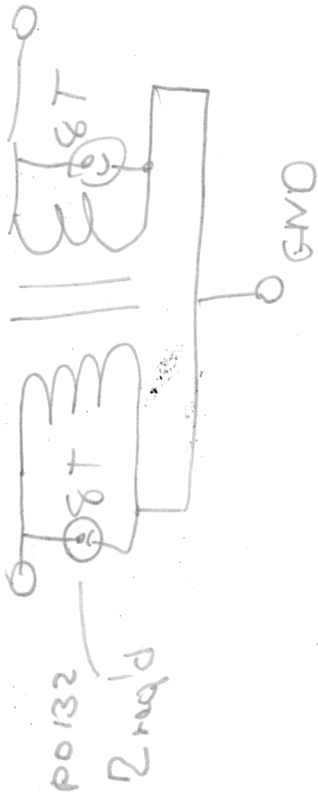


REVISIONS

QTY	MODEL USED ON	ASS'Y NO.	LTR	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD	APPL

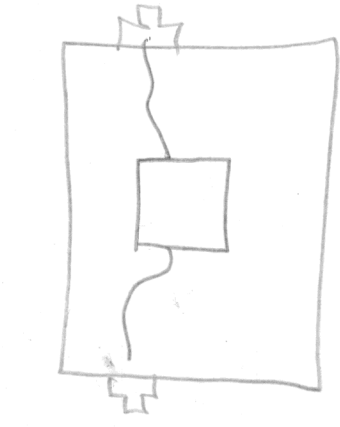
50R 50R



cores 2 CI 104

WIRE 123-20

BNC BNC CASE & COVER



VRA 14

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	REQ'D	ITEM	PART NUMBER	DESCRIPTION	SYM
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005				LIST OF MATERIAL	
FRACTIONS 1/64 ANGLES 0°-30°				THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
MATERIAL	FINAL APPROVAL	DATE		400KHZ - 5MHz UNBAL 50R	
FINISH	MECH. DES.	DATE		TRANSFORMER	
	ELECT. DES.	DATE			
	CHECKED	DATE			
	DRAWN	DATE			

SIZE A	CODE IDENT. NO. 82679	DWG NO. TR 225	ISSU
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To Harry Hardgrave



Vertical Receiving Antenna

VRA Series

Product Brief 110335B

VRA-14

■ Multiple Operating Ranges:

VLF/LF	15 to 300kHz
LF/MF/HF	100kHz to 30MHz
LF/MF	200 to 800kHz
HF	2 to 30MHz
HF (opt)	3 to 15MHz

■ Broadband - No Tuning

■ Flat Response Curve

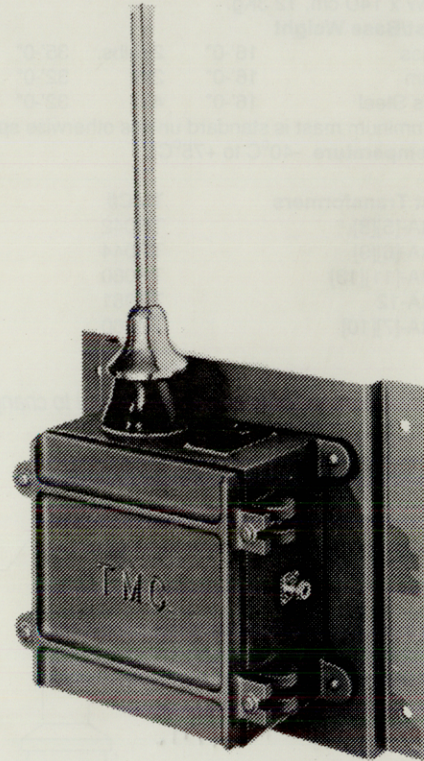
■ Weatherproofed Case

■ Multiple Antenna Mast Types

VRA vertical receiving antennas are used in practical communication systems worldwide, whether on board ships, fixed shore stations, or land-mobile facilities. This antenna adapts extremely well to many different conditions in both military and commercial applications. It is easily installed by one individual with minimal training and can be quickly disassembled for storage in a compact "fly-away" case. One of three types of masts can be supplied to suit operating conditions: a multi-section telescoping mast made of aluminum or stainless steel tubing and a multi-section fiberglass mast. All masts are free-standing but can be equipped with anchors, guy wires and support collars for high-wind conditions. The metal masts reduce to a compact 6'-4" length for easy transport. Fiberglass models are embedded with parallel copper wires to simulate a cylinder. Extra epoxy is added to prevent corrosion and maximize strength since these masts are free-standing and must often withstand winds up to 100mph (166km/h).

An important feature of the VRA system is the use of unbalanced RF

VRA antenna assembly shown with a telescoping self-supporting mast that is secured to an insulator assembly on top of the weatherproof case. Fiberglass whips can also be provided. The optional rear plate, shown in bulk-head-mount position, can be re-set for base mount.



coaxial connectors at the input. This makes it easier to install, route and switch RF paths between antenna and a terminal device such as a pre-selector, receiver or analyzer. The RF cables are often terminated on TMC series SPP switching patch panels so that changes in the RF path may be made with minimal interruption of service.

Each VRA contains a highly efficient network that compensates for any variation in impedance detected over its operating range. The typical frequency response is flat within +/-1.5dB. Field tests show that these internal networks improve the over-all electrical characteristics of

the antenna significantly. They are designed to provide an optimal match near the center of the band with less efficiency at the extreme ends of the spectrum.

The VRA antenna requires little maintenance to perform within specification over its normal service life of ten years. The broadband matching networks are individually sealed and securely anchored in rugged, weatherproof cases that are constructed of aluminum alloy to assure protection from any hostile environment. In the event of major damage, any component can easily be replaced in the field by removal of a few mounting screws.

Harry! I will design
will handle 100w with

XFMR 400KHZ - 5MHZ THAT
GRND'S PRI. & SEC.

TECHNICAL SPECIFICATIONS

Frequency Range 10kHz to 32MHz, (See models)
Nominal Gain +1dB except at 1/4-wave points.
Impedance Matches into 50 or 70 ohms nominal
RF Fittings See Unbalanced Connector Assemblies
Equipment Case All-weather cast aluminum alloy
Mounting Bulkhead or base mount using four heavy-duty cast mounting flanges and optional steel plate
Safety Feature Spark gap for protection from lightning or static discharge between antenna mast and ground
Case Dimensions 9H x 11.5W x 5.5D inches, 27 lbs.
 22.9H x 29.2W x 14D cm, 12.3Kg.

Antenna Mast/Base Weight

/F Fiberglass	16'-0"	2.0 lbs.	35'-0"	65 lbs
/A Aluminum	16'-0"	2.5	32'-0"	55
/S Stainless Steel	16'-0"	4.0	32'-0"	85

Note: Aluminum mast is standard unless otherwise specified.

Operating Temperature -40°C to +75°C

Replacement Transformers

For	VRA-[5][8]	TMC#	TR042
	VRA-[6][9]		TR044
	VRA-[11][13]		TR080
	VRA-12		TR081
	VRA-[7][10]		TR160

Model	Range	Antenna Type	
VRA-5	200-800KHz	16-foot	A,S
VRA-6	2-32MHz	16-foot	A,S
VRA-7	3-15MHz	32-foot*	A,S
VRA-8	200-800KHz	16-foot	F
VRA-9	2-32MHz	16-foot	F
VRA-10	3-15MHz	35-foot*	F
VRA-11	0.1-30MHz	32/35-foot*	A,S,F
VRA-12	10-300KHz	32/35-foot*	A,S,F
VRA-13	0.5-30MHz	32/35-foot*	A,S,F

*Separate steel base is provided; Fiberglass mast is 35-foot

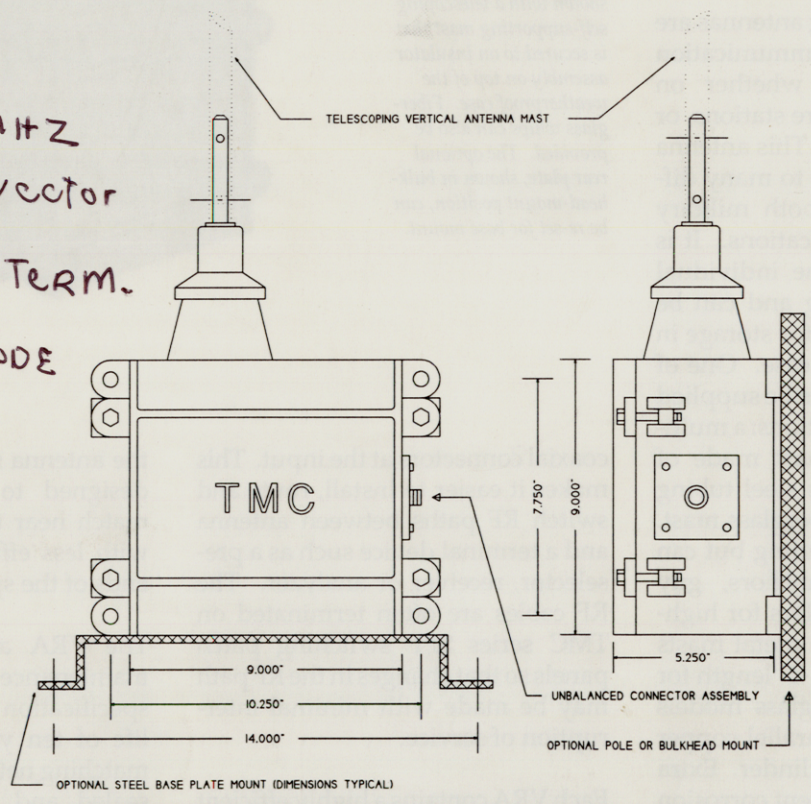
Unbalanced Connector Assembly Options:

/BN	BN type	AX283-1
/BNC	BNC type	AX284-1
/C	C type	AX286-1
/HN	HN type	AX285-1
/5LC	LC type/50-ohm	AX287-1
/7LC	LC type/70-ohm	AX287-5
/N	N type	AX259-1
/QDS	QDS type	AX289-1
/UHF	UHF type	AX281-1
/UHFL	UHF (L)_type	AX256-1
/RG85	RG-85U Coax Flange	AX274-1

See Connector Products Catalog for other assemblies

Specifications are subject to change without notice - Please verify with TMC before ordering.

VRA-14
 400KHZ - 5MHZ
 7/8" 50Ω connector
 Bowl at ANT TERM.
 100WATT, GAS DIODE
 Protected
No ANT.



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