



VTM-99-007

TECHNICAL MANUAL

OPERATING AND INSTALLATION INSTRUCTIONS

VHF BROADBAND ANTENNA SYSTEM (30-88 MHZ)

MODEL AS-4366A/U

Manufactured by:

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RECORD OF CHANGES

<i>CHANGE NUMBER</i>	<i>DATE</i>	<i>TITLE OF BRIEF DESCRIPTION</i>	<i>ENTERED BY</i>

TABLE OF CONTENTS

RECORD OF CHANGES	2
TABLE OF CONTENTS	3
GENERAL INFORMATION AND SAFETY PRECAUTIONS	4
FIGURE 1-1. AS-4366A/U ANTENNA SYSTEM.....	5
TABLE 1-1. REFERENCE DATA.....	6
TABLE 1-2. EQUIPMENT, ACCESSORIES AND DOCUMENTS SUPPLIED	7
OPERATION	8
FUNCTIONAL DESCRIPTION.....	9
INSTALLATION	10
FIGURE 4-1. INSTALLATION DATA	12

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. This manual provides general information, operating and functional description, and installation data for Valcom's AS-4366A/U antenna system.
- 1-4. EQUIPMENT DESCRIPTION. The AS-4366A/U Antenna System is a general purpose VHF broadband communications system. The antenna provides vertically polarized, omni-directional azimuth radiation from 30 to 88 MHz when operated with an appropriate transceiver. It is designed for use under the severe environmental conditions encountered aboard Naval vessels. The antenna is a two part construction consisting of a fibreglass whip approximately 100 inches long, and a mounting base which encompasses the matching unit.
- 1-5. RELATIONSHIP TO OTHER EQUIPMENT. The AS-4366A/U Antenna System interfaces with the VHF receiving and transmitting equipment.
- 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.

Figure 1-1. AS-4366A/U Antenna System

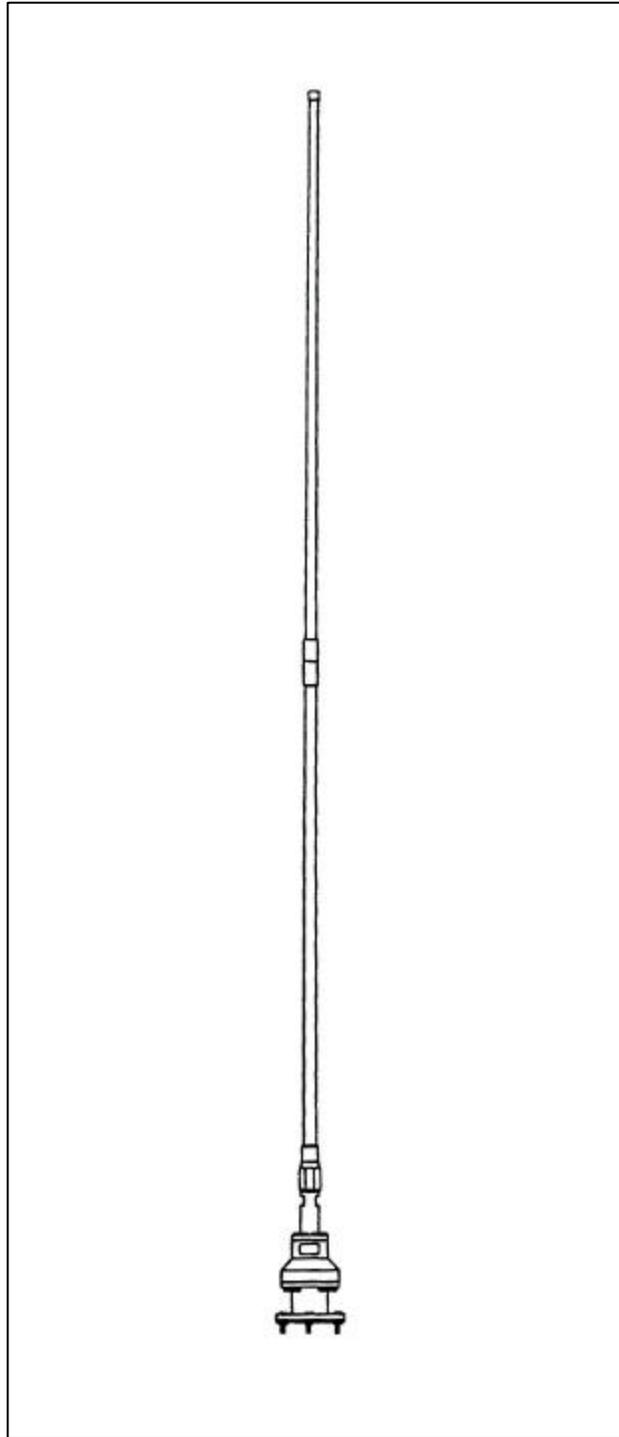


Table 1-1. Reference Data

PARAMETER	SPECIFICATION
Nomenclature	AS-4366A/U
Manufacturer	35736
Frequency Range	30 MHz to 88 MHz
VSWR	3.5:1 Maximum, 2.5:1 Average
Polarization	Vertical
Power Rating	150 W Average
Radiation Pattern	Omni-directional in the Azimuth Plane
Input Connection	Single coaxial N type connector
Temperature	-51 °C to +71 °C
Wind Velocity	80 km/h operating
Humidity	Relative humidity 95%
Shock	MIL-S-901 Type A
Vibration	MIL-STD-167-1 Type 1
Ice Loading	½ - inch radial
Weight	5 kg (11 lbs)
Height	2.79 m (110 inches)

Table 1-2. Equipment, Accessories and Documents Supplied

<i>ITEM</i>	<i>PART NO.</i>	<i>DESCRIPTION</i>
1	VD-96-00014-1	ANTENNA, BASE MATCHING UNIT
2	VC-96-00033-1	ANTENNA, ELEMENT ASSEMBLY
3	VC-96-00016	PLATE, INSULATOR

Equipment Not Supplied:

- 7/16-inch bolts of adequate length
- lock washers and bolts as required

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) which may require energizing. For operating instructions, consult the appropriate technical manuals.
 - 2-3.2. MODES OF OPERATION. The antenna operates automatically, and no operator intervention is required other than interconnecting the antenna with the associated transmitter/receiver.
 - 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 turn-on was required, no turn-off is required either. However, the antenna is coupled to RF equipment (transmitter/receiver) which may require turn-off. For operating instructions, consult the appropriate technical manuals.
 - 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 appropriate technical manuals.

SECTION 3**FUNCTIONAL DESCRIPTION**

- 3-1. **FUNCTIONAL DESCRIPTION.** The AS-4366A/U antenna system consists of a two piece, permanently joined fiberglass antenna whip element and a polycarbonate mounting base with a rigid antenna support. It provides omni-directional coverage in the VHF range of 30 to 88 MHz. The antenna whip section tapers from approximately 1-inch at the base connection to approximately 0.3 inches at the tip. The base assembly is comprised of a rigid mount, polycarbonate insulator and an aluminum mounting base, which also encompass the antenna's matching network. Mounting of the antenna is provided by four 0.453-inch diameter holes (for 7/16-inch hardware) on a 4.5-inch mounting circle. When assembled, the overall height of the antenna system is about 110 inches. The broadband feature of this antenna system means no antenna coupler is required; the transceiver is the only required connection to the antenna.

SECTION 4

INSTALLATION

- 4-1. **SITE INFORMATION.** Valcom's AS-4366A1U Antenna System is designed primarily for shipboard installation. For installations other than shipboard, please consult Valcom for the proper procedures to use. 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 or materials are required for installation, other than the proper size wrench for the hardware chosen.
- 4-3. **UNPACKING AND REPACKING.** Table 1-2 gives data on what is included with the purchase of the AS-4366A/U Antenna System. Open carton and carefully remove the contents, while comparing to Table 1-2. Repack the antenna in the original carton and packing material or a suitable replacement.
- 4-4. **FOUNDATION.** The antenna should be installed vertically on a mounting plate with the same bolt holes matching those in the antenna base assembly. (see Figure 4-1).
- 4-5. **INPUT REQUIREMENTS.** The antenna has an average RF power handling capability of 150 W in the 30 to 88 MHz range.

WARNING

Do not exceed this rating or damage to personnel or equipment may result.

- 4-6. **INSTALLATION PROCEDURES.** After unpacking the antenna, proceed with the installation procedures as follows:
- a) Examine the exterior of the antenna for damage, such as cracks, extreme abrasions or severe bends in the antenna element.
 - b) Prior to installing this antenna system, ensure all equipment involved has been deenergized and proper lock out procedures followed.
 - c) Place the base onto the mounting plate. Ensure the four mounting holes line up and install the four bolts, complete with washers and nuts.
 - d) Lift plastic protective cap off of the terminal connector on the top of the base and screw the whip element onto the terminal until hand-tight.
 - e) The antenna input is a single coaxial N type connector found on the underside of the aluminum base mount. Ensure the proper lock out procedures have been performed and connect the feedline to the antenna connector. Fasten the braided ground strap to a grounded part of the ship chassis.

NOTE: Depending on the type of mounting plate used, the feedline and ground strap may need to be connected *before* the base is bolted down. In that case, connect the feedline and ground strap, bolt down the base, then screw the antenna element.

- 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 system.

Figure 4-1. Installation Data

