



TECHNICAL MANUAL

and

INSTALLATION INSTRUCTIONS

V-353
35-FOOT LIGHT DUTY
WHIP ANTENNA

VTM-07-009

Valcom Manufacturing Group, Inc.

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1.0 V-353 INFORMATION

1.1 Introduction

This section describes the electrical and mechanical properties of the V-353 fibreglass whip antenna. Information necessary to install, operate and maintain the antenna system is covered in the sections to follow.

1.2 Technical Reference Data

Electrical Properties	
Frequency Range	2 MHz to 30 MHz
Resonant Frequency	6.2 MHz (nominal)
Power Rating	1kW (average)
Dry Withstanding Voltage	25 kV
Electrical Length	34.1 feet (10.4 m)

Mechanical Properties	
Top Section Length	9.0 feet (2.74 meter)
Mid Section Length	9.0 feet (2.74 meter)
Base Section Length	17.0 feet (5.33 meter)
Typical Assembly Length	35.0 feet (10.67 meter)
Weight	Approximately 39 lbs (17.7 kg)
Conductor Material	Copper straps embedded in the fiberglass and thermo-setting epoxy resin composite
Finish	Epoxy polyamide paint
Mounting Position	Vertical
Base Diameter	8.0 inches (20.32 cm)
Mounting Hole Diameter	0.562 inches (1.43 cm)
Joints	Bronze ferrule C/W locking screw(s)
Mounting Holes Dimensions	5 holes equally spaced on a 6.0 inch (15.24 cm) diameter bolt circle
Operating Temperature	-58°F to +149°F (-50°C to +65°C)
Wind Loading Test	Up to 100 mph (161 km/h) relative
Abrasion Resistance	Very good

1.3 General Description

The V-353 Light Duty Whip Antenna is a lightweight yet rugged whip antenna designed specifically for yachts, fast patrol boats and fixed shelters. It is intended for mounting to the wall of a structure and is furnished complete with side support, base mounting bracket and hardware.

1.4 Electrical Description

The Valcom, V-353 model, is a field proven 35-foot (11 m) epoxy fiberglass antenna. It is capable of operating with an average power of up to 1 kW over the frequency range of 2 MHz to 30 MHz.

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. Embedded in the composite are multiple copper conductors and secured at the top end to a brass termination and at the bottom to a threaded female ferrule into which the mid-section is secured. The surface is sanded to a smooth finish, then it is primed and painted with a polyamide epoxy surface coating.

Mid-Section. The mid-section is also a hollow, tapered cylinder made of circumferentially and longitudinally wound fibreglass filaments using a thermosetting epoxy resin matrix. Embedded in the composite are multiple copper conductors and secured at the top end to a threaded male ferrule and at the bottom to another threaded female ferrule into which the base section is secured. The surface is sanded to a smooth finish, then it is primed and painted with a polyamide epoxy 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. Multiple parallel 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 (4.33 cm) from the bottom of the base flange. The base can withstand a flash-over voltage of 25 kV.

2.0 INSTALLATION

2.1 Unpacking

Open the shipping crates and remove the antenna sections and mounting brackets. Remove all packing material, including the male ferrule protectors on the antenna sections, if applicable. The V-353 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 mounting location at the site is free of dirt, cables and other obstructions.

2.3 Assembly and Installation of Antenna on the Site

The following steps should be followed to assemble the V-353 Light Duty Whip antenna.

- (1) Obtain four to 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.
- (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 two more saw horses so that the two sections lie in the same straight line. Make sure the threads of the male ferrule on the base section are clear of foreign material and free of burrs.
- (5) Assemble the second antenna section onto the base section and tighten to align the arrows (if applied) at the joint.
- (6) Assemble the third antenna section (Item 3, Table 3.1) onto the base and mid-section assembly and tighten to align the arrows (if applied) at the joint.
- (7) Install the locking screws provided (Item 7, Table 3.1) and seal the screw heads with the sealant provided (Item 9, Table 3.1).
- (8) Install the base mounting bracket (Item 4, Table 3.1) to an appropriate wall structure. Use the backing plate if the wall is insufficient for anchoring. Install the side support (Item 5, Table 3.1) approximately 15 ft (4.5 m) above the base mounting bracket.
- (9) The antenna is now ready to be raised to its final position. Raise antenna into position and secure to the brackets using the supplied hardware (Item 6, Table 3.1).

3.0 PARTS LIST

3.1 General

A list of parts shipped with Valcom V-353 whip antenna appears in Table 3.1.

Table 3.1 - List of Parts for the V-353 Whip Antenna

Item No.	Part Number	Description	Qty	Notes
1		Base Section	1	
2		Mid Section	1	
3		Top Section	1	
4		Base Mounting Bracket & Backing Plate	1	
5		Side Support Bracket	1	
6		Hardware kit	1	
7		Set Screw	3	
8		Hex Key	1	
9		Silicon Sealant	1	
10		Technical Manual and Installation Instructions	1	

4.0 MAINTENANCE

4.1 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.

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

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

Shipping address:
Valcom Limited 175 Southgate Drive Hanlon Industrial Park Guelph, Ontario Canada N1G 3M5

5.2 Outline Drawings

V-353
QUICK REFERENCE DATA

