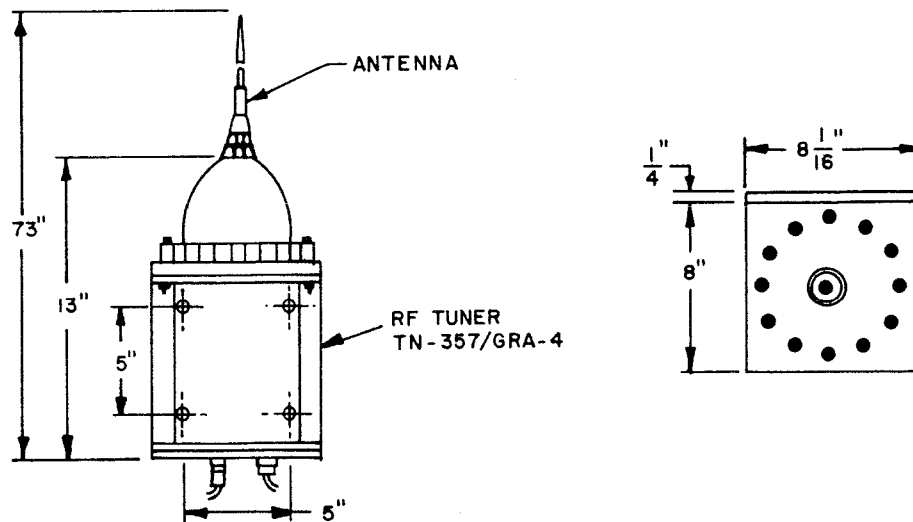


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ANTENNA GROUP AN/GRA-40
FEDERAL STOCK NO. F5985-799-7479

EQUIPMENT DESCRIPTION.

The AN/GRA-40 is a base tuned 5-foot whip antenna. The group is used with Loran receivers and consists of Antenna AT-979/U, RF Tuner TN-357/GRA-40, and Antenna Control C-3305/GRA-40.

Electrical Characteristics:

Frequency 1700 to 2350 kc
Power Requirements . . . 117v, 60 cps,
1 ph

ANTENNA SPECIFICATIONS.

The tuner unit forms the base for the antenna and these specifications include both units.

Height 73 in.
Width 8 in.

Depth 8-1/4 in.
Weight 34 lb
Type Whip
Polarization . . . Horizontal or vertical
Impedance 50 ohms

INSTALLATION DATA.

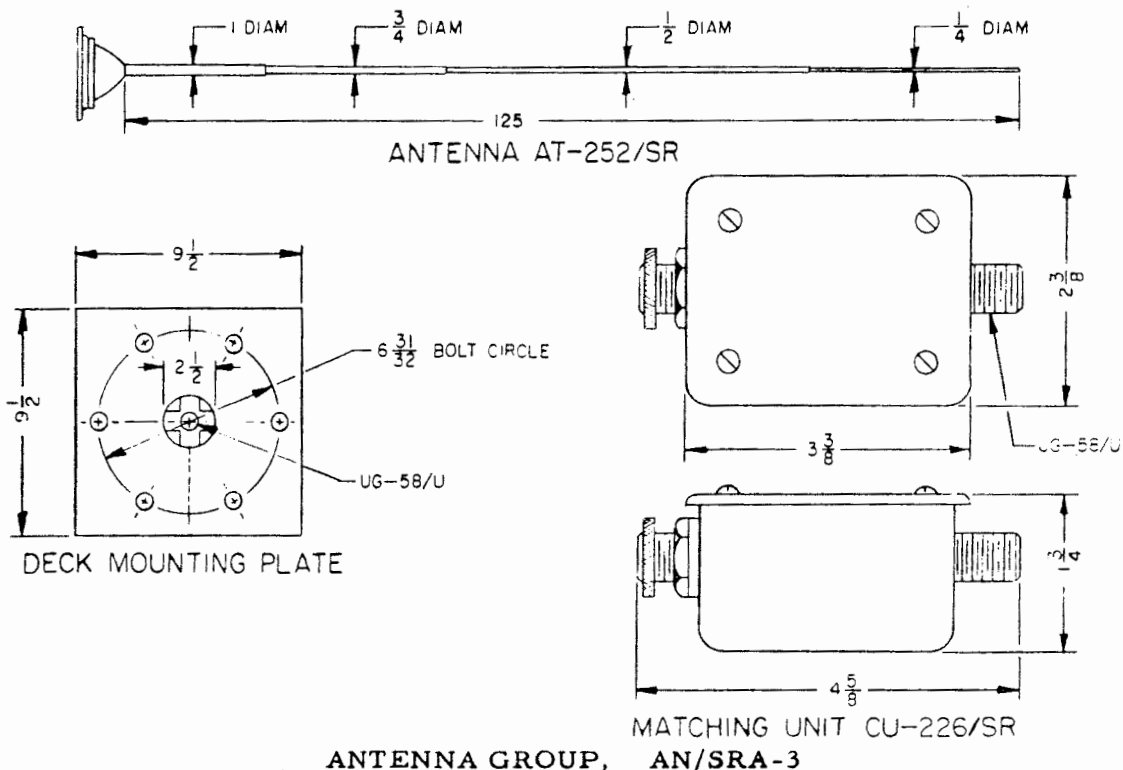
The antenna and tuner unit are mounted together and may be installed in either the horizontal or vertical position. All installations should include Loran bandpass filter type BP-110-D.

Coax RG-213/U or RG-215/U

Cables TCOP-3, FSGA-3

REFERENCES.

NavShips 93595



TYPICAL USES.

Antenna Group AN/SRA-3 consists of a whip antenna and a matching unit. It may be used with FM radio communications equipment operating in the 20-50 megacycle band, such as the radio sets: AN/SRC-10(), SRC-11(), SRC-12(), SRC-13(), SRC-14(), and SRC-15().

ANTENNA SPECIFICATIONS.

Antenna AT-252/SR is a whip type antenna used for both receiving and transmitting. It is not separable or collapsible and it may be cut at various lengths to suit a particular frequency. The Antenna Coupler CU-226/SR is used to match the impedance of the various radio sets to the 50-ohm antenna transmission line.

Total Weight:

Antenna AT-252/SR..... 25 lb
Antenna Coupler CU-226/SR... 1/2 lb

Material:

Antenna.....Stainless steel tubing
Antenna Coupler..... aluminum box

Frequency Range	Antenna Length
20-28 mc	125 inches
27-40 mc	89 inches
39-50 mc	58 inches

INSTALLATION DATA.

Transmission Line.....RG-10/U or
RG-8/U

The mounting hardware for the whip antenna consists of: a ceramic bowl insulator Navy Type-61277, two mounting ring plates, five neoprene gaskets, one cross-shaped connector plate assembly, and a square deck mounting plate. The

INSTALLATION DATA (Cont'd)

bowl insulator bolts to the deck mounting plate by means of 6 bolts equally spaced on a 6-31/32 inch diameter bolt circle. The deck mounting plate is 9-1/2 inches square by 1/4 inch thick, and has a 2-1/2 inch diameter hole in its center to allow clearance for the UG-58/U connector.

A hole must be cut in the deck large enough to clear the mounting bolts and nuts. The deck mounting plate is then welded to the deck. If the deck mounting plate is not used, holes for the mounting bolts and the connector plate must be cut in the deck.

Antenna Coupler CU-226/SR is an im-

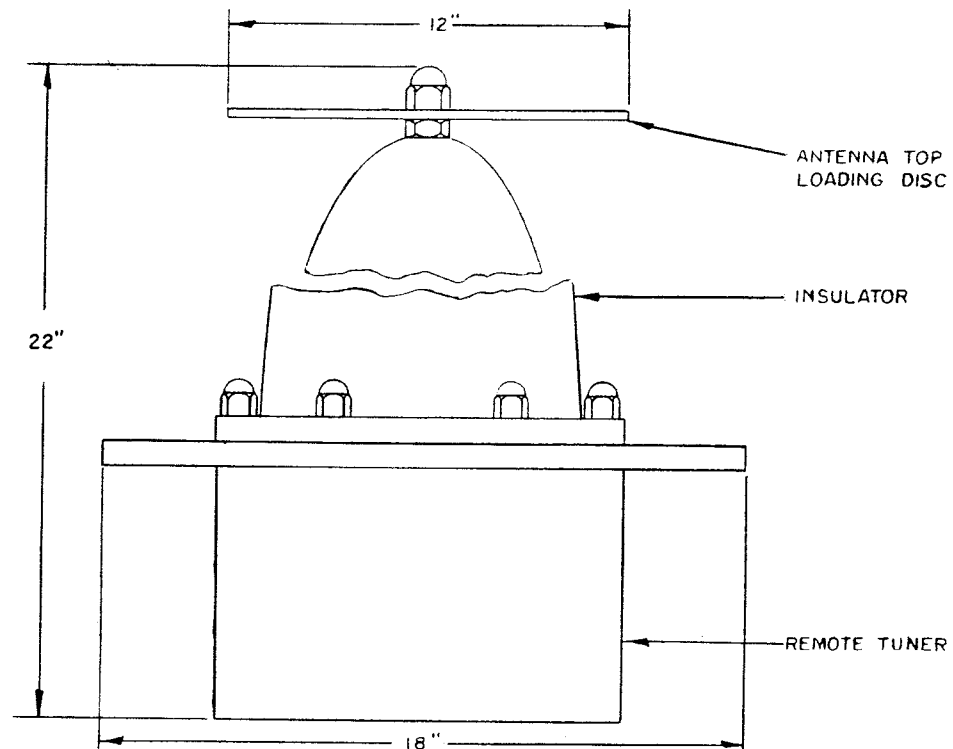
pedance matching network mounted in a drip-proof aluminum box with removable cover. The box has a UG-58/U connector on one end which connects to the antenna transmission line. A silver-plated terminal stud and knurled nut is attached to the other end of the box. The coupler attaches to the antenna terminals of the radio set by the terminal stud, one of two terminal stud adapters or a 3-inch antenna lead. Also supplied with the coupler are a 5-inch ground lead and an L-shaped mounting bracket. Dimensions of the coupler without adapter or bracket are: 4-3/8" long x 2-3/8" wide x 1-3/4" high.

Unit	Type Number	Standard Navy Stock Number
Antenna Group	AN/SRA-3	N5985-254-7185 (FSN)
Antenna	AT-252/SR	N16-A-54463-5150
Antenna Coupler	CU-226/SR	N16-C-91727-9345

REFERENCES.

NavShips 91292

BuShips Drawing: RE66F2016



MINIATURE RECEIVING ANTENNA AN/SRA-10(XG-1)

TYPICAL USES.

The AN/SRA-10(XG-1) Antenna is a small, top loaded monopole antenna designed to increase the efficiency of shipboard communication systems by eliminating the problem of interaction between large, closely spaced antennas. The antenna is used in conjunction with modified RBC receivers.

ANTENNA SPECIFICATIONS.

The AN/SRA-10(XG-1) consists of an insulator, the antenna top-loading disc and a ground plane plate. The insulator is a standard NT-61475 12-inch deck insulator and the top-loading disc is symmetrically mounted on top of the insulator on a plane parallel with the insulator base.

Total Weight..... 61.5 lb

Frequency Range..... 4-27 mc in
four bands

INSTALLATION DATA.

The antenna should be mounted with the insulator in a vertical position. When installed on a metal deck the ground plane plate should be discarded since the deck will serve as a ground plane.

Transmission Line.....RG-11/U

Cable..... MSCA-7

REFERENCES.

NavShips 91555 (21 April 1952)

SRA-17, and Antenna Control C-2536/SRA-17.

Electrical Characteristics:

Frequency . . . 14 to 600 kc (tunable)
Power Requirements . . 115v, 60 cps,
1 ph

ANTENNA SPECIFICATIONS.

The tuner unit forms the base for the antenna and these specifications include both units.

Height 142 in.
Width 12 in.
Depth 12 in.
Weight 5-1/2 lb
Volume 11 cu ft
Material Stainless steel
Type Vertical whip
Impedance 72 ohms

INSTALLATION DATA.

The antenna is mounted on a 12-inch square steel plate which forms the top of the tuner. The antenna-tuner unit should be installed near the top of a mast, king post, or other vertical superstructure. The antenna control is remotely installed, convenient to operating personnel.

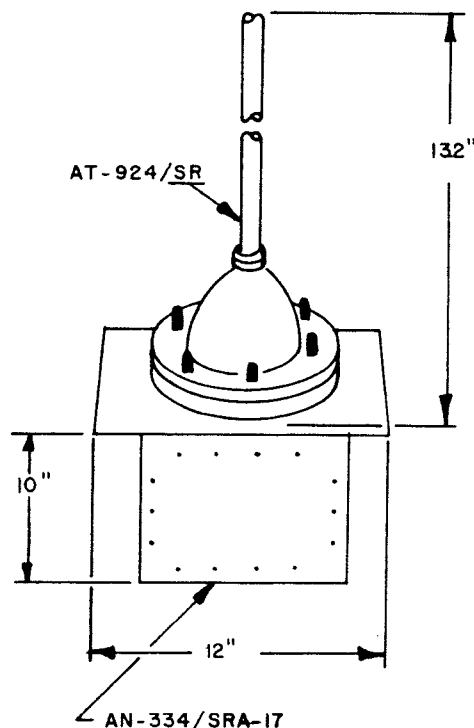
Coax RG-12/U
is used and connection to the antenna is through the tuner. Cable runs of less than 150 feet are advisable, although satisfactory results may be obtained with lengths up to 300 feet.

REFERENCES.

NavShips 92299

BuShips Drawing RE 66D 2138

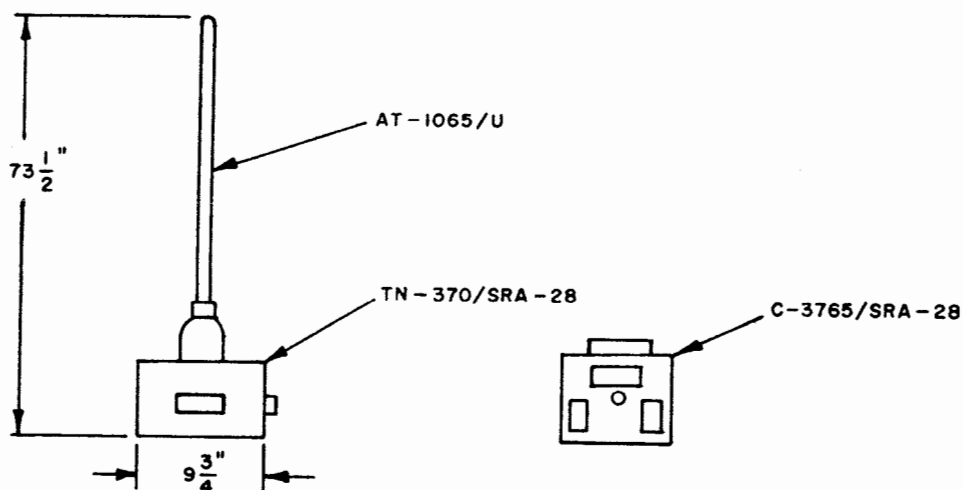
(Note: For AN/SRA-17 antenna tuner modification for use with Loran equipment, see RE 47H 2016.)



ANTENNA GROUP AN/SRA-17
FEDERAL STOCK NO. F5985-633-6842

EQUIPMENT DESCRIPTION.

The AN/SRA-17 consists of a base tuned whip antenna. The group is used for reception in the LF-VLF range and consists of Antenna AT-924/SR, RF Tuner TN-334/



ANTENNA AT-1065/U
FEDERAL STOCK NO. F5985-895-3645

EQUIPMENT DESCRIPTION.

The AT-1065/U is a whip antenna. One of its uses is with Antenna Group AN/SRA-28. The group consists of the antenna, RF Tuner TN-370/SRA-28, and Antenna Control C-3765/SRA-28, and is used in conjunction with Loran A receivers.

Electrical Characteristics:

Frequency 1700 to 2350 kc
Power Requirements . . 115v, 60 cps,
1 ph

ANTENNA SPECIFICATIONS.

When used with the AN/SRA-28, the antenna and tuner are mounted together, and the specifications include both units.

Height 73-1/2 in.
Width 9-3/8 in.
Depth 7 in.
Weight 16 lb

Material Solid CRS
Type Whip

INSTALLATION DATA.

The antenna and tuner are shipped assembled as one unit and should be mounted on the ship superstructure with the whip point up, parallel with the mast. An alternate mounting is with the whip pointing horizontally, parallel with a yardarm or other horizontal member of the superstructure.

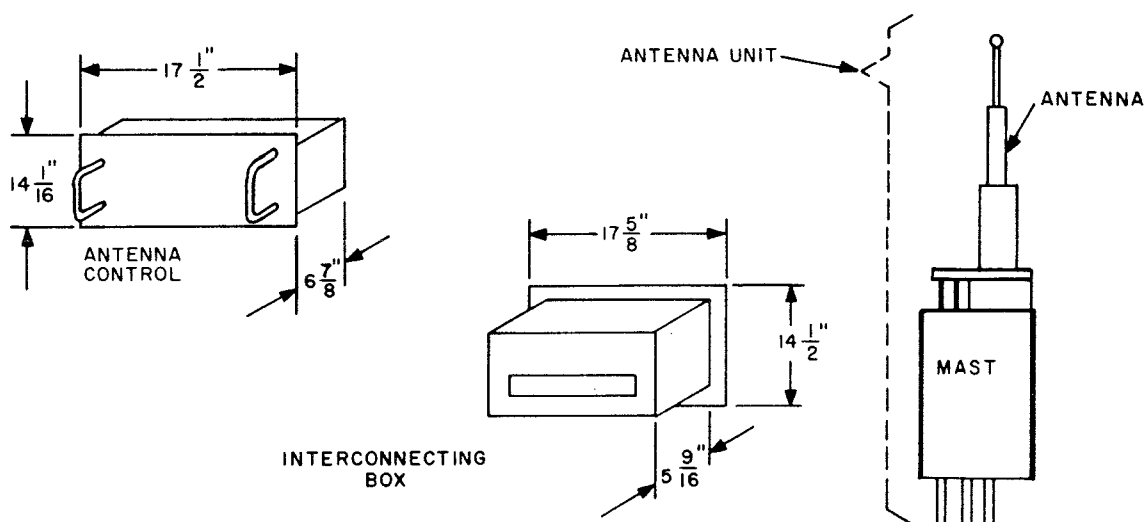
Coax RG-213/U

Cables TSGA-3, FHOE-3
(or FSGA-3)

Stuffing Tubes MS16156 (size 2)

REFERENCES.

Manuscript copy of Catalog Data for AN/SRA-28



ANTENNA GROUP AN/WRA-2(XN-2)

EQUIPMENT DESCRIPTION.

Antenna Group AN/WRA-2(XN-2) consists of an antenna unit, a connecting box, and an antenna control unit. The antenna is a telescoping, base fed, grounded quarter-wave, hybrid helix, vertical whip type. It is contained in a faired mast and controlled by an associated hydraulic cylinder. One use of the equipment is in conjunction with Radio Transmitting Set AN/WRT-4 aboard submarines.

Electrical Characteristics:

Frequency 2 to 32 mc
Power Rating 5 kw

ANTENNA SPECIFICATIONS.

Height 180 in.
Width 8-1/2 in.
Depth 8-1/2 in.

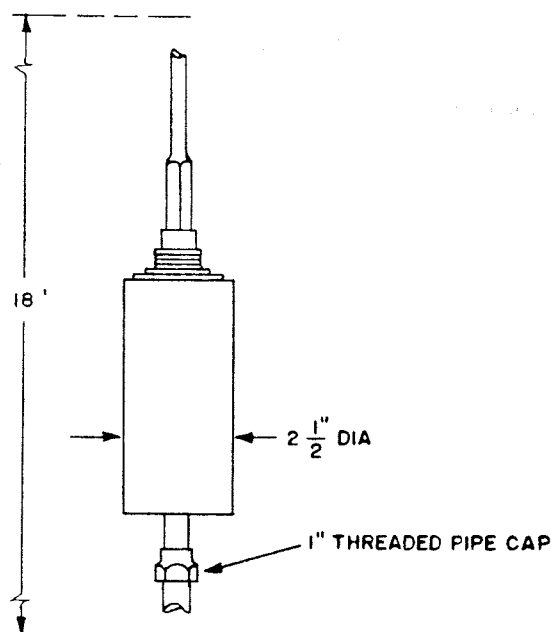
Weight 500 lb
Hydraulic Requirements 400 psi
Type Telescoping whip
Horizontal Beam Width 360 deg
Polarization Vertical
Gain 2.15 db
VSWR 1.5:1
Impedance. . . Will match 35 to 150 ohms

INSTALLATION DATA.

Coax RG-218/U
Interconnecting cables FSGA-3,
THOF-9, MHFF-19, MHFF-14,
TTRSA-6, WSCA-30, TSGA-14,
MSCA-10

REFERENCES.

Manuscript copy of catalog data



ANTENNA ASSEMBLY AS-389/FMQ-2

EQUIPMENT DESCRIPTION.

The AN/FMQ-2 is an electronic meteorological instrument used to record information transmitted by audio-modulated radiosondes such as Radiosondes AN/SMQ-1, AN/FMT-2 and 7. This information indicates the weather conditions at the location of the radiosonde.

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-389/FMQ-2 is a vertical half-wave concentric dipole consisting of two $1/4$ wave length sections mounted in line and separated by an insulator. The upper leg is a metal rod and the lower leg is a metal tube.

Total Weight.....13 lb

Type.....Vertical dipole

Frequency Range.....390-410 mc

Input Impedance.....50 ohms

INSTALLATION DATA.

The antenna is mounted so that the distance from an obstruction is at least 10 times the height of the obstruction. It is fitted with a one inch threaded pipe cap for mounting on a one inch mast and the mast is then securely fastened to the mounting surface by means of suitable clamps.

Transmission Line - The antenna assembly is supplied with 100 feet of RG-8/U cable. The upper end of the transmission line is assembled to a watertight insulator, part of a UG-21/U fitting, while the lower end of the line is fitted with a type UG-21B/U male plug connector suitable for connection to the antenna input jack type UG-58/U.

Section 5-3
AS-389/FMQ-2

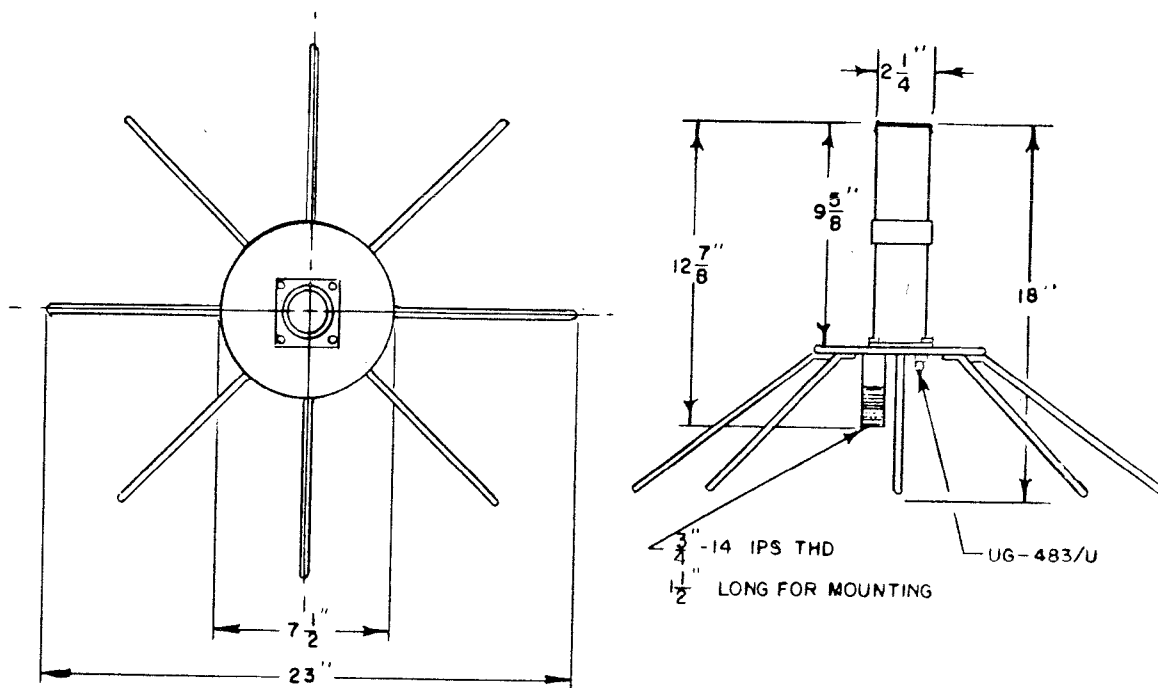
NAVSHIPS 900, 121(A)
UNCLASSIFIED

DATA SHEETS

REFERENCES.

NavShips 91266(A) (15 December 1949)

BuShips Drawing RE46A 2005



ANTENNA ASSEMBLY, AS-390/SRC
FEDERAL STOCK NO. F5985-408-8705

TYPICAL USES.

Antenna Assembly, AS-390/SRC is used with UHF radio equipment such as: TDZ-RDZ, MAR-RDR, TED and AN/URR-13.

ANTENNA SPECIFICATIONS.

Antenna Assembly, AS-390/SRC is an unbalanced broad-band coaxial stub antenna used for both transmitting and receiving. It consists of a radiator and ground plane. The ground plane is composed of eight radial ground plane elements bent downward in a circle of 23 inches in diameter.

Type..... Fixed stub
Weight..... 3.625 lb
Material..... Aluminum
Frequency Range..... 220-400 mc
Polarization..... Vertical
Impedance..... 52 ohms

INSTALLATION DATA.

The antenna assembly is usually employed in installations where the antenna is mounted above all other antennas or above the superstructure on shipboard. It is provided with a 3/4"-14 IPS threaded pipe for mounting and is used where the ambient temperature does not exceed 350°F.

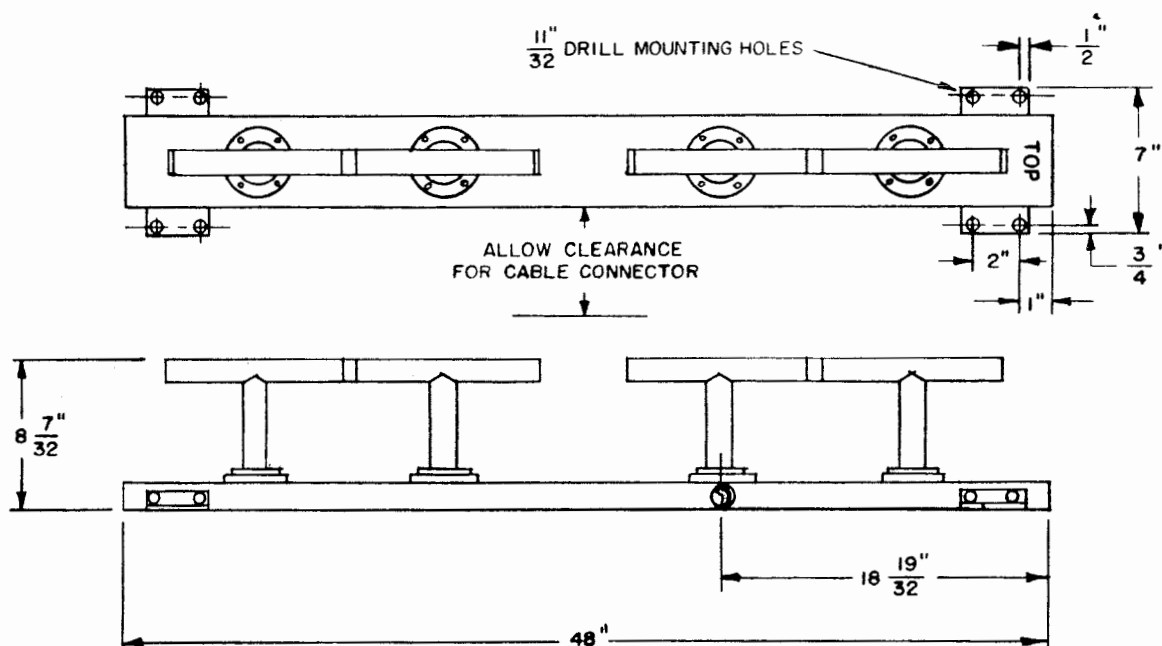
Transmission Line.....RG-18/U
or RG-10/U

Cable connection to the antenna is made by an RG-18/U cable with a UG-982/U connector. As an alternative, RG-10/U cable with a UG-941A/U connector may be used.

REFERENCES.

NavShips 91338

BuShips Drawing: RE66F2014



ANTENNA ASSEMBLY AS-466/SR

TYPICAL USES.

Antenna Assembly AS-466/SR is used with Radio Receiving Set AN/SRR-4 and AN/WRR-1 improved shipboard receivers for use with AEW equipment.

ANTENNA SPECIFICATIONS.

Antenna Assembly, AS-466/SR, consists of two half-wave dipoles mounted on a common base.

Total Weight.....21 lb 1 oz

Material.....Brass tubing and aluminum alloy channel.

Frequency Range.....465-510 mc

Polarization.....Vertical

Input Impedance 52 ohms

INSTALLATION DATA.

Transmission Line

Two antennas, type AS-466/SR, must be used in shipboard installations in order to provide full 360 degrees coverage.

The two antennas are connected to Rotary Switch SA-215/U with lengths of RG-18/U cable and UG-167B/U connectors. Two lengths of RG-19/U cable connect the switch to the two receivers. This coaxial switch permits the interchanging of antennas and receivers, so that, after partial equipment damage or failure, a remaining good antenna and receiver can be used together.

The antenna supporting channel should be bolted to a supporting structure with the dipoles vertically polarized. The top end of the antenna assembly is marked on the support channel.

The two antennas should face in opposite directions and the space in front of each for an azimuth arc of 180 degrees should be free of any obstructions. The azimuth arc of the two antennas must cover the full 360 degrees.

The mounting positions should be at least 50 feet above deck, at least 6 feet in front of any large metal surface such as a stack, and as far as possible from radar transmitting antennas especially those of the SC and SK radar. The two antennas need not be placed symmetrically either in height or fore-and-aft position, but the difference in height

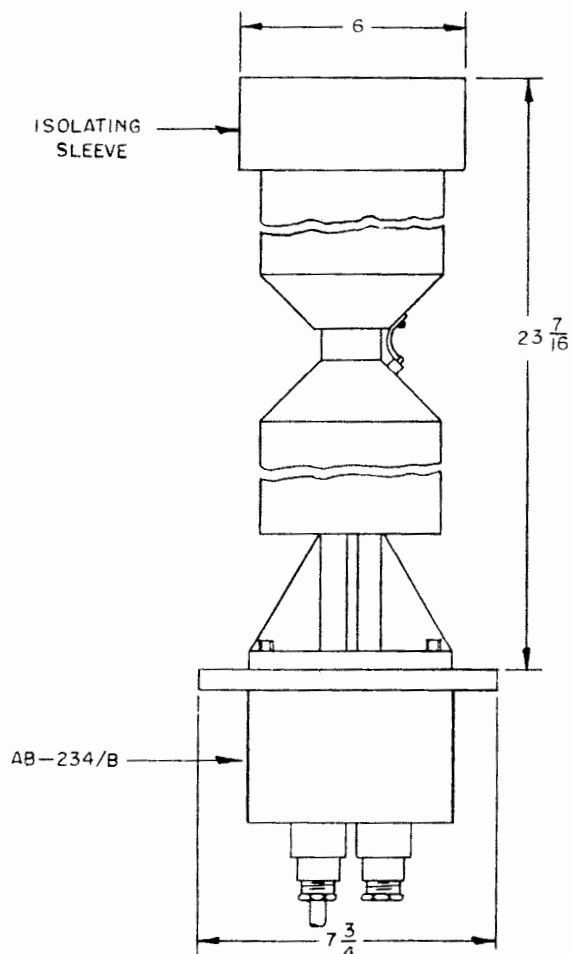
should not exceed 15 feet.

The antenna support channel has a connector on either side. The antenna cable may be connected to the jack on the side of the channel that is more convenient. The protective cap should remain on the jack that is not used.

REFERENCES.

NavShips 91710(A)

BuShips Drawings: RE10J2072
RE46F2004



ANTENNA ASSEMBLY AS-468/B
FEDERAL STOCK NO. F5985-369-5434

TYPICAL USES.

Antenna Assembly AS-468/B is designed for submarine installation and may be used with any UHF equipment operating in the frequency range 225 to 390 mc such as: TED, AN/URR-13, TDZ-RDZ.

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-468/B is a cylindrical broad band antenna consisting of two brass cylinders mounted around a stainless steel tube with a stainless steel flange at the bottom. The antenna mounts on Base Antenna Support Assembly AB-234/B.

Total Weight 30 lb
(without mounting base)

Type Vertical dipole

Frequency Range 225-390 mc

Input Impedance 50 ohms

INSTALLATION DATA.

Transmission Line - RG-14/U outside the pressure hull; RG-74/U inside the pressure hull. The antenna assembly contains a length of RG-58/U cable which terminates in a UG-536/U connector in the antenna base mounting.

INSTALLATION DATA (Cont'd).

The antenna is mounted by means of the flange on the base support which may be welded or bolted to the deck.

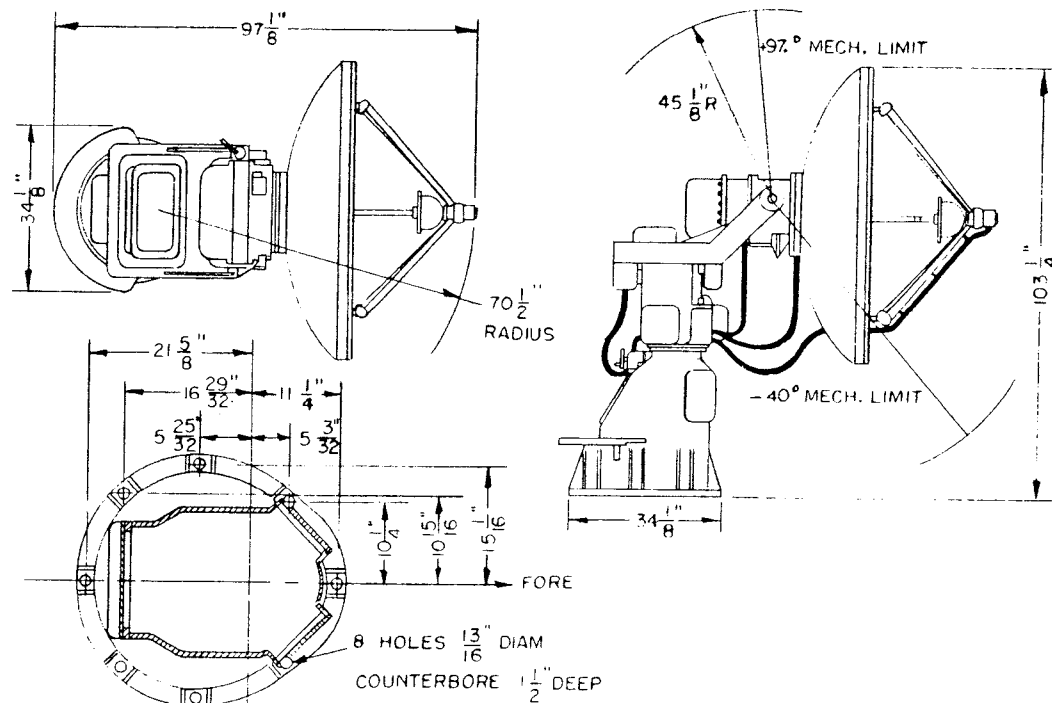
The antenna has been designed for mast mounting in submarines, however, it may be mounted on the shears with a special mounting.

The isolating sleeve (shown in the diagram above) is designed for the re-

ception of the AS-522/BPX antenna when the two antennas are combined as in the AS-523/BPX antenna. This isolating sleeve differs from the one found on the AS-535/B in that it is smaller in diameter and is permanently welded to the rest of the assembly.

REFERENCES.

BuShips Drawing: RE 66D 620H



ANTENNA ASSEMBLY AS-476/SMD-1

EQUIPMENT DESCRIPTION.

Radiosonde Receptor AN/SMD-1 is a radio direction finder and receiver designed to operate in a rapid sequence radiosonde system. The units for ship-board use include provision for stabilizing the antenna in cross level. The unit is capable of automatically tracking balloon-borne radiosonde transmitters such as the AN/AMT-8 and AN/AMT-9.

ANTENNA SPECIFICATIONS.

The parabolic reflector focuses the beam of RF energy (from balloon) at the center of rotation of the spheroid. The spheroid which is eccentrically mounted and spins at 30 rps then picks up the energy and reflects it to the dipole which transmits the meteorological pulses to the receiver.

Total Weight.....1585 lb

Feed.....Dipole

Frequency Range.....1660-1700 mc

Reflector:

Type.....Parabolic Dish
Size.....6 feet in diameter

Antenna Speeds:

Elevation Speed.....5 rpm
Training Speed......4 rpm
Cross Level Speed 4 rpm

Antenna Coverage:

Horizontal.....360 degrees
Vertical.....-32 to +87 degrees

INSTALLATION DATA.

Radio Receiver R-314/SMD-1 mounts in the antenna.

Waveguide.....RG-59/U

INSTALLATION DATA (Cont'd).

REFERENCES.

Cables(2) MCOS-6, MHFA-19,
(2) MHFA-37

NavShips 91211 (28 July 1945)

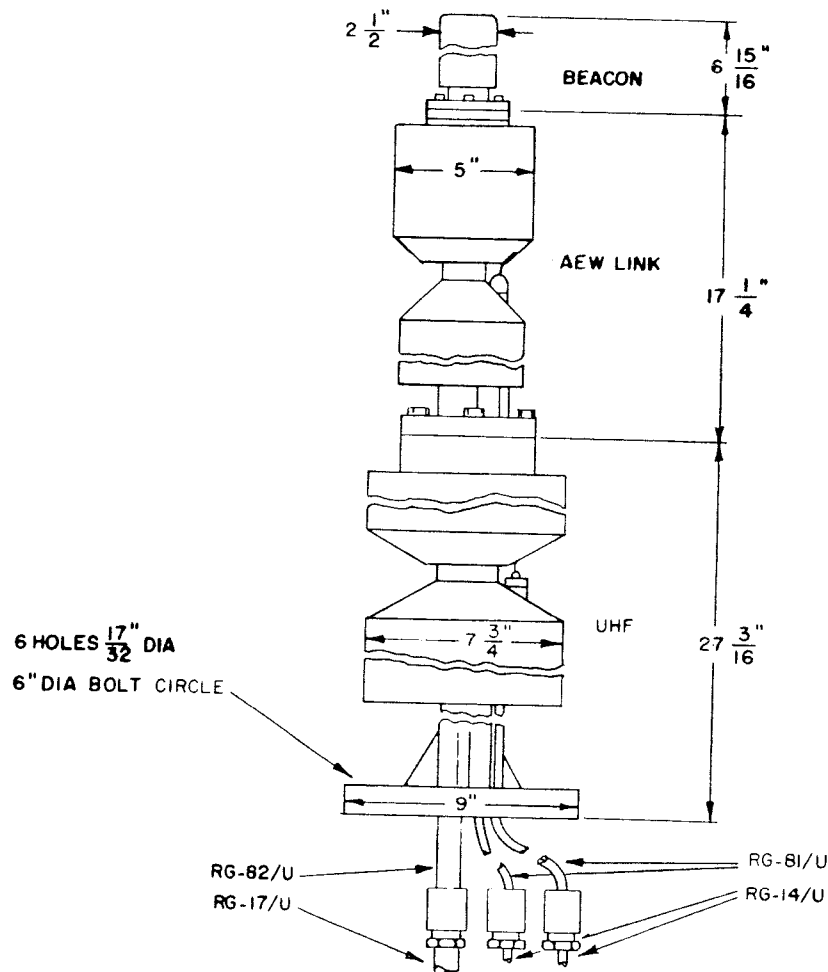
Drive Motor 120 volts dc

BuShips Drawings:

Synchros..(1 and 36-speed) 115 volts ac

RE 10D 675

RE 46J 2000



ANTENNA ASSEMBLY AS-493/U

TYPICAL USES.

Antenna Assembly AS-493/U is designed for installation aboard submarines and consists of three antennas built into one unit. The top section of the antenna is used for "S" band beacons such as AN/UPN-7; the middle section is the AEW link antenna used with the AN/SRR-4 and AN/WRR-1 equipment; and the bottom section is used with UHF communications equip-

ment such as the TDZ and RDZ.

ANTENNA SPECIFICATIONS.

The UHF and AEW antennas are around the mast dipoles having two brass cylindrical radiators. The beacon antenna consists of three vertically-stacked aluminum tri-dipole elements enclosed in a molded polyethylene jacket.

Total Weight.....120 lb

ANTENNA SPECIFICATIONS (Cont'd).

Frequency Range:

Top Section 2880 mc (for "S"
band beacon)

Middle Section 465-510 mc
(for AEW link)

Lower Section 225-390 mc
(for UHF communications)

INSTALLATION DATA.

This antenna is designed for mounting on a 8-inch pressure-proof retractable mast or on a fixed part of the submarine superstructure. In new design and conversion type submarines the antenna will be installed on a retractable mast. In other types of submarines having no masts the antenna should be installed in the highest possible location free from surrounding objects in order that omnidirectional radiation be maintained.

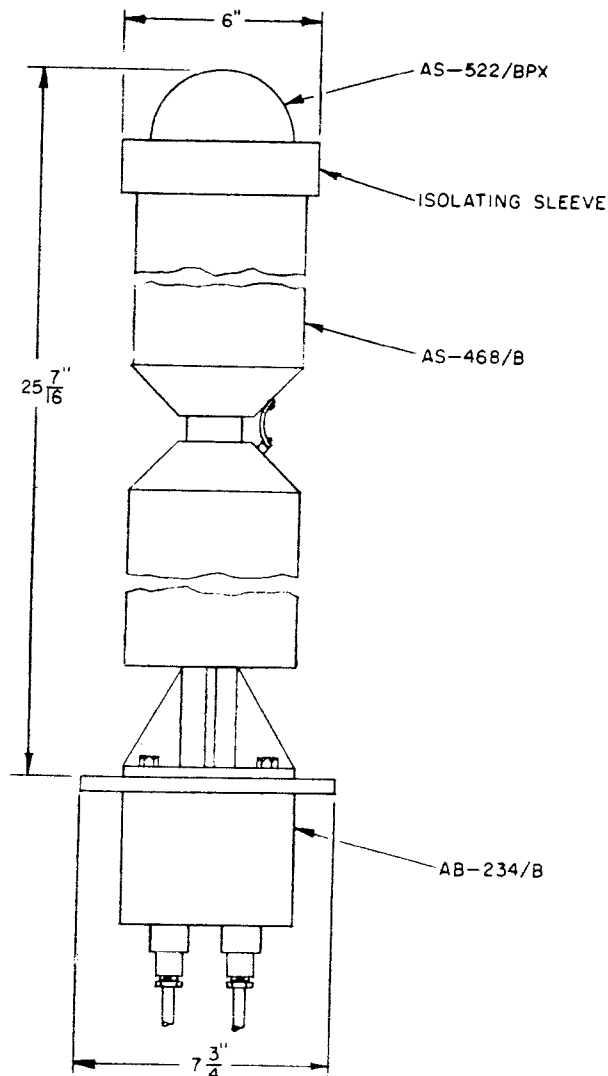
In mast installation, non-pressure-proof connectors are used on the cables in order to save space. The joint between the mast flange and the antenna is made pressure-proof. The two RG-14/U cables terminate in UG-204/U connectors; a UG-154/U connector is used with the RG-17/U cable.

When the antenna is installed on a non-pressure-proof mount, the three feed cables require pressure-proof connectors. Two adapters for RG-81/U to RG-14/U are needed and one adapter for RG-82/U to RG-17/U.

REFERENCES.

NavShips 91569

BuShips Drawings: RE 10J 2072
RE 66F 617E



ANTENNA ASSEMBLY AS-523/BPX

TYPICAL USES.

Antenna Assembly AS-523/BPX is designed for submarine installations. It combines a UHF antenna and an IFF antenna.

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-523/BPX consists of Antenna Assemblies AS-468/B, AS-522/BPX and Antenna Support Base AB-234/B combined into one unit.

Total Weight 35 lb

Frequency Ranges:

AB-468/B (UHF)..... 225-390 mc
AS-522/BPX (IFF).... 960-1051 mc

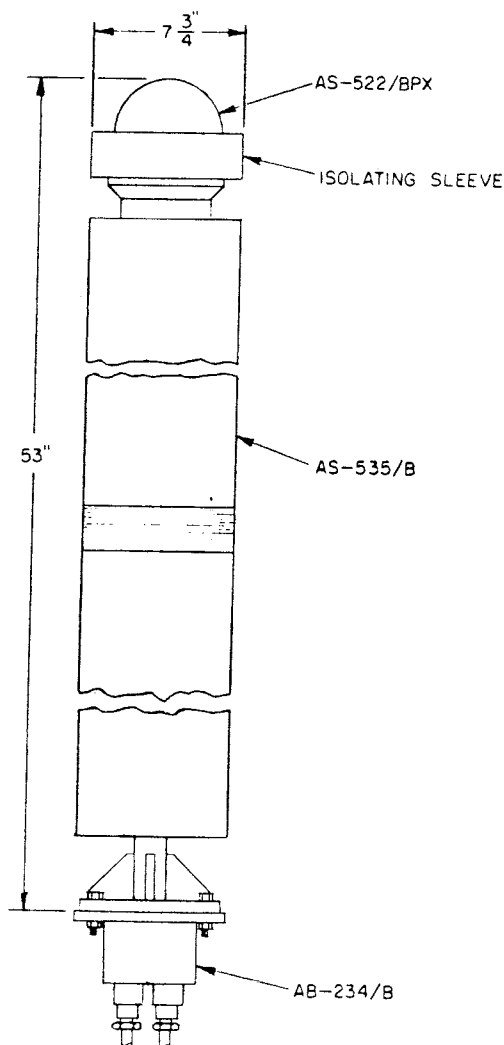
INSTALLATION DATA.

For installation data see Antenna Data Sheets for Antenna Assemblies AS-468/B and AS-522/BPX.

The isolating sleeve shown above is the one that is referred to and shown in the Data Sheet for Antenna Assembly AS-468/B and is permanently welded to the AS-468/B antenna.

REFERENCES.

BuShips Drawing: RE 66D 623



ANTENNA ASSEMBLY AS-524/BPX

TYPICAL USES.

Antenna Assembly AS-524/BPX is a combination IFF and VHF antenna for installation aboard submarines.

Frequency Ranges:

AS-522/BPX (IFF).... 960-1050 mc

AS-535/B (VHF)..... 110-156 mc

INSTALLATION DATA.

For installation data see Antenna Data Sheets for Antenna Assemblies AS-522/BPX and AS-535/B.

The isolating sleeve shown above is the one referred to and shown in the Data Sheets for Antenna Assemblies AS-522/BPX and AS-535/B.

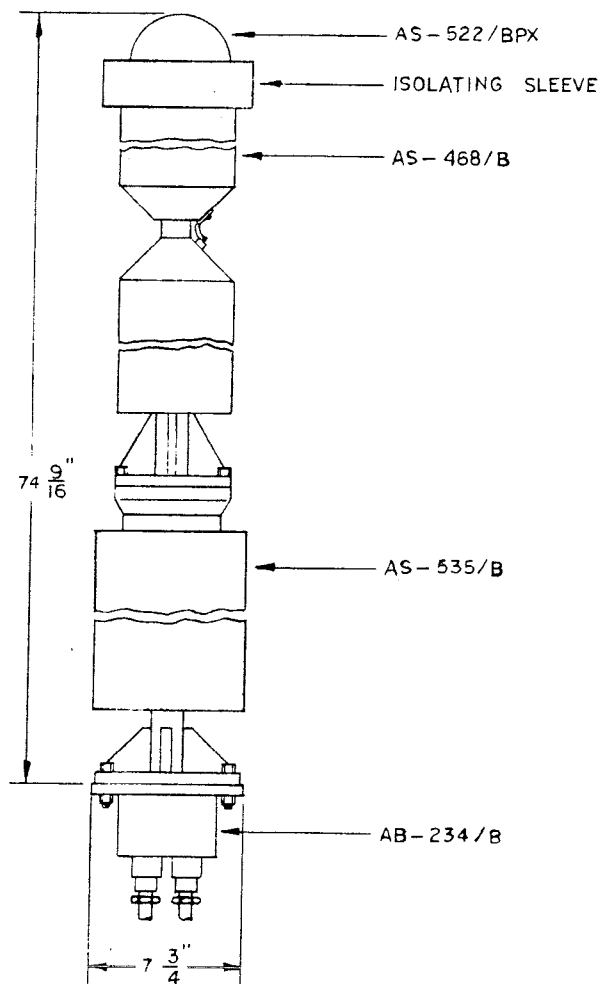
REFERENCES.

BuShips Drawing: RE 66D 624

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-524/BPX consists of Antenna Assemblies AS-522/BPX and AS-535/B and Base Antenna Support AB-234/B combined into one unit.

Total Weight..... 155 lb



ANTENNA ASSEMBLY AS-525/BPX

TYPICAL USES.

Antenna Assembly AS-525/BPX is a combination IFF, UHF and VHF antenna for installation aboard submarines.

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-525/BPX consists of Antenna Assemblies AS-468/B, AS-522/BPX, AS-535/B and Base Antenna Support Assembly AB-234/B combined into one unit.

Frequency Ranges:

AS-468/B (UHF)..... 225-390 mc

AS-535/B (VHF)..... 110-156 mc

AS-522/BPX (IFF)..... 960-1050 mc

INSTALLATION DATA.

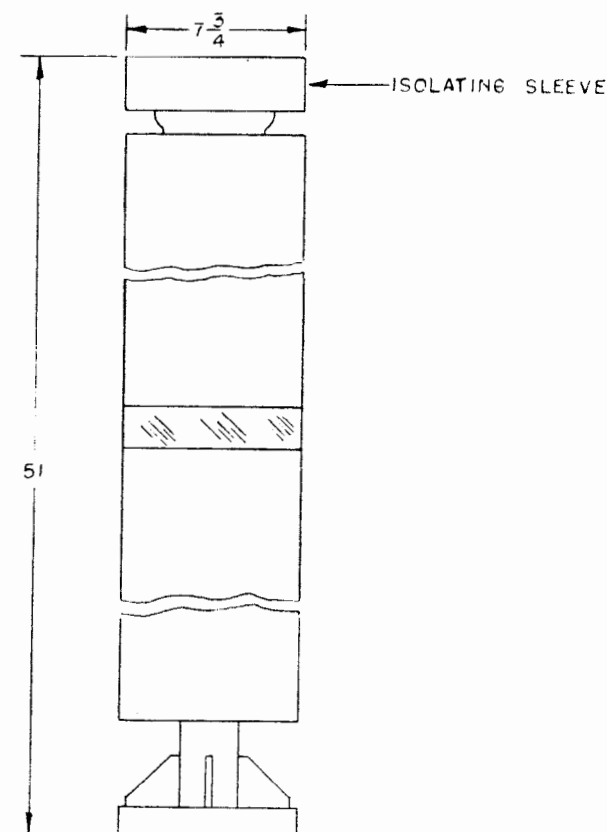
For installation details see Antenna Data Sheets for AS-535/B, AS-468/B and AS-522/BPX.

The isolating sleeve shown above is the one referred to and shown in the Data Sheet for Antenna Assembly AS-468/B and is permanently welded to the AS-468/B antenna.

REFERENCES.

Total Weight..... 185 lb with base

BuShips Drawing: RE 66D 625



ANTENNA ASSEMBLY AS-535/B

TYPICAL USES.

Antenna Assembly AS-535/B is designed for submarine installation and may be used with any VHF equipment operating in the frequency range 110 to 156 mc such as: SCR-624, TDQ-RCK, AN/ARC-1.

ANTENNA SPECIFICATIONS.

Antenna Assembly AS-535/B consists of two brass cylinders mounted around a stainless steel tube which has a stainless steel flange at the bottom. The antenna mounts on Base Antenna Support Assembly AB-234/B.

Total Weight..... 150 lb

Type..... Vertical dipole

Frequency Range..... 110-156 mc

Input Impedance..... 50 ohms

INSTALLATION DATA.

Transmission Line - RG-14/U or RG-17/U outside the pressure hull; RG-74/U inside the pressure hull.

The antenna contains a length of RG-58/U which terminates in a UG-536/U connector in the base of the antenna.

The flange at the base of the antenna has 8 mounting holes $21/32$ " on a 6" diameter bolt circle. This flange bolts to Base Antenna Support Assembly AB-234/B. The antenna has been designed for mast mounting in submarines.

The AS-535/B has an isolating sleeve at its top (shown in the diagram above) which is designed for the reception of

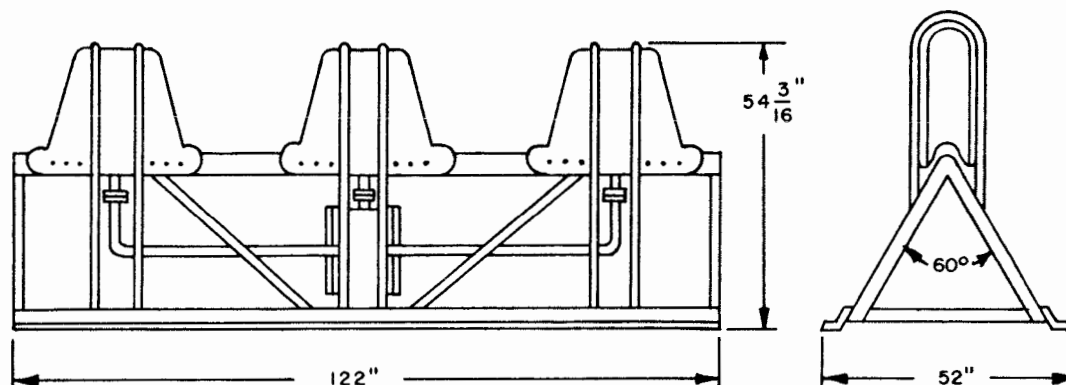
INSTALLATION DATA (Cont'd).

the AS-522/BPX antenna when the two antennas are combined as in the AS-524/BPX antenna. This isolating sleeve differs from the one found on the AS-468/B antenna in that it is larger in diameter and is bolted to the assembly. It can be easily removed and should be removed when the AS-535/B

antenna is mounted below the AS-468/B antenna as shown in the Data Sheet for Antenna Assembly AS-525/BPX. This isolating sleeve is used as part of the AS-522/BPX antenna when it is used by itself. (See Page 5-161.)

REFERENCES.

BuShips Drawing: RE 66D 622H



ANTENNA AS-668/SR
FEDERAL STOCK NO. F5985-644-3215

EQUIPMENT DESCRIPTION.

The AS-668/SR employs three AT-150/SR antennas mounted on a fabricated base. One of its uses is aboard aircraft carriers for long-range ship-to-air communications. It is used with UHF radio equipment such as the TED and AN/URR-13.

Electrical Characteristics:

Frequency 225 to 400 mc
Power Rating 100w

ANTENNA SPECIFICATIONS.

Height	54-3/16 in.
Width	122 in.
Depth	52 in.
Weight	950 lb
Material	Steel with plastic radomes over dipoles
Type	Fixed dipole array
Horizontal Beam Width	180 deg
Gain	3 db
VSWR	3:1
Polarization	Vertical

INSTALLATION DATA.

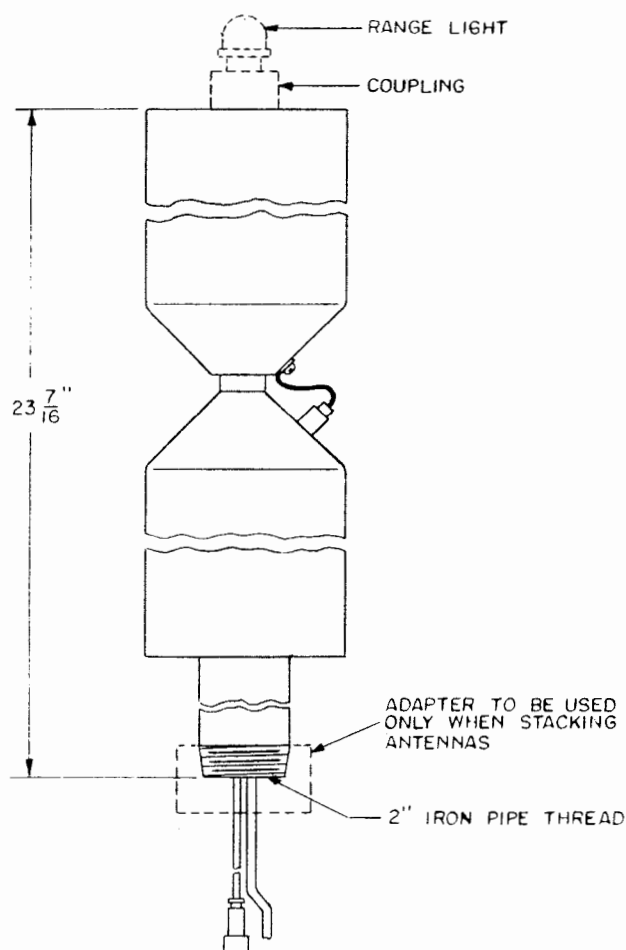
To obtain 360-degree coverage, mount antenna units in pairs 35 feet above water, one fore and one aft or one port and one starboard. Mounting on a sharp corner is preferred but a rounded turret is satisfactory. Flat surface mounting will result in distortion of pattern. The unit is symmetrical and the dipoles must be vertical with either end up.

Coax RG-219/U is connected to the assembly through a UG-154/U connector. Not over 100 feet of cable should be used. To minimize losses, two transmitters are generally used, one near each antenna.

REFERENCES.

NavShips 92195

BuShips Drawings RE 66F 2076A,
RE 66F 2088



ANTENNA ASSEMBLY AS-725()/S

EQUIPMENT DESCRIPTION.

Antenna Assembly AS-725()/S is a light weight antenna made of aluminum alloy. It is designed for use on small boats such as the MK II Aircraft Rescue Boat. It may be used with any UHF equipment operating in the 225 to 390 mc frequency range, such as: TED, AN/URR-13, TDZ-RDZ. There are provisions made at the top of this antenna for a government-furnished range light to be added if desired.

ANTENNA SPECIFICATIONS.

Total Weight..... 13 lb

Input Impedance..... 50 ohms

Type..... Vertical dipole

INSTALLATION DATA.

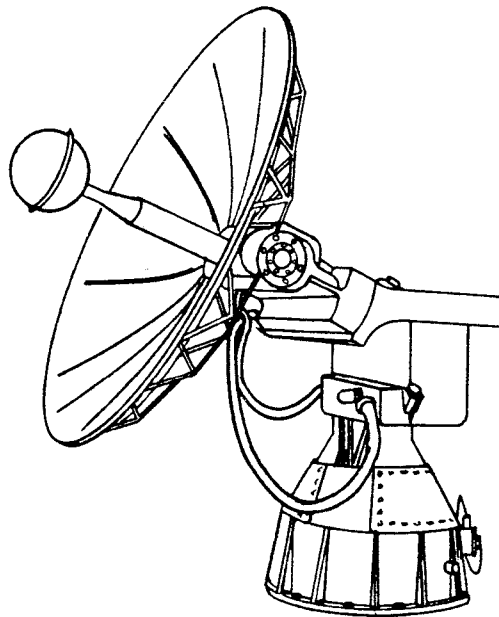
The antenna assembly is mounted by means of a standard pipe coupling to a staff.

Transmission Line..... RG-9/U

Cable (for range light)..... DHOF-4

REFERENCE:

BuShips Drawing..... RE 66F 2096A

**ANTENNA ASSEMBLY AS-750/SMD-1A****EQUIPMENT DESCRIPTION**

Antenna assembly AS-750/SMD-1A consists of Pedestal (AB-430/SMD-1A), Bowl Unit, cross level housing, yoke unit, elevation unit and reflection and pylon assembly. The assembly is used with radiosonde receiver AN/SMD-1A and is effective to a distance of 100 miles and to a height of 20 miles.

ANTENNA SPECIFICATIONS.

Frequency.....1660-1700 mc

Reflector:

Type.....Parabolic

Antenna Tracking Speeds:

Elevation Speed..... 5 rpm

Cross-Level Speed..... 4 rpm

Azimuth Speed..... 4 rpm

Antenna Tracking Limits:

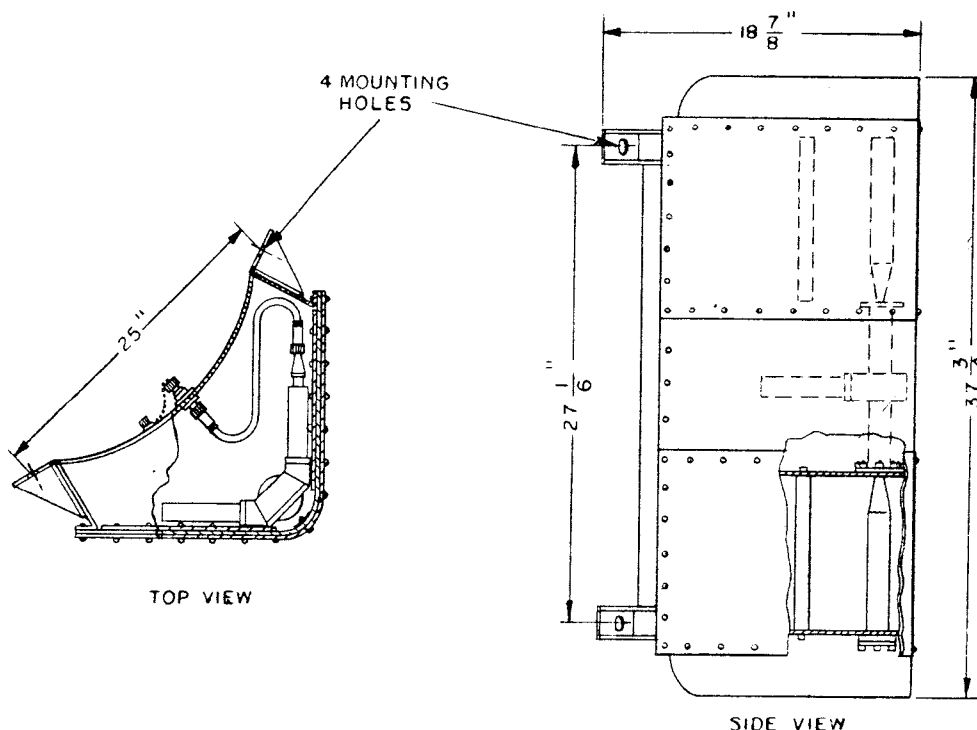
Elevation Limits.....-35° 93.5°

Electrical

-40° 97°

Mechanical

Azimuth Limits..... None



ANTENNA ASSEMBLY AS-806(XN-1)/SRC

EQUIPMENT DESCRIPTION.

Antenna Assembly AS-806(XN-1)/SRC is a two stacked cavity type radiating structure designed for use with CCA, Final Approach Communication equipment on CVA Class Carriers.

INSTALLATION DATA.

The antenna is designed for installation on the 20 mm gun tube port side aft of CVA Class Carriers. There are four antenna mounting brackets with 9/16" diameter holes for mounting with 1/2" bolts to the gun tub.

ANTENNA SPECIFICATIONS.

Type..... Two Stacked Cavity

Weight..... 55 lbs

Frequency Range..... 225-400 mc

Input Impedance..... 50 ohms

Antenna Coverage:

Horizontal..... 120°

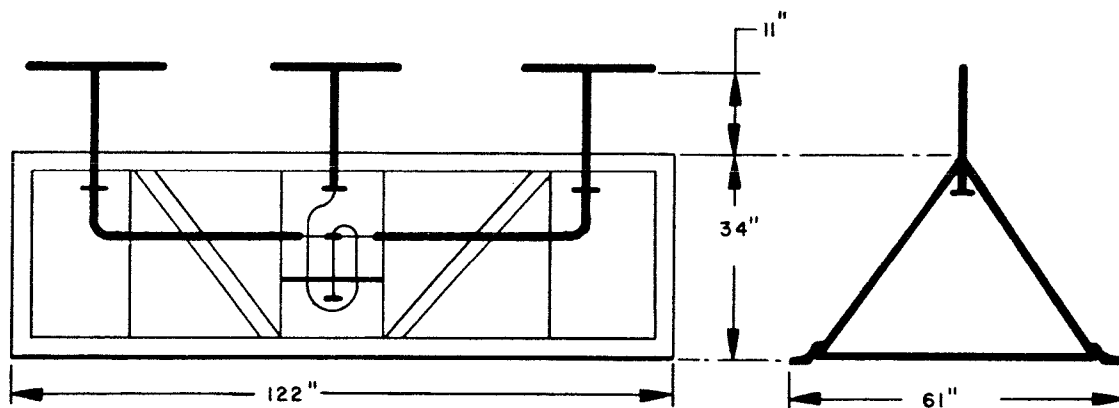
Vertical..... 30°

Transmission Line..... RG-18/U

Transmission line is connected to the antenna with a UG-212A/U adapter and a UG-982/U connector. The adapter, connector and termination need to be weatherproofed in accordance with Chapter 10, Section 5, Paragraph 3, of NAVSHIPS 900, 171, Electronics Installation Practices Manual.

REFERENCE:

NavShips 92070



ANTENNA AS-933/SR
FEDERAL STOCK NO. F5985-613-7622

EQUIPMENT DESCRIPTION.

The AS-933/SR is a lightweight version of Antenna AS-688/SR, but the two are not interchangeable. Antenna AS-933/SR is used for both transmitting and receiving on surface ships other than aircraft carriers.

Electrical Characteristics:

Frequency 225 to 400 mc

ANTENNA SPECIFICATIONS.

Height 45 in.
Width 122 in.

Depth 61 in.
Material Aluminum
Type Three dipole array
Impedance 50 ohms

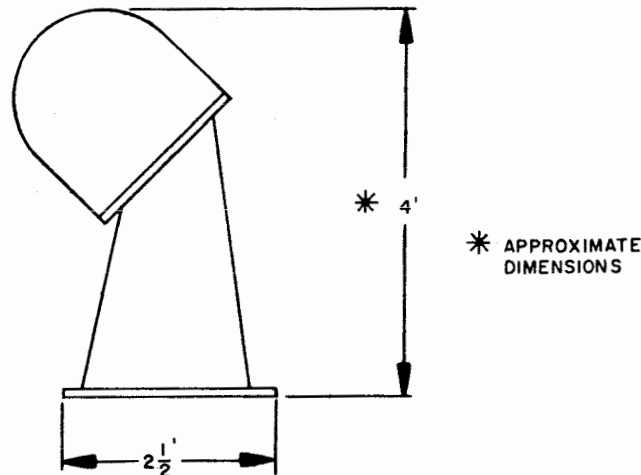
INSTALLATION DATA.

Coax RG-9/U

REFERENCES.

NavShips 93400, PDS for AS-933/SR

BuShips Drawing RE 66F 2117A



ANTENNA AS-979A/UKR

EQUIPMENT DESCRIPTION.

The AS-979A/UKR is a directional receiving antenna used in shipboard and ground telemetering systems. With proper cooling, the antenna is used at the ground stations to supply received signals to Telemetric Data Receiving Set AN/UKR-10 and Miss Distance Measuring System (MDMS) AN/USQ-11 or -11A. The antenna is used for receiving telemetering signals transmitted by guided missiles in flight; it also receives signals transmitted by the MDMS transponder in the target drone.

Electrical Characteristics:

Frequency 149 to 150 mc and
225 to 245 mc

ANTENNA SPECIFICATIONS.

The antenna has a three-and-one-quarter turn conical helix bonded to the underside of the fiberglass radome. The radome rests on, and is secured to, a ground plane plate. Twelve non-movable ground plane tubes extend radially from the ground plane plate. The upper portion of the antenna is mounted to the base by a pivot pin, permitting the antenna to be pivoted about its base and

locked at any of three elevation angles. The antenna is mounted on a rotating pedestal so that it may be trained as desired.

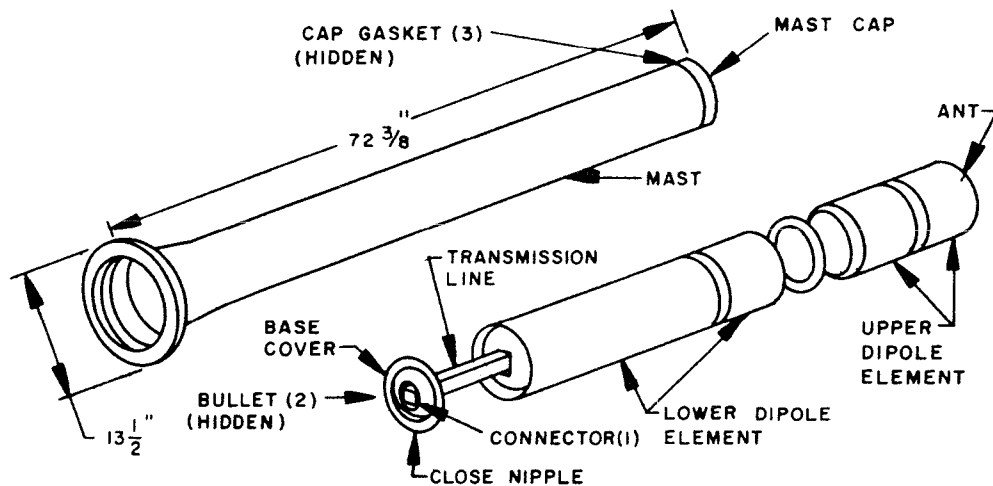
Horizontal Scan 360 deg
Elevation Angles . . . 15, 25, and 35 deg
Type Broadband helix
Radiation Pattern Axial
Beam Width 150 mc, 80 deg and
245 mc, 70 deg
Polarization Right-circular
VSWR 149 to 150 mc, 2:1 and
225 to 245 mc, 1.3:1
Impedance 50 ohms

INSTALLATION DATA.

Electrical connections to the helix and ground plane are made by means of flexible coaxial transmission line and matching sections using coaxial fittings. The output of the coaxial line is terminated with a coaxial bulkhead connector. A removable cover at the rear of the antenna affords access to the matching sections for assembly and inspection. Output Connector UG-556A/U is used.

REFERENCES.

NavWebs OP 2976 (Vol 2)



ANTENNA ASSEMBLY AS-1018/URC
FEDERAL STOCK NO. F5985-613-5647

EQUIPMENT DESCRIPTION.

The AS-1018/URC is a two-bay stacked array of cylindrical dipoles enclosed in a fiberglass mast. It is used aboard ship or at shore stations for communication in the UHF band.

Electrical Characteristics:

Frequency 225 to 400 mc
Power Rating 2 kw

ANTENNA SPECIFICATIONS.

Height 72-3/8 in.
Width 13-1/2 in.
Weight 50 lb
Volume 3 cu ft
Wind Load 120 kn
Pressurization 15 psig (max)

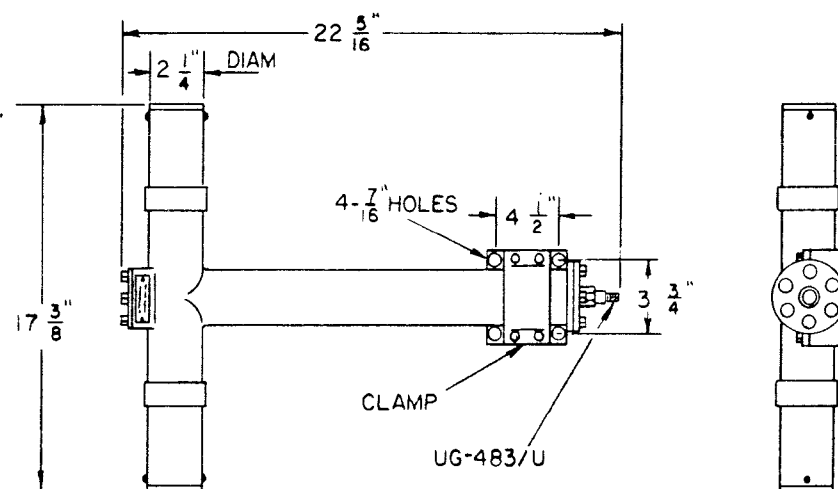
Type Two element colinear array
Horizontal Beam Width 360 deg
Vertical Beam Width 36 deg
Gain 5 db
VSWR 2:1
Polarization Vertical
Impedance 50 ohms

INSTALLATION DATA.

Eight 7/8-inch diameter bolt holes on an 11-3/4-inch diameter circle are required for mounting flange which is provided for shipboard installation. The connector is 1-5/8-inch styrolex to 7/8-inch rigid coax.

REFERENCES.

Manuscript copy of catalog data from Section 1 of NavShips 94041(A)



ANTENNA, AT-150/SRC
FEDERAL STOCK NO. F5985-665-3648

TYPICAL USES.

Antenna Assembly, AT-150/SRC, is used with UHF radio equipment such as: TDZ-RDZ, MAR-RDR, TED and AN/URR-13.

ANTENNA SPECIFICATIONS.

Antenna Assembly, AT-150/SRC, is a modified broad band dipole electrically balanced used for both transmitting and receiving.

Type.....Fixed dipole
Weight.....4.5 lb
Material.....aluminum
Frequency Range.....220-570 mc
Polarization.....Vertical
Impedance.....52 ohms

INSTALLATION DATA.

This antenna is used where the installation is such that the antenna will be mounted on yardarm or horizontal bracket. It should be mounted for vertical polarization. It is suitable for use where the ambient temperature does not exceed 350 degrees Fahrenheit.

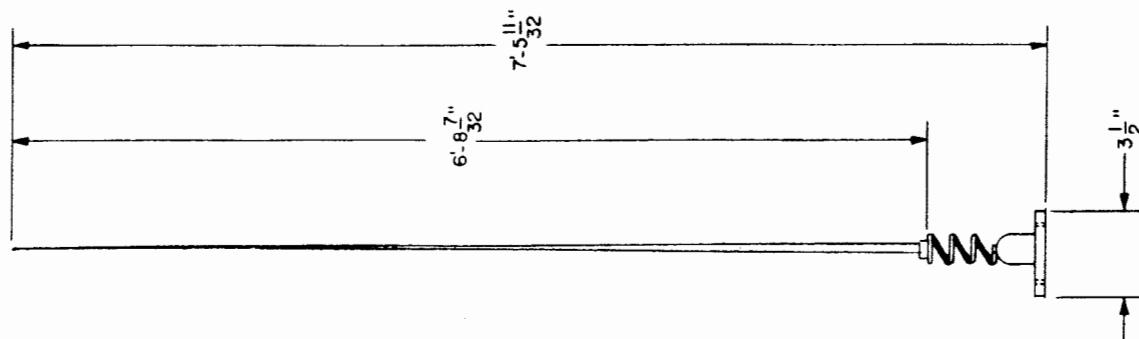
Transmission Line....RG-18/U or
RG-10/U

Cable connection to the antenna is made by an RG-18/U cable with a UG-982/U connector. As an alternative, RG-10/U cable with a UG-941A/U connector may be used.

REFERENCES.

NavShips 91338

BuShips Drawings: RE66F2014
RE10F655, RE66F613

**ANTENNA ASSEMBLY AT-281/VRC****TYPICAL USE.**

Antenna Assembly AT-281/VRC is a whip antenna used in the 30 to 40 mc. frequency range for both transmitting and receiving.

ANTENNA SPECIFICATIONS

Antenna Assembly AT-281/VRC is a whip type antenna with a spring loaded base. The antenna element is one piece stainless steel construction. The antenna is delivered complete with bakelite base. The overall length is 7' 5 11/32" and the maximum diameter of

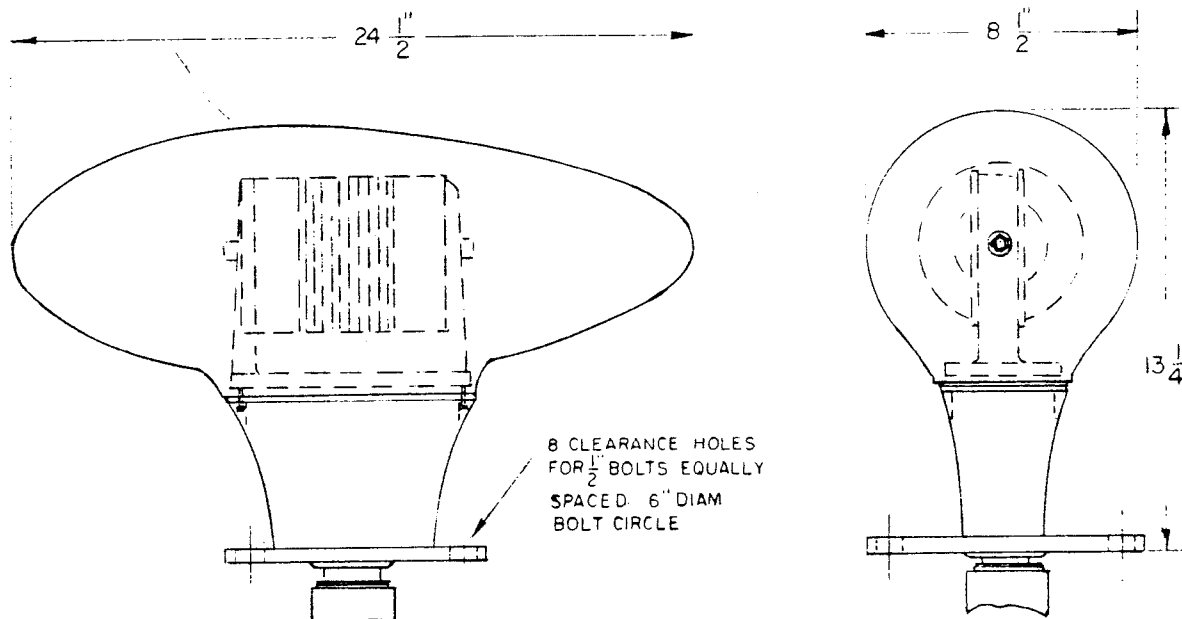
the bakelite base is 3 1/2 inches.

INSTALLATION DATA.

The antenna assembly is mounted through the deck or bulkhead by means of three 1/4" 20 x 1 1/4" cap screws. A swivel joint at the base of the antenna allows vertical mounting of whip against sloping surfaces. The coaxial transmission feed should be 52 ohms. Cable RG-8/U should be used.

REFERENCES.

BuShip Dwg. RE 66F 618



ANTENNA ASSEMBLY, AT-274/BRR
FEDERAL STOCK NO. N5985-369-5346

TYPICAL USES.

Antenna AT-274/BRR is a low-frequency underwater single-plane loop antenna designed for installation aboard submarines. It is used with Radio Receiving Equipment Model RBA for bi-directional reception in the frequency range of 14 to 38 kilocycles. A modification to the RBA receiver is necessary when this antenna is used. The modified receiver employs a matching transformer manufactured by American Phenolic Corp. (Part Number 142-333).

ANTENNA SPECIFICATIONS.

Antenna AT-274/BRR consists of a single-plane loop inductor of 500 microhenries enclosed in a tear drop shaped polyethylene housing. The entire housing

has a 1/4-inch rubber sheathing for additional protection against leakage.

Total Weight (less cable) 70 lb

Frequency Range 14-38 kc

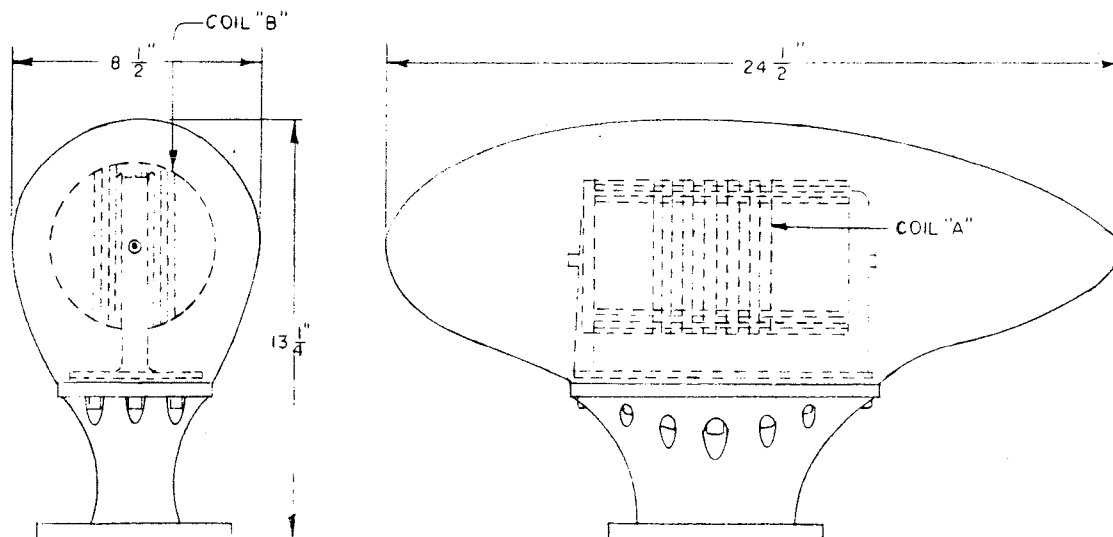
INSTALLATION DATA.

Transmission Line RG-57/U
(75 ft of cable supplied)

The antenna is designed to be mounted in a fixed location or on a retractable mast aboard submarines.

REFERENCES.

American Phenolic Corp. drawing 142-001.



ANTENNA ASSEMBLY AT-317/BRR

TYPICAL USES.

Antenna Assembly AT-317/BRR is a low-frequency underwater loop antenna designed for installation in submarines and may be used with Models RAK and RBA Radio Receiving Equipments.

ANTENNA SPECIFICATIONS.

Antenna Assembly AT-317/BRR is similar structurally to Antenna AT-274/BRR. It consists of two 500-microhenry loop inductors wound at right angles to each other and enclosed in a polyethylene housing. This antenna may be used for receiving in an omni-directional pattern, in fore-aft directions, or in athwart directions by means of an accessory switching arrangement in the CU-352/BRR Antenna Coupler. This accessory equipment contains a matching transformer, tuning condenser and phasing network so that both loop inductors can be combined and "phased" electrically to provide the omni-directional reception. The pickup for omni-directional reception will be down in

sensitivity by 3 db as compared to single plane loop reception.

Total Weight.....126 lb

Frequency Range....14.6 kc to 38 kc

INSTALLATION DATA.

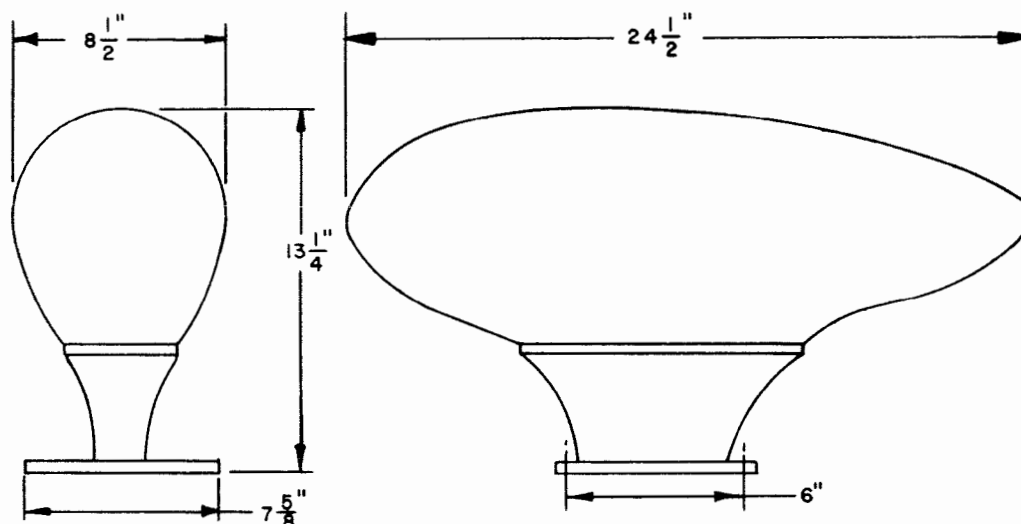
The Antenna Assembly is mounted in line with the fore-aft line of the submarine with 8-1/2 inch bolts spaced on a 6 inch bolt circle.

The RG-160/U cable which feeds this antenna has two individually shielded coaxial transmission lines and two control wires. The antenna has 75 feet of cable supplied with it. A three-foot length of RG-11/U cable is supplied to connect the Antenna Assembly and the Antenna Coupler and is terminated with UG-21/B and CN-4912/A connectors.

There is no connector inside the base of this antenna as in the AT-274/BRR Antenna.

REFERENCES.

NavShips 92084



ANTENNA AT-317B/BRR
FEDERAL STOCK NO. F5985-678-0968

EQUIPMENT DESCRIPTION.

The AT-317B/BRR is a VLF streamlined receiving antenna for use aboard submarines. It consists of two loop inductors wound at right angles to each other and enclosed in a polyethylene housing. Antenna Coupler CU-352/BRR is part of the antenna system which provides for various modes of radio reception including omnidirectional coverage of radio signals when the submarine is surfaced or submerged.

Electrical Characteristics:

Frequency 14.6 to 38 kc

ANTENNA SPECIFICATIONS.

Height 8-1/2 in.
Width 13-1/4 in.

Depth 24-1/2 in.
Weight 126 lb
Type Enclosed crossed loop
Beam Pattern 180 or 360 deg

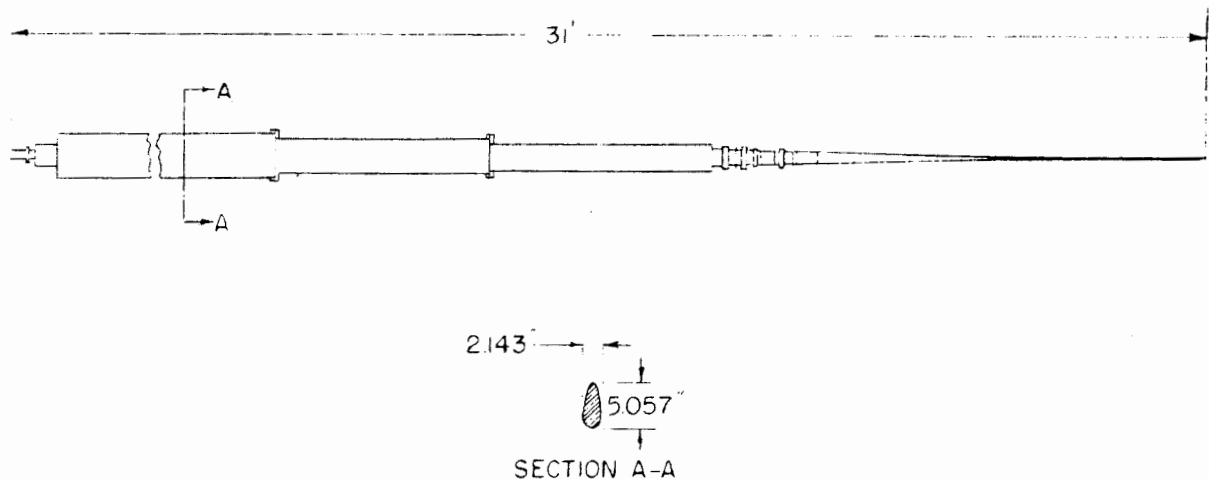
INSTALLATION DATA.

The antenna is supplied with the transmission line attached. Eight 1/2-inch diameter bolts and one UG-1083/U hull fitting is required for installation.

Coax RG-160/U
Interconnecting Cable RG-11/U

REFERENCES.

Navships 92182



ANTENNA, AT-350/BRC

TYPICAL USES.

Antenna Assembly AT-350/BRC is a streamlined midfed whip antenna for submarine installations. When installed as planned at the top of the periscope shears and erected by a Mare Island erecting mechanism, this antenna will permit short range communication at periscope depth at low speeds. An interim antenna of similar design, but not streamlined, has been manufactured by Mare Island Naval Shipyard. This antenna may replace the Type-66053 Whip Antenna in submarine installations.

ANTENNA SPECIFICATIONS.

Antenna Assembly AT-350/BRC is a 31-foot general purpose whip used for both receiving and transmitting. It consists of three 6-foot streamlined corrosion-resistant steel sections, a Teflon

insulator section, and a 12-foot tapered stainless steel tip section.

This antenna may be used without the middle streamline section, insulator, or spring section. When it is used as a midfed whip antenna, the feed point is at the insulator section.

Total Weight.....not available

Frequency.....300 kc to 30 mc

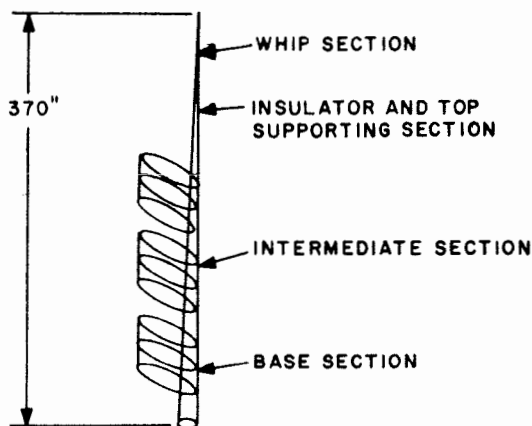
INSTALLATION DATA.

Transmission Line.....RG-17/U

This antenna is mounted by clamping in a socket, 1.900 in. ID.

REFERENCES.

BuShips Drawing: RE 66F 627



ANTENNA 350B/BRC
FEDERAL STOCK NO. F5985-799-8433

EQUIPMENT DESCRIPTION.

The AT-350B/BRC is a stainless steel ship antenna mounted on three sections of tubing. It is used for MF-HF transmission and reception on submarines. The antenna is effective at submarine speeds up to 15 knots. In addition to surface operation, the tubing mount allows the antenna to be above water while the submarine is operating at shallow submerged depths.

Electrical Characteristics:

Frequency 300 kc to 30 mc

ANTENNA SPECIFICATIONS.

Height 370 in.
Width 2.4 in.
Depth 9.4 in.
Weight 80 lb

Volume 8122 cu in.
Material Stainless steel
Type Vertical whip
Beam Pattern Circular
Polarization Vertical

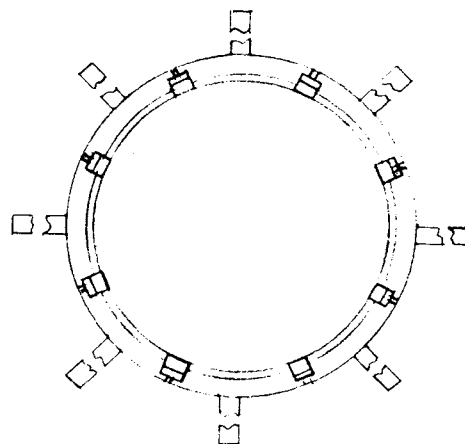
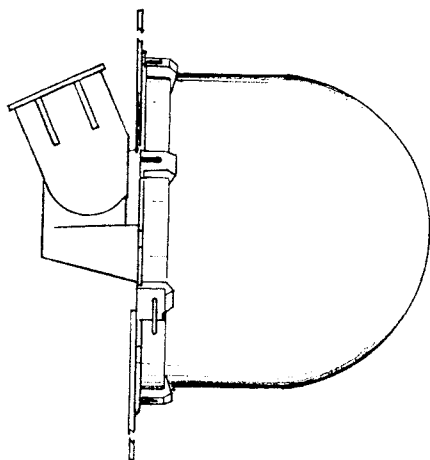
INSTALLATION DATA.

The antenna should be rigidly mounted on a suitable sleeve type bracket and installed on the erecting mechanism (separately supplied). Sufficient space must be allowed between fairings and structural members for movement in the vertical and horizontal positions.

Coax RG-218/U

REFERENCES.

NavShips 93751



ANTENNA ASSEMBLY AT-373(XN-2)/UKR-10

TYPICAL USES.

Antenna assembly AT-373/(XN-2) is used with telemetering equipment AN/UKR-10 in the frequency range 215-235 mc.

ANTENNA SPECIFICATIONS.

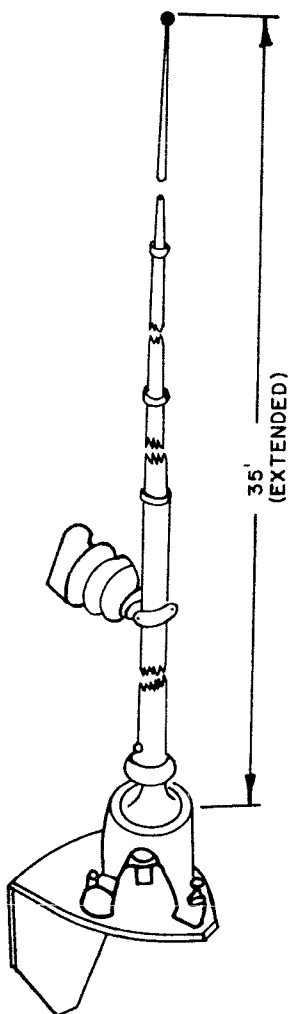
The assembly is mounted on pedestal AB-238/UPA at the base of IFF antennas AN/UPA-22 or AN/UPA-23.

INSTALLATION DATA.

1. Shorten cables 1416325 & 1416324 to limit.
2. VSWR to 1.3 within frequency range of 215-230 mc.

REFERENCES.

BUORD DWGS. 1474507
1474505



ANTENNA AT-441/MRC
FEDERAL STOCK NO. N5820-049-8326

EQUIPMENT DESCRIPTION.

The AT-441/MRC is a HF whip-type telescopic antenna. It is used with communication equipment such as the RCH, TCS, and TDE.

ANTENNA SPECIFICATIONS.

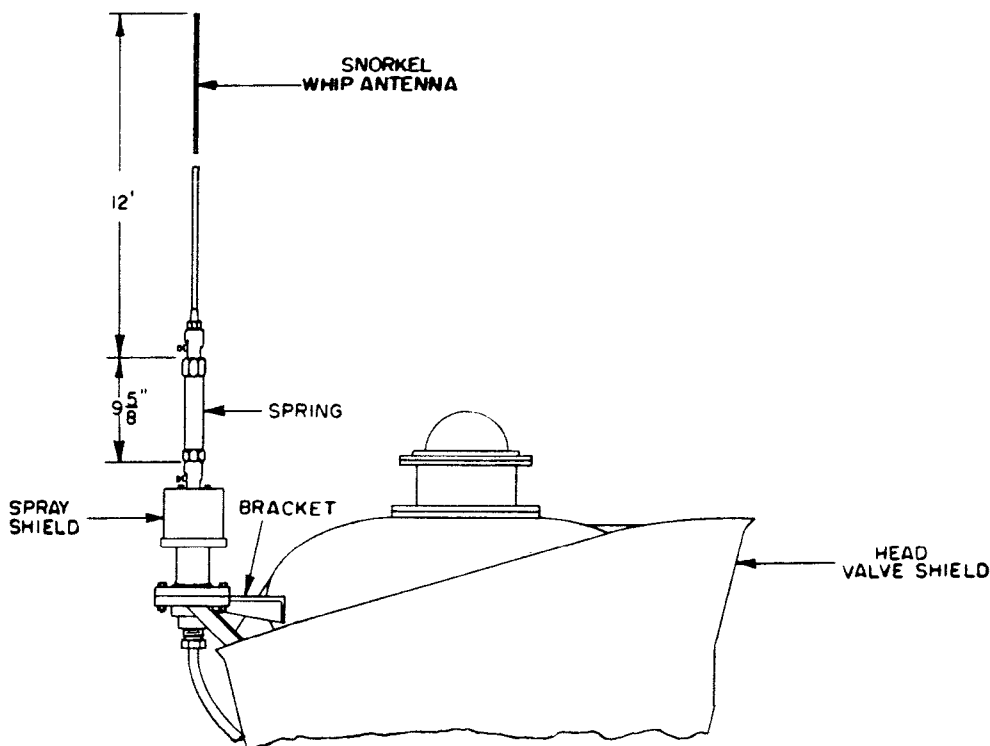
Height	35 ft (extended)
Sections	3
Weight	19 lb
Material	Stainless steel
Type	Whip

INSTALLATION DATA.

The antenna is mounted with four 1/4-inch diameter bolts; two bolts diametrically opposite each other 3/4-inch from bottom end of antenna, and two bolts diametrically opposite each other at right angles to the lower set.

REFERENCES.

NavShips 91962



ANTENNA, AT-497/URC

TYPICAL USE.

Antenna AT-497/URC is designed for use on submarine installations where retractable masts are not capable of being used. The antenna was designed for MF-HF reception at snorkel depths. It is a whip type antenna using the upper portion of an AT-350/BRC midfed whip in its basic construction.

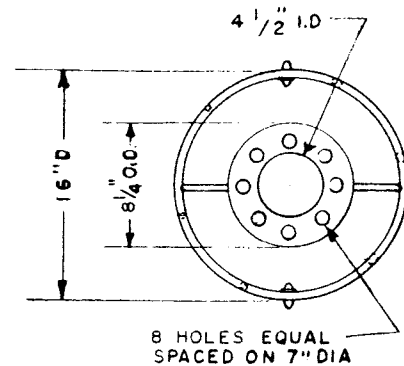
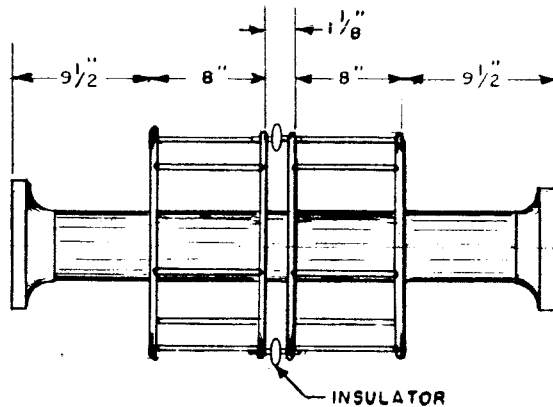
INSTALLATION DATA.

Transmission Line..... RG-17/U

The antenna is mounted with a bracket as shown above. The spring shown in the installation may or may not be used.

REFERENCES:

BuShips Drawing..... RE 66F 626



ANTENNA ASSEMBLY AT-629/SRC

ANTENNA DESCRIPTION.

Antenna Assembly AT-629/SRC is an omni-directional broad band squirrel cage antenna used with VHF equipments in the 225 to 400 mc frequency range.

ANTENNA SPECIFICATIONS.

Antenna Assembly AT-629/SRC is a vertically polarized antenna array consisting of two cages mounted coaxially on a vertical mast.

The cages are approximately 14" in

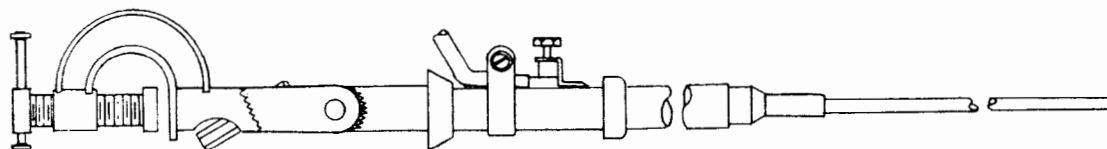
diameter and the mast is 3 ft. long.

INSTALLATION DATA.

The antenna mounts on a foundation or on another unit antenna by eight 5/8 in. diameter bolts spaced 45° apart. The assembly is designed for 1 to 4 units in a vertically stacked collinear array. Each unit serving as a foundation for the one above it.

REFERENCE.

BuShip Dwg. FS/S6709/B/1,819,562

**ANTENNA ASSEMBLY AT-774()/UR****EQUIPMENT DESCRIPTION.**

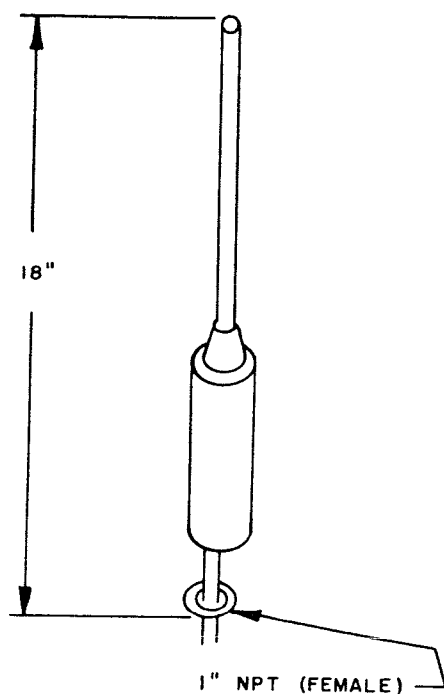
Antenna Assembly AT-774()/UR is a portable emergency whip antenna designed primarily for use on submarines.

In an emergency the antenna can be installed quickly and easily for use with

communications equipment. The antenna is held in place by a "C" clamp located at the base. The antenna can be tilted, within limits, to increase its effectiveness.

REFERENCES.

BuShips Drawing RE C 66003



ANTENNA AT-775/SMQ-1

EQUIPMENT DESCRIPTION.

The AT-775/SMQ-1 is a single element ground plane-plate type antenna. It is used to receive radiophone signals in conjunction with equipments such as Radiophone Receptor AN/SMQ-1, -1A.

Electrical Characteristics:

Frequency 390 to 410 mc

ANTENNA SPECIFICATIONS.

Height 18 in.

Type Ground plane

Impedance 50 ohms

INSTALLATION DATA.

Coax . . . RG-215/U, limited to 100 feet

REFERENCES.

NavWebs 50-30 SMQI-5

BuShips Drawing RE 46F 2113

EQUIPMENT DESCRIPTION.

The AT-781/U is a three-bay, circularly polarized, omnidirectional antenna. One of its uses is in conjunction with equipments such as the AN/ARW-55 and -56 for guided missile control and telemetry.

Electrical Characteristics:

Frequency 406 to 549 mc
Power Rating 1 kw

ANTENNA SPECIFICATIONS.

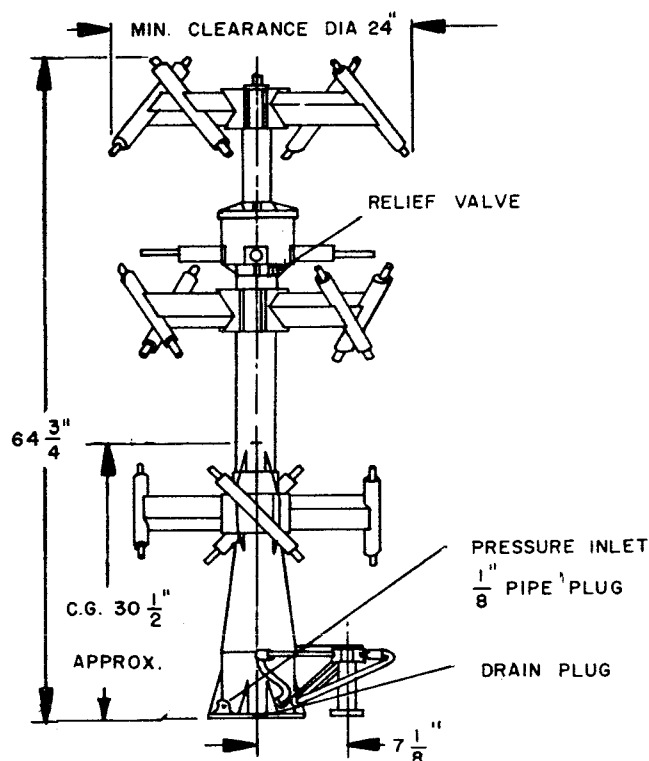
Weight 75 lb
Material Aluminum
Wind Load 120 kn
Type Stacked array of inclined dipoles
Radiation Pattern Spatial coverage throughout a cylindrical volume with range-to-height ratio of 5:1
Polarization Left-hand circular
Gain 5 db
VSWR 1.8:1
Impedance 50 ohms

INSTALLATION DATA.

Connector 1-5/8 inch air line,
3 psi pressure

REFERENCES.

MIL-A-21555(AER)



ANTENNA AT-781/U

ANTENNA AT-782/U
(Preliminary Information)

EQUIPMENT DESCRIPTION.

The AT-782/U is a nine-bay, circularly polarized, omnidirectional antenna. One of its uses is in conjunction with equipments such as the AN/ARW-55 and -56 for guided missile control and telemetry.

Electrical Characteristics:

Frequency 400 to 500 mc
Power Rating 2 kw

ANTENNA SPECIFICATIONS.

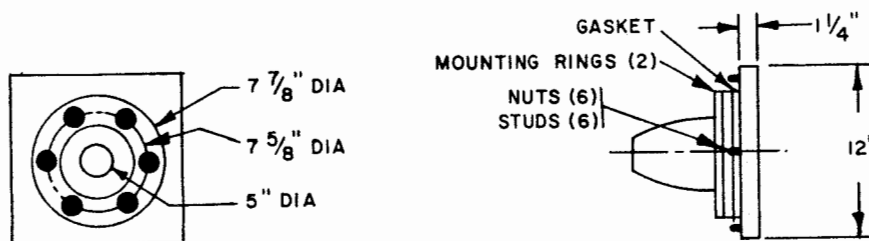
Weight 315 lb
Material Aluminum
Wind Load 120 kn
Type Stacked array of
inclined dipoles

Radiation Pattern Spatial coverage
throughout a cylindrical
volume with range-to-height
ratio of 10:1
Polarization Left-hand circular
Gain 10 db
VSWR 1.4:1
Impedance 50 ohms

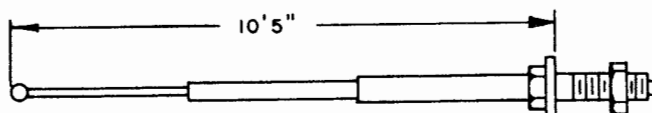
INSTALLATION DATA.

Connector 1-5/8 inch air line,
3 psi pressure

REFERENCES.



MOUNTING BASE OUTLINE



ANTENNA AT-924/SR

EQUIPMENT DESCRIPTION.

The AT-924/SR is a general purpose, low frequency, omnidirectional, whip antenna.

Electrical Characteristics:

Frequency 0.1 to 1.6 mc

ANTENNA SPECIFICATIONS.

Height 132 in.
Width 12 in.
Depth 12 in.
Weight 17 lb
Volume 11 cu ft
Type Whip
Beam Width Omnidirectional

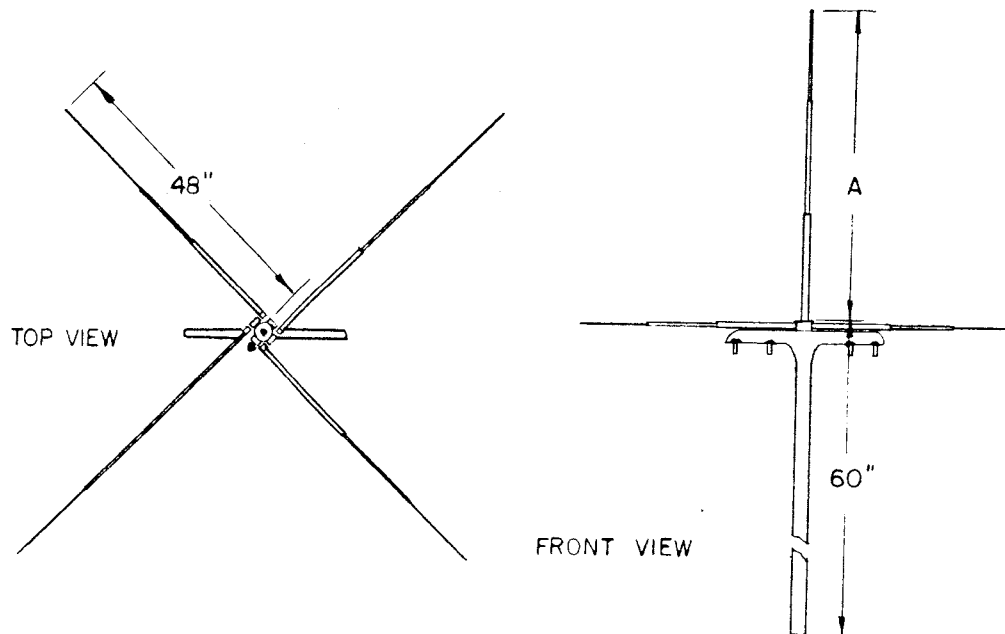
INSTALLATION DATA.

When the AT-924/SR is used with Countermeasures Receiving Set AN/SLR-10, the antenna and Antenna Coupler CU-934/SLR-10 form an integral part of a tuned circuit. In such cases, the coupler must be installed close to the antenna base.

Coax RG-215/U

REFERENCES.

Manuscript copy of Technical Manual for Countermeasures Receiving Set AN/SLR-10



ANTENNA ASSEMBLY, TYPE-66015
FEDERAL STOCK NO. N5985-254-7172

TYPICAL USES.

Antenna Assembly, Type-66015, may be used with the TBS series or similar radiotransmitting-receiving equipment where low-power VHF operation is required.

Frequency Range 60-80 mc

Polarization Vertical

Input Impedance 70 ohms

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66015, consists of a matching section and seven steel rods. Four of these rods form the ground plane; one of the three remaining rods is used as the 1/4-wave vertical radiator. The three rods are interchangeable, depending upon the frequency used.

Length of Vertical Rod (A)	Frequency Range
44 inches	60-65 mc
38-3/8 inches	64.5-71.5 mc
33 inches	71-80 mc

Total Weight..... 46 lb

INSTALLATION DATA.

Type Vertical rod with ground plane

Transmission Line... 3/8 inch gas-filled concentric transmission line or 50-ohm solid dielectric coaxial cable (120 ft max length). There is a brack-

Material..... Steel

INSTALLATION DATA (Cont'd)

et on the antenna for attaching the end seal of the transmission line.

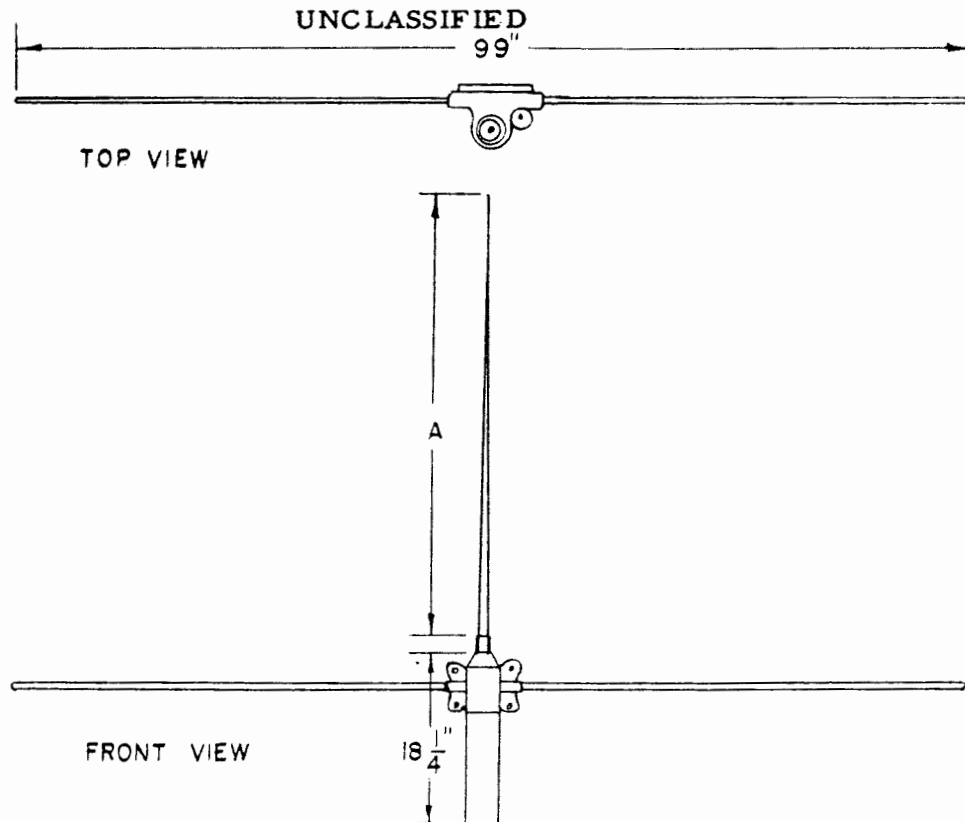
This antenna assembly is designed for installation aboard surface vessels. On destroyers, the antenna is mounted on the forward mast. An extra heavy steel pipe, 1-1/4-inch diameter, extending from the bottom of the matching section is clamped to the ship's mast using present mast fittings. A portion of this supporting pipe may be cut off to suit a particular installation.

The antenna should be mounted in the clear, away from all metallic objects which might protrude above the level of the ground plane rods.

Since it may be necessary to change the vertical radiator, the base of the antenna should be accessible to a man on the mast.

REFERENCES.

NavShips 900, 590



ANTENNA ASSEMBLY, NAVY TYPE-66016

FEDERAL STOCK NO. N5985-470-7432

TYPICAL USES.

Antenna Assembly, Type-66016, is used aboard submarines with the TBS Series or similar radio equipment where low-power VHF operation is required.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66016, consists of a matching section, a ground plane rod and three interchangeable radiating rods.

Total Weight 57 lb

Type 1/4-wave vertical rod
with ground plane

Frequency Range 60-80 mc

Polarization Vertical

Input Impedance 70 ohms

Length of Vertical Rod (A)	Frequency Range
41-7/8 inches	60-64.5 mc
34-3/4 inches	64.5-71.0 mc
28-1/4 inches	71.0-80.0 mc

INSTALLATION DATA.

This antenna is designed to be mounted on the after side of the king post on submarines. A cast bronze mounting plate with four mounting holes extends from the side of the antenna. This is bolted to matching plate welded on the side of the king post.

The transmission line for the antenna is a 3/8-inch diameter gas filled concentric line or a 50-ohm solid dielectric coaxial cable (80 ft max length). The

5-3 Section
66016

NAVSHIPS 900, 121(A)
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DATA SHEETS

INSTALLATION DATA (Cont'd)

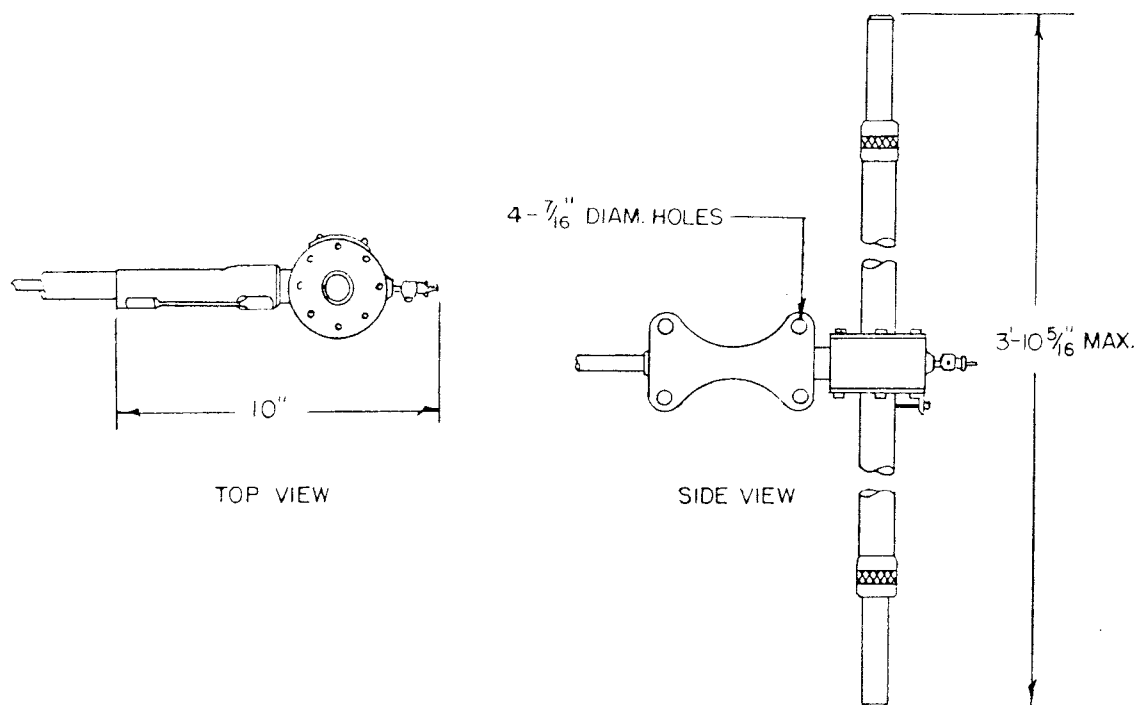
antenna has a bracket for attaching the end seal of the transmission line.

There is a watertight joint where the vertical radiator fits into the matching section. At the extreme bottom of the antenna is a removable drainage plug.

The ground plane rod is an Everdur pipe 8 ft-3 in. long. If this pipe is broken or bent, it may be replaced by a 1-in. iron pipe.

REFERENCES.

Navships 900, 590



ANTENNA ASSEMBLY, TYPE-66026
FEDERAL STOCK NO. F 5985-408-8684

TYPICAL USES.

Antenna Assembly, Type-66026 may be used with the Model RAR radio receiving equipment or the Model TCD radio transmitting equipment.

ANTENNA SPECIFICATIONS.

Antenna, Navy Type -66026, is a fixed type vertical doublet used for both transmitting and receiving. The doublet consists of two rods extending from opposite sides of a gas tight terminal box for the transmission line. The terminal box is equipped with a mounting bracket and a petcock for bleeding the transmission line.

Type.....Fixed half-wave dipole

Weight 8-1/2 lb

Frequency Range 132-156 mc

INSTALLATION DATA.

This antenna uses a 7/8 in. diam coaxial transmission line filled with nitrogen to 5 psi above atmospheric. The transmission line should be run at an angle of 90 degrees from the antenna for a minimum distance of six feet before it is brought down toward the deck.

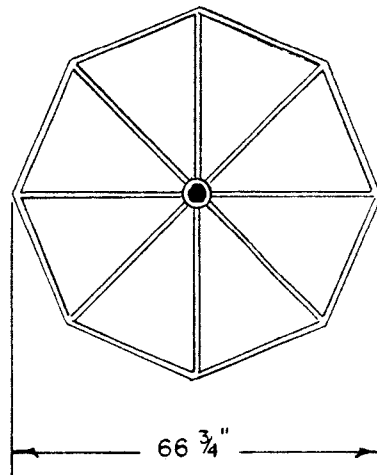
The antenna rods should be initially adjusted to 20 in. on each side of the center of the junction box. This tunes the antenna to 144 mc approximately.

The antenna should be at least six feet away from any nearby metallic objects such as masts, wires or other antennas. The insulator side of the antenna should be mounted toward the deck to provide rain protection. The mounting bracket has four 7/16-inch mounting holes.

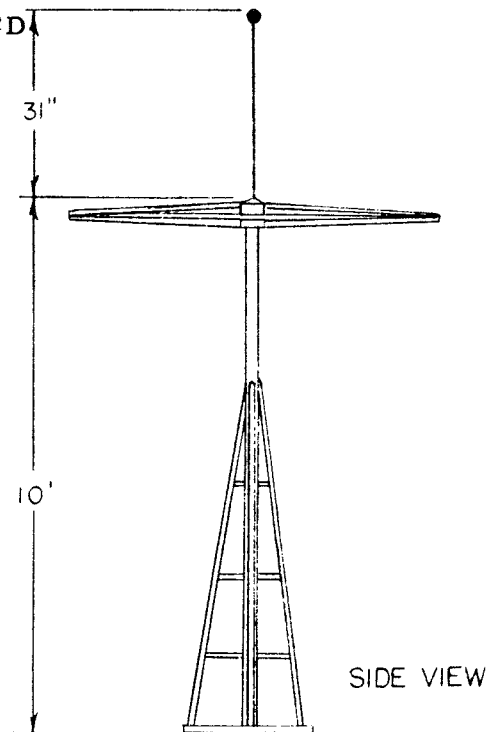
REFERENCES.

Instruction Book, GEI-12387A

UNCLASSIFIED



TOP VIEW



SIDE VIEW

ANTENNA ASSEMBLY, TYPE-66042
FEDERAL STOCK NO. F5985-249-4317

TYPICAL USES.

Antenna Assembly, Type -66042 is used with the Model JM-4 Sono-Radio Buoy, a battery operated transmitter intended to be anchored off-shore.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Navy Type -66042, consists of a 1/4 wave whip antenna with ground plane. The vertical whip antenna is the telescoping type and is calibrated for the frequency range of the equipment. The ground plane is a light weight octagonal wheel of chrome molybdenum steel tubing. It is built around a threaded bronze hub which screws onto the casting at the top of the supporting tower structure. The antenna system is an efficient low-angle radiator.

Type 1/4 wave whip
with ground plane

Weight 71 lb

Frequency Range 70-90 mc

Input Impedance 28 ohms

Polarization Vertical

INSTALLATION DATA.

When installed in a Model JM-4 Sono-Radio Buoy, the antenna assembly is supported by a tripod antenna tower constructed of chrome molybdenum steel tubing. The tower structure is welded to a water-tight cover which is clamped on top of the transmitter buoy.

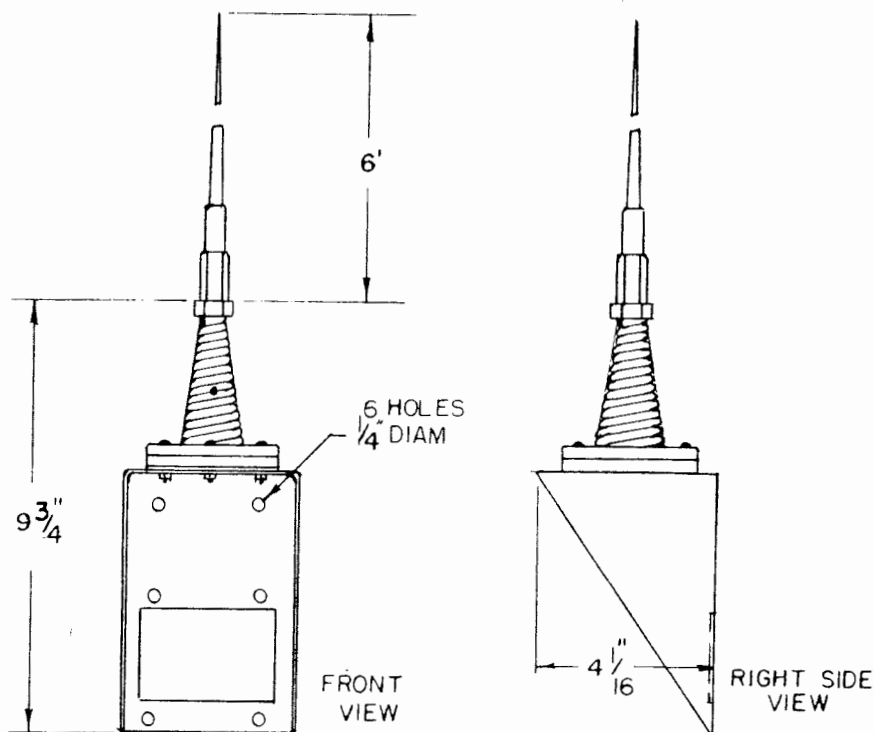
A threaded bronze flange for attaching the ground plane is welded on the top of the tower. A copper concentric transmission line passes up inside of the center steel tube of the tower, termi-

INSTALLATION DATA (Cont'd)

REFERENCES.

nating in an insulator at its top end for supporting the antenna spike. The lower end of the transmission line extends down through the buoy cover, terminating in a flexible transmission line which connects to the transmitter.

NavShips 900, 011-IB



ANTENNA ASSEMBLY, TYPE-66044

STANDARD NAVY STOCK NO. F16-A-54466-6141

TYPICAL USES.

Antenna Assembly, Type-66044, is used with Model MN Radio Transmitting-Receiving Equipment for short range radio-telephone communication between ships in close formation. It may also be used with the following radio equipments: RBK-14, RBR-14 and RDC-1.

ANTENNA SPECIFICATIONS.

When supplied with Model MN; Antenna Assembly, Navy Type-66044, consists of a 6 ft whip, a spring mounting base and a mounting bracket. The tapered whip is of vanadium steel, cadmium plated with a screw fitting at its lower end to facilitate attachment to the spring mounting base. The spring mounting base consists of a stainless steel tapered helical spring clamped in place by two molded bakelite fittings. It is attached to the mounting bracket by six bolts. The mounting bracket is of welded steel, cadmium plated and has a

painted black wrinkle finish for atmospheric protection.

Total Weight 20 lb

Type 6-foot whip

Frequency.... 1/4 wave at 30.14 mc

INSTALLATION DATA.

Transmission Line..... RG-10/U

The antenna has a coaxial fitting at its base to which the transmission line connects.

The antenna bracket has six mounting holes 1/4-inch diameter.

In some installations this antenna is used without the mounting bracket.

Whip Antenna, Type-66044-A, is the same as Type-66044 except that it does not have the mounting spring at its base.

5-3 Section
66044

NAVSHIPS 900, 121(A)
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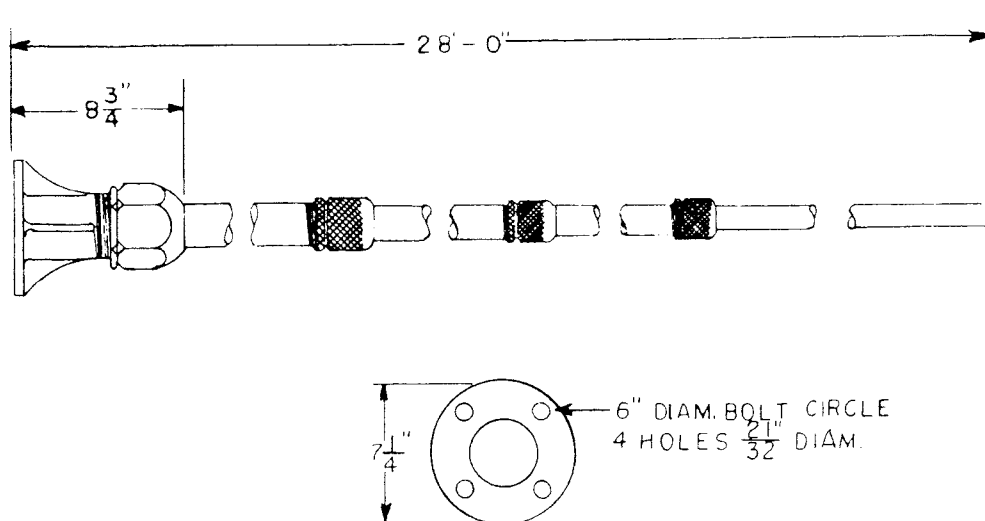
DATA SHEETS

INSTALLATION DATA (Cont'd)

REFERENCES.

The base of the Type-66044-A is made in one piece and has a transmission line receptacle added to it. The standard Navy Stock Number for the Type-66044-A is: F16-A-54466-6121.

Instruction Book for Model MN.



ANTENNA ASSEMBLY NAVY TYPE-66046

FEDERAL STOCK NO. N5985-369-5530

TYPICAL USES.

Antenna Assembly, Type-66046 has been used with radio equipment operating in the medium and high frequency ranges, such as: RAO-9, RDG.

Type..... Non-telescoping whip

Material..... Aluminum tubing

Frequency Range.....500 kc to 30 mc

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66046 is a 28-foot non-telescopic whip antenna used for both receiving and transmitting. It consists of four aluminum sections which are coupled together: one 2-1/2" OD x 7'-6" long, one 2" OD x 7'-5" long, one 1-1/2" OD x 7'-4" long and one 1" OD x 7' long.

INSTALLATION DATA.

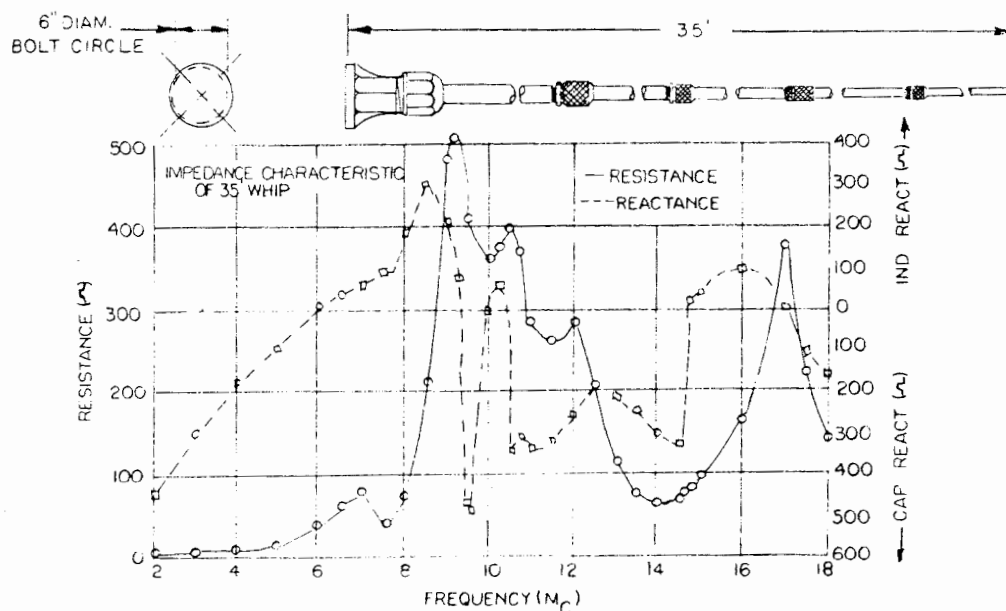
The bottom section of the whip fits into a cast aluminum adapter base which has four 21/32" diameter mounting holes equally spaced on a 6" diameter bolt circle.

The antenna with adapter base may be mounted on Base Insulator, Navy Type -61335 (SNSN: N17-I-59709-8876) or -61350 (SNSN: N17-I-59701-1001).

REFERENCES.

Total Weight.....55 lb approx

BuShips Drawing: RE 66F 499



ANTENNA ASSEMBLY NAVY TYPE 66047

FEDERAL STOCK NO. N5985-349-5340

TYPICAL USES.

Antenna Assembly, Type-66047 has been used with radio equipment operating in the medium and high frequency ranges, such as: AN/URT-4, TCK.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66047 is a 35-foot non-telescopic whip antenna used for both receiving and transmitting. The whip is constructed of five aluminum sections which are coupled together: one 3" OD x 7'-8" long, one 2-1/2" OD x 7'-6" long, one 2" OD x 7'-5" long, one 1-1/2" OD x 7'-4" long, and one 1" OD x 7' long.

Total Weight..... 70 lb

Type..... Non-telescopic whip

Material..... Aluminum

Frequency Range..... 300 kc to 30 mc

INSTALLATION DATA.

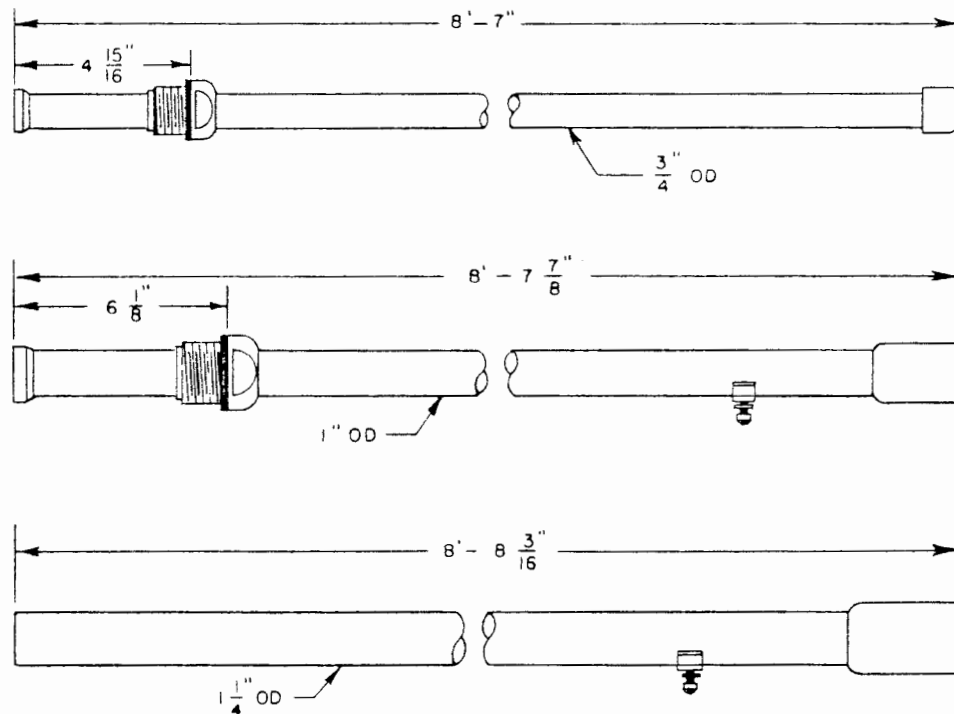
The bottom section of the whip screws into a cast aluminum adapter base which has four 21/32" diameter holes equally spaced on a 6" diameter bolt circle.

The antenna may be mounted on Base Insulators, Navy Types -61335 or -61350.

REFERENCES.

BuShips Drawing: RE 66F 499

NRL Report 3755



ANTENNA ASSEMBLY, NAVY TYPE-66053
FEDERAL STOCK NO. N5985-665-0437

TYPICAL USES.

Antenna Assembly, Type-66053, is a general purpose 25-foot non-telescoping whip antenna.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66053, consists of three sections which screw together to form a 25-foot whip antenna.

Total Weight..... 30 lb

Material.... Stainless Steel Tubing

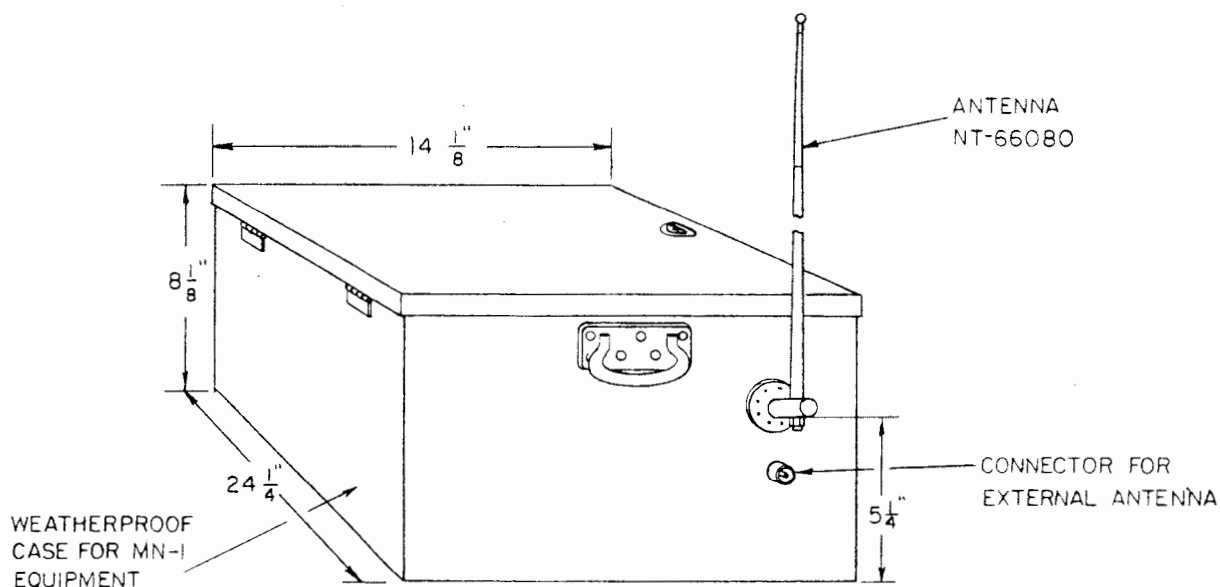
Operating Frequency... 1/4-wave at
9.35 mc

INSTALLATION DATA.

In shipboard installations this whip mounts on a Type-61428 Base Insulator (SNSN: N17-I-59692-6501). In submarines, the antenna is supported by a Type-61664B insulator (SNSN: N17-I-81188-5531).

REFERENCES.

BuShips Drawing: RE 66F 392
RE 100F 181



ANTENNA ASSEMBLY, NAVY TYPE -66080
FEDERAL STOCK NO. N5985-249-4366

TYPICAL USES.

Antenna Assembly, Type-66080 may be used with the Models MN-1 to MN-3 Portable Radio Transmitting-Receiving Equipments.

Material....CRS cadmium plated end piece, dull chrome plated brass tube and ball.

Frequency.....30-42 mc

ANTENNA SPECIFICATIONS.

The Type-66080 antenna is a six section telescopic antenna. Its extended length is 83 in. and its collapsed length is only 18 in. to permit storage within the weatherproof MN series equipment case. Its base is terminated with a fitting to match the antenna base mounted on the MN series equipment case.

Output Impedance:

Transmitter.....30-100 ohms
Receiver.....8 ohms

INSTALLATION DATA.

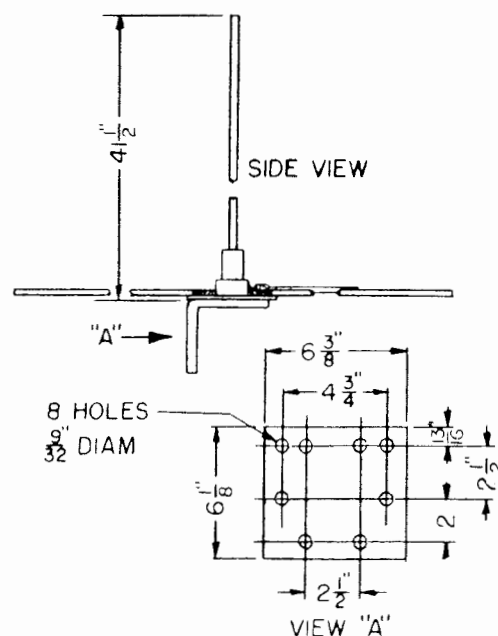
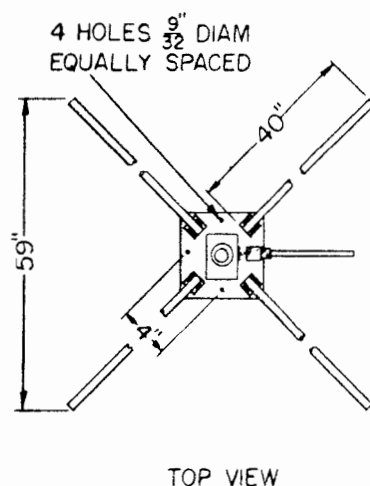
The antenna has a 1-7/32 in. long mounting stud on the bottom with a 5/16" x 18 thread 7/8 in. long. This stud matches the antenna base mounted on the equipment case.

Type.....1/4 wave telescopic whip

REFERENCES.

Weight.....0.5 lb

Instruction Book for Model MN-1



ANTENNA ASSEMBLY, NAVY TYPE-66089
FEDERAL STOCK NO. N5985-470-7395

TYPICAL USES.

Antenna Assembly, Type-66089 is used for shipboard installations of the TBY series radio equipment and also as a substitute antenna for the TBS and MBF equipment.

ANTENNA SPECIFICATIONS.

Type Vertical 1/4-wave rod
with ground plane

Total Weight 15-1/2 lb

Material Brass tubing

Operating Frequency 72.5 mc

Polarization Vertical

Beam Pattern:
Horizontal Circular
Vertical Low-angle radiation

Input Impedance 50 ohms

INSTALLATION DATA.

Transmission Line RG-8/U
Two 27 foot lengths of RG-8/U with connectors are supplied with this antenna. This will allow a maximum separation of the antenna from the receiver-transmitter of 54 feet. If it is necessary to use a longer transmission line, the line should have an electrical length of an integral number of half-wavelengths. A half wavelength at 72.5 mc is 4 feet 5-1/2 inches.

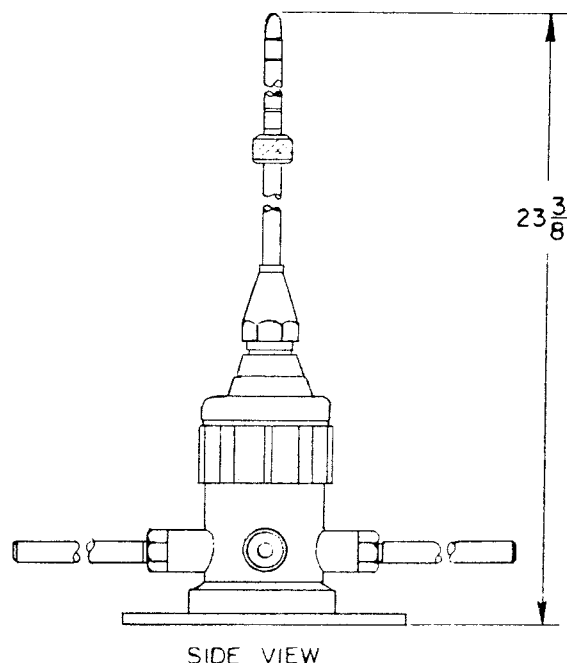
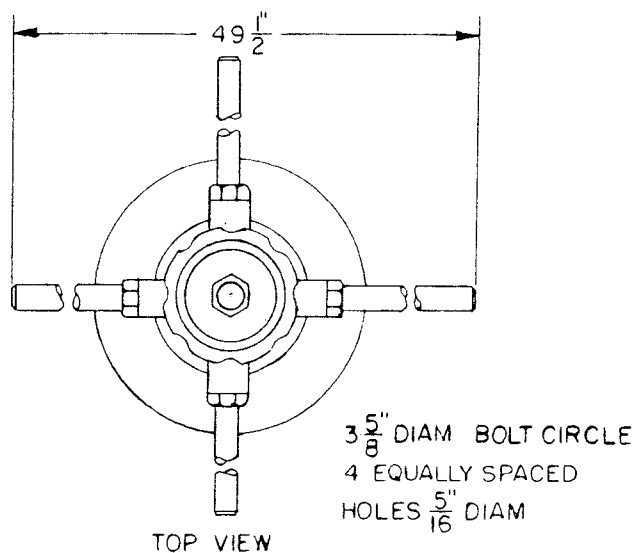
This antenna is designed to be portable or fixed and is provided with a mounting bracket so that it may be mounted on either a deck rail, a vertical mast or rail, a bulkhead, or a deck. When this antenna is used with the TBY series, it may be mounted on the side of the receiver-transmitter unit.

If the antenna is mounted atop a steel cabin or on an open steel deck, neither ground plane rods or the angle mounting bracket are necessary.

REFERENCES.

"Instruction Book for Type COA-66089 External Antenna System".

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ANTENNA ASSEMBLY, TYPE-66091
FEDERAL STOCK NO. N5985-090-2634

TYPICAL USES.

Antenna Assembly, Type-66091 may be used with Model TDT Radio Transmitting Equipment or equipment operating in the same frequency range, i.e. TDQ, AN/ARC-1.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Navy Type-66091 is a quarter-wave vertical antenna with a ground plane consisting of four rods 90 degrees apart. The vertical section of the antenna is adjustable for various frequencies. There are three grooves to indicate the settings for 115, 135 and 156 mc. The antenna may be locked at intermediate points for operation at frequencies within these settings.

Type Vertical 1/4-wave
rod with ground plane

Weight 16-1/2 lb

Material Copper finish,
silver plated

Frequency 115 to 156 mc

Impedance 50 ohms

INSTALLATION DATA.

The antenna should be installed in a location as free from surrounding objects and obstacles as possible.

A 50-ohm coaxial transmission line is used with this antenna.

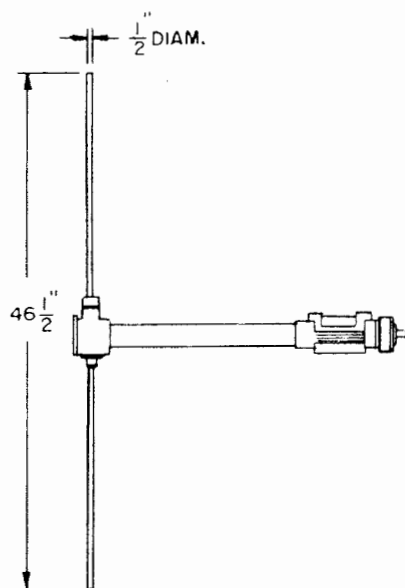
The mounting flange at the base of the antenna has four 5/16 in. diam mounting holes on a 1-13/16 in. radius. Cut a hole at least one inch in diameter through the base on which the flange is to be mounted to accommodate the transmission line connector.

REFERENCES.

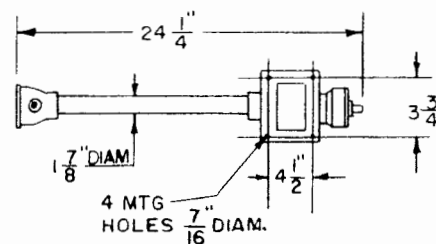
NavShips 529, 127

UNCLASSIFIED

5-229



SIDE VIEW



TOP VIEW

ANTENNA ASSEMBLY, TYPE-66095
FEDERAL STOCK NO. F5985-254-7154

TYPICAL USES.

Antenna Assembly, Type -66095, is used with Model TDQ Transmitter, Model RCK receiver or other equipment operating in the same frequency range.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type -66095, is a fixed, half-wave dipole constructed of brass tubing.

Total Weight.....17 lb
Type 1/2 wave dipole
Operating Frequency 135 mc
Polarization..... Vertical
Input Impedance 50 ohms

INSTALLATION DATA.

The antenna should be mounted as high as practicable on the superstructure of the ship away from metal objects such as stacks and vents. A clamp is provided to secure the dipole support mast in a horizontal position.

The antenna should be mounted with the insulated radiator uppermost.

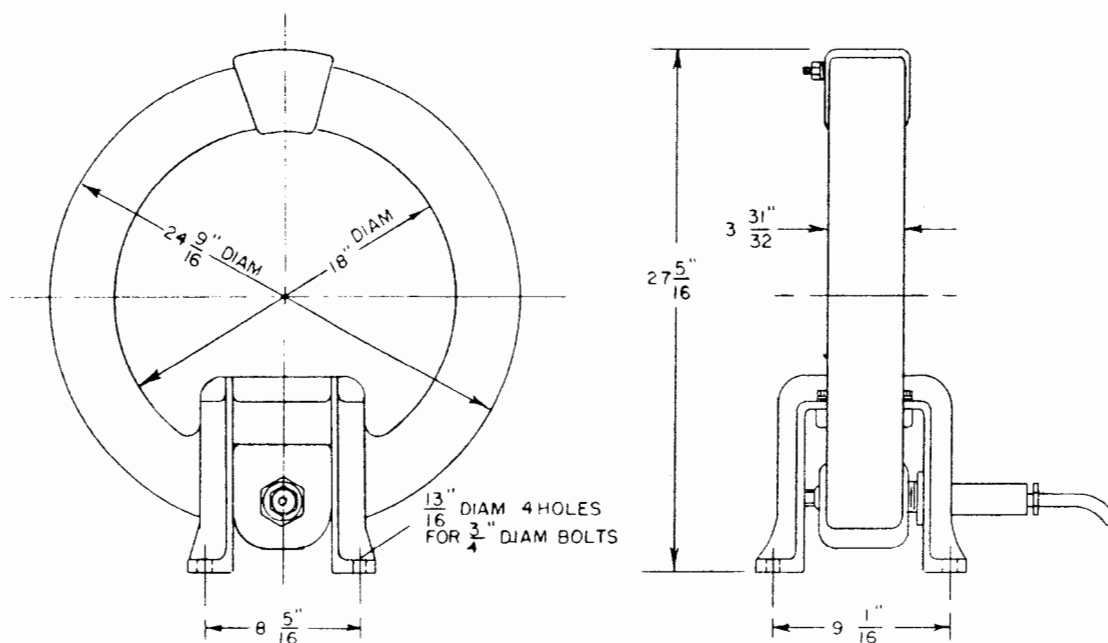
The antenna contains a concentric two-step matching section to couple into a 50-ohm transmission line.

For TDQ installations requiring a transmission line less than 100 feet long, use RG-10/U with two UG-21/U connectors.

For runs longer than 100 feet, use an appropriate length of RG-18/U coupled to a 10-foot length of RG-8/U from the transmitter.

REFERENCES.

NavShips 900, 474



LOOP ANTENNA, NAVY TYPE -66097
FEDERAL STOCK NO. F5985-470-7329

TYPICAL USES.

Loop Antenna Type-66097 is intended for installation in submarines for use with the Model RAK Radio Receiver.

ANTENNA SPECIFICATIONS.

The Type-66097 Loop Antenna is bi-directional and has an inductance of 7.5 millihenries. The winding is electrostatically shielded and housed in a bronze casting. The outside of the casting is covered with vulcanized rubber approximately 1/4-inch thick. A cast bronze bracket, not covered with rubber, is used to support the loop.

Total Weight:

Antenna and Cable 143 lb

Frequency Range..... 15 to 77.5 kc

INSTALLATION DATA.

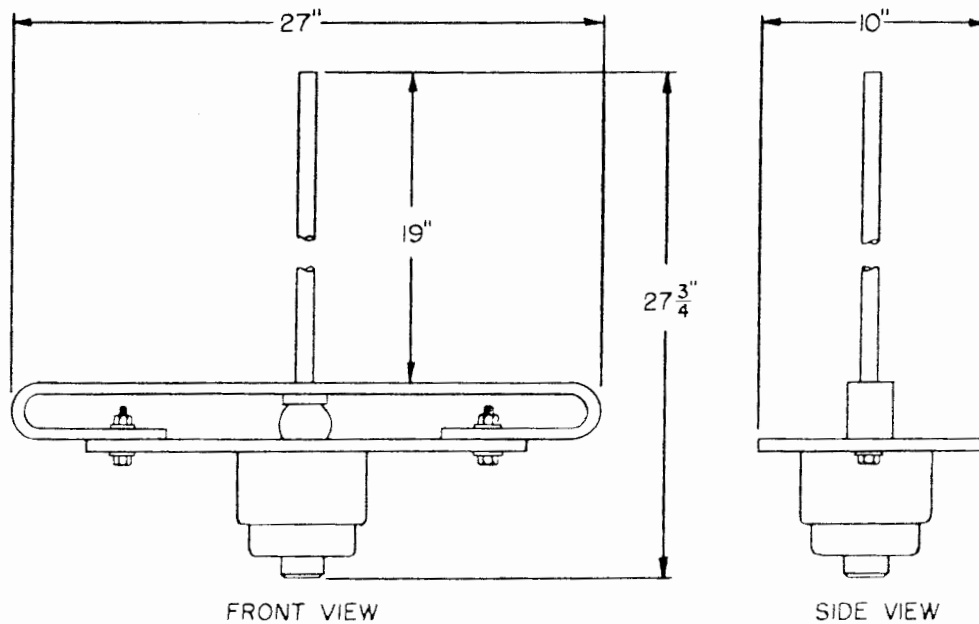
Originally, the type -66097 Loop Antenna was supplied as part of Loop Antenna Assembly Navy Type-66096. This assembly consisted of the loop antenna, Loop Coupling Unit Type-47367, and 50 feet of cable. The Coupling Unit is no longer used. A Loop Input Transformer is now used in the receiver as a field change on all RAK series prior to RAK-7 (See Dwgs: RA 30F 233 and RA 30F 221).

The transmission line used with the loop antenna consists of 50 feet of two conductor, shielded, rubber-covered cable (Type 325K). The cable is permanently attached to the loop.

The loop is mounted vertically either on a retractable mast or on a mounting fixture. The mounting bracket at the base requires four 3/4-inch bolts.

REFERENCES.

NavShips 900, 505



ANTENNA ASSEMBLY, NAVY TYPE-66134

TYPICAL USES.

Antenna Assembly, Type-66134, is used aboard submarines with VHF radio equipment operating in the frequency range of 110-156 mc, such as: SCR-624A, TDQ, RCK, and AN/ARC-1.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66134, is an inverted "T" type antenna consisting of a vertical radiator supported by a metal spring bridge above a flat metal ground plate.

Total Weight 56 lb

Type Vertical rod with
ground plane

Frequency Range 110-156 mc

Polarization Vertical

Input Impedance 50 ohms

Beam Pattern Omni-directional

INSTALLATION DATA.

Transmission Line RG-10/U

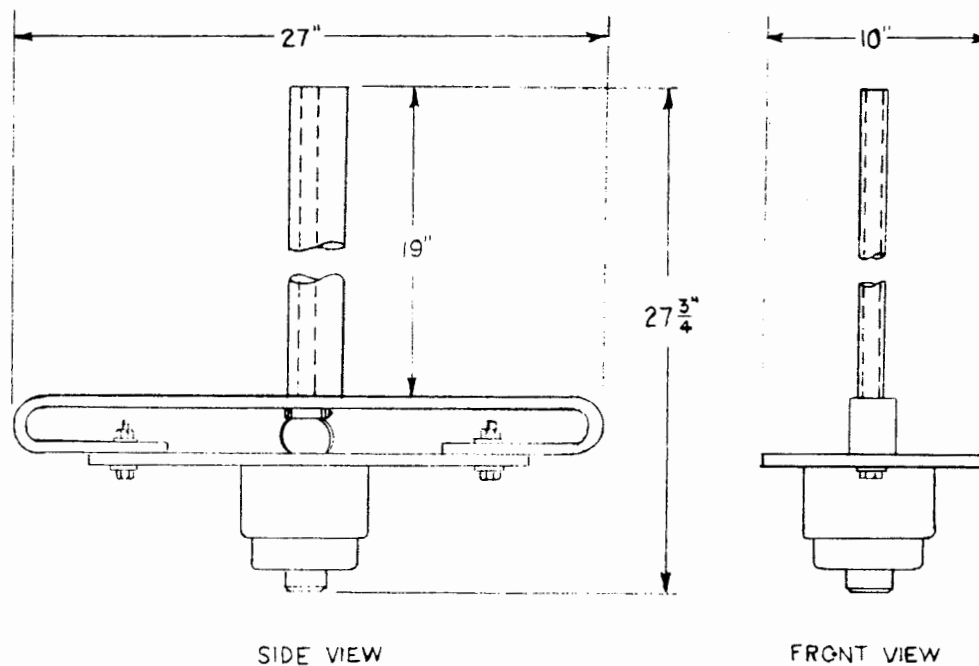
The armor is removed from the RG-10/U cable from the shear valve up to the antenna, and the cable is enclosed in 3/4-inch pressure-proof seamless tubing outside of the pressure hull. The tubing is welded to the junction box at the base of the antenna assembly and terminates at the shear valve where the cable enters the pressure hull of the submarine.

To avoid interference from nearby metal objects and to obtain good general radio range, the antenna should be mounted as high and as much in the clear as possible. In a typical installation, the antenna is supported by a bracket welded to one side of the periscope support frame.

REFERENCES.

NavShips 900, 524

BuShips Drawing: RE65F239



ANTENNA ASSEMBLY, NAVY TYPE-66134A
FEDERAL STOCK NO. F5985-369-5460

TYPICAL USES.

Antenna Assembly, Type-66134A is designed for installation aboard submarines for use with VHF radio equipment operating in the frequency range 110-156 mc, such as: AN/ARC-1, TDQ and RCK.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Type-66134A is an inverted "T" type antenna consisting of a vertical radiator supported by a steel spring bridge above a flat metal ground plate. This antenna is a Type-66134 antenna which has been modified to provide more efficient operation over the entire VHF frequency band. The vertical radiator has been enclosed in a molded neoprene fairing to permit operation at higher submerged speeds.

Total Weight..... not available

Type.....Vertical rod with ground plane

Frequency Range 110-156 mc

Polarization.....Vertical

Input Impedance 50 ohms

Beam Pattern.....Omni-directional

INSTALLATION DATA.

Transmission Line.....RG-10/U

The armor is removed from the RG-10/U cable and the cable is enclosed in pressure-proof seamless tubing outside of the pressure hull. The cable passes through a shear valve where it enters the pressure hull of the submarine.

5-3 Section
66134A

NAVSHIPS 900, 121(A)
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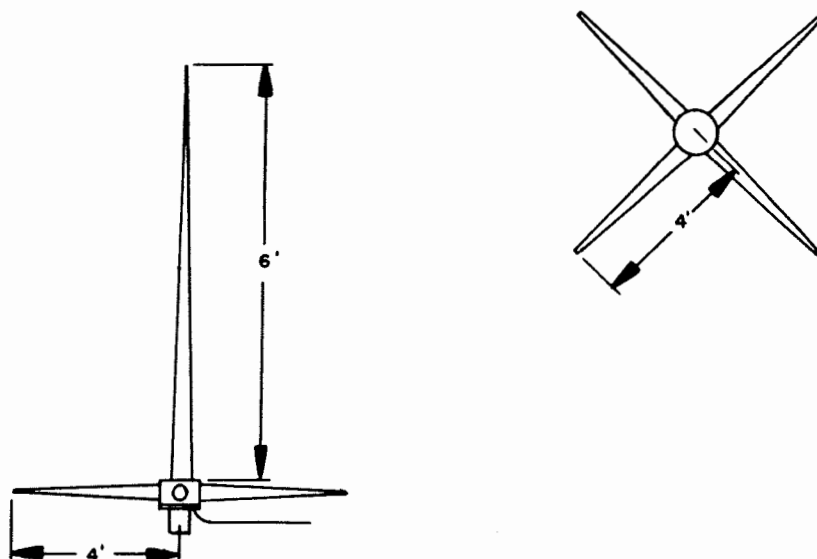
DATA SHEETS

INSTALLATION DATA (Cont'd)

REFERENCES.

To avoid interference from nearby metal objects and to increase general radio range, the antenna should be mounted as high and as much in the clear as possible. In a typical installation, the antenna is supported by a bracket which is welded to the periscope support frame.

BuShips Drawings: RE66F615
RE66D626



ANTENNA ASSEMBLY 66143
FEDERAL STOCK NO. N5985-470-7394

EQUIPMENT DESCRIPTION.

The NT-66143 is a fixed whip-type dipole antenna used for transmitting and receiving. It is of one-piece construction with four ground radials of one-quarter wavelength.

Electrical Characteristics:

Frequency 60 to 80 mc

Polarization Vertical
Impedance. 50 ohms

INSTALLATION DATA.

Coax RG-215/U

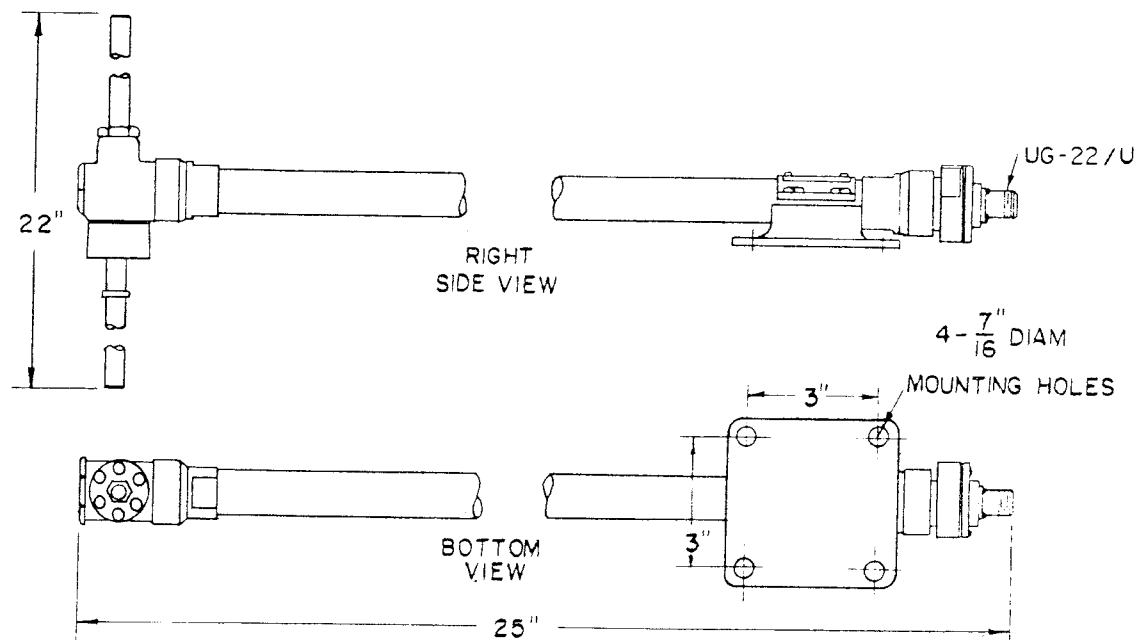
The antenna base has four holes for mounting on a flat surface or pipe.

ANTENNA SPECIFICATIONS.

Height 47 in.
Type Broadband whip
Feed Coaxial cable

REFERENCES.

Nomenclature Book of Navy type equipment 900,590, Chapter 6



ANTENNA ASSEMBLY, NAVY TYPE-66147
FEDERAL STOCK NO. N5985-254-7162

TYPICAL USES.

Antenna Assembly, Navy Type-66147, is used with radio receiving and transmitting equipment operating in the VHF-UHF region. Some such equipments are: TDZ, RDZ, MAR, RDR, and TED.

ANTENNA SPECIFICATIONS.

Antenna Assembly, Navy Type-66147, consists of a vertically mounted, half-wave center-fed dipole and a supporting section for the dipole rods. The supporting section contains a short section of 50-ohm coaxial cable.

Type Fixed dipole

Weight 3-1/2 lb

Material Aluminum

Frequency Range 225-400 mc

Impedance 50 ohms

INSTALLATION DATA.

Transmission Line..... RG-18/U

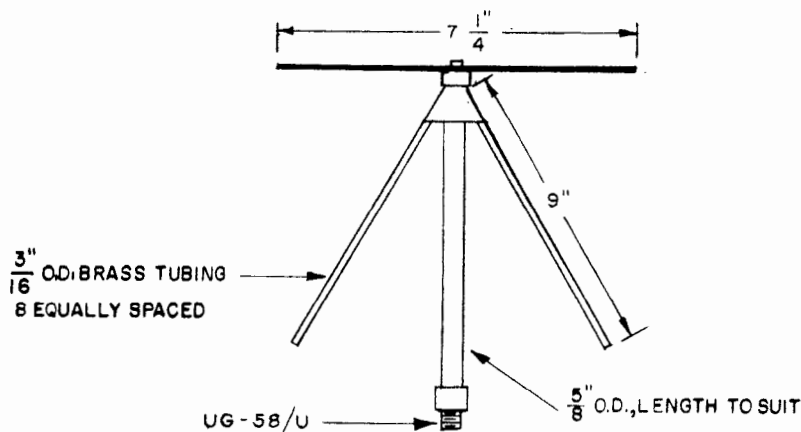
The transmission line run should be as short as possible using a minimum of connections.

The antenna mounts by a mounting bracket having four 7/16 in. diam holes. The antenna should be mounted vertically with the insulated stud facing downward and there should be no metallic objects in the immediate vicinity of the antenna.

REFERENCES.

NavShips 91357
NavShips 91328

BuShips Drawings: RE66F558
RE66F2003
RE66F2029



DISCONE ANTENNA

EQUIPMENT DESCRIPTION.

The Discone Antenna was designed primarily for use with the AN/MRW-6, AN/ARW-55 or AN/URW-14 BuAer radio equipment. The antenna can also be used with any equipments operating within its frequency range (400-500 mc).

EQUIPMENT SPECIFICATIONS.

The antenna disc is constructed of solid brass 3/32" thick and 7 1/4" in diameter. The cone section consists of two pieces of brass tubing 3/16" O.D. and 9" long. The apex of the disc and cone approaches and becomes common

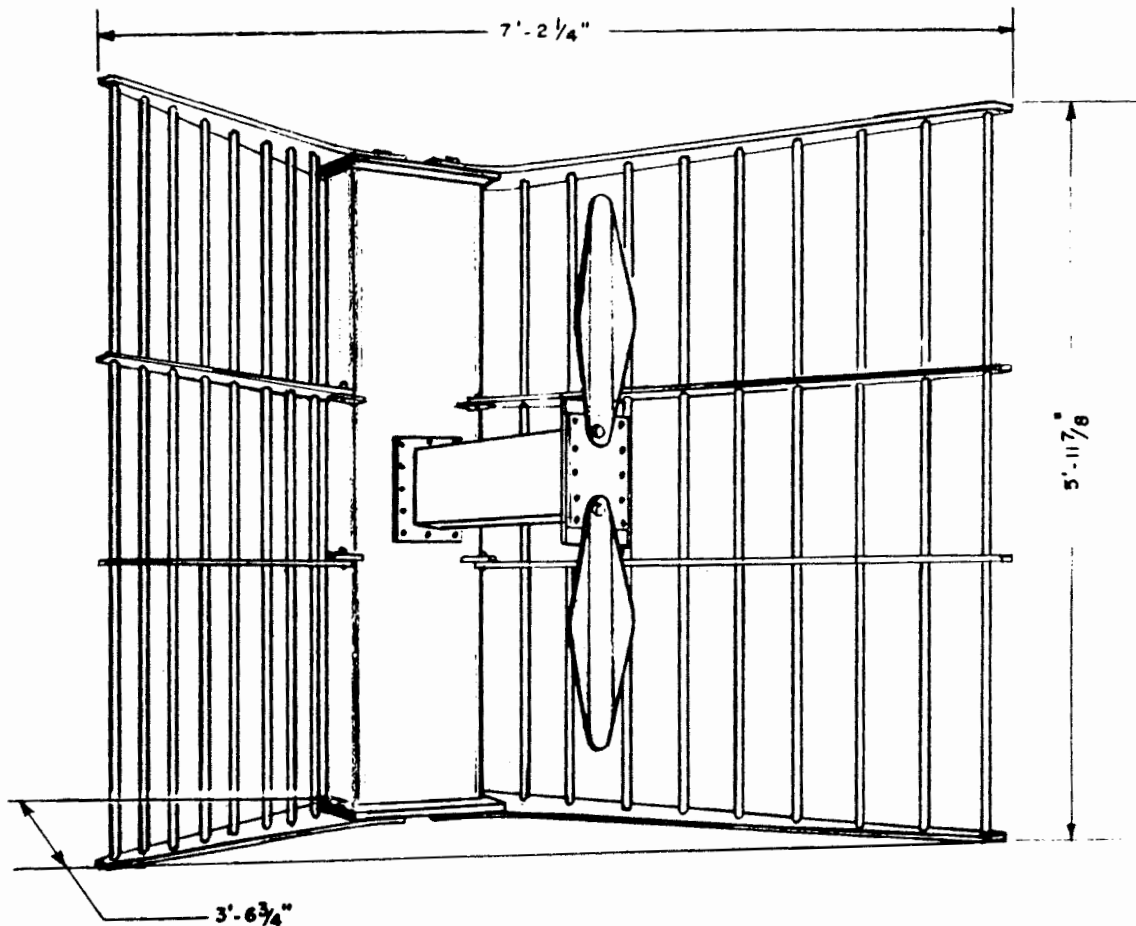
with the outer conductor of the coaxial feed at its end. The center conductor of the coaxial cable terminates at the center of the disc. The disc is perpendicular to the axis of the cone.

The discone antenna is capable of operation over a wide band of frequencies without essentially changing its directivity pattern or input impedance. The directivity pattern is omnidirectional in a plane perpendicular to the axis of the cone.

Cable.....RG-14A/U

REFERENCE.

BuShips Drawing RE 66 C 632



MARK VI CORNER REFLECTOR

EQUIPMENT DESCRIPTION.

The VHF Corner Reflector Antenna for the 100 to 150 mc range was primarily intended to be used in conjunction with the R-728A receiver and its counterpart Nems-Clarke Model 1302 receiver, although any receiver covering this frequency range may be used.

ANTENNA SPECIFICATIONS.

Dipole elements are made from sheet aluminum alloy tapered to increase

bandwidth and formed to increase their longitudinal strength. The elements are supported at the center by stud extensions of the balun and also be a bracket and insulator at a fairly low impedance point.

With the exception of the UG-352/U connector, the antenna is constructed of aluminum alloy with stainless steel fastenings. The insulating material is a fiberglass base melamine plastic. Neoprene gaskets at every opening assure the watertight integrity of the assembly. The element support consists

of a section of "L" band radar waveguide which also houses the balun.

The directivity of this antenna is such that a beam width of approximately 40° between half-power points for vertically-polarized waves is obtained. This pattern is essentially constant over the band of interest.

These antennas were designed to be mounted somewhere near the bow on the superstructure with a clear view forward and toward the sides. In order to provide sufficient sensitivity forward and simultaneously toward the sides it is recommended that the antennas be mounted, one on each side of the ship's superstructure or mast, with the axis of the dipole support tuned outward ap-

proximately 20° from the ship's centerline. Horizontal separation, between the antennas, is immaterial if they have a clear view. However, both should be mounted at the same height so that target bearing information will not be confused by the different signal levels encountered at different heights. Mount the antenna as high as possible for maximum efficiency.

Cables.....RG-18/U or RG-17/U

Connectors UG-154/U
on both ends

REFERENCE.

NRL Drawing #5436 MK-V1