SECTION 5 OF 10

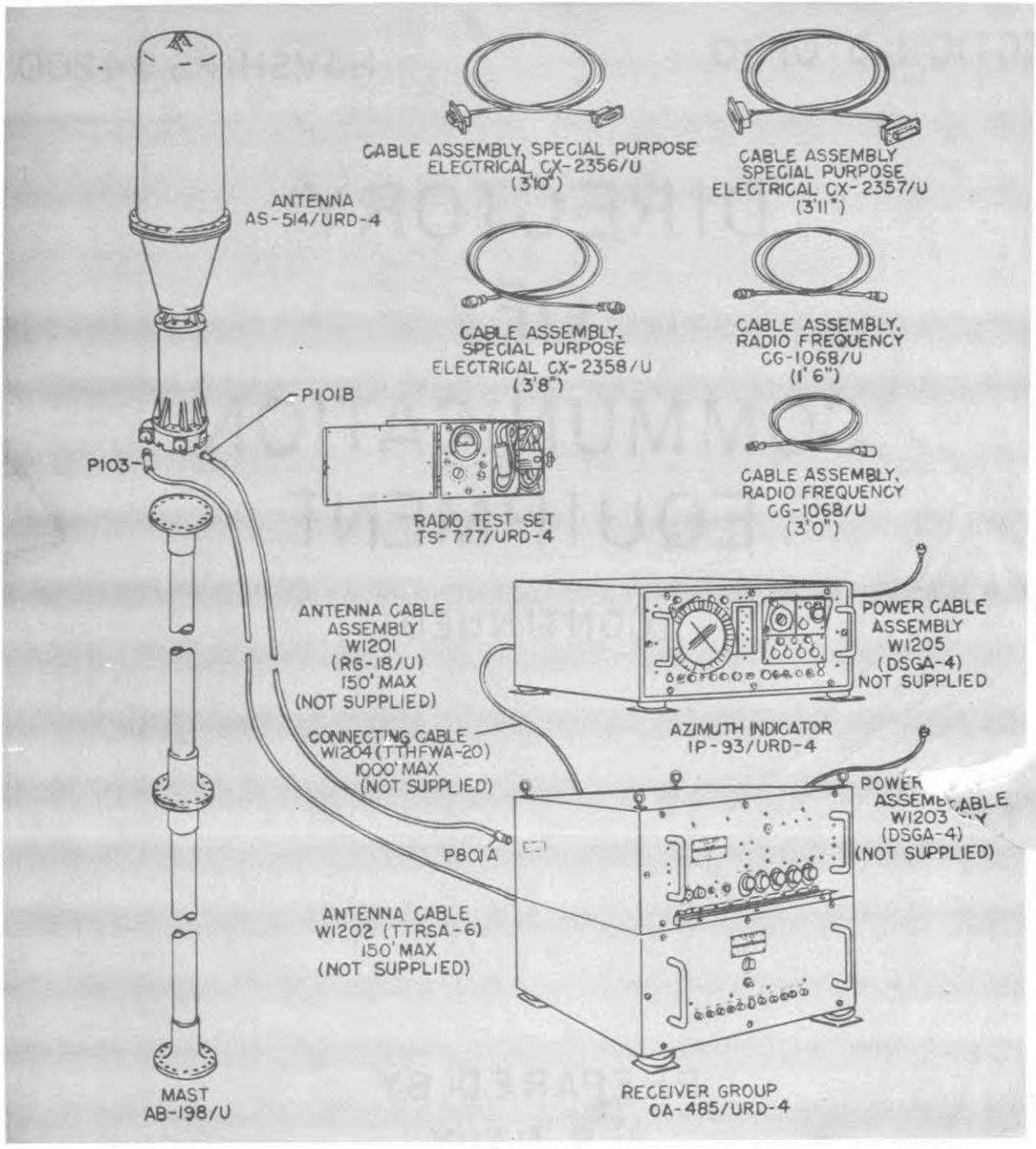
NAVSHIPS 94200.1

DIRECTORY OF COMMUNICATION EQUIPMENT

(CONTINUED)

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

DIRECTION FINDER AN/URD-4



Direction Finder AN/URD-4

FUNCTIONAL DESCRIPTION

The AN/URD-4 is designed for either ship or shore installation to provide instantaneous visual direction finding information from radio frequency signals. Tuning is accomplished by means of a remotely controlled device which selects any one of 20 pre-set frequencies, while any one of 1750 channels can be selected manually.

It's antenna system is designed to accept only vertically polarized signals, however accurate direction finding information is provided from signals polarized as far as 45 degrees from vertical.

Direction finding information is presented

AN/URD-4 DIRECTION FINDER

visually on a cathode-ray tube, and provision is contained on the indicator cabinet for aural reception by means of headphones. Aural reception can be simultaneous with direction finding operation, but while aural reception is possible on AM or FM modulated signals only, direction finding information is displayed on received signals whether modulated or unmodulated.

Data on this sheet reflects the following field changes, FC-1, 2, 3, 4 (1 August 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Headset NT-49016 or equivalent, (1) Set of Guy Wires, (1) Target Transmitter, (1) Antenna Cable Assembly RG-18/U, (1) Antenna Cable TTRSA-6, (2) Power Cable Assembly DSGA-4, (1) Connecting Cable TTHFWA-20.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225.0 to 399.9 mc in fixed channels spaced 0.1 mc.
PRESET FREQUENCIES: 20.
FREQUENCY CONTROL: Crystal.
TYPE RECEIVER: Superheterodyne.
SENSITIVITY: 10 uv for 10 db signal-to-noise ratio.
BANDWIDTH: 50 kc min for 6 db attenuation.
INTERMEDIATE FREQUENCIES: 15.325 and 2.8072 mc.
RECEIVER AUDIO OUTPUT: 100 mw into 600 ohm impedance.
TYPE RECEPTION
  VISUAL: AM, FM, or unmodulated signals.
  AURAL: AM only.
PRESENTATION: 5 in. CR tube.
IMPEDANCE
  ANTENNA: 52 ohms.
  RF INPUT: 52 ohms.
  HEADPHONES: 600 ohms.
POWER REQUIREMENTS: 115 v, 55 to 65 cps, single ph.
HEAT DISSIPATION
  RADIO RECEIVER: 262 W.
  AZIMUTH INDICATOR: 136 W.
  ANTENNA: 120 W.
MAGNETIC VOLUMES
  ANTENNA: 127 cubic in.
  RECEIVER: 785 cubic in.
  AZIMUTH INDICATOR: 363 cubic in.
ANTENNA DATA
  TYPE: Rotatable Adcock Array.
  POLARIZATION: Vertical.
  CONSTRUCTION: Vertical dipole array.

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio Division, Bendix Aviation Corp., Baltimore, Md.
Contract NObsr-52513, dated 15 June 1951.
Contract NObsr-57098, dated 28 November 1951.
Contract NObsr-64563, dated 2 November 1954.
Contract NObsr-71201, dated 10 February 1956.
Approximate Cost: $13165.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 1Z2	(1) 5CP12	(2) 5R4WGB
(17) 5725/6AS6W	(2) 6080WA	(3) 6F4
(1) 6L6WGB	(1) 6X4W	(1) 5651
(5) 5654/6AK5W	(19) 5670	(1) 5686
(5) 5726	(2) 6626/OA2WA	(1) OA3
(1) OC3W		

Total Tubes: (64)

(3) 1N69	(1) CR-18/U
(17) CR-27/U	(1) CR-28/U

Total Crystals: (22)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91912(A): Technical Manual for Direction Finder Set AN/URD-4.
NAVSHIPS 91912(A) Change 2: Technical Manual for Direction Finder Set AN/URD-4.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-D-16252A
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna AS-514/URD-4	57.5	33 X 35 C 86	370
1	Receiver Group OA-485/URD-4 including: Cabinet CY-890/URD-4	25.5	33 X 35-1/2 X 37-1/2	392

DIRECTION FINDER AN/URD-4

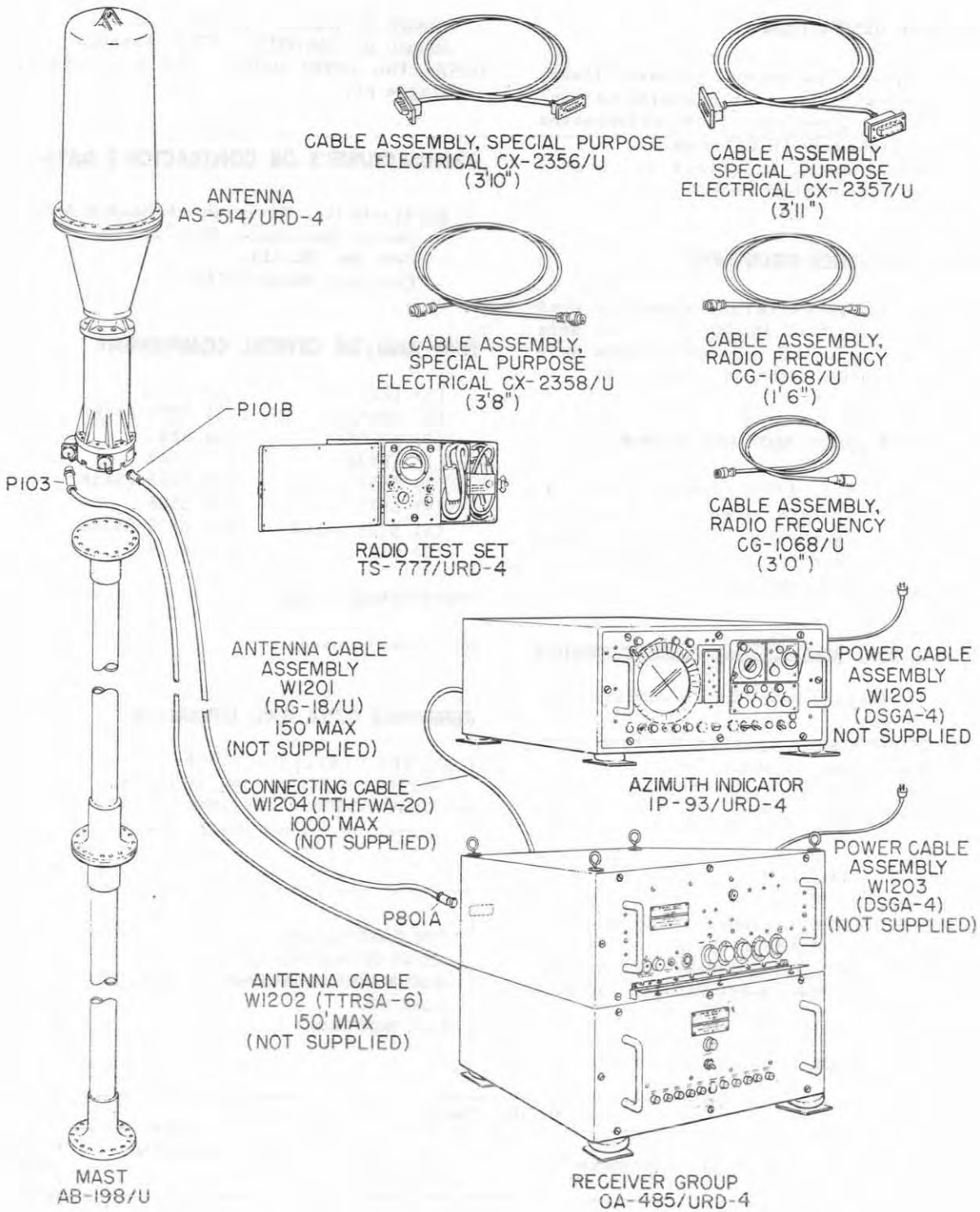
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Azimuth Indicator IP-93/URD-4 including: Electric Equipment Cabinet CY-1304/URD-4	9.1	19 X 27 X 36	205
1	Mast AB-198/U	22.0	13 X 23-1/2 X 124	200
1	Set of Miscellaneous Parts including: (2) Technical Manual NAVSHIPS 91912(A)	2.0	12-1/2 X 15-1/2 X 18	50
1	Set of Equipment Spares (NAVY) or	6.0	14-1/2 X 21-1/2 X 32	150
	Set of Equipment Spare (MARINE CORP)	5.0	15 X 16-1/2 X 25-1/2	85

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna AS-514/URD-4	18-3/4 dia X 73-1/8	106
1	Mast AB-198/U	9-5/32 dia X 240	72
1	Receiver Group OA-485/URD-4 consisting of: Cabinet CY-890/URD-4 Power Supply PP-556/URD-4 Radio Receiver R-353/URD-4	21-3/4 X 23-3/8 X 26-1/8	182
1	Azimuth Indicator IP-93/URD-4 including: Cabinet CY-1304/URD-4	13-3/4 X 21 X 28-7/8	96
1	Radio Test Set TS-777/URD-4	3-1/2 X 6-1/2 X 8	4
1	Special Purpose Electrical Cable Assembly CX-2356/U	46 lg	
1	Special Purpose Electrical Cable Assembly CX-2357/U	47 lg	
2	Special Purpose Electrical Cable Assembly CX-2358/U	44 lg	
1	Radio Frequency Cable Assembly CG-1068/U	18 lg	
1	Radio Frequency Cable Assembly CG-1068/U	36 lg	
2	Technical Manual NAVSHIPS 91912(A)	1 X 8-3/4 X 11-1/2	
1	Set of Associated Hardware		
1	Set of Equipment Spares		

DIRECTION FINDER UNIT AN/URD-4A



Direction Finder Set AN/URD-4

AN/URD-4A DIRECTION FINDER UNIT

FUNCTIONAL DESCRIPTION

The AN/URD-4A is a general purpose, fixed, seaborne installation that provides instantaneous visual direction finder information from Radio Frequency (R.F.) signals.

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

RELATION TO OTHER EQUIPMENT

The AN/URD-4A is interchangeable with Direction Finder Unit AN/URD-4; it has been modernized; preferred type components have been used to replace the original parts.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Headset N.T. 49016 or equivalent; (4) Guy Wires; (1) Target transmitter; (1) Antenna Cable Ass'y RG-18/U; (1) Antenna Cable TTRSA-6; (2) Power Cable Ass'y DSGA-4; (1) Connecting Cable TTHFWA-20.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Fixed, seaborne installation.
TYPE OF PRESENTATION: Cathode-ray tube type.
TYPE OF INDICATOR: Visual.
TYPE OF EMISSION: AO and FO types.
TYPE OF FREQUENCY CONTROL: Crystal comparison.
IMPEDANCES
  ANTENNA: 52 ohms.
  R. F. INPUT: 52 ohms.
  HEADPHONES (AUDIO OUTPUT): 600 ohms.
HEAT DISSIPATION OF MAJOR UNITS
  RADIO RECEIVER R-353A/URD-4: 262 W.
  AZIMUTH INDICATOR IP-93A/URD-4: 136 W.
  ANTENNA AS-514A/URD-4: 120 W.
FREQUENCY DATA
  FREQUENCY RANGE: 225.0 to 399.0 mc.
  NUMBER OF BANDS: 1 band.
  NUMBER OF CHANNELS: 1750 channels.
OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio, Division of Bendix Aviation Corp., Baltimore, Maryland.
Part No. EL-413.
Contract NObsr-75742.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 1Z2	(1) 5CP12
(2) 5R4WGB	(17) 5725/6A6W
(2) 6080WA	(3) 6F4
(1) 6L6GA	(1) 6X4W
(1) 5651	(5) 5654/6AK5W
(19) 5670	(1) 5686
(5) 5726/6AL5W	(2) 6625/OA2WA
(1) OA3	(1) OC3W

Total Tubes: (64)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91912(A): Technical Manual for Direction Finder Set AN/URD-4.
NAVSHIPS 93400: Preliminary Data Form for Direction Finder Set AN/URD-4A.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE MIL-D-00252B (SHIPS)
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Set of Miscellaneous Parts and Instruction Book	2.0	12-1/2 x 15-1/2 x 18	50
1	Antenna AS-514A/URD-4	57.5	33 x 35 x 86	370

DIRECTION FINDER UNIT AN/URD-4A

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Receiver Group OA-485A/URD-4 Incl: Cabinet CY-890A/URD-4	25.5	35-1/2 x 37-1/2 x 33	392
1	Azimuth Indicator IP-93A/URD-4 Contained in Cabinet CY-1304A/URD-4	9.1	19 x 27 x 36	205
1	Mast AB-198A/U	22.0	13 x 23-1/2 x 124	200
1	Set of Equipment Spares consisting of:			
1	Marine Spares SP27474	5.0	15 x 16-1/2 x 25-1/2	85
1	Navy Spares SP27427	6.0	14-1/2 x 21-1/2 x 32	150

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Direction Finder Set AN/URD-4A consists of:		
1	Antenna AS-514A/URD-4	18-3/4 dia x 73-1/8	106
1	Cabinet, Electrical Equipment CY-890A/URD-4	21-3/4 x 23-3/8 x 26-1/8	
1	Cabinet, Electrical Equipment CY-1304A/URD-4	13-3/4 x 21 x 28-7/8	
1	Indicator, Azimuth IP-540/URD-4	13-3/4 x 21 x 28-7/8	96
1	Power Supply PP-556A/URD-4	10.41 x 20.50 x 21.00	
1	Radio, Receiver R-353A/URD-4	11.05 x 20.94 x 23.12	182
1	Receiver Group OA-485A/URD-4		
1	Radio, Test Set TS-777A/URD-4	3-1/2 x 5 x 6-1/2	4
1	Cable Ass'y Special Purpose Electrical CX-2356/U (3' 10")	46 lg	
1	Cable Ass'y, Special Purpose Electrical CX-2357/U (3' 11")	47 lg	
1	Cable Ass'y, Special Purpose Electrical CX-2358/U (3' 8")	44 lg	
1	Cable Ass'y, Radio Frequency CG-1068 (1' 6")	18 lg	
1	Cable Ass'y, Radio Frequency CG-1068 (3' 0")	36 lg	
*1	Bearing Converter MK-360/URD-4		
	NOTE: *Optional for some installations.		

DIRECTION FINDER SET AN/URD-4B

FUNCTIONAL DESCRIPTION

The AN/URD-4B is designed to provide instantaneous visual direction finding information from radio frequency signals in the frequency range from 225.0 to 399.0 megacycles (MC). It is a fixed installation, seaborne installation, designed for surface vessels.

No field changes in effect at time of preparation (3 November 1960).

RELATION TO OTHER EQUIPMENT

The AN/URD-4B is similar to and interchangeable with the AN/URD-4A except for minor changes in preferred type components.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Headset N.T. 49016 or equivalent, (4) Guy Wires, (1) Target Transmitter, (1) Antenna Cable Ass'y Type RG-18/U, (1) Antenna Cable Type TTRSA-6, (1) Power Cable Ass'y Type DSGA-4, (1) Connecting Cable Type TTHFWA-20, (1) Power Cable Ass'y Type DSGA-4.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION: AM, FM.
TYPE OF RECEIVER: Superheterodyne.
SENSITIVITY: 10 microvolts for 10 db signal to noise ratio.
BANDWIDTH: 50 kc minimum for 6 db attenuation.
TYPE OF FREQUENCY CONTROL: Crystal.
NUMBER OF PRESET FREQUENCIES: 20.
NUMBER OF TUNING BANDS: One, ranging from 225.0 to 399.9 mc.
INTERMEDIATE FREQUENCIES: 15.325 and 2.8072 mc.
RECEIVER AUDIO OUTPUT: 100 mw into 600 ohm impedance headphones.
IMPEDANCES
ANTENNA: 52 ohms.
R.F. INPUT: 52 ohms.
HEADPHONES (Audio output impedance): 600 ohms.
TYPE OF ANTENNA: Rotatable Adcock array, two dipoles vertically mounted, rotating capacitance joint.
NUMBER OF BANDS: 1 band.
NUMBER OF CHANNELS: 1750 channels.
TYPE OF PRESENTATION: Cathode-ray tube type.
OPERATING FREQUENCY RANGE: 225.0 to 399.0 mc.
OPERATING POWER RQMT: 115 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio Div of Bendix Aviation Corp, Baltimore, Maryland.
Contract NObsr-81059, dated 3 September 1959

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 1Z2	(1) 5CP12
(2) 5R4WGB	(17) 5725/6AS6W
(2) 6080WA	(3) 6F4
(1) 6L6GA	(1) 6X4W
(1) 5651	(5) 5654/6AK5W
(1) 5686	(19) 5670
(5) 5726/6AL5W	(2) 6626/0A2WA
(1) OA3	(1) OC3W

Total Tubes: (64)

(1) CR-28/U	(17) CR-27/U
(1) CR-18/U	

Total Crystals: (19)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Direction Finder Set AN/URD-4B.

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

AN/URD-4B DIRECTION FINDER SET

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna AS-514B/URD-4	57.5	33 x 35 x 86	370
1	Cabinet CY-890B/URD-4 containing:	25.5	33 x 35-1/2 x 37-1/2	392
1	Receiver Group OA-485B/URD-4			
1	Electrical Equipment Cabinet CY-1304B/URD-4 containing:	9.1	19 x 27 x 36	205
1	Azimuth-Indicator IP-540/URD-4B			
1	Mast AB-198B/U	22.0	13 x 23-1/2 x 124	200
1	Set of Equipment Spares Type SP27427	6.0	14-1/2 x 21-1/2 x 32	150

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna AS-514B/URD-4	18-3/4 dia x 73-1/8 h	106
1	Mast AB-198B/URD-4	9-5/32 x 240 h	
1	Cabinet CY-890B/URD-4 containing:	21-3/4 x 23-3/8 x 26-1/8	
1	Receiver Group OA-485B/URD-4		
1	Power Supply PP-556B/URD-4	10.41 x 20.50 x 21	
1	Radio Receiver R-353B/URD-4	11.05 x 20.94 x 23.12	
1	Electrical Equipment Cabinet CY-1304B/URD-4 containing:	13-3/4 x 21 x 28-7/8	
1	Azimuth-Indicator IP-504/URD-4		
1	Radio Test Set TS-777B/URD-4	3-1/2 x 6-1/2 x 8	4
1	Special Purpose Electrical Cable Ass'y CX-2356/U (3 ft 10 in.)	46 lg	
1	Special Purpose Electrical Cable Ass'y CX-2357/U (3 ft 11 in.)	47 lg	
2	Special Purpose Electrical Cable Ass'y CX-2358/U (3 ft 8 in.)	44 lg	
1	R.F. Cable Ass'y CG-1068/U (1 ft 6 in.)	18 lg	
1	R.F. Cable Ass'y CG-1068/U (3 ft 0 in.)	36 lg	
1	Electrical Clamp C294088-1		
1	Grounding Ring C681095-1		
1	Connector Plug Female N287024-17		
2	Connector, R.F. Plug UG-154/U		
1	Dust Cap C234585-2		
2	Dust Cap C237740-1		
120	Solder Lug A4735-1		
1	Transparent, Tubing OA111060-7	72 lg	
1	Set of Equipment Spares SP27427	14-1/2 x 21-1/2 x 32	150

RADIO TRANSMITTING SET AN/URN-12

FUNCTIONAL DESCRIPTION

The AN/URN-12 is a depot assembled ultra-high frequency homing equipment operating on amplitude modulated continuous wave and voice signals at 225 to 400 mc with an audiotone at 1000 cycles per second. Includes identification Keyer which keys TED automatically with a selectable code. It operates on 4 channels over a single band of frequencies.

No field changes in effect at time of preparation (6 March 1957).

RELATION TO OTHER EQUIPMENT

Consists of an assemblage of existing equipments.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225 to 400 mc.
EMISSION: MCW and VOICE.
MODULATING FREQUENCY: 1000 cps tone.
NUMBER OF BANDS: Single.
NUMBER OF CHANNELS: 4.
POWER OUTPUT: 15 watts.
POWER SOURCE REQUIRED: 115 or 230 v, 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Transmitting Set, Radio AN/URN-12 dated 7 January 1954.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Equipment Model TED		
1	Antenna AS-505/GR		
1	Keyer KY-123/URN		

27 August 1962 — LANDING CONTROL SYSTEM AN/URN-13(V)

Cog Service: FSN: Functional Class:

USA USN USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER:

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

The Landing Control System AN/URN-13(V) is a tropicalized equipment with a fifteen (15) mile range of operation. The transmitter auxiliary is for use in naval seaplanes, seaplane tenders, or control towers for coding the transmitter signals so the receivers will receive and select the proper signal, and, as desired, turn groups of channel-marker, water-aerodrome, fluorescent lights on or off.

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

TECHNICAL CHARACTERISTICS:

OPERATING RANGE: 0 to 15 miles.
OPERATING FREQUENCY: 3053 kc.
OPERATING POWER RQMT: 28 v dc.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
	Landing Control System AN/URN-13(V) consists of:			
1	Navy Transmitter Auxiliary			
1	Transistorized Receivers Mounted in fluorescent-type channel marking lights			

REFERENCE DATA AND LITERATURE:

Nomenclature Card for Landing Control System AN/URN-13(V).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

AN/URN-13(V) LANDING CONTROL SYSTEM

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

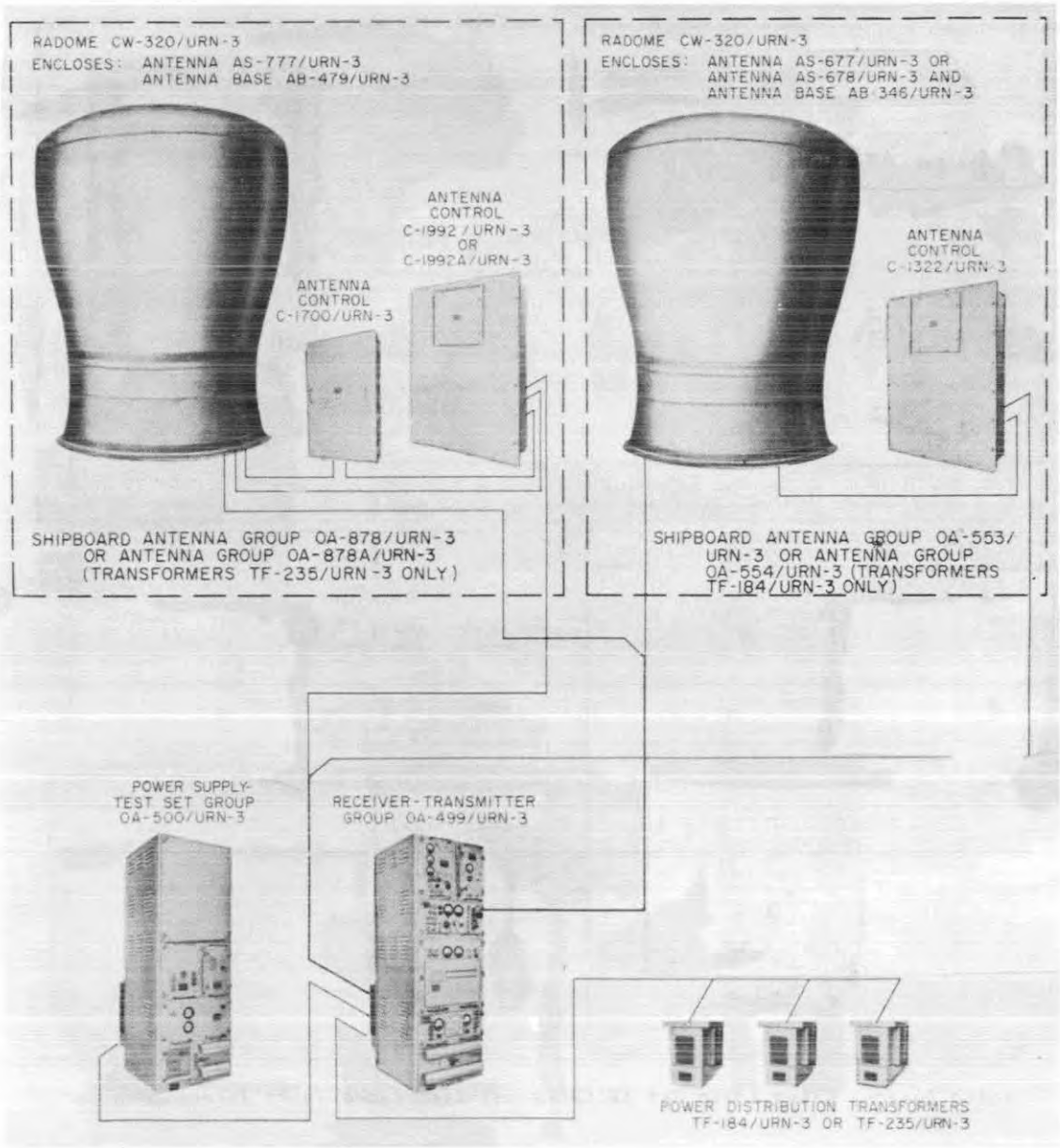
PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

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

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

RADIO SET AN/URN-3



Radio Beacon, Using Radio Set AN/URN-3 and Associated Shipboard Antenna Groups

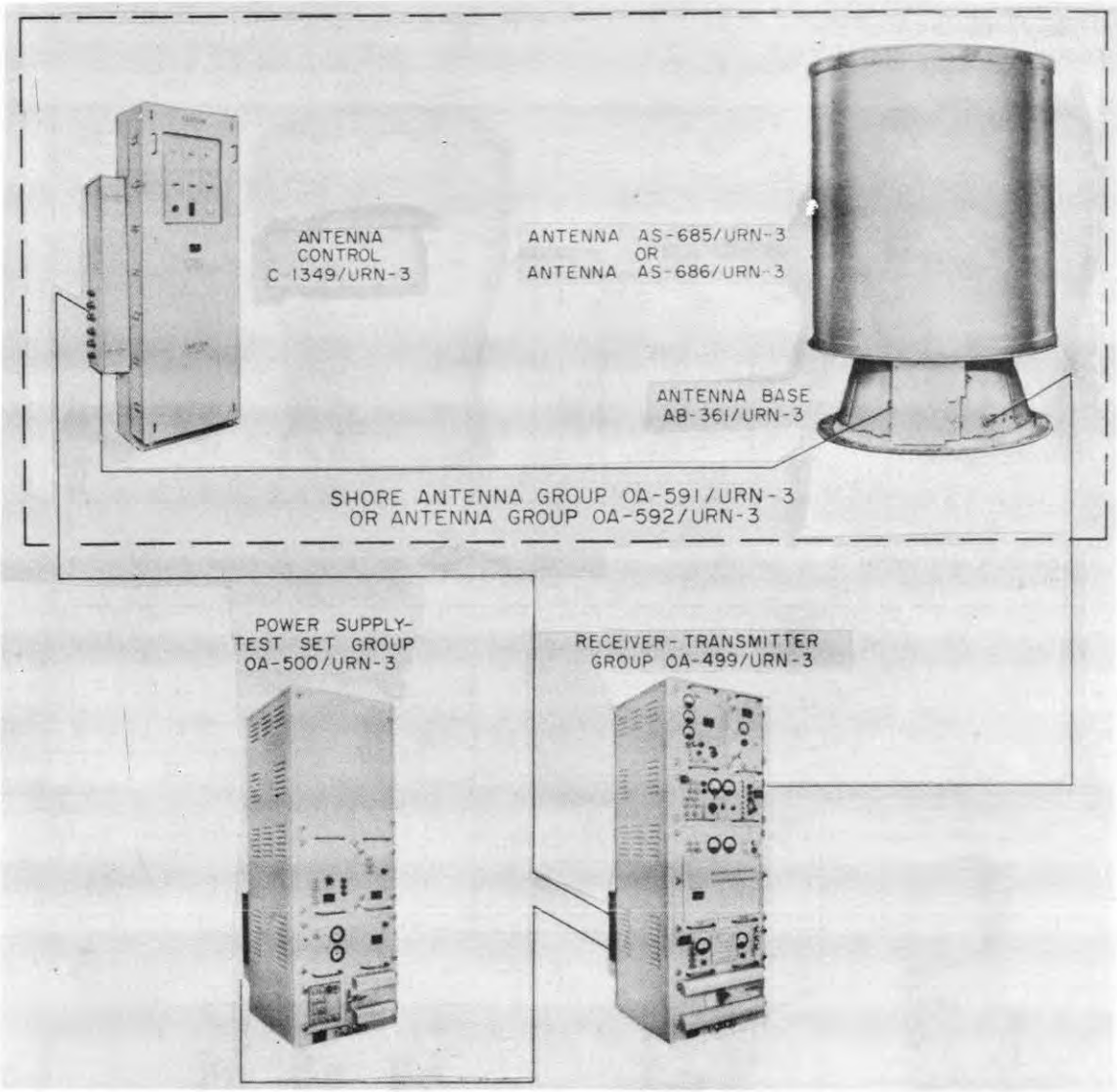
FUNCTIONAL DESCRIPTION

Radio Set AN/URN-3, its associated antenna groups and accessories, and Radio Set AN/ARN-21 make up an air navigation system through which an aircraft (equipped with Radio Set AN/ARN-21) can accurately determine its position. As many as one hundred aircraft may simultaneously obtain navigational information in conjunction with a single installation of Radio Set AN/URN-3.

Radio Set AN/URN-3 is capable of receiving on any one of 126 frequencies in the range of 1025 to 1150 megacycles. The set can transmit on any one of 126 frequencies in the ranges of 962 to 1024 megacycles and 1151 to

AN/URN-3

RADIO SET



Radio Beacon, Using Radio Set AN/URN-3 and Associated Shore Antenna Groups

1213 megacycles. Two types of antenna are available for use. Each antenna can operate on 63 channels, either in a low band of frequencies or in a high band of frequencies. Low band installations transmit at frequencies between 962 and 1024 megacycles and receive at frequencies between 1025 and 1087 megacycles. High band installations transmit at frequencies between 1151 and 1213 megacycles and receive at frequencies between 1088 and 1150 megacycles. Two frequencies are used in each channel, one for receiving and one for transmitting. In low band installations, the frequency used for receiving is 63 megacycles above the frequency used for transmitting in the same channel. In high band installations, the receiving frequency is 63 megacycles below the transmitting frequency.

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

RADIO SET AN/URN-3

RELATION TO OTHER EQUIPMENT

Not applicable.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

The following test equipment is required for the maintenance of this equipment:

(1) Pulse-Sweep Generator SG-121A/URN-3 (Technical Manual NAVSHIPS 92745).

(2) Pulse-Analyzer-Signal Generator TS-890/URN-3 (Technical Manual NAVSHIPS 92819).

(3) Power Meter-Pulse Counter TS-891/URN-3 (Technical Manual NAVSHIPS 92809).

(4) Oscilloscope OS-54/URN-3 (Technical Manual NAVSHIPS 92778).

(5) Switch-Test Adapter SA-420/URN-3 (Technical Manual NAVSHIPS 92809).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION AND TRANSMISSION: Coded pulses.

FREQUENCY RANGE

LOW BAND: 962 to 1024 mc for transmitting, 1025 mc to 1087 mc for receiving.

HIGH BAND: 1151 mc to 1213 mc for transmitting, 1088 mc to 1150 mc for receiving.

POWER OUTPUT: 5 kw peak, 120 W average.

OUTPUT SIGNAL CHARACTERISTICS: Amplitude modulated field.

RANGE: Approximately 200 nautical miles.

POWER SOURCE REQUIRED

RADIO SET AN/URN-3: 208 v, 3 phase, 60 cycles, 20 amp per phase, 6800 W, 7.2 kva, 0.95 power factor.

ANTENNA GROUPS OA-553/URN-3 OR OA-554/URN-3: 120 v, 1 phase, 60 cycles, 10 amp, 650 W, 1.2 kva, 0.54 power factor, and 440 v, 3 phase, 60 cycles, 65 amp per phase starting current 5.8 amp per phase normal current; 1100 W, 4.45 kva, 0.25 power factor.

ANTENNA GROUPS OA-878/URN-3 OR OA-878A/URN-3: 120 v, 1 phase, 60 cycles, 10 amp, 650 W, 1.2 kva, 0.54 power factor, and 208 v, 3 phase, 60 cycles, 18 amp per phase starting current, 8.3 amp per phase normal current; 1800 W, 2.95 kva, 0.60 power factor.

ANTENNA GROUPS OA-591/URN-3 OR OA-592/URN-3: 120 v, 1 phase, 60 cycles, 0.45 amp, 50 W, 53.7 va, 0.93 power factor, and 208 v, 3 phase, 60 cycles, 18 amp per phase starting current, 8.3 amp phase normal current; 1800 W, 2.95 kva, 0.60 power factor.

HEAT DISSIPATION

RECEIVER-TRANSMITTER GROUP OA-499/URN-3: 4.2 kw.

POWER SUPPLY-TEST SET GROUP OA-500/URN-3: 1.4 kw.

ANTENNA GROUP OA-553/URN-3 OR OA-554/URN-3.

ANTENNA CONTROL GROUP C-1322/URN-3: 250 W.

ANTENNA BASE AB-346/URN-3: 250 W.

ANTENNA GROUP OA-878/URN-3 OR OA-878A/URN-3.

ANTENNA CONTROL C-1992/URN-3 OR C-1992A/URN-3: 250 W.

ANTENNA CONTROL C-1700/URN-3: 400 W.

ANTENNA BASE AB-479/URN-3: 250 W.

ANTENNA GROUP OA-591/URN-3 OR OA-592/URN-3

ANTENNA CONTROL C-1349/URN-3: 420 W.

ANTENNA BASE AB-361/URN-3: 400 W.

ANTENNAS

IMPEDANCE: 50 ohms.

ANTENNA GROUP OA-553/URN-3: 962 mc to 1024 mc for transmitting.

ANTENNA GROUP OA-878/URN-3: 1025 mc to 1087 mc for receiving.

ANTENNA GROUP OA-878A/URN-3

ANTENNA GROUP OA-592/URN-3

ANTENNA GROUP OA-554/URN-3: 1151 mc to 1213 mc for transmitting.

ANTENNA GROUP OA-591/URN-3: 1088 mc to 1150 mc for receiving.

INSTALLATION: Ship or shore.

NUMBER OF OPERATORS REQUIRED: 1.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Company, a Division of International Telephone and Telegraph Corporation, Clifton, New Jersey.

Contract Number NObsr-57103 dated 19 December 1951.

Radio-Navigational Aid

February 1960

AN/URN-3 RADIO SET

TUBE AND/OR CRYSTAL COMPLEMENT

(6) OA2WA	(5) OB2WA
(1) 2C40	(2) 5727/2D21W
(1) 371B	(1) 5D22
(1) 4-1000A	(3) 4X150G
(6) 5R4WGB	(4) 5651WA
(13) 5654/6AK5W	(6) 5670
(1) 5686	(11) 5687WA
(4) 5725/6AS6W	(3) 5726/6AL5W
(1) 5763	(2) 5963
(2) 6005/6AQ5W	(6) 6AR6
(2) 6080WA	(4) 6AU6WA
(1) 6C4WA	(1) 6J4WA
(2) 6X4W	(10) 829B
(2) 836	(6) 8020
(16) 12AT7WA	(1) SAL-39

Total Tubes: (124)

(2) 1N21B	(5) 1N127
(7) 1N25	(6) 1N69

Total Crystals: (20)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92348(A): Instruction Book for Radio Set AN/URN-3, Associated Antenna Groups and Accessories.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	Federal Telecommunication Laboratories, a Division
PROCUREMENT COGNIZANCE	of International Telephone and Telegraph
STOCK NO.	Corp., Nutley, N.J.
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	SHIPBOARD INSTALLATIONS			
1	Receiver-Transmitter Group OA-499/URN-3	105	90 X 44 X 43	1,850
1	Power Supply-Test Set Group OA-500/URN-3	105	90 X 44 X 43	1,720
1	Operating Tubes and Misc. Materials Consolidating Parts Box	3.3	18 X 16 X 20	29
1	Tube JAN 4-1000A	4.0	16 X 18 X 24	24
1	Klystron Tube (Metal Drum) SAL-39	5.5	30 X 20 X 20	78
1	Equipment Spares	3.8	18 X 16 X 20	60
1	Equipment Spares	3.8	18 X 16 X 20	60
1	Equipment Spares	3.8	18 X 16 X 20	55
1	Equipment Spares	1.8	12 X 13 X 17	60
1	Equipment Spares	1.8	12 X 13 X 17	60
1	Equipment Spares	3.8	18 X 16 X 20	60
1	Equipment Spares	1.4	11 X 12 X 18	154
1	Equipment Spares	0.7	7 X 13 X 13	48
3	Power Distribution Transformer TF-235/URN-3	4.3	19 X 17 X 23	152
	or TF-184/URN-3	3.3	17 X 17 X 20	115
1	Antenna Control *C-1992/URN-3 or *C-1992A/URN-3 or C-1322/URN-3	51.0	25 X 52 X 67	1,110
1	Low Band Antenna *AS-777/URN-3 or AS-667/URN-3 and Antenna Base AB-479/URN-3 or AB-346/URN-3 or High Band Antenna AS-678/URN-3 and Antenna Base AB-346/URN-3	220.0	108 X 59 X 59	1,600
1	Radome CW-320/URN-3	440.0	116 X 85 X 87	1,540
1	Antenna Control *C-1700/URN-3	28	22 X 38 X 59	653

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Equipment Spares	1.8	12 X 13 X 17	40
1	Equipment Spares	3.8	18 X 16 X 20	65
1	Equipment Spares Magnetic Amplifier	3.0	15 X 16 X 18	65
1	Equipment Spares Magnetic Amplifier	3.4	13 X 14 X 32	74
1	Equipment Spares Saturable Reactor	1.3	10 X 12 X 16	88
	SHORE INSTALLATIONS (NAVY)			
1	Antenna Control C-1349/URN-3	49.4	86 X 45 X 22	784
1	Receiver-Transmitter Group OA-499/URN-3	105	90 X 44 X 43	1,850
1	Power Supply-Test Set Group OA-500/URN-3	105	90 X 44 X 43	1,720
1	Low Band Antenna AS-685/URN-3 and Antenna Base AB-361/URN-3 or	147	88 X 54 X 54	958
	High Band Antenna AS-686/URN-3 and Antenna Base AB-361/URN-3	135	80 X 54 X 54	900
1	Operating Tubes and Misc. Materials Consolidating Parts Box	3.3	18 X 16 X 20	29
1	Klystron Tube (Metal Drum) SAL-39	5.5	30 X 20 X 20	78
1	Equipment Spares	3.3	18 X 16 X 20	60
1	Equipment Spares	3.3	18 X 16 X 20	60
1	Equipment Spares	3.3	18 X 16 X 20	55
1	Equipment Spares	1.5	12 X 13 X 17	60
1	Equipment Spares	1.5	12 X 13 X 17	60
1	Equipment Spares	3.3	18 X 16 X 20	60
1	Equipment Spares	1.4	11 X 12 X 18	154
1	Equipment Spares	0.7	7 X 13 X 13	48
1	Equipment Spares	1.5	12 X 13 X 17	36
1	Equipment Spares	4.9	15 X 18 X 31	66
1	Equipment Spares	11.8	17 X 30 X 40	308
1	Equipment Spares	4.6	18 X 20 X 22	114
	SHORE INSTALLATIONS (AIR FORCE)			
1	Antenna Control C-1349/URN-3	49.4	86 X 45 X 22	784
1	Receiver-Transmitter Group OA-499/URN-3	105.0	90 X 44 X 43	1,850
1	Power Supply-Test Set Group OA-500/URN-3	105.0	90 X 44 X 43	1,720
1	Low Band Antenna AS-685/URN-3 and Antenna Base AB-361/URN-3 or	147	88 X 54 X 54	958
	High Band Antenna AS-686/URN-3 and Antenna Base AB-361/URN-3	135	80 X 54 X 54	900
1	Operating Tubes and Misc. Materials Consolidating Parts Box	4.5	15 X 19 X 27	35
1	Klystron Tube (Metal Drum) SAL-39	5.5	30 X 20 X 20	78
1	Equipment Spares	3.7	16 X 18 X 22	64
1	Equipment Spares	3.7	16 X 18 X 22	65
1	Equipment Spares	3.3	18 X 16 X 20	17
1	Equipment Spares	3.7	16 X 18 X 22	26
1	Equipment Spares	4.0	16 X 18 X 24	22
1	Equipment Spares	0.7	7 X 13 X 13	48
1	Equipment Spares	1.8	13 X 13 X 18	25
1	Equipment Spares	4.9	15 X 18 X 31	66
1	Equipment Spares	11.8	17 X 30 X 40	308

*Supplied only when Antenna Group OA-878/URN-3 or OA-878A/URN-3 is supplied.

AN/URN-3

RADIO SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	SHIPBOARD INSTALLATIONS		
1	Radio Set AN/URN-3 Consisting of:		
	Receiver-Transmitter Group OA-499/URN-3 Consist-of:	72 X 25 X 34-1/8	1173
	Coder-Indicator KY-101/URN-3		
	Radio Receiver R-549/URN-3		
	Control-Duplexer C-1236/URN-3		
	Amplifier-Modulator AM-847/URN-3		
	Frequency Multiplier-Oscillator CV-273/URN-3		
	Electrical Equipment Cabinet CY-1372/URN-3		
	Power Supply-Test Set Group OA-500/URN-3 Consisting of:	72 X 25 X 34-1/8	1051
	Power Supply PP-954/URN-3		
	Power Supply PP-955/URN-3		
	Power Supply PP-956/URN-3		
	Electrical Equipment Cabinet CY-1373/URN-3		
1	Antenna Group OA-553/URN-3 Consisting of:		
	Antenna AS-677/URN-3	95-13/16 X 44-7/8 dia	752
	Antenna Base AB-346/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1322/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	Motor Starter SA-469/U		
	OR		
	Antenna Group OA-554/URN-3 Consisting of:		
	Antenna AS-678/URN-3	87-13/16 X 44-7/8 dia	725
	Antenna Base AB-346/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1322/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	OR		
	Antenna Group OA-878/URN-3 Consisting of:		
	Antenna AS-777/URN-3	95-13/16 X 44-7/8 dia	750
	Antenna Base AB-479/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1992/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	Antenna Control C-1700/URN-3	49-1/8 X 29-1/4 X 11-13/16	450
	OR		
	Antenna Group OA-878A/URN-3 Consisting of:		
	Antenna AS-777/URN-3	95-13/16 X 44-7/8 dia	750
	Antenna Base AB-479/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250

RADIO SET AN/URN-3

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	Antenna Control C-1992A/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	Antenna Control C-1700/URN-3	49-1/8 X 29-1/4 X 11-13/16	450
3	Power Distribution Transformer TF-184/URN-3	14 X 11-1/2 X 9-3/4	86
	OR		
	Power Distribution Transformer TF-235/URN-3	14-3/8 X 10-7/8 X 11-7/16	110
	SHORE INSTALLATIONS		
1	Radio Set AN/URN-3 same as for Shipboard Installations		
1	Antenna Group OA-592/URN-3 Consisting of:		
	Antenna AS-685/URN-3	78-1/2 X 45 dia	410
	Antenna Base AB-361/URN-3		
	Antenna Control C-1349/URN-3	70 X 30-7/8 X 12-1/2	448
	OR		
	Antenna Group OA-591/URN-3 Consisting of:		
	Antenna AS-686/URN-3	70-3/4 X 45 dia	410
	Antenna Base AB-361/URN-3		
	Antenna Control C-1349/URN-3	70 X 30-7/8 X 12-1/2	448
	SHIP AND SHORE INSTALLATIONS		
2	Instruction Book for Radio Set AN/URN-3, Associated Antenna Groups and Accessories		
1	Klystron Tuning Curve		
1	Crystal (Y1401) for the assigned Frequency		

RADIO SET AN/URN-3A

FUNCTIONAL DESCRIPTION

Radio Set AN/URN-3A, its associated antenna groups and accessories, and Radio Set AN/ARN-21 make up an air navigation system through which an aircraft (equipped with Radio Set AN/ARN-21) can accurately determine its position. As many as one hundred aircraft may simultaneously obtain navigational information in conjunction with a single installation of Radio Set AN/URN-3A.

Radio Set AN/URN-3A is capable of receiving on any one of 126 frequencies in the range of 1025 to 1150 mc. The set can transmit on any one of 126 frequencies in the ranges of 962 to 1024 mc and 1151 to 1213 mc. Two types of antenna are available for use. Each antenna can operate on 63 channels, either in a low band of frequencies or in a high band of frequencies. Low band installations transmit at frequencies between 962 and 1024 mc and receive at frequencies between 1025 and 1087 mc. High band installations transmit at frequencies between 1151 and 1213 mc and receive at frequencies between 1088 and 1150 mc. Two frequencies are used in each channel, one for receiving and one for transmitting. In low band installations, the frequency used for receiving is 63 mc above the frequency used for transmitting in the same channel. In high band installations, the receiving frequency is 63 mc below the transmitting frequency.

No field changes in effect at time of preparation (2 December 1960).

RELATION TO OTHER EQUIPMENT

This equipment is mechanically noninterchangeable with Radio Set AN/URN-3.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

The following test equipment is required for the maintenance of this equipment: (1) Pulse-Sweep Generator SG-121A/URN-3 (Technical Manual NAVSHIPS 92745); (2) Pulse Analyzer-Signal Generator TS-890/URN-3 (Technical Manual NAVSHIPS 92819); (3) Power Meter-Pulse Counter TS-891/URN-3 (Technical Manual NAVSHIPS 92809); (4) Oscilloscope OS-54/URN-3 (Technical Manual NAVSHIPS 92778); (5) Switch-Test Adapter SA-420/URN-3 (Technical Manual NAVSHIPS 92809

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION AND TRANSMISSION: Coded pulses.

FREQUENCY RANGE
- LOW BAND: 962 to 1024 mc for transmitting, 1025 to 1087 mc for receiving.
- HIGH BAND: 1151 to 1213 mc for transmitting, 1088 to 1150 mc for receiving.

POWER OUTPUT: 5 kw peak, 120 W average.

OUTPUT SIGNAL CHARACTERISTICS: Amplitude modulated field.

RANGE: Approx 200 nautical miles.

POWER SOURCE REQUIRED
- RADIO SET AN/URN-3: 208 v, 3 ph, 60 cyc, 20 amp per phase, 6800 W, 7.2 kva, 0.95 power factor.
- ANTENNA GROUP OA-553/URN-3 or OA-554/URN-3: 120 v, 1 ph, 60 cyc, 10 amp, 650 W, 1.2 kva, 0.54 power factor and 440 v, 3 ph, 60 cyc, 65 amp per phase starting current, 5.8 amp per phase normal current, 1100 W, 4.45 kva, 0.25 power factor.
- ANTENNA GROUPS OA-878/URN-3, or OA-878A/URN-3: 120 v, 1 ph, 60 cyc, 10 amp, 650 W, 1.2 kva, 0.54 power factor; and 208 v, 3 ph, 60 cyc, 18 amp per phase starting current, 8.3 amp per phase normal current, 1800 W, 2.95 kva, 0.60 power factor.
- ANTENNA GROUPS OA-591/URN-3 or OA-592/URN-3: 120 v, 1 ph, 60 cyc, 0.45 amp, 50 W, 53.7 va, 0.93 power factor and 208 v, 3 ph, 60 cyc, 18 amp per phase starting current, 8.3 amp per phase normal current. 1800 W, 2.95 kva, 0.60 power factor.

HEAT DISSIPATION
- RECEIVER-TRANSMITTER GROUP OA-2570/URN-3A: 4.2 kw.
- POWER SUPPLY ASSY OA-2571/URN-3A: 1.4 kw.
- ANTENNA GROUP OA-553/URN-3 or OA-554/URN-3.
  - ANTENNA CONTROL GROUP C-1322/URN-3: 250 W.
  - ANTENNA BASE AB-346/URN-3: 250 W.
- ANTENNA GROUP OA-878/URN-3 or OA-878A/URN-3.
  - ANTENNA CONTROL C-1992/URN-3 or C-1992A/URN-3: 250 W.
  - ANTENNA CONTROL C-1700/URN-3: 400 W.
  - ANTENNA BASE AB-479/URN-3: 250 W.
- ANTENNA GROUP OA-591/URN-3 or OA-592/URN-3.
  - ANTENNA CONTROL C-1349/URN-3: 420 W.
  - ANTENNA BASE AB-361/URN-3: 400 W.

ANTENNAS
- IMPEDANCE: 50 ohms.
- ANTENNA GROUP OA-553/URN-3, OA-878/URN-3, OA-878A/URN-3, OA-592/URN-3: 962 to 1024 mc for transmitting. 1025 to 1087 for receiving.
- ANTENNA GROUP OA-554/URN-3, OA-591/URN-3: 1151 to 1213 mc for transmitting. 1088 to 1150 mc for receiving.

AN/URN-3A RADIO SET

INSTALLATION: Ship or shore.
NUMBER OF OPERATORS REQUIRED: 1.

MANUFACTURER'S OR CONTRACTOR'S DATA

Stromberg-Carlson Co., Rochester, N. Y.
Part No. 2278-4.
Contract NObsr-75769.

TUBE AND/OR CRYSTAL COMPLEMENT

(6) OA2WA	(5) 6293
(5) OB2WA	(2) 5963
(6) 2C39A	(1) 6005/6AQ5W
(1) 2C40	(2) 6080WA
(2) 5727/2D21W	(2) 6AU6WA
(6) 5R4WGB	(3) 6J4WA
(5) 5651WA	(2) 6X4W
(15) 5654/6AK5W	(10) 829B
(9) 5670	(2) 836
(9) 5687WA	(6) 8020
(4) 5725/6AS6W	(16) 12AT7WA
(3) 5726/6AL5W	(1) SAL-89
(1) 6V3A	(1) 5814A

Total Tubes: (125)
(126) CR-15/U
Total Crystals: (126)

SEMI-CONDUCTORS

(2) 1N21B	(2) 1N126
(5) 1N127	(9) 1N25
(2) 1N256	(6) 1N69

Total Semi-Conductors: (26)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92348(A): Technical Manual for Radio Sets AN/URN-3 and AN/URN-3A, Associated Antenna Groups and Accessories.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: MIL-R-19390
STOCK NO.	(SHIPS) and Amend 2
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu. Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	SHIPBOARD INSTALLATIONS			
1	Receiver-Transmitter Group OA-2570/URN-3A	105	43 x 44 x 90	1,850
1	Power Supply Assembly OA-2571/URN-3A	105	43 x 44 x 90	1,720
1	Operating Tubes and Misc Materials	3.3	16 x 18 x 20	29
1	Tube JAN 4-1000A	4.0	16 x 18 x 24	24
1	Klystron Tube SAL-39 (metal drum)	5.5	20 x 20 x 30	78
3	Equipment Spares	3.8	16 x 18 x 20	60
1	Equipment Spares	3.8	16 x 18 x 20	55
2	Equipment Spares	1.8	12 x 13 x 17	60
1	Equipment Spares	1.4	11 x 12 x 18	154
3	Power Distribution Transformer TF-235/URN-3	4.3	17 x 19 x 23	152
	or TF-184/URN-3	3.3	17 x 17 x 20	115
1	Antenna Control *C-1992/URN-3, or	51.0	25 x 52 x 67	1,110
	or *C-1992A/URN-3 or *C-1322/URN-3			
1	Antenna *AS-777/URN-3 or AS-677/URN-3, AB-479/URN-3 or AB-346/URN-3 or AS-678/URN-3, AB-346/URN-3	220.0	59 x 59 x 108	1,600
1	Radome CW-320/URN-3	440.0	85 x 87 x 116	1,540
1	Antenna Control *C-1700/URN-3	28	22 x 38 x 59	653
1	Equipment Spares	1.8	12 x 13 x 17	40
1	Equipment Spares	3.8	16 x 18 x 20	65
1	Equipment Spares	3.0	15 x 16 x 18	65

RADIO SET AN/URN-3A

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Equipment Spares	3.4	13 X 24 X 32	74
1	Equipment Spares	1.3	10 X 12 X 16	88
	SHORE INSTALLATIONS (NAVY)			
1	Antenna Control C-1349/URN-3	49.4	22 X 45 X 86	784
1	Receiver-Transmitter Group OA-2570/URN-3A	105	43 X 44 X 90	1,850
1	Power Supply Assembly OA-2571/URN-3A	105	43 X 44 X 90	1,720
1	Antenna AS-685/URN-3 and Antenna Base AB-361/URN-3 or	147	54 X 54 X 88	958
	Antenna AS-686/URN-3 and Antenna Base AB-361/URN-3	135	54 X 54 X 80	900
3	Operating Tubes and Misc. Materials	3.3	16 X 18 X 20	29
1	Klystron Tube SAL-89 (metal drum)	5.5	20 X 20 X 30	78
2	Equipment Spares	3.3	16 X 18 X 20	60
1	Equipment Spares	3.3	16 X 18 X 20	55
1	Equipment Spares	1.5	12 X 13 X 17	60
1	Equipment Spares	1.4	11 X 12 X 18	154
1	Equipment Spares	0.7	7 X 13 X 13	48
1	Equipment Spares	1.5	12 X 13 X 17	36
1	Equipment Spares	4.9	15 X 18 X 31	66
1	Equipment Spares	11.8	17 X 30 X 40	308
1	Equipment Spares	4.6	18 X 20 X 22	114
	SHORE INSTALLATIONS (AIR FORCE)			
1	Antenna Control C-1349/URN-3	49.4	22 X 45 X 86	784
1	Receiver-Transmitter Group OA-2750/URN-3A	105.0	43 X 44 X 90	1,850
1	Power Supply Assembly OA-2571/URN-3A	105.0	43 X 44 X 90	1,720
1	Antenna AS-685/URN-3 and Antenna Base AB-361/URN-3 or	147	54 X 54 X 88	958
	Antenna AS-686/URN-3 and Antenna Base AB-361/URN-3	135	54 X 54 X 80	900
1	Operating Tubes and Misc. Materials	4.5	15 X 19 X 27	35
1	Klystron Tube SAL-89 (metal drum)	5.5	20 X 20 X 30	78
1	Equipment Spares	3.7	16 X 18 X 22	64
1	Equipment Spares	3.7	16 X 18 X 22	65
1	Equipment Spares	3.3	16 X 18 X 20	17
1	Equipment Spares	3.7	16 X 18 X 22	26
1	Equipment Spares	4.0	16 X 18 X 24	22
1	Equipment Spares	0.7	7 X 13 X 13	48
1	Equipment Spares	1.8	13 X 13 X 18	25
1	Equipment Spares	4.9	15 X 28 X 31	66
1	Equipment Spares	11.8	17 X 30 X 40	308

AN/URN-3A RADIO SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	SHIPBOARD INSTALLATIONS		
1	Radio Set AN/URN-3A consisting of:		
	Receiver-Transmitter Group OA-2570/URN-3A consisting of:	72 X 25 X 34-1/8	1173
	Coder-Indicator KY-101/URN-3		
	Radio Receiver R-971/URN-3A		
	Radio Set Control C-3150/URN-3A		
	Amplifier-Modulator AM-1701A/URN		
	Frequency Multiplier-Oscillator CV-1012/URN		
	Electrical Equipment Cabinet CY-2755/URN-3A		
	Duplexer CU-787/URN	32.2 X 13 X 21.5	80
	Power Supply Assembly OA-2571/URN-3A consisting of:	71 X 25 X 34-1/8	1051
	Power Supply PP-2501/URN-3A		
	Power Supply PP-2502/URN-3A		
	Power Supply PP-2503/URN-3A		
	Electrical Equipment Cabinet CY-2756/URN-3A		
	Antenna Group OA-553/URN-3 consisting of:		
	Antenna AS-777/URN-3	95-13/16 X 44-7/8	752
	Antenna Base AB-346/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1322/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	or		
	Antenna Group OA-554/URN-3 consisting of		
	Antenna AS-678/URN-3	87-13/16 X 44-7/8 dia	725
	Antenna Base AB-346/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1322/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	or		
	Antenna Group OA-878/URN-3 consisting of:		
	Antenna AS-777/URN-3	95-13/16 X 44-7/8 dia	750
	Antenna Base AB-479/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32 dia	250
	Antenna Control C-1992/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	Antenna Control C-1700/URN-3	49-1/8 X 29-1/4 X 11-13/16	450
	Antenna Group OA-878/URN-3 consisting of:		
	Antenna AS-777/URN-3	95-13/16 X 44-7/8 dia	750
	Antenna Base AB-479/URN-3		
	Radome CW-320/URN-3	100 X 76-23/32	250
	Antenna Control C-1992A/URN-3	56-1/2 X 38-1/4 X 12-1/2	733
	Antenna Control C-1700/URN-3	49-1/8 X 29-1/4 X 11-13/16	450
3	Power Distribution Transformer TF-184/URN-3	14 X 11-1/2 X 9-3/4	86
	or		
	Power Distribution Transformer TF-235/URN-3	14-3/8 X 10-7/8 X 11-7/16	110

RADIO SET AN/URN-3A

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	SHORE INSTALLATIONS		
1	Radio Set AN/URN-3A same as for shipboard installations		
1	Antenna Group OA-592/URN-3 consisting of:		
	Antenna AS-685/URN-3	78-1/2 X 45 dia	410
	Antenna Base AB-361/URN-3		
	Antenna Control C-2349/URN-3	70 X 30-7/8 X 12-1/2	448
	or		
	Antenna Group OA-591/URN-3 consisting of:		
	Antenna AS-686/URN-3	70-3/4 X 45 dia	410
	Antenna Base AB-361/URN-3		
	Antenna Control C-1349/URN-3	70 X 30-7/8 X 12-1/2	448
	SHIP AND SHORE INSTALLATIONS		
2	Technical Manual for Radio Set AN/URN-3, -3A, Associated Antenna Groups and Accessories		
1	Klystron Tubing Curve		
1	Crystal (Y-401) for the assigned frequency		

April 1958

RADIO RANGING SET AN/URN-4 (XN-1)

Radio Ranging Set AN/URN-4(XN-1)
Dual LF-CW Transmitter

FUNCTIONAL DESCRIPTION

The AN/URN-4(XN-1) is a shipboard radio equipment designed to operate in conjunction with another AN/URN-4(XN-1) and Radio Ranging Set AN/SRN-1(XN-1) to form a precision, automatic radio-ranging system. This system continuously determines ranges between three ships by means of phase comparison. All phase information either originates at the AN/SRN-1(XN-1) or is relayed to this center station from the two AN/URN-4(XN-1) equipments.

The AN/URN-4(XN-1) may be installed on the shore line, but some decrease in the over-all operating efficiency of the system will result.

No field changes in effect at time of preparation (22 January 1958)

ELECTRICAL AND MECHANICAL CHARACTERISTICS

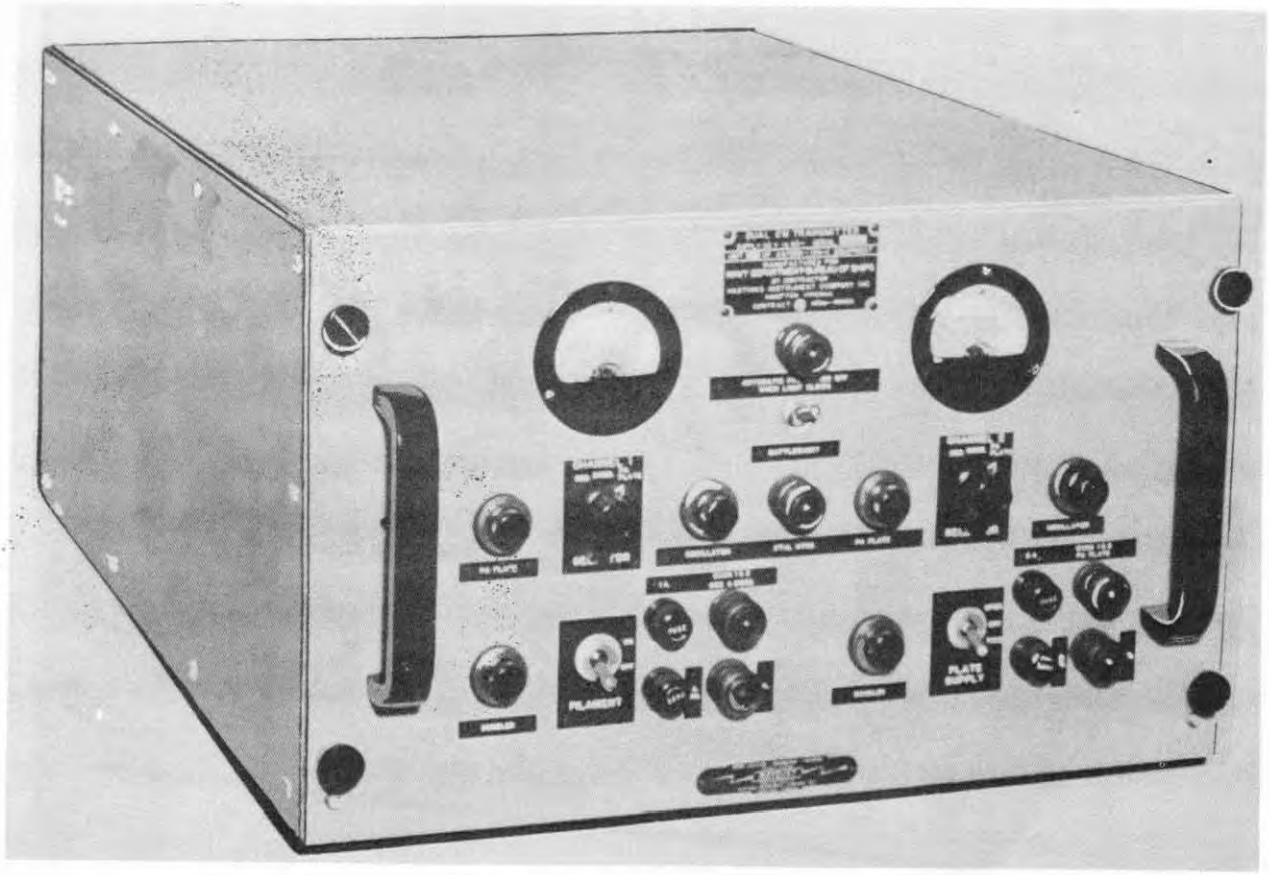
DUAL HF-AM TRANSMITTER
- FREQUENCY RANGE: 36 to 42 mc.
- OPERATING FREQ
  - XMTR NO 1: 36.490 and 36.510 mc.
  - XMTR NO 2: 38.450 and 38.470 mc.
- FREQ CONTROL: Xtal.
- EMISSION: A1, A2.
- POWER OUTPUT: 25 W.

DUAL LF-CW TRANSMITTER
- FREQ RANGE: 2.0 to 5.0 mc.
- OPERATING FREQ
  - XMTR NO. 1: 2.130 and 2.170 mc, +800 cps.
  - XMTR NO. 2: 2.130 and 2.170 mc, +300 cps.
- FREQ CONTROL: Xtal.

Radio-Navigational Aids

AN/URN-4 (XN-1) RADIO RANGING SET

April 1958



Radio Ranging Set AN/URN-4(XN-1)
Dual HF-AM Transmitter

EMISSION: A1.
POWER OUTPUT: 25 W.

DUAL LF-AM RECEIVER
FREQUENCY RANGE: 2.0 to 5.0 mc.
TYPE: Double superheterodyne.

ANTENNA
LF: 35 ft whip (3).
HF: Broad band folded dipole (2).

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

MOUNTING DATA: All units except antenna loading coils are housed in 11 in. x 18 in.x 24 in. dripproof cases designed for deck or relay-rack mounting.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hastings Instrument Co. Inc, Hampton, Virginia.
Contract NObsr-49020, dated 13 January 1950.

TUBE AND/OR CRYSTAL COMPLEMENT

(8) OA2	(7) 5U4G	(2) 12AU7
(2) 6J5	(4) 6L6W	(1) 5Y3GT
(4) 6BA6	(2) 6BE6	(6) 6AL5
(2) OB2	(1) 2BP1	(4) 6AQ5
(2) 6SJ7	(6) 6AG7	(1) 2X2A
	(4) 807W	(2) 6C4

Total Tubes: (58)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91671, Technical Manual for Radio Ranging Sets AN/SRN-1(XN-1) and AN/URN-4 (XN-1).

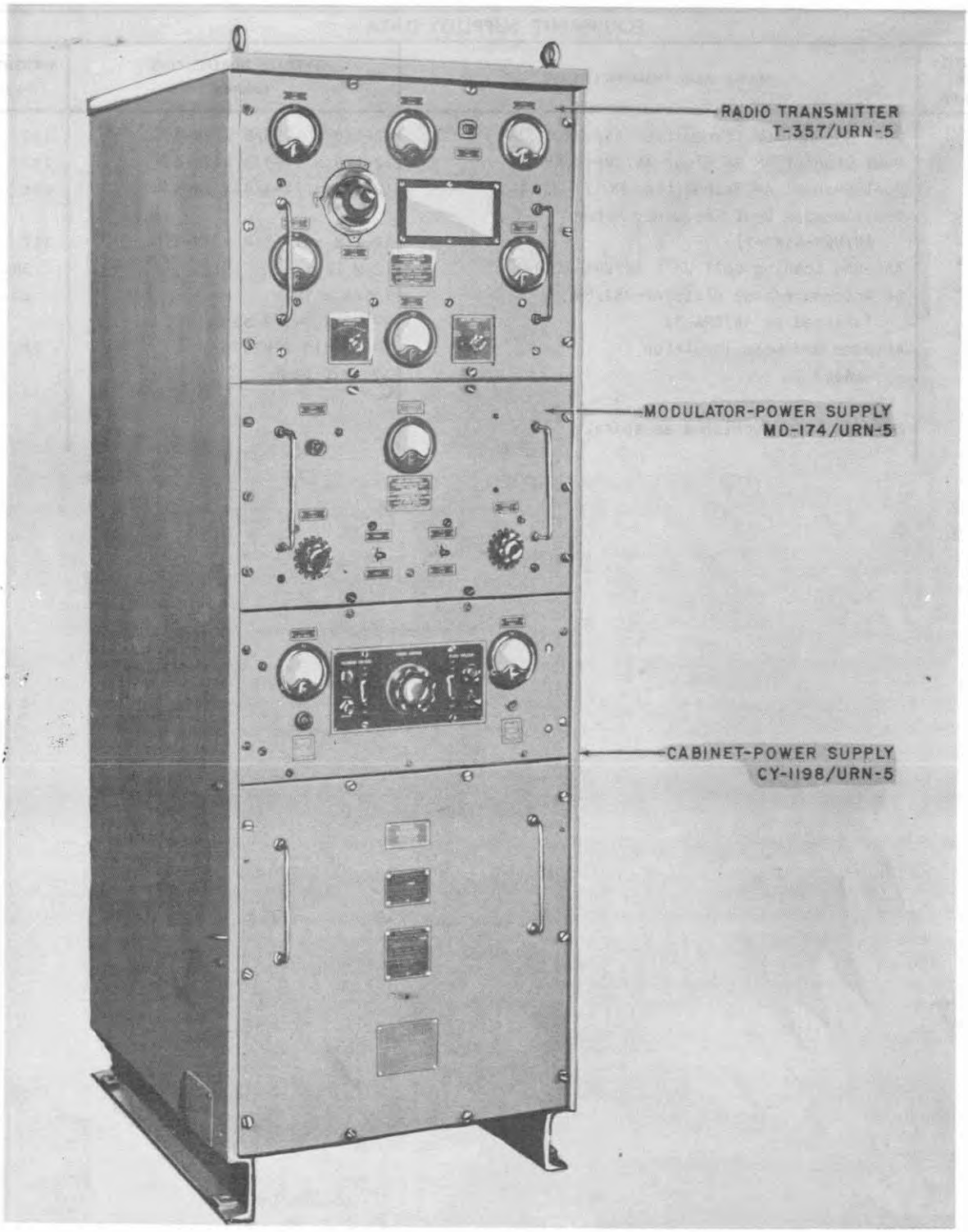
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dual Channel CW Transmitter AN/URN-4(XN-1)	12-1/8 x 17-3/8 x 24-1/4	132
1	Dual Channel AM Receiver AN/URN-4(XN-1)	12-1/8 x 17-3/8 x 24-1/4	132
1	Dual Channel AM Transmitter AN/URN-1(XN-1)	12-1/8 x 24-1/4 x 34-3/4	286
1	Oscilloscope Beat Frequency Meter AN/URN-4(XN-1)	12-1/8 x 17-3/8 x 24-1/4	117
3*	Antenna Loading Coil Unit AN/URN-4(XN-1)	12 x 12 x 18	34.0
3*	HF Antenna w/base plate AT-252/SR (shipped as AN/SRA-3)	1 dia x 78 9-1/2 x 9-1/2 base	25.0
3	Antenna and base insulator -66047	3-1/2 dia x 420 12 X 70 base	125

NOTES: *One furnished as spare.

RADIO BEACON COMMUNICATION SET AN/URN-5



Radio Beacon Communication Set AN/URN-5

Radio-Navigational Aids

AN/URN-5 RADIO BEACON COMMUNICATION SET

April 1958

FUNCTIONAL DESCRIPTION

The AN/URN-5 is used as a combined air navigation facility and tower communications transmitter. It performs the first of these functions by transmitting an omnidirectional signal pattern modulated by a 1020 cycle identification tone which can be used for long or short range homing by aircraft equipped with ADF. The change over to voice transmission, for tower communications, is accomplished by pushing a press-to-talk switch on the microphone and speaking. Communication with the aircraft pilot is facilitated by compression circuits which maintain a relatively steady speech output level despite fluctuations in the voice input signal. A balanced "T" capacity loaded vertical antenna.

For instrument low-approach installations at naval air bases the AN/URN-5 is used in conjunction with the AAF Instrument Low Approach System, functioning as a boundary marker. It may also be used separately as a long range radio compass locator station. When installed on a weather station vessel, it is used to aid air navigation over established ocean routes.

No field changes in effect at time of preparation (17 December 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Xtal Unit CR-26/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQ RANGE: 200 to 800 kc in 3 ranges.
FREQ CONTROL: Xtal or MO.
EMISSION: A2, A3.
POWER OUTPUT: 25 to 400 W.
COMPRESSION CIRCUIT CHARACTERISTICS: Compresses 5 db in normal operation.
IMPEDANCE
  INPUT: 50 ohms.
  OUTPUT: 600 ohms.
POWER SOURCE REQUIRED: 115 v, 50 to 60 cps, single ph, 3 kva.
ANT
  TYPE: Balanced T, w/gnd radials.
  SIZE
    VERT: 50 ft for long range, 15 ft for short range.
    HORIZ: 200 ft.
  IMPEDANCE: 50 ohms, resistive (to input of loading coil).
MTG DATA: Shelter is erected in a 200 ft clearing to allow for the horiz member of the ant to be used.

MANUFACTURER'S OR CONTRACTOR'S DATA

Gates Radio Co, Quincy, Illinois.
Contract NObsr-52356 dated 29 March 1951.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) OC3W	(2) 5D22
(1) 6H6	(5) 6SJ7
(1) 807	(3) OD3W
(3) 5U4G	(1) 6L6WGB
(1) 6SL7WGT	(1) 4-400A
(1) 5670	(2) 6L7
(2) 6SN7WGTA	(2) 4B32
(1) 6AC7WA	(1) 6SH7
(1) 6X5WGTA	

Total Tubes: (32)

No Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91766: Technical Manual for Radio Beacon AN/URN-5.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE BUSHIPS
STOCK NO.

April 1958

RADIO BEACON COMMUNICATION SET AN/URN-5

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
7	Electrical Equipment Shelter	224.0*	12 X 72 X 96**	4112*
4	Ant Hardware and Ant Wiring Kit	13.5*	5 X 6 X 100**	610*
1	Wiring Kit for S-77/URN-5	4.4	7 X 15 X 72	115
1	Ventilating Fan and Louvers for S-77/URN-5	8.5	25 X 29 X 33	160
1	Transmitter Group (less transformer) and Accessories	51.6	30 X 39 X 76	1270
1	High Voltage Transformer p/o Transmitter Group	2.6	15-1/2 X 17 X 17	196
1	Ant Coupler	9.0	18 X 18 X 48	129
1	Transmitter Control and Dynamic Microphone	7.5	20 X 22 X 30	110
1	Equipment Spares	11.1	20 X 20 X 48	340

NOTES: *Total
**Dimensions apply to largest crate.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter Group OA-397/URN-5 c/o (1) Radio Transmitter T-357/URN-5 (1) Modulator-Power Supply MD-174/URN-5 (1) Cabinet Power Supply CY-1198/URN-5	26 X 30 X 72	980
1	Transmitter Control C-1107/URN-5	9 X 10-1/2 X 13	38
1	Dynamic Microphone M-37/U	5-1/2 X 5-1/2 X 10	3
1	Ant Coupler CU-317/URN-5	12 X 12 X 41-1/2	44
1	Cord CG-275/U	120 lg	
1	Electrical Equip Shelter S-77/URN-5	88 X 102 X 104*	4000
1	Wiring Kit MK-90/URN-5		
1	Ant Wiring Kit		

NOTE: *Dimension are for erected shelter.

29 August 1962			RADIO SET AN/URN-6(XN-2)
Cog Service:	FSN:		Functional Class:
	USA	USN	USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: ITT Laboratories, A Division of International Telephone & Telegraph Corporation.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

The Radio Set AN/URN-6(XN-2) consists of coding, storage and display equipment, and constitutes the ground portion of a two-way Data Link (transmission and reception) System when used in conjunction with related airborne equipment (Radio Set AN/ARN-26(XN-2). This AN/URN-6 - AN/ARN-26 system is integrated with the TACAN (Tactical Air Navigation) system to provide the RF equipment needed for the transmission and reception phase.

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

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Ship or shore type installation.
TYPE OF EMISSION: P9 type.
POWER OUTPUT
- PEAK PULSE: 5 kw.
- AVERAGE: 120 W.

FREQUENCY DATA
- LOW BAND RECEIVER: 1025 to 1087 mc.
- HIGH BAND RECEIVER: 1088 to 1150 mc.
- LOW BAND TRANSMITTER: 962 to 1024 mc.
- HIGH BAND TRANSMITTER: 1151 to 1213.
- NUMBER OF BANDS: 2 bands.
- NUMBER OF CHANNELS: 126 channels.

HEAT DISSIPATION
- DATA CONTROL CABINET
  - NORMAL: 4.6 kw.
  - STANDBY: 1.6 kw.
- DATA CODING CABINET
  - NORMAL: 3.3 kw.
  - STANDBY: 1.2 kw.
- DATA STORAGE CABINET
  - NORMAL: 250 W.
  - STANDBY: 550 W.
- ASSIGNMENT BOARD
  - NORMAL: 1000 W
  - STANDBY: 550 W.
- CONTROL CONSOLE
  - NORMAL: 800 W.
  - STANDBY: 400 W.

POWER SUPPLY CHARACTERISTICS
SHIPBOARD: 440 v ac, 60 cps, 3 ph (3-wire) and 117 v ac, 60 cps, single ph.
SHORE: 208 v ac, 60 cps, 3 ph (4-wire).
CURRENT REQUIRED
MAXIMUM STARTING CURRENT: 18 amps per phase.
STANDBY: 8 amps per phase (PF = 0.95).
NORMAL OPERATION: 12 amps per phase (PF = 0.90).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Radio Set consisting of:
(A) Receiver-Transmitter AN/URN-3(XN-5) Ser. 52; (1) Coder-Indicator KY-101(XN-2)/URN-3; (1) Radio Receiver R-549(XN-2)/URN-3; (1) Control Duplexer C-1236(XN-2)/URN-3; (1) Amplifier-Modulator AM-847(XN-2)/URN-3; (1) Frequency Multiplier Oscillator CV-273(XN-2)/URN-3; (1) Cabinet Electrical Equipment CY-1372(XN-2)/URN-3
(B) Power Supply Test Set Group consists of: AN/URN-3(XN-5) Ser. 52; (1) Power Supply PP-954(XN-2)/URN-3; (1) Power Supply PP-955(XN-2)/URN-3; (1) Power Supply PP-956(XN-2)/URN-3; (1) Electrical Equipment Cabinet CY-1373(XN-1)/URN-3.
(1) Antenna Group OA-552(XN-2) consists of:
(1) Antenna, Unit 1 OA-552(XN-1)/URN-3; (1) Antenna Base, Unit 2 OA-553(XN-1)/URN-3;
(1) Radome, Unit 3 OA-554(XN-1)/URN-3; (1) Antenna Control, Unit 4 C-1322(XN-1)/URN-3.
(3) Power Distribution Transformer TF-184/URN-3 consisting of:
(2) Technical Manual for Radio Set AN/URN-3; (1) Kylstron Tuning Curve; 50 ft RG-21 Cable
(1) Oscilloscope; (1) Micrometer.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Service Test Model consisting of:			
1	(A) Data Coding Group consisting of:		25 x 31-1/2 x 74-11/16	830
1	Distributor Storage Unit, Unit 1			
1	Master Timer Unit 2			
1	Telemeter Data Coder Unit 3			
1	Discrete Data Coder Unit 4			
1	Data Coding Cabinet Unit 9			
1	(B) Data Control Group consisting of:		25 x 31-1/2 x 74-11/16	1085
1	Automatic Monitor Unit 5			
1	Program Generator Unit 6			
1	Power Supply Regulator Unit 7			
1	Data Control Cabinet Unit 8			
1	(C) Data Storage Cabinet Unit 10		28-7/8 x 29-11/16 x 33-15/32	310
1	(D) Assignment Board Unit 11		28-5/8 x 29-1/2 x 52	565
5	(E) Control Console Unit 12		27 x 30-29/32 x 62-1/4	293

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93502: Technical Manual for Radio Set AN/URN-6(XN-2).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6AK5 (2) 6AS6 (1) 6AL5 (11) 0A2WA (5) 0A3 (1) 5651WA (338) 5670
(149) 5687WA (30) 5727 (10) 5751 (24) 5814 (10) 6005 (15) 6080 (83) 6197
(277) 6201 (36) 6336 (2) 5726 (5) 6AU6WA (10) 6X4 (12) EL6C

CRYSTALS: None used.

SEMI-CONDUCTORS: (2165) 1N67A (90) 1N151 (3) 1N158 (2) 1N216 (361) 1N274
(132) 1N275 (1802) 1N278 (260) 1N280 (2) 1N338 (8) 1N343
(6) 1N347 (3) 1N353 (1) 30, 10A (1) 10, 1.5A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-R-1465

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
ITT Laboratories, A Division of International Telephone & Telegraph Corporation	Nutley, N. J.	NObsr-64140, 29 March 1954	

Radio-Navigational Aids

RADIO BEACON SET AN/WPN-1

FUNCTIONAL DESCRIPTION

The AN/WPN-1 is a shipboard radio beacon intended to give range and azimuth indications to interrogating airborne radio equipment transmitting in the 2850 to 2910 megacycle (MC) band. Provisions are incorporated for coincidence triggering via radio relay link between plane and ship. The beacon replies with from 2 to 4 pulses per interrogation on frequency of 2820 mc.

The AN/WPN-1 has automatically triggered operation and is designed for surface vessel or submarine installation.

No field changes in effect at time of preparation (6 January 1961).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Surface vessel or submarine.
TYPE OF FUNCTION: Gives range, azimuth indications to interrogating airborne radio equipment transmitting in the 2850 to 2910 mc band.
TYPE OF OPERATION: Automatically triggered.
TYPE OF EMISSION: Pulse modulation.
NUMBER OF BANDS: 1 band.
OPERATING FREQUENCY: 2820 mc.
OPERATING POWER RQMT: 110 v ac, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Maryland Electronics Mfg Corp., College Park, Maryland.
Contract NObsr-71549.
Litton/Maryland Electronics Mfg Corp., College Park, Maryland.
Dwg No. 31281.
Contract NObsr-75802, dated 29 January 1958.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OA2WA	(2) OB2WA
(3) 12AT7WA	(1) 2C39B
(1) 2C53	(1) 2K28
(1) 3B24WA	(1) 3E29
(1) 35T	(3) 5651/WA
(11) 5654/6AK5W	(1) 5687WA
(2) 5725/6AS6W	(2) 5727/2D21W
(20) 5814A	(2) 6X4WA
(2) 6080WA	

Total Tubes: (57).
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Radio Beacon Set AN/WPN-1.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	NAVY BUSHIPS
PROCUREMENT COGNIZANCE	MIL-B-21125 (SHIPS)
STOCK NO.	
R.D.B. IDENT. NO.	

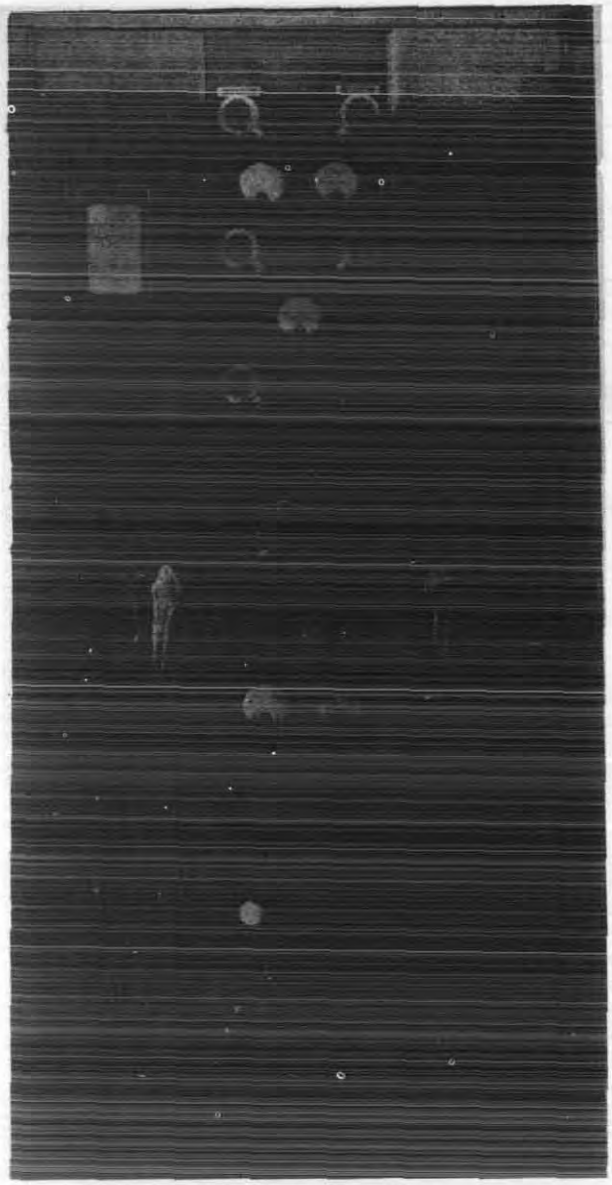
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Beacon Set AN/WPN-1 consists of:		
1	Receiver-Transmitter Group OA-1769/WPN-1		
1	Antenna AT-244A/UPN-7	5-5/16 x 9-3/16 x 25-5/16	35
1	Adapter, Coax to Waveguide UG-551A/U	4-3/8 x 5-5/16 dia	17
1	Control, Beacon C-2409/WPN-1	4-1/16 x 6-1/16 x 9-3/4	
1	Power Supply PP-1922/WPN-1	16-11/32 x 17-3/8 x 18-3/4	
1	Beacon, Radio RT-440/WPN-1	15-15/32 x 18-3/4 x 20	

October 1957

Radio-Navigational Aids

RADIO TRANSMITTER BC-400-H



Radio Transmitter BC-400-H

FUNCTIONAL DESCRIPTION

The BC-400-H is a crystal controlled, tone-modulated transmitter of low power intended for use as a "cone of silence" of Z marker. It may be operated as a radiator of a continuous, unmodulated RF wave, or as a radiator of modulated continuous RF wave with the degree of modulation adjustable.

It is intended for permanent installation, but it may be operated wherever a suitable source of power is available

No field changes in effect at time of preparation (7 January 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Antenna System, (1) Ground System.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY: 75 mc ±7500 cps.
POWER OUTPUT
  UNMODULATED: 5 W.
  MODULATED (100%): 7.5 W.
MODULATION DATA
  PERMISSIBLE MODULATION: 100%.
  FREQUENCY: 3000 cps.
DISTORTION: 10% at 100% modulation.
CARRIER NOISE: Less than 2%.
POWER FACTOR: 78% lagging.
TEMPERATURE (OPERATING): 0 to 100%.
POWER REQUIREMENTS: 95 to 125 v, 60 cps, single ph, 500 W.
POWER INPUT: 445 W unmodulated, 485 W at 100% modulation.
ANTENNA REQUIREMENTS
  LOAD IMPEDANCE: 100 to 600 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Receptor Company, Inc., Brooklyn, N.Y.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 84	(4) 6N7	(1) 6F6
(2) 6L6	(2) 815	(4) 5Z3

Total Tubes: (16)

(2) AR4W
Total Crystals: (2)

REFERENCE DATA AND LITERATURE

TM11-2607: Technical Manual for Radio Transmitter BC-400-H.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

BC-400-H RADIO TRANSMITTER

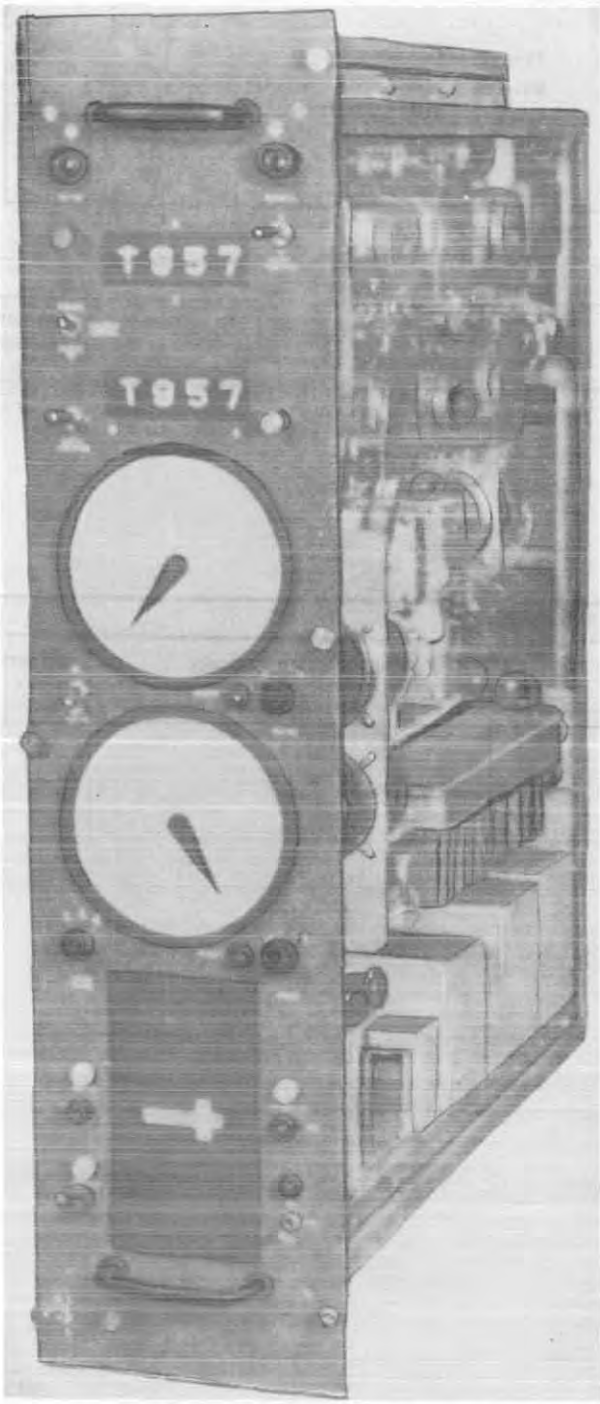
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter BC-400-H including: (1) Set of Spare Parts (2) Kit of Tubes (2) Crystal, Quartz (2) Technical Manual	30	25 X 30 X 70	550

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter BC-400-H	21-1/2 X 24 X 50-1/4	340
2	Technical Manual TM11-2607		
1	Set of Spare Parts		
2	Kit of Tubes		
2	Crystal, Quartz		

NAVIGATIONAL COMPUTER CP-175/U



Navigational Computer CP-175/U

FUNCTIONAL DESCRIPTION

The CP-175/U is a course and speed data generator which provides a simulated means of generating motion of various vehicles such as ships, submarines, aircraft, guided missiles or landing craft.

The CP-175/U supplies the information necessary to specify completely the course and speed of a vehicle.

A target simulation is achieved by generation of rectangular coordinate data from course and speed inputs, so that the movement of a vehicle on any of four ocean sizes can be presented. Targets can be maneuvered by local operation or remote control. On the equipment, coordinate output data is presented by mechanical counters while at the remote stations, the same information is available as synchro voltage, step transmitter voltage or helipot resistance.

No field changes in effect at time of preparation (16 September 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUTS: AC Voltage for controlling speed and course from a remote switch; facilities for selecting ocean range from a remote switch; facilities for selecting clock speed from a remote switch; ac position matching control voltage from a remote point.

OUTPUTS: X and Y coordinate step-by-step transmitter position data; X and Y coordinate helipot resistance position data; X and Y coordinate 5HG synchro position data; remote indication of course; remote indication of speed; ships speed synchro information 1X; ships heading information 1X and 36 X.

POWER SOURCE REQUIRED: 115 v, 60 cps, single ph, 400 W and 115 v, 60 cps, single ph, 20 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

DuMont-Airplane and Marine Instruments, Inc, Clearfield, Pa.
Contract NObsr-52346 dated 23 March 1951.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6AU6WA	(2) 6005/6AQ5W
(1) 5814A	(4) 6L6WGB/5881

CP-175/U NAVIGATIONAL COMPUTER

(1) 5751 (2) 5R4WGB
Total Tubes: (12)

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92855(A): Technical Manual for Navigational Computer CP-175/U.

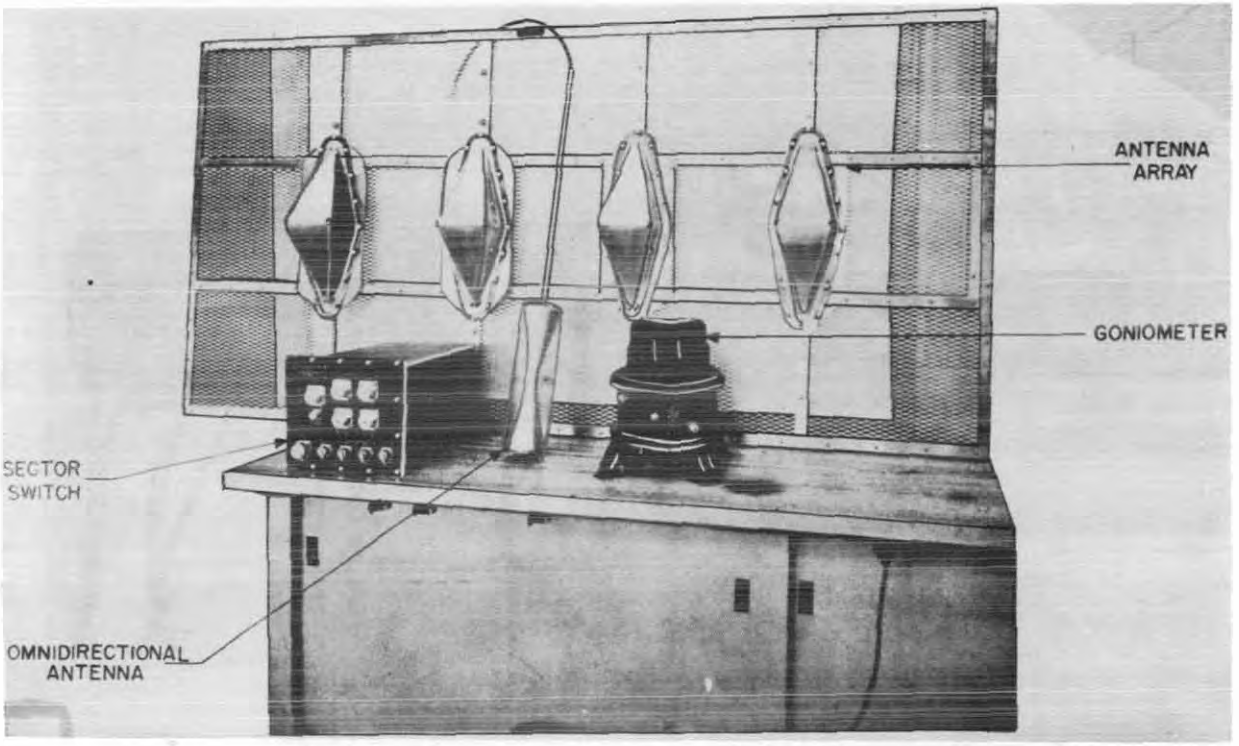
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Computer, Navigational CP-175/U including (2) Technical Manuals	40	36 X 37 X 50	600
1	2 quarts of oil			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Computer, Navigational CP-175/U	9-1/2 X 30 X 39	325
2	Quarts of Oil		

DIRECTION FINDER CXGS



CXGS Topside Equipment

FUNCTIONAL DESCRIPTION

The Navy Model CXGS is designed for shore or shipboard installation to provide accurate and continuous information regarding the direction of arrival of transmitted signals in the 225 to 390 megacycle frequency range, whether continuous-wave, modulated continuous-wave, phase or frequency modulation. Presentation of the information is displayed on a cathode-ray tube type indicator. It utilizes a standard Navy Model RDZ Receiver with the addition of a video circuit, that is a ten channel, preset, crystal-controlled receiver.

It is so designed that four individual sectors, each of which scans 90 degrees in azimuth, may be placed as much as 300 feet apart. The separation of the sectors is effective in those sites in which a single reflection-free location cannot be found.

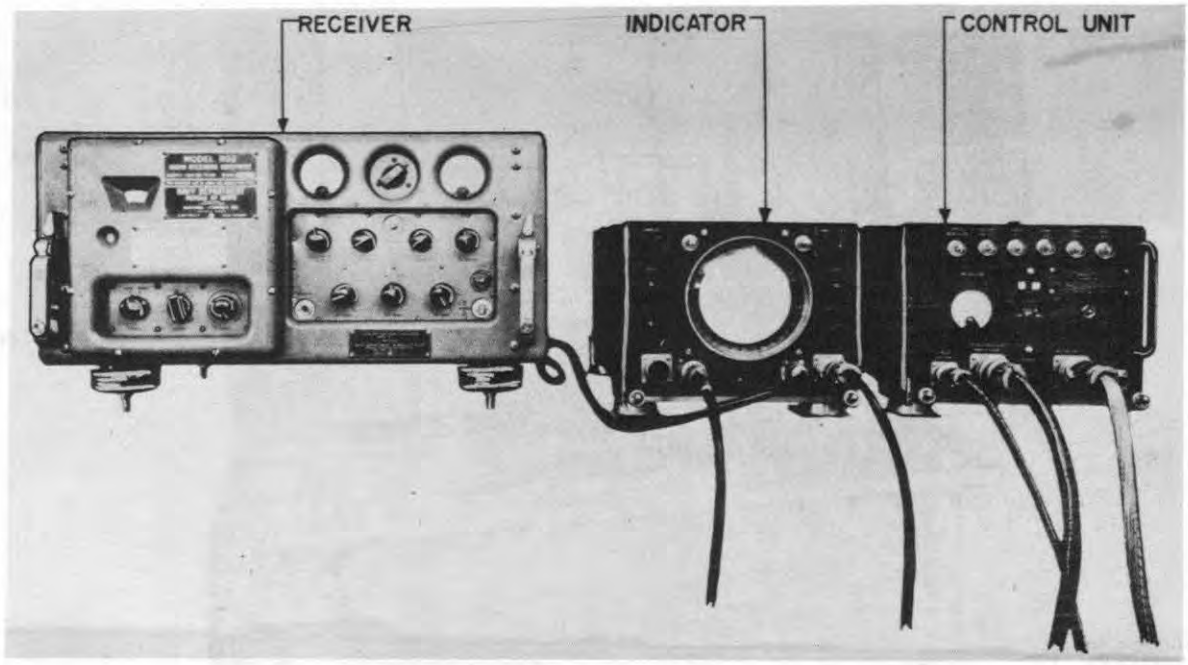
It also can be used for communication purposes when the control unit is switched to the "scan" position.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225 to 390 mc.
RECEPTION: Voice, cw, mcw, phase or frequency modulation.
PRESENTATION: 5 in. CR tube.
RECEIVER DATA
- FREQUENCY RANGE: 200 to 400 mc except for 222 to 232 mc which is unusable due to blocking of IF Amplifier by harmonics.
- FREQUENCY CONTROL: Crystal.
- CHANNELS: 10.
- TYPE: Superheterodyne.
- IF DATA
  - CENTER FREQUENCY: 15.1 mc ±10 kc.
  - BANDWIDTH: 125 and 250 kc at 6 db down.

CXGS DIRECTION FINDER



CXGS Operating Room Equipment

OUTPUT (AT 7% DISTORTION MAX)
AUDIO: 6 v or 60 mw into 600 ohm load.
PHONE JACK: 1.5 v or 4 mw into 600 ohm load.
VIDEO: 1.5 v into 1000 ohm load based on 30% modulation at 1000 cps.

POWER REQUIREMENTS: 110 to 120 v, 60 ±3 cps, single ph, 1600 W.

ANTENNA DATA
TYPE
SEARCH: Expanded metal aluminum screen consisting of 2 active and 2 dummy antennas.
OMNI-DIRECTIONAL: Broadband half-wave dipole.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp., New York, N.Y.
Contract NXsr-71260.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OD3W
(1) 2X2A
(1) 5CP1
(2) 5654/6AK5W
(3) 6AC7WA
(2) 6F4
(1) 6SN7WGTA
(1) 6X5GT/G
(1) 5U4G
(7) 6AB7
(4) 6AK6
(1) 6H6
(1) 6V6GTY
(1) 956

Total Tubes: (27)

(10) NT-40162
Total Crystals: (10)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91022: Technical Manual for Direction Finder Navy Model CXGS.
NAVSHIPS 900617: Technical Manual for Radio Receiving Equipment Navy Model RDZ and RDZ-1.

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

DIRECTION FINDER

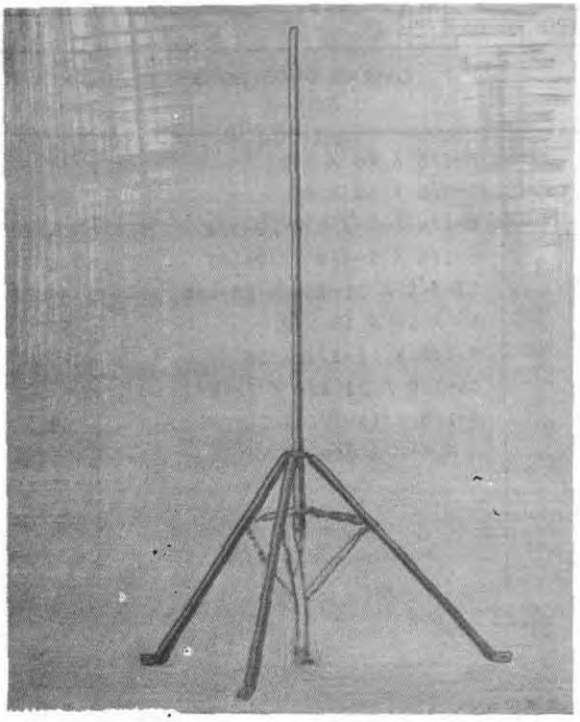
CXGS

EQUIPMENT SUPPLIED DATA

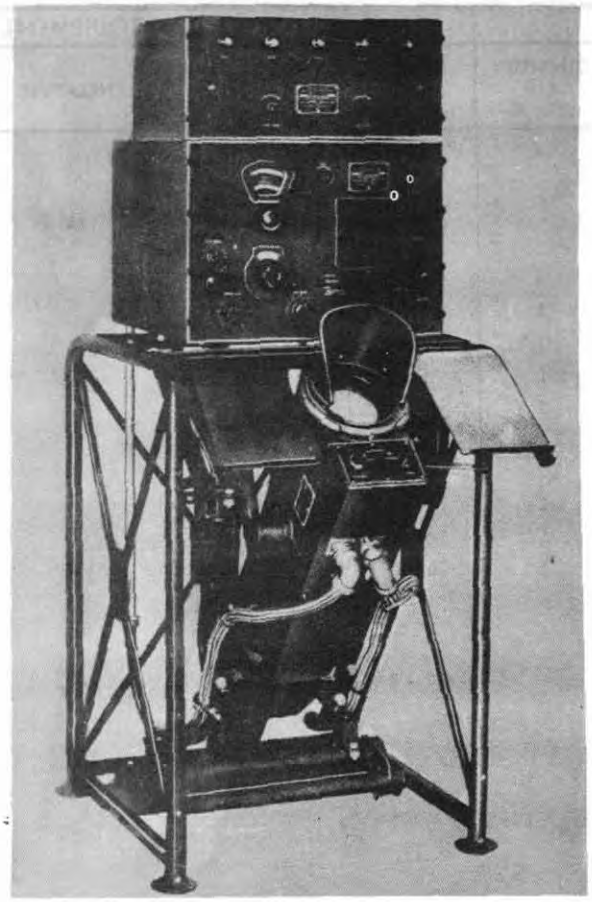
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
4	Antenna System consisting of:	6-5/8 X 96 X 108	50.5
	(1) Reflector Unit	1-3/8 X 48 X 96	33.5
	(2) Direction Finder Antenna	5-1/4 X 8-3/8 X 22-1/2	4.25
	(2) Dummy Antenna	5-1/4 X 8-3/8 X 22-1/2	4.25
4	Goniometer	11-3/4 X 11-3/4 X 15-1/4	38.75
1	Sector Switch	13 X 14 X 18-1/2	30.0
1	Control Unit	9-1/4 X 11-1/2 X 16	30.0
1	Receiver Navy Model RDZ	13-1/4 X 22-1/4 X 22-1/2	137.0
1	Indicator	9-1/4 X 11-1/2 X 23	38.0
1	Omni-Directional Antenna	4 X 4-1/2 dia	5.5
12	Transmission Line RG-8/U		
1	Transmission Line RG-17/U		
1	Set of Interconnecting Cables		
1	Technical Manual NAVSHIPS 91022		

April 1958

RADIO DIRECTION FINDER EQUIPMENT CXRN, CXRO



Antenna Assembly AS-649(XN-1)/TRD



Direction Finding Set

FUNCTIONAL DESCRIPTION

The CXRN and CXRO are shore based equipments intended for rapidly indicating the direction of arrival of radio signals. The CXRN and CXRO are similar equipments but are designed for use in separate frequency ranges. Both models utilize the same radio receiver, power unit and indicator apparatus. The radio receiver covers the frequency range of 1.5 to 30 mc, altho for direction finding purposes its utility is confined to the frequency range of 1.5 to 7.5 mc for Model CXRN and 7.5 to 30 mc for Model CXRO. These equipments differ principally in the size and frequency response of the Adcock type antennas used.

No field changes in effect at time of prepatation (20 March 1958).

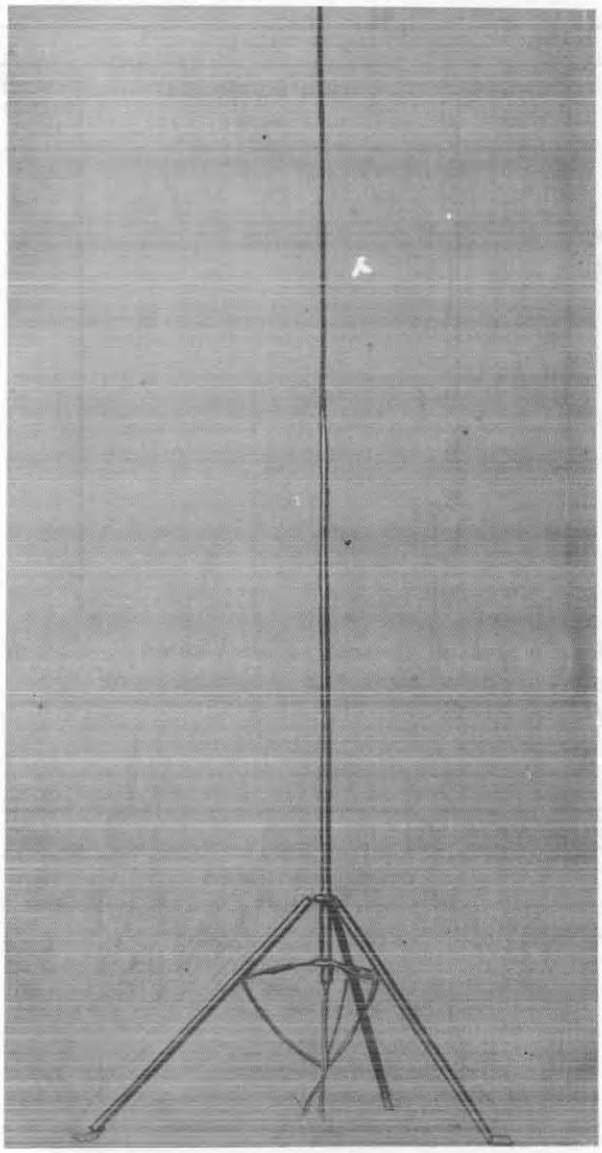
RELATION TO OTHER EQUIPMENT

Models CXRN and CXRO each contain a Radio receiver, power unit, bearing indicator and a goniometer, which were originally designed for use on shipboard as part of the Model DAQ High Frequency Radio Direction Finder System, having a crossed loop mast top antenna. The CXRN and CXRO systems utilize crossed U-Adcock antenna pairs which function in substantially the same manner as crossed loops although with considerably improved efficien-

Radio-Navigational Aids

CXRN, CXRO RADIO DIRECTION FINDER EQUIPMENT

April 1958



Antenna Assembly AS-648(XN-1)/TRD

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- MODEL CXRN: 1.5 to 7.5 mc.
- MODEL CXRO: 7.5 to 30 mc.
- RECEIVER NT. 46194: 1.5 to 30 mc in 4 bands.

BEARING INDICATION: Instantaneous, automatic, visual.

INDICATOR TYPE: 5 in. CR tube.

RECEIVER TYPE: Superheterodyne.

INTERMEDIATE FREQUENCY: 455 kc.

AUDIO OUTPUT POWER
- LOUDSPEAKER (J-106): 1.0 W max undistorted into a 600 ohm load.
- PHONE (J-103): 50 mw max undistorted into a 600 ohm load.

OUTPUT IMPEDANCE
- LOUDSPEAKER: 4 ohms.
- PHONES: 600 ohms.

SENSITIVITY: 30 uv per meter approx, for 20 db signal/noise ratio.

SELECTIVITY
- SHARP: 3.0 kc for 6 db down.
- BOARD: 6.5 kc for 6 db down.

ACCURACY: Within 1% of indicated values.

POWER SOURCE REQUIRED: 115 v ±10%, 60 cps ±5%, single ph, 500 W, 70% pf.

ANTENNA DATA: U-Adcock Antenna Array consisting of five vertical metal conductors, having tripod bases and secured to the ground by means of chains and anchors.

MANUFACTURER'S OR CONTRACTOR'S DATA

Pickard and Burns, Inc., Needham, Mass.
Contract NObsr-52724.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OD3W	(1) 1R5	(1) 2X2A
(1) 3B7/1291	(1) 5BP1	(1) 5U4G
(1) 6AC7WA	(1) 6H6	(1) 6J5
(1) 6K6GT	(2) 6SH7	(1) 6SJ7
(4) 6SK7WA	(1) 6SQ7	(1) 6X5WGT
(1) 6SA7Y		

Total Tubes: (21)

No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92290: Technical Manual for Radio Direction Finder Equipment Navy Model CXRN and CXRO.

SHIPS 233: Technical Manual for High Frequency Direction Finder System Model DAQ.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

RADIO DIRECTION FINDER EQUIPMENT CXRN, CXRO

SHIPPING DATA

NUMBER OF BOXES		CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
CXRN	CXRO				
1	1	Tools and Instruction Books			
1		Parts of Antenna Assembly AS-648(XN-1)/TRD			
	1	Parts of Antenna Assembly AS-649(XN-1)/TRD			
5		Antenna Assembly AS-648(XN-1)/TRD			
	5	Antenna Assembly AS-649(XN-1)/TRD			
2	2	Ground Screen Parts			
1	1	Bearing Indicator NT-55092			
1	1	Radio Receiver NT-46194 including: Rectifier Power Unit NT-20169			
1	1	Test Equipment and Spare Parts			
1	1	Operator's Chair			
1	1	Cable Reel			
5	4	RF Cable			

NOTE: The monopoles are shipped and packed in slotted ply-wood transit cases and unlike the shipping crates are designed for reuse, and should be saved for possible relocation of the Direction Finder.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
CXRN	CXRO			
1	1	Rectifier-Power Unit NT 20169	8-23/32 X 12-9/16 X 19	45
1	1	Radio Receiver NT 46194	13-31/32 X 17-9/16 X 19	97
1	1	Goniometer NT 47263	3-1/2 X 5-1/4 X 7-1/4	3.5
1	1	Automatic Bearing Indicator NT 55092	9 X 12 X 38	95
5		Antenna Assembly (Monopole) AS-648(XN-1)/TRD	12 X 12 X 14-1/2	132
	5	Antenna Assembly (Monopole) AS-649(XN-1)/TRD	12 X 12 X 14-1/2	122
1		Set (7) R. F. Cables		505
	1	Set 7 R. F. Cables		395
19	18	Transit Cases		
1	1	Adjustable Open End Wrench 6"		
1	1	Screw Driver 6"		
2	2	Monkey Wrenches 9"		
1	1	Pry Bar 18"		
1	1	Strap Wrench 18"		
1	1	Level (with special feet) 18"		
1	1	Sledge Hammer 3 lb.		
1	1	Shovel 3' 2"		
1	1	Grass Whip 3' 6"		

CXRN, CXRO RADIO DIRECTION FINDER EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
CXRN	CXRO			
2	2	Pr. Cable Handler's Gloves		
1	1	Gas Pliers		
1	1	50 ft. Steel Tape Rule		
1	1	Bostrom Convertible Level (Surveyers Transit) Model #5 with Instruction Pamphlet		
2	2	Instruction Book NAVSHIPS 92290		
2	2	Instruction Book SHIPS 233(DAQ)		
2	2	Calibration Chart Pads		
5	5	Antenna Insulators		
15	15	Antenna Foot Plates (1 ft. X 1 ft.)		
15	15	Antenna Foot Pins (10 in pole steps)		
40	40	Banding Straps (with colored markers)		
1	1	Stodia		
1	1	Tripod for Surveyor's Transit		
5	5	Turnbuckles		
15	15	Hold-down Chairs		
5	5	Large Screw Anchors		
12	12	Small Screw Anchors		
2	2	Junction Boxes		
10	10	Ground Screens		
1	1	Target Transmitter NT 52300		
1	1	Target Transmitter Whip Antenna		
1	1	Power and Relay Test Cable		
1	1	AC Input Test Cable		
1	1	Low Voltage Power Test Cable		
1	1	Amplifier Input Test Cable		
1	1	Target Transmitter Grounding Cable		
1	1	High Voltage Power Test Cable		
1	1	Demagnetizer		
7	7	Antenna Coupling Units		
1	1	Test Lead Assembly		
1	1	Test Plug Assembly		
1	1	DAQ Wrench Set		
1	1	Can Machine Oil		
1	1	Allen Wrench 3/8"		
1	1	Alignment Tool		
1	1	Main Line Test Cable		
1	1	Operator's Chair		
1	1	Portable Cable Reel Complete (including 2 legs)		
1	1	Set of Maintenance Spare Parts		

RADIO DIRECTION FINDER EQUIPMENT DAF

Radio Direction Finder Equipment DAF

FUNCTIONAL DESCRIPTION

The DAF is designed for use on small craft of wooden construction and is capable of taking accurate bearings of radio signals by the aural-null method. The receiver should be installed well above the water line.

No field changes in effect at time of preparation (8 April 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: 6 volt storage battery for power supply.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 80 to 3500 kc in four bands.
RECEPTION: A1, A2 and A3.
TYPE OF RECEIVER: Superheterodyne.
IF: 175 kc.
BEARING INDICATION: Aural null.
POWER SOURCE REQUIRED: Dynamotor requires 6 v DC, 22 W to provide 140 v output.

MANUFACTURER'S OR CONTRACTOR'S DATA

E. M. Sargent Co., Oakland, California.
Contract NOs-99789 dated 9 March 1942.
Approximate Cost: $500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6E5
(1) 6H6
(1) 6K6GT
(3) 6SK7WA
(1) 6SL7WGT
(1) 6SA7Y

Total Tubes: (8)

No Crystals Used.

REFERENCE DATA AND LITERATURE

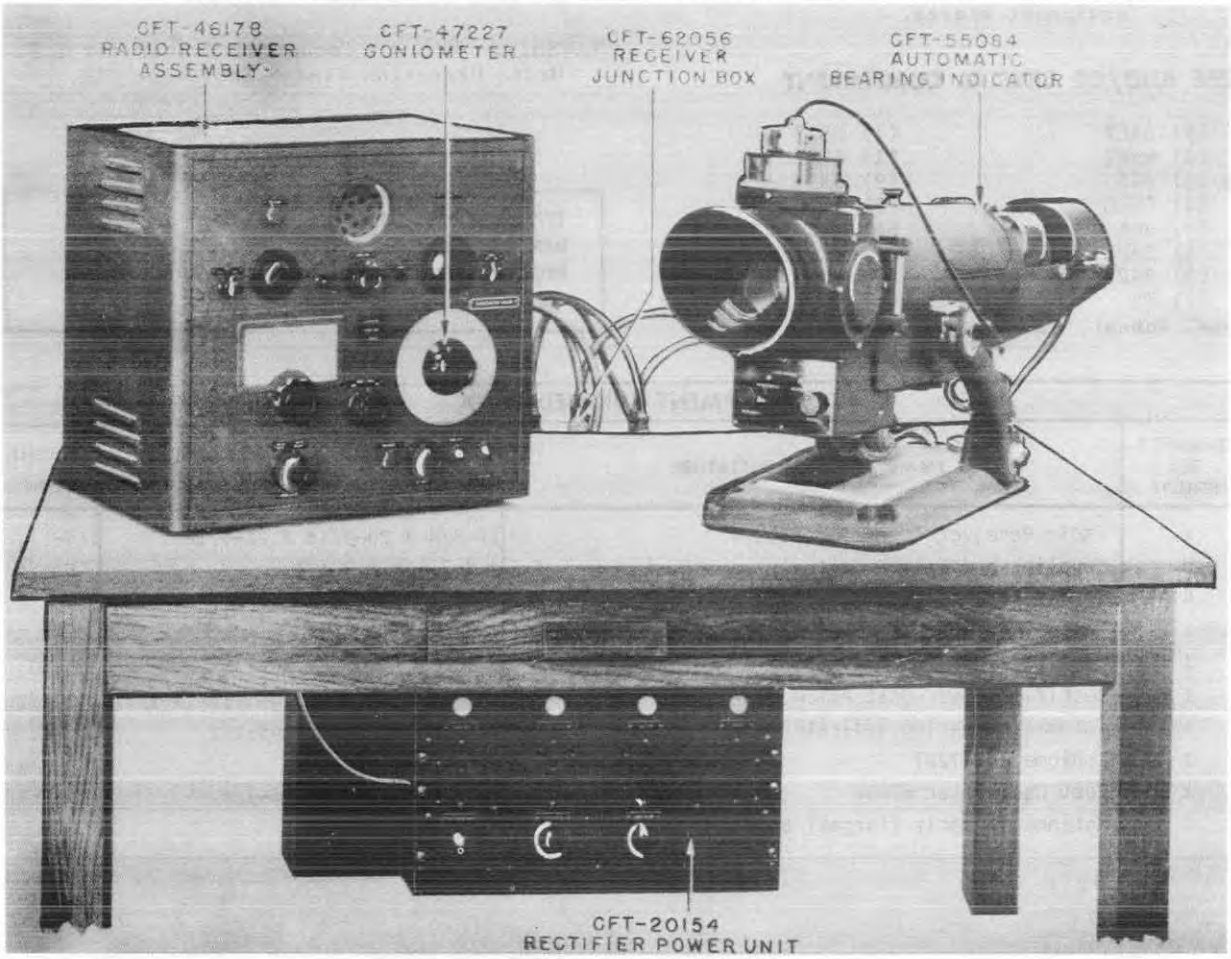
NAVSHIPS 900,272: Model DAF Radio Direction Finder Technical Manual.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver CRG-46175	9-1/4 X 13-3/4 X 13-3/4	
1	Dynamotor Assembly CRG-21842	3-1/2 X 6-1/8 X 10-3/8	
1	Plug-in Loop CRG-69079	16 dia	
1	Plug-in Loop CRG-69079	16 dia	
1	Telescoping Antenna	36	
1	Set of Accessories and Equipment Spares		

I. F. RADIO DIRECTION FINDER EQUIPMENT



I.F. Radio Direction Finder Equipment DAH

FUNCTIONAL DESCRIPTION

The DAH is a fixed land station direction finder using a U-Adcock type antenna array designed for ground station operation.

It covers the frequency range between 250 and 1500 kc, radio frequency transmission lines of sufficient length connect the antenna system to the self contained receiving and indicating equipment assembly which is located in the direction finder house.

Three modes of bearing determinations are provided as follows, instantaneous automatic visual, aural null or visual null.

No field changes in effect at time of preparation (23 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF RECEPTION: A1, A2, A3.
FREQUENCY RANGE: 250 to 1500 kc (2 bands).
TYPE OF RECEIVER CIRCUIT: Superheterodyne.
RECEIVER IF: 175 kc.
AUDIO OUTPUT POWER: 4 mw into 600 ohm earphone output or 250 mw into 4 ohm loudspeaker.
POWER SOURCE REQUIRED: 115 v, 60 cycle, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp., Newark, N.J.
Contract NXs 1748, dated 31 March 1942.

DAH

I. F. RADIO DIRECTION FINDER EQUIPMENT

December 1956

Approximate Cost: $15,000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(8) 6AC7	(1) 6SA7
(4) 6SK7	(1) 6SR7
(1) 6E5	(2) 6SJ7
(1) 5U4G	(2) 6X5GT
(2) 6H6	(1) 6J5
(1) 2AP1	(1) VR-150/30
(1) 2X2/879	(1) 80
(1) T2	(1) 5NP1/5BP1/1802

Total Tubes: (29)

REFERENCE DATA AND LITERATURE

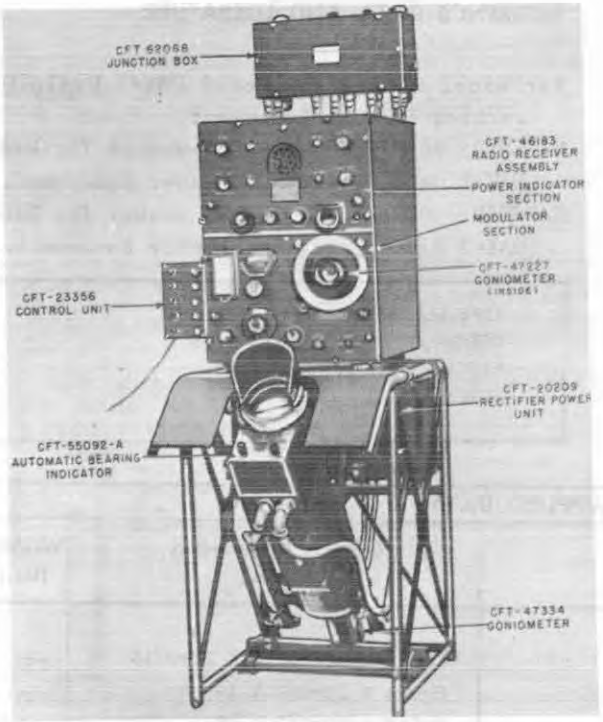
NAVSHIPS 900757: Technical Manual for I.F. Radio Direction Finder Equipment DAH.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver Assembly 46178	19-3/4 X 20-3/16 X 21-9/16	157-1/2
5	Coupling and Filter Unit	4 X 7-3/8 X 9-1/2	5-1/2
4	Corner Antenna Assembly 66056	15 X 108-3/4	3120
1	Central Antenna Assembly 66055	2 dia. X 50	650
1	Receiver Junction Box Assembly 62056	8-3/4 X 24-5/8 X 27-3/4	13030
1	Rectifier Power Unit 20154	11-23/32X12-3/16X14-5/32X19-13/16	73-1/2
1	Automatic Bearing Indicator 55084	12-5/8 X 20-1/2 X 45-1/2	105-1/2
2	Goniometer 47227	8 X 6-3/4 dia.	9-1/4
1	Test Oscillator 60054	9-3/4 X 16-1/4 X 16-3/4	
1	Antenna Assembly (Target) 66082	1/2 dia X 15 ft.	

RADIO DIRECTION FINDER EQUPMENT DAK,DAK-1 thru -4



Radio Direction Finder Equipment Model DAK-1

FUNCTIONAL DESCRIPTION

The Navy Models DAK, DAK-1, thru DAK-4 are medium frequency radio direction finder equipments designed for shipboard installation for operation in the 250 to 1500 kilocycle frequency range. Bearings may be determined by the visual or aural null method, or by the matched line method. Models DAK, DAK-1, and DAK-2 also provide instantaneous visual bearing indication on a 5-inch cathode-ray tube.

The Models DAK, DAK-1, and DAK-2 are electrically and mechanically similar, changes being incorporated as each new model wa produced. The Model DAK-3 is similar to th earlier models, but does not include th instantaneous visual bearing indicator available on a 5-inch cathode-ray tube in the earlier models. The Model DAK-4 is identical to Model DAK-3 except that it does not include the antennas.

No field changes in effect at time of preparation (8 May 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 250 to 1500 kc in 2 bands.
RECEPTION: A1, A2, A3.
TYPE RECEIVER: Superheterodyne.
AUDIO OUTPUT
  EARPHONES: 15 max undistorted.
  LOUDSPEAKER: 1.5 W ma.
OUTPUT IMPEDANCE: 600 ohms for headset, 4 ohms for speaker.
SENSITIVITY: 2 uv for ±2 deg repeatability.
IF: 175 kc.
BANDWIDTH (TWO TIMES, 6 DB, DOWN)
  AT 1500 KC.
    SHARP: 3.5 kc.
    BROAD: 9 kc.
  AT 250 KC
    SHARP: 2 kc.
    BROAD: 3 kc.
BEARING INDICATION
  DAK, DAK-1,-2: Instantaneous visual, visual null, aural null, matched-line.
  DAK-3, -4: Visual null, aural null, matched-line.
POWER REQUIREMENTS: 115 v, 60 cps, single ph, 0.5 kva.
TYPE ANTENNAS: Crossed loop and whip.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Newark, N.J.
Contract NXs-1748, dated 31 March 1942 (DAK-1).
Contract NXss-33628, dated 30 June 1943 (DAK-2) (DAK-3).
Contract NXsr-71263 (DAK-4).

TUBE AND/OR CRYSTAL COMPLEMENT

DAK, DAK-1

(1) OD3W	(1) 2AP1A
(2) 2X2A	(1) 5NP1
(1) 5U4G	(6) 6AC7WA
(1) 6E5	(4) 6H6
(1) 6J5	(1) 6K6GT
(1) 6SA7Y	(2) 6SJ7
(5) 6SK7WA	(1) 6SN7WGTA
(1) 6SQ7	(1) 6X5WGT

Total Tubes: (30)

DAK-2

(1) OD3W	(1) 2AP1A
(2) 2X2A	(1) 5NP1
(1) 5U4G	(6) 6AC7WA
(4) 6H6	(1) 6J5
(1) 6SA7Y	(2) 6SJ7

Radio-Navigational Aids

DAK,DAK-1 thru -4 RADIO DIRECTION FINDER EQUPMENT

(1) 6SQ7 (1) 6SN7WGTA
(1) 6X5WGT (5) 6SK7WA (1) 6V6GTY
Total Tubes: (29)

DAK-3, DAK-4

(1) 2AP1A (1) 2X2A
(1) 5U4G (5) 6AC7WA
(3) 6H6 (1) 6SA7Y
(2) 6SJ7 (5) 6SK7WA
(1) 6SN7WGTA (1) 6SQ7
(1) 6V6GTY
Total Tubes: (22)

No Crystals Used.

REFERENCE DATA AND LITERATURE

Technical Manual for Model DAK-1 Radio Direction Finding Equipment.
NAVSHIPS 900277: Technical Manual for Model DAK-2 Radio Direction Finder Equipment.
NAVSHIPS 900264: Technical Manual for Model DAK-3 Radio Direction Finder Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

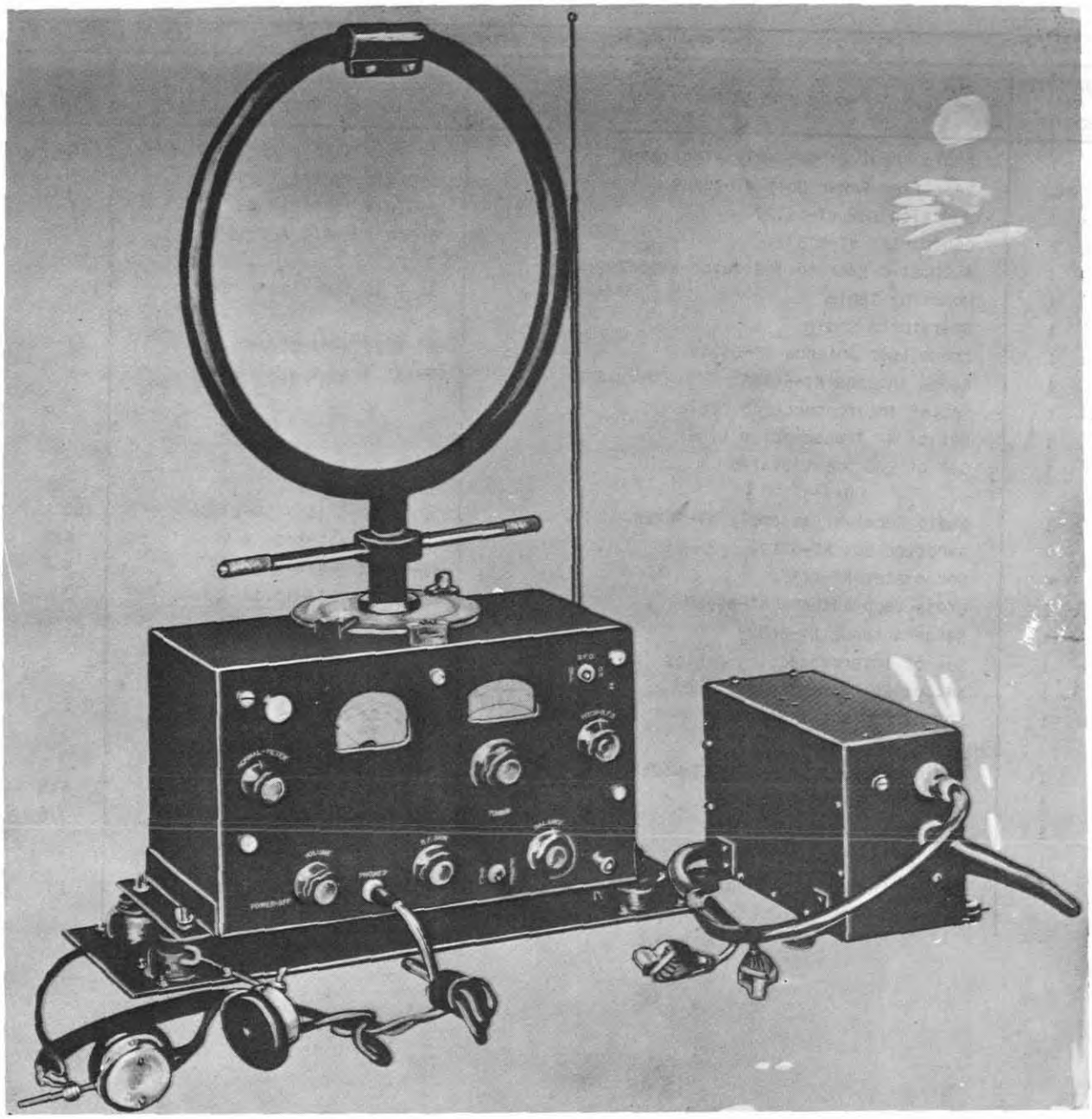
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	DAK		
1	Radio Receiver Assembly NT-46178	19-3/4 X 20-3/16 X 21-9/16	255
1	Rectifier Power Unit NT-20209	8-3/4 X 13-1/2 X 19	43
1	Junction Box NT-62068	8-5/6 X 15-1/2 X 18	34.5
1	Goniometer NT-47227	6-7/8 X 8 X 9-3/8	9.25
1	Goniometer NT-47334	4-5/8 X 4-7/8 X 8-1/8	3.5
1	Automatic Bearing Indicator NT-55092-A	9 X 12 X 38	95
1	Mounting Table	24 X 32-1/2 X 36	115
1	Operator's Chair		26
1	Cross Loop and Sense Antenna Assembly NT-69084	23 X 23 X 68-3/4	73
1	Set of Interconnecting Cables		
1	Set of RF Transmission Lines		
2	Technical Manual		
	DAK-1		
1	Radio Receiver Assembly NT-46183	21-1/2 X 23-3/4 X 27-3/16	252.5
1	Rectifier Power Unit NT-20209	8-3/4 X 13-1/2 X 19	43
1	Junction Box NT-62068	8-5/16 X 15-1/2 X 18	34.5
1	Goniometer NT-47227	6-7/8 X 8 X 9-3/8	9.25
1	Goniometer NT-47334	4-5/8 X 4-7/8 X 8-1/8	3.5
1	Automatic Bearing Indicator NT-55092-A	9 X 12 X 38	95
1	Mounting Table	24 X 32-1/2 X 36	115
1	Operator's Chair		26
1	Cross Loop and Sense Antenna Assembly NT-69084	23 X 23 X 68-3/4	73
1	Set of Interconnecting Cables		
1	Set of RF Transmissions Lines		
1	Set of Equipment Spares		
	DAK-2		

RADIO DIRECTION FINDER EQUPMENT DAK,DAK-1 thru -4

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver Assembly NT-46183-A	19 X 21-5/16 X 28-27/32	185
1	Rectifier Power Unit NT-20209	8-3/4 X 13-1/2 X 19	43
1	Junction Box NT-62127	8-5/6 X 15-1/2 X 18	34.5
2	Goniometer NT-47372	5-3/4 X 5-3/4 X 8-1/8	4.5
1	Automatic Bearing Indicator NT-55092-A	9 X 12 X 38	95
1	Mounting Table	24 X 32-1/2 X 36	115
1	Operator's Chair		
1	Cross Loop Antenna NT-69089	27 X 27 X 61-15/16	73
1	Sense Antenna NT-66093	9-1/2 X 13 X 25-5/8	43
1	Set of Interconnecting Cable		
1	Set of RF Transmission Lines		
1	Set of Equipment Spares		
	DAK-3		
1	Radio Receiver Assembly NT-46245	19 X 21-5/16 X 28-27/32	180
1	Junction Box NT-62138	5-27/32 X 7-3/16 X 9	6.5
1	Goniometer NT-47372	5-3/4 X 5-3/4 X 8-1/8	4.5
1	Cross Loop Antenna NT-69089	27 X 27 X 61-15/16	73
1	Sense Antenna NT-66093	9-1/2 X 13 X 25-5/8	43
1	Set of Interconnecting Cables		
1	Set of RF Transmission Lines		
1	Set of Equipment Spares		
	DAK-4		
1	Radio Receiver Assembly NT-46245	19 X 21-5/16 X 28-27/32	180
1	Junction Box NT-62138	5-27/32 X 7-3/16 X 9	6.5
1	Goniometer NT-47372	5-3/4 X 5-3/4 X 8-1/8	4.5
1	Set of Interconnecting Cables		
1	Set of Equipment Spares		

RADIO DIRECTION FINDER EQUIPMENT DAP



Direction Finder DAP

FUNCTIONAL DESCRIPTION

The DAP is for use on small Naval craft of wooden construction. It is capable of taking accurate bearings of radio signals for navigational purposes. The equipment may be mounted below decks if the loop antenna is well above the water line.

No field changes in effect at time of preparation (8 April 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) 6 volt storage battery.

Radio-Navigational Aids

DAP RADIO DIRECTION FINDER EQUIPMENT

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 290 to 550 kc.
RECEPTION: A1, A2, A3.
BEARING INDICATION: Aural Null.
CIRCUIT TYPE: Superheterodyne.
IF: 175 kc.
OVER-ALL SENSITIVITY: 60 uv input for 6 mw output.
POWER REQUIREMENTS: 6 v DC.
MOUNTING DATA: Shock mounted for shelf or table installation.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6G6G
(3) 6SK7WA
(2) 6SQ7GT
(1) 6J5
(1) 6SA7GT
Total Tubes: (8)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95077: Technical Manual for Radio Direction Finder Equipment Navy Model DAP.

MANUFACTURER'S OR CONTRACTOR'S DATA

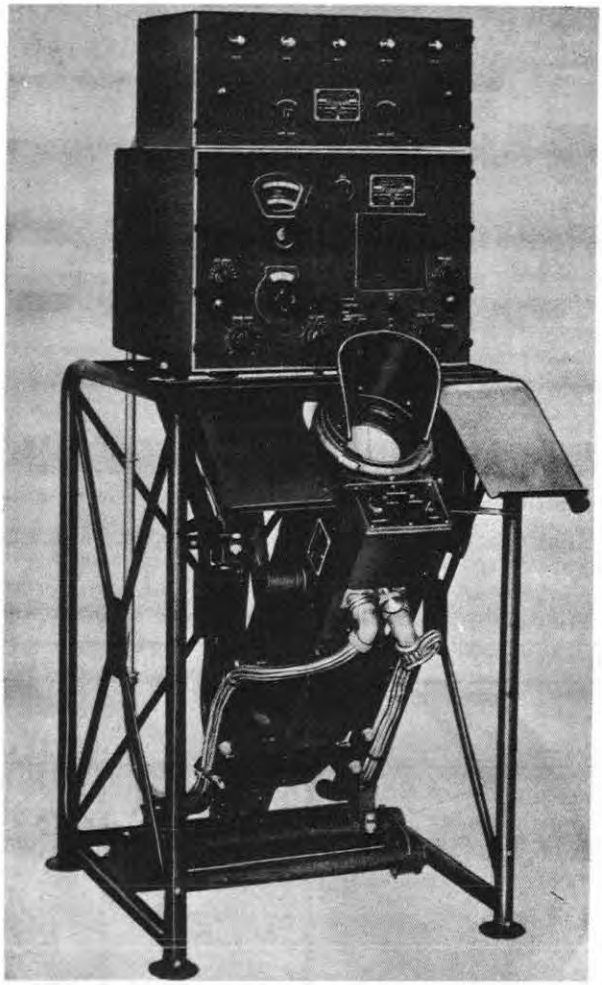
Garod Radio Corp., Brooklyn, N.Y.
Contract NXs-4522, dated 4 May 1942.
Approximate Cost: $400.00 with equipment spares.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver NT-46177	6-7/8 X 8 X 14	25
1	Shock Mount Base NT-10153	2 X 7 X 19	5
1	Loop Antenna with Bearing Scale attached NT-69085	5 X 15 X 18	4
1	Vibrator Power Unit NT-20182	6-5/16 X 6-1/2 X 9	14
1	Telescoping Rod Antenna		1
1	Set of Headphones		1
1	Cable	4 ft lg	6
1	Set of Equipment Spares		

RADIO DIRECTION FINDER DAQ



Radio Direction Finder DAQ

FUNCTIONAL DESCRIPTION

The DAQ equipment is an HF radio direction finder for shipboard installation. Instantaneous visual indications of the bearings of the received signals are presented in the frequency range of 1.5 to 22 megacycles. Indications are continuous and automatic with simultaneous monitoring of the received signal for A1 and A2 reception. The bearing indications are readable from the face of a 5-inch CR tube to which is fitted an edge-lighted 360° azimuth scale circumscribing the screen.

Data on this sheet reflects the following field changes: F/C 1 for DAQ.

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied:

Mast extension, cable clamps, cable troughs, stuffing tubes, mounting hardware, a loudspeaker with volume level control, and headphones.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
BEARING: 1.5 to 22 mc in four bands.
RECEPTION: 1.5 to 30 mc in four bands.
PRESENTATION: 5 in. CRT.
RECEIVER TYPE: Superheterodyne.
INTERMEDIATE FREQUENCY: 455 kc.
AUDIO OUTPUT POWER: 1 W max, undistorted to a 600 ohm load in speaker socket (less than 15% total harmonic at 1000 cycles).
OUTPUT IMPEDANCE: 600 ohms to headset, 4 ohms to speaker.
OVER-ALL SENSITIVITY: 30 uv per meter approx, for 20 db signal per noise ratio.
SELECTIVITY: 3 kc for 6 db down (sharp); 6.3 kc for 6 db down (broad).
POWER REQUIREMENTS: 115 v ±10%, 60 cps ±5%, 1 ph, 500 W, 0.7 pf.
ANTENNA: Crossed loop, sense antenna.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Newark, N.J.
Contract NXs-11058, dated 23 April 1945.
Approximate Cost: $11,000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SH7	(1) 6X5WGT	(1) 6H6
(2) OD3W	(1) 6SQ7	(1) 1R5
(4) 6SK7WA	(1) 2X2A	(1) 6J5
(1) 6AC7WA	(1) 6K6GT	(1) 6SA7Y
(1) 6SJ7	(1) 5BP1	(1) 3B7/1291

Total Tubes: (20)
No Crystals used.

REFERENCE DATA AND LITERATURE

SHIPS 233: Technical Manual for Model DAQ High Frequency Direction Finder System.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

DAQ RADIO DIRECTION FINDER

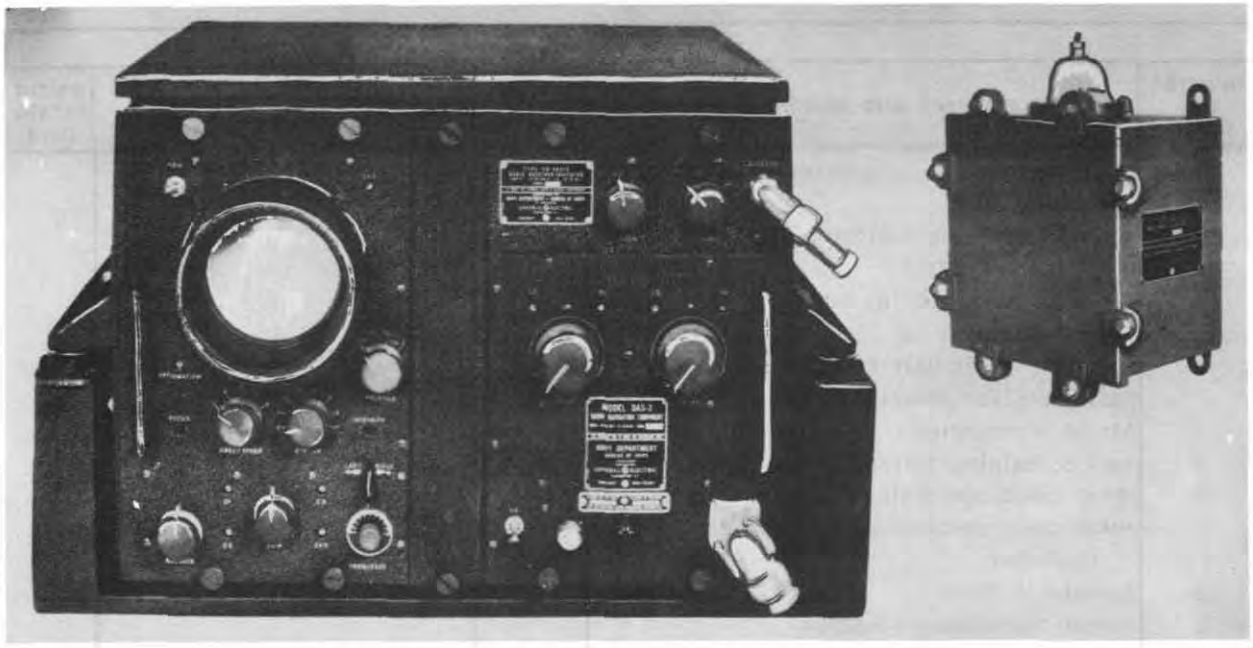
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Cross Loop and Sense Antenna NT-69083B			
1	Equipment Table			
	Automatic Bearing Indicator NT-55092			
	Goniometer NT-47263			
	Set of Interconnecting Cables			
	Technical Manual (2)			
1	Rectifier Power Unit NT-20169			
	Radio Receiver NT-46194			
	Set of Accessories			
1	Reel containing 3 transmission lines			
1	Metal Chest containing Equipment Spares			
	Metal Chest containing Tools and Test Equipment			
1	Operator's Chair			
1	Target Transmitter NT-52300			
	Set of Accessories			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Target Transmitter NT-52300	8-3/8 x 8-3/8 x 10-3/4	21
1	Radio Receiver NT-46194	13-31/32 x 17-9/16 x 19	97
1	Rectifier Power Unit NT-20169	8-23/32 x 12-9/16 x 19	45
1	Automatic Bearing Indicator NT-55092	9 x 12 x 38	95
1	Crossed Loop and Sense Antenna NT-69083B	52 x 52 x 140	95
1	Goniometer NT-47263	3-3/4 x 5-11/16 x 9	4
1	Equipment Table	22-3/4 x 23-1/2 x 40	85
1	Set Interconnecting Cables		16
1	Set RF Transmission Lines		
1	Set Miscellaneous Accessories		
1	Operator's Chair	18 x 23-1/2 x 29-1/2	26

RADIO NAVIGATION EQUIPMENT DAS, DAS-a,-b,-2,-2b



Radio Navigation Equipment Model DAS and DAS-2

FUNCTIONAL DESCRIPTION

The Navy Models DAS, DAS-a, DAS-b, DAS-2, and DAS-2b are designed for shipboard installation as receiving and indicating units for LORAN navigation. They will accurately present a visual indication of differences in time of arrival of radio signals from a fixed pair of shore based Loran transmitting stations.

They have a cathode-ray oscilloscope with special sweep circuits to permit observation of signals, time standards, and signal arrival time for the purpose of identification of different pairs of fixed Loran transmitting stations, thus enabling the operator to determine the ship's position.

They are all similar with the DAS-a and DAS-2 being models of the DAS modified by circuit changes, and the DAS-b and DAS-2b being modified models of the DAS-a and DAS-2 respectively that have four frequency channels covering the 1700 to 2075 kilocycle frequency range, thus eliminating the frequency coverage of 9.9 to 12.1 megacycles that was covered by channels 3 and 4.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Antenna Wire as Required, (1) Coaxial Cable RG-10/U as Required, (1) Power Cable MCOS-2 as Required, (2) Strain Insulators NT-61014 or similar, (1) Loran Tables and Charts, (1) Loran Handbook SHIPS 278.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- DAS, DAS-a, DAS-2: 1.7 to 2.075 mc and 9.9 to 12.1 mc.
- DAS-b, DAS-2b: 1.7 to 2.075 mc.

CHANNELS: 4.
FREQUENCY CONTROL: Crystal oscillator.
PRESENTATION: 5 in. CR tube.
PULSE DATA
- RECURRENCE RATE
  - DAS: 25 pps.
  - DAS-a, DAS-b, DAS-2, DAS-2b: 25 and 33-1/3 pps.
- LENGTH: Approx 40 usec.

RECEIVER DATA
- TYPE: Superheterodyne.
- BANDWIDTH: Greater than 75 kc at 6 db down but 250 kc max at 40 db down.
- SENSITIVITY: 5 uv continuous wave at 100% modulation produces 1 in. deflection on CR tube.

RANGE: 500 to 750 nautical mi days, 1400 nautical mi nights.
POWER REQUIREMENTS: 115 or 230 v, 50 to 60

Radio-Navigational Aids

DAS, DAS-a,-b,-2,-2b RADIO NAVIGATION EQUIPMENT

cps, single ph, 96% pf, 300 W.
TYPE ANTENNA REQUIRED: Vertical wire.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Schenectady, N.Y.
Contract NXss-26190, dated 20 March 1943.
Contract NXsr-35364, dated 3 August 1943.
Approximate Cost: $1600.00 with equipment spares (DAS).
Approximate Cost: $2000.00 with equipment spares (DAS-2).

TUBE AND/OR CRYSTAL COMPLEMENT

DAS

(1) OD3W	(2) 2X2A	(1) 5CP1
(1) 5U4G	(1) 6AC7WA	(1) 6AG7Y
(3) 6H6	(7) 6H6GT	(2) 6J5GT
(1) 6SA7Y	(2) 6SG7Y	(2) 6SK7WA
(7) 6SL7WGT	(10) 6SN7WGTA	(2) 6Y6G

Total Tubes: (43)
(1) NT-40059
Total Crystals: (1)

DAS-a, DAS-b

(1) OD3W	(2) 2X2/879	(1) 5CP1
(1) 5U4G	(1) 6AC7WA	(9) 6H6
(1) 6H6GT	(2) 6J5GT	(1) 6SA7Y
(1) 6SJ7	(4) 6SK7WA	(7) 6SL7WGT
(10) 6SN7WGTA	(2) 6Y6G	

Total Tubes: (43)
(1) NT-40059
Total Crystals: (1)

DAS-2, DAS-2b

(1) OD3W	(2) 2A3	(1) 5CP1
(1) 5U4G	(1) 6AC7WA	(1) 6AG7Y
(3) 6H6	(7) 6H6GT	(2) 6J5GT
(1) 6SA7Y	(2) 6SG7Y	(2) 6SJ7
(7) 6SL7WGT	(10) 6SN7WGTA	(2) 6Y6G

Total Tubes: (43)
(1) NT-40059
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

SHIPS 225A: Technical Manual for Radio Navigation Equipment Model DAS and Moded DAS-2.
NAVSHIPS 95079: Installation Instructions for Coil Modification Kit.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Receiver-Indicator Including: Antenna Loading Coil	17.5	27 X 33 X 34	308
1	Set of Equipment Spares	3.9	15-3/4 X 16-5/8 X 25-5/8	125

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	DAS		
1	Receiver-Indicator NT-46210	17-7/8 X 22-5/8 X 28-1/8	210
1	Antenna Loading Coil NT-47335	5-1/2 X 7 X 11-1/8	8
1	Set of Equipment Spares	15 X 15 X 24	110

RADIO NAVIGATION EQUIPMENT DAS, DAS-a,-b,-2,-2b

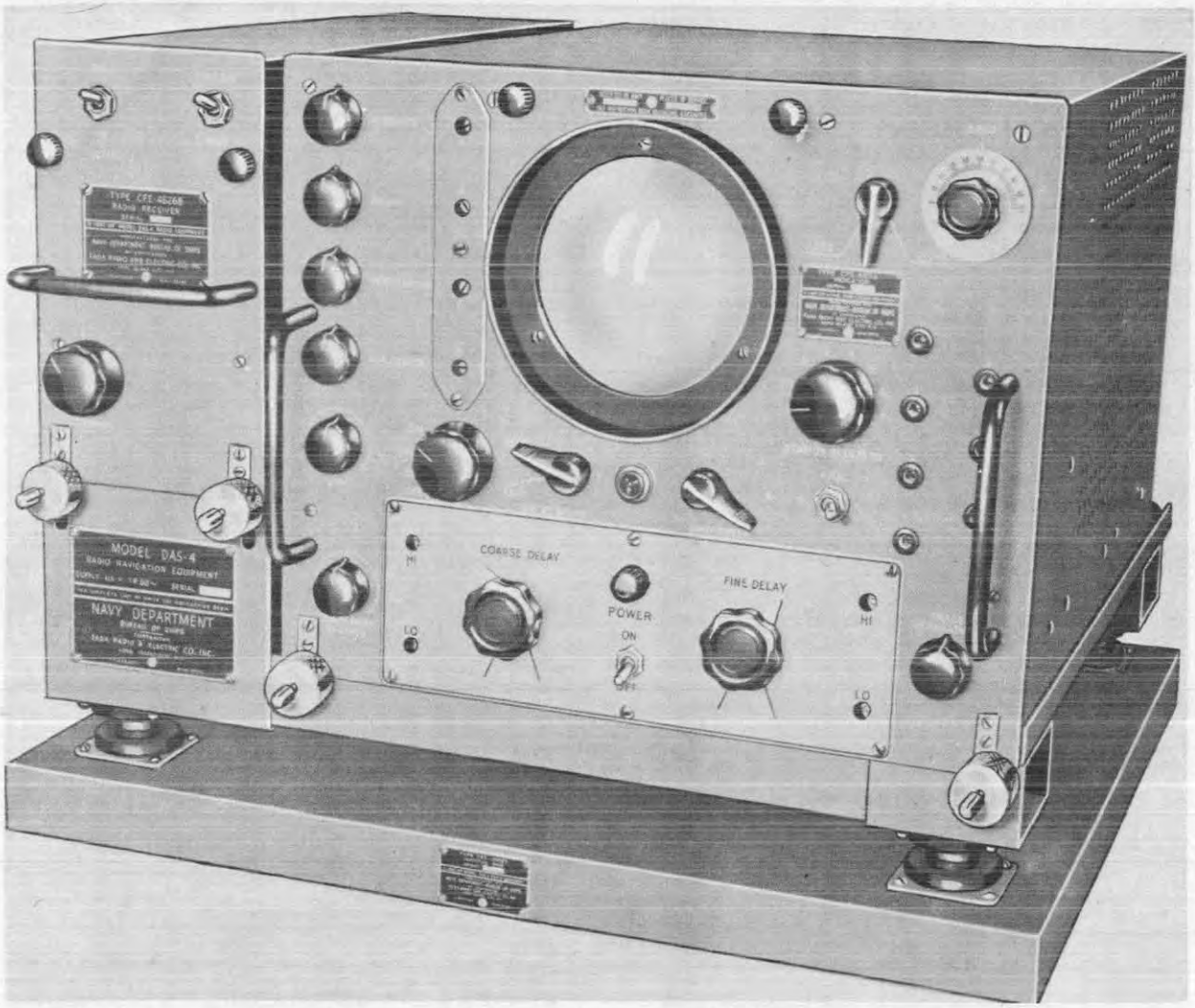
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	DAS-a, DAS-2		
1	Receiver-Indicator NT-46210A	17-7/8 X 22-5/8 X 28-1/8	210
1	Antenna Loading Coil NT-47335	5-1/2 X 7 X 11-1/8	8
1	Set of Equipment Spares	15 X 15 X 24	110
	DAS-b, DAS-2b		
1	Receiver-Indicator NT-46210B	17-7/8 X 22-5/8 X 28-1/8	210
1	Antenna Loading Coil NT-47335	5-1/2 X 7 X 11-1/8	8
1	Set of Equipment Spares	15 X 15 X 24	110

April 1958

Radio-Navigational Aids

RADIO NAVIGATION EQUIPMENT DAS-1, 1a, 1b, 3, 4



Radio Navigation Equipment, Model DAS-4, Indicator-Receiver on Mounting Base

FUNCTIONAL DESCRIPTION

The DAS-1, 1a, 1b, 3, and 4 are shipboard receiving and indicating units of the LORAN System of Long Range Navigation. The equipments provide a means for measuring the time difference between pulses received from "pairs" of Loran transmitters and identification of the "pair" being received. The time difference occurs due to the fact that the time required for signals from the transmitter "pair", the transmitters being several hundred miles apart, do not reach any point, either side of the perpendicular bisector of the transmitter's base line, exactly at the same time. This time difference, when applied to associated charts, provides a line of direction. This line of direction when intersected by another such line, obtained from different "pair", provides a highly accurate "fix" of the vessel involved.

The DAS-1a and 1b are successive modifications of the DAS-1. The DAS-3 is the factory production of the DAS-1a. The DAS-4 has minor improvements over the DAS-3.

Data on this sheet reflects the following field changes: F/C 1 thru 9 for DAS-1, DAS-3. F/C 1 thru 5 for DAS-4 (7 April 1958).

RELATION TO OTHER EQUIPMENT

These models are basically similar to Model LRN-1 and LRN-1A.

Equipment Required but not Supplied: Coaxial Cable RG-10/U, Antenna Wire, Insulators, Attachment Plug, and Packing as required.

DAS-1, 1a, 1b, 3, 4 RADIO NAVIGATION EQUIPMENT

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY
DAS-1, 1a: 1.7 to 3.2 mc, 6.0 to 9.1 mc, and 7.8 to 11.5 mc.
DAS-1b, 3, 4: 1.7 to 2.0 mc.
SENSITIVITY
DAS-1, 1a, 1b: 30 uv for 2-1/2 in. deflection on screen of CR tube (increased by F/C No. 9).
DAS-3: 12 uv for 2-1/2 in. deflection on screen of CR tube.
DAS-4: 2 uv modulated signal distinguished through tube noise.
SELECTIVITY: Bandwidth is 85 kc at 6 db down from center of band; 200 kc at 40 db down.
PULSE RATE
DAS-1: 25 pps.
DAS-1a, 1b, 3, 4: 25 and 33-1/3 pps.
DELAY RANGE
COURSE DELAY: 10,000 usec.
FINE DELAY: 650 usec.
RECEIVER INPUT IMPEDANCE
DAS-1, 1a: 1660 ohms.
DAS-1b, 3, 4: 50 ohms.
POWER REQUIREMENTS: 115 v, 50 to 60 cps, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Fada Radio and Electric Co, Inc, Long Island, N. Y.
Contract NXsr-26792, dated 29 April 1943 (DAS-1 and DAS-1a).
Contract NXsr-33791, dated 30 June 1943 (DAS-1, 1a, 3 and 4).
Contract NXsr-(LL)93961, dated 20 April 1945 (DAS-1a and 1b).
Contract NXsr-77867, dated 27 October 1944 (DAS-1a).
Contract NXsr-83379, dated 10 November 1944 (DAS-4).

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 2A3	(1) 6SA7	(1) 884
(2) 2X2	(9) 6H6	(1) OC3
(1) 5CP1	(4) 6SJ7	(1) 5T4
(4) 6SK7	(1) 5Y3GT	(4) 6SL7GT
(2) 6AC7	(11) 6SN7GT	

Total Tubes: (44)
(1) 100 kc
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,752: Technical Manual for Radio Navigation Equipment Models DAS-1 and DAS-3.
SHIPS 322: Technical Manual for Radio Navigation Equipment Model DAS-4.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES (DAS-)					CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	1a	1b	3	4				
1					Indicator NT-55118	8.1	19 X 23 X 32	133
	1	1	1		Indicator NT-55118A	9.8	23 X 23 X 32	165
				1	Indicator NT-55175	6.8	18 X 24 X 27	157
1	1				Receiver NT-46216 incl. CR Tube	9.1	17 X 28 X 32	85
			1		Receiver NT-46216A incl. CR Tube	9.1	17 X 28 X 32	101
		1			Receiver NT-4621B incl. CR Tube			
				1	Receiver NT-46268 incl. CR Tube	6.8	18 X 24 X 27	85
1	1	1	1		Mounting Base NT-10225 incl. Antenna Loading Coil Line Filter NT-10225 Accessories			
				1	Mounting Base NT-10461 incl. Accessories	5.2	13 X 25-1/4 X 27-1/4	78
1	1	1	2	2	Equipment Spares			

RADIO NAVIGATION EQUIPMENT

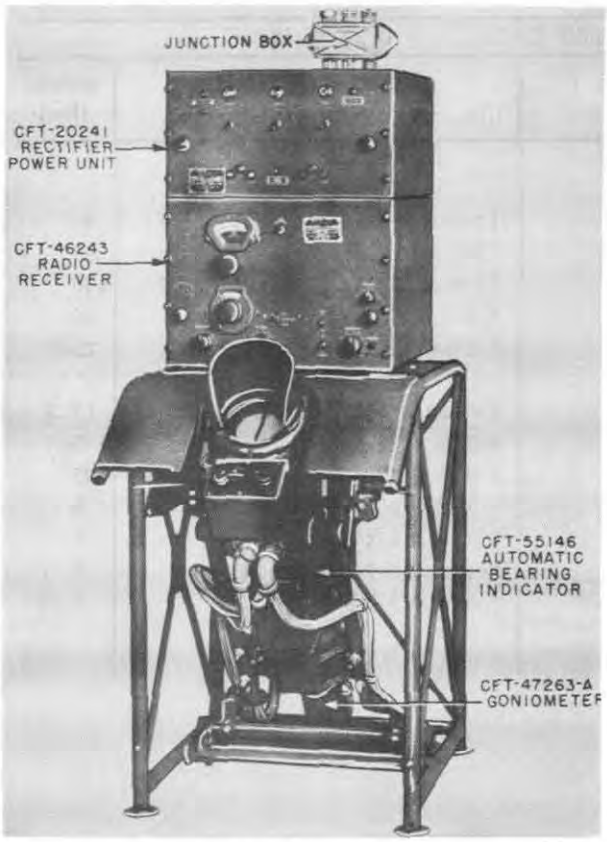
DAS-1, 1a, 1b, 3, 4

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT DAS-					NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	1a	1b	3	4			
1					Indicator NT-55118	12-1/4 X 15-11/16 X 23-11/16	90
	1	1	1		Indicator NT-55118A	12-1/4 X 15-11/16 X 23-11/16	87
				1	Indicator NT-55175	12-9/16 X 15-11/16 X 19-7/16	100
1					Receiver NT 46216	5-3/16 X 7-11/16 X 21-1/4	22
	1		1		Receiver NT-46216A	5-3/16 X 7-11/16 X 21-1/4	23.5
		1			Receiver NT-46216B		
				1	Receiver NT-46268	5-5/16 X 9 X 20	17.5
1	1	1	1		Mounting Base NT-10225	4-3/4 X 21 X 23	25
				1	Mounting Base NT-10461	4-3/4 X 21 X 23	25
1	1	1	1		Antenna Loading Coil NT-47342 or	5 X 5-1/4 X 9-1/4	4
			1		Antenna Loading Coil NT-47342A	5 X 5-1/4 X 9-1/4	4
				1	Antenna Loading Coil NT-47335	5-1/2 X 8-7/8 X 11-1/8	8
1	1	1	1	1	Line Filter NT-53142	2-5/8 X 3-3/4 X 6-3/16	3.25
1	1	1	1	1	Set of Equipment Spares		
1	1	1	1	2	Set of Accessories		

HIGH FREQUENCY RADIO DIRECTION FINDER

DAU, DAU-1



High Frequency Radio Direction Finder DAU-1

FUNCTIONAL DESCRIPTION

The DAU, DAU-1 are shipboard radio direction finders which provide instantaneous visual indications of the bearing of received signals in the frequency range of 1.5 to 22 mc. Indications are continuous and automatic, with simultaneous monitoring of the received signal for A1 and A2 reception. The bearing indications are read directly from the face of a CR tube to which is fitted an edge-lighted 360 deg azimuth scale circumscribing the screen.

Data on this sheet reflects the following field changes: F/C 1 and 2 for DAU (8 April 1958).

RELATION TO OTHER EQUIPMENT

The Model DAU, DAU-1 have characteristics similar to Radio Direction Finder Equipment DAQ and has the additional feature of frequency scanning ±75 kc on each side of the carrier.

Equipment Required but not Supplied: Mast extension, cable clamps, cable troughs, stuffing tubes, mounting hardware, loudspeaker, and headphones.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- FOR BEARINGS: 1.5 to 22.0 mc in four bands.
- FOR RECEPTION: 1.5 to 30.0 mc in four bands.

BEARING INDICATION: Instantaneous, automatic visual.
- INDICATOR: 5 in. CR tube.
- CIRCUIT: Superheterodyne.
- RECEIVER IF: 455 kc.
- SCANNER IF: 150 kc.

AUDIO POWER OUTPUT: 1.5 W max. undistorted into a 600-ohm load in speaker socket (less than 15% total harmonic at 1000 cycles); 50 mw, undistorted, into a 600-ohm headphones.

OUTPUT IMPEDANCE: 600 ohms to headset and loudspeaker.

OVER-ALL SENSITIVITY: 20 uv per meter (approx) for ±5 bearing readability.

POWER SOURCE REQUIRED: 115 v, 55-65 cps, 1 ph, 400 W, 0.7 pf.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp., Newark, N.J.
- Contract NXsr 41007, dated 12 September 1944 (DAU).
- Contract NXss 33087 (DAU-1).
- Approximate Cost: $8,000 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SH7	(2) 6SJ7	(2) 6AC7WA
(4) 6SK7WA	(2) 6H6	(2) 6AG7Y
(2) 6SA7Y	(1) 6J5	(1) OC3W
(1) 6SQ7	(2) 5U4G	(1) 2X2/879
(1) 6V6GTY	(2) OD3W	(1) 5NP1
(1) 3B7/1291	(1) 1R5	

Total Tubes: (28)

DAU, DAU-1 HIGH FREQUENCY RADIO DIRECTION FINDER

No Crystals used.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

REFERENCE DATA AND LITERATURE

SHIPS 301: Instruction Book for Model DAU High Frequency Radio Direction-Finder Equipment.
NAVSHIPS 900907: Technical Manual for Radio Direction Finder Equipment Navy Model DAU Series.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Cross Loop Antenna Assembly NT 69083B Set of Hardware			
1	Rectifier Power Unit NT-20241 Radio Receiver NT-46243 Set of Hardware			
1	Automatic Bearing Indicator NT-55146 Goniometer NT-47263A Interconnecting Cable (3) Footing Assemblies (4)			
1	Operator's Chair			
1	Equipment Spares Tools and Test Equipment			
1	Set of Interconnecting Cables Junction Box Assembly Hardware Tubes			
1	Reel containing Transmission Line			

EQUIPMENT SUPPLIED DATA

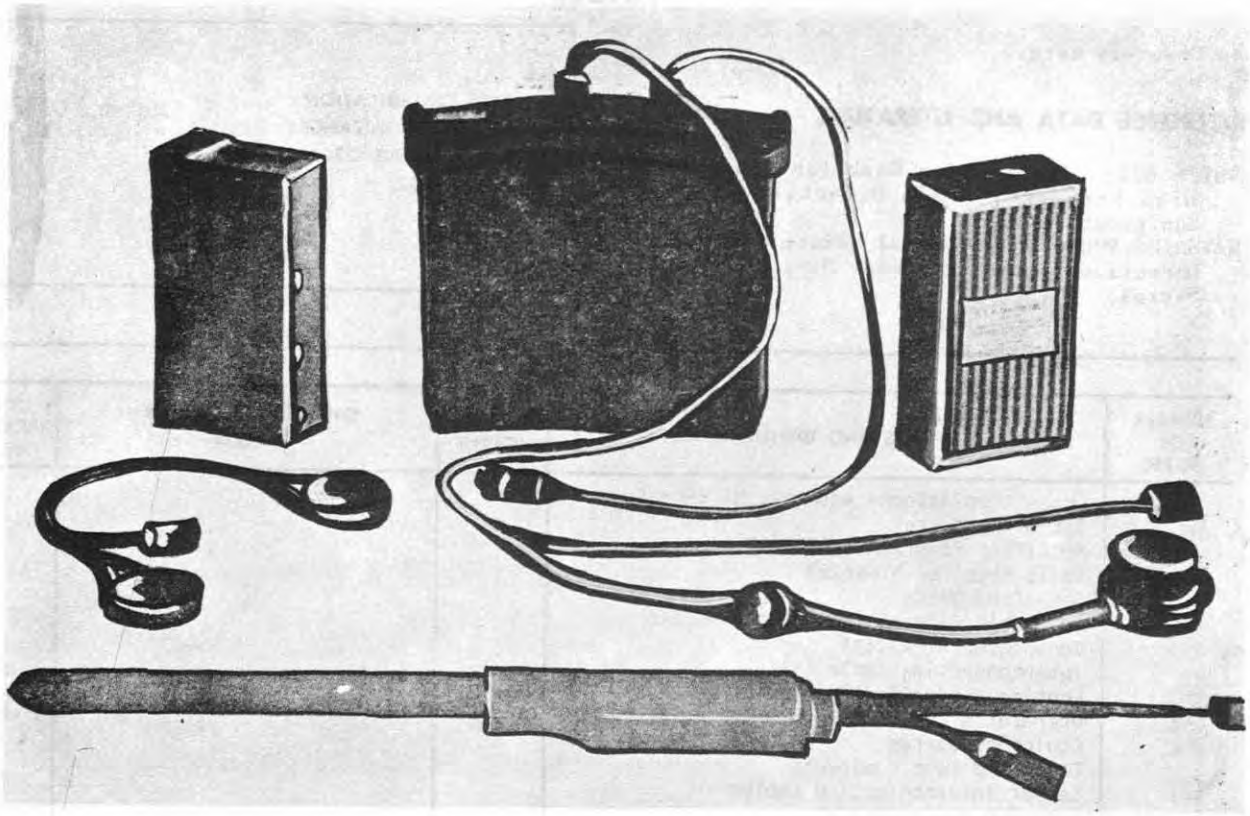
QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
DAU	DAU-1			
1	1	Radio Receiver NT-46243	13-31/32 x 17 x 9/16 x 19	97
1	1	Rectifier Power Unit NT-20241	10-1/2 x 17 x 19	50
1	1	Goniometer NT-47263-A	3-1/2 x 5-1/4 x 7-1/4	3.5
1	1	Automatic Bearing Indicator NT-55146	9 x 12 x 38	95
1	1	Mounting Table	22-3/4 x 23-1/2 x 40	85
1		Crossed Loop and Sense Antenna NT-69083-B	52 x 52 x 140	95
1	1	Set of Interconnecting Cables		18
1	1	Operator's Chair	18 x 23-1/2 x 29-1/2	26
1	1	Set of Special Tools and Maintenance Equipment including Target Transmitter NT-52300		21
1		Set of RF Transmission Line		

March 1957

Radio-Navigational Aid

RADIO DIRECTION FINDER

DAV,DAV-1



Radio Direction Finder

FUNCTIONAL DESCRIPTION

The DAV and DAV-1 is a small portable direction finder designed to enable the user to obtain an indication of the direction or bearing of a radio transmitting station.

It is not intended as a device capable of obtaining an extremely accurate radio bearing, but rather a "homing" device to enable the wearer to move toward and eventually arrive at the point where a transmitter is operating.

The DAV and DAV-1 consists of a modified Model MAB Radio Telephone Transmitter and Receiver with the addition of an adapter containing the direction finder facilities which in no way affects the usefulness or operating characteristics of the MAB for regular communication service, but merely permits the obtainment of directional indications on CW (A1) transmissions.

No field changes in effect at time of preparation (24 July 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Lead-Acid Storage Battery NT-19046 or Battery Pack, Dry NT-19027-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2.3 to 4.5 mc.
POWER OUTPUT: 0.2 W.
EMISSION AND RECEPTION: A3.
FREQUENCY CONTROL: Crystal.
TYPE RECEIVER: Superheterodyne.
INTERMEDIATE FREQUENCY: 455 kc.
POWER REQUIREMENTS: 6.4 v storage battery or 1.5, 6, 67.5, 135 v dry battery pack.
ANTENNA DATA
COMMUNICATION: Whip type.
DIRECTIONAL: Loop type.

Radio-Navigational Aid

March 1957

DAV,DAV-1 RADIO DIRECTION FINDER

MANUFACTURER'S OR CONTRACTOR'S DATA

National Electrical Machine Shops, Washington, D.C.
Contract NXsr-36954, dated 4 September 1943.
Approximate Cost: $11,000.00 with equipment spares.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95080: Technical Manual for Portable Homing Direction Finders DAV, DAV-1.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1R5 (2) 1T4
(1) 1S5 (3) 3S4
Total Tubes: (7)

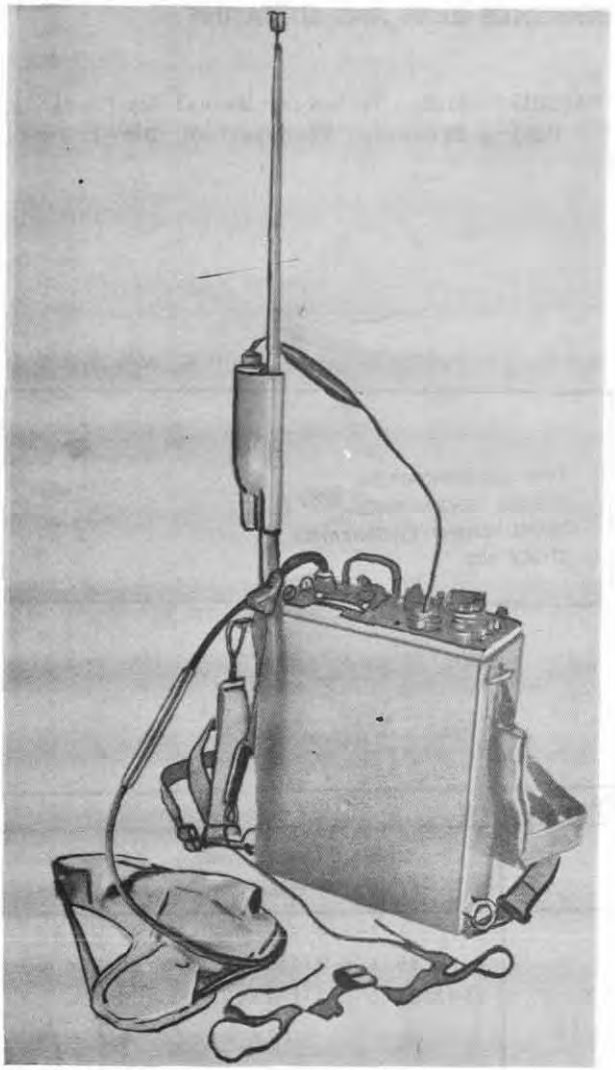
(1) FT-243
Total Crystals: (1)

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loop Adapter Assembly NT-69091	1-1/2 X 2-3/4 X 5-1/2	
1	Radio Unit NT-43055	1-13/16 X 3-9/16 X 6-1/4	1-1/4
1	Antenna and Load Coil Assembly NT-66081	15-1/8 lg (collapsed)	1
1	Head Set Assembly NT-49214 consisting of: Head Set Cord NT-49216 Headphone Unit NT-49215		1/4
1	Microphone and Cover Assembly NT-51048 consisting of: Press-to-talk Microphone NT-51042 Microphone Cord NT-49213 Antenna Connector Cord NT-49212 On-Off Switch NT-24159		1
1	Vibrator Power Unit NT-20221	1-7/8 X 3-11/16 X 6-9/16	3-1/4
1	Plastic Case Cover NT-10163		
1	Plastic Carrying Case NT-10162		

RADIO DIRECTION FINDER EQUIPMENT DAV-2



Radar Direction Finder Equipment
Navy Model DAV-2

FUNCTIONAL DESCRIPTION

The Navy Model DAV-2 is a portable equipment designed to provide two-way radio-telephone communication and direction finding for homing. It provides for voice communication only on any one crystal controlled channel in the 2.3 to 4.5 megacycle band over average terrain for approximately one mile. Direction finding is accomplished by the operator turning until the null of a signal indicates the source of a transmitted signal.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Lead-Acid Storage Battery NT-19046 or Dry Cell Battery Pack NT-19027A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2.3 to 4.5 mc.
POWER OUTPUT: 0.2 W.
FREQUENCY CONTROL: Crystal oscillator.
EMISSION: A3.
TYPE RECEIVER: Superheterodyne.
RECEIVER DATA
AUDIO POWER OUTPUT: 6 mw max.
HEADSET IMPEDANCE: 600 ohms.
POWER REQUIREMENTS: 6.4 v storage battery or 1.5, 6, 67.5, 135 v battery pack.
TYPE ANTENNAS
SENSING: Whip, collapsible.
DIRECTION FINDING: Loop.

MANUFACTURER'S OR CONTRACTOR'S DATA

Communications Company, Inc, Coral Gables, Fla.
Contract NXsr-41037, dated 20 November 1943.
Contract NXsr-59061, dated 20 April 1944.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1R5
(1) 1S5
(2) 1T4
(3) 3S4
Total Tubes: (7)
(2) NT-40125
Total Crystals: (2)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900497: Technical Manual for Navy Model DAV-2 Radio Direction Finder Equipment.

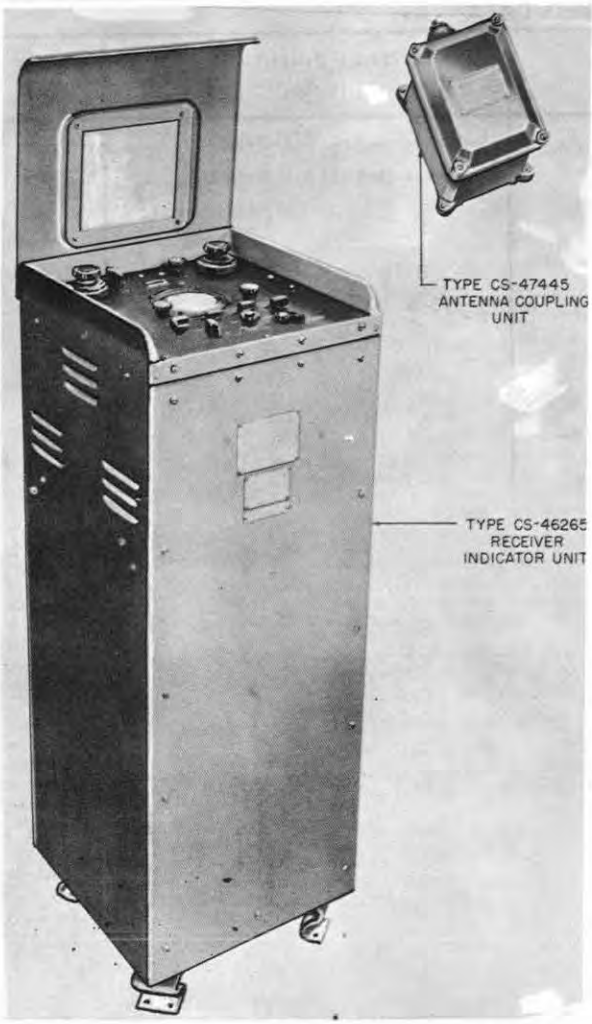
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

DAV-2 RADIO DIRECTION FINDER EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter-Receiver NT-43063	1-7/8 x 3-5/8 x 6-7/16	1.25
1	Power Supply consisting of: Vibrator Power Unit NT-20221 Lead-Acid Storage Battery NT-19046	1-7/8 x 3-11/16 x 6-9/16	3.25
1	Antenna and Load Coil Assembly NT-66081	15-1/8 lg	1.0
1	Carrying Case NT-10344	3-3/8 x 10 x 10-3/4	2.5
1	Loop Unit NT-69093 including: Microphone and Headset Harness Antenna Lead NT-49212 Microphone T-45		
1	Headset Assembly NT-49559		

LORAN RECEIVING EQUIPMENT DBE



Loran Receiving Equipment Navy Model DBE

FUNCTIONAL DESCRIPTION

The Navy Model DBE is a shipboard unit, designed for deck mounting, that operates in conjunction with shore-based long range navigation transmitting stations. It is designed to receive and amplify two synchronized pulse signals from a pair of transmitters, to identify the pair of transmitters, to identify each station of the pair, and to measure the time difference between the reception of the two pulses. The received pulses are displayed on a cathode-ray tube to accurately measure the time difference. The time difference is used to determine the ships position in relation to the transmitting stations. It provides for direct reading of the time-difference on a meter, dispensing with necessary calculations of the time-difference as read from markers on cathode ray tube.

No field changes in effect at time of preparation (4 April 1958).

RELATION TO OTHER EQUIPMENT

The Navy Model DBE is similar to Navy Models of the LRN Series, DAS Series, and DBS Series of shipboard equipments, and AN/APN-4 and AN/APN-9 aircraft equipments, but is not electrically or mechanically interchangeable.

Equipment Required but not Supplied: (1) Coaxial Cable RG-10/U, (1) Antenna Wire, (2) Strain Insulators, (1) Terminal Tube Type C, (1) Power Plug.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1700 to 2000 kc.
FREQUENCY CONTROL: Crystal-oscillator.
FREQUENCY DRIFT: ±2.5 kc max from −15 to +50 deg C.
IF: 550 kc.
SENSITIVITY: 10 uv input will produce 1.5 in. deflection or CR tube with better than 3 to 1 signal-to-noise ratio.
SELECTIVITY: Bandwidth is 50 kc at 6 db down.
VIDEO AMPLIFIER GAIN
- 150 TO 15000 CPS: Within ±1 db of gain at 5000 cps.
- 40 TO 30000 CPS: Within 6 db of gain at 5000 cps.

OSCILLATOR RADIATION: 400 uw max at oscillator frequency on any channel.
PULSE RECURRENCE RATES: Basic rates are 20, 25, and 33-1/3 pps, each of which may be subdivided into 8 specific rates.
TIME-DIFFERENCE MEASUREMENT RANGE
- 20 PPS RATE: 0 to 18750 usec.
- 25 PPS RATE: 0 to 16000 usec.
- 33-1/3 PPS RATE: 0 to 11250 usec.

INPUT IMPEDANCE: 52 ohms.
RANGE: 600 to 700 mi during day, 1200 to 1400 mi at night.
POWER REQUIREMENTS: 105 to 125 v or 210 to 250 v, 50 to 60 cps, single ph, 300 W.
ANTENNA TYPE: Vertical straight wire 35 to 100 ft lg.

Radio-Navigational Aids

DBE LORAN RECEIVING EQUIPMENT

MANUFACTURER'S OR CONTRACTOR'S DATA

Sperry Gyroscope Company, Inc, Great Neck, New York.
Contract NXsr-64174, dated 3 June 1944.
Approximate Cost: $2500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OC3W
(1) 5CP1
(3) 6SG7Y
(30) 6SN7WGTA
(2) 2X2A
(1) 5U4G
(4) 6SK7WA
(2) 6Y6G
Total Tubes: (45)

(1) NT-40059
(4) NT-40125
Total Crystals: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900659: Technical Manual for Loran Receiving Equipment Model DBE.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RE13A944A
STOCK NO.

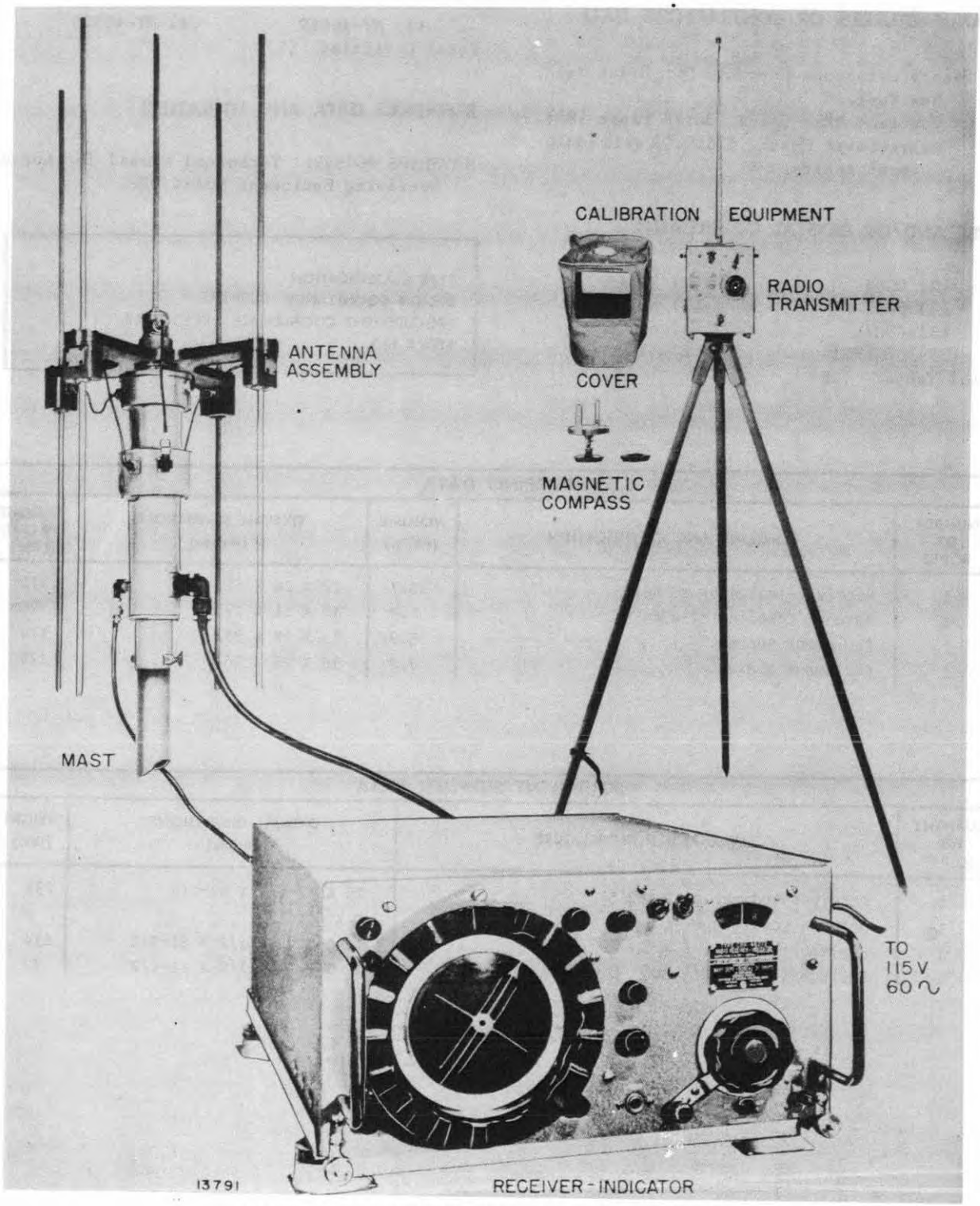
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Receiver-Indicator NT-46265	15.7	22 X 24 X 51	375
1	Antenna Coupling NT-47445	1.3	10 X 11 X 19	24
1	Equipment Spares	5.9	15 X 19 X 36	174
1	Equipment Spares	7.8	15 X 25 X 36	126

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver-Indicator NT-46265	15 X 17-1/4 X 42-1/4	235
1	Antenna Coupling NT-47445	6 X 6 X 12	6
1	Equipment Spares	12-1/2 X 16-1/2 X 31-1/2	134
1	Equipment Spares	12-1/2 X 22-1/2 X 31-1/2	79

VHF RADIO DIRECTION FINDER EQUIPMENT



Model DBF-1 VHF Radio Direction Finder Equipment

DBF, DBF-1 VHF RADIO DIRECTION FINDER EQUIPMENT

FUNCTIONAL DESCRIPTION

The Navy Models DBF and DBF-1 are designed for ship or shore installation to provide instantaneous visual direction-of-arrival of a received signal and simultaneous aural reception if the received signal is voice or tone amplitude modulated. Bearings are determined from a cathode-ray tube of radio-frequency signals which are unmodulated, interrupted continuous wave, voice or tone modulated. They use a fixed antenna and a continuously rotating goniometer instead of a rotating antenna.

They are functionally the same, differing in that the Navy Model DBF-1 is more compact and simpler to operate.

No field changes in effect st time of preparation (7 April 1958).

RELATION TO OTHER EQUIPMENT

The Navy Model DBF is the production model of VHF Radio Direction Finder Equipment Navy Model CXGG-1.

Equipment Required but not Supplied:
DBF: (1) Headset, (1) Frequency Converter Cable.
DBF-1: (1) Headset NT-49016, (4) Guy Rope for Mast.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- DBF: 100 to 160 mc.
- DBF-1: 100 to 156 mc.

TYPE RECEIVER: Superheterodyne.
PRESENTATION: 5 in. CR tube.
RECEIVER AUDIO OUTPUT
- DBF: 150 mw into 600 ohm load.
- DBF-1: 200 mw into 600 ohm load.

INTERMEDIATE FREQUENCY
- DBF: 15 mc.
- DBF-1: 12 mc.

RECEPTION
- VISUAL: A1, A2, A3.
- AURAL: A2, A3.

IMPEDANCE DATA
- *INPUT*
  - DBF: 95 ohms.
  - DBF-1: 72 ohms.
- OUTPUT: 600 ohms.

BEARING ACCURACY: ±5%.
POWER REQUIREMENTS
- DBF: 110 to 120 v, 55 to 65 cps, single ph, 0.4 kw.
- DBF-1: 117 v ±10%, 55 to 65 cps, single ph, 150 va.

TYPE ANTENNA
- DBF: Horizontal direction finding loop and horizontal sense loop.
- DBF-1: Two pairs of half-wave Adcock direction finding and open ended vertical sense antenna.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corporation, Newark, N. J.
Contract NXsr-64184, dated 7 June 1944 (DBF).
Bendix Radio Division, Bendix Aviation Corporation, Baltimore, Md.
Contract NXsr-77922, dated 6 December 1944 (DBF-1).

TUBE AND/OR CRYSTAL COMPLEMENT

DBF

(1) 0C3W	(1) 1B3GT
(1) 5CP1	(1) 5Y3WGTB
(2) 5654/6AK5W	(2) 6AG5
(4) 6J6WA	(2) 6N7GT
(2) 6SL7WGT	(4) 9003
(1) 958A	

Total Tubes: (21)

DBF-1

(1) 0D3W	(1) 1A5GT
(1) 1B3GT	(1) 5CP1
(1) 5Z4	(3) 56546/AK5W
(1) 5726/6AL5W	(2) 6N7
(3) 6SG7Y	(2) 6SL7WGT
(1) 6SN7WGTA	(1) 9002
(2) 9003	(1) 958A

Total Tubes: (21)

No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900929: Technical Manual for Very High Frequency Radio Direction Finder Equipment Navy Model DBF.

VHF RADIO DIRECTION FINDER EQUIPMENT

DBF, DBF-1

NAVSHIPS 900959: Technical Manual for Very High Frequency Radio Direction Finder Equipment Navy Model DBF-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE 16D8(RE)
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	DBF			
	NOT AVAILABLE			
	DBF-1			
1	Receiver-Indicator NT-46272	7.8	18 X 24 X 31	105
1	Antenna Assembly NT-66148 less: Antenna Elements	5.6	18 X 18 X 30	105
1	Radio Transmitter NT-52358 including: Transmitter Antenna Transmitter Rain Cover Receiver Antenna Elements Battery NT-19046 Electrolyte Syringe Magnetic Compass NT-10666 Set of Cables	6.9	16 X 24 X 31	110
1	Antenna Mast	2.4	4 X 4 X 244	75
1	Tripod NT-10610	1.3	6 X 6 X 62	40
2	Equipment Spares	4.6	17 X 17 X 27	95
1	Electron Tubes 5CP1	3.5	12 X 21 X 24	14

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	DBF		
1	Goniometer Assembly NT-47408	5-3/4 X 7-1/8 X 18-1/2	9
1	Automatic Bearing Indicator NT-55156 including:		
	Horizontal Mounting or	6-13/16 X 12-1/32 X 22-3/8	28
	Vertical Mounting	12 X 12 X 21-1/2	28
1	Radio Receiver NT-46254	5-7/16 X 9-3/8 X 23	24
1	Remote Control Unit NT-23454	4 X 6 X 7	9
1	Radio Transmitter NT-52346	5-3/16 X 5-3/8 X 10-1/16	
1	Antenna Assembly NT-66128	28-3/4 X 28-3/4 X 71-5/8	25
1	Frequency Converter NT-211313	10-1/8 X 12-9/32 X 20-1/8	35
1	Set of RF Transmission Lines		20

DBF, DBF-1 VHF RADIO DIRECTION FINDER EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Set of Interconnecting Cables		32
1	Set of Maintenance and Test Accessories		
1	Set of Equipment Spares		
2	Technical Manual NAVSHIPS 900929 DBF-1	1 X 9 X 11	
1	Receiver-Indicator NT-46272	9-5/8 X 16-13/32 X 24-1/2	55
1	Antenna Assembly NT-66148	16 X 16 X 26	25
1	Antenna Mast	2 X 2 X 240	20
1	Radio Transmitter NT-52358	8 X 10 X 12	13
1	Battery NT-19046 including:	6 X 6 X 6	1.5
	Electrolyte		
	Syringe		
1	Tripod NT-10610	4 X 4 X 60	8
1	Magnetic Compass NT-10666	6 X 6 X 6	2.5
1	Set of Cables	18 X 18 X 18	35
2	Equipment Spares	15 X 15 X 24	60
2	Electron Tube 5CP1	5-11/32 dia X 17-1/8	2

December 1956

Radio-Navigational Aid

RADIO DIRECTION FINDER

DBN

Radio Direction Finder

FUNCTIONAL DESCRIPTION

The DBN is a small, portable, chest carried, battery operated, VHF radio direction finder, designed for obtaining bearings by the aural or null method, on AM, FM, CW and ICW types of transmission, in the frequency range of 25 to 50 mc.

The sense switch is located on the side of the carrying case, and all operating controls are mounted on the front panel.

No field changes in effect at time of preparation (24 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 25 to 50 mc.
INTERMEDIATE FREQUENCY: 912 kc.
TYPE RECEIVER: Superheterodyne.
POWER OUTPUT: 50 mw into 600 ohm impedance.
POWER SOURCE REQUIRED: Storage battery, (NT19046).

MANUFACTURER'S OR CONTRACTOR'S DATA

Airplane and Marine Instruments Inc., Clearfield, Pa.
Contract NXsr 87736, dated 6 February 1945.
Approximate Cost: $7000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 1T4 (1) 1R5 (1) 1S5 (1) 3S4
Total Tubes (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900773: Techincal Manual for Portable VHF Radio Direction Finder DBN.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

DBN RADIO DIRECTION FINDER

December 1956

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Direction Finder DBN	2.05	12-1/4 X 15-1/4 X 19	44

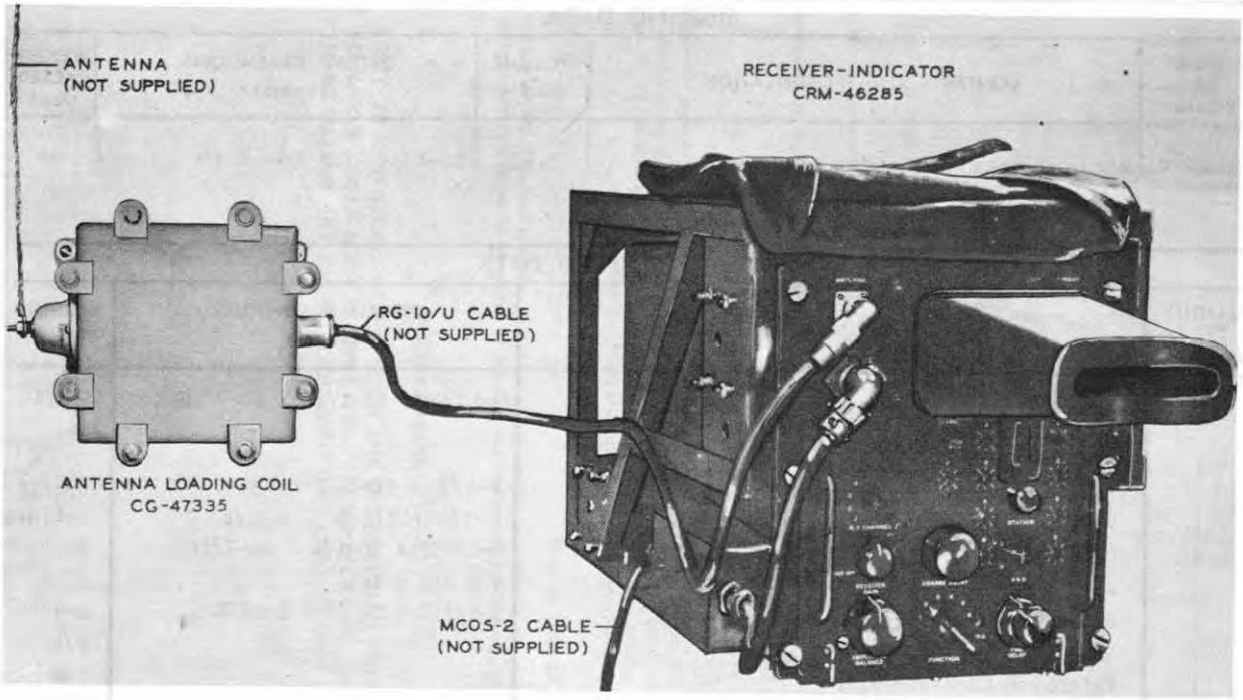
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Direction Finder DBN consisting of:	5-17/32X 12-1/16 X 14-7/16	14-1/4
1	Directional Radio Receiver NT-46289	4-1/8 X 10-1/2 X 13	6-3/16
1	Vibrator Power Supply NT-20490	1-7/8 X 3-3/4 X 4-1/4	1-13/16
1	Case NT-10576	5-17/32 X 10-1/4 X 14-7/16	4
1	Whip Antenna NT-66159	5/8 dia X 36	7/16
1	Storage Battery NT-19046	1-13/16 X 2-3/8 X 3-19/32	1-3/8
1	Headset Assembly NT-49507-A		5/8
1	Extension Cord NT-491510	36	1/4
1	Compass	13/16 X 2-3/32	5/16

Radio-Navigational Aid

LORAN RECEIVING EQUIPMENT

DBS



Loran Receiving Equipment DBS

FUNCTIONAL DESCRIPTION

The DBS is a shipborne navigational equipment for receiving pulses and measuring the time differences of signals from pairs of Loran transmitting stations. With the aid of Loran tables and charts the location of the ship can be plotted without calculation. Received signals are displayed on the screen of a cathode ray indicator tube.

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

RELATION TO OTHER EQUIPMENT

The Receiver-Indicator unit is the Army R-65/APN-9 modified for 115 v, 60 cyc, single phase operation and for shipboard installation.

Models LRN Series and DAS Series and the DBE perform similar functions but are not mechanically or electrically interchangeable with the DBS.

Equipment Required but not Supplied: (1) RG-10/U Coaxial Cable, (1) Type MCOS-2 Cable, 40 to 120 ft of wire to be used as antenna, Loran charts and tables.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1700 to 2000 kc in four channels having mid-frequencies of 1750, 1850, 1900 and 1950 kc.

SENSITIVITY: 7 uv input for 4 v across the second detector load resistor.

RECEIVER SELECTIVITY: Over-all bandwidth measured 6 db down from max response is 50 to 75 kc.

PULSE DELAY RANGES

COURSE DELAY: 12,000 or 8,000 usec.

FINE DELAY: 950 usec.

BASIC PULSE RECURRENCE RATE: 25+ pps and 33-1/3+ pps.

RECEIVER INPUT IMPEDANCE: 50 ohms.

POWER REQUIREMENTS: 110 to 120 v, 57 to 63 cps, single phase, 190 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radiomarine Corp of America, New York, N.Y.

Contract N5sr-5969, dated 8 June 1945.

Approximate Cost: $2000.00 with equipment spares.

Radio-Navigational Aid

DBS LORAN RECEIVING EQUIPMENT

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2X2A
(1) 3BP1
(1) 5Y3WGTB
(7) 6H6
(1) 6N7
(1) 6SA7Y
(2) 6SJ7
(3) 6SK7WA
(3) 6SL7WGT
(13) 6SN7WGTA
(1) 6Y6G
(1) OC3W
Total Tubes: (35)
(1) Operating Crystal
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900306: Technical Manual for Loran Receiving Equipment Navy Model DBS.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

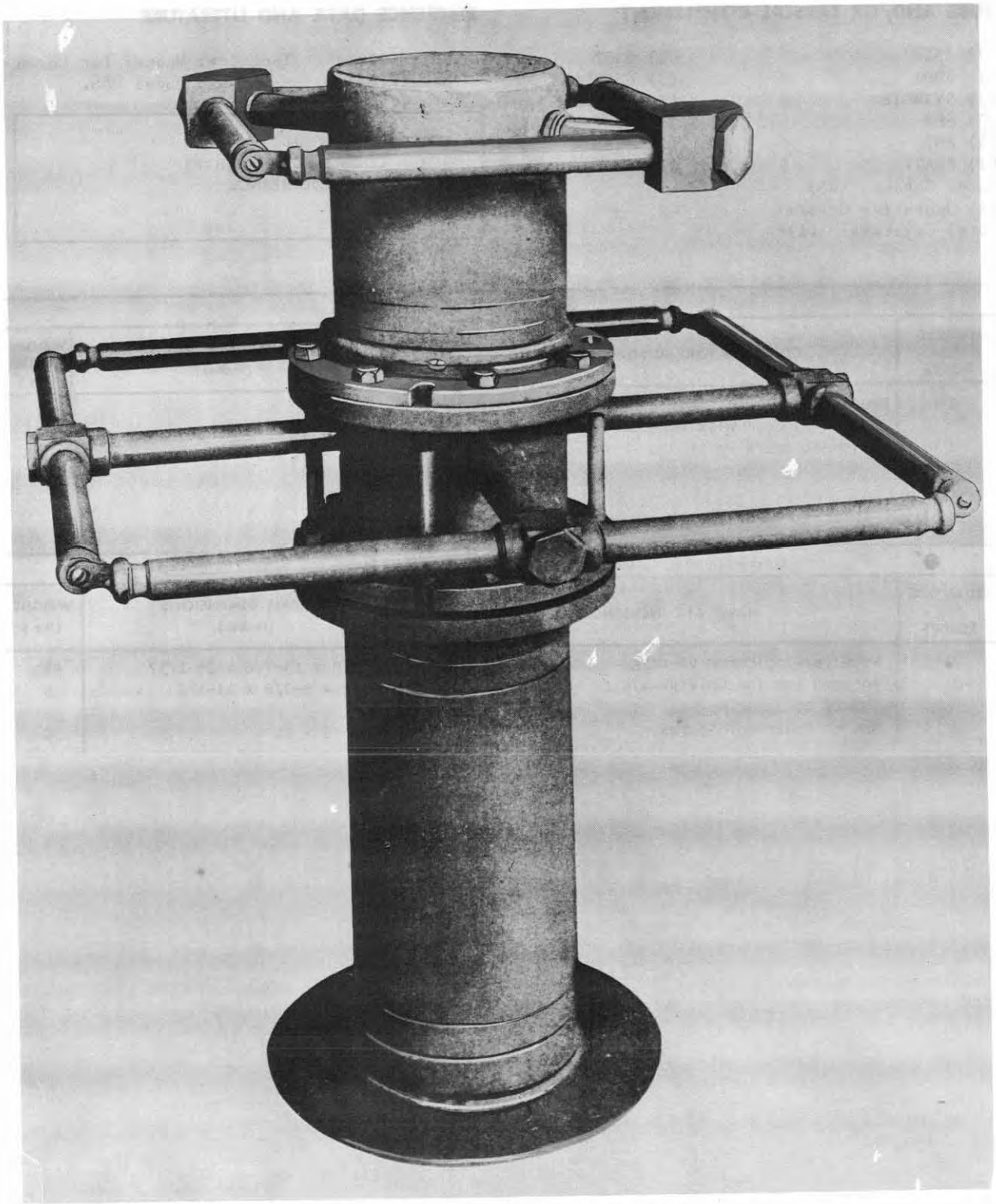
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Receiver-Indicator Unit and Antenna Loading Coil with Accessories	10.7	21 x 21 x 42	175
1	Equipment Spare Parts	8.2	21 x 21 x 32	225

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver-Indicator NT-46285	13-3/8 x 13-7/8 x 26-1/32	89
1	Antenna Loading Coil NT-47335	5-1/2 x 8-7/8 x 11-1/8	8
1	Set of Accessories		
1	Set of Equipment Spares	15 x 15 x 24	150

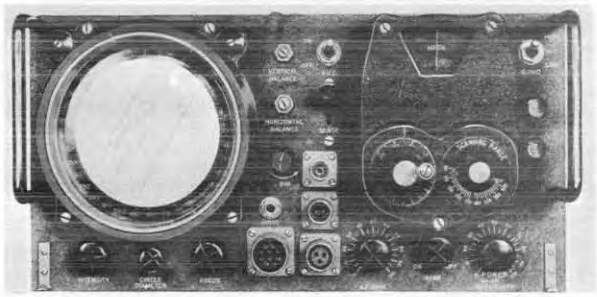
DIRECTION FINDER

DBW



Antenna Goniometer Assembly DBW

DBW DIRECTION FINDER



Receiver-Indicator-Power Supply Unit

FUNCTIONAL DESCRIPTION

The DBW is designed for submarine installation, and is used primarily for warning the craft, when on the surface, of the presence and bearing of shore based, ship based, or airborne radar, plus any radio signals within the frequency of 90 to 320 megacycles (MC) per second.

No field changes in effect at time of preparation (31 March 1960).

RELATION TO OTHER EQUIPMENT

The DBW is the production Navy Model of NT Model CXGZ.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 90 to 320 mc per second.
OPERATING POWER RQMT: 115 V AC, 60 cps, single ph, 175 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corporation
Lab Division, New York, New York.

Contract NXsr-7125.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6J6	(2) 6N7
(2) 6SL7	(1) 5CP1
(1) 6AL5	(4) 9003
(2) 2X2/879	(1) 5Y3GT
(1) VR105-30	(1) 991
(1) 6C4	(1) 6AK5

Total Tubes: (21)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95068: Technical Manual for Model CXGZ Direction Finder Equipment.

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

DIRECTION FINDER

DBW

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver Indicator Unit	8-1/4 X 15-3/4 X 19-5/8	67
1	Antenna-Goniometer Ass'y	17 X 17 X 22	60

RADIO DIRECTION FINDER DG

FUNCTIONAL DESCRIPTION

The Model DG is a battery operated null indicator of the direction from which normally polarized radio frequency signals are being received. The use of a dummy compass or compass card is employed.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 1000 kc.
BAND DATA
LOW FREQUENCY BAND: 100 to 400 kc.
HIGH FREQUENCY BAND: 400 to 1000 kc.
POWER SOURCE REQUIRED: 6 v, 45 v and 90 v DC for operation; 110 v DC for battery charger.

MANUFACTURER'S OR CONTRACTOR'S DATA

Wireless Specialty Apparatus Company, Boston, Massachusetts.

Approximate Cost: $1300.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(8) UX-201-A
Total Tubes: (8)

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Direction Finder Model DG.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loop		42
1	Pedestal, Main Assembly and Mechanical Corrector		139
1	Receiver and Base		140

RADIO DIRECTION FINDER

DL

FUNCTIONAL DESCRIPTION

The Navy Model DL is designed for installation aboard ship or ashore for the purpose of determining the bearings of signals received in the 100 to 1000 kilocycle frequency range. It is a rotating loop type with a mechanical corrector that will, after calibration, automatically shift an auxiliary pointer to indicate the true direction of a received signal and thereby compensate for the error caused by objects in the vicinity of the loop.

No field changes in effect at time of preparation (8 August 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 1000 kc.
TYPE RECEIVER: Superheterodyne.
RECEPTION: A1, A2.
POWER REQUIREMENTS: 110 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Westinghouse Electric and Mfg Co, Chicopee Falls, Mass.
Contract NOs-20943, dated 16 February 1931.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 35 (6) 56 (1) 80

Total Tubes: (9)

No Crystals Used.

REFERENCE DATA AND LITERATURE

Technical Manual for Model DL Radio Direction Finder.

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

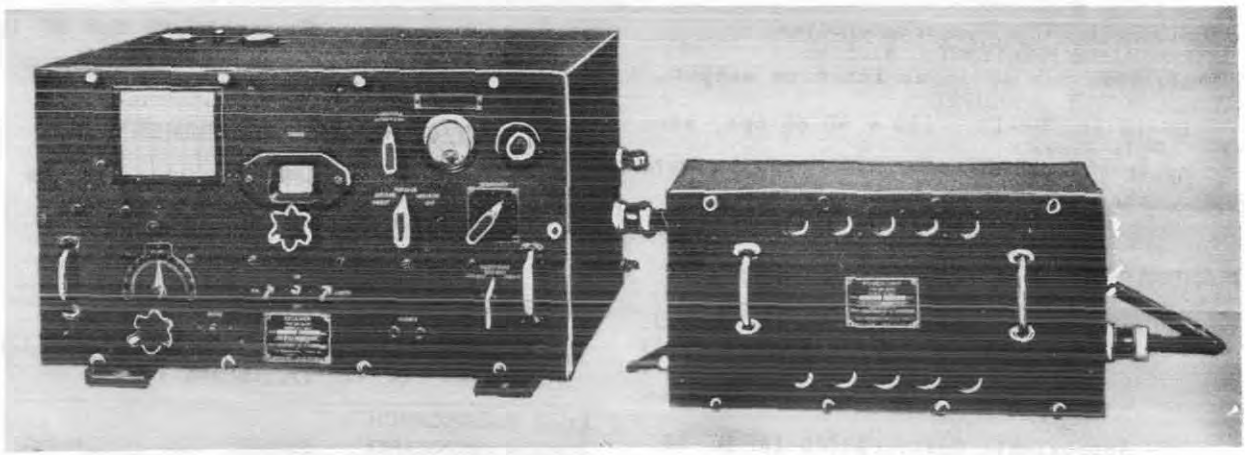
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver NT-4504	13 X 15-15/16 X 23-7/8	
1	Indicator and Mechanical Corrector NT-3868		
1	Socket Power Unit NT-4469	6 X 8-25/32 X 12-15/16	
1	Loop NT-3867		150*

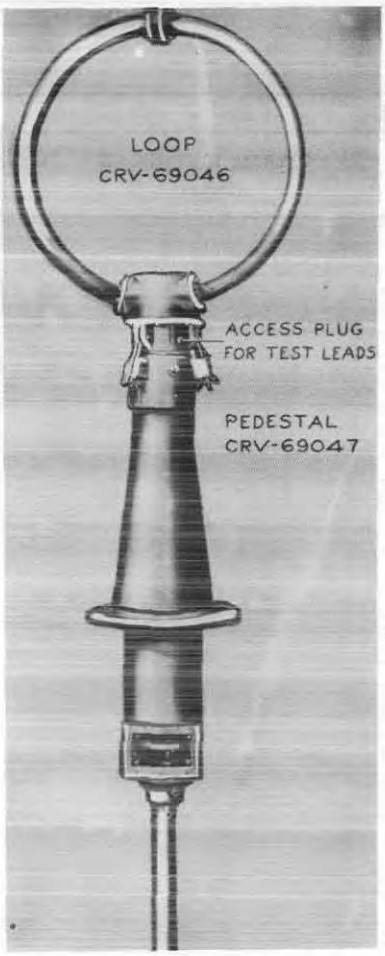
NOTE: *-Indicates that weight of Indicator and Mechanical Corrector is included.

December 1956

RADIO DIRECTION FINDER EQUIPMENT DP-12,13,18,19



Receiver and Power Unit



Loop and Pedestal Assembly

Radio Direction Finder Equipment DP-12,13,18,19

FUNCTIONAL DESCRIPTION

The DP-12, DP-13, DP-18 and DP-19 equipments are primarily designed for shipboard installations where remote control operation is necessary.

When properly installed and calibrated, this equipment will accurately indicate the direction of propagation of modulated or unmodulated cw signals, keyed or unkeyed, within a frequency range of 100 to 1500 kc.

The loop antenna is rotated by a handwheel and cable drive. A protective relay and a neon protective device is incorporated in the antenna circuit to prevent high voltage induction from nearby transmitting antennas when the equipment is in operation.

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

RELATION TO OTHER EQUIPMENT

This equipment is similar to that used in the DQ series equipments. It is also similar to other models of the DP series, with the exception of differences in components, extent of bearing indication, and antenna circuit protective devices.

Equipment Required but not Supplied: Incidental mounting hardware, and tools required for making installation.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- BAND 1: 100 to 250 kc.
- BAND 2: 250 to 550 kc.
- BAND 3: 550 to 1500 kc.

POWER OUTPUT: 6 mw across 600 ohm load.
RECEPTION: A1, A2 and A3.
BEARING INDICATION: Aural null, meter and electronic indicator.

DP-12,13,18,19 RADIO DIRECTION FINDER EQUIPMENT

December 1956

RECEIVER CIRCUIT: Superheterodyne
INTERMEDIATE FREQUENCY: 81.5 kc.
SENSITIVITY: 1 uv input for 6 mw output.
POWER SOURCE REQUIRED
DP-12 and DP-13: 110 v AC 60 cps, single phase.
DP-18 and DP-19: 115 v AC, 60 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Manufacturing Co., Inc., Camden, N,J.
Contract NOs 70837, dated 12 April 1941.
Contract NXss 17244, dated 28 November 1942.
Approximate Cost: $8000 for DP-12, 13 with equipment spares.
Approximate Cost: $10000 for DP-18 with equipment spares.
Approximate Cost: $9000 for DP-19 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z3 (1) 6AF6G (4) 6C6
(4) 6D6 (2) 76
Total Tubes (12)

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Direction Finder Equipment DP-12, 13, 18 and 19.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

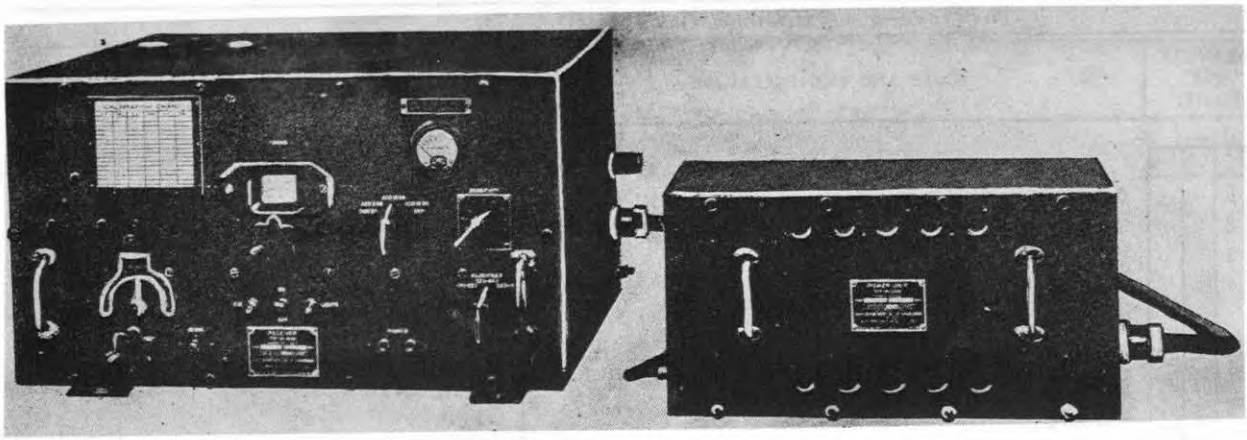
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT DP-				NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
12	13	18	19			
1	1	1	1	Loop NT-69046		18
1	1	1	1	Loop NT-69047		41
1	1	1	1	Operating Pedesgal NT-69011		30
2	1	2	1	Deck Bearing NT-69008		9
2	2	2	2	Cable Drum NT-69009		13
1	1	1	1	Handwheel NT-69012-A		4-1/4
1	1	1	1	Azimuth Scale NT-69013		3
1	1	1	1	Loop Output Junction Box NT-62029		5
1	1	1	1	Receiver Input Transformer NT-47180		6
1	1	1	1	Transmission Line and Conduit NT-62030		4
1	1	1	1	Radio Receiver NT-46136		93
1	1	1	1	Power Unit NT-20049		35
1	1	1	1	Power Cable		3
1	1	1	1	Spare Parts and Box		19
4	3	4	3	Deck Crib		2
4	3	4	3	Deck Crib		2
2	2	2	2	Deck Plate		1
1	1	1	1	Drill Jig		
3	3	3	3	Pin		
1	1	1	1	Taper		
1	1	1	1	Can of Neoprene Cement		
2	2	2	2	Set of Vacuum Tubes (1 use, 1 spare)		
2	2	2	2	Technical Manual		
1	1			End Fitting, Conduit		

EQUIPMENT SUPPLIED DATA

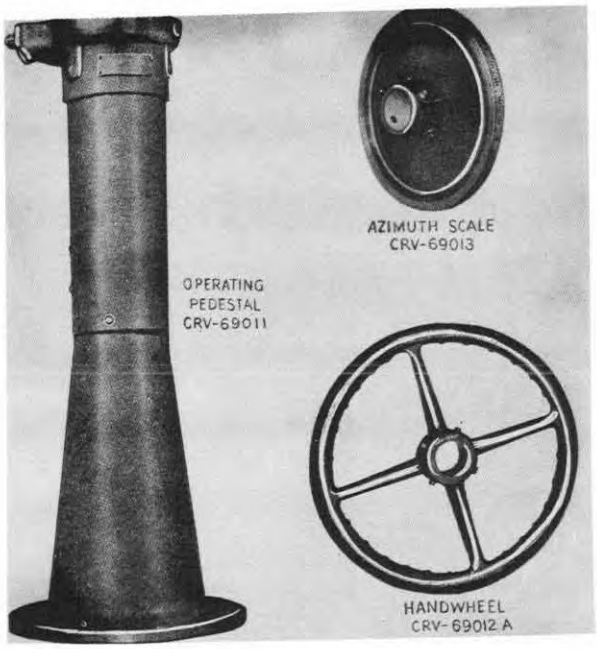
QUANTITY PER EQUIPT				NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
DP–						
12	13	18	19			
2	2			Connector, Bulkhead		
2	2			Gaskets		
2	2			Gaskets		
2	2			Washers		
		2	2	Connector, Bulkhead		
		2	2	Gaskets		
		2	2	Gaskets		
		2	2	Washers		
		2	2	Locknuts		
		2	2	Nut		
		2	2	Ferrule Locknuts		
2	2					

RADIO DIRECTION FINDER EQUIPMENT DP-14,15,16,17



Receiver and Power Unit

Loop and Pedestal Assembly



Operating Pedestal, Azimuth Scale and Handwheel

Radio Direction Finder Equipment DP-14,15,16,17

DP-14,15,16,17 RADIO DIRECTION FINDER EQUIPMENT

December 1956

FUNCTIONAL DESCRIPTION

The DP-14, DP-15, DP-16 and DP-17 are basically designed for shipboard installations where remote control operation is necessary.

When properly installed and calibrated, the equipment will accurately indicate the bearing on modulated or unmodulated cw signals, keyed or unkeyed within a frequency range of 100 to 1500 kc.

The loop antenna is rotated by a handwheel and cable drive. A protective relay and a protective neon device is incorporated in the antenna circuit to protect the equipment from possible high voltage induction from nearby transmitting antennas, when it is in operation.

No field changes in effect at time of preparation (26 July 1956).

RELATION TO OTHER EQUIPMENT

This equipment is similar to that used in the DQ series equipment. It is also similar to other models of the DP series with the exception of minor differences in components, extent of bearing indication, and antenna circuit protective devices.

Equipment Required but not supplied: (1) Battery for DP-14.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- BAND 1: 100 to 250 kc.
- BAND 2: 250 to 550 kc.
- BAND 3: 550 to 1500 kc.

POWER OUTPUT: 6 mw across 600 ohm load.
RECEPTION: A1, A2 and A3.
BEARING INDICATION: Aural null, meter and electronic indication.
RECEIVER CIRCUIT: Superhetrodyne.
INTERMEDIATE FREQUENCY: 81.5 kc.
SENSITIVITY: 1 uv input for 6 mw output.
POWER SOURCE REQUIRED
- DP-14: 6 v filament and 100 to 135 v plate battery supply.
- DP-15: 115 v AC, 60 cps, single phase.
- DP-16: 115 v AC, 25 cps, single phase.
- DP-17: 115 v AC, 50 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Division of Radio Corp. of America, Camden, N.J.
Contract NOs 88077, dated 28 June 1941.
Approximate Cost: $9000.00 for DP-14 & 15 with equipment spares.
Approximate Cost: $7000.00 for DP-16 & 17 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z3 (1) 6C6 (1) 6D6
(1) 76 (1) 6AF6G
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Direction Finder Equipment DP-14,15,16 and 17.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT				NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
DP-						
14	15	16	17			
1	1	1	1	Loop NT-69046		18
1	1	1	1	Loop Pedestal NT-49047		41
1	1	1	1	Operating Pedestal NT-69011		30
1	1	1	1	Loop Receiver Cable		4

RADIO DIRECTION FINDER EQUIPMENT DP-14,15,16,17

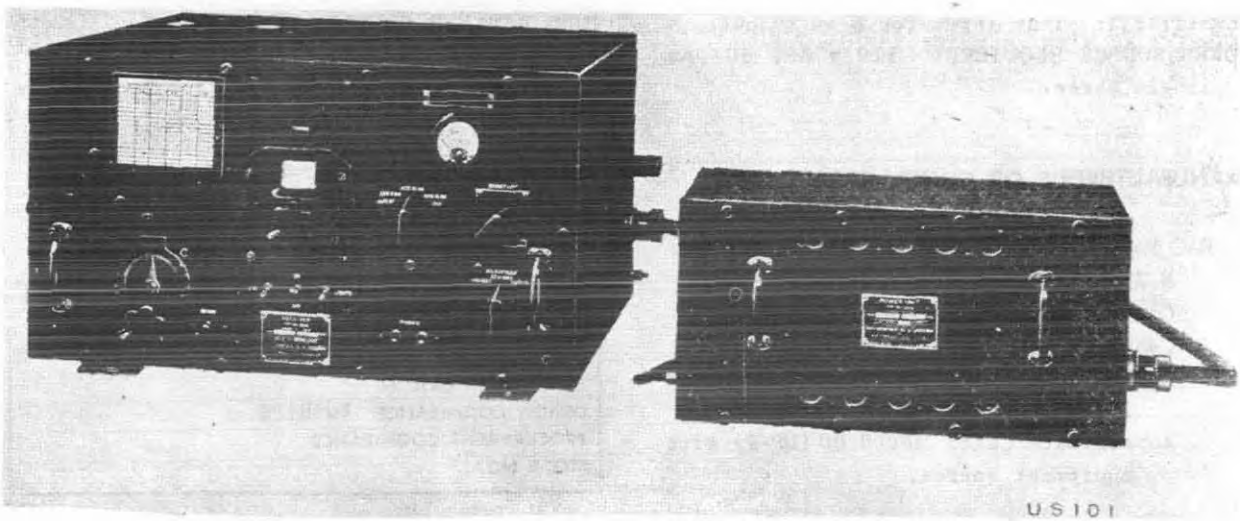
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT				NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
\ DP-						
14	15	16	17			
1	1	1	1	Handwheel NT-69012A		4-1/4
1	1	1	1	Azimuth Scale NT-69013		3
1				Radio Receiver NT-46137		93
	1			Radio Receiver NT-46136		93
		1		Radio Receiver NT-46138		93
			1	Radio Receiver NT-46141		93
	1		1	Power Unit NT-50049		35
		1		Power Unit NT-20129		37
1				Battery Cable		3
	1	1	1	Power Cable		3
1	1	1	1	Spare Parts and Box		19
2	2	2	2	Deck Crib		2
2	2	2	2	Deck Crib		2
2	2	2	2	Deck Plates		1
1	1	1	1	Drill Jig		
3	3	3	3	Pin		
1	1	1	1	Taper Reamer		
1	1	1	1	Can of Neoprene Cement		
2	2	2	2	Set of Vacuum Tubes (1 use 1 spare)		
2	2	2	2	Technical Manual		

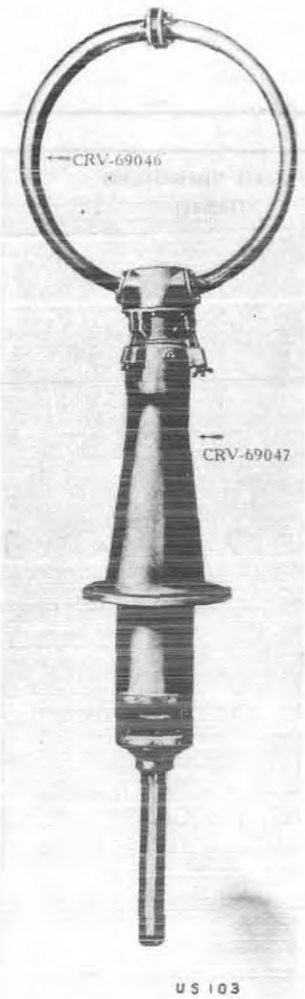
March 1957

RADIO DIRECTION FINDER

DP-9,10,11



US101



US103

Direction Finder, Receiver and Power Unit DP-9, 10,11

FUNCTIONAL DESCRIPTION

The DP-9, DP-10, and DP-11 are designed for shipboard installation where remote control operation is a necessity.

When properly installed and calibrated, they will accurately indicate the bearing of pure or modulated cw signals, keyed or unkeyed, within a frequency range of 100 to 1500 kc.

A protective relay and neon protective device are included in the antenna circuit to prevent high voltage induction from nearby transmitting antennas, when the equipment is in operation.

No field changes in effect at time of preparation (26 July 1956).

RELATION TO OTHER EQUIPMENT

This equipment is similar to that used in the DQ series equipments. It is also similar to other models of the DP series except for minor differences in components, extent of bearing indication, and antenna circuit protective devices.

Equipment Required but not Supplied: Incidental mounting hardware, drive shaft extensions, shielded transmission lines, and tools required for installation.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- BAND 1: 100 to 250 kc.
- BAND 2: 250 to 550 kc.
- BAND 3: 550 to 1550 kc.

POWER OUTPUT: 6 mw across 600 ohm load.
RECEPTION: A1, A2 and A3.
BEARING INDICATION: Aural null, and meter.
RECEIVER CIRCUIT: Superheterodyne.
INTERMEDIATE FREQUENCY: 81.5 kc.

DP-9,10,11 RADIO DIRECTION FINDER

March 1957

SENSITIVITY: 1 uv input for 6 mw output.
POWER SOURCE REQUIRED: 110 v AC, 60 cps single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

RAC Manufacturing Company, Inc., Camden, N.J.
Contract NOs-66693 (DP-9 and 10).
Contract NOs-70837 (DP-11).
Approximate Cost: $6700.00 (DP-10 and 11) with equipment spares.
Approximate Cost: $6000.00 (DP-9) with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z3 (3) 6C6 (4) 6D6 (2) 76
Total Tubes: (10)

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Direction Finder Equipment DP-9,10 and 11.

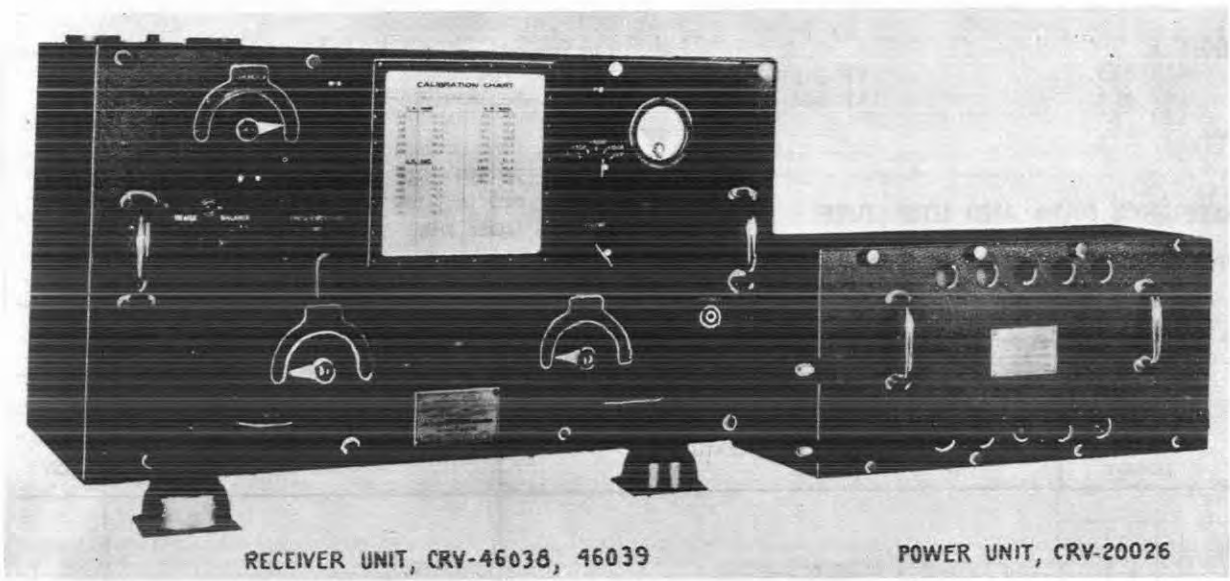
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT			NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
DP-					
9	10	11			
1	1	1	Loop NT-69046		
1	1	1	Loop Pedestal NT-69047		
1	1	1	Operating Pedestal NT-69011		
1	1	1	Woodwheel NT-69012		
1	1	1	Azimuth Scale NT-69013		
1	1	1	Loop Receiver Cable		
1	1	1	Radio Receiver NT-46040-A		
1	1	1	Power Unit NT-20049		
1	1	1	Power Cable		
1	1	1	Spare Parts and Box		
2	3	2	Deck Crib		
2	3	2	Deck Crib		
2	2	2	Deck Plate		
1	1	1	Drill Jig		
3	3	3	Pin		
1	1	1	Taper Reamer		
1	1	1	Can of Neoprene Cement		
2	2	2	Set of Vacuum Tubes (1 use, 1 spare)		
2	2	2	Technical Manual		
	1		Loop Transformer NT-47100		
	1		Receiver Transformer NT-47101		
	1		Deck Bearing NT-69008		
	2		Cable Drums NT-69009		

March 1957

RADIO DIRECTION FINDER EQUIPMENT DQ,DQ-1,2,3,4,5,6



Radio Direction Finder Equipment DP, DP-1, DP-2, DP-3, DQ

FUNCTIONAL DESCRIPTION

The DQ, DQ-1, DQ-2, DQ-3, DQ-4, DQ-5 and DQ-6 equipments are designed for submarine installations where remote control is a necessity.

When properly installed and calibrated, they will accurately indicate the direction of propagation of modulated or unmodulated cw signals, keyed or unkeyed, within a requency range of 100 to 1500 kc.

The loop antenna is arranged to be orientated continuously through 360° by means of a handwheel and drive assembly.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: Loop pedestal, mounting hardware and tools required for making the installation.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- BAND 1: 100 to 250 kc.
- BAND 2: 250 to 550 kc.
- BAND 3: 550 to 1500 kc.

POWER OUTPUT: 6 mw across 600 ohm load.
RECEPTION: A1, A2 and A3.
BEARING INDICATION: Aural null and meters
RECEIVER CIRCUIT: Superhetrodyne.
INTERMEDIATE FREQUENCY: 81.5 kc.
SENSITIVITY: 1 uv input for 6 mw output
POWER SOURCE REQUIRED: 110 v AC, 60 cps, single phase

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Company, Inc., Camden, N.J.
- Contract NOs 55631, dated 30 June 1937 (DQ-2).
- Contract NOs 38492, dated 3 Oct. 1934 (DQ).
- Contract NOs 45843, dated 26 Dec. 1935 (DQ-1).
- Contract NOs 66693, dated 20 May 1939 (DQ-3).
- Contract NOs 70837, dated 9 Jan. 1940 (DQ-4).
- Contract NOs 70837 (sup), dated 12 April 1941 (DQ-5 and 6).
- Approximate Cost: $650.00 DQ with equipment spares.
- Approximate Cost: $700.00 DQ-1 with equipment spares.
- Approximate Cost: $720.00 DQ-2, and 3 with equipment spares.
- Approximate Cost: $740.00 DQ-4, and 5 with equipment spares.
- Approximate Cost: $710.00 DQ-6 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

DQ

(2) 37	(2) 36
(4) 39-44	(1) 80

Total Tubes: (9)

DQ-1,2,3,4

(1) 5Z3	(3) 6C6
(4) 6D6	(2) 76

Total Tubes: (10)

DQ,DQ-1,2,3,4,5,6 RADIO DIRECTION FINDER EQUIPMENT

March 1957

DQ-5,6
(1) 5Z3
(4) 6C6
(2) 76
Total: 12

(1) 6AF6G
(4) 6D6

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Direction Finder Equipment DQ, DQ-1,2,3,4,5 and 6.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT						NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	DQ-							
DQ	1	2	3	4	5,6			
	1					Loop Assembly NT-69014-A		
	1	1	1	1	1	Pressure Hull Fitting NT-69016-A		
	1	1	1	1	1	Collector Assembly (consisting of Loop-receiver Cable) NT-69017-A		
	1					Receiver NT-46040		
	1	1	1	1	1	Power Unit NT-20049		
	1	1	1	1	1	Spare Parts and Box		
2	2	2	2	2	2	Set of Vacuum Tubes		
2	2	2	2	2	2	Technical Manual		
1	1	1	1	1	1	Power Cable		
			1	1	1	Receiver NT-46093		
			1	1		Loop Assembly NT-69051	17'6"	
					1*	Receiver NT-46146/46146-A		
					1*	Loop Assembly NT-69073		
1						Receiver NT-46039		
1						Power Unit		
1						Loop Assembly NT-69014		
1						Collector Ring Assy NT-69017		
1						Spare Parts Box		
1						Pressure Hull bearing NT-69016		

* Apply to Equipment DQ-6 only.

September 1956

DETECTOR, MAGNETIC, AZIMUTH DT-176/AJN

FUNCTIONAL DESCRIPTION

The DT-176/AJN is a direction sensing device used with the Type J-2, J-4, N-1 compasses and the Type B-1 Heading Reference System. The detector unit is a crusiform arrangement of two signal detector elements or legs, which offer many advantages of the customary three-leg type C-2 transmitter. Excitation of 115 v, 400 cps is supplied to the detector which is influenced by the earth's magnetic flux thereby producing an 800 component signal. This signal contains azimuth information which is sent to the compass equipment.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER: 23.5 v, single ph, 400 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes

REFERENCE DATA AND LITERATURE

Nomenclature Card for DETECTOR, MAGNETIC, AZIMUTH DT-176/AJN

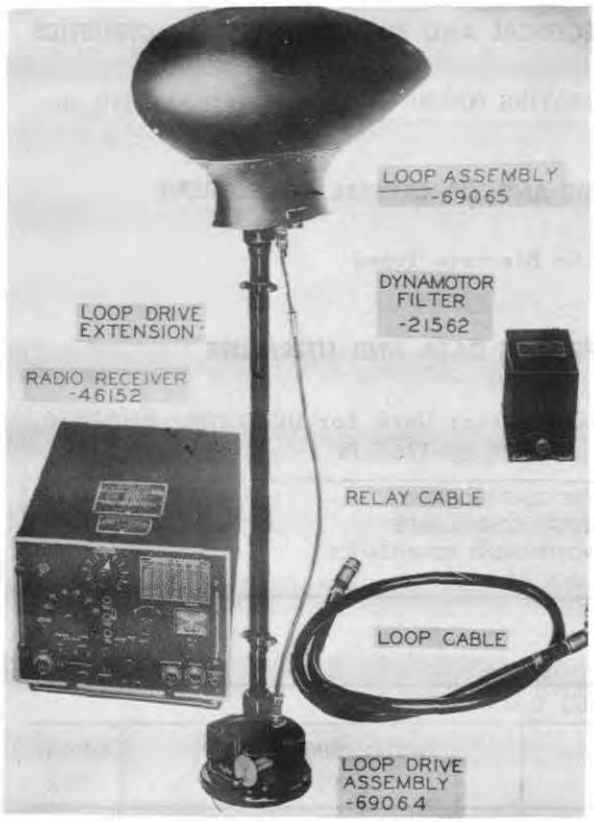
TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Detector, Magnetic, Azimuth DT-176/AJN		0.75

September 1956

AIRCRAFT RADIO DIRECTION FINDER EQUIP. DZ-2



Aircraft Radio Direction Finder Equipment DZ-2

FUNCTIONAL DESCRIPTION

The Navy Model DZ-2 is designed to proviue homing facilities in an aircraft over a range of frequencies from 15 kc to 70 kc and 100 kc to 1750 kc in six bands. The Equipment permits non-directional, bilateral and unilateral reception of CW, MCW or voice modulated signals.

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

RELATION TO OTHER EQUIPMENT

Similar to model DZ-2a except for the position in which the loop antenna is mounted.

Equipment Requited but not Supplied: (1) 600 ohm headset including standard telephone plug (1) fixed vertical sense antenna.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 15 kc to 70 kc and 100 kc to 1750 kc in 6 bands.
BAND COVERAGE
- BAND 1: 15 to 32.5 kc.
- BAND 2: 32.5 to 70 kc.
- BAND 3: 100 to 200 kc.
- BAND 4: 200 to 400 kc.
- BAND 5: 400 to 800 kc.
- BAND 6: 800 to 1750 kc.

POWER SOURCE: 22 to 30 v DC.
POWER CONSUMPTION: 44 W at 26 v.
BEARING INDICATION: Aural null.
POWER OUTPUT: 300 mw.
OUTPUT IMPEDANCE: 600 ohms.
DISTORTION: Less than 10%.
DYNAMOTOR FILTER
POWER OUTFIT: 220 v DC at 70 ma with an input of 1.23 amps at 27.9 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Div. of Radio Corp. of America, Camden, N. J.
Contract 67427, dated 30 June 1939.
Approximate Cost: $11000.00 including equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6C6	(3) 6D6
(2) 76	(1) 41

Total Tubes: (8)

REFERENCE DATA AND LITERATURE

NA-08-5Q-14: Technical Manual for Model DZ-2 Aircraft Radio Direction Finder Equipment 24 v DC operation.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

DZ-2 AIRCRAFT RADIO DIRECTION FINDER EQUIP.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver – CRV–46152	10–5/8 X 12 X 19–5/8	37.7
1	Mounting Base – CRV–46087		
1	Dynamotor–Filter – CRV–21562	4–5/16 X 6–1/16 X 7–7/8	7.2
1	Mounting Base – CRV–21422		
1	Loop Drive Assy – CRV–69064	6–1/8 X 7–1/2	14.4*
1	Loop Drive Extension	1–1/4	0.8**
1	Loop Antenna Assy – CRV–69065	9–5/16 X 12–5/8 X 25–3/8	9.2*
1	Loop Cable (7 conductor)		0.43**
1	Relay Cable		0.1**
1	Dynamotor Cable (3 conductor)		0.25**
1	Power Cable (2 conductor)		0 25**

* Weight for Loop Drive Assembly Includes Weight of Loop Antenna Assy. Loop Drive Extension is not Included.

** Lb. per Foot.

Radio-Navigational Aids

COURSE INDICATOR ID-249/ARN, ID-249A/ARN

Course Indicator ID-249/ARN

Course Indicator ID-249A/ARN

FUNCTIONAL DESCRIPTION

The ID-249/ARN or ID-249A/ARN is a pictorial heading cross pointer indicator providing localizer glide path, heading and omnidirectional radio range indications. Instrument serves as a cross point indicator in making instrument approaches on the USAF instrument Low Approach System and as an omnidirectional radio range indicator by providing a bearing selector, deviation indicator and an ambiguity indicator. The hermetically sealed case is standard with the exception of two sumps which provide for the heading setting control knob and the marker beacon indicator lamp. Standard luminescent materials are used on the cross pointers, tip of heading pointer and the flag alarm flags. Mechanical damping of pointer mechanisms is used to eliminate necessity of electrolytic damping condensers, when the indicator is used on instrument approach. Electrically and mechanically interchangeable with the ID-249/ARN, the ID-249A/ARN has a heading datum synchro added, to provide a heading reference signal for the automatic pilot through a modified automatic coupler unit and a two phase rotor resolver replaces the single phase rotor resolver to allow for use of the course indicator with a modern type X-Y coordinate computer when the computer is added to the navigation system. These functions are required in certain applications.

No field changes in effect at time of preparation (29 July 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ELECTRICAL RATINGS
- SYNCHRO UNIT: 26.5 v, 400 cps, single ph rotor, 3-ph stator.
- RESOLVER: 26.5 v, 30 cps, 2-ph rotor, 2-ph stator.

FLAG ALARM MOVEMENT SENSITIVITY: 125 ua suppressed to 0, 250 ua full scale.

AMBIGUITY INDICATOR SENSITIVITY: 250 to 0 to 250 ua.

CROSS POINTER MOVEMENT SENSITIVITY: 150 to 0 to 150 ua, 0.15 v DC, 1000 ohms.

HEADING DATUM SYNCHRO RATING: 26.5 v, 400 cps, single ph rotor, 3-ph stator.

MOUNTING: Standard 3/8 in. panel.

SPECIAL FEATURES: Hermetically sealed, uses tape type scale, and the cross pointers are perpendicular at zero center or at any point of deflection, either right, left, up or down.

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio Div Bendix Aviation Corp.
Contract W33-038-ac-21113.

Radio-Navigational Aids

January 1958

ID-249/ARN, ID-249A/ARN

COURSE INDICATOR

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

T.O. 5N8-5-2-14, AN16-35ID249-14, Illustrated Parts Breakdown for Course Indicator ID-249A/ARN, ID-387/ARN and Nomencard for Course Indicator ID-249A/ARN dated 1 February 1950.

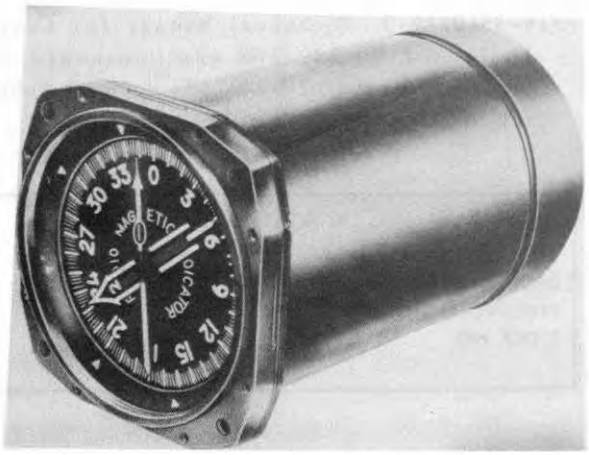
AN16-35ID249-3, Technical Manual for Course Indicator ID-249/ARN and Nomencard for Course Indicator ID-249/ARN dated 1 February 1950.

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Course Indicator ID-249/ARN or	3-1/8 dia X 6-1/4	
1	Course Indicator ID-249A/ARN	3-1/8 dia X 6-1/4	

RADIO MAGNET INDICATOR ID-250/ARN



Radio Magnetic Indicator ID-250/ARN

FUNCTIONAL DESCRIPTION

The ID-250/ARN is a multipurpose navigational instrument designed primarily to enable the pilot to navigate his aircraft without performing numerical or graphical calculations.

The face of the instrument consists of a fixed outer dial with lubber line and 45 degree markings through 360 degrees, an inner rotating compass dial graduated from zero to 360 degrees clockwise in 5 degree increments, a wide pointer with parallel grids at the outer edge and a narrow pointer mounted concentrically with the wide pointer and the compass dial.

No field changes in effect at time of preparation (10 September 1957).

RELATION TO OTHER EQUIPMENT

Can be used in conjunction with the Eclipse-Pioneer PB-10 Automatic Pilot or Gyro Flux Gate Systems.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER INPUT: 26 v, 400 cps, single ph.
TEMPERATURE RANGE: -55° to +70°C.

MANUFACTURER'S OR CONTRACTOR'S DATA

Eclipse Pioneer

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

AN16-35ID250-3, Technical Manual for Radio Magnetic Indicator.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Magnetic Indicator ID-250/ARN		

September 1956

INDICATOR, INDUCTION COMPASS ID-566/ASN

FUNCTIONAL DESCRIPTION

The ID-566/ASN duplicates the heading indication of the airplane for the use of those other than the pilot.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE INDICATOR: Repeater.
RANGE: 0 to 360 deg, 5 deg smallest increments.
ELECTRICAL INPUT: 26 v, 400 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes

REFERENCE DATA AND LITERATURE

Nomenclature Card for INDICATOR, INDUCTION COMPASS ID-566/ASN.

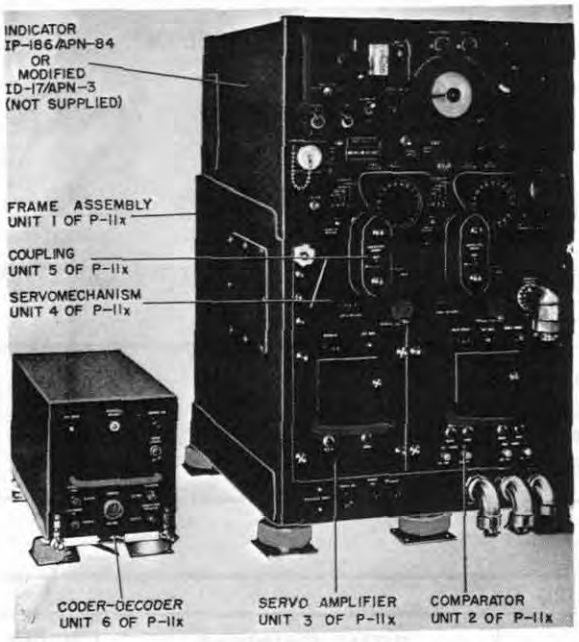
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Indicator, Induction Compass ID-566/ASN	3-1/8 x 3-9/32 x 4-1/2	

April 1958

SHORAN PULSE MATCHING GROUP P-11X(RCA)



Shoran Pulse Matching Group P-11X(RCA)

FUNCTIONAL DESCRIPTION

The P-11X equipment automatically aligns the receiver Shoran pulses with their corresponding reference (marker) pulses. It replaces the need of an operator to maintain pulse coincidence by continuously and automatically performing this function. The equipment provides instantaneous indications of ship-to-shore station mileages and transmits these measured distances continuously to a remote point (the plotting board).

The Shoran Pulse Matching group is used as a part of a system with Radio Sets AN/APN-84 or AN/APN-3 (Modified) and other associated and optional equipment.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Radio Set AN/APN-3 (modified) less Comparator CM-3/APN-3, Pilot Direction Indicator ID-103/APN-3, Mounting MT-216/APN-3 or (1) Radio Set AN/APN-84 less Signal Comparator CM-41/APN-84, Position Deviation Indicator ID-371/APN-84, Mounting, Indicator MT-1159/APN-84, Mounting MT-1305/APN-84.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

AMPLIFIER, ELECTRONIC CONTROL
- INPUT SIGNALS
  - RATE ERROR SIGNAL
    - FREQ: 400 cycles.
    - CONDITION: Phased.
    - AMPLITUDE: 5 v peak-to-peak.
  - DRIFT ERROR SIGNAL
    - FREQ: 400 cycles.
    - CONDITION: Phased.
    - AMPLITUDE: 5 v peak-to-peak.
- OUTPUT SIGNALS
  - RATE MOTOR VOLTAGE
    - FREQ: 400 cycles.
    - CONDITION: Phased.
    - AMPLITUDE: 350 v peak-to-peak.
  - DRIFT MOTOR VOLTAGE
    - FREQ: 400 cycles.
    - CONDITION: Phased.
    - AMPLITUDE: 350 v peak-to-peak.
- POWER SOURCE REQUIRED: 105 to 125 v, 380 to 420 cps, single ph, 81 W.
- FEATURES: Component failure safty circuit, interlock circuit breaker, tip jack voltage monitoring for BT voltage, rate input signal, drift input signal, rate output signal and drift output signal.

COMPARATOR, SIGNAL
- FREQUENCY: 930 pps.
- INPUT IMPEDANCE.
  - MARKER: 100000 ohms.
  - VIDEO: 1350 ohms.
- OUTPUT IMPEDANCE
  - DRIFT: 3600 ohms.
  - RATE: 3600 ohms.
- POWER SOURCE REQUIRED: 105 to 125 v, 380 to 420 cps, single ph, 82.5 W.
- EXTERNAL CONTROLS: (1) rate video zero balance potentiometer, (1) drift video zero balance potentiometer, (1) rate

mileage increase switch, (1) rate mileage decrease switch, (1) drift mileage increase switch, (1) drift mileage decrease switch.

FEATURES: Circuit breaker, tip jack voltage monitoring, pulse switching unit to insure correcting routing of pulses to their respective comparators.

CONTROL, SHORAN GONIOMETER

TYPE OF CONTROL: Manual and automatic.

EXTERNAL CONTROLS: (1) rate handwheel, (1) drift handwheel, (1) rate clutch knob, (1) drift clutch knob.

POWER SOURCE REQUIRED: 105 to 125 v, 380 to 420 cps, single ph.

COUPLING, SHORAN GONIOMETER

METHOD OF COUPLING: 1 to 1 gear train having splined input and output shaft couplings.

ACCURACY: The servo motors position the Shoran Indicator goniometer mileage dials to within 20 feet of the manual reading.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corp of America, RCA Victor Division, Camden, N.J.

Contract NObsr-63382, dated 27 March 1953.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 12AV7	(2) 5726/6AL5W
(2) 6X4WA	(1) 5R4WGB
(8) 5814A	(2) 5687WA
(3) 6AH6	(2) 5721
(5) 6AN5WA	

Total Tubes: (27)

(6) 1N81

Total Crystals: (6)

REFERENCE DATA AND LITERATURE

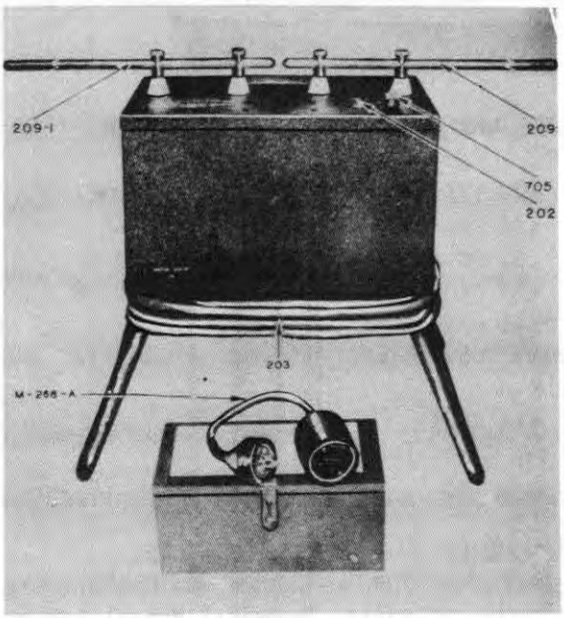
NAVSHIPS 92265(A), Technical Manual for Shoran Pulse Matching Group P-11X.

TYPE CLASSIFICATION
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Matching Group P-11X c/o	19-1/4 X 24-5/16 X 30-3/4	175
1	Frame Assembly (Unit One)	19-1/4 X 24-5/16 X 30-3/4	54
1	Comparator (Unit Two)	8-1/4 X 9-3/4 X 19-5/8	24.5
1	Servo Amplifier (Unit Three)	6-1/2 X 8-1/4 X 19-5/8	13.5
1	Servo Mechanism (Unit Four)	5-1/8 X 9-1/8 X 16-3/8	16.5
2	Coupling Unit (Unit Five)	2 X 3 X 4-7/8	0.8
1	Coder-Decoder (Unit Six)	7-1/2 X 9 X 19-7/16	14.0
1	Set of Equipment Maintenance Parts		45

MARKER BEACON TRANSMITTING EQUIPMENT RC-115-A



Marker Beacon Transmitting Equipment RC-115-A

FUNCTIONAL DESCRIPTION

The RC-115-A when used with Marker Beacon Receiving Equipment RC-39-A, RC-39-B, RC-43-A, RC-43-B, RC-193-A or RC-193-AZ constitutes complete marker beacon transmitting facilities for any one ground position in connection with aircraft instrument landing. The RC-115-A generates and radiates vertically a keyed or continuous modulated, signal in a fan-shaped pattern. The signal thus transmitted is effective only when the receiving antenna is directly above and approximately parallel to that of the transmitter. It is therefore possible for the pilot to obtain visual and aural indication of his approximate horizontal position along his line of flight with respect to the landing field.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY: 75 mc.
ANTENNA: Dipole type.
MODULATION FREQUENCY RANGE: 400 cps, 1300 cps or 3000 cps.
KEYING FREQUENCY: 6 dots, 2 dashes per sec.
OUTPUT VOLTAGE: 3 to 4 v on early models, 12 to 14 v on later models. Voltages are RMS values.
FREQUENCY STABILIZATION: Inverse feed-back circuit for automatic frequency stabilization.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z4	(2) 7F7
(2) OD3/VR-150	(1) 7N7
(1) 7F6	(5) 7C5

Total Tubes: (12)

REFERENCE DATA AND LITERATURE

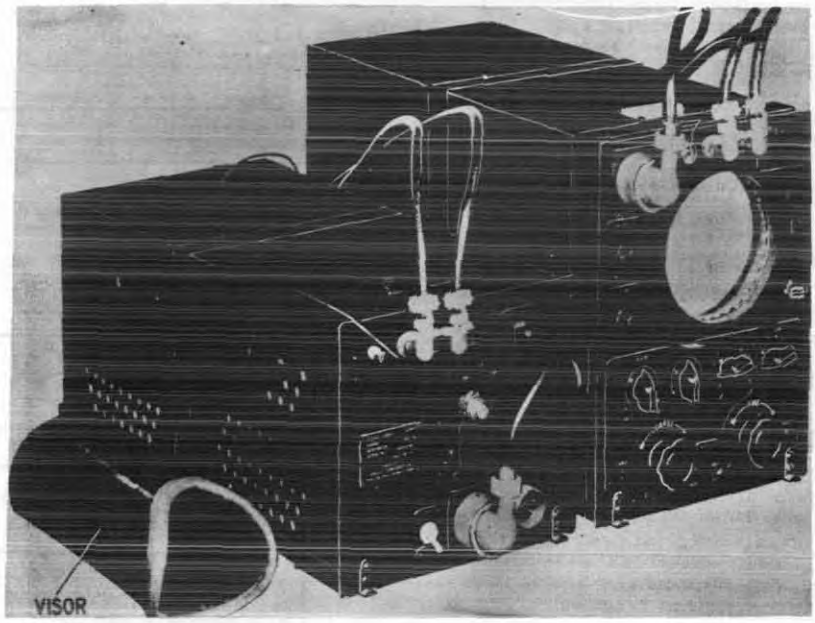
AN08-40RC115-2: Technical Manual for Marker Beacon Transmitting Equipment RC-115-A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter BC-902-B (Marker Beacon) w/tubes, antennas, and combination power and monitor cable	18 x 22 x 43	51
1	Adapter M-268-A		
	Technical Manual		
1	Set of Equipment Spares	1/2 x 11-1/4	4.75

TRAINING EQUIPMENT



Training Equipment RC-242-A

FUNCTIONAL DESCRIPTION

The RC-242-A is used to train personnel in the operation of Radio Set AN/APN-4. The equipment simulates the transmission of signals from one pair of "Loran" ground stations (master and slave) used in determining the exact geographical location of an airplane. The equipment consists of two major assemblies, Signal Generator I-194-A and Indicator ID-6/APN-4.

The signal generator functions as an rf transmitter of short range. The generator is triggered by the indicator so that pulses radiated from the antenna of the signal simulate in frequency and recurrance rate one pair of "Loran" ground stations at any one time.

The oscillator and power amplifier tuned circuits of the signal generator are adjusted to operate at a frequency of 1.95 megacycles. The range of tuning for both circuits allows for frequency selections from 1.8 to 2 megacycles.

A switch marked "80v-115v POTENTIAL" is located on the front panel of the signal generator providing a means of adjusting the power supply to the available input voltage.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Power supply cable w/plug PL-167 attached and a 3 ft length of no. 14 antenna wire

RC-242-A TRAINING EQUIPMENT

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.8 to 2.0 mc.
PRESET FREQUENCY: 1.95 mc.
MARKERS: 10, 50, 500 and 2500 usec.
ANTENNA: No. 14 bare wire approximately 3 ft lg.
ANTENNA VOLTAGE: Between 2 and 5 v.
POWER SOURCE REQUIRED: 80 or 115 v, 400 to 2400 cps, single ph.

REFERENCE DATA AND LITERATURE

AN16-40RC-242-2-X: Technical Manual for Training Equipment RC-242-A.

TUBE AND/OR CRYSTAL COMPLEMENT

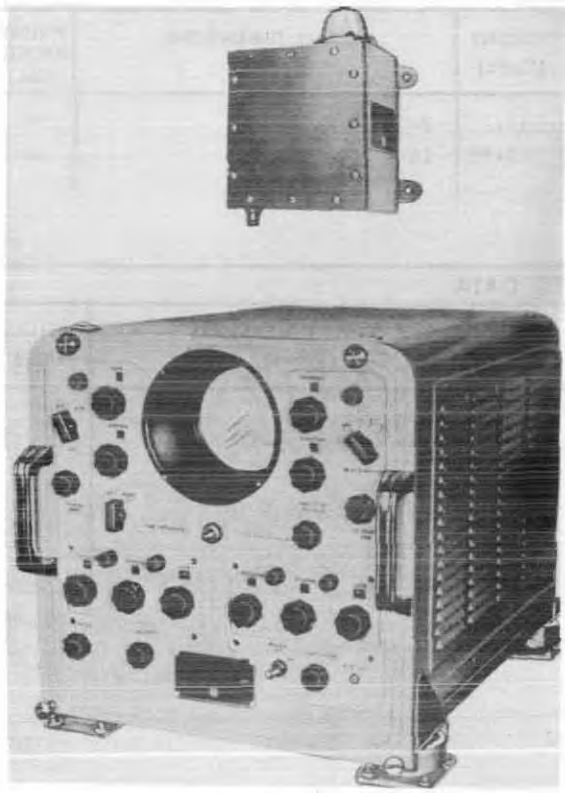
(3) 6SJ7GT
(3) 6SK7GT
(3) 6B4G
(15) 6SN7GT
(2) 2X2
(1) 5CP1
(4) 6SL7GT
(1) 6V6G
(1) OC3/VR-105
(1) 5U4G
(8) 6H6GT
Total Tubes: (42)

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-194-A	7-7/8 X 9 X 19-1/2	24
1	Indicator ID-6/APN-4 or Indicator ID-6A/APN-4	9 X 11-3/4 X 19-1/2	35.2
1	Indicator Visor	10-3/4 X 4.9 dia	0.37
2	Cable WC-547-A w/Coupling MC-320 or MC-320-A attached to each end	6 ft lg	2
1	Cordage CO-239-A w/Plug PL-Q171 attached to each end	6 ft lg	1.5
1	Insulated wire No. 18 (telephone tips connected to both ends	6 ft lg	

LORAN RECEIVER INDICATOR RD-137



Loran Receiver Indicator RD-137

FUNCTIONAL DESCRIPTION

The purpose of RD-137 is to perform the receiving function of the Loran System of navigation. This function consists of receiving the Loran Signals transmitted from shore based stations and displaying the signals on a suitable indicator so that the time interval between the arrival of the two signals of a pair may be measured. With the time difference information from two or more pairs of signals the navigator may refer to suitable charts or tables and determine the vessels position.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Oscilloscope w/2 mc bandwidth, 200 mv/in. deflection sensitivity, (1) 20,000 ohms/v Volt-ohm-milliammeter, (1) Signal Generator w/frequency range 1000 to 2000 kc (1) Loran Handbook for Shipboard Operators.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1700 kc to 2000 kc.
NUMBER OF CHANNELS: Four preset channels.
RECEIVER TYPE: Superheterodyne.
INTERMEDIATE FREQUENCY: 1050 kc.
RECEPTION: Po.
ANTENNA INPUT IMPEDANCE: 52 ohms.
POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Philco Corp, Philadelphia, Pa.
Contract No. TGC-38015 dated 28 December 1949.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2X2-A	(1) OA2
(1) 5UP1	(1) OB2
(1) 5R4-GY	(35) 12AU7
(2) 6AS7G	(4) 6BA6
(4) 6AU6	(1) 6J6
(15) 6AL5	(4) 6BE6
(1) 6X4	

Total Tubes: (61)

REFERENCE DATA AND LITERATURE

Technical Manual for Loran Receiver Indicator Model RD-137.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

RD-137 LORAN RECEIVER INDICATOR

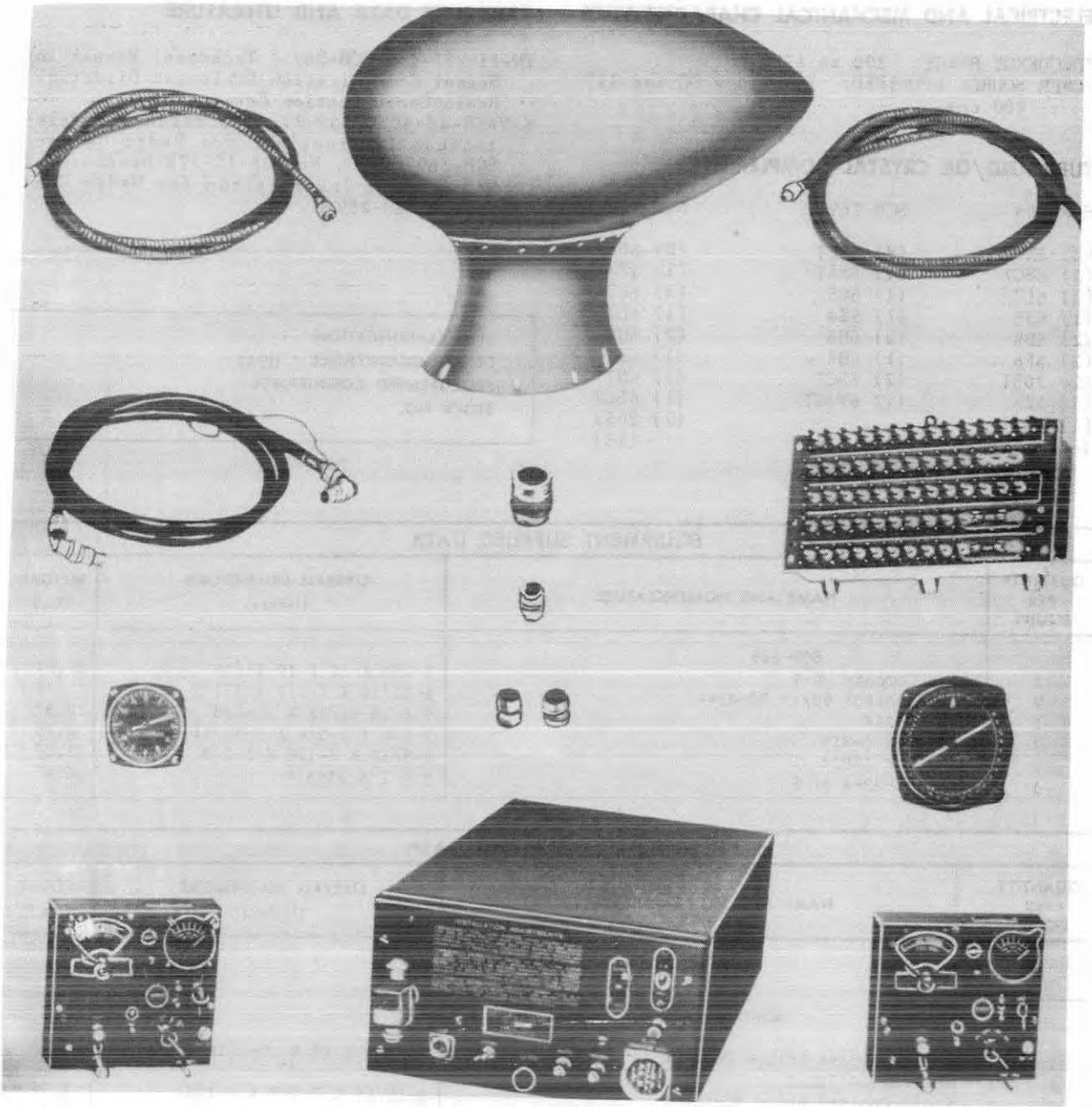
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Loran Receiver Indicator	17.7	24 x 24 x 54	324
1	Set of Repair Parts	1.95	10 x 14 x 24	49

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Loran Direct Reading Indicator Model RD-137	17-1/2 x 18 x 25-7/8	140
1	Antenna Coupling Unit for Loran Direct Reading Indicator	4-5/8 x 7-15/16 x 10	4
2	Technical Manuals		

RADIO COMPASS
SCR-269, F,G



Radio Compass SCR-269,F,G

FUNCTIONAL DESCRIPTION

The Radio Compass SCR-269, F, G are primarily designed to be used as navigational instruments in military aircraft. Basically, the equipments are radio receivers employing a superheterodyne circuit and certain additional essential circuits necessary for Radio Compass operation. It requires 15 tubes. Two remote controls are provided and although only one control functions at a time, control may be readily switched from one to the other.

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

SCR-269, F,G RADIO COMPASS

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 1750 kc.
POWER SOURCE REQUIRED: 14 or 28 v DC and 115 v, 400 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

SCR-269	SCR-269-F	SCR-269-G
(4) 6K7	(8) 6SK7	(2) 6F6
(1) 6SC7	(1) 6SA7	(1) 5Z4
(1) 6L7	(1) 6C5	(4) 6K7
(1) 6J5	(1) 5Z4	(1) 6L7
(2) 6B8	(2) 6H6	(2) 6B8
(2) 6F6	(1) 6B8	(1) 6J5
(2) 2051	(2) 6SC7	(1) 6N7
(1) 5Z4	(1) 6V6GT	(1) 6SC7
(1) 6N7		(2) 2051
Total Tubes: (15)	(17)	(15)

REFERENCE DATA AND LITERATURE

TM-11-227 for SCR-269: Technical Manual for Signal Communication Equipment Directory-Radio Communication Equipment
NAVAER-16-40SCR269-3: Operation and Maintenance Instructions for Radio Compass SCR-269-F T.O. No. 08-10-175 Handbook of Maintenance Instructions for Radio Compass - SCR-269-G

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	SCR-269		
1	Radio Compass Unit	7-7/8 X 12 X 19-13/16	46.87
2	Radio Control Box - BC-434A	3-15/16 X 7-1/2 X 7-1/2	3.76
1	Loop LP-21A	9 X 14-31/32 X 25-3/8	10.37
1	Indicator I-81A	3-1/4 X 3-1/4 X 3-11/16	0.75
1	Indicator I-82A	4-3/32 X 5-1/8 X 5-1/8	1.19
1	Relay BK-22-A or E	3 X 7 X 11-3/4	6.40

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
Dual Cont	Single Cont			
		SCR-269-F		
1	1	Radio Compass Unit - BC-433F	8-3/32 X 12 X 20-1/16	43
1	1	Set Vacuum Tubes		
2	1	Radio Control Box - BC-434-F	3-15/16 X 7-1/2 X 7-1/2	3.76
1	1	Loop LP-21F	9 X 15-5/16 X 25-9/16	9.75
1	1	Loop Dehydrator	1-5/8 X 1-13/16 X 10-5/16	1.44
1	1	Cord CD-365 or Cord CD-365A	1/2 X 72	1.62
1	1	Coupling MC-203 or MC-203A	1-19/64 X 2-7/16 X 3-3/4	0.34
1	1	(either) Indicator - I-81F (Pilot's)	3-1/4 X 3-1/4 X 3-11/16	0.75
		or		
	1	(both) I-82F (Navigator's)	4-3/32 X 5-1/8 X 5-1/8	1.19
1		Relay-BK-22F or BK-22K	3 X 7 X 11-3/4	6.40
	1	Relay-SW-172 or SW-182	1-3/8 X 1-7/8 X 2-3/4	0.31
1	1	Plug PL-112	1-3/32 X 1-15/32	0.06
2	1 or 2	Plug PL-118	1-3/32 X 1-15/32	0.06
1	1	Plug - PL-122	1-23/32 X 2-1/8	0.20

RADIO COMPASS

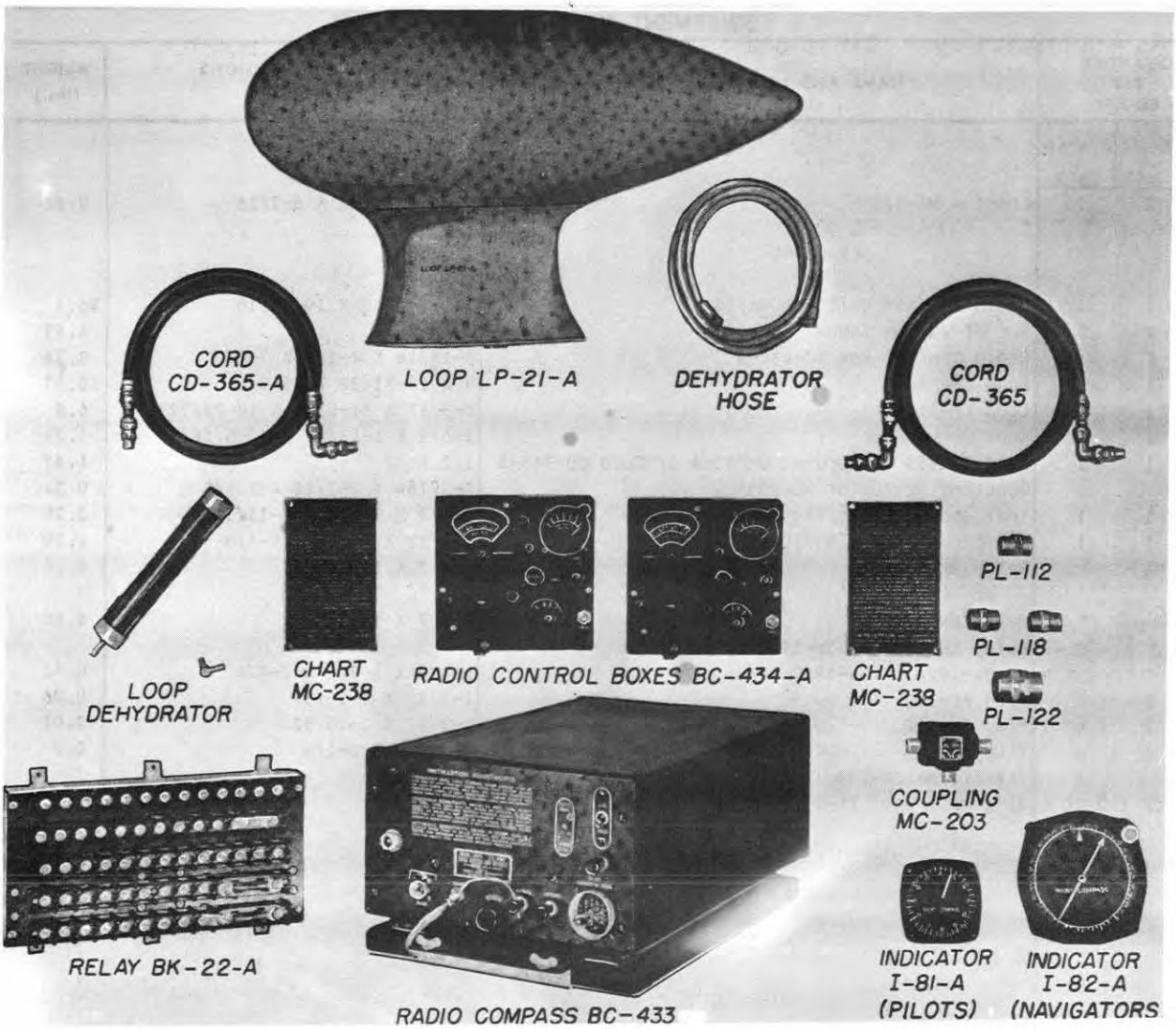
SCR-269, F,G

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
Dual Cont	Single Cont			
2	1	Chart – MC-328	3/64 X 4-1/2 X 6-7/16	0.06
		SCR-269-G		
1	1	Radio Compass Unit – BC-433G	7-7 8 X 12 X 19-13/16	46.1
1	1	Set of Vacuum Tubes		1.13
2	1	Radio Control Box BC-434-A	3-15/16 X 7-1/2 X 7-1/2	3.76
1	1	Loop LP-21-A	9 X 14-31/32 X 25-3/8	10.37
1	1	Loop LP-31-A	6-3/32 X 11-5/16 X 14-23/32	6.8
1	1	Loop Dehydrator	1-5/8 X 1-13/16 X 10-5/16	1.25
1	1	Cord CD-365 or Cord – CD-365-A or Cord CD-365-B	1/2 X 72	1.62
1		Coupling MC-203 or MC-203A	1-10/64 X 2-7/16 X 3-3/4	0.34
1	1	Indicator I-81A (Pilot's)	3-1/4 X 3-1/4 X 3-11/16	0.75
1	1	Indicator I-82A (Navigator's)	4-3/32 X 5-1/8 X 5-1/8	1.19
1		Relay BK-22A	3 X 7 X 11-3/4	6.25
		or		
		Relay BK-22-E	3 X 7 X 11-3/4	6.40
	1	Relay SW-172A or SW-172C or SW-182A or SW-182C	1-3/8 X 1-7/8 X 2-3/4	0.31
1	1	Plug PL-112	1-3/32 X 1-15/32	0.06
2	1 or 2	Plug PL-118	1-3/32 X 1-15/32	0.06
1	1	Plug PL-122	1-23/32 X 2-1/8	0.2
	1	Transformer C-289		
0 or 1	0 or 1	Alignment Tool TL-138B		

RADIO COMPASS

SCR-269-A



Radio Compass SCR-269-A

FUNCTIONAL DESCRIPTION

Radio Compass SCR-269-A is designed primarily to be used as an airborne navigational instrument. Basically it is a superheterodyne receiver which incorporates additional circuits for automatic compass operation.

The equipment provides for automatic bearing indication of an incoming modulated or unmodulated radio signal, aural reception of modulated or unmodulated radio signals, and aural-null direction of incoming modulated or unmodulated radio signals. Compass operation employs both a loop and a nondirectional antenna. Normal receiver operation utilizes either the loop or the nondirectional antenna.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1 or 2) Headset, (1) Nondirectional Antenna, (1) Rectifier Unit RA-59-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 1750 kc, 3 bands.
POWER REQUIREMENTS: 115 v, 400 cyc, single ph; 14 or 24 v dc.

Radio-Navigational Aids

SCR-269-A RADIO COMPASS

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Maryland.

REFERENCE DATA AND LITERATURE

NA08-5Q-161: Technical Manual for RADIO COMPASS SCR-269-A and SCR-269-C.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z4 (2) 6B8 (2) 6F6 (1) 6J5
(4) 6K7 (1) 6L7 (1) 6N7 (1) 6SC7
(2) 2051
Total Tubes: (15)
No Crystals used.

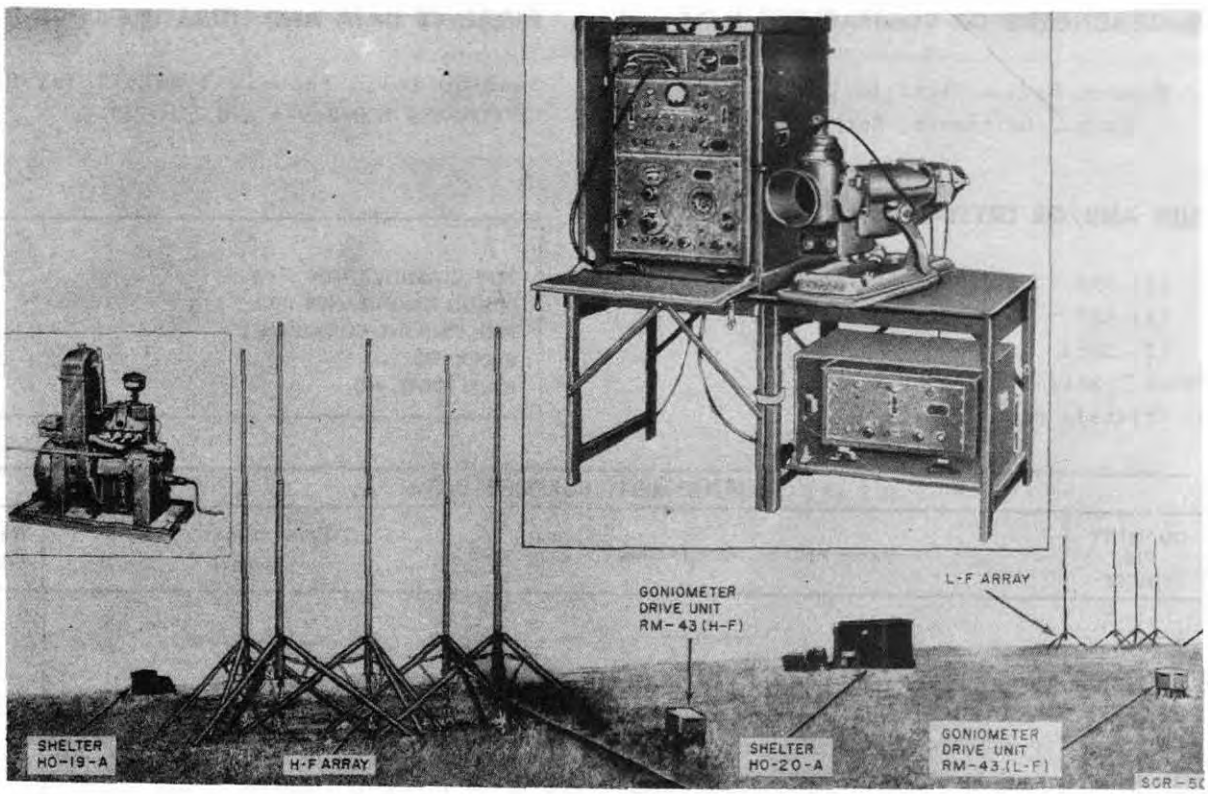
TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USA, SIG C
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
DUAL CONTROL	SINGLE CONTROL			
1	1	Radio Compass Unit BC-433-A includes:	7-7/8 x 12 x 19-13/16	46.87
1	1	Mounting FT-213-A		
1	1	Setscrew Wrench, Allen no. 6		
6	6	Tube Shield MC-202		
1	1	Set of Vacuum Tubes		1.13
2	1	Radio Control Box BC-434-A includes:	3-15/16 x 7-1/2 x 7-1/2	3.76
1	1	Mounting FT-224-A		
5	5	Lamp LM-32		
1	1	Setscrew Wrench, Allen no. 6		
1	1	Loop LP-21-A	9 x 14-31/32 x 25-3/8	10.37
1	1	Loop Dehydrator (Complete with hose)	1-5/8 x 1-13/16 x 10-5/16	1.25
1	1	Cord CD-365 or CD-365-A includes:	1/2 dia x 72	1.62
2	2	Plug PL-108		
2	2	Conduit Elbow FT-184		
1	1	Flexible Conduit Assy		
1		Coupling MC-203 or MC-203-A	1-19/64 x 2-7/16 x 3-3/4	0.34
1	1 or 0	Indicator I-81-A (Pilots)	3-1/4 x 3-1/4 x 3-11/16	0.75
1	1 both	Indicator I-82-A (Navigator)	4-3/32 x 5-1/8 x 5-1/8	1.19
1		Relay BK-22-A or BK-22-E	3 x 7 x 11-3/4	
	1	Relay SW-172-A or SW-182-A	1-3/8 x 1-7/8 x 2-3/4	0.31
1	1	Plug PL-112	1-3/32 dia x 1-15/32	0.06
2	1 or 2	Plug PL-118	1-3/32 dia x 1-15/32	0.06
1	1	Plug PL-122	1-23/32 dia x 2-1/8	0.20
2	1 or 2	Chart MC-208	3/64 x 4-1/2 x 6-7/16	0.06
	1	Autotransformer C-289		
0 or 1	0 or 1	Alignment Tool TL-138-B		

December 1956

RADIO SET SCR-502



Radio Set SCR-502

FUNCTIONAL DESCRIPTION

The SCR-502 is a semiportable, visual indicating type, ground-station radio direction finder. Instantaneous visual azimuths are indicated on the screen of the cathode ray tube by means of deflection coils driven in synchronism with the motor-driven goniometer. Indications are fully automatic and continuous, and provision is made for simultaneous, aural monitoring of the received signal. Azimuths may be obtained on cw or am signals as quickly as the various stations can be tuned in.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 30 mc.
POWER OUTPUT
TO LOUDSPEAKER: 1.5 W into 4 ohm load.
TO HEADPHONES: 1.5 W into 250 ohm load.
TYPE MODULATION RECEIVED: CW, tone and voice.
INDICATIONS: 5 in. CR tube.
POWER SOURCE
GAS ENGINE-GENERATOR: 115 v, 60 cps, single ph, 1.5 kva capacity (approx).
EXTERNAL: 115 or 230 v, 60 cps.
ANTENNA DATA
TYPE: (2) stationary, crossed-U Adcock antennas and a vertical sense antenna with phase inverters.
ROTATION: Electronic goniometer.

SCR-502 RADIO SET

MANUFACTURER'S OR CONTRACTOR'S DATA

Contract MIPR-800-99765-50.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0C3/UR105
(1) 1R5
(1) 2X2/879
(1) 3B7/1291
(1) 5NP1
(1) 6SA7
(1) 6SJ7
(1) 6SQ7
(1) 2050
(4) 0D3/VR150
(30) 7V7
(1) 6AC7/1852
(1) 5Y3GT
(1) 6H6
(1) 6J5
(1) 6L6G
(1) 6SH7
(1) 6SL7GT
(1) 6V6GT/G
(2) 5U4G
(4) 6SK7
Total Tubes: (57)

RELATION TO OTHER EQUIPMENT

TM-11-487D: Technical Manual Directory of Signal Corps Equipments, Radio Direction Finding Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.

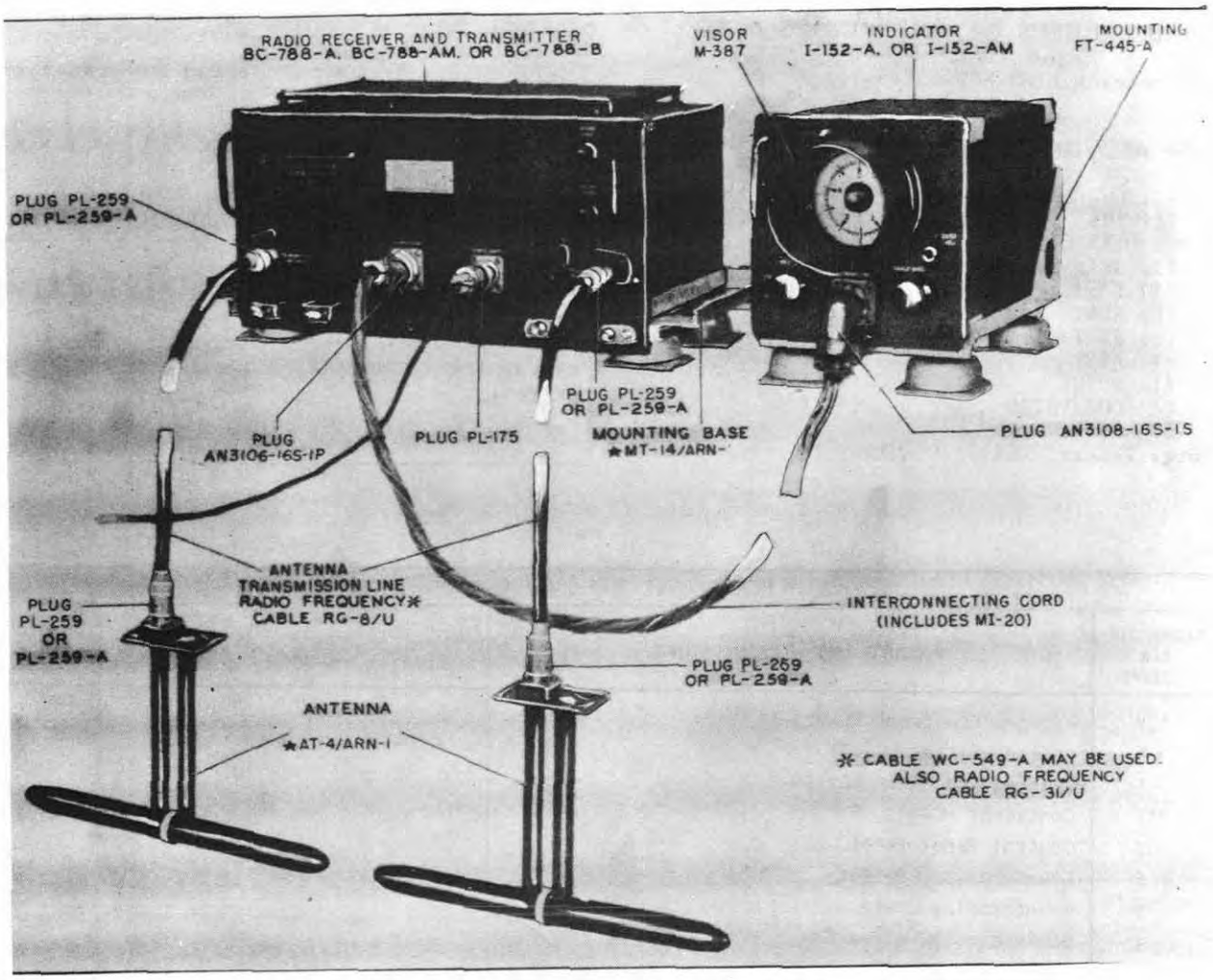
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
*12	Antenna Equipment RC-223-A		
5	Antenna Fitter MC-474		
1	Bearing Indicator BC1159-A		
**2	Contactor MC-473		
1	Control Panel PN-31		
5	Counterpoise CP-17-A		
5	Counterpoise CP-18		
1	Goniometer MC-412-A		
1	Goniometer MC-472		
2	Goniometer Drive Unit RM-43		
6	Junction Box JB-91-A		
1	Junction Box JB-126		
**9	Phase Inverter MC-411-A		
**3	Phase Inverter MC-413-A		
**2	Power Unit (Koehler Model 1M-21-A).		
1	Rack FM-61-A		
1	Radio Receiver BC-1147		
1	Radio Transmitter BC-1149-A		
1	Shelter HO-19-A		
1	Shelter HO-20-A		
1	Synchronizing Unit RM-44		
1	Telephone Panel PN-32-A		

*Two are Spares

**One is Spare

RADIO SET SCR-718-C



Radio Set SCR-718-C

FUNCTIONAL DESCRIPTION

The SCR-718-C is a complete equipment for installation in aircraft designed to determine height above terrain. The nominal operating range of the equipment is from 0 to 40,000 feet, but use of the equipment above 40,000 feet may result in impaired operation although the accuracy of its indication will not be diminished. Its use at heights above 45,000 feet above sea level may result in permanent damage unless the indicator is in a pressurized cabinet.

No field changes in effect at time of preparation (6 February 1957).

RELATION TO OTHER EQUIPMENT

Similar to other Models of SCR-718 series.

Equipment Required but not Supplied: Cable as required.

SCR-718-C RADIO SET

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE SIGNALS: Pulse.
PRESENTATION: 3 in. CR tube.
INDICATOR DATA
RANGE: 0 to 50000 ft.
ACCURACY: Within 50 ft at any altitude.
TYPE RECEIVER: Superheterodyne.
POWER REQUIREMENTS: 115 v ± 5% or 80 v, 400 to 2400 cps, 135 W.
TYPE ANTENNAS: Half-wave dipole, 50 ohms input impedance.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Div., New York, N.Y.
Stewart-Warner Corp., Chicago, Illinois.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6J6WA
(12) 6AG5
(1) 5Y3WGTB
(1) 2X2/879
(1) 6L6WGB
(1) 3DP1A/S2

Total Tubes: (19)

(1) 98.356KC

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

AN16-40SCR718-3: Technical Manual for Radio Sets SCR-718-A, AM, B, and C.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver and Transmitter BC-788-C	7-25/32 X 8-11/16 X 15-1/2	10.2
1	Indicator I-152-C	6-1/2 X 6-17/32 X 12-5/8	9.7
1	Visor M-387	2-3/4 X 3-5/8 dia.	0.15
2	Antenna AT-4/ARN-1	1 X 7-9/16 X 11-9/16	1.4
1	Mounting Base MT-14/ARN-1	2-1/4 X 7-5/8 X 18-1/16	1.3
1	Mounting FT-455-A	5-7/8 X 6-13/16 X 12-3/8	1.65
4	Adapter M-359-A	11/16 X 1-5/16 X 1-5/16	0.31
1	Plug AN316-16S-1P	1-3/16 dia X 2-1/8	0.10
1	Plug AN3108-16S-1S	1-3/16 X 2 X 2-1/2	0.13
1	Plug AN3106-12S-3S	15/16 dia X 2-1/16	0.06
3	Cable Adapter AN3057-8		
4	Plug 49190	23/32 dia X 1-9/16	0.20
1	Radio Frequency Cable RG-8/U or RF-31/U	720 lg	6.4
1	Cable RG-49/U or MI-20	600 lg	2.4

September 1956

LORAN TRANSMITTING EQUIPMENT

TEH

FUNCTIONAL DESCRIPTION

The TEH is designed for use as one of two or more transmitting stations in the Loran system of navigation. Its' prime purpose is to transmit pulse signals for reception by vessels, or aircraft, as one of two or more foci, enabling the craft to determine a "Fix". Although two pairs of signals are required for a Loran "Fix", thus requiring four transmitting stations, one station can be made to transmit at two pulse rates and the two slave stations can synchronize on their respective rates, thereby only three stations are necessary to make two pairs. The TEH is designed to operate either single or double pulsed.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Radio Transmitter NT 52359, (1) Transmitter Timing Equipment UE-1a, (1) Loran Switching Equipment UM-a.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.70 to 2.0 mc.
CONTROL: Crystal.
EMISSION: Pulsed carrier.
PULSE RATE: 20 to 68 pps.
PULSE WIDTH: 40 usec at 1/2 amplitude.
POWER OUTPUT

SINGLE PULSED: 1000 kw peak, 16500 v anode potential.
DOUBLE PULSED: 800 kw peak, 16500 v
POWER SOURCE: 230 v, 50 to 60 cps, single ph, 0.8 pf.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Syracuse, N.Y.
Contract NXsr-90770 dated 26 January 1945

TUBE AND/OR CRYSTAL COMPLEMENT

(17) 8020	(4) 7C23	(2) VR150
(1) 3E29	(4) 6SJ7	(3) 6H6
(3) 807	(2) 6J5	(1) 5CP1
(9) 6SN7	(2) 5710	(2) 866
(6) 6AG7	(8) 3B24	(4) 6SL7
(2) 5R4GY	(2) 715B	(2) 2050
(4) 7C23	(5) 6AC7	(1) 6X5GT

Total Tubes: (84)

REFERENCE DATA AND LITERATURE

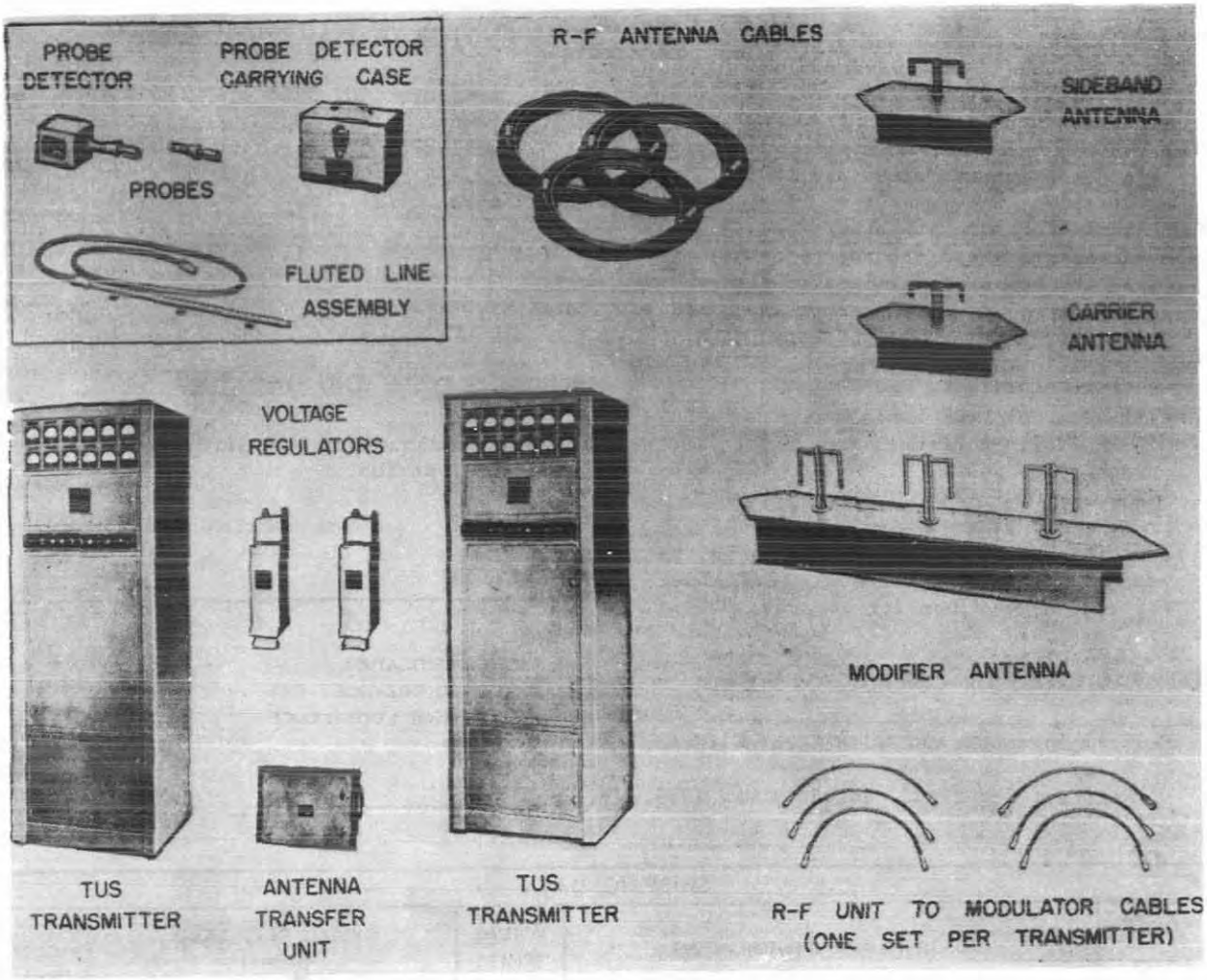
NAVSHIPS 91116: Technical Manual for Loran Transmitting Equipment TEH.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter Assembly NT-52359 consisting of:	43 x 80 x 150	5125
2	RF Amplifier NT-50315	10-15/16 x 29 x 30	150
2	RF Amplifier NT-50313	13-1/2 x 21-1/4 x 29	75
2	RF Amplifier NT-50258	30 x 43 x 80	750
2	RF Amplifier NT-50259	43 x 45 x 80	1500
2	RF Amplifier NT-50314	13-1/2 x 29 x 32-1/32	150
2	Power Supply NT-20426	43 x 45 x 80	2300
2	Test Oscilloscope NT-60164	13-9/32 x 29 x 30	200
1	Pulse Forming Network NT-53482	42 x 80 x 90	1100
1	Antenna Coupling Unit NT-47116	41 x 61 x 86	600
4	Phase Converter	4-1/8 x 9-3/4 x 14-11/16	15
1	Loran Switching Equipment UM-a consisting of:		
1	Cabinet NT-10473-A	20 x 36.8 x 77.3	
1	Excitation Switching Unit NT-24471-A		
1	Transmitter Timing Equipment UE-1(a)		

UHF GLIDE PATH TRANSMITTER



UHF Glide Path Transmitter TUS

FUNCTIONAL DESCRIPTION

The Model TUS (Civil Aeronautics Administration) is a self-contained facility designed for continuous, unattended operation but has all the controls necessary for starting and stopping transmission and for adjustment of the transmitted signals. Its particular function is to provide an electronically indicated descent path for aiding aircraft to land at an airport under poor visibility conditions. Together with other facilities it comprises an Instrument Landing System, and it has facilities for external remote control equipment.

It utilizes two transmitters, one operating and one standby.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Antenna Mounting Pole.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 329 to 335 mc.
FREQUENCY CONTROL: Crystal.
CARRIER OUTPUT (NOMINAL): 10 to 15 W.
TOTAL POWER OUTPUT: Approx 17.5 W, combined carrier and sidebands.

Radio-Navigational Aids

October 1957

TUS UHF GLIDE PATH TRANSMITTER

TYPE EMISSION: Carrier and sideband in special patterns. Sideband components are the result of 90 and 150 cycle modulation impressed upon separate RF components.

MODULATION: Mechanical modulation of separate RF components at 90 and 150 cps, respectively.

MODULATION PERCENTAGE: Combination of radiated carrier and sideband components produces the approx equivalent of 2 signals, 1 modulated 45 to 49% at 90 cps, and 1 modulated 45 to 49% at 150 cps.

FREQUENCY STABILITY

SERVICE CONDITIONS: ±0.005%.

WITH LINE VOLTAGE VARIATIONS: ±0.0005% when voltage changed from 230 to 190 v or 230 to 260 v.

CHANGE OF OSCILLATOR TUBES: ±0.0005%.

IMPEDANCE: 52 ohms coaxial.

POWER REQUIREMENTS: 190 to 260 v, 60 cps, single ph, 4 amps nom for normal operation, 1.7 amps nom for standby, 90% pf.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Clifton, N. J.
Contract Cca-27502, dated 19 May 1949.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6AK5	(2) 5763	(2) 4X150A
(2) 6AU6	(2) 3B28	(1) 5Y3GT
(1) OA3/VR75		(1) 5U4G

Total Tubes: (12)

(6) CK706 (1) CAA-R-916

Total Crystals: (7)

REFERENCE DATA AND LITERATURE

Technical Manual for UHF Glide Path Transmitter Type TUS.

TYPE CLASSIFICATION
DESIGN COGNIZANCE CAA
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
2	Transmitter Type TUS			745
1	Modifier Antenna Assembly			145
1	Carrier Antenna Assembly			67
1	Sideband Antenna Assembly			67
1	Antenna Transfer Unit Type CA-1365			39
2	Voltage Regulator Type CA-1368			104
1	Probe Detector CA-1366 including: (1) Carrying Case (2) Probe (1) Fluted Line Assembly CA-1367 (3) Antenna Cable			78

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Transmitter Type TUS	27 X 30 X 76	506
1	Modifier Antenna Assembly		48
1	Carrier Antenna Assembly		18

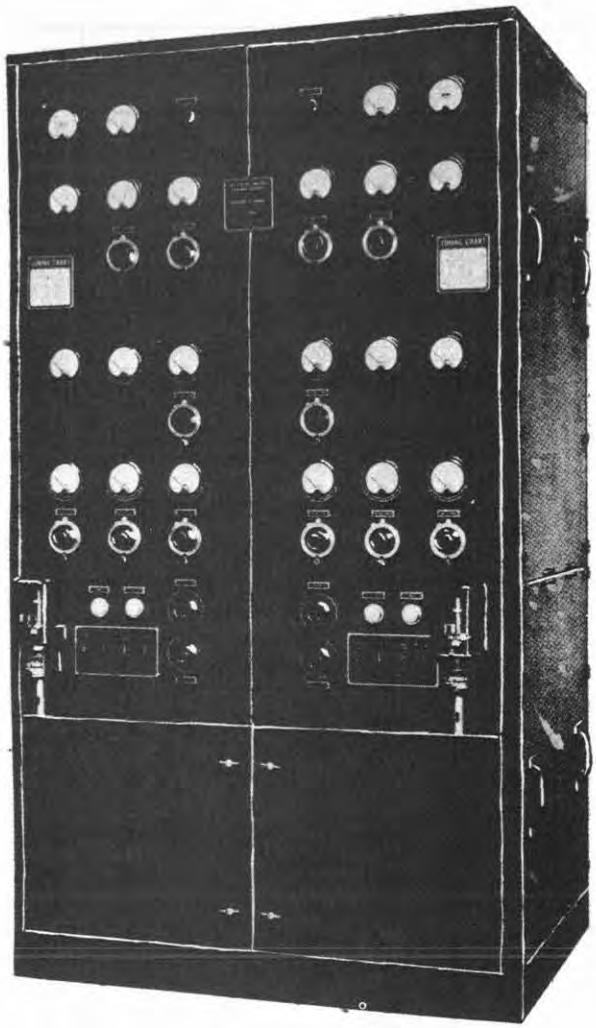
UHF GLIDE PATH TRANSMITTER TUS

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sideband Antenna Assembly		18
1	Antenna Transfer Unit Type CA-1365		30
2	Voltage Regulator CA-1368		88
1	Probe Detector CA-1366 including:		28
	(1) Carrying Case		
	(2) Probe		
	(1) Fluted Line CA-1367		
	(3) Antenna Cable		
1	Set of Installation Material		

March 1957

U.H.F. DUAL FAN MARKER EQUIPMENT TZU



Fan Marker Transmitter T2U

FUNCTIONAL DESCRIPTION

The TZU consists of a TZU Dual Ultra-High-Frequency Transmitter, two Motor-Generator-Alternator Units and an Antenna System.

The Equipment produces an elliptical field pattern which provides a positive indication of position at definite points along the Federal Airways. It operates at a frequency of 75 mc modulated at 3000 cps. Modulation is Keyed to provide identification for the individual installations. The equipment is intended for continuous unattended operation.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY
- CARRIER: 75 mc.
- MODULATION: 3000 cps.

POWER OUTPUT
- UNMODULATED: 100 W.
- 100% MODULATED: 150 W.

FREQUENCY STABILITY
- CARRIER: 7500 cps.
- MODULATION: ±15 cps.
- MAX MODULATION OF CARRIER: 105%.

POWER SOURCE: 95 to 130 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Farnsworth Television and Radio Corp, Fort Wayne, Ind.
Item No. 302140-3, 302140-4.
Contract Cca-20889, dated 10 April 1943.
Orders-43-7166, 43-9236-30 June 1943.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6F6	(3) 807	(2) 834
(1) 6Q7	(1) 2051	(1) 84

Total Tubes: (9)

(1) CAA-411
(4687.5 KC)

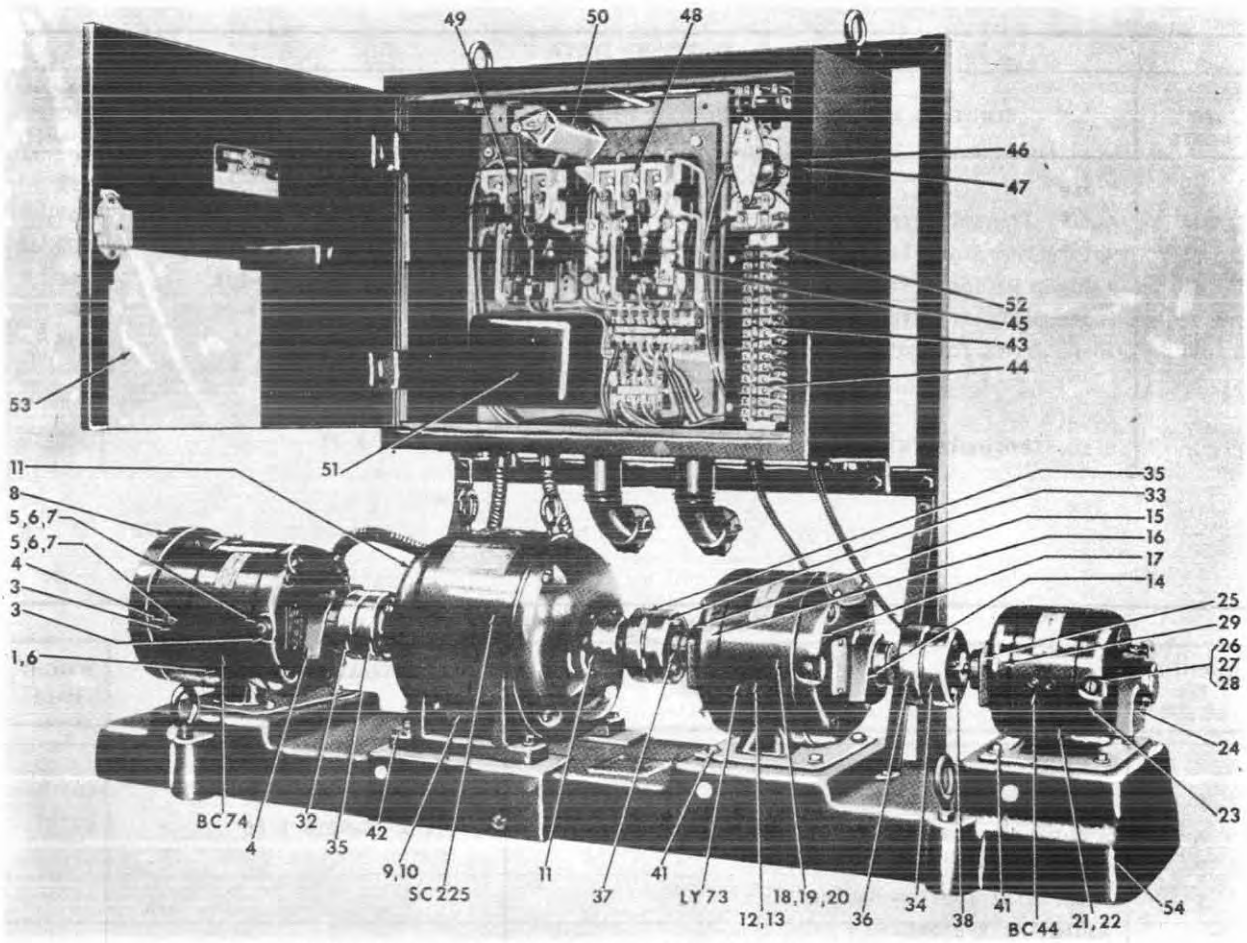
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

Technical Manual for Type TZU, Dual Ultra High Frequency Fan Marker Equipment Frequency 75 mc.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

TZU U.H.F. DUAL FAN MARKER EQUIPMENT



Motor-Generator-Alternator Type CA-497

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	Radiating System			
4			11-1/2 X 23-1/2 X 129-3/4	316 ea
1			6-1/2 X 13-1/2 X 16-1/2	87
1			7-1/2 X 12 X 41	59
1			6-1/2 X 22-1/2 X 22-1/2	48
	Counterpoise System:			
1	Bundle		3 X 4 X 243	308
1	Bundle		3 X 4 X 245	308
1	Bundle		4 X 5 X 143	218
1	Bundle		4 X 4 X 143	232
1	Box		7 X 12 X 52	197

U.H.F. DUAL FAN MARKER EQUIPMENT

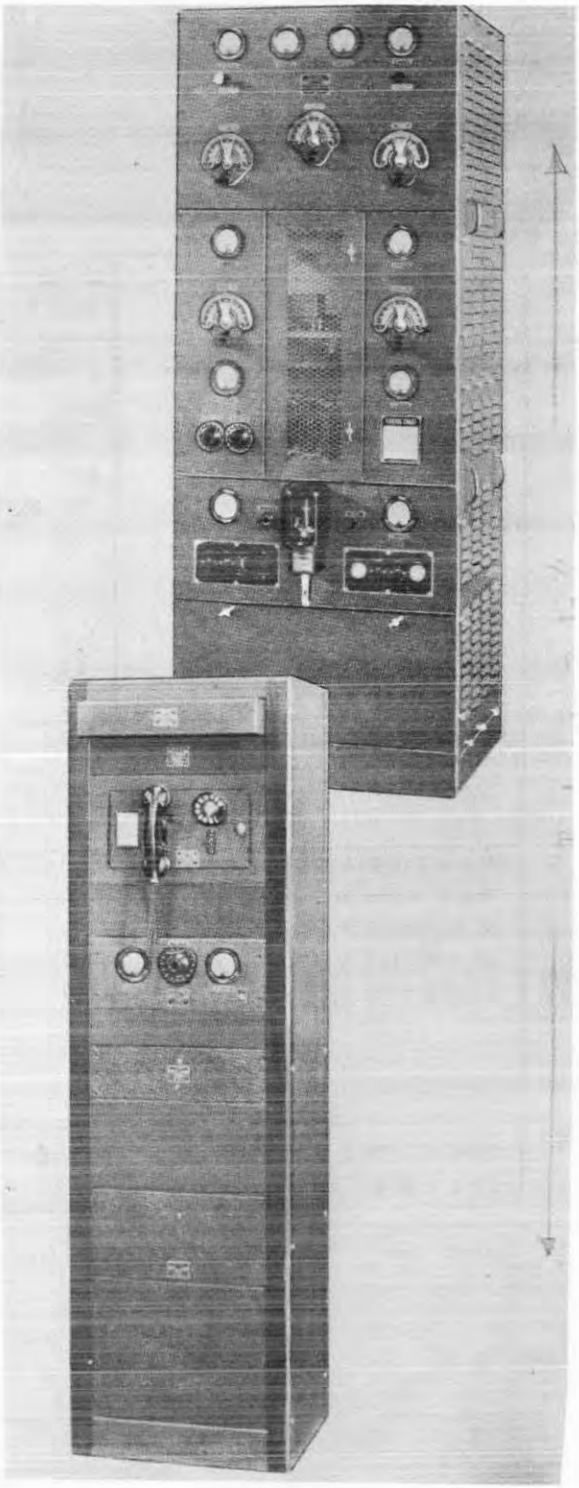
SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Crate		30-1/2 X 30-1/2 X 66	332
1	V.H.F. Transmitter-TZU		40 X 47-1/2 X 86	1660
2	Motor-Generator-Alternator Sets-CA-497		21 X 48 X 67-1/2	980 ea
1	2-Power Factor Correction Units		10-3/8 X 16 X 24-5/8	140
1	Spare Parts for Transmitter		15-3/4 X 15-7/8 X 22	95
1	Spare Parts for Motor Generator Sets		16-1/2 X 21 X 43	215
1	Square Duct		13 X 13 X 66	150
1	Misc. Terminals, Wire, Hardware, etc.		8 X 21 X 75	300

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
A-	Transmitter Section, Housing:		
1	Dual Transmitter-TZU	36-1/4 X 45 X 76	1440
2	Motor-Generator-Alternator Sets-CA-497	15-1/4 X 40-9/16 X 60	677
2	Power Factor Correction Units		
1	Power Distribution Cabinet		
B-	Radiating System:		
1	Antenna Arrax		
1	Counterpoise		
1	Radio Frequency Transmission Line		

LOCALIZER EQUIPMENT YA-1,-2



Localizer Equipment YA-1,-2

FUNCTIONAL DESCRIPTION

The YA-1 and YA-2 provide directional aural radio range signals for guiding aircraft, as well as facilities for nondirectional radio-telephone communications with aircraft or any other receiving stations. All functions of the complete station may be operated from local or remote control positions.

The YA-1 is to all purposes identical with the YA-2.

No field changes in effect at time of preparation (30 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 550 kc.
MODULATION: 1020 cps tone or A3 at 100% modulation.
KEYING SPEED: Manually, up to 40 wpm.
RANGE DISTANCE: Any altitude up to 50 mi.
POWER OUTPUT: 133 W.
POWER SOURCE REQUIRED: 200 to 250 v, 50 to 60 cps, 5 kva.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Newark, N.J.
Contract NOs-96085, dated 2 January 1942.
Contract NXsr-34737, dated 22 July 1943.
Approximate Cost: $31000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 3B28	(1) 6J5
(1) 6SN7WGTA	(2) 872A
(1) 5U4G	(2) 6J7
(4) 805	(6) 6F6
(1) 6SJ7	(6) 807
(1) 6H6	(2) 6SK7WA
(2) 84/6Z4	

Total Tubes: (31)

(1) Quartz

Total Crystals: (1)

Radio-Navigational Aids

YA-1,-2 LOCALIZER EQUIPMENT

REFERENCE DATA AND LITERATURE

NAVSHIPS 900220: Technical Manual for Low Power Radio Range Localizer and Telephone Broadcast Transmitting System Navy Models YA-1 and YA-2.

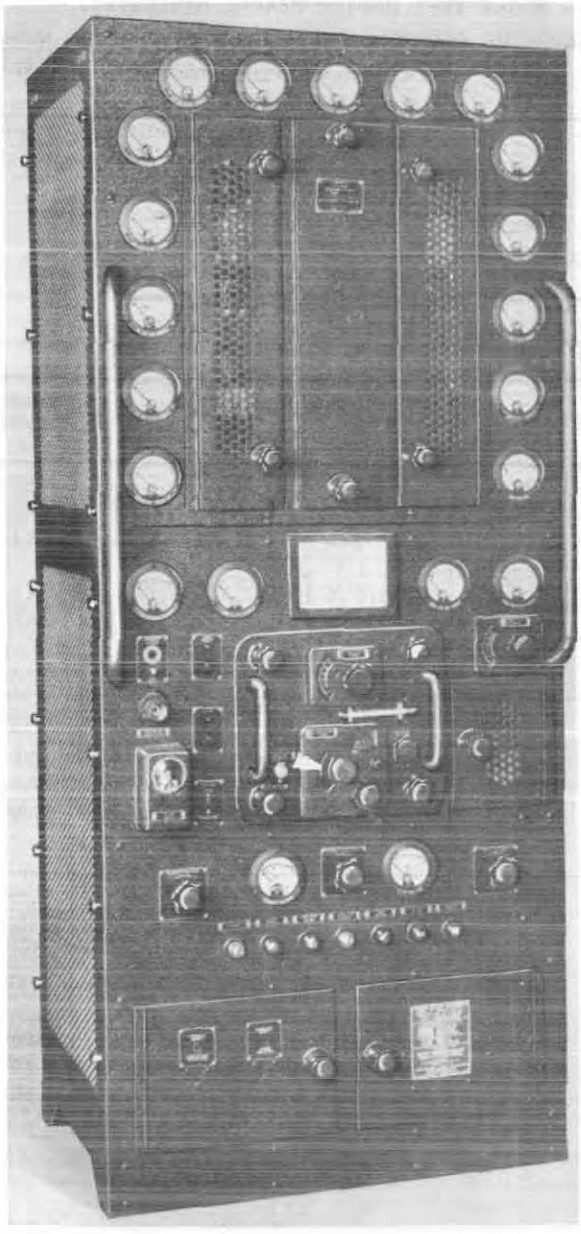
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter-52263* or -52263A**	29-15/16 X 32 X 77-3/8	1160
1	Coupling Unit-50106* or -50106A**	32 X 42-1/8 X 78	820
1	Radio Range Keyer-67001	8-3/4 X 19 X 19-1/4	36
1	Link Circuit Relay-29172	6-3/4 X 7-3/4 X 10	12
1	Local Control Unit -23289* or -23289A**	18 X 21-3/4 X 76-1/8	365
1	Relay Panel-29171	3-1/2 X 7-13/16 X 19	13
1	Local Control Panel-23290	10-1/2 X 16-1/2 X 19	51
1	Constant Output Amplifier -50108* or -50108A**		
1	Equalizer-53095* or -53095A**	5-1/4 X 6-3/4 X 19	20
1	Rectifier Power Unit-20148	5-1/2 X 8-3/4 X 19	16
1	Remote Control Unit-23291	18 X 21-3/4 X 76-1/8	295
1	Remote Control Panel-23292	10 X 10-1/2 X 19	33
1	Audio Amplifier-50107* or -50107A**	7 X 11-9/16 X 19	29
1	Antenna System Materials		
1	Installation Materials		
1	Power Distribution Transformer -303706* or -303709**	21-3/8 X 19 X 23-1/4 14-1/2 dia X 25	220

NOTES: *YA-1 only
**YA-2 only

HOMING BEACON EQUIPMENT YE,YE-1,-2,-3



Homing Beacon Equipment YE, YE-1, -2, -3

FUNCTIONAL DESCRIPTION

The YE, YE-1, -2 and -3 are normally installed on aircraft carriers, but may also be used on other vessels or at shore stations. The equipment transmits bearing and identification signals from a rotating directional antenna for guidance of aircraft to the point from which the signals are radiated. The bearing signals may be arranged according to any prescribed sequence, and to conform to twelve different Morse code letters. Each signal consists of one of these letters transmitted in duplicate through a 30 deg segment of the true-bearing circle. The bearing signals are transmitted for nine revolutions of the antenna. The station identification signals consists of a choice of two of nine letters, which are combined and transmitted through the bearing circle during every tenth revolution of the antenna. The YE, YE-1,-2 and -3 are all similar in operation, and differ only in minor structural design and power supply requirements. The YE is not supplied with antenna or control units.

Data on this sheet reflects the following field changes: FC No. 7 for YE and YE-1 (1 May 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 250 mc.
EMISSION: A2.
POWER OUTPUT: 50 W.
FREQUENCY CONTROL: Crystal.
MODULATION: Up to 80% between 540 to 830 kc.
KEYING: Relay, up to 20 wpm.
ANTENNA: Parabolic reflector type.
POWER SOURCE REQUIRED
YE, YE-2: 230 v DC, operating, 2.07 kw; starting, 3.29 kw. 220 or 440 v, 60 cps, 3 ph, operating, 2.5 kw; starting, 5.0 kw.
YE-1, YE-3: 115 or 230 v DC, operating, 2.07 kw; starting, 7 kw. 220 or 440 v, 60 cps, 3 ph operating, 2.5 kw; starting, 14 kw.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Div, Radio Corp of America, Camden, N. J.
Contract NOs-69090, dated 31 October 1939 (YE).
Contract NOs-93372, dated 28 October 1941 (YE-1).
Contract NXss-15437, dated 17 November 1942 (YE-2, YE-3).
Contract NXsr-38316, dated 30 September 1943 (YE-2, YE-3).
Approximate Cost: $17,000.00 with equipment spares.

YE,YE-1,-2,-3 HOMING BEACON EQUIPMENT

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6A6 (2) 955 (7) 807
(4) 826 (2) 829B
Total Tubes: (16)
No Crystal Data Available.

REFERENCE DATA AND LITERATURE

LAB 1036: Technical Manual for Navy Model YE Homing Beacon Equipment.

NAVSHIPS 95361: Technical Manual for Navy Model YE-1 Homing Beacon Equipment.

NAVSHIPS 900,502: Technical Manual for Navy Models YE-2 and YE-3 Homing Beacon Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Transmitter -52234	46.6	27-1/2 X 37 X 79-1/2	1032
	-52235	46.6	27-1/2 X 37 X 79-1/2	1105
	-52262	46.6	27-1/2 X 37 X 79-1/2	1032
1	Motor-Generator -21725* or			
	-21810†† or	11.5	18-1/2 X 20-1/2 X 53-1/2	610
	-21726†	10.6	18-1/8 X 20-1/2 X 50	545
1	Magnetic Controller -21740† or			
	-21771† or -211200† or	3.2	12-1/2 X 18-1/8 X 24	77
	-21741*, -21812†† or			
	-211199*	3.85	15 X 18-1/2 X 24	80
1	Antenna Control Unit	3.6	15 X 19-1/2 X 21	82
1	Antenna Accessories	132.0	41-1/2 X 53-1/2 X 105	510
1	Antenna Drive Shaft	24.6	11 X 12-1/2 X 370	549
1	Antenna Drive Unit	5.4	17 X 20 X 29	167
1	Transmission Line Kit		6-1/2 X 7 X 244	360
1	Transmission Line Fitting		5-1/2 X 15-1/2 X 20-1/2	93
1	Transmitter Spares		20-1/2 X 25 X 29-1/2	186
1	Motor-Generator and Controller			
	Spares AC	12.8	8-1/2 X 12 X 22-1/2	65
1	Motor-Generator and Controller			
	Spares DC	1.65	8-1/2 X 15-1/2 X 22-1/2	106
1	Spare Armature for Motor DC		8-1/2 X 9 X 28-1/2	70
1	Spare Armature for Generator		8-1/2 X 9 X 34-1/2	90

NOTES: *230 v DC equipment.
†220/440 AC equipment.
††115 v DC equipment.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter Unit		
	CRV-52134 (YE)	72-3/8 X 31-5/8 X 23-7/16	775
	CRV-52135 (YE)	72-3/8 X 31-5/8 X 23-7/16	850

HOMING BEACON EQUIPMENT YE,YE-1,-2,-3

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	CRV-52234 (YE-1, 2, 3)	72-3/8 X 31-5/8 X 23-7/16	720
	CRV-52235 (YE-1, 2, 3)	72-3/8 X 31-5/8 X 23-7/16	805
	CRV-52262 (YE-1)	72-3/8 X 31-5/8 X 23-7/16	720
1	Motor Generator		
	CC-21434* (YE)	14-1/8 X 15-1/4 X 45-1/8	515
	CC-21435† (YE)	14-1/8 X 15-1/4 X 43-1/8	455
	CC-21725* (YE-1, 2, 3)	17-1/8 X 16 X 46-5/8	586
	CC-21726† (YE-1, 2, 3)	17-1/8 X 16 X 43-7/8 X 520	
	CC-21810†† (YE-1)	17-1/8 X 16 X 46-5/8	586
1	Magnetic Controller		
	CAE-21439* (YE)	20-1/4 X 15 X 13	65
	CAE-21440† (YE)	14 X 13-1/4 X 9	46
	CAE-21740† (YE-1, 2)	19-21/32 X 16 X 9	48
	CAE-21741* (YE-1, 2)	20-21/32 X 15 X 13	45
	CAE-21771† (YE-1)	19-21/32 X 16 X 9	48
	CAE-21812†† (YE-1)	20-21/32 X 15 X 13	45
	CAE-211199* (YE-3)	20-21/32 X 15 X 13	45
	CAE-211200† (YE-3)	19-21/32 X 16 X 9	48
1	Antenna Control Unit		
	CRV-23263 (YE-1, 2, 3)	11-1/4 X 16-15/16 X 16-15/16	87
1	Antenna Assembly		
	CRV-66036 (YE-1, 2, 3)		
	Consisting of:		
	1 Radiator and Reflector Assembly	35-1/4 X 102	
	1 Drive Unit	22-13/32 X 17-23/64 X 13-5/8	120
	1 Drive Shaft	360 X 7-3/16 dia	153
	1 Matching Transformer CRV-47194	29-9/16 X 6-1/2	15
1	Transmission Line Kit (YE-1, 2, 3)		304
1	Transmission Line Fittings (YE-1, 2, 3)		7
1	Signal Disc Container (YE-1, 2, 3)	10 X 7-1/2 X 2	12
1	Set of Equipment Spares (YE)		
	Box 1		
	Box 2		
	Box 3		
	Box 4		328
	Box 5#		Total
	Box 6		
1	Set of Equipment Spares (YE-1)		
	Box 1		
	Box 2		
	Box 2		
	Box 3		401
	Box 4##		Total

YE,YE-1,-2,-3 HOMING BEACON EQUIPMENT

EQUIPMENT SUPPLIED DATA

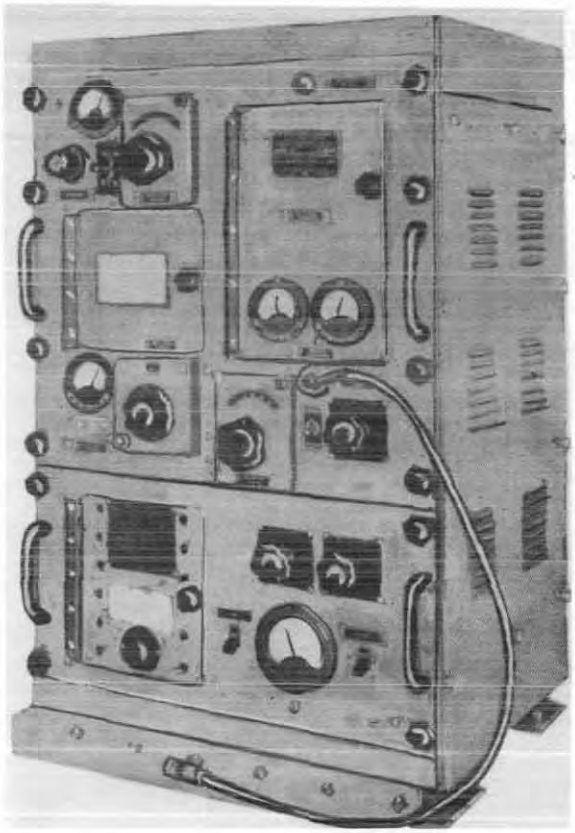
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Set of Equipment Spares (YE-2, 3)		
	Box 1		
	Box 2		
	Box 2		
	Box 3		
	Box 4##		662 Total

NOTES: *230 v DC Equipment.
†220/440 v AC Equipment.
††115v DC Equipment.
#Spare Armature for CC-21434 only.
##Spare Armature for CC-21810 or CC-21725 only.

April 1958

Radio-Navigational Aids

HOMING BEACON EQUIPMENT YG,YG-1,-2



Transmitter for Model YG Homing Beacon Equipment YG, YG-1,YG-2

FUNCTIONAL DESCRIPTION

The Navy Models YG, YG-1, and YG-2 are designed for use on aircraft carriers or at air fields to provide a signal in all directions for the guidance of returning aircraft. The directional, rotating antenna radiates a differently coded, A2 signal through each of 12 sectors in 360 degrees. During every tenth cycle of rotation the station identification signal is transmitted.

Models YG, YG-1, and YG-2 are the same except for manufacturers and for accessories supplied, the YG-1 and YG-2 including an RF Monitor for Monitoring the Radiated Signal.

Data on this sheet reflects the following field changes: No. 1, 2, 4, 5, 6 for YG; No. 1 and 5 for YG-1 (29 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 241 to 251 mc, but normally used on 246 mc.
MODULATION FREQUENCY: 540 to 830 kc.
POWER OUTPUT: 25 W.
POWER SOURCE REQUIRED: 115 v, 50-60 cps, 900 W.
MONITOR METER SCALE: 0 to 200 ua on YG-1 and YG-2.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corp of America, Camden, N.J.
Contract NXss-33086, NXs-820, NXsr-42143 (YG).
Stewart-Warner Corp, Chicago, Ill.
Contract NXss-19219, dated 7 December 1942 (YG-1).
Contract NXsr-60004, dated 31 May 1944 (YG-2).
Approximate Cost: $6880.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SA7Y	(2) 8025
(2) 807	(2) 836

Total Tubes: (7)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,510: Technical Manual for Homing Beacon Equipment Navy Model YG.
NAVSHIPS 900252: Technical Manual for Homing Beacon Equipment Models YG-1 and YG-2.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

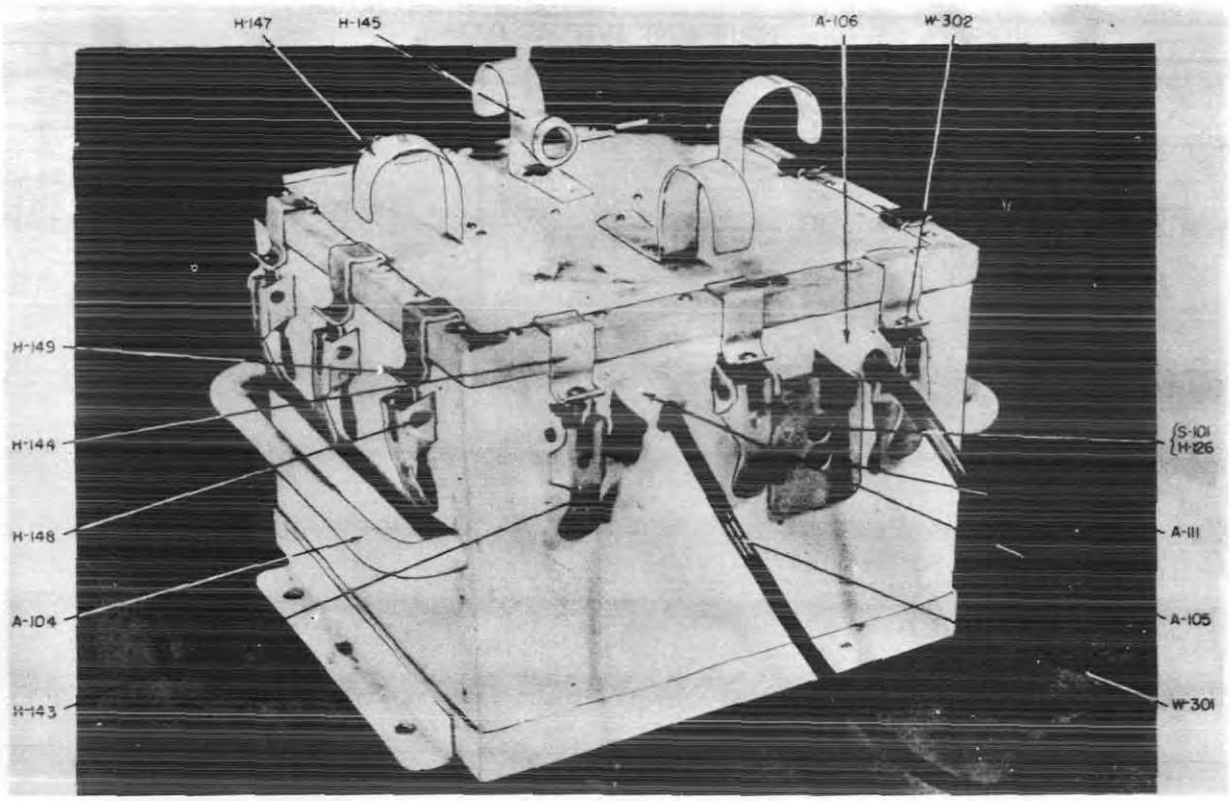
YG,YG-1,-2 HOMING BEACON EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter CRV-52244	31-5/8 X 21 X 21-9/32	334
1	Antenna Control Unit CRV-23271A	8-1/4 X 17-1/8 X 15-3/4	99
1	Antenna Assembly CRV-66037	46-7/8 X 43-15/16 X 47-5/8	337
1	Frequency Meter CRV-60028	6-11/16 X 18-1/4 X 6-3/4	33
1	Spare Parts for Transmitter	9 X 18 X 12	58
1	Spare Parts for Antenna	9 X 18 X 12	58
1	Transmission Line and Set of Accessories		145
1	Set of Signal Disc Accessories		
1	RF Monitor Unit-60047*	4-5/8 X 5-5/16 X 10	18
1	True Bearing Control Unit-23408**	7-5/8 X 11-1/2 X 15-7/8	21

NOTES: *For Models YG-1 and YG-2 only.
**For Model YG-1 only.

RADIO EQUIPMENT YH



Radio Equipment YH

FUNCTIONAL DESCRIPTION

The model YH Equipment is a *radio beacon* capable of transmitting a coded identification signal to an interrogating craft, such as an airplane. The equipment comprises a single major unit called a receiver-transmitter. This unit is normally in a quiescent state but in response to an interrogating signal is triggered into operation and transmits its particularly coded, identifying signal.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

INTENDED FIXED FREQUENCY: 176 mc.
SELECTIVE RANGE OF FIXED FREQUENCIES: 170 to 180 mc.
TRANSMITTER FREQUENCY: 1 mc higher than receiver.
PULSE REPETITION RATES ACCOMMODATED: 0 to 2500 pps.
POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Howard Radio Co., Chicago, Illinois.
Contract NOs-99143, dated 16 February 1942.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4G
(1) 6H6
(1) 6J5
(3) 6SH7
(2) 6SJ7
(2) 7193
(1) 9004

Total Tubes: (11)

REFERENCE DATA AND LITERATURE

CSP-1374: Preliminary Instruction Book for Navy Model YH Radio Equipment.

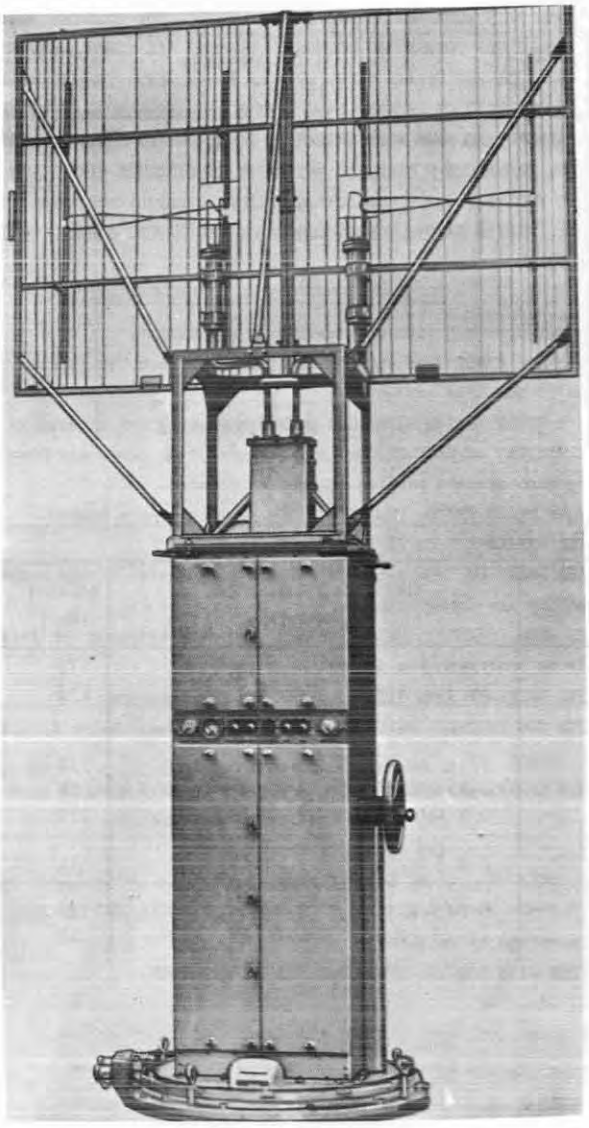
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

YH RADIO EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver-Transmitter		55-1/2
1	Antenna		28-1/2
1 Set	Equipment Spares and Case	6 x 15 x 22-7/8	25-1/2
1	Case, containing complete equipment	15-3/4 x 20-5/8 x 21-1/8	138-1/2

RADIO BEACON EQUIPMENT YL



Radio Beacon Equipment Model YL

FUNCTIONAL DESCRIPTION

The YL provides a means for directing various types of landing craft from a base ship to a predetermined objective by use of a radio beam. The bearing signal consists of a continuous dash when on course, and A or N to indicate direction of deviation when off course. In addition to the bearing signal, the YL includes facilities for the transmission of station identification signals, and for A2 and A3 communications. Reception of the YL signal in the landing craft is accomplished by an RU-19 aircraft type receiver.

No field changes in effect at time of preparation (29 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TRANSMITTER
- FREQUENCY RANGE: 241 to 251 mc.
- POWER INPUT: 460 W.
- POWER OUTPUT: 25 W.
- EMISSION: A2 and A3.
- FREQUENCY CONTROL: Master oscillator.
- TYPE KEYING: Relay.

RECEIVER
- FREQUENCY RANGE: 241 to 251 mc.
- RECEPTION: A2 and A3.
- FREQUENCY CONTROL: Master oscillator.

POWER SOURCE REQUIRED: 115 v, 50/60 cps, 1 ph, 760 W.

ANTENNA
- TYPE: Directional, rotates with equipment for orientation toward predetermined objective.
- CONSTRUCTION: Two identical sections bolted together. The frame of each section is of lightweight steel and mounts a reflector screen and two pairs of vertical elements.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Newark, N.J.
- Contract NXss-27344, dated 10 April 1943.
- Approximate Cost: $15000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4G	(1) 6SA7Y
(1) 6V6Y	(4) 807
(1) 6H6	(1) 6SK7WA
(2) 8025	(2) 836

Total Tubes: (13)

(1) 1N21B
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900249: Technical Manual for Navy Model YL Radio Beacon Equipment.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

YL RADIO BEACON EQUIPMENT

SHIPPING DATA

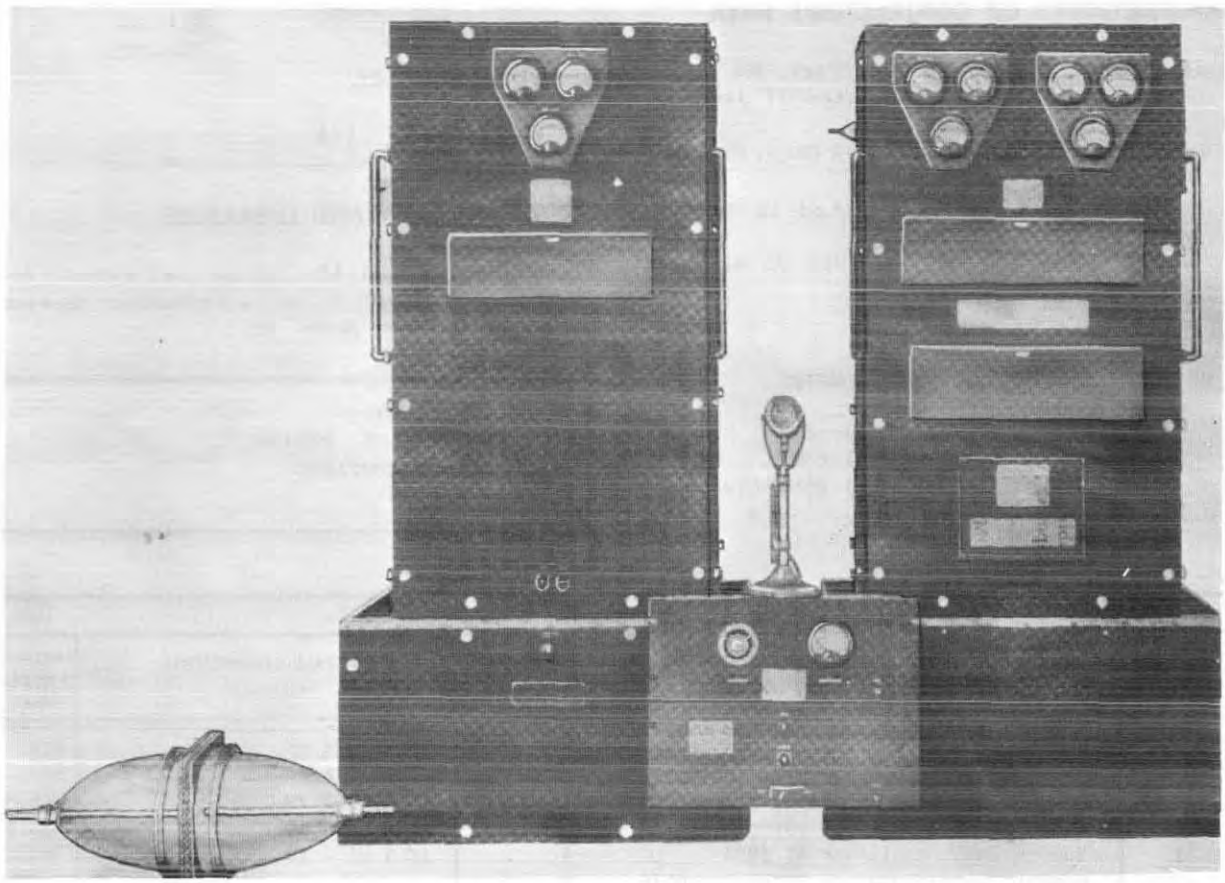
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter CFT-52314		48 x 32 x 32	386
1	Antenna Assembly CFT-66088 and Lobe Switching Unit CFT-14006		90 x 85 x 34	670
1	Cabinet CFT-10209		72 x 34 x 29	371
1	Base CFT-10208 and Deck Plate		51 x 17 x 46	522
1	Probe and Transmission Line CFT-14007, Probe Cable and RF Monitor CRV-60047		65 x 21 x 16	171
2	Equipment Spares			201
				Total
1	Keyer-Modulator Unit CFT-35032, Keyer Segments, and Oil for Keyer Motor		37 x 25 x 29	273
1	Frequency Meter CRV-60028, Carbon Microphone CFT-51004-D, and Accessories		24 x 20 x 16	68

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter CFT-52314	31-5/8 x 21 x 21-1/4	173
1	Antenna Assembly CFT-66088 Including:	75-3/4 x 84 x 28-7/8	138
	1 Lobe Switching Unit CFT-14006		
1	Cabinet CFT-10209	67 x 24-7/8 x 23-1/8	178
1	Base CFT-10208	4-1/4 x 40 dia	175
1	Deck Plate	1 x 40 dia	171
1	Probe and Transmission Line CFT-14007	7 x 3 x 35	31
1	Keyer-Modulator Unit CFT-35032	14 x 20 x 18	83
1	Frequency Meter CRV-60028	6-5/8 x 18-1/4 x 8-5/8	14.5
1	RF Monitor Unit CRV-60047	7-1/4 x 6 x 4-5/8	18
1	Set of Equipment Spares		

*Antenna retracted.

NON-DIRECTIONAL RADIO BEACON YR (TYPE H)



Non-Directional Radio Beacon YR (Type H)

FUNCTIONAL DESCRIPTION

The Navy Model YR is a combined air navigation facility and tower radio. It will radiate an omnidirectional signal pattern for long or short range homing by aircraft equipped with aircraft direction finders. It automatically transmits a 1020 cycle identification signal and may be changed over to voice manually by the control tower operator.

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

RELATION TO OTHER EQUIPMENT

The YR may be used in conjunction w' the USAF Instrument Low Approach System.

Equipment Required but not Supplied: tenna 350 ft 7 strand #16 phosphor bronze; radial ground 2000 ft #6 bare copper wire; 2000 ft wire rope 1/4 inch flexible; two antenna insulators, 10 inch; four antenna masts NT-4050A; two pulleys, 4 inch; two guy wire anchors; twelve cable clamps, 1/4 inch; nine ground rods, 1/2 inch; telephone line.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 800 kc.
FREQUENCY CONTROL: Crystal.
EMISSION: A3 and code A2.
POWER OUTPUT: 25 to 400 W, variable.
POWER SOURCE REQUIRED
RADIO TRANSMITTER: 115 v, 50 to 60 cps, 2.6 kva.
REMOTE CONTROL UNIT: 110 v, 50 to 60 cps, W.

YR (TYPE H) NON-DIRECTIONAL RADIO BEACON

MANUFACTURER'S OR CONTRACTOR'S DATA

Air-Track Mfg Co., College Park, Md.
Contract NXsr 88854, dated 17 January 1945.
Pemberton Lumber and Millwork Corp, Pemberton, N. J.
Contract N5sr 7181, dated 11 August 1945.
Approximate Cost: $28,000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(5) 5R4WGB
(1) 6H6
(2) 6SK7WA
(2) 6V6GTY
(4) 6B4G
(4) 6SJ7
(2) 6SN7WGTA
(1) 6X5WGT
(1) 804
(4) 849
(1) 807
(2) 872A
Total Tubes: (29)
(1) 80-G
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,784(A): Technical Manual for Non-Directional Radio Telephone Beacon (Type H) Navy Model YR.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter NT 52362		30 X 36 X 68	610
1	Power and Control Assembly NT 50264		30 X 36 X 68	800
1	Antenna Tuning Unit NT 471185		13 X 13 X 29	36.5
1	Remote Control Unit NT 23506		10 X 10 X 19-1/2	14.5
1	Speech Input Amplifier NT 50265		10 X 10 X 19-1/2	20.5
1	Dynamic Microphone and Stand Assembly NT 51099		6 X 6 X 14-1/2	5.0
4	Prefabricated YR Equipment Shelter and Antenna Lead-In Assembly NT 61564		42 X 72 X 96	1650

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter NT 52362	24 X 30 X 60	378
1	Power and Control Assembly NT 50264	24 X 30 X 60	565
1	Antenna Tuning Unit NT 471185	12 X 12 X 28	33
1	Antenna Lead-In Assembly NT 61564	9 dia X 27-1/4 lg	4
1	Remote Control Unit NT 23506	8-1/2 X 8-3/4 X 19	12
1	Speech Input Amplifier NT 50265	8-1/2 X 8-3/4 X 19	17.8
1	Dynamic Microphone and Stand Assembly NT 51099	5-1/2 X 5-1/2 X 14	4.5
1	Prefabricated YR Equipment Shelter	84 X 90 X 108	1600