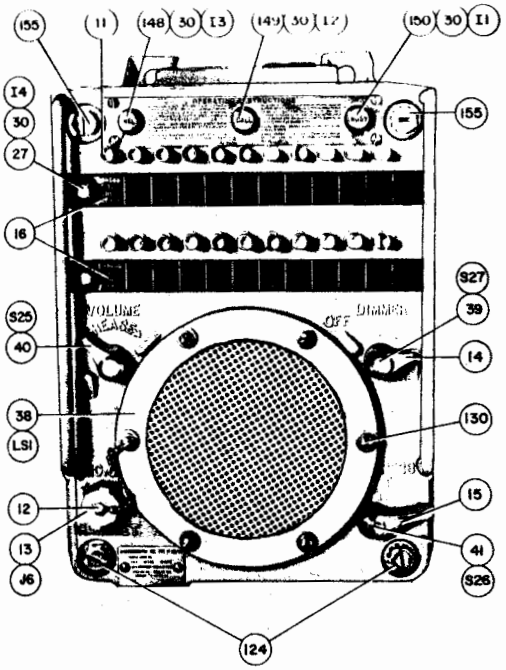
USA	USN	USAF

TYPE CLASS: Used by

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



INTERCOMMUNICATION STATION LS-385/SIC

FUNCTIONAL DESCRIPTION:

Intercommunication Station LS-385/SIC is intended primarily for expansion of existing systems on naval vessels or replacement of defective units. It is equipped with a signal voltage switch to permit use on either 10 or 16 v signaling systems. A system may consist of from two to as many stations as desired. Type LS-385/SIC stations can originate calls up to 20 other stations. As it is necessary to operate the station selector buttons to reply to an incoming call, there is no limit to the number of stations which can call one individual station in the system and receive replies from it. As many conversations may be conducted simultaneously as there are pairs of stations in the system.

No field changes in effect at time of preparation (14 April 1967).

RELATION TO OTHER EQUIPMENT:

The LS-385/SIC is similar to the IC-KAA-1 and IC-KAA-2.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

INTERCOMMUNICATION STATION LS-385/SIC

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v ac, 60 cyc, 60 W max, 25 W standby.
RATED POWER OUTPUT: 10 W at less than 10% distortion.
INPUT IMPEDANCE: 16 ohms built in for use w/reproducer as microphone; 150 ohms available as aux microphone jack for use w/aux handset or microphone.
AMPLIFIER GAIN: 81 db measured at 1000 cps.
OUTPUT IMPEDANCE: 500 ohms (70 v).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-385/SIC	9-3/16 x 10 x 14-1/2	42

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2765: Technical Manual for Intercommunication Station LS-385/SIC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		47

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-I-17928
DESIGN COG: USN, NavShips

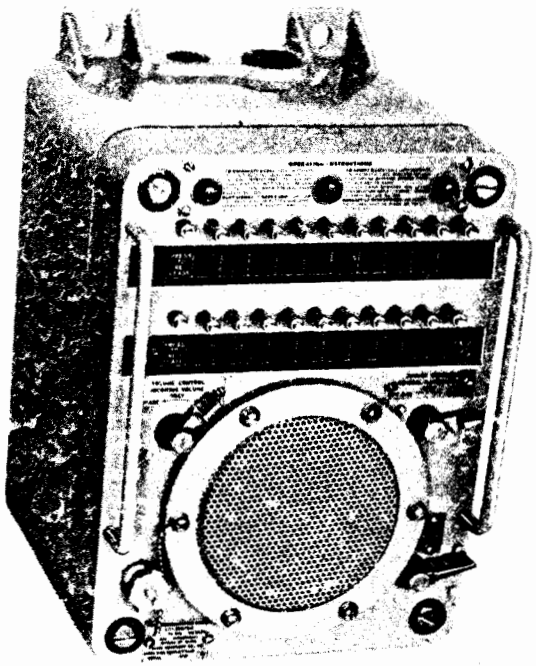
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone Incorporated	Long Island City, New York	N126-096146	

954

USA USN USAF

TYPE CLASS: Used by

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



INTERCOMMUNICATION STATION LS-385A/SIC

FUNCTIONAL DESCRIPTION:

955

The Intercommunication Station LS-385A/SIC is a shipboard equipment using 20 station selector pushbutton and one release button. It has an amplifier and uses wire transmission.

No field changes in effect at time of preparation (23 March 1966).

RELATION TO OTHER EQUIPMENT:

The LS-385A/SIC is mechanically, electrically and functionally overall 2-way interchangeable with LS-385/SIC except repair parts differ.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) "ALL STATION" position; (1) Microphone Jack IC/MPM; or (1) Handset IC/MPH.

INTERCOMMUNICATION STATION LS-385A/SIC

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 110 v, 60 cyc, ac single ph, 60 W.
LAMPS: "Busy", "Release" and "Call".
CONTROLS: Illumination and Volume.
HEAT DISSIPATION: 60 W.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-385A/SIC	9-3/16 x 10 x 14-1/2	42

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2765: Technical Manual for Intercommunication Station LS-385/SIC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-I-17928A(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone, Incorporated	Long Island City, N. Y.	N126-096146	

956

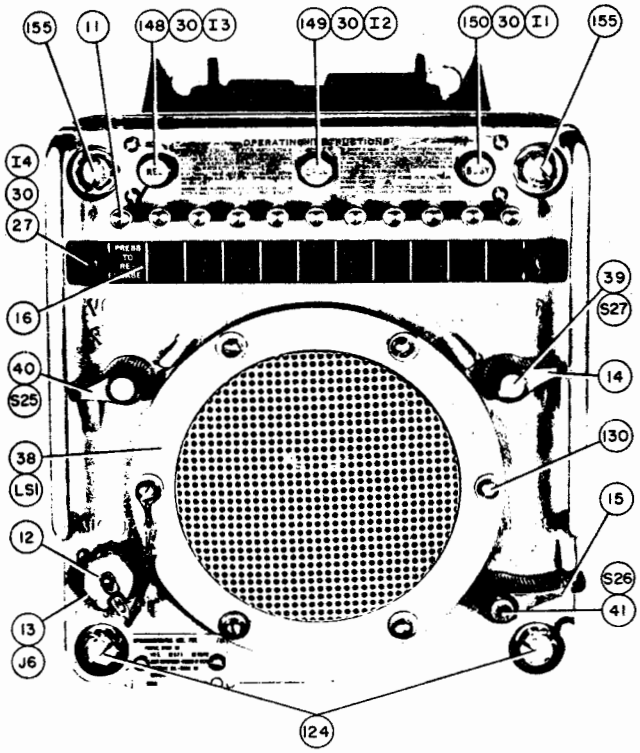
30 July 1964 | INTERCOMMUNICATION STATION LS-386B/SIC

Cog Service: USN FSN: IN5830-892-0613 | Functional Class:

USA | USN | USAF

TYPE CLASS: Used by

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



INTERCOMMUNICATION STATION LS-386B/SIC

FUNCTIONAL DESCRIPTION:

Intercommunication Station LS-386B/SIC is intended primarily for expansion of existing systems on naval vessels or replacement of defective units. It is equipped with a signal voltage switch to permit use on either 10 or 16 v signalling systems.

A system may consist of from two to as many stations as desired. It can originate calls up to 10 other stations.

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

RELATION TO OTHER EQUIPMENT:

LS-386B/SIC INTERCOMMUNICATION STATION

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Microphone.

TECHNICAL CHARACTERISTICS:

RATED POWER OUTPUT: 10 W at less than 10% distortion.
INPUT IMPEDANCE: 16 ohms built in for use with reproducer as microphone; 150 ohms available at auxiliary microphone jack for use with auxiliary handset or microphone.
AMPLIFIER GAIN: 81 db measured at 1,000 cps.
OUTPUT IMPEDANCE: 500 ohms (70 v).
POWER SUPPLY REQUIRED: 115 v, 60 cyc, single ph, 25 W (standby), 60 W (at max power output).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-386B/SIC	1N5830-892-0613	9-3/4 x 10 x 12-1/2	39

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2740: Technical Manual for Intercommunication Station LS-386B/SIC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

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

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N2095

958

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-I-17928A(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Executone Inc. Model No. NV-17-6	New York, New York	N126-094054	

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Permanent Magnet Loudspeaker	DESIGNATION: LS-450/B
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-72097, N126-090553	DATE of Request.: 21 June 1960
CONTRACTOR'S NAME AND ADDRESS: Jensen Manufacturing Company, 6601 South Larame Avanue, Chicago 38, Illinois		QUANTITY ON ORDER: 204
		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: - V - CYCLE - PHASE - AMPS 5 watts nominal WATTS | - V - CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-
OPERATING FREQ. AND FREQ. RANGE	**EMISSION OR RECEPTION (TYPE)**	**FREQ. CONTROL (TYPE)**	**NO. OF CHANNELS**
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	16	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	N.P.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Permanent Magnet Loudspeaker LS-450/B (Mfr's Dwg. No. 12150-F)	6-inch diameter		6		

CHANGE 68 - 665E 1.2 LS-450/B: 1 UNCLASSIFIED

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

DESIGNATION	ITEM NAME
LS-450/B	Permanent Magnet Loudspeaker

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The LS-450/B is a general announcing system used outside the hull of submarines. It has a 16-ohm voice-coil impedance at 1000 cycles and the input wattage is 5-watt normal and 15-watt peak. The cone is a maximum of 5 inches in diameter and 5 inches deep. A transformer is not included.

There are four 9/16 inch diameter mounting holes spaced on 2-3/8 by 3-7/8 inch centers.

Special features: The unit has two No. 8 screw terminals, a voice-coil molded in silastic compound; it is submersible, and it has a minimum output of 90 db above 2000 dynes p/sq cm at 10 feet with 5 VA at 775 to 1225 cps.

No unit cost available.

Source of information: Request for Nomenclature.
Contract

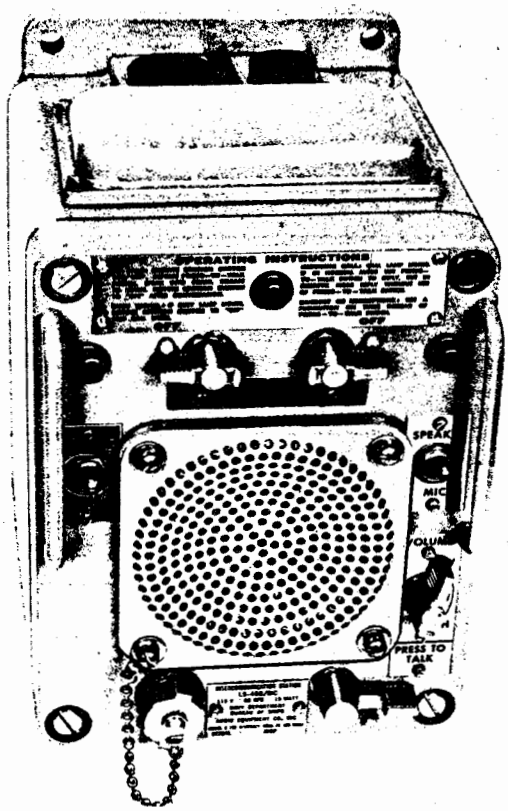
960

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



INTERCOMMUNICATION STATION LS-458/SIC

FUNCTIONAL DESCRIPTION:

Intercommunication Station LS-458/SIC is a two station unit with facilities to permit hands-free operation. Two-way voice communication facilities and signaling lamp indicators can be provided between two other stations of the same type, or with two stations of LS-386/SIC, LS-386A/SIC or LS-385/SIC. Each station is suitable for installation in exposed or protected locations and is designed to be watertight and waterproof. The equipment will withstand shock, vibration and salt spray and is built to perform under extremes of temperature and high humidity. Each unit is enclosed in a case with removable front panel assembly.

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

RELATION TO OTHER EQUIPMENT:

LS-458/SIC INTERCOMMUNICATION STATION

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

POWER OUTPUT: 3.0 W with less than 10% distortion.
INPUT IMPEDANCE: 8 ohms when reproducer is used as a microphone; 150 ohms for use with handset or portable microphone.
AMPLIFIER GAIN: 66 db at 1,000 cps.
OUTPUT IMPEDANCE: 1,667 ohms (70 v).
POWER SUPPLY REQUIRED: 115 v, 60 cyc, single ph, 11.5 W (standby), 23 W (at max power output).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Intercommunication Station LS-458/SIC	S5830-987-5376	6-1/2 x 7-1/2 x 10-5/8	20

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2822: Technical Manual for Intercommunication Station LS-458/SIC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (5) 1N538 (2) 1N2974B (1) 1N2988B (4) 2N297A (1) 2N697

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.3	25

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-I-22560(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Audio Equipment Co., Inc.	Port Washington, New York	NObs-(24-126)-88061	$438.00
		NObs-(24-126)-88210	$270.00

1.2 LS-458/SIC: 2

96L

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

		DESIGNATION: M-109/U
CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Dynamic Microphone	DATE of Request.: 10 June 1960
PECIFICATION: (see reverse)	CONTRACT NUMBER AND DATE: -	QUANTITY ON ORDER: -
CONTRACTOR'S NAME AND ADDRESS: Roanwell Corporation (Div. of Aviometer) 662 Pacific Street Brooklyn, New York		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT									
- V - CYCLE - PHASE - AMPS - WATTS						- V - CYCLE - PHASE - AMPS - WATTS			
OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)		WAVE GUIDE OR CABLE LIMITATIONS		INPUT SIGNAL CHARACTERISTICS		POWER OUTPUT	
-		-		-		-	
OPERATING FREQ. AND FREQ. RANGE		EMISSION OR RECEPTION (TYPE)		FREQ. CONTROL (TYPE)		NO. OF CHANNELS	
300 to 5000 cycles		-		-		-	
ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN				
-	-	-	- °HOR'L.	- °VERT.			

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	-
			OPERATING INSTRUCTION CHART	-
			PERFORMANCE STANDARD SHEET	-
			MAINTENANCE STANDARD BOOK	-

963

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Dynamic Microphone M-109/U (Mfr's Dwg. No. 3208)	3-3/4	2-9/16	2-1/2		
	CHANGE 68 - 681B2	1.2 M-109/U: 1			UNCLASSIFIED	

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217419

DESIGNATION	ITEM NAME
M-109/U	Dynamic Microphone

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The M-109/U is a dynamic microphone with extremely-low distortion intended for use mainly with single-sideband communications equipment. This unit is for general-purpose use and is a unidirectional, hand-held microphone. It is terminated with cable connector MS-3106A-14S-5P and clamp MS-3057-6. The cable included is 5 feet long. It has a dual push-to-talk switch. Electrical data: 12-volt polarizing voltage; 35-db above 0.001 volt with an input of 28 dynes per square cm. The unit contains a transistorized amplifier to equal the output of a carbon microphone.

No unit cost available.

Source of information: Request for Nomenclature.

964

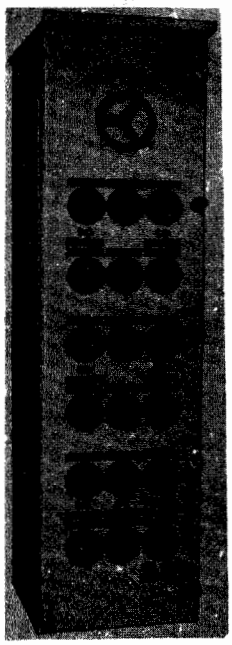
30 August 1967 | SELECTOR SWITCHBOARD, NAVDAC MARK 1 MOD 0

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Sperry Gyroscope Co., (13604).



SELECTOR SWITCHBOARD, NAVDAC MARK 1 MOD 0

FUNCTIONAL DESCRIPTION:

Selector Switchboard, NAVDAC Mark 1 Mod 0 is designed for use in the 616 class submarine. It is a deck-mounted unit which transfers various signals between equipment of the Navigation Subsystem located in the Navigation Center of the submarine. Its primary switching function is the selection of digital data from either NAVDAC 1 or NAVDAC 2 for transfer to SINS.

No field changes in effect at time of preparation (29 March 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

NUMBER OF OPERATIONAL SWITCHES: 15.
SWITCH RATING: 10 amp, 125 v ac.

SELECTOR SWITCHBOARD, NAVDAC MARK I MOD 0

TOTAL SWITCHES: 21.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Selector Switchboard, NAVDAC, Mark 1 Mod 0	17-5/8 x 19-3/4 x 65	504

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0924-007-3: Technical Manual for NAVDAC Selector Switchboard MK 1 Mod 0 SSB(N) 616 Class Submarines.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Gyroscope Co.	Syosset, New York		

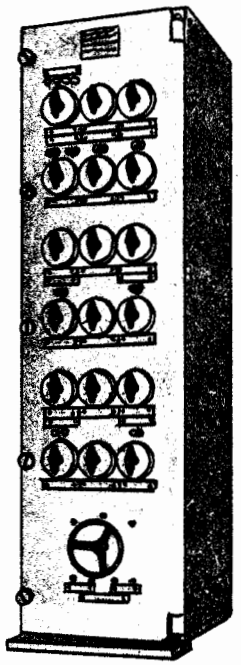
7 July 1965 NAVDAC SELECTOR SWITCHBOARD MK 1 MOD 1

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: **Used by**

MANUFACTURER'S NAME/CODE NUMBER: Sperry Gyroscope Co. (56232)



NAVDAC SELECTOR SWITCHBOARD MK 1 MOD 1

967

FUNCTIONAL DESCRIPTION:

NAVDAC Selector Switchboard MK 1 Mod 1 is a deck mounted unit containing nineteen front-panel controls. The switchboard is used to transfer the inputs and outputs of several navigational aids to either of the two Navigation Data Assimilation Computers (NAVDAC 1 or NAVDAC 2) in the Navigation Center of the submarine. The NAVDAC Selector Switchboard switch positions determine whether the information output from NAVDAC 1 or NAVDAC 2 is to be sent to the Navigation Control Console and whether the five minute pulse and precision sixty cycle voltage from the Frequency-Time Standard is directed to NAVDAC 1 or NAVDAC 2, or to both computers. In addition, the Selector Switchboard accepts multiplex data from other equipments.

The Selector Switchboard is a part of the Navigation Subsystem. Switches S7001, S7002, and S7003 are ganged and controlled by the handwheel. Switch S7010 selects NAVDAC 1 or NAVDAC 2 which provides multiplex data to and from navigation subsystem equipment.

No field changes in effect at time of preparation (11 June 1965).

1.3 MK 1 MOD 1: 1

NAVDAC SELECTOR SWITCHBOARD MK 1 MOD 1

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OPERATING TEMPERATURE RANGE: 5° C to 55° C (41° F to 131° F).
SWITCH RATINGS: 10 amp at 125 v ac.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	NAVDAC Selector Switchboard MK 1 Mod 1		17-3/8 x 17-3/4 x 65	504

REFERENCE DATA AND LITERATURE:

NAVSHIPS 324-0667: NAVDAC Selector Switchboard MK 1 Mod 1.
NAVSHIPS 324-0655: Technical Manual for SSB(N)598 (Overhauled) Class Navigation Subsystem.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None required.

CRYSTALS: None required.

SEMI-CONDUCTORS: (4) CS-1602075 (16) 1N457

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Gyroscope Co. Div. of Sperry Rand Corp.	Great Neck, N. Y.		

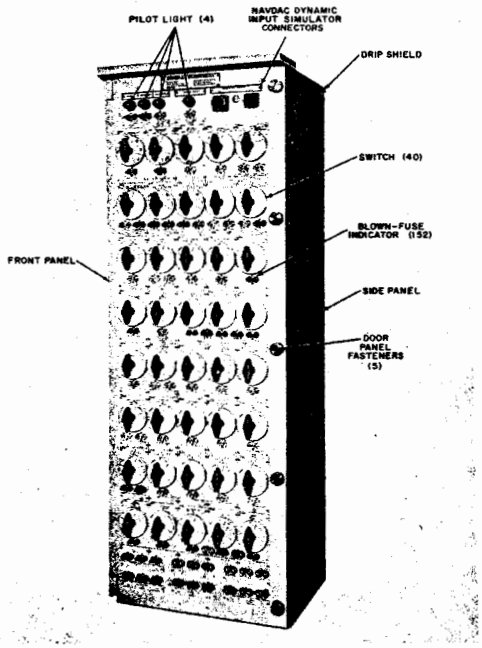
28 June 1965

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

USA	USN	USAF

TYPE CLASS: **Used by**

MANUFACTURER'S NAME/CODE NUMBER: Sperry Gyroscope Co. (56232)



NAVIGATION ACTION CUT-OUT SWITCHBOARD MK 1 MOD 1

FUNCTIONAL DESCRIPTION:

666

Navigation Action Cut-Out Switchboard MK 1 Mod 1 is used to isolate most of the equipments in the navigation subsystem from each other, and from the equipments of other subsystems during casualty control and maintenance operations and to select and route signals between equipments.

The switchboard is capable of removing the input to an equipment (action cut-out), and selecting an input to an equipment (selection). In addition connections are provided for Navigational Data Assimilation Computer Dynamic Input Simulator and fixed angles input test signals for testing synchros and resolvers.

Action cut-out and selection of data flowing between the Navigation Action Cut-out Switchboard and navigation subsystem equipments are controlled by forty manually-operated rotary switches on the front panel and two motor-drive snapslide switches on the rear frame of the switchboard.

No field changes in effect at time of preparation (11 June 1965).

1.3 MK 1 MOD 1: 1

NAVIGATION ACTION CUT-OUT SWITCHBOARD MK 1 MOD 1

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OPERATING TEMPERATURE RANGE: 5° C to 55° C (41° F to 131° F).
SWITCH RATINGS
ROTARY: 10 amp at 125 v ac; 5 amp 125 v dc.
SNAPSLIDE
CONTACT RATING: 4 amp at 28 v dc resistive.
MAXIMUM MOTOR RATING: 1.55 amp at 30.5 v dc.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Navigation Action Cut-out Switchboard MK-1 Mod 1		20-3/8 x 23-31/32 x 69	740

REFERENCE DATA AND LITERATURE:

NAVSHIPS 324-0666: Navigation Action Cut-Out Switchboard MK 1 Mod 1.
NAVSHIPS 324-0655: Technical Manual for SSB(N)598 (Overhauled) Class Navigation Subsystem.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Gyroscope Co. Div. of Sperry Rand Corp.	Great Neck, N. Y.		

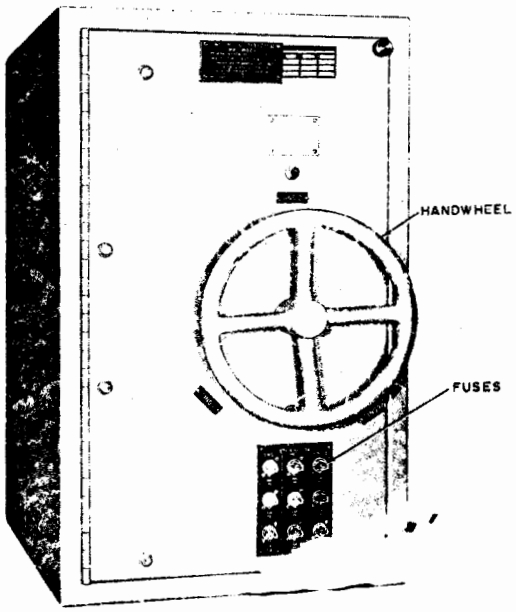
24 June 1965 SINS SELECTOR SWITCH MK 1 MOD 1

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Sperry Gyroscope Co. (56232)



SINS SELECTOR SWITCH MK 1 MOD 1

FUNCTIONAL DESCRIPTION:

Ships Inertial Navigation System (SINS) Selector Switch, MK 1 Mod 1 is a two section, drip-proof, bulkhead mounted unit used to select one of the three SINS as the master inertial navigator of the Navigation Subsystem. The Selector Switch routes the outputs of the master SINS to the Navigation Subsystem and throughout the ship, and routes signals from all three SINS to NAVDAC MK 2 Mod 4A. The Selector Switch is operated manually from its own front panel by rotating the handwheel.

In addition to its switching capabilities, the Selector Switch accepts 3 phase, 400 cycles per second, power and continuously routes single ph, 400 cycles per second, synchro excitation to all three SINS. The synchro excitation is routed through nine indicator type fuses on the front panel of the Selector Switch. It also routes single phase synchro excitation for total Velocity, Latitude, and Longitude to sonar via the Navigation ACO Switchboard. The SINS Selector Switch contains a relay assembly which provides SINS vertical velocity difference data to NAVDAC C for monitoring.

As part of the navigation subsystem, the Selector Switch contains a switchboard, that

971

routes navigation data from SINS to other equipments of the navigation subsystem and to the Fire Control Subsystem.

No field changes in effect at time of preparation (11 June 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OPERATING TEMPERATURE RANGE: 5° C to 55° C (41° F to 131° F).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	SINS Selector Switch MK 1 MOD 1		19-3/4 x 19-7/8 x 33	298

REFERENCE DATA AND LITERATURE:

NAVSHIPS 324-0665: SINS Selector Switch MK 1 MOD 1.
NAVSHIPS 324-0655: Technical Manual for SSB(N)598 (Overhauled) Class Navigation Subsystem.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

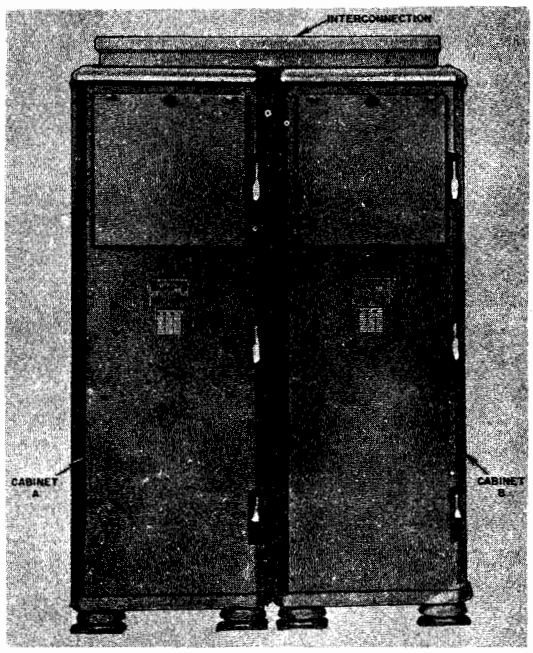
PROCURING SERVICE: USN
DESIGN COG: USN
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Gyroscope Co. Div. of Sperry Rand Corp.	Great Neck, N. Y.		

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER:



COMPUTER STABILIZATION DATA MARK-3, MOD-1(SDC)

FUNCTIONAL DESCRIPTION:

973

The Computer Stabilization Data Mark-3, Mod-1(SDC) is capable of several modes of operation. In its normal mode it operates automatically to fullfill its mast-driving and position-correction functions in the Navigation Sub-system. Eight other modes are available to permit test and alignment and to allow supplementary manual control and data insertion. The manual mode input is used to insert celestial body functional data, such as precalculated celestial body position and rate and flexure data for celestial observation, in the event NAVDAC is inoperative.

The Equipment converts the four data quantities to ship's deck coordinates by compensating for ship's roll, pitch, and heading using R, P, and H data received from the Multispeed Repeaters. The resulting train and elevation data are then converted to periscope mast coordinates by compensating for static periscope mast flexures using data received from

NAVDAC, periscope deck train and elevation thus produced from the SDC outputs are sent to the Type 11 Periscope and initially position the periscope line-of-sight to the star position predicted by NAVDAC. Periscope deck train and elevation are supplied continuously to enable the periscope line-of-sight to track the predicted star position as the earth rotates.

No field changes in effect at time of preparation (2 June 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

NUMBER SCALING: Positive numbers: Binary Negative numbers: Binary two's complement.
INTERNAL SCALING: Numbers range from 1 to -1.
ORGANIZATION: Stored program.
NUMBER SCALE: Fixed point, fractional.
DATA TRANSMISSION: Primarily serial; transmission to and from memories is parallel.
CLOCK RATE: 250 kc.
WORD LENGTH: NUMBERS: 25 bits; INSTRUCTIONS: 13 bits.
COMMAND REPERTOIRE: 20 commands, 19 active with 1 command not used is Logical Multiply(LGM).
MEMORY TYPE: Coincident-current, magnetic core matrix.
MEMORY ACCESS TIME: 16 microseconds for a read-write cycle.
MEMORY CAPACITY: Non-destructive: 1024 instructions, 256 constants 64 variables.
COMPUTING-RATES:
DIVISION: 400 operations per second.
MULTIPLICATION: 5,000 operations per second.
ALL OTHER COMMANDS: 10,000 operations per second.
OUTPUTS: Train and elevation drive signals to the Type 11 periscope
Corrected star positions to NAVDAC.
CIRCUITRY: Resister-coupled transistor logic.
PACKAGING: Modular, plug-in construction.
POWER INPUT: 800 watts, nominal, 115 volts, 400 cps, 3-phase ac.
TOTAL VOLUME: 26 cubic feet approx.

974

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Computer Stabilization Data Mark-3, MOD-1 (SDC)		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0924-002-9: Technical Manual of Introduction, Description for Stabilization Data Computer MARK-3, MOD-1.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1.3 MARK-3, MOD-1(SDC): 2		

COMPUTER STABILIZATION DATA MARK-3, MOD-1(SDC)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

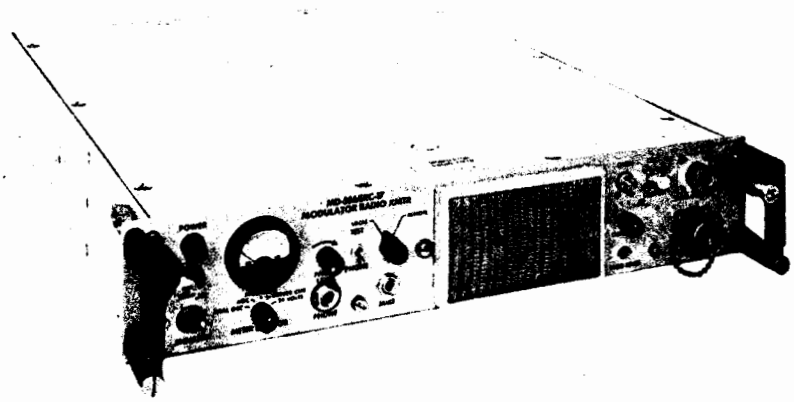
2 July 1965 | MODULATOR, RADIO TRANSMITTER MD-556/SRC-17

Cog Service: USN FSN: | Functional Class:

USA | USN | USAF

TYPE CLASS: Used by

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



MODULATOR, RADIO TRANSMITTER MD-556/SRC-17

FUNCTIONAL DESCRIPTION:

Modulator, Radio Transmitter MD-556/SRC-17 is designed to operate with the Amplifier, Frequency Multiplier AM-3017/SR. When both units are assembled together, with the modulator mounted below the multiplier/amplifier they form a single, self-contained, 10 watt transmitter. The modulator includes input amplifier stages with AGC feedback that can be defeated as desired. A bandpass filter network which limits the input audio frequency response within the 200 to 4000 cycle range, is followed by a driver and push-pull amplifier output stages which provide the 300 to 3000 cycle output which is designed to provide plate and screen modulation of the Multiplier/Amplifier. A built-in crystal oscillator with four selectable crystals provides the carrier input to the multiplier/amplifier when Synthesizer O-1178/SRC-17 operation is not required. The crystal frequency is 75 to 143.3 mc and is tripled in the amplifier into the UHF region.

No field changes in effect at time of preparation (25 May 1965).

MODULATOR, RADIO TRANSMITTER MD-556/SRC-17

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting (Antivibration Fixture); (8) Outer Chassis Mounting Brackets; (1) Handset H-169/U.

TECHNICAL CHARACTERISTICS:

POWER OUTPUT: 50 W max.
FREQUENCY RESPONSE: 300 to 3500 cps.
IMPEDANCE DATA: 30 ohms input; 2500 ohms output.
CRYSTAL DATA
- TYPE OF CUT: AT.
- FREQUENCIES: 75 to 133 mc.
- OSCILLATION FREQUENCY: 75 to 133 mc.
- OPERATING TEMPERATURE: 75 deg C.

FREQUENCY STABILITY: ± 1 ppm over the operating range.
POWER REQUIREMENTS: 115 v, 50 to 400 cps, 1 ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Modulator, Radio Transmitter		3-1/2 x 17-1/2 x 22	66

977

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95868: Technical Manual for Frequency Multiplier Amplifier AM-3017/SR and Radio Transmitter Modulator MD-556/SRC-17.

TUBE, CRYSTALS AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: (4) 75 to 133MC

SEMI-CONDUCTORS: (4) 1N270 (1) 1N645 (2) 1N661 (1) 1N751A (2) 1N915 (4) 1N1184
(1) 1N2820RB (1) 1N2976RB (1) 1N2980RB (1) 1N2986R (4) 1N3050
(1) 1N3311RB (2) 2N297A (1) 2N312 (2) 2N333 (3) 2N336 (1) 2N338
(1) 2N656 (2) 2N1195 (1) 2N1692 (1) 2N1882 (2) 2N2075A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Inc.	Wilton, Connecticut	NObsr-87289	

978

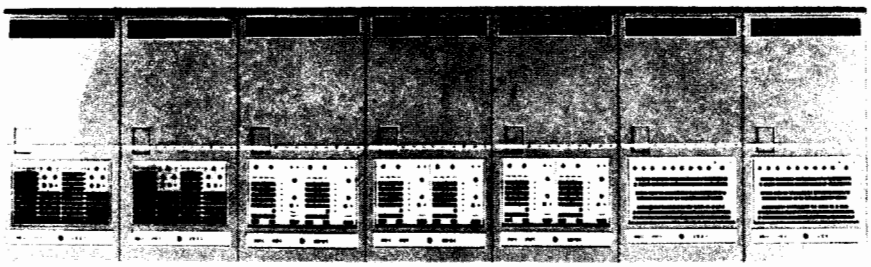
28 November 1966 CORE MEMORY UNIT MU-468A/GYK-4

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corp. Defense and Space Group, (15416).



CORE MEMORY UNIT MU-468A/GYK-4

979

FUNCTIONAL DESCRIPTION:

Core Memory Unit MU-468A/GYK-4 is a random access, linear select, ferrite core memory utilized for storage of systems programs and operational data. Has a storage capacity of 4096 words containing 49 bits. The access time is 1 micro-second and the read-restore cycle is 4.3 micro-seconds. Has self contained power supply and control panel.

No field changes in effect at time of preparation (24 May 1966).

RELATION TO OTHER EQUIPMENT:

The MU-468A/GYK-4 is one way interchangeable with MU-468/GYK-4.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Controller Comparator C-4634A/GYK-4; (1) Computer Digital Data CP-719A/GYK-4.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
- VOLTAGE: 120 to 208 v ± 10%.
- FREQUENCY: 60 cps.
- PHASE: 3.
- POWER: 2.39 k va.
- POWER FACTOR: 0.888.

HEAT DISSIPATION: 6928 BTU per hr.
ENVIRONMENTAL PARAMETERS
- AMBIENT TEMPERATURE: 32 to 104° F.
- RELATIVE HUMIDITY: 95% max.
- AMBIENT LIGHTING: 50 foot-candles max.

STORAGE CAPACITY: 8192 words (4096 words per module).
READ-WRITE CYCLE TIME: 4.33 usec per word.
ACCESS TIME: 1.67 usec.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
3	Core Memory Unit MU-468A/GYK-4	28 x 39 x 80	1675

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96052: Technical Manual for Core Memory Unit MU-468A/GYK-4.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	93	2125

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: SHIPS-D-4542

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corp., Defense and Space Group	Paoli, Penn.	NObsr 91181	

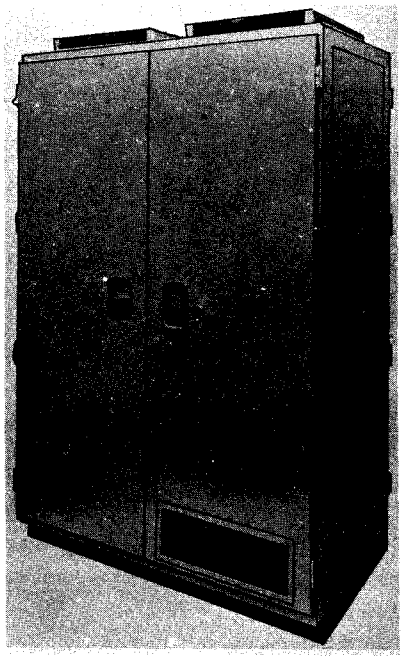
17 January 1967 DATA STORAGE MAGNETIC DRUM MU-510/GYK-3(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corp., Military Systems and Service Division Defense and Space Group, (15416).



DATA STORAGE MAGNETIC DRUM MU-510/GYK-3(V)

FUNCTIONAL DESCRIPTION:

The Data Storage Magnetic Drum MU-510/GYK-3(V), magnetic drum unit, provides general data storage for the AN/GYK-3(V) system. Each of the three magnetic drum units contains its own power supply and logic circuits and is capable of storing 65,536 words of data. The magnetic drum units communicate with the I/O modules in receiving or transferring data and with the computers for interrupt and status functions.

No field changes in effect at time of preparation (25 May 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Voltmeter Triplett No. 630NA; (1) Counter Hewlett-Packard Model 524D; (1) Power Supply Tektronix Model 132; (1) Sine Wave Generator Hewlett-Packard Model 650A; (1) Differential Voltmeter Fluke Model 803; (1) Oscilloscope Tektronix Type 545A; (1) Oscilloscope Tektronix Type 555; (1) Plug-in Unit Tektronix Type CA; (1) Plug-in Unit Tektronix Type GA; (1) Transformer Bryant 55000; Mobil Cart Tektronix Type-500/53A; (1) Bearing Puller CAD-076; Viewing Hood Tektronix Type-016-001.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
- VOLTAGE: 120 to 208 volts ac ± 10%.
- FREQUENCY: 60 cycles per second.
- PHASE: Single phase, Two-wire; 3 phase, four-wire.

AMBIENT OPERATING TEMPERATURE: + 32 deg F to + 104 deg F.
- RELATIVE HUMIDITY: 95 per cent with limited condensation.
- DRUM SPEED: 3600 rpm.
- PULSE REPETITION FREQUENCY: 572.4 kc min; 584.6 kc max.
- SWITCHING TIMES
- TRACK TO TRACK: 20 usec max.
- READ TO WRITE: 10 usec max.
- WRITE TO READ: 50 usec max.

DRUM STARTING CURRENT: 8 amp per phase max.
DRUM RUNNING CURRENT: 2.5 amp per phase nom.
BIT TRANSFER RATE: 1.73 usec.
SIGNAL-TO-NOISE RATIO: 5 to 1 max.
PULSE WIDTH OF DRUM INFORMATION SIGNALS: 1.73 usec nom.
PLAYBACK SIGNAL AMPLITUDE: 50 to 120 millivolts peak-to-peak.
HEAT DISSIPATION: 4778 BTU per hr.
- AMBIENT LIGHTING: 50 foot-candles max.
- PULSE WIDTH OF DRUM CLOCK PULSES: 0.75 usec min, 0.9 usec max.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
3	Data Storage Magnetic Drum MU-510/GYK-3(V) includes:	27-1/2 x 42 x 69	1150
1	Head Adjustment Tool B-AD-022		
1	Head Squaring Fixture AD-087		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96055: Technical Manual Service for Magnetic Drum, Data Storage MU-510/GYK-3(V).

DATA STORAGE MAGNETIC DRUM MU-510/GYK-3(V)

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	88.75	1300
1	11.0	300

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: SHIPS-D-4542

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corp., Military Systems and Service Div. Defense and Space Group, Pt/dwg no.4433-3000	Burroughs Drive, Radnor, Pa.	NObsr-91181	

983

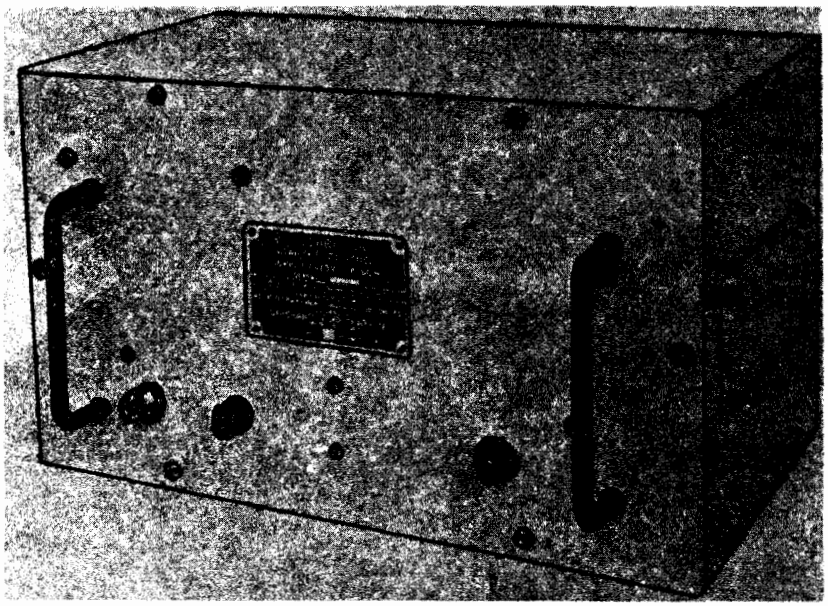
12 August 1965 ADAPTER, CONTROL MX-1986A/SRC

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Clavier Corporation, (97238).



ADAPTER, CONTROL MX-1986A/SRC

FUNCTIONAL DESCRIPTION:

Adapter, Control MX-1986A/SRC is an accessory unit which provides for the operation of Radio Sets AN/SRC-10Y, -11Y, -12Y, -13Y, -14Y, and 15Y with the standard Navy 12-wire remote control system. The MX-1986A/SRC adapts ac powered radio sets and contains a 12 v dc power source which supplies control relay voltage to remote units. The Adapter, Control is normally installed near the Radio Set, with direct connections to the mounting and normally indirect connections through radio switchboards to remote positions. The cable connections extend the audio and control functions of the Receiver-Transmitter and the audio lines of the Auxiliary Receiver (when used) to the switchboard for distribution.

No field changes in effect at time of preparation (14 July 1965).

RELATION TO OTHER EQUIPMENT:

Replaces MX-1986/SRC.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 60 cps, 1 ph, 70 W.
MOUNTING: Shelf mtd from either top or bottom.
SPECIAL REQUIREMENTS: FC#2 for AN/SRC-10Y, -11Y, -12Y, -13Y, -14Y and 15Y must be complied with before the installation of the Adapter, Control.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Adapter, Control MX-1986A/SRC	8-3/8 x 9-11/16 x 14	25
	includes:		
2	Technical Manuals		

REFERENCE DATA AND LITERATURE:

Advanced Data Sheets for Control Adapter MX-1986A/SRC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

985

SEMI-CONDUCTORS: (2) 1N1614 (1) 1N2976B (3) 2N297A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.3	30

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-A-4564

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Clavier Corporation	Richmond Hill, New York	NObsr 91138	

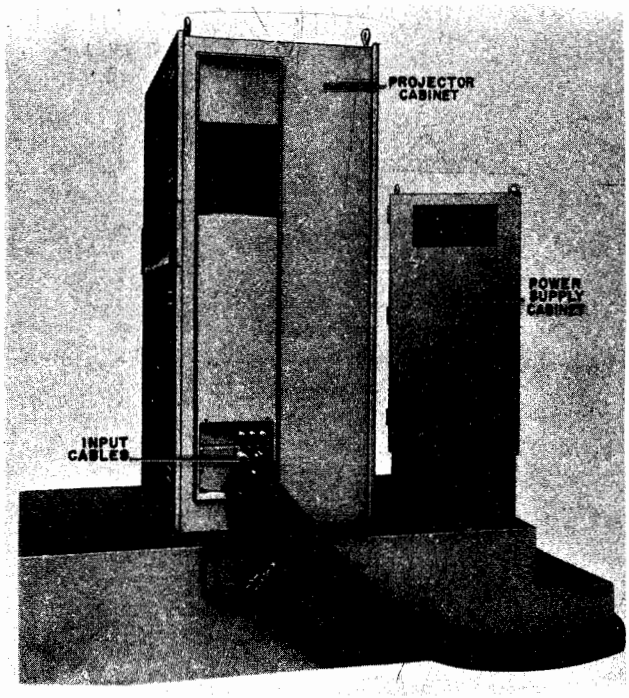
2 July 1965 TELEVISION-DISPLAY PROJECTOR MX-2887/GX

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Military Communications Department GECO, (09167).



TELEVISION-DISPLAY PROJECTOR MX-2887/GX

FUNCTIONAL DESCRIPTION:

Television-Display Projector MX-2887/GX is an electrical-optical transducer designed to convert video information into a modulated light output suitable for projection onto a large screen displaying system. The equipment consists of two cabinets. The projector cabinet contains the video and optical system and the power supply cabinet contains three of the major power supplies for the equipment.

The projector is designed to operate with drive pulses and video from a television system producing a horizontal frequency of 26,250 cycles and a vertical frequency of 60 cycles. High intensity light is provided by a xenon gas arc lamp. By virtue of mirror and lens arrangements and schlieren optics the high intensity light is focused through a control disc raster onto a light stopping device called a bar mask. An electron gun, fed with the video information, scans a raster on the fluid covered control disc. The resulting deformation of the control layer, due to electrostatic force, retracts the intended light rays around the bar mask elements and into a projection lens which focuses the reproduced picture onto the

display screen.
No field changes in effect at time of preparation (25 May 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

LIGHT OUTPUT: 1400 lumens min.
LIGHT DISTRIBUTION: Illumination at any point within the image area is not less than 60 pct of the max intensity of illumination.
CONTRAST RATIO: The large area contrast ratio is at least 20: 1.
CENTER RESOLUTION: Limiting resolution in the horizontal direction is 850 lines min. Contrast ratio at 800 lines is at least 30 pct of large area contrast ratio.
CORNER RESOLUTION: At least 75 pct of that at the center
GEOMETRICAL DISTORTION: Not greater than 2 pct as measured by the EIA (RETMA) method.
INTERLACE ACCURACY: Considering A, B, and C as 3 adjacent lines, the value of space A–B/space B–C falls between the limits of 0.9 to 1.1.
VIDEO FREQUENCY RESPONSE: Video amplifier bandwidth is 18 mc ± 1.5 db.
LOW FREQUENCY RESPONSE: Less than 3 pct tilt on a 60 cps square wave or equivalent if clamps are used.
VIDEO AMPLIFIER GAIN: Sufficient to provide full output modulation from any input signal of 0.25 v peak to peak.
VIDEO AMPLIFIER OUTPUT CAPABILITIES: Sufficient to provide 50 pct more output signal than that required for full modulation with no more than 15 pct differential gain.
VIDEO AMPLIFIER LINEARITY: Differential gain at a level corresponding to full modulation does not exceed 10 pct.
HUM MODULATION OF BRIGHTNESS: Peak-to-peak light variation due to hum effects is less than 2 pct of peak high light brightness.
HUM MODULATION OF SWEEP: Raster displacement due to hum effects is less than 0.5 pct of picture height.
LINE VOLTAGE VARIATION: Performance is within the above limits for line voltage change of 103 to 127 v rms (110, 117, 125).
AMBIENT TEMPERATURE LIMITATIONS: Up to 49 deg C (120 deg F).
DEFLECTION CONTROL CHASSIS
  POWER INPUTS: 117 v, 60 cps; − 150 v dc, 8 ma; 300 v dc, 65 ma.
  SIGNAL INPUTS
    HORIZONTAL DRIVE: 3 to 5 v peak-to-peak neg, 4 usec wide.
    VERTICAL DRIVE: 3 to 5 v peak-to-peak neg, 600 usec wide.
  SIGNAL OUTPUTS: Positive and neg going horizontal sawtooth voltages; Vertical focus correction voltages; Horizontal focus correction voltages; Horizontal and vertical centering voltages.
DEFLECTION OUTPUT CHASSIS
  POWER INPUTS: 117 v, 60 cps; 300 v dc, 25 ma; 1500 v dc, 65 ma.
  SIGNAL INPUTS
    POSITIVE AND NEGATIVE GOING SAWTOOTH VOLTAGES
      HORIZONTAL RATE: 30 v peak-to-peak.
      VERTICAL RATE: 22 v peak-to-peak.

HORIZONTAL AND VERTICAL CENTERING VOLTAGES.
FOCUS CORRECTION VOLTAGES.
SIGNAL OUTPUTS
POSITIVE AND NEGATIVE GOING SAWTOOTH VOLTAGES
HORIZONTAL RATE: 550 v peak-to-peak w/proper dc level difference for centering.
VERTICAL RATE: 800 v peak-to-peak w/proper dc level difference for centering.
CORRECTION VOLTAGES
HORIZONTAL FOCUS: 100 v peak-to-peak.
VERTICAL FOCUS: 660 v peak-to-peak.

VIDEO AMPLIFIER CHASSIS
POWER INPUTS: 117 v ac; + 300 dc, 250 ma; − 150 v dc, 20 ma.
SIGNAL INPUTS
HORIZONTAL DRIVE: 3 to 5 v peak-to-peak neg.
VERTICAL DRIVE: 3 to 5 v peak-to-peak neg.
VIDEO NONCOMPOSITE: 0.25 to 1.5 v peak-to-peak.
SIGNAL OUTPUT
MIXED BLANKING
HORIZONTAL: 80 v peak-to-peak.
VERTICAL: 200 v peak-to-peak.
RF CARRIER: Approx. 2 v peak-to-peak, 100 pct modulated w/video of 18 mc bandwidth.

1500 VOLT POWER SUPPLY
POWER INPUT: 110/117/125 v ± 5 pct, 50/60 cps, 1 ph, 90 W.
POWER OUTPUT: 1500 v dc, 25 to 100 ma.
RIPPLE NOISE: Less than 10 mv.
DC REGULATION: 0.01 pct.
AC IMPEDANCE: Less than 1.0 ohms at 0–50 kc.

+ 300 VOLT POWER SUPPLY
POWER INPUT: 110/117/125 v ± 5 pct, 50/60 cps, 1 ph, 700 W.
POWER OUTPUT: + 300 v dc, 300 to 900 ma max.
RIPPLE NOISE: Less than 10 mv.
DC REGULATION: Less than 1 pct of output voltage from min to max current.
OUTPUT IMPEDANCE: Less than 0.5 ohm from 0.5 cyc to 100 kc.

− 150 VOLT POWER SUPPLY
POWER INPUT: 110/117/125 v ± 5 pct, 50/60 cps, 1 ph, 90 W.
POWER OUTPUT: − 150 v dc, 25 to 200 ma.
RIPPLE NOISE: Less than 10 mv.
DC REGULATION: 0.1 pct.
AC IMPEDANCE: Less than 2 ohms at 0–50 kc.

XENON LAMP POWER SUPPLY
POWER INPUT: 110/115/120/208/220/240 v, 60 cps, 1 ph at 2.3 kv, better than 85 pct power factor.
POWER OUTPUT: Up to 26 v dc at 70 amp.
RIPPLE NOISE: Less than 15 pct peak-to-peak at full load current of 70 amp.

988

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Television-Display Projector MX-2887/GX consists of:			

TELEVISION-DISPLAY PROJECTOR MX-2887/GX

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Projector Cabinet E-7354542 includes: 1500 v Power Supply 15000 v Power Supply Master Power Control Chassis Deflection Output Chassis Deflection Control Chassis Videc Amplifier Chassis Vacuum Control		26 x 41 x 66	850
1	Power Supply Cabinet E-7354548 includes: + 300 v Power Supply - 150 v Power Supply Xenon Lamp Power Supply		25 x 25 x 63	500

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93882: Technical Manual for Television-Display Projector MX-2887/GX.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) CB2WA (4) 6485 (6) 6BG6GA (5) 6829 (1) 6AU6WA (1) Special (1) 5651 (1) 5654 (3) 5687 (1) 5725 (2) 5726 (3) 5751 (9) 5814A (1) 5894 (8) 6080WA (1) 6197

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	72.3	1330
1	5.9	105
1	5.2	78
1	4.9	82
1	9.6	84
1	16.0	135
1	9.8	148
1	41.7	745
1	7.9	153
1	5.3	79
1	2.1	125

TELEVISION-DISPLAY PROJECTOR MX-2887/GX

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Military Communications Dept GECO	Syracuse, New York	NObsr 75369	

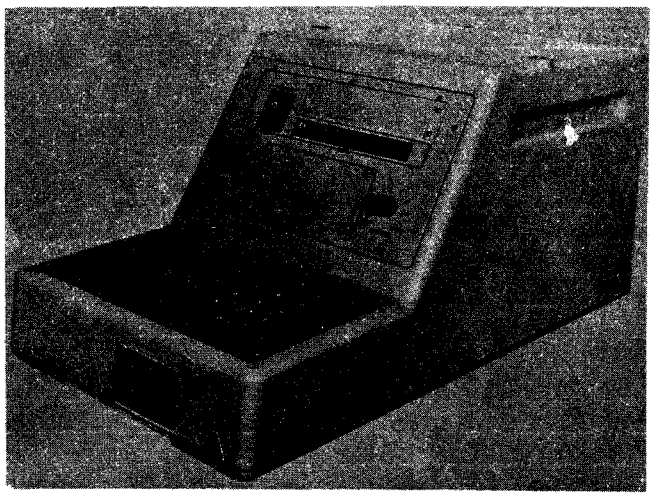
066

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Univac Division of Sperry Rand Corporation, (90536).



DIGITAL DATA INTRODUCER MX-3195(V)/USQ-20(V)

FUNCTIONAL DESCRIPTION:

991

Digital Data Introducer MX-3195(V)/USQ-20(V), provides a means for manually entering data into the keyset complex for eventual processing by keyset central and a computer. It is so constructed that eight code words and/or decimal digits, entered in an ordered sequence, are converted to a 30-bit, binary-coded word (29 data bits plus the parity bit). The binary-coded data is assembled in a relay register (Data Storage Register) for temporary storage prior to transmission to keyset central.

Visual verification of each data entry is provided by the readout display comprised of seven panel mounted projection-type readout modules. The readout display reproduces the code words inscribed on the keyboard overlay and/or the decimal digits appearing on the keyboard pushbutton key controls.

Data transfer is initiated by operating the keyset TRANSMIT control. However, actual data transfer does not occur until the computer requests keyset central to interrogate the keyset. During keyset interrogation, keyset central transfers the data from the keyset to its own

Data Flow register for temporary storage prior to transmission to the computer.

Removable keyboard overlays and readout modules permit the keyset to be adapted for handling various data subjects. Keyset modification consists of fitting a keyset with the keyboard overlay and readout modules which reflect the data being entered on the keyset.

No field changes in effect at time of preparation (26 May 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

KEYSET SIGNAL LEVELS
- LOGIC "1"
  - ENTER: 0 v dc ± 1.8 v.
  - READ: 0 v dc ± 1.8 v.
  - ERROR: 0 v dc ± 1.8 v.
- LOGIC "2"
  - ENTER: − 12 to − 16 v dc.
  - READ: − 12 to − 16 v dc.
  - ERROR: − 12 to − 16 v dc.

DATA TRANSMISSION CHARACTERISTICS: 30-bit parallel.

COOLING CHARACTERISTICS: Forced Air Blower 115 v, 400 cps, three ph, 42 cfm at 26.6 deg C.

SIGNAL CHARACTERISTICS
- ENTER
  - DURATION: No restriction.
  - RISE TIME: No restriction.
  - FALL TIME: 20 usec max.
- READ
  - DURATION: 200 ± 50 usec.
  - RISE TIME: 7 to 50 usec.
  - FALL TIME: 10 to 50 usec.
- ERROR
  - DURATION: 100 ± 20 usec.
  - RISE TIME: 20 usec max.
  - FALL TIME: 20 usec max.

POWER REQUIREMENTS
- INPUT: 115 v ± 10 pct, 400 cps, three ph, 200 W.
- OUTPUT: − 26 v dc ± 1.5 v; + 26 v dc ± 1.5 v.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Digital Data Introducer MX-3195(V)/USQ-20(V)		12-1/2 x 12-11/16 x 28	60

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94097(A): Complementary Technical Manual for Digital Data Introducer MX-3195(V)/USQ-20(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTOR DATA: (147) 1N3669 (12) 1N3033B (75) 1N538 (6) 1N1202 (1) 2N328A (1) 2N657 (1) 2N1882S

SHIPPING DATA

PKGS	VOLUME(CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: DS 4533

DESIGN COG: USN, BuShips

993

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Univac Div. of Sperry Rand Corp.	St. Paul, Minnesota	NObsr-72769 NObsr-87204 NObsr-85229 NObsr-89383 NObsr-91306 NObsr-91369	

4 October 1966 OSCILLATOR, RADIO FREQUENCY 0-330/FR

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

USA	USN	USAF

TYPE CLASS: **Used by**

MANUFACTURER'S NAME/CODE NUMBER: The Technical Material Corp. (82679).

OSCILLATOR, RADIO FREQUENCY 0-330/FR

FUNCTIONAL DESCRIPTION:

The Oscillator Radio Frequency 0-330/FR is a High Frequency Variable Oscillator. No field changes in effect at time of preparation (24 March 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset, HS-30/U; (1) Cord, CD-605/U; (1) Tube Socket, Adapter Kit, MX-1258/U; (1) Dummy Load, DA-35/U; (1) Test Lead Set, CX-1331/U; (1) Adapter Connector, UG-514/U, 2 ea; (1) Cord, CG-373A/U; (1) Adapter, UG-273/U, 2 ea.

TECHNICAL CHARACTERISTICS:

VARIABLE FREQUENCY OSCILLATOR
- NUMBER OF TUBES: 14.
- POWER REQUIREMENTS: 250 W from a 115 or 230 v, 50 to 60 cyc, single phase input.

HIGH FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 2 to 64 mc (either crystal controlled or continuously variable).
- OUTPUT IMPEDANCE: 75 ohms.
- OUTPUT LEVEL: 2 W throughout range of 2 to 4 mc and 0.5 W throughout range of 4 to 64 mc.
- OUTPUT TERMINALS: 3 BNC RF connectors.
- CRYSTAL FREQUENCIES: 2 to 4 mc.
- OUTPUT VOLTAGE WAVEFORM: Sinusoidal with no spurious frequencies.
- STABILITY: Less than 20 cyc per mc change in 0 deg to 50 deg temperature range.
- CALIBRATION: Direct reading calibration in cps between 2 and 4 mc, checked against 100 kc oscillator at 50 kc check points.
- DIAL ACCURACY: 20 cycles per mc.
- LINE VOLTAGE CHANGE EFFECTS: Maximum change of 10 cps per mc, for 10 percent change in line voltage.
- HUMIDITY EFFECTS: No appreciable change for humidities up to 95 percent.

INTERMEDIATE FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 3.2 to 3.9 mc (crystal controlled).
- OUTPUT LEVEL: 2 volts across 75 ohms.
- OUTPUT TERMINALS: 3 BNC RF connectors.

BEAT FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 300 to 1000 kc, (crystal controlled oscillator).
- OUTPUT LEVEL: 6 volts across 1000 ohms.
- OUTPUT TERMINALS: 3 BNC RF connectors.

995

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Oscillator, Radio Frequency 0-330/FR includes:	10-1/2 x 16 x 19	75
1	Cable Assembly, Radio Frequency Pt. No. W-103	72	.5
1	Cable Assembly, Special Purpose Electrical, Pt No. W-101	72	.5
1	Cable Assembly, Special Purpose Electrical, Pt No. W-102	72	.5
9	Coaxial Connector, UG-260/U		.1
1	Tube Puller, GP-104		.3
2	Technical Manual, TM 11-5820-277-12		

REFERENCE DATA AND LITERATURE:

TM11-5820-277-12: Technical Manual of Operator's and Organizational Maintenance Manual for Oscillator Radio Frequency 0-330A/FR and 0-330B/FR.

OSCILLATOR, RADIO FREQUENCY O-330/FR

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.1	116

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Technical Material	Mamaroneck, N.Y.	NOBsr-75736	

966

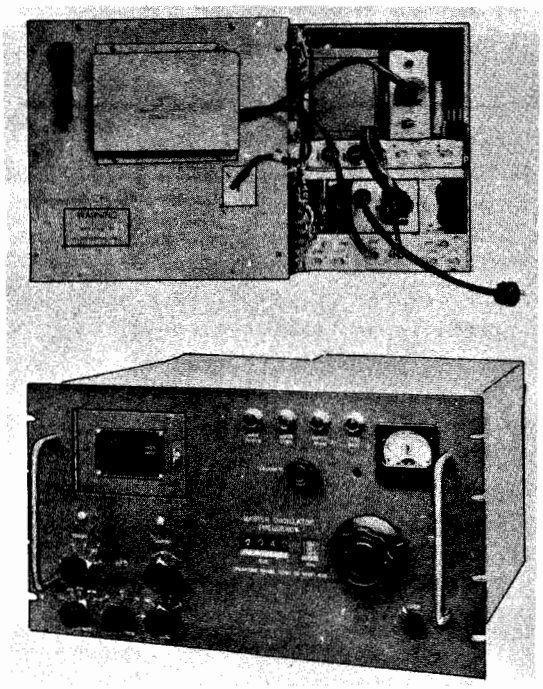
20 July 1967 OSCILLATOR, RADIO FREQUENCY O-330( )/FR

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

USA	USN	USAF

TYPE CLASS: Used by

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



OSCILLATOR, RADIO FREQUENCY O-330( )/FR

1.2 O-330( )/FR: 1

OSCILLATOR, RADIO FREQUENCY 0-330( )/FR

FUNCTIONAL DESCRIPTION:

Oscillator, Radio Frequency 0-330( )/FR is a precision, direct reading, variable frequency device designed to provide high frequency and medium frequency oscillator injection voltage for the control of one or more receivers or transmitter exciter with extremely high stability. The equipment incorporates a highly stable variable frequency oscillator with an extremely accurate counter type dial. Master oscillator frequency-determining elements are contained in a temperature stabilized oven, and these components are carefully selected for high stability operation. In addition to the variable frequency feature, provision is made for up to three crystal-controlled positions for high frequency injection.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

Cable RG-59/U as required.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 or 230 v ac, 50 or 60 cps, 100 W avg or 250 W peak.
FREQUENCY RANGE: 2 to 64 mc continuous, bandswitched.
OUTPUT IMPEDANCE: 75 ohms coaxial.
OUTPUT LEVEL: 2 W through basic range of 2 to 4 mc and 0.5 W, 4 to 64 mc, adjustable.
OUTPUT CONNECTIONS: 3 BNC RF connectors.
CRYSTAL FREQUENCIES: 2 to 4 mc for output freq of 2 to 64 mc.
CRYSTAL UNIT: CR-18/U.
CRYSTAL POSITIONS: 3, available on front panel switch.
OUTPUT VOLTAGE: Sinusoidal w/no spurious freq.
STABILITY: 20 cyc per mc for 0 to 50 deg change in ambient temp.
CALIBRATION: Direct reading calibration in cps from 2 to 4 mc.
READABILITY: 20 cyc per mc.
RESETTABILITY: 20 cyc per mc to a calibrated freq.
LINE VOLTAGE CHANGE EFFECTS: 3 cyc per mc for ± 10% change in line voltage.
HF OSCILLATOR CALIBRATION: Against 100/cc crystal oscillator at 50 kc points.
BEAT FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 300 to 500 kc.
- OUTPUT LEVEL: 6 v across 1000 ohms with output level control.
- OUTPUT CONNECTIONS: 3 BNC RF connectors.
- CRYSTAL HOLDERS: CR-45/U.
- CRYSTAL POSITIONS: 2, available on rear panel switch.

INTERMEDIATE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 3.2 to 3.9 mc (crystal oscillator).
- OUTPUT LEVEL: 2 v in 75 ohms.
- CRYSTAL TYPE: CR-18/U.
- OUTPUT CONNECTIONS: 3 BNC RF connectors.

OSCILLATOR, RADIO FREQUENCY 0-330( )/FR

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Oscillator, Radio Frequency 0-330( )/FR	10-1/2 x 16 x 19	

REFERENCE DATA AND LITERATURE:

Technical Manual for Variable Frequency Oscillator, VOX-5, Oscillator, Radio Frequency 0-330 ( )/FR. Technical Material Corporation Technical Manual.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Technical Materiel Corp.	Mamaroneck, New York		

999

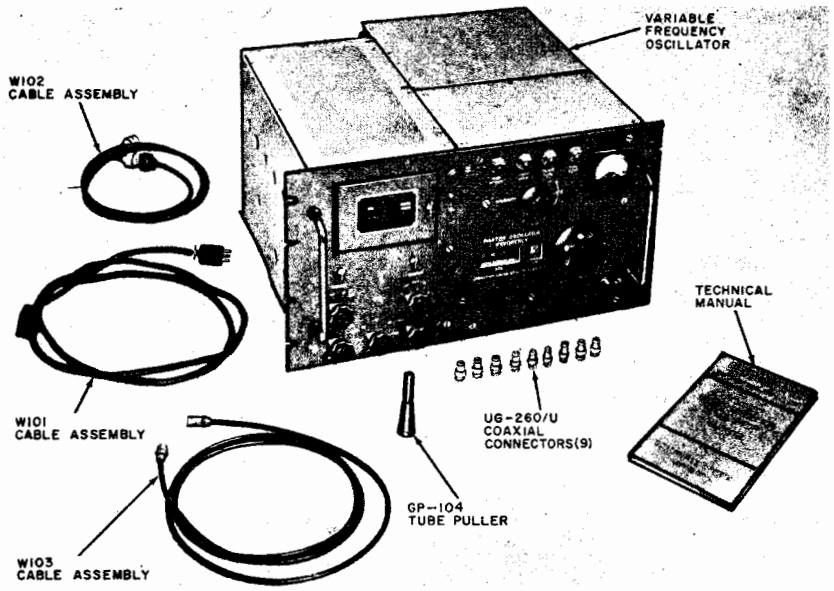
16 August 1967
Cog Service: USN FSN:

OSCILLATOR, RADIO FREQUENCY O-330A/FR
Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



OSCILLATOR, RADIO FREQUENCY O-330A/FR

1000

FUNCTIONAL DESCRIPTION:

The Oscillator, Radio Frequency O-330A/FR is a precision, high stability, direct indicating device, and provides medium and high frequency oscillator injection voltage for the control of one or more receivers or for a transmitter exciter.

No field changes in effect at time of preparation (25 Sept 1966).

RELATION TO OTHER EQUIPMENT:

The O-330A/FR is two-way interchangeable with previous models except for maintenance parts also Technical Material Corp. Cable C-110 replaced by Cable C-502.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset: HS-30/U.
(1) Cord: CD-605/U.
(1) Tube Socket, Adapter Kit: MX-1258/U.
(1) Dummy Load: DA-35/U.
(1) Test Lead Set: CX-1331/U (p/o TS-352/U).
(1) Adapter Connector: UG-514/U, 2 ea.
(1) Cord: CG-373A/U.
(1) Adapter: UG-273/U, 2 ea.

TECHNICAL CHARACTERISTICS:

VARIABLE FREQUENCY OSCILLATOR
NUMBER OF TUBES: 14.
POWER REQUIREMENTS: 250 W from a 115 or 230 v, 50 to 60 cyc, single phase input.
HIGH FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR:
FREQUENCY RANGE: 2 to 64 mc (either crystal controlled or continuously variable).
OUTPUT IMPEDANCE: 75 ohms.
OUTPUT LEVEL: 2 W throughout range of 2 to 4 mc and 0.5 W throughout range of 4 to 64 mc.
OUTPUT TERMINALS: 3 BNC RF connectors.
CRYSTAL FREQUENCIES: 2 to 4 mc.
OUTPUT VOLTAGE WAVEFORM: Sinusoidal with no spurious frequencies.
STABILITY: Less than 20 cyc per mc change in 0 deg to 50 deg temperature range.
CALIBRATION: Direct reading calibration in cps between 2 and 4 mc, checked against 100 kc oscillator at 50 kc checkpoints.
DIAL ACCURACY: 20 cycles per mc.
LINE VOLTAGE CHANGE EFFECTS: Maximum change of 10 cps per mc for 10 percent change in line voltage.
HUMIDITY EFFECTS: No appreciable change for humidities up to 95%.
INTERMEDIATE FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
FREQUENCY RANGE: 3.2 to 3.9 mc (crystal controlled).
OUTPUT LEVEL: 2 v across 75 ohms.
OUTPUT TERMINALS: 3 BNC RF connectors.
BEAT FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
FREQUENCY RANGE: 300 to 1,000 kc, (crystal controlled oscillator).
OUTPUT LEVEL: 6 v across 1,000 ohms.
OUTPUT TERMINALS: 3 BNC RF connectors.

1001

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Oscillator, Radio Frequency, O-330A/FR	10-1/2 x 16 x 19	75
	includes:		
1	Cable Assembly, Radio Frequency pt. No. W-103	72	.5

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Cable Assembly, Special Purpose Electrical: Pt. No. W-101	72	.5
1	Cable Assembly, Special Purpose Electrical: Pt. No. W-102	72	.5
1	Cable Assembly, Special Purpose Electrical: Technical Material Pt. No. CA-502		
9	Coaxial Connector: UG-260/U		.1
1	Tube Puller: GP-104		.3
2	Technical Manual: TM11-5820-277-12		

REFERENCE DATA AND LITERATURE:

TM11-5820-277-12: Technical Manual of Operator's and Organizational Maintenance Manual for Oscillator, Radio Frequency O-330A/FR and O-330B/FR.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.1	116

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Technical Materiel Corp.	Mamaroneck, N.Y.	NObsr-81106 NObsr-81394 4069-PP-60-A1-A1	

1002

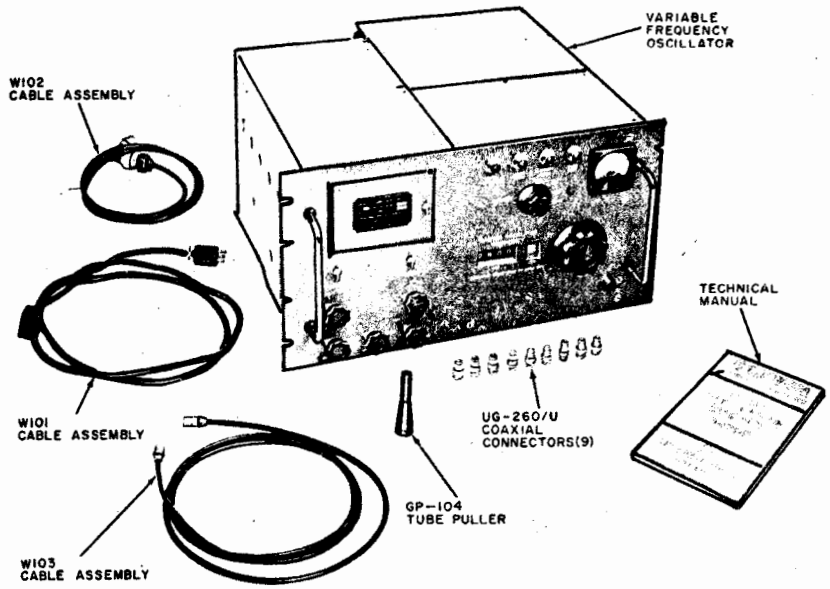
4 October 1966 OSCILLATOR, RADIO FREQUENCY O-330B/FR

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: The Technical Material Corp. (82679).



OSCILLATOR, RADIO FREQUENCY O-330B/FR

FUNCTIONAL DESCRIPTION:

1003

The Oscillator Radio Frequency is a precision, high stability, direct indicating device, and provides medium and high frequency oscillator injection voltage for the control of one or more receivers or for a transmitter exciter.

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

RELATION TO OTHER EQUIPMENT:

The O-330B/FR Oscillator, Radio Frequency is Two-Way interchangeable with previous models. Has improved stability under wide variations in temperature, humidity, and line voltage. Maintenance parts differ.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset, Type HS-30/U; (3) Frequency Oscillators; (1) Cord, CD-605/U; (1) Tube Socket Adapter Kit, MX-1258/U; (1) Dummy Load, DA-35/U; (1) Test Lead Set, CX-1331/U (p/o TS-352/U); (1) Adapter Connector UG-514/U, 2 each; (1) Cord, CG-373A/U; (1) Adapter, UG-273/U, 2 each.

TECHNICAL CHARACTERISTICS:

VARIABLE FREQUENCY OSCILLATOR
- NUMBER OF TUBES: 14.
- POWER REQUIREMENTS: 250 watts from a 115 or 230 volt, 50 to 60 cps, single ph input.

HIGH-FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 2 to 64 mc (either crystal controlled or continuously variable).
- OUTPUT IMPEDANCE: 75 ohms.
- OUTPUT LEVEL: 2 watts throughout range of 2 to 4 mc and 0.5 watt throughout range of 4 to 64 mc.
- OUTPUT TERMINALS: 3 BNC RF connectors.
- CRYSTAL FREQUENCIES: 2 to 4 mc.
- OUTPUT VOLTAGE WAVEFORM: Sinusoidal with no spurious frequencies.
- STABILITY: Less than 20 cyc per mc change in 0 deg to 50 deg temperature range.
- CALIBRATION: Direct reading calibration in cps between 2 and 4 mc. Checked against 100 kc oscillator at 50 kc check-points.
- DIAL ACCURACY: 20 cyc per mc.
- LINE VOLTAGE CHANGE EFFECTS: Maximum change of 10 cps per mc for 10 percent change in line voltage.
- HUMIDITY EFFECTS: No appreciable change for humidities up to 95 percent.

INTERMEDIATE FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 3.2 to 3.9 mc (crystal controlled oscillator)
- OUTPUT LEVEL: 2 volts across 75 ohms.
- OUTPUT TERMINALS: 3 BNC RF connectors.

BEAT FREQUENCY OSCILLATOR SECTION OF VARIABLE FREQUENCY OSCILLATOR
- FREQUENCY RANGE: 300 to 1000 kc (crystal controlled oscillator)
- OUTPUT LEVEL: 6 volts across 1000 ohms.
- OUTPUT TERMINALS: 3 BNC RF connectors.
- NUMBER OF BANDS: 4.
- FREQUENCY CONTROL: crystal.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Oscillator Radio Frequency, O-330B/FR includes:	10-1/2 x 16 x 19	75
1	Cable Assembly Radio Frequency W-103	72	.5
1	Cable Assembly Special Purpose Electrical Pt No. W-101	72	.5
1	Cable Assembly Special Purpose Electrical Pt No. W-102	72	.5
9	Coaxial Connector, UG-260/U		.1
1	Tube Puller GP-104		.3
2	Technical Manual TM-11-5820-277-12		

REFERENCE DATA AND LITERATURE:

TM11-5820-277-12: Technical Manual of Operator's and Organizational Maintenance Manual for Oscillator Radio Frequency O-330A/FR, and O-330B/FR.

DA-PAM 310-4: Index of Technical Manuals, Technical Bulletins, Supply Bullentins, Lubrication Orders and Modification Work Orders.

TM11-5820-277-20P: Organizational Maintenance Repair Parts and Special Tools List for Oscillator, Radio Frequency O-330/FR, O-330A/FR and O-330B/FR.

TM11-6625-200-12: Operator and Organizational Maintenance Manual, Multimeters ME-26A/U and ME-26B/U.

TM11-6625-274-12: Operator's and Organizational Maintenance Manual, Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.

TM11-6625-274-20P: Organizational Maintenance Repair Parts and Special Tools List, Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.

TM38-750: The Army Equipment Record System and Procedure (As added by C2, 11 October 1961) Delete Appendix II and Appendix III, and substitute.

APPENDIX II: Maintenance Allocation Chart Oscillator, Radio Frequency O-330/FR, O-330A/FR and O-330B/FR Section 1. Maintenance Allocation.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
	2.1	116

1005

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Technical Material Corp.	Mamaroneck, N.Y.	NOBsr-81599	

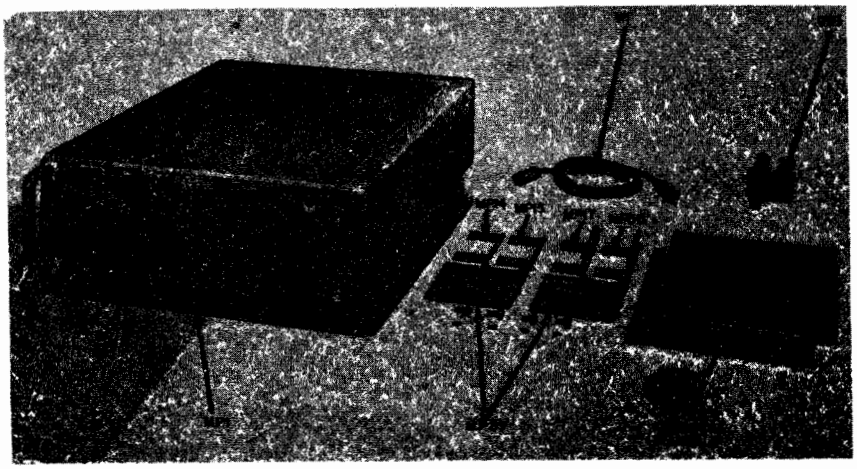
31 August 1967 SYNTHESIZER, ELECTRICAL FREQUENCY O-464A/SRC

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

USA	USN	USAF

TYPE CLASS: Used by

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



SYNTHESIZER, ELECTRICAL FREQUENCY O-464A/SRC

FUNCTIONAL DESCRIPTION:

The Synthesizer Electrical Frequency O-464A/SRC is a precision frequency generator operating in the range from 2.0 to 34.0 mc/sec and producing 69,000 discrete frequencies, each of which has a stability approaching that of the basic integral crystal.

No field changes in effect at time of preparation (23 March 1966).

RELATION TO OTHER EQUIPMENT:

The O-464A/SRC is mechanically and electrically one-way interchaneable with O-464/SRC except different handles and chassis slide and tilt mechanism which permits the chassis to be tilted and locked in detent in five position.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting: MT-2431/U;
(4) Relay-Rack Mounting Brackets and Attaching Hardware;
(1) Heterodyne Frequency Meter: AN/URM-82;
(1) Electronic Multimeter (vtvm): AN/USM-116; (1) Oscilloscope: AN/USM-105A;

(1) Frequency Standard: AN/URQ-9; (1) Electron Tube Tester: TV-10C/U;
(1) Headphones: (1) Transistor Test Set: TS-1100A/U; (1) Signal Generator AN/URM-25F;
(7) Technical Manuals For: AN/URM-82, AN/USM;116, CAGI-524D, AN/USM-105A, AN/URQ-9, TV-10C/U and AN/URM-25F.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 34 mc.
TUNING BANDS: 4.
BAND 1: 2.0 to 4.25 mc in 125 cycle steps.
BAND 2: 4.0 to 8.50 mc in 250 cycle steps.
BAND 3: 8.0 to 17 mc in 500 cycle steps.
BAND 4: 16.0 to 34.0 mc in 1000 cycle steps.
AUXILIARY OUTPUT FREQUENCIES: 1 mc and 100 kc.
STABILITY: 1 part in 10^8 per day for all output frequencies.
OUTPUT LEVELS: Adjustable within 1.0 to 2.5 volts rms across 50 ohms at 2 to 34 mc, 1 volt at 1 mc and 100 kc.
OUTPUT IMPEDANCE: 50 ohms at 2 to 34 mc and 1 mc; 500 ohms at 100 kc.
EXTERNAL AUXILIARY REFERENCE SOURCE
(1) FREQUENCY: 1 mc or 100 kc.
(2) SIGNAL LEVEL: 1 volt.
OPERATING AMBIENT TEMPERATURE: 0 deg to 50 deg C (32 deg to 122 deg F).
READABILITY ERROR: Zero.
RESETABILITY ERROR: Zero.
INPUT POWER REQUIREMENTS: Tapped Primary, 105/115/125 v ac, 50 to 60 or 400 cps, single phase, 1.7 amperes at 115 v ac.
MOUNTING: Bench or relay rack.
FREQUENCY CONTROL: Crystal.
(1) DESIGNATION: Manson MLS-33, MIL-C-3098B, Type CR-28/U.
(2) TYPE OF CUT: AT.
(3) CRYSTAL FREQUENCY: 999.967 kc ±2 cps.
(4) OSCILLATION FREQUENCY: 1 mc.
(5) TEMPERATURE COEFFICIENT: 0.25 parts/million/deg C max.
(6) OPERATING TEMPERATURE: Minus 75 deg C (167 deg F).

1007

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer, Electrical Frequency: O-464A/SRC includes:	5-1/4 x 17-1/4 x 21-1/2	90
1	Mounting: MT-2431/U	2 x 17-3/4 x 20-1/4	15
1	Adapter: CPI		
2	Technical Manual: NAVSHIPS 94396	3/4 x 8-1/2 x 11	
1	Cable, Power: W-1	60	

SYNTHESIZER, ELECTRICAL FREQUENCY O-464A/SRC

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94396: Technical Manual for Electrical Frequency Synthesizers, O-464A/SRC, O-464B/SRC, and O-792A/SRC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	12.5	190

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-R-3790

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Div., The Hallicrafters Co.	Wilton, Conn.	NObsr-85210 NObsr-81340 NObsr-75587	

1008

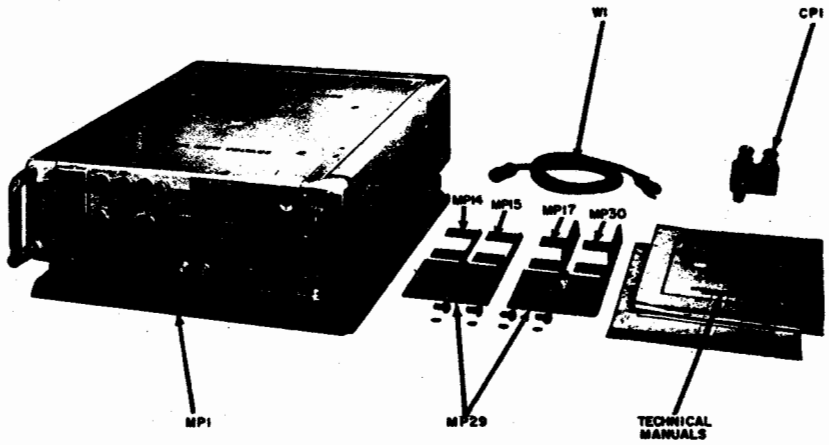
6 January 1967 — Synthesizer, Electrical Frequency O-464B/SRC

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

USA	USN	USAF

TYPE CLASS: Used by

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



SYNTHESIZER, ELECTRICAL FREQUENCY O-464B/SRC

FUNCTIONAL DESCRIPTION:

1009

The Synthesizer, Electrical Frequency O-464B/SRC provides more than 69,000 different frequencies, ranging from 2 to 34 mc, plus 1-mc and 100 kc outputs, with each frequency having a a stability of 1 part in 10^8 per day. An internal high stability 1-mc reference frequency standard is used to discipline or control the Synthesizer, so that each of the output frequencies has a stability equal to that of the reference frequency.

No field changes in effect at time of preparation (March 23, 1966).

RELATION TO OTHER EQUIPMENT:

The O-464B/SRC is Mechanically and Electrically one-way interchangeable with, O-464/SRC or O-464B/SRC except repackaged internal and externally, Printed Circuit of VTVM Chassis, Revised Layout of Power Supply, Relocation of Audio Amplifier and Main Loop Filter, Relocation of fuses and test Points, Improved Gear Box.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting MT-2431/U; (4) Relay-Rack Mounting, Brackets and Attaching Hardware; (1) Heterodyne Frequency Meter AN/URM-82; (1) Electronic Counter with Converter CAQI-524D with CAQI-525A; (1) Oscilloscope AN/USM-105A; (1) Frequency Standard AN/URQ-9; (1) Electron Tube Tester TV-10C/U; (1) Transistor Test Set TS-1100A/U; (1) Signal Generator AN/URM-25F; (1) Headphones; (7) Technical Manuals for: AN/URM-82, AN/USM-116; CAQI-524D, AN/USM-105A, AN/URQ-9, AN/URM-25F and TV-10C/U.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 34 mc.
TUNING BANDS: 4.
BAND 1: 2.0 to 4.25 mc in 125 cycle steps.
BAND 2: 4.0 to 8.50 mc in 250 cycle steps.
BAND 3: 8.0 to 17.0 mc in 500 cycle steps.
BAND 4: 16.0 to 34.0 mc in 1,000 cycle steps.
AUXILIARY OUTPUT FREQUENCIES: 1 mc and 100 kc.
STABILITY: 1 part in 10^8 per day for all output frequencies.
OUTPUT LEVELS: Adjustable within 1.0 to 2.5 volts rms across 50 ohms at 2 to 34 mc; 1 volt at 1 mc and 100 kc.
OUTPUT IMPEDANCES: 50 ohms at 2 to 34 mc and 1 mc; 500 ohms at 100 kc.
EXTERNAL AUXILIARY REFERENCE SOURCE
(1) FREQUENCY: 1 mc or 100 kc.
(2) SIGNAL LEVEL: 1 volt.
OPERATING AMBIENT TEMPERATURE: 0 deg to 50 deg C (32 deg to 122 deg F).
READABILITY ERROR: Zero.
RESETABILITY ERROR: Zero.
INPUT POWER REQUIREMENTS: Tapped Primary, 105/115/125 v ac, 50 to 60 or 400 cps, single phase, phase, 1.7 amperes at 115 v ac.
MOUNTING: Bench or Relay Rack.
FREQUENCY CONTROL: Crystal.
(1) DESIGNATION: Manson MLS-33; MIL-C-3098C, Type CR28/U.
(2) TYPE OF CUT: AT.
(3) CRYSTAL FREQUENCY: 999.967 kc ± 2 cps.
(4) OSCILLATION FREQUENCY: 1 mc.
(5) TEMPERATURE COEFFICIENT: 0.25 parts/million/deg maximum.
(6) OPERATING TEMPERATURE: 75 deg C (167 deg F).

1010

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer, Electrical Frequency O-464B/SRC	5-1/4 x 17-1/4 x 21-1/2	90
	includes:		
2	Technical Manuals NAVSHIPS 94396	3/4 x 8-1/2 x 11	
1	Adapter CPI		
1	Mounting MT-2431/U	2 x 17-3/4 x 20-1/4	15
1	Cable Power W-1	60	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94396: Technical Manual for Electrical Frequency Synthesizers, O-464A/SRC, O-464B/SRC, and O-792A/SRC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	12.5	190

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN BuShips
SPEC &/OR DWG: SHIPS-R-3790

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mason Laboratories Div., The Hallicrafters Co.	Wilton, Connecticut	NObsr-75587 NObsr-81340	

1011

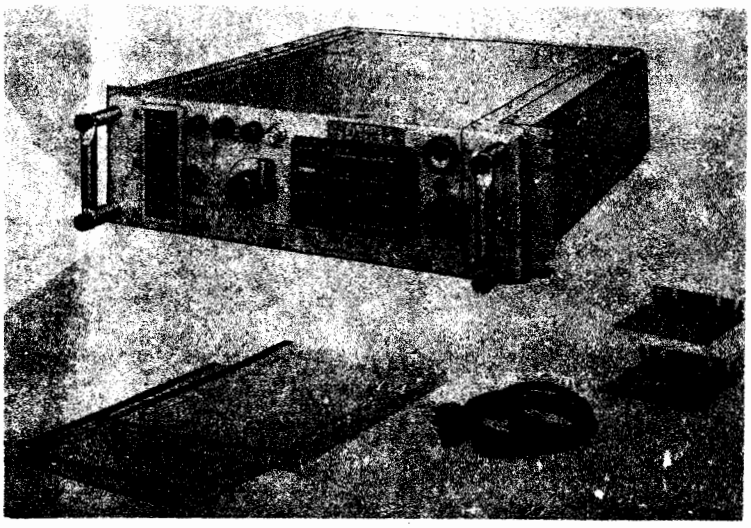
8 August 1967 SYNTHESIZER ELECTRICAL FREQUENCY 0-464 (XN-1)/SRC

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



SYNTHESIZER ELECTRICAL FREQUENCY 0-464 (XN-1)/SRC

FUNCTIONAL DESCRIPTION:

The Synthesizer Electrical Frequency 0-464 (XN-1)/SRC is a precision frequency generator that provides more than 69,000 discrete frequencies ranging from 2 to 34 mc. Auxiliary output frequencies of 1 mc and 100 kc are also provided. An internal high stability 1 mc reference frequency oscillator (1 part in 10^8 per day) is used to discipline (control) the synthesizer so that each output frequency has a stability equal to that of the reference frequency.

No field changes in effect at time of preparation (25 March 1966).

RELATION TO OTHER EQUIPMENT:

The 0-464(XN-1)/SRC is similar to 0-464(XN-2)/SRC except 0-464(XN-1)/SRC operates on 60 cycles.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting: MT-2431/U; (4) Relay-Rack, Mounting, Brackets and Attaching hardware; (1) Heterodyne Frequency Meter: AN/URM-82;
(1) Electronic Multimeter (vtvm): AN/USM-116; (1) Oscilloscope: AN/USM-105A;
(1) Electronic Counter with Converter: CAQI-524D with CAQI-525A;
(1) Frequency Standard: AN/URQ-9; (1) Electron Tube Tester: TV-7D/U;
(1) Transistor Test Set: TS-1100A/U; (1) Signal Generator: AN/URM-25F;
(7) Technical Manuals: NAVSHIPS 900,000.900,000.102, 94396.42, 93808, 93482, TM11-5094, TO-33A1-8-12-21.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 34 mc.
TUNING BANDS: 4.
Band 1: 2.0 to 4.25 mc in 125 cycle steps.
Band 2: 4.0 to 8.50 mc in 250 cycle steps.
Band 3: 8.0 to 17.0 mc in 500 cycle steps.
Band 4: 16.0 to 34.0 mc in 1,000 cycle steps.
AUXILIARY OUTPUT FREQUENCIES: 1 mc and 100 kc.
OUTPUT LEVELS: adjustable within 1.0 to 2.5 vrms at 2 to 34 mc, 1 vrms at 1 mc and 100 kc.
OUTPUT IMPEDANCES: 50 ohms at 2 to 34 mc and 1 mc, 500 ohms at 10 kc.
EXTERNAL AUXILIARY REFERENCE SOURCE
(1) FREQUENCY: 1 mc or 100 kc.
(2) SIGNAL LEVEL: 1 volt.
READABILITY ERROR: Zero.
RESETTABILITY ERROR: Zero.
MOUNTING: Bench or Relay Rack.
FREQUENCY CONTROL: Crystal.
(1) DESIGNATION: MIL-C-3098B TYPE CR-28/U, MLS-33.
(2) TYPE OF CUT: AT.
(3) CRYSTAL FREQUENCY: 999.67 kc ±2 cps.
(4) OSCILLATION FREQUENCY: 1 mc.
(5) TEMPERATURE COEFFICIENT: 0.25 parts/million deg C max.
(6) OPERATING TEMPERATURE: 75 deg C (167 deg F).
FREQUENCY STABILITY: 1 part in 10^8 per day.
OPERATING AMBIENT TEMPERATURE: 0 deg C to +50 deg C (32°F to 122 deg F).
INPUT POWER REQUIREMENTS: 105 to 125 v ac, 60 cps, single phase, 1.7 amp at 115 v ac.

1013

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer, Electrical Frequency O-464 (XN-1)/SRC includes:	5-1/4 x 19 x 21-1/2	90
2	Technical Manuals NAVSHIPS 93463(A)	1 x 8-1/2 x 11	5
2	Relay Rack Mounting Brackets (with attaching hardware: MP29, MP30		

SYNTHESIZER ELECTRICAL FREQUENCY O-464(XN-1)/SRC

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Cable Power; W-1	72	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93463(A): Technical Manual for Electrical Frequency Synthesizer, O-464(XN-1)/SRC and O-464(XN-2)/SRC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	12.5	190

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-S-2283A

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Division	Wilton, Conn.	NObsr-72776	
The Hallicrafters Co.		NObsr-72568	

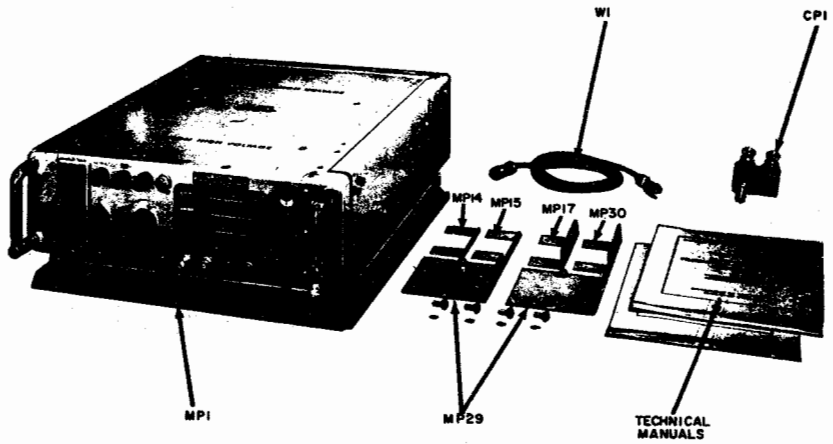
1014

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Manson Laboratories Div. The Hallicrafters Co., (93279).



SYNTHESIZER, ELECTRICAL FREQUENCY O-792A/SRC

1015

FUNCTIONAL DESCRIPTION:

The Synthesizer, Electrical Frequency O-792A/SRC is designed to provide 69,000 highly stabilized output signals in the range from 2 to 34 mc. In addition, 1 mc and 100 kc auxiliary reference signals are available from separate output jacks. The synthesizer has an internal 1 mc crystal oscillator, which is used to discipline all output frequencies. A temperature regulated oven maintains the oscillator crystal at its optimum operating temperature.

No field changes in effect at time of preparation (25 March 1966).

RELATION TO OTHER EQUIPMENT:

The O-792A/SRC is Mechanically and Electrically one-way interchangeable with Synthesizer, Electrical Frequency O-792/SRC, with the following differences, Repackaged internally and externally. Printed Circuit of VTVM chassis. Revised layout of power supply. Relocation of audio amplifier and main loop filter. Relocation of fuses and test points, improved gear box.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting MT-2431/U; (4) Relay-Rack Mounting Brackets and Attaching Hardware; (1) Heterodyne Frequency Meter, AN/URM-82; (1) Electronic Multimeter, AN/USM-116; (1) Electronic Counter with Converter, CAQI-524D with CAQI 525A; (1) Oscilloscope, AN/USM-105A; (1) Frequency Standard, AN/URQ-9; (1) Electron Tube Tester, TV-10C/U; (1) Headphones; (1) Transistor Test Set, TS-1100A/U; (1) Signal Generator, AN/URM-25F; (7) Technical Manuals, AN/URM-82, AN/USM-116, AN/USM-105A, AN/URQ-9, AN/URM-25F, CAQI-524D and TV-10C/U.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 34 mc.
TUNING BANDS: 4.
- BAND 1: 2.0 to 4.25 mc in 125 cycle steps.
- BAND 2: 4.0 to 8.50 mc in 250 cycle steps.
- BAND 3: 8.0 to 17.0 mc in 500 cycle steps.
- BAND 4: 16.0 to 34.0 mc in 1,000 cycle steps.

AUXILIARY OUTPUT FREQUENCIES: 1 mc and 100 kc.
STABILITY: 1 part in 10^8 per day for all output frequencies.
OUTPUT LEVELS: Adjustable within 1.0 to 2.5 volts rms across 50 ohms at 2 to 34 mc; 1 volt at 1 mc and 100 kc.
OUTPUT IMPEDANCES: 50 ohms at 2 to 34 mc and 1 mc; 500 ohms at 100 kc.
EXTERNAL AUXILIARY REFERENCE SOURCE
- FREQUENCY: 1 mc or 100 kc.
- SIGNAL LEVEL: 1 volt.

OPERATING AMBIENT TEMPERATURE: 0 deg to 50 deg C (32 deg to 122 deg F).
READABILITY: Zero.
RESETABILITY: Zero.
INPUT POWER REQUIREMENTS: Tapped primary, 105/115/125 v ac, 50 to 60 or 400 cps, single phase, 1.7 amperes at 115 v ac.
MOUNTING: Bench or Relay Rack.
FREQUENCY CONTROL: Crystal.
- DESIGNATION: Manson MLS-33, MIL-C-3098B, Type CR-28/U.
- TYPE OF CUT: AT.
- CRYSTAL FREQUENCY: 999.967 kc ± 2 cps.
- OSCILLATION FREQUENCY: 1 mc.
- TEMPERATURE COEFFICIENT: 0.25 parts/million/deg C max.
- OPERATING TEMPERATURE: 75 deg C (167 deg F).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer, Electrical Frequency O-792A/SRC includes:	5-1/4 x 17-1/4 x 21-1/2	90
2	Technical Manuals, NAVSHIPS 94396	3/4 x 8-1/2 x 11	
1	Adapter, CPI		
1	Mounting, MT-2431/U	2 x 17-3/4 x 20-1/4	15
4	Relay-Rack Mounting Brackets and Attaching Hardware		5
1	Cable Power, W-1	60	

SYNTHESIZER, ELECTRICAL FREQUENCY O-792A/SRC

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94396: Technical Manual for Electrical Frequency Synthesizers O-464A/SRC, O-464B/SRC and O-792A/SRC.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	12.5	190

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-R-3534 TYPE II

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Div., The Hallicrafters Co.	Wilton, Connecticut	NObsr 81340 NObsr 75587	

1017

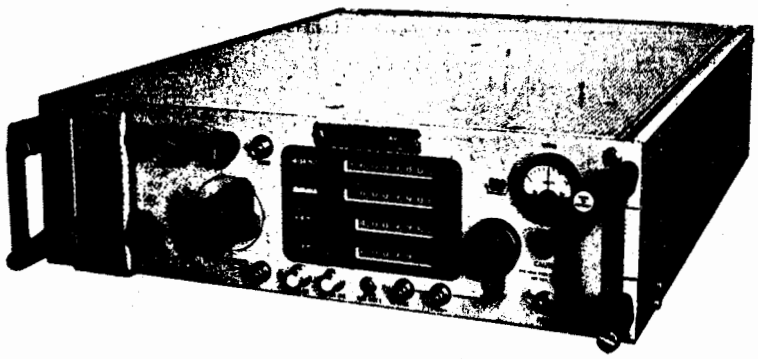
28 July 1964 SYNTHESIZER, ELECTRICAL FREQUENCY O-1115/URC

Cog Service: USN FSN: 2F5820-953-9129 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



SYNTHESIZER, ELECTRICAL FREQUENCY O-1115/URC

FUNCTIONAL DESCRIPTION:

Synthesizer, Electrical Frequency O-1115/URC is a precision frequency generator that provides more than 690,000 highly stabilized output signals in the frequency range of 2 to 34 mc. In addition, 1 mc and 100 kc auxiliary reference signals are available from separate output jacks.

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

RELATION TO OTHER EQUIPMENT:

This equipment is similar to Synthesizer, Electrical Frequency O-1131/GRC except that the latter has an auxiliary 1.75 mc output, has its output freq readout shifted by 1.75 mc.

O-1115/URC SYNTHESIZER, ELECTRICAL FREQUENCY

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Mounting; (1) Headset 49507; (1) RF Signal Generator Set AN/URM-25D; (1) Electronic Multimeter AN/USM-116; (1) Electronic Counter CAQI-524D; (1) Converter CAQI-525A; (1) Oscilloscope AN/USM-105A; (1) Frequency Standard AN/URA-9; (1) Electron Tube Tester TV-7D/U; (1) Transistor Test Set TS-1100A/U.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 34 mc.
TUNING BANDS
BAND 1: 2.0 to 4.25 mc in 12.5 cyc steps.
BAND 2: 4.0 to 8.50 mc in 25 cyc steps.
BAND 3: 8.0 to 17.0 mc in 50 cyc steps.
BAND 4: 16.0 to 34.0 mc in 100 cyc steps.
AUXILIARY OUTPUT FREQUENCIES: 1 mc and 100 kc.
OUTPUT LEVELS: Adjustable within 1.0 to 2.5 v rms at 2 to 34 mc; 1 v rms at 1 mc and 100 kc.
OUTPUT IMPEDANCE: 50 ohms at 2 to 34 mc and 1 mc; 500 ohms at 100 kc
EXTERNAL AUXILIARY REFERENCE SOURCE
FREQUENCY: 1 mc or 100 kc.
SIGNAL LEVEL: 1 v.
READABILITY ERROR: 0.
RESETTABILITY ERROR: 0.
MOUNTING: Bench or relay rack.
FREQUENCY STABILITY: 1 part in 10^8 per day.
OPERATING AMBIENT TEMPERATURE: 0 to + 50° C (+ 32 to + 122° F).
POWER REQUIREMENTS: 105 to 125 v, 400 cyc, single ph, 1.7 amp at 115 v.

10/9

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer, Electrical Frequency O-1115/URC includes:	2F5820-953-9129	5-1/4 x 19 x 21-1/2	90
1	Adapter, Connector		1 x 1-1/4 x 2-1/2	
4	Bracket, Angle			5
1	Cable Assy, Power, Electrical TCOP-2		72 lg	
2	Technical Manual		1 x 8-1/2 x 11	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94829: Technical Manual for Electrical Frequency Synthesizer O-1115/URC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6AH6 (1) 6AN5WA (1) 6BE6W (3) 6AU6WA (1) 12AT7WA (1) 5636 (1) 5639
(20) 5702WA (4) 5703WA (1) 5783WA (1) 5896 (9) 6021 (1) 6832 (2) 7587

1.2 O-1115/URC: 2

CRYSTALS: (1) CR-28/U

SEMI-CONDUCTORS: (4) 1N255 (1) 1N277 (6) 1N538 (6) 1N661 (10) 1N3064 (2) 2N335
(1) 2N404 (2) 2N1026 (1) 2N1039 (1) 2N1544 (2) 2N1547 (1) 2N2266
(2) 1N752A (1) 1N1820A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-R-3534, Addend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Inc.	Stamford, Conn.	NObsr-87560(FBM), 12 June 1962	$8,250.00

1020

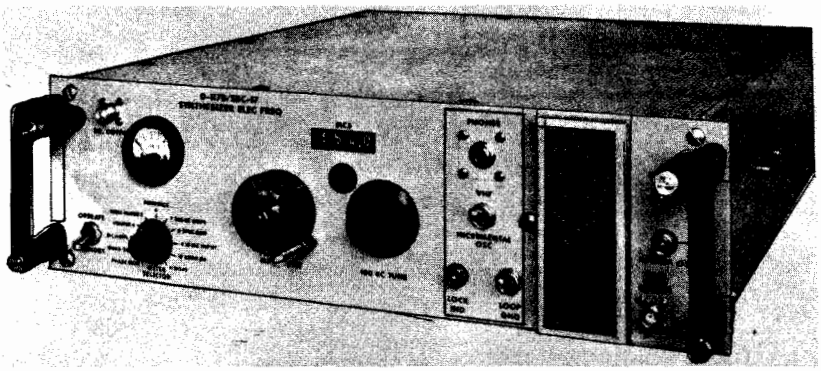
17 August 1967 SYNTHESIZER, ELECTRICAL EQUIPMENT O-1178/SRC-17

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

USA	USN	USAF

TYPE CLASS: Used by

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



SYNTHESIZER, ELECTRICAL EQUIPMENT O-1178-SRC-17

FUNCTIONAL DESCRIPTION:

The Synthesizer, Electrical Equipment O-1178-SRC-17 is a precision frequency generator that provides 1750 output frequencies. The synthesizer consists of a free-running variable frequency oscillator (vfo) in a double-superheterodyne type circuit. The vfo is phase locked to a stable (1 part in 10^8 per day) crystal-controlled 1-mc reference oscillator and incremental oscillator, thus governing the stability of the synthesizer output frequencies. The desired output frequency is selected through operation of two front-panel controls (Main Tune and 100 KC TUNE). A detent mechanism assures accurate positioning of the controls.

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

RELATION TO OTHER EQUIPMENT:

The O-1178/SRC-17 is similar to O-730(XN-1) SRC except parts differ.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Headset: CW-49507;
(1) Frequency Standard: AN/URQ-9;
(1) Electronic Multimeter (vtvm): AN/USM-16;
(1) Electronic Counter w/converter: CAQI-524D with CAQI-525A;
(1) Oscilloscope: AN/USM-105A;
(1) Oscilloscope: AN/USM-117;
(1) R-F vtvm w/50 ohm and high Z probes: Boonton Electronic Corp. Model-91-CA;
(1) Signal Generator: Hewlett-Packard Model-HP-606;
(1) Electron Tube Tester: TV-7D/U; (1) Transistor Test Set: TS-1100A/U;
(1) Electronic Installation and Maintenance Book: NAVSHIPS 900,000;
(1) Handbook for Electronic Circuits: NAVSHIPS 900,000-102.

TECHNICAL CHARACTERISTICS:

TRANSMITTER
OUTPUT FREQUENCY: 75 to 133.3 mc in 33 kc steps at 20 mw.
RECEIVER LOCAL OSCILLATOR
OUTPUT FREQUENCY: 85 to 143.3 mc in 33 kc steps at 20 mw.
TUNING BANDS: One.
AUXILIARY
OUTPUT FREQUENCIES: 10 mc, 1 mc, and 100 kc at 1 v rms into 50 ohms.
FREQUENCY STABILITY: 5 parts in 10^7 per day.
OUTPUT IMPEDANCES: 50 ohms.
EXTERNAL AUXILIARY REFERENCE
INPUT FREQUENCY 1 mc or 100 kc at 1 v rms.
EXTERNAL AUXILIARY REFERENCE
INPUT IMPEDANCE: 50 ohms.
TYPE OF CONTROL: Crystal.
REFERENCES OSCILLATOR CRYSTAL
(1) TYPE USED: MLS-33.
(2) TYPE OF CUT: AT.
(3) QUANTITY: ONE.
(4) CRYSTAL FREQUENCY: 999.951 kc.
(5) OSCILLATION FREQUENCIES: 1 mc.
(6) TEMPERATURE COEFFICIENT: 0.25 part/10^6/° C at 75° C.
(7) OPERATING TEMPERATURE: 75° C (167° F).
INCREMENTAL OSCILLATOR CRYSTALS
(1) TYPE USED: CR-27/U.
(2) TYPE OF CUT: AT.
(3) QUANTITY: 10.
(4) CRYSTAL FREQUENCIES: 14.7 to 15 mc in 33.3 kc steps.
(5) OPERATING FREQUENCIES: 14.7 to 15 mc in 33.3 kc steps.
(6) TEMPERATURE COEFFICIENT: 1 part/10^6/° C at 75° C.
(7) OPERATING TEMPERATURE: 75° C (167° F).
OPERATING AMBIENT TEMPERATURE: 0° C to 5° C (32° to 122° F).
OPERATING AMBIENT HUMIDITY: 0 to 95% RH.

INPUT POWER REQUIREMENT
(1) STANDBY: 115 to 1 125 v ac, 50 to 60 cps, single phase 0.4 amp. at 115 v ac, 60 cps;
(2) OPERATE: 115 to 125 v ac, 50 to 60 cps, single phase, 0.65 amp, at 115 v ac, 60 cps.
HEAT DISSIPATION: 55 watts (operate condition).
MOUNTING: Bench or Relay Rack.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Synthesizer Electrical Equipment O-1178/SRC-17 includes:	5-1/4 x 17-1/2 x 20	68
2	Technical Manual: NAVSHIPS 95871	8-1/2 x 11	
1	Maintenance Standards Book: NAVSHIPS 95871.42	8-1/2 x 11	
1	Cable Power	6 ft length	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95871: Technical Manual for Electrical Frequency Synthesizer O-1178/SRC-17.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.06	80

1023

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories Div., The Hallicrafters Co. Dwg No. 206-000-000	Wilton, Conn.	NObsr-87289	

USA USN USAF

TYPE CLASS: Used by

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

RADIO FREQUENCY SYNTHESIZER O-1207/URC

FUNCTIONAL DESCRIPTION:

Radio Frequency Synthesizer O-1207/URC is a precision frequency generator that provides 690,000 output frequencies with a stability of 1 part in 10^8 per day in the range of 2 to 34 mc covered in four bands: 2 to 4 mc, 4 to 8 mc, 8 to 16 mc, and 16 to 34 mc. Auxiliary outputs of 1 mc and 100 kc are also provided.

The synthesizer consists of a main variable frequency oscillator (VFO) that is disciplined by three secondary variable frequency oscillators. All four oscillators are phase locked to a stable (1 part in 10^8), crystal controlled, 1 mc reference oscillator. As a result, the stability of the synthesizer outputs equals that of the reference oscillator. An external 1 mc standard frequency may be injected to replace the internal reference (if an output stability greater than 1 part in 10^8 per day is required), or to substitute for a defective internal reference oscillator. Two front panel jacks allow the 2 to 34 mc output frequencies to be checked against a frequency counter using the 100 kc auxiliary output of the synthesizer as the time base. A front panel meter circuit permits monitoring over all synthesizer

performance and individual circuit performance.
No field changes in effect at time of preparation (10 March 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

OUTPUT FREQUENCY
RANGE: 2 to 34 mc in four bands.
BANDS AND STEPS: 2 to 4 mc in steps of 12.5 cyc; 4 to 8 mc in steps of 25 cyc; 8 to 16 mc in steps of 50 cyc; 16 to 34 mc in steps of 100 cyc.
READOUT DIAL: 16 to 34 mc in steps of 100 cyc.
FREQUENCY STABILITY: 1 part in 10^8 per day from a built-in reference standard.
OUTPUT IMPEDANCE: 50 ohms nom, unbalanced.
SPURIOUS SIGNALS: Signals non-related to the output frequencies are down a min of 120 db.
HARMONIC OUTPUTS: Second harmonic down a min of 40 db, all higher order harmonics are negligible.
RESETTABILITY ERROR: Zero.
REFERENCE FREQUENCY LEVELS
OUTPUT: 100 kc (1/10 of internal standard).
OUTPUT: 1 mc (internal standard).
INPUT: (External 1 mc standard).
CRYSTAL
TYPE OF CUT: AT.
CRYSTAL FREQUENCY: 999.967 ± cps.
OSCILLATION FREQUENCY: 1 mc.
TEMPERATURE COEFFICIENT: 0.25 part/10^6 ° C max.
OPERATING TEMPERATURE: 75°.
OPERATING AMBIENT TEMPERATURE: 0 to 50° C.
OPERATING AMBIENT HUMIDITY: 0 to 95% RH.
INPUT POWER REQUIRED: 105 to 125 v ac (PP) 50 to 60 cyc, single ph, 1.7 amp drawn at 115 v ac.

1025

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Frequency Synthesizer O-1207/URC	5-1/4 x 16-1/2 x 20	80

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95765: Technical Manual for Radio Frequency Synthesizer O-1207/URC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (3) 5639 (18) 5702 (4) 5703 (5) 6021 (1) 6AH6 (2) 6AK5 (1) 6BE6

CRYSTALS: Not required.

SEMI-CONDUCTORS: (1) 1N270 (1) 2N1184B (1) 1N277 (3) 2N1547 (10) 1N485B (5) 1N540
(1) 2N11842 (2) 1N661 (1) 1N941 (2) 1N1820 (4) 1N3064 (4) 2N916
(12) 1N3612S (1) 2N560 (2) 2N335 (2) 2N1026

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Manson Laboratories	Wilton, Connecticut		

1026

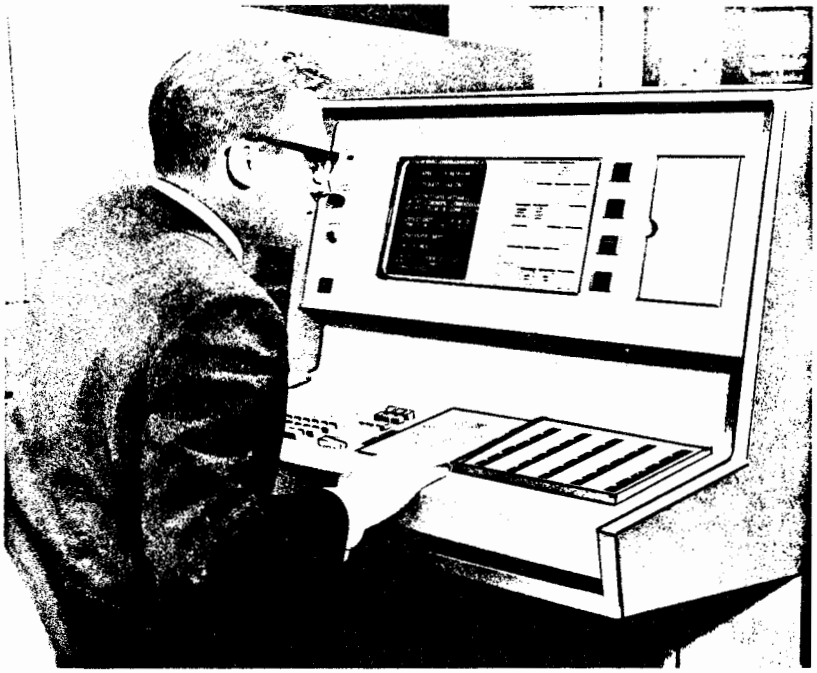
2 July 1965 COMPUTER COMMUNICATION CONSOLE OA-2795(XW-1)/FSQ-27
Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Bunker-Ramo Corporation, (04660).

1027



COMPUTER COMMUNICATION CONSOLE OA-2795(XW-1)/FSQ-27

FUNCTIONAL DESCRIPTION:

Computer Communication Console OA-2795(XW-1)/FSQ-27 is a multipurpose translator designed so that the person at the console, by pushing the proper buttons, can ask a question or make a request. Only milliseconds later, the computer responds on the Cathode-Ray Tube with freshly organized written messages or special symbols-all without a programming-specialist middleman or unwieldy communications paraphernalia. On the basis of the response, the operator can ask further questions and continue this rapid, step-by-step process until his task is completed. In other words, not only can the man interrogate the computer, he can cross-examine it. For some kinds of tasks the computer might do the asking, and the operator the answering. But either way the communication is immediate, convenient and direct.

Each clearly labeled keyboard button actuates a pre-programmed subroutine, so that specialists in many different fields can use the console to address a computer directly and spontaneously.

Specialists from unrelated fields can readily take turns at the keyboard controls. The console in effect, is 64 different consoles. This versatility derives from a provision for 64 keyboard overlays that enable thirty of the buttons to change their functions (and their labels) within seconds. Each freshly inserted overlay ties these buttons to an entirely new set of computer programs and so completely reorient the use of the console.

No field changes in effect at time of preparation (26 May 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

DATA PRESENTED PER DISPLAY: 700 characters.
REFRESH RATE: 60 times per sec.
DATA INPUT: 26-bit word; 14 terminals for data (13-bit half-word, plus parity); 3 terminals for sync.
INPUT RATE: 15,000 words per sec.
POWER REQUIREMENTS: 117 v, 60 cps, 1 ph, 3 amp, 360 W (normal).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Computer Communication Console OA-2795(XW-1)/FSQ-27		34-1/4 x 48 x 55-1/2	900

REFERENCE DATA AND LITERATURE:

RAMO-WOOLDRIDGE DIV OF THOMPSON RAMO WOOLDRIDGE INC CATALOG FOR: The Computer Communication Console OA-2795(XW-1)/FSQ-27.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

COMPUTER COMMUNICATION CONSOLE OA-2795(XW-1)/FSQ-27

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Bunker-Ramo Corporation	Canoga Park, California		

1029

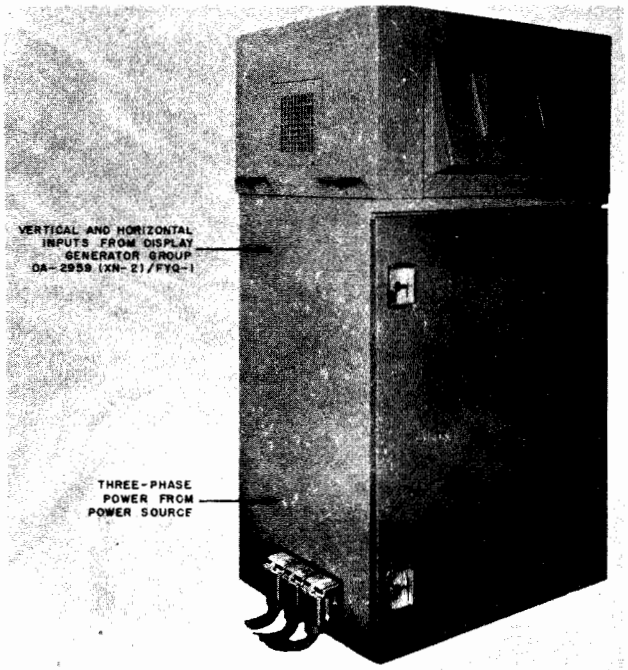
22 June 1965 SOLID STATE DISPLAY GROUP OA-2960(XN-2)/FYQ-1

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Westinghouse Electric Corp., Surface Div., Friendship Airport, (89661).



SOLID STATE DISPLAY GROUP OA-2960(XN-2)/FYQ-1

FUNCTIONAL DESCRIPTION:

Solid State Display Group, OA-2960(XN-2)/FYQ-1, provides a means for displaying, in a symbolic manner, radar target information. The display group receives target information and scanning pulses from Display Generator Group OA-2959(XN-2)/FYQ-1(GFM). These signals are converted, by means of solid state devices, into a form which can be displayed on the electroluminescent-ferroelectric (ELF) display screen. The ELF display screen is composed of 8,192 individual cell assemblies, each of which contains a means for storing and displaying information supplied by the distribution circuits.

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

RELATION TO OTHER EQUIPMENT: None.

1030

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Display Generator Group OA-2959(XN-2)/FYQ-1.

TECHNICAL CHARACTERISTICS:

INPUT CHARACTERISTICS:

VERTICAL SELECTION SIGNALS: 64 vertical selection signals from Display Generator Group OA-2959(XN-2)/FYQ-1. Each of these signals is a pulse, 10 usec in duration and 0 to + 10 v in amplitude at 470 ohms impedance.

HORIZONTAL SELECTION SIGNALS: 128 horizontal selection signals from Display Generator Group OA-2959(XN-2)/FYQ-1. Each of these signals is a pulse, 10 usec in duration and 0 to - 10 v in amplitude at 470 ohms impedance.

AMBIENT TEMPERATURE: 15 deg C to 35 deg C operating temp range for all equipment.

DISPLAY RESOLUTION: 256 cell/in^2

FRAME TIME: 5 sec.

SCREEN CONTRAST RATIO: 40:1 approx.

POWER SUPPLIES: The power supplies which provide operating power for the display circuitry provide the following outputs: + 200 v, - 40 v, ± 25 v, ± 40 v adjustable, + 210 v, - 170 v, - 200 v (not used), - 500 v on which is super imposed 514 v ac max at 400 cps, and + 500 v on which is super imposed 286 v ac max at 400 cps.

POWER REQUIREMENTS: 208 v, 50 to 60 cps, three ph, 550 W.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Solid State Display Group OA-2960(XN-2)/FYQ-1 includes:		24 x 30 x 67	665
1	Technical Manual NAVSHIPS 94131		3/4 x 9 x 11-1/2	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94131: Technical Manual for Solid State Display Group OA-2960(XN-2)/FYQ-1.

1031

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None required.

CRYSTALS: None required.

SEMI-CONDUCTORS: (549) 1N277 (1) 1N2036 (9) 2N458 (384) C11HX101 (2) 2N1015
(7) 1N2622 (8) 320S (6) 10M100Z10 (3) WX1015B (294) 2N526
(1) SV904 (3) 2N1016D (384) 1N646 (14) 2N1016B (2) 320H
(4) WX1016C (4) SM72 (4) 320K (3) 1M10Z10 (3) 1M22Z10 (12) 320D
(12) 304F (1) SV1020 (1) SV125 (2) 1.5M140Z5 (42) 320B
(12) 2N337 (7) 2N33A (7) 2N548A (2) WX1016A (4) WX1016B
(1) WX1015 (3) 3N41 (3) 2N333 (3) 2N339 (21) 320C (24) 320M
(1) 1N914 (1) 2N1233 (1) 1N643 (3) 1N645 (6) 2N329A (8) 1N659
(1) 2N656 (1) 2N1616 (2) 2N1046 (2) 2N514B (8) 2N696 (8) 1N459

SOLID STATE DISPLAY GROUP OA-2960(XN-2)/FYQ-1

SEMI-CONDUCTORS: (2) 1N761 (1) 2N697 (1) 2N1123 (1) 2N1046A (2) 2N1100 (2) 2N1201
(1) 2N326 (1) 2N389 (1) 2N1650 (1) 2N388A (4) 2N335 (4) 3202
(2) SV908 (8) 50M100Z5 (14) SV915

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Westinghouse Electric Corp. Surface Div. Friendship Airport	Baltimore, Md.	NObsr 72782	

1032

29 July 1964 RECORDER-REPRODUCER GROUP, SOUND OA-3457/UNQ

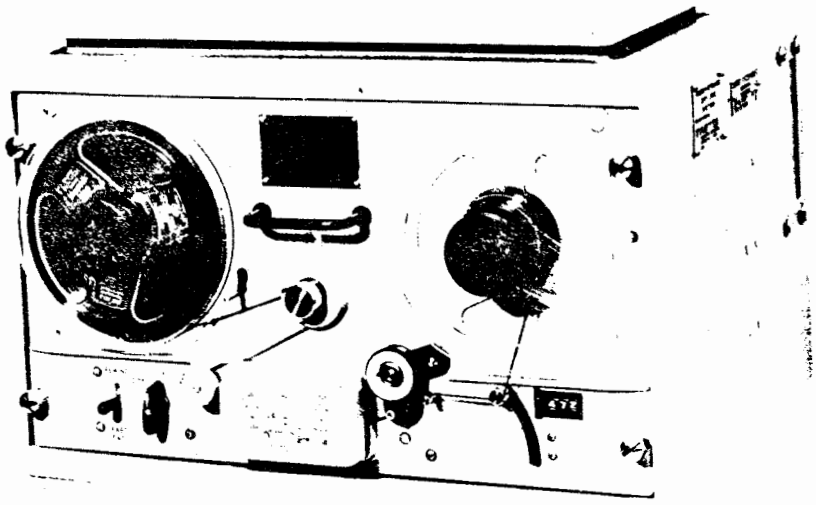
Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Midwestern Instruments Inc., (92400).

1033



RECORDER-REPRODUCER GROUP, SOUND OA-3457/UNQ-7

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer Group, Sound OA-3457/UNQ-7 is a dual-track magnetic tape transport operating at tape speeds of 15, 7.5 or 3.75 in. per sec. Electrical signals which fall within the audio frequency spectrum may be recorded on this equipment and this information either reproduced immediately, or under proper conditions, stored indefinitely.

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

RELATION TO OTHER EQUIPMENT:

This equipment was designed to operate as an auxiliary unit with either an AN/UNQ-7A or AN/UNQ-7.

OA-3457/UNQ-7 RECORDER-REPRODUCER GROUP, SOUND

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

TAPE SPEED: 3.75, 7.5, or 15 in. per sec.
TAPE SIZE: 1/4 in.
RECORDING METHOD: Dual track.
INPUTS
  CHANNEL A (VOICE)
    MICROPHONE: 150 ohms impedance; − 25 dbm max input level.
    BRIDGING: 200,000 ohms impedance; 15 v max input level.
    LINE: 600 ohms impedance; + 20 dbm max input level.
  CHANNEL B (SONAR)
    BRIDGING: 30,000 ohms impedance; 0.56 v max input level.
    LINE: 600 ohms impedance; 0.0 dbm max input level.
OUTPUTS: 1 W across 8 ohms available on terminal boards and front panel jacks.
HEADS: 1 dual-track record head, 1 dual-track reproduce head; and 1 full track high freq erase head.
PLAYING TIME: 60 minutes max with a 1200 ft reel of tape at 3.75 in. per sec.
REMOTE CONTROL: Record control.
POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 375 W.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer Group, Sound OA-3457/UNQ-7 Includes:			86
1	Recorder-Reproducer, Sound RD-226/UNQ-7A			
1	Cabinet, Electrical Equipment CY-3259/UNQ-7		15-7/8 x 18-3/8 x 21-1/4	
1	Control, Recorder-Reproducer Set C-3843/UNQ-7		3 x 3-15/16 x 5	

1034

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2734: Technical Manual for Recorder-Reproducer Group, Sound OA-3457/UNQ-7.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-T-22194 (SHIPS)

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Midwestern Instruments Inc.	Tulsa, Oklahoma	NObs-78869 (FBM) 24 June 1960 NObs-86549, 20 May 1962	$4,991.24

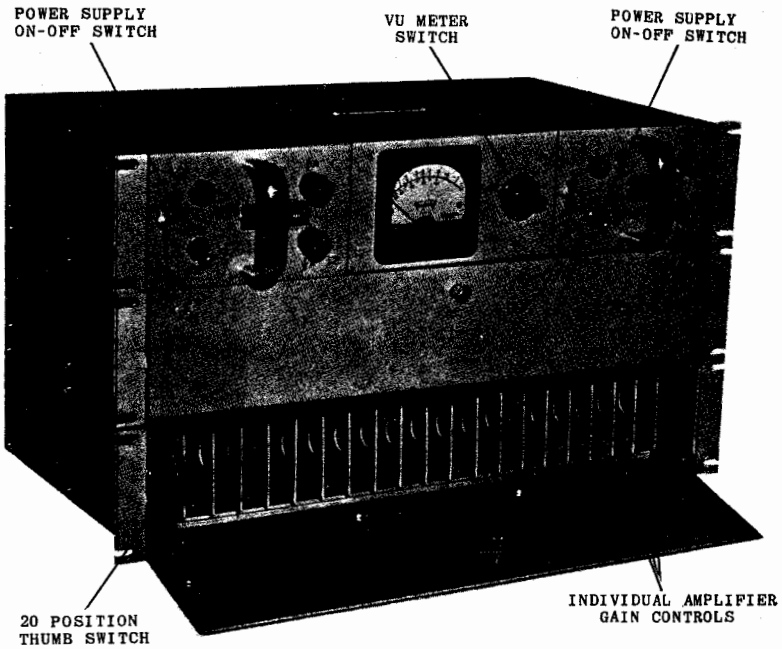
1035

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Virginia Electronics Company, Inc., (98473).



AMPLIFIER GROUP OA-4391/FSA-17

FUNCTIONAL DESCRIPTION:

Amplifier Group OA-4391/FSA-17 is to compensate for various individual circuit losses (such as on telephone cables from remote sites) and present the same volume level on all circuits to the input of an integrated communication control system such as the AN/FSA-17 Console Group. This is accomplished by use of a variable gain amplifier for each individual receive circuit.

No field changes in effect at time of preparation (15 April 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

For 100 channel system (5) Cable, Special Purpose MIL-C-19547. For 40 channel system (2) Cable, Power 3-No. 18 AWG Conductors.

TECHNICAL CHARACTERISTICS:

AMPLIFIER AM-3627/FSA-17
- INPUT: 20 dbm min for full output.
- OUTPUT: 0 dbm (1 mw).
- FREQUENCY RESPONSE: 300 to 3000 cyc ± 3 db.
- DISTORTION: Less than 2% at 1 mw output.
- INPUT IMPEDANCE: 600 ohms balanced.
- OUTPUT IMPEDANCE: 600 ohms balanced.
- POWER REQUIREMENTS: 12.6 v dc at 2.5 ma.

AMPLIFIER AM-3669/FSA-17
- INPUT: 20 dbm min for full output.
- OUTPUT: + 20 dbm max (100 mw).
- FREQUENCY RESPONSE: 300 to 3000 cyc ± 3 db.
- DISTORTION: Less than 5% at 80 mw output.
- INPUT IMPEDANCE: 600 ohms balanced.
- OUTPUT IMPEDANCE: 600 ohms balanced.
- POWER REQUIREMENTS: 12.6 v dc at 6 ma (with no input); 36 ma with 1000 cyc tone input and 100 mw output.

1037

POWER SUPPLY PP-3609/FSA-17
- INPUT: 117 v ac, 50 to 60 cyc nom.
- OUTPUT: 12.6 v dc regulated at 300 ma max.

CABINET CY-3789/FSA-17
- MAXIMUM AMP CARDS PER CABINET: 20 (may be either 1 mw or 100 mw cards or intermixtures).
- VERTICAL RACK SPACE REQUIRED: 3-1/2 in. (std 19 in. relay rack).

MAJOR COMPONENTS

QUANTITIES		ITEM	STK. NO.	DIMENSIONS (INCHES)	WEIGHT (LBS)
1		Amplifier Group OA-4391/FSA-17 includes:			
*2	**2	Power Supply PP-3609/FSA-17		3-1/2 x 5-1/2 x 10-1/2	6
*110	**48	Amplifier Audio Freq AM-3627/FSA-17		3/4 x 2-39/64 x 6	0.16
*1	**1	Amplifier Audio Freq AM-3669/FSA-17		3/4 x 2-39/64 x 6	0.32
*5	**2	Cabinet Electrical Equipment CY-3789/FSA-17		3-1/2 x 12 x 19	8
*1	**1	Cabinet Electrical Equipment CY-3790/FSA-17		3-1/2 x 12 x 19	8
*10 Pr	**4 Pr	Cable W2701			0.5
*100 Pr	**40 Pr	Cable W2901			1.5
*100 Pr	**40 Pr	Cable W2902			1.5

* For 100 Channel system

** For 40 Channel system

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94757: Technical Manual for Amplifier Group OA-4391/FSA-17.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (3) 1N538 (1) 1N3023B (7) 2N404 (1) 2N1039

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Virginia Electronics Co. Inc.	Washington, D. C.	NObsr-85151	

1038

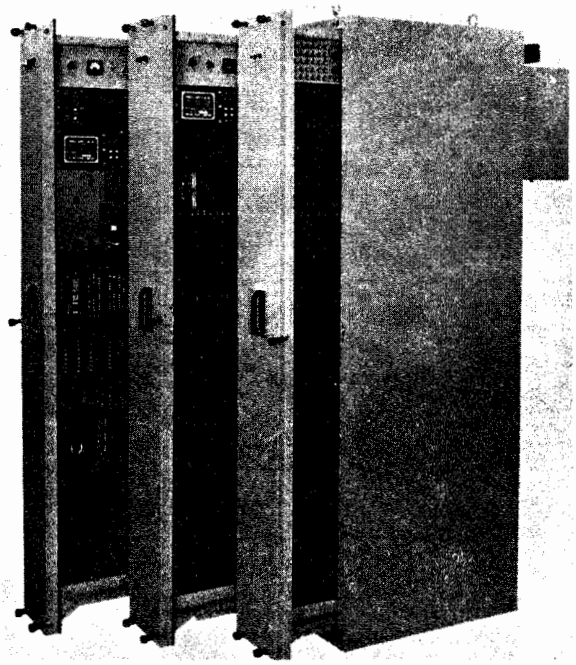
24 June 1965 DATA TERMINAL GROUP OA-4477/SSQ-29

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Collins Radio Company, Dallas Division, (95104).



DATA TERMINAL GROUP OA-4477/SSQ-29

FUNCTIONAL DESCRIPTION:

1039

Data Terminal Group OA-4477/SSQ-29 consists of three electrical equipment racks contained in a terminal equipment cabinet. The frame of each rack is constructed of welded aluminum channel and an extruded aluminum cable duct. The duct is bolted to the edge of the frame and covered by aluminum plates which serve as the front panel of the equipment. The rear panel is an aluminum-alloy extrusion in which an air plenum is formed. Mounted in the air plenum is an air-to-water heat exchanger which in conjunction with blower-motor assemblies in each of the three equipment racks, form a closed-loop recirculated-air, cooling system. Each rack is mounted on sliding rails, permitting withdrawal to the service position for setting controls, observance of indicators, and maintenance or troubleshooting procedures. Circuit-card cages and control panels are flanged-mounted onto the frame. Each card cage is capable of containing twenty five circuit cards in individual slots, and each slot accommodating a card has an adjacent designator identifying the type of card to be used in that slot. Additionally, each card is keyed to fit the associated slot, and each key is dissimilar from any other key.

These features facilitate card substitution during troubleshooting periods and prevent the inverse use of cards not intended for a particular slot. Once installed, the cards are secured in place by aluminum retaining strips locked in place. Similarly, modules capable of containing thirty millimodules are mounted in individual slots and identified by adjacent designators. Interlock switches on racks 1 and 2 deenergized the power supplies when power supply access covers are opened. The interlocks can be bypassed when necessary.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None

TECHNICAL CHARACTERISTICS:

COOLING SYSTEM
- TYPE: Recirculated air, water cooled.
- AIR CIRCULATION: 450 cfm.
- WATER FLOW: 1.9 gpm min.
- WATER PRESSURE: 30 psi nom.

POWER REQUIREMENTS: 115 v, 400 cps, three ph, 1500 va pf 0.78.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Data Terminal Group OA-4477/SSQ-29		30 x 34-1/2 x 72	1200

1040

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94718(A): Technical Manual for Data Terminal Set AN/SSQ-29(U).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not available.

CRYSTALS: Not available.

SEMI-CONDUCTORS: Not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	58.5	1500

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co., Dallas Div.	Dallas, Texas	NObsr 87224	

1041

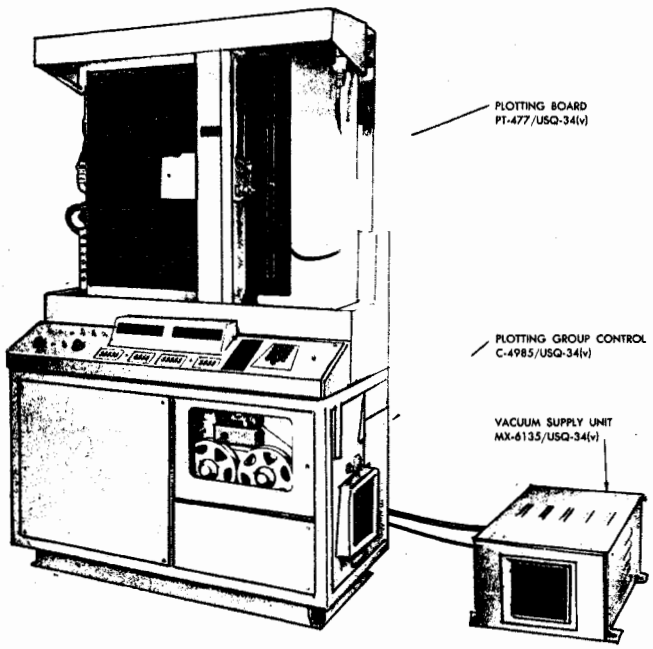
17 August 1967 PLOTTING GROUP DIGITAL OA-4547/USQ-34(V)

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Gerber Scientific Instrument Co., (88272).



PLOTTING GROUP DIGITAL OA-4547/USQ-34(V)

FUNCTIONAL DESCRIPTION:

The Plotting Group Digital OA-4547/USQ-34(V) is capable of plotting points any where on the 42-by-57.5-inch active plotting area within ± 0.030 inch of the commanded (input) position. Plotting speed for closely spaced points is greater than 40 points per minute. The maximum traversing speed of the printing mechanism is 8 inches per second. For fast and accurate plotting of digital information in rectangular coordinates. Points may be plotted anywhere on the 30 inch by 30 inch plotting area within 0.015 inch of true position. Plotting speeds of up to 60 points per minute may be obtained for closely spaced points with data entry from punched paper tape or electronic computer. A keyboard is provided on the main control panel to permit manual data entry and program setup as required. Anyone of up to 71 symbols may be selected manually or automatically, and printed adjacent to the plotted point. Straight lines up to the full length of the plotting material may be drawn parallel to either axis, and pen control may be either manual or automatic. The zero position for each axis may be shifted either on or off the plotting area up to 9999 counts, and each axis

zero shift may be set separately. Full scale may be expanded up to ten times or contracted to zero independently for each axis. Designed in three separate units to facilitate installation and servicing. The control console houses the solid-state digital logic, the tape reader, and the power supplies. The vacuum package, which provides the means for holding the plotting material firmly on the table is self-contained and may be mounted adjacent to the plotter table. The plotter table provides the plot output and is designed for wall (vertical) installation.

No field changes in effect at time of preparation (14 March 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(2) Fixture Calibration No. E11585 & E11586, (Columbus Div. North American Aviation Inc.); (1) Magnifier Measuring 81-34-35-01, (Bausch and Lomb Optical Co); (1) Tester E11011 (North American Aviation Inc); (1) Generator Digital Word E11012 (North American Aviation Inc.); (2 ea) (6) Plug-in Units HP No's - HO2-162A, HO2-166A, and HO2-166D; (2) Oscilloscope HP-02-170A; (1) Multimeter AN/PSM-4C; (1) Technical Manual NAVSHIPS 94309; (1) Commercial Operating and Service Manual HP No. 1501; (1) SIWIPB for Program Request Panel NAVWEPS 10-30-30; and 0 & (EE)9611-730064).

TECHNICAL CHARACTERISTICS:

1043

PLOTTING AREA: 42-by 57.5 inch maximum active plotting surface, subdivided into two smaller plotting areas of 11 by 17 and 22 by 29 inches.

PLOTTING SPEED: Greater than 40 points per minute (closely spaced points).

SLEWING SPEED: 8 inches per second (maximum).

ACCURACY: Points are plotted with ± 0.030 inch of commanded (input) position.

DIGITAL RANGE: 0000 to 9583 counts in the X-axis 0000 to 7000 counts in the Y-axis (one-count = 0.006 inch).

SCALING RANGE: 0.0000 to 9.999 (separate for each axis).

ZERO SHIFT: 0000 to ± 9583 counts (X-axis) and 0000 to 7000 counts (Y-axis) in either "ON" or "OFF" board directions.

INPUTS: Computer, CP-642A/USQ-20(V) or AN/UYK-1; punched paper tape punched by teletype-writer AN/UGC-6 or 13; manual keyboard.

INPUT PROGRAM: Computer-binary; punched paper tape-five-level teletype code modified, manual keyboard-serial entry decimal.

OUTPUT MECHANISMS: Type EE72 symbol print wheel including a dot, a pin prick, and a line drawing pen; tape punch, MX-6134/USQ-34(V) five level teletype code modified for recording plotted data.

DISPLAY: Decimal input coordinates or actual position indicators (four-digit and sign for each axis).

PLOTTING MATERIAL HOLDOWN: Vacuum platen.

AMBIENT TEMPERATURE RANGE:

OPERATING: mechanical 0° to 50° C, (57.5° to 143.7° F); electronic 4.5° to 32° C (65.8° to 115° F).

NON OPERATING: mechanical - 54° C to 71° C (- 39° F to 185.5° F); electronic - 17.8° to 50° C (25.5° to 143.7° F).

AMBIENT HUMIDITY:

OPERATING: mechanical 5% to 90% relative humidity up to 50° C (143.7° F); electronic 30% to 90% relative humidity up to 32° C (115° F).
NON OPERATING: 5% to 90% relative humidity up to 71° C (185.5° F).
INPUT VOLTAGE: 115 v ac ± 10%, 60 cps ± 5%, single phase third wire ground.
TRANSIENT VOLTAGE: + 20% from the upper limit of the input voltage (126.5 v ac) and returning to the steady-state value within 2 seconds; 20% from the lower limit of the input voltage (103.5 v ac) and returning to the steady state value within 2 seconds.
INPUT CURRENT STARTING: 62 amperes; OPERATING: 21 amperes.
POWER REQUIREMENTS: 115 v ac ± 10%, 60 cps ± 5%, single phase, third wire ground, 21 amperes continuous current with a starting transient of 62 amperes.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Plotting Group Digital OA-4547/USQ-34(V) includes:	25 x 70 x 89	
1	Plotting Group Control: C-4984/USQ-34(V)	42 x 43-11/16 x 62-13/16	700
1	Plotting Board: PT-476/USQ-34(V)	24-3/8 x 70 x 83-25/32	2400
1	Vacuum Supply Assembly: MX-6133/USQ-34(V)	13 x 19-7/8 x 26-7/8	330
1	Tape Punch: MX-6134/USQ-34(V)	9-1/4 x 12-1/2 x 19	28
1	Technical Manual NAVSHIPS 94750 (Cable as required)		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94750: Handbook of Installation, Operation, Maintenance, and Repair Instructions with Parts List for Digital Plotting Groups OA-4547/USQ-34(V), and OA-4548/USQ-34(V).

1044

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: NA5073732
DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Gerber Scientific Instrument Co. Part No. 3210D-B	Hartford, Conn.	NOW 61-0751 NOW(a) 63-0274-1	

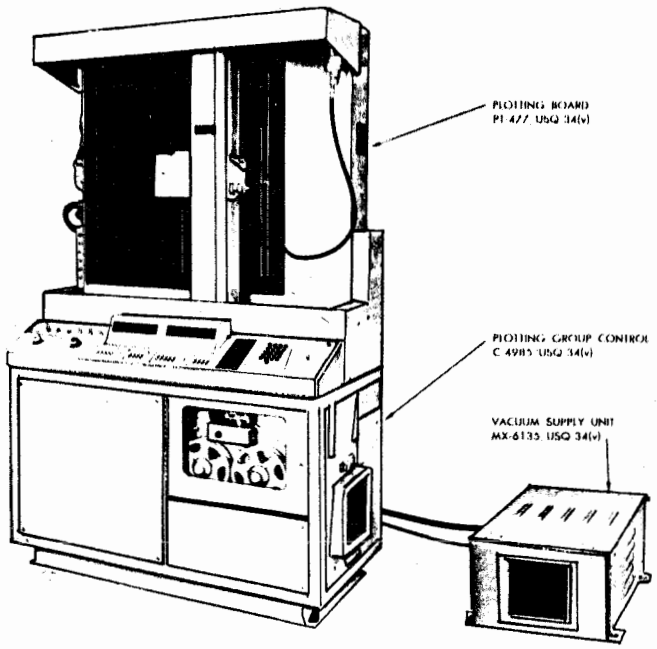
17 August 1967 PLOTTING GROUP DIGITAL OA-4548/USQ-34(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Gerber Scientific Instrument Co. (88272)



PLOTTING GROUP DIGITAL OA-4548/USQ-34(V)

FUNCTIONAL DESCRIPTION:

1045

The Plotting Group Digital OA-4548/USQ-34(V) is capable of plotting points anywhere on the 30-by-30-inch active plotting area within ±0.015 inch of the commanded (input) position. Plotting speed for closely spaced points is greater than 60 points per minute. The maximum traversing speed of the printing mechanism is 10 inches per second.

The Digital plotting group is used for the graphic display of data from digital sources. Equipment is designed for extremely fast and accurate plotting of digital information in rectangular coordinates on transparent material such as mylar, acetate, or opaque paper. Both digital plotting group is equipped for point plotting of up to 72 different symbols, or for drawing straight lines parallel to the coordinate axes. External digital signals are supplied to the plotting group from either a CP-642A/USQ-20(V) or a CP-749/USQ-34(V) computer. Plotting commands are also supplied to the plotting group from punched paper tape produced by teletypewriter, AN/UGC-13, modified to punch the required paper tape for-

mat, or by the operator via a pushbutton keyboard. The equipment has a writing desk attached to the front of the plotting group control.

No field changes in effect at time of preparation (14 March 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(2) Fixture Calibration: No. E11585 and E11586, Columbus Div. North American Aviation Inc.; (1) Magnifier Measuring No. 81-34-35-01, Bausch and Lomb Optical Co.; (1) Tester: No. E1101: North American Aviation Inc.; (1) Generator Digital Word: No. E11012, North American Aviation Inc.; (2 ea-(6) Plug-in-unit: Hewlett-Packard No's: H02-162A, H02-166A and H02-166D; (2) Oscilloscope HP-No. H02-170A; (1) Multimeter: AN/PSM-4C; (1) Technical Manual: NAVSHIPS 94309; (1) Commercial Operating and Service Manual: Hewlett-Packard No. 1501; (1) O&SI w/IPB for Program Request Panel (EE) 9611-730064: NAVWEPS 10-30-30.

TECHNICAL CHARACTERISTICS:

PLOTTING AREA: 30-by-30 inch maximum active plotting surface, subdivided into two smaller plotting areas of 11 by 17 and 22 by 29 inches.
PLOTTING SPEED: Greater than 60 points per minute; (closely spaced points).
SLEWING SPEED: 10 inches per second (maximum).
ACCURACY: Points are plotted within ± 0.015 inch of commanded (input position).
DIGITAL RANGE: 0000 to 9999 counts in both axes (one count = 0.003 inch).
SCALING-RANGE: 0.0000 to 9.9999 (separate for each axis).
ZERO SHIFT: 0000 to ± 9999 counts in either "ON" or "OFF" board directions (separate for each axis).
INPUTS: Computer, CP-642A/USQ-20(V) or AN/UYK-1; punched paper tape punched by teletypewriter, AN/UGC-6 or 13; manual keyboard.
INPUT PROGRAM: Computer-binary; punched paper tape-five-level teletype code modified, manual keyboard-serial entry decimal.
OUTPUT MECHANISMS: Type PI72 symbol print wheel including a dot, a pin prick, and a line drawing pen.
DISPLAY: Decimal input coordinates or actual position indicators (four-digit and sign for each axis).
PLOTTING MATERIAL HOLDOWN: Vacuum platen.
AMBIENT TEMPERATURE RANGE:
OPERATING: Mechanical 0° to 50° C (57.5° to 143.7° F).
ELECTRONIC: 4.5° to 32° C (65.8° to 115° F).
NONOPERATING: Mechanical 54° to 71° C (39° to 185.5° F).
ELECTRONIC: 17.8° to 50° C (25.5° to 143.7° F).
AMBIENT HUMIDITY RANGE:
OPERATING: Mechanical 5% to 90% relative humidity up to 50° C (143.7°F).
ELECTRONIC: 30% to 90% relative humidity up to 32° C (115° F).
NONOPERATING: 5% to 90% relative humidity up to 71° C (185.5° F).
INPUT VOLTAGE: 115 v ac ± 10%, 60 cps ±5%, single-phase, third wire ground.
TRANSIENT VOLTAGE: +20% from the upper limit of the input voltage (126.5 v ac) and returning to the steady-state value within 2 seconds; -20% from the lower limit of the input

voltage (103.5 vac) and returning to the steady state value within 2 seconds.

INPUT CURRENT: STARTING: 45 amperes.
OPERATING: 15 amperes.

POWER REQUIREMENTS: 115 v ac ± 10%, 60 cps + 5%, single-phase, third wire ground 15 amperes continuous current with a starting transient of 45 amperes..

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Plotting Group Digital: OA-4548/USQ-34(V) includes:	26 x 50 x 83	
3	Vacuum Supply Unit: MX-6135/USQ-34(V)	13 x 19-7/8 x 26-7/8	165
3	Plotting Group Control: C-4985/USQ-34(V)	24-3/4 x 39-5/8 x 52-3/16	665
3	Plotting Board: PT-477/USQ-34(V) (cable as required.)	19-11/16 x 50-1/4 x 50-5/16	1,085

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94750: Handbook, Installation, Operation, Maintenance and Repair Instruction with Parts List for Digital Plotting Groups OA-4547/USQ-34(V), and OA-4548/USQ-34(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

1047

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SPEC: NA5-73732

DESIGN COG: USN, NavShips

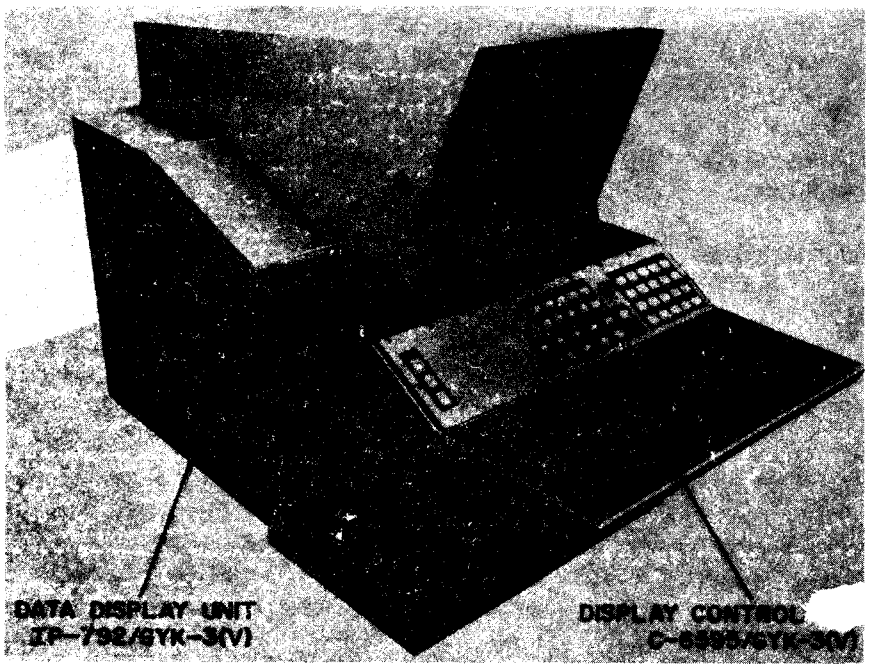
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Gerber Scientific Instrument Co. Part No. 2212D-B	Hartford, Conn.	NOW 61-0751 NOW(a) 63-0274-1	

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corporation, Defense and Space Group, (08241).



DATA DISPLAY GROUP OA-7434/GYK-3(V)

FUNCTIONAL DESCRIPTION:

The Data Display Group OA-7434/GYK-3(V) "V" operating assembly provides display message-generating functions for the AN/GYK-3(V) system. Each of the three display subunits used with the "V" operating assembly is identical and is capable of displaying messages comprised of 32 lines, each containing 31 characters. The message-generating circuits are manually controlled and produce digital message words, select message lines, and determine operating modes.

No field changes in effect at time of preparation (19 July 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope, Tektronix Type 545A; (1) Oscilloscope, Tektronix Type 536; (1) Plug-in

Unit, Tektronix Type CA; (1) Plug-in Unit, Tektronix Type L; (1) Viewing Hood, Tektronix Type 016-001; (1) Mobil Cart, Tektronix Type 500/53A; (1) Current Probe Amplifier, Tektronix Type 131; (1) 10X12 ft. Probe, Tektronix Type P6006; (1) Current Probe, Tektronix Type P6016; (1) High Voltage Probe, Tektronix Type P6013; (1) Direct Test Probe, Tektronix Type P6027; (1) Differential Voltmeter, Fluke Model 803; (1) Multimeter, Triplett Model 630NA; (1) Electronic Counter, Hewlett-Packard Type 524-D; (1) High-Voltage Probe, Triplett T-79-70; (1) Pulse-generator, Rutherford Model B7B.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS FOR OPERATING ASSEMBLY "V"
- VOLTAGE: 120 v ± 10%.
- FREQUENCY: 60 cps.
- PHASE: Single phase, 2 wire.
- POWER: 1.2 and 1.8 kva ("V" assemblies).
- POWER-FACTOR: 0.833.

GROUNDING REQUIREMENTS: Earth Ground.
EQUIPMENT PLACEMENT: Operations Area.
HOUSING AREA REQUIREMENTS
- "V" ASSEMBLIES
  - FLOOR AREA: 17.7 sq ft.
  - ACCESS AREA: 7.5 sq ft.

FLOOR LOADING
- "V" ASSEMBLIES: 64 psf.

HEAT DISSIPATION
- "V" ASSEMBLIES: 8533 BTU per hr.

ENVIRONMENTAL PARAMETERS
- AMBIENT TEMPERATURE: 32 deg F to 120 deg F.
- RELATIVE HUMIDITY: 100% (max).
- AMBIENT LIGHTING: 5 ft-candles.

OPERATORS REQUIRED
- "V" ASSEMBLIES: One.

STORAGE: 1024 characters (non-destructive).
DISPLAY TUBE: 17 in. Cathode Ray Type (9 x 12 display area).
OPERATING PARAMETERS
- DISPLAY REFRESH RATE: 30 to 50 cps.
- DISPLAY FORMAT: 32 lines with 31 character positions.
- INPUT MESSAGE FORMAT: 7 bit code configuration.
- CORE MEMORY: 512 words each containing 14 bits.
- DISPLAYABLE CHARACTERS: 52 (10 numbers, 26 letters, 16 special symbols).

CONSOLE-SWITCHES OF OPERATING ASSEMBLY "V"
- SECONDARY COMMAND SWITCHES: 10, in addition to its normal.
- PRIMARY COMMAND SWITCHES: 10, switching of external lines.
- TELETYPE LINE SWITCHES: 10, each switch causes the command code generator to generate a particular two-character command code when each switch is pressed.
- TELETYPE LINE SWITCHES: 20, each switch when depressed controls the switching of a particular pair of teletype output lines.

ALARM: An audible alarm is provided to alert the operator.
BINARY VOLTAGE LEVELS: − 0.5 to + 0.5 volts for a binary 0 and + 2.0 to + 4.0 volts for a binary 1.

1049

DATA DISPLAY GROUP OA-7434/GYK-3(V)

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Data Display Group OA-7434/GYK-3(V)	51 x 70 x 73	2250

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96058: Technical Manual Service for Data Display Group OA-7434/GYK-3(V) and Data Display Group OA-7435/GYK-3(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	54.5	650
1	100.1	1150

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NAVSHIPS
SPEC &/OR DWG: SHIPS-D-4542

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corporation, Defense and Space Group Pt/Dwg No. 4433-7000	Paoli, Pa.	NObsr-91181.	

1050

29 November 1966 DATA DISPLAY GROUP OA-7435/GYK-3(V)

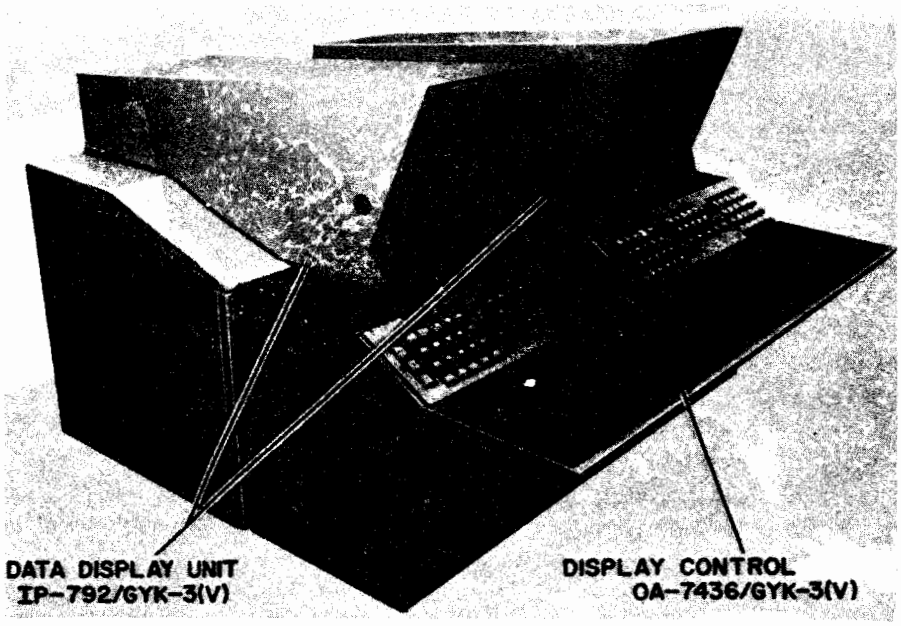
Cog Service: USN **FSN:** **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corporation Defense and Space Group, (08241).

1257



DATA DISPLAY GROUP OA-7435/GYK-3(V)

FUNCTIONAL DESCRIPTION:

The Data Display Group OA-7435/GYK-3(V) operating assembly "0" is to provide operators with a visual presentation of information obtained from the double I/O units of the AN/GYK-3 (V) system so that the operators can monitor and evaluate the information. The operating assembly "0" also provide a means of inserting data onto the "Teletype" lines. The operating assembly "0" consists of one mobile data display and one fixed assembly. All three mobile displays are identical, interchangeable, and completely independent. If the operating assembly "V" mobile display fails, one of the mobile displays from the operating assembly "0" can be used to replace it. The mobile displays connect electrically with the double I/O modules but not with the fixed assemblies.

No field changes in effect at time of preparation (19 July 1966).

RELATION TO OTHER EQUIPMENT: None.

1.5 OA-7435/GYK-3(V): 1

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope, Tektronix type 545A; (1) Oscilloscope, Tektronix type 536; (1) Plug-in Unit, Tektronix type CA; (1) Plug-in Unit, Tektronix type 1; (1) Current probe Amplifier, 131, Tektronix type P/N015-011; (1) Oscilloscope Cart, Tektronix type 500/53A; (1) Viewing Hood, Tektronix type P/N016-001; (1) Differential-Voltmeter, Fluke Model 803; (1) Multimeter, Triplett Model 630NA; (1) Electronic Counter, Hewlett-Packard type 524D; (1) 10 x 12 ft probe P6006, Tektronix type P/N 010-144; (1) Direct Test Probe P6027, Tektronix type P/N-010-071; (1) Current-probe P6016, Tektronix-type P/N 010-037; (1) High Voltage probe P-6013, Tektronix type P/N 010-106; (1) High Voltage probe, Triplett T-79-70; (1) Pulse Generator, Rutherford Model B7B.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS FOR OPERATING ASSEMBLY "0"
VOLTAGE: 120 volts, 1 phase ± 10 pct.
FREQUENCY: 60 cps, ± 5 pct.
POWER: 6.0 kva.
AMBIENT OPERATING TEMPERATURE: + 32 to + 104 deg F.
AMBIENT NONOPERATING TEMPERATURE: - 65 to + 160 deg F.
RELATIVE HUMIDITY (OPERATING AND NONOPERATING): Up to 100 pct, including condensation due to temperature.
HEAT-DISSIPATION OF OPERATING ASSEMBLY "0": 17,065 BTU/hr.
DATA DISPLAY REFRESH RATE: 38 cps to 50 cps rate.
DISPLAY FORMAT: 32 lines, each with 31 character positions when the unit is on line.
INPUT MESSAGE FORMAT: 7 bits (6 data bits and 1 parity bit).
CORE MEMORY: 512 words, each consisting of 14 bits.
MESSAGE FROM DOUBLE I/O: 1024 characters (31 displayable characters or spaces followed by a carriage return character for each of the 32 lines).
DISPLAY TUBE: A 17 inch Cathode Ray Tube with a display area of 9 by 12 inches.
RUNNING TIME RECORD: An elapsed time indicator records cumulative operating time.
STORAGE: Nondestructive storage is provided by the core memory.
WRITE OPERATION: The write operation consists of writing into the memory.
READ OPERATION: The read operation consists of reading the core memory and rewriting and displaying the character.
CHARACTER TYPES: 64 (10 numbers, 26 letters, 16 special, 8 ignore, 2 space, and 2 carriage return/line feed).
BINARY-VOLTAGE LEVELS: - 0.5 to + 0.5 volts for a binary 0 and + 2.0 to + 4.0 volts for a binary 1.
ALARM: An audible alarm is provided to alert the operator.
CHARACTER GENERATION: In response to a digital input command, the character generator provides X and Y analog deflection voltages and a Z-axis modulation signal to produce any one of the 52 characters.
LEFT-HAND-CONSOLE SWITCHES OF OPERATING ASSEMBLY "0"
AUXILIARY SWITCHES: (20).
SECONDARY COMMAND SWITCHES: (10).
PRIMARY COMMAND SWITCHES: (6).
RIGHT-HAND CONSOLE SWITCHES OF OPERATING ASSEMBLY "0"
In addition to its normal switching of external lines, each switch causes the command

code generation to generate a particular two-character command code when the switch is pressed.

AUXILIARY SWITCHES: (20).

SECONDARY COMMAND SWITCHES: (10).

PRIMARY COMMAND SWITCHES: (6).

OPERATING MODE SWITCHES: (10).

"TELETYPE" LINE SWITCHES: (10).

Each switch when pressed controls the switching of a particular pair of teletype output lines.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Data Display Group OA-7435/GYK-3(V)	35 x 51 x 73	1125

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96058: Technical Manual, Service for Data Display Group OA-7434/GYK-3(V) and Data Display Group OA-7435/GYK-3(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	88	1200
1	100.1	1150
1	4.75	150

1053

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, NavShips

SPEC &/OR DWG: SHIPS-D-4542

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corporation Defense and Space Group Pt/Dwg no. 4433-7000	Paoli, Pa.	N0bsr-91181	

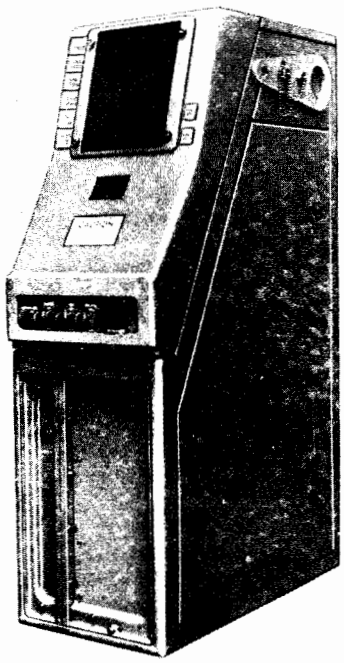
8 August 1967
Cog Service: USN FSN:

CONSOLE, DATA READOUT OA-7490/SYA-4(V)
Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hughes Aircraft Co., (05869).



CONSOLE, DATA READOUT OA-7490/SYA-4(V)

FUNCTIONAL DESCRIPTION:

Console, Data Readout OA-7490/SYA-4(V), is used in conjunction with the AN/SPN-10 Aircraft Landing Control Central to display auxiliary information from the unit computer and the AN/SPN-10 concerning approaching aircraft. Information concerning approaching aircraft, required by the display operator, is formulated by the unit computer and sent to the readout console as a series of sequential readout words. Each readout word is decoded, and a particular character is projected on the readout console display by means of lamps and lenses.

No field changes in effect at time of preparation (7 November 1966).

RELATION TO OTHER EQUIPMENT:

The Console, Data Readout, OA-7490/SYA-4(V) is similar to the Data Utilization Readout Console OA-3956/SYA-4(V). The OA-7490/SYA-4(V) receives several lamp control signals directly from the AN/SPN-10. The Data Readout Console also differs in that it contains Waveoff switches and a Cursor Brightness control.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
  VOLTAGE: 115 v ac ±1%, 3 ph.
  FREQUENCY: 400 cps ±5%.
  CURRENT, W/BLOWER
    STARTING: 4.6 amp at 22 power factor lagging.
    RUNNING: 2.3 amp at 78 power factor lagging.
  POWER DISSIPATED W/BLOWER: 240 W.
NUMBER OF COMPUTER INPUT LINES: 21.
NUMBER OF AN/SPN-10 INPUT LINES: 4.
TYPE OF PRESENTATION: Visual.
NUMBER OF OUTPUTS TO AN/SPN-10: 2.
AIR REQUIREMENTS
  FLOW RATE: 1.5 cfm.
  RELATIVE HUMIDITY: 50% max.
  TEMPERATURE: 239 deg C (75 deg F) max.
  PRESSURE: 2 in. of water.
WATER REQUIREMENTS
  SALINITY: 20 ppm max.
  FLOW RATE: 0.3 gal per minute.
  PRESSURE: 50 psig max.

MAJOR COMPONENTS

1055

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Console, Data Readout, OA-7490/SYA-4(V) includes:	14.88 x 25.50 x 45.25	302
1	Base, Data Readout Console MT-3478/SYA-4(V)	4.25 x 13.75 x 31.34	44
1	Air Duct	5.59 x 13.55 x 43.75	17

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-010-0000: Technical Manual for Data Readout Console OA-7490/SYA-4(V), and Data Readout Console OA-7491/SYA-4(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	23.7	434
1	2.5	62
1	4.2	42

PROCUREMENT DATA

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

1.2 OA-7490/SYA-4(V): 2

CONSOLE, DATA READOUT OA-7490/SYA-4(V)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hughes Aircraft Co.	Fullerton, Calif.	NObsr-87183	

1058

8 August 1967 CONSOLE, DATA READOUT OA-7491/SYA-4(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hughes Aircraft Co., (05869).

CONSOLE, DATA READOUT OA-7491/SYA-4(V)

FUNCTIONAL DESCRIPTION:

1057

Console, Data Readout, OA-7491/SYA-4(V) is used in conjunction with the AN/SPN-10 Aircraft Landing Control Central to display auxiliary information from the unit computer and the AN/SPN-10 concerning approaching aircraft. Information concerning approaching aircraft, required by the display operator, is formulated by the unit computer and sent to the readout console as a series of sequential readout words. Each readout word is decoded, and a particular character is projected on the readout console display by means of lamps and lenses. Each readout display consists of 36 projection cells placed in a six by six matrix. Each cell is capable of displaying up to 12 alphabetical and/or numerical bits of information, called characters. All displayed alphanumeric data is color-coded (white, green, or red) to quickly show the association between any related cells (data and data category) of the matrix.

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

RELATION TO OTHER EQUIPMENT:

The Data Readout Console OA-7491/SYA-4(V) is similar to Data Utilization Readout Console OA-3956/SYA-4(V). The Data Readout Console OA-7491/SYA-4(V) receives several lamp control signals directly from the AN/SPS-10. These control signals are used to light several of the lamps within some of the display cells directly, by-passing the character selection logic.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

NUMBER OF COMPUTER INPUT LINES: 21.
NUMBER OF AN/SPN-10 INPUT LINES: 4.
TYPE OF PRESENTATION: Visual.
POWER REQUIREMENTS
- VOLTAGE: 115 v ac ± 1% 3 ph.
- FREQUENCY: 400 cps ± 5%.
- CURRENT W/BLOWER
  - Starting: 4.6 amp at 22% power factor lagging.
  - RUNNING: 2.3 amp at 78% power factor lagging.
- POWER DISSIPATED (WITH BLOWER): 240 W.

AIR REQUIREMENTS
- FLOW RATE: 1.5 cfm.
- RELATIVE HUMIDITY: 50% max.
- TEMPERATURE: 23.9 deg C (75 deg F) max.
- PRESSURE: 2 in. of water.

WATER REQUIREMENTS
- SALINITY: 20 ppm max.
- FLOW RATE: 0.3 gpm.
- TEMPERATURE: 32 deg C (90 deg F) max.
- PRESSURE: 50 psig max.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Console, Data Readout, OA-7491/SYA-4(V) includes:	14.88 x 25.50 x 45.25	302
1	Base, Data Readout Console, MT-3478/SYA-4(V)	4.25 x 13.75 x 31.34	44
1	Air Duct	5.59 x 13.55 x 43.75	17

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-010-000: Technical Manual for Data Readout Console OA-7490/SYA-4(V) and Data Readout Console OA-7491/SYA-4(V).

CONSOLE, DATA READOUT OA-7491/SYA-4(V)

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	23.7	434
1	2.5	62
1	4.2	42

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hughes Aircraft Co.	Fullerton, Calif.	NObsr-87183	

1059

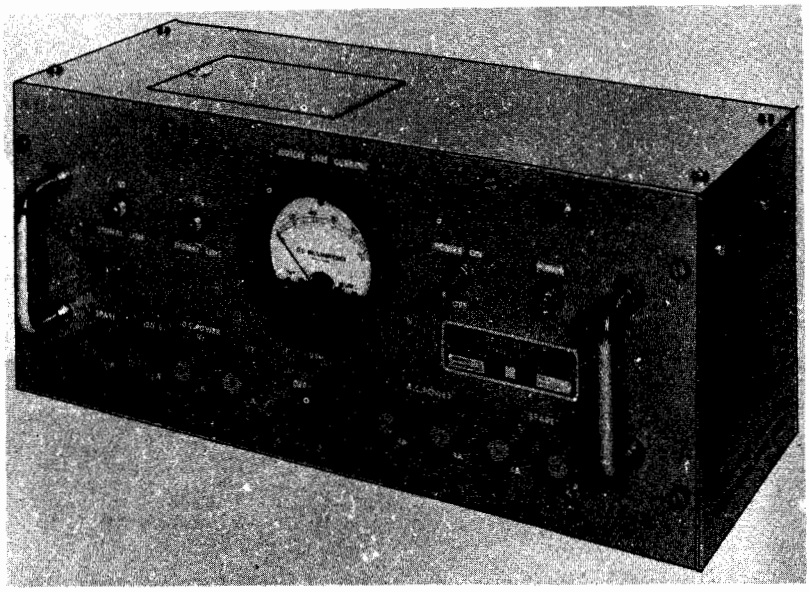
21 September 1967 POWER SUPPLY PP-1767A/UG

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Digital Electronics, Inc., (15476).



POWER SUPPLY PP-1767A/UG

1060

FUNCTIONAL DESCRIPTION:

The Power Supply PP-1767A/UG, is used as a dc supply for the operation of teletypewriters, radio adapters, and associated equipments.

The power supply utilizes semiconductors throughout (no vacuum tubes) and requires no operational adjustments. The circuit comprises a power transformer, semiconductor full-wave rectifiers, and a dc voltage regulator consisting of a magnetic amplifier and Zener diode.

No field changes in effect at time of preparation (10 January 1967).

RELATION TO OTHER EQUIPMENT:

The PP-1767A/UG is two-way interchangeable with the PP-1767/UG, except by maintenance parts, PP-1767/UG an unregulated Power Supply. PP-1767A/UG is a regulated Power Supply. Regulation is achieved by means of magnetic control techniques.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
INPUT VOLTAGES: 120 v ac ± 10%, 50 or 60 cps ± 5%, single phase.
OUTPUT VOLTAGES: 6 v ac at 0.5 amp; 120 v dc at 1 amp; 115 v dc (no load) (V-1) at 0.06 amp; 115 v dc (no load) at 0.06 amp (V-2).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-1767A/UG	7 x 7-21/32 x 16-3/8	40

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-068-6010: Technical Manual for Power Supply PP-1767A/UG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Digital Electronics, Inc.	Westbury, N. Y.	N600(24)61736 NObsr 93322	

1061

29 July 1964 POWER SUPPLY PP-3494/UG

Cog Service: USN FSN: 2F6130-086-7439 Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Futuronics Corporation, (14681).

POWER SUPPLY PP-3494/UG

1062

FUNCTIONAL DESCRIPTION:

Power Supply PP-3494/UG is intended to be used as a dc supply for the operation of teletypewriters, radio adapters, and associated equipments.

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

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

PP-3494/UG POWER SUPPLY

TECHNICAL CHARACTERISTICS:

POWER SUPPLY: 120 v, ± 10%, 50 or 60 cyc ± 5%, single ph.
OUTPUT VOLTAGE: 120 or 48 v dc, ± 5% at 0.4 amp.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-3494/UG	2F6130-086-7439	8 x 9-1/2 x 10	22

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94502: Technical Manual for Power Supply PP-3494/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required

SEMI-CONDUCTORS: (1) 1N2993B (1) 1N3002B (4) 1N540 (4) 1N538

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

1063

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Futuronics Corporation	Port Washington, New York	NObsr 87313	

21 September 1967 POWER SUPPLY PP-3494A/UG

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Aerotronic Controls Co., (10621).

POWER SUPPLY PP-3494A/UG

FUNCTIONAL DESCRIPTION:

Power Supply PP-3494A/UG is a unit designed to produce either 120 or 48 volts dc when operated from a 120 volt ac 50 or 60 cycle supply. The dc voltage output is regulated and will remain constant within plus or minus 5% with an ac voltage input change of plus or minus 10% at a load of 0.4 ampere. The Power Supply is intended for use as a dc supply for the operation of teletypewriters, radio adapters, and associated equipments. No vacuum tubes are used and the unit requires no operation adjustments.

No field changes in effect at time of preparation (14 April 1967).

RELATION TO OTHER EQUIPMENT:

The PP-3494A/UG is similar to and two-way interchangeable w/the PP-3494/UG, except for maintenance parts.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 120 v ac ± 10%, 1 ph.
OUTPUT VOLTAGE: 120 v or 48 v dc, ± 5%, 0.4 amp.
RECTIFIER TYPE: Silicon Bridge.
REGULATION TYPE: Magnetic Amplifier and Zener diodes.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-3494A/UG	8 x 9-1/2 x 10	31

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94971: Technical Manual for Power Supply PP-3494A/UG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

1065

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Aerotronic Controls Co.	Chicago, Illinois	NObsr 89233(FBM) NObsr 89360(FBM)	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Futuronics Corp., (14681).

POWER SUPPLY PP-3495/UG

FUNCTIONAL DESCRIPTION:

Power Supply PP-3495/UG is a unit designed to produce either 120 or 48 volts dc when operated from a 120 volt ac 50 or 60 cycle supply. The dc voltage output is regulated and will remain constant within plus or minus 5% with an ac voltage input change of plus or minus 10% at a load of 1.0 ampere. It is intended to be used as a dc supply for the operation of teletypewriters, radio adapters, and associated equipment. No vacuum tubes are used and the unit requires no operation adjustment.

No field changes in effect at time of preparation (14 April 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

POWER SUPPLY PP-3495/UG

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 120 v ac ± 10%, 50 or 60 cps, ± 5%, 1 ph.
OUTPUT VOLTAGE: 120 v or 48 v dc ± 5%; 1.0 amp.
RECTIFIER TYPE: Silicon bridge.
REGULATION TYPE: Magnetic Amplifier and Zener diodes.
RECTIFICATION: Full-wave.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-3495/UG	9-1/2 x 10 x 12-3/4	38

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0280-791-5001: Technical Manual for Power Supply PP-3495/UG and PP-3495B/UG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: MIL-E-16400D; MIL-I-16910; MIL-STD 701

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Futuronics Corp.	Port Washington, N. Y.	NObsr 87318	

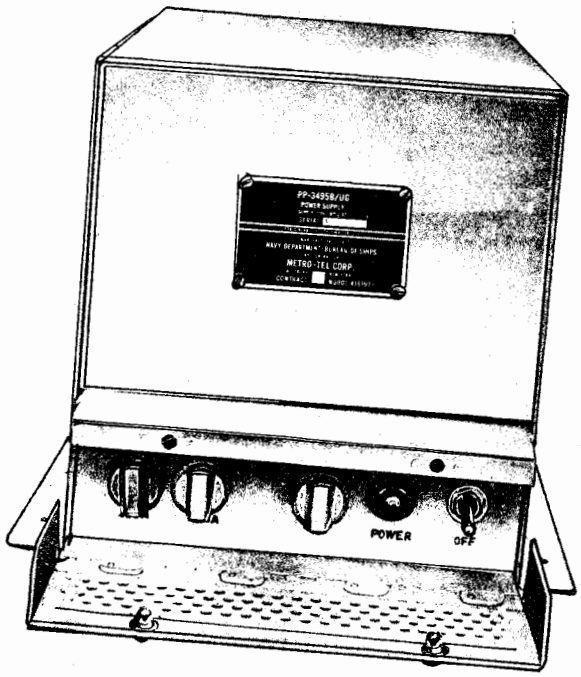
1067

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Metro Tel Corp., (05729).



POWER SUPPLY PP-3495B/UG

1068

FUNCTIONAL DESCRIPTION:

Power Supply PP-3495B/UG is a unit designed to produce either 120 or 48 volts dc when operated from a 120 volt ac 50 to 60 cycle supply. The dc voltage output is regulated and will remain constant within plus or minus 5% with an ac voltage input change of plus or minus 10% at a load of 1.0 ampere. It is intended to be used as a dc supply for the operation of teletypewriters, radio adapters, and associated equipment. No vacuum tubes are used and the unit requires no operation adjustment.

No field changes in effect at time of preparation (14 April 1967).

RELATION TO OTHER EQUIPMENT:

The PP-3495B/UG is similar to and interchangeable w/the PP-3495/UG, except for maintenance parts.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 120 v ac ± 10%, 50 or 60 cps ± 5%, 1 ph.
OUTPUT VOLTAGE: 120 v or 48 v dc, ± 5%, 1.0 amp.
RECTIFIER TYPE: Silicon bridge.
REGULATION TYPE: Magnetic Amplifier and Zener diodes.
RECTIFICATION: Full-wave.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-3495B/UG	8-13/16 x 10 x 11-5/32	38

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0280-791-5001: Technical Manual for Power Supply PP-3495/UG and PP-3495B/UG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (CU FT)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: BUSHIPS 687B-172

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Metro Tel Corp.	Westbury, N. Y.	N600(24)61923	

1069

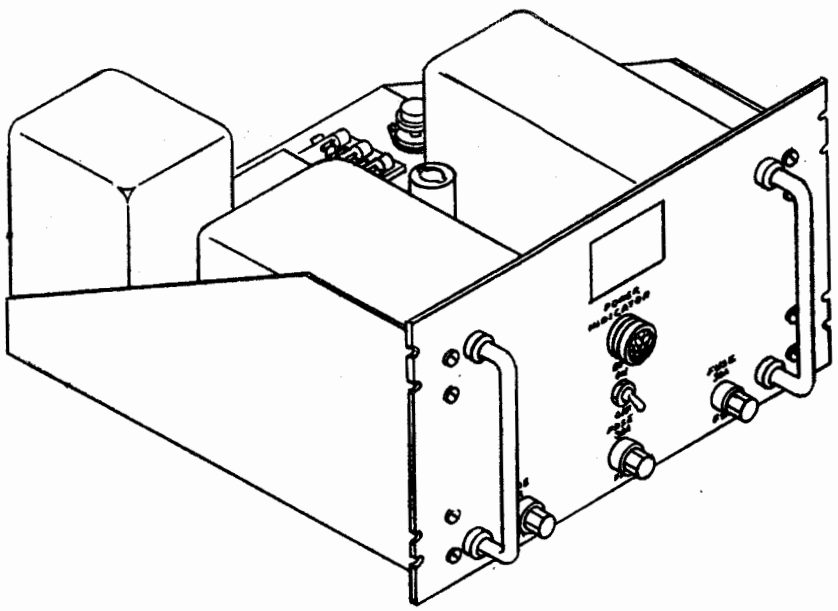
30 July 1964 TELETYPEWRITER POWER SUPPLY PP-3818/UG

Cog Service: USN FSN: 2F6130-050-8232 Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Dynamic Instrument Corporation, (07419).



TELETYPEWRITER POWER SUPPLY PP-3818/UG

1070

FUNCTIONAL DESCRIPTION:

Teletypewriter Power Supply PP-3818/UG is designed for use with Teletypewriter and Telegraph Signal Circuits. It is identified by the manufacturer (Dynamic Instrument Corp) as Model 42-D.

The power supply unit is an entirely static device with rectification accomplished by means of silicon diodes. Voltage regulation is achieved by magnetic amplifier control techniques and the entire unit is constructed so that it can be easily mounted in a standard 19-inch rack.

No field changes in effect at time of preparation (11 June 1964).

RELATION TO OTHER EQUIPMENT:

PP-3818/UG TELETYPEWRITER POWER SUPPLY

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

INPUT: 120 v ± 10% ac, 50 to 60 cyc ± 5%; or 208 v ± 10% ac, 50 to 60 cyc ± 5%.
DC OUTPUT: 48 v dc at 12 amps; or 120 v dc at 12 amps.
REGULATIONS: Better than 5% with changes in input range (above) and no load to full load operation.
RIPPLE: Better than 1% at no load and at any load up to full output current into a resistive load.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter Power Supply PP-3818/UG	2F6130-050-8232	12-1/4 x 19 x 20-9/16	200

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94752: Instruction Manual for Power Supply PP-3818/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (8) 1N250B (4) 1N538 (1) 1N2986B

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Dynamic Instrument Corp.	Plainview, L. I., N. Y.	NObsr 87688	

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: R. F. Communications, Inc., (14304).

(Illustration Not Available)

FUNCTIONAL DESCRIPTION:

The Power Supply PP-3917( )/UR is used to supply all the necessary voltages to operate the AM-3924( )(P)/URT when the primary power source is 208/230/440/450 volts, 380 to 420 cps, 3 phase (3 wire).

No field changes in effect at time of preparation (14 September 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

RECTIFICATION DATA: Electronic rectification; full wave rectification.
OUTPUT DATA: 1800 v dc, 1.500 amps, 500 v dc, 250 ma, 250 v dc, 50 ma, 24 v dc, 5 amps, 125 v dc, 50 ma, 115 v ac, 4 amps.
OPERATING POWER REQUIREMENTS: 208 to 230 v ac, 380 to 420 cps, three ph, three wire or 440 to 450 v ac, 380 to 420 cps three phase, three wire.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-3917( )/UR	5 x 6 x 11	

REFERENCE DATA AND LITERATURE:

Information Pamphlet for Power Supply PP-3917( )/UR.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, NAVSHIPS
SPEC &/OR DWG: SHIPS-R-4194

POWER SUPPLY PP-3917( )/UR

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
R.F. Communications, Inc., Part no. 171-2000 and Part no. 391-9000	Rochester, N. Y.	NObsr-93367 NObsr-89069	

1073

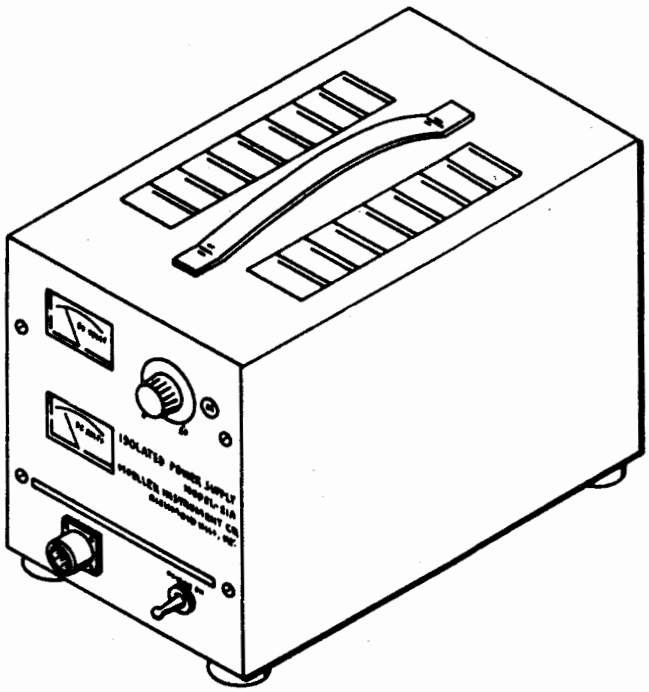
22 November 1965 POWER SUPPLY PP-4105/U

Cog Service: USN FSN: 2F6625-072-5590 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Moeller Instrument Company, (76526).



POWER SUPPLY PP-4105/U

FUNCTIONAL DESCRIPTION:

Power Supply PP-4105/U is a special device to provide a regulated source of dc power which has extreme isolation from the 60 cycle supply line. Because of this isolation, the dc output voltage can be used in precise instrumentation circuits when both the positive and negative load terminals must be above ground.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

INPUT POWER: 105 to 125 v, 50 to 60 cyc, single ph, 50 W max.
OUTPUT: 0 to 20 v at 0 to 1 amp.
ISOLATION
TOTAL CAPACITANCE OF OUTPUT TO LINE VOLTAGE: Less than 2.5 uuf.
TOTAL CAPACITANCE OF OUTPUT TO GROUND: Less than 2.5 uuf.
TOTAL CAPACITANCE OF OUTPUT TO CHASSIS: Less than 2.5 uuf.
TOTAL CAPACITANCE OF OUTPUT TO LINE VOLTAGE: Less than 0.1 uuf with chassis grd to line grd.
LEAKAGE RESISTANCE: Greater than 50,000 meg.
MAXIMUM CURRENT FROM OUTPUT TO LINE GROUND: 14 milli-micro amps.
RIPPLE AND NOISE: Less than 100 uv (rms).
TEMPERATURE STABILITY: Less than 0.03% per °F change in output voltage over 50 to 120°F operating range.
LINE REGULATION: Less than 10 mv for a 10% change in line voltage.
LOAD REGULATION: Less than 20 mv variation from no load to full load.
INTERNAL IMPEDANCE: Less than 0.04 ohms; dc to 3 kc.
SHORT CIRCUIT-PROOF: A direct short on the output will not damage the power supply; fused line.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Power Supply PP-4105/U	2F6625-072-5590	8-1/4 x 9-3/4 x 14-1/2	24

107

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95711: Operation and Maintenance Manual for Isolated Power Supply Model 21A (Power Supply PP-4105/U).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5691 (1) 5693

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N588 (1) 1N746 (6) 1N1218 (1) 1N2988A (1) 1N3019A (1) 2N511A (1) 2N1038-1 (1) 2N1039-1 (2) 2N1375

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

POWER SUPPLY PP-4105/U

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Moeller Instrument Company,	Richmond Hill, New York	N600(24)-60335	

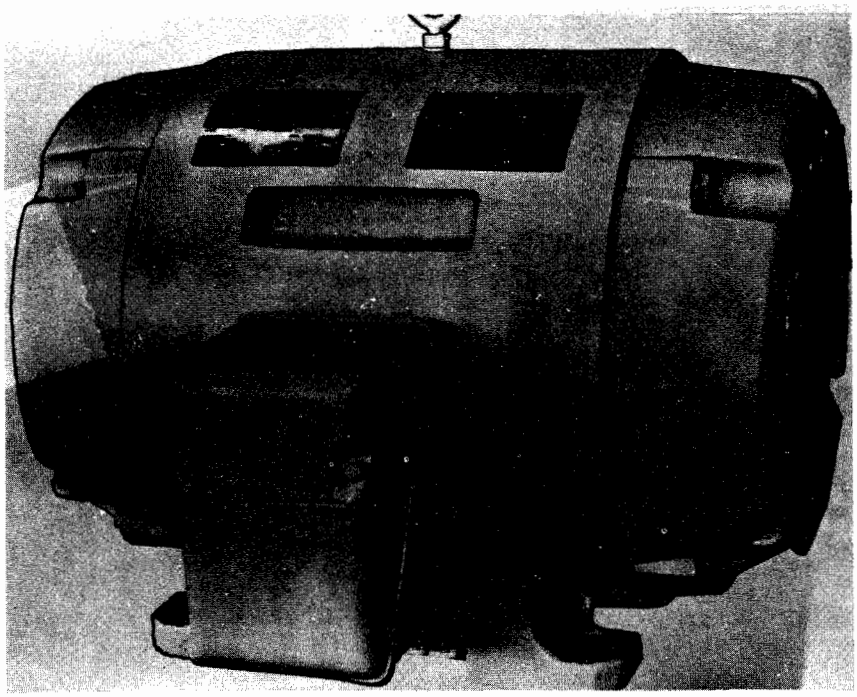
2 December 1966 MOTOR GENERATOR PU-491/USQ-20(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Univac, Div. of Sperry Rand Corp., (90536).



MOTOR GENERATOR PU-491/USQ-20(V)

FUNCTIONAL DESCRIPTION:

1077

Motor Generator PU-491/USQ-20(V) converts a 60 cycle ac source to a 394-cycle ac output. When connected to a 440 volt, 3 phase, 60 cycle power source, it delivers 120 volt, 3 phase, 394 cycle ac. The generator rating is 5 kw, 0.80 PF (lagging).

No field changes in effect at time of preparation (23 May 1966).

RELATION TO OTHER EQUIPMENT:

The PU-491/USQ-20(V) is electrically similar to PU-492/USQ-20(V). The major difference is in the mechanical construction of the case and the physical placement of several components.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Motor Generator Control Unit C-3414/USQ-20(V) type 1183 or 1183.70.

MOTOR GENERATOR PU-491/USQ-20(V)

TECHNICAL CHARACTERISTICS:

POWER OUTPUT
- CAPACITY: 5 kw continuous at 0.8 pf (lagging).
- OVERLOAD CAPACITY: 125% rated current at 0.8 pf (lagging) for two hrs or 150% rated current at 0.5 pf (lagging) for 5 min.
- VOLTAGE: 120 v.
- CURRENT: 30.1 amp.
- PHASE: 3.
- FREQUENCY: 394 cps.

INPUT
- VOLTAGE: 440 v.
- CURRENT: 14 amp.
- PHASE: 3.
- FREQUENCY: 60 cps.

SPEED: 1182 rpm.
AMBIENT TEMPERATURE: 50° C (122° F) or less.
MOUNTING: Horizontal.
ENCLOSURE: Drip-proof protected.
GENERATOR TYPE: Revolving field (Salient Pole).
MOTOR ROTOR TYPE: Squirrel Cage (Die Cast).
MOTOR HORSEPOWER: 10.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Motor Generator PU-491/USQ-20(V) includes:	25-1/4 x 29-1/2 x 31-3/8	1100
1	Technical Manual NAVSHIPS 94083 Change 1		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94083 CHANGE 1: Technical Manual for Motor-Generator PU-491/USQ-20(V) and PU-492/USQ-20(V) with Motor-Generator Control C-3414/USQ-20(V) (Type 1183 and 1183.70).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	13.5	1100

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Univac, Div of Sperry Rand Corp.	Univac Park, St. Paul, Minn.	NObsr 87204.	

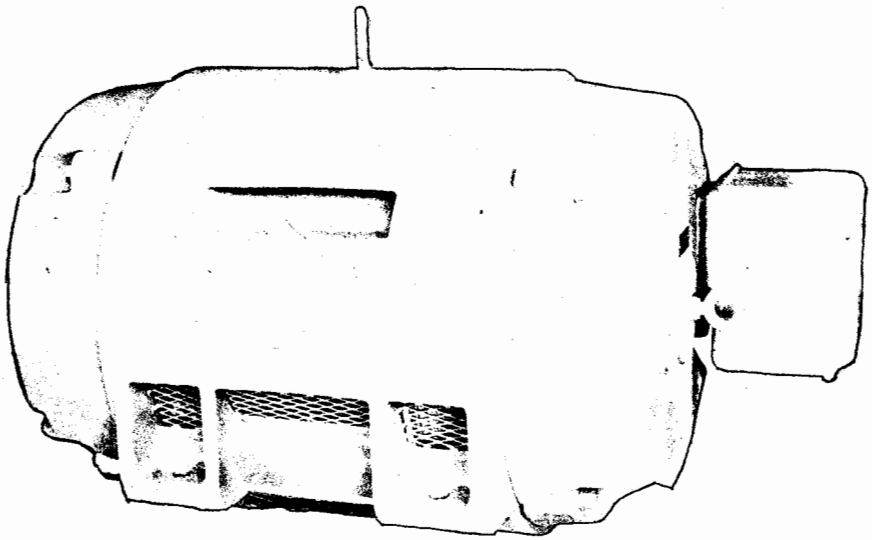
21 November 1966 MOTOR GENERATOR PU-492/USQ-20(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Allis Chalmers Mfg. Co., (88310).



MOTOR GENERATOR PU-492/USQ-20(V)

1079

FUNCTIONAL DESCRIPTION:

Motor Generator PU-492/USQ-20(V) using 440 volt, 60 cycle, 3 phase power for the driving motor, will produce 120 v, 394 cycle, 3 phase power from the generator for use by the computer set.

No field changes in effect at time of preparation (23 May 1966).

RELATION TO OTHER EQUIPMENT:

The PU-492/USQ-20(V) is electrically similar to PU-491/USQ-20(V). The major difference is in the mechanical construction of the case and the physical placement of several components.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Motor generator control unit C-3414/USQ-20(V) type 1183 or 1183.70.

MOTOR GENERATOR PU-492/USQ-20(V)

TECHNICAL CHARACTERISTICS:

POWER OUTPUT
- CAPACITY: 5 kw continuous at 0.8 pf (lagging).
- OVERLOAD CAPACITY: 125% rated current at 0.8 pf (lagging) for two hrs or 150% rated current at 0.5 pf (lagging) for 5 min.
- VOLTAGE: 120 v.
- CURRENT: 30.1 amp.
- PHASE: 3.
- FREQUENCY: 394 cps.

INPUT
- VOLTAGE: 440 v.
- CURRENT: 14 amp.
- PHASE: 3
- FREQUENCY: 60 cps.

SPEED: 1182 rpm.
AMBIENT TEMPERATURE: 50° C (122° F) or less.
ENCLOSURE: Drip-proof protected.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Motor Generator PU-492/USQ-20(V) includes:	22 x 25-1/4 x 38-3/8	
1	Technical Manual NAVSHIPS 94083 Change 1		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94083 CHANGE 1: Technical Manual for Motor Generator PU-491/USQ-20(V) and PU-492/USQ-20(V) with Motor-Generator Control C-3414/USQ-20(V)(Type 1183 and 1183.70).

1080

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Allis Chalmers Mfg. Co.	Norwood, Ohio	NObsr-75750	

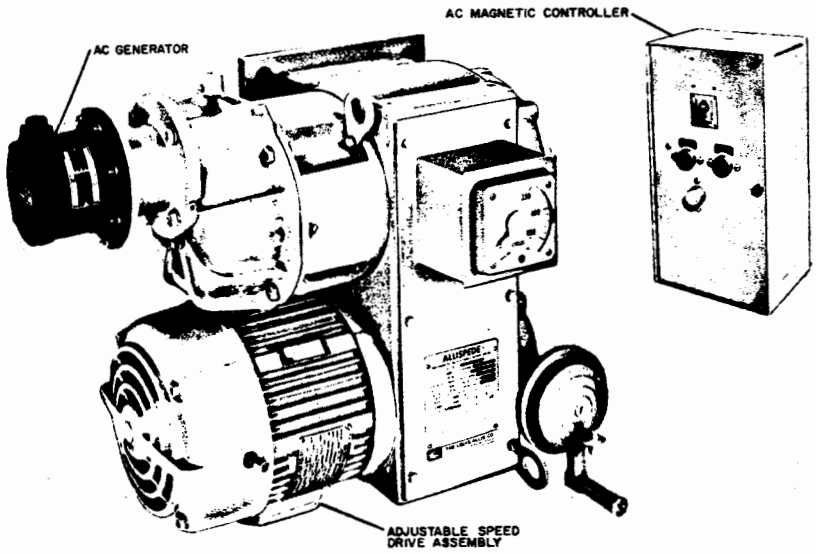
29 July 1964 MOTOR GENERATOR PU-559/U

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Gyrodyne Co. of America, (10618).



MOTOR GENERATOR PU-559/U

FUNCTIONAL DESCRIPTION:

Motor Generator PU-559/U is special support equipment for the Navy Model QH-50C drone. Its specific function is to provide the required ac voltages to the QH-50C drone and pre-flight control system.

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

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

ADJUSTABLE SPEED DRIVE ASSEMBLY
- OUTPUT RPM: 9000 rpm max; 7000 rpm min.
- BELT RATIO: 1.3 to 1.
- OUTPUT GEAR RATIO: 2.93 to 1.
- TEMPERATURE RISE (MAX): 40 ± 2° C (104° F).
- NEMA INSULATION RATING: Class B.
- MOTOR
  - CONTINUOUS DUTY: 3 ph.
  - HORSEPOWER: 3.
  - VOLTAGE: 208-220/440 v ac.
  - CURRENT: 10.5-10/5 amp.
  - FREQUENCY: 60 cps.
  - FULL LOAD RPM: 1760.
  - SERVICE FACTOR: 1.0.

AC GENERATOR
- RATING: 400 cyc, 8000 rpm, 0.8 pf, permanent magnet rotor.
- WINDING
  - NO. 1: 115 to 200 v, 0.87 kva, 3 ph.
  - NO. 2: 12.7 to 22 v, 0.53 kva, 3 ph.
  - NO. 3: 26.0 to 36.8 v, 0.10 kva, 2 ph.
- STATOR RESISTANCES (CORRECTED TO 25° C (77° F)).
  - WINDING NO. 1 (CONNECTOR PINS A, B, AND C TO D): 1.15 - 1.40 ohms.
  - WINDING NO. 2 (CONNECTOR PINS J TO K, K TO L, AND J TO L): 0.047 - 0.057 ohm.
  - WINDING NO. 3 (CONNECTOR PINS G AND F TO H): 0.504 - 0.616 ohm.
  - ROTATION: Clockwise, viewed from the outboard (opposite drive) end.

AC MAGNETIC CONTROLLER
- TRANSFORMER T1 RATING
  - PRIMARY: 460 v, 1 ph.
  - SECONDARY: 115 v, 1 ph.
- FUSE: 10 amp.

1082

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Motor Generator PU-559/U			
	Includes:			
1	Adjustable Speed Drive Assy		13-39/64 x 25-7/32 x 27-7/32	350
1	AC Generator		4-3/8 x 7 x 7-13/64	12
1	AC Controller		6-1/32 x 8-7/32 x 17-3/32	

REFERENCE DATA AND LITERATURE:

NAVWEPS 17-15KP-11: Handbook of Operation, Service and Overhaul Instructions with Illustrated Parts Breakdown for Motor Generator PU-559/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	16	510

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Gyrodyne Co. of America	St. James, L. I. N. Y.	NOw(A)63-0251-CI	

1083

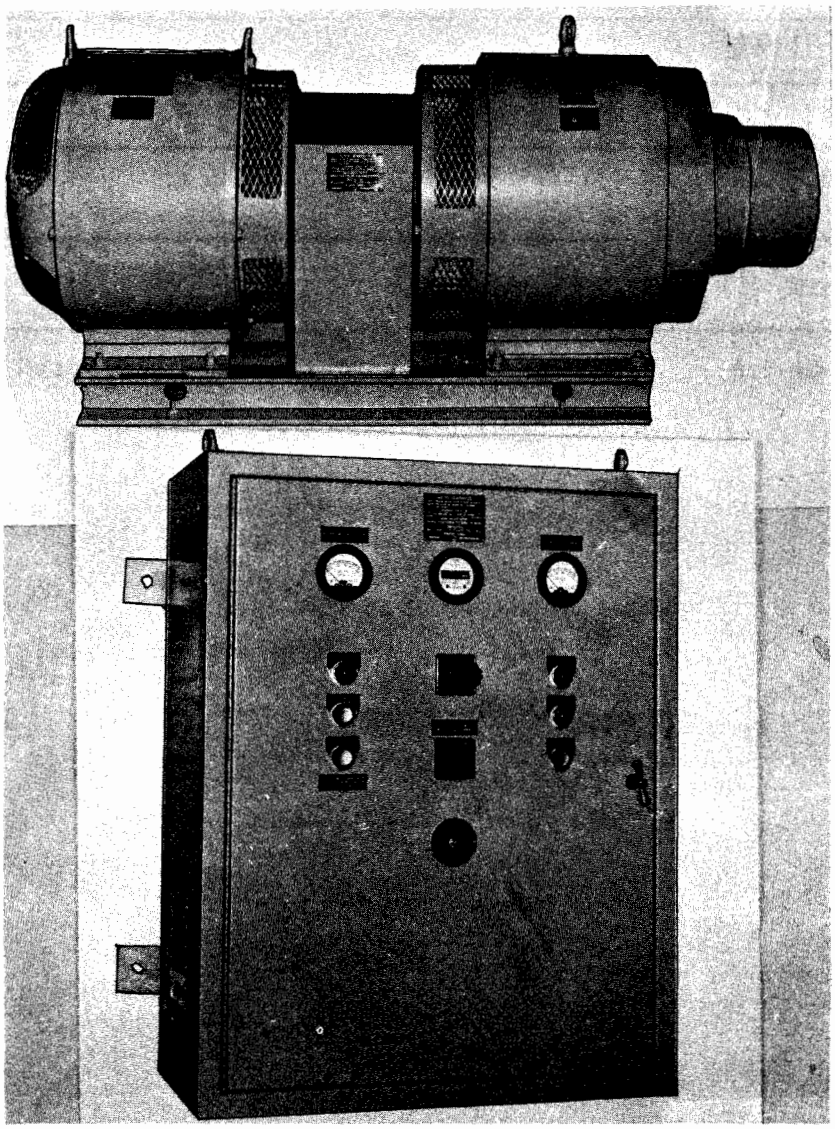
20 July 1967 MOTOR GENERATOR SET PU-679/G

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: William I. Horlick Co., Inc., (96574).



MOTOR GENERATOR SET PU-679/G

1.2 PU-679/G: 1

MOTOR GENERATOR SET PU-679/G

FUNCTIONAL DESCRIPTION:

Motor Generator Set PU-679/G is used as the Power Supply for various Electronic Devices using 400 cycle power as their supply. It is used either as a laboratory supply for test purposes or as a prime supply aboard ship. The equipment converts 60 cycle power to 400 cycle power. Similar to that power used aboard aircrafts or ships.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

MOTOR: 30 hp, 220 to 440 volts 60 cycles, 3 phase, 4 poles, 39 to 78 amperes, 24 wire, 1714 rpm.
GENERATOR: 20 kva, 16 kw, 70 to 120 volts, 96.4 amperes, 3 phase, 400 cycles, 0.8 pf, 28 salient poles, 1714 rpm.
EXCITER: Brushless, 500 watts, 32 field volts, 625 field amperes.
OPERATOR: One.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Motor Generator Set, PU-679/G includes:	20 x 27-1/16 x 60-1/2	1100
1	Control Cubicle	13 x 30-3/4 x 39-1/2	275

1085

REFERENCE DATA AND LITERATURE:

Manuscript Data Sheet, for Motor Generator Set PU-679/G.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	40	1200
1	27.8	300

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
William I. Horlick Co., Inc. Model No. 30QL04/16EL2P	Boston, Massachusetts	N600(63133)66048	

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Texas Instruments Inc., (01295).

RECEIVER RADIO R-1047/A

FUNCTIONAL DESCRIPTION:

Receiver Radio R-1047/A is a transistorized VHF receiver. The receiver primarily detects sonobuoys and contains a coaxial, multiswitching relay to perform change over from UHF/ADF to VHF/SONO-OTPI operation. The radio receiver has 16 channel selectivity. The channels are preset in the 162.25 to 173.50 megacycle frequency range. Only one channel may be selected at one time.

No field changes in effect at time of preparation (10 March 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Electronic Control Amplifier AM-1777/ARA-25 or AM-608/ARA-25; (1) Antenna AS-578/ARA-25; (1) Solenoid Relay RE-120A/ARA-25; (1) Radio Receiver Control C-3840/A;

(1) Radio Receiving Set AN/ARC-27A or AN/ARC-52.

TECHNICAL CHARACTERISTICS:

ALTITUDE: Sea level to 35,000 ft.
HUMIDITY: 90% relative.
TEMPERATURE: - 54° C to + 55° C.
INPUT OPERATING POWER: 115 v ac, 107.5 to 119.5 v, 380 to 420 cps, 104 va, 28 v dc, 25 to 28.5 v, 15 W.
OPERATING RANGE: 30 mi range at 500 ft min.
NOISE FIGURE: 12 db max.
MINIMUM DETECTABLE SIGNAL: 115 dbm.
BANDWIDTH: 200 kc.
AUDIO OUTPUT: 0.8 ± 0.2 v rms at 99 dbm.
RELIABLE SIGNAL LEVEL (FOR INDICATOR INPUT): 104 dbm.
B + POWER: 225 V ± 10%.
B + POWER RIPPLE: 0.5 v.
AGC DYNAMIC RANGE: 90 db.
ADJACENT CHANNEL REJECTION: 60 db.
IMAGE REJECTION: 60 db.
IF REJECTION: 80 db.
AUDIO FREQUENCY RESPONSE: 75 to 500 cps ± 2 dbm.
PHASE SHIFT: 180° ± 10° max.
CHANNEL FREQUENCIES

CHANNEL	FREQUENCY (MC)	CHANNEL	FREQUENCY(MC)
1	162.25	9	168.25
2	163.00	10	169.00
3	163.75	11	169.75
4	164.50	12	170.50
5	165.25	13	171.25
6	166.00	14	172.00
7	166.75	15	172.75
8	167.50	16	173.50

1087

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Receiver Radio R-1047/A		3.0 x 4-7/8 x 5-5/16	4.30
	includes:			
1	Mount No. 428901-1			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-35R1047-1: Handbook Operation, Service and Overhaul Instructions with Illustrated Parts Breakdown Radio Receiver R-1047/A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (1) 1N295 (2) 1N645 (2) 1N649 (1) 1N754A (1) 1N1774 (2) 2N335
(2) 2N526 (1) 2N1143 (2) 2N1405 (1) 2N1406 (3) 2N1407

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Texas Instruments Inc.	Dallas, Texas	NOas 59-0194 NOas 59-0261 NOw 61-0002 NOw 62-0019 NOw(A) 63-0087 NOw(A) 64-0009 NOw(A) 63-0362 NOas 58-316 NOas 59-0153 NOas 60-0152 NOas 61-0003 NOw 61-0010 AF01(601) 40225 AF01(601) 31042 NOw 62-0211 NOw(A) 63-0084 NOw 64-0085	

1088

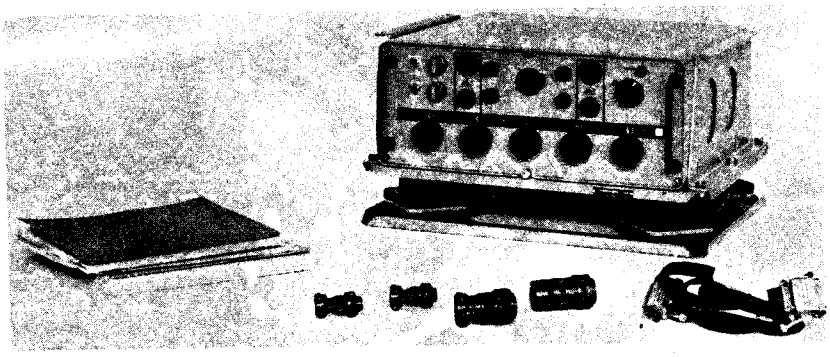
4 August 1965 RECEIVER, RADIO R-1051/URR

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: General Dynamics-Electronics Dynamics Div., (58189).



RECEIVER, RADIO R-1051/URR

FUNCTIONAL DESCRIPTION:

1089

Receiver, Radio, R-1051/URR is a digitally tuned, superheterodyne receiver capable of receiving lower sideband (LSB), upper sideband (USB), independent sideband (ISB), frequency shift keyed (FSK), amplitude modulated (AM), and continuous wave (CW) transmissions in the 2.0 to 30.0 megacycle frequency range. The independent sideband mode of operation allows two different types of intelligence to be received simultaneously, one on the lower sideband channel and one on the upper sideband channel. Frequency shift keyed reception is obtained by using suitable ancillary equipment, such as Teletype Converter-Comparator AN/URA-17 or AN/URA-8. The R-1051/URR may also receive tone-modulated continuous wave (MCW), compatible amplitude modulated (compatible AM), and facsimile (through the use of suitable ancillary equipment) transmissions. The R-1051/URR may be operated in conjunction with a transmitter, as a transmitter-receiver in systems such as Radio Set AN/WRC-1. In this application either simplex or duplex operation is possible.

RECEIVER, RADIO R-1051/URR

The R-1051/URR may also be used as a separate, self-contained receiver requiring only a headset, antenna, and a nominal 115 v ac primary power source for full operation. The receiver is intended for ship or shore installation, either type may be mounted in a standard 19 inch rack, or may be mounted to the supplied shock mounts.

Data on this sheet reflects the following field changes: FC#1 (12 July 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2 to 29.9995 mc in 0.5 kc increments or 2.0 to 30.0 mc with continuous vernier tuning between 1 kc increments.
RECEIVER TYPE: Superheterodyne.
FREQUENCY STABILITY: 1 part in 10^8 per day.
FREQUENCY CONTROL: Crystal controlled synthesizer referenced to a 5 mc internal or external standard.
MODES OF OPERATION: LSB, USB, ISB, AM, CW, and FSK.
SENSITIVITY: 1 uv for 10 db $\frac{S+N}{N}$ for SSB mode; 2 uv for CW and FSK modes; and 4 uv in AM mode.
RECEIVER IF: First IF 20 or 30 mc; second IF 2.85 mc; third IF 500 kc.
RECOMMENDED ANTENNA: 50 ohm impedance.
BANDWIDTH: SSB, 3.2 kc; AM and CW, 7 kc.
AMBIENT TEMPERATURE LIMITATIONS: 0° C to + 50° C.
POWER CONSUMPTION: 55 W.
IF REJECTION: - 75 db.
IMAGE REJECTION: - 80 db.
AUDIO OUTPUT: 60 mw min into 600 ohms balanced or unbalanced remote output load; 15 mw min into 1200 ohms unbalanced load (local headset).
AUDIO DISTORTION: Less than 3%.
POWER REQUIREMENTS: 115 v, 48 to 450 cps, 1 ph.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Receiver, Radio, R-1051/URR	7 x 17-3/8 x 18-29/32	70
	includes:		
1	Shock Mount MT-3114/UR	4-1/4 x 16-21/32 x 19-23/32	16
1	Kit, Bracket Mounting		
1	Kit, Connector Mating		
1	Kit, Extender Test Cable		
1	Technical Manual NAVSHIPS 94841(A)		
1	Maintenance Standards Book NAVSHIPS 94841.42		
1	Performance Standards Sheet NAVSHIPS 94841.32		

1090

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94841(A): Technical Manual for Radio Receiver R-1051/URR.
NAVSHIPS 94841.42: Maintenance Standards Book for Radio Receiver R-1051/URR.
NAVSHIPS 94841.32: Performance Standards Sheets for Radio Receiver R-1051/URR.
NAVSHIPS 981802: Field Change 1 for R-1051/URR

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6AN5WA (1) 6BZ6

CRYSTALS: (53)

SEMI-CONDUCTORS: (17) 1N3063 (7) 1N649 (50) 1N270 (1) 1N954 (2) 1N628 (5) 1N645
(4) 1N3064 (7) 1N816 (1) 1N969A9 (2) 1N755A (7) 1N758A (1) 1N3600
(4) 1N3612 (2) 1N3024A2 (2) 2N328A (15) 2N706 (30) 2N1225
(13) 2N700 (3) 2N3127 (1) 2N1209 (5) 2N1131 (7) 2N652 (3) 2N1183
(14) 2N2363 (7) 2N1142 (1) 2N1117A (1) 2N1224 (1) 2N332 (2) 2N388
(1) 2N333 (8) 2N2708 (4) 2N2222 (2) 2N964 (8) 2N2501 (12) 2N1301
(10) 2N705 (1) 2N963B (3) 2N697 (1) V-56EB (1) CCVL-HD6730
(1) CCPF-810000-582 (2) CCPF-810000-583 (1) CRP-RD2728

1091

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Dynamics-Electronics Dynamics Div.	Rochester, New York	NObsr 87614 NObsr 89368(FBM)	

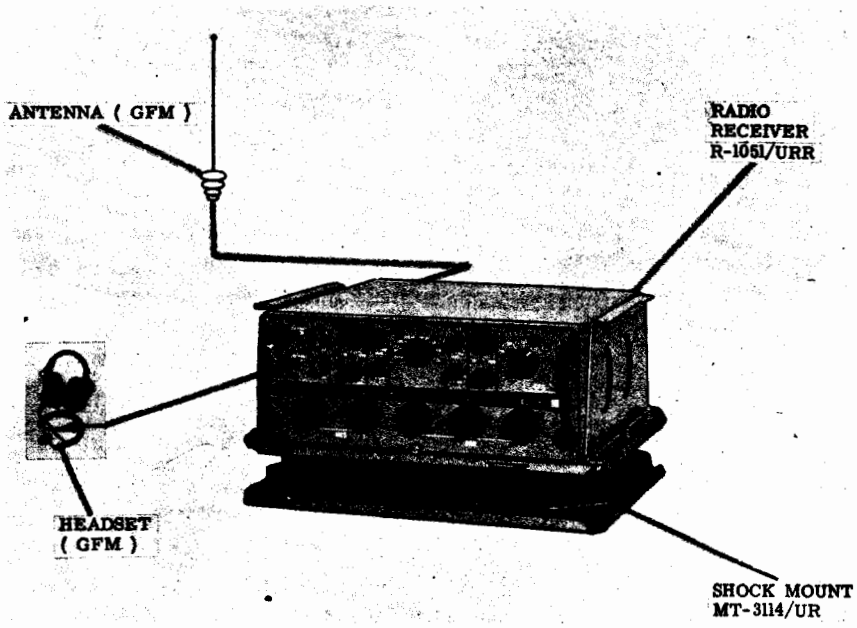
14 August 1967 RECEIVER, RADIO R-1051B/URR

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: General Dynamics Electronics Dynamic Div.,(58189).



RECEIVER, RADIO R-1051B/URR

FUNCTIONAL DESCRIPTION:

Receiver, Radio R-1051B/URR is a digitally tuned, super-heterodyne receiver capable of receiving lower sideband (LSB), upper sideband (USB), independent sideband (ISB), frequency shift keyed (FSK), amplitude modulated (AM), and continuous wave (CW) transmissions in the 2 to 30 megacycle frequency range. The ISB mode of operation allows two different types of intelligence to be received simultaneously, one on the LSB channel and one on the USB channel. FSK reception is obtained by using suitable ancillary equipment, such as Teletype Converter. Comparator AN/URA-17 or AN/URA-8. The R-1051B/URR may also receive tone-modulated continuous wave (MCW), compatible amplitude modulated (compatible AM), and facsimile (through the use of suitable ancillary equipment) transmissions. The R-1051B/URR may be operated in conjunction with a transmmtter, as a transmitter-receiver. In this application either simplex or duplex operation is possible. The R-1051B/URR may be used as a separate, self-contained receiver.

No field changes in effect at time of preparation (Feb 13, 1967).

RELATION TO OTHER EQUIPMENT:

The R-1051B/URR is similar to the R-1051/URR except that a 100 cps Synthesizer is used in the R-1051B/URR.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Antenna; (1) Cable Set; (1) Headset; (1) Teletype Converter-Comparator AN/URA-8; (1) Audio Amplifier, AM-215/U: (1) Speaker LS-474/U; (1) Multimeter AN/PSM-4; (1) Multimeter, Electronic, CCVO-91CA; (1) Multimeter, Electronic ME-6( )/U; (1) Oscilloscope AN/USM-105A; (1) Frequency Meter, CAQI-524D; RF Signal Generator CAQI-606A; (1) Frequency Standard AN/URQ-9; (1) Audio Signal Generator, AN/URM-127; (1) Test Set, Amplifier, TS-2132/WRC-1; (1) Test Set, Translator, Snythesizer TS-2133/WRC-1; (1) Test Set, Frequency Standard TS-2134/WRC-1; (1) Test Set TS-2135/WRC-1; 1 Coaxial T Connector; (1) Technical Manual NAVSHIPS 91583; (1 ea) Technical Manual NAVSHIPS 92433; (1) Repair Book NAVSHIPS 95700.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 vac ±10%, 1 ph, 48 to 450 cps, 55 W.
FREQUENCY RANGE: 2 to 30 mc in increments of 100 cps, or continuous vernier tuning.
RECEIVER TYPE: Superheterodyne.
FREQUENCY STABILITY: 1 part in 10^8 per day.
TYPE OF FREQUENCY CONTROL: Crystal controlled synthesizer referenced to a 5 mc standard.
MODES OF OPERATION: LSB, USB, ISB, AM, CW, and FSK.
SENSITIVITY: 1 uv for 10 db signal plus noise over noise in SSB mode; 2 uv for CW and FSK modes, and 4 uv in compatible AM mode.
RECEIVER IF: First, 20 or 30 mc; 2nd, 2.85 mc; third, 500 kc.
BANDWIDTH: SSB, 3.2 kc; AM and CW, 7 kc.
ANTENNA IMPEDANCE: 50 ohms.
IF REJECTION: -75 db.
IMAGE REJECTION: -80 db.
AUDIO OUTPUT: 60 mw min into 600 ohms balanced or unbalanced remote output load; 15 mw min intp 600 ohms unbalanced (local headset).
AUDIO DISTORTION: less than 3%.

1093

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Receiver, Radio R-1051B/URR	17 x 17.38 x 18.9	70

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-971-9010: Technical Manual for Radio Receiver R-1051/URR.
MANUSCRIPT CATALOG SHEETS for Radio Receiver R-1051B/URR (formerly NAVSHIPS 94841A).

RECEIVER, RADIO R-1051B/URR

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: MIL-R-23646-A(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Dynamics Electronics Dynamic Div.	Rochester, N.Y.	NObsr-93204	

1094

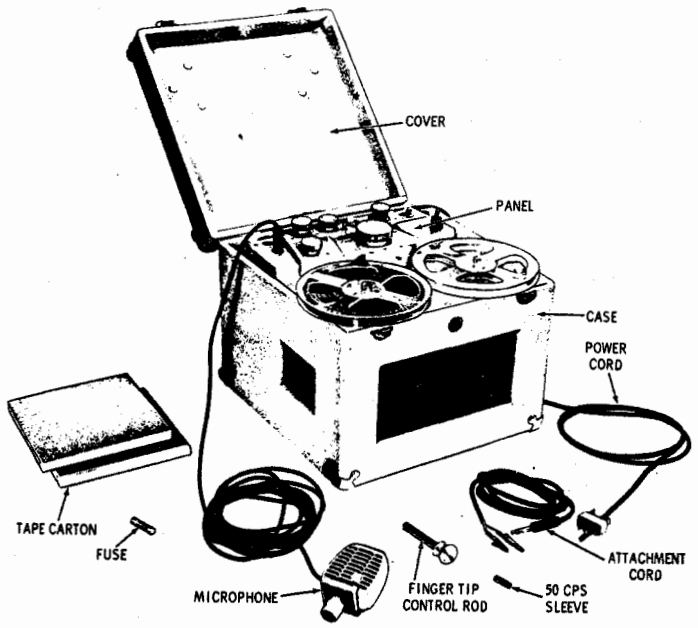
30 July 1964 RECORDER-REPRODUCER, SOUND RD-173A/UN

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Webster Electric Company, (64294).



RECORDER-REPRODUCER, SOUND RD-173A/UN

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer, Sound RD-173A/UN is a self-contained portable instrument, designed to record sound on a thin plastic material, coated with iron oxide, which can be magnetized. Provision is made for monitoring the signal. The recording may be reproduced immediately without further processing.

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

RELATION TO OTHER EQUIPMENT:

RD-173A/UN RECORDER-REPRODUCER, SOUND

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

RECORDING/REPRODUCING MEDIUM: 1/4 in. w; magnetically-coated plastic base tape; wound on 7 in. dia reel.
HARMONIC DISTORTION: 5% at 2.5 W output.
NUMBER OF TRACKS: 2.
MINIMUM RECORDING TIME
3.75 INCHES PER SECOND: 60 minutes min for ea track.
7.5 INCHES PER SECOND: 30 minutes min for ea track.
RADIO-PHONO INPUT
IMPEDANCE: 20,000 ohms.
VOLTAGE LIMITS: 2 v max.
MICROPHONE INPUT
IMPEDANCE: 500,000 ohms.
VOLTAGE LIMITS: 2 v max.
MONITOR OUTPUT
IMPEDANCE: 3.2 ohms.
LEVEL: 2.5 W.
EXTERNAL SPEAKER OUTPUT
IMPEDANCE: 3.2 ohms.
LEVEL: 2.5 W.
POWER REQUIREMENTS: 115 v, 50 to 60 cyc, single ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Sound RD-173A/UN includes:		12-3/16 x 14-7/8 x 16-7/8	45
1	Microphone		2 x 2-5/8 x 4-5/8	
1	Attachment Cord		36 lg	
2	Plastic Base Recording Tape and Reel (Boxed)		1/2 x 7 x 7	
1	Reel, Empty		7 dia x 3/8	
1	Sleeve Capstan		0.305 x 15/16	
2	Technical Manual NAVSHIPS 365-2718		3/8 x 8-3/4 x 11-1/4	

1096

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2718: Technical Manual for Sound Recorder-Reproducer RD-173A/UN.

1.2 RD-173A/UN: 2

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5Y3WGTB (1) 6E5 (1) 6V6 (1) 5726/6AL5W (1) 5751 (1) 5879
(1) 6005/6AQ5W

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Webster Electric Company	Racine, Wisconsin	NObs-78483, February 1961 NObs-84257, June 1961	

1097

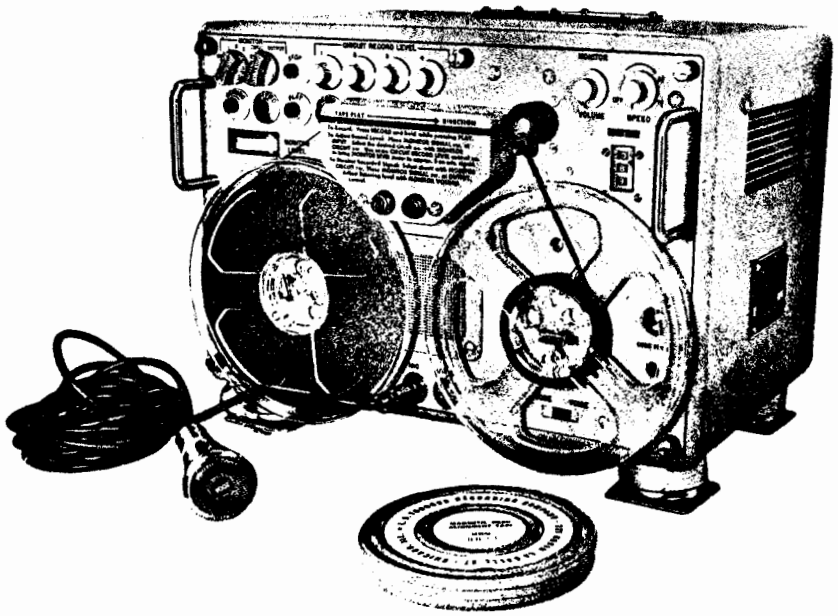
30 July 1964 RECORDER-REPRODUCER, SOUND RD-219A/U

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Webster Electric Company, (64294).



RECORDER-REPRODUCER, SOUND RD-219A/U

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer, Sound RD-219A/U is a self-contained, four channel sound recorder-reproducer. It is designed for permanent installation aboard submarines and ships for the primary purpose of recording and playing back voice and code messages from the ships communication system.

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

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

RECORDING/REPRODUCING MEDIUM: 1/4 in. w; magnetically-coated plastic base tape; wound on 7 in. dia reel.
HARMONIC DISTORTION: 5% at 1 W output.
NUMBER OF TRACKS: 4.
MINIMUM RECORDING TIME ON 18 FT TAPE.
3.75 INCHES PER SECOND: 90 minutes min. for ea track.
7.5 INCHES PER SECOND: 45 minutes for ea track.
INPUTS
4 LINE
IMPEDANCE: 6,000 to 9,000 ohms.
SOURCE: Receiver, switchboard SB-82.
VOLTAGE LIMITS: 0.25 to 15 v.
1 MICROPHONE
IMPEDANCE: 250 ohms.
VOLTAGE LIMITS: 150 to 5,000 uv.
OUTPUTS
1 SPEAKER OR HEADSET
IMPEDANCE: 3.2 ohm speaker (will drive 600 ohm headset).
4 LINE
IMPEDANCE: 600 ohms.
LEVEL: 1.0 mw.
POWER REQUIREMENTS: 115 v, 60 cyc, single ph.

1089

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Sound RD-219A/U includes:	S5835-863-5895	10 x 12 x 15	54
1	Microphone		1-3/4 dia x 5	
1	Plastic Base Recording Tape and Reel (Boxed)	5835-552-0733 (1800 FT)	7 dia	
1	Reel, Empty	5835-583-1316	7 dia	
2	Test Board			
1	Adjustment Tool			
1	Test and Alignment Tape w/Metal Canister		5 dia	
2	Technical Manual NAVSHIPS 365-2720			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 365-2720: Technical Manual for Sound Recorder-Reproducer RD-219A/U .

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N198 (6) 1N253 (10) 1N538 (6) 2N220 (3) 2N279A (23) 2N331

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-R-22754(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Webster Electric Company	Racine, Wisconsin	NObs(24-126)78959 (FBM)	$7,364.40
		NObs(24-126)84459 (FBM)	
		NObs-84923	
		NObs(24-126)88053 (FBM)	$2,269.00
		NObs-88478	$2,410.45

1105

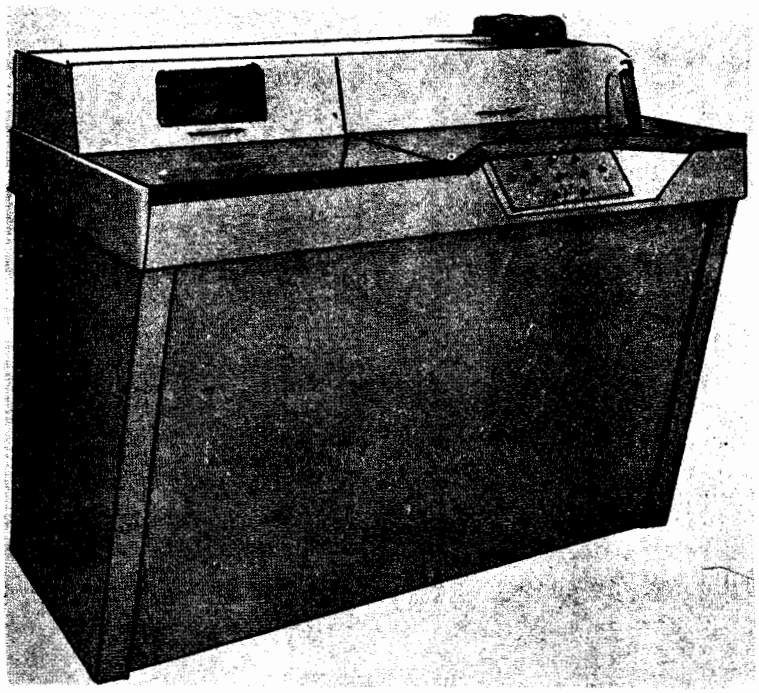
20 April 1965 RECORDER REPRODUCER SIGNAL DATA RD-229/USQ-20(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Remington Rand Univac Division of Sperry Rand Corp., (90563).



RECORDER REPRODUCER SIGNAL DATA RD-229/USQ-20(V)

1101

FUNCTIONAL DESCRIPTION:

The Recorder Reproducer Signal Data RD-229/USQ-20(V), provides a means for transferring computer data onto punched tape or for reading information previously placed on tape. As an off-line device, it provides a means of duplicating a previously-punched tape.

No field changes in effect at time of preparation (2 April 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

1.2 RD-229/USQ-20(V): 1

RECORDER REPRODUCER SIGNAL DATA RD-229/USQ-20(V)

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v ac, 400 cps, 3 ph.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder Reproducer Signal Data RD-229/USQ-20(V)		41-1/4 x 48 x 60	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94100: Complementary Technical Manual for Signal Data Recorder-Reproducer RD-229/USQ-20(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (2) 1N538 (2) 2N174 (1) 1N753A (1) 2N539 (1) 1N758A (2) 2N575 (18) 1N1202 (3) 2N674 (8) 1N2175 (1) 2N1729 (30) 1N3097 (1) S231 (3) 2N1731 (18) CTP-765 (3) 2N1732 (1) CTP-1865 (26) T1825

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

1102

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG:

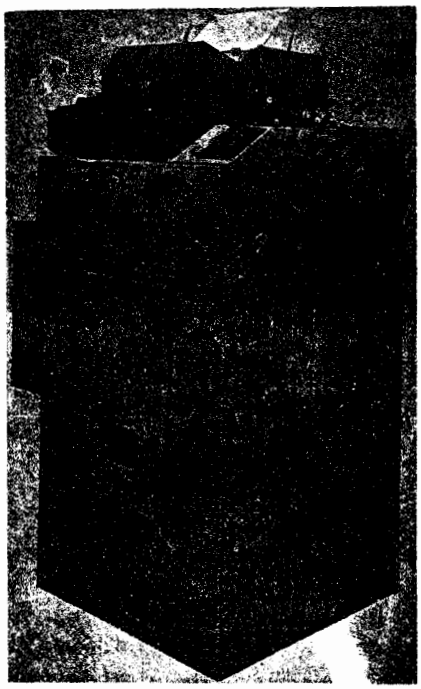
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Remington Rand Univac Div of Sperry Rand Corp.	St. Paul, Minnesota	NObsr-75750	

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Sperry Rand Corp., Univac Div., (19214).



RECORDER-REPRODUCER SIGNAL DATA RD-230/USQ-20(V)

1103

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer Signal Data RD-230/USQ-20(V) is a land-based model to provide input and output communications with a particular data processing computer. The recorder-reproducer is connected to the computer by input/output cables which transfer data and control signals between the units.

No field changes in effect at time of preparation (6 April 1965).

RELATION TO OTHER EQUIPMENT:

The RD-230/USQ-20(V) land-based model is similar to RD-237/USQ-20(V) sea-based model which is provided with a more rugged, water resistant cabinet. Electrically ea unit contains the same basic circuits, and operate similarly with the exception of the power supply.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Flexowriter Justowriter Adjustment Manual; (1) Oscilloscope Tektronic #545 or equivalent; (1) Preamplifier Tektronic Model CA or equivalent; (1) Multimeter AN/PSM-4.

TECHNICAL CHARACTERISTICS:

POWER SUPPLY
- AC INPUT
  - VOLTAGE: 115 v ± 10%.
  - FREQUENCY
    - TYPEWRITER: 60 cyc, single ph.
    - LOGIC: 400 cyc, 3 ph, regulated.
- DC OUTPUT
  - LOGIC VOLTAGES
    - NEGATIVE: 15 v; 3.0 v adjustable.
    - POSITIVE: 15 v.
  - RELAY VOLTAGES
    - NEGATIVE: 15 v.
- CIRCUIT PROTECTION
  - AC INPUT: Circuit breaker and fuses.
  - DC OUTPUT: Fuses.

POWER DISSIPATION: 250 W.
COOLING: Ambient air circulation.
AMBIENT OPERATING TEMPERATURE: 60° C (140° F) max.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer Signal Data RD-230/USQ-20(V) includes:		26-1/2 x 35 x 39-9/16	273
1	Typewriter Model FL			
1	Tape Reader			
1	Tape Punch			

1104

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94086: Technical Manual for Signal Data Recorder-Reproducer RD-230/USQ-20(V) and RD-237/USQ-20(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (12) 1N202 (4) MS15 (1) 1N753A (4) SM189 (15) 1N538 (2) S231 (17) 1N3097 (1) 1N758A (1) 2N539 (1) 2N174 (7) 2N1731 (5) 2N1732 (1) 2N1729 (1) 2N674 (25) CGD1129 (7) SM15

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Rand Corp., Univac Div.	St. Paul, Minnesota	NObsr-75750	

1105

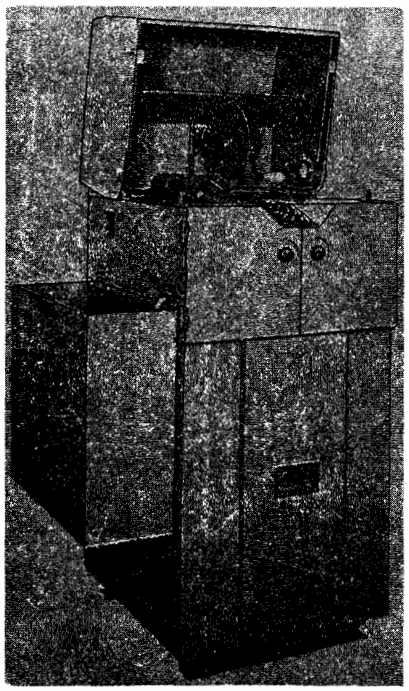
9 January 1967 RECORDER-REPRODUCER SIGNAL DATA RD-231/USQ-20(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Univac Division of Sperr Rand Corporation, (90536).



RECORDER-REPRODUCER SIGNAL DATA RD-231/USQ-20(V)

1106

FUNCTIONAL DESCRIPTION:

The Recorder-Reproducer Signal Data RD-231/USQ-20(V) is basically a paper tape unit that is used as a peripheral device for the NAVAL TACTICAL DATA SYSTEM computer. It provides a means of transferring computer data onto a ribbon of tape in the form of holes, or for reading information previously punched on tape. The paper tape unit may also be used as an off-line device, providing a means of duplicating a previously punched tape. The paper tape unit contains a photoelectric tape reader, a high speed punch, logic chassis, power supply chassis, and a manual control panel.

No field changes in effect at time of preparation (25 May 1966).

RELATION TO OTHER EQUIPMENT:

The RD-231/USQ-20(V) is similar in operation to the RD-229/USQ-20(V) Paper Tape Unit, but is different in physical properties. The RD-229/USQ-20(V) is designed for shore based operation only.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Module Test Set AN/USM-142(V); (1) Technical Manual NAVSHIPS 94087(A); (1) Teletype Bulletin 215B; (1) Oscilloscope AN/USM-140 with MX-2930A/USM-105 Preamplifier or equivalent.

TECHNICAL CHARACTERISTICS:

INPUT POWER

LOGIC: 115 v ac ± 10%, 400 cyc ± 5%, 3 ph, 200 W.

BLOWERS AND MOTORS: 115 v ac ± 10%, 60 cyc ± 5%, single ph. 500 W.

POWER SUPPLIES

INPUT	OUTPUT SUPPLY	RANGE (VDC)	MAX-RIPPLE
115 v ac ± 10%	− 15 v dc	− 13.5 to ± 16.5	0.20 v ac
400 cyc ± 5%	− 15 v dc (Relay)	− 14.2 to − 15.8	0.20 v ac
3 phase	+ 15 v dc	+ 14.2 to 15.8	0.20 v ac
	− 10 v dc	− 9.0 to 9.6	0.05 v ac
	− 3 v dc	− 2.9 to 3.1	

SIGNAL LEVELS:	LOGICAL "0"	LOGICAL "1"
INTERNAL:	Ground	− 3 volts ± 0.1 volt
EXTERNAL:	+ 3.5 volts to − 13.5 volts	0 volts ± 1.5 volts to − 4.0 volts

TRANSMISSION CHARACTERISTICS:	MODE	WORD-LENGTH	TAPE SPEED
	INPUT	7 bit parallel	240 frames per sec max
	OUTPUT	7 bit parallel	60 frames per sec mac

TIMING-CYCLE	INPUT	OUTPUT
	3.96 to 4.36 milliseconds	16.3 to 17.6 milliseconds

COOLING:

MAXIMUM AIR OUTPUT: 200 cfm (110 cfm per fan unit).

TAPE FRAME: A single column of positions across the width of the tape.

INFORMATION LEVEL: That fractional part into which tape frames are divided.

1107

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer Signal Data RD-231/USQ-20(V)	23 x 25-1/2 x 54-15/16	360
	includes:		
1	Modified High-Speed Teletype Punch	8 x 12 x 16-1/2	24-1/2
1	Distributor Transmitter Signal Data	8-1/2 x 9-5/8 x 10-1/2	15
1	Modified Manual Paper Tape Winder	7-5/8 x 8 x 11-1/4	3
2	Technical Manual NAVSHIPS 94085(A)	1 x 10 x 11-3/4	2

RECORDER-REPRODUCER SIGNAL DATA RD-231/USQ-20(V)

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94085(A): Technical Manual for Signal Data Recorder-Reproducer RD-231/USQ-20(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	32.2	460

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: DS-4545

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
UNIVAC Division of Sperr Rand Corporation	UNIVAC Park, St Paul, Minn.	NObsr-75750 NObsr-87204 NObsr-85229 NObsr-89383 NObsr-91369 NObsr-91306 NObsr-93272 NObsr-93319 NObsr-95025	

1108

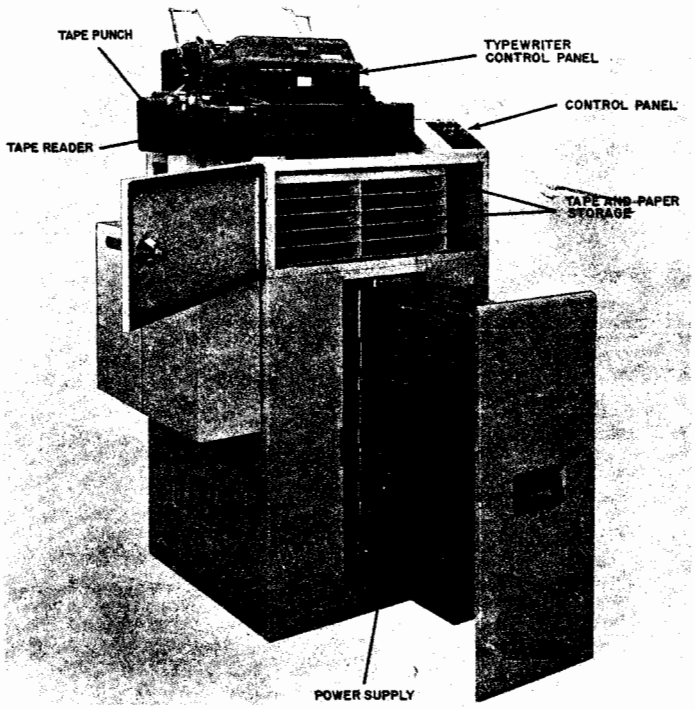
20 April 1965 RECORDER-REPRODUCER, SIGNAL DATA RD-237/USQ-20(V)

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Sperry Rand Corp., Univac Div., (19214).



RECORDER-REPRODUCER, SIGNAL DATA RD-237/USQ-20(V)

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer, Signal Data RD-237/USQ-20(V) is a sea based model to provide input and output communications with a particular data processing computer. The recorder-reproducer is connected to the computer by input/output cables which transfer data and control signals between the units.

No field changes in effect at time of preparation (5 April 1965).

RELATION TO OTHER EQUIPMENT:

The RD-237/USQ-20(V) is similar to RD-230/USQ-20(V) which is the land-based model. The sea-based model RD-237/USQ-20(V) is provided with a more rugged, water resistant cabinet. Electrically ea unit contains the same basic circuits, and operate similarly, w/the exception of the power supply.

RECORDER-REPRODUCER, SIGNAL DATA RD-237/USQ-20(V)

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Flexowriter Justowriter Adjustment Manual; (1) Oscilloscope Tektronic #545 or equivalent; (1) Preamplifier Tektronic Model CA or equivalent; (1) Multimeter AN/PSM-4.

TECHNICAL CHARACTERISTICS:

POWER SUPPLY
- AC INPUT
  - VOLTAGE: 115 v ± 10%.
  - FREQUENCY
    - TYPEWRITER: 60 cyc, single ph.
    - LOGIC: 400 cyc, 3 ph; regulated.
- DC OUTPUT
  - LOGIC VOLTAGES
    - NEGATIVE: 15 v; 3.0 v adjustable.
    - POSITIVE: 15 v.
  - RELAY VOLTAGE
    - NEGATIVE: 15 v.
- CIRCUIT PROTECTION
  - AC INPUT: Circuit breaker and fuses.
  - DC OUTPUT: Fuses.

POWER DISSIPATION: 250 W.
COOLING: Forced air.
AMBIENT OPERATING TEMPERATURE: 60° C (140° F) max.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder-Reproducer, Signal Data RD-237/USQ-20(V) includes:		22 x 22-1/2 x 48	300
1	Typewriter Model FL			
1	Tape Reader			
1	Tape Punch			

1110

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94086: Technical Manual for Signal Data Recorder-Reproducers RD-230/USQ-20(V) and RD-237/USQ-20(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (18) 1N202 (4) MS15 (1) 1N753 (3) SM189 (15) 1N538 (1) S231 (20) 1N3097 (1) 1N758A (1) 2N539 (1) 2N174 (6) 2N1731 (5) 2N1732 (1) 2N1729 (1) 2N574 (30) CGD1129 (7) SM15

RECORDER-REPRODUCER, SIGNAL DATA RD-237/USQ-20(V)

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sperry Rand Corp., Univac Div.	St. Paul, Minnesota	NObsr-75750 NObsr-87204 NObsr-89383-7 NObsr-89383-9	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Remington Rand Univac, Division of Sperry Rand Corp., (90563).

RECORDER REPRODUCER SIGNAL DATA RD-243/USQ-20(V)

FUNCTIONAL DESCRIPTION:

Recorder Reproducer Signal Data RD-243/USQ-20(V) is a magnetic tape system, including the tape transports and control circuits, provides medium speed, large capacity auxiliary storage for a computer. Information is recorded on magnetic tape for later use by the computer or other data processing equipment. Control circuits interpret computer commands, causing a tape transport to move tape across its read/write head. Control circuits then receive data from, or transmit data to, the computer until the computer originated command is completed.

No field changes in effect at time of preparation (2 April 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Analyzer AN/PSM-4C; (1) Electronic Multimeter AN/USM-116; (1) Oscilloscope AN/USM-105A; (1) Transistor Test Set TS-1100A/U; (1) Tool Set AN/USM-3; (1) Hand Stripper No. 45-171; (1) Hand Crimper No. 47043; (1) Hand Insertion Tool No. 380310-3 w/No. 395042 Insertion Tip.

TECHNICAL CHARACTERISTICS:

INPUT
- BINARY "0": 13.5 v dc + 3.5, - 4.
- BINARY 1: 0 v dc ± 1.5.

OUTPUT
- BINARY "0": 13.5 v dc approx (supplied to Line by Computer).
- BINARY 1: 0 v dc approx (Line effectively grounded by MTC).

TAPE SPEED
- READ AND WRITE: 112.5 in./sec.
- REWIND: 225 in./sec.

RECORDING DENSITY AND DATA TRANSFER RATE
- LINES PER INCH
  - HIGH: 210 approx.
  - LOW: 130 approx.

FORMAT
- PARITY
  - HIGH: 4,700, 23,000, 141,800.
  - LOW: 2,900, 14,600, 87,800.

REDUNDANT RECORDING
- HIGH: 2,400, 11,800, 70,900.
- LOW: 1,500, 7,300, 43,900.

POWER SUPPLIES CHARACTERISTICS
- INPUT
  - MAIN: 115 v ac, 400 cyc, 3 ph regulated.
  - STBV: 115 v ac, 400 cyc, 3 ph unregulated.
- OUTPUT
  - MAIN: + 15 v dc, - 15 v dc, - 3 v dc; - 90 v dc (half wave rectified), - 54 v dc, - 26.5 v dc, 12 v ac (for alarm horn).
  - STBV: 115 v ac, 400 cyc, 3 ph, unregulated; - 26.5 v dc.

1113

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder Reproducer Signal Data RD-243/USQ-20(V) includes:		36 x 37 x 72	1400
2	Tape Transport M90611		11-55/64 x 19 x 24-1/2	155
2	Drive Electronics Unit M3323		7 x 19 x 22-1/2	75
2	Technical Manual NAVSHIPS 94091(A) includes:			
2	Handbook of Operation and Maintenance for M90611 Tape Transport System			

RECORDER REPRODUCER SIGNAL DATA RD-243/USQ-20(V)

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Card Extender			
2	Take-up Reels			
2	Intercabinet Jumper Cables			
2	Quick Disconnect Assemblies			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94091: Technical Manual for Signal Data Recorder Reproducer RD-243/USQ-20(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (1) 1N127 (1) 3Z12 (4) 1N198 (2) 3Z39 (2) 1N249 (4) GE1N536
(3) 1N250 (1) SV804 (30) 1N270 (1) 2N240 (3) 2N351A (6) 1N482
(8) 2N651 (1) 2N1127 (20) 1N536 (2) 2N1138 (18) 2N1138A
(8) 1N537 (60) 2N1192 (4) 1N538 (8) GT-1315 (1) 1N746A
(8) GT-1395 (2) 1N1205 (2) S57-7766 (2) 1N1342 (2) S57-7768
(2) C36D (3) S57-7769

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	55.5	1550

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Remington Rand Univac, Division of Sperry Rand Corporation	St. Paul, Minnesota	NObsr-85214 NObsr-85229 NObsr-87204 NObsr-89383 NObsr-91306 NObsr-91369	

1114

14 August 1967 | DATA RECORDER REPRODUCER RD-261/USQ-34(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: North American Aviation, Inc. Columbus Division,(89372).

DATA RECORDER REPRODUCER RD-261/USQ-34(V)

1115

FUNCTIONAL DESCRIPTION:

The Data Recorder Reproducer RD-261/USQ-34(V), is a large capacity, medium-speed magnetic tape storage system designed to operate with the Digital Data Computer CP-642A/USQ-20(V). It receives 30-bit binary data from the computer for recording and storage on 1-inch magnetic tape, and it retrieves previously recorded data from tape and makes it available to the computer.

The Operations performed by the equipment are, basically, read, write, search, backup, wind, and rewind. Variations in read and write functions and formats plus selective write densities (451 to 1667 bits per inch) extend-the-Data Recorder Reproducer's operational versatility. Normal tape speed is 30 inches per second.

No field changes in effect at time of preparation (13 March 1967).

RELATION TO OTHER EQUIPMENT: None.

1.2 RD-261/USQ-34(V): 1

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope HO2-170A or Model-545A(Tektronix); (1) Multimeter AN/PSM-4C; (1) Electronic Circuit Plug-in Unit Test Set; AN/USM-142(V); (1) Technical Manual NAVSHIPS 94087(A).

TECHNICAL CHARACTERISTICS:

INPUT POWER

PRIMARY: 115 v ac ± 10%, 400 ± 5% cps, 600 watts; 3-phase regulated, 4-wire delta-connected.

BLOWERS: 115 v ac ± 10%, 400 ± 5% cps, 800 watts, 3-phase unregulated, 4-wire delta connected.

TAPE-TRANSPORT: 115 v ac ± 10%, 60 ± 5% cps, 2000 watts, single-phase unregulated.

POWER SUPPLY CHARACTERISTICS

INPUT	OUTPUT
115 v ac ± 10%, 400 ± 5% cps, 3-phase regulated;	+ 15 v dc ± 10% unregulated − 15 v dc ± 10% unregulated − 3 v dc ± 10% regulated + 15 v dc ± 1% regulated − 15 v dc ± 1% regulated − 26.5 v dc ± 10% regulated;

SIGNAL LEVELS	ON EXTERNAL LINES	INTERNAL
HIGH:	0 v dc ± 1.5 v dc	0 v dc;
LOW:	− 13.5 v dc (+ 3.5 v dc − 4.0 v dc)	− 3 v dc;

TRANSMISSION CHARACTERISTICS	INPUT	OUTPUT
	30-bit parallel	30-bit parallel;

COOLING CHARACTERISTICS: Cabinet air circulated over water-cooled coils.

MINIMUM WATER REQUIREMENT: 4.0 gpm at 21° C (70° F).

TEMPERATURE: Over-temperature warning: 46° C (115° F).

LIMITATIONS: Over-temperature shutdown 60° C (140° F).

	NORMAL	WIND/REWIND/SEARCH
TAPE SPEED:	30 inches per second	180 inches per second;

	NORMAL	WIND/REWIND/SEARCH
TAPE WIND:	"A" wind; payout reel on bottom, take-up reel on top;	

RECORDING DENSITY AND FRAME TIME:	MINIMUM	MAXIMUM
	451 bits per inch with frame time of 74 usec.	1667 bits per inch with; frame time of 20 usec.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Data Recorder Reproducer RD-261/USQ-34(V)	36-5/16 x 38 x 72	1488
	includes:		
2	Technical Manual NAVSHIPS 94749		

DATA RECORDER REPRODUCER RD-261/USQ-34(V)

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94749: Handbook of Installation, Operation, Maintenance and Repair Instructions with Parts List for Data Recorder Reproducer RD-261/USQ-34(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
North American Aviation, Inc. Columbus Division Part No. 7007800-00	Columbus, Ohio	NOW-61-0751	

1117

14 August 1967
Cog Service: USN FSN:

RECORDER-REPRODUCER, DIGITAL DATA RD-270(V)/UYK
Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Univac Div. of Sperry Rand Corp., (90536).

RECORDER-REPRODUCER, DIGITAL DATA RD-270(V)/UYK

FUNCTIONAL DESCRIPTION:

Recorder-Reproducer, Digital Data, RD-270(V)/UYK is a large capacity, medium speed, magnetic tape storage system. The basic unit consists of two or four tape transports, a tape transport control section, and a magnetic tape control section. The unit is capable of receiving data from a computer and recording it on magnetic tape or of retrieving information previously recorded on tape and transferring it to a computer. In addition to being compatible with Univac computers, the unit may be used in an Off-Line mode of operation with the UNIVAC High Speed Printer type 1469. When used with the printer, information recorded on magnetic tape is retrieved and transferred to the printer for recording in printed form. When connected to form a configuration other than the basic unit, the magnetic tape control section of the basic unit will be used to control the other units.

No field changes in effect at time of preparation (13 February 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Multimeter AN/PSM-4; (1) Oscilloscope w/CA dual trace plug-in amplifier, CBTV 545; (1) Master Alignment Tape CYG 461-096; (1) Tool Set AN/USM-3; (1) Hand Stripper CBBQ 45-171; (1) Hand Crimper CAWG 47043; (1) Hand Insertion Tool CAWG 380310-3 w/insertion tip.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v ac ±10% 400 cps ±5%, 3 ph; 115 v ac ±10%, 400 cps ±5% 1 ph.
DATA TRANSMISSION: Input -18, 24, 30, or 36 bit parallel; output same as input.
TAPE SPEED: 112.5 in./sec except rewind; rewind-225 in./sec until approx 100 ft from beginning of tape.
TAPE: 1/2 in. Mylar.
TAPE REELS: IBM type.
TAPE WIND: A Wind; Oxide coating in, payout reel on top.
RECORD LENGTH: Any lg up to capacity of tape.
RECORDING LEVEL: Non return to zero.
RECORDING DENSITY: Programmable 200 or 556 frames per in.
TAPE COMPATIBILITY: Recorded tapes interchangeable w/IBM tape systems.
SIGNAL LEVELS
EXTERNAL LINES: Logic "1", 0 (± 1.5) v dc, 0 (+ 0.5) v dc; Logic "0", − 13.5 (+ 3.5, − 4) v dc; − 3 (− 0.75) v dc.
INTERNAL LINES: Logic "1", − 3 v dc; Logic "0", 0 v dc.

1119

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
*1	Recorder-Reproducer, Digital Data RD-270(V)/UYK	30.36 x 59.4 x 72	1900

*Size and weight for four-tape transport

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-059-5020: Technical Manual for Digital Data Recorder-Reproducer RD-270(V)/UYK.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
*1	1900	72

*for model w/four tape transport

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Univac Div. of Sperry Rand Corp.	St. Paul, Minn.	N123(953)(60530) (61775) 34079A	

1120

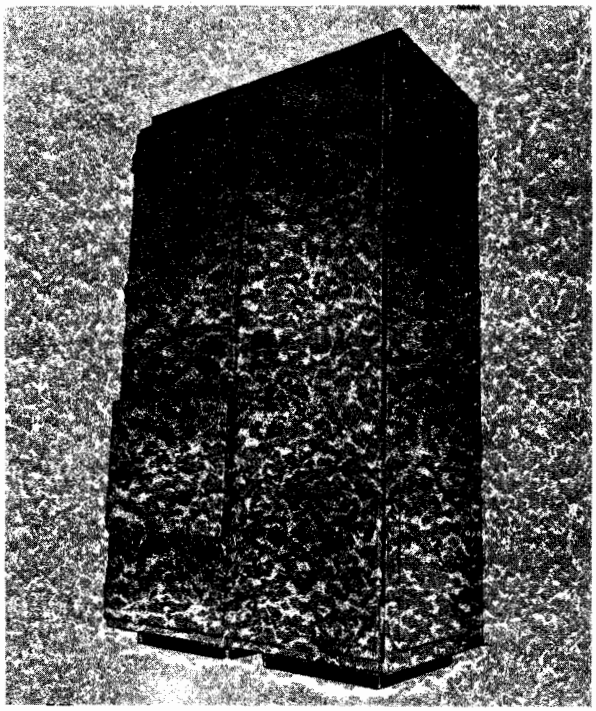
9 January 1967 RECORDER-REPRODUCER, SIGNAL DATA RD-278/GYK-3(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corporation (14418).



RECORDER-REPRODUCER, SIGNAL DATA RD-278/GYK-3(V)

1121

FUNCTIONAL DESCRIPTION:

The Recorder-Reproducer, Signal Data RD-278/GYK-3(V), functions as an input-output device for the AN/GYK-3(V) system. This unit provides a means of recording, on paper tape, 5-level and 7-level data. The paper tape unit also provides a means of reading 5-level and 7-level data from paper tape and transferring this data to the memory modules of the AN/GYK-3(V) system. In addition to punching and reading paper tapes, the paper tape unit provides the necessary data interface between the teletypewriters and the data processing equipment of the AN/GYK-3(V) system.

No field changes in effect at time of preparation (23 May 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope, Tektronix type-545A; (1) Plug-in Unit, Tektronix type-CA; (1) Viewing Hood, Tektronix type-016-001; (1) Mobile Cart, Tektronix type 500/53A; (1) Voltmeter, Simpson Model-269-2; (1) Multimeter, Triplett Model-630NA.

TECHNICAL CHARACTERISTICS:

PAPER TAPE UNIT
- POWER REQUIREMENTS: 115 volts, single ph, 60 cps, 13.0 amperes.
- POWER CONSUMPTION: 1.1 kvw.

CAPABILITIES AND LIMITATIONS
- DATA HANDLING CAPABILITY: 5-level, 7-level, and "teletype".
- TAPE READ RATE: 500 characters per second.
- TYPES OF DATA READ FROM PAPER TAPE: 5-level and 7-level.
- TAPE PUNCH RATE: 100 characters per second.
- TYPES OF DATA PUNCHED IN PAPER TAPE: 5-level and 7-level.
- INPUT-OUTPUT "TELETYPE" BAUD RATE: 76.4 bauds per second (maximum).

HOUSING AREA REQUIREMENTS
- FLOOR AREA: 8.1 square feet.
- ACCESS AREA: 10 square feet.

FLOOR LOADING: 117 psf.

HEAT DISSIPATION: 3754 BTU per hour.

ENVIRONMENTAL PARAMETERS
- AMBIENT TEMPERATURE: 32 deg F to 120 deg F.
- RELATIVE HUMIDITY: 100% (max).
- AMBIENT LIGHTING: 50 feet-candles (max).

GROUNDING REQUIREMENTS: Earth Ground.

OPERATIONAL PARAMETERS
- DATA RECEPTION: Binary, five bit or seven bit code-configurations.
- DATA TRANSMISSION: Binary, five bit or seven bit code configurations.

1122

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
2	Recorder-Reproducer Signal Data RD-278/GYK-3(V)	27-1/2 x 42-1/2 x 79-1/2	985

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96054: Technical Manual Service for Recorder-Reproducer, Signal Data RD-278/GYK-3(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	98	1400

1.5 RD-278/GYK-3(V): 2

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-D-4542

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corporation Pt/Dwg No. 4433-2000	Paoli, Pennsylvania	NObsr-91181	

1123

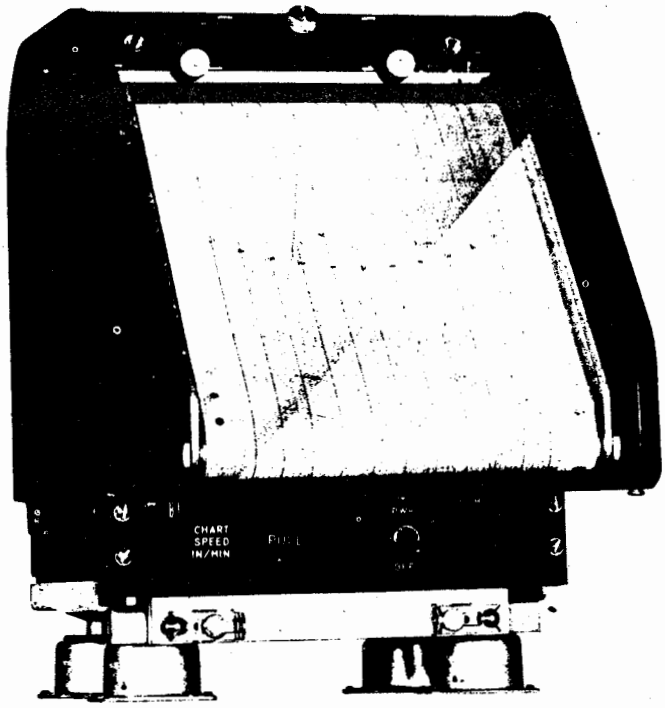
31 July 1964 RECORDER, SIGNAL DATA RO-86/ARR-26

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Texas Instruments Inc., (96214).



RECORDER, SIGNAL DATA RO-86/ARR-26

1124

FUNCTIONAL DESCRIPTION:

Recorder, Signal Data RO-86/ARR-26 is a dual recording milliammeter. Each of the recording channels functions independently of the other. The recorder indicates and records two separate signals, each signal being 0 to 0.5 ma full scale with usable response to 10 cps. The viewable chart surface is angled at approx 45° for easy writing accessibility.

It is used with both sonic and magnetic detecting equipment and gives a permanent record of detected signal variations.

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

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(3) Cable Assy.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 28 v dc, 1.25 amp.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder, Signal Data RO-86/ARR-26 includes:		7-13/16 x 10-13/32 x 12-1/8	18
3	Range Plotting Scale			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-35RO86-1: Handbook of Operation, Service and Overhaul Instructions with illustrated Parts Breakdown for Julie Recorder RO-86/ARR-26.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

1125

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-R-5409A(AER)

DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Texas Instruments Inc.	Dallas, Texas	N383-71134A	

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: RO-171/UX

CLASSIFICATION of Equip.: UNCLASSIFIED

ITEM NAME: Facsimile Recorder

DATE of Request.: 13 February 1961

SPECIFICATION: -

CONTRACT NUMBER AND Change Order No. 1: NObsr-81279, 30 January 1961

QUANTITY ON ORDER: 12

CONTRACTOR'S NAME AND ADDRESS:
Westrex Corporation
Division of Litton Industries
540 West 58th Street
New York, New York

SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS | - V - CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Facsimile Recorder RO-171/UX consists of:					
1	Westrex Corporation Recorder Subassembly Pt/Dwg. No. 42C-00-00-00 (F16-R-40501-1003)					
1	Westrex Corporation Amplifier Detector Pt/Dwg. No. 41C-13-00-00 (F164-39348-1010)					
1	Westrex Corporation Amplifier Modulator Pt/Dwg. No. 41C-14-00-00 (F164-39373-1007)					
1	Westrex Corporation Oscillator, AF Pt/Dwg. No. 41B-05-00-00 (F15-0-45640-2357)					
1	Westrex Corporation Amplifier Power Supply Subassembly Pt/Dwg. No. 41C-20-00-00 (F16-A-39401-1005					

1126

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217419

DESIGNATION	ITEM NAME
RO-171/UX	Facsimile Recorder

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The RO-171/UX makes direct recordings of copy transmitted from a compatible transceiver. It is similar to, but not interchangeable with, the RD-92( )/UX series. The image is 12 inches with roll-type, direct reproduction. The drum speed is 60 rpm or 90 rpm. It is used with, but not part of, TT-321/UX.

Unit cost: $595.85

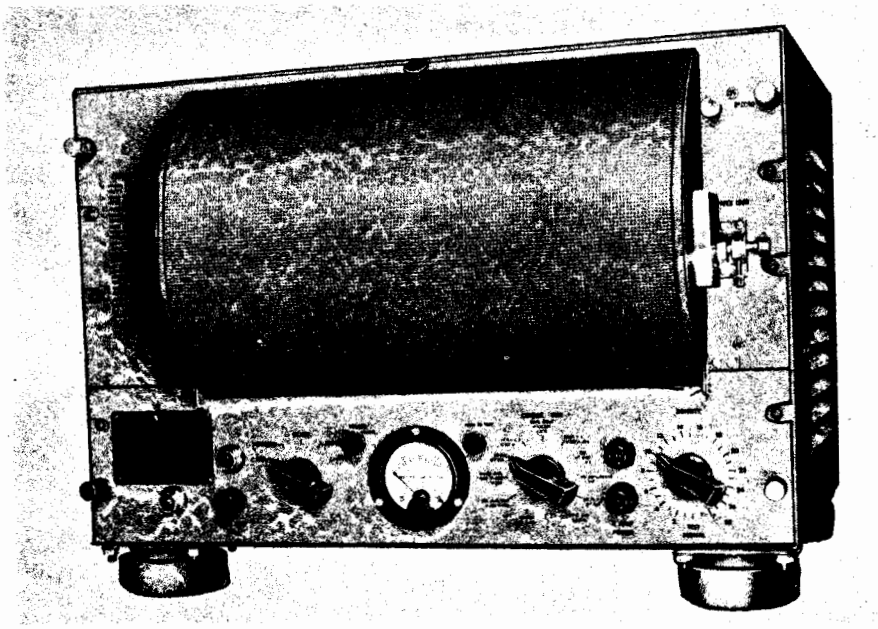
Source of information: Request for Nomenclature
Contract Change Order No. 1

1127

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Westrex Corporation,(13179).



RECORDER FACSIMILE RO-172/UX

FUNCTIONAL DESCRIPTION:

The Recorder, Facsimile RO-172/UX is used to transmit fixed images over an electrical communication system, such as wire or radio telephone circuits. These images may be pictures, maps, sketches, typewritten and printed text, or handwriting.

No field changes in effect at time of preparation (26 October 1966).

RELATION TO OTHER EQUIPMENT:

The RO-172/UX is similar to but not interchangeable with RO-92( )/UX series.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Frequency Shift Converter: CV-1066/UX.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENT: 115 v, 60 cyc, single phase.
TYPE OF RECORDING: Direct Stylus.
DRUM SPEED: 90 to 120 rpm.
TYPE OF MODULATION: AM.
INPUT FREQUENCY: 500 to 10,000 cps.
SIGNAL LEVEL: 0 to − 40 dbm.
INPUT IMPEDANCE: 2,000 ohms.
BLACK TO WHITE SIGNAL CONTRAST: Adjustable from 10 db to 20 db.
POWER SOURCE: 90 to 130 v, 55 to 65 cps ac.
POWER CONSUMPTION: 150 W at 117 v.
HEAT DISSIPATION: 150 W.
NUMBER OF TUBES: 15.
DRUM SPEED CONTROL: Synchronous motor controlled by 1,800 cps fork oscillator.
TYPE OF RECORDING MECHANISM: Rotating Drum.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Recorder Facsimile: RO-172/UX	14 x 17-21/32 x 19-1/8	75

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91630: Technical Manual for Facsimile Recorder RD-92A/UX and RO-172/UX.

1129

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
3	10.4	280

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Westrex Corporation	New York, N.Y.	NObsr-81279	

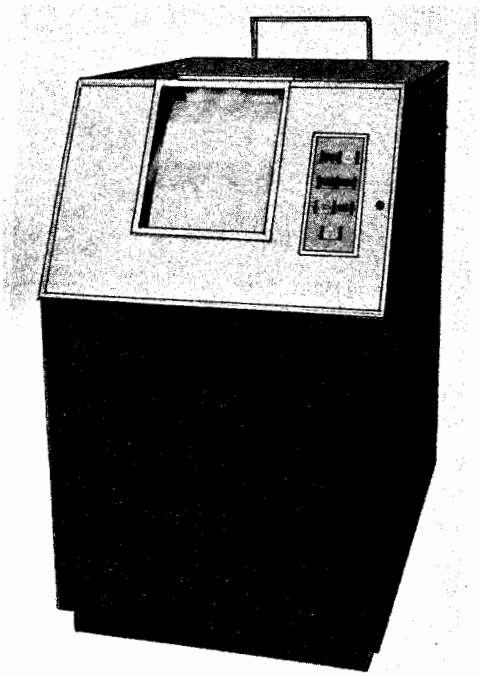
15 August 1967
Cog Service: USN FSN:

TELEPRINTER, ELECTROGRAPHIC RO-284/GYK-3(V)
Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Burroughs Corporation, (14418).



TELEPRINTER, ELECTROGRAPHIC RO-284/GYK-3(V)

FUNCTIONAL DESCRIPTION:

The Teleprinter, Electrographic RO-284/GYK-3(V) provides a means for a computer of the data processing set to transmit instructions and other information to the operator. The printer is a character at a time asynchronous printer capable of printing rates of 500 characters per second. The printer receives parallel binary coded data inputs, converts this information and transfers it as serially printed outputs onto specially treated paper.

No field changes in effect at time of preparation (23 May 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope, Tektronix type 535; b-(1) Plug-in-unit, Tektronix type CA;
(1) Viewing Hood, Tektronix type-016-001; d.(1) Mobil Cart, Tektronix type-500/53A;

1.5 RO-284/GYK-3(V): 1

(1) Multimeter, Triplett Model 630NA; f.(1) High Voltage probe Triplett;
(1) Multimeter, Simpson Model-269; h.(1) Taper pin insertion tools, AMP-380306-2, AMP-380306-3;
(1) Retaining ring expander, Truarc No2; j.(1) Lamp insertion tool, Microswitch 15 PA19;
(1) Card extender, GD/E 561500-337; i.(1) Card extractor, GD/E 280010-598;
(1) Allen-wrenches, Hunter Nos. 5, 5A, 5B, 5C, 5D, 5E, and 5F;
(1) Drive pin punch, Starrett No. 5565; o. (1) Tension testing scale, Pelouze Model 2T;
(1) Tension testing scale, Pelouze Model 5T; q.(1) Pyrometer, Simpson Model 388-3L; (1) Tab pin extractor tool, AMP-91019-2C; (1) Plug extraction tool, AMP-305183;
(1) Coaxial hand tool, AMP-45639 and 45740; (1) Coaxial extractor tool, AMP-305141-1.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS
  VOLTAGE: 105 to 130 volts.
  FREQUENCY: 60 cps ±5 pct.
  PHASE: Single-phase, three wire.
  POWER: 1.0 KW.
  PRINTING SPEED: 500 characters per second.
  CHARACTER CODE: 52 printable characters.
  MESSAGE FORMAT: Six data bits, a start/stop signal, and a strobe pulse.
OUTPUT COPY
  CHARACTERS PER LINE: 72 characters per line.
  CHARACTER SPACING: 10 characters per inch.
  LINE SPACING: 0.20 inch ±10 pct.
OPERATING ENVIRONMENT
  TEMPERATURE: +32 to +125 deg F.
  HUMIDITY: 15 to 90%.
NONOPERATING ENVIRONMENT
  TEMPERATURE: 0 to 160 deg F.
  HUMIDITY: Up to 100%.
GROUNDING REQUIREMENTS: Earth ground.
HOUSING AREA REQUIREMENTS
  FLOOR AREA: 7.5 square feet.
  ACCESS AREA: 50 square feet.
  TOTAL AREA: 12.9 square feet.
FLOOR LOADING: 53 psf.
HEAT DISSIPATION: 3754 BTU per hour.
  AMBIENT LIGHTING: 50 foot-candles (max).

1131

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
3	Teleprinter Electrographic RO-284/GYK-3(V)	25 x 43 x 45	500
	includes:		
6	"Charactron" Shaped Beam Tubes, C5G	4 x 5 x 14	

TELEPRINTER, ELECTROGRAPHIC RO-284/GYK-3(V)

REFERENCE DATA AND LITERATURE:

NAVSHIPS 96057: Technical Manual Service for Teleprinter, Electrographic RO-284/GYK-3(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	59	750

ROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-D-4542

DESIGN COG: USN, NavShips

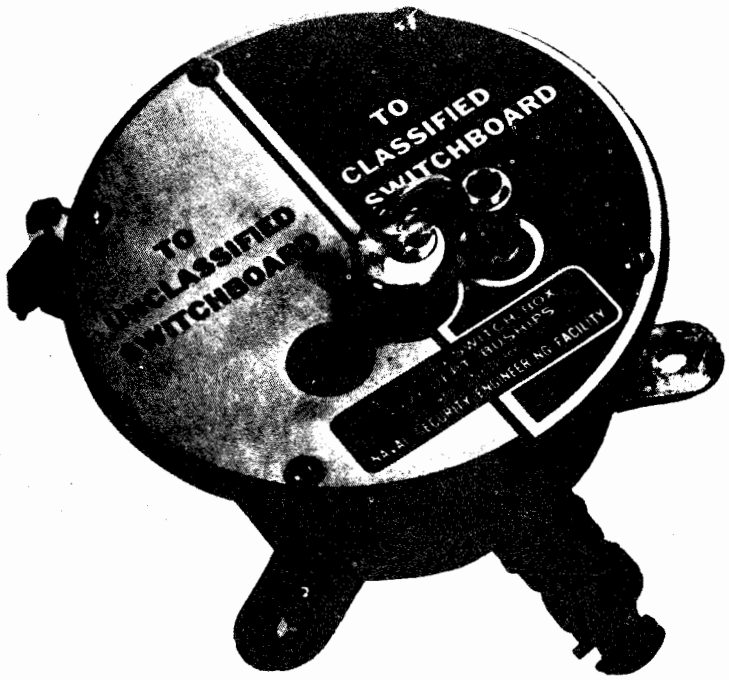
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Burroughs Corporation Part/Dwg No. 4433-6000	Paoli, Pennsylvania	NObsr-91181	

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

USA	USN	USAF

TYPE CLASS: Used By

MANUFACTURER'S NAME/CODE NUMBER: Taffet Electronics Corp., (81849),



SWITCH BOX SA-734/SG

1133

FUNCTIONAL DESCRIPTION:

The Switch Box SA-734/SG is used to effect positive and secure switching of a teletypewriter between a secure and an insecure circuit. When used with Indicator Light Assembly ID-866/SG, the teletype operator has a visual indication of which circuit the teletypewriter is monitoring.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Light Indicator Assembly ID-866/SG.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 125 to 250 v ac, 5 amps.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switch Box: SA-734/SG	5-5/8 dia x 4-1/8	2-1/2

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93757A: Technical Manual for Switch Box(Type III) SA-734/SG, Light Indicator ID-866/SG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Taffet Electronics Corp.	Woodside, N. Y.	N126-02462A	

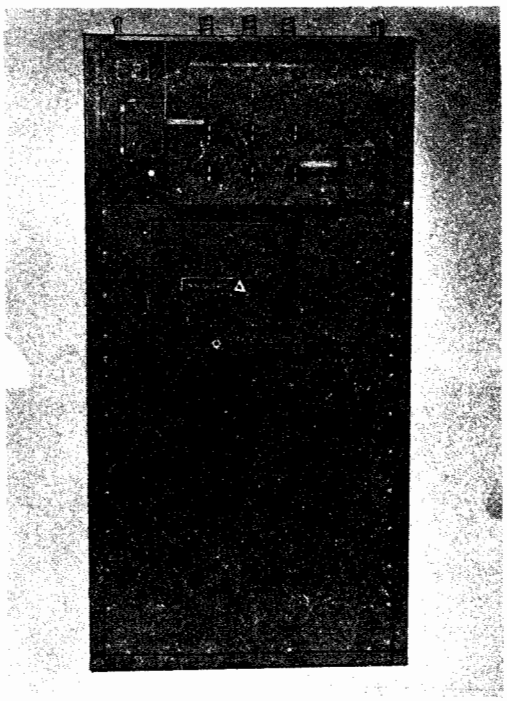
14 August 1967
Cog Service: USN FSN:

SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)/GRT
Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Delta Electronics, Inc., (19482).



SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)/GRT

FUNCTIONAL DESCRIPTION:

The Switch, Radio Frequency Transmission Line SA-1551(V)/GRT, performs interconnection switching between Transmitters and Antennas in High Power, High Frequency (fixed ground installation or transportable-vans) communications service. Used in multiple transmitter installations to provide 100% switching capability of connecting any transmitters to any antennas without danger of paralleling transmitters or antennas. Field-retrofitable for remote controlled motorized operation.

No field changes in effect at time of preparation (12 January 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

1.2 SA-1551(V)/GRT: 1

SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)/GRT

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE; D.C. to 30 MHZ.
POWER: 50 kw average; 200 kw peak.
POWER SOURCE REQUIRED: None.
IMPEDANCE: 50 ohms.
MAXIMUM VSWR: 1.15 to 1.
CROSS CHANNEL ISOLATION: 65 db minimum.
COLUMNS (INPUTS OF OUTPUTS): (V) as specified (22 maximum standard)
ROWS (OUTPUTS OR INPUTS): (V) as specified (11 maximum standard).
R.F. CONNECTORS: As specified-3-1/8 inch EIA male flanges standard.
OPERATION: Manual.
INTERLOCK: Single wire circuit closed to common for valid input to output connection.
REMOTE INDICATION: From A switch closure to common for energizing remote indicator panel (not supplied).
INSTALLATION: Floor Mounting, Bolts to floor through four 0.625 inch dia. hole on 6.25" x (Width-9 inches) mtg centers.
SIZE: Height 64.75 inch depth, 21.146 inch, Width Variable (approx. 19.625 +(4 inch x No. of columns).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switch, Radio Frequency Transmission Line, SA-1551(V)/GRT	21-9/64 x 19-5/8 x 64-3/4	350 (approx)

REFERENCE DATA AND LITERATURE:

Manuscrip Document: for Switch, Radio Frequency Transmission Line, SA-1551(V)/GRT.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		350 (approx)

PROCUREMENT DATA

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

SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)/GRT

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Delta Electronics, Inc. Model No. SLS-1A(CXR)	Alexanderia, Va.		

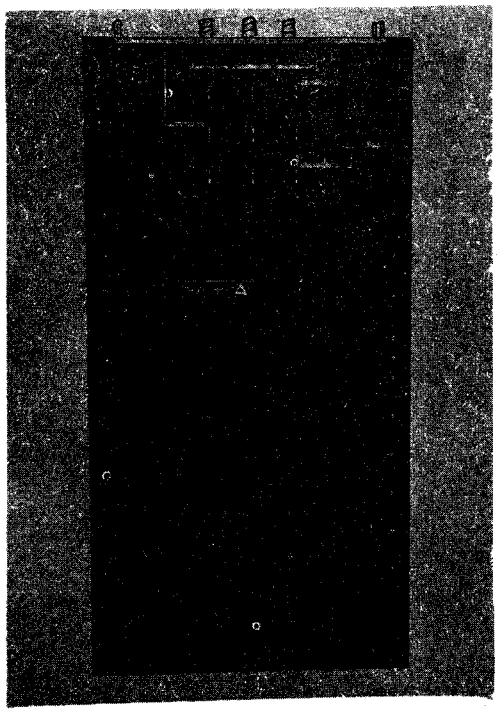
1137

21 September 1967 SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)1/GRT
Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Delta Electronics, Inc. (19482).



SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)1/GRT

FUNCTIONAL DESCRIPTION:

Switch, Radio Frequency Transmission Line SA-1551(V)1/GRT performs interconnection switching between Transmitters and Antennas in High Power High Frequency (fixed ground installations or transportable vans) communications service. Used in multiple transmitter installations to provide 100% switching capability of connecting any transmitters to any antennas without danger of paralleling transmitters or antennas. Field retrofitable for remote controlled motorized operation. Integral interlock circuit prevents application of transmitter power unless antenna is connected. Indicator switches permit remote indication of switching status. Switch circuit is crossbar matrix with one set of connectors (input or output) connected to vertical columns and one set of connectors (output or input) connected to horizontal rows.

No field changes in effect at time of preparation (24 October 1966).

1.2 SA-1551(V)1/GRT: 1

SWITCH, RADIO FREQUENCY TRANSMISSION LINE SA-1551(V)1/GRT

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: dc to 30 MHz.
POWER: 50 kw average; 200 kw peak.
POWER SOURCE REQUIRED: none.
IMPEDANCE: 50 ohm.
MAXIMUM VSWR: 1.15 to 1.
CROSS CHANNEL ISOLATION: 65 db min.
COLUMNS (INPUTS OR OUTPUTS): 3(V).
ROWS (OUTPUTS OR INPUTS): 3(V).
RF CONNECTORS: As specified; 3-1/8 in. EIA Male flanges std.
OPERATION: Manual.
INTERLOCK: Single wire circuit closed to common for valid input to output connection.
REMOTE INDICATION: Form a switch closure to common for energizing remote indicator panel.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switch, Radio Frequency Transmission Line SA-1551(V)1/GRT	21.146 x 31.625 x 64.75	

1139

REFERENCE DATA AND LITERATURE:

Manuscript for Switch, Radio Frequency Transmission Line SA-1551(V)1/GRT.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		230

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:
DESIGN COG: NAVELEC (SHORE)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Delta Electronics, Inc.	Alexandria, Va.	N00600-67-C-0084	

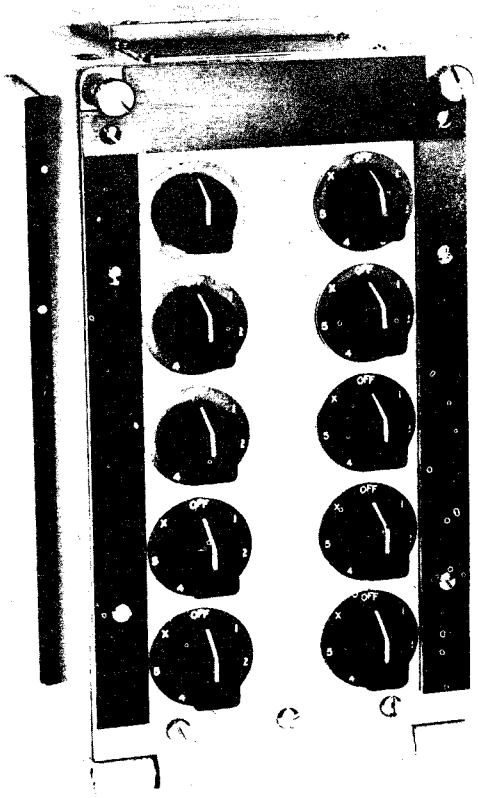
31 July 1964 SWITCHBOARD, RECEIVER TRANSFER SB-973/SRR

Cog Service: USN **FSN:** IN5820-892-3300 **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Tabet Mfg Co. Inc., (88829).



SWITCHBOARD, RECEIVER TRANSFER SB-973/SRR

1140

FUNCTIONAL DESCRIPTION:

Switchboard, Receiver Transfer SB-973/SRR is designed to transfer the audio output of radio communications receivers to remote control station audio circuits. The switchboard contains ten, two circuit, seven position rotary switches connected to a terminal board which has stud type terminals for connecting external incoming and outgoing cables.

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

RELATION TO OTHER EQUIPMENT:

SB-973/SRR SWITCHBOARD, RECEIVER TRANSFER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

EQUIPMENT INTERCONNECTED: 5 radio receivers to any one or all of 10 remote control stations.
METHOD OF INTERCONNECTION: Switch interconnected (manually).
MATERIAL OF CABINET: Aluminum.
MOUNTING: Bulkhead mtd.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switchboard, Receiver Transfer SB-973/SRR	1N5820-892-3300	5-1/8 x 7 x 9-1/2	8.5

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94537: Technical Manual for Receiver Transfer Switchboard SB-973/SRR.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR:

1141

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tabet Mfg Co. Inc., Part No. 130-1001-1	Norfolk, Virginia	N126-02937A	$107.99

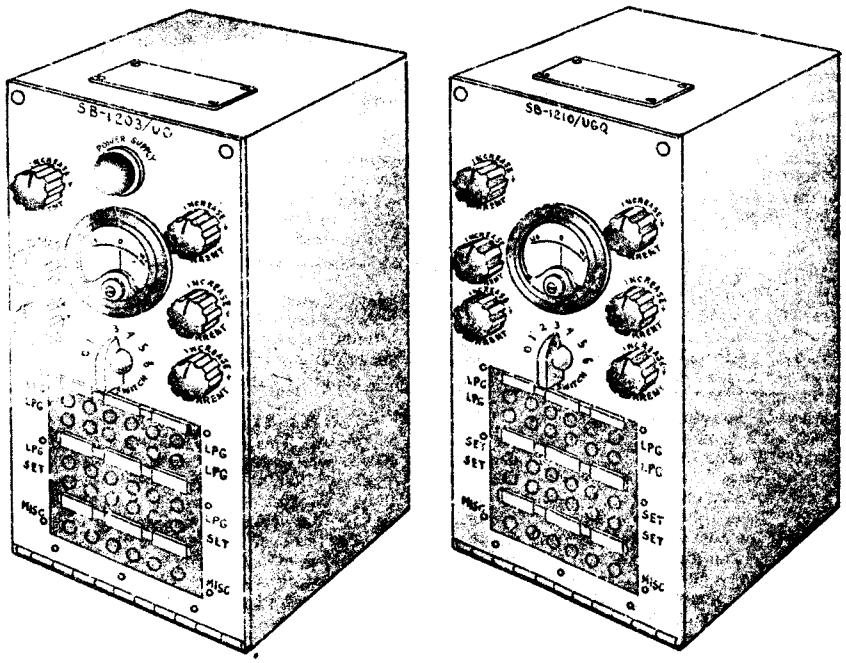
23 November 1966 PANEL PATCHING COMMUNICATION SB-1203/UG

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: RCA Service Co., Systems Engineering Facility, (49671).



PANEL PATCHING COMMUNICATION SB-1203/UG

FUNCTIONAL DESCRIPTION:

The Panel Patching Communication SB-1203/UG provides teletypewriter interconnection facilities aboard ships and shore stations for connecting teletypewriter equipment with radio adapters (frequency shift keyers, converters, and tone-modulated equipment). It is a development of, and supersedes, Teletype Panels TT-23/SG through TT-23F/SG.

No field changes in effect at time of preparation (29 July 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

1142

PANEL PATCHING COMMUNICATION SB-1203/UG

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v dc, 24 amp max.
NUMBER OF CHANNELS: 6 channels.
NUMBER JACKS PER CHANNEL
SET JACK: 1.
LOOPING JACKS: 2.
MISC JACKS: 1.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Panel Patching Communication SB-1203/UG	5-13/16 x 6 x 12-1/4	12

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94037(B): Technical Manual for Communication Patching Panels SB-1203/UG, SB-1210/UGQ and TT-23/SG, TT-23B/SG, TT-23E/SG, TT-23F/SG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
RCA Service Co., Systems Engineering Facility.	Alexandria, Va.	NObsr-85020	

1143

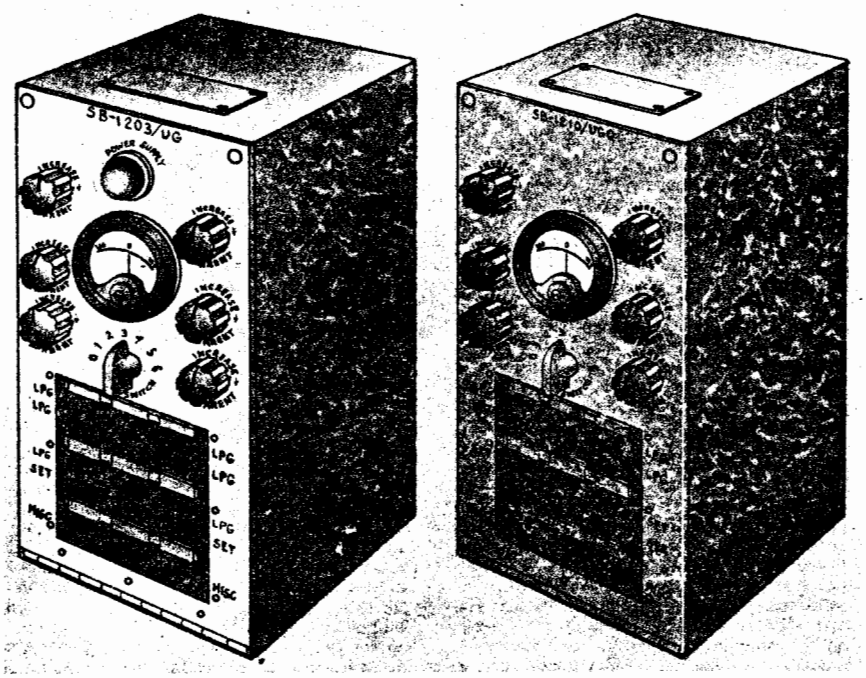
23 November 1966 PANEL PATCHING COMMUNICATION SB-1210/UGQ

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: RCA Service Company, Systems Engineering Facility, (49671).



PANEL PATCHING COMMUNICATION SB-1210/UGQ

1144

FUNCTIONAL DESCRIPTION:

The Panel Patching, Communication SB-1210/UGQ provides teletypewriter interconnection facilities aboard ships and shore stations for connecting teletypewriter equipment with radio adapters (frequency-shift keyers, converters, and tone-modulated equipment. It is a development of, and supersedes, Teletype Panels TT-23/SG through TT-23F/SG for certain special applications. The SB-1210/UGQ and SB-1203/UG are identical in essentials of operation or function. The SB-1210/UGQ is a modification of the SB-1203/UG and has been designed for patching requirements of secure teletypewriter channels.

Data on this sheet reflects the following field changes: No. 1 and 2, 29 July 1966.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

1.2 SB-1210/UGQ: 1

PANEL PATCHING, COMMUNICATION SB-1210/UGQ

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v dc, 24 amp max.
NUMBER OF CHANNELS: 6 channels.
NUMBER JACKS PER CHANNEL
SET JACKS: 2.
LOOPING JACKS: 2.
MISC JACKS: 1.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Panel-Patching Communication, SB-1210/UGQ	5-13/16 x 6 x 12-1/4	12

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94037(B): Technical Manual for Communication Patching Panels SB-1203/UG, SB-1210/UGQ and TT-23/SG, TT-23B/SG, TT-23E/SG, TT-23F/SG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
RCA Service Company, Systems Engineering Facility	Alexandria, Va.	NObsr-85020	

1145

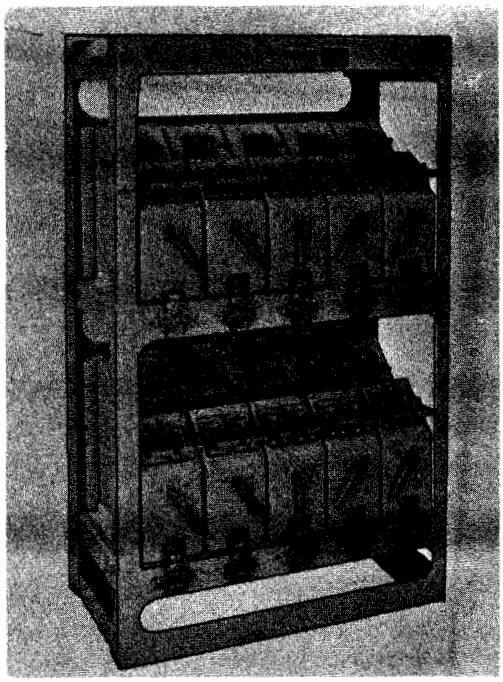
21 September 1967 SWITCHBOARD SIGNAL DISTRIBUTION SB-1299A/USQ-20(V)

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: UNIVAC Division of Sperry RAND CORP., (90536).



SWITCHBOARD SIGNAL DISTRIBUTION SB-1299A/USQ-20(V)

FUNCTIONAL DESCRIPTION:

The Switchboard Signal Distribution SB-1299A/USQ-20(V), provides an efficient means of manually switching the interconnecting cables between digital data processing computers and their associated peripheral equipment. It allows the computers and the various peripheral units to be readily connected in an equipment configuration suitable to the system requirements.

The interconnection panel consists of a frame-type cabinet containing ten individual switch unit sub-assemblies held in place by spring-loaded latches. All switch units are identical and are interchangeable in any of the ten positions in the cabinet.

Data on this sheet reflects the following field changes: No. 2, (19 September 1966).

SWITCHBOARD SIGNAL DISTRIBUTION SB-1299A/USQ-20(V)

RELATION TO OTHER EQUIPMENT:

The SB-1299A/USQ-20(V) series of interconnection panels are identical except that the switch units can contain either 68-pole or 80-pole switches.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

SWITCH UNIT CHARACTERISTICS

TYPE: 68 or 80 poles (on 8 and 10 decks respectively), double throw, three position (center position off), switch contacts are nonshorting.

RATING: Switch contacts are rated at 10 amperes (carry-not break); two amperes at 115 v ac switch contact resistance is four millivolts, maximum at 100 milliamps dc; switch contact voltage rating is 1500 VRMS, between any two terminals or between any, terminal and the switch shaft.

NUMBER OF MULTIPOLE SWITCHES: 10.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switchboard, Signal Distribution SB-1299A/USQ-20(V) includes:	15 x 31 x 52	250
2	Technical Manual: NavShips 94088(A)	1.0 x 8-1/2 x 11-1/2	3

1147

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94088(A): Technical Manual for Digital Data Signal Distribution Switchboard SB-1299(A)/USQ-20(V) and SB-1299B/USQ-20(V).

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, NavShips

SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
UNIVAC Division of Sperry Rand Corporation Part No's 265162.00 and 265161 Dwg No. 265160.00	UNIVAC Park St. Paul, Minn.	NObsr-93412	

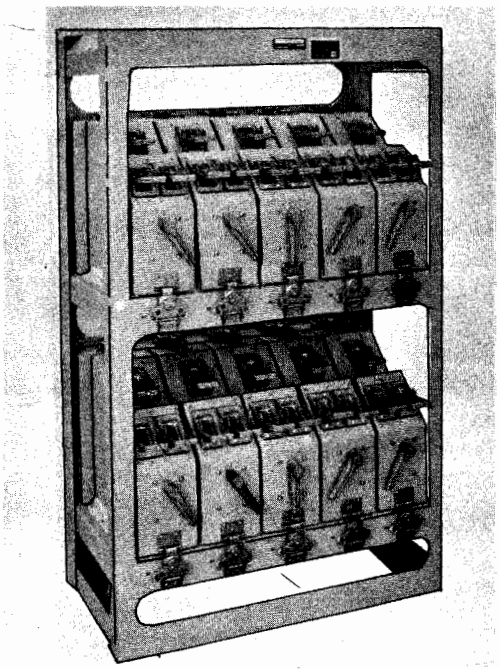
20 September 1967 SWITCHBOARD SIGNAL DISTRIBUTION SB-1299B/USQ-20(V)

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: UNIVAC Division of Sperry-Rand Corp.,(90536).



SWITCHBOARD SIGNAL DISTRIBUTION SB-1299B/USQ-20(V)

FUNCTIONAL DESCRIPTION:

The Switchboard Signal Distribution SB-1299B/USQ-20(V) provides an efficient means of manually switching the interconnecting cables between digital data processing computers and their associated peripheral equipment. It allows the computers and the various peripheral units to be readily connected in an equipment configuration suitable to the system requirements.

The interconnection panel consists of a frame-type cabinet containing ten individual switch unit subassemblies held in place by spring-loaded latches. All switch units are identical and are interchangeable in any of the ten positions in the cabinet.

Data on this sheet reflects the following field changes: No. 2, (19 September 1966).

RELATION TO OTHER EQUIPMENT:

The SB-1299B/USQ-20(V) series of interconnection panels are identical except that the

switch units can contain either 68-pole or 80-pole switches.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

SWITCH UNIT CHARACTERISTICS

TYPE: 68 or 80 poles (on 8 and 10 decks respectively),double throw, three position (center position off), switch contacts are nonshorting.

RATING: Switch contacts are rated at 10 amperes (carry-not break), two amperes at 115 v ac resistive (break); Switch contact resistance is four millivolts, maximum at 100 milliamps dc; switch contact voltage rating is 1500 VRMS, between any two terminals or between any terminal and the switch shaft.

NUMBER OF MULTIPOLE SWITCHES: 10.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switchboard, Signal Distribution SB-1299B/USQ-20(V) includes:	15 x 31 x 52	250
2	Technical Manual: NavShips 94088(A)	1.0 x 8-1/2 x 11-1/2	3

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94088(B): Technical Manual for Digital Data Signal Distribution Switchboard SB-1299 (A)USQ-20(V) and SB-1299B/USQ-20(V).

1149

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, NavShips

SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
UNIVAC Division of Sperry-Rand Corp. Part No. 265162.00 and 265161 Dwg No. 265160.00	Univac Park, St. Paul, Minn.	NObsr-93412	

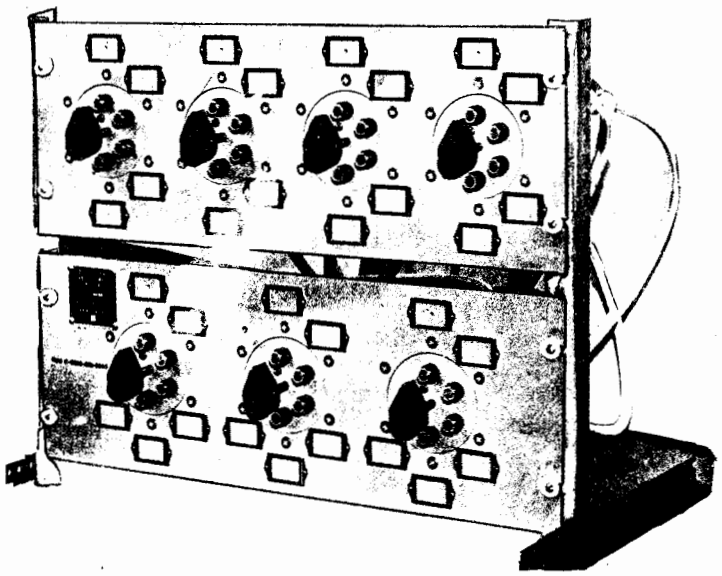
23 June 1965 SWITCHING PANEL ASSEMBLY SB-2726/BRC

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Thompson Ramo Wooldridge Inc., (13433).



SWITCHING PANEL ASSEMBLY SB-2726/BRC

FUNCTIONAL DESCRIPTION:

Switching Panel Assembly SB-2726/BRC, consists of groups of manual switches which provide interchangeable connections between transmitters and antennas of a communication system.

Indicator lights designate which transmitter is connected to which antenna.

Basically, the Switching Panel Assembly consists of two switch panel assemblies with related cables and wiring. One switch panel assembly contains a four position coaxial selector switch for each of three antennas, plus an additional switch for a dummy antenna (tuning function). The other switch panel assembly contains a five position coaxial selector switch for each of two transmitters, plus an additional switch for a silent tuner.

No field changes in effect at time of preparation (21 May 65).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

TYPE OF TRANSMISSION: MF or HF.
FREQUENCY RANGE: 1 kc to 32 mc.
CW POWER RATING: 5000 W.
TRANSMISSION PATH: VSWR at any frequency between 2.0 and 30.0 mc, not exceeding 1.12 to 1.0.
INSERTION LOSS: At any frequency between 2 and 30 mc, 0.1 db per switch.
CROSS TALK LEVEL: At any frequency between 2 and 30 mc, − 80 db (min).
INPUT AND OUTPUT TERMINATION: 50 ohms.
POWER REQUIREMENTS: 115 v, 60 cps, single ph (for light indicators).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Switching Panel Assembly SB-2726/BRC consists of:		
11	Cable Assembly C32C3-B	27 lg	
1	Harness Assembly C32C-C		
1	Switch Panel Assembly C32C1-A	6.97 x 19	
1	Switch Panel Assembly C32C2-A	6.97 x 19	
2	Technical Manuals NAVSHIPS 95756	1/4 x 8-1/4 x 10-3/4	1/4

1151

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95756: Technical Manual for Switching Panel Assembly SB-2726/BRC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	25

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-S-4254

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Thompson Ramo Wooldridge Inc., Microwave Div.,	Canoga Park, California	NObsr 89166	

25 February 1967 RECEIVER TRANSFER SWITCH BOARD SB-2863/SRR

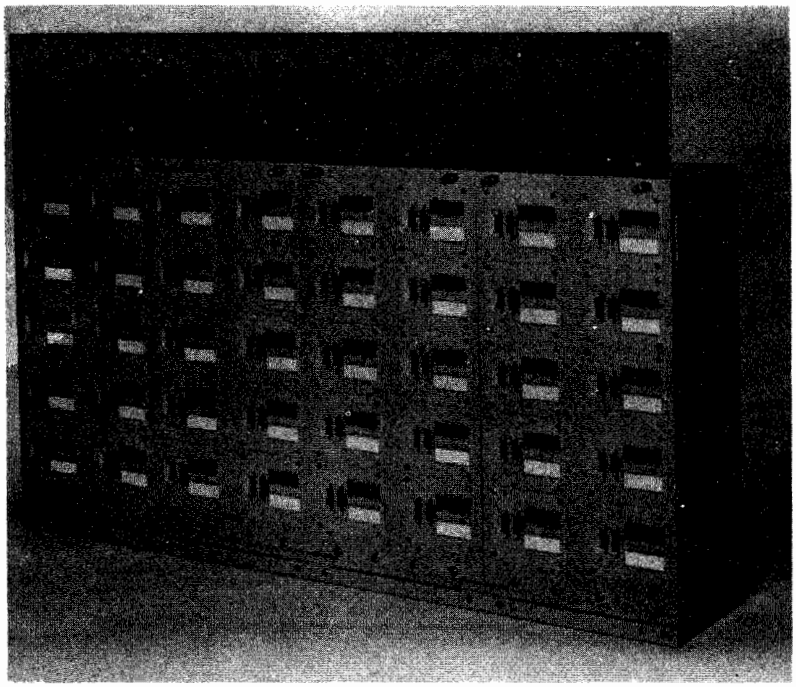
Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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

1153



RECEIVER TRANSFER SWITCH BOARD SB-2863/SRR

FUNCTIONAL DESCRIPTION:

Receiver Transfer Switchboard SB-2863/SRR provides facilities for transferring two-wire signal lines so that remote control stations can be selectively transferred to a choice of radio receivers. Unit incorporates forty thumbwheel dial rotary selector switches, each with a capability of thirty-nine active positions and one "off" position. This design permits the transfer of any one or all of forty remote control stations to any one of the thirty-nine receivers. Switch wafers are epoxy glass with silver-plated copper printed circuits. Switch wafers are removable and replaceable without unsoldering any wires or other major disassembly.

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

RELATION TO OTHER EQUIPMENT:

The SB-2863/SRR is similar in function to Communications Patching Switchboard SB-2727/SRR and Receiver Transfer Switchboard SB-973/SRR but differs in physical size, construction and capabilities.

RECEIVER TRANSFER SWITCH BOARD SB-2863/SRR

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

ELECTRICAL CARRYING CAPACITY: 0 db audio level.
MOUNTING: Bulkhead mtd or bottom (table) mtd.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Receiver Transfer Switchboard SB-2863/SRR includes:	9 x 25-1/2 x 36	60
2	Technical Manuals	1/4 x 9-1/8 x 11-1/2	

REFERENCE DATA AND LITERATURE:

Information Sheet Document for Receiver-Transfer Switchboard SB-2863/SRR.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	5	67

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tabet Manufacturing Co.	Norfolk, Virginia	NObsr 93346 NObsr 95132	

1154

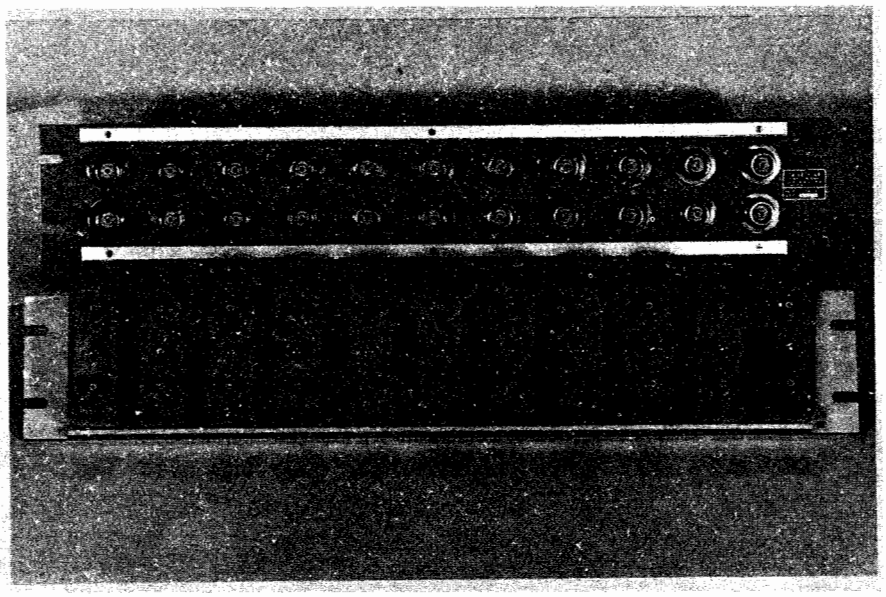
23 November 1966 PANEL, SIGNAL, DISTRIBUTION, RADIO SB-2874/UR

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Gulf Aerospace Corporation, (17475).



PANEL, SIGNAL, DISTRIBUTION, RADIO SB-2874/UR

1155

FUNCTIONAL DESCRIPTION:

The Panel, Signal, Distribution, Radio provides signal distribution from eleven antennas to eleven receivers, independently. The panel connections are of the "normal through" type.

No field changes in effect at time of preparation (13 September 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

SCREW MOUNTED IN STANDARD 19 INCH RACK

MOUNTING DIMENSIONS: 3-3/8 x 3-15/32 x 19 inches.

PANEL, SIGNAL, DISTRIBUTION, RADIO SB-2874/UR

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Panel, Signal, Distribution, Radio, SB-2874/UR	3-3/8 x 3-15/32 x 19	6

REFERENCE DATA AND LITERATURE:

INFORMATION PAMPHLET: For Panel, Signal, Distribution, Radio SB-2874/UR.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.37	10

PROCUREMENT DATA

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

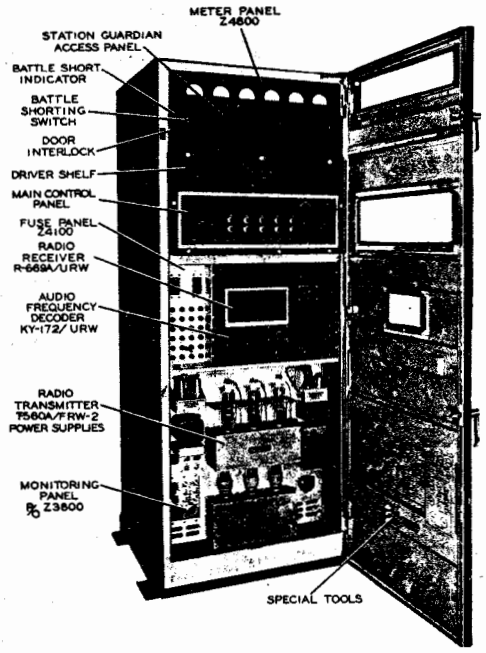
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Gulf Aerospace Corporation Dwg No. 001806	Houston, Texas	N600(63133-126)64639	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



RADIO, TRANSMITTER T-560A/FRW-2

FUNCTIONAL DESCRIPTION:

Radio, Transmitter T-560A/FRW-2 is designed to provide transmission of control signals. No field changes in effect at time of preparation (9 March 1965).

RELATION TO OTHER EQUIPMENT:

The T-560A/FRW-2 is electrically and mechanically interchangeable with T-560/FRW-2 except for maintenance parts.

The T-560A/FRW-2 is designed as part of the Radio, Transmitting Set AN/FRW-2.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

RADIO, TRANSMITTER T-560A/FRW-2

TECHNICAL CHARACTERISTICS:

EQUIPMENT PURPOSE: Provides Transmission of control signals.
TYPE OF FREQUENCY CONTROL: Combination crystal and master oscillator.
TYPE OF EMISSION: F9C type.
NUMBER OF CHANNELS: 144 channels.
INDIVIDUAL CHANNEL FREQUENCY: Increments of 1 mc.
FREQUENCY RANGE: 406 to 549 mc.
OPERATING POWER REQUIREMENT: 208 v ac, 55 to 65 cps, 3 ph, 500 W.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Transmitter T-560A/FRW-2		30-11/16 x 32 x 72	1177

REFERENCE DATA AND LITERATURE:

NA16-30FRW-2-501: Handbook for Radio Transmitting Set AN/FRW-2.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 5725/6AS6W/6187 (1) 5651WA (3) 4B32 (3) 5751WA (2) 12AT7WA (2) 5751
(2) 0B2WA (1) 6AK6 (2) 6CB6 (1) 5Y3WGTA (6) 6203 (1) 6101/6J6WA (2) 4X150A
(1) 5814A (1) 6AU6WA (2) 6080WA (1) GL6942 (2) 5726/6AL5W/6097
(3) 6186/6AG5WA (1) 5654/6AK5W (3) 5R4WGB (4) 6AU6 (2) 6AN5WA (3) 12AU7WA

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

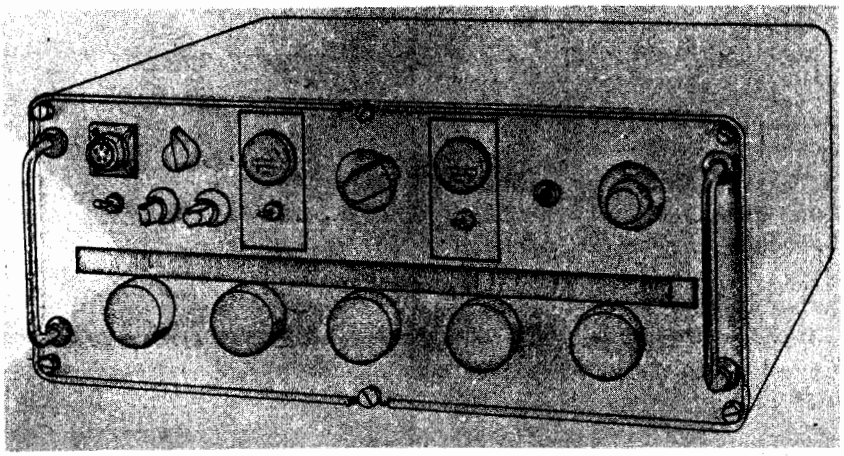
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Company	Cedar Rapids, Iowa	Noas-55-618	

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: General Dynamics Electronics Dynamic Division, (58189).



TRANSMITTER, RADIO T-827/URT

FUNCTIONAL DESCRIPTION:

1159

The Transmitter, Radio T-827/URT, is a single sideband radio transmitter capable of operation on any one of 56,000 channels, spaced in 500 cycle increments in the frequency range from 2.0 to 29.9995 megacycles. Radio Transmitter T-827/URT is capable of transmitting upper sideband (USB), lower sideband (LSB), continuous wave (CW), compatible amplitude modulated (AM) frequency shift keyed (FSK), and independent sideband (ISB) signals in either simplex or duplex operation. ISB operation allows the transmission of two different types of intelligence simultaneously. Facsimile and FSK operation require the use of suitable ancillary equipment. The RF output power of Radio Transmitter T-827/URT is 0.1 watt nominal, 0.25 watt minimum. Radio Transmitter T-827/URT is intended primarily for use as a fixed portable (shipboard) radio transmitter for driving an RF amplifier such as an AM-3007/URT or equivalent. However, it may be used in a fixed (station) operation. In either operation, Radio Transmitter T-827/URT may be mounted in a standard rack or stack-mounted on an appropriate shock mount.

Data on this sheet reflects the following field changes: FC no. 1. (6 January 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Teletypewriter Panel TT-23/SG; (1) Teletypewriter Control Panel C-1004/SG; (1) Teletypewriter Power Supply PP-3494/U; (1) Radio Remote Control C-1138/UR; (1) Key Control Panel SB-315/U; (1) RF Amplifier AM-3007/URT or AM-3924/URT; (1) Multimeter AN/PSM-4; (1) Multimeter Electronic AN/USM-116; (1) Coaxial T Connector HP-11042A; (1) RF Voltmeter AN/URM-155; (1) Multimeter Electronic ME-6/U; (1) Voltmeter Heterodyne CDAN-2005; (1) RF Signal Generator CAQI-606A; (1) Frequency Standard AN/URQ-9; (1) Oscilloscope AN/USM-117; (1) Electrical Dummy Load DA-91( )/U (or resistor) RC42GF-510J; (1) Analyzer Test TS-1379/U; (1) Spectrum Analyzer TS-1379/U; (1) Tuning Head CPN-REC-1; (1) Two-Tone Audio Signal Generator SG-376/U; (1) Frequency Meter AN/USM-207; (1) Test Set Amplifier TS-2132/WRC-1; (1) Test Set Translator Synthesizer TS-2133/WRC-1; (1) Test Set Frequency Standard TS-2134/WRC-1; (1) Test Set Electronic Circuit TS-2135/WRC-1; (7) Technical Manual NAVSHIPS 91583, 92423, 0967-034-2000, 0967-004-2000, 0967-004-3000, 0967-004-4000 and 0967-004-5000.

TECHNICAL CHARACTERISTICS:

MODES OF OPERATION: USB, LSB, ISB, FSK, CW, compatible AM, and JSB/FSK (ISB with FSK in USB).
FREQUENCY RANGE: 2.000 to 29.995 mc, in 0.5 kc increments.
FREQUENCY STABILITY: 2.000 to 29.995 mc, in 0.5 kc increments.
TYPE OF FREQUENCY CONTROL: Crystal controlled synthesizers referenced to a 5 mc internal-or-external frequency standard.
POWER OUTPUT: 0.1 watt nominal; 0.25 watt minimum.
POWER CONSUMPTION: 65 watts.
INTERMODULATION-DISTORTION: 35 db maximum at 0.1 watt output.
CARRIER SUPPRESSION: 50 db.
CW MODE: On carrier.
FSK MODE: 850 cps total shift on a selectable center frequency (2000 or 2550 cps).
POWER REQUIREMENTS: 115 v ac ± 10%, 48 to 450 cps single phase.
OUTPUT IMPEDANCE: 50 ohms.

11160

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Transmitter Radio T-827/URT includes:	7 x 17-3/8 x 18-29/32	70
1	Handset H-169/U (with CX-1846A/U cord and plug assembly)		
1	Kit, Extender Test Cables W-1 thru W-5		
4	Technical Manuals NAVSHIPS 0967-032-0010, 0967-032-0020		
1	Maintenance Standards Book, NAVSHIPS 0967-032-0030		
1	Kit, Transmitter Mating Connectors		
1	Performance Standards Sheet		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-032-0010: Technical Manual for Radio Transmitter T-827/URT (Vol 1).
NAVSHIPS 0967-032-0020: Technical Manual for Radio Transmitter T-827/URT (Vol 2).
NAVSHIPS 0967-032-0030: Maintenance Standard Book for Radio Transmitter T-827/URT.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	6.7	105

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-T-23645A (SHIPS)
DESIGN COG: USN, NavShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Dynamics Electronics Dynamic Div. Model SC-910E Dwg No. GD/EA 09426-001	Rochester, New York	NObsr 93015 NObsr 77628	

1161

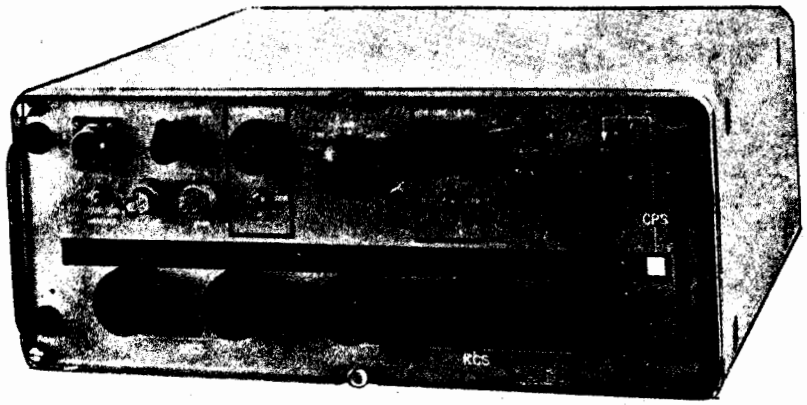
24 August 1967 TRANSMITTER, RADIO T-827B/URT

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: General Dynamics, Electronic Dynamic Division, (58189).



TRANSMITTER, RADIO T-827B/URT

FUNCTIONAL DESCRIPTION:

Transmitter, Radio T-827B/URT is a digitally tuned, single sideband transmitter capable of transmitting on any one of 280.000 channels, spaced in 0.1 kc increments in the 2.0 to 29.9999 mc frequency range. The T-827B/URT is capable of transmitting upper sideband (USB), lower sideband (LSB), continuous wave (CW), compatible amplitude modulated (compatible AM), frequency shift keyed (FSK), and independent sideband (ISB) signals. The ISB mode of operation allows two different types of intelligence to be transmitted simultaneously. The FSK mode is obtained by using suitable ancillary teletypewriter equipment. Tone-modulated continuous wave (MCW) and facsimile transmissions may also be made with the T-827B/URT. The T-827B/URT is intended primarily for use as a driver for a linear radio frequency power amplifier for ship and shore installations.

No field changes in effect at time of preparation (13 February 1967).

RELATION TO OTHER EQUIPMENT: None.

1.6 T-827B/URT: 1

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Antenna; (1) Cable Set; (1) CW Key; (1) Teletypewriter Panel TT-23/SG; (1) Teletypewriter Control Panel C-1004/SG; (1) Teletypewriter Power Supply PP-3494/U; (1) Radio Remote Control C-1138/UR; (1) Key Control Panel SB-315/U; (1) RF Amplifier AM-3924/URT; (1) Multimeter AN/PSM-4; (1) Multimeter, Electronic AN/USM-116; (1) RF Voltmeter, CCVO-91CA; (1) Transmitter Switchboard SB-83/SRT; (1) Multimeter, Electronic ME-6( )/U; (1) Voltmeter Hetrodyne CDAN-2005; (1) RF Signal Generator CAQI-606A; (1) Frequency Standard AN/URQ-9; (1) Oscilloscope AN/USM-105A; (1) Electrical Dummy Load; (1) Analyzer Test Set TS-1379/U; (1) Frequency Meter CAQI-524D; (1) Audio Signal Generator AN/URM-127; (1) Test Set, Amplifier TS-2132/URC-1; (1) Test Set Translator TS-2133/WRC-1; (1) Test Set Frequency Standard TS-2134/WRC-1; (1) Test Set Electronic Circuit Plug-in Unit TS-2135/WRC -1; (1) Base, Molded General Dynamics-666230-282; (1) Base, Molded, General Dynamics-666230-280; (1) Coaxial T Connector; (1) Repair Book, NAVSHIPS 95700; (1) AN/PSM-4, NAVSHIPS 91583; (1) Tech Manual for AN/USM-116; (1) CCVO-9/CA Technical Manual; (1) Tech Manual NAVSHIPS 92423; (1) Technical Manual CDAN-2005; (1) Technical Manual AN/USM-105A; (1) Technical Manual TS-1379/U; (1) CAQI-524D Technical Manual; (1) Technical Manual AN/URM-127; (1) Technical Manual CAQI-606A; (1) Technical Manual AN/URQ-9; (1) Test Data Booklet NAVSHIPS 0967-004-2000; (1) Test Data Booklet NAVSHIPS 0967-004-3000; (1) Test Data Booklet NAVSHIPS 0967-004-4000; (1) Test Data Booklet NAVSHIPS 0967-004-5000.

TECHNICAL CHARACTERISTICS:

1163

POWER REQUIREMENTS: 115 v ac, ± 10%, 1 ph, 48 to 450 cps.
POWER CONSUMPTION: 65 W.
FREQ RANGE: 2.000 to 29.9999 mc, in 0.1 kc increments.
FREQ STABILITY: 1 part in 10^8 per day.
MODES OF OPERATION: USB, LSB, ISB, FSK, ISB/FSK (ISB w/FSK or USB) CW, and compatible AM.
TYPE OF FREQ CONTROL: Crystal controlled synthesizers referenced to a 5 mc internal or external freq std.
TRANSMITTER INTERMODULATION DISTORTION: − 35 db max at 0.1 W output.
TRANSMITTER CARRIER SUPPRESSION: − 50 db.
TRANSMITTER POWER OUTPUT: 0.1 W nom, 0.25 W min.
TRANSMITTER CW MODE: On carrier.
TRANSMITTER FSK MODE: 850 cps total shift on a selectable center-freq (2000 or 2550 cps).
TRANSMITTER OUTPUT IMPEDANCE: 50 ohms.
NUMBER OF CHANNELS: 280,000 channels in 100 cps steps.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Transmitter, Radio T-827B, includes:	7 x 17.38 x 18.9	70
1	Handset, H-169/U w/CX-1846A/U		
1	Kit, Extender Test Cables		
2 ea	Technical Manual, NAVSHIPS 0967-200-3010, Vol 1 & 2		
1 ea	Maintenance Standards Book NAVSHIPS 0967-200-3020		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-200-3010: Manuscript catalog sheets for Radio Transmitter T-827B/URT.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: SHIPS-R-4185

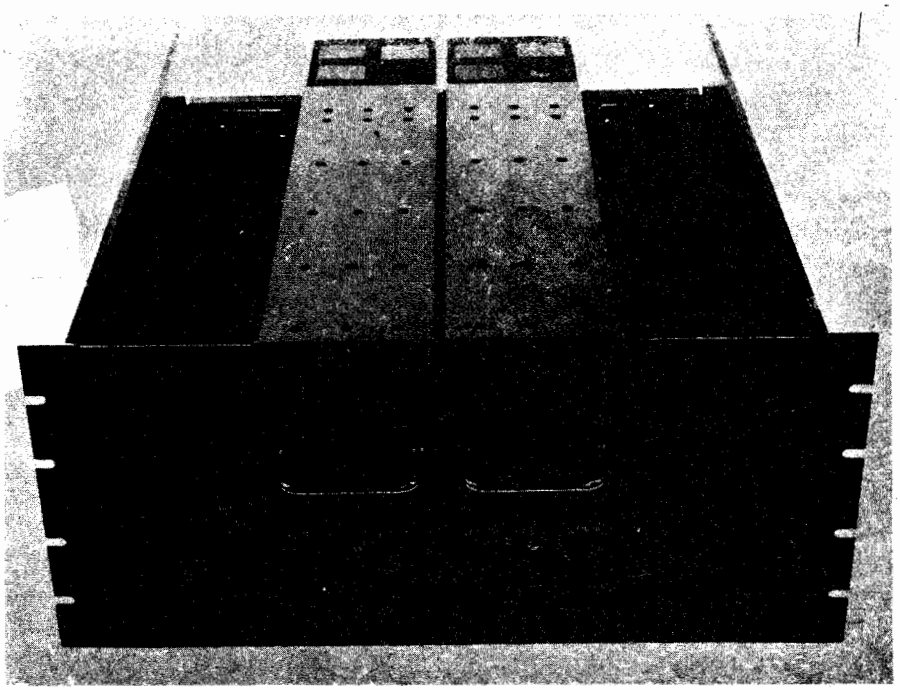
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Dynamics, Electronic Dynamic Div.	Rochester, New York	NObsr 93204	

1164

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Codex Corporation.



TELEGRAPHY AND DATA ERROR CORRECTOR TD-12

1165

FUNCTIONAL DESCRIPTION:

The Telegraphy and Data Error Corrector TD-12 is a synchronous digital device which uses a new forward-acting error-correcting code. This code detects and corrects transmission errors up to two telegraphy characters in duration, and is designed to accept a single input signal and to correct the errors in that signal occurring between the encoder and the decoder. The TD-12 equipment consists of a Transmit Unit and a Receive Unit. A pair serves as either a full duplex terminal or a simplex system. Each unit is completely self-contained and has its own power supply.

No field changes in effect at time of preparation (14 September 1966).

RELATION TO OTHER EQUIPMENT: None.

TELEGRAPHY AND DATA ERROR CORRECTOR TD-12

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

TRANSMISSION SPEED:

INPUT/OUTPUT SIGNALS:	CHANNEL RATE:
75 baud (100 wpm)	122.28 bps (2-61.14 bps channels, 1 data, 1 parity)
50 baud (67 wpm)	83.33 bps (2-41.66 bps channels, 1 data, 1 parity)
45 baud (60 wpm)	75.00 bps (2-37.5 bps channels, 1 data, 1 parity)

SIGNAL LEVELS:
- STANDARD: Neutral keying up to 260 v at 60 ma.
- OPTIONAL: Polar keying up to ± 130 v at 60 ma.
- OPTIONAL: MIL STD 188B ± 6 v, 10 ma polar.

CODE: Massey-Kohlenberg Diffuse Convolutional.
RATE: One half (number of data bits/total number of transmitted bits).
RANDOM: Error correcting power: $102p^3$ where p is the channel probability of random error.
BURST CORRECTION CAPABILITY: 12 bits.
GUARD SPACE: 40 bits.
POWER REQUIREMENTS: Power line voltage 85 to 140 v ac, 57 to 63 cps, optional: 220 v ac, 47 to 53 cps.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Telegraphy and Data Error Corrector, TD-12	18 x 27 x 32	100

REFERENCE DATA AND LITERATURE:

NAVSHIPS 0967-187-2010: Technical Manual for Telegraphy and Data Error Corrector TD-12.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

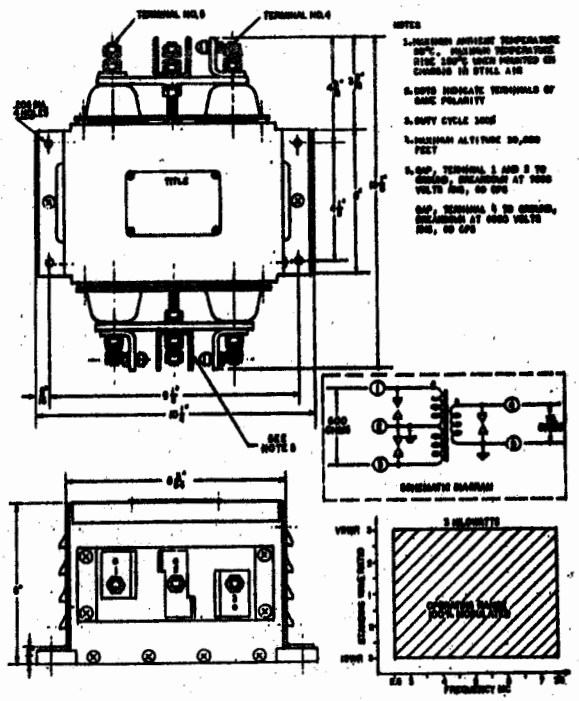
PROCURING SERVICE: USN
DESIGN COG: USN, NavShips
SPEC &/OR DWG: MIL-S-15822B(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Codex Corporation Proc. No. 63133-6000-2160	Watertown, Mass.	N600(63133)65695	

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Westinghouse Electric Corp.,(97942).



TRANSFORMER RADIO FREQUENCY TF-368/SRA

1167

FUNCTIONAL DESCRIPTION:

The Transformer Radio Frequency TF-368/SRA is an antenna matching transformer. It is intended for matching a 600 ohm balanced transmission line to a 75 ohm unbalanced line, as in matching transmission line to coaxial line.

No field changes in effect at time of preparation (26 October 1966).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

INPUT-TO-INPUT IMPEDANCE: 75 ohms unbalanced to 600 ohms balanced.
FREQUENCY RANGE: 2.5 mc to 7.5 mc.
POWER-HANDLING CAPACITY: 3 kw, 100 percent modulated, VSWR of 3 to 1.
DUTY: Continuous.

MAXIMUM AMBIENT TEMPERATURE: 65 deg C (149 deg F).
MAXIMUM TEMPERATURE RISE: 180 deg C (356 deg F).

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Transformer Radio Frequency TF-368/SRA	6 x 10-1/4 x 13-1/8	22.5

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94079: Technical Manual of Operation, Installation, and Maintenance for Radio Frequency Transformer TF-368/SRA.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: L529615

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Westinghouse Electric Corp.	Baltimore, MD.	NObsr 85115	

1168

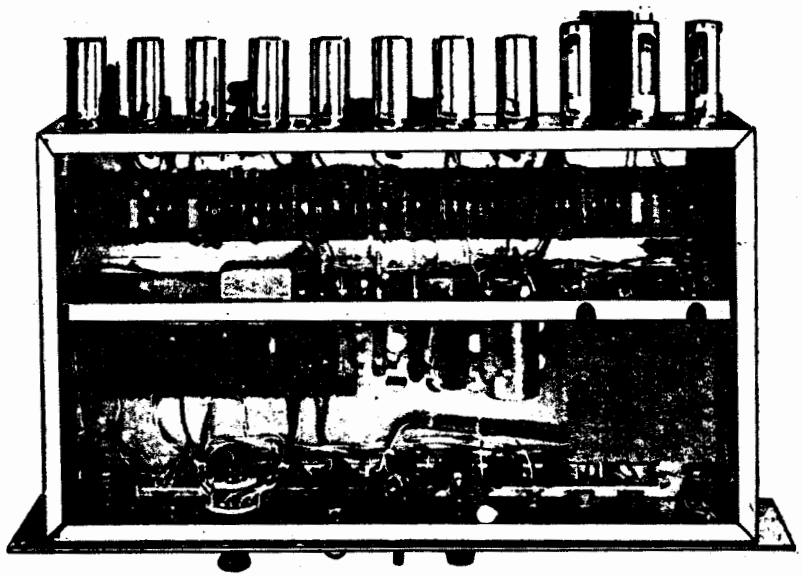
7 July 1965 REPEATER, TELEGRAPH TH-43/UG

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Stelma Inc., (96238).



REPEATER, TELEGRAPH TH-43/UG

1169

FUNCTIONAL DESCRIPTION:

Repeater, Telegraph TH-43/UG regenerates the timing of the telegraph signal to supply perfect time pulses.

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

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

INPUT CURRENT: 60 ma or 20 ma neutral dc 30 ma polar.

INPUT IMPEDANCE: 90 ohms resistive for 60 ma neutral dc, 270 ohms resistive for 20 ma neutral and 30 ma polar.

REPEATER, TELEGRAPH TH-43/UG

INPUT CIRCUIT: Electronically isolated from chassis and from ground. May be connected to dc lines that are grounded on either side of battery or are floating.
*INPUT SPEED: 60, 75, 100 words per minute, 7.42 start-stop signals.
OUTPUT: Neutral output relay contacts. Optional output can be set to follow steady input state or can be made to return always to Mark on any steady state input.
OUTPUT DISTORTION: Under 5% with input signal distortion up to 45%.
POWER REQUIRED: 115/230 v ac, 50 to 60 cps, 80 W.

*Special input speeds can be obtained on order.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Repeater, Telegraph TH-43/U		3-1/2 x 13-1/2 x 19	

REFERENCE DATA AND LITERATURE:

TH-43/UG: Specifications Chart of the Regenerative Telegraph Repeater.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 5963 (3) 12AT7 (1) 6X4W (1) 0A2 (1) 0B2

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stelma Inc.	Stamford, Conn.	NObsr-85232	

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

CLASSIFICATION of Equip. UNCLASSIFIED	ITEM NAME Call Sign Cipher Device	DESIGNATION TSEC/KL-4
SPECIFICATION SHIPS	CONTRACT NUMBER AND DATE NObsr 81520, 20 June 1960	DATE of Request. 26 July 1960
CONTRACTOR'S NAME AND ADDRESS Teletype Corporation 1400 Wrightwood Avenue Chicago, Illinois		QUANTITY ON ORDER 2791
		SERVICE APPROVAL LETTER - SERIAL AND DATE CNO speedletter OP-94G/G-61/KS Ser. 030702P94 of 28 June 1960

ELECTRICAL CHARACTERISTICS

POWER INPUT
- V - CYCLE - PHASE - AMPS - WATTS | - V - CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-
OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	105A/TSEC
			OPERATING INSTRUCTION CHART	KAO-64A/TSEC
			PERFORMANCE STANDARD SHEET	Not required
			MAINTENANCE STANDARD BOOK	Not required

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Call Sign Cipher Device TSEC/KL-4	4-7/32	11	14-7/8		

169 CHANGE 70 - 687B 1.2 TSEC/KL-4: 1 UNCLASSIFIED

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217418

DESIGNATION	ITEM NAME
TSEC/KL-4	Call Sign Cipher Device

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TSEC/KL-4 is a transportable mechanical device used to encode and decode four character radio call signs. It has the appearance of a rectangular metal box, and its top surface is a hinged - door containing apertures and windows necessary for viewing of call signs and symbols during operation of the machine. This hinged door permits access to eight paper-retaining drums located in the machine. Sliding plates are found on the underside of the door which cover and uncover infor mation on the drums as required. These plates are controlled by the encode-decode knob. The bottom and four sides of the rectangular machine are arranged to receive an open-top, drawn-aluminum, box-type container. This container is retained by four screws on the underside. The recessed portions of the container protect all knobs and levers. A channel for holding date strips is found towards the lower end of the machine. These strips indicate the operational dates for which the machine is keyed. Four knobs connected to the four input drums are located on the left side of the machine. Four knobs which operate the entry-addition system are located on the right side of the machine. Four selection levers are provided at the lower end of the machine to select the proper column of the entry-addition system when information is to be set into the machine. A numerical-equivalent window button is provided on the right side of the machine which serves to check both gearing and location of paper code strips used. An easel-type stand allows operation of the machine in several positions.

Unit cost: $400.00

Source of information: Project Engineer

172

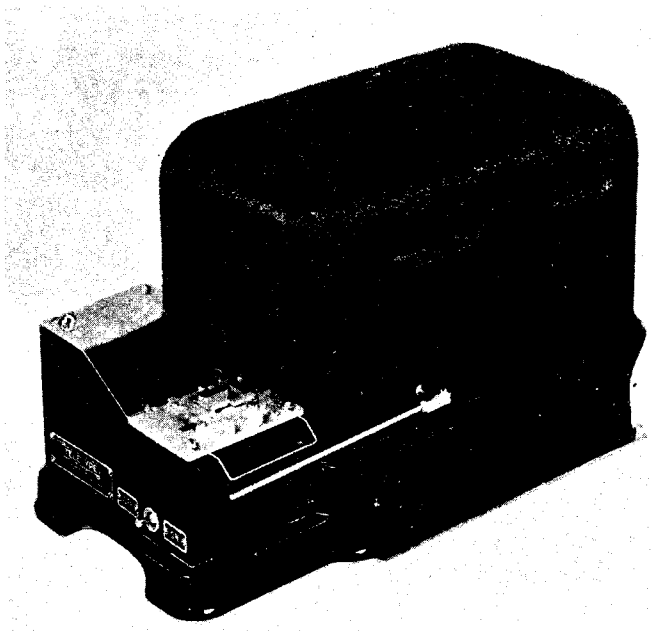
24 June 1965 DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-52/FG

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-52/FG

FUNCTIONAL DESCRIPTION:

Distributor-Transmitter, Teletypewriter, TT-52/FG is a motor driven device which translates code perforations recorded in paper tape into electrical impulses and then transmits these impulses as five unit, start-stop teletypewriter code to one or more receiving stations. Electrical impulses produced are suitable for transmission by either dc wire lines, carrier, or radio channels. The equipment is designed particularly for automatic operation when large amounts of traffic must be handled with a minimum of delay.

No field changes in effect at time of preparation (14 June 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

TYPES OF INSTALLATION: Portable or fixed station; sending: wire or radio.
TYPE OF FEED FOR TAPE: Mechanical.
SIGNALING CODE: 5-unit, start-stop.
TYPE OF SIGNALS: Neutral.
SPEED: 368.1 or 404 opm sending.
MOTOR AND GOVERNOR
TYPE OF MOTOR: AC series.
RPM: 2102 and 2308 rpm.
GOVERNOR: Reduces motor current when motor speed exceeds critical rate and increases motor current when motor speed drops below critical rate.
TUNING FORK: Stroboscopic; 87.6 vibrations per sec for 368.1 opm and 96.19 vibrations per sec for 404 opm.
TYPE OF TAPE: Chad or chadless.
POWER REQUIREMENTS: 105 to 125 v, 25 to 60 cps single ph.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Distributor-Transmitter, Teletypewriter, TT-52/FG	8-3/4 x 9-1/2 x 16-1/4	28

REFERENCE DATA AND LITERATURE:

TM11-2222: Tech Manual Transmitter Distributors TT-26/FG and TT-52/FG, Receiving Transmitter Distributors TT-12/FGQ-1, TT-13/FGQ-1, TT-21/FG, TT-21A/FG, and TT-25/FG, and Teletype Model 14 Transmitter Distributors XD82, XD99, XD221, and XD223.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-52/FG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr 64261	

1175

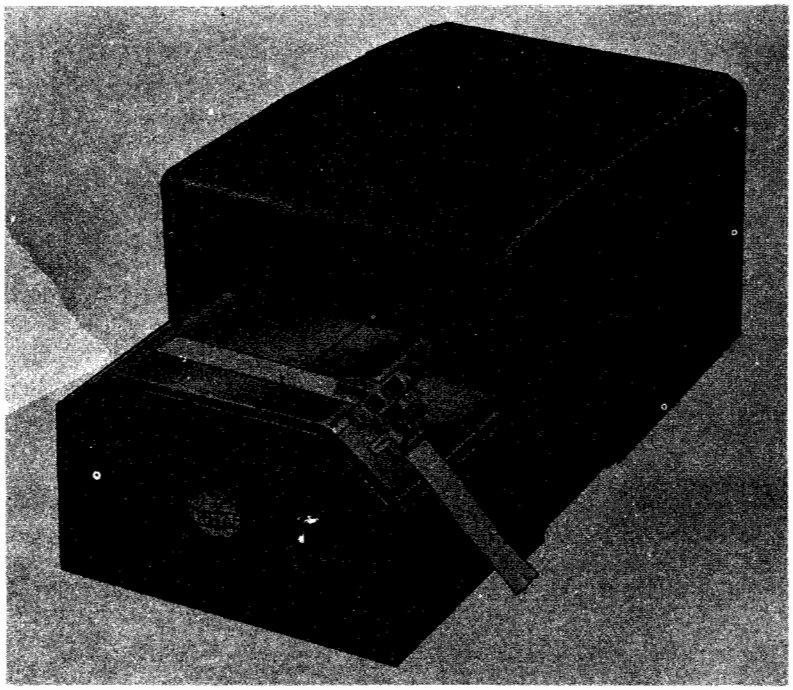
24 June 1965
Cog Service: USN FSN:

DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-187B/UG
Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-187B/UG

FUNCTIONAL DESCRIPTION:

Distributor-Transmitter, Teletypewriter, TT-187B/UG is a miniaturized model of the standard distributor-transmitter. It features light weight, compact components, including a self-contained motor, a miniaturized base, and a small cabinet or cover.

The distributor-transmitter is used to read code combinations perforated in tape and translate these combinations into electrical impulses in the form of a Baudot code signal. When connected by radio or wire telegraph channels with teletypewriter equipment in other ships or stations, the distributor-transmitter originates signal transmission. It is a send only mechanism not equipped to sense the electrical characteristics of incoming messages on the signal line.

Data on this sheet reflects the following field changes, FC1 (2 June 1965).

DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-187B/UG

RELATION TO OTHER EQUIPMENT:

Mechanically, electrically and functionally one-way interchangeable over-all with TT-187/UG except smaller size and parts differ.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 60 cps, 1 ph; 115 v dc.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Distributor-Transmitter, Teletypewriter, TT-187B/UG includes:	5-7/8 x 7-1/2 x 9-1/2	
1	Base Unit Teletypewriter no. LXDB4		
1	Motor, AC no. LMU19		
1	Cover, Miniaturized no. LXDC201BR		
3	Gear Sets		

1177

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92733(A)T-1: Temporary Correction T-1 to Technical Manual for Teletypewriter Distributor-Transmitters TT-187/UG and TT-187A/UG.
NAVSHIPS 92733(A): Technical Manual for Teletypewriter Distributor-Transmitters TT-187/UG and TT-187A/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-187B/UG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-87295 N600-24-61607	

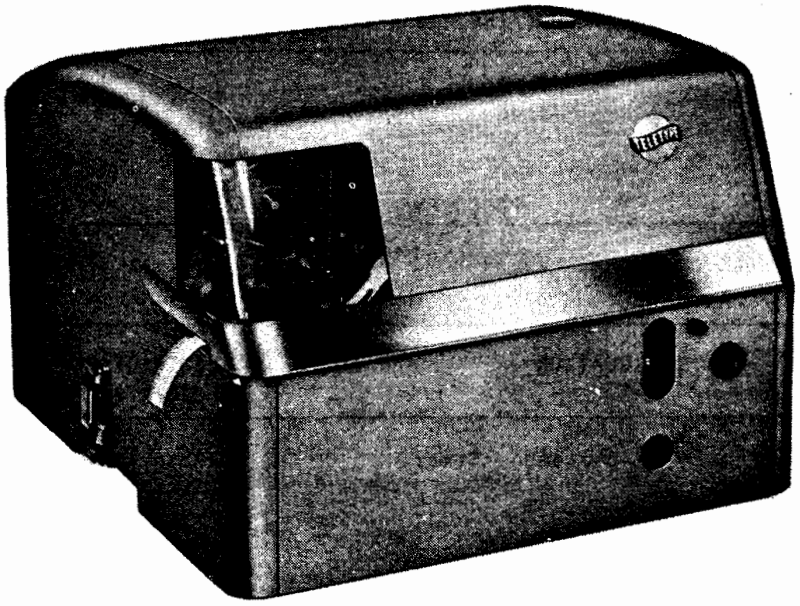
29 July 1964 REPERFORATOR, TELETYPEWRITER TT-192/UG

Cog Service: USN FSN: 2F5815-678-5482 Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



REPERFORATOR, TELETYPEWRITER TT-192/UG

FUNCTIONAL DESCRIPTION:

Reperforator, Teletypewriter TT-192/UG is an electromechanical apparatus, the primary function of which is to receive messages transmitted in a teletypewriter circuit established between two or more ships or stations connected by a radio or wire telegraph channel. The messages received are recorded both in typed characters and punched code holes upon standard teletype message tape suitable for message transmission through other teletypewriter apparatus.

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

RELATION TO OTHER EQUIPMENT:

TT-192/UG REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. w.
OPERATING SPEED: 368 opm, 60 wpm.
CODE: 5 unit, start-stop.
SIGNAL LINE CURRENT
  SERIES: 0.02 amp.
  PARALLEL: 0.06 amp.
TYPE OF MOTOR: Synchronous.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU3
  INPUT: 115 v ± 10%, 60 cyc, single ph.
  INPUT CURRENT: 9 amp (starting), 1.85 amp (running), 65 W.
  POWER FACTOR: 23.7% (no load), 38.5% (full load).
  HEAT DISSIPATION: 50 W.
  HORSEPOWER: 0.050 hp.
PERMISSIBLE TEMPERATURES
  AMBIENT: - 20 to + 50° C (- 4 to + 122° F).
  TEMPERATURE RISE: Not in excess of + 40° C (+ 104° F) above ambient.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Reperforator, Teletypewriter TT-192/UG includes:	2F5815-678-5482		40
1	Cover CTT-LRC202		9-1/2 x 13 x 14-1/2	9.5
1	Base CTT-LRB8		9 x 13 x 13-1/2	12
1	Motor, Synchronous CTT-LMU3		4 x 5-3/4 x 8-1/2	9
1	Typing Reperforator CTT-LPR9AWA		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.4	15
1	1.4	18
1	0.3	9
1	1.0	15
1	0.3	4

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-64214, 27 May 1954	$1,320.00
		NObsr-75256, 30 April 1959	$1,122.00
		NObsr-75523	$901.80
		N123(60530)32909A	$752.00

1181

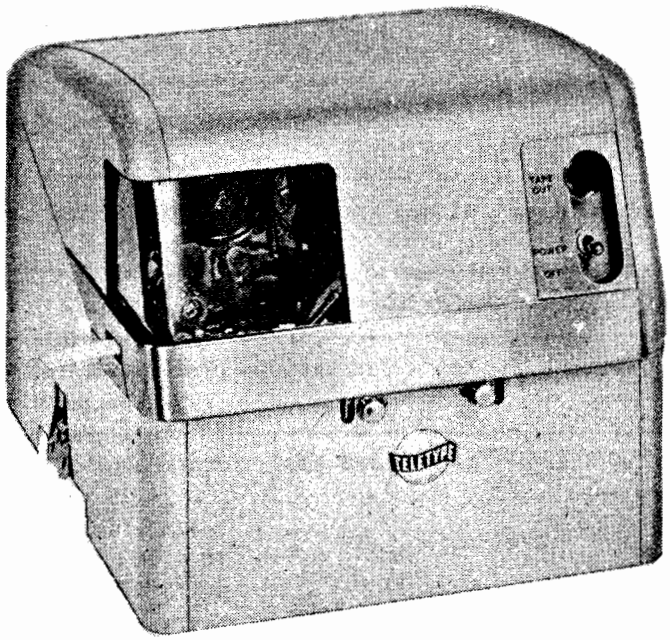
29 July 1964 REPERFORATOR, TELETYPEWRITER TT-192A/UG

Cog Service: USN FSN: 2F5815-752-1167 Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



REPERFORATOR, TELETYPEWRITER TT-192A/UG

1182

FUNCTIONAL DESCRIPTION:

Reperforator, Teletypewriter TT-192A/UG is an electromechanical apparatus, the primary function of which is to receive messages transmitted in a teletypewriter circuit established between two or more ships or stations connected by a radio or wire telegraph channel. The messages received are recorded both in typed characters and punched code holes upon standard teletype message tape suitable for message transmission through other teletypewriter apparatus.

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

RELATION TO OTHER EQUIPMENT:

This equipment is a miniaturized version of the Reperforator, Teletypewriter TT-192/UG.

TT-192A/UG REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. w.
OPERATING SPEED: 368 opm, 60 wpm.
CODE: 5 unit, start-stop.
SIGNAL LINE CURRENT
SERIES: 0.02 amp.
PARALLEL: 0.06 amp.
TYPE OF MOTOR: Synchronous.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU24
INPUT: 115 v ± 10%, 60 cyc, single ph.
INPUT CURRENT: 5 amp (starting), 1.05 amp (running, no load), 1.25 amp (full load).
HORSEPOWER: 0.025 hp.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Reperforator, Teletypewriter TT-192A/UG includes:	2F5815-752-1167		33.75
1	Cover CTT-LRC205		9-1/4 x 10 x 12	8.5
1	Base CTT-LRB31		10 x 10-1/4 x 12	11.5
1	Motor CTT-LMU24		4-1/2 x 5-1/4 x 5-1/2	4.0
1	Typing Reperforator CTT-LPR40AWA		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

PROCUREMENT DATA

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

1.5 TT-192A/UG: 2

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-85475 NObsr-87295 N600(24)-60460	

1184

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-194/UG

CLASSIFICATION of Equip.	ITEM NAME	DATE of Request.
UNCLASSIFIED	Teletypewriter Perforator	4 January 1961
SPECIFICATION	CONTRACT NUMBER AND DATE	QUANTITY ON ORDER
Navy W. O. 881D-67019	NObsr-71239 30 June 1959	14

CONTRACTOR'S NAME AND ADDRESS
Teletype Corporation
Chicago, Illinois

SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT operating (internal power supply)
115 V 60 CYCLE - PHASE - AMPS - WATTS | - V - CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-
OPERATING FREQ. AND FREQ. RANGE	**EMISSION OR RECEPTION (TYPE)**	**FREQ. CONTROL (TYPE)**	**NO. OF CHANNELS**
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Perforator TT-194/UG					
	1.5 TT-194/UG:		1			

1185

179 CHANGE 70 - 687 UNCLASSIFIED

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

917419

DESIGNATION	ITEM NAME
TT-194/UG	Teletypewriter Perforator

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-194/UG has standard communication characters in Gothic-style type on a standard communication keyboard. It has a 5-unit (7.42 unit code arrangement). The characters are typed on tape and fully punched. Spacing between perforations is 1/2 inch. The paper is 11/16 inches wide and comes in an 8-inch diameter roll. The motor is synchronous with a constant speed. Special features are a typing reperforator with a cover, a tape container with a cover, and a copyholder.

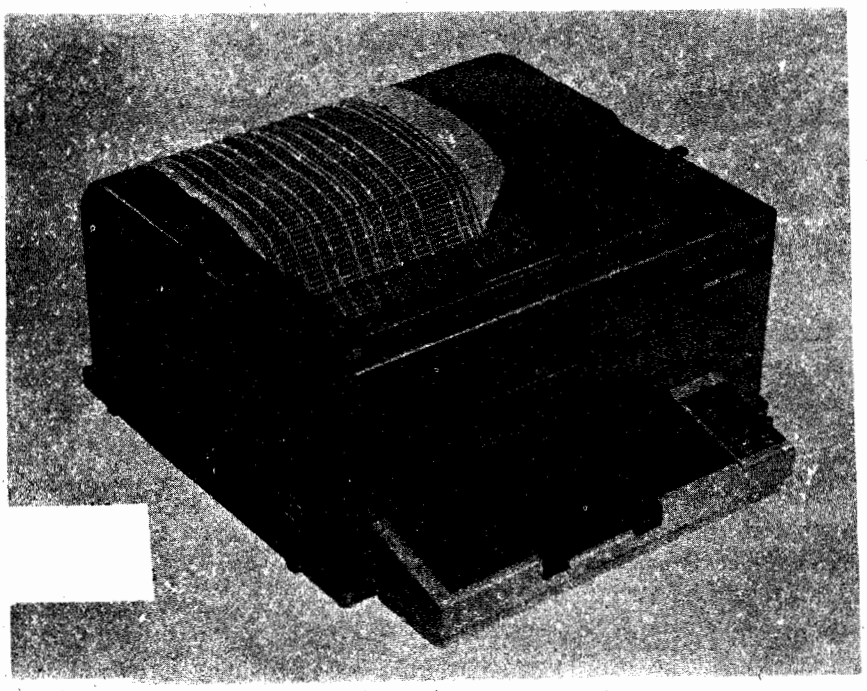
Unit cost: $1,097.52

Source of information: Nomenclature description.
Contract

1186

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



TELETYPEWRITER TT-242/UGC

FUNCTIONAL DESCRIPTION:

Teletypewriter TT-242/UGC is a rugged, light weight continuous duty send or receive page printer designed for operation at speeds of 60, 66, 75 or 100 wpm.

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

RELATION TO OTHER EQUIPMENT:

This equipment is a modified version of Teletypewriter TT-190/TGC.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TT-242/UGC TELETYPEWRITER

TECHNICAL CHARACTERISTICS:

TYPE OF STATION: Portable.
TYPE OF KEYBOARD: Std communication.
TYPE OF CHARACTERS: English.
QUANTITY OF CHARACTERS: 72 characters per line.
SIGNALING CODE: 5 level, 7.42 unit Baudot start-stop code; 20 or 60 ma at 115 v dc (neutral basis).
SIGNALING SPEED: 368.1, 404, 460 or 600 opm (60, 66, 75 or 100 wpm).
TYPE OF FEED: Friction.
TYPE OF MOTOR: Synchronous.
MOTOR SPEED: 3,600 rpm.
POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 35 W.
MOUNTING: Shipboard.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-242/UGC		8-1/8 x 15-7/16 x 16-5/16	25

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94499: Technical Manual for Teletypewriter TT-242/UGC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-75191	$14,755.00

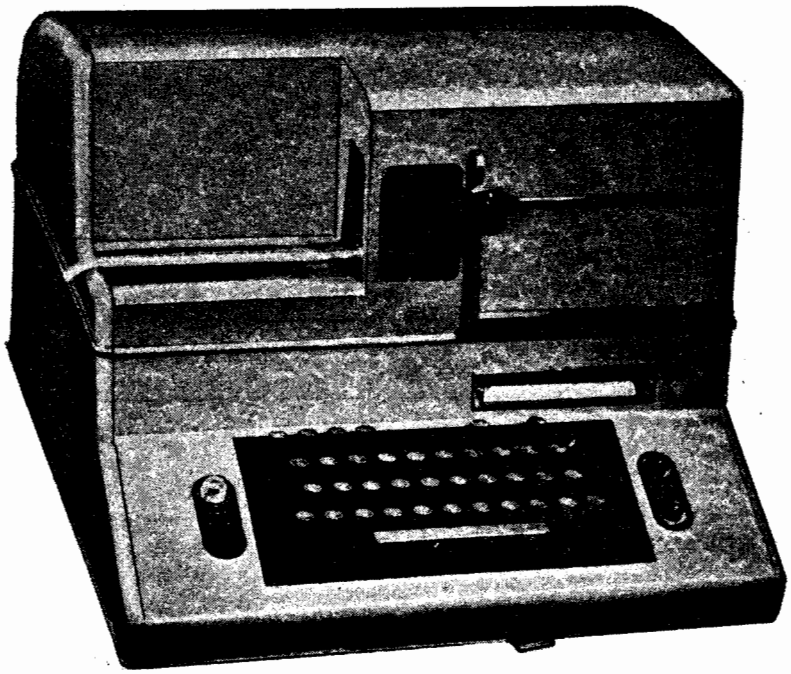
1.5 TT-242/UGC: 2

Cog Service: USN FSN: 2F5815-707-4893 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



PERFORATOR-REPERFORATOR, TELETYPEWRITER TT-253/UG

FUNCTIONAL DESCRIPTION:

Perforator-Reperforator, Teletypewriter TT-253/UG is mounted on a keyboard-base which permits it to function in the signal line as a transmitting unit. The keyboard signal generator is wired in series with the reperforator mechanism to permit use of the common external signal circuit for either send or receive operation. When used to send a message, the equipment monitors its own transmission by preparing a typed, perforated tape of the message. A standard teletype keyboard converts the mechanical input intelligence into electrical impulses.

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

RELATION TO OTHER EQUIPMENT:

TT-253/UG PERFORATOR-REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. w.
OPERATING SPEED: 368 opm, 60 wpm.
CODE: 5 unit. start-stop.
SIGNAL LINE CURRENT
  SERIES: 0.02 amp.
  PARALLEL: 0.06 amp.
TYPE OF MOTOR: Synchronous.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU3
  INPUT: 115 v ± 10%, 60 cyc, single ph.
  INPUT CURRENT: 9 amp (starting), 1.85 amp (running), 65 W.
  POWER FACTOR: 23.7% (no load), 38.5% (full load).
  HEAT DISSIPATION: 50 W.
  HORSEPOWER: 0.050 hp.
PERMISSIBLE TEMPERATURES
  AMBIENT: - 20 to + 50° C (- 4 to + 122° F).
  TEMPERATURE RISE: Not in excess of + 40° C (+ 104° F) above ambient.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Perforator-Reperforator, Teletypewriter TT-253/UG includes:	2F5815-707-4893		86
1	Cabinet CTT-LSRC200		13-3/4 x 17 x 18-3/4	44
1	Keyboard-Base CTT-LTRK1RN		11-1/4 x 15-1/2 x 17-1/4	19.5
1	Motor, AC CTT-LMU3		4 x 5-3/4 x 8-1/2	9.0
1	Typing Reperforator CTT-LPR9AWA		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25
1	Set of Gears CTT-161293			

1190

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

1.5 TT-253/UG: 2

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	4.7	60
1	7.0	31
1	0.3	9
1	1.0	15
1	0.3	4

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-75256, 30 April 1959	$1,532.00
		NObsr-75523	$1,279.99
		NObsr-85475	

617

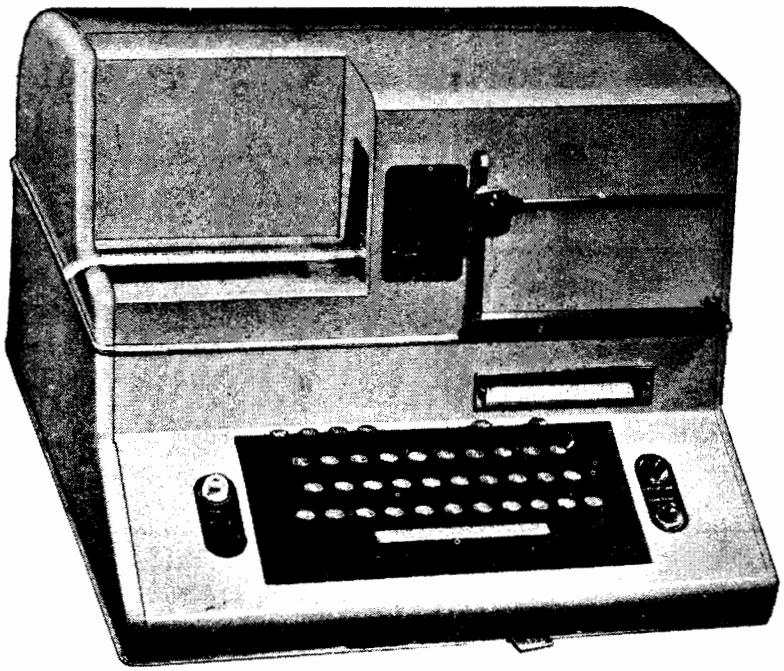
29 July 1964 PERFORATOR-REPERFORATOR, TELETYPEWRITER TT-253A/UG

Cog Service: USN FSN: 2F5815-972-3023 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



PERFORATOR-REPERFORATOR, TELETYPEWRITER TT-253A/UG

FUNCTIONAL DESCRIPTION:

Perforator-Reperforator, Teletypewriter TT-253A/UG is mounted on a keyboard-base which permits it to function in tne signal line as a transmitting unit. The keyboard signal generator is wired in series with the reperforator mechanism to permit use of the common external signal circuit for either send or receive operation. When used to send a message, the equipment monitors its own transmission by preparing a typed, perforated tape of the message. A standard teletype keyboard converts the mechanical input intelligence into electrical impulses.

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

RELATION TO OTHER EQUIPMENT:

This equipment is identical to Perforator-Reperforator, Teletypewriter TT-253/UG except that it has been modified for 7.00 unit transmission.

TT-253A/UG PERFORATOR-REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. w.
OPERATING SPEED: 360 opm, 60 wpm.
CODE: 5 unit, start-stop.
SIGNAL LINE CURRENT
  SERIES: 0.02 amp.
  PARALLEL: 0.06 amp.
TYPE OF MOTOR: Synchronous.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU3
  INPUT: 115 v ± 10%, 60 cyc, single ph.
  INPUT CURRENT: 9 amp (starting), 1.85 amp (running), 65 W.
  POWER FACTOR: 23.7% (no load), 38.5% (full load).
  HEAT DISSIPATION: 50 W.
  HORSE POWER: 0.050 hp.
PERMISSIBLE TEMPERATURES
  AMBIENT: - 20 to + 50° C (- 4 to + 122° F).
  TEMPERATURE RISE: Not in excess of + 40° C (+ 104° F) above ambient.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Perforator-Reperforator, Teletypewriter TT-253A/UG includes:	2F5815-972-3023		86
1	Cabinet CTT-LSRC200		13-3/4 x 17 x 18-3/4	44
1	Keyboard-Base CTT-LTRK5ARN		11-1/4 x 15-1/2 x 17-1/4	19.5
1	Motor, AC CTT-LMU3		4 x 5-3/4 x 8-1/2	9
1	Typing Reperforator CTT-LPR53AWA		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25
1	Set of Gears			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperrorator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	4.7	60
1	7.0	31
1	0.3	9
1	1.0	15

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-87295	

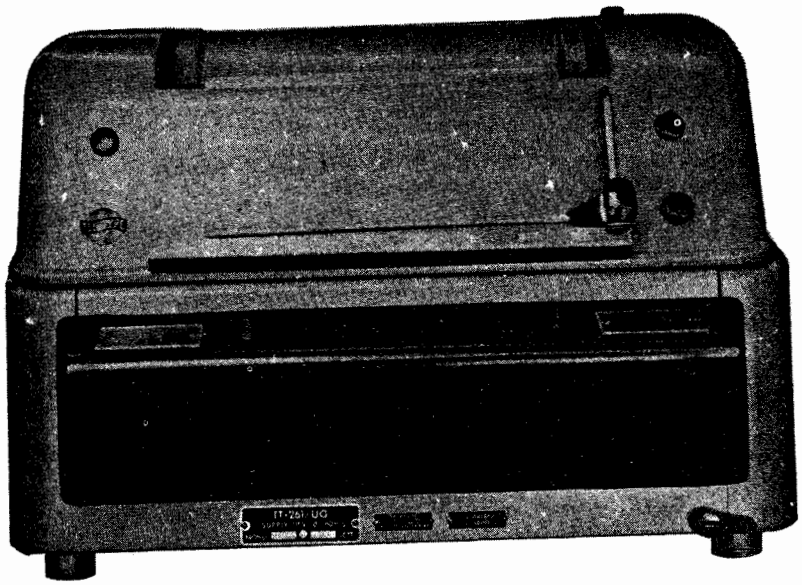
1194

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

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



TELETYPEWRITER TT-261/UG

FUNCTIONAL DESCRIPTION:

1195

Teletypewriter TT-261/UG is a portable station, receive only, page printer using friction feed and English characters. The unit contains a synchronous motor and is geared for 368 operations per minute, 7.42 unit code. It is designed for wire and/or radio circuits and is capable of high speed operation.

No field changes in effect at time of preparation (22 March 1966).

RELATION TO OTHER EQUIPMENT:

Teletypewriter TT-261/UG is similar to Teletypewriter TT-69B/UG, but has no keyboard.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

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

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-261/UG includes:		
1	Electrical Equipment Cabinet CY-2539/UG		
1	Teletypewriter Base MT-1443/UG		
1	AC Motor PD-17A/U		
1	Power Distribution Panel SB-964/UG		
1	Teletypewriter Typing Unit MX-1115B/UG		
1	Set of Gears Part No. 151060		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94362: Technical Manual for Telegraph Terminal Set AN/SSC-1(XN-1).
NAVSHIPS 93241: Technical Manual for Teletypewriter: TT-39B/UG, TT-47C/UG, TT-48B/UG, TT-70C/UG, TT-128A/UG, TT-129A/UG, TT-130A/UG, TT-131A/UG, TT-171/UG and TT-234/SGA-3W/TC-1.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Ill.	NObsr-75250	

1196

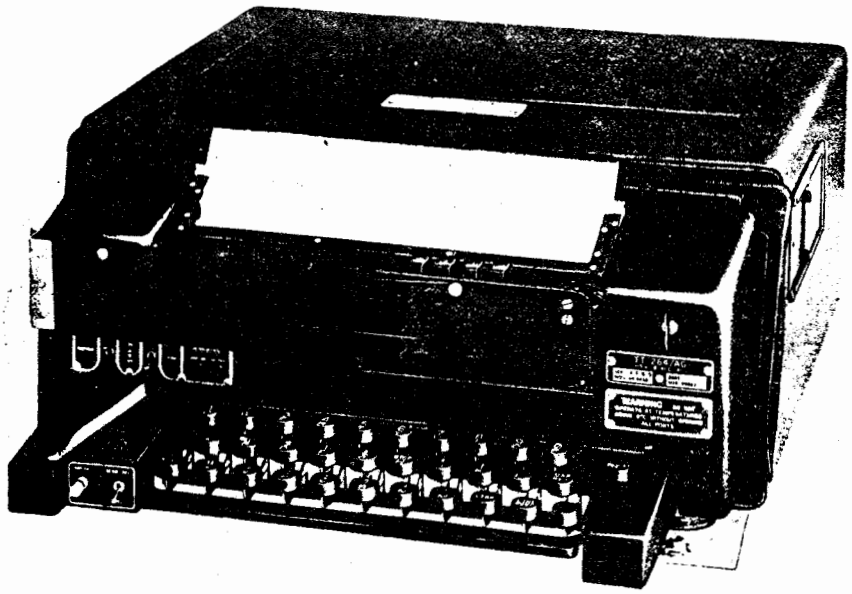
29 July 1964 TELETYPEWRITER TT-264/AG

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



TELETYPEWRITER TT-264/AG

FUNCTIONAL DESCRIPTION:

Teletypewriter TT-264/AG is a general service transmitting and receiving, page-printing, airborne teletypewriter set for air-to-air or air-to-ground communications at up to 100 wpm. It operates into or out of a converter for use over half-duplex (simplex) or full-duplex radio communication links between calling stations. The teletypewriter can also be used as a fixed station unit; it can be connected in conventional land-line loops for use on the ground; or set up as an electric typewriter.

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

RELATION TO OTHER EQUIPMENT:

TT-264/AG TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Multimeter AN/PSM-4.

TECHNICAL CHARACTERISTICS:

NUMBER OF TYPING KEYS: 32.
TYPE OF CHARACTERS: English.
TYPE SIZE: 10 point pica.
CHARACTERS PER LINE: 72 (can be adjusted to 76).
TYPE OF PAPER FEED: Friction.
COPY PAPER: Std 8-1/2 in. w x 5 in. dia roll of std copy paper.
INK RIBBON: Std 1/2 in. w Underwood type.
LINE FEED: 6 lines per in. on single line feed; 3 lines per in. on double line feed.
CARRIAGE RETURN: Automatic after 72 characters.
SPEED OF OPERATION: 368 opm per minute at 60 wpm; 600 opm per minute at 100 wpm.
RANGE ADJUSTMENT: Range dial calibrated from 0 to 120.
TARGET SPEED: 2,160 rpm.
OPERATING TEMPERATURE RANGE: - 54 to + 55° C (- 65 to + 131° F).
POWER REQUIREMENTS: 115 v, 400 cyc, single ph, 90 W (without heater).
SIGNAL LINE OUTPUT: 100 ma, 26 v dc.
SIGNALING CODE: 7.42 unit Baudot, start-stop.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-264/AG includes:	VH5815-783-8204	6-15/16 x 14-13/16 x 18-1/2	35
1	Case, Teletypewriter CY-2977/UG		6-1/2 x 13-1/2 x 14-1/2	
1	Motor Assy, AC PD-83/U			

1198

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-35TT264-1: Handbook of Operation Instructions for Teletypewriter TT-264/AG.
NAVWEPS 16-35TT264-2: Handbook of Service Instructions for Teletypewriter TT-264/AG.
NAVWEPS 16-35TT264-3: Handbook of Overhaul Instructions for Teletypewriter TT-264/AG.
NAVWEPS 16-35TT264-4: Illustrated Parts Breakdown for Teletypewriter TT-264/AG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (2) 1N1318 (1) 1N1353 (3) 2N526

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NOw60-0438-c NOw(A)62-0311-r	$2,855.00

1199

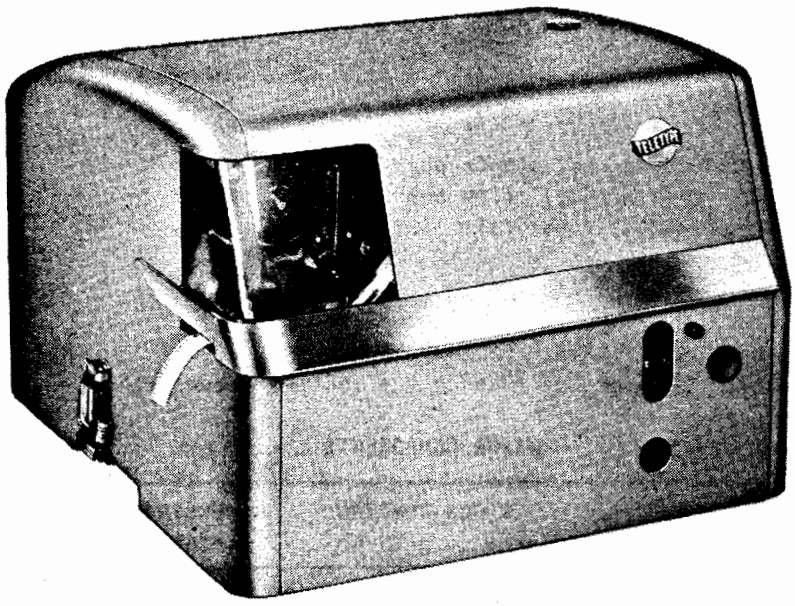
31 July 1964 REPERFORATOR, TELETYPEWRITER TT-274/UG

Cog Service: USN FSN: 2F5815-707-4892 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).



REPERFORATOR, TELETYPEWRITER TT-274/UG

FUNCTIONAL DESCRIPTION:

Reperforator, Teletypewriter TT-274/UG is an electromechanical apparatus, the primary function of which is to receive messages transmitted in a teletypewriter circuit established between two or more ships or stations connected by a radio or wire telegraph channel. The messages received are recorded both in typed characters and punched code holes upon standard teletype message tape suitable for message transmission through other teletypewriter apparatus.

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

RELATION TO OTHER EQUIPMENT:

TT-274/UG REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. W.
OPERATING SPEED: 368 opm, 60 wpm.
CODE: 5 unit, start-stop.
SIGNAL LINE CURRENT
  SERIES: 0.02 amp.
  PARALLEL: 0.06 amp.
TYPE OF MOTOR: Governed.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU4
  INPUT: 115 v ± 10%, 50 to 60 cyc, single ph.
  INPUT CURRENT: 1.75 amp (starting), 1.00 amp (running), 95 W.
  POWER FACTOR: 71% (no load), 66.8% (full load).
  HEAT DISSIPATION: 75 W.
  HORSEPOWER: 0.50 hp.
PERMISSIBLE TEMPERATURES
  AMBIENT: - 20 to + 50° C (- 4 to + 122° F).
  TEMPERATURE RISE: Not in excess of + 40° C (+ 104° F) above ambient.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Reperforator, Teletypewriter TT-274/UG includes:	2F5815-707-4892		41
1	Cover CTT-LRC202		9-1/2 x 13 x 14-1/2	9.5
1	Base CTT-LRB8		9 x 13 x 13-1/2.	12
1	Motor, AC CTT-LMU4		4 x 5-3/4 x 8-1/2	0
1	Typing Reperforator CTT-LPR9AW4		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

1.5 TT-274/UG: 2

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.4	15
1	1.4	18
1	0.3	9
1	1.0	15

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-75523	$985.75

1202

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

		DESIGNATION: TT-283/UG
CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Teletypewriter	DATE of Request.: 27 September 1960
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-75250 (Amend 15)	QUANTITY ON ORDER: -
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation, 4100 Fullerton Avenue, Chicago 39, Illinois		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT									
115 V	60 CYCLE	1 PHASE	- AMPS	- WATTS	115 V	dc CYCLE	- PHASE	- AMPS	- WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
5-unit start-stop permutation code	-	-	-
OPERATING FREQ. AND FREQ. RANGE	**EMISSION OR RECEPTION (TYPE)**	**FREQ. CONTROL (TYPE)**	**NO. OF CHANNELS**
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	N
			OPERATING INSTRUCTION CHART	
			PERFORMANCE STANDARD SHEET	
			MAINTENANCE STANDARD BOOK	

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
1	Teletypewriter TT-283/UG consists of:					
1	Electrical Equipment Cabinet CY-2538/UG	40-1/2	20-1/2	18-1/2		81
1	Teletypewriter Base MT-1443/UG	4-3/4	15-1/2	14-1/2		6-1/2
1	AC Motor PD-18/U					
1	Power Distribution Panel SB-964/UG	8-1/4	4-5/8	15		5
1	Teletypewriter Typing Unit MX-1115B/UG	9-3/4	10-1/2	15-1/2		19
1	Set of Gears					
1	Speed Indicator					
	1.5 TT-283/UG: 1					

1203

185 CHANGE 70 - 687B1

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

DESIGNATION	ITEM NAME
TT-283/UG	Teletypewriter

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

Teletypewriter TT-283/UG (Teletype Corporation Model-28 Printer) is a receive-only teletypewriter. It is a portable station with English-characters, 72 per line, and has automatic carriagereturn and line feed. It uses an eight and one-half-inch wide paper roll which is friction fed from a 5-inch diameter roll. The TT-283/UG is powered by a series-governed motor. It receives standard 7.42 start-stop teletypewriter code, and is capable of accepting a 60-ma or 20-ma signal from the line. It is capable of receiving at 60, 75, or 100 wpm with a change of gears. Teletypewriter TT-283/UG is similar to Teletypewriters TT-171/UG and TT-171A/UG except that it has series-governed motor.

Unit cost: $1,337.00

Source of information: Nomenclature card.
NAVSHIPS 900182.

1204

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-284/UG		
CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Teletypewriter	DATE of Request.: 28 September 1960
SPECIFICATION: -	CONTRACT NUMBER AND DATE: -	QUANTITY ON ORDER: -
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation 4100 Fullerton Avenue Chicago 39, Illinois		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE - PHASE - AMPS - WATTS | - V - CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	-
			OPERATING INSTRUCTION CHART	-
			PERFORMANCE STANDARD SHEET	-
			MAINTENANCE STANDARD BOOK	-

MAJOR UNITS

1205

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
1	Teletypewriter TT-284/UG	8*	15*	15*		
*	Approximate					

1.5 TT-284/UG: 1

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

917418

DESIGNATION	ITEM NAME
TT-284/UG	Teletypewriter

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-284/UG is a portable, lightweight teletypewriter capable of page receiving only. It has English-characters, and will print 72 characters per line. The Teletypewriter uses eight and one-half-inch paper, friction fed from a 5-inch diameter roll. It is powered by a synchronous motor and uses 5-unit code. Teletypewriter TT-284/UG is for general use, and is similar to Teletypewriter TT-242/UG except that it has no keyboard. It is adaptable for shock mounting.

No unit cost available.

Source of information: Nomenclature Card.

1206

30 July 1964 PERFORATOR-REPERFORATOR, TELETYPEWRITER TT-292/UG

Cog Service: USN FSN: 2F5815-783-6389 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Teletype Corporation, (59433).

PERFORATOR-REPERFORATOR, TELETYPEWRITER TT-292/UG

1207

FUNCTIONAL DESCRIPTION:

Perforator-Reperforator, Teletypewriter TT-292/UG is mounted on a keyboard-base which permits it to function in the signal line as a transmitting unit. The keyboard signal generator is wired in series with the reperforator mechanism to permit use of the common external signal circuit for either send or receive operation. When used to send a message, the equipment monitors its own transmission by preparing a typed, perforated tape of the message. A standard teletype keyboard converts the mechanical input intelligence into electrical impulses.

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

RELATION TO OTHER EQUIPMENT:

This equipment is similar to Perforator-Reperforator, Teletypewriter TT-253/UG, except it has a series governed motor.

TT-292/UG PERFORATOR-REPERFORATOR, TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Tool Equipment TE-50-B; (1) Distortion Test Set TS-652/GG.

TECHNICAL CHARACTERISTICS:

TYPE OF TAPE: Chadless.
SIZE OF TAPE: 11/16 in. w.
OPERATING SPEED: 368 opm, 60 wpm.
CODE: 5 unit, start-stop.
SIGNAL LINE CURRENT
  SERIES: 0.02 amp.
  PARALLEL: 0.06 amp.
TYPE OF MOTOR: Series governed.
MOTOR SPEED: 3,600 rpm.
MOTOR CTT-LMU4
  INPUT: 115 v ± 10%, 50 to 60 cyc, single ph.
  INPUT CURRENT: 1.75 amp (starting), 1.00 amp (running), 95 W.
  POWER FACTOR: 71% (no load), 66.8% (full load).
  HEAT DISSIPATION: 75 W.
  HORSEPOWER: 0.50 hp.
PERMISSIBLE TEMPERATURES
  AMBIENT: - 20 to + 50° C (- 4 to + 122° F)
  TEMPERATURE RISE: Not in excess of + 40° C (+ 104° F) above ambient.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Perforator-Reperforator, Teletypewriter TT-292/UG includes:	2F5815-783-6389		
1	Cabinet CTT-LSRC200		13-3/4 x 17 x 18-3/4	44
1	Keyboard-Base CTT-LTRK1ARN		11-1/4 x 15-1/2 x 17-1/4	19.5
1	Motor, AC CTT-LMU4		4 x 5-3/4 x 8-1/2	10
1	Typing Reperforator CTT-LPR9AWA		6-3/4 x 7-1/2 x 8	9.5
1	Connector		1-1/4 x 2-1/4 x 2-1/2	0.25
1	Set of Gears			

1208

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94456: Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	4.7	60
1	7.0	31
1	0.3	9
1	1.0	15

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Teletype Corporation	Skokie, Illinois	NObsr-75523	$1,358.00

1209

20 July 1967 TELEPRINTER TT-298/UG

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

USA	USN	USAF

TYPE CLASS: Used by

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

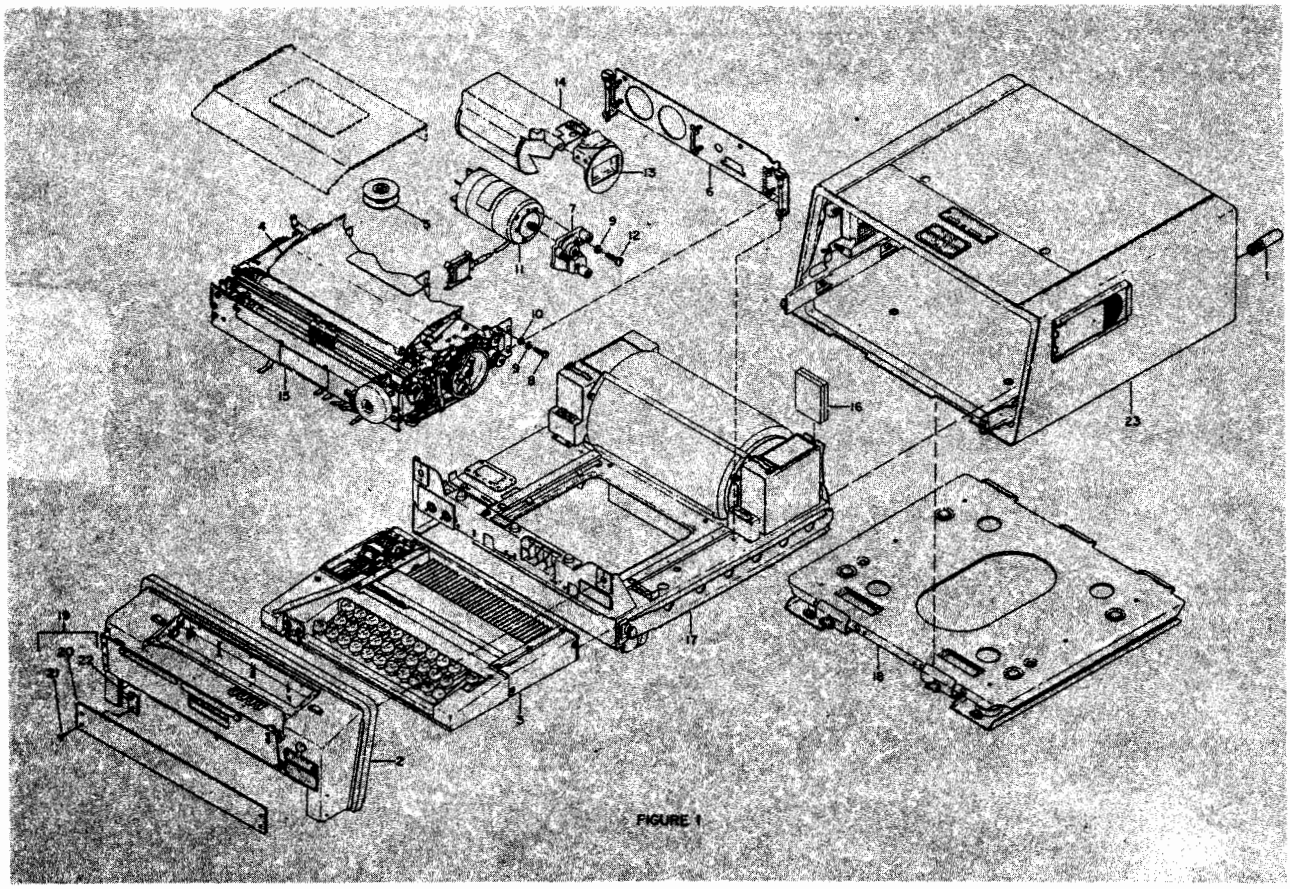


FIGURE 1

TELEPRINTER TT-298/UG

1.5 TT-298/UG: 1

1210

TELEPRINTER TT-298/UG

FUNCTIONAL DESCRIPTION:

The Teleprinter TT-298/UG is a light weight receive-only, general purpose, miniaturized equipment with English characters, gothic style pallets, 76 characters per line, and 7.42 unit code. The operatings speeds are 60, 75 or 100 words per minute. The equipment has a synchronous condenser type motor. It accommodates a roll form 8-1/2 inches wide by five inches in in diameter.

No field changes in effect at time of preparation (15 June 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

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

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teleprinter TT-298/UG includes:	6-5/8 x 13-1/2 x 15-1/16	
1	AC Motor PD-82/U		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95898: Technical Manual for Teletypewriter Sets AN/TGC-14(V) and 14A(V), Teleprinters TT-298A/UG and TT-298B/UG and Teletypewriters TT-299A/UG and TT-299B/UG.

1211

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

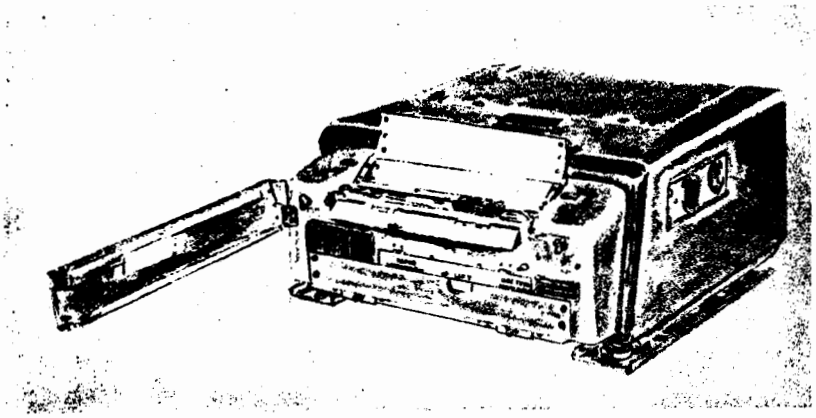
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NObsr 81601	

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: **Used by**

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



TELEPRINTER TT-298A/UG

1212

FUNCTIONAL DESCRIPTION:

Teleprinter TT-298A/UG is a ruggedized, light-weight, miniature, alphanumeric-printing telegraph equipment for general service use under a wide range of operating conditions. The teleprinter is fully compatible with other commercial and military teletypewriter equipments employing the standard Baudot code and can be integrated into existing land-line and radio-link communications systems.

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

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION
  TACTICAL: Mobile and field station.
  NON-TACTICAL: Airborne and fixed station.
OPERATING SPEED: Gears for 45.45, 50, or 75 wpm are supplied.
SIGNAL CODE TYPE: DC pulse, 5-level, 7.0 unit, Baudot serial, neutral line.
TYPE OF CHARACTERS: English.
TYPE OF FACE: Gothic, 12 point.
PRINTER LINE SPACING
  SINGLE LINE FEED: 6 lines per in.
  DOUBLE LINE FEED: 3 lines per in.
CHARACTERS PER LINE: Adjustable for either 72 or 76.
INPUT IMPEDANCE
  HIGH CURRENT RANGE: 115 ohms, resistive at 60 ma.
  LOW CURRENT RANGE (1 TO 5 MA): 2200 ohms, resistive at 5 ma.
ALARM DEVICES: End of line bell; signal-activated bell.
COPY PAPER: Max 5 in. dia roll, 8-1/2 in. w, with 1 in. hollow core.
POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 70 W.
AMBIENT TEMPERATURE LIMITS: - 55 to + 55° C (- 67 to + 131° F).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teleprinter TT-298A/UG includes:			
1	Printer		4-1/2 x 9 x 12-3/4	13.9
1	Electronic Chassis		5-1/2 x 13-1/8 x 14-1/8	7.4
1	Motor, AC PD-82/U		2-5/16 dia x 4-3/16	2.5
1	Case, Teletypewriter CY-2977A/UG		8 x 16-3/16 x 19-1/8	11.7
1	Shock Mount		1-3/4 x 2-1/8 x 11-1/2	2.9

REFERENCE DATA AND LITERATURE:

TM11-03315A-15: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.
NAVSHIPS 94522: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (14) 1N645 (2) 1N1318 (1) 1N1353 (3) 2N256

SHIPPING DATA

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

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NObsr-8/611	

1214

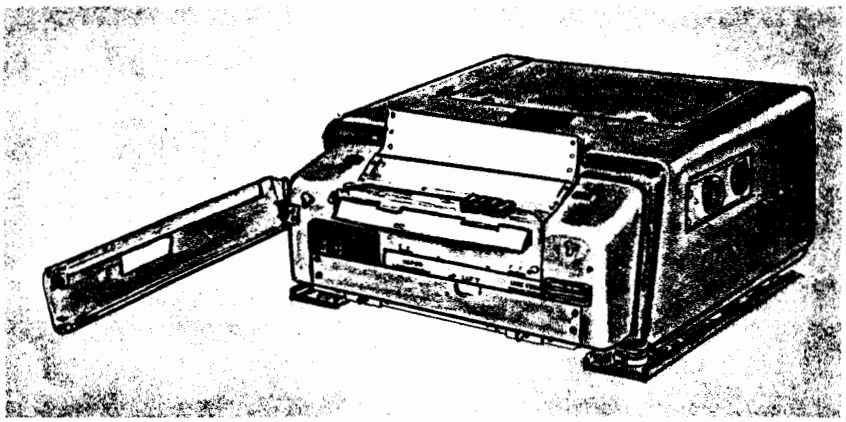
Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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

1215



TELEPRINTER TT-298B/UG

FUNCTIONAL DESCRIPTION:

Teleprinter TT-298B/UG is a miniaturized, portable, self-contained receive only teleprinter housed in a shock-mounted aluminum case. It provides for reception of messages over radio circuits, wire lines and other communications links. It is capable of receiving a 64-character alphabet and has the feature of automatic turn-off 60 seconds after receipt of data. It will automatically turn itself on upon receipt of the first bit of new data thus permitting unattended operation in both extreme cold and heat and under conditions of severe shock, vibration, humidity, salt atmosphere, and sand and dust; and is unaffected by attitude. It is compatible with both conventional non-tactical and tactical teletypewriter sets and associated equipment.

No field changes in effect at time of preparation (2 June 65).

RELATION TO OTHER EQUIPMENT:

Similar to Airborne Teletypewriter TT-264/AG, Tactical Teletypewriter Set AN/TGC-14A(V), Teletypewriters TT-299A/UG and TT-299B/UG and Teleprinter TT-298A/UG.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 60 cps, single ph.
SIGNAL LINE REQUIREMENTS: 3 v, 1 to 5 ma in low range, 20 to 80 ma in high range. Non-polarity sensitive input.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teleprinter, TT-298B/UG includes:	8-7/16 x 14-13/16 x 18-5/8	54
2	Technical Manuals NAVSHIPS 95898		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95898: Technical Manual for Teletypewriter Sets AN/TGC-14(V) and 14A(V) Teleprinters TT-298A/UG and TT-298B/UG and Teletypewriters TT-299A/UG and TT-299B/UG.

1216

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (3) JAN2N526 (15) 1N645 (2) 1N1318 (1) 1N1353

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	3.4	54

PROCUREMENT DATA

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

TELEPRINTER TT-298B/UG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NOm 72994 NObsr 89451	

1217

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

USA	USN	USAF

TYPE CLASS: Used by

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

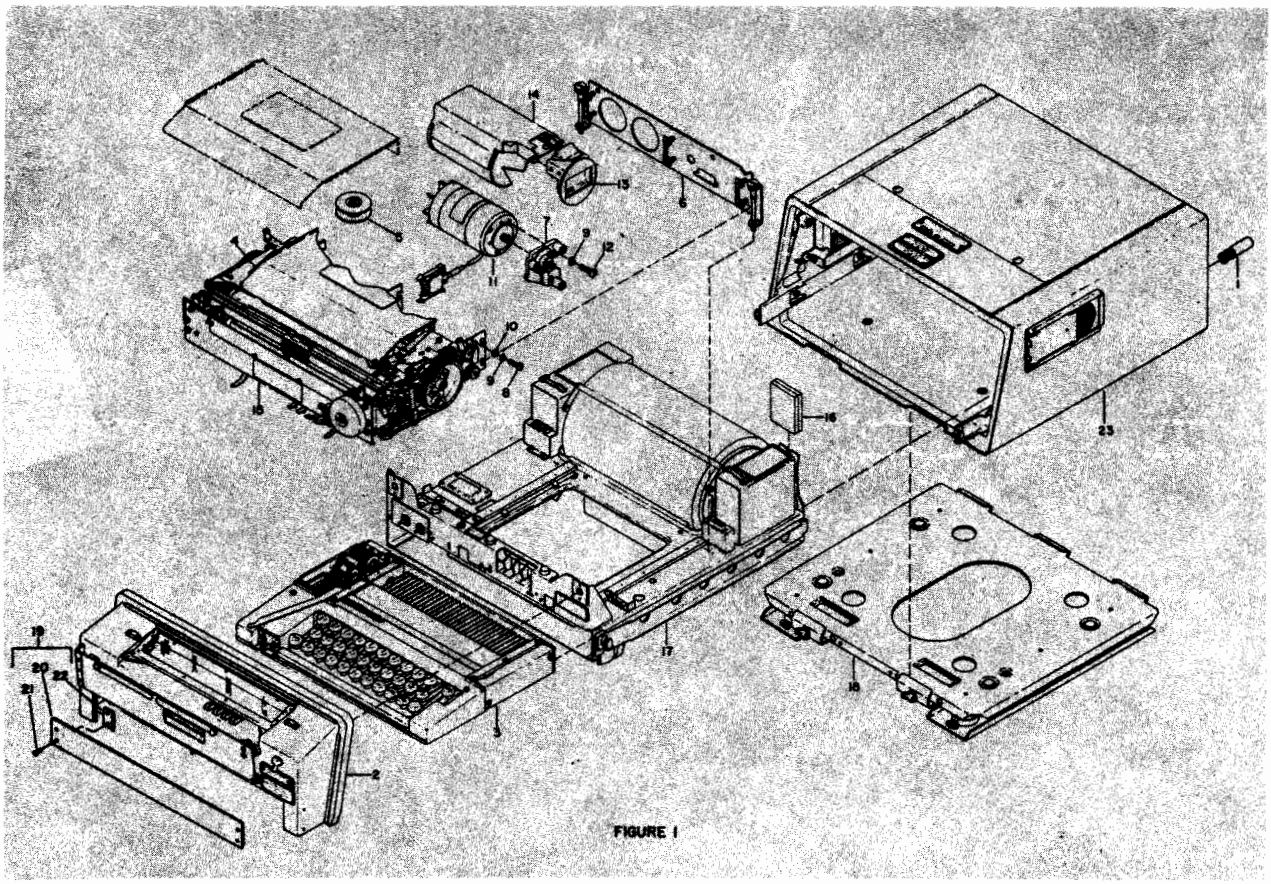


FIGURE 1

TELETYPEWRITER TT-299/UG

1.5 TT-299/UG: 1

TELETYPEWRITER TT-299/UG

FUNCTIONAL DESCRIPTION:

The Teletypewriter TT-299/UG is a light weight, miniaturized, general purpose, portable, tactical equipment with a standard, English Character Keyboard, 76 characters per line, and 7.42 unit code. It has a friction feed and a synchronous motor with sliding keyboard.

No field changes in effect at time of preparation (16 June 1967).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENT: 115 v ac, 60 cyc, single ph, 290 watts.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-299/UG includes:	7-11/16 x 15-1/16 x 18-1/4	35
1	AC Motor PD-82/U		
1	Power Supply		
1	Line Sensor		
1	Heating Element		

REFERENCE DATA AND LITERATURE:

1219

NAVSHIPS 95898: Technical Manual for Teletypewriter AN/TGC-14(V) and 14A(V), Teleprinters TT-298/UG and TT-298B/UG and Teletypewriters TT-299A/UG and TT-299B/UG.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

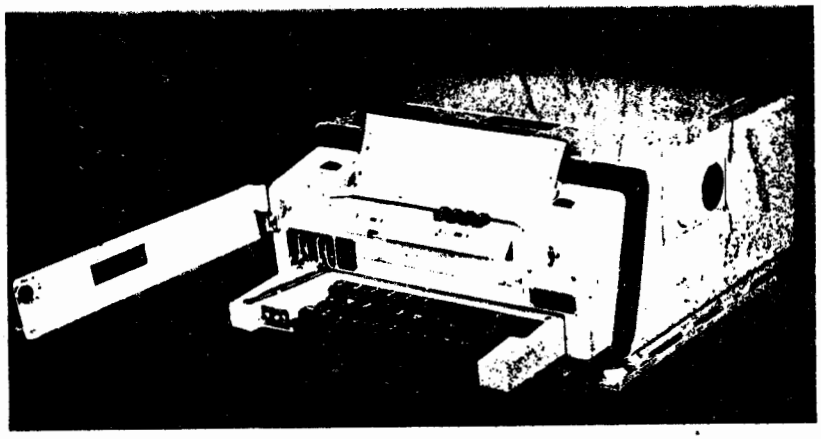
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NObsr 81601	

Cog Service: USN FSN: 2F5815-972-9143 Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

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



TELETYPEWRITER TT-299A/UG

1220

FUNCTIONAL DESCRIPTION:

Teletypewriter TT-299A/UG is a ruggedized, light-weight weight, miniature, alphanumeric-printing telegraph equipment for general service use under a wide range of operating conditions. The teletypewriter is fully compatible with other commercial and military teletypewriter equipments employing the standard Baudot code and can be integrated into existing land-line and radio-link communications systems.

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

RELATION TO OTHER EQUIPMENT:

This equipment is identical to Teleprinter TT-298A/UG, except it is with a keyboard.

TT-299A/UG TELETYPEWRITER

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION
  TACTICAL: Mobile and field station.
  NON-TACTICAL: Airborne and fixed station.
OPERATING SPEED: Gears for 45.45, 50, or 75 wpm are supplied.
SIGNAL CODE TYPE: DC pulse, five-level, 7.0 unit, Baudot serial, neutral line.
KEYBOARD: Std communications.
TYPE OF CHARACTERS: English.
TYPE OF FACE: Gothic, 12 point.
PRINTER LINE SPACING
  SINGLE LINE FEED: 6 lines per in.
  DOUBLE LINE FEED: 3 lines per in.
CHARACTERS PER LINE: Adjustable for either 72 or 76.
INPUT IMPEDANCE
  HIGH CURRENT RANGE. 115 ohms, resistive at 60 ma.
  LOW CURRENT RANGE (1 TO 5 MA): 2200 ohms, resistive at 5 ma.
ALARM DEVICES: End of line bell; signal-activated bell.
COPY PAPER: Max 5 in. dia roll, 8-1/2 in. w, with 1 in. hollow core.
POWER REQUIREMENTS: 115 v, 60 cyc, single ph, 70 W.
AMBIENT TEMPERATURE LIMITS: - 55 to + 55° C (- 67 to + 131° F).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-299A/UG	2F5815-972-9143		
	Includes:			
1	Keyboard		1-1/2 x 8-1/4 x 12	3.9
1	Printer 1-2-3-104		4-1/2 x 9 x 12-3/4	13.9
1	Electronic Chassis 515-104		5-1/2 x 13-1/8 x 14-1/8	7.4
1	Motor, AC PD-82/U		2-5/16 dia x 4-3/16	2.5
1	Case, Teletypewriter CY-2977A/UG		8 x 16-3/16 x 19-1/8	11.7
1	Shock Mount		1-3/4 x 2-1/8 x 11-1/2	2.9

REFERENCE DATA AND LITERATURE:

TM-03315A-15: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.
NAVSHIPS 94522: Technical Manual for Teletypewriter Set AN/TGC-14(V), Teleprinter TT-298A/UG and Teletypewriter TT-299A/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

1.5 TT-299A/UG: 2

CRYSTALS: None used.

SEMI-CONDUCTORS: (14) 1N645 (2) 1N1318 (1) 1N1353 (3) 2N526

SHIPPING DATA

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

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NObsr-87611	

1122

23 June 1965 TELETYPEWRITER TT-299B/UG

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

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

1223

TELETYPEWRITER TT-299B/UG

FUNCTIONAL DESCRIPTION:

Teletypewriter TT-299B/UG is a miniaturized, portable, self-contained sending and receiving teletypewriter housed in a shock-mounted aluminum case. It provides for transmission and printed reception of messages over radio circuits, wire lines, and other communication links; and may also be used as an electric typewriter for maintaining logs and other purposes. It is capable of transmitting and receiving a 64-character alphabet and has the feature of automatic turn-off 60 seconds after last receipt of data. It will automatically turn itself on upon receipt of the first bit of new data thus permitting unattended operation in fixed, mobile, vehicular or airborne installations. The equipment can operate in both extremes cold and heat and under conditions of severe shock, vibration, humidity, salt atmosphere, and sand and dust; and is unaffected by attitude. It is compatible with both conventional non-tactical and tactical teletypewriter sets and associated equipment.

No field changes in effect at time of preparation (2 June 1965).

RELATION TO OTHER EQUIPMENT:

Similar to Airborne Teletypewriter TT-264/AG and Tactical Teletypewriter Set AN/TGC-14A(V) and AN/TGC-14B(V).

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 60 cps, single ph.
SIGNAL LINE REQUIREMENTS: 3 v, 1 to 5 ma in low range, 20 to 80 ma in high range. Non-polarity sensitive input.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Teletypewriter TT-299B/UG consists of:	7-11/16 x 15 x 18-1/2	
1	Non-Tactical Case CY-2977A/UG w/shock-mounts		
2	Technical Manual NAVSHIPS 95898		

REFERENCE DATA AND LITERATURE:

NAVSHIPS 95898: Technical Manual for Teletypewriter Sets AN/TGC-14(V) and 14A(V) Teleprinters TT-298A/UG and TT-298B/UG and Teletypewriters TT-299A/UG and TT-299B/UG.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None required.

CRYSTALS: None required.

SEMI-CONDUCTORS: (3) JAN2N526 (15) 1N645 (2) 1N1318 (1) 1N1353

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	3.4	58

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

1.5 TT-299B/UG: 2

TELETYPEWRITER TT-299B/UG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Mite Corporation	New Haven, Connecticut	NOm 72994 NObsr-89451	

1225

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-306/UG

CLASSIFICATION of Equip.	ITEM NAME	DATE of Request.
UNCLASSIFIED	Teletypewriter	17 July 1960
SPECIFICATION: MIL-E-21981(SHIPS)	CONTRACT NUMBER AND DATE: NObsr-81501, Item 1, 6/28/60---116 NObsr-81501, Amend 1, 12/28/60---42	QUANTITY ON ORDER
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation, 5555 Touhy Avenue, Skokie, Illinois 60076		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT												
115	V	60	CYCLE	1	PHASE	-	AMPS	-	WATTS	115 V dc	CYCLE -	PHASE -	AMPS -	WATTS -

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter TT-306/UG includes:					
1	Teletypewriter Cover CW-568/UG					
1	Teletypewriter Base Unit MT-2419/UG					
1	AC Motor PD-174/U					
1	Power Distribution Panel SB-1226/UG					
1	Teletypewriter Typing Unit MX-3311/UG					
1	Motor Driven Paper Reeling Machine RL-215/UG					
	CHANGE 70-687B/679C	1.5 TT-306/UG: 1				

1236

195

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

DESIGNATION	ITEM NAME
TT-306/UG	Teletypewriter

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

Teletypewriter TT-306/UG is a friction-feed, receive-only, fixed or portable station equipment with a standard, English-character, communications keyboard. It prints 72 characters per line and has a 7.00-unit code. It has a synchronous motor and is rack-mounted in a console. This unit is used as a monitor page printer for high-impedance, on-line operation to intercept special options.

Unit cost: 116 units at $1,300.24; 42 units at $1,372.39.

Source of information: Request for Nomenclature.
Contract

1227

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Teletypewriter	DESIGNATION: TT-307/UG
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-81501	DATE of Request.: 1 December 1960
		QUANTITY ON ORDER: -
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation, 5555 Touhy Avenue, Skokie, Illinois 60076		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS | 115 dc CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.): -	WAVE GUIDE OR CABLE LIMITATIONS: -	INPUT SIGNAL CHARACTERISTICS: -	POWER OUTPUT: -
OPERATING FREQ. AND FREQ. RANGE: -	EMISSION OR RECEPTION (TYPE): -	FREQ. CONTROL (TYPE): -	NO. OF CHANNELS: -
ANTENNA OR TRANSDUCER (TYPE): -	IMPEDANCE (OHMS): -	FEED TYPE: -	BEAM PATTERN: - °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	-
			OPERATING INSTRUCTION CHART	-
			PERFORMANCE STANDARD SHEET	-
			MAINTENANCE STANDARD BOOK	-

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter TT-307/UG consists of:					
1	Teletypewriter Cover CW-568/UG					
1	Teletypewriter Keyboard-Transmitter MX-3310/UG					
1	AC Motor PD-17A/U					
1	Power Distribution Panel SB-3311/UG					
1	Teletypewriter Typing Unit MX-3311/UG					
1	Motor Driven Paper Reeling Machine					

1228

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

917419

DESIGNATION	ITEM NAME
TT-307/UG	Teletypewriter

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

Teletypewriter TT-307/UG is a fixed-station, friction-feed, send-receive equipment with a standard English-character, communication keyboard. It prints 72 characters per line and has a 7.00-unit code. It has a synchronous motor and is rack mounted in a console.

No unit cost available.

Source of information: Request for Nomenclature.

1229

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

		DESIGNATION: TT-308/UG
CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Teletypewriter Reperforator Set	DATE of Request.: 1 December 1960
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-81501 - 87158	QUANTITY ON ORDER: 50
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation 5555 Touhy Avenue Skokie, Illinois 60076		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT									
115 V	60 CYCLE	1 PHASE	- AMPS	- WATTS	115 V	dc CYCLE	- PHASE	- AMPS	- WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-
OPERATING FREQ. AND FREQ. RANGE	**EMISSION OR RECEPTION (TYPE)**	**FREQ. CONTROL (TYPE)**	**NO. OF CHANNELS**
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Reperforator Set TT-308/UG consists of:					
1	Electrical Equipment Cabinet CY-3601/UG					
2	Teletypewriter Base Unit MT-2423/UG					
6	Teletypewriter Reperforator TT-315/UG					
2	AC Motor PD-67/U					
199	CHANGE 70 - 687B	1.5	TT-308/UG: 1		UNCLASSIFIED	

1230

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217419

DESIGNATION	ITEM NAME
TT-308/UG	Teletypewriter Reperforator Set

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-308/UG is a fixed-station equipment with a standard English-character keyboard for specific use. The motor is synchronous. The unit code is 7.00.

Unit cost: $535.20

Source of information: Request for Nomenclature.
Contract

1231

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-309/UG

CLASSIFICATION of Equip.: UNCLASSIFIED

ITEM NAME: Teletypewriter Reperforator Set

DATE of Request.: 1 December 1960

SPECIFICATION: -

CONTRACT NUMBER AND DATE: NObsr-87158, 1 December 1961

QUANTITY ON ORDER: 2

CONTRACTOR'S NAME AND ADDRESS:
Teletype Corporation
5555 Touhy Avenue
Skokie, Illinois 60076

SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS | 115 V dc CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Reperforator Set TT-309/UG consists of:					
1	Electrical Equipment Cabinet CY-3060					
2	Teletypewriter Base Unit MT-2423/UG					
6	Teletypewriter Reperforator TT-317/UG					
2	AC Motor PD-67/U					
2	Motor Driven Tape Reeling Machine RL-216/UG					

201 CHANGE 70 - 687B 1.5 TT-309/UG: 1 UNCLASSIFIED

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217419

1232

DESIGNATION	ITEM NAME
TT-309/UG	Teletypewriter Reperforator Set

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-309/UG is a fixed-station equipment, with English-characters, for specific use. The motor is synchronous. The unit code is 7.00.

Unit cost: $4,823.10

Source of information: Request for Nomenclature.
Contract

1233

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-310/UG

CLASSIFICATION OF Equip.	ITEM NAME	DATE
UNCLASSIFIED	Teletypewriter Distributor-Transmitter Set	of Request. 1 December 1960
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-81501, 1 December 1961	QUANTITY ON ORDER: 4

CONTRACTOR'S NAME AND ADDRESS
Teletype Corporation
5555 Touhy Avenue
Skokie, Illinois 60076

SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS | 115 V dc CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	A.
			OPERATING INSTRUCTION CHART	N.P.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Distributor-Transmitter Set TT-310/UG consists of:					
1	Electrical Equipment Cabinet CY-3059/UG					
1	Teletypewriter Base Unit MT-2421/UG					
3	Teletypewriter Distributor-Transmitter TT-311/UG					
1	Teletypewriter Base Unit MT-2420/UG					
3	Teletypewriter Distributor-Transmitter TT-312/UG					
2	AC Motor PD-17A/U					
203	CHANGE 70 - 687B/695C	1.5	TT-310/UG: 1		UNCLASSIFIED	

1234

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

217419

DESIGNATION	ITEM NAME
TT-310/UG	Teletypewriter Distributor-Transmitter Set

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-310/UG is a fixed-station equipment with a synchronous motor and a 7.00-unit code. It is manufacturer's Model-28 Torn Tape Transmitter Group.

Unit cost: $4,148.13

Source of information: Request for Nomenclature.
Contract

1235

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

DESIGNATION: TT-333/UG

CLASSIFICATION of Equip.	ITEM NAME	DATE of Revision.
UNCLASSIFIED	Teletypewriter Distributor-Transmitter Set	29 September 1961
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-85407	QUANTITY ON ORDER: 10

CONTRACTOR'S NAME AND ADDRESS
Teletype Corporation
5555 Touhy Avenue
Skokie, Illinois 60076

SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS | 115 V dc CYCLE - PHASE - AMPS - WATTS

OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.)	WAVE GUIDE OR CABLE LIMITATIONS	INPUT SIGNAL CHARACTERISTICS	POWER OUTPUT
-	-	-	-

OPERATING FREQ. AND FREQ. RANGE	EMISSION OR RECEPTION (TYPE)	FREQ. CONTROL (TYPE)	NO. OF CHANNELS
-	-	-	-

ANTENNA OR TRANSDUCER (TYPE)	IMPEDANCE (OHMS)	FEED TYPE	BEAM PATTERN
-	-	-	- °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	N.P.
			OPERATING INSTRUCTION CHART	A.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Distributor-Transmitter Set TT-333/UG consists of:					
1	Electrical Equipment Cabinet CY-3249/UG					
2	Teletypewriter Base Unit MT-2600/UG					
6	Teletypewriter Distributor Transmitter TT-334/UG					
2	Alternating Current Motor PD-67/U					
2	Gear Set -60 WPM (Mfr's Part No. 162035)					
2	Gear Set -75 WPM (Mfr's Part No. 162038)					
2	Gear Set -100 WPM (Mfr's Part No. 162041)					
1	End Enclosure (Mfr's Part No. 161999BR)					

1236

205 CHANGE 70 - 687B/679C — 1.5 TT-333/UG: 1 — UNCLASSIFIED

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62) (CONT'D)

DESIGNATION	ITEM NAME
TT-333/UG	Teletypewriter Distributor-Transmitter Set

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-333/UG is a torn-tape relay transmitter, manufacturer's Model 28. The equipment is a fixed station with a synchronous motor and a 7.42-unit code.

Unit cost: $6,156.46

Source of information: Request for Nomenclature.
Contract

1237

CLASSIFICATION		
U NCLASSIFIED	Rel 7/29/63	CHANGE 57/70 - 687B/679C

ELECTRONIC EQUIPMENT - PRELIMINARY DATA
NAVSHIPS 4457 (Rev. 9-62)

CLASSIFICATION of Equip.: UNCLASSIFIED	ITEM NAME: Teletypewriter Reperforator	DESIGNATION: TT-350/UG
SPECIFICATION: -	CONTRACT NUMBER AND DATE: NObsr-85458	DATE of Request.: 18 October 1961
CONTRACTOR'S NAME AND ADDRESS: Teletype Corporation, 5555 Touhy Avenue, Skokie, Illinois 60076		QUANTITY ON ORDER: 4
		SERVICE APPROVAL LETTER - SERIAL AND DATE: -

ELECTRICAL CHARACTERISTICS

POWER INPUT: 115 V 60 CYCLE 1 PHASE - AMPS - WATTS	- V - CYCLE - PHASE - AMPS - WATTS		
OUTPUT SIGNAL CHARACTERISTICS (REP. RATE, I.F. ETC.): -	WAVE GUIDE OR CABLE LIMITATIONS: -	INPUT SIGNAL CHARACTERISTICS: -	POWER OUTPUT: -
OPERATING FREQ. AND FREQ. RANGE: -	E**)SSION OR RECEPTION (TYPE): -	FREQ. CONTROL (TYPE): -	NO. OF CHANNELS: -
ANTENNA OR TRANSDUCER (TYPE): -	IMPEDANCE (OHMS): -	FEED TYPE: -	BEAM PATTERN: - °HORIZ. - °VERT.

REFERENCE DATA AND LITERATURE

DRAWING	DWG. NUMBER	DIST. DATE	PUBLICATION	PUB. NUMBER
-	-	-	TECHNICAL MANUAL	N.P.
			OPERATING INSTRUCTION CHART	A.
			PERFORMANCE STANDARD SHEET	N.P.
			MAINTENANCE STANDARD BOOK	N.P.

MAJOR UNITS

QTY	NOMENCLATURE AND NAME	OVERALL DIMENSIONS (IN) HEIGHT	WIDTH	DEPTH	H.D. (UNITS)	WEIGHT (LBS)
	Teletypewriter Reperforator TT-350/UG (Mfr's Model BRPE9)	8	12	16-1/2		
	CHANGE 70 - 679C/687B	1.5	TT-350/UG:	1	UNCLASSIFIED	

1238

207

IF ADDITIONAL EQUIPMENTS OR UNITS ARE REQUIRED, ATTACH ADDITIONAL SHEETS AND SPECIFY SOURCE

917419

DESIGNATION	ITEM NAME
TT-350/UG	Teletypewriter Reperforator

FUNCTIONAL DESCRIPTION: SKETCH, MFG. DIMENSIONS, ETC.

The TT-350/UG is a high-speed tape punch (110 characters-per-second) used to perforate chad tape in accordance with electrical-input, binary, permutation codes. It is for general-purpose use with teletypewriter sets. The equipment uses a 5-level code fully-punched 11/16-inch wide tape. Special features are: manual tape feed-out, magnetic pickup, transistor controlled with 28 v dc coils and individually adjustable code magnets; a "low tape" alarm; vibration mounts, and in-line feed hole.

Unit cost: $749.46

Source of information: Request for Nomenclature.
Contract

1239

24 June 1965 PERFORATOR, TAPE, TELEGRAPH TT-393/UG

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Telcolab Corporation, (05601).

PERFORATOR, TAPE, TELEGRAPH TT-393/UG

1240

FUNCTIONAL DESCRIPTION:

Perforator, Tape, Telegraph TT-393/UG is designed to make possible the rapid preparation of Morse code perforated tape by operators who are not required to know the Morse code. The tape is subsequently fed into a Morse transmitter which automatically forwards the message to the destination via wire, wireless or submarine cable.

At the receiving end of the system the signals may operate an undulator from which the message may be typed down on telegraph forms or they may, by means of a relay, operate an automatic Morse reperforator which in turn produces perforated tape identical to the coded tape originally prepared by the Morse keyboard perforator. This reperforator tape may then be used either for retransmission or to control an automatic Morse printer or an automatic Morse to 5-unit converter. A locking arrangement prevents the simultaneous depression of more than one key.

The perforator is generally used with a Keyer, Telegraph Transmitter KY-469/UG.

No field changes in effect at time of preparation (7 June 1965).

PERFORATOR, TAPE, TELEGRAPH TT-393/UG

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

TYPE OF TRANSMISSION: Continental Morse.
TYPE OF CHARACTERS: English communication.
TAPE WIDTH: 12 mm.
PERFORATING SPEED: 750 characters per min (equivalent to 125 wpm) max.
POWER REQUIREMENTS: 110 v, 50 to 60 cps, 1 ph.

MAJOR COMPONENTS

QTY	ITEM	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Perforator, Tape Telegraph TT-393/UG	13 x 13-5/8 x 19-1/2	40

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94653: Perforator, Tape, Telegraph TT-393/UG (G.N.T. Morse Keyboard Perforator Model 51).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

1241

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.3	128

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Telcolab Corporation,	New York, New York	NObsr 87513	