

SECTION 3 OF 10

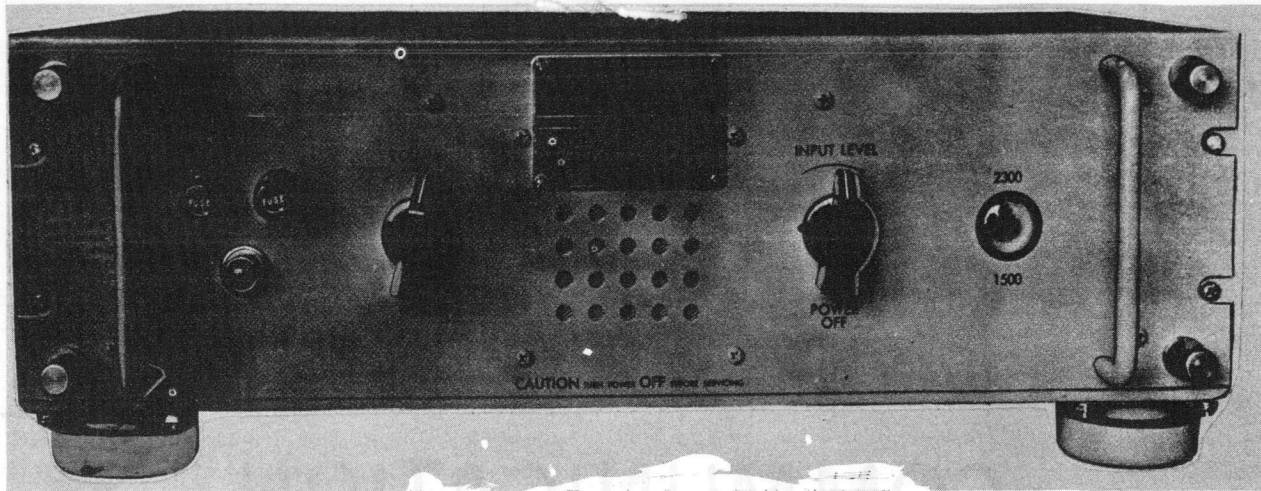
NAVSHIPS 94200.1

DIRECTORY OF COMMUNICATION EQUIPMENT

(CONTINUED)

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

FREQUENCY SHIFT CONVERTER



Frequency Shift Converter CV-172A/U

FUNCTIONAL DESCRIPTION

Frequency Shift Converter CV-172A/U is designed to convert 1500 and 2300 cycles audio frequency shift facsimile signals received from a radio circuit to amplitude-modulated signals for a facsimile recorder. Provisions are made for audible monitoring of the incoming signal and for visual checking of frequency limits.

No field changes in effect at time of preparation (15 August 1960).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 30 W, 100 to 130 v, 50 to 60 cy, single ph.

INPUT

IMPEDANCE: 500 ohms, balanced.

FACSIMILE SIGNAL: 1500 to 2300 cps AFS.

LEVEL: 0 to M40 dbm.

OUTPUT

IMPEDANCE: 500 ohms, balanced.

FACSIMILE SIGNAL: 1500 cps at 0.25 v ac;
2300 cps adjustable contrast, from 10 to 20 db.

MANUFACTURER'S OR CONTRACTOR'S DATA

Times Facsimile Corp, New York, N. Y.
Model No. RGD-1.

Contract NObsr-52041, dated 10 September 1951.

Approximate cost \$590.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA3 (1) 6AF6G
(2) 6SL7GT (4) 6SN7

Total Tubes: (8)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91628: Technical Manual for FREQUENCY SHIFT CONVERTER CV-172A/U.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: MIL-F-19367
STOCK NO.	(SHIPS)
R.D.B. IDENT. NO.	

June 1961

CV-172 A/U

FREQUENCY SHIFT CONVERTER

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Frequency Shift Converter CV-172A/U			80

EQUIPMENT SUPPLIED DATA

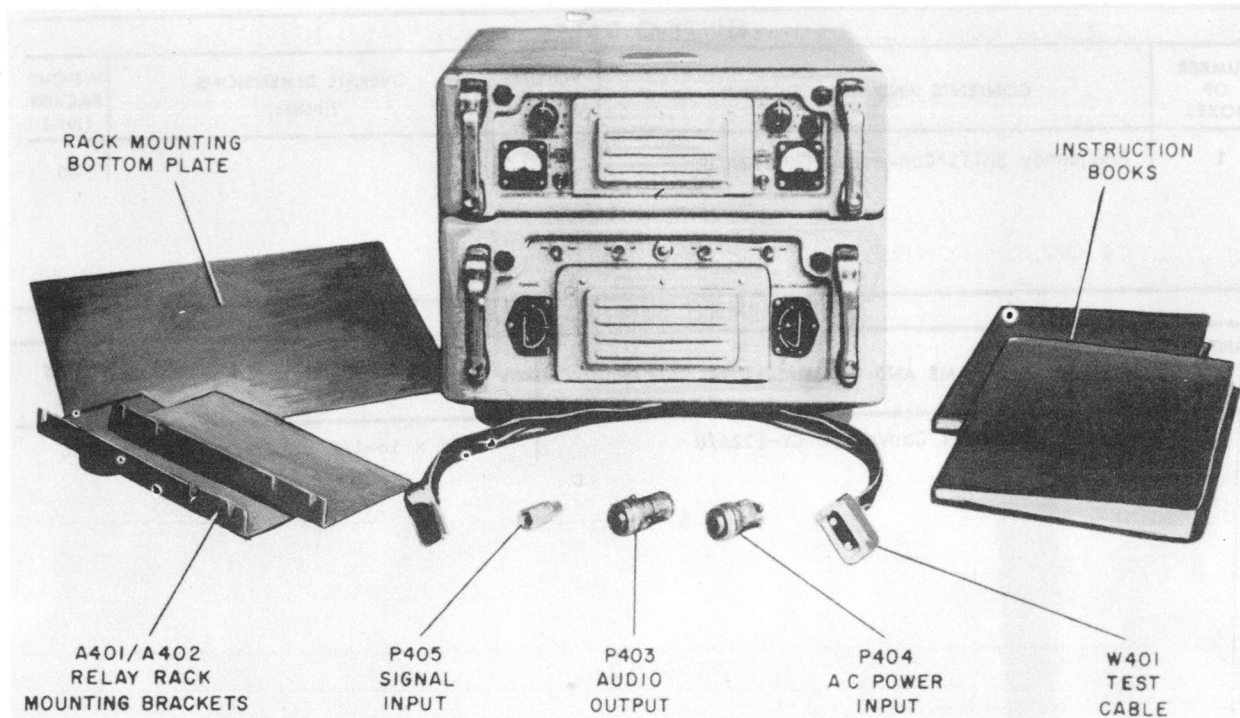
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Frequency Shift Converter CV-172A/U	6-3/4 x 16-1/2 x 19-1/8	56

April 1958

SINGLE SIDEBAND CONVERTER

Radio-Auxiliary

CV-216/URR



Single Sideband Converter CV-216/URR

FUNCTIONAL DESCRIPTION

The CV-216/URR is a converter or an adapter which is connected to a superheterodyne communications receiver so that single-sideband signals may be received. The Converter operates from the IF output of a Navy general purpose receiver having a final intermediate frequency centered on 200 Kilocycles. The output can be connected to phones, speaker, and other audio devices.

The primary purpose of the equipment is to reproduce the audio intelligence contained in one sideband of single and double sideband transmissions.

No field changes in effect at time of preparation (13 March 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Navy General Purpose Receiver, (1) Input Cable, (1) Power Cable, (1) Audio Output Cable, (1) Headphone with Cord and Plug, (1) Speaker or other audio device.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT FREQUENCY: 200 kc.
FREQUENCY CONTROL: Automatic, motor-con-

trolled.
TYPE CIRCUIT: Superheterodyne.
INTERMEDIATE FREQUENCY

CARRIER: 25 kc \pm 10 cps.
UPPER SIDEBAND: 25.5 to 30 kc.
LOWER SIDEBAND: 20 to 24.5 kc.

OUTPUTS
AUDIO

LINE: 60 to 300 mw, 120 to 600 ohms impedance, balanced.

PHONES: 60 mw into 600 ohms impedance, balanced.

EXTERNAL AGC: 0 to 10 v, adjustable.

INPUT IMPEDANCE: 70 ohms unbalanced.

OUTPUT IMPEDANCE

LINE: 120 to 600 ohms balanced.

PHONES: 600 ohms balanced.

TYPE OF RECEPTION: A2, A3, F2 and A3a.

FREQUENCY STABILITY: AFC maintains local oscillator within \pm 1 cps of carrier frequency.

POWER SUPPLY DATA

TYPE: Self-contained, full-wave rectifier.

VOLTAGE: 105, 115, 125 v, 50 to 60 cps, single ph.

CURRENT AND POWER FACTOR

105 V: 1.64 amp, 0.974 pf.

115 V: 1.5 amp, 0.974 pf.

125 V: 1.38 amp, 0.974 pf.

AMBIENT TEMPERATURE: 69 deg C (149 deg F) max.

Radio-Auxiliary

CV-216/URR

SINGLE SIDEBAND CONVERTER

April 1958

MANUFACTURER'S OR CONTRACTOR'S DATA

National Co Inc, Malden, Mass.
 Contract NObsr-52642, dated 26 June
 1951.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92456, Technical Manual for Single
 Sideband Converter CV-216/URR.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2WA (3) 5726/6AL5W
 (1) 6AK6 (1) OB2WA
 (3) 5750/6BE6W (4) 6AU6WA
 (2) 5Y3WGTB (5) 5751
 (2) 5654/6AK5W (13) 5814A
 Total Tubes: (35)
 No Crystals Used.

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

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Single Sideband Converter CV-216/URR	8.65	19 X 23-7/8 X 33-1/8	170

EQUIPMENT SUPPLIED DATA

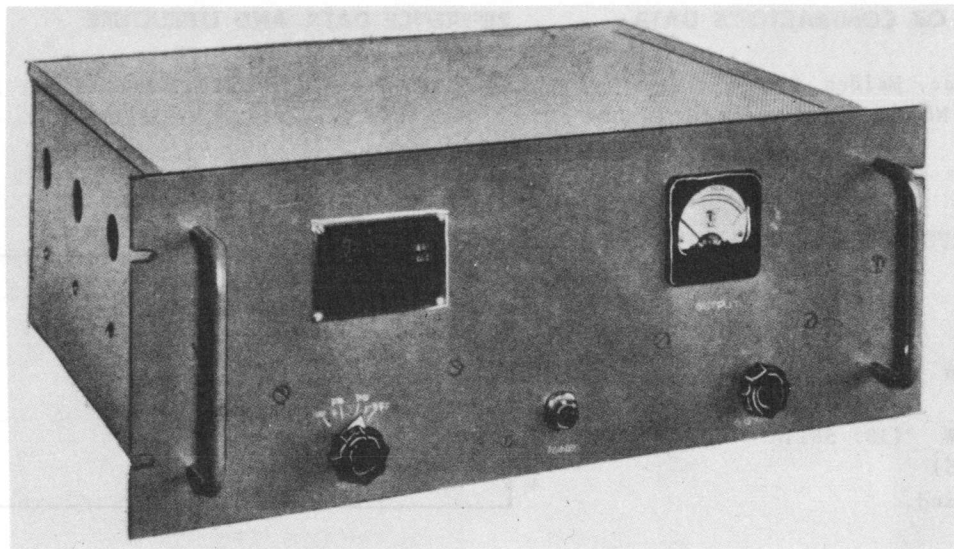
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Single Sideband Converter incl (3) Plugs for external cables (1) Pair Relay Rack mtg brackets (1) Bottom Plate (1) Test Cable	13-3/4 X 17-1/8 X 17-9/16	120
2	Technical Manuals NAVSHIPS 92456		

April 1959

Radio-Auxiliary

DETECTOR AUDIO FREQUENCY

CV-5013/FRA-501



Detector, A.F. CV-5013/FRA-501

FUNCTIONAL DESCRIPTION

The CV-5013/FRA-501 has facilities for monitoring the Direct Current (DC) output voltages, being equipped with a Voltmeter on the front panel and a rotary switch to select the appropriate channel. Test points at the amplifier input permit a rapid check of the incoming signal. Controls are available when necessary for adjustment of the discriminator on the assigned center frequency of the control signal. Separate controls are also provided to permit adjustment of the magnitude of the Direct Current (DC) output.

The CV-5013/FRA-501 is also designed to convert small variations in each discriminator center frequency to Direct Current (DC) variations for control of receiver.

No field changes in effect at time of preparation (5 March 1959).

RELATION TO OTHER EQUIPMENT

The CV-5013/FRA-501 is part of the AN/FRA-501. The CV-5013/FRA-501 is designed to be used with but not part of the AN/FRR-502.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT: Composite of three tones from RSA.
OUTPUT: ± 4.5 volts for BFO, ± 4.5 volts for

HFO, 0 to -9.5 volts for R.F. Gain.

CONTROL: Front Panel; Meter Selector Switch; Meter Calibrate Control; Top chassis; Meter Adjust; Rear Apron, Centering Controls BFO, HFO, RFG; Output controls BFO, HFO, RFG.

METERING: Voltmeter for checking control voltages.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.

Model RSD-2A.

Contract NObsr-64820, dated 20 June 1955.

Contract NObsr-71688, dated 15 February 1957.

Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.

Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2 (3) 6AC5 (2) 6C4
(3) 12AT7 (4) 12AU7 (3) 12AX7

Total Tubes: (17)
No Crystals Used.

April 1959

Radio-Auxiliary

CV-5013/FRA-501

DETECTOR AUDIO FREQUENCY

REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Remote Control Receiver System Model RCR AN/FRA-501 Receiver Control Group.
Nomenclature Card CV-5013/FRA-501 for Detector Audio Frequency

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RCAF RAD 11-9
STOCK NO.
R.D.B. IDENT. NO. 7.10

SHIPPING DATA

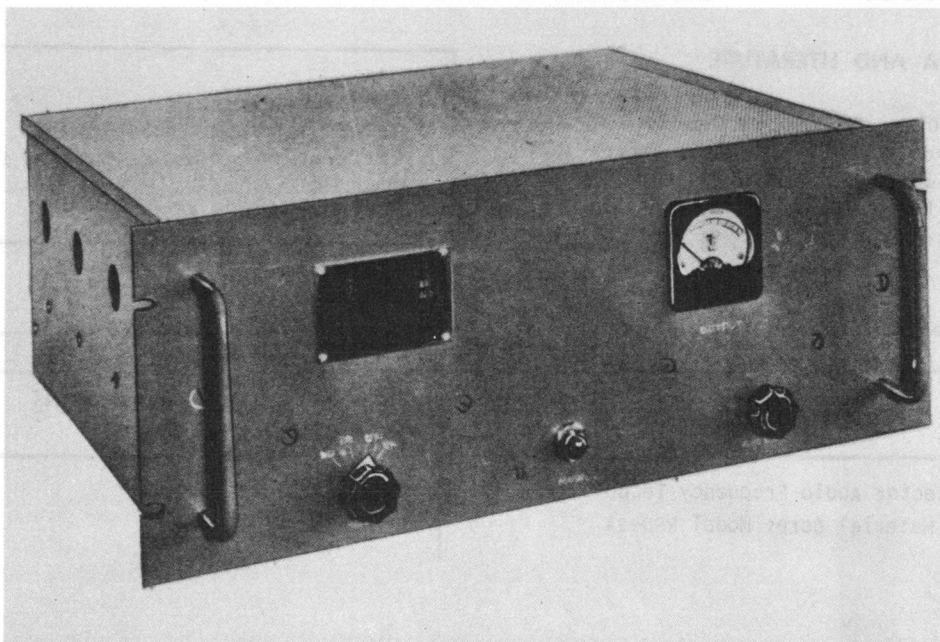
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Detector Audio Frequency Technical Materiel Corp; Model RSD-2A	1.4	7 X 14-3/4 X 19	81

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector Audio Frequency The Technical Materiel Corp Model RSD-2A	7 X 14 X 19	33

April 1959

DETECTOR AUDIO FREQUENCY

Radio-Auxiliary
CV-5014/FRA-501

Detector A.F. CV-5014/FRA-501

FUNCTIONAL DESCRIPTION

The CV-5014/FRA-501 is designed to provide Direct Current (DC) voltages necessary to remotely control the receiver. These voltages are obtained after selection of the appropriate tones of the composite received from the RSA, and their rectified outputs are impressed upon the outputs to the receiver.

No field changes in effect at time of preparation (9 March 1959).

RELATION TO OTHER EQUIPMENT

The CV-5014/FRA-501 is part of the AN/FRA-501. The CV-5014/FRA-501 is designed to be used with but not part of the AN/FRR-501. The CV-5014/FRA-501 is similar to the CV-5015/FRA-501, CV-5016/FRA-501 and the CV-5017/FRA-501 except it differs in the control frequencies.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF CIRCUIT: Tuned input circuit.
CONTROL FREQUENCIES: 595, 1445, 2295 cps.
OPERATING POWER REQUIREMENT: 6.3 v AC, 50

to 60 cps, single ph; 300 v DC.
NUMBER OF CHANNELS: Three channels.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.
Model RSD-2(B).
Contract NObsr-64820, dated 20 June 1955.
Contract NObsr-71688, dated 15 February 1957.
Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.
Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(2) 6C4
(3) 6AC5	(3) 12AT7
(4) 12AU7	(3) 12AX7

Total Tubes: (17)

No Crystals Used.

April 1959

Radio-Auxiliary

CV-5014/FRA-501

DETECTOR AUDIO FREQUENCY

REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Remote Control System Model RCR AN/FRA-501 Receiver Control Group.
Nomenclature Card CV-5014/FRA-501 for Detector Audio Frequency.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RCAF RAD 11-9
STOCK NO.
R.D.B. IDENT. NO. 7.10

SHIPPING DATA

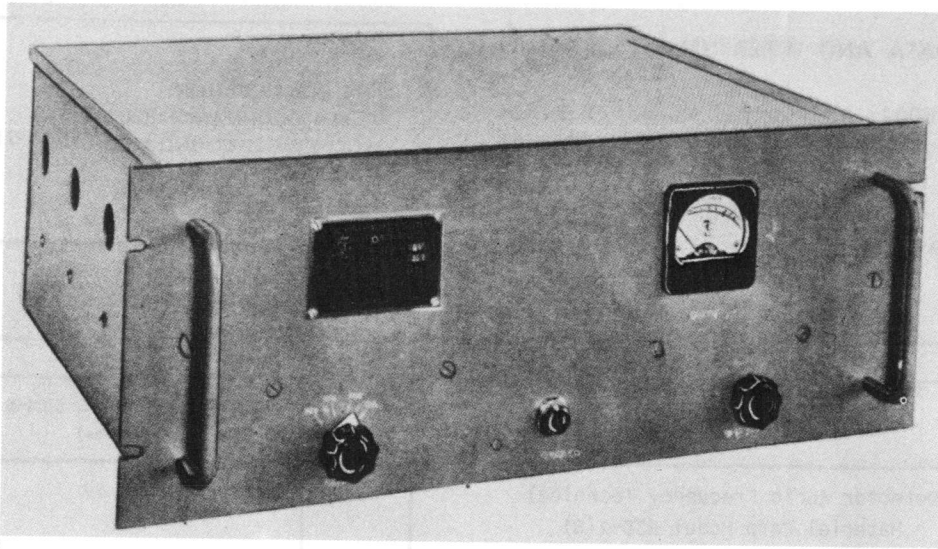
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(B)	1.1	7 X 14-3/4 X 19	81

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(B)	7 X 14 X 19	33

April 1959

DETECTOR AUDIO FREQUENCY

Radio-Auxiliary
CV-5015/FRA-501

Detector A.F. CV-5015/FRA-501

FUNCTIONAL DESCRIPTION

The CV-5015/FRA-501 is designed to provide the Direct Current (DC) voltages necessary to remotely control the receiver. These voltages are obtained after selection of the appropriate tones of the composite received from the RSA and their rectified outputs are impressed upon the outputs to the receiver.

No field changes in effect at time of preparation (9 March 1959).

RELATION TO OTHER EQUIPMENT

The CV-5015/FRA-501 is part of the AN/FRA-501. The CV-5015/FRA-501 is designed to be used with but not part of the AN/FRR-502.

The CV-5015/FRA-501 is similar to the CV-5016/FRA-501, CV-5014/FRA-501 and CV-5017/FRA-501 except it differs in the control frequencies.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF CIRCUIT: Tuned input circuit.

CONTROL FREQUENCIES: 765, 1615, 2465 cps.

OPERATING POWER REQUIREMENT: 6.3 v AC, 50

to 60 cps, single ph; 300 v DC.

NUMBER OF CHANNELS: Three channels.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.

Model RSD-2(C).

Contract NObsr-64820, dated 20 June 1955.

Contract NObsr-71688, dated 15 February 1957.

Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.

Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(3) 6AC5
(2) 6C4	(3) 12AX7
(3) 12AT7	(4) 12AU7

Total Tubes: (17)

No Crystals Used.

April 1959

Radio-Auxiliary

CV-5015/FRA-501

DETECTOR AUDIO FREQUENCY

REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Remote Control Receiver System Model RCR AN/FRA-501 Receiver Control Group.
Nomenclature Card CV-5015/FRA-501 for Detector Audio Frequency.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RCAF RAD 11-9
STOCK NO.
R.D.B. IDENT. NO. 7.10

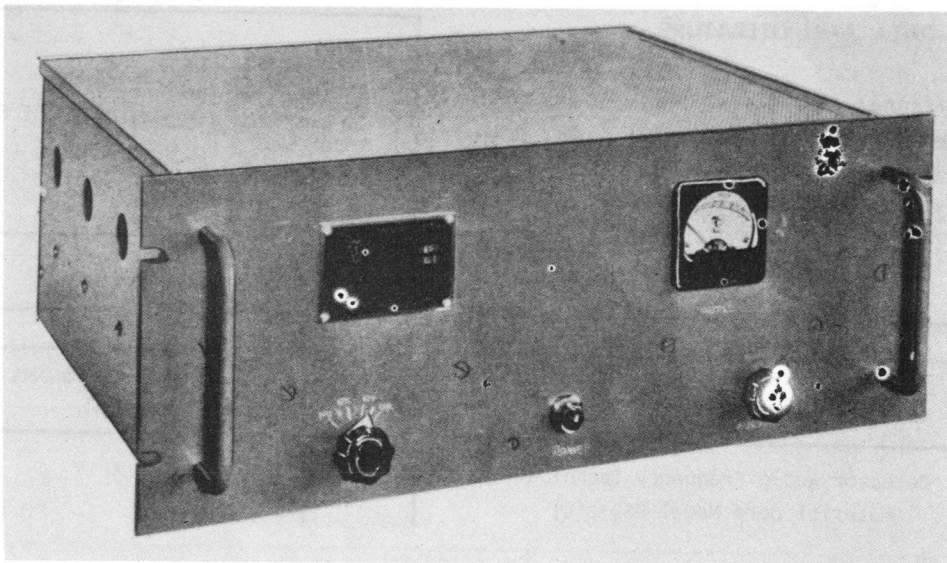
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(C)	1.1	7 X 14-3/4 X 19	81

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(C)	7 X 14 X 19	33

April 1959

DETECTOR AUDIO FREQUENCYRadio-Auxiliary
CV-5016/FRA-501

Detector, A.F. CV-5016/FRA-501

FUNCTIONAL DESCRIPTION

The CV-5016/FRA-501 is designed to provide the Direct Current (DC) voltages necessary to remotely control the receiver. These voltages are obtained after selection of the appropriate tones of the composite received from the RSA, and their rectified outputs are impressed upon the outputs to the receiver.

No field changes in effect at time of preparation (9 March 1959).

RELATION TO OTHER EQUIPMENT

The CV-5016/FRA-501 is part of the AN/FRA-501. The CV-5016/FRA-501 is designed to be used with but not part of the AN/FRR-502.

The CV-5016/FRA-501 is similar to the CV-5015/FRA-501, CV-5014/FRA-501 and CV-5017/FRA-501 but differ in the control frequencies.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INPUT: Tuned input circuit.

CONTROL FREQUENCIES: 935, 1785, 2635 cps.

OPERATING POWER REQUIREMENT: 6.3 v AC, 50 to

60 cps, single ph; 300 v DC.

NUMBER OF CHANNELS: Three channels.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.

Model RSD-2(D).

Contract NObsr-64820, dated 20 June 1955.

Contract NObsr-71688, dated 15 February 1957.

Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.

Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(3) 6AC5
(2) 6C4	(3) 12AX7
(3) 12AT7	(4) 12AU7

Total Tubes: (17).

No Crystals Used.

April 1959

Radio-Auxiliary

CV-5016/FRA-501

DETECTOR AUDIO FREQUENCY

REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Remote Control Receiver System Model RCR AN/FRA-501 Receiver Control Group.
Nomenclature Card CV-5016/FRA-501 for Detector Audio Frequency.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RCAF RAD 11-9
STOCK NO.
R.D.B. IDENT. NO. 7.10

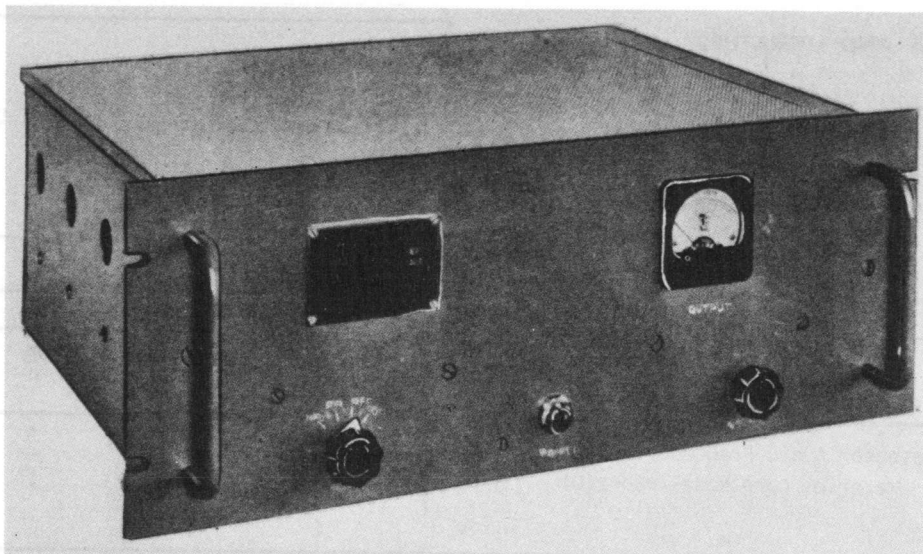
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(D)	1.1	7 X 14-3/4 X 19	81

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(D)	7 X 14 X 19	33

April 1959

DETECTOR AUDIO FREQUENCYRadio-Auxiliary
CV-5017/FRA-501

Detector A.F. CV-5017/FRA-501

FUNCTIONAL DESCRIPTION

The CV-5017/FRA-501 is used to provide the Direct Current (DC) voltages necessary to remotely control the receiver. These voltages are obtained after selection of the appropriate tones of the composite received from the RSA, and their rectified outputs are impressed upon the outputs to the receiver.

No field changes in effect at time of preparation (10 March 1959).

RELATION TO OTHER EQUIPMENT

The CV-5017/FRA-501 is part of the AN/FRA-501. The CV-5017/FRA-501 is designed to be used with but not part of the AN/FRR-502.

The CV-5017/FRA-501 is similar to the CV-5014/FRA-501, CV-5015/FRA-501, and the CV-5016/FRA-501 but differ in the control frequencies.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF CIRCUIT: Tuned Input Circuit.

NUMBER OF CHANNELS: Three channels.

CONTROL FREQUENCIES: 1105, 1955, 2805 cps.

OPERATING POWER REQUIREMENTS: 6.3 v AC, 50 to 60 cps, single ph; 300 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck, N.Y.

Model RSD-2(E).

Contract NObsr-64820, dated 20 June 1955.

Contract NObsr-71688, dated 15 February 1957.

Approximate Cost: \$280,000.00 with equipment spares for Contract NObsr-64820.

Approximate Cost: \$479,228.12 with equipment spares for Contract NObsr-71688.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2

(3) 6AC5

(2) 6C4

(3) 12AX7

(3) 12AT7

(4) 12AU7

Total Tubes: (17)

No Crystals Used.

April 1959

Radio-Auxiliary

CV-5017/FRA-501

DETECTOR AUDIO FREQUENCY

REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Remote Control Receiver System Model RCR AN/FRA-501 Receiver Control Group.
Nomenclature Card CV-5017/FRA-501 for Detector Audio Frequency.

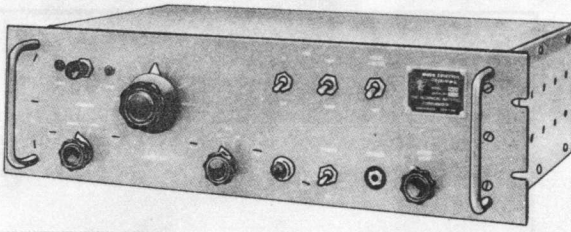
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RCAF RAD 11-9
STOCK NO.
R.D.B. IDENT. NO. 7.10

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(E)	1.1	7 X 14-3/4 X 19	81

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector Audio Frequency Technical Materiel Corp Model RSD-2(E)	7 X 14 X 19	33

CONVERTER, SINGLE SIDE-BAND**CV-591/URR**

Converter, Single Side-Band CV-591/URR

AVC SPEEDS: Slow/fast.
 NOISE LIMITER: Balanced type.
 OUTPUT

2 WATTS: 600 ohms.
 ZERO LEVEL: 600 ohms.

OUTPUT IMPEDANCE

LOUDSPEAKER: 8 ohms.
 LINE: 600 ohms.
 HEADSET: High or low.

INPUT POWER REQUIREMENTS: 110 or 220 v, 50
 to 60 cps, single ph, 65 W.

FUNCTIONAL DESCRIPTION

The CV-591/URR is a receiving device which will greatly improve the operation of any receiver. It provides selectable side band reception of SSB or AM signals, improved CW-MCW reception, exalted carrier AM, simultaneous reception of AM and FS with one receiver, and bypass tuning. The CV-591/URR may be used for local or remote operation.

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

RELATION TO OTHER EQUIPMENT

This equipment is similar to The Technical Material Corp Model MSR-1.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION: SSB-selectable sideband, CW-MCW, AM-selectable sideband, exalted carrier AM, simultaneous AM-FS.

INPUT FREQUENCY RANGE: 452 to 458 kc.

INPUT VOLTAGE RANGE: 0.1 to 10 v rms.

INPUT IMPEDANCE: 470 ohms.

FILTER CHARACTERISTICS: 3.2 kc at 3 db points; 5.2 kc at 45 db points.

AVC CHARACTERISTICS: Within 40 db change in input, output remains constant within 9 db.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Material Corp, Mamaroneck, N.Y.

Contract NObsr-71765.

Contract NObsr-71688.

Contract NObsr-75117.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 12AU7	(1) 6J6
(1) 6AG5	(1) 6BA6
(2) 6BE6	(1) 6AL5
(1) 6AQ5	(1) 5U4GB
(1) OA2	

Total Tubes: (12)

No Crystal used.

REFERENCE DATA AND LITERATURE

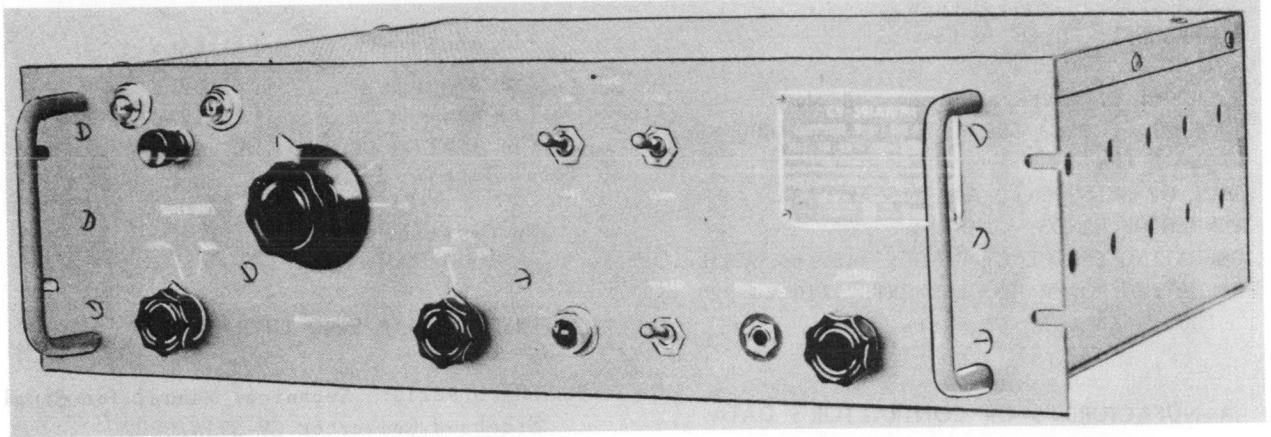
The Technical Material Corp General Catalog.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	converter, Single Side-band CV-591/URR	5-1/4 X 11-1/4 X 19	24

April 1959

CONVERTER SINGLE SIDEBAND

Converter Single Sideband CV-591A/URR

FUNCTIONAL DESCRIPTION

The Model CV-591A/URR is designed as a Single Sideband Converter. It in a number of ways will improve operation of certain receivers for various modes of operation. The overall skirt selectivity of most receiving systems is greatly sharpened, rejecting unwanted adjacent signals or interference with no detrimental effect to the desired signal. The tuning of Single Sideband (SSB) signals is greatly simplified since the final tuning is done at the CV-591A/URR, not at the receiver. A mechanical and electrical bandspread tunes over the Intermediate Frequency (I.F.) bandpass. This effective vernier easily tunes the Single Sideband (SSB) or exalted Carrier Amplitude Modulation (AM) signals within cycles of correct tone. Either sideband is selectable, either with the bandpass tuning feature or by inverting the oscillator separation. Continuous Wave (CW), Modulated Continuous Wave (MCW) and FS signals are easily tuneable with bandspread feature.

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

RELATION TO OTHER EQUIPMENT

The CV-591A/URR is the same equipment as commercial model MSR-4.

The CV-591A/URR is similar to the CV-591/URR, but has some circuit changes and the noise limiter is eliminated.

The CV-591A/URR is designed to be used with but not part of the AN/FRA-19(V) or AN/FRA-501 and AN/FRR-49(V) or AN/FRR-502 without any system modification.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPES OF RECEPTION: SSB-Selectable Sideband; CW-MCW; AM-Selectable Sideband; Exalted Carrier AM; Simultaneous AM-FS.

SIDEBAND SELECTION: Upper or Lower Sideband by means of Crystal or Calibrated Bandspread Oscillator.

REMOTE CONTROL FEATURES: Selection of Upper or Lower Sideband; Selection of Mode of Operation; AM-CW-MCW-SSB and Exalted Carrier; ± 3 kc Bandspread Tuning; AVC ON/OFF; BFO ON/OFF.

AVC SPEEDS: SLOW/FAST.

NOISE LIMITER: Balanced type.

AVC CHARACTERISTICS: With 40 db change in input, output remains constant within 9 db.

FILTER CHARACTERISTICS: 3.2 kc at 3 db Points; 5.2 kc at 45 db Points.

INPUT VOLTAGE RANGE: 0.1 to 10 v RMS.

INPUT IMPEDANCE: 240,000 ohms.

OUTPUT IMPEDANCE

LOUDSPEAKER: 8 ohms.

LINE: 600 ohms.

April 1959

Radio-Auxiliary

CV-591A/URR**CONVERTER SINGLE SIDEBAND**

HEADSET: High or Low.

OUTPUT

HIGH: 2 watts, 600 ohms, 8 ohms.

LOW: 0 dbm, 600 ohms, 150 mw, 600 ohms,
8 ohm.

TYPE OF EMISSION: A0, A1, A3, A3a.

NUMBER OF BANDS: 1 band.

OPERATING FREQUENCY RANGE: 452 to 458 kc.

OPERATING POWER REQUIREMENT: 110 to 220 v,
50 to 60 cps, 65 watts.

(1) 6AG6

(1) 6AL5

(1) 6BA6

(2) 6RE6

(1) 6J6

(2) 12AU7

(1) 12AT7

(1) 6AQ5

Total Tubes: (12)

No Crystals Used.

REFERENCE DATA AND LITERATURENAVSHIPS 93210: Technical Manual for Single
Sideband Converter CV-591A/URR.NAVSHIPS 4457 (Rev. 11-56) for Single Side-
band Converter CV-591A/URR.**MANUFACTURER'S OR CONTRACTOR'S DATA**Technical Material Corporation, Mamaro-
neck, N.Y.Contract NObsr-75529, dated 1 July
1958.Approximate Cost: \$16,575.87 with e-
quipment spares.**TUBE AND/OR CRYSTAL COMPLEMENT**

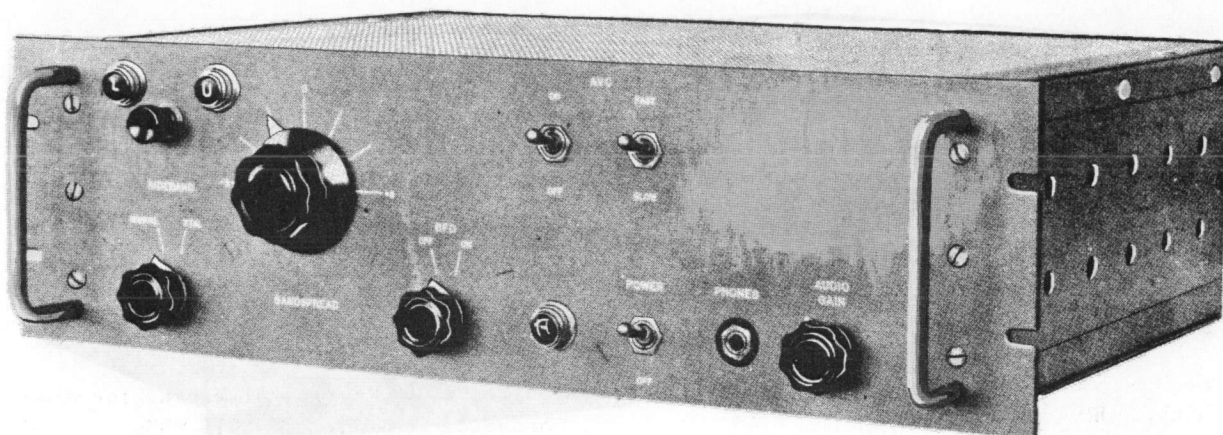
(1) OA2

(1) 5Y3

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

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Single Sideband Converter CV-591A/URR	5-1/4 X 11-1/4 X 19	24

CONVERTER, SINGLE SIDE BAND



Converter, Single Sideband CV-657/URR

FUNCTIONAL DESCRIPTION

Converter, Single Side-Band CV-657/URR provides selectable sideband reception of SSB or AM signals, improved CW-MCW reception, exalted carrier AM, simultaneous reception of AM and FS with one receiver, and bandpass tuning.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 65 W, 110 or 220 v, 50 to 60 cy, single ph.

FREQUENCY RANGE: 197 to 203 kc, 1 band.

TYPE OF EMISSION RECEIVED: A0, A1, A5, A3a.

IMPEDANCE

INPUT: 470 ohms.

OUTPUT: 8 and 600 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
New York.

Model No. MSR-3.

Contract NObsr-75146, dated 1 May 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A2	(1) 5Y3GT	(1) 6AG5
(1) 6AQ5	(1) 6BA6	(2) 6BE6
(1) 6J6	(1) 6AL5	(1) 12AT7
(2) 12AU7		

Total Tubes: (12)

(1) 183KC (1) 217KC

Total Crystals: (2)

REFERENCE DATA AND LITERATURE

TMC BULLETIN 196: Instruction Sheet for
SINGLE SIDEBAND, CONVERTER CV-657/URR.

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	Converter, Single Side-Band CV-657/URR	5-1/4 X 15-1/2 X 19	24

June 1961

Radio-Auxiliary
CV-657 A /URR

CONVERTER, SINGLE SIDE BAND



Converter, Single Side Band CV-657A/URR

FUNCTIONAL DESCRIPTION

Converter, Single Side-Band CV-657A/URR provides selectable sideband reception of SSB or AM signals, improved CW-MCW reception exalted carrier AM, simultaneous reception of AM and FS with one receiver, and bandpass tuning.

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

RELATION TO OTHER EQUIPMENT

This equipment identical to CV-657/URR, except for improvements and parts differences.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 65 W, 110 or 220 v, 50 to 60 cy, single ph.

FREQUENCY RANGE: 197 to 203 kc, 1 band.

TYPE OF EMISSION RECEIVED: A0, A1, A5, A3a

IMPEDANCE

INPUT: 470 ohms.

OUTPUT: 8 and 600 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,

New York.

Model No. MSR-3a

Contract NObsr-81081.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A2	(1) 5Y3GT	(1) 6AG5
(1) 6AQ5	(1) 6BA6	(2) 6BE6
(1) 6J6	(1) 12AT7	(2) 12AU7

Total Tubes: (11)

(1) 183 kc (1) 217 kc

Total Crystals: (2)

REFERENCE DATA AND LITERATURE

TMC BULLETIN 196: Instruction Sheet for SINGLE SIDEBAND, CONVERTER CV-657/URR.

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

June 1961

Radio-Auxiliary

CV-657A /URR

CONVERTER, SINGLE SIDE BAND

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Converter, Single Side-Band CV-657A/URR	5-1/2 X 15-1/2 X 19	24

26 April 1962

CONVERTER, ANALOG TO DIGITAL CV-724(XN-1)/U

Cog Service: USN FSN:

Functional Class:

USA

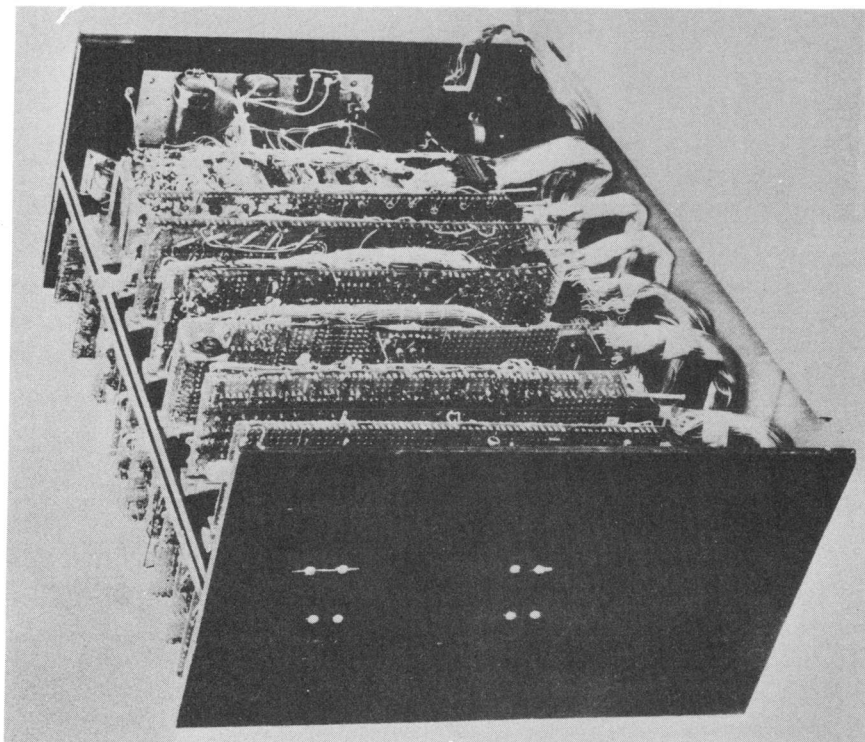
USN

USAF

Used by

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Ford Instrument Co. Div. Sperry Rand Corp., (23021).



Converter, Analog to Digital CV-724(XN-1)/U

FUNCTIONAL DESCRIPTION:

Converter, Analog To Digital CV-724(XN-1)/U was designed to prove the feasibility of developing and producing an all electronic, solid state synchro to digital converter. The unit accepts the six output voltages from a two speed synchro system and produces a pure binary number equivalent to the synchro shaft position. The converter has been designed for application in the Naval Tactical Data System (NTDS). This experimental model is much larger than the proposed final package which is only about 1000 cu inches. Solid state elements such as transistors, semi-conductor diodes and magnetic cores are used exclusively.

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

TECHNICAL CHARACTERISTICS:

POWER SUPPLY: 115 v porm 10%, 60 cyc porm 10%, single ph, 2 amps.

POWER CONSUMPTION: 90 W.

CV-724(XN-1)/U CONVERTER, ANALOG TO DIGITAL

SYNCHRO SIGNALS

SYNCHRO ROTOR REFERENCE: 115 v rms porm 10%, 60 or 400 cyc.
OUTPUT VOLTAGES FROM TWO SPEED 36 AND 1 SYNCHRO SYSTEM:
36 SPEED SYNCHRO: 3 stator voltages (S1, S2, S3).
1 SPEED SYNCHRO: 3 stator voltages (S1, S2, S3).
NTDS CONTROL SIGNALS: 6 bit converter address code (voltage levels). Code set into converter is "000111"-"Ready" signal "0" or M15 v.
CONVERTER OUTPUT: 14 voltage levels of either 0 or M15 v, from a 470 ohm driving source.
"Resume" signal 0 or M15 v.
WEIGHED VALUES OF 14 DATA BITS: $0^0 2.34^1$; $0^0 4.69^1$; $0^0 9.38^1$; $0^0 18.75^1$; $0^0 37.5^1$; $1^0 15^1$; $2^0 30^1$; 5^0 ; 10^0 ; 20^0 ; 40^0 ; 80^0 ; 160^0 ; 320^0 .
ACCURACY: One part in 8,192.
MAXIMUM SYNCHRO SHAFT VELOCITY: 600 rpm - fine (36) speed shaft.
OPERATING AMBIENT TEMPERATURE: Room temperature.
SAMPLING RATE: Once per cycle of synchro reference carrier frequency.
INPUT IMPEDANCE: 40,000 ohms min impedance to synchro stator leads, line to line.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Converter, Analog To Digital CV-724(XN-1)/U includes:		7-1/8 x 9-1/2 x 12	
1	Circuit Card No. 1			
1	Circuit Card No. 2			
1	Circuit Card No. 3			
1	Circuit Card No. 4			
1	Circuit Card No. 5			
1	Circuit Card No. 6			
1	Circuit Card No. 7			
1	Circuit Card No. 8			
1	Circuit Card No. 9			
1	Circuit Card No. 10			
1	Circuit Card No. 11			
1	Circuit Card No. 12			
1	Circuit Card No. 13			
1	Circuit Card No. 14			
1	Circuit Card No. 15			
1	Circuit Card No. 16			
1	Power Supply No. 17			
1	Cabinet			
1	400 Cycle Test Fixture			
1	Test Fixture Adapter Kit for 60 Cycle Operation			

CONVERTER, ANALOG TO DIGITAL CV-724(XN-1)/U

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
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1	Visual Display Box			
29	Technical Manuals			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93386: Technical Manual for Converter, Analog to Digital CV-724(XN-1)/U.

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (596) 1N305 (29) 1N538 (39) 1N645 (3) 1N653 (30) 1N662 (1) 2N251
(66) 2N333 (3) 2N389 (3) 2N424 (166) 2N428 (1) 2N458 (2) 2N548
(2) 650C5 (9) 651C5 (2) 651C7 (2) 652 (46) CK934 (2) SV13
(1) SV818 (1) SV905 (2) SV908 (1) SV918

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
16		

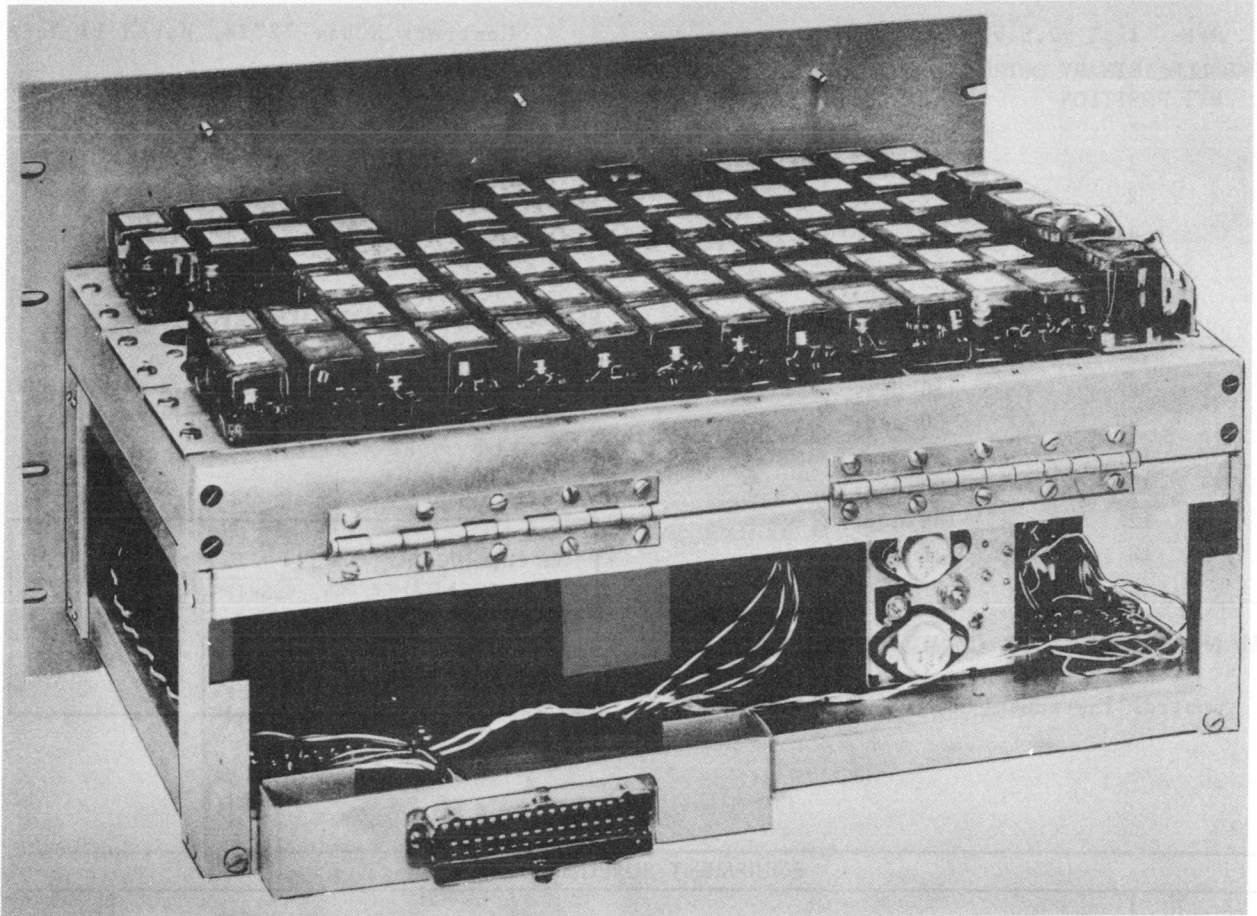
PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Ford Instrument Co. Div. Sperry Rand Corp.	Long Island City, N. Y.	N0bsr-72723, 27 June 1957	

CONVERTER, ANALOG TO DIGITAL

CV-728(XN-1)/U
CV-728(XN-2)/U

Synchro Voltage-To-Digital Converter (Rear View) CV-728(XN-1)/U or CV-728(XN-2)/U

FUNCTIONAL DESCRIPTION

Converter, Analog to Digital CV-728(XN-1)/U or CV-728(XN-2)/U is used to supply a digital computer with data obtained from a 2-speed synchro system. The unit converts the synchro information from analog to digital (binary). It works on a read-hold basis, the hold being 10 usec and the read time being between one and three cycles of reference voltage frequency. The unit will operate satisfactorily over a frequency variation of $\pm 5\%$ and a voltage variation of $\pm 10\%$. Resolution of the output is 2.34 minutes referred to the low speed shaft. This is slightly better than the required accuracy of ± 2.6 minutes, or 1 part in 8192.

Converter, Analog to Digital CV-728(XN-1)/

U has 15 outputs, 14 information bits, and 1 resume bit.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v $\pm 10\%$, 60 cy, single ph, 0.4 amp.

SYNCHRO SOURCE: One and 36 speed synchro lines at 60, 400, or 800 cps $\pm 5\%$.

SYNCHRO REFERENCE LINE: 115 v $\pm 10\%$.

INPUT IMPEDANCE: Greater than 100,000 ohms on the synchro lines.

INPUT CONTROL COMMAND

READY: 0 $\pm 1/2$ v (this command activates readout).

Radio-Auxiliary

CV-728(XN-1)/U CONVERTER, ANALOG TO DIGITAL
CV-728(XN-2)/U

DFF: 12.5 ±2.5 v.

Contract NObsr-72724, dated 14 June 1957.

PARALLEL BINARY OUTPUT
BIT POSITION

BIT POSITION	ANGULAR VALUE
0	2.3437 minutes
1	4.6875 minutes
2	9.375 minutes
3	18.75 minutes
4	37.5 minutes
5	75 minutes
6	2.5 deg.
7	5 deg.
8	10 deg.
9	20 deg.
10	40 deg.
11	80 deg.
12	160 deg.
13	320 deg.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93340: Technical Manual for SYNCHRO
VOLTAGE-TO-DIGITAL CONVERTER CV-728(XN-1)/
U and CV-728(XN-2)/U.

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

MANUFACTURER'S OR CONTRACTOR'S DATA

Control Instrument Co, Inc, Brooklyn, N.Y.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Converter, Analog to Digital CV-728(XN-1)/U	8-3/8 X 11-1/4 X 17	
1	Converter, Analog to Digital CV-728(XN-2)/U	7 X 9-1/4 X 16-1/2	

February 1960

Radio-Auxiliary

ELECTRONIC FREQUENCY CONVERTER CV-746(XN-1)/SRC**FUNCTIONAL DESCRIPTION**

Electronic Frequency Converter CV-746(XN-1)/SRC is a radio frequency synthesizer designed to operate as a local oscillator for a UHF receiver. It can also serve as an exciter for a UHF transmitter by means of an externally supplied 6.2 mc side-step signal. It eliminates the need of a crystal-per-channel, since 1750 channel frequencies are provided. The unit has been specifically designed for use with Radio Set AN/SRC-17(XN-1).

No field changes in effect at time of preparation (31 December 1959).

RELATION TO OTHER EQUIPMENT

This equipment is part of Radio Set AN/SRC-17(XN-1).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225 to 400 ± 3 mc (for transmitter); 243.6 to 418.6 ± 3 mc (for receiver) in 33 kc steps.

TYPE OF FREQUENCY CONTROL: Crystal synthesizer.

STABILITY: 1 part 10^8 for 1 mc reference oscillator; 5 parts 10^6 for incremental oscillator.

TEMPERATURE RANGE: 0 to 65 deg C.

OUTPUT IMPEDANCE

TO TRANSMITTER: 50 ohms.

TO RECEIVER: 90 ohms.

OUTPUT POWER

TO TRANSMITTER: 0.5 to 1.5 W.

TO RECEIVER: 100 mw.

POWER REQUIREMENTS: 200 W, 115 v, 50 to 60 cy, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Manson Laboratories Inc., Stamford, Conn.
Contract NObsr-72730, dated 18 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube Data Available.

Total Crystals: (11).

REFERENCE DATA AND LITERATURE

NAVSHIPS 93494: Technical Manual for ELECTRONIC FREQUENCY CONVERTER CV-746(XN-1)/SRC.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC: SHIPS-M-2720
STOCK NO. AND ADDEND 3
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Electronic Frequency Converter CV-746(XN-1)/SRC	16-7/8 X 18-5/16 X 18-5/16	

February 1960

Radio-Auxiliary

CONVERTER - KEYER - MONITOR**CV-747(XN-1)/SRC****FUNCTIONAL DESCRIPTION**

Converter-Ke yer-Monitor CV-747(XN-1)/SRC has a three-fold function: As a converter, it provides a second stage of conversion for the Receiver R-924(XN-1)/SRC-17 for FSK operation. As a keyer, it provides the FM data signal to be mixed in the Electronic Frequency Converter CV-746(XN-1)/SRC, and eventually transmitted. As a monitor, it provides a square-wave signal generator for a data test signal, and an oscilloscope for monitoring the converter output, and the signal generator output.

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

RELATION TO OTHER EQUIPMENT

This equipment is part of Radio Set AN/SRC-17(XN-1).

ELECTRICAL AND MECHANICAL CHARACTERISTICS**CONVERTER**

LOCAL OSCILLATOR FREQUENCY: 16.835 mc.
LIMITING: 80 db change above 10 uv in antenna input results in 1 db change in output.
SENSITIVITY: 30 db quieting for antenna input of 30 uv.
DISCRIMINATOR SENSITIVITY: 0.3 v/kc.
CLIPPING LEVEL: 18 db.

KEYER

CARRIER FREQUENCY: AM, 6.2; FSK, 6.2 mc ± 6.66 kc.
MARK FREQUENCY: 6.2 mc $+6.66$ kc.
SPACE FREQUENCY: 6.2 mc -6.66 kc.
FREQUENCY STABILITY: 5 parts in 10^7 .
TEMPERATURE RANGE: 0 to 60° C.
MAXIMUM BITE RATE: 13,000 bits per sec.
PHASE DISTORTION (JITTER): 7% at max bite rate.

DATA INPUT LEVEL: ± 5 v $\pm 20\%$ or 0 to -5 v $\pm 20\%$.
DATA INPUT IMPEDANCE: 2500 ohms min.
DATA OUTPUT LEVEL: ± 5 v $\pm 10\%$.
DATA OUTPUT IMPEDANCE: 2,000 ohms.

MONITOR GENERATOR

FREQUENCY: 300 to 9000 cps.
SIGNAL LEVEL: 0 to -5 v.
SIGNAL RISE AND FALL TIME: Less than 1 usec.

MONITOR OSCILLOSCOPE

VERTICAL AMPLIFIER SENSITIVITY: 1 v/cm.
VERTICAL AMPLIFIER BANDWIDTH: 400 kc.
SWEEP FREQUENCY RANGE: 2 to 20 cps; 12 to 140 cps; 110 to 1150 cps; 900 to 8500 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Manson Laboratories Inc., Stamford, Conn.
Contract NObsr-72730, dated 18 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal Data Available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93495: Technical Manual for CONVERTER-KEYER-MONITOR CV-747(XN-1)/SRC.

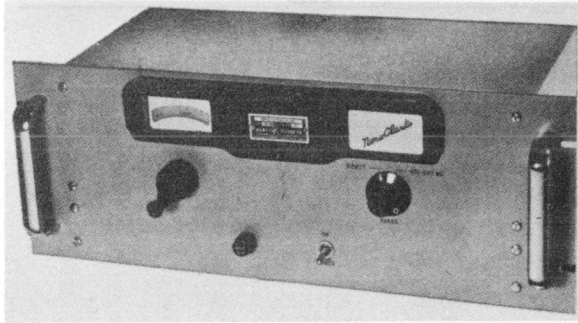
TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: SHIPS-M-2720 & ADDEND 3
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Converter-Ke yer-Monitor CV-747(XN-1)/SRC	6-31/32 X 16-3/8 X 20-1/2	

February 1960

Radio-Auxiliary

CONVERTER, FREQUENCY, ELECTRONIC**CV-824/URR***Frequency Converter CV-824/URR*

FREQUENCY RANGE: 250 to 900 mc.
 TYPE OF EMISSION: AM, FM, or CW.
 NOISE FIGURE: 10 db to 12 db (avg) 14 db
 max.
 IF: 60 mc.
 IMPEDANCE
 INPUT: 50 ohms.
 OUTPUT: 50 or 75 ohm.

MANUFACTURER'S OR CONTRACTOR'S DATA

Nems Clarke Co., Silver Spring Maryland.
 Type REU-300.
 Approximate Cost: \$850.00.

FUNCTIONAL DESCRIPTION

Frequency Converter CV-824/URR is designed to provide extended frequency coverage of radio receivers.

No field changes in effect at time of preparation (27 October 1959).

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal Data Available.

RELATION TO OTHER EQUIPMENT

This equipment is identical to Nems Clarke Co. Type REU-300.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 27 W, 110 or 220 v, 50
 or 400 cps, 1 ph.

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	Frequency Converter CV-824/URR	7 X 12 X 19	

30 August 1962
Cog Service:

CONVERTER, FREQUENCY, ELECTRONIC CV-856/URR
Functional Class:

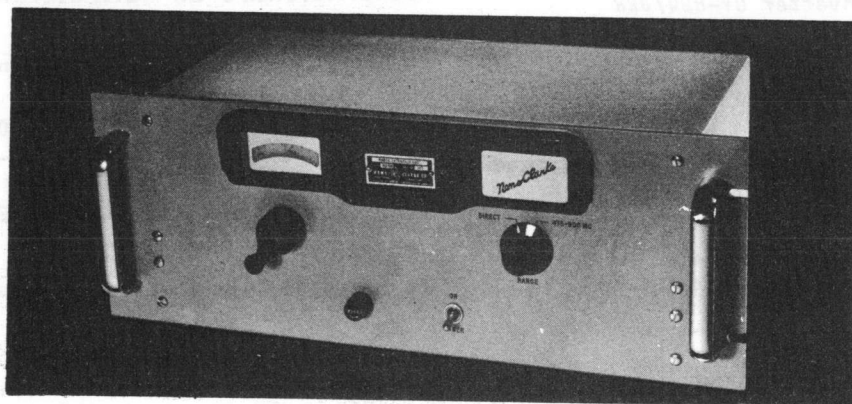
USA

USN

USAF

TYPE CLASS:

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



Converter, Frequency, Electronic CV-856/URR

FUNCTIONAL DESCRIPTION:

The Converter, Frequency, Electronic CV-856/URR is specifically designed to extend the operating frequency range of Nems-Clarke Company's 55 to 260 megacycle (MC) special purpose receivers to 900 mc. It tunes continuously from 250 to 475 mc and from 475 to 900 mc in 2 bands and this offers operation in three bands from 55 to 900 mc.

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

TECHNICAL CHARACTERISTICS:

NOISE FIGURE: 10 db to 12 db average, 14 db maximum.

INTERMEDIATE FREQUENCY: 60 mc.

INPUT IMPEDANCE: 50 ohms.

OUTPUT IMPEDANCE: Designed for 50 or 75 ohm load.

NUMBER OF CHANNELS: 1.

CV-856/URR CONVERTER, FREQUENCY, ELECTRONIC

NUMBER OF BANDS: 3.
FREQUENCY RANGE: 250 to 900 mc.
OPERATING POWER RQMT: 117/230 v ac, 50 to 400 cps, single ph, 27 W.

RELATION TO OTHER EQUIPMENT:

The CV-856/URR is similar to CV-824/URR except different R.F. Tuner, and not mechanically or electrically interchangeable.

The CV-856/URR is designed to be used with but not part of Nems-Clarke Company special purpose receivers.

The CV-856/URR is the same as Nems-Clarke Co., Commercial Model REU-300B.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Converter, Frequency Electronic CV-856/URR		7 x 12 x 19	

REFERENCE DATA AND LITERATURE:

Nems-Clarke Company Catalog ES0 Copy no. 634-F for Converter, Frequency, Electronic CV-856/URR (Model REU-300B).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2WA (1) 5654-6AK5W (1) 5842-417A (2) 6AF4A (1) 6BN4

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N540 (1) 1N82A

SHIPPING DATA

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

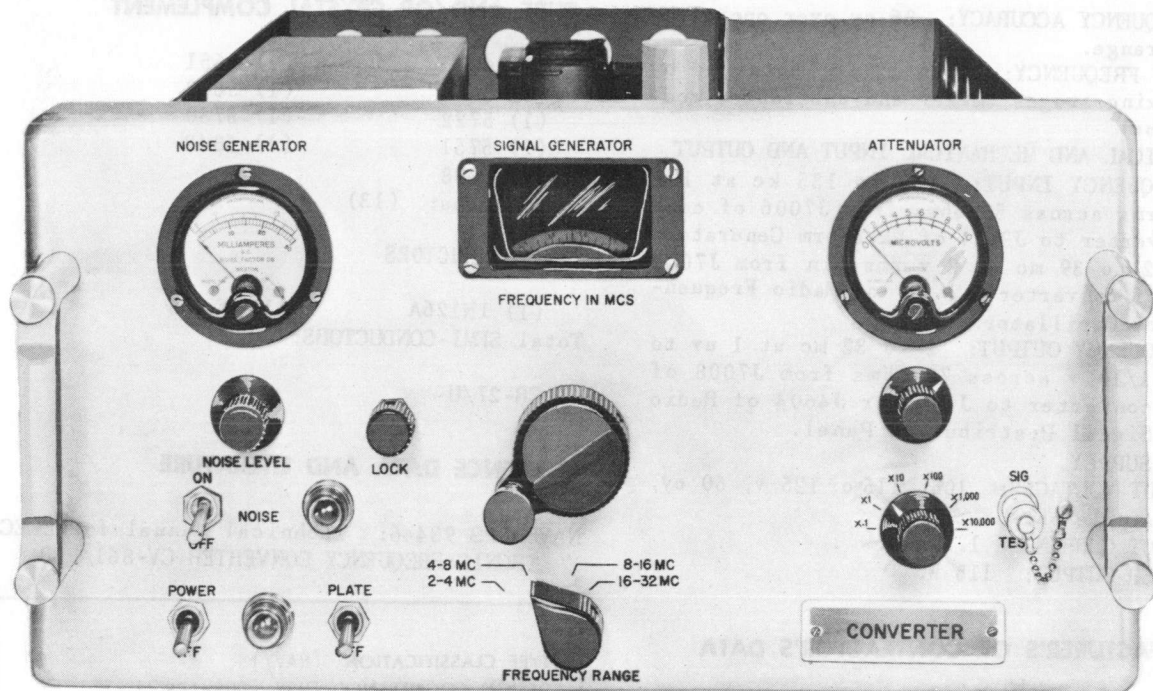
PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONVERTER, FREQUENCY, ELECTRONIC CV-856/URR

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Nems-Clarke Company Model no. REU-300B	Silver Spring, Maryland	Nobsr-75879	\$850.00

September 1960

Radio-Auxiliary
CV-861/FRR**CONVERTER, ELECTRONIC FREQUENCY**

Converter Electronic Frequency CV-861/FRR

FUNCTIONAL DESCRIPTION

Electronic Frequency Converter CV-861/FRR mixes external signals from the Waveform Generator and Radio Frequency Oscillator (parts of the test set) with an internal signal from its crystal-controlled oscillator. These signals are then filtered and amplified to produce an output at the desired level at any frequency within the range of 2 to 32 mc. This output signal, which can be varied continuously from 1 uv to one-tenth volt, is used to test the over-all function of the Radio Receiving Set. The power supply provides the necessary voltages for proper operation of the converter, while the noise generator produces random noise to determine the sensitivity of the Radio Receiving Set throughout the frequency range of 2 to 32 mc.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Senior Volt Ohmyst (RCA) WV-97A; (1)

Detector Assy 1N126; (1) Sweep Generator; (1) Electronic Frequency Center; (2) Cable Assy.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**FREQUENCY**

INPUT: 115 to 135 kc and 2 to 32 mc.

OUTPUT: 2 to 32 mc at luv to one-tenth volt.

PRESET: 2-4, 4-8, 8-16, 16-32 frequency bands.

TYPE OF FREQUENCY CONTROL: Crystal.

TYPE OF EMISSION AND RECEPTION

EMISSION: Continuous waves.

RECEPTION: Pulse.

MODULATION: Frequency.

POWER OUTPUT VERSUS FREQUENCY: 1 v across 70 ohms over a frequency range of 2 to 32 mc.

OUTPUT IMPEDANCE: 70 ohms resistive load.

FREQUENCY CONTROL CRYSTAL

TYPE: CR-27/U.

FREQUENCY RANGE: 0.8 to 20 mc.

OSCILLATION FREQUENCY: 1.8 mc.

OPERATING TEMPERATURE: 75° C ± 1° C (102.8° F ± 1° F).

September 1960

Radio-Auxiliary
CV-861/FRR**CONVERTER, ELECTRONIC FREQUENCY**

FREQUENCY ACCURACY: 36 cy over operating range.

OUTPUT FREQUENCY: 2 to 32 mc; obtained by mixing stages (mixer and unbalanced modulator).

ELECTRICAL AND MECHANICAL INPUT AND OUTPUT

FREQUENCY INPUT: 115 to 135 kc at 1 v rms across 50 ohms from J7006 of converter to J3014 of Waveform Generator; 2 to 39 mc at 2 v rms min from J7009 of converter to J of Radio Frequency Oscillator.

FREQUENCY OUTPUT: 2 to 32 mc at 1 uv to 1/10 v across 70 ohms from J7008 of converter to J4602 or J4604 of Radio Signal Distribution Panel.

POWER SUPPLY

INPUT VOLTAGES: 105, 115 or 125 v, 60 cy, single ph.

INPUT CURRENT: 1.2 amp.

POWER OUTPUT: 115 W.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6C4	(1) 5651
(3) 5654	(1) 5670
(1) 5722	(1) 5750
(2) 5751	(1) 5842
(2) 6098	

Total Tubes: (13)

SEMI-CONDUCTORS

(1) 1N126A (1) 1N458

Total SEMI-CONDUCTORS: (2)

CR-27/U

REFERENCE DATA AND LITERATURE

NAVSHIPS 93446: Technical Manual for ELECTRONIC FREQUENCY CONVERTER CV-861/FRR.

MANUFACTURER'S OR CONTRACTOR'S DATASylvania Electronic Systems, Div of Sylvania Electric Products Inc, Buffalo, New York.
Contract NObsr-75232.

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

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Electronic Frequency Converter CV-861/FRR	1.99	8.625 X 19.0 X 21.06	48

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Electronic Frequency Converter CV-861/FRR		

16 August 1962
Cog Service: USN

FSN:

ELECTRONIC, FREQUENCY CONVERTER CV-861A/FRR
Functional Class:

USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Sylvania Electronics Systems, Div. of Sylvania Electronics Products Inc., (00111).



Electronic, Frequency Converter CV-861A/FRR

FUNCTIONAL DESCRIPTION:

The Electronic, Frequency Converter CV-861A/FRR mixes external signals from two (2) signal generators with an internal signal from its crystal-controlled oscillator. These signals are then filtered and amplified to produce an output at the desired level at any frequency within the range of 2 to 32 megacycles (MC). This output signal, which can be varied continuously from a 0.1 microvolt to 0.1 volt, is used to test the overall function of a radio receiving set. The power supply provides the necessary voltages for proper operation of the converter, while the noise generator produces random noise used to determine the sensitivity of a radio receiving set.

No field changes in effect at time of preparation (8 June 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF FREQUENCY CONTROL: Crystal.

CV-861A/FRR ELECTRONIC, FREQUENCY CONVERTER

OUTPUT IMPEDANCE: 70 ohms porm >.5.
OUTPUT AMPLITUDE: 0.1 microvolts to 0.1 volt.
OUTPUT FREQUENCY: 2 to 32 mc, fm, cw, icw.
INPUT FREQUENCY: 125 kc cw or icw; 3.675 to 33.675 mc or cw.
NOISE GENERATOR OUTPUT: Random noise with response of porm 1 db over the range of the equip-
ment 2 to 32 mc.
OPERATING POWER RQMT: 105/115/125 v ac, 60 cps, single ph, 1.3 amps.

RELATION TO OTHER EQUIPMENT:

The CV-861A/FRR is similar to, but not the same as Electronic, Frequency Converter CV-861/FRR.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Senior Volt-Ohmyst RCA, WV-98A; (1) Crystal Diode Probe RCA, WG-301A; (1) Frequency Counter Hewlett-Packard HP-524D; (1) Oscilloscope Tektronix 545; (1) FM-AM Signal Generator Boonton Radio Corp. Type 202-E; (1) Univerter Boonton Radio Corp. Type 207-E; (2) Signal Generator Hewlett-Packard Model 606A; (1) VHF Attenuator Hewlett-Packard Model no. 355A & 355B.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Electronic Frequency Converter CV-861A/FRR		8-5/8 x 19 x 23-3/16	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94291: Technical Manual for Electronic Frequency Converter CV-861A/FRR.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6C4WA (1) 5651WA (3) 5654/6AK5W (1) 5670 (1) 5722 (1) 5750/6BE6W
(2) 5751 (1) 5842 (2) 6098/6AR6WA

CRYSTALS: (1) CR-27/U

SEMI-CONDUCTORS: (2) 1N126A (4) 1N459

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	15.6	188

PROCUREMENT DATA

PROCURING SERVICE: USN
 SPEC &/OR DWG:

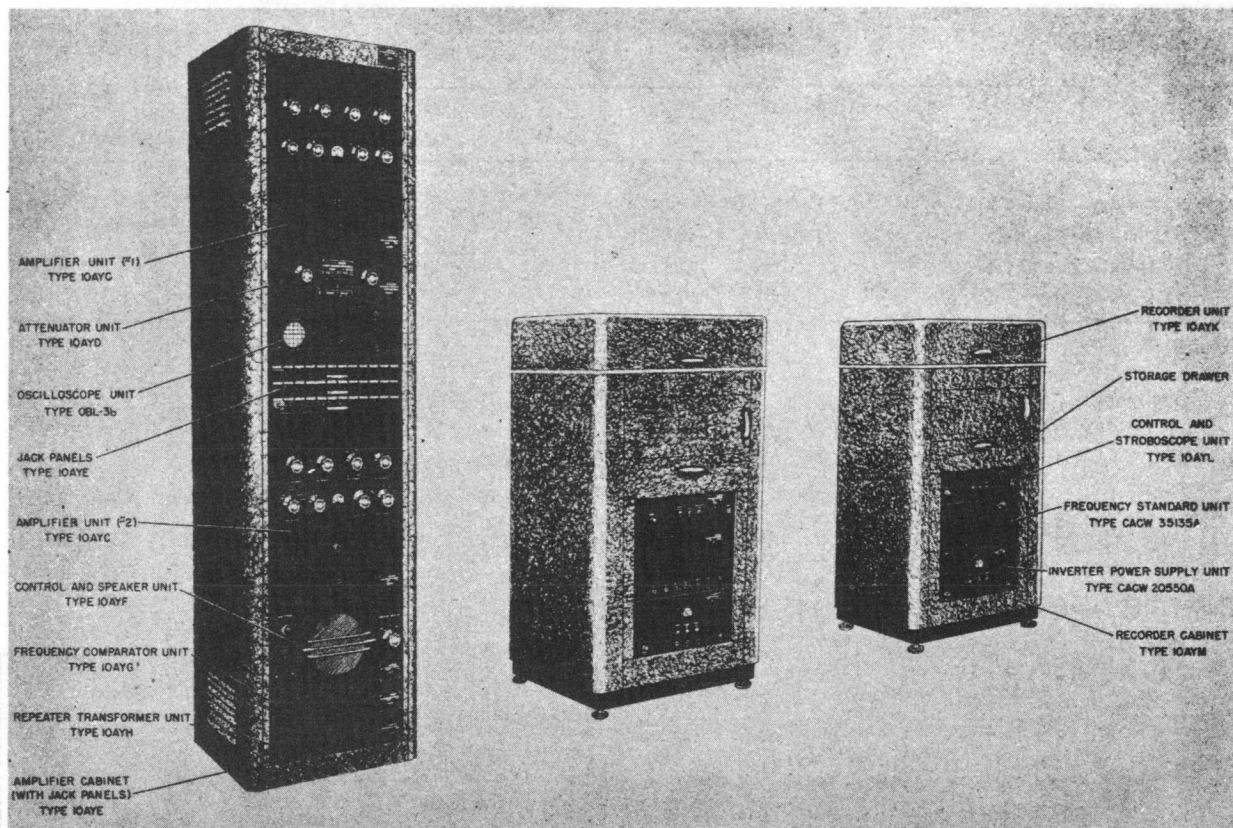
DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sylvania Electronics Systems, Div. of Sylvania Electronics Products Inc.	Buffalo, N. Y.		

March 1957

DUAL RECORDING EQUIPMENT

CXDB



Dual Recording Equipment CXDB

FUNCTIONAL DESCRIPTION

The Navy Model CXDB is an electro-mechanical equipment, versatile in its functions and highly accurate. It provides a means for recording, playback, or re-recording of an applied signal. Signals continuing for an extended period of time can be recorded with out loss of continuity by means of overlap recording, since the CXDB equipment provides two recorder-reproducer units.

The equipment has been designed for the recording, playback, and dubbing (re-recording) of sixteen inch acetate coated recording discs rotated at a speed of 33-1/3 revolutions per minute. The rotating speed is maintained to high accuracy by internal means. The design of the equipment is such that both cutterhead and pickup are held by the same carriage arm which facilitates their tracking in a radial line. Variable equalizers, attenuators, and amplifier controls serve to make the frequency response of the recording and playback processes widely controllable. The equipment contains a moni-

toring speaker and test equipment consisting of an oscilloscope and a dial test indicator.

All units have been treated for moisture and fungus.

No field changes in effect at time of preparation (11 October 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Set of Dividers, (1) Chatillion Scale, and Test Equipment as required.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE: 30 to 10000 cps; 70 to 8000 cps ± 3 db (Amplifier-Equalizer control knobs in counterclockwise position and pickup equalizer at position 3).

IMPEDANCES

AMPLIFIER INPUT: 50, 250 and 500 ohms balanced or unbalanced.

AMPLIFIER OUTPUT: 500 and 8 ohms.

Radio-Auxiliary

CXDB

DUAL RECORDING EQUIPMENT

March 1957

ATTENUATOR: 500 ohms.
 CUTTERHEAD: 500 ohms.
 PICKUP: 50 ohms.
 REPEATER TRANSFORMER: 500 ohms.
 SPEAKER: 8 ohms.
 ROTATING SPEED: 33-1/3 rpm.
 ACCURACY: One part in 100000.
 CUTTERHEAD: Magnetic type.
 PICKUP: Dynamic type with diamond tipped
 stylus.
 CUTTER OR PICKUP EQUALIZER: A capacitance
 and resistance network.
 HEAT DISSIPATION
 AMPLIFIER CABINET: 175 W.
 RECORDER CABINET: 275 W.
 POWER REQUIREMENTS: 115 v, 60 cps; single
 ph, 11.9 amp max load.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 1D21/SN4	(6) 6J7/1620
(1) 2 X 2	(4) 6L6
(1) 3BP1	(14) 6SN7
(4) 3D22	(3) 6 X 5
(4) 5R4GY	(1) 884
(2) 5U4G	(2) VR-150
(2) 6AC7	(2) 6H6
(8) 6J5	

Total Tubes: (56)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91830: Technical Manual for Precision Dual Recording Equipment Navy Model CXDB.

MANUFACTURER'S OR CONTRACTOR'S DATA

Engineering Research Associates, Inc.,
 St. Paul, Minn.
 Contract NObsr 28476, dated 7 February
 1946.
 Contract NObsr 42001, dated 4 August
 1947.
 Contract NObsr 63010.

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	Amplifier Cabinet 10AYE including: Technical Manuals	32.3	23 X 27 X 89	450
1	Recorder Cabinet 10AYM	24.7	25 X 28 X 61	445
1	Recorder Cabinet 10AYM including: Recording Discs	24.7	25 X 28 X 61	470
2	Recorder Unit 10AYK including: Microscope	6.1	17-1/2 X 23 X 26	140
2	Stroboscope and Control Unit 10AYL	3.6	12 X 19 X 27	65
2	Frequency Standard Unit 35135-A	2.6	12 X 14 X 27	50
2	Inverter Power Supply Unit 20550-A	5.7	16 X 22 X 28	140
2	Amplifier Equalizer Unit 10AYC	6.5	17 X 22 X 30	110
1	Oscilloscope OBL-3b including: Dial Indicator	6.0	14 X 24 X 29	100
1	Power Distribution Kit and Gear Box Oil	5.7	13 X 20 X 38	160
2	Repair Parts Case 1 and 2	4.8	13 X 20 X 32	140
1	Repair Parts Case 3	9.2	16 X 22 X 45	250
1	Repair Parts Case 4	2.1	13 X 16 X 18	50
1	Tubes for OBL-3b	3.2	12 X 19 X 25	40

March 1957

DUAL RECORDING EQUIPMENT

CXDB

EQUIPMENT SUPPLIED DATA

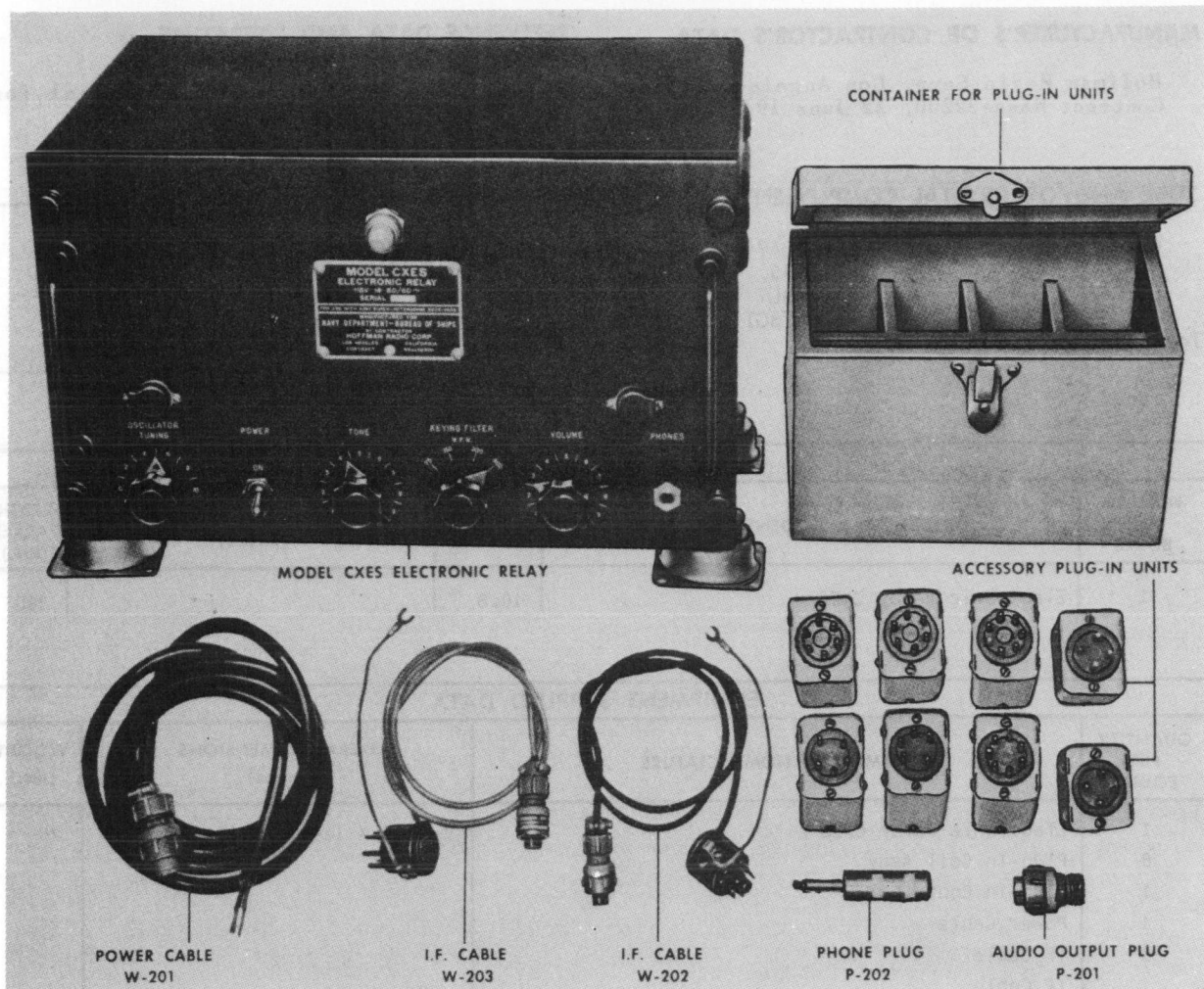
QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Recorder Cabinet 10AYM	20-1/2 X 23-3/8 X 53-1/4	260
2	Recorder Unit 10AYK (with microscope)	17 X 17-1/2 X 21	65
2	Frequency Standard Unit 35135-A	7 X 7-1/8 X 19	13
2	Inverter Power Supply Unit 20550-A	10-1/2 X 14-1/8 X 19	75
2	Stroboscope and Control Unit 10AYL	5-1/4 X 11-1/4 X 19	15
2	Amplifier Equalizer Unit 10AYC	11-5/8 X 19 X 21	50
1	Amplifier Cabinet (including Jack Panels) 10AYE	16-7/8 X 22-3/4 X 82-1/2	180
1	Frequency Comparator Unit 10AYG	3-1/2 X 5-1/16 X 19	8
1	Repeater Transformer Unit 10AYH	3-1/2 X 5-1/16 X 19	10
1	Control and Speaker Unit 10AYF	4-7/8 X 10-1/2 X 19	15
1	Control and Speaker Unit 10AYF	4-7/8 X 10-1/2 X 19	15
1	Attenuator Unit 10AYD	4-3/16 X 5-3/16 X 19	8
1	Oscilloscope Unit OBL-3b	7 X 15-5/16 X 19	29
2	Technical Manuals for OBL-3b		
1	Constant Voltage Transformer 10AYJ	5-5/8 X 6-15/16 X 14-1/2	38
1	Dial Indicator		8
1	External Cables	99 feet	10
2	Maintenance Repair Parts Box (Case 1 and 2)	9-1/2 X 16 X 25	90
1	Maintenance Repair Parts Box (Case 3)	12-1/2 X 19-1/2 X 37-1/2	180
1	Maintenance Repair Parts Box (Case 4)	9-1/2 X 13 X 13	30

SHIPPING DATA

WEIGHT PACKED (lbs.)	OVERALL DIMENSIONS (inches)	VOLUME (cu. ft.)	CONTENTS AND NOTIFICATION	NUMBER OF BOXES
480	20-1/2 X 23-3/8 X 53-1/4	25.2	Amplifier Cabinet 10AYE	1
482	20 X 23 X 53	24.7	Recorder Cabinet 10AYM	1
470	17 X 17-1/2 X 21	24.1	Recorder Unit 10AYK	1
140	7 X 7-1/8 X 19	10.1	Frequency Standard Unit 35135-A	2
88	10-1/2 X 14-1/8 X 19	7.5	Inverter Power Supply Unit 20550-A	2
30	5-1/4 X 11-1/4 X 19	2.2	Stroboscope and Control Unit 10AYL	2
140	11-5/8 X 19 X 21	10.1	Amplifier Equalizer Unit 10AYC	2
170	16-7/8 X 22-3/4 X 82-1/2	12.5	Amplifier Cabinet 10AYE	1
100	3-1/2 X 5-1/16 X 19	3.9	Frequency Comparator Unit 10AYG	2
110	3-1/2 X 5-1/16 X 19	3.9	Repeater Transformer Unit 10AYH	2
20	4-7/8 X 10-1/2 X 19	1.1	Control and Speaker Unit 10AYF	2
20	4-7/8 X 10-1/2 X 19	1.1	Control and Speaker Unit 10AYF	2
8	4-3/16 X 5-3/16 X 19	0.5	Attenuator Unit 10AYD	2
140	7 X 15-5/16 X 19	2.1	Oscilloscope Unit OBL-3b	2
140			Dial Indicator	2
38	5-5/8 X 6-15/16 X 14-1/2	0.5	Constant Voltage Transformer 10AYJ	2
10			External Cables	2
90	9-1/2 X 16 X 25	3.0	Maintenance Repair Parts Box (Case 1 and 2)	2
180	12-1/2 X 19-1/2 X 37-1/2	11.0	Maintenance Repair Parts Box (Case 3)	1
30	9-1/2 X 13 X 13	1.0	Maintenance Repair Parts Box (Case 4)	1

June 1957

YA ELECTRONIC RELAY



Electronic Relay CXES

FUNCTIONAL DESCRIPTION

The CXES is a device which utilizes the intermediate-frequency output of an associated signal keyed in accordance with a CW input to the receiver. This a-f output is noise-free, compared with reproduction of the telegraphic signal by conventional means, particularly under conditions of high-noise levels. Interchangeable coil assemblies permit operation of the Electronic Relay with receivers having intermediate frequencies of 175, 400 or 460 kc.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Receiver, (1) Loudspeaker, (1) Pair Earphones, (1) AC Input Plug.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

I.F. FREQUENCY RANGE: 175 kc, 400 kc, and 460 kc.
 POWER FACTOR: 90%.
 OPERATING POWER: 115 v, 60 cps, single ph, 70 va.

June 1957

CXES

ELECTRONIC RELAY

MANUFACTURER'S OR CONTRACTOR'S DATA

Hoffman Radio Corp, Los Angeles, Calif.
Contract NXss-32200, 22 June 1943.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,399: Technical Manual for
Electronic Relay Model CXES.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SK7
(1) 6H6
(1) 6SN7
(1) 6V6
Total Tubes: (10)

(2) 6SA7
(1) 6J5
(1) 6SL7
(1) 5Y3GT

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	Electronic Relay CXES	10.8		135

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Electronic Relay CXES	9-1/16 X 11-1/2 X 15-15/32	25
8	Plug-In Coil Assy		
1	Plug-In Container		
1	Power Cable		
1	IF Cable		
1	IF Cable		
1	Audio-Output Plug AN3106-145-10S		
1	Phone Plug		
1	Set Spare Parts in Container		

February 1960

Radio-Auxiliary

CABINET, ELECTRICAL EQUIPMENT

CY-2416/U

FUNCTIONAL DESCRIPTION

Cabinet, Electrical Equipment CY-2416/U is designed to furnish compact, rugged, shock mounted housing for two CV-591()/URR, Single Sideband Converters, and one R-849/URR, Radio Receiver, one R-390A/URR, Radio Receiver, or R-274B/FRR, Radio Receiver. One 5-1/4 blank panel is furnished with each CY-2416/U for use when only one CV-591()/URR is used.

No field changes in effect at time of preparation (3 November 1959).

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
New York.
Model RAK-4.
Contract NObsr-75529, dated 18 August
1958.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Sheet for
Cabinet, Electrical Equipment CY-2416/U.

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	Cabinet, Electrical Equipment CY-2416/U	19-1/8 X 20-9/16 X 24-1/4	
1	Blank Panel	5-1/4 X 19	

SHIPPING DATA

QUANTITY	OVERALL DIMENSIONS (inches)	VOLUME (cu. ft.)	CONTENTS AND WEIGHTS	WEIGHT (lbs.)
1	19-1/8 X 20-9/16 X 24-1/4			

EQUIPMENT SUPPLIED DATA

QUANTITY	OVERALL DIMENSIONS (inches)	NAME AND NOMENCLATURE	WEIGHT (lbs.)
1	19-1/8 X 20-9/16 X 24-1/4	Cabinet, Electrical Equipment CY-2416/U	
1	5-1/4 X 19	Blank Panel	

September 1960

Radio-Auxiliary

DUMMY LOAD, ELECTRICAL**DA-199/U****ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: DC to 30 mc.
 NOMINAL IMPEDANCE: 600 ohms.
 POWER RATING: 500 W.
 OPERATING TEMPERATURE: -40 to +100° F
 (ambient).

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
 New York.
 Model No. TER-500(600).
 Contract NObsr-75917.

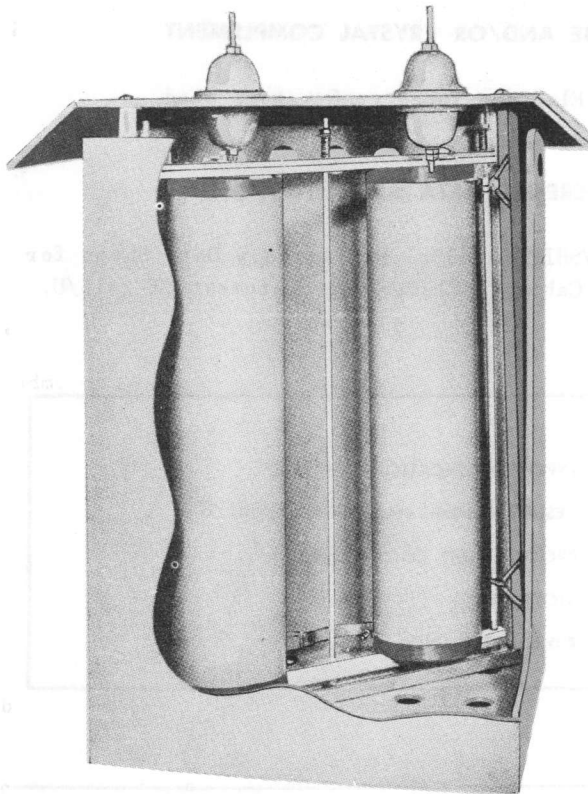
TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

TMC BULLETIN 188A: Technical Data Sheet for
 DUMMY LOADS DA-199/U, DA-200/U, DA-201/U,
 DA-209/U, DA-210/U.

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



Dummy Load Electrical DA-199/U

FUNCTIONAL DESCRIPTION

Electrical Dummy Load DA-199/U is a resistive termination capable of dissipating R.F. energy from D.C. to 30 mc.

No field changes in effect at time of preparation (9 February 1960).

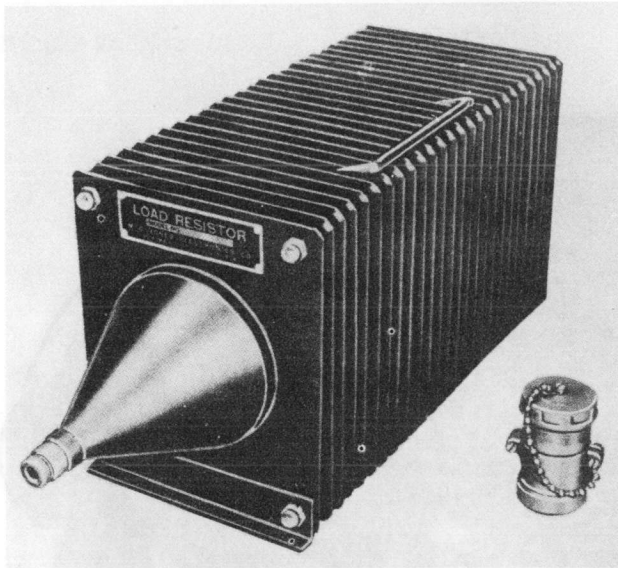
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Dummy Load, Electrical DA-199/U		20-1/2 X 27 X 37-1/2	21

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dummy Load, Electrical DA-199/U	12 X 14 X 22	

ELECTRICAL DUMMY LOAD



Electrical Dummy Load DA-91/U

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 0 to 3000 mc.
INPUT IMPEDANCE: 51 ohms.
POWER DISSIPATION: 600 W nom.
TYPE: Resistive impedance.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Clifton,
N.J.
Contract NObsr-52021, dated 1 September
1950.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal used.

FUNCTIONAL DESCRIPTION

The DA-91/U is a general purpose use dummy load designed to permit full power operation of a transmitter, such as the AN/URT-2, during maintenance operations without radiation of RF power from the antenna.

No field changes in effect at time of preparation (3 July 1958).

RELATION TO OTHER EQUIPMENT

The DA-91/U is an M.C. Jones Electronic Company Model 632 modified.

REFERENCE DATA AND LITERATURE

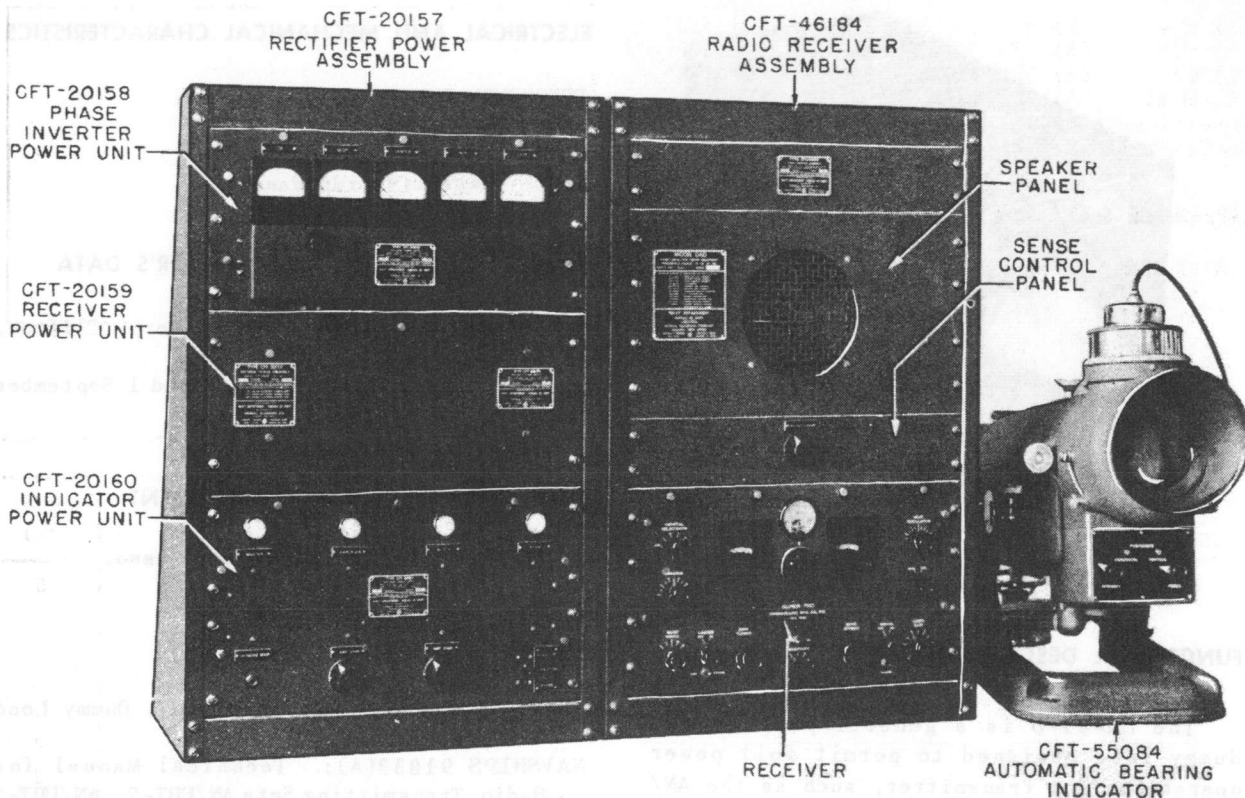
Nomenclature Card for Electrical Dummy Load DA-91/U.
NAVSHIPS 91833(A): Technical Manual for Radio Transmitting Sets AN/URT-2, AN/URT-3 and AN/URT-4.

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

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Electrical Dummy Load DA-91/U	6 X 7-7/16 X 18-5/8	
1	Adapter UG-57B/U		

RADIO DIRECTION FINDER SET

*Direction Finder Set DAN***FUNCTIONAL DESCRIPTION**

The DAN equipment is a fixed land radio direction finder which provides instantaneous visual indications of the bearing of received signals in the frequency range of 7.5 to 15 megacycles (MC).

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

RELATION TO OTHER EQUIPMENT

The DAN is similar to the DAL, DAM, and DAO equipments, but differs in the frequency range coverage.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION: CW, MCW, ICW.

BEARING INDICATIONS: Instantaneous, automatic, visual.

TYPE OF CIRCUIT: Superheterodyne.

RECEIVER FREQUENCY RANGE: 1.25 mc to 40 mc.
 RECEIVER INTERMEDIATE FREQUENCY: 465 kc.
 AVERAGE RECEIVER SENSITIVITY: 2 uv for a 10:1 signal/noise ratio.
 RECEIVER INTERMEDIATE FREQUENCY SELECTIVITY: 3 to 16 kc.
 AUDIO OUTPUT POWER: 3 W undistorted to 600 ohm load; max output 8 W.
 AVERAGE OVERALL SENSITIVITY: Approx 10 uv/m.
 NUMBER OF BANDS: 1 band.
 FREQUENCY RANGE: 7.5 to 15 mc.
 OPERATING POWER RQMT: 105 to 125 v, 55 to 65 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp., Newark, New Jersey

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1851 (2) 6K7 (1) 6L7 (1) 6J7

Radio-Auxiliary

DAN

RADIO DIRECTION FINDER SET

(3) 6SK7 (2) 6H6 (1) 6N7 (1) 6SJ7
 (1) 6C5 (3) 6F6 (2) 6AC7 (1) 5Z3
 (2) 80 (1) 2X2/879 (1) 5NP1 (2) 7V7
 (1) 5U4G (1) 3B7/1291
 Total Tubes: (27)
 No Crystals used.

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

REFERENCE DATA AND LITERATURE

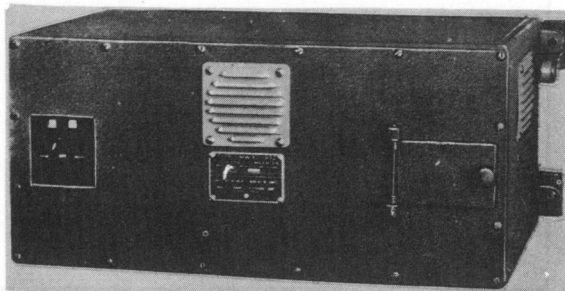
SHIPS 382: Technical Manual for the DAJ,
 DAL, DAM, DAN and DAO Radio Direction
 Finder Set.

EQUIPMENT SUPPLIED DATA

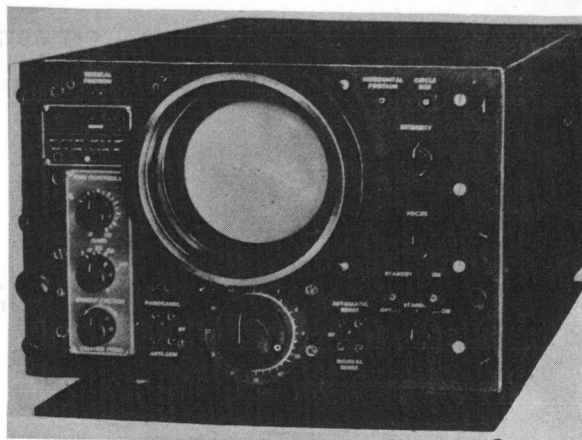
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver Ass'y N.T. CFT-46184 Including:	21-1/8 X 24-3/8 X 32	115
1	Radio Receiver		
1	Sense Amplifier		
1	Sense Control Panel		
1	Speaker Panel		
1	Sense Coil N.T. CFT-47237	2 X 3 X 5-1/4	1/2
1	Sense Coil N.T. CFT-47238	2 X 3 X 5-1/4	1/2
1	Receiver Power Unit N.T. CFT-20159	8-1/2 X 8-3/4 X 19	50
1	Indicator Power Unit N.T. CFT-20160	10-1/2 X 13-1/2 X 19	40
1	Automatic Bearing Indicator N.T. CFT-55084	12-1/2 X 24 X 45-1/2	95
4	Corner Antenna Ass'y N.T. CFT-66061		
1	Central Antenna Ass'y N.T. CFT-66062		
5	Phase Inverter and Housing	5-1/8 X 6-3/8 X 16-3/4	20
1	Power and R.F. Transmission		
1	Field Power Junction Box N.T. CFT-62059	4 X 7-1/2 X 15-3/16	15
1	R.F. Junction Box N.T. CFT-62057	5 X 8-1/4 X 12-1/4	25
1	Power Junction Box N.T. CFT-62058	3-1/2 X 5-3/8 X 7	3-1/2
1	Phase Inverter Power Unit N.T. CFT-20158	8-3/4 X 12-1/4 X 19	40
1	Geniometer (7.5 to 15 mc) N.T. CFT-47233	6-7/8 X 8-7/8 X 9	7

RADIO DIRECTION FINDER SET

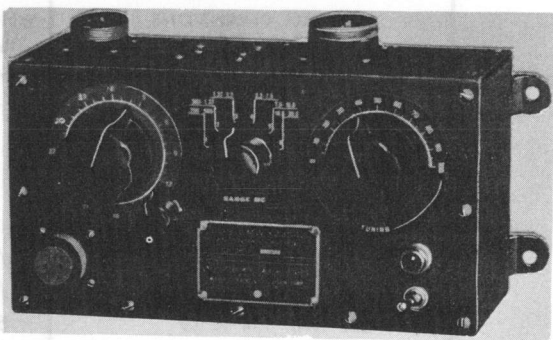
DBH



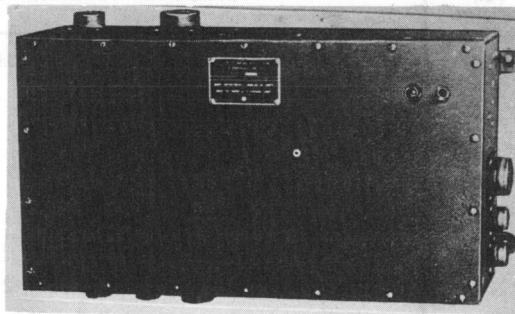
Frequency Converter, Navy Type CMW-Y211932



Azimuth-Panoramic Indicator, NT-55217



Antenna Control, Navy Type CMW-Y23540



Terminal Box, Navy Type CMW-Y62380

FUNCTIONAL DESCRIPTION

The DBH is designed as a shipboard Radio Direction Finder utilizing a rotating loop antenna mounted on top of a mast for signal pick up, and a cathode-ray tube to give the continuous bearing indications. It operates in the frequency range of 0.25 to 30 megacycles (MC).

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: A1, A2 types.
 TYPE OF RECEIVER: Superheterodyne.
 NUMBER OF BANDS: 6 bands.

METHODS OF OPERATION

ONE: Visual direction finding. Instantaneous visual bearings are indicated on a 5 in. cathode-ray tube.

TWO: Instantaneous Direction Finding and Sense. Simultaneous sense and direction patterns superimposed on the cathode-ray-tube screen may be obtained.

THREE: Separate Sense indication.

FOUR: Panoramic Search.

FIVE: Anti-Jam reception.

FREQUENCY RANGE: 0.25 to 30 mc.

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

MANUFACTURER'S OR CONTRACTOR'S DATA

Majestic Radio and Television Corp.,
 Elgin, Illinois.
 Contract NXsr-55660.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SN7

(1) 5Y3GT

June 1961

Radio-Auxiliary

DBH

RADIO DIRECTION FINDER SET

(1) 5CP1	(3) 6SG7
(3) 6J5	(2) 6SK7
(2) 6H6	(1) 6SQ7
(1) 6K6	(1) 5U4G
(1) 2X2/879	(3) VR150-30
(2) 6SA7	(2) 6AK5
(4) 6AC7	

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,974: Technical Manual for
Radio Direction Finder Set DBH.

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

Total Tubes: (28)

No Crystals used.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Receiver N.T. CMW-46295	5.1	16 X 23 X 24	214
1	Antenna Cable	18	24 X 36 X 36	284
1	Azimuth-Panoramic Indicator N.T. CMW-55217	4.9	16 X 20 X 27	197
1	Cathode-Ray Tube	2	12 X 12 X 24	62.5
1	Frequency Converter N.T. CMW-211932	2.9	14 X 14 X 26	144
1	Antenna Control N.T. CMW-23540	1.1	9 X 11 X 18	48
1	Terminal Box N.T. CMW-62380	2.3	9 X 17 X 26	133
1	Antenna Ass'y N.T. CMW-66164	8	24 X 24 X 24	194
1	Set of Operating Cables	12	24 X 24 X 36	332
1	Counterpoise and Sense Rods	1.5	6 X 6 X 72	44
1	Set of Equipment Spares	6	12 X 24 X 36	156
1	Set of Equipment Spares	15	18 X 24 X 60	220

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Ass'y N.T. CMW-66164	17 X 17 X 19-1/2	68
1	Radio Receiver N.T. CMW-46295	12 X 19 X 20	103-1/2
1	Terminal Box N.T. CMW-62380	5 X 13 X 22	31
1	Antenna Control N.T. CMW-23540	5 X 7 X 13-1/2	5-1/4
1	Frequency Control N.T. CMW-211932	9-1/2 X 10-1/2 X 22-1/4	55-1/2
1	Azimuth, Panoramic Indicator N.T. CMW-55217	12 X 16 X 23	104-1/2

December 1956

CAMERA

DEN 22-1

FUNCTIONAL DESCRIPTION

The DEN-22-1 camera is a photographing device which records the DEN 17-2 light display on a rapidly moving strip of sensitized film or paper without the use of a shutter.

The light display is projected upon an image plane through which the film is transported at a linear rate of 100 inches per second, or 30.0 inches per second.

At the beginning of each exposure, the time, date and serial number of the exposure are recorded on the film. During operation a glow modulation tube fires at millisecond intervals; these flashes are also projected upon the image plane, and are recorded on the film as a series of dots, which provide a time reference.

No field changes in effect at time of preparation (30 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FILM DATA

SIZE: 35 mm.

CAPACITY: 400 ft reel.

MAIN LENS: Raptar, F2 coated, 2 in. focal

lg, set at f/2; other focal settings f/2.8, f/4, f/5.6, f/8, f/11, f/16.

POWER SOURCE REQUIRED: 115 v AC, 60 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

National Security Agency, Washington 25, D. C.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) R1131C

Total Tube: (1)

REFERENCE DATA AND LITERATURE

Technical Manual for Camera DEN 22-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Camera			
1	(1) Light Shield Assembly ZB262 (1) Mounting Assembly for Camera Support bracket ZA290 and Parts (1) Connecting Cable ZB374 (1) Maintenance Cable ZB380 (10) Magazine Assemblies ZB100 (1) Equipment			

EQUIPMENT SUPPLIED DATA

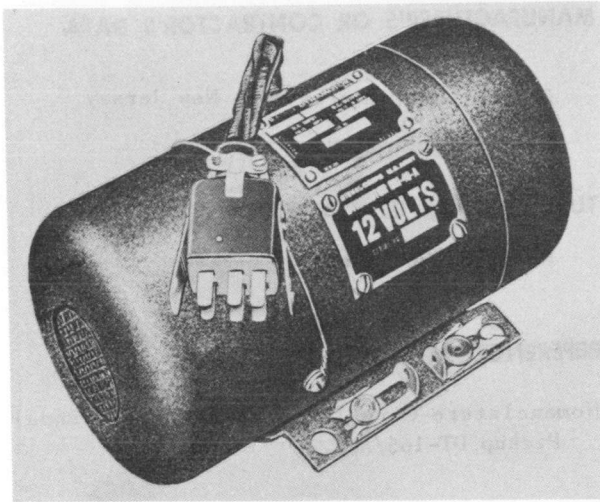
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Camera	12-1/2 X 20 X 22	138
1	Mounting Assembly for Camera Support Bracket	4-1/2 X 12-1/4 X 19	27
1	Connecting Cable	22	3/4
1	Maintenance Cable	96	3
2	Technical Manual	10-1/2	2-1/4

February 1960

Radio-Auxiliary

DM-40-A

DYNAMOTOR



Dynamotor DM-40-A

FUNCTIONAL DESCRIPTION

Dynamotor DM-40-A, converts low-voltage battery power to power at the voltage required for the operation of Radio Receiver BC-652-A (Part of Radio Set SCR-506-A).

The DM-40-A derive their power from a 12-volt vehicular storage battery.

The dynamotor consists of a dynamotor unit on a mounting designed to occupy a compartment in the radio receiver. All connections are made to the receiver circuits through a six-contact plug, and the dynamotor is secured by four snap-slide catches

on the chassis to the crystal frequency calibrator chassis of the receiver.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT: 12 v DC, 3 amp.

OUTPUT: 147 v DC, 118 ma.

SPEED: 7,500 rpm.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

TM11-630: Technical Manual for RADIO SET SCR-506-A.

TYPE CLASSIFICATION

DESIGN COGNIZANCE USA, SIG C

PROCUREMENT COGNIZANCE ARMY SPEC 71-1314(SIG)

STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor DM-40-A	4 dia X 7	

September 1956

TRANSDUCER, MOTIONAL PICK-UP**DT-165/AKT****FUNCTIONAL DESCRIPTION**

The DT-165/AKT is designed to transform altitude (high range) information into a useable form for use in the operation of transmitting set, telemetric data AN/AKT-7.

It is pressure activated precision potentiometer type pick-up with 0 to 60,000 ft range.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE REQUIRED: 5 v DC.

OUTPUT VOLTAGE: 0 to 5 v.

RESISTANCE: 5000 ohms $\pm 5\%$.

MANUFACTURER'S OR CONTRACTOR'S DATA

Colvin Labs, Morristown, New Jersey.

Part Number 425.01.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Transducer, Motional Pickup DT-165/AKT.

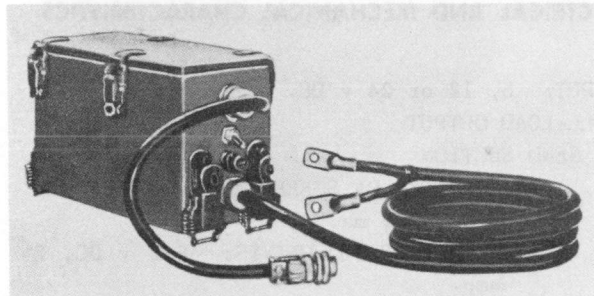
TYPE CLASSIFICATION DESIGN COGNIZANCE USAF PROCUREMENT COGNIZANCE STOCK NO.
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EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transducer, Motional Pickup DT-165/AKT	3.88 X 3.88 X 5.73	

DYNAMOTOR

DY-44/U



Dynamotor DY-44/U

FUNCTIONAL DESCRIPTION

Dynamotor DY-44/U combine dc generator and dc motor action to convert 28 volts dc to 12.9 v dc for the operation of mobile radio equipment. Operating power for the dynamotor is derived from a 24-volt vehicular storage battery.

The unit consists of the dynamotor proper, a filter system, an outer case, and cabling.

The dynamotor is inclosed in a cylindrical case. It is electrically connected as a plug-in part when the outer case cover is in place. The radio noise filter system is mounted in the outer case cover. Output and input cables are permanently attached to the front of the case.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

24 volt storage battery.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT: 28 v DC, 3 amp.
 OUTPUT: 12.9 v DC, 3.5 amp.
 SPEED: 4,500 rpm at full load.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

TM11-5035: Technical Manual for Dynamotors DY-44/U and DY-44A/U.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE SIG C
 PROCUREMENT COGNIZANCE SPEC 71-3277 (SIG C)
 STOCK NO.

SHIPPING DATA

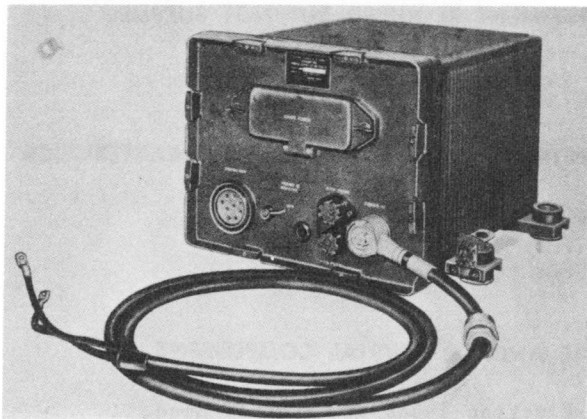
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Dynamotor DY-44/U	1.6	10-1/2 X 11 X 24	30

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor DY-44/U	5-1/4 X 6 X 11	18

February 1960

Radio-Auxiliary

DYNAMOTOR-POWER SUPPLY**DY-88/GRC-9**

Dynamotor Power Supply DY-88/GRC-9

FUNCTIONAL DESCRIPTION

Dynamotor-Power Supply DY-88/GRC-9 is used to convert dc from a vehicular battery into the operating voltages necessary for Receiver-Transmitter RT-77/GRC-9 or RT-77A/GRC-9 (part of Radio Set AN/GRC-9A).

The power supply consists of a multi-winding dynamotor, a synchronous (self-rectifying) vibrator, and various regulatory and control elements. The dynamotor operates when either the receiver or transmitter is in operation and when the switch control on the receiver-transmitter is on send. When the control is on standby, the low-voltage vibrator circuit is used and there is no excessive power drain on the battery.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

6, 12 or 24 v storage battery.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT: 6, 12 or 24 v DC.

FULL-LOAD OUTPUT

SEND SECTION

TRANSMITTER PA SCREEN AND PLATES: 580 v DC, 100 ma.

TRANSMITTER FILAMENTS: 6.3 v DC, 2 amp.

RECEIVER AND TRANSMITTER PLATES AND SCREEN: 105 v DC, 45 ma.

RECEIVER FILAMENTS: 1.4 v DC, 500 ma.

KEYING RELAY: 6.3 v DC, 575 ma.

STANDBY SECTION

RECEIVER PLATES: 105 v DC, 17 ma.

RECEIVER FILAMENTS: 1.4 v DC, 500 ma.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes and Crystals used.

REFERENCE DATA AND LITERATURE

TM11-263: Technical Manual for RADIO SETS AN/GRC-9, AN/GRC-9A, AN/GRC-9X and AN/GRC-9Y.

TYPE CLASSIFICATION

DESIGN COGNIZANCE TASSA

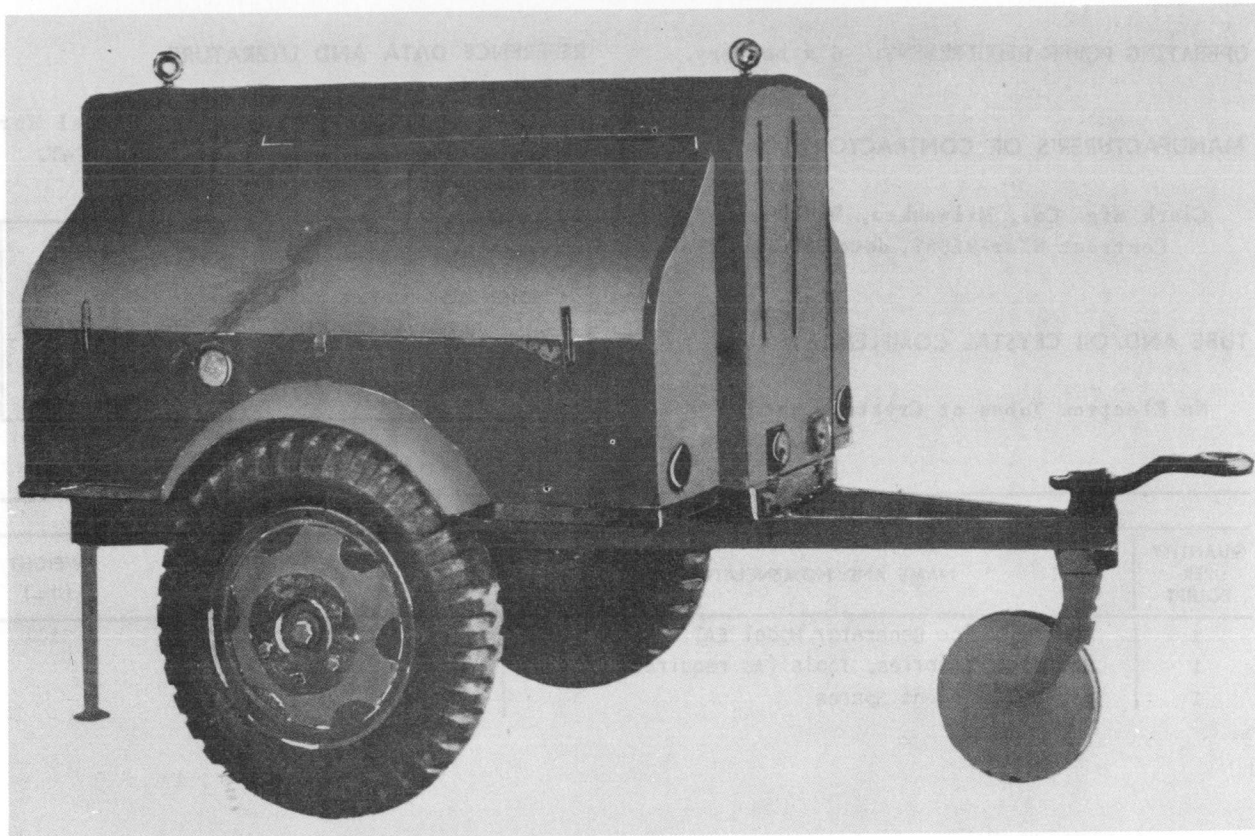
PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor-Power Supply DY-88/GRC-9	9-1/2 X 11-1/4 X 13	35

MOBILE ENGINE GENERATOR**EAT**

Mobile Engine Generator Model EAT

FUNCTIONAL DESCRIPTION

The Navy Model EAT is a Mobile Engine Generator; designed as generating equipment. It consists of a gasoline engine driven alternator mounted on a mobile two-wheel single rubber tired chasis with springs mounted above axle and with a retractable steel rim third wheel.

No field changes in effect at time of preparation (12 August 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS**PANEL BOARD LIGHT AND SWITCH**

VOLTAGE REQUIRED: 6 v.

VOLTMETER CHARACTERISTICS

ACCURACY: $\pm 2\%$.

RANGE: 0 to 150 v.

AMMETER CHARACTERISTICS

ACCURACY: $\pm 2\%$.

RANGE: 0 to 100 amps.

FREQUENCY METER

TYPE: Vibrating reed type.

CYCLE RANGE: 55 to 65 cps.

REVOLUTIONS PER MINUTE: 1800 rpm.

GASOLINE ENGINE IGNITION SWITCH

TYPE OF ACTUATION: Standard push-pull type.

CURRENT RATING: 10 amps.

VOLTAGE RATING: 24 v.

GASOLINE ENGINE STARTING SWITCH

TYPE OF ACTUATION: Standard push button type.

CURRENT RATING: 10 amps.

VOLTAGE RATING: 24 v.

FUEL TANK CAPACITY: 16 gallon.

April 1959

Radio-Auxiliary

EAT**MOBILE ENGINE GENERATOR**

OPERATING POWER REQUIREMENT: 6 v battery.

REFERENCE DATA AND LITERATURE**MANUFACTURER'S OR CONTRACTOR'S DATA**NAVSHIPS 900,542.1: Technical Manual for
the Mobile Engine Generator Model EAT.Clark Mfg. Co., Milwaukee, Wisconsin.
Contract NXsr-95087, dated 23 June 1945.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

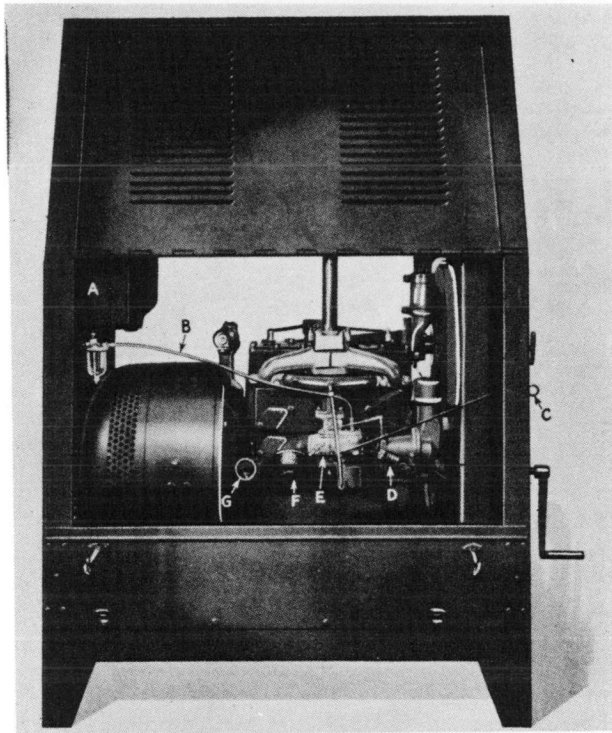
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Mobile Engine Generator Model EAT	71 X 71-1/4 X 123-1/4	3100
1	Set of Accessories, Tools (As required)		
1	Set of Equipment Spares		

June 1957

EMERGENCY RADIO POWER EQUIPMENT

EC-2



*Emergency Radio Power
Equipment EC-2*

- A-Gasoline tank
 B-Gasoline supply line
 C-Choke rod
 D-Governor
 E-Carburetor
 F-Air cleaner and back fire trap
 G-Oil gauge

FUNCTIONAL DESCRIPTION

The Model EC-2 is a gasoline driven engine generator designed to provide emergency power for radio equipment. It is designed to provide 115 volts direct current and will obtain maximum power and efficiency in the 0 to 104 degree fahrenheit ambient temperature range.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS**GENERATOR DATA**

OUTPUT: 115 v DC.
 CAPACITY: 6 kw.
 TYPE: Compound wound.
 OVERLOAD CAPACITY: 25% for 1/2 hr.
 VOLTAGE VARIATION: 10 to 15% max under normal operating conditions.
 TEMPERATURE RANGE: 0 to 104 deg F ambient for max power and efficiency.
 SPEED: 1200 rpm at rated capacity.
 STARTING: Manual hand crank.

MANUFACTURER'S OR CONTRACTOR'S DATA

Kohler Company, Kohler, Wisconsin.
 Contract NOs 71669, dated 12 February 1940.
 Approximate Cost: \$3500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95586: Technical Manual for Navy Models EC-2 and EK Emergency Radio Power Equipment.

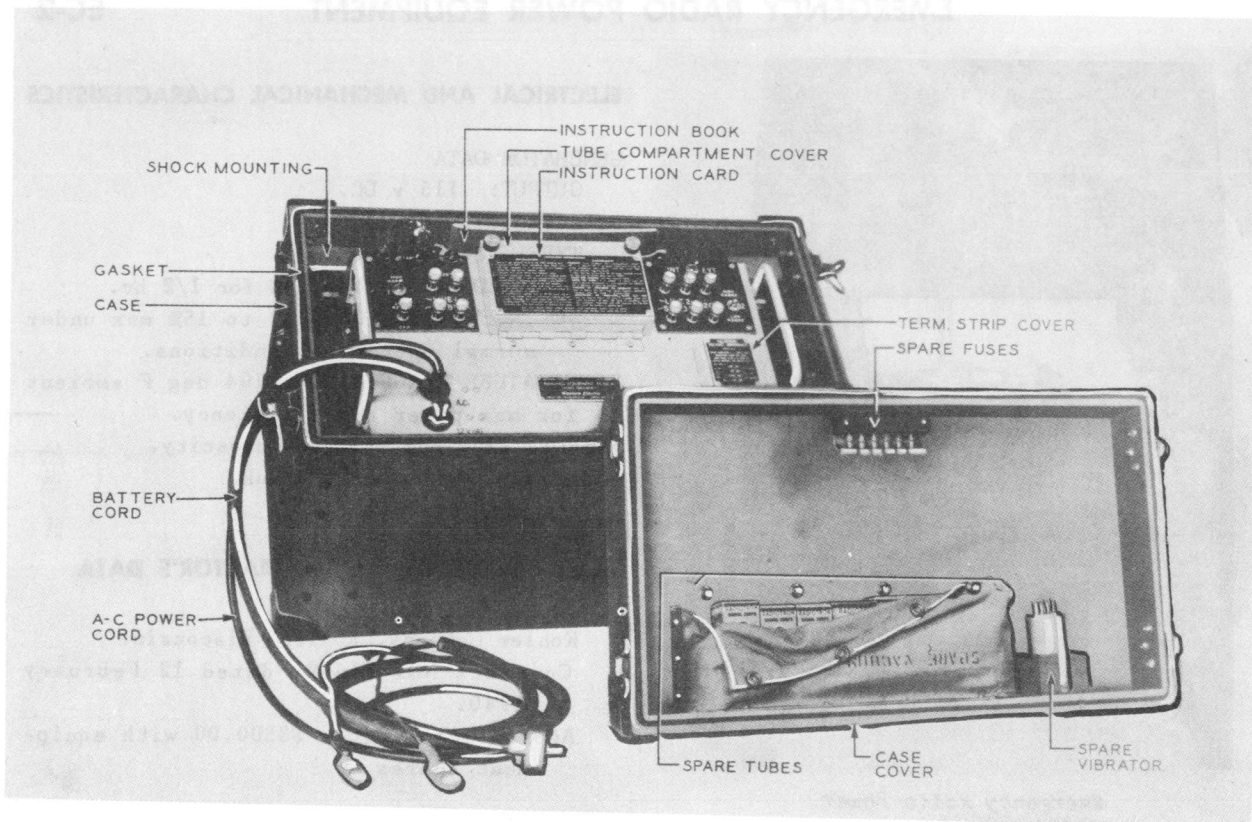
TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Emergency Radio Power Equipment Navy Model EC-2	24-1/2 X 51 X 54	1170

RINGING EQUIPMENT

EE-101-A



Ringling Equipment EE-101-A (Voice Frequency), Equipment Unit in Case

FUNCTIONAL DESCRIPTION

The EE-101-A (Voice Frequency) is used for ringing over ringdown telephone trunk lines under conditions in which the trunk line will not transmit the low-frequency ringing current put out by a switchboard or magneto telephone set. Such conditions arise, for example, when the line facilities are obtained by means of a carrier telephone system. A ringing equipment unit or its equivalent, is required at each end of the line. The E-101-A (Voice Frequency) is a 2-circuit unit and thus serves two lines.

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

RELATION TO OTHER EQUIPMENT

Similar to EE-100-A and EE-100-T1 except that the EE-101-A provides two ringing circuits.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE REQUIRED: 110 to 125 v or 220 to 250 v, 50 to 60 cps; or 12 v, DC.
 POWER CONSUMPTION: 30 W.
 RINGING SIGNAL FREQUENCY: 1000 cps
 INTERRUPTION FREQUENCY: 19-1/6 cps.
 SENSITIVITY: 30 db loss at 1000 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N.Y.
 Part No. D-61627B-1.

TUBE AND/OR CRYSTAL COMPLEMENT

(6) 6SJ7
 Total Tubes: (7) (1) 6V6GT/G

REFERENCE DATA AND LITERATURE

June 8-43

TM11-342-War Dept: Technical Manual for Ringing Equip. EE-100-T1, EE-100-A (Voice Frequency), and EE-101-A (Voice Frequency).
 TM11-342-June 47-War Dept: Technical Manual for Ringer Set-TC-24-Ringing Equip. EE-100-T1, EE-100-4, and EE-101-A (Voice Frequency).

TYPE CLASSIFICATION
 DESIGN COGNIZANCE TASSA
 PROCUREMENT COGNIZANCE TASSA
 STOCK NO.

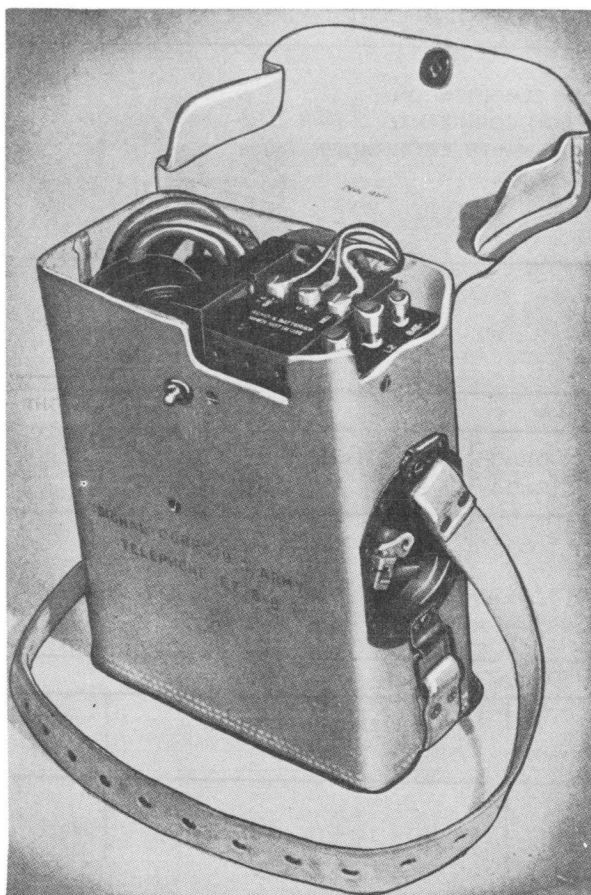
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Ringing equipment	2.13	11-5/8 x 14-3/4 x 21-1/4	95

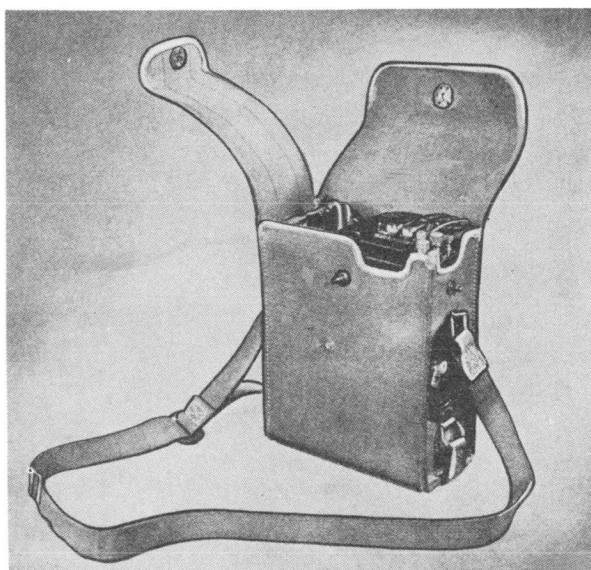
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Ringing equipment EE-101-A (Voice Frequency)	11-5/8 x 14-3/4 x 21-1/4	95

TELEPHONE



Telephone EE-8-B with leather case



Telephone EE-8-A with canvas case

FUNCTIONAL DESCRIPTION

The EE-8-A and EE-8-B are portable field telephones designed for use on either local or common battery telephone systems. The talking and signaling range of the telephones vary with the type of line wire used, the condition of the wire, whether the wire is dry or wet, and whether the wire is on the ground or in the air. The telephone will operate satisfactorily over the distances usually found in corps and subordinate wire systems, provided the lines are well constructed.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (2) BA-30 Dry Cell Batteries, Test Equipment as Required.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RANGE: 11 to 17 mi on W-110-B wire depending on weather conditions and construction of wire line.

TRANSMITTER DATA

POWER OUTPUT: 3 mw over voice frequency range.

RECEIVER DATA

DC RESISTANCE: Approx 55 ohms.

MOTIONAL IMPEDANCE: 256 ohms average at 600 to 1000 cps.

GENERATOR DATA

OUTPUT FREQUENCY: 16 cps at 1000 rpm.

OPEN CIRCUIT VOLTAGE: 100 v approx.

POWER REQUIREMENTS

LOCAL BATTERY: 3 v DC dry cell batteries.

COMMON BATTERY SWITCHBOARD SYSTEMS: 24 v DC, 48 v DC can be used. Increase of voltage will increase range.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

TM11-333: Technical Manual for Telephones EE-8, EE-8-A and EE-8-B.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	

EE-8-A,B

TELEPHONE

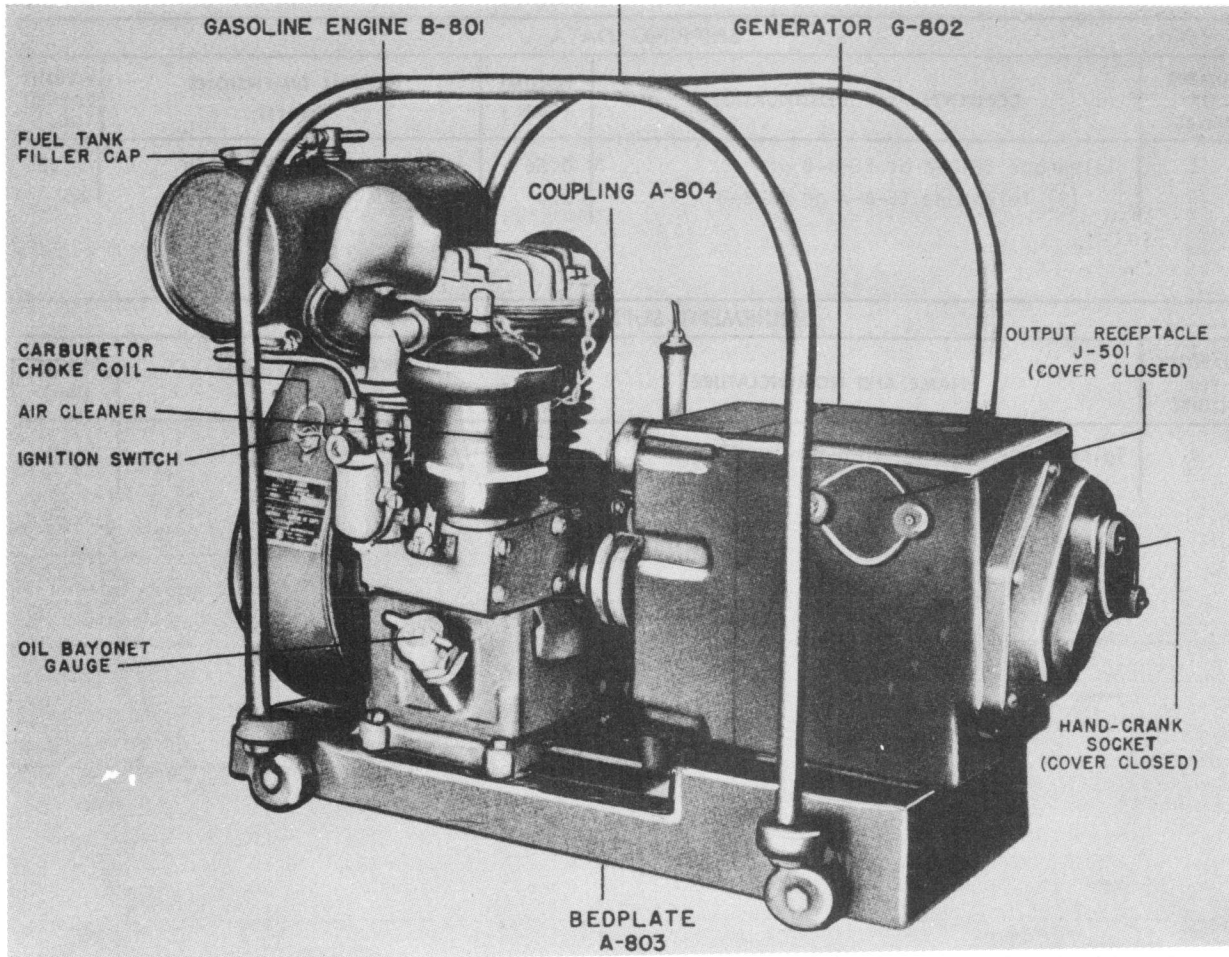
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Telephone EE-8-A or EE-8-B or (3) Telephone EE-8-A or EE-8-B	0.56 2.4	5-3/4 X 11-1/2 X 14-3/4 12-5/8 X 15-7/8 X 20-3/4	16.5 65

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Telephone EE-8-A or EE-8-B	3-1/2 X 7-11/16 X 9-9/16	9.75

GAS ENGINE-DRIVEN GENERATOR EQUIPMENT



Gas Engine-Driven Generator Equipment EF-4

FUNCTIONAL DESCRIPTION

The Model EF-4 is a gasoline driven engine-generator designed to be used in operating the radio transmitter of any of the Navy Model TBX series of Portable Radio Equipments. It supplies 500 and 12.6 volts direct current to the radio transmitter for the transmitter tube plate and to the filament and microphone circuits respectively.

If failure occurs in the gasoline engine, the generator can be disconnected from the engine and used as a hand-driven generator.

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

RELATION TO OTHER EQUIPMENT

Similar to previous models of the EF series, differing only in that 211202 DC Generator replaces 21263A DC Generator used in the earlier models. The EF-4 has a new bedplate, differing in construction, and there are several new parts used in the gas engine that are interchangeable with parts previously used.

Equipment Required but not Supplied: (1) Voltmeter, 20000 ohms per volt.

June 1957

Radio-Auxiliary

EF-4

GAS ENGINE-DRIVEN GENERATOR EQUIPMENT

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RATING: 1/2 hp.
 SPEED: 2100 rpm.
 OUTPUT: 500 v DC at 0.065 amps, 12.6 v DC
 at 0.86 amps.
 REGULATION: Voltage regulator provided to
 maintain constant low voltage output.
 MANUAL SPEED: Hand crank requires 60 to 70
 rpm for required output.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900010: Technical Manual for Navy
 Model EF-4 Gas Engine-Driven Generator
 Equipment.

MANUFACTURER'S OR CONTRACTOR'S DATA

Atlas Aircraft Products Corporation, New
 York, N.Y.
 Contract NXss 18179, dated 19 November
 1942.
 Approximate Cost: \$500.00 with equip-
 ment spares.

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	Gas Engine-Driven Generator Equipment Navy Model EF-4	5.5	18-1/4 x 18-1/2 x 27-3/8	100

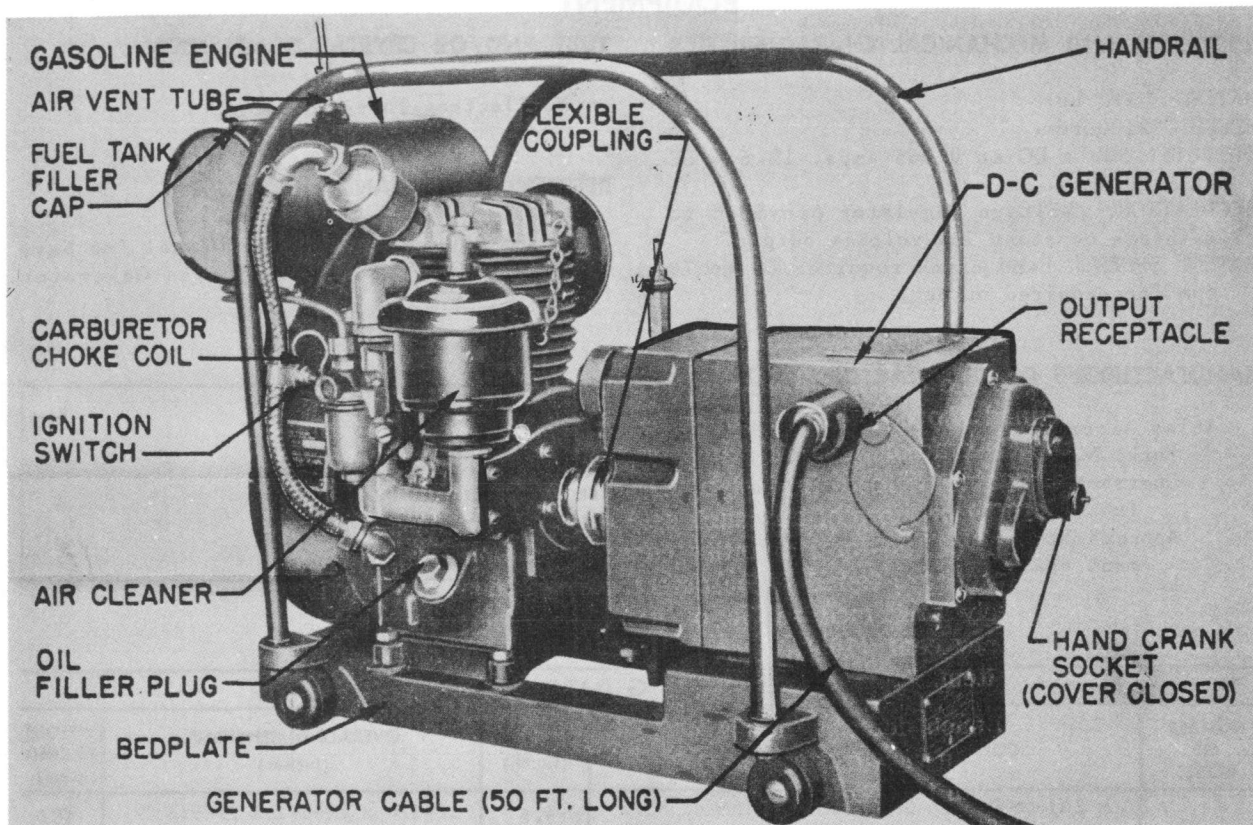
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Gas Engine-Driven Generator Equipment Navy Model EF-4 consisting of: Shipping Chest NT-10018A Canvas Cover NT-10020A Engine Generator Model EF-4 Cable NT-49045 with (2) Plug NT-49040 Set of Accessories Set of Tools Set of Station Spare Parts	18-1/4 x 18-1/2 x 27-3/8 10-3/8 x 16-1/16 x 21-5/8 50 ft	64

December 1956

GAS ENGINE-DRIVEN GENERATOR EQUIPMENT

EF-8



Gas Engine-Driven Generator Equipment EF-8

FUNCTIONAL DESCRIPTION

The EF-8 is a gas engine driven generator equipment designed for use with TBX-8 portable radio equipment.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RATINGS

HP: 1/2.

RPM: 2250.

OUTPUT: 500 v DC at 0.085 amp (max)
12.6 v DC at 2.0 amp (max).

MANUFACTURER'S OR CONTRACTOR'S DATA

Atlas Aircraft Products Corp., New York,
N.Y.

Contract NXsr 53302, dated 10 March
1944.

Contract NXsr 55665, dated 12 April
1944.

Contract NXsr 55656, dated 12 April
1944.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes

REFERENCE DATA AND LITERATURE

NAVSHIPS 900337-A-1B: Technical Manual for
Gas Engine-Driven Generator Equipment for
Model EF-8.

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.

EF-8

GAS ENGINE-DRIVEN GENERATOR EQUIPMENT

December 1956

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Shipping Chest NT-10018-B		
1	Bed Plate NT-10019		
1	Canvas Bag NT-10340		
1	Coupling NT-10021		
1	Gas Engine NT-18006		
1	Gasoline Can NT-18002		
1	Oil Can NT-18003		
1	Tool Set NT-18004		
1	D.C. Generator NT-211202 A or B		
1	Generator Cable NT-49045 (50 ft.)		
2	Starting Ropes		
1	Padlock		
1	Set Station Spares		
2	Technical Manuals		

April 1959

Radio-Auxiliary

MOTOR GENERATOR

EG-1 AND EH-1

FUNCTIONAL DESCRIPTION

The Navy Models EG-1 and EH-1 Motor Generator equipments are identical. These equipments are designed for use in semi-permanent installations where the rated power supply source is available. The EG-1 and EH-1 comprise either a Alternating Current Motor or a Direct Current Motor mechanically connected by means of a coupling to the generator. These units are mounted together with a filter and output connection box on bedplate.

The difference in the equipments is that the Model EG-1 comprises Navy type CG-21270 Alternating Current (AC) Motor; Model EH-1 comprises Navy type CG-21386 Direct Current (DC) Motor.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

MOTOR GENERATOR DIRECT CURRENT: Model EH-1.
INPUT

HORSEPOWER: 1/6 hp at 1725 rpm.

VOLTAGE: 115 v DC.

CURRENT: 1.65 amps.

OUTPUT: 500 v DC, 0.065 amps; 12.6 v DC, 0.86 amps.

MOTOR GENERATOR ALTERNATING CURRENT: Model EG-1.
INPUT

HORSEPOWER: 1/6 hp at 1725 rpm.

OPERATING POWER REQUIREMENTS: 115 v,
60 cps 1 ph, 2.5 amps.

OUTPUT

VOLTAGE: 500 v DC, 0.065 amps; 12.6 v,
0.86 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Schenectady, N.Y.
Contract NOS-65704, dated 16 March 1939.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

Technical Manual Serial No. 196 for Auxiliary
Power Equipment Models EF-1, EG-1, EH-1
and EJ.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Motor Generator Model EH-1 Including: (1) Coupling NT-10022 (1) Bedplate NT-10023 (1) Shipping Box NT-10024 (1) D.C. Motor NT-21386 (1) D.C. Generator NT-21271A (1) Generator Cable NT-49044(10 ft) (1) Spare Reactor NT-30336A	2-1/16 od x 2-3/4 lg 1-1/32 x 7-1/2 x 16-3/16 9-1/2 x 11-1/2 x 25-3/4 6-1/4 x 7-1/2 x 8-3/4 6-5/16 x 7-27/32 x 9-7/16 120 lg 1-1/4 x 1-9/16 x 1-1/2	

April 1959

Radio-Auxiliary
EG-1 AND EH-1

MOTOR GENERATOR

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	(1) Spare Capacitor NT-48778	1 X 1-3/4 X 4-3/4	
	(1) Spare Motor Switch NT-24066	25/32 X 3/4 X 1-3/4	
	(1) Spare Generator and Motor Brushes		
	Motor Generator Model EG-1 Including:		
	(1) Coupling NT-10022	2-1/16 od X 2-3/4 lg	
	(1) Bedplate NT-10023	1-1/32 X 7-1/2 X 16-3/16	
	(1) Shipping Box NT-10024	9-1/2 X 11-1/2 X 25-3/4	
	(1) A.C. Motor NT-21270	6-3/8 X 8 X 8-3/8	
	(1) D.C. Generator NT-21271A	6-5/16 X 7-27/32 X 9-7/16	
	(1) Generator Cable NT-49044 (10 ft)	120 lg	
	(1) Set of Generator Brushes		
	(1) Spare Reactor NT-30336A	1-1/4 X 1-9/16 X 1-1/2	
	(1) Spare Capacitor NT-48778	1 X 1-3/4 X 4-3/4	
	(1) Spare Motor Switch NT-24066	25/32 X 3/4 X 1-3/4	

April 1959

Radio-Auxiliary

DYNAMOTOR

EJ

FUNCTIONAL DESCRIPTION

The Navy Model EJ is designed primarily for use as a source of power for the transmitter during operation in boats or motor vehicles. The Dynamotor is designed to be mounted near the radio equipment and is provided with a switch to remove transmitter voltages during reception periods and to conserve the battery. The filter box cover is designed to be readily removable to give access to the fuse mounted in the upper part of the filter box. The Dynamotor itself is totally enclosed and designed to be splash proof.

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

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Schenectady, N.Y.
Contract NOs-65704, dated 16 March 1939.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

Technical Manual Serial No. 196 for Auxiliary Power Equipment EF-1, EG-1, EH-1 and EJ.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER REQUIREMENT

INPUT: 11.5 v DC, 7.0 amps.
OUTPUT: 500 v DC, 0.065 amps.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor Model EJ Including: (1) Shipping Box NT-10025A (1) Dynamotor Unit NT-21299 (1) Generator Cable NT-49044 (3) Sets of Brushes (3) Spare Fuses (1) Switch NT-24064 (1) Reactor NT-30336A (1) Capacitor NT-48777 (1) Pad Lock w/two keys	9-5/8 X 11-1/2 X 19-1/2 10-1/4 X 15-11/16 X 19-3/8 1/2 od X 116 lg 25/32 X 1-5/16 X 2 1-1/4 X 1-9/16 X 1-1/2 1-1/16 X 1-13/16 X 2-3/4	

March 1957

RECEIVER POWER EQUIPMENTS

EL,EM,EN,ED,EP,EQ

FUNCTIONAL DESCRIPTION

The Models EL,EM,EN,ED,EP and EQ are supplied for use with the Models TBO and TBX Series of Portable Radio Equipment.

They are designed to be used as power converters for the receivers of the TBO and TBX Series in lieu of the dry batteries normally carried in the accessory box, whenever a suitable power source is available. They required no internal changes in the receivers themselves for proper operation from the various power sources for which they are designed.

The Models EM,EN,EO,EP and EQ are all dynamotor operated DC equipments, and are similar except for the dynamotor rating.

The Model EL is a rectifier operated AC equipment.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS(INPUT)

MODEL EL: 115 v $\pm 10\%$, 60 cps $\pm 2\%$, single ph, 35 W (approx).

MODEL EM: 6 v $\pm 15\%$ DC, 4 amp, 25 W (approx).

MODEL EN: 12 v $\pm 15\%$ DC, 2 amp, 25 W (approx).

MODEL EO: 24 v $\pm 15\%$ DC, 1 amp, 25 W (approx).

MODEL EP: 32 v $\pm 15\%$ DC, 0.75 amp, 25 W (approx).

MODEL EQ: 110 v $\pm 10\%$ DC 0.22 amp, 25 W (approx).

OUTPUT (ALL EQUIPMENTS)

VOLTS DC: 135 - 90 - 15 - 6-3.

MILLIAMPS: 10- 5- Bias-bias-360.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Company, Schenectady,
N. Y.
Contract Nos 81118, dated 22 January
1941.

TUBE AND/OR CRYSTAL COMPLEMENT

EL (only)

(1) 5U4G

Total Tubes: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 983.28788: Technical Manual for Receiver Power Equipments Navy Models EL, EM,EN,EO,EP and EQ.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

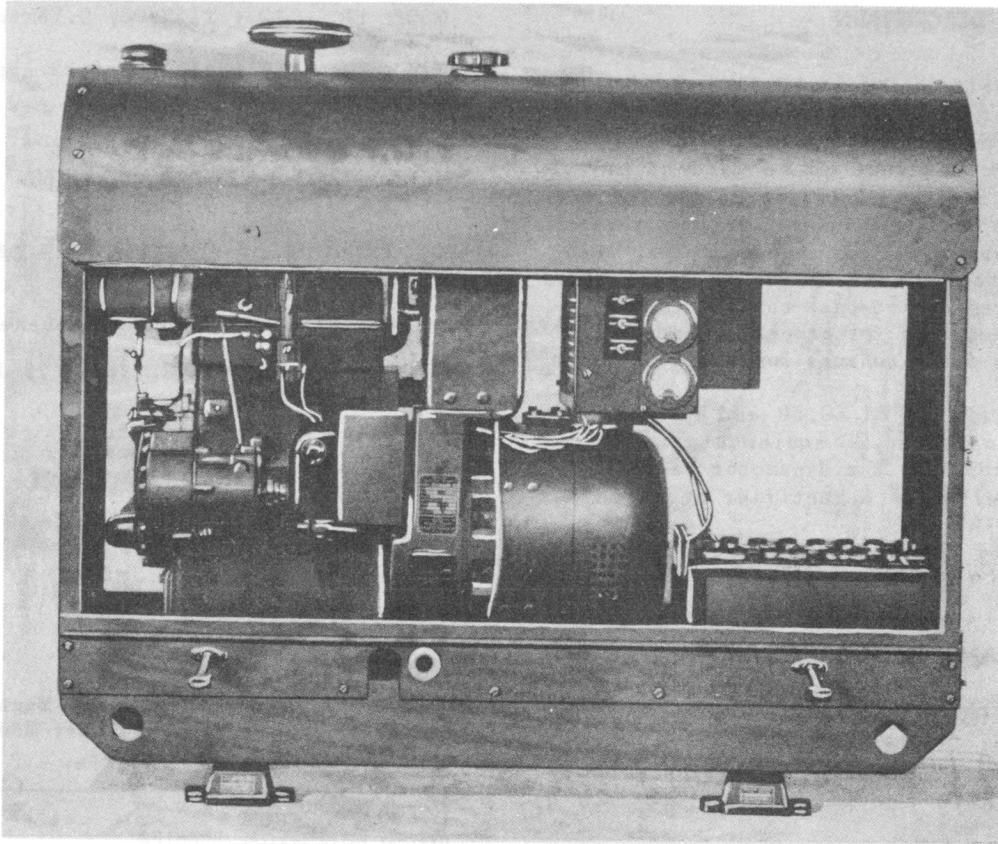
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver Power Equipment Model EO consisting of:	5-1/8 X 7-13/16 X 8-5/8	11.5
1	Dynamotor Unit NT-21599		
1	Set of Spare Parts		
1	Receiver Power Equipment Model EP consisting of:	5-1/8 X 7-13/16 X 8-5/8	11.5
1	Dynamotor Unit NT-21599		
1	Set of Spare Parts		
1	Receiver Power Equipment Model EQ consisting of:	5-1/8 X 7-13/16 X 8-5/8	11.5
1	Dynamotor Unit NT-21599		
1	Set of Spare Parts		

April 1958

EMERGENCY POWER EQUIPMENT AND GASOLINE ENGINE GENERATOR EQUIPMENT

Radio-Auxiliary
ER, ER-2



Emergency Power Equipment Model ER or Gasoline Engine Generator ER-2

FUNCTIONAL DESCRIPTION

The ER and ER-2 are portable, gasoline engine-driven power plants designed for emergency use. Starting and stopping of the equipment is fully automatic. Whenever the line voltage of the normal power source drops sufficiently, the emergency transfer relay operates to start the plant and transfer the load to the plant. When the live voltage returns to normal, a time delay relay prevents the load from being transferred back to the main line until the voltage has been without interruption for several minutes. The starting battery is kept charged automatically with a trickle charger operating from the AC supply voltage.

No field changes in effect at time of preparation (2 April 1958).

RELATION TO OTHER EQUIPMENT

The model ER and ER-2 are Kohler Model 1E21H. The ER and ER-2 are essentially identical. The model ER is similar to the ES except that the ES has a 115 v, 25 cps, single ph output voltage.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ENGINE

TYPE: 4 cylinder, 4 cycle, 2 in. bore, 3 in. stroke, gasoline engine, water cooled.

RATING: 3 hp.

GENERATOR

TYPE: Self-excited, 1200 rpm.

RATING: 115 v, 10, 60 cps, 13 amp, 100% pf, 1.5 kva.

STARTING BATTERY: 32 v DC.

April 1958

Radio-Auxiliary

ER, ER-2**EMERGENCY POWER EQUIPMENT AND
GASOLINE ENGINE GENERATOR
EQUIPMENT**

IGNITION SYSTEM. Magneto type.

MOUNTING DATA: The equipment has a skid base.

Four Korfund Vibrodampers are used for deck mounting.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals Used.

REFERENCE DATA AND LITERATURENAVSHIPS 95605: Technical Manual for 1-1/2
KVA Model 1E21H(Kohler), 110 v AC.**MANUFACTURER'S OR CONTRACTOR'S DATA**

Kohler Co., Kohler Wis.

Contract NOs-3244A dated 14 April 1942
(ER).Contract NXs-3244 dated 22 June 1942
(ER).Contract NXs-5802 dated 22 May 1942
(ER-2).

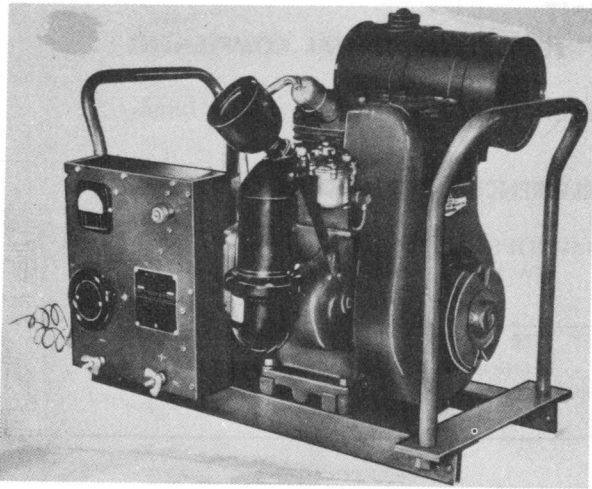
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	COMMERCIAL
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Emergency Power Equipment Model ER or		
1	Gasoline Engine Generator Equipment ER-2		

GASOLINE ENGINE GENERATOR SET

EU



*Gasoline Engine Generator
Set Model EU, Engine End*

The EU is mounted on a carrying base designed particularly for this application.

Mounting is accomplished by means of the bolt holes in the engine base casting. All external electrical connections to the unit are made to the control box attached to alternator.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ENGINE

BORE: 2-7/8 inch.
STROKE: 2-3/4 inch.
PISTON DISPLACEMENT: 17.8.
HORSEPOWER: 3.2 HP at 1800 rpm.
MAIN BEARINGS: Timken Roller.
DIAMETER OF VALVES: 1-1/8 in. OD.
NUMBER OF PISTON RINGS: 4.
CYLINDER HEAD: Removable.
VENTILATION: Air cooled by fly wheel blower.
IGNITION: Fairbanks Morse high tension magnets with impulse coupling.
SPARK PLUG SIZE: 18 mm. metric.
LUBRICATION: Splash from pump-filled reservoir.
CARBURETOR: Float feed type adjustable Stromberg.
GOVERNOR: Adjustable mechanical type.
AIR CLEANER: Oil bath type.
FUEL TANK CAPACITY: 1 gallon.
OIL REQUIRED IN SUMP: 1-3/4 pints.

ALTERNATOR

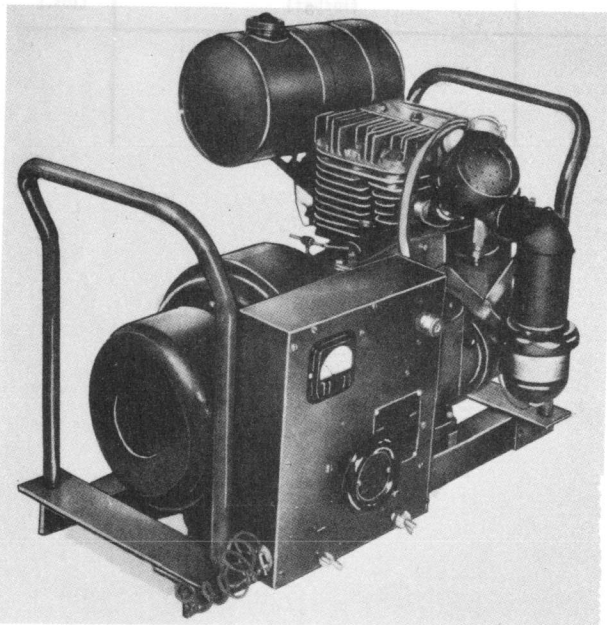
SPEED: 1800 rpm.
EXCITATION: Self-excited.
VENTILATION: Self-ventilated.
TEMPERATURE RISE: 40 deg C for continuous duty.
UNIT POWER FACTOR: 115 v AC, 60 cps, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Atlas Aircraft Products Corp., New York,
New York.
Contract NXs-8524, dated 3 July 1943.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals Used.



*Gasoline Engine Generator Set Model
EU, Alternator End*

FUNCTIONAL DESCRIPTION

The Navy Model EU Gasoline Engine Generator Set is designed to supply 1.5 Kilovolt Amperes (KVA) alternating current (AC) for operating Naval radio, lighting and similar equipment which requires a source of power produced by a unit adaptable for special installation. Each unit consists of a gasoline engine with alternator directly attached.

Radio-Auxiliary

EU

GASOLINE ENGINE GENERATOR SET

REFERENCE DATA AND LITERATURE

Technical Manual 95098 for Model EU Gasoline Engine Generator Set.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Gasoline Engine Generator Set EU	19 X 20-1/4 X 21-3/4	155
1	Set of Equipment Spares		

MANUFACTURER'S DATA
 Hobbie Engineers Co., Inc.
 1111 17th St., N.W.
 Washington, D.C. 20036

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)

April 1958

Radio-Auxiliary

RADIO INTERFERENCE FILTER**F-141/U****FUNCTIONAL DESCRIPTION**

The F-141/U is designed to reduce radio interference from power lines to Radio Transmitter Navy Model TDZ. It is to be installed at the transmitter site, and will be enclosed in Filter Case CY-1856/U, not supplied, to provide a completely shielded unit.

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

Contract NObsr-52686, dated 22 June 1951.

Approximate Cost: \$39.00.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 4457: Electronic Equipment-Preliminary Data for Radio Interference Filter F-141/U.

Nomenclature Card for Radio Interference Filter F-141/U.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Filter Case CY-1856/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE: Capacitor and molybdenum permalloy core coil.

POWER REQUIREMENTS: 440 v, 50 to 60 cps, single ph, 2.25 amps, 874 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hopkins Engineering Co, Inc, Altadena, Calif.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE MIL-F-15733A(SHIPS)
 STOCK NO.
 R.D.B. IDENT. NO.

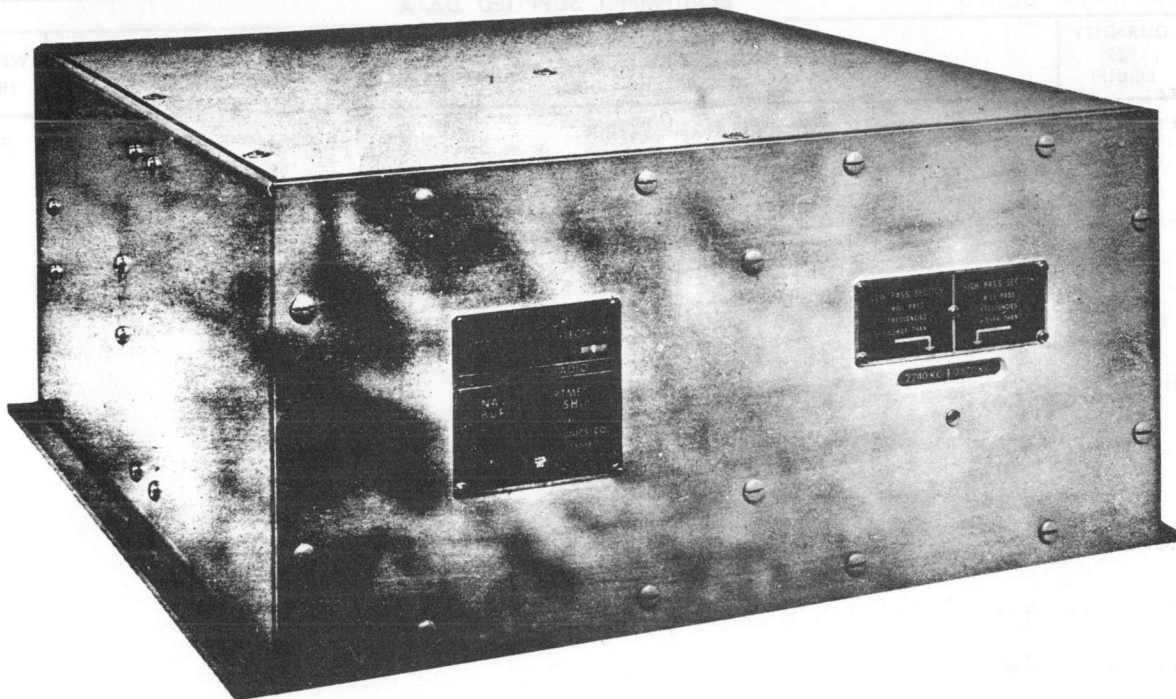
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Interference Filter F-141/U	2-1/8 x 2-7/8 x 9-1/2	1.5

June 1961

F-156/URT

FILTER ASSEMBLY, ELECTRICAL



Filter Assembly, Electrical F-156/URT

FUNCTIONAL DESCRIPTION

Filter Assembly, Electrical F-156/URT is a complementary filter or pair of complementary filters connected in a manner so as to provide for simultaneous operation of two or more radio transmitters on different frequencies with a single antenna.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CROSSOVER SWITCHING: Manually.

INPUT IMPEDANCE: 180 ohms.

OUTPUT IMPEDANCE: 180 ohms.

POWER: 50 W.

FREQUENCY CROSSOVER AND CUTOFF DATA

CROSSOVER FREQ (KC)	LOW PASS (KC)	HIGH PASS (KC)
2,400	2,240	2,570
2,750	2,570	2,940

MANUFACTURER'S OR CONTRACTOR'S DATA

West Coast Electronics Co., Beverly Hills,

California.

Type no. TF-3AB.

Contract N123s-75696.

Columbus Electronics Corp., Yonkers, N.Y.

Contract NObsr-75354.

Approximate unit cost \$787.50.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93200: Technical Manual for Filter Assembly, Electrical F-156/URT and F-157/URT.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC:	SHIPS-C-2927
STOCK NO.	
R.D.B. IDENT. NO.	

F-156/URT

FILTER ASSEMBLY, ELECTRICAL

June 1961

EQUIPMENT SUPPLIED DATA			
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Filter Assembly, Electrical F-156/URT	8-1/4 x 18-1/4 x 19-3/8	35

June 1961

F-157/URT

FILTER ASSEMBLY, ELECTRICAL**FUNCTIONAL DESCRIPTION**

Filter Assembly, Electrical F-157/URT is a complementary filter or pair of complementary filters connected in a manner so as to provide for simultaneous operation of two or more radio transmitters on different frequencies with a single antenna.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CROSSOVER SWITCHING: Manually.

INPUT IMPEDANCE: 180 ohms.

OUTPUT IMPEDANCE: 180 ohms.

POWER: 50 W.

FREQUENCY CROSSOVER AND CUTOFF DATA

CROSSOVER FREQ (KC)	LOW PASS (KC)	HIGH PASS (KC)
3,300	3,075	3,540
3,800	3,540	4,075

MANUFACTURER'S OR CONTRACTOR'S DATA

West Coast Electronics Co., Beverly Hills,

California.

Type no. TF-3CD.

Contract N123s-75696.

Columbus Electronics Corp., Yonkers, N.Y.

Contract NObsr-75354.

Approximate unit cost \$787.50

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93200: Technical Manual for Filter Assembly, Electrical F-156/URT and F-157/URT.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC: SHIPS-C-2927
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Filter Assembly, Electrical F-157/URT	8-1/4 x 18-1/4 x 19-3/8	33

June 1961

Radio-Auxiliary

F-158/URT

FILTER ASSEMBLY, ELECTRICAL**FUNCTIONAL DESCRIPTION**

Filter Assembly, Electrical F-158/URT is a complementary filter or pair of complementary filters connected in a manner so as to provide for simultaneous operation of two or more radio transmitters on different frequencies with a single antenna.

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

California.

Type no. TF-3EF.

Contract N123s-75696.

Columbus Electronics Corp., Yonkers, N.Y.

Contract NObsr-75354.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CROSSOVER SWITCHING: Manually.

INPUT IMPEDANCE: 180 ohms.

OUTPUT IMPEDANCE: 180 ohms.

POWER: 50 W.

CROSSOVER FREQUENCY: 4850 kc or 5350 kc.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Filter Assembly, Electrical F-158/URT.

MANUFACTURER'S OR CONTRACTOR'S DATA

West Coast Electronics Co., Beverly Hills,

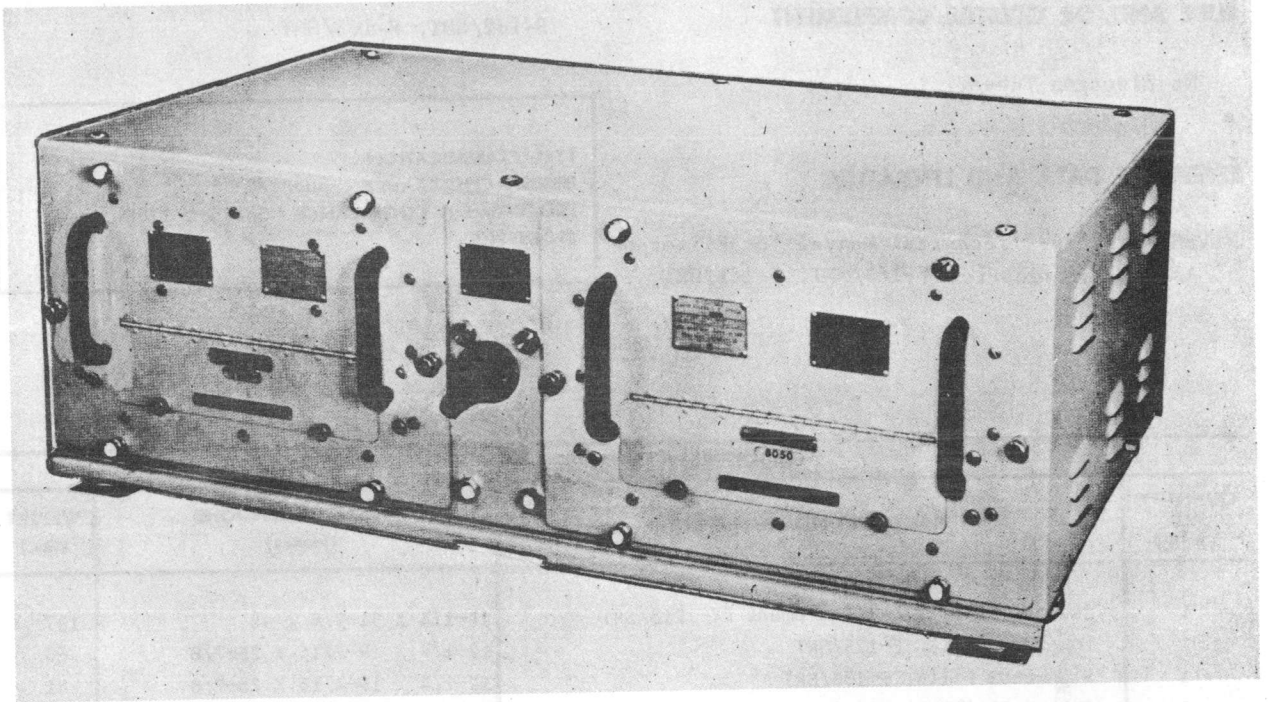
TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: SHIPS-C-2927
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Filter Assembly, Electrical F-158/URT	8-1/4 x 18-1/4 x 19-3/8	

FILTER ASSEMBLY, ELECTRICAL

Radio-Auxiliary
F-160/SRT,161/SRT,
162/SRT,163/SRT



Filter Assembly-Electrical F-162/SRT

FUNCTIONAL DESCRIPTION

The F-160/SRT, F-161/SRT, F-162/SRT and F-163/SRT are complementary filter equipments which can be used alone or in combination with other complementary filters to provide means for simultaneous operation of two or more radio transmitters using a common antenna, but operating on different frequencies.

They are designed to operate from a source impedance of 180 ohms and into a load of 180 ohms, and each type operates in a different frequency range. The F-161/SRT, F-162/SRT and F-163/SRT are equipped with a switch and a switch actuator mechanism for adjustment of operating frequencies while the F-160/SRT is not equipped with the switch and switch actuator mechanism serves no purpose.

No field changes in effect at time of preparation (23 April 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CROSS-OVER FREQUENCIES

F-160/SRT: 1750 kc.

F-161/SRT: Between 3250 kc and 3750 kc.

F-162/SRT: Between 6500 kc and 7500 kc.

F-163/SRT: Between 13 mc and 15 mc.

FREQUENCY SPECTRUM COVERED: 175 kc to 27 mc.
TERMINATION IMPEDANCE: 180 ohms input and output.

POWER REQUIREMENTS: 110 to 120 v, 60 cps, 500 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

West Coast Electronics Co, Los Angeles, Calif.

Contract NObsr-63425, dated 29 May 1953.

Approximate Cost: \$4387.00 with equipment spares. (F-160/SRT)

Approximate Cost: \$4338.00 with equipment spares. (F-161/SRT)

Approximate Cost: \$4194.00 with equipment spares. (F-162/SRT)

Approximate Cost: \$4175.00 with equipment spares. (F-163/SRT)

TUBE AND/OR CRYSTAL COMPLEMENT

F-162/SRT, F-163/SRT.

No Electron Tubes.

REFERENCE DATA AND LITERATURE

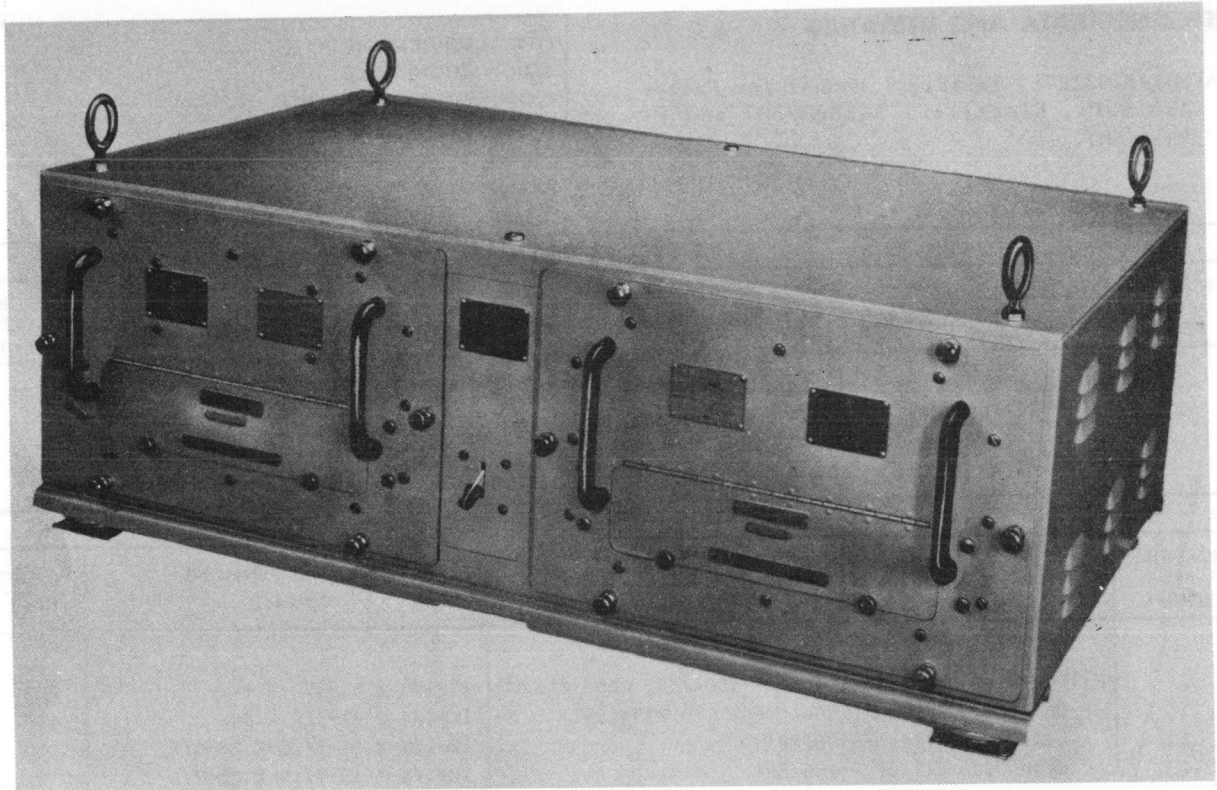
NAVSHIPS 92518: Technical Manual for Filter
Assembly, Electrical F-160/SRT, F-161/SRT,

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	SHIPS-C-1108
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	F-160/SRT		
1	Cabinet, Electrical Equipment CY-1215/SRT	14-1/4 X 31-3/4 X 44	137
1	Low-Pass Filter F-175/SRT	12-1/4 X 19-7/16 X 25-7/8	50
1	High-Pass Filter F-176/SRT	12-1/4 X 19-7/16 X 25-7/8	41
1	Set of Equipment Spares	12 X 16 X 24	30
2	Technical Manual NAVSHIPS 92518		
	F-161/SRT		
1	Cabinet, Electrical Equipment CY-1215/SRT	14-1/4 X 31-3/4 X 44	137
1	Low-Pass Filter F-177/SRT	12-1/4 X 19-7/16 X 25-7/8	52
1	High-Pass Filter F-178/SRT	12-1/4 X 19-7/16 X 25-7/8	47
1	Set of Equipment Spares	12 X 16 X 24	30
2	Technical Manual NAVSHIPS 92518		
	F-162/SRT		
1	Cabinet, Electrical Equipment CY-1215/SRT	14-1/4 X 31-3/4 X 44	137
1	Low-Pass Filter F-179/SRT	12-1/4 X 19-7/16 X 25-7/8	47
1	High-Pass Filter F-180/SRT	12-1/4 X 19-7/16 X 25-7/8	44
1	Set of Equipment Spares	12 X 16 X 24	30
2	Technical Manual NAVSHIPS 92518		
	F-163/SRT		
1	Cabinet, Electrical Equipment CY-1215/SRT	14-1/4 X 31-3/4 X 44	137
1	Low-Pass Filter F-181/SRT	12-1/4 X 19-7/16 X 25-7/8	41
1	High-Pass Filter F-182/SRT	12-1/4 X 19-7/16 X 25-7/8	38
1	Set of Equipment Spares	12 X 16 X 24	30
2	Technical Manual NAVSHIPS 92518		

April 1958

FILTER ASSEMBLY, ELECTRICAL F-160A/SRT, F-161A/SRT

Filter Assembly, Electrical F-161A/SRT - Typical

FUNCTIONAL DESCRIPTION

The F-160A/SRT and F-161A/SRT are complementary filter equipments which can be used alone or in combination with other complementary filters to provide a means of simultaneous operation of two or more radio transmitters using a common antenna but operating on different frequencies. Each filter assembly consists of two fractional terminated complementary filters, namely a high-pass and a low-pass filter network having a common output termination.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CROSSOVER SWITCHING: Manually.
 INPUT IMPEDANCE: 180 ohms.
 OUTPUT IMPEDANCE: 180 ohms.

POWER: 500 W continuous operation.
 FREQUENCY SPECTRUM: 175 kc to 27 mc is covered by any one of the Filter Assemblies.

FREQUENCY CROSSOVER AND CUT OFF DATA			
EQUIPMENT	FREQ (KC)	LOW PASS (KC)	HIGH PASS (KC)
F-160A/SRT	1750	1500	2000
F-161A/SRT	3250	3025	3500
	or	or	or
	3750	3500	4030

MANUFACTURER'S OR CONTRACTOR'S DATA

West Coast Electronics Co, Beverly Hills, Calif.

Contract: NObsr-71864, dated 28 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

F-160A/SRT, F-161A/SRT FILTER ASSEMBLY, ELECTRICAL

April 1958

REFERENCE DATA AND LITERATURE

NAVSHIPS 93117: Technical Manual for Filter Assembly, Electrical F-160A/SRT and F-161A/SRT.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Filter Assembly, Electrical F-160A/SRT	19.39		328
1	Filter Assembly, Electrical F-161A/SRT	19.39		336

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	F-160A/SRT		
1	Filter Assembly, Electrical F-160A/SRT consists of:	14-1/4 X 31-3/4 X 44	228
1	Cabinet, Electrical Equipment CY-1215A/SRT	14-1/4 X 31-3/4 X 44	137
1	Low Pass Filter F-175/SRT	12-1/4 X 19-7/16 X 25-7/8	50
1	High Pass Filter F-176/SRT	12-1/4 X 19-7/16 X 25-7/8	41
	F-161A/SRT		
1	Filter Assembly, Electrical F-161A/SRT consists of:	14-1/4 X 31-3/4 X 44	236
1	Cabinet, Electrical Equipment CY-1215A/SRT	14-1/4 X 31-3/4 X 44	137
1	Low Pass Filter F-177/SRT	12-1/4 X 19-7/16 X 25-7/8	52
1	High Pass Filter F-178/SRT	12-1/4 X 19-7/16 X 25-7/8	47

29 August 1962

Cog Service: USN FSN: 5915-678-1920

FILTER ASSEMBLY, ELECTRICAL F-160B/SRT
Functional Class:

USA

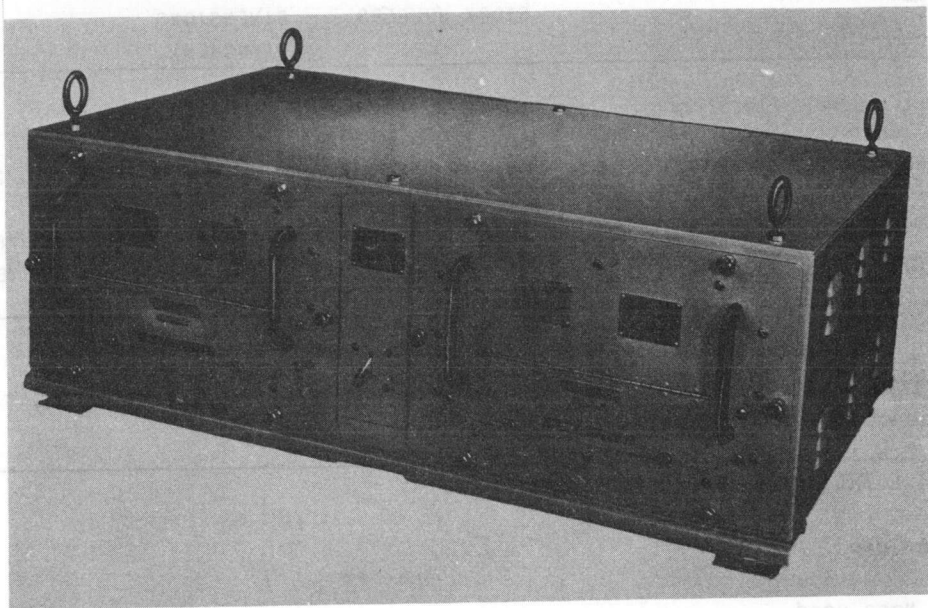
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Columbus Electronics Corp., (81751).



Filter Assembly, Electrical F-160B/SRT

FUNCTIONAL DESCRIPTION:

The Filter Assembly, Electrical F-160B/SRT is a complementary filter equipment, which can be used alone or in combination with other complementary filters to provide a means of simultaneous operation of two or more radio transmitters using a common antenna but operating on different frequencies.

No field changes in effect at time of preparation (26 July 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF COUPLING: Inductive capacitance.
TYPE OF SWITCHING ACTION: Manual.
TYPE OF TUNING: Fixed.
IMPEDANCE

INPUT AND OUTPUT: 180 ohms.
POWER RATING: 500 W max.
FREQUENCY RANGE: 175 kc to 27 mc.
CROSS POINT: 1750 kc.

F-160B/SRT FILTER ASSEMBLY, ELECTRICAL

RELATION TO OTHER EQUIPMENT:

The F-160B/SRT is the same as and can replace Filter Ass'y Electrical F-160/SRT and F-160A/SRT, but has different manufacturer and minor differences in parts.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Filter Assembly Electrical F-160B/SRT consists of:			228
1	Cabinet Electrical Equipment CY-2589/SRT		17-1/16 x 30-3/4 x 44-1/2	137
1	Low Pass Filter F-175/SRT		12-1/4 x 19-7/16 x 25-7/8	50
1	High Pass Filter F-176/SRT		12-1/4 x 19-7/16 x 25-7/8	41

REFERENCE DATA AND LITERATURE:

NAVSHIPS 73739: Technical Manual for Filter Assembly, Electrical F-160B/SRT, F-161A/SRT and F-162A/SRT.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

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

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-C-2927

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Columbus Electronics Corp.	Yonkers, N. Y.	NObsr-75354, 4 June 1958	

29 August 1962

Cog Service: USN FSN: 5915-678-1921

FILTER ASSEMBLY, ELECTRICAL F-161A/SRT

Functional Class:

USA

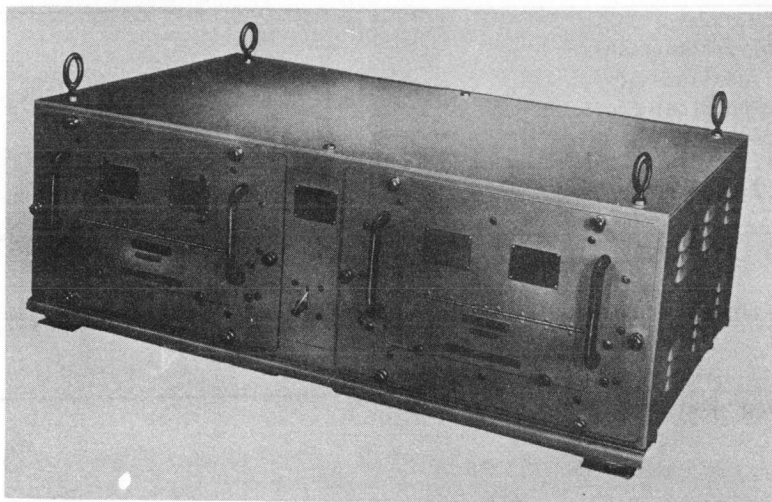
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: West Coast Electronics Co., (83842).



Filter Assembly, Electrical F-161A/SRT

FUNCTIONAL DESCRIPTION:

The Filter Assembly, Electrical is a complementary filter equipment, which can be used alone or in a combination with other complementary filters to provide a means of simultaneous operation or two or more radio transmitters using a common antenna but operating on different frequencies.

No field changes in effect at time of preparation (26 July 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF COUPLING: Inductive capacitance.

TYPE OF SWITCHING ACTION: Manual.

TYPE OF TUNING: Fixed.

IMPEDANCE

INPUT AND OUTPUT: 180 ohms.

POWER RATING: 500 W max.

FREQUENCY RANGE: 175 kc to 27 mc.

CROSS POINT: 3250 or 3750 kc.

TYPE OF INSTALLATION: Shipboard.

F-161A/SRT FILTER ASSEMBLY, ELECTRICAL

RELATION TO OTHER EQUIPMENT:

The F-161A/SRT is designed as part of CY-1215A/SRT.

The F-161A/SRT is designed to be used with but not part of Transmitter TDE, TBL, TCK, TAJ and/or TBK.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Filter Assembly, Electrical			228
	F-161A/SRT consists of:			
1	Cabinet, Electrical Equipment		17-1/16 x 30-3/4 x 44-1/2	137
	CY-1215A/SRT			
1	Low Pass Filter F-177/SRT		12-1/4 x 19-7/16 x 25-7/8	50
1	High Pass Filter F-178/SRT		12-1/4 x 19-7/16 x 25-7/8	41

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93117: Technical Manual for Electrical Filter Assembly F-160A/SRT, F-161A/SRT and F-162A/SRT.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

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

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: SHIPS-C-2717

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
West Coast Electronics Co. Dwg no. 207797	Beverly Hills, Calif.	NObsr-71864, 28 June 1957	

13 AUGUST 1962

Cog Service: USN FSN: 5915-678-1922

FILTER ASSEMBLY, ELECTRICAL F-162A/SRT

Functional Class:

USA

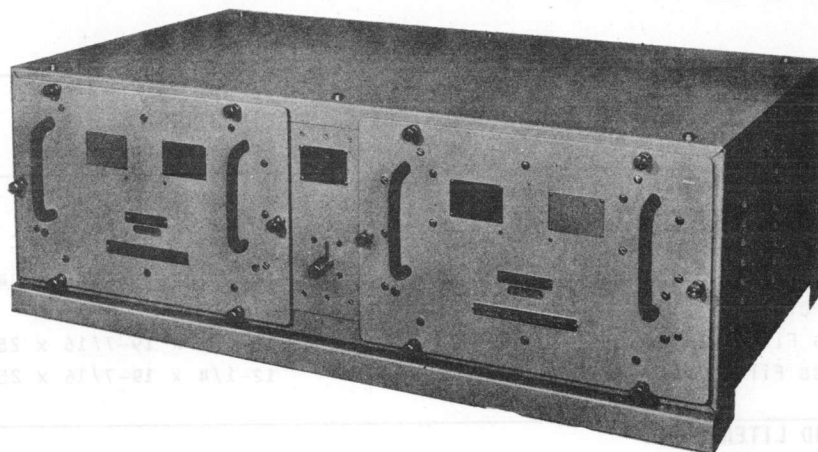
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Columbus Electronics Corporation, (83842).



Filter Assembly, Electrical F-162A/SRT

FUNCTIONAL DESCRIPTION:

The Filter Assembly, Electrical F-162A/SRT is a complementary filter equipment, which can be used alone or in combination with other complementary filters to provide a means of simultaneous operation of two or more radio transmitters using a common antenna but operating on different frequencies.

No field changes in effect at time of preparation (27 July 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Shipboard.

TYPE OF COUPLING: Inductive capacitance.

TYPE OF SWITCHING ACTION: Manual.

TYPE OF TUNING: Fixed.

F-162A/SRT FILTER ASSEMBLY, ELECTRICAL

IMPEDANCE

INPUT AND OUTPUT: 180 ohms.

POWER RATING: 500 W max.

FREQUENCY RANGE: 175 kc to 27 mc.

CROSS POINT: 6500 kc and 7500 kc.

RELATION TO OTHER EQUIPMENT:

The F-162A/SRT is mechanically interchangeable and can replace F-162/SRT for all practical purposes. It is electrically interchangeable except that electrical control of the switch activator is eliminated.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Filter Assembly Electrical F-162A/SRT consists of:			228
1	Cabinet, Electrical Equip- ment CY-1215A/SRT		17-1/16 x 30-3/4 x 44/1/2	137
1	Low Pass Filter F-179/SRT		12-1/4 x 19-7/16 x 25-7/8	47
1	High Pass Filter F-180/SRT		12-1/4 x 19-7/16 x 25-7/8	44

REFERENCE DATA AND LITERATURE:

NAVSHIPS 73739: Technical Manual for Electrical Filter Assembly F-160B/SRT, F-161A/SRT, F-162A/SRT.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

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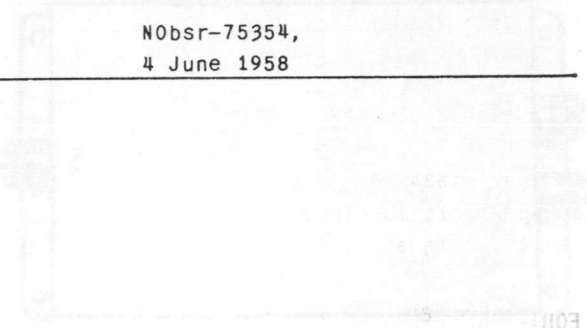
PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-C-2927

DESIGN COG: USN, BuShips

FILTER ASSEMBLY, ELECTRICAL F-162A/SRT

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Columbus Electronics Corp.	Yonkers, New York	N0bsr-75354, 4 June 1958	



ANTENNA FILTER
 CHARACTERISTICS
 FILTER DATA
 BANDWIDTH
 ATTENUATION
 REFLECTION COEFFICIENT

FUNCTIONAL DESCRIPTION
 The F-162A is a rectangular waveguide filter assembly consisting of a series of parallel plates which are spaced to provide a high pass filter response. The filter is designed to pass signals above 100 Mc and to attenuate signals below 100 Mc. The filter is constructed from brass and is mounted on a base. The filter is used in the receiver section of the antenna system to filter out unwanted signals and to pass the desired signals to the receiver.

MANUFACTURER'S DATA
 THESE AND/OR SPECIAL COMMENTS
 REFERENCE DATA AND FEATURES

ITEM NO.	DESCRIPTION	QUANTITY
1	Filter Assembly	1

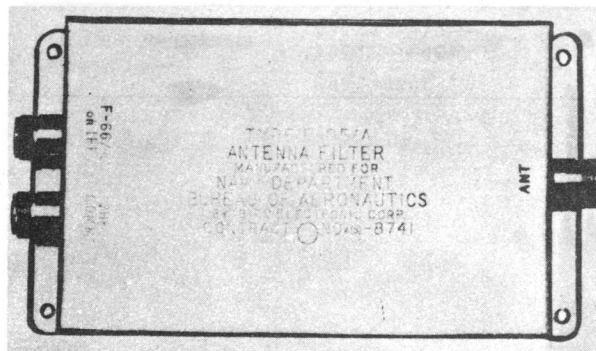
QTY	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	Filter Assembly		

October 1957

Radio-Auxiliary

ANTENNA FILTER

F-65/A, 66/A



Antenna Filter F-65/A, 66A

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FILTER F-65/A

LOW PASS

CUT-OFF FREQUENCY: 147 mc.

MAXIMUM ATTENUATION FREQUENCY: 160 mc.

HIGH PASS

CUT-OFF FREQUENCY: 157 mc.

MAXIMUM ATTENUATION FREQUENCY: 145 mc.

FILTER F-66/A

LOW PASS

CUT-OFF FREQUENCY: 212 mc.

MAXIMUM ATTENUATION FREQUENCY: 243 mc.

HIGH PASS

CUT-OFF FREQUENCY: 236 mc.

MAXIMUM ATTENUATION FREQUENCY: 198 mc.

FUNCTIONAL DESCRIPTION

The F-65/A is intended for use in a 50 ohm coaxial line where a single antenna is used for both the VHF communication and the IFF equipments. It consists of a low pass section, VHF-COMM, passing signals below 147 mc and a high pass section, IFF, passing signals above 157 mc.

The F-66/A is intended for use where a single antenna is used for the VHF communication, the IFF and the homing equipments. It consists of a low pass section, IFF, passing signals below 212 mc and a high pass, HOMING, section passing signals above 236 mc.

Both consist of lumped constants, coils and capacitors, designed to have 1 db or less insertion loss in the pass bands. The attenuation in the attenuation bands varies from 25 db to over 80 db depending on the frequency. The power handling capacity of each is over 700 watts peak power in the pass band, the average power capacity being about 100 watts depending on the frequency.

When a single antenna is used for the VHF communication and IFF equipments, the F-65/A only is to be used and when a single antenna is used for VHF communication, IFF and homing equipments, both the F-65/A and F-66/A are to be used.

No field changes in effect at time of preparation (25 April 1957).

MANUFACTURER'S OR CONTRACTOR'S DATA

Bird Electronic Corp, Cleveland, Ohio.
Contract NOa(s)-8741.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVAER 16-5Q-522: Technical Manual for F-65/A and F-66/A Antenna Filters.

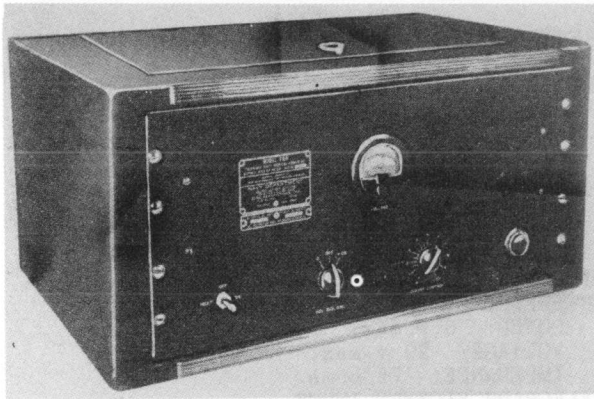
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Filter F-65/A	1-3/16 x 4-1/4 x 7-7/8	
1	Antenna Filter F-66/A	1-3/16 x 4-1/4 x 5-7/8	

FREQUENCY SHIFT RECEIVER INVERTER

FRB



Frequency Shift Receiver Inverter

FUNCTIONAL DESCRIPTION

The Model FRB which is designed for ship or shore installations is used to convert audio frequency shift facsimile signals to amplitude modulated audio signals which are fed to a local facsimile machine by use of a loss pad or to a remote facsimile machine by opening the loss pad circuit. The equipment also eliminates modulation caused by fading.

No field changes in effect at time of preparation (21 June 1956).

RELATION TO OTHER EQUIPMENT

This equipment is used in conjunction with Model FSJ Converter in Facsimile Transmitter Receiver Equipment TT-41/TXC-1B and TT-66/TKC.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE: 100 to 125 v, 60 cps, single ph.

POWER CONSUMPTION: 87 W.
 INPUT IMPEDANCE: 600 ohms.
 SIGNAL OUTPUT LEVEL: Adjustable, 0 to + 20 db.
 OUTPUT CARRIER FREQUENCY: 1800 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Acme Newspictures, Inc., Cleveland, Ohio
 Contract NXsr-85015
 Approximate Cost: \$3,000.00 with equipment spares

TUBE AND/OR CRYSTAL COMPLEMENT

(6) 6SN7GT	(1) 5V4G
(2) 6SL7GT	(1) 2A3
(1) 6H6	(1) 6J7
Total Tubes (12)	

REFERENCE DATA AND LITERATURE

NAVPERS 10857: Radiophoto-Facsimile Training Manual
 NAVSHIPS 95002: Technical Manual for Model FSJ Audio FM
 Keyer Model FRB Frequency Shift Receiver Converter.

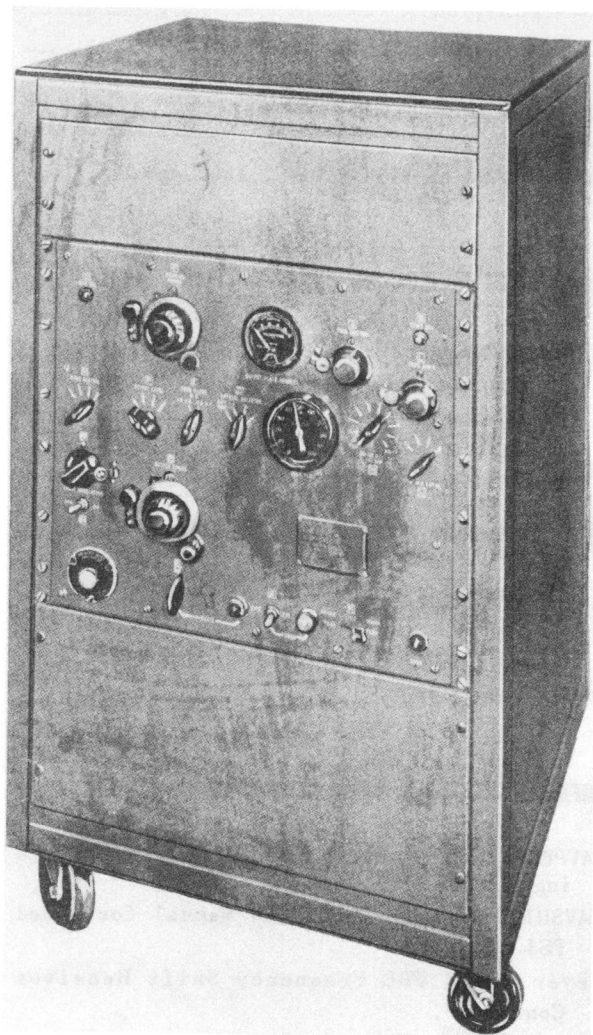
TYPE CLASSIFICATION	BUSHIPS
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Shift Receiver Inverter Model FRB	10-1/2 x 14-3/4 x 22	74

April 1958

Radio-Auxiliary

FREQUENCY SHIFT KEYER**FSA***Model FSA Keyer***FUNCTIONAL DESCRIPTION**

The Navy Model FSA is designed to be used at the transmitting station of a long distance radio system to produce a carrier capable of being shifted between two distinct preset radio frequencies. It is used to allow a radio transmitter to emit one frequency for a mark signal and a different frequency for a space signal, rather than to interrupt a single-frequency carrier.

It is mounted in a mobile cabinet for use at a land installation, and is mounted in a shock-resisting cabinet when used on shipboard.

No field changes in effect at time of preparation (3 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS**EXTERNAL INPUT**

FREQUENCY RANGE: 0.8 to 6.5 mc.

VOLTAGE: 2 to 20 v max.

IMPEDANCE: Approx 75 ohms.

AMPLITUDE MODULATION: 0.8 to 6.7 mc carrier amplitude-modulated by 200 kc (carrier and lower sideband suppressed, upper sideband used).

RF OUTPUT DATA

FREQUENCY RANGE: 1.0 to 6.7 mc.

POWER: 6 W max.

VOLTAGE: 20 v max.

IMPEDANCE: 75 ohms.

TELEGRAPH SIGNALS INPUT

TYPE: DC polar or DC neutral.

VOLTAGE: 25 to 120 v.

SPEED: 240 dots per sec, 600 wpm max.

FREQUENCY SHIFT

FREQUENCY RANGE: 0 to 1000 cps.

FREQUENCY MULTIPLICATION FACTORS: 1, 2, 3, 4, 6, 8, 9, and 12.

200 KC OSCILLATOR ACCURACY: ± 6 cps in any 6 hr period max drift.

POWER REQUIREMENTS: 105 to 125 v or 210 to 250 v, 50 to 60 cps, single ph, 200 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Company, Inc, New York, N.Y.

Contract NXsr-55610, dated 31 March 1944.

Approximate Cost: \$700.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OD3W (1) 5R4WGB (4) 6SA7Y
 (5) 6SJ7 (2) 6SN7WGTA (1) 6V6GT
 (1) 6X5WGT (1) 807

Total Tubes: (16)

(3) NT-40130 or NT-40000A

Total Crystals: (3)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900754: Technical Manual for Frequency Shift Keyer Navy Model FSA.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

FSA

FREQUENCY SHIFT KEYER

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Frequency Shift Keyer NT-35060 including: (6) Cable Assembly	12.9	25 X 27 X 33	300
1	Set of Equipment Spares	6.9	20 X 22 X 27	100
1*	Mobile Cabinet NT-10389 including: Set of Equipment Spares	13.9	24 X 25 X 40	220
1**	Shock-Resisting cabinet NT-10390 including: Set of Equipment Spares	8.1	22 X 22 X 29	205

NOTE: *-Supplied for shore use only.

** -Supplied for shipboard use only.

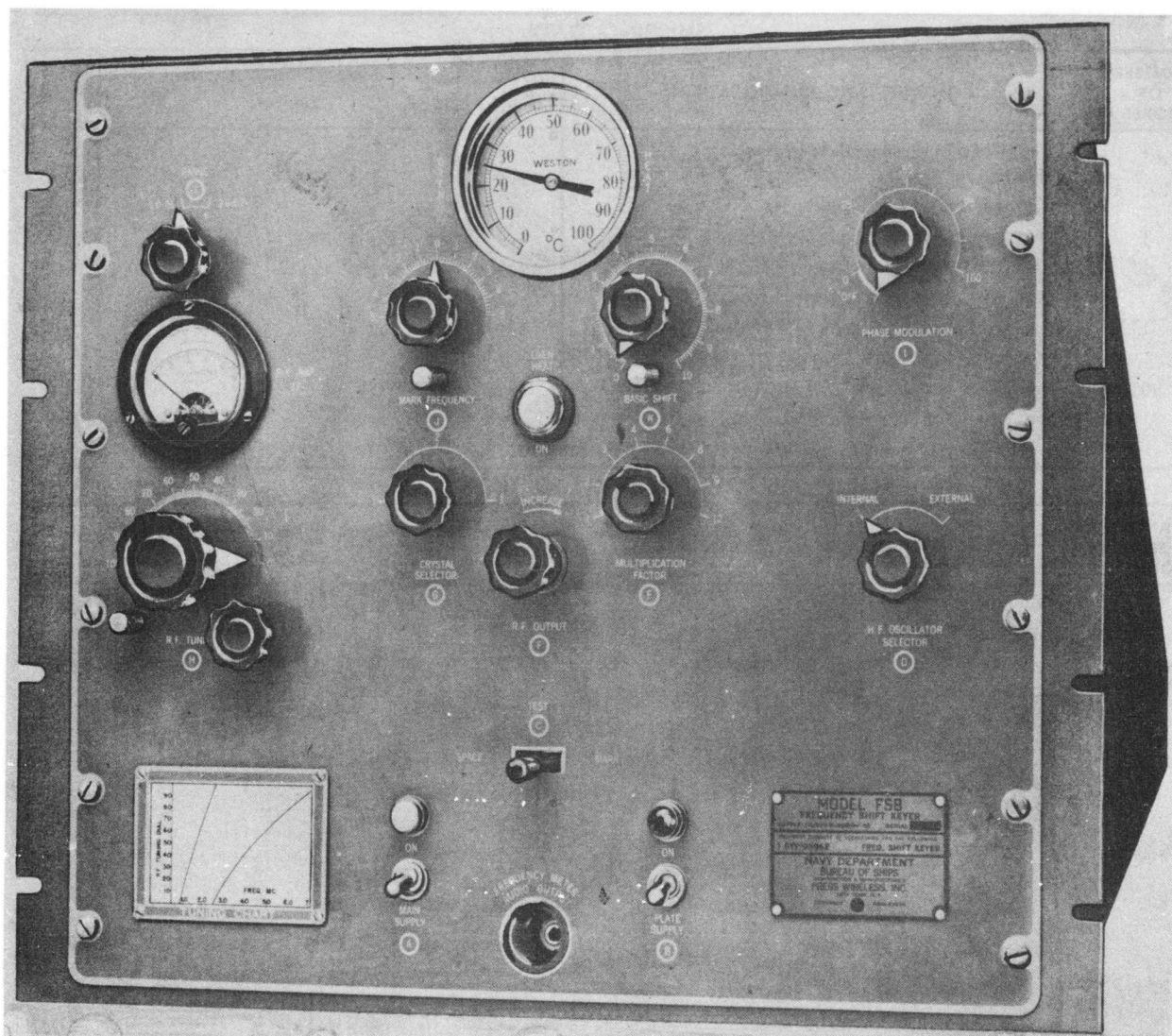
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Shift Keyer NT-35060	16 X 18 X 19	130
6	Cable Assembly		
1	Set of Keyer Equipment Spares		65
1	Mobile Cabinet NT-10389 including: Set of Equipment Spares or Shock-Resisting Cabinet NT-10390 including: Set of Equipment Spares	22 X 24 X 37 20 X 20 X 25	165 150

April 1958

FREQUENCY SHIFT KEYER EQUIPMENT

FSB



Frequency Shift Keyer Equipment FSB

FUNCTIONAL DESCRIPTION

The Navy Model FSB is designed for use with radiotelegraph transmitters at Naval shore stations to impress intelligence on an RF carrier by the frequency-shift method so as to minimize the effects of fading, noise interference, and static disturbances at the receiving equipment. It produces a carrier capable of being shifted back and forth between two distinct, pre-set radio frequencies in accordance with keyed direct-current signals from radioteletype, radiotelegraph, or

facsimile equipment. The frequency-shifted carrier output is then used to excite the associated transmitter.

It is designed for mounting in a standard 19-inch relay rack, and in addition to frequency-shift keying it has provisions for phase modulation of the carrier when desired. The phase modulation makes possible an additional improvement in the signal-to-noise ratio at the receiving station under conditions of multipath propagation.

It is used with Radio Transmitting Equipments Navy Model TEB, TEC, or TDN, and may

FSB FREQUENCY SHIFT KEYSER EQUIPMENT

be adapted for use with other Navy radio transmitters by installing a Frequency Shift Keyer Coupler Unit NT-23484 or NT-23510, together with a modification kit for that specific transmitter.

No field changes in effect at time of preparation (3 April 1958).

POWER REQUIREMENTS: 115 or 230 v, 50 to 60 cps, single ph, 150 va, 173 W.

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Quartz Crystals.

MANUFACTURER'S OR CONTRACTOR'S DATA

Press Wireless Manufacturing Corp, New York, N. Y.

Contract NXsr-67976, dated 29 June 1944.

Contract N5sr-10565, dated 23 July 1945.

Approximate Cost: \$700.00 with equipment spares.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.0 to 6.7 mc.

FREQUENCY SHIFT: 0 to 1000 cps.

FREQUENCY CONTROL: Crystal oscillator for 0.8 to 6.5 mc, Push-pull Colpitts oscillator for 200 kc.

EMISSION: FSK.

POWER OUTPUT: 0 to 2W nom.

IMPEDANCE DATA

OUTPUT: 75 ohms.

IMPEDANCE: 75 ohms.

INPUT EXCITATION VOLTAGE: 8 to 12 v max from external oscillator.

MULTIPLICATION FACTOR: 1, 2, 3, 4, 6, 8, 9, and 12 times transmitter frequency multiplication accommodated.

KEYING DATA

SPEED: 600 wpm.

DISTORTION: 5% max at 60 wpm, 20% max at 600 wpm.

VOLTAGE

POLAR: ± 50 to ± 150 v.

NEUTRAL: -50 to -150 v.

FREQUENCY STABILITY (200 KC OSCILLATOR): ± 6 cps max in 6 hr period.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OD3W	(1) 5T4
(1) 6H6	(2) 6J5
(1) 6N7	(2) 6SA7Y
(1) 6SJ7WGT	(1) 6SN7WGTA
(1) 807	

Total Tubes: (13)

(3) NT-40000A or NT-40130

Total Crystals: (3)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900928: Technical Manual for Frequency Shift Keyer Equipment Navy Model FSB.

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	Frequency Shift Keyer NT-35062 including: (1) Set of Cables	9	21 X 22 X 34	175

April 1958

FREQUENCY SHIFT KEYER EQUIPMENT

FSB

SHIPPING DATA

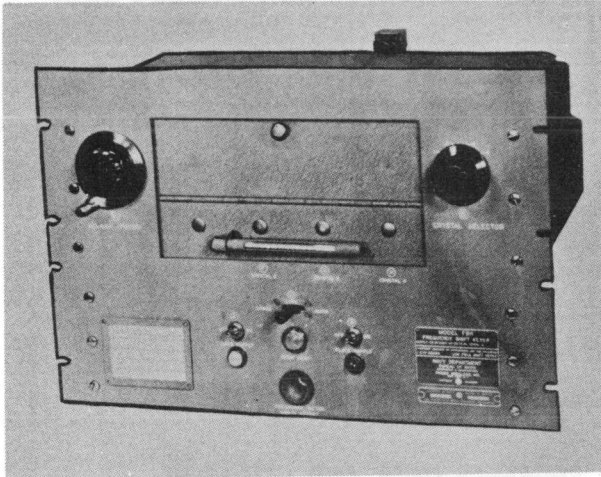
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(2) Technical Manual NAVSHIPS 900928 Set of Equipment Spares	6	15 X 19 X 36	140

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Shift Keyer NT-35062	15 X 16 X 19	88
1	Set of Cables		
1	Set of Equipment Spares	13 X 17 X 32	53
2	Technical Manual NAVSHIPS 900928	1/2 X 8-3/4 X 11-1/2	

FREQUENCY SHIFT KEYER

FSH



Frequency Shift Keyer FSH

FUNCTIONAL DESCRIPTION

The FSH provides a means of conveying intelligence on a radio circuit using the principle of carrier frequency shift. Mark and space impulses received by the unit produce two fixed frequency conditions which differ by 170 cycles per second.

This unit supersedes the oscillator of the transmitter with which it is associated. Although designed primarily for radioteletype, the basic system of frequency shift keying can be used on any radiotelegraph system having similar keyed signal requirements.

The FSH is intended to operate as an exciter with type BC-365 or similar transmitters and may be keyed either by teletypewriters or by Navy type 50124 and 50059 tone keyers. It is designed for standard 19 inch rack mounting, but may be table mounted.

Data on this sheet reflects the following field changes, FC-1, Ser 1 thru 4 (of Contract NXsr 91981). (16 October 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1)
Frequency Meter.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 550 kc.

FREQUENCY CONTROL: Crystal.

FREQUENCY SHIFT DATA

MARK: +85 cps above assigned frequency.

SPACE: -85 cps below assigned frequency.

RF OUTPUT: 2 W.

KEYING DATA

SIGNAL: 30 to 100 v DC polar or neutral signal.

SPEED: 60 cps or teletypewriter impulses.

POWER REQUIREMENTS: 115 or 230 v, 50 to 60 cps, 125 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Press Wireless, Inc., New York, N.Y.

Contract NXsr 91981.

Approximate Cost: \$2000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6J5	(1) 6V6GT
(2) 6SN7	(1) 5R4GY
(1) 6SA7	(1) VR-150-30
(1) 6SK7	

Total Tubes: (9)

(4) 40130/40000A

Total Crystals: (4)

REFERENCE DATA AND LITERATURE

Technical Manual for Navy Model FSH Frequency Shift Keyer.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

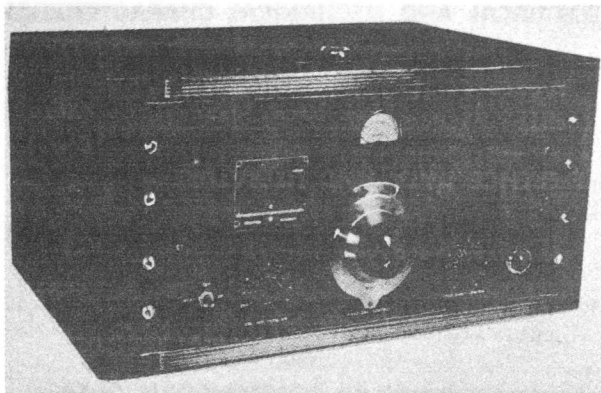
QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Shift Keyer Model FSH	12-1/4 X 14 X 19	75

March 1957

Radio Auxiliary

AUDIO FM KEYS

FSJ



Audio FM Keyer FSJ

MANUFACTURER'S OR CONTRACTOR'S DATA

Acme Newspictures, Cleveland, Ohio.
 Contract NXsr 85015.
 Approximate Cost: \$700.00 with equip-
 ment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(8) 6SN7	(2) 6H6	(1) 6SF5
(3) 6J7	(1) 6SJ7	(2) 2A3
(1) 5Z4	(1) 5V4	(2) 6SL7

Total Tubes: (21)

FUNCTIONAL DESCRIPTION

The FSJ is for converting facsimile or radiophoto amplitude modulated audio carrier to a frequency shifted audio tone, for shore and ship use.

No field changes in effect at time of preparation (13 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TERMINAL IMPEDANCE: 600 ohms.
 INPUT LEVEL, MINIMUM: 0 dbm.
 OUTPUT LEVEL: 9 to 10 dbm.
 MAXIMUM KEYING FREQUENCY: Greater than 900 cps.
 POWER REQUIRED: 115 v, 60 cps, single ph, 150 W.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95002: Technical Manual for Audio FM Keyer FSJ.

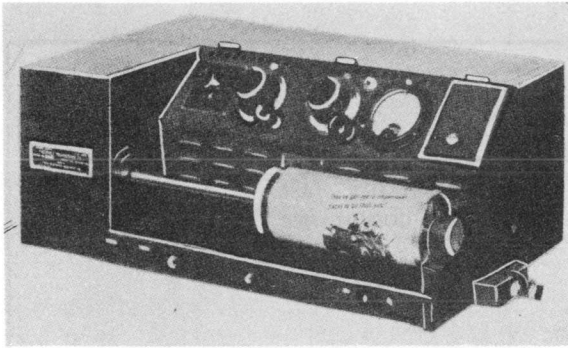
TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

EQUIPMENT SUPPLIED DATA

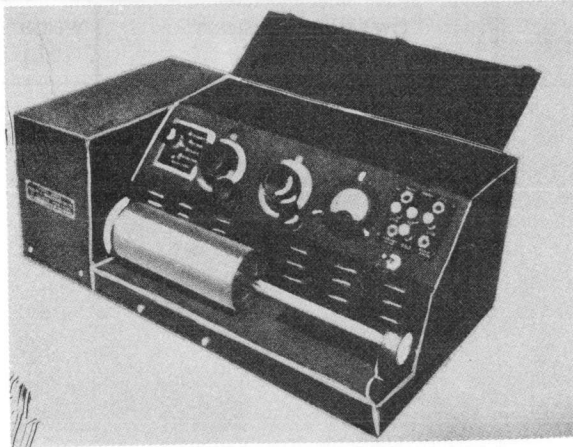
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio FM Keyer FSJ	8-3/4 X 12-1/8 X 19	75

FACSIMILE TRANSCIVER

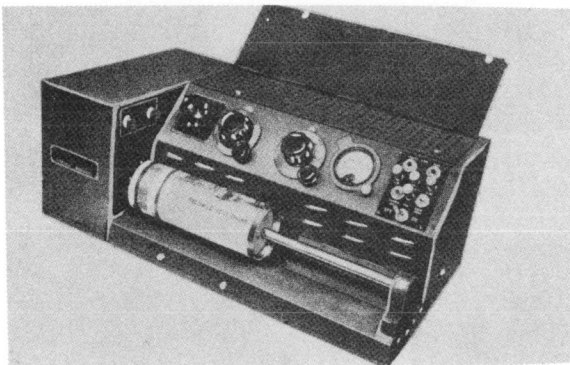
FX-1,-1A,-1B



FX-1



FX-1A



FX-1B

Facsimile Transceiver FX-1,-1A,-1B

FUNCTIONAL DESCRIPTION

The FX-1, FX-1A and FX-1B with their power supplies and accessories provide for the transmission and reception of printed, written, drawn, or photographic copy over regular voice communication channels (radio-wire). 7 X 7-3/8 inch size copy can be transmitted in seven minutes. The copy can be recorded on material requiring no further processing or on material that must be photographically processed.

No field changes in effect at time of preparation (13 July 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Power Supply PE-140, PE-140-A, PE-140B or PE-150, (1) Photographic Equipment PH-411, (1) Chest CH-117, (1) Chest CH-116, (1) Bag BG-124.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIRED: 100 to 130 v, 50 to 65 cps or 6 v storage battery in conjunction with dynamotor for emergency use.

FREQUENCY RANGE: 1200 to 1800 cps.

OUTPUT SIGNAL LEVEL: 0 dbm to +25 dbm referred to 1 milliwatt in 600 ohms.

INPUT SIGNAL LEVEL: -50 to 0 dbm.

COPY SIZE: 7 X 7-3/8 in.

COPY RECORDING AND/OR TRANSMITTING TIME: 7 minutes.

MANUFACTURER'S OR CONTRACTOR'S DATA

FX-1, FX-1B - Times Telephoto Equipment, Inc., New York, N.Y.

Contract NObsr 42035 dated 5 April 1944

Approximate Cost \$3250 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

FX-1	(4) 7L7	(7) 7C5	(1) 6AC5G
	(1) 7C7	(2) 7N7	(1) 884
Total Tubes:	(16)		

FX-1A	(3) 6AC5G	(1) 7C7	(5) 7C5
	(4) 7L7	(2) 7N7	(1) 884
Total Tubes:	(16)		

FX-1B	(4) 7L7	(6) 7C5	(3) 6AC5G
	(1) 7C7	(1) 7N7	(1) 884
Total Tubes:	(16)		

FX-1,-1A,-1B

FACSIMILE TRANSCEIVER

UNCLASSIFIED

December 1956

FX-1, -1A, -1B

(1) 1B46

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TM11-4038 War Dept. Technical Manual for Facsimile Transceiver - FX-2B, Facsimile Facsimile Set AN/TXC-1; Rectifier Power Supplies. PE-140-B and PP-86/TXC-1, Repair Instruction.

TM11-375B War Dept. Technical Manual for Facsimile Equipment - RC-120, RC-120-A, RC-120-B and Facsimile Set AN/TXC-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE 71-1679
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Facsimile Transceiver	10 X 12 X 22	60