



## MB-6886-88/MB-6886-90 (90 ft.) and MB-6886-89/MB-6886-91 (65 ft.)

### Broadband Base Station Antennas

The MB-6886-88 and MB-6886-90 broadband copper weld folded dipole antennas are designed for continuous frequency operation over their specified ranges. The MB-6886-89 and MB-6888-91 are stainless steel versions of the same antennas. The antennas come fully assembled and pretuned so no measuring or cutting is required. They are all weather rated at 500W PEP Output SSB/CW ICAS (Intermittent Commercial and Amateur Service), and permit the use of the full capabilities of today's continuous coverage transceivers. Their single feed line operation for all bands provides excellent performance for military, emergency management, commercial, and amateur installations. Instant tuning with no moving parts allows continuous ALE scanning. Installation will determine the type of propagation, with skywave/groundwave combination, or just sky wave for NVIS use.

Features include a high impact plastic housing for the balun and matching network. The feed line impedance is 50 ohms and comes equipped with an coax cable connector. The antenna may be installed as a flattop, inverted V or a sloper. For the best omni-directional radiation, installation as shallow inverted V is suggested. A flat-top usually offers the best SWR. Our MB-6886-92 mounting kit is available for inverted V, or other three pole installations. NVIS is performed as a flat-top.

**WARNING:** Do not install where antenna conductors could come in contact with your utility wires. Do not install over or under utility wires, as wire breakage could cause contact to occur. People and pets must not come in contact with antenna conductors during transmit operation. Refer to FCC rules on determining a safe zone around the antenna. Balun and balancing network may become hot during high power operation.

#### Planning: Determining How and Where to Install

Remember that any radio station is only as good as its antenna. Take the proper time and care to plan it out. A successful installation requires attention to antenna height, surrounding objects, feed line choice, location and orientation.

(1) NVIS propagation is performed as a flat-top with height varying from ground level to approximately 12 feet. This height is dependent on the ground (soil) conditions. It may be possible to lay the antenna on the ground in desert/low water table environments. In NVIS installations a counterpoise will sometimes enhance performance. If you are not getting enough distance from your NVIS setup, try raising the center of the antenna a few feet to make a very shallow inverted V. (Appropriate NVIS daytime frequencies are approx 5-12 MHz, nighttime are 2-4 MHz.)

(2) Conventional operation minimum clear height is recommended at 25 feet for operation down to approx 3.5 MHz (ends 12 feet for inverted V or sloper), and 40 feet for 1.8 MHz (ends 20 feet for inverted V or sloper). Less height does not disqualify operation, but may require a tuner on the lowest frequencies. Also, propagation may be reduced with inadequate height on the lower frequencies.

(3) This is a non-grounded antenna, so surrounding "grounded objects" try to absorb your radiated wave on low frequencies. This may result in poor SWR, and/or poor signal reports. "Grounded objects" include metal

towers/poles, roofs, gutters, trees, and the ground itself. When supporting from metal towers/poles, step off (or up) from the metal with a wood or PVC support arm 3 to 5 feet. Avoid crossing over roofs when possible. When using trees for supports, try to stay clear of the branches.

(4) When installing in an attic or close to a roof, remember that power line and conduit/pipe runs become antennas that may cause coupling problems at certain frequencies. Attempt to stay perpendicular to such objects. Always keep the

balun and balancing network hanging in the air with proper support such as an MB-6886-92 mounting kit, away from wood and insulation to avoid fire hazard.

(5) Use the proper feed line. Examples are RG-8, RG-213, RG-214, 9913. For runs of over 100 ft. we recommend hard line. Over 50% of installation problems are coax/connector problems. Check your feed line (including new ones) with a dummy load placed at the antenna end of the coax. Transmit into the dummy load and check for 1:1 SWR on all bands. Do not substitute an analyzer for this step.

(6) The location will usually be determined by trade-offs of height, available supports, and interfering objects. Sometimes, multiple trials may be necessary to judge which installation is best. Unfortunately, HF is difficult to predict. Usually, adequate height is favored over other parameters.

(7) Remember that the highest amount of energy is radiated at a right angle to the antenna wire, the minimum off the ends (when the antenna is parallel to the ground). Consider this when selecting map orientation for your antenna. By using an inverted V, you may change the angle of radiation, and therefore affect the distance of transmission at different frequencies. Put simply, the steeper (more vertical than horizontal) an inverted V is made, the more it will favor DX, and tend to skip over local stations at low frequencies. We recommend roughly 30 degrees angle down on a leg from horizontal for best general, overall results.

## INSTALLATION INSTRUCTIONS

(1) Determine your supports, paying attention to best possible height, antenna configuration, and alignment. Trees, sides of a building, utility poles, etc. make good supports. Do not install parallel to power lines if it can be avoided.

(2) Unpack the antenna. Lay it on the ground, the two rolls separated and the components lying in the middle. **DO NOT UNCOIL THE ANTENNA UNTIL YOU ARE READY TO INSTALL IT.**

(3) Cut enough polyester rope (3/16" diameter) and prepare ends as shown in Figure # 1.

(4) Uncoil one half of the antenna. Avoid twisting, kinking or springing by keeping the antenna taut during uncoiling. Let the shipping tube rotate in your hands - do not pull the wire off the ends as it will kink.

(5) Install the rope as shown in Figure # 1. If you keep the top arm of the rope 1" - 3" shorter than the bottom arm, the antenna will hang in a proper vertical position instead of rotating flat.

(6) Repeat steps # 4 and # 5 to the other side of the antenna.

(7) Attach your coax cable and raise the antenna up in the air. Again avoid twisting, kinking or springing.

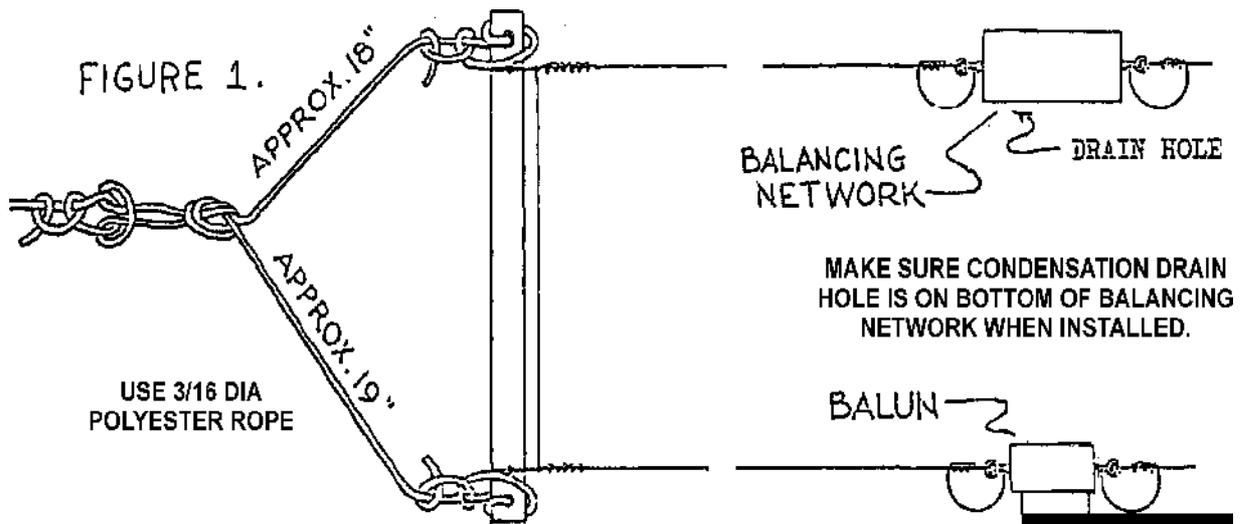
(8) Run the coax to the station. Run the coax down to the ground, and then perpendicular to the antenna for as far as possible. Only use a sufficient length of coax to reach the station

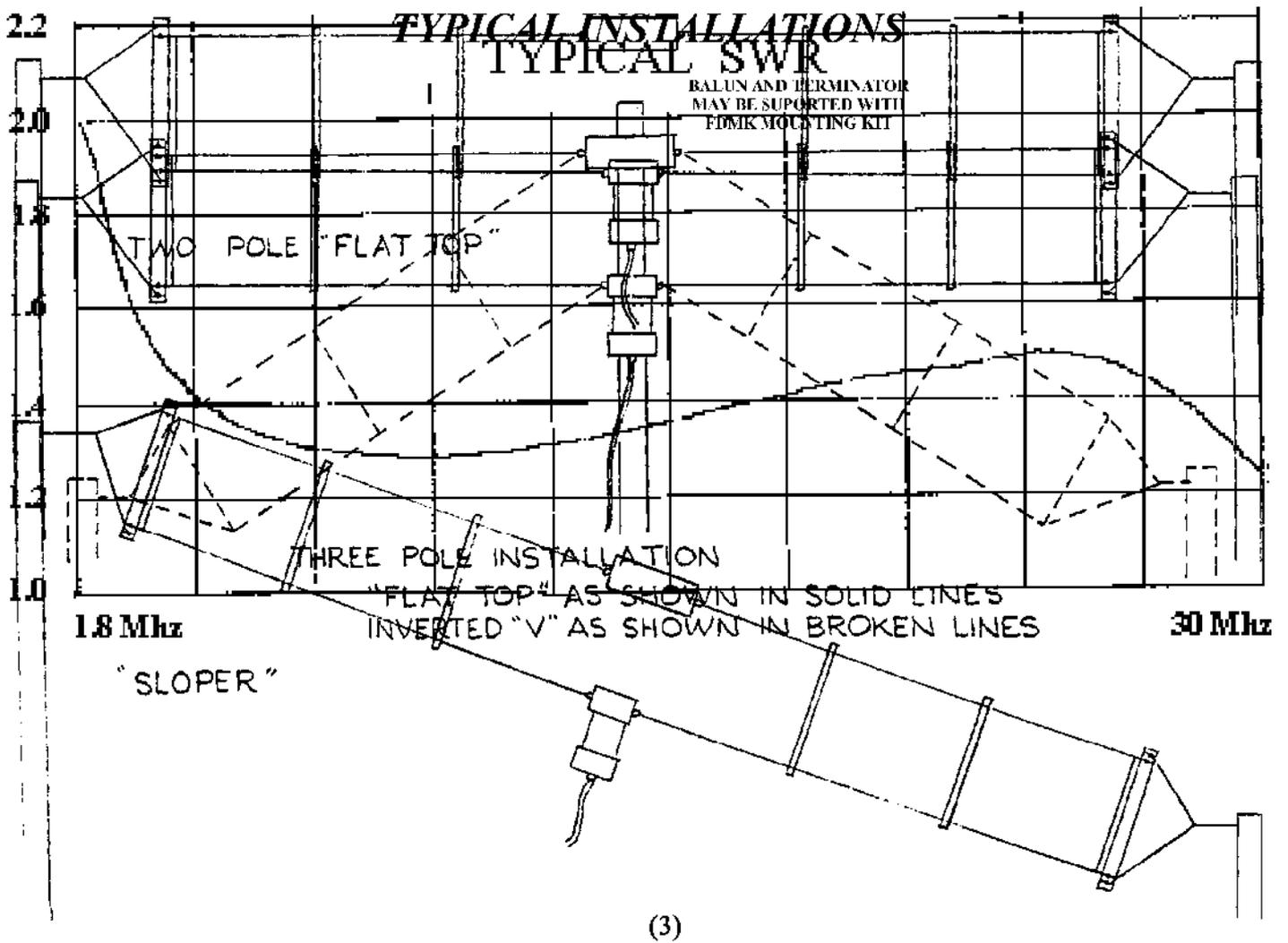
(9) Your antenna is ready for operation. It is broadband and pretuned at the factory for an average SWR of 1.4:1 to 2.0:1 in HF depending upon the frequency used and surrounding objects, ground conditions, etc. You may find that in extremely bad locations the use of an antenna tuner will be helpful.

FIGURE 1.

USE 3/16 DIA POLYESTER ROPE

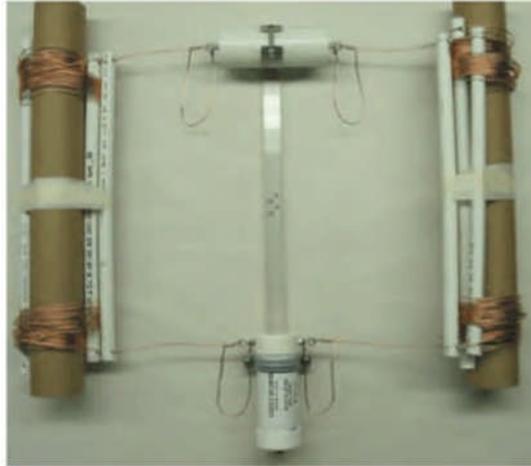
MAKE SURE CONDENSATION DRAIN HOLE IS ON BOTTOM OF BALANCING NETWORK WHEN INSTALLED.





MODEL	WIRE	LENGTH	SWR < 2:1	ICAS POWER RATING
MB-6886-88	Copper weld	90 ft.	1.8-30 MHz	500 watts PEP/AVG
MB-6886-90	Stainless steel	90 ft.	1.8-30 MHz	500 watts PEP/AVG
MB-6886-89	Copperweld	65 ft.	4-30 MHz	500 watts PEP/AVG
MB-6886-91	Stainless steel	65 ft.	4-30 MHz	500 watts PEP/AVG

## ***Model MB-6886-92 Mounting Kit***



The MB-6886-92 mounting kit allows easy permanent or pulley mounting of our line of folded dipole antennas. This kit consists of a support system and ancillary items to mount the antennas in a three support installation. This includes horizontal (flat-top) or inverted V. The mount is versatile, allowing attachment to poles, masts, trees, towers, or free hanging from a rope. This kit is NOT required for two pole horizontal or sloper installations.

All materials are manufactured for a long outdoor life, with use of UV stabilized thermoplastics, and stainless steel hardware. The kit includes a thermoplastic support system, clamps for the balun and balancing network, a weather resistant pulley, 100 feet of rope, and hardware. The rope supplied is polyester diamond braid, which will not stretch, rot, or degrade under UV.

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