TECHNICAL MANUAL

OPERATION AND INSTALLATION INSTRUCTIONS

ANTENNA
VAS-1016/A

Document No: VTM-02-002/A

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RECORD OF CHANGES

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-	February 2002	- Original Issue	Jason Soper
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SECTION 1

GENERAL INFORMATION AND SAFETY PRECAUTIONS

1-1. GENERAL SAFETY PRECAUTIONS

The following general safety precautions are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

WARNING

Keep away from live circuits. Operating personnel must at all times observe all safety regulations, to prevent serious injury or death due to electrical shock.

Do not service or adjust alone. Under no circumstances should any person service or adjust the equipment except in the presence of someone who is capable of rendering aid.

Personnel working with or near high voltages should be familiar with modern methods of resuscitation.

1-2 SPECIFIC WARNINGS

The following specific precautions are related to inspecting and removing the antenna.

WARNING

Ensure that the transmitting equipment is de-energized prior to inspection of the antenna. Make sure the test equipment is properly grounded, to prevent electric shock.

CAUTION

Make sure the antenna is properly supported before removing its mounting hardware.

CAUTION

Do not coat the insulator with any substance; do not paint with lead base paints.

1-3. INTRODUCTION

1-3.1 Purpose. This manual provides general information on the VAS-1016/A, as well as an operational and functional description of the antenna and installation data. Information in this manual will assist in installing and operating the antenna.

1-3.2 Scope. This technical manual is provided to aid in the operation and installation of the antenna.

1-3.3 Applicability. This manual applies to Valcom's VHF dipole antenna VAS-1016/A.

1-4. EQUIPMENT DESCRIPTION

1-4.1 General Description. The antenna, shown in Figure 4-1 is a 111 inch transmitting/receiving, vertical dipole antenna for general use with VHF communications equipment. The antenna has aluminum radiating elements housed within a fibreglass radome and an integral fibreglass insulator/mounting base.

1-4.2 Capabilities. The antenna provides vertically polarized, omnidirectional azimuth radiation from 30 to 108 MHz. The aluminum elements create a high power dipole that can handle a peak input power of 1000 Watts. The antenna meets high shock and vibration requirements.

1-4.3 Limitations. When used as directed, the antenna has no limitations.

1-5. RELATIONSHIP TO OTHER EQUIPMENT

The VAS-1016/A antenna interfaces with VHF receiving and transmitting equipment with 50 ohm output.

1-6. REFERENCE DATA

Table 1-1 lists the reference data for the antenna.

1-7. EQUIPMENT ACCESSORIES, AND DOCUMENTS SUPPLIED

Table 1-2 lists the equipment and documents supplied.

Table 1-1. Reference Data

PARAMETER	SPECIFICATION
NOMENCLATURE	ANTENNA VAS-1016/A
NSN	5985-20-001-3739
MANUFACTURER	VALCOM MANUFACTURING GROUP, INC. 35736
FREQUENCY RANGE	30 TO 108 MHZ
VSWR	2.5:1 (MAX)
IMPEDANCE	50 OHM (NOM)
INPUT CONNECTOR	N-TYPE RECEPTACLE
GAIN	0 dBi
POLARIZATION	VERTICAL
POWER CAPABILITY	500W (AVE) 1000W (PEAK)
RADIATION PATTERN	OMNIDIRECTIONAL
OPERATING TEMPERATURE	-60ºF TO +150ºF [-55°C TO +65°C]
WIND VELOCITY	120 MPH [193 KM/H] (NO ICE)
HUMIDITY	MIL-STD-810E, PROCEDURE III
SHOCK	QUALIFIED TO MEET MIL-S-901C, GRADE A
VIBRATION	QUALIFIED TO MEET MIL-STD-167-1 TYPE I
HEIGHT	111 INCHES [282 CM]
WEIGHT	37 LBS [16.8 KG]
MOUNTING HOLE PATTERN	ï8.5 INCH [21.6 CM] FIBREGLASS FLANGE WITH EIGHT ï0.56 INCH [1.42 CM] HOLES ON A ï7.25 INCH [18.4 CM] BOLT CIRCLE

Table 1-2. Equipment, Accessories and Documents Supplied

QTY	NOMENCLATURE	OVERALL DIMENSIONS (INCHES)				WEIGHT (POUNDS) UNCRATED
		CRATED		UNCRATED		
		HEIGHT	DIA	HEIGHT	DIA	
1	ANTENNA VAS-1016/A	---	---	111	8.5 (BASE) 5.5 (MAST)	37
1	TECHNICAL MANUAL FOR VAS-1016/A ANTENNA VTM-02-002\A					

SECTION 2

OPERATION

2-1. INTRODUCTION

This chapter provides operating instructions for the antenna.

2-2. CONTROLS AND INDICATORS

The antenna contains no controls or indicators.

2-3. OPERATING PROCEDURES

2-3.1 Operator Turn-On. No operator turn-on procedures apply since no power is required to operate the antenna. However, the antenna is coupled to RF equipment (transmitter/receiver) and to associated systems which may require energizing. For operating instructions, consult the appropriate technical manuals.

2-3.2 Modes of Operation. The antenna operated automatically, and no operator intervention is required other than interconnecting various associated equipment with the antenna.

2-3.3 Operation Under Interfering Conditions. No additional or alternate instructions are necessary to operate the antenna under interfering conditions.

2-3.4 Operator Turn-off. Since no power is required to operate the antenna, no operator turn-off is required. However, the specific equipment connected to the antenna may require operator turn-off. Consult the associated technical manuals for turn-off procedures.

2-3.5 Emergency Operation. No additional or alternate steps are necessary to operate the antenna under emergency conditions.

2-3.6 Emergency Turn-off. The antenna requires no emergency turn-off. For emergency turn-off of specific equipment connected to the antenna, consult the associated technical manuals.

SECTION 3

FUNCTIONAL DESCRIPTION

3-1. INTRODUCTION

This chapter provides the functional description of the antenna.

3-2. OVERALL LEVEL

The antenna is a base mounted, high-power antenna which provides omnidirectional coverage for general purpose communications reception and transmission from 30 to 108 MHz.

3-3. MAJOR FUNCTION LEVEL

The antenna consists of aluminum radiating elements housed within a fibreglass radome and an integral fibreglass insulator/mounting flange. The integral fibreglass insulator/mounting flange isolates the radiating element of the antenna from the ground and physically supports the element.

The antenna does not require external couplers. Only a transmitter or receiver is required to be connected directly to the antenna.

SECTION 4

INSTALLATION

4-1. SITE INFORMATION

Valcom's VAS-1016/A VHF Antenna is designed primarily for shipboard installation. The antenna can also be used at shore installations. The antenna should be installed in a non-obstructed environment, clear from any contiguous structures, such as masts, bulkheads, or other metal objects.

4-2. TOOLS AND MATERIALS REQUIRED

No special tools and materials are required for installation.

4-3. UNPACKING AND REPACKING

Table 1-2 gives data on the overall dimensions, volume, and weight of the crated antenna. To unpack, carefully remove the screws holding the cover, and remove the antenna from the container. Save the container to pack the antenna for reshipment. No special handling procedures are required; observed normal precautions when handling the antenna.

4-4. FOUNDATION

The antenna should be installed vertically on a mounting plate that has bolt holes matching those in the antenna base (see Figure 4-1).

4-5. INPUT REQUIREMENTS

The VHF dipole antenna has a peak rf power handling capability of 1000 W with a nominal 50 ohm input impedance.

4-6. INSTALLATION PROCEDURES

After unpacking the antenna, proceed with its installation as follows:

a. Examine the exterior of the antenna for damage; make sure that the radiating element and the base has not been damaged, misaligned, or fractured.

b. Carefully lift the antenna to its mounting platform. Align the mounting holes of the base flange with the mounting holes in the platform.

c. Secure the antenna to its mounting plate with the eight 1/2-inch hex head cap screws, flatwashers, split lockwashers and nuts. Hardware to be determined and supplied by the installing activity.

d. Connect the system transmission line to the antenna's N-type input connector.

4-7. INSTALLATION CHECKOUT

Checkout of the antenna after installation can only be accomplished by operating the receiving and transmitting equipment that is used with the antenna.

Note: If replacing an existing antenna with a new antenna, it is recommended that new mounting hardware be used.

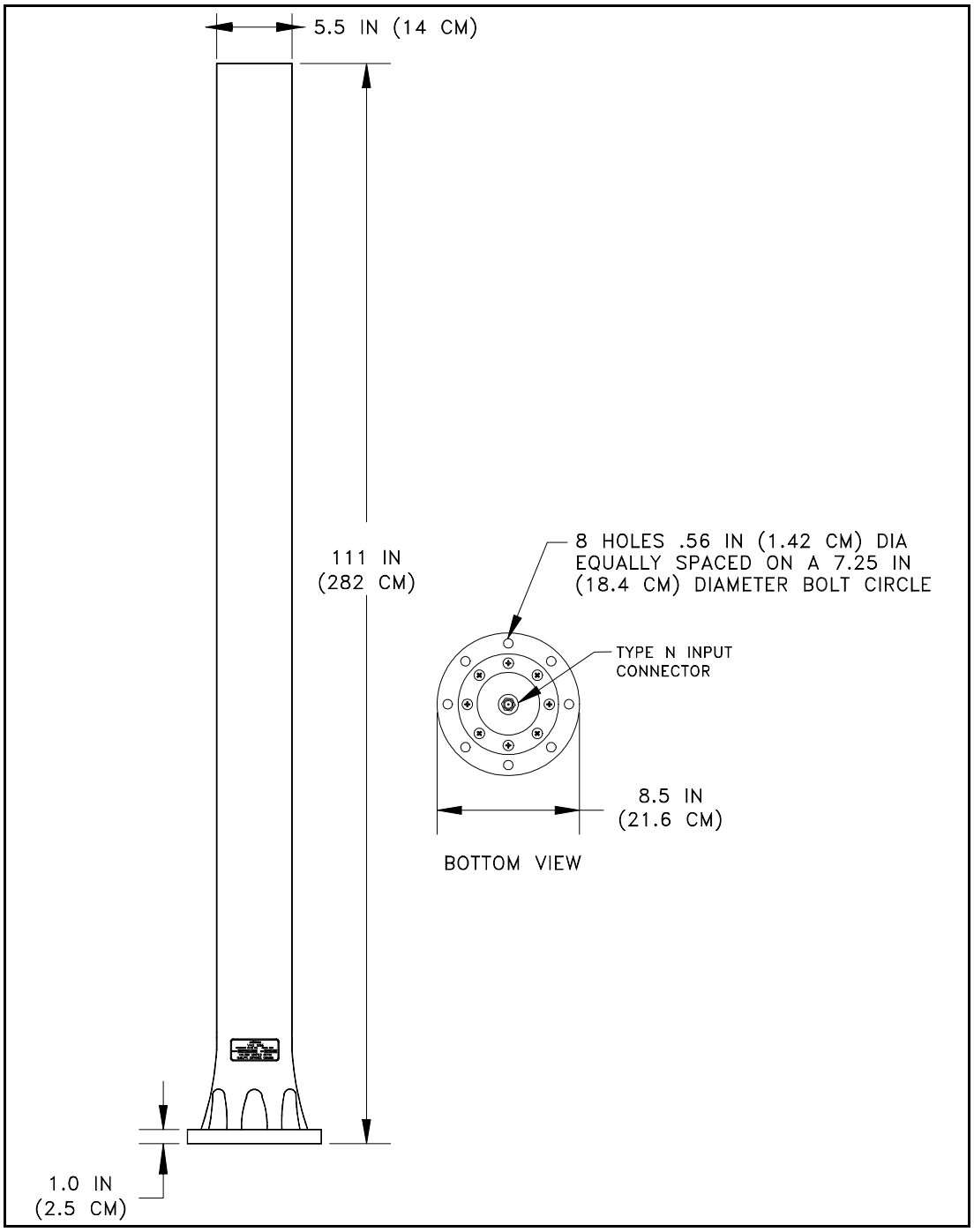

Figure 4-1. Installation Data