

SECTION 4 OF 10

NAVSHIPS 94200.1

# DIRECTORY OF COMMUNICATION EQUIPMENT

(CONTINUED)

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

19 July 1962

Cog Service: USN FSN:

RECORDER-REPRODUCER ASSEMBLY RD-152/SNH

Functional Class: USN

USA

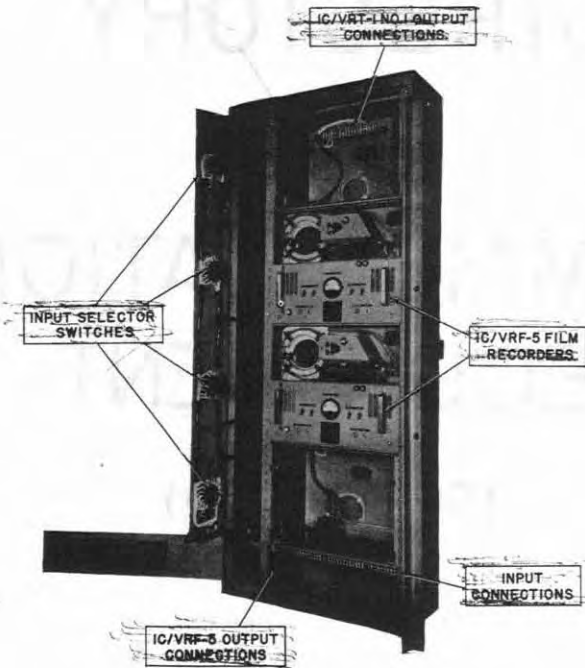
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Frederick Hart Company, (90844).



*Recorder-Reproducer Assembly RD-152/SNH*

#### FUNCTIONAL DESCRIPTION:

The Recorder-Reproducer Assembly RD-152/SNH is a rack mounted assembly of two (2) Sound Recorder-Reproducers type VRF-5 and two (2) Sound Recorder-Reproducers type VRT-1. The equipment provides manual control, 16 input selector switching and 16 output selector switching facilities.

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

#### TECHNICAL CHARACTERISTICS:

##### SWITCHING FACILITIES

NUMBER OF INPUT CHANNELS: 16.

NUMBER OF OUTPUT CHANNELS: 16.

TYPE OF MOUNTING: Rack.

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

**RD-152/SNH RECORDER-REPRODUCER ASSEMBLY**

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

**MAJOR COMPONENTS**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer Assembly RD-152/SNH consists of:		14-27/32 x 27-1/32 x 67-27/32	
2	Sound Recorder-Reproducer VRF-5		12-15/16 x 12-15/16 x 19	
2	Sound Recorder-Reproducer VRT-1		12-15/16 x 12-15/16 x 19	

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 365-1841: Technical Manual for Recorder-Reproducer Assembly RD-152/SNH.

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: (6) 6SL7GT (4) 6SK7 (6) 6SN7GT (14) 6V6GT (2) 6H6 (2) 6SJ7 (8) 6SG7  
(2) 6E6 (6) 5Y3GT (2) 2050

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

**SHIPPING DATA**

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

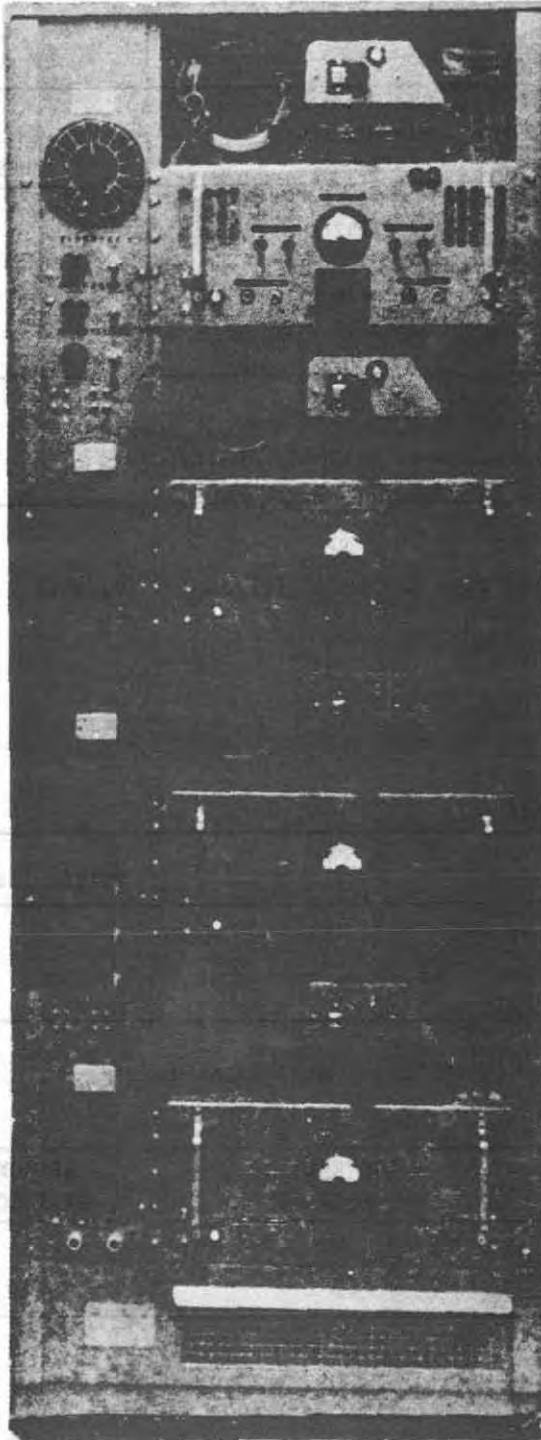
**PROCUREMENT DATA**

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Frederick Hart Company Dwg no. 58-36	Poughkeepsie, New York	N0bs 45456	

March 1957

**RECORDER-REPRODUCER ASSEMBLY****RD-153/SNH**

Recorder-Reproducer Assembly RD-153/SNH

**FUNCTIONAL DESCRIPTION**

The RD-153/SNH is a completely self-contained unit consisting of four rack mounted Sound Recorder-Reproducers Type VRF-7, designed to incorporate an overlap relay circuit to permit continuous recording without loss of time for reloading periods. An input selector switch for each of the four VRF-7 units permits the input to be connected to any of 16 telephone, radio, or microphone lines, and a method of overlap operation. Adjacent units are intended to be operated as a pair and the change over from one unit to the other within each pair is automatic. The equipment is designed for fixed installation and can be used to record and playback order, conferences or conversations. The recording medium is an endless 35mm cellulose acetate film which records audible sound for a period of two hours continuously or, by substituting a motor pulley and belt, three hours of continuous recording may be had for each VRF-7 Reproducer-Recording Unit.

No field changes in effect at time of preparation (2 August 1956).

**RELATION TO OTHER EQUIPMENT**

Each VRF-7 Unit is similar to the VRF-1 except for modifications permitting rack mounting and overlap operation.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

NUMBER OF INPUTS: 16.  
 OVERLAP OPERATION: Automatic; unit starts 2 minutes before 1st unit reaches end of recording time.  
 RELOAD INDICATION: Red signal lamps.  
 RECORDING MEDIUM: 35mm cellulose acetate film.  
 RECORDING TIME (EACH UNIT): 2 hours continuous, 3 hours with motor pulley and belt.  
 FILM SPEED: 40 ft per minute.  
 AUDIO POWER OUTPUT: 5 W.  
 RECORDING NEEDLE: Sapphire tip.  
 FREQUENCY RESPONSE:  $\pm 3$  db from 300 to 4500 cps, 1000 cps reference.  
 NOISE LEVEL: 200 uw max.  
 DISTORTION: 2.5% at 400 and 1000 cps.  
 GAIN: 108 db  $\pm 2$ .  
 OPERATING POWER REQUIREMENTS (EACH UNIT): 115 v, 60 cps, 130 W.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Frederick Hart and Co., Inc., Poughkeepsie, N.Y., Dwg No. 58-60.  
 Contract: NObsr 46447 - dated 26 March 1948.

RD-153/SNH

## RECORDER-REPRODUCER ASSEMBLY

1881 March 1957

## TUBE AND/OR CRYSTAL COMPLEMENT

Sound Recorder-Reproducer Equipment VRF-1

(4) 2050      (8) 6V6GT      (4) 5V3GT  
 (4) 6SN7      (8) 6SK7      (8) 6SL7GT  
 (4) 6H6

Total Tubes: (40)

## REFERENCE DATA AND LITERATURE

NAVSHIPS 365-1825: Technical Manual for

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
4	Recorder-Reproducer VRF-7		
1	Mounting Rack		
1	Control Panel		
1	Amplifier		
1	Main Frame Assembly		



29 December 1961

Cog Service:

FSN:

SOUND, RECORDER-REPRODUCER RD-173/UN

Functional Class:

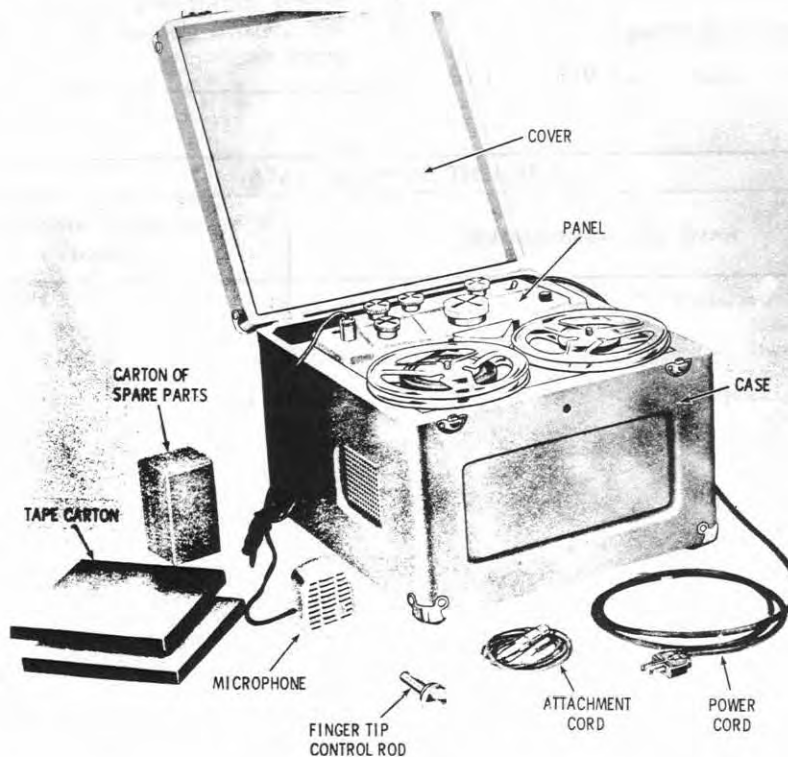
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Webster Electric Company.



*Sound, Recorder-Reproducer RD-173/UN*

#### FUNCTIONAL DESCRIPTION:

The Sound, Recorder-Reproducer RD-173/UN is a portable, general purpose equipment for recording from microphone or live on seven (7) inch reels of 1/4 inch type.

No field changes in effect at time of preparation (29 May 1961).

#### TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Portable.

TYPE OF FACILITIES PROVIDED: Fast forward and rewind facilities.

TYPE OF TAPE: Electro-magnetic tape.

RECORDING MEDIUM: 1/4 inch, oxide coated tape.

RECORDING TIME: 1 hr.

NUMBER OF SPEEDS: Two speeds; 3-3/4 and 7-1/2 inches per second.

OUTPUT SIGNAL CHARACTERISTICS: 100 to 7500 cps, frequency response.

---

**RD-173/UN SOUND, RECORDER-REPRODUCER**

---

AMPLIFIER POWER OUTPUT: 2-1/2 W.

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

**RELATION TO OTHER EQUIPMENT:**

The RD-173/UN is similar to RD-133/UN except for two speeds.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Sound RD-173/UN consists of:		12 x 16-3/8 x 18-1/8	45
1	Microphone		2 x 2-3/4 x 3-1/4	
1	Attachment Cord		36 lg	
2	Plastic Base Recording Tape & Reel (Boxed)		1/2 x 7 x 7	
1	Empty Reel		3/8 x 7	
1	Set of Equipment Spares		3 x 3 x 6	
2	Technical Manual NAVSHIPS 365-2493		3/8 x 8-3/4 x 11-1/4	

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 365-2493: I. C. Technical Manual No. 682 for Sound, Recorder-Reproducer RD-173/UN

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: (1) 5879 (1) 5751 (1) 5726/6AL5 (1) 6V6 (1) 605/6AQ5W (1) 6E5 (1) 5Y3WGTB

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

---

SOUND, RECORDER-REPRODUCER RD-173/UN

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Webster Electric Company	Racine, Wisconsin	NObs-76505 NObs-74246, September 1958 NObs-74672, September 1958 NObs-76188, July 1959	



31 August 1962

Cog Service:

FSN:

RECORDER-REPRODUCER, SOUND RD-217/UNH

Functional Class:

USA

USM

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: The Soundscriber Corporation.



*Recorder-Reproducer, Sound RD-217/UNH*

**FUNCTIONAL DESCRIPTION:**

The Recorder-Reproducer, Sound RD-217/UNH is a twenty-four (24) hour single channel magnetic tape recorder-reproducer designed to continuously record any desired communications signal up to any period of time up to 24 hours without tape change. It records from a line of 10,000 ohms impedance or less, a telephone line, or a microphone of 50 ohms impedance, but to only one of these signal sources at a time.

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

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Portable.

TYPE OF MOUNTING: Can be bench mounted, or in a standard 19 inch rack.

TAPE FEED SPEED: 2.520 inches per minute.

MAGNETIC RECORDING WHEEL ASS'Y SPEED: 30 RPM.

---

**RD-217/UNH RECORDER-REPRODUCER, SOUND**

---

METHOD OF RECORDING: Transverse (across tape surface).

RECORDING MEDIUM: Magnetic tape.

REWIND MEDIUM: Manual (Approx 2 minutes time required to rewind entire reel).

MAXIMUM FLUTTER AND WOW: 0.7%.

SIGNAL TO NOISE RATIO: 31 db.

MAXIMUM UNINTERRUPTED RECORDING TIME: 24 hrs P15 minutes over time allowance.

**INPUT DATA**

LINE INPUT, TELEPHONE INPUT: 10000 ohms.

MICROPHONE INPUT: 500 ohms.

OVERALL FREQUENCY RESPONSE: Down no more than 8 db, at 200 and 3500 cycles, from 1000 cycle reference point.

OPERATING POWER RQMT: 105 to 125 v ac, 60 cps.

POWER CONSUMPTION: 60 W.

**RELATION TO OTHER EQUIPMENT:**

The RD-217/UNH is designed to be used with but not part of Type ST-124 Reel(s) and Model BE-24 Demagnetizer(s).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Sound RD-217/UNH		6-1/4 x 11-7/8 x 18-1/8	26-1/2

---

**REFERENCE DATA AND LITERATURE:**

Soundscriber Corporation's Catalog for Recorder-Reproducer, Sound RD-217/UNH (Model S-124) Catalog no. 411233.

Nomenclature Card for Recorder-Reproducer, Sound RD-217/UNH.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: (3) 12AT7WB (1) 6X4WA (1) 6005-6A05W

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

PROCUREMENT DATA

PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Soundsciber Corporation Model S-124	New Haven, Conn.	GS-00s-20095	\$650.00

REMARKS

30 August 1962  
Cog Service:

RECORDER-REPRODUCER, SIGNAL DATA RD-218(XN-1)/U  
Functional Class:

USA

USM

USAF

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Remington Rand Univac.

*(No Illustration Available)*

**FUNCTIONAL DESCRIPTION:**

The Recorder-Reproducer, Signal Data RD-218(XN-1)/U is an electromechanical tape unit for recording and reading digital data on magnetic tape. It allows continuous reading and recording of blocks of data without stopping tape. Included in this unit is the electronic control circuitry required.

No field changes in effect at time of preparation (5 May 1961).

**TECHNICAL CHARACTERISTICS:**

RECORDING MEDIUM: Magnetic tape.

TYPE OF RECORDER: Digital.

NUMBER OF CHANNELS: 8.

OUTPUT SIGNAL CHARACTERISTICS

SIGNAL LEVELS: 10 v for Logic.

"0" INPUT/OUTPUT: 0 v for Logic "1".

OPERATING FREQUENCY: Approx 12 kc.

OPERATING POWER RQMT: 115 v ac, 60 cps, single ph, 7 amps; 115 v ac, 400 cps, 3 ph, 1 amp.

**RELATION TO OTHER EQUIPMENT:**

The RD-218(XN-1)/U is designed for use only in the evaluation of the Naval Tactical Data System.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

**MAJOR COMPONENTS**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Signal Data RD-218(XN-1)/U		32-1/2 x 40-1/2 x 43	750

**REFERENCE DATA AND LITERATURE:**

Nomenclature Card for Recorder-Reproducer, Signal Data RD-218(XN-1)/U.

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: Data not available.

---

**RD-218(XN-1)/U RECORDER-REPRODUCER, SIGNAL DATA**

---

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

---

**SHIPPING DATA**

---

PKGS

VOLUME (CU FT)

WEIGHT (LBS)

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE:

DESIGN COG: USN, BuShips

SPEC &/OR DWG: BuShips Ser. 835-036

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Remington Rand Univac	St. Paul, Minn.	NObsr-63010, February 1957	

---

16 January 1962

Cog Service:

FSN:

SOUND, RECORDER-REPRODUCER RD-219/U

Functional Class:

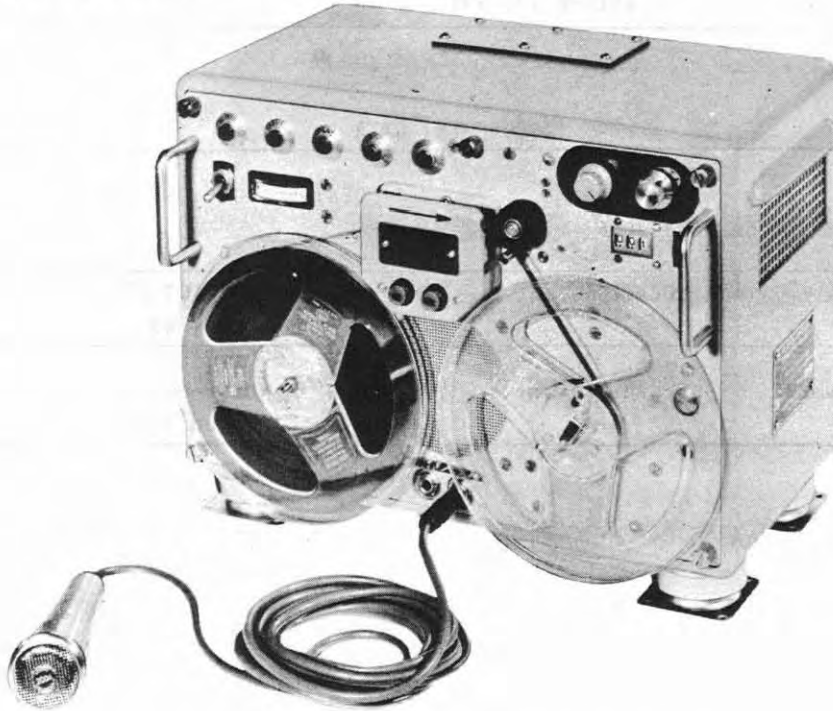
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Webster Electric Company.



*Sound, Recorder-Reproducer RD-219/U*

**FUNCTIONAL DESCRIPTION:**

The Sound, Recorder-Reproducer RD-219/U is designed for permanent installation and continuous aboard submarines. It is used for recording high-speed code. The code is decoded by being played back on the recorder at reduced speed.

No field changes in effect at time of preparation (31 May 1961).

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Permanent installation; when adapter is used can be rack mounted.

METHOD OF RECORDING: Magnetic tape.

NUMBER OF CHANNELS: One.

INPUT IMPEDANCE: 10,000 ohms minimum.

FREQUENCY RESPONSE: 1-7/8 or 10 inches per second; 100 to 10k cps porm 3, 100 to 3k cps porm 2 db.

---

**RD-219/U SOUND, RECORDER-REPRODUCER**

---

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

POWER OUTPUT: 2 watts.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Sound, Recorder-Reproducer RD-219/U consists of:		8 x 10 x 15	45
1	Microphone (250r-Dynamic)		1-3/4 dia x 5	
1	Plastic Base Recording Tape & Reel (Boxed)			
1	Empty Reel			
1	Technical Manual NAVSHIPS 365-2655		1/2 x 9-1/8 x 11-1/2	

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 365-2655: I.C. Technical Manual No. 694 for Sound, Recorder-Reproducer RD-219/U.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

TRANSISTORS: (9) 2N331 (1) 2N220 (3) 2N297A

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

**PROCUREMENT DATA**

---

PROCURING SERVICE:

DESIGN COG: USN, BuShips

SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Webster Electric Company	Racine, Wisconsin	N0bs-76724, 5 August 1960	

---

## FUNCTIONAL DESCRIPTION

The RD-31A/U is a self contained portable wire recorder and reproducer which records speech or music from a microphone, telephone or program line source. Recordings may be played back immediately through the self contained loudspeaker or through an external loudspeaker or headset. The Recorder-Reproducer may also be used as a public address Set to cover a limited area with the self contained internal loudspeaker or a large area with an external speaker (not supplied).

No field changes in effect at time of preparation (25 May 1956).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE: 150 to 5000 cycles per sec at  $\pm 3$  db.

POWER OUTPUT: 5 W.

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

RECORDING-REPRODUCING MEDIUM: stainless steel wire.

RECORDING TIME: 60 minutes max.

WIRE SPEED: 2-1/2 ft per sec.

WIRE SIZE: 0.004 in. dia

RECORDER-REPRODUCER HEAD

TYPE: Magnetic.

IMPEDANCE: 800 ohms at 1 kc; 890 ohms erase coil impedance at 40 kc.

LOUDSPEAKER

TYPE: Permanent magnet.

CONE DIA: 5 in.

OUTPUT TRANSFORMER

IMPEDANCE: Primary 5000 ohms, secondary 3.5 ohms

MICROPHONE

TYPE: Dynamic.

IMPEDANCE: 30,000 ohms

MOTOR

HORSEPOWER: 1/100

ROTATION: 1600 rpm, ccw.

## MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co.

Model No. 51 (Modified).

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT

(1) 991

(2) 6SJ7Y

(1) 1N81

(2) 6V6GT

Total Tubes: (6)

(1) 1N81

Total Crystals: (1)

## REFERENCE DATA AND LITERATURE

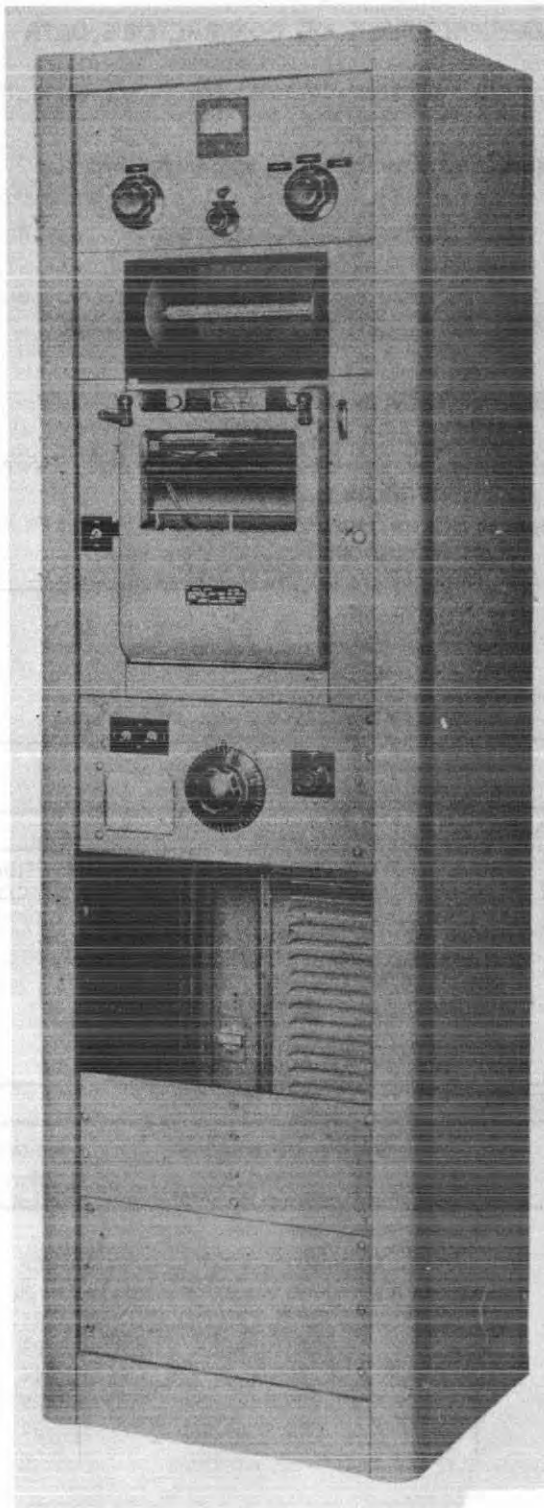
TM-11-2548: Department of the Army Technical Manual for Recorder-Reproducer RD-31/U, RD-31A/U. Instructions for Conversion of General Electric Wire Recorder, Model 51 for Stainless Steel Wire.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Microphone	3.37 X 3.7 X 4-3/4	
1	Wire Spool		
1	Blank Recording Wire		
1	Set of Socket Heat Set Screw Wrenches		





Recorder RD-41 B/U

### FUNCTIONAL DESCRIPTION

The RD-41B/U is designed to graphically record by electrochemical means, hand or machine keyed code, teletypewriter, facsimile, oscillator outputs and other signals of a repetitive or cyclic nature, at audio frequencies and at normal room temperatures in a fixed field station. An immediately visible permanent record is made on a continuous strip which may be observed at the instant of recording or accumulated for subsequent visual analysis. The scanning speed may be adjusted to synchronize with the signal recorded by varying the rpm of the helix electrode drum.

No field changes in effect at time of preparation (28 May 1956).

### RELATION TO OTHER EQUIPMENT

Similar to the AN/GXH-1 and Hogan Laboratories models AX-3 and AX-8.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 30 to 15000 cps.

POWER SOURCE: 110 to 120 v, single ph, 60 cps.

POWER CONSUMPTION: 715 W.

LINE LENGTH: 8.2 inches.

PAPER FEED RATE

LINES PER IN.: 4.2, 8, 16, 70, 90, or 105.

RECORDER AMPLIFIER

FREQUENCY RANGE: 30 to 15000 cps.

INPUT IMPEDANCE: 500 ohms.

MAX MARKING CURRENT: 275 ma.

POWER CONSUMPTION: 160 W.

OSCILLATOR

FREQUENCY: 45 to 100 cps variable.

DESIGN LOAD: 250000 ohms.

VOLTAGE OUTPUT; OPEN CIRCUIT: 4 v rms.

POWER CONSUMPTION: 35 W.

VOLTAGE REGULATION: 115  $\pm$ 2% v and not over 95 to 125 v AC; 120 v when line voltage goes to 135 v.

MOTOR DRIVE AMPLIFIER

FREQUENCY: 45 to 100 cps, variable.

POWER OUTPUT: 75 va.

IMPEDANCE: 250000 ohms.

OUTPUT IMPEDANCE: 200 ohms.

POWER CONSUMPTION: 300 W.

RD-41B/U

## RECORDER

September 1956

## RECORDER

DRUM SPEED: 45 to 400 rpm.

## AC SYNCHRONOUS MOTORS

## B200

DRUM SPEED: 90 to 200 rpm.

HORSEPOWER: 1/50.

SPEED: 1800 rpm.

POWER REQUIREMENTS: 110 to 120 v 60  
cps, single ph, 600 ma.

## B201

DRUM SPEED: 180 to 400 rpm.

HORSEPOWER: 1/50.

SPEED: 3600 rpm.

POWER REQUIREMENTS: 110 to 120 v 60  
cps, single ph, 700 ma.

## B202

DRUM SPEED: 45 to 100 rpm.

HORSEPOWER: 1/75.

SPEED: 900 rpm.

POWER REQUIREMENTS: 110 to 120 v,  
single ph, 60 cps 900 ma.

WIDTH OF RECORDING PAPER: 9-1/2 in.

## TAKE UP REEL

CORES (bobbins): Re-use of recording  
paper bobbins.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Hogan Laboratories, Inc., New York, N.Y.

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SJ7WGT	(4) 6SN7WGT	(6) 83
(1) OC3W	(1) OD3W	(1) 5Y3GT
(4) 6AS7G	(2) 6H6	(2) 6L6G

Total Tubes: (22)

## REFERENCE DATA AND LITERATURE

Technical Manual for Recorder RD-41B/U Sig 7  
and 8 RD-41/U.Department of the Army Supply Manual for Re-  
corder RD-41/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Recorder RD-41B/U	31.83	24 X 28 X 82-1/8	450
1	Recording Paper	8.2	12 X 18 X 18	75

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Motor Driven Amplifier	8.000 X 14.000 X 19.000	67
1	Mounting Panel	3.000 X 19.000 X 19.281	8
1	Oscillator	6.000 X 8.750 X 19.000	25
1	Power Panel	4.375 X 8.750 X 19.000	23
1	Rack Model MT-453/F	18.000 X 22.000 X 76.125	210
1	Recorder	7.219 X 14.406 X 14.844	29
1	Recorder Amplifier	8.750 X 10.000 X 19.000	34
1	Take-up Reel	5.500 X 6.969 X 19.000	6



Radio-Auxiliary

January 1958

RD-60/U

## CODE RECORDER

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2	(1) 6L6WGB
(2) OD3/VR-150	(1) 6SJ7Y
(1) 5V4G	(1) 6SK7GTY
(1) 6H6WGT	(1) 6X4W

Total Tubes: (9)

## REFERENCE DATA AND LITERATURE

TM11-5533: Technical Manual for Code Recorder  
RD-60/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE 71-3029
STOCK NO.

## SHIPPING DATA

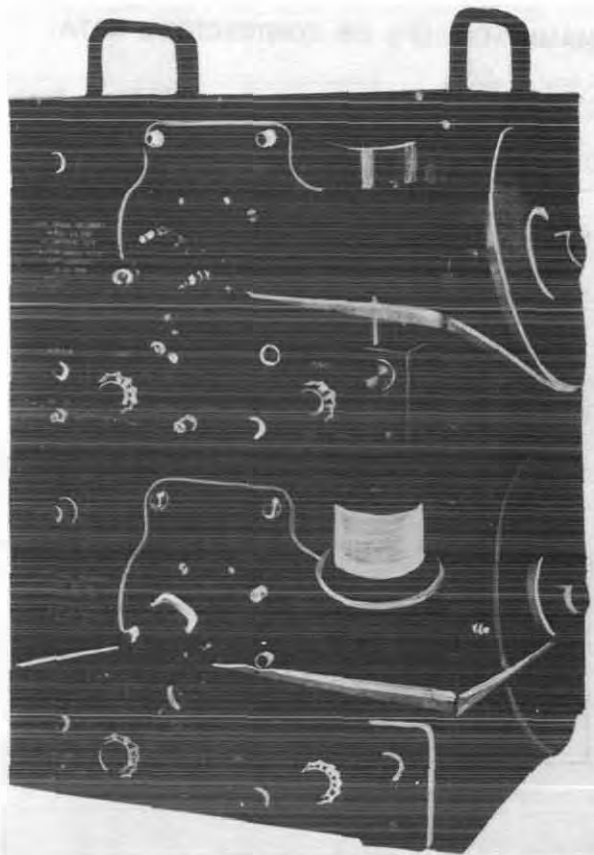
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Code Recorder RD-60/U	10	21 X 24 X 34	203

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Code Recorder RD-60/U	12-3/4 X 16 X 19	
1	Power Cord		
1	Tool Kit		
1	Set of Accessories		
1	Set of Running Spares		
2	Technical Manual TM11-5533		

# CODE SIGNAL RECORDER

## RD-70/U



Code Signal Recorder RD-70/U

### FUNCTIONAL DESCRIPTION

The RD-70/U is designed to produce marks on tapes received from the output of several types of radio receivers or an automatic transmitting teletypewriter. Tape produced by this method is suitable for manual transcription, by wireless operators, from International Morse Code, or similarly coded signal texts. Automatic transcription of the tape is possible in conjunction with automatic typewriters and suitable tape scanning devices.

No field changes in effect at time of preparation (14 February 1957).

### RELATION TO OTHER EQUIPMENT

The RD-70/U is the same as Mecanitron Corp. Model MA-126E.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING FREQUENCY: 800 to 5000 cps operating at a level of 0 db or more at 500 ohms.

TYPE TAPE: 3/8 in. wide paper.

PEN STROKE: 3/16 in. or less.

RECORDING SPEED: 5 to 1000 wpm.

INPUT IMPEDANCE

FREQUENCY SHIFT: Approx 150000 ohms.

TELETYPE: Approx 1800 ohms.

POWER REQUIREMENTS: 105 to 125 v, 60 cps, single ph, 150 W.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Mecanitron Corp., Boston, Mass.

Contract NObsr 39364, dated 25 June 1947.

Approximate Cost: \$425.00 with equipment spares.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SK7 (1) 6H6 (1) 6AG7

(1) 6L6 (1) 5U4G (1) 6X5

(3) VR-150

Total Tubes: (9)

### REFERENCE DATA AND LITERATURE

Technical Manual for Code Signal Recorder RD-70/U.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Code Signal Recorder	12-3/4 x 13-1/2 x 20	

October 1957

Radio-Auxiliary

## RECORDER-TIMER

RD-72/UD

## FUNCTIONAL DESCRIPTION

The RD-72/UD provides printed records of radio assay results by recording on printed paper tape. A mechanical counter prints total counts at various intervals between 0 to 99,999 seconds. Facilities are provided for electrically starting, stopping and resetting the timing mechanism.

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

## RELATION TO OTHER EQUIPMENT

Used with but not part of Radiac Sets AN/UDR-6, AN/UDR-6A.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TIME INTERVAL RANGE: 0 to 99,999 sec.

RECORDING MEDIUM: Paper tape.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Simplex Time Recorder Co., Gardner, Mass.,  
Contract NObsr-43290.

## TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Recorder-Timer RD-72/UD  
dated 11 August 1949.

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
---

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Recorder-Timer RD-72/UD	11 x 13 x 15	46

## RECORDER-REPRODUCER SOUND

### FUNCTIONAL DESCRIPTION

The RD-87/U is a portable, electro-magnetic type sound recorder and reproducer which use a magnetically coated tape as a recording medium. The equipment has a volume indicator, remote start and stop control and a self-contained 5 watt amplifier.

No field changes in effect at time of preparation (2 May 1957).

### RELATION TO OTHER EQUIPMENT

Identical to Navy Type IC/VRT-5.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE: electro-magnetic.

RECORDING MEDIUM: magnetically coated tape

RECORDING SPEED: 7-1/2 and 3-3/4 in. per sec.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Sound Inc., Contract NObs-47951.

### TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

### REFERENCE DATA AND LITERATURE

Nomenclature Card for Recorder-Reproducer,  
Sound RD-87/U dated 1 August 1950.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Microphone w/15 ft cable		
2	Input Plugs		
1	Output Plug		
1	Speaker Plug		
1	Remote Start-Stop Plug		
2	Tape Reels		
1	Carrying Case C/O (15) reels of magnetic tape in metal humidior cans		

20 July 1962

Cog Service: TASSA FSN:

SOUND RECORDER-REPRODUCER RD-87A/U  
Functional Class:

USA

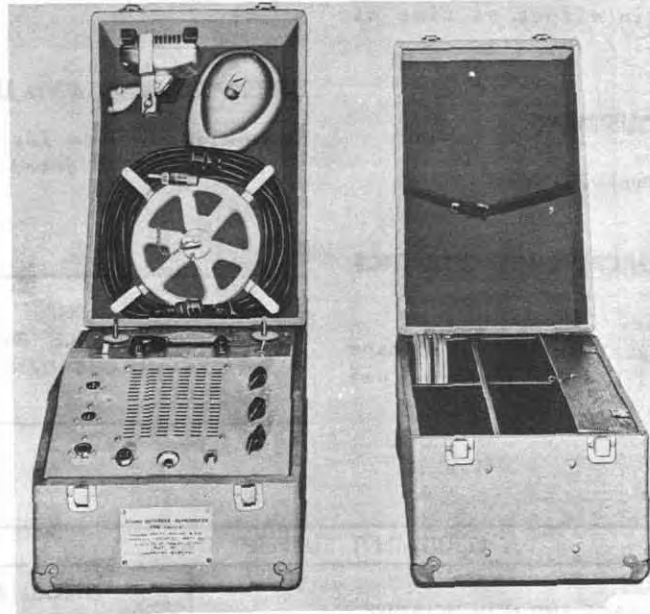
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: Sound Incorporated, (83853).



*Sound Recorder-Reproducer RD-87A/U*

#### FUNCTIONAL DESCRIPTION:

The Sound Recorder-Reproducer RD-87A/U is an electromagnetic type recording and reproducing device, which provides facilities for recording and reproducing audio signals on metallic-oxide coated plastic tape.

No field changes in effect at time of preparation (2 January 1962).

#### TECHNICAL CHARACTERISTICS:

RECORDING MEDIUM: Red oxide-coated plastic tape

SIZE: 1/4 inch wide.

RECORDING TIME:

AT 3-3/4 IPS: 1 hr per track, 2 hrs both tracks.

AT 7-1/2 IPS: 1/2 hr per track, 1 hr both tracks.



---

**RD-87A/U SOUND RECORDER-REPRODUCER**

---

**FREQUENCY RESPONSE**

AT 3-3/4 IPS: 50 to 5,000 cps P4 or M10 db from 1 kc ref.

AT 7-1/2 IPS: 50 to 8,000 cps P4 or M8 db from 1 kc ref.

AMPLIFIER GAIN: 47 db.

TOTAL HARMONIC DISTORTION: Less than 6%.

**MICROPHONE**

TYPE: Moving coil dynamic.

IMPEDANCE: Low M35 to 50 ohms; medium M150 to 250 ohms; high-screw adjustment.

OUTPUT LEVEL: M56 dbm.

FREQUENCY RESPONSE: 50 to 8,000 cps P2 db.

OPERATING POWER RQMT: 108 to 122 v ac, 55 to 65 cps, single ph, 100 va.

**RELATION TO OTHER EQUIPMENT:**

The RD-87A/U is electrically and mechanically interchangeable with the RD-87/U except for maintenance parts.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Sound Recorder-Reproducer RD-87A/U		11 x 11-5/8 x 16-3/4	38
1	Set of Equipment Spares		10-1/8 x 10-3/8 x 16-1/2	17

---

**REFERENCE DATA AND LITERATURE:**

TM11-2584; Technical Manual for Sound Recorder-Reproducer RD-87A/U.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: (1) 12AT7WB (1) 12AY7 (1) 6C4WA (1) 6E5 (1) 6X4WA (2) 6005-6A05W

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.9	43
1	1.9	20

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: TASSA

DESIGN COG: TASSA

SPEC &amp;/OR DWG:

1.2 RD-87A/U: 2

---

**SOUND RECORDER-REPRODUCER RD-87A/U**

---

<b>CONTRACTOR</b>	<b>LOCATION</b>	<b>CONTRACT OR ORDER NO.</b>	<b>APPROX. UNIT COST</b>
Sound Incorporated Type no. 963-5	Chicago, Illinois	28758-PHILA-55	

---

April 1958

**FACSIMILE RECORDER**Radio-Auxiliary  
**RD-92/UX,-92A/UX***Facsimile Recorder RD-92/UX***FUNCTIONAL DESCRIPTION**

The RD-92/UX and RD-92A/UX are used to make direct recordings of copy transmitted from a Facsimile Transmitter TT-41( )/TXC-1B, or equipment having the same transmission characteristics. The image recordings may be pictures, maps, sketches, typewritten and printed text, or handwriting. They are used for recording facsimile signals from either wire or radio communication circuits.

They are connected directly to the line when used with wire lines. When used with radio circuits, the auxiliary equipment required is determined by the type of modulation used. The modulation used may be amplitude modulation, audio-frequency shift modulation, or radio-carrier frequency shift modulation. With two recorders in a facsimile installation, unattended automatic phasing and starting to provide 40 minutes of continuous operation, can be provided with the addition of a Times Facsimile Model AST Automatic Start and Transfer Unit.

They are self-contained units mounted on a standard relay-rack panel. The rack may be equipped with shock mounts for bench use, or with rollers to permit use as a file cabinet drawer.

The RD-92/UX and RD-92A/UX are fundamentally the same, differing slightly in circuit design to improve operation of the RD-92A/UX.

No field changes in effect at time of preparation (26 December 1957).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (1) Frequency Shift Converter CV-172( )/U for radio operation, (1) Automatic Start and Transfer Unit for automatic phasing and starting operation.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE RECORDING MECHANISM: Rotating drum.  
RECORDING SHEET SIZE: 12 x 19-1/8 in.  
RECEIVED COPY SIZE: 12 x 18-3/4 in. max.  
INDEX OF COOPERATION: 576 (International index).

TYPE OR RECORDING: Direct stylus.

**DRUM DATA**

SPEED: 60 rpm.

SPEED CONTROL: Synchronous motor controlled by 1800 cps fork oscillator.

TYPE MODULATION: AM.

INPUT FREQUENCY: 500 to 10000 cps.

SIGNAL LEVEL: 0 to -40 dbm.

INPUT IMPEDANCE: 2000 ohm.

SIGNAL CONTRAST(BLACK TO WHITE): Adjustable from 10 to 20 db.

POWER REQUIREMENTS: 90 to 130 v, 55 to 65 cps, single ph, 150 W.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Times Facsimile Corp, New York, N. Y.  
Contract NObsr-52050, dated 18 October 1950 (RD-92A/UX).

Approximate Cost: \$1975.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) OA3	(1) 6AG7Y
(3) 1635	(2) 6SL7WGT
(1) 5727/2D21W	(5) 6SN7WGTA
Total Tubes: (13)	
(5) 1N34A	
Total Crystals: (5)	

Radio-Auxiliary

RD-92/UX,-92A/UX

## FACSIMILE RECORDER

April 1958

## REFERENCE DATA AND LITERATURE

NAVSHIPS 91401: Technical Manual for Fac-  
simile Recorder RD-92/UX.

NAVSHIPS 91630: Technical Manual for Fac-  
simile Recorder RD-92A/UX.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE SHIPS-F-262  
STOCK NO.

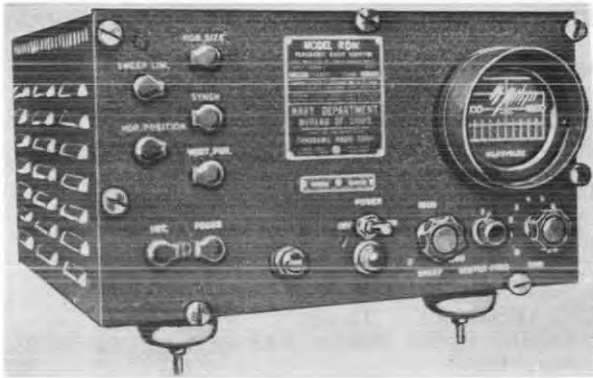
## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	RD-92/UX			
	Not Available			
1	RD-92A/UX Facsimile Recorder RD-92A/UX including: (2) Technical Manual NAVSHIPS 91630 (100) stylus	6.3	19 X 22 X 26	140
1	Recording Paper TIMEFAX ND(10 pkg)	3.4	9-1/2 X 23-1/2 X 26	100
1	Set of Equipment Spares	0.7	7-1/2 X 10-1/2 X 16	40

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RD-92/UX Facsimile Recorder RD-92/UX including: Cabinet	14-1/2 X 16-1/2 X 20	71
1	RD-92A/UX Facsimile Recorder RD-92A/UX including: Cabinet	14 X 17-21/32 X 19-1/8	75

## PANORAMIC RADIO ADAPTOR



*Panoramic Radio Adaptor RDK*

PRESENTATION: 3 inch Cathode Ray Tube.  
INPUT FREQUENCY: 30 mc.  
MAX SWEEPWIDTH: 3 mc.  
SWEEP FREQUENCY: 30 cps from 60 cps power source; or 25 cps from 50 cps power source.  
POWER SOURCE REQUIRED: 115 or 230 v, single ph, 50 to 70 cps.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Panoramic Radio Corp, New York, N.Y.  
Contract NXss-33781, dated 30 June 1943.  
Approximate Cost: \$150.00 with equipment spares.

### FUNCTIONAL DESCRIPTION

The Navy Model RDK, when connected to a radio receiver, enables an operator to see on a cathode ray tube, all stations receivable within a 3 megacycle band of the station to which he is listening. This allows quick interception of stations appearing on the air even for short periods of time. The adaptor must be with a superheterodyne receiver having an intermediate frequency of 30 megacycles.

No field changes in effect at time of preparation (17 April 1958).

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0D3W	(1) 955
(1) 6SA7Y	(1) 3BP1
(1) 6X5WGT	(2) 6SL7WGT
(1) 2X2A	(2) 6AC7WA
(1) 6SG7Y	(1) 6SQ7GT

Total Tubes: (12)  
No Crystals used.

### RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: Input connecting cable, AC power cable, and accessories necessary to connect to radio receiver.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

SENSITIVITY: 1/4 inch deflection at 200 uv input.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 95259: Technical Manual for Navy Model RDK Panoramic Radio Adaptor.

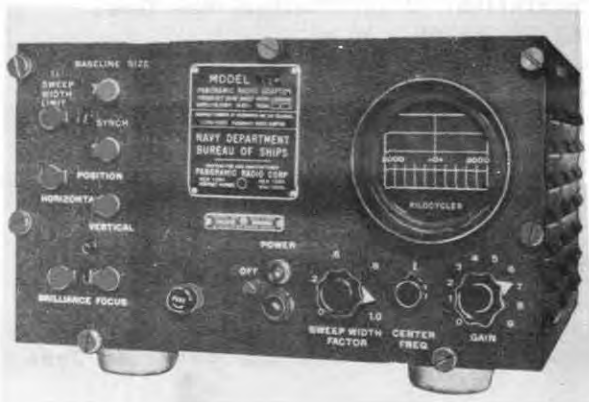
TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
---

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Panoramic Radio Adaptor -55145	8-3/4 x 13-1/2 x 15	43
1	Set of Equipment Maintenance Parts		

# PANORAMIC RADIO ADAPTOR

REC



Front View, Model REC

## FUNCTIONAL DESCRIPTION

The Navy Model REC, type CPN-55155 panoramic radio adapter is a type of electronic equipment which provides additional information for a U.S. Naval Radio Operator.

Upon connecting the panoramic adaptor to the proper radio receiver, the operator will be enabled to see, on a screen, all stations receivable within a six (6) megacycle (mc) band of the station to which he is listening. This band extends three (3) megacycles (mc) above and below the frequency to which the receiver is tuned. The receiver will operate normally and the operator will not only hear the station to which it is tuned, but will also see it and signals of adjacent frequency. This will allow him to intercept quickly any stations appearing on the air, even for short periods of time.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

SWEEP VOLTAGE WAVEFORM: Sawtooth linear.  
 SWEEP FREQUENCY ADJUSTMENT: 30 cycles.  
 OSCILLATOR SWING UP:  $\pm 3$  mc.  
 OSCILLATOR MEAN FREQUENCY: 23.5 mc approx.  
 I.F. TRANSFORMER ADJUSTED TO: 6.5 mc approx.  
 PEAK TO CENTER AMPLITUDE RATIO: 4:1.  
 PEAK FREQUENCY: 32.5 mc.  
 BANDPASS AMPLIFYING STAGE: 27.5 mc.  
 BLOCKING RESISTOR REQUIRED: 27,000 ohms.  
 MAXIMUM SWEEPWIDTH: 6 mc.  
 INPUT FREQUENCY: 30 mc.  
 OPERATING POWER RQMT: 115 or 230, 50 to 7 cps, 1 ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Panoramic Radio Corp., New York, N.Y.  
 Contract NXsr-83439.

## TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6AC7	(1) 6SQ7	(1) 2X2
(1) 6SA7	(1) VR150/30	(1) 6X5GT/G
(2) 6SL7GT/G	(1) 3BP1	(1) 955

Total Tubes: (12)  
 No Crystals used.

## REFERENCE DATA AND LITERATURE

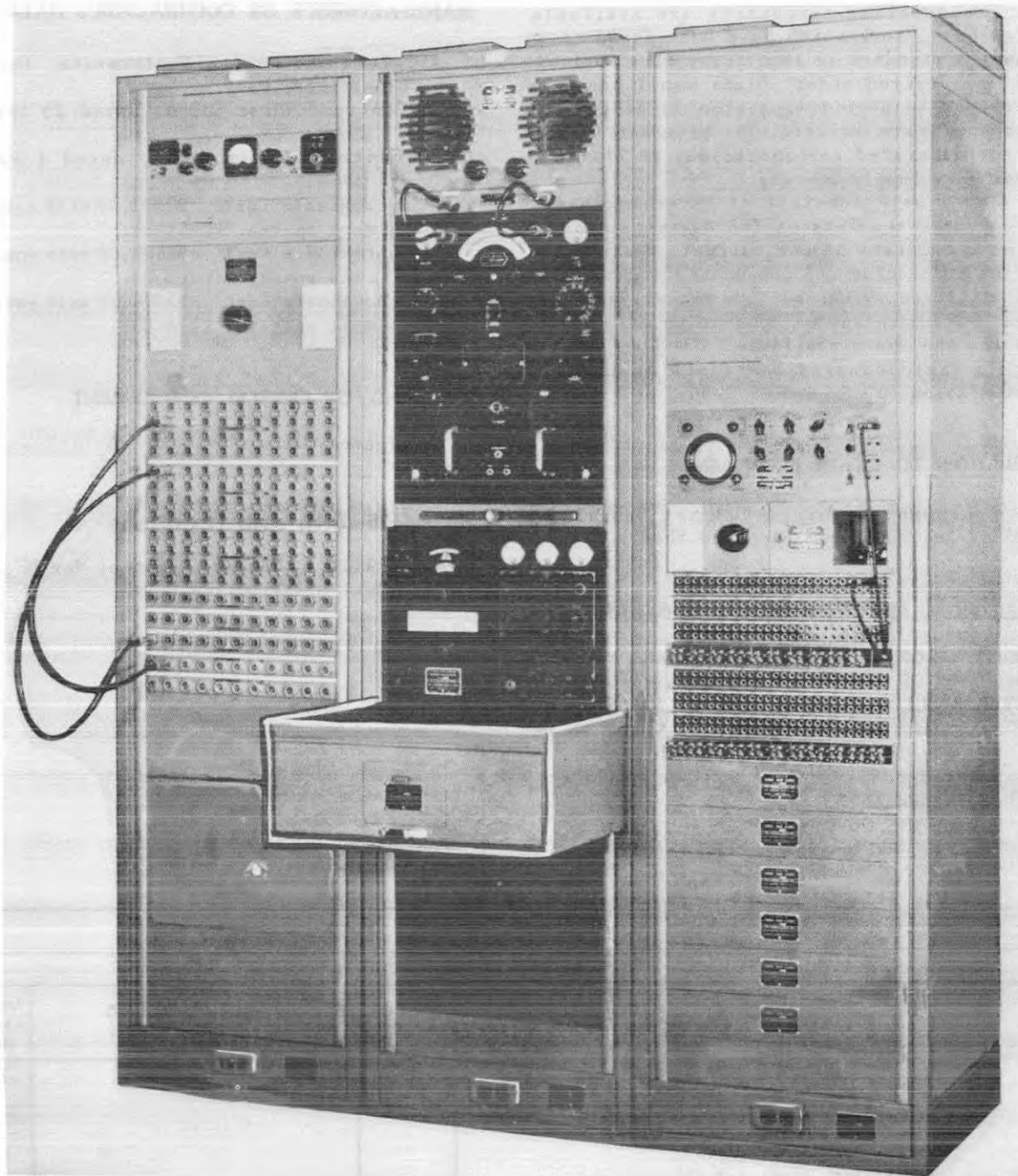
Technical Manual REC for the Panoramic Radio Adaptor.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Panoramic Radio Corp REC	8-3/4 X 13-1/2 X 15	43

## RF AND AF SIGNAL DISTRIBUTION UNIT

RF,AF TYPE  
A,B,C

*RF and AF Signal Distribution Unit RF, AF Type A, B, C.*

**FUNCTIONAL DESCRIPTION**

The Navy Signal Distribution Unit Type A, B and C are standardized RF and AF manually operated switching and monitoring equipments

for use in Naval Shore communication centers. These equipments permit standardization of components, method of installation and maximum operational flexibility when installed.

June 1957

Radio-Auxiliary

**RF,AF TYPE  
A,B,C****RF AND AF SIGNAL DISTRIBUTION UNIT**

Standardized components are available from Navy Stock which have been designed to mount in standard 19 inch relay rack cabinets in any desired order. Blank panel space is provided to permit expansion as additional components are required. The necessary Government furnished components may be obtained from Navy Supply Sources.

The Type A consists of three cabinets, the Type B consists of two cabinets and the Type C consists of one cabinet. Basic operating procedures and components are the same of all three types, but the number, arrangement, and mounting of components are altered to fit the space available.

No field changes in effect at time of preparation (12 September 1956).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied:  
NOTE: See Equipment Supplied Sheet.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

IMPEDANCE OF RF COMPONENTS: 70 ohms nominal.

IMPEDANCE OF RF LOADS: 600 ohms nominal.

POWER REQUIREMENTS: 115 v  $\pm 10\%$ , 58 to 60 cps single ph, or 230 v  $\pm 10\%$ , 58 to 60 cps may be substituted if all internally mounted components served are capable of operation on 230 v.

**CONNECTING CAPABILITIES**

TYPE A: 32 antenna and 32 receivers.

TYPE B: 22 antenna and 22 receivers.

TYPE C: 11 antenna and 11 receivers.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Airplane and Marine Instruments, Inc.;  
Clearfield, Pa.

Contract NObsr 30000, dated 23 April 1946.

Contract NObsr 52521, dated 4 June 1951.

Approximate Cost: \$3300.00 with equipment spares. (Unit A).

Approximate Cost: \$2600.00 with equipment spares. (Unit B).

Approximate Cost: \$1500.00 with equipment spares. (Unit C).

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91047: Technical Manual for RF and AF Signal Distribution Unit.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Cabinet CY-597/G including: (1) Switch Panel SA-137G (3) Jack Panel J-238/G (3) Jack Panel J-239/G (2) Jack Panel J-237/G (2) Jack Panel J-243/G (2) Blank Panel Size "B" (2) Blank Panel Size "C" (2) Blank Panel Size "D"	45	25 X 32 X 93	576
1	Cabinet CY-597/G including: (1) Jack Panel J-243/G (1) Jack Panel J-265/G (1) Mounting MX-571/G (1) Blank Panel Size "A"	45	25 X 32 X 93	518



## RF AND AF SIGNAL DISTRIBUTION UNIT

Radio-Auxiliary  
RF,AF TYPE  
A,B,C

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(1) Blank Panel Size "B" Cabinet CY-579/G including (3) Jack Mounting Strip NT-491394 (2) Patchcord Storage Panel MX-814/G (2) Retainer-Pulley Assembly MX-813/G (6) Terminal Board Assembly J-242/G (1) Blank Panel Size "B" (1) Blank Panel Size "G" (1) Blank Panel Size "F"	45	25 X 32 X 93	583
1	(2) Technical Manual NAVSHIPS 91047 (1) AF Switch Panel SA-135/G (16) Control C-443/G (1) Switchboard Shelf FN-28/G	13	19 X 27 X 42	274
1	Set of Spare Parts Type B Unit	1.3	9-3/4 X 13-3/4 X 19-1/4	29
1	Cabinet CY-597/G (1) Jack Panel J-265/G (1) Mounting MT-571/G (1) Switch Panel SA-137/G (2) Jack Panel J-238/G (2) Jack Panel J-239/G (1) Jack Panel J-237/G (2) Jack Panel J-243/G (1) Blank Panel Size "B" (1) Blank Panel Size "C"	45	25 X 32 X 93	578
1	Cabinet CY-597/G including: (5) Jack Mounting Strip NT-491394 (2) Patchcord Storage Panel MX-814/G (2) Retainer-Pulley Assembly MX-813/G (5) Terminal Board J-242/G (2) Blank Panel Size "A" (1) Blank Panel Size "F"	45	25 X 32 X 93	570
1	(2) Technical Manual NAVSHIPS 91047 (1) Box of Misc. Hardware, Connectors, Lacing Twine etc (1) Speaker Assembly LS-139/G (1) AF Switch Panel SA-135/G (1) Control C-443/G (1) Switchboard Shelf FN-28/G	10	16 X 26 X 41	229
1	Set of Spare Parts Type C Unit	1.3	9-3/4 X 13-3/4 X 19-1/4	26
1	Cabinet CY-597/G including: (1) Jack Panel J-237/G (1) Jack Panel J-238/G (1) Jack Panel J-239/G (1) Jack Panel J-243/G (2) Jack Mounting Strip NT-491394 (1) Patchcord Storage Panel MX-814/G (1) Retainer-Pulley Assembly MX-813/G (2) Terminal Board Assembly J-242/G (1) Blank Panel Size "A" (1) Blank Panel Size "E"	45	25 X 32 X 93	539
1	(2) Technical Manual NAVSHIPS 91047			
1	Box of Misc Hardware, Connectors Lacing Twine etc (1) Speaker Assembly LS-139/G (1) Switchboard Shelf FN-28/G			
1	Set of Spare Parts	0.86	8-3/4 X 10-3/4 X 17-1/8	16

June 1957

Radio-Auxiliary

RF,AF TYPE

## RF AND AF SIGNAL DISTRIBUTION UNIT

A,B,C

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
3 2 1	Cabinet CY-597/G including:	22-3/8 X 26 X 87-1/2	276
2 2 2	Mounting Strips and appropriate mounting clips		
1 1 1	Switch Panel SA-134/G	2-7/8 X 6-31/32 X 20-5/8	10
1 1 2	Conduit end Cover		
1 1 -	Switch Panel SA-135/G	5-7/32 X 11-3/4 X 19	10.3
1 1 -	Switch Panel SA-137/G	12 X 12-7/32 X 19	25
16 11 -	Control C-443/G	5-7/32 X 7 X 7-3/4	5
2 1 1	Jack Panel J-237/G	1-23/32 X 2-1/8 X 19	2.3
3 2 1	Jack Panel J-238/G	3 X 5-7/32 X 19	10.2
3 2 1	Jack Panel J-239/G	1-23/32 X 4-1/4 X 19	4.9
3 2 1	Jack Panel J-243/G	7 X 8-23/32 X 19	70.3
1 1 -	Jack Panel J-265/G	1-23/32 X 2-1/8 X 19	14
6 5 2	Terminal Board Assembly J-242/G	3-15/32 X 4 X 19	2.9
1 1 1	Speaker Assembly Panel LS-139/G	6-1/4 X 8-23/32 X 19	8.9
1 1 1	Switch Board Shelf FN-28/G	8-23/32 X 16-3/4 X 22-1/2	45.5
1 1	Mounting MT-571/G	1-23/32 X 16-7/8 X 19	12.1
6 5 2	Jack Mounting Strip NT-491394	1-23/32 X 3-3/8 X 19	5.8
2 2 1	Patchcord Storage Panel MX-814/G	1-1/4 X 1-23/32 X 19	2
2 2 1	Retainer-Pulley Assembly MX-813/G	2-3/4 X 3-3/4 X 20-1/4	8.5
5 6 3	Blank Panels Size "A"	3/16 X 1-23/32 X 19	0.6
5 3 2	Blank Panels Size "B"	3/16 X 3-15/32 X 19	1.3
2 2 1	Blank Panels Size "C"	3/16 X 5-7/32 X 19	1.9
2 3 1	Blank Panels Size "D"	3/16 X 6-31/32 X 19	2.5
1 1 1	Blank Panel Size "E"	3/16 X 8-23/32 X 19	3.1
1 1	Blank Panel Size "F"	3/16 X 10-15/32 X 19	3.7
1 1	Blank Panel Size "G"	3/16 X 12-7/32 X 19	4.4
1	Blank Panel Size "H"	3/16 X 13-31/32 X 19	5
263 186 77	Connectors NT-49190		
20 15 10	Panel Screws #10/32 X 1/2 BH		
2 2 2	Code Marker Sets		
22 22 11	AF Patchcords installed in MX-814/G NT-491397A	36 in. lg	0.5
1 1 1	Spool #6 lacing twine		
12 8 4	Cabinet holding-down bolts (1/2 in. X 3 in. lg bolts)		
36 24 12	Clamp Bars each Complete with 3 #10/32 X 1 in. round screws	11-3/4 in. lg	
1	Set of equipment Spares	6-1/4 X 10-1/4 X 13-1/4	19
1	Set of Equipment Spares	6-1/4 X 10-1/4 X 13-1/4	16
1	Set of Equipment Spares	5-1/4 X 7-1/4 X 11-1/8	9
2 2 2	Technical Manual NAVSHIPS 91047		
	GFE		
A B C			
1 1 1	Ohmmeter ZM-1/U	3-15/32 X 11 X 19	11.9
1 1 1	Multimeter OBQ-4	5-7/32 X 19 X 7-1/2	12
1 1 1	Volume Level Indicator TS-629/U	3-15/32 X 19 X	20
1 1 1	Oscilloscope OBL-3a with:	6-31/32 X 15-1/2 X 19	26.7
1 1 1	Mounting Adapter Kit NT-RL-10625		
1 1	Frequency Meter LR-1	17-1/2 X 19 X 22-3/4	155
1	Frequency Meter IM-15a with:	8-23/32 X 15-1/2 X 19	123
1	Mounting Adapter Kit NT-R1-10625		
1	Radio Receiver RBC Series with:	14-3/4 X 19 X 20-1/8	82
1	Rack Mounting Cabinet NT-10350		
1	Power Supply NT-20130 with:	10 X 14 X 19	52
1	Rectifier Mounting Shelf NT-10348		
1 1 1	Set of Electrical Accessories		
1 1 1	Set of Tools		

23 July 1962

Cog Service: USN FSN: 5835-669-8731

RECORDING TAPE REWINDER RL-177/UG  
Functional Class:

USA

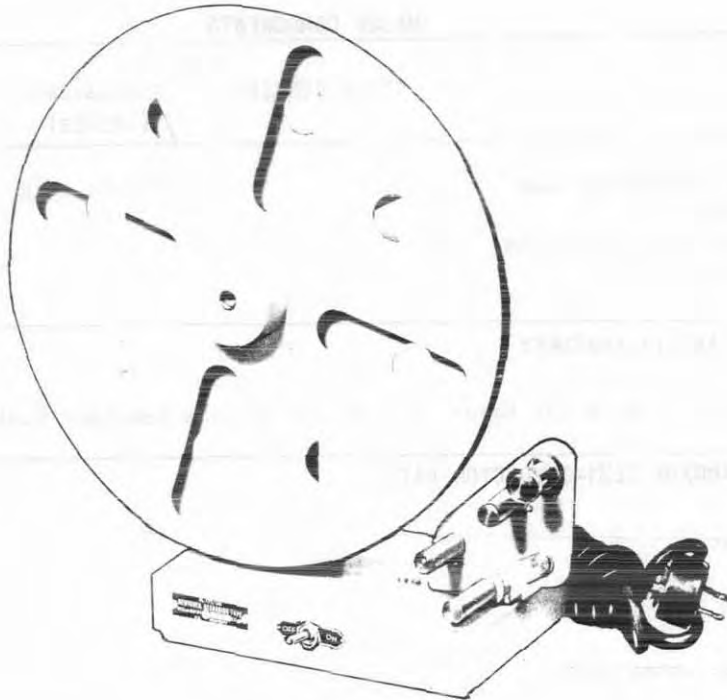
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Whiteford Laboratory.



*Recording Tape Rewinder RL-177/UG*

**FUNCTIONAL DESCRIPTION:**

Recording Tape Rewinder RL-177/UG is a device for rewinding and storing coded paper tape emanating from ink tape recorder, teletypewriters, magnetic recorders, etc. It has provisions for accommodation of different width tapes, and tape snubbing action is provided by means of rollers and guides, so that during operation the tape tension may be adjusted to the required amount.

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

**TECHNICAL CHARACTERISTICS:**

TAPE ACCOMMODATION DATA

LENGTH: 1,000 ft max.

WIDTH: 1/2, 3/8, 7/8 or 11/16 in.



4 January 1962

RECORDING TAPE REWINDER RL-177A/UG

Cog Service:

FSN:

Functional Class:

USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Whiteford Laboratory.

(No Illustration Available)

**FUNCTIONAL DESCRIPTION:**

Recording Tape Rewinder RL-177A/UG is a device for rewinding and storing coded paper tape emanating from ink tape recorder, teletypewriters, magnetic recorders, etc. It has provisions for accommodation of different width tapes, and tape snubbing action is provided by means of rollers and guides, so that during operation the tape tension may be adjusted to the required amount.

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

**TECHNICAL CHARACTERISTICS:**

**TAPE ACCOMMODATION DATA**

LENGTH: 1,000 ft max.

WIDTH: 1/2, 3/8, 7/8 or 11/16 in.

TAPE SPEED: 0 to 120 ft per min.

TAPE TENSION: Variable from 1/2 to 20 in. ounces.

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

**RELATION TO OTHER EQUIPMENT:** None.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

**MAJOR COMPONENTS**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Rewinder, Recording Tape RL-177A/UG		6 x 14 x 14	12
2	Technical Manual NAVSHIPS 94126			

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 94126: Technical Manual for Recording Tape Rewinder RL-177A/UG.

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**RL-177A/UG RECORDING TAPE REWINDER**

---

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1	15

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE:

DESIGN COG: USN, BuShips

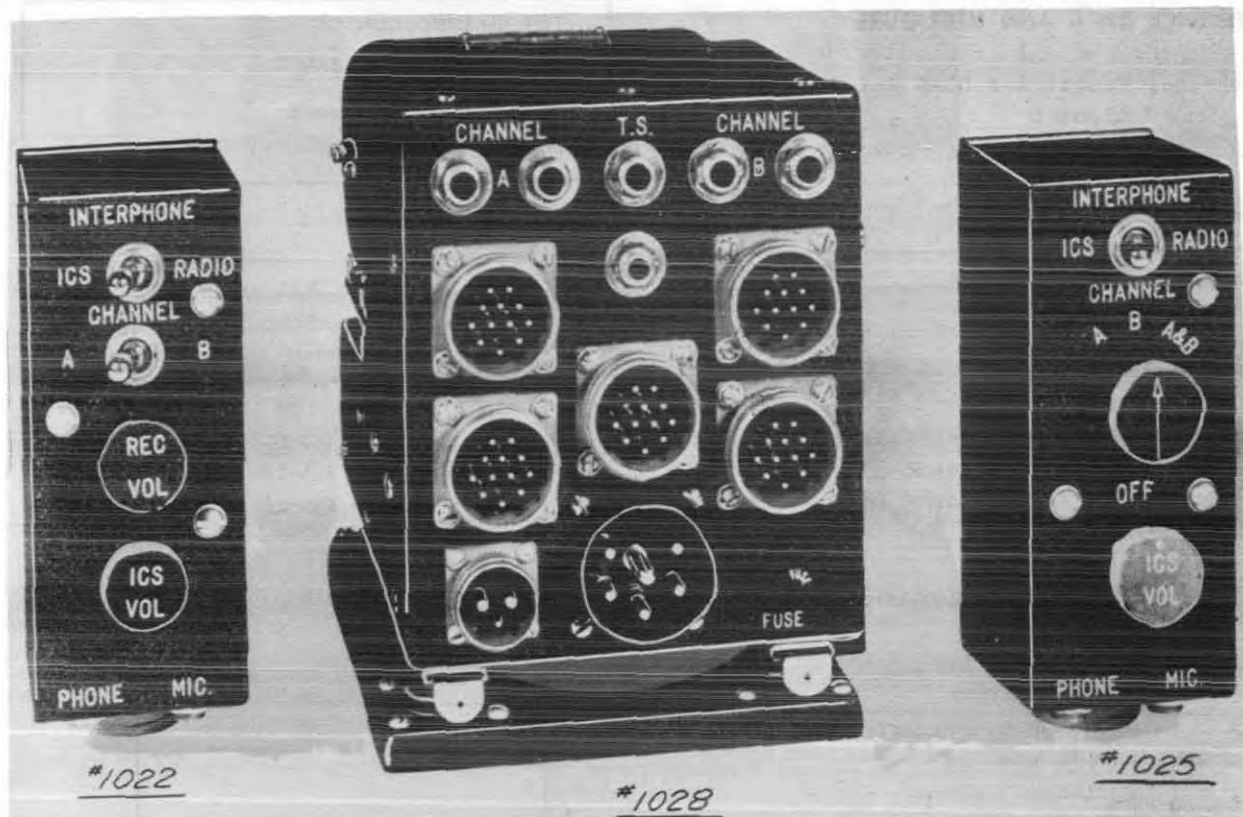
SPEC &amp;/OR DWG: SHIPS-R-3117

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Whiteford Laboratory	Lynn, Massachusetts	N0bsr-85171, 28 December 1960	\$109.67

---

## AIRCRAFT INTERCOMMUNICATION SET



*Aircraft Intercommunication Set RL-5*

### FUNCTIONAL DESCRIPTION

The RL-5 interphone apparatus is designed to furnish an all purpose intercommunication system for the crew of a 2 to 5 place plane. In addition to equipping the plane with a full two way intercommunication system, it further permits interswitching and mixing of the radio apparatus of the airplane.

No field changes in effect at time of preparation (14 October 1958).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

NUMBER OF STATIONS: 5.  
PRIMARY POWER SOURCE: 24 to 28 v aircraft dc system.  
HIGH VOLTAGE SOURCE: Dynamotor

FILAMENT VOLTAGE: 12.6 v.  
FILAMENT CURRENT: 150 ma.  
PLATE VOLTAGE: 250 v.  
POWER CONSUMPTION: 35 W.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Sound Equipment Corp., of California,  
Hollywood, California.

Contract NOS-LL-150A, dated 15 April  
1942.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 12SQ7 (1) 12A6  
Total Tubes: (2)

No Crystals Used.

## AIRCRAFT INTERCOMMUNICATION SET

## REFERENCE DATA AND LITERATURE

Technical Manual for RL-5 Aircraft Inter-  
phone Equipment.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUAER

PROCUREMENT COGNIZANCE

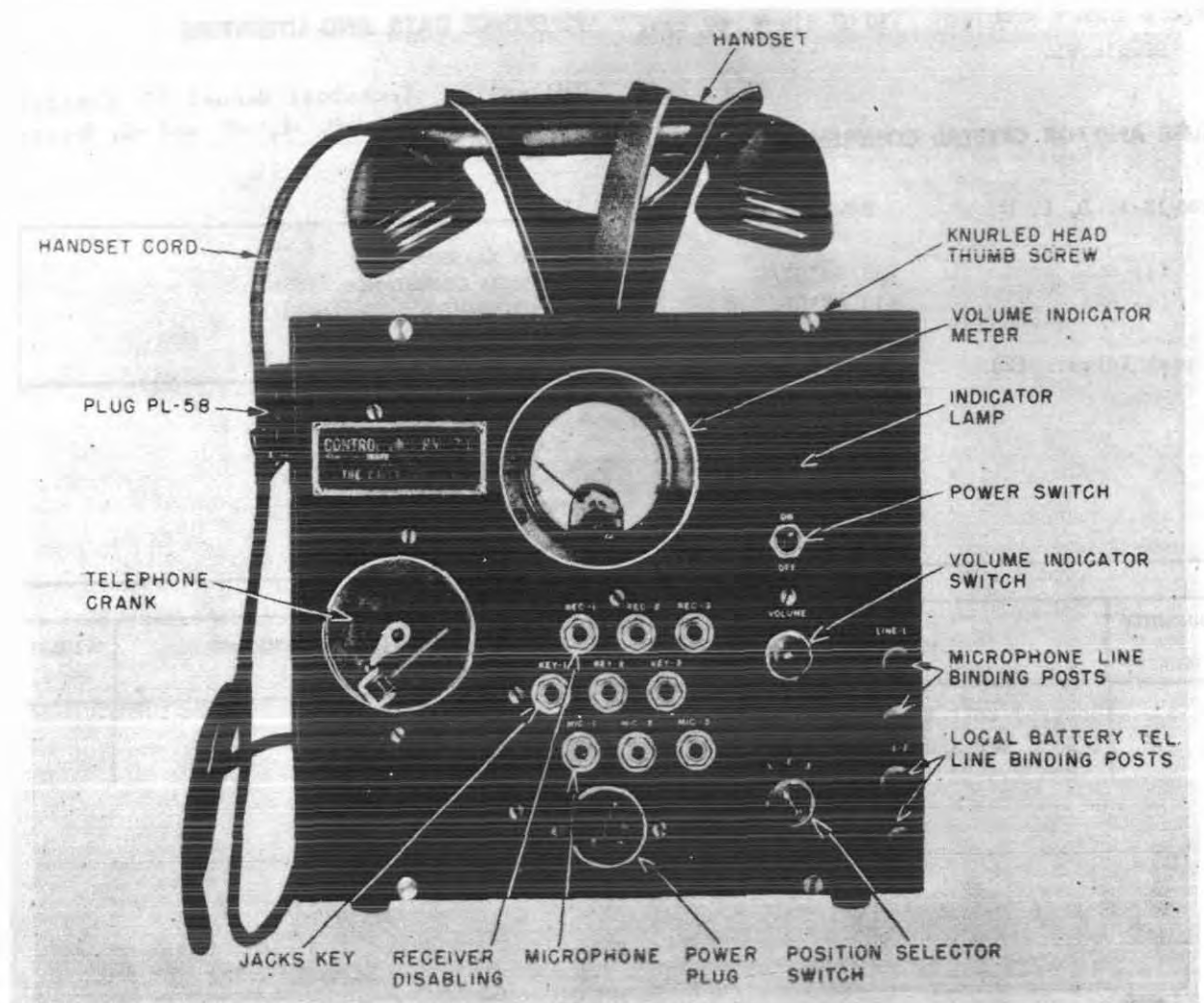
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Intercommunication Set, RL-5, Including:		12.97
1	Interphone Amplifier Unit	5-1/16 X 6-5/8 X 8-1/8	
1	Pilot's Control Box	2-3/16 X 2-3/8 X 5-1/4	
1	Operator's Control Box	2-3/16 X 2-3/8 X 5-1/4	
1	Ferrule		
1	Coupling Nut		
1	Power Cord Receptacle		
8	Radio Plug		
2	Microphone Plug		
3	Plug Dust cover		
4	Interconnecting Cord Receptacle		
4	Cable Bushings		
2	Packages Spaghetti		
1	Package Ground Wire		
	Power and Microphone Cable	58 lg	
	Interconnecting Cable	24 lg	
3	Instruction Book		
1	Set Operating Spare Parts		



## CONTROL UNITS

Radio-Auxiliary  
RM-13-A,B,C,D,G

Control Units RM-13-A, B, C, D, G

**FUNCTIONAL DESCRIPTION**

The RM-13-A, B, C, D, G are part of Remote Control Equipments RC-47-A, RC-47-B, RC-47-C, RC-47-D, and RC-47-G respectively and are used for the control and operation of the Radio Transmitter BC-191 series from a remote position. When used in conjunction with the RM-12 series Control Unit, it provides microphone, telegraph and local telephone channels between the remote position and the transmitter location.

The operating range for the equipment depends upon the type of telephone lines with which it is used. With Field Wire W-110-B, the normal operating range is about six miles under wet weather conditions and about 10

miles in dry weather. The normal gain of the microphone amplifier of this unit is 17.5 db.

The principle differences in the models of this series is in the local telephone (line 2) terminating equipment. The RM-13-G uses a phantom bridge resistor arrangement, while the RM-13-A to RM-13-D employ a center tap transformer keying circuit.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OPERATING RANGE: 6 mi in wet weather, 10 mi in dry weather.

MICROPHONE AMPLIFIER GAIN: 17.5 db.

October 1957

Radio-Auxiliary

**RM-13-A,B,C,D,G****CONTROL UNITS**

POWER SOURCE REQUIRED: 110 OR 220 V, 60 cps,  
single ph.

**REFERENCE DATA AND LITERATURE**

TM11-4020: Technical Manual for Control  
Units RM-13-A, -B, -C, -D, and -G, Repair  
Instructions.

**TUBE AND/OR CRYSTAL COMPLEMENT**

RM-13-A, B, C, D

RM-13-G

(1) 6C5

(1) 6J5GT/G

(1) 6X5

(1) 6X5GT

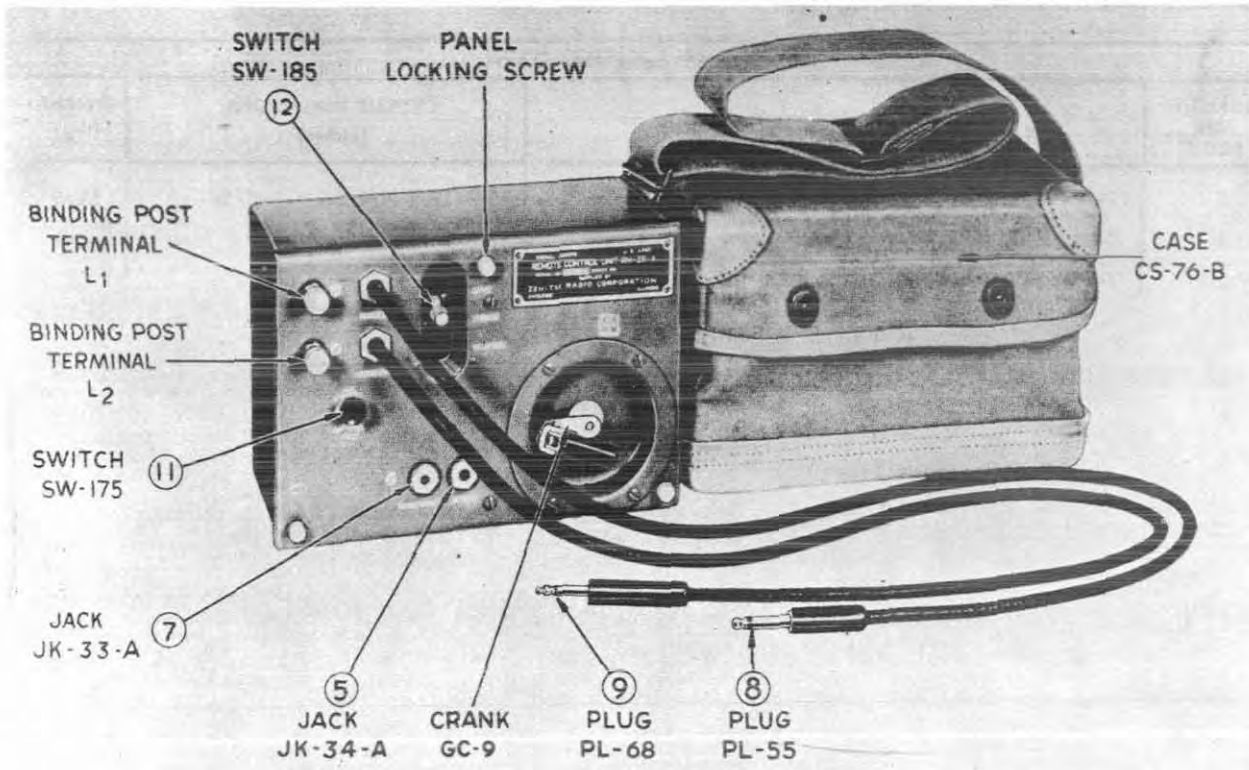
Total Tubes: (2)

Total Tubes: (2)

TYPE CLASSIFICATION DESIGN COGNIZANCE TASSA PROCUREMENT COGNIZANCE STOCK NO.
---

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Control Unit RM-13-A, B, C, D, G with 1 Hand Set and Handset CORD		



Remote Control Unit

### FUNCTIONAL DESCRIPTION

The RM-29-A is a complete and self-contained unit which provides remote control voice operation of Radio Sets SCR-178, SCR-284 series, SCR-299 series, SCR-608 series, SCR-609 series, SCR-610 series, SCR-628 series and other models of similar design. The unit operates in conjunction with Telephone EE-8 series over a two wire telephone wire. Microphone T-17 and Headset P-19 when plugged into the unit are used for transmission and reception of signals via the radio set, for monitoring signals between the telephone and the radio set and for direct telephonic communication with Telephone EE-8 series. The operational positions are selected by a switch on the front panel of the remote control unit. The positions of the switch are marked RADIO, THROUGH AND TELEPHONE.

No field changes in effect at time of preparation (31 July 1956).

### RELATION TO OTHER EQUIPMENT

Similar to RA-29-B except for mechanical placement of component parts.

Equipment Required but not Supplied: (1) Battery BA-27, (1) Headset P-19, (1) Micro-

phone T-17, (1) Switchboard BD-71 or BD-72 or (1) Telephone of the EE-8 series.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER REQUIREMENTS: 4-1/2 v DC at 50 to 95 ma.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Zenith Radio Corp., Chicago, Ill.  
Order No.-7880-Phila.-40 dated

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube

### REFERENCE DATA AND LITERATURE

TM11-308A  
War Dept. Technical Manual for Remote Control Unit RM-29-A.

TYPE CLASSIFICATION DESIGN COGNIZANCE TASSA PROCUREMENT COGNIZANCE 71-1319 (ARMY) STOCK NO.
--

RM-29-A

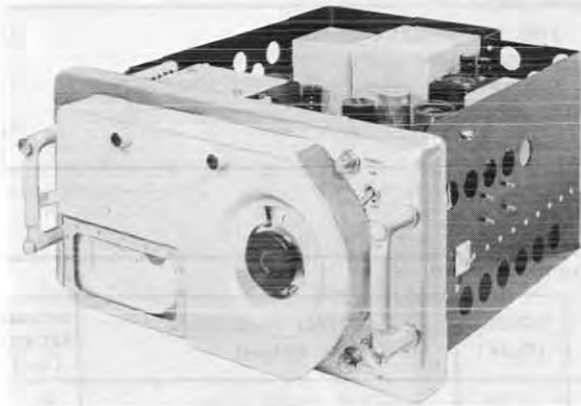
## REMOTE CONTROL UNIT

March 1957

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Remote Control Unit RM-29-A	5-3/16 x 6-5/16 x 9-5/16	13.5
1	Case CS-76-B	7 x 9-1/4 x 10-1/2	2.0
2	Technical Manual TM11-308A		

## TELEGRAPH-CODE TAPE RECORDER



*Telegraph-Code Tape Recorder RO-133/FRR*

### FUNCTIONAL DESCRIPTION

Telegraph-Code Tape Recorder RO-133/FRR provides a means of converting the on-off periods of six separate trains of dc pulses (five information pulses trains, one timing reference pulse train) to 10 kc envelope type pulses, and recording each on a separate track on a single, narrow, dry-type electro-sensitive paper tape. The equipment contains a tape drive mechanism for moving the tape, and electronic circuits to control tape motion and writing. Writing on the tape is accomplished by passing the tape under styli which are fixed in position. Accordingly, the information recorded is in the form of short dashes burned on the upper surface of the tape.

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

### EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Multimeter AN/PSM-4, (1) Multimeter AN/USM-34.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### INPUT SIGNALS

FIVE INFORMATION INPUT CHANNEL SIGNALS

PULSE REPETITION RATE: 2 to 200 char-

acter code groups per sec.  
RECTANGULAR WAVEFORM: 200 usec to 4.7 usec width, "off" voltage of 70 v dc, "on" voltage of 150 v dc.

FUNCTION: Provide signal to individual recording styli.

SOURCE IMPEDANCE: 33,000 ohms or less.

REMARKS: All information pulses will occur during the readout gate "on" time, and no more than one "bit" per channel per readout gate pulse.

#### POSITIVE SIGNAL GATE

DURATION: 0.5 sec.

RECTANGULAR WAVEFORM: "Off" voltage of 70 v dc, "on" voltage of 150 v dc.

FUNCTION: Control start time of recorder.

SOURCE IMPEDANCE: 33,000 ohms or less.

OUTPUT SIGNALS: Output level, each power amplifier develops 1200 v peak-to-peak across 20,000 ohm load; six marking signals recorded on a moving tape.

#### OPERATING LIMITATIONS

AMBIENT TEMPERATURE: 0 to 50° C (32° to 122° F).

RELATIVE HUMIDITY: 40 to 95%.

OPERATING POWER: 105, 115, or 125 v, 60 cy, single ph.

WARMUP TIME: Two minutes after main power is applied.

#### TAPE

SPEED: 100 in.  $\pm$  1 in. per sec.

REMARKS: Speed is reached 5 milliseconds after the leading edge of each start pulse (positive signal gate) is received.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Sylvania Electronic Systems, Div of Sylvania Electric Products, Inc, Buffalo, New York.  
Contract NObsr-75232.

### TUBE AND/OR CRYSTAL COMPLEMENT

(2) 0A2WA (1) 5651WA (1) 5654/6AK5W  
(1) 5670 (1) 6080WA (7) 5725/6AS6W

(8) 6L6WGB

Total Tubes: (21)

#### SEMI-CONDUCTORS

(8) 1N458

Total Semi-Conductors: (8)

No Crystals used.

Radio-Auxiliary

September 1960

**RO-133/FRR****TELEGRAPH-CODE TAPE RECORDER****RELATION TO OTHER EQUIPMENT**

NAVSHIPS 93449: Technical Manual for TELE-  
GRAPH-CODE TAPE RECORDER RO-133/FRR.

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

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Telegraph-Code Tape Recorder RO-133/FRR	2.39	8.625 X 19.00 X 24	90

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Telegraph-Code Tape Recorder RO-133/FRR		

19 December 1961

OSCILLOGRAPH R0-135/U

Cog Service:

FSN:

Functional Class:

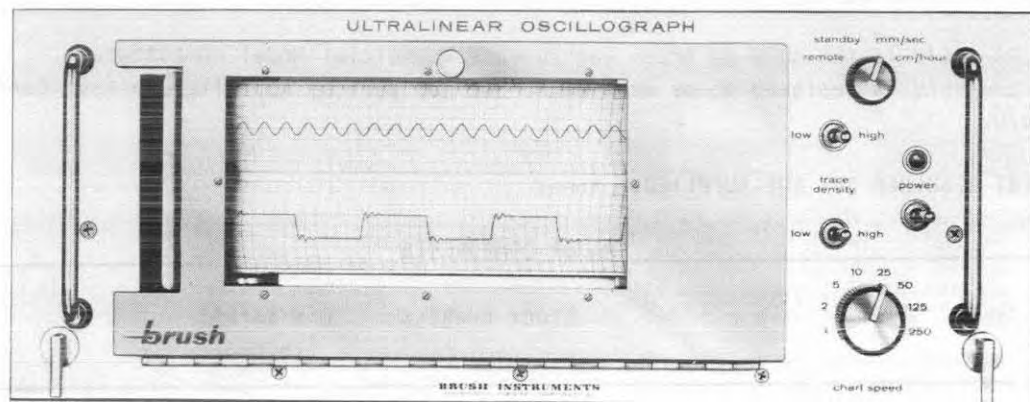
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Brush Instruments/Clevite Corporation.



Oscillograph R0-135/U

#### FUNCTIONAL DESCRIPTION:

The Oscillograph R0-135/U is an ink chart paper and/or an electrosensitive paper recording medium. It is portable and mounts vertically in standard 19 inch rack or console cabinet. It has two (2) recording channels, a recording frequency of 0 to 100 cycles per second (CPS), and a sensitivity of 0.67mm per volt.

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

#### TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Portable.

TYPE OF MOUNTING: Mounts vertical in standard 19 inch rack or console cabinet.

TYPE OF RECORDING MEDIUM: Ink chart paper and/or electrosensitive paper recording medium.

CHART SPEEDS: 1mm, 2mm, 5mm, 10mm, 25mm, 50mm, 125mm, and 250mm per second.

## RO-135/U OSCILLOGRAPH

AMPLITUDE DEFLECTION: 40mm at 0 to 40 cps.  
TYPE OF TRANSMISSION CONTROL: Electronically controlled transmission.  
DC RESISTANCE OF PEN MOTORS: 1400 ohms nominal.  
CHART PAPER DRIFT: Less than 1/3mm.  
ACCESSORY DATA SPEED  
FAST: One second.  
SLOW: 6 minutes.  
OPERATING TEMPERATURE RANGE: 32 deg F to P135 deg F.  
TYPE OF DRIVE MOTOR: Synchronous, direct drive motor.  
OPERATING RECORDING FREQUENCY: 0 to 100 cps.  
OPERATING POWER RQMT: 105 to 125 v ac, 60 cps, single ph, 95 W.  
NUMBER OF CHANNEL: 2 channels.

### RELATION TO OTHER EQUIPMENT:

The RO-135/U is the same as Brush Instruments commercial Model RD-2622-00.

The RO-135/U is designed to be used with, but not part of Amplifier, Direct Current AM-2352/U.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Oscillograph RO-135/U includes: Operating Accessories		7 x 11 x 19	38
1	Cable Clamp (6-pin connector)			
1	Cable Clamp (17-pin connector)			
1	Connector (6-pin AN female)			
1	Connector (17-pin AN female)			
2 oz	Ink Red Model RA2760-02			
2	Operating Instructions			
1	Paper, Ink Writing Model No. RA2921-30 (7530-634-5481)			
1	Pen, Electric Writing Model No. RA2822-31			
1	Pen, Ink Writing Model No. RA2821-31			
1	Pen Mounting Tool			
1	Power Cable			
1	(Pair) Rack Mounting Slides			
2 oz	Solution, Antistatic			
1	Tool Kit			





June 1961

Radio-Auxiliary

## CODE TAPE RECORDER

RO-18/U

## FUNCTIONAL DESCRIPTION

Code Tape Recorder RO-18/U produces code markings on special heat sensitive tape using a heated stylus.

No field changes in effect at time of preparation (10 January 1961).

Model No. WL-1.

Contract NObsr-64153.

Approximate unit cost \$983.13.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystal data available.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

RECORDER MEDIUM: Records on Heat Sensitive type tape.

TYPE OF RECORDING: Heat, on special paper type recording.

NUMBER OF WORDS PER MINUTE: 5 to 300 wpm.

POWER REQUIREMENTS: 110 v, 60 cyc, single ph.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Recorder, Code, Tape RO-18/U.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

Whiteford Laboratory, Lynn, Mass.

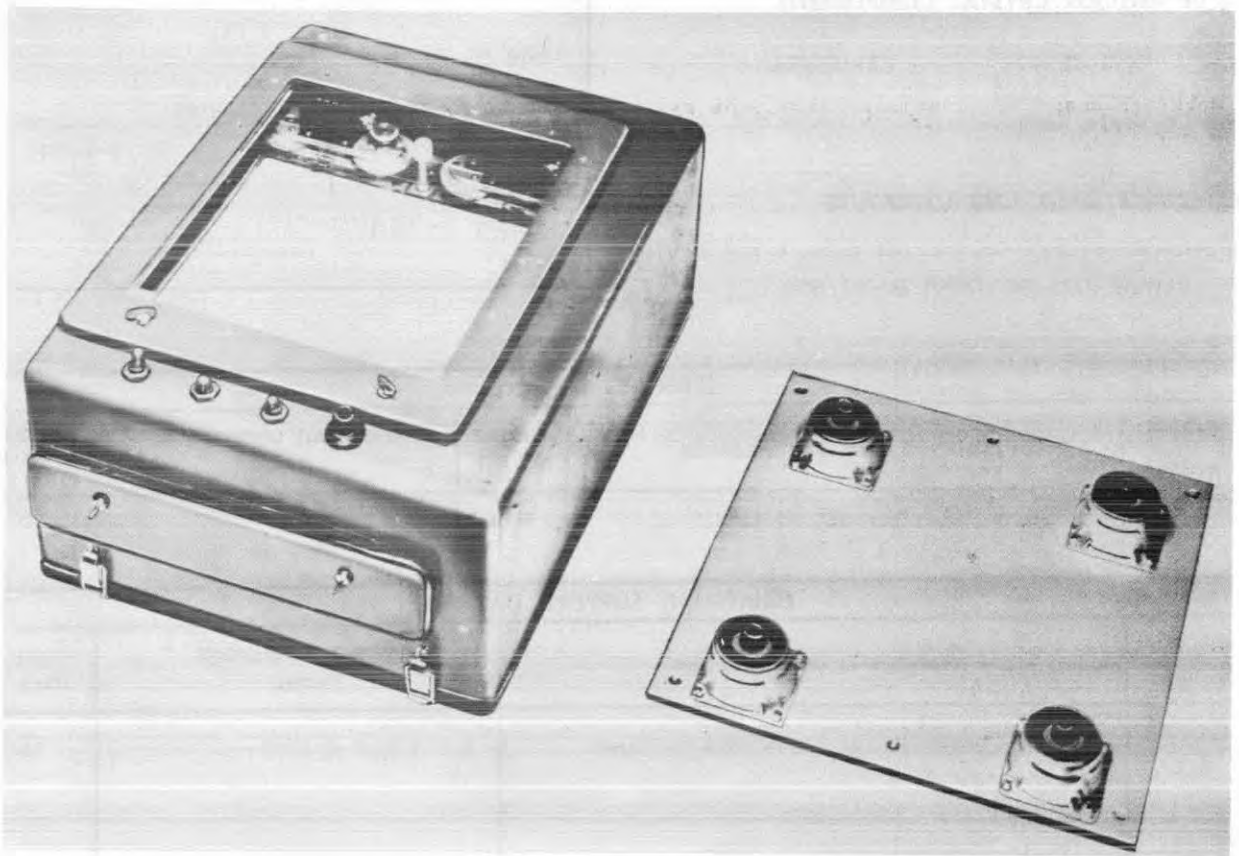
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Code Tape Recorder RO-18/U	4 x 6 x 7	10

February 1960

Radio-Auxiliary  
RO-91/SSN

## NAVIGATION DATA RECORDER



Navigation Data Recorder RO-91/SSN

**FUNCTIONAL DESCRIPTION**

Navigation Data Recorder RO-91/SSN is intended for submarine or shipboard installation and is used as a part of an automatic position indicating system such as the LORAC shipboard navigational receiver, Radio Receiving Set AN/SRN-7.

No field changes in effect at time of preparation (7 October 1959).

**RELATION TO OTHER EQUIPMENT**

This equipment is identical to Brush Instrument Model YL-154.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 115 v  $\pm 10\%$ , 60 cy  $\pm 5\%$ .

1 ph, 10% pf.

POWER CONSUMPTION: 85 W.

FREQUENCY RESPONSE: 2 cps.

RECORDING ACCURACY: 1/100 of full scale up to 1 cps.

RECORDING CHART DRIFT:  $\pm 1/3$  mm.

LINEAL PAPER SPEED ACCURACY: 0.50% deviation.

RECORDING CHART SPEED: 5in/hr, 10in/hr, 20in/hr, 40in/hr, and 80in/hr.

HEAT DISSIPATION: 90 W max.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Brush Instruments, Div. of Clevite Corp.,  
Cleveland, Ohio.  
Contract NObsr-71773.

February 1960

Radio-Auxiliary

**RO-91/SSN****NAVIGATION DATA RECORDER****TUBE AND/OR CRYSTAL COMPLEMENT**

(7) 2N297                      (5) 2N43A  
 Total Tubes: (12)  
 No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93264: Technical Manual for NAVI-  
 GATION DATA RECORDER RO-91/SSN.

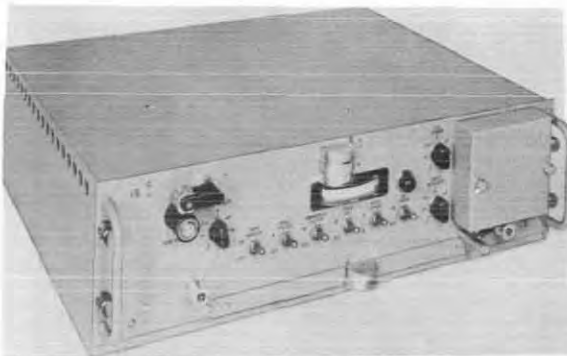
TYPE CLASSIFICATION (NAVY)  
 DESIGN COGNIZANCE USN, BUSHIPS  
 PROCUREMENT COGNIZANCE SPEC: SHIPS-N-2591  
 STOCK NO.                                      AMEND 1

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Navigation Data Recorder RO-91/SSN	5.56	18.5 X 20 X 26	97

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Navigation Data Recorder RO-91/SSN Includes: Shock Mount Base	8.5 X 15.5 X 20.0	71
1	Hardware and 5 Connectors		
2	Technical Manual NAVSHIPS 93264		
1	Maintenance Standards Book NAVSHIPS 93264.42		
1	Performance Standard Sheet NAVSHIPS 93264.32		
1	Operators Instruction Chart NAVSHIPS 93264.21		

**TELEGRAPH-CODE TAPE RECORDER****RO-98/U***Telegraph-Code Tape Recorder RO-98/U***FUNCTIONAL DESCRIPTION**

Telegraph-Code Tape Recorder RO-98/U is a unit designed especially for the purpose of producing code characters on paper tape when connected to the output of any receiver having a tone output of 1,000 cps.

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

**RELATION TO OTHER EQUIPMENT**

This equipment is identical to Whiteford Laboratory Model WL-3.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 10 W, 115 to 120 v, 50 or 60 cy, 1 ph.

tone OUTPUT: 1,000 cps.

VOLTAGE KEYING: -40 v.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Whiteford Laboratory, Lynn, Massachusetts.  
Contract NObsr-75289, dated 12 May 1958.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93394: Technical Manual for Telegraph-Code Tape Recorder RO-98/U.

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

**SHIPPING DATA**

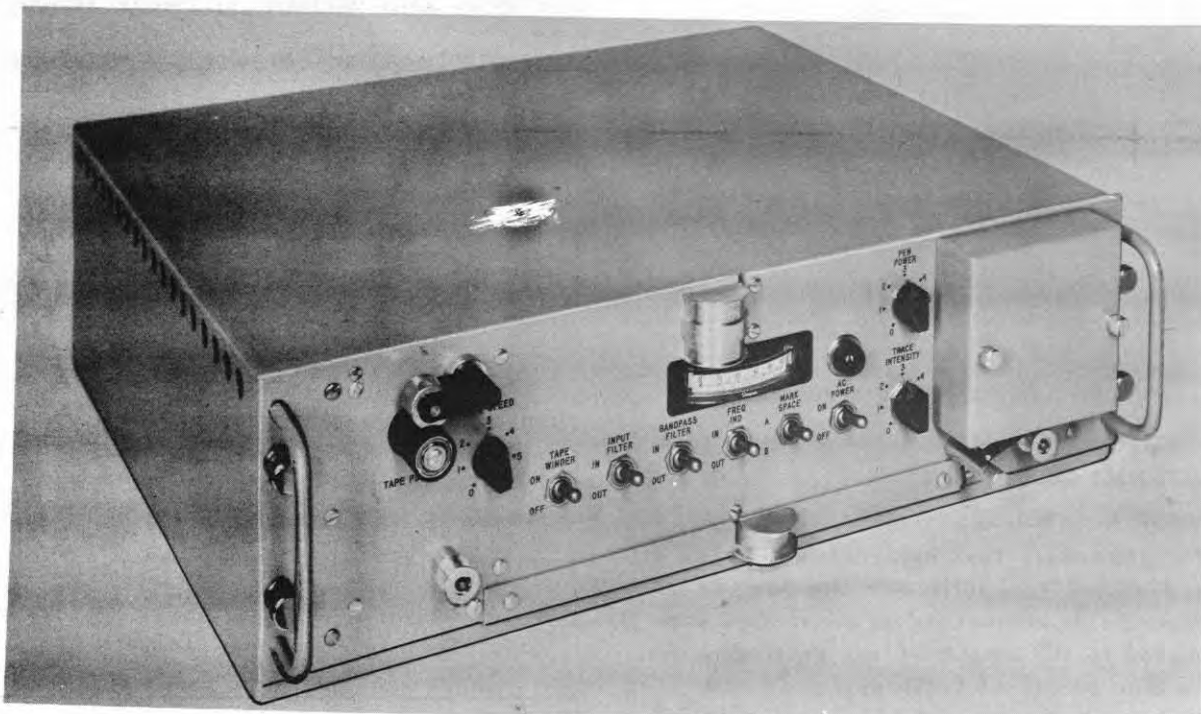
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Telegraph-Code Tape Recorder RO-98/U	1.6	10 X 20 X 22	45

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Telegraph-Code Tape Recorder RO-98/U	5-3/4 X 17 X 19	35

**TELEGRAPH-CODE TAPE RECORDER**

Radio-Auxiliary

**RO-98A/U***Telegraph-Code Tape Recorder RO-98A/U***FUNCTIONAL DESCRIPTION**

Telegraph-Code Tape Recorder RO-98A/U is a unit designed especially for the purpose of producing code characters on paper tape when connected to the output of any receiver having a tone output of 1,000 cps.

No field changes in effect at time of preparation (10 January 1961).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 20 W.

TONE OUTPUT: 1,000 cps.

VOLTAGE KEYING: M40 v.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Whiteford Laboratory, Lynn, Mass.

Model no. WL-3 modified.

Contract NObsr-75289, dated 12 May 1958.

Approximate unit cost \$11,936.62.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Sheet for Recorder, Telegraph Code, Tape RO-98A/U.

TYPE CLASSIFICATION (NAVY)  
 DESIGN COGNIZANCE USN, BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

June 1961

Radio-Auxiliary

RO-98A/U

## TELEGRAPH-CODE TAPE RECORDER

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Telegraph-Code Tape Recorder RO-98A/U			

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Telegraph-Code Tape Recorder RO-98A/U	5-3/4 x 17 x 19	

April 1959

Radio-Auxiliary

**AUTOMATIC RECORD PLAYER****RPA-1****ELECTRICAL AND MECHANICAL CHARACTERISTICS****AUTOMATIC RECORD PLAYER**

CAPACITY: 12-10 inch or 10-12 inch disc records.

TURNTABLE SPEED: 78 R.P.M.

PICKUP: P.N. Crystal.

NEEDLE TYPE: "Fideltone" Platinum Point-2000.

POWER CONSUMPTION: 20 W.

OUTPUT WATTAGE: 32 mw to 60 mw max.

OUTPUT IMPEDANCE: 60 ohm line.

OUTPUT VOLTAGE: 1.4 to 1.9 v; will feed 1 to 10 RBO System Speaker Amplifier Units simultaneously or separately.

OPERATING VOLTAGE: 115 v A.C., 60 cps, 1 ph.

**MANUFACTURER'S OR CONTRACTOR'S DATA**Ansley Radio Corp., Long Island City, N.Y.  
Contract NObs-20375.**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 6SN7GT

(1) 6X5-GTG

Total Tubes: (2)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 365-1529: Technical Manual for Model RPA-1 Automatic Record Player.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

**FUNCTIONAL DESCRIPTION**

The Navy Model RPA-1 is designed as an Automatic Record Player for the playing of ten (10) inch and twelve (12) inch records of the laterally recorded disc type, which are recorded at seventy-eight (78) revolutions per minute (RPM). It will play either ten (10) inch or twelve (12) inch records automatically. It will not however, play them mixed. It will play from one (1) to twelve (12) ten (10) inch records or from one (1) to ten (10) twelve (12) inch records, loaded on spindle.

No field changes in effect at time of preparation (7 August 1958).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

1 to 10 R.B.O. Speaker-Amplifier Units.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Automatic Record Player	3.2	14-1/4 X 16 X 24	105
1	Set of Equipment Spares & Case	0.25	6 X 6 X 12	13-1/2



## RPA-1

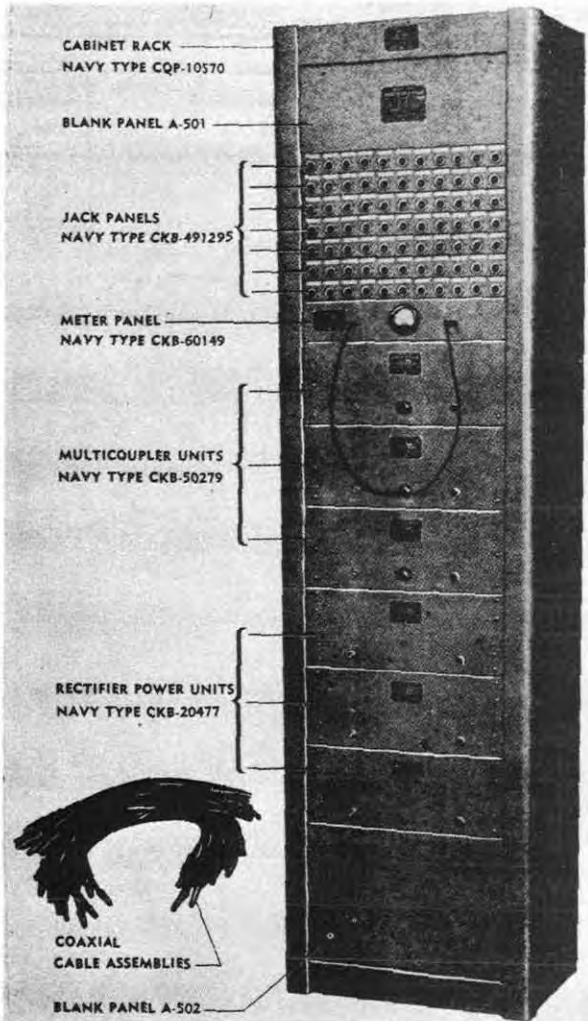
## T-201 AUTOMATIC RECORD PLAYER

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Automatic Record Player RPA-1	12-1/2 X 15 X 15	55
1	Set of Equipment Spares & Case	6 X 6 X 12	13-1/2

## ANTENNA MULTICOUPLER ASSEMBLY

RXA



Antenna Multicoupler Assembly

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (as required) Radio Receiving Equipment, (3) Power Input Cable, (as required) Antenna System.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE RECEIVER USED: Any receiver that is designed to operate within the frequency range of 4 to 24 mc.

FREQUENCY RANGE: 4 to 24 mc.

POWER FACTOR: 98%.

TYPE RECEPTION: Voice, MCW, CW.

INPUT IMPEDANCE: 75 ohm.

OUTPUT IMPEDANCE: 75 ohm.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

Hoffman Radio Corporation, Los Angeles, California.

Contract NXsr 91989, dated 7 August 1945.

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4G

(13) 6AB7

Total Tubes: (14)

## REFERENCE DATA AND LITERATURE

NAVSHIPS 900213: Technical Manual for Antenna Multicoupler Assembly RXA.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## FUNCTIONAL DESCRIPTION

The RXA is designed for use with Navy Communication receivers within the frequency range from 4 to 24 mc. Each of the three multicoupler units furnished with the equipment permits the use of from one to ten Navy communication receivers on one antenna. The entire equipment is capable of operating a total of thirty receivers on three antenna systems.

No field changes in effect at time of preparation (10 September 1956).

Radio Auxiliary

March 1957

RXA

## ANTENNA MULTICOUPLER ASSEMBLY

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Multicoupler Assembly RXA	45.9	25-1/2 X 32 X 97-1/8	460
1	Set of equipment Spares	3.96	17 X 17-1/2 X 23	87

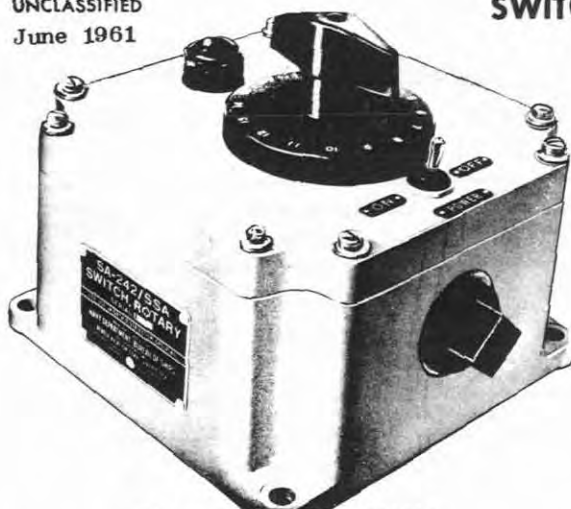
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Multicoupler Assembly RXA consisting of:	15-1/2 X 22 X 83-1/8	312
3	Antenna Multicoupler Unit NT-50279	6-31/32 X 7 X 19	9.75
3	Rectifier Power Unit NT-20477 with Plug AN-3106-14S-7S and Cable Clamp AN3057-6 connected	6-31/32 X 7-3/8 X 19	25.25
7	Jack Panel Assembly NT-491295	1-5/16 X 1-23/32 X 19	3.75
1	Meter Panel NT-60149 with Cable DCOP-1 and Plug C-49007A attached		
1	Blank Panel Size "D" per BUSHIPS spec XA-8896-A	3/16 X 6-31/32 X 19	2.5
1	Blank Panel size "G" per BUSHIPS spec XA-8896-A	3/16 X 12-7/32 X 19	4.5
1	Relay Rack CQP-10570	15-1/2 X 22 X 83-1/8	138
13	Patch Cord Assembly	21-3/4 lg.	
20	Patch Cord Assembly	40 lg.	
33	Jack Panel Cable Assembly RG-11/U (with Plug attached) CWA-49125	11 cables 50 inches lg 11 cables 41 inches lg 11 cables 32 inches lg	0.5 0.375 0.312
3	Cable Assembly, Power, DC and filament WF-1/U with two Plugs AN3106-18-10P, AN-3106-18-10S and two cable clamps AN3057-10	33-1/4 ft lg.	0.75
1	Set of equipment Spares	12 X 12-1/2 X 18-1/2	64.5

# SWITCH, ROTARY

Radio-Auxiliary

## SA-242/SSA



Rotary Switch SA-242/SSA

### MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Aviation Corp., North Hollywood, California.

Part No. 555410.

Contract NObsr-52119, dated 19 December 1950.

Contract NObsr-57137, dated 19 December 1951.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

### FUNCTIONAL DESCRIPTION

The SA-242/SSA is designed as a 16 position 3 deck switch for selection of 15 signals through operation of the servo units (in the OA-266A/SSA and OA-266B/SSA equipments). Position 16 is OFF. An indicator light on each unit is illuminated when the selector switch in the Data Switch Unit is not synchronized with the Rotary Switch Unit.

No field changes in effect at time of preparation (26 April 1960).

### REFERENCE DATA AND LITERATURE

Nomenclature Card for Rotary Switch SA-242/SSA.

NAVSHIPS 91639(A): Technical Manual for Data Switching Group OA-266/SSA and OA-266A/SSA and OA-266B/SSA and Associated Units:

- Amplifier Assembly AM-518/SSA
- Rotary Switch SA-242/SSA
- Rotary Switch SA-243/SSA
- Rotary Switch SA-247/SSA
- Electronic Voltmeter ME-55/SSA

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF SWITCH: Sectional.

NUMBER OF POSITIONS: 16.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph, 10 amps, 10 W.

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

### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Rotary Switch SA-242/SSA	6.6	10.1 x 22.0 x 52.0	168

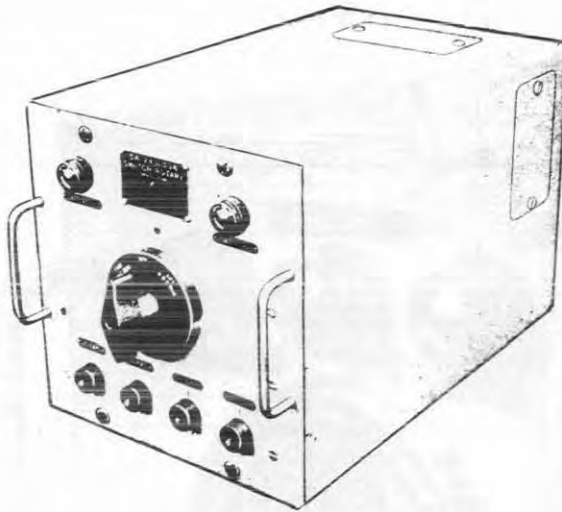
### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Rotary Switch SA-242/SSA	7 x 8 x 8	13.5

June 1961

Radio-Auxiliary  
SA-243/SSA

## ROTARY SWITCH



Rotary Switch SA-243/SSA

## FUNCTIONAL DESCRIPTION

The SA-243/SSA is designed to be used in conjunction with the Data Switching Group to select either the forward or aft gyro compass output and to provide an electrical zero signal. In case of a power failure of the selected gyro output, the remaining gyro signal is automatically selected. Indicator lights inform the operator which gyro output is appearing on the output of the switch.

No field changes in effect at time of preparation (26 April 1960).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPES OF SWITCH: Relay and Rotary Switch.

## RELAY DATA

NUMBER OF POSITIONS: 2.  
NUMBER OF POLES: 9.

## SWITCH DATA

NUMBER OF POSITIONS: 3.  
NUMBER OF POLES: 20.  
OPERATING POWER RQMT: 115 v ac, 60 cps, 10  
amps, 25 watts.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Aviation Corp., North Hollywood,  
California.  
Part no. 555510.  
Contract NObsr-52119, dated 19 December  
1950.  
Contract NObsr-57137, dated 19 December  
1951.

## TUBE AND OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Rotary Switch SA-243/  
SSA.

NAVSHIPS 91639(A): Technical Manual for  
Data Switching Group OA-266/SSA, OA-266A/  
SSA and OA-266B/SSA and Associated Units:

Amplifier Assembly	AM-518/SSA
Rotary Switch	SA-242/SSA
Rotary Switch	SA-243/SSA
Rotary Switch	SA-247/SSA
Electronic Voltmeter	ME-55/SSA

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

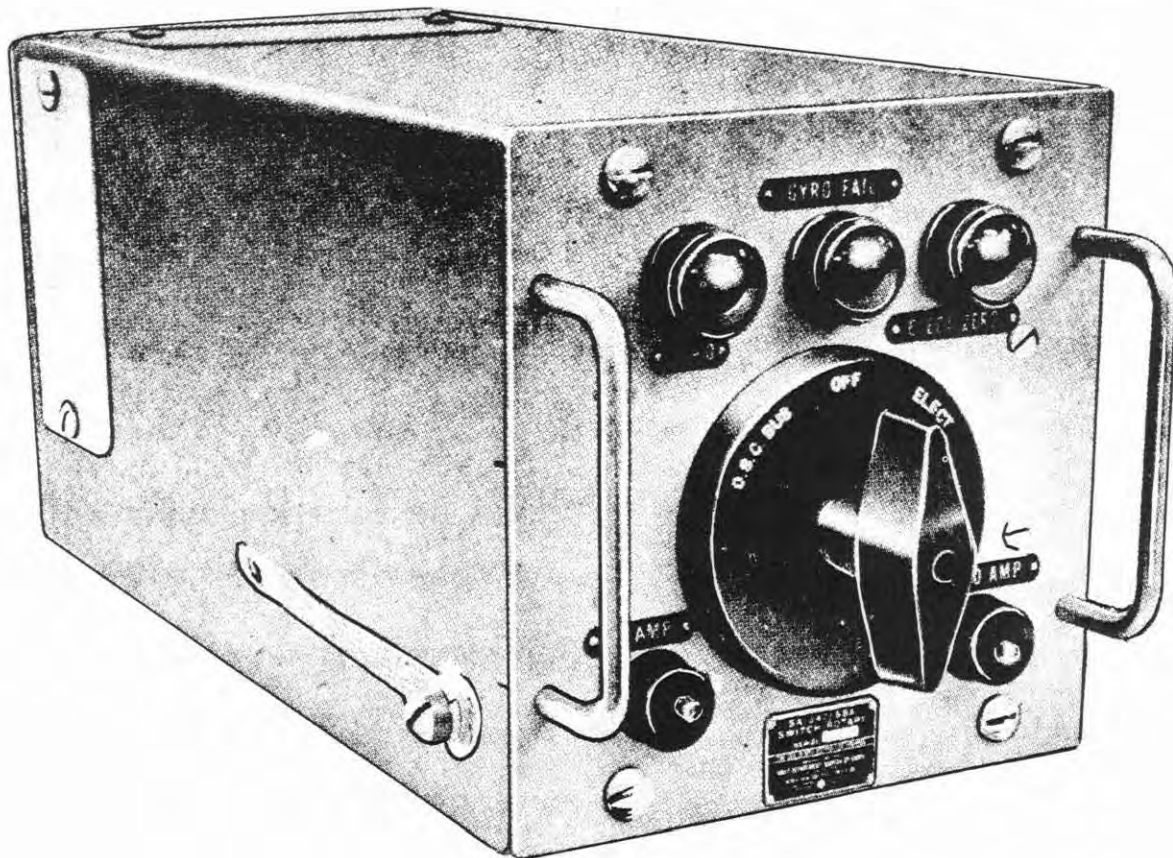
## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu. Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Rotary Switch SA-243/SSA	4.5	16.5 x 18.0 x 26.2	60

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Rotary Switch SA-243/SSA	12.0 x 12.3 x 20.3	35

## SWITCH ROTARY



Switch Rotary SA-247/SSA

**FUNCTIONAL DESCRIPTION**

The SA-247/SSA is capable of selecting either a gyro output signal or an electrical zero output signal from the Rotary Switch SA-243/SSA. A relay in the unit positions the switch automatically to the electrical zero output when failure occurs in the gyro output from the SA-243/SSA.

No field changes in effect at time of preparation (26 April 1960).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF SWITCH: Relay and rotary.

## RELAY DATA

NUMBER OF POSITIONS: 2.

NUMBER OF POLES: 9.

## SWITCH DATA

NUMBER OF POSITIONS: 3.

NUMBER OF POLES: 3.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph, 5 amps.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Bendix Aviation Corp., North Hollywood, California.

Part No. 555415.

Contract NObsr-52119, dated 19 December 1950.

Contract NObsr-57137, dated 19 December 1951.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes and/or Crystals used.

June 1961

Radio-Auxiliary

**SA-247/SSA****SWITCH ROTARY****REFERENCE DATA AND LITERATURE**

Nomenclature Card for Rotary Switch SA-247/SSA.

NAVSHIPS 91639(A): Technical Manual for Data Switching Group OA-266/SSA, OA-266A/SSA and OA-266B/SSA and Associated Units:

Amplifier Assembly AM-518/SSA  
 Rotary Switch SA-242/SSA  
 Rotary Switch SA-243/SSA

Rotary Switch SA-247/SSA  
 Electronic Voltmeter ME-55/SSA

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

**SHIPPING DATA**

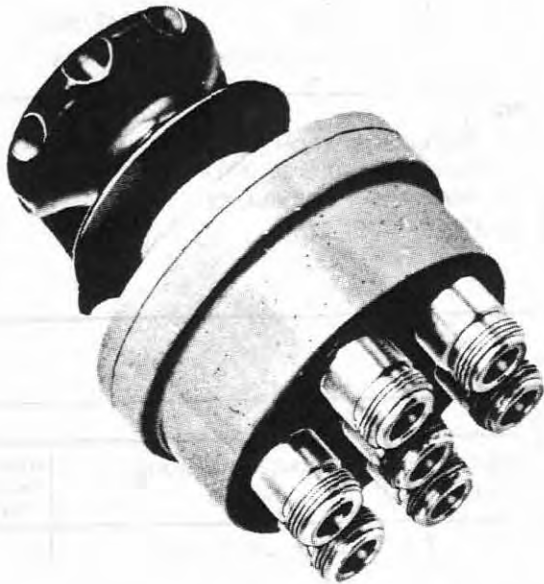
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Rotary Switch SA-247/SSA	2.5	12.5 X 14 X 24.2	25

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Rotary Switch SA-247/SSA	8 X 8.4 X 18.3	12

June 1961

Radio-Auxiliary

**SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-275/U**

Switch, Radio Frequency Transmission Line  
SA-275/U

**FUNCTIONAL DESCRIPTION**

Switch, Radio Frequency Transmission Line SA-275/U consists of a single circuit, multiple position coaxial switch, with RF connectors parallel to each other. It is designed for use in radio frequency circuits where constant impedance must be maintained, with a minimum V.S.W.R., insertion loss, and crosstalk.

No field changes in effect at time of preparation (26 April 1960).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 0 to 10,500 mc.

VOLTAGE STANDING WAVE RATIO

3000 MC: 1.2:1 max.

0 to 10,500 MC: 1.3:1 max.

**INSERTION LOSS (ATTENUATION)**

3000 MC: 0.2 db.

10,500 MC: 0.2 db.

RF POWER RATING: 100 W at 3,000 mc.

VOLTAGE RATING: 500 v peak.

**CROSSTALK**

3000 MC: Greater than 60 db.

10,500 MC: Greater than 40 db.

CHARACTERISTIC IMPEDANCE: 51.0 ohms.

OPERATIVE LIFE: 10,000 cyc (min).

OPERATING TEMPERATURE RANGE: M55 deg C to P55 deg C.

RF CONNECTOR: Type N.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

General Communication Co., Boston, Mass.  
Model No. 6N6MP.

Contract NObsr-52190, dated 3 November 1950.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

General Communication Co. Data Sheet for  
COAXIAL SWITCH.

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE NAVY BUSHIPS  
PROCUREMENT COGNIZANCE SPEC: MIL-S-3928  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Switch, RF Transmission Line SA-275/U	3 dia by 4	25 oz

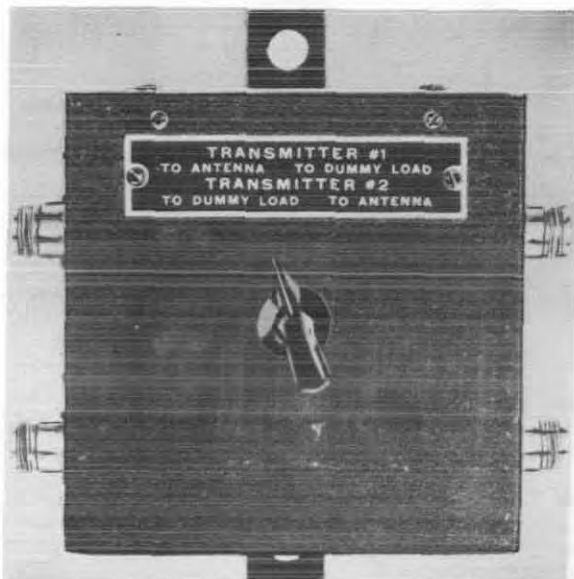


April 1959

Radio-Auxiliary

## ROTARY SWITCH

SA-335/U



Rotary Switch SA-335/U

## FUNCTIONAL DESCRIPTION

Rotary Switch SA-335/U is used when the operation involves two radio beacon transmitters to connect the coaxial cable that feeds the output of one transmitter to the antenna and the output of the other to the dummy load.

No field changes in effect at time of preparation (13 May 1959).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT IMPEDANCE: 52 ohms.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Andrew Corp., Chicago, Illinois.

Contract Tcg-38618(CG-19,676-C) dated 1 June 1951.

Contract Tcg-38824(CG-21,952-A) dated 30 June 1952.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

CG-273-24: Technical Manual for Antenna Coupler CU-330/UR and Rotary Switch SA-335/U.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE U.S.C.G.  
 PROCUREMENT COGNIZANCE  
 STOCK NO.  
 R.D.B. IDENT. NO.

## SHIPPING DATA

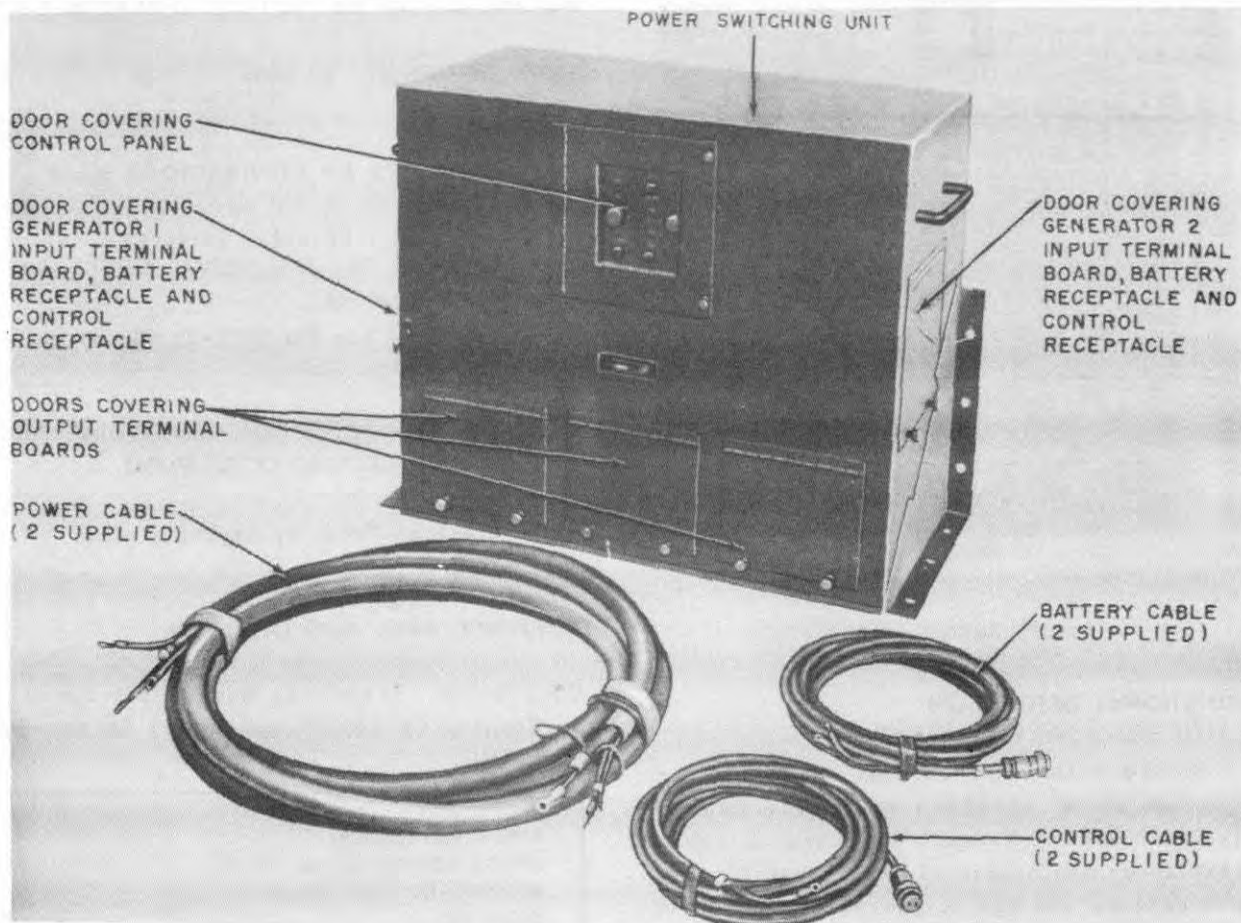
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Rotary Switch SA-335/U	0.3	7 X 8-1/2 X 9	5.5

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Rotary Switch SA-335/U	5 X 6-1/2 X 7	3.5

## POWER TRANSFER SWITCHING UNIT

SA-444/GSQ



Power Transfer Switching Unit SA-444/GSQ

**FUNCTIONAL DESCRIPTION**

The SA-444/GSQ is the power control unit for a two-generator power supply. It permits automatic or manual changeover and control of the generators. It is used to supply AC to equipment which requires a source of uninterrupted power.

No field changes in effect at time of preparation (27 November 1956).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TIME REQUIRED FOR MANUAL CHANGEOVER: 30 sec  
max.

VOLTAGE DELIVERED FROM SA-444/GSQ TO LOAD:  
115 v, 60 cps.

VOLTAGE DELIVERED FROM GENERATORS TO SA-444/  
GSQ: 115 v, 60 cps.

GENERATOR OUTPUT VOLTAGE BELOW AUTOMATIC  
CHANGE OVER OCCURS: 50 v, 60 cps.

**POWER CONSUMPTION**

AC: 74.5 W at 115 v AC.

DC: 6.2 W at 6 v DC.

POWER HANDLING CAPACITY: 15 W max.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

TM11-5117: Technical Manual for Power Transfer Switching Unit SA-444/GSQ.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	

August 1957

Radio-Auxiliary

SA-444/GSQ

## POWER TRANSFER SWITCHING UNIT

## SHIPPING DATA

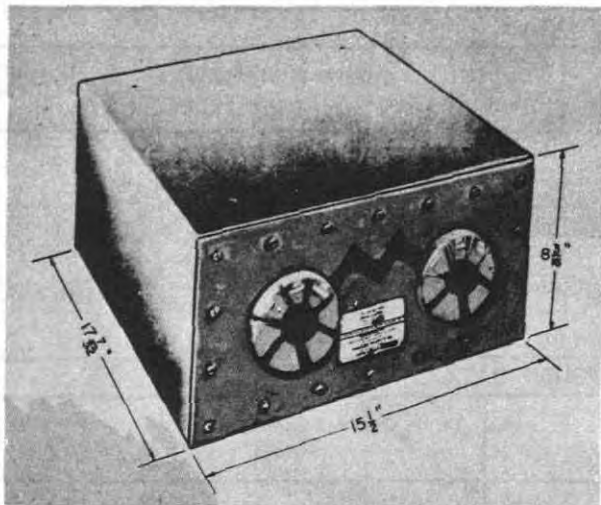
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Power Transfer Switching Unit SA-444/GSQ			

## EQUIPMENT SUPPLIED DATA

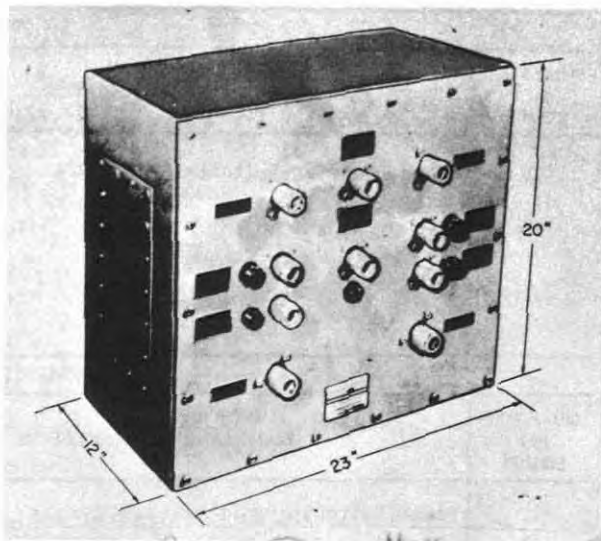
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Power Switching Unit SA-444/GSQ	13-5/8 X 24-1/2 X 28-1/8	90
2	Electrical Power Cable Assy CX-3835/U	244-1/2 1g	
2	Electrical Power Cable Assy CX-3836/U	241 1g	
2	Electrical Power Cable Assy CX-3837/U	244-1/2 1g	

Radio-Auxiliary

**RADIO FREQUENCY TRANSMISSION SA-478(XN-1)/URT,  
LINE SWITCH AND ASSEMBLY SA-479(XN-1)/URT**



Switch Assembly SA-479(XN-1)/URT



Radio Frequency Transmission Line Switch

SA-478(XN-1)/URT

**FUNCTIONAL DESCRIPTION**

The SA-478(XN-1)/URT and SA-479(XN-1)/URT comprise an automatic patch panel package for switching between various antennas and transmitters and is relatively simple in construction. The system is used for shipboard use and has provisions for incorporating an emergency antenna system if needed.

Interconnection of the two units is accomplished by means of a twelve conductor cable and an external supply voltage of 115 v, single ph, 60 cps applied to the switchassy. Rated current is 5 amp max AC.

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

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Thompson Products Inc, Cleveland, Ohio  
Contract NObsr-71249 dated 23 March 1956

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92878: Technical Manual for Radio Frequency Transmission Line Switch SA-478 (XN-1)/URT and Switch Assembly SA-479 (XN-1)/URT.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RF Transmission Line Switch SA-478(XN-1)/URT	12 x 20 x 23	
1	Switch Assy SA-479(XN-1)/URT	8-3/16 x 15-1/2 x 17-17/32	

# SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-597/SRT

## FUNCTIONAL DESCRIPTION

The SA-597/SRT is a manually operated unit designed for use with AN/SRT series transmitters and offers facilities to accommodate two transmitters and two antenna. When one antenna is selected for use with a transmitter, the remaining antenna is automatically connected for use with other transmitter.

No field changes in effect at time of preparation (19 May 1960).

## RELATION TO OTHER EQUIPMENT

The SA-597/SRT is designed to be used with but not part of the AN/SRT series equipments.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

NUMBER OF COUPLING POSITIONS: 2.  
TYPE OF OPERATION: Manually operated.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Long Beach Naval Shipyard, San Pedro, Cali-

fornia

BuShips Plans 404/S6701-1586518 Rev B.  
BuShips Plans 404/S6701-1586519 Rev A.  
BuShips Plans 404/S6701-1586520 Rev. B.  
Project Order BuShips No. 607051/SCN.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Switch, Radio Frequency Transmission Line SA-597/SRT.

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

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Switch, Radio Frequency Transmission Line SA-597/SRT	13-1/8 x 13-3/4 x 21	

September 1960

Radio-Auxiliary

SA-641/U

**SWITCH WAVEGUIDE****FUNCTIONAL DESCRIPTION**

The SA-641/U is designed as a three-part, 90 degree flange orientation microwave switching device for diverting microwave energy in the frequency range of 2300 to 5000 megacycles (MC) per second ('S' Band Switch) from one common input channel to any one of two output channels. Switch is electromechanically solenoid operated. No current is required to hold either channel in final position.

No field changes in effect at time of preparation (22 April 1960).

**RELATION TO OTHER EQUIPMENT**

The SA-641/U is designed to be used with but not part of Transmitting Set Countermeasures AN/ALT-6B.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

NUMBER OF COUPLING POSITIONS: 4 positions.

TYPE OF OPERATION: Electromechanical, solenoid operated.

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

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Airtron Inc. Division of Litton Industries,  
Morris Plains, N.J.

Part No. 73025.

Dwg No. RE24D2048.

Contract NObsr-75610, dated 10 December 1958.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and/or Crystal Data not Available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Switch Waveguide SA-641/U.

Nomenclature Card for Switch Waveguide SA-641/U.

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

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Switch Waveguide SA-641/U	6.76 X 7.1 X 10	

September 1960

Radio-Auxiliary

**SWITCH WAVEGUIDE****SA-642/U****FUNCTIONAL DESCRIPTION**

The SA-642/U is designed as a three-part, 120 degree flange orientation microwave switching device for diverting microwave energy in the frequency range of 5,000 to 10,750 megacycles (MC) per second (X-Band Switch) from one common input channel to any one of two channels.

The SA-642/U is electromechanically solenoid operated. No current is required to hold either channel in final position.

No field changes in effect at time of preparation (25 April 1960).

**RELATION TO OTHER EQUIPMENT**

The SA-642/U is similar in design and operation to the SA-641/U except that it differs in the frequency range coverage.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF OPERATION: Electromechanical, solenoid operated.

NUMBER OF POSITIONS: 3 coupling positions.

OPERATING FREQUENCY RANGE: 5,000 to 10,750 mc.

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

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Airtron Inc., Linden, N. J.

Dwg No. RE24D2049.

Contract NObsr-75610, dated 10 December 1958.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and/or Crystal data not available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Switch Waveguide SA-642/U.

Nomenclature Card for Switch Waveguide SA-642/U.

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

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Switch waveguide SA-642/U	5.38 X 6.50 X 8	

21 August 1962

ELECTRONIC SWITCH SA-733/UGC

Cog Service: USN FSN:

Functional Class:

USA

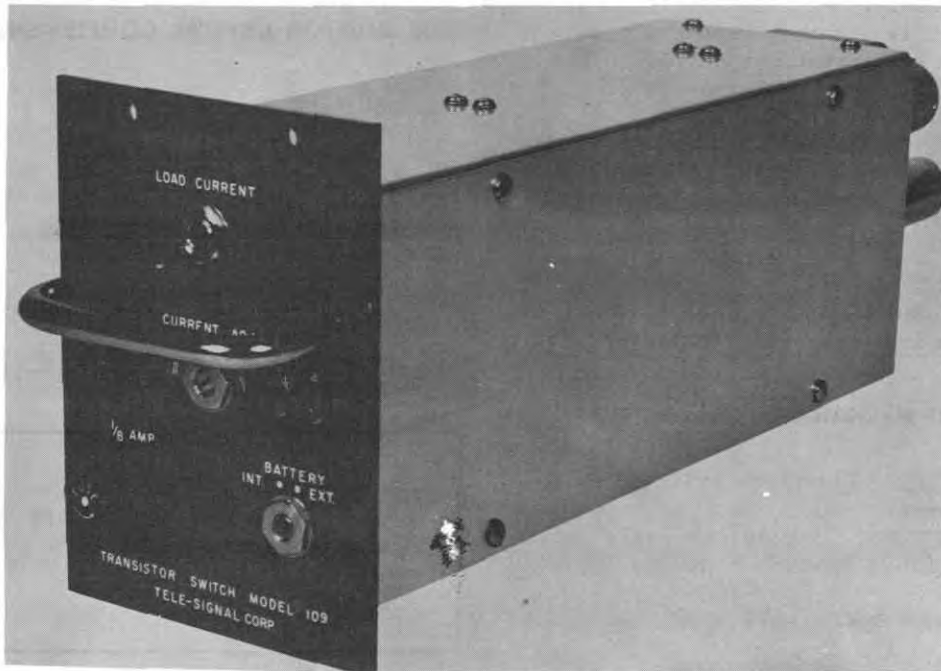
USN

USAF

TYPE CLASS: Std

Std

MANUFACTURER'S NAME/CODE NUMBER: Tele-Signal Corp., Inc., (10241).



*Electronic Switch SA-733/UGC*

**FUNCTIONAL DESCRIPTION:**

The Electronic Switch SA-733/UGC is designed to be used where complete isolation is required, such as is normally provided by an electromechanical relay, but where there are objections to the use of such relay because of speed limitations, maintenance requirements, etc., and where it is necessary to operate into lines equipped with 120 volt line batteries or where it is desirable that the line battery be part of the output coupling device.

The SA-733/UGC, in addition to providing complete isolation and self-contained line battery, which may or may not be utilized, is also completely protected against accidental faulty connections in the output circuit.

No field changes in effect at time of preparation (15 June 1962).



---

**SA-733/UGC ELECTRONIC SWITCH**

---

**TECHNICAL CHARACTERISTICS:**

OUTPUT CIRCUIT: Single ended.

**INPUT DATA**

INPUT IMPEDANCE: 2,500 ohms.

OPERATING SPEEDS: 0 to 1,000 dot cycles per second.

**OUTPUT DATA**

OUTPUT IMPEDANCE: Variable to 2,500 ohms.

SWITCHING FREQUENCY RANGE: 0 to 1,000 dot cps.

TYPE OF ACTUATION: Internally.

HEAT DISSIPATION: 20 W when used w/internal battery.

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

**RELATION TO OTHER EQUIPMENT:**

The SA-733/UGC is the same as Tele-Signal Corp's Commerical Model no. 109.

The SA-733/UGC is designed as part of the Telegraph, Terminal Set AN/FGC-60(V).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Electronic Switch SA-733/UGC		4 x 5-1/4 x 11	1-1/2

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93848: Technical Manual for Electronic Switch SA-733/UGC.

NAVSHIPS 93841: Technical Manual for Telegraph, Terminal Set AN/FGC-60(V) of which Electronic Switch SA-733/UGC is a part.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N67A (1) 1N1511 (6) SD93

TRANSISTORS: (3) 2N158 (4) 2N217

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

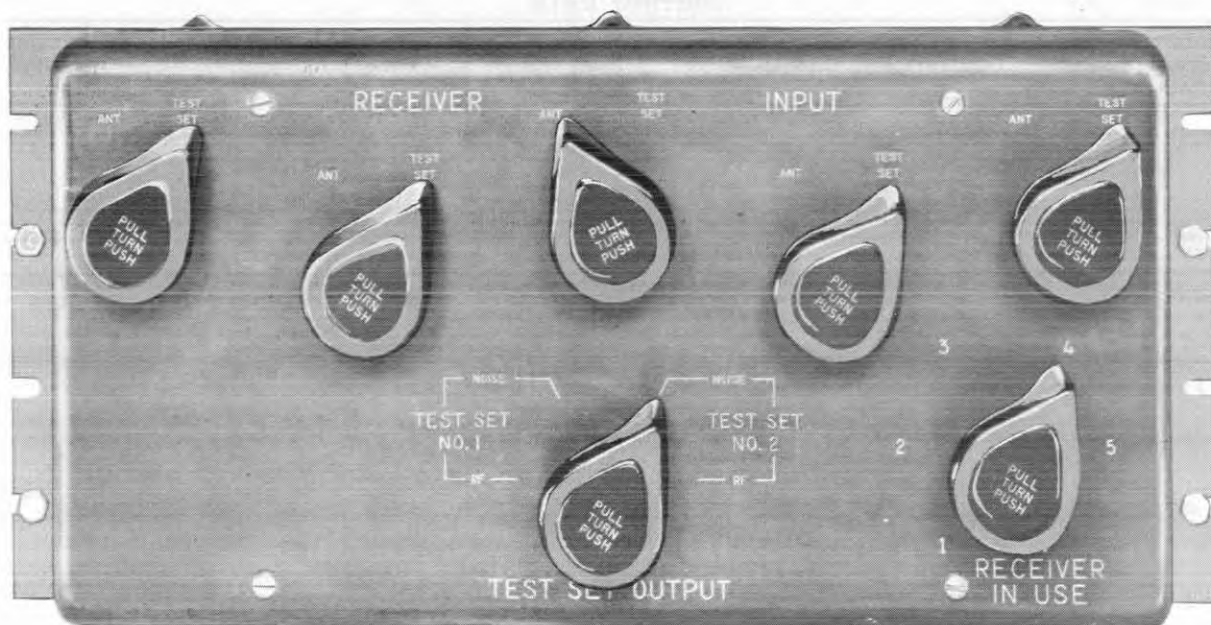
## PROCUREMENT DATA

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tele-Signal Corp. Inc. Model no. 109	Hicksville, N. Y.	N0bsr-81467, 17 June 1960	

## RADIO SIGNAL DISTRIBUTION PANEL



*Radio Signal Distribution Panel SB-1064/FRR*

### FUNCTIONAL DESCRIPTION

Radio Signal Distribution Panel SB-1064/FRR is capable of interconnecting five receivers to either of two individual test sets, thus enabling operator to test or operate any one of the Radio Receiving Sets AN/URR-41 or test sets individually. The switch panel is capable of operating over a frequency range of 2 to 32 mc with an input and output nonreactive impedance of 70 ohms at a voltage standing wave ratio of 1:1.1 or less.

No field changes in effect at time of preparation (12 January 1960).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 32 mc.  
SWITCHES CROSSTALK: 120 db.  
IMPEDANCE: 70 ohms.  
ATTENUATION: Less than 9.5 db over entire operating range.  
AMBIENT TEMPERATURE: 0 to +50° C (32° F to 122° F).

### MANUFACTURER'S OR CONTRACTOR'S DATA

Sylvania Electronics Systems, Div of  
Sylvania Electric Products, Inc,  
Buffalo, New York.  
Contract NObsr-75232.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal Data available.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93445: Technical Manual for DISTRIBUTION PANEL SB-1064/FRR.

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

Radio-Auxiliary  
SB-1064/FRR

### RADIO SIGNAL DISTRIBUTION PANEL

#### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Signal Distribution Panel SB-1064/FRR		6.25 X 8.625 X 19	

#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Signal Distribution Panel SB-1064/FRR		

19 December 1961  
Cog Service:

FSN:

TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD SB-1074/GXQ-3  
Functional Class:

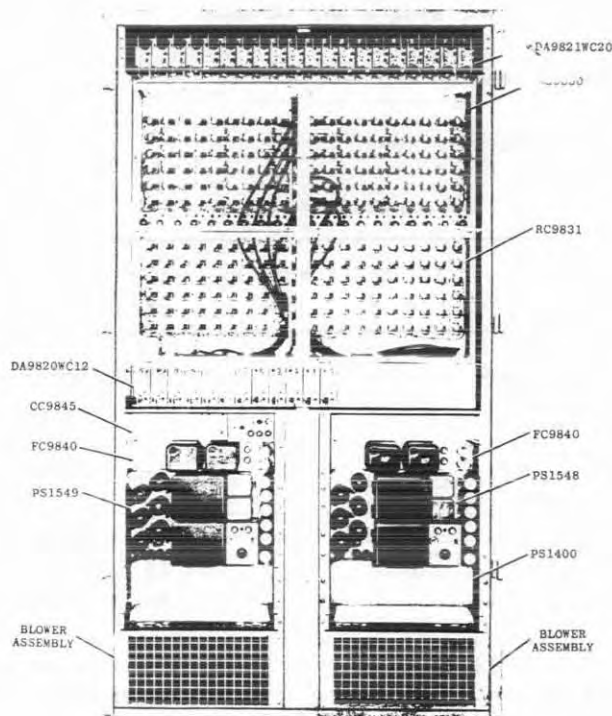
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: General Precision Laboratory Inc.



*Television Signal-Distribution Switchboard SB-1074/GXQ-3*

#### FUNCTIONAL DESCRIPTION:

Television Signal-Distribution Switchboard SB-1074/GXQ-3 is designed to switch, isolate, and distribute video input signals to various video monitors or display units.

No field changes in effect at time of preparation (21 June 1961).

#### TECHNICAL CHARACTERISTICS:

**SIGNAL LEVELS:** An input signal of 1 v provides an output level of 1 v.

**BANDWIDTH:** Flat to within perm 1.5 db to 17 mc.

**LOW FREQUENCY RESPONSE:** Less than 3% tilt on a 60 cps square wave.

**GAIN:** Is in excess of and adjustable within a range of 0.8 to 1.2.

**DIFFERENTIAL GAINS:** At an output level of 1 v is less than 10%.

**SIGNAL IMPEDANCE**

## SB-1074/GXQ-3 TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD

INPUT: 75 ohms.

OUTPUT: 75 ohms.

SWITCHING TRANSIENTS: More than 20 db down with respect to the output signal of 1 v.

CROSS-TALK: More than 35 db down at 17 mc and decreases with frequency at the rate of 6 db per octave to a min. of 60 db down at a frequency below 1 mc.

INTERLOCKING: The relays are interlocked in such a manner as to prevent more than one camera from feeding any one output line at one time.

SWITCH TIMING: Less than 10 milliseconds.

POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 14 amps.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television Signal-Distribution Switchboard SB-1074/GXQ-3 includes:		24 x 46-1/2 x 83	
1	Output Distribution Amplifier A Rack Assy DA9821WC20		5-1/4 x 15-1/2 x 42-1/2	
1	Relay Chassis Assy RC9830		13 x 33-1/4 x 40	
1	Relay Chassis Assy RC9831		13 x 33-1/4 x 40	
1	Input Distribution Amplifier Rack Assy DA9820WC12		5-1/4 x 15-1/2 x 42-1/2	
2	Filament Transformer Chassis FC9840		3-1/2 x 9 x 19	
1	Control Chassis CC9845		3-1/2 x 8 x 19	
1	24-Volt Power Supply PS1400		5-1/4 x 15 x 19	32
1	280-Volt Regulated Power Supply PS1548		10 x 10-1/2 x 19	
1	110-Volt Regulated Power Supply PS1549		10 x 10-1/2 x 19	
2	Blower Assy BA-TF		8-1/2 x 17-1/2 x 19	
12	Control Panel CP9812		3 x 10-3/8 x 19	
1	Master Control Panel CP9816			

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93635: Technical Manual for Television Signal-Distribution Switchboards  
SB-1074/GXQ-3, SB-1076/GXQ-3, SB-1077/GXQ-3.

### TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (1) 0B2WA (20) 6AN8 (32) 6CX8 (2) 6X4WA (4) 12AX7 (1) 5651  
(32) 5687 (12) 6080WA



17 January 1962

Cog Service:

FSN:

TELEVISION SIGNAL DISTRIBUTION SWITCHBOARD SB-1075/GXQ-3

Functional Class:

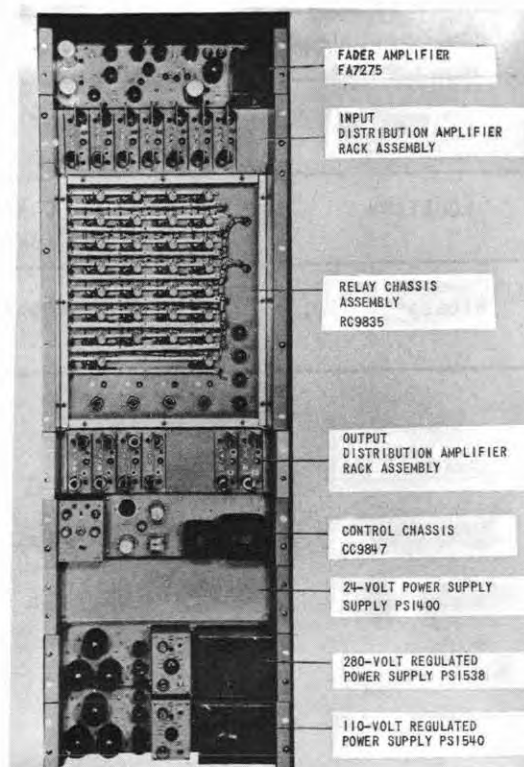
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: General Precision Laboratory Inc.



*Television Signal Distribution Switchboard SB-1075/GXQ-3*

#### FUNCTIONAL DESCRIPTION:

Television Signal Distribution Switchboard SB-1075/GXQ-3, is designed to switch, isolate, and distribute video input signals to video monitor and direct take output lines. The system can also mix, fade, key clamp, add sync to, and correct tilt in the video signals. The system is basically a six-input by four-output video switcher with the capability of re-entering and summing any two selected video input signals to obtain fading, dissolving, or superimposition effects.

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

#### TECHNICAL CHARACTERISTICS:

SIGNAL LEVELS: Accommodates an input signal of 1 v and provides an output level of 1 v.

BANDWIDTH: Flat to within porm 1.5 db to 17 mc.

LOW FREQUENCY RESPONSE: Less than 3% tilt on a 60 cps square wave.



## SB-1075/GXQ-3 TELEVISION SIGNAL DISTRIBUTION SWITCHBOARD

**GAIN:** In excess of and adjustable within a range of 0.8 to 1.2.  
**DIFFERENTIAL GAIN:** At an output level of 1 v is less than 10%.  
**SIGNAL IMPEDANCE:** Input and output impedances are 75 ohms each.  
**SWITCHING TRANSIENTS:** Are at a minimum of 20 db down with respect to the output signal.  
**CROSS-TALK:** Is at a minimum of 35 db down at 17 mc and decreasing with frequency at the rate of 6 db per octave to a minimum of 60 db down at a frequency below 1 mc.  
**INTERLOCKING:** The relays are interlocked in such a manner as to prevent more than one camera from feeding anyone output line at one time.  
**SWITCH TIMING:** Less than 10 milliseconds.  
**FADING:** A two channel Fader Amplifier provides fading, dissolving, and superimposition effects for any two preselected video input signals.  
**SYNC:** Fader Amplifier accepts an input signal of 3 to 5 v P-P bridging.  
**POWER REQUIREMENTS:** 115 v, 60 cps, single ph, 10 amps.

**RELATION TO OTHER EQUIPMENT:** None.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television Signal Distribution Switchboard SB-1075/GXQ-3 includes:			
1	Relay Chassis Assembly RC9835		9 x 15-1/4 x 19	
1	Control Chassis CC9847		5-1/2 x 8 x 19	
1	Fader Amplifier FA7275		5-1/2 x 9 x 19	
1	280-volt Regulated Power Supply PS1538		5-1/4 x 11-1/2 x 19	
1	110-volt Regulated Power Supply PS1540		5-1/4 x 11-1/2 x 19	
1	24-volt Power Supply PS1400		5-1/4 x 15 x 19	
1	Input D.A. Rack Assembly DA9820B		5-1/4 x 15-1/4 x 19	
1	Output D.A. Rack Assembly DA9821B		5-1/4 x 15-1/4 x 19	
4	Input Distribution Amplifier DA9820		2 x 5-1/4 x 11	
7	Output Distribution Amplifier DA9821		2 x 5-1/4 x 11	
1	Control Panel CP9818		4-1/4 x 10-1/2 x 19	

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93767: Technical Manual for Television Signal Distribution Switchboard SB-1075/GXQ-3.

### TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (3) 0B2WA (1) 6AL5 (4) 6AN8 (1) 6BX7 (11) 6CX8 (6) 6DJ8 (4) 12AX7  
(1) 5651 (11) 5687 (6) 6080WA

---

TELEVISION SIGNAL DISTRIBUTION SWITCHBOARD SB-1075/GXQ-3

---

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

SHIPPING DATA

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

PROCUREMENT DATA

---

PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Precision Laboratory Inc.	Pleasantville, N. Y.	N0bsr-75369	\$12,873.14

---

19 December 1961

Cog Service:

FSN:

TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD SB-1076/GXQ-3

Functional Class:

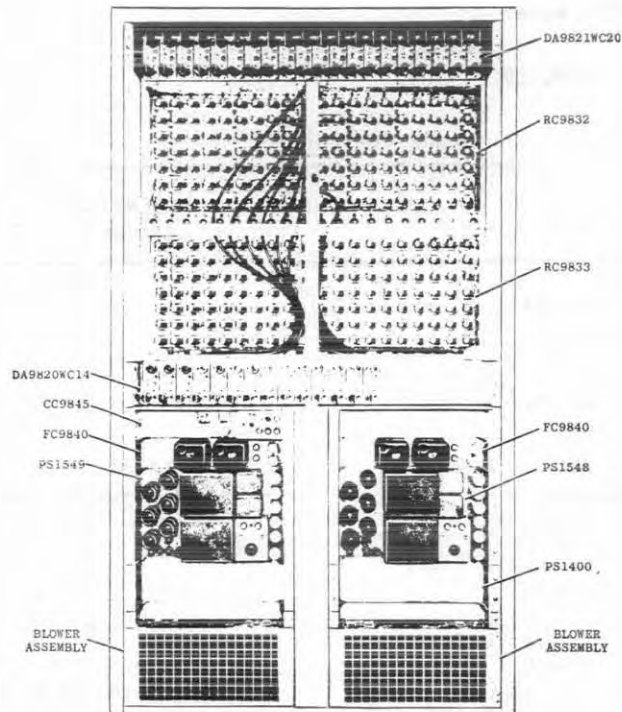
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: General Precision Laboratory Inc.



*Television Signal-Distribution Switchboard SB-1076/GXQ-3*

**FUNCTIONAL DESCRIPTION:**

Television Signal-Distribution Switchboard SB-1076/GXQ-3 is designed to switch, isolate, and distribute video input signals to various video monitors or display units.

No field changes in effect at time of preparation (21 June 1961).

**TECHNICAL CHARACTERISTICS:**

SIGNAL LEVELS: An input signal of 1 v produces an output of 1 v.

BANDWIDTH: Flat to within perm 1.5 db to 17 mc.

LOW FREQUENCY RESPONSE: Less than 3% tilt on a 60 cps square wave.

GAIN: Is in excess of and adjustable within a range of 0.8 to 1.2.

DIFFERENTIAL GAIN: At an output level of 1 v is less than 10%.

SIGNAL IMPEDANCE

INPUT: 75 ohms.

## SB-1076/GXQ-3 TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD

OUTPUT: 75 ohms.

SWITCHING TRANSIENTS: More than 20 db down with respect to the output signal of 1 v.

CROSS-TALK: More than 35 db down at 17 mc and decreases with frequency at the rate of 6 db per octave to a min. of 60 db down at a frequency below 1 mc.

INTERLOCKING: The relays are interlocked in such a manner as to prevent more than one camera from feeding any one output line at one time.

SWITCH TIMING: Less than 10 milliseconds.

POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 16 amps.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television Signal-Distribution Switchboard SB-1076/GXQ-3 includes:			
1	Output Distribution Amplifier Rack Assy DA982/WC2		5-1/4 x 15-1/4 x 19	
1	Relay Chassis Assy RC9832		13 x 33-1/4 x 40	
1	Relay Chassis Assy RC9833		13 x 33-1/4 x 40	
1	Input Distribution Amplifier Rack Assy DA9820WC14		5-1/4 x 15-1/4 x 19	
2	Filament Transformer Chassis		3-1/2 x 9 x 19	
1	Control Chassis CC9845		3-1/2 x 8 x 19	
1	24-Volt Power Supply PS1400		5-1/4 x 15 x 19	32
1	280-Volt Regulated Power Supply PS1548		10 x 10-1/2 x 19	
1	110-Volt Regulated Power Supply PS1549		10 x 10-1/2 x 19	
2	Blower Assy BA-TF		8-1/2 x 17-1/2 x 19	
14	Control Panel CP9812		3 x 10-3/8 x 19	
1	Master Control Panel CP9817			

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93635: Technical Manual for Television Signal-Distribution Switchboards  
SB-1074/GXQ-3, SB-1076/GXQ-3, SB-1077/GXQ-3.

### TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (1) 0B2WA (20) 6AN8 (34) 6CX8 (2) 6X4WA (4) 12AX7 (1) 5651  
(34) 5687 (12) 6080WA

CRYSTALS: None used.

1.2 SB-1076/GXQ-3: 2

---

TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD SB-1076/GXQ-3

---

SEMI-CONDUCTORS: None used.

---

SHIPPING DATA

---

PKGS

VOLUME (CU FT)

WEIGHT (LBS)

---

---

PROCUREMENT DATA

---

PROCURING SERVICE:

DESIGN COG: USN, BuShips

SPEC &/OR DWG:

---

CONTRACTOR

LOCATION

CONTRACT OR  
ORDER NO.

APPROX.  
UNIT COST

---

General Precision  
Laboratory Inc.

Pleasantville, N.Y.

N0bsr-75369

---

29 December 1961

TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD SB-1077/GXQ-3

Cog Service:

FSN:

Functional Class:

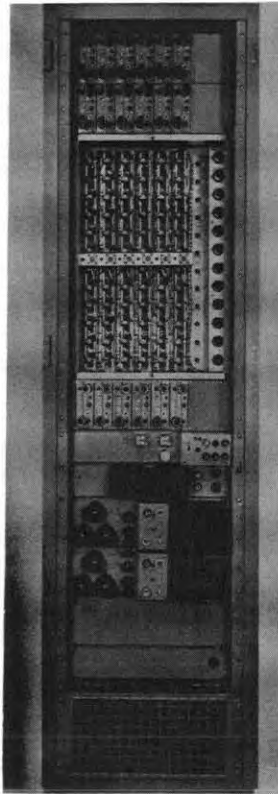
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: General Precision Laboratory Inc.



*Television Signal-Distribution Switchboard SB-1077/GXQ-3*

**FUNCTIONAL DESCRIPTION:**

Television Signal-Distribution Switchboard SB-1077/GXQ-3 is designed to switch, isolate and distribute video input signals to various video monitors or display units.

No field changes in effect at time of preparation (21 June 1961).

**TECHNICAL CHARACTERISTICS:**

SIGNAL LEVEL: 1 v (input); 1 v (output).

BANDWIDTH: Flat to within porm 1.5 db to 17 mc.

LOW FREQUENCY RESPONSE: Less than 3% tilt on a 60 cps square wave.

GAIN: Is in excess of and adjustable within a range of 0.8 to 1.2.

DIFFERENTIAL GAIN: At an output level of 1 v is less than 10%.

SIGNAL IMPEDANCE

INPUT: 75 ohms.

## SB-1077/GXQ-3 TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD

OUTPUT: 75 ohms.

SWITCHING TRANSIENTS: More than 20 db down with respect to the output signal of 1 v.

CROSS-TALK: More than 35 db down at 17 mc and decreases with frequency at the rate of 6 db per octave to a min of 6 db down at a frequency below 1 mc.

INTERLOCKING: The relays are interlocked in such a manner as to prevent more than one camera from feeding any one output line at one time.

SWITCH TIMING: Less than 10 milliseconds.

POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 10 amps.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television Signal-Distribution Switchboard SB-1077/GXQ-3 includes:		23-1/4 x 24 x 82	
1	Input Distribution Amplifier Rack Ass'y DA9820WC6		5-1/4 x 15-1/4 x 19	30
2	Output Distribution Amplifier Rack Ass'y DA9821WC6		5-1/4 x 15-1/4 x 19	26
1	Relay Chassis Ass'y RC9834		13 x 19 x 26-1/4	
1	Filament Transformer Chassis FC9840		3-1/2 x 9 x 19	
1	Control Chassis CC9845		3-1/2 x 8 x 19	
1	24-Volt Power Supply PS1400		5-1/4 x 15 x 19	32
1	280-Volt Regulated Power Supply PS1538		5-1/4 x 11-1/2 x 19	40
1	110-Volt Regulated Power Supply PS1540		5-1/4 x 11-1/2 x 19	40
1	Blower Ass'y BA-TF		8-1/2 x 17-1/2 x 19	
5	Control Panel CP9810		3 x 10-3/8 x 19	
1	Master Control Panel CP9815			

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93635: Technical Manual for Television Signal-Distribution Switchboards  
SB-1074/GXQ-3, SB-1076/GXQ-3, SB-1077/GXQ-3.

### TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (1) 0B2WA (12) 6AN8 (18) 6CX8 (4) 12AX7 (1) 5651 (18) 5687  
(6) 6080WA

CRYSTALS: None used.

1.2 SB-1077/GXQ-3: 2

---

TELEVISION SIGNAL-DISTRIBUTION SWITCHBOARD SB-1077/GXQ-3

---

SEMI-CONDUCTORS: None used.

---

SHIPPING DATA

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

PROCUREMENT DATA

---

PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Precision Laboratory Inc.	Pleasantville, New York	N0bsr-75369	

---



10 August 1962

Cog Service: USN FSN:

POWER, DISTRIBUTION PANEL SB-1177/UGC  
Functional Class:

USA

USN

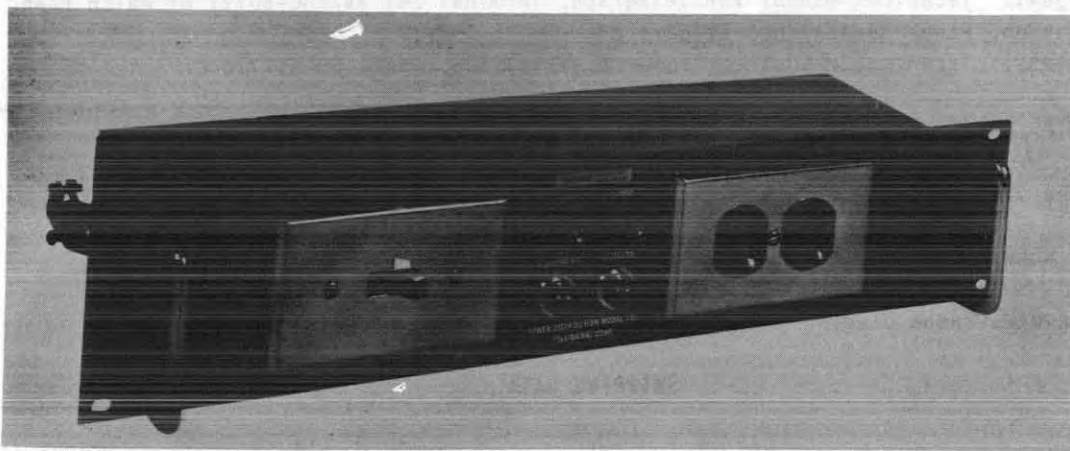
USAF

TYPE CLASS:

Std

Std

MANUFACTURER'S NAME/CODE NUMBER: Tele-Signal Corp. Inc., (10241).



*Power, Distribution Panel SB-1177/UGC*

**FUNCTIONAL DESCRIPTION:**

The Power, Distribution Panel SB-1177/UGC is designed to supply the main ac power for Telegraph, Terminal Set AN/FGC-60(V). In addition, it supplies ac power to two (2) convenience outlets on the front panel. Fuses and indicating lights are located on the front panel. No field changes in effect at time of preparation (19 June 1962).

**TECHNICAL CHARACTERISTICS:**

INPUT DATA: 115/230 v ac, 50 to 60 cps, single ph, 8 amp.  
OUTPUT DATA: 115/230 v ac, 50 to 60 cps, single ph, 3 amp; 115/230 v ac, 50 to 60 cps, single ph, 5 amp.

**RELATION TO OTHER EQUIPMENT:**

The SB-1177/UGC is designed as part of the Telegraph, Terminal Set AN/FGC-60(V).

---

**SB-1177/UGC POWER, DISTRIBUTION PANEL**

---

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Distribution Panel SB-1177/UGC		3-1/2 x 5 x 19	3-1/16

---

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93841: Technical Manual for Telegraph, Terminal Set AN/FGC-60(V) of which Power Distribution, Panel SB-1177/UGC is part of.

NAVSHIPS 93852: Technical Manual for Power Distribution, Panel SB-1177/UGC.

---

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG:

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tele-Signal Corp. Inc. Model no. 122	Hicksville, N. Y.	N0bsr-81467, 17 June 1960	

---

29 August 1962

METER, PANEL SB-1178/UGC

Cog Service: USN FSN:

Functional Class:

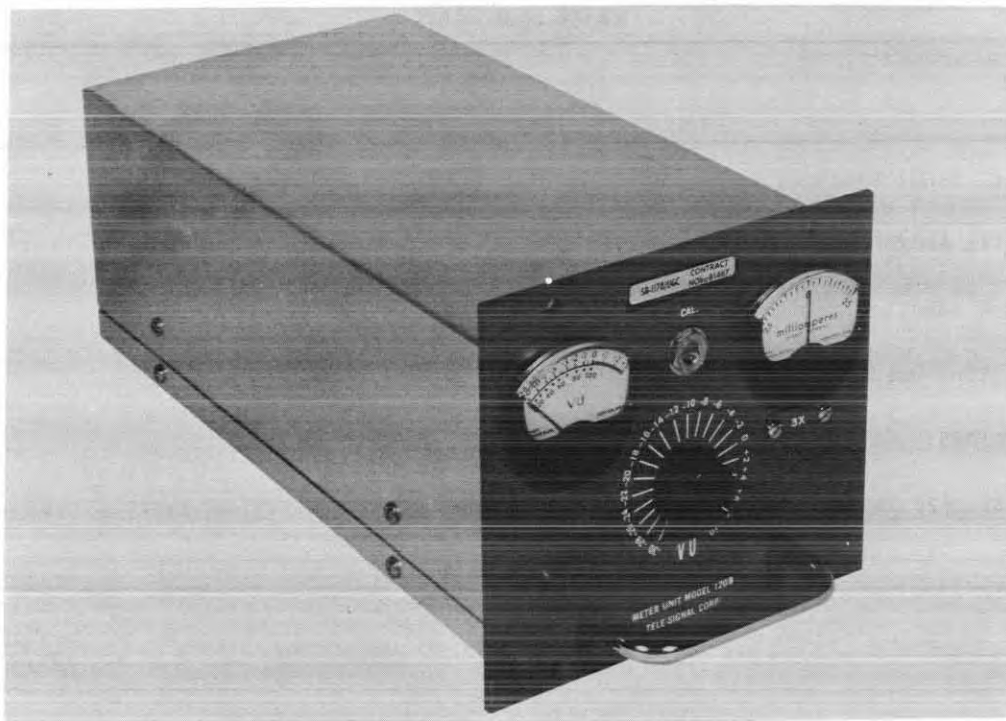
USA

USN

USAF

TYPE CLASS: Std Std

MANUFACTURER'S NAME/CODE NUMBER: Tele-Signal Corp., Inc., (10241).



*Meter, Panel SB-1178/UGC*

**FUNCTIONAL DESCRIPTION:**

The Meter, Panel SB-1178/UGC is designed to be used as a monitoring station for the Telegraph, Terminal Set AN/FGC-60(V). The signals applied to the meters are patch corded at another unit.

No field changes in effect at time of preparation (19 June 1962).

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Plug-in unit.

VU RANGE OF MEASUREMENTS: M40 dbm to P20 dbm.

DC RANGE OF MEASUREMENTS: M75 ma to P75 ma.

CALIBRATION ACCURACY: 300 cps, to 10 kc porm 2 db.

STORAGE TEMPERATURE: M55 deg C to P85 deg C.

OPERATING TEMPERATURE: M10 deg C to P55 deg C.

---

**SB-1178/UGC METER, PANEL**

---

HEAT DISSIPATION: 3/4 watt.

**RELATION TO OTHER EQUIPMENT:**

The SB-1178/UGC is designed as part of the Telegraph, Terminal Set AN/FGC-60(V).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Meter, Panel SB-1178/UGC		5-1/4 x 6 x 11	3-3/8

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (2) 2N414 (2) 2N156

TRANSISTORS: (2) 2N414 (2) 2N156

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tele-Signal Corp., Inc. Model no. 120B	Hicksville, New York	NObsr-81467, 17 June 1960	.

---

20 August 1962

Cog Service: USN FSN:

SIGNAL DISTRIBUTION, PANEL SB-1179/UGC

Functional Class:

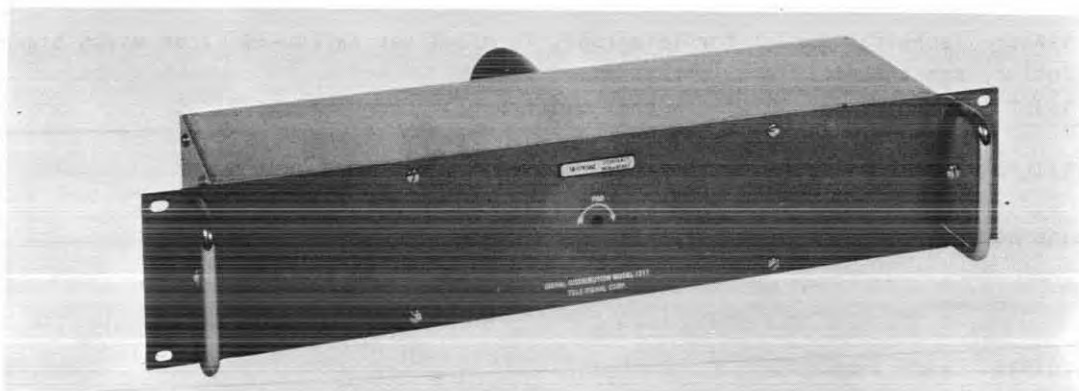
USA

USN

USAF

TYPE CLASS: Std Std

MANUFACTURER'S NAME/CODE NUMBER: Tele-Signal Corp., Inc., (10241).



*Signal Distribution, Panel SB-1179/UGC*

**FUNCTIONAL DESCRIPTION:**

The Signal Distribution, Panel SB-1179/UGC is designed to provide the terminal connection and distribution facilities for eight (8) channel transmit-dual diversity receive tone in the Telegraph, Terminal Set AN/FGC-60(V). Three (3) separate tone circuits are provided; one (1) transmit and two (2) receive circuits, all equipped with line isolation transformers. The transmitting circuit is equipped with an attenuator to adjust the aggregate tone level.

No field changes in effect at time of preparation (20 June 1962).

**TECHNICAL CHARACTERISTICS:**

EQUIPMENT INTERCONNECTED: 16 Frequency Shift keyers and 16 Frequency Shift Converters.

TYPE OF INSTALLATION: Standard 19 inch rack type of mounting.

HEAT DISSIPATION: Negligible.



20 August 1962

Cog Service: USN FSN:

PANEL, CHANNEL SELECTOR SB-1180/UGC  
Functional Class:

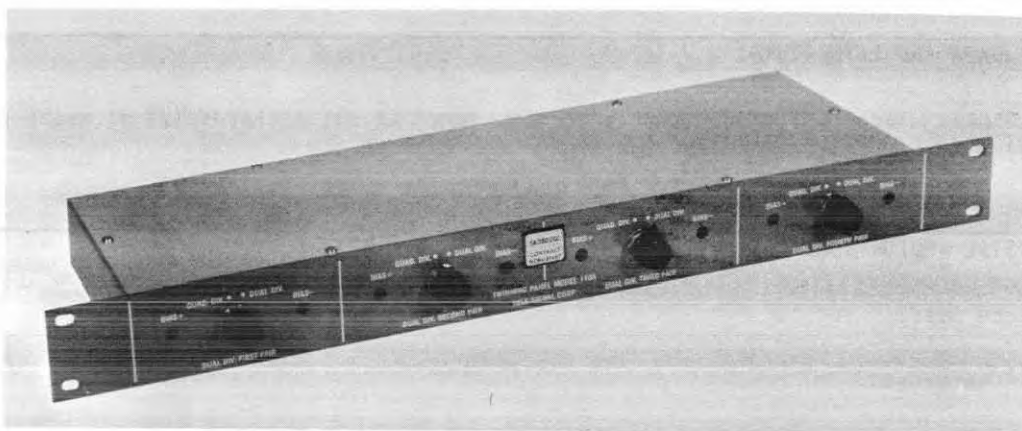
USA

USN

USAF

TYPE CLASS: Std Std

MANUFACTURER'S NAME/CODE NUMBER: Tele-Signal Corp., Inc., (10241).



*Panel, Channel Selector SB-1180/UGC*

**FUNCTIONAL DESCRIPTION:**

The Panel, Channel Selector SB-1180/UGC is designed to be used for combining the output of eight (8) dual diversities into four (4) quadruple diversities.

The SB-1180/UGC consists of four (4) combiners. The inputs to each combiner are the outputs of two (2) diversity comparators. A switch is provided for the selection of either quadruple or dual diversity system operation.

No field changes in effect at time of preparation (21 June 1962).

**TECHNICAL CHARACTERISTICS:**

METHOD OF MOUNTING: Rack Mounted.

CENTERED FREQUENCY ADJUSTMENTS AND DC BALANCE

NORMAL OPERATING SIGNAL LEVEL: M8 dbm.

FOR DC ADJUSTMENTS: Use a 20,000 ohms/volt or better instrument with a 10 volt scale.

---

**SB-1180/UGC PANEL, CHANNEL SELECTOR**

---

**RELATION TO OTHER EQUIPMENT:**

The SB-1180/UGC is the same as Tele-Signal Corp's. Commercial Model no. 110A.  
The SB-1180/UGC is designed as part of the Telegraph, Terminal Set AN/FGC-60(V).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Panel, Channel Selector SB-1180/UGC		1-3/4 x 4-1/2 x 19	3

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93841: Technical Manual for Telegraph, Terminal Set AN/FGC-60(V) of which Panel,  
Channel Selector SB-1180/UGC is a part of.  
NAVSHIPS 93850: Technical Manual for Panel, Channel Selector SB-1180/UGC.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tele-Signal Corp., Inc. Model no. 110A	Hicksville, N. Y.	Nobsr-81467, 17 June 1960	



10 August 1962

RADIO SIGNAL, DISTRIBUTION PANEL SB-1510/FRR

Cog Service: USN FSN:

Functional Class:

USA

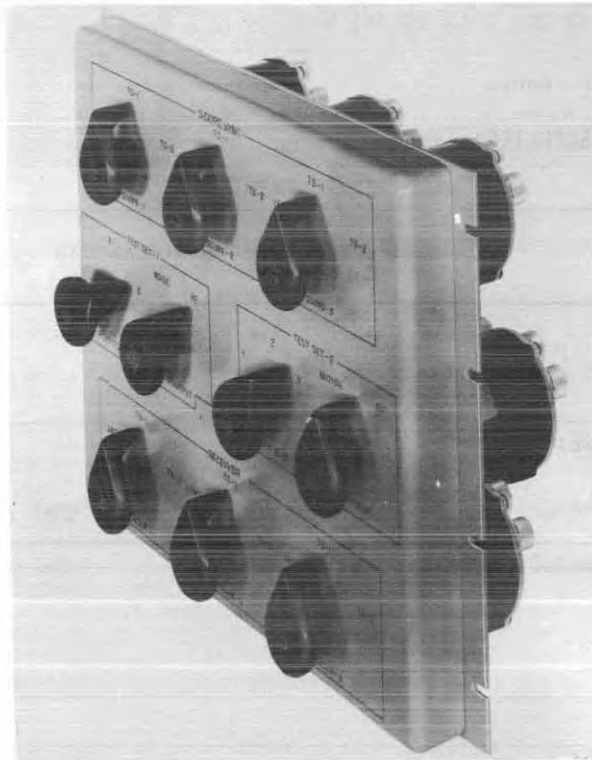
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER:



*Radio Signal, Distribution Panel SB-1510/FRR*

#### FUNCTIONAL DESCRIPTION:

The Radio Signal, Distribution Panel SB-1510/FRR is designed to interconnect three (3) receivers to either of two (2) radio test sets, enabling the operator to test any receiver with any test set.

Three-position coaxial switches connect each receiver's input to one of three signal sources: (1) The receiver's associated antenna; (2) The receiver selector switch of test set number one; (3) The receiver selector switch of test set number two.

Three-position coaxial switches connect the output of each test set to one (1) of the three (3) receiver's inputs; while two-(2)position coaxial switches choose the output of the test set, either RF or noise. In addition, three-(3)position coaxial switches connect each of three (3) oscilloscopes to receive synchronizing triggers from either test set, as necessary.

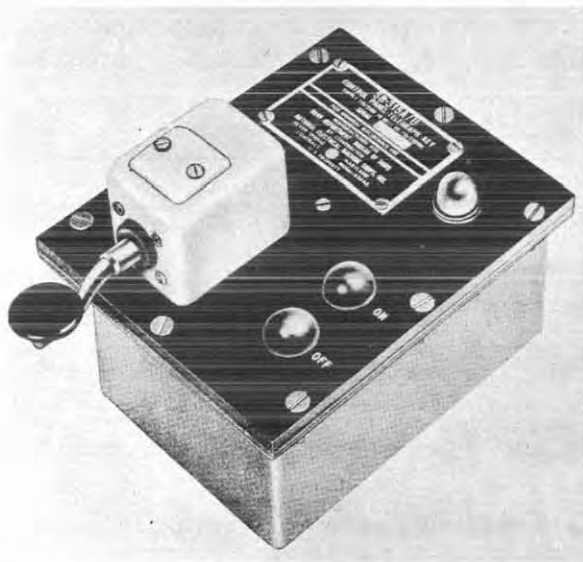
No field changes in effect at time of preparation.



March 1957

## CONTROL PANEL TELEGRAPH KEY

SB-315/U, 315A/U



Control Panel Telegraph Key SB-315/U, SB-315A/U

## FUNCTIONAL DESCRIPTION

The SB-315/U and SB-315A/U intended for general electronic use aboard ship is used to accomplish the following operation from a remote location, turns power on or off for an associated radio transmitter, provides a visual indication when the transmitter is on and permits keying the radio transmitter.

The SB-315/U and SB-315A/U are electrically and functionally the same except that the SB-315A/U uses push type on and off switches, and hex socket drive caps to cover the spring pressure and key travel adjustments while the SB-315/U uses toggle switches and slotted drive caps. There are also differences in the wiring arrangement.

No field changes in effect at time of preparation (3 August 1956).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE REQUIRED: 115 or 230 v, 60 cps, single phase; or 115 v or 230 v DC.  
POWER CONSUMPTION: 250 milliwatts.

## MANUFACTURER'S OR CONTRACTOR'S DATA

SB-315/U Federal Television Corp., New York, N.Y.  
Contract NObr-63249, dated 27 February 1953.

SB-315A/U National Electric Machine Shops, Inc., Silver Springs, Maryland  
Contract NObr 63263, dated 2 March 1953.

Approximate Cost: \$39.75 with equipment spares. SB-315/U

Approximate Cost: \$32.75 with equipment spares. SB-315A/U

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92034: Installation Pamphlet for Control Panel-Telegraph Key SB-315/U.  
NAVSHIPS 92038: Technical Manual for Control Panel Telegraph Key-Navy Model SB-315A/U.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1 1	Control Panel-Telegraph Key-SB-315/U or Control Panel-Telegraph Key-SB-315A/U	0.25	6 X 6 X 12	3-1/2

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Control Panel-Telegraph Key-SB-315/U Installation Pamphlet-NAVSHIPS-92034 or	4-7/16 X 5-1/2 X 6-3/4	
1	Control Panel-Telegraph Key SB-315A/U Technical Manual-NAVSHIPS-92038	4-7/16 X 5-1/2 X 8-3/8	2

25 July 1962

Cog Service: USN FSN: N5820-543-1141

CONTROL PANEL TELEGRAPH KEY SB-315B/U  
Functional Class:

USA

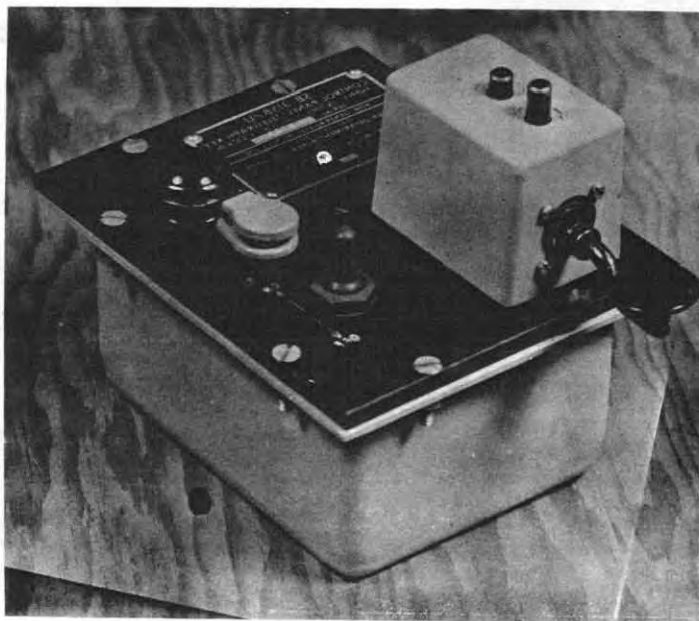
USN

USAF

**TYPE CLASS:**

Used by

**MANUFACTURER'S NAME/CODE NUMBER:** R. A. Miller Industries Inc., (05211).



*Control Panel Telegraph Key SB-315B*

**FUNCTIONAL DESCRIPTION:**

The Control Panel Telegraph Key SB-315B/U is designed to control the operation of a radio transmitter from a remote operating position, power on-off, and enables telegraphic transmissions. It is intended for general electronic use in shipboard installations. It accomplishes the following operations from a remote location: (1) Turns power on or off for an associated radio transmitter; (2) Provides a visual indication when the transmitter is on; (3) Permits keying the radio transmitter.

No field changes in effect at time of preparation (18 December 1961).

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Shipboard installations.

EQUIPMENT PURPOSE: Controls power on-off.

POWER CONSUMPTION: 4.5 W for 115 v; 9 W for 230 v.

---

**SB-315B/U CONTROL PANEL TELEGRAPH KEY**

---

OPERATING POWER RQMT: 115 or 230 v ac, 60 cps, single ph; or 115 v or 230 v dc.

**RELATION TO OTHER EQUIPMENT:**

The SB-315B/U is mechanically and electrically interchangeable with SB-315/U and SB-315A/U except for component parts.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Control Panel Telegraph Key SB-315B/U		6 x 6 x 12	3-1/2
2	Technical Manual NAVSHIPS 93122		1/4 x 8-1/2 x 11	1/4

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93122: Technical Manual for Control Panel Telegraph Key SB-315B/U.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
------	----------------	--------------

---

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
R. A. Miller Industries inc. Part no. 2151-AY1-D	Grand Haven, Michigan	N126s-89134, 20 November 1958	

---

April 1958

## PANEL, ANTENNA TRANSFER

Radio-Auxiliary

SB-346/S



Panel, Antenna Transfer SB-346/S

## FUNCTIONAL DESCRIPTION

The SB-346/S equipment permits the operation of a multiple number of receivers from an antenna. In conjunction with twelve patch cables, it allows the operation of twelve receivers from three antennas.

The SB-346/S is intended for general electronics use. The unit is designed for installation aboard naval vessels, in conjunction with allied equipment at each individual installation.

No field changes in effect at time of preparation (18 February 1958).

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (3) Plugs, Type UG-573/U.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Television Corp, New York, N.Y.  
Contract NObsr-63334 dated 13 March 1953.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92137, Technical Manual for Antenna Transfer Panel SB-346/S.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE SHIPS-P-1087 and RE49F680  
STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Panel, Antenna Transfer SB-346/S incl: (12) Interconnecting Cables (12) Plugs UG-941/U (2) Technical Manuals NAVSHIPS 92137	0.73	7-3/4 x 10 x 16-1/2	22

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Panel, Antenna Transfer SB-346/S	5-5/8 x 7 x 15-1/4	18
12	Interconnecting Cables	22 1g	3
12	Plugs UG-941/U		
2	Technical Manuals NAVSHIPS 92137		

23 July 1962

Cog Service: TASSA FSN:

PANEL, PATCHING, RADIO FREQUENCY SB-449/GSQ

Functional Class:

USA

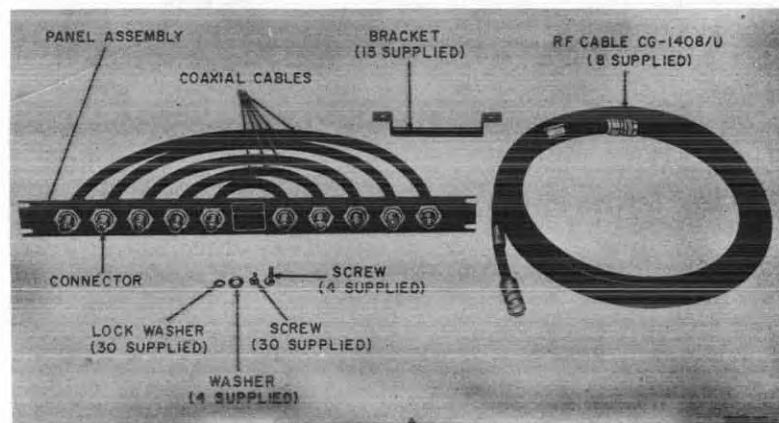
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: Adler Communications Laboratories, (97983).



*Panel, Patching, Radio Frequency SB-449/GSQ*

#### FUNCTIONAL DESCRIPTION:

The Panel, Patching, Radio Frequency SB-449/GSQ is designed to provide input capacity for termination through connection of five (5) unbalanced transmission lines.

No field changes in effect at time of preparation (8 January 1961).

#### TECHNICAL CHARACTERISTICS:

NUMBER OF SECTIONS: 1 section.

NUMBER OF CONNECTING POSITIONS: 5 for each section.

NUMBER OF RECEPTACLES: 10.

POWER SUPPLY CIRCUIT

NUMBER OF CIRCUITS: 1 circuit.

INPUT VOLTAGE

NORMAL: 115 v ac, 60 cps.





April 1958

**RADIO RECEIVER TRANSFER SWITCHBOARD****SB-82/SRR****FUNCTIONAL DESCRIPTION**

The SB-82/SRR is a multiple selection switchbox capable of transferring the outputs of up to five radio receivers to from one to ten remote locations. One receiver output may be supplied to all ten remote stations, or up to five receiver outputs may be supplied to any combination of remote stations simultaneously.

It is designed for use aboard ship, and is part of the shipboard radio remote control system. It essentially consists of a terminal strip with ten rotary switches on a hinged front, and is usually used collectively in a bank arrangement by connecting a number of them together. Accessibility of connections is provided by removable panels at the top, bottom, and three sides of the switchbox.

No field changes in effect at time of preparation (19 November 1957).

National Electrical Machine Shop, Inc,  
Silver Springs, Md.

Contract NObsr-52438, dated 7 June 1951.

American Radio Hardware Co, Inc, New York,  
N.Y.

Contract NObsr-52025, dated 15 September 1950.

Approximate Cost: \$65.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Tubes and Crystals: Not Available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 900100: BuShips Electron Magazine  
Issue of February 1950.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Transcontinental Electronic Corp, New  
York, N.Y.  
Contract NObsr-42425.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Receiver Transfer Switch Board SB-82/SRR			

Note: Quantity of (6) shipped together in one box.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver Transfer Switchboard SB-82/SRR	5-1/8 x 7-1/4 x 9-1/2	10

# RADIO TRANSMITTING TRANSFER SWITCHBOARD

## SB-863/SRT

### RELATION TO OTHER EQUIPMENT

The SB-863/SRT Radio Transmitter Transfer Switchboard replaces the SB-83/SRT Radio Transmitter Transfer Switchboard.

### EQUIPMENT REQUIRED BUT NOT SUPPLIED

Test Equipment as Required.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

MAX NUMBER OF REMOTE STATIONS CONNECTED: 10.  
MAX NUMBER OF TRANSMITTERS CONNECTED: 19.

### MANUFACTURER'S OR CONTRACTOR'S DATA

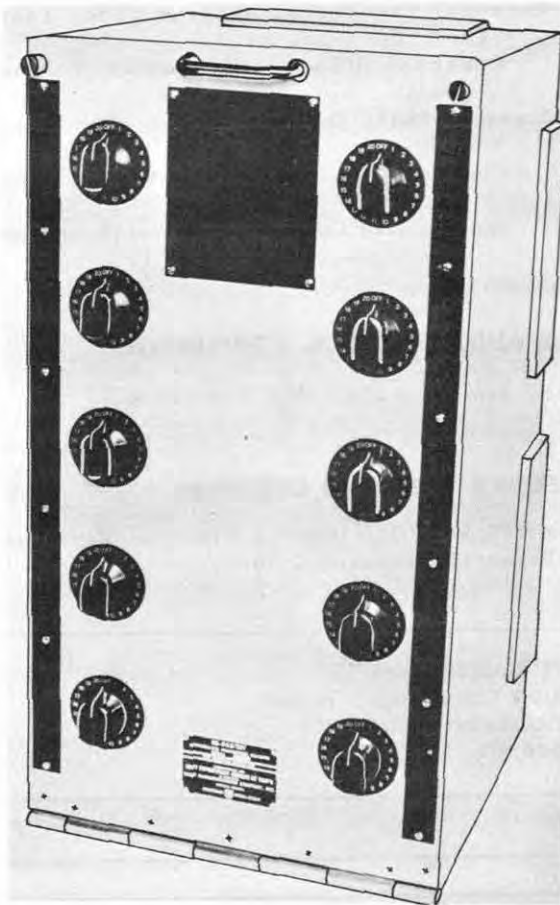
Tabet Manufacturing Co, Inc; Norfolk, Va.  
Contract N126s-83834.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93120: Technical Manual for Transmitter Transfer Switchboard SB-863/SRT.



Transmitter Transfer Switchboard SB-863/SRT

### FUNCTIONAL DESCRIPTION

The SB-863/SRT Radio Transmitter Transfer Switchboard is designed to control of switching of up to 10 Remote Stations and 19 Transmitters. When more than 10 Remote Control Stations or 19 Transmitters are required, an additional Radio Transmitter Transfer Switchboard SB-863/SRT can be installed.

No field changes in effect at time of preparation (10 June 1958).

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter Transfer Switchboard SB-863/SRT		

## SWITCHBOARD RECEIVER TRANSFER

### FUNCTIONAL DESCRIPTION

The SB-973/SRR is a multiple selection switchbox capable of transferring the output of any of five radio receivers to from one to ten remote control stations. One receiver output may be supplied to all ten remote stations, but each remote station may be supplied with only one receiver output.

The SB-973/SRR is designed primarily for use aboard ship and is part of the shipboard radio remote control system. Essentially, it consists of a terminal strip and ten, 2-circuit, 7-position, rotary-printed circuit switches on a hinged front. Maintenance of the rotary switches is simplified by the use of replaceable printed circuit wafers.

The SB-973/SRR is designed for use collectively in a bank arrangement; that is, a number of switchboxes are connected together. Removable access plates are provided on top, bottom, and sides for cabling purposes.

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

### RELATION TO OTHER EQUIPMENT

The SB-973/SRR is a companion unit to Switchboard, Transmitter Transfer SB-863/SRT and was developed as a replacement for Radio

Receiver Transfer Switchboard SB-82/SRR.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Tabet Mfg Co., Inc., Norfolk, Virginia.  
Contract NObsr-75205, dated 25 April 1958.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Switchboard, Receiver Transfer SB-973/SRR.  
Nomenclature Card SB-973/SRR for Switchboard Receiver Transfer

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

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Switchboard, Receiver Transfer SB-973/SRR	5-1/16 X 7 X 9-1/2	8-1/2

23 July 1962

SWITCHBOARD, TRANSMITTER TRANSFER SB-988/SRT

Cog Service: USN FSN:

Functional Class:

USA

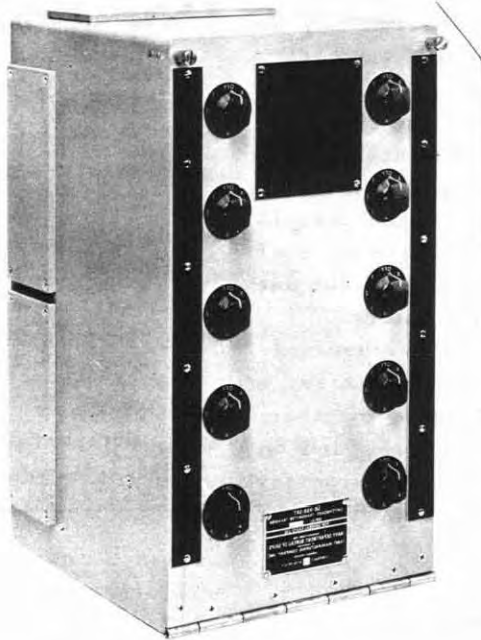
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Tabet Manufacturing Company Incorporated, (88829).



*Switchboard, Transmitter Transfer SB-988/SRT*

**FUNCTIONAL DESCRIPTION:**

The Switchboard, Transmitter Transfer SB-988/SRT is designed to provide facilities for switching the standard Navy 12 wire transmitter control circuits so that remote control stations can be selectively transferred to a choice of radio transmitters. It incorporates ten (10), 12-circuit, rotary selector switches having eight rotary positions, permitting the transfer of any one or all ten remote control stations to any one of six transmitters. Arrangement of the circuitry is such that it is impossible to parallel transmitter control circuits. Facilities are provided for transferring all circuits to additional Transmitter Transfer Switchboards SB-988/SRT when more than ten remote control stations or when more than six transmitters, are installed in the system.

No field changes in effect at time of preparation (2 January 1961).



August 1957

**SPEAK-O-PHONE SOUND DETECTOR***Speak-O-Phone Sound Detector SDB*

It is possible to "plant" a microphone in the room prior to the conversation taking place, where a wall or panel of an adjoining room is available, by a direct telephone line tap, and by use of induction coil tapping without actual wire connection. It contains provisions for permitting everything that is heard to be recorded on a recorder.

No field changes in effect at time of preparation (5 February 1957).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 1.5 v DC, 4.5 v DC, and 90 v DC dry cell batteries.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Speak-O-Phone, New York, N.Y.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 1N5GT            (1) 1G6GT            (2) 1LB4  
Total Tubes: (4)

**REFERENCE DATA AND LITERATURE**

TM11-2541: Technical Manual for Speak-O-Phone Sound Detector Model SDB.

<b>TYPE CLASSIFICATION</b> <b>DESIGN COGNIZANCE</b> COMMERCIAL <b>PROCUREMENT COGNIZANCE</b> <b>STOCK NO.</b>
--

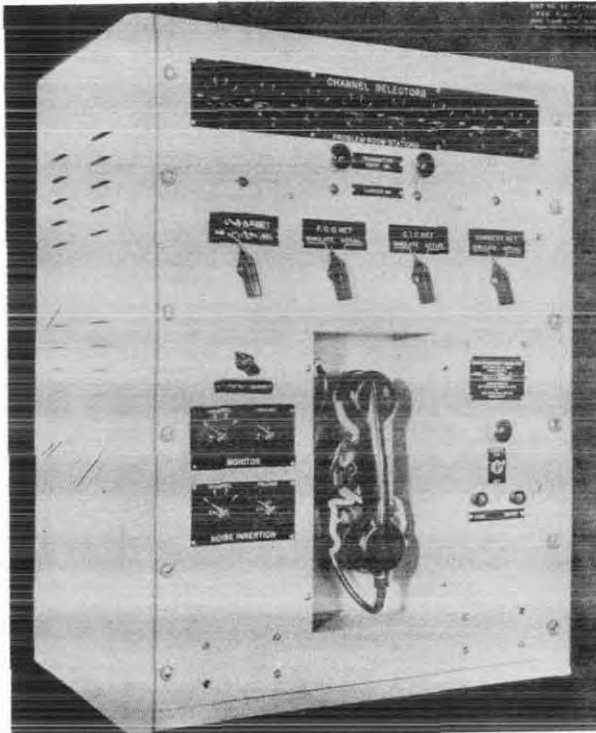
**FUNCTIONAL DESCRIPTION**

The Model DSB is a portable, battery operated, three stage, audio amplifier. It enables the operator to listen to conversations without the knowledge of those speaking when

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Speak-O-Phone Sound Detector SDB Consisting of	8-1/4 x 11-1/2 x 14-1/2	20.00
	(1) Carrying Case	8-1/4 x 11-1/2 x 14-1/2	5.75
	(1) Amplifier Unit w/Control Panel	5-1/2 x 6 x 10-1/2	4.75
	(1) A Battery	1-9/32 x 2-1/8 x 4	1.00
	(1) B Battery	15/16 x 2-1/2 x 4-1/2	1.50
	(1) C Battery	2-7/16 x 2-7/16 x 3-1/8	0.38
	(2) Carbon Microphones	3/4 high x 2-1/4 dia.	0.375
	(1) Contact Microphone w/Cable and Connector	5/8 x 2 x 144	0.375
	(2) Pair Headphones w/Headband	1/4 x 2 x 10	1.00
	(1) Telephone Induction Coil w/Cable and connector	7/8 x 3-1/8 x 144	0.438
	(2) Reels Telephone Wire	600 lg	1.25
	(1) Set of Accessories		

December 1956

**RADIO TELEPHONE SIMULATOR****SM-40/UR***Radio Telephone Simulator SM-40/UR***FUNCTIONAL DESCRIPTION**

The SM-40/UR provides the simulation of radio communication in CIC training. This simulator permits a Training Activity to use, during a training program, the CIC and Helm Station communication equipments which are normally used aboard ship in the execution of an actual tactical problem.

No field changes in effect at time of preparation (6 August 1956).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (1) 20 wire connection Box 9-S-4426-L, (1) 40 wire connection Box 9-S-4427-L (1) 125 wire connection Box 9-S-5379-L.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

AUDIO OUTPUT IMPEDANCE: 600 ohms.  
POWER SOURCE: 115 v, 60, cps, single phase.  
HEAT DISSIPATION: 100 w.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Mare Island Naval Shipyard, Vallejo, Calif  
Contract Project Order 46700/51,  
dated 3 April 1951

Approximate Cost: \$500.00 with Equipment Spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 117N7GT  
Total Tubes: (1)

**REFERENCE DATA AND LITERATURE**

NAVSHIPS-91512 Technical Manual for Radio Telephone Simulator SM-40/UR.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

**SHIPPING DATA**

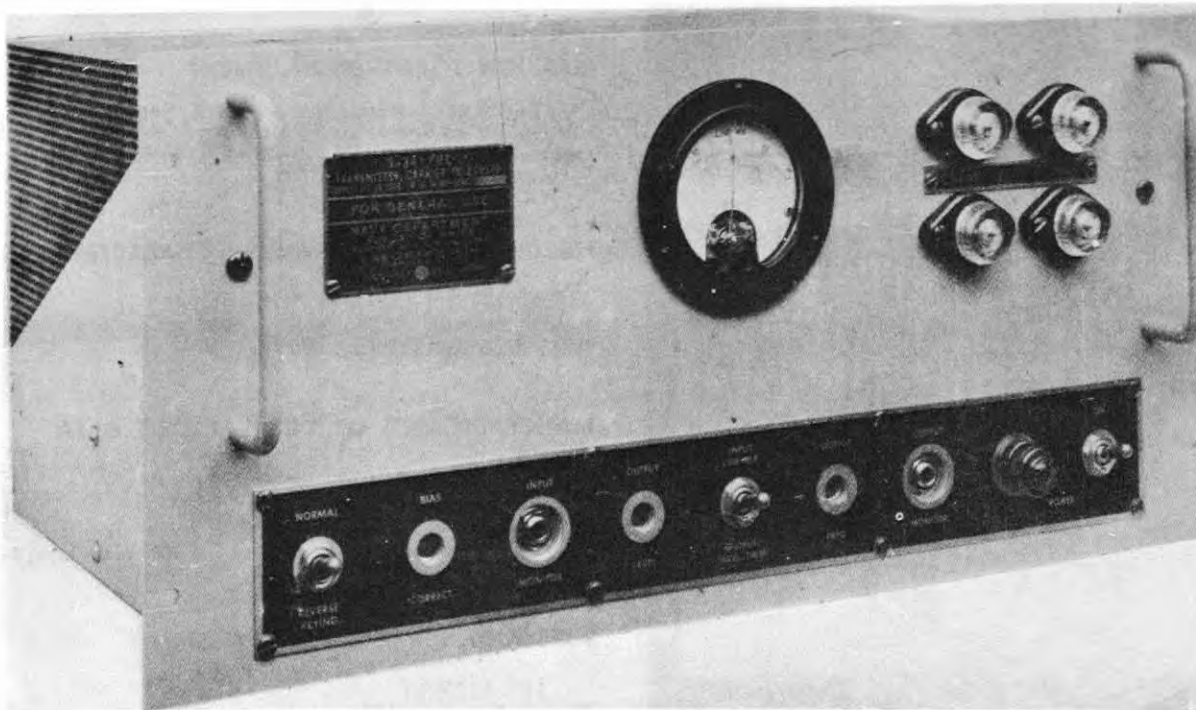
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Telephone Simulator-SM-40/UR	9.0	19 X 26 X 32	180

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Telephone Simulator SM-40/UR	15-3/4 X 22-3/4 X 28-1/4	98

**TRANSMITTER, CARRIER TELEGRAPH****T-341/UC**

December 1956

*Transmitter, Carrier Telegraph T-341/UC***FUNCTIONAL DESCRIPTION**

The T-341/UC is capable of accepting a direct current telegraph signal (polar or Neutral) and emitting a corresponding on-off tone signal.

No field changes in effect at time of preparation (9 August 1956).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 400 to 8000 cps.  
 TYPE EMISSION: 15 dbm.  
 TYPE CONTROL: Master Oscillator  
 OPERATING POWER: 115 v or 230 v, 50 to 60 cps, 70 w.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

C.G.S. Laboratories, Inc., Stanford, Conn.

Contract NObsr-52381, dated 17 April 1951  
 Approximate Cost: \$600.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 6Y6G	(1) 6AU6	(1) 6X4W
(1) 12AU7	(1) 5U4G	(2) 12AT7
(3) 12AU7		

Total Tubes: (10)

**REFERENCE DATA AND LITERATURE**

NAVSHIPS-91663: Technical Manual for Transmitter, Carrier Telegraph T-341/UC.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	



T-341/UC

## TRANSMITTER, CARRIER TELEGRAPH

December 1956

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Transmitter, Carrier Telegraph T-341/UC Equipment Spare Parts Box	9.25	18 X 24 X 37	92.5

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter, Carrier Telegraph T-341/UC	8-23/32 X 14-3/8 X 19	34.5
1	Equipment Spare Parts Carton	8 X 8 X 12	24
2	Technical Manuals		

December 1956

## TELEPHONE SET

TA-5003/U

## FUNCTIONAL DESCRIPTION

The TA-5003/U is a lightweight, portable field telephone designed for general purpose use.

No field changes in effect at time of preparation (8 August 1956).

## REFERENCE DATA AND LITERATURE

Nomenclature Card for TELEPHONE SET TA-5003/U

TYPE CLASSIFICATION DESIGN COGNIZANCE PROCUREMENT COGNIZANCE STOCK NO.
---

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Telephone Set TA-5003/U		

September 1960

**RADIOBEACON AMPLIFIER**Radio-Auxiliary  
**TB-143A (USCG)****FUNCTIONAL DESCRIPTION**

The TB-143A is intended primarily for use on ships and stations of the U. S. Coast Guard as a radio aid to navigation.

The TB-143A is designed for continuous operation along conventional lines. It consists of a Radio Frequency (R.F.) Amplifier and a power supply. Radio Frequency (R.F.) driving power is supplied from an external radio beacon transmitter. The output from the amplifier is designed for a 52 to 138 ohm transmission line which terminates in an external antenna tuning and coupling unit.

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

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(2) Power Amplifier tube Jan 851, (2) Rectifier tube Jan 827A, (1) Radio Transmitter LSR-420-H or TB-142, (1) Antenna Tuning and Coupling Unit MR-210 or CU-330/UR.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

NUMBER OF PRESET FREQUENCIES: 4.

TYPE OF FREQUENCY CONTROL: By exciter.

HOW FREQUENCY IS DETERMINED: By driver unit.

THE AMPLIFIER IS CAPABLE OF THE FOLLOWING

TYPES OF EMISSION: Unmodulated CW carrier.

Keyed A1; Modulated CW carrier Keyed A2;

continuous carrier with Keyed modulation

A2 continuous carrier with voice modulation A3.

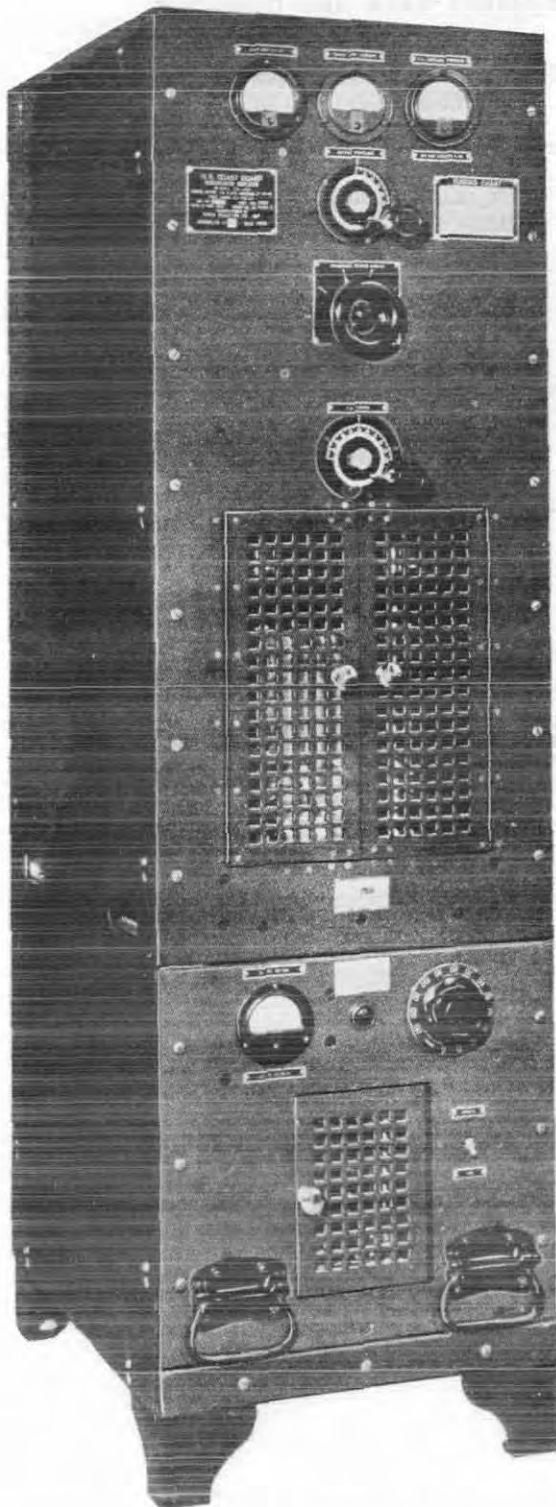
OPERATING FREQUENCY RANGE: 275 to 510 kc.

OPERATING POWER RQMT: 115 v AC 50 to 60 cps, single ph; 28.2 amp with 92.5% power factor.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

ERCO Radio Laboratories Inc., Garden City,  
New York.

Contract Tcg 3842A(CG-18,993-C), dated



*Radiobeacon Amplifier, U.S.C.G. Model TB-143A*

Radio-Auxiliary

**TB-143A (USCG)**

**RADIOBEACON AMPLIFIER**

30 March 1951.  
Contract Tcg 38825(CG-21,952-1-A),  
dated 11 March 1952.

**REFERENCE DATA AND LITERATURE**

CG-273-8: Technical Manual for Radio Beacon  
Amplifier Model TB-143A.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) Jan 851      (2) Jan 872A  
Total Tubes: (4)  
No Crystals used.

TYPE CLASSIFICATION (NAVY) DESIGN COGNIZANCE U.S.C.G. PROCUREMENT COGNIZANCE STOCK NO.
---

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radiobeacon Amplifier TB-143A	31.5	25 X 32 X 68	458
2	Power Supply for Radiobeacon Amplifier	9.5	22 X 24 X 31	420

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radiobeacon Amplifier TB-143A	19 X 27 X 63	593

June 1957,

## MULTIPLEXER

## FUNCTIONAL DESCRIPTION

The TD-159/U is designed to multiplex the maximum of 4 audio channels plus a synchronization channel into 1 video channel as PPM intended to AM modulate a radio transmitter; and to demultiplex and demodulate similar PPM-AM video information into a maximum of 4 outgoing audio channels.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## INPUT CHANNEL

- 4 CHANNEL: (AUDIO)  
 BAND WIDTH: 3200 cycles.  
 IMPEDANCE: 600 ohms.  
 FREQUENCY RANGE: 300 to 3500 cycles.
- 1 CHANNEL (VIDEO)  
 BAND WIDTH: 3-1/2 to 4-1/2 mc.  
 IMPEDANCE: 91 ohms.  
 FREQUENCY RANGE: 0 to 4-1/2 mc.

## OUTPUT

- AUDIO  
 BAND WIDTH: 3200 cycles.  
 IMPEDANCE: 600 ohms.  
 FREQUENCY RANGE: 300 to 3500 cycles.

## VIDEO

- BAND WIDTH: 3-1/2 to 4-1/2 mc.  
 IMPEDANCE: 91 ohms.  
 FREQUENCY RANGE: 0 to 4-1/2 mc.  
 OPERATING POWER: 115 v, 400 cps, single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Raytheon Mfg. Co., Waltham, Mass.  
 Contract NObsr 63079.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Multiplexer TD-159/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1 1	Multiplexer TD-159/U	10 x 13 x 22	

# MULTIPLEXER

## FUNCTIONAL DESCRIPTION

The TD-164/TRC will be inserted between two Receiver-Transmitter units at a repeater station and will provide one channel part-line order-wire communications to attendants at all repeater stations of a multi-hop link. All channels originated at a terminal station shall pass through this drop and insert unit unaltered, except for the order-wire channel.

No field changes in effect at time of preparation (18 December 1956).

FREQUENCY: 3 mc.  
VOLTAGE: 24 umin.  
IMPEDANCE: 93 ohms.

### AUDIO

FREQUENCY: 300 to 3500 cps.  
VOLTAGE: 1.5 v max (+4 dbm).  
IMPEDANCE: 600 ohms.  
OPERATING POWER: 115 v, 400 cps, single ph.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

### INPUT CHANNEL

#### VIDEO

NUMBER CHANNELS: 24.  
FREQUENCY: 3 mc.  
IMPEDANCE: 93 ohms.

#### AUDIO

NUMBER CHANNELS: 1.  
FREQUENCY: 300 to 3500 cps.  
IMPEDANCE: 600 ohms.

### OUTPUT

#### VIDEO

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Multiplexer TD-164/TRC.

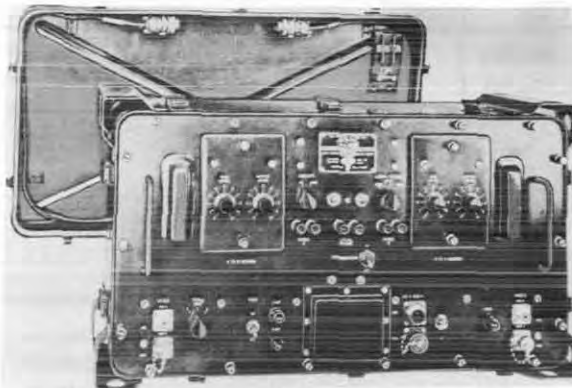
TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Multiplexer TD-164/TRC	10 x 14-1/4 x 25-1/4	50

February 1960

Radio-Auxiliary

**MULTIPLEXER****TD-198(XN-1)/TRC-27**

*Multiplexer TD-198(XN-1)/TRC-27*

**FUNCTIONAL DESCRIPTION**

The TD-198(XN-1)/TRC-27 is designed as an accessory for use with Radio Set AN/TRC-27. The multiplexer provides order-wire facilities for an operator at a repeater station. With the multiplexer interconnected with a system of two (2) Receiver-Transmitters RT-252/TRC-27 as a relay, the operator at the repeater station is able to communicate with both terminals of the communications network and with other repeater stations similarly equipped. Facilities are provided for terminating the link in either direction at the relay point, and for connection of the order wire into a switchboard network.

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

**RELATION TO OTHER EQUIPMENT**

The TD-198(XN-1)/TRC-27 is designed to be used with Radio Set AN/TRC-27.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(2) Receiver-Transmitter RT-252/TRC-27, (2) Antenna Group OA-1378/GRC, (1) Gasoline Engine Generator PU-278/TRC-27, (1) Technical Manual for Radio Set AN/TRC-27 NAVSHIPS 93098(A), (1) Field Telephone EE-8, TA-43/PT

or equivalent.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

NUMBER OF CHANNELS: 1 duplex.  
 CHANNEL TERMINATION: 2-wire, 600 ohms.  
 TYPE OF MULTIPLEXING: Time-division.  
 TYPE OF MODULATION: Pulse-position.  
 AUDIO BANDWIDTH: 300 to 3500 cps.  
 RINGING FREQUENCY: 25 cps.  
 FRAME FREQUENCY: 8000 cps.  
 PULSE WIDTH: 0.45 microsecond.  
 OPERATING POWER RQMT: 105/125 v ac, 360 to 440 cps, 140 W max, single ph.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Raytheon Mfg Co., Waltham, Massachusetts.  
 Type No. 2913.

Contract NObsr-71589, dated 23 October 1956.

Approximate Cost: \$79,529.10 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(15) 12AT7WA (1) 0A2WA  
 (1) 6AU6WA (2) 5727  
 (10) 6021

Total Tubes: (29)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93099(A): Technical Manual for Multiplexer TD-198(XN-1)/TRC-27.

TYPE CLASSIFICATION (NAVY)  
 DESIGN COGNIZANCE USN, BUSHIPS  
 PROCUREMENT COGNIZANCE BUSHIPS M-2470  
 STOCK NO.  
 R.D.B. IDENT. NO.

February 1960

Radio-Auxiliary

TD-198(XN-1)/TRC-27

## MULTIPLEXER

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Multiplexer TD-198(XN-1)/TRC-27	4.2	13 X 18.5 X 30.5	55

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Multiplexer TD-198(XN-1)/TRC-27	10 X 14.25 X 25.25	45
2	Technical Manual NAVSHIPS 93099(A)	3/8 X 9-1/4 X 11-3/4	



29 December 1961

SEQUENTIAL TIMER TD-257/U

Cog Service:

FSN:

Functional Class:

USA

USN

USAF

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Bendix Aviation Corp.

*(No Illustration Available)*

**FUNCTIONAL DESCRIPTION:**

Sequential Timer TD-257/U is electrically operated and equipped with an automatic control switch (6 v and 26 v dc), terminal board, 3 AN connectors, and an internal expiration signaling device. The illuminated dial has black markings on a white background, 130 minutes, 4 deg. The case is aluminum painted gray and is designed for wall mounting. The clock is independently operated. This equipment is a battery charge-discharge timer for charging and discharging, shorting and recharging nickel-cadmium batteries on board Guided Missile Ships.

No field changes in effect at time of preparation (23 June 1961).

**TECHNICAL CHARACTERISTICS:**

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

**RELATION TO OTHER EQUIPMENT:**

This unit is used with, but is not a part of, Power Supply PP-1458/U.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

**MAJOR COMPONENTS**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Timer, Sequential TD-257/U		18 x 22 x 32	

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93400: Preliminary Data Sheet for Timer, Sequential TD-257/U.

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

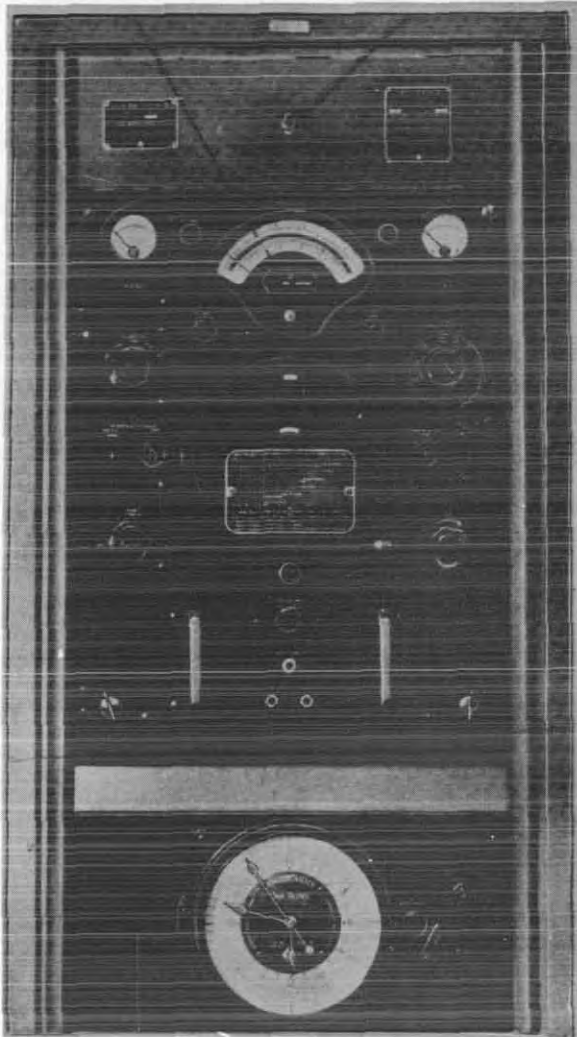
TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.



June 1961

Radio-Auxiliary  
TD-26/U**CLOCK**

Clock TD-26/U

**FUNCTIONAL DESCRIPTION**

The TD-26/U is designed to keep accurate time and close contacts on signal input once per second providing a local time-Tick and a pulse for comparison with WWV.

No field changes in effect at time of preparation ( 19 May 1960).

**RELATION TO OTHER EQUIPMENT**

The TD-26/U is designed as part of the AN/FRM-3.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF CLOCK: Electric relay rack type.  
TYPE OF OPERATION: Continuous operation.  
INPUT: 100 cycles.  
OPERATING POWER RQMT: 110 to 120 v AC, 50 to 60 cps, single ph.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

General Radio Co., Cambridge, Massachusetts.  
Model Type No. 1103-A.  
Contract NObsr-42381(Navy).

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes and/or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91320(A): Technical Manual for Frequency CALIBRATOR SET AN/FRM-3.

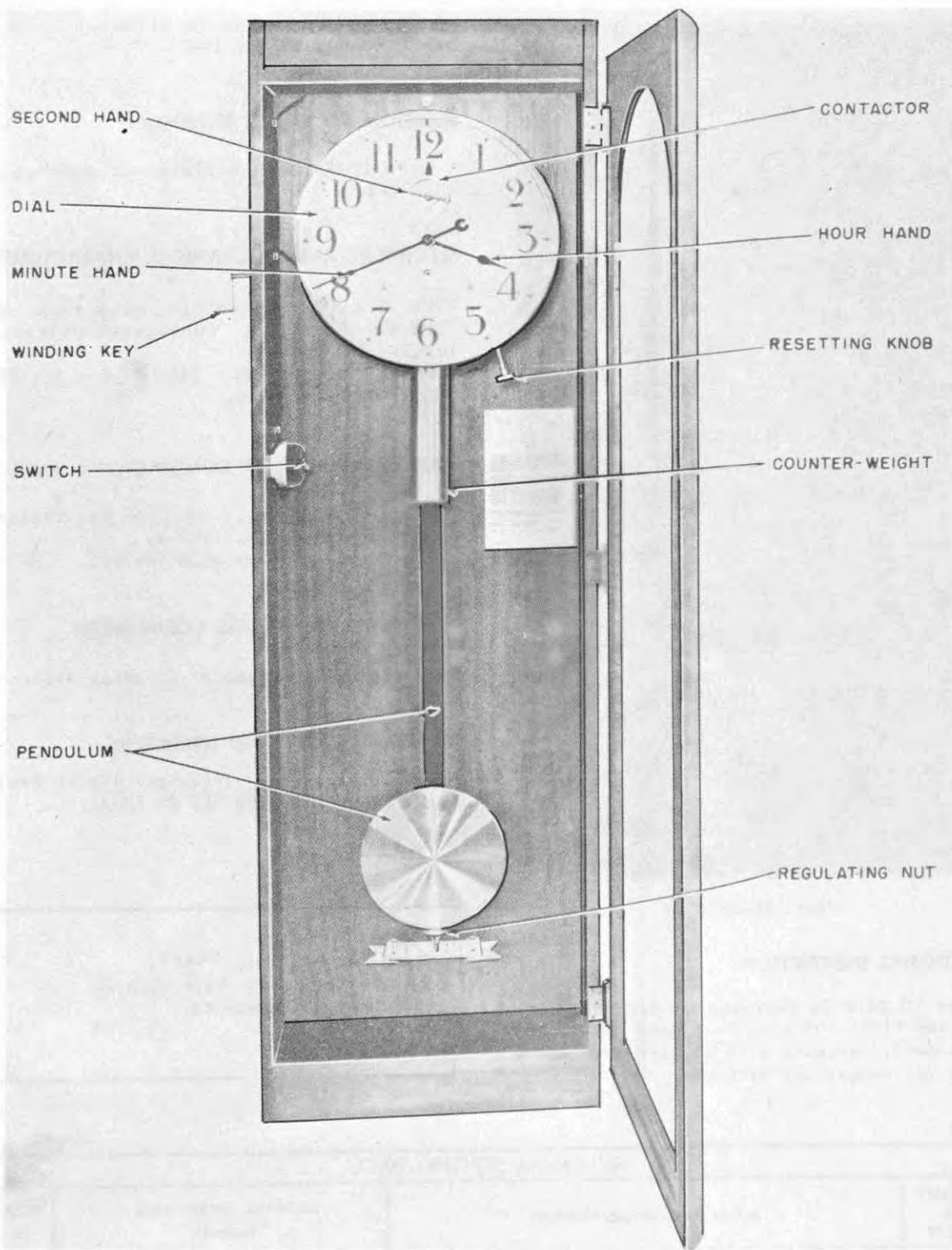
TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE NAVY BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Clock TD-26/U	8-23/32 X 12 X 19	

# RADIO BEACON CLOCK

## TD-66/FRN



Radiobeacon Clock TD-66/FRN

Radio-Auxiliary

**TD-66/FRN**

**RADIO BEACON CLOCK**

**FUNCTIONAL DESCRIPTION**

The TD-66/FRN is a pendulum type, weight driven clock equipped with a contractor to provide electrical contacting at one (1) minute intervals. The function of the clock is to actuate a contractor to provide electrical contacting for the operation of Coast Guard shore station radio beacon transmitters.

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

**RELATION TO OTHER EQUIPMENT**

The TD-66/FRN is designed to be used with Beacon Coder KY-76/URN.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF CLOCK: Pendulum type, weight driven clock.

TYPE OF OPERATION: Mechanical.

TYPE OF MOVEMENT: 8 day movement.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Wallace & Tiernan Products, Inc., Belleville, New Jersey.  
Dwg No. FA-151.  
Type MT-178.  
Contract T42cg-714, dated 16 October 1950.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

Technical Manual for Radio Beacon Clock TD-66/FRN.

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE USCG  
PROCUREMENT COGNIZANCE SPEC MTS-354 (USCG)  
STOCK NO.  
R.D.B. IDENT. NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radiobeacon Clock TD-66/FRN	9.75	16 X 26 X 76	175

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radiobeacon Clock TD-66/FRN	7-5/16 X 18 X 60-3/8	125

# TRANSFORMER RADIO FREQUENCY

# TF-290(XN-1)/U

## FUNCTIONAL DESCRIPTION

Contract NObsr-72661, dated 7 February 1957.

TF-290(XN-1)/U is designed as a heavy-duty Radio Frequency Transformer; used for matching a seventy-two (72) ohm unbalanced input to a six hundred (600) ohm balanced output.

No field changes in effect at time of preparation (24 December 1959).

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF IMMERSANT: Fluoro chemical compound.

TYPE OF COOLING: Air cooled.

### IMPEDANCE

UNBALANCED: 70 ohms.

BALANCED: 600 ohms.

VOLTAGE STANDING WAVE RATIO: 2 to 1.

POWER OUTPUT: 15 kw.

OPERATING FREQUENCY RANGE: 2 to 30 mc.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Sheet for TRANSFORMER, RADIO FREQUENCY TS-290(XN-1)/U.

Nomenclature Card for Transformer, Radio Frequency.

NAVSHIPS 93392: Technical Manual for Transformer, Radio Frequency.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Westinghouse Electric Corp., Baltimore, Maryland.

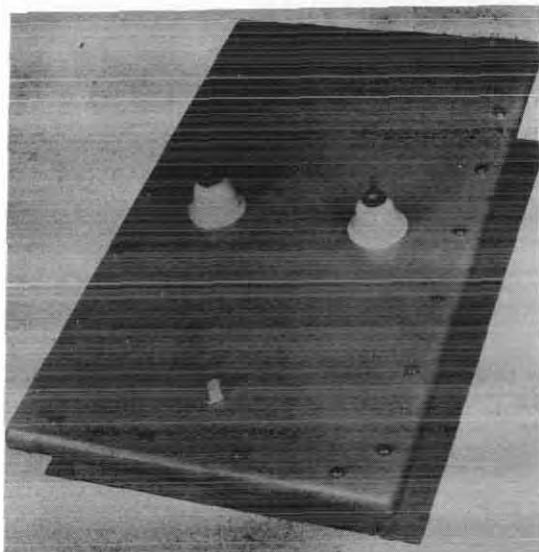
Part No. 475D770G01.

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

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transformer, Radio Frequency TF-290(XN-1)/U	17-7/8 X 20 X 29-3/8	

June 1961

**RADIO FREQUENCY TRANSFORMER**Radio-Auxiliary  
**TF-331(XN-1)U**

Radio Frequency Transformer TF-331(XN-1)U

**FUNCTIONAL DESCRIPTION**

Radio Frequency Transformer TF-331(XN-1)U is designed to match a 75-ohm unbalanced transmission line to a 600-ohm balanced transmission line. Maximum power-handling capabilities are 3 kilowatts (100% modulated) at frequencies between 2.0 and 30.0 mc.

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

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(As required) Cable.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

INPUT-TO-OUTPUT IMPEDANCE: 75 ohms, coaxial, unbalanced to 600 ohms, open wire, balanced.

FREQUENCY RANGE: 2.0 to 30.0 mc.

POWER-HANDLING CAPACITY: 3 kw, 100% modulated, VSWR of 3:1.

SPURIOUS LEVEL: At least 70 db below full power carrier level.

EFFICIENCY: Approx. 95%.

TYPE OF COOLING: Air.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Westinghouse Electric Corp, Baltimore, Maryland.  
Part No. 484D387G01.  
Contract NObsr-72661.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93681: Technical Manual for RADIO FREQUENCY TRANSFORMER TF-331(XN-1)U.

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

**SHIPPING DATA**

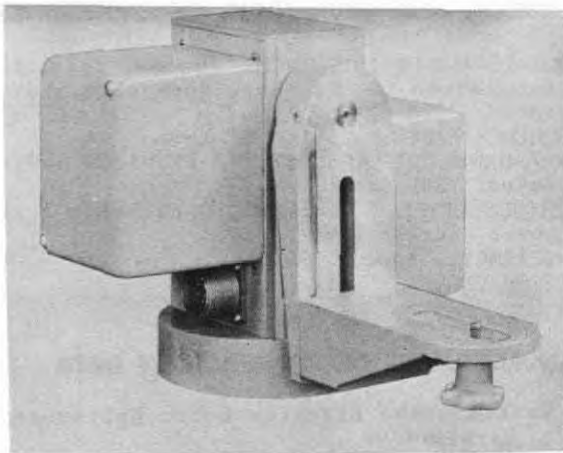
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Frequency Transformer TF-331(XN-1)U			

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Transformer TF-331(XN-1)U	7.5 x 16.25 x 26.75	40
2	Technical Manual NAVSHIPS 93681	8.5 x 11	

# TELEVISION CAMERA DRIVE

## TG-77/GX



Television Camera Drive TG-77/GX

W.

LIMITS IN PAN: 17 deg each side of zero.  
LIMITS IN TILT: 13 deg each side of zero.

### MANUFACTURER'S OR CONTRACTOR'S DATA

General Precision Laboratory Inc., Pleasantville, New York.  
Contract NObsr-75369.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

### FUNCTIONAL DESCRIPTION

Television Camera Drive TG-77/GX is used in Television System AN/GXQ-3(V) to hold and position a television camera in tilt and pan, and permit remote control of the camera position. The pan and tilt unit consists essentially of a base, containing 2 motors and associated gears, and a pivoting mount attached to a rotating platform.

No field changes in effect at time of preparation (24 November 1959).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 103 to 127 v, 60 cy, 50

### REFERENCE DATA AND LITERATURE

Technical Manual for Television Camera Drive TG-77/GX.

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

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Television Camera Drive TG-77/GX	7-5/8 X 9-13/16 X 11	14-1/2



## TRAK TUNING LOCK



TRAK Tuning Lock, Model TL-2 CBTA

### FUNCTIONAL DESCRIPTION

The TRAK Tuning Lock for carrier shift operation is designed to follow the incoming signal and maintain automatically accurate tuning of the receiver, even though the incoming signal may drift in frequency or the receiver tuning be affected by changes in temperature or changes in characteristics of the frequency controlling components of the receiver. The system is applicable either to variable tuned receivers or crystal controlled receivers.

No field changes in effect at time of preparation (7 January 1960).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

AUDIO OUTPUT: 2000 to 3000 cps minimum audio voltage of 80 mv.

INPUT IMPEDANCE: 1 megohm shunted by approx 20 mmfs.

OPERATING DEVIATION FREQUENCY: 170, 300, 400, 500 and 850 cps.

OPERATING POWER RQMT: 105 to 130 v AC, 60 cps, single ph, 90 watts.

### MANUFACTURER'S OR CONTRACTOR'S DATA

CGS Laboratories, Inc., Stamford, Conn.  
Model No. TL-2.

Contract NObsr-71292, dated 1 October 1956.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 3KP1            (1) 5Y3            (2) 0A2  
(1) 12AU7        (6) 12AX7        (1) 6AL5

Total Tubes: (12)  
No Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 92866: Technical Manual for Trak Tuning Lock TL-2.

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

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Trak Tuning Lock TL-2	5-1/4 X 14 X 19	35

20 July 1962

Cog Service: USN FSN:

TUNER, RADIO FREQUENCY TN-229/SRT  
Functional Class:

USA

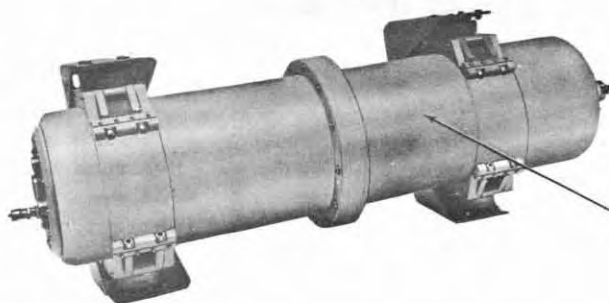
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: International Telephone & Telegraph Corp., (05292).



RADIO FREQUENCY  
TUNER TN-229/SRT

*Tuner, Radio Frequency TN-229/SRT*

**FUNCTIONAL DESCRIPTION:**

The Tuner, Radio Frequency TN-229/SRT is designed for automatic tuning of open, fixed wire antennas in the frequency range of 2.0 to 26.0 megacycle (MC).

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

**TECHNICAL CHARACTERISTICS:**

TYPE OF COUPLING: Inductive coupling to variable helical transmission line.

TYPE OF CONTACTS: Motor-driven sliding ground contacts on helix.

INPUT IMPEDANCE: 50 ohms nominal.

FREQUENCY RANGE: 2.0 to 26.0 mc.

OPERATING POWER RQMT: 110 v ac, 60 cps, single ph, 80 W; 24 v dc, 1.0 amps.

---

**TN-229/SRT TUNER, RADIO FREQUENCY**

---

**RELATION TO OTHER EQUIPMENT:**

The TN-229/SRT is designed as part of the Antenna Tuning Group AN/SRA-18.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Frequency Tuner TN-229/SRT		12-5/8 dia x 50-13/16	108

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 92540(A): Technical Manual for Antenna Training Group AN/SRA-18 of which Tuner, Radio Frequency TN-229/SRT is a part.

---

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

---

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	16.43	230

---

**PROCUREMENT DATA**

---

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG:

---

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
International Telephone & Telegraph Corp.	Clifton, N. J.	N0bsr-52021, 1 September 1950 N0bsr-52621 N0bsr-52622	

---

# TRANSMISSION LINE TUNER

Radio-Auxiliary  
**TN-233/SRC**



Radio-Auxiliary TN-233/SRC

## FUNCTIONAL DESCRIPTION

The TN-233/SRC has been designed primarily for use with Model TCS Radio Transmitting and Receiving Equipment, but it may be used with any LF, MF, or HF Navy radio transmitter up to and including 125 watts radio frequency output.

Field changes have not affected this description dated (22 May 1956).

## RELATION TO OTHER EQUIPMENT

The TN-233/SRC is a substitute for and performs the functions of NT-47205 Loading Coil for Model TCS. However, in addition, it embodies an internal dummy load and provisions for an external dummy load for testing the output of the transmitter; a built-in

pick-up loop with connector for a frequency meter; and provision for grounding the antenna when not in use. The use of coaxial lines is provided for, thus reducing the radio frequency field in the operating compartment and improving the overall efficiency of the TCS equipment.

Equipment Required but not Supplied: (3) Connectors UG-27B/U, (3) Adapters UG-941A/U, (3) Coaxial Cable as Required.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1500 to 12,999 kc,  
INPUT IMPEDANCE: 50 ohms (nominal), for direct connection to Model TCS.  
OUTPUT IMPEDANCE: Varies to match antenna in use.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Clearfield Broadcasters, INC., Clearfield, Pennsylvania.  
Contract NObsr-71146, dated 5 JAN. 1956.  
Approx Cost: \$130.00 with equipment spares.

## TUBE COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92343: Technical Manual for Transmission Line Tuner TN-233/SRC.

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE SPEC-MIL-E-17362A(SHIPS) STOCK NO.
--

## SHIPPING DATA

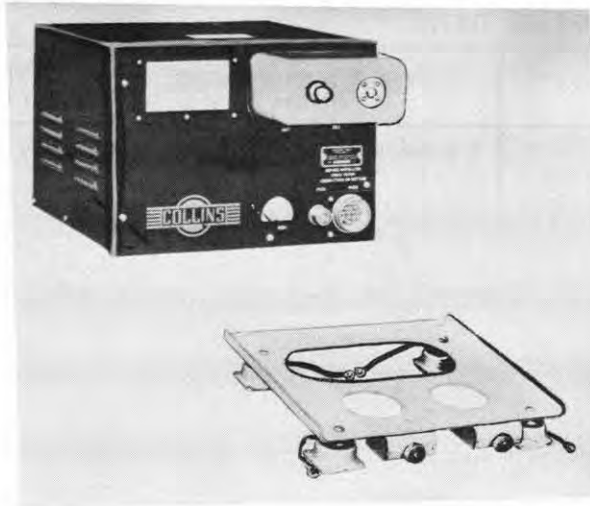
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVER-ALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Transmission Line Tuner TN-233/SRC	0.81	10 X 10-1/2 X 13-1/2	

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVER-ALL DIMENSIONS (inches)	WEIGHT (lbs.)
1 2	Transmission Line Tuner TN-233/SRC Instruction Books NASHIPS 92343.	8 X 8-1/4 X 9	

## TUNER, RADIO FREQUENCY

TN-273/URT



Tuner, Radio Frequency TN-273/URT

## FUNCTIONAL DESCRIPTION

The TN-273/URT (Collins 189L-3) is designed for automatic tuning of open, fixed wire antennas of between 45 and 100 feet long, and the coupling of the 52 ohm output circuit of an aircraft transmitter of 50 to 150 watts power output to such antennas over a frequency range of 2 to 25 mc. Most grounded-end antennas of similar length are also fully tunable, but in some instances may require a different fixed shunt capacitance. An antenna transfer relay circuit included, transfers the aircraft antenna directly to a separate receiver when the transmitter is not being tuned or otherwise used; thus, separate components may be operated in the same manner as a transmitter-receiver (transceiver).

No field changes in effect at time of preparation (23 October 1956).

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1)

AC Power Supply PP-1477(XN-1)/URT.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 25 mc.

INPUT IMPEDANCE: 52 ohms.

## ANTENNA TUNING DATA

TYPE: Open, fixed wire type.

LENGTH: 45 to 100 ft.

## POWER REQUIREMENTS

PRIMARY POWER SUPPLY: 27.5 v DC.

TRANSMITTER PLATE SUPPLY: 400 or 250 v DC.

AIRCRAFT OR TRANSMITTER POWER SOURCE:  
115 v, 400 cp, single ph, 15 W.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Company, Cedar Rapids, Iowa.

Contract NObsr 71044.

Approximate Cost: \$1800.00 with equipment spares.

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) 5751 (1) 5814  
Total Tubes: (3).

(2) Crystals (4) 1N67 (notched pairs)  
Total Crystals: (6).

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92844: Technical Manual for Tuning Unit TN-273/URT (Collins Radio Model 180L-3).

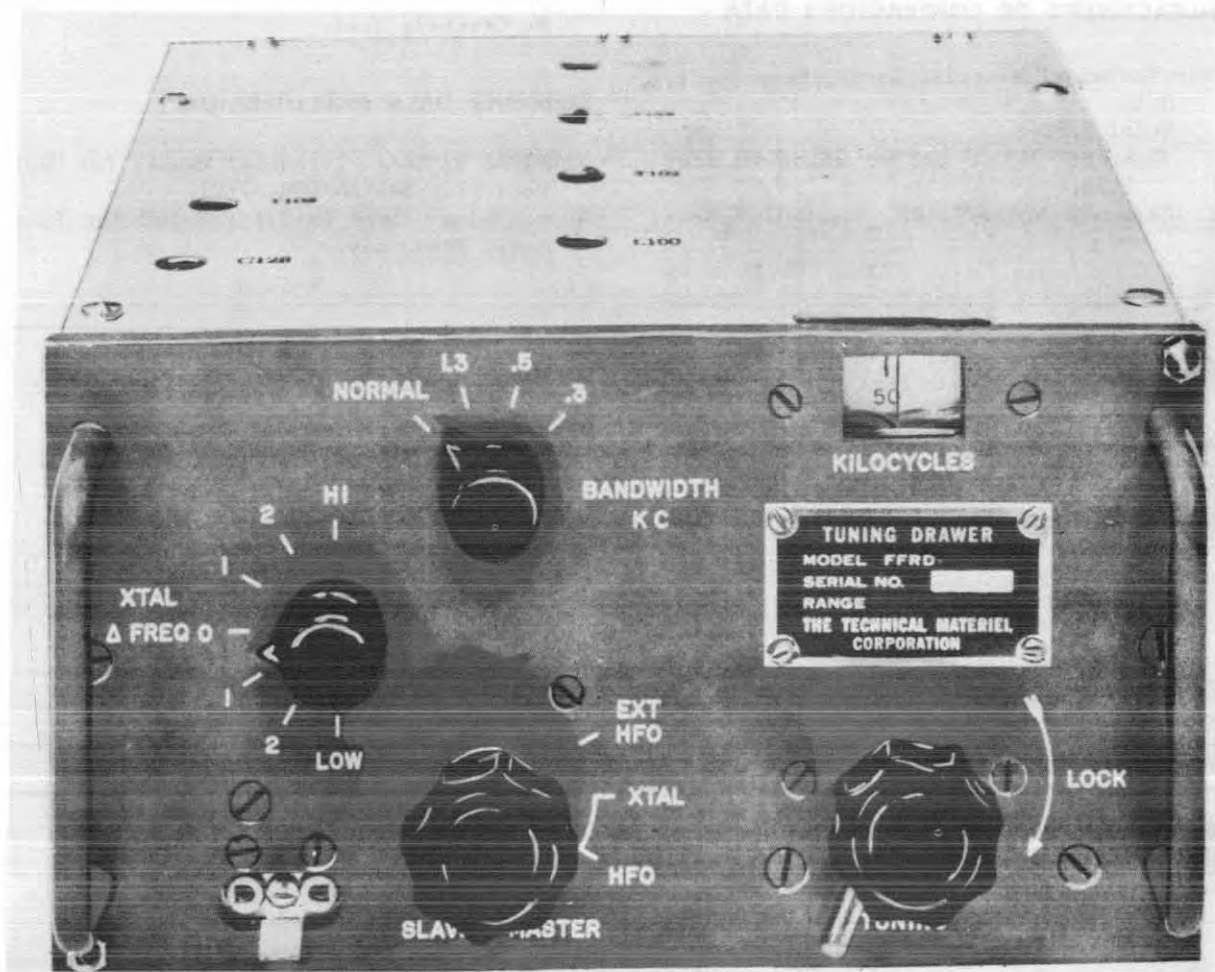
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	Commercial
PROCUREMENT COGNIZANCE	
STOCK NO.	

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuning Unit TN-273/URT	.16 X 10-3/8 X 13-7/8	17.3
1	Mounting	2 X 10-3/8 X 10-5/8	1.25

# TUNER RADIO FREQUENCY

## TN-275/FRR-502



Tuner, R.F. TN-275/FRR-502

### FUNCTIONAL DESCRIPTION

The TN-275/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (10 March 1959).

### RELATION TO OTHER EQUIPMENT

The TN-275/FRR-502 is designed to be used

with but not part of the AN/FRA-501.

The TN-275/FRR-502 is similar to the TN-276/FRR-502 and TN-277/FRR-502 except it differs in frequency coverage.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.  
TYPE OF RECEPTION: AM, CW, and MCW signals.  
FS when used with appropriate Audio of IF type frequency Shift Converter.  
NUMBER OF BANDS: 1 band.  
FREQUENCY RANGE: 100 to 200 kc.  
OPERATING POWER REQUIREMENT: 110/220 v, 50 to 60 cps, approx 85 W.

April 1959

Radio-Auxiliary

**TN-275/FRR-502****TUNER RADIO FREQUENCY****MANUFACTURER'S OR CONTRACTOR'S DATA**

No Crystals used.

The Technical Material Corp., Mamaroneck,  
N.Y.

Model FFRD-2

Contract NObsr-64820, dated 20 June  
1955.

Contract NObsr-71688, dated 15 February  
1957.

Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.

Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92786A: Technical Manual for Radio  
Receiving Set AN/FRR-49(V).

Nomenclature Card TN-275/FRR-502 for Tuner  
Radio Frequency.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(4) 6AG5 (1) 6AU6

Total Tubes: (5)

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

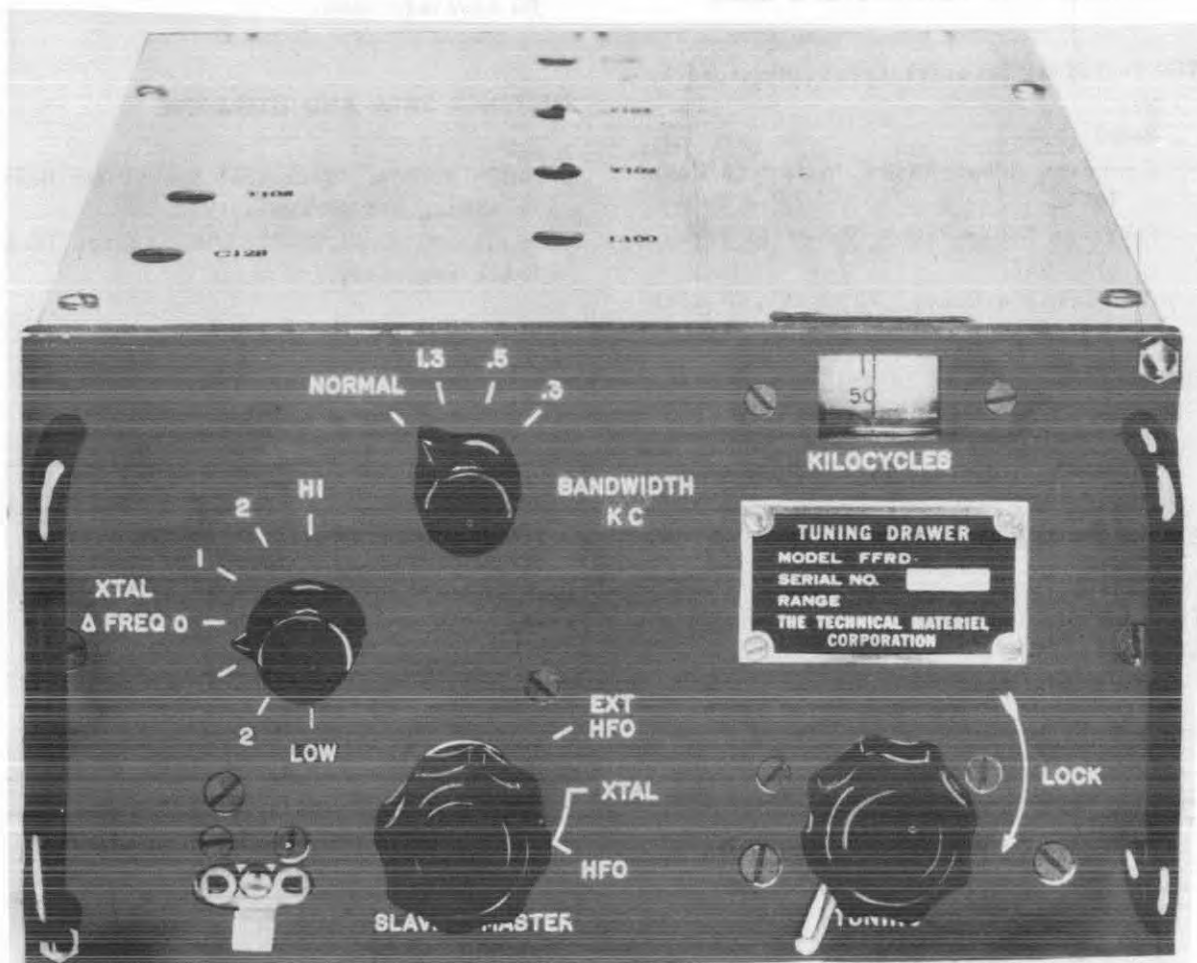
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-2	3-1/8 X 7-1/2 X 8-3/4	



# TUNER RADIO FREQUENCY

# TN-276/FRR-502



Tuner, R.F. TN-276/FRR-502

## FUNCTIONAL DESCRIPTION

The TN-276/FRR-502 is designed as a tuning drawer which contains the two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (10 March 1959).

## RELATION TO OTHER EQUIPMENT

The TN-276/FRR-502 is designed to be

with but not part of the AN/FRA-501.

The TN-276/FRR-502 is similar to the TN-275/FRR-502 and TN-277/FRR-502 except that they differ in frequency coverage.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FREQUENCY RANGE: 200 to 400 kc.

OPERATING POWER REQUIREMENT: 110/220, 50 to cps, approx 85 W.

April 1959

Radio-Auxiliary

**TN-276/FRR-502****TUNER RADIO FREQUENCY****MANUFACTURER'S OR CONTRACTOR'S DATA**

No Crystals used.

The Technical Materiel Corp., Mamaroneck,  
N.Y.

Model FFRD-3.

Contract NObsr-64820, dated 20 June  
1955.

Contract NObsr-71688, dated 15 Febru-  
ary 1957.

Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.

Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92786A: Technical Manual for Radio  
Receiving Set AN/FRR-49(V).

Nomenclature Card TN-276/FRR-502 for Tuner  
Radio Frequency.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(4) 6AG5 (1) 6AU6

Total Tubes: (5)

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

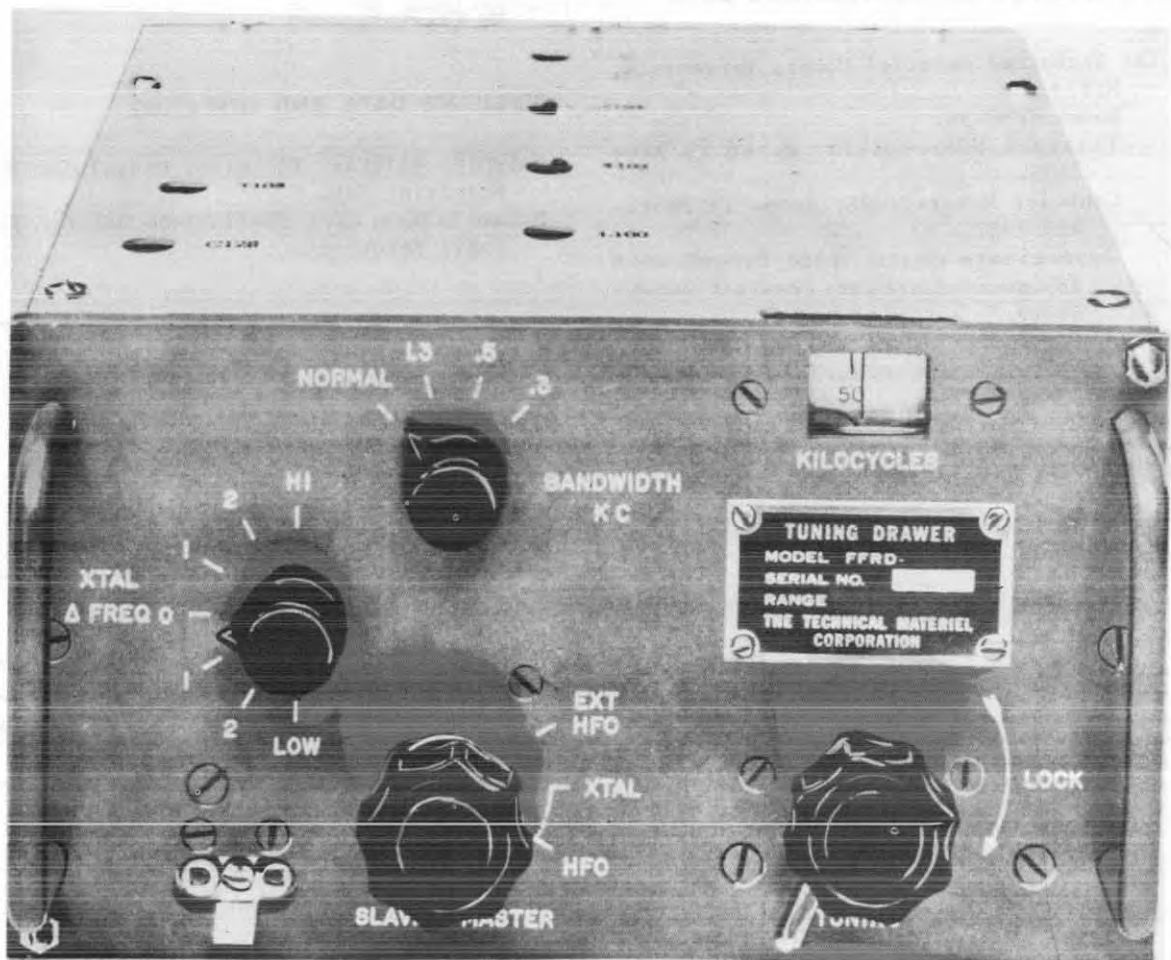
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-3	3-1/8 X 7-1/2 X 8-3/4	

April 1959

## TUNER RADIO FREQUENCY

TN-277/FRR-502



Tuner, R.F. TN-277/FRR-502

### FUNCTIONAL DESCRIPTION

The TN-277/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (10 March 1959)

### RELATION TO OTHER EQUIPMENT

The TN-277/FRR-502 is designed to be used

with but not part of the AN/FRA-501.

The TN-277/FRR-502 is similar to TN-276/FRR-502, and TN-275/FRR-502 except that they differ in the frequency range.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FS when used with appropriate Audio of IF type Frequency Shift Converter.

FREQUENCY RANGE: 500 kc.

OPERATING POWER REQUIREMENT: 110/220 v, 50 to 60 cps, approx 85 W.

April 1959

Radio-Auxiliary

TN-277/FRR-502

## TUNER RADIO FREQUENCY

## MANUFACTURER'S OR CONTRACTOR'S DATA

No Crystals used.

The Technical Materiel Corp., Mamaroneck,  
N.Y.

Model FFRD-3M.

Contract NObsr-64820, dated 20 June  
1955.

Contract NObsr-71688, dated 15 Febru-  
ary 1957.

Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.

Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92786A: Technical Manual for Radio  
Receiving Set.

Nomenclature Card TN-277/FRR-502 for Tuner  
Radio Frequency.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

## TUBE AND/OR CRYSTAL COMPLEMENT

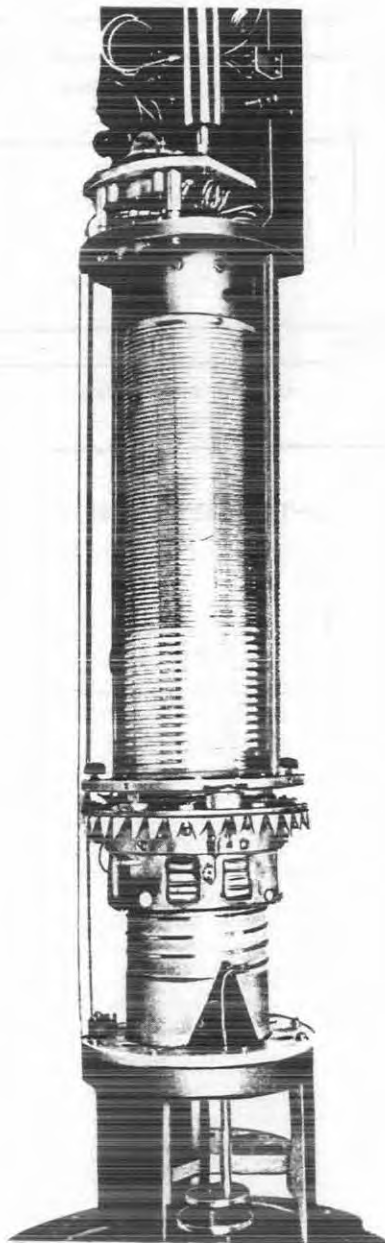
(4) 6AG5 (1) 6AU6

Total Tubes: (5)

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-3M.	3-1/8 X 7-1/2 X 8-3/4	

## TUNER RADIO FREQUENCY



*Tuner, Radio Frequency TN-300/BRT*

### FUNCTIONAL DESCRIPTION

The TN-300/BRT is designed for tuning the Antenna. It consists of a black oxide pressurized cylinder, with the Radio Frequency (RF) and mechanical components housed in the cylinder. The cylinder housing was designed to be pressurized with dry air to 25 pounds

per square inch (PSI). One connector for control circuits, and one R. F. input connector are mounted on the lower end. A valve for attaching pressurizing equipment, and the R. F. output connection, are located at the opposite end.

When the TN-300/BRT is used in the Antenna Tuning Group AN/BRA-5 installations, the Tuner is supplied with external housing assembly CY-2306/BRA-5.

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

### RELATION TO OTHER EQUIPMENT

The TN-300/BRT is designed as part of the Antenna Tuning Group AN/BRA-3, AN/BRA-5.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

**TYPE OF TUNING:** Variable Coupling Coil Tuning.

**NUMBER OF BANDS:** 1 band.

**INPUT POWER:** 500 W.

**FREQUENCY RANGE:** 2 to 26 mc.

**OPERATING POWER RQMT:** 110/120 v AC, 60 cps, single ph.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Granite State Machine Co., Manchester,  
New Hampshire

Dwg No. 35B-0-0.

Contract NObsr-64802, dated 2 June  
1958.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and/or Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93160: Technical Manual for Antenna Tuning Group AN/BRA-3, AN/BRT-5.

<b>TYPE CLASSIFICATION</b>	(NAVY)
<b>DESIGN COGNIZANCE</b>	NAVY BUSHIPS
<b>PROCUREMENT COGNIZANCE</b>	SHIPS-A-1885A
<b>STOCK NO.</b>	

June 1961

Radio-Auxiliary

TN-300/BRT

## TUNER RADIO FREQUENCY

## SHIPPING DATA

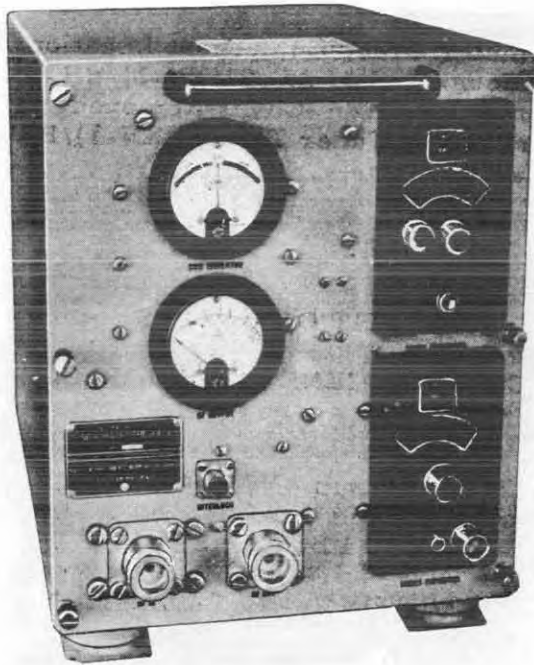
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Tuner Radio Frequency TN-300/BRT w/ Housing CY-2306/BRA-5	11.1	14 X 14-1/2 X 94	315
1	Tuner Radio Frequency TN-300/BRT	8.6	14 X 14 X 76	235

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency TN-300/BRT w/ Housing CY-2306/BRA-5	12-1/8 X 12-1/8 X 81-1/16	215

June 1961

Radio-Auxiliary

**TUNER RADIO FREQUENCY****TN-341(XN-1)/BRT**

Radio Frequency Tuner TN-341(XN-1)/BRT

**FUNCTIONAL DESCRIPTION**

The TN-341(XN-1)/BRT is manually operated and is located close to the transmitter to facilitate operation after tuning the transmitter.

The TN-341(XN-1)/BRT and Radio Frequency Coil RF-91(XN-1)/BRT are designed to provide a means for tuning and matching Antenna AT-774/UR to a 50 ohm transmission line over a frequency range of 2 to 6 megacycles (MC). The R. F. Tuner and Coil accomplish this by inserting or removing inductance or capacitance in the antenna circuit thus increasing or decreasing the effective length of the antenna and thereby matching the transmitter output impedance to the characteristic impedance of the transmission line.

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

**RELATION TO OTHER EQUIPMENT**

The TN-341(XN-1)/BRT is designed as part of the AN/BRA-6(XN-1).

The TN-341(XN-1)/BRT is designed to be used with but not part of Coil Radio Frequency RF-91(XN-1)/BRT.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF TUNING: Variable capacitor tuning.

TYPE OF OPERATION: Manually operated.

NUMBER OF BANDS: 1 band.

POWER OUTPUT

AVERAGE: 500 W.

100% MODULATION: 750 W.

VOICE OPERATION PEAK ENVELOPE: 100 W.

CW PULSED: 5,000 W.

AMBIENT TEMPERATURE RANGE: 0 to 50 deg C (32 deg to 122 deg F).

FREQUENCY RANGE: 2 to 6 mc.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

International Telephone and Telegraph Laboratories, Nutley, New Jersey.

Dwg No. D2183423A.

Contract NObsr-72779.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes and/or Crystals used.

**REFERENCE DATA AND LITERATURE**

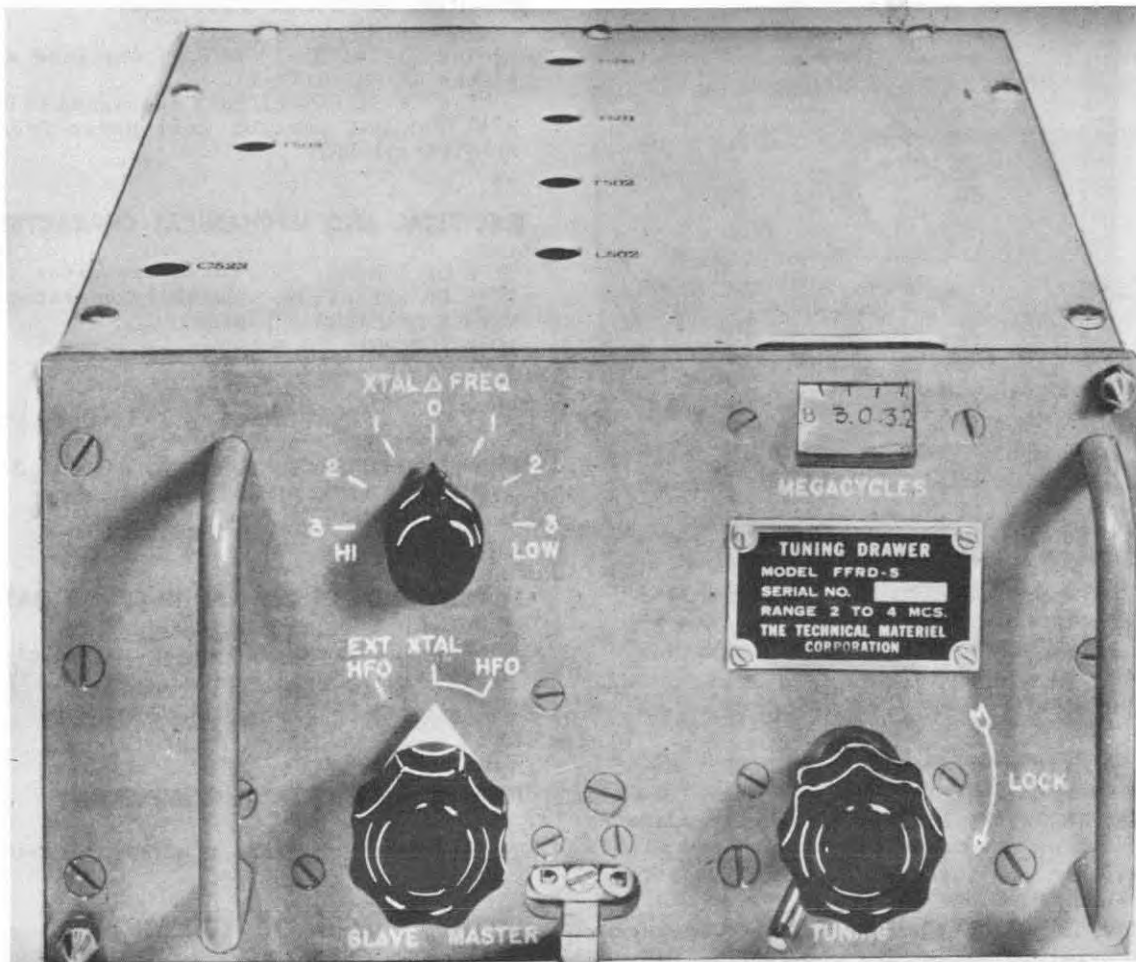
NAVSHIPS 93321: Technical Manual for Antenna Tuning Group AN/BRA-6(XN-1).

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-A-3047
STOCK NO.
R.D.B. IDENT. NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Tuner TN-341(XN-1)/BRT	12-1/2 x 15-5/8 x 16-7/8	

## TUNER RADIO FREQUENCY



*Tuner, R.F. TN-5010/FRR-502*

### FUNCTIONAL DESCRIPTION

The TN-5010/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (11 March 1959).

### RELATION TO OTHER EQUIPMENT

The TN-5010/FRR-502 is similar to the TN-

5011/FRR-502, TN-5012/FRR-502 and TN-5014/FRR-502 except that it differs in frequency coverage.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FS when used with appropriate Audio of IF type Frequency Shift Converter.

OPERATING FREQUENCY RANGE: 2 to 4 MC.

OPERATING POWER REQUIREMENT: 110/120 v, 50 to 60 cps, approx 85 W.



April 1959

Radio-Auxiliary

TN-5010/FRR-502

## TUNER RADIO FREQUENCY

## MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,  
N.Y.

Model FFRD-5.

Contract NObsr-64820, dated 20 June  
1955.

Contract NObsr-71688, dated 15 Febru-  
ary 1957.

Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.

Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

## TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6AG5 (1) 6AU6

Total Tubes: (5)

No Crystals used.

## REFERENCE DATA AND LITERATURE

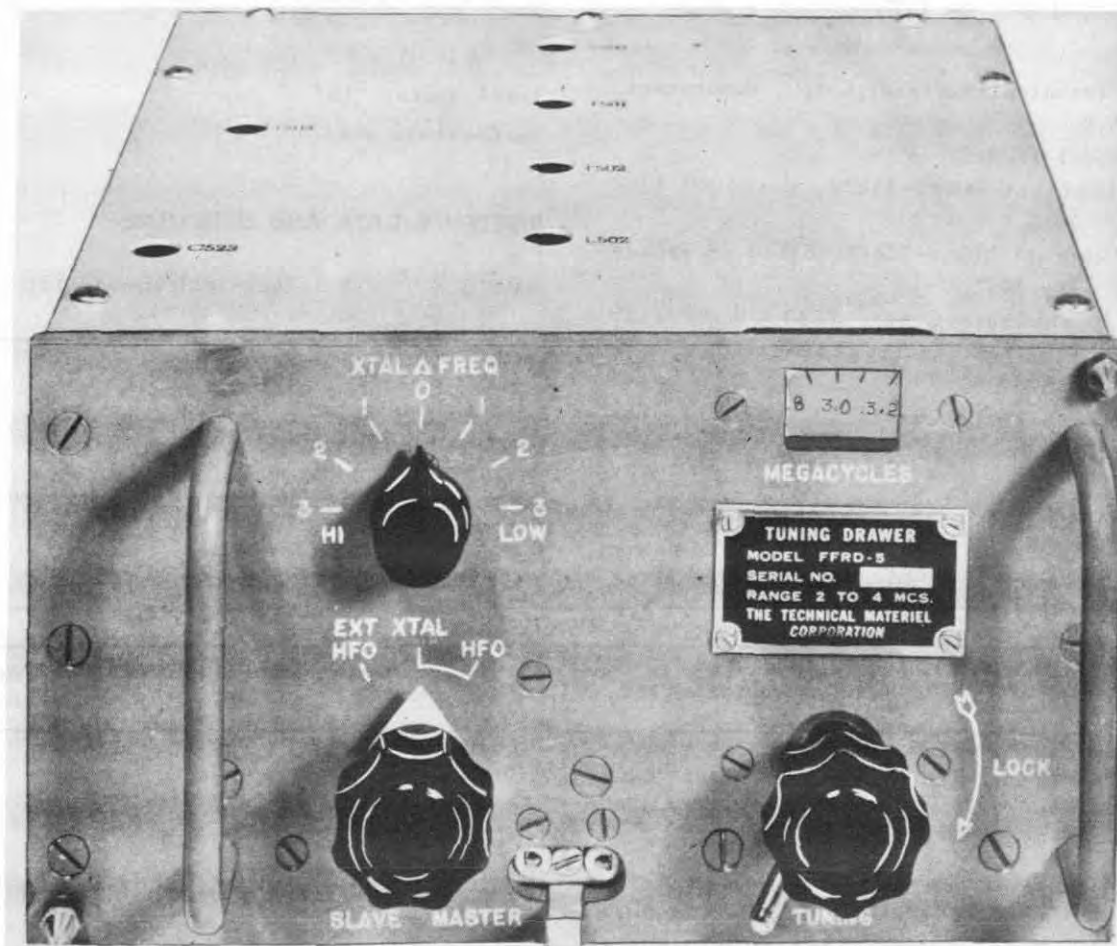
NAVSHIPS 92786A: Technical Manual for Radio  
Receiving Set AN/FRR-49(V).

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
---

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-5	3-1/8 X 7-1/2 X 8-3/4	

## TUNER RADIO FREQUENCY



*Tuner, R.F. TN-5011/FRR-502*

### FUNCTIONAL DESCRIPTION

The TN-5011/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (11 March 1959).

### RELATION TO OTHER EQUIPMENT

The TN-5011/FRR-502 is similar to the TN-

5010/FRR-502, TN-5012/FRR-502 and TN-5014/FRR-502 except it differs in frequency coverage.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FS when used with appropriate Audio or IF type Frequency Shift Converter.

OPERATING FREQUENCY RANGE: 4 to 8 MC.

OPERATING POWER REQUIREMENT: 110/220 v, 50 to 60 cps, approx 85 W.

Radio-Auxiliary

**TN-5011/FRR-502**

**TUNER RADIO FREQUENCY**

**MANUFACTURER'S OR CONTRACTOR'S DATA**

The Technical Materiel Corp., Mamaroneck,  
 N.Y.  
 Model FFRD-6.  
 Contract NObsr-64820, dated 20 June  
 1955.  
 Contract NObsr-71688, dated 15 Febru-  
 ary 1957.  
 Approximate Cost: \$280,000.00 with  
 equipment spares for Contract NObsr-  
 64820.  
 Approximate Cost: \$479,228.12 with  
 equipment spares for Contract NObsr-  
 71688.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(4) 6AG5 (1) 6AU6  
 Total Tubes: (5)  
 No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92786A: Technical Manual for Radio  
 Receiving Set AN/FRR-49(V).

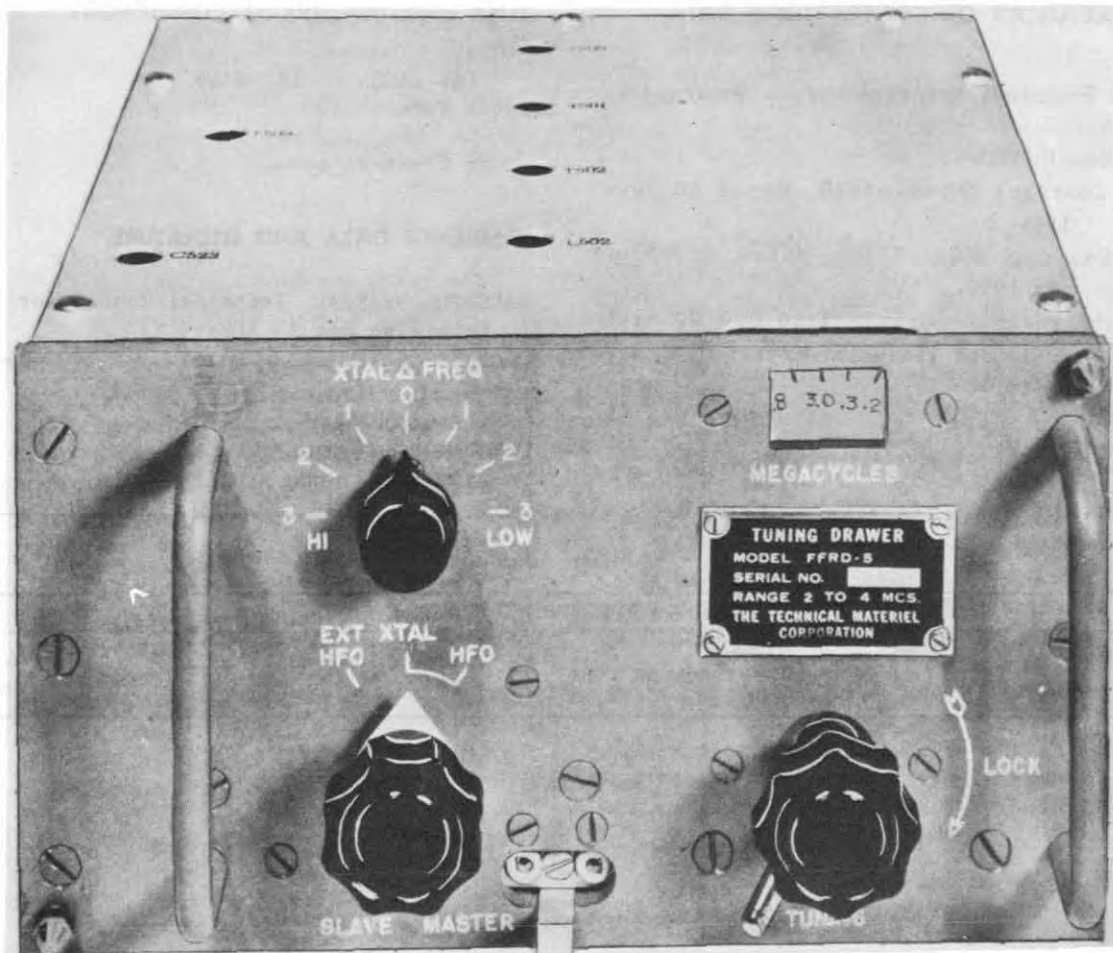
TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS {inches}	WEIGHT {lbs.}
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-6	3-1/8 X 7-1/2 X 8-3/4	

# TUNER RADIO FREQUENCY

Radio-Auxiliary  
**TN-5012/FRR-502**



*Tuner R.F. TN-5012/FRR-502*

## FUNCTIONAL DESCRIPTION

The TN-5012/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (11 March 1959).

## RELATION TO OTHER EQUIPMENT

The TN-5012/FRR-502 is similar to the TN-

5010/FRR-502, TN-5011/FRR-502 and the TN-5014/FRR-502 but differs in the frequency coverage.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable Capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FS when with appropriate Audio or IF type Frequency Shift Converter.

OPERATING FREQUENCY RANGE: 8 to 16 mc.

OPERATING POWER REQUIREMENT: 110/220 v, 50 to 60 cps, approx 85 W.

April 1959

Radio-Auxiliary

TN-5012/FRR-502

## TUNER RADIO FREQUENCY

## MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.

Model FFRD-7.

Contract NObsr-64820, dated 20 June 1955.

Contract NObsr-71688, dated 15 February 1957.

Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.

Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

## TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6AG5

(1) 6AU6

Total Tubes: (5)

No Crystals Used.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92786A: Technical Manual for Radio Receiving Set AN/FRR-49(V).

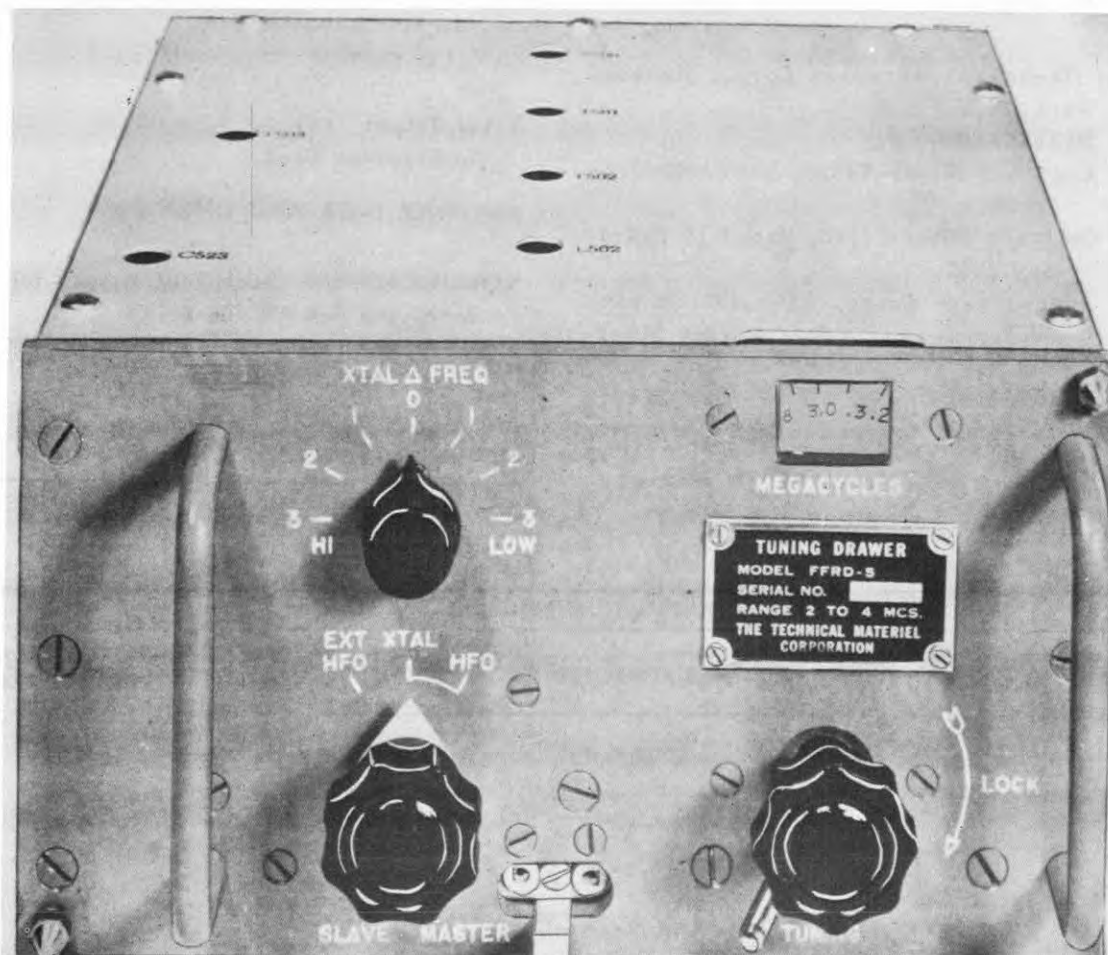
TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
---

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner radio Frequency Technical Materiel Corp Model FFRD-7	3-1/8 X 7-1/2 X 8-3/4	

# TUNER RADIO FREQUENCY

# TN-5014/FRR-502



*Tuner, R.F. TN-5014/FRR-502*

## FUNCTIONAL DESCRIPTION

The TN-5014/FRR-502 is designed as a tuning drawer which contains two (2) radio frequency (R.F.) stages, mixer, oscillator and reactance circuits. Facilities are available to tune the receiver, crystal control operation and diversity reception. The unit is supplied power by the Receiver Subassembly.

No field changes in effect at time of preparation (11 March 1959).

## RELATION TO OTHER EQUIPMENT

The TN-5014/FRR-502 is similar to the TN-

5010/FRR-502, TN-5011/FRR-502 and TN-5012/FRR-502 except that it differs in circuitry, frequency coverage and number of tubes used.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TUNING: Variable capacitor tuning.

NUMBER OF BANDS: 1 band.

TYPE OF RECEPTION: AM, CW and MCW signals.

FS when used with appropriate Audio of IF type Frequency Shift Converter.

OPERATING FREQUENCY RANGE: 16 to 32 MC.

OPERATING POWER REQUIREMENT: 110/220 v, 50 to 60 cps, approx 85 w.

April 1959

Radio-Auxiliary

TN-5014/FRR-502

## TUNER RADIO FREQUENCY

## MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,  
N.Y.

Model FFRD-8.

Contract NObsr-64820, dated 20 June  
1955.

Contract NObsr-71688, dated 15 Febru-  
ary 1957.

Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.

Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92786A: Technical Manual for Radio  
Receiving Set AN/FRR-49(V).

## TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6AK5 (1) 6AU6

(1) 6AG5

Total Tubes: (5)

No Crystals used.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner Radio Frequency Technical Materiel Corp Model FFRD-8	3-1/8 X 7-1/2 X 8-3/4	