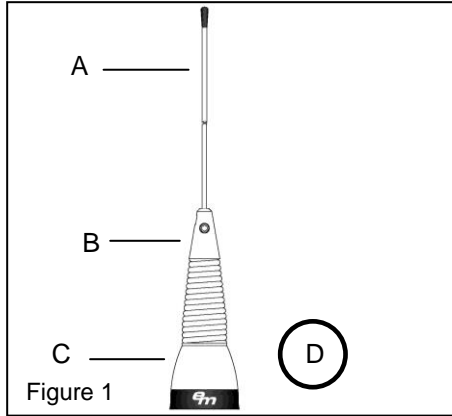


*Congratulations on your selection of another quality antenna product from E/M Wave.  
 E/M Wave is committed to continually provide the greatest antenna VALUE for your wireless applications.*

**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

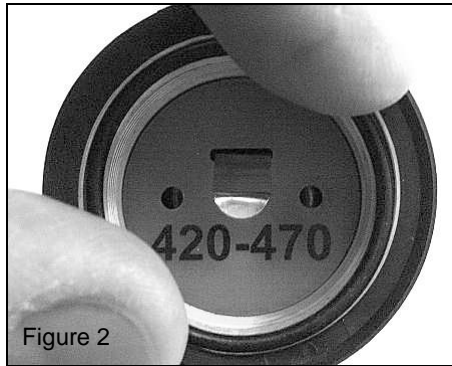


**2. Tools:**

- 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.

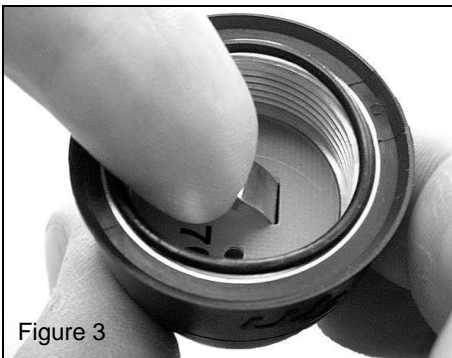
**3. Pre-Installation (Figure 2):**

- a. The EM-M10003 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. (Fig. 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-M10003 whip cutting instructions. Cut whip to length according to desired frequency.
- e. Verify VSWR. Secure set screws with firm torque (2 ea.).



**WHIP CUTTING INSTRUCTIONS  
 FOR TUNING EM-M10003  
 (420-470 MHz)**

**PLEASE CAREFULLY READ ALL  
 INSTRUCTIONS BEFORE CUTTING  
 THE WHIP.**

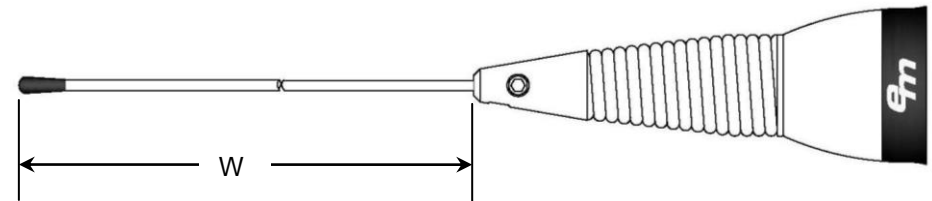
- 1. **IMPORTANT: Before Cutting.** It is recommended to cut whip longer than the required dimension to verify actual performance. Then trim the whip in 1/16" (1.5mm) increments to fine tune the desired VSWR response.

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

- 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 every 0.04" (1 mm) of cut length.
- 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.).

FREQUENCY (MHz)	TUNED WHIP LENGTH "W"	
	(inches)	(mm)
420	9-7/8	251
423	9-5/8	245
426	9-1/2	242
429	9-5/16	237
432	9-1/32	230
435	8-15/16	227
438	8-3/4	223
441	8-9/16	219
445	8-1/2	216
448	8-3/8	213
451	8-1/4	210
454	8-1/8	206
457	8	203
460	7-7/8	200
463	7-3/4	197
466	7-5/8	194
469	7-1/2	191
470	7-7/16	189

Table 1



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

Figure 4