

80m,40m,20m,15m,and 10m(3.5,7,14,21,and 28-29MHz)

Five-band Vertical Antenna

<29MHz FM band compatible>



KV5

Operation Instructions

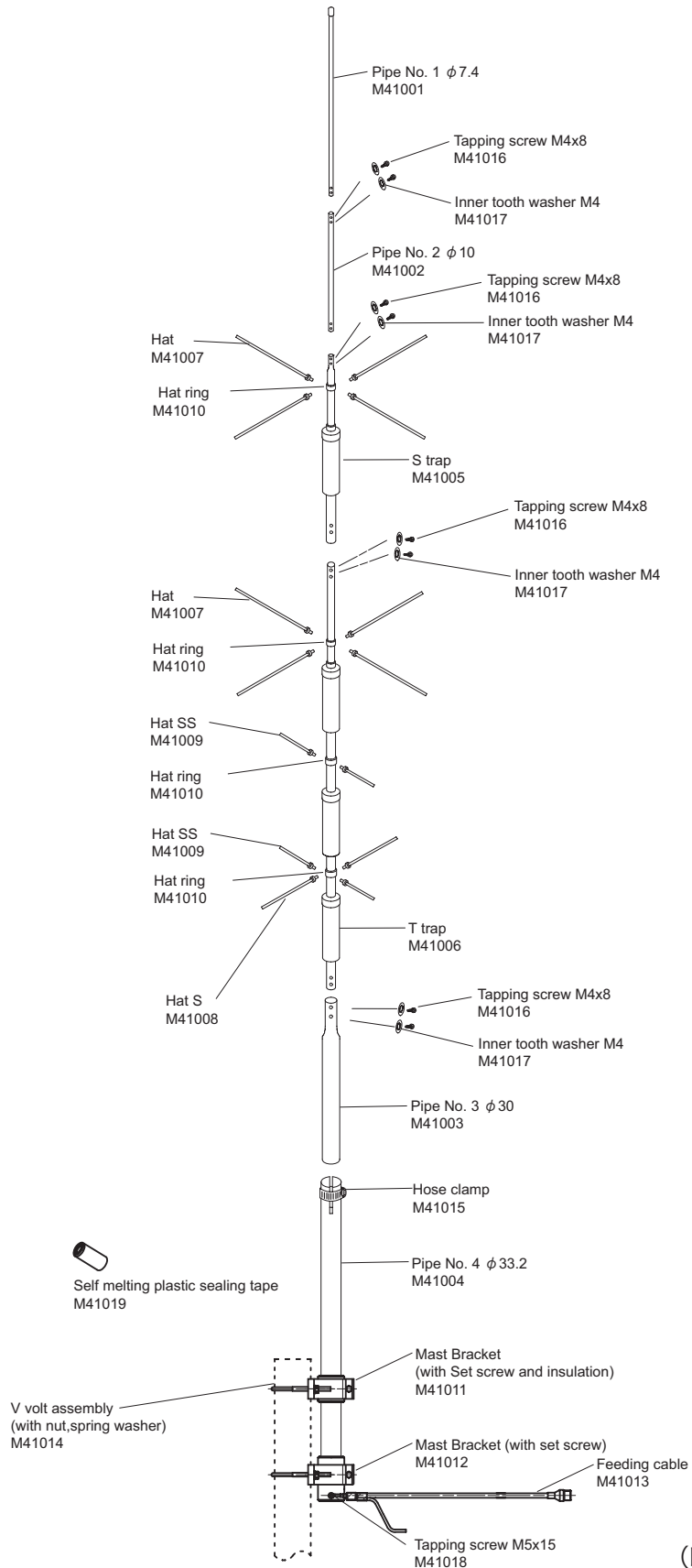
·Parts Description

·Description

- ① The KV5 is a five-band vertical antenna for HF band.
- ② Compact, light weighted and very easy to assemble.
- ③ It is completely self-supported and does not need any guy wires.
- ④ Center frequencies of the antenna are adjustable in each band simply by change capacity hat.
- ⑤ Top loading structure utilizing capacitive hat enables the antenna to complete with full quarter wave length antennas in its performance.
- ⑥ It is rigid and rugged enough to withstand the wind pressure over 35m/sec.
- ⑦ Mast brackets area adjustable to accept 1 1/5" to 2 1/3" diameter mast.
- ⑧ 10m FM band compatible.

Parts Description

Parts #	Description	Qty
M41001	Pipe No. 1 ϕ 7.4	1
M41002	Pipe No. 2 ϕ 10	1
M41003	Pipe No. 3 ϕ 30	1
M41004	Pipe No. 4 ϕ 33.2	1
M41005	S trap	1
M41006	T trap	1
M41007	Hat	8
M41008	Hat S	2
M41009	Hat SS	4
M41010	Hat ring	4
M41011	Mast Bracket(with Set screw and insulation)	1
M41012	Mast Bracket (with set screw)	1
M41013	Feeding cable	1
M41014	V volt assembly (with nut, spring washer)	2
M41015	Hose clamp	1
M41016	Tapping screw M4x8	8
M41017	Inner tooth washer M4	8
M41018	Tapping screw M5x15	1
M41019	Self melting plastic sealing tape	1



(Fig 1)

-Note-----

<<Installing the antenna>>

- ① Don't install on a rainy or windy day since it is dangerous.
- ② The KV5 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.
- ③ Don't install the antenna where is easily reachable by people.
- ④ Install the antenna firmly not to fall down due to the strong wind. Even if falling down the antenna, locate the antenna at the safe place where people and building are not inflicted injuries.

<<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 measurements, 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.

<<During transmitting>>

- ① 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.

<<Rumbling Thunder>>

- ① The thunder seems to rumble in the vicinity, don't touch the antenna and coaxial. When you don't use the radio, take off the cable from the radio.

<<If there is something wrong, stop transmitting immediately>>

- ① Keeping transmitting with high VSWR may cause the radio to be damaged. Stop transmitting immediately and check the following matters. If it doesn't solve the problem, please ask the dealer or Diamond Antenna Corporation.

[Condition: If the antenna doesn't seem to receive well or propagate well]

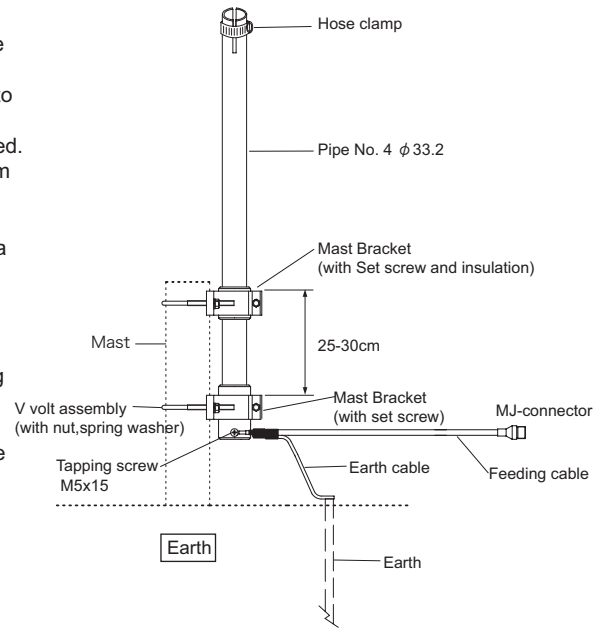
- Check 1: Is the antenna too close to the building wall?
If the obstacles are too close to antenna, VSWR is higher and the radiation pattern is disturbed. Please install the antenna from the building as far away as possible.
- Check 2: Did you assemble the antenna correctly?
Please read the instruction 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.

•Note for selecting adequate antenna installation location and pre-install preparations.

- ① Since the KV5 requires good earth ground to work efficiently, install the antenna on place where good earth ground can be obtained.
- ② A mast to install the antenna has to be driven in firmly into the ground or castled into concrete basis to fix the antenna.
- ③ An earth ground has to be located as close as possible to the antenna. Locating the earth ground remote from the antenna may worsen electric characteristics of the antenna.

•Assembly Instruction

- ① Assemble the upper narrow element first. Prepare Pipe No. 1, Pipe No. 2, S trap, T trap, and Pipe No. 3. Assemble them referring to the figure-1. Screw tapping screw with inner tooth washer in each connection part and fix them firmly.
- ② Attach Hat, Hat S, and Hat SS on Hat ring. Attach four Hats on top and second from the top. Attach two Hat SSs on third from the top oppositely. Attach two Hat SSs on fourth from top oppositely and attach two Hat Ss on fourth from top oppositely. First, screw them by hand. After that, fix them by spanner firmly.
※ Hat rings are set at center frequency at each band in the factory.
- ③ Remove hose clamp from Pipe No. 4. Insert two mast brackets and fix them as the figure-2. Make Pipe No. 4 vertical. (Set up mast at appropriately 50cm from the ground. Placing mast too high causes characteristic degradation.) When fixing mast brackets, don't bring mast brackets into contact with tapping screw for fixing feeding cable. Distance between two mast brackets must be placed at 20-30cm.



(Figure-2)

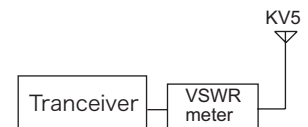
- ④ Attach the feeding cable on the lower part of Pipe No. 4 with tapping screw.
- ⑤ Insert the element pipe that is already assembled into about 10cm from above of Pipe No. 4. Fix it with hose clamp.
- ⑥ Connect earth cable from the feeding cable to ground earth at shortest distance. Cut the earth cable if it is too long.
- ⑦ At last, connect coaxial cable to MJ connector and waterproof with Self melting plastic sealing tape.

•Adjustment

<<Note for frequency adjustment>>

Practice the following adjustment procedure at the place where the antenna is actually installed. Test transmission for the adjustment has to be performed for as short time as possible and with as low RF power as possible. Maximum RF power rating of continuous wave (CW) is about 1/3 of it in SSB mode.

- ① Prepare suitable VSWR meter for operating frequencies and output RF power. Then connect it as shown in below.



- ② Adjustment procedure can be started from higher frequency (28MHz). Transmit at desired frequency and change the location of capacity hat to have lowest VSWR at the frequency. (28MHz band can be adjusted by the changing Pipe No. 3)

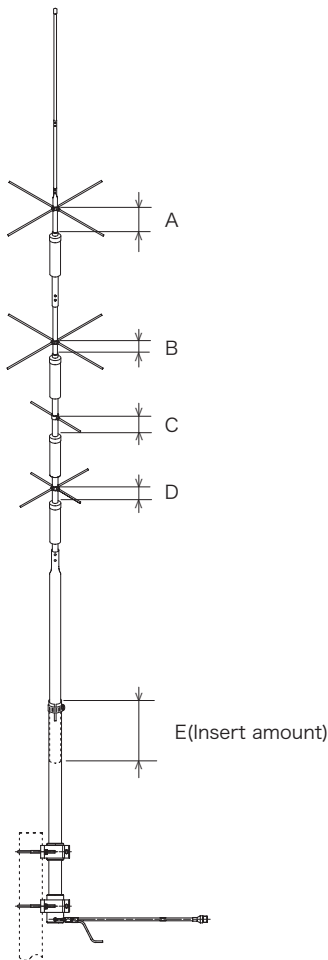
• Frequency changes proportional to the location of the capacity hat and No. 3 element pipe.

Standard length and variation each frequency is shown in the following table. If you do not have a VSWR meter, adjust it to a standard (factory adjustment) adjustment length.

To check the SWR with SWR meter as soon as possible is recommend.

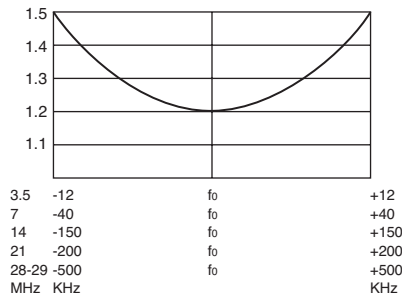
The Length Chart of Capacity hat and element

Number	Standard length(cm)	Variation (KHz/cm)	Frequency
A	10	3.5	3.5MHz
B	21.5	4	7MHz
C	18	50	14MHz
D	3	20	21MHz
E	10	100	28MHz



※Moving the capacity hat up will raise resonant frequency of the antenna and down will lower the frequency.
Put No. 3 element pipe in will raise resonant frequency and put it out will lower the frequency.

• VSWR



※It may be changed depending on installation requirements.

• Specifications

Frequency range 80, 40, 20, 15, 10m
(3.5, 7, 14, 21, 28-29, MHz)

Feed point Impedance 50Ω

VSWR Less than 1.5

Maximum power rating

250W SSB(3.5MHz),

500W SSB

(7/14/21/28/29MHz)

Maximum wind resistance 35m/sec

Length 5.8m (Max)

Weight 2.9kgs

Connector MJ

Mast diameter accepted 1 1/5" - 2 1/3"

(30-62φ)

Design 5band trap vertical antenna with trap radials

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.