	1
Gold Ball Mounting Cap	1
Cleat (Pre-assembled)	1
<u>Misc. Hardware and Assemblies</u>	
Tube PVC 4 Ft 2.000 ID Gnd. Section	1
Ground Radial System	1
# 8-32 X 1.250 Screw (Pre-assembled)	1
# 10-32 X 3.000 Screw	2
# 10-32 X 3/8 Screw	4
# 10-32 Hex Nut (Teflon insert)	1
# 10 Flat Washer	4
# 10-32 X 1/2 Screw	2
US Flag	1
Rope 30 Ft	1
Rope Clips	2

### UNPACKING

- **CAREFULLY REMOVE THE THREE (3) WRAPING BANDS AROUND THE FOUR (4) PVC PIPES.**

**NOTE: DO NOT ATTEMPT TO PULL WIRE RADIATING ELEMENT RUNNING BETWEEN THE TWO (2) PVC PIPES.**

- **THE RADIATING ELEMENT IS LOOSLY FED THROUGH THE SIX (6) FOOT MIDDLE PVC SECTION AND THROUGH THE SIX (6) FOOT TOP PVC SECTION DURING SHIPMENT.**

## FLAGPOLE ASSEMBLY

1. Check to be sure that all parts are present. Some parts may be pre assembled at the factory.

**NOTE: NEVER USE EXCESSIVE FORCE OR OVER TIGHTEN # 10-32 X 3/8 INCH or # 10-32 X 1/2 INCH SCREWS INTO PVC TUBES.**

2. Ensure the antenna element located at the top of the five (5) foot PVC base assembly is fed through the middle 6-foot PVC tube and coupler assembly. The middle coupler is the one with the rope cleat attached.

**NOTE:** The rope cleat should be toward the bottom of the middle PVC section for this step.

3. Apply “**CLEAR PVC CEMENT**” to the gray coupling tube located on bottom end of the 6-foot middle tube and to the inside of the top of the 5-foot base tube.  
**NOTE: Be sure to align the black alignment marks located on the top of the white PVC base tube and the bottom of the white middle tube and gray coupling section.**

4. Insert the middle 6-foot PVC section with the gray coupler end into the top of the white base PVC section.

**NOTE: Be sure to align the black alignment marks located on the top of the white PVC base tube and the bottom of the white middle tube and gray coupling section.**

5. Wait 60 minutes for the cement to dry before proceeding.

6. Ensure the remaining antenna element is fed through the top six (6) foot PVC section

**NOTE:** Ensure tywrap is not folded back over spring but straight forward while inserting antenna element.

7. Insert the top 6-foot PVC section with the coupler end into the middle PVC section. Ensure eyehook is located on the same side of the flagpole as the cleat.  
**NOTE: Be sure to align the black alignment marks located on the bottom of the white PVC Top tube and the Top of the white middle tube and gray coupling section. “DO NOT APPLY PVC CEMENT DURING THIS STEP”**

**NOTE: DO NOT GLUE THE GRAY COUPLER TUBE LOCATED ON THE TOP END OF THE WHITE 6 FOOT MIDDLE TUBE TO THE TOP TUBE. (THIS WILL BE SCREWED I PLACE LATER)**

8. Using tywrap pull tension spring toward end of tube and slip the loop at end of spring over the ¼-inch eyehook bolt. Push excess tywrap into PVC tube.
9. Insert Gold Ball to the white PVC Top Cap and secure with 5/8 inch extra hex nut located on end of Gold Ball threaded shaft. Tighten nut securely.

10. Insert the Gold Ball assembly to the top end of the 6-foot PVC top section.
11. Align the mounting holes and insert two (2) # 10-32 X 1/2 inch screws. (See figure 2)
12. NOTE: DO NOT OVER TIGHTEN SCREWS INTO THE TOP PVC TUBE.
13. Align the mounting hole located at the bottom of the 6-foot white PVC top tube and insert (4) four # 10-32 X 3/8 inch screws.
14. NOTE: DO NOT OVER TIGHTEN SCREWS INTO THE TOP PVC TUBE.
15. Install a # 10-32 X 3.000 inch GROUND SCREW at the bottom of the PVC Base Tube Assembly. Insert the screw through the PVC tube from the side away from the coax input. The PVC hole has been enlarged to recess the screw head thus allowing it to make contact with the metal base pipe. (See figure 1)
16. Install a # 10-32 Hex Nut to the # 10-32 X 3.000 inch screw protruding through the PVC tube directly below the coax input connector and tighten securely. Install two (2) flat washers and another #10-32 hex nut. (See figure 1) DO NOT TIGHTEN SECOND HEX NUT AT THIS TIME
17. Open rope package and lay straight on ground. Attach plastic Flag Clips to the rope spaced equally so they will mate to the brass grommets on flag and space second plastic clip to this measurement. Feed rope through top eyehook and tie ends together. (Rope will be secured to cleat later)

## **MOUNTING / SETTING TUBE INSTALLATION**

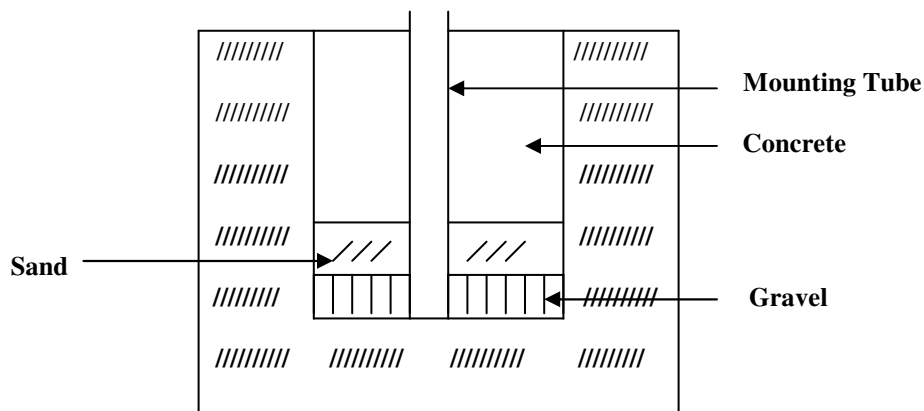
1. Prepare a hole in the ground 12 inches in diameter and 47 inches deep.
2. Place the four (4) foot PVC Ground Setting Tube into the hole allowing approximately 1 to 2 inches to extend above ground level.  
  
NOTE: ENSURE FLAG POLE BASE ASSEMBLY MOUNTING HOLE IS SLIGHTLY ABOVE GROUND LEVEL
3. Fill the bottom of hole with 4 inches of loose gravel.
4. Next, fill the hole with 12 inches of sand.
6. Using a level ensure the 4 foot PVC Setting Section is perfectly level (Straight Vertically).
7. Plumb Setting tube and brace so that it will not move during the pouring of the concrete.
8. Fill the hole half way with concrete.

**NOTE: Recheck the tube level. Make adjustments as required.**

9. Fill the remaining portion of the hole with concrete to within 2 inches of ground level. See Installation Detail figure below.
10. Again recheck the level of the mounting tube. Make any final adjustments at this time.

**NOTE: BE SURE THE GROUND SETTING TUBE IS PERFECTLY LEVEL (STRAIGHT VERTICAL) AT THIS TIME. FAILURE TO ENSURE A LEVEL MOUNTING TUBE WILL RESULT IN THE FLAGPOLE NOT BEING STRAIGHT.**

11. Once concrete has hardened, (approx. 48 hours) fill hole with top soil. **DO NOT INSTALL FLAG POLE BEFORE 48 HOURS.**



## FLAG POLE MOUNTING

1. Install a 3-6 foot ground rod as close to the mounting tube as possible.
2. Drive the ground rod into the ground using a heavy metal hammer so that only 1 to 2 inches extends above the ground level.
3. Place Flag Pole into ground mounting tube. Insert # 10-32 X 3.000 inch screw through the top end of the mounting tube.
4. Install flat washer and # 10-32 Hex Nut with Teflon insert to the # 10-32 X 3.000 inch screw protruding through the opposite side of the PVC mounting tube and tighten securely.
5. Connect the ground radial assembly to the # 10-32X3.000 inch antenna GROUND SCREW located directly below the coax feed point connector. (See figure 1)

**Note: Refer to Ground Radial Section for proper placement.**

6. Connect a ground wire (# 10 gauge or larger) to the ground rod.
7. Connect the other end of the ground wire coming from the ground rod to the antenna GROUND SCREW. (See figure 1)

8. Secure both the ground rod wire and the ground radial assembly to the **GROUND SCREW** with #10-32 hex nut.

**NOTE: A good ground connection is extremely important to achieve low VSWR and proper antenna performance.**

9. Connect a 50-ohm coax feed line (RG58, RG8 or RG213) to the recessed SO-239 connector located at the base of the flagpole.

NOTE: The coax connector must be tight to ensure proper antenna performance and low VSWR.

## **CHECKOUT AND ADJUSTMENT**

1. The STEALTH BAZOOKA is pre-tuned from the factory and should produce relatively low VSRW readings over the entire 20-meter bands and 150 KHz of the 40-meter band.
2. For measurement checks a simple VSWR indicator may be used with a minimum of power for accurate readings. An analyzer may also be used for this test. **NO MORE THAN 10 WATTS IS RECOMMENDED TO CHECK THE VSWR.**
3. Determine the frequency at which VSWR is the lowest on 40 meters.  
NOTE: Factory settings should produce resonance at 7.2 MHz.  
However, different ground conditions and antenna location can result in higher VSWR readings or a possible shift of the resonant frequency.
4. To lower the resonant frequency lower the antenna and remove the gold ball assembly and release the tension spring connected to the eyehook.
5. Next separate the 6 foot top section by removing the (4) screws located at the bottom of the top section and slipping PVC tube away from the radiating element.
6. Cut the (2) tywraps and let out 6 inches of the 300-ohm tuning section and secure in place with 2 tywraps.
7. Reinstall top section and recheck VSWR.
8. To raise the frequency follow steps above but shorten the 300-ohm tuning section by folding over 6 additional inches and re-securing with tywraps.

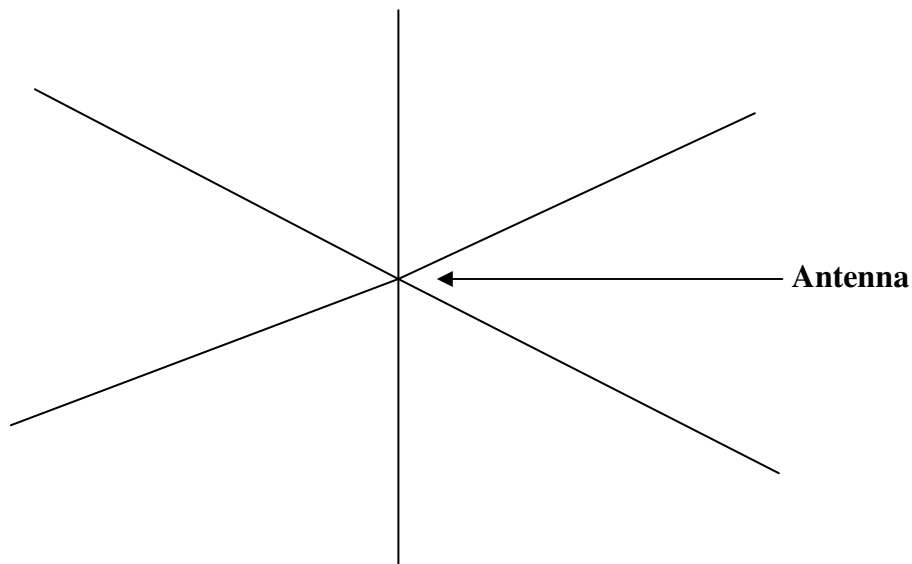
## GROUND RADIAL PLACEMENT

1. Ensure GROUND RADIAL KIT is connected and tightened securely to the ground terminal of the base tube assembly.
2. Fan out radials as shown in figure 3.
3. Make sure radials are equally spaced as shown below in figure 3.

**NOTE: Do not leave radial wires on the ground. It is recommended to bury the wires to prevent damage to the radial kit from pedestrians and lawnmowers.**

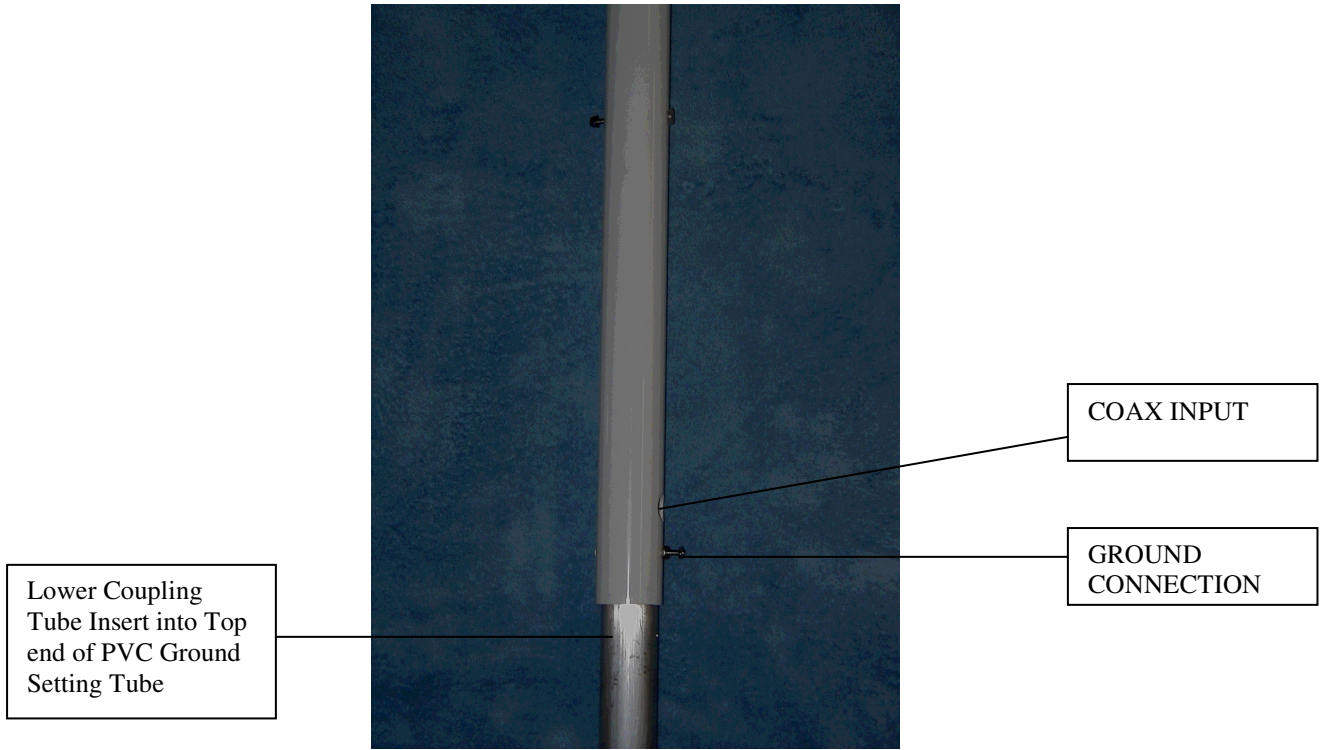
4. Split the earth 1 to 3 inches with a square shovel or similar tool to provide a straight line along the path of each radial wire.
5. Press **ALL** radial wires into the split earth being careful not to cut or damage the wire.
6. Attempt to keep radials in a straight line if possible.

**NOTE: ADDITIONAL RADIALS CAN BE ADDED IF GROUND CONDUCTIVITY IS POOR. THIS COULD LOWER VSWR AND IMPROVE PERFORMANCE**

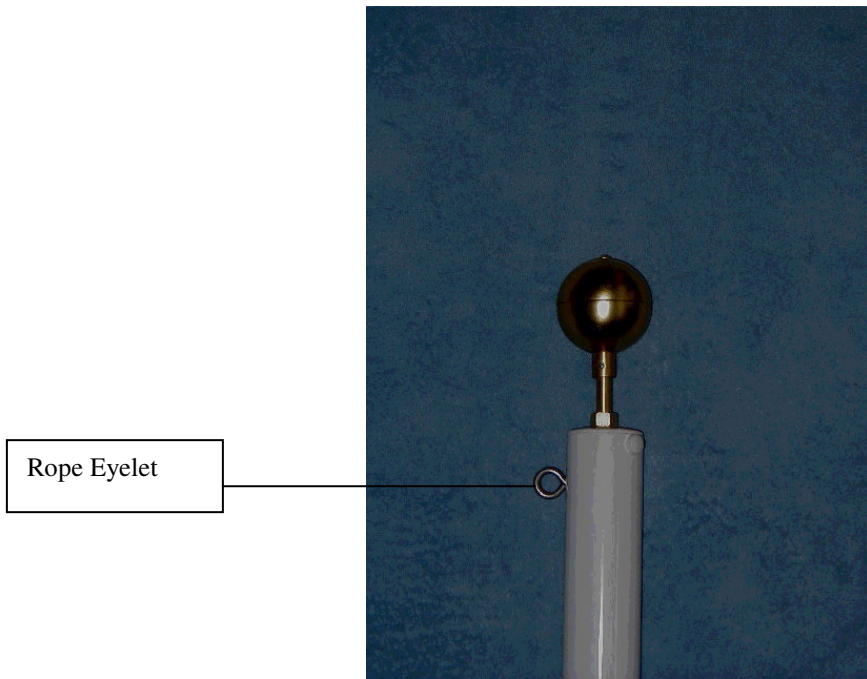


**Figure 3**

**This is only a representative layout of the ground radials. Variations of figure 3 will still provide good performance.**



**Figure 1**  
Base Tube Assy.



**Figure 2**  
Top Tube Assy.

# SB-40 VSWR Curves

