



7/(14MHz)/21/28/50/144/430MHz High Performance Mobile Whip Antenna
*14MHz loading coil is for optional use

HV7CX

With Omni directionally tiltable Whip Element Structure.

Operation Instructions

To use this antenna properly, read this instructions thoroughly before using the antenna. Keep this manual carefully at hand for later use.

This antenna is designed for amateur radio communications use only. Do not transmit out of specified frequency bands. Note for using the antenna.

To avoid inviting accidents, please follow the following notices.

ATTENTION!!

- 1) Nuts and screws can be loosened by vibration during driving. Be sure to check those fastening devices from time to time and refasten if necessary.
- 2) Strong impact can cause to brake the antenna and may invite accidents by falling the element. It is recommended to drive away from those obstacles such as branches.
- 3) Strong vibrations caused by diesel engines may damage the antenna. It is recommended to install the antenna at the location where has least vibrations as possible.
- 4) Touching the antenna during transmission may cause to electrify. Be sure to confirm to see if there is no one around the antenna if transmission is taking place while the car is parked.
- 5) Do not drive a car with the antenna tilted. Driving the car with the antenna tilted may cause serious

- 6) To install the antenna, be sure to take those things such as local traffic regulations and physical length of the car in account, and especially it has to be installed the location where is not easily reachable by other people.

- 7) Adjust the antenna thoroughly on operating frequencies before operation. Using unadjusted antenna may cause to damage transmitters due to high VSWR ratio.

- 8) If thunder seems to rumble in the vicinity, do not touch the antenna and coaxial cable to avoid electrocuting by lightning.

- 9) Select strong enough place to install the antenna to avoid damaging the car body by falling the antenna.

DESCRIPTION

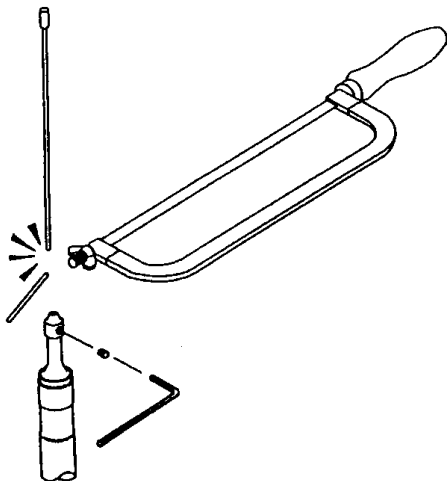
1. HV7 is a compact mobile antenna covering HF-VHF-UHF(7*14*18/21/28/50/144/430MHz) with only one element.
2. 144/430MHz can use without any modification. 50MHz/HF can be adjusted by cutting element length. And as the adjustment elements of HF band are set longer, So that, when the shipment, It would rather a lower frequency than on amateur bands:

Adjustment

- ① Check the VSWR at 144 / 430 MHz.
Without attaching 7MHz loading coil, VSWR at 21/28/50 can not adjusted correctly.
- ② Check the VSWR at 7/21/28/50MHz.
The VSWR can be adjusted by changing the length of the element.

POINT

- * The element of HV7CX is adjusted to lower frequency than amateur bands.
- * Before cutting the adjustment element, the VSWR can be checked with copper wire (1mm - 1.5mm) by cutting.
- * When the element need cutting, be sure to cut the lower part of the element.
- * Before cutting the element, attach the cap, otherwise problems like TYI should happen when transmitted.



ADJUSTMENT CHART

Frequency	How the frequency changes
7MHz	1cm = approx. 40MHz
14MHz	1cm = approx. 190MHz
21MHz	1cm = approx. 290KHz
28MHz	1cm = approx. 460KHz

*14MHz is for optional use.

ATTENTION

- ① Do not touch the antenna during transmission to avoid electrocuted.
- ② Since the VSWR of HF antenna varies depending on the installation location, be sure to adjust at the place where the antenna is operated in practice.
- ③ Adjustment has to be taken place at the place where is no obstacles or power lined, and where does not hinder other cars and pedestrians.
- ④ Due to insufficient earth capacity, correct adjustment can not preformed at the place where has vast space under the car such as on a bridge or in the multi-level parking lot.
- ⑤ To avoid interfering other stations, adjustment has to be performed with least RF power and shortest time as possible.
- ⑥ Since the antenna is a ground type that requires car body as its ground, good ground is required to perform well; otherwise the antenna can not be adjusted correctly.

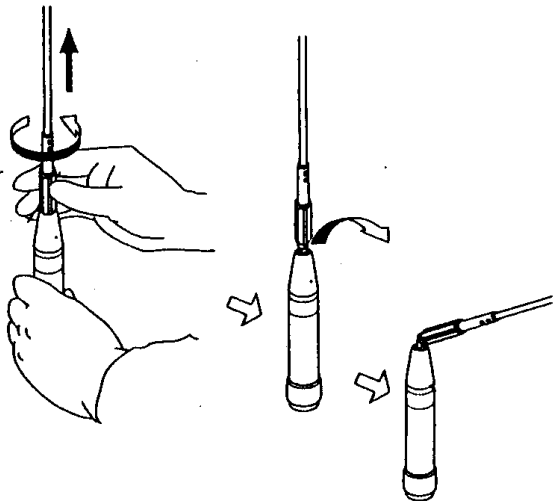
Part Construction

Please check all parts are included.

(Part Number)

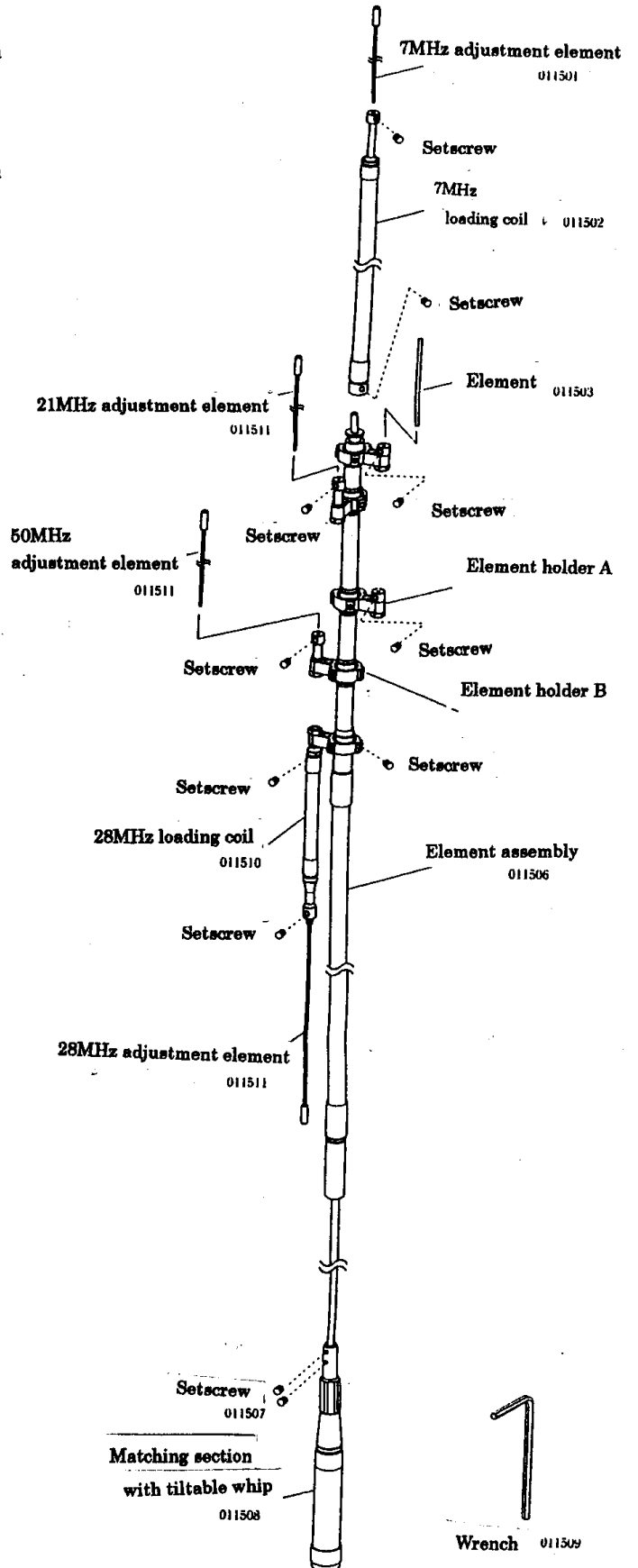
★ Tiltable whip

- ① Loosen the lock nut and pull up when turned down.
- ② When set up, raise the antenna vertically, adjust the antenna, and fasten with setscrew.



ATTENTION

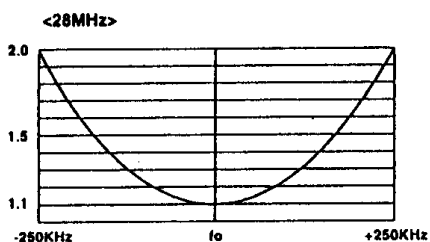
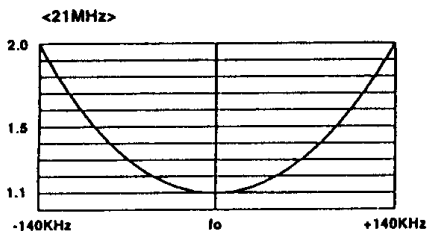
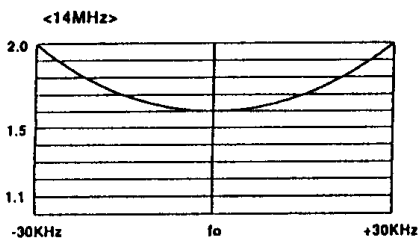
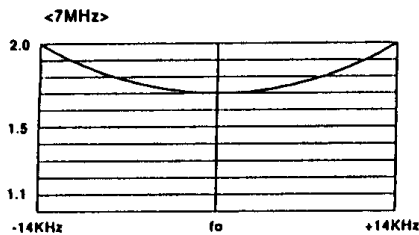
- ① Do not drive with the antenna turned down ; otherwise, fatal accident should happen.
- ② In case the antenna stretches out from the car body when turned down, detach the antenna ; otherwise, fatal accident should happen.



Attention

- ① Since HV7CX is designed to be installed on car body only, the antenna can not be used on different grounding condition such as balcony railings.
- ② Do not detach or damage the rubber tube covering loading coil; otherwise the antenna shows poor performance, and the transceiver should have troubles.
- ③ Wipe the antenna with a piece of cloth from time to time.
- ④ Do not use thinner or benzine to clean the antenna. Use water thinned neutral detergent.

VSWR CHART



Specifications

* 14MHz optional coil is for optional use.

Frequency bands :

7.0~7.1MHz/14.00~14.35MHz

21.00~21.45MHz

28.00~29.7MHz/50~52MHz

144~146MHz/430~440MHz

Impedance : 50ohms

VSWR : less than 1.5 : 1

Max. power ratings:

120W SSB (7/14/21/28MHz)

200W SSB (50/144/430MHz)

Gain : 2.15dBi(144MHz)
5.5dBi(430MHz)

Length : 1.9m

Weight : 660g
(when attached 7MHz coil)

Connector : M

Type :

1/4 λ (7/14/21/28/50 MHz)

1/2 λ (144MHz)

5/8 λ x 2 (430MHz)

* Non radial use is only for 144 / 430 MHz.



FOR YOUR SAFETY

Read the following safety precautions before start assembling the antenna.

- 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 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.
- 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

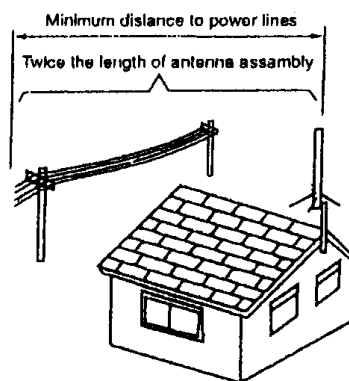
- Do not attempt to sustain the antenna, or any part of support structure if it begins to fall down. Let it fall by itself.
- Do not attempt to remove or restore the antenna or any part of support structure if it touches a electric power line by chance. Let it be as it is, do not touch it, and call your 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, 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 is 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 professional for help.
- Do not attempt to install the antenna at a location where 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 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.

DIAMOND ANTENNA CORPORATION

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