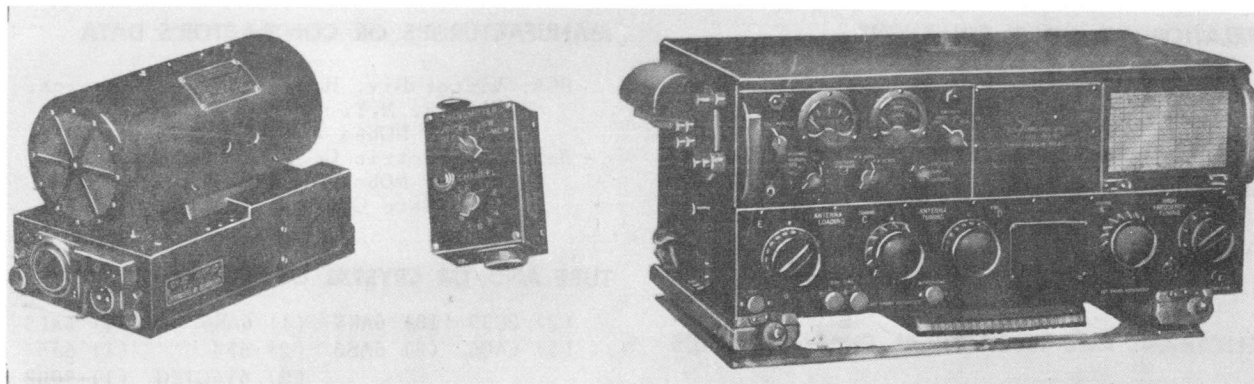


RADIO TRANSMITTING SET

Radio-Transmitter
AN/ART-13,-13A



Radio Transmitting Set AN/ART-13

FUNCTIONAL DESCRIPTION

The AN/ART-13 and AN/ART-13A are a medium power aircraft radio transmitter. It is designed to provide radio communication by voice, modulated continuous wave telegraphy, or continuous wave telegraphy. They are provided with an automatic frequency tuning system to permit rapid frequency change. The frequency range may be extended by use of a O-16/ART-13 low frequency oscillator. The two equipments are similar except for differences in the oscillator, dynamotor, transmitter, and antenna loading unit.

No field changes in effect at time of preparation (25 March 1958).

RELATION TO OTHER EQUIPMENT

The AN/ART-13 is the Navy model ATC and is similar to Radio Transmitting Equipment TCZ.

Equipment Required but not Supplied: (1) Microphone, (1) Key, (1) Headset, (1) Antenna Assy, (1) Set Miscellaneous Plugs and Cords.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE

LOW: 200 to 1500 kc with additional equipment.

HIGH: 2000 to 18,100 kc, 11 preset channels.

TYPE OF EMISSION: A1, A2, A3.

NOMINAL POWER OUTPUT: 100 W.

KEYING DATA: Relay keying; max speed 30 wpm.

FREQUENCY CONTROL: Crystal.

POWER SOURCE REQUIRED: 28 v DC, 896 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co Inc, Cedar Rapids, Iowa.

Contract NOs-73238.

Contract NXsa-44558.

Contract NXsa-95145.

Contract N5sa-4687.

Contract NXsa-66789.

Contract N5sa-7232.

Contract NObsr-43061.

Zenith Radio Corp, Chicago, Illinois.

Contract NXss-18932.

Contract NXsa-45461.

Contract NXsa-67955.

Approximate Cost: \$14,000 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

AN/ART-13

(2) 6V6GT	(2) 811
(1) 813	(1) 837
(2) 1625	(1) 12SA7
(1) 12SJ7	(2) 12SL7GT

Total Tubes: (12)

AN/ART-13A

(2) 6V6GT	(2) 811
(1) 813	(1) 837
(3) 1625	(1) 12SA7
(1) 12SJ7	(2) 12SL7GT

Total Tubes: (13)

AN/ART-13,-13A

(1) CR-2B/U

Total Crystals: (1)

Radio-Transmitter
AN/ART-13,-13A

RADIO TRANSMITTING SET

REFERENCE DATA AND LITERATURE

AN08-30ART13-5: Handbook of Maintenance Instructions for Model AN/ART-13 Aircraft Radio Equipment.
AN 16-30ART13-4: Handbook of Maintenance Instructions for Radio Transmitting Set AN/ART-13A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	SPEC NO. RE13A583B,
STOCK NO.	RE13A1040

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AN/ART-13 Aircraft Radio Transmitter T-47/ART-13 including: Audio Unit MCW-CFI Unit Calibration Oscillator CR-2B/U Dummy LFO Unit MX-128/ART-13 Protective Cap of Load Coil Connector J-107	11-11/32 X 15-15/32 X 23-9/16 3-5/8 X 5-1/4 X 8-1/8 3-1/2 X 5 X 6 7/16 X 1-1/16 X 1-1/2 5-1/4 X 5-13/32 X 8-13/16	67 4 2.5 0.03 0.58 0.02
1	Transmitter Mounting Plate MT-283/ART-13	1-1/2 X 13-5/64 X 20-3/4	1.16
1	Shock Mounting Base MT-284/ART-13	2-1/2 X 15-15/32 X 20-33/64	1.88
1	Dynamotor Power Unit DY-12/ART-13 or DY-11/ART-13 or DY-1/ART-13	7-1/8 X 8-1/2 X 12-3/16	30
1	Dynamotor Power Unit Base MT-164/ART-13	1-1/4 X 7-1/16 X 11-5/32	1.13
1	Pilot's Control Unit C-87/ART-13	3-1/4 X 3-1/2 X 6-3/16	1.4
1	Pilot's Control Unit C-740/ART-13	2-1/4 X 3 X 5-3/4	1.0
1	Pilot's Control Unit Base MT-163/ART-13	3/16 X 3-11/16 X 5-5/16	0.13
1	Antenna Shunt Capacitor CU-24/ART-13	3-7/8 X 4-1/8 X 5	1.68
1	Straight Connector U-7/U		0.25
1	90 Degree Connector U-9/U		0.31
1	Straight Connector U-8/U		0.19
1	Straight Connector U-6/U		0.25
1	90 Degree Connector U-10/U		0.31
1	Conduit Ferrule		0.25
1	Conduit Coupling Nut		0.09
1	AN/ART-13A Radio Transmitter T-47A/ART-13 consists of: Audio Amplifier Unit MCW-CFI Unit Panel MX-128/ART-13 Calibration Book Mounting Plate MT-283/ART-13	10-3/4 X 13-5/8 X 23-5/8	70.0
1	Mounting Base MT-284/ART-13 or MT-184A/ART-13	2-1/2 X 14-3/4 X 20-1/2	2.94
1	Dynamotor Unit DY-17/ART-13A	7-1/8 X 8-7/8 X 11-7/8	28.0
1	Mounting Plate MT-164/ART-13	1-1/4 X 7-1/8 X 11-5/32	1.13
1	Control Unit C-87/ART-13	3-1/4 X 3-1/2 X 6-5/32	1.44
1	Mounting Plate MT-163/ART-13	1/4 X 3-5/8 X 5-1/4	0.11
1	Control Panel C-405/A	2-1/2 X 2-5/8 X 5	1.5
1	Plug U-6/U	1-5/8 X 2-5/32	0.20
1	Plug U-7/	2 dia X 2-5/16	0.25
1	Plug U-8/	1-3/4 dia X 1-31/32	0.19
1	Plug U-9	2-1/8 dia X 1-7/8	

RADIO TRANSMITTING SET

AN/ART-13,-13A

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Plug U-10		
1	Handbook of Operating Instructions Required for 2000 KC and 3000 KC Operation		
1	Antenna Shunt Capacitor CU-24/ART-13	4-1/8 X 4 X 5	1.59
1	Switch SA-46/ART-13A Required for 200 KC to 600 KC Operation	2 X 4 X 6-1/4	
1	Oscillator O-17/ART-13A		
1	Mounting Base MT-198/ART-13A	2 X 10-11/16 X 22-1/2	
1	Antenna Loading Unit CU-32/ART-13A	12 X 13 X 23-1/2	24.75
1	Plug U-11/U	1-1/8 dia X 1-29/32	0.12
1	Plug U-12/U	1-1/8 dia X 1-15/32 X 2	0.12

April 1959

Radio-Transmitters.

RADIO SET

AN/ART-25

FUNCTIONAL DESCRIPTION

The AN/ART-25 is designed as a radar relay transmitter intended for airborne use as part of an Airborne Early Warning (AEW) system. It is installed in large aircraft and operates in conjunction with other airborne and surface units of the Airborne Early Warning (AEW) system. By means of this equipment, the radar video, together with the synchronizing signals received by the planes radar search equipment, is relayed to the control center. This information is then presented on the control stations indicator.

No field changes in effect at time of preparation (25 November 1958).

RELATION TO OTHER EQUIPMENT

The AN/ART-25 is similar to the AN/ART-24 except for frequency range and power output.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Airborne.

TYPE OF TRANSMISSION: AM type.

NUMBER OF CHANNELS: 4 channels.

BANDWIDTH: 8 mc.

GUARD BAND: 2 mc.

OPERATING FREQUENCY RANGE: 465 to 510 mc.

POWER OUTPUT: 4 kw peak sync, 1 kw peak video.

OPERATING POWER REQUIREMENT: Input 28 v DC, 1.5 kw; and 115 v/208 v/30/380-1800 cps single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Airplane and Marine Instruments Inc.,
Clearfield, Pa.
Contract NOa(s)-8928.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and Crystal data not available.

REFERENCE DATA AND LITERATURE

Nomenclature Card AN/ART-25 for the Radio Set.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE CS-508 (BUSHIPS)

STOCK NO.

R.D.B. IDENT. NO.

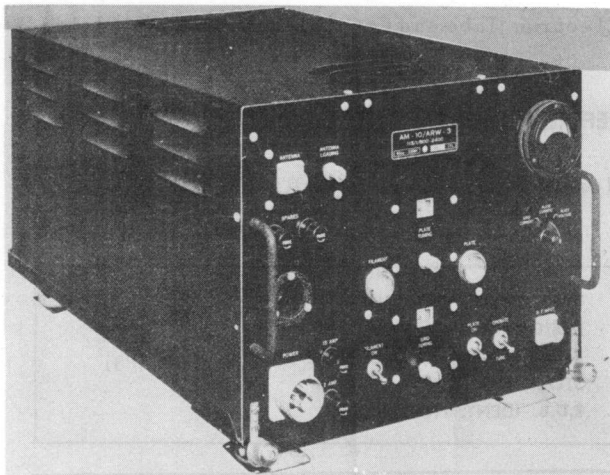
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set AN/ART-25 Including:		
1	Antenna Ass'y AS-366/AR	2-1/4 X 39 lg	
1	Radio Transmitter T-211()/ART-25	17-3/4 X 27-7/16 X 27-15/16	250
1	Power Supply PP-402()/ART-25	14-1/2 X 17-1/8 X 27-3/16	175
1	Mounting MT-643()/ART-25	2-1/2 X 27-7/16 X 27-15/16	
1	Mounting MT-644()/ART-25	3-1/4 X 14-1/2 X 27-3/16	

September 1956

RADIO TRANSMITTER**AN/ARW-3**

Radio Transmitter T-24/ARW-3



Amplifier Unit AM-10/ARW-3

RADIO TRANSMITTER AN/ARW-3

channels. It may utilize an amplifier unit to increase the operating range. It is also designed to use the AM-10/ARW-10 Amplifier Unit, and Radio Set AN/ARW-2 as receiver, to form a remote radio control system.

No field changes in effect at time of preparation (15 June 1956)

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Antenna (1) Control Box (1) Power Source.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**TRANSMITTER**

FREQUENCY RANGE: 30 to 42 mc.

TYPE OF MODULATION: FM ± 15 kc max deviation.

POWER OUTPUT: 25 W.

OUTPUT IMPEDANCE: (RF) 50 to 250 ohms.

POWER SUPPLY: 27 v DC, 8 amp.

TONE CHANNEL FREQUENCIES: 300, 420, 590, 830, 1155, 1620, 2270, 3180, 4450, 6230 cps.

AMPLIFIER AM-10/ARW-3

FREQUENCY RANGE: 30 to 42 mc.

POWER OUTPUT: 250 W nom, 400 W max.

OUTPUT IMPEDANCE (RF): 50 to 250 ohms.

POWER INPUT (RF): 15 W approx.

INPUT IMPEDANCE: 50 ohms approx.

POWER REQUIREMENTS: 115 v, 800 to 2400 cps, 310 W standby, 675 W transmitting at 250 W output, 750 W transmitting at 350 W output.

MANUFACTURER'S OR CONTRACTOR'S DATA

Link Radio Corporation, New York, N.Y.

Contract NXsa-33081.

Contract NXsa-68000.

Contract NXsa-95103.

Approximate Cost: \$2800.00

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 4E27/HK257-B (1) 12SL7GT (2) 12SN7GT

(2) 836A/3B27 (1) 6X5GT/G (12) 12SH7

(5) OD3/VR150 (1) 1625 (3) 12A6

Total Tubes: (29)

FUNCTIONAL DESCRIPTION

The AN/ARW-3 is a crystal controlled, frequency modulated, transmitter with ten tone oscillators used for modulation. It is designed for use in aircraft and when used with proper receiver forms a radio remote control system capable of actuating any of ten remote control channels, which may be actuated in any combination provided no more than three at a time are used. The transmitter may be operated with the RF carrier on continuously or normally off and keyed on only by energizing one or more of the control

AN/ARW-3

RADIO TRANSMITTER

September 1956

REFERENCE DATA AND LITERATURE

AN16-30 ARW-2-3: Technical Manual for AN/ARW-2, AN/ARW-2X and AN/ARW-3 Aircraft Radio Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAEER
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-24/ARW-3	9-3/16 X 10-7/16 X 22-3/8	30.7
1	Mounting Base MT-52/UR	2-3/16 X 10-7/16 X 22	3.9
1	Amplifier Unit AM-10/ARW-3	12-1/4 X 15-7/16 X 22-3/8	61.4
1	Mounting Base MT-53/UR	2-3/16 X 15-7/16 X 22	4.1
1	Set Power and Antenna Cables		
1	Set Plugs and Accessories		

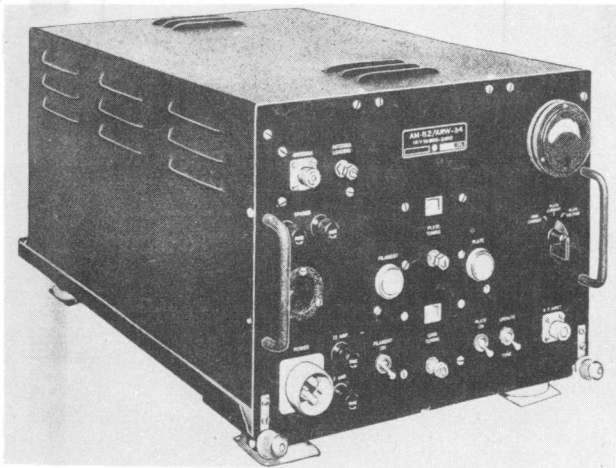
September 1956

AIRCRAFT RADIO EQUIPMENT

AN/ARW-34



Radio Transmitter T-125A/ARW-34



Amplifier AM-82/ARW-34

Aircraft Radio Equipment AN/ARW-34

FUNCTIONAL DESCRIPTION

The AN/ARW-34 is an airborne remote FM transmitting equipment. It provides remote radio control of ten separate electrical circuits, by selectively modulating the transmitter with audio tones which at the receiver selectively operate relays controlling external electrical circuits. The equipment operates on any frequency in the range of 52 to 65 ma.

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

RELATION TO OTHER EQUIPMENT

Similar to Radio Transmitting Set AN/ARW-3 except operates in a different frequency range.

Equipment Required but not Supplied: Primary power of 23-29 volts DC, 8 amp, for Radio Transmitter T-125A/ARW-31; 115 volts 800 to 2400 cps (750 watts) for Amplifier AM-82/ARW-34; (1) Vertical Antenna approx 3-1/2 feet ling, (1) Control Box.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SUPPLY: 28 v DC, 8 amp.
 FREQUENCY RANGE: 52 to 65 mc.
 TYPE OF EMISSION: F2.
 POWER OUTPUT: 10 W (with amplifier) 175 W.
 OUTPUT IMPEDANCE: 50 to 250 ohms.
 FREQUENCY CONTROL: Crystal.
 FREQUENCY MODULATION: ± 15 kc. max deviation.

MANUFACTURER'S OR CONTRACTOR'S DATA

Fred M. Link, New York, N.Y.
 Contract NXsa 95103.
 Contract N5sr 4628.
 Contract N5sr 4629.
 Approximate Cost: \$2000.00.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 12SL7GT	(12) 12SH7	(1) 12A6
(2) 6L6	(1) 1625	(2) 12SN7GT
(5) OD3/VR-150	(2) 4E27/257-B	(2) 836A
(1) 6X5GT/G		

Total Tubes: (29)

REFERENCE DATA AND LITERATURE

AN 16-30ARW34-3: Technical Manual for AIRCRAFT RADIO EQUIPMENT AN/ARW-34.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	
STOCK NO.	

AN/ARW-34

AIRCRAFT RADIO EQUIPMENT

September 1956

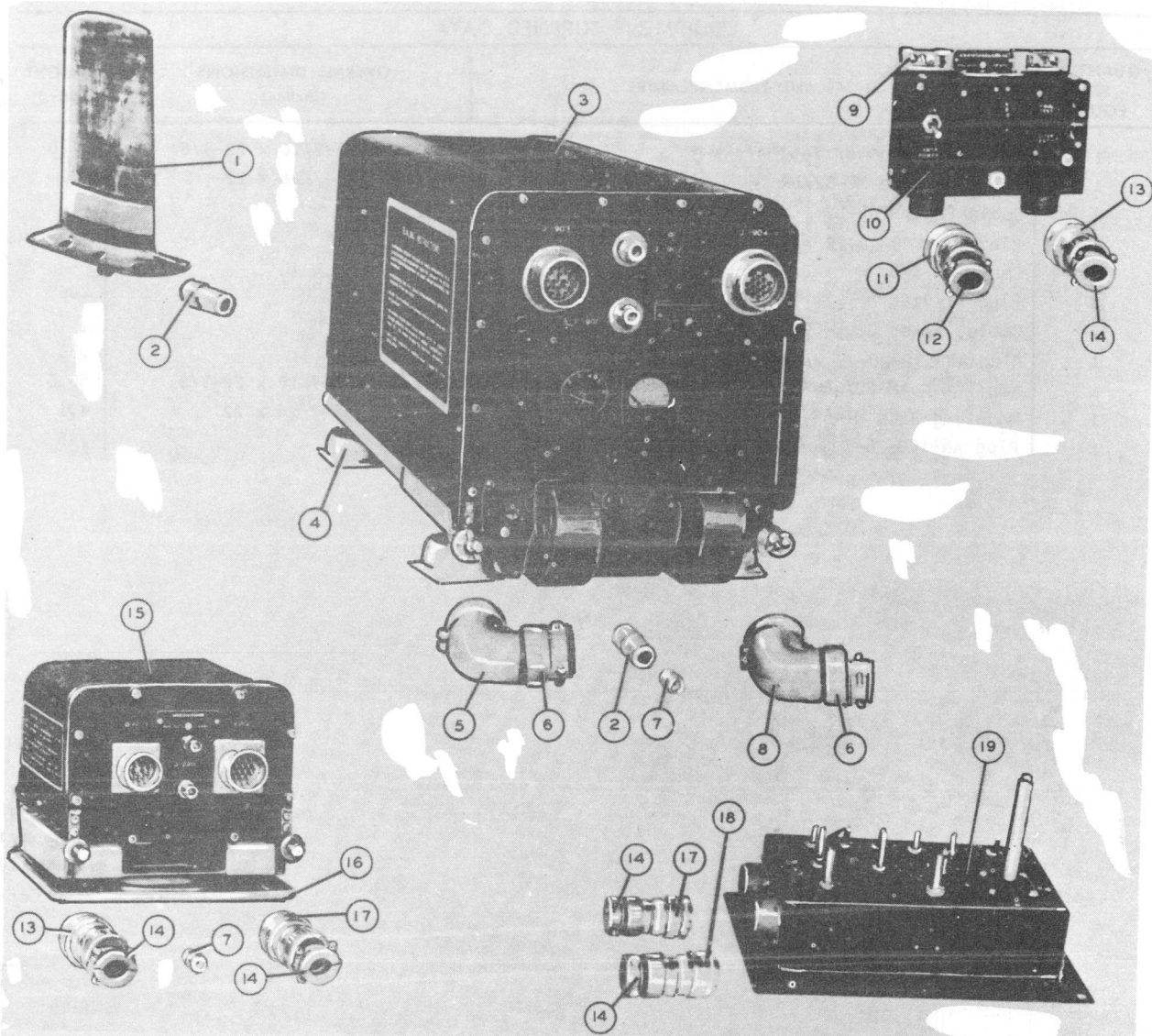
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-125A/ARW-34	9-3/16 x 10-7/16 x 22-3/8	34.6
1	Mounting Base MT-52/UR	2-3/16 x 10-7/16 x 22	3.9
2	Cable Power PAR-12		
1	Plug AN-3108-28-2P w/AN-3057-16 CLAMP		.35
2	Cable RG-8/U		
3	Plug NT49190		.06
1	Cable, Power DCOP-09		
1	Plug AN3108-20-4S w/AN-3057-12 CLAMP		.35
1	Amplifier AM-82/ARW-34	12-1/4 x 15-7/16 x 22-3/8	65.5
1	Mounting Base MT-53/UR	2-3/16 x 15-7/16 x 22	4.1
1	Plug AN3108-24-12S w/AN-3057-12 CLAMP		.35

RADIO TRANSMITTING SET

Radio-Transmitters

AN/ARW-55



- (1) Antenna AT-355/ARW
- (2) Connector UG-21B/U
- (3) Radio Transmitter T-309/ARW-55
- (4) Mounting MT-822/ARC-27
- (5) Connector AN 3108B-24-7S
- (6) Cable Clamp AN 3057-16
- (7) Connector UG-88/U
- (8) Connector AN 3108A-24-5S
- (9) Mounting MT-949/ARW-55
- (10) Radio Set Control C-902/ARW-55

- (11) Connector AN 3106-18-1S
- (12) Cable Clamp AN 3057-10
- (13) Connector AN 3106A-20-29S
- (14) Cable Clamp AN 3057-12
- (15) Audio Frequency Coder KY-51/ARW
- (16) Mounting MT-950/ARW
- (17) Connector AN 3106A-22-14S
- (18) Connector AN 3106A-20-27S
- (19) Coder Control C-615/ARW

Radio Transmitting Set AN/ARW-55

Radio-Transmitters

AN/ARW-55

RADIO TRANSMITTING SET

FUNCTIONAL DESCRIPTION

Radio Transmitting Set AN/ARW-55 is designed primarily for installation in aircraft and provides transmission of RF signals for remote control purposes. The RF signal is frequency modulated by selected tones that correspond to particular functions. The signal may be received on either Radio Receiving Set AN/ARW-56 or AN/ARW-59.

No field changes in effect at time of preparation (29 December 1960).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(As required) Cables.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

- FREQUENCY RANGE: 406 to 549 mc.
- CHANNEL SPACING: 1 mc.
- NUMBER CHANNELS: 144.
- MODULATION INPUT IMPEDANCE: 560 ohms.
- OUTPUT IMPEDANCE: 51.5 ohms.
- POWER OUTPUT: 35 W at 406 mc; 20 W at 549 mc.
- TYPE MODULATION: FM.
- CARRIER FREQUENCY DEVIATION: Porm 300 kc (max).
- MODULATION INPUT SIGNAL: 1000 cyc to 100 kc; 300 cyc to 100 kc.
- AMBIENT TEMPERATURE: M55 deg C to P55 deg C.

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.

Outline Dwg 505 9014 006.

Contract NOas 51-1183-i, NOas 54-373-f, NOas 55-222-f, NOas 55-675, NOas 56-325-f.

Approximate unit cost \$3,408.59.

TUBE AND/OR CRYSTAL COMPLEMENT

- (1) OB2 (3) 12AT7
- (3) 12AU7-81 (3) 12AX7/5751WA
- (2) 4X150A (1) 5644
- (20) 5718 (1) 5902
- (3) 6AG5 (1) 6AK5
- (2) 6AL5 (2) 6AN5
- (2) 6AS6 (5) 6AU6WA
- (2) 6CB6 (1) 6J6

Total Tubes: (52)

(25) CR-23/U

Total Crystals: (25)

REFERENCE DATA AND LITERATURE

AN 16-30ARW55-1: Operating Instructions for Radio Transmitting Set AN/ARW-55, Audio Coder KY-51/ARW and KY-51A/ARW, Coder Control C-615/ARW.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUAE
PROCUREMENT COGNIZANCE SPEC: MIL-R-7924(AER)
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set AN/ARW-55 includes:		
1	Antenna AT-335/ARW	3 x 7-11/16 x 9-11/16	1.94
1	Audio Frequency Coder KY-51/ARW or KY-51A/ARW	4-7/8 x 7-5/16 x 7-15/16	10.5

RADIO TRANSMITTING SET

AN/ARW-55

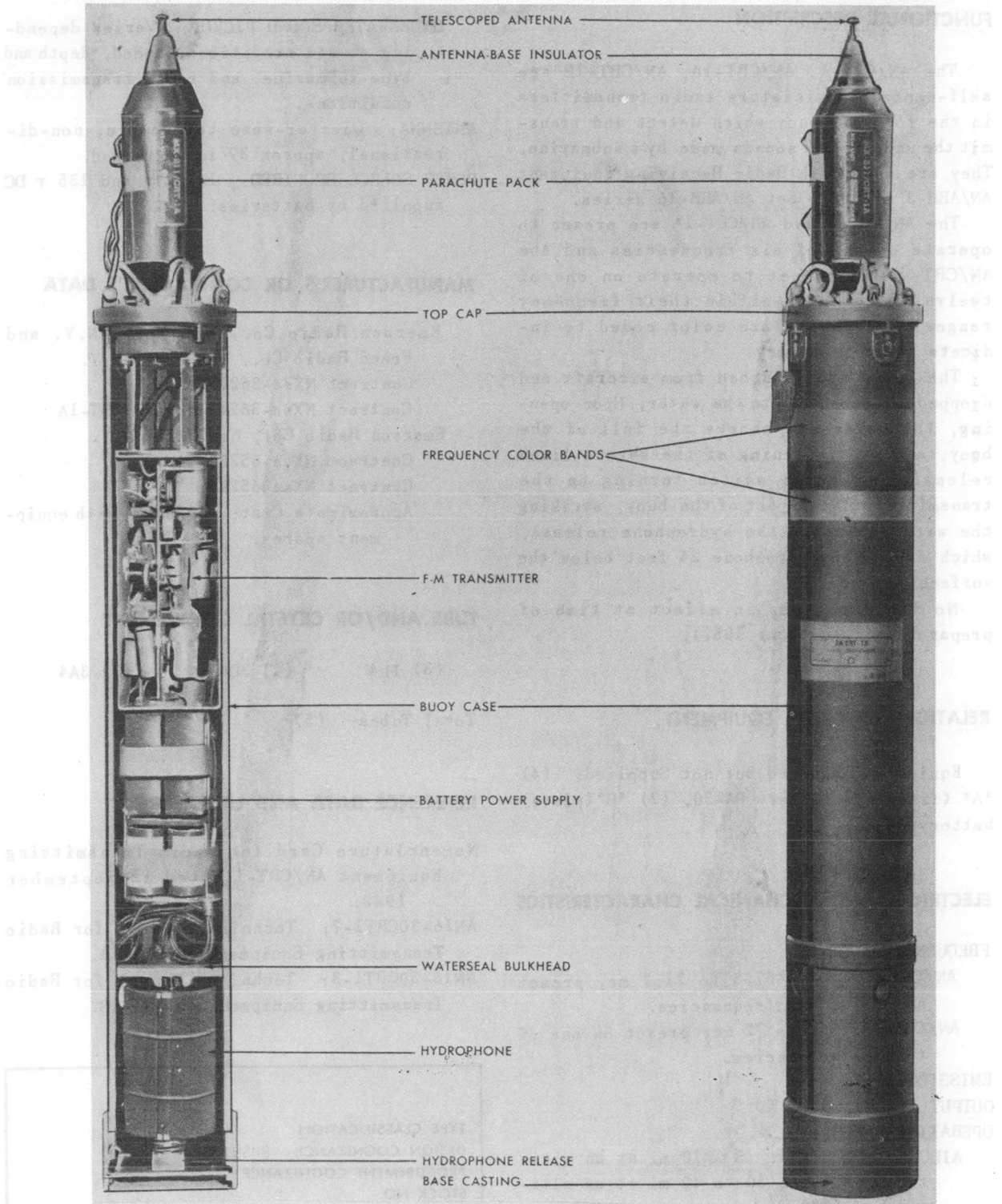
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Coder Control C-615/ARW	7-1/4 x 7-5/16 x 13-1/2	3.8
1	Transmitter Control C-902/ARW-55	3-5/16 x 6-3/16 x 7-5/32	2.4
1	Mounting MT-822/ARC-27	2-7/8 x 11-1/16 x 22-3/4	3.875
1	Mounting MT-949/ARW-55	3/8 x 4-13/32 x 6	0.5
1	Mounting MT-950/ARW	2-5/8 x 7-15/16 x 8-5/8	2.3
1	Radio Transmitter T-309/ARW-55	11-1/2 x 12-3/4 x 25-3/32	92.0
1	Connector AN3106-18-1S	1-5/16 dia x 2	0.4
1	Connector AN3106-20-27S	1-15/32 dia x 2-3/16	0.4
2	Connector AN3106-20-29S	1-15/32 dia x 2-3/16	0.4
2	Connector AN3106A-22-14S	1-19/32 dia x 2-3/16	0.16
1	Connector AN3108B-24-5S	2 x 2-19/32 x 3-13/32	0.4
1	Connector AN3108B-24-7S	2 x 2-19/32 x 3-13/32	0.4
2	Connector UG-21D/U	25/32 dia x 1-13/16	0.10
2	Connector UG-88/U	9/16 dia x 1-1/32	0.03

THE CLASSIFICATION (PART) DESIGN COMPLIANCE (MIL-STD-883C) PROGRAM TOLERANCE SPEC: MIL-STD-883C (SER) STOCK NO. E.S.A. GENT. NO.

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-309/ARW-55	11-1/2 x 12-3/4 x 25-3/32	92.0
1	Mounting MT-950/ARW	2-5/8 x 7-15/16 x 8-5/8	2.3
1	Mounting MT-822/ARC-27	2-7/8 x 11-1/16 x 22-3/4	3.875

RADIO TRANSMITTING EQUIPMENT AN/CRT-1, -1A, -1B



Radio Transmitting Equipment AN/CRT-1, -1A, -1B

AN/CRT-1, -1A, -1B RADIO TRANSMITTING EQUIPMENT**FUNCTIONAL DESCRIPTION**

The AN/CRT-1, AN/CRT-1A, AN/CRT-1B are self-contained miniature radio transmitters in the form of a buoy which detect and transmit the underwater sounds made by a submarine. They are used with Radio Receiving Equipment AN/ARR-3 or Radio Set AN/ARR-16 series.

The AN/CRT-1 and AN/CRT-1A are preset to operate on one of six frequencies and the AN/CRT-1B is preset to operate on one of twelve frequencies within their frequency ranges. Both units are color coded to indicate their frequency.

The buoys are launched from aircraft and dropped by parachute to the water. Upon opening, the parachute checks the fall of the buoy, and by tightening of the shroud lines releases the power switch turning on the transmitter. The impact of the buoy, striking the water operates the hydrophone release, which drops the hydrophone 24 feet below the surface.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (4) "A" (filament) battery BA-30, (2) "B" (plate) battery BA-51.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**FREQUENCY RANGE**

AN/CRT-1, -1A: 67.6 to 71.7 mc, preset on one of six frequencies.

AN/CRT-1B: 62 to 72 mc, preset on one of twelve frequencies.

EMISSION: F3.

OUTPUT POWER: 0.08 W.

OPERATING RANGE

AIRCRAFT RECEIVER: 5 to 10 mi at an altitude of 300 ft, 30 to 40 mi at an altitude of 5000 ft.

VESSEL RECEIVER: 1 to 6 mi approximately.

UNDERWATER SOUND PICKUP: Varies depending on sea conditions, speed, depth and type submarine, and radio transmission conditions.

ANTENNA: Quarter-wave telescopic, non-directional, approx 39 in. extended.

POWER SOURCE REQUIRED: 1-1/2 v and 135 v DC supplied by batteries.

MANUFACTURER'S OR CONTRACTOR'S DATA

Emerson Radio Co., New York, N.Y. and
Freed Radio Co., New York, N.Y.
Contract NXsa-36246 and
Contract NXsa-36247 for AN/CRT-1A
Emerson Radio Co., New York, N.Y.
Contract NXsa-65283 and
Contract NXsa-65296.
Approximate Cost: \$320.00, with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 1L4 (1) 3Q4 (1) 3A4

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Transmitting Equipment AN/CRT-1 dated 12 September 1948.

AN16-30CRT1-7: Technical Manual for Radio Transmitting Equipment AN/CRT-1A.

AN16-30CRT1-3: Technical Manual for Radio Transmitting Equipment AN/CRT-1B.

<p>TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.</p>

April 1958

RADIO TRANSMITTING EQUIPMENT AN/CRT-1, -1A, -1B

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Master Shipping Carton containing (3) Radio Transmitters AN/CRT-1 AN/CRT-1A AN/CRT-1B	3.66 3.40	7 X 19-1/2 X 46-1/2 7 X 20 X 43-1/2	63.5 61.0

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Equipment AN/CRT-1 or AN/CRT-1A or AN/CRT-1B	5-1/4 dia X 40-1/2 5-1/2 dia X 41	16 16

RADIO SET

AN/CRT-3,3A



Radio Set AN/CRT-3

8280 kc or 8364 kc. Besides a receiver, (2) air or mica capacitors, (2) RF milliammeters, (2) noninductive, 5 W resistors are required for test purposes.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RADIO FREQUENCIES

MANUAL KEYING: 500 kc with 1000 cps tone modulation.

AUTOMATIC KEYING: 500 kc with 1000 cps tone modulation, and 8280 kc for AN/CRT-3 or 8364 kc for AN/CRT-3A, without tone modulation.

EMISSION: A2.

POWER OUTPUT

500 KC: 2-1/2 W.

8280 KC: 2 W.

8364 KC: 2 W.

RANGE

500 KC: 200 to 300 mi. (when transmitting at sea with grd cap in water).

8280 KC and 8364 KC: 750 to 1500 mi (portable daytime range).

OPERATING POWER: All power furnished by hand-powered generator.

MANUFACTURER'S OR CONTRACTOR'S DATA

Kingston Products Corporation, Kokomo, Indiana.

Purchase Order 481-DAY-45-SE.

Approximate Cost: \$370.00 with equipment spares.

FUNCTIONAL DESCRIPTION

The AN/CRT-3 and AN/CRT-3A are a rugged emergency transmitter designed for operation from a life boat. It may be dropped over water by parachute. It operates on two distinct frequencies, transmitting first on 500 kc sending 6 groups of S-O-S signals followed by a 20 second dash, and then switches automatically to 8280 kc for the AN/CRT-3 or 8364 kc for the AN/CRT-3A, repeating the message. This cycle occurs every 50 sec, but may also be manually keyed on 500 kc only, for pick up by long-range rescue stations, and aircraft or ships locally engaged in rescue.

Radio set AN/CRT-3 or AN/CRT-3A may also be used with a signal lamp to convey messages visually.

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

RELATION TO OTHER EQUIPMENT

Used with a receiver capable of receiving an A2 signal on 500 kc and an A1 signal on

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 12SC7	(1) 12A6
Total Tubes: (2)	
AN/CRT-3	AN/CRT-3A
(1) CR-1A/AR	(1) CR-18/U
Total Crystals: (2)	

REFERENCE DATA AND LITERATURE

AN16-30CRT-3-2: Technical Manual for Radio Set AN/CRT-3, AN/CRT-3A.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE USAF
 PROCUREMENT COGNIZANCE
 STOCK NO.

Radio-Transmitters

AN/CRT-3,3A

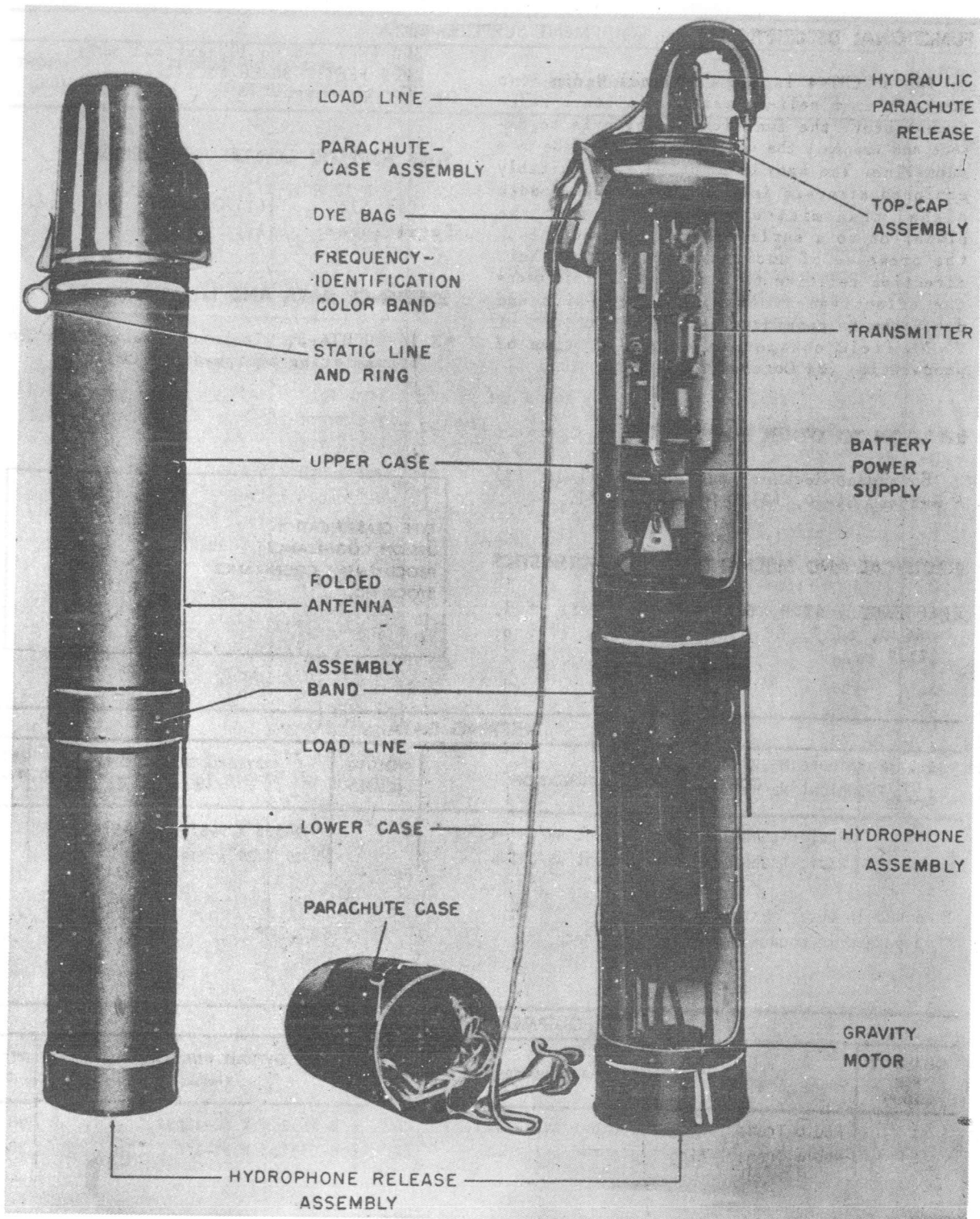
RADIO SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/CRT-3 3A			
1	Radio Transmitter T-74/CRT-3 consist of:	9 X 10 X 10-1/2	16
1	Hand Crank CG-18-A	1 X 4-1/4 X 6	0.5
1	Wrench	7/16 X 2-1/2 X 6-5/8	0.1
1	Antenna Assembly AS-207/CRT-3 wound on:	3720 lg	0.6
1	Reel RL-48	3 dia X 1-1/2	0.1
1	Radio Transmitter T-74A/CRT-3 consists of:	9 X 10 X 10-1/2	16
1	Hand Crank CG-18-A	1 X 4-1/4 X 6	0.5
1	Wrench	7/16 X 2-1/2 X 6-5/8	0.1
1	Antenna Assembly AS-207/CRT-3 wound on:	3720 lg	0.6
1	Reel RL-48	3 dia X 1-1/2	0.1
1	Kite M-357-A	4 dia X 19	0.8
2	Balloon M-278-A	4-1/4 dia X 5-1/8	1.3
2	Generator M-315-B consist of:	4-1/4 dia X 11-5/8	3.3
2	Inflating Tubes	1-1/4 dia X 19	0.5
1	Signal Lamp M-308-B	3 dia X 3-1/8	0.3
2	Antenna Assembly AS-207/CRT-3	3 dia X 2-1/2	0.7
1	Bag BG-155-A consist of:	14-1/2 X 17 X 20-1/4	8.1
1	Bag	5-1/4 W X 23 lg	0.1
1	Pad	1/2 X 11 X 15	
1	Pad	1/2 X 10 X 14-1/2	0.4
2	Pad	2 X 4 X 7	0.3
2	Pad	2 X 4 X 14	0.6
1	Parachute M-390-B	4 X 9 X 16	3.7
1	Technical Manual	8-3/8 h X 10-7/8 lg	0.5

RADIO TRANSMITTING EQUIPMENT

Radio-Transmitters
AN/CRT-4



Radio Transmitting Equipment AN/CRT-4

June 1957

Radio-Transmitters

AN/CRT-4

RADIO TRANSMITTING EQUIPMENT

FUNCTIONAL DESCRIPTION

The AN/CRT-4 is a Directional Radio-Sono Buoy. It is a self-contained miniature radio transmitter, the function of which is to detect and transmit the underwater sounds made by a submarine. The buoy is launched from suitably equipped aircraft into the water. The radio signal transmitted from the buoy to the plane, or to a surface ship, indicates both the presence of underwater craft and their direction relative to the buoy. By this means the effectiveness of submarine search and detection is considerably increased.

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

RANGE

300 FEET: 5 to 10 nautical miles.

5000 FEET: 30 to 40 miles.

OPERATING POWER: 1.5 v DC and 67.5 v DC.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 114 (1) 3Q4 (1) 3A4
Total Tubes: (5).

REFERENCE DATA AND LITERATURE

AN 16-30CRT4-3: Technical Manual for Radio Transmitting Equipment AN/CRT-4.

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (4) A Battery BA-30, (2) B Battery BA-51.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY: 62.9, 63.7, 64.5, 65.3, 66.1, 66.9, 67.7, 68.5, 69.3, 70.1, 70.9 or 71.7 mc.

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 Transmitting Equipment AN/CRT-4		9-5/8 X 9-5/8 X 61-3/4 *	53
1	Radio Transmitting Equipment AN/CRT-4		19 X 29 X 71-1/2 **	200

* Packed in outer corrugated carton.

** 2 packed in wooden shipping container.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Equipment AN/CRT-4	6-5/32od X 52-11/32 *	28.13
1	Radio Transmitting Equipment AN/CRT-4	6-5/32od X 84-1/8 **	28.13

* With Antenna folded, less batteries.

** With Antenna extended, less batteries

6 August 1962

Cog Service: USN FSN:

TELEMETRIC DATA TRANSMITTING SET AN/DKT-5
Functional Class:

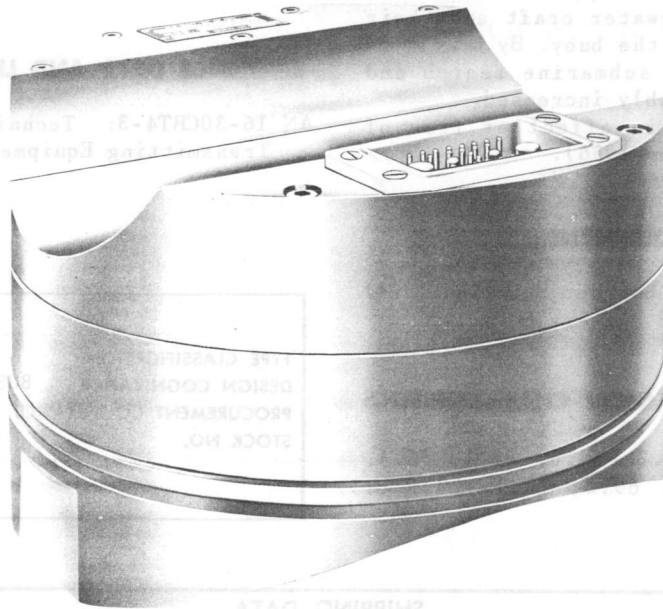
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Bendix Radio, Pacific Division, (70926).



SHIPPING DATA

WEIGHT PACKED (lbs.)	OVERALL DIMENSIONS (inches)	VOLUME (cu. ft.)	CONTENTS AND IDENTIFICATION	NUMBER OF BOXES
1.6	4.5 x 3.5 x 2.5	0.04	Radio Transmitting Equipment AN/DKT-5	1

Telemetric Data Transmitting Set AN/DKT-5

FUNCTIONAL DESCRIPTION:

The Telemetric Data Transmitting Set AN/DKT-5 is the airborne portion of a missile radio telemetering system, which provides automatic monitoring and transmission of missile flight data for reception and recording at a ground station.

The Telemeter uses FM-FM system of modulation, whereby an RF carrier is frequency modulated by a frequency modulated audio sub-carrier. The unit operates at 231.9 megacycles (MC) and, under line-of-sight conditions, it has a range of approximately 60 miles.

No field changes in effect at time of preparation (14 March 1962).

TECHNICAL CHARACTERISTICS:

EQUIPMENT PURPOSE: It serves as the airborne portion of a missile radio telemetering system.

NORMAL POWER LOAD: 7.6 amps at 6.3 v dc or 400 cps ac; 135 ma at P200 v dc.

RF POWER OUTPUT: 1.0 to 2.0 watts.

AN/DKT-5 TELEMETRIC DATA TRANSMITTING SET

TYPE OF MODULATION: FM-FM.
NUMBER OF BANDS: 1 band.
NUMBER OF CHANNELS: 8 subcarrier channels.
TYPE OF FREQUENCY CONTROL: Crystal.
TRANSMITTER DEVIATION: Porm 75 kc.
TRANSMITTER FREQUENCY: 231.9 mc.

RELATION TO OTHER EQUIPMENT:

The AN/DKT-5 is designed to be used with, but not part of Telemeter Receiving Set AN/UKR-5.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Telemetric Data Transmitting Set AN/DKT-5		5-55/64 h x 8-11/16 dia	13

REFERENCE DATA AND LITERATURE:

NAVORD OD 9392: Technical Manual for Telemetric Data Transmitting Set AN/DKT-5.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (8) 5703WA (11) 5719 (8) 5718

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

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

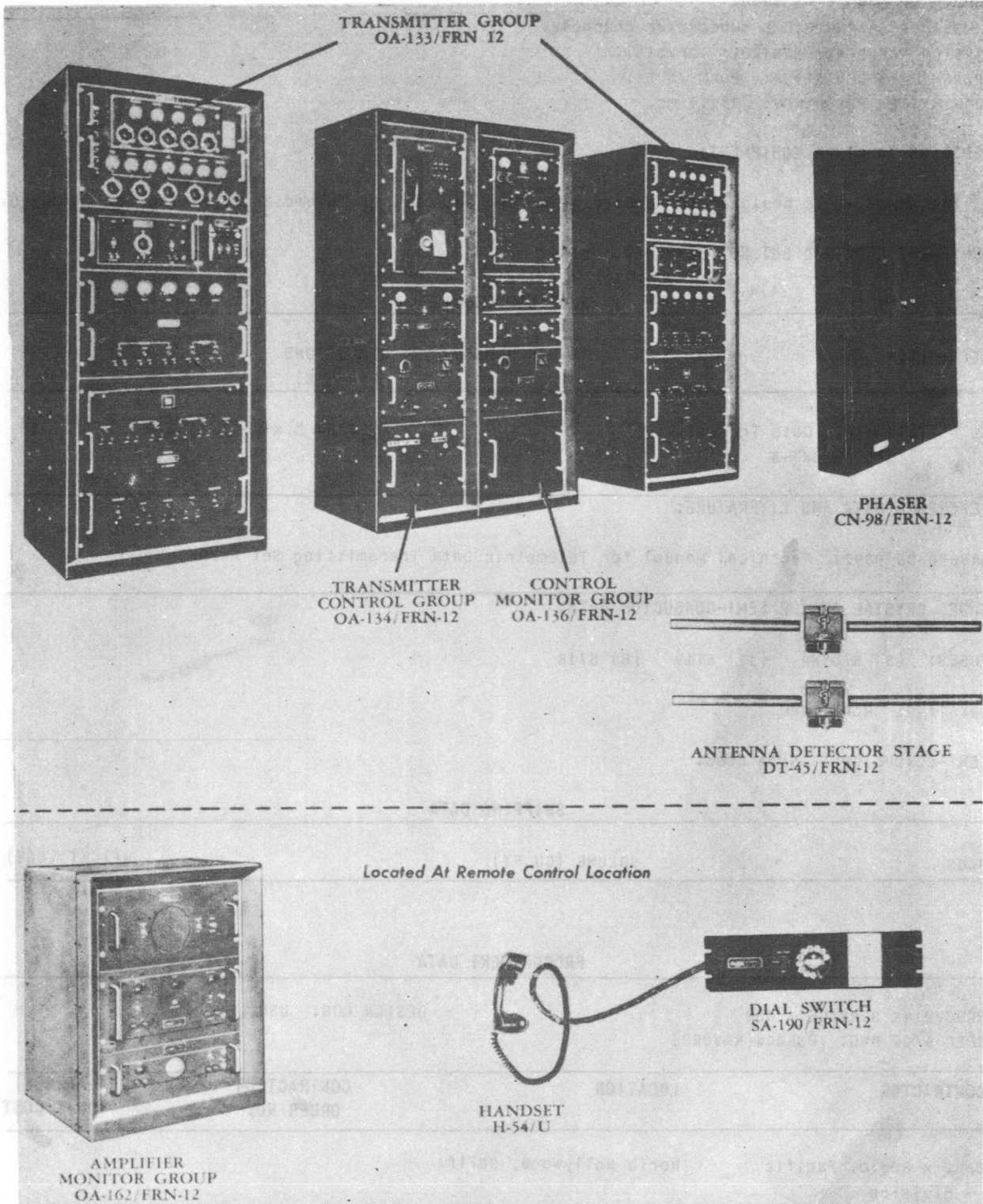
PROCURING SERVICE: USN
SPEC &/OR DWG: OS6444(NAVORD)

DESIGN COG: USN, BuOrd

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Bendix Radio, Pacific Division	North Hollywood, Calif.		

RADIO TRANSMITTING SET

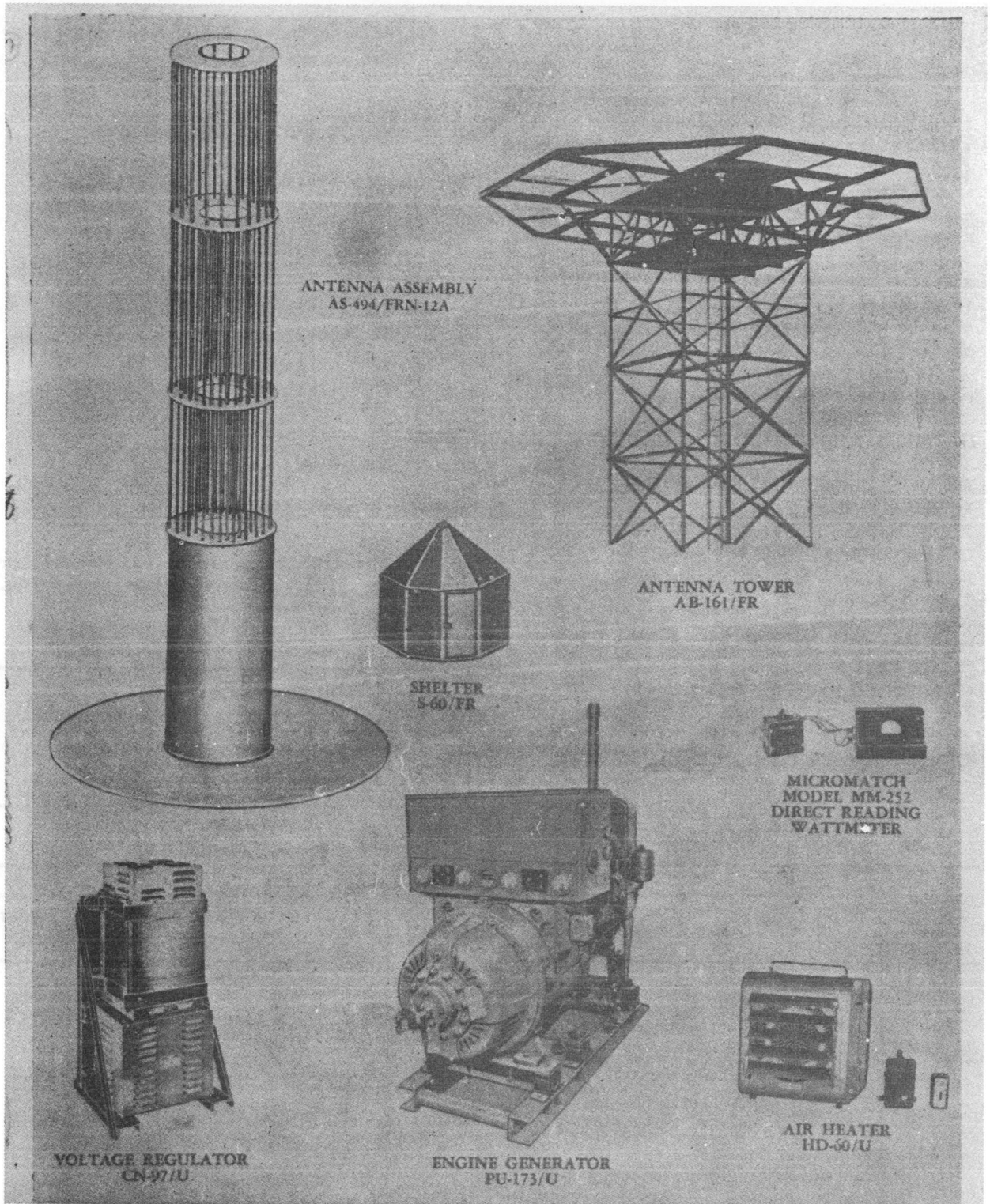
AN/FRN-12A



Radio Transmitting Set AN/FRN-12A

Radio-Transmitters
AN/FRN-12A

RADIO TRANSMITTING SET



Radio Transmitting Set AN/FRN-12A

October 1957

RADIO TRANSMITTING SET

AN/FRN-12A

FUNCTIONAL DESCRIPTION

The AN/FRN-12A is a medium-powered, fixed-range station of the commonly known as the vhf omnidirectional radio range or, more simply, the omnirange. Designed as an aid to short-range air navigation, it furnishes, to aircraft equipped with appropriate receivers, direct indication of bearing with reference to the range station. It also furnishes track guidance between the station and any point up to 50 miles distant, depending on the terrain enroute when the aircraft is flying at minimum instrument altitude.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 111.999 to 117.79992 mc.

NUMBER CHANNELS: 60.

TYPE CONTROL: Crystal.

CARRIER OUTPUT: 200 W.

RANGE: 45 mi. line of sight.

TYPE OF COURSE: Visual.

OPERATING POWER

DC: 32 V.

AC: 230 V, 60 cps.

POWER FACTOR: 0.9.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Laboratories, Morganville, N.J.

Approximate Cost: \$65,000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(12) 3B28	(4) 5763	(6) 5726/6AL5W
(2) 6V6Y	(1) 5U4G	(2) 6626/OA2WA
(2) 815	(2) 6BF6	(2) 6627/OB2WA
(2) 805	(16) 6AG5	(1) 5Y3WGTB
(15) 12AU7	(2) 2E26	(6) 6SN7WGTA
(12) 12AX7	(2) 3B25	(2) 6J6WA
(3) 6AS7G	(12) OD3W	(11) 5R4WA
(12) 4D21	(1) 5749/6BA6W	(8) 6X4WA
(4) OC3W	(1) 6SJ7	(4) ML322
(1) OA3	(6) 6005/6AQ5W	

Total Tubes: (154)

REFERENCE DATA AND LITERATURE

T. O. 31R4-2FRN12-2: Technical Manual for Radio Transmitting Sets AN/FRN-12, AN/FRN-12A, and AN/MRN-10.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

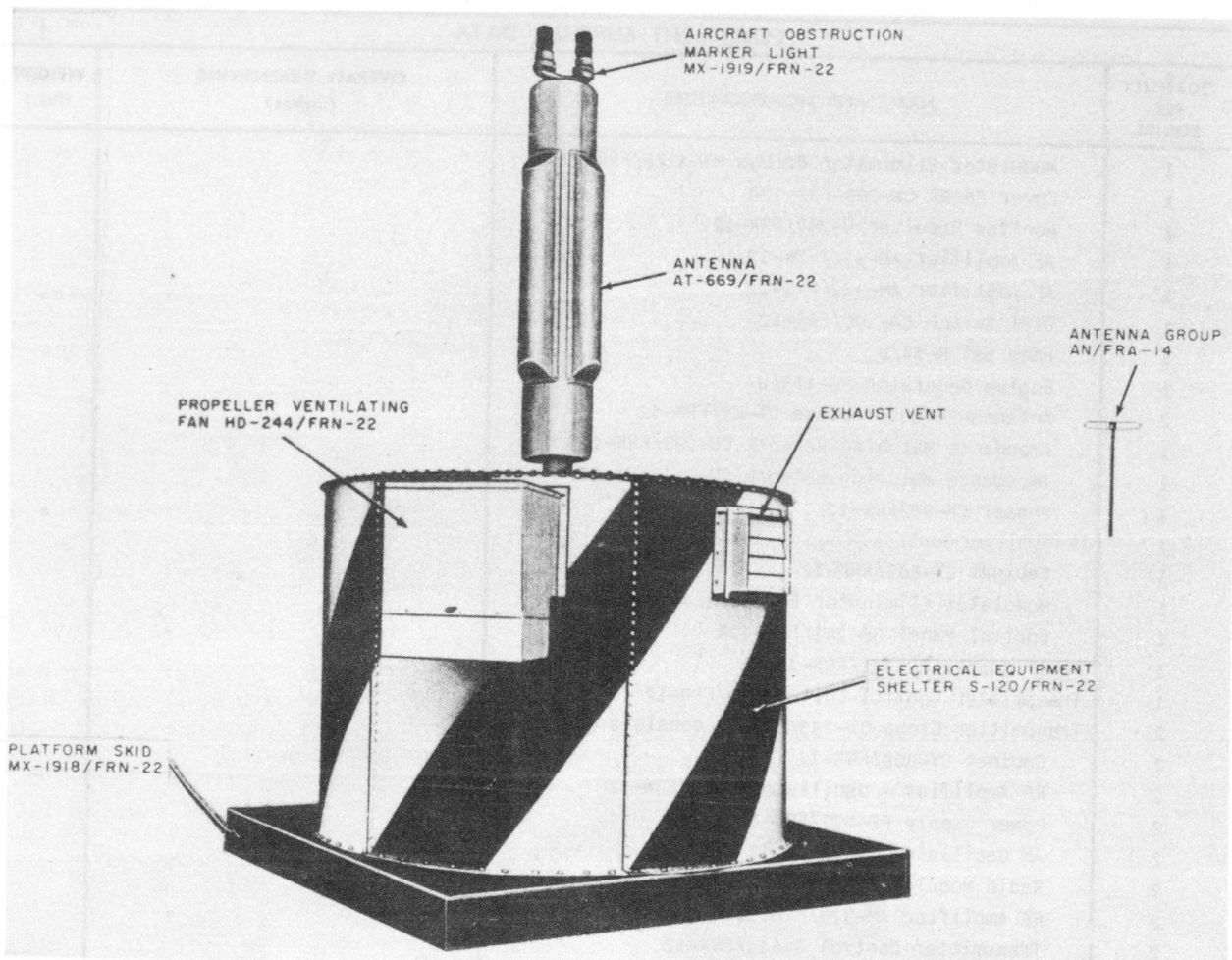
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Air Heater HD-60/U		
1	Amplifier Monitor Group OA-162 FRN-12 consists of:		
1	Cabinet CY-811/FRN-12		
1	AF Amplifier AM-325/FRN-12		
1	Monitor Panel MX-1037/FRN-12		
1	Power Supply PP-529/FRN-12		
1	Antenna Assembly AS-494/FRN-12A		
1	Shelter S-60/FR		
1	Control Monitor Group OA-136/FRN-12 consists of:		
1	Cabinet CY-810/FRN-12		
1	Line Loss Equalizer CN-107/FRN-12		

Radio-Transmitters
AN/FRN-12A

RADIO TRANSMITTING SET

EQUIPMENT SUPPLIED DATA			
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulator Eliminator Bridge MX-1175/FRN-12A		
1	Cover Panel CW-260/FRN-12A		
1	Monitor Receiver R-282/FRN-12		
1	AF Amplifier AM-324/FRN-12		
1	AF Amplifier AM-322/FRN-12		
1	Dial Switch SA-190/FRN-12		
1	Hand Set H-54/U		
1	Engine Generator PU-173/U		
2	Antenna-Detector Stage DT-45/FRN-12		
1	Impedance Matching Network CU-230/FRN-12		
1	Impedance Matching Network CU-241/FRN-12		
1	Phaser CN-98/FRN-12		
1	Transmitter Control Group OA-134/FRN-12 consists of:		
1	Cabinet CY-809/FRN-12		
1	Modulator Eliminator Bridge MX-1175/FRN-12A		
1	Control Panel SB-241/FRN-12A		
1	Power Supply PP-471/FRN-12		
1	Transmitter Control Unit C-579/FRN-12		
2	Transmitter Group OA-133/FRN-12 consists of:		
2	Cabinet CY-808/FRN-12		
2	RF Amplifier - Oscillator O-98/FRN-12		
2	Power Supply PP-470/FRN-12		
2	AF Oscillator O-99/FRN-12		
2	Radio Modulator MD-112/FRN-12		
2	RF Amplifier AM-323/FRN-12		
2	Transmitter Control C-611/FRN-12		
1	Antenna Tower AB-161/FR		
1	Voltage Regulator CN-97/U		

RADIO TRANSMITTING SET



Radio Transmitting Set AN/FRN-22A

FUNCTIONAL DESCRIPTION

The AN/FRN-22A is designed as a complete transportable Very High Frequency (VHF) omnidirectional radio range station that is a radio aid to aircraft navigation. It operates within a frequency range of 108 to 118 megacycles (mc) with a power output of 50 watts.

The AN/FRN-22A provides definite track guidance along any course line or radials to or from the AN/FRN-22. The Radio Frequency (R.F.) carrier contains two (2) thirty (30) cycle modulation components whose phase difference is compared by the aircraft receiver. The bearing to or from the station is indicated on the pilot's navigational instruments. A 1,000 cycle keyed tone signal is transmitted periodically in the form of call letters. Facilities for voice modulation are

included.

No field changes in effect at time of preparation (21 May 1959).

RELATION TO OTHER EQUIPMENT

The AN/FRN-22A is mechanically and physically interchangeable with the AN/FRN-22 except that meter and switch panel are now a separate item identified as CY-2274/FRN-22A. In Navy's procurement of AN/FRN-22 meter and switch panel was an integral Unit of CY-1898/FRN-22.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

AIRCRAFT OBSTRUCTION MARKER LIGHT MX-1919/

April 1959

Radio-Transmitters

AN/FRN-22A

RADIO TRANSMITTING SET

FRN-22
 OPERATING POWER RQMT: 115 v AC, 1.7 amps.
 ANTENNA AT-669/FRN-22
 ANTENNA TYPE: Cylindrical slot type.
 FREQUENCY RANGE: 108 to 118 mc.
 RADIO FREQUENCY INPUT IMPEDANCE: 3 coax-
 ial inputs, 52 ohms ea.
 VOLTAGE STANDING WAVE RATIO: 1.5 to 1
 max.
 HEATER RQMT: 115 v AC, 1.8 amps.
 ANTENNA GROUP AN/FRA-14
 ANTENNA TYPE: Approx 1/2 wave length
 folded dipole.
 OUTPUT VOLTAGES: Greater than 1 v DC
 w/an unmodulated R.F. input of 1 v
 from 108 to 118 mc.
 POWER RQMT: 115 v AC, 0.02 amps.
 AUDIO FREQUENCY AMPLIFIER AM-1246/FRN-20.
 FREQUENCY RANGE: 49 to 61 cps normal
 operating range.
 INPUT SIGNAL: 1.5 v AC $\pm 10\%$.
 AUDIO INPUT IMPEDANCE: 500 ohms.
 AUDIO OUTPUT IMPEDANCE: 7,800 ohms.
 DISTORTION: Less than 5% w/-20 dbm input
 at 1,000 cps.
 OUTPUT VOLTAGE: 115 v AC.
 POWER RQMT: 0.6 amps at 230 v AC; 0.075
 amps at 500 v DC ± 50 v; 0.103 amps at
 1,350 v DC ± 135 v.
 AUDIO FREQUENCY AMPLIFIER AM-1247/FRN-20
 AUDIO INPUT IMPEDANCE: 500 ohms.
 FREQUENCY RESPONSE: ± 2 db from 1,000 cy-
 cle reference over range of 250 cps to
 5,000 cps.
 AUDIO OUTPUT IMPEDANCE: 500 ohms.
 AUDIO OUTPUT: 0 dbm.
 COMPRESSION: 3 dbm.
 DISTORTION: Not greater than 5% at 0 dbm
 output at 1,000 cps.
 POWER RQMT: 0.144 amps at 115 v AC.
 AUDIO FREQUENCY OSCILLATOR 0-371/FRN-20.
 AUDIO OUTPUT IMPEDANCE: 500 ohms.
 FREQUENCY STABILITY: $\pm 1.0\%$.
 DISTORTION: Less than 10% over the out-
 put frequency range.
 OUTPUT FREQUENCY RANGE: 49 to 61 cps min.
 OUTPUT VOLTAGE: 1.5 v AC $\pm 10\%$.
 POWER RQMT: 0.7 amps at 115 v AC; 0.165
 amps at 230 v AC.
 AUDIO FREQUENCY OSCILLATOR C-373/FRN
 AUDIO OUTPUT IMPEDANCE: 500 ohms.
 AUDIO OUTPUT: 12 dbm to 17 dbm.
 OUTPUT FREQUENCY: 1,000 cps $\pm 10\%$.
 POWER RQMT: 0.25 amps at 115 v AC.
 COURSE MONITOR MX-1837/FRN-20.
 INPUT SIGNAL: 0.2 v min.

COURSE SENSITIVITY: Adjustable from 1 to
 3° .
 LEVEL ALARM ADJUSTMENT RANGE: 50% to 90%.
 AUDIO OUTPUT: 0 db.
 POWER RQMT: 0.825 amps at 115 v AC.
 ELECTRICAL EQUIPMENT CABINET CY-1897/FRN-22
 NUMBER OF HEATERS: 4.
 HEATER ARRANGEMENT: Series-parallel.
 HEATER THERMOSTAT OPERATION: Opens at
 50° F $\pm 5^\circ$.
 BLOWER THERMOSTAT OPERATION: Closes at
 90° F $\pm 5^\circ$.
 TOTAL HEATER POWER RQMT: 3.35 amps at
 230 v AC.
 BLOWER POWER RQMT: 1.1 amps at 230 v AC.
 ELECTRICAL EQUIPMENT CABINET CY-1899/FRN-22
 NUMBER OF HEATERS: 4.
 HEATER ARRANGEMENT: Series-parallel.
 HEATER THERMOSTAT OPERATION: Opens at
 50° F $\pm 5^\circ$.
 BLOWER THERMOSTAT OPERATION: Closes at
 90° F $\pm 5^\circ$.
 TOTAL HEATER POWER RQMT: 3.35 amps at
 230 v AC.
 BLOWER POWER RQMT: 1.1 amps at 230 v AC.
 ELECTRICAL EQUIPMENT CABINET CY-2274/FRN-22A
 NOTE: All requirements identical to the
 above CY-1899/FRN-22.
 ELECTRICAL EQUIPMENT SHELTER S-120/FRN-22
 OPERATING POWER RQMT: 1.7 amps at 115 v
 AC.
 ELECTRICAL GONIOMETER GO-12/FRN-20.
 AUDIO OUTPUT IMPEDANCE: 500 ohms.
 OUTPUT VOLTAGE: 0.4 to 0.75 v AC.
 OUTPUT FREQUENCY: Variable from 9,480 to
 10,440 cps.
 DISTORTION: Less than 5% w/motor not run-
 ing.
 R.F. INPUT TO ELECTRICAL GONIOMETER: 1
 to 3.5 W.
 KEYS KY-175/FRN
 INPUT IMPEDANCE: 500 ohms.
 OUTPUT IMPEDANCE: 500 ohms.
 KEYING SWEEP
 CODE WHEEL: 1 revolution in 8-1/2
 seconds on 60 cycle AC power or 1
 revolution in 10 seconds on 50 cycle
 AC power.
 CYCLE WHEEL: 1 revolution in 100 se-
 conds on 60 cycle AC power or 1 rev-
 olution in 120 seconds on 50 cycle
 power.
 CONTACT RATING: 4 amps at 115 v DC; 8
 amps at 115 v AC.
 POWER RQMT: 14 amps at 115 v AC.
 MODULATION ELIMINATOR MX-1843/FRN-20

April 1959

Radio-Transmitters

RADIO TRANSMITTING SET**AN/FRN-22A**

R.F. INPUT: 50 W.
 R.F. INPUT IMPEDANCE: High impedance (bridging).
 FREQUENCY RANGE: 108 to 118 mc.
 FREQUENCY RESPONSE: Will remove modulation components from 50 to 20,000 cps.
 OUTPUT IMPEDANCE: 52 ohms.
 R.F. POWER OUTPUT: 50 W for carrier output and 1 to 3.5 W for variable carrier output.
 POWER RQMT: 0.75 amps at 115 v AC.
 POWER SUPPLY PP-1329/FRN-20
 POWER OUTPUT: 0.103 amps at 1,350 v DC ± 135 v; 0.075 amps at 500 v DC ± 50 v.
 POWER RQMT: 1.4 amps at 230 v AC; 0.128 amps at 115 v AC.
 POWER SUPPLY PP-1331/FRN-20
 POWER OUTPUT: 0.26 amps at a min of 500 v DC; 0.173 amps at 250 v DC ± 25 v; 0.008 amps at 75 v DC ± 7.5 v; 0.003 amps at 25 v DC; 0.06 amps at 12 v DC max.
 POWER SUPPLY PP-1415/FRN-22
 POWER SUPPLY TYPE: Full-wave metallic rectifier.
 POWER OUTPUT: Tapped 3.5 amps max at 12 to 18 v DC.
 POWER RQMT: 0.5 amps at 115 v AC max.

MANUFACTURER'S OR CONTRACTOR'S DATA

Wilcox Electric Co., Kansas City, Mo.
 Contract Order No. 42747-Phila-57.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A2WA	(4) 0B2WA
(5) 12AU7	(5) 12AX7
(3) 2E26	(8) 3B28
(7) 5R4WGB	(4) 5U4GB
(3) 5V4G	(4) 5696
(3) 5749-6BA6W	(2) 5750-6BE6W
(4) 6AG7Y	(9) 6AL7GT
(3) 6AU6WA	(2) 6C4WA
(1) 6H6	(2) 6SA7Y
(7) 6SN7WGTA	(2) 6Y6G
(8) 6005-6AQ5W	(2) 6I46
(2) 6SJ7Y	(8) 807
(2) 8I3	(2) 829B

Total Tubes (103)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-5825-205-12: Technical Manual for Radio Transmitting Set AN/FRN-22A.

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

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Aircraft Obstruction Marker Light MX-1919/FRN-22	15-1/4 dia X 16-3/4	13.5
1	Antenna AT-669/FRN-22	21-3/4 dia X 115-5/8	135
1	Antenna Group AN/FRA-14	4-1/8 X 8-1/2 X 50	4.25
2	Audio Frequency Amplifier AM-1246/FRN-20	8-3/4 X 8-7/8 X 19	27
1	Audio Frequency Amplifier AM-1247/FRN-20	5-1/4 X 7-5/8 X 19	20
2	Audio Frequency Oscillator 0-371/FRN-20	7 X 8-3/4 X 19	19
2	Audio Frequency Oscillator 0-373/FRN-20	3-1/2 X 7-1/2 X 19	10.5
1	Course Monitor MX-1837/FRN-20	11-3/8 X 12-1/4 X 19	40
1	Electrical Equipment Cabinet CY-1826/FRN-20	11-3/8 X 14-3/4 X 22-1/2	23.75
1	Electrical Equipment Cabinet CY-1897/FRN-20	24-1/4 X 27 X 74-3/16	180
2	Electrical Equipment Cabinet CY-1899/FRN-20	24-1/4 X 27 X 74-3/16	170
1	Electrical Equipment Cabinet CY-2274/FRN-22A	24-1/4 X 27 X 74-3/16	188
1	Electrical Equipment Shelter S-120/FRN-22	82-3/4 X 114-3/4 dia	1,560
2	Electrical Goniometer G0-12/FRN-20	12-1/4 X 14-1/8 X 19	39
1	Indicator Panel SB-830/FRN-22A	3-5/8 X 5-1/4 X 19	3
2	Keyer KY-175/FRN	3-1/2 X 6-7/16 X 19	10

Radio-Transmitters

April 1959

AN/FRN-22A

RADIO TRANSMITTING SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Modulation Eliminator MX-1843/FRN-20	7 X 9 X 19	21
1	Platform Skid MX-1918/FRN-22	11-7/8 X 120 X 120	852
2	Power Supply PP-1329/FRN-20	14-3/4 X 19 X 21	177
2	Power Supply PP-1331/FRN-20	10-1/4 X 14 X 19	105
1	Power Supply PP-1415/FRN-22	3-1/2 X 8-7/16 X 19	17
1	Propeller Ventilating Fan HD-244/FRN-22	27-7/8 X 29-5/8 X 33-1/2	180
1	Radio Set Control C-1738/FRN-20	5-1/4 X 11-3/8 X 19	19
1	Radio Set Control C-1739/FRN-20	3-1/2 X 10-1/8 X 19	10
2	Radio Transmitter T-573/FRN-20	8-1/8 X 8-7/8 X 19	18
1	Radio Set Transfer Control C-1840/FRN-22	5-1/4 X 8-7/16 X 19	13.5
1	Relay Ass'y RE-247/FRN-22	3-1/2 X 6-1/4 X 19	7
1	Relay Ass'y RE-248/FRN-22	3-1/2 X 8 X 19	7
1	Voltage Regulator CN-358/FRN-22	13-1/4 X 16-11/16 X 19	118
2	Handset (HS1, HS2)	2-3/8 X 3-3/4 X 9-1/2	1.87
1	Microphone Stand	5-1/2 dia X 8-1/4	2
1	Microphone (MK 1)	2-5/8 X 4 X 4-5/8	1.31
2	R.F. Cable Ass'y W1		.34
1	R.F. Cable Ass'y W5		.34
1	Set of Power, R.F. Cables and Wire Ass'y (as required)		

30 July 1962

5820-302-5957

RADIO SET AN/FRT-1

Cog Service: USN FSN: 5820-347-9130 W/S

Functional Class:

USA

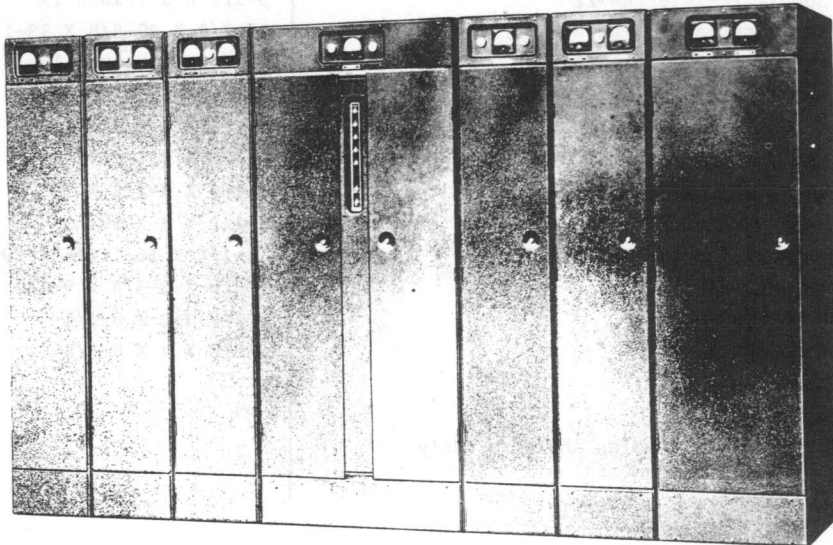
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Aircraft Accessories Corporation.



Radio Set AN/FRT-1

FUNCTIONAL DESCRIPTION:

Radio Set AN/FRT-1 is a multi-channel communication unit capable of continuous wave, modulated continuous wave, and voice emission. It permits simultaneous operation of four channels; one or two of them modulated with voice or tone, and the others on straight continuous wave telegraph.

This equipment is designed to be operated from the remote assembly; however, in case of emergency the transmitter can be operated on continuous wave telegraph or radiotelephone through the use of connections and controls on the transmitter.

No field changes in effect at time of preparation (12 June 1961).

TECHNICAL CHARACTERISTICS:

POWER SUPPLY PP-1/FRC

VOLTAGE: 220 v, single ph.

1.6 AN/FRT-1: 1

AN/FRT-1 RADIO SET

CURRENT: 50 amps max.
FREQUENCY: 50 to 60 cyc.
MODULATOR, RADIO TRANSMITTER MD-1/FRC (EACH CHANNEL)
RESPONSE: Max variation of 2 db from 200 to 4,000 cps, 1,000 cps reference frequency.
POWER OUTPUT: 300 W (nominal).
HARMONIC DISTORTION AT 300 W OUTPUT: 10% max at 400 cyc.
INPUT IMPEDANCE: 500 ohms.
OUTPUT IMPEDANCE: 2,300 and 4,600 ohms.
NOISE LEVEL: M40 db.
TRANSMITTER, RADIO T-4/FRC
CARRIER POWER OUTPUT: 400 W (nominal).
OUTPUT IMPEDANCE: Balanced 600 ohms.
FREQUENCY RANGE: 2 to 18 mc.
TRANSMITTER, RADIO T-5/FRC
POWER OUTPUT TO ANTENNA: 600 W (nominal).
OUTPUT IMPEDANCE: 500 to 600 ohms.
FREQUENCY RANGE: 150 to 550 kc.
ANTENNA TUNING UNIT
INPUT IMPEDANCE: 500 to 600 ohms.
TUNING RANGE: 150 to 550 kc with an antenna of 600 to 1,000 uuf and 5 to 10 ohms resistance.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Set AN/FRT-1 includes:			
1	Power Supply PP-1/FRC		24 x 27-1/2 x 61	690
1	Modulator, Radio Transmitter MD-1/FRC		12 x 24 x 61	510
4	Transmitter, Radio T-4/FRC		12 x 24 x 61	330
1	Transmitter, Radio T-5/FRC		18 x 24 x 61	450
4	Switch Panel SA-2/FRC		3-1/2 x 4 x 19	5
6	Oscillators O-2/FRC		3-1/2 x 9-1/2 x 19	15.50
2	Amplifier AM-2/FRC		3-1/2 x 9-1/2 x 19	16.50
1	Antenna Tuning Unit		38-1/4 x 39-1/8 x 49-1/4	193
2	Microphone CW-1120DA			
5	Crystal Holders			
1	Interconnecting Cable		360 lg	
1	Set Patch Cables			

REFERENCE DATA AND LITERATURE:

TM11-820: Technical Manual for Radio Transmitter T-4/FRC, T-5/FRC, Power Rectifier PP-1/FRC, Modulator MD-1/FRC, Switch Panel SA-2/FRC, Oscillator O-2/FRC and Amplifier AM-2/FRC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (14) 0C3/VR105 (18) 5Y3GT/G (20) 6J5GT/G (15) 6V6GT/G (25) 807 (16) 810
 (14) 866A/866 (4) 872A

CRYSTALS: (1) 2 to 18 mc (1) 150 to 550 kc

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
3		
2		
8		

PROCUREMENT DATA

PROCURING SERVICE: USN
 SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Aircraft Accessories Corp.	Kansas City, Kansas	NXss-33374 NXs-40010	

January 1958

Radio-Transmitters

RADIO TRANSMITTING SET**AN/FRT-10****FUNCTIONAL DESCRIPTION**

The AN/FRT-10 is a land based, fixed installation, high power radio transmitter which may be used to convey intelligence as continuous waves, DC teletype, tone teletype, frequency shift keying or facsimile.

Basically, the set consists of two identical exciter units, each having an associated low power rectifier unit and high power rectifier unit and two identical 250 kw power amplifier stages. Switch gear for controlling power and enabling parallel operation of the dual high powered stages, power distribution apparatus, a cooling air system, a frequency and wave shape monitoring system and an antenna system are also included in the equipment. The AN/FRT-10 operates in the frequency range of 100 to 200 kc. Either of the two low power exciter units in which the transmitted signal is generated may be keyed locally from a control console or remotely from external communication lines. In 250 kw operation, only one power amplifier stage is coupled to the antenna. In 500 kw operation, both 250 kw power amplifier stages are connected to the antenna in parallel.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 200 kc.

NUMBER OF PRESET CHANNELS: 6.
 NUMBER OF TUNABLE CHANNELS: 1.
 TYPE OF TRANSMITTER: Master Oscillator Power Amplifier.
 TYPES OF TRANSMITTED SIGNALS: CW and FSK.
 MODULATION: Frequency.
 POWER OUTPUT: 500 kw.
 POWER SOURCE REQUIRED: 480 and 4160 v, 60 cps, 3-ph and 120 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

Westinghouse Electric Corp, Pittsburgh, Pa.
 Contract NObsr-43404.

TUBE AND/OR CRYSTAL COMPLEMENT

Total Tubes: (345)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91982, Technical Manual for Radio Transmitting Set AN/FRT-10.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Power Supply PP-658/FRT-10	48-1/4 X 54 X 84	2050
2	Radio Transmitter T-281/FRT-10	48-1/4 X 54 X 84	2300
	Radio Frequency Amplifier AM-513/FRT-10		
2	Left End	48-1/4 X 74-1/4 X 84	3300
2	Center	48-1/4 X 74-1/4 X 84	2700

January 1958

AN/FRT-10

RADIO TRANSMITTING SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Right End	48-1/4 X 74-1/4 X 84	3300
2	Radio Frequency Tuner TN-189/FRT-10	48-1/4 X 74-1/4 X 84	3000
2	Power Supply PP-657/FRT-10	48-1/4 X 54 X 84	1550
1	Power Control Panel SB-166/FRT-10	20 X 64 X 90-3/8	
1	Power Control Panel SB-165/FRT-10	34 X 64 X 90-3/8	
1	Power Control Panel SB-160/FRT-10	40 X 64 X 90-3/8	
1	Power Control Panel SB-167/FRT-10	20 X 64 X 90-3/8	
1	Power Control Panel SB-164/FRT-10	26 X 64 X 90-3/8	
1	Power Control Panel SB-162/FRT-10	30 X 64 X 90-3/8	1400
1	Power Control Panel SB-163/FRT-10	20 X 64 X 90-3/8	1070
2	Power Control Panel SB-164/FRT-10	26 X 64 X 90-3/8	
1	Power Control Panel SB-159/FRT-10	20 X 64 X 90-3/8	
1	Power Control Panel SB-161/FRT-10	40 X 64 X 90-3/8	
1	Power Control Panel SB-158/FRT-10	34 X 64 X 90-3/8	1488
1	Console C-856/FRT-10	36-9/32 X 44-1/6 X 65-13/16	450
2	Blower HD-93/U	67-1/4 X 99-5/8 X 105-7/8	2430
2	Alternating Current Motor PD-35/U	27-7/8 X 34-1/2 X 42-7/8	1530
2	Motor Starter SA-322/U	15 X 19 X 44	150
1	Air Louver Control	9-1/2 X 16 X 34	40
1	Inclined Air Louver	8 X 42 X 105	90
1	Horizontal Air Louver	8 X 42 X 84	70
40	Air Filters	2 X 20 X 20	15
2	Cooling Radiator	9-1/2 X 15-1/2 X 17	25
2	Solenoid Valve	2-3/4 X 2-3/4 X 8-3/4	4-3/4
2	Variable Power Transformer TF-141/U	80-1/2 X 96-1/2 X 110-1/2	18000
2	Power Distribution Transformer TF-143/U	24-1/8 X 29-3/8 X 42-1/6	1450
2	Power Distribution Transformer TF-142/U	14-3/4 X 16-3/8 X 22-1/8	210
4	Current Transformer TF-144/U	7-7/16 X 10 X 22	45
2	Direct Current Power Filter F-106/U	37 X 55 X 86-3/8	2600
2	Direct Current Power Filter F-107/U	37 X 55 X 65-5/8	1100
2	Reactor MX-1181/U	25-3/16 X 25-3/16 X 40	1000
6	Reactor MX-1182/U	5-5/8 X 6-3/8 X 10-7/8	20
2	Reactor MX-1536/FRT-10	19-1/8 X 19-5/8 X 28-1/8	600
4	Box Switch SA-245/U	7-3/4 X 11-9/16 X 16-3/4	25
1	Dehydrator HD-94/U and Manifold	16 X 21 X 24	115
2	Electrical Load Dummy DA-46/FRT-10	48 X 48-1/4 X 73	550
2	Electrical Load Dummy DA-47/U	72 X 206 X 216	2850
16	Electrical Load Dummy DA-48/U	19 X 36-1/4 X 82	320
2	Electrical Load Dummy DA-49/U	19 X 36-1/4 X 82	260
2	Indicator Panel ID-306/FRT-10	4 X 36 X 72	110
4	Radio Frequency Transmission Line CG-719/U	8-1/8 dia X 240	135
10	Radio Frequency Transmission Line CG-720/U	5-3/16 dia X 240	50
6	Radio Frequency Line Cap UG-654/U	6-5/8 X 9 X 9	12

January 1958

Radio-Transmitters

RADIO TRANSMITTING SET

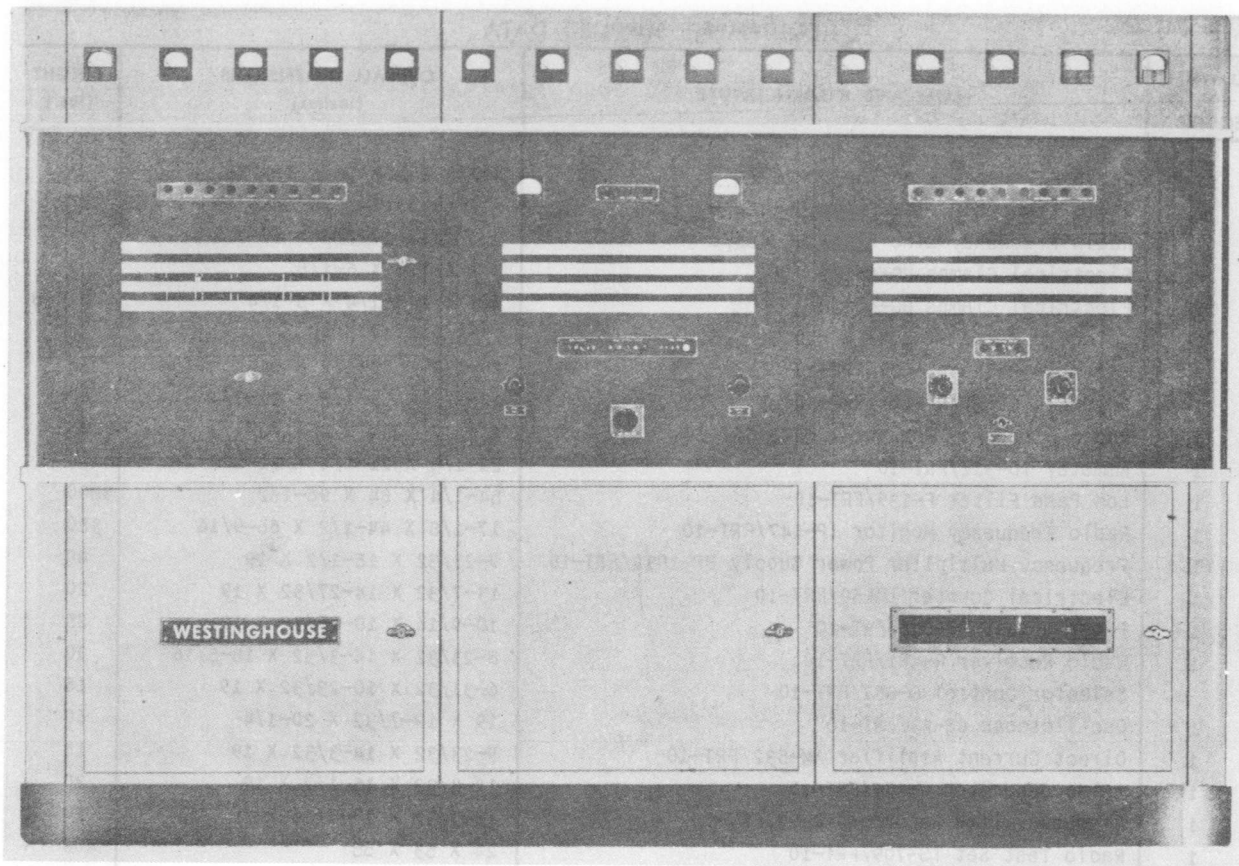
AN/FRT-10

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
12	Radio Frequency Line Cap UG-653/U	4-7/8 X 5-3/16 X 5-3/16	7
2	Radio Frequency Line Elbow UG-656/U	9 X 15-3/16 X 24-5/16	17
4	Radio Frequency Line Elbow UG-655/U	5-3/16 X 17-7/8 X 17-7/8	9
4	Electrical Clamps UG-651/U	3 X 6-1/8 X 6-1/8	9
12	Electrical Clamps UG-652/U	5-1/4 X 5-1/4 X 5-1/4	0.028
2	Solenoid Relay RE-104/FRT-10	13-1/2 X 17 X 24	50
4	Solenoid Relay RE-103/FRT-10	10-1/2 X 13-1/2 X 14	35
2	Solenoid Relay RE-102/FRT-10	10-1/2 X 13-1/2 X 21-3/4	42
1	Radio Frequency Monitor ID-305/FRT-10	21-1/2 X 24 X 45-1/2	35
1	Ammeter ID-311/FRT-10	21-1/4 X 21-1/4 X 22-1/8	35
1	Low Pass Filter F-139/FRT-10	54-1/4 X 84 X 96-1/2	3800
1	Radio Frequency Monitor IP-147/FRT-10	17-1/8 X 44-1/2 X 66-9/16	350
1	Frequency Multiplier Power Supply PP-1032/FRT-10	9-23/32 X 15-1/2 X 19	40
1	Electrical Counter TD-59/FRT-10	13-7/32 X 14-27/32 X 19	20
1	Power Supply PP-656/FRT-10	10-9/16 X 10-15/32 X 19	25
1	Radio Receiver R-401/FRT-10	8-23/32 X 14-3/32 X 18-5/16	30
1	Selector Control C-857/FRT-10	6-31/32 X 10-23/32 X 19	15
1	Oscilloscope OS-23/FRT-10	19 X 19-7/32 X 20-1/4	60
1	Direct Current Amplifier AM-532/FRT-10	9-23/32 X 14-3/32 X 19	15
1	Pulse Generator O-156/FRT-10	12-8/32 X 15-1/2 X 19	30
1	Frequency Time Recorder RD-93/FRT-10	13-7/32 X 17-7/16 X 19	20
1	Radio Test Set TS-709/FRT-10	24 X 53 X 55	400
1	Impedance Matching Network CU-270/FRT-10	14 X 16-3/8 X 19	20
1	Power Supply PP-692/FRT-10	14 X 19-3/16 X 30	50
1	Signal Generator SG-53/FRT-10	22 X 30 X 30-3/16	60
1	Push Switch SA-252/FRT-10	6-29/32 X 9 X 10-1/8	10
1	Tube Hoist	24 X 58 X 72	150
1	Remote Indicator	2 X 4-1/16 X 18	10
	Installation Kit MX-1227		
	Cables and Miscellaneous Equip.		

January 1958

RADIO TRANSMITTING SET

Radio-Transmitters
AN/FRT-14

Radio Transmitting Set AN/FRT-14

FUNCTIONAL DESCRIPTION

The AN/FRT-14 is a modern high-fidelity amplitude modulated broadcast transmitter with a nominal power output of 5 kilowatts. The equipment features complete air cooling throughout, modern trouble-free Rectox metal rectifiers in all power circuits except the high voltage supply, a complete supervisory indicating system, a sequence-interlocking control system, complete fuseless protection with automatic return to the air in case of transient overloads.

The transmitting set is designed to operate on any single frequency in the standard broadcast band of 540 to 1600 kc. The maximum carrier output is 5.5 kilowatts.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

EMISSION: A3.

FREQUENCY RANGE: 540 to 1600 kc.
 POWER OUTPUT: 5.5 kw.
 NUMBER OF BANDS: Single.
 POWER SOURCE REQUIRED: 230 v, 60 cps, 3-ph
 or 115 v, 60 cps, single ph or 115 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

Westinghouse Electric Corp., Baltimore,
 Md.

Contract NObsr-4907.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) VR/150-30	(2) 802	(2) 807
(2) 805	(3) 892-R	(2) 6C6
(6) 828	(6) 872-A	(2) 2050

Total Tubes: (25)

REFERENCE DATA AND LITERATURE

I.B.81-110-2: Technical Manual for Type 10-HV-1 and Type 5-HV-2 Amplitude Modulated Broadcast Transmitters.

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 Transmitting Set AN/FRT-14		

requires less than 15 seconds.
No field changes in effect at time of preparation (5 December 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not supplied:
to 10 (as required) crystals, (1) Antenna and RF Transmission Line, (2) Transmission Line current meters, (1) Keyer Adapter (optional), (1) Master Oscillator (optional), (1) or (2) Remote Control cables and (1) Remote Transmitter Switch.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

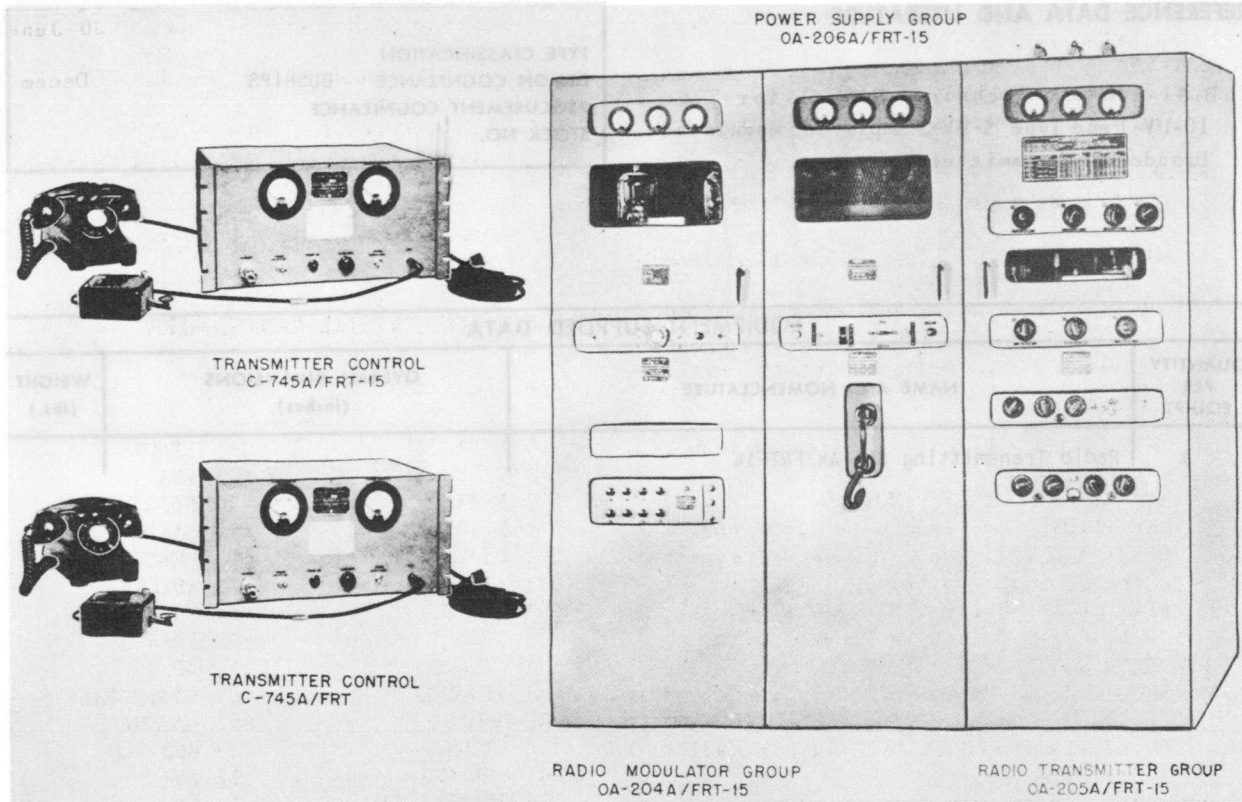
FREQUENCY RANGE: 2 to 30 mc.
TUNING: Continuous over entire range.
CHANNELS: 12.
PRESET FREQUENCY: 10 crystals, 1 MO.
FREQUENCY CONTROL: Kcal and MO.
FREQUENCY AND/OR MODE SELECTION TIME: Less than 15 sec.
FREQUENCY SELECTION: Any one or several and switch frequency by use of telephone-type dial, either locally or remotely.

FUNCTIONAL DESCRIPTION

The AN/FRT-14, -15A, -15B are each designed for use in naval shore or air force ground installations. It is suitable for application to point-to-point communication, astronomical ground stations and other services requiring operation on a number of radio-selected frequency channels. The equipment has been designed for operation at ambient temperatures between 0 deg and 50 deg C (32 deg and 122 deg F) and in a relative humidity up to 95 per cent.

The equipments are capable of continuous operation on 60 McW power frequency with 1000 watts (with phase modulation, if desired) of modulation with a minimum output of 5000 watts within the frequency range of 2 to 12 megacycles, 1500 watts in the 12 to 20 megacycle range and 2000 watts in the 20 to 30 megacycle range. The equipment will operate on any frequency in the specific range, selected automatically either locally or remotely by a telephone-type dial from 10 crystals or eleven master-oscillator crystals. The transmitter on which the transmitter has been previously set. Changing frequency and/or mode of operation locally or remotely

April 1958

RADIO TRANSMITTING SET**AN/FRT-15, -15A, -15B***Radio Transmitting Set AN/FRT-15, -15A, -15B***FUNCTIONAL DESCRIPTION**

The AN/FRT-15, -15A, -15B are each intended for use in naval shore or air force ground installations. It is suitable for application to point-to-point communication, aeronautical ground stations and other services requiring operation on a number of readily selected frequency channels. The equipment has been designed for operation at ambient temperatures between 0 deg and 50 deg C (32 deg and 122 deg F) and in a relative humidity up to 95 per cent.

The equipments are capable of continuous operation on CW, MCW, phone, frequency shift keying (with phase modulation, if desired) or phototransmission with a minimum output of 3000 watts within the frequency range of 2 to 12 megacycles, 2500 watts in the 12 to 26 megacycle range and 2000 watts in the 26 to 30 megacycle range. The equipment will operate on any frequency in the specific range, selected automatically either locally or remotely by a telephone-type dial from 10 crystal or eleven master-oscillator controlled frequencies on which the transmitter has been previously set. Changing frequency and/or mode of operation locally or remotely

requires less than 15 seconds.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: [1 to 10 (as required)] crystals, (1) Antenna and RF Transmission line, (2) Transmission line current meters, (1) Keyer Adapter (optional), (1) Master Oscillator (optional), (1) or (2) Remote Control cables and (1) Remote Transfer Switch.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 30 mc.
 TUNING: Continuous over entire range.
 CHANNELS: 12.
 PRESET FREQUENCY: 10 crystal, 1 MO.
 FREQUENCY CONTROL: Xtal and MO.
 FREQUENCY AND/OR MODE SELECTION TIME: Less than 15 sec.
 FREQUENCY SELECTION: Any one on eleventh and twelfth frequency by use of telephone-type dial, either locally or remotely.

Radio-Transmitters

AN/FRT-15, -15A, -15B RADIO TRANSMITTING SET

April 1958

EMISSION: CW, MCW, VOICE, FSK, FSK w/ph modulation and facsimile.

MODULATION**MCW**

FREQUENCY: 1000 cps.

CAPABILITY: 100%.

VOICE(AM)

INPUT: 25 to 0 db (0db=6mw) into 500 ohms.

AUDIO RESPONSE: Flat within ± 3 db from 15 cps to 3500 cps.

COMPRESSION: Above 70% modulation, 10 db increase in input results in less than 3 db change in modulation level.

CAPABILITY: 100%.

FSK

TYPE OF FSK CIRCUIT: Reactance modulated OSC.

NOM OSC FREQUENCY: 200 KC.

DEVIATION: Adj from 0 to ± 1000 cps.

DEVIATION RESPONSE: Linear w/respect to DC input voltage.

STABILITY: Within 5% above 200 cycles, 10 cycles below frequency shift.

FSK W/PH MODULATION

FREQUENCY OF PH MODULATION: 200 cps \pm 5%.

PH DISPLACEMENT AT ANTENNA: 1 radian ± 0.1 radian.

FACSIMILE

INPUT SIG: +1 to +20 v peak.

INPUT IMPEDANCE: 600 ohms.

MAX DEVIATION: Zero sig; -1000 cps: peak sig, +1000 cps.

KEYING

TYPE: Polar or neutral.

RANGE: 30 to 135 v DC.

CONTROL: Local or remote.

CIRCUIT: Electronic.

KEYING SPEED: CW on-off or frequency shift up to 500 wpm.

MCW: Up to 50 wpm. Keys carrier and modulation.

CONTROL: Local or remote.

POWER OUTPUT

2 to 12 MC: 3000 W.

12 TO 26 MC: 2500 W.

26 to 30 MC: 2000 W.

POWER SOURCE REQUIRED: 220 v, 50 to 60 cps, 3-ph.

HEAT DISSIPATION: 7550 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

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

Contract NObsr-43454, dated 30 June 1949.

Contract NObsr-63158, dated 31 December, 1952.

Broadway Electronics, Red Bank, N. J.

Contract NObsr-49252 dated 11 October, 1954.

Approximate Cost: \$17,500.00 with equipment spares for AN/FRT-15A.

TUBE AND/OR CRYSTAL COMPLEMENT**AN/FRT-15, -15A**

(4) OC3W	(23) 12AU7
(1) 2A515	(8) 4B32
(7) 5R4WGB	(1) 5654/6AK5W
(8) 5750/6BE6W	(2) 6A57G
(2) 6C8G	(1) 6K6GT
(4) 6SL7WGT	(2) 6V6GTY
(1) 6X5WGT	(6) 807
(2) OD3W	(3) 12AX7
(4) 4-1000A	(1) 4D21
(1) 5Y3WGTB	(2) 5749/6BA6W
(2) 6AG5Y	(2) 6AU6WA
(1) 6J6WA	(1) 6SJ7WGT
(4) 6SN7WGTA	(1) 6V6Y
(2) 6005/6AQ5W	(1) 809

Total Tubes: (97)

AN/FRT-15B

(4) OC3W	(4) 4-1000A
(3) 5R4WGB	(1) 5749/6BA6W
(1) 6AG7Y	(2) 6C8G
(3) 6SJ7WGT	(3) 6SN7WGTA
(1) 6X5WGT	(2) 4-65A
(6) 5686	(4) 5814A
(2) 6L6WGB	(1) 6X4WA
(5) 6626/OA2WA	(2) 6627/OB2WA
(6) 3B28	(6) 4B32
(10) 5654/6AK5W	(6) 5750/6BE6W
(7) 6AU6WA	(1) 6J6WA
(1) 6SL7WGT	(2) 6V6GTY
(7) 807	(9) 5670
(3) 5726/6AL5	(2) 6J5
(1) 6SH7	(4) 6080WA

Total Tubes: (109)

No Crystals.

April 1958

RADIO TRANSMITTING SET AN/FRT-15. -15A, -15B

REFERENCE DATA AND LITERATURE

NAVSHIPS 91690(A), Technical Manual for Radio Transmitting Set AN/FRT-15.
 NAVSHIPS 91848(A), Technical Manual for Radio Transmitting Set AN/FRT-15A.
 Nomenclature Card, for Radio Transmitting Set AN/FRT-15B, dated 30 March 1954.

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 Modulator Group OA-204 /FRT-15** or OA-204A/FRT-15***	79.6	36 x 43 x 89	1485
1	Power Supply Group OA-206 /FRT-15** or OA-206A/FRT-15***	79.6	36 x 43 x 89	1485
1	Power Supply Doors and Miscellaneous Parts	68.0	33 x 40 x 89	1495
1	Radio Transmitter Group OA-205/FRT-15** or OA-205A/FRT-15***	63.4	27 x 39 x 104	400
1	Transmitter Control (1) C-745 /FRT-15** or C-745A/FRT-15***	79.6	36 x 43 x 89	1425
1	Transmitter Control (2) C-745 /FRT-15** or C-745A/FRT-15***	12.0	23 x 30 x 30	160
1	Operating Tubes	12.0	23 x 30 x 30	160
8	Equip Spare Parts	22.9	25 x 31 x 51	155
		120.5		1864

NOTES * Shipping data not available for AN/FRT-15B.
 ** Supplied w/AN/FRT-15 equip only.
 *** Supplied w/AN/FRT-15A equip only.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Modulator Group OA-204 /FRT-15* or OA-204A/FRT-15† c/o	28-15/16 x 31 x 83-15/16	964
	(1) Cabinet CY-931/FRT-15* or CY-931A/FRT-15†	28-15/16 x 31 x 83-15/16	975
	(1) Radio Modulator MD-137/FRT-15* or MD-137A/FRT-15†	28-15/16 x 31 x 83-15/16	648
	(1) Relay Assy RE-95/FRT-15* or RE-95A/FRT-15†	28-15/16 x 31 x 83-15/16	639
	(1) Keyer KY-70/FRT-15* or KY-70A/FRT-15†	27 x 28-1/4 x 29-5/8	70
	(1) Power Supply PP-631/FRT-15* or PP-631A/FRT-15†	27 x 28-1/4 x 29-5/8	70
	(1) Voltage Regulator CN-143/FRT-15* or CN-143A/FRT-15†	8 x 11-3/4 x 27	19
		10-15/32 x 16-1/4 x 19	46
		8-23/32 x 16 x 19	78
		8-23/32 x 8-7/8	95

Radio-Transmitters

AN/FRT-15, -15A, -15B RADIO TRANSMITTING SET

April 1958

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	(1) Signal Data Converter CV-165/FRT-15* or CV-165A/FRT-15†	4-11/16 x 8-15/16 x 19	8
1	Radio Transmitter Group OA-205/ FRT-15* or OA-205A/FRT-15† c/o	28-15/16 x 31 x 83-15/16 28-15/16 x 31 x 83-15/16	917 925
1	(1) Cabinet RF Amplifier CY-932/FRT-15* or CY-932A/FRT-15†	28-15/16 x 31 x 83-15/16	716
1	(1) Amplifier-Oscillator AM-483/FRT-15* or AM-483/FRT-15†	11-3/8 x 25-3/16 x 30-1/8	87
1	(1) RF Oscillator O-140/FRT-15* or O-140A/FRT-15† c/o	10-15/32 x 19 x 20-7/8	77
1	(1) Freq Selector Mixer CV-149/FRT-15* or CV-276/FRT-15A†	4-3/8 x 6 x 14	8
1	(1) Freq Selector Mixer CV-148/FRT-15* or CV-275/FRT-15A†	3-13/16 x 6-9/16 x 16-5/16	8
1	(1) Freq Selector C-855/FRT-15* or C-1245/FRT-15A†	3-13/16 x 6-3/4 x 16-5/16	9
1	(1) Osc Assy O-141/FRT-15* or O-141A/FRT-15†	5-x 7 x 13-13/16	12
1	(1) Band Pass Filter F-105/FRT-15* or F-105A/FRT-15†	3-1/2 x 3-3/4 x 14	7
1	(1) Harmonic Generator O-142/FRT-15* or O-206/FRT-15A†	3-7/8 x 6 x 13-1/2	4
1	(1) Filter-Mixer F-104/FRT-15* or F-104A/FRT-15†	3 x 3-1/2 x 10-3/16 25-15/16 x 31 x 83-15/16 25-15/16 x 31 x 83-15/16	2 1137 1175
1	Power Supply Group OA-206/FRT-15* or OA-206A/FRT-15† c/o	25-15/16 x 31 x 83-15/16 25-15/16 x 31 x 83-15/16	1006 1040
1	(1) Cabinet, Power Supply CY-933/FRT-15* or CY-933A/FRT-15†	25-15/16 x 31 x 83-15/16 25-15/16 x 31 x 83-15/16	89 92
1	(1) Power Supply PP-632/FRT-15* or PP-632A/FRT-15†	11-5/8 x 16 x 25-1/2	42
1	(1) Power Supply PP-633/FRT-15* or PP-633A/FRT-15†	8 x 9-1/8 x 25-7/16	43
1	(2) Transmitter Controls C-745/FRT-15* or C-745A/FRT-15† c/o	8-23/32 x 11-5/8 x 19	96
1	(2) Desk Set	5-1/2 x 7 x 9	8
1	(2) Telegraph Keys	2-3/8 x 3-5/16 x 6	4
1	Set of Operating Tubes		
1	Set of Interconnecting and Accessory Items		
10	Boxes of Maintenance Parts Kits	15 x 15 x 24	1338
2	Technical Manuals NAVSHIPS 91690(A) or NAVSHIPS 91848(A)		
1	Transmitter Group OA-746/FRT-15B‡		
1	RF Amplifier AM-1116/FRT-15B‡		
1	Modulator-Oscillator Group OA-745/FRT-15B‡		
1	Power Supply Assy PP-1198/FRT-15B‡		
1	Transmitter Control C-1501/FRT-15B‡		

NOTES: *Supplied w/AN/FRT-15 only
†Supplied w/AN/FRT-15A only
‡Supplied w/AN/FRT-15B only

RADIO TRANSMITTER SET AN/FRT-16

FUNCTIONAL DESCRIPTION

The AN/FRT-16 is used to transmit a continuous wave radio frequency signal over the frequency range of 15 to 39 kilocycles. The operating frequency is normally fixed at 16.68 kilocycles. It is intended for stationary installation on a cast steel base mounted in concrete over a suitable sub-floor-level pit.

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

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes: Not Available.
Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for AN/FRT-16, Radio Transmitting Set.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 15 to 30 KC.
TYPE TRANSMISSION: CW.
OPERATING FREQUENCY: Fixed at 16.68 kc.
POWER OUTPUT: 200 kw.
POWER INPUT: 2000 v, 4 wire, 60 cps, 130. amp, 250 kw no load, 450 kw full load.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Communications: Contract NOy-4173.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

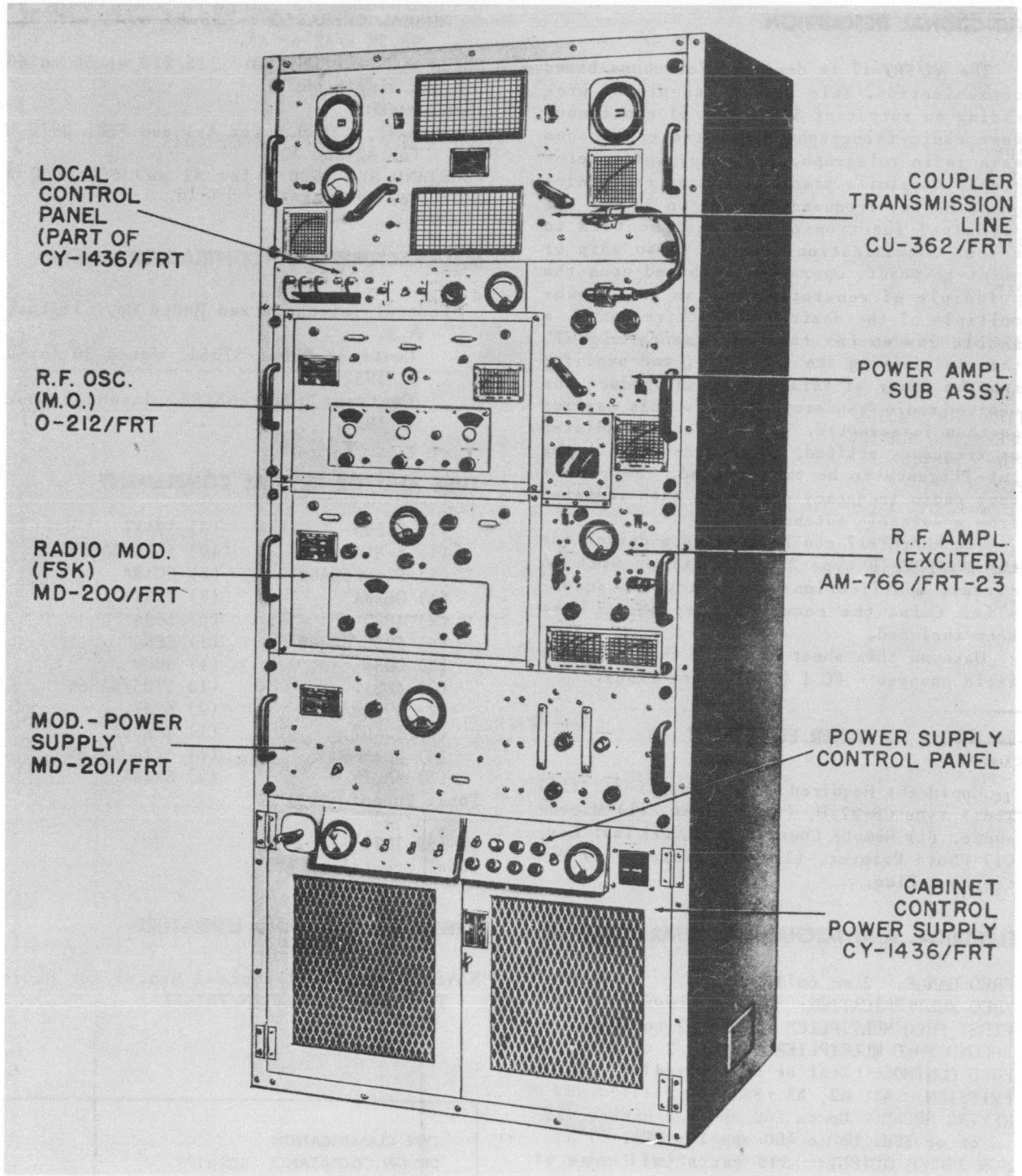
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	2400/440 v Power Transformers Type H, Form KQT		
4	Saturation Transformers Type H Form K		
3	Magnetic Amplifiers Tank Complete w/AC and DC transformer windings		
2	Liquid Rheostats c/o tanks, circulating pumps and motors type KT396-8-2-900 form C and weir controlling motors type 710-8-1/4-900 Form C		
1	Antenna Variometer w/DC drive motor frame 236 Form LB		
2	Air Blowers Type T-4-350		
1	Exciter Generator w/drive motor type K frame 326 and 125 v 3-wire DC Generator Model 95A 1956 Frame 66		
2	Saturation Generator 500 v DC type RC31 Form A.26 w/drive motors type KT-323 Frame B		
1	Circulating water cooling system c/o pumps and motors		

April 1958

RADIO TRANSMITTING SET

Radio-Transmitters

AN/FRT-17



Radio Transmitting Set AN/FRT-17

Radio-Transmitters

AN/FRT-17**RADIO TRANSMITTING SET**

April 1958

FUNCTIONAL DESCRIPTION

The AN/FRT-17 is designed for shore based communication. This set is capable of providing an output of 500 Watts of continuous wave radio-telegraph, modulated continuous wave radio telegraph, frequency shift telegraph, facsimile transmission or radiotelephone on any frequency from 2 to 30 mc. The principal function of the equipment is to effect communication from shore to ship or point-to-point. Operation is based upon the principle of generating, at an exact sub-multiple of the desired output frequency, a stable low energy radio-frequency signal, then multiplying the frequency, and amplifying the power of this signal to produce the desired radio frequency carrier. This carrier is then interrupted, voice or tone modulated or frequency shifted, in accordance with the intelligence to be transmitted. The resultant radio frequency energy is then radiated from a suitable antenna.

The AN/FRT-17 can be used as a driver for the AN/FRT-18 type 3 kw amplifier with no circuit modifications necessary. To accomplish this, the required components have been included.

Data on this sheet reflects the following field changes: FC 1 (24 January 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (10) Xtals type CR-27/U, (1) Headset, (1) Microphone, (1) Remote Control Unit, (1) Test Key, (1) Photo Printer, (1) Teleprinter, (1) Microphone Plug.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQ RANGE: 2 mc to 30 mc.
 FREQ MULTIPLICATION: 2 to 8 times.
 FIRST FREQ MULTIPLIER RANGE: 2 to 15 mc.
 SECOND FREQ MULTIPLIER RANGE: 2 to 30 mc.
 FREQ CONTROL: Xtal or stabilized OSC.
 EMISSION: A1, A2, A3, FSK.
 KEYING SPEED: Up to 600 wpm for either off-on or FSK. Up to 100 wpm for MCW.
 NOM POWER OUTPUT: 500 watts (all type of emission).
 HEAT DISSIPATION: 2000 W.
 POWER FACTOR
 STAND BY: 97.3%.

NORMAL OPERATION: 98.8% w/A1 or FSK:
 98.3% w/A2 or A3.

POWER SOURCE REQUIRED: 115/230 v, 50 to 60 cps, single ph.

INPUT POWER

OPERATE: 3050 W for A-1 and FSK; 2970 W for A2 and A3.

STAND-BY: 600 W for A1 and FSK; 600 W for A2 and A3.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Co, Clifton, N.J.

Contract NObsr-57351, dated 30 April 1952.

Contract NObsr-63486, dated 30 June 1953.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 0A2WA	(3) 12AX7
(1) 4-65A	(10) 5654/6AK5W
(5) 5749/6BA6W	(2) 6C4WA
(4) 0B2WA	(8) 2C51
(2) 4B32	(5) 5686
(6) 5750/6BE6W	(1) 6E5
(2) 0D3W	(4) 3B28
(2) 4D21	(1) 5725/6AS6W
(2) 5933WA	(2) 6SJ7
(3) 12AU7	(1) 4-400A
(4) 5R4WGB	(7) 5726/6AL5W
(3) 6AG7Y	(2) 6X4WA

Total Tubes: (83)

(2) 1N70

Total Crystals: (2)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91963, Technical Manual for Radio Transmitting Set AN/FRT-17.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

April 1958

RADIO TRANSMITTING SET

AN/FRT-17

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter AN/FRT-17	113.5	44-3/4 X 51-1/2 X 87-1/8	2350
1	Tubes	4.1	15-7/8 X 18-1/2 X 23-1/2*	60
1	Set of Equipment Spares	4.1	14-3/8 X 17-7/8 X 26-1/2	121

NOTES: *Dimensions for domestic shipments are 13-3/4 in. by 16-3/8 in. by 21-3/8 in.

EQUIPMENT SUPPLIED DATA

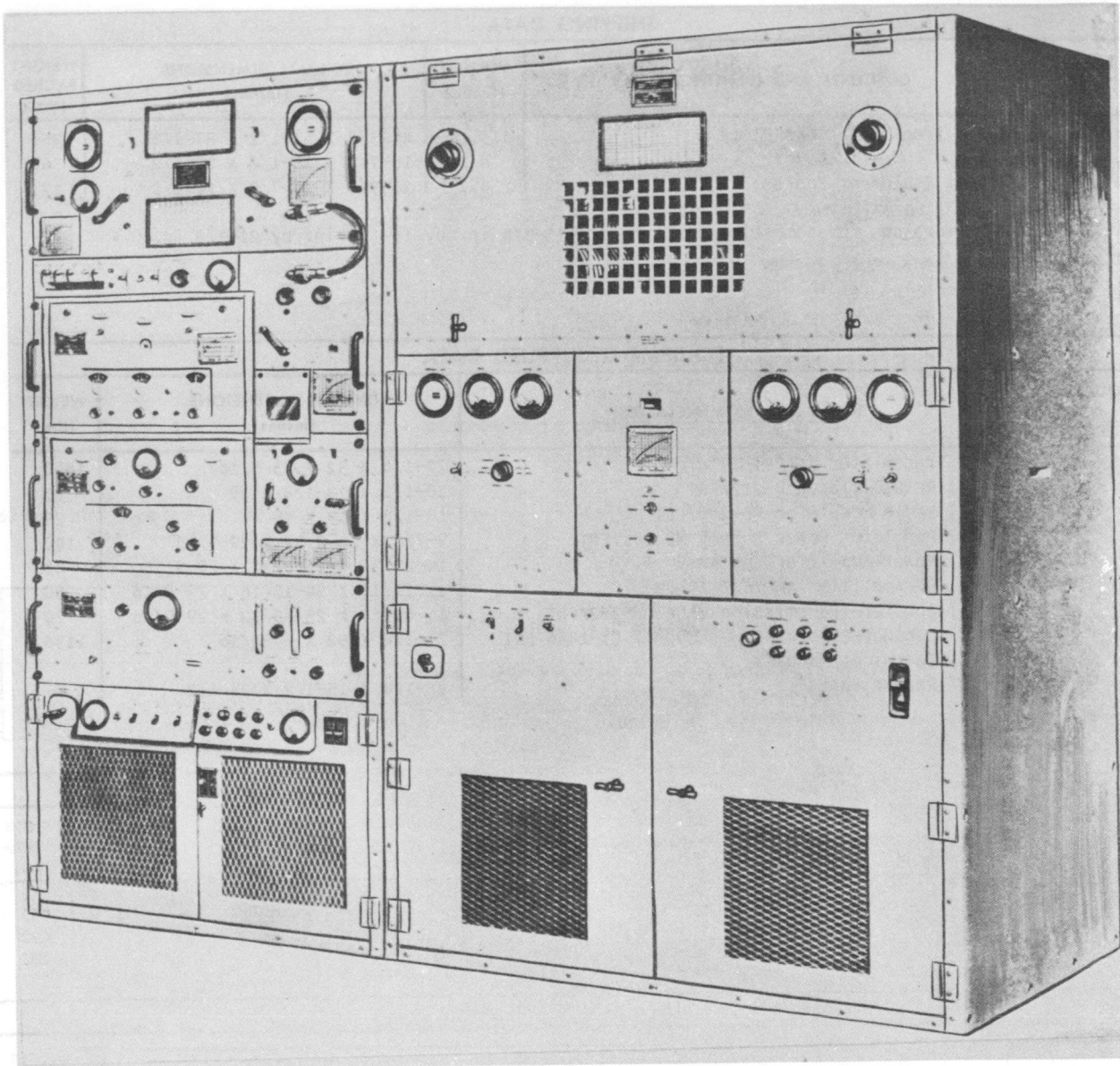
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter AN/FRT-17 c/o	27-1/4 X 32 X 73-5/16	1500
	(1) RF Oscillator O-212/FRT	10-1/2 X 13-1/8 X 19	35
	(1) Radio Modulator MD-200/FRT	10-1/2 X 13 X 19	29
	(1) Modulator Power Supply MD-201/FRT	9-7/8 X 24-9/32 X 29-9/16	140
	(1) Power-Amplifier Sub Assy	14-29/32 X 25-5/32 X 29-9/16	40
	(1) RF Amplifier AM-766/FRT-23	11-11/16 X 24-15/16 X 29-9/16	50
	(1) Coupler-Transmission Line CU-362/FRT	11-49/64 X 25-13/32 X 29-9/16	70
	(1) Cabinet-Control Power Supply CY-1436/FRT	27-1/4 X 32 X 73-5/16	1136
	(2) Technical Manuals		
1	Set of Repair Parts	12-1/4 X 15-1/2 X 24-1/2	77

April 1958

RADIO TRANSMITTING SET

Radio-Transmitters

AN/FRT-18



Radio Transmitting Set AN/FRT-18

FUNCTIONAL DESCRIPTION

The AN/FRT-18 is a 3.0 kw unit designed for off-on keying and frequency-shift keying over a frequency range of 2 to 30 mc. It is designed as shore-based equipment with its principal function to effect communication from shore to ship or point to point. The unit contains a 500 W driver and a 3.0 kw power amplifier. The 500 W driver may be used

as a transmitter independently of the 3.0 kw amplifier. As a transmitter, the driver may be operated with off-on Keying, frequency-shift Keying, modulated CW, or voice-modulated phone of the frequency range of 2 to 30 mc. Facilities are provided to reduce the operating power of the driver and final PA to 1/2 or 1/4 of normal power.

Data on this sheet reflects the following field changes: FC 1 and FC 2.

Radio-Transmitters

AN/FRT-18

RADIO TRANSMITTING SET

April 1958

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (10)
Crystals CR-27/U, (1) Headset, (1) Remote
Control Unit, (1) Telegraph Key, (1) Photo
Printer, (1) Teleprinter.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 30 mc.
FREQUENCY MULTIPLICATION: 2 to 8 times.
FREQUENCY MULTIPLIER RANGE
FIRST: 2 to 15 mc.
SECOND: 2 to 30 mc.
TYPE FREQUENCY CONTROL: Crystal or stabil-
ized oscillator.
TYPE EMISSION: A1, A2, A3, F1, F2, and F4.
KEYING SPEED: Up to 600 wpm for off-on or
frequency shift. Up to 100 wpm for MCW.
POWER OUTPUT: 500 W (driver only), 3 W (dri-
ver plus final PA).
POWER SOURCE REQUIRED: 115 or 230 v $\pm 10\%$,
single ph, driver; 230 v $\pm 10\%$, 3 ph, final
power amplifier; 50 to 60 cps $\pm 5\%$.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Co, Clifton,
N.J.
Contract NObsr-57351, dated 30 April
1952.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 4-1000-A	(2) 4D21
(1) 4-65A	(1) 4-400A
(5) 5686	(1) 6AS6
(2) OD3W	(10) 6AK5W
(6) 6BE6	(5) 6BA6
(6) 6AL5W	(2) 6SJ7
(1) 6X4	(3) 6AG7
(4) 807	(2) 12AU7
(3) 12AX7	(1) 6C4
(1) 6C4W	(6) 3B28
(8) 4B32	(5) 5R4WG
(3) OA2	(2) OB2
(8) 2C51	(1) 6E5

Total Tubes: (91)

No Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92018: Technical Manual for Radio
Transmitting Set AN/FRT-18.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

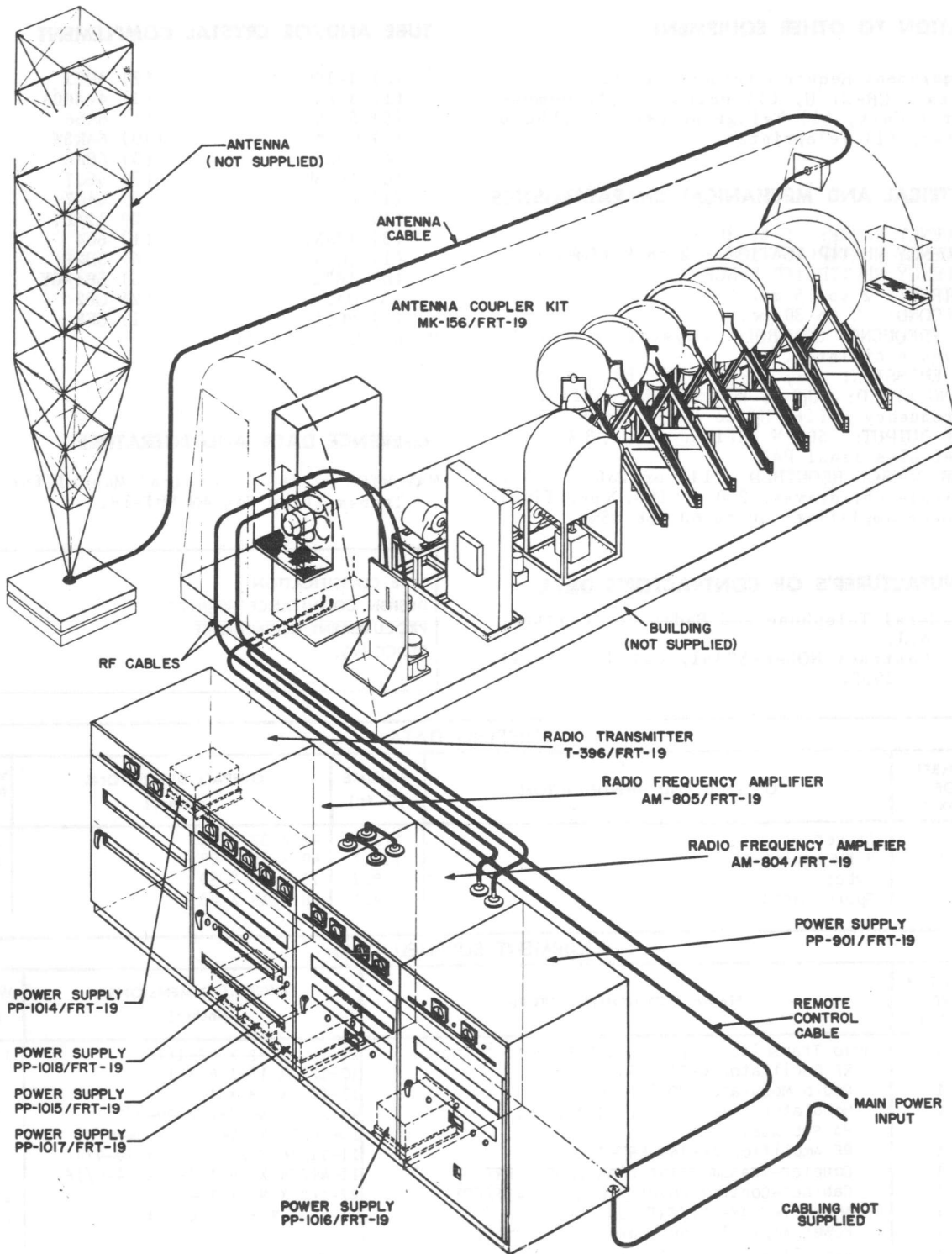
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Driver	111.2	42 X 52 X 88	2250
1	3 KW Amplifier	139.7	49 X 56 X 88	2750
1	Tubes	8.7	16 X 24 X 39	120
1	Spare Parts	9.1	18 X 19 X 46	150

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter Driver AN/FRT-18 contains:		
1	RF Oscillator O-212/FRT	27-1/4 X 32 X 73-1/16	1500
1	Radio Modulator MD-200/FRT	10-1/2 X 13-1/8 X 19	35
1	Modulator-Power Supply MD-201/FRT	10-1/2 X 13 X 19	29
1	PA Sub Assy	9-7/8 X 24-9/32 X 29-7/8	140
1	RF Amplifier AM-766/FRT-23	14-29/32 X 25-5/32 X 29-9/16	40
1	Coupler-Transmission Line CU-362/FRT	11-11/16 X 24-15/16 X 29-9/16	50
1	Cabinet-Control-Power Supply CY-1436/FRT	11-49/64 X 25-13/32 X 29-9/16	70
1	RF Amplifier AM-897/FRT consists of:	27-1/4 X 32 X 73-1/16	1136
1	Power Amplifier and output Ckt. Shelf	30 X 46-3/32 X 74-1/4	2000
1	Control and Motor Shelf		
1	Power Supply and Control Shelf		
2	Technical Manuals		
1	Maintenance Repair Parts Kit		123

RADIO TRANSMITTING SET

AN/FRT-19



Radio Transmitting Set, AN/FRT-19

AN/FRT-19

RADIO TRANSMITTING SET

September 1956

FUNCTIONAL DESCRIPTION

The AN/FRT-19 is a shore-based, low frequency radio communication transmitter. The equipment is a continuous-wave transmitter used primarily in shore to ship communications under widely varying climatic conditions.

Contract NObsr-52585, dated 20 June 1951.

Approximate Cost: \$66,000.00

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 30.0 to 600 kc.

FREQUENCY BANDS

BAND 1: 30 to 48 kc.

BAND 2: 48 to 78 kc.

BAND 3: 78 to 130 kc.

BAND 4: 130 to 215 kc.

BAND 5: 215 to 355 kc.

BAND 6: 355 to 600 kc.

PRE-SET FREQUENCIES: 10.

TYPE OF EMISSION: A1, A2, F1, F2, F4.

TYPE OF CONTROL: Crystal.

FREQUENCY ACCURACY AND STABILITY: ± 3 cps,
at 30.0 kc; ± 20 cps, at 600.0 kc.

OUTPUT IMPEDANCE: 600 ohms.

INPUT POWER: 230 v, 3 ph, 50 or 60 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(7) OB2	(4) 3B28	(2) 3X2500F3
(12) 4B32	(2) 4-1000A	(4) 5R4GY
(2) 6005	(1) 6AS7G	(7) 6AU6
(1) 6BC5	(6) 6BH6	(8) 5654
(20) 5670	(21) 5725	(1) 5814

Total Tubes: (98)

(2) H-17 (24) IN34A

(10) Operating Crystals (not supplied)

Total Crystals: (36)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92117: Technical Manual for Radio Transmitting Set AN/FRT-19.

MANUFACTURER'S OR CONTRACTOR'S DATA

Sierra Electronic Corp. & Mfg. Co., San Carlos, California

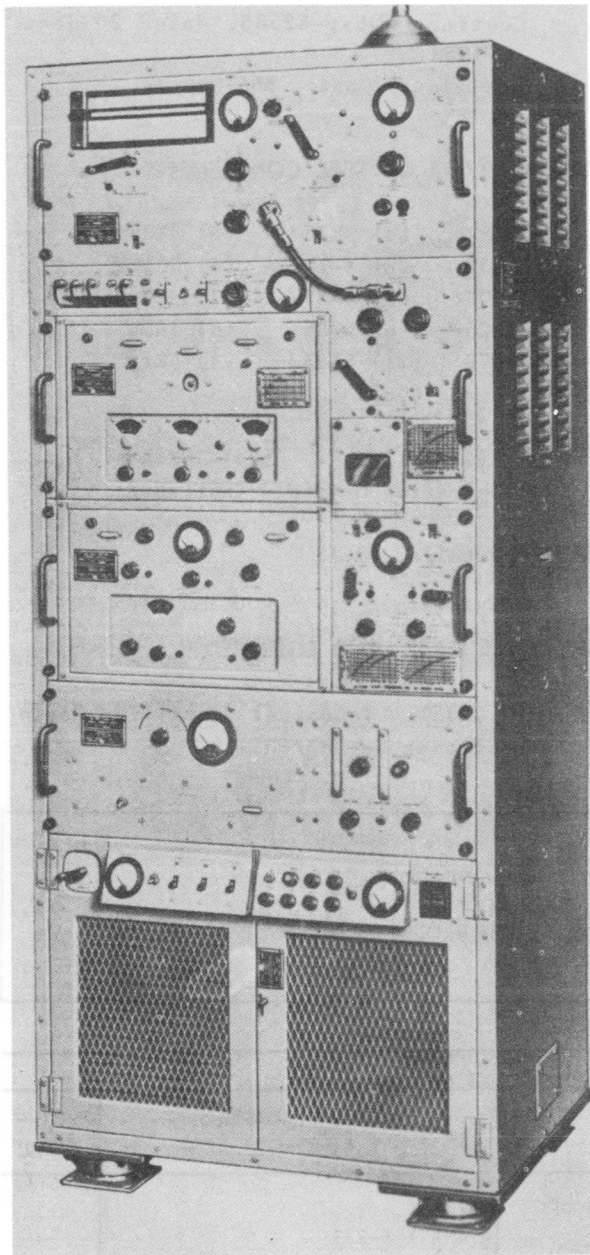
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set AN/FRT-19 consisting of:		
1	Radio Transmitter T-396/FRT-19 including: Power Supply PP-1014/FRT-19	4 X 4 X 6-2/3	
1	Radio Frequency Amplifier AM-805/FRT-29 including: Power Supply PP-1015/FRT-19 Power Supply PP-1018/FRT-19 Power Supply PP-1017/FRT-19	4 X 4 X 6-2/3	
1	Radio Frequency Amplifier AM-804/FRT-19 including: Power Supply PP-1016/FRT-19	4 X 4 X 6-2/3	
1	Power Supply PP-901/FRT-19	4 X 4 X 6-2/3	
1	Antenna Coupler Kit MK-156/FRT-19	8 X 8 X 25	

April 1959

Radio-Transmitters

RADIO TRANSMITTING SET**AN/FRT-23**

Radio Transmitting Set AN/FRT-23

FUNCTIONAL DESCRIPTION

The AN/FRT-23 is designed for ship or shore-based communication service. The set is capable of providing an output of 400 to

600 watts of continuous-wave radiotelegraph, frequency-shift telegraph, facsimile transmission or radiotelephone on any frequency from 2.0 to 30 megacycles (mc). The principal function of the equipment is to effect communication from ship to shore or point to point.

Data on this sheet reflects the following field changes: No. 1.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(10) CR-27/U Crystals (2 to 3.75 mc), (1) Headset, (1) Microphone N.T. 51004C, (1) Remote Control Unit, (1) Test Key, (1) Photo Printer, (1) Teleprinter.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: A-1 (carrier on-off); A-2 (modulated continuous wave); Frequency shift; A-3 (Radiotelephone).

TYPE OF FREQUENCY CONTROL: Crystal or stabilized oscillator.

KEYING SPEED: Up to 500 WPM for either off-on or frequency-shift emission. Up to 50 WPM for MCW.

HEAT DISSIPATION: Approximately 2,000 W.

POWER FACTOR OF EQUIPMENT

STAND-BY: 84%.

NOMINAL OPERATION: 87%.

INPUT POWER

OPERATE

A-1 and FSK: 3,200 W.

A-2 and A-3: 3,500 W.

STAND-BY

A-1 and FSK: 1,000 W.

A-2 and A-3: 1,000 W.

FREQUENCY MULTIPLIER RANGE: 2 to 8.

FIRST FREQUENCY MULTIPLIER: 2 to 15 mc.

SECOND FREQUENCY MULTIPLIER: 2 to 30 mc.

FREQUENCY RANGE: 2 to 30 mc.

OPERATING POWER RQMT: 115 or 230 v, 50 to 60 cps, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp., Clifton, New Jersey.

Contract TCG-38329(CG-18,212C), dated 20 November 1950.

Contract TCG-38850(CG-22,146A), dated 19 February 1952.

Radio-Transmitters

AN/FRT-23

RADIO TRANSMITTING SET

TUBE AND/OR CRYSTAL COMPLEMENT

REFERENCE DATA AND LITERATURE

(2) 4D21	(1) 4-65A	(1) 4-400A
(5) 5686	(1) 6AS6	(2) OD3W
(10) 6AK5W	(6) 6BE6	(5) 6BA6
(4) 6AL5	(2) 6SJ7	(1) 6X4
(3) 6AG7	(4) 807	(3) 12AU7
(3) 12AX7	(1) 6C4	(4) 3B28
(2) 4B32	(4) 5R4WGY	(3) OA2
(2) OB2	(8) 2C51	(1) 6E5

CG-273-6: Technical Manual for Radio Transmitting Set AN/FRT-23.

Total Tubes: (78)

No Crystals used.

TYPE CLASSIFICATION
DESIGN COGNIZANCE U.S. COAST GUARD
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

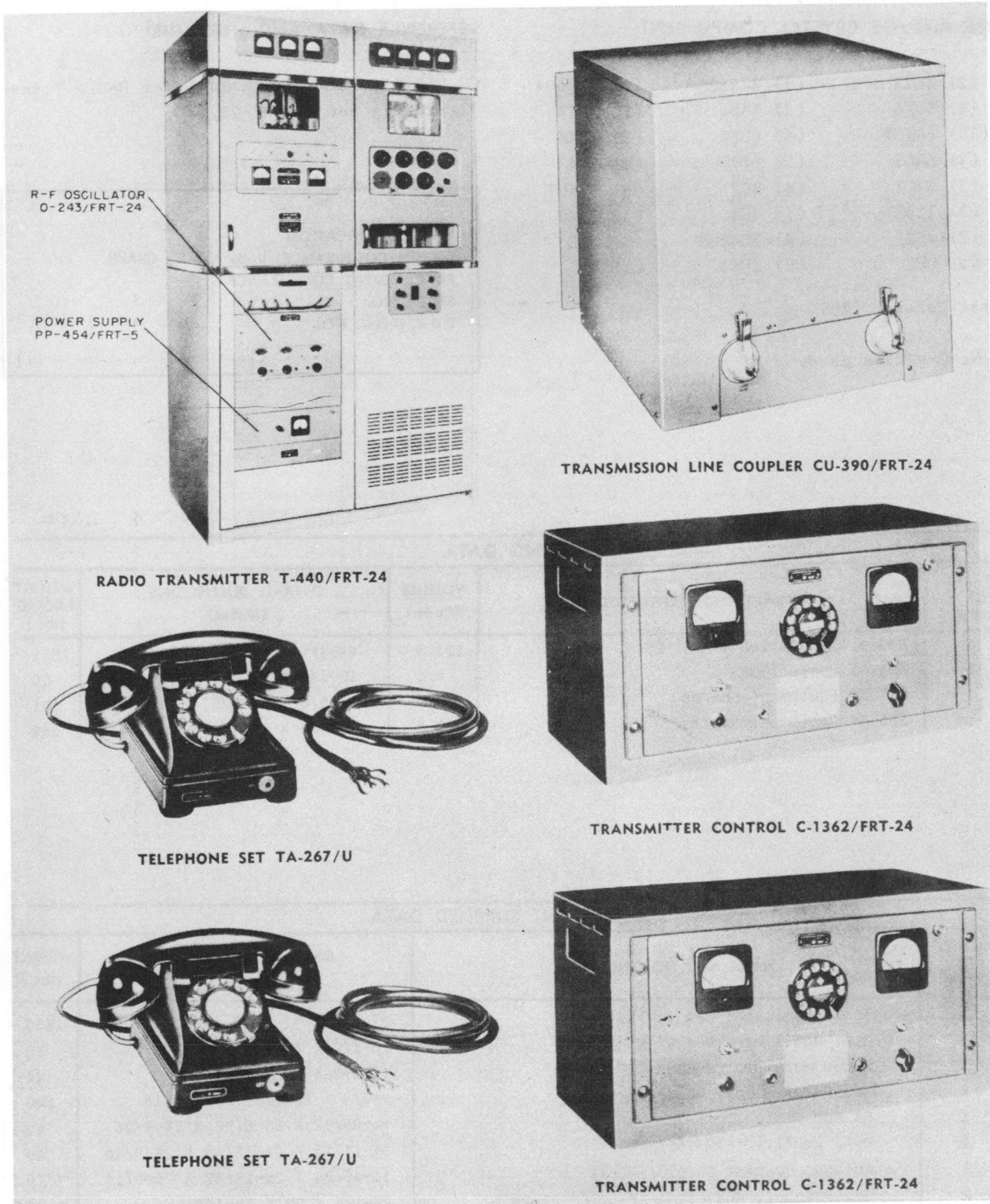
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter AN/FRT-23	121.5	44-3/4 X 51-1/2 X 93-1/2	2350
1	Set of Spare Tubes	4.1	15-7/8 X 18-1/2 X 23-1/2	60
1	Set of Equipment Spares	9.0	17-5/8 X 18-7/8 X 45-3/4	141
1	Set of Equipment Spares	9.0	17-5/8 X 18-7/8 X 45-3/4	149

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set Including:	27-1/4 X 32 X 79-1/16	1500
1	R.F. Oscillator O-179/FRT-23	10-1/2 X 13-1/8 X 19	35
1	Radio Modulator MD-182/FRT-23	10-1/2 X 13 X 19	29
1	Mod-Power Supply MD-183/FRT-23	9-7/8 X 24-9/32 X 29-9/16	140
1	PA Sub Ass'y	14-29/32 X 25-5/32 X 29-9/16	40
1	R.F. Amplifier AM-766/FRT-23	11-11/16 X 24-15/16 X 29-9/16	50
1	Antenna Coupler CU-329/FRT-23	11-49/64 X 25-13/32 X 29-9/16	70
1	Cab-P-Supply and Frame CY-1276/FRT-23	27-1/4 X 32 X 79-1/16	1136
2	Technical Manual AN/FRT-23	3/4 X 9 X 11-1/2	
1	Set of Equipment Spares		200

RADIO TRANSMITTING SET

Radio-Transmitters AN/FRT-24



Radio Transmitting Set AN/FRT-24

Radio-Transmitters

AN/FRT-24**RADIO TRANSMITTING SET**

April 1958

FUNCTIONAL DESCRIPTION

The AN/FRT-24 is designed for shore-to-ship, ground station-to-aircraft, point-to-point or in any other similar communication application. It provides a maximum output of one kilowatt when operating continuous wave radio telegraph (CW) or radiotelephone (MCW) on any frequency within the range of 2 to 30 mc. The principal function of the equipment is to provide reliable communication for shore-station installations under wide variations in climatic conditions. The operation of the AN/FRT-24 is based upon the principle of generating, at an exact submultiple of the desired output frequency, a stable, low power, radio-frequency (RF) signal; multiplying the frequency; and amplifying the power of this signal to produce the desired radio frequency carrier. This carrier is then interrupted or modulated, in accordance with the intelligence to be transmitted. The resultant RF energy is then radiated from a suitable antenna. A nine channel crystal controlled oscillator within the RF assembly is normally used to supply the low power, low frequency excitation. However, with modifications to the equipment, one, two or three frequency shift oscillator assemblies may be incorporated in the RF assembly, to supply this excitation. The excitation signal may also be supplied from RF Oscillator O-243/FRT-24, through a connector on a patch panel provided for that purpose.

No field changes in effect at time of preparation (23 January 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Telegraph Key, (1) Microphone, Crystal Oven and Crystal Units CR-18/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQ RANGE: 2 to 30 mc.

NUMBER OF CHANNELS: 9.

NUMBER OF BANDS: 8.

BAND VERSUS FREQ DATA

BAND 1: 2 to 3 mc.

BAND 2: 3 to 4 mc.

BAND 3: 4 to 6 mc.

BAND 4: 6 to 8 mc.

BAND 5: 8 to 12 mc.

BAND 6: 12 to 16 mc.

BAND 7: 16 to 24 mc.

BAND 8: 24 to 30 mc.

FREQ CONTROL: Crystal or stabilized OSC.

EMISSION: A1, A3.

KEYING SPEED: 600 wpm (240 dot cycles per sec).

NOM CARRIER OUTPUT: A1 and A3; 250 W, 500

W or 1000 W into a 600 ohm load, with a max SWR of 2 to 1.

FREQ STABILITY

EXTAL OSCILLATOR: 0.003%.

RF OSCILLATOR: 0.004% \pm 240 cps.

DISTORTION: Less than 5% total harmonic distortion at 1000 cps and 90% modulation when clipping is not used.

NOISE: 40 db max below 100% modulation.

POWER SOURCE REQUIRED: 208 or 230 v \pm 10%, 50 to 60 cps \pm 5%, single ph.

INPUT POWER

STANDBY: 20 W.

FILAMENTS (CW) 900 W.

FILAMENTS ON (PHONE): 1000 W.

CARRIER ON: (PHONE) (no modulation): 3700 W.

CARRIER ON (PHONE) (100% modulation): 4500 W.

AMBIENT TEMP RANGE: 0 deg C (32 deg F) to 50 deg C (122 deg F).

RELATIVE HUMIDITY: 95% max.

ELEVATION: 10,000 ft above sea level.

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.
Contract NObsr-57357 dated 9 May 1952.

TUBE AND/OR CRYSTAL COMPLEMENT

(6) OA2WA	(1) 4-1000A
(3) 5R4WGB	(2) 5726/6AL5W
(10) 5814A	(1) OB2WA
(2) 4-400A	(4) 5Y3WGTB
(4) 5749/6BA6W	(2) 6SJ7Y
(10) 12AT7WA	(1) 4-65A
(4) 5654/6AK5W	(5) 5750/6BE6W
(2) 6X4WA	(2) 3B28
(2) 4B32	(5) 5686
(7) 5763	

Total Tubes: (73)

(2) 1N69 (2) CK705(RAY) (1) G9(KN)

Total Crystals: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92223(A), Technical Manual for Radio Transmitting Set AN/FRT-24.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

April 1958

RADIO TRANSMITTING SET

AN/FRT-24

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-440/FRT-24	31-3/4 X 46-7/8 X 83	1500
1	RF Oscillator O-243/FRT-24	10-15/32 X 16-13/16 X 18-3/16	33
1	Power Supply PP-454/FRT-5	8-3/4 X 15-1/8 X 19	88
2	Transmitter Control C-1362/FRT-24	10-7/8 X 11 X 21-1/8	50
1	Transmission Line Coupler CU-390/FRT-24	20-1/8 X 20-1/4 X 23	90
2	Telephone Set TA-267/U	5-1/8 X 5-1/2 X 7-1/2	4

April 1958

RADIO TRANSMITTING SET

AN/FRT-25

FUNCTIONAL DESCRIPTION

The AN/FRT-25 is intended for use at Naval shore installations to provide a complete transmitting facility for point-to-point communication, aeronautical ground stations and other services requiring operation on a single frequency. It is capable of continuous operation on continuous-wave, phototransmission, or frequency shift keying, with phase modulation if desired, in the 12 to 26 megacycle frequency range. It will operate on any frequency in the specified range, selected manually from ten crystals or one master oscillator.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Antenna and RF Transmission Line (2) Transmission Line Current Meter, (1) Keyer Adapter KY-44()/FX as Required, (1) Master Oscillator as Required, Remote Control Cables as Required, (1) Remote Transfer Switch as Required, Crystals as Required.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 30 mc.
 FREQUENCY CONTROL: Crystal or master oscillator.
 EMISSION: A1, F1, photo-transmission.
 POWER OUTPUT (NOMINAL)
 2 TO 12 MC: 3000 W.
 12 TO 26 MC: 2500 W.
 26 TO 30 MC: 2000 W.
 TYPE FREQUENCY SHIFT CIRCUIT: Reactance modulated oscillator
 OSCILLATOR FREQUENCY: 200 kc.
 DEVIATION: 0 to ± 1000 cps.
 DEVIATION RESPONSE: Linear with respect to DC input voltage, within 5%.
 STABILITY: Within 5% above 200 cps, 10 cps below frequency shift.
 PHASE MODULATION DATA
 FREQUENCY: 200 cps $\pm 5\%$.
 DISPLACEMENT AT ANTENNA: 1 ± 0.1 radian.
 PHOTOTRANSMISSION INPUT SIGNAL
 PEAK MAGNITUDE: +1 to +20 v.
 INPUT IMPEDANCE: 600 ohms $\pm 10\%$.
 MAX DEVIATION
 ZERO SIGNAL: -1000 cps.
 PEAK SIGNAL: +1000 cps.
 RESPONSE
 STATIC: Linear within 5% with respect to an input signal, over a 30 db range below any value between +1 to +20 v DC.
 DYNAMIC: Peak of any AC signal voltage of 0 to 2000 cps is within 2 db of DC voltage to cause same deviation.
 KEYING DATA

TYPE: Polar or neutral.
 RANGE: 30 to 135 v DC.
 CONTROL: Local.
 CIRCUIT: Electronic.
 KEYING SPEED: 500 wpm max for CW on-off or Frequency Shift.
 OUTPUT IMPEDANCE: 600 ohms.
 VSWR: 2 to 1.
 RF OSCILLATOR O-140B/FRT-15.
 FREQUENCY RANGE: 1800 to 4000 kc.
 TYPE CIRCUIT: Crystal controlled harmonic generator, with an interpolation oscillator, mixers, and filters.
 FREQUENCY CALIBRATION: Within 30 cps when set up on 4 direct-reading dials.
 OPERATING CONDITIONS
 AMBIENT TEMPERATURE RANGE: 0 to 50 deg C.
 RELATIVE HUMIDITY: 95% max.
 POWER REQUIREMENTS: 220 v, 50 to 60 cps, 3 ph, 7.8 kw.
 HEAT DISSIPATION: Approx 5000 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radiomarine Corp of America, New York, New York.
 Contract NObsr-63405, dated 8 June 1953.
 Approximate Cost: \$2565.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) OC3W	(2) OD3W	(1) 2AS15
(8) 4B32	(1) 4D21	(2) 4-1000A
(5) 5R4WGY	(1) 5Y3WGTB	(2) 6AG7
(1) 5654	(2) 6005	(2) 6AS7G
(2) 6AU6WA	(6) 5749	(8) 5750
(1) 6J6	(1) 6K6GT	(2) 6SL7WGT
(2) 6SN7WGT	(1) 6V6	(23) 12AU7
(1) 809	(3) 12AX7	(4) 807
Total Tubes: (85)		
(2) 1N38A	(2) 1N56A	
(1) CR-26/U	(10) CR-27/U	
Total Crystals: (15)		

REFERENCE DATA AND LITERATURE

NAVSHIPS 92431: Technical Manual for Radio Transmitting Set AN/FRT-25.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE SHIPS-T-1099

STOCK NO.

AN/FRT-25

RADIO TRANSMITTING SET

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Keyer-Power Supply Group OA-708/FRT-25	174	54 X 55 X 102	2045
1	Power Supply Group OA-206B/FRT-15	174	54 X 55 X 102	2245
1	Doors for OA-206B/FRT-15 including: Miscellaneous Parts	29	15 X 33 X 102-1/2	350
1	Radio Transmitter Group OA-205B/FRT-15	174	54 X 55 X 102	1995
1	Set of Operating Tubes	17.5	23 X 27-1/2 X 48	155
1	Equipment Spares	10.2	22 X 23 X 35	135
1	Equipment Spares	10.2	22 X 23 X 35	140
1	Equipment Spares	10.2	22 X 23 X 35	130

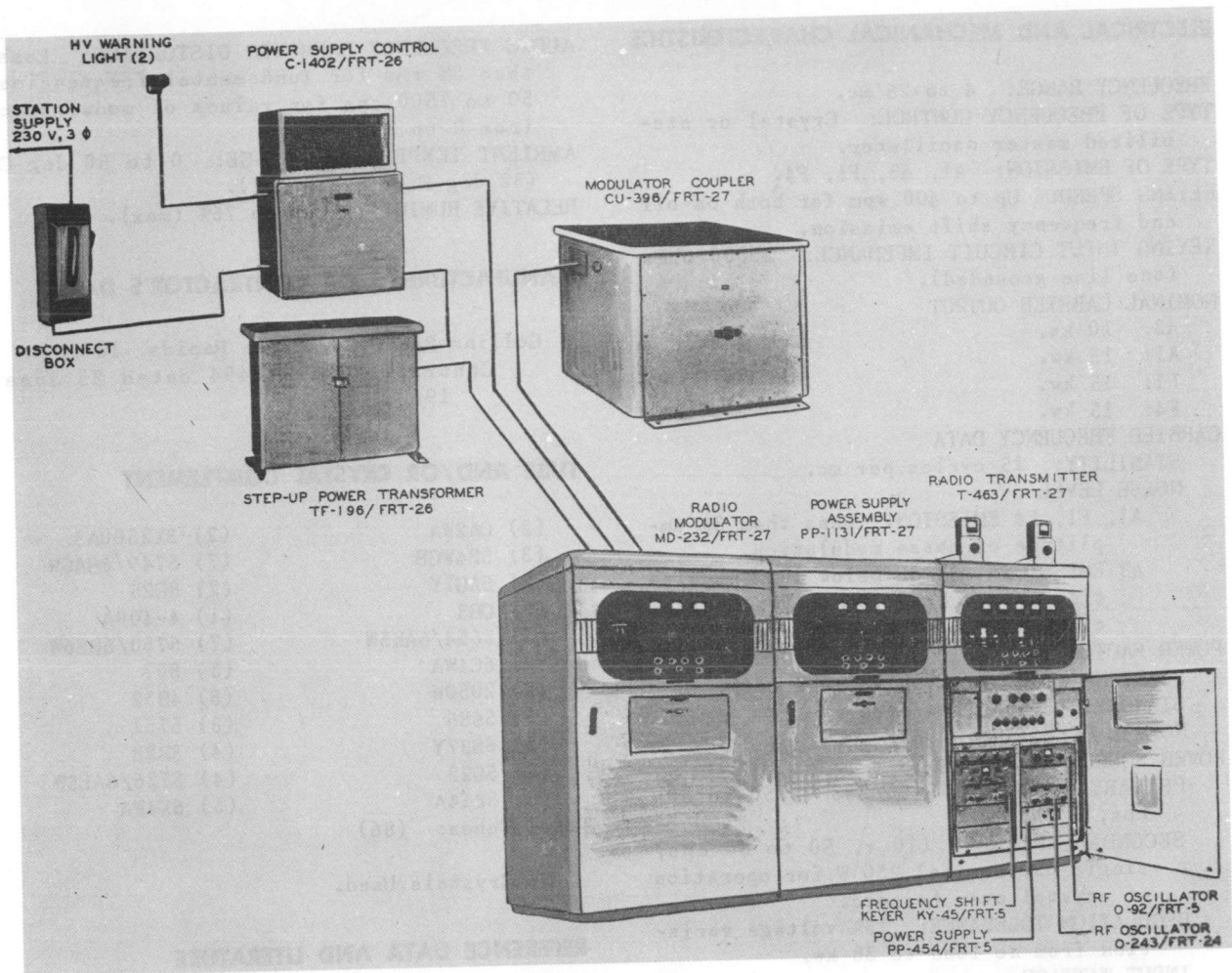
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer-Power Supply Group OA-708/FRT-25 consisting of:	28-15/16 X 31 X 83-15/16	875
	Electrical Equipment Cabinet	28-15/16 X 31 X 83-15/16	597
	CY-1612/FRT-25		
	Signal Data Converter CV-165A/FRT-15	3-15/32 X 8-15/16 X 19	8
	Voltage Regulator CN-143B/FRT-15	8-23/32 X 8-7/8 X 19	95
	Power Supply PP-631B/FRT-15	8-23/32 X 16 X 19	78
	Keyer KY-70B/FRT-15	10-15/32 X 16-1/4 X 19	46
	Power Supply PP-1157/FRT-25	10-15/32 X 16-3/4 X 19	51
1	Radio Transmitter Group OA-205B/FRT-15 consisting of:	28-15/16 X 31 X 86-15/16	875
	Cabinet-RF Amplifier CY-1613/FRT-25	28-15/16 X 31 X 83-15/16	609
	Amplifier-Oscillator AM-483B/FRT-15	11-3/8 X 25-3/16 X 30-1/8	80
	RF Oscillator O-140B/FRT-15 consisting of:	10-15/32 X 19 X 20-15/32	70
	Frequency Selector-Mixer CV-276/FRT-15A	4-3/8 X 6 X 14	8
	Frequency Selector-Mixer CV-275/FRT-15A	3-13/16 X 6-9/16 X 16-5/16	8
	Frequency Selector C-1245/FRT-15A	3-13/16 X 6-3/4 X 16-5/16	9
	Band Pass Filter F-105A/FRT-15	3-1/2 X 3-3/4 X 14	7
	Harmonic Generator O-206/FRT-15A	3-7/8 X 6 X 13-1/2	4
	Filter-Mixer F-104A/FRT-15	3 X 3-1/2 X 10-3/16	2
	Oscillator Assembly O-141A/FRT-15	5 X 7 X 13-13/16	12
1	Power Supply Group OA-206B/FRT-15 consisting of:	25-15/16 X 31 X 83-15/16	1175
	Cabinet-Power Supply CY-933B/FRT-15	25-15/16 X 31 X 83-15/16	1040
	Power Supply PP-633B/FRT-15	8 X 9-1/8 X 25-7/16	43
	Power Supply PP-632B/FRT-15	11-5/8 X 16 X 25-1/2	92
1	Set of Interconnecting and Accessory Items		
1	Equipment Spares	15 X 15 X 24	75
1	Equipment Spares	15 X 15 X 24	80
1	Equipment Spares	15 X 15 X 24	70
2	Technical Manual NAVSHIPS 92431	1 X 8-1/2 X 11	9.5

April 1958

RADIO TRANSMITTING SET

AN/FRT-27



Radio Transmitting Set AN/FRT-27

FUNCTIONAL DESCRIPTION

The AN/FRT-27 is designed for shore base radiotelegraph, radiotelephone, radioteletype or facsimile operation in the frequency range 4 to 26 mc. The radio transmitting set provides 15 kw of power output on radiotelegraph, radioteletype and facsimile operation and 10 kw of power output on radiotelephone operation. The radio transmitter can be keyed at speeds up to 400 wpm. The output circuit works into a balanced 2-wire transmission line having an impedance of 600 ohms with a standing-wave-ratio of 2 to 1 maximum. The principal function of the radio transmitting set is to effect reliable communication from shore-to-ship or point-to-point.

The radio transmitting set contains circuits which provide for A1, A3, F1 and F4 emission. With some modification in the power amplifier circuits the radio transmitting set will operate as a power amplifier for a single side band transmitter. For single-side band emission (A3a) the radio transmitting set provides 8 kw of power output.

No field changes in effect at time of preparation (28 February 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Antenna, 600 ohm impedance, 4 to 26 mc and Crystal Units CR-27/U, 2 to 4.5 mc.

AN/FRT-27

RADIO TRANSMITTING SET

April 1958

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4 to 26 mc.
 TYPE OF FREQUENCY CONTROL: Crystal or stabilized master oscillator.
 TYPE OF EMISSION: A1, A3, F1, F4.
 KEYING SPEED: Up to 400 wpm for both on-off and frequency shift emission.
 KEYING INPUT CIRCUIT IMPEDANCE: 25000 ohms (one line grounded).
 NOMINAL CARRIER OUTPUT
 A3: 10 kw.
 A1: 15 kw.
 F1: 15 kw.
 F4: 15 kw.

CARRIER FREQUENCY DATA

STABILITY: ± 5 cycles per mc.
 NOISE LEVEL

A1, F1, F4 EMISSION: Less than 3% amplitude or phase modulation.

A3 EMISSION: 50 db below 100% modulation over a band 70% to 90% modulation.

POWER FACTOR

STARTING: 82.5% (high voltage off).

STANDBY: 80.5% (key open).

NORMAL OPERATION: 96%.

POWER SOURCE REQUIREMENTS

PRIMARY POWER: 207 to 253 v, 50 to 60 cps, 3 ph.

SECONDARY POWER: 110 v, 50 to 60 cps, single ph, nominal 250 W for operation of crystal oven heaters.

REGULATION TOLERANCE: $\pm 5\%$ voltage variation from no load to 38 kw.

INPUT WATTAGE

3.3 KW: High voltage off.

4.5 KW: A1, key up.

25 KW: A1, key down and A3 unmodulated.

35 KW: A3, 100% modulated.

MODULATION CAPABILITY: 100%.

AUDIO INPUT LEVEL: 10 ± 2 dbm into 150/600 ohm input impedance for 100% modulation.

AUDIO FREQUENCY RESPONSE: Equal to or better than 2 db between 150 and 7500 cps and ± 4 db from 50 to 10000 cps.

AUDIO FREQUENCY HARMONIC DISTORTION: Less than 5% rms for fundamental frequencies 50 to 7500 cps for values of modulation from 0 to 90%.

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

RELATIVE HUMIDITY: Up to 75% (max).

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co, Cedar Rapids, Iowa.
 Contract NObsr-63494 dated 25 June 1953.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 0A2WA	(2) 3X2500A3
(3) 5R4WGB	(7) 5749/6BA6W
(2) 6AG7Y	(2) 8C25
(2) 0B3	(1) 4-400A
(5) 5654/6AK5W	(7) 5750/6BE6W
(2) 6C4WA	(3) 807
(2) 2050W	(8) 4B32
(5) 5686	(8) 5751
(2) 6SJ7Y	(4) 3B28
(2) 5D22	(4) 5726/6AL5W
(8) 5814A	(5) 6X4WA

Total Tubes: (86)

No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92501, Technical Manual for Radio Transmitting Set AN/FRT-27.

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 Modulator MD-232/FRT-27	172	53 X 61 X 92	2205
1	Radio Transmitter T-463/FRT-27 incl (1) RF Oscillator O-92/FRT-5	172	53 X 61 X 92	1850

April 1958

RADIO TRANSMITTING SET

AN/FRT-27

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Power Supply Assembly PP-1131/FRT-27	172	53 X 61 X 92	1880
1	Modulator Coupler CU-396/FRT-27	53	41 X 48 X 49	2700
1	Step-Up Power Transformer TF-196/FRT-26	30	27 X 40 X 50	990
1	Side Covers	17	9 X 40 X 85	380
1	Top Covers	13	12 X 40 X 48	240
1	Power Supply Control C-1402/FRT-26	16	18 X 35 X 46	500
1	Transformer	5	17 X 18 X 26	350
1	Transformer	3	14 X 16 X 17	108
1	Transformer	4	15 X 17 X 24	187
1	Transformer (2)	4	15 X 17 X 24	185
1	Disconnect Box	3	14 X 16 X 26	110
1	RF Oscillator O-243A/FRT-24 incl (1) Frequency Shift Keyer KY-45/FRT-5 (1) Power Supply PP-454/FRT-5	27	33 X 37 X 38	240
1	PA Antenna Coupler Assembly	22	25 X 34 X 46	330
1	Accessories	6	17 X 22 X 30	90
1	Resistors	6	17 X 22 X 30	170
1	Capacitors	6	17 X 22 X 30	70
1	Tubes and Capacitors	20	32 X 32 X 35	150
1	Installation Hardware Kit	13	21 X 31 X 35	100
1	Tubes	10	23 X 27 X 28	65

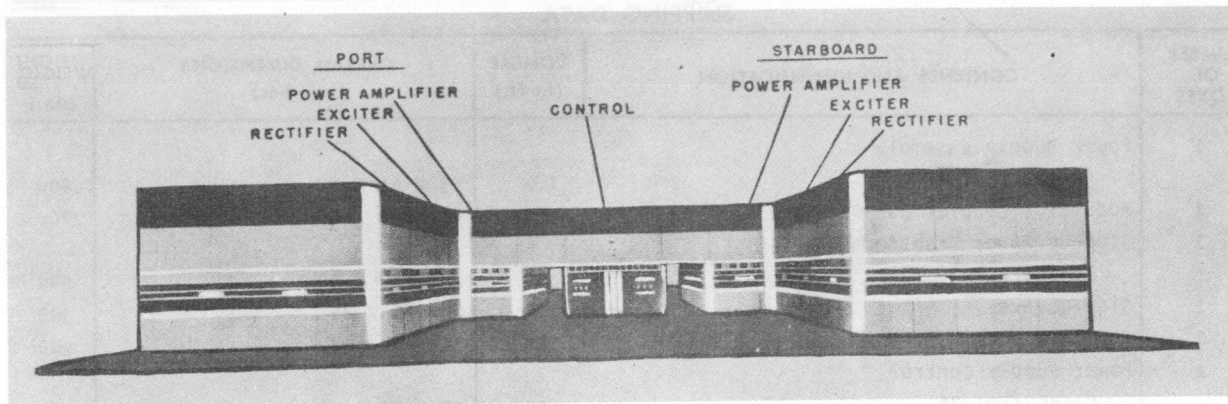
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-463/FRT-27	41-3/4 X 43-1/2 X 91-9/16	1943
1	Radio Modulator MD-232/FRT-27	41-3/4 X 43-1/2 X 79-5/16	1805
1	Power Supply Assembly PP-1131/FRT-27	41-3/4 X 43-1/2 X 79-5/16	1842
1	Modulator Coupler CU-396/FRT-27	33-1/8 X 38-1/8 X 41	1800
1	Step-Up Power Transformer TF-196/FRT-26	19-1/8 X 32 X 42	605
1	Power Supply Control C-1402/FRT-26	15-1/4 X 30-1/4 X 38-1/4	298
1	Radio Frequency Oscillator O-92/FRT-5	5-1/4 X 10-13/16 X 18-1/2	15
1	Radio Frequency Oscillator O-243A/FRT-24	10-15/32 X 16-13/16 X 18-3/16	33
1	Frequency Shift Keyer KY-45/FRT-5	10-1/2 X 15-1/2 X 18-1/2	29
1	Power Supply PP-454/FRT-5	8-3/4 X 15-1/8 X 18-1/2	88
1	Disconnect Box	9 X 11 X 17	50

December 1956

RADIO TRANSMITTER SET

Radio Transmitter

AN/FRT-3

Radio Transmitter Set AN/FRT-3

FUNCTIONAL DESCRIPTION

The AN/FRT-3 is a complete super-power shore transmitter designed for world-wide radio-telegraph and radio-teletype communication in the very low-frequency band. The equipment includes a basic transmitter combined with auxiliary power and cooling items, antenna tuning apparatus, and a suitable antenna-ground system. Either on-off or frequency-shift keying may be utilized for signaling.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Storage Battery (1) Trickle Charger, (8) Switch, Door Interlock, (2000 gal) Distilled Water, (1) Water Still, Electrical, (2) Set Miscellaneous Material, (1) Set Conduit and Wiring Devices, (1) Set Light Bulbs.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 14.5 to 35 kc.

TYPE EMISSION: CW telegraph or frequency-shift keying.

NOMINAL OUTPUT: 1140 kw

FREQUENCY STABILITY: 0.001%.

POWER REQUIREMENTS: 4160 v, 3 ph, 3 wire, 60 cps, 460 v, 3 ph, 3 wire, 60 cps, 115 v, 1 ph, 2 wire, 60 cps, 125 v DC, 240 amp-hour battery.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corp., of America, New York, N.Y.
Contract NObsr 39291, dated 23 June 1947.
Approximate Cost: \$30,000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OA3	(3) OC3	(3) OD3
(8) 2D21	(74) 2C51	(4) 3B28
(18) 4E27	(2) 5C22	(11) 5R4GY
(6) 5U4G	(8) 6AC7-W	(4) 6AK5
(4) 6AK6	(3) 6AL5	(2) 6AS6
(5) 6AS7-G	(2) 6B4-G	(1) 6E5
(3) 6H6	(1) 6J4	(2) 6J5
(6) 6SA7	(2) 6SH7	(2) 6SJ7
(4) 6SK7	(1) 6SL7	(10) 6SN7
(11) 6V6-GT	(1) 6X5-GT	(12) 807
(12) 870A	(4) 892R	(6) 2050
(2) GL5630	(24) RCA673	(22) RCA8008
(6) RCA5831		

Total Tubes: (283)
(54) IN43

Total Crystals: (54)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91652: Technical Manual for Radio Transmitting Set AN/FRT-3.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

December 1956

RADIO TRANSMITTER SET

UNCLASSIFIED
AN/FRT-3

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Frequency Generator for Monitor 0 0-146/FRT-3	18 X 49 X 72	36.8
2	Exciter Equipment		
2	Exciter Plate Transformer		
1	Power Amplifier (Port)		
1	Power Amplifier (Starboard)		
2	Main Rectifier		
2	Main plate transformer		
2	Main Filter Reactor and Dumping Resistor		
2	Series Current-Limiting Resistors		
1	DC Switch		
1	Supervisory Console		
1	Enclosure		
1	Shielding Compartment		
1	Switchgear and Control Equipment		
1	P.A. Test Load (Port)	24 X 60 X 90	
1	P.A. Test Load (Starboard)	24 X 60 X 90	
2	Automatic Tracking Unit		
1	Test Oscillator		
1	Set Antenna Variometers		
1	Set Antenna loading coils		
1	Set Helix House Material		
2	Pure Water Tank	72 dia X 84	
2	Water/Water Heat Exchanger	17 X 19 X 50	
4	Distilled Water Pump		
4	Raw Water Pump		
2	DC Emergency Pump		
2	Test Load Pump		
4	Blower		
4	Air/Water Heat Exchanger	92 X 95 X 111	
1	Piping, Water		
1	Cooling System Control Unit		
1	Installation Material		
1	Set Installation Drawings		
1	Set Equipment Spare Parts		
1	Set Installation Cable		
2	Antenna-Ground System Material		

June 1961

Radio-Transmitters

TRANSMITTING SET, RADIO

AN/FRT-31

FUNCTIONAL DESCRIPTION

The Transmitting Set, Radio AN/FRT-31, is designed as a Very Low Frequency (VLF), high-power communication transmitting station. The set is floor and concrete pedestal mounted. It is fully enclosed in special structures. Power is obtained from commercial sources or stand-by diesel generators.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION: Fixed.

TYPE OF EMISSION: A1, F1 types.

TYPE OF FREQUENCY CONTROL: Crystal and master oscillator.

NUMBER OF BANDS: 1 band.

NUMBER OF CHANNELS: 1 channel.

OPERATING FREQUENCY RANGE: 14 to 30 kc.

OPERATING POWER RQMT: 4160 v ac, 60 cps, 3 ph, 1 million watts minimum.

MANUFACTURER'S OR CONTRACTOR'S DATA

Continental Electronics Company, Dallas,

Texas.

Contract NObsr-71360, dated 22 June 1956.

Approximate unit cost \$2,530,814.00.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube, Crystal and/or Semi-Conductor Device data not available.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Transmitting Set, Radio AN/FRT-31.

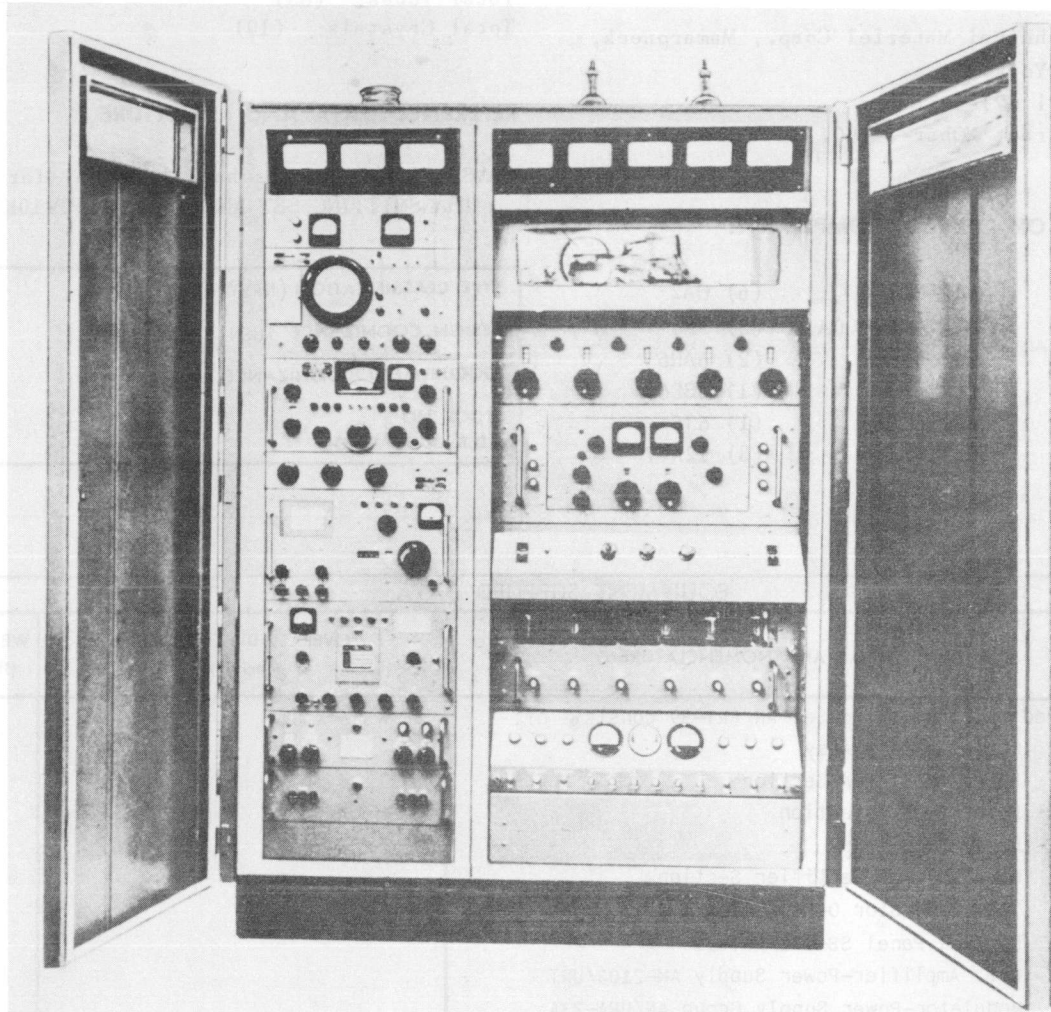
TYPE CLASSIFICATION	(NAVY)
PROCUREMENT COGNIZANCE	SHIPS-R-2235
DESIGN COGNIZANCE	NAVY BUSHIPS
STOCK NO.	
R.O.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitting Set, Radio AN/FRT-31 consists of:		
1	Frequency Generator		
1	Intermediate Power Amplifier		
1	Power Amplifier		
1	Antenna Coupling & Tuning Unit		
1	Operator Console		
1	Cooling Unit		
1	Control		
1	Transmitter		
1	Set of Test Equipment		
1	Monitor		
1	Diesel Engine Generator		
1	Power Distribution Unit		
1	Radiation System (Antenna system & ground)		

RADIO TRANSMITTING SET

AN/FRT-39



Radio Transmitting Set AN/FRT-39

FUNCTIONAL DESCRIPTION

Radio Transmitting Set AN/FRT-39 is a conservatively rated general purpose transmitter capable of providing 10,000 W PEP output throughout the range of 2 to 28 mc.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 208 to 230 v, 50 to 60 cy, three ph, 13,000 W.

FREQUENCY RANGE: 4 to 28 mc, bandswitched.
TYPE OF EMISSION: CW, MCW, SSB, ISB, DSB, FS.

POWER OUTPUT

2 TONE PEP, 35 DB: 10,000 W.
 2 TONE PEP, 40 DB: 5,000 W.
 CW OR FS: 5,000 W.

OUTPUT IMPEDANCE: 72 ohms unbalanced, 600 ohms balanced, Pi-L network.

DISTORTION: Better than 40 db down relative to PEP output.

UNWANTED SIDEBAND REJECTION: 1,000 cycle single tone, 60 db down.

CARRIER INSERTION: -55 db to full output.

AN/FRT-39

RADIO TRANSMITTING SET

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,
New York.
Model GPT-10K.
Contract NObsr-71790.

(9) 12AU7 (3) 6146 (6) 872
Total Tubes: (65)
Total Crystals: (10)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93166: Technical Manual for RADIO
TRANSMITTING SET AN/FRT-39 (GPT-10K).

TUBE AND/OR CRYSTAL COMPLEMENT

(3) CK711	(1) PL172	(6) OA2
(2) OB2	(1) 4CX5000A	(3) 5R4
(1) 5V4G	(3) 6AB4	(2) 6AH6
(1) 6AL5	(6) 6AQ5	(1) 6BE6
(2) 6C4	(3) 6CL6	(1) 6J6
(4) 6U8A	(4) 6X4	(3) 12AT7

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

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set AN/FRT-39 consists of:	36 X 56 X 84	2800
1	Cabinet/Frame Assy		
1	Power Amplifier Section		
1	Power Supply Section		
1	Relay Panel Assy		
1	High Voltage Rectifier Section		
1	Test Generator 0-579/URT		
1	Control Panel SB-971/FRT-39		
1	R.F. Amplifier-Power Supply AM-2103/URT		
1	Modulator-Power Supply Group AN/URA-23A		
1	Spectrum Analyzer Group AN/URM-116		
1	Oscillator 0-330/FR		
1	Control, Electrical Frequency C-2749/URT		
2	Technical Manual NAVSHIPS 93166		

UNCLASSIFIED

June 1961

Radio-Transmitters

RADIO TRANSMITTING SET

AN/FRT-39A

FUNCTIONAL DESCRIPTION

Radio Transmitting Set AN/FRT-39A is a conservatively rated general purpose transmitter capable of providing 10,000 W PEP output throughout the range of 4 to 28 mc.

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

New York.

Model No. GPT-10K-A2.

Contract NObsr-71790.

Contract NObsr-81106.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data available.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 208 to 230 v, 50 to 60 cyc, three ph.

FREQUENCY RANGE: 4 to 28 mc, 6 bands.

TYPE OF EMISSION: CW, MCW, SSB, ISB, DSB, FS.

POWER OUTPUT

2 TONE PEP, 35 db: 10,000 W.

2 TONE PEP, 40 db: 5,000 W.

CW OR FS: 5,000 W.

REFERENCE DATA AND LITERATURE

Nomenclature Card for TRANSMITTING SET, RADIO AN/FRT-39A.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Material Corp, Mamaroneck,

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

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitting Set, Radio AN/FRT-39A including: Amplifier, Radio Frequency AM-2103/URT Control, Electrical Frequency C-2749A/URT Generator, Signal O-579/URT Oscillator, Radio Frequency O-330A/FR Modulator-Power Supply Group AN/URA-28 Spectrum Analyzer Group AN/URM-116 Panel, Monitor SB-971A/FRT-39		

UNCLASSIFIED

1.6 AN/FRT-39A: 1

UNCLASSIFIED

June 1961

Radio-Transmitters
AN/FRT-39B

RADIO TRANSMITTING SET

FUNCTIONAL DESCRIPTION

Radio Transmitting Set AN/FRT-39B is used for fixed plant, point-to-point, ground-to-air, shore to ship and ship to shore communication in the frequency range of 2 to 28 mc.

No field changes in effect at time of preparation (20 January 1961).

New York.

Model No. GPT-10KR.

Contract NObsr-81599.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data available.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 208 to 230 v, 50 to 60 cyc, 3 ph.

FREQUENCY RANGE: 4 to 28 mc, bandswitched.

TYPE OF EMISSION: CW, MCW, SSB, ISB, DSB, FS.

OUTPUT IMPEDANCE: 72 ohms unbalanced, 600 ohms balanced, Pi-L network.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Transmitting Set,
Radio AN/FRT-39B.

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

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Materiel Corp., Mamaroneck,

EQUIPMENT SUPPLIED DATA

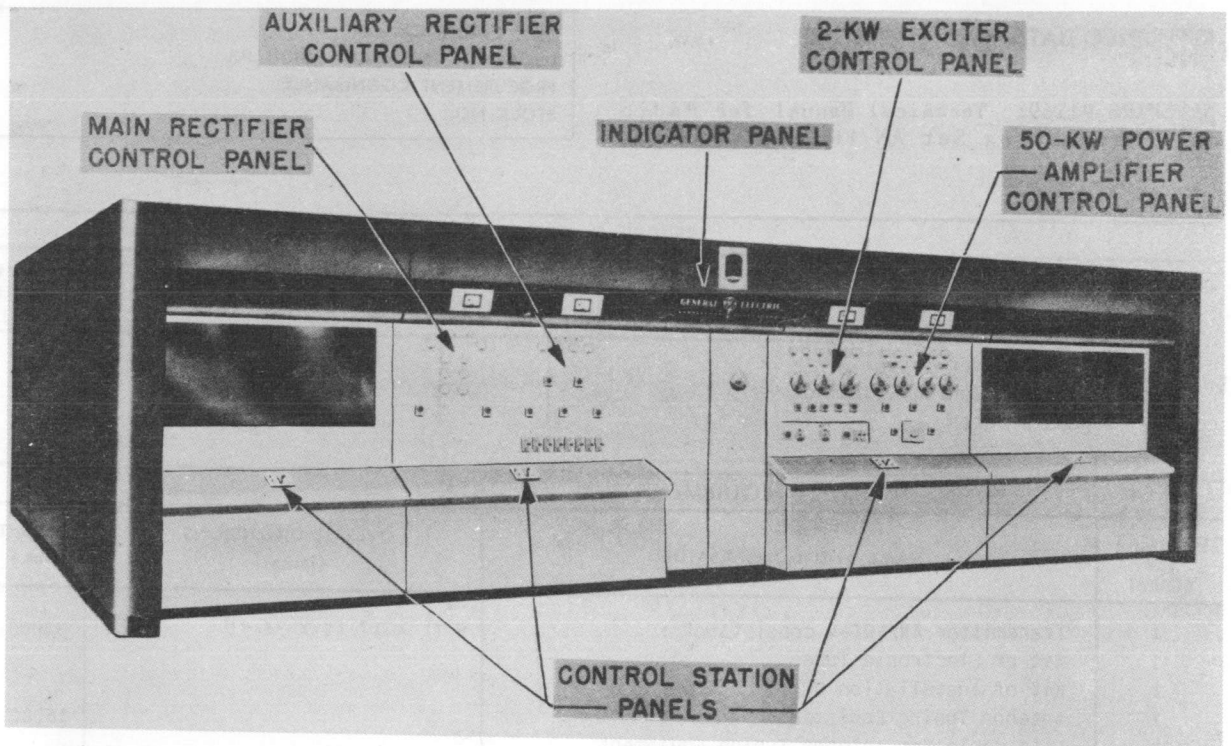
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set AN/FRT-39B includes: Amplifier, Radio Frequency AM-2103/URT Panel Monitor SB-971A/FRT-39 Terminal, Telegraph TH-39A/UGT Panel, Power Distribution SB-1225/U		

UNCLASSIFIED

1.6 AN/FRT-39B: 1

September 1956

RADIO TRANSMITTING SET

Radio-Transmitter
AN/FRT-4

Radio Transmitting Set AN/FRT-4

FUNCTIONAL DESCRIPTION

The AN/FRT-4 is a shore based low frequency transmitter used primarily in shore to ship communications. The equipment is a continuous wave transmitter which operates from a power source of 230 v, 3 ph, 50 or 60 cycle current and delivers a carrier frequency in the range of 50 to 150 kc.

Three types of keying may be employed: DC line keying at any speed up to 500 words per minute; facsimile keying at any speed up to 500 words per minute; frequency-shift keying up to a max. of 200 cps shift.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 to 150 kc.

TUNING BANDS: 6.

BAND 1: 50 to 60 kc.

BAND 2: 60 to 70 kc.

BAND 3: 70 to 85 kc.

BAND 4: 85 to 105 kc.

BAND 5: 105 to 125 kc.

BAND 6: 125 to 150 kc.

TYPE OF EMISSION: A-0, A-1, and A-4.

POWER INPUT: 230 v, 3 ph, 50 to 60 cps.

FREQUENCY STABILITY: 0.005%

OUTPUT IMPEDANCE: 600 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Syracuse, N.Y.

Contract NObsr-39343, dated 30 June 1947

Approximate Cost: \$2566.30.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 3B28 (1) 6X5GT (3) VR105 (2) 837
 (8) 4B32 (1) 6SA7 (2) VR150 (2) 851
 (3) 5R4GY (3) 6SL7W (2) 803 (7) 869B
 (1) 6L6GA (7) 6SN7W (2) 807 (2) 893A-R

Total Tubes (50)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91169: Technical Manual for Radio
Transmitting Set AN/FRT-4.

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.)
84	Transmitter			
71	Antenna Tuning Equipment			
97	Spare Parts			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter AN/FRT-4 consists of :	9 ft X 17 ft X 36 ft	34000
1	Kit of Electronic Tubes		
1	Kit of Installation Dwg.		
1	Antenna Tuning Equipment		16000
1	Litz Cable for Antenna Tuning Equipment		
1	50 Cycle Modification Kit MX-928/FRT-4		
1	Antenna Series Capacitors CB-1/U *	54-1/2 x 35 x 53	800
1	Radio Test Set TS-674/FRT-4	17 x 18-1/2 x 21	20
1	F.F. Signal Generator consisting of:		
1	Oscillator Unit SG-22/U	18 x 21-1/2 x 27-1/2	55
1	Power Supply PP-427/U	18 x 19-1/2 x 27-1/2	95
2	Technical Manuals NAVSHIPS-91169		
2	Technical Manuals NAVSHIPS-91170		

21 August 1962

Cog Service:

FSN:

RADIO, TRANSMITTING SET AN/FRT-40
Functional Class:

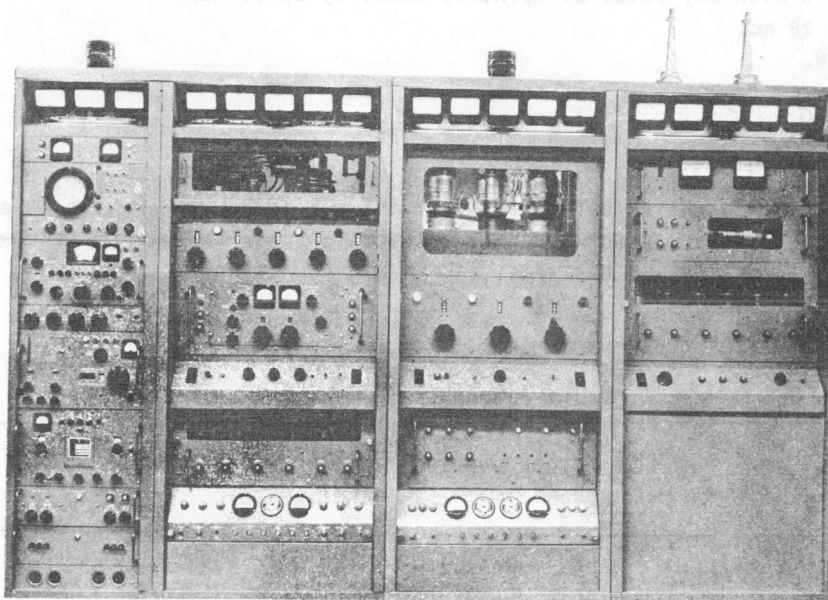
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: The Technical Materiel Corporation.



Radio, Transmitting Set AN/FRT-40

FUNCTIONAL DESCRIPTION:

The Radio, Transmitting Set AN/FRT-40 is a 17,000 watt, band switched transmitter used for fixed plant, point-to-point, ground-to-air, shore-to-ship communication in the frequency range of 4 to 28 megacycle (MC). All power amplifier stages are linear utilizing ceramic tubes for increased efficiency.

The AN/FRT-40 is primarily designed for single sideband service, but due to its large power reserve and versatility, may be used for many different purposes.

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

TECHNICAL CHARACTERISTICS:

OPERATING MODES: CW, MCW, SSB, ISB, DSB, FS, FAX.

TYPE OF FREQUENCY CONTROL: Crystal or master oscillator.

AN/FRT-40 RADIO, TRANSMITTING SET

OUTPUT IMPEDANCE

BALANCED: 600 ohms.

UNBALANCED: 72 ohms.

NUMBER OF BANDS: 6 bands.

NUMBER OF CHANNELS: 1 channel.

UNWANTED SIDEBAND REJECTION: 1,000 cycle single tone, 60 db down.

HARMONIC SUPPRESSION

SECOND HARMONIC: At least 50 db from PEP output.

THIRD HARMONIC: At least 65 db from PEP output.

CARRIER INSERTION: 55 db to full output.

AUDIO INPUTS: 600 ohms balanced, M20 P10 dbm continuously adjustable, for full RF output.

TEMPERATURE AND HUMIDITY: Designed to operate in any ambient temperature between the limits of 0 and 50 degrees C with any value of relative humidity up to 90%.

FREQUENCY RANGE: 4 to 28 mc.

OUTPUT POWER: 17,000 W.

OPERATING POWER RQMT: 208 to 230 v ac, 50 to 60 cps, 3 ph.

RELATION TO OTHER EQUIPMENT:

The AN/FRT-40 is similar to the AN/URT-17 & AN/FRT-39, but is not interchangeable.

The AN/FRT-40 is designed to be used with, but not part of, the AN/URA-28, AN/URM-116, AM-2103/URT, C-2749/URT, O-330/FR and O-579/URT.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio, Transmitting Set AN/FRT-40		36 x 54 x 84	Approx 7000

REFERENCE DATA AND LITERATURE:

The Technical Materiel Corporation Catalog ESO's Copy no. 3692-S for Radio, Transmitting Set AN/FRT-40 (Model GPT-17,000).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) CH-1095 (1) PL-172 (10) 0A2 (2) 0B2 (1) 2E26 (1) 4CX5000A (1) 5ADP7
(1) 5BE6 (4) 5R4 (1) 5U4G (1) 5V4G (1) 5Y3GT (2) 5651 (5) 6AB4
(4) 6AH6 (1) 6AL5 (6) 6AQ5 (1) 6AS7G (2) 6AU6 (3) 6BE6 (2) 6BH6
(1) 6C6 (3) 6CL6 (1) 6J6 (6) 6U8 (2) 6U8A (5) 6X4 (2) 6146 (1) 6336
(1) 6697 (6) 6895 (6) 872A (1) 12AL5 (12) 12AT7 (17) 12AU7 (1) 12AX7
(1) 12BE6

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

1.6 AN/FRT-40: 2

RADIO, TRANSMITTING SET AN/FRT-40

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Technical Materiel Corporation Model GPT-17,000	Mamaroneck, N. Y.	N0bsr-71790, 29 April 1957	

8 January 1962

TRANSMITTING SET, RADIO AN/FRT-40A

Cog Service:

FSN:

Functional Class:

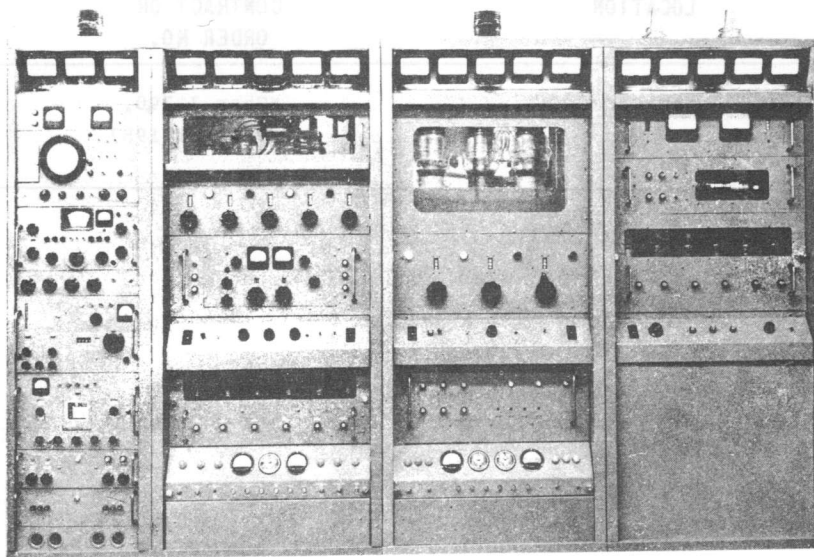
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: The Technical Materiel Corporation.



Transmitting Set, Radio AN/FRT-40A

FUNCTIONAL DESCRIPTION:

The Transmitting Set, Radio AN/FRT-40A, is designed as a general-purpose, band-switched transmitter for fixed plant, point-to-point, ground-to-air, and shore-to-ship communications. No field changes in effect at time of preparation (6 April 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Fixed.

TYPE OF EMISSION: A0, A1, A3, A3a, A3b, A4, F1, F4.

NUMBER OF CHANNELS: 1 channel.

NUMBER OF BANDS: 6 bands.

OUTPUT IMPEDANCE

UNBALANCED: 72 ohms nominal.

BALANCED: 600 ohms.

AN/FRT-40A TRANSMITTING SET, RADIO

STABILITY

VOX: Better than 20 ppm for 30 deg change in ambient temperature.

SBE: Crystal controlled; 1 part in 10^6 , synthesizer control available, 1 part in 10^8 .

TYPE OF FREQUENCY CONTROL: Synthesizer.

UNWANTED SIDEBAND REJECTION: 1,000 cycles single tone, 60 db down.

HARMONIC SUPPRESSION

SECOND HARMONIC: At least 50 db from PEP output.

THIRD HARMONIC: At least 65 db from PEP output.

CARRIER INSERTION: M55 db to full output.

AUDIO INPUTS: 600 ohms balanced, M20 P10 dbm continuously adjustable, for full rf output.

AUDIO RESPONSE (Each Sideband)

ONE: Flat within ± 1.5 db, 350 to 3,300 cps.

TWO: Flat within ± 1.5 db, 350 to 7,500 cps.

TEMPERATURE AND HUMIDITY: Ambient temperature between the limits of 0 & 50 deg C w/any value of relative humidity up to 90%.

OPERATING POWER RQMT: 208 to 230 v ac, 50 to 60 cps, 3 ph.

RELATION TO OTHER EQUIPMENT:

The AN/FRT-40A is mechanically & electrically interchangeable with AN/FRT-40 except for addition of synthesized sideband excitation AN/URA-30 & FS/CW/FSX equipment, TH-39A/UGT & SB-1225/UR which replaces all existing units in the exciter rack used with AN/FRT-40.

The AN/FRT-40A is identical to Technical Materiel Corporation's Model GPT-40KE.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Transmitting Set, Radio AN/FRT-40A consists of:		36 x 84 x 126	Approx 7000
1	Panel, Monitor SB-971A/FRT-39		2-1/2 x 3-15/32 x 19	
1	Amplifier, Radio Frequency AM-2103/URT		8-3/4 x 16-1/2 x 19	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93400: Preliminary Data Form for Transmitting Set, Radio AN/FRT-40A.

Technical Materiel Corporation Catalog no. 3692-S (ESO Library) for Transmitting Set, Radio AN/FRT-40A (Model GPT-40KE).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) CH-1095 (1) PL172 (10) 0A2 (2) 0B2 (1) 2E26 (1) 4CX5000A (1) 5ADP7
(1) 5BE6 (4) 5R4 (1) 5U4G (1) 5V4G (1) 5Y3GT (2) 5651 (5) 6AB4 (4) 6AH6
(1) 6AL5 (6) 6AQ5 (1) 6AS7G (2) 6AU6 (3) 6BE6 (2) 6BH6 (1) 6C6 (3) 6CL6
(1) 6J6 (6) 6U8 (2) 6U8A (5) 6X4 (2) 6146 (1) 6336 (1) 6697 (6) 6895
(6) 872A (1) 12AL5 (12) 12AT7 (17) 12AU7 (1) 12AX7 (1) 12BE6

1.6 AN/FRT-40A: 2

TRANSMITTING SET, RADIO AN/FRT-40A

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

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

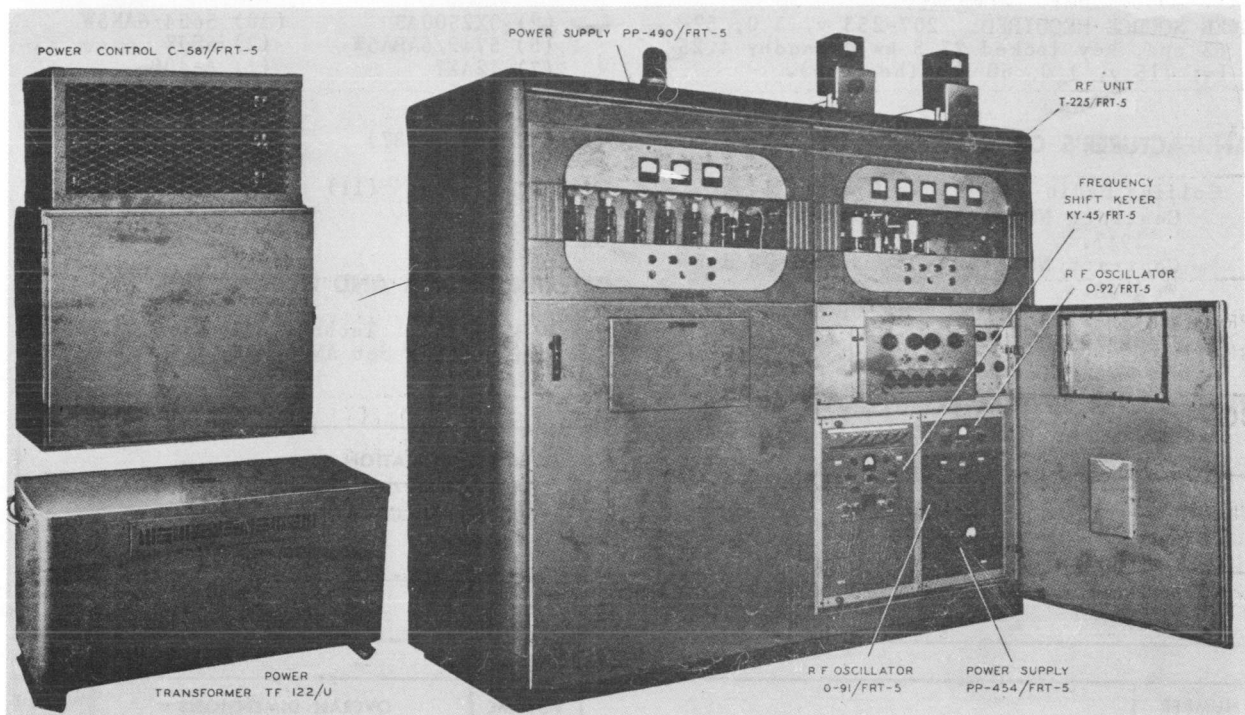
PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG: Navy, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
The Technical Materiel Corp. Mamaroneck, N. Y. Model no. GPT-40KE		N0bsr-81599	

RADIO TRANSMITTING SET

AN/FRT-5



Radio Transmitting Set AN/FRT-5

FUNCTIONAL DESCRIPTION

The AN/FRT-5 is a medium power, high frequency transmitter designed for shore base use to provide high quality A1, F1, and F4 transmission from shore to ship or point to point. The transmitter may be keyed from remote locations and has automatic shut-down when not keyed for an adjustable period of time. The AN/FRT-5 has a greater frequency range than the TEB and includes a frequency shift keyer unit and an additional RF unit to permit continuous tuning throughout the frequency range.

No field changes in effect at time of preparation (28 March 1958).

RELATION TO OTHER EQUIPMENT

The AN/FRT-5 is Collins type 205D-1 and is similar to Radio Transmitting Equipment TEB except for redesign.

Equipment Required but not Supplied: 115 v or 230 v line for crystal oven operation.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4000 to 26,000 kc.

POWER OUTPUT: 15 kw for A1, F1 and F4.

OUTPUT IMPEDANCE: 600 ohms.

FREQUENCY CONTROL: Crystal and stabilized oscillator using AFC and provision for connecting an external master oscillator.

AMBIENT TEMPERATURE: 32° to 122° F in a relative humidity up to 95%

TYPE OF KEYING

VACUUM TUBE: The electronic keyer is arranged to accept keying impulses that are negative, positive, polar negative, and polar positive for mark.

FREQUENCY SHIFT: Grounded or ungrounded polar or neutral keying.

KEYING SPEED: Up to 400 wpm.

OPERATING CONTROL: Local automatic sequence stop and start control with provision for automatic shut-down from a remote position if the transmitter is not keyed for any adjusted period from 2 to 30 min. Transmitter has automatic overload reset with up to nine 30 sec lock periods.

April 1958

AN/FRT-5

RADIO TRANSMITTING SET

POWER SOURCE REQUIRED: 207-253 v, 3 0, 57-63 cps, key locked 27.5 kw, standby 4.25 kw; 115 v; 1 0, 60 cps (heaters).

(2) 3X2500A3 (10) 5654/6AK5W
 (5) 5749/6ABA6W (2) 6SJ7
 (7) 12AX7 (1) 4-400
 (5) 5686 (5) 5750/6BE6W
 (6) 6X4WA

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.
 Contract NObsr-39399, dated 30 June 1947.
 Contract NObsr-42505, dated 28 June 1948.
 Approximate Cost: \$38,500.00 including equipment spares.

Total Tubes: (87)

(1) -40346

(10) CR-27/U

Total Crystals: (11)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91183: Technical Manual for Radio Transmitting Set AN/FRT-5.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 0A2WA (8) 2C51
 (6) 4B32 (1) 5725/6AS6W
 (2) 6AG7Y (3) 807
 (2) 0B3 (4) 3B28
 (3) 5R4WGB (4) 5726/6AL5W
 (1) 6C4WA (8) 12AU7

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE
 STOCK NO.

SHIPPING DATA

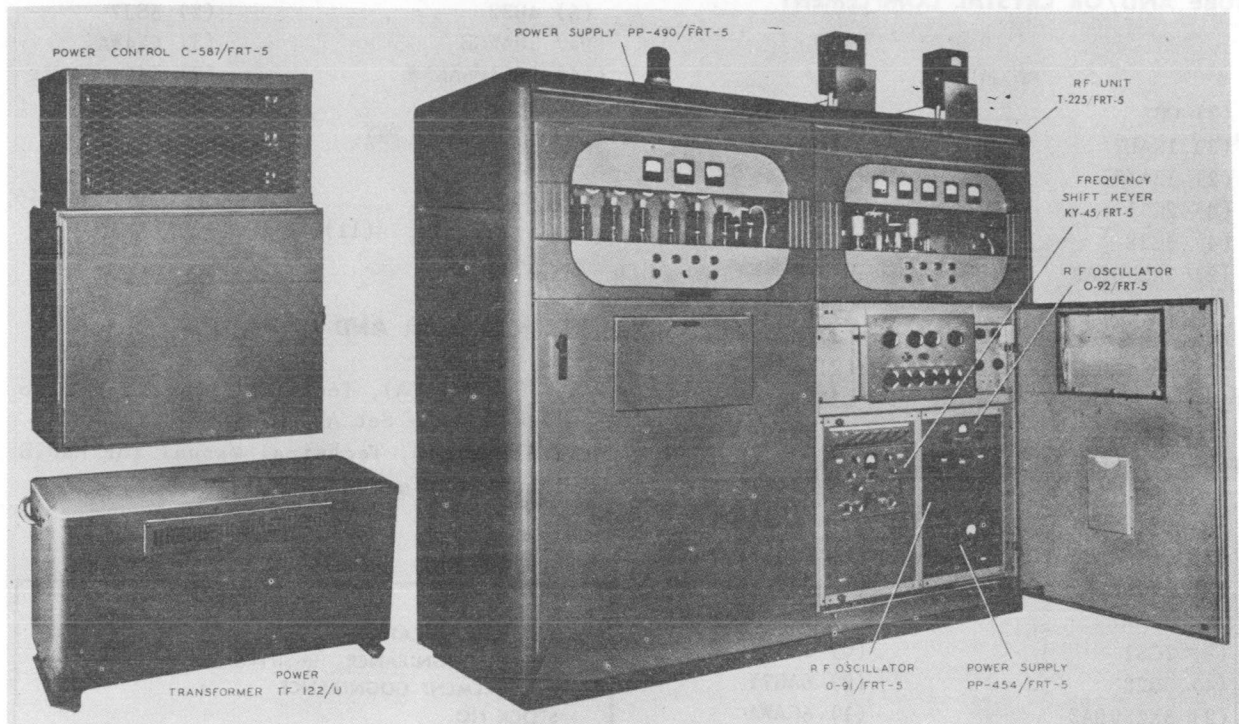
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Cabinet	149	50 X 56 X 92	2,305
1	Cabinet	149	50 X 56 X 92	2,185
1	Antenna Network, RF Unit T-225/FRT-5	19	23 X 31 X 46	275
1	Power Control C-587/FRT-5	17.3	19 X 35 X 45	370
1	Transformer TF-122/U	8.5	17 X 21 X 41	560
1	Reactor CTH-304898	2.14	11 X 14 X 24	290
1	Transformer CTH-304897	1.63	11 X 16 X 16	145
1	Side Covers	17.5	9 X 40 X 84	340
1	Top Covers	10	9 X 40 X 48	100
1	Power Supply PP-454/FRT-5	9.5	19 X 27 X 32	180
1	Straight Conduit	1.69	4 X 6 X 122	84
1	Tubes and Capacitors	18.4	32 X 31 X 32	240
1	Curved Conduit and Accessories	12.2	20 X 31 X 35	225
3	Equipment Spares	18.9		388

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RF Unit T-225/FRT-5	37-1/2 X 46-5/8 X 91-1/2	2,108
1	Power Supply PP-490/FRT-5	37-1/2 X 46-5/8 X 91-1/2	1,742
1	RF Oscillator O-92/FRT-5	5-1/4 X 12 X 19	15
1	RF Oscillator O-91/FRT-5	10-1/2 X 15-5/8 X 19	35
1	Frequency Shift Keyer KY-45/FRT-5	10-1/2 X 15-5/8 X 19	29
1	Power Supply PP-454/FRT-5	8-3/4 X 15-5/8 X 19	88
1	Power Transformer TF-122/U	14-3/4 X 18-1/2 X 36-1/2	527
1	Power Control C-587/FRT-5	14-1/4 X 30-1/4 X 38-1/4	298
1	Set of Equipment Spares		262

April 1958

RADIO-TRANSMITTING SET

Radio-Transmitters
AN/FRT-5A, -5B

Radio-Transmitting Set AN/FRT-5A, -5B

FUNCTIONAL DESCRIPTION

The AN/FRT-5A and AN/FRT-5B are used for shore based communication service. The transmitter is a high frequency, medium power equipment capable of A1 radio telegraph, frequency shift telegraph or facsimile transmission. The principal function of the equipment is to provide reliable communications over long and difficult circuits, either shore to ship or point-to-point. The transmitter may be remotely operated and is provided with an automatic shut down when not Keyed for an adjustable time.

The AN/FRT-5A and AN/FRT-5B are similar except for minor difference in circuit design and components.

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

RELATION TO OTHER EQUIPMENT

Same as Radio Transmitting Set AN/FRT-5 except that provision is made in the Frequency Shift Keyer KY-45A/FRT-5 for facsimile transmission. They are replacements for Radio

Transmitting Equipment TEB.

Equipment Required but not Supplied:
Suitable antennas.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4.0 to 26.0 mc.

FREQUENCY CONTROL: Crystal or stabilized master oscillator.

TYPE OF EMISSION: A1, F1 and F4.

KEYING SPEED: 400 wpm max.

POWER OUTPUT: 15 KW into 600 ohm load.

NUMBER OF PRESET CHANNELS: 10.

POWER SOURCE REQUIRED: 230 v $\pm 10\%$, 60 cps $\pm 5\%$, 3-ph, 28 KW, 0.98 pf and 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Corp, Clifton, N. J.

AN/FRT-5A: Contract NObsr-49171, dated 12 June 1951.

AN/FRT-5B: Contract NObsr-52662, dated 27 June 1951.

AN/FRT-5A, -5B

RADIO-TRANSMITTING SET

Apr 11 1958

TUBE AND/OR CRYSTAL COMPLEMENT

AN/FRT-5A

(2) OB3	(1) 5725/6AS6W
(3) 12AU7	(4) 5726/6AL5W
(2) 12AX7	(4) 5749/6BA6W
(8) 2C51	(6) 5750/6BE6W
(4) 3B28	(2) 6AG7Y
(2) 3X2500A3	(1) 6C4WA
(1) 4-400	(2) 6SJ7
(6) 4B32	(3) 6X4WA
(3) 5R4WGB	(2) 6626/OA2WA
(13) 5654/6AK5W	(3) 807
	(5) 5686

Total Tubes: (77)

AN/FRT-5B

(2) OB3	(1) 5725/6AS6W
(3) 12AU7	(4) 5726/6AL5W
(2) 12AX7	(4) 5749/6BA6W
(8) 2C51	(6) 5750/6BE6W
(4) 3B28	(2) 6AG7Y
(2) 3X2500A3	(1) 6CAWA
(1) 4-400A	(1) 6E5

(6) 4B32	(2) 6SJ7
(3) 5R4WGB	(3) 6X4WA
(14) 5654/6AK5W	(2) 6626/OA2WA
(5) 5686	(3) 807
Total Tubes: (79)	
(10) CR-27/U	(1) -40346
Total Crystals: (11)	

REFERENCE DATA AND LITERATURE

NAVSHIPS 91457(A), Technical Manual for Radio Transmitting Set AN/FRT-5A.

NAVSHIPS 91740, Technical Manual for Radio Transmitting Set AN/FRT-5B.

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	R.F. Unit T-225A/FRT-5 or T-225B/FRT-5	197	59 x 62 x 93	3130
		183	52 x 59 x 94	2962
1	Power Supply PP-490A/FRT-5 or PP-490B/FRT-5	197	59 x 62 x 93	3150
		183	52 x 59 x 94	2800
1	Power Control C-587A/FRT-5 or C-587B/FRT-5	25	24 x 44 x 54	450
1	Power Transformer TF-122/U	20	23 x 39 x 47	790
1	Side Covers (2 units) or	33	29 x 25 x 47	416
	Side Covers (2 units)	20	16 x 41 x 85	328
1	Top Covers or	15	10 x 41 x 84	220
	Top Covers	11	13 x 41 x 48	122
1	Capacitors and Crystal Oven or	24	10 x 41 x 47	178
1	Capacitors	9	26 x 26 x 61	116
1	Accessories and SSB Conversion Kits or	9	19 x 21 x 37	100
	SSB Conversion Kit and Accessories	4	15 x 24 x 40	69
1	Tubes and Technical Manuals or	24	14 x 18 x 24	158
1	Tubes, xtal oven, glass relay, Technical Manuals and Test Data	14	26 x 26 x 61	128
1	Installation Material or	18	18 x 31 x 45	236
	Installation Material	11	13 x 19 x 125	205
1	Set of Repair Parts	9	12 x 12 x 125	144
1	Set of Repair Parts	9	18 x 19 x 47	144
		9	18 x 19 x 47	144

April 1958

RADIO-TRANSMITTING SET

AN/FRT-5A, -5B

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-225A/FRT-5 or T-225B/FRT-5	37-1/2 x 46-5/8 x 91-1/2	1942
1	R.F. Oscillator O-92A/FRT-5 or O-92B/FRT-5	5-1/4 x 12 x 19	15
1	R.F. Oscillator O-91A/FRT-5 or O-91B/FRT-5	10-1/2 x 15-1/8 x 19	35
1	Power Supply PP-490A/FRT-5 or PP-490B/FRT-5	37-1/2 x 46-5/8 x 91-1/2	1780
1	Frequency Shift Keyer KY-45A/FRT-5 or KY-45B/FRT-5	10-1/2 x 15-1/8 x 19	29
1	Power Supply PP-454A/FRT-5 or PP-454B/FRT-5	8-3/4 x 15-1/8 x 19	85
1	Power Transformer TF-122/U	14-3/4 x 18-1/2 x 36-1/2	560
1	Power Control C-587A/FRT-5 or C-587B/FRT-5	14-1/4 x 30-1/4 x 38-1/4 14-1/4 x 30-1/4 x 38-1/4	273 273
1	Set of Repair Parts		

17 August 1962

Cog Service: USN FSN: 5820-542-7167

RADIO TRANSMITTING SET AN/FRT-5C
Functional Class:

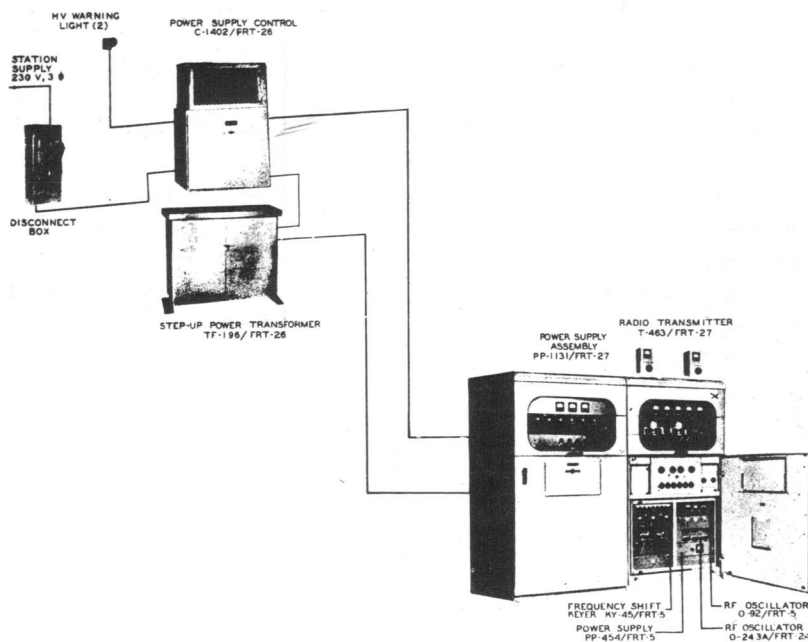
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Polarad Electronics Corporation, (82199).



Radio Transmitting Set AN/FRT-5C

FUNCTIONAL DESCRIPTION:

The Radio Transmitting Set AN/FRT-5C is designed for shore-based radio-telegraph, radio-teletype, or facsimile operation in the frequency range of 4 to 26 megacycle (MC), and provides 15 kilowatt (KW) of power output. The radio transmitter can be keyed at speeds up to 400 words per minute (WPM). The principle function of the radio transmitting set is to effect reliable communication from shore-to-ship or point-to-point. It incorporates circuitry for A1, F1 and F4 emissions.

No field changes in effect at time of preparation (28 December 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF EMISSION: A1, F1 and F4.

TYPE OF FREQUENCY CONTROL: Crystal or stabilized master oscillator.

AN/FRT-5C RADIO TRANSMITTING SET

FREQUENCY MULTIPLIER RANGE: 4 to 26 mc.

FIRST FREQUENCY MULTIPLIER: 4 to 13 mc.

SECOND FREQUENCY MULTIPLIER: 4 to 26 mc.

KEYING INPUT CIRCUIT IMPEDANCE: 25,000 ohms (one line grounded).

KEYING SPEED: Up to 400 wpm.

CARRIER FREQUENCY CHARACTERISTICS

STABILITY: Porm 5 cycles per megacycle.

NOISE LEVEL: Less than 3% amplitude or phase modulation.

POWER FACTOR OF EQUIPMENT

STARTING: 82.5% (high voltage off).

STANDBY: 80.5% (key open).

NORMAL OPERATION: 96%.

OPERATING POWER RQMT: 208/230 v ac, 50 to 60 cps, 3 ph; 110 v ac, 50 to 60 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The AN/FRT-5C is functionally interchangeable with the AN/FRT-5B, however, the individual components are identical to the components of the AN/FRT-27 less Radio Modulator MD-232/FRT-27 and Modulator Coupler CU-396/FRT-27.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Antenna (600-ohms impedance, 4 to 26 mc freq range).

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Transmitting Set AN/FRT-5C			
	Consists of:			
1	Radio Transmitter T-463/FRT-27		41-3/4 x 43-1/2 x 91-9/16	1943
1	Power Supply Ass'y PP-1131/FRT-27		41-3/4 x 43-1/2 x 79-5/16	1842
1	Step-Up Power Transformer TF-196/FRT-26		19-1/8 x 32 x 42	605
1	Power Supply Control C-1402/FRT		15-1/4 x 30-1/4 x 38-1/4	298
1	R.F. Oscillator O-92/FRT-5		5-1/4 x 10-13/16 x 18-1/2	15
1	R.F. Oscillator O-243A/FRT-24		10-15/32 x 16-13/16 x 18-3/16	33
1	Frequency Shift Keyer KY-45/FRT-5		10-1/2 x 15-1/2 x 18-1/2	29
1	Power Supply PP-454/FRT-5		8-3/4 x 15-1/8 x 18-1/2	88
1	Disconnect Box		9 x 11 x 17	50

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93581: Technical Manual for Radio Transmitting Set AN/FRT-5C.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (8) 12AU7 (7) 12AX7 (2) 2050WA (4) 3B28 (2) 3X2500A3 (1) 4-400A
 (6) 4B32 (3) 5R4WGB (5) 5654 (5) 5686 (7) 5749 (7) 5750 (6) 5814A
 (3) 5933WA (2) 6AG7Y (1) 6C4WA (2) 6SJ7WGT (5) 6X4W (2) 6626/0A2WA
 (2) 6627/0B2WA

CRYSTALS: (*) CR-27/U

Note: *Denotes quantities not known.

SEMI-CONDUCTORS: (2) 1N34

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	172	1850
1	172	1850
1	30	990
1	17	380
1	13	240
1	16	500
1	5	350
1	3	108
1	4	187
1	4	185
1	3	110
1	27	240
1	22	330
1	6	90
1	6	170
1	6	70
1	20	150
1	13	100
1	10	65

PROCUREMENT DATA

PROCURING SERVICE: USN
 SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Polarad Electronics Corp. Dwg no. 5220109005	Long Island City, N. Y.	N0bsr-71693, 11 February 1957	

October 1957

TRANSMITTING SET, RADIO

AN/FRT-506

FUNCTIONAL DESCRIPTION

The AN/FRT-506 forms part of a transmitter-receiver U.H.F. link used for the detection of aircraft by making use of the Doppler effect. This is an ultra-high frequency transmitter capable of producing 50 watts of unmodulated carrier into a 52 ohm load. The frequency range covered is 470 to 500 megacycles with a stability of ± 2 kilocycles.

The equipment is dustproof, shielded, vibration mounted and includes a box assembly for housing noise rise alarm unit.

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

RELATION TO OTHER EQUIPMENT

Part of AN/FPS-503.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

EMISSION: A0.
 FREQUENCY RANGE: 470 to 500 mc.
 NUMBER OF BANDS: Single.
 POWER OUTPUT: 50 watts peak.
 POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.
 POWER CONSUMPTION: 1265 W.
 POWER FACTOR: 80%.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Company, Ltd, Montreal, Canada.

TUBE AND/OR CRYSTAL COMPLEMENT

Total Tubes: (53) Type not Available.
 Crystals: Not Available.

REFERENCE DATA AND LITERATURE

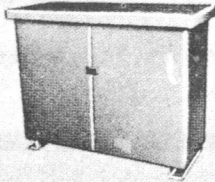
Nomenclature Card for Transmitting Set, Radio AN/FRT-506 dated 29 October 1956.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE USAF
 PROCUREMENT COGNIZANCE
 STOCK NO.

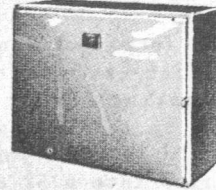
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitting Set AN/FRT-506 C/O (1) Electrical Equipment Cabinet CY-5063()/ FRT-506 (1) Power Distribution Panel SB-5019()/FRT-506 (1) Power Supply PP-5045()/FRT-506 (1) Power Supply PP-5046()/FRT-506 (1) Control Alarm C-5046()/FRT-506 (1) Radio Transmitter T-5017()/FRT-506 (1) Control-Monitor C-5047()/FRT-506 (1) Control-Monitor C-5048()/FRT-506 (1) Relay Assembly RE-5003()/FRT-506 (1) Radio Interference Filter F-5012()/FRT-506 (1) Preliminary Technical Manual	24 X 26 X 91	

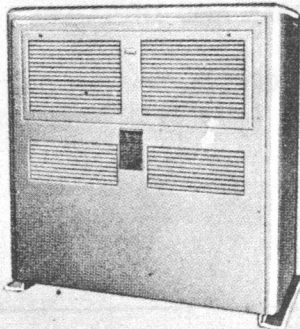
RADIO TRANSMITTING SET



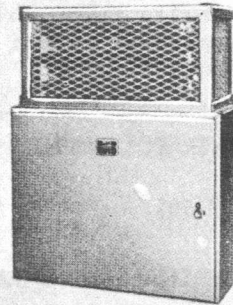
TRANSFORMER TF-214/U



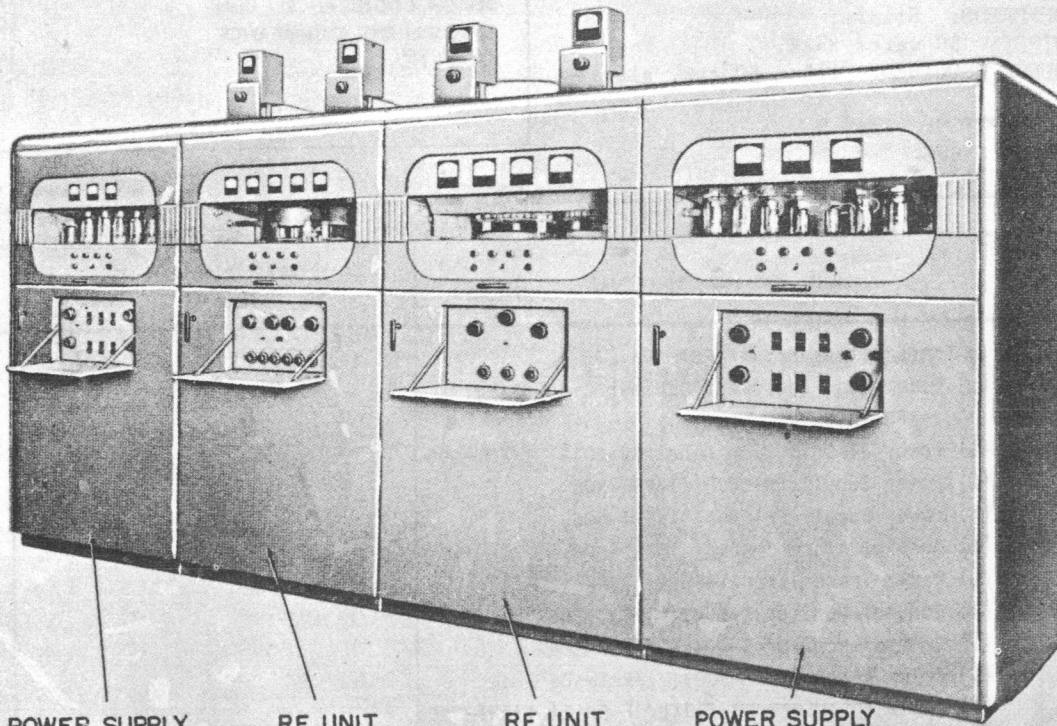
POWER CONTROL C-598B/FRT-6



TRANSFORMER TF-215/U



POWER CONTROL C-587C/FRT-5



POWER SUPPLY
PP-490C/FRT-5

RF UNIT
T-225C/FRT-5

RF UNIT
AM-350C/FRT-6

POWER SUPPLY
PP-515C/FRT-6

Radio Transmitting Set AN/FRT-6, A, B, C

March 1957

Radio-Transmitter

AN/FRT-6,A,B,C**RADIO TRANSMITTING SET****FUNCTIONAL DESCRIPTION**

The AN/FRT-6, A, B and C are designed for shore-based communication service. They are capable of providing an output of 40 kilowatts of continuous-wave radio-telegraph, frequency-shift-telegraph, or facsimile transmission on any frequency from 4.0 to 26.0 megacycles. The principal function of the equipments is to effect communication with reliability and precision from shore-to-ship or point-to-point. Due to their high RF power output, the transmitters are intended primarily as a means of transmitting intelligence over long and difficult circuits.

The AN/FRT-6 series two left-hand units may be operated as the equivalent of the AN/FRT-5 series 15 kilowatt transmitters completely independently of the 40 kilowatt power amplifier and its supply.

The AN/FRT-6, A and B are similar except for minor circuit changes and component parts. The AN/FRT-6C is similar to the AN/FRT-6, A and B except that the components have been changed to permit the AN/FRT-6C to operate from 50 or 60 cycles instead of 60 cycles only.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (10)
Crystal Unit CR-27/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4 to 26 mc.

EMISSION: A1, F1.

TYPE CONTROL: Crystal or stabilized oscillator.

POWER OUTPUT: 40 kw nom.

KEYING SPEED: 400 wpm max.

EQUIPMENT POWER FACTOR

STARTING(HI-VOLTAGE OFF): 82.5%.

STANDBY(KEY OPEN): 80.5%.

OPERATION(NORMAL): 96%.

POWER REQUIREMENTS

AN/FRT-6,A,B: 115 v, 60 cps, single ph;
207 to 253 v, 60 cps \pm 5%, 3 ph, 86 kw
key down, 15.6 kw key up, 11.2 kw high
voltage off.

AN/FRT-6C: 115 v, 50 or 60 cps, single
ph; 207 to 253 v, 50 or 60 cps, 3 ph,
86 kw key down, 15.6 kw key up, 11.2
kw high voltage off.

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa
Contract NObsr 39400, dated 30 June 1947.
(AN/FRT-6).

Contract NObsr 42465, dated 30 June 1948.
(AN/FRT-6).

Federal Telephone and Radio Corp, Clifton,
N. J.

Contract NObsr 49171, dated 24 May
1950. (AN/FRT-6A).

Contract NObsr 52662, dated 27 June
1951. (AN/FRT-6B).

Contract NObsr 57454, dated 23 June
1952. (AN/FRT-6B).

Contract NObsr 64118, dated 8 February
1945. (AN/FRT-6C).

Approximate Cost: \$62,000.00 with
equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT**AN/FRT-6**

(8) 3X2500A3	(1) 4-400A
(5) 5686	(1) 6AS6
(8) 6AK5	(1) 6AK5W
(6) 6BE6	(4) 6BA6
(2) 6AL5	(2) 6AL5W
(1) 6E5	(8) 2C51

Total Tubes: (120)

AN/FRT-6A

(2) 6SJ7	(11) 6X4
(2) 6AG7	(3) 807
(11) 12AU7	(10) 12AX7
(1) 6C4	(8) 3B28
(18) 4B32	(3) 5R4GY
(2) OA2	(2) OB-3/VR-90

Total Tubes: (120)

(1) NT-40346

Total Crystals: (1)

March 1957

RADIO TRANSMITTING SET

Radio Transmitter
AN/FRT-6,A,B,C

REFERENCE DATA AND LITERATURE

- NAVSHIPS 91263: Technical Manual for Radio Transmitter Set AN/FRT-6.
 NAVSHIPS 91404(A): Technical Manual for Radio Transmitter Set AN/FRT-6A.
 NAVSHIPS 91739: Technical Manual for Radio Transmitter Set AN/FRT-6B.

NAVSHIPS 92596(A): Technical Manual for Radio Transmitter Set AN/FRT-6C.

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE MIL-T-16268 (SHIPS)
 STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	AN/FRT-6			
1	Radio Transmitter T-225/FRT-5	149	50 X 56 X 92	2305
1	Power Supply PP-490/FRT-5	149	50 X 56 X 92	2185
1	Power Supply PP-515/FRT-6	149	50 X 56 X 92	2140
1	RF Amplifier AM-350/FRT-6	203	56 X 68 X 92	2742
1	Power Transformer TF-124/FRT-6	73	34 X 60 X 62	2980
1	Power Transformer TF-122/U	8.5	17 X 21 X 41	560
1	Power Control C-587/FRT-5	17.4	19 X 35 X 45	370
1	Power Control C-598/FRT-6	12.2	19 X 32 X 35	224
1	HV Filter Choke	3.9	14 X 20 X 24	252
1	HV Filter Choke	2.1	11 X 14 X 24	296
2	Power Amplifier Filter	2.0	11 X 14 X 22	182
1	Filament Transformer(2)	1.6	11 X 16 X 16	150
1	Bias Plate Transformer and Power Amplifier Filter Choke	1.6	11 X 16 X 16	152
1	Antenna Drive and Tuning Network	22.1	25 X 34 X 45	284
1	Antenna Drive and Tuning Network	22.1	25 X 34 X 45	315
1	Power Supply PP-454/FRT-5	9.5	19 X 27 X 32	180
1	Side Covers	17.5	9 X 40 X 84	380
1	Top Covers	23.2	2 X 40 X 48	270
1	Condensers	18.4	31 X 32 X 32	253
1	Tubes and Resistors	18.4	31 X 32 X 32	300
1	Accessories	18.4	31 X 32 X 32	230
1	Electrical Fittings	12.7	20 X 31 X 35	235
1	Conduit	2.2	5 X 6 X 124	145
1	Equipment Spares	6.3	19 X 19 X 30	120
2	Equipment Spares	6.3	19 X 19 X 30	110
1	Equipment spares	6.3	19 X 19 X 30	150
1	Equipment Spares	3.8	13 X 17 X 30	90
	AN/FRT-6A			
1	Power Transformer TF-124/FRT-6	90	33 X 68 X 70	3320
1	Power Transformer TF-122/U	20	25 X 29 X 47	790
1	Radio Transmitter T-225A/FRT-5	197	59 X 62 X 93	3130
1	Power Supply PP-490A/FRT-5	197	59 X 62 X 93	3150
1	Power Supply PP-515A/FRT-6	197	59 X 62 X 93	3110
1	RF Amplifier AM-350A/FRT-6	245	59 X 77 X 93	3250
1	Power Control C-587A/FRT-5	33	24 X 44 X 54	496
1	Power Control C-598A/FRT-6	20.1	21 X 36 X 46	250
1	Side Covers	33	16 X 41 X 85	416
1	Top Covers and Connecting Strips	15	13 X 41 X 48	220
1	Capacitors and Crystal Oven	18	21 X 24 X 60	220
1	Tubes and Technical Manuals	44	28 X 38 X 70	211
1	Accessories and Single-Sideband	25	20 X 38 X 55	215

Radio Transmitter

AN/FRT-6,A,B,C

RADIO TRANSMITTING SET

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	Conversion Kit			
1	Installation Material	24	15 X 21 X 124	399
1	Spare Parts Chest	9.5	18 X 19 X 48	164
1	Spare Parts Chest	9.5	18 X 19 X 48	153
1	Spare Parts Chest	9.5	18 X 19 X 48	157
1	Spare Parts Chest	9.5	18 X 19 X 48	185
	AN/FRT-6B			
1	Radio Transmitter T-225B/FRT-5	183	52 X 59 X 94	2962
1	Power Supply PP-490B/FRT-5	183	52 X 59 X 94	2800
1	Power Supply PP-515B/FRT-6	183	52 X 59 X 94	2974
1	RF Amplifier AM-350B/FRT-6	216	59 X 68 X 93	3500
1	Power Control C-587B/FRT-5	25	22 X 39 X 47	450
1	Power Control C-598B/FRT-6	18	24 X 32 X 40	265
1	Side Covers	20	10 X 41 X 84	328
1	Top Covers	15	13 X 41 X 52	251
1	Capacitors	11	17 X 31 X 35	158
1	Tubes, Crystal Oven, Glass Relay,	19	18 X 32 X 55	160
	Technical Manuals NAVSHIPS 91739, Test Data			
1	Tubes and Accessories including: Tube Puller, Output Meters, Meter Front Panels and miscellaneous connections and Cables.	27	29 X 33 X 48	187
	Installation Material			
1	Installation Material	20	11 X 14 X 28	346
1	Spare Parts Chest	9	18 X 19 X 46	212
1	Spare Parts Chest	9	18 X 19 X 46	168
1	Spare Parts Chest	9	18 X 19 X 46	150
1	IPA and PA Tubes	89	32 X 33 X 63	185
1	Power Transformer TF-122/U	30	27 X 39 X 49	790
1	Power Transformer TF-124/FRT-6	117	41 X 70 X 70	3295
	AN/FRT-6C			
1	Radio Transmitter T-225C/FRT-5	183	52 X 59 X 94	2962
1	Power Supply PP-490C/FRT-5	183	52 X 59 X 94	2800
1	Power Supply PP-515C/FRT-6	183	52 X 59 X 94	2974
1	RF Amplifier AM-350C/FRT-6	216	59 X 68 X 93	3500
1	Power Control C-587C/FRT-5	25	22 X 39 X 47	450
1	Power Control C-598B/FRT-6	18	24 X 32 X 40	265
1	Side Covers	20	10 X 41 X 84	328
1	Top Covers	15	13 X 41 X 52	251
1	Capacitors	11	17 X 31 X 35	158
1	Tubes, Crystal Oven, Glass Relay, Technical Manuals and Test Data	19	18 X 32 X 55	160
1	Tubes	27	29 X 33 X 48	187
1	Accessories including: Tube Puller, Output Meters, Meter Front Panels and miscellan- eous connections and cables	7	18 X 25 X 25	128
	Installation Material			
1	Installation Material	20	11 X 14 X 28	346
1	Spare Parts Chest	9	18 X 19 X 46	212
1	Spare Parts Chest	9	18 X 19 X 46	168
1	Spare Parts Chest	9	18 X 19 X 46	150
1	IPA and PA Tubes	39	32 X 33 X 63	185
1	Power Transformer IF-214/U	30	27 X 39 X 49	790
1	Power Transformer TF-215/U	117	41 X 70 X 70	3295

March 1957

RADIO TRANSMITTING SET

Radio-Transmitter
AN/FRT-6,A,B,C

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/FRT-6		
1	Radio Transmitter T-225/FRT-5	37-1/2 X 46-5/8 X 91-1/2	2108
1	Power Supply PP-490/FRT-5	37-1/2 X 46-5/8 X 91-1/2	1742
1	RF Oscillator O-92/FRT-5	5-1/4 X 12 X 19	15
1	RF Oscillator O-91/FRT-5	10-1/2 X 15-1/8 X 19	35
1	Frequency Shift Keyer KY-45/FRT-5	10-1/2 X 15-5/8 X 19	29
1	Power Supply PP-454/FRT-5	8-3/4 X 15-1/8 X 19	88
1	Power Transformer TF-122/U	14-3/4 X 18-1/2 X 36-1/2	527
1	Power Transformer TF-122/U	14-1/4 X 30-1/4 X 38-1/4	298
1	RF Amplifier AM-350/FRT-6	46-5/8 X 54-1/2 X 91-1/2	2550
1	Power Supply PP-515/FRT-6	37-1/2 X 46-5/8 X 91-1/2	2030
1	Power Transformer TS-124/FRT-6	30 X 55-3/4 X 58-1/2	2700
1	Power Control C-598/FRT-6	14-3/4 X 24-1/2 X 38-1/2	137
1	Equipment Spares Box	15 X 15 X 24	78
2	Equipment Spares Box	15 X 15 X 24	68
1	Equipment Spares Box	15 X 15 X 24	108
1	Equipment Spares Box	9 X 12 X 24	60
	AN/FRT-6A		
1	Radio Transmitter T-225A/FRT-5	37-1/2 X 46-5/8 X 91-1/2	1942
1	Power Supply PP-490A/FRT-5	37-1/2 X 46-5/8 X 91-1/2	1780
1	RF Oscillator O-92A/FRT-5	5-1/4 X 12 X 19	15
1	RF Oscillator O-91A/FRT-5	10-1/2 X 15-1/8 X 19	35
1	Frequency Shift Keyer KY-45A/FRT-5	10-1/2 X 15-1/8 X 19	29
1	Power Supply PP-454A/FRT-5	8-3/4 X 15-1/8 X 19	85
1	Power Transformer TF-122/U	14-3/4 X 18-1/2 X 36-1/2	560
1	Power Control C-587A/FRT-5	14-1/4 X 30-1/4 X 38-1/4	273
1	RF Amplifier AM-350A/FRT-6	37-1/2 X 46-5/8 X 91-1/2	2372
1	Power Supply PP-515A/FRT-6	37-1/2 X 46-5/8 X 91-1/2	1954
1	Power Transformer TF-124/FRT-6	30-1/2 X 55-3/4 X 58-1/2	3010
1	Power Control C-598A/FRT-6	14-3/4 X 24-1/2 X 38-1/2	146
2	Technical Manual NAVSHIPS 91404(A)	1-1/8 X 8-1/2 X 11	
	AN/FRT-6B		
1	Radio Transmitter T-225B/FRT-5	37-1/2 X 43-1/2 X 91-1/2	1942
1	Power Supply PP-490B/FRT-5	37-1/2 X 43-1/2 X 79-3/8	1780
1	RF Oscillator O-92B/FRT-5	5-1/4 X 12 X 19	15
1	RF Oscillator O-91B/FRT-5	10-1/2 X 15-1/8 X 19	35
1	Frequency Shift Keyer KY-45B/FRT-5	10-1/2 X 15-1/8 X 19	29
1	Power Supply PP-454B/FRT-5	8-3/4 X 15-1/8 X 19	85
1	Power Transformer TF-122/U	14-3/4 X 18-1/2 X 36-1/2	560
1	Power Control C-587B/FRT-5	14-1/4 X 30-1/4 X 38-1/4	273
1	RF Amplifier AM-350B/FRT-6	43-1/2 X 54-1/2 X 91-1/2	2372
1	Power Supply PP-515B/FRT-6	37-1/2 X 43-1/2 X 79-3/8	1954
1	Power Transformer TF-124/FRT-6	30-1/2 X 55-3/4 X 58-1/2	2680
1	Power Control C-598B/FRT-6	14-3/4 X 24-1/2 X 38-1/2	146
2	Technical Manual NAVSHIPS 91739	1-1/8 X 8-1/2 X 11	
	AN/FRT-6C		
1	Radio Transmitter T-225C/FRT-5	37-1/2 X 43-1/2 X 91-1/2	2108
1	Power Supply PP-490C/FRT-5	37-1/2 X 43-1/2 X 79-3/8	1742
1	RF Oscillator O-92B/FRT-5	5-1/4 X 12 X 19	15
1	RF Oscillator O-91B/FRT-5	10-1/2 X 15-1/8 X 19	35
1	Frequency Shift Keyer KY-45B/FRT-5	10-1/2 X 15-1/8 X 19	29

March 1957

Radio-Transmitter

AN/FRT-6,A,B,C

RADIO TRANSMITTING SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Power Supply PP-454C/FRT-5	8-3/4 X 15-1/8 X 19	88
1	Power Transformer TF-214/U	19-1/8 X 31-3/4 X 40-1/2	675
1	Power Control C-587C/FRT-5	14-1/4 X 30-1/4 X 38-1/4	298
1	RF Amplifier AM-350C/FRT-6	43-1/2 X 54-1/2 X 91-1/2	2550
1	Power Supply PP-515C/FRT-6	37-1/2 X 43-1/2 X 79-3/8	2030
1	Power Transformer TF-215/U	30 X 57 X 60	2350
1	Power Control C-598B/FRT-6	14-3/4 X 24-1/2 X 38-1/2	146
2	Technical Manual NAVSHIPS 91739	1-1/8 X 8-1/2 X 11	
2	Technical Manual NAVSHIPS 92596(A)	1/4 X 8-1/2 X 11	

31 July 1962

Cog Service: USN FSN:

RADIO TRANSMITTING SET AN/FRW-2
Functional Class:

USA

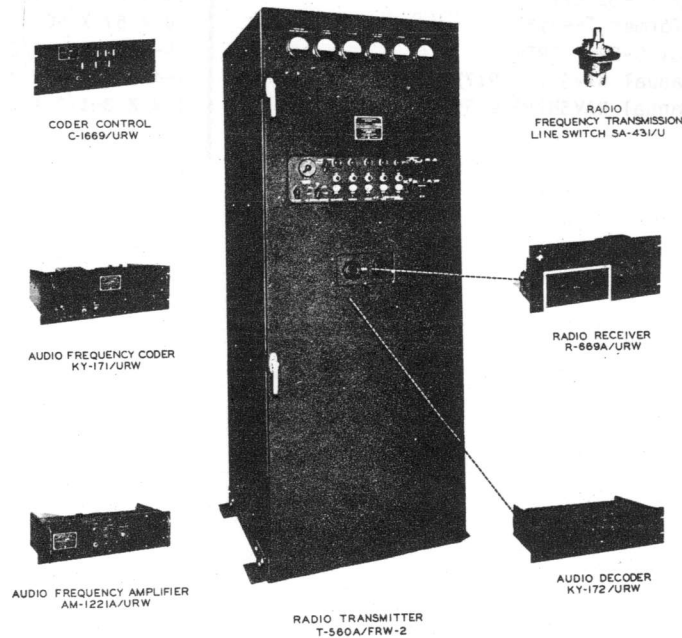
USN

USAF

TYPE CLASS:

Used by

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



Radio Transmitting Set AN/FRW-2

FUNCTIONAL DESCRIPTION:

Radio Transmitting Set AN/FRW-2 is a multichannel, frequency modulated transmitter designed for ground use in controlling guided missiles or pilotless aircraft.

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

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 406 to 549 mc.

POWER OUTPUT: 500 W min.

RF ANTENNA OUTPUT IMPEDANCE: 50 ohms.

NUMBER OF CHANNELS: 144.

CHANNEL SPACING: 1 mc.

MODULATION INPUT IMPEDANCE: 560 ohms.

NUMBER OF MODULATING TONES: 20

AN/FRW-2 RADIO TRANSMITTING SET

MODULATION TONE FREQUENCY RANGE: 7.5 to 73.95 kc.

TYPE OF MODULATION: FM.

MAXIMUM CARRIER DEVIATION WITH MODULATION: Porm 300 kc.

PRIMARY POWER REQUIREMENTS: 200 to 230 v, 55 to 65 cyc, 3 ph at 4065 va.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Antenna; (1) Set Interconnecting Cables.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Transmitting Set AN/FRW-2 includes:			
1	Radio Transmitter T-560A/FRW-2		30-11/16 x 32 x 72	1177
1	RF Transmission Line Switch SA-431/U		4-1/8 x 5-2/3 x 9-3/8	10
1	Audio Frequency Coder KY-171/URW		7 x 16 x 19	40
1	Coder Control C-1669/URW		6-1/4 x 7 x 19	15
1	Audio Frequency Amplifier AM-1221A/URW		5-7/32 x 10 x 19	30
1	Radio Receiver R-669A/URW			42
1	Audio Decoder KY-172/URW		5-7/32 x 17-7/8 x 19	31
4	RF Connector UG-154/U		1.5 dia x 3	0.89
1	Connector AN3108B-28-15S		2-11/16 dia x 1-11/32	0.32
1	Connector AN3108B-28-21S		2-11/16 dia x 1-11/32	0.32
5	Connector UG-88/U		9/16 dia x 31/32	0.03
3	Connector UG-421/U		27/32 dia x 2	0.02
2	Connector AN3106A-16S-1S		1 dia x 1-7/8	
1	Connector AN3108B-22-14S		2-11/16 dia x 1-11/32	0.212
1	Connector AN3108B-22-14P		2-11/16 dia x 1-11/32	0.222
1	Connector AN3108B-12S-3P		2-11/16 dia x 1-11/32	0.066
1	Connector AN3106B-14S-5S		1-1/8 dia x 1-1/8	0.178
1	Connector AN3106A-20-27S		1-15/32 dia x 2-3/16	0.25
1	Connector AN3106A-22-14S		1-7/16 dia x 2-3/16	0.25
2	Clamp AN3057-16		1-5/8 dia x 1-5/16	0.08
2	Clamp AN3057-8		1-1/8 dia x 1-7/16	0.07
4	Clamp AN3057-12		1-3/8 dia x 1-3/16	0.06
1	Clamp AN3057-4			
1	Clamp AN3057-6		15/16 dia x 1-5/64	0.03

REFERENCE DATA AND LITERATURE:

NA16-30FRW2-501: Handbook for Radio Transmitting Set AN/FRW-2.

RADIO TRANSMITTING SET AN/FRW-2

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (4) 0B2WA (4) 12AT7WA (3) 4B32 (2) 4X150A (6) 5R4WGB (1) 5Y3WGTA
(2) 5651WA (6) 5654/6AK5W (24) 5670 (2) 5725/6AS6W (2) 5725/6AS6W/6187
(1) 5726/6AL5W (2) 5726/6AL5W/6097 (3) 5751 (3) 5751WA (1) 5763 (11) 5814A
(1) 6AK6 (2) 6AN5WA (4) 6AU6 (2) 6AU6WA (2) 6CB6 (1) 6J4WA (1) 6X4W
(5) 6005/6AQ5 (3) 6080WA (1) 6101/6J6WA (3) 6186/6AG5WA (3) 6189/12AU7WA
(6) 6203 (2) GE-NE-2 (1) GL6942

CRYSTALS: (25) CR-23/U

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

10

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuWeps

SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co.	Cedar Rapids, Iowa	N0as 51-1240-c N0as 52-303-c N0as 55-618-r	\$17,859.89

June 1961

RADIO TRANSMITTING AN/GRT-3 W/AT-197/GR SET

FUNCTIONAL DESCRIPTION

The AN/GRT-3 w/AT-197/GR is designed as a single channel, crystal controlled Ultra High Frequency (UHF) transmitter covering the frequency range of 225 to 399.9 megacycles (MC). It can be tuned to individual channels spaced 100 Kilocycles apart by changing the oscillator crystal and retuning the radio frequency tuned circuits.

It is intended for use in control towers and airway stations, and when in conjunction with any type R-361()/GR Radio Receiver, or equivalent receiving equipment, is capable of establishing two-way communication with aircraft equipped with Radio Set AN/ARC-33, or similar airborne radio sets, and for communication with other UHF ground communication radio sets.

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

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Set of Crystals CR-27/U, (1) Distribution Panel J-390/GR, (1) Microphone T-17, (1) Headphone Set NT-49507, (1) Rack MT-686/GR, (1) Cable Ass'y CG-597/U, (1) Cable Ass'y CG-707/U, (1) Power Cable Ass'y CX-1541/U, (1) Power Cable Ass'y, (1) Antenna Transfer Cable, (5) Miles of Field Wire W-110-B.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: A3 type.
 MODULATOR INPUT IMPEDANCE: 50 to 600 ohms.
 POWER OUTPUT: 100 W.
 NUMBER OF BANDS: 1 band.
 FREQUENCY RANGE: 225 to 399.9 mc.
 OPERATING POWER RQMT: 115 v or 230 v AC,

50 to 60 cps, single ph, 750 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

USAF

Contract MIPR-R-57-881C-73013, dated 19 August 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 3B28	(1) 832A
(2) 12AX7	(1) 6AH6
(3) 5763	(2) 811A
(2) 5749/6BA6W	(3) 4X150A
(2) 6005/6AQ5W	(1) 5R4WGB
(1) 6C4WA	(1) 12AT7WA
(1) 5726/6AL5W	(3) 6627/OB2WA

Total Tubes: (27)

(1) CR-27/U

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

T.O. 31R2-2GRT-3-1: Technical Manual for Radio Transmitting Set AN/GRT-3.

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

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-282/GR or T-282B/GR	12-1/4 X 19 X 21	175
1	Modulator Power Supply MD-141/GR or MD-141A/GR	12-1/4 X 19 X 21	200
1	Antenna AT-197/GR		
1	Mast AB-158/GR		
1	Cable Ass'y Power Electrical CX-2017/U		
2	R.F. Cable Ass'y CG-693/U	28 lg	
1	Set of Wrenches		