

December 1956

**GENERATOR****GN-58-A***Generator GN-58-A Set up for Operation***FUNCTIONAL DESCRIPTION**

The GN-58-A is a hand operated generator unit designed to supply power to Receiver-Transmitter RT-77/GRC-9 when a vehicular battery is not available, as in portable field use. The equipment requires a single operator who sits astride the leg seat and rotates the generator cranks in the direction indicated on the generator housing. The generator incorporates a plug-in voltage regulator which operates to keep the output voltage constant, regardless of the speed of rotation or the amount of load on the generator within 50 to 70 rpm limits.

No field changes in effect at time of preparation (16 July 1956).

**RELATION TO OTHER EQUIPMENT**

Similar to GN-58 except for changes in component parts of voltage regulators and filters.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

SPEED OF ROTATION: 50 to 70 rpm.

OPERATION: Manual, by hand crank

OUTPUT: 425 v at 115 ma; 6.3 v at 2.5 amp

REGULATION: By varying field currents dependant upon speeds of rotation above 50 rpm.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes

**REFERENCE DATA AND LITERATURE**

TM-11-263, Technical Manual for Radio Set AN/GRC-9.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE TASSA  
 PROCUREMENT COGNIZANCE TASSA  
 STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Generator GN-58-A	7-1/2 X 8 X 10-1/2	22-3/4
1	Leq IG-2-A		
2	Leqs IG-3		
1	Cord CD-1086	7 ft lq	

29 August 1962

Cog Service:

FSN: 5965-715-4031

HEADSET-MICROPHONE H-172/U

Functional Class:

USA

USN

USAF

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Roanwell Corporation.

*(No Illustration Available)*

**FUNCTIONAL DESCRIPTION:**

The Headset-Microphone H-172/U is designed primarily for use with single-sideband (SSB) equipment, but also works into a standard radio remote control, type C-1138( )/UR. The dynamic microphone drives a transistor preamplifier of 30-ohm output impedance simulating a carbon microphone and supplies a 35-db gain relative to 0 reference level of one millivolt for a 28-dyne/square centimeter input sound pressure. The single 600-ohm dynamic headset is suspended on the headband and the microphone fastened to a swivel bracket assembly on the left side of the head band. The 85-inch cord (from connector to headset) includes a series switch. The H-172/U was designed to give low distortion and good frequency response for single sideband.

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

**TECHNICAL CHARACTERISTICS:**

**EARPHONE DATA**

TYPE: Dynamic type.

IMPEDANCE: 600-ohms.

**MICROPHONE DATA**

TYPE: Dynamic type.

IMPEDANCE: 3-ohms.

RESISTANCE: 3-ohms dc resistance.

FREQUENCY RANGE: 300 to 5000 cycles.

SOUND INPUT: 27 db below 0.001 volt output for 28 dynes/sq cm sound input.

OUTPUT OF MICROPHONE & PREAMPLIFIER WITH 12 VOLT DC SOURCE: 30 porm 5 db above 0.001 volt for 28 dynes/sq cm sound input.

**RELATION TO OTHER EQUIPMENT:**

The H-172/U is designed to be used with, but not part of C-1138A/UR.

The H-172/U is similar to Headset-Microphone H-78C/AIC, except for its use of Plug MS-3106A-145-SP.

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



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**H-172/U HEADSET-MICROPHONE**

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Headset & Microphone Amplifier H-172/U		3-5/8 x 6-1/2 x 8-1/2	3

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**REFERENCE DATA AND LITERATURE:**

Nomenclature Card for Headset-Microphone H-172/U.  
NAVSHIPS 93400: Preliminary Data Form for Headset-Microphone H-172/U.

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

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

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**SHIPPING DATA**

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

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PROCURING SERVICE:  
SPEC &/OR DWG: RE51F127B

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Roanwell Corporation Pt no. 10373	New York, N. Y.	N0bsr-75952, 29 June 1959	\$108.00

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13 January 1962

Cog Service:

FSN: 4440-448-0466

DEHYDRATOR-PRESSURIZER HD-425/U

Functional Class:

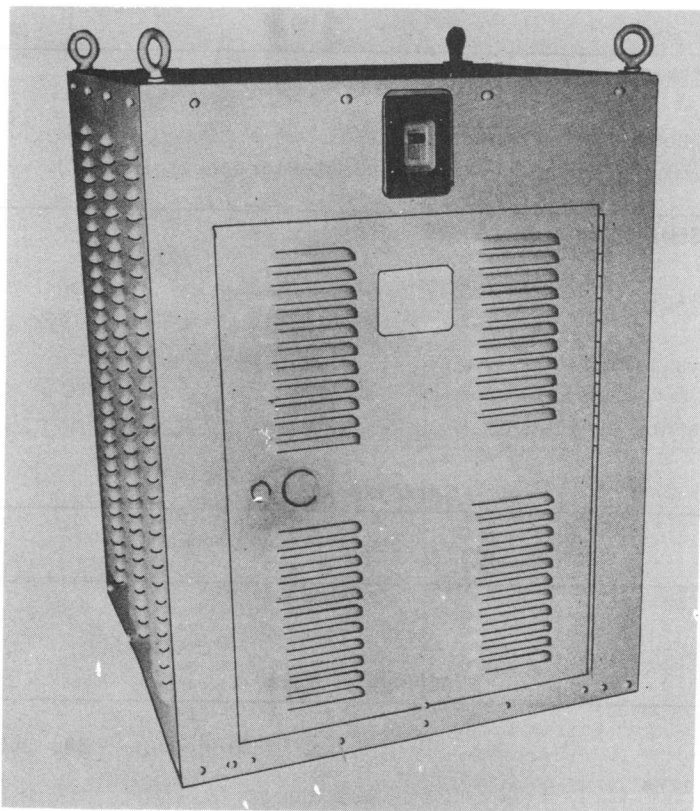
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Wells Industries Corporation.



*Dehydrator Pressurizer HD-425/U*

**FUNCTIONAL DESCRIPTION:**

The Dehydrator-Pressurizer HD-425/U supplies dry air under pressure to shipboard systems of coaxial cables and/or wave guides. The unit takes in atmospheric air at a dry-bulb temperature between M20 deg F (M29 deg C) at 95 percent relative humidity and 122 deg F (50 deg C) at 50 percent relative humidity and delivers an output of 3,000 standard cubic inches per minute of filtered air at 20 pounds per square inch (gauge) with a minimum drop in dewpoint of 45 deg F. The dehydrator-pressurizer unit is self-contained. The only external connections required are wirings to an electrical power source and connecting tubes to discharge vent and drain ports.

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

**TECHNICAL CHARACTERISTICS:**

DEHYDRATOR-PRESSURIZER H-425/U (Wells Industries Corp.)

## HD-425/U DEHYDRATOR-PRESSURIZER

AMBIENT TEMPERATURE RANGE: 32 deg F (0 deg C) to 122 deg F (50 deg C).  
INTAKE AIR DRY-BULB TEMPERATURE: M20 deg F (M29 deg C) to 122 deg F (50 deg C).  
INTAKE AIR MOISTURE CONTENT  
122 deg F (50 deg C): 50% rh.  
M20 deg F (M29 deg C) to 97 deg F (36 deg C): 95% rh.  
OUTPUT AIR: 3000 scf/m at 20 psig.  
OUTPUT DEW POINT: Not less than 45 deg F lower than intake air; 1/2 grain per pound of dry air maximum at M20 deg F (M29 deg C) inlet air temperature.  
OUTPUT FOREIGN PARTICLES: 25 microns maximum.  
POWER INPUT: 440 v ac, 60 cps, 3 ph.  
COMPRESSOR (Bell & Gossett Co.) (Modified, Wells Industries Corp.)  
MOTOR: 1/3 hp at 1725 rpm, 440 v ac, 60 cps, 3 ph.  
COMPRESSOR: Reciprocating, single stage, two cylinder, 35 lb type.  
RELIEF VALVE (C. A. Norgren Co.)  
PRESSURE RATING: 25 to 75 psig.  
PRESSURE SETTING: 55 psig.  
PRESSURE TANK (Wells Industries Corp.)  
AIR SPACE: 1/2 cubic foot.  
PRESSURE RATING: 100 psig.  
PRESSURE SWITCH (Penn Controls)  
OPENING PRESSURE: 35 psig.  
CLOSING PRESSURE: 25 psig.  
ORFICE (Wells Industries Corp.)  
SIZE: Number 75 drill size.  
INLINE FILTER (Wells Industries Corp.)  
ELEMENT SIZE: 250 micron.  
RATED: 5 scfm at 50 psig.  
DEHYDRATOR TOWER (Wells Industries Corp.)  
WORKING PRESSURE: 50 psig.  
PROOF PRESSURE: 150 psig.  
DESICCANT: Silica Gel Type II Grade H, 12 pounds; Molecular Sieves Type 44, 8 pounds.  
MANUAL DRAIN NEEDLE VALVE (C. A. Norgren Co.)  
RATED PRESSURE: 250 psig maximum.  
THERMOSWITCH (Fenwall Inc.)  
TEMPERATURE SETTING: 550 deg F (288 deg C).  
COMPRESSURE DISCHARGE & DEHYDRATOR TOWER DISCHARGE FILTERS (C. A. Norgren Co.)  
RATED PRESSURE: 250 psig maximum.  
RATED TEMPERATURE: 300 deg F (149 deg C) maximum.  
ELEMENT SIZE: 25 micron.  
POWER CONTROL SWITCH (General Electric Co.)  
TYPE: Nonreversing, fire resistant, overload protection.  
SOLENOID CONTROL VALVE (General Controls)  
RATED PRESSURE: 600 psig maximum.  
POWER: 115 v ac.  
HEATER (Wells Industries Corp.)  
POWER: 440 v ac, 60 cps, single ph.  
RATED: 1800 W.  
PRESSURE REGULATOR (C. A. Norgren Co.)  
PRESSURE RATING: 0 to 50 psig.

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**DEHYDRATOR-PRESSURIZER HD-425/U**

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PRESSURE SETTING: 20 psig.  
PROGRAM TIMER (Wells Industries Corp.)  
MOTOR POWER: 115 v ac, 60 cps, single ph.  
TRANSFORMER (General Electric Co.)

TYPE: Step-down 440 v to 115 v.  
BLOWER (Dayton Electrical Mfg. Co.)  
POWER: 115 v ac, 60 cps, single ph.  
OUTPUT: 100 cfm at 3000 rpm.

**RELATION TO OTHER EQUIPMENT:**

The HD-425/U is designed to be used with Radio Transmission Lines.

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

**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Dehydrator-Pressurizer HD-425/U		22 x 22 x 30	410

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93782: Technical Manual for Dehydrator-Pressurizer HD-425/U.

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

**SHIPPING DATA**

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

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PROCURING SERVICE:	DESIGN COGNIZANCE: USN, BuShips
SPEC &/OR DWG: SHIPS-P-2876	

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Wells Industries Corp. Pt. no. 1355-94D	North Hollywood, Calif.	N0bsr-75359 17 June 1958	

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December 1956

**INDICATOR, STATION KEEPING****ID-556/APA-129****FUNCTIONAL DESCRIPTION**

The ID-556/APA-129 is a crosspointer type indicator used to inform a pilot when aircraft is not in correct position. The indicator is actuated by the Computer, In flight Positioning CP-303/APA-129; has warning light to indicate when aircraft is displaced from preset position.

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

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

Sperry Gyroscope Co., Great Neck, Long Island, N.Y.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Indicator, Station Keeping ID-556/APA-129

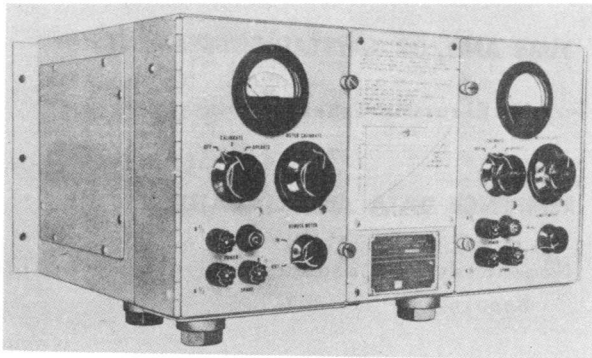
TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Indicator Station Keeping ID-556/APA-129	3-1/2 X 3-3/4	2.5

April 1959

Radio-Auxiliary

**STANDING WAVE INDICATOR****IM-105/U**

*Standing Wave Indicator Type IM-105/U*

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TRANSMISSION LINE OHMAGE VALUE: 52 ohms.  
 TYPE OF TRANSMISSION LINE: RG-19/U.  
 METER CALIBRATION: 0 to 100 microamp.  
 ACCURACY:  $\pm 10\%$ .  
 OPERATING POWER RQMT: 115 v AC, 50/60 cps,  
 single ph.  
 OPERATING FREQUENCY RANGE: 1750 to 1950 kc.

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

Federal Telephone and Radio Co., Clifton, N.J.  
 Contract Tcg-39653(CG-32, 681-A).

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 5726/6AL5W  
 Total Tubes: (2)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

Technical Manual for Standing Wave Indicator IM-105/U.

**FUNCTIONAL DESCRIPTION**

The IM-105/U is designed for permanent installation in series with the 51-ohm transmission line connecting the transmitter output to the antenna system in a standard loran station. The indicator includes two separate electrically identical circuits so that it may be used to give a simultaneous reading on two separate transmission lines. The standing wave condition of each line is indicated directly on a panel meter. The indicator is designed to operate at a power levels up to one megawatt and power loss in the instrument is negligibly small.

No field changes in effect at time of preparation (15 May 1959).

**RELATION TO OTHER EQUIPMENT**

The IM-105/U is designed to be used with coaxial transmission line RG-19/U.

TYPE CLASSIFICATION DESIGN COGNIZANCE USCG PROCUREMENT COGNIZANCE STOCK NO. R.D.B. IDENT. NO. 6.2
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**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Standing Wave Indicator IM-105/U	8-29/32 X 12-15/16 X 18-3/4	

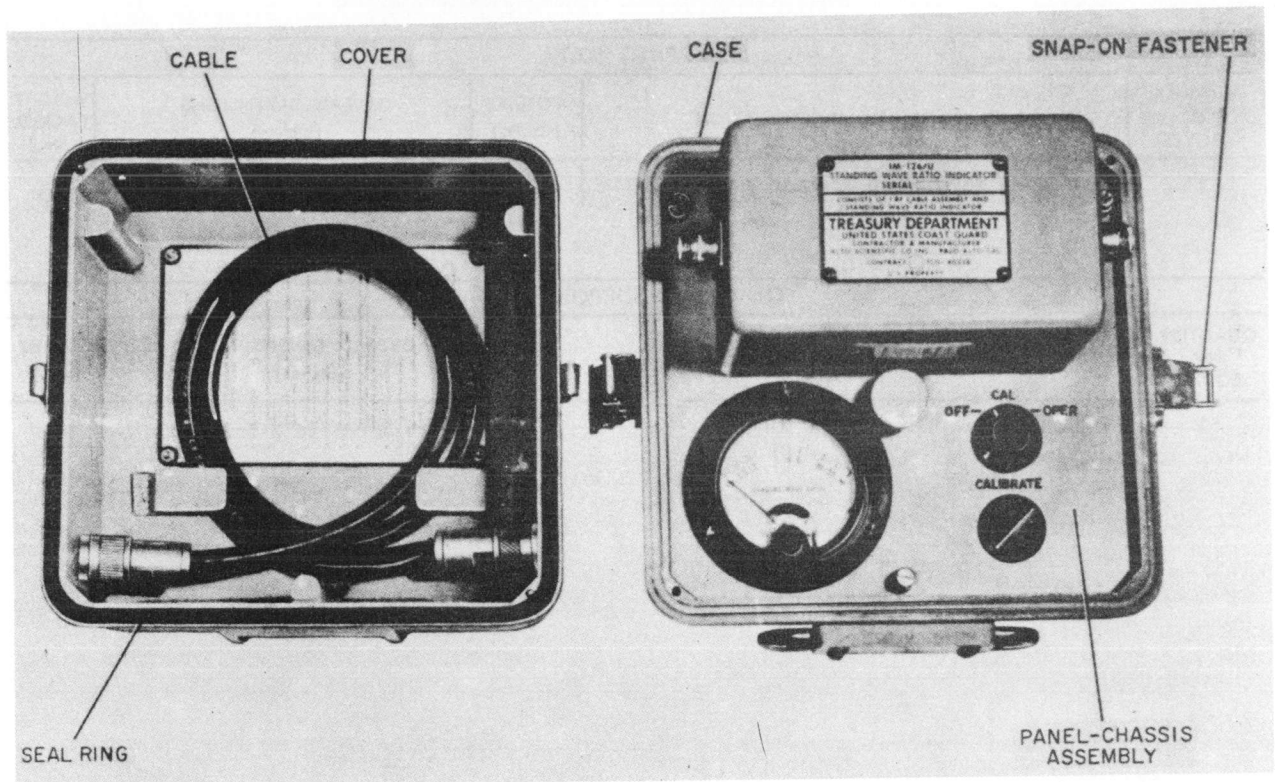


April 1959

Radio-Auxiliary

IM-126/U

## STANDING WAVE RATIO INDICATOR



Standing Wave Ratio Indicator IM-126/U

## FUNCTIONAL DESCRIPTION

The IM-126/U is designed as a precision measuring instrument for determining relative impedance between an antenna system and a 52-ohm transmission line in terms of standing wave ratio. The measurement is made by inserting the standing wave ratio indicator in the transmission line and observing the readings when the transmitter is energized. No additional power source is required for actuation of the instrument and the power absorbed from the transmission line is negligible.

No field changes in effect at time of preparation (15 May 1959).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TRANSMISSION LINE OHMAGE VALUE: 52 ohms.  
 OPERATING FREQUENCY RANGE: 250 to 550 kc.  
 OPERATING POWER LEVELS: 0 to 1 kw.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Alto Scientific Company Inc., Palo Alto, California.  
 Part No. T-32.  
 Contract No. TCG40238 (CG-37, 292-A),  
 dated 14 May 1956.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

CG-273-37: Technical Manual for Standing Wave Ratio Indicator IM-126/U.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE USCG  
 PROCUREMENT COGNIZANCE USCG SPEC NO. SWR1-421  
 STOCK NO.  
 R.D.B. IDENT. NO. 6.2

April 1959

Radio-Auxiliary

IM-126/U

## STANDING WAVE RATIO INDICATOR

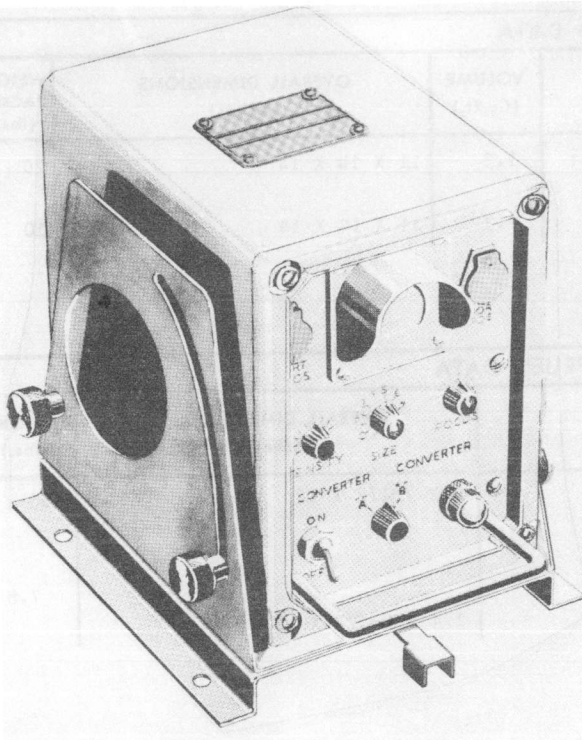
## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Standing Wave Ratio Indicator IM-126/U	0.55	8 X 11 X 11-3/4	13

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Standing Wave Ratio Indicator	6-1/4 X 8-3/16 X 8-11/16	10

April 1958

**TUNING INDICATOR****IP-352(XN-1)/UR**

*Tuning Indicator IP-352(XN-1)/UR*

**FUNCTIONAL DESCRIPTION**

The IP-352(XN-1)/UR is primarily intended for use as a remote monitor with Frequency Shift Converter CV-89A/URA-8A, but it can be used with any frequency shift converter having the proper output characteristics and an external monitor jack.

It is designed to provide the means for observing the tuning of the frequency shift converter's associated receiver, indicating the output of the discriminator, checking the approximate amount of the frequency shift, observing the polarity of the mark-space characters, and observing other pertinent details of the signals such as noise, etc.

It is designed for table top mounting with a swivel type mounting bracket to permit orientation within a 90 degree arc in the horizontal plane, and within a 45 degree tilt from the horizontal position. Provisions are provided for two frequency shift converters to be monitored independently.

No field changes in effect at time of preparation (19 March 1958).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: Frequency Shift Converters CV-89A/URA-8A or Equivalent as Required, (2) RF Cable RG-10/U or RG-12/U, (1) AC Power Cable MCOS-2, Mounting Hardware as Required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY INPUT: DC square waves 23 cps, usable to 100 cps.

INPUT IMPEDANCE: 1 meg.

VERTICAL DEFLECTION SENSITIVITY

THRU AMPLIFIER: 2.5 v per in.

DIRECT CONNECTION: 74 to 100 v per in to plate.

FREQUENCY RESPONSE: 0 to 500 cps on Y-axis.

PRESENTATION: 2 in. CR tube.

POWER REQUIREMENTS: 105, 115, 125 v  $\pm 10\%$ , 50 to 60 cps  $\pm 5\%$ , single ph, 10 W.

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

Hoffman Laboratories, Inc, Los Angeles, Calif.

Contract NObsr-64744, dated 5 May 1955.

Approximate Cost: \$2680.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 1Z2

(1) 2BP1

(1) 5751

(1) 6X4WA

Total Tubes: (4)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92705: Technical Manual for Tuning Indicator IP-352(XN-1)/UR.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE SHIPS-0-1859  
STOCK NO.

Radio-Auxiliary

IP-352 (XN-1) /UR

## TUNING INDICATOR

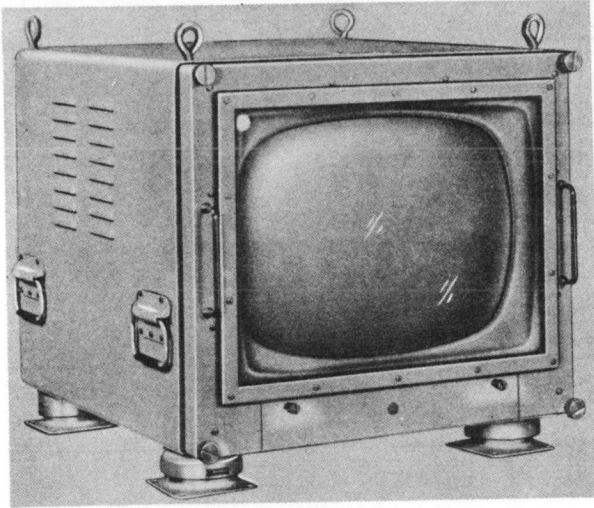
April 1958

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Tuning Indicator IP-352(XN-1)/UR including: (2) Technical Manual NAVSHIPS 92705	1.3	11 X 14 X 14	20
1	Set of Equipment Spares	1.3	11 X 14 X 14	10

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuning Indicator IP-352(XN-1)/UR	6 X 7-1/2 X 12	15
2	Connector NT-49194		
1	Connector AN3102-14S-7P	1/4 X 8-1/2 X 11	7.5
1	Set of Equipment Spares		
2	Technical Manual NAVSHIPS 92705		

**TELEVISION VIEWER****IP-487/UX**

*Television Viewer IP-487/UX, Three-Quarter View*

**FUNCTIONAL DESCRIPTION**

Television Viewer IP-487/UX operates as part of Television System AN/SXQ-2(V) (ship system) and Television System AN/GXQ-3(V) (shore system). As part of each system, the viewer provides a display of tactical information for personnel at remote locations.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****SCANNING RATES**

FIELD: 60 cps.

FRAME: 30 cps.

LINES PER FRAME: 875.

LINE RATE: 26,250 cps.

ASPECT RATIO: Variable between limits of 1:1 and 3:4 (height to width).

RESOLUTION FOR 3:4 ASPECT RATIO.

HORIZONTAL: 875 lines per frame.

VERTICAL: 630 line per picture height.

HORIZONTAL: 800 lines per picture width.

RESOLUTION: Greater than 1,000 lines at center and 600 lines in corners.

BANDWIDTH: 17 mc  $\pm$ 1.5 db.

PULSE WIDTHS

HORIZONTAL BLANKING: 6.0 usec.

HORIZONTAL DRIVE: 4.0 usec.

VERTICAL BLANKING: 21 horizontal lines.

VERTICAL DRIVE: 15 horizontal lines delayed 2-1/2 lines from leading edge of vertical blanking pulse.

POWER CONSUMPTION: 350 W.

CATHODE RAY TUBE: Electro-magnetic deflection, magnetic focus, 70 deg deflection.

VIDEO AMPLIFIER FREQUENCY RESPONSE: Flat within  $\pm$ 1 db to 17 mc and less than 3 db down at 20 mc.

VIDEO GAIN: 200.

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

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

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 0A2WA	(3) 6CL6	(1) 6AU6WA
(2) 6DQ6A	(2) 6SL7WGT	(2) 6V3
(2) 6X2	(1) 12AV7	(1) Z4619P4
(2) E180F/6688	(1) 5651	(1) 6146
(2) 5814A/12AU7	(2) 6336A	(2) 1N485

Total Tubes: (25)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93376(A): Technical Manual for TELEVISION VIEWER IP-487/UX.

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

### TELEVISION VIEWER

#### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Television Viewer IP-487/UX	18.75	30 X 30 X 36	375

#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Television Viewer IP-487/UX	25-1/2 X 26 X 32	150



11 January 1962

Cog Service:

FSN: 5820-707-7958

INDICATOR, PANORAMIC IP-514/URR

Functional Class:

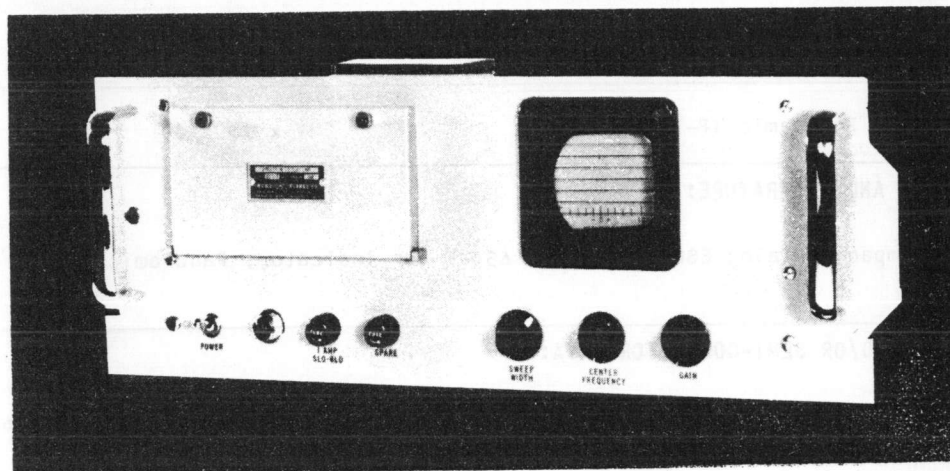
USA

USN

USAF

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Nems-Clarke Company.



*Indicator, Panoramic IP-514/URR*

**FUNCTIONAL DESCRIPTION:**

The Indicator, Panoramic IP-514/URR is a spectrum display unit designed for use with telemetering receivers to determine frequency, relative amplitude, and type of modulation of signals being received. The display is a calibrated cathode-ray tube screen.

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

**TECHNICAL CHARACTERISTICS:**

MAXIMUM SWEEP WIDTH: 2 mc.

INPUT CENTER FREQUENCY: 21.4 to 30.0 mc.

SECOND IF AMPLIFIER FREQUENCY: 4.3 mc.

SENSITIVITY FOR FULL DEFLECTION: 5 microvolts to receiver.

RESOLUTION: Approx 20 kc.

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**IP-514/URR INDICATOR, PANORAMIC**

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**IMPEDANCE DATA**

INPUT: 5 ohms.

OPERATING POWER RQMT: 115 v ac, 50 to 60 cps, approx 95 W.

**RELATION TO OTHER EQUIPMENT:**

The IP-514/URR is designed to be used with, but not part of Receiver, Countermeasures R-839C/FLR-2 and Nems-Clarke Special Purpose Receivers.

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Indicator, Panoramic IP-514/URR		7 x 13 x 19	25

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**REFERENCE DATA AND LITERATURE:**

Nems-Clarke Company Catalog ESO's Copy no. 634-F for Indicator, Panoramic IP-514/URR (Model SDU-200-2).

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

TUBES: (2) 0A2WA (2) 12AT7WB (1) 12AU7 (1) 3RP1 (1) 5Y3WGTB (1) 5726-6AL5W  
(3) 5749-6BA6W (1) 6AH6 (1) 5750-6BE6W (4) 6AU6WA

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N69A

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**SHIPPING DATA**

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

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PROCURING SERVICE:  
SPEC &/OR DWG: Commercial

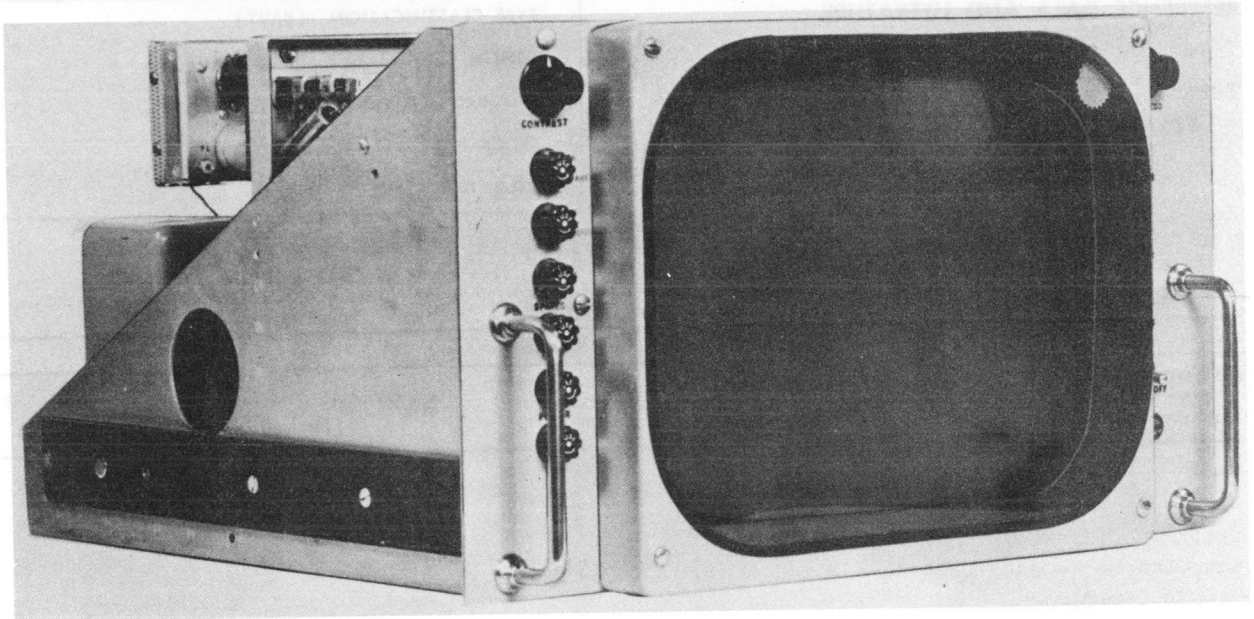
DESIGN COG: Navy BuShips

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Nems-Clarke Company Model SDU-200-2	Silver Spring, Md.	N0bsr-71894, 28 June 1957 N0bsr-75879	\$615.00

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## TELEVISION VIEWER



Television Viewer IP-526/GX

**FUNCTIONAL DESCRIPTION**

Television Viewer IP-526/GX operates as part of Television System AN/GXQ-3(V). As part of the system, the viewer provides a display of tactical information for personal at remote locations.

No field changes in effect at time of preparation (25 November 1959).

VERTICAL DRIVE: 15 horizontal lines delayed 2-1/2 lines from leading edge of vertical blanking pulse.  
 POWER CONSUMPTION: 350 W.  
 CATHODE RAY TUBE: Electro-magnetic deflection, magnetic focus, 70 deg deflection.  
 VIDEO AMPLIFIER FREQUENCY RESPONSE: Flat within  $\pm 1$  db to 17 mc and less than 3 db down at 20 mc.  
 VIDEO GAIN: 200.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****SCANNING RATES**

FIELD: 60 cps.  
 FRAME: 30 cps.  
 LINE RATE: 26,250 cps.  
 LINES PER FRAME: 875.

ASPECT RATIO: Variable between limits of 1:1 and 3:4 (height to width).

**RESOLUTION FOR 3:4 ASPECT RATIO**

HORIZONTAL: 875 lines per frame.  
 VERTICAL: 630 lines per picture height.  
 HORIZONTAL: 800 lines per picture width.  
 RESOLUTION: Greater than 1000 lines at center and 600 lines in corners.

BANDWIDTH: 17 mc  $\pm 1.5$  db.

**PULSE WIDTHS**

HORIZONTAL BLANKING: 6.0 usec.  
 HORIZONTAL DRIVE: 4.0 usec.  
 VERTICAL BLANKING: 21 horizontal lines.

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

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

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 0A2WA	(1) 6AU6WA
(3) 6CL6	(2) 6DQ6A
(2) 6V3	(2) 6X2
(1) 12AV7	(1) Z4675P4
(2) E180F/6688	(2) 5814A/12AU7
(1) 6146	(2) 1N485

Total Tubes: (20)

No Crystals used.

IP-526/GX

## TELEVISION VIEWER

## REFERENCE DATA AND LITERATURE

Technical Manual for Television Viewer IP-526/GX.

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	Television Viewer IP-526/GX		150

29 August 1962

RADIO FREQUENCY MONITOR IP-591(XN-1)/U

Cog Service: USN FSN:

Functional Class:

USA

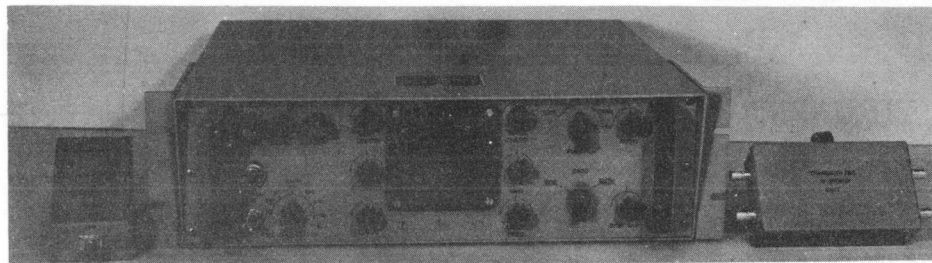
USN

USAF

TYPE CLASS: P1n/Std

P1n/Std

MANUFACTURER'S NAME/CODE NUMBER: International Electronics Mfg. Co., (05714).



*Radio Frequency Monitor IP-591(XN-1)/U*

**FUNCTIONAL DESCRIPTION:**

The Radio Frequency Monitor IP-591(XN-1)/U is designed to provide a continuous visual indication of transmitter performance during normal operation of the transmitter. In the event of transmitter malfunction or misadjustment, it aids in locating the point of difficulty. It also displays receiver IF signals allowing diagnosis of troubles at distant station.

No field changes in effect at time of preparation (12 June 1962).

**TECHNICAL CHARACTERISTICS:**

MODES OF OPERATION: Sine Envelope, CW Envelope, AF Trapezoid, RF Trapezoid.

TYPE OF INDICATION: Cathode Ray Tube (CRT).

METHOD OF SELECTION: Manual, channel and band.

NUMBER OF BANDS: 1 band.

NUMBER OF CHANNELS: 1 channel.

---

**IP-591(XN-1)/U RADIO FREQUENCY MONITOR**

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OPERATING FREQUENCY RANGE: 2 to 30 mc.  
OPERATING POWER RQMT: 110 to 120 v ac, 60 cps, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Frequency, Monitor IP-591(XN-1)/U consists of:		5-7/32 x 17 x 19	30
1	Low-Level Detector & IF Pickup		1-9/16 x 3-11/16 x 6-5/8	1

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 94046: Technical Manual for Monitor, Radio Frequency IP-591(XN-1)/U.

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

TUBES: (3) 6AU6 (1) 3BP1A (1) 0A2 (1) 0B2

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N605A (4) 1N601A (2) 1N588 (3) 1N34A

TRANSISTORS: (5) 2N526 (5) 2N404 (7) 2N384

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**SHIPPING DATA**

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

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PROCURING SERVICE: USN  
SPEC &/OR DWG: MIL-F-17655B(SHIPS)

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
International Electronics Mfg. Co.	Greenwood Acres, Annapolis, Md.	N0bsr-85037, 13 October 1960	



# JACK BOX

## FUNCTIONAL DESCRIPTION

The J-559/U Jackbox is non-watertight and was designed for indoor use to provide hand-set extension for use with remote radiophone units.

No field changes in effect at time of preparation (9 June 1958).

## MANUFACTURER'S OR CONTRACTOR'S DATA

U.S. Naval Gun Factory, Washington, D.C.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Jackbox J-559/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	Jackbox, J-559/U	4-9/16 x 5-7/16 x 5-7/16	4

# JACK BOX

## J-560/U

### FUNCTIONAL DESCRIPTION

The J-560/U Jackbox is watertight and was designed for outdoor use to provide hand-set extension for use with remote radiophone units.

No field changes in effect at time of preparation (9 June 1958).

### MANUFACTURER'S OR CONTRACTOR'S DATA

U.S. Naval Gun Factory; Washington, D.C.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

### REFERENCE DATA AND LITERATURE

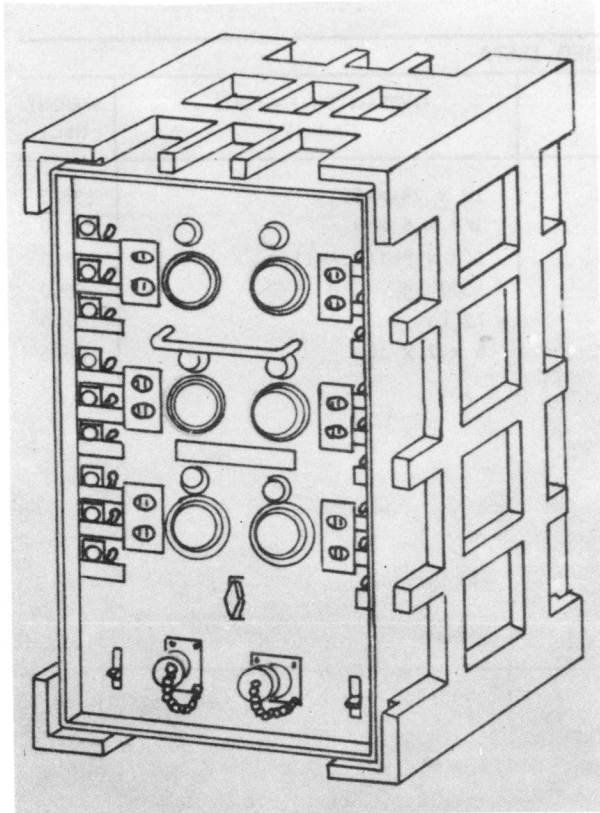
Nomenclature Card for Jack Box J-560/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Jackbox, J-560/U	5-3/16 X 5-7/16 X 5-7/16	4

## INTERCONNECTING BOX



Interconnecting Box J-643/TSQ

## FUNCTIONAL DESCRIPTION

The J-643/TSQ is designed to provide for the distribution of electrical power between a generator set and the various components of Combat Information Centrals AN/TSQ-5 and AN/TSQ-6.

No field changes in effect at time of preparation (20 December 1957).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## INPUT DATA

POWER REQUIREMENTS: 208 v, 3 ph generator.  
 TERMINAL: (2) Receptacles and/or terminal strips.

## OUTPUT DATA

POWER: 47 kw distributed.  
 TERMINALS: (1) 3 ph receptacle and/or terminal strip, (18) AN receptacles, (6) dual utility outlets.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Thieblot Aircraft Company, Inc, Washington, D.C.

Contract NObsr-64621, dated 1 February 1955.

Approximate Cost: \$700.00 with equipment spares.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals.

## REFERENCE DATA AND LITERATURE

Manuscript Copy of Technical Manual for Interconnecting Box J-643/TSQ.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE SHIPS-I-1691  
 STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Interconnecting Box J-643/TSQ including: Set of Equipment Spares Interconnecting Cables Technical Manuals SIG-M-8 Pamphlet	17.7	22 x 28 x 50	301

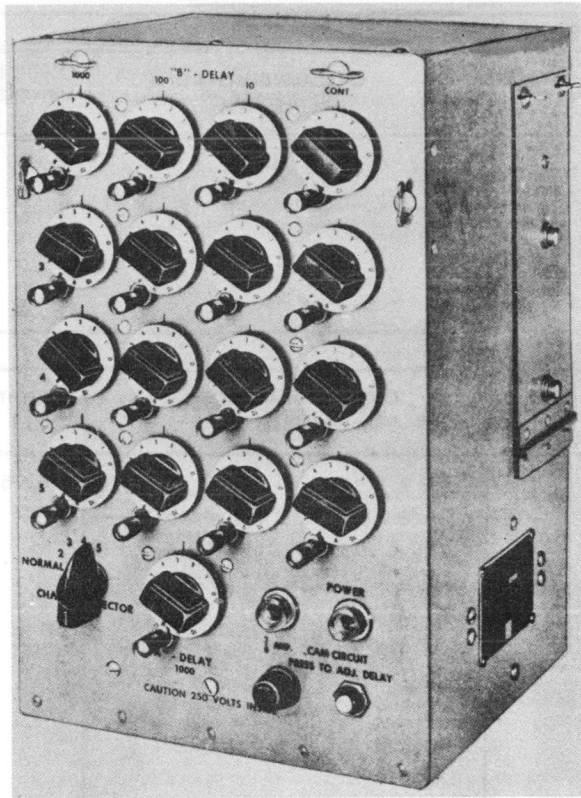
INTERCONNECTING BOX

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Interconnecting Box J-643/TSQ	18 x 24 x 36	138.5
2	Pamphlet SIG-M-8	1/8 x 6 x 9	2.0
2	Technical Manual	1/8 x 8-1/2 x 11	2.0
1	Interconnecting Cable	1200 lg	50.0
1	Interconnecting Cable	72 lg	10.0
1	Set of Equipment Spares	5 x 7 x 10	8.5

April 1959

Radio-Auxiliary

**LORAN CODER****KY-104/FP***Loran Coder Type KY-104/FP***FUNCTIONAL DESCRIPTION**

The KY-104/FP is designed to be installed in the Navy Model UE-1 Timer at slave stations for use as a security device. The coder performs the following functions:

(1) Alternate Coding Delays: The unit provides for changing from the normal station coding delay to any one of four (4) alternate coding delays which are preset by controls on the front panel of the unit. These preset controls when selected, electrically replace the delay controls mounted on the Loran Timer Synchronization Indicator. When the alternate coding delays are selected, an alternate A-1000 coding delay is also established. This A-1000 delay is the same for any of the alternate delay positions.

(2) Characteristic Blinking: The unit automatically initiates a characteristic blinking to the local Loran pulse when one of the alternate coding delays is used. The characteristic blinking is an increase in

the delay of the local signal occurring at intervals defining international code characters. A different code character is utilized with each alternate coding delay. When an out of synchronization condition arises, and normal blinking is started, this code blinking is automatically stopped for the duration of normal blinking.

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

**RELATION TO OTHER EQUIPMENT**

The Loran Coder KY-104/FP is designed as a modification of Loran Timer Navy Model UE-1.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OPERATING POWER RQMT: 110 v, 60 cps, single ph.

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

Palmer Service Company Inc., East Orange, N. J.

Contract Tcg-38998(CG-22,862-A) 30 June 1952.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

CG-273-7: Technical Manual for Modification of Loran Timer Navy Model UE-1 Loran Code KY-104/FP.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE USCG  
 PROCUREMENT COGNIZANCE RLCS-382  
 STOCK NO.  
 R.D.B. IDENT. NO.

## KY-104/FP

## LORAN CODER

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Loran Coder KY-104/FP and Modification Kit and Spare Parts Kit	3.33	12 X 20 X 24	66

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loran Coder KY-104/FP	8 X 9 X 14	18.75
1	Relay Type K-1802-X	1-5/8 X 2-5/8 X 2-5/8	
1	Capacitor Ass'y C-617-X, XX	5/16 X 31/32 X 16-9/16	
1	Terminal Board TB-605-X	1-1/4 X 1-9/16 X 7-3/4	
1	Hardware	1/2 dia X 1-7/32	
1	Hardware	5/8 dia X 7/8	
1	Hardware and Mtg Screws		
1	Dummy Plug	1-3/4 dia X 2-1/4	
1	Interconnecting Cable	1-3/4 dia X 126	
1	Timer Circuit Cable	1/4 dia X 33	
2	Technical Manual CG-273-7	5/16 X 8-1/2 X 11	
1	Set of Equipment Spares	6 X 6 X 12	8
2	Installation Technical Manual	1/16 X 8-1/2 X 11	0.25
2	Plastic Laminated Schematic Diagrams	1/32 X 10 X 15	0.15

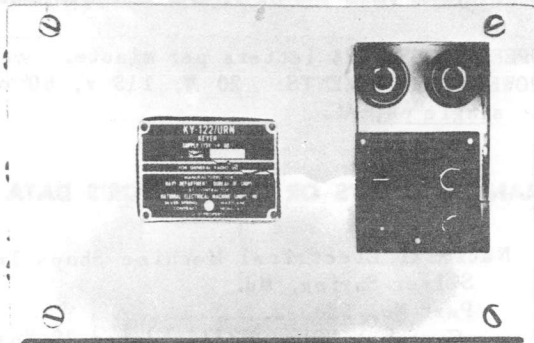


June 1961

Radio-Auxiliary

## KEYER

KY-122/URN



Keyer KY-122/URN

## FUNCTIONAL DESCRIPTION

Keyer KY-122/URN is used in navigation applications to automatically key any of several radio transmitters with a selectable identification code group.

This equipment has a magnetic circuit breaker for stopping and starting the Keyer motor. A green indicator lamp lights when the Keyer motor is energized. The KY-122/URN also has a momentary "on-off" push button switch and a red indicator lamp for use in remote-control operation of the radio transmitter.

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

## RELATION TO OTHER EQUIPMENT

This equipment is identical with Keyer KY-123/URN except that the KY-123/URN does not have the provisions for remote-control operation of the radio transmitter.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

SPEED RANGE: 24 letters per minute.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

National Electrical Machine Shops Inc,  
Silver Spring, Md.  
Part No. 5203-1.

Contract NObsr-63112, dated 19 November 1952.

Thiebolt Aircraft Co. Inc, Washington, D.C.  
Contract NObsr-64575, dated 22 November 1954.

Approximate cost \$200.00.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92003: Technical Manual for KEYERS KY-122/URN, KY-123/URN.

NAVSHIPS 92003-1: Supplement #1 to Technical Manual for KEYERS KY-122/URN, KY-123/URN and KY-123A/URN.

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE USN, BUSHIPS  
PROCUREMENT COGNIZANCE SPEC: SHIPS-K-481,  
STOCK NO. SHIPS-K-1689  
R.D.B. IDENT. NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keyer KY-122/URN	0.5	7-1/2 x 8-1/2 x 14	20

## EQUIPMENT SUPPLIED DATA

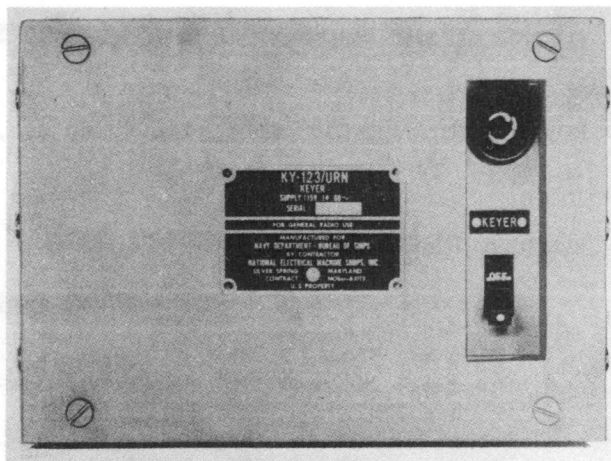
QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-122/URN	6 x 7 x 13-7/16	17
2	Technical Manual NAVSHIPS 92003		

June 1961

Radio-Auxiliary

KY-123/URN

## KEYER



Keyer KY-123/URN

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

SPEED RANGE: 24 letters per minute.  
 POWER REQUIREMENTS: 20 W, 115 v, 60 cyc,  
 single ph, AC.

## MANUFACTURER'S OR CONTRACTOR'S DATA

National Electrical Machine Shops Inc,  
 Silver Spring, Md.  
 Part No. 5203-2.  
 Contract NObsr-63112, dated 19 November 1952.  
 Thiabolt Aircraft Co. Inc, Washington, D. C.  
 Contract NObsr-64575, dated 22 November 1954.  
 Approximate cost \$200.00.

## FUNCTIONAL DESCRIPTION

Keyer KY-123/URN is used in navigation applications to automatically key any of several radio transmitters with a selectable identification code group.

This equipment has a magnetic circuit breaker for stopping and starting the Keyer motor. A green indicator lamp lights when the Keyer motor is energized.

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

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92003: Technical Manual for KEYERS KY-122/URN, KY-123/URN.  
 NAVSHIPS 92003-1: Supplement #1 to Technical Manual for KEYERS KY-122/URN, KY-123/URN, KY-123A/URN.

## RELATION TO OTHER EQUIPMENT

This equipment is identical with Keyer KY-122/URN except that the KY-122/URN also has provisions for remote-control operation of the radio transmitter. The KY-123/URN and the KY-123A/URN are electrically and mechanically interchangeable.

TYPE CLASSIFICATION (NAVY)  
 DESIGN COGNIZANCE USN, BUSHIPS  
 PROCUREMENT COGNIZANCE SPEC: SHIPS-K-481,  
 STOCK NO. SHIPS-K-1689  
 R.D.B. IDENT. NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keyer KY-122/URN	0.3	7-1/2 x 8-1/2 x 12	18

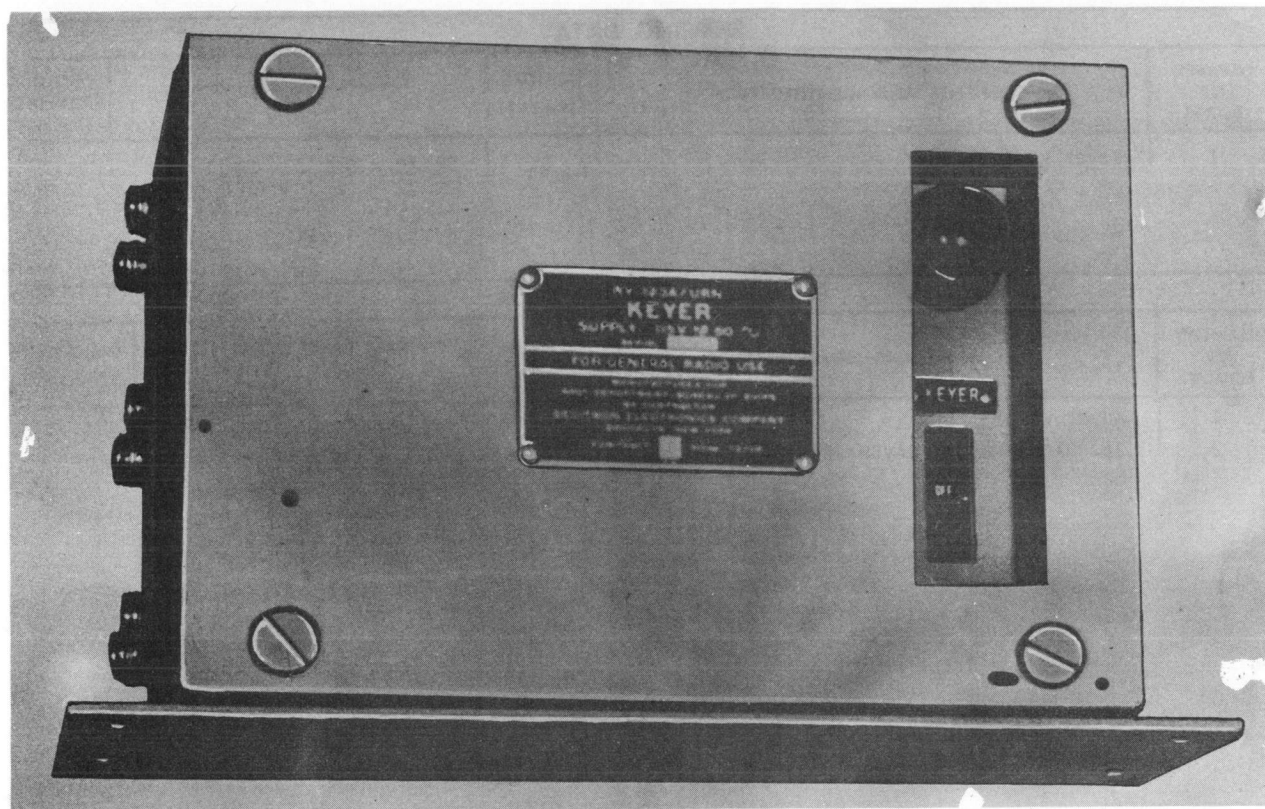
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-123/URN	6 x 6-3/4 x 11-1/2	15
2	Technical Manual NAVSHIPS 92003		

June 1961

KY-123A/URN

## KEYER



Keyer KY-123A/URN

**FUNCTIONAL DESCRIPTION**

Keyer KY-123A/URN is used in navigation applications to automatically key any of several radio transmitters with a selectable identification code group.

This equipment has a magnetic circuit breaker for stopping and starting the keyer motor. A green indicator lamp lights when the keyer motor is energized.

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

**RELATION TO OTHER EQUIPMENT**

This equipment is electrically and mechanically interchangeable with KY-123/URN.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

SPEED RANGE: .24 letters per minute.

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

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

NEMS-Clarke Inc, Silver Spring, Md.

Contract NObsr-71173.  
Decitron Electronics Co., Brooklyn, N. Y.  
Part No. 169.

Contract NObsr-75709, dated 16 February 1959.

Approximate cost \$160.00.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92003: Technical Manual for KEYERS KY-122/URN, KY-123/URN.

NAVSHIPS 92003-1: Supplement #1 to Technical Manual for KEYERS KY-122/URN, KY-123/URN, KY-123A/URN.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: SHIPS-K-2088, SHIPS-K-3090
STOCK NO.	
R.D.B. IDENT. NO.	

KEYER

June 1961

SHIPPING DATA

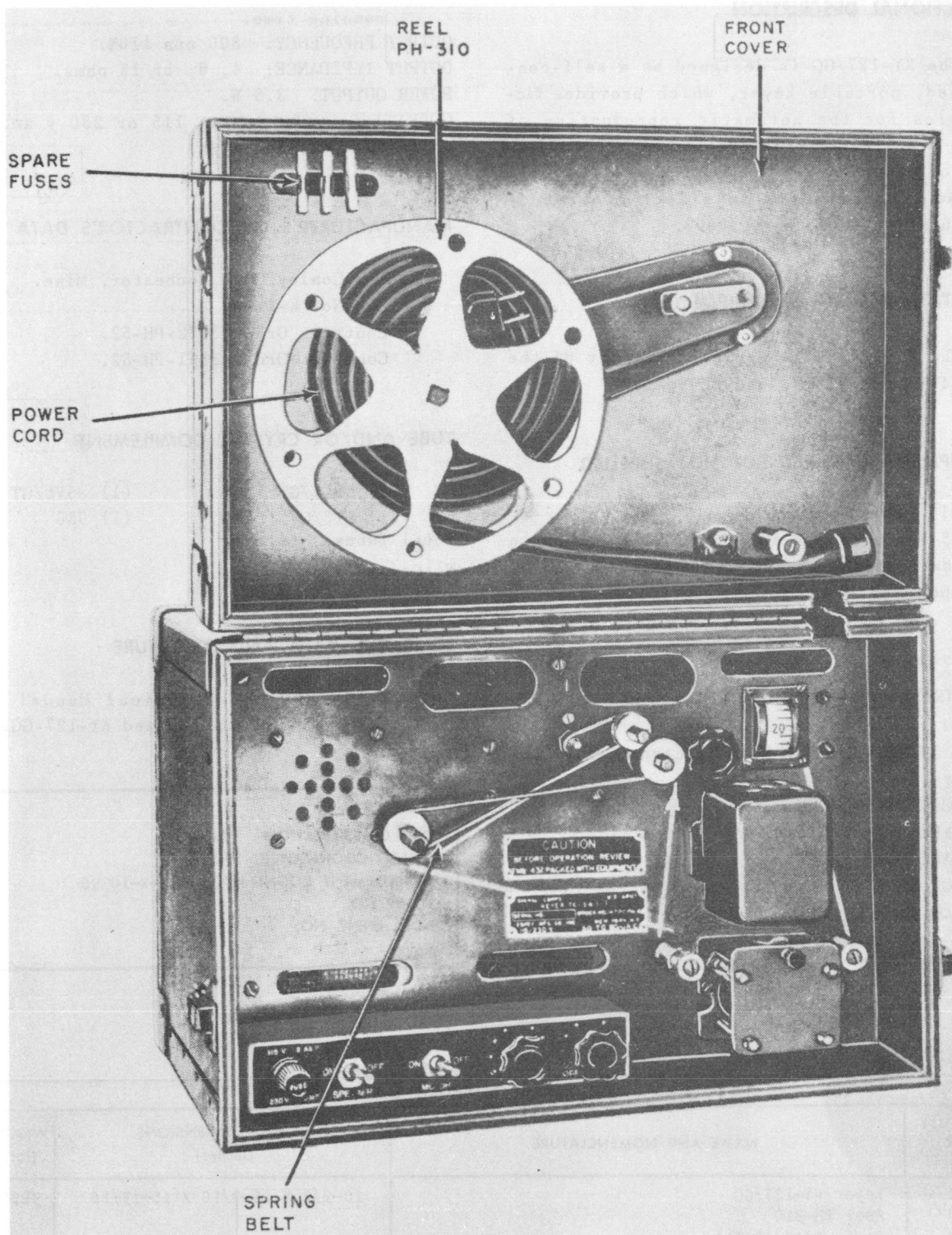
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keyer KY-123A/URN	0.3	7-1/2 x 8-1/2 x 12	18

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-123A/URN		
2	Technical Manual NAVSHIPS 92003	6 x 6-3/4 x 11-1/2	15



# KEYER



Keyer KY-127/GG

**KY-127/GG****KEYER****FUNCTIONAL DESCRIPTION**

The KY-127/GG is designed as a self-contained, portable keyer, which provides facilities for the automatic reproduction of code practice signals previously recorded in ink on paper tape.

No field changes in effect at time of preparation (6 January 1960).

**RELATION TO OTHER EQUIPMENT**

The KY-127/GG is designed as part of the EE-94-(), EE-95-(), and EE-96-().

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(1) Code Practice Tape MC-650 (is a set of 15-reels of 3/8 in. paper tape, wound on standard 16-millimeter motion picture reels).  
(1) Handkey PL-55 or similar, (1) Case CS-158.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF KEYING CONTROL: Electronically Controlled.

**REPRODUCING MEDIUM**

TYPE: Paper tape.

TAPE DIMENSIONS: 3/8 in. W, 400 ft lg.

**REPRODUCING TIME**

LOW SPEED: 5 ft per minute, 80 minutes running time.

HIGH SPEED: 25 ft per minute, 16 minutes

running time.

OUTPUT FREQUENCY: 800 cps  $\pm$ 10%.

OUTPUT IMPEDANCE: 4, 8, or 15 ohms.

POWER OUTPUT: 3.5 W.

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

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

Waters Conley Co., Rochester, Minn.

Dwg No. K-1.

Contract Order 3272-PH-52.

Contract Order 3351-PH-52.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 6SL7/GT

(1) 6V6/GT

(1) 5Y3/GT

(1) 930

Total Tubes: (4)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

TM11-6940-200-10: Technical Manual for Keyers TG-34-A, TG-34-B and KY-127-GG.

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE MIL-K-10390  
STOCK NO.  
R.D.B. IDENT. NO.

**EQUIPMENT SUPPLIED DATA**

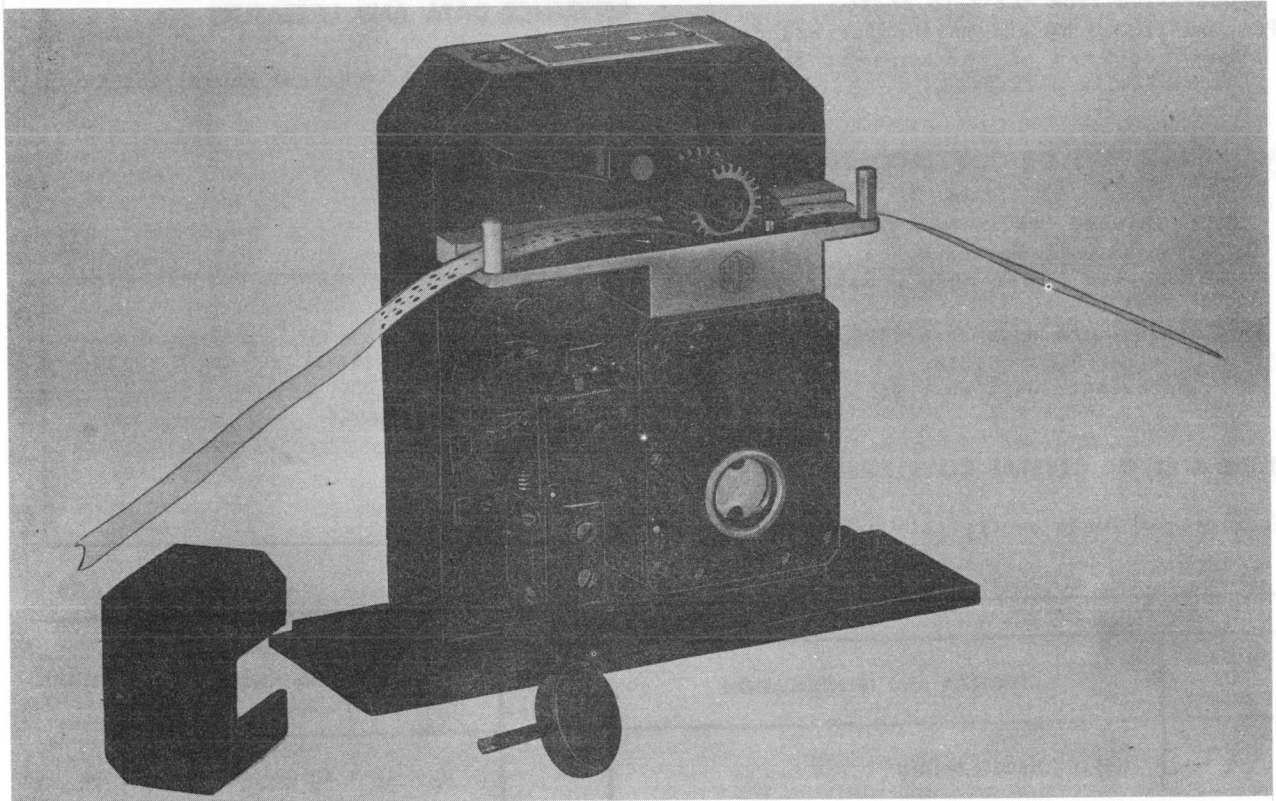
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-127/GG	10-1/2 X 10-9/10 X 15-13/16	38.5
1	Reel PH-310		
1	Power Cord (8 ft)		
1	Set of Equipment Spares		

June 1961

Radio-Auxiliary

KY-14/U

## KEYING HEAD



Keying Head KY-14/U

## FUNCTIONAL DESCRIPTION

Keying Head KY-14/U is a mechanical device designed to automatically key an external communication circuit at any desired speed by means of a perforated tape. The keying head is driven by the MX-439A/U Keying Head Drive, through which connection to the external circuit is made by means of a three point contact block. The mechanical connection to the drive is made through a saw tooth coupling. This electrical and mechanical connection permits the ready removal of the head from, or its attachment to the drive.

The keying head operates over a controlled speed range of 20 to 400 words per minute, automatic code transmission, International Morse Code.

No field changes in effect at time of preparation (7 December 1960).

## RELATION TO OTHER EQUIPMENT

This equipment is designed to mount on and be driven by the MX-439A/U Keying Head Drive.

The Keying Head is supplied separately as an accessory to the MX-439A/U.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

MAX. SPEED: 400 wpm (approx.).

CONTACT CURRENT: 75 ma continuously (max).

TAPE FEED: Continuous or loop feed. The tape can be stopped at any point without stopping the drive.

BIAS ADJUSTMENT: Permits variation of the length of the alternate marking and spacing contacts.

DRIVE: Imparted through gears and levers

KY-14/U

## KEYING HEAD

June 1961

operating from the main shaft.

POLARIZATION: No external polarized relays are required as the contact lever is mechanically polarized.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92164: Technical Manual for Keying Head KY-14/U.

## MANUFACTURER'S OR CONTRACTOR'S DATA

H. O. Boehme, Inc., New York, New York.  
Type No. 4E, Series B.

Contract NObsr-63001, dated 22 July 1952.

Approximate unit cost \$396.00.

Contract NObsr-81318.

Approximate unit cost \$450.00.

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

## TUBE AND/OR CRYSTAL COMPLEMENT

No. Electron Tubes or Crystals used.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keying Head KY-14/U		8 x 12 x 12	24

## EQUIPMENT SUPPLIED DATA

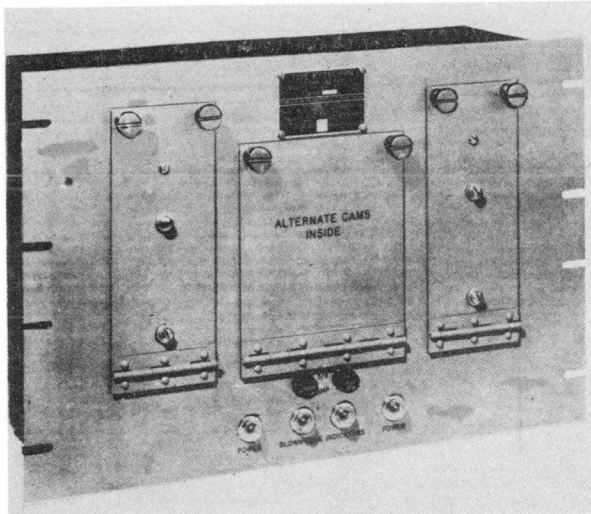
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Keying Head KY-14/U	3-1/8 x 5-1/2 x 6-1/2	8



April 1959

Radio-Auxiliary  
KY-161/FPN

## LORAN KEYER



Loran Keyer KY-161/FPN

## FUNCTIONAL DESCRIPTION

The KY-161/FPN comprises two (2) identical keying mechanisms in the same cabinet enclosure. These two (2) mechanisms are independent units with no interconnections or common components. A common ground, for shielding purposes, is used. The shielding, which is incorporated in the cable that connects the KY-161/FPN and the AN/FPN-30 serves the dual purpose of suppressing keying transients and maintaining the interconnected units at a common ground potential. One (1) Loran Keyer KY-161/FPN is designed to operate with one (1) or two (2) Loran Timers AN/FPN-30.

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

## RELATION TO OTHER EQUIPMENT

The KY-161/FPN is designed as part of the

Loran Timer AN/FPN-30.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## KEYING TIME

DOT: 0.5 sec.

DASH: 1.5 sec.

OPERATING POWER RQMT: 110 v, 60 cps, single  
ph, 12 W.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Palmer Service Company Inc., East Orange,  
N.J.Contract Tcg 38998(22,862-A), dated 30  
June 1952.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

## REFERENCE DATA AND LITERATURE

CG-273-22: Technical Manual for Loran Keyer  
KY-161/FPN.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE USCG  
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	Loran Keyer KY-161/FPN	2.8	12 X 20 X 24	64

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loran Keyer KY-161/FPN	7-1/2 X 12-1/2 X 19	18

## LORAN KEYER

## EQUIPMENT SUPPLIED DATA

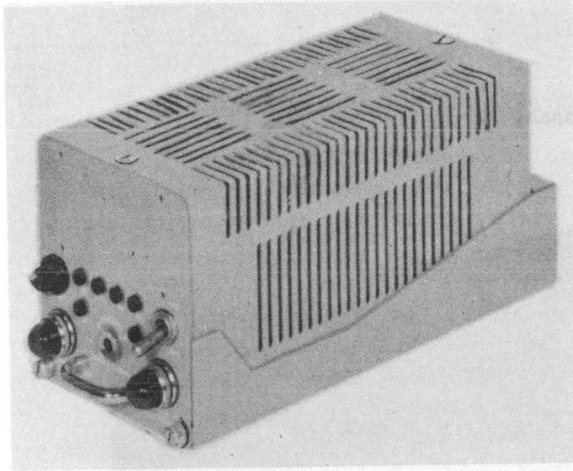
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Set of Equipment Spares	6 X 6 X 12	12
2	Technical Manual CG-273-22	5/16 X 8-1/2 X 11	1
2	24" Rack Mounting Adaptor	1/4 X 2-1/2 X 12-1/2	3
16	10-32 X 5/8 Oval Head Machine Screw	1 X 1 X 1	0.1
16	#10 Cap Washer	1 X 1 X 1	0.1
2	Connector AN3108B-28-14S	2 X 3 X 3	0.7
2	Cable Clamp AN3057-16	1 X 1 X 2	0.1
2	Plastic Laminated Schematic Diagram	1/32 X 10 X 12	0.7

April 1959

Radio-Auxiliary

KY-247/U

## KEYER



Keyer KY-247/U

## FUNCTIONAL DESCRIPTION

The KY-247/U is designed to act as a coupling device between a direct-current signalling source, such as a telegraph key, and a radio transmitter. It will also provide electrical isolation between the signalling source and the transmitter. It has six test jacks to enable maintenance personnel to check input and output waveforms as well as interstage waveforms and voltages during operation.

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

## RELATION TO OTHER EQUIPMENT

The KY-247/U is the same as Northern Radio Company Isolation Keyer Type 208 Model 1.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## SIGNAL OUTPUT

NEUTRAL OPERATION

MARK: 120 v DC.  
 SPACE: 0 v DC.  
 POLAR OPERATION  
 MARK: 125 v DC.  
 SPACE: -125 v DC.  
 OUTPUT IMPEDANCE: 2500 ohms.  
 KEYING SPEED: 100 cps max.  
 INPUT DATA  
 SIGNAL: 20 to 120 v DC.  
 POWER: 115 or 230 v AC.  
 IMPEDANCE: 100000 ohms.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Northern Radio Co, Inc, New York, N.Y.  
 Contract NObsr-71791, dated 30 April 1957.  
 Approximate Cost: \$110.00 with equipment spares.

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5915 (2) 6216  
 Total Tubes: (3)

(1) 1N458 (5) 1N547  
 Total Crystals: (6)

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93175: Manuscript Copy of Technical Manual for Keyer KY-247/U.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE MIL-K-19444 (SHIPS)

STOCK NO.

R.D.B. IDENT. NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-247/U	4-7/32 X 4-9/16 X 10-15/16	7.5
2	Technical Manual NAVSHIPS 93175		

10 January 1962

Cog Service:

FSN:

PULSE DECODER KY-312/ASQ-19

Functional Class:

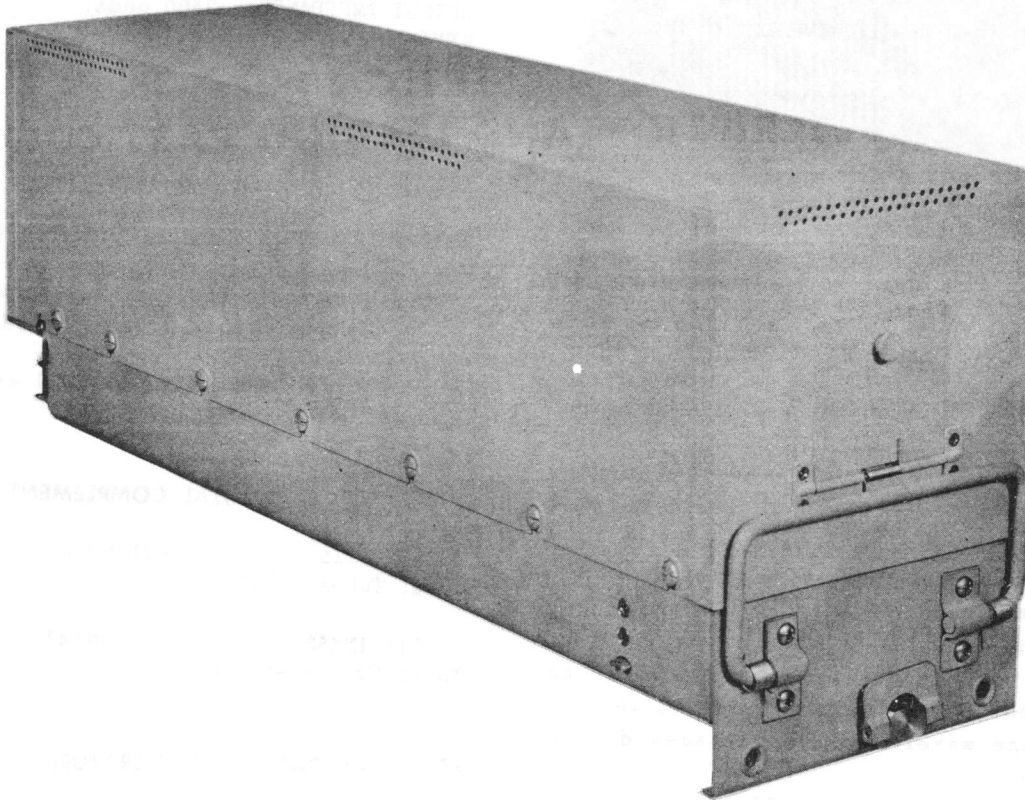
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Company.



*Pulse Decoder KY-312/ASQ-19*

**FUNCTIONAL DESCRIPTION:**

The Pulse Decoder KY-312/ASQ-19 is designed to provide decoding of the distance and bearing information from a composite pulse modulated signal. It also provides synchro outputs for displaying the information on remote indicators for the Integrated Electronic Central AN/ASQ-19.

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

**TECHNICAL CHARACTERISTICS:**

**DISTANCE INDICATION DATA**

RANGE: 0 thru 196 nautical miles.

ACCURACY: Porm (0.2 mile P0.1%).

SEARCH TIME: 30 seconds maximum.

TRACKING PERFORMANCE: Will lock on and track up to 1800 knots.

---

**KY-312/ASQ-19 PULSE DECODER**

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INDICATOR JITTER: Porm 0.05 mile.  
BEARING INDICATION DATA  
ACCURACY: Porm 1.0 deg.  
SEARCH TIME: 20 seconds max.  
TRACKING RATE: Will lock on and track up to 20 deg per second porm 0.5 deg.  
OPERATING POWER RQMT: 115 v ac, 380 to 420 cps, 3-ph; 26 vac, 380 to 420 cps, single ph;  
430 v dc, 250 v dc, 140 v dc, 130 v dc, 27.5 dc.

**RELATION TO OTHER EQUIPMENT:**

The KY-312/ASQ-19 is designed as part of the Integrated Electronic Central AN/ASQ-19.

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

**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Pulse Decoder KY-312/ASQ-19		6-7/16 x 7-1/2 x 22-1/2	29.5

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**REFERENCE DATA AND LITERATURE:**

NAVWEPS 16-35RT547-1: Technical Manual for Pulse Decoder KY-312/ASQ-19.

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

TUBES: (1) CK5787WB (10) 5636 (6) 5696 (1) 5814A (2) 6110 (20) 6111 (11) 6112

CRYSTALS: None used.

SEMI-CONDUCTORS: (22) 1N457 (9) 1N458 (1) 1N756A (1) 1N753A

TRANSISTORS: (2) 904

**SHIPPING DATA**

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

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PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: BuWeps

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PULSE DECODER KY-312/ASQ-19

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
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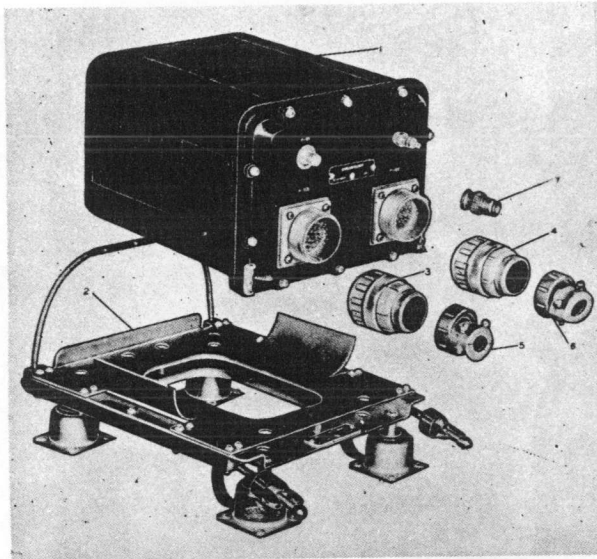
Collins Radio Company Pt no. 545 8185 004	Cedar Rapids, Iowa	N0as-59-0245	
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October 1957

Radio-Auxiliary

## AUDIO DECODER

KY-52 (XN-2) /ARW



Audio Decoder KY-52(XN-2)/ARW

## FUNCTIONAL DESCRIPTION

The KY-52(XN-2)/ARW is used in the receiving end of a radio link for remote control operation of pilotless aircraft. It accepts the output of Radio Receiving Set AN/ARW-56(XN-1)X or AN/ARW-56(XN-2), provides circuits for separating the output into the proper control channels, and provides on-off switching circuits for each channel.

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

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Radio Receiving Set AN/ARW-56(XN-1)X or AN/ARW-56(XN-2), (1) Relay Decoder Unit RE-(XA-1A)/ARW, (1) Antenna AT-335(XN-1)/ARW, (1) Cable RG-58/U, (1) Cable 20 ft lg.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 7.50 to 73.95 kc.

NUMBER CHANNELS: 20.

INPUT IMPEDANCE: 500 ohms.

FREQUENCY STABILITY:  $\pm 1\%$ .

## OPERATING POWER

FILAMENT: 28 v DC at 1.15 amp or 27.5 v, 320 to 1000 cps at 1.1 amp.

PLATE: 150 v DC at 0.055 amp.

OPERATING TEMPERATURE RANGE: -65 deg C to +85 deg C.

## TUBE AND/OR CRYSTAL COMPLEMENT

(22) 5645

(1) 5640

Total Tubes: (23)

## REFERENCE DATA AND LITERATURE

Technical Manual for Audio Decoder KY-52 (XN-2)/ARW.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUAER  
PROCUREMENT COGNIZANCE  
STOCK NO.

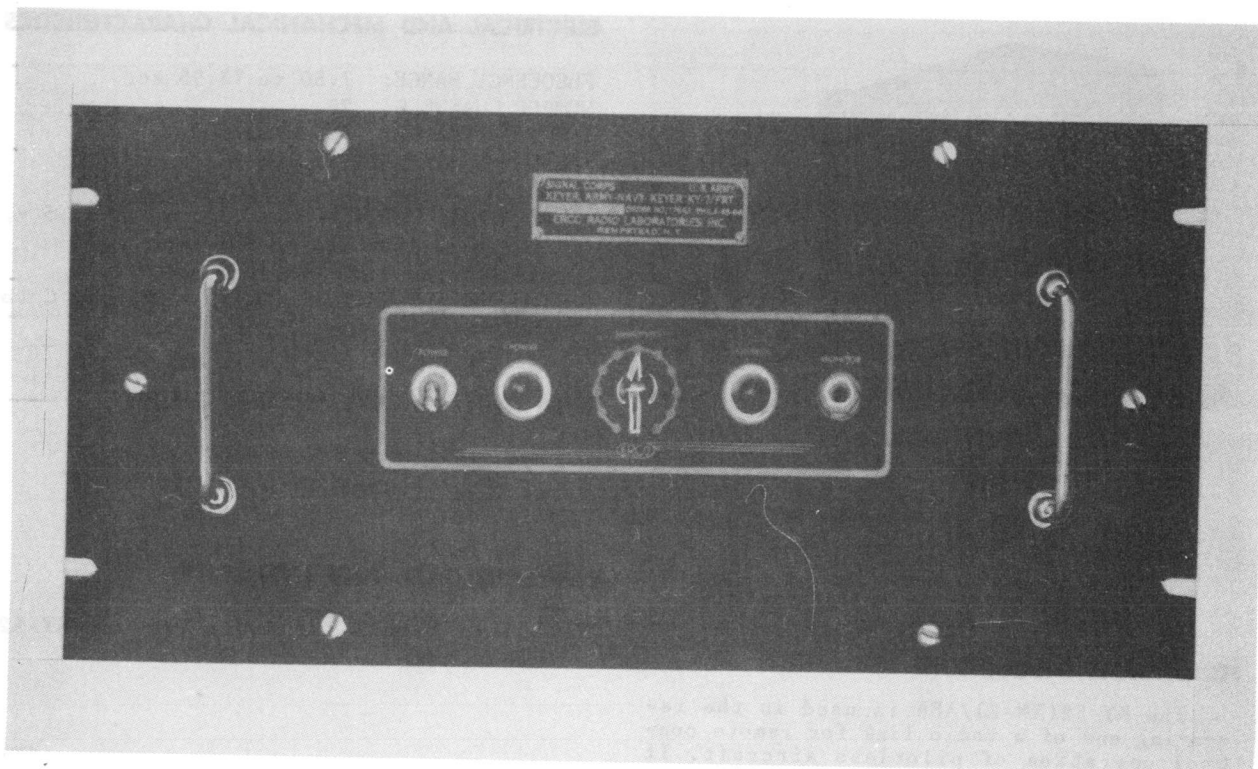
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Decoder DY-52(XN-2)/ARW	6-1/2 x 8-1/4 x 11-1/2	18.25
1	Mounting MT-952(XN-1)/ARW	3-3/4 x 9-3/16 x 12	2.5
1	Connector UG-88/U	9/16 dia x 1-1/32	0.03
1	Connector AN-3106A-28-21S	2 dia x 2-3/8	0.261
1	Connector AN-3106A-28-21SW	2 dia x 2-3/8	0.261
2	Cable Clamp AN-3057-16	1-7/8 dia x 1-5/16	0.087



August 1957

## KEYER

Radio-Auxiliary  
KY-7/FRT

Keyer KY-7/FRT

## FUNCTIONAL DESCRIPTION

The KY-7/FRT is a unit designed to adapt any type of keyed radio transmitting equipment to tone-keying operation. The keyer is intended for use with a 500 ohm keying line. This line feeds a keyed tone into the input transformer of the keyer. The transformer has a center tap for simplex control. A keying tone of 1000 cycles at an input level between -15 and +10 decible is required for dependable keying. The keyer provides a keyed negative output voltage of from 0 to 115 v. It also contains a polarized keying relay which, controlled by the keyed tone input, can be used to key the associated radio transmitting equipment.

No field changes in effect at time of preparation (20 November 1956).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT IMPEDANCE: 500 ohms.  
CONTROL RELAY CONTACT RATING: 3 amp.  
KEYED OUTPUT VOLTAGE: 0 to 115 v.  
OPERATING POWER: 115 or 230 v, 60 cps.

TONE INPUT: 15 db.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Erco Radio Laboratories, Inc.

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6V6GT	(1) 6H6
(1) 6SL7GT	(1) 5U4G
Total Tubes: (5)	

## REFERENCE DATA AND LITERATURE

TM11-2669: Technical Manual for Keyer KY-7/FRT.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	



Radio-Auxiliary  
**KY-7/FRT**

**KEYER**

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keyer KY-7/FRT	2.67	13-1/2 X 13-1/2 X 25-1/4	67

**EQUIPMENT SUPPLIED DATA**

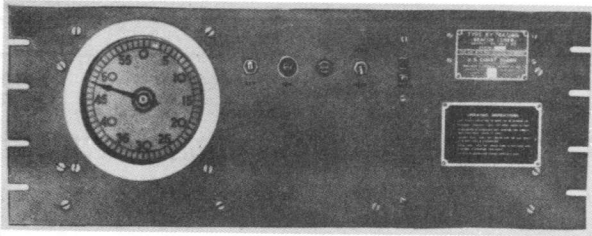
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-7/FRT	8-3/4 X 9-13/16 X 19	28.3
1	Polarized Relay WE 255A	2-9/16 X 2-9/16 X 5-3/4	1.5
2	Technical Manual TM11-2669	1/8 X 5-1/2 X 8-1/2	0.2

April 1959

Radio-Auxiliary

KY-76A/URN

## BEACON CODER



Beacon Coder Type KY-76A/URN

rupted transmission coding motor driven cam coding.

REVOLUTIONS PER MINUTE: 1/60 rpm shaft-8 programs; 1/3 rpm shaft-9 programs or coding positions, 30 rpm shaft-2 coding positions.

OPERATING POWER RQMT: 115 v DC, 400 ma.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Wallace and Tiernan Inc., Belleville 9,  
New Jersey.

Dwg No. SK-5755 Issue-3A.

Contract No. Tcg 39374, dated 25, October 1954.

## FUNCTIONAL DESCRIPTION

The KY-76A/URN is intended for use at shore stations and on ships of the U. S. Coast Guard for controlling the program of operation of radio beacons, lights, sound fog signals and similar aids to navigation. The coder operates from a direct-current supply which may vary from 95 to 140 volts. The coder has three (3) major parts, a clock relay, an hourly secondary clock movement, and a motor driven contacting device.

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

## RELATION TO OTHER EQUIPMENT

The KY-76A/URN is similar to and interchangeable with the KY-76/URN and USCG type MT-179A except for compound programming and coding facilities.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF CODING: Program control and inter-

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and Crystals used.

## REFERENCE DATA AND LITERATURE

CG-273-21: Technical Manual for Beacon Coder KY-76A/URN.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE USCG  
PROCUREMENT COGNIZANCE RBCS-396 USCG  
STOCK NO.  
R.D.B. IDENT. NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Beacon Coder KY-76A/URN	8-23/32 X 12-7/8 X 24	

UNCLASSIFIED

June 1961

Radio-Auxiliary  
KY-76B/URN

# RADIO BEACON CODER

## FUNCTIONAL DESCRIPTION

Radio Beacon Coder KY-76/URN is intended for use at shore stations and on ships of the U. S. Coast Guard for controlling the program of operation of radiobeacons, lights, sound fog signals, and similar aid to navigation.

No field changes in effect at time of preparation (11 January 1961).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v dc.

## MANUFACTURER'S OR CONTRACTOR'S DATA

National Electronics Laboratories Inc.,  
Washington, D. C.  
Type no. NEL 541.

Contract Tcg-40755(CG-42, 481-A).

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data available.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Sheet for  
Coder, Radio Beacon KY-76B/URN.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, USCG
PROCUREMENT COGNIZANCE SPEC: EEE-13-58 (USCG)
STOCK NO.
R.D.B. IDENT. NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Coder, Radio Beacon KY-76B/URN	8-3/4 x 11-3/8 x 24	

UNCLASSIFIED

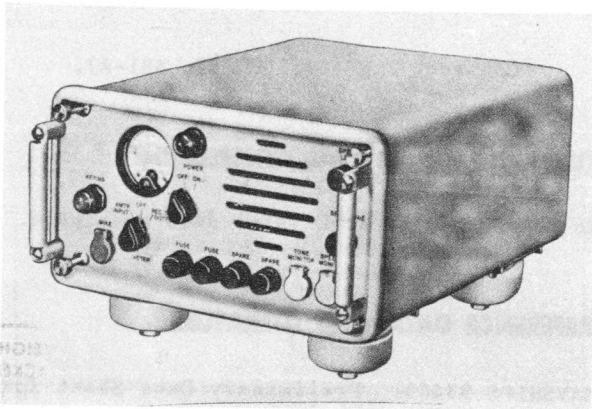
1.2 KY-76B/URN: 1

April 1958

KEYER

Radio-Auxiliary

KY-83/S, KY-83A/S



Keyer KY-83/S, KY-83A/S

### FUNCTIONAL DESCRIPTION

The KY-83/S and KY-83A/S are designed to adapt communication radio transmitters and receivers for use in remotely controlling the operation of magnetic minesweeping equipment. The Keyer makes it possible to transmit and receive necessary timing pulses for use in this operation by means of utilizing currently installed radio communication transmitters and receivers, with a minimum of interruption to the communication functions of the equipment.

Data on this sheet reflects the following field changes: FC 1 (KY-83/S), FC 1 (KY-83A/S).

### RELATION TO OTHER EQUIPMENT

The KY-83/S and KY-83A/S are designed to be used with Auxiliary Controller Mark VI and Mark VII, and combinations of Radio Transmitting Equipment TDZ, TED, VHF Radio Receiving Equipment RDZ, Radio Receiving Set AN/URR-13, and Radio Set AN/ARC-27 for detonating magnetic mines.

Equipment Required but not Supplied: (1) Headphones NT-49509, (1) Radio Transmitter Model TDZ, TED or AN/ARC-27, (1) Radio Receiver Model RDZ, AN/URR-13 or AN/ARC-27, (1) Magnetic Minesweeping Equipment.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TRANSMITTING SECTION  
IMPEDANCE

INPUT: 600, 300, or 50 ohms.

OUTPUT: 600, 300, or 50 ohms.  
BAND REJECTION: 40 db or more between 480 and 520 cycles; at least 20 db between 450 and 570 cycles.

AUDIO OSCILLATOR: 500-cycle oscillator with stability of  $\pm 10$  cycles under  $\pm 10\%$  variations in 115 v DC supply.

AMBIENT TEMPERATURE:  $-28$  deg C and  $+ 65$  deg C.

RELATIVE HUMIDITY: 50 and 95%.

OUTPUT LEVEL: Adjustable from 0 to 2.0 v.

### RECEIVING SECTION

#### IMPEDANCE

INPUT: 600, 300 or 50 ohms.

#### OUTPUT

SPEECH CHANNEL: 600, 300, or 50 ohms.

tone channel: 600 and 40 ohms.

BAND REJECTION (SPEECH CHANNEL): 40 db or more between 480 and 520 cycles; at least 20 db between 450 and 570 cycles.

BANDPASS (TONE CHANNEL): Attenuation of 3 db or less between 485 and 520 cycles and 40 db or more at 395 and 650 cycles.

AUDIO OUTPUT: 300 mw.

TONE OUTPUT: Adjustable from 0 to 0.1 v rms into impedance of  $4 + j40$  ohms.

POWER SOURCE REQUIRED: 115 v DC  $\pm 10\%$ , 65 W.

HEAT DISSIPATION: 65 W.

MAGNETIC VOLUME: 400 cubic in.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Hopkins Engineering Co, Altadena, Calif.

Contract: NObsr 57221, dated 2 Feb 1952. (KY-83/S).

Stavid Engineering Inc, Plainfield, N.J.

Contract: NObsr 57543, dated 28 Aug 1952. (KY-83A/S).

### TUBE AND/OR CRYSTAL COMPLEMENT

(3) 12AU7

(4) 50C5

Total Tubes: (7)

No Crystals used.

Radio-Auxiliary

KY-83/S, KY-83A/S

KEYER

Apr 17 1958

## REFERENCE DATA AND LITERATURE

NAVSHIPS 91764: Technical Manual for Keyer  
KY-83/S.

NAVSHIPS 91822(B): Technical Manual for  
Keyer KY-83A/S.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE MIL-K-16551 (SHIPS)  
STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	KY-83/S Keyer KY-83/S Spare Parts Box Technical Manuals	6	16 X 20 X 32	120
1	KY-83A/S Keyer KY-83A/S Spare Parts Box Technical Manuals	1.7	10 X 13-3/4 X 21-1/4	50

## EQUIPMENT SUPPLIED DATA

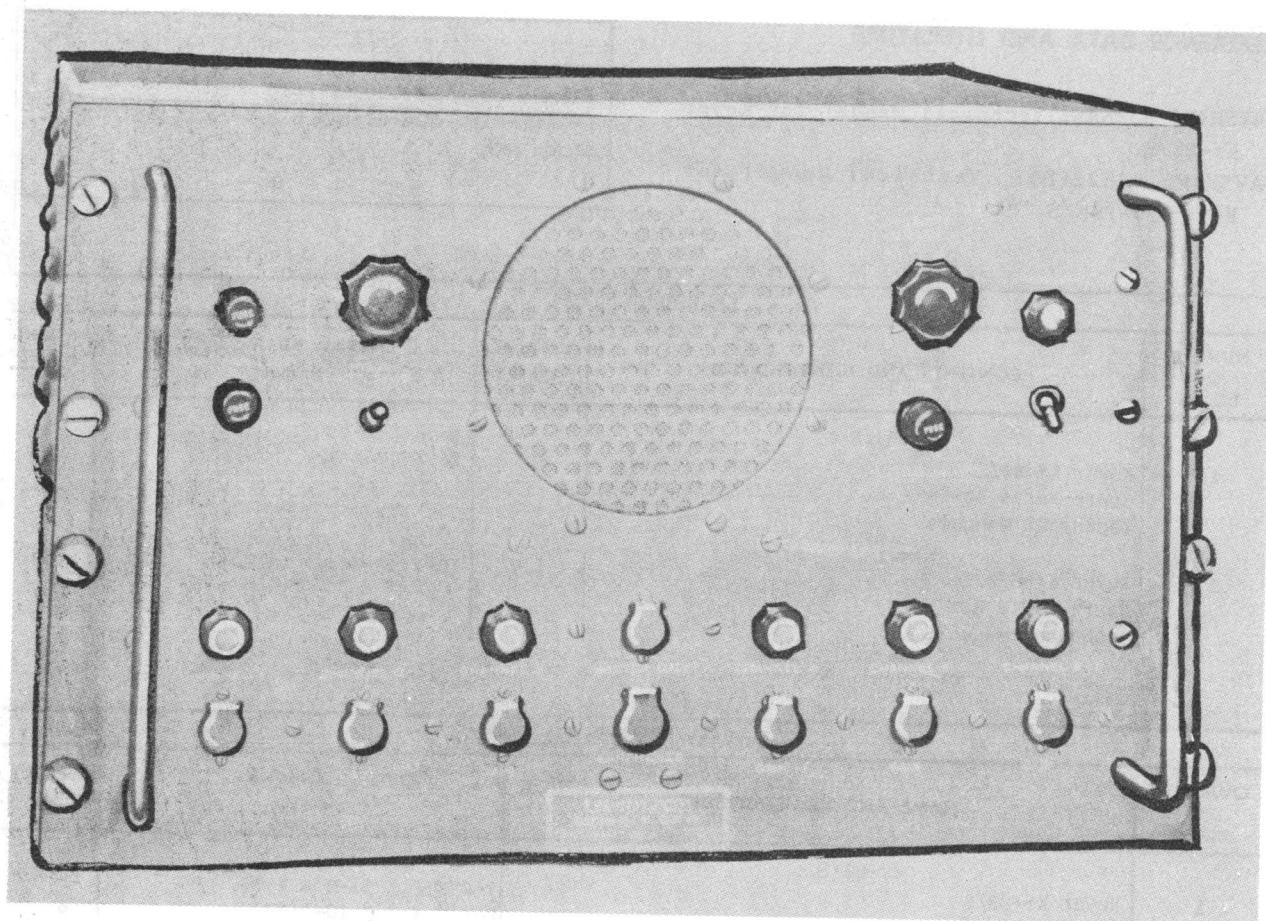
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	KY-83/S Keyer KY-83/S	7-23/32 X 11-3/4 X 16	42.0
1	Spare Parts Box	4-1/2 X 7 X 10-1/2	6
2	Technical Manual NAVSHIPS 91764 KY-83A/S		
1	KY-83A/S Keyer KY-83A/S	7-11/16 X 11-7/8 X 16-3/16	42.0
1	Spare Parts Box	4-1/2 X 7 X 10-1/2	5
2	Technical Manual NAVSHIPS 91822(B)		

June 1957

Radio-Auxiliary

**MULTIPLE AUDIO MONITOR**

LS-101/GR

*Multiple Audio Monitor***FUNCTIONAL DESCRIPTION**

The LS-101/GR provides for continuous observation of automatic consecutive selection of from 2 to 6 receiver channels. There is a 13 second listening period for each channel when automatically observed, and a 2 second silent period in automatically changing from one channel to another. Each channel has individual gain control and the master gain is used to control the level of signal to the audio amplifier. A panel indicator light identifies the observed channel. The equipment is designed for table or standard 19 inch rack mounting. A 6 inch marine type loudspeaker and facilities for use of a headset is provided.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER OUTPUT: 6 W max.  
 OUTPUT IMPEDANCE: 600 ohms.  
 OPERATION: Automatic and manual.  
 CHANNEL SELECTION: 2 to 6 on automatic, any single channel on manual.  
 LISTENING PERIOD: 13 sec ea channel.  
 SILENT PERIOD: 2 sec between channels.  
 INPUT IMPEDANCE: 20000 and 600 ohms.  
 POWER SOURCE: 115 or 230 v, 50 to 70 cps, single ph.  
 POWER CONSUMPTION: 40 W normal, 150 W during switching operations.  
 PERMISSABLE POWER SOURCE VARIATION:  $\pm 10\%$  for normal operation.

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

Electronic Corp of America, New York, N.Y.  
 Contract No. NXsr 55630.



June 1957

Radio-Auxiliary

**LS-101/GR****MULTIPLE AUDIO MONITOR****TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 6SLTGT/G (2) 6V6GT/G (1) 5U4G

Total Tubes: (4)

**REFERENCE DATA AND LITERATURE**NAVSHIPS 9005141B: Technical Manual for  
Multiple Audio Monitor LS-101/GR.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

**SHIPPING DATA**

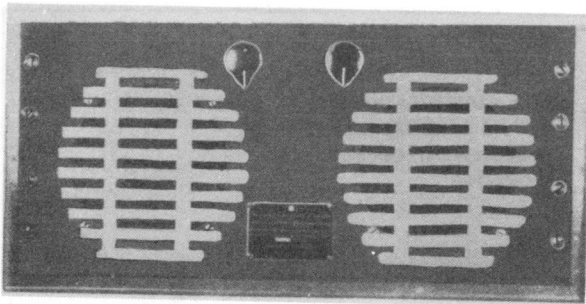
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Multiple Audio Monitor LS-101/GR		27 X 18-1/2 X 22-1/2	150
1	Set of Spare Parts		12-1/2 X 20-1/2 X 29	130

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Multiple Audio Monitor LS-101/GR	12-1/2 X 15-1/2 X 19-3/4	83
1	Line Cord W-301	25 in. lg	2

## LOUDSPEAKER ASSEMBLY

LS-139/G



Loudspeaker Assembly LS-139/G

## FUNCTIONAL DESCRIPTION

The LS-139/G is a rack mounted equipment intended for use in Naval shore communication centers in a standardized RF and AF manually operated switching and monitoring Navy Signal Distribution Unit, Types A, B, and C.

It consists of a size E panel on which are mounted two permanent magnet speakers, with an attenuator for each. Output transformers are mounted on speaker frames for impedance matching, and a terminal board is provided that contains two screw terminals for each speaker.

No field changes in effect at time of preparation (20 December 1957).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## SPEAKER DATA

TYPE: Permanent magnet.  
 SIZE: 6 in. dia.  
 OUTPUT: 5 W.  
 VOICE COIL IMPEDANCE: 3.2 ohms nom.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Dittmore-Freimuth Corp, Milwaukee, Wis.  
 Contract N126s-83205, dated 23 April 1957.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Tubes or Crystals.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93095: Manuscript Copy of Technical Manual for Loudspeaker Assembly LS-139/G.  
 NAVSHIPS 92228: Technical Manual for Transmitter Control-Monitor Model AN/FRQ-3.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

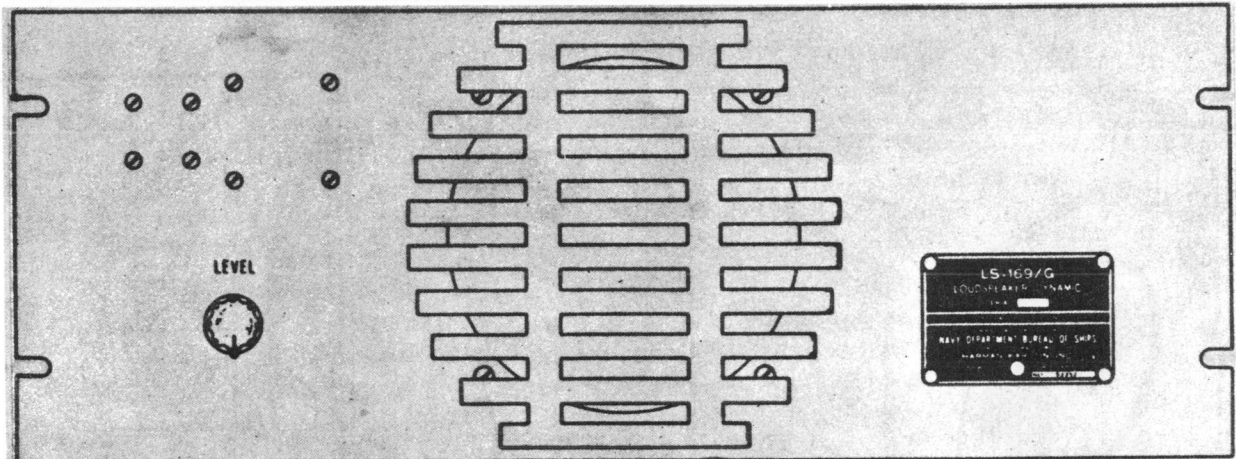
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loudspeaker Assembly LS-139/G	6-1/4 X 8-23/32 X 19	8.9
2	Technical Manual NAVSHIPS 93095	1/8 X 8-1/2 X 11	0.25
8	Mounting Screw		



October 1957

Radio-Auxiliary

**DYNAMIC LOUDSPEAKER****LS-169/U***Dynamic Loudspeaker LS-169/G***FUNCTIONAL DESCRIPTION**

The LS-169/U is capable of relatively faithful reproduction of the signal output of Audio Amplifier AM-413/G. Input signal is received through a receptacle available from the rear of the loudspeaker panel, is adjusted in level by means of a constant impedance attenuator, and is then fed through a matching transformer to a permanent magnet type six inch loudspeaker.

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

Contract NObsr 52352 dated 22 March 1951.  
Approximate Cost: \$60.00 with equipment  
spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91905: Technical Manual for Amplifier, AF AM-413/G, AM-413A/G and Dynamic Loudspeaker LS-169/G.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RESPONSE: 200 to 5000 cps.

INPUT IMPEDANCE: 600 ohms.

POWER INPUT: 5 w max.

ATTENUATION CONTROL: 4 db per div.

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

Harman - Kardon Inc, New York, N.Y.

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	Dynamic Loudspeaker LS-169/U	0.89	7 x 10 x 22	21

**EQUIPMENT SUPPLIED DATA**

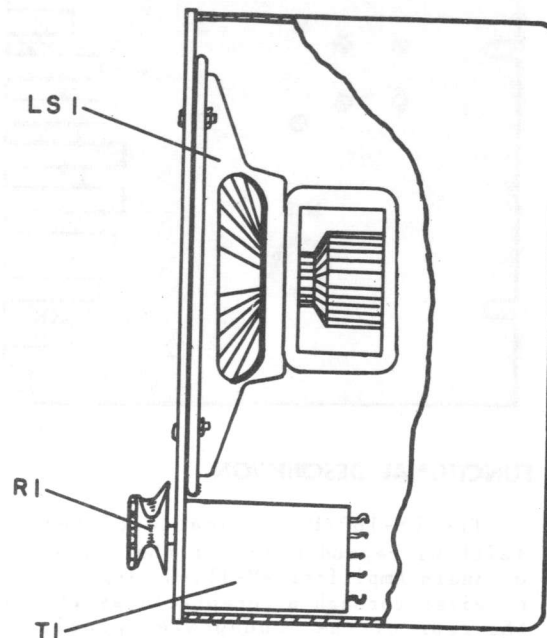
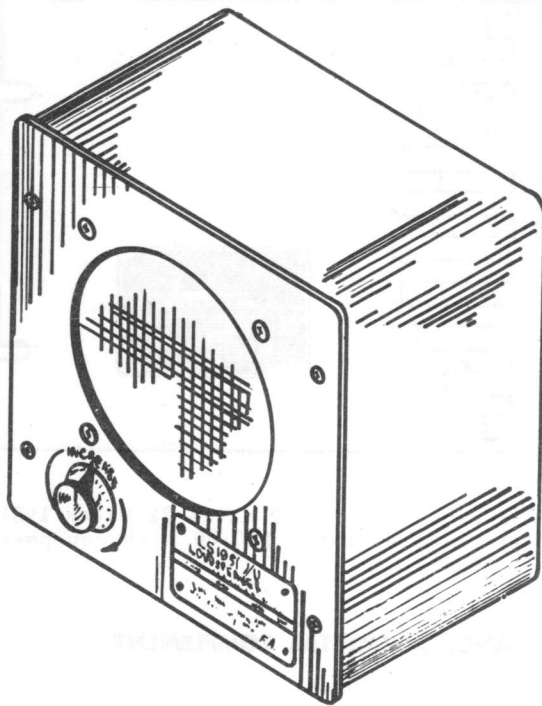
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamic Loudspeaker LS-169/G	4 x 7 x 19	5.5
1	Plug AN-3106-14S-2S	1-1/8 x 1-1/8 x 1-7/16	
1	Cable Clamp w/Ferrule	7/8 x 7/8 x 1-5/64	
2	Technical Manual NAVSHIPS 91905	1/2 x 8-3/4 x 11-1/2	

April 1959

Radio-Auxiliary

## DYNAMIC LOUDSPEAKER

LS-195/U



Dynamic Loudspeaker LS-195/U

## FUNCTIONAL DESCRIPTION

The LS-195/U is a universal communication loudspeaker assembly designed for use in other than marine mobile or naval land mobile installations. It is suitable for single or double bracket mounting for standard rack, or table top use.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## LOUDSPEAKER DATA

TYPE: Cone.

CONE SIZE: 5.5 in. dia.

VOICE COIL IMPEDANCE: 4 ohms.

POWER INPUT: 4 W.

AF LEVEL CONTROL: 36  $\pm$  6 db using 95% rotation of control.

FREQUENCY RESPONSE:  $\pm$  5 db from 200 to 5000 cps.

DISTORTION: 7% from 200 to 5000 cps.

## TRANSFORMER DATA

TYPE: AF line.

## IMPEDANCE

PRIMARY: 5000 ohms tapped at 600, 60 and 4 ohms

SECONDARY: 4 ohms.

TEST VOLTS: 1000 v rms.

AUDIO OPERATING LEVEL: 4 W.

URNS RATIO: 35.4 to 1.

FREQUENCY RESPONSE: 200 to 5000 cps  $\pm$  1 db, not tuned.

## ATTENUATOR DATA

TYPE: Variable wire-wound (resistive unbalanced LL).

INPUT IMPEDANCE: 4 ohms.

POWER RATING: 4 W max.

ATTENUATION: Continuously variable.

## MANUFACTURER'S OR CONTRACTOR'S DATA

David Bogen Co., Inc, New York, N.Y.

Radio-Auxiliary  
LS-195/U

INTERCOM STATION  
DYNAMIC LOUDSPEAKER

Contract NObsr-63288, dated 9 March 1953.  
U.S. Recording Co., Washington, D.C.  
Contract NObsr-64816, dated 22 June 1955.  
Approximate Cost: \$26.00.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92275(A): Instruction Sheet for Dynamic Loudspeaker LS-195/U.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-L-1928
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	Dynamic Loudspeaker LS-195/U	0.68	8 X 12 X 12	15

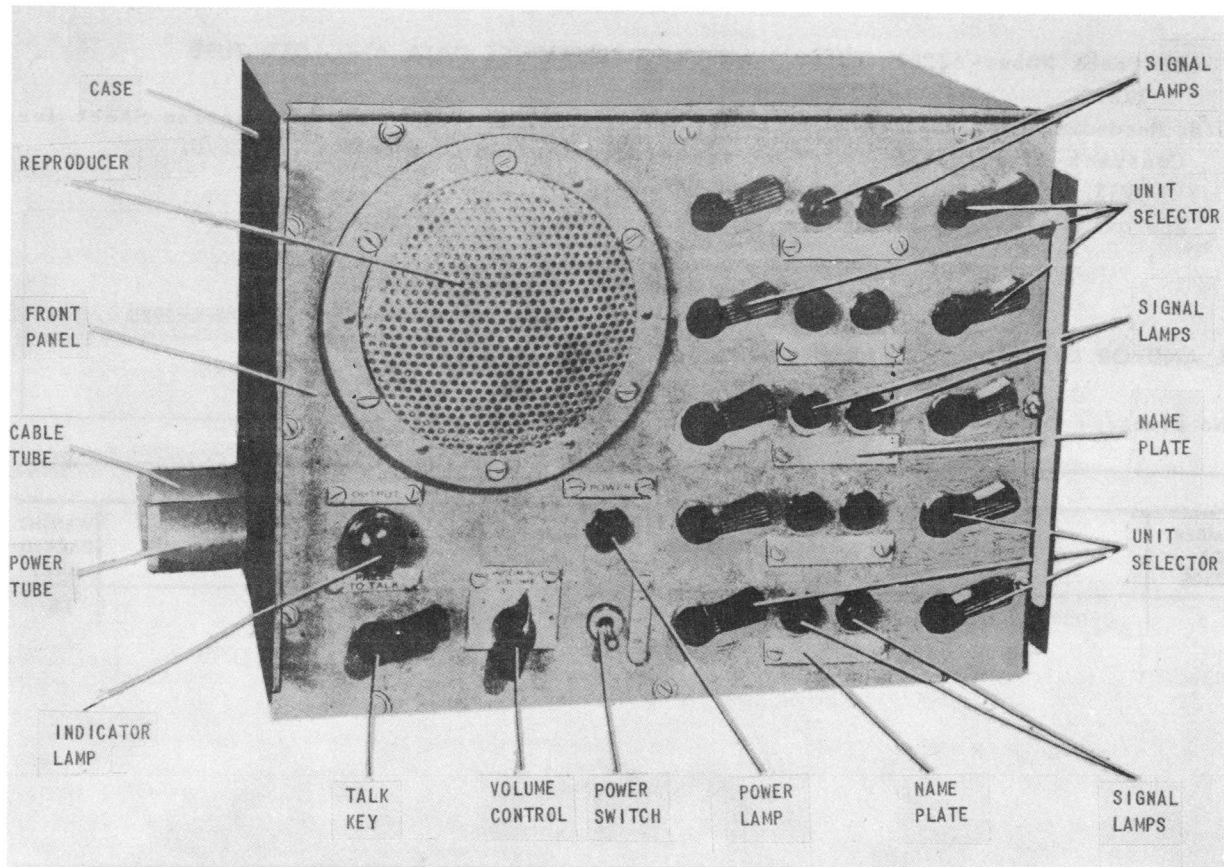
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamic Loudspeaker LS-195/U	6 X 6 X 8-3/4	
1	Set of Mounting Hardware		
2	Instruction Sheet NAVSHIPS 92275(A)		

## INTERCOM STATION

Radio-Auxiliary

LS-304/SIC



Intercom Station LS-304/SIC

**FUNCTIONAL DESCRIPTION**

The LS-304/SIC is an intercommunicating unit which contains all the necessary equipment to provide two way amplified voice communication, supplemented by signal lamps, between any two stations or from one station to any number of other stations up to a maximum of ten. This unit is used as a station in a Navy type intercommunication system which consists of a number of identical permanently located stations, of which there may be a maximum of eleven. It features a self-contained reproduce, which functions as either a loudspeaker or microphone, controlled by a "TALK-LISTEN" Key. This Key also removes the high voltage from the amplifier tubes during "listen" or "stand-by" operation.

No field changes in effect at time of preparation (5 June 1956).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied:  
Interconnecting cables.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

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

POWER CONSUMPTION  
STAND-BY: 20 W.  
OPERATING: 80 W.

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

Executone Inc., New York, N.Y.  
Contract NXss-19399.

LS-304/SIC

## INTERCOM STATION

September 1956

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SL7GT      (2) 6V6GT      (2) 6X5GT  
 Total Tubes: (6)

## RELATION TO OTHER EQUIPMENT

Technical Manual No. 94 for U.S. Navy Inter-communicating Unit Model NV-11.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Intercommunicating Unit		

14 September 1962

Cog Service:

FSN: 5830-631-5992

INTERCOMMUNICATION STATION LS-345A/SIC

Functional Class:

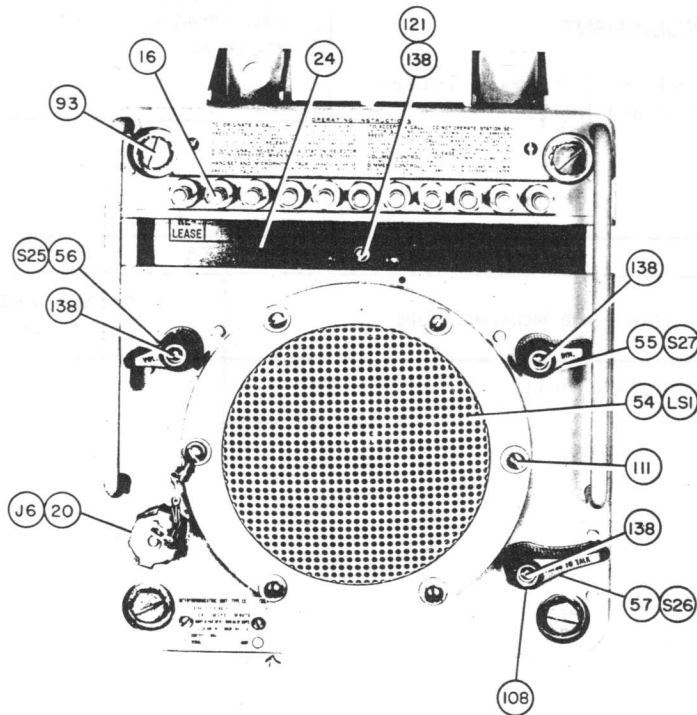
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Executone Incorporated.



*Intercommunication Station LS-345A/SIC*

**FUNCTIONAL DESCRIPTION:**

The Intercommunication Station LS-345A/SIC is designed primarily for expansion of existing systems on naval vessels or replacement of defective units. It is equipped with a signal voltage switch to permit use on either a 10 or 16 volt signalling system.

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

**TECHNICAL CHARACTERISTICS:**

TYPE OF MOUNTING: Bulkhead mounted.

NUMBER OF STATION SELECTOR POSITION: 10.

OUTPUT IMPEDANCE: 50 ohms (70 volts).

INPUT IMPEDANCE: 16 ohms built in for use with reproducer as microphone. 150 ohms available at auxiliary microphone jack for use with auxiliary handset or microphone.

AMPLIFIER GAIN: 81 db measured at 1000 cps.



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**LS-345A/SIC INTERCOMMUNICATION STATION**

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OPERATING POWER RQMT: 115 v ac, 60 cps.

STANDBY: 25 W.

MAXIMUM POWER OUTPUT: 60 W.

**RELATION TO OTHER EQUIPMENT:**

The LS-345A is a modified type IC/KAA-2 equipment that will fill the requirements of the IC/KAA & IC/KAA-2. The modification of the IC/KAA-2 consists of the addition of a signal voltage switch S-24 and resistors R-27, R-28 and R-29 to enable the unit to be used on either the IC/KAA (10 volt signalling system) or the IC/KAA-2 (16 volt signalling system).

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-345A/SIC		9 x 9-7/16 x 11-1/4	39

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93226: Technical Manual for Intercommunication Station LS-345A/SIC.

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

TUBES: (2) 12AX7 (2) 6V6-GT (1) 5Y3-GT

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.7	44

---

**PROCUREMENT DATA**

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PROCURING SERVICE:

DESIGN COG: USN, BuShips

SPEC &/OR DWG: NAVY R-17-1-63 Type  
IC/KAA-2 (Modified)

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone Incorporated	New York, New York	N126S-87136	

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10 January 1962

Cog Service:

FSN: 5830-542-7202

INTERCOMMUNICATION STATION LS-386/SIC

Functional Class:

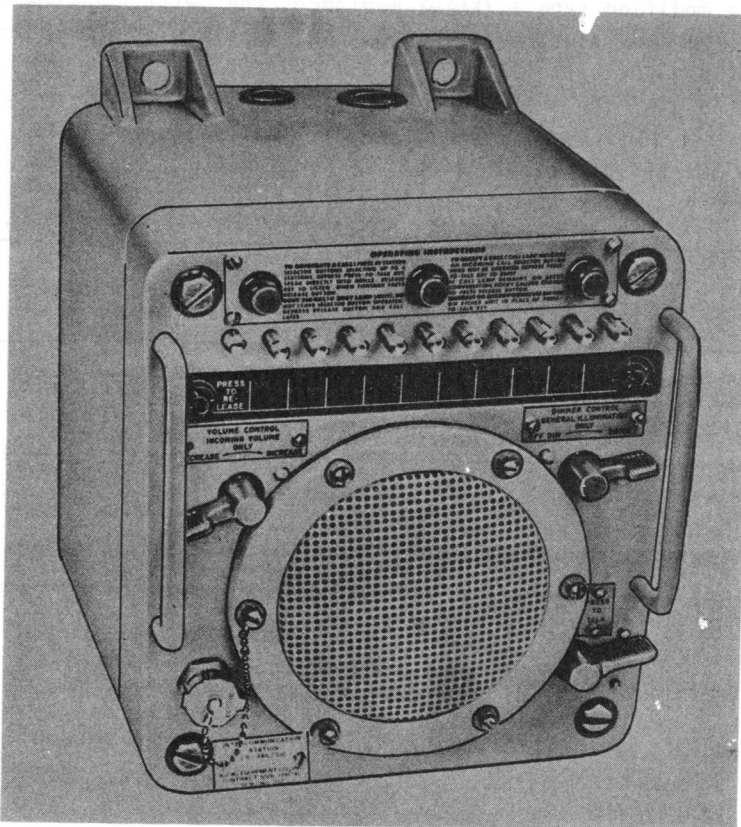
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Audio Equipment Co. Inc.



*Intercommunication Station LS-386/SIC*

**FUNCTIONAL DESCRIPTION:**

Intercommunication Station LS-386/SIC contains all necessary equipment to provide two-way amplified voice communication, supplemented by signal lamps, between any two stations or from one station up to four other stations simultaneously. Each station is suitable for installation in exposed or protected locations. The equipment will withstand shock, vibration, and salt-spray, and is built to perform under extremes of temperature and high humidity. Each unit is enclosed in a case with removeable front panel assembly. When installed, the enclosure is watertight.

The LS-386/SIC stations originate calls to one or more stations to a maximum of ten.

No field changes in effect at time of preparation (30 May 1961).



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**LS-386/SIC INTERCOMMUNICATION STATION**

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**TECHNICAL CHARACTERISTICS:**

RATED POWER OUTPUT: 10 W at less than 10% distortion.

INPUT IMPEDANCE: 16 ohms when reproducer is used as microphone. 150 ohms available at input receptacle for use with auxiliary handset or portable microphone.

OUTPUT IMPEDANCE: 500 ohms (70 v).

AMPLIFIER GAIN: 81 db measured at 1,000 cyc.

POWER REQUIREMENTS: 115 v, 60 cyc, single ph; 25 W (standby); 60 W (at max. power output).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS	WEIGHT (LBS)
1	Intercommunication Station LS-386/SIC		9-1/4 x 10 x 10	38

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93763: Technical Manual for Intercommunication Stations LS-386/SIC.

---

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

TUBES: (2) 6V6GT (2) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N2095-T500

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.6	46

---

**PROCUREMENT DATA**

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PROCURING SERVICE:

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-I-17928A(SHIPS)

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Audio Equipment Co. Inc.	Port Washington, N.Y.	N126-091041	\$296.80

---

March 1957

# LOUDSPEAKER, PERMANENT LS-416/U (IC/QIH-2U) MAGNET

## FUNCTIONAL DESCRIPTION

The LS-416/U (IC/QIH-2U) is a general purpose loudspeaker which is used with inter-communication systems.

No field changes in effect at time of preparation (14 September 1956).

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Loudspeaker, Permanent Magnet LS-416/U.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

VOICE COIL IMPEDANCE: 8 ohms.

INPUT WATTAGE: 5 W normal.

TYPE: Cone.

TRANSFORMER PRIMARY IMPEDANCE: 1000, 2000  
4000, 8000, 16000, 32000 ohms.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

Contract NOsar 54233.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loudspeaker LS-416/U	9 X 14 X 14	

16 May 1962

INTERCOMMUNICATION STATION LS-433/SIC

Cog Service: USN

FSN: N5830-592-4180

Functional Class:

USA

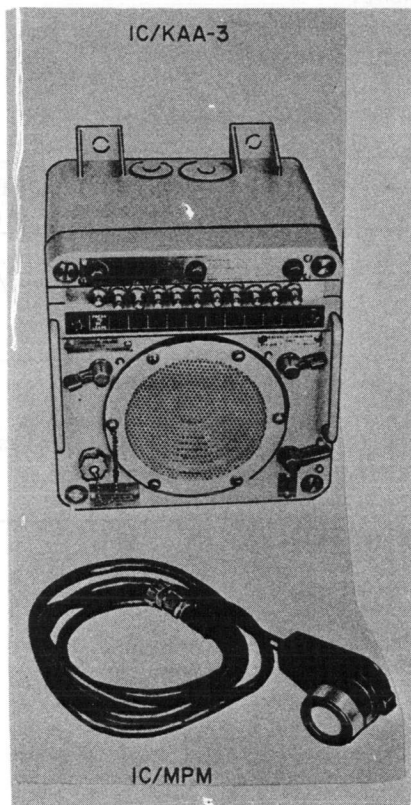
USN

USAF

**TYPE CLASS:**

Used by

**MANUFACTURER'S NAME/CODE NUMBER:** Audio Equipment Co. Inc., (91505).



*Intercommunication Station LS-433/SIC*

**FUNCTIONAL DESCRIPTION:**

Intercommunication Station LS-433/SIC contains all necessary equipment to provide two-way amplified voice communication supplemented by signal lamps, between any two stations or from one station up to four other stations simultaneously. The station is suitable for installation in exposed or protected locations. The equipment will withstand shock, vibration, and saltspray, and is built to perform under extremes of temperature and high humidity. The unit is enclosed in a case with removable front panel assembly. When installed, the enclosure is watertight (3 ft of water).

The LS-433/SIC stations originate calls to one or more stations to a maximum of ten.

No field changes in effect at time of preparation (26 May 1961)

**TECHNICAL CHARACTERISTICS:**

**RATED POWER OUTPUT:** 10 W at less than 10% distortion.

---

**LS-433/SIC INTERCOMMUNICATION STATION**

---

INPUT IMPEDANCE: 16 ohms when reproducer is used as microphone. 150 ohms available at input receptacle for use with auxiliary handset or portable microphone.

OUTPUT IMPEDANCE: 500 ohms (70 v).

AMPLIFIER GAIN: 81 db measured at 1,000 cyc.

POWER REQUIREMENTS: 115 v, 60 cyc; 25 W (standby); 60 W (at max. power output).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-433/SIC		9-3/4 x 10 x 10	42

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93006: Technical Manual for Intercommunicating Units Type IC/KAA-3(LS-433/SIC) and IC/KBA-3(LS-434/SIC).

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

TUBES: (1) 5Y3GT (2) 6V6GT (2) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.6	53

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**PROCUREMENT DATA**

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PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-I-17928(SHIPS), type IC/KAA-3

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Audio Equipment Co. Inc.	Great Neck, N. Y.	NObs-68279	\$342.00
		NObs-73209	\$336.05

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18 April 1962

INTERCOMMUNICATION STATION LS-433A/SIC

Cog Service: USN

FSN: N5830-543-1268

Functional Class:

USA

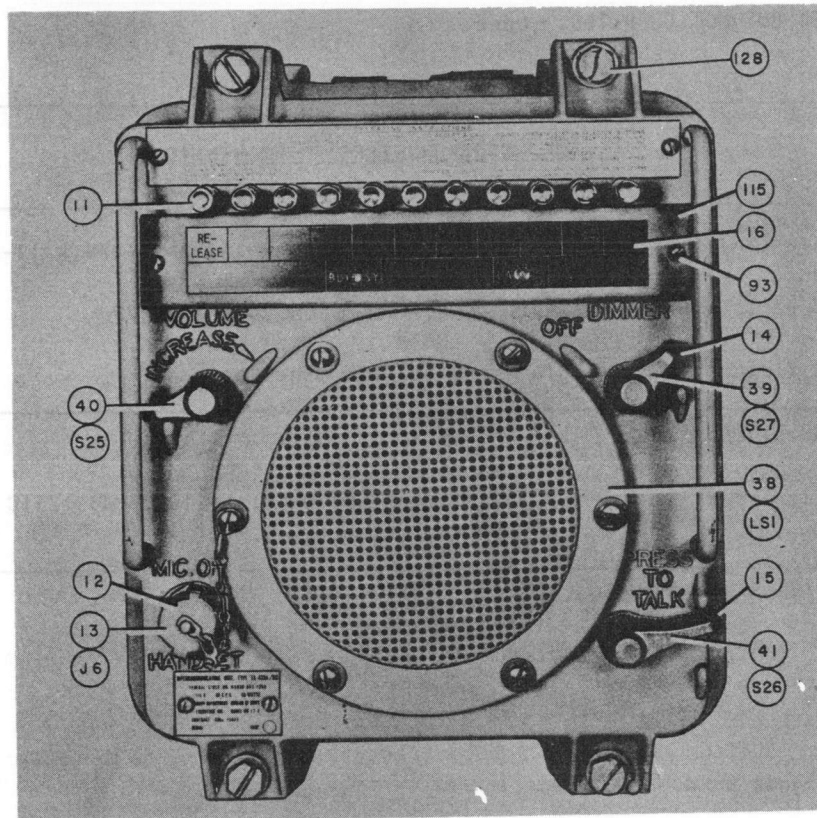
USN

USAF

Std

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Executone Inc., (21226).



Intercommunication Station LS-433A/SIC

#### FUNCTIONAL DESCRIPTION:

Intercommunication Station LS-433A/SIC contains all necessary equipment to provide two-way amplified voice communication, supplemented by signal lamps, between any two stations or from one station up to four other stations simultaneously. The station is suitable for installation in exposed or protected locations. The equipment will withstand shock, vibration, and salt-spray, and is built to perform under extremes of temperature and high humidity. The unit is enclosed in a case with removable front panel assembly. When installed, the enclosure is watertight (3 ft of water).

The LS-433A/SIC stations can originate calls up to ten other stations.  
No field changes in effect at time of preparation (26 May 1961).

#### TECHNICAL CHARACTERISTICS:

RATED POWER OUTPUT: 10 W at less than 10% distortion.

---

**LS-433A/SIC INTERCOMMUNICATION STATION**

---

INPUT IMPEDANCE: 16 ohms when reproducer is used as microphone, 150 ohms available at input receptacle for use with auxiliary handset or portable microphone.

OUTPUT IMPEDANCE: 500 ohms (70 v).

AMPLIFIER GAIN: 81 db measured at 1,000 cyc.

POWER REQUIREMENTS: 115 v, 60 cyc; 25 W (standby); 60 W (at max. power output).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-433A/SIC		9-1/4 x 10-3/8 x 12-1/8	39
1	Maintenance Parts Kit*		15 x 15 x 30	50

\*Contains a test fixture; and a replacement chassis panel assy.

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93067: Technical Manual for Intercommunication Stations LS-433A/SIC and LS-434A/SIC.

---

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

TUBES: (1) Y3GT (2) 6V6GT (2) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

---

**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		44
1		55

---

**PROCUREMENT DATA**

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PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-I-17928(SHIPS)

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone Inc. Model no. NV-17-4	New York, N.Y.	N0bs-73443	\$295.37

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16 July 1962

Cog Service: USN FSN:

INTERCOMMUNICATION STATION LS-434/SIC  
Functional Class:

USA

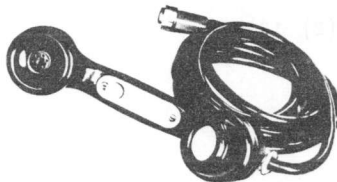
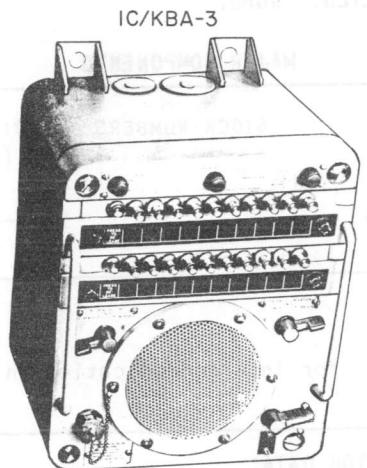
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Audio Equipment Company, Incorporated.



IC/MPH

*Intercommunication Station LS-434/SIC*

#### FUNCTIONAL DESCRIPTION:

Intercommunication Station LS-434/SIC contains all necessary equipment to provide two-way amplified voice communication supplemented by signal lamps, between any two stations or from one station up to four other stations simultaneously. The station is suitable for installation in exposed or protected locations. The equipment will withstand shock, vibration, and saltspray, and is built to perform under extremes of temperature and high humidity. The unit is enclosed in a case with removable front panel assembly. When installed, the enclosure is watertight (3 ft of water).

The LS-433/SIC stations originate calls of one or more stations to a maximum of twenty. No field changes in effect at time of preparation (26 May 1961).

#### TECHNICAL CHARACTERISTICS:

RATED POWER OUTPUT: 10 W at less than 10% distortion.



## LS-434/SIC INTERCOMMUNICATION STATION

INPUT IMPEDANCE: 16 ohms when reproducer is used as microphone. 150 ohms available at input receptacle for use with auxiliary handset or portable microphone.

OUTPUT IMPEDANCE: 500 ohms (70 v).

AMPLIFIER GAIN: 81 db measured at 1,000 cyc.

POWER REQUIREMENTS: 115 v, 60 cyc; 25 W (standby); 60 W (at max power output).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-434/SIC		9-3/4 x 10 x 12	48

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93006: Technical Manual for Intercommunication Units Type IC/KAA-3(LS-433/SIC) and IC/KBA-3(LS-434/SIC).

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

TUBES: (1) 5Y3GT (2) 6V6GT (2) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

### SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.9	57

### PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-I-17928(SHIPS), Type IC/KBA-3

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Audio Equipment Co., Inc.	Great Neck, New York	N0bs-68279	\$400.10

16 July 1962

Cog Service: USN FSN: 5830-543-1267

INTERCOMMUNICATION STATION LS-434A/SIC

Functional Class:

USA

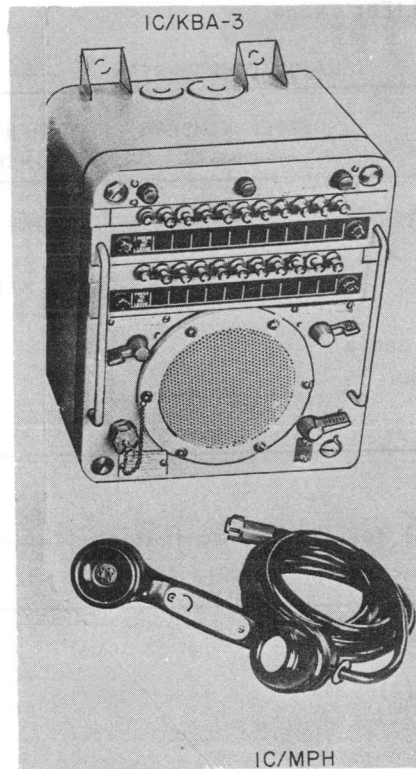
USN

USAF

TYPE CLASS:

Std

MANUFACTURER'S NAME/CODE NUMBER: Executone Incorporated.



*Intercommunication Station LS-434A/SIC*

**FUNCTIONAL DESCRIPTION:**

Intercommunication Station LS-434A/SIC contains all necessary equipment to provide two-way amplified voice communication supplemented by signal lamps, between any two stations or from one station up to four other stations simultaneously. The station is suitable for installation in exposed or protected locations. The equipment will withstand shock, vibration, and salt-spray, and is built to perform under extremes of temperature and high humidity. The unit is enclosed in a case with removable front panel assembly. When installed, the enclosure is watertight (3 ft of water).

The LS-434A/SIC stations can originate calls to up to twenty other stations.  
No field changes in effect at time of preparation (26 May 1961).

**TECHNICAL CHARACTERISTICS:**

RATED POWER OUTPUT: 10 W at less than 10% distortion.

## LS-434A/SIC INTERCOMMUNICATION STATION

INPUT IMPEDANCE: 16 ohms when reproducer is used as microphone. 150 ohms available at input receptacle for use with auxiliary handset or portable microphone.

OUTPUT IMPEDANCE: 500 ohms (70 v).

AMPLIFIER GAIN: 81 db measured at 1,000 cyc.

POWER REQUIREMENTS: 115 v, 60 cyc; 25 W (standby); 60 W (at max power output).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-434A/SIC		9-1/4 x 10-3/8 x 14-1/8	42
1	Maintenance Parts Kit*		15 x 15 x 30	53

\*Contains a test fixture; and a replacement chassis panel assy.

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93067: Technical Manual for Intercommunication Stations LS-433A/SIC and LS-434A/SIC.

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

TUBES: (1) 5Y3GT (2) 6V6GT (2) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

### SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		53
1		62

### PROCUREMENT DATA

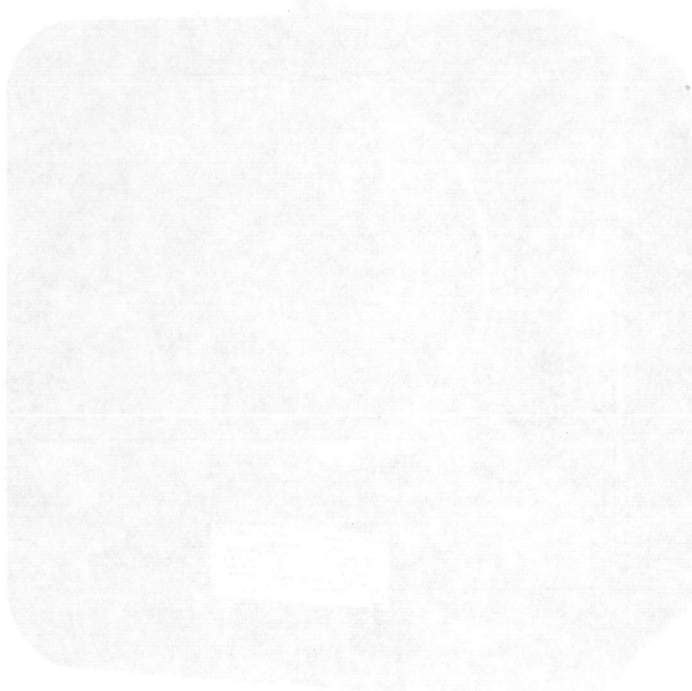
PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-I-17928(SHIPS)

INTERCOMMUNICATION STATION LS-434A/SIC

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone Incorporated Model no. NV-18-4	New York, New York	NObsr-73443	\$383.07



10 January 1962

LOUDSPEAKER, PERMANENT MAGNET LS-443/WIH

Cog Service:

FSN:

Functional Class:

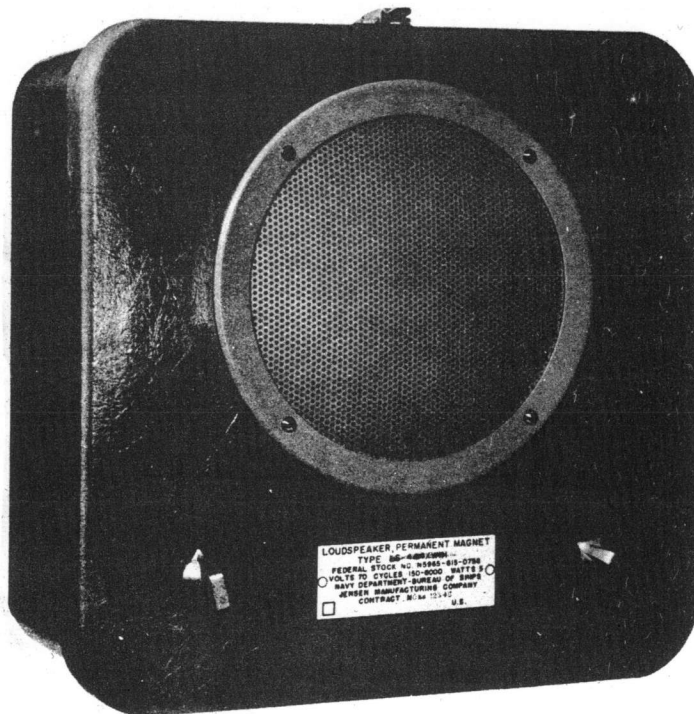
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Jensen Radio Mfg Co.



*Loudspeaker, Permanent Magnet LS-443/WIH*

**FUNCTIONAL DESCRIPTION:**

The Loudspeaker, Permanent Magnet LS-443/WIH is a direct radiator type of loudspeaker intended for use with sound motion picture and entertainment installations. The 8-inch loudspeaker unit is contained in an acoustically matched polyester glass reinforced enclosure, allowing use of the speaker for reduction of music and wide range program sources.

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

**TECHNICAL CHARACTERISTICS:**

IMPEDANCE OF VOICE COIL: 8 ohms.

INPUT WATTAGE: 5 W normal.

CONE SIZE: 8-inch dia.

TRANSFORMER DATA

---

**LS-443/WIH LOUDSPEAKER, PERMANENT MAGNET**

---

INPUT POWER: 70.7 v line to voice coil.  
PRIMARY TAPS: 5, 2.5, 0.63, 1.25, 0.31, 0.15 W.  
SECONDARY TAPS: 5, 1.26, 0.31 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

---

**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Loudspeaker, Permanent Magnet LS-443/WIH consists of:		9 x 15 x 17	
1	Channel Selector Switch			
1	Volume Selector Switch			

---

**REFERENCE DATA AND LITERATURE:**

Jensen Mfg Company Commercial Catalog no. 172-A for Loudspeaker, Permanent Magnet LS-443/WIH.

---

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

---

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

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PROCURING SERVICE:  
SPEC &/OR DWG: MIL-L-17080A(SHIPS)

DESIGN COG: Navy BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Jensen Radio Mfg Co. Dwg no. 12155-J	Chicago, Illinois	N0bs-68120	

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9 January 1962

Cog Service:

FSN: 5965-615-0758

LOUDSPEAKER, PERMANENT MAGNET LS-444/WIH

Functional Class:

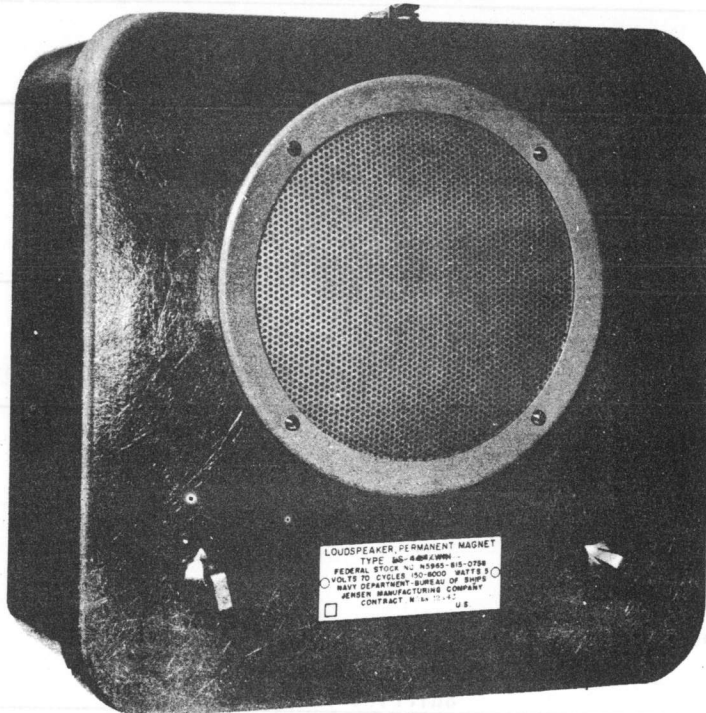
USA

USN

USAF

TYPE CLASS:

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



*Loudspeaker, Permanent Magnet LS-444/WIH*

**FUNCTIONAL DESCRIPTION:**

The Loudspeaker, Permanent Magnet LS-444/WIH is a direct radiator type of loudspeaker intended for use with sound motion picture and entertainment installations. The 8-inch loudspeaker unit is contained in an acoustically matched polyester glass reinforced enclosure, allowing use of the speaker for reduction of music and wide range program sources.

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

**TECHNICAL CHARACTERISTICS:**

IMPEDANCE OF VOICE COIL: 8 ohms.

INPUT WATTAGE: 5 W normal.

CONE SIZE: 8 inch dia.

TRANSFORMER DATA



---

**LS-444/WIH LOUDSPEAKER, PERMANENT MAGNET**

---

INPUT POWER: 70.7 v line to voice coil.  
PRIMARY TAPS: 5, 2.5, 0.63, 1.25, 0.31, 0.15 W.  
SECONDARY TAPS: 5, 1.26, 0.31 W.

**RELATION TO OTHER EQUIPMENT:**

The LS-444/WIH is designed to be used with, but not part of, Navy Ships Entertainment Systems.

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

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**MAJOR COMPONENTS**

---

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Loudspeaker, Permanent Magnet LS-444/WIH consists of:		9 x 15 x 17	
1	Channel Selector Switch			
1	Volume Selector Switch			

---

**REFERENCE DATA AND LITERATURE:**

Jensen Mfg Company Commercial Catalog no. 170-A for Loudspeaker, Permanent Magnet LS-443/WIH and LS-444/WIH.

---

**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:  
SPEC &/OR DWG: MIL-L-17080A(SHIPS)

DESIGN COG: Navy BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stromberg Carlson Company Dwg no. 625001-002	Rochester, N. Y.	NObs-73397, 28 September 1956	\$48.20

1.2 LS-444/WIH: 2

LOUDSPEAKER, PERMANENT MAGNET LS-444/WIH

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Jensen Mfg Company	Chicago, Illinois	N0bs-73468 N0bs-73490 N126-87996, 15 August 1958	\$40.55

9 January 1962

INTERCOMMUNICATION STATION LS-459/AIC, LS-460/AIC

Cog Service:

FSN:

Functional Class:

USA

USN

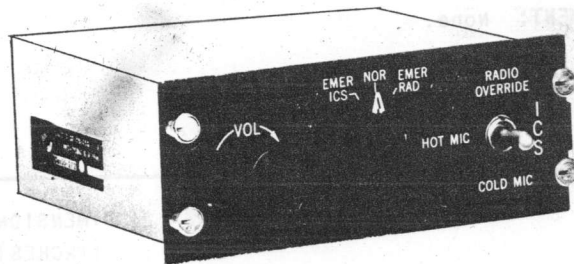
USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Co.



LS-459/AIC



LS-460/AIC

*Intercommunication Stations LS-459/AIC, LS-460/AIC*

**FUNCTIONAL DESCRIPTION:**

Intercommunication Station LS-459/AIC and LS-460/AIC provide intercockpit communication in the F4H-1 aircraft. An additional "headset-mike" output is provided for use by ground personnel. Facilities also are provided to combine and amplify a-f signals from Radio Receiver-Transmitter RT-546/ASQ-19, Pulse Decoder KY-312/ASQ-19, the auxiliary receiver of Amplifier-Power Supply-Receiver AM-2349/ASQ-19, and the tail warning radar. The forward intercommunication station, LS-460/AIC, contains two spare a-f input circuits. The aft intercommunication station, LS-459/AIC, contains one spare a-f input circuit. Two push-to-transmit switches allow either operator to utilize the transmitting facilities of Radio Receiver-Transmitter RT-546/ASQ-19 in conjunction with the intercommunication system.

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

# LS-459/AIC, LS-460/AIC INTERCOMMUNICATION STATION

## TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 27.5 v dc, 0.6 amp; two volts of ripple, 150 to 1000 cps superimposed on the dc supply will not produce hum in excess of 40 db below 150 mw.

POWER OUTPUT: 300 mw, nominal.

SUPPLY VOLTAGE STABILITY: Not more than 4 db change in gain as input voltage is varied from 25 v dc to 29 v dc.

MAXIMUM OPERATING VOLTAGE RANGE: 22 to 31 v dc.

INPUT IMPEDANCE

RADIO INPUT: 10,000 ohms at 12 v rms.

MICROPHONE INPUT: 100 ohms at 0.13 v rms.

OUTPUT IMPEDANCE: 600 ohms unbalanced (resistive).

NOMINAL MICROPHONE CURRENT: 35 ma.

FREQUENCY RESPONSE: Not more than 3 db variation from 300 to 6000 cps.

DISTORTION: 10% max (room temperature); 15% (temperature extremes).

NOMINAL AMPLIFIER GAIN: 28 db.

CROSS COUPLING BETWEEN RADIO INPUTS: Not more than 40 db.

RADIO OVERRIDE: Not less than 14 db of attenuation of radio signals is provided when the radio override function is used. Interphone levels unaffected.

TRANSMIT/RECEIVE RELAY: Provides two sets of normally open contacts capable of handling dry circuits or up to 0.5 amp dc at 27.5 v dc.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

## MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-459/AIC		1-1/2 x 5-3/4 x 8-1/4	2
1	Intercommunication Station LS-460/AIC		2-1/4 x 5-3/4 x 8	2.7

## REFERENCE DATA AND LITERATURE:

NAVWEPS 16-35LS459-1: Handbook Service Instructions for Intercommunication Stations  
LS-459/AIC and LS-460/AIC.

NAVWEPS 16-35LS459-2: Illustrated Parts Breakdown for Intercommunication Stations  
LS-459/AIC and LS-460/AIC.

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

1.2 LS-459/AIC, LS-460/AIC: 2

SHIPPING DATA

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

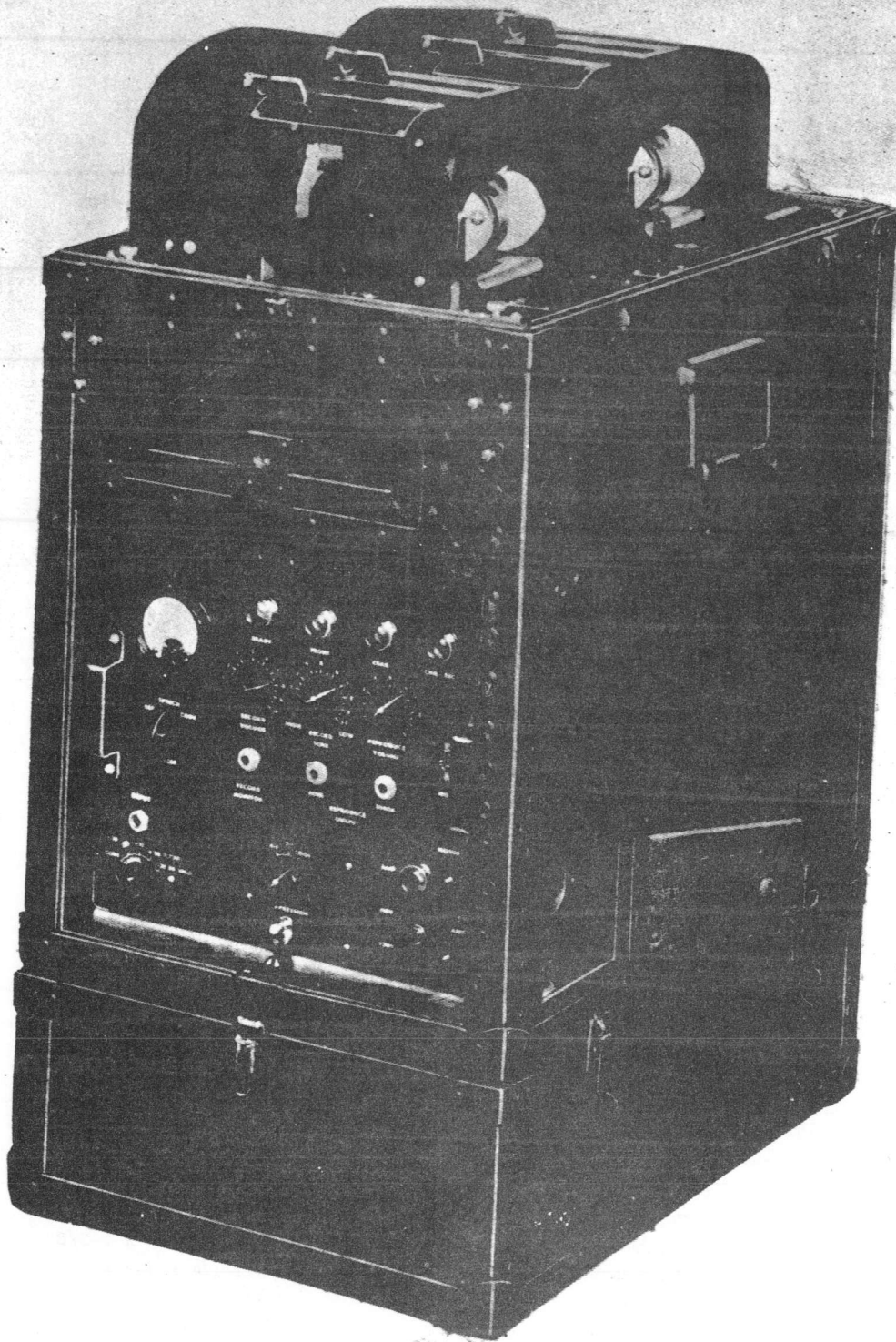
PROCUREMENT DATA

PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co.	Cedar Rapids, Iowa	NOW-60-100-i NOW-61-0034-i NOW-61-0574	

**SPEECH RECORDER**



*Speech Recorder MC-502*



Radio-Auxiliary  
**MC-502**

**SPEECH RECORDER**

**FUNCTIONAL DESCRIPTION**

The MC-502 is a portable recorder-reproducer, consisting of dual recording-reproducing units and an associated record-reproduce amplifier, all contained in a single field case. It is designed to afford continuous recording of voice and code signals, and reproduction simultaneously with, or separately from, recording.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

- INPUT IMPEDANCE: 500 or 5000 ohms.
- OUTPUT IMPEDANCE: 600 or 5000 ohms.
- POWER OUTPUT: 2W.
- BACKGROUND NOISE (CONTINUOUS): 25 db min below max signal at 1000 cps.
- CROSSTALK IN PLAYBACK WHEN RECORDING: At least 20 db below normal recording level.
- DISTORTION: 10%.
- FREQUENCY RESPONSE:  $\pm 3$  db from 300 to 2500 cps.
- RECORDING BELT CAPACITY
- HIGH SPEED: 15 min.

- LOW SPEED: 30 min.
- MANDREL SPEED
- 15 FT RECORD: 78  $\pm 2$  rpm.
- 30 FT RECORD: 39  $\pm 1$  rpm.
- PLAYBACKS PER RECORD: 50.
- TYPE RECORDING: Lateral swaging.
- POWER REQUIREMENTS: 115 or 230 v, 50 or 60 cps, single ph.

**TUBE AND/OR CRYSTAL COMPLEMENT**

- (1) 5Y3G      (1) 6J5      (3) 6SK7
- (1) 6H6      (2) 6V6GT      (1) 6SL7GT
- Total Tubes: (9)

**REFERENCE DATA AND LITERATURE**

TM11-2542: Technical Manual for Speech Recorder MC-502.

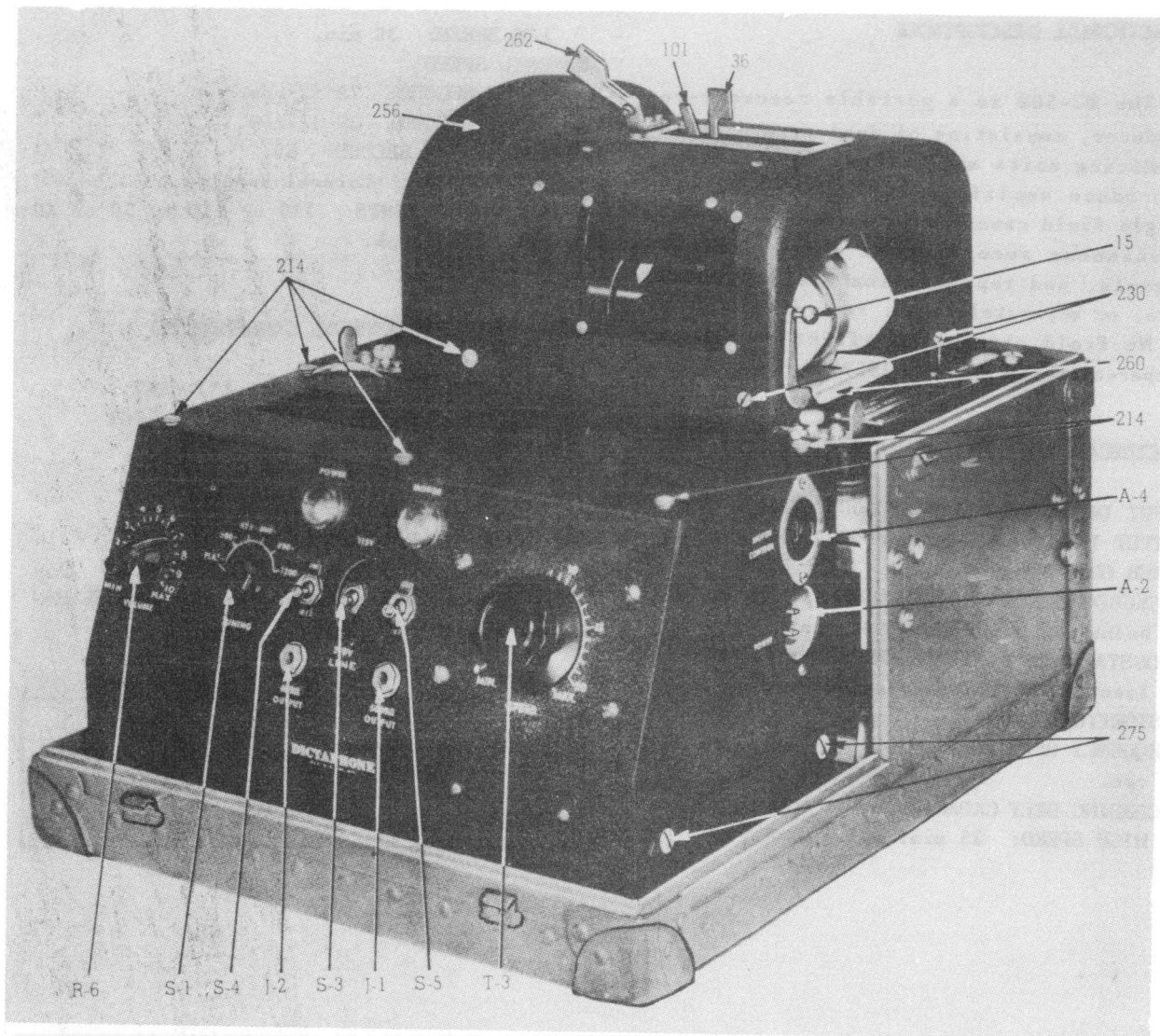
TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Speech Recorder MC-502 including:	14-1/2 x 20 x 26	133
	(1) Power Cable	120 lg	0.56
	(1) Foot Control	1-5/8 x 3 x 5-3/8	1.5
	(1) Cable, Foot Control	300 lg	1.18
	(1) Magnetic Recorder	1-1/4 x 1-1/2 x 1-5/8	0.17
	(1) Crystal Reproducer	1 x 1-1/4 x 1-3/8	0.07
	(2) Belt, Flywheel	3/32 dia x 55	
	(2) Belt, Motor Drive	3/32 dia x 26	
	(6) Belt, Recording	3-1/2 x 12 dia	0.01
	(1) Set of Spare Tubes and Lamps		



# SPEECH REPRODUCER



Speech Reproducer MC-503

## FUNCTIONAL DESCRIPTION

The MC-503 is a variable-speed, portable, reproducing machine, designed for mobile operation. It contains jacks on front panel for use of headphones and loudspeaker.

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

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Headset, (1) Loudspeaker.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT IMPEDANCE: 600 and 500 ohms.

OUTPUT POWER: 2 W.

TYPE RECORDING REPRODUCED: Lateral swaging.

MANDREL SPEED: 5.2 to 78 rpm.

PLAYBACKS PER RECORD: 50.

### POWER CONSUMPTION

MOTOR RUNNING: 78 W.

MOTOR NOT RUNNING: 57 W.

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

Radio-Auxiliary

**MC-503**

**SPEECH REPRODUCER**

**TUBE AND/OR CRYSTAL COMPLEMENT**

- (1) 5Y3G
- (1) 6SL7GT
- (1) 6V6GT
- (1) 83

Total Tubes: (4)

**REFERENCE DATA AND LITERATURE**

TM11-2543: Technical Manual for Speech Reproducer MC-503.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

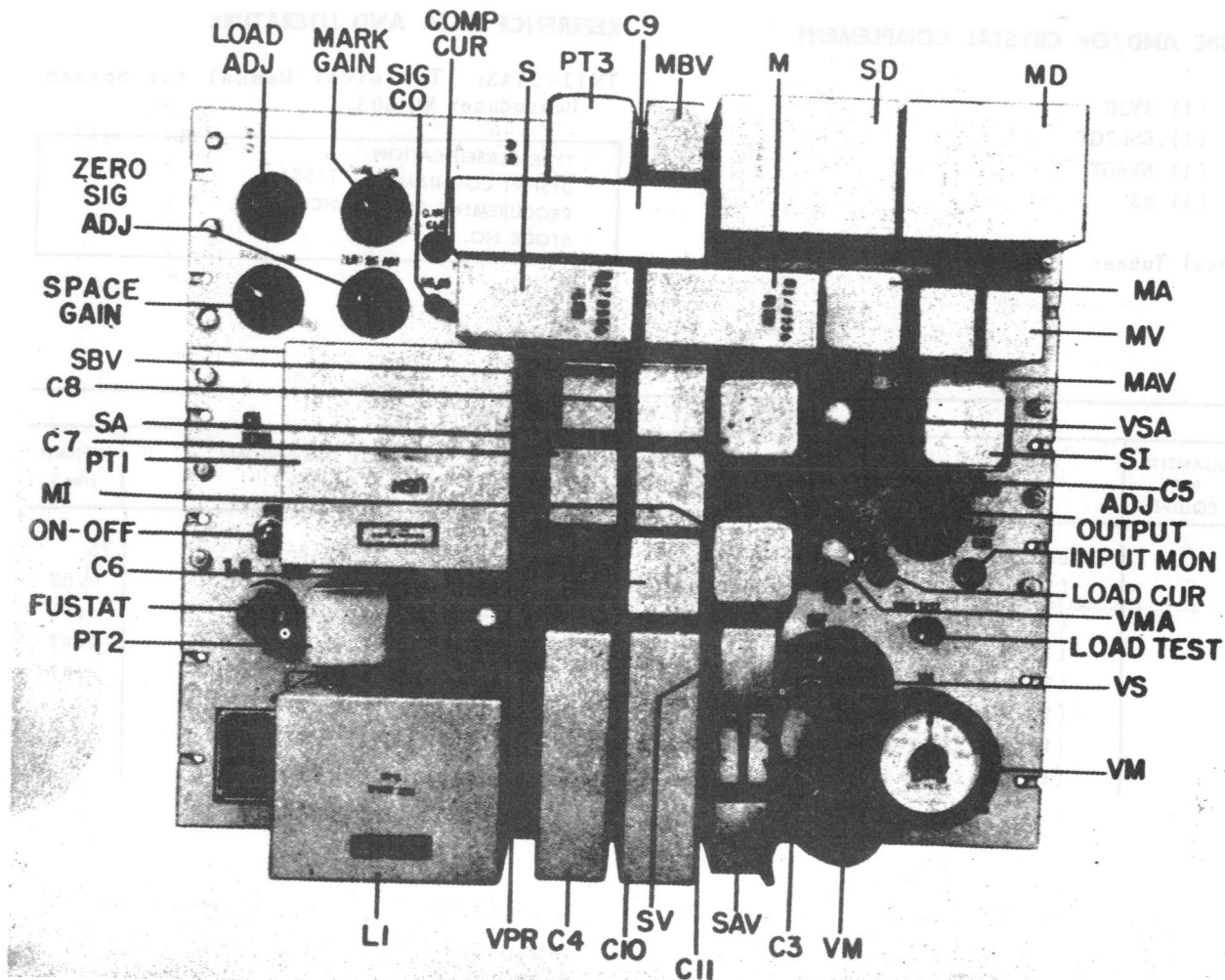
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Speech Reproducer MC-503 including:	14 X 14-5/8 X 18-1/8	75
	(1) Power Cable	120 lg	0.56
	(1) Foot Control	1-5/8 X 3 X 5-3/8	1.5
	(1) Cable, Foot Control	120 lg	0.47
	(1) Crystal Reproducer	1 X 1-1/4 X 1-3/8	0.07
	(1) Belt, Flywheel Drive	55 lg	
	(1) Belt, Motor Drive	26 lg	
	(1) Set of Spare Tubes and Lamps		

October 1957

# CARRIER TELEGRAPH DEMODULATOR AF AMPLIFIER

Radio-Auxiliary  
MD-115/FC,  
AM-351/FC



*Carrier Telegraph Demodulator MD-115/FC*

## FUNCTIONAL DESCRIPTION

The MD-115/FC is a Navy Type 50124 demodulator modified for use in the carrier control system Navy Model UN modified for two-tone operation.

Its function is to convert the signals in one of the two-tone carrier telegraph channels, delivered by the receiving filters of the channel, into neutral or polar direct current signals suitable for operating a telegraph signal recorder, a teletypewriter, the receiving relay of a teletypewriter repeater like the Navy Model PM, a relay-operated keying circuit for a radio transmitter, or for direct keying of a radio transmitter.

It is used in conjunction with an AF Amplifier AM-351/FC whose function is to stabilize the level of the signal current delivered to the input of the demodulator for a wide range of incoming signal levels.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

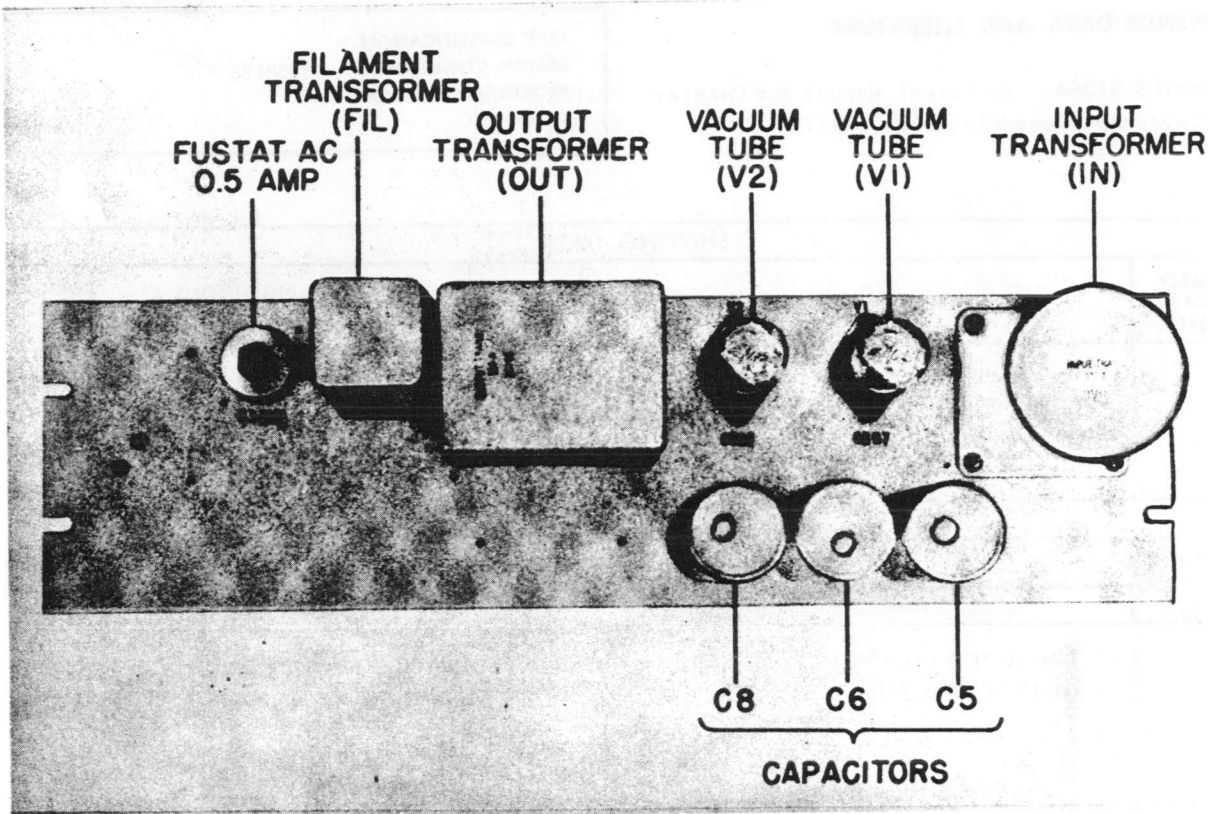
**CARRIER FREQUENCY:** 400 to 5000 cps normal range, above 1000 cps particularly for higher speed signals optimum operation.

### SIGNAL INPUT

**SINE WAVE CARRIER:** 100% modulated with unbiased telegraph signals.

Radio-Auxiliary  
MD-115/FC,  
AM-351/FC

### CARRIER TELEGRAPH DEMODULATOR AF AMPLIFIER



AF Amplifier AM-351/FC

STEADY CARRIER INPUT LEVEL TO AMPLIFIER:  
-40 to +10 dbm.  
INPUT TO DEMODULATOR (CONTROLLED BY  
AMPLIFIER): +2 ±1 dbm.  
OUTPUT CIRCUIT RESISTANCE  
AMPLIFIER: Designed to work into 600 ohm  
circuit.  
DEMODULATOR: 100 ohms to infinity. Valves  
below 100 ohms can be used but not  
recommended.  
SIGNAL SPEEDS  
NARROW BAND FILTERS: Up to 40 dot cps.  
INTERMEDIATE BAND FILTERS: Up to 75 dot  
cps.  
POWER SUPPLY REQUIREMENTS  
PRIMARY SOURCE: 105 to 125 v, 50 to 60  
cps.  
CURRENT DRAIN  
LIMITER: 0.08 amps at 115 v.  
DEMODULATOR: 1.2 amps at 115 v.  
POWER CONSUMPTION  
AF AMPLIFIER: 9.0 w.  
DEMODULATOR: 138 w.

#### MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Company, Inc., New York,  
N.Y.  
Contract NObsr-42345, dated 18 May  
1948.  
Approximate Cost: \$450.00 with equip-  
ment spares. (MD-115/FC)  
Approximate Cost: \$450.00 with equip-  
ment spares. (AM-351/FC)

#### TUBE AND/OR CRYSTAL COMPLEMENT

MD-115/FC  
(2) 6V6GT (2) 807 (1) 5R4GY  
Total Tubes: (5)  
AM-351/FC  
(2) 6SN7GT  
Total Tubes: (2)

October 1957

# CARRIER TELEGRAPH DEMODULATOR AF AMPLIFIER

Radio-Auxiliary  
**MD-115/FC,  
AM-351/FC**

## REFERENCE DATA AND LITERATURE

NAVSHIPS 91264: Technical Manual for Carrier  
Telegraph Demodulator MD-115/FC.

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	AF Amplifier AM-351/FC	12.8	22 X 27 X 38	30
1	Demodulator MD-115/FC	12.8	22 X 27 X 38	100

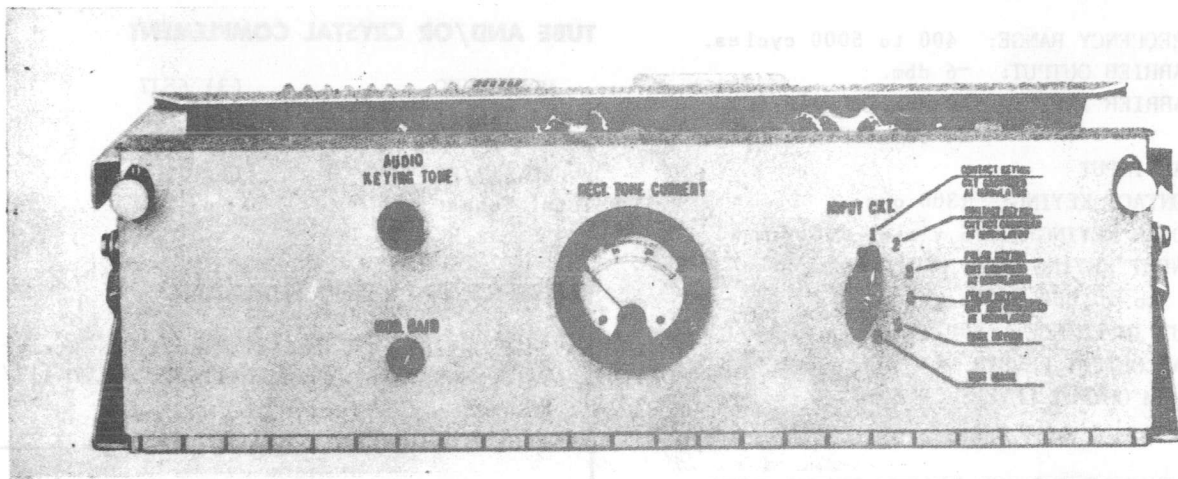
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Amplifier AM-351/FC	5-1/4 X 6-7/8 X 19	13
1	Demodulator MD-115/FC	10 X 15-3/4 X 19	75

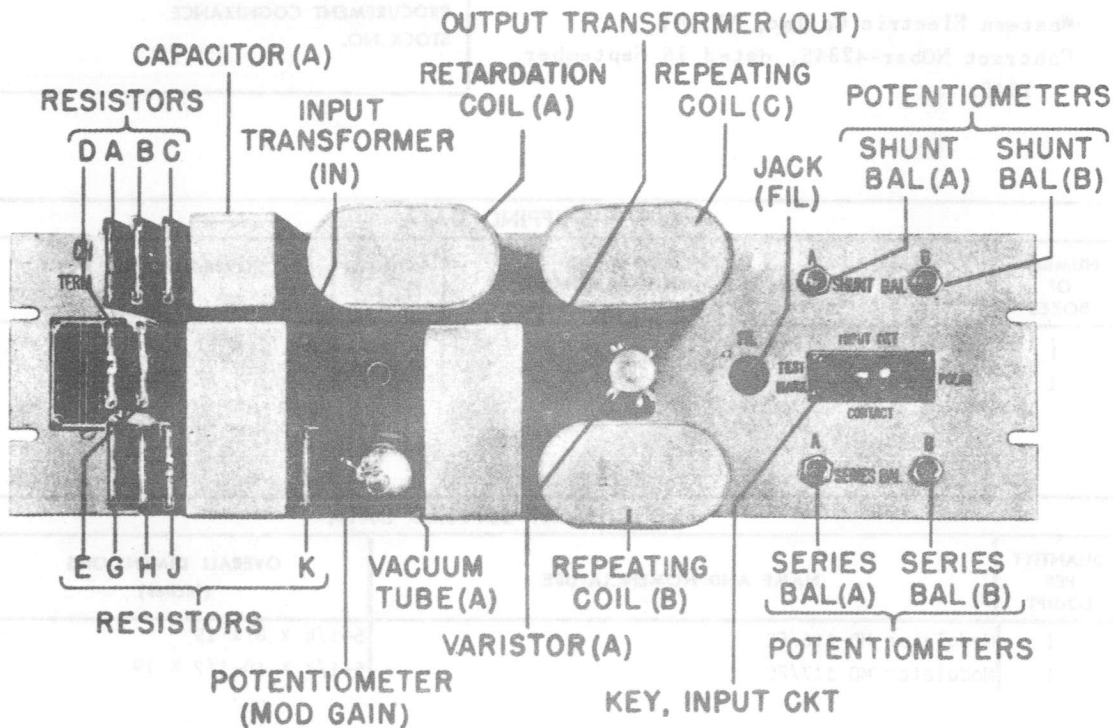


MODULATOR

Radio-Auxiliary  
 MD-116/FC, MD-117/FC



Carrier Telegraph Modulator MD-116/FC



Carrier Telegraph Modulator MD-117/FC

**FUNCTIONAL DESCRIPTION**

The MD-116/FC and MD-117/FC is designed to change or modulate the form of a carrier current at the sending end of a telegraph channel. In this instance the function of the modulator is to convert direct current or tone-keyed signals into two-tone signals, consisting of one tone for a marking signal

and another tone (of equal amplitude) for spacing signal.

No field changes in effect at time of preparation (22 March 1957).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

CARRIER SUPPLY

Radio-Auxiliary  
**MD-116/FC,MD-117/FC**

**MODULATOR**

FREQUENCY RANGE: 400 to 5000 cycles.  
CARRIER OUTPUT: -6 dbm.  
CARRIER INPUT: -32 dbm (MD-116/FC).  
-24 dbm (MD-117/FC).

**TUBE AND/OR CRYSTAL COMPLEMENT**

MD-116/FC (3) 6SJ7  
Total Tubes: (3)  
  
MD-117/FC (1) 31DA  
Total Tubes: (1)

SIGNAL INPUT  
CONTACT KEYING: 1300 ohms.  
POLAR KEYING:  $\pm 15$  v min,  $\pm 95$  v max.  
INPUT KEYING TONE (MD-116/FC only): 400  
to 10,000 cycles.  
OUTPUT IMPEDANCE: 600 ohms.  
NORMAL OUTPUT LEVEL: -4 dbm.  
MAXIMUM OUTPUT LEVEL: 0 dbm.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91267: Technical Manual for Carrier  
Telegraph Modulators MD-116/FC and MD-117/  
FC.

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

Western Electric Co Inc, NY, NY.  
Contract NObsr-42345, dated 16 September  
1948.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

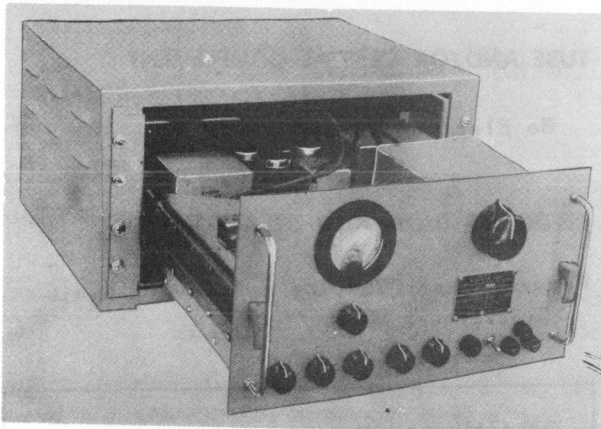
**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Modulator MD-116/FC	2	8-1/2 X 17 X 24	60
1	Modulator MD-117/FC	2	8-1/2 X 17 X 24	70

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator MD-116/FC	5-1/4 X 8 X 19	21
1	Modulator MD-117/FC	5-1/4 X 10-1/2 X 19	30





Radio Modulator MD-209/UC

**FUNCTIONAL DESCRIPTION**

The MD-209/UC is a device for electronically shifting the phase of a radio frequency signal at an audio frequency rate. Its use permits audio frequency transmission by an A-1 emission type transmitter. Audio frequency modulation signals used for this purpose must be in the frequency range 250 to 6000 cps.

The modulator is designed to phase modulate an RF signal in the range 2 to 5 mc. It is intended to be used with transmitters whose output frequency is in the range 4 to 20 mc. A "MODULATION RANGE" control is provided to reduce phase shift in proportion to the frequency multiplication used. The RF input is terminated in a 51-ohm resistive load. An RF input level between 1 to 20 volts is required. The nominal maximum modulation capability is  $\pm 1/2$  radian of RF phase shift at all modulating frequencies within the above limits. Audio modulating signals should be between -20 dbm and a +10 dbm to satisfactorily modulate the RF signal. The audio output circuit matches a line of 600 ohms impedance.

All power necessary to operate the unit is obtained from the built-in power supply. This supply can be adjusted to operate from either a 115 volt or 230 volt 60 cycles ac power source. The power input is filtered to prevent RF voltage from appearing on the line.

No field changes in effect at time of preparation (19 July 1956).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 2 to 5 mc.  
 MODULATING CAPABILITY:  $\pm 1/2$  radian phase shift.  
 AUDIO INPUT: 500 to 600 ohms impedance: -20 to +10 dbm level.  
 RF INPUT: 1 to 20 v rms.  
 RF OUTPUT: 20 v rms.  
 OPERATING POWER REQUIREMENTS: 115 or 230 v, 50 to 70 cps, single phase.  
 AUDIO INPUT FREQUENCY: 250 to 6000 cps.

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

Schuttig and Company, Inc., Washington, D.C.

Contract NObsr 52566, dated 18 June 1951.

Approximate Cost: \$1490.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 5725	(1) 6AU6WA
(1) 5749	(1) 6AK6WA
(1) 5933WA	(1) 12AT7WA
(1) 5814A	(1) OA2WA
(1) 5R4WGB	

Total Tubes: (10)

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92459: Technical Manual for Radio Modulator MD-209/UC.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-P-16283
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator, Radio MD-209/UC	10-19/32 X 17-29/32 X 20-1/2	
1	Spare Parts Box with Spares	6 X 6 X 12	26
2	Technical Manuals	3/16 X 8-1/2 X 11	1/2

September 1956

**MODULATOR, RADIO TRANSMITTER****MD-280/TRC****FUNCTIONAL DESCRIPTION**

The MD-280/TRC is used to amplitude modulate Transmitter Radio, T-597/TRC.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RESPONSE: 300 to 3000 cps.

IMPEDANCE DATA: 150 ohms input, 6500 ohms output.

POWER OUTPUT: 10 W max.

POWER SOURCE REQUIRED: 12 v DC (storage battery).

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Modulator, Radio Transmitter MD-280/TRC.

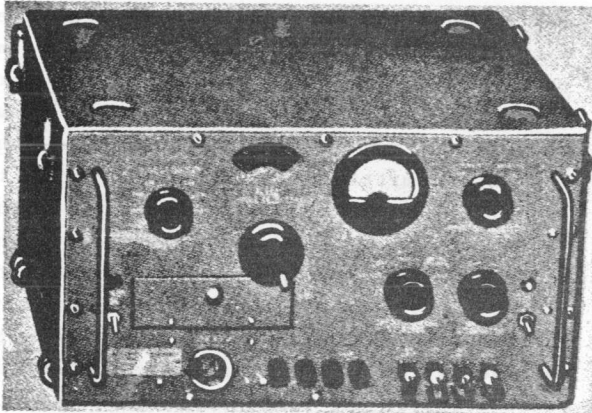
TYPE CLASSIFICATION DESIGN COGNIZANCE PROCUREMENT COGNIZANCE STOCK NO.
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**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator, Radio Transmitter MD-280/TRC	2-1/4 X 5 X 6-3/4	

March 1957

## MODULATOR

Radio-Auxiliary  
MD-83A/ARN

Modulator MD-83A/ARN

## FUNCTIONAL DESCRIPTION

The MD-83A/ARN is designed to facilitate the testing and calibrating of omni-range Navigation receivers for aircraft use. In conjunction with Signal Generator SG-1/ARN it provides a synthesis of signals encountered in reception and interpretation of omni-range, tone localizer, voice and glide slope facilities. In addition the various components of these signals are available singly and in combination for test purposes.

All voltages obtained from the modulator are generated mechanically.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT: 3 v.

VOLTAGE STABILITY:  $\pm 5\%$ .  
 FREQUENCY STABILITY: Dependent upon power source.  
 PHASE ANGLE STABILITY:  $\pm 0.20$ .  
 DISTORTION  
 30 cps Voltages: 2% harmonic.  
 90 cps and 150 cps Voltages: 3% harmonic.  
 1000 cps Voltage: 5% harmonic.  
 POWER SOURCE: 115 v, 60 cps, single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co. Cedar Rapids, Iowa.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

T.O. 33A1-8-37-1: (Formerly AN16-35MD83-1)  
 Handbook Operation, Service, and Overhaul  
 Instruction for Modulator-MD-83A/ARN.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUAE  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

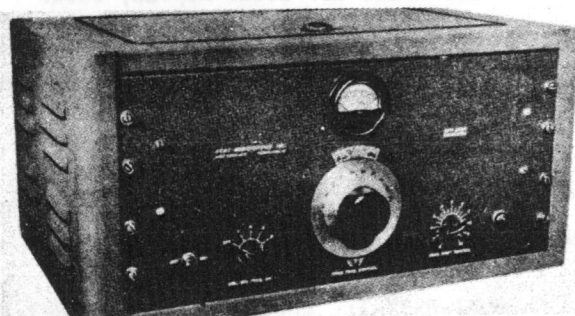
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator MD-83A/ARN	12 x 12 x 15	60
1	Case CY-1144/U		
1	Cord CX-237/U	84	
1	RF Cable Assy - CG-530/U	48	

October 1957

Radio-Auxiliary

MFM

**ACME CONVERTER AND INVERTER***Acme Newspaper MFM Inverter**Acme Newspaper MFM Converter*

station and the FM signal may be sent over wire lines to the radio transmitting station, provided the wire line transmission characteristics will permit transmission of FM without distortion. It also may be located at the radio transmitting station and the picture signal may be sent as AM over the wire line to the converter. The Inverter receives the FM radio receiver signal and restores it to AM and sends it on to the facsimile machine. The radio receiver, inverter and facsimile machine may be located in one place or the radio receiver and facsimile machine may be separated by a telephone link tying them together. The inverter may be at either point, or at a point in-between.

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

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

Acme Newspictures, Inc, Cleveland, Ohio

**TUBE AND/OR CRYSTAL COMPLEMENT**

(8) 6SNTGT	(1) 6SJ7
(2) 6H6	(2) 2A3
(1) 6SF5	(1) 5Z4
(3) 6J7	(2) 6SL7

Total Tubes: (20)

**REFERENCE DATA AND LITERATURE**

TM11-2644: Technical Manual for Acme MFM Converter and Acme MFM Inverter.

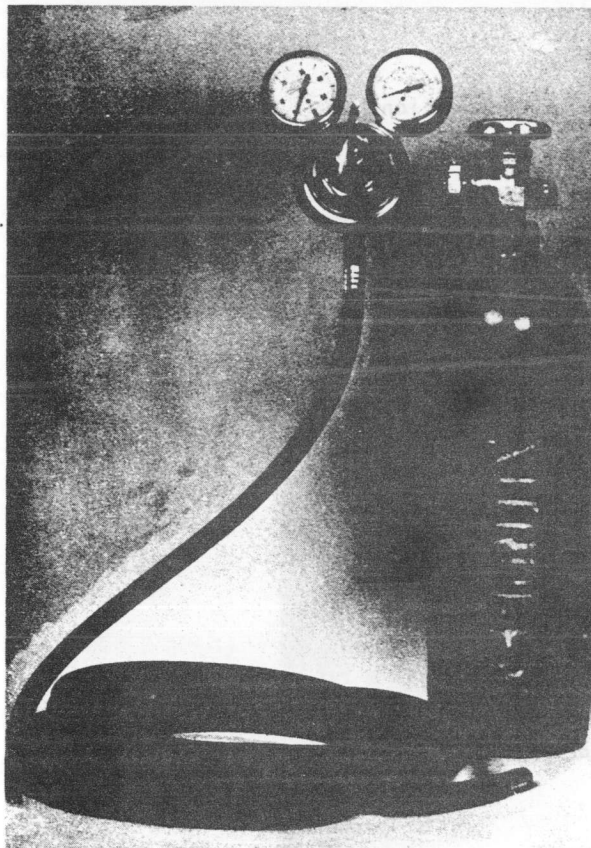
**FUNCTIONAL DESCRIPTION**

The Acme Model MFM Radio Conversion-Inversion equipment is designed to be used with the Acme Model CNP Telephoto Transceiver to convert AM to FM before radio transmission and to convert FM to AM from radio reception to eliminate a signal which is interpreted according to its volume or level, which fades and causes streaks to be recorded in the picture. The converter changes the AM signal into a FM signal in which the volume or level is essentially constant but where the tone range in the picture is expressed in a varying frequency, white usually being 1000 cycles and black 2500 cycles. It may be located at the facsimile transmitting

TYPE CLASSIFICATION	COMMERCIAL
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	

## PRESSURIZING KIT

MK/260/U



Pressurizing Kit

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1)  
Wrench, Open End, 1-1/4 in. X 11/16 in.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE NITROGEN: Federal Spec BB-N-411, Type  
1, Grade B.

## GAUGE DATA

CYLINDER PRESSURE: 0 to 3000 psi.  
EXTERNAL PRESSURE: 0 to 50 psi.  
CYLINDER CAPACITY: 2265 lbs psi at 70 deg  
C.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Southern Oxygen Co., Bladensburg, Md.  
Contract NObsr 64602, dated 31 December  
1955.

Approximate Cost: \$39.00 with equip-  
ment spares.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92499: Instruction sheet for Pre-  
surization Kit MK-260/U for use with  
AN/URT-2, 3 and 4, and AN/SRT-14, 15  
and 16 Radio Transmitters.

## FUNCTIONAL DESCRIPTION

The MK-260/U is used to pressurize various components, such as tuners and couplers, of radio sets AN/URT-2, 3 and 4, and AN/SRT-14, 15 and 16. It is used to maintain a normal nitrogen pressure in the components where it is necessary to keep the humidity and moisture out so that the electrical ratings of the equipment will not be affected by a moisture content.

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

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE MIL-C-16638A(SHIPS)  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Cylinder, Nitrogen, Type C, MIL-C-16638A	5-3/8 dia X 17	20
1	Regulator, Automatic Pressure, MIL-C-6200B	7 X 8 X 8-1/2	7
1	Hose, High Pressure with Fittings, MIL-H-1142A	1/4 ID X 25 ft	5



10 January 1962

SPLICING KIT, RADIO FREQUENCY CABLE MK-431/U

Cog Service:

FSN: 5995-604-0862

Functional Class:

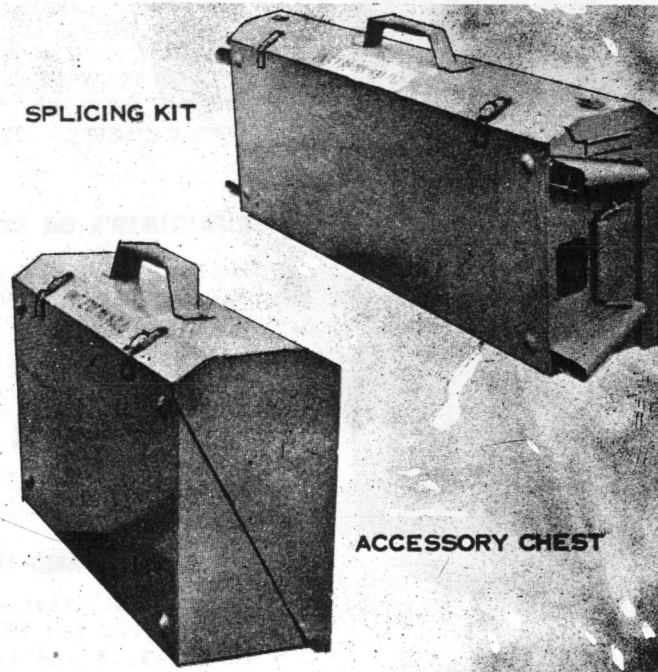
USA

USN

USAF

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Dittmore-Freimuth Corporation.



*Splicing Kit, Radio Frequency Cable MK-431/U*

**FUNCTIONAL DESCRIPTION:**

The Splicing Kit, Radio Frequency Cable MK-431/U is designed to attain a satisfactory splice under varying field conditions for all types of coaxial radio frequency cable. By exactly matching original materials and dimensions, the electrical characteristics and mechanical strength is retained as close to the original cable as possible.

The MK-431/U consists of the splicing kit and the Accessory Chest. Both these units are compactly built to provide portability in the field. Additionally, the instrument panel box, which forms an integral part of the Splicing Kit, may be removed and carried to the top of a pole or tower when the coaxial cable to be repaired is suspended from a messenger wire.

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

**TECHNICAL CHARACTERISTICS:**

TYPE OF MOUNTING: Portable or bench mounted.

OPERATING POWER RQMT: 110 to 120 v ac, 60 cps, 1900 W.

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**MK-431/U SPLICING KIT, RADIO FREQUENCY CABLE**

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**RELATION TO OTHER EQUIPMENT:** None.**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Splicing Kit, Radio Frequency Cable MK-431/U			92
1	Splicing Kit (Unit 1)		8 x 16 x 42	70
1	Accessory Chest (Unit 2)		7-1/4 x 13-3/4 x 24	22

---

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93287: Technical Manual for Splicing Kit, Radio Frequency Cable MK-431/U.

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

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

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PROCURING SERVICE:

DESIGN COG: Navy BuShips

SPEC &amp;/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Dittmore-Freimuth Corp. Dwg no. 2078-903-A	Milwaukee, Wisconsin	N126s-85855, 14 March 1958	\$1622.30

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16 May 1962

INSTALLATION KIT, ELECTRONIC EQUIPMENT MK-446A/URC-32

Cog Service: USN

FSN: 5820-671-6741

Functional Class:

USA

USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Co., (13449).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Installation Kit, Electronic Equipment MK-446A/URC-32 provides the necessary mounting bracket and cable connectors to separately mount the high-voltage power supply for Radio Set AN/URC-32.

No field changes in effect at time of preparation (85 June 1961).

TECHNICAL CHARACTERISTICS:

WHERE AND HOW INSTALLED: The power supply bracket assembly is mounted on the bulkhead where the high-voltage power supply is to be mounted. The terminal bracket assembly is mounted on the AN/URC-32 rack with four 8-32 screws.

MOUNTING DIMENSIONS

TERMINAL BRACKET ASSEMBLY: Four 0.203 in. dia mtg holes on 4-3/8 by 5-1/4 mtg centers.

POWER SUPPLY MOUNTING BRACKET: Four 0.385 in. dia mtg holes on 13-3/4 by 16-1/2 mtg centers.

RELATION TO OTHER EQUIPMENT:

This equipment is designed to be used with Radio Set AN/URC-32.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Installation Kit, Electronic Equipment MK-446A/URC-32 includes:			
2	Connector, Coaxial		7/8 x 7/8 x 3	
1	Bracket Assy, Power Supply		3 x 12-3/8 x 20	
1	Bracket Assy, Terminal		1-7/16 x 5 x 6-1/16	
1	Bag		4 x 6	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93285(A): Technical Manual for Radio Set AN/URC-32.

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**MK-446A/URC-32 INSTALLATION KIT, ELECTRONIC EQUIPMENT**

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.6	40

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**PROCUREMENT DATA**

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PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co. Part no. 545 3225 00	Cedar Rapids, Iowa	N0bsr-81220	

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26 April 1962

MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-447/URC-32

Cog Service: USN FSN: 5820-671-6758

Functional Class:

USA

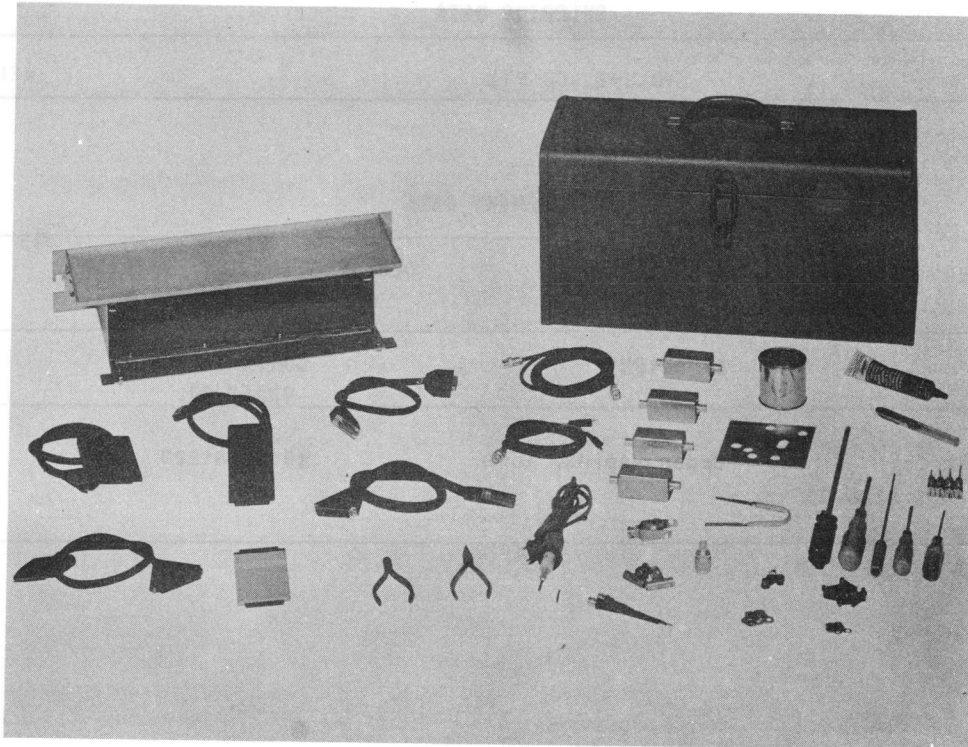
USN

USAF

Used by

**TYPE CLASS:**

**MANUFACTURER'S NAME/CODE NUMBER:** Collins Radio Co., (13499).



*Maintenance Kit, Electronic Equipment MK-447/URC-32*

**FUNCTIONAL DESCRIPTION:**

Electronic Equipment Maintenance Kit MK-447/URC-32 contains extension cables, an extension board, a module tray, adapters and special tools for servicing modules of Radio Set AN/URC-32.

Number 12 captive nuts, screws and washers are provided for fastening the major units to the rack in case the threads are stripped from the rack mounting holes.

Coaxial adapter assemblies are supplied for construction of test and alignment circuits that require shielding.

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

**TECHNICAL CHARACTERISTICS:** None.

**RELATION TO OTHER EQUIPMENT:**

This equipment is designed to be used with Radio Set AN/URC-32.

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**MK-447/URC-32 MAINTENANCE KIT, ELECTRONIC EQUIPMENT**

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

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**MAJOR COMPONENTS**

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QTY	ITEMS	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Maintenance Kit, Electronic Equipment MK-447/URC-32 includes:			
1	Tool Chest			
1	Module Tray			
5	Extension Cable			
1	Extension Board			
2	Coaxial Cable			
4	Coaxial Adapter Ass'y			
1	Diagonal Cutters			
1	Long Nose Pliers			
1	Soldering Aid Tool			
1	Soldering Iron			
1	BCN Probe			
2	BCN T-Adapter UG-274A/U			
1	BCN Probe Adapter			
1	Plug Adapter UG-201A/U			
1	Tube Puller			
1	Alignment Cover			
1	Lubricant, MIL-L-7870A			
1	Lubricant, Lubriplate #105			
1	Hypo Oiler			
1	Bristo Wrench Set, Numbers 4, 6, 8 and 10			
1	No. 0 Phillips Screwdriver			
1	No. 1 Phillips Screwdriver			
1	No. 2 Phillips Screwdriver			
1	No. 3 Phillips Screwdriver			
1	Extended Bristo Wrench			
10	12-24 Machine Screw			
10	No. 12 Lock Washer			
4	12-24 Captive Nut			
10	No. 12 Flat Washer			

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93285(A): Technical Manual for Radio Set AN/URC-32.

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

TUBES: None used.

**MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-447/URC-32**

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

**SHIPPING DATA**

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.7	34

**PROCUREMENT DATA**

PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co. Part no. 543 8124 00	Cedar Rapids, Iowa	N0bsr-81220	

26 April 1962

Cog Service: USN FSN: 5820-671-6757

RADIO SET GROUP MK-464/URC-32

Functional Class:

USA

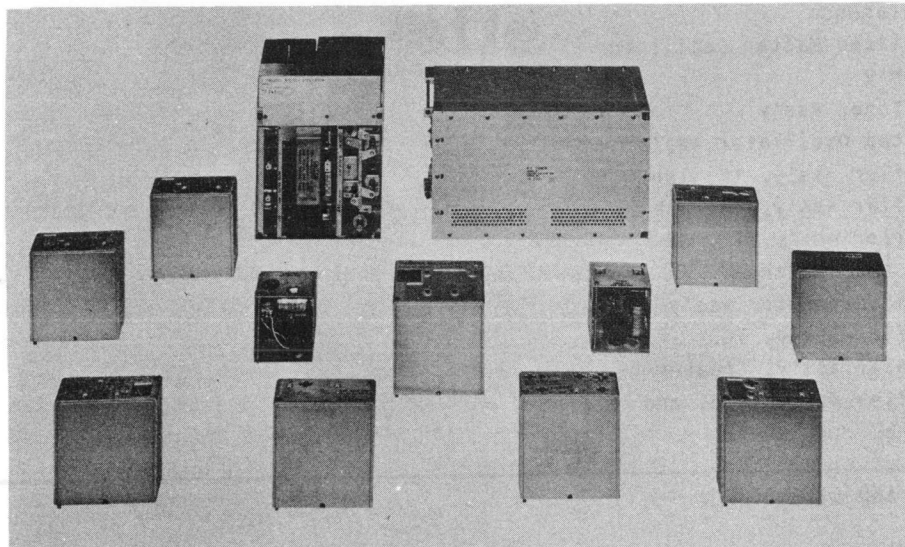
USN

USAF

Used by

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Co., (13499).



Radio Set Group MK-464/URC-32

#### FUNCTIONAL DESCRIPTION:

Radio Set Group MK-464/URC-32 contains replacement plug-in modules for rapid restoration of Radio Set AN/URC-32. When trouble isolation indicates a module is defective, or if a particular module is suspected, the module may be replaced by a module from the MK-464/URC-32. The defective module may be returned to a repair center or repaired in the field with a minimum of service interruption.

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

TECHNICAL CHARACTERISTICS: None.

#### RELATION TO OTHER EQUIPMENT:

The modules contained in Radio Set Group MK-464/URC-32 are identical to those contained in Radio Set AN/URC-32.

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**MK-464/URC-32 RADIO SET GROUP**

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

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**MAJOR COMPONENTS**

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QTY	ITEMS	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set Group MK-464/URC-32 includes:			
1	Assembly, Frequency Divider			
1	Generator Ass'y, Signal Reference			
1	Stabilized Master Oscillator Ass'y			
1	R.F. Tuner Ass'y			
1	Sidestep Oscillator Ass'y			
1	Amplifier Ass'y, IF, 1sb			
1	Amplifier Ass'y, IF, usb			
1	Amplifier Ass'y, IF, AM			
1	Modulator, Balanced			
1	Carrier Generator Ass'y			
1	Amplifier Ass'y, TGC			
1	Amplifier Ass'y, Speaker			
1	Amplifier Ass'y, Mic. and Line			

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93285(A): Technical Manual for Radio Set AN/URC-32.

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**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**TUBES: (1) 6CL6 (11) 5636 (3) 5654 (1) 5670 (6) 5749 (1) 5750 (2) 5814A  
(2) 5840 (13) 5899 (2) 6021 (1) 6800

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 2N45 (7) 2N117 (8) 2N128 (6) 2N243 (1) 2N527 (3) 2N540  
(7) 904 (3) DT4-17 (11) J213 (2) 1N91 (5) 1N198 (6) 1N251  
(8) 1N252 (4) 1N270 (17) 1N457 (1) 1N721A (2) 1N816 (1) HD2123  
(1) HD2160 (1) S1159

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	5	52



PROCUREMENT DATA

PROCURING SERVICE: USN  
 SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co. Part no. 543 8127 00	Cedar Rapids, Iowa	N0bsr-81220	

11 January 1962

TOWER KIT MK-482/TSA

Cog Service:

FSN:

Functional Class:

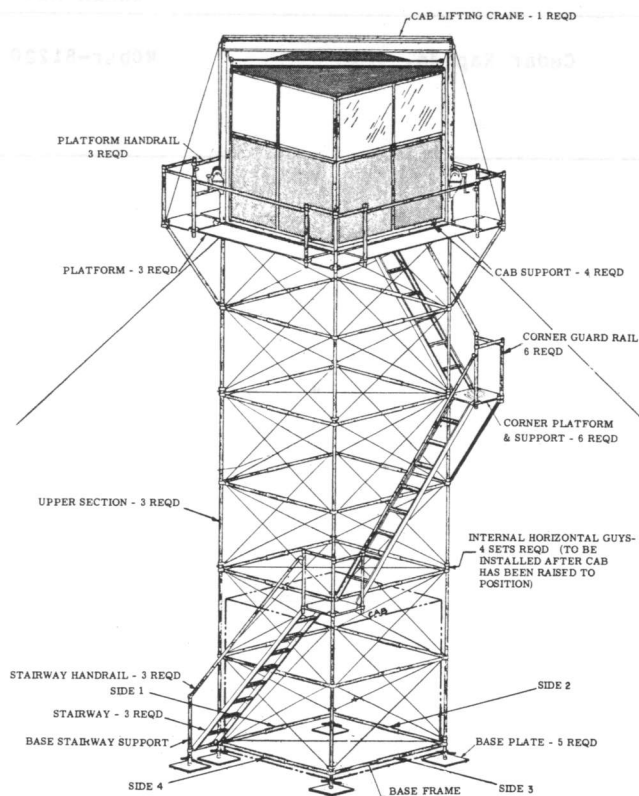
USA

USM

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Wickes Engineering and Construction Co.



*Tower Kit MK-482/TSA*

**FUNCTIONAL DESCRIPTION:**

Tower Kit MK-482/TSA comprises the additional parts required to change either Tower AB-471/TSA or AB-471A/TSA to Tower AB-471B/TSA.

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

**TECHNICAL CHARACTERISTICS:** None.

**RELATION TO OTHER EQUIPMENT:** None.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) Tensiometer Wickes pt/dwg 4500294-001; (4) Ground Anchor Wickes pt/dwg 4200495-001; (4) Guy Cable Wickes pt/dwg 4500294-004; (4) Guy Cable Winch Wickes pt/dwg 4500294-005; (4) Guy Winch-Spacer Wickes pt/dwg 4500294-007; (8) Insulator Clevis Wickes pt/dwg 4500294-006;

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**MK-482/TSA TOWER KIT**

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(4) Tag Line Wickes pt/dwg 4500294-013; (16) Lag Screw; (1) 8 in Adjustable Wrench.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Tower Kit MK-482/TSA includes:			
5	Base Plate	8750174-002		
1	Base Frame	8750174-003		
1	Base Stairway Support	8750174-004		
3	Stairway	8750174-005		
3	Upper Sections	8750174-006		
6	Corner Platform and Support	8750174-007		
3	Stairway Hand Rail	8750174-008		
6	Corner Guard Rail	8750174-009		
3	Platform	8750174-010		
5	Platform Hand Rail	8750174-011		
4	Cab Supports	8750174-012		
8	Internal Horizontal Guys	8750174-013		
1	Cab Lifting Crane	8750174-014		
1	Pulley Support Channel Ass'y	8750174-015		
2	Crane Support	8750174-016		
1	Safety Chain Ass'y	8750174-017		
2	Crane Guy Ass'y	8750174-018		
1	Crane Wire Rope	8750174-019		
2	Hoist Winch	8750174-020		
1	Davit	8750174-021		
1	Pulley Support Tube	8750174-022		
1	Hoist Line	8750174-023	1200 lg	
1	Tag Line	8750174-024	600 lg	
4	Retaining Plates (assembled to 016)	8750174-025		
4	Support-Angle Ass'y (Serial #1)	8750174-027		
4	Cab Hold-Down Ass'y	8750174-029		
4	Support-Angle Ass'y (Serial #2 through 10)	8750174-030		

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93570: Technical Manual for Tower Kit MK-482/TSA.

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**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: DESIGN COG: USMC  
 SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Wickes Engineering and Construction Co. pt/dwg no. 8750174-501	Camden, N. J.	N0bsr-75864, 10 June 1959	\$5,400.00