

# DIAMOND ANTENNA

## X300A/X300NA

### 2m/70cm Dual Band High Performance Gain Base Station Antenna

#### Description

1. High performance C-Load structure. Linear Phase Shifter technology permits the antenna to achieve high performance, high power rating low vswr, and broader band coverage on both 2m and 70cm bands.
2. Direct element joint structure with two interconnected FRP outer-shells. Enables the antenna to maintain the same strength as one with one piece structure. The ring gasket makes the antenna waterproof, and therefore maintains performance even in rainy weather. When required, the antenna can be easily assembled or disassembled by adjusting the joint bracket accordingly.
3. Professional quality maximum wind resistance is achieved by the rugged structure. Superior waterproofing eliminates unstable VSWR that might otherwise happen in climatic weather. This antenna may also be used in seaside or contaminated air environments as it is rust and corrosion free.
4. Both of the bands, 2m and 70cm, can be operated simultaneously by using optional antenna duplexer.
5. DC ground structure, which escapes high voltage caused by lightning, protects your radio and equipment.

#### Specifications

FREQUENCY: 144-148 MHz  
435-450 MHz

GAIN: 6.5 dB  
9.0 dB

POWER: 200 Watts

IMPEDANCE: 50 Ohms

VSWR: less than 1.5:1

MAX WIND  
RESISTANCE: 50m/sec (112 MPH)

MAST DIAMETER  
ACCEPTED: 30-62mm  
(1-1/5" to 2-2/5")

LENGTH: 2.9m (114.2")

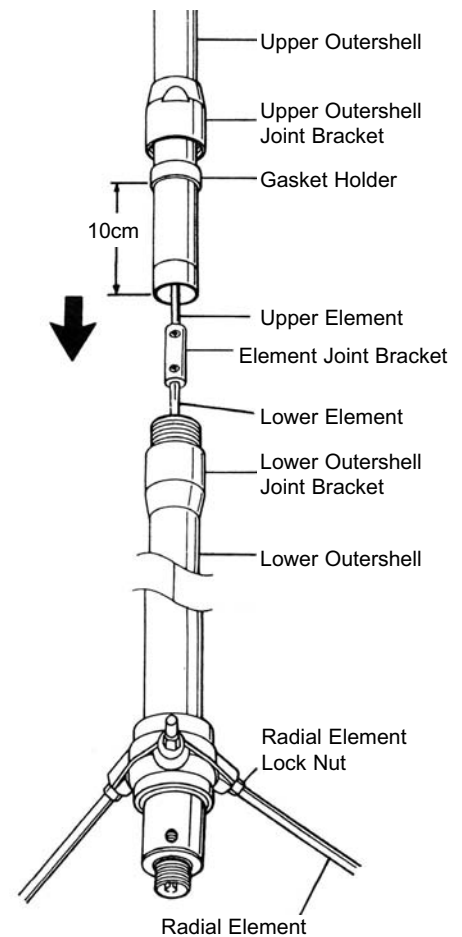
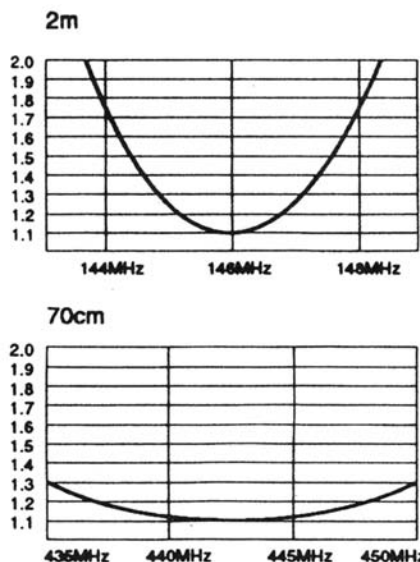
WEIGHT: 1.9 kg (3.3 lbs.)

CONNECTOR: UHF Female (X300A)  
N Female (X300NA)

WARRANTY: 1 Year against defects  
in material  
or workmanship.

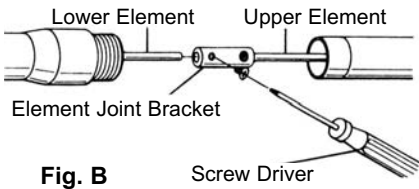
#### VSWR Charts Adjustment

All X-Series antennas are completely adjustment free. If VSWR of an antenna is extraordinarily high, see if each connecting part is well contacted. It is most likely due to bad contact in the coaxial cable and/or connector connection, or soldering problem. Be sure to use 50ohm coaxial cable to feed the antenna.



#### Assembly

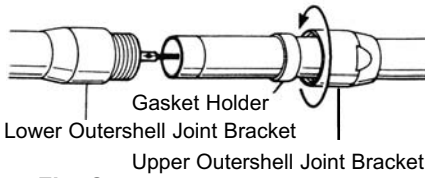
shown in Fig. E.



**Fig. B**

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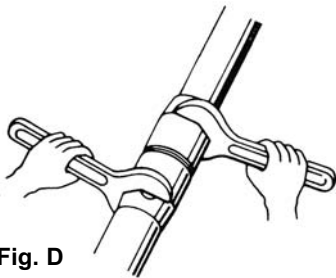
1. Connect upper and lower elements.
2. Put lower element into element joint bracket thoroughly and fix it.
3. Then fix upper and lower outer-



**Fig. C**

shells with outershell joint bracket as shown in Fig. C.

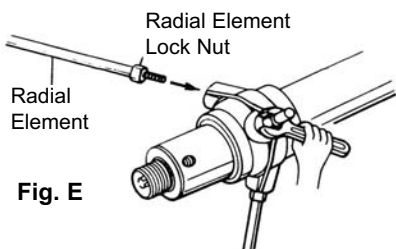
4. Fasten upper outershell joint bracket with a wrench by holding lower outershell joint bracket firmly with a wrench at the same time. Fasten the brackets until there



**Fig. D**

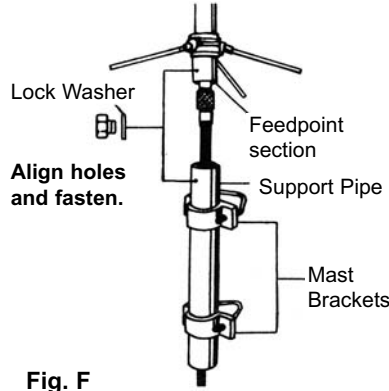
is no gap between them to ensure a waterproof connection.

5. Attach three radial elements as



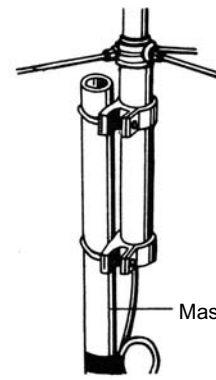
**Fig. E**

6. Attach two mast brackets to the support pipe. Then connect a coaxial cable to the feedpoint section through the support pipe. By aligning the holes at the bottom of the feedpoint section and upper part of the pipe, fasten the

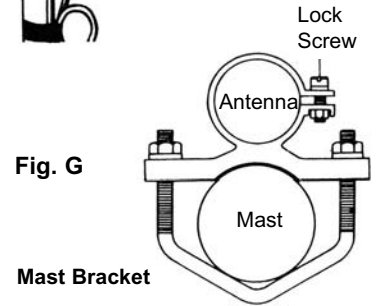


**Fig. F**

pipe with a lock screw.



7. Attach assembled antenna on mast, taking balance into account.



**Fig. G**

**Mast Bracket**



**For Your Safety**

Please read the following safety precautions before antenna assembly.

- Assemble the antenna on the ground or wide and flat place such as on balcony before installation.
- Do not assemble or install the antenna on a place where you can not have enough distance from any electric power lines.
- Do not install the antenna on a rainy or windy day.
- Do not attempt to install the antenna only by yourself. Installing the antenna alone on the roof may lead you to a dangerous accident. Always ask your friends or a professional for help installing the antenna.
- Do not use iron or aluminum ladder at a reachable distance from any electric power lines.
- Do not install the antenna on a mast which is not grounded properly.
- Do not have your family members or friends touch or come close to the antenna, unless they have realized its potential danger.

**TO AVOID FATAL ACCIDENT**

- Do not attempt to sustain the antenna, or any part of support structure if it begins to fall down. Let it fall by itself.
- Do not attempt to remove or restore the antenna or any part of support structure if it touches an electric power line. Let it be as it is, do not touch it, and call your local electric power company immediately.

**IN CASE OF AN ACCIDENT**

- Do not touch a person or an animal who is or seems to be in contact with the antenna or any support structure which is fallen on a live electric power line. Touching one may lead you to be electrocuted.
- Do not attempt to separate a person or an animal who is or seems to be in contact with the antenna or any support structure which is fallen on a live electric power line by yourself. Call or have someone call a police officer, ambulance, or doctor immediately.

**Antenna Installation Precautions**

To determine antenna installation location, there are several factors to be taken into account. First thing is antenna propagation direction to specific target stations. As to whether there are any obstacles such as tall buildings on the line of sight. Next is specific installation location. As to whether specific location is adequate in terms of antenna support and surrounding safety.

- Do not attempt to install the antenna by yourself if you do not have any experience in installing base station antenna. Ask your experienced friends or a professional for help.
- Do not attempt to install the antenna at a location where it does not have enough distance from nearby electric power lines. It is advised to install the antenna at least twice of total antenna height from nearby electric power lines.
- Do not install the antenna on any type of tower, pole or telescopic mast which exceeds 30 feet high, if you do not have enough experience in installing the antenna on that kind of location. Ask your experienced friends or a professional for help.
- Do not use more than 1/10' section if you install the antenna on iron plumber's pipe. Attach guy wire if multiple pipes are used to install the antenna.

