ALPHA DELTA COMMUNICATIONS, INC. AA

Multi-Band Quarter Wave Sloper Instruction Sheets for Models:

- **DX-A** Quarter Wave Twin Sloper for 160, 80 and 40 meters, one leg 67 ft. for 80 meters, the other leg 60 ft. for 40 and 160 meters.

- **DX-B** Quarter Wave Single Wire Sloper for 160, 80, 40 and 30 meters, 60 ft. overall length.

Alpha Delta HF quarter wave slopers are precision made products, manufactured in the U.S.A. In our ISO-9001 certified facility for the highest quality possible. Due to the design of the ISO-RES inductor coils (not traditional traps), the efficiency of the antennas is outstanding and they are used worldwide with great DX results around the globe! Stainless steel hardware and insulated high tensile strength solid copper 12 ga. wire is used to withstand the most severe environments. When you put it up, it STAYS up!

CAUTION! CAUTION! CAUTION! Never install antennas near power lines or drop lines as contact with these is DANGEROUS and could cause bodily injury or death. Think SAFETY!

Any antenna should be installed "in the clear", away from surrounding objects (metal objects or roof tops) which could de-tune the antenna and impair performance. Any antenna wire should not be closer than 4-6 ft. from any tree, branch or limb (yes, they will de-tune an antenna). Clearance should be at least 20 ft. from any metal objects or roof tops. Our test height is 35 ft. "In the clear" but lower heights can be used depending on the installation site and terrain. Specific SWR bandwidths for each model and each band are a function of the installation "site" conditions.

BE SURE to read the attached document "¼ Slopers, Here's How to do it Right" before installing your antenna. Before installing either the Model DX-A or the Model DX-B, please read both documents as there are important tips for proper installation and performance that apply to any ¼ wave sloper design.

Where space permits, the Model DX-A Twin Sloper has a wider bandwidth since there is only one inductor in the antenna. For limited space applications, the Model DX-B single wire sloper takes less space but has 2 inductors, so has a more narrow bandwidth. Using a wide range antenna tuner is effective to "broaden out" the bandwidth. Both models are very efficient in performance.

It is also IMPORTANT to note that the graphic for the Model DX-B shows an installation on the side of a house. When installing a ANY sloper model on a structure like that, which is not a metal tower or mast, and one that does not have an HF beam on top, it WILL be necessary to use a wide range "outboard" antenna tuner (auto or manual which has a tuning range of at least 5-500 ohms) as internal built-in tuners typically don't have the necessary tuning range. A sloper tunes most easily when installed on a metal tower with a horizontal HF size beam on top to act as a "capacity hat" (highly recommended), but other supports can work well when using such a tuner as described above. If you will be using a wide range tuner, just put up the antenna and don't try to trim it. Just use it as it comes out of the package. This will save a lot of time and headaches.

IMPORTANT INFORMATION!

Wire antennas cannot be returned for credit as they cannot be sold as new. In over 20 years in providing these models, we have found that nearly EVERY case of poor tuning and performance can be traced to problems with the installation site (surrounding objects and height above ground), or installations or assembly that have not followed instructions. Shorted coax connectors at one end or the other of the coax feed line, or even shorted coax "jumpers" are a fairly common problem too. Unlike small VHF/UHF antennas, HF antennas are VERY sensitive to installation site coupling to surrounding objects. This is due to the longer HF wavelengths

being similar in lengths to gutters, roofs, guy wires, or "earth coupling" when low to the ground.

Before contacting the factory, check for shorts in your coax cables and do an SWR "run" across each band in question, moving your SWR meter dial slowly so as not to miss variations in SWR (every 20 kHz from band edge to band edge, then in smaller increments to find the exact SWR minimum, even if it's high). This specific data will help us find clues to the situation.

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Manchester, KY 40962
Web <www.alphadeltacom.com> You will find e-mail contact information through the web site.
Phone 606-598-2029, FAX 606-598-4413

Alpha-Delta DX-A Twin Sloper

Thank you for your purchase of this ALPHA DELTA MODEL DX-A "Twin-Sloper" multiband antenna. We know that you are going to be well pleased with the antenna and its superb performance! Only the best materials and hand craftsmanship have gone into the design and construction. The ALPHA DELTA DX-A will deliver performance far beyond that of antennas of equal size. Like every antenna, the DX-A must be assembled and installed correctly to achieve its inherent peak performance. To help insure that you do obtain good performance, we suggest that you read through this manual entirely and study the figures and diagrams associated with the installation.

—INSTALLATION NOTES—

*Please note that the support structure for the DX-A should be of metal construction and offer a low resistance ground pathway. This simple requirement is easily filled by the normal grounded tower found in amateur usage. If the tower does not offer a good ground return, then we suggest attaching a large diameter (No. 14 or larger) wire to the aluminum DX-A mounting bracket and running this wire to a good RF ground connection at the base of the support. This same method will allow the DX-A to be used in cases where the support structure may be of an insulated type, such as wooden utility poles, chimney mounts, trees, etc. Also, if your tower is of the "crank-up" variety, where there may be some doubt as to the integrity of the metal ground path, this same method of running a ground wire should be followed. If this method is needed, the DX-A aluminum mounting bracket should be drilled for attachment of a machine screw and lug type connector (with ground wire attached).

*Refer to FIGURE NO. 1: The DX-A aluminum mounting bracket will have to be drilled for a U-Bolt (user supplied) to fit your particular tower leg or installation method. It should be noted, if your tower is of the "sectional" type (such as Rohn) then the bracket may be fitted to one of the sectional bolts by simply removing the nut and placing the bracket hole over the bolt and re-installing the nut! In this case, no other hole need be drilled, since the DX-A bracket has already been drilled with a single mounting hole at the factory!

*Plan the layout for your new DX-A "Twin Sloper". The ideal arrangement for the wire elements is such that when installed the two wires are approx. 180 degrees apart (much like the arrangement used for the common inverted vee antenna). We fully realize that this 180 degree span may not be possible in all installation locations. The DX-A will operate very well when the included angle is less that the optimum 180 degrees. Your primary goal should be to fit the DX-A into your property boundaries and antenna system in the best manner possible!

*The DX-A was originally designed as a "free space" antenna (as almost all antennas are). As such, it is possible that the introduction of your DX-A into a tower system employing multiple guy wires or other attached wire antennas may cause a slight detuning of the DX-A antenna. This condition is rarely seen in actual practice, but the chance for it does exist, just as it would for any other antenna of comparable design! The mere presence of other wires or wire antennas can result in direct R.F. coupling which will upset the DX-A antenna system. Refer to Figures No. 5 and No. 6. The point of bracket attachment on the tower should be

as far removed as possible from the attachment point for any guy wire system. The angle of slope for the elements of the DX-A should be such that they are not the same angle as made by any guy wires or other wire antennas (see Figure No. 5)! To help lessen interaction between the DX-A and other wires, it is wise to provide as much separation as possible (see figure NO. 6). THE DX-A wire elements may be so arranged as to disect the angles made by guy wires. Guy wires should be electrically broken by the inclusion of insulators. In some few instances, it may be necessary to employ the use or a modest antenna tuner to allow some solid state transmitters to fully load.

***The mounting height for the DX-A is not critical. The DX-A is a super good low angle radiator (highly desired for DX work). We have many users with the DX-A mounted as low as 25 feet, and achieving excellent results on the air! Mounting height for the attachment of the bracket is best left to the decision of the end user and the support structure to be used for the DX-A.**

"The DX-A has been designed for use on an unguyed metal tower with a beam on top. The beam provides a capacity hat effect and helps to tune the Twin Sloper. Other installation types will require the use of an outboard wide range antenna tuner.

-TWIN SLOPER HINTS & KINKS—

*** If at all possible, tape your coaxial feedline to the tower leg (or other support structure). This offers strain relief for the feedline.**

*** The Alpha Delta TWIN SLOPER has the ability to be used on the 10, 18, 24 MHz bands. A small antenna tuner may be needed in some instances with solid state transceivers to allow proper loading. The TWIN SLOPER is also a good choice for SWL while using one of the latest transceivers with general coverage receive.**

*** For field day or temporary installations: We suggest the use of a counterpoise wire attached to the aluminum mounting bracket and directed to a driven ground rod.**

*** We recommend that you install one of our world famous Alpha Delta "Transitrap" lightning protection devices in your new "Twin Sloper" coaxial feedline. Check with your Alpha Delta dealer for information and pricing on our broad array of "Transitraps"!**

*** Please note: during the initial tune-up phase, when "folding back" the tip ends of the 160 and 80 meter elements, there is a smalt amount of capacitance introduced. This will have some effect on tuning and the actual resonant frequency points on these two bands. While folding back the element ends is a wise practice Initially, for final installation these ends should be clipped to proper length.**

Once again, THANK YOU and good DX'ing.

ALPHA DELTA COMMUNICATIONS, INC.

—INSTALLATION & TUNING INSTRUCTIONS—

(Check off (x) each step as completed)

( ) 1. Unroll the DX-A sloper wire elements, removing any kinks that may have been induced during the packing operation.

( ) 2. Install the DX-A aluminum mounting bracket on your support structure, as described previously.

( ) 3. Using a VOM, check to make certain that this is a good low resistance pathway between the DX-A bracket and the tower leg (or other ground return lead)! Also, be sure to route the wire from the one end of the DX-A bracket so that it is separated from the tower leg as much as possible.

( ) 4. PLEASE NOTE: The various elements for each band are supplied longer than needed for resonance within the ham bands. During the initial tuning phase we suggest that you use all of this length and shorten as needed. Please note, also, that there is a single "ISO-RES" coil installed in the 160-40m leg of the antenna. Refer to FIGURE NO. 2 for nomenclature and general layout.

( ) 5. Any 50 ohm coaxial feedline may be employed for use with the DX-A Twin Sloper Antenna. We suggest the use of RG-213 cable as it is generally a very good buy and will handle the legal limit of RF power output. The DX-A bracket has been fitted with an Amphenol SO-239 connector so as to accept the standard PL-259 termination. Attach your feedline to the bracket coaxial connector. It is wise to cover this coaxial connection with some form of weather protectant, such as "COAX-SEAL", etc.

( ) 6. The element ends have been provided with heavy duty polycarbonate end insulators. Also provided, are two lengths of our special low-stretch nylon rope to secure these two tie off element ends. Please remember: the two antenna ends should be so placed that when installed they will not create a safety hazard since there will be RF voltage present at these ends during normal use! During the tuning process, a simple knot in the rope will be adequate to hold the element ends in place before the final "tie-down".

( ) 7. Please note that the 80 meter element is one continuous length of wire. The 40/160M. combined element has one of our Alpha Delta "ISO-RES" coils installed. During the tuning process you will be trimming the tip end (insulator end) of the 80 meter element. The 40 meter element (labeled "B" in Figure No. 2) will be pruned at the top end of the "ISO-RES" coil. Please note the manner in which the wire is terminated at the "ISO-RES" coil. There is a five turn wrap of wire at each end of the "ISO-RES". Note the steps in Figure No. 3 for remaking this connection at the coil. The 160 meter element is adjusted by shortening the wire attached to the lower end of the "ISO-RES" coil at the bottom end insulator. This 160 element wire need not be cut during the initial tune-up, but rather simply folded back on itself above the bottom insulator.

( ) 8. Tuning Note: To raise the resonant frequency for any band, that wire element must be shortened. The shorter the wire element, the higher the resonant frequency.

( ) 9. Tune the higher frequency band first - i.e., first tune 40 meters then 80 meters, then 160! You should make two passes through the antenna when tuning. During the first pass through the various band elements do not try to achieve a final resonance as there will be some interaction between the bands and as one element length is adjusted it will cause a slight shift in resonance on one or more of the other covered bands. Initially, one should try to achieve resonance at the lower ends of the bands then gradually shorten

the lengths for the exact resonant frequencies desired. Due to the fact that the DX-A uses a low "Q" "ISO-RES" coil instead of a tuned trap, there will be some interaction, especially on the 40 and 160 meter elements. However, the use of the low "Q" "ISO-RES" coil allows one to use higher RF output power due to the fact that the "ISO-RES" does not have a trap capacitor to break down under heavy RF loads!

( ) 10. During the initial tune-up, if you can not seem to find resonance, be sure to check just below the normal band edge. The longer-than-needed wire elements would tend to make this condition quite normal.

( ) 11. As wire is clipped from the bottom of the 40M. element during the tuning process, remake the connection at the "ISO-RES" coil as discussed earlier in this manual. Refer to the drawing.

( ) 12. The "ISO-RES" coil has been given two coats of a special polyurethane with UV light blocking agent. All hardware is of 18-8 stainless steel. No further weatherproofing is needed. If you have some "COAX SEAL", a small amount may be applied to the copper element wire ends at the "ISO-RES". The construction of the "ISO-RES" is such that it should offer a long lifetime of service.

( ) 13. This completes the installation and tuning of your new Alpha Delta DX-A Twin Sloper Antenna. GOOD DX'ING!

( ) 14.. To avoid the possibility of tuning errors and false resonances you will need to de-couple the coax from the antenna at the feedpoint in the following manner. Near the feedpoint make 8 turns of coax at 8 inches in diameter. Tape these turns with electrical tape. Then tape the entire set of turns to the tower leg or at a convenient place so it doesn't pull at the PL259 connector.

WARRANTY AND SERVICE POLICY

Each Alpha Delta Antenna model has been carefully designed and thoroughly field tested to provide a proper match to a 50 ohm source. Conditions of high VSWR can be caused by acquired reactances of towers, ground systems, other antennas, height above ground, roof tops and guy wires. In these cases it may be necessary to employ the use of a wide range TUNER.

Alpha Delta Warranty is limited to the repair or replacement of any component we find to be defective. Trimmed wire elements are not covered under the warranty.

Should you feel a component is defective **WITHIN 90 DAYS** of purchase do the following:

1. Call our office or write for return authorization. Phone or W...
   Alpha Delta Communications, Inc.
   ~~P.O. Box 620~~
   (606) 598-2029 - FAX: (606) 598-4413
2. The antenna will be returned to you, shipping prepaid.

NOTE:

Before contacting the factory concerning your installation, please check the following items.

1. GUY WIRES:

Since a quarter wave sloper is "half" of an antenna, with the other "half" being made up of the ground return path through the tower, pole, or "down'lead," it should be noted that any other metallic objects attached to the tower become part of this other "half" circuit and can significantly de-tune the sloper. Therefore, guy wires MUST be broken with insulators at the point of attachment to the tower or pole, as well as at non-resonant points along the guys.

2. OTHER WIRE ANTENNAS:

Other wire antennas installed on the same support, or nearby the sloper, will couple to the sloper and raise the VSWR.

3. GUTTERS AND METAL BUILDING WALL SIDING:

If the sloper wires pass generally parallel and near (10 to 15 feet) to aluminum gutters or aluminum siding, the resulting coupling can raise the VSWR of the sloper. Running within several feet of a rooftop can cause the coupling effect also.

4. SLOPER WIRES OPPOSITE EACH OTHER:

Looking down from the top of the tower or pole, the two sloper wires should be 180° from each other. A sloping "V" configuration is also quite acceptable if the two wires are no closer than about 100° from each other. A narrower included angle can raise the minimum VSWR, however.

5. COAX FEEDLINE:

For the same reason as in #1 above, the coax feedline must run straight down vertically from the feed point to the ground. Coax running at angles can cause a high VSWR.

6. Any quarter wave sloper has the lowest VSWR and broadest band width when mounted on the side of a tower with an HF beam on top to serve as a capacity hat. Sloper installations on poles, chimneys or trees may require the use of a tuner to reduce the VSWR.

7. 80 meter minimum VSWR may be a problem if the coax feedline is approximately one quarter wavelength (60-65 ft.) long. If this is the case, add an extra 15 to 20 feet to the feedline.

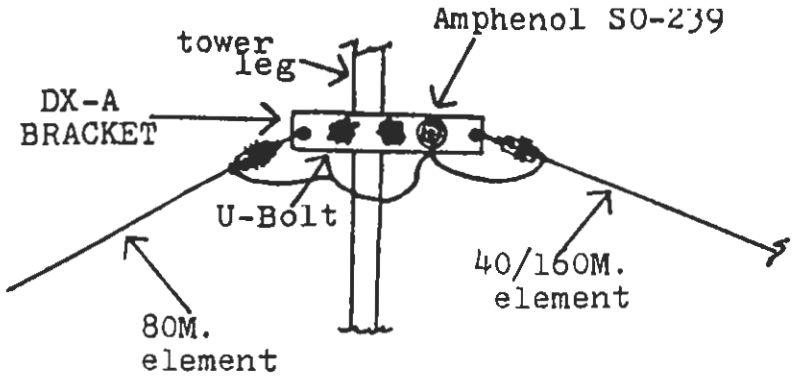


FIGURE - 1

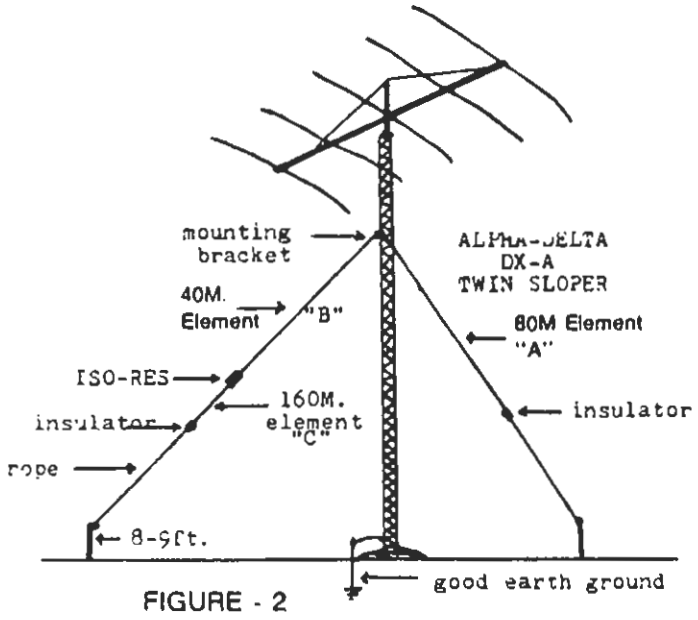


FIGURE - 2

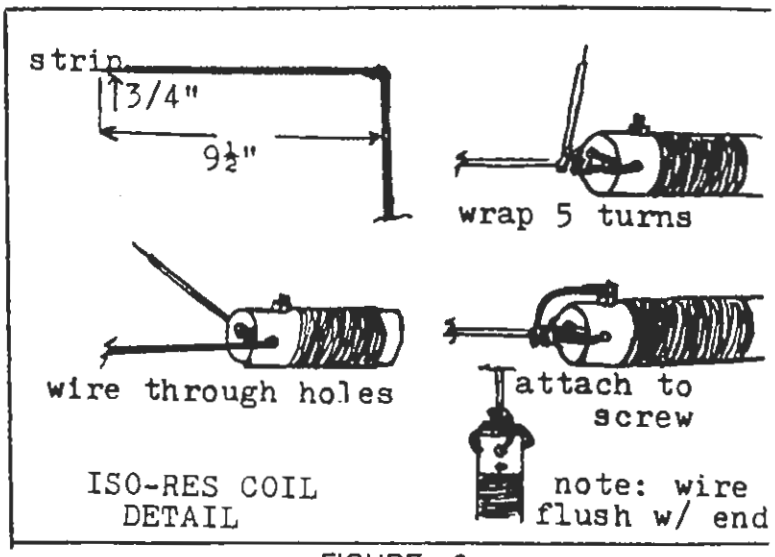
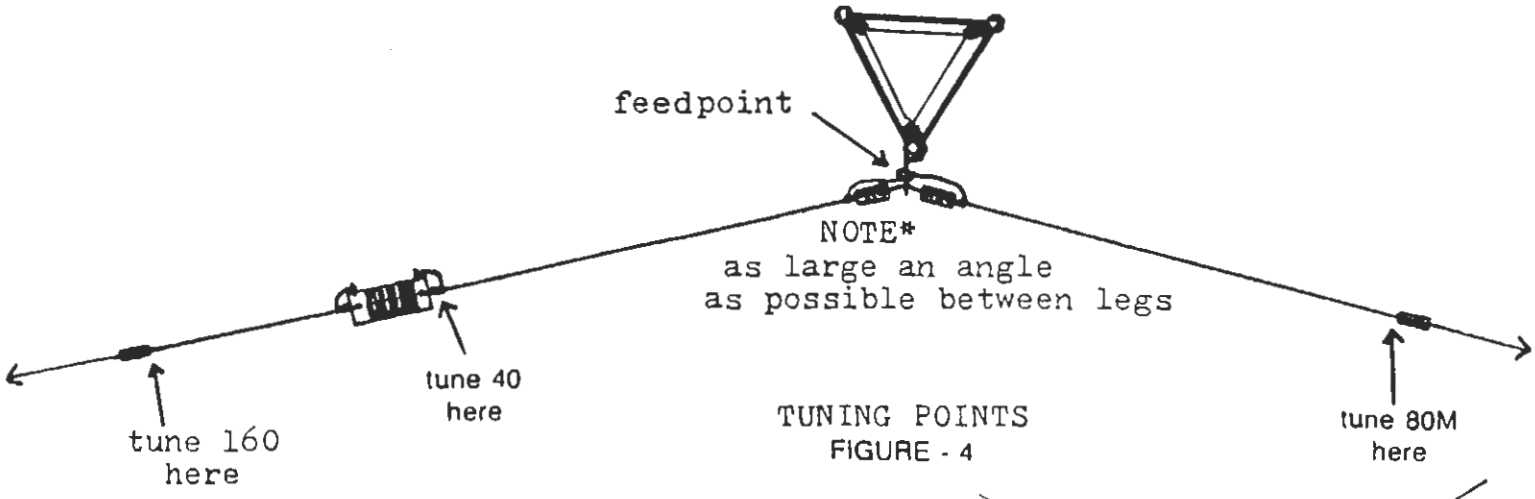
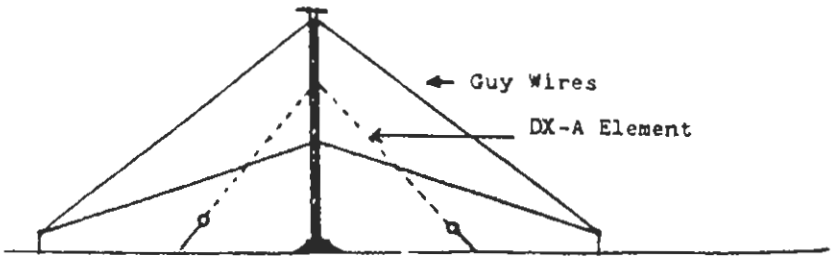


FIGURE - 3



TUNING POINTS
FIGURE - 4



SIDEVIEW
Figure No. 5

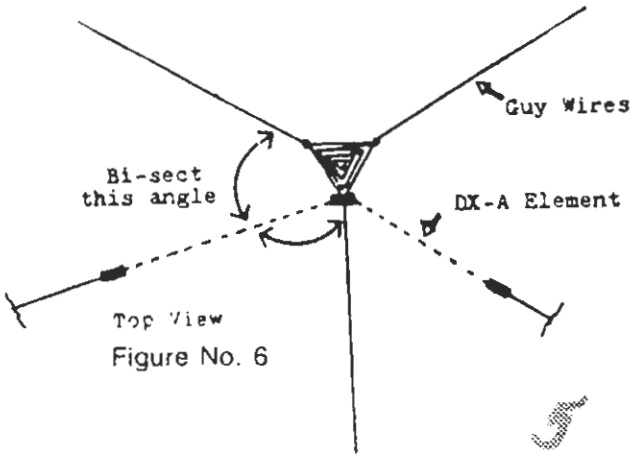


Figure No. 6

ALPHA DELTA **DX-B** 160-80-40-30 METERS DX-B

INSTALLATION NOTES

*Please note that the support structure for the DX-B should be of metal construction and offer a low resistance ground pathway. The normal grounded tower found in amateur usage easily fills this simple requirement. If the tower does not offer a good ground return, then we suggest attaching a large diameter (No. 14 or larger) wire to the aluminum DX-B mounting bracket and running this wire to a good RF ground connection (ground rod) at the base of the support. This some method will allow the DX-B to be used in cases where the support structure may be of an insulated type, such as wooden utility poles, chimney mounts, trees, etc. Also, if your tower is of the "crank-up" variety, where there may be some doubt as to the integrity of the metal ground path, this same method of running a ground wire should be followed. If this method is needed, the DX-B aluminum-mounting bracket should be drilled for attachment of a stainless steel screw and lug type connector (with ground wire attached).

*Refer to FIGURE NO. 1: The DX-B aluminum mounting bracket will have to be drilled for a U-Bolt (user supplied) to fit your particular tower leg or installation method. It should be noted if your tower is of the "sectional" type (such as Rohn) then the bracket may be fitted to one of the sectional bolts by simply removing the nut and placing the bracket hole over the bolt and re-installing the nut! In this case, no other hole need be drilled, since the DX-B bracket has already been drilled with a single mounting hole at the factory!

*The DX-B was originally designed as a "free space" antenna (as almost all antennas are). As such, it is possible that the introduction of your DX-B into a tower system employing multiple guy wires or other attached wire antennas may cause detuning of the DX-B antenna. The mere presence of other wires or wire antennas can result in direct R.F. coupling which will upset the DX-B antenna system. The point of bracket attachment on the tower should be as far removed as possible from the attachment point for any guy wire system. The angle of slope for the elements of the DX-B should be such that they are not the same angle as made by any guy wires or other wire antennas. The DX-B wire elements may be so arranged as to bisect the angles mad by guy wires. Guy wires should be electrically broken by the inclusion of insulators. In some instances, it will be necessary to employ the use of an antenna tuner to allow some solid state transmitters to fully load.

*The mounting height for the DX-B is not critical. The DX-B is a super good low angle radiator (highly desired for DX work). We have many users with the DX-B mounted as low as 25 feet, and achieving excellent results on the air! Mounting height for the attachment of the bracket is best left to the decision of the end user and the support structure to be used for the DX-B.

*The DX-B has been designed for use on an unguyed metal tower with a beam on top. The beam provides a capacity hat effect and helps to tune the DX-B. The DX-B will provide excellent DX results on other support structures, such as poles, masts, trees, etc., but these installations will require the use of a wide range tuner.

INSTALLATION & TUNING INSTRUCTIONS

Unroll the DX-B sloper wire elements, removing any kinks that may have been induced during the packing operation. Run the 23-ft. "stub" wire through the pre-drilled acrylic stand-offs as shown in Fig. 1.

Install the DX-B aluminum-mounting bracket on your support structure, as described previously. Then slope the antenna as shown in Fig. 2 (optional "Down-Lead" not required if installed on metal tower).

Using a VOM, check to make certain that there is a good low resistance pathway between the DX-B bracket and the tower leg (or other ground return lead)! Also, be sure to route the wire from the end of the DX-B bracket so that it is separated from the tower leg as much as possible.

Any 50-ohm coaxial feedline may be employed for use with the DX-B Sloper Antenna. We suggest the use of RG-213 cable, as it is generally a very good buy and will handle the legal limit of RF power output. The DX-B bracket has been fitted with an Amphenol SO-239 connector so as to accept the standard PL-259 termination. Attach your feedline to the bracket coaxial connector. It is wise to cover this coaxial connection with some form of weather protectant, such as "COAX-SEAL", etc.

Please remember: the antenna end should be so placed that when installed it will not create a safety hazard since there will be RF voltage present at this end during normal use!

Turning Note: To raise the resonant frequency for any band, that wire element must be shortened. The shorter the wire element, the higher the resonant frequency. Conversely, the longer the wire element the lower the frequency.

The "ISO-RES" coil has been given two coats of special polyurethane with UV light blocking agent. All hardware is of 18-8 stainless steel. No further weatherproofing is needed. If you have some "COAX SEAL", a small amount may be applied to the copper element wire ends at the "ISO-RES". The construction of the "ISO-RES" is such that it should offer a long lifetime of service.

This completes the installation and tuning of your new ALPHA DELTA DX-B Sloper Antenna. GOOD DX'ING!

To avoid the possibility of tuning errors and false resonance's you will need to de-couple the coax from the antenna at the feedpoint in the following manner. Near the feedpoint make 8 turns of coax at 8 inches in diameter. Tape these turns with electrical tape. Then tape the entire set of turns to the tower leg or at a convenient place so it doesn't pull at the PL259 connector.

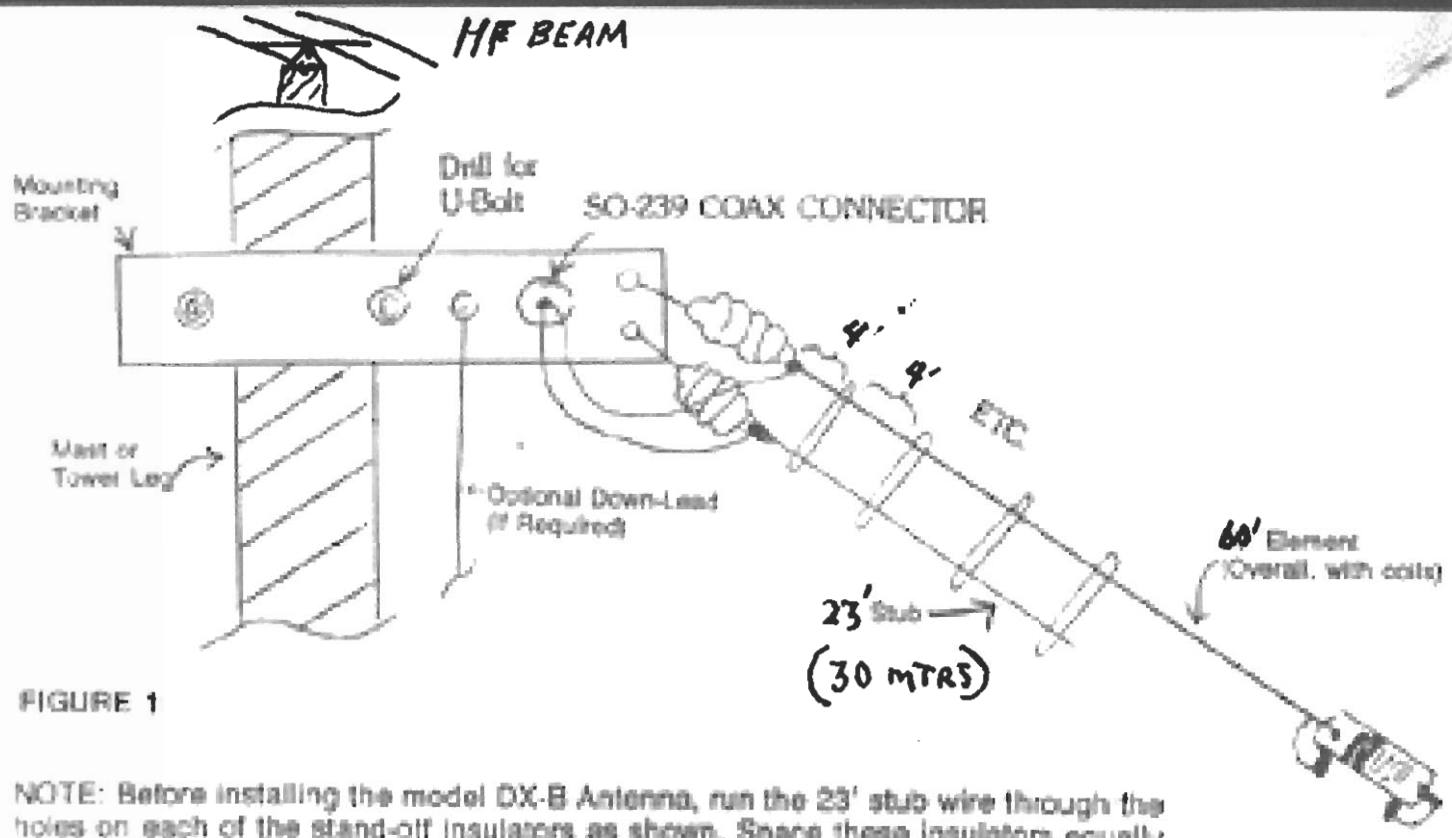


FIGURE 1

NOTE: Before installing the model DX-B Antenna, run the 23' stub wire through the holes on each of the stand-off insulators as shown. Space these insulators equally for best support. (Approx. every 4') Then apply a good plastic to plastic adhesive or silicone sealant in each hole to secure insulators. (Available at any hardware store.)

NOTE: INSTALLATIONS NOT USING A BEAM ON TOP (CAPACITY HAT) WILL REQUIRE THE USE OF A WIDE RANGE TUNER

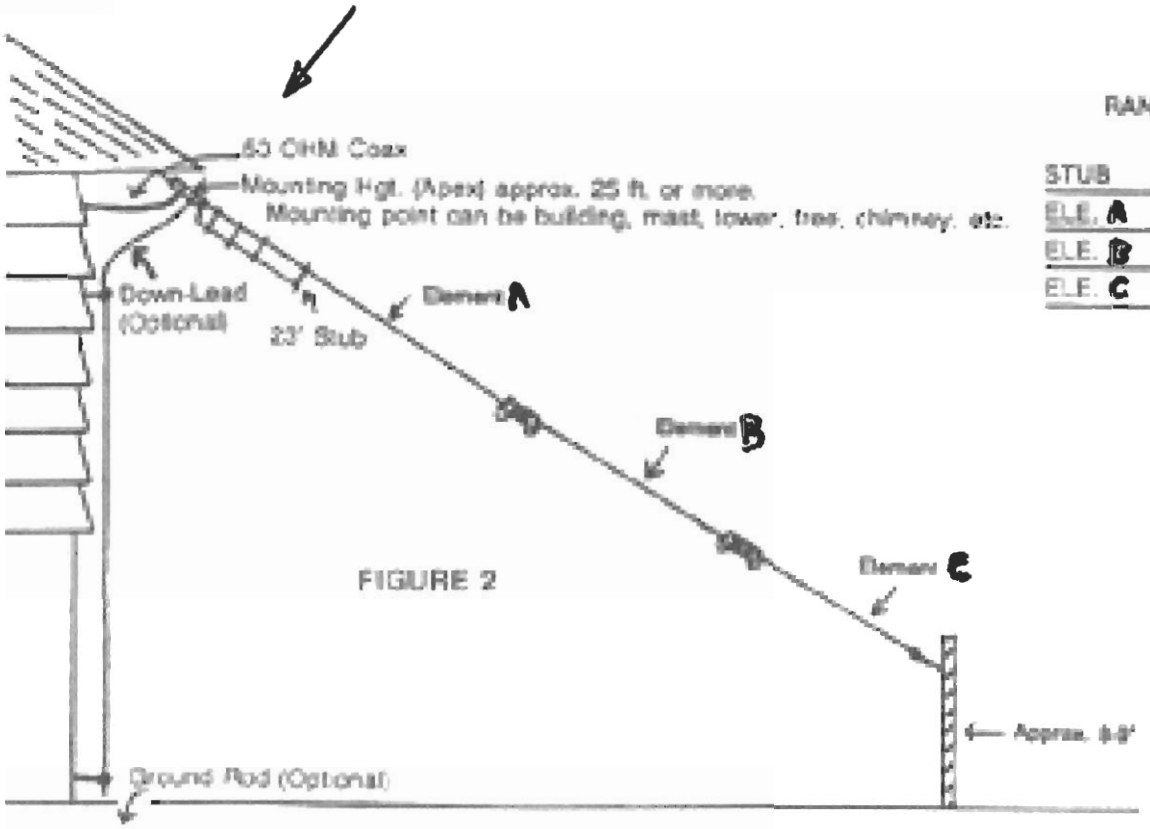


FIGURE 2

RANGES COVERED (Meters)

STUB	30
ELE. A	40
ELE. B	80/75
ELE. C	160

Alpha Delta COMMUNICATIONS, INC.

ALPHA DELTA COMMUNICATIONS, INC.

1/4 Slopers

Wanna Work Some GREAT Low Band DX in Limited Space Area? Here's How to Do it RIGHT!

GENERAL PRODUCT USE

Alpha Delta designs and produces a line of high performance 1/4 wave slopers for limited space installations. For extra reliability, these antennas do not use traps of the traditional type with coils arid capacitors but ISO-RES inductors that serve a trapping function. There is no separate capacitor therefore to break down under high RF voltages. All models use stainless steel hardware to accommodate extreme weather conditions. When our antennas are properly installed, tuners are usually not required.

APPLICATION: 1/4 WAVE SLOPERS

Alpha Delta slopers are designed for users who desire effective low band DX performance, but who have limited space installation capabilities. These slopers can be easily attached to existing towers and masts without the need for additional supports. However, please note the unique installation requirements explained in the following sections.

While 1/4 wave slopers are only about half the size of the regular 1/2 wave dipole, their installation requirements are very different than a dipole for proper SWR and operational performance. The 1/2 wave dipole when mounted in the clear, is essentially a self resonant antenna and relatively easy to tune. However, a 1/4 wave sloper relies on three important additional factors for proper "no tuner" operation and lowest SWR.

1 A 1/4 wave sloper is essentially an "up side down" vertical where the traditional radials are up in the air over the high feed point with the radiating element sloping downward. In actual practice these "radials" are actually the elements of a HF beam antenna and this beam is referred to as the "capacity hat" for the sloper. In addition, the sloper feedpoint must be at least 4 to 5 feet below the beam for proper decoupling. The tower or support must be clear of unbroken guy wires, other wire antennas or near by metal objects such as gutters, rooftops, or metal fascia.

If a 1/4 wave sloper is put on a tower without the "capacity hat" on top, tuning will usually be difficult and will exhibit high SWR. In this case a sloper can perform well but a wide range antenna tuner will be required.

2 Since a 1/4 wave sloper is essentially one half the size of a regular 1/2 wave dipole, the "missing part" of the sloper is made up by the ground return path through the tower or metal mast. If a nonmetallic support or a crank-up tower is used, it will be neccessary to provide a "down lead" wire from the sloper bracket to the ground. This "down lead" wire should be 12 gauge or better and attached to a ground rod. Also to decouple RF currents from the coax shield, it is good practice to wind an "RF choke" at the feedpoint of the sloper. This is done by winding six or eight turns of the coax at a diameter of approximately 6 inches. A common practice is to secure these turns with electrical tape. (Graphic Assistant #1: Refer to the graphic assistant drawing on the back to use as a reference while reading this section.)

3 Sometimes when a sloper is installed in what seems like an ideal situation, the user still finds a relatively high SWR. Our Customers have reported that to correct this situation, it has been necessary to install additional ground rods or radials at the base of the tower due to a poor RF ground condition. After doing this they report normal SWR bandwidth results.

PRODUCT DESCRIPTION: 1/4 WAVE SLOPERS

Alpha Delta provides two 1/4 wave slopers the model DX-A twin sloper and the model DX-B single wire sloper. Both models are designed to meet varying installation space requirements.

Model DX-A Twin Sloper

This model is designed to provide broad band characteristics by having two separate slopers driven from a common feedpoint. One sloper wire is about 67 feet long and resonates on 75/80 meters. The other sloper wire utilizes an ISO-RES inductor and resonates on both 40 and 160 meters. The 40/160 wire has an overall length of about 55 feet. The two wires should have an included angle of 90 degrees or more. When installed, this configuration looks like an inverted "V" dipole but must meet the installation requirements noted in previous sections. Broad-banded characteristics are accomplished by dividing the ham bands across two separate sloper wires. This model can be used at installation heights of 35 feet to 40 feet or more.

The Model DX-A is priced at: $100.00 each (plus, $8.00 shipping and handling)

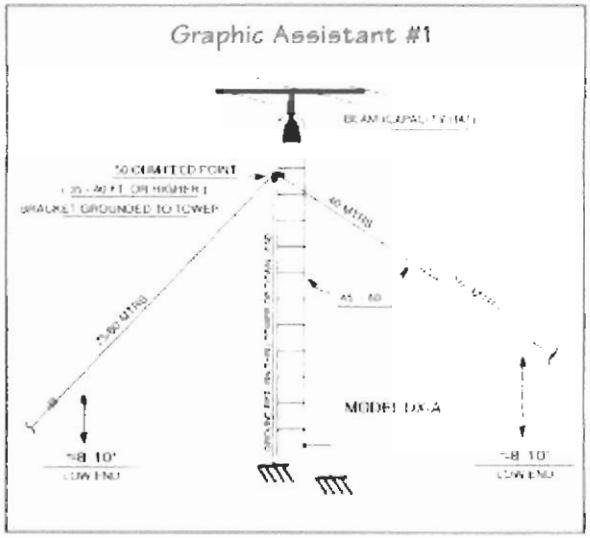
Model DX-B Single Wire Sloper

When dimensional and space limitations do not permit the use of the model DX-A twin sloper the model DX-B provides a space saving option. The antenna is a single wire utilizing two ISO-RES inductors and an under slung parallel wire with stand offs for operation on 160, 80, 40 and 30 meters. The overall length of the model DX-B is about 60 feet. Since the ham bands are divided by ISO-RES inductors instead of separate sloper wires, the antenna is more narrow band than the model DX-A and should be used with a tuner. Our customers report excellent DX performance with this antenna at heights of 35 feet to 40 feet or more above the ground. This model must also conform to the installation requirements outlined in previous sections.

The Model DX-B is priced at: $110.00 each (plus $8.00 shipping and handling)

FEATURES AND BENEFITS: 1/4 WAVE SLOPERS

When installed properly, a 1/4 wave sloper provides a significant antenna solution for those desiring excellent DX performance on the low bands where space does not allow full size 50 OHM antennas. Sloper lengths are typically 60 ft to 67 feet long for bands covering 160, 80, arid 40 meters. You will recall that a full size 160 meter dipole is 260 feet long, an 80 meter dipole is 130 feet long and a 40 meter dipole is 66 feet long. These MODEL DX-A compact small size slopers perform with an excellent DX punch across all these bands. The primary reasons for excellent sloper performance are:

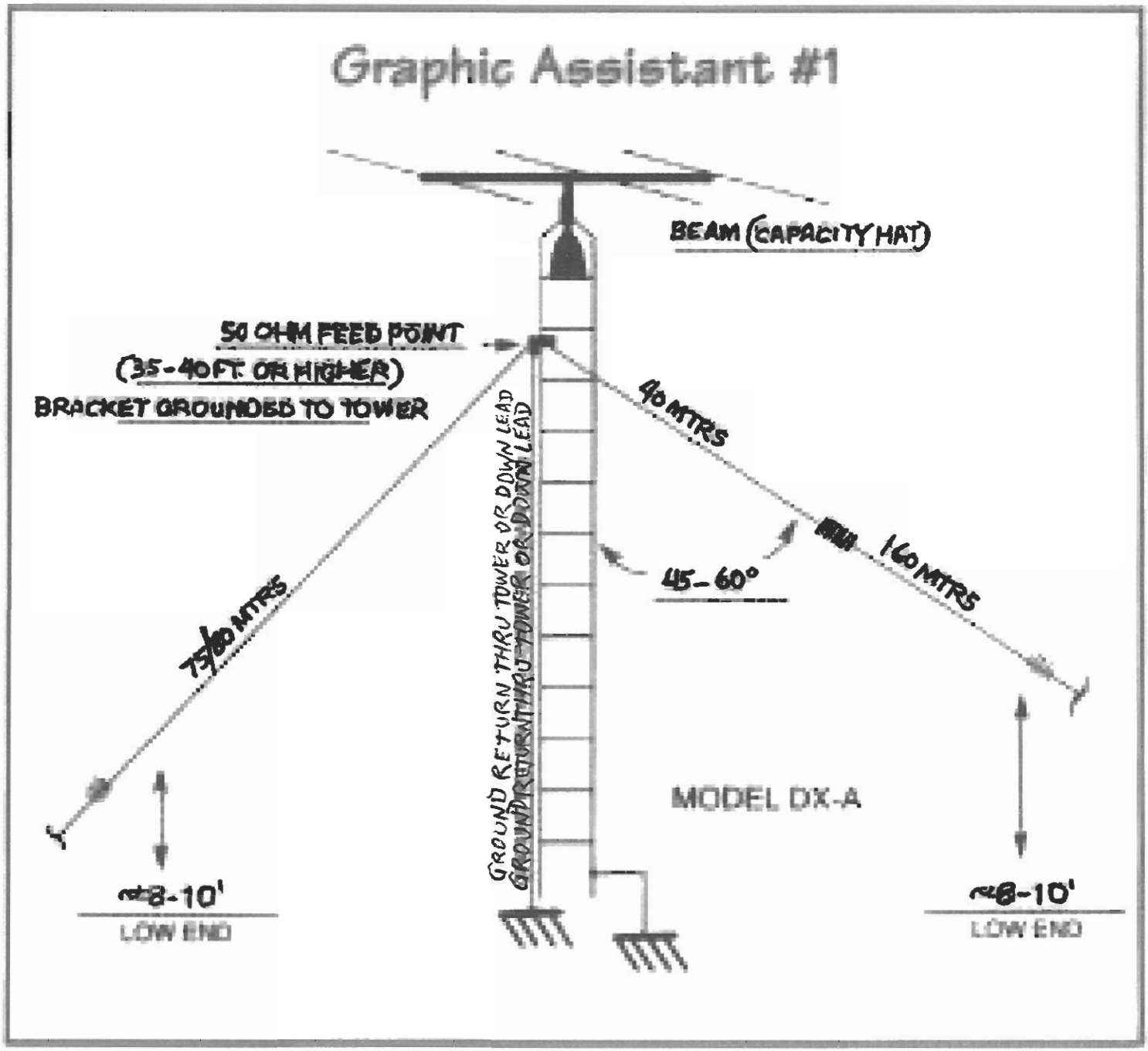


1. The current lobe, which defines the radiation efficiency is up high at the feedpoint and away from surrounding objects such as trees, bushes and buildings which could attenuate the signal. Comparatively, vertical antennas have a feedpoint at ground level and the current lobe therefore can be attenuated by surrounding objects.

2. The angle of the sloper wire provides a favorable angle of radiation for DX signals. It is generally thought that a dipole would have to be up in the air much higher than a Sloper to provide the same level of DX performance.

3. The effect of the "capacity hat" above the sloper provides an efficient loading and SWR characteristic for a small physical size.

Thousands of Alpha Delta Slopers are in use world wide providing outstanding DX contacts.


Graphic Assistant #1
BEAM (CAPACITY HAT)
50 OHM FEED POINT
(35-40 FT. OR HIGHER)
BRACKET GROUNDED TO TOWER
40 MTRS
160 MTRS
45-60°
75/80 MTRS
GROUND RETURN THRU TOWER OR DOWN LEAD
GROUND RETURN THRU TOWER OR DOWN LEAD
MODEL DX-A
~8-10'
LOW END
~8-10'
LOW END