

Mast AB157/GR

aged sub-assemblies suitable for transportation by aircraft. The entire structure can be erected easily by an experienced crew of 4 men in about 2 hours.

No field changes in effect at time of preparation (4 April 1957).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

ELEVATION: 17 ft. to 33 ft. approximately.

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

Craig Machine Inc.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

T. O. No. 16-35AB157-1: Technical Manual for Mast AB-157/GR.

**FUNCTIONAL DESCRIPTION**

The AB-157/GR is an aluminum alloy structure designed to elevate and support Antennas AS-449/GRD and AS-439/GRD at elevations from about 16 feet to 33 feet. The top mast section is filled and further strengthened by a seven-foot adapter after the two antennas have been mounted.

The mast is shipped disassembled in pack-

TYPE CLASSIFICATION  
DESIGN COGNIZANCE USAF  
PROCUREMENT COGNIZANCE  
STOCK NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(1) Base Assembly	2.1	12 x 15 x 20	51
1	(1) Adapter Assembly (1) Boom Assembly (1) Mast Sections Assembly	1.1	9 x 12 x 17-1/2	237
1	(1) Tackle Assembly (4) Base Stake (8) Guy Stake	2.15	8 x 9 x 52	110

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(1) Spanner wrench (1) Boom Chain Assembly (1) 11/16 Open End wrench (1) 9/16 Open End wrench (4) 4 lb hammer (1) 6 in. Adjustable wrench (1) Tool Bag (3) Stake Chain Assembly (2) Vang Assembly (1) Upper Boom Guy Assembly (1) Antenna Guy Assembly (3) Upper Guy Assembly (1) Lower Boom Guy Assembly (3) Lower Guy Assembly	89	15 x 17 x 39	96
1	(4) Soil Plate	114	10 x 20 x 26	50

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Base Assembly		
1	Adapter Assembly		
1	Boom Assembly		
1	Mast Sections Assembly		
1	Tackle Assembly		
4	Base Stakes		
8	Guy Stakes		
1	Spanner Wrench		
1	Boom Chain Assembly		
1	11/16 Open End wrench		
1	9/16 Open End wrench		
1	4 lb hammer		
1	6 in. Adjustable wrench		
1	Tool Bag		
3	Stake Chain Assembly		
2	Vang Assembly		
1	Upper Boom Guy Assembly		
1	Antenna Guy Assembly		
3	Upper Guy Assembly		
1	Lower Boom Guy Assembly		
3	Lower Guy Assembly		

February 1960

Radio-Auxiliary

AB-602/UKR

**ANTENNA MOUNT****FUNCTIONAL DESCRIPTION**

Antenna Mount AB-602/UKR is designed to support Antenna AS-979/UKR. The relative bearing coverage of the part antenna is  $165^{\circ}$  to  $345^{\circ}$  in  $15^{\circ}$  increments; there are provisions also for elevation adjustments. Radio Frequency Cable (RG-10A/U) passes from the antenna through the antenna mount and cable reel (which prevents cable twisting) to the Receiving Set, Telemetric Data AN/UKR-10. The antenna is stowed in an in-board position.

No field changes in effect at time of preparation (23 December 1959).

**RELATION TO OTHER EQUIPMENT**

The AB-602/UKR Antenna Mount is designed to be used with but not part of AS-979/UKR Antenna.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

RELATIVE BEARING COVERAGE:  $165^{\circ}$  to  $345^{\circ}$  in  $15^{\circ}$  increments.

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

Vitro Laboratories, Silver Springs, Maryland.

Dwg No. 2143092.

Contract NOrd-17673.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Sheet for ANTENNA MOUNT AB-602/UKR.

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	Antenna Mount AB-602/UKR	20 W X 60 H	

February 1960

Radio-Auxiliary  
AB-603/UKR**ANTENNA MOUNT****FUNCTIONAL DESCRIPTION**

Antenna Mount AB-603/UKR is designed to support Antenna AS-979/UKR. The relative bearing coverage of the part antenna is 15° to 195° in 15° increments; there are also provisions for elevation adjustments. Coaxial cable (RG-10A/U) passes from the antenna through the antenna mount and cable reel (which prevents cable twisting) to the Telemetric Data Receiving Set AN/UKR-10. The antenna is stowed in an in-board position.

No field changes in effect at time of preparation (23 December 1959).

**RELATION TO OTHER EQUIPMENT**

The AB-603/UKR is designed to be used with but not part of the AS-979/UKR Antenna.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

RELATIVE BEARING COVERAGE: 15° to 195° in 15° increments.

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

Vitro Laboratories, Silver Springs, Maryland.

Dwg. No. 2143087.

Contract NOrd-17673.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Sheet for ANTENNA MOUNT AB-603/UKR.

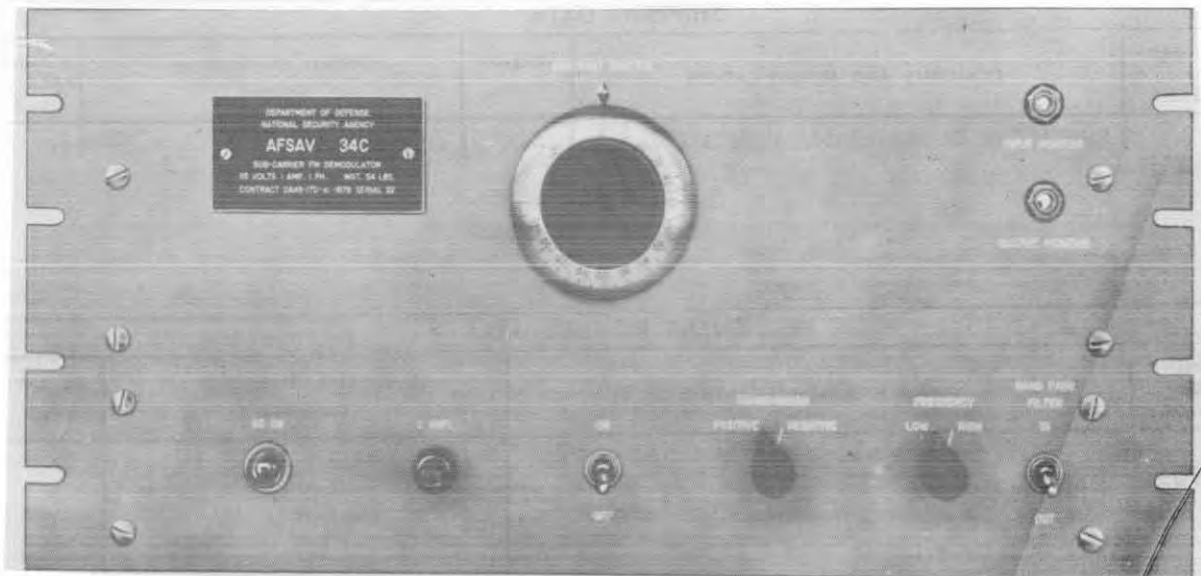
TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE USN, BUORD  
PROCUREMENT COGNIZANCE  
STOCK NO.  
R.D.B. IDENT. NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Mount AB-603/UKR	20 W X 60 h	



## SUB-CARRIER FM DEMODULATOR

Radio-Auxiliary  
AFSAV 34C

Sub-Carrier FM Demodulator AFSAV 34C

**FUNCTIONAL DESCRIPTION**

The AFSAV 34C is an audio signal converter that accepts an audio frequency modulated signal within a specified frequency spectrum and converts it into an amplitude modulated tone signal at one of two frequencies. It's output is approximately a linear function of the frequency modulation of the input signal.

It is designed for mounting in a standard 19 inch panel rack and is used as the connecting link between a signal source and a current controlled reproduction device.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OUTPUT FREQUENCIES: 1875 and 4000 cps.

FREQUENCY SPECTRUM: 500 to 4500 cps.

FREQUENCY SHIFT: 250 to 3000 cps.

**TYPE SIGNAL**

INPUT: Frequency modulated audio.

OUTPUT: Amplitude modulated audio tone.

**IMPEDANCE**

INPUT: 600 ohms plus variations.

OUTPUT: 600 and 150 ohms.

POWER REQUIREMENTS: 95 to 125 v, 50 to 60 cps, single ph, 5 amps.

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

Air Associates, Inc, Orange, N.J.

Contract DA49-170-sc-1678, dated 13 June 1955.

Approximate Cost: \$530.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) OA2 (1) 6X4W (3) 6AL5

(8) 12AU7 (1) 12AX7

Total Tubes: (14)

**REFERENCE DATA AND LITERATURE**

Technical Manual for Communication Intelligence Equipment AFSAV 34C.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

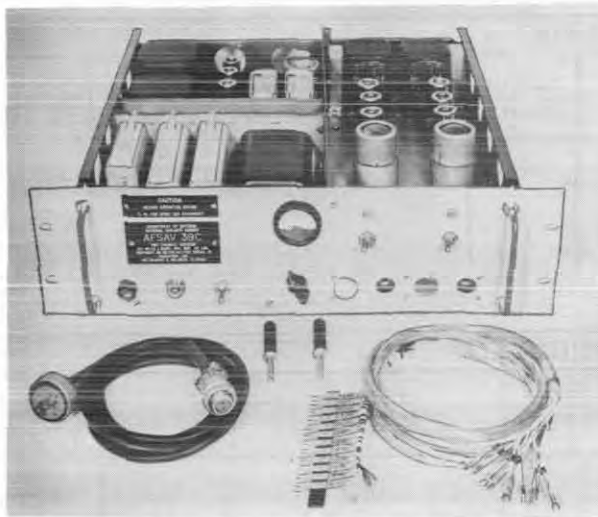
## SUB-CARRIER FM DEMODULATOR

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Sub-Carrier FM Demodulator AFSAV 34C	4.77	15 X 22 X 25	112

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sub-Carrier FM Demodulator AFSAV 34C including:	8-3/4 X 13-1/8 X 19	56
	(1) Input Cable	144 lg	
	(1) Output Cable	144 lg	
	(2) Power Cable	144 lg	



*Two Channel Rekeyer AFSAV 39C*

### FUNCTIONAL DESCRIPTION

The AFSAV 39C is designed for use in fixed radio receiving stations although the equipment is rugged enough for mobile operation. It converts keyed tone signals received from the ASAN5, DEN 35, or any communications receiver into 30 or 60 milli-ampere direct current pulses and provides for operation of two teleprinters. It contains no noise rejecting circuits, however, under ideal conditions, it may be used directly from a receiver. The signal is printed on either a standard Model 14 Typing Repeater or Model 15 Page Printer.

The equipment consists of a single unit 5-1/4 inches high which will mount in a standard 19 inch rack.

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

### RELATION TO OTHER EQUIPMENT

Electrically similar to the AFSAV 39A.

Equipment Required but not Supplied: (1) ASAN5, DEN35 or any Communications Receiver, (1) Model 14 Typing Repeater, (1) Model 15 Page Printer, (1) Oscilloscope with DC Input, (1) Vacuum Tube Voltmeter, (1) Standard Electronic Equipment Repair Kit.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### OUTPUT DATA

RECORDING METHOD: (2) Model 14 Typing Reperforators or (2) Model 15 Page Printers or any combination of both.

CURRENT: 30 ma per channel for holding type printers, 60 ma per channel for pulling type printers.

BAND DISTORTION: 0.5 milliseconds.

#### INPUT DATA

IMPEDANCE: 600 ohm (balanced or unbalanced).

TYPE TONE DATA: 300 to 10,000 cps; tone frequency, ON-OFF Keyed.

BAND LENGTH: 5 milliseconds.

#### SIGNAL INPUT LEVEL

NOMINAL: 0 dbm.

MAXIMUM: +20 dbm.

MINIMUM (threshold level): -12 dbm.

SIGNAL INPUT LINES: 2 lines.

SIGNAL TO NOISE RATIO: 4 to 1 max.

POWER REQUIREMENTS: 95 to 125 v, 48 to 62 cps, single ph, 1 amp at full load equipment current, 115 W at 115 v AC power input of AFSAV 39C.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Radiation Inc., Melbourne, Fla.

Contract DA49-170-sc-1702, dated 29 June 1955.

Contract MIPR-R-55-881-57023.

Approximate Cost \$362.00 with equipment spares.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A2	(1) 6AL5
(7) 5751	(1) 6AU6
(3) 5881	(3) 6X4W
(1) 5Y3GT	

Total Tubes: (17)

### REFERENCE DATA AND LITERATURE

Technical Manual for Two Channel Rekeyer AFSAV 39C.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

## TWO CHANNEL REKEYER

December 1956

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Two Channel Rekeyer AFSAV 39C including: Plugs, Phone- Cable, Power Cable, Signal	4.98	11-1/8 X 24-15/16 X 31-1/16	100

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Two Channel Rekeyer AFSAV 39C	5-1/4 X 16 X 19	43
1	Cable, Power	72 lg	1
1	Cable, Signal	72 lg	1.5
2	Plug, Phone	1/2 dia X 20-25/32	
2	Technical Manual		

## AMPLIFIER AUDIO FREQUENCY

### FUNCTIONAL DESCRIPTION

The AM-1005/U is a general purpose, multiple input Audio Frequency Amplifier designed for general communications work in conjunction with Naval electronic receiving equipment and associated loudspeaker units.

No field changes in effect at time of preparation (21 April 1960).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### INPUT DATA

NUMBER OF CHANNELS: 2 channels.  
IMPEDANCE: 600 ohms each channel.

OUTPUT IMPEDANCE: 600 ohms each channel.

#### AMPLIFICATION DATA

POWER OUTPUT: 0.015 W.  
OVER-ALL GAIN: 50 db.

FREQUENCY RESPONSE: 100 to 10000 cps normal operation range;  $\pm 1$  db variation in output.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Whiteford Laboratory, Lynn, Mass.  
Dwg No. C-5000.  
Contract NObsr-57497.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3WGTB (2) 5749-6BA6W (2) 6135

Total Tubes: (5)

No Crystals used.

### REFERENCE DATA AND LITERATURE

Nomenclature Card AM-1005/U for Amplifier Audio Frequency.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY 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	Amplifier Audio Frequency AM-1005/U	6-31/32 X 10 X 19	

5 September 1962

Cog Service: BuAer FSN:

REPEATER-AMPLIFIER AM-105/APS-4-T2  
Functional Class:

USA

USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: Viewtone Company, (63066).



*Repeater-Amplifier AM-105/APS-4-T2*

#### FUNCTIONAL DESCRIPTION:

The Repeater-Amplifier AM-105/APS-4-T2 contains video and deflecting signal amplifier circuits and rectifier supply. It receives signals from Receiver-Transmitter RT-5/APS-4 or RT-5A/APS-4 and reproduces these signals on a maximum of nine (9) outputs to each of which an Indicator-Amplifier AM-5A/APS-4 and Indicator ID-11/APS-4 may be attached.

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

#### TECHNICAL CHARACTERISTICS:

OPERATING POWER RQMT: 115 v ac, 800 to 2400 cycles and 26 v dc.

#### RELATION TO OTHER EQUIPMENT:

The AM-105/APS-4-T2 is designed as part of Radar Training Assembly AN/APS-4-T2.



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**AM-105/APS-4-T2 REPEATER-AMPLIFIER**

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Repeater-Amplifier AM-105/APS-4-T2		10-11/16 x 15-7/16 x 21-1/8	7

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**REFERENCE DATA AND LITERATURE:**

CO-AN16-30-APS4-2M: Technical Manual for Aircraft Radar Training Equipment AN/APS-4-T2 of which Repeater-Amplifier AM-105/APS-4-T2 is a part.

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

TUBES: (2) 3B24 (1) 5R4GY (2) 5U4G (12) 6J6 (1) 6SL7GT (4) 6V6GT (1) VR-105-30  
(1) VR-150-30

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

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

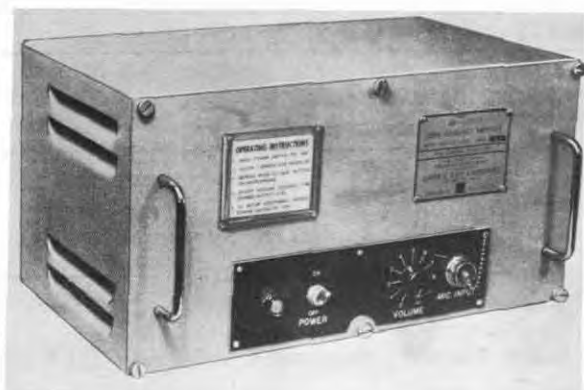
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PROCURING SERVICE: BuAer  
SPEC &/OR DWG:

DESIGN COG: BuAer

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Viewtone Company	New York, New York	NXsa-93962	

### AMPLIFIER AUDIO FREQUENCY



Amplifier Audio Frequency AM-1197/U

#### FUNCTIONAL DESCRIPTION

The AM-1197/U is designed for use and installation on U.S. Coast Guard vessels as well as for use at shore stations of various types and at other Coast Guard facilities that require a public address system.

The Amplifier is designed primarily for fixed installation on small Coast Guard vessels for loud hailing purposes. The input of the amplifier is designed to be used with a Dynamic Microphone with an input impedance of thirty (30) ohms with a power level of from -6 DBM to -22 DBM. By means of an attenuation pad, provisions have been made for a 500 ohm line input with a power input range of -22 DBM to +18 DBM.

No field changes in effect at time of preparation (26 June 1959).

#### ELECTRICAL AND MECHANICAL CHARACTERISTICS

AUDIO POWER OUTPUT: 25 W continuous.  
FREQUENCY RESPONSE:  $\pm 3$  DB from 250 to 5000 cps.

OUTPUT IMPEDANCE: 500, 250, 125, 60, 30, 8 and 4 ohms.  
INPUT IMPEDANCE: 30 ohms balanced.  
POWER GAIN: 108 DB at 1000 cps (30 ohm input); 68 DB at 1000 cps (500 ohm input).  
OPERATING POWER RQMT: 110/115/125 v, 50 to 60 cps, single ph, AC.

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

Claude C. Slate & Associates, Los Angeles, California.  
Contract Tcg-39286, dated 3 January 1959.

#### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6136 (2) 5814  
(2) 6146 (1) 5R4GY

Total Tubes: (6)

No Crystals used.

#### REFERENCE DATA AND LITERATURE

CG-273-28: Technical Manual for Audio Frequency Amplifier AM-1197/U.

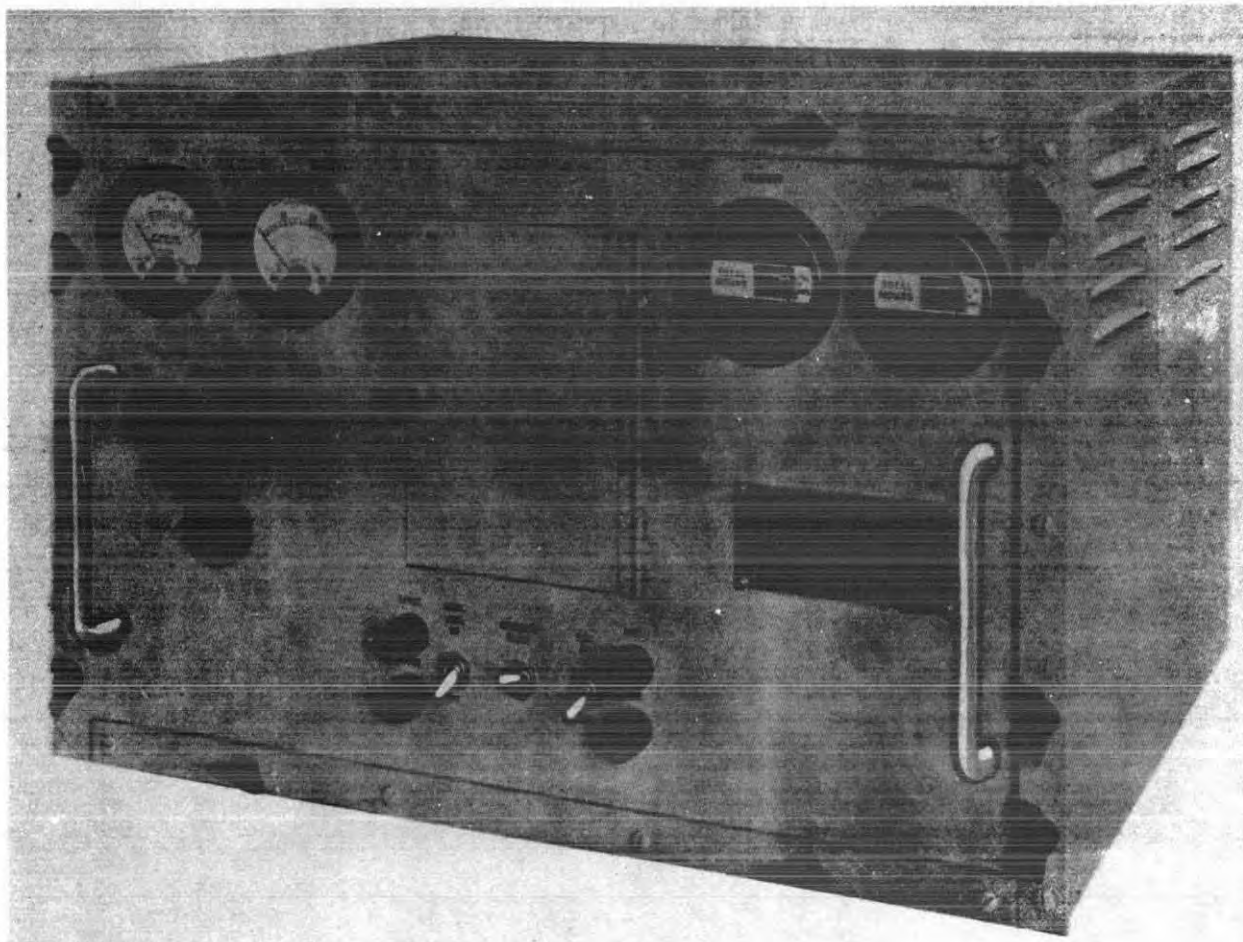
TYPE CLASSIFICATION
DESIGN COGNIZANCE U.S. COAST GUARD
PROCUREMENT COGNIZANCE AAFS-394
STOCK NO.

#### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Frequency Amplifier AM-1197/U	1.7	10-1/2 X 13 X 21	56

#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier Audio Frequency AM-1197/U	9-3/4 X 10-1/4 X 18-1/8	

**RADIO FREQUENCY AMPLIFIER****AM-1365/URT**

*Radio Frequency Amplifier AM-1365/URT*

**FUNCTIONAL DESCRIPTION**

The AM-1365/URT is a class B linear amplifier with power supplies and control circuit, intended for use with the TED Navy transmitter. Its function is to amplify the modulated output of the TED linearly to a 100 watt RF carrier level. Some modification is necessary to the TED in order that it may work with the AM-1365/URT amplifier.

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

**RELATION TO OTHER EQUIPMENT**

Used with Model TED Transmitter.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER OUTPUT: 100 w.  
 FREQUENCY RANGE: 225 to 400 mc.  
 MODULATION: 100%.  
 POWER SOURCE REQUIRED: 115 or 230 v, 45 to 65 cps.

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

Air Associates Inc, Orange, N.J.  
 Contract NObsr-64645.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 4X150A

(1) 6CL6

## AM-1365/URT

## RADIO FREQUENCY AMPLIFIER

(2) 3B28  
(2) OA2(1) 6AU6  
(1) 6X4  
(2) OB2

Total Tubes: (11)

<b>TYPE CLASSIFICATION</b> <b>DESIGN COGNIZANCE</b> BUSHIPS <b>PROCUREMENT COGNIZANCE</b> <b>STOCK NO.</b>
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## REFERENCE DATA AND LITERATURE

NAVSUP 92549, Technical Manual for Radio  
Frequency Amplifier AM-1365/URT.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Amplifier AM-1365/URT		
1	Set of Maintenance Spares		
1	Test Cable		
2	Spare Fuse and Spare Fuse Holders Mounted on front of equipment		

August 1960

**AMPLIFIER AUDIO FREQUENCY**Radio-Auxiliary  
**AM-1454/SRC****FUNCTIONAL DESCRIPTION**

The AM-1454/SRC is a general purpose, multiple input Audio Frequency Amplifier designed for general communication work in conjunction with Naval electronic receiving equipment and associated loudspeaker units.

No field changes in effect at time of preparation (21 April 1960).

**RELATION TO OTHER EQUIPMENT**

The AM-1454/SRC is designed to be used with but not part of Battle Announcing System Type 1MC and 17 MC Circuits.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

- (1) Integral Loudspeaker.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

NUMBER OF CHANNELS: 1 channel.

IMPEDANCE

OUTPUT: 200 ohms.

INPUT: 50/60 ohms.

FREQUENCY RESPONSE: 300 to 3000 cps normal operating range.

POWER OUTPUT: 125 W.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph.

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

Operadio Mfg Co., St. Charles, Illinois  
Dwg No. 3150A.  
Model No. NB-1325A.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 3B28	(2) 6N7
(2) 6SK7WA	(2) 6SR7
(2) 6X5GT	(2) 65J7Y
(4) 807	

Total Tubes: (16)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card AM-1454/SRC for Amplifier Audio Frequency.

NAVSHIPS 365-0555: Technical Manual for Amplifier Audio Frequency AM-1454/SRC.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY 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	Amplifier Audio Frequency AM-1454/SRC	13-7/16 X 15-1/2 X 25-3/4	



August 1960

Radio-Auxiliary  
AM-1463/SRC

## AMPLIFIER AUDIO FREQUENCY

## FUNCTIONAL DESCRIPTION

The AM-1463/SRC is a general purpose, multiple input Audio Frequency Amplifier designed for general communications work in conjunction with Naval electronic receiving equipment and associated loudspeaker units.

No field changes in effect at time of preparation (21 April 1960).

## RELATION TO OTHER EQUIPMENT

The AM-1463/SRC is designed to be used with but not part of Navy Battle Announcing Equipment type MCG.

## EQUIPMENT REQUIRED BUT NOT SUPPLIED

- (1) Integral Loudspeaker.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

NUMBER OF CHANNELS: 1 channel.

## IMPEDANCE

OUTPUT: 12.5, 15.5, 25, 31, 50, 62 ohms.

INPUT: 500 ohms.

POWER OUTPUT: 500 W.

FREQUENCY RESPONSE: 250 to 3000 cps.

OPERATING POWER RQMT: 115 v AC, 60 cps, single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corporation of America, Camden, N.J.

Dwg No. TT-62011-501.

Model No. MI-2888.

Contract NOs 66348.

Contract NOs 69875.

Contract NOs 70262.

Contract NOs 70600.

Contract NOs 82673.

## TUBE AND/OR CRYSTAL COMPLEMENT

(4) 3B28

(8) 838W

Total Tubes: (12)

No crystals used.

## REFERENCE DATA AND LITERATURE

Nomenclature Card AM-1463/SRC for Amplifier Audio Frequency.

NAVSHIPS 365-1564: Technical Manual for Amplifier Audio Frequency AM-1463/SRC.

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

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier Audio Frequency AM-1463/SRC	14-7/16 X 19-7/32 X 20	



24 August 1962

Cog Service: USN FSN:

AMPLIFIER, AUDIO FREQUENCY AM-1479/SRC

Functional Class:

USA

USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Remler Co., Ltd.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Amplifier, Audio Frequency AM-1479/SRC is a general purpose unit, designed to be used for Battle and Sonar Announcing Systems.

No field changes in effect at time of preparation (8 May 1961).

TECHNICAL CHARACTERISTICS:

POWER OUTPUT: 20 W.

FREQUENCY RESPONSE: 20 to 8,000 cps.

OUTPUT VARIATION: P3 db.

INPUT IMPEDANCE: 150 ohms.

OUTPUT IMPEDANCE: 250 ohms.

POWER REQUIREMENTS: 115 v, 60 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier, Audio Frequency AM-1479/SRC		11-5/8 x 18-3/8 x 19-3/8	

REFERENCE DATA AND LITERATURE:

Nomenclature Card for Amplifier, Audio Frequency AM-1479/SRC.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5U4 (1) 6BD6 (2) 6L6GA (1) 12AU7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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AM-1479/SRC AMPLIFIER, AUDIO FREQUENCY

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SHIPPING DATA

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PKGS    VOLUME (CU FT)    WEIGHT (LBS)

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PROCUREMENT DATA

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PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Remler Co., Ltd	San Francisco, California	NObS-66993	\$1,325.80
Dwg no. AR-8542		NObS-67982	\$1,358.54
Type 1C/ACB-6			

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UNCLASSIFIED

June 1961

Radio-Auxiliary

# AMPLIFIER RADIO FREQUENCY AM-1492(XG-1)/SRT

## FUNCTIONAL DESCRIPTION

The AM-1492(XG-1)/SRT is a linear Radio Frequency (RF) amplifier driven by 100 milliwatts. It is designed for general radio use.

No field changes in effect at time of preparation (22 August 1960).

California.

NEL Problem B1-1.

BuShips Problem NE020-148-19.

## TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

### OUTPUT DATA

PEAK POWER: 5000 W.

OUTPUT IMPEDANCE: 50 ohms.

### INPUT DATA

POWER INPUT: 100 mw.

INPUT IMPEDANCE: 50 ohms.

OPERATING FREQUENCY RANGE: 2 to 20 mc.

OPERATING POWER RQMT: 220 v AC, 60 cps, 3 ph or 440 v AC, 60 cps, 3 ph.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Radio Frequency AM-1492(XG-1)/SRT.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Navy Electronics Laboratories, San Diego,

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY 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	Amplifier, Radio Frequency AM-1492(XG-1)/SRT	24 x 24 x 7.2	

UNCLASSIFIED

June 1961

Radio-Auxiliary

**AMPLIFIER RADIO FREQUENCY****AM-1565  
(XN-1)/URC****FUNCTIONAL DESCRIPTION**

The AM-1565(XN-1)/URC is designed to provide Ultra High Frequency (UHF) ground-to-air communication facilities for shipboard and fixed station installation, when used in conjunction with Radio Set AN/URC-9.

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

**RELATION TO OTHER EQUIPMENT**

The AM-1565(XN-1)/URC is designed to be used with but not part of Radio Set AN/URC-9.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF FEED: Coaxial.

TYPE OF EMISSION: A3 type.

**OUTPUT DATA**

POWER OUTPUT: 100 W min.

IMPEDANCE: 50 ohms.

**INPUT DATA**

POWER INPUT: 15 W max.

IMPEDANCE: 50 ohms.

**FREQUENCY DATA**

NUMBER OF PRESET FREQUENCIES: 20.

FREQUENCY RANGE: 225 to 399.9 mc.

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

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

Collins Radio Co., Cedar Rapids, Iowa.

Dwg No. 3662F9046.

Contract NObsr-72650, dated 31 January 1957.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 0A2WA (1) 5814A (3) 5751

(2) 4CX250K (1) 6173 (2) 6973

Total Tubes: (10)

**SEMI-CONDUCTORS**

(4) 1N1192 (2) 1N457 (1) 1N1310

(8) 1N538 (2) 1N21C (32) 1N547

Total Semi-Conductors: (49)

No Crystals used.

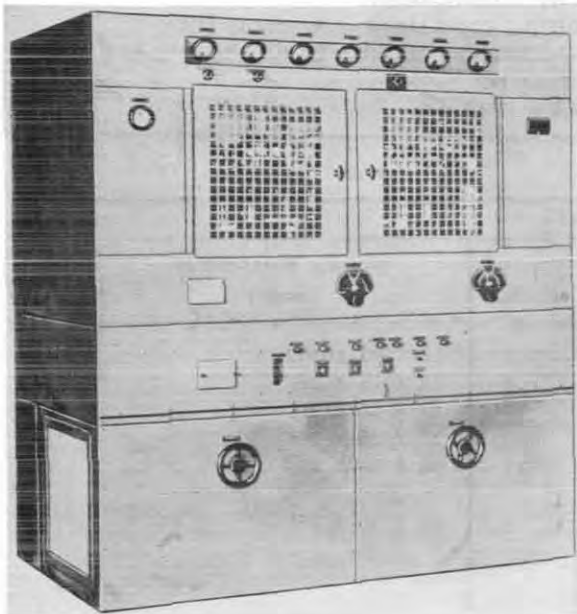
**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Radio Frequency AM-1565(XN-1)/URC.

<b>TYPE CLASSIFICATION</b>	(NAVY)
<b>DESIGN COGNIZANCE</b>	NAVY BUSHIPS
<b>PROCUREMENT COGNIZANCE</b>	SHIPS-A-2469
<b>STOCK NO.</b>	
<b>R.D.B. IDENT. NO.</b>	

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier, Radio Frequency AM-1565(XN-1)/URC	12-13/16 x 18-1/4 x 19-1/2 *15-3/4 x 19 x 25-29/32	
Note: * Including rear shock isolators.			

**RADIO FREQUENCY AMPLIFIER****AM-1700/FPN**

*Radio Frequency Amplifier AM-1700/FPN*

**FUNCTIONAL DESCRIPTION**

The AM-1700/FPN is designed as a high power Radio Frequency (R.F.) amplifier, designed to increase the power output and hence the range of a loran transmitting station. The amplifier equipment is intended to be used with Loran Transmitter Model T-137 series or T-325/FPN series.

No field changes in effect at time of preparation (26 June 1959).

**RELATION TO OTHER EQUIPMENT**

The AM-1700/FPN is designed to be used with Loran Transmitter Model T-137 series or T-325/FPN series.

The AM-1700/FPN is part of Public Address Set AN/TIQ-3( ).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(2) Loran Transmitters T-137 or T-325/FPN series as required, (4) Loran Timer AN/FPN-30 (2 Technical Manual CG-273-15), (1) Loran

Switching Group AN/FPA-2 series and Technical Manuals for AN/FPA-series (CG-273-16 and CG-273-35). Transmission Line Cable RG-147/U as required. Monitor Line Cable RG-148/U as required. Interconnecting Cable RG-19/U as required. Interconnecting Cable RG-8/U as required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF EMISSION: Pulse.

BASIC PULSE RATES: 20, 25, and 33-1/3 pps, single or double pulsed.

PULSE SHAPE: Width at 10% amplitude; approx 65 microseconds; width at 50% amplitude; 42 ± 1 microseconds; rise-time from 10% to 90% amplitude; 20 ± 1 microseconds.

PULSE SPECTRUM: Side bands are approx 60 db below carrier amplitude, 100 kc from the carrier frequency.

PEAK POWER OUTPUT: 1,000 kw single pulsed; 800 kw double pulsed.

INPUT IMPEDANCE: 52 ohm, from Loran transmitter series T-137 or T-325/FPN.

OUTPUT (TRANSMISSION LINE TO ANTENNA): 52 ohms.

AMBIENT TEMPERATURE LIMITATIONS: From +5° F (-15° C) to +122° F (+50° C) up to 95% humidity.

HEAT DISSIPATION OF AMPLIFIER: 15 kw.

POWER FACTOR: 90%.

OPERATING FREQUENCY RANGE: 1,700 to 2,000 kc specifically designed to operate on the loran frequencies of 1,750, 1,800, 1,850, 1,900, 1,950 kc.

POWER RQMT: 230 v AC ±10%, 50 to 60 cps, 2 ph, 20 kva max.

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

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

Contract Tcg-40351 (CG-37,703-A), dated 27 January 1958.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 3B28 (1) 3C45

(4) 250-R (2) 2050

(12) F-7012

Total Tubes: (21)

No Crystals used.

February 1960

Radio-Auxiliary

## AM-1700/FPN

## RADIO FREQUENCY AMPLIFIER

## REFERENCE DATA AND LITERATURE

CG-273-38: Technical Manual for Radio Frequency Amplifier AM-1700/FPN.

## TYPE CLASSIFICATION

DESIGN COGNIZANCE U.S. COAST GUARD

PROCUREMENT COGNIZANCE MIL-P-11000 (SIG C)

STOCK NO.

R.D.B. IDENT. NO. 7.4

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Frequency Amplifier AM-1700/FPN	312	58 X 93 X 100	2840
1	Transformer Fed Tel & Radio FRE-21481-12	9	24 X 25 X 26	470
1	Transformer Fed Tel & Radio FRE-21481-1	3	14 X 15 X 20	182
4	Capacitor Cornell-Dubilier Type TK-20020	5	15 X 18 X 26	156
1	Set of PA and Pulse Tubes for R.F. Amplifier AM-1700/FPN	39	38 X 38 X 46	310
1	Set of Rectifier Tubes for R.F. Amplifier AM-1700/FPN	8	22 X 25 X 26	77
1	Set of Equipment Spares			

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Amplifier AM-1700/FPN	43-3/16 X 72-1/4 X 84-1/8	3250
2	Technical Manual	3/4 X 9 X 11-3/4	
1	Set of Equipment Spares		



June 1961

Radio-Auxiliary

**AMPLIFIER AUDIO FREQUENCY****AM-1725/GRC****RELATION TO OTHER EQUIPMENT**

The AM-1725/GRC does not include integral speaker. It is blast proof; designed for specific use in LVTP5 Command Vehicle.

The AM-1725/GRC is the AM-65/GRC modified. Outside dimensions and appearance same as the AM-65/GRC. Circuit is modified to provide a separate channel for interphone. Other channels so modified so that interphone is not mixed with radio receiver outputs. This modified unit is not electrically interchangeable with standard AM-65/GRC.

No field changes in effect at time of preparation (25 August 1960).

**RELATION TO OTHER EQUIPMENT**

The AM-1725/GRC is designed as part of the AN/VRC-22, AN/ARC-27 and AN/PRC-( ) and Navy Model TCS.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OUTPUT IMPEDANCE: 150 and 600 ohms.

NUMBER OF CHANNELS: 3 channels.

POWER OUTPUT: 1800 and 350 mw.

FREQUENCY RESPONSE: 250 to 2500 cps.

OPERATING POWER RQMT: 6.3, 12 or 24 v and 130 v dc.

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

Contract NObs-3474.

Electron Tube and/or Crystal data not available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Audio Frequency AM-1725/GRC.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY 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	Amplifier, Audio Frequency AM-1725/GRC	4-1/4 x 7-7/8 x 12-7/8	

February 1960

Radio-Auxiliary

**AMPLIFIER RADIO FREQUENCY****AM-1741/FRN****FUNCTIONAL DESCRIPTION**

The AM-1741/FRN is designed to amplify A1 or A2 radio signals in the range of 280 to 330 kilocycles per second. It is used for amplifying the output of low-power radio beacon transmitters and exciters. It is designed to be used with radio beacon exciter amplifiers; and is used in radio beacon stations.

No field changes in effect at time of preparation (30 June 1959).

**RELATION TO OTHER EQUIPMENT**

The AM-1741/FRN is designed to be used with radio beacon exciter amplifiers.

The AM-1741/FRN is designed to be used in radio beacon stations.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF AMPLIFICATION: R. F.

IMPEDANCE

INPUT AND OUTPUT: 50 ohms.

EXCITATION WATTAGE: 10 W.

POWER OUTPUT: 150 W.

OPERATING FREQUENCY RANGE: 280 to 330 kc.

OPERATING POWER RQMT: 115 v AC, 60 cps,  
single ph.

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

Inland Electronics Corp., Aurora, Illinois.

Dwg No. E-203-103.

Contract TCG-40329(CG-37,897-A).

**TUBE AND/OR CRYSTAL COMPLEMENT**

(5) 0A2WA

(2) 3B28

(2) 5D22

(1) 5Y3WGTB

Total Tubes: (10)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Amplifier Radio Frequency AM-1741/FRN.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE U.S. COAST GUARD  
PROCUREMENT COGNIZANCE  
STOCK NO.  
R.D.B. IDENT. NO. 7.4

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier Radio Frequency AM-1741/FRN	20-3/4 X 20-3/4 X 26-3/4	

June 1961

**AMPLIFIER FREQUENCY MULTIPLIER****AM-1785/GRC****FUNCTIONAL DESCRIPTION**

The AM-1785/GRC provides R.F. amplification, frequency multiplication, and isolation between an external ship or shore station Frequency Standard AN/URQ-9 or equivalent, and Radio Set AN/URC-32 or Radio Transmitter AN/URT-18. Power input is derived from these associated transmitters.

The AM-1785/GRC is a module inserted in these transmitters in lieu of the provided reference oscillator module (frequency, generator chassis) when it is desired to derive the equipments frequency standard reference from an external, extremely stable, frequency standard.

The AM-1785/GRC is intended for use in future communication circuits, such as data handling. This unit is not normally required in existing voice, continuous wave (CW), amplitude modulation (AM), FSK equipment usage.

No field changes in effect at time of preparation (8 September 1960).

**RELATION TO OTHER EQUIPMENT**

The AM-1785/GRC is interchangeable electrically, functionally and mechanically on an over-all basis with the AM-1785(XW-1)/GRC.

The AM-1785/GRC is used with but not part of the Radio Set AN/URC-32.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****AMPLIFIER DATA**

NUMBER OF CHANNELS: 2 channels.

IMPEDANCE: 260 ohms for 100 kc; 2260 ohms for 2.4 mc.

**FREQUENCY MULTIPLIER**

INPUT FREQUENCY: 100 kc.

OUTPUT FREQUENCY: 100 kc; 2.4 mc.

OPERATING POWER RQMT: 6.3 v ac, 60 cps, single ph; 130 v dc.

**MANUFACTURER'S OR CONTRACTOR'S DATA**Collins Radio Company, Cedar Rapids, Iowa.  
Part/Dwg No. 543-6255-004.

Contract NObsr-75279, dated 13 June 1958.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and/or Crystal data not available.

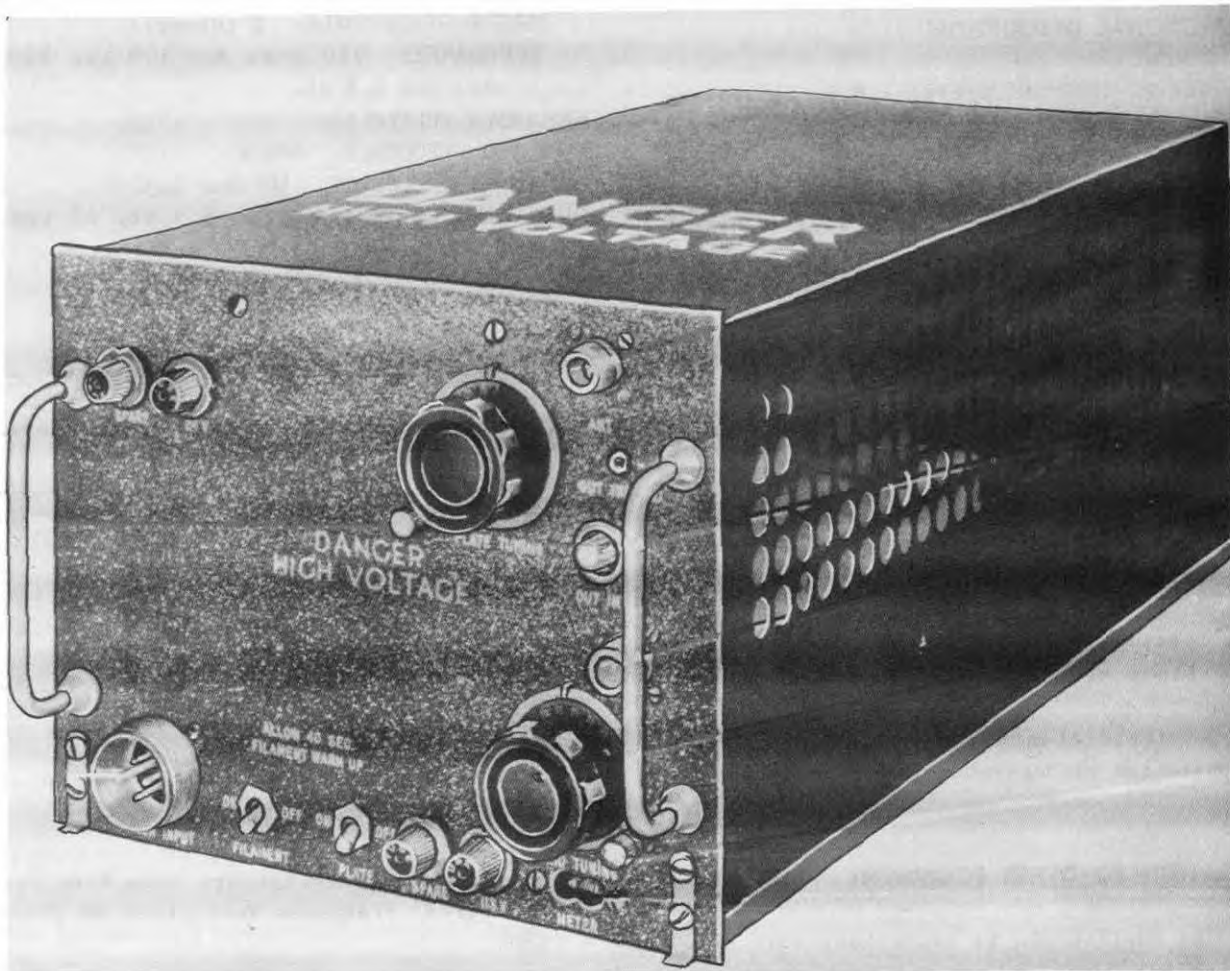
**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Frequency Multiplier AM-1785/GRC.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY 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	Amplifier-Frequency Multiplier AM-1785/GRC	2-15/16 x 4-7/16 x 4-1/2	



*Radio Frequency Amplifier AM-18/APT*

#### FUNCTIONAL DESCRIPTION

The AM-18/APT is a high power radio frequency amplifier designed for installation in aircraft. This equipment requires a radio frequency driver that operates within the correct frequency range and has a 50 ohm coaxial output. Any one of the following drivers may be used; Transmitting Equipment AN/APT-1, Radar Set AN/APT-3 or Radio Transmitting Equipment TC-183 (as modified by T.O. No. 08-1-15 dated 1 July 1944).

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

#### RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied:  
Radio Frequency Cable RG-8/U or RG-31/U and  
Power Wiring as required.

#### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 140 to 210 mc.

RANDWIDTH: 5 mc max.

#### POWER REQUIREMENTS

BLOWER MOTOR: 24 to 28 v DC, 0.5 amp.

The AM-18/APT: 80 or 115 v, 400 to 2600 cps,  
700 W, 0.85 power factor.

#### OPERATING DATA

TEMPERATURE:  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ , continuous  
duty.  $+71^{\circ}\text{C}$  max for short period not  
to exceed 2 hrs duty.

ALTITUDE: 35,000 ft.

POWER OUTPUT: 50 W at low frequency end of  
range, 100 W at high frequency range;  
driving power; 10 W.

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

Aireon Mfg. Corp. Kansas City, Mo.  
Contract NXsr-71321.

## AM-18/APT

## RADIO FREQUENCY AMPLIFIER

September 1956

## TUBE AND/OR CRYSTAL COMPLEMENT

Radio Frequency Amplifier AM-18/APT.

(1) 836 (1) 35TG  
 Total Tubes: (2)

## REFERENCE DATA AND LITERATURE

T.O. 12P3-2APT-112: Technical Manual for

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	USAF
PROCUREMENT COGNIZANCE	RRL-3400
STOCK NO.	

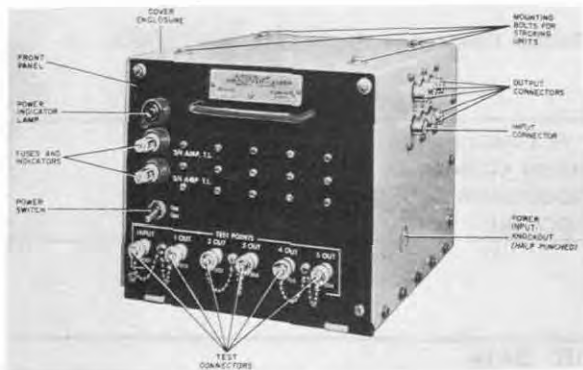
## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Amplifier AM-18/APT	7-5/8 X 10-1/2 X 21	50
1	Mounting Base-MT-171/U	10-1/4 X 19-11/16	3.25
1	Plug AN3108-22-4S	1-19/32 X 2-1/8	0.5
1	Adapter-AN3057-12	1-3/16 X 1-9/16	0.1
2	Radio Frequency Plug UG-21/U	5/8 X 1-5/8	0.5
2	Radio Frequency Adapter UG-27/U	11/16 X 1-1/4 X 1-3/8	0.4



February 1960

Radio-Auxiliary

**TRIGGER PULSE AMPLIFIER****AM-1913/UP***Trigger Pulse Amplifier AM-1913/UP***FUNCTIONAL DESCRIPTION**

The AM-1913/UP is designed to provide from one to five simultaneous and identical triggering pulses for radar indicating equipments when an input pulse is present. A variable delay line is provided internally, at the input of the trigger pulse amplifier, to adjust the time relationship between the input and output signal. The Trigger Pulse Amplifier is a self contained unit and requires a 115 v, 60 cps, single phase external power source for operation.

No field changes in effect at time of preparation (1 July 1959).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TRIGGER PULSE AMPLIFIER INPUT SIGNAL  
IMPEDANCE

INPUT AND OUTPUT: 75 ohms.  
PULSE POLARITY: Positive.

PEAK PULSE AMPLITUDE: 10 v minimum.  
TRIGGER REGENERATOR OUTPUT SIGNAL  
IMPEDANCE

INPUT AND OUTPUT: 75 ohms.  
PULSE POLARITY: Positive.  
PEAK PULSE AMPLITUDE: 20 v  $\pm$ 5.  
OPERATING POWER RQMT: 115 v, 60 cps, single phase.

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

The Admiral Corporation, Chicago, Illinois.

Dwg Noo 597D100.

Contract NObsr-71188, dated 31 January 1956.

Approximate Cost: \$878,726.66 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(10) 6021

Total Tubes: (10)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93222: Technical Manual for Trigger Pulse Amplifier AM-1913/UP.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 7.7

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Trigger Pulse Amplifier AM-1913/UP	18.1	11 <sup>3</sup> / <sub>4</sub> X 13-5/8 X 16-1/4	28

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Trigger Pulse Amplifier AM-1913/UP	8-3/16 X 9-1/2 X 11-7/8	19
2	Technical Manual NAVSHIPS 93222	1/4 X 8-1/2 X 11	

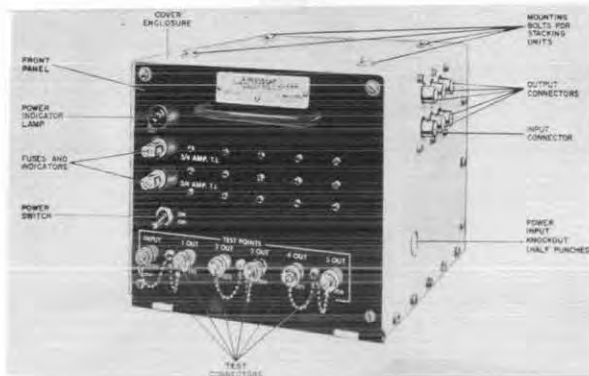


February 1960

Radio-Auxiliary

## VIDEO AMPLIFIER

AM-1914/UP



Video Amplifier AM-1914/UP

## FUNCTIONAL DESCRIPTION

The AM-1914/UP is designed to distribute pulsed radar video information. It can accept video signals from a radar receiver, radar signal distribution switchboard, or other similar equipment; and distribute the signals with minimum loss and distortion to as many as five (5) separate indicators. The distribution function is accomplished by paralleling the high impedance inputs of five identical plug-in video amplifier subassemblies across a video signal input, and obtaining the reproduced signal each plug-in amplifier subassembly output.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## INPUT AND OUTPUT SIGNAL CHARACTER

## VIDEO INPUT SIGNAL

IMPEDANCE: 75 ohms.

PULSE POLARITY: Positive.

PEAK PULSE RANGE: 0.2 to 3.0 v.

AMPLITUDE (NORMAL): 2 v.  
 VIDEO OUTPUT SIGNAL  
 IMPEDANCE: 75 ohms.  
 PULSE POLARITY: Positive.  
 PEAK PULSE RANGE: 0.17 to 3.6 v.  
 AMPLITUDE (NORMAL): 2 v  $\pm$ 5%.  
 OPERATING POWER REQUIRED: 115 v, 60 cps,  
 signal ph, external power source.

## MANUFACTURER'S OR CONTRACTOR'S DATA

The Admiral Corp., Chicago, Illinois.

Dwg No. 597D100.

Contract NObsr-71188, dated 31 January 1956.

Approximate Cost: \$878,726.66 with equipment spares.

## TUBE AND/OR CRYSTAL COMPLEMENT

(5) 6021 (5) 5939

Total Tubes: (10)

No Crystals used.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93219: Technical Manual for Video Amplifier AM-1914/UP.

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	Video Amplifier AM-1914/UP	18.1	11-3/4 X 13-5/8 X 16-1/4	28

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Video Amplifier AM-1914/UP	8-1/4 X 9-3/4 X 11-23/32	19
2	Tech Manual NAVSHIPS	1/8 X 8-3/4 X 11-1/4	

10 September 1962

Cog Service:

FSN:

AMPLIFIER, AUDIO FREQUENCY AM-1959/ARR-26

Functional Class:

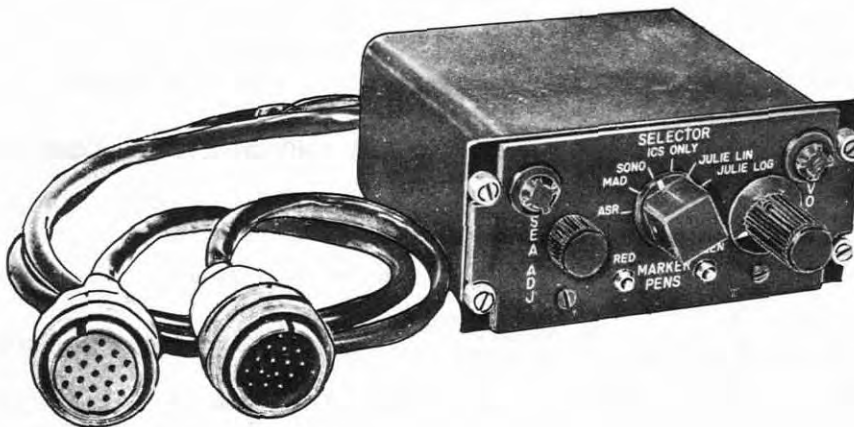
USA

USN

USAF

**TYPE CLASS:** Texas Instrument.

**MANUFACTURER'S NAME/CODE NUMBER:** Texas Instrument.



*Amplifier, Audio Frequency AM-1959/ARR-26*

**FUNCTIONAL DESCRIPTION:**

The Amplifier, Audio Frequency AM-1959/ARR-26 is a console-mounted, dual-channel audio amplifier and filter for use in airborne equipment applications. It provides for the display of certain selected signals on a set of split (binaural) headphones. This equipment is a component of the Julie technique of explosive echo ranging, which uses the passive sonobuoy to locate submarine targets.

The AM-1959/ARR-26 accepts signals from each sonobuoy receiver and amplifies each to give a binaural audio output for split headphones. Also, the signals are filtered and demodulated in the audio amplifier and are presented, respectively, to each signal pen of the R0-86/ARR-26 Recorder.

No field changes in effect at time of preparation (25 July 1961).

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**AM-1959/ARR-26 AMPLIFIER, AUDIO FREQUENCY**

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**TECHNICAL CHARACTERISTICS:**

TYPE OF MOUNTING: Console mounted.

**AMPLIFICATION DATA**

POWER: 300 mw.

GAIN: 34 porm 2 db.

OPERATING POWER RQMT: 28 v dc.

**FREQUENCY RESPONSE**

SONO FUNCTION: 300 to 6000 cps operating range.

ALL OTHER FUNCTIONS: 1000 to 3000 cps operating range.

VARIATION IN OUTPUT: Porm 2 db variation in output at P25 deg at 1000 cps.

**INPUT CHANNEL DATA**

NUMBER OF CHANNELS: 2 channels.

RECORDER IMPEDANCE: 600, 15000 ohms.

SPLIT PHONE IMPEDANCE: 200 ohms each.

**RELATION TO OTHER EQUIPMENT:**

The AM-1959/ARR-26 is designed to be used with, but not part of, Airborne Radio Receiving Set AN/ARR-26.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) or (2) Sonobuoys Type AN/SSQ-2B, -2D, or -23; (1) Sonobuoy Receiver Set w/its associated Auxiliary Sono Control Panel AN/ARR-26A; (1) Modified RD-47A/ASQ-8 Recorder R0-86/ARR-26; (1) or (2) Practice Depth Charge (PDC) MK-15; (1) Split Earphones (Headset, Headband Ass'y) Type GAEC 89R1634-1 or H-173/AIC; (1) Signal Generator TS-382D/U; (1) Vacuum Tube Voltmeter ME-GD/U; (1) Oscilloscope AN/USM-24; (1) Multimeter AN/PSM-4; (1) Recorder R0-86/ARR-26.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier, Audio Frequency AM-1959/ARR-26		2-5/8 x 3-1/4 x 4-29/64	3-1/4

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**REFERENCE DATA AND LITERATURE:**

NAVWEPS 16-45-773: Technical Manual for Amplifier, Audio Frequency AM-1959/ARR-26.

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

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: (2) T1653 (6) 1N645

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

PROCUREMENT DATA

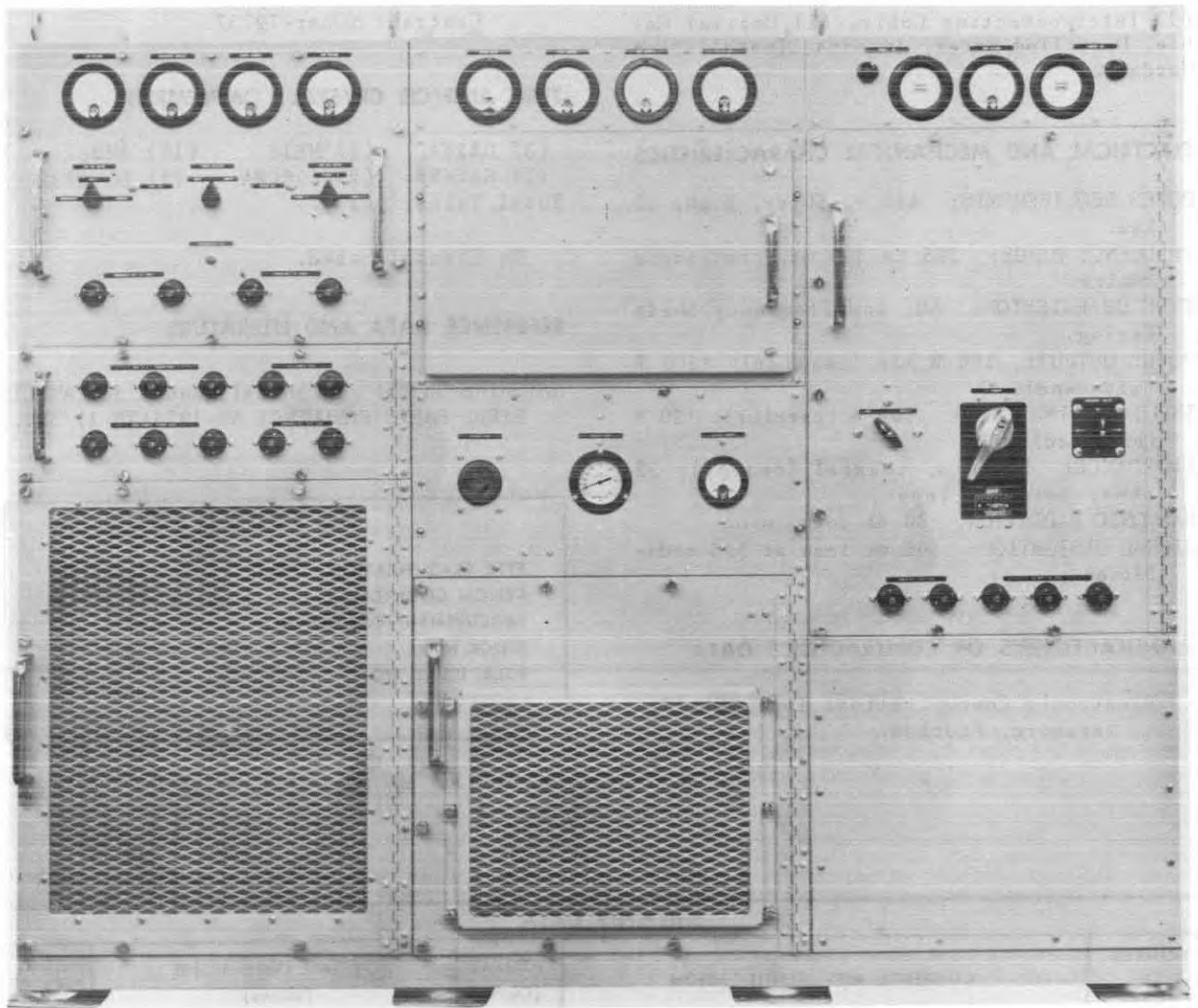
PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Texas Instrument Dwg no. 58028	Dallas, Texas	N0as 53-099	
Grumman Aircraft Engineering Corp. Part no. 89SCR101-1	Bethpage, N. Y.	N0as 53-099	

## AMPLIFIER RADIO FREQUENCY

AM-1976(XN-1)/SRT



## FUNCTIONAL DESCRIPTION

Radio Frequency Amplifier AM/1976(XN-1)/SRT in conjunction with a suitable external driver provides UHF transmission of audio modulated signals (A3), or frequency shift keying (F1) in the 225 to 400 mc range. A minimum output of 1000 watts plus 500 watts sideband power is obtained when driven by an input of 100 watts plus 50 watts sideband power. The equipment is built to operate con-

tinuously in general purpose installations within an ambient temperature range of 0° C (32° F) to +50° C (122° F).

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

## EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Driver Transmitter AN/SRT-18, (1) Technical Manual NAVSHIPS 92583 or 92741,

Radio-Auxiliary

**AM-1976(XN-1)/SRT AMPLIFIER RADIO FREQUENCY**

(1) Interconnecting Cable, (1) Coaxial Cable, Distilled water, Antenna, Installation Hardware.

Contract NObsr-72737.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 440 v, 60 cy, 3 ph, 10 kva.  
 FREQUENCY RANGE: 225 to 400 mc, continuous tuning.  
 TYPE OF EMISSION: AM, and Frequency Shift Keying.  
 POWER OUTPUT: 100 W min (carrier); +500 W (sideband).  
 INPUT DRIVING POWER: 100 W (carrier), +50 W (sideband).  
 IMPEDANCE: 52 ohms, coaxial (output); 52 ohms, coaxial (input).  
 HARMONIC RADIATION: 80 db down, min.  
 SIGNAL DISTORTION: 10% or less at 80% modulation

**TUBE AND/OR CRYSTAL COMPLEMENT**

(3) 0A2WA (1) NE16 (10) 3B26  
 (2) 6AU6WA (2) 6080WA (1) GL-6132  
 Total Tubes: (19).  
 No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93275: Technical Manual for AMPLIFIER, RADIO FREQUENCY AM-1976(XN-1)/SRT.

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

Electronic Communications Inc., St. Petersburg, Florida.

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

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	L.V. and Control Cabinet			
1	Power Amplifier Cabinet			
1	High Voltage Cabinet			
1	Spare Parts Box and PA Tube			
1	Mounting Material			

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier, Radio Frequency AM-1976(XN-1)/SRT Incl:	26-1/16 X 52-1/16 X 64-3/16	
1	L.V. and Control Cabinet	21-3/8 X 22-1/2 X 49-5/16	
1	Power Amplifier Cabinet	21-3/8 X 22-1/2 X 49-5/16	
1	High Voltage Cabinet	20-1/16 X 22-1/2 X 49-5/16	
2	Technical Manual		



UNCLASSIFIED

February 1960

Radio-Auxiliary

# RADIO FREQUENCY AMPLIFIER

# AM-2072(XN-1)/SR

## FUNCTIONAL DESCRIPTION

Contract NObsr-72730, dated 18 June 1957.

Radio Frequency Amplifier AM-2072(XN-1)/SR consists of a class "B" linear amplifier, power supplies, and control circuit. It is intended for use with Radio Set AN/SRC-17 (XN-1). Its function is to linearly amplify the 10 watt modulated output of the AM-2073 (XN-1)/SR to a 100 watt RF carrier level.

No field changes in effect at time of preparation (30 December 1959).

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal Data available.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93498: Technical Manual for RADIO FREQUENCY AMPLIFIER AM-2072(XN-1)/SR.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

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

FREQUENCY RANGE: 225.0 to 400.0 mc.

POWER OUTPUT: 100 W carrier, FM; 100% voice modulated carrier, AM.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

Manson Laboratories Inc., Stamford, Conn.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Amplifier AM-2072(XN-1)/SR	6-31/32 X 16-3/8 X 20-1/2	

UNCLASSIFIED

T. 2 AM-2072(XN-1)/SR: 1

February 1960

Radio-Auxiliary

**AMPLIFIER - MODULATOR****AM-2073(XN-1)/SR****FUNCTIONAL DESCRIPTION**

Amplifier-Modulator AM-2073(XN-1)/SR is designed to function as a driver for Amplifier AM-2072(XN-1)/SR, and as the audio modulator for Radio Set AN/SRC-17(XN-1). The second stage of a dual-stage r-f driver circuit is modulated by a four-stage audio amplifier. A TR switching circuit cuts off the input drive to the transmitter when the radio set is in the receive condition.

No field changes in effect at time of preparation (30 December 1959).

**RELATION TO OTHER EQUIPMENT**

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 110 W, 115 v, 50 to 60 cy, single ph.

**FREQUENCY RANGE**

INPUT: 225 to 400  $\pm$ 3 mc.

OUTPUT: 225 to 400 mc.

INPUT POWER: 0.5 to 1.5 W.

INPUT IMPEDANCE: 50 ohms.

OUTPUT POWER: 10 to 15 W.

OUTPUT IMPEDANCE: 50 ohms.

AUDIO INPUT: 9.15 to 3 v.

AUDIO INPUT IMPEDANCE: 600 ohms.

MODULATION POWER OUTPUT: 2.5 W max.

MODULATION DISTORTION: 10% max.

PERCENT MODULATION: 95% screen modulation.

CLIPPING: 16 to 20 db.

AGC: +30 db change in input above input level results in +3 db change in output.

MICROPHONE: Carbon or dynamic.

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

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

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystal Data Available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93497: Technical Manual for AMPLIFIER-MODULATOR AM-2073(XN-1)/SR.

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

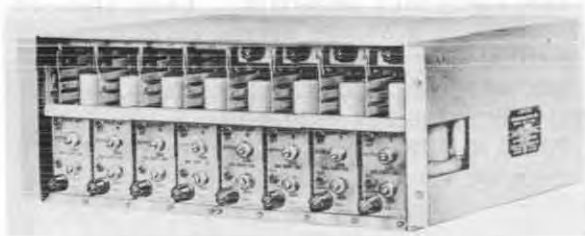
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier-Modulator AM-2073(XN-1)/SR	6-31/32 X 16-3/8 X 20-1/2	

February 1960

## TRIGGER PULSE AMPLIFIER INTERCONNECTING BOX

Radio-Auxiliary  
AM-2097/UX  
J-1017/UX



*Trigger Pulse Amplifier, AM-2097/UX and Interconnecting Box J-1017/UX, Relationship of Units*

### FUNCTIONAL DESCRIPTION

Trigger Pulse Amplifier AM-2097/UX enables several television viewers and/or several television camera chains to be operated from one Pulse Generator 0-577/UX. Because of the high input impedance presented by each pulse amplifier the inputs of up to sixteen pulse amplifiers may be connected in parallel across one 75 ohm coaxial line. Each pulse amplifier, with an input of 3.5 volts peak-to-peak min., provides two independent outputs variable in amplitude from zero to six volts into a 75 ohm line. In Television System AN/GXQ-3(V) and AN/SXO-2(V), the pulse amplifier gain controls are adjusted to provide an output amplitude of four peak-to-peak.

Interconnecting Box J-1017/UX serves to contain and supply heater and plate power to a maximum of eight Trigger Pulse Amplifiers AM-2097/UX. In addition, the interconnecting box provides facilities for connecting the pulse amplifiers to the television System.

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

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TRIGGER PULSE AMPLIFIER AM-2097/UX.

POWER REQUIREMENTS: 300 v dc 90 ma, 6.3 v ac 3.75 amp.

INPUT IMPEDANCE: 470,000 ohms shunted by 18 uuf.

OUTPUT IMPEDANCE: 75 ohms (approx).

LOAD IMPEDANCE: 75 ohms.

HIGH FREQUENCY RESPONSE: 3.4 mc +1 to 2 db, 5 mc -4 to 6 db.

LOW FREQUENCY RESPONSE: Less than 2% tilt on the negative portion of the vertical blanking pulse.

NOMINAL INPUT LEVEL: 4 v, peak-to-peak.

NOMINAL OUTPUT LEVEL: 4 v, peak-to-peak.

INTERCONNECTING BOX J-1017/UX.

POWER REQUIREMENTS: 115 v ac 225 W, 300 v dc 720 ma.

### MANUFACTURER'S OR CONTRACTOR'S DATA

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

### TUBE AND/OR CRYSTAL COMPLEMENT

(AM-2097/UX)

(1) 6AU8 (1) 6080WA

Total Tubes: (2)

(J-1017/UX)

No Electron Tubes used.

No Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93374: Technical Manual for TRIGGER PULSE AMPLIFIER AM-2097/UX.

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

### EQUIPMENT SUPPLIED DATA

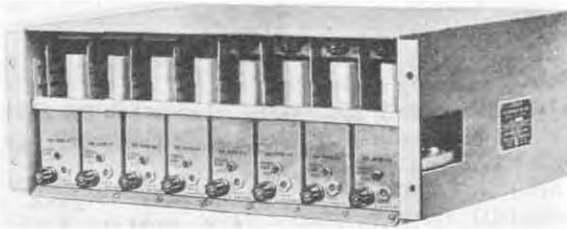
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Trigger Pulse Amplifier AM-2097/UX	2 X 5-9/16 X 11-3/4	3
1	Interconnecting Box J-1017/UX	6-7/8 X 14-13/16 X 18-5/16	40

February 1960

## VIDEO AMPLIFIER INTERCONNECTING BOX

Radio-Auxiliary

AM-2098/UX J-1018/UX



*Video Amplifier AM-2098/UX and Interconnecting Box J-1018/UX,  
Relationship of Units*

### FUNCTIONAL DESCRIPTION

Video Amplifier AM-2098/UX enables several Television Viewers IP-487/UX or similar units to be fed from one Television Camera Control C-2739/UX. Because of the high input impedance presented by each video amplifier, inputs of up to eight video amplifiers may be connected in parallel across one 75 ohm coaxial line. The amplifier provides approximately unity gain and is designed to feed 75 ohm coaxial line at a level of one-volt, peak-to-peak.

Interconnecting Box J-1018/UX contains and supplies heater and plate power to a max of eight amplifiers. In addition the interconnecting box provides facilities for connecting the video amplifiers to the television system.

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

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

VIDEO AMPLIFIER AM-2098/UX.

POWER REQUIREMENTS: 300 v dc 60 ma, 6.3 v ac 1.25 amp.

INPUT IMPEDANCE: 1 meg shunted by 13 uuf.

OUTPUT IMPEDANCE: 75 ohms.

LOAD IMPEDANCE: 75 ohms.

HIGH FREQUENCY RESPONSE: 17 mc  $\pm$  1 db.

LOW FREQUENCY RESPONSE: Less than 3% tilt on a 60 cps square wave.

NOMINAL INPUT LEVEL: 1 v, peak-to-peak.

NOMINAL OUTPUT LEVEL: 1 v, peak-to-peak.

INTERCONNECTING BOX J-1018/UX.

POWER REQUIREMENTS: 115 v ac 100 W, 300 v dc 480 ma.

### MANUFACTURER'S OR CONTRACTOR'S DATA

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

### TUBE AND/OR CRYSTAL COMPLEMENT

(AM-2098/UX)

(1) 5687WA (2) 6AK5W/5654  
Total Tubes: (3)

(J-1018/UX)

No Electron Tubes used.

No Crystals used.

### REFERENCE DATA AND LITERATURE

NAVSHIPS 93375: Technical Manual for VIDEO AMPLIFIER AM-2098/UX.

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	Video Amplifier AM-2098/UX	2 X 5-9/16 X 11-3/4	3
1	Interconnecting Box J-1018/UX	6-7/8 X 14-13/16 X 18-5/16	33

June 1961

**AMPLIFIER RADIO FREQUENCY**Radio-Auxiliary  
**AM-2103/URT****FUNCTIONAL DESCRIPTION**

The AM-2103/URT is a linear general-purpose, radio-frequency amplifier. It is provided with full interlock protection as a safety feature.

No field changes in effect at time of preparation (25 November 1960).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OPERATING MODES: CW, MCW, SSB, DSB, ISB and FSK.

TYPE OF PROTECTION: Full interlock.

TYPE OF MOUNTING: Rack mounted.

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

**HARMONIC SUPPRESSION**

SECOND HARMONIC: At least 50 db.

THIRD HARMONIC: 65 db from PEP output.

**INPUT DATA**

INPUT IMPEDANCE: 70 ohms.

OUTPUT IMPEDANCE: 50 to 600 ohms.

FREQUENCY RANGE: 2 to 32 mc.

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

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

The Technical Materiel Corp, Mamaroneck, New York.

Model RFB-1.

Contract NObsr-71790.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and/or Crystal data not available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Radio Frequency AM-2103/URT.

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

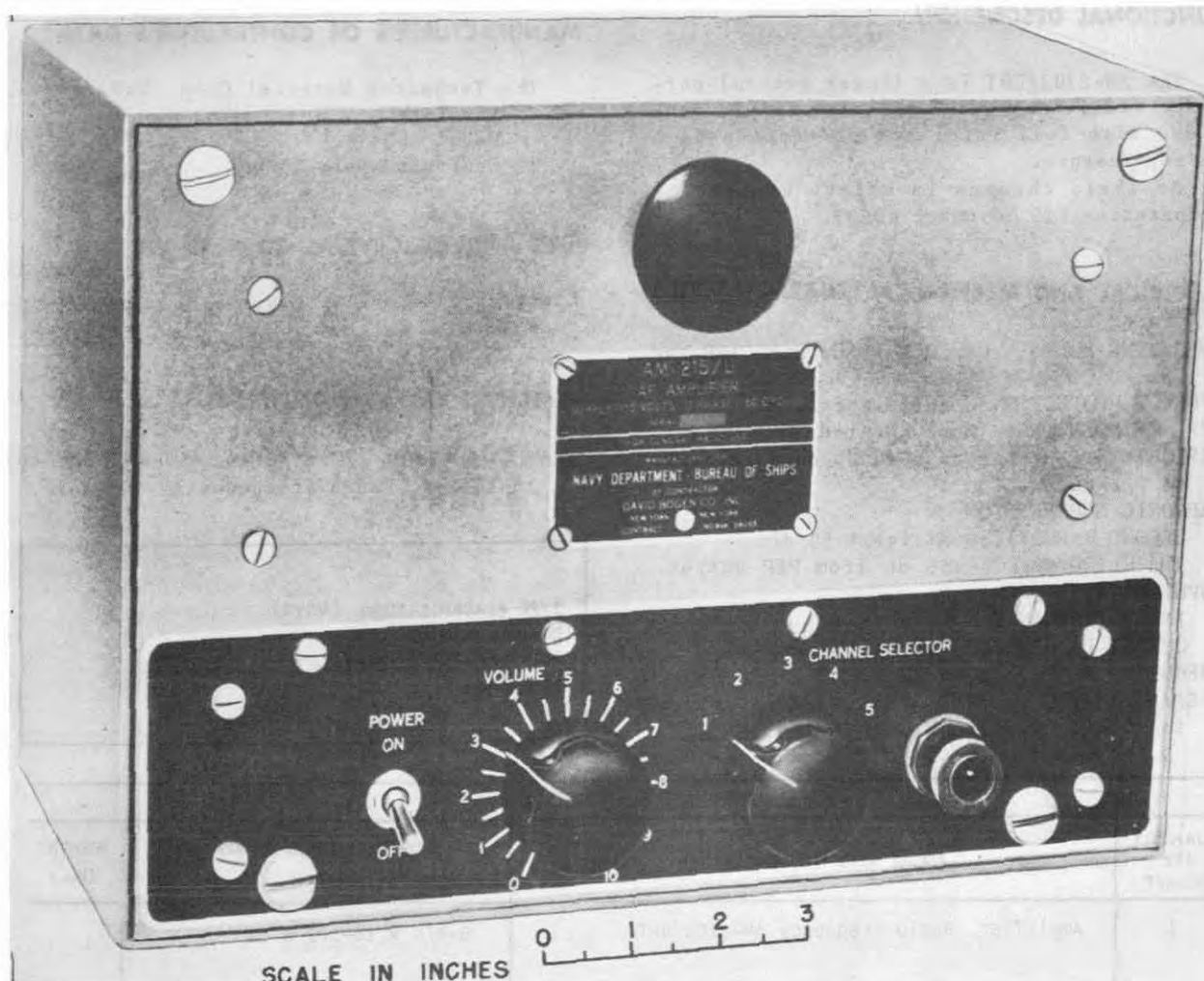
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier, Radio Frequency AM-2103/URT	8-3/4 x 16-1/2 x 19	



## A. F. AMPLIFIER

AM-215/U



A. F. Amplifier AM-215/U

**FUNCTIONAL DESCRIPTION**

A.F. Amplifier AM-215/U amplifies low level audio signals for reproduction through loudspeakers. It is used on board ship or ashore for multiple input general communication work in conjunction with Naval electronic receiving equipment, or other source of audio frequency and associated loudspeaker units.

Data on this sheet reflects the following Field Changes: FC 1 (14 December 1959).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

To fulfill its purpose this amplifier must have from 1 to 5 sources of audio frequency,

such as Navy radio receiver, phono preamplifier, etc. to supply the desired signal to the amplifier input, and 1 or more sound reproducers such as loudspeakers, headsets, etc. for audio output.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 55 W, 110 to 120 v, 50 to 60 cy, 1 ph, 0.57 amp.

FREQUENCY RANGE: 250 to 4,000 cps.

POWER OUTPUT: 10 Wmax at 10% total harmonic distortion.

**IMPEDANCE**

INPUT: 600 ohms.

OUTPUT: 600 ohms, 15 ohms.

POWER GAIN: 32.2 db.



Radio-Auxiliary

**AM-215/U**

**A. F. AMPLIFIER**

AUDIO INPUT POWER: 2 W max into each input;  
6 mw min for full power output.  
POWER FACTOR: 84%.

**REFERENCE DATA AND LITERATURE** for A.F.

NAVSHIPS 900,995: Technical Manual for A.F.  
AMPLIFIER AM-215/U.

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

David Bogen Co. Inc., New York, New York.  
Contract NObsr-39055, dated 23 October  
1946.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 6J6 (2) 6AQ5 (2) 6X4

Total Tubes: (5)

No Crystals used.

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE USN, BUSHIPS  
PROCUREMENT COGNIZANCE SPEC: 16A27(SHIPS)  
STOCK NO.  
R.D.B. IDENT. NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	A.F. Amplifier AM-215/U	1.42	11-1/4 X 12-1/8 X 17-3/4	34
1	Equipment Spare Parts	1.06	9-1/2 X 12-3/4 X 15-1/8	36

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	A.F. Amplifier AM-215/U including:	6-1/16 X 8-3/8 X 12	25
2	Technical Manual NAVSHIPS 900,995	1/2 X 15 X 12	1
1	Equipment Spare Parts	6-3/4 X 10-1/2 X 13-1/2	24

February 1960

Radio-Auxiliary

**A. F. AMPLIFIER****AM-215A/U**

A. F. Amplifier AM-215A/U

**FUNCTIONAL DESCRIPTION**

A.F. Amplifier AM-215A/U amplifies low level audio signals for reproduction through loudspeakers. It is used on board ship or ashore for multiple input general communication work in conjunction with Naval electronic receiving equipment, or other source of audio frequency and associated loudspeaker units.

No field changes in effect at time of preparation (14 December 1959).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

To fulfill its purpose this amplifier must have from 1 to 5 sources of audio frequency, such as Navy radio receiver, phono pre-amplifier, etc., to supply the desired signal to the amplifier input, and 1 or more sound reproducer such as loudspeakers, headsets, etc. for audio output.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 55 W, 110 to 120 v, 50 to 60 cy, 1 oh, 0.57 amp.

FREQUENCY RANGE: 250 to 4,000 cps.

POWER OUTPUT: 10 W max at 10% total harmonic distortion.

**IMPEDANCE**

INPUT: 600 ohms.

OUTPUT: 600 ohms, 15 ohms.

POWER GAIN: 32-2 db.

AUDIO INPUT POWER: 2 W ma into each input; 6 mw min for full power output.

POWER FACTOR: 84%.

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

Hoffman Radio Corp., Los Angeles, Calif.  
Contract NObsr-39405, dated 30 June 1947.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 12AU7 (2) 6AQ5 (2) 6X4

Total Tubes: (5)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91078: Technical Manual for A.F. AMPLIFIER AM-215A/U.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC: 16A27(SHIPS)
STOCK NO. AMEND 1
R.D.B. IDENT. NO.

**SHIPPING DATA**

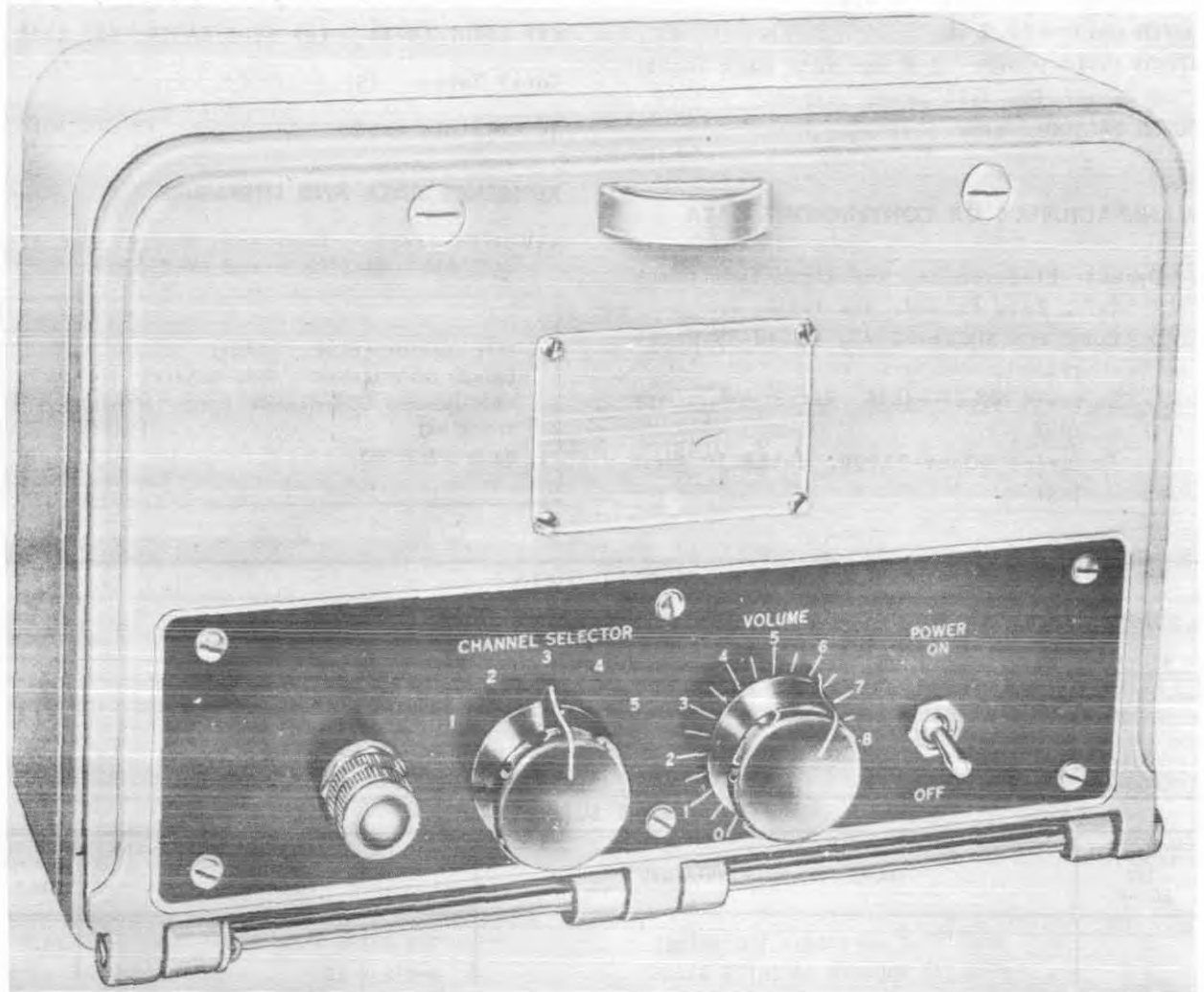
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	A.F. Amplifier AM-215A/U	0.85	9-1/2 X 10-3/4 X 14-3/8	28.3
1	Equipment Spare Parts	0.45	7 X 8 X 13-3/4	23.5

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	A.F. Amplifier AM-215A/U Including:	7 X 8-3/8 X 12	28.5
2	Technical Manual NAVSHIPS 91078	8-1/2 X 11	
1	Set of Equipment Spare Parts	6-3/16 X 7-1/4 X 13-1/4	22

## A. F. AMPLIFIER

Radio-Auxiliary  
**AM-215B/U**



*A.F. Amplifier AM-215B/U*

### FUNCTIONAL DESCRIPTION

A. F. Amplifier AM-215B/U amplifies low level audio signals for reproduction through loudspeakers. It is used on board ship or ashore for multiple input general communication work in conjunction with Naval electronic receiving equipment, or other source of audio frequency and associated loudspeaker units.

No field changes in effect at time of preparation (14 December 1959).

### EQUIPMENT REQUIRED BUT NOT SUPPLIED

To fulfill its purpose this amplifier must

have from 1 to 5 sources of audio frequency, such as Navy radio receiver, phono pre-amplifier, etc. to supply the desired signal to the amplifier input, and 1 or more sound reproducers such as loudspeakers, headsets, etc. for audio output.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 55 W, 110 to 120 v, 50 to 60 cy, 1 ph, 0.57 amp.

FREQUENCY RANGE: 250 to 4,000 cps.

POWER OUTPUT: 10 Wmax at 10% total harmonic distortion.

IMPEDANCE

INPUT: 600 ohms.

**AM-215B/U****A. F. AMPLIFIER**

OUTPUT: 600 ohms, 15 ohms.  
 POWER GAIN: 32.2 db.  
 AUDIO INPUT POWER: 2 W max into each input;  
 6 mw min for full power output.  
 POWER FACTOR: 84%.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 12AU7/5814A (2) 6005/6AQ5W (2) 6X4W  
 Total Tubes: (5)  
 No Crystals used.

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

Dynamic Electronics, New York, Inc; Glen-  
 dale, Long Island, New York.  
 Contract NObsr-52347, dated 15 March  
 1951.  
 Contract NObsr-64648, dated 25 February  
 1955.  
 Contract NObsr-71290, dated 30 April  
 1956.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 91626: Technical Manual for A.F.  
 AMPLIFIER AM-215B/U and AM-215D/U.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: MIL-A-15662A
STOCK NO.	(SHIPS)
R.D.B. IDENT. NO.	

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	A.F. Amplifier AM-215B/U	0.85	9-1/2 X 10-3/4 X 14-3/8	28.3

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	A.F. Amplifier AM-215B/U including:	7 X 8-3/8 X 12	23.5
2	Technical Manuals NAVSHIPS 91626	8-1/2 X 11	

31 July 1962

Cog Service: USN FSN: 5820-642-7970

A. F. AMPLIFIER AM-215C/U

Functional Class:

USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Sytron Incorporated, (78425).



*A. F. Amplifier AM-215C/U*

#### FUNCTIONAL DESCRIPTION:

The A. F. Amplifier AM-215C/U is designed to amplify low level audio signals for reproduction through loudspeakers. It is used on board ship or on shore for multiple input general communication work in conjunction with Naval electronic receiving equipment, or other source of audio frequency and associated loudspeaker units.

No field changes in effect at time of preparation (30 January 1962).

#### TECHNICAL CHARACTERISTICS:

AUDIO INPUT POWER: 2 W max into each input 6 mw min for full power output.

POWER OUTPUT: 10 W at 10% total harmonic distortion.

#### IMPEDANCE

INPUT: 600 ohms.

OUTPUT: 600 ohms, 15 ohms.



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**AM-215C/U A. F. AMPLIFIER**

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POWER GAIN: 32.2 db.  
NUMBER OF CHANNELS: 5 channels.  
FREQUENCY RANGE: 250 to 4,000 cps.  
POWER FACTOR: 84% pf.  
OPERATING POWER RQMT: 110 to 120 v ac, 50 to 60 cps, single ph, 0.57 amp, 55 W.

**RELATION TO OTHER EQUIPMENT:**

The AM-215C/U is the same as A. F. Amplifier AM-215B/U except that it uses saddle type tube sockets and different tube clamps.

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	A. F. Amplifier AM-215C/U		7 x 8-3/8 x 12	23-1/2
2	Technical Manual NAVSHIPS 91626		1/4 x 8-1/2 x 11	

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 91626: Technical Manual for A. F. Amplifier AM-215B/U, AM-215C/U and AM-215D/U.

---

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

TUBES: (1) 12AV7/5814A (2) 6005/6AQ5W (2) 6X4W

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.85	28.3

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**PROCUREMENT DATA**

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PROCURING SERVICE: USN DESIGN COG: USN, BuShips  
SPEC &/OR DWG: MIL-A-15662A(SHIPS)

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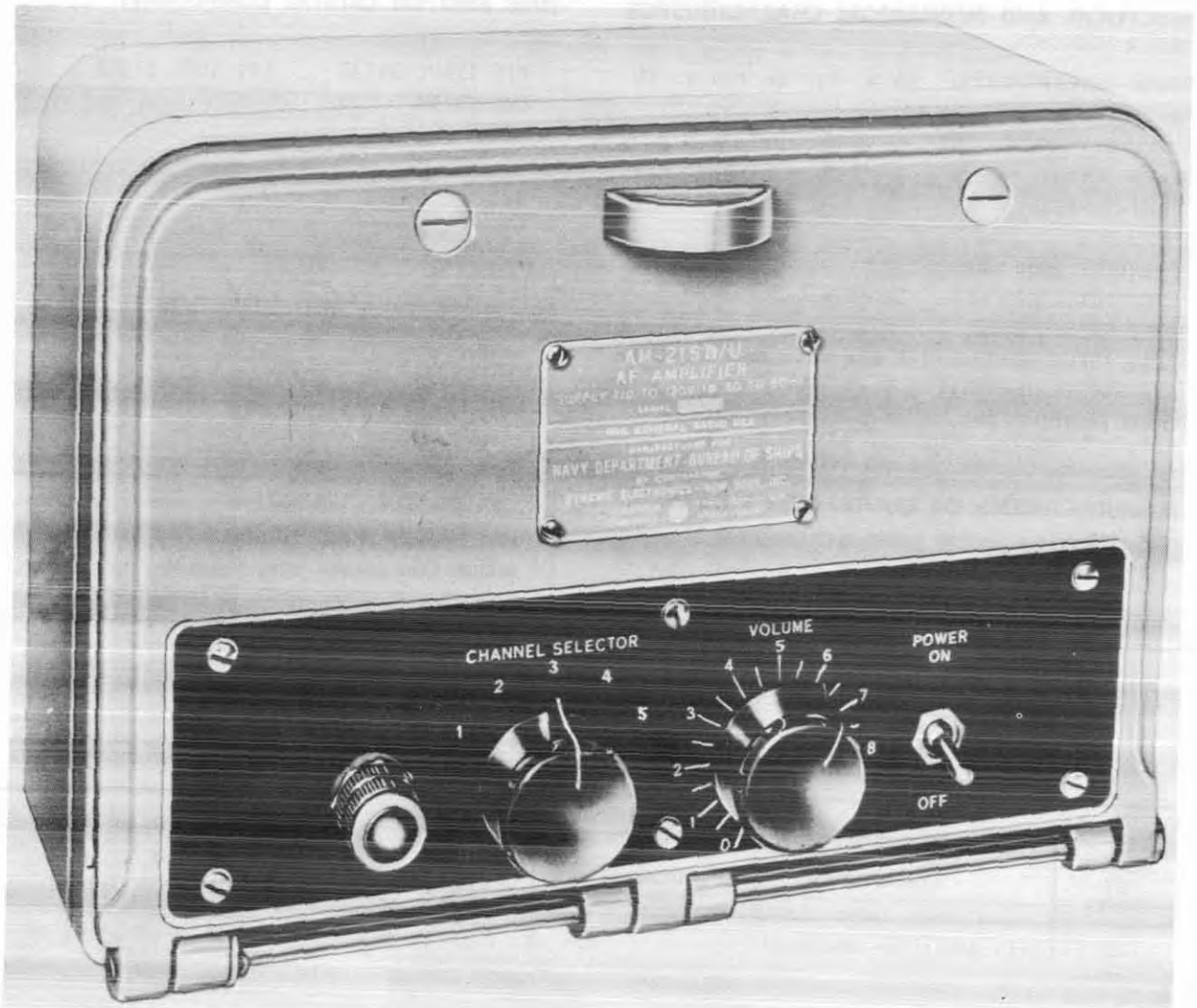
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sytron Incorporated	New York, New York	N0bsr-64697	

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## A. F. AMPLIFIER

AM-215D/U



A.F. Amplifier AM-215D/U

**FUNCTIONAL DESCRIPTION**

A.F. Amplifier AM-215D/U amplifies low-level audio signals for reproduction through loudspeakers. It is used on board ship or ashore for multiple input general communication work in conjunction with Naval electronic receiving equipment, or other source of audio frequency and associated loudspeaker units.

No field changes in effect at time of

preparation (14 December 1959).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

To fulfill its purpose this amplifier must have from 1 to 5 sources of audio frequency, such as Navy radio receiver, phono preamplifier, etc. to supply the desired signal to the amplifier input, and 1 or more sound reproducers such as loudspeakers, headsets, etc. for audio output.

February 1960

Radio-Auxiliary  
**AM-215D/U****A. F. AMPLIFIER****ELECTRICAL AND MECHANICAL CHARACTERISTICS**POWER REQUIREMENTS: 55 W, 110 to 120 v, 50  
to 60 cy, 1 ph, 0.57 amp.

FREQUENCY RANGE: 250 to 4,000 cps.

POWER OUTPUT: 10 W max at 10% total harmonic  
distortion.

## IMPEDANCE

INPUT: 600 ohms.

OUTPUT: 600 ohms, 15 ohms.

POWER GAIN: 32.2.

AUDIO INPUT POWER: 2 W max into each input;  
6 mw min for full power output.

POWER FACTOR: 84%.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 12AU7/5814A

(2) 6005/6AQ5W

(2) 6X4WA

Total Tubes: (5)

No Crystals used.

**REFERENCE DATA AND LITERATURE**NAVSHIPS 91626: Technical Manual for A.F.  
AMPLIFIER AM-215B/U and AM-215D/U.**MANUFACTURER'S OR CONTRACTOR'S DATA**Dynamic Electronics, New York, Inc; Glen-  
dale, L.I., New York.Contract NObsr-71519, dated 26 July  
1956.Contract NObsr-75800, dated 17 April  
1959.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE SPEC: MIL-A-15662B
STOCK NO. (SHIPS)
R.D.B. IDENT. NO.

**SHIPPING DATA**

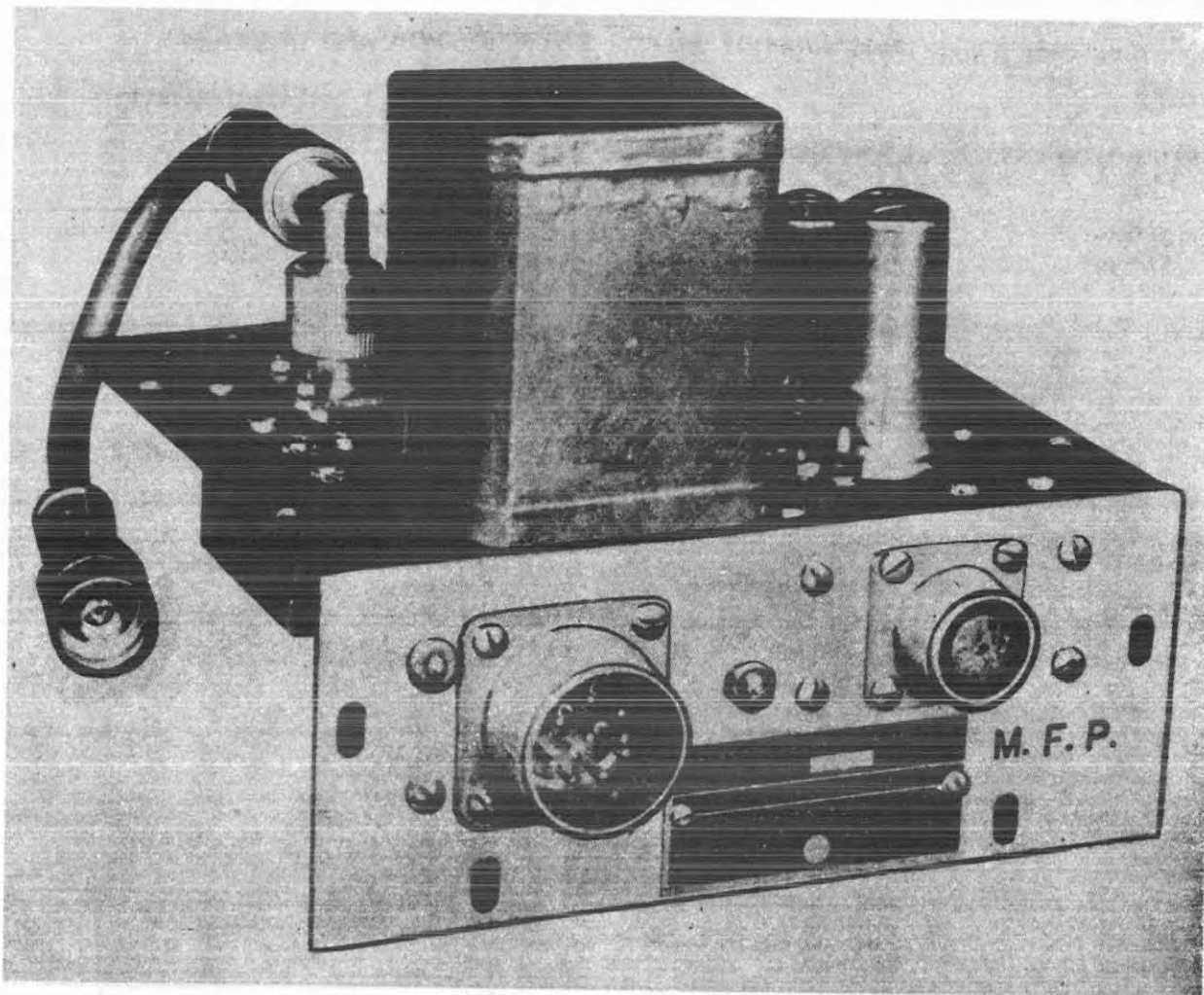
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	A.F. Amplifier AM-215D/U	0.8	9-3/8 X 10-1/2 X 14-1/8	26

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	A.F. Amplifier AM-215D/U including:	7 X 8-3/8 X 12	25
2	Technical Manual NAVSHIPS 91626		

## PREAMPLIFIER

AM-220A/MPQ-2A



Preamplifier AM-220A/MPQ-2A

**FUNCTIONAL DESCRIPTION**

The AM-220A/MPQ-2A is designed to mount in the chassis of oscillator BC-1096 (a unit of the basic Radar Set AN/MPQ-8, or of the Radio Set SCR-584 or of the Close Cooperation Set AN/MPQ-2A) and is directly interchangeable both mechanically and electrically with Preamplifier AM-220/MPQ-2A and BC-1078-A.

No field changes in effect at time of preparation (3 April 1957).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY: 30 mc/sec.  
 BANDWIDTH: 3.5 mc/sec min.  
 GAIN: 50 db min at 0 AGC bias.  
 NOISE FIGURE: 2.2 db max.

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

Allen B. DuMont Laboratories, Inc, Clifton,  
 N.J.

**AM-220A/MPQ-2A****PREAMPLIFIER**Contract NObsr 43456 dated 29 June  
1949.**REFERENCE DATA AND LITERATURE**NAVSHIPS 91408: Technical Manual for Pre-  
amplifier AM-220A/MPQ-2A.**TUBE AND/OR CRYSTAL COMPLEMENT**

- (2) 6AK5
- 
- (2) 6J6

Total Tubes: (4)

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
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**SHIPPING DATA**

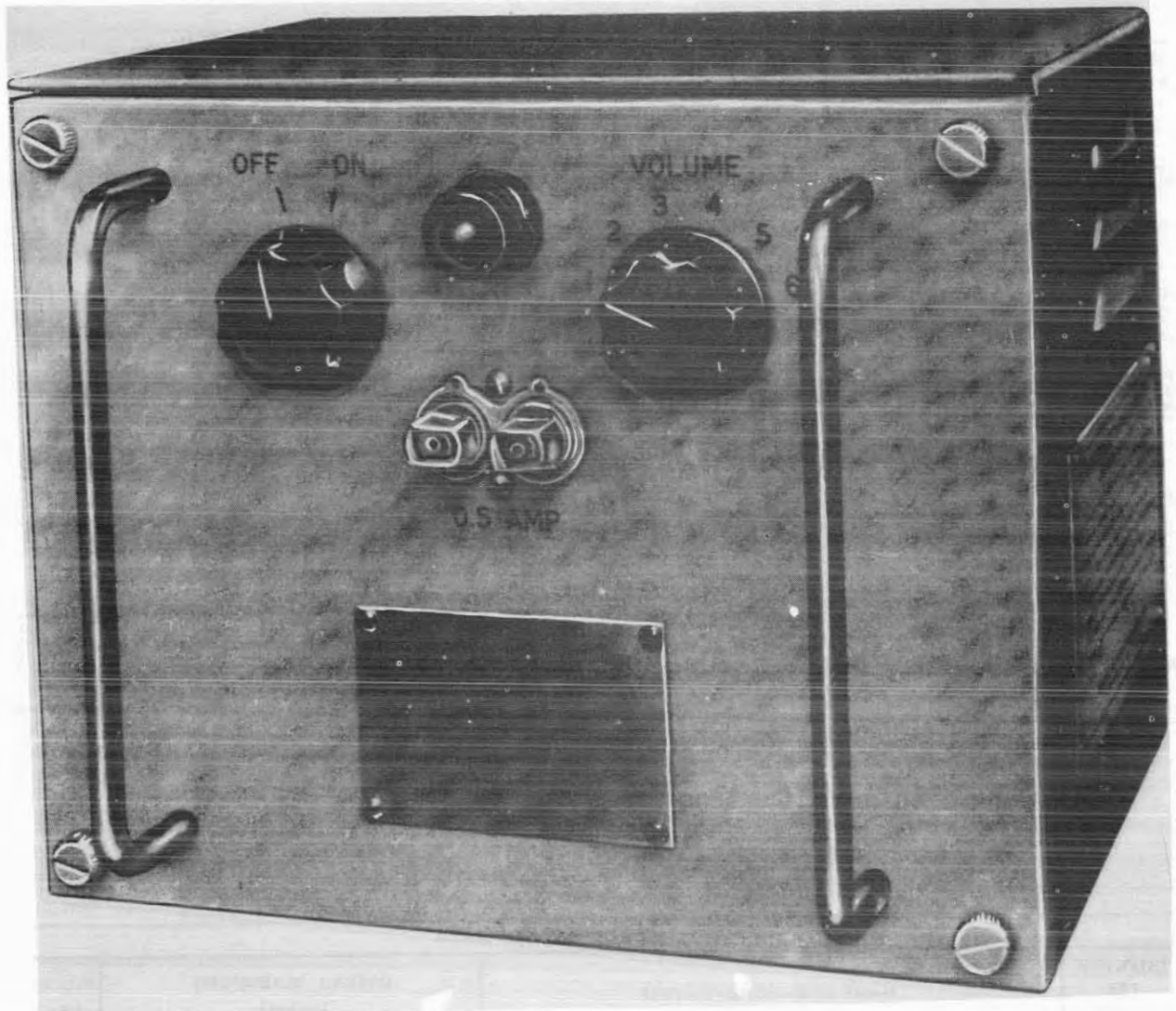
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Preamplifier AM-220A/MPQ-2A	518	8-1/2 x 10-1/4 12-3/4	10-1/2

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Preamplifier AM-220A/MPQ-2 consists of:	5-7/16 x 6-1/2 x 6-7/8	5-1/2
1	Output Cable CG-247/U		
2	Set Spare Tubes		
2	Technical Manual NAVSHIPS 91408		

## AMPLIFIER AUDIO FREQUENCY

AM-2210/WTC



*Audio Frequency Amplifier AM-2210/WTC*

### FUNCTIONAL DESCRIPTION

The AM-2210/WTC provides a means of amplifying one-way communication in a two-way-sound-powered-telephone communication system using sound-powered telephone headsets. It is designed to reproduce voice signals at such a level that the message will be clear and understandable through high noise levels such as exist at gun positions or machinery spaces. A basic telephone-amplifier circuit consists of one audio frequency amplifier, from one to six sound-powered-telephone headsets, and one or two loudspeakers. A typical installation is comprised of a sound-powered-telephone head-

set connected to the sound-powered-telephone line at the fire-command post, operating in conjunction with one or more telephone-amplifier circuits connected to this line. Each amplifier supplies amplified signals to speakers and headsets at the associated gun position.

No field changes in effect at time of preparation (8 September 1960).

### RELATION TO OTHER EQUIPMENT

The AM-2210/WTC is functionally interchangeable with Amplifier, Audio Frequency



June 1961

Radio-Auxiliary

**AM-2210/WTC****AMPLIFIER AUDIO FREQUENCY**

AM-1850/STC, except transistorized; differs mechanically and electrically

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes and/or Crystals used.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

**SENSITIVITY:** Provides full output at 1000 cps with less than 25 millivolts input.

**INPUT CHANNEL DATA**

**NUMBER OF CHANNELS:** 1 channel.

**IMPEDANCE:** 800 ohms porm 200 ohm.

**OUTPUT IMPEDANCE:** 13,325 and 625 ohms.

**AMPLIFIER CHARACTERISTICS**

**OUTPUT VOLTAGES:** 835, 525, 331 mv and 7v.

**REGULATION:** 25 db in 5 db steps.

**FREQUENCY RANGE:** 200 to 4000 cps.

**OPERATING POWER RQMT:** 115 v ac, 60 cps, single ph, 15 W.

**TRANSISTORS**

(2) 2N526 (2) 2N158 (1) 2N387

Total Transistors: (5)

**RECTIFIERS**

(2) 1N537

Total Rectifiers: (2)

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 365-2622: Technical Manual for Amplifier, Audio Frequency AM-2210/WTC.

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

Republic Electronic Industries Corp., Farmingdale, N. Y.  
Contract NObsr-76137.

<b>TYPE CLASSIFICATION</b>	(NAVY)
<b>DESIGN COGNIZANCE</b>	NAVY BUSHIPS
<b>PROCUREMENT COGNIZANCE</b>	MIL-A-167490 &
<b>STOCK NO.</b>	MIL-1-983
<b>R.D.B. IDENT. NO.</b>	

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier, Audio Frequency AM-2210/WTC	8-1/16 x 10 x 21	



28 August 1962

Cog Service: USN FSN:

AMPLIFIER-COMPUTER AM-2279/DSA-4

Functional Class:

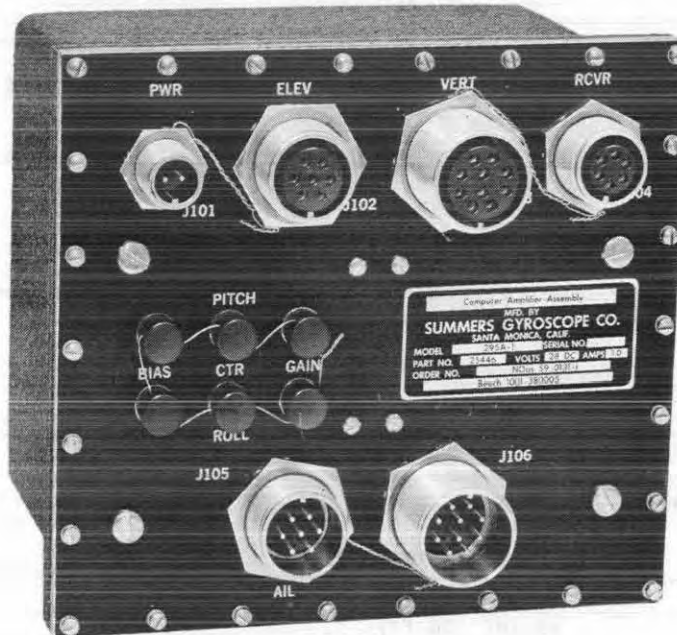
USA

USM

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Summers Gyroscope Co., (78626).



Amplifier-Computer AM-2279/DSA-4

#### FUNCTIONAL DESCRIPTION:

The Amplifier-Computer AM-2279/DSA-4 is designed to receive command signals from an air-borne receiver, mixes them with aerodynamic reference signals supplied by the Gyroscope, Displacement CN-578/DSA-4 and amplifies the computed resultant signals for actuation of the Actuator, Electro-Mechanical, Rotary TG-72/DSA-4 and TG-73/DSA-4 in achieving controlled flight of the target aircraft.

No field changes in effect at time of preparation (11 May 1962).

#### TECHNICAL CHARACTERISTICS:

EQUIPMENT APPLICATION: Used in target drone flight control system.

OPERATING ALTITUDE: 0 to 40,000 ft.

OPERATING TEMPERATURE RANGE: 54 deg C (M65 deg F) to P52 deg C (P125 deg F).

OPERATING POWER REQMT: 115 v ac, 60 cps, single ph; 0 to 50 v dc.

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**AM-2279/DSA-4 AMPLIFIER-COMPUTER**

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**RELATION TO OTHER EQUIPMENT:**

The AM-2279/DSA-4 is designed as part of Flight Control Group, Target Aircraft AN/DSA-4.  
The AM-2279/DSA-4 is designed to be used with, but not part of, Radio Receiver R-570A/ARW.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) Test Panel TS-50510; (1) Oscilloscope Tektronix Model 531.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier-Computer AM-2279/DSA-4		5-9/16 x 6-13/16 x 8	6-1/4

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**REFERENCE DATA AND LITERATURE:**

NAVAER OS-20CAA-1: Technical Manual for Amplifier-Computer AM-2279/DSA-4.

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

TUBES: (4) 5727

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N92 (1) 1N96

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**SHIPPING DATA**

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

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PROCURING SERVICE: USN  
SPEC &/OR DWG:

DESIGN COG: USN, BuAer

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Summers Gyroscope Co. Part no. 25446	Santa Monica, Calif.	NOa(s) 59-0131	

June 1961

Radio-Auxiliary

## TELETYPEWRITER

AM-2352/U

## FUNCTIONAL DESCRIPTION

The AM-2352/U is an amplifier designed for use with brush RD series oscillographs.

No field changes in effect at time of preparation (8 September 1960).

## RELATION TO OTHER EQUIPMENT

The AM-2352/U is designed to be used with but not part of Oscillograph RO-135/U.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## AMPLIFICATION DATA

POWER OUTPUT: 660 mw nom.

GAIN: 1490 mv.

## INPUT CHANNEL DATA

NUMBER OF CHANNELS: 2 channels.

OUTPUT IMPEDANCE: 50 ohms nominal each channel.

## INPUT IMPEDANCE

SINGLE-ENDED: 5 megohms.

BALANCED: 10 megohms each channel.

OPERATING POWER RQMT: 105 to 125 vac, 50 to 2000 cps single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Brush Instruments Clevite Corp., Cleveland, Ohio.

Model No. RD5621-01.

Contract NObsr-75883, dated 8 June 1959.

Approximate unit cost \$2,255.00.

## TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Amplifier, Direct Current AM-2352/U.

<p>TYPE CLASSIFICATION (NAVY)          DESIGN COGNIZANCE NAVY BUSHIPS          PROCUREMENT COGNIZANCE          STOCK NO.          R.D.B. IDENT. NO.</p>
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## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Amplifier, Direct Current AM-2352/U	5-1/4 x 12-1/2 x 19	20

6 August 1962

Cog Service: USN FSN:

AMPLIFIER, RADIO FREQUENCY AM-2374/URT  
Functional Class:

USA

USN

USAF

TYPE CLASS: Used by Used by

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



*Amplifier, Radio Frequency AM-2374/URT*

**FUNCTIONAL DESCRIPTION:**

The Amplifier, Radio Frequency AM-2374/URT is designed as a three-stage, linear power amplifier for the purpose of amplifying low-power radio frequency signals from an associated exciter unit to a level suitable for transmission from an antenna. The AM-2374/URT is primarily intended for Single-Sideband (SSB) operation, but can be used with any type of input signal that does not exceed its bandwidth and power capabilities. The amplifier may be switched to either of two channels, and either channel may be tuned to any frequency between 2 and 30 megacycles (MC). The AM-2374/URT is capable of delivering either 2.5 kilowatts (KW) peak envelope power or 2.5 kw average power continuously. It can be operated locally or remotely.

No field changes in effect at time of preparation (15 May 1962).

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**AM-2374/URT AMPLIFIER, RADIO FREQUENCY**

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**TECHNICAL CHARACTERISTICS:**

TYPE OF TRANSMISSION: Single-Sideband (SSB).

FREQUENCY RANGE: 2 to 30 mc.

NUMBER OF CHANNELS: 2 channels.

BANDWIDTH: At least 16 kc at 1-db points.

## IMPEDANCE

INPUT: 50 ohms.

OUTPL 50 ohms.

PEAK ENVELOPE POWER: 2.5 kw.

OPERATING POWER RQMT: 200 to 250 v ac, 60 cps, single ph; 28 v dc, 50 ma.

**RELATION TO OTHER EQUIPMENT:**

The AM-2374/URT is designed as part of Radio, Transmitting Set AN/URT-18.

The AM-2374/URT is the military version of Collins Commercial Model 204F-1 type Amplifier.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) 0.1 W external exciter; (1) AN Antenna Coupler w/50 ohms impedance; (1) 3-pole, 250 v ac Fused Disconnect Switch; (3) Power Conductors; (1) External Air Duct 8 in. x 4 in.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier, Radio Frequency AM-2374/URT		20 x 20 x 70	600

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93541: Technical Manual for Radio Transmitting Set AN/URT-18 of which Amplifier, Radio Frequency AM-2374/URT is a part of.

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

TUBES: (1) MP3016 (2) 4CX1000A (1) 5726 (1) 6CL6 (2) 6146 (2) 872A

CRYSTALS: None used.

SEMI-CONDUCTORS: (4) 1N1084 (12) 1N1088 (1) 1N1490 (1) 1N152 (2) 1N198

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**SHIPPING DATA**

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	64.5	

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AMPLIFIER, RADIO FREQUENCY AM-2374/URT

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PROCUREMENT DATA

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PROCURING SERVICE: USN  
SPEC &/OR DWG:

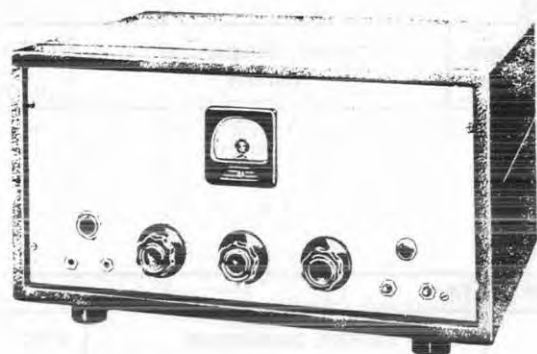
DESIGN COG: USN, BuShips

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Collins Radio Co. Dwg no. 522 1130 00 Type 204F-1	Cedar Rapids, Iowa	N0bsr-81039, 18 January 1960	

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June 1961

**AMPLIFIER CONTROL****AM-2454/URT***Amplifier-Control AM-2454/URT***FUNCTIONAL DESCRIPTION**

The AM-2454/URT is a multi-purpose unit providing high level audio amplification, selectable peak clipping and tone output for Modulated Continuous Wave (MCW). The unit also makes possible remote Keying, break-in and other semi-remote transmitter control functions.

No field changes in effect at time of preparation (22 November 1960).

**RELATION TO OTHER EQUIPMENT**

The AM-2454/URT is designed primarily for use with the TMC Model GPT-750 Transmitter but may be used with many other equipments.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(1) Interconnecting Cable Part No. CA-274 (TMC), (1) Plug, Microphone TMC Part No. PL-132-2.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

OUTPUT LEVEL: 0 volts up to P6 dbm, continuously variable.

OUTPUT IMPEDANCE: 600 ohms balanced or unbalanced ground.

INPUT LEVEL: M50 db for full output.

INPUT IMPEDANCE: .5 megohm.  
 FREQUENCY RESPONSE: Form 2 db from 100 to 7500 cps (when clipper is not being used).  
 DISTORTION: Less than 2% total harmonic (when clipper is not being used).  
 CLIPPING CHARACTERISTICS: 0 to 20 db continuously adjustable.  
 CLIPPER FILTER: High pass filter at low level end-200 cps cut-off, Low pass filter at high level end-3000 cps cut-off.  
 MCW OUTPUT  
 THREE SELECTABLE TONES: 500, 1000, 1500 cps.  
 MCW KEYING: Electronic-Contacts or D.C. to ground.  
 MCW KEYING SPEED: 100 WPM maximum.  
 SIDETONE OUTPUT  
 THREE SELECTABLE TONES: 500, 1000, 1500 cps derived from MCW oscillator.  
 OPERATING POWER RQMT: 110 or 220 vac, 50 to 60 cps, 50 W.

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

The Technical Materiel Corporation, Mamaroneck, N.Y.  
 Model RTC.  
 Contract NObsr-75917.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and/or Crystal data not available.

**REFERENCE DATA AND LITERATURE**

No. 3692-S: Technical Materiel Corporation Catalog for Amplifier Control AM-2454/URT.  
 NAVSHIPS 93400: Preliminary Data Form for Amplifier-Control AM-2454/URT.

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

### AMPLIFIER CONTROL

#### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Amplifier-Control AM-2454/URT	3.0	16 x 20-1/2 x 26	84

#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier-Control AM-2454/URT	10 x 15 x 20	35

June 1961

**AMPLIFIER-LOUDSPEAKER****AM-2631/U****FUNCTIONAL DESCRIPTION**

The AM-2631/U is a completely transistorized Amplifier-Loudspeaker designed for general purpose use.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****AMPLIFICATION DATA**

POWER OUTPUT: 5 W.

GAIN: 12.8 v.

**INPUT CHANNEL DATA**

NUMBER OF CHANNELS: 5 channels.

IMPEDANCE EACH CHANNEL: 6000 porm 600 ohms.

OUTPUT IMPEDANCE: 8 ohms.

FREQUENCY RESPONSE: 100 to 5000 cps porm 1 db variation in output.

OPERATING POWER RQMT: 115 vac, 60 cps, single ph.

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

Gibbs Mfg and Research Corporation, Janesville, Wisconsin.

Contract N-126-091912.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Tubes and/or Crystals used.  
Transistor data not available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Amplifier-Loudspeaker AM-2631/U.

<b>TYPE CLASSIFICATION</b> (NAVY) <b>DESIGN COGNIZANCE</b> NAVY BUSHIPS <b>PROCUREMENT COGNIZANCE</b> MIL-A-0016294B(SHIPS) <b>STOCK NO.</b> <b>R.D.B. IDENT. NO.</b>
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**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier-Loudspeaker AM-2631/U	8-1/4 x 13-3/4 x 13-3/4	

## RADIO FREQUENCY AMPLIFIER

AM-33/ART



Radio Frequency Amplifier AM-33/ART

ohm load may be used as exciters for this equipment. Control unit C-198/AR is furnished with the amplifier, and makes operation possible with the receiver-transmitter type of equipment. The amplifier does not amplify received signals.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 25 to 100 mc.  
 INPUT IMPEDANCE: 25 to 150 ohms depending on the frequency.  
 OUTPUT IMPEDANCE: 50 ohms.  
 POWER OUTPUT  
 WIDE BAND: 100 w.  
 NARROW BAND: 225 w.  
 OPERATING POWER: 85 to 115 v at 400 to 2600 cps; 28 v DC.

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) 836/VT-236 (2) 4E27

Total Tubes: (4)

## REFERENCE DATA AND LITERATURE

T.O. 12R-2-102: Technical Manual for Radio Frequency Amplifier AM-33/ART.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE USAF  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## FUNCTIONAL DESCRIPTION

The AM-33/ART is an airborne, high-power, wide-band amplifier. The amplifier cannot be used alone. Its use requires a driving transmitter. The purpose of the amplifier is to amplify the power output of the basic transmitter, and to reproduce the signal as faithfully as is practicable. Driving transmitters delivering 15 to 40 w when operating with 50

## EQUIPMENT SUPPLIED DATA

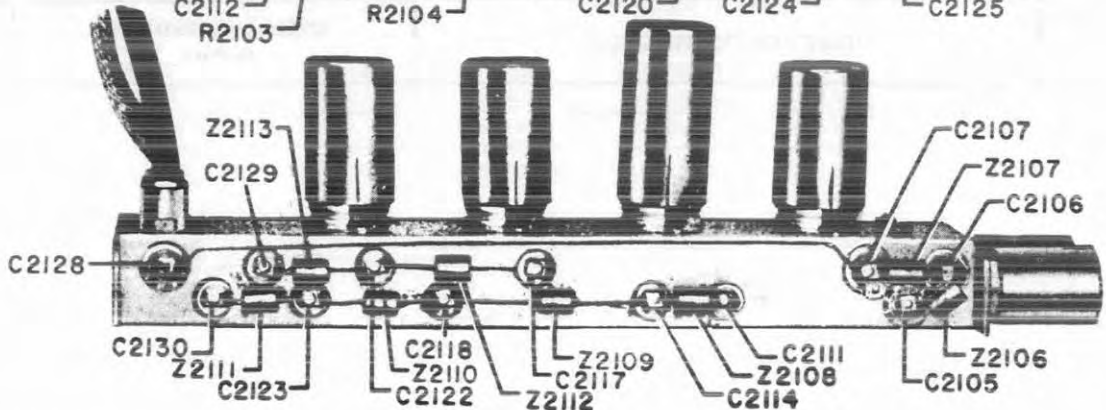
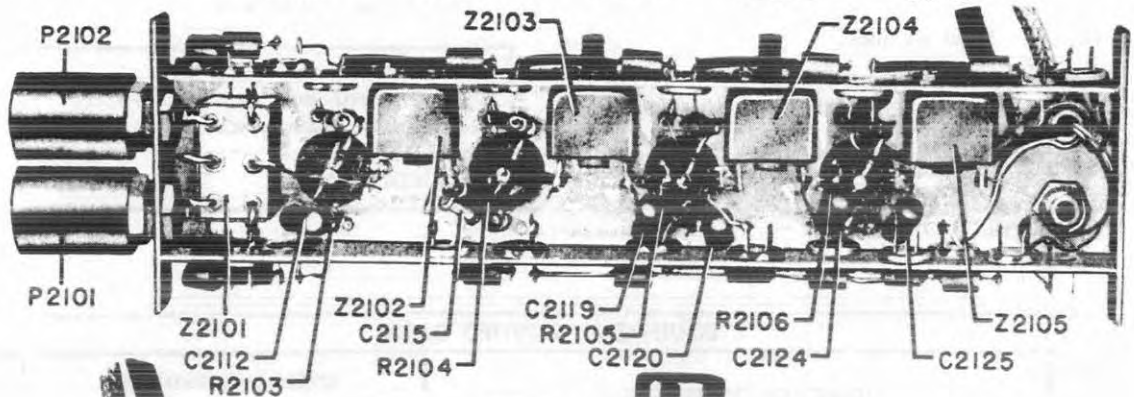
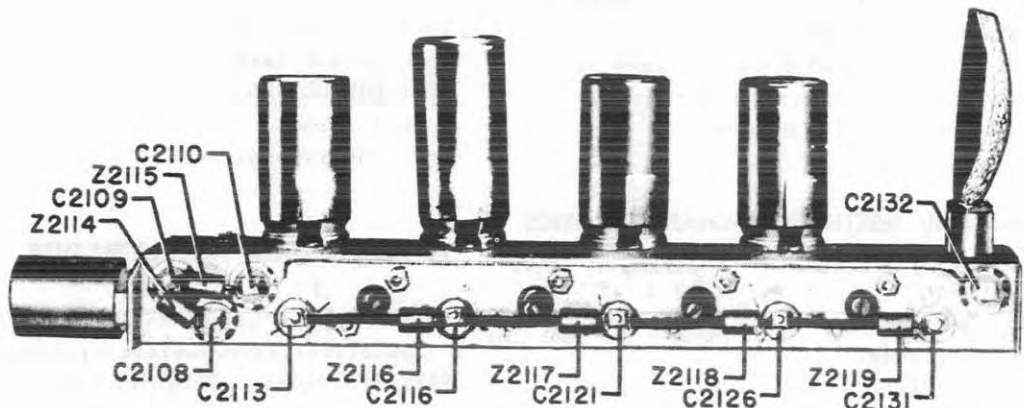
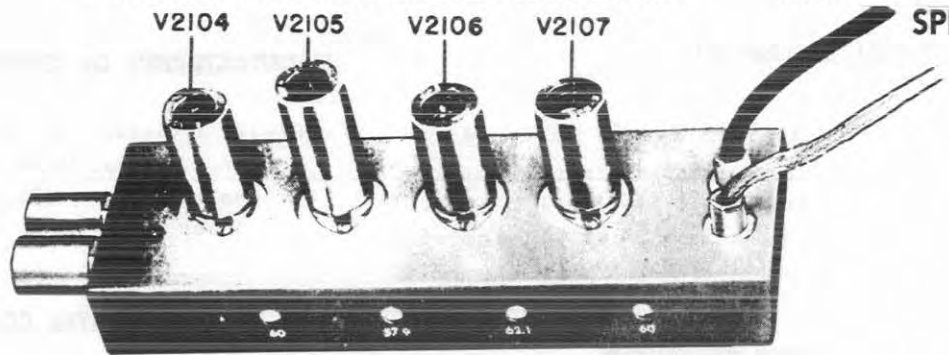
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Amplifier AM-33/ART	7-5/8 X 10-1/2 X 21	52
1	Mounting Base MT-171/U		
1	Control Unit C-198/AR	3 X 3-3/4 X 4-1/4	
1	Mounting Plate MT-336/AR	1/2 X 3-3/4 X 4-7/8	
1	Plug AN3108-14S-9P	2-1/4 dia X 3	0.3
1	Plug AN3108-22-4S	2-1/4 dia X 3	0.63
1	Plug AN3108-14S-9S	2-1/4 dia X 3	0.3
6	Plug PL-259		
4	Adapter M-359		
1	Adapter AN3057-12		0.3
2	Adapter AN3057-6		
as required	Radio Frequency Cable RG-8/U		
1	Radio Frequency Cable	48 lg.	



### AMPLIFIER INTERMEDIATE FREQUENCY

Radio-Auxiliary  
AM-396(XN-1)

SPN-8



June 1961

Radio-Auxiliary

**AM-396(XN-1)  
SPN-8****AMPLIFIER INTERMEDIATE FREQUENCY****FUNCTIONAL DESCRIPTION**

The AM-396(XN-1)/SPN-8 is designed to receive echoes from balanced mixer and amplifies them. It drives Amplifier AM-397/SPN-8.

No field changes in effect at time of preparation (20 April 1960).

**RELATION TO OTHER EQUIPMENT**

The AM-396(XN-1)/SPN-8 is designed as part of Radar Set AN/SPN-8(XN-1).

The AM-396(XN-1)/SPN-8 is designed to be used with but not part of Radar Receiver-Transmitter RT-184/SPN-8.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****IMPEDANCE DATA**

INPUT: 300 ohms.

OUTPUT: 72 ohms.

**AMPLIFICATION DATA****VOLTAGE**

INPUT: 5000 mv RMS.

OUTPUT: 1 v RMS.

BANDWIDTH: 5.3 mc bandwidth at 3 db down.

OPERATING FREQUENCY: 60 mc.

OPERATING POWER RQMT: 6.3 v ac, 416 cps, single ph; 130 v dc.

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

Bendix Aviation Corporation, Bendix Radio Div., Towson, Maryland.

Contract NObsr-52057, dated 10 November 1950.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 5654/6AK5W

(2) 5725/6AS6W

(1) 6J6

Total Tubes: (4).

No Crystals used.

**SEMI-CONDUCTORS**

(2) 1N23C

Total Semi-conductors: (2)

**REFERENCE DATA AND LITERATURE**

Nomenclature Card AM-396(XN-1)/SPN-8 for Amplifier Intermediate Frequency.

NAVSHIPS 91643: Technical Manual for Radar Set AN/SPN-8(XN-1).

<b>TYPE CLASSIFICATION</b> (NAVY) <b>DESIGN COGNIZANCE</b> NAVY BUSHIPS <b>PROCUREMENT COGNIZANCE</b> MIL-R-15569 <b>STOCK NO.</b> <b>R.D.B. IDENT. NO.</b>
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**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	I.F. Amplifier AM-396(XN-1)/SPN-8	2-5/8 x 3-1/8 x 9-3/8	

30 August 1962

Cog Service: USN

FSN: 5840-257-0064

AMPLIFIER INTERMEDIATE FREQUENCY AM-396/SPN-8

Functional Class:

USA

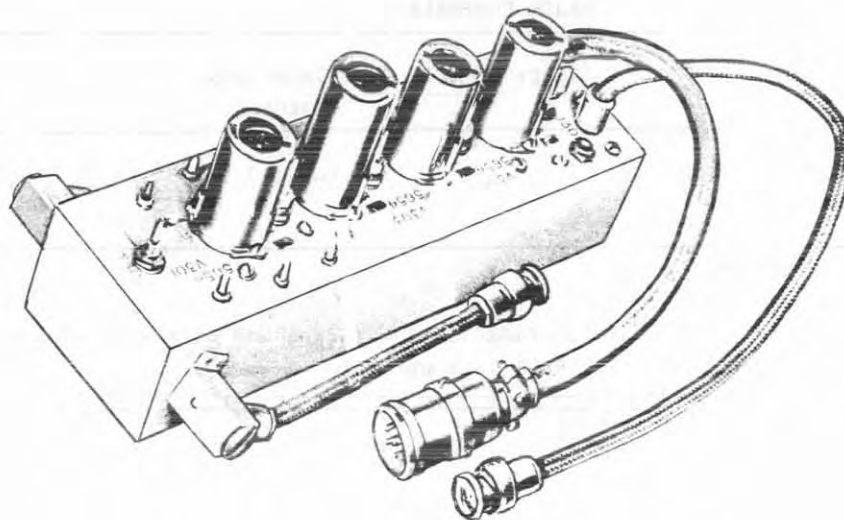
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: Bendix Aviation Corp., (06845).



*Amplifier Intermediate Frequency AM-396/SPN-8*

**FUNCTIONAL DESCRIPTION:**

The Amplifier Intermediate Frequency AM-396/SPN-8 is designed to receive return echoes from balanced mixer and amplifies them. It also drives I.F. Amplifier AM-397/SPN-8.

No field changes in effect at time of preparation (9 January 1962).

**TECHNICAL CHARACTERISTICS:**

IMPEDANCE DATA

INPUT: 300 ohms.

OUTPUT: 72 ohms.

AMPLIFICATION DATA

VOLTAGE

INPUT: 0.005 rms.

OUTPUT: 1 v rms.

---

**AM-396/SPN-8 AMPLIFIER INTERMEDIATE FREQUENCY**

---

BANDWIDTH: 5.3 mc bandwidth at 3 db down.

OPERATING FREQUENCY: 60 mc.

OPERATING POWER RQMT: 6.3 v ac, 416 cps, single ph, 4W; 130 v dc, 50 ma.

**RELATION TO OTHER EQUIPMENT:**

The AM-396/SPN-8 is designed to be used with but not part of Radar Receiver Transmitter RT-184/SPN-8.

The AM-396/SPN-8 is designed as part of Radar Set AN/SPN-8.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier Intermediate Frequency AM-396/SPN-8		3.50 x 3.70 x 10	2

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 91879(A): Technical Manual for Radar Sets AN/SPN-8 and AN/SPN-8A of which Amplifier Intermediate Frequency AM-396/SPN-8 is a part of.

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

TUBES: (3) 5654-6AK5W (1) 6J6WA

CRYSTALS: None used.

SEMI-CONDUCTORS: (2) 1N23C

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**SHIPPING DATA**

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

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PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-R-15569

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Bendix Aviation Corp.	Towson, Maryland	N0bsr-52057, 10 November 1950	

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## INTERPHONE AMPLIFIER



*Interphone Amplifier AM-40/AIC*

### OUTPUT IMPEDANCE

AM-40/AIC  
LOW: 120 ohms.  
HIGH: 30 ohms.  
AM-40A/AIC: 100 ohms.

### POWER OUTPUT

AM-40/AIC  
LOW: 1.5 w.  
HIGH: 4 w.  
AM-40A/AIC: 2 w.

### DISTORTION

AM-40/AIC: 7% at 1000 cps.  
AM-40A/AIC: 5% at 1000 cps.

OPERATING POWER: 28 v DC.

### MANUFACTURER'S OR CONTRACTOR'S DATA

(AM-40A/AIC) Radar Electronics Inc, New York, N.Y.  
Contract NOas-51-782A

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SL7GT/G (1) 6V6GT/G  
Total Tubes: (2)

### REFERENCE DATA AND LITERATURE

AN08-35AM40-2: Technical Manual for Interphone AM-40/AIC.

### FUNCTIONAL DESCRIPTION

The AM-40/AIC and AM-40A/AIC is a two-channel amplifier. It is used in installations comprising of various types of associated equipment.

No field changes in effect at time of preparation (24 April 1957).

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### INPUT IMPEDANCE

MICROPHONE CHANNEL: 200 ohms.  
RADIO CHANNEL: Varies from 0 to 3000 ohms depending upon setting of P2.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUAER  
PROCUREMENT COGNIZANCE  
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Interphone Amplifier AM-40/AIC	5-3/4 x 9-1/8 x 13-13/32	10.7
1	Interphone Amplifier AM-40A/AIC	5-3/4 x 9-1/8 x 13-13/32	10



31 July 1962

Cog Service: USN FSN: 5830-644-4378

INTERPHONE AMPLIFIER AM-40A/AIC  
Functional Class:

USA

USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Air King Products Company Incorporated.



*Interphone Amplifier AM-40A/AIC*

#### FUNCTIONAL DESCRIPTION:

Interphone Amplifier AM-40A/AIC is a two-channel amplifier used in installations comprising of various types of interphone systems.

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

#### TECHNICAL CHARACTERISTICS:

##### INPUT IMPEDANCE

MICROPHONE CHANNEL: 200 ohms.

RADIO CHANNEL: Varies from 0 to 3000 ohms depending upon setting of radio input.

OUTPUT IMPEDANCE: 100 ohms.

POWER OUTPUT: 2 W with a load impedance of 1,000 ohms.

DISTORTION: 5% at 1000 cps.

POWER REQUIREMENTS: 28 v dc.

**AM-40A/AIC INTERPHONE AMPLIFIER**

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

**MAJOR COMPONENTS**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Interphone Amplifier AM-40A/AIC		5-3/4 x 9-1/8 x 13-13/32	10

**REFERENCE DATA AND LITERATURE:**

AN08-35AM40-2: Handbook Maintenance Instructions for Interphone Amplifier AM-40/AIC.

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

TUBES: (1) 6SL7GT/G (1) 6V6GT/G

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

**SHIPPING DATA**

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

**PROCUREMENT DATA**

PROCURING SERVICE: USN

DESIGN COG: USN, BuWeps

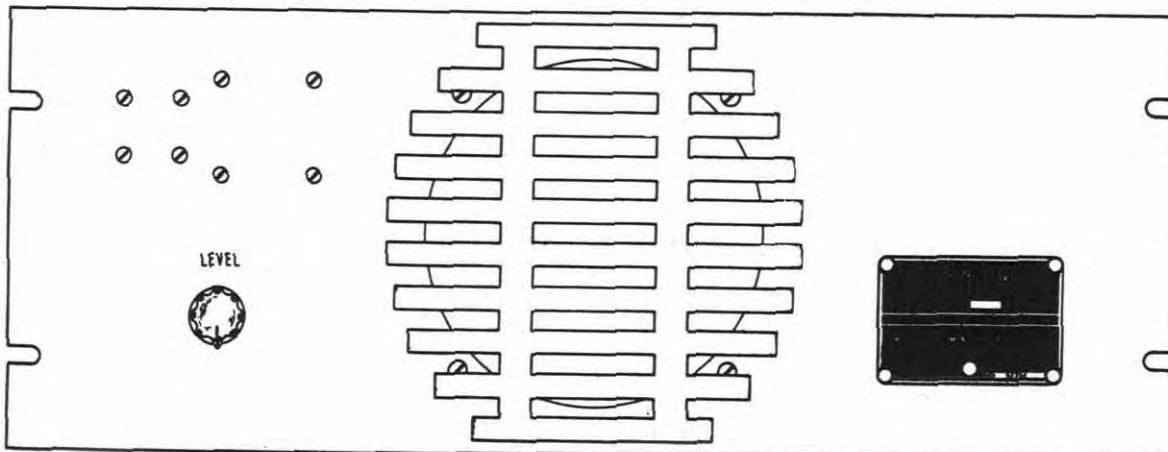
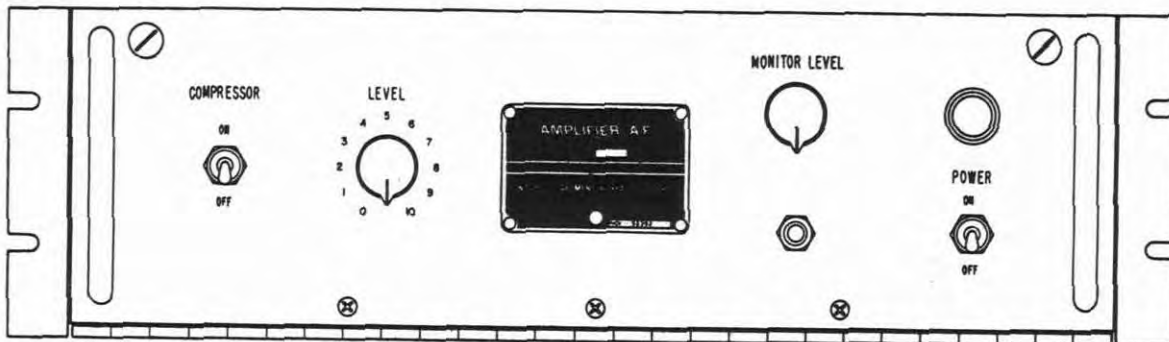
SPEC &/OR DWG: MIL-A-5618 modified

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Air King Products Co., Inc.	Brooklyn, New York	N0as 51-1200-a	
CBS Columbia Inc.	Brooklyn, New York	N0as 52-557-f	\$97.31
Radar Electronics Inc.	New York, New York	N0as 51-782-a	
		N0as 52-1088-a	\$70.04

March 1957

## AUDIO AMPLIFIER

AM-413/G,413A/G



Audio Amplifier AM-413/G

## FUNCTIONAL DESCRIPTION

The AM-413/G and AM-413A/G is suitable for general communication purposes when operating in conjunction with naval radio receiving sets and associated equipment.

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

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE:  $\pm 1$  db from 200 to 5000 cps.

INPUT IMPEDANCE: 600 ohms.

INPUT LEVEL: 0.001 to 6 mw.

OUTPUT: 2 W, 600 ohms, balanced; 6 mw, 600 ohms, balanced; 1mw, 600 ohms, unbalanced.

COMPRESSION RANGE: 0.001 to 6 mw.

OUTPUT VARIATION OF COMPRESSOR: Not more

than 3 db.

DISTORTION: No more than 7%.

SIGNAL PLUS NOISE TO NOISE RATIO: Not less than 50 db.

OPERATING POWER: 105, 115 or 125 v, 50 to 60 cps, single phase, 50 W.

## MANUFACTURER'S OR CONTRACTOR'S DATA

(AM-413/G) Harman-Kardon Inc., New York, N.Y.

Contract NObsr 52352, dated 22 March 1951.

(AM-413A/G) American Measuring Instrument Company, Long Island City, N.Y.

Contract NObsr 64107, dated 3 February 1954.

Contract NObsr 64833, dated 28 January 1955.

## AM-413/G,413A/G

## AUDIO AMPLIFIER

March 1957

## TUBE AND/OR CRYSTAL COMPLEMENT

(5) 12AT7WA (1) 60Q5 (1) 5Y3WGTA

Total Tubes: (7)

## REFERENCE DATA AND LITERATURE

NAVSHIPS 91905: Technical Manual for Amplifier AM-413/G and AM-413A/G.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AF Amplifier AM-413/G or AM-413A/G AC Power Plug AN-3106-14S-7S Audio Input Plug AN-3106-14S-2S Audio Output Plug AN-3106-14S-2P Cable Clamp AN-3057-6 Instruction Book NAVSHIP 91905	1.3	8-1/2 X 12 X 22	38

## EQUIPMENT SUPPLIED DATA

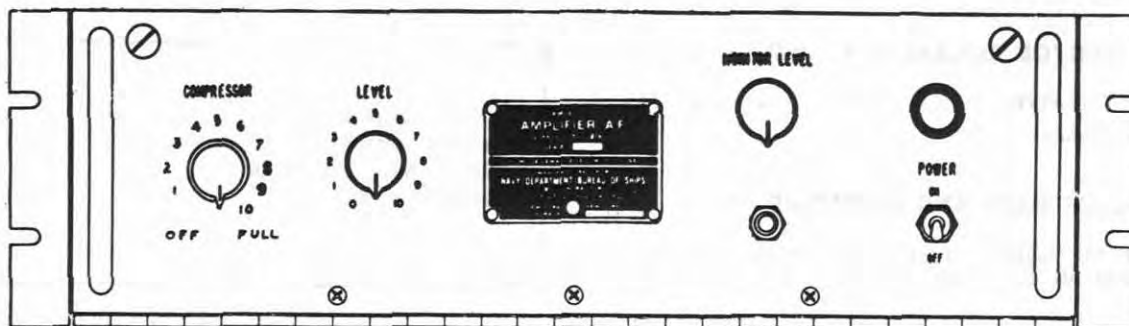
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Amplifier AM-413/G or AM-413A/G	5-1/4 X 8-3/4 X 19	15-1/2
1	AC Power Plug AN-3106-14S-7S	1-1/8 X 1-1/8 X 1-7/16	2 oz.
2	Audio Input Plug AN-3106-14S-2S	1-1/8 X 1-1/8 X 1-7/16	2 oz.
2	Audio Output Plug AN-3106-14S-2P	1-1/8 X 1-1/8 X 1 7/16	2 oz.
1	Cable Clamp with Ferrule to fit MCOS-2 Cable AN-3057-6	7/8 X 7/8 X 1-5/64	1 oz.
4	Cable Clamp with Ferrule to fit RG-108/U Cable AN-3057-6	7/8 X 7/8 X 1-5/64	1 oz.
2	Instruction Book NAVSHIPS 91905	1/2 X 8-3/4 X 11-1/2	9 oz.

June 1961

Radio-Auxiliary

## AMPLIFIER, AF

AM-413B/G



AF Amplifier AM-413 B/G

## FUNCTIONAL DESCRIPTION

Amplifier, AF AM-413 B/G is suitable for general communication purposes when operating in conjunction with naval radio receiving sets and associated equipment.

No field changes in effect at time of preparation (16 August 1960).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE: Porm 1 db from 200 to 5000 cps.

INPUT IMPEDANCE: 600 ohms porm 10%.

INPUT LEVEL: 0.001 to 6 mw.

OUTPUTS: 2 W, 600 ohms, balanced; 6 mw, 600 ohms, balanced; 1 mw, 600 ohms, unbalanced.

COMPRESSION RANGE: 0.001 to 6 mw.

OUTPUT VARIATION OF COMPRESSOR: Not more than 3 db.

DISTORTION: Not more than 7%.

SIGNAL PLUS NOISE TO NOISE RATIO: Not less than 50 db.

POWER REQUIREMENTS: 105, 115 or 125 v, 50 to 60 cy, single ph, 50 W.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Special Design Products Corp, Plainville,

Conn.

Contract NObsr-71390, dated 28 June 1956.

Contract NObsr-71855, dated 20 June 1957.

## TUBE AND/OR CRYSTAL COMPLEMENT

(5) 12AT7WA

(1) 5Y3WGTB

(1) 6005/6AQ5W

Total Tubes: (7)

No Crystals used.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 91905: Technical Manual for AUDIO FREQUENCY AMPLIFIER AM-413/G, AM-413A/G, AM-413B/G, AM-413C/G and Dynamic Loudspeaker LS-169/G.

TYPE CLASSIFICATION (NAVY)  
 DESIGN COGNIZANCE USN, BUSHIPS  
 PROCUREMENT COGNIZANCE SPEC: MIL-A-15695C  
 STOCK NO. (SHIPS) and Amend 2  
 R.D.B. IDENT. NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AF Amplifier AM-413B/G including: AC Power Plug AN-3106-14S-7S Audio Input Plug AN-3106-14S-2S Audio Output Plug AN-3106-14S-2P Cable Clamp AN-3057-6 Technical Manual NAVSHIPS 91905	1.3	8-1/2 x 12 x 22	38



June 1961

Radio-Auxiliary

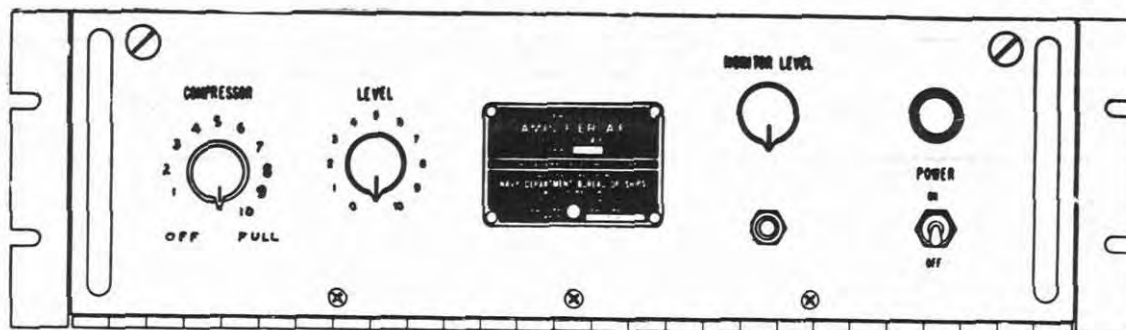
**AM-413B/G****AMPLIFIER, AF**

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	AF Amplifier AM-413B/G including:	5-1/4 x 8-3/4 x 19	15-1/2
1	AC Power Plug AN-3106-14S-7S	1-1/8 x 1-1/8 x 1-7/16	2 oz
2	Audio Input Plug AN-3106-14S-2S	1-1/8 x 1-1/8 x 1-7/16	2 oz
2	Audio Output Plug AN-3106-14S-2P	1-1/8 x 1-1/8 x 1-7/16	2 oz
1	Cable Clamp w/Ferrule to fit MCOS-2 Cable AN-3057-6	7/8 x 7/8 x 1-5/64	1 oz
4	Cable Clamp w/Ferrule to fit RG-108/U Cable AN-3057-6	7/8 x 7/8 x 1-5/64	1 oz
2	Technical Manual NAVSHIPS 91905	1/2 x 8-3/4 x 11-1/2	9 oz

## AUDIO FREQUENCY AMPLIFIER

AM-413C/G



Audio Amplifier AM-413C/G

### FUNCTIONAL DESCRIPTION

The AM-413C/G consists of an audio amplifier and a volume compressor, and is designed for mounting in a standard 19 inch relay rack. Use of the volume compressor is optional, being determined by the position of a front panel switch.

The AM-413C/G provides power output of 2 watts with less than 7% harmonic distortion for input signals of 0.001 to 6 milliwatts (mw) at frequencies between 200 and 5000 cycles per second (cps). The input signal is received through either or both of two receptacles, each individually connected to a 600 ohm balanced winding of the amplifier input transformer. The input receptacles are located at the rear of the amplifier.

The AM-413C/G provides three (3) 600 ohm outputs: A two (2) watt balanced circuit for a loudspeaker, a six (6) milliwatt (mw) balanced circuit for a 600 ohm line, and a one (1) milliwatt (mw) unbalanced circuit for a headset.

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

### RELATION TO OTHER EQUIPMENT

The AM-413C/G is similar to the AM-413A/G and the AM-413B/G except that it differs in the operating power requirement and equipment supplied.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RESPONSE:  $\pm 2$  db from 200 to 5000 cps.

INPUT IMPEDANCE: 600 ohms  $\pm 10\%$ .

OUTPUT IMPEDANCE: 600 ohms.

INPUT LEVEL: 0.001 to 6 mw.

OUTPUT: 2 W, 600 ohms, unbalanced; 6 mw, 600 ohms balanced; 1 mw, 600 ohms, unbalanced.

COMPRESSION RANGE: 0.001 to 6 mw.

OUTPUT VARIATION OF COMPRESSOR: Not more than 3 db.

DISTORTION: Not more than 7%.

SIGNAL PLUS NOISE TO NOISE RATIO: Not less than 50 db.

#### AC POWER REQUIREMENTS

VOLTAGE: 125 v.

FREQUENCY: 60 cps.

PHASE: Single ph.

POWER CONSUMPTION: 50 W.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Dynamic Electronics Inc., New York, New York.

Contract NObsr-75158, dated 27 February 1958.

Approximate Cost: \$47,258.88 with equipment spares.

### TUBE AND/OR CRYSTAL COMPLEMENT

(5) 12AT7WA (1) 6005 (1) 5Y3WGTB

Total Tubes: (7)

April 1959

Radio-Auxiliary

**AM-413C/G****AUDIO FREQUENCY AMPLIFIER**

No Crystals used.

**REFERENCE DATA AND LITERATURE**

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

## TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO. 7.2

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	A.F. Amplifier AM-413C/G Including:	1.3	8-1/2 X 12 X 22	38
1	AC Power Plug AN-3106-14S-7S			
1	Audio Input Plug AN-3106-14S-2S			
1	Audio Output Plug AN-3106-14S-2P			
1	Cable Clamp AN-3057-6			
* 2	Loudspeaker LS-169/G			
2	Technical Manual NAVSHIPS 91905	00.89	7 X 10 X 22	

\*When supplied.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Amplifier AM-413C/G	5-1/4 X 8-1/2 X 19	15-1/2
1	AC Power Plug AN-3106-14S-7S	1-1/8 X 1-1/8 X 1-7/16	2 oz
2	Audio Input Plug AN-3106-14S-2S	1-1/8 X 1-1/8 X 1-7/16	2 oz
2	Audio Output Plug AN-3106-14S-2P	1-1/8 X 1-1/8 X 1-7/16	2 oz
1	Cable Clamp w/Ferrule to Fit MCOS-2 Cable	7/8 X 7/8 X 1-5/64	1 oz
4	Cable Clamp w/Ferrule to Fit RG-108/U Cable	7/8 X 7/8 X 1-5/64	1 oz
2	Technical Manual NAVSHIPS 91905	1/2 X 8-3/4 X 11-1/2	9 oz

2: August 1962

Cog Service: USN FSN: 5820-856-1266

AMPLIFIER, AUDIO FREQUENCY AM-413D/G

Functional Class:

USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: General Sintering Corp., (05953).



*Amplifier, Audio Frequency AM-413D/G*

#### FUNCTIONAL DESCRIPTION:

The Amplifier, Audio Frequency AM-413D/G is designed as an automatic variable gain amplifier capable of producing rated audio output of 2 watts with any audio power input between 0.001 milliwatts and 6 milliwatts.

The AM-413D/G is designed for mounting in a standard 19 inch relay rack. It is suitable for general communication purposes when operating in conjunction with Naval radio receiving sets and associated equipment.

No field changes in effect at time of preparation (15 May 1962).

#### TECHNICAL CHARACTERISTICS:

TYPE OF MOUNTING: Rack mounted.

FREQUENCY RESPONSE: Porm 1 db from 200 to 5,000 cps.

INPUT IMPEDANCE: 600 ohms porm 10%.

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**AM-413D/G AMPLIFIER, AUDIO FREQUENCY**

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INPUT LEVEL: .001 to 6 milliwatts.

OUTPUTS

ONE: 2 watts, 600 ohms, balanced.

TWO: 6 milliwatts, 600 ohms, balanced.

THREE: 1 milliwatt, 600 ohms, unbalanced.

COMPRESSION RANGE: 0.001 to 6 milliwatts.

OUTPUT VARIATION OF COMPRESSOR: Not more than 3 db.

DISTORTION: Not more than 7%.

SIGNAL PLUS NOISE TO NOISE RATIO: Not less than 50 db.

OPERATING POWER RQMT

VOLTAGE: 105/115/125 v ac.

FREQUENCY: 50 to 60 cps.

PHASE: Single.

POWER CONSUMPTION: 50 W.

**RELATION TO OTHER EQUIPMENT:**

The AM-413D/G is electrically and mechanically interchangeable with AM-413A/G, AM-413B/G and AM-413C/G except for minor revisions in circuitry.

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Amplifier, Audio Frequency AM-413D/G		5-1/2 x 9 x 19	16-1/2
1	AC Power Plug AN-3106-14S-7S		1-1/8 x 1-1/8 x 1-7/16	1/8
2	Audio Input Plug AN-3106-14S-2S		1-1/8 x 1-1/8 x 1-7/16	1/8
2	Audio Output Plug AN-3106-14S-2P		1-1/8 x 1-1/8 x 1-7/16	1/8
1	Cable Clamp w/Ferrule to fit MCOS-2 Cable AN-3057-6		7/8 x 7/8 x 1-5/64	
4	Cable Clamp w/Ferrule to fit RG-108/U Cable AN-3057-6		7/8 x 7/8 x 1-5/64	
2	Technical Manual NAVSHIPS 91905		1/2 x 8-3/4 x 11-1/2	1/2

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 91905: Technical Manual for Amplifiers, Audio Frequency AM-413/G, AM-413A/G, AM-413B/G, AM-413C/G, AM-413D/G and Dynamic Loudspeaker LS-169/G.

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

TUBES: (5) 12AT7WA (1) 6005 (1) 5Y3WGTA

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

1.2 AM-413D/G: 2

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AMPLIFIER, AUDIO FREQUENCY AM-413D/G

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SHIPPING DATA

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	4.5	72

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PROCUREMENT DATA

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PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-A-15695C Amend #3

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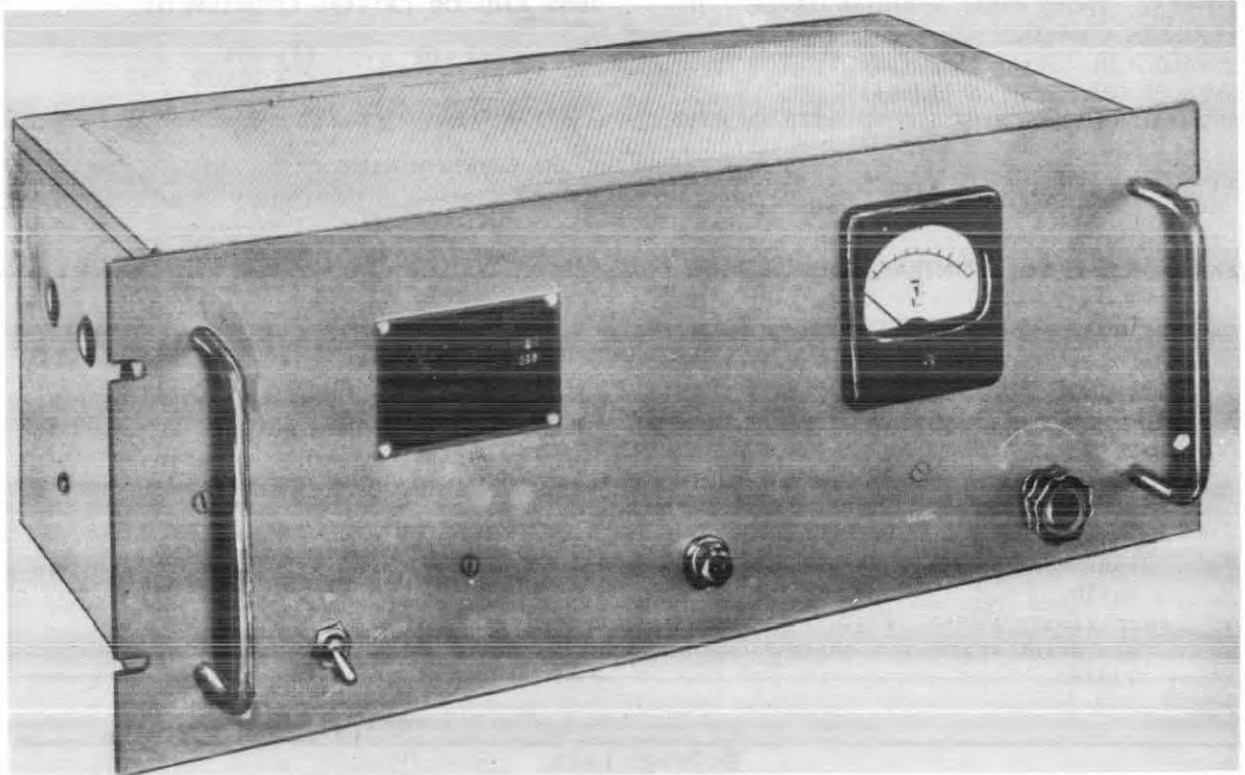
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Sintering Corp.	Melrose Park, Illinois	N0bsr-81521, 20 June 1960	

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April 1959

## AMPLIFIER AUDIO FREQUENCY

Radio-Auxiliary  
AM-5027/FRA-501

*Amplifier, A.F. (Mixer) AM-5027/FRA-501*

### FUNCTIONAL DESCRIPTION

The AM-5027/FRA-501 is used to combine and amplify the tone frequencies which are generated in the Model RSC and filtered in the Model RSF.

The AM-5027/FRA-501 provides facilities for a linear combination or a maximum of five (5) groups of tone frequencies (the output of five (5) RSC's) by means of a resistive network. The AM-5027/FRA-501 therefore combines all 15 tones generated by the five (5) RSC's and is the output unit of the control site.

The combined signals are suitable amplified with provision for the control of the gain of the composite. The output is monitored by a meter which indicates to the operator the signal level being transmitted over the transmission medium to the remote site. Freedom from the introduction of distortion by the amplifier is insured by the use of push-pull amplification in both stages.

The AM-5027/FRR-501 output arrangement permits line operation of the following types: Balanced, center grounded; Balanced, center floating; Unbalanced, one side grounded, and contains its own built-in power supply.

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

### RELATION TO OTHER EQUIPMENT

The AM-5027/FRA-501 is part of the AN/FRA-501. The AM-5027/FRA-501 is designed to be used with but not part of the AN/FRR-502. The AM-5027/FRA-501 is similar to the AM-5028/FRA-501 except that it differs in the operating power requirement.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

INPUT: Up to five tone groups from RSC's.  
OUTPUT: Composite 600 ohms, maximum 15 tones.

April 1959

Radio-Auxiliary  
AM-5027/FRA-501

## AMPLIFIER AUDIO FREQUENCY

CONTROLS: FRONT PANEL - OUTPUT LEVEL - TOP  
CHASSIS - BALANCE.

METERING: Dbm meter in output.

NUMBER OF CHANNELS: 5 channels.

OPERATING FREQUENCY RESPONSE: 425 to 2805  
cps normal.OPERATING POWER RQMT: 110 or 220 v AC, 50  
to 60 cps, single ph.

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2 (1) 6X4  
(1) 12AT7 (1) 12AU7

Total Tubes: (5)

No Crystals used.

## MANUFACTURER'S OR CONTRACTOR'S DATA

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

Model RSM-2.

Contract NObsr-64820, dated 20 June  
1955.Contract NObsr-71688, dated 15 Febru-  
ary 1957.Approximate Cost: \$280,000.00 with  
equipment spares for Contract NObsr-  
64820.Approximate Cost: \$479,228.12 with  
equipment spares for Contract NObsr-  
71688.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 92600A: Technical Manual for Re-  
mote Control System Model RCR AN/FRA-501  
Receiver Control Group.Nomenclature Card AM-5027/FRA-501 for Ampli-  
fier Audio Frequency.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 7.2

## SHIPPING DATA

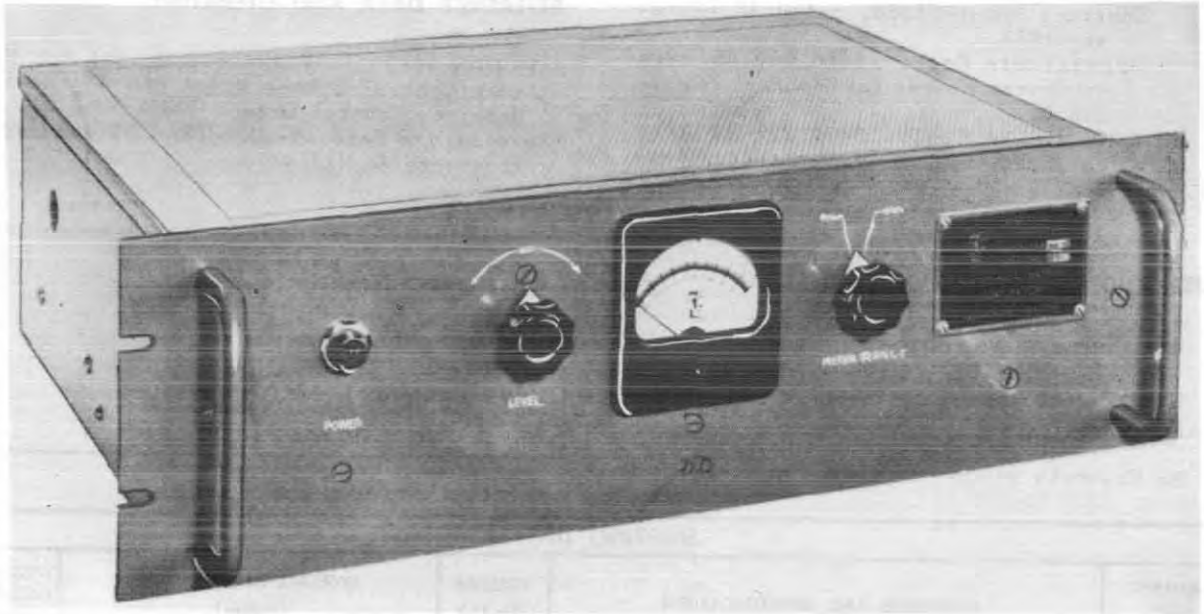
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Amplifier Audio Frequency Technical Materiel Corp. Model RSM-2	1.3	7 X 8-3/4 X 19	66

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier Audio Frequency Technical Materiel Corp. Model RSM-2	7 X 8-3/4 X 19	16

April 1959

## AMPLIFIER AUDIO FREQUENCY

Radio-Auxiliary  
AM-5028/FRA-501

Amplifier, A.F. (Амплт, AM-5028/FRA-501)

## FUNCTIONAL DESCRIPTION

The AM-5028/FRA-501 is the initial receiving equipment at the remote site and is used to amplify the incoming composite control signal and feed it to five (5) discriminator units.

The AM-5028/FRA-501 provides amplification by means of push-pull stages which permit extremely low distortion figures, at the same time, preventing creation of undesirable harmonics of the composite. The use of AVC amplifier stage results in an output which remains relatively unchanged for very large variations in input level. This prevents changing signal levels from influencing operation of the Model RSD.

The AM-5028/FRA-501 has facilities for monitoring the input level of the composite signal. The input level control permits continuous adjustments of the input level, and a dual scale dbm meter gives indication in the ranges -30 to -7, and -20 to +3 dbm. A low pass filter in the input circuit eliminates frequencies above the operating range which may be present due to cross talk or similar disturbances in the connecting link.

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

## RELATION TO OTHER EQUIPMENT

The AM-5028/FRA-501 is part of the AN/FRA-501. The AM-5028/FRA-501 is used with but not part of the AN/FRR-502.

The AM-5028/FRA-501 is similar to the AM-5027/FRA-501 except it differs in the operating power requirements.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

NUMBER OF CHANNELS: 5 channels.

INPUT AND OUTPUT IMPEDANCE: 600 ohms.

## METERING

DUAL SCALE: -30 to -7, -20 to +3 dbm.

OPERATING FREQUENCY RANGE: 425 to 2805 cycles.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

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

Model RSA-2.

Contract NObsr-64820, dated 20 June 1955.

April 1959

Radio-Auxiliary

**AM-5028/FRA-501****AMPLIFIER AUDIO FREQUENCY**

Contract NObsr-71688, dated 15 February 1957.

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

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

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92600A: Technical Manual for Remote Control System Model RCR AN/FRA-501 Receiver Control Group.

Nomenclature Card AM-5028/FRA-501 for Audio Frequency Amplifier.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) OB2           (2) 6BA6  
(1) 12AT7       (3) 12AU7  
(1) 12AX7

Total Tubes (8)

No Crystals used.

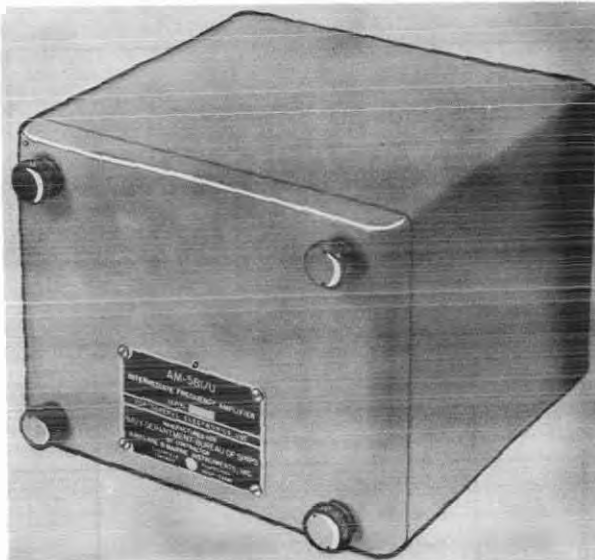
TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.  
R.D.B. IDENT. NO. 7.2

**SHIPPING DATA**

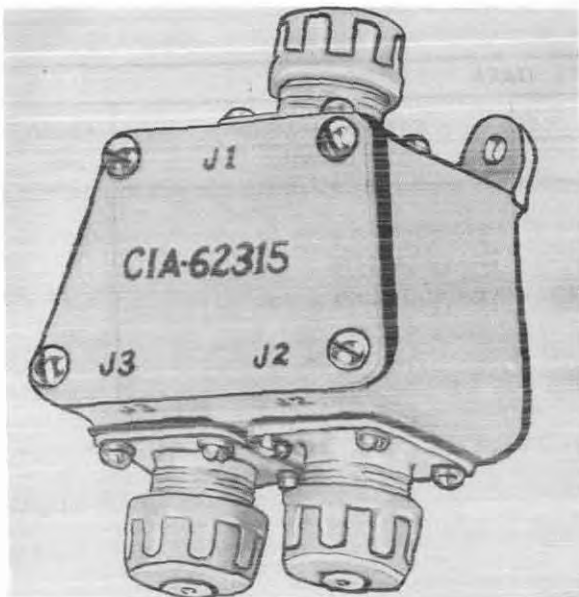
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Frequency Amplifier Technical Materiel Corp Model RSA-2	1.3	7 X 12-1/2 X 19	67

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Frequency Amplifier Technical Materiel Corp Model RSA-2	7 X 12-1/2 X 19	16



*Intermediate Frequency Amplifier AM-581/U*



*Coaxial Junction Box CIA-62315*

*Intermediate Frequency Amplifier  
Coaxial Junction Box AM-581/U-62315*

### FUNCTIONAL DESCRIPTION

The AM-581/U is designed to amplify the 60 mc i-f. output of the SV, SV-1, SV-3 or AN/BPS-4 Radar. Specifically, its original purpose is to make possible the switching of the SV, SV-1, SV-3 or AN/BPS-4 Radar output to the SS, SS-1 or AN/BPS-1 Radar Indicator Console by feeding the i-f output of the SV, SV-1, SV-3, or AN/BPS-4 Transmitter-Receiver through the Intermediate Frequency Amplifier AM-581/U to the SS, SS-1, or AN/BPS-1 Indicator Console. Coaxial Junction Box CIA-62315 serves the purpose of connecting the i-f output signals of the SS Transmitter-Receiver and the SV Transmitter-Receiver to the indicator console.

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

### RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Radar System SS, SS-1 or AN/BPS-1, (1) Radar System SV, SV-1, SV-3 or AN/BPS-4 (1) Instruction Book for each equipment used.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY: 60 mc.  
 BAND WIDTH: 5.4 mc for 3 db signal reduction.  
 NOISE LEVEL: 22 uv at 60 mc.  
 GAIN: 20 db.  
 INPUT IMPEDANCE: 51 ohms.  
 OUTPUT IMPEDANCE: 51 ohms.  
 POWER REQUIREMENTS: 12 ma at 150 v DC and  
 0.53 amp at 6.3 v AC.  
 HEAT DISSIPATION: 5.1 W.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Airplane and Marine Instrument Inc.,  
 Clearfield, Pa.  
 Contract NObsr-52095, dated 27 November  
 1950.  
 Approximate Cost: \$590.00 with equip-  
 ment spares.

### TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6AK5

Total Tubes: (3)



AM-581/U-62315

## COAXIAL JUNCTION BOX

December 1956

NAVSHIPS 91531: Technical Manual for Intermediate Frequency Amplifier and Coaxial Junction Box CIA-62315.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE BUSHIPS  
 STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Intermediate Frequency Amplifier AM-581/U	.25	6 x 7-3/4 x 9	10
	Coaxial Junction Box 62315	.008	1-3/4 x 2-1/2 x 3/3/8	1
	Set of Equipment Spares	.29	6-1/8 x 7-1/8 x 10	8.4
	(2) Instruction Books NAVSHIPS 91531	.015	3/4 x 9 x 12	1.75

## EQUIPMENT SUPPLIED DATA

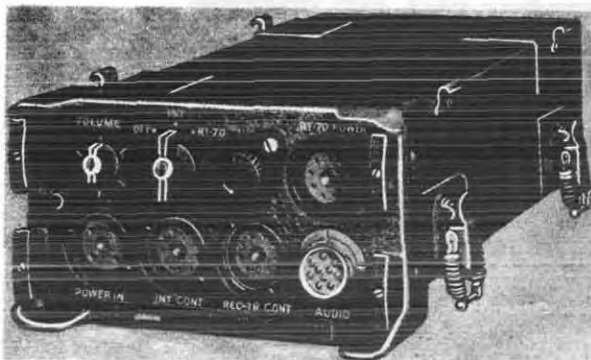
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Intermediate Frequency Amplifier AM-581/U	6 x 7-3/4 x 9	10
1	Coaxial Junction Box CIA-62315	1-3/4 x 2-1/2 x 3-3/8	1
1	Set of Equipment Spares	6-1/8 x 7-7/8 x 10	8.4
2	Instruction Books NAVSHIPS 91531	1/4 x 9 x 12	1.75
5	Connectors 49190		



March 1957

## AF AMPLIFIER

AM-65/GRC



AF Amplifier AM-65/GRC

## FUNCTIONAL DESCRIPTION

The AM-65/GRC is a lightweight, compact, three channel audio frequency amplifier and electronic mixer. It is designed to provide interphone operation and radio monitoring in vehicular installations which use one or two receiver-transmitters and one or more interphone control boxes.

The unit contains the audio amplifier and electronic mixer circuits necessary for amplifying and mixing signals from the receiver portions of two radio sets (Receiver-Transmitter RT-70/GRC and one Receiver-Transmitter RT-66/GRC, RT-67/GRC or RT-68/GRC) with the high level output of the self-contained interphone amplifier; separate channels are provided for monitoring the output of the receivers of each type of receiver-transmitter while simultaneously monitoring the low-level output of the interphone amplifier.

Since the unit is intended primarily for vehicular operation, it contains all the power supply circuits required for operation from 6, 12 or 24 volt, vehicular battery systems, in conjunction with a plug-in type vibrator unit. Power Supply PP-448/GR, PP-281/GRC or PP-282/GRC respectively. Provisions are made within the amplifier for the power supply circuits for the operation of Receiver-Transmitter RT-70/GRC.

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

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Power Supply PP-448/GR and a 6 volt storage battery or PP-281/GRC and a 12 v storage battery or PP-282/GRC and a 24 v storage battery or any 135 v DC and 6 v DC power source. (1) Chest Set Group AN/GSH-6 or (1) Headset NT-49507 or (1) Loudspeaker LS-166/U or (1) Microphone M-29/U.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## SIGNAL INPUT LEVELS

SET 1 + INTERPHONE CHANNEL (INT-CHAN):

5 v max.

SET 2 + INT. CHAN: 5 v max.

SET 1 + SET 2 + INT. CHAN: 0.25 v max.

## SIGNAL OUTPUT LEVELS

SET 1 + INT. CHAN: 350 mw minimum with a 5 v SET 1 input signal.

SET 1 + SET 2 + INT. CHAN: 800 mw minimum with 5 v SET 1 input signal.

SET 2 + INT. CHAN: 350 mw minimum with a 5 v SET 2 input signal.

SET 1 + SET 2 + INT. CHAN: 800 mw minimum with a 5 v SET 2 input signal.

SET 1 + INT. CHAN: 350 mw minimum with a .25 v interphone input signal.

SET 2 + INT. CHAN: 350 mw minimum with a .25 v interphone input signal.

SET 1 + SET 2 + INT. CHAN: 1800 mw minimum with a .25 v interphone input signal.

## INPUT IMPEDANCES

SET 1 + INT. CHAN: 1500 ohms.

SET 2 + INT. CHAN: 1500 ohms.

SET 1 + SET 2 + INT. CHAN: 150 ohms.

OUTPUT IMPEDANCE: 600 ohms all channels, tap for 150 ohms.

AUDIO FREQUENCY RESPONSE: Flat to within 4 db for frequencies between 400 and 2500 cps, sharp cut off beyond these limits.

DISTORTION: 10% max each channel.

CROSS TALK: 50 db down minimum between SET 1 + INT and SET 2 + INT. CHAN.

## AMPLIFIER POWER REQUIREMENTS (STAND-BY)

PLATES: 135 v, 35 ma.

## FILAMENTS

6 v OPERATION: 6.3 v, 1.2 amp.

12 or 24 v OPERATION: 12.6 v, 0.6 amp.

RELAY: 6.3 v, 161 ma.

MICROPHONE: 6.3 v, 30 ma.

## INPUT VOLTAGE REQUIREMENTS FOR OPERATION WITH VIBRATOR POWER SUPPLY

PP-448/GR: 6 v, 6.1 amp.

PP-281/GRC: 12 v, 3.85 amp.

PP-282/GRC: 24 v, 2.4 amp.

## INPUT VOLTAGE REQUIREMENTS FOR OPERATION WITH EXTERNAL SUPPLY

FILAMENT, RELAY AND MICROPHONE: 6.3 v

PLATES: 135 v.

## VOLTAGES MADE AVAILABLE TO RECEIVER-TRANSMITTER RT-70/GRC.

PLATES: 90 to 95 v, 78 ma.

FILAMENTS: 6.3 v, 360 ma.

RELAY: 6.3 v, 161 ma.

OPERATING TEMPERATURE RANGE: -40°F to +131°F.

## AM-65/GRC

## AF AMPLIFIER

March 1957

## MANUFACTURER'S OR CONTRACTOR'S DATA

Raytheon Manufacturing Company, Waltham  
54, Massachusetts.  
Contract D-36-039-SC-3779.  
Approximate Cost: \$130.00 with equip-  
ment spares

## REFERENCE DATA AND LITERATURE

TN11-5039: Technical Manual for AF Ampli-  
fier AM-65/GRC.

## TUBE AND/OR CRYSTAL COMPLEMENT

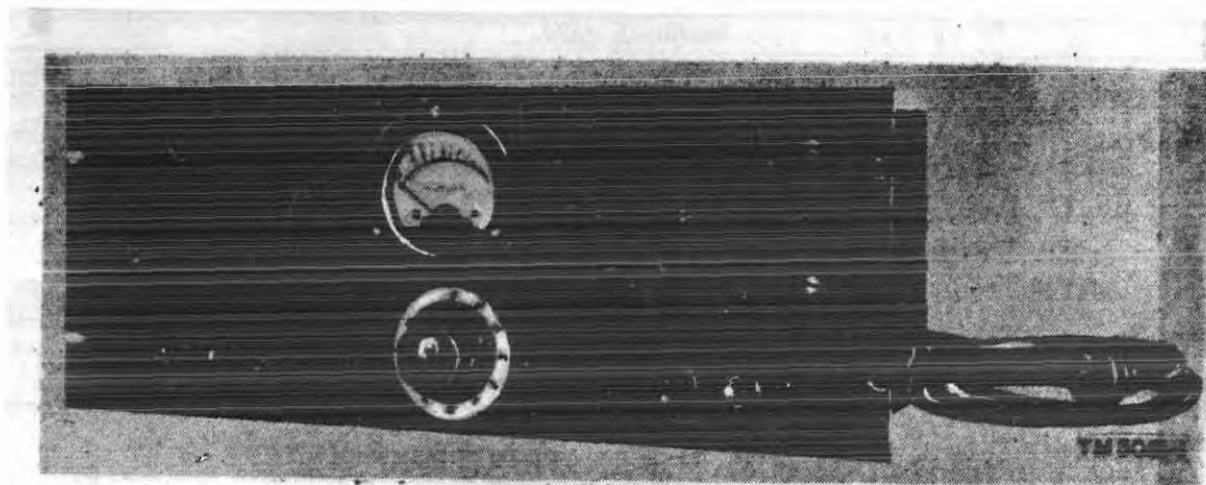
(2) OB2      (2) 6AK6      (3) 12AU7  
Total Tubes: (7)

TYPE CLASSIFICATION DESIGN COGNIZANCE TASSA PROCUREMENT COGNIZANCE STOCK NO.
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## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Amplifier AM-65/GRC	4-1/4 x 7-7/8 x 12-7/8	15.5

## AUDIO FREQUENCY AMPLIFIER

Radio-Auxiliary  
AM-864/U

Audio Frequency Amplifier AM-864/U

**FUNCTIONAL DESCRIPTION**

The AM-864/U is a peak limiting, audio frequency amplifier for use in AM and FM broadcasting system installations. The amplifier also may be used, in conjunction with recording and sound systems that require automatic regulation of the program level.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****IMPEDANCE**

INPUT: 600 ohms (center tapped).

OUTPUT: 600 ohms (center tapped).

GAIN: 36 db max.

POWER OUTPUT: 6 mw in a 600 ohm resistive load.

RATED DISTORTION: Less than 2% at 400, 1000, and 5000 cps.

CONSTANCY OF OUTPUT: For inputs from -35 to -25 db, output will not vary more than 1 db.

**SPEED OF AUTOMATIC GAIN**

REDUCTION (ATTACK TIME): 0.05 sec.

INCREASE (RECOVERY TIME): 2 sec.

NOISE LEVEL: 40 db below 6 mw.

FREQUENCY RESPONSE: Flat within 1 db of the

1000 cycle value over the range 100 to 5000 cycles.

POWER INPUT: 115 v or 220 v, 50 to 60 cps, 30 w.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 6SK7

(1) 6SQ7

(1) 6SN7GT

(1) 5Y3GT

Total Tubes: (5)

**REFERENCE DATA AND LITERATURE**

TM11-5081: Technical Manual for Audio Frequency Amplifier AM-864/U.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

Radio-Auxiliary  
AM-864/U

## AUDIO FREQUENCY AMPLIFIER

UNCLASSIFIED  
October 1957

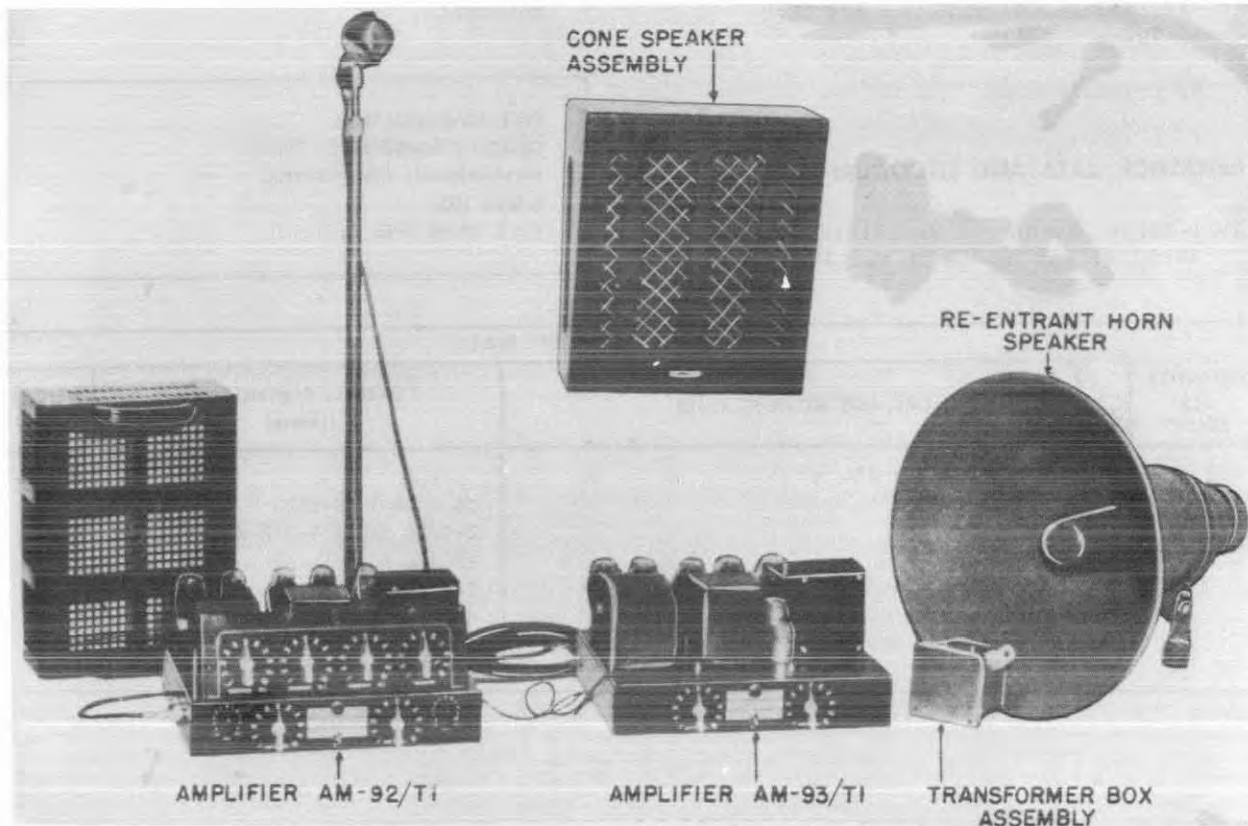
### SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Frequency Amplifier AM-864/U	4.5	13 x 19 x 28-1/2	50

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Frequency Amplifier AM-864/U	7 x 8-3/4 x 19	25
1	Power Cable	72 lg	
2	Technical Manual		
1	Set Running Spares		

## AMPLIFIER



*Amplifier AM-92/TI*

### FUNCTIONAL DESCRIPTION

The AM-92/TI is designed for the amplification and reproduction of sound over large areas. It uses fourteen (14) tubes in a four-stage, resistance-coupled circuit and has dual outputs terminated in separate receptacles.

No field changes in effect at time of preparation (1 May 1959).

### RELATION TO OTHER EQUIPMENT

The AM-92/TI is similar to the AM-92A/TI except that it uses different tube types; and the AM-92/TI includes a remote control receptacle and a female receptacle for supplying AC to external equipment whereas the AM-92A/TI doesn't include one.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF AMPLIFIER: A.F.

NUMBER OF CHANNELS: Three input channels; two for high impedance microphone; one for high impedance phonograph pickup.

NUMBER OF OUTPUT TRANSFORMERS: Two separate output transformers, with output impedance of 4, 8, 30, 60, 125, 250 and 500 ohms.

OPERATING POWER RQMT: 105 to 125 v, 50 to 60 cps, single ph, 50 W output.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Stromberg-Carlson, Chicago, Illinois.  
Model No. 7CS.

### TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6SJ7      (1) 6J5      (2) 6SF5

April 1959

**AM-92/TI****AMPLIFIER**

(2) 6N7    (4) 6L6G    (2) 5U5G  
 Total Tubes: (14)

quipments.

No Crystals used.

**REFERENCE DATA AND LITERATURE**

TM11-2573: Technical Manual for Amplifiers  
 AM-92/TI and AM-93/TI and Associated E-

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE TASSA  
 PROCUREMENT COGNIZANCE  
 STOCK NO.  
 R.D.B. IDENT. NO. 7.2

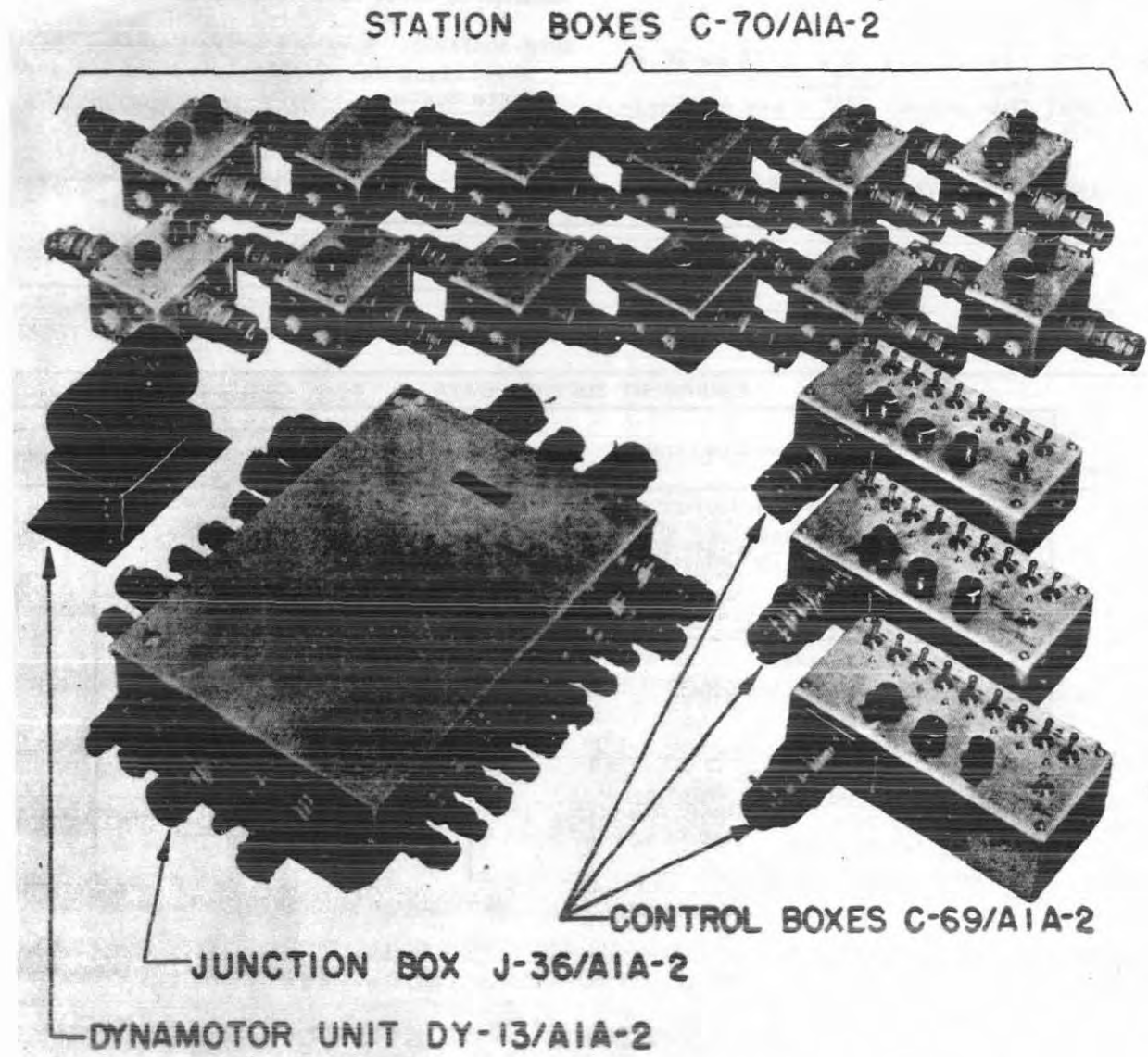
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier AM-92/TI Including:		
1	Amplifier Unit	10 X 14 X 16-1/2	41
2	Microphone	2-7/16 dia X 3-3/4 X 4-5/8	1.5
2	Microphone Stand	12 dia X 34 to 62	13
2	Microphone Cable	1/4 dia X 300 lg	1.5
1	Kit of Station Components	8-1/2 X 10 X 12	8
1	Set of Spare Tubes		



# INTERPHONE AND RADIO SYSTEM

Radio-Auxiliary  
AN/AIA-2



*Interphone and Radio System AN/AIA-2*

## FUNCTIONAL DESCRIPTION

The AN/AIA-2 provides controls and outlets for interphone communications between pilot, copilot, radio operator and other crew members. A master control unit connects the output of up to nine radio receivers and one radio transmitter to all control units and associated jack boxes of the system. An additional transmitter may be connected to its own associated jack box. The junction box will

accommodate two auxiliary master control units. Any required number of station control units may be added in series.

No field changes in effect at time of preparation (19 February 1957).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT AND INPUT IMPEDANCES: 600 ohms.  
ISOLATION AMPLIFIER OUTPUT POWER: 250 mw  
normal, 750 mw peak.

Radio-Auxiliary  
**AN/AIA-2**

**INTERPHONE AND  
RADIO SYSTEM**

**DYNAMOTOR:**

INPUT: 28 v at 1.3 amp full load, 0.5 amp no load.

OUTPUT: Continuous, 270 v, 70 ma DC at full-load; 310 v no load.

AMBIENT TEMPERATURE: 40° C max permissible.

**REFERENCE DATA AND LITERATURE**

AN08-30AIA2-2: Handbook of Maintenance Instructions for AN/AIA-2 Interphone and Radio System.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(3) 12A6

Total Tubes: (3)

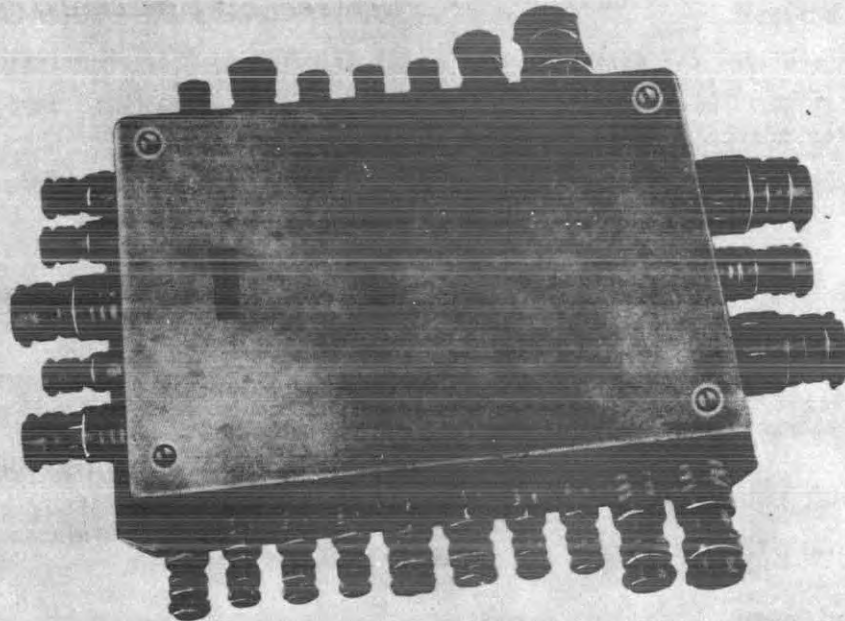
TYPE CLASSIFICATION DESIGN COGNIZANCE TASSA PROCUREMENT COGNIZANCE STOCK NO.
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**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Junction Box J-36/AIA-2 including: cover and mounting base	3-3/4 X 16-1/2 X 27-1/8	16.32
3	Control Box C-69/AIA-2 including: 1 Mounting Base 1 Plug AN3106-28-15S 1 Cable Clamp AN3057-16 1 Vacuum Tube JAN-12A6	3-3/8 X 7-13/16 X 9-3/8	2.80
1 to 30	Station Box C-70/AIA-2 including: 1 Mounting Base 2 Plug AN3106-22-19P 2 Cable Clamp AN3057-12	3-3/8 X 4-7/8 X 9-5/16	1.37
1	Dynamotor Unit DY-13/AIA-2 including: 1 Mounting Base 1 Plug AN3106-14S-7S 1 Cable Clamp AN3057-6	3-1/4 X 5-1/16 X 8	4.19

# INTERPHONE AND RADIO SYSTEM

Radio-Auxiliary  
AN/AIA-2A



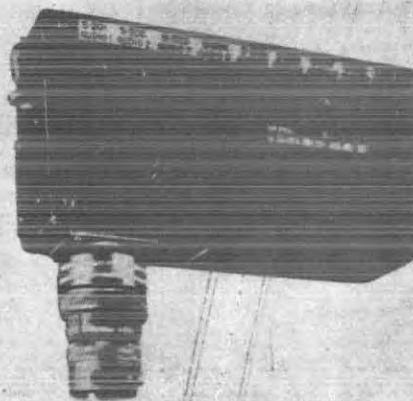
JUNCTION BOX J-20A/AIA-2A



STATION BOX C-70A/AIA-2A



DYNAMOTOR UNIT DY-13A/AIA-2A



CONTROL BOX C-60A/AIA-2A

*Interphone and Radio System*

# INTERPHONE AND RADIO SYSTEM

## FUNCTIONAL DESCRIPTION

The AN/AIA-2A provides the pilot, copilot and radio operator of large aircraft with simplified control over all of the microphone, radio transmitter control, radio receiver audio output and interphone circuits necessary for the proper operation of the airplane communication facilities. In addition the remaining crew members are provided with interphone communication, access to the audio output from one of the radio receivers and supervised control over the vhf transmitter.

Audio from a total of nine radio receivers and to any one of three transmitters may be controlled by the system.

No field changes in effect at time of preparation (19 February 1957)..

## RELATION TO OTHER EQUIPMENT

Similar to AN/AIA-2.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT AND INPUT IMPEDANCE: 600 ohms.  
ISOLATION AMPLIFIER OUTPUT POWER: 250 mw undistorted, 750 mw peak.  
POWER SOURCE REQUIRED: 28 v DC.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Telephonics Corp, Huntington, N.Y.  
Contract NOa(s) 3553.  
Bendix Aviation Corp, Towson, Md.  
Contracts NOa(s) 3553.  
Contract NOa(s) 6454.  
The Mercury Battery Charger Co., Kansas City, Mo.  
Contract NOa(s)-10016.

## TUBE AND/OR CRYSTAL COMPLEMENT

(3) 12A6  
Total Tubes: (3)

## REFERENCE DATA AND LITERATURE

AN-08-30AIA2-3: Handbook of Maintenance Instructions for AN/AIA-2A Interphone and Radio System.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Junction Box J-36A/AIA-2A Including: 1 cover and 1 Mounting Base	3-3/4 x 16-1/2 x 20-15/16	17.22
3	Control Box C-69A/AIA-2A or Including: (Depending on Position of (J-204 & P-201) 1 Mounting Base 1 Plug AN3106-28-15S 1 Cable Clamp AN3057-16 1 Vacuum Tube Jan-12A6	3-3/8 x 7-13/16 x 9-3/8 3-3/8 x 4-1/4 x 12-15/16	3.50
1 to 30	Station Box C-70A/AIA-2A Including: 1 Mounting Base 2 Plug AN3106-22-19P 2 Cable Clamp AN3057-12	3-3/8 x 4-7/8 x 9-5/16	1.93
1	Dynamotor Unit DY-13A/AIA-2A including: 1 Mounting Base 1 Plug AN3106-14S-7S 1 Cable Clamp AN3057-6	3-1/4 x 5-1/16 x 8	4.27



## INTERCOMMUNICATION SET



Intercommunication Set AN/AIC-10

**FUNCTIONAL DESCRIPTION**

The AN/AIC-10 provides high-intelligibility speech and signal communication at all altitudes in military aircraft of every size and type. It has four facilities: Intercom-

munication within the aircraft; communication beyond the aircraft by means of radio equipment; monitoring of received radio signals, including simultaneous monitoring of a number of radio receivers; and a call facility for use in establishing communication

January 1958

Radio-Auxiliary

**AN/AIC-10****INTERCOMMUNICATION SET**

between stations of the system. The equipment is designed for maximum user comfort and minimum fatigue.

No field changes in effect at time of preparation (24 July 1957).

Total Tubes: (20)

**REFERENCE DATA AND LITERATURE**

AN16-30AIC10-1, T.O. 12R2-2AIC10-1; Technical Manual for Intercommunication Set AN/AIC-10.

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

Radio Corp of America.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(8) 5899

(12) 5718

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	

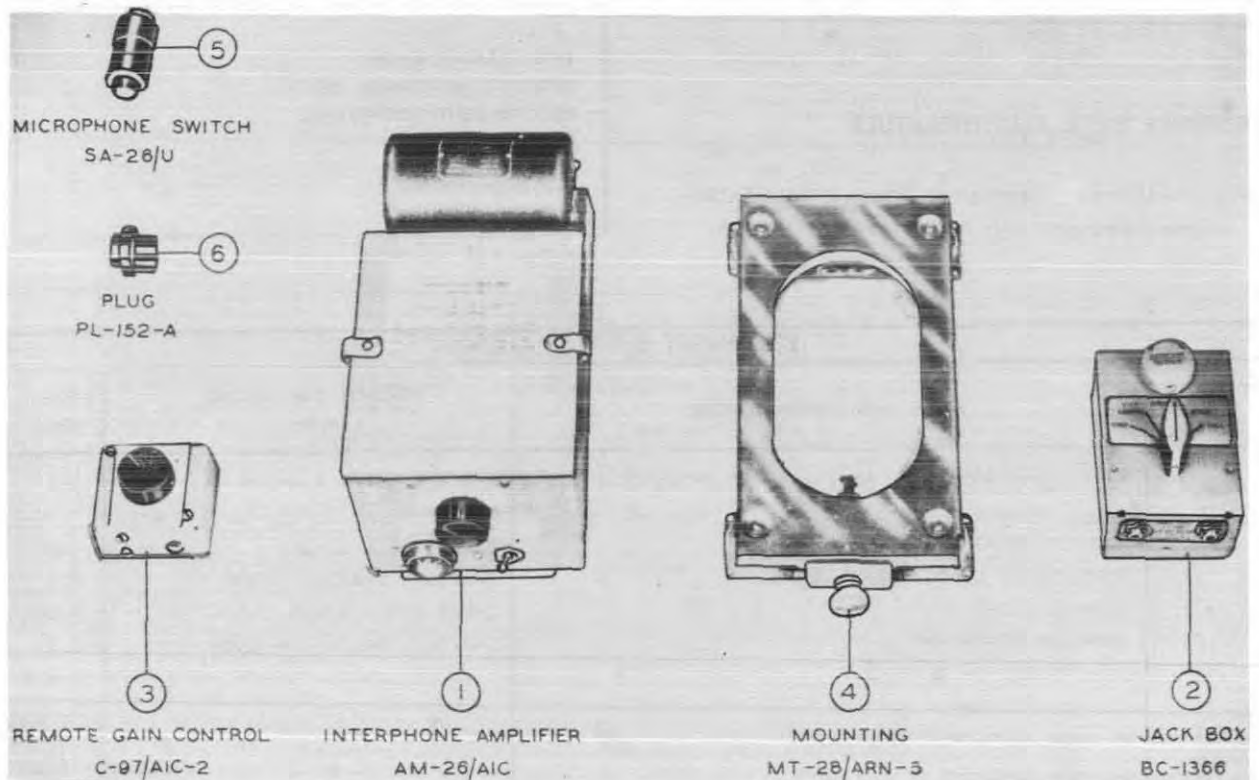
**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	Control, Interphone C-823/AIC-10	3-5/8 X 4-3/8 X 5-7/16	2.1
	Dynamotor DY-76/AIC-10	5-7/16 X 6-7/8 X 7-7/8	9.2
	Dynamotor DY-76A/AIC-10	5-7/16 X 6-7/8 X 7-7/8	9.2
	Dynamotor DY-77/AIC-10	4-9/16 X 5 X 5-3/8	4.2
	Headset H-70/AIC	4 X 6-1/2 X 9-1/2	1.10
	Headset H-70A/AIC	4 X 6-1/2 X 9-1/2	1.10
	Headset H-71/AIC	3-1/4 X 4-1/2 X 7-1/2	0.80
	Headset H-75A/AIC	3-1/4 X 4-1/2 X 7-1/2	0.92
	Headset and Microphone H-78/AIC	6 X 6-3/4 X 9-1/2	1.29
	Headset-Microphone H-78A/AIC	6 X 6-3/4 X 9-1/2	1.30
	Loudspeaker, Dynamic LS-184/AIC-10	4-1/8 X 7-1/4 X 8-5/32	3.1
	Microphone M-32/AIC	1-5/16 X 1-5/16 X 1-3/4	0.15
	Microphone M-33/AIC	1-1/8 X 1-1/4 X 8-3/4	0.19
	Microphone M-34/AIC	1-5/8 X 1-25/32 X 6-1/32	0.85
	Control Panel C-824/AIC-10	3-3/4 X 5-3/4 X 6-21/32	3.3
	Control Panel C-825/AIC-10	3-3/4 X 5-3/4 X 6-21/32	3.1
	Control Panel C-826/AIC-10	2-5/8 X 3-9/16 X 5-3/4	0.9
	Relay Assembly RE-94/AIC-10	3-5/8 X 3-21/32 X 5-7/16	2.1
	Adapter Headset-Microphone MX-1646/AIC	1-3/8 dia X 3-1/8	0.75
	Audio Frequency Amplifier AM-843/AIC-10	2-3/4 X 4-21/32 X 5-21/32	2.95



## INTERPHONE EQUIPMENT

AN/AIC-2A



Interphone Equipment AN/AIC-2A

## FUNCTIONAL DESCRIPTION

The AN/AIC-2A is designed as a low impedance equipment installed in aircraft in which the interphone amplifier and the radio equipments have their output circuits connected for low impedance operation. The output circuit of the amplifier used must be connected to the proper output tap. Jack Box BC-1366M is a part of Interphone Equipment AN/AIC-2A only, but may be used with AN/AIC-2 if Jack Box BC-1366 is not available.

No field changes in effect at time of preparation (30 April 1959).

## RELATION TO OTHER EQUIPMENT

The AN/AIC-2A is similar to the AN/AIC-2 except that it differs in equipment supplied;

and is designed for low impedance equipment whereas the AN/AIC-2 is designed for high impedance equipments.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF INSTALLATION FOR WHICH EQUIPMENT IS DESIGNED: For low impedance equipment installed in aircraft in which the interphone amplifier and radio equipments have their output circuits connected for Low impedance operation.

OPERATING POWER REQMT: 24 v DC.

## TUBE AND/OR CRYSTAL COMPLEMENT

(2) 12J5GT (2) 12A6

Total Tubes: (4)

## AN/AIC-2A

## INTERPHONE EQUIPMENT

No Crystals used.

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

## REFERENCE DATA AND LITERATURE

AN16-30AIC2-3: Technical Manual for Inter-  
phone Equipment AN/AIC-2 and AN/AIC-2A.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Interphone Amplifier AM-26/AIC or AM-26A/AIC Incl: (1) Dynamotor DM-32-A	5-1/8 X 5-1/4 X 9-3/4	6.8
1	Mounting MT-28/ARN-5	1-1/4 X 6 X 11-3/4	1.2
1	Remote Gain Control C-97/AIC-2	2-1/16 X 2-1/2 X 2-3/4	0.3
1	Plug PL-152-A	1-1/8 X 1-1/4 dia	0.06
*1	Jack Box BC-1366M	3-1/16 X 3-1/4 X 4-11/16	1.0
*†	Cord CD-508 or CD-508A		0.625
*†	Microphone Switch SA-26/U		0.22
*†	Microphone Switch SA-47/AIC		
*†	Cordage CO-122-A or CO-122-B		
*†	Cordage CO-219		
*†	Plug PL-68		0.035
*†	Jack JK-48		0.012
*+	Cord CD-307-A		
*+	Headset HS-33 or HS-38		0.7 or 0.5
*†	Microphone AMB-M-C1		0.1

NOTE: \*The quantity required depends upon the installation plan of the airplane. A maximum of 15 stations may be used.

†These items may be supplied as part of Interphone Equipment AN/AIC-2, as part of the radio set with which they are used, or separately. The exact length of Cord CD-307-A depends on the individual installation.

‡The following microphones may be used in place of Microphone AMB-M-C1:

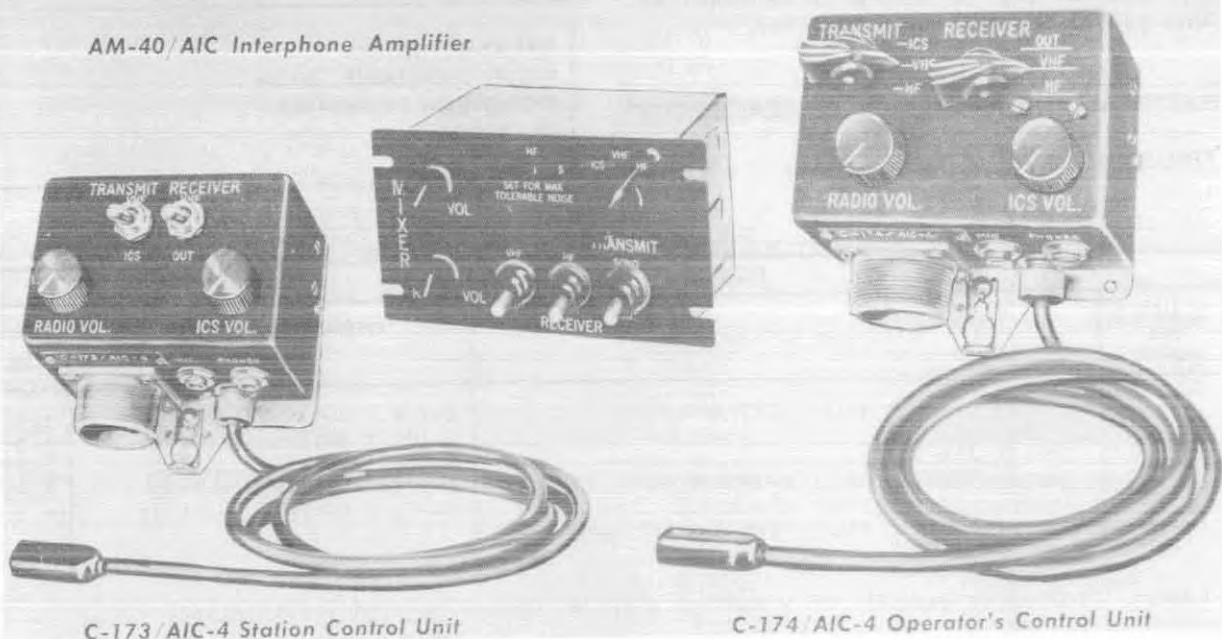
- (1) Microphone T-30P, T-30-Q, T-30-S, T-30-U, T-30-V or T-30-W.
- (2) Microphone T-17, T-17-B, T-17-D, or T-17-E.

INTERPHONE-RADIO CONTROL-SET



C-242/AIC-4 Pilot's Control Unit Shown Without Blanking Plate Over the ICS Position of the TRANSMIT Switch

AM-40/AIC Interphone Amplifier



C-173/AIC-4 Station Control Unit

C-174/AIC-4 Operator's Control Unit

Interphone-Radio Control-Set AN/AIC-4

FUNCTIONAL DESCRIPTION

The AN/AIC-4 is an airborne control set

designed to provide the pilot and radio operator of an aircraft simplified control over the microphone, radio transmitter control,

April 1958

**AN/AIC-4****INTERPHONE-RADIO CONTROL-SET**

radio receiver audio output, and interphone circuits necessary for the proper operation of the aircraft communication facilities. In addition, all remaining crew members are provided with interphone communication, access to the audio output from the VHF radio receiver, and control of the VHF transmitter.

The pilot may monitor a combination of five receivers; three of these receivers, namely the navigation receiver, the range receiver, and the sonobuoy receiver are not selective, and therefore, signals from these receivers will always be heard by the pilot. The pilot and radioman can select different radio receivers without interference between receivers due to the fact that isolation circuits are provided.

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

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (1) Terminal Strip, (1) Jack Box J-16/ARC-5 or equivalent, Headphones HS-38 as Required, Microphones T-17 or ANB-M-C1 as Required, Throttle or Gun Switch as Required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 0 to 4000 cps.

**POWER OUTPUT**

LOW: 1.5 W.

HIGH: 4 W.

**IMPEDANCE DATA****INPUT**

MICROPHONE: 200 ohms.

RADIO CHANNEL: 0 to 3000 ohms.

**OUTPUT**

LOW: 120 ohms.

HIGH: 30 ohms.

POWER REQUIREMENTS: 28 v DC, 63 W.

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

Magnavox Company, Fort Wayne, Indiana.  
Contract NOas-6885.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

AN16-30AIC4-2: Technical Manual for AN/AIC-4 Interphone-Radio Control Set.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUAER  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pilots Control Unit C-242/AIC-4 or C-172/AIC-4	3-3/8 X 4-23/32 X 6 3-1/2 X 5-15/32 X 5-7/8	1.7 2.8
1	Operator's Control Unit C-174/AIC-4	3-5/16 X 4-1/8 X 4-5/32	1.375
1*	Station Control Unit C-173/AIC-4	3-7/16 X 4-1/8 X 4-5/32	1.31
1	Interphone Amplifier AM-40/AIC	5-3/4 X 9-1/8 X 13-13/32	10.7
1	Set of Cables, Plugs, and Cable Clamps		

NOTE: \* Indicates quantity of 3 maximum supplied depending upon installation.

## INTERCOMMUNICATION SET

Radio-Auxiliary  
AN/AIC-5A, 5B

Intercommunication Set AN/AIC-5B

**FUNCTIONAL DESCRIPTION**

The AN/AIC-5A and AN/AIC-5B provides pilot, copilot and radio operator with selective control of the radio communication and navigation equipments aboard an aircraft and provides selective interphone communication and radio facilities for all crew members. Also provides 2 separate interphone channels, 1 for flight crew and 1 for gun crew.

The AN/AIC-5B is interchangeable with the AN/AIC-5A but uses interphone control C-761/AIC-5B and C-762/AIC-5B which incorporate edge lighting and Dzus fasteners instead of Control Unit C-379B/AIC-5 and Control Unit C-380A/AIC-5.

No field changes in effect at time of preparation (19 February 1957).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (1) Terminal Box Interconnecting cables (1) Headset, microphone, jack box and cord per Control Unit.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

INPUT AND OUTPUT IMPEDANCES:  
ISOLATION AMPLIFIER



## AN/AIC-5A, 5B

## INTERCOMMUNICATION SET

INPUT: 600 ohms.

OUTPUT: 600 ohms.

## INTERPHONE AMPLIFIER

MICROPHONE INPUT: 3300 ohms.

RADIO INPUT: 1000 ohms.

OUTPUT: 60 ohms.

OPERATING LOAD: 50 to 300 ohms.

## OUTPUT POWER

ISOLATION AMPLIFIER: 200 mw.

INTERPHONE AMPLIFIER: 2W.

## DYNAMOTOR

INPUT VOLTAGE: 28 v DC.

OUTPUT VOLTAGE: 250 v DC.

INPUT CURRENT: 1.1 ampere full load.

OUTPUT CURRENT: 60 ma full load.

MAX AMBIENT TEMP: 40 deg C.

MAX PERMISSABLE TEMP RISE: 50 deg C.

POWER SOURCE REQUIRED: 28 v DC.

NUMBER OF STATIONS: 3 to 20.

NUMBER OF MASTER CONTROL UNITS: 3.

TYPE OF OUTPUT: Headset.

TYPE OF TRANSMISSION: Wire.

FEATURE: Colored plugs and receptacles to facilitate connections.

Contract NOa(s)-9775.

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

Contract NOa(s)-10779.

## TUBE AND/OR CRYSTAL COMPLEMENT

AN/AIC-5A, or 5B

(5) 12A6 (2) 12H6 (2) 12SA7

Total Tubes: (9)

## REFERENCE DATA AND LITERATURE

AN16-30AIC5-3: Handbook of Maintenance Instructions for AN/AIC-5A and AN/AIC-5B.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

## MANUFACTURER'S OR CONTRACTOR'S DATA

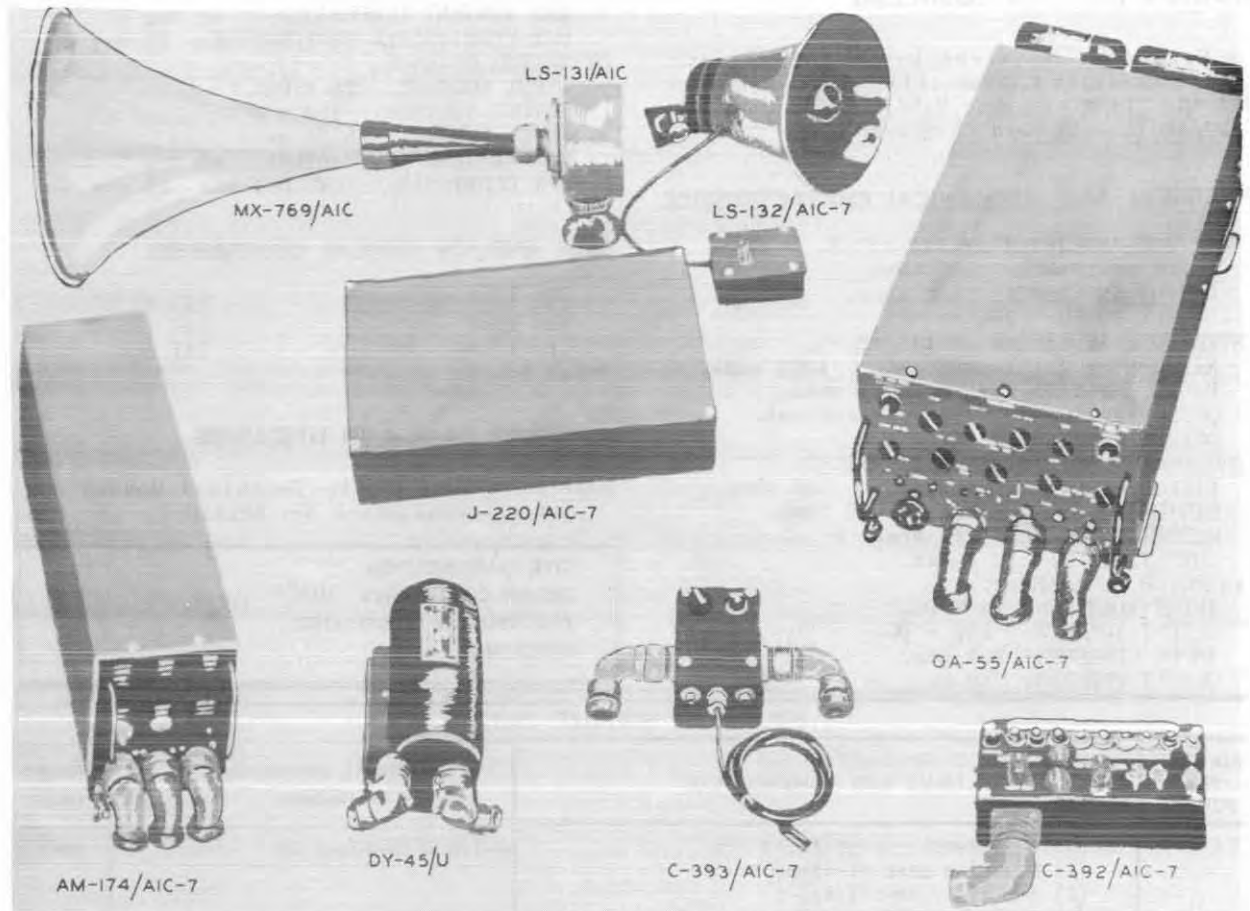
Ripley Co., Inc., New York, N.Y.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
5A	5B			
1	1	Operating Assy OA-53A/AIC-5 CONSISTS OF: 3 Amplifier Isolation AM-172/AIC-5 2 Amplifier Interphone AM-171/AIC-5 2 Dynamotor DY-2/ARR-2 1 Mounting MT-778/AIC-5A	9-1/8 X 11 X 24 1-7/8 X 3-3/8 X 10-1/16 3-3/8 X 3-7/16 X 10-1/16 2-11/16 X 3-1/4 X 4-3/4 2-1/2 X 11-1/8 X 22	44.6 1.75 2.75 2.75 ea 1.9
	3	Control Unit C-762/AIC-5B	5-3/8 X 5-3/4 X 7-1/2	
3		Control Unit C-380A/AIC-5	3-1/2 X 4-3/4 X 9-5/16	3.8 ea
3		Control Unit C-379A/AIC-5		
		OR Control Unit C-379B/AIC-5	3-1/4 X 3-1/2 X 5-3/8	1.8 ea
	3	Control Unit C-761/AIC-5B	2-5/8 X 4-3/8 X 5-3/4	
		ACCESSORIES: Plugs and Clamps		



## INTERCOMMUNICATION SET



Intercommunication AN/AIC-7

**FUNCTIONAL DESCRIPTION**

The AN/AIC-7 is designed to provide simplified control over all radio receivers and transmitters aboard the aircraft and with both head phone and loudspeaker type interphone systems arranged to permit maximum flexibility of communication facilities within the weight and size limits imposed by overall aircraft requirements.

The pilot, copilot, radio operator and navigator are each provided with a master control unit which permits selecting any one or combination of eight radio receiver outputs as desired, transmission over any one of three radio transmitters, and interphone communication over headphones or loudspeakers to all crew members aboard. The pilot may also connect either one or both of two radio

receiver outputs to the loudspeaker system for mounting inside the aircraft and may call external to the aircraft over an outer loudspeaker unit.

Members of the crew other than the pilot, copilot, radio operator and navigator are each provided with a simplified control unit (referred to throughout this section as a station box) which permits reception from the VHF radio receiver, transmission over the VHF transmitter under control of one of the master control units, and interphone communication over headphones or loudspeakers to other members of the crew. Any one or more station boxes may be arranged to permit calls external to the aircraft over an outer loudspeaker unit.

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

January 1958

## AN/AIC-7

## INTERCOMMUNICATION SET

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied:  
Interconnecting Cables, (1) Headset H-1/AR or H-4/AR, (1) Microphone M-5A/UR, (1) Jack Box J-22/ARC-5, (1) Cord CX-922/AR.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

ISOLATION AMPLIFIER AM-172/AIC-5.

INPUT IMPEDANCE: 600 ohms.

OUTPUT IMPEDANCE: 600 ohms.

OUTPUT POWER: 200 mw.

INTERPHONE AMPLIFIER AM-171/AIC-5.

MICROPHONE INPUT IMPEDANCE: 4300 ohms.

RADIO INPUT IMPEDANCE: 775 ohms.

OUTPUT IMPEDANCE: 60 ohms nominal.

OUTPUT POWER: 1.2 W.

LOUDSPEAKER AMPLIFIER AM-174/AIC-7.

MICROPHONE INPUT IMPEDANCE: 180 ohms.

RADIO INPUT IMPEDANCE: 1000 ohms.

OUTPUT IMPEDANCE: 15 ohms.

OUTPUT POWER: 30 W max.

DYNAMOTOR DY-2/ARR-2.

INPUT VOLTAGE: 28 v DC.

OUTPUT VOLTAGE: 250 v DC.

INPUT CURRENT: 1.1 amp.

OUTPUT CURRENT: 60 ma.

MAX AMBIENT TEMPERATURE: 40 deg C.  
MAX PERMISSIBLE TEMPERATURE: 50 deg C.  
DYNAMOTOR DY-45/U.

INPUT VOLTAGE: 28 v DC.

OUTPUT VOLTAGE: 300 v DC.

INPUT CURRENT: 6.25 amp.

MAX AMBIENT TEMPERATURE: 40 deg C.

MAX PERMISSIBLE TEMPERATURE: 55 deg C.

## TUBE AND/OR CRYSTAL COMPLEMENT

(5) 12A6

(2) 12H6

(1) 12SA7

Total Tubes: (14)

(1) 12SK7

(1) 12SN7

(4) 6L6

## REFERENCE DATA AND LITERATURE

NAVAER 16-30AIC7-501; Technical Manual for  
Intercommunication Set AN/AIC-7.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUAER  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Operating Assembly OA-55/AIC-7 c/o (1) Mounting Base MT-B1-D1 (1) Amplifier AM-171/AIC-5 (4) Amplifier AM-172/AIC-5 (1) Range Filter, F-58/AIC-5 (2) Dynamotors DY-2/ARR-2	9-1/4 x 11-1/8 x 24	39
4	Control Units C-392/AIC-7 c/o  (1) base (1) plug AN3108-28-15S (1) Cable Clamp AN3057-16	3-1/2 x 8 x 9-1/2 OR 3-1/2 x 4-1/2 x 12-7/8	33.9
6	Control Units C-393/AIC-7 c/o (1) base (2) plugs AN3108-20-29S (2) Cable Clamps AN3057-12	3-1/2 x 5-1/2 x 9-5/8	1.9
1	Amplifier AM-174/AIC-7 c/o (1) base mounting MT-689/AIC-7 (1) plug AN3108-18-1 (1) plug AN3108-18-4S (1) plug AN3108-18-9S (3) Cable Clamp AN3057-10	6 x 9 x 20-5/8	19.5
1	Dynamotor DY-45/U c/o (1) base (1) plug AN3108-18-3S (1) plug AN3108-18-4P (2) Cable clamp AN3057-10	4-3/8 x 6 x 7-3/8	9.4
1	Loudspeaker LS-131/AIC	4-1/2 x 5 dia	12.0
1	Horn MX-769/AIC	12-5/8 x 22	2.3

UNCLASSIFIED

January 1958

Radio-Auxiliary

# INTERCOMMUNICATION SET

## AN/AIC-7

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Loudspeaker LS-132/AIC-7 c/o (1) Volume Control	8-1/4 x 9-1/2	5.5
1	Terminal Box J-220/AIC-7	3-1/4 x 10-7/8 x 15-3/8	5.5

UNCLASSIFIED

1.2 AN/AIC-7: 3

# INTERCOMMUNICATION SET

Radio-Auxiliary  
**AN/AIC-8**



## *Intercommunication Set AN/AIC-8*

### FUNCTIONAL DESCRIPTION

The AN/AIC-8 is used as an aircraft intercommunication system which consists of not

less than 2 nor more than 5 interphone stations and a number of auxiliary stations, which when added to the number of interphone stations will not total more than 20.

Radio-Auxiliary  
**AN/AIC-8**

**INTERCOMMUNICATION SET**

The equipment provides facilities for voice intercommunication between all stations in the aircraft, transmission from any interphone station to any of three transmitters and reception at all interphone stations from any of eight receivers in the aircraft.

No field changes in effect at time of preparation (15 July 1957).

INPUT: 28 v DC, 1.1 amp.  
OUTPUT: 250 v DC, 0.06 amp.  
SPEED: 7500 rpm.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) 6AT6                      (2) 6AQ5                      (1) 26A7GT  
Total Tubes: (5)

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: Jack U-61/U, Cordage WF-5/U, (3) Circuit Breaker, (1) Connector AN3106-16S-1S, Connector AN3106-14S-2S, Connector AN3106-18-1S, Connector AN3106-28-15S, Adapter AN3057-16, Adapter AN3057-8, Adapter AN3057-10, Adapter AN3057-6, Junction Box and Headset Hanger. Quantities of the above depend upon the installation.

**REFERENCE DATA AND LITERATURE**

AN16-30AIC8-2; Technical Manual for Intercommunication Set AN/AIC-8.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

DYNAMOTOR DM-32-A.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE USAF  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Amplifier AM-300/AIC	4-5/16 x 5-3/16 x 7-1/2	6.3
1	Mounting Plate MT-677/AIC	1-1/2 x 5-7/16 x 8-1/2	0.47
*	Interphone Control C-633/AIC	3-3/4 x 5-5/8 x 5-3/4	2.3
*	Mixer Amplifier AM-142/AIC	1-3/4 x 5-1/4 x 6	1.9
*	Mounting Plate MT-556A/AIC	1-1/4 x 5 x 5-1/4	0.35
**	Filter Assembly F-90/AIC	2-5/8 x 3-3/4 x 5-3/4	
*	Microphone Headset Assembly H-46/UR		1.1
***	Microphone Switch SA-26/U	1-1/16 dia x 2-11/16	0.13
****	Headset HS-33		0.59
****	Microphone T-17B		0.79
****	Jack Box J-139A/AIC	2 x 2 x 3-3/8	0.3

NOTES: \*Quantity is same as the number of interphone stations installed in an aircraft.  
\*\*Quantity is one less than the number of interphone stations.  
\*\*\*One is required for each interphone station; however, other approved microphone switches may be used as required in lieu of SA-26/U.  
\*\*\*\*Quantity is same as number of auxiliary stations.



## PANORAMIC ADAPTER



*Panoramic Adapter AN/APA-10*

### FUNCTIONAL DESCRIPTION

The AN/APA-10 is an airborne equipment which when used with certain radio receivers presents visually and aurally a portion of the Radio spectrum. By the use of this equipment signals can be detected and their frequency, strength and type of modulation may be determined. The AN/APA-10 has four channels which permit selection of the video output of any one of three receivers covering different frequency ranges or permit the use of the adapter as an oscilloscope.

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

### RELATION TO OTHER EQUIPMENT

The AN/APA-10 is designed to operate with Radio Receiving Sets AN/ARR-7 and AN/ARR-5, Receiving Equipment AN/APR-1 and AN/APR-4 or Radio Set SCR-587.

Equipment Required but not Supplied: (1) Radio Receiving Set AN/ARR-7 or (1) Radio Receiving Set AN/ARR-5 or (1) Radio Receiving Equipment AN/APR-1 or (1) Receiving Equipment AN/APR-4 or (1) Radio Set SCR-587, (1) Pair Headphones and Cord, (1) Power Cable, two-conductor cable capable of carrying 10 amperes.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### FREQUENCY RANGE

CHANNEL A: 5 to 28 mc.  
CHANNEL B: 27.8 to 143 mc.  
CHANNEL C: 80 to 3000 mc.

#### SENSITIVITY

CHANNEL A: 400 uv or less per 1/4 in. beam deflection.  
CHANNEL B: 400 uv or less per 1/4 in. beam deflection.  
CHANNEL C: 1 v or less per 1/4 in. beam deflection.

RESOLUTION: 12 kc at 3 db down from peak.

#### PRESENTATION

CHANNELS A AND B: Panoramic.  
CHANNEL C: Oscillographic.

#### SWEEP WIDTH

CHANNEL A:  $\pm 50$  kc (100 kc overall).  
CHANNEL B:  $\pm 500$  kc (1 meg overall).  
CHANNEL C:  $\pm 1$  meg (2 meg overall, manually).

CATHODE RAY SWEEP: Oscillatory or non-oscillatory (servo). Variable sawtooth generator, 35 to 40,000 cps.

AUDIO OUTPUT: 50 mw into 600 or 8000 ohm load.

POWER SOURCE REQUIRED: 105 to 125 v, 400 to 2600 cps or 75 to 85 v (by changing transformer tap). Power input approximately 140 W.

### MANUFACTURER'S OR CONTRACTOR'S DATA

Airtronics Development Corp., Dayton, Ohio.

Contract Purchase Plan 44-3061.

Approximate Cost: \$600.00 with equipment spares.

### TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2X2	(1) 5R4GY
(3) 6AG5	(8) 6AK5
(5) 6SN7GT	(3) OD3/VR-150

Total Tubes: (21)

### REFERENCE DATA AND LITERATURE

AN08-30APA10-3: Technical Manual for Panoramic Adapter AN/APA-10.

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.

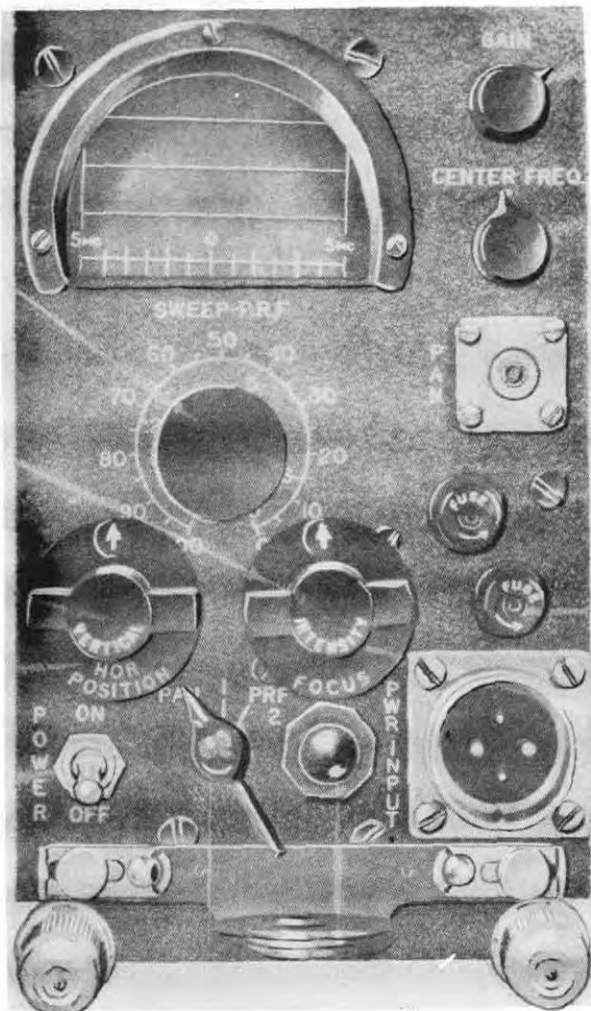


## AN/APA-10

## PANORAMIC ADAPTER

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Indicator ID-60/APA-10	7-5/8 X 10-1/4 X 19-9/16	40.0
1	Mounting Base MT-171/U	2-1/2 X 10-3/8 X 22-3/4	2.18
1	High Impedance CRO Probe Cord CG-53/AP	30 1g	
1	Low Impedance Sync Probe Cord CG-113/AP	30 1g	
1	Cord CG-180/AP	30 1g	
2	Cord CD-800	20 1g	
1	Cord CD-800	30 1g	
	Plugs and Adapters		
1	Set of Repair Parts		

**PANORAMIC ADAPTOR****AN/APA-38***Panoramic Adaptor AN/APA-38***FUNCTIONAL DESCRIPTION**

The AN/APA-38, when connected to a radio receiver, enables an operator to see on a CR Tube, all stations receivable within a 10 megacycle band of the station to which the receiver is tuned. This allows quick interception of stations appearing on the air, even for short periods of time. The Panoramic adaptor performs three important functions: (1) It tells the frequency of the signal with respect to the station to which the receiver is tuned; (2) it tells roughly the strength of the signals that are shown on the screen; and (3) it reveals the character of the signal and the type of modulation; whether AM or FM, CW or phone, etc.

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

**RELATION TO OTHER EQUIPMENT**

The AN/APA-38 is designed for airborne use with AN/APR-1 or AN/APR-5A Receiving Equipment.

Equipment Required but not Supplied: (1) Receiving Equipment AN/APR-1 or Receiving Equipment AN/APR-5A.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

**POWER SUPPLY:** 57 watts at 110-115 volts, 400-2700 cycles, single phase ac.  
**PRESENTATION:** 3 inch cathode ray tube.  
**INPUT FREQUENCY:** 30 megacycles.  
**MAXIMUM SWEEPWIDTH:** 10 megacycles.  
**SWEEP FREQUENCY:** Adjustable from 30 to 1500 cycles per second.  
**SENSITIVITY:** 1000 microvolts input for more than 1/4 in. deflection.

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

Panoramic Radio Corp, Mount Vernon, N.Y.  
 Contract N5sa-4615.  
 Approximate Cost: \$2200.00 with equipment spares.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) OD3W	(1) 6J4WA
(1) 6X5WGT	(1) 2X2A
(1) 6SA7Y	(1) 3BP1
(2) 6SL7WGT	(3) 6AC7WA
(1) 6SQ7GT	

Total Tubes: (12)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

AN16-30AP38-3: Technical Manual for AN/APA-38 Panoramic Adaptor.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	
STOCK NO.	

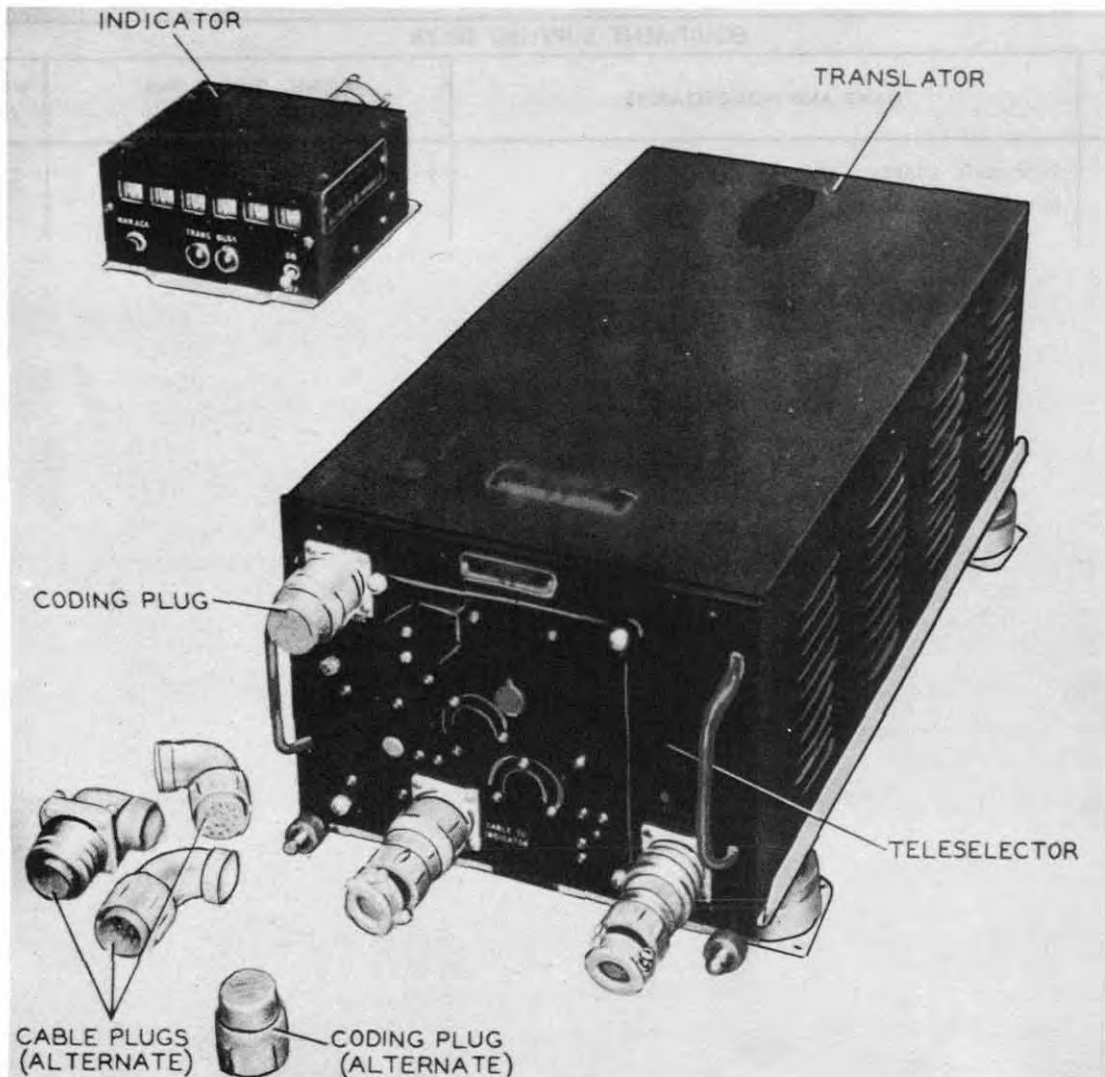
April 1958

Radio-Auxiliary

**AN/APA-38****PANORAMIC ADAPTOR****EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Panoramic Adapter AN/APA-38	9-1/4 X 5-3/16 X 24-5/8	25
1	Set of Accessories		

## PULSE TRANSLATING EQUIPMENT



*Impulse Translating Equipment AN/ARA-15*

### FUNCTIONAL DESCRIPTION

The AN/ARA-15 is designed to decode and to acknowledge signals from Impulse Keying Equipment Model CXJV, shipborne or shore station equipment. The AN/ARA-15 which is used in conjunction with radio communication equipment of the aircraft and of the ship, is designed to translate a coded message from a ship or a shore station and visually display the message in the aircraft. The

visual message consists of six (6) ideograms or symbols.

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

### RELATION TO OTHER EQUIPMENT

The AN/ARA-15 is designed to be used with but not part of Navy Model Impulse Keying and Signaling Equipment CXJV.

April 1959

Radio-Auxiliary

**AN/ARA-15****PULSE TRANSLATING EQUIPMENT****EQUIPMENT REQUIRED BUT NOT SUPPLIED**

As required Wire #14 gauge AN-14 per Spec AN-J-C-48a, As required Wire #20 gauge AN-20 per Spec AN-J-C-48a, As required Cable, Shielded Type WM-4/U (per Spec) RE-13A-737, As required Cord AN-C-122, (2) Pieces of Cabling size 6, 0.166 I.D. X 3/8 lg, As required Friction Tape, As required Insulating Tubing size 8, 0.133 I.D. X 3/8 lg, As required Insulating Tubing size 10, I.D. 0.106, (1) Radio Transmitter Receiver AN/ARC-1 or equal, (1) D.C. Power Source (12 amps at 26.5 v DC).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

AUDIO SIGNAL RANGE: 350 to 3000 cycles.  
OPERATING POWER RCMT: 28 v DC.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(7) 12SN7GT (1) 6AL5 (2) 6SJ7  
(1) 6AS6 (2) 6L6GA (1) 0D3/VR150  
Total Tubes: (14)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

CO-NAVAER 16-30ARA15-507: Technical Manual  
for Pulse Translating Equipment AN/ARA-15.

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

**EQUIPMENT SUPPLIED DATA**

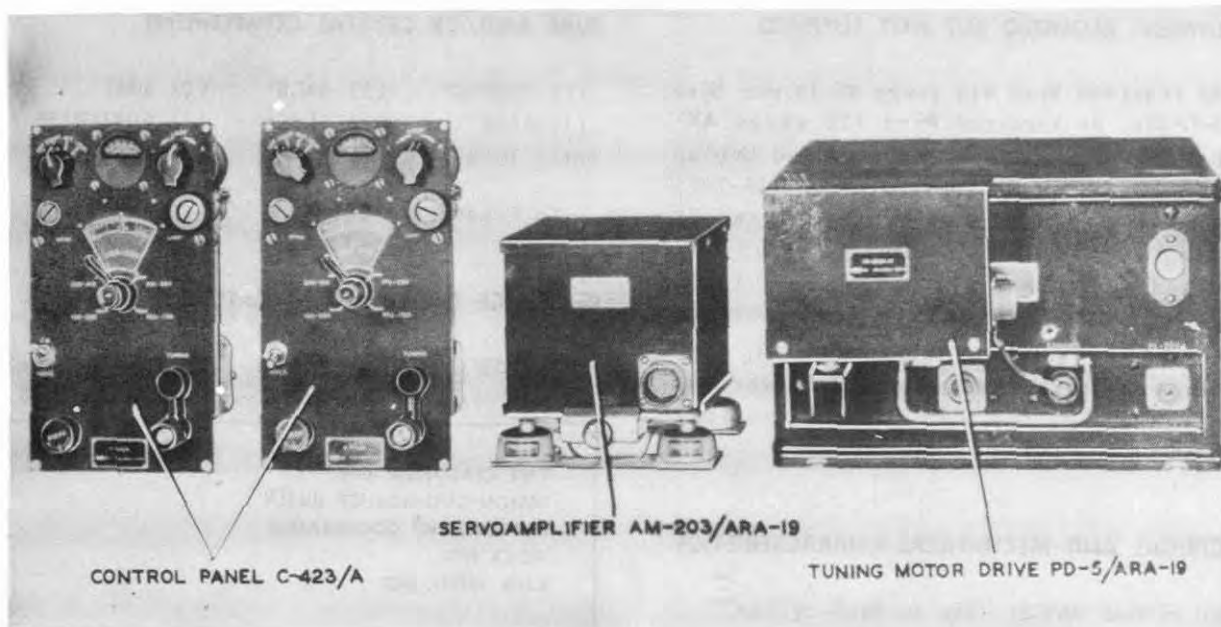
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Translator CV-40/ARA-15 (Complete w/Dynamotor, Tubes, Mtg Base, Teleselector, and Code Plug)	9-5/16 X 11-7/16 X 25-3/8	34.5
	*Teleselector KY-26/ARA-15	7-27/32 X 8-5/16 X 10-1/4	11.30
	*Mounting Base	2-5/8 X 11-7/16 X 23-7/8	1.86
1	Indicator w/Mtg Base ID-215/ARA-15	2-5/8 X 5-3/32 X 6-1/32	2.77
	*Coding Plug U-69/ARA-15(AAA)	1-15/32 dia X 1-13/16 lg	0.11
1	Coding Plug U-69/ARA-15(BBR)	1-15/32 dia X 1-13/16 lg	0.11
1	Cable Plug AN-3106-20-16S	1-15/32 dia X 2-1/8 lg	0.15
1	Cable Plug AN-3106-20-29P	1-15/32 dia X 2-1/8 lg	0.12
1	Cable Plug AN-3106-20-29S	1-15/32 dia X 2-1/8	0.14
1	Cable Plug AN-3108-20-16S	1-15/32 X 2-1/32 X 3	0.17
1	Cable Plug AN-3108-20-29P	1-15/32 X 2-1/32 X 3	0.14
1	Cable Plug AN-3108-20-29S	1-15/32 X 2-1/32 X 3	0.17
3	Cable Clamp AN-3057-12	1-1/64 X 1-3/8 dia	0.05

NOTE: \* Part of translator CV-40/ARA-15, listed for clarification of reference symbols. Not supplied in addition to complete translator.



April 1959

Radio-Auxiliary

**REMOTE TUNING GROUP****AN/ARA-19***Remote Tuning Group AN/ARA-19*

California. -

Contract No. W33-038-ac-13950.

**FUNCTIONAL DESCRIPTION**

The AN/ARA-19 is designed for use with Radio Compass AN/ARN-6. The AN/ARA-19 System provides an accurate means of electrically repositioning the radio compass tuning mechanism without the use of mechanical linkages.

No field changes in effect at time of preparation (16 March 1959).

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 12SN7GT (2) 26A7GT

Total Tubes: (3)

No Crystals Used.

**REFERENCE DATA AND LITERATURE**

T.O. 12R1-2ARA19-2: Technical Manual for (Formerly 16-30ARA19-3) Remote Tuning Group.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(1) Radio Compass type AN/ARN-6.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF RECEPTION: Voice or CW reception.  
 OPERATING FREQUENCY RANGE: 100 to 1750 kc.  
 OPERATING POWER RQMT: 28 v DC at 1.5 amps.

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

North American Aviation Corp., Inglewood,

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUAER  
 PROCUREMENT COGNIZANCE  
 STOCK NO.



April 1959

Radio-Auxiliary

AN/ARA-19

## REMOTE TUNING GROUP

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Remote Tuning Group AN/ARA-19 Including:		13.6
2	Control Panel type C-865A/ARA-19 or	5-3/4 X 5-7/8 X 8-1/4	3-1/4
2	Control Panel type C-423/A	4-11/16 X 5 X 9	3-1/4
1	Servoamplifier type AM-203/ARA-19	5-7/8 X 5-15/16 X 8-7/32	4-1/2
1	Tuning Motor Drive type PD-5/ARA-19	2-7/8 X 6 X 6-5/32	2-1/2

## DIRECTION FINDER GROUP

AN/ARA-25

*Direction Finder Group AN/ARA-25*

- |   |                                 |
|---|---------------------------------|
| 1. Electronic Control Amplifier AM-608/ARA-25 | 3. Antenna AS-578/ARA-25        |
| 2. Mounting MT-1043/ARA-25                    | 4. Solenoid Relay RE-120/ARA-25 |
| 5. Mounting MT-1042/ARA-25                    |                                 |

**FUNCTIONAL DESCRIPTION**

The AN/ARA-25 is employed to indicate the relative bearing of and to home on radio signal sources. The signals may be amplitude

modulated (AM) or unmodulated and must lie in the 225 to 400 megacycle (MC). The equipment extracts the information from signals received by Radio Set AN/ARC-27 or a similar radio set. It is operated entirely from

Radio-Auxiliary  
**AN/ARA-25**

**DIRECTION FINDER GROUP**

Radio Set Control C-628/ARC-27, or a similar radio set control of the same radio set. The relative bearing of the signal source is indicated on Course Indicator ID-250/ARN or Indicator ID-90A/ARN-6.

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

ADF RELAY K-103: 28 v dc at 0.3 amps.  
 SYNCHRO GENERATOR ROTOR: 6 volt-amps at 26.5 v 10 380 to 420 cps.

**RELATION TO OTHER EQUIPMENT**

The AN/ARA-25 is designed to be with but not part of the Radio Set AN/ARC-27 or similar radio set; Course Indicator ID-250/ARN or Indicator ID-90A/ARN-6.

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

Collins Radio Co., Cedar Rapids, Iowa.  
 Contract NOas-51-1089.  
 Webster-Chicago Corp., Chicago, Illinois.  
 Contract NOas 52-338.  
 Collins Radio Co., Cedar Rapids, Iowa.  
 Contract NOas 53-281.  
 Collins Radio Co., Cedar Rapids, Iowa.  
 Contract NOas 53-832.  
 Webster-Chicago Corp., Chicago, Illinois.  
 Contract NOas 56-401F.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(1) Radio Set AN/ARC-27, (1) Course Indicator ID-250/ARN or ID-90A/ARN-6, (1) Radio Set Control C-628/ARC-27 or equivalent, (3) Cable RG-8/U, (4) Movable R.F. Connector BuShips RE-49F-402, (1) Power Connector AN-3102A-22-14S, (1) Power Connector AN-3106A-22-14S, (1) Cable Clamp AN-3057-12, (1) Power Connector AN-3108-14S-2S, (1) Cable Clamp AN-3057-6.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 5751 (2) 5814A (1) OA2WA  
 Total Tubes: (4)  
 No Crystals used.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 225 to 400 mc.

**POWER REQUIREMENTS**

FILAMENT: 28 v dc at 0.35 amps.  
 PLATE: 225 v dc at 0.03 amps.  
 ANTENNA DRIVE MOTOR: 28 v dc at 2 amps.  
 SOLENOID RELAY RE-120/ARA-25: 28 v dc at 0.2 amps.

**REFERENCE DATA AND LITERATURE**

AN 16-30ARA-25-1, -2, -3, -4: Technical Manual for the Direction Finder Group AN/ARA-25.

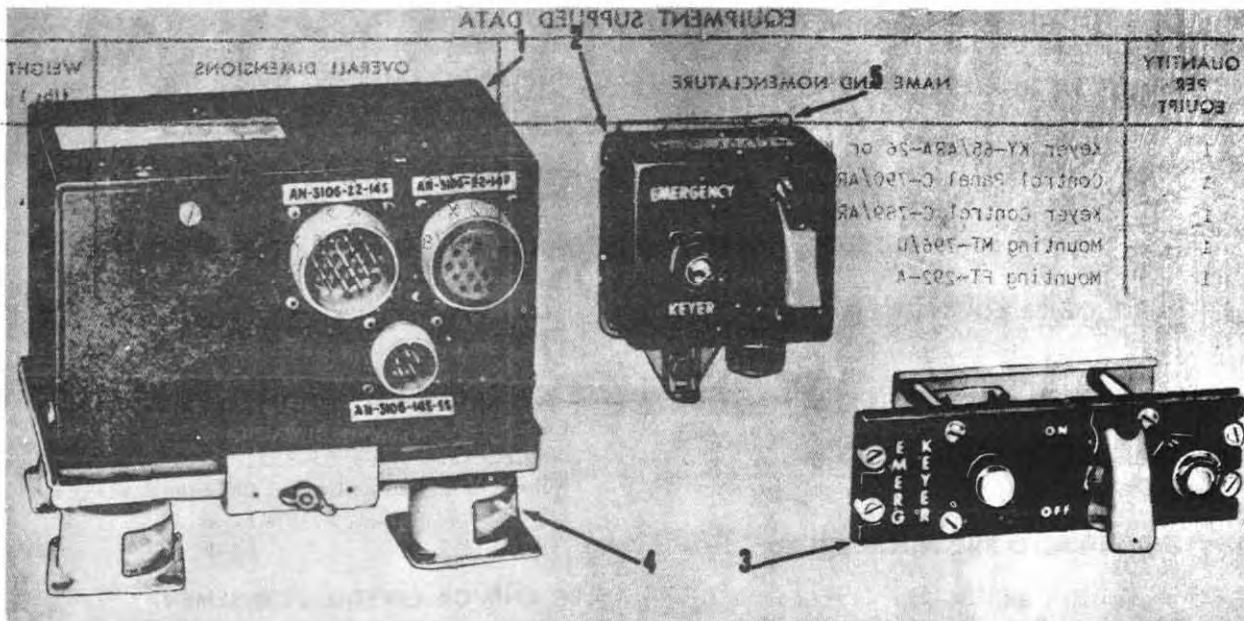
TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUAER  
 PROCUREMENT COGNIZANCE MIL-D-7033A(AER)  
 STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Electronic Control Amplifier AM-608/ARA-25	4-7/8 X 5-7/8 X 12-17/32	5.4
1	Antenna AS-578/ARA-25 or	6 X 14-1/2 X 16	17.5
1	Antenna AS-578A/ARA-25	4 X 14-3/8 X 16	12.5
1	Solenoid Relay RE-120/ARA-25 or	1-3/4 X 5-13/16 X 6-1/2	0.82
1	Solenoid Relay RE-120A/ARA-25	1-25/32 X 3-21/32 X 4-3/8	0.85
1	Mounting MT-1043/ARA-25	2-5/64 X 5-3/4 X 11-3/16	0.88
1	Mounting MT-1042/ARA-25	3/16 X 4-5/16 X 4-3/8	0.09

**CONTROL KEYER GROUP**

**AN/ARA-26**



- (1) Keyer KY-65/ARA-65 or KYA/ARA-65
- (2) Keyer Control
- (3) Control Panel
- (4) Keyer Mount
- (5) Keyer Control Mounting Plate

*Control Keyer Group AN/ARA-26*

**FUNCTIONAL DESCRIPTION**

The AN/ARA-26 is designed to provide automatic operation of airborne radio transmitter equipment during an extreme emergency to the aircraft. It is a motor-driven device for automatically keying the distress signals and for channeling the transmitter. It has a time delay, which can be preset for any interval of from 5 to 30 seconds to allow time for transmitter warm-up and channeling.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 17 to 32 v DC, 1 amp.

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

Webster-Chicago Corporation, Chicago, Ill.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes,

**REFERENCE DATA AND LITERATURE**

AN16-30ARA26-1: Technical Manual for Control Keyer Group AN/ARA-26 with KY-65/ARA-26 or KY-65A/ARA-26 Keyer.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	USAF
PROCUREMENT COGNIZANCE	MIL-5948
STOCK NO.	

## AN/ARA-26

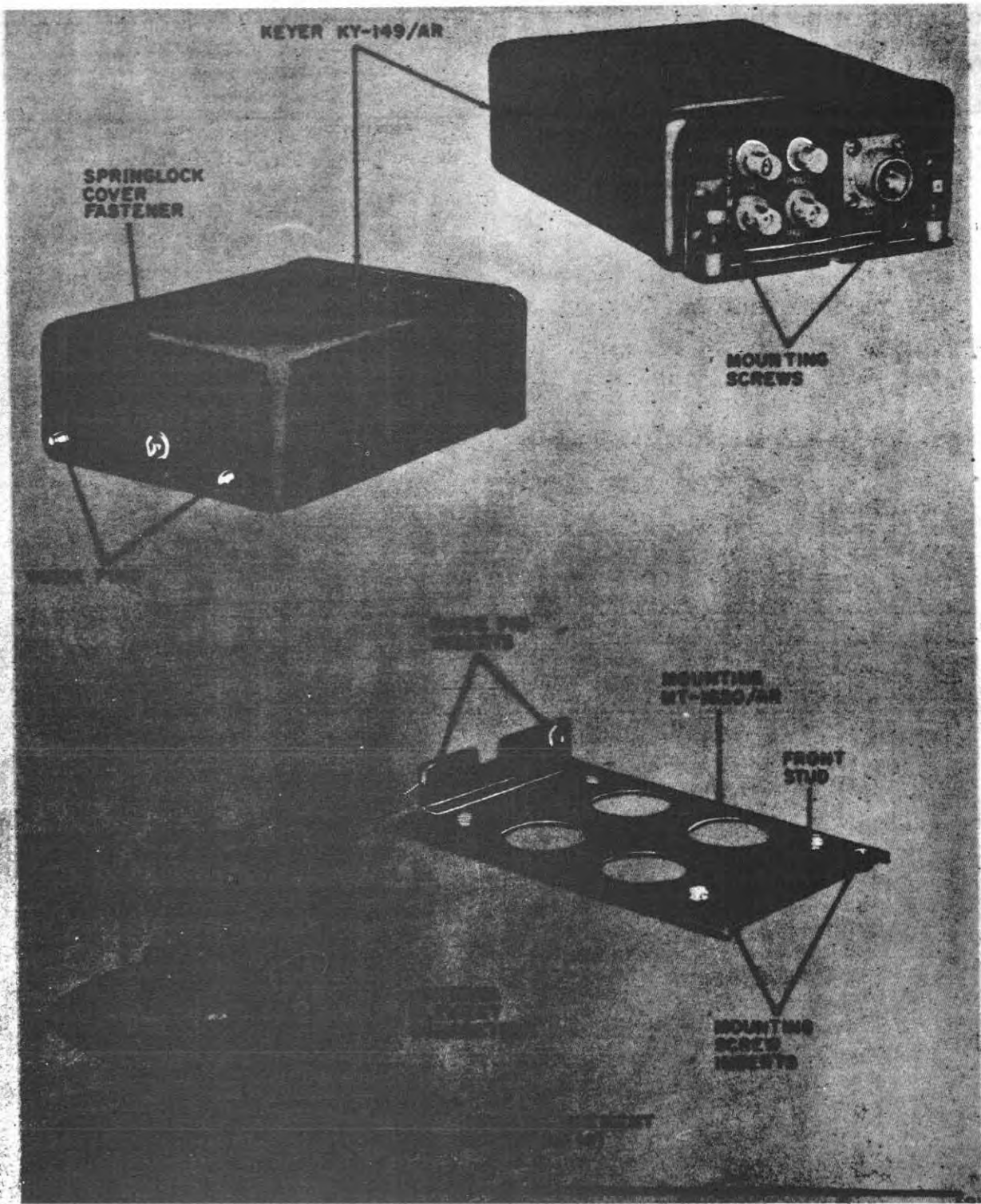
## CONTROL KEYER GROUP

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Keyer KY-65/ARA-26 or KY-65A/ARA-26	3-7/8 x 5-1/2 x 6-7/16	
1	Control Panel C-790/ARA-26	1-7/8 x 3-1/4 x 5-3/4	
1	Keyer Control C-789/ARA-26	2 x 2-1/2 x 3	
1	Mounting MT-796/U	1-7/8 x 4-3/16 x 6-1/2	
1	Mounting FT-292-A		



ANTENNA GROUP



Antenna Group AN/ARA-31



Radio-Auxiliary

**AN/ARA-31**

**ANTENNA GROUP**

**FUNCTIONAL DESCRIPTION**

The AN/ARA-31 is designed to provide facilities for receiving signals used in indicating whether an aircraft is flying toward, away, to the left or to the right of a transmitting station operating between 24 and 51.9 megacycles unmodulated. It is intended to be used with Radio Set AN/ARC-44.

No field changes in effect at time of preparation (19 February 1957).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: Cable as Required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE: (2) Phase sensitive dipole for D-U sector coding.

FREQUENCY RANGE: 24.0 to 51.9 mc.

KEYER POWER REQUIREMENTS: 28 v DC.

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

Bendix Radio Div., Bendix Aviation Corp.,  
Baltimore, Md.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

TM11-517: Technical Manual for Radio Set AN/ARC-44.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	USAF
PROCUREMENT COGNIZANCE	MIL-R-12483
STOCK NO.	

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Group AN/ARA-31 consisting of:		
	(1) Keyer KY-149/AR	2.26 X 4.92 X 7.67	2.375
	(1) Mounting MT-1620/AR	1.1 X 4.64 X 7.78	0.375
	(2) Impedance Matching Network CU-459/AR	2.75 X 3.40 X 4.36	0.563
	(4) Antenna Element AT-624/AR	24.10 lg	0.063

October 1957

Radio-Auxiliary

**RADIO RECEIVING SET****AN/ARW-17****FUNCTIONAL DESCRIPTION**

The AN/ARW-17 is a miniature Radio Control Receiver designed for the reception of frequency modulated signals with deviation up to  $\pm 15$  mc. The receiver is capable of responding to 5 control channels of specified audio frequencies. The equipment is intended for use in aircraft of special design for remote control operation thereof. By the proper selection of crystals it can operate in the frequency range of 30 to 42 mc.

No field changes in effect at time of preparation (15 March 1957).

**RELATION TO OTHER EQUIPMENT**

Similar to Radio Receiving Set AN/CRW-2()

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

Link F.M.  
Contract NXss-47383.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(3) 6J6WA (5) 6AK5W  
(1) 6AS6W (1) 6AL5W

Total Tubes: (10)  
Crystals: Not Available.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Radio Receiving Set  
AN/ARW-17 amended 6 January 1946.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 30 to 42 mc.  
FREQUENCY CONTROL: crystal.  
TYPE OF MODULATION: FM.  
FREQUENCY DEVIATION:  $\pm 15$  kc.  
NUMBER OF CONTROL CHANNELS: 5.  
MODULATION FREQUENCY RANGE: 1500 to 6500 cps.  
POWER SOURCE REQUIREMENTS: 24 v DC at 3 amp.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUAER  
PROCUREMENT COGNIZANCE  
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver R-64()/ARW-17		

UNCLASSIFIED

June 1961

Radio-Auxiliary

## FLIGHT CONTROL GROUP

AN/ASA-32

## FUNCTIONAL DESCRIPTION

The AN/ASA-32 group of parts, when combined with suitable vertical and directional reference system, central air computer (and gain control), primary control servo actuators, and the aircraft manual control system, provides stability augmentation altitude hold, heading hold, and Mack hold modes of Auto-pilot operation.

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

## RELATION TO OTHER EQUIPMENT

The AN/ASA-32 is designed to be used with but not part of Automatic Flight Control System for F4H-1 Airplane.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER RQMT: 210 v ac, 400 cps, 3 ph; 28 v dc, 100 W.

## MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co., Johnson City, N. Y.  
Contract NOa(s) 55-272.  
Contract NOa(s) 57-186.

## TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube and/or Crystal data not available.

## REFERENCE DATA AND LITERATURE

NAVSHIPS 93400: Preliminary Data Form for Flight Control Group AN/ASA-32.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	MIL-N-18307A
STOCK NO.	
R.D.B. IDENT. NO.	

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Accelerometer, Aircraft MX-2742/ASA-32	3.2 x 3.2 x 4.3	.8
1	Accelerometer, Aircraft MX-2743/ASA-32		
1	Accelerometer, Aircraft		
1	Control, Amplifier C-2872/ASA-32	8.25 x 10 x 11.8	26.8
1	Controller, Engaging, Automatic Pilot C-2873/ASA-32	4.5 x 4.5 x 5.75	3
1	Gyroscope, Rate CN-558/ASA-32	2.6 x 2.9 x 5.4	1.3
1	Gyroscope, Rate CN-559/ASA-32	2.6 x 2.9 x 5.4	1.3
1	Gyroscope, Rate CN-560/ASA-32	2.6 x 2.9 x 5.4	1.3
1	Rack, Electrical Equipment MT-2173/ASA-32	2 x 11 x 13	1.2
1	Transducer, Motion Pick-Up TR-156/ASA-32	2 x 2 x 6	4.5

UNCLASSIFIED

1.2 AN/ASA-32: 1

April 1959

**AMPLIFIER-CONTROL GROUP****FUNCTIONAL DESCRIPTION**

The AN/BIA-1 Amplifier-Control Group provides shipboard transmission, amplification and reproduction of speech and tone signals.

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

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tubes and Crystal Data not Available.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Amplifier Control Group AN/BIA-1.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

POWER REQUIREMENTS: 115 v, 60 cps, 1 ph.

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

RCA Victor Div of Radio Corp of America,  
Indianapolis, Ind.

TYPE CLASSIFICATION

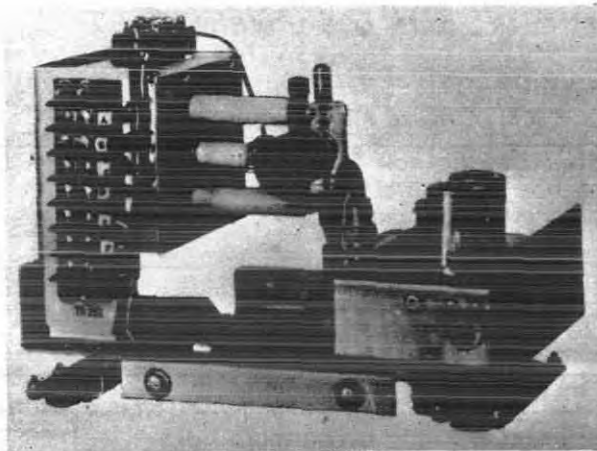
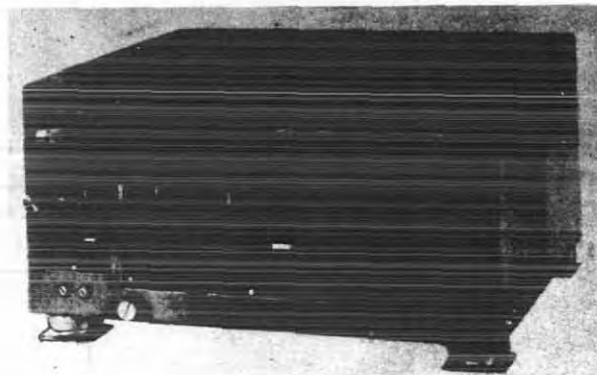
DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Voltage Amplifier (RCA W-302844 piece 4)		
1	Control Panel Assembly (RCA W-302844 piece 80)		
2	Signal Generator (RCA W-302844 piece 6)		

**ANTENNA COUPLER GROUP**Radio-Auxiliary  
**AN/BRA-1(XN-1)***Amplifier AM-722(XN-1)/BRA-1**Antenna Coupler CU-331(XN-1)/BRA-1***FUNCTIONAL DESCRIPTION**

The AN/BRA-1(XN-1) consists of Antenna Coupler CU-331(XN-1)/BRA-1, R.F. Amplifier AM-772(XN-1)/BRA-1 and the necessary connectors for connection to the power source and control circuits. Use of the RF Amplifier is optional; it may be omitted from the installation.

The Antenna Coupler is designed to provide signal voltage distribution for use with radio receiving equipments operating in the 15 kc to 26 mc range. With the aid of the antenna coupler equipment, up to nine navy type radio receiving equipments and one navy type radio navigation equipment can be operated with one antenna that is available during partially submerged operations.

The RF Amplifier is an impedance matching device that is designed to improve overall system performance, especially at lower frequencies. The RF Amplifier provides break-in transmission and reception with the 25 ft whip antenna.

No field changes in effect at time of preparation (13 February 1957).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: Interconnecting cables as required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 15 kc to 26 mc.

NUMBER OF PRESET OUTPUT FREQUENCY RANGES: 4.

TYPE OF RECEPTION: A0, A1, A2, A3, PO (Loram).

**IMPEDANCE**

OUTPUT: 50 ohms.

INPUT: 50 ohms.

ANTENNA: Primarily designed for use with 25-foot whip antenna.

POWER SOURCE REQUIRED: 105 to 125 v, 50 to 60 cps, single ph.

POWER CONSUMPTION: 300 W.

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

Airborne Instruments Laboratory, Inc.,  
Mineola, N.Y.

Contract NObsr-49068, dated 27 February  
1950.



Radio-Auxiliary

AN/BRA-1(XN-1)

ANTENNA COUPLER GROUP

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6627/OB2WA	(10) 6J6WA
(1) 5R4WGB	(2) 6X4WA
(1) 6AS7G	(2) 5670
(1) 6AU6WA	(1) 5814A

REFERENCE DATA AND LITERATURE

NAVSHIPS-91918: Technical Manual for Antenna Coupler Group AN/BRA-1(XN-1).

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

Total Tubes: (19)

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Coupler Group AN/BRA-1(XN-1)		17 X 25 X 40	185
1	Equipment Spare Parts		11 X 16 X 22	80

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Coupler CU-331(XN-1)BRA-1	9 X 17 X 19	75
1	RF Amplifier AM-772(XN-1)BRA-1	6-1/4 X 6-3/4 X 9-1/2	6
1	Power Cable Connector AN-3106-14S-7S	1 X 1-1/2	
1	Power Cable Connector AN-3106-22-33P		
1	Control Cable Connector AN-3106-16S-1P		
1	Input Cable Adapter Connector UG-567/U		
2	Technical Manuals	1 X 9 X 11-1/2	
1	Equipment Spare Parts Box with Spares	9-1/2 X 14-1/2 X 18-1/2	40.5

27 August 1962

Cog Service: USN FSN:

ANTENNA TUNING GROUP AN/BRA-13  
Functional Class:

USA

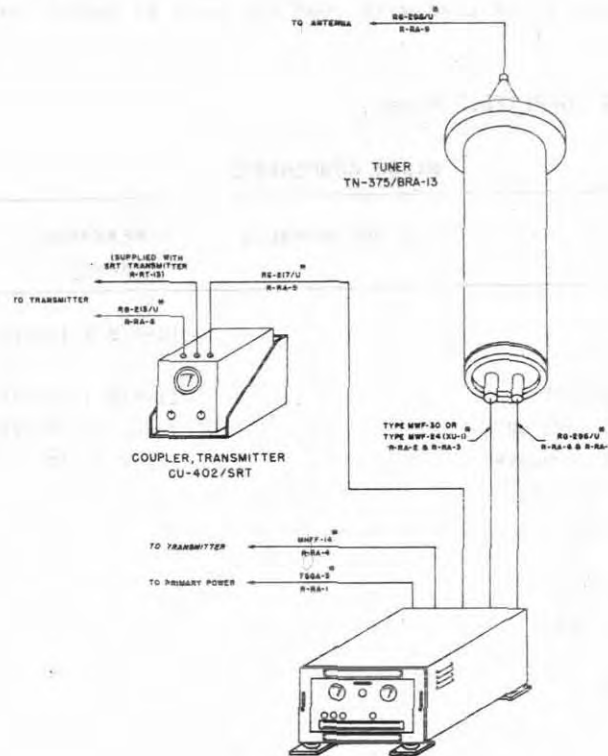
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: Granite State Machine Co., Inc., (82005).



Antenna Tuning Group AN/BRA-13

#### FUNCTIONAL DESCRIPTION:

The Antenna Tuning Group AN/BRA-13 is designed to provide a means for tuning and matching an antenna to its associated transmitter over a frequency range of 2 to 30 megacycles (MC), with a Standing Wave Ratio (SWR) of 4:1 or less.

No field changes in effect at time of preparation (23 April 1962).

#### TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Submarine.

FREQUENCY RANGE: 2 to 30 mc.

MAXIMUM RF POWER INPUT: 1000 W over entire frequency range.

MAXIMUM INSERTION LOSS: 0.5 db.

OPERATING POWER RQMT: 120 v ac, 60 cps, single ph.

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**AN/BRA-13 ANTENNA TUNING GROUP**

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**HEAT DISSIPATION**

TUNER, RF TN-375/BRA-13: 60 W max.  
CONTROL-MONITOR C-1360A/SRT: 150 W max.  
COUPLER, TRANSMITTER CU-402/SRT: 0 W.

**RELATION TO OTHER EQUIPMENT:**

The AN/BRA-13 is designed to be used with, but not part of Radio Transmitting Set AN/WRT-2.

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

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Tuner, Radio Frequency TN-375/BRA-13		12-1/8 x 12-1/8 x 65-3/8	250
1	Control-Monitor C-1360B/SRT		11-3/8 x 17-5/8 x 18-11/16	74
1	Coupler, Transmitter CU-402/SRT		7-11/16 x 9-5/32 x 9-7/16	11
2	Technical Manual NAVSHIPS 94399		1/2 x 8-1/2 x 11	
1	Installation Kit consists of:			
1	Connector MS3108E32-8P			
1	Connector MS3108E22-19S			
1	Connector MS3108E16-10S			
1	Connector MS3106B24-28P			
1	CA-Plug EC-23			
2	Connector UG-494A/U			
2	Adapter UG-218A/U			
1	Connector UG-21B/U			
1	Connector UG-204C/U			
1	Connector UG-154/U			

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 94399: Technical Manual for Antenna Tuning Group AN/BRA-13.

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

TUBES: (2) 12AT7WA (1) 5726 (1) 5727 (1) 5670 (1) 0A2WA (1) 0B2WA

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.



11 September 1962

Cog Service: USN FSN: 5985-556-2181

ANTENNA TUNING GROUP AN/BRA-3

Functional Class:

USA

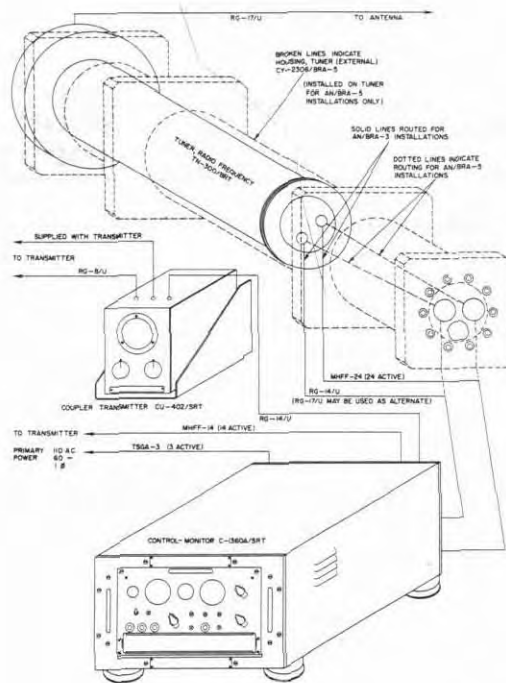
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Granite State Machine Co., Inc., (82005).



*Antenna Tuning Group AN/BRA-3*

**FUNCTIONAL DESCRIPTION:**

The Antenna Tuning Group AN/BRA-3 is designed to provide a means for tuning and matching an antenna to its associated transmitter over a frequency range of from 2 to 26 megacycle (MC) with a Standing Wave Ratio (SWR) of 4:1 or less.

No field changes in effect at time of preparation (8 December 1961).

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Submarine installed.

FREQUENCY RANGE: 2 to 26 mc.

MAXIMUM RF POWER INPUT: 500 W over entire frequency range.

MAXIMUM INSERTION LOSS: 0.5 db.

HEAT DISSIPATION

TUNER, RN TN-300/BRT-40: 40 W max.

## AN/BRA-3 ANTENNA TUNING GROUP

CONTROL-MONITOR C-1360A/SRT: 150 W max.  
COUPLER, TRANSMITTER CU-402/SRT: 0 W.  
OPERATING POWER RQMT: 110/120 v ac, 60 cps, single ph.

### RELATION TO OTHER EQUIPMENT:

The AN/BRA-3 is designed to be used with, but not part of AN/URT-2, 3, and 4; AN/SRT-14, 15 and 16; Navy Models TBK, TBL, TDE and TBM series.

### EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Radio Transmitting Set AN/URC-32 & Technical Manual; (1) Radio Transmitting Set AN/WRT-2 & Technical Manual NAVSHIPS 93050(A); (1) Radio Transmitting Set TDE-1, 2 or 3 & Technical Manual NAVSHIPS 900, 389; (1) Radio Transmitting Set TBL-5, 6, 7, 12 or 13 Technical Manual NAVSHIPS 900, 381; (1) Radio Transmitting Set TBL-4, 8 or 9 & Technical Manual NAVSHIPS 900, 373; (1) Radio Transmitting Set TBK-13, 18 or TBM-5, 7, 9 or 11 & Technical Manual NAVSHIPS 900, 382; (1) Radio Transmitting Set AN/SRT-14, -15, -16 & Technical Manual NAVSHIPS 92121; (1) Radio Transmitting Set AN/URT-2, -3, -4 & Technical Manual NAVSHIPS 91833(A).

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Tuner, Radio Frequency TN-300/BRT		12-1/8 x 12-1/8 x 59-7/64	130
1	Connector MS3106E32-8S			
1	Connector MS3108E32-8P			
1	Connector MS3108E22-19S			
1	Connector MS3108E16-10S			
1	Connector MS3106B24-28P			
1	CA-Plug FC-23			
3	Connector UG-494A/U			
3	Adapter UG-218A/U			
1	Connector UG-21B/U			
1	Connector UG-204C/U			
1	Connector UG-154/U			
1	Control-Monitor C-1360A/SRT		11-3/8 x 17-5/8 x 18-11/16	74
1	Coupler, Transmitter CU-402/SRT		7-11/16 x 9-5/32 x 9-7/16	11

### REFERENCE DATA AND LITERATURE:

NAVSHIPS 93160: Technical Manual for Antenna Tuning Group AN/BRA-3.

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

TUBES: (1) 0B2WA (1) 5670 (2) 12AT7WA (1) 5726 (1) 5727

CRYSTALS: None used.



SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8.6	235
1	.16	1/2
1	4.2	125
1	.67	8
1	1.35	27

PROCUREMENT DATA

PROCURING SERVICE: USN

DESIGN COG: USN, BuShips

SPEC &/OR DWG: SHIPS-A-1885

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Granite State Machine Co., Incorporated	Manchester, N. H.	N0bsr-64802, 2 June 1958	

26 July 1962 5985-725-4140  
Cog Service: USN FSN: 5985-578-5027 W/S

ANTENNA TUNING GROUP AN/BRA-5  
Functional Class:

USA

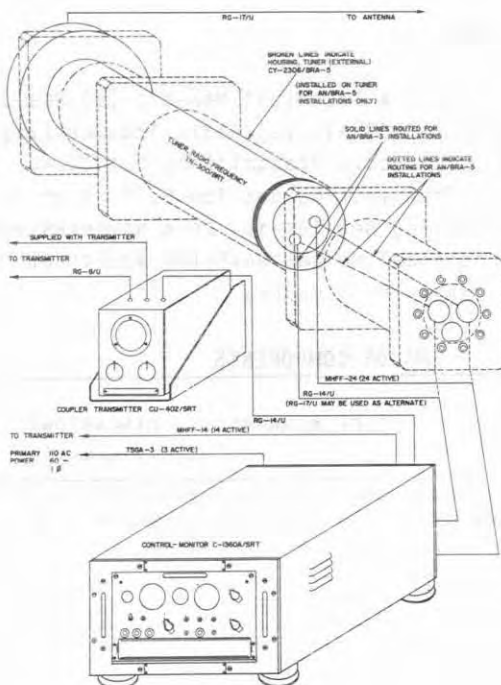
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Granite State Machine Co. Inc., (82005).



Antenna Tuning Group AN/BRA-5

#### FUNCTIONAL DESCRIPTION:

The Antenna Tuning Group AN/BRA-5 is designed to provide a means for tuning and matching an antenna to its associated transmitter over a frequency range of from 2 to 26 megacycle (MC) with a Standing Wave Ratio (SWR) of 4:1 or less.

No field changes in effect at time of preparation (8 December 1961).

#### TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Submarine installed.

FREQUENCY RANGE: 2 to 26 mc.

MAXIMUM RF POWER INPUT: 500 W over entire frequency range.

MAXIMUM INSERTION LOSS: 0.5 db.

HEAT DISSIPATION

TUNER RF TN-300/BRT: 40 W max.

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**AN/BRA-5 ANTENNA TUNING GROUP**

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CONTROL-MONITOR C-1360A/SRT: 150 W max.

COUPLER, TRANSMITTER CU-402/SRT: 0 W.

OPERATING POWER RQMT: 110/120 v ac, 60 cps, single ph.

**RELATION TO OTHER EQUIPMENT:**

The AN/BRA-5 is the same as Antenna Tuning Group AN/BRA-3 except for the Housing Tuner CY-2306/BRA-5.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) Radio Transmitting Set AN/URC-32 & Technical Manual; (1) Radio Transmitting Set AN/WRT-2 & Technical Manual NAVSHIPS 93050(A); (1) Radio Transmitting Set TDE-1, 2, 3 & Technical Manual NAVSHIPS 960,389; (1) Radio Transmitting Set TBL-4, 8 or 9 & Technical Manual NAVSHIPS 900,373; (1) Radio Transmitting Set TBM-5, 7, 9 or 11 & Technical Manual NAVSHIPS 900,388; (1) Radio Transmitting Set TBK-19, 20 & NAVSHIPS 900,382; (1) Radio Transmitting Set AN/SRT-14, 15, 16 & Technical Manual NAVSHIPS 92121; (1) Radio Transmitting Set AN/URT-2, 3, 4 & Technical Manual NAVSHIPS 91833(A).

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Tuner, Radio Frequency TN-300/BRT with Housing CY-2306/BRA-5		12-1/8 x 12-1/8 x 81-1/16	215
1	Connector MS3106E32-8S			
1	Connector MS3108E32-8P			
1	Connector MS3108E22-19S			
1	Connector MS3108E16-10S			
1	Connector MS3106B24-28P			
1	CA-Plug EC-23			
3	Connector UG-494A/U			
3	Adaptor UG-218A/U			
1	Connector UG-21B/U			
1	Connector UG-204C/U			
1	Connector UG-154/U			
1	Control-Monitor C-1360A/SRT		11-3/8 x 17-5/8 x 18-11/16	74
1	Coupler, Transmitter CU-402/SRT		7-11/16 x 9-5/32 x 9-7/16	11

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**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 93160: Technical Manual for Antenna Tuning Group AN/BRA-5.

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

TUBES: (1) 0B2WA (1) 5670 (2) 12AT7WA (1) 5726 (1) 5727

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

## SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	11.1	315
1	.16	1/2
1	4.2	125
1	.67	8
1	1.35	27

## PROCUREMENT DATA

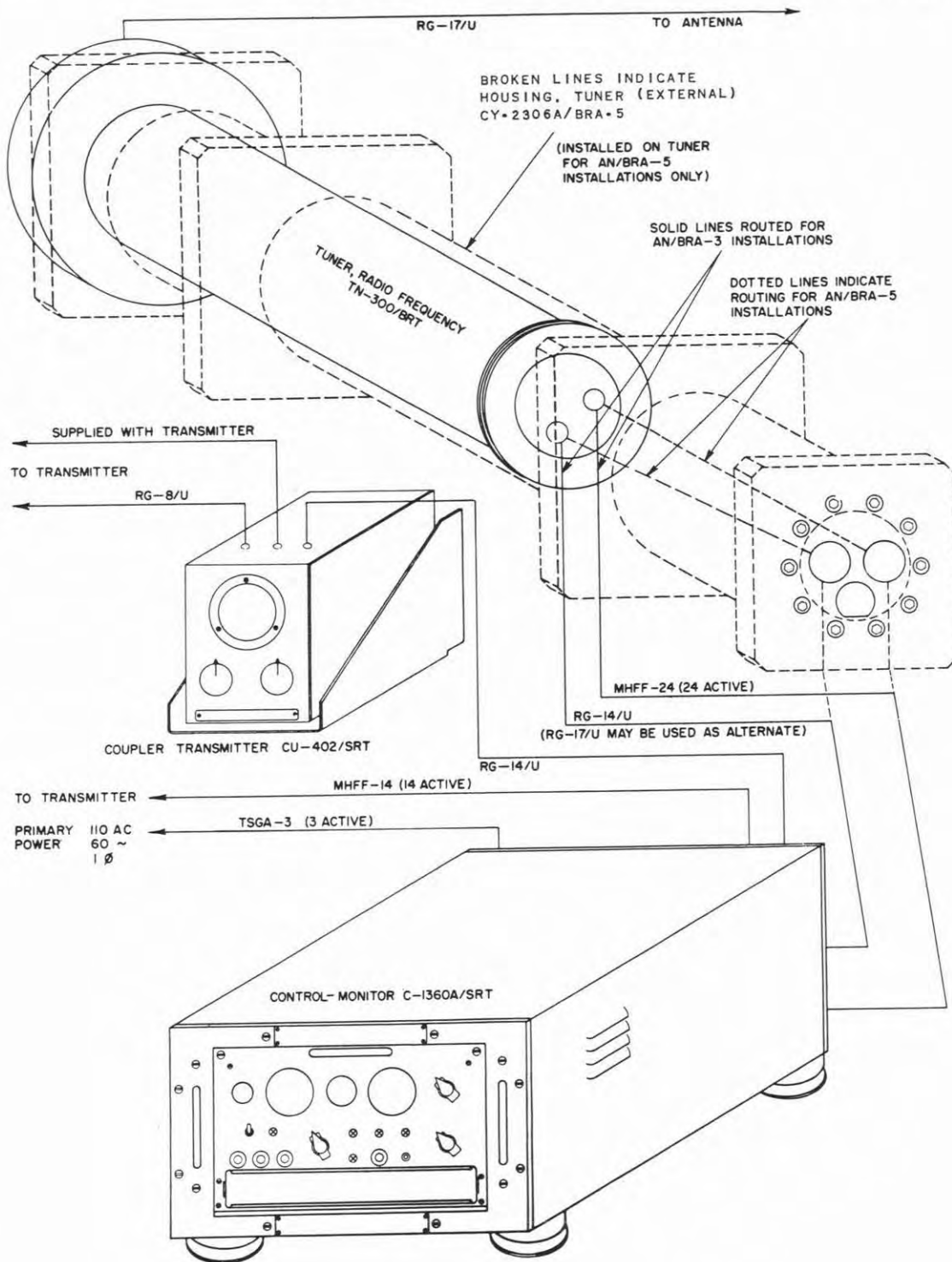
PROCURING SERVICE: USN  
 SPEC &/OR DWG: SHIPS-A-18855

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Granite State Machine Co. Inc.	Manchester, N. H.	N0bsr-64802, 2 June 1958	

# ANTENNA TUNING GROUP

# AN/BRA-5A



Antenna Tuning Group AN/BRA-5A

June 1961

Radio-Auxiliary

**AN/BRA-5A****ANTENNA TUNING GROUP****FUNCTIONAL DESCRIPTION**

The AN/BRA-5A is a submarine installed grouping of units, designed to provide a means for tuning and matching an antenna (Type 66053 or Type AT-350) to its associated transmitter over a frequency range of 2 to 26 megacycles (MC).

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

**RELATION TO OTHER EQUIPMENT**

The AN/BRA-5A is the same as Antenna Tuning Group AN/BRA-5 except for Housing, Tuner CY-2306A/BRA-5. Interchangeable with AN/BRA-5 but not vice versa.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF INSTALLATION: Submarine Installed.

TYPE OF ANTENNA: Type 6605 or AT-350.

MAXIMUM RF POWER INPUT: 500 W.

**HEAT DISSIPATION**

TUNER, RF TN-300/BRT: 40 W max.

CONTROL-MONITOR C-1360A/SRT: 150 W max.

COUPLER, TRANSMITTER CU-402/SRT: 0 W.

MAXIMUM INSERTION LOSS: 0.5 decibel.

FREQUENCY RANGE: 2 to 26 mc.

OPERATING POWER RQMT: 110 or 120 v ac, 60 cps, single ph.

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

Granite State Machine Co., Inc., Manchester, N. H.  
Contract NObsr-64802.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) OB2WA	(1) 5670
(2) 12AT7WA	(1) 5726
(1) 5727	

Total Tubes: (6)

No Crystals used.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93400: Preliminary Data Form for Antenna Tuning Group AN/BRA-5A.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE NAVY BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-A-18855
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	Tuner, Radio Frequency TN-300/BRT w/Housing CY-2306A/BRA-5	11.1	14 x 14-1/2 x 94	315
1	Tuner, Maintenance Parts Kit	.16	3-1/2 x 7-1/2 x 10-1/2	80Z
1	Control-Monitor C-1360A/SRT	4.2	16-1/2 x 20 x 27	125
1	Control-Monitor Maintenance Parts Kit	.67	8-1/2 x 11-1/2 x 12	8
1	Coupler-Transmitter CU-402/SRT	1.35	12 x 14 x 14-1/2	27

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Tuner, Radio Frequency TN-300/BRT w/Housing, Tuner CY-2306A/BRA-5A	12-1/8 x 12-1/8 x 81-1/16	215
1	Control-Monitor C-1360A/SRT	11-3/8 x 17-5/8 x 18-11/16	74
1	Coupler, Transmitter CU-402/SRT	7-11/16 x 9-5/32 x 9-7/16	11



February 1960

Radio-Auxiliary

**ANTENNA TUNING GROUP****AN/BRA-6(XN-1)**

AT-774/UR to a 50-ohm transmitter feedline, within a standing wave ratio of 3 to 1.

No field changes in effect at time of preparation (17 December 1959).

**EQUIPMENT REQUIRED BUT NOT SUPPLIED**

(1) Antenna AT-774/UR, (1) Bulk Cable RG-17/U, (1) Polyethylene Insulated Wire (1 foot).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 2 to 6 mc.

**POWER OUTPUT**

AVERAGE: 500 W.

100 PERCENT MODULATION: 750 W.

VOICE OPERATION, PEAK ENVELOPE: 100 W.

CW PULSED: 5,000 W.

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

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

ITT Laboratories Div of International Telephone and Telegraph Corp., Nutley, New Jersey.

Contract NObsr-72779.

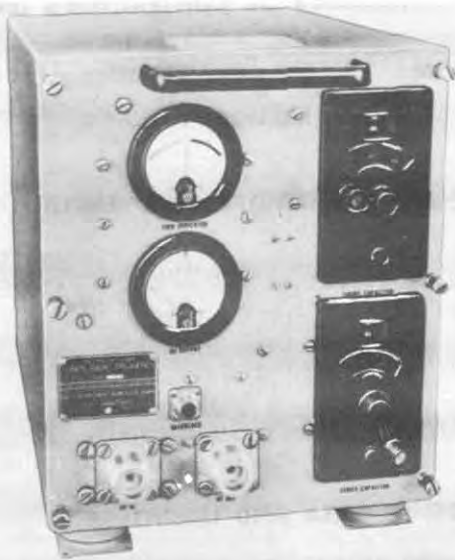
**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes or Crystals used.

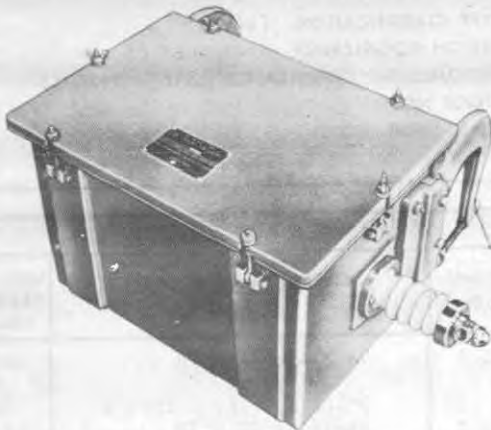
**REFERENCE DATA AND LITERATURE**

NAVSHIPS 93321: Technical Manual for ANTENNA TUNING GROUP AN/BRA-6(XN-1).

<p>TYPE CLASSIFICATION (NAVY)          DESIGN COGNIZANCE USN, BUSHIPS          PROCUREMENT COGNIZANCE SPEC: SHIPS-A-3047          STOCK NO.          R.D.B. IDENT. NO.</p>
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Radio Frequency Tuner TN-341(XN-1)/BRT



Radio Frequency Coil RF-91(XN-1)/BRT

*Antenna Tuning Group AN/BRA-6(XN-1)*

**FUNCTIONAL DESCRIPTION**

Antenna Tuning Group AN/BRA-6(XN-1) is designed to provide emergency communication for submarines when regularly used antenna equipment is inoperable. It provides a tuning network for matching the input impedance of

Radio-Auxiliary

AN/BRA-6(XN-1)

ANTENNA TUNING GROUP

EQUIPMENT SUPPLIED DATA			
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Antenna Tuning Group AN/BRA-6(XN-1) includes:		
1	Radio Frequency Tuner TN-341(XN-1)/BRT	12-1/2 X 15-5/8 X 16-7/8	
1	Radio Frequency Coil RF-91(XN-1)/BRT	9-1/16 X 10-1/4 X 14-7/8	
3	Connector, Plug UG-154/U		
2	Technical Manual NAVSHIPS 93321		

### TRAINER, TELEGRAPHIC CODE

#### FUNCTIONAL DESCRIPTION

The AN/FGC-T4 is a grouping of components which is designed to provide facilities for establishing and operating a 20 student facility in remote locations for training in telegraphic codes.

No field changes in effect at time of preparation (3 May 1957).

#### RELATION TO OTHER EQUIPMENT

Two-way interchangeability W/EE-94 except for maintenance parts.

#### ELECTRICAL AND MECHANICAL CHARACTERISTICS

STUDENT POSITIONS: 20  
POWER SOURCE REQUIRED: 115 or 230 v, 50 to 60 cps, single ph.

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

Warren Mfg. Co., Littleton, Mass.  
Contract 25221-PH-54

#### TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

#### REFERENCE DATA AND LITERATURE

Nomenclature Card for Trainer, Telegraphic Code AN/FGC-T4 dated 25 October 1956.

TYPE CLASSIFICATION DESIGN COGNIZANCE TASSA PROCUREMENT COGNIZANCE STOCK NO.
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#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Code Practice Tape MC-650		
1	Code Recorder RD-60/U		
21	Headsets HS-16		
6	Keyers TG-34		
1	Oscillator VO-3		
1	Record Set MC-209		
20	Reel PH-310		
1	Sound Reproducer RP-104/U!H-2		
1	Switchboard BD-114		
1	Timer PH-29		
22	Keys J-38		

# COMPARATOR-TRIANGULATION GROUP

AN/FLA-1

## FUNCTIONAL DESCRIPTION

The AN/FLA-1 provides facilities for determining coincidence of data received from up to five AN/TLO-5 or Direction Finder Set AN/FLD-1 and computing a "Fix" and altitude from this data.

No field changes in effect at time of preparation (9 May 1957).

## TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Comparator-Triangulation Group AN/FLA-1 dated 24 August 1956.

## RELATION TO OTHER EQUIPMENT

Used with but not a part of AN/TLQ-5 and AN/FLD-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Manual Entry Unit		
1	Computer Unit		
1	Triangulation Unit		
1	Output Translator		
1	Teletypewriter Set AN/FGC-20X		
1	Data Entry Unit		
1	Permanent Data Record Unit		
1	Data Comparison Unit		
1	Coincident Data Presentation Unit		
	Power Supplies		
	Cabinets		
	Interconnecting Cable Assemblies		

September 1956

**SFERICS SET****AN/FMD-1****FUNCTIONAL DESCRIPTION**

The AN/FMD-1 is designed to determine the azimuth angle of arrival of the sferics signals by means of low frequency (10 kc) radio direction finder.

This azimuth data is resolved into a time function and then converted to a serial binary code for transmission by normal communication means to the control station, sferics set AN/FMO-4.

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

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

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

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

Melpar Inc., Watertown, Mass.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Sferics Set AN/FMD-1

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

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sferics Set AN/FMD-1		
1	Antenna AT-716/GRD		

September 1956

## SFERICS LOCATING SYSTEM

AN/FMS-3(V)

## FUNCTIONAL DESCRIPTION

The AN/FMS-3 (V) is used to determine the geographical location of the source or origin of lightning strokes thus determining the location of thunderstorms and squall lines.

The system consists of sferics set AN/FWD-1 which determines the azimuth angle of arrival, at each station location, of the electro-magnetic radiation produced by the lightning stroke.

These azimuth data are converted into a serial binary code by each station and instantaneously transmitted by standard communications equipment to the central station (sferics set AN/FMQ-4).

The central station equipment decodes the azimuth data signals arriving from each remote station, and inserts them into an automatic electronic plotter which computes the triangulation and presents the "fix" on a 12 inch CRT display which is set up with an overlay map showing the geographical area of operation. The system has a maximum range of 2000 miles radius from the center of the network. 32 fixes per sec.

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

## MANUFACTURER'S OR CONTRACTOR'S DATA

Melpar Inc., Watertown, Mass.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Sferics Locating system AN/FMS-3(V).

TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Sferics Locating System AN/FMS-3(V)		
1	Sferics Set AN/FMD-1		



1 August 1962

RADIO FREQUENCY SWITCHING GROUP AN/FPA-2

Cog Service: FSN:

Functional Class:

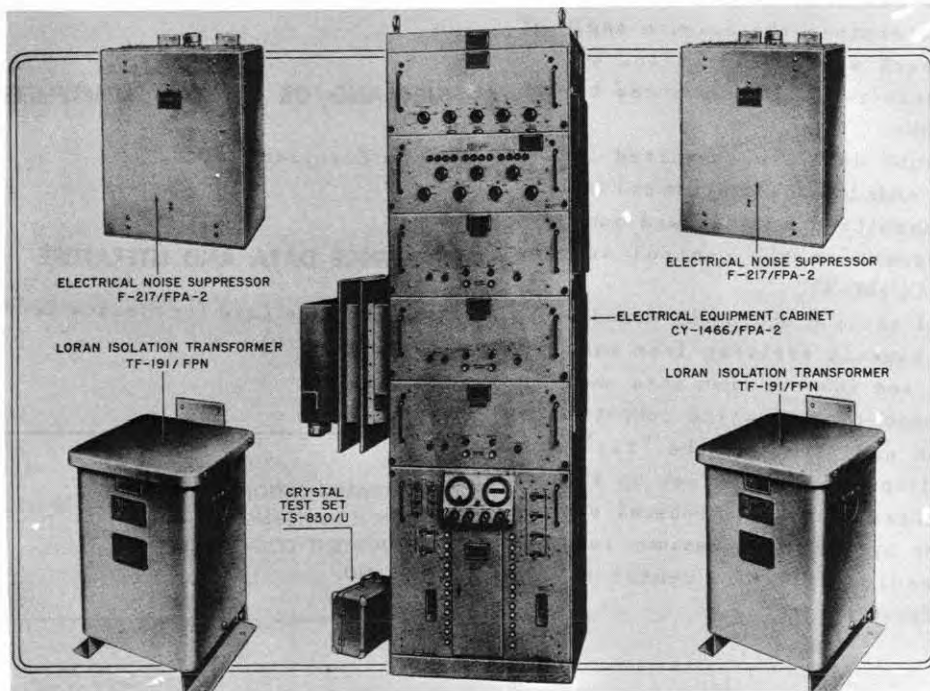
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Federal Telephone & Radio Company.



*Radio Frequency Switching Group AN/FPA-2*

**FUNCTIONAL DESCRIPTION:**

The Radio Frequency Switching Group AN/FPA-2 is designed for use with Loran Timer Navy Model UE-1 and Loran Transmitter Navy Model T-137 or TDP-1 to correlate the major station equipments and to perform the auxiliary functions of shielding and of discriminating between local and remote pulses. It provides for three (3) distinct functions:

- (1) Selective switching.
- (2) Electronic switching (remote and local signal separation and amplitude equalization).
- (3) Power isolation and distribution.

No field changes in effect at time of preparation (25 May 1961).

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**AN/FPA-2 RADIO FREQUENCY SWITCHING GROUP**

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**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Ship or Shore station.

HEAT DISSIPATION: 480 W.

POWER FACTOR: 97% pf.

CHARACTERISTICS OF RECEIVING ANTENNAS: Termination by nominal 50-ohm transmission lines leading to coaxial connections in entrance box.

CHARACTERISTICS OF CABLES TO LORAN TRANSMITTERS: Nominal 50-ohm transmission lines not to exceed 100 ft from entrance box to transmitters.

OPERATING FREQUENCY: 1,750 kc; 1,800 kc; 1,850 kc; 1,900 kc; or 1,950 kc depending on the frequency selected for station operation.

OPERATING POWER REQMT: 115/230 v ac, 50 to 65 cps, single ph.

RELATION TO OTHER EQUIPMENT: None.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:**

(1) Receiving Antenna & Antenna Coupling Unit; RG-58/U or RG-8/U Cable (As required); Power Cables, Ground Wire, miscellaneous; (1) Volt-Ohm-Milliammeter Simpson Model #260 or equivalent; (2) or (4) Loran Timer Set AN/FPN-30; (2) Transmitter Model T-137 or Model T-325/FPN series; (1) Transmitting Antenna.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Cabinet, Electrical Equipment CY-1466/FPA-2		20-1/32 x 36 x 77-1/2	620
1	Switch Ass'y SA-355A/FPA-2		9 x 17 x 22	25
1	Switch Ass'y SA-354A/FPA-2		9 x 17 x 22	44
3	Electronic Switch SA-356/FPA-2		9-1/2 x 17 x 22	50
1	Panel Power Distribution SB-336/FPA2		5-15/16 x 22 x 22	18
2	Filter, Radio Interference F-217/FPA		10-3/4 x 17-3/4 x 21-3/4	70
2	Transformer, Power, Isolation TF-191/FPN		14 x 14 x 22-1/8	250
1	Test Set, Crystal TS-830/U		6 x 10 x 11	8
2	Technical Manual CG-273-16		1 x 9 x 11-1/2	
1	Set of Equipment Spares		12 x 15 x 24	121

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**REFERENCE DATA AND LITERATURE:**

CG-273-16: Technical Manual for Switching Group Radio Frequency AN/FPA-2.

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

TUBES: (3) 5R4WGY (3) 6AU6 (3) 5651 (9) 5654/6AK5W (3) 5726/6AL5W (9) 6005/6AQ5W

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RADIO FREQUENCY SWITCHING GROUP AN/FPA-2

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CRYSTALS: (6) IN69

SEMI-CONDUCTORS: None used.

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SHIPPING DATA

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PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	80.0	1,170
2	9.0	320
2	8.5	135
1	2.3	28
1	0.5	14
1	4.5	189

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PROCUREMENT DATA

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PROCURING SERVICE:  
SPEC &/OR DWG: CG RSUS-380

DESIGN COG: USCG

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CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Federal Telephone & Radio Company Dwg no. J1023788 Pt no. A1014666	Clifton, N. J.	Tcg-38743 (CG21314A) 29 December 1951	

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1 August 1962

RADIO FREQUENCY SWITCHING GROUP AN/FPA-2A

Cog Service:

FSN:

Functional Class:

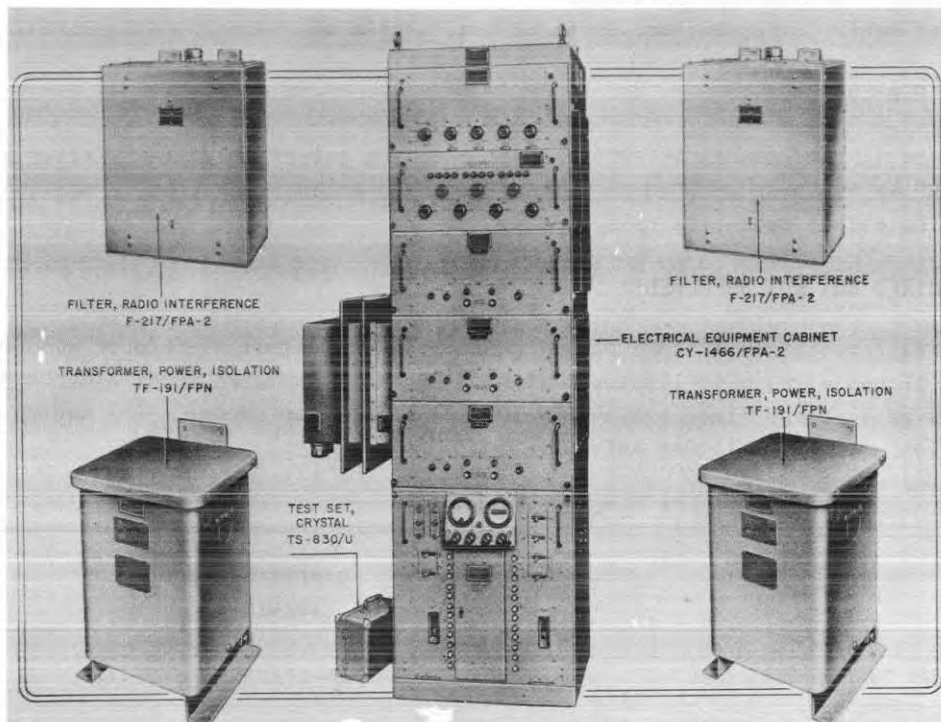
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Federal Telephone & Radio Company.



*Radio Frequency Switching Group AN/FPA-2A*

**FUNCTIONAL DESCRIPTION:**

The Radio Frequency Switching Group AN/FPA-2A is designed for use with Loran Timer Navy Model UE-1 and Loran Transmitter Navy Model T-137 or TDP-1 to correlate the major station equipments and to perform the auxiliary functions of shielding and of discriminating between local and remote pulses. It provides for three (3) distinct functions:

- (1) Selective switching.
- (2) Electronic switching (remote and local signal separation and amplitude equalization).
- (3) Power isolation and distribution.

No field changes in effect at time of preparation (24 May 1961).

**TECHNICAL CHARACTERISTICS:**

TYPE OF INSTALLATION: Ship or shore station.

## AN/FPA-2A RADIO FREQUENCY SWITCHING GROUP

HEAT DISSIPATION: 480 W.

POWER FACTOR: 97% pf.

CHARACTERISTICS OF RECEIVING ANTENNAS: Termination by nominal 50-ohm transmission lines leading to coaxial connections in entrance box.

CHARACTERISTICS OF CABLES TO LORAN TRANSMITTERS: Nominal 50-ohm transmission lines not to exceed 100 ft from entrance box to transmitters.

OPERATING FREQUENCY: 1750 kc; 1800 kc; 1850 kc; 1900 kc; or 1950 kc depending on the frequency selected for station operation.

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

### RELATION TO OTHER EQUIPMENT:

The AN/FPA-2A is the same as AN/FPA-2 except that the Switch Assy SA-355/FPA-2 supplied under the AN/FPA-2 has been modified in the AN/FPA-2A to accept hermetically sealed plug-in relay units, instead of open type relays.

### EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Receiving Antenna and Antenna Coupling Unit; (As required) RG-58/U or RG-8/U Cable; Power Cables, Ground wire, miscellaneous; (1) Volt-Ohm Milliammeter Model Simpson #260 or equivalent; (2 or 4) Loran Timer Set AN/FPN-30; (2) Transmitter Model T-137 series or Model T-325/FPN series; (1) Transmitting Antenna.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Electrical Equipment Cabinet CY-1466/FPA-2		20-1/32 x 36 x 77-1/2	620
1	Switch Assy SA-355A/FPA-2		9 x 17 x 22	25
1	Switch Assy SA-354A/FPA-2		9 x 17 x 22	44
3	Electronic Switch SA-356/FPA-2		9-1/2 x 17 x 22	50
1	Panel Power Distribution SB-336/FPA-2		5-15/16 x 22 x 22	18
2	Filter, Radio Interference F-217/FPA-2		10-3/4 x 17-3/4 x 21-3/4	70
2	Transformer, Power, Isolation TF-191/FPN		14 x 14 x 22-1/8	250
1	Test Set, Crystal TS-830/U		6 x 10 x 11	8
2	Technical Manual CG-273-35		1 x 9 x 11-1/2	
1	Set of Equipment Spares		12 x 15 x 24	121

### REFERENCE DATA AND LITERATURE:

CG-273-35: Technical Manual for Switching Group, Radio Frequency AN/FPA-2A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (3) 5R4WGY (3) 6AU6 (3) 5651 (9) 5654/6AK5W (3) 5726/6AL5W (9) 6005/6AQ5W

CRYSTALS: (6) 1N69

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	80.0	1170
1	9.0	320
1	9.0	320
2	8.5	135
1	2.3	28
1	0.5	14
1	4.5	189

PROCUREMENT DATA

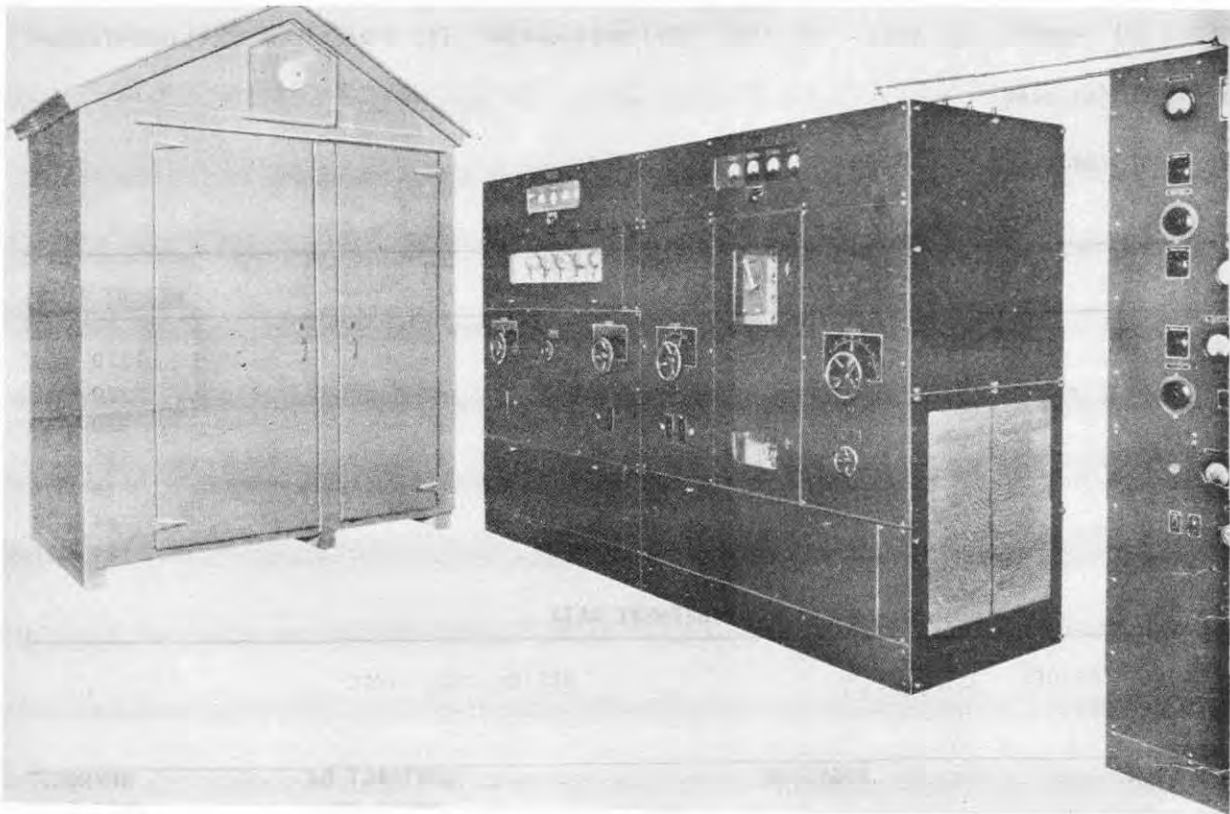
PROCURING SERVICE:  
SPEC &/OR DWG:

DESIGN COG: USCG

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Federal Telephone & Radio Company Dwg no. J1025057 Pt no. A1014665	Clifton, New Jersey	Tcg-40111(CG-36, 506A), 20 December 1955	



## AMPLIFIER ASSEMBLY

Radio Auxiliary  
AN/FRA-1A

*Amplifier Assembly AN/FRA-1A*

### FUNCTIONAL DESCRIPTION

The AN/FRA-1A is a rf amplifier designed to be excited from Radio Transmitter BC-365. It provides 6 to 10 kw of power output into an antenna system having 750 to 3000 mmf capacity and 6 to 12 ohms resistance over the range 150 to 550 kc. The equipment is designed for fixed service and cannot readily be disassembled and transported.

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

### RELATION TO OTHER EQUIPMENT

The AN/FRA-1 is functionally identical with the AN/FRA-1A, but there are minor differences in location of controls and control circuit wiring.

Equipment Required but not Supplied: (1)

Radio Transmitter BC-365; (1) Antenna System; (6) Foundation Post for Antenna Tuning; (12) Transmission Line Poles; (1) Wood Preservative and Brush; (1) Feed-Through Insulator for Transmitter House; (1) Cable Duct for Transmitter House; (1) Air Conditioning for Transmitter; (1) Set of Tools.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 140 to 550 kc.

TYPE OF EMISSION: Radio Telegraphy, On-Off, or Frequency Shift Keying.

EXCITATION REQUIREMENT: 300 W rf.

POWER OUTPUT: 6 kw.

IMPEDANCE: 350 ohms.

POWER REQUIREMENT: 200 to 240 v, 50 to 60 cps, three ph, 22 kva.

POWER FACTOR: 90%.

CURRENT DISTRIBUTION: (at 200 v, 60 cps)

LINE 1: 54 amp.  
 LINE 2: 63 amp.  
 LINE 3: 58 amp.

**REFERENCE DATA AND LITERATURE**

TM11-5028: Technical Manual Amplifier  
 AN/FRA-1A.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(1) 891R (6) 575A (2) 866A/866  
 Total Tubes: (9)

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE TASSA  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

**SHIPPING DATA**

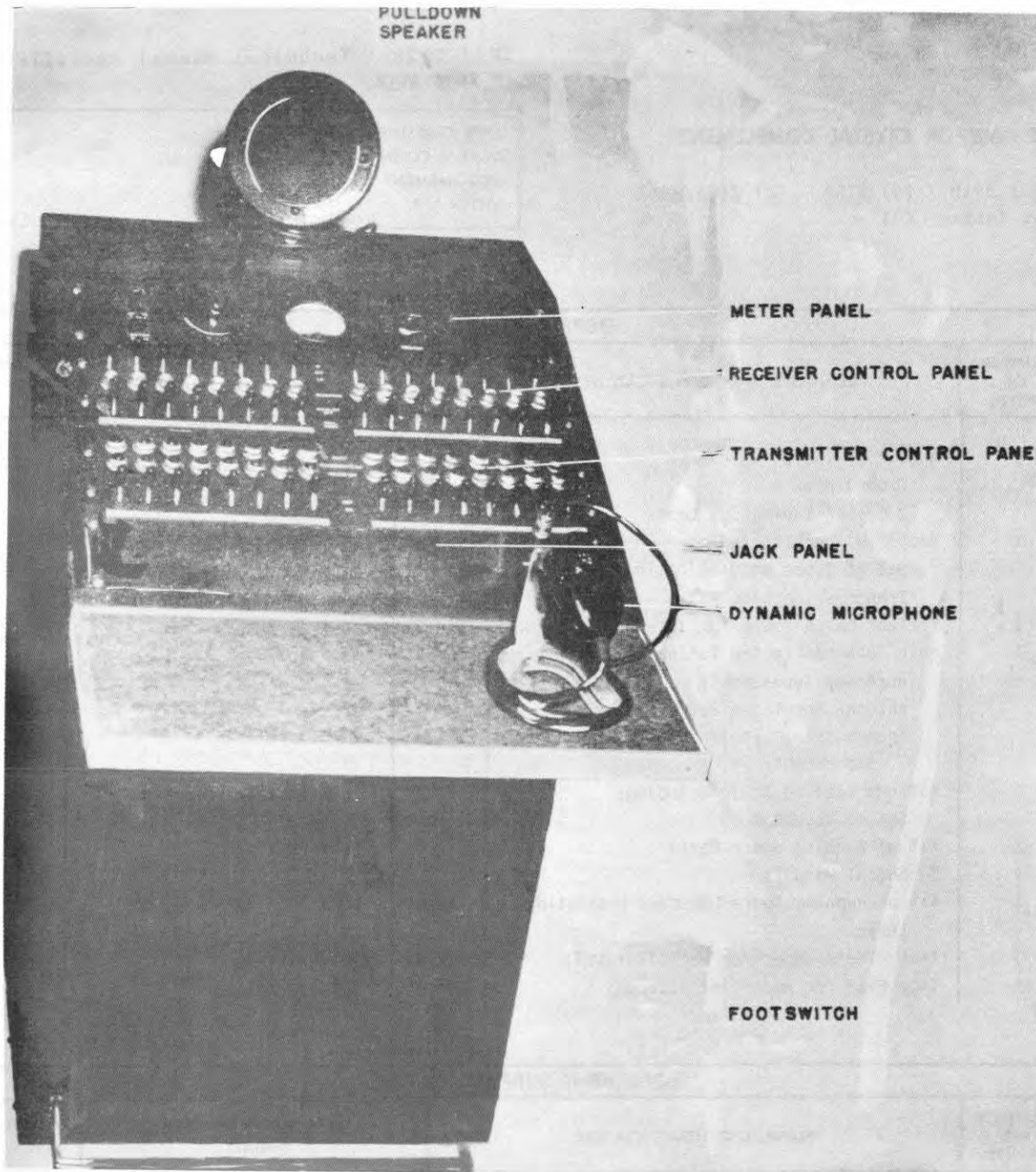
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Amplifier including: Ground Hook 2 Copper Tubing Bus Leads	140.1	42 X 68 X 86	1200
1	Rectifier Unit including: Set of Tubes and Indicating Lamps Transmission Line Kit	140.1	42 X 68 X 86	1200
1	Prefabricated House for Antenna Tuning Unit	125.0	30 X 83 X 88	1400
1	Main Subassembly for Tuning Unit including: Horn Gap Subassembly Antenna Insulator Board Subassembly Transmission Line Insulator Board Subassembly	60.4	48 X 30 X 78	300
1	Antenna Loading Coil including: Set of Ground Rods	41.0	30 X 30 X 80	275
1	Kit of Running Spare Parts	18.0	24 X 36 X 36	275
2	Technical Manuals			
1	Kit of Running Spare Tubes and Indicating Lamps	12.6	21 X 25 X 42	75
3	Plate Transformer for Rectifier Unit	15.9	24 X 24 X 48	400
3	Tube 891R for Amplifier Assembly	13.0	20 X 28 X 40	100

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Amplifier	36 X 60 X 76	900
1	Rectifier Unit	36 X 60 X 76	2000
1	Antenna Tuning Unit	58 X 84 X 98	1400
1	Transmission Line Kit		
1	Running Spare Parts Kit		

# CONTROL MONITOR GROUP

# AN/FRA-11



*Control Monitor Group AN/FRA-11*

**AN/FRA-11****CONTROL MONITOR GROUP****FUNCTIONAL DESCRIPTION**

The AN/FRA-11 enables the operating personnel of a control tower to maintain complete two-way voice communication with aircraft while in flight or on the field. Complete control of sixteen transmit-receive channels are provided at each of the three operating positions. The three operating positions are designated as "A", "B", "C", each having a microphone and a transmitter control panel for the operation of any one of the sixteen radio transmitters. Indicating meters are provided for reading the level of the audio signal supplied to the transmitter. The transmitter in use can be determined from the indicating lamps adjacent to the transmitter selector switches.

Radio telephone messages from aircraft, received by any one of the sixteen radio receivers, can be heard by operating personnel through the overhead speakers, pull-down speakers, or headsets. Each radio receiving channel has an identification lamp which is automatically illuminated when the channel is in use. Sixteen lever type switches provide the operator with a means of setting the overhead speaker output level for any channel to HI - LO or OFF.

A second row of lever type switches permit the operator to select any radio signal and feed it to the pull-down speaker.

Provisions are made for recording any received signal. A limited number of voice recorders may be employed for recording specific channels. Any desired shift in channel recording may be made on the jack panel of cabinet number one.

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

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (4) Equipment Cabinets CY-597A/G, (6) Jack Strips 491394, (312) Telephone Jacks 491395, (1) Patch Cord Storage Panel MX-814/G, (1) Patch Cord Retainer Pully Assembly MX-813/G, (6) 8" PM Speakers, (3) 500 to 3 ohm Transformer,

(6) Speaker Wall Baffle, (14) Terminal Strips W.E. Type 85, (3) Headset W.E. Type 52-C, (16) Audio Amplifiers AM-413/G, (3) Audio Transformers 5000/600 ohm, (1) Transformer Assembly.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****INPUT AND OUTPUT IMPEDANCE**

PREAMPLIFIER: 200 ohms input; 200 ohms output.

**OUTPUT AMPLIFIERS**

AM-1043/FRA-11: 200 ohms input; 600 ohm output.

AM-1042/FRA-11: 5000 ohm input; 600 output.

AMPLIFIER ASSEMBLY AM-1044/FRA-11: 600 ohm input; 1200 ohm output.

SIGNAL DISTRIBUTION PANEL SB-390/FRA-11: 10000 ohm input; 600 ohm output.

POWER REQUIREMENTS: 115 v, 60 cps, two wire-single phase, 1600 W. The DC power is supplied as part of the equipment.

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

Charleston Naval Shipyard, Naval Base,  
South Carolina.  
Contract BuAer P.O. 40738, 40700.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(7) 5U4G	(3) 5Y3	(16) 6AK6
(3) 6AQ5	(19) 6AL5	(16) 6AU6
(3) 6BA6	(19) 6C4	(36) 6SL7W
(12) 6V6	(3) 12AT7	
Total Tubes: (133).		

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92273: Technical Manual for Control Monitor Group AN/FRA-11.

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.)
3	Control Indicator C-1443/FRA-11 each consisting of:	22	29 X 34 X 39	240
1	Transmitter Control Panel			
1	Meter Panel			
1	Receiver Control Panel			
1	Jack Panel			

## CONTROL MONITOR GROUP

AN/FRA-11

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Preamplifier			
1	Radio Signal Distribution SB-390/FRA-11	2.3	7-1/2 X 21 X 25	18.2
1	(3) Power Supply PP-1143/FRA-11	6.5	13 X 25 X 35	134
2	(2) Audio Frequency Amplifiers AM-1042/FRA-11	10	17 X 26 X 39	148
4	(4) Relay Assembly RE-166/FRA-11	6	15 X 24 X 29	97
1	(3) Radio Frequency Amplifier AM-1043/FRA-11	5.6	13 X 26 X 39	90
1	(2) Amplifier Assembly AM-1044/FRA-11	10	17 X 26 X 39	160
1	(2) Power Supply PP-1142/FRA-11	5.8	13 X 24 X 30	120
1	Power Distribution Panel SB-389/FRA-11	2.5	12 X 14 X 25	30
	including:			
	(3) Microphones			
	(3) Speakers			
	(1) Set Installation Plans			
	(2) Instruction Book			
	(3) Microphone Holder			

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
3	Control Indicator C-1443/FRA-11	20-1/16 X 34-3/8 X 35	
16	Relay Assembly RE-166/FRA-11	3-1/2 X 9-1/4 X 19	
3	Audio Frequency Amplifier AM-1043/FRA-11	5-1/4 X 10-1/2 X 19	
4	Audio Frequency Amplifier AM-1042/FRA-11	8-3/4 X 14 X 19	
2	Amplifier Assembly AM-1044/FRA-11	8-3/4 X 13-1/2 X 19	
3	Power Supply PP-1143/FRA-11	7-7/8 X 8-3/4 X 19	
1	Radio Signal Distribution Panel SB-390/FRA-11	7 X 13-1/2 X 19	
2	Power Supply PP-1142/FRA-11	8-3/4 X 11-1/2 X 19	
1	Power Distribution Panel SB-389/FRA-11	5-1/4 X 5-1/2 X 19	
3	Dynamic Microphones Electrovoice Model 602D		
3	Speaker, Pull Down Jensen Type AP-10	4.5 X 5 dia	