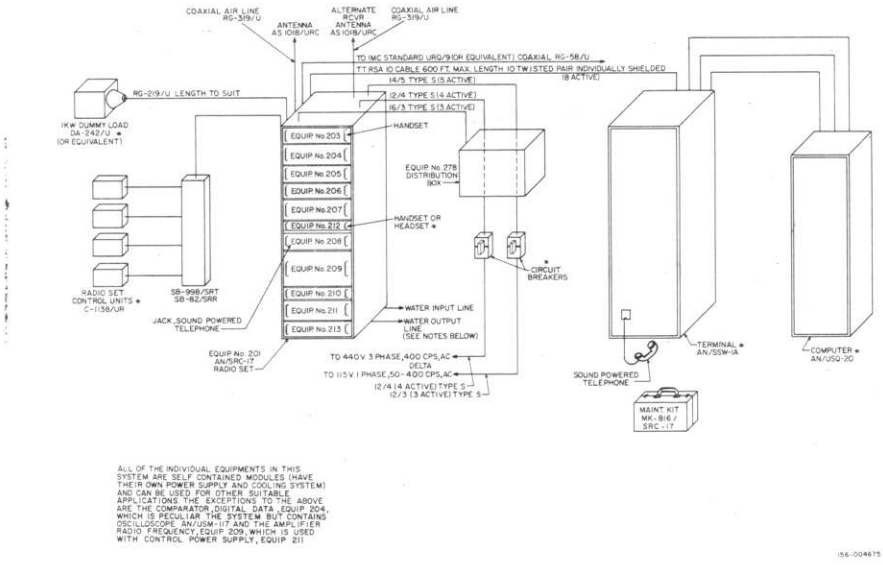
Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Manson Laboratories, Incorporated, (93279).



RADIO SET AN/SRC-17

FUNCTIONAL DESCRIPTION:

The Radio Set AN/SRC-17 is an integral part of the Navy Tactical Data System and provides the receiving and transmitting system for ship-to-ship, ship-to-air, and ship-to-shore as well as point-to-point communication-data links. The radio set consists of a transmitter, receiver, and digital data comparator which monitors the radio set operation.

No field changes in effect at time of preparation (11 February 1966).

RELATION TO OTHER EQUIPMENT:

Radio Set AN/SRC-17 is an improved version of Radio Sets AN/SRC-17(XN-1), AN/SRC-17(XN-2) and AN/SRC-17(XN-3). All these radio sets are the same except for the major difference listed in Table 1-3.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Electronics Installation and Maintenance Book NAVSHIPS 900,000; (1) Handbook for ElectronicsCircuits NAVSHIPS 900,000-102; (1) Headset CW-49507, 6 Connector Plug UG-154/U; (1) Handset H-169/U, 3-Adapter UG-216B/U; (1) Dummy Load DA-242/U; 1-Cable Coaxial MSCA-14; (1) Instruction Book for Dummy Load DA-242/U; (1) Electronic Multimeter (VTVM) AN/USM-116; (1) Instruction Book for Electronic Multimeter AN/USM-116; (2) Cable, Coaxial RG-219/U; (1) Connector Plug UG-880/U (1) Cable, Coaxial RG-319/U, 1-Connector Plug MS-3106E-14S-7P; (1) Cable, Coaxial RG-58/U, 1-Connector Plug MS-3108E-16S-8S.

TECHNICAL CHARACTERISTICS:

FREQUENCY COVERAGE: 225 to 400 mc in 100 kc steps.
BANDS: One.
CHANNELS: 1750.
TYPES OF FREQUENCY CONTROL: Synthesizer or Crystal.
STABILITY: 5 parts in 10^7 per day.
TYPES OF EMISSION AND RECEPTION: A-3 (telephony, AM), F-3 (telephony, FM), F-1 (telegraphy, FSK).
MODULATION: A-3, 95%, F-1: 0 to 5 kc ± 20 kc deviation, F-3: 300 to 3000 cps, ± 10 kc deviation.
TRANSMITTER OUTPUT POWER: FM/FSK, 500 Watts, AM: 250 Watts.
PERCENT MODULATION: 95%.
PERCENT DISTORTION: 7%.
OUTPUT IMPEDANCE: 50 ohms.
HARMONIC AND SPURIOUS ATTENUATION: 60 db below carrier.
DUTY CYCLE: Continuous at full rated output throughout environmental range.
BANDWIDTH: 1-MC (low-end), 2 mc (high end).
TRANSMITTER COOLING: Watts and air.
RECEIVER-SENSITIVITY: 2 ua for 20 db quieting.
RECEIVER-SELECTIVITY: 1% bandwidth at 3 db points, 4% bandwidth at 40 db points.
RECEIVER-SELECTIVITY: FM-80 kc at 3 db, 160 kc at 100 db, AM-20 kc at 3 db, 50 kc at 100 db.
IMAGE REJECTION: 100 db minimum.
NOISE FIGURE: 12 db maximum.
POWER REQUIREMENTS: 400 v ac, 400 cps, three ph, 5 amp, 115 v ac, 50 to 400 cps, single ph, 15 amp.
WATER REQUIREMENTS: Flow rate 1 GPM min., purity distilled maximum contamination of 0.065 equivalent of sea water; Pressure: 100 lbs per sq. in. gage maximum, 5 lbs per sq. in gage normal.
HEAT DISSIPATION: 400 Watts.
AMBIENT ENVIRONMENT
TEMPERATURE: − 0 deg C to + 50 deg C (32 deg F to 122 deg F).
HUMIDITY: 0% to 95% rh.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/SRC-17	2F5820-066-4593	22 x 24-13/16 x 72	1119
	includes:			
1	Rack Electrical Equipment MT-2718/SRC-17		22 x 22 x 72	329
1	Keyer Frequency Shift KY-510/SRC-17		3-1/2 x 17-1/2 x 22	34.5
1	Comparator Digital Data CM-296/SRC-17		7-1/2 x 17-1/2 x 22	64.5
1	Radio Receiver R-1228/SRC-17		5-1/8 x 17-1/2 x 22	70.0
1	Synthesizer-Electrical Frequency O-1178/SRC-17		5-1/4 x 17-1/2 x 22	68.0
1	Amplifier Frequency Multiplier AM-3017/SR		7 x 17-1/2 x 22	119.5
1	Amplifier Radio Frequency AM-2072/SR		7 x 17-1/2 x 22	120.5
1	Amplifier Radio Frequency AM-3018/SRC-17		12-1/4 x 17-1/2 x 22	121.0
1	Duplexer CU-950/SRC-17		3 x 17-1/2 x 22	48.0
1	Control Power Supply C-3723/SRC-17		7-1/4 x 17-1/2 x 22	133.0
1	Modulator Radio Transmitter MD-556/SRC-17		3-1/2 x 17-1/2 x 22	66.0
1	Filter Unit, Water Purification MX-6123/SRC-17		5-1/4 x 17-1/2 x 22	35.0
1	Distribution Box J-2235/SRC-17		5-1/8 x 9 x 12	20.0
1	Maintenance Kit MK-816/SRC-17		3-11/32 x 16-1/2 x 20-1/2	31.0
1	Maintenance Standards Book NAVSHIPS 95947.42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 96869.42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 95868.42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 95871.42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 95948.42		9-1/2 x 11-1/2	

RADIO SET AN/SRC-17

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Maintenance Standards Book NAVSHIPS 95812.42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 95870-42		9-1/2 x 11-1/2	
1	Maintenance Standards Book NAVSHIPS 96136.42		9-1/2 x 11-1/2	
2	Technical Manual NAVSHIPS 95947		9 x 11	
2	Technical Manual NAVSHIPS 95869		9 x 11	
2	Technical Manual NAVSHIPS 95868		9 x 11	
2	Technical Manual NAVSHIPS 95871		9 x 11	
2	Technical Manual NAVSHIPS 95948		9 x 11	
2	Technical Manual NAVSHIPS 95812		9 x 11	
2	Technical Manual NAVSHIPS 95870		9 x 11	
2	Technical Manual NAVSHIPS 96136		9 x 11	
2	Technical Manual NAVSHIPS 95813		9 x 11	
1	Operating Instruction Chart NAVSHIPS 95947.42		8-1/2 x 11	
1	Performance Standard Sheet NAVSHIPS 95947.32		8-1/2 x 11	
1	Variable Attenuator CV-965/SRC-17			
1	Technical Manual for Oscilloscope AN/USM-117			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95947: Technical Manual for Radio Set AN/SRC-17.

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT(LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: U-4001 SHIPS

RADIO SET AN/SRC-17

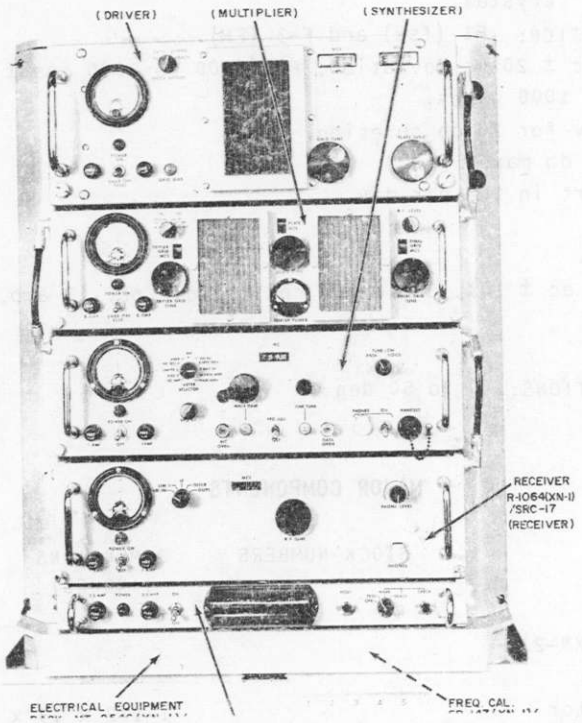
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories, Incorporated	Wilton, Conn.	NObsr 87289	

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Manson Laboratories Division of The Hallicrafters Company, (93279).



RADIO SET AN/SRC-17(XN-2)

FUNCTIONAL DESCRIPTION:

The Radio Set AN/SRC-17(XN-2) is an integral part of the Navy Tactical Data System and provides the receiving and transmitting system for the communications data link. The radio set consists of a transmitter, receiver, and transmission monitor detector which monitors the Radio Set operation. Voice (fm) and data (fsk) information can be transmitted on a 225 to 400 mc UHF carrier at 100 watts or 1 kw levels. The data information orginates in a terminal equipment (computer), and the received data signals are fed to the terminal equipment for evaluation.

No field changes in effect at time of preparation (16 February 1966).

RELATION TO OTHER EQUIPMENT:

The AN/SRC-17(XN-2) is an improved version of Radio Set AN/SRC-17(XN-1).

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Handset H-169/U; (2) Parker Fittings No. 8-8-FBTX; (2) Elbow Aeroquip Corp. No. 6606-8; (2) Hose Aeroquip Corp. No. 666-8; (2) Fitting.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 225 to 400 mc in 100 kc steps.
BANDS: 1.
TYPE OF FREQUENCY CONTROL: Crystal.
TYPE OF EMISSION AND RECEPTION: F1 (fsk) and F-3 (FM).
MODULATION: F-1, 0 to 5 kc ± 20 kc deviation; F-3, 300 to 3000 cps ± kc deviation.
TRANSMITTER OUTPUT POWER: 1000 watts.
RECEIVER SENSITIVITY: 2 uv for 20 db quieting.
RECEIVER NOISE FIGURE: 12 db max.
FREQUENCY STABILITY: 1 part in 10^8 per day.
INPUT IMPEDANCE: 50 ohms.
OUTPUT IMPEDANCE: 50 ohms.
POWER REQUIREMENTS: 115 v ac ± 10%, 50 to 400 cps, single ph, 13 amp, 440 v ac, 400 cps, 3 ph, 10 amp.
HEAT DISSIPATION: 5 kw.
AMBIENT TEMPERATURE LIMITATIONS: 0 to 50 deg C.
NUMBER OF CHANNELS: 1750.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/SRC-17(XN-2) includes:			
1	Frequency Calibrator FR-147/SRC-17(XN-1)		1-1/2 x 13 x 16	10
1	Electrical Frequency Synthesizer O-730/SRC(XN-2)		5 x 15-1/2 x 20-3/4	60
1	Amplifier Multiplier A-3017(XN-1)SR		5 x 17-1/2 x 20-3/4	95
1	Radio Frequency Amplifier AM-2072(XN-2)SR		7 x 17-1/2 x 20-3/4	100
1	Control-Power Supply C-3723(XN-1)SRC-17		7 x 17-1/2 x 21-3/4	155
1	Radio Frequency Amplifier AM-3018(XN-1)SRC-17		12-1/4 x 17-1/2 x 21-3/4	145
1	Receiver R-1064(XN-1)SRC-17		5-2/16 x 17-1/2 x 20-3/4	50
1	Visual Data Monitor IP-598(XN-1)SRC-17		1-3/4 x 17-1/2 x 20-3/4	25
1	Electrical Equipment Rack MT-2546(XN-1)SRC-17		22-27/32 x 23-5/8 x 28-1/2	60

RADIO SET AN/SRC-17(XN-2)

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
*1	Electrical Equipment Rack MT-2718(XN-1)/SRC-17		22-27/32 x 23-5/8 x 50-1/4	100
1	Dummy Load DA-242/U		6 x 7 x 12-1/2	5
2	Technical Manual NAVSHIPS 94982		2 x 8-1/2 x 11	
1	Duplexer CU-950(XN-2)/SRC-17		1-1/2 x 11 x 17	5

** - Used for Radio Set (Serial number 5)

*** - Optional

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94982: Technical Manual for Radio Set AN/SRC-17(XN-2), AN/SRC-17(XN-3).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	13.8	435
1	11.5	375
1	0.5	15

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: U-3564(SHIPS)

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Div. of the Hallicrafters Company	Wilton, Conn.	NObsr 81527	

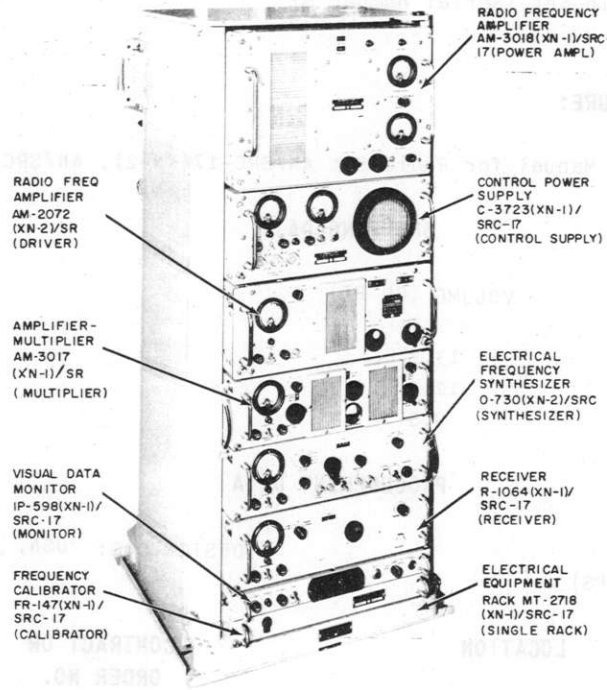
419

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Manson Laboratories Division of the Hallicrafters Company, (93279).



RADIO SET AN/SRC-17(XN-3)

FUNCTIONAL DESCRIPTION:

The Radio Set AN/SRC-17(XN-3), as an integral part of the Navy Tactical Data System (NTDS), provides the communications link for receiving and transmitting data. The radio set is basically an FM transmitter and receiver and consists of eleven separable units.

No field changes in effect at time of preparation (17 February 1966).

RELATION TO OTHER EQUIPMENT:

AN/SRC-17(XN-3), is an improved version of Radio Set AN/SRC-17(XN-1).

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Handset H-199/U; (2) Parker Fitting No. 8-8FBTX; (2) Elbow Aeroquip Corp. No. 6606-8; (2) Hose Aeroquip Corp. No. 666-8; (2) Fitting.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 225 to 400 mc in 100 kc steps.
BANDS: 1.
TYPE OF FREQUENCY CONTROL: Crystal.
TYPE OF EMISSION AND RECEPTION: F1 (fsk) and F3 (fm).
MODULATION: F1, 0 to 5 kc ± 20 kc deviation, F3, 300 to 3000 cps, ± 10 kc deviation.
TRANSMITTER OUTPUT POWER: 1000 watts.
RECEIVER SENSITIVITY: 2 uv for 20 db quieting.
RECEIVER NOISE FIGURE: 12 db max.
FREQUENCY STABILITY: 1 part in 10^8 per day.
INPUT IMPEDANCE: 50 ohms.
OUTPUT IMPEDANCE: 50 ohms.
POWER REQUIREMENTS: 115 v ac ± 10%, 50 to 400 cps, single ph, 13 amp, 440 v ac, 400 cps, three ph, 10 amp.
HEAT DISSIPATION: 5 kw.
AMBIENT TEMPERATURE LIMITATIONS: 0 to 50 deg C.
NUMBER OF CHANNELS: 1750.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/SRC-17(XN-3) includes:			
1	Frequency Calibrator FR-147(XN-1)/SRC-17		1-1/2 x 13 x 16	10
1	Electrical Frequency Synthesizer O-730(XN-2)/SRC		5 x 17-1/2 x 20-3/4	60
1	Amplifier-Multiplier AM-3017(XN-1)/SR		5 x 17-1/2 x 20-3/4	95
1	Radio Frequency Amplifier AM-2072(XN-2)/SR		7 x 17-1/2 x 20-3/4	100
1	Control Power Supply C-3723(XN-1)/SRC-17		7-1/4 x 17-1/2 x 21-3/4	155
1	Radio Frequency Amplifier AM-3018(XN-1)/SRC-17		12-1/4 x 17-1/2 x 21-3/4	145
1	Receiver R-1064(XN-1)/SRC-17		5-2/16 x 17-1/2 x 20-3/4	50
1	Visual Data Monitor IP-598(XN-1)/SRC-17		1-3/4 x 17-1/2 x 20-3/4	25
1	Electrical Equipment Rack MT-2718(XN-1)/SRC-17		22-27/32 x 23-5/8 x 50-1/4	100
1	Duplexer CV-950(XN-2)/SRC-17		1-1/2 x 11 x 17	5

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94982: Technical Manual for Radio Set AN/SRC-17(XN-2), AN/SRC-17(XN-3).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT(LBS)
1	23	800
1	0.5	15
1	11.5	375

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: U-3564 (SHIPS)

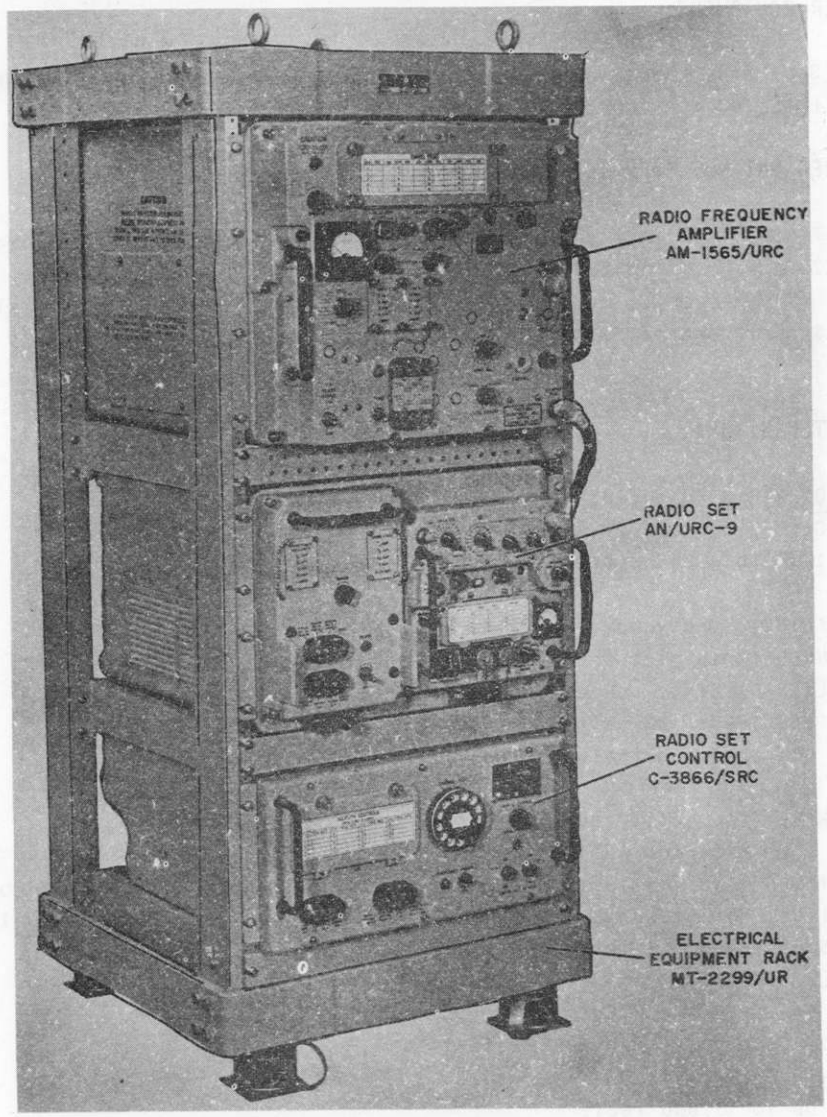
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Division of The Hallicrafters Co.	Wilton, Conn.	NObsr 81527	

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teledyne Systems Co., (89114).



RADIO SET AN/SRC-20

FUNCTIONAL DESCRIPTION:

Radio Set AN/SRC-21 is a surface-to-air or surface-to-surface shipboard or fixed station OHF communication equipment that provides simplex amplitude modulation. Provisions are included for complete control, including preset channel selection, from as many as four remote control points. Circuits are provided so that two sets may be interconnected for two way automatic retransmission operation. Provisions are included for operation with special purpose equipment requiring broadband audio.

During tranmission, the 15 to 20 watt output of the exciter, Radio Set AN/URC-9, is amplified to 100 watts minimum carrier level. In case of failure of the power amplifier, the 15 to 20 watt output of the exciter can be used for emergency communications.

No field changes in effect at time of preparation (19 April 1967).

RELATION TO OTHER EQUIPMENT:

Radio Set AN/SRC-20 is identical to Radio Set AN/SRC-21, except that the AN/SRC-21 does not include Amplifier AM-1565/URC.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset NT-49985A; (1) Microphone M-58/U; (1) Handset H-51/U; (1) Radio Set Control C-1138/UR or C-1207/UR; (1) Indicator Control C-3868/SRC; (1) Radio Frequency Wattmeter AN/URM-43( ) and AN/URM-96; (2) Multimeters AN/USM-116, AN/USM-143; (1) Signal Generator AN/USM-44A; (1) Signal Generator AN/URM-25D; (1) Audio Oscillator AN/URM-127; (1) Oscilloscope AN/USM-140A.

TECHNICAL CHARACTERISTICS:

REFERENCE DATA FOR RADIO FREQUENCY AMPLIFIER AM-1565/URC
- FREQUENCY RANGE: 225.0 to 399.9 mc.
- WAVELENGTH: 1.33 to 0.75 meters.
- TUNING
  - CHANNEL SPACING: Continuously tuned.
  - PRESET CHANNELS: 19 plus one manual.
  - CHANNEL SELECTION TIME: 10 seconds maximum.
  - EXCITATION REQUIRED: 16 watts.
  - IMPEDANCE: 50 ohms, nominal.
- OUTPUT DATA
  - MINIMUM POWER: 100 watts, average carrier.
  - IMPEDANCE: 50 ohms, nominal.
  - ENVELOPE DISTORTION: 4% maximum above drive signal distortion at 80% modulation.
- NOISE MODULATION: Not less than 30 db when driven by a source having a noise modulation at least 35 db below 80% modulation 1000 cps.

AMBIENT TEMPERATURE RANGE:
- OPERATING: -54° C to $+65^\circ$ C (-65° F to $+149^\circ$ F).
- STORAGE: -62° C to $+75^\circ$ C (-79° F to $+167^\circ$ F).
- AMBIENT HUMIDITY: 0% to 95%.
- ALTITUDE: Up to 10,000 feet.

REFERENCE DATA FOR RADIO SET AN/URC-9 FREQUENCY
- RANGE: 225.0 to 399.9 mc.
- SELECTION: 1750 automatically-selectable channels spaced 0.1 mc apart.

CHANNEL PRESETTING: 19 preset channels available on local or remote control plus manual frequency selection on local control.

ACCURACY: At + 150° F, ± 12 kc; at + 100° F, ± 10 kc; at ambient temperature, ± 10 kc; At − 40° F, ± 15 kc; at / 65° F, ± 20 kc.

RECEIVER CHARACTERISTIC

TYPE: Triple-conversion superheterodyne, with automatic noise limiting and carrier-operated squelch relay circuits.

INPUT IMPEDANCE: 50 ohms.

SELECTIVITY (THIRD IF BANDWIDTH): 80 kc min at 6 db attenuation, 150 kc max at 60-db attenuation.

SENSITIVITY: 6 uv or less for 10-db signal-plus-noise to noise ratio.

INTERMEDIATE FREQUENCIES: 20.0 to 29.9 mc (variable), 500 kc (fixed).

AVC CHARACTERISTICS: Audio output constant within ± 2 db from 10 uv to 0.25 v with 100 uv, modulated 30% at 1000 cps, and 500 mw audio output level as reference.

FREQUENCY RESPONSE

NORMAL: 300 cps; ± 5 db; 500 cps; ± 4 db; 1,000 cps; 0 db; 3,500 cps; ± 4 db.

BROADBAND: Within − 3 db at 100 cps to − 7 db at 25,000 cps, 1000 cps reference.

AUDIO OUTPUTS

LOCAL OUTPUT: 2 watts, 600 ohms.

REMOTE OUTPUT: 2 watts, 600 ohms.

AUDIO DISTORTION: 10% max.

IF FREQUENCIES: 20.0 to 29.9 mc (variable) 3.0 to 3.9 (variable) 500 kc fixed.

SQUELCH

NORMAL OPERATION: 3 db signal-plus-noise to noise ratio.

$\frac{(S+N)}{N}$ SQUELCH

CARRIER SQUELCH: 3 uv carrier level.

TRANSMITTER CHARACTERISTICS

POWER OUTPUT: 16 watts minimum into 50-ohm resistive load.

MODULATION: Amplitude modulation.

FREQUENCY RESPONSE

NORMAL: Within ± 3 db from 300 to 3500 cps, 1000 cps reference.

BROADBAND: 300 cps = + 0.0 to − 3.0 db, 1000 cps = 0.0 (reference), 10,000 cps = 1 ± 1.0 db, 25,000 cps = + 0 to − 6 db.

AUDIO DISTORTION: Less than 7.5 percent at 3 db below 80% modulation.

BROADBAND SIDETONE: 175 mw, 300 to 3000 cps into 600 ohms.

SPURIOUS RADIATION: All spurious radiation suppressed 60 db below carrier level from 245.0 to 380.0 mc; On any frequency outside this range, not more than one spurious radiation which must be at least 30 db below carrier.

OPERATING TEMPERATURE: − 54° C to + 65° C (− 67° F to 149° F).

TYPES OF EMISSION: Radio-Telephone (A3); Tone (A2).

AUDIO INPUTS

MICROPHONE: 0.08 volt, 82 ohms nominal.

RETRANSMISSION: 0.31 volt.

BROADBAND: 1.55 volts peak-to-peak.

SIDETONE OUTPUT: 175 mw, 300 to 3500 cps, from 600 ohm receiver audio output.

FIDELITY: Within ± 3 db from 300 to 3500 cps, 1000 reference.

DUTY CYCLE: Continuous transmission with 80% modulation at + 65° C (+ 149° F).

PRIMARY VOLTAGE REQUIREMENTS: 115 v ac, 50 to 60 cps, single phase or 230 v ac, 50 to 60 cps, single phase.

POWER REQUIREMENTS: 540 watts on receive; 1550 watts on transmit.
REFERENCE DATA ON RADIO SET CONTROL C-3866/SRC
NUMBER OF CHANNELS: 19 channels.
CHANNEL CODE: 5-wire (plus ground).
CHANNEL SELECTION: By telephone dial.
DUTY CYCLE: Continuous, unattended.
OPERATING MODES: Local or remote.
MAXIMUM PRIMARY POWER SWITCHING: 1550 watts.
OUTPUT POWER: 12 v dc positive ground optional, 24 watt max.
AMBIENT TEMPERATURE RANGE: − 54° C to + 65° C (− 65° F to + 149° F).
AMBIENT HUMIDITY: Up to 95% relative humidity.
POWER REQUIREMENTS: 20 watts on standby to 60 watts on channeling.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/SRC-20 includes:	22-1/16 x 26-21/32 x 52-1/2	511
1	Radio Frequency Amplifier AM-1565/URC w/Installation Kit MK-621/UR	16 x 19-5/8 x 25-7/8	222
1	Radio Set AN/URC-9	13-13/16 x 19 x 19-1/2	157
1	Radio Set Control C-3866/SRC w/Installation Kit MK-622/UR	9-11/16 x 19 x 19-5/16	66
1	Cable Assembly RF CG-2232/U		
1	Cable Assembly Power Electrical CX-6102/U	44-3/4	
1	Cable Assembly Special Purpose Electrical CX-6105/U	18-5/32	
1	Cable Assembly Special Purpose Electrical CX-6105/U	40-5/32	
1	Rack Electrical Equipment MT-2299/UR	22-1/16 x 23-7/32 x 52-23/32	84
1	Technical Manual NAVSHIPS 0967-32-5000 (Vol-1)	2 x 9-1/2 x 11-1/2	
1	Technical Manual NAVSHIPS 0967-32-5010 (Vol-2)	2 x 9-1/2 x 11-1/2	
1	Performance Standards Sheet NAVSHIPS 94695.32A		
1	Maintenance Standards Book NAVSHIPS 94695.42A	8-1/2 x 11	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-32-5000, VOL-1: Technical Manual for Radio Sets AN/SRC-20 and AN/SRC-21.
NAVSHIPS 0967-32-5010 VOL-2: Technical Manual for Radio Sets AN/SRC-20 and AN/SRC-21.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	33.9	882

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, NavShips

SPEC &/OR DWG: SHIPS-R-4440 and 4441 and
SHIPS-A-4583 and SHIPS-R-4584

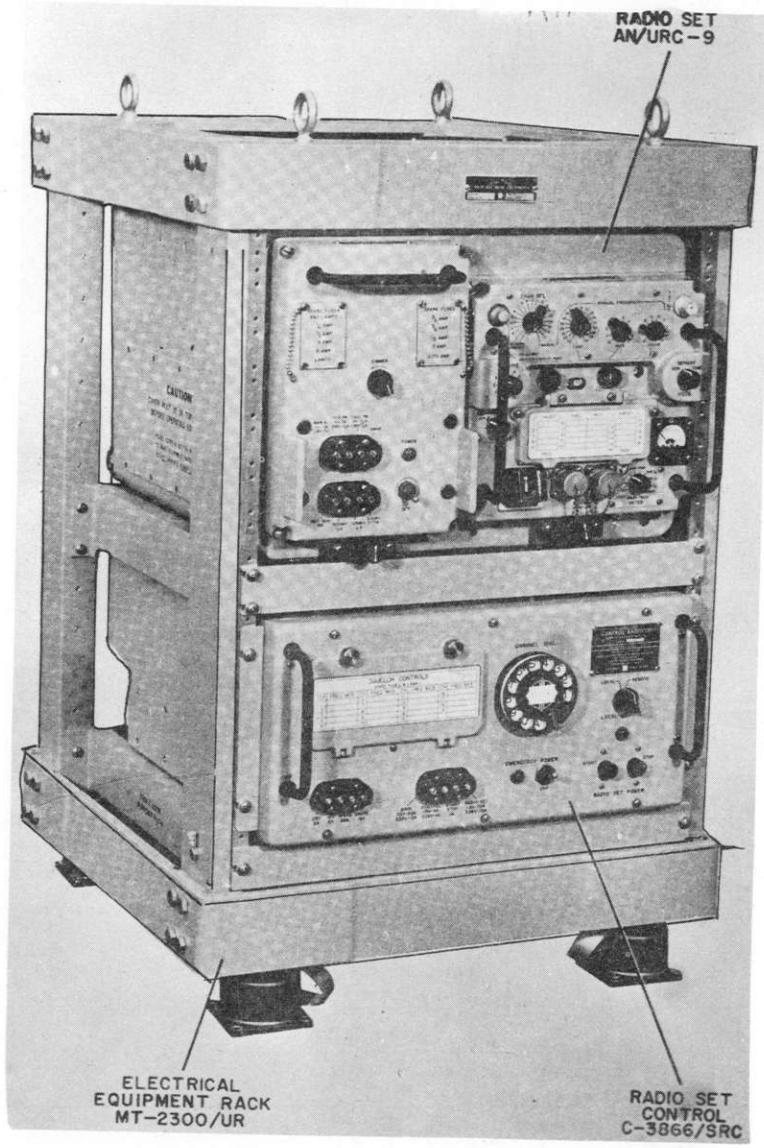
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teledyne Systems Co., Dubrow Electronics Division	Burlington, New Jersey	NObsr-91149 NObsr-91284	
Collins Radio Company	Cedar Rapids, Iowa	NObsr-87290	

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Company,
Teledyne Systems Company,



RADIO SET AN/SRC-21

1.7 AN/SRC-21: 1

FUNCTIONAL DESCRIPTION:

Radio Set AN/SRC-21 is a surface-to-surface or surface-to-air shipboard or fixed station UHF communication equipment which provides simplex amplitude modulation. Provisions are included for complete control, including preset channel selection from as many as four remote control points. Circuits are provided so that two sets may be interconnected for two-way automatic retransmission operation. Provisions are included for operation with special purpose equipment requiring broadband audio.

Data on this sheet reflects the following field changes: FC #1 through 4 (5 December 1966).

RELATION TO OTHER EQUIPMENT:

AN/SRC-21 is identical to the AN/SRC-20, except that it does not include Amplifier AM-1565/URC.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset NT49985-A; (1) Microphone M-58/U or (1) Handset H-51/U; (*) Radio Set Control C-1138/UR or C-1207/UR; (1) Indicator Control C-3868/SRC; (1) RF Wattmeter AN/URM-43( ) and AN/URM-96; (1) Multimeter AN/USM-116 and AN/USM-143; (1) Signal Generator AN/USM-44A; (1) Signal Generator AN/URM-25D; (1) Audio Oscillator AN/URM-127; (1) Oscilloscope AN/USM-140A.
*As Required.

TECHNICAL CHARACTERISTICS:

RADIO SET AN/URC-9 DATA

FREQUENCY RANGE: 225.0 to 399.9 mc.

FREQUENCY SELECTION: 1750 automatically-selectable channels spaced 0.1 mc apart.

CHANNEL PRESETTING: 19 preset channels available on local or remote control plus manual freq selection on local control.

TYPE OF FREQUENCY CONTROL: Crystal.

ACCURACY: At + 150° F, ± 12 kc; at + 100° F, ± 10 kc; at ambient temp, ± 10 kc; at − 40° F, ± 15 kc; at − 65° F, ± 20 kc.

AN/URC-9 TRANSMITTER DATA

POWER OUTPUT: 16 W min into 50 ohm resistive load.

TYPE OF MODULATION: AM.

TYPES OF EMISSION: Radio Telephone (A3); tone (A2).

AUDIO DISTORTION: Less than 7.5% at 3 db below 80% modulation.

BROADBAND SIDETONE: 175 mw, 300 to 3000 cps into 600 ohms.

SPURIOUS RADIATION: Suppressed 60 db below carrier level from 245.0 to 380.0 mc, outside this range, not more than one spurious radiation, at least 30 db below carrier.

FIDELITY: Within ± 3 db from 300 to 3500 cps, 1000 cps reference.

DUTY CYCLE: Continuous transmission with 80% modulation at + 65° C.

AN/URC-9 RECEIVING DATA

TYPE: Triple-conversion superhetrodyne, with automatic noise limiting and carrier-operated squelch relay circuits.

INPUT IMPEDANCE: 50 ohms.

SENSITIVITY: 6 uv or less for 10 db signal-plus-noise to noise ratio.

SELECTIVITY (THIRD IF BANDWIDTH): 80 kc min at 6 db attenuation; 150 kc min at 60 db attenuation.

AVC CHARACTERISTICS: Audio output constant within ± 2 db from 10 uv to 0.25 v with 100 uv, modulated 30% at 1000 cps, and 500 mw audio output level as reference.

FREQUENCY RESPONSE
NORMAL: 300 cps; ± 5 db; 500 cps; ± 4 db; 1000 cps; 0 db; 3500 cps; ± 4 db.
BROADBAND: Within − 3 db at 100 cps to − 7 db at 25,000 cps, 1000 cps reference.
AUDIO DISTORTION: 10% max.
AUDIO OUTPUTS
HEADSET AND REMOTE OUTPUT: 2 W, 600 ohms.
RETRANSMISSION OUTPUT: 10 mw, 600 ohms.
BROADBAND OUTPUT: 1 v, 600 ohms, 300-2500 cps.

RADIO SET CONTROL C-3866/SRC DATA
NUMBER OF CHANNELS: 19
CHANNEL SELECTION TIME: Approx 1 sec.
CHANNEL SELECTION: By telephone dial.
OPERATING MODES: Local or remote.
MAX PRIMARY POWER SWITCHING: 455 W.
OUTPUT POWER: 12 v dc positive ground optional, 24 W max.

POWER REQUIREMENTS: 115 v ac or 230 v ac, 50 to 60 cps single ph, 290 W on receive, 455 W on transmit.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/SRC-21 includes:		
1	Radio Set AN/URC-9 including:	13-13/16 x 19 x 19-1/2	157
	Receiver-Transmitter, Radio RT-581/URC-9		
	Power Supply PP-2702/URC-9		
	Cabinet Electrical Equip CY-2959/URC-9		
	Installation Kit MK-622/UR		
1	Control, Radio Set C-3866/SRC	9-11/16 x 19 x 19-5/16	66
1	Installation Kit MK-622/UR		
1	Cable Assy, Power, Electrical CX-6102/U	23-3/4	
1	Cable Assy, Special Purpose, Electrical, CX6104/U	24-5/32	
1	Rack, Electrical Equip, MT-2300/UR	22-1/16 x 23-7/32 x 35-7/32	72
1	Technical Manual NAVSHIPS 0967-032-5000		
1	Technical Manual NAVSHIPS 0967-032-5010		
1	Perf Stds Sheet NAVSHIPS 94695.32A		
1	Maintenance Standards Book NAVSHIPS 94695.42A		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-032-5000; Vol 1, NAVSHIPS 0967-032-5010; Vol 2: Technical Manual for Radio Sets AN/SRC-20 and AN/SRC-21.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	28.9	660

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, NavShips

SPEC &/OR DWG: SHIPS-R-4440 NObsr 91149;
SHIPS-R-4584 NObsr 91284

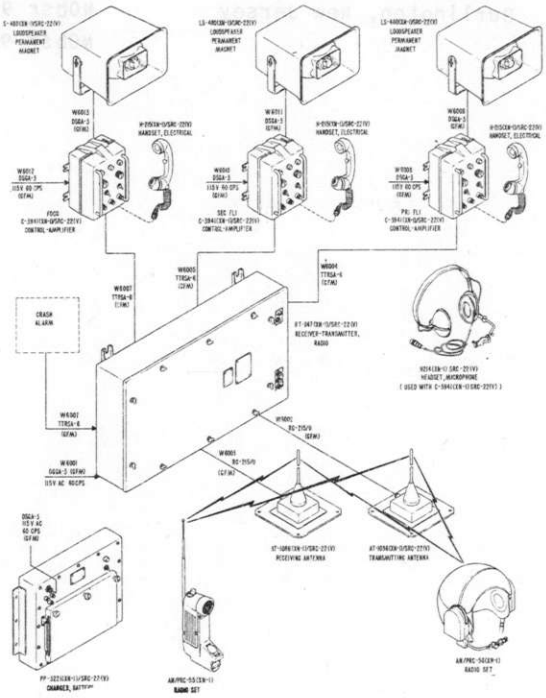
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Company	Cedar Rapids, Iowa	NObsr 87290	
Teledyne Systems Company	Burlington, New Jersey	NObsr 91149	
		NObsr 91284	

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Bendix Radio, Div. of the Bendix Corporation, (86270).



FLIGHT DECK COMMUNICATION SYSTEM AN/SRC-22(V)(XN-1)

FUNCTIONAL DESCRIPTION:

The Flight Deck Communication System AN/SRC-22(V)(XN-1) provides two-way radio communication between various fixed points and the flight deck of an aircraft carrier by means of crystal controlled, frequency modulated radio equipment operating on a pair of fixed frequencies between 132 mc and 150.8 mc.

No field changes in effect at time of preparation (9 February 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(7) Power Cable DSGA-3; (2) Connecting Cable RG-215/U; (4) Connecting Cable TTRSA-6.

TECHNICAL CHARACTERISTICS:

TRANSMITTER DATA
TYPE OF EMISSION: F3.
POWER OUTPUT: 300 mw max.
TYPE OF EMISSION: A3.
POWER OUTPUT: 5 mw max.
FREQUENCY RANGE: 132 to 150.8 mc, 1-band, 1-channel.
RECEIVER DATA
TYPE OF EMISSION: A3.
FREQUENCY RANGE: 132 to 150.8 mc, 1-band, 1-channel.
OPERATING-POWER-REQUIREMENTS: 105 to 125 v ac, 60 cyc, single ph, 8.4 v dc, facilities provided for internal batteries.
FREQUENCY CONTROL: Crystal controlled.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Flight Deck Communications System AN/SRC-22(V)(XN-1) includes:			
2	Antenna AT-1086/SRC-22(V)(XN-1)		10 x 10 x 2?-5/16	1C
2	Charger, Battery PP-332/SRC-22(XN-1)		5-41/64 x 15-1/2 x 20-3/4	5[illegible]
4	Control Amplifier C-3941/SRC-22(V)(XN-1)		6-7/16 x 9-1/4 x 11-1/2	2[illegible]
7	Radio Set AN/PRC-55(XN-1)		4 x 12 x 16	[illegible]
20	Radio Set AN/PRC-56(XN-1)		12 x 12 x 12	[illegible]
2	Receiver, Transmitter Radio RT-647/SRC-22(V)(XN-1)		8-7/16 x 23-15/32 x 35-31/64	1[illegible]
4	Loudspeaker Permanent Magnet LS-480/SRC-22(V)(XN-1)		10-7/8 x 13 x 13	[illegible]
5	Handset, Electrical H-215/SRC-22(V)(XN-1)		9 x 12 x 12	[illegible]
1	Headset, Microphone H-214/SRC-22(V)(XN-1)		9 x 12 x 12	[illegible]

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94343: Technical Manual for Flight Deck Communications System AN/SRC-22(V)(XN-1)

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.5	1C
1	2.93	5[illegible]
1	7.86	11C

FLIGHT DECK COMMUNICATION SYSTEM AN/SRC-22(V)(XN-1)

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.27	26
1	3.50	18
1	0.44	6
1	1.00	8
1	0.75	5
1	0.75	5

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG:

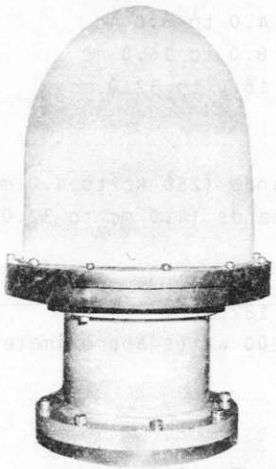
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Bendix Radio, Div. of the Bendix Corporation	Towson, Maryland	NObsr 81083	

Cog Service: USN **FSN:** **Functional Class:**

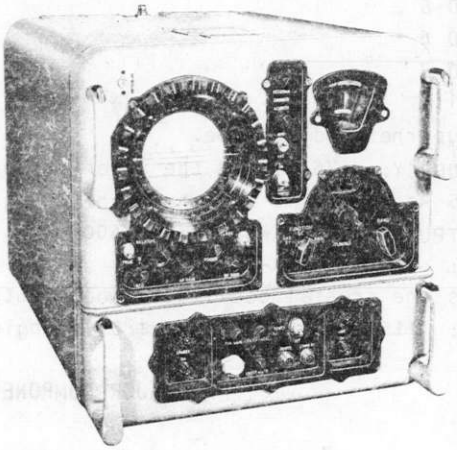
USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Sanders Associates, Incorporated, (12277).



Antenna AS-1571/SRD-7A



Radio Receiver R-623/SRD-7

DIRECTION FINDER SET AN/SRD-7A

FUNCTIONAL DESCRIPTION:

The Direction Finder Set AN/SRD-7A is a shipboard direction finding equipment covering the frequency range of 250 kc to 32.0 mc. This range is divided into seven bands. It combines into a single equipment the means for monitoring radio transmitter activity at frequencies within the limits of 50 kc above and 50 kc below the center frequency as indicated on the tuning dial, and the means for reading the bearing of an active transmitter at the tuning dial indicated frequency. These two functions, called direction finding and frequency scanning are not simultaneous, but are instantaneously available. The operator may choose one or the other.

No field changes in effect at time of preparation (1 February 1966).

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RELATION TO OTHER EQUIPMENT:

The AN/SRD-7A is One-Way interchangeable with Direction Finder Set AN/SRD-7.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset; (1) Flange or Mounting Plate in accordance with Installing Activity plans; (4) Stuffing Tubes in accordance with Installing Activity Plans; (1) Loop power Cable MIL-C-915A (MWF-24); (1) Loop Pairs Cable MIL-C-915A (MSPU-7); (1) Loop coax cable RG-294/U; (4) Capacitors.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 250 kc to 32 mc.
TUNING BANDS AND RANGE: There are seven tuning bands:

	FREQUENCY RANGE
BAND 1	250 to 500 kc
BAND 2	500 to 1000 kc
BAND 3	1.0 to 2.0 mc
BAND 4	2.0 to 4.0 mc
BAND 5	4.0 to 8.0 mc
BAND 6	8.0 to 16.0 mc
BAND 7	16.0 to 32.0 mc

TYPE-RECEIVER: Superheterodyne type.
INTERMEDIATE FREQUENCY: 175 kc for the lower frequency bands (250 kc to 4.0 mc), and double conversion; 175 kc to 2.0 mc for the higher frequency bands (4.0 mc to 32.0 mc)
STANDARD AUDIO OUTPUT: 6 milliwatts into 600 ohms.
TYPE OF RECEPTION: A-0, A-1, A-2, A-3.
CRYSTAL: There is one crystal oscillator whose output is 1825 kc.
POWER REQUIREMENT: 115 v ± 10%, 60 cyc ± 5%, single ph, 200 watts approximately.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Direction Finder Set AN/SRD-7A			730
	includes:			
1	Antenna Unit AS-1571/SRD-7A		18-5/16 dia x 29-45/64	500
1	Radio Receiver R-623/SRD-7		19-1/2 x 22 x 27-5/32	195
1	Connector UG-1060/U		1-3/4 x 1-13/16 x 5-5/16	3 oz
2	Instruction Book NAVSHIPS 94858		2-1/2 x 8-3/4 x 11-1/2	6-1/2 ea
2	Operators Handbook NAVSHIPS 94858		1/4 x 8-1/2 x 11.0	6 oz
2	Maintenance Handbook NAVSHIPS 94858		1-1/2 x 8-1/2 x 11.0	3.5 ea
1	Spare Parts Catalog NAVSHIPS 94858		3/4 x 8-1/2 x 11.0	1.5

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94858: Instruction Book for Direction Finder Set AN/SRD-7A.

DIRECTION FINDER SET AN/SRD-7A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	16	325
1	8.3	230
1	9.3	305

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-D-15747 Rev. B

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sanders Associates Inc.	Plainview, New York	Nobsr 7198	

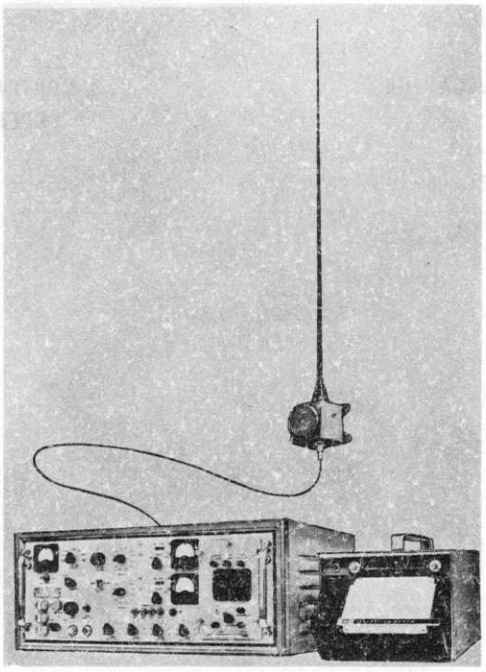
5 September 1967
Cog Service: USN FSN:

RECEIVING SET, RADIO AN/SRN-12(XN-1)
Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Nortronics Div. of Northrop Corp., (14772).



RECEIVING SET, RADIO AN/SRN-12(XN-1)

FUNCTIONAL DESCRIPTION:

Receiving Set, Radio, AN/SRN-12(XN-1) consists basically of a whip antenna, a coupler, and a solid-state, two frequency, four channel superheterodyne, sampled data phase lock receiver system for reception of Omega navigation signals, and of tuning, phase measuring, and display equipment for determining position. It receives the Omega Navigation signals, processes these signals, stores phases, makes the difference computations and displays the results. The Antenna Assembly picks up the signals and provides the required matching impedance to properly transfer these signals to the receiver via the RF transmission line. A dual channel display unit is provided for presenting Omega Navigation lines of position graphically.

No field changes in effect at time of preparation (Jan 4, 1967).

RELATION TO OTHER EQUIPMENT: None.

1.4 AN/SRN-12(XN-1): 1

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headphones, 200 ohm impedance.

TECHNICAL CHARACTERISTICS:

OPERATING FREQUENCY: 10.2 or 13.6 kc.
TYPE OF RECEPTION: Omega 5 or 10 sec patterns; sampled data phase locked loop.
BANDWIDTH: RF-1 kc, IF-100 cps.
RECEIVER NOISE: 1.5 uv referenced to a 100 cps bandwidth.
RECEIVER TYPE: Superheterodyne, 17 kc IF.
INPUT SIGNAL-TO-NOISE RATIO: -20 db referenced to a 100 cps bandwidth.
RECEIVER GAIN: Approx 145 db w/hard limiting of 20 db on a 20 uv signal into a dummy antenna.
DYNAMIC RANGE: 5 to 500,000 uv.
IMAGE REJECTION: 100 db.
SUPPRESSION OF INTERFERING SIGNALS: 17 kc signal suppressed 80 db down.
ACCURACY: Differential phase error less than 4 deg over any 40 db portion of dynamic range.
VCO FREQUENCY: 816,000 cps.
TIMING CLOCK FREQUENCY: 17,000 cps.
LOCAL OSCILLATOR FREQUENCY: 10.2 kc to 27.2 kc, 13.6 kc to 30.6 kc.
POWER REQUIREMENTS: 115 v ac, 60 cps, single ph, 360 W.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Receiving Set, Radio AN/SRN-12(XN-1)		

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REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-057-7010: Technical manual for Radio Receiving Set AN/SRN-12(XN-1).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: SHIPS 0-4496

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Nortronics Div. of Northrop Corp.	Needham Heights, Mass.	NObsr-91296	

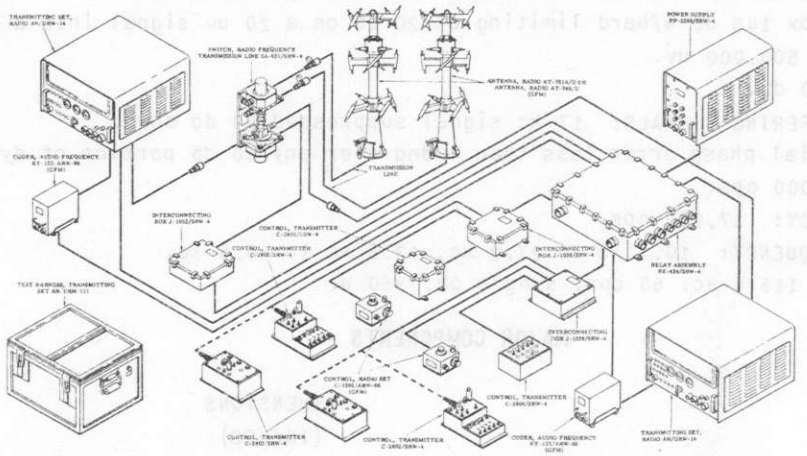
14 July 1964 TARGET CONTROL SYSTEM AN/SRW-4

Cog Service: USN **FSN:** 2F5820-713-3942 **Functional Class:**

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corporation, (82050).



TARGET CONTROL SYSTEM AN/SRW-4

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4 is a complete ground or shipboard installation, which provides remote control of target aircraft and missiles. As furnished, the AN/SRW-4 system permits non-proportional (beep) type control of target aircraft and missiles. Control of targets can be accomplished from either of two functionally identical remote stations. Each remote station has provisions for use of a 10 or 20 channel transmitter control box. The AN/SRW-4 system is also capable of operation with external coders to provide proportional type command performance by the addition of external coder equipment to the system. Complete standby status of a remote station, power supply, transmitter, and antenna is maintained at all times, thereby ensuring uninterrupted operation in the event of an equipment failure.

No field changes in effect at time of preparation (15 June 1964).

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(2) Radio Set Control C-1395/ARW-66; (2) Audio Frequency Coder KY-133/ARW-66; (2) Antenna AT-781A/U or AT-948/U; (1) Radio Receiving Set AN/URW-16.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE: 406 to 549.5 mc.
TYPE OF FREQUENCY CONTROL: Crystal controlled.
ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.
RF POWER OUTPUT: At least 75 W.
OUTPUT LOAD IMPEDANCE OF TRANSMITTER: 52 ohms.
TYPE OF MODULATION: FM.
CARRIER MODE: Keyed carrier or constant carrier.
MODULATION FREQUENCY RANGE: 7.5 to 73.95 kc.
ACCURACY OF MODULATION FREQUENCIES: ± 1.0%.
EXTERNAL POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 2,500 W, power factor 0.85 lagging.
OPERATING TEMPERATURE RANGE: - 28 to + 65° C (- 18 to + 150° F).
NON-OPERATING TEMPERATURE RANGE: - 62 to + 75° C (- 80 to + 165° F).
HUMIDITY RANGE: Ambient to 95% relative humidity.
TYPE OF ANTENNA: Omnidirectional.
POWER SUPPLY OUTPUT: 28 v dc, 200 W.
TYPE OF CODING: Non-proportional (internal coders) or proportional (external coders).
NUMBER OF CONTROL STATIONS: 2.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4, includes:			
1	Control, Transmitter C-2801/SRW-4		6-7/8 x 10-1/32 x 11-15/16	15.75
2	Control, Transmitter C-2802/SRW-4		8-27/32 x 8-15/16 x 10-29/32	6.75
2	Control, Transmitter C-2803/SRW-4		8-21/32 x 8-7/8 x 10-29/32	7.50
1	Control, Transmitter C-2804/SRW-4		4-9/16 x 8-5/32 x 9-29/32	4.75
1	Relay Assy RE-434/SRW-4		8-13/32 x 27-11/16 x 36-15/16	168
1	Interconnecting Box J-1038/SRW-4		5-5/8 x 12-9/32 x 13-23/32	15.75
1	Interconnecting Box J-1039/SRW-4		4-7/16 x 10-1/2 x 13-1/8	5.50

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Interconnecting Box J-1052/SRW-4		5-5/8 x 12-9/32 x 13-21/32	14.75
1	Power Supply PP-2288/SRW-4		12-21/32 x 15-3/16 x 27-17/32	153
1	Switch, RF Transmission Line SA-631/SRW-4		6-9/16 x 6-9/16 x 19-1/2	17.50
2	Transmitting Set, Radio AN/URW-14		15-21/32 x 29-29/32 x 32-9/32	350
1	Test Harness, Transmitting Set AN/URM-111		14-5/8 x 19-3/8 x 21-5/8	60
2	Case, Crystal-Oven CY-2575/U		3 x 9-1/2 x 10-3/8	5

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-1: Handbook of Operation and Service Instructions with Illustrated Parts Breakdown for Target Control System AN/SRW-4.

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)
2	21.5	460
1	8.7	194
1	8.8	210
1	5.4	80
1	13.5	213

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuWeps

SPEC. &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp.	Costa Mesa, California		

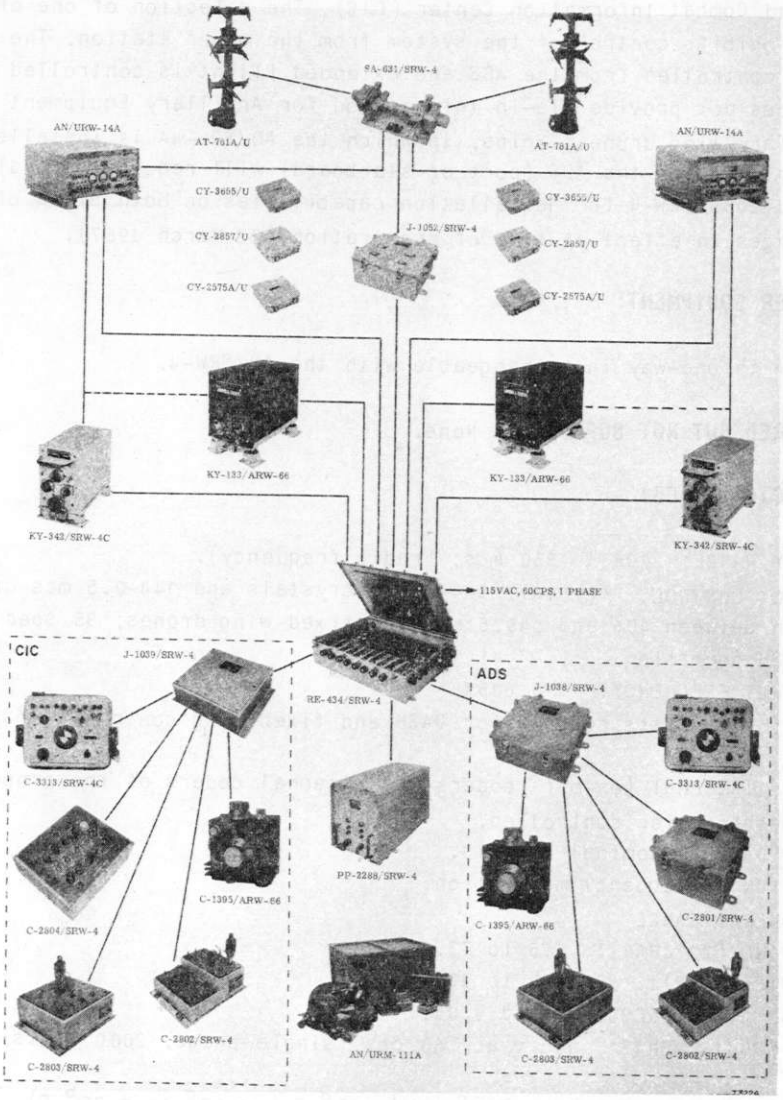
19 July 1967 TARGET CONTROL SYSTEM AN/SRW-4A

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corp., (82050).



TARGET CONTROL SYSTEM AN/SRW-4A

1.3 AN/SRW-4A: 1

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4A provides 100 watts (nominal) power output for shipboard control of fixed wing drones and fly-over control of DASH Rotary Wing (QH-50 Series) drones. Fixed wing drones are controlled by using either the built-in (on-off) Audio Frequency Coder KY-366/URW-14A or the external (proportional) Audio Frequency Coder KY-133/ARW-66 with appropriate controls. Rotary Wing drones are controlled by using Audio Frequency Coder (digital) KY-342/SRW-4C and appropriate controls.

A coded signal is transmitted by the AN/SRW-4A system to the drone for decoding of the selected command by the airborne guidance system and for executing specific maneuvers or functions by the drone.

Rotary wing and fixed wing control may be accomplished from either of two functionally identical remote stations, depending on drone activity. These stations are the Air Defense Station (ADS) and Combat Information Center (CIC). The selection of one of these stations automatically prohibits control of the system from the other station. The visual portion of drone flight is controlled from the ADS and extended flight is controlled from the CIC.

The system does not provide tie-in information for Ancillary Equipment required to launch and retrieve rotary wing drones. Ships, in which the AN/SRW-4A is installed, that have a visibility restriction at the ADS (port or starboard) will require one (1) extra Interconnecting Box, J-1038/SRW-4 for installation capabilities on both sides of the ship.

No field changes in effect at time of preparation (22 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4A is one-way interchangeable with the AN/SRW-4.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE: 406 to 550 mcs; (radio frequency).
TYPE OF FREQUENCY CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones; 35 specific crystals provided for DASH operation.
ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.
RF POWER OUTPUT: 100 watts nominal for DASH and fixed wing control (AN/SRW-4A) AN/SRW-4B, AN/SRW-4C.
TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.
OUTPUT LOAD IMPEDANCE: Nominal 50 ohms.
TYPE OF MODULATION: Frequency modulation.
MODULATION FREQUENCY RANGE
INTERNAL CODING (20 CHAN): 7.5 to 73.95 kcs.
EXTERNAL CODING (VAR): 300 cps to 100 kcs.
ACCURACY OF MODULATION FREQUENCY: ± 1.0%.
EXTERNAL POWER REQUIREMENTS: 115 v ac, 60 cps, single-phase, 2000 watts, power factor 0.85 inductive.
NON-OPERATING TEMPERATURE RANGE: − 80° to + 165° F (− 62° to + 75° C).
HUMIDITY RANGE: Room ambient to 95% relative humidity.
OPERATING POWER REQUIREMENTS: 115 v ac, 60 cyc, single-phase, 2000 watts.

TARGET CONTROL SYSTEM AN/SRW-4A

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4A includes:		
1	Control, Transmitter C-2801/SRW-4	6-7/8 x 10-1/32 x 11-15/16	15.75
2	Control, Transmitter C-2802/SRW-4	8-27/32 x 8-15/16 x 10-29/32	6.75
2	Control, Transmitter C-2803/SRW-4	8-21/32 x 8-7/8 x 10-29/32	7.50
1	Control, Transmitter C-2804/SRW-4	4-9/16 x 8-5/32 x 9-29/32	4.75
1	Interconnecting Box J-1038/SRW-4	5-5/8 x 12-9/32 x 13-23/32	15.75
1	Interconnecting Box J-1039/SRW-4	4-7/16 x 10-1/2 x 13-1/8	5.50
1	Interconnecting Box J-1052/SRW-4	5-5/8 x 12-9/32 x 13-21/32	14.75
1	Relay Assembly RE-434/SRW-4	8-13/32 x 27-11/16 x 36-15/16	168.0
1	Power Supply PP-2288/SRW-4	12-11/32 x 15-3/16 x 27-17/32	153.0
1	Switch, RF Transmission Line SA-631/SRW-4	6-9/16 x 6-9/16 x 19-1/2	17.50
2	Transmitting Set, Radio AN/URW-14A	15-21/32 x 29-29/32 x 39-9/32	350.0
2	Case, Crystal Oven CY-2575A/U	3 x 9-1/2 x 10-3/8	5.0
2	Case, Crystal Oven CY-2857/U	3 x 9-1/2 x 10-3/8	5.0
1	Test Harness, Transmitting Set AN/URM-111A	14-5/8 x 19-3/8 x 21-5/8	60.0
2	Antenna AT-781/U		
2	Case, Crystal Oven CY-3655/U		
2	Coder, Audio Frequency KY-342/SRW-4C	5-5/16 x 9-13/64 x 12-19/64	15.0
2	Control, Transmitter C-3313/SRW-4C	6 x 12-7/64 x 16-13/32	25.0
*2	Coder, Audio Frequency KY-133/ARW-66		
*2	Control, Radio Set C-1395/ARW-66		

*Accessory unit to AN/SRW-4A system, used when proportional coding is selected.

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-14: Handbook of Systems Operation and Maintenance Instructions for Target Control Systems AN/SRW-4A.

NAVWEPS 16-30ARW4-501: Technical Manual-Initial Shipboard Checkout Procedures and Maintenance Standards Book for AN/SRW-4 Series (A through G) Target Control Systems.

NAVWEPS 16-30ARW4-10: Handbook, Maintenance Instructions, Miscellaneous Components, for Target Control Systems AN/SRW-4 (Series) Except Rotary Wing Components.

NAVWEPS 16-30SRW4-11: Illustrated Parts Breakdown, Miscellaneous Components for Target Control System AN/SRW-4 (Series) Except Rotary Wing Components.

NAVWEPS 16-30SRW4-12: Handbook of Maintenance Instructions for Rotary Wing Components of Target Control Systems AN/SRW-4 (Series).

NAVWEPS 16-30SRW4-13: Illustrated Parts Breakdown for Rotary Wing Components of Target Control System AN/SRW-4 (Series).

NAVWEPS 16-30SRW4-503: DASH Weapon System Installation and Guidance Data.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
2	21.5	460
1	8.7	194
1	8.8	210
1	5.4	80
1	13.5	213

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavAir
SPEC &/OR DWG: MIL-T-22385A(WEP)

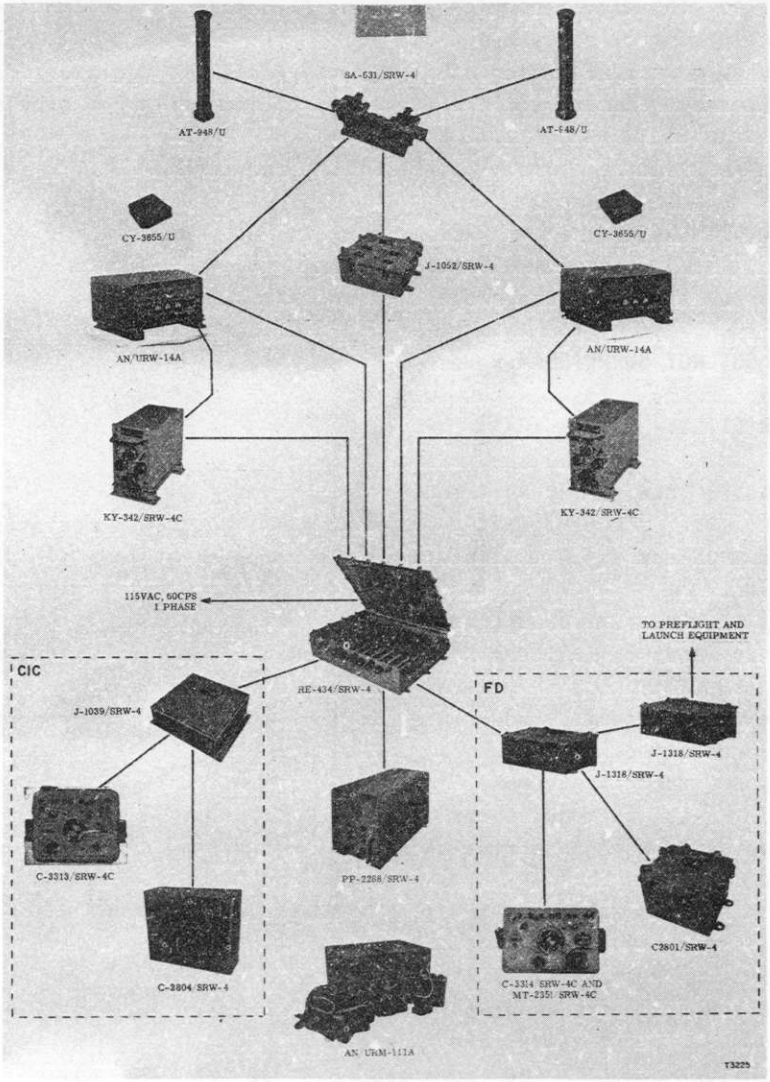
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp., Aerospace Division Dwg No. 11078 and BuWeps Dwg No. 2470683	Costa Mesa, California	NOw 60-0658f NOw 63-0311f	

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corp., Aerospace Division, (82050).



TARGET CONTROL SYSTEM AN/SRW-4B

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4B provides 100 watts (nominal) power output for shipboard control of DASH Rotary Wing (QH-50 series) drones. Control of rotary wing drones is provided by Audio Frequency Coder (digital) KY-342/SRW-4C. A coded signal is transmitted by the AN/SRW-4B System to the drone for decoding of the selected command by the airborne guidance system for executing specific maneuvers or functions by the drone.

A coded signal is transmitted by the AN/SRW-4B system to the drone for decoding of the selected command by the airborne guidance system and for executing specific maneuvers or functions by the drone.

Rotary wing control is accomplished from either of two remote stations, depending on drone activity. These stations are the Flight Deck (FD) station and the Combat Information Center (CIC). The selection of one of these stations automatically prohibits control of the system from the other station. The visual portion of drone flight is controlled from the FD station and extended flight is controlled by the CIC.

The FD station provides tie-in information for the Ancillary Equipment required for launching and retrieving rotary wing drones. The Ancillary Equipment is not provided as part of the AN/SRW-4B system.

No field changes in effect at time of preparation (23 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4B is two-way interchangeable with the AN/SRW-4A.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE: 406 to 550 mcs (radio frequency).
TYPE OF FREQUENCY CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones; 35 specific crystals provided for DASH operation.
ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.
RF POWER OUTPUT: 100 watts nominal for DASH and fixed wing control AN/SRW-4, AN/SRW-4B and AN/SRW-4C.
TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.
OUTPUT LOAD IMPEDANCE: Nominal 50 ohms.
TYPE OF MODULATION: Frequency modulation.
CARRIER MODES: Keyed or constant carrier AN/SRW-4B and AN/SRW-4F constant carrier only.
MODULATION FREQUENCY RANGE
INTERNAL CODING (20-CHANNELS): 7.5 to 73.95 kcs.
EXTERNAL CODING (VAR): 300 cps to 100 kcs.
ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.
EXTERNAL POWER REQUIREMENTS: 115 v ac, 60 cps, single phase, 2000 watts, power factor 0.85 inductive for AN/SRW-4A, AN/SRW-4B, and AN/SRW-4C.
NON-OPERATING-TEMPERATURE-RANGE: − 80° to + 165° F (− 62° to + 75° C).
HUMIDITY RANGE: Room ambient to 95% relative humidity.
OPERATING POWER REQUIREMENTS: 115 v ac, 60 cycle, single phase, 2000 watt.
⚠ POWER SUPPLY OUTPUT: 28 v dc, 300 watt.

⚠ Supplied by installing activity.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
2	21.5	460
1	8.7	194
1	8.8	210
1	5.4	80
1	13.5	213

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavAir
SPEC &/OR DWG: MIL-T-22385(WEP)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp., Aerospace Division Part No. 8300-2 BuWeps Dwg No. 2470748	Costa Mesa, California	NOw 60-0658-f NOw 63-0311-f	

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4B includes:		
1	Control, Transmitter C-2801/SRW-4	6-7/8 x 10-1/32 x 11-5/16	15.75
1	Control, Transmitter C-2804/SRW-4	4-9/16 x 8-5/32 x 9-29/32	4.75
2	Interconnecting Box J-1318/SRW-4	7-3/16 x 15 x 20-23/32	28.0
1	Interconnecting Box J-1039/SRW-4	4-7/16 x 10-1/2 x 13-1/8	5.50
1	Interconnecting Box J-1052/SRW-4	5-5/8 x 12-9/32 x 13-21/32	14.75
1	Relay Assembly RE-434/SRW-4	8-13/32 x 27-11/16 x 36-15/16	168.0
1	Power Supply PP-2288/SRW-4	12-11/32 x 15-3/16 x 27-17/32	153.0
1	Switch, RF Transmission Line SA-631/SRW-4	6-9/16 x 6-9/16 x 19-1/2	17.50
2	Transmitting Set, Radio AN/URW-14A	15-21/32 x 29-29/32 x 39-9/32	350.0
2	Case, Crystal Oven CY-3655/U		
1	Test. Harness, Transmitting Set AN/URM-111A	14-5/8 x 19-3/8 x 21-5/8	60.0
2	Antenna AT-948/U		
2	Coder, Audio Frequency KY-342/SRW-4C	5-5/16 x 9-13/64 x 12-19/64	15.0
1	Control, Transmitter C-3313/SRW-4C	6 x 12-7/64 x 16-13/32	25.0
1	Control, Transmitter C-3314/SRW-4C	13-3/8 x 20-5/8 x 27-1/2	70.0
1	Pedestal, Control Transmitter MT-2351/SRW-4C		
*1	Control Monitor C-4928/ASW-20 or C-1498/SRW-20		
*1	Relay Assembly RE-832/ASW-20		
*1	Motor Generator Set PU-610/U or PU-559/U		
*1	Engine Start Rectifier 4242D or (RE-38164)		
*1	Towing Winch CD-3027		

* Not an integral part of the system but are used when preflight of the drone is necessary.

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-15: Handbook of System Operation and Maintenance Instructions for Target Control System AN/SRW-4B.

NAVWEPS 16-30SRW-4-501: Technical Manual of Initial Shipboard Checkout Procedures and Maintenance Standards Book for AN/SRW-4 Series (A through G) Target Control Systems.

NAVWEPS 16-30SRW4-10 Handbook, Maintenance Instructions, Miscellaneous Components of Target Control Systems AN/SRW-4(Series) except Rotary Wing components.

NAVWEPS 16-30SRW4-11: Illustrated Parts Breakdown, Miscellaneous Components, of Target Control System AN/SRW4(Series) except Rotary Wing Components.

NAVWEPS 16-30SRW4-12: Handbook of Maintenance Instructions for Rotary Wing Components of Target Control System AN/SRW4(Series).

NAVWEPS 16-30SRW4-13: Illustrated Parts Breakdown for Rotary Wing Components of Target Control System AN/SRW-4(Series).

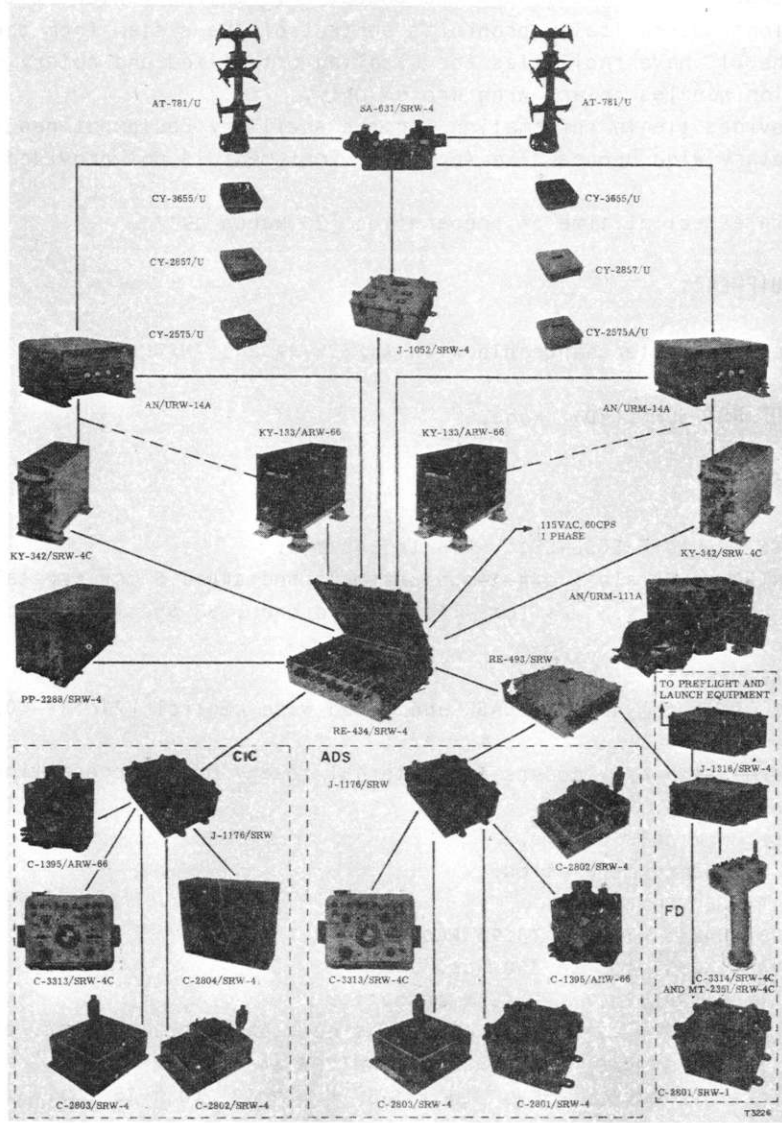
NAVWEPS 16-30SRW-18: Handbook of Overhaul Instructions for Rotary Wing Components for Target Control Systems AN/SRW-4(Series).

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corp., Aerospace Division, (82050).



TARGET CONTROL SYSTEM AN/SRW-4C

1.3 AN/SRW-4C: 1

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4C provides 100 watt (nominal) power output for shipboard control of DASH Rotary Wing (QH-50 Series) drones and various fixed wing drones. This control is provided by Audio Frequency Coder (digital) KY-342/SRW-4C to operate rotary wing drones or by the (on-off) Audio Frequency Coder KY-336/URW-14 to operate various fixed wing drones. Each of the coders must be used with the appropriate controls for operation.

A coded signal is transmitted by the AN/SRW-4C system to the drone for decoding of the selected command by the airborne guidance system and for executing specific maneuvers or functions by the drone.

Target Control System AN/SRW-4C has three stations of operation: the Flight Deck (FD) station, the Air Defense Station (ADS), and the Combat Information Center (CIC). The selection of one of these stations automatically prohibits control of the system from the other stations. The ADS and the CIC have facilities for handling both fixed and rotary wing drones. However, the FD station handles rotary wing drones only.

The FD station provides tie-in information for the Ancillary Equipment required for launching and retrieving rotary wing drones. The Ancillary Equipment is not provided as part of the AN/SRW-4C system.

No field changes in effect at time of preparation (23 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4C is one-way interchangeable with AN/SRW-4A and AN/SRW-4B.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE (RADIO FREQUENCY): 406 to 550 mcs.

TYPE OF FREQUENCY CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones. 35 specific crystals provided for DASH operation.

ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.

RF POWER OUTPUT: 100 watts nominal for DASH and fixed wing control (AN/SRW-4C, AN/SRW-4A and AN/SRW-4B.

TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.

OUTPUT LOAD IMPEDANCE: Nominal 50 ohms.

TYPE OF MODULATION: Frequency modulation.

MODULATION FREQUENCY RANGE

INTERNAL CODING (20 CHAN): 7.5 to 73.95 kcs.

EXTERNAL CODING (VAR): 300 cps to 100 kcs.

ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.

EXTERNAL POWER REQUIREMENTS: 115 v ac, 60 cps, single-phase, 2000 watts, power factor 0.85 inductive for AN/SRW-4C, AN/SRW-4B and AN/SRW-4A.

NON-OPERATING TEMPERATURE RANGE: − 80° to + 165° F (− 62° to + 75° C).

HUMIDITY RANGE: Room ambient to 95% relative humidity.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4C includes:		
2	Control Transmitter C-2801/SRW-4	6-7/8 x 10-1/32 x 11-15/16	15.75
2	Control Transmitter C-2802/SRW-4	8-27/32 x 8-15/16 x 10-29/32	6.75
2	Control Transmitter C-2803/SRW-4	8-21/32 x 8-7/8 x 10-29/32	7.50
1	Control Transmitter C-2804/SRW-4	4-9/16 x 8-5/32 x 9-29/32	4.75
2	Interconnecting Box J-1176/SRW-4	5-9/16 x 12-11/32 x 16-7/16	20.0
2	Interconnecting Box J-1318/SRW-4	7-3/16 x 15 x 20-23/32	28.0
1	Interconnecting Box J-1052/SRW-4	5-5/8 x 12-9/32 x 13-21/32	14.75
1	Relay Assembly RE-434/SRW-4	8-13/32 x 27-11/16 x 36-15/16	168.0
1	Power Supply PP-2288/SRW-4	12-11/32 x 15-3/16 x 27-17/32	153.0
1	Switch, RF Transmission Line SA-631/SRW-4	6-9/16 x 6-9/16 x 19-1/2	17.50
2	Transmitting Set, Radio AN/ARW-14A	15-21/32 x 29-29/32 x 39-9/32	350.0
2	Case, Crystal Oven CY-2575A/U	3 x 9-1/2 x 10-3/8	5.0
2	Case, Crystal Oven CY-2857/U	3 x 9-1/2 x 10-3/8	5.0
2	Antenna AT-781/U		
1	Test Harness, Transmitting Set AN/URM-111A includes:	14-5/8 x 19-3/8 x 21-5/8	60.0
2	Case, Crystal Oven CY-3655/U		
2	Coder, Audio Frequency KY-342/SRW-4C	5-5/16 x 9-13/64 x 12-19/64	15.0
2	Control, Transmitter C-3313/SRW-4C	6 x 12-7/64 x 16-13/32	25.0
1	Control, Transmitter C-3314/SRW-4C	13-3/8 x 20-5/8 x 27-1/2	70.0
1	Pedestal, Control Transmitter MT-2351/SRW-4C		
1	Relay Assembly RE-493/SRW	8-3/8 x 32-17/32 x 36-7/8	167.50
*2	Coder, Audio Frequency KY-133/ARW-66		
*2	Control, Radio Set C-1395/ARW-66		
**2	Relay Assembly RE-832/ASW-20		
**1	Control Monitor C-4298/ASW-20 or C-1498/ASW-20		
**3	Motor Generator Set PU-610/U or PU-559/U		
**1	Engine Start Rectifier 4242D or (RE-38164)		

*Accessory unit to AN/SRW-4C system used when proportional coding is selected.

**Not an Integral part of the system but are used when preflight of the zone is necessary.

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-10: Handbook, Maintenance Instructions, Miscellaneous Components, Target Control System AN/SRW-4 (Series) Except Rotary Wing Components.

NAVWEPS 16-30SRW-4-11: Illustrated Parts Breakdown, Miscellaneous Components for Target Control System AN/SRW-4 (Series) except Rotary Wing Components.

NAVWEPS 16-30SRW4-12: Handbook of Maintenance Instructions for Rotary Wing Components of Target Control System AN/SRW-4 (Series) (KY-342/SRW-4C, C-3313/SRW-4C, C-3314/SRW-4C and MT-2351/SRW-4C.

NAVWEPS 16-30SRW4-13: Illustrated Parts Breakdown for Rotary Wing Components of Target Control System AN/SRW-4 (Series).

NAVWEPS 16-30SRW-4-16: Handbook of System Operation and Maintenance Instructions of Target Control System AN/SRW-4C.

NAVWEPS 16-30SRW-4-18: Handbook of Overhaul instructions Rotary Wing Components of Target Control System AN/SRW-4 (Series).

NAVWEPS 16-30SRW-4-501: Technical Manual, Initial Shipboard checkout Procedures and Maintenance Standards Book for AN/SRW-4 Series (A through G) Target Control Systems.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8.6	212
1	10.5	215
1	12.5	240
1	5.2	114
1	20.2	540
1	15.0	201

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavAir
SPEC &/OR DWG: MIL-T-22385(WEP)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp. Aerospace Division Part No. 8300-3	Costa Mesa, California	NOw 63-0311-f NOw 60-0658-f	

21 July 1967

Cog Service: USN **FSN:** **TARGET CONTROL SYSTEM AN/SRW-4D**

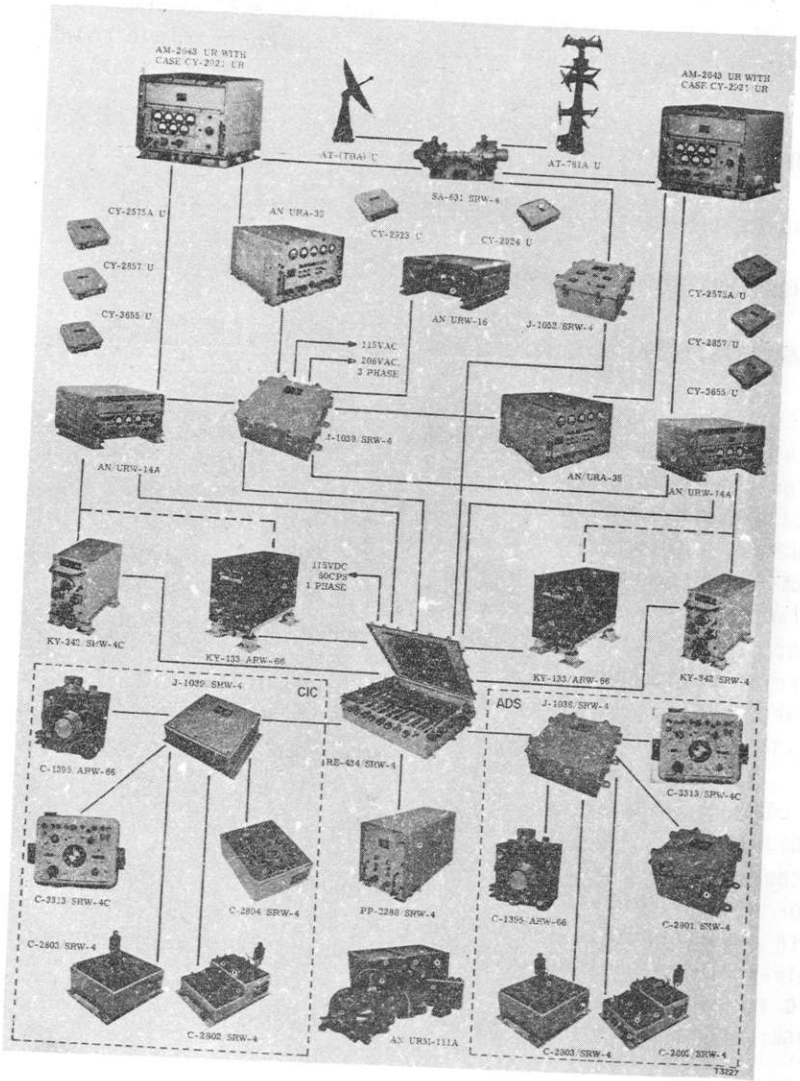
Functional Class:

USA USN USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corp., Aerospace Div., (82050).



TARGET CONTROL SYSTEM AN/SRW-4D: 1

1.3 AN/SRW-4D: 1

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4D provides 100 watts (nominal) or 1000 watts (nominal) power output for control of DASH Rotary Wing (QH-50 series) drones and fixed wing drones. One omni-directional or one directional antenna is used for each type of operation. The AN/SRW-4D system is used for installation on Central Aerial Target Control AN/MSQ-51 (mobile vans).

The AN/SRW-4D system provides control of fixed wing drones by using the built-in (on-off) Audio Frequency Coder KY-336/URW-14A or the external (proportional) Audio Frequency Coder KY-133/ARW-66 with appropriate controls.

A coded signal is transmitted by the AN/SRW-4D system to the drone for decoding of the selected command by the airborne guidance system and for executing specific maneuvers or functions by the drone.

Rotary wing drones are controlled by using Audio Frequency Coder (digital) KY-342/SRW-4C. Control may be accomplished from either of two functionally identical remote stations. These stations are identified as Air Defense Station (ADS) (in-sight) and Combat Information Center (CIC) (out-of-sight) for mobile van installations. The system does not provide tie-in information for Ancillary Equipment required to launch and retrieve rotary wing drones.

No field changes in effect at time of preparation (24 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4D is one-way interchangeable with AN/SRW-4, 4A, 4B, 4C.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE (RADIO-FREQUENCY): 406 to 550 mcs.
TYPE OF FREQUENCY CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones; 35 specific crystals provided for DASH operation.
ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.
RF POWER OUTPUT: 1000 watts nominal for long range DASH and fixed wing control and emergency operation (AN/SRW-4D, AN/SRW-4E, AN/SRW-4F, and AN/SRW-4G).
TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.
OUTPUT LOAD IMPEDANCE: Nominal 50 ohms.
TYPE OF MODULATION: Frequency modulation.
CARRIER MODES: Keyed or constant carrier, AN/SRW-4B and AN/SRW-4F constant carrier only.
MODULATION FREQUENCY RANGE
INTERNAL CODING (20 CHAN): 7.5 to 73.95 kcs.
EXTERNAL CODING (VAR): 300 cps to 100 kcs.
ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.
EXTERNAL POWER REQUIREMENTS: 208 to 230 v ac, 60 cps, 3-phase, 3100 kw and 115 v ac, 60 cps, single-phase, 0.85 inductive for AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G.
NON-OPERATING TEMPERATURE RANGE: − 80° to + 165° F (− 62° to + 75° C).
HUMIDITY RANGE: Room ambient to 95% relative humidity.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4D includes:		
1	Control, Transmitter C-2801/SRW-4	6-7/8 x 10-1/32 x 11-15/16	15.75
2	Control, Transmitter C-2802/SRW-4	8-27/32 x 8-15/16 x 10-29/32	6.75
2	Control, Transmitter C-2803/SRW-4	8-21/32 x 8-7/8 x 10-29/32	7.50
1	Control, Transmitter C-2804/SRW-4	4-9/16 x 8-5/32 x 9-29/32	4.75
2	Interconnecting Box J-1038/SRW-4	5-5/8 x 12-9/32 x 13-23/32	15.75
1	Interconnecting Box J-1039/SRW-4	4-7/16 x 10-1/2 x 13-1/8	5.50
1	Interconnecting Box J-1052/SRW-4	5-5/8 x 12-9/32 x 13-21/32	14.75
1	Relay Assembly RE-434/SRW-4	8-13/32 x 27-11/16 x 36-15/16	168.0
1	Power Supply PP-2288/SRW-4	12-31/32 x 15-3/16 x 27-17/32	153.0
1	Switch, RF Transmission Line SA-631/SRW-4	6-9/16 x 6-9/16 x 19-1/2	17.50
2	Transmitting Set, Radio AN/URW-14A	15-21/32 x 29-29/32 x 39-9/32	350.0
2	Case, Crystal Oven CY-2575A/U	3 x 9-1/2 x 10-3/8	5.0
2	Case, Crystal Oven CY-2857/U	3 x 9-1/2 x 10-3/8	5.0
1	Test Harness, Transmitting Set AN/URM-111A includes:	14-5/8 x 19-3/8 x 21-5/8	60.0
1	Antenna AT-781/U		
2	Case, Crystal Oven CY-3655/U		
2	Coder, Audio Frequency KY-342/SRW-4C	5-5/16 x 9-13/64 x 12-19/64	15.0
2	Control, Transmitter C-3313/SRW-4C	6 x 12-7/64 x 16-13/32	25.0
*1	Antenna AT-(TBA)/U		
2	Amplifier, RF AM-2643/UR	22-17/32 x 29-17/32 x 29-7/8	275.0
1	Case, Amplifier CY-2921/UR	24-3/8 x 31-1/2 x 34-1/8	230.0
2	Power Supply AN/URA-35	19-7/8 x 32-9/32 x 34-1/8	642.0
1	Receiving Set, Radio AN/URW-16	11-15/16 x 31-5/8 x 34-1/8	236.0
1	Case, Crystal Oven CY-2923/U	3 x 9-1/2 x 10-3/8	5.0
1	Case, Crystal Oven CY-2924/U	3 x 9-1/2 x 10-3/8	5.0
**2	Coder, Audio Frequency KY-133/ARW-66		
**2	Control, Radio Set C-1395/ARW-66		

*Antenna AT(TBA)/U dwg numbers to be assigned.

**Accessory Unit to AN/SRW-4D System. Used when proportional coding is selected.

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G.

NAVWEPS 16-30SRW4-501: Technical Manual-Initial Shipboard Checkout Procedures and Maintenance Standards Book for AN/SRW-4 Series (A through G) Target Control Systems.

NAVWEPS 16-30SRW4-6: Handbook, Operation and Service Instructions with Illustrated Parts Breakdown Target Control System AN/SRW-4D.

NAVWEPS 16-30SRW4-10: Handbook, Maintenance Instructions, Miscellaneous Components, Target Control System AN/SRW-4 (Series) Except Rotary Wing Components.

NAVWEPS 16-30SRW4-13: Illustrated Parts Breakdown for Rotary Wing Components of Target Control System AN/SRW-4 (series).

NAVWEPS 16-30SRW4-18: Handbook of Overhaul Instructions Rotary Wing Components of Target Control System AN/SRW-4 (Series).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	20.2	540
1	8.6	212
1	10.5	215
1	25.8	760
1	29.1	636
1	16.3	350
1	5.2	114
1	15.0	201

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG NO.: MIL-T-22385

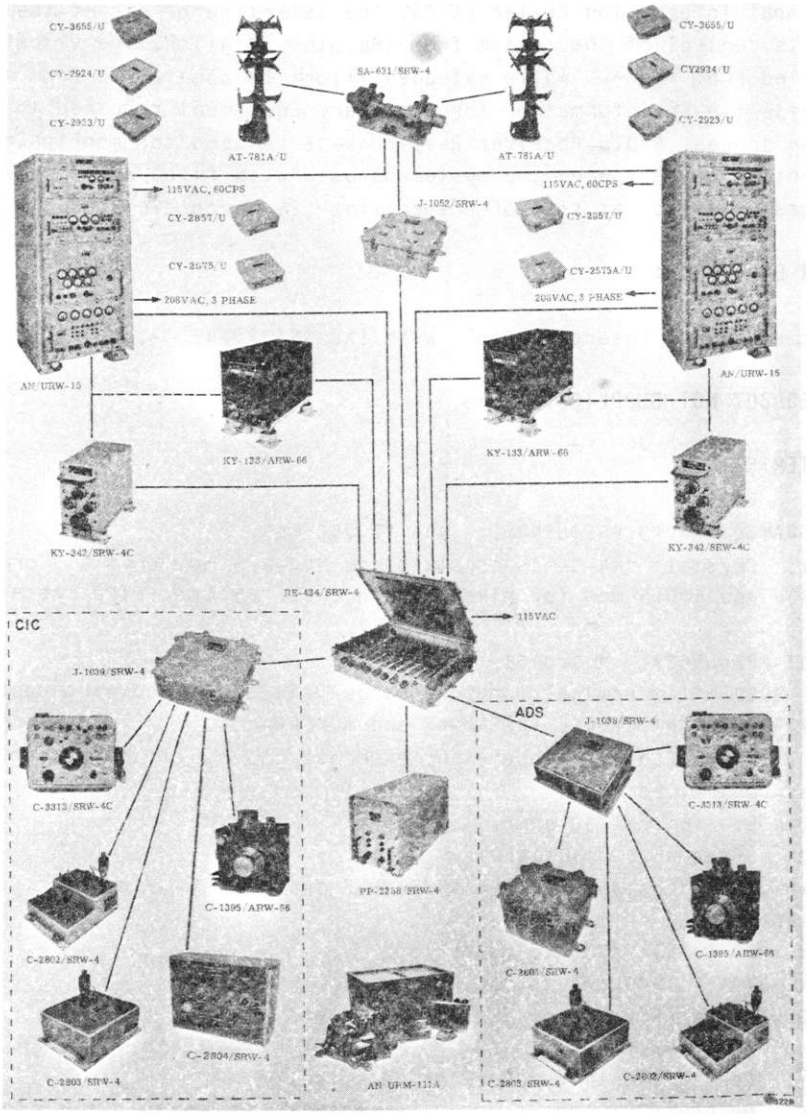
DESIGN COG: USN, NavAir

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp. Aerospace Division BuWeps Dwg No. 2470685	Costa Mesa, California	NOw 60-0658-f NOw 63-0311-f	

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corp., Aerospace Div., (82050).



TARGET CONTROL SYSTEM AN/SRW-4E

1.3 AN/SRW-4E: 1

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4E provides 100 watts (nominal) or 1000 watts (nominal) power output for shipboard control of fixed wing drones and fly-over control of DASH Rotary Wing (QH-50 Series) drones. Fixed wing drones may be controlled by either the built in (on-off) Audio Frequency Coder KY-336/URW-14A or the external (proportional) Audio Frequency Coder KY-133/ARW-66 with appropriate controls. Rotary wing drones are controlled by the Audio Frequency Coder (digital) KY-342/SRW-4C.

A coded signal is transmitted by the AN/SRW-4E system to the drone for decoding of the selected command by the airborne guidance system and for executing specific maneuvers or functions by the drone.

Rotary and fixed wing control may be accomplished from either of two functionally identical remote stations, depending on drone activity. These stations are the Air Defense Station (ADS) and Combat Information Center (CIC). The selection of one of these stations automatically prohibits control of the system from the other station. The visual portion of drone flight is controlled from the ADS while extended flight is controlled from the CIC. The system does not provide tie-in information for Ancillary Equipment required to launch and retrieve rotary wing drones. Radio Receiver R-999/URW-16 is used for monitoring both local and remote command control signals when the system is used with fixed wing drones.

No field changes in effect at time of preparation (25 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4E is one-way interchangeable with the AN/SRW-4, 4A, 4B, 4C, 4D.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE (RADIO FREQUENCY): 406 to 550 mcs.
TYPE OF FREQUENCY: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones. 35 specific crystals provided for DASH operation.
ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.
RF POWER OUTPUT: 1000 watts nominal for long range DASH and fixed wing control and emergency operation (AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G).
TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.
OUTPUT LOAD IMPEDANCE: Nominal 50 ohms.
TYPE OF MODULATION: Frequency modulation.
CARRIER MODES: Keyed or constant carrier AN/SRW-4B and AN/SRW-4F constant carrier only.
MODULATION FREQUENCY RANGE
INTERNAL CODING (20 CHAN): 7.5 to 73.95 kcs.
EXTERNAL CODING (VAR): 300 cps to 100 kcs.
ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.
NON-OPERATING TEMPERATURE RANGE: − 80° to + 165° F (− 62° to + 75° C).
HUMIDITY RANGE: Room ambient to 95% relative humidity.
EXTERNAL POWER REQUIREMENTS: 208 to 230 v ac, 60 cps, 3-phase, 3100 kw, and 115 v ac, 60 cps, single-phase 0.85 inductive for AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G.

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TARGET CONTROL SYSTEM AN/SRW-4E

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4E includes:		
1	Control, Transmitter C-2801/SRW-4	6-7/8 x 10-1/32 x 11-15/16	15.75
2	Control, Transmitter C-2802/SRW-4	8-27/32 x 8-15/16 x 10-29/32	6.75
2	Control, Transmitter C-2803/SRW-4	8-21/32 x 8-7/8 x 10-29/32	7.50
1	Control, Transmitter C-2804/SRW-4	4-9/16 x 8-5/32 x 9-29/32	4.75
1	Interconnecting Box J-1038/SRW-4	5-5/8 x 12-9/32 x 13-23/32	15.75
1	Interconnecting Box J-1039/SRW-4	4-7/16 x 10-1/2 x 13-1/8	5.50
1	Interconnecting Box J-1052/SRW-4	5-5/8 x 12-9/32 x 13-21/32	14.75
1	Relay Assembly RE-434/SRW-4	8-13/32 x 27-11/16 x 36-15/16	168.0
1	Power Supply PP-2288/SRW-4	12-21/32 x 15-3/16 x 27-17/32	153.0
1	Switch RF Transmission Line SA-631/SRW-4	6-9/16 x 6-9/16 x 19-1/2	17.50
2	Case, Crystal Oven CY-2575A/U	3 x 9-1/2 x 10-3/8	5.0
2	Case, Crystal Oven CY-2857/U	3 x 9-1/2 x 10-3/8	5.0
1	Test Harness, Transmitting Set AN/URM-111A	14-5/8 x 19-3/8 x 21-5/8	60.0
2	Transmitting Set Radio AN/URW-15		
2	Antenna AT-781A/U		
2	Coder, Audio Frequency KY-342/SRW-4C	5-5/16 x 9-13/64 x 12-19/64	15.0
2	Control, Transmitter C-3313/SRW-4C	6 x 12-7/64 x 16-13/32	25.0
2	Case, Crystal Oven CY-3655/U		
2	Case, Crystal Oven CY-2923/U	3 x 9-1/2 x 10-3/8	5.0
2	Case, Crystal Oven CY-2924/U	3 x 9-1/2 x 10-3/8	5.0
*2	Coder, Audio Frequency KY-133/ARW-66		
*2	Control, Radio Set C-1395/ARW-66		

*Accessory unit to AN/SRW-4E System. Used when proportional coding is selected.

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-18: Handbook of Overhaul Instructions Rotary Wing Components of Target-Control System AN/SRW-4(Series).

NAVWEPS 16-30SRW4-501: Technical Manual-Initial Shipboard checkout Procedures and Maintenance Standards Book for AN/SRW-4 Series (A through G) Target Control System.

NAVWEPS 16-30SRW4-503: DASH Weapon System Installation and Guidance Data.

NAVWEPS 16-30SRW4-10: Handbook, Maintenance Instructions, Miscellaneous Components, Target Control System AN/SRW-4(Series) Except Rotary Wing Components.

NAVWEPS 16-30SRW4-11: Illustrated Parts Breakdown, Miscellaneous Components, Target Control System AN/SRW-4(Series) except Rotary Wing Components.

NAVWEPS 16-30SRW4-12: Handbook of Maintenance Instructions for Rotary Wing Components of Target Control System AN/SRW-4(Series) KY-342/SRW-4C, C-3313/SRW-4C and MT-2351/SRW-4C.

NAVWEPS 16-30SRW4-13: Illustrated Parts Breakdown for Rotary Wing Components of Target Control System AN/SRW-4E.

NAVWEPS 16-30SRW4-17: Handbook of System Operation and Maintenance Instructions, Target Control System AN/SRW-4E.

TARGET CONTROL SYSTEM AN/SRW-4E

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		34
1		15.75
1		6.75
1		7.80
1		4.75
1		14.75
1		15.75
1		5.50
1	8.8	210.0
1		1.75
1		2350.0
1		17.50
1		6.62
1		19.0
1		90.0
1	8.7	194.0

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-T-22385

DESIGN COG: USN, NavAir

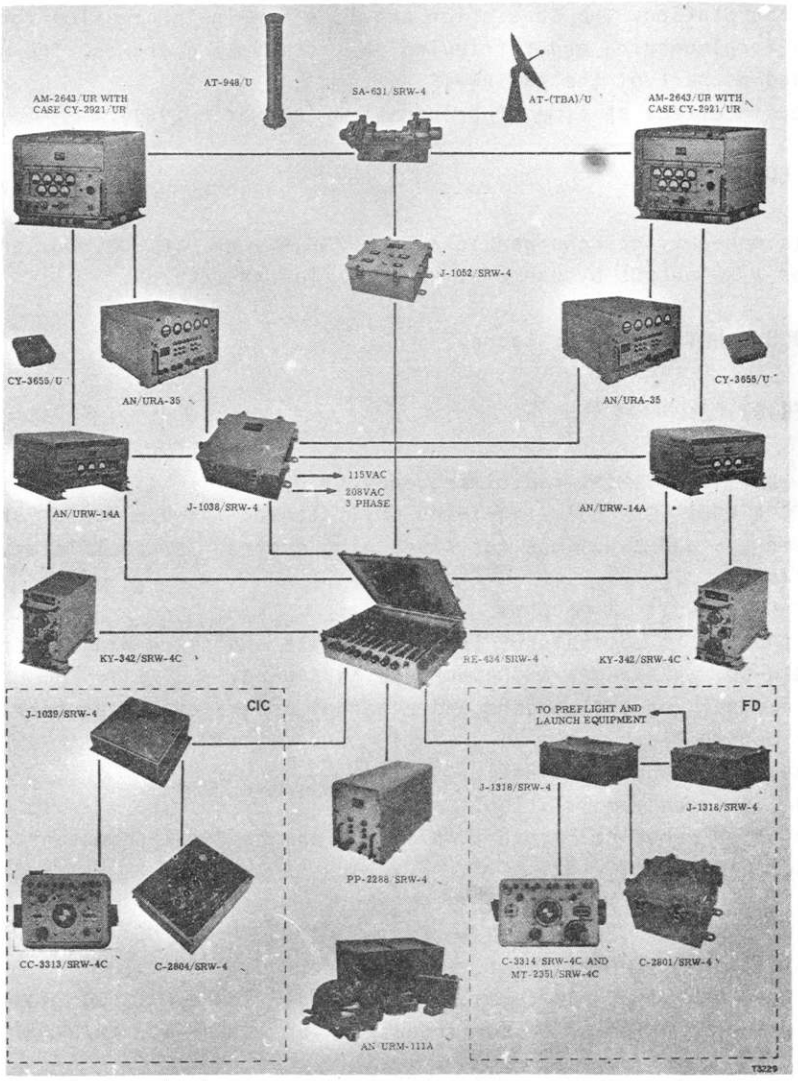
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp., Aerospace Division Part No. 8690 BuWeps Dwg No. 2470686	Costa Mesa, California	NOw 60-0658-f NOw 63-0311-f	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronic Corporation, Aerospace Division, (82050).



TARGET CONTROL SYSTEM AN/SRW-4F

1.3 AN/SRW-4F: 1

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4F, provides 100 watts (nominal) or 1000 watts (nominal) power output for control of the Dash Rotary Wing (QH-50 Series) drones. One omnidirectional or one directional antenna is used for each type of operation. The AN/SRW-4F system is used for installation on Central Aerial Target Control AN/MSQ-51 (mobile vans).

Control to fixed wing drones is provided by the Audio Frequency Coder (digital) KY-342/SRW-4C. A coded signal is transmitted by the AN/SRW-4F system to the drone for decoding of the selected command by the airborne guidance system, or for executing specific maneuvers or functions by the drone.

Rotary wing control may be accomplished from either of two remote stations, depending on drone activity. These stations are identified as Flight Deck (FD, in-sight) on mobile van installations. The selection of one of these stations automatically prohibits control of the system from the other station. The FD station provides tie-in-information for the Ancillary Equipment required for launching and retrieving the rotary wing drones. The Ancillary Equipment is not provided as part of the AN/SRW-4F system.

No field changes in effect at time of preparation (27 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4F is one-way interchangeable with AN/SRW-4, 4A, 4B, 4C, 4D, and 4E but progressively improved for 1 kw output by use of 1 kw Amplifier AM-2643/UR.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY: 406 to 550 mcs; radio frequency.

TYPE OF FREQUENCY CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones; 35 specific crystals provided for Dash operation.

ACCURACY OF OUTPUT FREQUENCY: ± 0.005%.

RF POWER OUTPUT: 1000 watts nominal for long range DASH and fixed wing control and emergency operation (AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G.

TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.

OUTPUT LOAD IMPEDANCE: 50 ohms (nominal).

TYPE OF MODULATION: Frequency modulation.

CARRIER MODES: Keyed or constant carrier, AN/SRW-4B and AN/SRW-4F constant carrier only.

MODULATION FREQUENCY RANGE:

INTERNAL CODING (20 CHANNELS): 7.5 to 73.95 kcs.

EXTERNAL CODING (VAR): 300 cps to 100 kcs.

ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.

EXTERNAL POWER REQUIREMENTS: 208 to 230 v ac, 60 cps, 3 phase, 3100 kw and 115 v ac, 60 cps, single phase, 0.85 power factor inductive for AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G.

NON-OPERATING TEMPERATURE RANGE: − 80° to + 165° F (− 62° to + 75° C).

HUMIDITY RANGE: Room ambient to 95% relative humidity.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System AN/SRW-4F includes:		
1	Control, Transmitter C-2801/SRW-4		
1	Control, Transmitter C-2804/SRW-4		
2	Interconnecting Box J-1318/SRW-4		
1	Interconnecting Box J-1039/SRW-4		
1	Interconnecting Box J-1052/SRW-4		
1	Relay-Assembly RE-434/SRW-4		
1	Power Supply PP-2288/SRW-4		
1	Switch, RF Transmission Line SA-631/SRW-4		
2	Transmitting Set, Radio AN/URW-14A		
2	Case, Crystal Oven CY-3655/U		
1	Test Harness, Transmitting AN/URM-111A		
1	Antenna AT-948/U		
2	Coder, Audio Frequency KY-342/SRW-40		
1	Control, Transmitter C-3313/SRW-40		
1	Control, Transmitter C-3314/SRW-40		
1	Pedestal, Control Transmitter MT-2351/SRW-4C		
1	Interconnecting Box J-1038/SRW-4		
1	Antenna AT(TBA)/U		
2	Amplifier, Radio Frequency AM-2643/UR		
2	Case, Amplifier CY-2921/UR		
2	Power Supply Set AN/URA-35		

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-21: Handbook of System Operation and Maintenance Instructions, Target Control System AN/SRW-4F.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	20.2	540
1	8.6	212
1	10.5	215
1	25.8	760
1	29.1	636
1	16.3	350
1	5.2	114
1	15.0	201

PROCUREMENT DATA

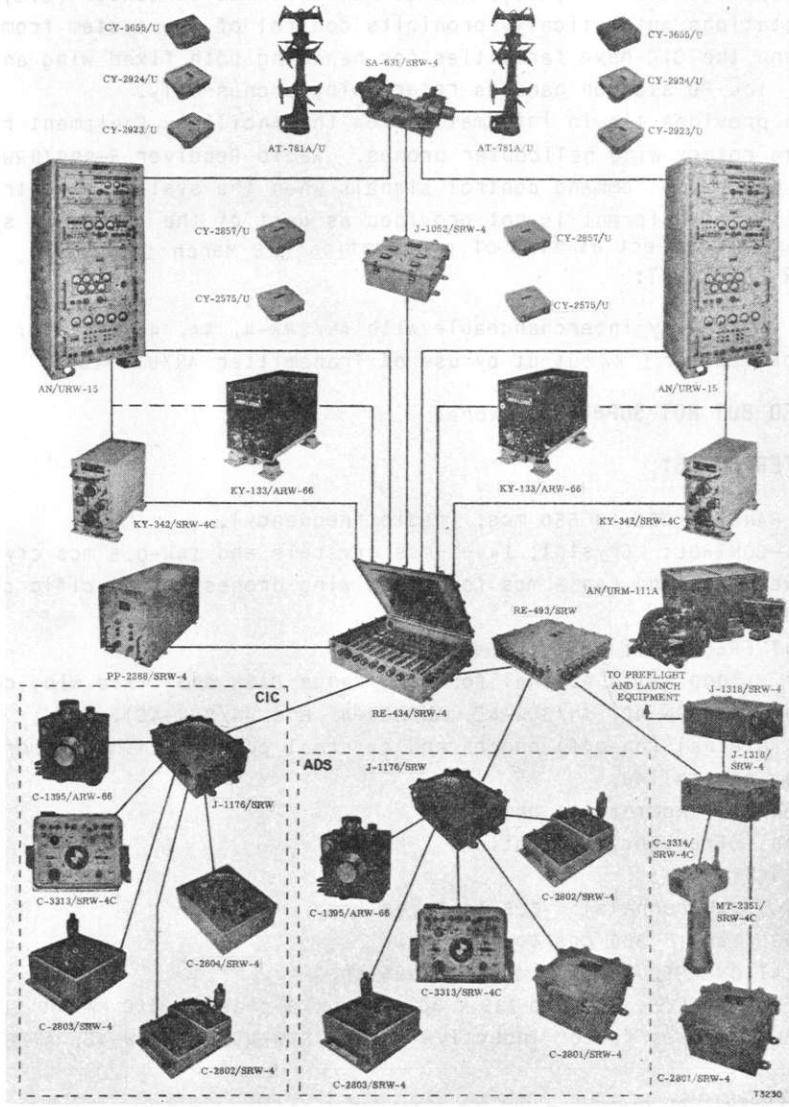
PROCURING SERVICE: USN
DESIGN COG: USN, NavAer
SPEC &/OR DWG: MIL-T-22385(WEP)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronic Corp. Aerospace Division BuWeps Dwg No. 2470687 BuWeps Dwg No. 2451093	Costa Mesa, California	NOw 63-0311-f	

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Electronics Corporation, Aerospace Division (82050).



TARGET CONTROL SYSTEM AN/SRW-4G

FUNCTIONAL DESCRIPTION:

Target Control System AN/SRW-4G, provides 100 watts (nominal) or 1000 watts (nominal) power output for shipboard control of DASH ROTARY WING (QH-50 series) drones and various fixed wing drones. This control is provided by the built-in-Audio Frequency Coder (digital) KY-342/SRW-4C to operate the rotary wing drone or the (on-off) type Audio Frequency Coder KY-336/URW-14A or (proportional) Audio Frequency Coder KY-133/ARW-66 to operate the various fixed wing drones with the appropriate controls.

A coded signal is transmitted by the AN/SRW-4G system to the drone for decoding the selected command by the airbourne guidance system and for executing various maneuvers or functions by the drone.

Target Control System AN/SRW-4G has three stations of operation: the Flight Deck (FD) Station, the Air Defense Station (ADS), the Combat Information Center (CIC). The selection of one of these stations automatically prohibits control of the system from the other stations. The ADS and the CIC have facilities for handling both fixed wing and rotary wing drones. However, the FD station handles rotary wing drones only.

The FD station provides tie-in information for the Ancillary Equipment required for launching and retreiving rotary wing helicopter drones. Radio Receiver R-999/URW-16 is used for monitoring local or remote command control signals when the system is controlling fixed wing drones. The Ancillary Equipment is not provided as part of the AN/SRW-4G system.

No field changes in effect at time of preparation (28 March 1967).

RELATION TO OTHER EQUIPMENT:

The AN/SRW-4G is one-way interchangeable with AN/SRW-4, 4A, 4B, 4C, 4D, 4E, and 4F but progressively improved for 1 KW output by use of Transmitter AN/URW-15.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY RANGE: 406 to 550 mcs; (radio frequency).

TYPE OF FREQUENCY-CONTROL: Crystal; 144-1-mcs crystals and 144-0.5 mcs crystals provided for operation between 406 and 549.5 mcs for fixed wing drones; 35 specific crystals provided for DASH operation.

ACCURACY OF OUTPUT FREQUENCY: ± 0.0005%

RF POWER OUTPUT: 1000 watts nominal for long range DASH and fixed wing control and emergency operation (AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G).

TYPE OF CODING: Internal (on-off) coders and external coders of the proportional and digital type subcarrier controlled.

OUTPUT LOAD IMPEDANCE: Nominal 50 Ohms.

TYPE OF MODULATION: Frequency modulation.

MODULATION FREQUENCY RANGE:

INTERNAL CODING (20 channels): 7.5 to 73.95 kcs.

EXTERNAL CODING (Var): 300 cps to 100 kcs.

ACCURACY OF MODULATION FREQUENCY: ± 1.0% or better.

EXTERNAL POWER REQUIREMENTS: 208 to 230 v ac, 60 cps, 3-phase, 3100 kw and 115 v ac, 60 cps, single-phase, 0.85 power factor inductive for AN/SRW-4D, AN/SRW-4E, AN/SRW-4F and AN/SRW-4G.

NON-OPERATING TEMPERATURE RANGE: - 80° to + 165° F (-62° to + 75° C).

HUMIDITY RANGE: Room ambient to 95% relative humidity.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Target Control System: AN/SRW-4G includes:		
2	Control Transmitter: C-2801/SRW-4		
2	Control Transmitter: C-2802/SRW-4		
2	Control Transmitter: C-2803/SRW-4		
1	Control Transmitter: C-2804/SRW-4		
2	Interconnecting Box: J-1318/SRW-4		
2	Interconnecting Box: J-1176/SRW-4		
1	Interconnecting Box: J-1052/SRW-4		
1	Relay-Assembly: RE-434/SRW-4		
1	Power Supply: PP-2288/SRW-4		
1	Switch R.F. Transmission Line SA-631/SRW-4		
2	Transmitting Set Radio: AN/URW-15		
2	Case, Crystal Oven: CY-2575A/U		
2	Case Crystal Oven: CY-2857/U		
1	Test Harness, Transmitting Set: AN/URM-111A		
2	Antenna: AT-781/U		
2	Case, Crystal Oven: CY-3655/U		
2	Coder, Audio Frequency: KY-342/SRW-4C		
2	Control, Transmitter: C-3313/SRW-4C		
1	Relay Assembly: RE-493/SRW-4		
1	Control, Transmitter: C-3314/SRW-4C		
1	Pedestal, Control Transmitter: MT-2351/SRW-4C		
2	Case, Crystal Oven: CY-2924/U		
2	Case, Crystal Oven: CY-2923/U		
2	Coder, Audio Frequency: KY-133/ARW-66		
2	Control, Radio Set: C-1395/ARW-66		

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REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30SRW4-500: Handbook of Configuration Data for Target Control Systems AN/SRW-4A thru AN/SRW-4G and Target Control Systems Test Sets AN/SRM-2 thru AN/SRM-12.

NAVWEPS 16-30SRW4-22: Handbook of System Operation and Maintenance Instructions, Target Control System AN/SRW-4G.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT(LBS)
1	20.2	540
1	8.6	212
1	10.5	215
1	25.8	760
1	29.1	636
1	16.3	350
1	5.2	114
1	15.0	201

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN NAVAER

SPEC &/OR DWG: SPEC: MIL-T-22385(WEP)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Electronics Corp., Aerospace Division BuWeps Dwg No.'s 2470683 and 2451087	Costa Mesa, Calif.	NOW 63-0311-f	

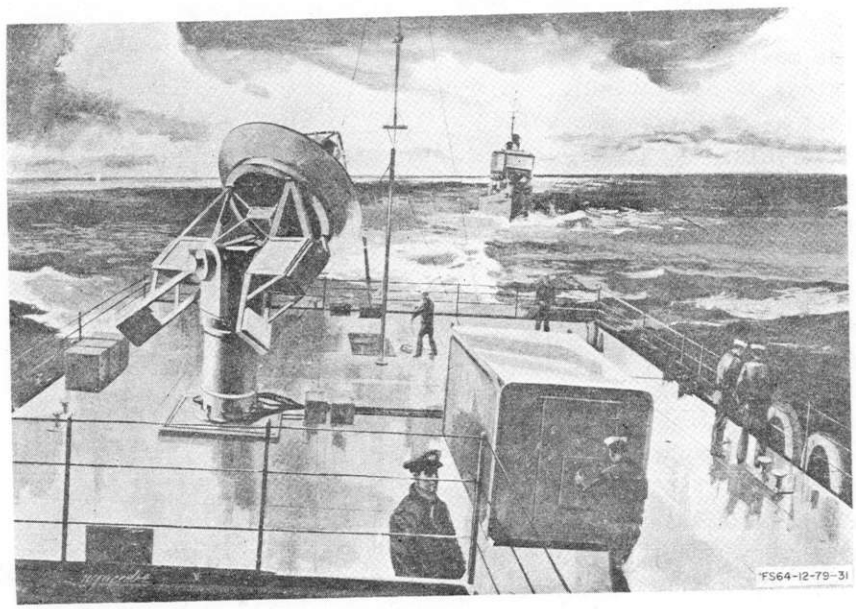
4 August 1967 SHIPBOARD SATELLITE COMMUNICATIONS SET AN/SSC-2(XN-1)

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hughes Aircraft Co., (82577).



SHIPBOARD SATELLITE COMMUNICATIONS SET AN/SSC-2(XN-1)

FUNCTIONAL DESCRIPTION:

The Shipboard Satellite Communications Set, AN/SSC-2(XN-1) consists of a modified S-141 equipment shelter with its associated transmitting and receiving equipment, an antenna and associated electronic equipment. The function of the SSC System is to transmit and receive voice and teletype communications to and from another communications set via a synchronous satellite. Accessories and additional equipment such as test equipment are mounted inside the shelter.

No field changes in effect at time of preparation (8 June 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

1.5 AN/SSC-2(XN-1): 1

TECHNICAL CHARACTERISTICS:

OPERATING FREQUENCIES

TRANSMITTER:

(1) 7361/2750MC;
(2) 7362.9850MC;
(3) 7363.0000MC;
(4) 7363.0150MC;

RECEIVER: Any two of the following frequencies can be received simultaneously

(1) 1814.009MC;
(2) 1815.779MC;
(3) 1815.794MC;
(4) 1815.809MC;
(5) 1820.177MC.

TYPE OF MODULATION: Frequency.
PRE-EMPHASIS OPTION: Wide band or narrow band.
NOISE FIGURES
RECEIVER: 12 db maximum.
TRANSMITTER: Minus 90 dbm (100MC).
TYPES OF TRANSMISSION: Teletype and voice.
TYPE OF CONTROL: Crystal.
RANGE: Not applicable.
POWER OUTPUT (transmitter): 5 kilowatts.
PRIME POWER REQUIREMENTS
440 vac, 60 cps, 3-phase.
Phase A, 60 amperes.
Phase B, 60 amperes.
Phase C, 60 amperes.
WARMUP TIME: 30 minutes.
OPERATING CYCLE: 24 hours/day.
ANTENNA: 6-foot diameter parabolic.
AMBIENT TEMPERATURE: 125 deg F maximum.
AMBIENT TEMPERATURE: -20 deg "F" minimum;
RELATIVE HUMIDITY: 97% maximum at temperature of 80 deg F to 85 deg F; 100% at temperature below 80 deg F.
ALTITUDE: 10,000 feet.
ANTENNA ELEVATION: Up to 30 deg from normal.
TYPE OF EMISSION: F-1, F-3, F-4 type.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Shipboard Satellite Communications Set AN/SSC-2(XN-1) includes:		
1	Deviation Meter FM: HC-309N.		
1	Transmitter Control Drawer		
1	Reflex Klystron Power Drawer		
1	Beam Power Supply Drawer No. 1		
1	Beam Power Supply Drawer No. 2		
1	Beam Power Supply Drawer No. 3		

SHIPBOARD SATELLITE COMMUNICATIONS SET AN/SSC-2(XN-1)

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Blower Assembly		
1	Antenna Polarization Control		
1	Paramp Power Supply		
1	Tracking Receiver		
1	Communications Receiver		
1	Main Control Panel		
1	Magnet Power Supply and Primary Power Drawer		
1	Blower Assembly		
1	Electronics Platform		
1	Electronic Control Chassis		
1	Elevation Power Amplifier		
1	Cross Level Power Amplifier		
1	Blower Assembly		
1	Line Battery P.S. Panel		
1	Frequency Counter		
1	Square Wave Keyer		
1	Patch Panel		
1	Switch Panel		
1	Loop-Current Fuse and Metering Jack Panel		
1	Loop Current Control Panel Tone Keyer		
1	Teletypewriter: TT-176A/UG		
1	Azimuth Power Amplifier		
1	Blower Assembly		
1	Shelter, Electrical Equipment		

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REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-004-7010: Technical Instruction for Shipboard Satellite Communications Set AN/SSC-2(XN-1).

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, NavShips
SPEC &/OR DWG:

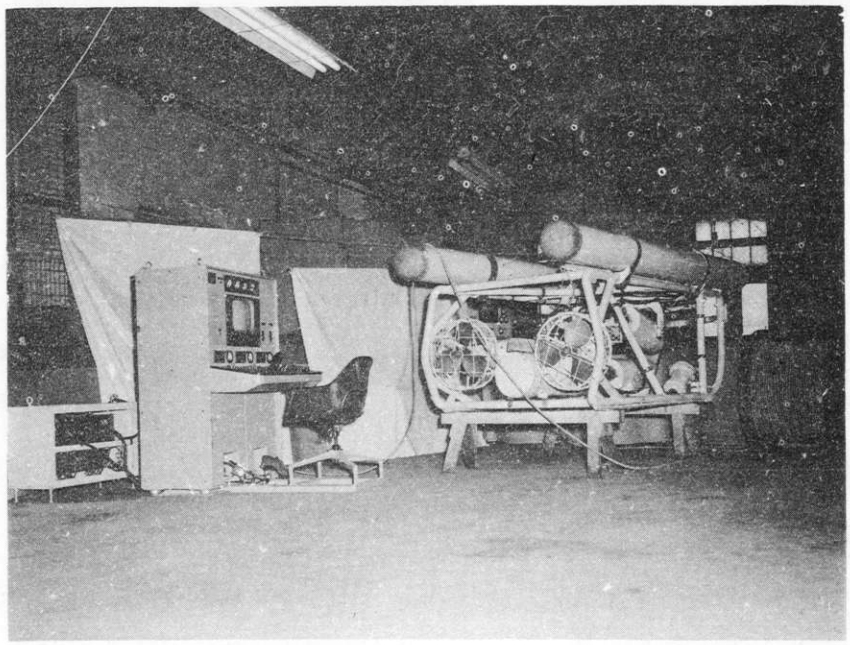
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hughes Aircraft Co.	Culver City, Calif.	NObsr-91385	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Vare Industries, Div. of Audiger Inc., (12929).



TELEVISION SET AN/SXQ-1(XN-4)

FUNCTIONAL DESCRIPTION:

Television Set AN/SXQ-1(XN-4) consists of a fixed control console, a submersible mobile vehicle, interconnecting control and power cables and power transformers for connection to a prime source of power. The entire system provides means for underwater surveillance through a closed circuit submersible pick-up television camera mounted on the vehicle and a television monitor mounted on the console. Suitable control circuits are provided for three dimensional mobility and guidance of the vehicle, control of the camera, and underwater lighting. It is intended for under sea exploring to depths of 500 feet at distances of 2000 feet from a surface vessel from which the vehicle is launched. The vehicle and cable are provided with a sufficient number of buoyancy tanks so that they will float on the surface of the water or automatically rise to the surface if submerged in the event of power failure.

No field changes in effect at time of preparation (29 March 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

PROPULSION: 3 motors, 3 hp ea, 0 to 5500 rpm, 120 v dc.
LIGHT: 2 sealed lights, 500 W, 110 v ac.
RANGE: 2000 ft from ship.
TRANSMISSION FREQUENCIES: Closed circuit, dc pulse, RF, ac and dc.
DEPTH GAUGE: 0 to 200 ft low range; 0 to 2000 ft high range.
MONITOR
- POWER INPUT: 105 to 125 v/210/250 v, 50 to 60 cps, 300 W.
- VIDEO SIGNAL REQUIRED: 0.2 v peak (min for 50 v at kinescope cathode, sync neg).
- SYNC SIGNAL REQUIRED: 2 to 8 v, sync neg.
- VIDEO INPUT IMPEDANCE: (1) High impedance for bridging; (2) 75 ohm terminating res with switch on rear apron.
- VIDEO FREQUENCY RESPONSE: Flat to 10 mc ± 1 db 6 db point above 10.5 mc.
- DEFLECTION LINEARITY: 2% of picture h.

VIDICON
- POWER INPUT: 46 v ac center tapped ± 10%, 50/60/400 cps single ph; 24 v dc at 18 W; voltage range from + 21 to + 29 v.
- SIGNAL OUTPUT: Composite video signal at 1 v peak to peak black neg (0.7 v of video and 0.3 v of sync) w/horizontal front and back porches, and vertical back porch.
- PERFORMANCE
  - HIGH FREQUENCY RESPONSE: Flat to 8 mc ± 1 db.
  - LOW FREQUENCY RESPONSE: Less than 2% tilt on 60 cyc square wave.
  - GEOMETRIC DISTORTION (INCL YOKE): ± 2% or better.
  - CENTER RESOLUTION: 650 lines.
  - CORNER RESOLUTION: 450 lines.
  - GRAY SCALE: Reproduces 10 shades of gray.
- SCANNING STANDARDS
  - LINES: 525 lines completely interlaced 2:1.
  - FIELD RATE: 60 cps.
  - HORIZONTAL BLANKING INTERVAL: 11.0 usec. The horizontal interval has a 2 usec front porch and a 4 usec back porch.
  - VERTICAL BLANKING INTERVAL: 25 lines ± 2 lines, w/back porch.

POWER REQUIREMENTS
- PRIMARY: 220/440 v, 3 ph, 30 kva, 60 cps.
- SECONDARY: 120 to 160 v, 3 ph, 5 kva ea ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television Set AN/SXQ-1(XN-4) consists of:			
1	Mobile Underwater Vehicle		54-11/16 x 60-1/8 x 138-1/4	1700
1	Control Console		40 x 58 x 58	1000
3	Transformers (mtd on wooden skid)		12-1/2 x 22 x 36	275

TELEVISION SET AN/SXQ-1(XN-4)

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1 Reel	Control Cable (on Shipping Reel) 2100 ft lg		42 dia x 28 lg reel	800
100	Buoy Ball Assemblies (Shackles and Adapters)		7 dia	220
100	Support Straps for Buoy Balls			5
2	Guide Line Hooks		3-1/2 x 10	6
1	Lowering Shackle		4 x 7-1/2	5
1	Lifting Hook		7 x 15	8
1	Cable (No. 6-4 Conductor Stranded Rubber Covered)		25 ft lg	15
1	Cable (No. 10-4 Conductor Stranded Rubber Covered)		25 ft lg	15
1	TV & Telemetric Test Cable		12 ft lg	10
1	Spanner Wrench (in Console)			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94989: Technical Manual for Television Set AN/SXQ-1(XN-4).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 3S4 (1) 12AXS7 (1) 6AL5 (1) 5651 (1) 6AN8 (1) 5751 (1) 6AU4 (1) 6021
(3) 6AU6 (3) 6080 (1) 6BK4 (1) 0A2 (2) 6BY6 (1) 0B2 (1) 6C4 (1) 1B3GT
(1) 6CB5 (1) 6CB6 (2) 6CG7 (1) 12AU7 (2) 12BY7

CRYSTALS: (1) 12MC (1) 14MC (1) 13MC (1) CAZJML-13

SEMI-CONDUCTORS: (6) 1N34 (1) 1N1832 (10) 2N525 (3) 1N127 (1) 1N2062 (10) 2N526
(8) 1N198 (28) 1N2069 (24) 2N527 (2) 1N198B (30) 1N2976 (3) 2N597
(1) 1N215 (1) 2N15B (2) 2N629 (19) 1N281 (5) 2N43A (2) 2N634A
(2) 1N456A (1) 2N78 (1) 2N1021 (2) 1N499 (32) 2N123A (1) 2N1040
(4) 1N537 (1) 2N143 (3) 2N1044 (11) 1N645 (1) 2N174 (1) 2N1046
(1) 1N715 (2) 2N251 (1) 2N1123 (2) 1N746 (2) 2N333 (6) 2N1143
(3) 1N751 (10) 2N384 (2) 2N1295 (2) 1N756 (16) 2N396 (2) 2N1296
(4) 1N1084 (2) 2N417 (7) 2N1304 (4) 1N1115 (6) 2N438A (2) 2N1308
(1) 1N1353RA (2) 2N456A (3) 2N1309-1 (3) 2N1409 (1) 1N1357R (2) SV11
(1) 2N457A (1) 2N1505 (1) 2N1605A (14) 1N1492 (10) 2N502A (1) 3N37
(1) 1Z22 (3) 1N1590 (4) 2N511A (1) 1M91Z5 (1) 10M91Z10 (9) 1N1613
(3) 2N511B (5) 1N1821 (1) 2N524

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	5.6	100
3	26.5	400
1	1.0	7

1.7 AN/SXQ-1(XN-4): 3

TELEVISION SET AN/SXQ-1(XN-4)

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	6.0	100
1	26.5	50
1	1.8	45
1		1000
1		
1		
1		

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Vare Industries, Div. of Audiger Inc.	Roselle, New Jersey	NObsr 72612	

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Thompson Ramo Wooldridge Inc., Dage Television Division (06140).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Television System AN/SXQ-4(V) is used for viewing a ship's plotting board at one or more viewer unit locations. Four system variations provide the required number of camera and viewer units for different ship-board applications. The fourth system variation provides two camera units and one viewer unit, the viewer unit having facilities for selection of the camera unit video to be displayed.

No field changes in effect at time of preparation (18 February 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v ac, 60 cyc, single ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television System AN/SXQ-4(V) includes:			
2	Television Camera MX-3508/SXQ-4(V)			
1	Television Camera Mounting MT-2526/SXQ-4(V)			
1	Television Camera Positioning Mount TG-89/SXQ-4(V)			
1	Electrical Equipment Cabinet CY-3154/SXQ-4(V)			
1	Electrical Equipment Cabinet CY-3155/SXQ-4(V)			
1	Power Supply PP-2991/SXQ-4(V)			
1	Video Amplifier AM-3270/SXQ-4(V)			
1	Video Amplifier Distribution Assembly A-701			

TELEVISION SYSTEM AN/SXQ-4(V)

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Video Amplifier Processor AM-3001/SXQ-4(V)			
1	Television Synchronizer SN-330/SXQ-4(V)			
5	Amplifier Pulse Distribution Assembly A-1201			
1	Television Viewer IP-594/SXQ-4(V)			
2	Television Control System (Remote) C-3683/SXQ-4(V)			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2729: Technical Manual for Television System AN/SXQ-4(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT(LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: T-355 SHIPS and MIL-E-16400C

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Thompson Ramo Wooldridge Inc., Dage Television Division	Michigan City, Indiana	NObsr 81316	

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Thompson Ramo Woolridge, Inc., Dage Television Division (06140).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Television System AN/SXQ-4A(V) is used for viewing a ship's plotting board or weather map at one or more viewer unit locations.

No field changes in effect at time of preparation (21 February 1966).

No

RELATION TO OTHER EQUIPMENT:

The AN/SXQ-4A(V) is one way interchangeable with AN/SXQ-4(V).

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v ac, 60 cyc, single ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television System AN/SXQ-4A(V) includes:			
1	Television Camera MX-4530/SXQ-4A(V)			
1	Television Camera Mounting MT-2526A/SXQ-4A(V)			
1	Electrical Equipment Cabinet CY-3758/SXQ-4A(V)			
1	Power Supply PP-2991/SXQ-4(V)			
1	Video Amplifier Distribution AM-3270/SXQ-4(V)			
4	Video Amplifier Distribution Assembly A-701			
1	Video Amplifier Processor AM-3000/SXQ-4(V)			
1	Television Synchronizer SN-307/SXQ-4(V)			

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
9	Amplifier Pulse Distribution Assembly A-1201			
7	Television Viewer IP-593/SXQ-4(V)			
1	Television Control System C-4412/SXQ-4A(V)			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2825: Service Manual for Television System AN/SXQ-4A(V).

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT(LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Thompson Ramo Woolridge, Inc., Dage Television Division	Michigan City, Indiana	NObsr 86567	

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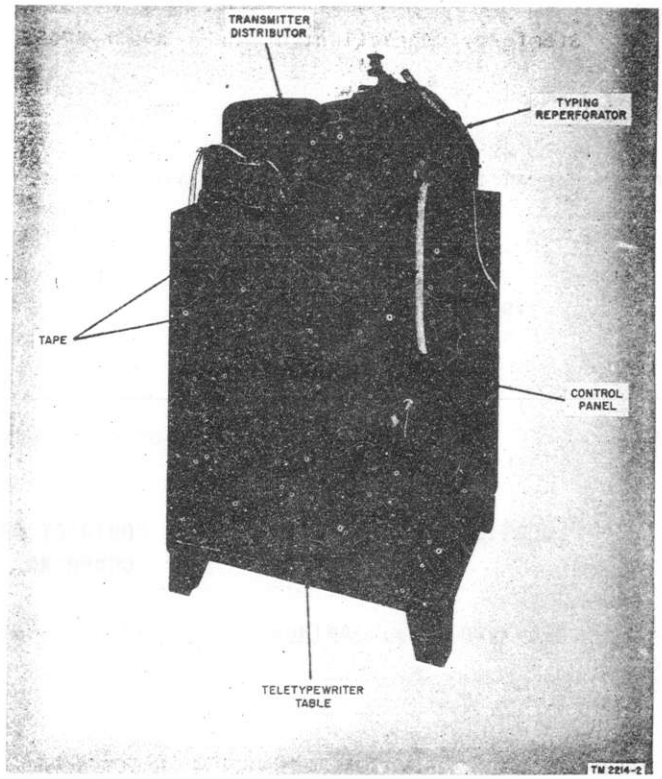
Cog Service: USA **FSN:** 2F5815-315-2874 **Functional Class:**

USA	USN	USAF

TYPE CLASS: Sub/Std Used by

MANUFACTURER'S NAME/CODE NUMBER: Western Electric Co., Inc., (64959).



TELETYPEWRITER SET AN/TGC-3

FUNCTIONAL DESCRIPTION:

Teletypewriter Set AN/TGC-3 is a semiautomatic equipment designed to send and receive teletypewriter code message on perforated tape on which the message is also typed. The teletypewriter set is fixed plant equipment for use in communication centers and tape relay stations.

The equipment operates in neutral or polar channels and can be used with telegraph terminal equipment and with Teletypewriter Repeater-Mixer AN/FGQ-1.

No field changes in effect at time of preparation (1 June 1964).

RELATION TO OTHER EQUIPMENT:

AN/TGC-3 TELETYPEWRITER SET

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
- WITH POWER UNIT
  - VOLTS: 95 to 125, 190 to 250.
  - CYCLES: 25 to 60.
  - WATTS: 300.
- WITHOUT POWER UNIT
  - DC SUPPLY
    - VOLTS: 120 ± 3.
    - AMPERES: .8.
  - AC SUPPLY
    - VOLTS: 115.
    - CYCLES: 60.

MOTOR SPEED: 368 opm.

TAPE
- WIDTH: 11/16 in.
- TYPE: Perforated chad, or chadless.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter Set AN/TGC-3 includes:			
1	Distributor-Transmitter Teletypewriter TT-52/FG	5815-199-0188	9 x 9-3/8 x 15-1/2	33
1	Power Supply PP-748/U	3H4497-748	11-7/8 x 13-5/16 x 20-3/4	89
1	Reperforator TT-53/FG		11-3/4 x 13-1/2 x 16-3/4	62.25
1	Teletypewriter Table		22 x 26 x 34	205

REFERENCE DATA AND LITERATURE:

TM11-2214: Technical Manual for Teletypewriter Set AN/TGC-3.
TM11-5815-268-20P: Organizational Maintenance Repair Parts and Special Tools List for Teletypewriter Set AN/TGC-3.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	19	395
1	3.64	140
1	11.5	212

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COGNIZANCE: USA, Sig C
SPEC &/OR DWG:

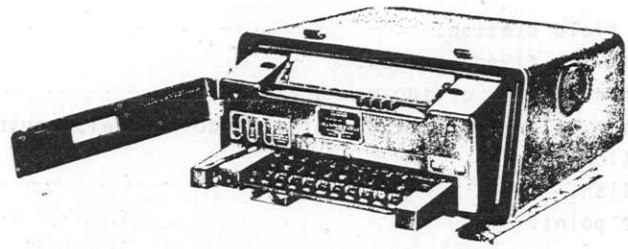
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Western Electric Co., Inc.	New York, N. Y.	25802-P-54-53	$1,695.59

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

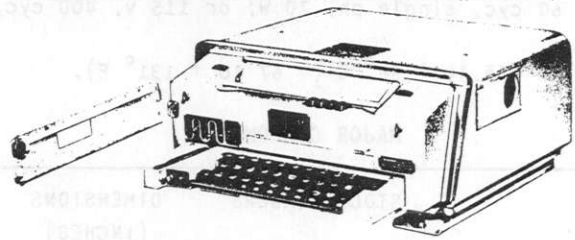
TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Mite Corporation, (26344).



A. Installed in Shock-Mounted Tactical Case CY-2976/PG

B. Typical Installation in Tactical Case CY-2976/PG (Case not shock-mounted; copy holder closed.)



C. Installed in Shock-Mounted Non-Tactical Case CY-2977/UG

TELETYPEWRITER SET AN/TGC-14(V)

FUNCTIONAL DESCRIPTION:

Teletypewriter Set AN/TGC-14(V) is a ruggedized, light-weight, miniature, alphanumeric-printing telegraph equipment for general service use under a wide range of operating conditions. The teletypewriter set is fully compatible with other commercial and military teletypewriter equipments employing the standard baudot code and can be integrated into existing land-line and radio-link communications systems.

No field changes in effect at time of preparation (1 July 1964).

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION
  TACTICAL: Mobile and field station.
  NON-TACTICAL: Airborne and fixed station.
OPERATING SPEED: Gears for 60, 75, or 100 wpm are supplied.
SIGNAL CODE TYPE: DC pulse, five-level, 7.42 unit, Baudot serial, neutral line.
KEYBOARD: Std communication.
TYPE OF CHARACTERS: English.
TYPE OF FACE: Gothic, 12 point.
PRINTER LINE SPACING
  SINGLE LINE FEED: 6 lines per in.
  DOUBLE LINE FEED: 3 lines per in.
CHARACTERS PER LINE: Adjustable for either 72 or 76.
INPUT IMPEDANCE
  HIGH CURRENT RANGE (20 TO 80 MA): 115 ohms resistive, at 60 ma.
  LOW CURRENT RANGE (1 to 5 MA): 2200 ohms, resistive at 5 ma.
ALARM DEVICES: End of line bell; signal-activated bell.
COPY PAPER: Max 5 in. dia roll, 8-1/2 in. w, with 1 in. hollow core.
POWER REQUIREMENTS: 115 v 60 cyc, single ph, 70 W; or 115 v, 400 cyc, single ph, 70 W; or 26 v dc, 55 W.
AMBIENT TEMPERATURE LIMITS: − 55 to + 55° C (− 67 to + 131° F).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter Set AN/TGC-14(V) includes:			
1	Teletypewriter TT-297/UG includes:			
1	Keyboard-Transmitter, Teletypewriter TT-318/UG		1-1/2 x 8-1/4 x 12	3.9
1	Printer 1-2-3-104		4-1/2 x 9 x 12-3/4	13.9
1	Electronic Chassis 515-104		5-1/2 x 13-1/8 x 14-1/8	7.4
1	Power Supply Kit, AC MK-539/UG includes:			
1	AC Line Sensor 543-104		1-11/16 x 3-5/16 x 5-13/16	1.2
1	AC Signal Line Power Supply 533-104		1-11/16 x 3-5/16 x 4-3/16	0.8
1	AC Heating Element 3484		1/16 x 5-15/16 x 12-3/4	0.5
1	AC Service Cable Assy 555-104		115 lg	1.0
1	Spare Parts Box			
1	Motor, AC PD-82/U		4-3/16 dia x 2-5/16	2.5

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Motor, AC PD-83/U		4-3/16 dia x 2-5/16	2.5
1	Power Supply Kit MK-540/UG includes:			
1	DC Line Sensor 542-104		1-11/16 x 3-5/16 x 5-13/16	1.2
1	DC Signal Line Power Supply 532-104		1-11/16 x 3-5/16 x 4-3/16	0.8
1	DC Heating Element 3578		1/16 x 5-15/16 x 12-3/4	0.5
1	Motor, DC PD-85/U			2.5
1	DC Service Cable Assy 556-104		115 lg	1.0
1	Tuning Fork 2470		3/8 x 1-5/16 x 10-3/4	1.0
1	Spare Parts Box			
1	Carrying Case, Teletypewriter CY-2976/PG		8 x 16-3/16 x 19-1/8	11.7
1	Case, Teletypewriter CY-2977/PG		6-15/16 x 14-13/16 x 18-5/8	10.6
1	Shock Mount 5060-3		1-1/2 x 13-3/4 x 14-1/8	2.9
1	Shock Mount 5060-2		1-3/4 x 2-1/8 x 11-1/2	2.9

REFERENCE DATA AND LITERATURE:

TM-03315A-15: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.

NAVSHIPS 94522: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (30) 1N645 (4) 1N1318 (2) 1N1353 (6) ?N526 (4) 2N1011

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	4.9	55
1	5.5	55
1	0.21	4
1	0.2	5
1	0.45	4
1	0.35	6
1	0.05	3
1	0.3	5
1	0.2	5
1	5.5	60

AN/TGC-14(V) TELETYPEWRITER SET

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.21	4
1	0.2	5
1	0.45	4
1	0.35	6
1	0.6	6
1	0.8	4
1	0.05	3

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USMC
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Conn.	NOm-71737	

1.5 AN/TGC-14(V): 4

17 August 1967 TELETYPEWRITER SET AN/TGC-15

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Mite Corporation.

TELETYPEWRITER SET AN/TGC-15

FUNCTIONAL DESCRIPTION:

489

Teletypewriter Set AN/TGC-15 is a complete transportable, ruggedized and miniaturized teletypewriter set, employing a 3-row 64 character Keyboard. The unit transmits and receives neutral signals, the alphabet consisting of standard communications characters in Baudot Code. Signal circuits may be either simplex, full duplex, or combinations of the two. "Home" copy of the transmission can be provided. For simplex operation, a keyboard disabling switch is provided to prevent inadvertant transmission during reception. The solid state line sensors will function with dc signal loops operating in either of two ranges; 2.5 to 10 (or 1 to 5) milliamperes, 5 volts max; and 20 to 80 milliamperes, 150 volts, max. Range selection is accomplished by a single adjustment. When in the off-line condition, indicator lights are provided to show the state of the external signal lines as they would appear to the page printer and reperforator line sensors. In this manner, the operator can always determine whether the lines are open, closed, or handling traffic. A prime feature of the set is the reduction of radio frequency interference.

No field changes in effect at time of preparation (31 March 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, ac, 50, 60 or 400 cps (with appropriate motor), 175 W approx. heater power, 400 W approx.
RECEIVING SIGNAL REQUIREMENTS
HIGH RANGE: 20 to 80 ma, 150 v max; input impedance (at 60 ma) 125 ohms.
LOW RANGE: 2.5 to 10 ma (or 1 to 5 ma), 5 v max; input impedance (at 1 ma) 4.7 k, (at 5 ma) 2.5 k.
TRANSMITTING SIGNAL: 7.0 unit 5 level sequential Baudot Code; 7.42 unit available as alternate.
OPERATING SPEEDS: W/7.42 unit operation-60, 66, 75 and 100 wpm; w/7.0 unit operation-45.45, 50, 56, and 75 baud.
KEYBOARD: Std 3-row communication keyboard w/repeat key plus break and bell keys.
PRINTING REPERFORATOR: Simultaneously perforates intelligence and prints in std characters on 11/16 in. 7/8 in., and 1 in. paper tape (8 in. dia rolls).
PAGE PRINTER: Accepts 5 in. dia x 8-1/2 in. w pressure-feed paper; prints 64 std communication characters per line, adjustable 72 or 76.
TRANSMITTER-DISTRIBUTOR: Accepts 11/16 in., 7/8 in., or 1 in. paper tape, chad or chadless type, built-in test message generator.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter Set AN/TGC-15 includes:	21 x 22-1/2 x 25	80
1	Case, Teletypewriter CY-3688/TGC-15 and ( )		
1	Chassis, Reperforator, Teletypewriter CH472/UG and ( )		
1	Chassis, Teleprinter CH-471/UG and ( )		
1	Cover, Teletypewriter CW-643/UG and ( )		
1	Distributor-Transmitter, Teletypewriter TT-384/UG and ( )		
1	Keyboard-Transmitter, Teletypewriter TT-383/UG and ( )		
1	Reperforator, Teletypewriter TT-382/UG and ( )		
1	Teleprinter TT-381/UG and ( )		

REFERENCE DATA AND LITERATURE:

Mite Corp. Descriptive Data Sheets for Teletypewriter Set AN/TGC-15.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.5	80

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, USMC

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NOm 71633 MIPR 74203	

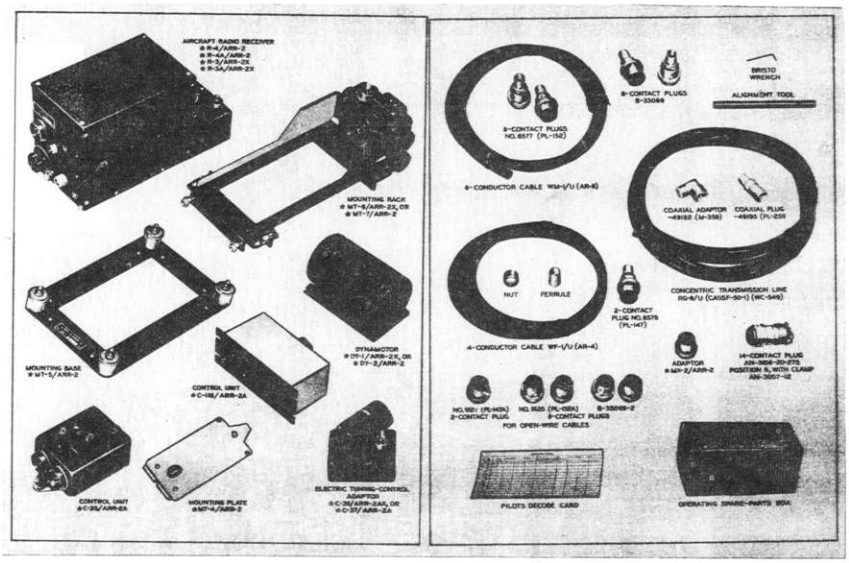
3 August 1965 PUBLIC ADDRESS SET AN/TIP-1

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Lear Siegler Inc., Bogen Communications Div., (07843).



PUBLIC ADDRESS SET AN/TIP-1

FUNCTIONAL DESCRIPTION:

Public Address Set, AN/TIP-1 is designed to provide a high quality loudspeaker system for microphone, electrical transcription and radio inputs. The AF Amplifier is capable of supplying 60 watts of undistorted audio power when connected to twelve loudspeaker units. There are three channels for microphone and/or reproducer, one radio input channel, and one miscellaneous channel with two input impedances available. Each channel has its own volume control in addition to an over-all master volume control. There are separate bass and treble controls. The amplifier incorporates a rectifier power supply which supplies all the plate and heater power requirements.

The Sound Reproducer is capable of high quality reproduction of recordings and electrical transcriptions up to sixteen inches in diameter at two turn table speeds. The reproducer head is of the magnetic type and is counter weighted to provide optimum needle pressure.

The two microphones supplied are of the dynamic type and have a cardioid directivity pattern.

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The Radial Loudspeakers consists of permanent magnet dynamic speakers, radial type loudspeaker housings, line transformers and volume controls. Suspension type mounting is provided by means of an eyebolt located at the top of each housing. In addition Brackets are provided for wall mounting.

The Trumpet Loudspeakers are weather proof units consisting of a driver unit, reflex speaker horn, line transformer and step type volume control. A universal mounting bracket is provided with the unit to permit clamping to the end of 1/2 inch pipe or 7/8 inch diameter rod.

The Record Carrying Case is supplied to safely transport the records and transcriptions used with the equipment. Ninety Six paper envelopes are provided to individually suspend the Transcriptions. Rubber grommets are used to adapt the envelopes for use with 12 inch and 10 inch diameter records.

The Microphone Stands supplied are two desk type and one telescoping floor stand type.

No field changes in effect at time of preparation (1 July 1965).

RELATION TO OTHER EQUIPMENT:

Operation and use identical to Navy Model PR but different in physical design and replacement parts. Electrically and mechanically interchangeable with AN/TIP-1A except for different mfr.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 50 to 8000 cps.
AMPLIFIER OUTPUT: 60 W.
TURNTABLE SPEEDS: 33-1/3 and 78 rpm.
MICROPHONE FREQUENCY RESPONSE: 40 to 10,000 cps.
RECORD OR TRANSCRIPTION SIZE: 16 in. dia max.
INPUT IMPEDANCE
CHANNEL
NO. 1 MICROPHONE: 50, 250, 500 ohms.
NO. 2 MICROPHONE: 50, 250, 500 ohms.
NO. 3 MICROPHONE: 50, 250, 500 ohms.
NO. 4 RADIO: 600 ohms.
NO. 5 MISCELLANEOUS: 5000, 500,000 ohms.
OUTPUT IMPEDANCE: 30 ohms.
POWER REQUIREMENTS: 115 v, 50 or 60 cps, 300 W.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Public Address Set AN/TIP-1 includes:			
1	AF Amplifier AM-282/TIP-1		14-7/8 x 18-3/8 x 28-7/8	91
1	Sound Reproducer RD-56/TIP-1		8-3/8 x 20-1/4 x 25-5/8	40
1	Case CY-695/TIP-1 includes:		18-1/4 x 23-3/4 x 28-7/8	70
2	Loudspeakers, Trumpet NT-491888			

PUBLIC ADDRESS SET AN/TIP-1

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
2	Case CY-696/TIP-1 includes:		18-1/2 x 19-1/2 x 54-3/8	71
5	Loudspeaker, Radial NT-491887			
5	Mounting Brackets NT-10715			
1	Case CY-697/TIP-1 includes:		8-1/4 x 15-5/8 x 37-5/8	52
2	Microphone NT-51096			
1	Microphone Stand (floor type) NT-10716			
2	Microphone Stand (desk type) NT-10717			
1	Cable Assy, Reproducer Power NT-62456			
1	Cable Assy, Radio Power NT-62453			
2	Cable Assy, Microphone NT-62452			
1	Cable Assy, Reproducer NT-62454			
1	Cable Assy, Extension NT-62457			
1	Cable Assy, Radio Audio NT-62455			
1	Plug, Input Power NT-491291			
1	Case, Records CY-698/TIP-1		18-1/2 x 20-1/4 x 27-5/8	93
1	Set of Spare Parts		9-5/8 x 13-1/4 x 19	25
2	Technical Manuals NAVSHIPS 91168			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91168: Technical Manual for Public Address Set AN/TIP-1.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 5R4GY (1) 5Y3GT (5) 6SC7 (2) 6SL7GT (1) 6SN7GT (2) 807

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.2	154
1	6.5	80

PUBLIC ADDRESS SET AN/TIP-1

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	13.6	147
2	19.6	171
1	7.1	108
1	18.5	185
1	3.7	65

PROCUREMENT DATA

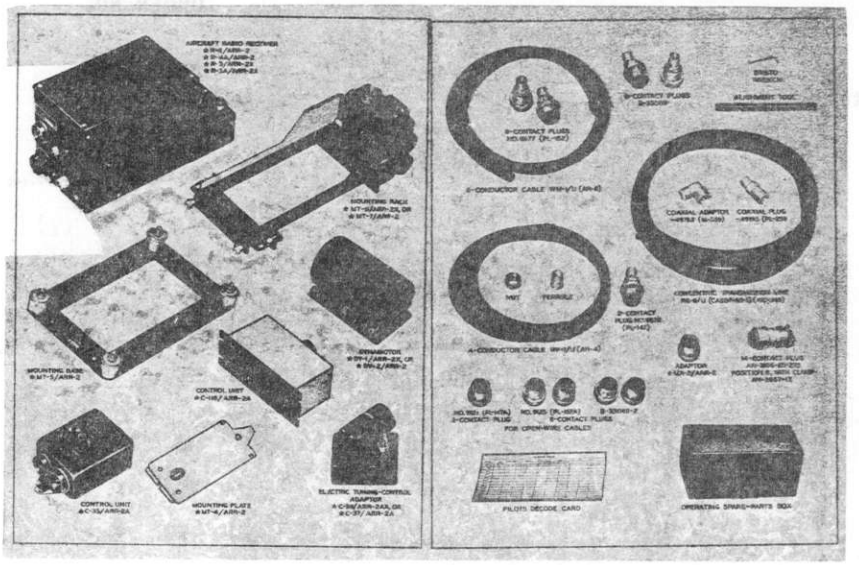
PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: CS-702(NAVY)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Lear Siegler Inc., Bogen Communications Div.	Paramus, New Jersey	NObsr 39346	

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Seaboard Electronic Corporation, (53750).



PUBLIC ADDRESS SET AN/TIP-1A

FUNCTIONAL DESCRIPTION:

Public Address Set, AN/TIP-1A is designed to provide a high quality loudspeaker system for microphone, electrical transcription and radio inputs. The AF Amplifier is capable of supplying 60 watts of undistorted audio power when connected to twelve loudspeaker units. There are three channels for microphone and/or reproducer, one radio input channel and one miscellaneous channel with two input impedances available. Each channel has its own volume control in addition to an over-all master volume control. There are separate bass and treble controls. The amplifier incorporates a rectifier power supply which supplies all the plate and heater power requirements.

The Sound Reproducer is capable of high quality reproduction of recordings and electrical transcriptions up to sixteen inches in diameter, at two turn table speeds. The reproducer head is of the magnetic type and is counter weighted to provide optimum needle pressure.

The two microphones supplied are of the dynamic type and have a cardioid directivity pattern.

The Radial Loudspeakers consist of permanent magnet dynamic speakers, radial type loudspeaker housings, line transformers and volume controls. Suspension type mounting is provided by means of an eyebolt located at the top of each housing. In addition Brackets are provided for wall mounting.

The Trumpet Loudspeakers are weather proof units consisting of a driver unit, reflex speaker horn, line transformer and step type volume control. A universal mounting bracket is provided with the unit to permit clamping to the end of 1/2 inch pipe or 7/8 inch diameter rod.

The Record Carrying Case is supplied to safely transport the records and transcriptions used with the equipment. Ninety six paper envelopes are provided to individually suspend the transcriptions. Rubber grommets are used to adapt the envelopes for use with 12 inch and 10 inch diameter records.

The Microphone Stands supplied are two desk type and one telescoping floor stand type.

No field changes in effect at time of preparation (1 July 1965).

RELATION TO OTHER EQUIPMENT:

Operation and use identical to Navy Model PR but different in physical design and replacement parts. Electrically and mechanically interchangeable with AN/TIP-[illegible] except for different mfr.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 50 to 8000 cps.
AMPLIFIER OUTPUT: 60 W.
TURNTABLE SPEEDS: 33-1/3 and 78 rpm.
MICROPHONE FREQUENCY RESPONSE: 40 to 10,000 cps.
RECORD OR TRANSCRIPTION SIZE: 16 in. dia max.
INPUT IMPEDANCE
  CHANNEL
    NO. 1 MICROPHONE: 50, 250, 500 ohms.
    NO. 2 MICROPHONE: 50, 250, 500 ohms.
    NO. 3 MICROPHONE: 50, 250, 500 ohms.
    NO. 4 RADIO: 600 ohms.
    NO. 5 MISCELLANEOUS: 5000, 500000 ohms.
OUTPUT IMPEDANCE: 30 ohms.
POWER REQUIREMENTS: 115 v, 50 or 60 cps, 300 W.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Public Address Set AN/TIP-1A includes:			
1	AF Amplifier AM-282A/TIP-1		14-7/8 x 18-3/8 x 28-7/8	141
1	Sound Reproducer RD-56A/TIP-1		8-3/8 x 20-1/4 x 25-5/8	75
1	Case CY-695A/TIP-1 includes:		18-1/4 x 23-3/4 x 28-7/8	120
2	Loudspeakers, Trumpet NT-491888A			

PUBLIC ADDRESS SET AN/TIP-1A

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
2	Case CY-696A/TIP-1 includes:		18-1/2 x 19-1/2 x 54-3/8	110
5	Loudspeakers, Radial NT-491887			
5	Mounting Brackets NT-10715			
1	Case CY-697A/TIP-1 includes:		8-1/4 x 15-5/8 x 37-5/8	85
2	Microphone NT-51096			
1	Microphone Stand (floor type) NT-10716			
2	Microphone Stand (desk type) NT-10717			
1	Cable Assy, Reproducer Power NT-62456			
1	Cable Assy, Radio Power NT-62453			
2	Cable Assy, Microphone NT-62452			
1	Cable Assy, Reproducer NT-62454			
1	Cable Assy, Extension NT-62457			
1	Cable Assy, Radio Audio NT-62455			
1	Plug, Input Power NT-491291			
1	Case, Records CY-698A/TIP-1		18-1/2 x 20-1/4 x 27-5/8	108
1	Set of Spare Parts		8-3/4 x 8-3/4 x 11	25
2	Technical Manuals NAVSHIPS 91419			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91419: Technical Manual for Public Address Set AN/TIP-1A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 5R4GY (1) 5Y3GT (5) 6SC7 (2) 6SL7GT (1) 6SN7GT (2) 807

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.2	154
1	6.5	80
1	13.6	147
2	19.6	171

PUBLIC ADDRESS SET AN/TIP-1A

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	7.1	108
1	18.5	185
1	3.7	65

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: CS-1275(NAVY)

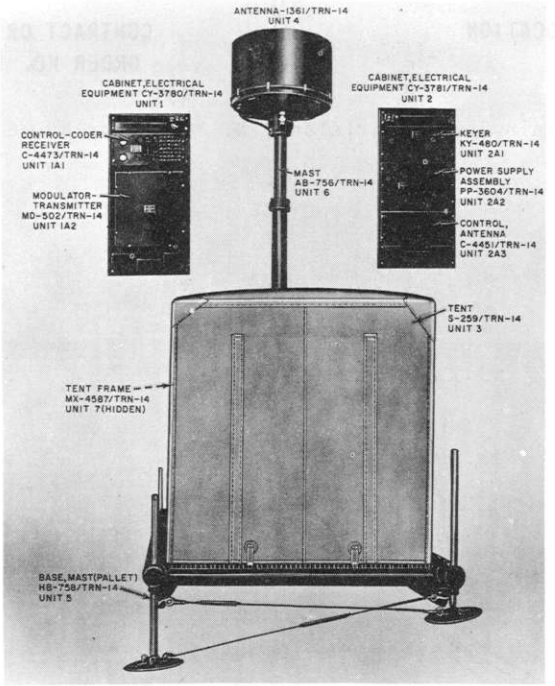
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Seaboard Electronic Corp.	Plainview, Long Island, N. Y.	NObsr 49045	

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: ITT Federal Laboratories Division of International Telephone and Telegraph Corporation, (90348).



RADIO SET AN/TRN-14

FUNCTIONAL DESCRIPTION:

Radio Set AN/TRN-14 is a highly transportable Tacan ground station suitable for both field and fixed base operation. The equipment is designed for high reliability under a wide range of environmental and operating conditions. The signals transmitted by the radio set provide properly-equipped aircraft with distance and bearing information needed to determine their positions with respect to the radio set.

No field changes in effect at time of preparation (27 May 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Audio Oscillator TS-382( )U; (1) Vibration Analyzer IRD Type 311A: (1) Test Transmitter CAG-1218; (1) Power Supply CAG-1203B; (1) Test Receiver CAG-DNT-4; (1) Parabolic Antenna

Prodeline Type 95094M; (1) Low Pass Filter Ortho Type DE; (1) Phase Shifter CKF-KT-426832; (1) Transit CBJO-71-1010; (1) Line Matching Transformer CAQI-AC-60A; (1) High Voltage Probe CBTV-P6014.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE

TRANSMITTER: 126 channels, 1 mc apart, arranged in 2 bands low band 962 to 1024 mc, high band 1151 to 1213 mc.

RECEIVER: 126 channels from 1025 to 1150 mc.

TYPE OF FREQUENCY CONTROL: Temperature controlled crystal.

EMISSION AND RADIATION DATA

PULSE REPETITION FREQUENCY: 3600 pulse-pairs per sec.

PEAK POWER: Nom 1 kw.

PULSE CHARACTERISTICS: Gaussian 3-4 usec wide.

PULSE-PAIR SPACING: 12 ± 0.25 usec.

CHARACTERISTICS OF INDIVIDUAL SIGNALS WITHIN TRANSMITTER OUTPUT

NORTH BEARING REF BURST: 12 pulse-pair w/30 usec between pairs occuring 15 times per sec.

AUXILIARY BEARING REF BURST: 6 pulse-pairs w/24 usec between pairs, occuring 135 times per sec.

IDENTITY SIGNAL: Signal c/o 2700 pulse-pairs per sec, turned on and off in station identification letters.

DISTANCE REPLIES: 1 pulse-pair in response to each interrogation received by the radio set.

SQUITTER: Pulse-pairs derived from random noise which is controlled in such a manner that the output of the transmitter is maintained at 3600 pulse-pairs per sec.

PRECEDENCE OF SIGNALS WITHIN TRANSMITTER OUTPUT

FIRST: Bearing reference burst.

SECOND: Identity signals.

THIRD: Distance signals.

FOURTH: Squitter.

RECEIVER CHARACTERISTICS

SENSITIVITY: Will trigger transmitter 60% of the time with an interrogation level of - 93 dbm.

IF FREQUENCY: 63 mc.

SELECTIVITY: 80 db adjacent channel rejection.

IF STABILITY: Center freq maintained at 63 ± 0.26 mc.

FREQUENCY ACCURACY

TRANSMITTER: 0.002%.

RECEIVER: ± 50 kc.

FREQUENCY CONTROL CRYSTALS

GOVERNMENT DESIGNATION: CR-65/U.

FREQUENCY RANGE OF CRYSTAL CIRCUIT: 35 to 45 mc.

ACCURACY: 0.002%.

ZERO DISTANCE TIME DELAY: From leading edge of second pulse of interrogation to leading edge of second pulse of reply, 50 ± 0.25 usec.

ANTENNA CHARACTERISTICS

RADIATION PATTERN: Omnidirectional pattern (horizontal plane) upon which is superimposed a rotating modulation containing 15 and 135 cps components.

GAIN: (Less parasitic elements) 2 db.

PHYSICAL LIMITATIONS

TEMPERATURE: - 54 to + 65° C operating, - 62 to + 75° C non-operating.
WIND VELOCITY: 100 knots operating and non-operating.
ICE LOADING: 4.5 lbs per sq ft operating and non-operating.
HUMIDITY: 95% operating and non-operating.
ALTITUDE: 10000 ft operating, 25000 ft non-operating.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/TRN-14 includes:	84 x 96-39/64 x 147	2335
1	Cabinet Electrical Equipment CY-3780/TRN-14	24-59/64 x 30-49/64 x 49-1/2	558
1	Cabinet Electrical Equipment CY-3781/TRN-14	24-59/64 x 30-49/64 x 49-1/2	480
1	Tent S-259/TRN-14	71 x 75 x 84	
1	Antenna AS-1361/TRN-14	33 x 36-1/2	176
1	Mast Base AB-758/TRN-14	12-39/64 x 84 x 147	
1	Mast AB-756/TRN-14	12 x 144	147
1	Tent Frame MX-4587/TRN-14	68-3/4 x 73 x 84	
1	Antenna Frame AB-757/TRN-14	40 x 44 x 49-1/2	
1	Magnetic Compass MX4588/TRN-14	4 x 4-3/8 x 4-39/64	
1	Modulator Transmitter MD-502/TRN-14	23-17/64 x 27 x 29-7/64	274
1	Control Coder Receiver C-4473/TRN-14	10-3/8 x 23-21/64 x 27-55/64	148
1	Keyer KY-480/TRN-14	10-3/8 x 11-9/16 x 23-21/64	17
1	Power Supply Assy PP-3604/TRN-14	14-5/16 x 23-21/64 x 28	158
1	Antenna Control C-4451/TRN-14	10 x 23-21/64 x 25-13/32	167
1	Technical Manual NAVSHIPS 95743	9-1/2 x 11-1/2	
1	Operating Instruction NAVSHIPS 95743.21	9-1/2 x 11-1/2	

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REFERENCE DATA AND LITERATURE:

NAVSHIPS 95753: Technical Manual for Radio Set AN/TRN-14.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6D4 (1) 6J4WA (1) 12AT7WA (1) 4610 (1) 5651WA (10) 5654/6AK5W (19) 5670 (12) 5687WA (1) 5725/6AS6W (4) 5726/6AL5W (1) 5751 (1) 5894 (1) 6080WB (1) 6360 (2) 6528 (1) 6922 (2) 7094 (4) 7289 (1) 7651 (1) 7698 (2) 7815

CRYSTALS: CR-65/U As required.

SEMI-CONDUCTORS: (6) 1N1124A (1) 1N21WEM (1) 1N250B (1) 1N277M (1) 1N3064 (41) 1N483B (2) 1N485B (11) 1N538M (83) 1N547M (1) 1N750A (6) 1N756AM (1) 1N758AM (2) 1N1614 (5) 1N2135A (2) 1N2843B (11) 1N2974B (1) 1N2979B (5) 1N2988B (12) 2N338 (1) 2N491 (6) 2N688A (3) 2N1890M (2) 2N2016 (3) 2N2033

RADIO SET AN/TRN-14

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	690	2335

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
ITT Federal Laboratories Division of International Telephone and Telegraph Corporation	Nutley, New Jersey	NObsr-85416	

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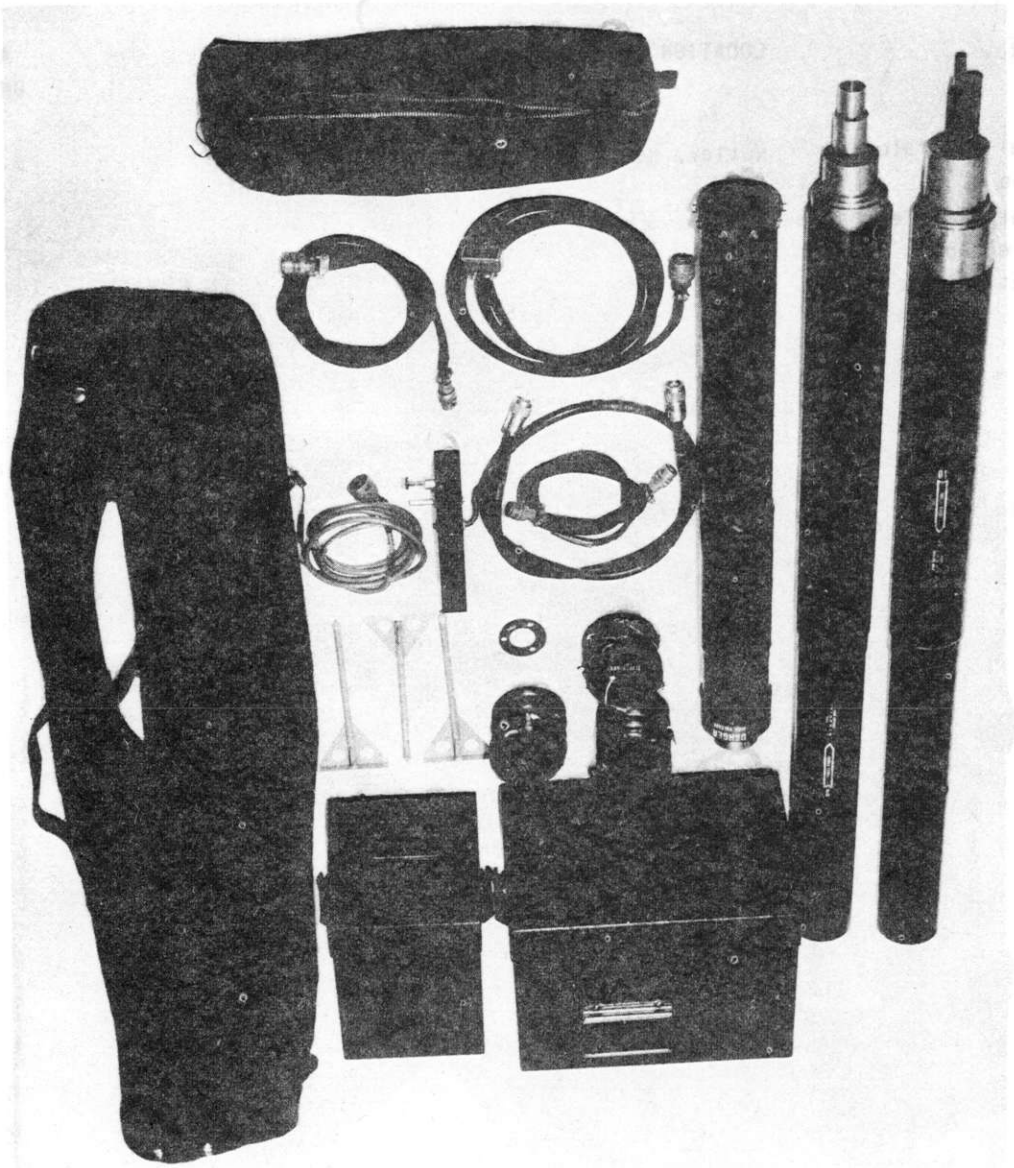
21 July 1967 BEACON SET, RADIO AN/TRN-16

Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used By

MANUFACTURER'S NAME/CODE NUMBER: Tridea Electronics, Inc. (13190).



BEACON SET, RADIO AN/TRN-16

1.3 AN/TRN-16: 1

FUNCTIONAL DESCRIPTION:

Beacon Set, Radio, AN/TRN-16 is a tactical radio beacon transmitting system for use by ground forces to provide a homing beacon for helicopters equipped with one of the radio-compass or direction-finder sets currently in use. The system operates in the frequency range from 265 kc to 535 kc, delivering a minimum of 25 watts of output power to the antenna for a minimum usable transmission range of 25 nautical miles for helicopters flying at altitudes between 50 and 500 ft.

No field changes in effect at time of preparation (18 November 1966).

RELATION TO OTHER EQUIPMENT: None

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Two-wire no. 18 shielded cable w/MS3116F-8-4S connector and source and connector u/w a 26v generator.

TECHNICAL CHARACTERISTICS:

TYPE OF TRANSMISSION: RF output tone-modulated w/1000 cps tone keyed w/one of 294 three-letter or 49 two-letter Morse code groups.
FREQUENCY RANGE: 265 to 535 kc, in 1-kc increments.
POWER OUTPUT: 25 W min to ANT across entire freq range.
RANGE: 25 nautical miles min, for helicopters at altitudes between 50 and 500 ft.
ACCURACY: Modulation and frequency 0.01%.
POWER REQUIREMENTS: 120 v ac, 50 to 450 cps, single ph; 26 v dc, unregulated from an extend-external generator; 24 + 5 - 2 v rechargeable battery.
ANTENNA PATTERN: Omni-directional.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Beacon Set, Radio AN/TRN-16 includes:		70.1
1	Radio Transmitter T-1016/TRN-16	8.06 x 9.50 x 11.69	26.7
1	Antenna AS-1883/TRN-16	6.5 x 38	23.3
1	Power Supply PP-4512/TRN-16	6.156 x 6.875 x 9.44	18.7
1	Technical Manual	1 x 8.5 x 11	2.0

REFERENCE DATA AND LITERATURE:

Manuscript for Beacon Set, Radio AN/TRN-16.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tridea Electronics Inc.	South Pasadena, Calif.	NObsr 93128	