
SECTION 2 OF 10

NAVSHIPS 94200.1

**DIRECTORY
OF
COMMUNICATION
EQUIPMENT**

(CONTINUED)

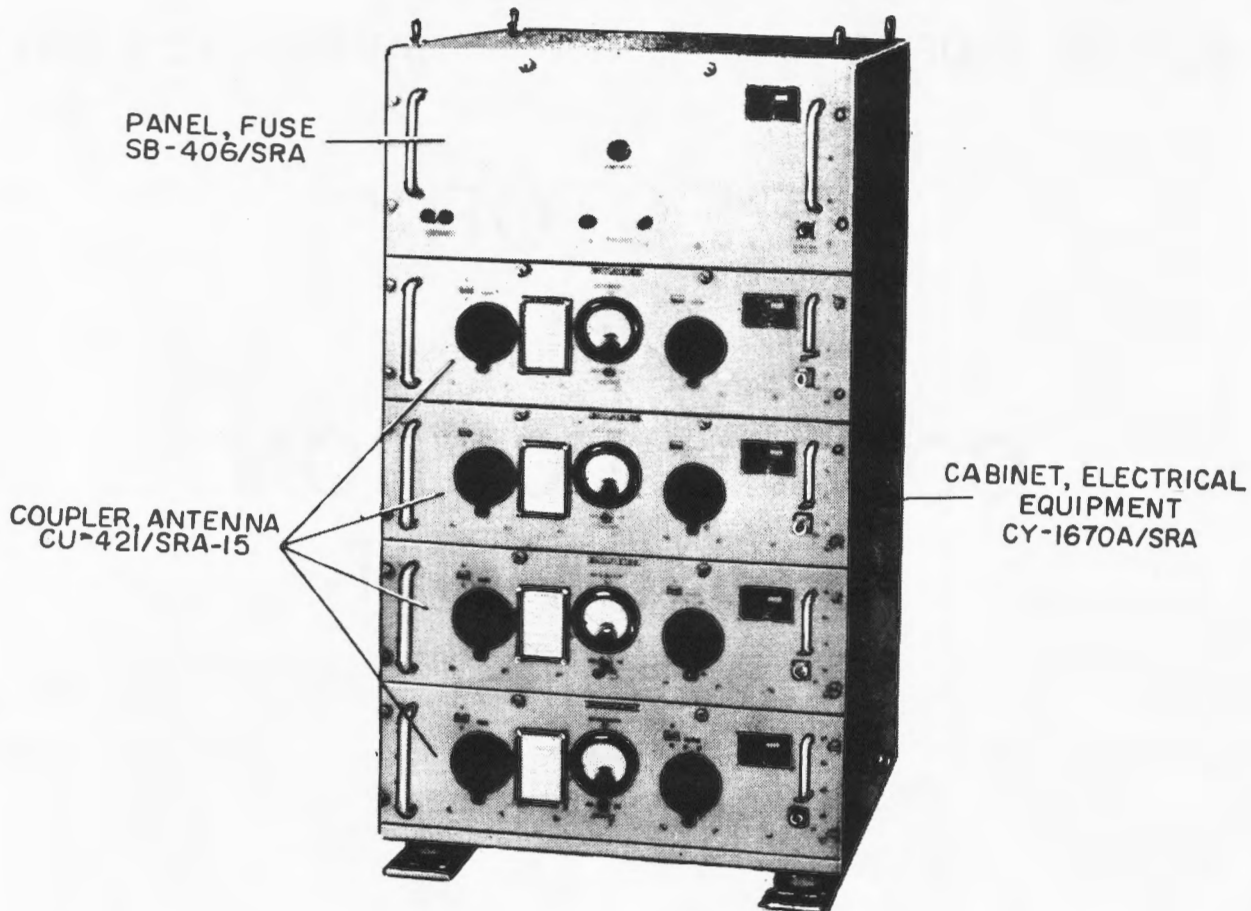
**PREPARED BY
U.S. NAVY
ELECTRONICS SUPPLY OFFICE
GREAT LAKES, ILLINOIS**

June 1961

Radio-Auxiliary

AN/SRA-15A

ANTENNA COUPLER GROUP



Coupler Group, Antenna AN/SRA-15A

FUNCTIONAL DESCRIPTION

The AN/SRA-15A is designed for shipboard use. Each coupler group is capable of coupling four (4) transmitters into a single broadband antenna. Each coupler group must be operated independently with a broadband antenna designed to produce a voltage standing wave ratio no greater than 3 to 1 over its frequency range at the output terminal of the coupler group. Each transmitter operating with a coupler group must be set to operate at channels spaced at least 10 per cent from any other frequency in the group. The principle function of this equipment is to provide impedance match between transmitter(s) and antenna.

No field changes in effect at time of preparation (21 November 1960).

RELATION TO OTHER EQUIPMENT

The AN/SRA-15A is electrically and mechanically interchangeable w/AN/SRA-15 except that component parts differ.

The AN/SRA-15A is essentially the same as AN/SRA-13, 14 and 15 except for frequency coverage.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

- (4) Coaxial Line RG-10/U or RG-18/U (Length as required), (4) Coaxial Line RG-10/U (1 to 2 ft length), (1) Coaxial Line RG-18/U for Antenna (Length as required), (4) Adapter UG-982/U or equal, (4) Connector UG-23/U or equal, (4) Connector UG-941A/U for transmitter, (4) Connector UG-27A/U or

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AN/SRA-15A**ANTENNA COUPLER GROUP**

equal, (1) Connector UG-154/U or UG-216/U for Antenna, (1) Power Line for Blower (Length as required), (1) Primary Power Switch (6 amp toggle switch).

N.H.

Dwg No. 5-0-0.

Contract NObsr-75524, dated 18 August 1958.

Approximate Cost \$2,550.00 with equipment spares.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT IMPEDANCE: 50 ohms.

OUTPUT IMPEDANCE: 50 ohms.

TYPE OF FREQUENCY CONTROL: Manual.

TUNING BAND: 1 band, continuously variable, across the frequency range of each coupler group.

VOLTAGE ISOLATION RATIO: Between adjacent channels for 10% frequency separation 15 to 1 or greater.

ELECTRICAL CHARACTERISTICS OF ANTENNA: Broad-band with impedance characteristics such that VSWR does not exceed 3 to 1, related to 50 ohms, across the frequency range.

EFFICIENCY: Not less than 60%.

OPERATING FREQUENCY RANGE: 6 to 18 mc.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92746: Technical Manual for Antenna Coupler Group AN/SRA-13, AN/SRA-14, AN/SRA-15, AN/SRA-13A, AN/SRA-14A and AN/SRA-15A.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE NAVY BUSHIPS
 PROCUREMENT COGNIZANCE SHIPS-C-2888
 STOCK NO.
 R.D.B. IDENT. NO.

MANUFACTURER'S OR CONTRACTOR'S DATA

Granite State Machine Co. Inc., Manchester,

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Coupler Group AN/SRA-15A	18.8	22 x 29 x 51	386

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Coupler Group AN/SRA-15A consists of:	20-1/2 x 26-1/4 x 46-3/4	176-1/2
4	Antenna Coupler CU-421/SRA-15	7-23/32 x 18-3/16 x 24-3/4	35-1/2
1	Panel, Fuse SB-406/SRA		11-1/2
1	Cabinet Electrical Equipment CY-1670A/SRA	20-1/2 x 26-1/4 x 46-3/4	122-1/2
2	Technical Manual NAVSHIPS-92746	1/2 x 9 x 11-1/2	

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August 1960

ANTENNA COUPLER GROUP

Radio

AN/S

CABINET, ELECTRICAL
EQUIPMENT CY-1671A/SRA-16

NAVSHIPS 92839
AN/SRA-16

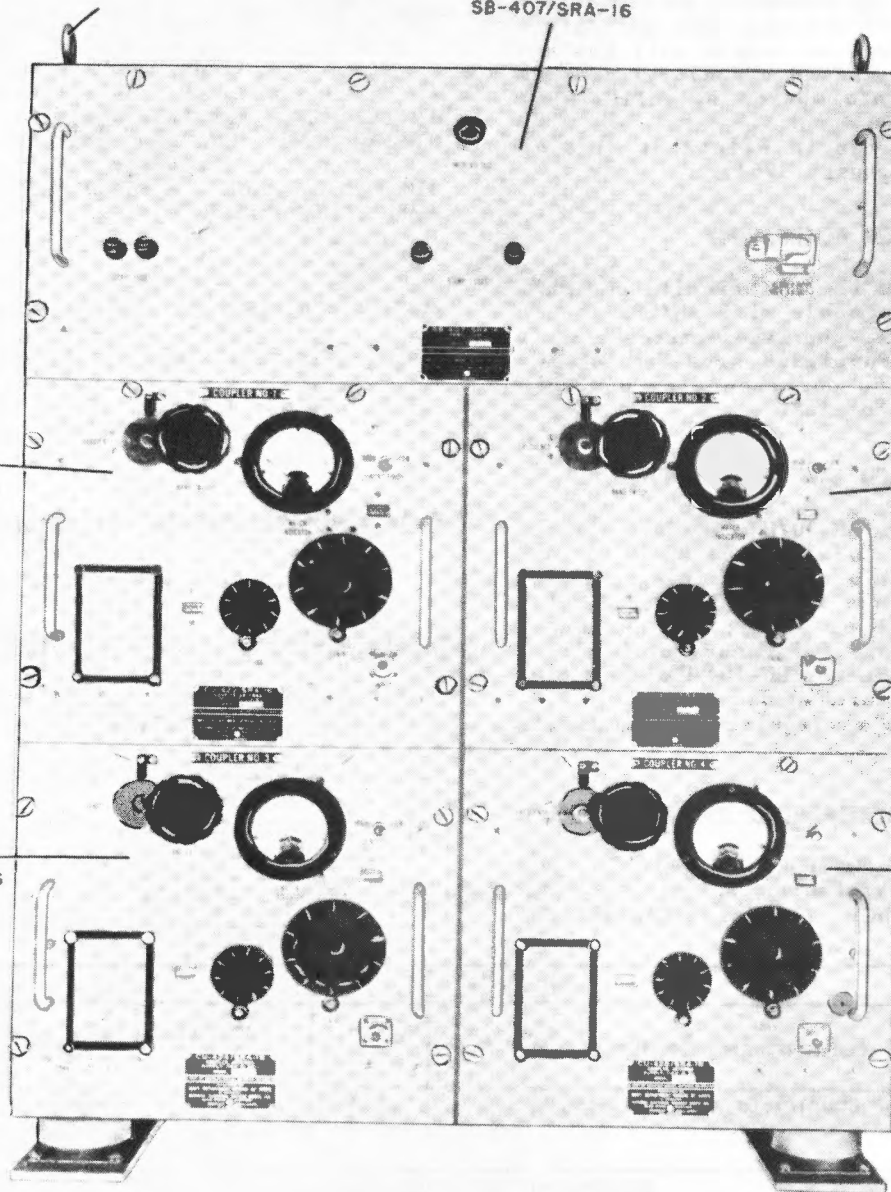
PANEL, FUSE
SB-407/SRA-16

COUPLER,
ANTENNA
CU-422/SRA-16

COUPLER,
ANTENNA
CU-424/SRA-16

CO
AN
CU-42

CO
AN
CU-4



Antenna Coupler Group AN/SRA-16A

FUNCTIONAL DESCRIPTION

Antenna Coupler Group AN/SRA-16A is designed for shipboard use, and couples the output of four radio transmitters to a single

broadband antenna. It matches the impedance of the broadband antenna to the 50 ohm impedance of the transmission line to the transmitter.

No field changes in effect at preparation (17 February 1960).

Radio-Auxiliary
AN/SRA-16A

ANTENNA COUPLER GROUP

RELATION TO OTHER EQUIPMENT

This equipment is designed to work together with Antenna Coupler Group AN/SRA-13A, AN/SRA-14A, and AN/SRA-15A.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(4) Coaxial Line RG-10/U or RG-18/U (length as required); (4) Coaxial Line RG-10/U (1 to 2 ft)*; (1) Coaxial Line RG-18/U (length as required); (4) Adapter UG-167/U*; (4) Connector UG-23/U*; (4) Connector UG-21B/U; (4) Connector UG-27A/U*; (1) Connector UG-154/U; (1) Power Line (length as required).

*Used only when item 1 is RG-18/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SUPPLY: 115 v, 60 cy, single ph.
 FREQUENCY RANGE: 9 to 26 mc.
 TUNING BAND: Three bands.
 TYPE OF FREQUENCY CONTROL: Manual.
 POWER HANDLING ABILITY: Simultaneous coupling for four 500 watt, 100 percent amplitude modulated, h-f transmitters.
 INPUT IMPEDANCE: 50 ohms.
 OUTPUT IMPEDANCE: 50 ohms.
 EFFICIENCY
 9 to 18 MC: Not less than 70%.
 18 to 26 MC: Not less than 65%.
 VOLTAGE ISOLATION RATIO BETWEEN ADJACENT CHANNELS: 15 to 1.
 ELECTRICAL CHARACTERISTICS OF ANTENNA:

Broadband antenna with impedance characteristic such that VSWR does not exceed 3 to 1, related to 50-ohms, for the frequency.

INSTALLATION: Shipboard.
 FOR USE WITH TRANSMITTERS: Models TBM, TBK, TCK, AN/URT-2, 3, 4, and AN/SRT-14, 15, 16.

MANUFACTURER'S OR CONTRACTOR'S DATA

Granite State Machine Co., Inc., Manchester, N. H.
 Dwg No. 6-0-2.
 Contract NObsr-75524, dated 18 August 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

RELATION TO OTHER EQUIPMENT

NAVSHIPS : Technical Manual for ANTENNA COUPLER GROUP AN/SRA-16A.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE USN, BUSHIPS
 PROCUREMENT COGNIZANCE SPEC: SHIPS-C-2888
 STOCK NO.
 R.D.B. IDENT. NO.

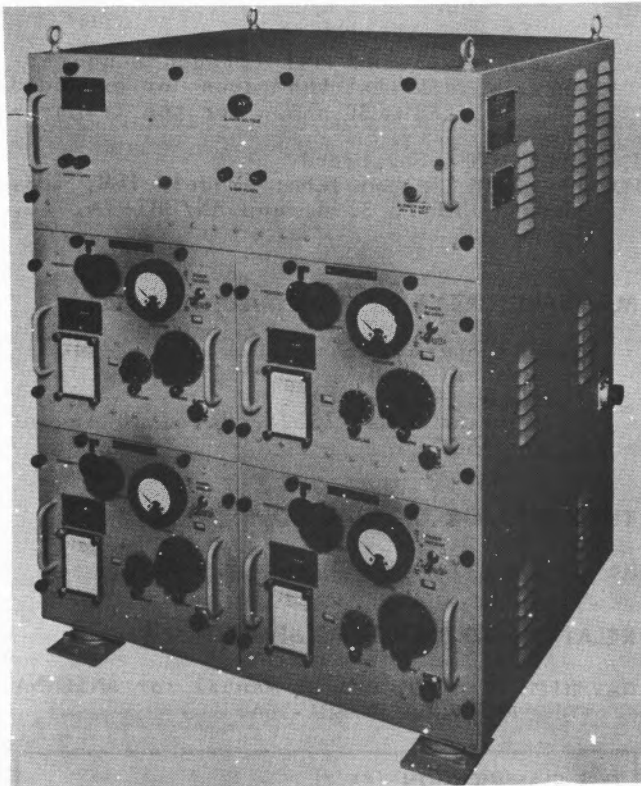
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Coupler Group AN/SRA-16A	22	27 X 32 X 44	430

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/SRA-16A includes:	25-1/8 X 29-1/4 X 39-3/4	320
1	Coupler, Antenna CU-422/SRA-16	12-3/8 X 13-3/4 X 24-3/4	42
1	Coupler, Antenna CU-423/SRA-16	12-3/8 X 13-3/4 X 24-3/4	42
1	Coupler, Antenna CU-424/SRA-16	12-3/8 X 13-3/4 X 24-3/4	42
1	Coupler, Antenna CU-425/SRA-16	12-3/8 X 13-3/4 X 24-3/4	42
1	Panel, Fuse SB-407/SRA-16	9-7/8 X 10-7/8 X 27-3/4	13
1	Cabinet, Electrical Equipment CY-1671A/SRA-16	25-1/8 X 29-1/4 X 39-3/4	139
2	Technical Manual NAVSHIPS		

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ANTENNA COUPLER GROUP**AN/SRA-16B***Antenna Coupler Group AN/SRA-16B***FUNCTIONAL DESCRIPTION**

Antenna Coupler Group AN/SRA-16B is designed specifically for shipboard use, and couples the output of four radio transmitters to a single broadband antenna. It matches the impedance of the broadband antenna to the 50 ohm impedance of the transmission line from the transmitter.

No field changes in effect at time of preparation (12 April 1961).

RELATIONS TO OTHER EQUIPMENT

This equipment is designed to work together with Antenna Coupler Group AN/SRA-13, AN/SRA-14, and AN/SRA-15.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(4) Coaxial Line RG-10/U or RG-18/U (length as required); (4) Coaxial Line RG-10/U (1 to 2 ft)*; (1) Coaxial Line RG-18/U (length as required); (4) Adapter UG-167/U*; (4) Connector UG-23/U*; (4) Connector UG-21B/U; (4) Connector UG-27A/U*; (1) Connector UG-154/U; (1)

Power line (as required).

*Used only when Item No. 1 is RG-18/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SUPPLY: 115 v, 60 cyc, single ph.
FREQUENCY RANGE: 9 to 26 mc.

TUNING BANDS: Three.

TYPE OF FREQUENCY CONTROL: Manual.

POWER HANDLING ABILITY: Simultaneous coupling of a max. of 500 W, rf power, 100% amplitude modulated, from each of four transmitters to a single antenna.

INPUT IMPEDANCE: 50 ohms.

OUTPUT IMPEDANCE: 50 ohms.

EFFICIENCY

9 TO 18 MC: Not less than 70%.

18 TO 26 MC: Not less than 65%.

VOLTAGE ISOLATION RATIO BETWEEN ADJACENT CHANNELS: 15 to 1.

ELECTRICAL CHARACTERISTICS OF ANTENNA: Broadband antenna with impedance characteristics such that VSWR does not exceed 3 to 1, related to 50 ohms, across the frequency range.

FOR USE WITH TRANSMITTERS: Model TBM, TBK, TCK, AN/URT-2, -3, -4, and AN/SRT-14, -15, -16.

MANUFACTURER'S OR CONTRACTOR'S DATA

Granite State Machine Co. Inc, Manchester, N. H.

Dwg no. 6-0-002.

Contract NObsr-81222, dated 16 March 1959.

Approximate unit cost \$2,890.00.

TUBE AND OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92839: Technical Manual for Antenna Coupler Groups AN/SRA-16, AN/SRA-16A, AN/SRA-16B.

TYPE CLASSIFICATION (NAVY)	
PROCUREMENT COGNIZANCE	SPEC: SHIPS-C-3413,
DESIGN COGNIZANCE	AMEND 1
STOCK NO.	USN, BUSHIPS
R.O.B. IDENT. NO.	

AN/SRA-16B

ANTENNA COUPLER GROUP

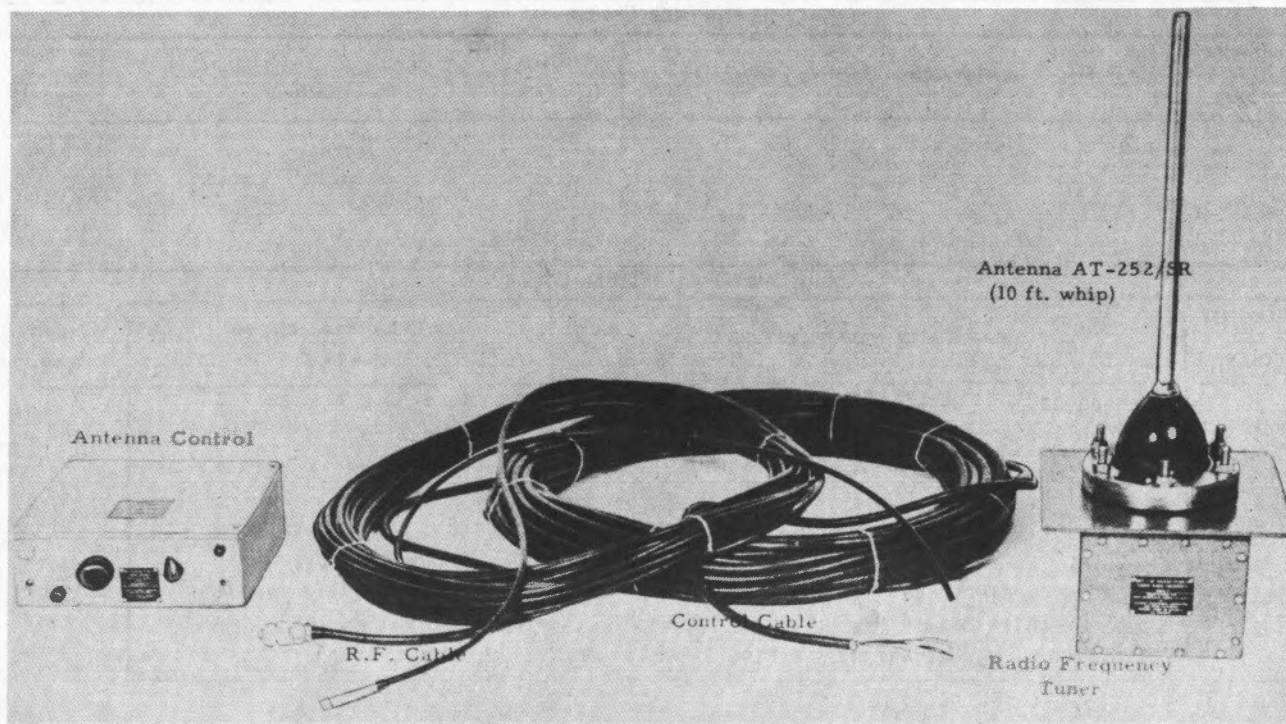
June 1961

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu. Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Coupler Group AN/SRA-16B	22	27 x 32 x 44	430

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/SRA-16B includes:	25-1/8 x 29-1/4 x 39-3/4	320
1	Coupler, Antenna CU-422A/SRA-16	12-3/8 x 13-3/4 x 24-3/4	42
1	Coupler, Antenna CU-423A/SRA-16	12-3/8 x 13-3/4 x 24-3/4	42
1	Coupler, Antenna CU-424A/SRA-16	12-3/8 x 13-3/4 x 24-3/4	42
1	Coupler, Antenna CU-425A/SRA-16	12-3/8 x 13-3/4 x 24-3/4	42
1	Panel, Fuse SB-407/SRA-16	9-7/8 x 10-7/8 x 27-3/4	13
1	Cabinet, Electrical Equipment	25-1/8 x 29-1/4 x 39-3/4	139
2	CY-1671A/SRA-16		
	Technical Manual NAVSHIPS 92839		

ANTENNA GROUPRadio-Auxiliary
AN/SRA-17(XG-1)*Antenna Group AN/SRA-17(XG-1)***FUNCTIONAL DESCRIPTION**

The AN/SRA-17(XG-1) is a ten-and-one-half foot vertical stainless-steel whip, Navy type AT-252/SR. The Antenna is connected to a Radio Frequency Tuner located directly under the antenna mounting. The radio-frequencies signals from the tuner unit are fed thru a 72 ohm transmission line to the receiver. An Antenna Control Unit at the receiver location enables the operator to tune the antenna from the operating position.

The AN/SRA-17(XG-1) was developed to provide a physically small but efficient receiving antenna which would cover the VLF-LF frequency range aboard ships where interaction between large, closely spaced antennas presents a problem and on smaller craft where space for a long wire antenna is not available.

No field changes in effect at time of preparation (30 April 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 14 to 600 kc.
POWER SOURCE REQUIRED: 117 v, 60 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3WGTA (1) VR-105

Total Tubes: (2)

(1) 1N21B

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92299, Technical Manual for Antenna Group AN/SRA-17(XG-1).

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

January 1958

Radio-Auxiliary

AN/SRA-17(XG-1)

ANTENNA GROUP

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Control	4-1/2 x 1/2 x 14	16
1	Radio Frequency Tuner	4-1/2 x 5 x 6-1/2	2-1/2
1	Radio Frequency Tuner Housing	10 x 12 x 12	20
1	Antenna AT-252/SR	7 x 131	20
2	Technical Manuals Two Connectors and a Hood		

17 July 1962

Cog Service: USN FSN:

ANTENNA COUPLER
Functional Class

USA

USN

USA

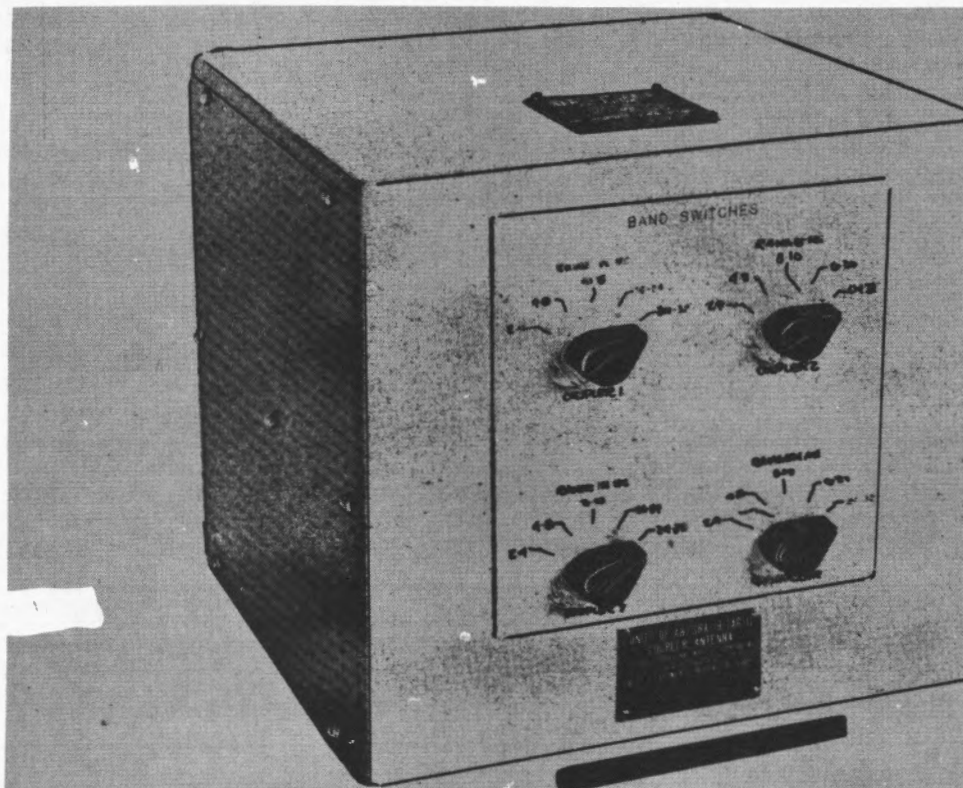
TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: U. S. Navy Electronics Laboratory, (89

PROCURING SERVICE: USN
SPEC &/OR DWG:

CONTRACTOR

U. S. Navy Electronics
Laboratory
Pt no. NEL, BL-5



Antenna Coupler Group AN/SRA-19(XG-1)

FUNCTIONAL DESCRIPTION:

The Antenna Coupler Group AN/SRA-19(XG-1) is a series-tuned, four-sectioned to operate from 2 to 32 megacycles (MC) in five bands.

The AN/SRA-19(XG-1) was designed for the purpose of using four (4) radio single antenna.

No field changes in effect at time of preparation (7 December 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Shipboard installed.

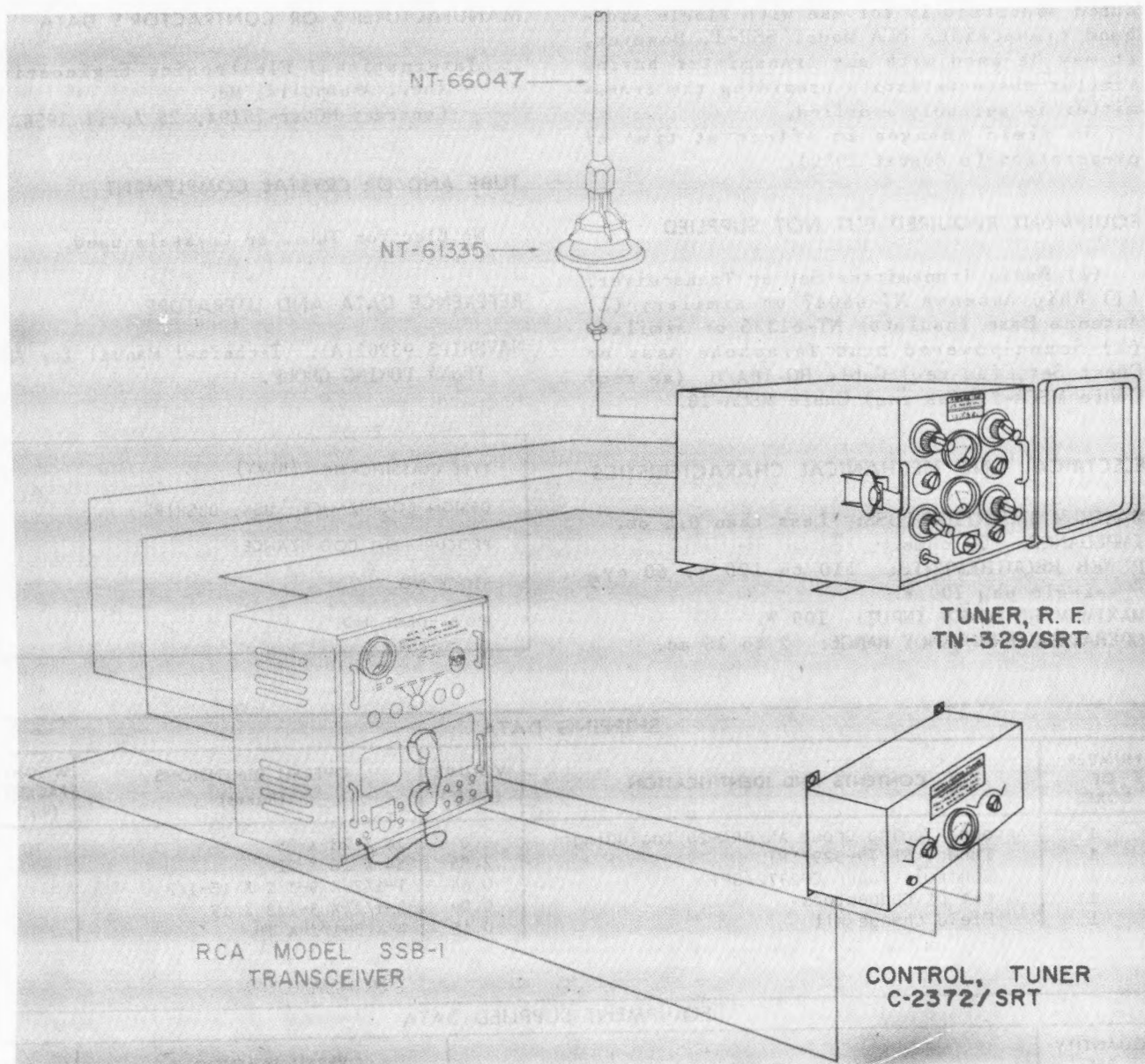
TYPE OF TUNING: Capacitance type tuning.

IMPEDANCE

INPUT: 72 ohms.

OUTPUT: 72 ohms.

ANTENNA TUNING GROUP



Antenna Tuning Group AN/SRA-20

FUNCTIONAL DESCRIPTION

Antenna Tuning Group AN/SRA-20 provides a means for tuning and matching a standard Navy 35-foot whip antenna, type 66047 or similar,

to a 50 ohm transmission line over a frequency range of 2 to 15 mc, thereby allowing maximum transfer of power from the transmitter to the antenna.

Antenna Tuning Group AN/SRA-20 was pro-

February 1960

Radio-Auxiliary

AN/SRA-20

ANTENNA TUNING GROUP

cured specifically for use with single side-band transceiver RCA Model SSB-1. However, it may be used with any transmitter having similar characteristics providing the transmitter is suitably modified.

No field changes in effect at time of preparation (6 August 1959).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Radio Transmitter Set or Transceiver,
(1) Whip Antenna NT-66047 or similar, (1) Antenna Base Insulator NT-61335 or similar,
(2) Sound-powered hand Telephone Assy or Chest Set, (as req) Cable RG-10A/U, (as req) Cable MSCA-7, (as req) Cable MSCA-10.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

MAXIMUM INSERTION LOSS: Less than 0.5 db.
IMPEDANCE: 50 ohms.
POWER REQUIREMENTS: 110 to 120 v, 60 cy, single ph, 100 W.
MAXIMUM RF POWER INPUT: 100 W.
OPERATING FREQUENCY RANGE: 2 to 15 mc.

MANUFACTURER'S OR CONTRACTOR'S DATA

International Electronics Engineering Inc., Annapolis, Md.
Contract NObsr-75194, 25 April 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93202(A): Technical Manual for ANTENNA TUNING GROUP.

TYPE CLASSIFICATION (NAVY)

DESIGN COGNIZANCE USN, BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Tuning Group AN/SRA-20 Including:	6.0	18 X 23 X 25	70
1	Tuner, RF TN-329/SRT	2.85	14 X 16 X 22	
1	Control, Tuner C-2372/SRT	0.64	7-1/2 X 9-1/2 X 15-1/2	
1	Kit of Connectors	0.09	3-1/2 X 3-1/2 X 13	
1	Field Change Kit	0.16	4 X 5-1/2 X 10	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Tuning Group AN/SRA-20 Including:		
1	Tuner, R.F. TN-329/SRT	14 X 14-5/16 X 20	38.7
1	Control, Tuner C-2372/SRT	5-15/16 X 7-3/4 X 13-11/16	7.2
3	Connectors AN3106A-18-12P		
2	Connectors AN3106A-20-33P		
1	Connector AN3106A-16-10P		
3	Connectors UG-941A/U		
2	Technical Manuals NAVSHIPS 93202		
*1	Field Change Kit 2-SSB-1	4 X 5-1/2 X 10	

* Required only when Antenna Tuning Group AN/SRA-20 is used with Single Sideband Receiver RCA Model SSB-1.

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Radio-Auxiliary

CONTROL SWITCHING GROUP**AN/SRA-21(V)****FUNCTIONAL DESCRIPTION**

The AN/SRA-21(V) is designed for general radio use. It provides switching of several receiver-transmitter control wires from a maximum of 45 receiver-transmitter combinations to ten remote radio phone units via 1 dial control relay band and 1 rotary stepping switch per radio phone unit. The number of radio phone units may be increased in multiples of 10, when 2 or more Relay Assemblies RE-412/SR are added. A common telephone circuit permits voice communication between supervisor and one remote operator.

No field changes in effect at time of preparation (29 September 1960).

Part No. GH-883176.

Contract Nobs-3877, dated 15 December 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Control Switching Group AN/SRA-21(V).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER RQMT: 50 v dc, 12 amp; 95 to 125 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Automatic Electric Co., Chicago, Illinois.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE NAVY BUSHIPS
 PROCUREMENT COGNIZANCE MIL-T-19800(SHIPS)
 STOCK NO.
 R.D.B. IDENT. NO.

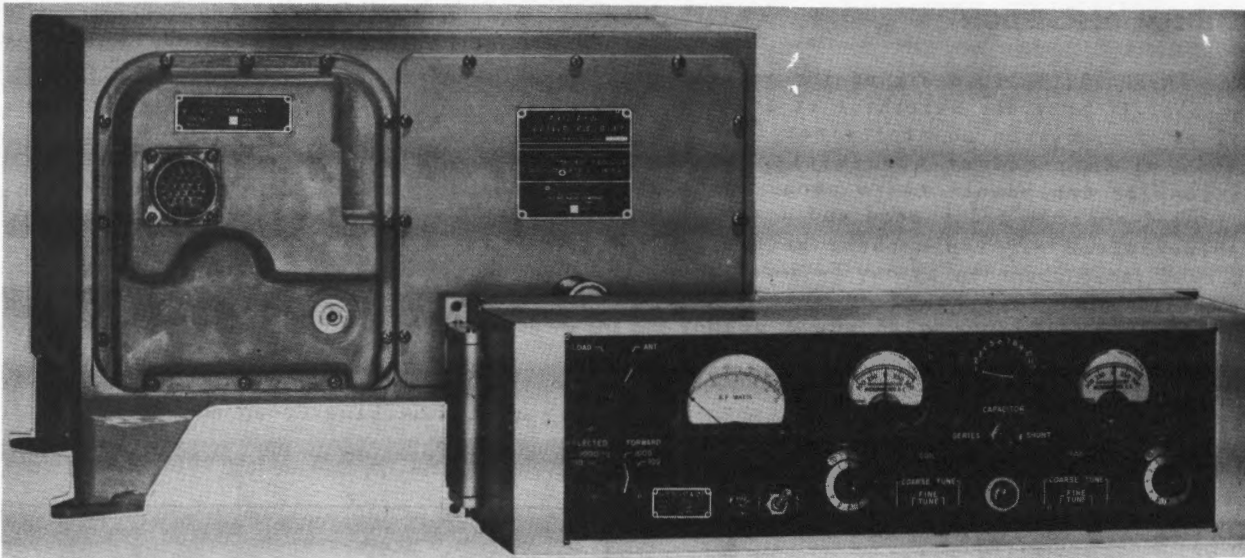
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Control-Switching Group Consists of:		
•	Relay-Switch Ass'y RE-412/SR	10-3/4 x 30-1/2 x 36	
•	Indicator, Operational Control ID-723/U	8-1/2 x 10-1/4 x 15-3/8	
•	Control-Indicator C-2658/SRA-21	8-1/2 x 10-1/4 x 15-3/8	
•	Supervisor Master Dial Control		
•	Remote Dial Control		
•	Control, Alarm C-2659/SR	2-15/16 x 5-13/16 x 11-15/16	
•	Relay Ass'y RE-413/SR	9 x 12 x 20-5/8	
•	Power Supply PP-2124/U	14-1/8 x 23 x 23-11/16	

Note: *Quantity dependant on the number of receiver transmitter combinations.

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Radio-Auxiliary

ANTENNA COUPLER GROUP**AN/SRA-22***Antenna Coupler Group AN/SRA-22***FUNCTIONAL DESCRIPTION**

Antenna Coupler Group AN/SRA-22 uses techniques for resonating antenna systems and matching these systems to 50 ohm coaxial lines. The antenna coupler group is designed for surface ships operation in the frequency range of 2.0 to 30.0 mc. It will handle 1 kw PEP and is designed to operate with a 35-foot whip antenna or wires longer than 35 feet.

No field changes in effect at time of preparation (30 September 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 or 230 v, 50 to 60 cyc, 1 ph, 100 W max.

RF INPUT IMPEDANCE: 50 ohms.

NUMBER OF CHANNELS: Continuous tuning.

FREQUENCY RANGE: 2.0 to 30.0 mc.

DELAY CYCLE: Continuous at 500 W average or 1 kw PEP voice.

RF POWER INPUT: 1,000 W PEP, max.

MATCHING CAPABILITIES: 35 ft. whip, or long wire antenna more than 35 ft. lg.

MAXIMUM SWR: 1.3:1.

AMBIENT TEMPERATURE: M28 deg to P65 deg C (M18 deg to 149 deg F).

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.
Type No. 180T-2; dwg no. 522 1285 00.
Contract NObsr-75279.
Contract NObsr-81220.
Approximate cost \$3,120.00.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

DIODES

(2) 1N108 (4) 1N536 (2) 1N82A
Total Diodes: (8)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93286; Technical Manual for ANTENNA COUPLER GROUP AN/SRA-22.

<p>TYPE CLASSIFICATION (NAVY) DESIGN COGNIZANCE USN, BUSHIPS PROCUREMENT COGNIZANCE STOCK NO. R.D.B. IDENT. NO.</p>
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Radio-Auxiliary

AN/SRA-22

ANTENNA COUPLER GROUP

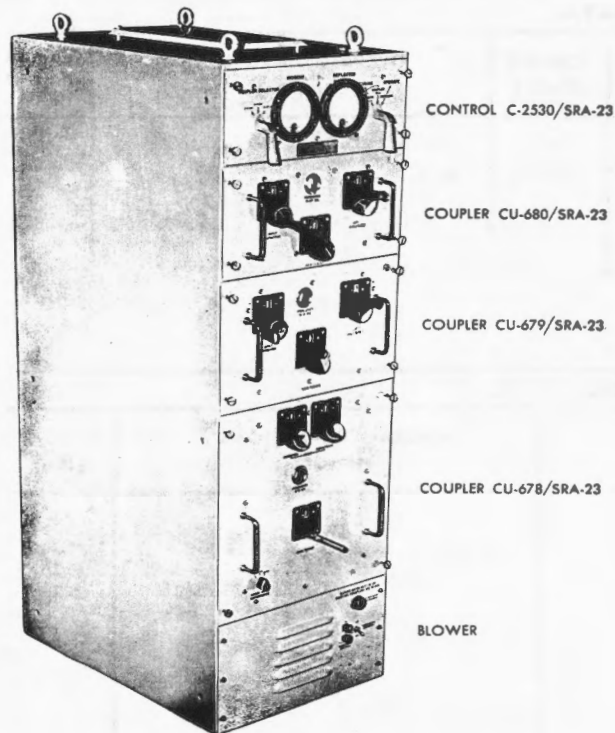
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1 *	Coupler Control C-2698/SRA-22	3.4	14-1/2 x 20 x 20	53
1 *	Antenna Coupler CU-714/SRA-22	1.2	8 x 10 x 22	25
	Technical Manuals NAVSHIPS 93286			
	Maintenance Standards Book			
	Operator's Chart			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/SRA-22 includes:		59
1 *	.Coupler Control C-2698/SRA-22	5-1/4 x 6-7/8 x 19	17
1 *	.Antenna Coupler CU-714/SRA-22	11-1/2 x 18-7/8 x 19-15/16	42
2	.Technical Manual NAVSHIPS 93286		
1	Maintenance Standards Book		
1	Operator's Chart		
	* Mating connectors are supplied with the units.		

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ANTENNA COUPLER GROUPRadio-Auxiliary
AN/SRA-23*Antenna Coupling Group AN/SRA-23***FUNCTIONAL DESCRIPTION**

The AN/SRA-23 is for general purpose receiving use. It is a system of high frequency antenna couplers, covering the frequency range of 2 to 27 megacycle (MC). It has been developed to permit the simultaneous operation of up to eight (8) 500 watt transmitters into one broadband antenna system with a minimum frequency separation between channels of approximately ten (10) %. One antenna coupler group is required for each transmitter in the system.

No field changes in effect at time of preparation (30 September 1960).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Mounting Platform (Support four-group system), (3) Tie Bar (Reinforcement of eight group system), Bulk - Coaxial transmission line RG-10/U, Bulk - Coaxial transmission

line RG-18/U, Bulk - Cable, MSCA-7, Bulk - Cable, TSGA.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Continuously variable over frequency range of each coupler.

TYPE OF FREQUENCY CONTROL: Manual.

POWER RATING: Each coupler, 500 W, rf power, 100% amplitude modulated.

INPUT IMPEDANCE: 50 ohms.

OUTPUT IMPEDANCE: 50 ohms.

FREQUENCY RANGE

COUPLER ANTENNA CU-678/SRA-23: 2 to 6 mc.

COUPLER ANTENNA CU-679/SRA-23: 5 to 15 mc.

COUPLER ANTENNA CU-680/SRA-23: 9 to 27 mc.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph, 120 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Long Beach Naval Shipyard, Long Beach, California.

Contract LBNSY Proj. No. 66 & 68;
Allotment No. 206, 207, 411 and 412;
dated October 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93196.: Technical Manual for Coupler Group, Antenna AN/SRA-23.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	NAVY BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

June 1961

Radio-Auxiliary

AN/SRA-23

ANTENNA COUPLER GROUP

SHIPPING DATA

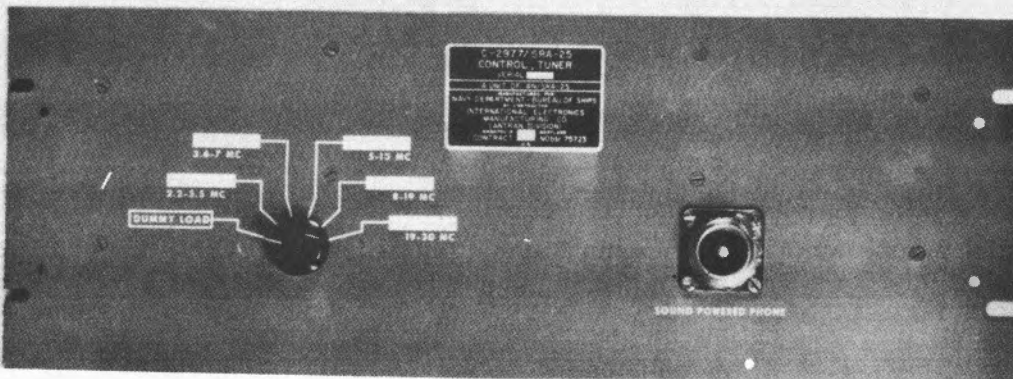
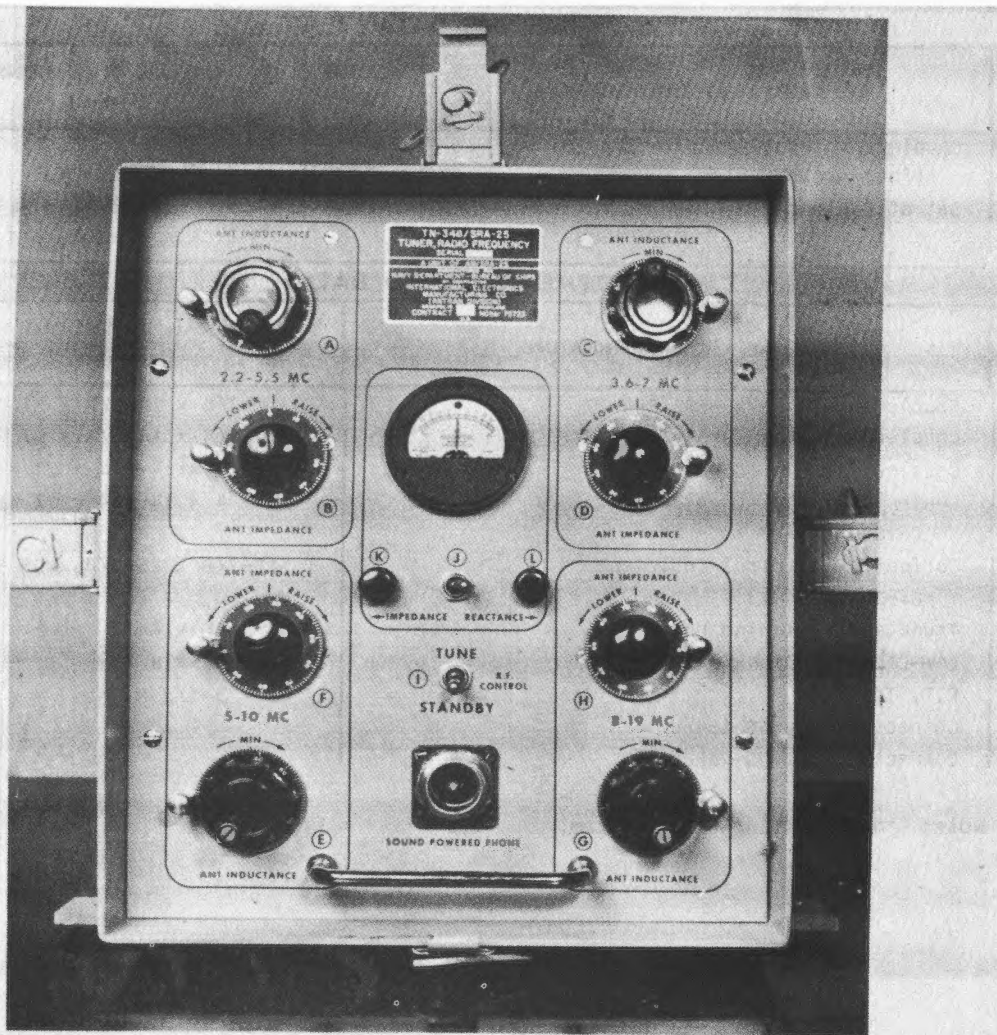
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Coupler, Antenna Group AN/SRA-23 (four-group system)	110	40 x 62 x 76	2500
1	Set of Equipment Spares	8	24 x 24 x 24	100

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Coupler, Antenna CU-678/SRA-23	14-3/4 x 17-3/4 x 27	90
1	Coupler, Antenna CU-679/SRA-23	10-3/4 x 14-3/4 x 27	58
1	Coupler, Antenna CU-680/SRA-23	8-3/4 x 14-3/4 x 27	50
1	Control, Antenna Coupler Group C-2530/SRA-23	7-3/4 x 14-3/4 x 27	25
1	Cabinet, Electrical Equipment CY-2417/SRA-23	17-7/8 x 25-3/4 x 55-3/4	225
1	Trunk and Switching Unit	6 x 45 x 64	125
3	Low-Capacity Trunk	3 x 3 x 18	4
*1	R.F. Test Box	2 x 3-1/2 x 7	2
3	Connector Type UG-154/U		
4	Connector Type UG-968/U		

Note: *One per four-group system.

ANTENNA TUNING GROUP



Antenna Tuning Group AN/SRA-25

February 1960

Radio-Auxiliary

AN/SRA-25**ANTENNA TUNING GROUP****FUNCTIONAL DESCRIPTION**

Antenna Tuning Group AN/SRA-25 consists of Control, Tuner C-2977/SRA-25; Tuner, Radio Frequency TN-348/SRA-25; mating connectors, and a kit of parts for the associated transmitter control circuit and RF output modification. The AN/SRA-25 is used specifically with the Eldico Single Sideband Communications System S-100. However, it may be used with any transmitter having similar characteristics providing the transmitter is suitably modified.

Antenna Tuning Group AN-SRA-25 provides a means for tuning and matching a standard Navy 35-foot whip antenna, type 66047 or similar, to a 50-ohm transmission line over a frequency range of 2 to 30 mc, thereby allowing maximum transfer of power from the transmitter to the antenna.

Control, Tuner C-2977/SRA-25 consists of: A low pass filter (32 mc cut off), a 6 position selector switch, a sound powered telephone receptacle and a transmit-receive type relay. The control unit remotely selects any one of four pretuned bands of frequencies by the six position selector switch on the front panel. The function of each position is as follows:

<u>Position</u>	<u>Function</u>
1	"DUMMY LOAD"
2	2.2 to 5.5 mc
3	3.5 to 7.0 mc
4	5.0 to 10 mc
5	8.0 to 19 mc
6	19 to 30 mc

The sound powered telephone receptacle provides communication between the control unit and the R.F. tuner during the tuning operation.

Tuner, Radio Frequency TN-348/SRA-25 consists of: Four circuits, matching indicator, sound powered receptacle, manual tuning adjustments on the front panel to preset the antenna loading circuits.

The Tuner functions as an LC circuit in series with the antenna to provide the cor-

rect amount of inductive or capacitive reactance values to make a 35-foot whip antenna appear electrically as a quarter-wave antenna. The Tuner includes a variable transformer for adjusting the impedance of the antenna to the 50-ohm impedance of the associated transmitter and transmission line. The meter on the front panel provides visual indications for resonating and matching the antenna. A 50-ohm, 50-watt supernon-inductive dummy antenna load resistor enables the transmitter output to be initially loaded for optimum performance at the desired impedance before it is switched to the antenna resonating and matching circuits.

RELATION TO OTHER EQUIPMENT

Control, Tuner C-2977/SRA-25 replaces the Eldico M-100 Antenna Tuner on the Eldico S-100, Single Sideband Communications System.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Radio Transmitter or Transceiver (and associated technical manuals), (1) 35 ft. whip antenna NT-66047 or similar, (1) Antenna base insulator NT-61335 or similar, (2) Sound-powered hand telephone assembly chest-set, (As req) Cable RG-10A/U, (As req.) Cable MSCA-14.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

OPERATING FREQUENCY RANGE: 2 to 30 mc.

TRANSMISSION LINE CHARACTERISTIC IMPEDANCE :
50 ohms (RG-10A/U).

POWER REQUIREMENTS: 110 - 120 volts AC, 60 cycles, single phase, 100 watts. Power is consumed only when channels are being changed. A separate power source is not necessary when operating with the Eldico S-100.

MAXIMUM POWER INPUT: 100 watts.

NUMBER OF OPERATORS REQUIRED: 2.

February 1960

Radio-Auxiliary

ANTENNA TUNING GROUP

AN/SRA-25

MANUFACTURER'S OR CONTRACTOR'S DATA

International Electronics Manufacturing
Company, Antran Division Annapolis,
Maryland.

Drawing No. IEMC 01-10.

Contract NObsr-75723, dated 12 March
1959.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93402: Technical Manual for Antenna
Group AN/SRA-25.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

TYPE CLASSIFICATION

DESIGN COGNIZANCE

PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	TN-348/SRA-25	2.51	19 X 15 X 15.25	44
1	C-2977/SRA-25	.613	19 X 6.97 X 8	5
1	Kit of connectors	.05	5.4 X 4.1 X 4.1	
1	Field Change Kit	.05	5.4 X 4.1 X 4.1	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner, R. F. TN-348/SRA-25	19 X 15 X 15.25	44
2	Control, Tuner C-2977/SRA-25	25-32 X 13/16 dia.	5
1	Connector UG-941/U	2-1/8 X 1-15/32	
1	Connecoor AN3106A-20-27P	2-13/16 X 19/16 dia.	
1	Connector AN3106E-20-27S	36-1/2 X 11-32 dia.	
2	Cable Assembly AN3106A-14S-2S		
1	Technical Manuals NAVSHIPS 93402	5.4 X 4.1 X 4.1	
	**Field Change Kit		

**Required only when Antenna Tuning Group AN/SRA-25 is used with Single Sideband System S-100.

UNCLASSIFIED

June 1961

Radio-Auxiliary

ANTENNA GROUP

AN/SRA-26(XN-1)

FUNCTIONAL DESCRIPTION

The AN/SRA-26(XN-1) is designed to operate from 2 to 8 megacycle (MC). A six foot whip is base tuned by means of fixed coils and a Variable Capacitor. The tuning is done remotely from the receiver location.

No field changes in effect at time of preparation (5 May 1960).

MANUFACTURER'S OR CONTRACTOR'S DATA

U.S. Navy Electronics Laboratory, San Diego, California.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

METHOD OF COUPLING: Tap.

TYPE OF TUNING: Capacitance - remote controlled.

OUTPUT IMPEDANCE: 50 ohm.

FREQUENCY RANGE: 2 to 8 mc.

OPERATING POWER RQMT: 117 v AC, 60 cps, single ph.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Antenna Group AN/SRA-26(XN-1).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Group AN/SRA-26(XN-1) Including:		
1	R.F. Tuner Housing	8.5 X 9 X 12	
1	Antenna Control	5 X 10 X 10	
1	Antenna	3/8 dia X 72	

UNCLASSIFIED

June 1961

Radio-Auxiliary

ANTENNA COUPLER GROUP**AN/SRA-27 (XN-1)****FUNCTIONAL DESCRIPTION**

The AN/SRA-27(XN-1) is a general purpose equipment that remotely matches and tunes an antenna (a 15-35 foot whip or a 60 to 130 foot long line) to a 50-ohm transmission line over a frequency range of 1.5 to 12 megacycle (MC) at a maximum input power of 100 watts. Remote control facilities are provided.

No field changes in effect at time of preparation (6 January 1961).

OPERATING FREQUENCY RANGE: 1.5 to 12 mc.
OPERATING POWER RQMT: 115 v ac, 60 cps, single ph, 100 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

International Electronics Mfg. Co., Annapolis, Maryland.

Contract NObsr-81069, dated 13 October 1959.

RELATION TO OTHER EQUIPMENT

The AN/SRA-27(XN-1) is used with, but not a part of, Navy model TCS Radio Transmitter. The AN/SRA-27(XN-1) is compatible with other transmitters whose electrical characteristics are similar to those of the Navy model TCS Radio Transmitter.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Antenna Coupler Group AN/SRA-27(XN-1).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF CONTROL: Remote.

TYPE OF FUNCTION: Matches and tunes an antenna (a 15-35 ft whip or a 60 to 130 ft lg line) to a 50-ohm transmission line.

TYPE OF ANTENNA: Whip or long line.

TYPE OF FEED: Transmission Line.

IMPEDANCE: 50 ohms.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE MIL-F-17655A
STOCK NO.
R.D.B. IDENT. NO.

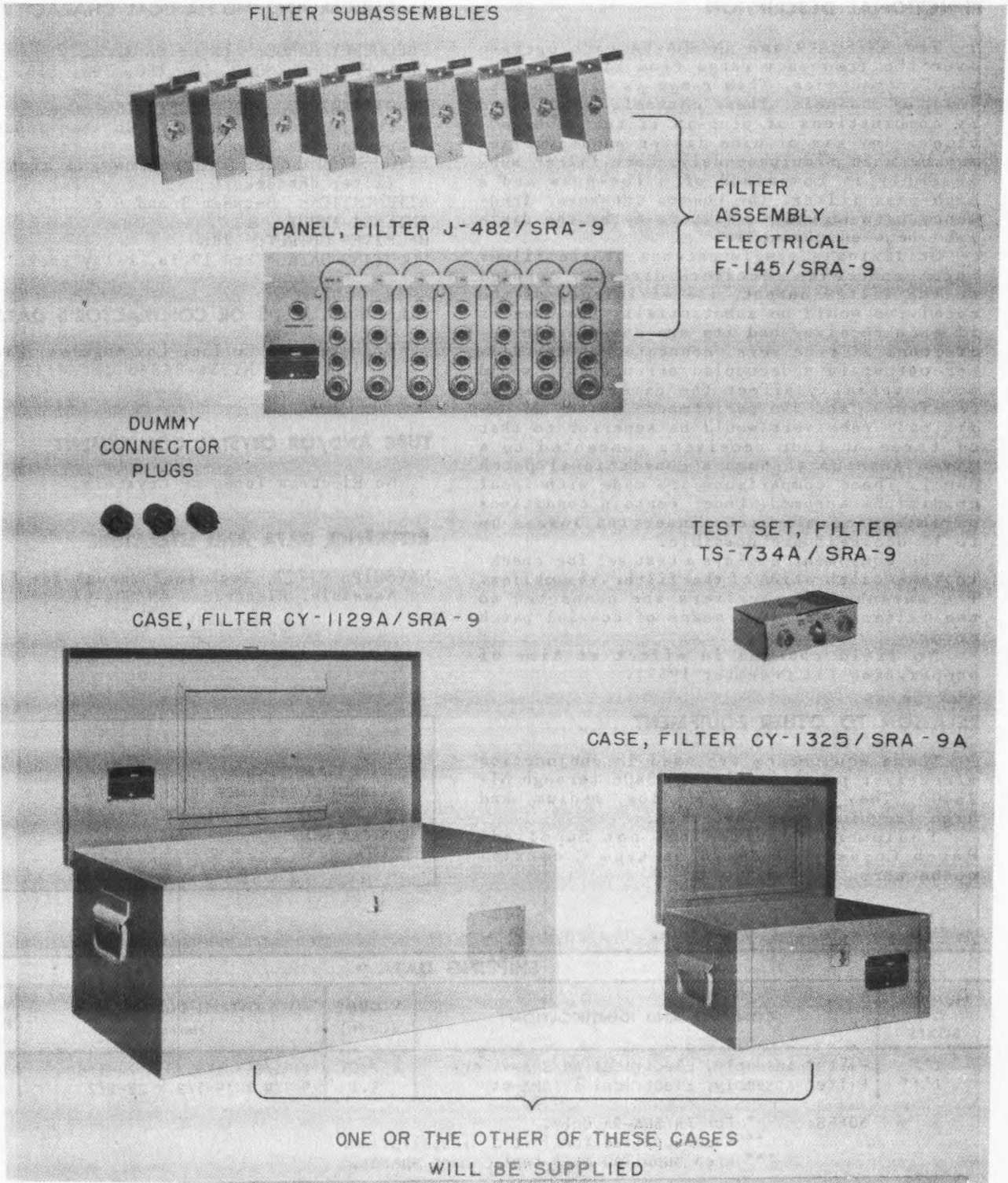
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/SRA-27(XN-1) consists of:		
1	Coupler, Antenna		
1	Control, Antenna Coupler		

Apr 11 1958

FILTER ASSEMBLY, ELECTRICAL

Radio-Auxiliary
AN/SRA-9, -9A



Radio-Auxiliary

AN/SRA-9, -9A**FILTER ASSEMBLY, ELECTRICAL**

April 1958

FUNCTIONAL DESCRIPTION

The AN/SRA-9 and AN/SRA-9A each operate over the frequency range from 14 kilocycles to 32 megacycles. This range is divided into seven RF channels. These channels are obtained by combinations of plug-in filter subassemblies. Any six of nine filter subassemblies may be used simultaneously. Each filter subassembly is comprised of a low-pass and a high-pass filter. The common crossover frequency between the two filters marks the division between channels.

Utilizing a single antenna at the filter input and seven receivers directly coupled to the filter output, the efficiency of the receivers would be substantially the same as if each receiver had its own antenna. An additional 21 receivers, connected to the filter output in a decoupled arrangement, would not materially affect the directly coupled receivers, and the performance of the 21 additional receivers would be superior to that of three or four receivers connected to a given antenna through a conventional patch panel. These comparisons are made with ideal conditions assumed. Under certain conditions of impedance mismatch, insertion losses up to 15 decibels are possible.

The equipment employs a test set for checking the calibration of the filter assemblies. The antenna and receivers are connected to the filter assembly by means of coaxial patch cords.

No field changes in effect at time of preparation (11 December 1957).

RELATION TO OTHER EQUIPMENT

These equipments are used in conjunction w/receiver patch panels NT-23406 through NT-23409. They are used w/any low, medium, and high frequency communication.

Equipment Required but not Supplied:
Patch Cords w/NT-49120 or type C coaxial connectors.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 14 kc to 32 mc.
CUT OFF FREQUENCY: 50, 150, 300, 530, 1600, 2000, 3500, 7000, and 14000 kc.
CHARACTERISTIC IMPEDANCE: 180 ohms.
REFLECTION LOSS: Approx 1 db when input impedance is 70 ohms.
SUBASSEMBLY TYPE: Both low and high pass filter network.
ATTENUATION: Between 3 and 6 db.
ANTENNA INPUT: 1.
RECEIVER OUTPUT: 28.
MOUNTING DATA: Std 19 in. relay rack.

MANUFACTURER'S OR CONTRACTOR'S DATA

Brubaker Mfg Co Inc, Los Angeles, Calif.
Contract N123s-86863 dated 13 June, 1952.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91777, Technical Manual for Filter Assembly, Electrical AN/SRA-9A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA *

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1**	Filter Assembly, Electrical AN/SRA-9A or	2.03	11-1/8 X 14-3/8 X 22-3/8	52.6
1***	Filter Assembly, Electrical AN/SRA-9A	3.1	9-3/4 X 13-1/2 X 25-1/2	49.75

NOTES: * For AN/SRA-9A only.
** When supplied for initial installation.
*** When supplied as a replacement spares.

April 1958

FILTER ASSEMBLY, ELECTRICAL

Radio-Auxiliary
AN/SRA-9, -9A

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Panel, Filter J-482/SRA-9	2-1/8 X 8-2/3 X 19	10.25
9	Filter Subassemblies	2 X 3 X 4	18
			total
1	Test Set, Filter TS-734/SRA-9† or TS-734A/SRA-9††	2 X 3-1/2 X 6-1/4 2 X 3-1/2 X 6-1/4	1.0 1.0
3	Shorting Plugs	1-1/4 dia X 1-7/8	
1	Case, Filter CY-1129/SRA-9† or	10-3/4 X 11 X 25-3/4	24.0
1**	Case, Filter CY-1129A/SRA-9†† or	9-1/2 X 12-3/4 X 25-3/4	24.6
1***	Case, Filter CY-1325/SRA-9A††	6-1/4 X 9-3/8 X 12-3/8	12.12

NOTES: **When supplied for initial installation.

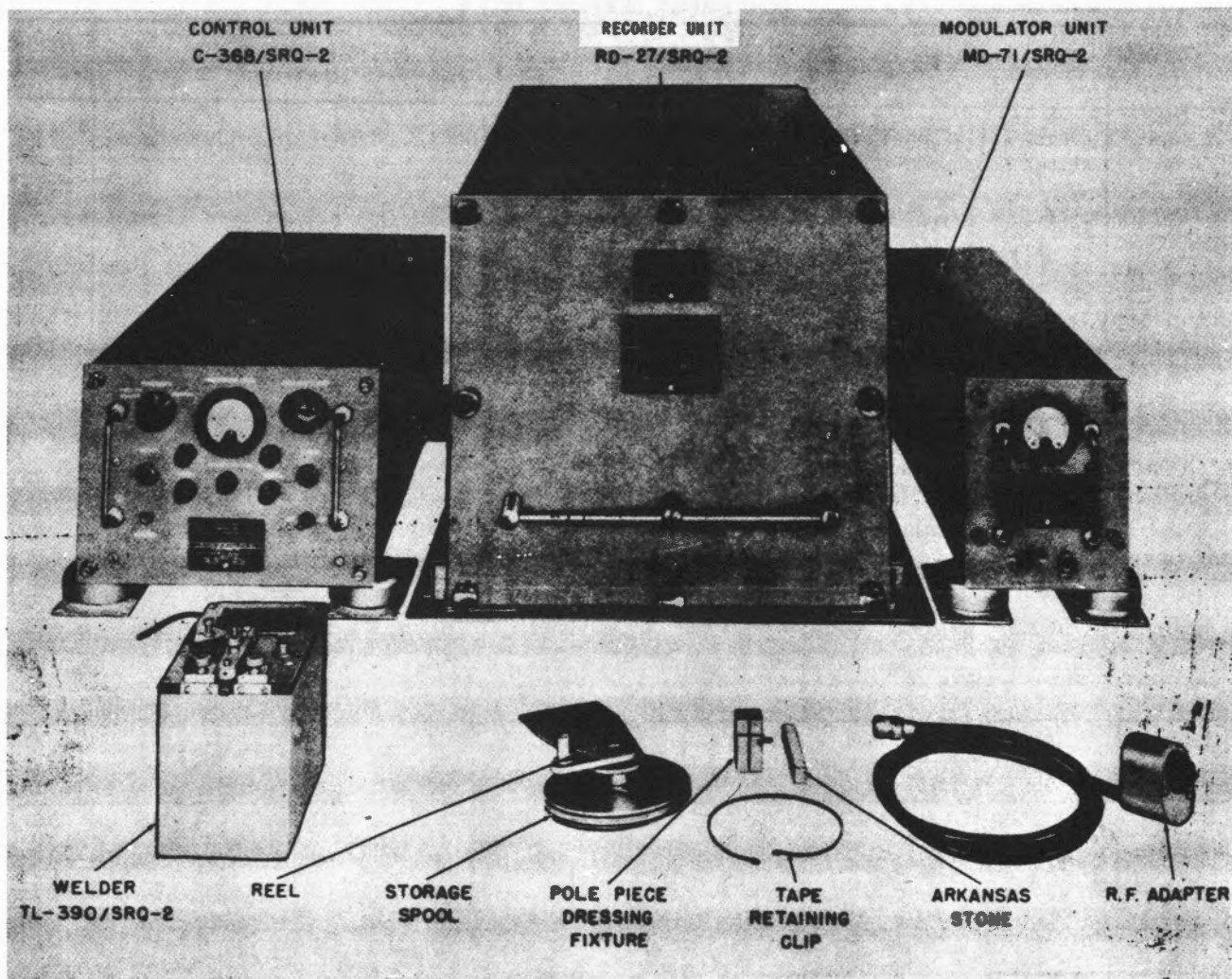
***When supplied as a replacement spare.

†Supplied w/AN/SRA-9 only.

††Supplied w/AN/SRA-9A only.

RECORDER-REPRODUCER SET

AN/SRQ-2



Recorder - Reproducer Set AN/SRQ-2

FUNCTIONAL DESCRIPTION

The AN/SRQ-2 is a magnetic tape recorder and reproducer that makes records having a duration of 60 seconds. The recordings may be reproduced continuously over long periods of time for the study and analysis of signal waveforms, frequencies and intensities.

No field changes in effect at time of preparation (1 April 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but Not Supplied: (1) Oscillator, Dumont Type 247; (1) Set Headphone H-3/ARR-3; (1) Technical Manual.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5.25 mc input to control unit.

OUTPUT LEVER REQUIRE FROM RECEIVER: 5,000 mv at 5.25 mc.

TYPE RECEPTION: will accept, record and reproduce the envelope of a band of frequencies between 5.221 and 5.280 mc.

POWER SUPPLY REQUIRED:

POWER SOURCE: 110 v, 60 cps, single ph. LOAD ON POWER SOURCE

REPRODUCE: 235 W, 65% pf.

SEARCH: 162 W, 95% pf.

RECORD: 316 W, 79% pf.

Radio-Auxiliary

AN/SRQ-2

RECORDER-REPRODUCER SET

CRYSTALS

CONTROL UNIT: 5.22 mc.
MODULATION: 5.25 mc.
FREQUENCY STABILITY OF CRYSTAL: Max drift
±1000 cycles for temperature range -55
deg C to +90 deg C.

INPUT IMPEDANCE

CONTROL UNIT: 5.25 mc 10,000 ohms.
MODULATOR: 160 to 1000 ohms.
CONTROL UNIT: Reproducer Channel, 2000
ohms.

OUTPUT IMPEDANCE

HEADPHONE: 600 ohms.
OSCILLOSCOPE: 1000 ohms.
MODULATOR: 10 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

Presto Recording Corp, New York, N.Y.
Contract N5sr-8641 dated 27 June 1945.
Approximate Cost: \$325.00 with equipment
spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5R4GY (3) 6J5 (7) 6SJ7
(1) 6AG7 (2) 6L6-GA (1) 6SK7
(1) 6E5 (1) 6N7 (2) 6SL7-GT
(1) 6SR7 (1) OD3/VR150

Total Tubes: (21)

(2) CR-1/AR

Total Crystals: (2)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,971: Technical Manual for
Recorder-Reproducer Set AN/SRQ-2.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Control Unit, Modulator, welder and Cables	12.21	22-1/2 x 28 x 33-1/2	250
1	Recorder-Reproducer Unit	15.13	24-1/2 x 25-1/2 x 44	425
1	Spare Parts			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Control Unit C-368/SRQ-2	9-3/4 x 13-5/8 x 26-1/8	74
1	Recorder-Reproducer RD-27/SRQ-2	16-5/8 x 21 x 36-1/8	304
1	Modulator MD-71/SRQ-2	8-3/4 x 9-5/16 x 26-1/8	39
1	welder TL-390/SRQ-2	4-3/8 x 6-7/8 x 7	14

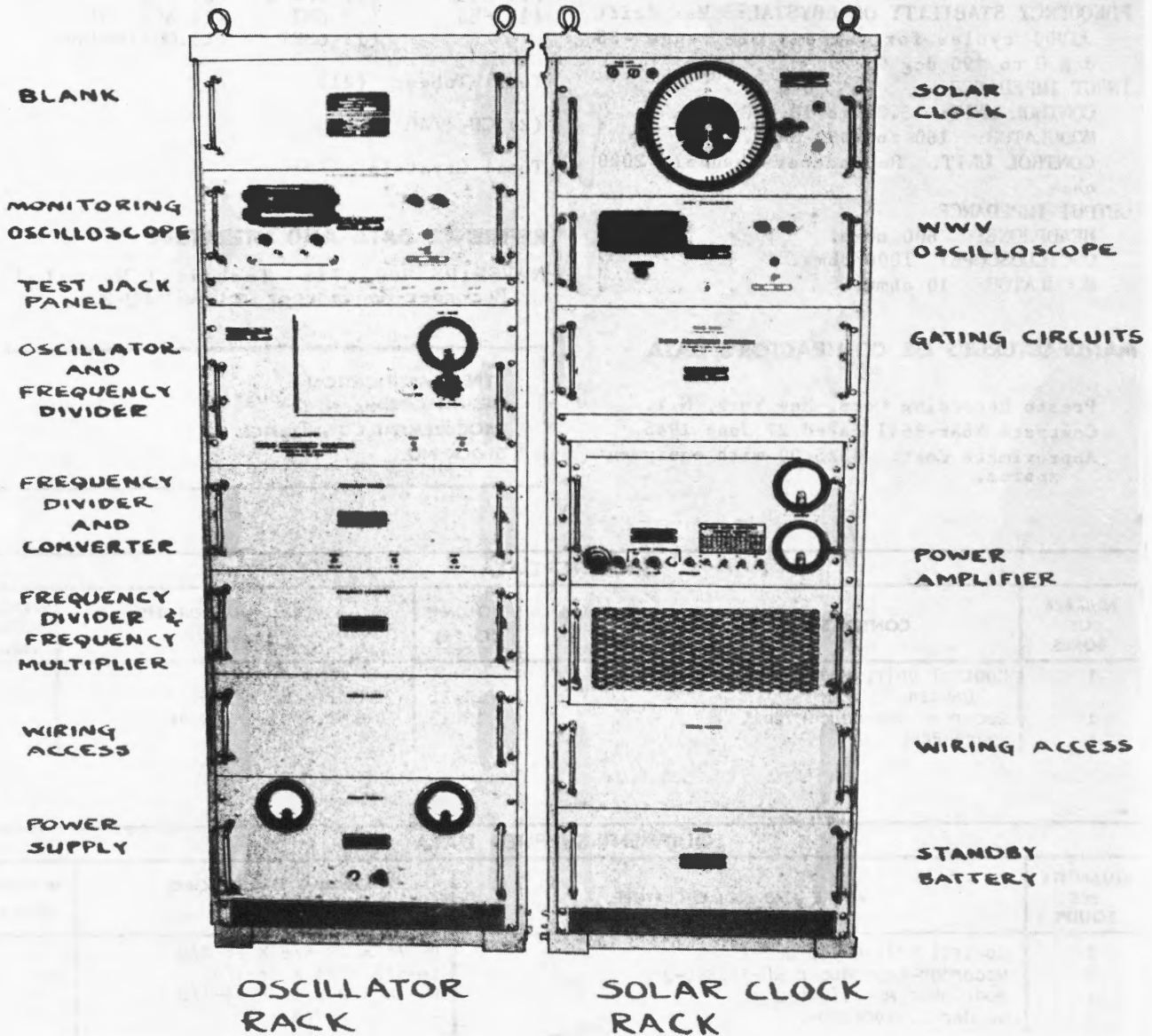
FREQUENCY TIME STANDARD

Radio-Auxiliary
AN/SSQ-27(XN-1)

Figure
1-1

AN/SSQ-27(XN-1) FREQUENCY AND TIME STANDARD GENERAL INFORMATION

NAVSHIPS 93306



Frequency Time Standard AN/SSQ-27(XN-1)

FUNCTIONAL DESCRIPTION

The AN/SSQ-27(XN-1) is designed as a crystal controlled frequency and time standard for shipboard and laboratory use. The

standard provides extremely stable output frequencies of 1.0 megacycles (MC), 240 kilocycles (KC), 100 kc, 10 kc, 1.0 kc, 400 cycles per second (CPS), 100 cps, and 60 cps. It also provides an accurate time pulse every

August 1960

Radio-Auxiliary

AN/SSQ-27(XN-1)**FREQUENCY TIME STANDARD**

30 minutes and every 24 hours. It includes a 200 watt power amplifier for the amplification of the 60 cycles per second signal.

The pulse of the AN/SSQ-27(XN-1) is used to precisely set elements of a navigational system with reference to time; frequency is used to control the operation of computers, recorders, and similar devices so as to maintain an accurate relationship of these devices.

No field changes in effect at time of preparation (13 April 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF FREQUENCY CONTROL: Crystal.

DESIGN USE: Shipboard and laboratory.

SINE WAVE OUTPUTS: 1.0 mc, 240 kc, 100 kc, 10 kc, 1.0 kc, 400 cps, 100 cps and 60 cps.

ACCURATE TIME PULSE: Every 30 minutes and 24 hours.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Borg Equipment Division Amphenol-Borg
Electronics Corp., Janesville, Wis.
Contract NObsr-71859, dated 23 April
1959.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 5840A	(8) 604
(5) USN2N118	(2) 2N339
(2) SV11	(6) 5725
(19) 5654	(16) TJ25A

(11) H5	(2) 904
(2) 951	(1) 6BW4
(2) 12BY7	(2) 6073/OA2
(5) 12AU7	(1) 3AHP1
(2) 1V2	(2) SV808
(3) TJ5A	(3) 12AT7
(1) 6BJ8	(1) 3SP7
(2) 5696	(2) 5814A
(2) 7034/4X150A	(2) 6073/OA2

Total Tubes: (107)

SEMI-CONDUCTORS

(8) 1N429	(4) 1N250
(1) 1N77A	(2) 1N540

Total Semiconductors: (15)

Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93306: Technical Manual for Frequency-Time Standard AN/SSQ-27(XN-1).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-T-2729
STOCK NO.
R.D.B. IDENT. NO. 13.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Standard AN/SSQ-27(XN-1) Including:		
1	R. F. Oscillator 0-471()/U		
1	Frequency Converter		
1	Pulse Generator		
1	Power Supply		
1	Control Amplifier		

TIME AND FREQUENCY STANDARD

FUNCTIONAL DESCRIPTION

The AN/SSQ-27 is designed for installation on submarines to provide very accurate time and frequency and sine wave outputs at 400, 240, 100 and 1 kilocycle and 60 cycles with amplitude of 1 volt into a 50 ohm resistive load. It also provides pulses for gating other equipment. It is used with various communication, surveying, navigation, and electronic data processing systems.

No field changes in effect at time of preparation (11 June 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

SINE WAVE OUTPUTS

FREQUENCY: 60 cps; 1, 100, 240 and 400 kc.

AMPLITUDE: 1 v into 50 ohms resistive load.

OUTPUT POWER: 115 v, 60 cps, single ph, 200 W.

FREQUENCY STABILITY: 1 to 10^8 for 60 days after suitable aging time.

POWER REQUIREMENTS: 115 v, 60 cps, single ph, 1 kw.

MANUFACTURER'S OR CONTRACTOR'S DATA

Borg Equipment Div, George W. Borg Corp, Janesville, Wis.

Contract NObsr-75093, dated 3 January 1958.

Approximate Cost: \$19,400.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal Data Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 4457: Electronic Equipment-Preliminary Data for Time Standard AN/SSQ-27. Nomenclature Card for Time and Frequency Standard AN/SSQ-27.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-T-2819
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Power Amplifier	13-1/2 X 22 X 24	
1	Receiver	13-1/2 X 22 X 45	

UNCLASSIFIED

October 1957

Radio-Auxiliary

PUBLIC ADDRESS SET

AN/TIH-501

FUNCTIONAL DESCRIPTION

The AN/TIH-501 is a recorder and reproducer of sound signals. It is for general purpose use.

No field changes in effect at time of preparation (8 May 1957).

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Public Address Set AN/TIH-501 dated 20 August 1956.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER OUTPUT: 25 w.

NUMBERS OF CHANNELS: 4.

POWER SOURCE REQUIRED: 115 v, single ph, 12 v DC.

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Reproducer RP-5002/TIH-501		
1	Microphone M-5003/U		
1	Transformer		
	Loudspeakers LS-5007/U		
	Loudspeaker Drivers		
1	Loudspeaker Stand MT-5005/U		
1	Microphone Stand MT-5009/U		
	Miscellaneous Plugs and Cables		

UNCLASSIFIED

1.2 AN/TIH-501: 1

28 June 1962

Cog Service:

FSN:

PUBLIC ADDRESS SET AN/TIP-2
Functional Class:

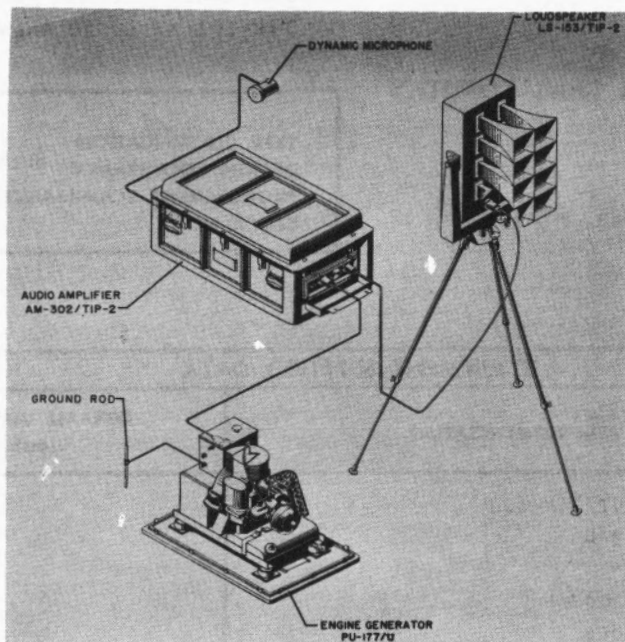
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Stromberg-Carlson Company.



Public Address Set AN/TIP-2

FUNCTIONAL DESCRIPTION:

The Public Address Set AN/TIP-2 is a portable high-level, high-gain system for the distant projection of sound. The prime function of this set is the directing of personnel during landing operations.

No field changes in effect at time of preparation (15 August 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Portable.

NUMBER OF INPUT CHANNELS: 2 channels.

AMBIENT TEMPERATURE RANGE: M40 deg F to P130 deg F.

RANGE

OPTIMUM CONDITIONS: 10000 ft for level terrain and low ambient noise level.

BATTLE CONDITIONS: Approx 2500 ft.

AN/TIP-2 PUBLIC ADDRESS SET

IMPEDANCE: 16 ohms at 500 W.

FREQUENCY RANGE: 350 to 5000 cycles.

SOUND INTENSITY LEVEL: 120 db above reference level of 0.0002 dyne/cm² at 30 ft on sound axis. Sound distribution angle is approx 70 deg horizontal, and 40 deg vertical.

POWER OUTPUT: 500 W.

OPERATING POWER REQMT: 115 v ac, 60 cps, single ph, 1100 watts (from gasoline engine generator).

FUEL REQMT

CAPACITY: 1 gallon (full tank).

TYPE OF FUEL: 60 to 100 octane gasoline mixed with one half pint of SAE 30 oil.

OPERATING TIME: Approx 3 hrs.

RELATION TO OTHER EQUIPMENT:

The AN/TIP-2 was formerly called Navy Model PAB-2; used for control of personnel in assault operations.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Audio Amplifier AM-302/TIP-2		14-1/4 x 19-3/4 x 34	220
1	Engine Generator PU-177/U		20-5/8 x 24-1/4 x 28-1/4	215
1	Loudspeaker Case CY-760/TIP-2		19-3/4 x 20-5/8 x 30-1/8	190
1	Loudspeaker LS-153/TIP-2		13 x 17-1/4 x 24	106-1/2
1	Accessories Case CY-719/TIP-2		15-3/4 x 16-1/4 x 43-3/4	169
1	Set of Equipment Spares Case #1 CY-715/TIP-2		12-3/8 x 16 x 25	140
1	Set of Equipment Spares Case #2 CY-715/TIP-2		12-3/8 x 16 x 25	125

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-1907: Technical Manual for Public Address Set AN/TIP-2.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 3B28 (1) 6L6GA (2) 5Y3GT/G (3) 6SN7GTW (6) 811A

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	7.5	290
1	10.8	309
1	9.5	274
1	8.8	249
1	4.2	185
1	4.2	170

PROCUREMENT DATA

PROCURING SERVICE:
SPEC &/OR DWG: CS-276

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stromberg-Carlson Company	Rochester, N. Y.	NObs 46711, 24 May 1948	

April 1958

PUBLIC ADDRESS SET

Radio-Auxiliary
AN/TIQ-2, 2A

Public Address Set AN/TIQ-2, 2A

FUNCTIONAL DESCRIPTION

The AN/TIQ-2 and AN/TIQ-2A are portable, electrical sound amplification systems designed to serve large audiences or groups dispersed over a wide area. They can be operated on either alternating current or direct current and contain provisions, by adding a booster amplifier, to increase the range of the set or to increase the number of speakers that can be used.

They also can be used to furnish radio programs to large groups, by connection the output of Radio Receiver R-100/URR to the amplifier input.

No field changes in effect at time of preparation (7 October 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Power Unit PE-214 (when standard power source not available), (1) Vibrator Pack PP-31 or Rotary Converter PU-143()/U (for 6 to 24 volt direct current battery source).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

AMPLIFIER DATA

FREQUENCY RANGE: 50 to 10000 cps with max variation of 3 db.

POWER OUTPUT: 20 W at less than 5% distortion.

INPUT CHANNELS: (2) High-impedance microphone, (2) Low-impedance microphone, (1) Carbon microphone, (1) Radio, (1) Line, (1) Phonograph.

GAIN: 104 db for high-impedance and low-impedance microphone channels, 75 db for phonograph or line channel, 60 db for radio or carbon microphone channel.

POWER REQUIREMENTS: 115 or 230 v, 60 cps, single ph, 150 W.

AUXILIARY POWER: 6 to 12 v DC using Vibrator Power Pack PP-31/TIQ-2.

TURNTABLE DATA

SPEEDS: 33-1/3 and 78 rpm.

SPEED CONTROL: Lever controlled governor adjustable within 10%.

POWER REQUIREMENTS: 115 or 230 v, 60 cps, single ph, 25 W.

LOUDSPEAKER DATA

TYPE: Re-entrant.

POWER RATING: 20 W.

MICROPHONE DATA

TYPE: Dynamic, moving-coil type, unidirectional.

FREQUENCY RANGE: 60 to 7500 cps.

OUTPUT: -56 db, relative to 1 v-per-dyne per square centimeter sound pressure.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4G (2) 6L6 (3) 6SL7WGT

Total Tubes: (6)

REFERENCE DATA AND LITERATURE

TM11-2586: Technical Manual for Public Address Sets AN/TIQ-2, AN/TIQ-2A and AN/TIQ-2B.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	

Radio-Auxiliary
AN/TIQ-2, 2A

PUBLIC ADDRESS SET

April 1958

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AN/TIQ-2 Case CY-38/TIQ-2(3) consisting of: (1) Amplifier Case (1) Turntable Case (1) Spare Parts Case including: (2) Microphone	28	28 X 38 X 46	250
1	Loudspeaker Stand MT-128/TIQ-2(2)	7.5	12 X 20 X 54	85
1	Case CY-37/TIQ-2 including: (2) Microphone Stand (2) Speaker (11) Cable	26	29 X 31 X 50	250
1	AN/TIQ-2A Case CY-37A/TIQ-2 including: (3) Record Album (2) Microphone (2) Microphone Stand (2) Speaker (11) Cable (1) Set of Spare Parts and Case CY-38/TIQ-2(2) consisting of: (1) Amplifier Case (1) Turntable Case	56	41 X 48 X 50	350
1	Loudspeaker Stand MT-128A/TIQ-2(2)	7.5	12 X 20 X 54	85

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/TIQ-2 2A			
1	Amplifier AM-20/TIQ-2	8-3/4 X 14 X 19	65
1	Amplifier AM-20A/TIQ-2	8-3/4 X 14 X 19	65
1	Turntable MX-39/TIQ-2	6 X 14 X 19	37
1	Turntable MX-39A/TIQ-2	6 X 14 X 19	37
3	Case CY-38/TIQ-2	10 X 16 X 21	10
1	Case CY-37/TIQ-2	22 X 23 X 33-3/4	78
1	Case CY-37A/TIQ-2	22 X 23 X 34	80
2	Loudspeaker LS-103/TIQ-2	19 dia X 25	22
2	Loudspeaker LS-103A/TIQ-2	19 dia X 25	22
2	Loudspeaker Stand MT-128/TIQ-2	6 dia X 48	18.5
2	Loudspeaker Stand MT-128A/TIQ-2	6 dia X 48	18.5

April 1958

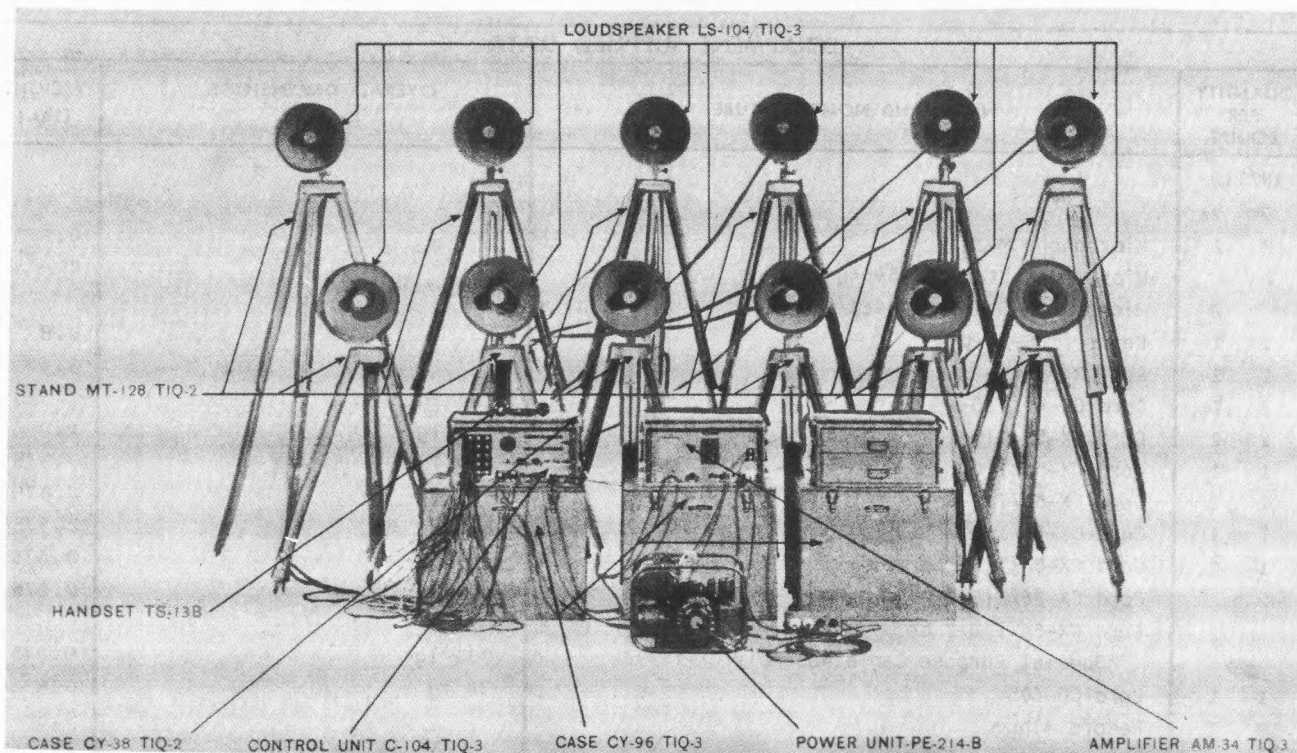
PUBLIC ADDRESS SET

Radio-Auxiliary
AN/TIQ-2, 2A

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/TIQ-			
2 2A			
2 2	Microphone M-2/U		0.875
2	Microphone Stand MT-596/U		4
2	Microphone Stand MT-596A/U	78 1g	
1 1	Headset HS-30-U		0.8
2 2	Reel RL-3		3.6
2 2	Cord CX-49/TIQ-2	120 1g	1.125
2 2	Cord CX-50/TIQ-2	300 1g	1.0
1 1	Cord CX-51/TIQ-2	120 1g	0.375
1 1	Cord CX-53/TIQ-2	300 1g	4.375
1 1	Cord CX-54/TIQ-2	300 1g	2.375
1 1	Cord CX-55/TIQ-2	36 1g	0.625
2	Cord CX-56/TIQ-2	300 1g	0.875
2	Cord CX-56/TIQ-2 or Special Purpose Cable Assembly CX-1833/U	300 1g	0.875
1 1	Cord CD-605	78 1g	0.5
3 3	Record Album		0.5
1 1	Set of Running Spares		

PUBLIC ADDRESS SET



Public Address Set AN/TIQ-3

FUNCTIONAL DESCRIPTION

The AN/TIQ-3 is a portable public address system designed for fixed operation. This public address system is composed of Control Unit C-104/TIQ-3, Amplifier AM-34/TIQ-3, Power Supply Unit PE-214-B, Handset TS-13-() and 12 Loudspeakers LS-104/TIQ-3. Handset TS-13-(), or a monitor speaker on the control unit, permits two-way communication with selected loudspeakers, or may be used to communicate over the whole system. A tone generator provides a constant, intermittent, or warble tone, which may be sent over the system for signaling.

No field changes in effect at time of preparation (24 April 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 to 10,000 cps.
POWER OUTPUT: 50 W.
DISTORTION: 10% at above power output.
POWER SOURCE REQUIRED: 115 or 230 v, 50 to 60 cps.
POWER CONSUMPTION
AMPLIFIER AM-34/TIQ-3: 255 W.
CONTROL UNIT C-104/TIQ-3: 20 W.
CURRENT DRAIN

AMPLIFIER AM-34/TIQ-3: 2-1/2 amp.
CONTROL UNIT C-104/TIQ-3: 1/5 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

Eastern Company.
Contract Order 26832-PHILA-44-08.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6SL7GT (3) 6L6GA (3) 5U4G
(1) OC3/VR-105
Total Tubes: (10)

REFERENCE DATA AND LITERATURE

TM11-2531, Technical Manual for Public Address Set AN/TIQ-3.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

AN/TIQ-3

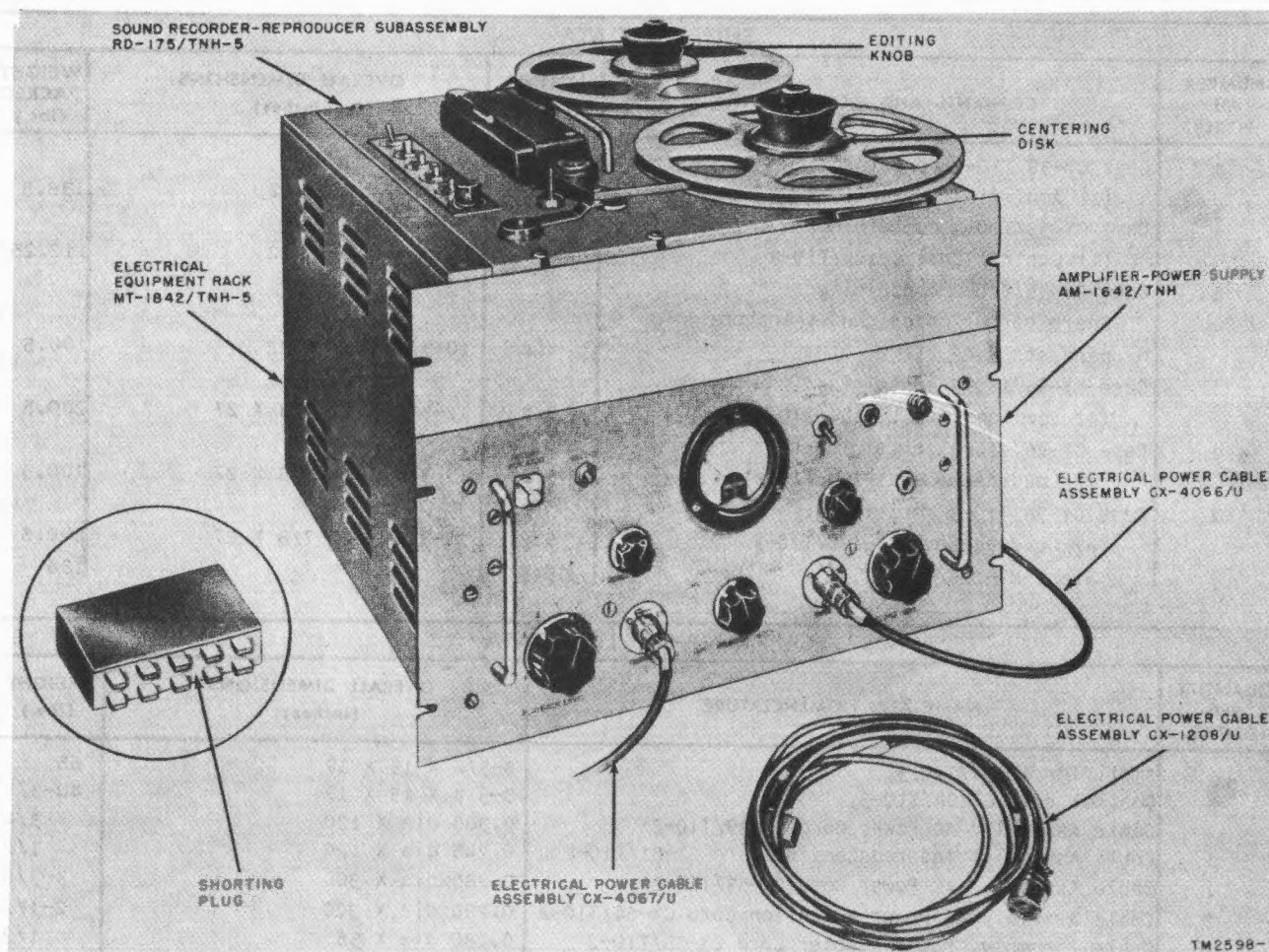
PUBLIC ADDRESS SET

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Case CY-38/TIQ-2 containing: (1) Amplifier AM-34/TIQ-3	4.4	10-3/4 X 17 X 22	138.5
1	Case CY-38/TIQ-2 containing: (1) Control Unit C-104/TIQ-3	4.4	10-3/4 X 17 X 22	112.25
1	Case CY-38/TIQ-2 containing: Spare parts, cords, and telephone handsets	4.4	10-3/4 X 17 X 22	100.5
1	Case CY-96/TIQ-3 containing: (4) Loudspeakers LS-104/TIQ-3	9.2	12-3/4 X 17-7/8 X 27	200.5
1	Case CY-96/TIQ-3 containing: (4) Loudspeakers LS-104/TIQ-3	9.2	12-3/4 X 17-7/8 X 27	200.5
1	Case CY-96/TIQ-3 containing: (4) Loudspeakers LS-104/TIQ-3	9.2	12-3/4 X 17-7/8 X 27	200.5
2	Stand MT-128/TIQ-2	13.3		186

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier AM-34/TIQ-3	8-3/4 X 13 X 19	65
1	Control Unit C-104/TIQ-3	8-3/4 X 13 X 19	40-3/4
2	Cable Assembly, AC Power Cord CX-49/TIQ-2	0.300 dia X 120	3/4
1	Cable Assembly, Interconnecting Cord CX-51/TIQ-2	0.245 dia X 120	1/2
1	Cable Assembly, AC Power Cord CX-53/TIQ-2	0.280 dia X 300	3-3/8
2	Cable Assembly AC Power Extension Cord CX-54/TIQ-2	0.280 dia X 300	2-1/2
1	Cable Assembly, Power Adapter Cord CX-55/TIQ-2	0.280 dia X 36	1/2
2	Cable Assembly, Interconnecting Extension Cord CX-164/TIQ-3	0.245 dia X 300	1-1/4
1	Cord Assembly, Handset Extension Cord CX-165/TIQ-3	0.280 dia X 300	1-1/2
1	Case CY-38/TIQ-2, marked Amplifier	10-3/4 X 17 X 22	24-1/2
1	Case CY-38/TIQ-2, marked Control Unit	10-3/4 X 17 X 22	24-1/2
1	Case CY-38/TIQ-2 marked Spare Parts	10-3/4 X 17 X 22	24-1/2
3	Case CY-96/TIQ-3	12-3/4 X 17-7/8 X 27	46-1/2
2	Canvas Cover for power unit		
1	Handset TS-13-() complete w/cord		
1	Power Unit PE-214-B	12-13/16 X 14-1/8 X 17-3/4	60-3/4
12	Loudspeaker LS-104/TIQ-3	13-5/8 dia X 15-1/2	20-1/4
12	Stand MT-128/TIQ-2 for loudspeaker	84-1/2 h	19

SOUND RECORDER-REPRODUCER SET**AN/TNH-5***Sound Recorder-Reproducer Set AN/TNH-5***FUNCTIONAL DESCRIPTION**

The AN/TNH-5 is a self-contained electro-mechanical half-track tape recorder and reproducer for the recording and playback of speech or music. Sound is recorded on and reproduced from a 2400 foot magnetic tape moving at speeds of 3-3/4, 7-1/2 or 15 inches per second.

When functioning as a recorder, the equipment records information from a microphone or program line source or telephone line source.

When playing back recorded information,

the equipment reproduces the material at two outputs, a monitor output or at an output to a headset. Speech or music may be played back simultaneously while recording or at any time after recording.

No field changes in effect at time of preparation (11 September 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Dynamic Microphone M-65/U and (1) Electrical Headset H-118/U.

AN/TNH-5

SOUND RECORDER-REPRODUCER SET

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE

3-3/4 IN. PER SEC TAPE SPEED: For low speech quality only.

7-1/2 IN. PER SEC TAPE SPEED: 50 to 7000 cps, ± 2 db.

15 IN. PER SEC TAPE SPEED: 50 to 10,000 cps, ± 2 db.

DISTORTION: Less than 2% for output "A" at +4 VU; less than 3% for output "B" at 600 mw.

OVERALL SYSTEM NOISE: 60 db below peak recording level.

TAPE SPEED: 3-3/4, 7-1/2 and 15 in. per sec.

FLUTTER AND WOW: Less than 0.2% at 15 in. per sec; less than 0.25% at 7-1/2 in. per sec; less than 0.4% at 3-3/4 in. per sec.

REWIND TIME (10-1/2 in. reel): 1-1/2 minutes.

RECORDING OR REPRODUCING TIME

3-3/4 IN. PER SEC TAPE SPEED: 128 minutes uninterrupted time, 256 minutes total time.

7-1/2 IN. PER SEC TAPE SPEED: 64 minutes uninterrupted time, 128 minutes total time.

15 IN. PER SEC TAPE SPEED: 32 minutes uninterrupted time, 64 minutes total time.

PLAYBACK TIMING: $\pm 0.2\%$ accuracy.

INPUT IMPEDANCE

MICROPHONE: 150 ohms.

BRIDGE: 20000 ohms.

LINE (Balanced or unbalanced): 600 ohms.

INPUT LEVEL FROM 600 OHM LINES: ± 4 VU (1.228 v).

OUTPUT IMPEDANCES

OUTPUT "A": 600 ohms balanced.

OUTPUT "B": 600 ohms balanced.

MONITOR JACK: 50000 ohms.

EARPHONES JACK: 600 ohms.

ERASE OSCILLATOR FREQUENCY: 65 kc.

RECORDING REPRODUCING MEDIUM

TYPE: Magnetic tape.

TAPE SIZE: 1/4 in. wide, 2400 ft lg.

POWER OUTPUT

OUTPUT A: +4 VU.

OUTPUT B: 600 mw.

POWER SOURCE REQUIRED: 105 to 125 v, 60 cps, single ph, 265 W.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

TM11-2598-10, Technical Manual for Sound Recorder, Reproducer Set AN/TNH-5, Operator's Manual.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Sound Recorder-Reproducer Set AN/TNH-5	8.4	20 X 25 X 29	165

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sound Recorder-Reproducer Subassembly RD-175/TNH-5 including	6-7/8 X 15-3/4 X 19	38

SOUND RECORDER-REPRODUCER SET

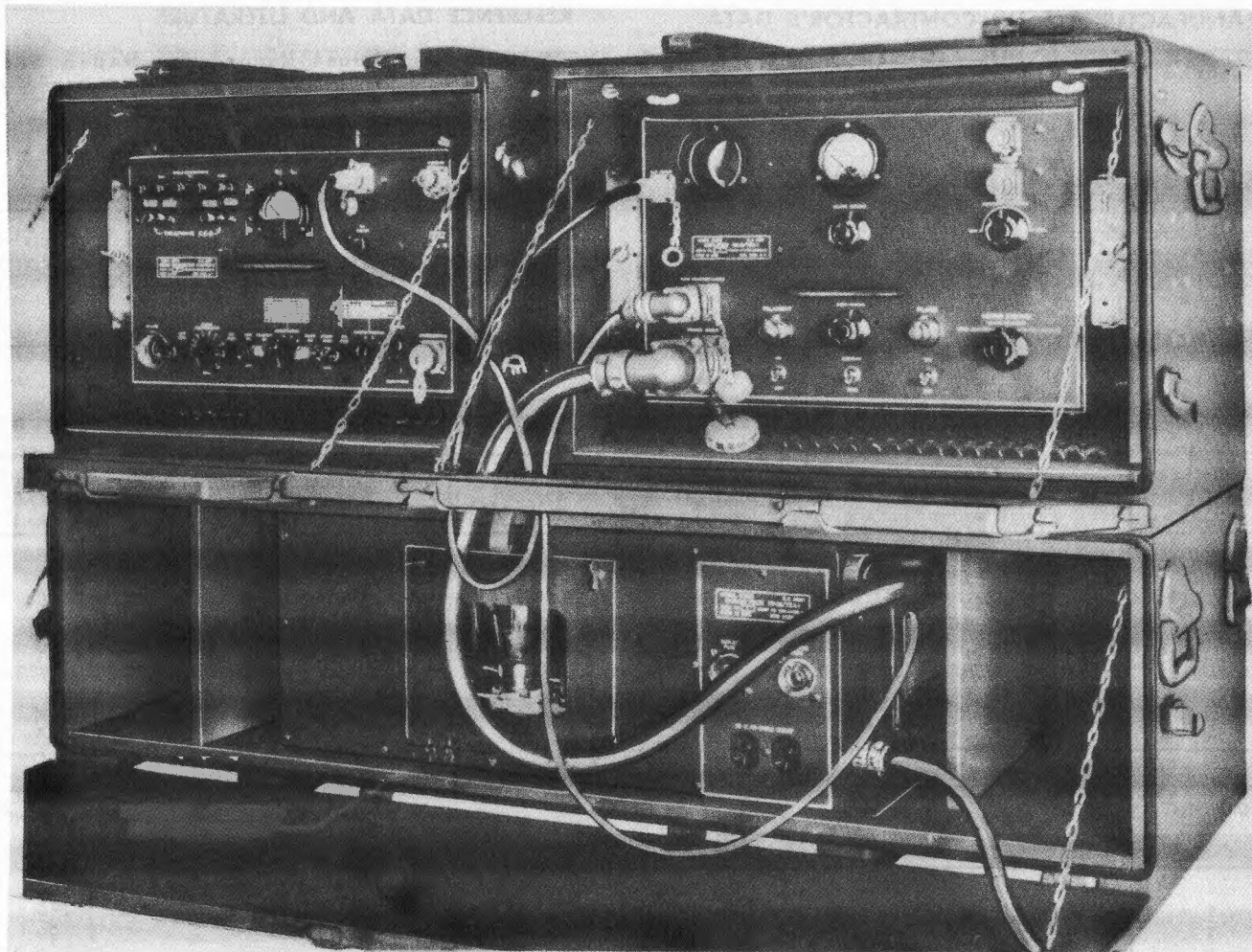
AN/TNH-5

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	(1) Supply Reel (with tape)		
	(1) Take up reel (empty)		
	(2) Editing Knobs		
	(2) Centering disks		
1	Amplifier-Power Supply AM-1642/TNH with shorting plug	8-23/32 X 16-1/4 X 19	25.5
1	Electrical Equipment Rack MT-1842/TNH-5	12-3/4 X 19 X 19	10.5
1	Electrical Power Cable Assembly CX-1208/U	300 lg	1.7
1	Electrical Power Cable Assembly CX-4066/U	72 lg	0.5
1	Electrical Power Cable Assembly CX-4067/U	72 lg	0.5
1	Set of Repair Parts		20.0

AMPLIFIER EQUIPMENT

Radio-Auxiliary
AN/TRA-1



Radio Transmitter T-14/TRC-1, Amplifier AN-8/TRA-1, and Power Supply PP-13/TRA-1, Placement

FUNCTIONAL DESCRIPTION

The AN/TRA-1 is used in conjunction with Radio Transmitter T-14/TRC-1 to raise the power output of the transmitter to 200 watts. It is used where more power is required to maintain good communication under adverse conditions, such as unfavorable terrain, or long spans between stations.

No field changes in effect at time of preparation (1 April 1958).

RELATION TO OTHER EQUIPMENT

The AN/TRA-1, 1A, 1B and 1C are basically the same and interchangeable

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATION: Class C, push-pull.
FREQUENCY RANGE: 70 to 100 mc.
RF POWER OUTPUT: 200 W max.
OUTPUT IMPEDANCE: 50 to 100 ohms into concentric line.
RF POWER INPUT: 25 W.
RF INPUT IMPEDANCE: 70 ohms.
POWER INPUT
AC: 115 v, 50 to 60 cps, 1 ph, 175 W.
BIAS: -100 v dc.
DC: +450 v, 40 ma; +1900 v, 250 ma.
POWER REQUIREMENTS: 115 v, 50 to 60 cps, 1 ph, 800 W.

April 1958

Radio-Auxiliary

AN/TRA-1

AMPLIFIER EQUIPMENT

MANUFACTURER'S OR CONTRACTOR'S DATA

Fred M. Link, New York, N.Y.
Order No. 1806-CCGSS-43.

REFERENCE DATA AND LITERATURE

TM11-2601 Technical Manual for Radio Set AN/TRC-1, Series, Radio Terminal Set AN/TRC-3, Series, Radio Relay Set AN/TRC-4, Series, and Amplifier Equipment AN/TRA-1, Series.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OD3W

(2) 4E27

(2) 3B28

(1) 6X5WGT

Total Tubes: (8)

No Crystals used.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Amplifier AM-8/TRA-1 in Carrying Case CY-15/TRA-1	3.7	16 x 17-3/4 x 22-1/2	88
1	Power Supply PP-13/TRA-1 in Carrying Case CY-16/TRA-1	5.6	13-1/2 x 16 x 46	194
1	Spare Parts Kit MK-11/TRA-1 in Chest BC-5	5.0	15-1/2 x 18-1/2 x 30	90

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier AM-8/TRA-1	10-3/4 x 12-3/4 x 19-1/8	48
1	Power Supply PP-13/TRA-1	9-3/8 x 14 x 25	130
1	Spare Parts Kit MK-11/TRA-1	15-1/2 x 18-1/2 x 30	90
1	Cord CD-800	40 lg	0.7

August 1960

REMOTE CONTROL EQUIPMENT

FUNCTIONAL DESCRIPTION

The AN/TRA-5 is designed to provide a flexible means of operating Radio Set SCR-574() from a remote location.

No field changes in effect at time of preparation (10 March 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER RQMT: 115 v, 50 to 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

Nomenclature Card AN/TRA-5 for Remote Control Equipment.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Selector Control Unit CRR-23367	8-23/32 X 11 X 19	
1	Selector Unit CRR-23368	8-23/32 X 12-1/8 X 19	
1	Audio Monitor Unit CRR-49295	5-1/16 X 5-1/2 X 6-7/16	
1	Relay Unit CRR-29218	2-7/16 X 5-1/2 X 6-5/32	
1	Carrying Case CNW-10205	13 X 16 X 33-1/4	
2	Headset ANB-H-1		
2	Chest Unit T-26		
1	Telephone EE-8-A		
1	Cable Reel		
1	100 ft		

AIR TRAFFIC CONTROL

AN/TSA-12

FUNCTIONAL DESCRIPTION

The AN/TSA-12 is a complete airport control system designed to provide unified control of aircraft traffic. Facilities incorporated into the AN/TSA-12 equipment provide complete coordination of visual aid operation, radio telephone reception and telephone intercommunications. Operating personnel can quickly obtain information such as direction finding data for UHF and VHF radio signals, wind direction and wind velocity. Two operating positions are provided for controlling the radio telephone transmitting and receiving systems and the telephone system. Each operator has access to a UHF and VHF radio set for emergency radiotelephone communications. Message recording facilities are also provided. Other controls and indicating facilities are within easy reach of each operator.

The AN/TSA-12 can be used in any area where aircraft traffic control facilities must quickly be set up and operated. The major units of the system are transportable by cargo type aircraft or truck.

No field changes in effect at time of preparation (30 April 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1)
Power Unit PU-239D/G.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT AND OUTPUT IMPEDANCE

AF AMPLIFIER ALA-5: Input 50 to 600 ohms;
output 600 ohms.

TRANSMITTER LINE TERMINAL UNIT TMU-4: Ten
outputs 600/200/50 ohms.

RECEIVER LINE TERMINAL UNIT TMU-5: Ten
inputs 600 ohms.

DYNAMIC MICROPHONE: 30 ohms.

POWER SUPPLY CHARACTERISTICS

AC POWER SOURCE: 120 to 208 v, 60 cps, 3
ph, 4-wire. 16KW.

MANUFACTURER'S OR CONTRACTOR'S DATA

Wickes Engineering and Construction Co,
Camden, N. J.
Contract NObsr-71088 dated 28 November,
1955.

TUBE AND/OR CRYSTAL COMPLEMENT

(10) 5670	(5) 6V6GT
(5) 6SK7W	(5) 6H6
(5) 6SJ7	(5) 5Y3GT

Total Tubes: (35)

Crystals: Not Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS-92950 Technical Manual for Air Traf-
fic Control Group AN/TSA-12.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Hoisting Rig Assembly	4.2	9 x 13 x 114	100
1	Ladder Assembly	2.3	8 x 24 x 96	14
1	Base Tower Section AB-208/U	20.7	9 x 54 x 102	124
3	Upper Tower Section AB-207/U	20.7	7 x 54 x 94	112
1	Outboard Platform and Stairway	22.1	6 x 72 x 94	107
1	Outboard Platform	22.1	6 x 72 x 94	98
1	Mounting Platform Assemblies	11	12 x 24 x 84	134
1	Guy Anchor	6.2	14-1/2 x 14-1/2 x 71	130
1	Davit Assembly MK-1215/U	3.2	8 x 9 x 164	40
1	OA-1327/TSA-12 accessories	12.2	18-1/2 x 37-1/2 x 24	356

Radio-Auxiliary

AN/TSA-12

AIR TRAFFIC CONTROL

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Tower AB-472/TSA accessories	21.0	19 x 29 x 50	415
1	Antenna Assembly AS-759/FRC-36	2	5-3/4 x 5-3/4 x 105-1/4	40
1	Antenna Assembly AS-514/URD-4	50.7	32 x 33 x 82	466
1	Direction Finder Set AN/URD-4, Spare Parts Set	4.8	14 x 14 x 34-1/2	148
1	Radio Set AN/FRC-42, Spare Parts	1.1	11 x 14-1/2 x 14-1/2	34
1	Radio Receiving Set AN/URR-35, Maintenance	5.7	13-3/4 x 21-1/2 x 33	138
1	Radio Transmitter Model TED Maintenance Parts Kit	1.5	10-1/2 x 16 x 16	45
3	Maintenance Parts Kit	1.5	10-1/2 x 16 x 16	45
2	Radio Transmitting Set, AN/URT-7, Maintenance Parts, Kit	4.0	15 x 19 x 28	140
1	Mast Antenna Supporter-10662 incl Tripod	5.2	7 x 9-1/2 x 129	76
1	Direction Finder Set, AN/URD-2A, spare	4.6	11-3/4 x 15-1/2 x 41-1/4	88

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Console-Shelter Group OA-1327/ISA-12	75-3/8 x 75-3/8 x 82	2420
	(4) Transit Covers	3/4 x 38-5/8 x 75	21.75
	(1) Ladder Assembly	5 x 15-1/4 x 96	14
	(1) Hoisting Rig		100
	(1) Storage Rack	12 x 34 x 34	21.5
	(1) Helicopter Lifting Sling	10 ft ea leg	9
	(1) Davit Support Assembly	29-3/4 x 41-1/8	17.75
1	Airport Control Console c/o	20 x 35 x 60	
	(2) Equipment Racks	19 x 20 x 35	
	(1) Equipment Racks	20 x 22 x 30	
	(2) Writing Shelf	5 x 12 x 19	9.25
	(2) Light Panels	3-15/32 x 19	3
	(2) Speaker-Telephone Control Panels	5 x 5-7/32 x 19	
	(2) Control Panels	5 x 5-7/32 x 19	
	(2) Input Control Unit	3-15/32 x 8-5/8 x 19	6.5
	(2) Line Relay Units	3-15/32 x 8-5/8 x 19	9
	(5) AF Amplifiers	3-15/32 x 8-5/8 x 19	13
	(1) Line Relay Unit	5-7/32 x 8-5/8 x 19	9
	(1) Muting Relay Unit	3-15/32 x 8-5/8 x 19	7
	(1) Line Terminal Unit	5-7/32 x 8-5/8 x 19	27.5
	(1) Line Terminal Unit	5-7/32 x 8-5/8 x 19	21.5
	(1) Indicator Amplifier Assembly	3-15/32 x 8-5/8 x 19	
	(1) 24 v DC Power Supply	5-7/32 x 10 x 19	
	(2) Telephone Handsets	2-1/2 x 3-1/4 x 8-3/4	
	(2) Handset Mountings	2-7/8 x 5-5/8 x 5	
	(3) Dynamic Microphone	5 dia x 8-1/4	13.75
1	Meteorological Panel c/o		
	(1) Windial		7
	(1) Altimeter		1.25
	(1) Clock		2
	(1) Ringing Generator	4-1/8 x 4-3/4 x 6-1/2	5.25
	(1) 28 Volt DC Power Supply	15 x 19 x 21	160
	(1) Air Traffic Signal Light	9 x 14-1/2 x 14-13/16	6.5
	(1) Siren	10-3/8 dia x 12-15/16	12

AIR TRAFFIC CONTROL

AN/TSA-12

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	(2) Mounting Brackets Wickes no. 7750056-501	5-1/2 x 5-1/2 x 22	5.5
	(2) Mounting Brackets Wickes no. 7750056-502	5-1/2 x 5-1/2 x 22	5.5
	(4) Guard Rails	1 x 6 x 48	
	(1) Antenna Mast	2 dia x 29-1/2	3.2
	(1) Antenna Mast		
	(1) Windial Mast	1.66 x 54	3.5
1	Antenna Mast Assembly c/o		
	(1) Bottom Mast Section	1-3/4 dia x 55-3/4	4.5
	(1) Center Mast Section	2-1/4 x 2-1/4 x 44-3/4	7.25
	(1) Top Section w/obstruction light	32 lg	4
	(6) Mast Extension	1-3/16 x 6 x 18	3
	(6) Antenna Adapter	1 dia x 8	0.25
	(1) Wind Transmitter	15-1/2 x 22 x 32	7.5
	(1) Wind Transmitter Tripod	25 in. dia	15
	(1) Headset-9507, 600 ohms		
	(1) Ground Rod	1/2 dia x 5	
	(1) Ground Wire	35 ft lg	
	(1) Set of Interconnecting Cables		
1	Electrical Equipment Shelter S-139/TSA-12 c/o	75-3/8 x 75-3/8 x 82	820
	(1) Mobile Shelter	75-3/8 x 75-3/8 x 82	
	(1) Mounting Bracket	2 x 6-1/2 x 7	0.5
	(1) Antenna Support	2-3/4 x 3-7/16 x 24	3
	(1) HF Whip Antenna, 3 section	15 ft lg	2.25
	(1) RF Cable Assembly	72 ft lg	
	(1) Set of Interconnecting Cables		
1	Tower, AB-471/TSA	48 x 72 x 24 ft	
	(1) Base Plate AB-206/U	4-1/2 x 12 x 12	7
	(1) Base Tower Section AB-208/U	48 x 72 x 72	119
	(1) Upper Tower Section AB-207/U	48 x 72 x 72	119
	(1) Outboard Platform Wickes no. 4500294-003	48 x 72	
	(1) Outboard Platform Wickes no. 8750065-501 (MOD)	48 x 72	
	(1) Platform Mounting Assembly Wickes no. 7750073-501	12 x 13-1/2 x 84	
	(1) Platform Mounting Assembly Wickes no. 7750073-502	12 x 13-1/2 x 84	
	(1) Stairway w/locking hooks		
	(1) Davit Assembly MX-1215/U	4 x 13-1/2 x 20-1/2	35
	(1) Set of Hardware		
	(1) Guy Accessory Kit		
5	Antenna Assemblies AS-390/SRC		
1	Direction Finder Set AN/URD-2A		
1	Direction Finder Set AN/URD-4		
1	Radio Set AN/ARC-2		
1	Radio Set AN/FRC-42		
1	Antenna Assembly AS-759/FRC-36		
2	Radio Receiving Set AN/FRR-27		
1	Radio Set AN/ARC-27		
2	Radio Transmitting AN/URT-7		
4	Radio Transmitting AN/URT-35		
4	Radio Transmitting Equipment Model TED		
2	Sound-Recorder-Reproducer RD-115(A)/UN		

10 June 1962

Cog Service: USMC FSN: 5825-611-0447

AIR TRAFFIC CONTROL GROUP AN/TSA-13

Functional Class:

USA

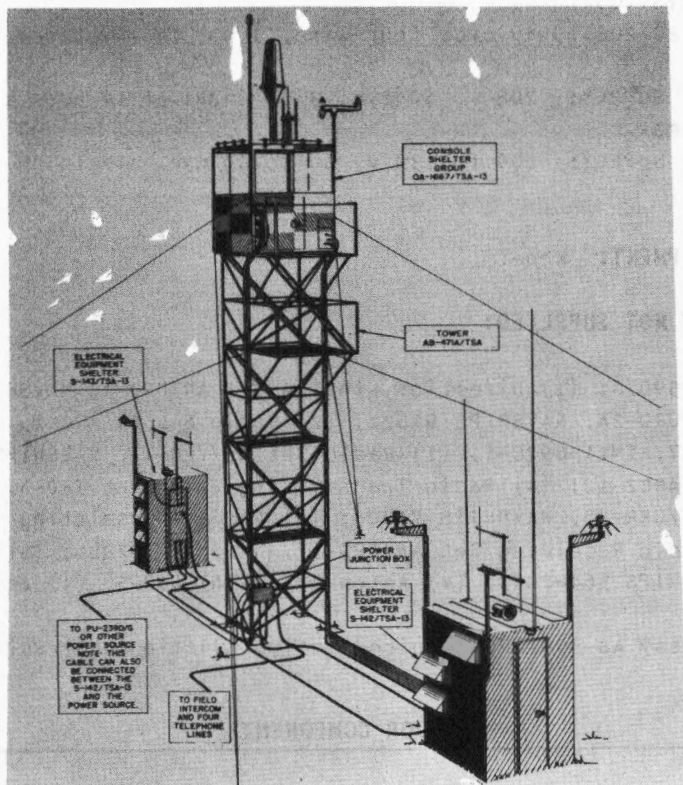
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Wickes Engineering & Construction Company.



Air Traffic Control Group AN/TSA-13

FUNCTIONAL DESCRIPTION:

Air Traffic Control Group AN/TSA-13 is a complete airport control system designed to provide unified control of aircraft traffic. It provides complete coordination of visual aid operation, radio telephone transmission, radio telephone reception, and telephone intercommunications. Operating personnel can quickly obtain information such as direction finding data for UHF and VHF radio signals, wind direction, and wind velocity. Two operating positions are provided for controlling the radiophone transmitting receiving systems and the telephone system. Each operator has access to a UHF and VHF radio set for emergency radiotelephone communications.

The AN/TSA-13 can be used in any area where aircraft traffic control facilities must quickly be set up and operated. The system can be moved to another location without delay in the case of an emergency. The units of the system are transportable by helicopter, cargo type aircraft, or truck.

No field changes in effect at time of preparation (19 June 1961).

AN/TSA-13 AIR TRAFFIC CONTROL GROUP

TECHNICAL CHARACTERISTICS:

INPUT AND OUTPUT IMPEDANCE

A.F. AMPLIFIER ALA-5: Input 50/600 ohms; output 600 ohms.
TRANSMITTER LINE TERMINAL UNIT TMU-4: Ten outputs 600/200/50 ohms.
RECEIVER LINE TERMINAL UNIT TMU-5: Ten inputs 600 ohms.
DYNAMIC MICROPHONE: 30 ohms.

POWER SUPPLY CHARACTERISTICS

AC POWER SOURCE: 120/208 v, 60 cyc, four-wire, 3 ph, 16 kw approx.
DC POWER SOURCE

28-VOLT DC POWER SUPPLY: 208 v, 60 cyc, 3 ph input at 14 amps max. DC output 24 to 32 v at 100 amp max.

24-VOLT DC POWER SUPPLY: 100 to 130 v, 50 to 60 cyc, single ph input. DC output 24 v at 4 amp max.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Power Unit PU-239D/G; (1) Direction Finding Set AN/URD-4, NAVSHIPS 91912(A); (1) Direction Finding Set AN/URD-2A, NAVSHIPS 91521; (2) Radio Set AN/ARC-1, NAVAER 16-30ARC1-1; (2) Radio Set AN/ARC-27, TM11-692C-1; (1) Radio Set AN/VRC-33, NAVSHIPS 92922; (1) Radio Set AN/ARC-2, NAVAER 16-30ARC2-12; (4) Radio Transmitting Equipment TED-6, NAVSHIPS 91357; (4) Radio Receiving Set AN/URR-35, NAVSHIPS 91906; (2) Radio Transmitting Equipment AN/URT-7, NAVSHIPS 91684; (2) Radio Receiving Set AN/FRR-27, NAVSHIPS 92021; (2) Sound Recorder Reproducer RD-115A/UN, NAVSHIPS 364-2063; (4) Antenna Assy NT-66095; (4) Antenna Assy AS-390/SRC, NAVSHIPS 91338.

NOTE: Seven Antenna Assy AS-390/SRC required in installations not using Antenna Coupler 156B-4.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Air Traffic Control Group			
	AN/TSA-13 includes:			
1	Console-Shelter Group			2190
	OA-1667/TSA-13 consists of:			
1	Portable Shelter Wickes Type CS-1		75 x 75 x 82	900
1	Console Group Wickes Type CG-1 consists of:			
2	Equipment Rack Wickes Type ER-1		19 x 20 x 35	5
1	Equipment Rack Wickes Type ER-2		20 x 22 x 30	28
2	Writing Shelf Wickes no. 8750040-501		5 x 12 x 19	9.25
2	Light Panel Wickes no.		3-15/32 x 19	3

1.2 AN/TSA-13: 2

AIR TRAFFIC CONTROL GROUP AN/TSA-13

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
	8750134-501 and 502			
2	Speaker-Telephone Control Panel Wickes Type STC-1		5 x 5-7/32 x 19	8
2	Control Panel Wickes Type TRC-3		5 x 5-7/32 x 19	8.5
2	Input Control Unit Wickes Type ICU-1		3-15/32 x 8-5/8 x 19	6.5
2	Line Relay Unit Wickes Type LRU-6		3-15/32 x 8-5/8 x 19	9
5	A.F. Amplifier Wickes Type ALA-5		3-15/32 x 8-5/8 x 19	13
1	Line Relay Unit Wickes Type LRU-7		5-7/32 x 8-5/8 x 19	9
1	Line Terminal Unit Wickes Type TMU-4		5-7/32 x 8-5/8 x 19	27.5
1	Line Terminal Unit Wickes Type TMU-5		5-7/32 x 8-5/8 x 19	21.5
1	Indicator-Amplifier Assy Wickes Type ASA-3		3-15/32 x 3-5/8 x 19	8
1	24 v dc Power Supply Sola Electric Co. Pt 28177		5-7/32 x 10 x 19	30
1	Muting Relay Unit Wickes Type MRU-3		3-15/32 x 8-5/8 x 19	7
2	Handset Mounting Westing- house Electric Co. Pt G1		2-7/8 x 5 x 5-5/8	1.5
2	Handset Western Electric Co. FIAW-20		2-1/2 x 3 x 8-1/2	0.5
3	Dynamic Microphone Wickes no. 8500210-501		5 dia x 8-1/4	3
1	Panel, Control Head Wickes no. 7750093-501		5-1/4 x 19	0.75
1	Panel, Switching Wickes no. 5750098-501		1-3/4 x 2-1/2 x 19	0.5
1	Meteorological Panel Wickes Type MP-4 consists of:		5-3/16 x 13-3/4 x 22	13 75
1	Windial Bendix no. 476-6		4-3/4 x 7-1/2 x 11-1/2	7
1	Altimeter Kollsman no. 671CPX-4-038		3-1/4 x 3-1/4 x 4-3/4	1.25
1	Clock Chelsea Type A, no. P-642		7-1/2 dia x 2-3/4	
1	Ringng Generator Lorain Products Corp. Pt BC-310X		4-1/8 x 4-3/4 x 6-1/2	5.25
1	Air Traffic Signal Light Crouse-Hinds Co. Type B-2		9 x 14-1/2 x 14-13/16	6.5
1	Transmit Switching Relay Assy		3-1/2 x 4-3/4 x 6	1.25

AN/TSA-13 AIR TRAFFIC CONTROL GROUP

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
2	Connector, Plug, Electrical Crouse-Hinds Co. no. APJ3273-S22		3-1/4 dia x 5-3/4	0.75
1	Connector, Plug, Electrical Crouse-Hinds Co. no. WP-721		2-3/4 dia x 3-1/2	0.25
4	Transit Covers Wickes no. 8750081-501		3/4 x 33-5/8 x 75	21.75
1	Teletalk, Master Webster no. A1005M		6 x 6-1/2 x 8-5/8	4.5
1	Storage Box Wickes no. 8750146-501 consists of:		18 x 21 x 54	52
1	Wind Transmitter Bendix no. 476-6		15-1/2 x 22 x 32	7.5
1	Wind Transmitter Rotor Bendix		15-1/2 dia x 4	0.5
1	Wind Transmitter Tripod		25 dia	15
1	Wind Transmitter Mast Assy Wickes no. 7750103-501		1.6 dia x 54	6.25
2	Mast Bracket Wickes no. 7750056-501		5-1/2 x 5-1/2 x 22	5.5
16	Handrail Brackets Wickes no. 7700077-001		1 x 2 x 6	0.25
2	Mast Bracket Wickes no. 7750056-501		5-1/2 x 5-1/2 x 22	5.5
4	Handrail Rods Wickes no. 7700077-002		5/8 dia x 48	1.5
1	Lifting Sling Wickes no. 7750092-501		3/4 dia x 120 ea leg	25.5
1	Antenna Mast Wickes no. 5750084-501(URD-2)		2 dia x 20-1/2	3.2
1	Antenna Mast Wickes no. 5750099-501(optional)		1.6 dia x 47	3
1	Obstruction Light Mast Assy Wickes no. 7750098-501		2-1/4 x 2-1/4 x 110	16
1	Ground Wire Wickes no. 5790006-501		420 lg	
1	Clamp, Ground Rod Graybar no. GKP632W		1 x 1-1/2 x 2	0.3
1	Ground Rod		1/2 dia x 60	2.5
1	Antenna Mast Wickes no. 4700184-001		1-1/4 dia x 48	3
1	Mast Adapter Wickes no. 4700183-001		1-1/4 dia x 8	0.5
1	Power Junction Box Wickes no. 9750089-501		4-3/4 x 10-1/4 x 14-1/2	33

AIR TRAFFIC CONTROL GROUP AN/TSA-13

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Siren Cable Wickes no.		360 lg	
	7790041-501			
1	Field Telephone and Intercom Cable Wickes no.		480 lg	
	7790041-501			
1	Power Cable Wickes no.		360 lg	
	7790043-501			
1	Signal Cable Wickes no.		1020 lg	
	7790059-501			
1	Signal Cable Wickes no.		1020 lg	
	7790059-502			
2	Mast Bracket Wickes no.		5-1/2 x 5-1/2 x 22	5.5
	7750056-502			
4	Safety Lines Wickes no.		3/4 dia x 52	3.75
	5750097-501			
4	Lifting Block Wickes no.		1-1/4 x 1-1/2 x 4-1/2	0.5
	7700116-501			
1	Tower AB-471A/TSA consists of:		48 x 72 x 288	
1	Base Tower Section AB-208/U		48 x 72 x 72	119
3	Upper Tower Section AB-207/U		48 x 72 x 72	119
1	Outboard Platform Wickes no.		6 x 48 x 72	83
	4500294-003			
1	Davit Support Assy Wickes no. 8750101-501		29-3/4 x 41-1/8	17.75
1	Davit Assy MX-1215/U		2-1/2 x 4 x 162	35
4	Guy Anchor Hubbert no. 7530		10 dia x 66	30.25
1	Mounting Platform Assy Wickes no. 7750073-501		12 x 13-1/2 x 84	67
1	Mounting Platform Assy Wickes no. 7750073-502		12 x 13-1/2 x 84	67
1	Outboard Platform Wickes no. 8750065-501(Mod)		6 x 48 x 72	84
1	Stairway w/locking Hooks Wickes no. 4500294-002 (Mod)		3 x 16 x 99	14
1	Ladder Assy Wickes no. 8750069-501		5 x 15-1/4 x 96	14
1	Storage Box Assy Wickes no. 8750099-501 consists of:		16 x 27 x 48	48
1	Tensiometer Wickes no. 4500294-001		3 x 8-3/4 x 13	5.75
8	Guys Wickes no. 4500294-004		1/4 dia x 804	8
8	Guy Winch Wickes no. 4500294-005		4-3/4 x 7-1/2 x 11-1/2	10
8	Insulator Clevis Wickes no. 4500294-006		7/8 x 2-7/8 x 4-1/2	1.5

AN/TSA-13 AIR TRAFFIC CONTROL GROUP

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
4	Guy Winch Spacer Wickes no. 4500294-007		3/8 dia x 36	
4	Base Plate AB-206/U		4-1/2 x 12 x 12	7
1	Hoist Line Assy Wickes no. 4500294-012		900 lg	5.75
4	Tag Line Wickes no. 4500294-013		600 lg	4.5
2	Guard Rail Wickes no. 7750051-501		2 dia x 8-1/2 x 32	2
1	Hardware Kit			
	Electrical Equipment Shelter			2630
	S-142/TSA-13 consists of:			
1	Portable Shelter Wickes Type EES-1		48 x 75 x 82	900
1	Power Supply Perkins no. MR2432-100XA (Rev f)		17 x 19-1/4 x 26-1/2	
1	Speaker Webster no. 5G45		4 x 5-3/8 x 5-1/2	1
1	Whip Antenna		180 lg	2.25
1	Siren Assy Wickes no. 7750100-501 consists of:			
1	Siren Sperti-Faraday type 150		10-3/8 dia x 12-15/16	12
1	Cable Wickes no. 7750100-502		600 lg	
2	Antenna Mast Bracket Wickes no. 7750110-501		3-3/4 x 5-1/2 x 22	5.5
2	Antenna Mast Bracket Wickes no. 7750110-502		3-3/4 x 5-1/2 x 22	5.5
2	Antenna Mast Bracket Wickes no. 7750069-502		2 x 6-1/2 x 7	0.5
1	Sling, Helicopter and Crane Lifting Wickes no. 7750092-501		3/4 dia x 156 ea leg	25.5
4	Safety Lines Wickes no. 5750097-501		3/4 dia x 52	3.75
2	Antenna Mast Wickes no. 7750107-501		1-1/4 dia x 60	7
2	Antenna Mast Wickes no. 7750109-502		1-1/4 dia x 48	6
1	Ground Wire Wickes no. 5700122-001		480 lg	
2	Antenna Mounting Arm Wickes no. 8700074-501		1-3/8 dia x 6 x 18	3
2	Antenna Adapter Wickes no. 4750015-501		3/4 dia x 8	0.25
1	Antenna Cable Wickes no. 7790070-501		180 lg	

AIR TRAFFIC CONTROL GROUP AN/TSA-13

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Antenna Cable Wickes no.		120 1g	
	7790070-502			
1	Antenna Cable Wickes no.		180 1g	
	7790070-503			
1	Antenna Cable wickes no.		120 1g	
	7790070-504			
1	Antenna Cable Wickes no.		48 1g	
	7790070-505			
1	Antenna Cable Wickes no.		96 1g	
	7790070-506			
1	Power Cable Wickes no.		360 1g	
	7790044-501			
1	Power Cable Wickes no.		300 1g	
	7790044-502			
1	Signal Cable Wickes no.		900 1g	
	7790057-501			
1	Control Cable Wickes no.		900 1g	
	7790058-501			
1	Control Cable Wickes no.		900 1g	
	7790056-501			
1	Control Cable Wickes no.		900 1g	
	7790055-501			
1	Control Cable Wickes no.		900 1g	
	7790054-501			
1	Antenna Cable Wickes no.		1020 1g	
	7790053-501			
1	Antenna Cable Wickes no.		1020 1g	
	7790052-501			
1	Allen Wrench, 5/32 in.			
	across flats			
1	Allen Wrench, 7-32 in.			
	across flats			
1	Adjustable Wrench, 10 in.			
1	Adjustable Wrench, 8 in.			
1	Screw Driver, 8 in.			
1	Hardware Kit			
1	Bag of Installation and Mounting Hardware			
1	Whip Antenna Base Premax RD-2			
1	Electrical Equipment Shelter			3110
	S-143/TSA-13 consists of:			
1	Portable Shelter Wickes Type EES-2		48 x 75 x 82	
1	Speaker Webster no. 5645		4 x 5-3/8 x 5-1/2	1
1	Storage Box Assy Wickes no. 8750149-501 consists of:		18 x 24 x 40	58.5

AN/TSA-13 AIR TRAFFIC CONTROL GROUP

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
2	Antenna Mast Bracket Wickes no. 7750099-501		7-7/8 x 8 x 9	
4	Antenna Mounting Arm Wickes no. 8700074-501		1-3/16 x 6 x 18	3
4	Antenna Mast Wickes no. 7750107-501		1-1/4 dia x 60	7
2	Antenna Mast Bracket Wickes no. 7750110-501		3-3/4 x 5-1/2 x 22	5.5
2	Antenna Mast Bracket Wickes no. 7750110-502		3-3/4 x 5-1/2 x 22	5.5
2	Antenna Mast Wickes no. 77500109-501		1-1/4 dia x 36	4.5
4	Antenna Adapter Assy Wickes no. 4750015-501		1 dia x 8	0.25
1	Sling, Helicopter and Crane Lifting Wickes no. 7750092-501		3/4 dia x 156 ea leg	25.5
1	Ground Wire Wickes no. 5700122-001		480 lg	
1	Antenna Cable Wickes no. 7790062-501		144 lg	
1	Antenna Cable Wickes no. 7790062-502		144 lg	
1	Antenna Cable Wickes no. 7790062-503		216 lg	
1	Antenna Cable Wickes no. 7790062-504		216 lg	
1	Antenna Cable Wickes no. 7790062-505		72 lg	
1	Antenna Cable Wickes no. 7790062-506		144 lg	
1	Signal Cable Wickes no. 7790057-502		900 lg	
1	Power Cable Wickes no. 7790057-503		360 lg	
1	Antenna Coupler Collins Type 156B-4		17-3/4 x 19 x 24-15/32	85
1	Siren Assy Wickes no. 7750100-502 consists of:			
1	Siren Sperti-Faraday Type 150		10-3/8 dia x 12-15/16	12
1	Cable Wickes no. 7750100-502		600 lg	
1	Screw Driver, 8 in.			
1	Adjustable Wrench, 6 in.			
1	Adjustable Wrench, 10 in.			
1	Allen Wrench, 5/32 in. across flats			

AIR TRAFFIC CONTROL GROUP AN/TSA-13

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Allen Wrench, 7/32 in. across flats			
1	Hardware Kit Wickes no. 9750090-501			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93076(A): Technical Manual for Air Traffic Control Group AN/TSA-13.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 5Y3GT (10) 5670 (5) 6H6GT (5) 6SJ7 (5) 6SK7W (5) 6V6GT (1) 12BA6
(1) 35W4 (1) 50C5

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	375.35	2890
1	258.75	1800
1	262.5	3680
1	262.5	3130

PROCUREMENT DATA

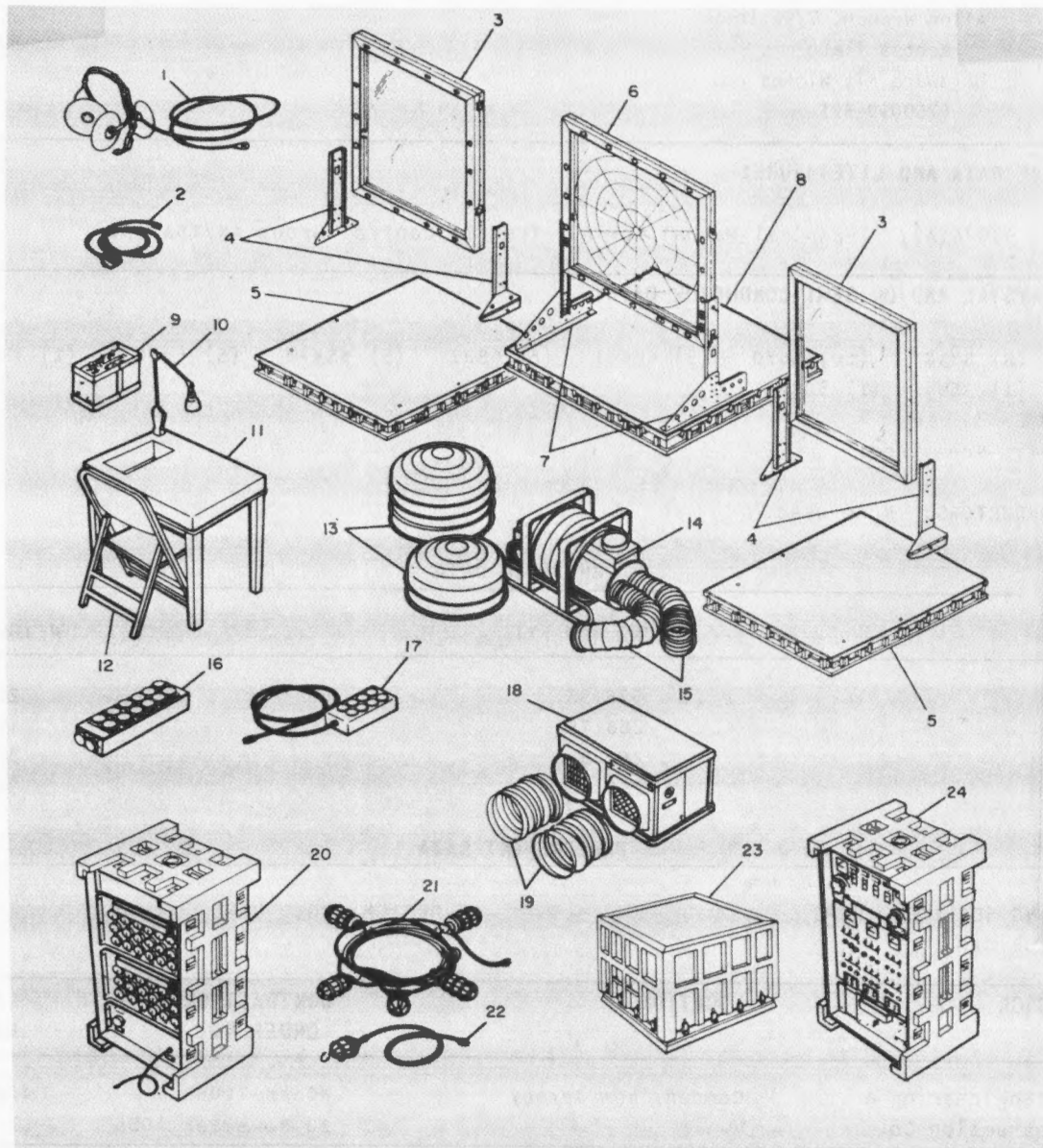
PROCURING SERVICE: USMC
SPEC &/OR DWG:

DESIGN COG: USMC

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Wickes Engineering & Construction Co.	Camden, New Jersey	N0bsr-71088, 28 November 1955	\$28,190.00

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COMBAT INFORMATION CENTRAL



- | | |
|--|---|
| 1. Headset-Microphone H-103/U | 13. Heater End Domes |
| 2. Switch, Foot, Electrical SA-408/U | 14. Heater, Duct Type, Portable HD-210/U |
| 3. Plotting Board, Tactical Display PT-364/TSQ | 15. Heater Air Ducts |
| 4. Stanchion Set, Plotting Board MT-1495/TSQ | 16. Connector Assembly, Electrical U-157/TSQ |
| 5. Case, Plotting Board CY-1700/TSQ | 17. Cable Assembly, Power, Electrical CX-3101/TSQ |
| 6. Plotting Board, Tactical Display PT-363/TSQ | 18. Air Conditioner HD-209/U (Cover Removed) |
| 7. Stanchion Set, Plotting Board MT-1494/TSQ | 19. Air Conditioner Air Ducts |
| 8. Case, Plotting Board CY-1699/TSQ | 20. Interconnecting Box J-655/TSQ |
| 9. Control, Radio Set C-1538/TSQ | 21. Light, Extension MX-1694/U |
| 10. Light, Desk MX-1692/U | 22. Light, Extension MX-1693/U |
| 11. Desk, Radio Set Control FN-78/TSQ | 23. Air Conditioner Cover |
| 12. Chair, Folding FN-79/U | 24. Control-Power Supply C-1539/TSQ |

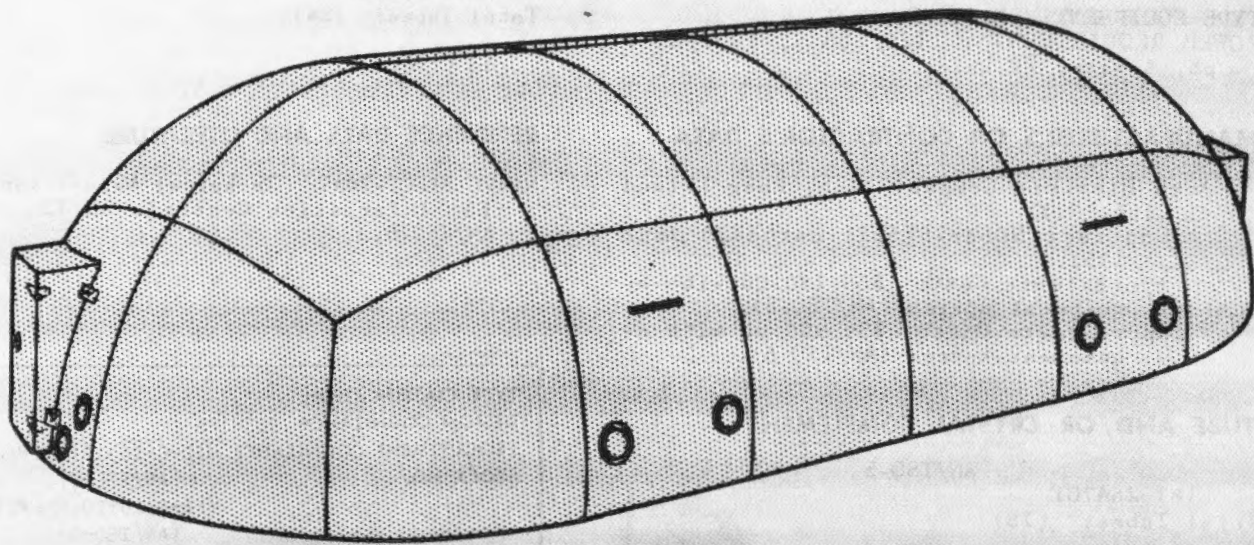
Major Components of Combat Information Centrals AN/TSQ-5 and AN/TSQ-6

Radio-Auxiliary

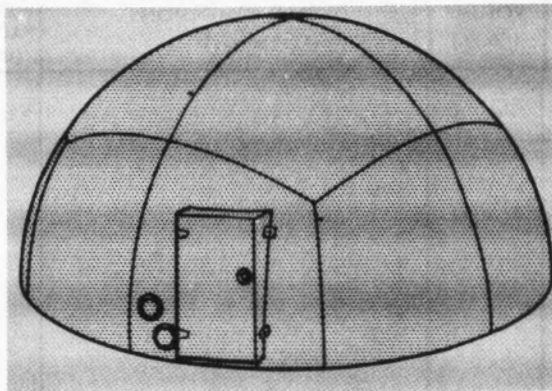
AN/TSQ-5, -6

COMBAT INFORMATION CENTRAL

April 1958



Building Prefabricated S-106/TSQ



Building Prefabricated S-105/TSQ

FUNCTIONAL DESCRIPTION

The AN/TSQ-5 and AN/TSQ-6 are transportable equipments which provide similar facilities for positive control of aircraft. They are designed to perform instantaneous ground-to-air communications as the tactical situation dictates, via external remotely controlled radio equipments, to direct land line communications with appropriate commands, and to provide inter-communication between all stations within the center. No radar or com-

munication equipment is furnished, but all the necessary interior lighting and furniture is supplied. They are specifically designed to meet the requirements of amphibious operations, which includes the ability to withstand rough handling and immersion in water.

The AN/TSQ-5 is designed for such use as an integrated Direct Air Support Center employed by the Marine Air Support Squadron, or elements thereof.

The AN/TSQ-6 is intended for such use as an integrated Counter Air Operations Center as employed by the Marine Air Control Squadron, or as the Tactical Air Control Center of the Marine Air Wing when so utilized by the Tactical Air Control Section of the Headquarters and Headquarters Squadron of the Marine Aircraft Wing.

No field changes in effect at time of preparation (27 January 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Generator Set, (1) Interconnecting Box J-643()/TSQ (for AN/TSQ-6 only).

April 1958

COMBAT INFORMATION CENTRAL

Radio-Auxiliary
AN/TSQ-5, -6

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE EQUIPMENT: Radio Control.
POWER REQUIREMENTS: 120/208 v, 60 cps, 3
ph, 4-wire, 20 kw.

AN/TSQ-6
(24) 26A7GT
Total Tubes: (24)
No Crystals.

MANUFACTURER'S OR CONTRACTOR'S DATA

Auth Electric Company, Inc, Long Island
City, N.Y.
Contract NObsr-57587, dated 30 June
1952.
Approximate Cost: \$56,180.00 with e-
quipment spares (AN/TSQ-5).
Approximate Cost: \$59,900.00 with e-
quipment spares (AN/TSQ-6).

REFERENCE DATA AND LITERATURE

NAVMC ELECT-2005: Technical Manual for Com-
bat Information Centrals AN/TSQ-5 and
AN/TSQ-6.

TUBE AND/OR CRYSTAL COMPLEMENT

AN/TSQ-5
(18) 26A7GT
Total Tubes: (18)
No Crystals.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-C-16319 (SHIPS)
STOCK NO. (AN/TSQ-5)
MIL-C-16320 (SHIPS)
(AN/TSQ-6)

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AN/TSQ-5 Cable Assembly Case CY-1704/TSQ Containing: (2) Cable Assembly CX-3102/U (2) Cable Assembly CX-3103/U (2) Cable Assembly CX-3102/U (2) Cable Assembly CX-3103/U (3) Cable Assembly CX-3102/U (3) Cable Assembly CX-3103/U (1) Cable Assembly CX-3104/U (1) Cable Assembly CX-3104/U (2) Blackout Curtain (2) Technical Manual NAVMC ELECT- 2005 (2) USMC Electronics Catalog SIG M8-AN/TSQ-5 and 6	12.0	21 x 26 x 38 408 lg 408 lg 312 lg 312 lg 168 lg 168 lg 408 lg 312 lg	340
1	Cable Assembly Case CY-1704/TSQ Containing: (5) Cable Assembly CX-3102/U (5) Cable Assembly CX-3103/U (1) Cable Assembly CX-3104/U (2) Cable Assembly CX-3104/U (4) Cable Assembly CX-3110/TSQ (4) Air Conditioner Flexible Duct	12.0	21 x 26 x 38 216 lg 216 lg 216 lg 120 lg	335
1	Cable Assembly Case CY-1704/TSQ Containing: (3) Cable Assembly CX-3102/U (3) Cable Assembly CX-3103/U (3) Cable Assembly CX-3102/U (3) Cable Assembly CX-3103/U	12.0	21 x 26 x 38 120 lg 120 lg 72 lg 72 lg	330

Radio-Auxiliary

AN/TSQ-5, -6

COMBAT INFORMATION CENTRAL

April 1958

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(8) Cable Assembly CX-3110/TSQ (12) Cable Assembly CX-3109/TSQ Cable Assembly Case CY-1704/TSQ Containing: (2) Connector Assembly U-157/TSQ (2) Cable Assembly CX-3101/TSQ (2) Extension--Light MX-1693/U (1) Cable Assembly CX-3107/TSQ (3) Cable Assembly CX-3105/U (2) Cable Assembly CX-3105/U (1) Cable Assembly CX-3106/TSQ	12.0	21 x 26 x 38 180 lg 36 lg	320
1	Cable Assembly Case CY-1704/TSQ Containing: (12) Foot Switch SA-408/U (2) Dial Clock TD-15/U (1) Set of Accessories and Hardware	12.0	21 x 26 x 38	285
1	Plotting Board Case CY-1699/TSQ Containing: (1) Ground Rod MX-148/G (1) Tactical Display Plotting Board PT-363/TSQ (1) Map Backing Plate (1) Plotting Board Scale	34.0	10 x 74-3/4 x 78-3/4	630
2	Plotting Board Case CY-1700/TSQ Containing: (1) Tactical Display Plotting Board PT-364/TSQ	27.0	10 x 62-1/2 x 74-3/4	500
1	Plotting Board Stanchion Set MT-1494/TSQ	15.0	8-1/2 x 41 x 74	130
1	Plotting Board Stanchion Set MT-1495/TSQ	2.9	15-1/2 x 16 x 20	140
2	Metal Crate CY-1705/TSQ containing: (6) Radio Set Control Desk FN-78/TSQ (3) Desk Carrying Case CY-1701/TSQ	14.8	21-1/2 x 31-1/4 x 38	280
2	Metal Crate CY-1706/TSQ containing: (9) Folding Chair FN-79/U	26.3	24-1/4 x 39 x 48-1/2	190
1	Portable Heater HD-210/U including: (2) Flexible Duct	21.0	25 x 26-1/4 x 55-1/2	355
2	Air Conditioner HD-209/U including (1) Inlet Duct Adapter (1) Outlet Duct Adapter (1) Cable Assembly CX-3108/TSQ	11.3	21 x 30-1/2 x 30-1/2	310
3	Radio Set Control Case CY-1702/TSQ Containing: (6) Radio Set Control C-1538/TSQ (6) Mounting Plate	6.5	11-1/4 x 26 x 38	220
1	Headset-Microphone Case CY-1703/TSQ containing: (24) Headset-Microphone H-103/U	6.5	11-1/4 x 26 x 38	150
1	Control-Power Supply C-1539/TSQ	11.5	20 x 26 x 38	335
1	Interconnecting Box J-655/TSQ	11.5	20 x 26 x 38	300
1	Spherical Panel (3) including: (1) Flooring in Canvas Carrying Case	133.0	24 x 98 x 98	545
3	Spherical Panel (3)	133.0	24 x 98 x 98	570
1	Vestibule and Door Assembly (2)	39.0	33 x 33 x 62-1/2	250
1	Desk Light MX-1692/U (12)	2.7	12 x 15 x 26	105
1	Set of Equipment Spares for C-1538/TSQ	3.4	12-1/4 x 15-1/2 x 30-5/8	82
1	Set of Equipment Spares for C-1539/TSQ	2.7	12-1/4 x 15-1/2 x 24-5/8	165

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COMBAT INFORMATION CENTRAL

Radio-Auxiliary

AN/TSQ-5, -6

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Set of Equipment Spares for J-655/TSQ	4.0	12-1/4 x 15-1/2 x 36-5/8	95
1	Set of Equipment Spares for PT-363/TSQ, PT-364/TSQ, MX-1692/U, MX-1693/U, and MX-1694/U	2.5	9-1/4 x 15-1/2 x 30-5/8	57
1	Set of Equipment Spares for SA-408/U, H-103/U, and Transit Cases	2.5	9-1/4 x 15-1/2 x 30-5/8	51
1	Set of Equipment Spares for S-105/TSQ	2.5	9-1/4 x 15-1/2 x 30-5/8	83
1	Set of Equipment Spares for HD-210/U	1.25	9-1/4 x 12-1/2 x 18-5/8	29
1	Set of Equipment Spares for HD-209/U AN/TSQ-6	2.5	12 x 12 x 30	68
1	Cable Assembly Case CY-1704/TSQ Containing: (2) Cable Assembly CX-3102/U (2) Cable Assembly CX-3103/U (2) Cable Assembly CX-3102/U (2) Cable Assembly CX-3103/U (9) Cable Assembly CX-3103/U (1) Cable Assembly CX-3107/TSQ (3) Cable Assembly CX-3110/TSQ (2) Technical Manual NAVMC ELECT-2005 (2) USMC Electronics Catalog SIG MB-AN/TSQ-5 and 6	12.0	21 x 26 x 38 408 lg 408 lg 312 lg 312 lg 120 lg	345
1	Cable Assembly Case CY-1704/TSQ Containing: (7) Cable Assembly CX-3102/U (7) Cable Assembly CX-3103/U (1) Cable, 4-Conductor (3) Cable Assembly CX-3110/TSQ	12.0	21 x 26 x 38 216 lg 216 lg 1200 lg	370
1	Cable Assembly Case CY-1704/TSQ Containing: (9) Cable Assembly CX-3102/U (10) Cable Assembly CX-3103/U (8) Air Conditioner Flexible Duct (1) Cable, 4-Conductor	12.0	21 x 26 x 38 120 lg 72 lg 72 lg	280
1	Cable Assembly Case CY-1704/TSQ Containing: (6) Cable Assembly CX-3102/U (6) Cable Assembly CX-3103/U (5) Cable Assembly CX-3110/TSQ (15) Cable Assembly CX-3109/TSQ	12.0	21 x 26 x 38 168 lg 168 lg	360
1	Cable Assembly Case CY-1704/TSQ Containing: (4) Cable Assembly CX-3104/U (4) Cable Assembly CX-3104/U (4) Cable Assembly CX-3104/U (4) Cable Assembly CX-3104/U (2) Cable Assembly CX-3104/U (3) Cable Assembly CX-3105/U (2) Cable Assembly CX-3105/U (7) Radar Cable Assembly (1) Cable Assembly CX-3110/TSQ (2) Blackout Curtain (10) Cable Assembly CX-3102/U	12.0	21 x 26 x 38 408 lg 312 lg 216 lg 120 lg 72 lg 180 lg 36 lg 72 lg	345
1	Cable Assembly Case CY-1704/TSQ Containing: (4) Connector Assembly U-157/TSQ (2) Cable Assembly CX-3101/TSQ (2) Extension Light MX-1693/U (2) Extension Light MX-1694/U	12.0	21 x 26 x 38	345

Radio-Auxiliary

AN/TSQ-5, -6

COMBAT INFORMATION CENTRAL

April 1958

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(1) Cable Assembly CX-3106/TSQ (3) Cable Assembly CX-3110/TSQ Cable Assembly Case CY-1704/TSQ Containing: (24) Foot Switch SA-408/U (2) Dial Clock TD-15/U (1) Set of Accessories and Hardware	12.0	21 x 26 x 38	285
1	Plotting Board Case CY-1699/TSQ Containing: (1) Ground Rod MX-148/G (1) Tactical Display Plotting Board PT-363/TSQ (1) Map Backing Plate (1) Plotting Board Scale	34.0	10 x 74-3/4 x 78-3/4	630
2	Plotting Board Case CY-1700/TSQ Containing: (1) Tactical Display Plotting Board PT-364/TSQ	27.0	10 x 62-1/2 x 74-3/4	500
1	Plotting Board Stanchion Set MT-1494/TSQ	15.0	8-1-2 x 41 x 74	130
1	Plotting Board Stanchion Set MT-1495/TSQ	2.9	15-1/2 x 16 x 20	140
2	Metal Crate CY-1705/TSQ containing: (6) Radio Set Control Desk FN-78/TSQ (3) Desk Carrying Case CY-1701/TSQ	14.8	21-1/2 x 31-1/4 x 38	280
1	Metal Crate CY-1706/TSQ containing: (12) Folding Chair FN-79/U	26.3	24-1/4 x 39 x 48-1/2	217
1	Metal Crate CY-1706/TSQ containing: (12) Folding Chair FN-79/U	25.0	23-3/4 x 38-1/2 x 48	217
1	Portable Heater HD-210/U including: (2) Flexible Duct	21.0	25 x 26-1/4 x 55-1/2	355
4	Air Conditioner HD-209/U including: (1) Inlet Duct Adapter (1) Outlet Duct Adapter (1) Cable Assembly CX-3108/TSQ	11.3	21 x 30-1/2 x 30-1/2	310
4	Radio Set Control Case CY-1702/TSQ Containing: (6) Radio Set Control C-1538/TSQ (6) Mounting Plate	6.5	11-1/4 x 26 x 38	220
1	Headset-Microphone Case CY-1703/TSQ Containing: (36) Headset-Microphone H-103/U	6.5	11-1/4 x 26 x 38	160
1	Control-Power Supply C-1539/TSQ	11.5	20 x 26 x 38	335
1	Interconnecting Box J-655/TSQ	11.5	20 x 26 x 38	300
1	Spherical Panel (3) including: (1) Flooring in Canvas Carrying Case	133.0	24 x 98 x 98	544
3	Spherical Panel (3)	133.0	24 x 98 x 98	570
1	Cylindrical Panel (4)	70.0	19 x 66 x 98	445
2	Cylindrical Panel (3)	63.5	17 x 66 x 98	450
2	Cylindrical Panel (3)	63.5	17 x 66 x 98	440
1	Vestibule and Door Assembly (2)	39.0	33 x 33 x 62-1/2	250
1	Desk Light MX-1692/U (12)	2.7	12 x 15 x 26	105
1	Set of Equipment Spares for C-1538/TSQ	3.4	12-1/4 x 15-1/2 x 30-5/8	82
1	Set of Equipment Spares for C-1539/TSQ	2.7	12-1/4 x 15-1/2 x 24-5/8	165
1	Set of Equipment Spares for J-655/TSQ	4.0	12-1/4 x 15-1/2 x 36-5/8	95
1	Set of Equipment Spares for PT-363/TSQ, PT-364/TSQ, MX-1692/U, MX-1693/U, and MX-1694/U	2.5	9-1/4 x 15-1/2 x 30-5/8	57

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COMBAT INFORMATION CENTRAL

Radio-Auxiliary
AN/TSQ-5,-6

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Set of Equipment Spares for SA-408/U, H-103/U, and Transit Cases	2.5	9-1/4 x 15-1/2 x 30-5/8	51
1	Set of Equipment Spares for S-106/TSQ	2.5	9-1/4 x 15-1/2 x 30-5/8	83
1	Set of Equipment Spares for HD-210/U	1.25	9-1/4 x 12-1/2 x 18-5/8	29
1	Set of Equipment Spares for HD-209/U	2.5	12 x 12 x 30	68

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/TSQ-			
5	6		
18	24	Radio Set Control C-1538/TSQ	6 x 7 x 12-1/2 14.5
1	1	Control-Power Supply C-1539/TSQ	18 x 24 x 36 240.0
1	1	Interconnecting Box J-655/TSQ	18 x 24 x 36 204.0
2	4	Electrical Connector Assembly U-157/TSQ	4 x 7-1/2 x 22-1/4 13.5
2	2	Power Cable Assembly CX-3101/TSQ	2-1/4 x 4-3/4 x 9-3/4 10.0
2	4	Air Conditioner HD-209/U	19 x 28-1/2 x 28-1/2 210.0
1	1	Tactical Display Plotting Board PT-363/TSQ	3-3/4 x 68-1/4 x 68-1/4 140.0
1	1	Plotting Board Stanchion Set MT-1494/TSQ	6-1/2 x 39 x 47 31.0
2	2	Tactical Display Plotting Board PT-364/TSQ	3-3/4 x 54 x 68-1/4 115.0
2	2	Plotting Board Stanchion Set MT-1495/TSQ	6 x 14 x 18 15.0
1	1	Portable Heater, Duct Type HD-210/U	23 x 24-1/4 x 53-1/2 247.0
12	12	Desk Light MX-1692/U	44-1/8 h 3.8
2	2	Extension Light MX-1693/U	8.0
2	2	Extension Light MX-1694/U	22.0
2	2	Metal Crate CY-1705/TSQ	19-1/2 x 29-1/4 x 36 22.0
2	2	Metal Crate CY-1706/TSQ	22-1/4 x 37-1/8 x 46-1/2 33.0
1	1	Plotting Board Case CY-1699/TSQ	8 x 72-3/4 x 76-3/4 261.0
2	2	Plotting Board Case CY-1700/TSQ	8 x 60-1/2 x 72-3/4 199.0
12	12	Radio Set Control Desk FN-78/TSQ	16 x 31 x 32 17.8
18	24	Folding Chair FN-79/U	18 x 22 x 31-1/2 7.4
6	6	Desk Carrying Case CY-1701/TSQ	9 x 16-1/2 x 32-1/2 10.7
3	4	Radio Set Control Case CY-1702/TSQ	9-1/4 x 24 x 36 58.0
1	1	Headset-Microphone Case CY-1703/TSQ	9-1/4 x 24 x 36 53.0
5	7	Cable Assembly Case CY-1704/TSQ	19 x 24 x 36 55.0
24	36	Headset-Microphone H-103/U	1.0
1		Prefabricated Building S-105/TSQ-5	120 x 240 x 240 1654.0
		Consisting of:	
		(2) Spherical Panel	18 x 96 x 96 127.0
		(10) Spherical Panel	96 x 96 x 118 140.0
		(2) Vestibule and Door Assembly	24 x 29-1/4 x 60-1/2 70.0
	1	Prefabricated Building S-106/TSQ-6	120 x 240 x 480 3364.0
		Consisting of:	
		(2) Spherical Panel	18 x 96 x 96 127.0
		(10) Spherical Panel	96 x 96 x 118 140.0
		(2) Cylindrical Panel	11 x 64 x 96 108.0
		(2) Cylindrical Panel	11 x 64 x 96 105.0
		(6) Cylindrical Panel	11 x 64 x 96 109.0
		(6) Cylindrical Panel	11 x 64 x 96 105.0
		(2) Vestibule and Door Assembly	24 x 29-1/4 x 60-1/2 70.0

Radio-Auxiliary

AN/TSQ-5,-6

COMBAT INFORMATION CENTRAL

April 1958

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
5	6			
2	2	Cable Assembly CX-3102/U	408 lg	17.0
2	2	Cable Assembly CX-3102/U	312 lg	13.3
5	7	Cable Assembly CX-3102/U	216 lg	9.5
3	6	Cable Assembly CX-3102/U	168 lg	7.8
3	9	Cable Assembly CX-3102/U	120 lg	5.7
3	10	Cable Assembly CX-3102/U	72 lg	4.2
2	2	Cable Assembly CX-3103/U	408 lg	17.0
2	2	Cable Assembly CX-3103/U	312 lg	13.3
5	7	Cable Assembly CX-3103/U	216 lg	9.5
3	6	Cable Assembly CX-3103/U	168 lg	7.8
3	9	Cable Assembly CX-3103/U	120 lg	5.7
3	10	Cable Assembly CX-3103/U	72 lg	4.2
1	4	Cable Assembly CX-3104/U	408 lg	8.3
1	4	Cable Assembly CX-3104/U	312 lg	6.6
1	4	Cable Assembly CX-3104/U	216 lg	4.5
2	4	Cable Assembly CX-3104/U	120 lg	2.5
	2	Cable Assembly CX-3104/U	72 lg	1.6
1	1	Cable Assembly CX-3106/TSQ	600 lg	40.0
1	1	Cable Assembly CX-3107/TSQ	96 lg	5.0
3	3	Cable Assembly CX-3105/U	180 lg	4.4
2	2	Cable Assembly CX-3105/U	36 lg	1.4
2	4	Cable Assembly CX-3108/TSQ	600 lg	12.0
12	24	Electrical Foot Switch SA-408/U	2 x 4 x 4-1/2	2.5
12	15	Cable Assembly CX-3109/TSQ	3-1/2 x 5 x 9	6.0
12	15	Cable Assembly CX-3110/TSQ	3-1/2 x 5 x 9	6.0
1	1	Set of Equipment Spares for C-1538/TSQ	12-1/4 x 15-1/2 x 30-5/8	82.0
1	1	Set of Equipment Spares for C-1539/TSQ	12-1/4 x 15-1/2 x 24-5/8	165.0
1	1	Set of Equipment Spares for J-655/TSQ	12-1/4 x 15-1/2 x 36-5/8	95.0
1	1	Set of Equipment Spares for PT-363/TSQ, PT-364/TSQ, MX-1692/U, MX-1693/U, and MX-1694/U	9-1/4 x 15-1/2 x 30-5/8	57.0
1	1	Set of Equipment Spares for SA-408/U, H-103/U, and Transit Cases	9-1/4 x 15-1/2 x 30-5/8	51.0
1	1	Set of Equipment Spares for S-105/TSQ or S-106/TSQ	9-1/4 x 15-1/2 x 30-5/8	83.0
1	1	Set of Equipment Spares for HD-210/U	9-1/4 x 12-1/2 x 18-5/8	29.0
1	1	Set of Equipment Spares for HD-209/U	12 x 12 x 30	68.0
2	2	Technical Manual NAVMC ELECT-2005	1-7/8 x 8-11/16 x 11-1/4	1.75
2	2	USMC Electronics Catalog SIG M8-AN/TSQ -5 and 6	1-3/8 x 6 x 9	0.75

June 1961

AIR CONTROL CENTRAL

Radio-Auxiliary
AN/TYQ-1 ()

FUNCTIONAL DESCRIPTION

The AN/TYQ-1() is used for the allocation and reallocation of sectors of air defense, and blocks of weapons such as surface-to-air missile batteries and interceptors. It is also used for the gross deployment of weapons, and the coordination of air defense activities with units afloat.

The AN/TYQ-1() automatically crosstells data to tactical Air Operations Central (TAOC's) and NTDS, display air situation and weapon status, and maintains group projection and personnel consoles. It also manually and/or automatically displays interceptor raid pairings, communicator instructions to Tactical Air Control Central's (TACC's), and maintains projection displays of status on controlled flights.

No field changes in effect at time of preparation (28 December 1960).

RELATION TO OTHER EQUIPMENT

The AN/TYQ-1() is designed to be used with, but is not part of Air Operations Central AN/TYQ-2(). It is used to control U.S. Marine Corps tactical air operations.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Transportable by helicopter, cargo aircraft, or truck.

TYPE OF PLOTTING: By status boards, flight

data strips (Punched & written paper).
TYPE OF PRESENTATION: By scope.

METHODS OF REPORTING: Digital data, teletype and voice via microwave radio high-frequency radio, tropospheric scatter radio, and wire lines.

OPERATING POWER RQMT: 208 v ac, 400 cps, line to line, 45 kva; 115 v ac, line-to-neutral.

MANUFACTURER'S OR CONTRACTOR'S DATA

Litton Industries Electronic Equipment
Division Tactical Systems Laboratory,
Canoga Park, California.

Contract NObsr-72736, dated 20 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Air Control Central AN/TYQ-1().

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-M-26/1A
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Air Control Central AN/TYQ-1() consists of:		
.	Air Control Central Group AN/TYA-1(XN-1)		
.	Air Control Central Group AN/TYA-2(XN-1)		
.	Air Control Central Group AN/TYA-3(XN-1)		
.	Air Control Central Group AN/TYA-4(XN-1)		

Note: *All Huts include hut structure.

AIR OPERATIONS CENTRAL

AN/TYQ-2 ()

FUNCTIONAL DESCRIPTION

The AN/TYQ-2() is for Tactical Air Operation Central (TAOC) deployment and allocation of geographic sectors of responsibility to surveillance systems and weapons, the conduct of air defense in assigned sectors of responsibility, the coordination with other TAOC's activities in boundary regions, and communication to TAOC of all information needed for a coordinated effort.

The AN/TYQ-2() functions automatically (with manual option), detects and locates a target, programs height finding, identifies friend or foe, sends and receives crossfold data to adjacent TAOC's, and also computes and transmits instructions to controlled flights. It automatically transmits target information and assigns missiles, and computes and transmits vectoring instructions. Manually aided by automatic displays, it performs threat evaluation, and makes target-weapon pairing.

No field changes in effect at time of preparation (28 December 1960).

RELATION TO OTHER EQUIPMENT

The AN/TYQ-2() is designed to be used with, but is not part of Air Control Central AN/TYQ-1().

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Transportable by heli-

copter, cargo aircraft, or truck.
 TYPE OF PLOTTING: By status boards flight data strips (Punched & written paper).
 TYPE OF PRESENTATION: By scope.
 METHODS OF REPORTING: Digital data, teletype and voice via microwave radio, high-frequency radio, tropospheric scatter radio, and wire lines.
 OPERATING POWER RQMT: 208 v ac, 400 cps, line to line, 45 kva; 115 v ac, line to neutral.

MANUFACTURER'S OR CONTRACTOR'S DATA

Litton Industries Electronic Equipment Division Tactical Systems Laboratory, Canoga Park, California.
 Contract NObsr-72736, dated 20 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Air Operations Central AN/TYQ-2().

TYPE CLASSIFICATION (NAVY) DESIGN COGNIZANCE NAVY BUSHIPS PROCUREMENT COGNIZANCE SHIPS-M-2671A STOCK NO. R.D.B. IDENT. NO.
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EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Air Operations Central AN/TYQ-2() consists of:		
*2	Air Operations Central Group AN/TYA-5(XN-1)		
*	Air Operations Central Group AN/TYA-6(XN-1)		
*	Air Operations Central Group AN/TYA-7(XN-1)		
*	Air Operations Central Group AN/TYA-8(XN-1)		
*	Air Operations Central Group AN/TYA-9(XN-1)		
*	Air Operations Central Group AN/TYA-10(XN-1)		
*	Air Operations Central Group AN/TYA-11(XN-1)		
*	Air Operations Central Group AN/TYA-12(XN-1)		

Note: *All huts include hut structure.

20 July 1962

PROJECTOR GROUP AN/UFA-3

Cog Service: USN

FSN:

Functional Class:

USA

USN

USAF

TYPE CLASS:

Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: U. S. Navy Electronics Laboratory, (89199).



Projector Group AN/UFA-3

FUNCTIONAL DESCRIPTION:

The Projector Group AN/UFA-3 is designed as a portable, still, silent projector unit, with "advance mechanism", amplifier, filter unit and cabinet. A 70 cycle keying tone is received from a record player and amplified to operate the advance mechanism; suitable filters make the keying tone inaudible, the keying tone is recorded on the sound disc which produces the proper sounds to accompany the picture being projected on the screen.

No field changes in effect at time of preparation (12 December 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF PROJECTOR: Still, silent.

FILM SIZE: 35 mm.

KEYING TONE FREQUENCY: 70 cycles.

OPERATING POWER RQMT: 115 v ac, 50 to 60 cps, single ph.

AN/UFA-3 PROJECTOR GROUP

RELATION TO OTHER EQUIPMENT:

The AN/UFA-3 is designed for use with Sonar Training Set AN/UQR-T1 and the Student Response Group Trainer (SRGT).

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Projector & Film Advance Mechanism Unit #1 of AN/UFA-3		10 x 16 x 24	35
1	Cabinet Unit #2 of AN/UFA-3		16 x 24 x 37	65
1	Filter Amplifier Unit, Unit #3 of AN/UFA-3		9 x 10 x 17	24

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91528: Technical Manual for Projector Group AN/UFA-3.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
U.S. Navy Electronics Laboratory	San Diego, California	NEL Problem 3F6b	

August 1960

Radio-Auxiliary

PUBLIC ADDRESS SET

AN/UIQ-3

FUNCTIONAL DESCRIPTION

The AN/UIQ-3 is a trans-portable, weather-proof 200 watt electroacoustic system, used to address very large groups under noisy conditions, such as may prevail in battle areas.

No field changes in effect at time of preparation (4 April 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

- INPUT VOLTS: 115 to 127 v AC.
- INPUT FREQUENCY: 60 cps.
- INPUT POWER: 115 to 520 W (stand-by to peak output).
- INPUT CHANNELS: One.
- OUTPUT POWER: 200 W max.
- OUTPUT IMPEDANCE: 105 ohms.
- POWER GAIN: 75 db at 1,000 cps.
- FREQUENCY RESPONSE: ±2.5 db from 1,000 cps level.

MANUFACTURER'S OR CONTRACTOR'S DATA

David Bogen Co., New York, New York.
 Order No. 10668-P-45.
 Procurement No. UR45-565.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

Nomenclature Card AN/UIQ-3 for Public Address Set.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE TASSA
 PROCUREMENT COGNIZANCE
 STOCK NO.
 R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Public Address Set Consisting of:		
1	Amplifier Bogen Type MC-225		
1	Microphone Switch Bogen Type S-102		
1	Microphone Bogen Type T-45		
2	Microphone Cable		
3	Conductor Speaker Cable		
3	Conductor AC Power Cable		
2	Conductor Amplifier Parallel Cable		
1	Speaker Bogen Type AA-7		

March 1957

PUBLIC ADDRESS SET

Radio-Auxiliary

AN/UIQ-6

FUNCTIONAL DESCRIPTION

The AN/UIQ-6 is a portable, high level, high gain, audio amplifying system for the transmission of sound in air. Three of the units form a portable announcing system designed to be carried by three men. The system may also be used on board a ship as a semi-permanent installation.

The system is capable of delivering at least 50 watts of audio power, measured at the reproducer voice-coil terminals with not more than 10% distortion. This corresponds to a minimum "on axis" pressure of 112 bars or 115 db (relative to 0.0002 bars) at a distance of 10 feet from the reproducer mouth.

With the system connected for use, immediate operation is possible by operating the spring return press-to-talk switch. The system consumes no power except when this switch is pressed.

No field changes in effect at time of preparation (17 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT IMPEDANCE: 5 ohms.
 FREQUENCY RANGE: 500 to 3000 cps.
 POWER OUTPUT: 50 W.
 HARMONIC DISTORTION: Less than 10%.

INPUT IMPEDANCE: 225 ohms.

POWER SOURCE: 12 v DC.

BATTERY CHARGER

CHARGING RATE: 4 to 8 amp.

POWER SOURCE: 115 v, 60 cps, single ph.

POWER CONSUMPTION: 300 W.

AMPLIFIER POWER CONSUMPTION: 290 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Stromberg Carlson Co; Rochester, New York
 Contract: NObsr-20002.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1S5	(1) 3A4	(1) 6B4-G
(2) 3C30	(1) 3A5	(1) VR150
Total Tubes: (7)		

REFERENCE DATA AND LITERATURE

NAVSHIPS 365-0188: Technical Manual for
 Public Address Set AN/UIQ-6.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier, Audio Frequency AM/1329/PIC	9-1/4 X 9-3/8 X 20-1/4	35
1	Public Address Group AN/SIA-68	9-1/2 X 14-1/4 X 21-1/2	47
1	Charger, Battery, PP-1390/U	14-1/8 X 26-3/8 X 30	115
1	Battery Assembly BB-260/U	6 X 10 X 21-7/8	48
1	Mount Reproducer Assembly Stormberg Carlson #43511	4-3/8 X 4-5/8 X 27	7
1	Spare Parts Box	9-1/4 X 16 X 18-1/2	72
1	Spare Parts Box	9-1/4 X 16 X 18-1/2	61
1	Spare Battery Assembly BB-260/U	6 X 10 X 21-7/8	48

UNCLASSIFIED

October 1957

Radio-Auxiliary

DISCRIMINATOR-POWER SUPPLY GROUP

AN/UKA-2

FUNCTIONAL DESCRIPTION

The AN/UKA-2 is used with various tele-metric receiving sets to discriminate incoming signals, permitting only those in a specified frequency range to pass.

No field changes in effect at time of preparation (9 May 1957).

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Discriminator-Power Supply Group AN/UKA-2 dated 11 September 1956.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE REQUIRED: 105 to 115 v, 60 to 400 cps, single ph.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Discriminator, Electrical Frequency F-334/UKA-2		
1	Power Supply PP-1634/UKA-2		

UNCLASSIFIED

1.2 AN/UKA-2: 1

23 August 1962
Cog Service: USN

FSM:

RECORDER-REPRODUCER SET, SOUND AN/UNH-3A
Functional Class:

USA

USN

USAF

USMC

TYPE CLASS:

Std

MANUFACTURER'S NAME/CODE NUMBER: U. S. Recording Co., (81798).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

The Recorder-Reproducer Set, Sound is designed for general recording and reproduction of sound. It is self-contained tape recorder-reproducer which uses standard one-quarter-inch plastic tape as the recording medium.

No field changes in effect at time of preparation (24 May 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF RECORDING MEDIUM: Tape type.

TAPE WIDTH: 1/4 in. w.

NUMBER OF CHANNELS: 2 channels.

RECORDING SPEEDS: 3-3/4 and 7-1/2 IPS.

IMPEDANCE: 6.8 megohms, 600 ohms.

FREQUENCY RESPONSE

3-3/4 IPS: 60 to 5000 cps.

7-1/2 IPS: 60 to 10,000 cps.

POWER OUTPUT: 5 w.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The AN/UNH-3A is functionally interchangeable with Recorder-Reproducer Set, Sound AN/UNH-3.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
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REFERENCE DATA AND LITERATURE:

NAVSHIPS 93400: Preliminary Data Form for Recorder-Reproducer Set, Sound AN/UNH-3A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

AN/UNH-3A RECORDER-REPRODUCER SET, SOUND

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.9	40

PROCUREMENT DATA

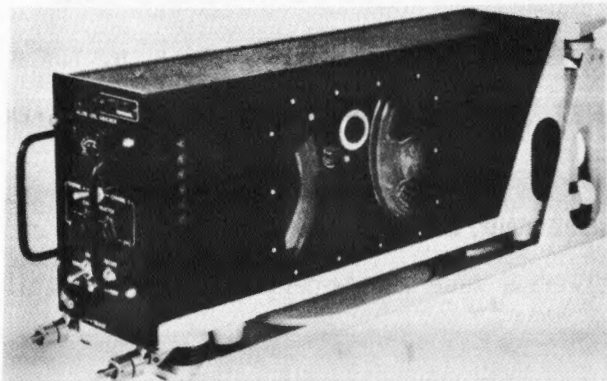
PROCURING SERVICE: USN, BuShips

DESIGN COG: USMC

SPEC &/OR DWG: CSY-3-FY60-2

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
U. S. Recording Company Dwg No. Series 302	Washington, D. C.	N0m-71533	

February 1960

SOUND RECORDERRadio-Auxiliary
AN/UNH-6

Sound Recorder AN/UNH-6

FUNCTIONAL DESCRIPTION

The AN/UNH-6 is designed to record voice-frequency intelligence and/or other signals in the audio frequency range. It may be used in recording radio conversation between aircraft crew members, plane to plane, plane to ground, or may be used for telemetry work.

No field changes in effect at time of preparation (20 July 1959).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Oscilloscope DuMont Model 304A, (1) Test Control Ampex ZR 97,108, (1) Test Control Ampex ZR 97,112, (1) Wide Band Flutter Meter D & R FL-4A, (1) Cable Set Ampex YR 97,112-5, (1) Cable Set Ampex YR 97,108-A2, (1) Power Cord Ampex 2413, (1) Bench Press Ampex T-1303-JA, (1) Press Fixture Ampex T-1303-JA-11, (1) Press Fixture Ampex T-1303-JA-14, (1) Staking Tool Ampex T-2535-JA, (1) Connector Alignment Jig Ampex T-2602-JA.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TAPE: Electromagnetic with MYLAR

BASE.

NUMBER OF CHANNELS: Two channels.

RECORDING TIME: 45 minutes max.

FREQUENCY RESPONSE: ± 2 db frequency response from 50 to 10,000 cps.

OPERATING POWER RQMT: 108 v to 121 v, 380 to 420 cps, 1 ph, 0.32 amp; 25 to 29 v DC, 6.0 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Ampex Corp., Redwood City, California.

Catalog No. 60432-01.

Contract NOas 58-625-f, dated 22 April 1958.

Contract NOas 58-658.

Approximate Cost: \$1,025,380.42 with equipment spares for Contract NOas 58-625-f.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6TF4 (1) 26Z5W (1) OA2WA
(2) 6533 (5) 5703WA

Total Tubes: (10)

No Crystals used

REFERENCE DATA AND LITERATURE

NAVAER 16-30UNH6-502: Technical Manual for Sound Recorder AN/UNH-6.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE MIL-R-19533 (AER)
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sound Recorder AN/UNH-6		23
1	Mounting MT-2013/UNH-6	6-1/4 X 9-7/32 X 21-5/8	

RECORDER REPRODUCER SET, SONAR

FUNCTIONAL DESCRIPTION

The AN/UNH-7 electromechanically records electrical signals on magnetic tape and reproduces signals from magnetic tape.

No field changes in effect at time of preparation (4 October 1960).

RELATION TO OTHER EQUIPMENT

The AN/UNH-7 is designed as part of Detecting-Ranging Set, Sonar AN/FQQ-5, -6 and -7(v).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECORDING: Electromechanical.
RECORDING MEDIUM: Tape type.
NUMBER OF CHANNELS: 7 channels.
RECORDING SPEEDS: 3, 6, 12, 24, 30 and 60 inches per second.
OPERATING FREQUENCY: 0 to 1000 cps uniformly flat within $\pm 1/2$ db at all recording speeds.
OPERATING POWER RQMT: 117 v ac, 60 cps, - single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N. Y.
Part/Spec No. GA-10818.
Contract NObsr-75167, dated 26 March 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Recorder-Reproducer Set, Sound AN/UNH-7.
NAVSHIPS 93239: Technical Manual for Recorder-Reproducer Set, Sound AN/UNH-7.

<p>TYPE CLASSIFICATION (NAVY) DESIGN COGNIZANCE NAVY BUSHIPS PROCUREMENT COGNIZANCE STOCK NO. R.D.B. IDENT. NO.</p>

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Reproducer Set, Sound AN/UNH-7 consists of:	23 x 24 x .84	
1	Electrical Equipment Cabinet		
1	Transport, Sound Record Tape MX-2932/UNH-7	17.24 x 19 x 27.90	
1	Amplifier, Power Supply Group OA-2553/UNH-7 consists of:		
8	Amplifier, A.F. AM-2397/UNH-7	1.56 x 8.30 x 8.50	
2	Power Supply PP-2483/UNH-7	3-1/2 x 7-5/8 x 14	
1	Amplifier, Power Supply Group OA-2554/UNH-7 consists of:		
8	Amplifier, A.F. AM-2398/UNH-7		
4	Power Supply PP-2483/UNH-7	3-1/2 x 7-5/8 x 14	
1	Regulator, Frequency CN-620/W consists of:	10-1/2 x 17 x 19	
1	Oscillator, A.F. O-681/UNH-7	1-3/4 x 8-1/4 x 9-5/16	
1	Amplifier & Electronic Control AM-2399/UNH-7	6-3/4 x 7-1/4 x 16-1/2	
1	Power Supply PP-2484/UNH-7	7 x 7.88 x 16.75	
1	Panel, Power Distribution SB-1096/UNH-7	7 x 17.56 x 19	

June 1961

Radio-Auxiliary
AN/UNH-8

RECORDER REPRODUCER SOUND

FUNCTIONAL DESCRIPTION

The AN/UNH-8 is designed to record electrical signals on magnetic tape and reproduces signals from magnetic tape.

No field changes in effect at time of preparation (1 December 1960).

RELATION TO OTHER EQUIPMENT

The AN/UNH-8 is similar to, but not mechanically interchangeable with the AN/UNH-7. The difference between the AN/UNH-7 and AN/UNH-8 is in the Amplifier Power Supply Group.

The AN/UNH-8 is designed as part of Detecting-Ranging Set, Sonar AN/FQQ-2V.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF SIGNALS RECORDED: Electrical signals.

TYPE OF TAPE: Magnetic tape.

SIZE OF TAPE: 1/2 in. wide.

RECORDING SPEEDS: 3, 6, 12, 24, 30, and 60 in./sec.

FREQUENCY RESPONSE: Between 0 and 1000 cps is uniformly flat within porm 1/2 db at all recording speeds.

OPERATING POWER RQMT: 117 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., Winston-Salem, North Carolina.

Contract NObsr-64453.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Recorder-Reproducer Sound AN/UNH-8.

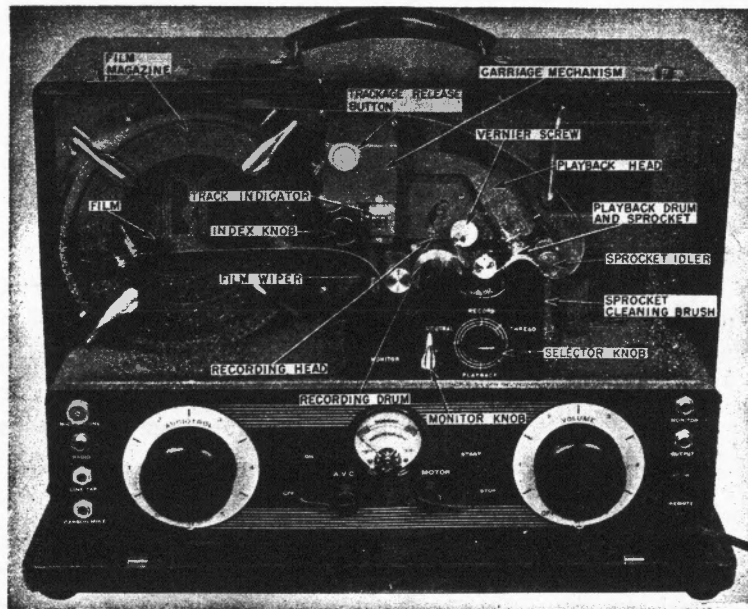
TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Reproducer, Sound AN/UNH-8 consists of:		
1	Cabinet, Electrical Equipment		
1	Transport, Sound Record, Tape MX-2932/UNH-7	17.24 x 19 x 27.90	
2	Amplifier-Power Supply Group OA-2553/UNH-7		
4	Amplifier-Power Supply Group OA-3004/UNH-8		
1	Panel, Power Distribution SB-1096/UNH-7	7 x 17.56 x 19	
1	Regulator, Frequency		

SOUND RECORDING SET

AN/UNQ-1



Sound Recording Set AN/UNQ-1

FUNCTIONAL DESCRIPTION

The AN/UNQ-1 is a portable, compact, self-contained sound recording and playback machine designed to operate on 110 volt, 50 to 60 cycle, alternating current. Recording is made on 35 millimeter noninflammable cellulose-acetate film, and at normal operating speed, continuous recording is possible for approximately one and one-half hours. The recording may be played back immediately.

Provisions are contained so that with the use of a booster transformer or amplifier

numerous loudspeakers or earphones may be connected to the recording set output. It may be adapted for use on 110 volt direct current.

No field changes in effect at time of preparation (29 October 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: Test set as Required.

June 1957

Radio-Auxiliary
AN/UNQ-1

SOUND RECORDING SET

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE: Approx. 150 to 4000 cps
at 60 FPM, narrower range at 40 FPM.

OPERATING TIME

40 FPM: 2 hr 23 min.

60 FPM: 1.5 hr.

POWER OUTPUT (AMPLIFIER): 3 W.

GAIN

MICROPHONE TERMINAL: 114 db.

RADIO INPUT TERMINAL: 85 db.

EARPHONE IMPEDANCE: 40000 ohms at 500 cps.

RECORDING HEAD

TYPE: Balanced-armature magnetic.

IMPEDANCE: 6 ohms at 1000 cps.

FREQUENCY RANGE: 150 to 3500 cps.

PLAYBACK HEAD

TYPE: High-impedance magnetic.

IMPEDANCE: 10000 ohms at 1000 cps.

FREQUENCY RANGE: 150 to 3500 cps.

POWER REQUIREMENTS: 110 v, 50 to 60 cps,
single phase, 125 to 130 W.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT

(1) 6H6GT

(2) 6SJ7

(1) 6SK7

(1) 6SL7GT

(1) 6V6GT

(1) 2050

Total Tubes: (8)

REFERENCE DATA AND LITERATURE

TM11-2522: Technical Manual for Sound Re-
cording Sets AN/UNQ-1 and AN/UNQ-1A.

MANUFACTURER'S OR CONTRACTOR'S DATA

Amertype Recordograph Corporation, New
York, N.Y.TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
2	Sound Recording Set AN/UNQ-1 and Recording Film	14.2	22 x 26-1/2 x 42-1/2	192

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sound Recording Set AN/UNQ-1	9.6 x 16 x 19	53
1	Microphone	5 x 7 x 9.5	2.35
1	Crystal Earphones	1.5 x 7.5 x 7.5	0.5
1	Telephone Tap Cord	144 lg	0.35
1	Foot Operating Switch	2.5 x 2.875 x 5.625	2.625
1	Kit of Tools	3 dia x 5.5	0.03

August 1957

Radio-Auxiliary

RECORDER-REPRODUCER SET**AN/UNQ-2****FUNCTIONAL DESCRIPTION**

The AN/UNQ-2 is an electro-magnetic wire tape recorder and reproducer of sound signals. It is intended for general ground type installations. Includes 30 spools of recording wire.

No field changes in effect at time of preparation (13 March 1957).

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Recorder-Reproducer Set AN/UNQ-2 dated 14 December 1956.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE: Electromagnetic.

MEDIUM: Magnetic wire.

SUBJECT: Sound.

OPERATION: Recording and reproducing.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

MANUFACTURER'S OR CONTRACTOR'S DATA

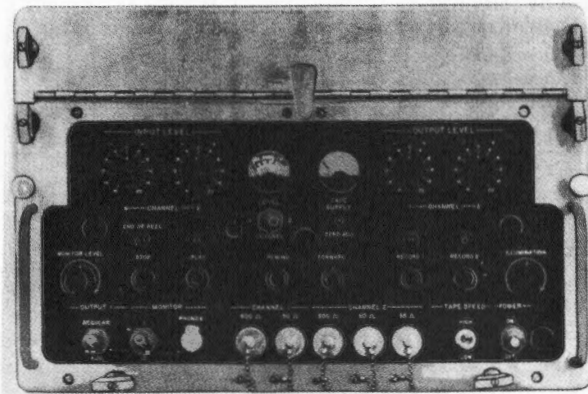
General Electric Co.

EQUIPMENT SUPPLIED DATA

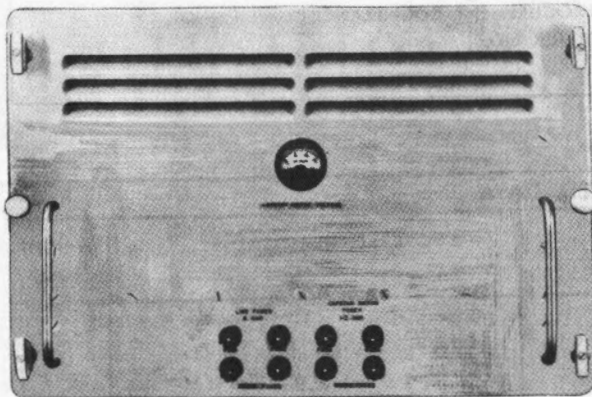
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Reproducer Set AN/UNQ-2		

April 1958

SOUND RECORDER-REPRODUCER SET

Radio-Auxiliary
AN/UNQ-6,
AN/UNQ-6(XN-1)

Recorder AN/UNQ-6



Power Supply AN/UNQ-6



Remote Control AN/UNQ-6

FUNCTIONAL DESCRIPTION

The AN/UNQ-6, and AN/UNQ-6(XN-1) are designed to record, on magnetic tape, the output of radio receivers, microphones, handsets, or other devices with outputs in the audio frequency spectrum. The recorded information can be played back immediately or stored (under proper conditions) indefinitely. The tape can be played back many times with no noticeable deterioration of the signal, or it can be erased and re-recorded at the discretion of the operator. The recorder is capable of recording two channels of information, either singly or simultaneously, and can be controlled from a remote location. The Remote Control Unit provides facilities for controlling two recorders.

No field changes in effect at time of preparation (26 Feb 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

PLAYING TIME AND TAPE SPEED: 1 hr continuous at 3-3/4 ips, 30 min. continuous at 7-1/2 ips. (inches per sec).

FREQUENCY RESPONSE

3-3/4 IPS: Within ± 2 db from 50 to 5000 cps.

7-1/2 IPS: Within ± 2 db from 50 to 15000 cps.

The response measurements are made with reference to 20 db below Standard Operating Level at 1000 cycles.

SIGNAL-TO-NOISE RATIO: Not less than 45 db at 1% distortion.

TOTAL HARMONIC DISTORTION: Max 1% measured at 500 cps and at Standard Operating Level (Standard Operating Level is defined as 6 mw across 600 ohms).

FLUTTER AND WOW: 0.5% RMS (max).

LEVEL STABILITY: Stability of the signal played back at 1000 cycles is greater than ± 1 db.

REWIND TIME: 45 sec max.

FORWARD TIME: 45 sec max.

INPUTS

SIGNAL CHANNEL: 50 or 600 ohms, balanced or unbalanced.

LOG CHANNEL: 50 or 600 ohms, balanced or unbalanced, 35 ohms for H-52/U Handset.

OUTPUTS

SIGNAL CHANNEL: One 600 ohm balanced and one 600 ohm balanced auxiliary.

LOG CHANNEL: 600 ohm balanced.

Radio-Auxiliary

AN/UNQ-6, SOUND RECORDER-REPRODUCER SET

AN/UNQ-6(XN-1)

April 1958

INPUT AND OUTPUT LEVELS: Normal signal level, 0 db (0 defined as 6 mw across 600 ohms).

Average signal level may vary from -20 db to + 15 db.

POWER SOURCE REQUIRED: 105/115/125 v \pm 10%, single ph, 60 cps \pm 5%, 510 W (with all units operating).

AMBIENT TEMPERATURE: 20 deg C to + 50 deg C.

HUMIDITY: 0 to 95% relative humidity.

TAPE WIDTH: 0.25 in.

(3) 5R4WGA	(2) CK6247
(1) 6AH6	(2) 12AT7
(1) 5879	(1) 6C4
(3) 5687	(2) 6080
(2) 5933	(1) 6U8

Total Tubes: (23)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92063(A): Technical Manual for Sound Recorder-Reproducer Sets AN/UNQ-6 (XN-1) and AN/UNQ-6.

MANUFACTURER'S OR CONTRACTOR'S DATA

Amplex Corp, Redwood City, Calif.
 Contract: NObsr-57199. (AN/UNQ-6(XN-1))
 Contract: NObsr-63342. (AN/UNQ-6)

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2WA

(1) OB2WA

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/UNQ-6 (XN-1)		
1	Recorder-Reproducer, Sound	14-9/16 X 18-1/2 X 23-13/16	
1	Power Supply (Unit 1)	14-9/16 X 18-1/2 X 23-13/16	
1	Control, Recorder-Reproducer (Unit 2)	4-1/8 X 7 X 11	
1	Magazine		
1	Spare Parts Box		
	AN/UNQ-6		
1	Recorder-Reproducer, Sound RD-144/UNQ-6	14-9/16 X 18-1/2 X 23-13/16	
1	Power Supply PP-1263/UNQ-6	14-9/16 X 18-1/2 X 23-13/16	
1	Control, Recorder-Reproducer C-1598/UNQ-6	4-1/8 X 7 X 11	
1	Magazine		
1	Spare Parts Box		

June 1961

RECORDER-REPRODUCER SET, SOUND**AN/UNQ-7****FUNCTIONAL DESCRIPTION**

The AN/UNQ-7 is used for recording and re-producing two channels of frequencies from 50 to 10,000 cps on magnetic tape.

No field changes in effect at time of preparation (11 October 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT IMPEDANCE: 150, 600, and 600 ohms.

OUTPUT IMPEDANCE: 600 ohms.

TYPE OF RECEPTION: Audio.

RECORDING MEDIUM: Tape type.

RECORDING SPEED: 50 to 10,000 cps uniformly flat within porm 2 db frequency response at 7-1/2 in. per second.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Ampex Corporation, Redwood City, Calif.
 Contract NObs-74664, dated 27 June 1958.
 Contract NObs-74689, dated 27 June 1958.
 Contract NObs-76899 (FRAM).

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6C4WA	(1) 1DP1
(1) 12AT7WA	(1) 5R4WGB
(1) 5Y3WG7B	(1) 5726-6AL5W
(4) 6005-6AQ5W	(4) 5749-6BA6W
(2) 5751	(3) 5814A
(3) 5879	(1) 6AU6WA

Total Tubes: (26)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Recorder-Reproducer Set, Sound AN/UNQ-7.
 NAVSHIPS 365-2471: Technical Manual for Recorder-Reproducer Set, Sound AN/UNQ-7.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE NAVY BUSHIPS
 PROCUREMENT COGNIZANCE MIL-I-983 Amendment 2
 STOCK NO.
 R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Reproducer Set, Sound AN/UNQ-7 consists of:		
1	Control, Recorder-Reproducer Set C-2682/UNQ-7	3 x 3-1/2 x 5	
1	Amplifier Assy AM-1182/UNQ-7	8-3/4 x 16-7/8 x 19	
1	Recorder-Reproducer, Sound RD-141/UNQ-7	10-5/8 x 15 x 19	
1	Cabinet, Electrical Equipment CY-2509/UNQ-7	18-3/4 x 21-3/4 x 26-1/2	

June 1961

Radio-Auxiliary

RECORDER REPRODUCER SET, SOUND**AN/UNQ-7A****FUNCTIONAL DESCRIPTION**

The AN/UNQ-7A is used for recording and reproducing two (2) channels of frequencies from 50 to 10,000 cycles per second (cps) on magnetic tape.

No field changes in effect at time of preparation (14 October 1960).

RELATION TO OTHER EQUIPMENT

The AN/UNQ-7A is similar to and interchangeable with AN/UNQ-7; the difference being that the AN/UNQ-7A has an addition of third tape speed of 15 in. per second, an addition of a take-up reel turns counter and substitution of a V.V. meter for the cathode-ray tube as a means of recording level indications.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECORDING: Magnetic recording.

RECORDING MEDIUM: 1/2 inch wide magnetic tape, speeds of 3-3/4, 7-1/2, and 15 inches per second.

INPUT IMPEDANCE

VOICE: 150, 600 and 200,000 ohms.

SONAR: 600 and 30,000 ohms.

NUMBER OF CHANNELS: 2 channels (voice and sonar).

FREQUENCY RESPONSE: Porm 2 db frequency response at 7-1/2 in. per second.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Midwestern Instruments Inc., Tulsa, Oklahoma.

Contract NObs-76318.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1DP1	(1) 12AT7WA
(1) 5R4WGB	(1) 5Y3WGTB
(1) 5726-6AL5W	(4) 5749-6BA6W
(2) 5751	(3) 5814A
(3) 5879	(1) 6AU6WA
(4) 6C4WA	(4) 6005-6AQ5W

Total Tubes: (26)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Recorder-Reproducer Set, Sound AN/UNQ-7A.

NAVSHIPS 365-2471: Technical Manual for Recorder-Reproducer Set, Sound AN/UNQ-7A.

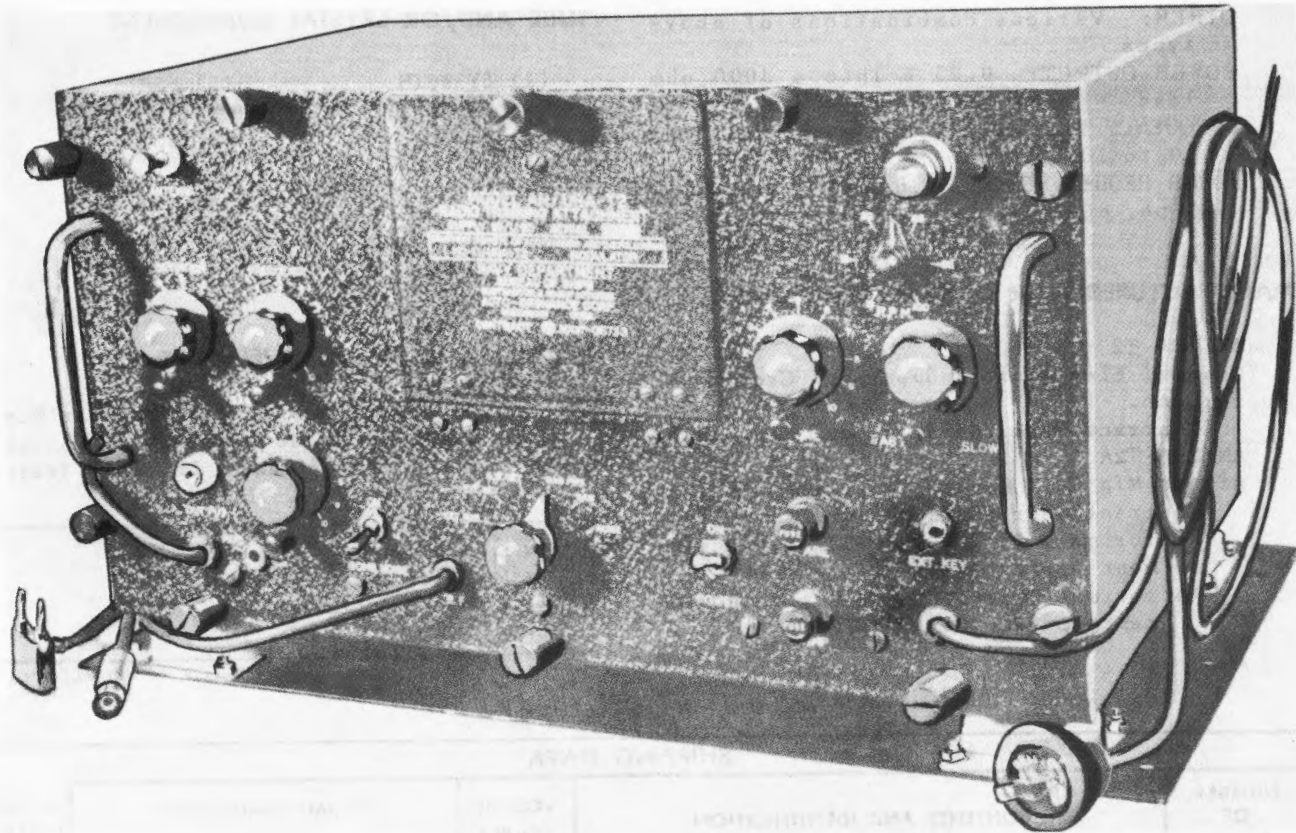
TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE MIL-1-983
STOCK NO. Amend 2
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Reproducer Set, Sound AN/UNQ-7A Consists of:		
1	Control, Recorder-Reproducer Set C-3155/UNQ-7A	3 x 3-1/2 x 5	
1	Amplifier Assy AM-2453/UNQ-7A	8-3/4 x 16-7/8 x 19	
1	Recorder-Reproducer, Sound RD-226/UNQ-7A	10-5/8 x 15 x 19	
1	Cabinet, Electrical Equipment CY-2509/UNQ-7	18-3/4 x 21-3/4 x 26-1/2	
2	Reels (empty)		
1	Alignment Tape		

April 1958

RADIO TRAINING ATTACHMENT

Radio-Auxiliary
AN/URA-T2,
AN/URA-T2A

Radio Training Attachment AN/URA-T2

FUNCTIONAL DESCRIPTION

The AN/URA-T2 and AN/URA-T2A provide means for effectively duplicating all of the commonly used types of radio interference due to enemy jamming. Basically the attachment consists of six electronic circuits, an electrical switching circuit and a mechanical switching circuit. The radio training attachment is designed to produce three types of interference, referred to as noise, saw, and bagpipe. A switch permits a combination of noise with either of the other interference signals by setting the selector switch. External CW keying can also be combined with noise in this manner.

It is intended for shore base or shipboard use with Signal Generator LP-3 or equivalent and any standard Navy Communication Receiver. The training attachment may also be used to modulate a transmitter to provide countermeasure or jamming signals.

No field changes in effect at time of preparation (1 April 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Signal Generator LP-3 or equal, (1) Communication Receiver.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RECEPTION: A1, A2.

MODULATION OF SIGNAL GENERATOR

SAW: Frequencies varying from 5 to 2000 cps at the rate of 1 and 3/4 cps.

NOISE: Noise of random frequency characteristics covering the frequency range of the equipment and producing a band spread of 7 kc.

BAGPIPE: Frequencies of 380, 440, 625, 800, and 505 cps varied at a rate of 50 to 500 tones per min. by microswitches actuated by a motor-driven cam.

A1, A2, A3: From external source.

A1: From internal source (automatic keying).

Radio-Auxiliary
**AN/URA-T2,
AN/URA-T2A**

RADIO TRAINING ATTACHMENT

OTHER: Various combinations of above types.
POWER OUTPUT: 0.25 W into a 4000 ohm load.
FREQUENCY RESPONSE: Flat with 5 db from 10 to 10,000 cps.
POWER REQUIREMENTS: 110 to 120 v, 60 cps, 1 ph, 80 W.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3WGTB	(2) 6SH7
(1) 6AG7Y	(1) 6SL7WGT
(1) 6AC7WA	(1) 6N7
(1) 884	
Total Tubes: (8)	

No Crystals used.

MANUFACTURER'S OR CONTRACTOR'S DATA

AN/URA-T2
General Electronic Industries, Greenwich, Conn.
Contract NXsr 36733, dated 1 Sept 1943.
AN/URA-T2A
Aireon Mfg Co., Kansas City, Kansas.
Contract NXsr 65276, dated 9 June 1944.
Approximate Cost: \$500.00 with equipment spares. (AN/URA-T2).
Approximate Cost: \$486.00 with equipment spares. (AN/URA-T2A).

REFERENCE DATA AND LITERATURE

NAVSHIPS 900310: Technical Manual for Navy Model AN/URA-T2 Radio Training Attachment.
SHIPS 361: Technical Manual for Radio Training Attachment Model AN/URA-T2A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Training Attachment AN/URA-T2A	4.1		120

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/URA-			
T2			
T2A			
1	Modulator MD-10/URA-T2		
1	Modulator MD-10A/URA-T2		
1	Set of Cables		

UNCLASSIFIED

August 1957

Radio-Auxiliary

CODER-TIMER GROUP

AN/URA-11

FUNCTIONAL DESCRIPTION

The AN/URA-11 is used for the program control of a radio beacon. It is designed for shock mounting on a bulkhead or for rack mounting. It consists of 2 coders, one being of fixed code wheels and the other equipped with eighty push button keys for setting any desired 4 letter code.

No field changes in effect at time of preparation (12 March 1957).

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5823
Total Tubes: (1)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Coder-Timer Group AN/URA-11 dated 3 April 1950.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Wallace and Tiernan Products Inc.
Contract Teg-38070.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Beacon Coder KY-64/UR		
1	Electric Timer TD-48/UR		
1	Cabinet CY-867/URA-11	18 x 24 x 24	

UNCLASSIFIED

25 April 1962

Cog Service: USN FSN: 5820-474-3975

COMPARATOR-CONVERTER GROUP AN/URA-17

Functional Class:

USA

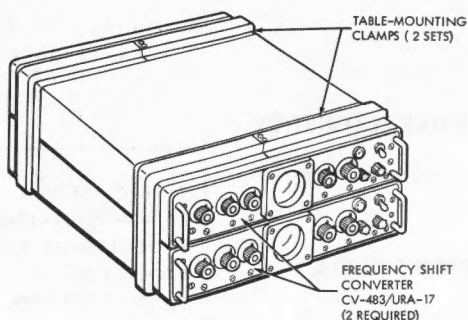
USN

USAF

Used by

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Hoffman Electronics Corp., (82260).



RACK-MOUNTING
BRACKETS (4)



UG-88D/U
CONNECTORS (6)



TABLE MOUNTING
FEET (4)



MS3106A145-7P
CONNECTORS (2)
MS3106A145-7S
CONNECTORS (2)
MS3106A145-9S
CONNECTORS (2)

Comparator-Converter Group AN/URA-17

FUNCTIONAL DESCRIPTION:

Comparator-Converter Group AN/URA-17, provides a link in the receiving end of a frequency-shift communication system. In this system, teletype mark-space characters are transmitted as rapid shifts above and below the center frequency of an rf carrier. These frequency-shift-keyed (FSK) signals are translated by a standard communications receiver into frequency variations about a center frequency of 1000 or 2550 cycles per second (CPS). The AN/URA-17 changes these frequency-shifted audio signals into dc mark-space pulses for operation of a loop keying circuit of an automatic recording device. This method of communication provides the noise reduction advantages of frequency modulation for coded teletype messages at speeds to 400 words per minute.

The AN/URA-17 consists of two Frequency Shift Converters CV-483/URA-17, hereinafter referred to as converters. Either converter may be operated in a single-receiver fsk receiving system or used together in combination with two receivers and a single teletype printer to provide a "diversity" receiving system. The diversity system makes use of the principles of

AN/URA-17 COMPARATOR-CONVERTER GROUP

space-diversity or frequency-diversity reception to eliminate severe signal fading over long transmission distances.

During diversity operation, a comparator circuit in each converter continuously compares the two received signals, selecting the stronger signal for operation of the teletype printer. The teletype printer may be connected to either of the converters. When operating in a single-receiver, the comparator circuits are inoperative.

No field changes in effect at time of preparation (3 April 1961).

TECHNICAL CHARACTERISTICS:

Converts frequency-shifted audio signals into dc pulses for operation of teletype printer keying relay.

FREQUENCY RANGE: 900 to 1100 cps, and 2050 to 3050 cps.

INPUT IMPEDANCE: 600 ohms.

POWER REQUIREMENTS: 105, 115, or 125 v, 50 to 400 cps, single phase. Each converter requires 35 W.

HEAT DISSIPATION: Negligible. (Except for 2BP1 cathode-ray tube, only semi-conductors are used.)

PERTINENT ELECTRICAL AND MECHANICAL CHARACTERISTICS: Consists of two identical converters, each capable of converting frequency-shifted audio signals into dc pulses for operation of a teletype printer. Each converter has a two inch cathode-ray tube (Tuning Indicator) in center of the front panel. Each converter has its own dustproof, aluminum, navy gray case. Each case is equipped with a carrying handle at each corner. The converters may be mounted in a standard 19 inch rack, or table-mounted.

All external cables are attached to receptacles on a sloping panel at rear of cabinet, and are coupled to the chassis by means of a single cable. A cable retractor is provided.

MOUNTING DIMENSIONS: AN/URA-17—8 in. h x 16-11/16 in. w x 18-7/8 in. lg. CV-483/URA-17—3-23/32 in. h x 16-11/16 in. w x 18-7/8 in. lg (with table-mounting feet installed); 3-15/32 in. h x 19 in. w x 18-7/8 in. lg (with rack-mounting brackets installed).

RELATION TO OTHER EQUIPMENT:

This equipment performs functions similar to those of Comparator-Converter Group AN/URA-8. It uses semi-conductors rather than vacuum tubes. The AN/URA-17 is not electrically or mechanically interchangeable with the AN/URA-8.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(2) Radio Receivers RBA, RBB, RBC, AN/SRR-11, AN/SRR-12, or AN/SRR-13; (1) Teletype Printer, or Automatic Recorder; (1) Set Interconnecting Cables; (4) Bolts.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Comparator-Converter Group AN/URA-17, includes:			
2	Frequency Shift Converter		3-15/32 x 16-11/16 x 18-7/8	

COMPARATOR-CONVERTER GROUP AN/URA-17

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
	CV-483/URA-17			
8	Table-Mounting Feet			
4	Rack-Mounting Brackets			
6	Connectors UG-88D/U			
2	Connectors MS3106A-14S-7P			
2	Connectors MS3106A-14S-7S			
2	Connectors MS3106A-14S-9S			
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 00000: Technical Manual for Comparator-Converter Group AN/URA-17.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 2BP1.

CRYSTALS: None used.

SEMI-CONDUCTORS: (8) 1N457 (18) 1N538 (2) 1N588 (2) 1N3025B (2) 1N3029B (2) 1N3042B
 (2) 2N328A (9) 2N333 (1) 2N336 (2) 2N341 (2) 2N424 (3) 2N526
 (3) 2N657 (2) 2N1159

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: SHIPS-C-3493

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hoffman Electronics Corp.	Los Angeles, California	N0bsr-81579, 30 June 1960	\$3,817.00

CONTROL-MONITOR GROUP

FUNCTIONAL DESCRIPTION

The AN/URA-22 provides facilities that permits the selective calling of aircraft individually in squadrons or all aircraft on an emergency basis, or ground stations by aircraft or other ground stations over normal voice communication channels, each installation uses the digital decoder for continuous monitoring of the voice channels.

The equipment aids in relieving the pilot of continuous monitoring of voice circuits and will provide an emergency calling feature and limited message capability for both air-ground and ground-air calling.

No field changes in effect at time of preparation (16 May 1957).

RELATION TO OTHER EQUIPMENT

Used with but not part of any ground-to-air and air-to-ground voice radio systems.

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Control-Monitor Group
AN/URA-22 dated 10 October 1956.

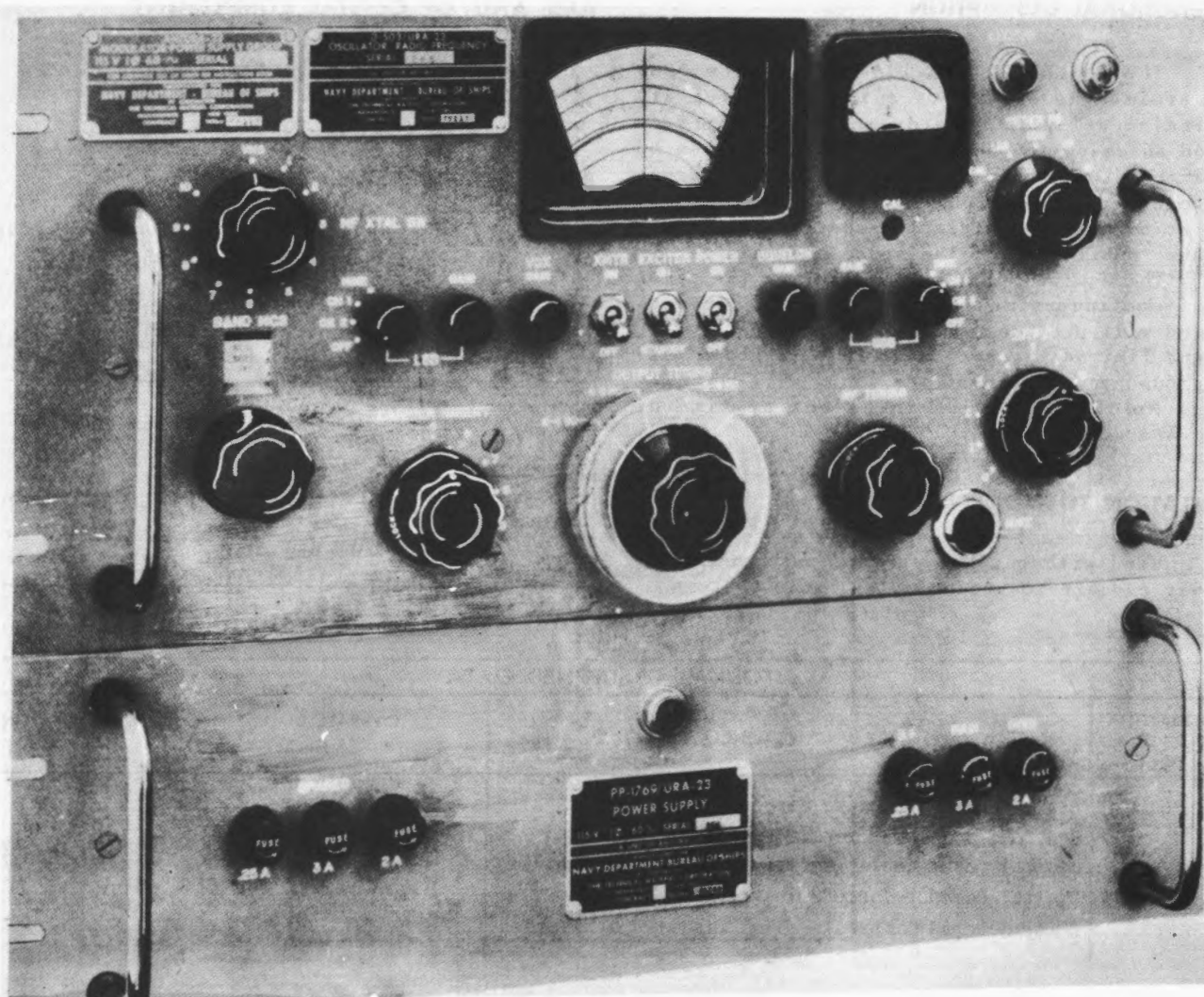
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Digital Coder-Decoder (airborne installation)		
1	Control, Coder-Decoder (airborne installation)		
1	Digital Coder Cable Assembly (ground installation)		
1	Digital Decoder (ground installation)		
1	Control Panel Cable Assemblies (ground installation)		

MODULATOR-POWER SUPPLY GROUP

AN/URA-23



Modulator-Power Supply Group AN/URA-23

FUNCTIONAL DESCRIPTION

Modulator-Power Supply Group AN/URA-23 is a universal exciter permitting the transmission of any intelligence on single sideband or double sideband with or without carrier, simultaneous or independent transmission of intelligence may be had on either upper or lower sideband.

No field changes in effect at time of

preparation (3 November 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 or 220 v, 50 to 60 cy, 1 ph, 140 W.

FREQUENCY RANGE: 2 to 32 mc.

TYPE OF EMISSION: A1, A2, A3, A3a, A3b.

FREQUENCY CONTROL: Crystal or external VFO.

Radio-Auxiliary
AN/URA-23

MODULATOR-POWER SUPPLY GROUP

CRYSTAL OVEN TEMPERATURES

17 KC AND 287 KC OSCILLATOR: 75° C.
MF AND HF OSCILLATOR: 70° C.
STABILITY: 1 PPM for 24 hour period.
POWER OUTPUT: Continuously adjustable from 0 to 3 W max.
OUTPUT IMPEDANCE: 72 ohms.
CARRIER SUPPRESSION: At least 55 db from PEP level.
CARRIER INSERTION: Adjustable.
SPURIOUS SIGNALS: At least 60 db below PEP output.
UNWANTED SIDEBAND REJECTION: 500 cps single tone at 60 db down.
AUDIO RESPONSE: Within 3 db, 350 to 3300 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5R4	(3) 5AB4	(1) 6AH6
(1) 6AL5	(2) 6CL6	(3) 6U8
(1) 6BA6	(4) 12AT7	(3) 12AU7
(1) 6146	(2) OA2	(3) CK711

Total Tubes: (25)

(8) CR-27/U (1) CR-47/U (1) CR-50/U

Total Crystals: (10)

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Material Corp, Mamaroneck,
New York.
Model: SBE-1.
Contract NObsr-71765.
Approximate Cost \$1,500.00.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Sheet for MODULATOR-POWER SUPPLY AN/URA-23.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

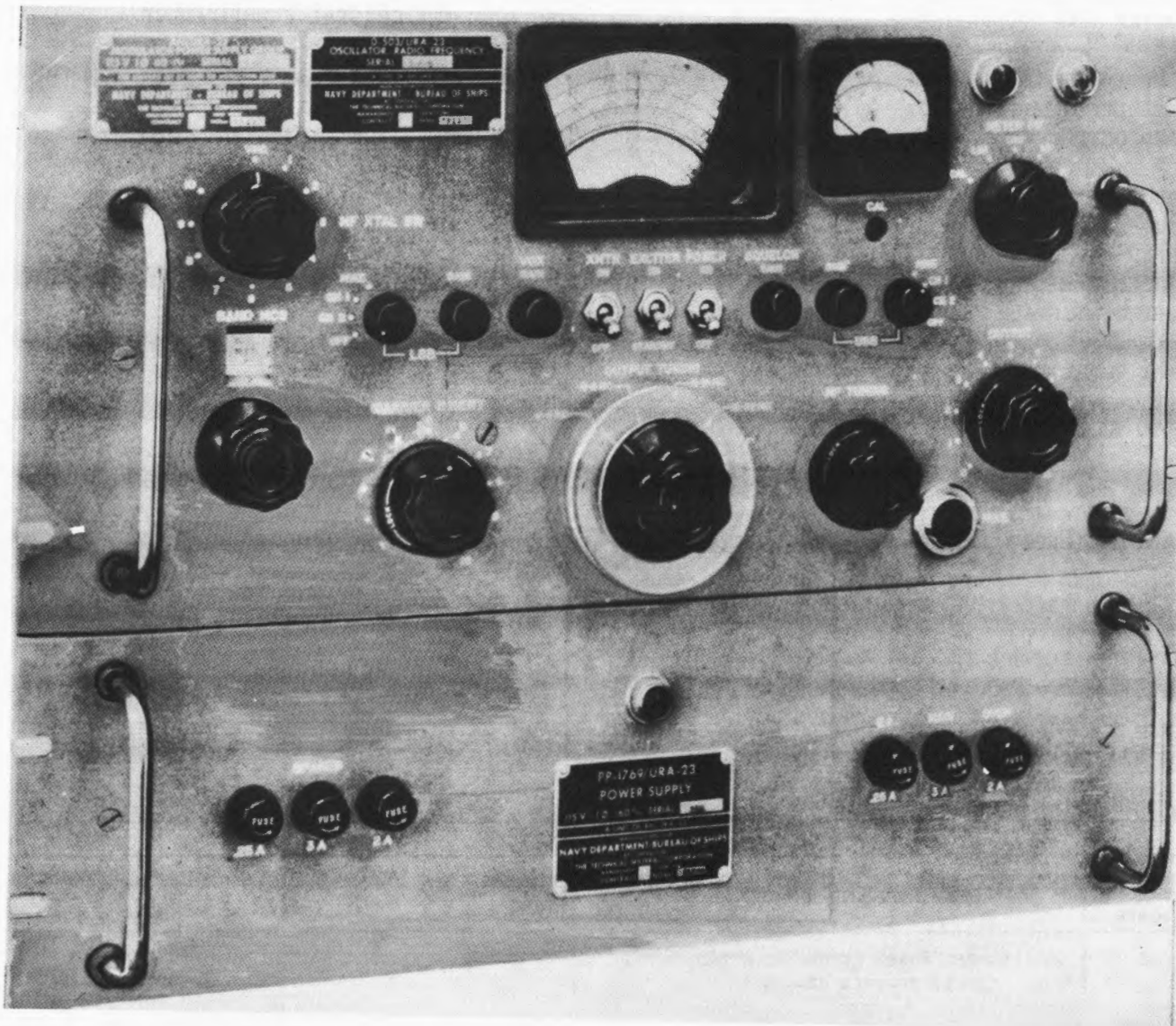
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Oscillator, Radio Frequency 0-503/URA-23			
1	Power Supply PP-1769/URA-23			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator-Power Supply Group AN/URA-23 consists of:		
1	Oscillator, Radio Frequency 0-503/URA-23	8-3/4 X 15 X 19	35
1	Power Supply PP-1769/URA-23	5-1/4 X 11 X 19	36

MODULATOR-POWER SUPPLY GROUP

Radio-Auxiliary
AN/URA-23A

Modulator-Power Supply Group AN/URA-23A

FUNCTIONAL DESCRIPTION

Modulator-Power Supply Group AN/URA-23A is a universal exciter permitting the transmission of any intelligence on single sideband or double sideband with or without carrier. Simultaneous or independent transmission of intelligence may be had on either upper or lower sideband.

Nb field changes in effect at time of

preparation (3 November 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 or 220 v, 50 to 60 cy, 1 ph, 140 W.

FREQUENCY RANGE: 2 to 32 mc.

TYPE OF EMISSION: A1, A2, A3, A3a, A3b.

FREQUENCY CONTROL: Crystal or external VFO.

Radio-Auxiliary
AN/URA-23A

MODULATOR-POWER SUPPLY GROUP

CRYSTAL OVEN TEMPERATURES

17 KC AND 287 KC OSCILLATOR: 75° C.
MF AND HF OSCILLATOR: 70° C.
STABILITY: 1 PPM for 24 hour period.
POWER OUTPUT: Continuously adjustable from 0 to 3 W max.
OUTPUT IMPEDANCE: 72 ohms.
CARRIER SUPPRESSION: At least 55 db from PEP level.
CARRIER INSERTION: Adjustable.
SPURIOUS SIGNALS: At least 60 db below PEP output.
UNWANTED SIDEBAND REJECTION: 500 cps single tone at 60 db down.
AUDIO RESPONSE: Within 3 db 350 to 3300 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5R4 (3) 6AB4 (2) 6AH6
(1) 6AL5 (2) 6CL6 (2) 6U8
(4) 12AT7 (1) 6146 (2) 12AU7
(3) CK711 (2) OA2
Total Tubes: (23)

(8) CR-27/U (1) CR-47/U (1) CR-50/U
Total Crystals: (10)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93163: Technical Manual for MODULATOR - POWER SUPPLY GROUP AN/URA-23A.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, New York.
Model SBE-2.
Contract NObsr-71790, Amend 4.
Contract NObsr-75754.
Approximate Cost: \$1,500.00

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Oscillator, Radio Frequency 0-503A/URA-23			
1	Power Supply PP-1769/URA-23			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator-Power Supply Group AN/URA-23A Consists of:		
1	Oscillator, Radio Frequency 0-503A/URA-23	8-3/4 X 15 X 19	35
1	Power Supply PP-1769/URA-23	5-1/4 X 11 X 19	36

June 1961

Radio-Auxiliary

AN/URA-25

ANTENNA COUPLER GROUP



Antenna Coupler Group AN/URA-25

Radio-Auxiliary

AN/URA-25

ANTENNA COUPLER GROUP

FUNCTIONAL DESCRIPTION

Antenna Coupler Group AN/URA-25 is designed to couple the output of any 1,000 watt transmitter, with a nominal output impedance of 70 ohms, to a 35 ft. vertical whip antenna.

Data on this sheet reflects the following field changes: F.C. #1.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 32 mc.

POWER RATING:

R.F. TUNER: 1,000 W input continuous at 100% modulation.

CONTROL INDICATOR: Input 115/230 v, 50 to 60 cyc, 1 ph.

STANDING WAVE COUPLER: 1,000 W continuous at 100% modulation for V.S.W.R. at less 2.5.

TRANSMISSION LINE: 70 ohms - RG-11/U.

INPUT IMPEDANCE: 70 ohms.

OUTPUT IMPEDANCE: 70 ohms.

STANDING WAVE RATIO: Better than 2.5 to 1.

DIRECTIVITY OF STANDING WAVE COUPLER: Better than 30 db.

EFFICIENCY: Better than 80% over the 2 to 30 mc range.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, New York.

Model No. ATS-50.

Contract NObsr-71790.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes used.

(2) 1N34A (2) 1N39A

Total Crystals: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93164: Technical Manual for ANTENNA COUPLER GROUP AN/URA-24 and AN/URA-25.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/URA-25 including:		
1	Control-Indicator C-2413/URA	8-1/4 x 8-3/4 x 20-3/8	40
1	Coupler, Antenna CU-651/UR	3-3/8 x 3-1/2 x 9	15
1	Coupler, Directional CU-653/UR	9-1/2 x 18-1/2 x 20	3

February 1960

Radio-Auxiliary

AN/URA-27

ANTENNA COUPLER GROUP**FUNCTIONAL DESCRIPTION**

Antenna Coupler Group AN/URA-27 is a remote controlled antenna coupler designed to couple the output of any 1000 W radio transmitter, with an unbalanced output of 50 ohms, to a 35 ft. whip antenna.

No field changes in effect at time of preparation (2 November 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 or 220 v, 50 to 60 cy, 1 ph.

FREQUENCY RANGE: 2 to 30 mc.

INPUT IMPEDANCE: 50 ohms.

POWER OUTPUT: 1000 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
N. Y.
Model ATS-50-2.

Contract NObsr-75916.

Contract NObsr-75917.

Approximate Cost: \$1200.00.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and Crystal Data not Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Sheet for
ANTENNA COUPLER GROUP AN/URA-27.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/URA-27 consists of:		
1	Antenna Coupler CU-772/URA-27		
1	Directional Coupler CU-773/URA-27		
1	Control-Indicator C-2995/URA-27		

26 July 1962

Cog Service: USN FSN: 5820-715-4043

MODULATOR-POWER SUPPLY GROUP AN/URA-28

Functional Class:

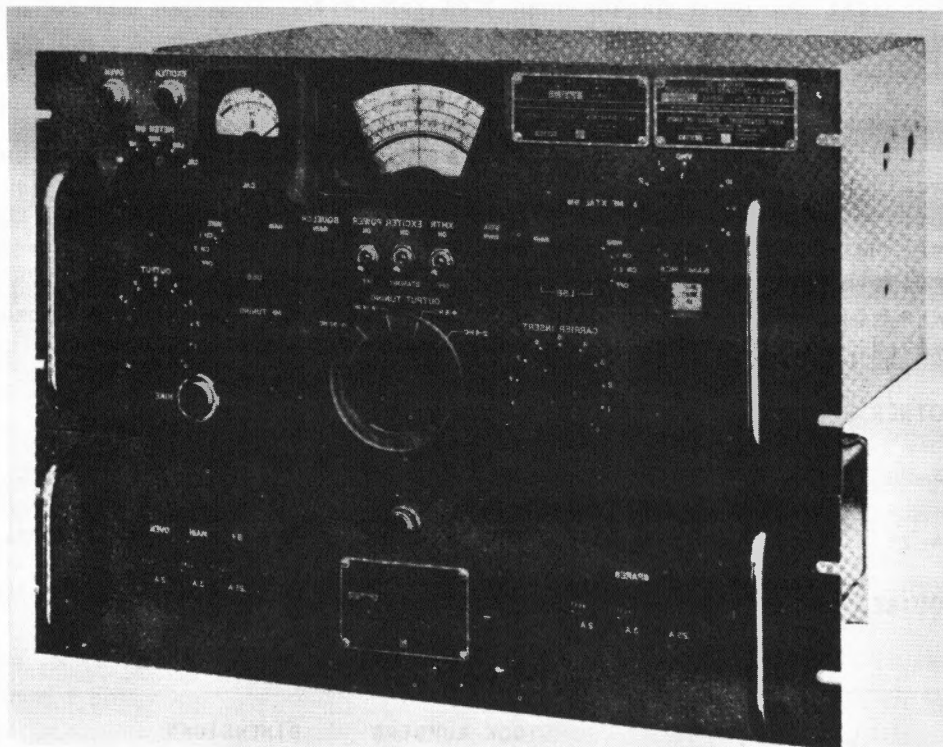
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Technical Materiel Corp., (82679).



Modulator-Power Supply Group AN/URA-28

FUNCTIONAL DESCRIPTION:

The Modulator-Power Supply Group AN/URA-28 is designed as a universal exciter, permitting the transmission of any intelligence on single sideband or double sideband with or without carrier. Simultaneous or independent transmission of intelligence may be had on either upper or lower sidebands.

The AN/URA-28 provides the following commonly known types of operation:

(1) Conventional Double Sideband, AM, with the additional advantage of carrier level control; (2) Conventional Single Sideband with adjustable carrier insertion; (3) Conventional Interrupted Carrier, CW, or Sideband Tone CW; (4) Independent Sideband transmission with adjustable carrier insertion.

No field changes in effect at time of preparation (9 January 1962).

AN/URA-28 MODULATOR-POWER SUPPLY GROUP

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 32 mc.

TYPE OF FREQUENCY CONTROL: Temperature controlled crystals or external VFO or synthesizer.

STABILITY: 1 PPM for 24 hour period.

OUTPUT POWER: Continuously adjustable from zero to a maximum of 1.0 watt PEP.

OUTPUT IMPEDANCE: 72 ohms, nominal.

CARRIER SUPPRESSION: At least 55 db, down from PEP Level.

SPURIOUS SIGNALS: At least 60 db below PEP output.

HARMONIC RADIATION

SECOND HARMONIC: At least 40 db below PEP output.

ALL OTHER HARMONICS: At least 50 db below PEP output.

AUDIO INPUT: 500 k ohms for high impedance crystal or dynamic mike, M50 db for full R.F. output. Two independent 600 ohm channels, balanced or unbalanced, M20 db level for full R.F. output.

AUDIO RESPONSE: Within 3 db 350 to 7500 cps.

UNWANTED SIDEBAND REJECTION: 500 cps single tone at 60 db down.

OPERATING POWER RQMT: 115/230 v ac, 50 to 60 cps, 120 W average, 140 W at momentary intervals as oven cycles.

RELATION TO OTHER EQUIPMENT:

The AN/URA-28 is designed to be used with, but not part of AN/URT-17 & 17A, AN/FRT-39 & 39A.

The AN/URA-28 is the same as Technical Materiel Corp's Commercial Model SBE-3.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Modulator-Power Supply Group		13-3/4 x 22-1/4 x 27	87
	AN/URA-28 consists of:			
1	Oscillator, Radio Frequency		8-3/4 x 15 x 19	
	0-672/URA-28			
1	Power Supply PP-1769/URA-23		5-1/4 x 7 x 19	

REFERENCE DATA AND LITERATURE:

Technical Materiel Corporation Commercial Catalog for Modulator-Power Supply Group AN/URA-28 (Model SBE-3).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (4) 6AB4 (2) 6U8 (6) 12AT7 (3) 12AU7 (2) 6CL6 (1) 6146 (3) 6AH6
(3) 0A2 (1) 6AL5 (1) 5R4

June 1961

Radio-Auxiliary

MODULATOR-OSCILLATOR GROUP**AN/URA-30****FUNCTIONAL DESCRIPTION**

Modulator-Oscillator Group AN/URA-30 is a stabilized general purpose exciter system adjustable to 320,000 frequencies over the frequency range.

No field changes in effect at time of preparation (18 July 1960).

1959.

Approximate Cost \$12,500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data available.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.75 to 33.75 mc.

POWER REQUIREMENT: 115 or 230 v, 50 to 60 cps, single ph.

REFERENCE DATA AND LITERATURE

Nomenclature Card for MODULATOR-OSCILLATOR GROUP AN/URA-30.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
New York.

Model.No. SBG-1.

Contract NObsr-75928, dated 17 June

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator-Oscillator Group AN/URA-30 including: Cabinet, Electrical Equipment CY-2823/URA-30 Oscillator, Radio Frequency 0-714/UR Panel, Power Distribution SB-1114/UR		
1	Oscillator-Power Supply Group AN/URA-31 consists of:		
1	Amplifier, Radio Frequency AM-2505/URA-31		
1	Power Supply PP-2561/URA-31		
1	Oscillator, Radio Frequency 0-715/URA-31		
1	Oscillator, Radio Frequency 0-716/URA-31		
1	Frequency Divider CV-928/URA-31		
1	Oscillator, Audio Frequency 0-717/URA-31		
1	Power Supply PP-2562/URA-31		

June 1961

Radio-Auxiliary

OSCILLATOR-POWER SUPPLY GROUP**AN/URA-31****FUNCTIONAL DESCRIPTION**

Oscillator-Power Supply Group AN/URA-31 is a synthesizer controlled, precision oscillator with a stability of one part in 100,000,000 per day and covers the frequency range 1750 to 33.750 mc in 4 bands. The unit may be used to provide precise frequency control in transmitting or receiving system applications.

No field changes in effect at time of preparation (18 July 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.75 to 33.75 mc in 100 cps steps.

FREQUENCY STABILITY: 1 part in 100,000,000 per day.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,

New York.

Model CPO-1.

Contract NObsr-75928, dated 17 June 1959.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for OSCILLATOR-POWER SUPPLY GROUP AN/URA-31.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Oscillator-Power Supply Group AN/URA-31		
	Including:		
1	Amplifier, Radio Frequency AM-2505/URA-31		
1	Power Supply PP-2561/URA-31		
1	Oscillator, Radio Frequency O-715/URA-31		
1	Oscillator, Radio Frequency O-716/URA-31		
1	Frequency Divider CV-928/URA-31		
1	Oscillator, Audio Frequency O-717/URA-31		
1	Power Supply PP-2562/URA-31		

June 1961

Radio-Auxiliary

KEYER GROUP**AN/URA-33****FUNCTIONAL DESCRIPTION**

The AN/URA-33 is designed to provide CW, FSK, and FAX Keying over the frequency range of 2 to 64 megacycles (MC). It features continuously variable frequency control as well as crystal control by means of 3-oven crystal controlled positions in the Control, Electrical Equipment C-2749A/URT.

No field changes in effect at time of preparation (21 October 1960).

RELATION TO OTHER EQUIPMENT

The AN/URA-33 is designed to be used with but not part of Transmitting Set, Radio AN/FRT-39A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: CW, FSK and FAX.

TYPE OF FREQUENCY CONTROL: Crystal.

OPERATING FREQUENCY RANGE: 2 to 64 mc.

NUMBER OF BANDS: 4 bands.

OPERATING POWER RQMT: 115 or 230 v ac, 50 to 60 cps, single ph.

POWER OUTPUT: 2 W for 2 to 4 mc; 0.5 W for 4 to 64 mc.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Material Corp, Mamaroneck, New York.

Model No. FXS-1.

Contract NObsr-81106.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Keyer Group AN/URA-33.

TYPE CLASSIFICATION (NAVY)
 DESIGN COGNIZANCE NAVY BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.
 R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer Group AN/URA-33 consists of:		
1	Oscillator, Radio Frequency 0-330A/FR	10-1/2 x 16 x 19	
1	Control, Electrical Equipment C-2749A/URT	10-1/2 x 16 x 19	
1	Keyer KY-333/URA	5-1/4 x 10 x 19	

June 1961

AN/URA-34

ANTENNA COUPLER GROUP

FUNCTIONAL DESCRIPTION

The AN/URA-34 is a remote controlled antenna coupler designed to couple the output of any 1000 Watt transmitter, with an unbalanced output of 70 ohms, to a 35 foot whip antenna. The use of a new VSWR meter in the control-indicator makes transmitter tuning easier and in most cases will permit increased power to the antenna.

No field changes in effect at time of preparation (28 October 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF ANTENNA: 35 ft whip type antenna.

INPUT IMPEDANCE: 70 ohms.

OPERATING FREQUENCY RANGE: 2 to 30 mc.

POWER RATING

ANTENNA COUPLER: 1000 W input continuous at 100% modulation.

DIRECTIONAL COUPLER: 1000 W input continuous at 100% modulation.

STANDING WAVE RATIO: 2.5 to 1.

SENSITIVITY: Better than 20 db.

MANUFACTURER'S OR CONTRACTOR'S DATA

Technical Materiel Corporation, Mamaroneck, New York.

Model no. ATS-70-2.

Contract NObsr-75917.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Antenna Coupler Group AN/URA-34.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler Group AN/URA-34 consists of:		
1	Control-Indicator C-2995/URA-27	7 x 7-3/8 x 20	
1	Antenna, Coupler CU-772/URA-27	12 x 16 x 19	
1	Directional, Coupler CU-820/URA-34	3-1/4 x 3-3/8 x 9-1/4	

5 September 1962

AMPLIFIER-POWER SUPPLY GROUP AN/URA-36

Cog Service: FSN:

Functional Class:

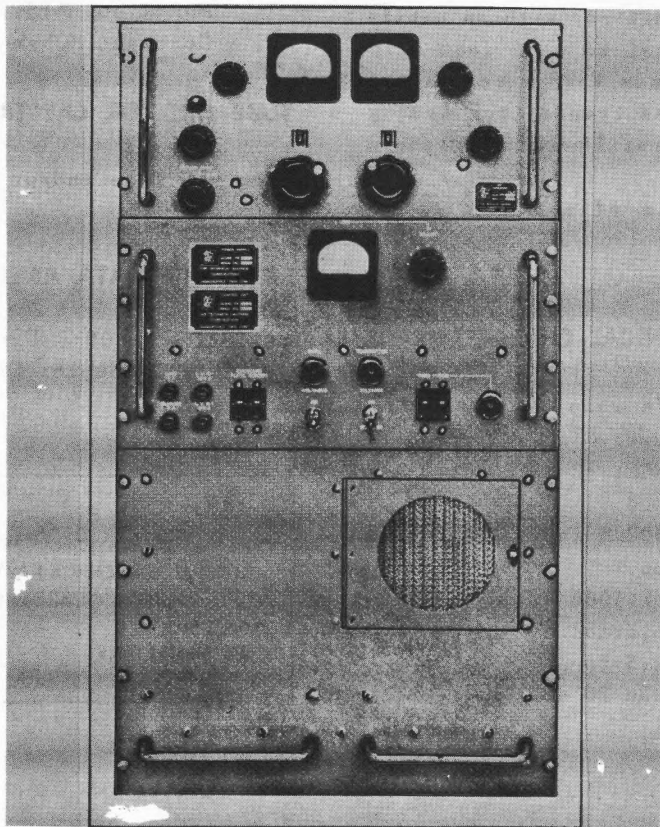
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Technical Materiel Corporation.



Amplifier-Power Supply Group AN/URA-36

FUNCTIONAL DESCRIPTION:

The Amplifier-Power Supply Group AN/URA-36 is a linear power amplifier that delivers 1000 watts. PEP single sideband (SSB) or 1000 watts CW and FS throughout the frequency range of 2 to 32 megacycles (MC). The unit is completely band-switched and continuously tunable throughout the range.

No field changes in effect at time of preparation (24 April 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF EMISSION: CW, MCW, SSB, DSB, ISB, FS.

OUTPUT IMPEDANCE: Will match any unbalanced load from 50 to 600 ohms at $\theta = 45^\circ$.

INPUT RQMT: 100 mw will produce full output.

SIGNAL TO DISTORTION RATIO: Better than 40 db down relative to PEP output.

AN/URA-36 AMPLIFIER-POWER SUPPLY GROUP

HARMONIC SUPPRESSION: Second harmonic at least 40 db and all others at least 50 db down from PEP output.

SAFETY PROTECTION: Full interlock protection. Full overload and fuse protection.

TYPE OF COOLING: High capacity, filtered forced air cooling.

OUTPUT POWER: At least 1000 W PEP, 1000 W CW & FS.

FREQUENCY RANGE: 2 to 32 mc.

OPERATING POWER RQMT: 115 v ac to 230 v ac, 50 to 60 cps, single ph, 1900 W.

RELATION TO OTHER EQUIPMENT:

The AN/URA-36 is for general use, as well as being part of the Transmitting Set, Radio AN/URT-19(V).

The AN/URA-36 is the same as commercial model PAL-1K manufactured by Technical Materiel Corporation.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
	Amplifier-Power Supply Group			
	AN/URA-36 consists of:			
1	Linear Power Amplifier, RF		8-3/4 x 17-1/2 x 19	
	AM-2785/URA-36			
1	Power Supply PP-2765/URA-36		10-1/2 x 17-1/2 x 19	
1	Power Supply PP-2766/URA-36		15-3/16 x 17-1/2 x 19	

REFERENCE DATA AND LITERATURE:

Technical Materiel Corporations Catalog ESO Copy no. 3692-S for Amplifier-Power Supply Group AN/URA-36.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) PL-172 (1) 6CL6 (1) 6146 (1) 5R4GY (2) 0B2 (1) 6X4 (3) 0A2 (2) 872A

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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PROCUREMENT DATA

PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR- ORDER NO.	APPROX. UNIT COST
Technical Materiel Corporation Model no. PAL-1K	Mamaroneck, N. Y.	N0bsr-81394, 24 April 1960	

26 July 1962

Cog Service: USN FSN:

FREQUENCY CONTROL GROUP AN/URA-9(XN-1)
Functional Class:

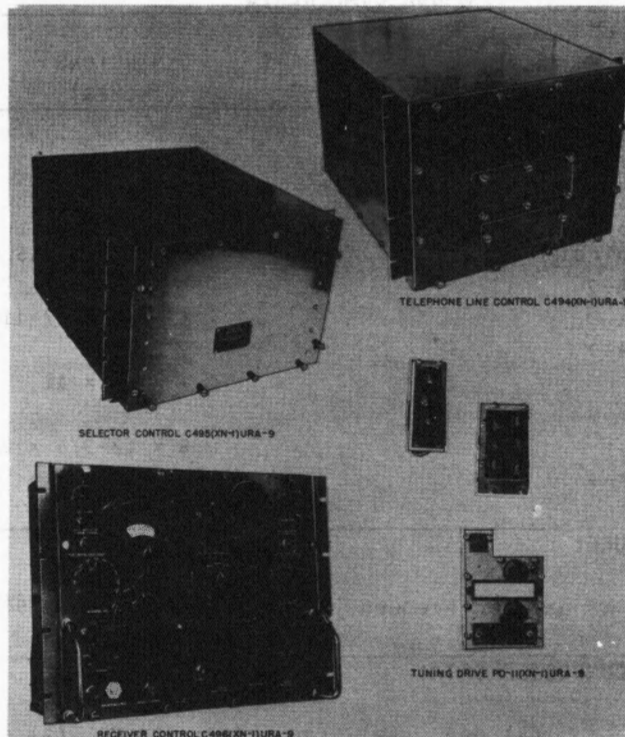
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Yardeny Laboratories Inc., (83877).



Frequency Control Group AN/URA-9(XN-1)

FUNCTIONAL DESCRIPTION:

The Frequency Control Group AN/URA-9(XN-1) is designed to afford complete remote control, up to a distance of 25 miles, of the Navy Models RBB/RBC Series Radio Receiving Equipments over a standard 19 gauge physical telephone pair capable of transmitting dc and ac up to 2600 cycles per second (CPS), provided such line does not offer a loss greater than 15 decibels (DB) at 1000 cps and 20 db at 2600 cps.

No field changes in effect at time of preparation (7 March 1962).

TECHNICAL CHARACTERISTICS:

OPERATING POWER RQMT: 110/115/120 v ac, 50 to 60 cps, single ph.

AN/URA-9(XN-1) FREQUENCY CONTROL GROUP

RELATION TO OTHER EQUIPMENT:

The AN/URA-9(XN-1) is designed to be used with but not part of Radio, Receiving Equipments RBB/RBC.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Frequency Control Unit AN/URA-9(XN-1) consists of:			
1	Telephone Line Control C-494(XN-1)/URA-9		14 x 17-11/16 x 22-3/16	
1	Selector Control C-495(XN-1)/URA-9		12-1/4 x 17-11/16 x 24-11/16	
1	Receiver Control C-496(XN-1)/URA-9		7 x 14 x 17	
1	Tuning Drive Unit PD-11(XN-1)/URA-9		8 x 12-3/4 x 20-3/4	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91088: Technical Manual for Frequency Control Group AN/URA-9(XN-1).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (23) 2D21 (6) 5Y3GT (4) 0B2 (3) 0A2G (3) 6SN7GT (2) 6V6GT (1) 6AG5
(2) 6AC7.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: CS-575 (Navy)

DESIGN COG: USN, BuShips

FREQUENCY CONTROL GROUP AN/URA-9(XN-1)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Yardeny Laboratories Inc.	New York, New York	NObsr-30165, 4 November 1947	

TYPE OF CONTRACT (UNIT)
 STOCK CONTRACTS - UNIT PRICE
 PROVISION CONTRACTS
 STOCK CONTRACTS
 FOR UNIT NO. 100

MANUFACTURER'S DATA

Manufacturer's Name
 Address
 City, State, Zip
 Telephone

EQUIPMENT SUPPLIED DATA

QUANTITY	NAME AND MODEL NUMBER	SYSTEM DESCRIPTION	UNIT PRICE

UNCLASSIFIED

August 1960

Radio-Auxiliary

AN/URM-119

LEAD SET TEST

FUNCTIONAL DESCRIPTION

1955.

The AN/URM-119 is designed to interconnect Tacan equipment and Monitor, Radio Frequency MX-1627()/URN-3 to test equipment and attenuate Signal being tested.

No field changes in effect at time of preparation (14 April 1960).

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

RELATION TO OTHER EQUIPMENT

The AN/URM-119 is designed to be used with but not part of the MX-1627()/URN-3, AN/GRN-9(), and AN/SRN-6().

REFERENCE DATA AND LITERATURE

Nomenclature Card AN/URM-119 for Lead Set Test.

MANUFACTURER'S OR CONTRACTOR'S DATA

Olympic Radio & Television, Div. of Seigler Corp., Long Island City, N.Y.
Part No. CB-15075.

Contract NObsr-64743, dated 31 May

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 12.12

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Lead Set Test AN/URM-119 including:		
10	Test Cables		
2	R. F. Cable		
1	Receiver Cable Patch and Test Multiplier		
1	R. F. Attenuator (6 db) Part No. AT-15071		
1	R. F. Attenuator (8 db) Part No. 15072		
1	R. F. Attenuator (12 db) Part No. 15073		
3	R. F. Attenuator Part No. 15074		

UNCLASSIFIED

1.2 AN/URM-119: 1

June 1961

Radio-Auxiliary

AN/URQ-8

FREQUENCY STANDARD

FUNCTIONAL DESCRIPTION

The AN/URQ-8 incorporates any or all of three frequencies which can be fed into one or more systems which require highly accurate control of oscillator frequency in order to accomplish the purpose of the system. The outputs of the frequency standard can be fed into a distribution system (Shipboard, for instance) which makes accurate frequency information available at any number of locations for use as required.

No field changes in effect at time of preparation (8 December 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING FREQUENCY: 5 mc, 1 mc, and 100 kc.
OPERATING POWER RQMT: 115 v ac, 60 cps,
single ph, 200 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Company, New York, N. Y.

Part No. GS-56458.

Contract NObsr-72616, dated 25 June 1956.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

REFERENCE DATA AND LITERATURE

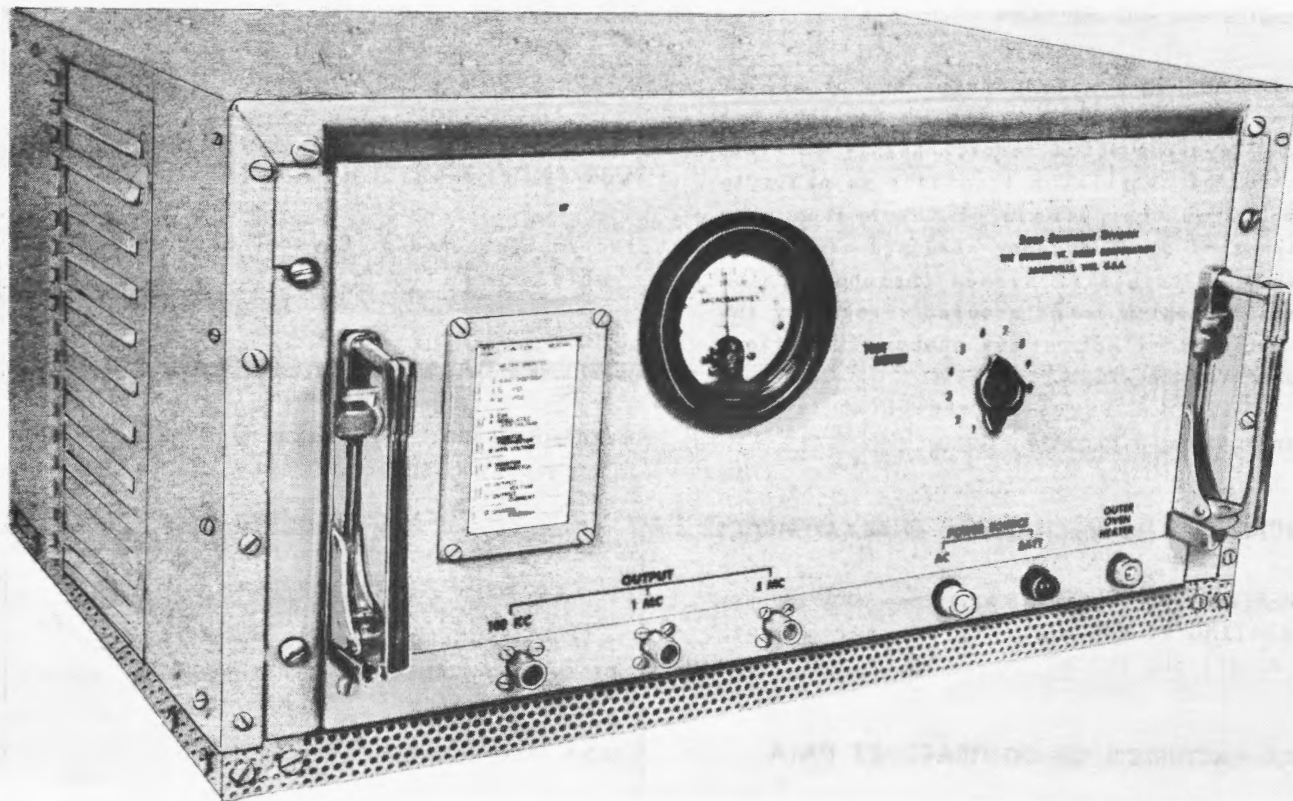
NAVSHIPS 93400: Preliminary Data Form for Frequency Standard AN/URQ-8.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE MIL-0-19470A
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Oscillator, Radio Frequency 0-451/U		
1	Battery Power Supply		
1	Power Supply		
1	Cabinet	21-3/4 x 22 x 34-1/8	

FREQUENCY STANDARD

Radio-Auxiliary
AN/URQ-9(XN-2)

Frequency Standard AN/URQ-9(XN-2)

FUNCTIONAL DESCRIPTION

The AN/URQ-9(XN-2) is designed as a highly stable frequency standard for multi-purpose use on ships or at land based installations. It provides a one (1) megacycle (MC) and a one (1) hundred kilocycle (KC) frequency at two (2) connectors at its rear panel.

No field changes in effect at time of preparation (3 February 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY STABILITY: 30 parts in 10⁹ for 60 days.

OUTPUT IMPEDANCE: 50 ohms.

STABLE SIGNAL DATA: 5 mc, 1 mc and 100 kc for calibration and/or control of systems having need for such accurate frequency

(such as a single sideband communications and precision navigation systems).

OPERATING POWER RQMT: 115 v, single ph, 60 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Borg Equipment Division, George W. Borg Corp., Janesville, Wisconsin.

Contract NObsr-71673, dated 25 September 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 5480A	(3) 2N339	(6) 2N118
(2) 6X4	(5) 5654/6AK5W	(3) 5725/6AS6W
(4) 2N539	(4) 6X4	(2) 6X4

Total Tubes: (33).

Radio-Auxiliary

AN/URQ-9(XN-2)

FREQUENCY STANDARD

Crystals

(2) 1N252 (5) 1N429
(2) 1N459 (13) 1N646

Total Crystals: (22)

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC:
STOCK NO. SHIPS -0-2504
R.D.B. IDENT. NO.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93221: Technical Manual for frequency Standard AN/URQ-9(XN-2).

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
*1	Frequency Standard AN/VRQ-9(XN-2)	10-9/16 X 12-5/8 X 20-3/8	70
*Note: Equipment AN/URQ-9(XN-2) that is designed for portable use weighs 40.5 lbs.			

27 July 1962

Cog Service: USN FSN:

FREQUENCY STANDARD AN/URQ-9(XN-3)
Functional Class:

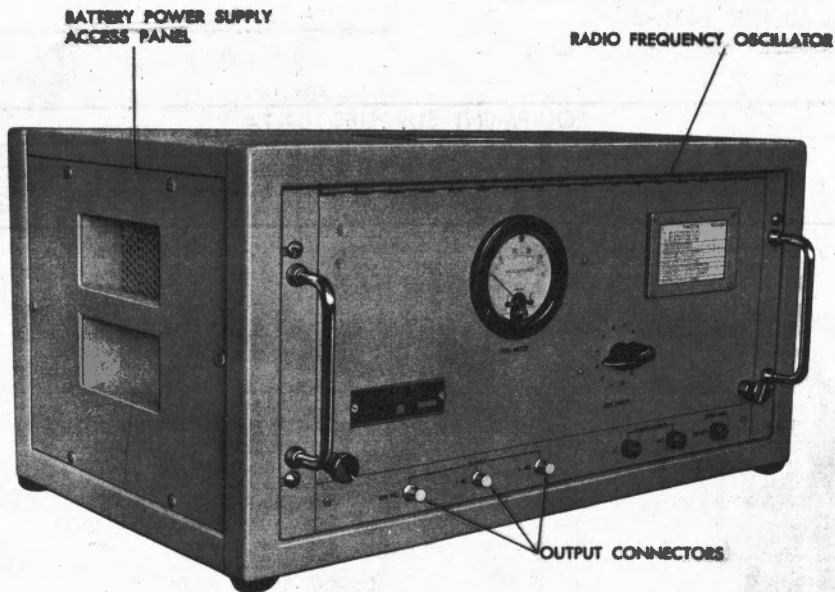
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Borg Equipment Division of Amphenol-Borg Electronics Corp., (96791).



Frequency Standard AN/URQ-9(XN-3)

FUNCTIONAL DESCRIPTION:

The AN/URQ-9(XN-3) is a highly stable frequency standard for multi-purpose use on ships or at land-based installations. It provides a five megacycle, one megacycle, and a one hundred kilocycle frequency at the three connectors on both front and rear panels.

No field changes in effect at time of preparation (16 March 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Surface ship, submarine, shore & aircraft.

TYPE OF OUTPUT: Sine Wave.

OUTPUT IMPEDANCE: 50 ohms.

FREQUENCY STABILITY: 1 part per 10^9 parts per day.

FREQUENCY OUTPUTS: Five mc, one mc, 100 mc.

POWER SUPPLY OUTPUT: 27 v rms, 27 v dc regulated.

POWER SUPPLY INPUT DATA

AN/URQ-9(XN-3) FREQUENCY STANDARD

VOLTAGE: 115 v ac.
FREQUENCY: 58 to 62 cps.
NORMAL POWER: 38 to 57 W.
POWER WHEN CHARGING BATTERY: 240 W.
POWER FACTOR: 0.7%.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Frequency Standard		10-9/16 x 12-5/8 x 20-3/8	70
	AN/URQ-9(XN-3) consists of:			
1	Radio Frequency Oscillator		8-3/4 x 9-1/8 x 19	24.9
	O-471(XN-3)/U			
1	Power Supply		4-5/8 x 5-1/4 x 19	19.4
	PP-2223(XN-3)/U			
1	Battery Power Supply		4 x 8-1/4 x 10-5/8	11.9
	BB-265(XN-3)/U			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94178: Technical Manual for Frequency Standard AN/URQ-9(XN-3).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 5654/6AK5W (2) 5725/6AS6W (4) 5840A

CRYSTALS: None used.

SEMI-CONDUCTORS: (5) 1N252 (5) 1N429 (17) 1N646 (3) SV11 (2) SV808-TR (4) TM27

TRANSISTORS: (7) 2N118 (3) 2N339 (4) 2N539

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-0-2504

DESIGN COG: USN, BuShips

1.2 AN/URQ-9(XN-3): 2

FREQUENCY STANDARD AN/URQ-9(XN-3)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Borg Equipment Division of Amphenol-Borg Elec- tronics Corp.	Janesville, Wisconsin	Nobsr-81134 Nobsr-81172	

April 1959

Radio-Auxiliary
AN/USQ-17**COMPUTER SET STORED PROGRAM
GENERAL PURPOSE****FUNCTIONAL DESCRIPTION**

The AN/USQ-17 is designed as a high speed, on line, real time data processing and computing device. It has a 32000 word, 30 bits per word, eight micro-second memory cycle, seven input-output registers. Instructions are of one address type with an average execution of 20 micro-seconds and a 2 megacycle clock rate. It has a punched tape and keyboard input-output.

No field changes in effect at time of preparation (17 February 1959).

RELATION TO OTHER EQUIPMENT

The AN/USQ-17 is designed as part of the AN/SSQ-25().

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER REQUIREMENTS: AC 115 v, 400 cps, 3 ph, 635 amp/phase; ac for auxiliary

equipment 115 v, 60 cps, single ph, 12.5 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Remington Rand Univac, St. Paul, Minn.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and Crystal Data not Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 4457 (Rev. 11-56) for Computer Set, Stored Program, General Purpose.

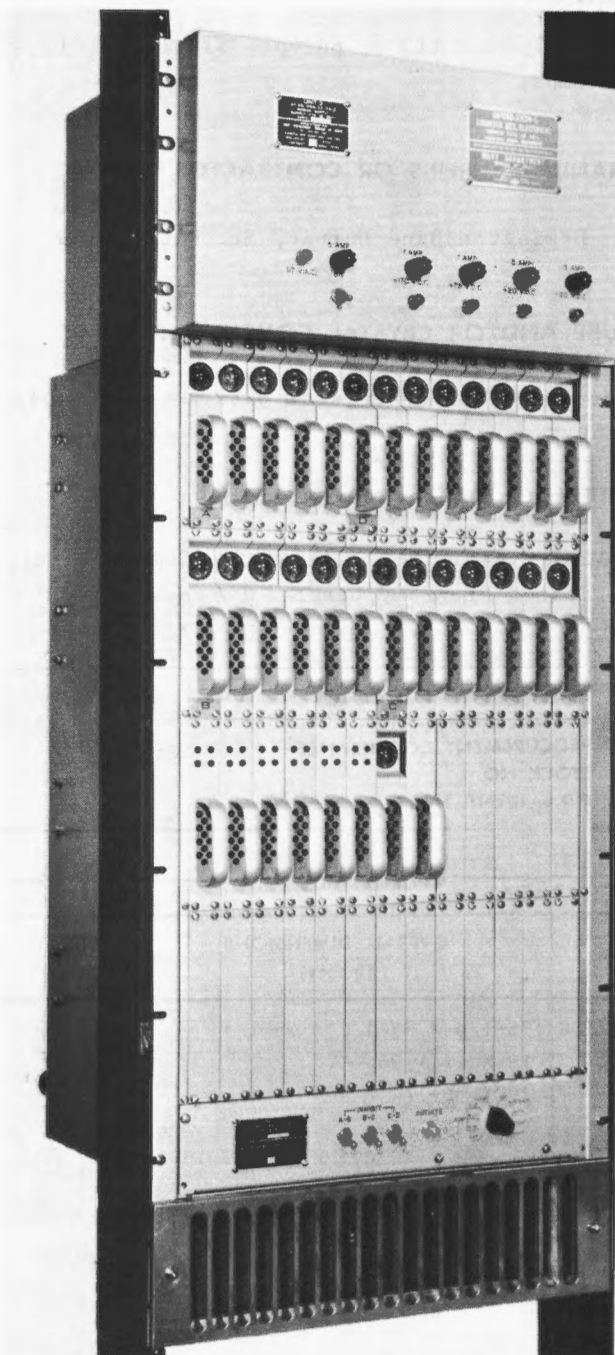
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE Ships-2542
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Computer Stored Program General Purpose CP-412/US	35-1/4 X 38-1/2 X 65-1/4	1960
1	Data Converter Group OA-1908/USQ-17	19 X 26 X 35	225
1	Data Converter Group OA-1909/USQ-17	30 X 38-1/2 X 48	350
1	Test Set Computer TS-1182/USQ-17	31 X 44 X 51	350

August 1960

Radio-Auxiliary

COUNTER SET, ELECTRICAL**AN/USQ-22(XN-1)**

Counter Set, Electrical AN/USQ-22(XN-1)

FUNCTIONAL DESCRIPTION

Counter Set, Electrical AN/USQ-22(XN-1) is a reversible counter capable of counting

incoming data pulses both "UP" and "DOWN". The incoming pulses arrive as serial pulse groups. The AN/USQ-22(XN-1) counter stores the tally in binary coded decimal, displays it in decimal form on NIXIE indicators, and supplies output signals for operation of an external printing device or other peripheral equipment with a high impedance input. Transistorized design.

No field changes in effect at time of preparation (28 January 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 117 v $\pm 10\%$, 60 cy $\pm 5\%$, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Computer Control Co. Inc., Wellesley, Massachusetts.
Contract NObsr-72795.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube and Crystal Data Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93512: Technical Manual for COUNTER SET, ELECTRICAL AN/USQ-22(XN-1).

TYPE CLASSIFICATION (NAVY)

DESIGN COGNIZANCE USN, BUSHIPS

PROCUREMENT COGNIZANCE SPEC: SHIPS-E-2978

STOCK NO.

R.D.B. IDENT. NO.

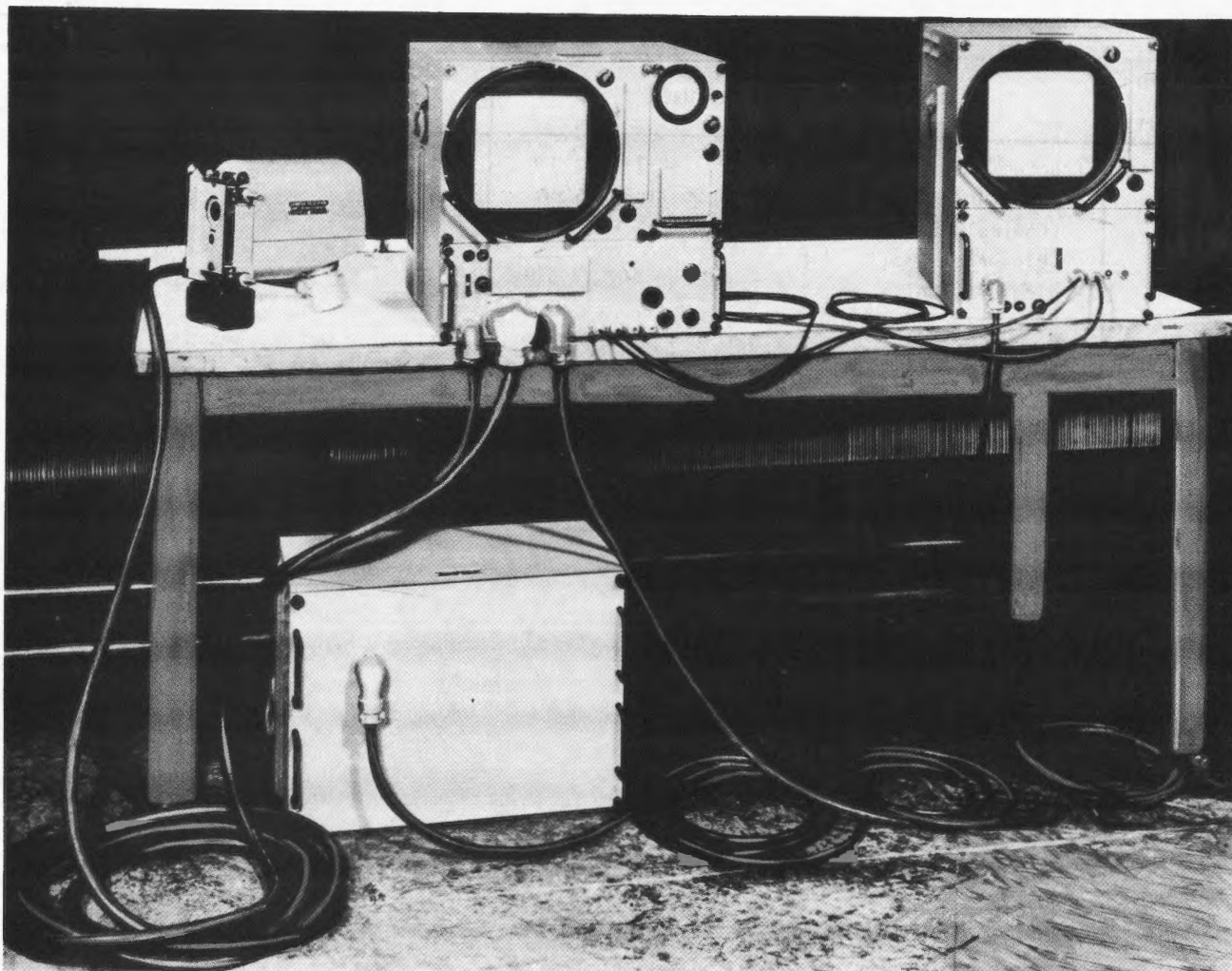
Radio-Auxiliary

AN/USQ-22(XN-1)

COUNTER SET, ELECTRICAL

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Counter Set, Electrical AN/USQ-22(XN-1) Includes:	17-1/16 X 19 X 47-7/32	
1	Counter, Electronic, Digital Shift Register		
1	Control, Shift Register		
1	Blower or Cooler, Air		
1	Transfer Unit		
1	Converter, Signal Data		
1	Power Supply		
1	Rack, Electrical Equipment.		

CAMERA GROUP, TELEVISION**AN/UXA-5(XN-1)**

Camera Group, Television AN/UXA-5(XN-1)

FUNCTIONAL DESCRIPTION

The AN/UXA-5(XN-1) comprises complete equipment for the generation and presentation of a television image. A camera unit views the scene to be televised, and under control of the Camera Control Unit Generate a television signal of 525 sequentially scanned lines at a frame rate of 50 per second. This television signal is presented on a picture display monitor and is monitored on a wave form monitor, both of which are contained in the Control-Monitor Unit, Power for the Camera and Control Monitor Units is furnished by the Power Supply Unit from all

external source of 115 v, 60 cycle single phase current. Controls for the Camera Unit are provided in the Control Monitor Unit so that operation of the Camera Unit is unattended.

No field changes in effect at time of preparation (15 February 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) lengths of RG-59/UW/connectors to fit an SO-239 receptacle.

Radio-Auxiliary

AN/UXA-5(XN-1) CAMERA GROUP, TELEVISION

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CAMERA UNIT

TYPE OF PICKUP TUBE: Vidicon.
MAX LOCATION FROM POINT OF CONTROL: 100 ft.
LENS SPEED: F/2.7.
LOCAL LENGTH: 25 mm.
LIGHT FILTER DENSITY: 0 to 2.1 in eight steps of 0.3 density.
SCENE HIGHLIGHT BRIGHTNESS: 100 to 10000 ft lamberts.

SCANNING.

TOTAL LINES: 525.
LINE RATE: 26 kc; adjustable from 22 to 32 kc.
FRAME RATE: 50 cps; adjustable from 40 to 69 cps.

PRESENTATION.

PICTURE MONITOR: 10 in. CRT.
WAVEFORM MONITOR: 3 in. CRT.
VIDEO AMPLIFIER BANDWIDTH: 10 mc.
WAVEFORM MONITOR SWEEP RATES: 18 kc and 25 cps.
BLANKING PULSE DURATION: 12 to 18% of horizontal period; 4 to 8% of vertical period.
POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

POWER CONSUMPTION

CONTROL MONITOR UNIT: 800 W.
VIDEO INDICATOR UNIT: 300 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Allen B. DuMont Laboratories, Inc., Passaic, N.J.
Contract NObsr-52594, dated 13 June 1951.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 0B2	(6) IX2-A	(6) 5R4GY
(4) 6AB4	(6) 6AG7	(9) 6AK5
(5) 6AL5	(2) 6J6	(2) 6Y6-G
(4) 6AU5-GT	(2) 6CD6-G	(5) 6AS7-G
(1) 12AT7	(18) 12AU7	(8) 12AX7
(1) 884	(1) K1105-P1	(2) K1133-PAF
(2) 6N020	(1) 6-4	(1) C-73162

Total Tubes: (89)

(1) 103BIAXI	(1) IN34	(2) TN65
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Total Crystals: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS-91677: Technical Manual for Camera Group, Television-AN/UXA-5(XN-1).

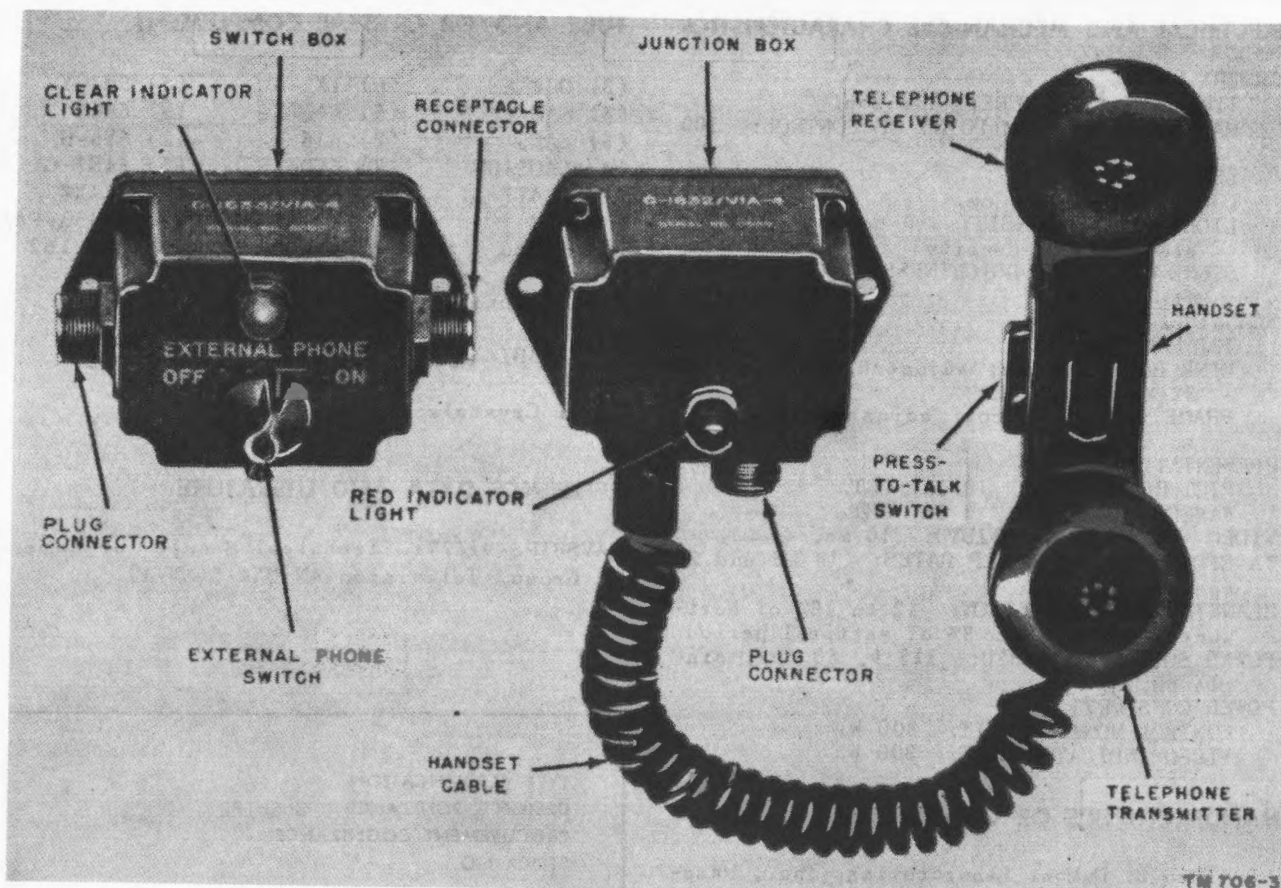
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Camera	5-1/2 X 7-3/4 X 10	15
1	Control - Monitor	17-1/4 X 18-1/4 X 19	138
1	Power Supply	12-1/2 X 15 X 21-1/2	146
1	Indicator, Video -IP-178(XN-1)UX	14 X 18-1/4 X 18-1/2	127
1	Camera Cable	600	23
1	Camera Cable	300	13
1	Power Cable	180	5
2	AC Power Cord	120	1.5 ea

INTERCOMMUNICATION STATION

AN/VIA-4



Intercommunication Station AN/VIA-4 with Handset H-60/PT

FUNCTIONAL DESCRIPTION

The AN/VIA-4 provides 2-way communication between the crew members of a tank (or other armored vehicle) and personnel in close tactical support. It is used as an external station added to the tank interphone system to provide communication and signaling at a maximum distance of 10 feet from the vehicle. One way signaling, from the operator to the tank driver is provided.

No field changes in effect at time of preparation (13 June 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied:
Handset H-60/PT.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INTERPHONE SET.

SIGNALING.

TYPE: DC (indicator lamp).

DIRECTION: one-way (handset operator to tank driver).

DC OPERATING VOLTAGES

SIGNALING: 24.

TRANSMISSION: 3.5

HANDSET

TELEPHONE RECEIVER ELEMENT TA-235/PT.

FREQUENCY RESPONSE: 500 to 3000 cps.

NOMINAL IMPEDANCE: 150 ohms.

TELEPHONE TRANSMITTER ELEMENT TA-117/PT.

TYPE: carbon.

MAX CURRENT: 125 ma DC.

IMPEDANCE: 35 \pm 10 ohms at 1000 cps.

FREQUENCY RESPONSE: 6 db rise over range from 300 to 3000 cps.

Radio-Auxiliary

AN/VIA-4 INTERCOMMUNICATION STATION

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

TM11-706, Technical Manual for Intercommunication Station AN/VIA-4.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE TASSA
 PROCUREMENT COGNIZANCE
 STOCK NO.

SHIPPING DATA

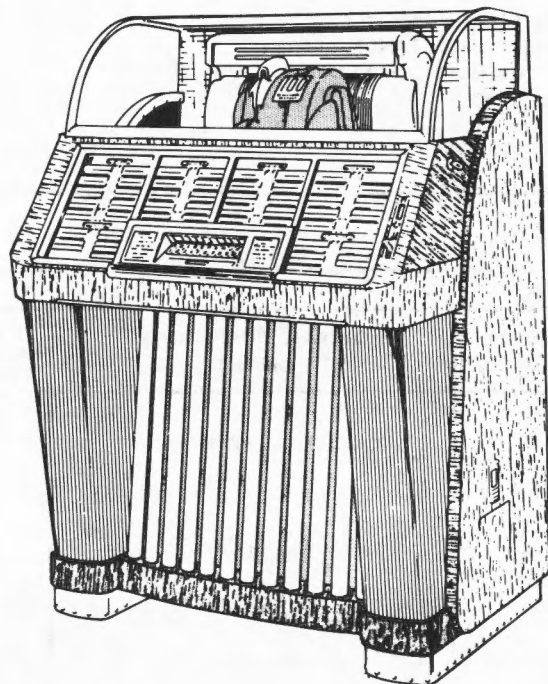
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Intercommunication Station AN/VIA-4 (Domestic) C/O	1	11 X 11 X 13-1/2	3.6
	(1) Intercommunication Set Control C-1632/VIA-4	0.34	4-3/4 X 10-3/16 X 12-3/16	2.2
	(1) Intercommunication Set Control C-1633/VIA-4 or	0.1	4-3/4 X 6-3/16 X 6-3/16	1.1
1	Intercommunication Station AN/VIA-4 (Export) C/O	15	24 X 28 X 35	64
	(1) Intercommunication Set Control C-1632/VIA-4	0.34	4-3/4 X 10-3/16 X 12-3/16	2.2
	(1) Intercommunication Set Control C-1633/VIA-4	0.1	4-3/4 X 6-3/16 X 6-3/16	1.1

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Intercommunication Set Control C-1632/VIA-4	2-7/8 X 4-1/4 X 4-7/8	1.9
1	Intercommunication Set Control C-1633/VIA-4	3 X 3-3/16 X 5	0.8

June 1961

Radio-Auxiliary

AMPLIFIER-RECORD PLAYER GROUP**AN/WNA-1***Amplifier-Record Player Group AN/WNA-1***FUNCTIONAL DESCRIPTION**

The AN/WNA-1 is designed for specific use as part of 'Ships Entertainment System'. It plays, handles, and stores 50 records (100 selections), when in conjunction with Control, Remote Switching C-2788/U and the ship's speaker system. This equipment is furnished in kit form and major units are mounted as space aboard ships indicates. It can be installed in any available space, especially on small ships such as submarines.

No field changes in effect at time of preparation (16 June 1960).

RELATION TO OTHER EQUIPMENT

The AN/WNA-1 is the same as Commercial Model of Seeburg M100C,

The AN/WNA-1 is the same as the AN/WNA-2 but differs in size of equipment supplied and the nominal power output. The AN/WNA-1 is designed to be used with but not part of C-2788/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

IMPEDANCE: 125 ohms nominal.

RECORD PLAYER DATA

SIZE: 7 inch, 45 rpm.

RECORD CAPACITY: 50 records (100 selections).

TYPE PICKUP: Seeburg Magnetic.

TYPE OF SPEAKER: 15 inch Electro-Dynamic.

POWER OUTPUT: 23 W nominal.

FREQUENCY RESPONSE: 100 to 8000 cps porm 2db.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph, 2.5 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Seeburg Corporation, Chicago, Illinois.

Kit Type RCK-1.

Model M100C.

Part No. 503280.

Dwg No. 503369.

Contract NObsr-76380(Pub).

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J7

(1) 6SK7

(2) 6L6G

(1) 2050

(1) 6SN7GT

(2) 6SL7GT

(1) 5U4G

Total Tubes: (10).

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 365-2580: Technical Manual for Submarine Remote Control Kits 1 to 8. The Seeburg Corporation of Chicago, Illinois (catalog).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.

June 1961

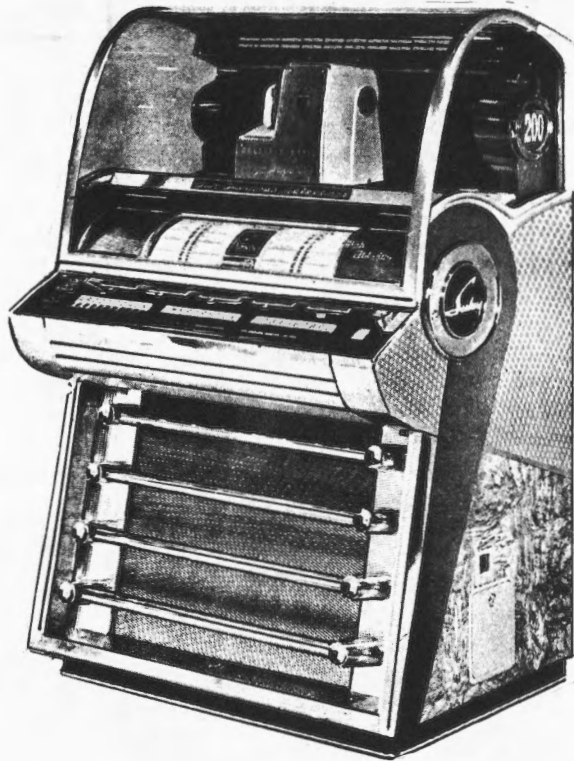
Radio-Auxiliary

AN/WNA-1**AMPLIFIER-RECORD PLAYER GROUP****EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier-record Player Group AN/WNA-1 consists of:		
1	Record Playing Mechanism (245175)	16-1/2 X 16-1/2 X 22	
1	Selection Receiver (303233)	6 X 9 X 22	
1	Remote Volume Control (503150)	1 X 2 X 4	
1	Audio Amplifier (305100)	8-3/4 X 9 X 22	



June 1961

AMPLIFIER-RECORD PLAYER GROUPRadio-Auxiliary
AN/WNA-2*Amplifier-Record Player Group AN/WNA-2***FUNCTIONAL DESCRIPTION**

The AN/WNA-2 is designed for specific use as part of 'Ships Entertainment System'. It plays, handles and stores 100 records (200 selections) when used in conjunction with Control Remote Switching C-2789/U and the ship's speaker system. This equipment is furnished in kit form and major units are mounted as space aboard ship dictates. This kit can be installed in any available space, especially on small ships such as submarines. Not designed for intermixing.

No field changes in effect at time of preparation (16 June 1960).

RELATION TO OTHER EQUIPMENT

The AN/WNA-2 is the same as Commercial Model V-200. The AN/WNA-2 is similar to the AN/WNA-1 but differs in size of equipment supplied number of records stored and the

nominal Power Output.

The AN/WNA-2 is designed to be used with but not part of C-2789 U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

IMPEDANCE: 125 ohms.

RECORD PLAYER DATA

SIZE: 7 inches.

RECORD SPEED: 45 rpm.

RECORD CAPACITY: 100 records (200 selections).

TYPE OF PICKUP: Seeburg High Fidelity Magnetic.

PHONOGRAPH SPEAKERS: 2 twelve inch permanent magnet (low frequency); 2 eight inch permanent magnet (high frequency).

POWER OUTPUT: 25 W nominal.

FREQUENCY RESPONSE: 80 to 10,000 cps porm 2 db.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph, 2.5 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Seeburg Corp., Chicago, Illinois.

Kit Type RCK-5.

Model V-200.

Part No. 408850.

Dwg No. 503369.

Contract NObsr-76380(Pub).

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5879	(1) 6SK7/6SK7GT
(2) 12AX7	(1) 5U4G-GB
(4) 2021	(1) 6SN7GTB
(1) 6SL7-GT	(2) 6L6G/6L6
(1) OA2	

Total Tubes: (14)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 365-2580: Technical Manual for Submarine Remote Control Kits 1 to 8. The Seeburg Corporation of Chicago, Illinois (catalog).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

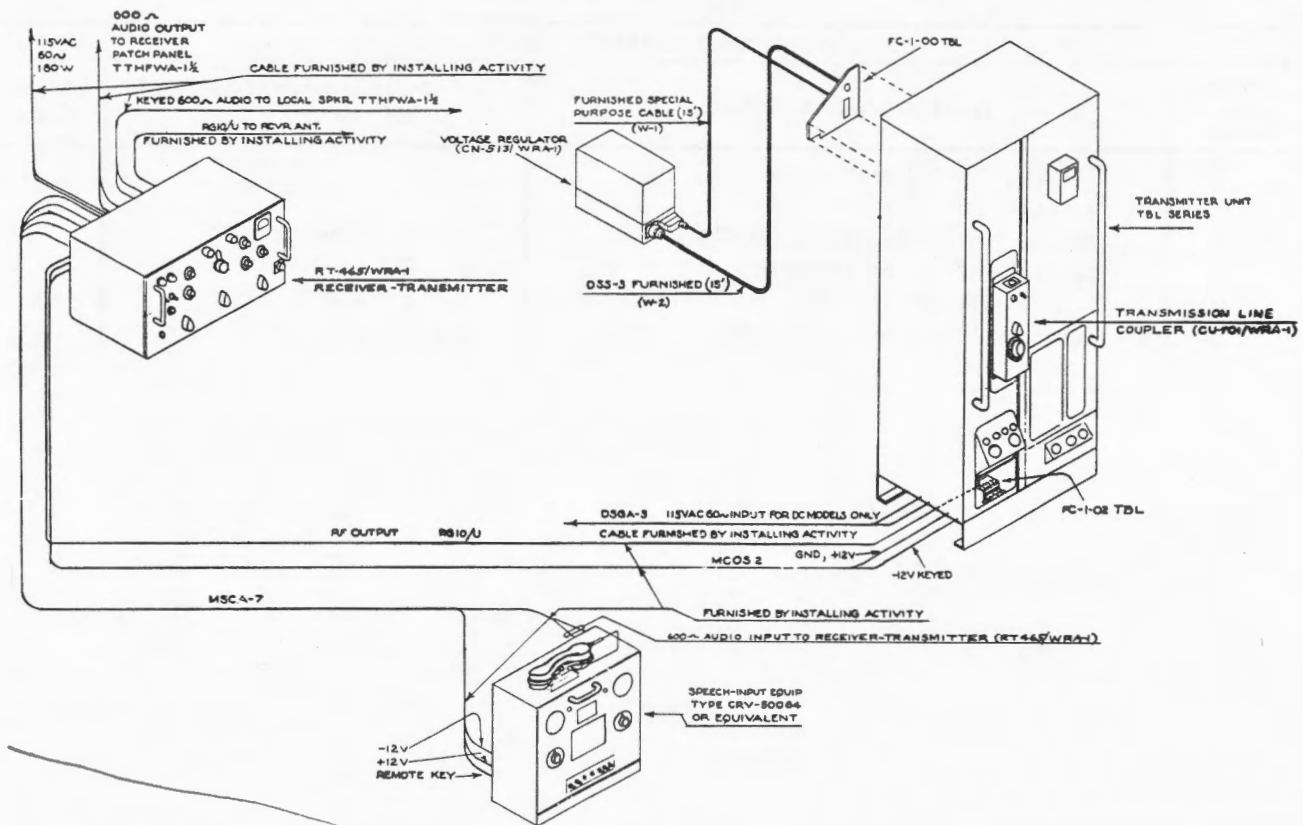
June 1961

Radio-Auxiliary

AN/WNA-2**AMPLIFIER-RECORD PLAYER GROUP****EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier-Record Player Group		
	AN/WNA-2 Consists of:		
1	Record Playing Mechanism (247003)	16-1/2 X 16-1/2 X 32	
1	Selection Receiver (303502)	6 X 9 X 22	
1	Audio Amplifier (305274)	8-3/4 X 9 X 22.	
1	Remote Volume Control (503180)	1 X 2 X 4	

RADIO SET GROUP



Radio Set Group AN/WRA-1

FUNCTIONAL DESCRIPTION

Radio Set Group AN/WRS-1 is used as a conversion unit to allow use of standard Navy radio transmitters in the single sideband mode, and to provide, in the same equipment, an optimized single sideband receiver. It is normally for use in conjunction with Field Change 5-TBL-4, 8, 9 or Field Change 6-TBL-5, 6, 7, 10, 11, 12, 13.

No field changes in effect at time of preparation (18 December 1959).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Radio Transmitter TBL, TBK, TBM, AN/SRT-14/15/16; (1) Local Speaker; (1) Antenna; (8) Channel Operating Crystals CR-27/U; (as required) Coaxial Cable RG-10/U; (as re-

quired) Cable DSGA-3; (as required) Cable TTHFWA-1-1/2; (as required) Cable MSCA-7.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RECEIVER-TRANSMITTER RT-465/WRA-1

FREQUENCY RANGE: 2 to 18 mc.

TYPE OF RECEPTION: Lower single sideband.

FREQUENCY CONTROL: Ovenized crystal.

CRYSTALS: (2) CR-47/U, (8) CR-27/U.

FREQUENCY STABILITY: ± 1 ppm/day ± 10 cps.

IMPEDANCE: R.F. in/out 50 ohms; A.F. in/out 600 ohms.

AUDIO

INPUT: 0 db (6 mw/600 ohms).

OUTPUT: 1 W 10% distortion.

RESPONSE (AUDIO): ± 2 db 300 to 3,000 cps.

R.F. OUTPUT: 5 v peak/50 ohms.

February 1960

Radio-Auxiliary

AN/WRA-1**RADIO SET GROUP**

CARRIER SUPPRESSION: -50 db.
 SIDEBAND SUPPRESSION: -50 db.
 DISTORTION (SSB): -40 db at 1 v peak/50
 ohms.

POWER REQUIREMENTS: 115 v, 50 to 60 cy,
 1 ph, 0.8 pf, 180 W.

VOLTAGE REGULATOR CN-513/WRA-1

INPUT VOLTAGE: 600 to 1,000 v D.C.

OUTPUT VOLTAGE: 450 to 550 D.C. (adjust-
 able).

REGULATION: $\pm 6\%$ (0 to 80 ma).

INPUT POWER: 115 v, 50 to 60 cy, 1 ph,
 0.8 pf, 50 W; -250/300 v D.C. at 20 ma
 (bias supply).

TRANSMISSION LINE COUPLER CU-701/WRA-1

FREQUENCY RANGE: 2 to 18 mc.

R.F. INPUT: 3 v peak (max/50 ohms).

R.F. OUTPUT: 30 to 40 v peak/5000 ohms.

INPUT POWER: 115 v, 50 to 60 cy, 1 ph,
 0.8 pf, 6 W; -250/300 v at 30 ma (bias
 supply).

MANUFACTURER'S OR CONTRACTOR'S DATA

Long Beach Naval Shipyard, Long Beach,
 California.

Outline Dwg RE43D2014A.

Basic System Dwg RE52F2007F.

Approximate Cost: \$2,000.00.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 0A2/6626	(2) OB2
(1) 6AL5/5726	(1) 6AQ5/6094
(5) 6BA6/5749	(4) 6BA7
(2) 6CL6	(1) 6U8
(3) 12AT7	(2) 12AX7
(1) 8005	

Total Tubes: (25)

(8) CR-27/U	(1) 1255KC
(1) 455KC	

Total Crystals: (10)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93294: Technical Manual for RADIO
 SET GROUP.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

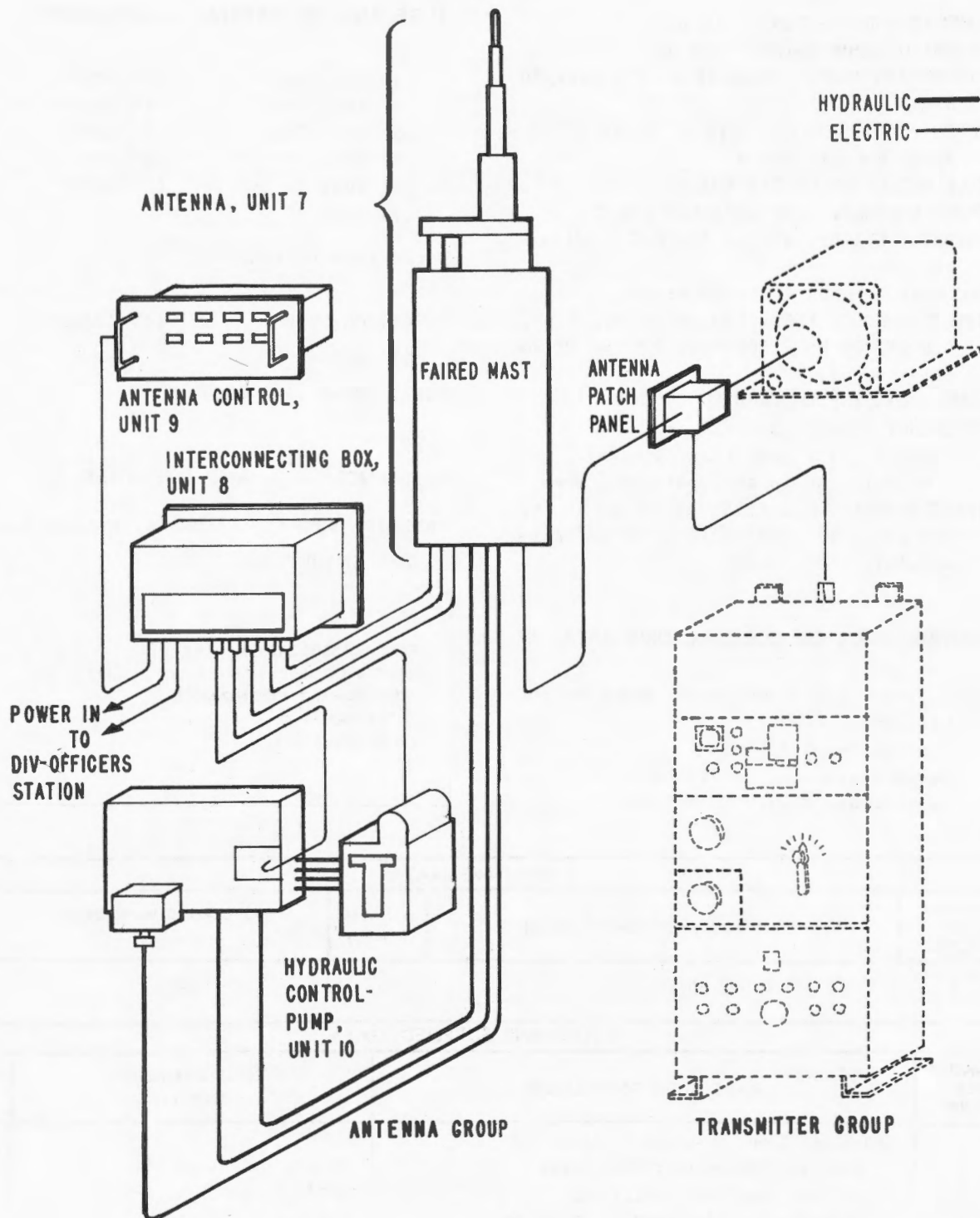
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Set Group AN/WRA-1	8.2	21 X 24 X 28	164

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set Group AN/WRA-1 consists of:		
1	Receiver-Transmitter RT-465/WRA-1	10-3/4 X 19 X 22-1/2	69
1	Voltage Regulator CN-513/WRA-1	5-3/4 X 10-3/8 X 11-1/8	11
1	Transmission Line Coupler CU-701/WRA-1	4-1/2 X 5 X 14-1/2	6
1	Field Change Kit for TBL, Associated Cabling and Headset		10
2	Technical Manual NAVSHIPS 93294		

ANTENNA GROUP

AN/WRA-2(XN-1)



Antenna Group AN/WRA-2(XN-1)

June 1961

Radio-Auxiliary

AN/WRA-2(XN-1)**ANTENNA GROUP****FUNCTIONAL DESCRIPTION**

Antenna Group AN/WRA-2(XN-1) is intended for use aboard an undersurface vessel. However, with a suitable ground plane it can be used with any transmitter and transmission line having the required electrical characteristics.

No field changes in effect at time of preparation (22 April 1960).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) High Frequency Transmitter (part of Radio Transmitting Set AN/URT-4(XN-1)); (9) Interconnecting Cables; (7) Hydraulic Line; (1) R.F. Connector; (1) Technical Manual; (1) Military Spec NAVSHIPS 900171; (1) Military Spec NAVSHIPS 900-120B.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ANTENNA TYPE: Retractable, remotely tuned, grounded vertical, quarterwave.

WHIP: Electro-hydraulically variable from 0 to 24 ft in height. Normal retraction time 30 sec, emergency retraction time 5 to 6 sec.

HELIX COIL: Hydraulically variable from 0 to 75 ft in h.

VARIABLE RF TAP: Electrically variable to maintain a nominal 50 ohm impedance feed point.

FREQUENCY RANGE: 2 to 32 mc.

RF INPUT POWER: 5 kw continuous.

INPUT IMPEDANCE: 50 ohms (nominal).

POWER REQUIREMENTS: 35 amp, 120 v, 400 cyc, 3 ph.

HYDRAULIC REQUIREMENTS: Self-contained hydraulic unit, providing a pressure of up

to 325 lbs per sq in. (psi) on MIL-H-5606A hydraulic fluid.

AMBIENT TEMPERATURE

OPERATING: 0° to 50° C (+32° to +102° F).

NON-OPERATING: -62° to +75° C (-80° to +166.4° F).

MANUFACTURER'S OR CONTRACTOR'S DATA

Hoffman Laboratories Div, Los Angeles, California.

Contract NObsr-72732.

Contract NObsr-72827.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

TRANSISTORS

(3) 2N332 (6) 2N174

Total Transistors: (9).

REFERENCE DATA AND LITERATURE

NAVSHIPS 00000: Technical Manual for ANTENNA GROUP AN/WRA-2(XN-1).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC: SHIPS-R-2653
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Unit 7	37	13 X 28 X 210	1000
1	Interconnecting Box Unit 8	1.0	7 X 16 X 16-1/2	45
1	Antenna Control Unit 9	0.5	8 X 16 X 19	30
1	Hydraulic Control-Pump Unit 10 c/o			
1	Manifold Block Assy.	7.5	13-1/2 X 29 X 35	190
1	Pump-Reservoir Assy 2	7.5	22 X 22-1/2 X 28	180

June 1961

ANTENNA GROUP

Radio Auxiliary
AN/WRA-2(XN-1)

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Unit 7 includes: Helix Column Assy 1 Helix Hydraulic Cylinder Assy 2	8-1/2 X 8-1/2 X 180 3 X 3 X 112	500 100
1	Interconnecting Box Unit 8	5-9/16 X 14-1/2 X 17-7/8	30
1	Antenna Control Unit 9	6-7/8 X 14-1/16 X 17-1/2	20
1	Hydraulic Control-Pump Unit 10 includes: Manifold Block Assy 1 Pump-Reservoir Assy 2	12 X 44 X 44-1/2 22 X 22-1/2 X 36-1/2	225 575
1	Connector AN3106B-16-10S (Hoffman Special)		
1	Connector AN3106B-16-10P		
2	Connector AN3106B-20-29S		
1	Connector AN3106B-20-29S (Hoffman Special)		
1	Connector AN3106B-20-29P		
1	Connector AN3106B-22-2P		
1	Connector AN3106B-22-2S		
1	Connector AN3106B-24-7P		
1	Connector AN3106B-28-11P		
1	Connector AN3106B-28-21P		
1	Connector AN3106B-28-22S		
1	Connector AN3106B-28-21S		
1	Connector AN3106B-20-33P		
2	Technical Manual NAVSHIPS 00000		

29 August 1962

Cog Service: USN FSN:

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

Functional Class:

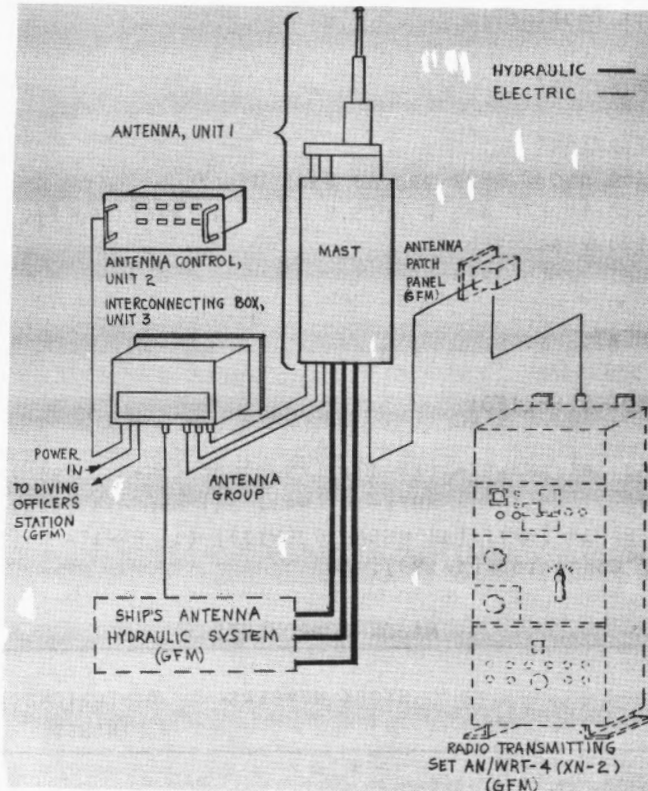
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Hoffman Electronics Corporation, Military Products Division, (28959).



Antenna Group AN/WRA-2(XN-2)

FUNCTIONAL DESCRIPTION:

The Antenna Group AN/WRA-2(XN-2) is designed as a telescoping, base-fed, grounded-quarter-wave, vertical antenna of the hybrid helix-whip type with remote control tuning and position-indicating mechanisms.

The AN/WRA-2(XN-2) is intended for use with Radio Transmitter Set AN/WRT-4(XN-1), (XN-2) or (XN-3) aboard an underwater vessel. However, with a suitable ground plane and hydraulic system, it can be used in other installations with any transmitter and transmission line having the required electrical characteristics.

The antenna group is capable of radiating the output of any transmitter operating on any frequency between 2 and 32 megacycle (MC) and having a power output of not more than 1000 watts continuous or 5000 watts peak (25% duty cycle). The input impedance is variable and permits the matching of a 50 ohm transmission line with a voltage standing wave ratio (VSWR) of not more than 1.5 to 1 over most of the frequency range. In no case will the VSWR exceed 2.5 to 1. It is possible to match the antenna group to any transmission line having an

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

impedance of from 35 to 150 ohms.

No field changes in effect at time of preparation (31 May 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Aboard an undersurface vessel.

TYPE OF MOUNTING: Bolted to ship's mast.

TYPE OF ANTENNA: Telescoping, remotely tuned, grounded vertical quarter-wave.

INPUT IMPEDANCE: 50 ohms (nominal).

RF INPUT POWER

PEAK: 5 kw (25% duty cycle).

CONTINUOUS: 1 kw.

AMBIENT TEMPERATURE LIMITATIONS

OPERATING: 0 deg to 50 deg C (P32 deg to P122 deg F).

NON-OPERATING: M62 deg to P75 deg C (M78.8 deg C to P167 deg F).

OPERATING POWER RQMT: 120 v ac, 400 cp.

OPERATING FREQUENCY RANGE: 2 to 32 mc.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Radio Transmitting Set AN/WRT-4(XN-1), (XN-2) or (XN-3); (9) Interconnecting Cables: (1) FSGA-3 (W1); (1) THOF-9 (W3); (1) MHFF-19 (W4); (1) MHFF-14 (W5); (1) TTRSA-6 (W6); (1) WSCA-30 (W8); (1) TSGA-14 (W9); (1) MSCA-10 (W10); (1) RG-17A/U (W11); (1) Antenna Hydraulic System; (1) RF Connector (1A1P3).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Antenna Includes:			
1	Helix column		8-1/2 x 8-1/2 x 180	500
1	Hydraulic Helix Cylinder		3 x 3 x 211-5/8	100
1	Antenna Control		6-7/8 x 14-1/16 x 17-1/2	20
1	Interconnecting Box		5-9/16 x 14-1/2 x 17-5/8	30
1	Connector AN3106E-16-10S			
1	Connector AN3106B-16-10P			
1	Connector AN3106E-20-29S			
1	Connector AN3106E-22-14S			
1	Connector AN3106B-20-29P			
1	Connector AN3106B-24-7P			
1	Connector AN3106B-28-11P			
1	Connector AN3106B-28-21P			
1	Connector AN3106B-28-22S			
1	Connector AN3106B-28-21S			
1	Connector AN3106B-20-33P			
1	Connector AN3106B-16S-8P			

1.2 AN/WRA-2(XN-2): 2

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

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS.)
1	O-Ring AN6227-2U			
5	Cable Clamp AN3057-16			
2	Cable Clamp AN3057-12			
1	Cable Clamp AN3057-8			
1	Coax Shipping Plug (Hoffman SKS-14422)			
1	Valve Connection (Schrader 5007)			
1	Whip Clamp (Hoffman SKS-8310)			
1	Helix Position Transmitter Tool (Hoffman SKS-14349)			
1	Whip Feedthrough Tool (Hoffman SKS-8309)			
1	Grounding Button Installation Tool (Hoffman SKS-13648)			
1	Helix Clamp (Hoffman SKS-10952)			
1	Lifting Bridle (Hoffman SKS-11073)			
1	Helix Lift Plug (Hoffman SKS-13754)			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93792: Technical Manual for Antenna Group AN/WRA-2(XN-2).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N253 (4) 1N255 (3) 1N457 (1) SKS-12464-1

TRANSISTORS: (6) 2N174 (3) 2N332

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	45.0	1930
1	0.5	30
1	2.2	65

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-R-2653A Amend #1

DESIGN COG: USN, BuShips

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hoffman Electronics Corp. Military Products Div. Dwg no. SKS-13520 Dwg no. SKS-13160 Dwg no. SKS-13045 Dwg no. SKS-13148	Los Angeles, Calif.	N0bsr-72827, 17 June 1958 N0bsr-85256, 30 June 1960	

28 August 1962
Cog Service: USN

FSN:

TRANSMITTER GROUP AN/WRA-3(XN-1)
Functional Class:

USA

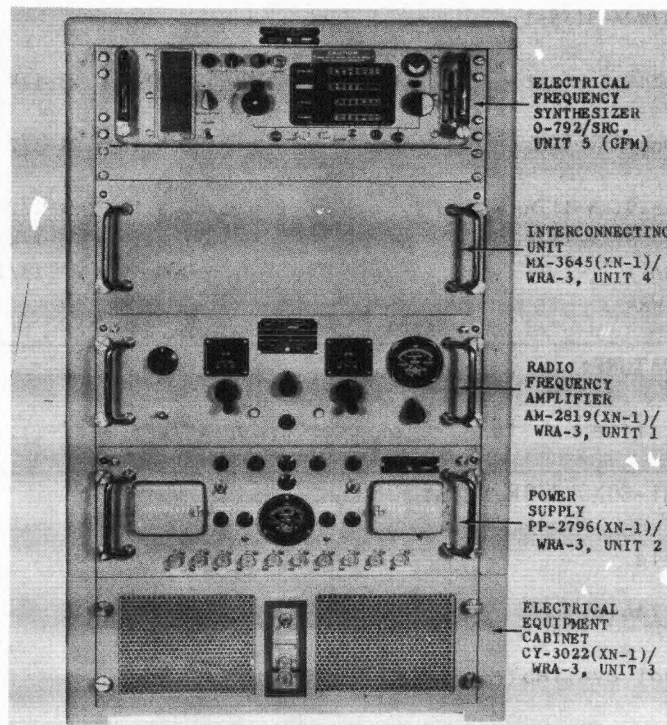
USN

USAF

TYPE CLASS: Pln/Std

Pln/Std

MANUFACTURER'S NAME/CODE NUMBER: Hoffman Laboratories Division of Hoffman Electronics Corp., (82260).



Transmitter Group AN/WRA-3(XN-1)

FUNCTIONAL DESCRIPTION:

The Transmitter Group AN/WRA-3(XN-1) is a Continuous Wave (CW) transmitter, designed for 15 watt operation. It is primarily intended for use as an exciter for larger transmitting equipment; however it may also be used independently when coupled to an antenna system with a 50-ohm impedance.

No field changes in effect at time of preparation (31 May 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF EMISSION: CW, A1.

NUMBER OF BANDS: 5 bands.

FREQUENCY RANGE: 2 to 32 mc.

POWER OUTPUT: 15 W.

OPERATING POWER RQMT: 115 or 230 v ac, 47.5 to 63.0 cps, single ph.

AN/WRA-3(XN-1) TRANSMITTER GROUP

RELATION TO OTHER EQUIPMENT: None.**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Transmitter Group AN/WRA-3(XN-1) consists of:			
1	Electrical Equipment Cabinet CY-3022(XN-1)/WRA-3		22-1/4 x 23-1/4 x 37	
1	Electrical Frequency Synthesizer O-792/SRC		5 x 18 x 21-1/2	90
1	RF Amplifier AM-2819(XN-1)/WRA-3		7 x 19 x 21-1/2	45
1	Power Supply PP-2796(XN-1)/WRA-3		7 x 19 x 23-1/4	103
1	Interconnecting Unit MX-3645(XN-1)/WRA-3		9 x 19 x 21-13/16	9-1/2

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94252: Technical Manual for Transmitter Group AN/WRA-3(XN-1).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hoffman Laboratories Division of Hoffman Electronics Corp.	Los Angeles, Calif.		

1.2 AN/WRA-3(XN-1): 2