



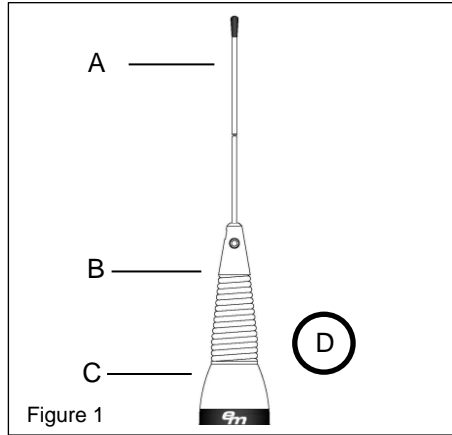
INSTALLATION INSTRUCTIONS
EM-M10004 (132-174 MHz)
3 dB VHF ROOF MOUNT ANTENNA

*Congratulations on your selection of another quality antenna product from E/M Wave.
 E/M Wave is committed to continually provide the greatest antenna VALUE for your wireless applications.*

1. Parts (Figure 1):

Verify all parts are included with the Antenna as shown in Figure 1.

- A. Antenna Whip
- B. Spring Assembly
- C. NMO Base Coil
- D. O-Ring

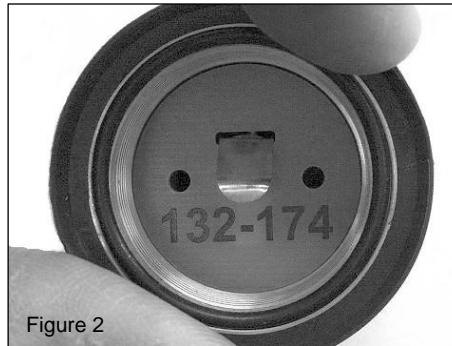


2. Tools:

- a. Tool for cutting stainless steel whip
- b. Hex Wrench (3/32")
- c. **Note:** Special tools are not required to install the antenna. The antenna is intended to be installed using a firm hand torque until the sealing O-ring is completely compressed against the installation surface.

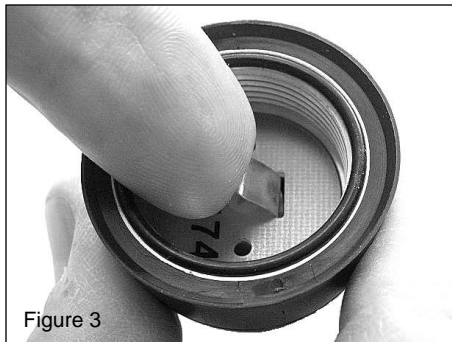
3. Pre-Installation (Figure 2):

- a. The EM-M10004 is designed for installation to a standard NMO mount.
- b. Ensure O-ring is properly seated within O-ring groove as shown in Figure 2.
- c. **Important:** Verify proper operational frequency is stamped on the base of the coil as shown in Figure 2.
- d. Read and follow all Whip Cutting Instructions supplied for this model.



4. Tuning and Installation (Figure 3):

- a. Verify contact spring is completely extended. If necessary, adjust by pulling the contact outward. (Figure 3).
- b. Thread NMO Base Mount Adapter onto the vehicle NMO mount. Tighten by hand until O-Ring is completely seated.
- c. Thread Spring onto NMO Base Adapter. Firmly torque by hand.
- d. Refer to EM-M10004 whip cutting instructions. Cut whip to length according to desired frequency of operation.
- e. Verify VSWR. Apply firm torque to whip adapter set screws (2 ea.).



WHIP CUTTING INSTRUCTIONS
FOR TUNING EM-M10004
(132-174 MHz)

PLEASE CAREFULLY READ ALL INSTRUCTIONS BEFORE CUTTING THE WHIP.

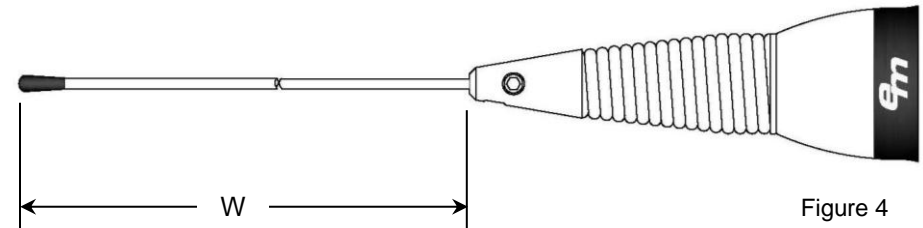
1. **IMPORTANT: Before Cutting.**
 It is recommended to cut whip longer than the required dimension to verify actual performance. Then trim the whip in 1/16" (1.5mm) increments to fine tune the desired VSWR response.

CUTTING NOTE: The whip can be cut using a grinding wheel or shearing tool designed for this purpose.

FREQUENCY	TUNED WHIP LENGTH "W"	
	(MHz)	(inches)
132	50-15/16	1294
135	49-3/4	1264
138	47-3/16	1199
141	46-5/16	1176
144	44-5/8	1133
147	43-1/8	1095
150	41-3/4	1060
153	40-3/8	1026
156	39-1/16	992
159	37-11/16	957
162	36-5/16	922
165	35-1/16	891
168	33-15/16	862
171	32-3/4	832
174	31-9/16	802

Table 1

2. **NOTE:** The tuned length "W" is determined by measuring the distance between the top of the whip adapter and the top of the whip. **See Figure 4.** Cut length dimension will be approximately 1" (25mm) longer than Tuned Length "W".
3. Identify the desired center frequency of operation in the left column of Table 1.
4. **TUNING NOTE:** For frequencies not listed in Table 1, interpolation of Tuned Length "W" is permitted. When interpolating intermediate frequencies, the antenna frequency response increases by approximately 1 MHz for:
 - each 9/16" (14mm) increment of cut length between 132-145 MHz.
 - each 7/16" (11mm) increment of cut length between 145-164 MHz.
 - each 3/8" (10mm) increment of cut length between 164-174 MHz.
5. Cut the whip as required to establish the specified Tuned Length "W" as shown in Figure 4. Imperial and Metric Length units are given for convenience.
6. Verify VSWR. Secure set screws (2 ea.).



[Note: Add 1" (25mm) to Tuned Length "W" when cutting whip.]