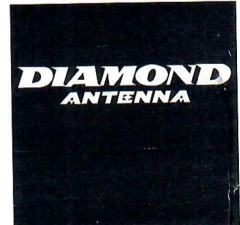


A502HBR2

User manual



Read the manual properly before using and use the antenna properly. Keep the manual for any future necessity.

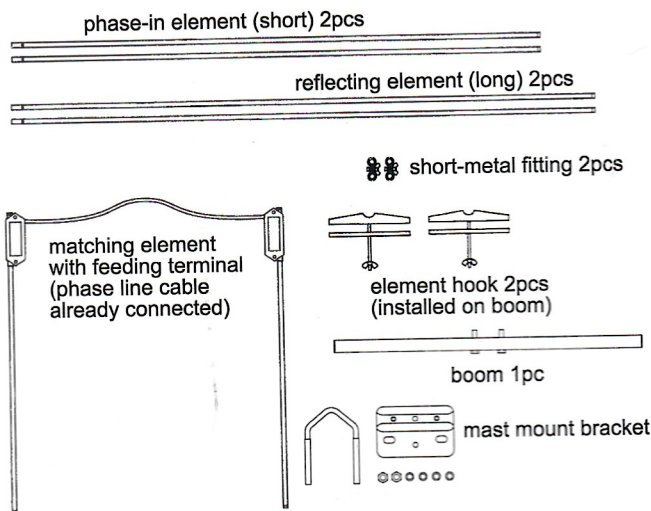
■Usage

A502HBR2 is 50MHz directional antenna for amateur radio communication. It is applicable in fixing / moving only (not for mobile)

■Feature

1. 2 ELEMENT PHASED DRIVE BEAM system brings a high performance with few elements.
2. Boom and elements use firm aluminum pipe so can be used at strong wind. (Boom diameter Φ 32mm, element diameter Φ 12.7mm)
3. Mast diameter accepted is Φ 25 to Φ 56mm.
4. Hook type element is used to avoid element from falling off.
5. The antenna is light (1.85kg) easily carried around.
6. There are few parts only so easy to install. Phase line is already assembled.

■Checking parts



⚠ Caution while installation

1. Don't install on a rainy or windy day since it is dangerous.
2. Don't attempt to install the antenna only by yourself. Installing the antenna alone on the roof may lead you dangerous accident. Always ask your friends for help installing the antenna.
3. Don't drop the antenna, tools and attachment while installing the antenna in the height. Assemble the antenna as much as possible on the ground before installing on the roof.
4. This antenna can be assembled without tools, but when used in fixed station, use pliers to tight firmly.

⚠ Caution on antenna location

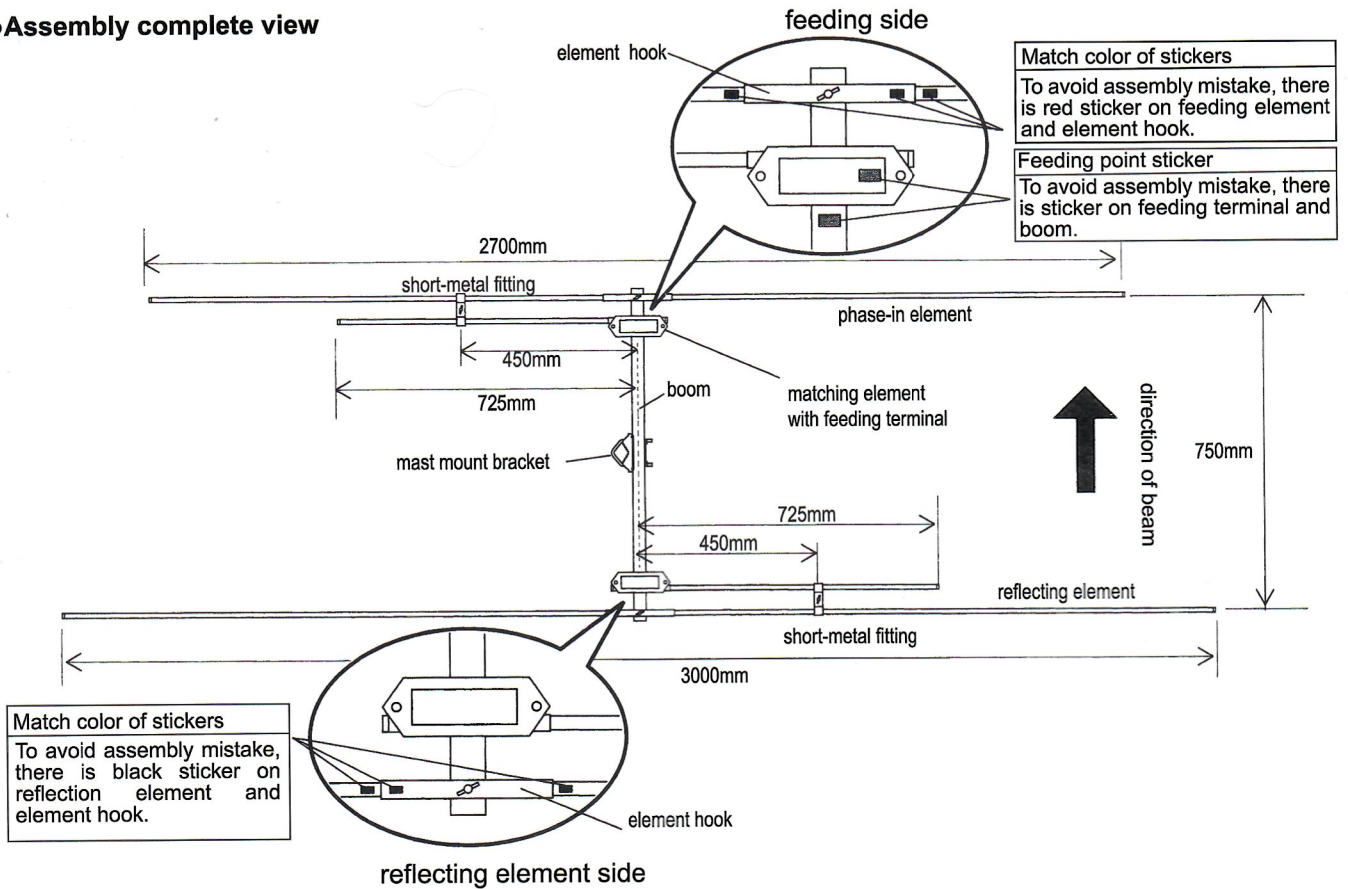
1. If the antenna is located on the roof of a house or top of a building, look around the roof to see if there is any obstacle such as an electronic wire or TV antenna. The antenna has to be located as far away as possible from those things to obtain its maximum performance. Installing the antenna too close to the building wall may cause bad effect for electrical characteristics of the antenna.
2. Don't install the antenna where is easily reachable by people.
3. Before turning the antenna using rotator, check there is not obstacle within the antenna radius. It is very dangerous if the antenna touches an electronic wire.
4. Install the antenna firmly so it will not fall down due to strong wind. Locate the antenna at the safe place where people and building will not get injured even if the antenna falls down.

<<Before transmitting>>

1. Transmit after confirming if the antenna works normally by an SWR meter. If VSWR is less than 1.5, it is no problem. If VSWR is higher, stop transmitting and check if the parts of the antenna and coaxial cable are connected. If there are tall buildings or obstacles or the distance between the antenna and the ground is short, VSWR may not be lowered.

※Diamond Antenna SWR/POWER meter is an insertion type being connected between a transmitter and an antenna. Transmitting power and SWR can be measured with very simple operations. In addition with those conventional measurement, PEP (peak envelope power) on SSB mode can be measured with a PEP monitor function. With our Diamond's wideband and low insertion loss directional coupler those measurements can be performed with minimum effect in transmission line.

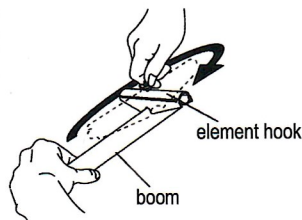
●Assembly complete view



●How to assemble

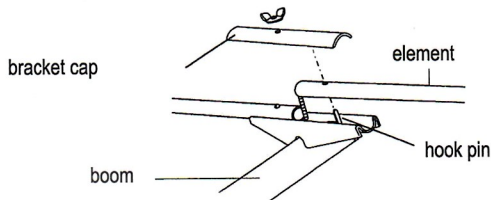
1. Change direction of the element hook

Loose the screw of the element hook so the hook and boom will cross each other.



2. Install element to the boom

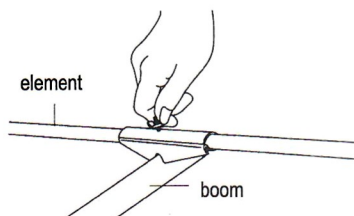
Fit the hook pin into the element hole so the element will not fall off. Color of the stickers should match.



This antenna has front and back direction

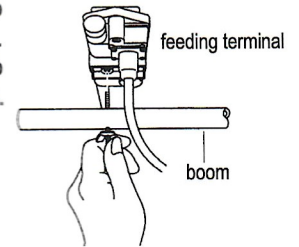
Wrong length of element and the wrong direction of terminal may cause working trouble. When installing, take full care to match each sticker color.

After hooking the element, fasten the bracket cap with a screw. Install the element to both side of boom.



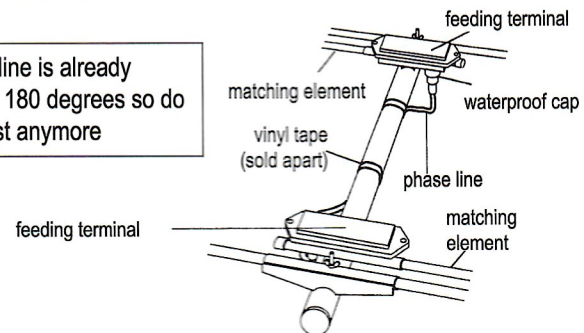
3. Install matching element with terminal

Fix each feeding terminal to the boom as illustration. Cable connecting the two terminals is called phase-line.



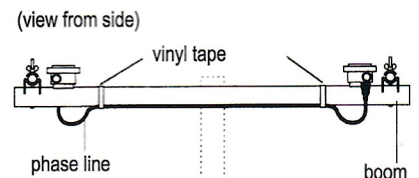
Check direction of matching element. Install the phase line like below illustration. Phase line is already twisted 180 degree when packing so do not twist any more. Twisting the phase line too much may cause disconnection.

Phase line is already twisted 180 degrees so do not twist anymore



Fix the phase line firmly to the boom with vinyl tape. Give a little sag for phase line under the waterproof cap of the feeding point.

Phase line goes UNDER the boom





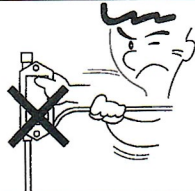
Do not open the feeding terminal

Feeding terminal is already adjusted. Be sure not to open the inside.



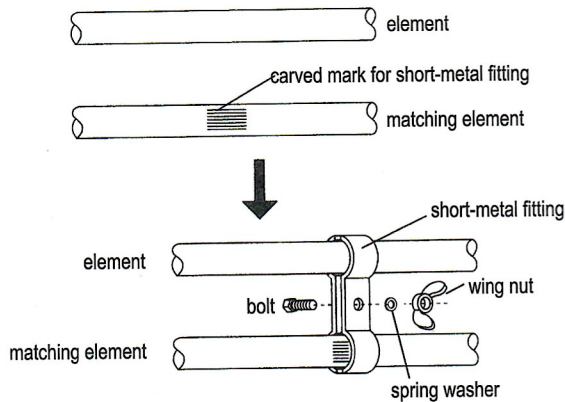
Do not pull the phase line

Do not pull the phase line, cable coming out from the feeding terminal. There is possibility of disconnection.



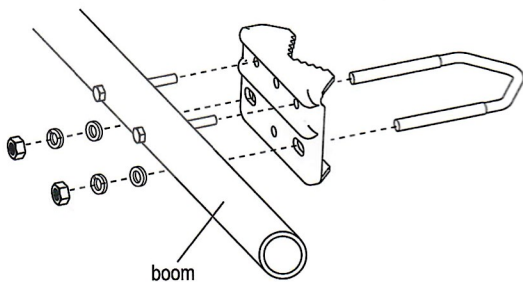
4. Fix short-metal fitting to element

Fix the short-metal fitting to each matching element to adjust the frequency. Frequency is already set 51MHz at a marking point.



5. Install mast joint bracket

Install the mast joint bracket at the center of boom as illustration.



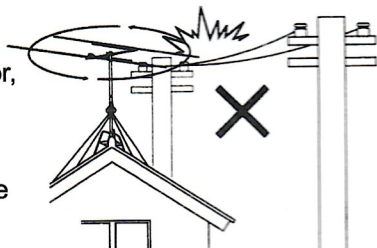
6. Fix antenna to the mast

Stand the mast on a roof. Fix the mast with mast joint bracket.



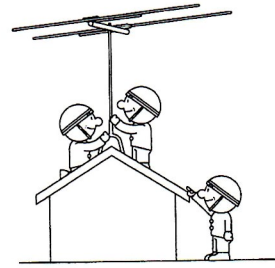
Caution

Before turning the antenna using rotator, check there is not obstacle within the antenna radius. It is very dangerous if the antenna touches an electronic wire.



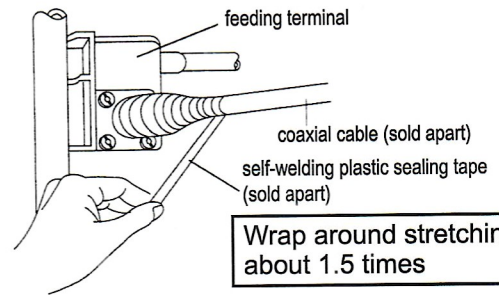
Caution

Don't attempt to install the antenna only by yourself. Installing the antenna alone on the roof may lead you to dangerous accident.



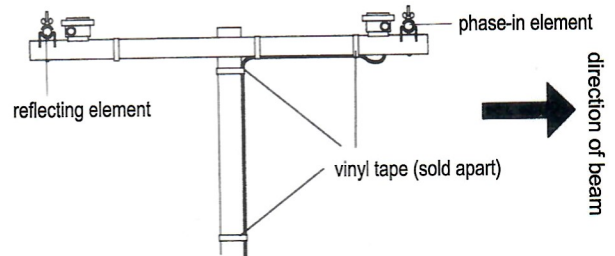
•Connect an optional cable to the connector of the feeding terminal.

Connect coaxial cable with M-type connector to the connector of feeding point. To waterproof, wrap around self-welding plastic sealing tape firmly. It is better to go over again with vinyl tape.



Wrap around stretching about 1.5 times

Fix the coaxial cable along the mast and boom using vinyl tape.

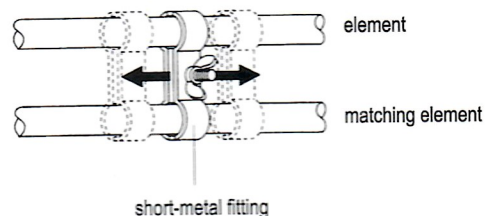


•Adjusting frequency

Frequency is adjustable by sliding the short-metal fitting of the element. Closer to the boom, center frequency decreases, further the boom, frequency increases. If the center frequency is 51MHz, this covers 50~52MHz.

Frequency is adjusted to 51MHz at marking point in advance.

Sliding short-metal fitting for 1cm, frequency changes approximately 80KHz. Slide both side short-metal fitting equally.



**Caution** Do not touch while transmission

Touching the antenna during transmission may cause to electrify. Pay attention not to touch the antenna especially for children if installing on a balcony railing.

**Caution** Do not touch while rumbling thunder

When the thunder seems to rumble in the vicinity, do not touch the antenna and coaxial. When you do not use the radio, take off the cable from the radio.

**Caution** If there is something wrong, stop transmitting immediately

Keep transmitting with high VSWR may cause the radio to be damaged. Stop transmitting immediately and check the following matters. If it does not solve the problem, please ask the dealer or Diamond Antenna Corporation.

[Condition: If the antenna does not seem to receive well or propagate well]

Check 1: Is the antenna too close to the building wall? If the obstacles are too close to antenna, VSWR is higher and the radiation pattern is disturbed. Please install the antenna from the building as far away as possible.

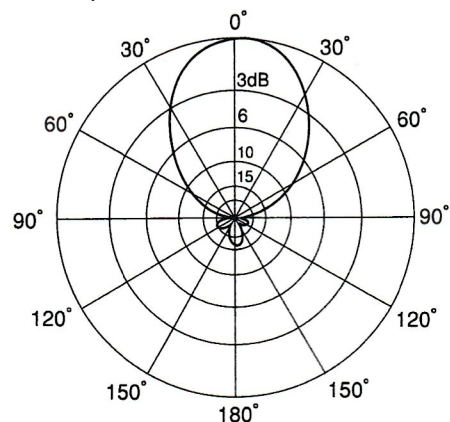
Check 2: Did you assemble the antenna correctly? Please read the instruction again and reconfirm the assembly.

Check 3: Is the coaxial cable something wrong? Please check if soldering the connector is okay and the wire breaks by the volt-ohm meter.

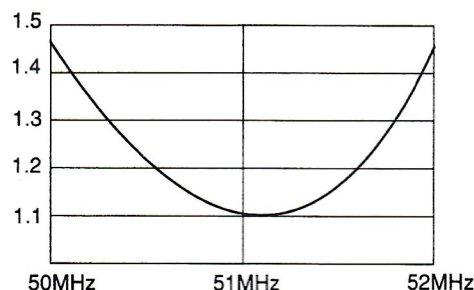
●Specification

Frequency	: 50 ~ 53MHz
Gain	: 6.3dBi
Maximum power rating	: 400w (SSB)
Impedance	: 50Ω
VSWR	: Less than 1.5
FB ratio	: More than 15dB
Half power width	: Less than 70 degrees
Wind surface	: 0.14m ²
Maximum wind resistance	: 40m/sec
Turning radius	: approx. 1600mm
Connector	: M-J
Mast diameter accepted	: Φ25~Φ56mm
Size	: 800 x 3000 x 114mm
Weight	: 1.85kg

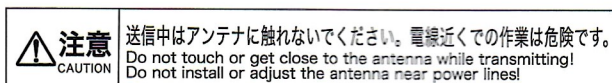
●Radiational pattern



●VSWR (without adjustment)



※Do not remove the caution sticker from the boom



■Though these products purchased are manufactured under strict quality control, if damage is caused by transporting, ask your dealer promptly.

■Design and specifications of these products will be changed for future improvement without advance notice.

■We do not guarantee antenna used in unintended purpose or antenna used when something is wrong. Follow the caution on the manual properly.