



**TECHNICAL MANUAL**

**and**

**INSTALLATION INSTRUCTIONS**

**V-132 Series  
35-FOOT HEAVY DUTY  
WHIP ANTENNA**

**VTM-11-002 - Rev A**

**Valcom Manufacturing Group, Inc**

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REVISION SHEET

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-	Original Issue	May 2, 2011
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## 1.0 V-132 INFORMATION

### 1.1 Introduction

This section describes the electrical and mechanical properties of the V-132 series fibreglass whip antennas. Information necessary to install, operate and maintain the antenna system is covered in the sections to follow.

### 1.2 Technical Reference Data

<b>Electrical Properties</b>		
	V-132	V-132FT
<b>Frequency Range</b>	1.6 MHz to 30 MHz	1.6 MHz to 30 MHz
<b>Resonant Frequency</b>	5.9 MHz (nominal)	5.9 MHz (nominal)
<b>Power Rating</b>	5 kW (average)	5 kW (average)
<b>Dry Withstanding Voltage</b>	25 kV	25 kV
<b>Electrical Length</b>	34.9 ft (10.4 m)	36.5 ft (11.1 m)

<b>Mechanical Properties</b>		
	V-132	V-132FT
<b>Top Section Length</b>	18.5 ft (5.6 m)	18.5 ft (5.6 m)
<b>Base Section Length</b>	17.4 ft (5.3 m)	18.0 ft (5.5 m)
<b>Typical Assembly Length</b>	35.9 ft (10.9 m)	36.5 ft (11.1 m)
<b>Center of Gravity</b>	10.5 ft (3.2 m)	10.4 ft (3.2 m)
<b>Weight</b>	Approx 146 lbs (66.2 kg)	Approx 149 lbs (67.6 kg)
<b>Conductor Material</b>	Copper straps embedded in the fiberglass and thermo-setting epoxy resin composite	Copper straps embedded in the fiberglass and thermo-setting epoxy resin composite
<b>Joints</b>	Bronze ferrule C/W SST locking screws	Bronze ferrule C/W SST locking screws
<b>Finish</b>	Polyurethane, white	Polyurethane, white
<b>Mounting Position</b>	Vertical	Vertical
<b>Base Diameter</b>	13.5 in (34.3 cm)	13.5 in (34.3 cm)
<b>Mounting Hole Diameter</b>	0.687 in (1.74 cm)	0.687 in (1.74 cm)
<b>Mounting Holes Dimensions</b>	8 places equally spaced on a 10.75 in (27.3 cm) diameter bolt circle	8 places equally spaced on a 10.75 in (27.3 cm) diameter bolt circle
<b>Operating Temperature</b>	-60°F to +150°F (-50°C to +65°C)	-60°F to +150°F (-50°C to +65°C)
<b>Ice Loading Test</b>	0.75 in (1.87 cm) at 100 mph (160 km/hr)	0.75 in (1.87 cm) at 100 mph (160 km/hr)
<b>Wind Loading Test</b>	Up to 150 mph (240 km/hr) relative	Up to 150 mph (240 km/hr) relative

### 1.3 General Description

The V-132 series heavy duty whip antenna is a rugged whip antenna designed for marine environment applications, specifically shipboard. It is the commercial version of the AS-2537C/SR currently in use by the United States Navy. It is intended to be used as part of an overall communication system which consists of a transmitter (or receiver or transceiver), an antenna coupler and the antenna. The V-132 is used around the world in many applications with requirements in the 1.6 MHz to 30 MHz bands for marine and aeronautical communication systems.

Different model versions of this antenna are available depending on the specific application. The standard V-132 is a side-fed, heavy duty antenna. The V-132FT is a feed-through version, heavy duty antenna.

### 1.4 Electrical Description

The Valcom, V-132 model, is a field proven 35-foot (10.7 m) epoxy fibreglass antenna. It is capable of operating with an average power of up to 5 kW over the frequency range of 1.6 to 30 MHz. The standard V-132 has a 3/8-24 side feed terminal. The antenna can also be ordered as a V-132FT which comes equipped with a feed-through insulator mounted on the bottom of the base. The feed through insulator also has a threaded post for connection.

### 1.5 Mechanical Description

**Top-Section.** The top-section is a hollow, tapered cylinder made of circumferentially and longitudinally wound fibreglass filaments using a thermosetting epoxy resin matrix. Copper strips are embedded in the composite and are secured at the top end to a hemispherical corona ball and at the bottom end to a female threaded ferrule. The surface is sanded to a smooth finish, then it is primed and painted with a polyurethane surface coating.

**Base-Section.** The base-section is constructed and finished in the same fashion as for the top-section, except that the diameter expands out to meet the mounting base. Embedded copper conductors are connected to the threaded male ferrule at the top and to a conducting ring near the bottom. The side feed terminal extends from the bottom ring to the surface of the antenna approximately 11.0 inches from the bottom of the base flange. The feed through version of this antenna instead has an epoxy/fibreglass insulator bolted to a recess in the bottom of the flange. The base can withstand a flash-over voltage of 25 kV.

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## 2.0 INSTALLATION

### 2.1 Unpacking

Open the shipping crates and remove the antenna sections and any possible accessories purchased with it. Remove all packing material including the male ferrule protector on the antenna section. The V-132 antenna, as shipped, consists of the items listed in Table 3.1. Check that all of the items are present and in good condition.

### 2.2 New Site Preparation

Check to see that the site is free of cables, debris and other obstructions.

### 2.3 Assembly and Installation of Antenna on the site

The following steps should be followed to assemble the V-132 whip antenna.

- (1) Obtain three to four saw horses or other supports that will hold the complete antenna horizontally at a convenient working height and place them in the assembly area. The assembly area must be a cleared working space approximately 40 feet long and 20 feet wide.
- (2) Support the base section (item 1, Table 3.1) on two of the saw horses.
- (3) Support the top section (item 2, Table 3.1) on the other two saw horses so that the two sections lie in the same straight line.
- (4) Make sure the threads of the male ferrule on the base section are clear of foreign material and not damaged.
- (5) Assemble the second antenna section onto the base section and tighten to align the arrows (if applied) at the joint using the strap wrench supplied (item 3, Table 3.1).
- (6) Install the set screws at the joint and seal over with the sealant provided. A final torque between 65-85 in-lbs is acceptable for the set screws.
- (7) The antenna is now ready to be raised to its final position. Possible options are to use a crane or a bucket truck.
- (8) Once the antenna is in the vertical position, secure the antenna with appropriate 5/8" hardware. A final torque between 90-100 ft-lbs is acceptable for the bolts.

### 2.4 Electrical Installation

Connect a suitable feed wire from the antenna to the coupler.

### 3.0 PARTS LIST

#### 3.1 General

A list of parts shipped with Valcom V-132 whip antenna appears in Table 3.1.

**Table 3.1** - List of Parts for the V-132 Whip Antenna

Item No.	Part Number	Description	Qty	Notes
1		Base Section	1	
2		Top Section	1	
3		Strap Wrench	1 ea	
4		Silicone Sealant	1	
5		Setscrew Kit	1 set	
6		Technical Manual and Installation Instructions	1 ea	

**Table 3.2** - List of parts required for full ground installation (ordered separately)

Item No.	Part Number	Description	Qty	Notes
1	VHB-13	Hinged Base Plate for V-132 Antenna	1	Optional
2	VGS-36100	Ground screen kit for V-132 Antenna	1	Optional



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## **4.0 MAINTENANCE**

### **4.1 Scheduled Maintenance**

The antenna is virtually maintenance free. The external finish is a polyurethane two-part compound paint. The minimum finish life before showing signs of deterioration should be at least six years under normal climate condition.

When used in salt-water environments, it is recommended to wash the antenna base with fresh water to remove any build-up of dried salt residue. This should be performed on a monthly basis or after prolonged exposure to sea-spray.

Use a small wire brush to clear any debris from the drain groove found in the bottom of the antenna base.

All threaded hardware, including the base mounting bolts, the set-screws at the joint and the input power connection should be inspected for signs of damage and to ensure proper tightness (suggested torque settings can be found on pages 4 and 5). In most cases a quick visual inspection is all that is required. This must be performed on a monthly basis or whenever practical.

### **4.2 Corrective Maintenance**

Generally, no corrective maintenance is possible or required. If one section is severely damaged, it must be replaced by a new section. Workshops having experience in handling epoxy fibreglass composite structures may attempt the repair of minor surface damage if practicable.

### **NOTE**

**DO NOT USE LEAD BASE PAINT TO TOUCH-UP OR REPAINT THE ANTENNA. USE ONLY EPOXY BASE PAINT.**

**5.0 QUICK REFERENCE DATA**

**5.1 Manufacturer's Address**

<b>Postal address:</b>
Valcom Manufacturing Group, Inc P.O. Box 603 Guelph, Ontario Canada N1H 6L3

<b>Shipping address:</b>
Valcom Manufacturing Group, Inc 175 Southgate Drive Hanlon Industrial Park Guelph, Ontario Canada N1G 3M5

**5.2 Outline Drawing**

The following page shows the outline drawing of the V-132 Series antenna.

