TECHNICAL MANUAL and INSTALLATION INSTRUCTIONS

V33065 & V33065FT ANTENNA

VTM-99-008 Rev C

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REVISION SHEET

Revision	*Description*	*Entered By*	*Date*
-	Draft Issue		04 Oct 1999
A	Added Setscrews in Installation Process	H.Du ong	September 17, 2012

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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

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

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

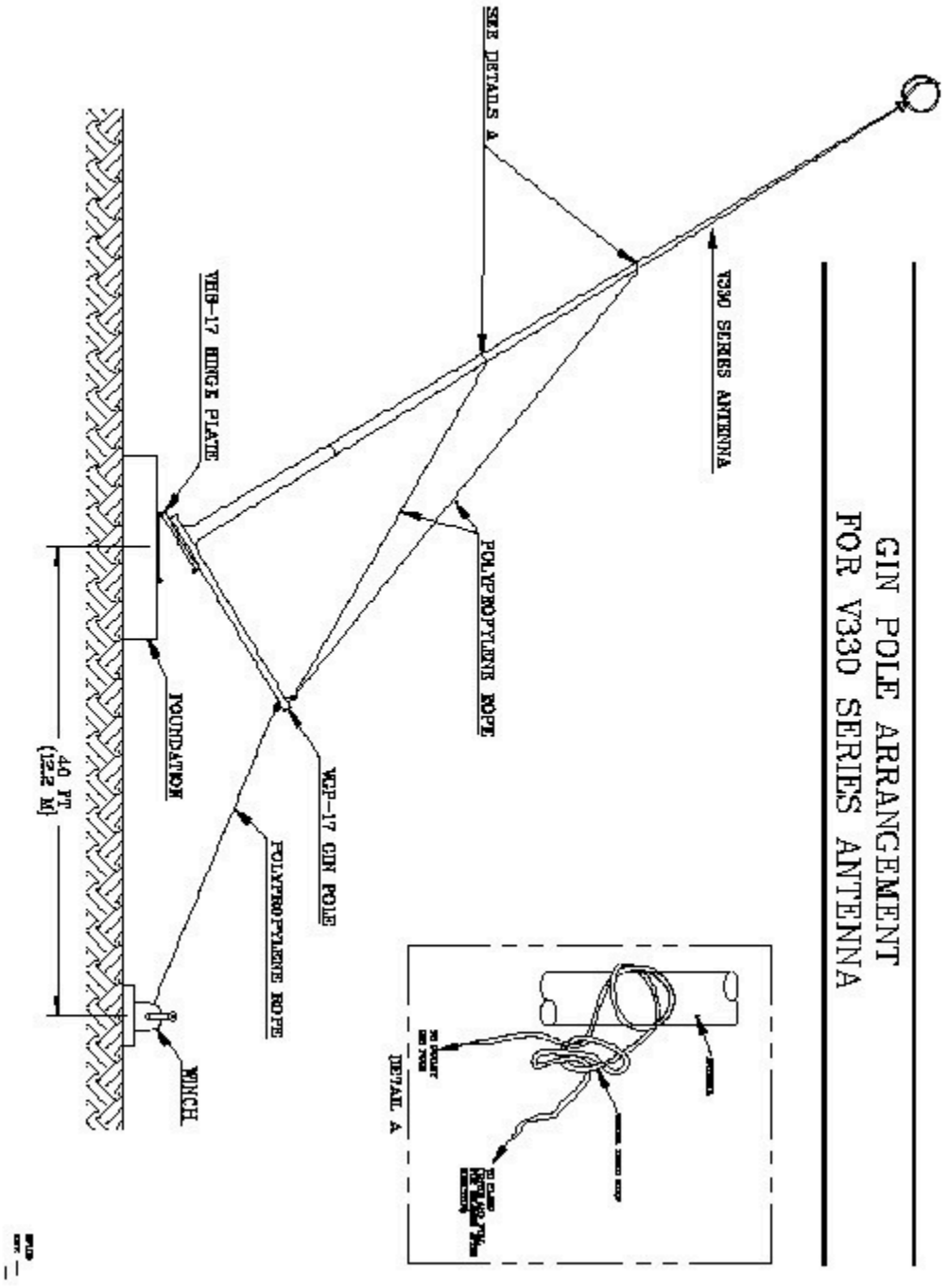


Figure 4.1 - Gin Pole Arrangement for V330 Series Antennas
Note: the V33065 series do not have a Valcosphere
Also Note: for the "FT" version, the VHB-17 would be replaced with a VTGS-20BH

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

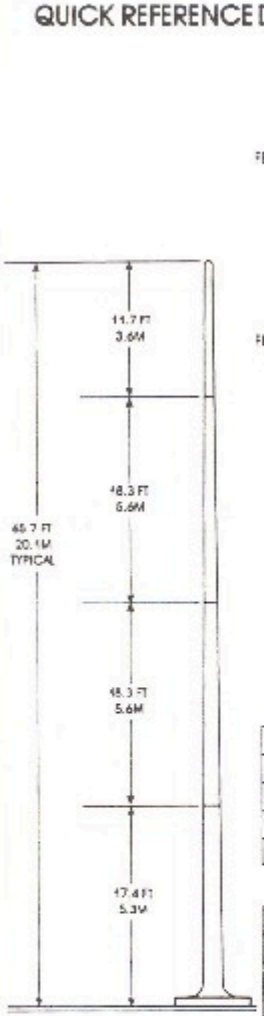
* Quick Reference Data - V33065 Series Antenna

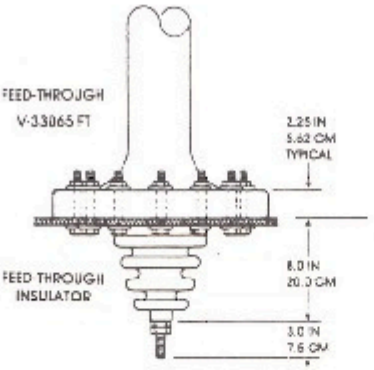
6.2 MANUFACTURER'S ADDRESS

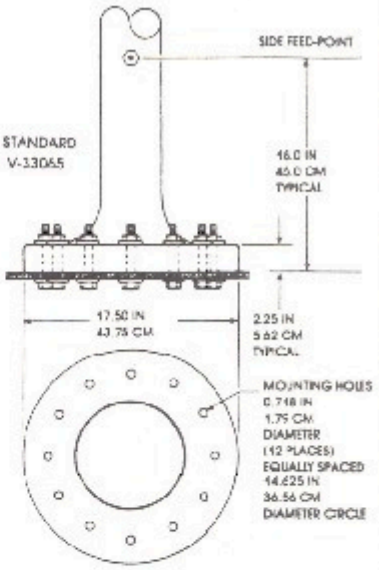
Postal address:
Valcom Manufacturing Group, Inc. P.O. Box 603 Guelph, Ontario Canada N1H 6L3

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

QUICK REFERENCE DATA







DIMENSIONS AND MOUNTING DETAILS

	V 33065	V 33065 FT
ELECTRICAL CHARACTERISTICS		
Frequency Range	500 kHz to 30 MHz – with tuner	
Resonant Frequency	3.04 MHz	3.22 MHz
Power Rating	5 KW Average, 10 KW PEP	
Dry Withstanding Voltage	25 KV	
Electrical Length	19.5 M (64.1 FT)	20.3 M (67.1 FT)
MECHANICAL CHARACTERISTICS		
Mechanical Length	20.1 M (65.7 FT)	20.2 M (66.5 FT)
Base Insulator	Epoxy Fiberglass	
Top Termination	Brass Colonial Ball	
Joints	Three Threaded Sections With Lock Pin	
Wind Loading Test	To 240 Km/Hr (150 MPH)	
Ice Loading Test	1.57 CM (.75 inch) Ice at 160 Km/Hr (100 MPH)	
Abrasion Resistance	Good	
Center of Gravity	6.1 M (20.0 FT)	6.2 M (20.4 FT)
Temperature	–50°C to +65°C (–60°F to 150°F)	
Finish	Epoxy Polyamide Paint	
Weight	115 Kg (253 pounds)	118 Kg (259 pounds)

United States Patent Number 3,725,942 Applies

Specifications subject to change without notice

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