X600H/N

2m/70cm DUAL-BAND HIGH PERFORMANCE GAIN VERTICAL ANTENNA
DIRECT JOINT SYSTEM
FRP OUTERSHELL
LINER PHASE-SHIFTER SYSTEM

DIAMOND ANTENNA

OPERATION INSTRUCTIONS

Before assembling

Since the antenna is rather long, 7.2m(23.6'), do not build and install the antenna by yourself. Ask your friends for help from the beginning. And utmost care has to be taken to choose installation location of the antenna. Be sure to look for surrounding buildings and electric power lines to see if they are damaged by the antenna when it falls down.
Choose mast diameter of an antenna installation mast as wide, at least 45mm(1.8"), as possible. And use strong and stable mast base or tower to install the mast.
If the antenna is installed at high location, be sure to watch for strong wind blow and always use safety belt to avoid fatal accident.

● Description

Newly developed Linear Phase Shift technology and Direct Joint structure by four-piece FRP outershell enable to achieve the following performance.

1) 2m 5/8 wave four-element C-Load and 70cm 5/8 wave eleven-element C-Load structure.
2) High performance and high maximum power resistance at 2m and 70cm bands.
3) Low vswr and broader coverage at 2m and 70cm bands.
4) Overlapping four-piece FRP outershell structure is strong enough to compete with one piece structure.
5) Ring gasket provides perfect waterproof.
6) Adequate diameter FRP outershell is employed to avoid unwanted QSB caused by strong wind.
7) Element joint brackets are fastened easily and firmly with special wrenches included in the set.
8) DC ground structure of the antenna protects transceiver from high voltage caused by thunder lightning.
9) Feedpoint connector is being exposed downward at the bottom of support pipe to make antenna installation or detachment easier.
10) With optional 2m/70cm duplexer, two bands can be transmitted simultaneously.

● Assembly

Note ; Be sure to assemble from upper element. If the antenna is being assembled from lower element, element can not be pulled out from outershell and fastend properly.

1) Insert special wrenches included into No. 1 and No. 2 outershells as shown in Fig. 1. Use the smallest diameter section of the wrenches, of the ones which have holes in the both ends.

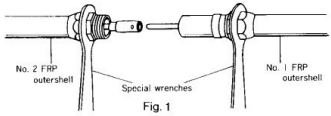


Fig. 1

2) Connect elements in No. 1 and No. 2 FRP outershells with a screwdriver as shown in Fig. 2.

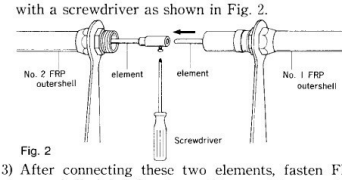


Fig. 2

3) After connecting these two elements, fasten FRP outershell joint bracket with special wrenches. Fasten them firmly until there is no gap between both sides of the bracket as shown in Fig. 3.

Fig. 3

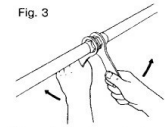


Fig. 4

4) After fastening the bracket, pull out the wrenches from the outershells as shown in Fig. 4.
5) Connect No. 2 FRP outershell and No. 3 FRP outershell, and elements in the outershells the same way as shown in 1) to 4). This time, however, use bigger diameter section of the wrenches, of the ones which have holes in the both ends, as shown in Fig. 5.

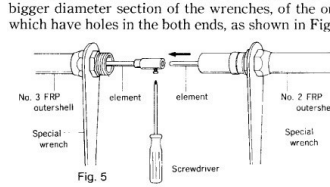


Fig. 5

6) Connect No. 3 FRP outershell and No. 4 FRP outershell, and elements in the outershells the same way as shown in 1) to 4). This time, however, use the wrenches which have biggest holes in the one ends.
7) Attach three radial elements as shown in Fig. 6.
8) Attach mast brackets on support pipe by taking whole balance into account. This section is constructed to withstand strong wind by inserting FRP outershell through the bottom of support pipe.

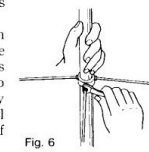


Fig. 6

Then, attach the antenna to a mast firmly as shown in Fig. 8. Since the antenna is rather long, to avoid an accident caused by wind blow, be sure to install the antenna with your friends and do not attempt to do it alone for your safety.

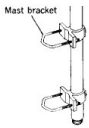


Fig. 7

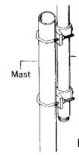


Fig. 8

9) Connect coaxial cable with N connector to the feedpoint section at the bottom of the antenna through waterproof sleeve as shown in Fig. 9.
Then attach waterproof sleeve to support pipe firmly with a screw.
Finally, turn coaxial cable once to make a loop at right below the antenna to escape excess load from the cable.

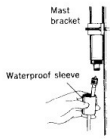


Fig. 9

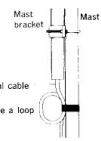


Fig. 10

● Adjustment

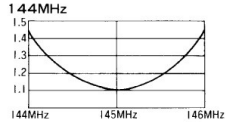
The X600H antenna is completely adjustment free. If vswr of the antenna is extraordinary high, most likely, it is due to coaxial cable and connector contact, or connector soldering problem. It is recommended to check coaxial cable and connector soldering with a volt-ohm meter.
And be sure to use 50Ω coaxial cable to feed the antenna

● Note;

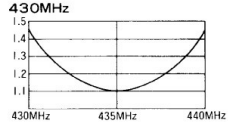
Though the X600H is DC ground structure, circuit across the inner conductor and outer conductor is open-circuit when measured by a volt-ohm meter. If it is close-circuit, confirm coaxial cable connection well.
Since the antenna is very high performance, install the antenna vertically. If the antenna is tilted, it can not perform perfectly as it is expected.

● VSWR

144MHz



430MHz



● Specifications

Frequency : 144~146MHz, 430~440MHz
Gain : 9.3dB(2m), 13.0dB(70cm)
Impedance : 50ohms
VSWR : Less than 1.5 : 1
Max. power rating : 200W
Max. wind resistance : 40m/sec.(90MPH)
Mast diameter accepted : 30-62mm(1 1/5″ to 2 2/5″)
More than 45mm(1 4/5″) diameter mast is recommended
Length : 7.2m(23.6′)
Weight : 3.8kg(8.36lbs.)
Connector : N female
Type : 5/8 wave four-element C-Load antenna(2m)
5/8 wave eleven-element C-Load antenna(70cm)

● Part name (number)