

WOODHOUSE COMMUNICATION

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Thank you for purchasing the WOODHOUSE APT-2CP omni-directional 137 MHz antenna. One look and you know you have selected a quality product built with staying power. All of our antennas are built to demanding standards to offer years of service.

What can you expect from your APT-2CP? Well, there are a number of variables in your installation which we have no control over, but we are confident this antenna will outperform any other turnstile antenna available. Typically, the turnstile is used for "near overhead" passes. We define "near overhead" as passes with maximum satellite elevation from your location of greater than 20 degrees. This will offer you a "viewing angle" of 140 degrees of satellite arc. We define totally acceptable as without "holes" in the central portion of the image.

Space communication is very different than terrestrial based signals due to the third dimension which must be conquered. For additional information, please refer to any published satellite imagery book or antenna manual.

You should mount the APT-2CP as high as practical. Your horizon will not be at 0 degrees, no matter what you do! The most important consideration is near-field obstructions, which you should avoid, or try to get above. Near field obstructions can be dense foliage, buildings, water towers, your HF tri-bander and/or its tower, and the hill two miles away. Do not side mount the antenna from a tower.

You may find you can improve the performance of your antenna for certain satellite passes by slightly re-positioning the antenna, or rotating it somewhat. Our experience has been for best general results, orient the antenna with the elements headed due north/south and east/west. If you experience a low signal level at some point during a pass you particularly like, you might rotate the antenna a few degrees and see if things improve on the next similar pass. This should only be a consideration when you are pursuing low angle passes, and are approaching the limits of the antenna. If you really want to view the entire horizon, with passes down to single digit elevations, you will need an az-el rotor and an antenna from our family of yagis.

You may notice a difference in antenna performance between the American NOAA and the Russian MET series satellites. This is partially due to the CP signal of the NOAA satellites, while the METs run linear polarization. Your antenna uses Circular Polarization, so it is optimized for the NOAAs. METs provide a good image, but also keep in mind the health of the satellites, MET 2/21 seems to be running low power, MET 3/5 seems to be doing very well.

Use the best feed line you can afford. Belden 9913 is an excellent cable for the APT-2CP if you have a fairly long run, over 75-100 feet. If your run is less, you can successfully use Belden RG-8X. A preamplifier may be of benefit to you, but it will raise the noise floor of your system, and increase intermodulation products. Start off without a preamplifier and see what you get. Most of our clients indicate performance of the '2CP without a pre-amp surpasses image quality from their previous antenna, even with a pre-amp.

NOTE: The entire antenna is at DC ground for static/lightning protection.

ASSEMBLY INSTRUCTIONS FOR APT-2CP (137 MHZ CIRCULAR POLARIZATION)

Thank you for selecting Woodhouse Communication to supply your new VHF antenna. A quick glance at the individual components will indicate you have purchased a heavy-duty antenna that should perform well for a lifetime. The APT2CP offers a tremendous value, and to fully realize the value of your new antenna, please assemble it by our instructions. The "thru-the-boom" mounting is exceptionally strong. Due to the close manufacturing tolerances however, care must be exercised during assembly. Please read through the instructions once and review the diagram before starting assembly.

The antenna should be mounted in as clear an area as practical. Reflections from everything from water towers to trees will effect the antenna pattern.

PREPARATION

Antennas are unwieldy items until they are assembled, take a few minutes and decide the best place to assemble the antenna.

ALL ALUMINUM IS SOFT! IF YOU FORCE AN ELEMENT INTO THE BOOM, YOU WILL NOT BE ABLE TO REMOVE IT WITHOUT DAMAGE. IF YOU DROP AN ELEMENT, THE END IS LIKELY TO FLARE, MAKING IT LARGER IN DIAMETER THAN THE HOLE IN THE BOOM.

DO NOT FORCE ANY ITEM.

UNPACKING

Carefully remove the antenna components from the box. Most components are bundled together and are easily removed, some items are taped in place.

Remove the small brown envelope which contains the mounting hardware. To lessen the chance of losing any parts, don't open the hardware envelope until you are ready to use the parts.

INVENTORY

Familiarize yourself with components and note their placement on the diagram.

- 1 - 1" boom
- 4- 3/8" Elements:
 - 2-Reflector (longest)
 - 2-Driven Element (Tapped at ends)
- 4-Matching rods (L-shaped, 1/8")
- 2-Matching blocks with pigtail
- 1- coax T
- 1-Mounting bracket
- 2-S/S Adjustable clamps

1-Hardware package ASSEMBLY

Position the boom vertically for comfortable access. The base of the antenna already has the mounting bracket affixed. Clamp the boom so it will stay put. There are holes at 90 intervals around the boom, so it can look confusing. To reduce confusion, consider two antennas assembled on one boom. Antenna "A" utilizes the END-MOST holes on the TOP of the antenna. Refer to the diagram, and rotate the boom until the hole alignment exactly matches the diagram.

ANTENNA "A" ASSEMBLY (REFER TO DIAGRAM)

Carefully insert the Reflector through the mounting hole until it is centered. Use a small awl or stiff wire to align holes, if desired. Secure the element by inserting a 6-32 screw with lock-washer through the left side of the boom. Thread gently into the element, do NOT tighten at this time.

Insert the driven element through the boom and center it. Rotate the Driven Element until the holes near each end are facing toward the matching block.

MATCHING BLOCK

The matching blocks mount with the baluns FACING EACH-OTHER, AND MUST BE POSITIONED EXACTLY AS SHOWN.

The matching block center screw will feed into the boom, through the driven element, and exit the boom at the large, 1/2" hole.

Drop a lock washer and then thread a 6-32 X 5/16 nut onto the end of the

matching block mounting screw. The hole in the boom will allow clearance for a standard 5/16" nut driver, typically the YELLOW HANDLE variety. Be sure the Element orientation is correct, with the holes near the end facing the matching block, tighten the center mounting nut.

Thread a 6-32 nut onto the end of the matching rods, then slip a lock washer over the end. Screw the matching rods into the studs on the side of the matching block.

SCREW THE MATCHING RODS NO MORE THAN FOUR TURNS INTO THE BLOCK. YOU SHOULD NOT FEEL ANY RESISTANCE TO THREADING THE ROD INTO THE BLOCK. DO NOT TIGHTEN—THE JAM NUTS WILL PROVIDE A SECURE CONNECTION.

Rotate the rods so the ends face the driven element. Insert the ends of the matching rods into the holes in the driven element. Be sure the rods are fully inserted into the element, then secure with the 10-32 set screws provided. Tighten the jam-nuts previously installed on the matching block end of the rods.

FINAL ALIGNMENT

With all antenna components in position, start tightening all hardware until the lock-washers are just compressed. Look at the matching block and be sure it is parallel to the driven element.

ASSEMBLE ANTENNA "B" IN A SIMILAR FASHION. BE SURE THE MATCHING BLOCK IS ORIENTED AS SHOWN.

Double check the entire antenna. Be sure all components are securely and squarely mounted.

COAX CONNECTION

The APT-2CP uses a coaxial cable harness to provide impedance matching and signal delay . Be sure the harness is installed as shown. The yellow stripe on one end of the matching harness must be the "A" antenna and the red striped cable must attach to the "B" antenna. A coaxial "T" connector is supplied for connection of your feed line.

The coax should be ty-raped to the boom and kept perpendicular to the elements. Seal the coaxial connector with weather resistant tape or other appropriate sealer.

MOUNTING

The antenna is secured to the mounting bracket for shipment. Clamp the bracket to your support with the two large stainless steel clamps included with the antenna. Position clamps with the screw drive against the round boom or mast, not against the flat bracket surface.

HINTS ON OPERATION

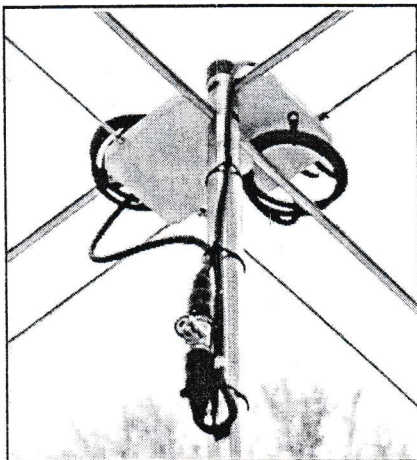
Be sure you mount the antenna with the elements facing north/south and east/west, as high as practical and away from near-field objects.

COMMENTS ON FEED LINE

FOR MOST INSTALLATIONS, BELDEN RG-8X WILL SUFFICE NICELY. IF YOU HAVE A VERY LONG RUN AND DESIRE TO USE A LOWER LOSS CABLE, BELDEN 9913 IS RECOMMENDED. DO NOT USE 75 OHM CABLE SUCH AS RG-6 OR RG-59/U.

CONNECTORS FOR 9913

WE HAVE NOTICED MANY OF THE "BARGAIN" SILVER PLATED, TEFLON INSULATED PL-259 CONNECTORS FLOATING AROUND FLEA MARKETS AND FROM DISCOUNT SOURCES ARE NOT COMPATIBLE WITH 9913. THE INSIDE DIAMETER WHERE THE SHIELD IS SOLDERED TO THE BODY IS TOO LARGE AND A GOOD SOLDER CONNECTION IS NOT POSSIBLE. STICK WITH GOOD CONNECTORS, SUCH AS AMPHENOL. WHAT IS ANOTHER DOLLAR AFTER WHAT YOU HAVE ALREADY SPENT ON THIS ANTENNA AND OTHER EQUIPMENT.



Left photo indicates proper method of dressing phasing line and connector. Note the "A" block (yellow lead) makes a high loop above the antenna, and descends the mast between the driven elements. The "B" block (red lead) loops away from the mast, and then joins the mast just above the T connector. Use 3 ty-wraps as shown to hold assembly in place. Use 2 additional ty-raps to secure your feed line. Waterproof the connection with tape, or Coax-Seal.

Right photo shows mounting bracket detail. Be sure clamp screws are located at round mast, not on the L bracket.

