



**TECHNICAL MANUAL**

**and**

**INSTALLATION INSTRUCTIONS**

# **V33065 & V33065FT ANTENNA**

**VTM-99-009**

Designed and Manufactured by:

**Valcom Limited  
Guelph, Ontario, Canada**

**REVISION SHEET**

<b>Revision</b>	<b>Description</b>	<b>Entered By</b>	<b>Date</b>
-	Draft Issue		04 Oct 1999
A	Added Setscrews in Installation Process	H.Duong	September 17, 2012

**TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>1.0 GENERAL INFORMATION</b> .....	<b>1</b>
1.1 Introduction .....	1
1.2 Technical Reference Data .....	1
<b>2.0 FUNCTIONAL DESCRIPTION</b> .....	<b>3</b>
2.1 General .....	3
2.2 Electrical Description .....	3
2.3 Mechanical Description .....	3
<b>3.0 MAINTENANCE</b> .....	<b>4</b>
3.1 Scheduled Maintenance .....	4
3.2 Corrective Maintenance .....	4
<b>4.0 INSTALLATION</b> .....	<b>4</b>
4.1 Unpacking .....	4
4.2 New Site Preparation .....	4
4.3 Assembly and Installation .....	5
4.4 Electrical Installation .....	6
<b>5.0 PARTS LIST</b> .....	<b>8</b>
5.1 General .....	8
<b>6.0 QUICK REFERENCE DATA</b> .....	<b>9</b>
6.1 General .....	9
6.2 Manufacturer's Address .....	9

**LIST OF TABLE AND FIGURE**

Figure 4.1 - Gin Pole Arrangement for V330 Series Antennas .....	7
Table 5.1 - List of Parts for the V33065 Antenna .....	8

## **1.0 GENERAL INFORMATION**

### **1.1 Introduction**

This manual describes the electrical and mechanical properties of the V33065 and the V33065FT antennas. It also provides the information necessary to install, operate and maintain the antenna system.

### **1.2 Technical Reference Data**

<b>Electrical Properties</b>	
<b>Frequency Range</b>	500 kHz to 30 MHz (with capacity of the antenna tuner)
<b>Resonant Frequency</b>	3.34 MHz 3.22 MHz with feedthru
<b>Power Rating</b>	5.0 kW average
<b>Dry Withstanding Voltage</b>	25 kV
<b>Electrical Length</b>	19.5 m (64.1 ft) 20.3 m (67.1 ft) with feedthru

<b>Mechanical Properties</b>	
<b>Top Section Length</b>	11.7 feet (3.6 meter)
<b>3rd Section Length</b>	18.3 feet (5.6 meter)
<b>Loading Coil Section Length</b>	18.3 feet (5.6 meter)
<b>Bottom Section Length</b>	17.4 feet (5.3 meter)
<b>Typical Assembly Length</b>	65.7 feet (20.1 meter)
<b>Weight</b>	Approximately 255 lbs (116 kg)
<b>Material</b>	Copper wire and strips embedded in the fiberglass and thermo-setting epoxy resin composite
<b>Finish</b>	Polyurethane
<b>Mounting Position</b>	Vertical
<b>Base Diameter</b>	17.5 inches (44.45 cm)
<b>Mounting Hole Diameter</b>	0.718 inches (1.82 cm)
<b>Mounting Holes Dimensions</b>	12 places equal spaced on a 14.625 inch (37.15 cm) diameter bolt circle
<b>Storage Temperature</b>	-95°C to +70°C (-140°F to +158°F)
<b>Operating Temperature</b>	-50°C to +65°C (-76°F to +140°F)
<b>Wind Loading Test</b>	Up to 150 mph (240 km/hr) relative
<b>Abrasion Resistance</b>	Very Good
<b>Water absorption</b>	After 24 hours immersed: 0.2% After 48 hours immersed: 0.6% After 168 hours immersed: 2.0%
<b>Optional Accessories</b>	VTGS-20 Steel Tower/ or VHT-17 Steel Base Plate/ or VHB-17 Hinged Base Plate VGP-17 Gin Pole VGS-36100 Ground Screen
<b>Optional Matching Unit</b>	VMT-7117

## 2.0 FUNCTIONAL DESCRIPTION

### 2.1 General

The V33065 and V33065FT are 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. It is used around the world in many applications with requirements in the 500 kHz to 30 MHz bands for marine and aeronautical radio beacon and broadcast communication systems.

### 2.2 Electrical Description

The Valcom Models V33065 and V33065FT are field proven, 65-foot fibreglass whip antennas. The V33065 is a side fed antenna while the V33065FT has a feedthru insulator at the bottom of the antenna.

### 2.3 Mechanical Description

**Top, Third and Fourth Sections.** These are hollow tapered cylinders made of circumferentially and longitudinally wound fibreglass filaments using a thermosetting epoxy resin matrix. Embedded in the composite are multiple beryllium copper strips laid in a single-turn spiral and secured at the top end to a hemispherical corona ball and at the bottom to a threaded female ferrule into which the next section is secured. The surface is smoothed, primed and painted with a polyamide epoxy surface coating.

**Bottom Section.** The construction and finish are the same as for the other sections except that the diameter expands out to meet the mounting base. The ferrule is threaded to fit into the bottom of the second section. Multiple parallel conductors are connected to the ferrule at the top and to a conducting ring near the bottom. The feed terminal extends from the bottom ring to the surface of the antenna approximately 18.0 inches from the bottom of the base flange. The base can withstand a flash over voltage of 25 kV.

**NOTE:** The sections of the antenna cannot be interchanged with other antennas due to the unique locations of the locking screw holes.

### **3.0 MAINTENANCE**

#### **3.1 Scheduled Maintenance**

The antenna is virtually maintenance free. The external finish is an epoxy polyamide 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.

#### **3.2 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.

## 4.0 INSTALLATION

### 4.1 Unpacking

Open the shipping crates and remove the antenna sections. Remove all packing material including the male ferrule protectors on the antenna sections. NOTE, DO NOT PICK UP THE BASE SECTION OF A 'FT' VERSION BY THE FEEDTHRU INSULATOR. The V33065 series antenna, as shipped, consists of the items listed in Table 5.1. Check that all of the items are present and in good condition.

### 4.2 New Site Preparation

- (1) Check to see that the underside of the steel base plate at the site is free of cables and other obstructions.
- (2) Excavation and pouring of concrete pad to new site (see IAW Foundation Details for VHB-17 Hinge Plate/ VTGS-20 Steel Tower).
- (3) Installation Ground Screen to Valcom's Specification IAW VGS-36100 Ground Screen.

### 4.3 Assembly and Installation Antenna on the site

The following steps should be followed to assemble the V33065 or the V33065FT antenna (see Figure 4.1).

- (1) Remove retainer pin on the hinge plate (or steel tower) and open top plate to 90 degrees. Mount the bottom plate of the hinge plate on the anchor bolts. Secure with hardware (flat washer, lockwasher, and nut) on each bolt.
- (2) Obtain six 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 70 feet long and 10 feet wide.
- (3) Support the base section (item 1, Table 5.1) on two of the saw horses and tie it in place.
- (4) Align mounting holes in the plate with holes of the antenna flange, secure base section to the plate with hardware, fed through from underside.



- (5) Tie a rope (3/4" diameter polypropylene) to the eye of the gin pole, tie another rope of the same type to the eye of the gin pole. Slide gin pole into the pipe attachment and secure.
- (6) Support the second section (item 2, Table 5.1) on the other two saw horses so that the two sections lie in the same straight line.
- (7) Make sure the threads of the male ferrule on the base section are clear of foreign material and free of burrs.
- (8) Assemble the second antenna section onto the base section and tighten to align the arrows at the joint using the strap wrench supplied (item 7, Table 5.1). Secure by the setscrews and sealant provided.
- (9) Assemble the third section (item 3, Table 5.1) to the second section by repeating steps 6 to 8.
- (10) Assemble the fourth section to the third section by repeating steps 6 to 8.
- (11) The antenna now is ready to raise to its final position.
- (12) Tie one rope (from gin pole eye) to the position on antenna specified on Figure 4.1. A timber hitch knot is recommended to prevent slipping.
- (13) Tie the second rope (from gin pole eye) to the position on antenna specified on Figure 4.1. A timber hitch knot is recommended to prevent slipping.
- (14) Erect antenna by applying a gradual and constant pull on the rope referred to as the "Pulling Force" (a winch or vehicle is recommended).
- (15) Once the antenna is in the vertical position, insert retainer pin back into hinge plate, secure with tension pin. Use bolts (supplied) to secure upper and lower plates of the hinge plate together.
- (16) Electrical connections can now be made.

#### **4.4 Electrical Installation**

Very carefully secure the lead from the transmitter or transceiver to the antenna by means of the acorn screw and lock-washer provided (items 5 and 6, Table 5.1).



Note: the V33065 series do not have a Valcosphere

**5.0 PARTS LIST****5.1 General**

A list of parts shipped with the V33065 or V33065FT antenna appears in Table 5.1.

**Table 5.1** - List of Parts for the V33065 series Antenna

Item No.	Part Number	Description	Qty	Notes
1		Base Section	1	
2		Section 2	1	
3		Section 3	1	
4		Section 4	1	
5	No. 5	Strap Wrench	1 ea	
6		Silicone Sealant	1	
7		Hardware Package (Washer, Lock-Spring, Helical, 3/8 inch nominal, Phosphor Bronze, Lock Setscrews)	1 set	

## 6.0 QUICK REFERENCE DATA

### 6.1 GENERAL

Quick reference engineering data for use during planning and installation activities for the V33065 and the V33065FT antenna is presented on the following pages.

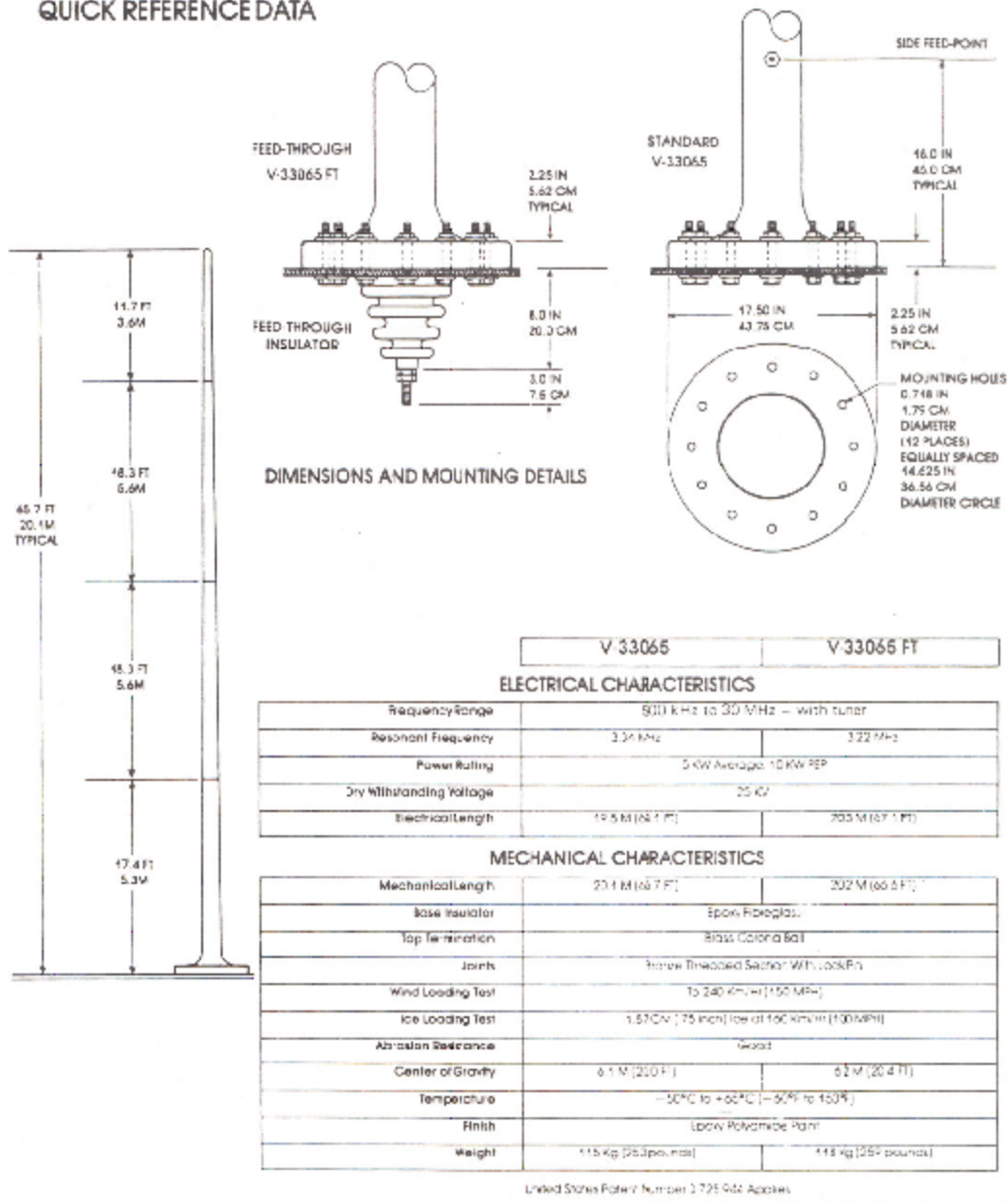
\* Quick Reference Data - V33065 Series Antenna

### 6.2 MANUFACTURER'S ADDRESS

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

Shipping address:
Valcom Manufacturing Group, Inc. 175 Southgate Drive Guelph, Ontario Canada N1G 3M5

## QUICK REFERENCE DATA



Specifications subject to change without notice



P.O. BOX 603 GUELPH, ONTARIO, CANADA, N1H 6L3  
 TEL 519-824-3220 FAX 519-824-3411  
 INTERNET: [www.valcom-guelph.com](http://www.valcom-guelph.com) EMAIL: [enquiries@valcom-guelph.com](mailto:enquiries@valcom-guelph.com)