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In order to generate this file, I need to scan the pages, split the double pages and remove any edge marks such as punch holes, clean up the pages, set the relevant pages to be all the same size and alignment. I then run Omnipage (OCR) to generate the searchable text and then generate the pdf file.

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It is my hope that you find the file of use to you personally – I know that I would have liked to have found some of these files years ago – they would have saved me a lot of time !

Colin Hinson

In the village of Blunham, Bedfordshire.

GRAPHIC SURVEY of

Radio & Radar Equipment

Used By The Army Air Force -

Communications

&

Countermeasures Equipments



Army Air Forces ★ Air Technical Service Command
Wright Field Dayton, Ohio

GRAPHIC SURVEY of Radio and Radar Equipment Used by the Army Air Forces

Classification Cancelled
OR Changed to _____
Auth: _____

By *W. L. Lindsey Capt AC* _____

BY AUTHORITY OF DIRECTOR, ATSC

1 February 1945

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Hobart R. Yeager
Hobart R. Yeager
Colonel, Air Corps

AIR

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N-12836-A

SECTION ONE

~~N-12836-A~~

GRAPHIC SURVEY of Radio and Radar Equipment Used by the Army Air Forces

Instructors Reading this Document

~~DOWNGRADE AT 7 YEAR INTERVALS;
DECLASSIFY AFTER 12 YEARS.
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Countermeasures Equipment
Y-109829

COPY NO. 123

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Clearance Number AAF-MD-E89

Foreword

Purpose :

This Graphic Survey of Radio and Radar Equipment used by the Army Air Forces is intended to furnish authorized personnel with graphic and narrative data relative to description, electrical and physical characteristics, purpose, and tactical employment of the radio and radar equipment used by the Army Air Forces.

Restriction :

The Graphic Survey is not authorized as a basis for procurement storage, or issue, but is prepared only for information and guidance of research, development, procurement, storage, issue, and staff and planning activities.

Scope :

This publication is intended to cover all active equipment, both in use and in development. Publication is accomplished in a series of separate sections in order that reproduction and dissemination may be effected economically and expeditiously.

Format :

Permanent binder covers are not furnished with the various sections of the Graphic Survey, but the pages of each section are printed on 8 1/2 x 11 inch paper and punched for the standard AAF three-hole binder, (binder, loose-leaf, 3 post, stock number 8700-043800), commonly known within the AAF as "Technical Order Binder". With a few exceptions, data concerning each equipment is presented on two pages. The first page contains a description and information relative to use, installation, and electrical characteristics; the second page, photographs of the various components and physical weights and dimensions. Within each section, the equipments are arranged alphabetically by official nomenclature and type designation.

Suggestions :

Suggestions are invited for improvement of form, content, or to otherwise increase the ultimate utility to the user within the scope and purpose of this publication. Comments should be addressed to the Commanding General, Air Technical Service Command, Wright Field, Ohio, Attention: TSERR1B, for consideration.

Security :

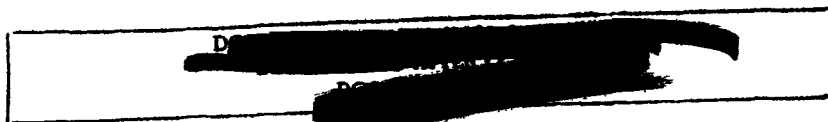
The Graphic Survey is classified [REDACTED] because of the broad scope of the equipment covered in each volume and the [REDACTED] classification of many of the equipments. Each addressee will be responsible for maintaining the security of his copies in accordance with the provisions of AR 380-5. Security classification of each individual equipment at the time of publication will be indicated on the pages relative to that equipment.

Distribution :

Requests relative to distribution of this publication should be addressed to Commanding General, Air Technical Service Command, Attention: TSERR1B. Revisions and additions are forwarded periodically to original addressees in order that all copies may be kept up to date. Each copy has a serial number which is recorded on a master distribution file index.

Authority :

Preparation, publication and distribution of the Graphic Survey is accomplished in accordance with letter, Headquarters, AAF(AFDMA-2F), dated 5 April 1945, subject "Graphic Survey of Radio and Radar Equipment Used by the AAF". AAF report clearance number AAF-MD-E89 has been assigned.



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Section 1 - Radio and Radar Countermeasures Equipment

NOMENCLATURE	DESCRIPTION	TYPE*	STATUS**
AM-14/APT	Radio Frequency Amplifier	Standard	P
AM-18/APT	Radio Frequency Amplifier	Standard	P
AM-33/APT	Radio Frequency Amplifier	Limited Procurement	D
AN/APA-6	Radio Indicator Assembly	Standard	P
AN/APA-7	Photographic Adaptor		D
AN/APA-10	Panoramic Adaptor		P
AN/APA-11	Radar Indicator Assembly	Standard	D
AN/APA-17	Radar D.F. Assembly	Standard	P
AN/APA-23	Recording Unit	Limited Procurement	P
AN/APQ-2	Radar Jamming Equipment	Standard	P
AN/APQ-9	Radar Jamming Equipment	Standard	P
AN/APQ-15	Deception Device	Limited Procurement	P
AN/APQ-17	Radar Jamming Equipment		D
AN/APR-4	Radar Receiving Equipment	Standard	P
AN/APR-7	Receiving Equipment	Limited Standard	D
AN/APT-1	Radar Jamming Transmitter	Standard	P
AN/APT-2	Radar Jamming Transmitter	Standard	P
AN/APT-3	Radar Jamming Transmitter	Standard	D
AN/APT-4	Barrage Jamming Equipment	Limited Procurement	P
AN/APT-6	Radar Communication Jammer		D
AN/APT-8	Radar Communication Jammer		D
AN/ARA-3	Modulator Assembly	Standard	D
AN/ARQ-1	Radio Jamming Equipment		
AN/ARQ-4	Panoramic Receiver		D
AN/ARQ-5	Radio Receiving Equipment	Standard	D
AN/ARQ-6	Direction Finding Receiver		D
AN/ARQ-7	Radio Jamming Equipment		P
AN/ARQ-8	Radio Jamming Equipment		D
AN/ARQ-9	Radio Jamming Equipment		P
AN/ARR-5	Radio Receiving Equipment	Standard	P
AN/ARR-7	Radio Receiving Equipment	Standard	P
AN/ARR-8	Panoramic		P
AN/ART-3	Radio Jamming Transmitter		D
AN/ART-7	Radio Jamming Equipment	Standard	P
AN/ART-9	Radio Jamming Equipment	Standard	P
AN/ART-10	Radio Jamming Equipment	Standard	P
AN/ART-11	Radio Jamming Equipment	Standard	P

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AN/TPQ-T1	Training Set	Limited Standard	P
CHAFF	Deception Device		P
TU-60	Tuning Unit	Standard	P
TU-63-T1	Tuning Unit	Standard	P
TU-64-T1	Tuning Unit	Standard	P
TU-65-T1	Tuning Unit	Standard	P
TU-66-T1	Tuning Unit	Standard	P

RADIO AND RADAR COUNTERMEASURES TEST EQUIPMENT

BC-1255	Monitor Receiver	Limited Standard	P
TS-47/APR	Signal Generator	Standard	P
TS-89/AP	Frequency Meter	Limited Standard	P
TS-87/AP	Radio Frequency Wattmeter	Limited Standard	P
TS-92/AP	Amplifier Alignment Unit		P
TS-118/AP	Radio Frequency Wattmeter	Standard	P
TS-131/AP	Pickup Assembly	Standard	P
TS-174/U	Frequency Meter	Standard	P
TS-175/U	Frequency Meter	Standard	P
TS-206/AP	Radio Frequency Wattmeter		D
TS-213/U	Frequency Meter		D

* Type (Classification) Defined:

STANDARD---Equipment has been adopted as suitable for use by the Army, and the article is the most advanced and satisfactory that has been adopted, and is that which is preferred for procurement.

LIMITED STANDARD---Equipment has been adopted as suitable for use by the Army, but military characteristics are not as suitable as standard articles, but are usable substitutes for standard articles.

LIMITED PROCUREMENT---Equipment which has passed service tests favorably but is not ready for classification as an adopted type and which before such classification should be subject to an extended service test. Approval for limited procurement signifies the item is probably suited for service use but requires refinement in design or further operational use to determine definitely its suitability.

** Status Defined:

D - (DEVELOPMENT): Initial pilot run has not yet been completed.

P - (PRODUCTION) Initial pilot run has been completed, and quantity production is underway or has been completed.

COVER PICTURE: One of the most versatile of the German ground radars, a Giant Wurzburg, which was captured on the beach from which British troops advanced on Caen. Note the IFF (Identification, Friend or Foe) antenna array at the top.

Radio Frequency Amplifier AM-14/APT is a wide band power amplifier designed primarily for use with Transmitting Equipment AN/APT-1, but may be used with other similar equipments operating in its frequency range. It is intended to increase the power output and thus enhance the jamming effectiveness of the associated transmitter. The equipment is similar to the RF Amplifier AM-18/APT, except that it covers a lower frequency band. The equipment is to be used against enemy airborne and ground radar and search equipment operating within its frequency range.

The equipment is designed with a two stage push-pull amplifier and incorporates a built in power supply. Power is furnished from an 80/115 volt, 400-2600 c.p.s. source.

Production of this equipment started during the first half of 1944. Army Supply Program requirements as of 1 August 1944 were 2,725 for the calendar year 1944 and 1,050 for 1945.

Test equipments required for the maintenance and

tuning of this equipment are Test Set I-139-A, Amplifier Alignment Unit TS-92/AP and Test Set I-56-K.

POWER INPUT	700 WATTS, 80/115 VOLTS; 400-2600 C.P.S. AND 20 WATTS, 24 VOLTS D.C.
POWER OUTPUT	100-150 WATTS
FREQUENCY RANGE	90-150 MC.
OUTPUT BANDWIDTH	3.5 MC.
DRIVING POWER	5-10 WATTS
INPUT IMPEDANCE	50 OHMS.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	4E27	2	836



Radio Frequency Amplifier
AM-14/APT

RADIO FREQUENCY AMPLIFIER AM-14/APT TOTAL WEIGHT 62 LBS.

Component	Nomenclature	Size	Weight
R F Amplifier	AM-14/APT	7 5/8" x 10 1/8" x 21 3/4"	59 Lbs.
Mounting Base and includes plugs, adapters and cables.	MT-171/U	2 1/4" x 10 5/8" x 22"	3 Lbs.

Radio Frequency Amplifier AM-18/APT is an airborne, wide band, power amplifier designed primarily to amplify the output of Transmitting Equipment AN/APT-1, but may be used with other similar equipments operating in its frequency range. A number of German and Japanese ground and airborne search and early warning radars are now operating over this range. The equipment is similar to RF Amplifier AM-14/APT, except that it covers a higher frequency range. It enables the associated transmitters to more effectively jam enemy radars operating within its frequency range.

The equipment is designed with a two stage push-pull amplifier, and incorporates a built in power supply unit. Power is furnished from an 80/115 volt, 400-2800 c.p.s. source.

Production of this equipment started in the first half of 1944. Army Supply Program requirements as of 1 August 1944 were 2,550 for the calendar year 1944 and 50 for 1945.

Test equipments required for the maintenance and tuning of this equipment are Test Set I-139-A and Amplifier Alignment Unit TS-92/AP.

POWER INPUT	700 WATTS, 80/115 VOLTS, 400-2800 C.P.S.
POWER OUTPUT	50-80 WATTS
FREQUENCY RANGE	107-230 MC.
OUTPUT BANDWIDTH	3.5 MC.
DRIVING POWER	10-5 WATTS
INPUT IMPEDANCE	50 OHMS

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	836	2	JAN 35TG



Radio Frequency Amplifier AM-18/APT

RADIO FREQUENCY AMPLIFIER AM-18/APT TOTAL WEIGHT 60 LBS

Component	Nomenclature	Size	Weight
RF Amplifier	AM-18/APT	7 5/8" x 10 1/8" x 21 3/4"	55 Lbs.
Mounting Base and includes plugs, adaptors and cables.	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.

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Radio Frequency Amplifier AM-33/ART is an airborne wide band power amplifier, designed primarily to amplify the output of Radio Set AN/ARQ-8, but may be used with other jamming transmitters such as AN/ARQ-1 and AN/ARQ-7 which operate over the same frequency range, thus enabling them to more effectively jam enemy radars operating in the 25-100 mc. frequency range. It also enables these transmitters to compete with the increased power employed by enemy ground stations and to aid in reducing the effectiveness of radio communications used by the enemy in the control of fighter aircraft, increasing the protection to our bomber formations against mass fighter attacks.

The amplifier is capable of normal operation on any frequency within the range of the AN/ARQ-8, and will operate over a 3 mc. frequency band without requiring retuning by the operator. Driver input of about 15 watts is amplified to an output of about 150 watts. Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source.

Production was expected to start during August 1944. Army Supply Program requirements as of 1

August 1944 were 1105 for the calendar year 1944 and 116 for the calendar year 1945.

Test equipments required for the maintenance and tuning of the equipment are Test Set I-139-A and Amplifier Alignment Unit TS-92/AP.

POWER INPUT	700 WATTS
POWER OUTPUT	150 WATTS
FREQUENCY RANGE	25-100 MC.
DRIVING POWER	10-15 WATTS
INPUT IMPEDANCE	50 OHMS.
OUTPUT BANDWIDTH	3 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	836	2	4E27



Radio Frequency Amplifier AM-33(XA)/ART

RADIO FREQUENCY AMPLIFIER AM-33/ART TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Radio Frequency Amplifier	AM-33/ART	8" x 10 1/2" x 21"	39 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.
Control Unit		2" x 2 3/4" x 3"	

1 Dec. 1944

Radar Indicator Assembly AN/APA-6 is an airborne pulse analyzer equipment designed to operate with an associated search receiver for the analysis of detected radar signals. Its frequency range depends on the associated receiver and it is capable of analyzing signals having a pulse duration of 1 to 100 micro-seconds and a pulse repetition rate between 75 and 6000 pulses per second.

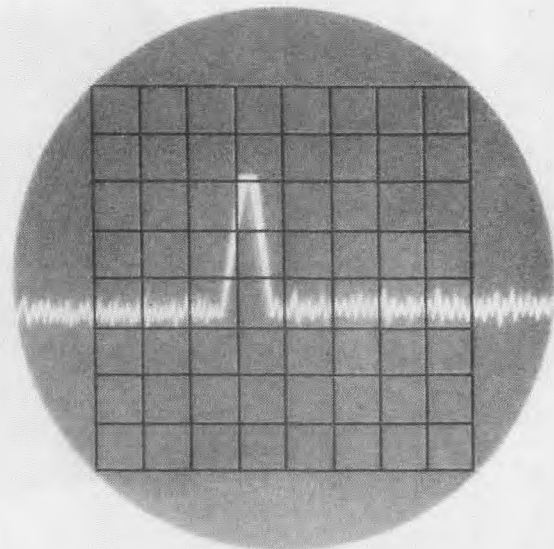
In operation the equipment is linked with the associated receiver by means of a special cable designed to prevent pulse distortion. A pattern of the received radar pulse is presented on the scope mounted on the panel of the set. The pattern can be analyzed for shape, pulse duration and amplitude. In addition, the pulse repetition frequency may be read directly from a meter on the panel of the set. When more than a single pulse is being picked up this latter reading will be erroneous in that it will indicate the sum of the pulse repetition frequencies being received. In that case an associated audio oscillator is used to furnish a horizontal sweep on the scope the same frequency as one of the pulses being received. This stops the one pattern on the scope and permits the others to drift across.

Power requirements are supplied from an 80/115 volt, 400-2800 c.p.s., a.c. source.

Test equipment required for the maintenance of this equipment includes R.C.A. Oscilloscope type 158A and Hickok type 110 Vacuum Tube Voltmeter.

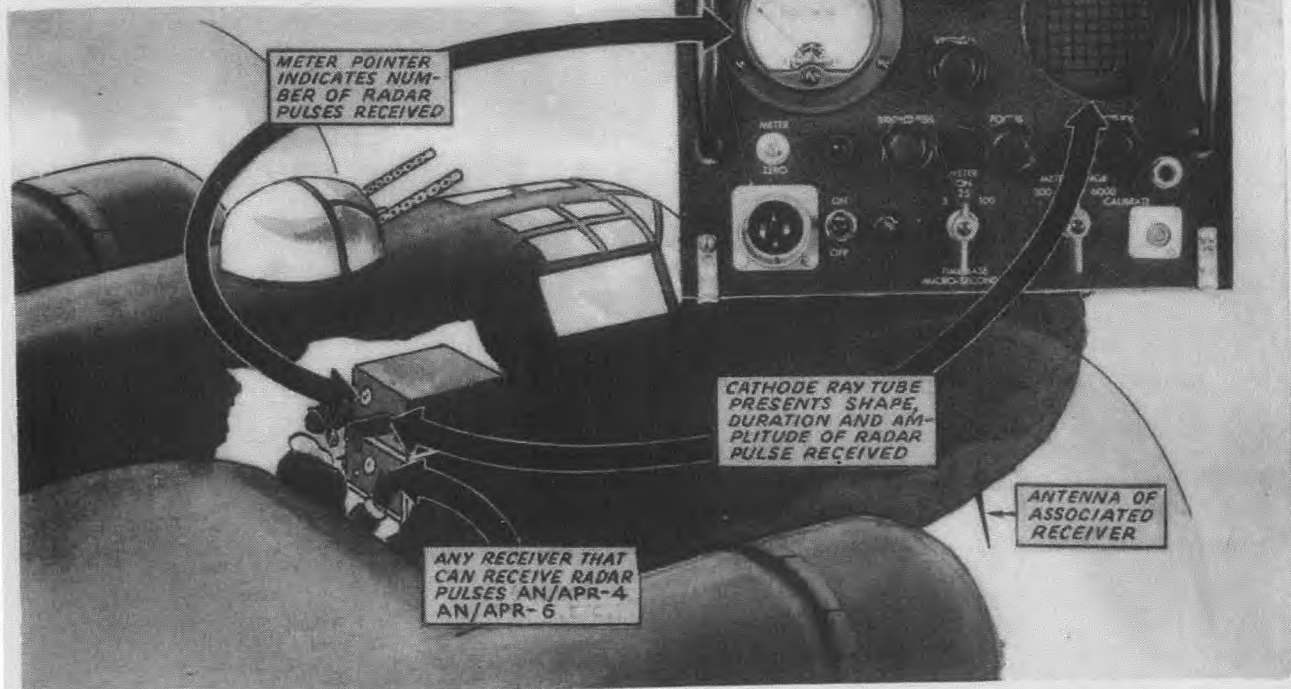
Army Supply Program requirements as of 18 August 1944 were 100 equipments for the calendar year 1944. This equipment is to be superceded by Radar Indicator Assembly AN/APA-11.

POWER INPUT	90 WATTS
INPUT IMPEDANCE	1000 OHMS
SWEEP LENGTH (Full Scale)	5.25 AND 100 Micro-Seconds
P.R.F.	75 TO 6000 P.P.S.
DRIVER INPUT	0.5 VOLT AMPLITUDE



Enemy radar frequencies are analyzed and determined by position and/or size of pip.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	VR-150-30	1	5V3GT
2	6SN7GT	1	2X2
1	6AG7	3	6SJ7
1	3BP1		



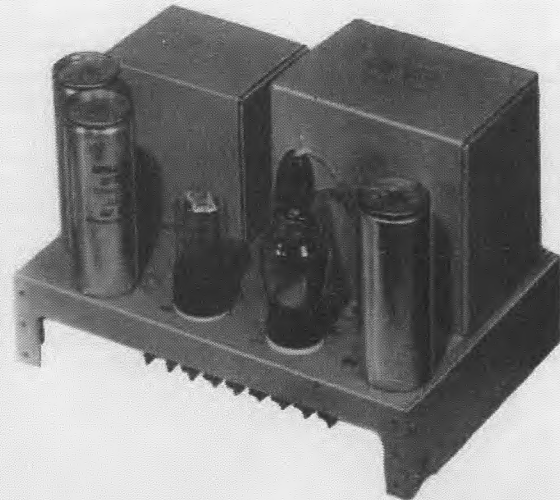
Radar Indicator Assembly AN/APA-6 is an airborne pulse analyzer used as an auxiliary unit with search receivers to study the characteristics of enemy radar transmitters.



Oscillator 0-10/APA-6X



Indicator ID-33/APA-6



Rectifier Power Unit PP-20/APA-6

RADIO INDICATOR ASSEMBLY AN/APA-6

TOTAL WEIGHT 75 LBS.

Component	Nomenclature	Size	Weight
Indicator	ID-33/APA-6	11 " x 9 1/2" x 21 "	30 Lbs.
Rectifier Power Unit or	PP-21/APA-6X	11 " x 9 1/2" x 7 "	12 Lbs.
Rectifier Power Unit	PP-20/APA-6	11 " x 9 1/2" x 7 "	18 Lbs.
Oscillator	0-10/APA-6X	7 " x 9 " x 15 "	13 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 3/4" x 22 "	3 Lbs.
Mounting Base	MT-197/APA-6X	2 1/4" x 9 1/2" x 15 1/4"	3 Lbs.

and includes plugs, cable and adapters.

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AN/APA-7

Photographic Adaptor AN/APA-7, which incorporates a cathode ray tube, is used to facilitate the photographing of the image on the screen of Raven equipment.

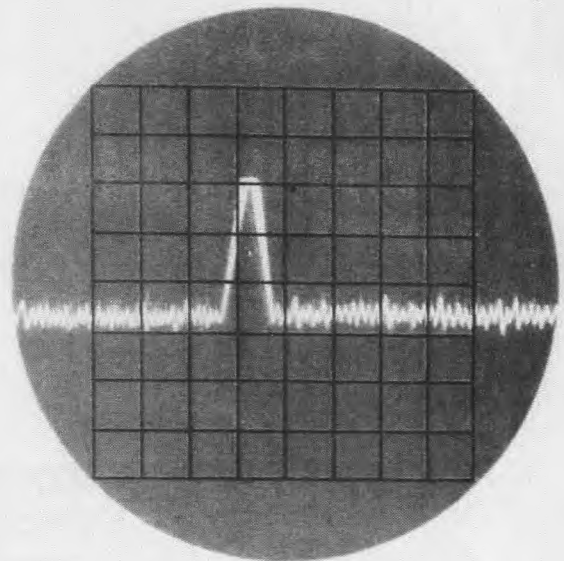
The equipment provides a means for obtaining a permanent photographic record of intercepted radar pulses which are being analyzed by Radar Indicator Assembly AN/APA-11. Such a photograph will show the pulse duration and shape of an enemy radar pulse.

In use, the equipment is so arranged that when a record is required, a photograph may be taken by pressing a button on the panel of the equipment. Remote control is effected by pressing a button at the end of a length of cable.

A permanent focus camera is enclosed within Photographic Adaptor AN/APA-7, together with a cathode ray tube on which is duplicated the trace appearing on Radar Indicator Assembly AN/APA-11. The operator is thus provided with a permanent record of the picture appearing on the cathode ray tube, and valuable time is saved, since it is no longer necessary to trace the pattern on the screen by hand.

Power requirements are 80 watts input from an a.c. power source of 80-115 volts when the frequency is maintained within the limits of 400-2600 c.p.s. and 28 volts from a d.c. power source. No test equipment is required.

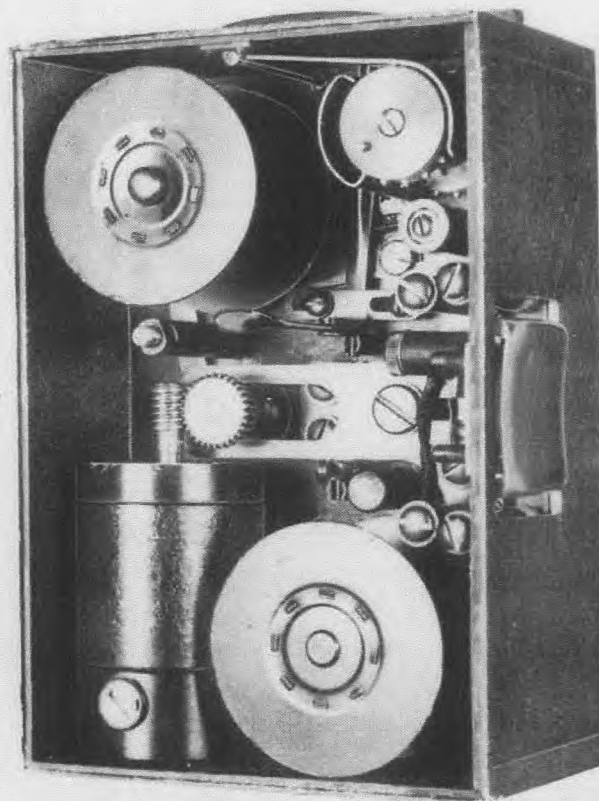
The equipment was deleted from the Army Supply Program requirements as of 22 June 1944.



Enemy radar frequencies are analyzed and determined by position and/or size of pip.

POWER INPUT	80 WATTS
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TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6AC7	1	5Y3GT
1	6AG7	2	2AP1
1	2X2		



Photographic Adaptor AN/APA-7 With Cover Removed.

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AN/APA-7

**EQUIPMENT
PHOTOGRAPHS
UNAVAILABLE**

PHOTOGRAPHIC ADAPTOR AN/APA-7 TOTAL WEIGHT 34 LBS.

Component	Nomenclature	Size	Weight
Indicator	ID-69/APA-7	7 5/8" x 4 7/8" x 2 1/4"	28 Lb.
Camera	PH-525/APA-7	2 1/2" x 1 1/2" x 4"	2 Lb.
Mounting Base	MT-167/U	2 1/4" x 5 1/4" x 22"	2 3/4 Lb.

and includes plugs, cable adapter and Frequency cable.

Installed in medium and heavy bombers, Panoramic Adaptor AN/APA-10 is a universal adapter for use with Radio Receiving Set AN/ARR-5, Radio Receiving Equipment AN/ARR-7, Receiving Equipment AN/APR-1, Radio Receiving Equipment AN/APR-4, or other receivers having similar IF frequencies. In addition, it is a complete airborne oscilloscope with all required sweep circuits incorporated.

With this adapter in use, all signals adjacent to the signal to which the receiver is tuned are presented on a panoramic spectrum in which received signals are shown as vertical pips on a cathode ray tube, the horizontal axis of which is calibrated in frequencies. The bands presented are: 100 kc wide with AN/ARR-7, 1,000 kc wide with AN/ARR-5, and 2 mc. wide with AN/APR-4 and similar receivers.

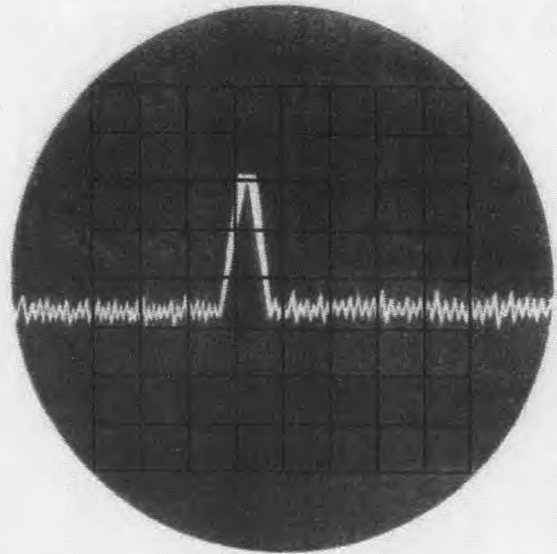
In operation, each receiver is connected to Panoramic Adapter AN/APA-10 by a cable. Switching one receiver to another is effected by a switch on the panel which may also be used to switch to the "oscillograph" mode of operation.

The equipment is capable of analyzing enemy signals and determining if they are AM, FM or CW. Since the horizontal axis of the cathode ray tube is calibrated, the frequency of the enemy signals may also be determined. With such information available, proper counter measures, such as "spot" or "barage" jamming may be employed.

Power requirements of the adaptor are 140 watts input from an a.c. power source of 80-115 volts when the frequency is maintained within the limits of 400 to 2600 c.p.s.

Test equipment required for maintenance includes Signal Generator I-72 and Oscilloscope RCA Type 158.

Production of the equipment was started in May 1944. Army Supply Program requirements as of 30 April 1944 were 2,060 for the calendar year 1944.



Enemy radar frequencies are analyzed and determined by position and/or size of pip.

POWER INPUT	140 WATTS
TYPE OF SIGNAL	AM; FM; CW

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
8	6AK5	3	6AG5
4	6SN7GT	3	VR/150/30
2	5R4GY	1	3BP1
2	6AG5		



Indicator ID-60/APA-10

PANORAMIC ADAPTOR AN/APA-10

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Indicator	ID-60/APA-10	7 5/8" x 10 1/8" x 21 3/4"	37 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 1/8" x 22 "	3 1/4 Lb
Cord	CG-53/AP (2 each)		
Cord	CG-113/AP	Length 2 1/2'	
Cord	CD-800 (2 each)	Length 20 "	
Cord	CD-800 (1 each)	Length 30"	

and includes, cords, cordage, adapters, misc. plugs and cables

1 Dec. 1944

Radio Indicator Assembly AN/APA-11 is an improved airborne pulse analyzer used with Receiving Equipment AN/APR-3, Radio Set SCR-587-A and Receiving Equipment AN/APR-1. It supercedes Radar Indicator Assembly AN/APA-6X and is installed in medium and light bombers.

It is used in analyzing enemy radar pulses, and as a complete airborne oscilloscope. Flexibility of design allows provision for 5, 25 and 100 microsecond pulses with a "horizontal shift" pulse duration calibrator. Pulse recurrence is measured by synchronizing patterns with a phase shift oscillator, so that the pulse recurrence of several radars simultaneously received can be determined. In general, no two radars will have exactly the same PRF, and any one signal may be "stopped" by a careful adjustment of the oscillator frequency, while the others will continue to move across the screen in one direction on the other, depending on whether their PRFs are higher or lower than that of the radar under observation.

The set provides a calibrated sine wave oscillator. The operator varies the oscillator frequency until a complete sine wave trace appears on the CR screen; the sawtooth swept frequency and the oscillator frequency are then identical.

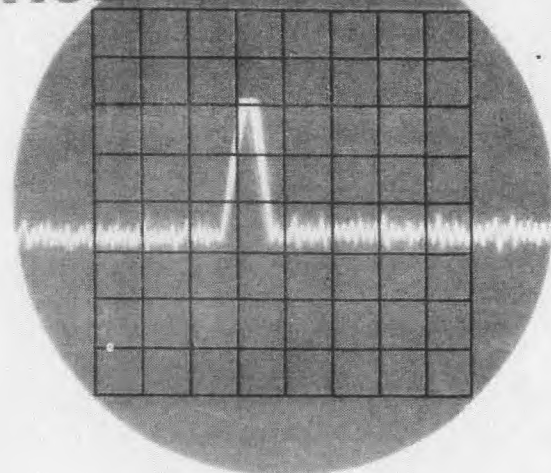
Tactical use of the equipment is the same as that for Radar Indicator Assembly AN/APA-6X, but there is the distinct advantage that Radio Indicator Assembly AN/APA-11 can be used in combat areas where enemy radar is concentrated. It is also simpler in operation than the other set, and can also be used as test equipment for different sets when used as an oscilloscope.

Power input is 150 watts from an 80/115 volt 400-2600 c.p.s. a.c. power source.

Test equipment required in maintenance includes RCA oscilloscope type 158.

Production of the equipments was begun during May 1944. Army Supply Program requirements as of 30 April 1944 were 1995 for the calendar year 1944.

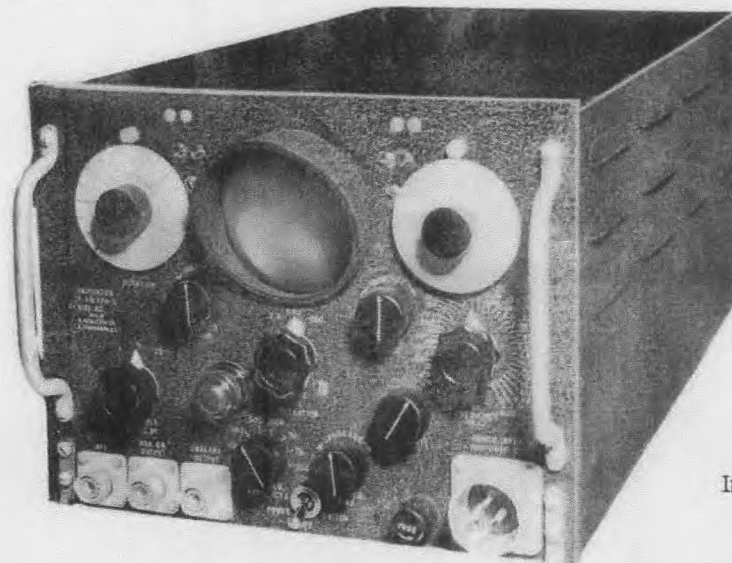
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Enemy radar frequencies are analyzed and determined by position and/or size of pip.

POWER INPUT	150 WATTS
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TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	2X2	4	6SN7GT
1	3BP1	1	6J5
1	5R4GY	1	6SJ7
4	6AC7	1	884
3	6AG7	2	VR/150/30



Indicator ID-59/APA-11

RADIO INDICATOR ASSEMBLY AN/APA-11 TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Indicator	ID-59/APA-11	7 5/8" x 10 1/8" x 21 3/4"	45 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 1/8" x 22 "	3 1/4 Lb.

and includes plugs, cords and cable adapter

UNCLASSIFIED

Radar Direction Finding Assembly AN/APA-17 is an airborne direction finding equipment for use in aircraft fitted with radar search receivers such as Receiving Equipment AN/APR-1, Radio Receiving Equipment AN/APR-4, Navy Model ARC-1 and Radio Set SCR-587-().

With the equipment in operation, investigating aircraft are able to take bearings on enemy radar stations to obtain data for appropriate counter measures.

The equipment consists essentially of a rotating type antenna assembly, video amplifier, indicator, power supply and associated cables. The antenna system has elements for the reception of horizontally and vertically polarized signals, with a switch which can select either one.

The system is easy to operate during flight, requiring a minimum of attention from the operator, other than that which is required for reading a bearing on the indicator. Output connection of the direction finder is quickly and easily connected to a search receiver similar to Radio Receiving Equipment AN/APR-4.

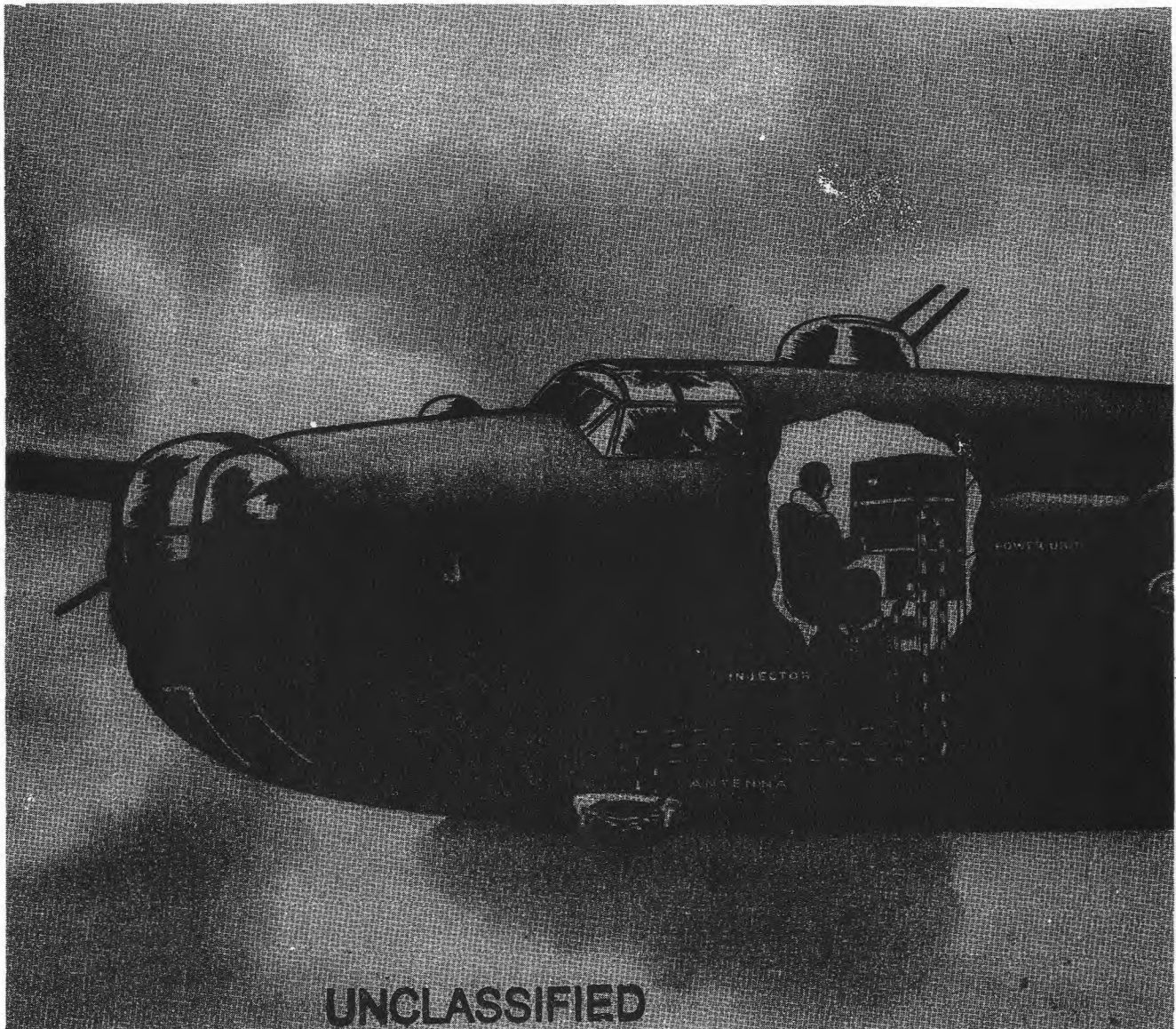
Test Equipment required for maintenance is Test Set TS-189/U.

Power is obtained from an 80/115 volt, 400-800 and 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

Army Supply Program requirements as of 14 June 1944 were 100 for the calendar year 1944 and 670 for 1945.

POWER INPUT	100 WATTS, 400-2600 C.P.S.
	25 WATTS, 400-800 C.P.S.
	80 WATTS, 28 VOLTS D.C.
FREQUENCY RANGE	30-950 MC. 300-950 M.C.
ACCURACY	± 5 DEGREES IN AZIMUTH

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6SJ7	2	6H6-GT/G
1	6SH7	1	2X2/879
2	6AC7	1	5JP2
1	6V6	1	5R4-GY

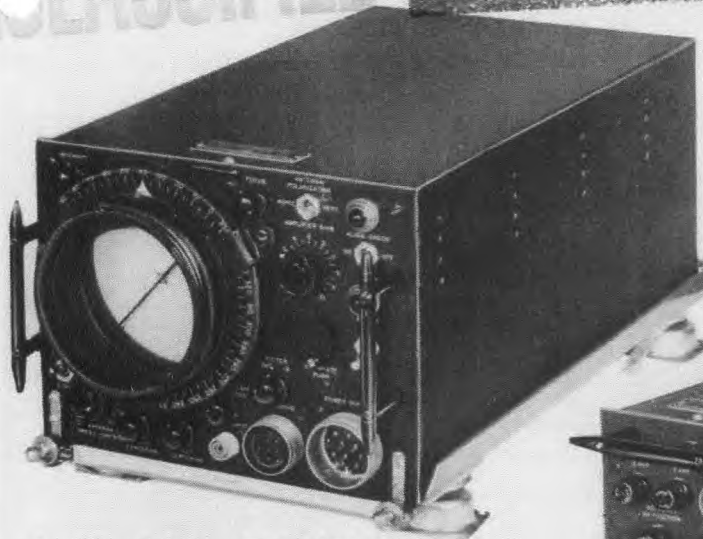


UNCLASSIFIED

Installation of Radar Direction Finding Assembly AN/APA-17 Radio Operator's Position - B-24 Airplane

AN/APA-17

SECRET



Amplifier Indicator ID-80/APA-17

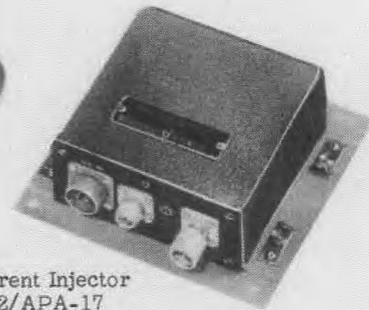


Rectifier Power Unit
PP-85/APA-17

Antenna Assembly AS-108/APA-17



Visor



Direct Current Injector
Box MX-182/APA-17

RADAR DIRECTION FINDING ASSEMBLY AN/APA-17

TOTAL WEIGHT 85 LBS

Component	Nomenclature	Size	Weight
Amplifier Indicator	ID-80/APA-17	7 5/8" x 10 1/8" x 21 3/4"	25 Lbs.
Rectifier Power Unit	PP-85/APA-17	7 5/8" x 4 7/8" x 21 3/4"	22 Lbs.
Antenna Assembly	AS-108A/APA-17	11 1/2 x Dia. 20"	7 1/2 Lbs.
D.C. Injector Box	MX-182/APA-17	5" x 4" x 2"	3 Lbs.
Antenna Drive Assembly	PU-29/APA-17		15 Lbs.
Mounting	MT-171/U	2 1/4" x 10 5/8" x 22"	3 Lbs.
Mounting	MT-167/U	2 1/4" x 5 1/4" x 22"	2 Lbs.

UNCLASSIFIED

1 February 1945

Recording Assembly AN/APA-23 is an airborne recorder for use with Radio Receiving Equipment AN/APR-4, Radio Receiving Set AN/ARR-5 and Radio Receiving Set AN/ARR-7 and other similar radar search and radio receivers.

The recorder is coupled to the receiver by means of a mechanical link to provide the proper speed of rotation for the tuning dial. An electrical link is provided to feed the received signals into the recorder. By proper calibration the recorder provides a permanent record of the frequencies received and the time of reception. The recorder is calibrated for frequency by impressing a known frequency on the recorder and marking the stylus impression with that frequency.

In operation the stylus on the recorder makes an impression on the tape only when a signal is picked up in the accompanying receiver. The time is indicated on the tape by marks at one minute intervals by means of a timing mechanism. The stylus is synchronized with the tuning dial and sweeps back and forth. An input signal of about 80 millivolts is sufficient to activate the

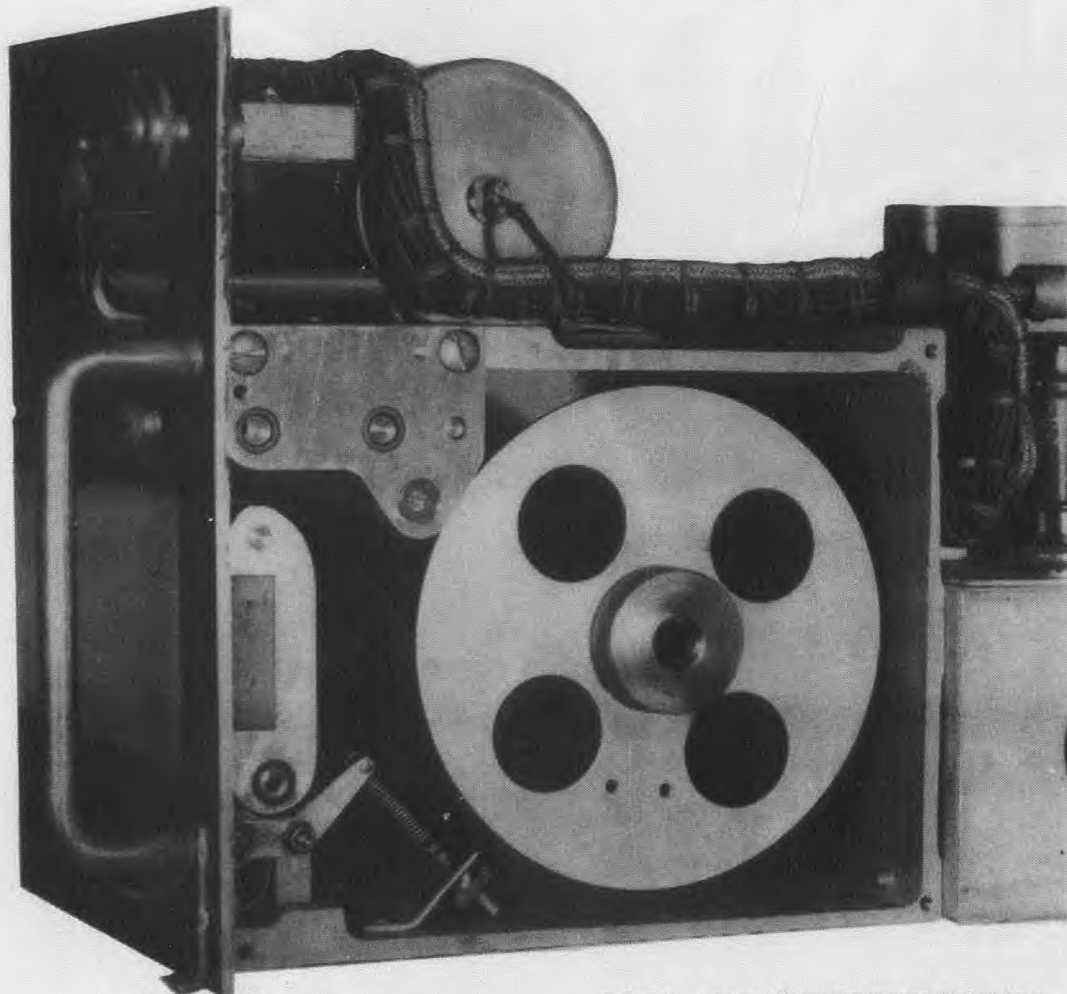
stylus and mark the tape. Thus with the equipment in operation constant listening by an operator is unnecessary, leaving him free to investigate new signals. When a new signal appears on the tape the operator can switch to manual operation and tune to the signal for observation.

The frequency range of the recorder depends on the range of the associated receiver. Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

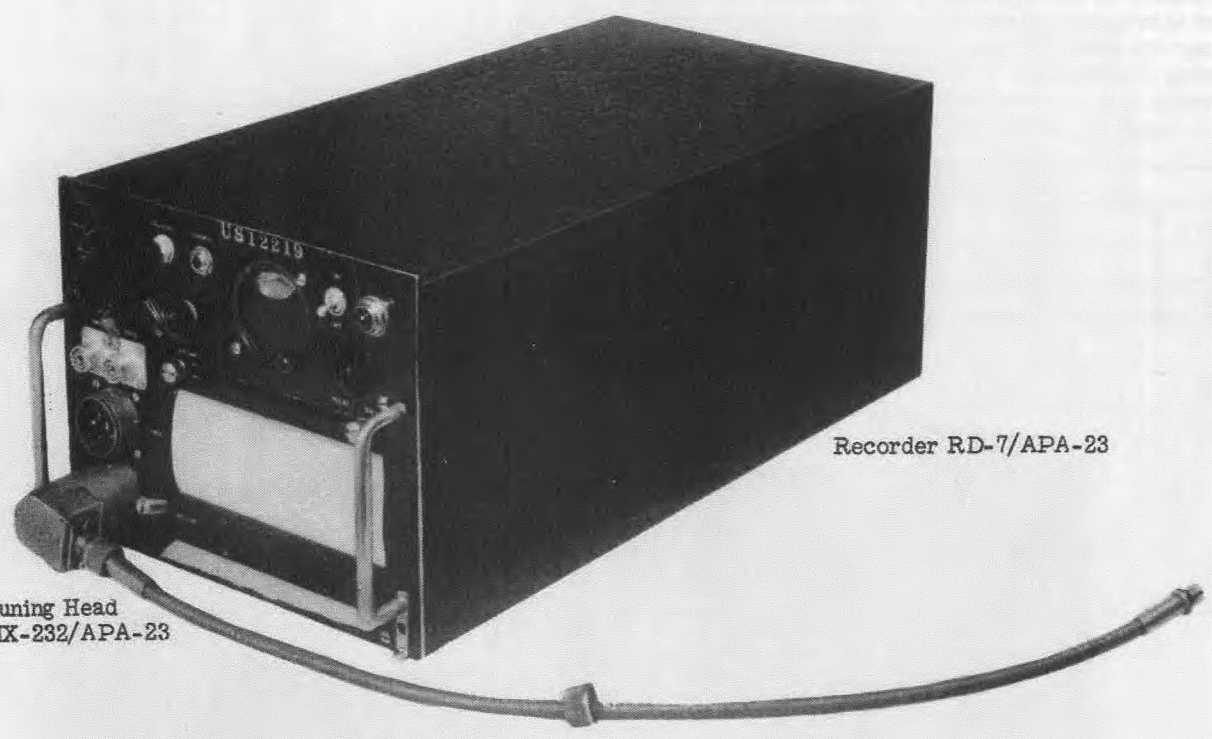
Army Supply Program requirements as of 24 August 1944 were 450 equipments for the calendar year 1944 and 2,078 for 1945. Procurement for the army is limited to 450 for the calendar year 1944 and 575 for 1945.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6AC7	2	2050
1	6SN7	1	5Y3GT

POWER INPUT	50 WATTS D.C. 60 TO 80 WATTS A.C.
SENSITIVITY	80 MILLIVOLTS FOR PULSES. 280 TO 70 MILLIVOLTS FOR SINE WAVES AT 50 TO 10,000 c.p.s.



Interior view, showing recording tape.



Tuning Head
MX-232/APA-23

Recorder RD-7/APA-23

RECORDING ASSEMBLY AN/APA-23

TOTAL WEIGHT 54 LBS.

Component	Nomenclature	Size	Weight
Recorder	RD-7/APA-23	7 3/4" x 10 1/4" x 21 3/4"	50 Lbs.
Mounting Base	MT-171/U	2 1/4" x 5 1/4" x 22 "	3 Lbs.
Tuning Head	MX-232/APA-23		1 Lb.
Adapter Kit (4 rolls, 400 ft. x 6 in. tape)			

Transmitting Equipment AN/APQ-2 is an airborne noise modulated transmitter for use in jamming enemy radars in the 200 to 550 mc. frequency range. It is used specifically to interfere with the enemy coast watching radar and some early warning radars operating in that frequency range between those of Transmitting Equipment AN/APT-1 and Radar Set AN/APT-2. It overlaps the frequencies of the two sets so that full coverage over the entire spectrum is available.

Frequency of the transmitter is usually pre-set prior to take-off to cover a specific channel. The equipment has a sufficiently high power output to effectively screen a large bomber within the range of the enemy radars. It is effective in creating confusion at the enemy radars as to number of bombers approaching, and in preventing successful night fighter interception.

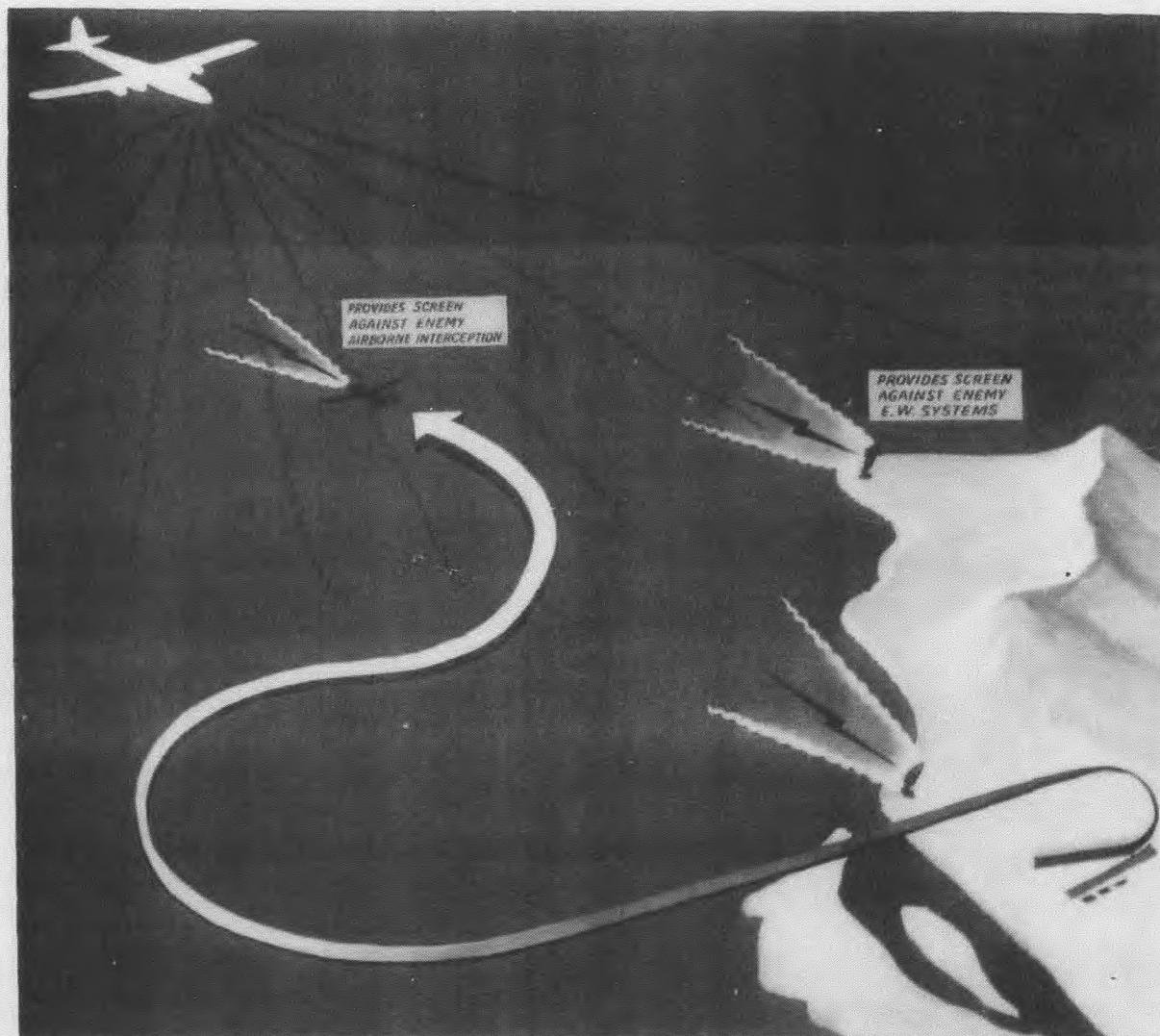
Power is obtained from an 80-115 volt, 400-2800 c.p.s., a.c. source.

Test equipment required for the maintenance and tuning of the equipment includes Test Meter I-139-A, Pickup Assembly TS-131/AP, Frequency Meter TS-175/AP, Hickok Voltmeter type 110, Radio Frequency Wattmeter TS-118/AP or TS-70/AP and Test Set I-56-K.

Army Supply Program requirements as of 31 July 1944 were 4,020 for the calendar year 1944, and 5,352 for 1945.

POWER INPUT	430 WATTS A.C. 35 WATTS D.C.
POWER OUTPUT	25 TO 5 WATTS
FREQUENCY RANGE	200 TO 550 MC.
TYPE OF SIGNAL	A.M. WITH NOISE AND INCIDENTAL F.M.
MODULATION BAND- WIDTH	7 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	388A	1	6AG7
4	5R4GY	2	807
2	6AC7	1	931A

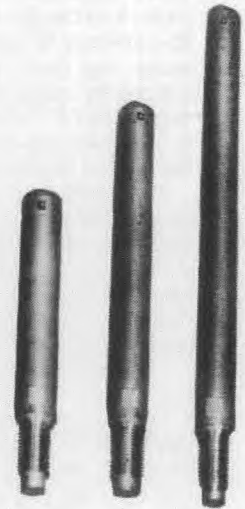


Transmitting Equipment AN/APQ-2 provides cover for bomber formations against enemy early warning and intercept radar.

1 Dec. 1944



Rectifier Power Unit PP-4/APQ-2



Radar Transmitter T-9/APQ-2



Antenna Assembly AS-65/APQ-2

TRANSMITTING EQUIPMENT AN/APQ-2

TOTAL WEIGHT 94 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter	T-9/APQ-2	7 3/4" x 10 1/4" x 22 "	43 LBS.
Rectifier Power Unit	PP-4/APQ-2	7 3/4" x 5 " x 22 "	36 LBS.
Antenna Assembly	AS-65/APQ-2	16 1/2" x 3 " max. diameter	8 LBS.
Mounting Base	MT-171/U	2 1/4" x 10 5/8 x 22 "	3 LBS.
Mounting Base	MT-167/U	2 1/4" x 5 1/4" x 22 "	3 LBS.

and includes mountings, plugs, adapters and cables.

Radio Set AN/APQ-9 (Carpet III) is an airborne transmitter designed to jam enemy radar systems operating in the frequency range 475 to 585 mc. This range of frequencies is used extensively by the enemy for gun-laying, searchlight control, ground control of interception and aircraft interception radar.

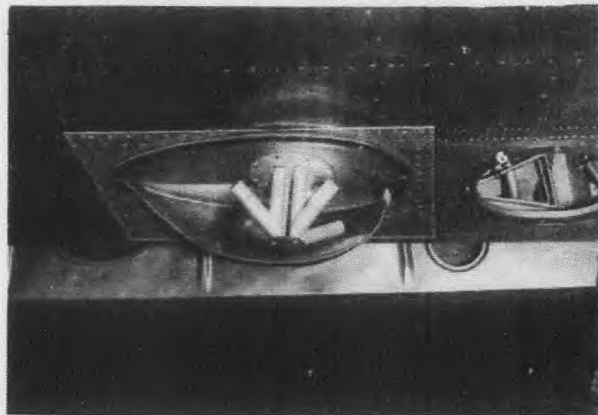
The set is designed primarily as a barrage jammer and when used for that purpose the frequency band to be covered during a mission is preset prior to take-off, after which no further tuning is required in flight. The set has sufficient power to screen a heavy bomber to within six miles of a Giant Wurzburg radar system.

With a trained operator in attendance the set may be used as a spot jammer within its frequency range. Tuning is accomplished by means of a single dial control.

The set consists of a transmitter mounted on an SARC B1-D case and a power supply mounted in an SARC A1-D case. The transmitter consisting of a push-pull oscillator tuned by parallel plates connected to the anodes and grids emits an A.M. noise signal of 20 to 10 watts with an output bandwidth of 7 mc. The equipment operates from an 80/115 volt, 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

Production of the equipment was begun during the first quarter of 1944. Army Supply Program requirements as of 1 September 1944 were 15,050 equipments for the calendar year 1944 and 5,885 for 1945.

Test equipment used in the maintenance and tuning of the equipment includes, Test Set I-139-A, Pickup Assembly TS-131/AP, Test Set I-56-K, Hickok Voltmeter type 110, Frequency Meter TS-175/U and Radio Frequency Wattmeter TS-118/AP or TS-70/AP.



Antenna mounted on B-17 airplane.

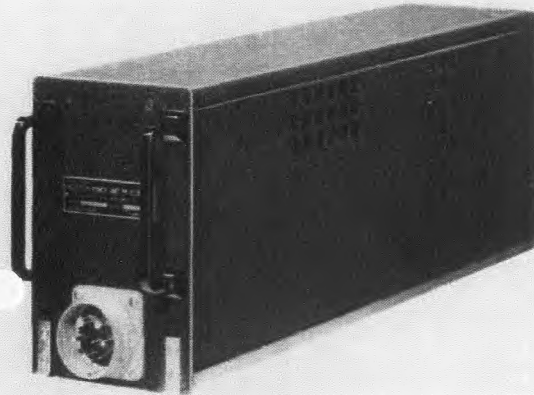
POWER INPUT	450 WATTS A.C. AND 30 WATTS D.C.
POWER OUTPUT	20 TO 10 WATTS
FREQUENCY	475 TO 585 MC.
TYPE OF SIGNAL	A.M. NOISE WITH INCIDENTAL F.M.
OUTPUT BANDWIDTH	7 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	
1	931A	1	6AG7
2	6AC7	2	8012
2	807	4	5R4GY



Radio Set AN/APQ-9 may be used for jamming any enemy radar search or ranging equipment operating in the frequency range from 475 to 585 mc.

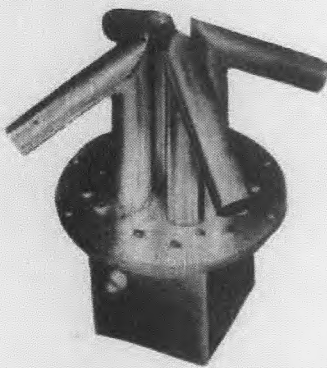
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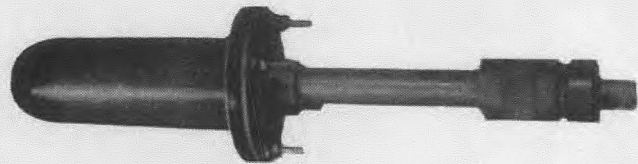
Rectifier Power Unit PP-51/APQ-9



Radar Transmitter TS-39/APQ-9



Antenna Assembly AS-69/APT-2



Antenna Assembly AS-33/APT-2

RADAR SET AN/APQ-9

TOTAL WEIGHT 115 LBS.

Components	Nomenclature	Size	Weight
Radar Transmitter	TS-39/APQ-9	7 3/4" x 10 1/4" x 22 "	44 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22 "	3 Lbs.
Rectifier Power Unit	PP-51/APQ-9	7 3/4" x 5 " x 22 "	41 Lbs.
Mounting Base	MT-167/U	2 1/4" x 5 1/4" x 22 "	3 Lbs.
Antenna Assembly	AS-33/APT-2	12 1/2" high, 3" max. dia.	2 Lbs.
Antenna Assembly	AS-69/APT-2	10 1/2" high, 9" max. dia.	8 Lbs.
Antenna Cover	CW-44/APT	6 1/2" x 12 " x 21 "	

and includes plugs, mountings, cables and adapters.

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SECRET

AN/APQ-15

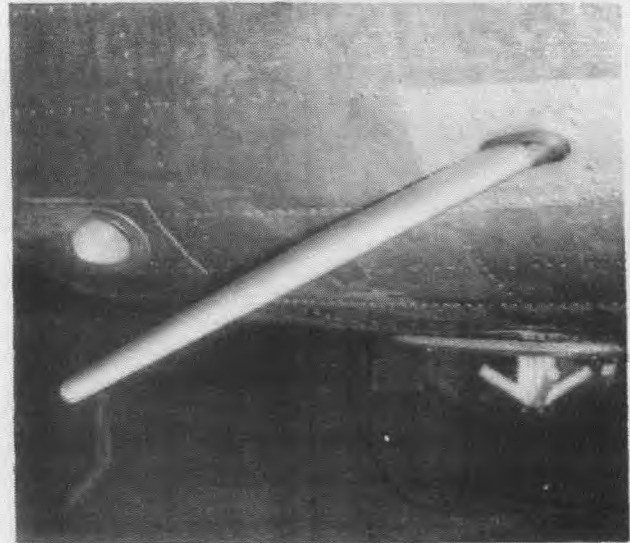
Radar Set AN/APQ-15 is a "spoof" radar repeating device, designed for use in the Pacific theater. The equipment is a deception device, used to simulate a flight of planes. It picks up radar signals within its frequency range and retransmits an echo on the accepted frequency. The echo signal is adjustable in length and delay to simulate range and size of the false flight information to be transmitted.

The equipment has a narrow acceptance band to reduce the possibility of failure to repeat signals where the concentration of enemy radars in one frequency band is relatively great. With suitable precautions, the equipment may be used against several radars in the same frequency band. There is provision for adjustment in flight, of delay and pulse length, but the equipment may be tuned prior to take-off to simulate the desired effect. In the latter case the only operation necessary in flight is turning the set on and off.

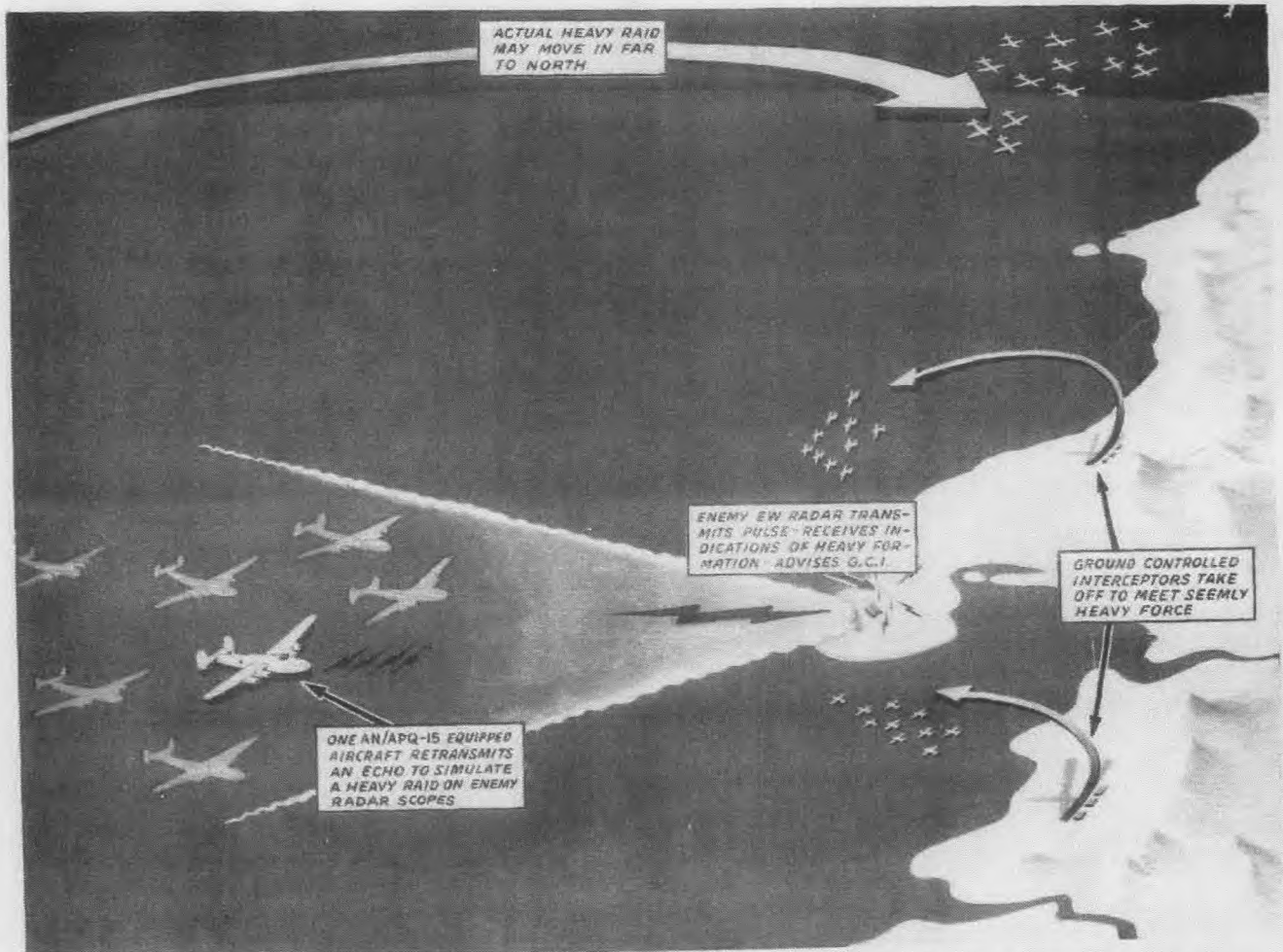
POWER INPUT	230 WATTS A.C.
POWER OUTPUT	5 WATTS, MAX,
SENSITIVITY	0.25 MILLIVOLTS
FREQUENCY RANGE	90-325 MC.
BANDWIDTH	4 MC.
PULSE LENGTH	ACCEPTS 1/3 to 40 μ sec. RETRANSMITS 20 to 60 μ sec.
DELAY	3 to 20 sec.

The equipment was designed to cover the 90-325 mc. band by means of seven tuning units. Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source.

Army Supply Program requirements as of 20 July 1944 were 200 for the calendar year 1944.



Installation of Antenna Stub AT-41/APT for Radar Set AN/APQ-15 on B-24.

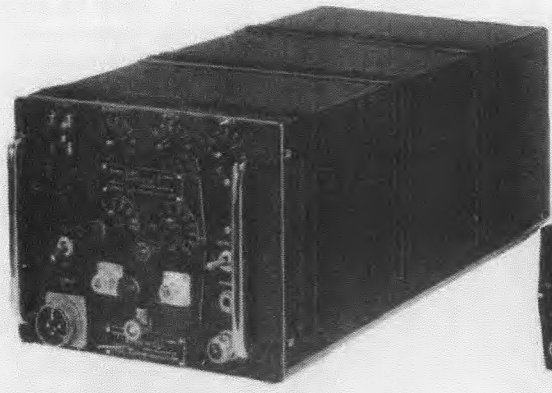


Radio Set AN/APQ-15 "SPOOFER" repeating device plays an important role in deceiving enemy interceptor defense to the wrong place at the right time.

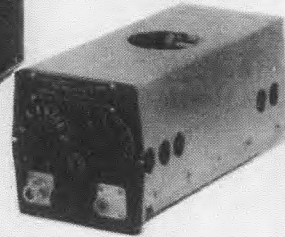
AN/APQ-15

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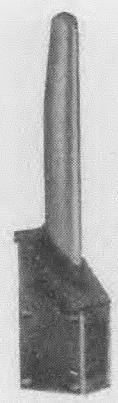
Receiver-Transmitter
RT-64/APQ-15



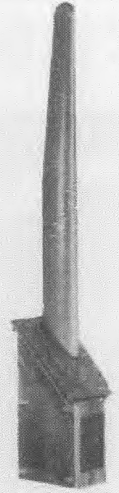
TN-66/APQ-15



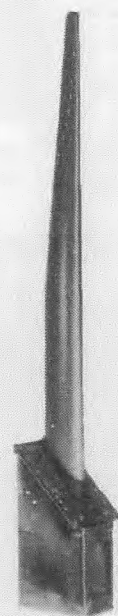
TN-64/APQ-15



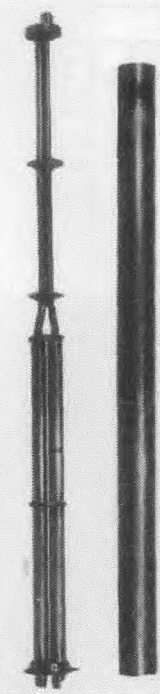
AT-41/APT



AT-42/APT



AT-43/APT



Balancing Unit CU-43/APT
Disassembled View

RADAR SET AN/APQ-15

TOTAL WEIGHT 100 LBS.

Component	Nomenclature	Size	Weight
Receiver Transmitter	RT-64/APQ-15	7 5/8" x 10 1/8" x 21 3/4"	40 Lbs.
Tuning Unit	TN-64/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-65/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-66/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-67/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-68/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-69/APQ-15	4" x 4" x 10"	15 Lbs.
Tuning Unit	TN-70/APQ-15	4" x 4" x 10"	15 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	4 Lbs.
Antenna Stub	AT-41/APT	16 1/2" Long	7 Lbs.
Antenna Stub	AT-42/APT	22 1/2" Long	7 Lbs.
Antenna Stub	AT-43/APT	29" Long	7 Lbs.
Balancing Unit	CU-43/APT	35" x 2" Diam.	5 Lbs.
Balancing Unit	CU-44/APT	52" x 2" Diam.	7 Lbs.

UNCLASSIFIED

Radar Set AN/APQ-17 is an airborne selective radar jamming equipment covering the frequency range 50-220 mc. and is intended for use in the Pacific Theater. The only other equipments which are available in this frequency band are Transmitting Equipment AN/APT-1 (90-210 Mc) and Radio Set AN/ARQ-8 (25-108 Mc). Transmitting Equipment AN/APT-1 is difficult to tune for selective or "spot" jamming since this equipment was designed primarily for barrage jamming. Radio Set AN/ARQ-8 is also basically a barrage jamming set which has an added feature of selective tuning within the barrage band of 5 megacycles. The need for equipment tunable in the airplane for selective jamming over a wide band becomes evident upon considering present intelligence data and capture of various Jap radars wherein it is indicated that wide frequency ranges are employed.

The receiver and the transmitter are tuned with a single tuning control so that when the control switch is set to transmit it radiates a jamming signal with center frequency the same as that being received. The panel contains a selector switch for three bandwidths: 100 kilocycles, 1 megacycle and 2 megacycles.

Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. and a 28 volt d.c. source. Power input of 530 watts produces a noise amplitude modulated output signal of 50 to 20 watts.

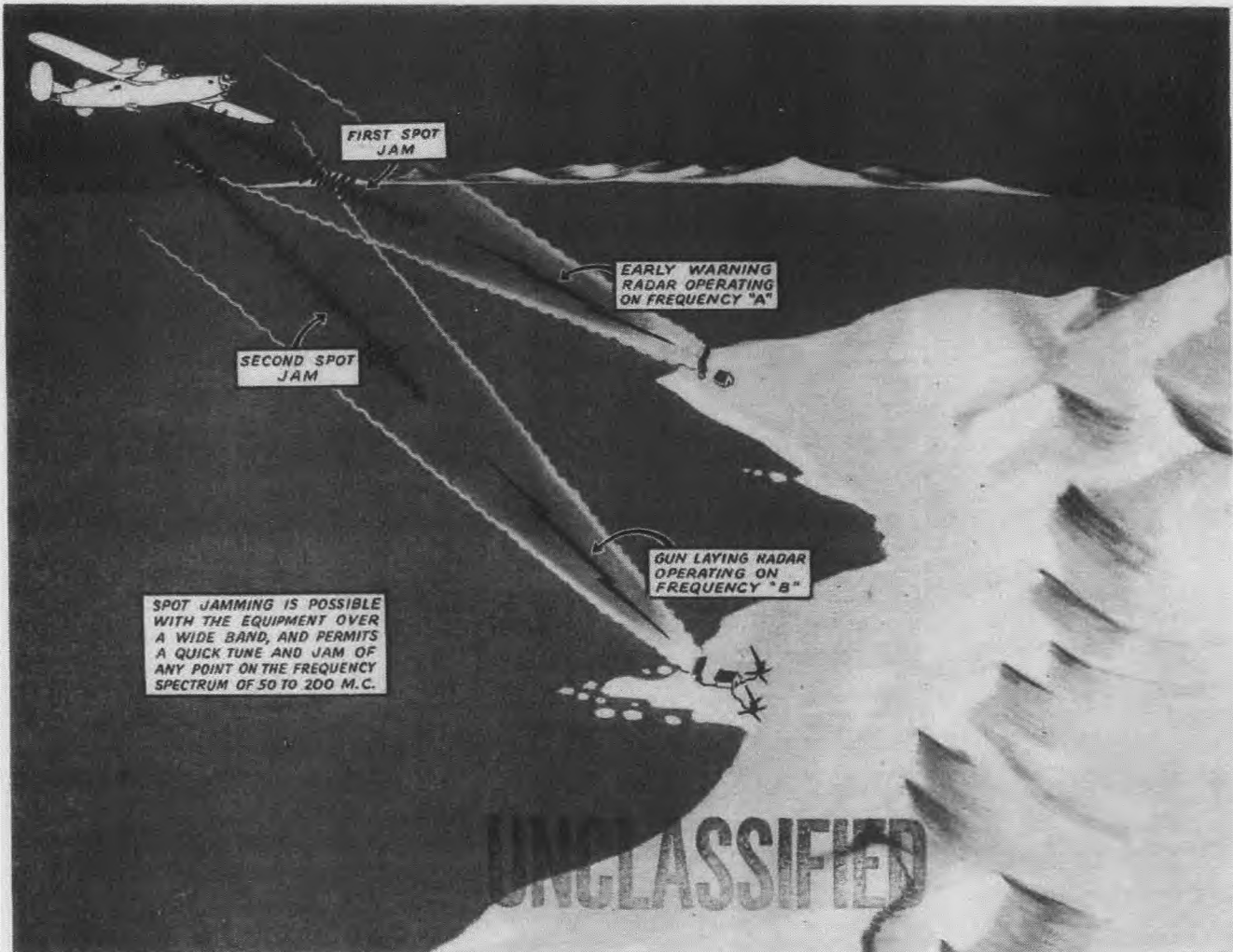
Suitable provision is incorporated in the equipment to prevent corrosion and fungus formation due to tropical climatic conditions.

Test equipment requirements for maintenance of this equipment have not yet been determined.

No requirements have been established on the Army Supply Program as of 1 December 1944.

POWER INPUT	530 WATTS @80/115V AC. 0.5 AMPERES @28V DC.
POWER OUTPUT	50 TO 20 WATTS
FREQUENCY	50-220 MC
TYPE OF SIGNAL	NOISE, AMPLITUDE MODULATED
OUTPUT BANDWIDTH	100 KC. 1 MC. 2 MC.
TUNING CONTROL	ONE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	24G	1	6C4
2	6AG7	1	9006
1	6D4	1	5R4G
1	829	2	836
1	6AG5		



Radar Set AN/APQ-17 is an airborne selective radar jamming equipment capable of rapid switching of jamming frequency when the enemy resorts to evasive changes in radar frequencies to counteract jamming operations.

AN/APQ-17

UNCLASSIFIED



Receiver-Transmitter
RT-79/APQ-17(XA-1)



Rectifier Power Unit
PP-137/APQ-17(XA-1)

RADAR SET AN/APQ-17

TOTAL WEIGHT 85 LBS.

Component	Nomenclature	Size	Weight
Receiver-Transmitter	RT-79/APQ-17	8" x 11" x 22"	33 Lbs.
Rectifier Power Unit	PP-137/APQ-17	8" x 5" x 22"	37 Lbs.
Mounting Base	MT-167/U	3" x 6" x 22"	3 Lbs.
Mounting Base	MT-171/U	3" x 11" x 22"	3 Lbs.

and includes miscellaneous cables, plugs and adapters.

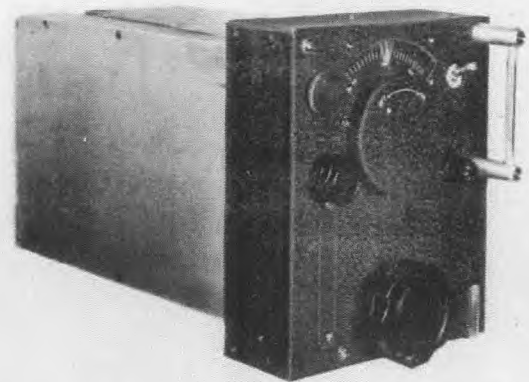
Radio Receiving Equipment AN/APR-4 is an airborne search receiver used to intercept enemy radar and communications signals in the 40 to 4000 mc. range, which includes the frequencies of all of the presently known enemy radar systems and many enemy communications channels. The equipment provides necessary information to determine effective countermeasures.

The set is an improved version of the SCR-587. It comprises an assembly of three replaceable sub-assemblies; an r-f tuning unit; an i-f amplifier unit and a power supply. Two types of motor driven tuning units, with or without an adjustable sector sweep are available for the 40 to 1000 mc. range. These may also be tuned manually with a single dial control. Tuning Unit TU-59-A covering the 1000 to 3800 mc. frequency range is manually tuned with a two dial control. The i-f amplifier has controls for gain, automatic volume control and wide or narrow bandwidth operation. The set is designed for operation from an 80/115 volt, 60-2600 c.p.s., a.c. source and provides output for headphones, panoramic adapter and an analyzer.

The sensitivity of the set is such that it will receive signals from a much greater distance than that at which the radars it is searching will detect the plane in which it is installed. The accuracy of the frequency calibration is approximately 1% throughout its frequency range. In operation, search is conducted with the i-f adjustment set to wide band, about 4 mc. When an enemy signal is detected the i-f unit is switched to narrow band, about 0.5 mc., for greater signal discrimination. The detected signal can then be analyzed by means of Pulse Analyzer AN/APA-6, or AN/APA-11.

Test Equipments used in the maintenance and tuning of this equipment include Test Oscillator TS-47/APR, Signal Generators, Navy type LAE, LAF and LAG, General Radio Type 804C Signal Generator, Hickok type 110 Voltmeter and Test Set I-56-K.

Army Supply Program requirements as of 1 November 1944 were 1,580 for the calendar year and 1,017 for 1945.



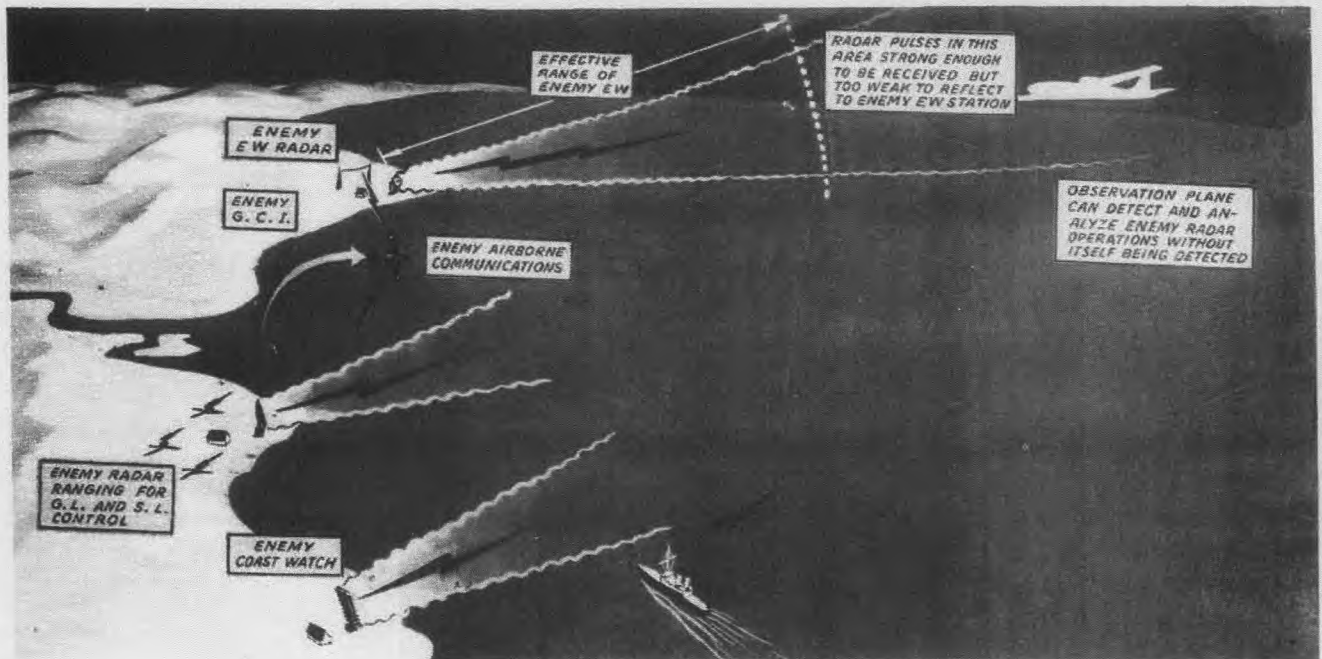
Tuning Unit TN-18/APR-4

POWER INPUT	110 WATTS A.C. 10 WATTS D.C.
FREQUENCY RANGE	40 TO 4000 M.C.
TYPE OF SIGNAL	CW, MCW, RADAR PULSE
SENSITIVITY	50-100 MICRO-VOLTS
DIAL ACCURACY	± 1%

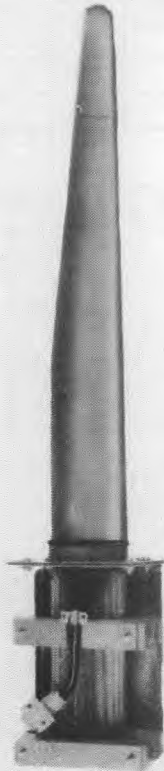
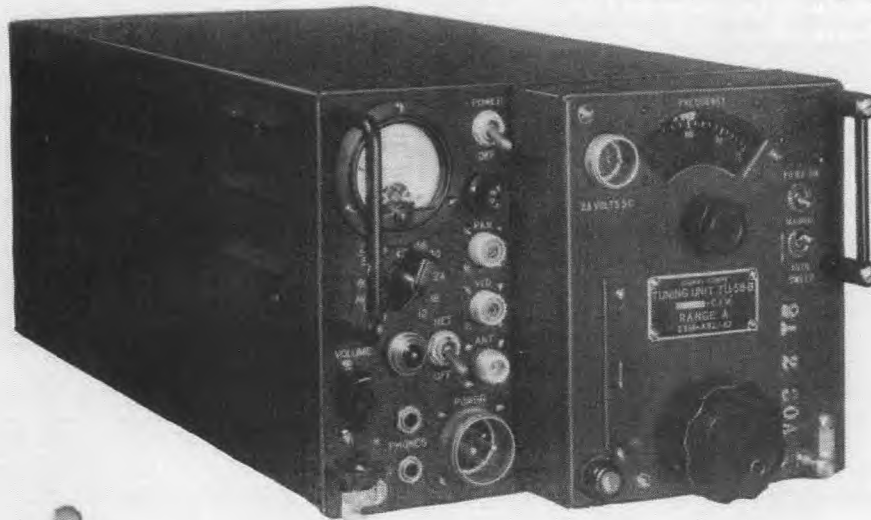
TUBE COMPLEMENT			
a. 1	6AC7	c. 2	955
1	6H6	d. 1	955
1	6AG7	* 1	IN21B
2	5Y3GT	e. 1	703A
b. 2	9002	f. 1	703A or 446A
1	6AK5	* 2	IN21B

*Crystals

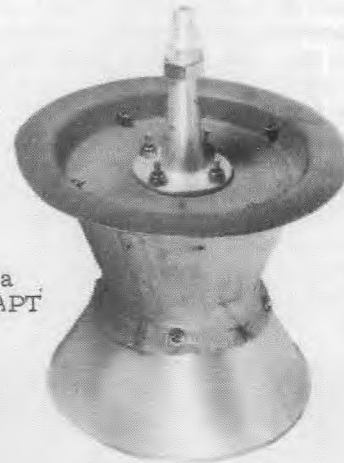
- a. R-54/APR-4. b. TN-16/APR. c. TN-17/APR. d. TN-18/APR.
e. TN-19/APR. f. TN-54/APR.



This equipment determines frequency and function of enemy detection and ranging radar over all known and probable enemy frequencies being used.



Antenna
AT-38/APT



Antenna
AT-49/APT

RADIO RECEIVING EQUIPMENT -AN/APR-4 TOTAL WEIGHT 100 LBS.

Component	Nomenclature	Size	Weight
Receiver	R-54/APR-4	8" x 10 1/4" x 21 3/4"	29 Lbs.
Tuning Unit	TN-16/APR-4	8" x 6 1/2" x 14 "	12 3/4 Lbs.
Tuning Unit	TN-17/APR-4	8" x 6 1/2" x 14 "	12 3/4 Lbs.
Tuning Unit	TN-18/APR-4	8" x 6 1/2" x 14 "	12 3/4 Lbs.
Tuning Unit	TN-19/APR-4	8" x 6 1/2" x 14 "	12 3/4 Lbs.
Tuning Unit	TN-54/APR-4	9" x 6 1/2" x 14 "	12 3/4 Lbs.
Antenna Stub	AT-38/APT	29" long	3 Lbs.
Antenna Cover	CW-33/APR-4	8 1/2" x 8 1/2" x 30"	2 Lbs.
Switching Assembly	AS-23/APR-4	3" diam.	
Case (3 required)	CY-31/APR	10 1/2" x 7 3/4" x 6 1/2"	7 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 Lbs.
Antenna Assembly and includes plugs and cable adapter.	AT-49/APT	7 1/2" x 8" diameter	3 Lbs.

SECRET

UNCLASSIFIED
AN/APR-7

Radar Set AN/APR-7 is an airborne direct detection radar search receiving equipment. It was developed at Radio Research Laboratory as "SPUD" under project D-2100. It is designed to receive pulsed signals in the frequency range 1000-3000 mc.

Army Supply Program requirements as of 1 October 1944 were 100 for the calendar year 1944 under a crash procurement program.

The equipment is designed to afford search of the frequency spectrum between 1000 and 3000 mc to determine whether the enemy is using equipment operating in that band. It has a single dial control and is manually tuned. Only audio output is provided. The crystal detector is followed by a super sonic amplifier, a diode rectifier and an audio amplifier.

The receiver is mounted in a standard aircraft radio case A1-D. Power is obtained from 115 volts, 60-2600 c.p.s., a.c. source.

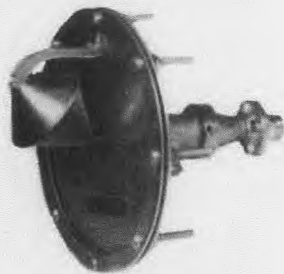
Test equipment required for maintenance and tuning of the equipment includes Test Oscillator TS-252/AP, Navy Type Signal Generator LAG, Hickok type 110 Vacuum Tube Voltmeter, and Hewlett-Packard model 200C Audio Oscillator.

POWER INPUT	35 WATTS
FREQUENCY	1000-3000 MC.
BANDWIDTH	10-40 MC.
SENSITIVITY	1000 MICROVOLTS

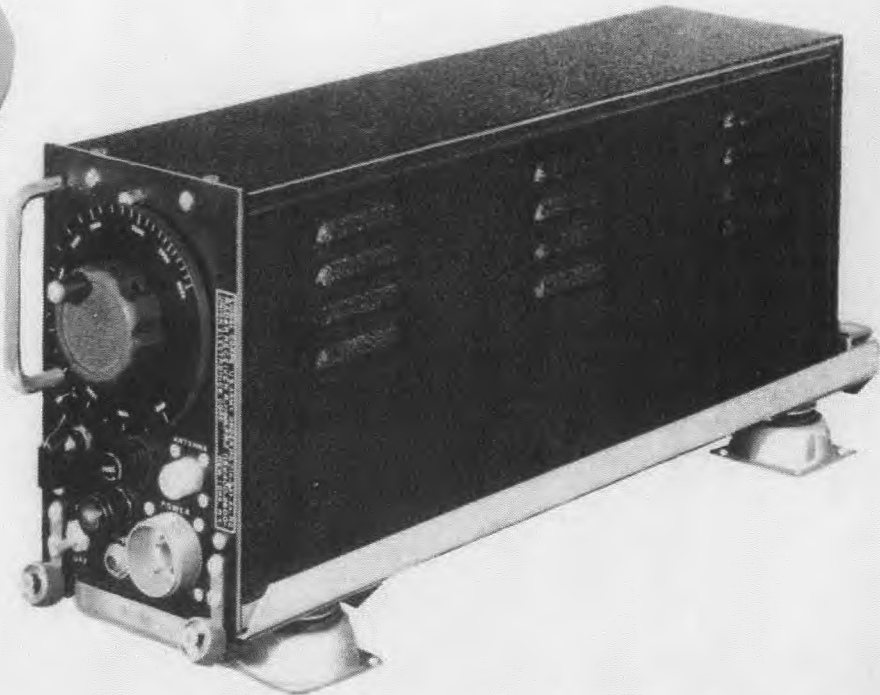
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	1	6H6
2	6J7	1	5Y3GT
1	6G6G		



Cover



Antenna Assembly
AS-125/APR



Radar Receiver R-119/APR-7

RADAR SET AN/APR-7

TOTAL WEIGHT 25 LBS.

Component	Nomenclature	Size	Weight
Receiver	R-119/APR-7	8" x 5" x 21"	22 Lbs.
Mounting	MT-167/U	3" x 6" x 22"	3 Lbs.
Antenna Assembly	AS-125/APR		
and includes cables, connectors, etc.			

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AN / APT-1

Transmitting Equipment AN/APT-1 is an airborne transmitter used to jam enemy radars in the 95-210 mc. frequency range. This band includes most of the enemy early warning radars such as the German Freya, Hoardings and Wasserman and Japanese radars of equivalent type. The equipment employs the DINA (Direct Noise Amplification) type of transmission and may be used either as a spot jammer or as a barrage type jammer.

The carrier frequency is suppressed and all of the output power is concentrated in the side bands, affording more effective jamming coverage with less power. It will effectively screen an AN/APT-1 equipped bomber to within two miles of a Freya radar.

For barrage jamming the equipment is adjusted to the required frequency prior to take-off, after which only the power output need be controlled.

For spot jamming the set must be tuned in flight by means of the control unit. Employing R-F Amplifier AM-14/APT or AM-18/APT the output of the equipment can be increased effectively. Two sets of three antennas are available for complete frequency coverage. All are of the quarter-wave stub type. One set is designed for vertical mounting and the other set is designed for mounting at an angle of 45 degrees.

Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

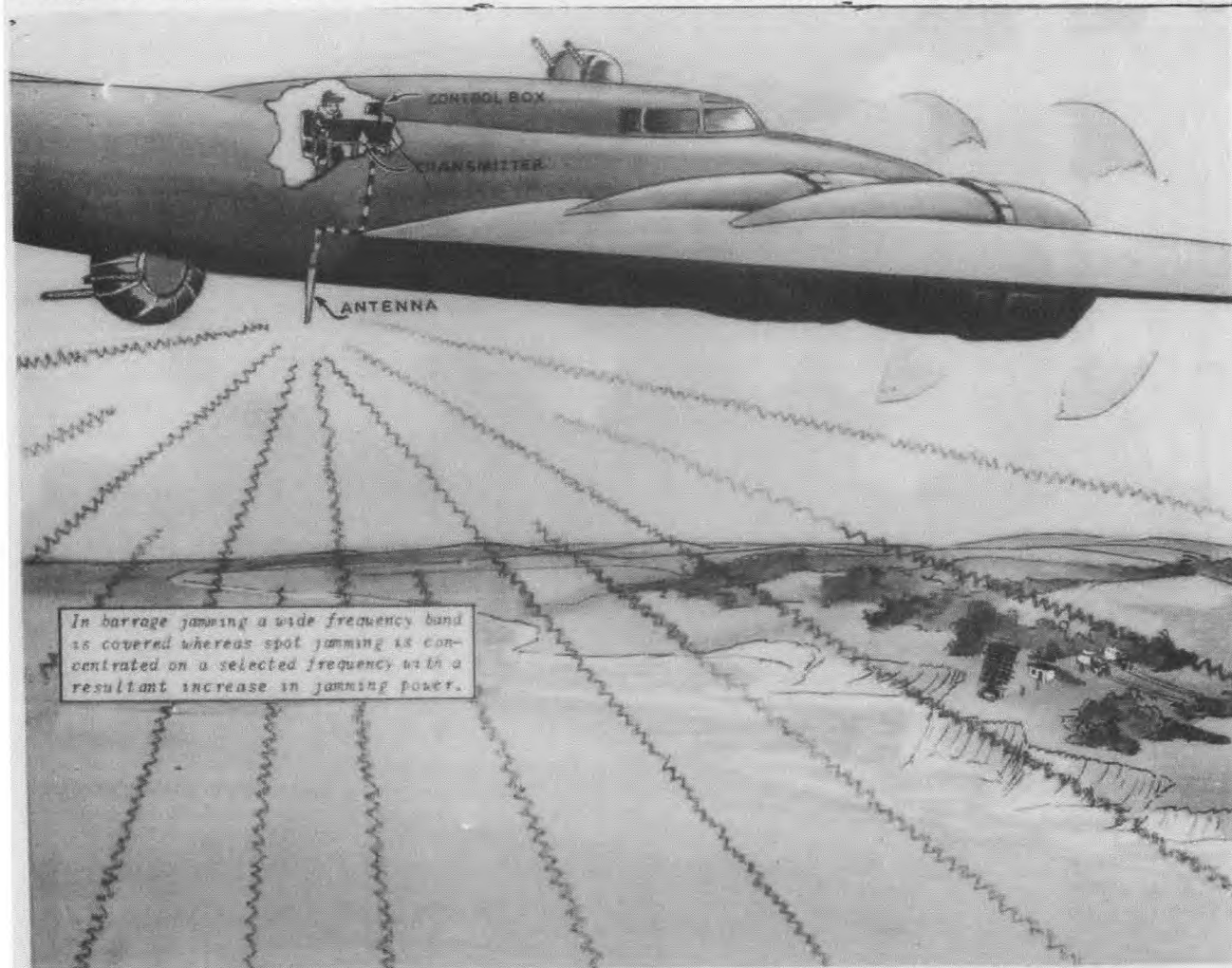
Test equipment required for the maintenance and tuning of the equipment includes Test Set I-139-A, Amplifier Alignment Unit TS-92/AP, Radio Frequency Wattmeter TS-118/AP or TS-92/AP, Pickup Assembly TS-131/AP, Test Set I-56-K and Frequency Meter TS-174/AP.

Army Supply Program requirements as of 20 November 1944 were 4,895 for the calendar year 1944 and 3,086 for 1945.

POWER INPUT	325 WATTS
POWER OUTPUT	30-8 WATTS (All sideband)
FREQUENCY	95-210 MC.
TYPE OF SIGNAL	DIRECT NOISE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	5R4GY	1	6X5GT
3	6AC7	1	931A
2	6C4	2	*832
1	6V6GT/X	1	*829B

* One 829B substituted for one 832 for increased power over 95-150 Mc.



In barrage jamming a wide frequency band is covered whereas spot jamming is concentrated on a selected frequency with a resultant increase in jamming power.

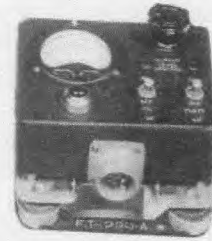
Radar Transmitting Equipment AN/APT-1 (Installed in B-17) may be used for spot or barrage jamming of enemy radars in the frequency range from 95 to 210 mc. (i.e. German Freya or Japanese equivalent types.)

AN/APT-1

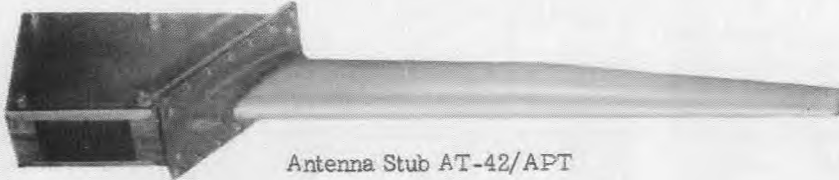
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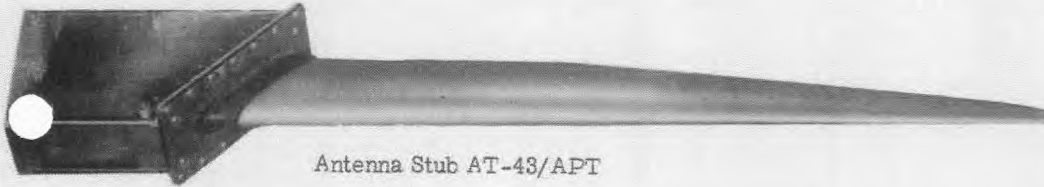
Antenna Stub AT-41/APT



Control Unit C-58/APT-1

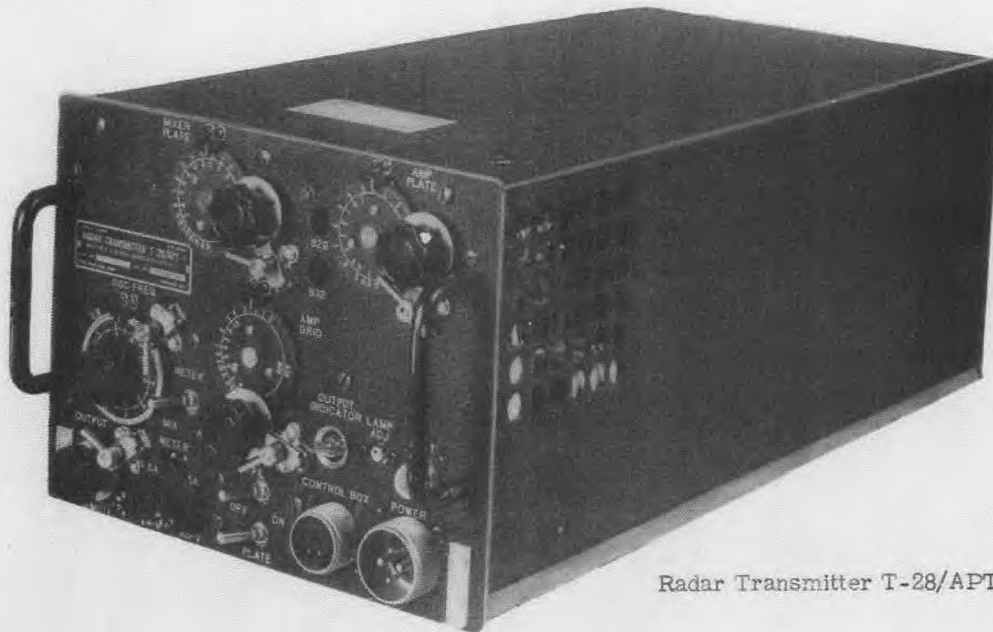


Antenna Stub AT-42/APT



Antenna Stub AT-43/APT

Antenna Stubs AT-36/APT, AT-37/APT and AT-38/APT are similar except they are for vertical mounting.



Radar Transmitter T-28/APT-1

RADAR SET AN/APT-1

TOTAL WEIGHT 70 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter	T-28/APT-1	7 5/8" x 10 1/8" x 21 3/4"	43 Lb.
Control Unit	C-58/APT-1	3 1/2" x 3 1/2" x 2 1/2"	1 1/2 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lb.
Mounting Base	MT-114/APT-1	5" x 5" x 3/4"	1 1/4 Lb.
Antenna Stub	AT-36/APT or AT-41/APT	Length 16 1/2"	6 1/2 Lb.
Antenna Stub	AT-37/APT or AT-42/APT	Length 22 1/2"	6 1/2 Lb.
Antenna Stub	AT-38/APT or AT-43/APT	Length 29"	6 1/2 Lb.

and includes plugs, adapters, and misc. cables.

Radar Set AN/APT-2 (Carpet D), which supercedes Radio Transmitting Equipment RC-156-A, is an airborne radar transmitter designed for use as a barrage transmitter against enemy aircraft interception, gun-laying, ground controlled interception and searchlight control radars in the frequency range 450 to 710 mc. In operation it obscures the oscilloscope indications of the enemy radar.

When used as a barrage jammer the frequency is preset, prior to take-off, to the frequency band to be jammed. The only operation required in flight is to turn the transmitter on and off as required.

The equipment may be used as a spot jammer in conjunction with a receiver to determine the frequency to be jammed. For this type of operation a trained operator is required.

The set may be used in diversionary planes to distract the enemy while the actual raiding aircraft approach the target from another direction, or it may be used by the raiding aircraft to screen its approach to within 7 miles of a Giant Wurzburg system.

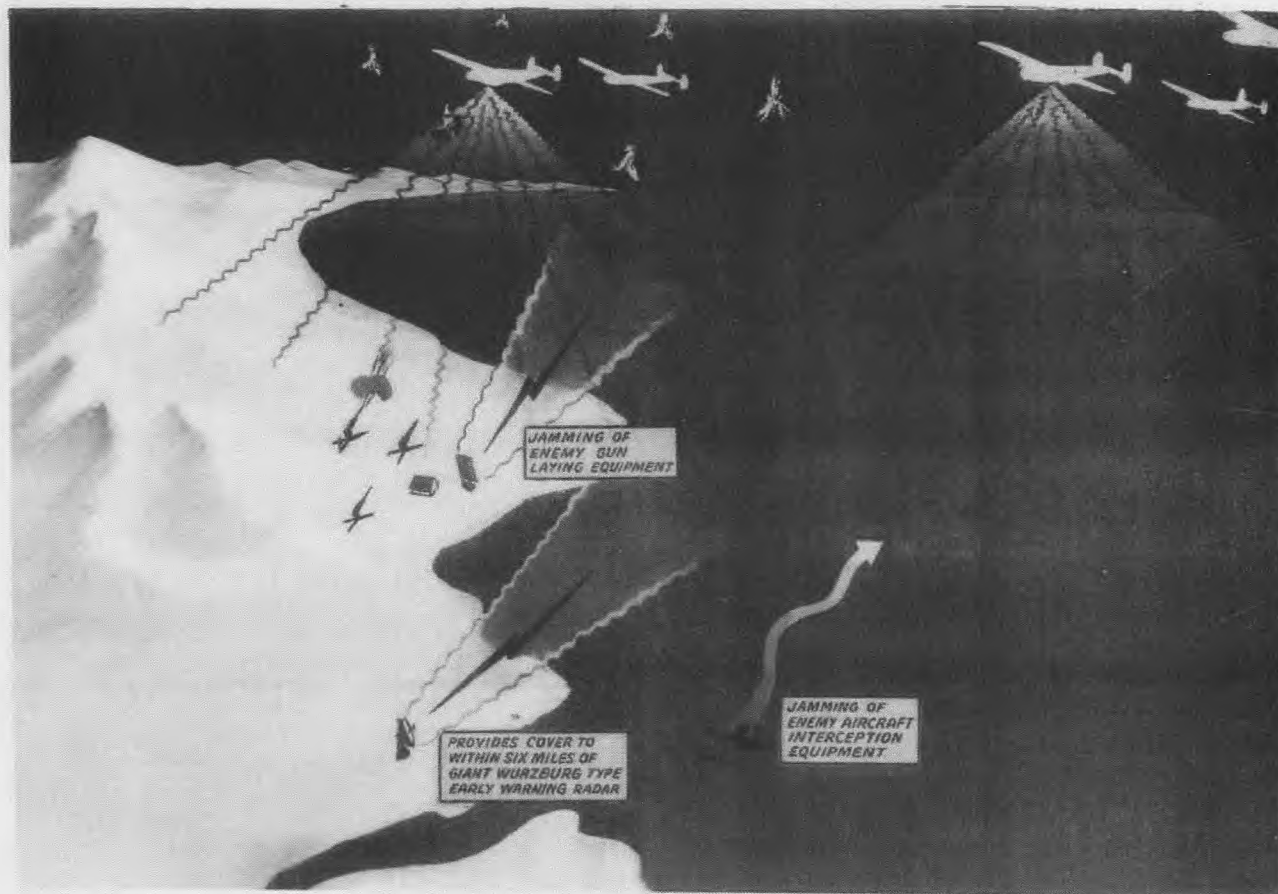
The set consists of a transmitter mounted in an SARC B1-D case and a control box for remote control of the equipment. It emits an A.M. noise signal with an output power of 8 to 4 watts over the frequency range of the set with an output band width of 7 mc. Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

Production of the equipment was started in 1943. Army Supply Program requirements as of 1 September 1944 were 6,562 for the calendar year 1944 and 3,302 for 1945.

Test equipment required for the maintenance and tuning of the equipment includes, Test Set I-139-A, Pick-up Assembly TS-131/AP, Frequency Meter TS-175/U, Hickok Voltmeter type 110, Radio Frequency Wattmeter TS-118/AP or TS-70/AP and Test Set I-56-K.

POWER INPUT	250 WATTS A. C. AND 35 WATTS D. C.
POWER OUTPUT	8 TO 4 WATTS
FREQUENCY	450 TO 710 MC.
TYPE OF SIGNAL	A.M. NOISE WITH RANDOM F.M.
OUTPUT BANDWIDTH	7 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	2X2	2	368AS
2	5R4GY	1	807
2	6AC7	1	931A
1	6AG7		

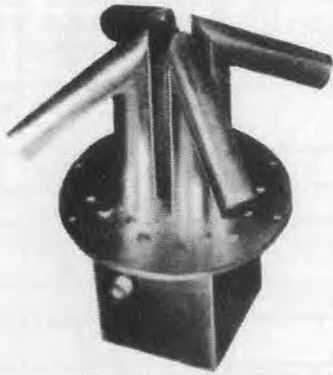


Radio Set AN/APT-2 may be used for jamming any enemy radar search or ranging equipment operating in the frequency range from 475 to 585 mc.

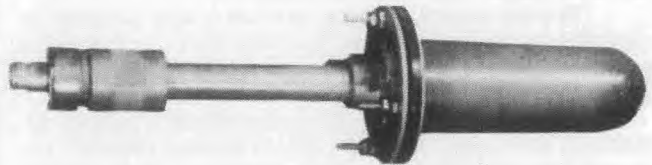
AN/APT-2

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Antenna Assembly AS-69/APT-2



Antenna Assembly AS-33/APT-2



Radar Transmitter T-26/APT-2

RADAR SET AN/APT-2

TOTAL WEIGHT 60 LBS

Component	Nomenclature	Size	Weight
Radar Transmitter	T-26/APT-2	7 3/4" x 10 1/4" x 22 "	43 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 3/4" x 22 "	3 Lbs.
Antenna Assembly	AS-33/APT-2	12 1/2" high, 3" max. dia.	2 Lbs.
Antenna Assembly	AS-69/APT-2	10 1/2" high, 9" max. dia.	8 Lbs.
Antenna Cover	CW-44/APT	6 1/2" x 12 " x 21 "	2 Lbs.

and includes adapters, plugs and cable.

UNCLASSIFIED

Radar Set AN/APT-3 is an airborne spot jamming transmitter using an amplitude noise-modulated carrier signal. Similar to Radio Transmitting Equipment RC-183-A, it is used to confuse or obliterate the information presented by the German Freya, Hoarding, Wasserman and Japanese Early Warning radars operating in the 85-135 mc. frequency range. TO-08-40-RC-183-21 has been issued by AAF to enable modification of the frequency to cover the 95-150 mc. range.

The equipment is sufficient to screen a heavy bomber to within six miles from a spot-jammed-Freya. It is most useful in the spot jamming of early warning sets to disguise the exact size of the incoming raid. For operation as a barrage jammer, the set is pre-tuned to the frequency band desired prior to take-off. The only adjustment required thereafter for this use is to adjust the modulator knob for maximum modulation. For spot-jamming, however, the transmitter must be tuned to the enemy frequency during flight. This is now done by means of a remote control tuning arrangement. Work is now in process on the production of a new control unit, C-85/APT-3, to replace the existing remote control and afford operation directly from the panel of the transmitter. Higher output can be obtained by use of Power Amplifier AM-14/APT with this set.

Antennas used with this equipment are quarter-wave stub antennas, AT-37/APT and AT-38/APT, and are mounted 45 degrees from the vertical to jam sta-

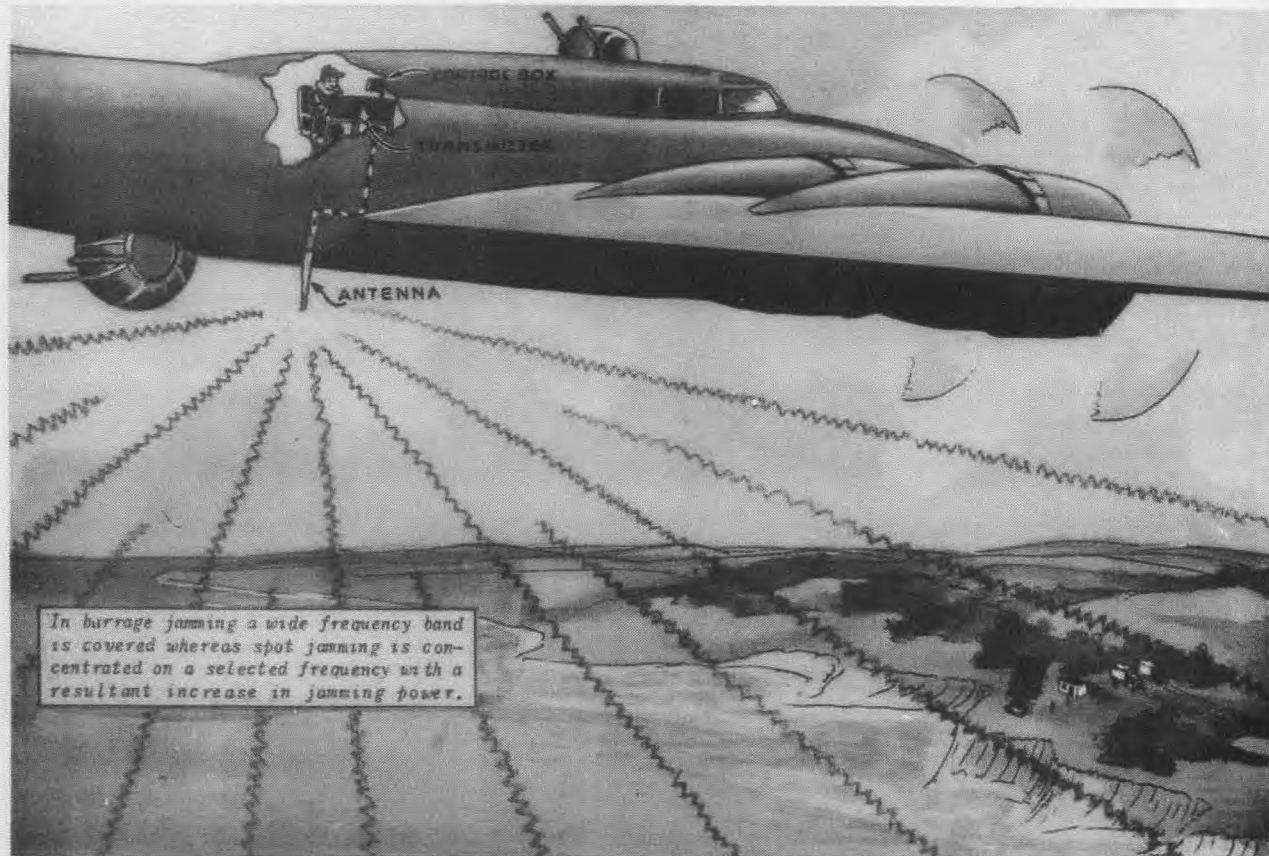
tions polarized other than vertically. The latter method of mounting results in some loss in jamming efficiency but permits more general use.

The equipment was in production prior to 1 Jan. 1944. Army Supply Program requirements as of 1 August 1944 were 1010 for the calendar year 1944.

Test equipments required for testing and tuning the equipment are: Test Set I-139-A; Radio Frequency Wattmeter TS-118/AP; Frequency Meter TS-174/UP; Test Set I-56K.

POWER INPUT	225 WATTS @ 80/115 VOLTS. 400-2600 C.P.S. AND 24 VOLTS D-C
POWER OUTPUT	12 TO 9 WATTS
FREQUENCY RANGE	85-135 MC.
OUTPUT BANDWIDTH	1-2 MC.
TYPE OF SIGNAL	AMPLITUDE NOISE MODULATED

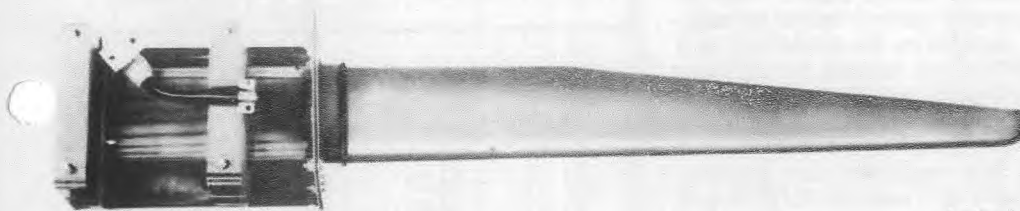
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	5R4GY	1	829B
2	6AC7	1	832
1	6AG7	1	931A



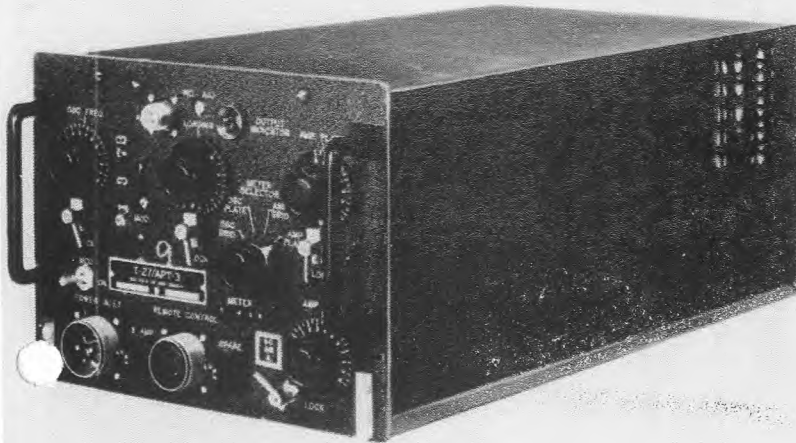
Radar Transmitting Equipment AN/APT-3 (Installed in B-17) may be used for spot or barrage jamming of enemy radars in the frequency range from 85 to 135 mc. (i.e. German Freya or Japanese equivalent types.)



Antenna Stub AT-42/APT



Antenna Stub AT-38/APT



Radar Transmitter T-27/APT-3



Control Unit C-85 APT/3

RADAR SET AN/APT-3

TOTAL WEIGHT 53 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter	T-27/APT-3	7 5/8" x 10 1/8" x 21 3/4"	35 Lbs.
Remote Control Unit	C-59/APT-3	2 3/4" x 4 1/8" x 2 1/4"	1/2 Lbs.
or			
Control Unit	C-85/APT-3	2 3/4" x 1 1/2" x 1 1/2"	1/2 Lbs.
Antenna Stub	AT-37/APT or AT-42/APT	Height 22 1/2"	6 1/2 Lbs.
Antenna Stub	AT-38/APT or AT-43/APT	Height 29"	6 1/2 Lbs.
Mounting	MT-23/A or MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.
Mounting	MT-80/ARC-5	1/16" x 3" x 4"	1/4 Lbs.

and plugs, adapters and cables.

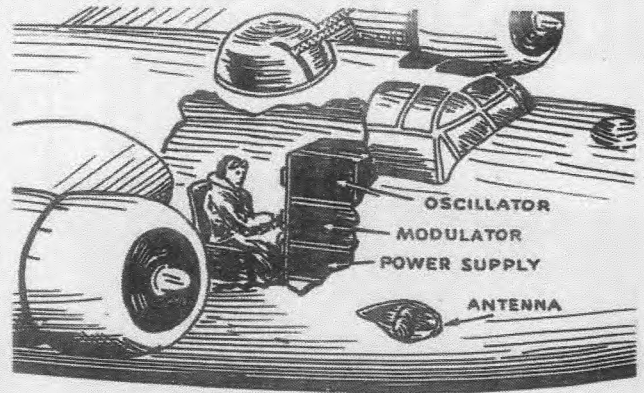
Radar Set AN/APT-4 is an airborne magnetron radar barrage or spot jammer for use against German radar systems such as the Rhubarb, Liechtenstein and Wurzburgs operating in the frequency range of 150 to 770 mc. A liquid cooled magnetron, GL-5J30 or GL-5J29, is used as an oscillator, resulting in simple tuning controls, and high efficiency. The transmitter involves simple components without critical adjustments.

The transmitter is continuously tunable in flight, if necessary, over the complete frequency band. Two tuning adjustments are necessary. In ordinary use the transmitter frequency will probably be set on the ground and three or four sets staggered to cover the entire band.

Power is obtained from a 80/115 volt, 400-2600 c.p.s., a-c source and 24 volt d.c. source. The power input of 1500 watts produces an output of 200 watts over the frequency range. The transmitted signal is a random noise modulated signal designed to jam the enemy signal in the frequency range of the transmitter.

Production of this equipment started in June 1944 Army Supply Program Requirements as of 30 April 1944 indicates no equipment for the calendar year 1944 and 300 for 1945.

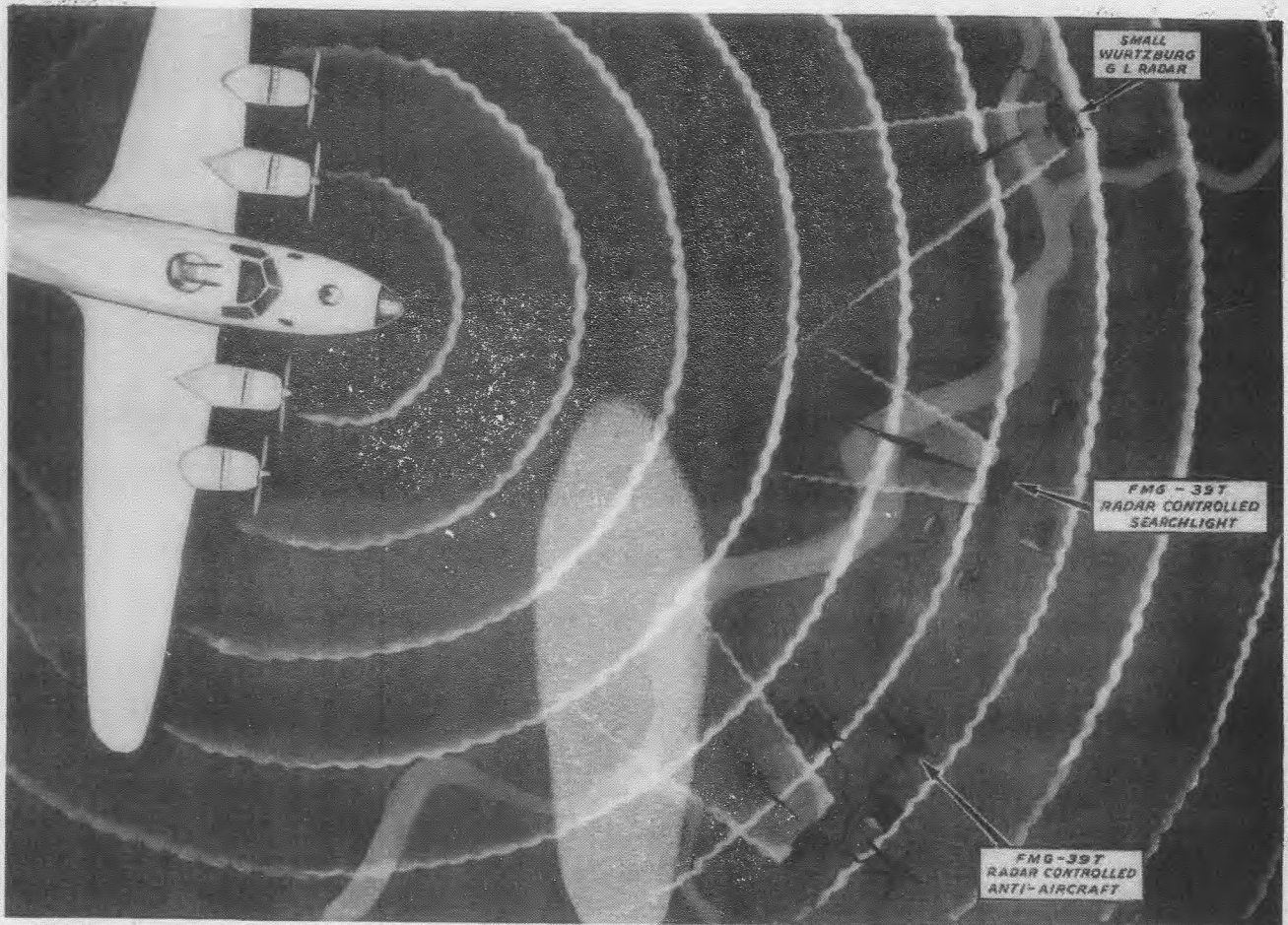
Test Equipment used in maintenance of Radar Set AN/APT-4 includes Test Set I-139-A, Frequency Meter TS-175/U, Analyzer TS-54/AP, Radio Frequency Wattmeter TS-118/AP, Pickup Assembly TS-131/AP, Hickok Voltmeter Type 110 and Fluxmeter TS-15A/AP.



Installation of Radar Set AN/APT-4 in B-24 Airplane.

POWER INPUT	1500 WATTS
POWER OUTPUT	200 WATTS
FREQUENCY RANGE	150-770 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	GL-5J29	2	6AC7
4	836	1	6AG7
1	5R4GY	2	813
1	2X2	1	GL-5J30
1	931A	1	807



Radar Set AN/APT-4 is a high power jamming transmitter of sufficient power to screen a large bomber within two miles of enemy radar systems operating within its frequency band of 350 to 800 mc.

1 Dec. 1944



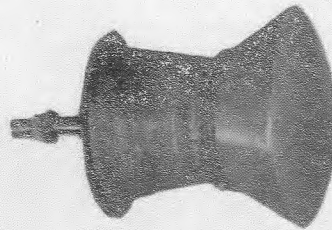
Radar Transmitter T-75(XA)/APT-4(XA-2)



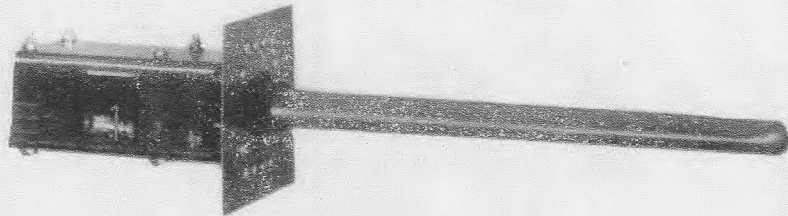
Modulator MD-30(XA)/APT-4(XA-2)



Rectifier Power Unit
PP-87(XA)/APT-4(XA-2)



Antenna Assembly AS-115/APT



Antenna Assembly AS-114/APT

RADAR SET AN/APT-4

TOTAL WEIGHT 230 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter	T-75/APT-4	7 5/8" x 10 1/8" x 21 3/4"	80 Lb.
Rectifier Power Unit	PP-87/APT-4	7 5/8" x 10 1/8" x 21 3/4"	53 Lb.
Modulator	MD-30/APT-4	7 5/8" x 10 1/8" x 21 3/4"	61 Lb.
Antenna Assembly	AS-114/APT	Length 16.5"	6 1/2 Lb.
Antenna Assembly	AS-115/APT	Height 6" x Dia. 7"	2 1/4 Lb.
Mounting	MT-253/U (3 each)	2 1/4" x 10 5/8" x 22"	9 3/4 Lb.
Cord	CG-96/AP	Length 6'	1 Lb.
Case	CY-149/AP	24 3/4" x 8 3/4" x 9 1/4"	
Antenna Cover	CW-33/APR-4	8 1/2" x 8 1/2" x 30"	2 1/2 Lb.

a. Includes plugs, adapters, jacks and cables.

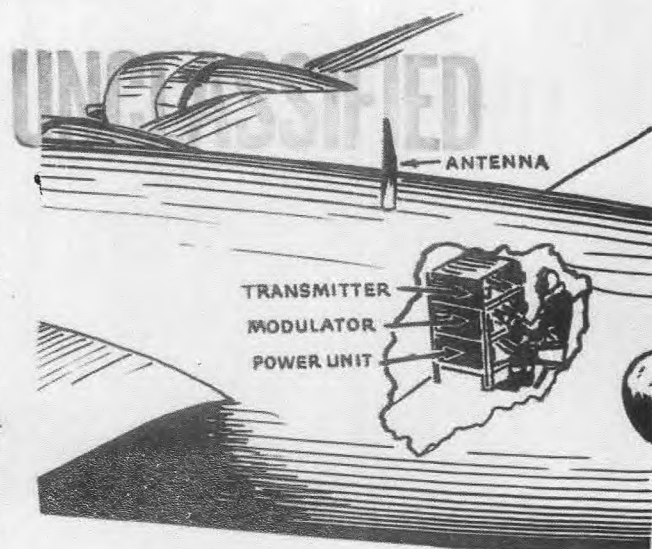
Radar Set AN/APT-6 is an airborne magnetron barrage or spot jammer for use against radar, communication, and the German GM control in the frequency range of 15 to 250 mc. Its advantages over existing communication barrage jammers are in its greater effectiveness for an equivalent amount of power especially against FM, in adjustable band width, and in the extremely wide range covered by the single unit. The frequency range is covered by a series of tuning units, each covering a band over which the transmitter is continuously tunable with one frequency and one coupling control. A single control is supplied for band width adjustment and all controls are adjustable in flight.

Power is obtained from an 80/115 volt, 400-2800 c.p.s. a.c. source and 28 volt d.c. source. The power input of 1500 watts produces an output of 150 watts over the frequency range of the transmitter. Random noise modulation with incidental frequency modulation is used for jamming the enemy signal.

Radar Set AN/APT-6 was deleted from the Army Supply Program as of 5 June 1944.

Test Equipment used in maintenance of the set includes Test Set I-139/A, Fluxmeter TS-15A/AP Analyzer TS-54/AP, Radio Frequency Wattmeter TS-131/AP, Frequency Meter TS-174/UP, and Hickok Voltmeter type 110.

POWER INPUT	1500 WATTS
POWER OUTPUT	150 WATTS
FREQUENCY RANGE	15-250 MC.



Installation of Radar Set AN/APT-6 aft Co-pilots position, B-29 airplane.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	GL-5J30	1	807
1	5R4GY	1	804
2	6AG7		



Radar Set AN/APT-6 is a high power jamming transmitter of sufficient power to screen a large bomber with in six miles of a Giant Wurzburg Early Warning Radar.

AN/APT-6

EQUIPMENT
PHOTOGRAPHS
UNAVAILABLE

RADAR SET AN/APT-6 TOTAL WEIGHT 210 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter		4 5/8" x 10 1/8" x 21 3/4"	75 Lbs.
Rectifier Power Unit		4 5/8" x 10 1/8" x 21 3/4"	50 Lbs.
Modulator		4 5/8" x 10 1/8" x 21 3/4"	75 Lbs.
Mounting	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.

1 Dec. 1944

UNCLASSIFIED

SECRET

AN/APT-8

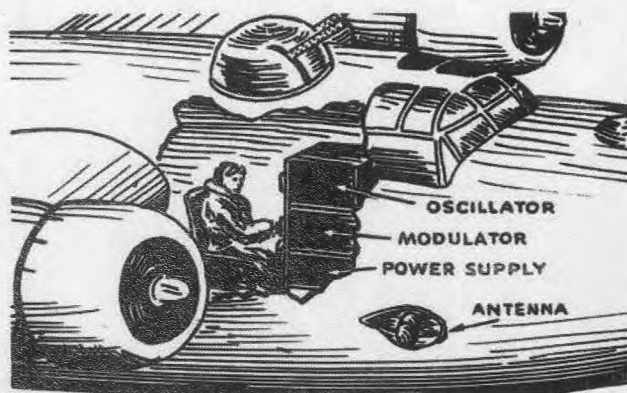
Radar Set AN/APT-8 is an airborne radar barrage jammer to cover the frequency range 700-1100 mc. It is known to the services as Broadloom.

It consists of an oscillator unit composed of a single, tuneable liquid-cooled magnetron, type ZP-584, a high voltage power supply, a modulator, low voltage supply and an autotransformer.

Power is obtained from an 80/115 volt, 400-2600 c.p.s., a.c. source and a 28 volt d.c. source.

Test equipment required for the maintenance and tuning of the equipment includes Test Set I-139-A, Fluxmeter TS-15/AP, Analyzer TS-54/AP, Radio Frequency Wattmeter TS-118/AP, Pickup Assembly TS-131/AP, Frequency Meter TS-175/U and Frequency Meter TS-213/U.

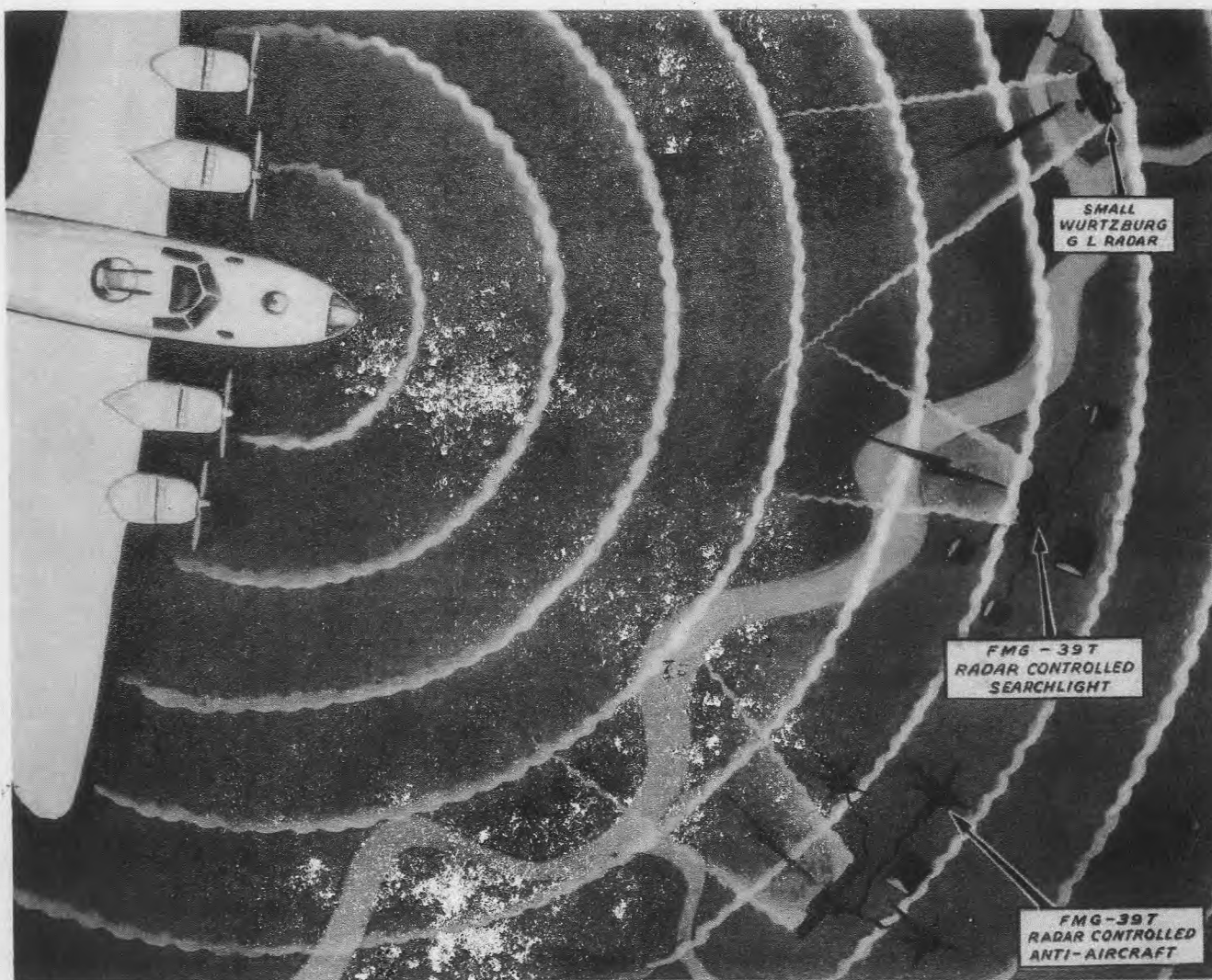
There were no Army Supply Program requirements as of 1 November 1944.



Installation of Radar Set AN/APT-8 in B-24 airplane.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	ZP-584	1	6D4
4	836	2	6AG7
1	5R4GY	1	807

POWER INPUT	1500 WATTS
POWER OUTPUT	100 WATTS
FREQUENCY RANGE	700-1100 MC.



Radar Set AN/APT-8 is an high power jamming transmitter operating over the frequency range 700-1100 mc.

1 Dec. 1944

UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~

AN/ARA-3

Modulator Assembly AN/ARA-3 is an airborne noise source used to convert Radio Set SCR-287-() into a spot jammer for use against enemy communications.

The noise source consists of a two-tube unit operated directly from a 24 volt d.c. source without the use of a dynamotor or other form of high voltage supply. Tubes are one 2050 gas tube and one 6SN7GT. The maximum noise output, measured with the unit connected to the microphone input of Radio Transmitter BC-375, is approximately 1.4 volts. About 0.2 volt is required for 100 percent modulation.

A four-position selector switch, operable from any one of four positions, is provided and functions as follows: (1) Normal operation of Radio Set SCR-287-(); (2) Search for enemy signals with noise source energized but not connected; (3) Transmitter on CW so that oscillator can be tuned to zero beat on receiver BFO; (4) Transmitter on with noise modulation for spot jamming of enemy signal.

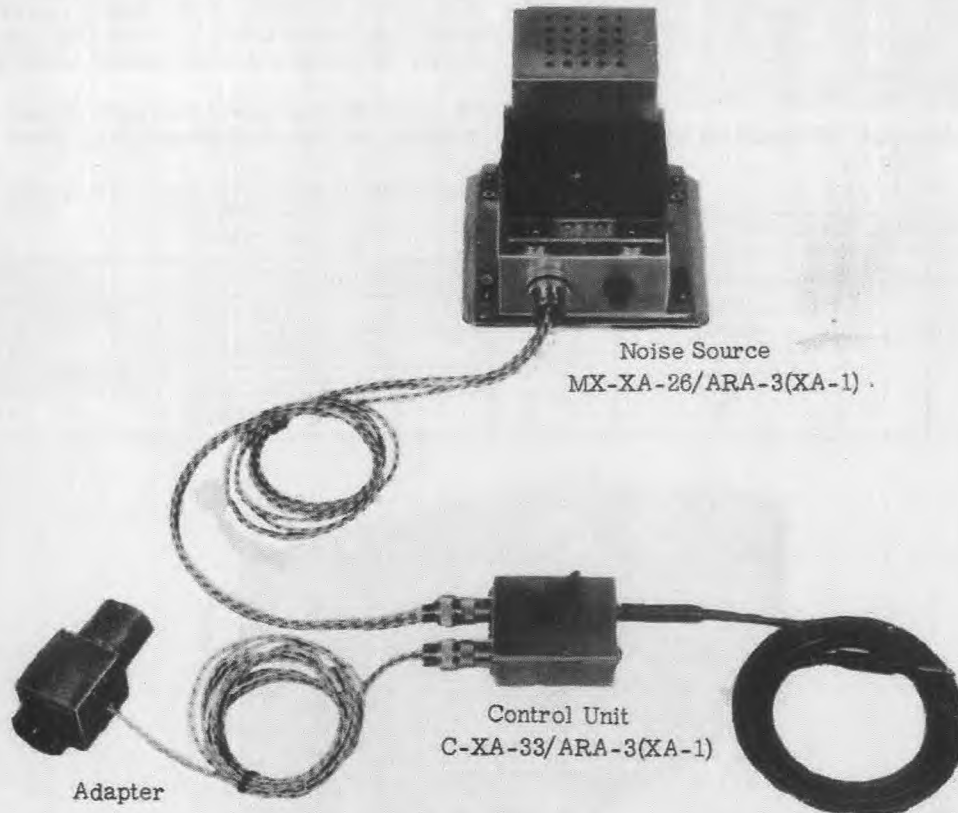
The noise source and four-position control switch are packaged in the same case used for Microphone Amplifier BC-216-A.

Installation of Modulator Assembly AN/ARA-3 in aircraft requires only the placement of Mounting FT-144 in a location convenient to the radio operator, the attachment of the noise source, and the insertion of a plug in the microphone input of Radio Transmitter BC-375, and the connection of the plug adaptor to the 24 volt d.c. source.

No test equipment is required for maintenance. Army Supply Program requirements as of 1 September 1944 were 100.

POWER INPUT	20 WATTS
POWER OUTPUT	150 MILLIWATTS
FREQUENCY RANGE	AUDIO FREQUENCIES
TYPE OF SIGNAL	RANDOM NOISE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	2050	1	6SN7GT



MODULATOR ASSEMBLY AN/ARA-3

TOTAL WEIGHT 11 LBS

Component	Nomenclature	Size	Weight
Noise Source	MX-XA-26/ARA-3(XA-1)	7 1/4" x 6 3/4" x 7 1/4"	7 1/2 Lb.
Control Unit	C-XA-33/ARA-3(XA-1)	4" x 4 1/2" x 1"	1 Lb.
Adapter			1/2 Lb.
Mounting	MT-XA-76/ARA-3(XA-1C)	7 1/4" x 6 1/2" x 7 1/4"	1/2 Lb.
Mounting Plate	MT-XA-78/ARA-3(XA-1C)	2 1/4" x 3 3/4" x 2 3/4"	1/4 Lb.
Cord	CX-XA-9/ARA-3(XA-1C)	Length 10'	1/2 Lb.
Cord	CS-XA-10/ARA-3(XA-1C)	Length 15'	1/2 Lb.
Cord	CX-XA-11/ARA-3(XA-1C)	Length 15'	3/4 Lb.
and includes plugs and adapter.			

1 Dec. 1944

UNCLASSIFIED

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AN/ARQ-4

The AN/ARQ-4 (juke box) system is a receiver and control system which provides a continuous panoramic presentation of victim signals as upward deflections, and jamming signals as downward reflections. This enables the operator to follow enemy evasive actions in a crowded band and avoid jamming a signal which is already being jammed by another jammer.

The system is particularly suited for the simultaneous control of a group of transmitters and is sufficiently flexible to operate on a number of frequencies for which jamming sets are required. The AN/ARQ-4 system lends itself to communications work in which a high sweep rate can be used and in which a relatively long "look through" period can be tolerated.

In dealing with systems with push-button frequency change, or "flash" systems, the AN/ARQ-4 is capable of quicker response to changes in victim frequency.

Power requirements consists of a 80 to 115 volt, 400 to 2600 c.p.s. a.c. source and a 28 volt d.c. source. The equipment has power inputs of 62 watts d.c. and 120 watts a.c. and covers frequency range of 30 to 50 mc. Sensitivity is 50 microvolts for 3/4" deflection with signal to noise ratio of 5:2.

Radio Set AN/ARQ-4 has not as yet been placed in the Army Supply Program.

Test Equipment for maintenance of AN/ARQ-4 includes Test Set I-139-A, Pick-Up Assembly TS-131/AP, Hickok Voltmeter type 110 and Radio Frequency Wattmeter TS-118/AP.

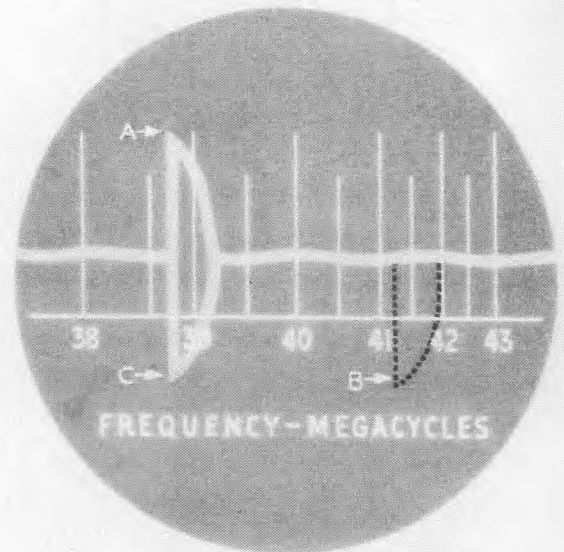
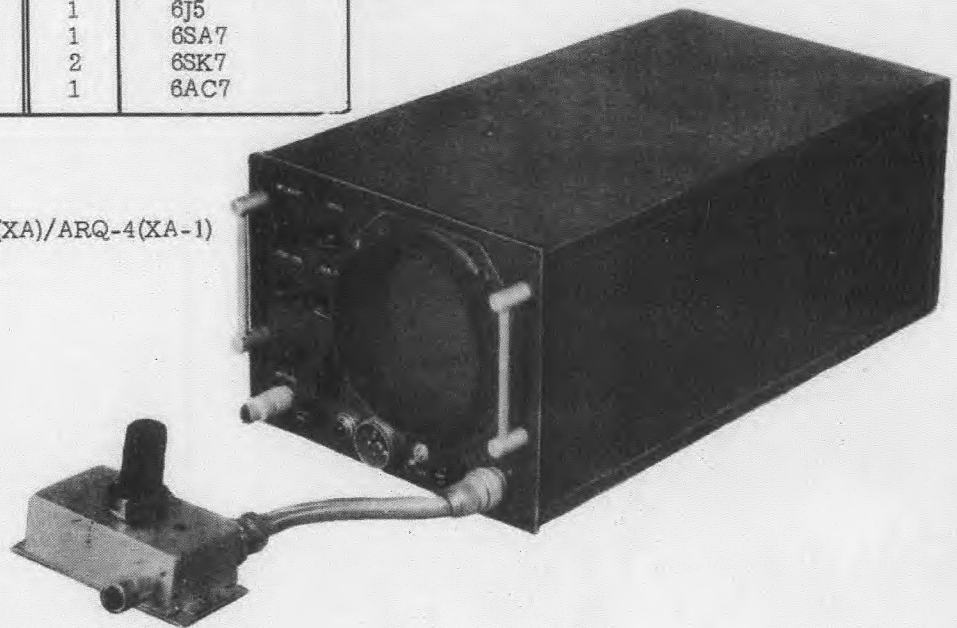


Diagram showing enemy signal (a) and jamming signal's position before (b) and after (c) being tuned to cover enemy transmission.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	5CP1	4	6SN7
1	2 x 2	1	6H6
1	RCA-927	1	9001
1	6X5GT	1	9002
1	6SJ7	1	6J5
1	6B4G	1	6SA7
1	RCA991	2	6SK7
1	2050	1	6AC7

POWER INPUT	62 WATTS D.C. 120 WATTS A.C.
FREQUENCY RANGE	30-50 M.C.
SENSITIVITY	50 μ -VOLTS FOR 3/4" DEFLECTION
SIGNAL TO NOISE RATIO	5:2

Radio Receiver R-63(XA)/ARQ-4(XA-1) and Filter



RADIO SET AN/ARQ-4

TOTAL WEIGHT 55 LBS.

Component

Nomenclature

Size

Weight

Radio Receiver
Mounting Base

R-63()/ARQ-4
MT-1'71/U

7 5/8" x 10 1/8" x 21 3/4"
2 1/4" x 10 1/4" x 22"

50 Lb
3 1/4 Lb.

and includes cables, plugs and adapters.

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Receiving equipment AN/ARQ-5 is an airborne, wide range, high frequency communications receiver which will scan a large spectrum at a rapid rate and present a panoramic chart on the screen of a cathode ray tube which will indicate instantaneously what frequencies are being received.

In this manner it is possible to watch for and quickly intercept any enemy signals which may appear at a hitherto unused portion of the spectrum.

Use of new portions of the spectrum may be expected as our jamming operations make enemy channels unserviceable. It may also be expected when new tactics or new weapons require additional radio channels.

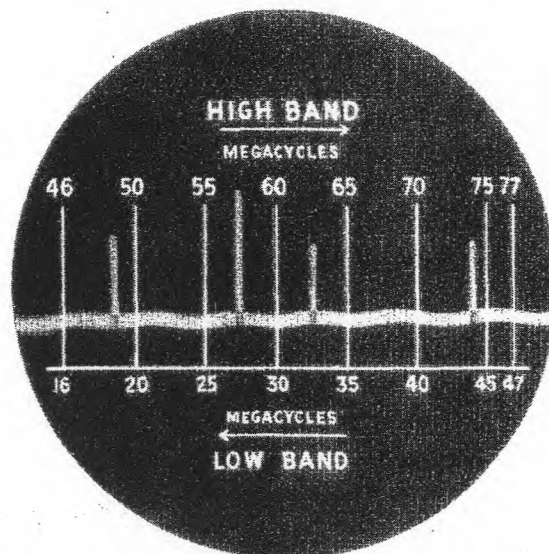
Frequency range of this equipment is from 18 to 80 megacycles. Power is obtained from an 80-115 volt, 400-2600 c.p.s., 24 volt source.

The receiver incorporates circuits for reception of AM, FM and CW signals. A cathode ray tube having a base line calibrated in megacycles gives a visual indication of the output. Incoming signals appear on the screen as "pips" rising from the base line. The position of the "pips" on the screen indicates the frequency of the incoming signal by reference to the calibrated scale on the screen.

When used with Radio Set AN/ARR-12, this equipment permits monitoring of friend or foe signals.

Test equipment used in maintaining this receiver are Signal Generator TS-47/APR, Test Set I-56, Oscilloscope Generator Radio type 804-C.

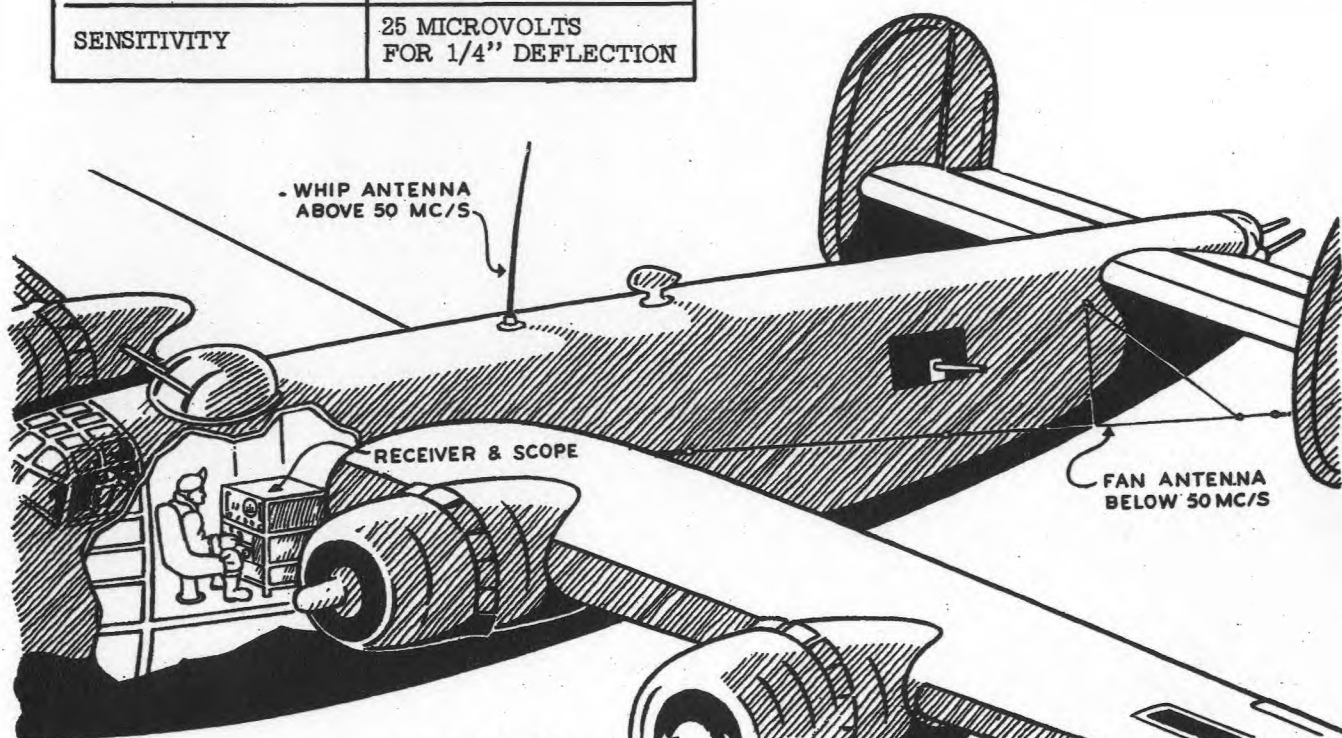
Army Supply Program requirements as of 22 June 1944 were 1020 for the calendar year 1944 and 2023 for 1945.



Large spectrum coverage permits quick interception of enemy operations in the frequency range of 18 to 80 mcs.

TUBE COMPLEMENT			
NO	TYPE	NO.	TYPE
2	6AG7	1	6SN7GT
2	9002	1	12H6
2	9003	1	5CP1
1	12J5GT	1	5Y3GT
1	12SA7	1	VR/105/30
1	12SQ7	1	2X2
1	2050	1	927
3	12SK7		

POWER INPUT	14 WATTS D.C. 120 WATTS A.C.
FREQUENCY RANGE	18-80 MC.
TYPE OF SIGNAL	AM;FM;CW
SENSITIVITY	25 MICROVOLTS FOR 1/4" DEFLECTION



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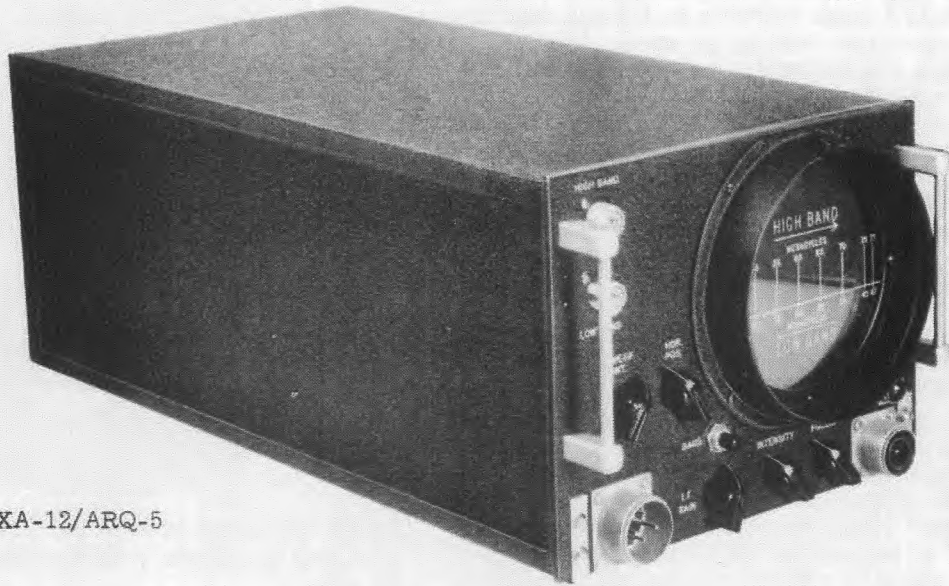
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Installation of Radio Set AN/ARQ-5 in the Radio Compartment - B-24.

AN/ARQ-5

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Radio Receiver R-XA-12/ARQ-5



Power Unit PU-XA-5/ARQ-5

RECEIVING EQUIPMENT AN/ARQ-5

TOTAL WEIGHT 80 LBS

Components	Nomenclature	Size	Weight
Radio Receiver	R-61/ARQ-5	7 5/8" x 10 1/8" x 21 3/4"	35 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 1/4" x 22 "	3 1/4 Lbs.
Antenna Support	AB-27-A	2 1/2" x 3 " Diam.	2 Lbs.
Mounting Base	MT-167/U	2 1/4" x 5 1/4" x 22 "	2 3/4 Lbs.
Rectifier Power Unit	PP-32/AR	7 5/8" x 4 7/8" x 21 3/4"	37 Lbs.

Includes plugs, insulator, wire, cable adapter, tension unit and cables.

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AN/ARQ-6

Radar Receiving Equipment AN/ARQ-6 is a complete airborne radar direction finding system including antenna, receiver and indicator providing continuous indication on a cathode ray tube. It may be used for accurate location of enemy radar stations with no immediate intention of bombing or it may be used for homing on the enemy station for the purpose of bombing or strafing the station and then passing over. The equipment may also be used to home on bombing formation. It is used in medium and heavy bombers.

Power is obtained from a 115 volt, 400 to 2800 c.p.s. a.c. source and a 28 volt d.c. source. The equipment covers the frequency range of 100 to 160 mc.,

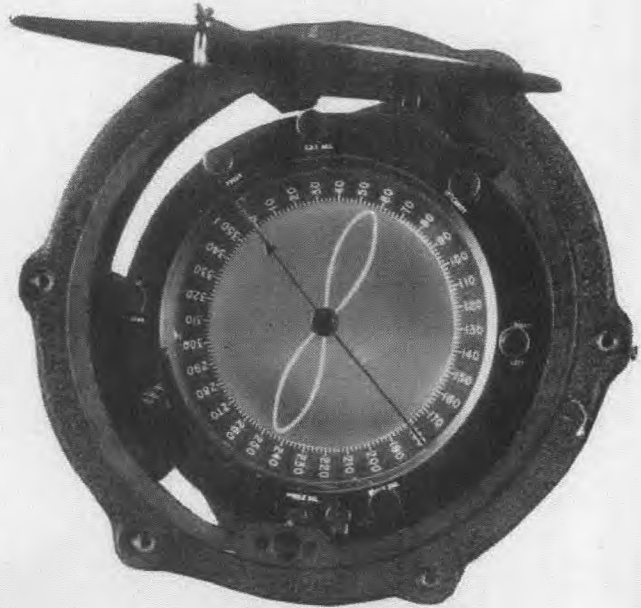
and the receiver input is 150 watts with sensitivity of 50 microvolts.

Army Supply Program requirements have not been established as of 30 April 1944.

POWER INPUT	150 WATTS A.C. 33 WATTS D.C.
FREQUENCY RANGE	100-160 Mc.
SENSITIVITY	50 MICROVOLTS

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6AG5	1	5Y3GT/g
3	6J5	* 2	6SL7/GT
4	9001	1	2X2 or 1879
1	8C4	*1	5CPI
2	6AK5	1	Amperite Ballast
2	6N7		

* Crystal



AN/ARQ-6 Indicator, cathode ray tube 5CPI, showing DF on a strong signal with 180° ambiguity. Pressing "Sense" switch removes ambiguity. This is a continuous presentation.

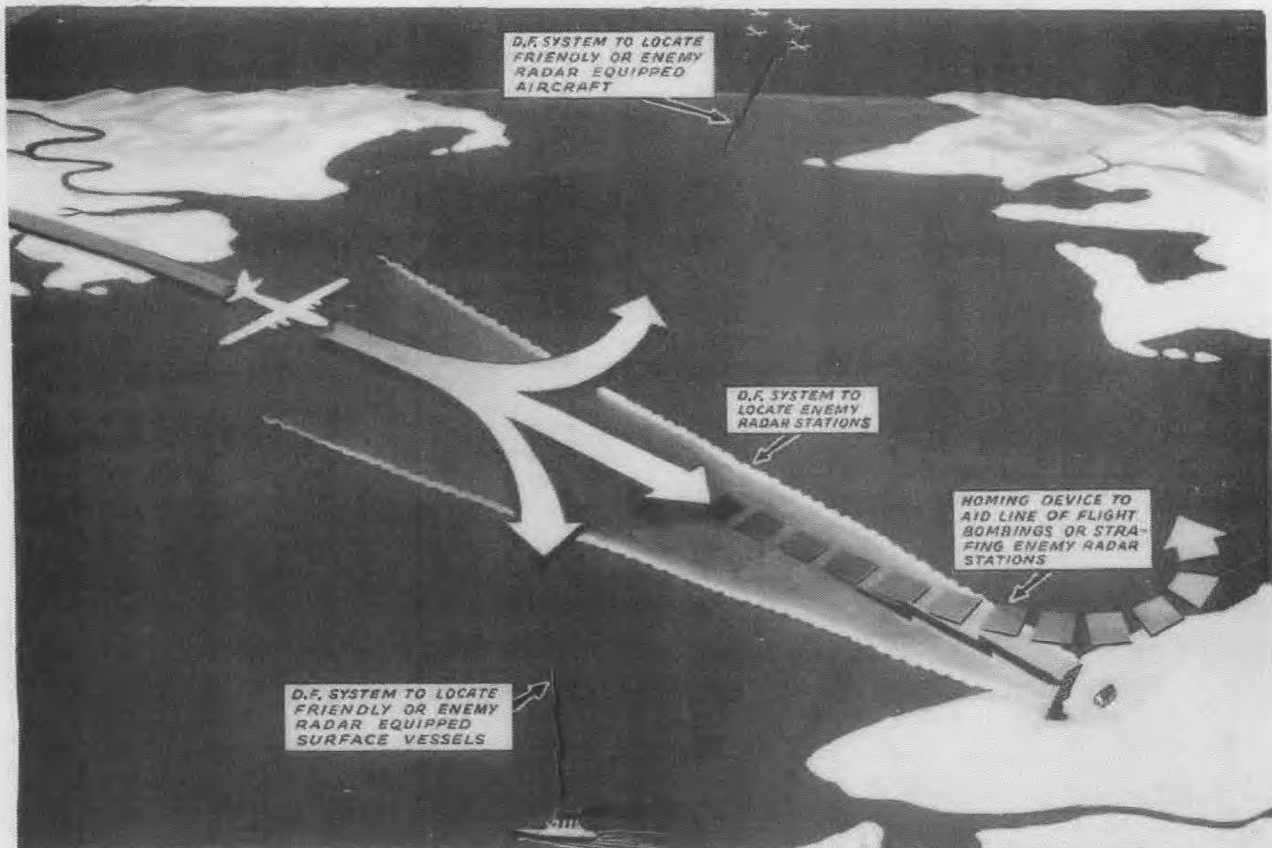


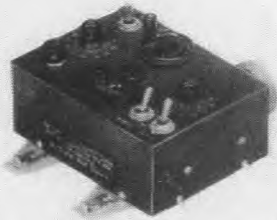
Diagram of Radar Receiving Equipment AN/ARQ-6 and its uses against land, airborne and seaborne targets for purposes of direction finding and homing.

Dec. 1944

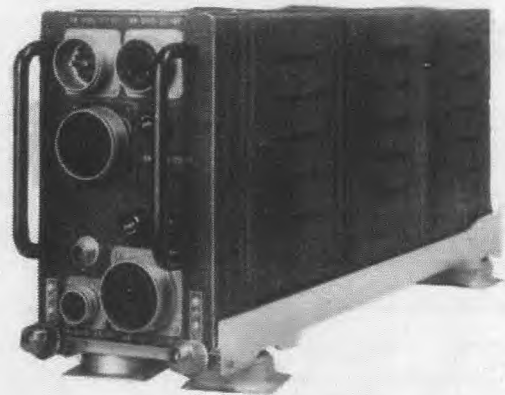
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AN/ARQ-6

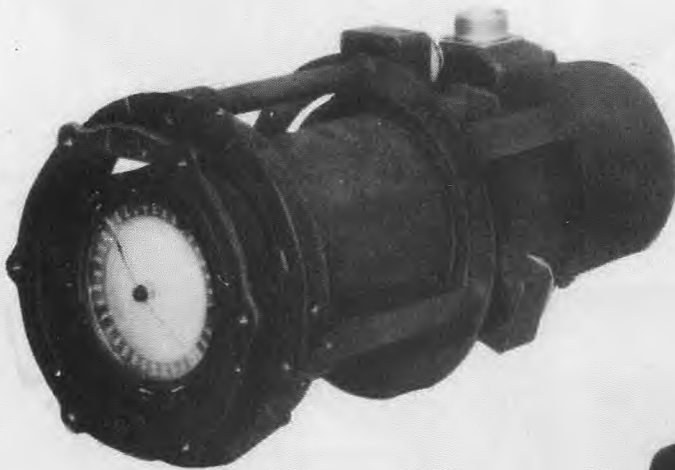
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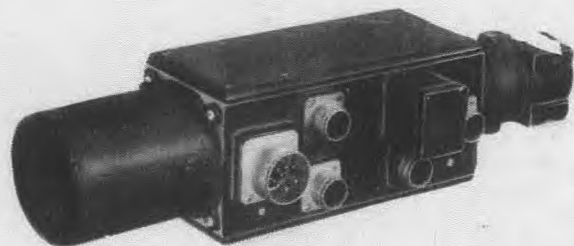
Control Box



Receiver



Indicator



Goniometer

RADAR RECEIVING EQUIPMENT AN/ARO-6 TOTAL WEIGHT 80 LBS

Components	Nomenclature	Size	Weight
Receiver		7 5/8" x 4 7/8" x 21 3/4"	17 1/4 Lb.
Indicator		10 1/8" x 21" Dia. 6 3/4"	20 3/4 Lb.
Goniometer		5" x 5" x 18"	7 Lbs.
Antenna Array			12 Lbs.
Control Box		4 1/2" x 6" x 3"	4 1/2 Lb.
Interconnecting Cables		Various lengths and sizes	16 1/2 Lb.

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AN/ARQ-7

Radio Set AN/ARQ-7 (Spotkie) is an airborne frequency setting jammer for use against German fighter control (CGI) operators in the frequency range of 38.6 to 43.2 mc. This equipment consists of a receiver and jamming transmitter so designed that the operation of tuning a victim signal to zero-beat on the receiver automatically sets the transmitter on the exact jamming frequency. Jamming is effected by throwing a switch from receive to jam.

A single manual control simultaneously varies the frequency of the receiver and transmitter. A two-position switch, labeled receive-transmit, applies plate voltage to either the receiver section or the transmitter and noise generator sections. The transmitter is straight forward in design; parallel 807 tubes are employed in the final stage to produce a noise modulated output of approximately 50 watts. The noise source is a gas tube.

The modulated signal is approximately 10 kc. in width. A three-wire fan antenna, or other broad-band antenna may be used.

Use of Radio Set AN/ARQ-7 prevents enemy radio directed fighters from intercepting our bombers and prevents the fighters organizing a concerted attack after locating our bombers. Amplifier AM-33/ART can be used to increase the range of this set with some reduced ease of operation.

Power is obtained from 80/115 volt, 400 to 2600 c.p.s., a.c. source and a 28 volt d.c. source. The power input of 500 watts produces an output of 50 watts over the frequency range of the set. Random noise modulation with a 10 kc. band width is used to jam enemy signals. Sensitivity of the receiver is 50 microvolts.

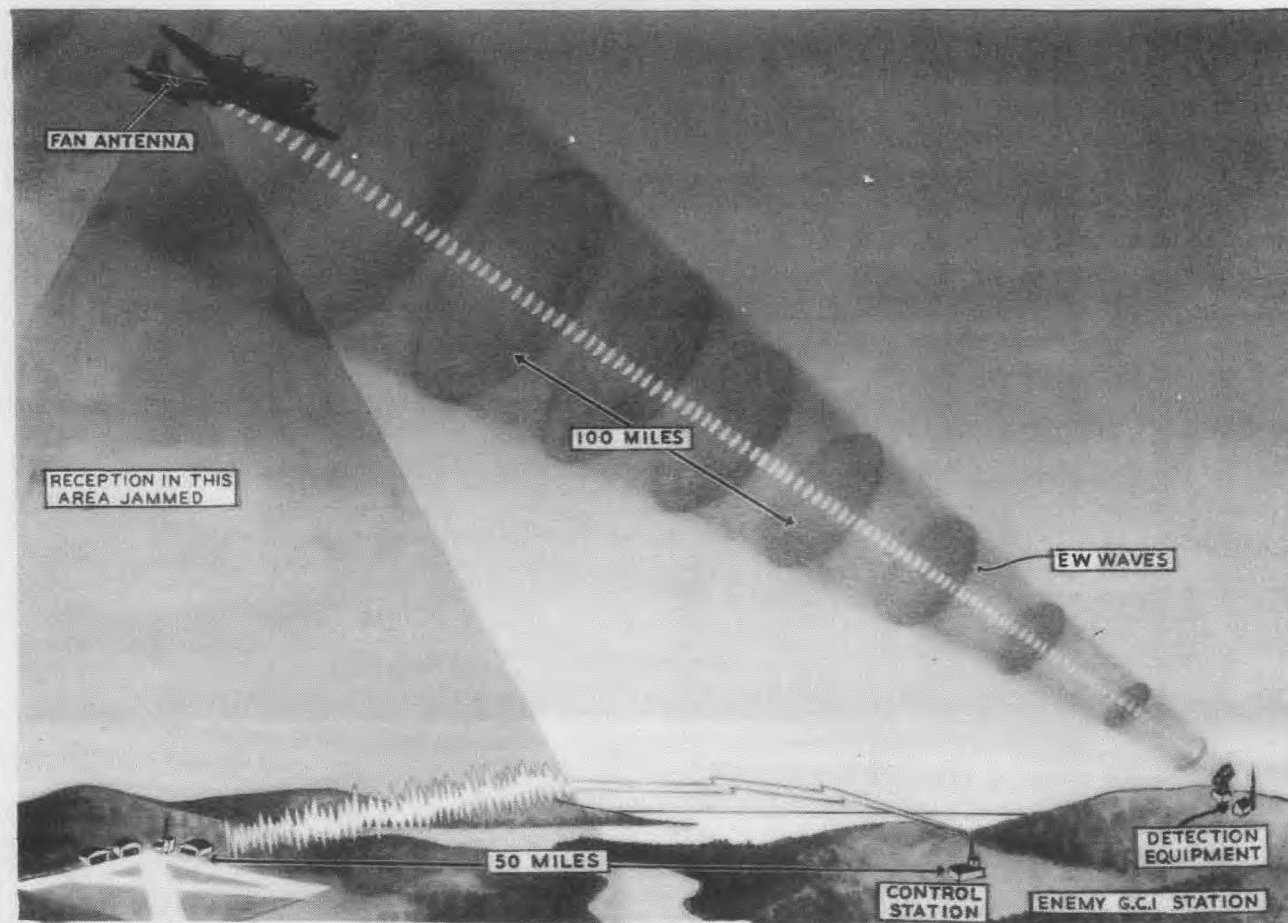
Army Supply Program requirements as of 1 Sept. 1944 were 360 for the calendar year 1944 and 1037 for 1945.

Test equipment used in maintenance of Radio Set AN/ARQ-7 includes Radio Frequency Wattmeter TS-118/AP, Signal Generator I-72, General Radio Signal Generator type 804-C and Hickok Voltmeter type 110.

Test equipment used in maintenance of Radio Set AN/ARQ-7 includes Radio Frequency Wattmeter TS-118/AP, Signal Generator I-72, General Radio Signal Generator type 804-C and Hickok Voltmeter type 110.

POWER INPUT	400 WATTS A.C. & 100 WATTS D.C.
POWER OUTPUT	50 WATTS
FREQUENCY RANGE	38.6-43.2 MC.
SENSITIVITY	50 MICROVOLTS

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	807	2	6AC7
2	6V6GT/G	1	12SQ7
1	5R4GY	1	884
1	5U4G	1	6AG7
2	12SA7	2	6SK7
2	12SJ7	1	12SN7

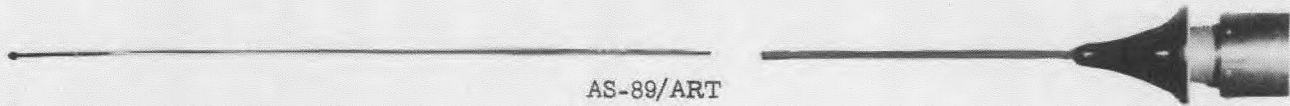


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Radio Set AN/ARQ-7 prevents enemy radio directed fighters from intercepting our bombers and prevents the fighters organizing a concerted attack after locating our bombers.



Receiver-Transmitter RT-49/ARQ-7



RADIO SET AN/ARQ-7

TOTAL WEIGHT 63 LBS.

Component	Nomenclature	Size	Weight
Receiver-Transmitter	RT-49/ARQ-7	7 5/8" x 10 1/8" x 21 3/4"	47 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 1/4" x 22 "	3 1/4 Lb.
Antenna System	AS-89/ART	5" x 3 1/2" Dia.	5 Lb.

and includes plugs, adapters and cables

Radar Set AN/ARQ-8 is a combination search receiver and jamming transmitter designed for airborne operation against enemy communications in the frequency range 25-105 mcs. It may be used against enemy radar systems operating within its frequency range.

The function of the receiver portion of the equipment is to accurately set the jamming signal of the transmitter on the frequency required. The receiver and the transmitter are simultaneously tuned to the same frequency by means of a single search control.

For spot jamming the frequency of the equipment is preset to a 5 mc. band within its frequency range prior to take-off. The output of the narrow band pre-amplifier consists of random RF noise voltages. The noise signal is mixed with the signal from a JAN 8V6GT local oscillator tube. The resultant output has the carrier suppressed and consists of two noise sidebands either of which may be selected, amplified and radiated as the jamming signal.

For barrage jamming a wide band pre-amplifier strip is furnished to replace the narrow band pre-amplifier strip to enable the equipment to furnish a barrage type noise signal with about 4 mc. bandwidth. For this type of operation the receiver portion of the equipment is not used since the barrage band is set prior to take-off and the equipment continuously jams over the pre-set portion of the frequency spectrum.

Power is obtained from an 80/115 volt 400-2800 c.p.s., a.c. and a 28 volt d.c. source.

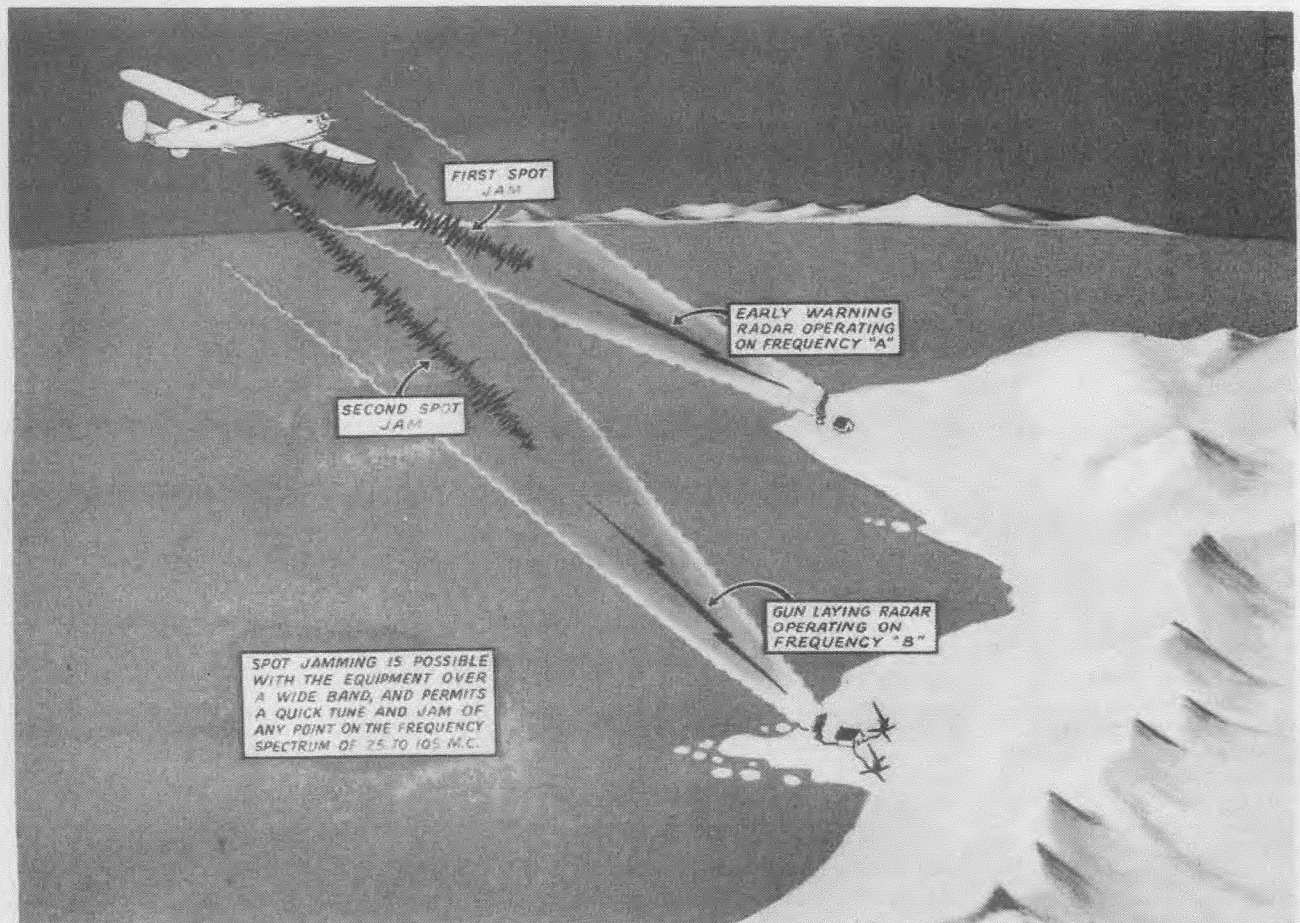
Test equipment required for the maintenance and tuning of the equipment includes Test Set I-139-A, Signal

Generator TS-47/APR, Radio Frequency Wattmeter TS-118/APR, Pickup Assembly TS-131/AP, Test Set I-56-K, General Radio Signal Generator type GR 804C and Hickok Voltmeter type 110.

Army Supply Program requirements as of 1 October 1944 were 1,335 for the calendar year 1944 and 2,152 for 1945.

POWER INPUT	400 WATTS
POWER OUTPUT	30 WATTS
FREQUENCY	25-105 MCS.
TYPE OF SIGNAL	CLIPPED NOISE, SUPPRESSED CARRIER
SENSITIVITY	200 MICROVOLTS FOR 10 MILLIWATT OUTPUT
SELECTIVITY	3 DB AT 100 KC FROM RESONANT FREQUENCY

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	9001	3	6C4
1	6SQ7	2	6AK5
3	6SG7	1	931A
1	8AG7	3	6AC7
1	5Y3GT	1	829B
2	5Y4G Y	1	832A
2	6Y6GT	1	6SN7GT
1	884		



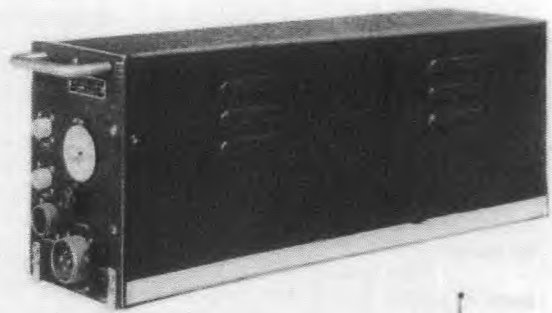
Radar Set AN/ARQ-8 is an airborne selective radar jamming equipment capable of rapid switching of jamming frequency when the enemy resorts to evasive changes in radar frequencies to counteract jamming operations.

AN/ARQ-8

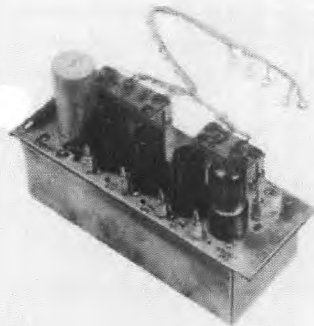
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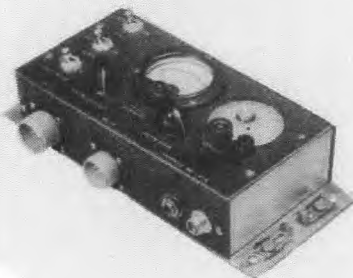
Radio Transmitter T-51/ARQ-8



Radio Receiver R-58/ARQ-8



Preamplifier Strip AM-23/ARQ-8



Control Unit C-93/ARQ-8



Antenna Assembly AS-150/ART



Antenna Assembly AS-161/ART



Antenna System AS-97/ART



Antenna System AS-89/ART

RADAR SET AN/ARQ-8

TOTAL WEIGHT 100 LBS.

Component	Nomenclature	Size	Weight
Tuning Shaft	MC-215		
PreAmplifier Strip	AM-22/ARQ-8	10" x 4" x 7"	3 Lbs.
PreAmplifier Strip	AM-23/ARQ-8	11" x 4" x 7"	4 Lbs.
Transmitter	T-51/ARQ-8	8" x 11" x 22"	35 Lbs.
Receiver	R-58/ARQ-8	8" x 5" x 22"	20 Lbs.
Control Unit	C-93/ARQ-8	4" x 5" x 10"	3 Lbs.
Mounting Base	MT-171/U	3" x 11" x 22"	3 Lbs.
Mounting Base	MT-167/U	3" x 6" x 22"	3 Lbs.
Mounting Base	MT-191/ARQ-8	2" x 5" x 10"	1 Lb.
Antenna System	AS-89/ART	72" Long	4 Lbs.
Antenna System	AS-97/ART	54" Long	3 Lbs.
Antenna Assembly	AS-150/ART	30" Long	3 Lbs.
Antenna Assembly	AS-161/ART	40" Long	3 Lbs.
Antenna Matching Section	CU-50/ART	6" x 5" diameter	2 Lbs.
Antenna Matching Section	CU-51/ART	6" x 5" diameter	2 Lbs.

and includes cables, plugs and adapters, etc.

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AN/ARQ-9

Radio Set AN/ARQ-9 is a combination search receiver and jamming transmitter designed for picking up and jamming enemy communication signals in the frequency band between 18 and 80 mc. It was formerly known as Radio Set SCR-596-T2.

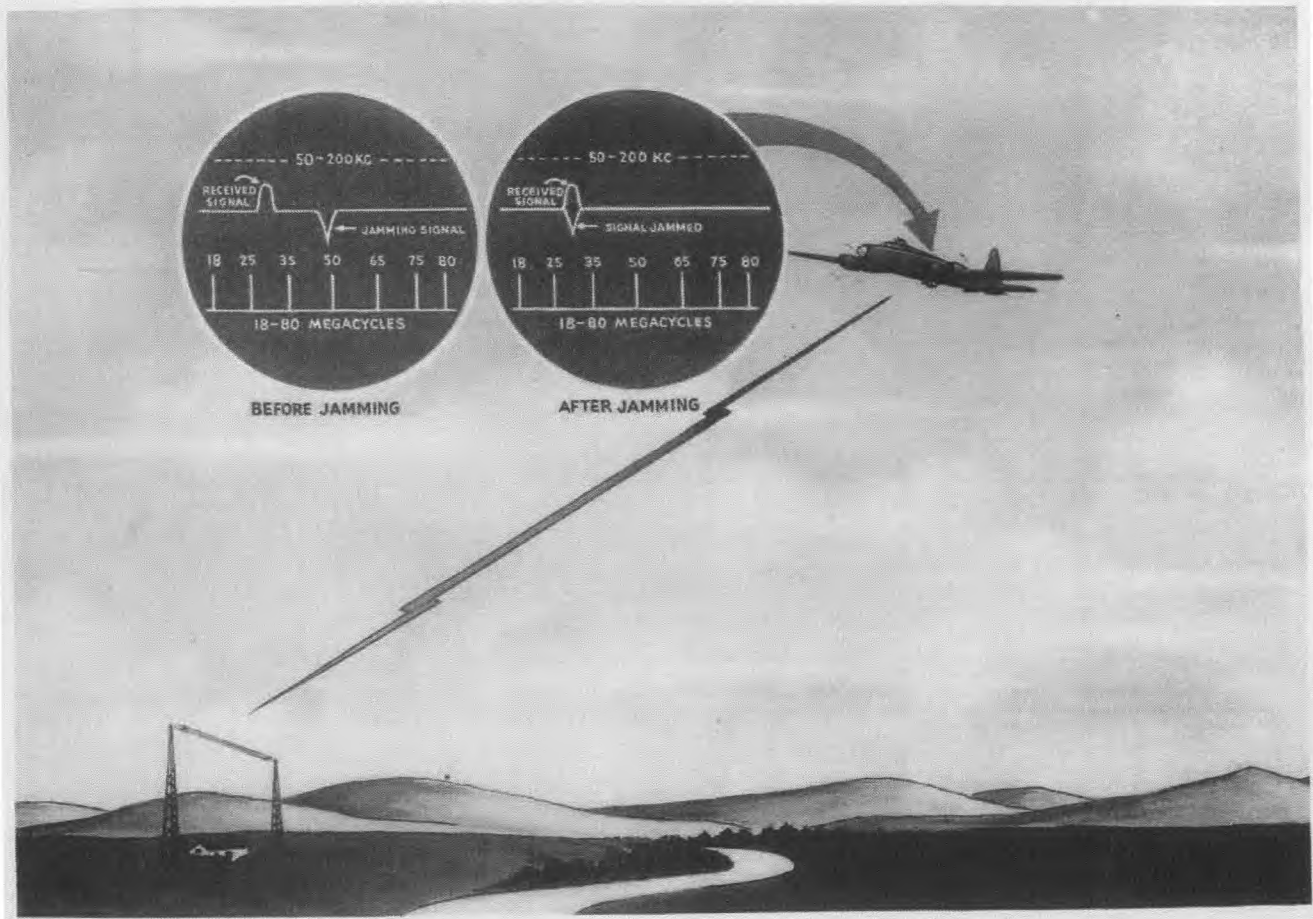
The transmitter and the receiver are gang-tuned to permit rapid frequency shifts such as are required when the victim transmission changes in frequency to avoid jamming. During the jamming operation the transmitter and the receiver are alternately connected to the antenna so that any change in the victim operating frequency may be detected immediately. The enemy signal appears on the scope of the receiver as an upward pip above the base line. The jamming signal appears as a downward pip from the same base line and when the two are lined up vertically the jamming signal is effectively on the victim frequency. The jamming signal consists of a carrier wave that is frequency modulated at a random rate.

Test equipment required in the maintenance and tuning of AN/ARQ-9 includes Test Set I-139, Test Oscillator TS-47/APR, Pickup Assembly TS-131/AP, Test Set I-56-K, Hickok Voltmeter Type 110 and General Radio Signal Generator type 804C.

Army Supply Program requirements as of 1 November 1944 were 100 equipments for the calendar year 1944.

POWER INPUT	1000 WATTS
POWER OUTPUT	25 WATTS
FREQUENCY	18-80 MC
TYPE OF SIGNAL	Random FM

NO.	TYPE	TUBE COMPLEMENT						
		T-44/ARQ-9	T-45/ARQ-9	T-46/ARQ-9	MD-15/ARQ-9	R-55/ARQ-9	ID-47/ARQ-9	PP-55/ARQ-9
6	5R4GY	2			0	0	0	4
4	6AC7	4			0	0	0	0
29	6AK5	3			8	7	6	5
2	6J6	1			0	0	1	0
2	6SA7	2			0	0	0	0
1	807	1			0	0	0	0
4	9003	2			1	0	1	0
1	829B	1			0	0	0	0
4	6H6				1	2	1	0
1	2050				1	0	0	0
21	9001				6	7	8	0
6	9002				0	1	5	0
1	2X2				0	0	1	0
1	5CP7				0	0	1	0
6	6SJ7				0	0	6	0
6	VR-150-30				0	0	3	3

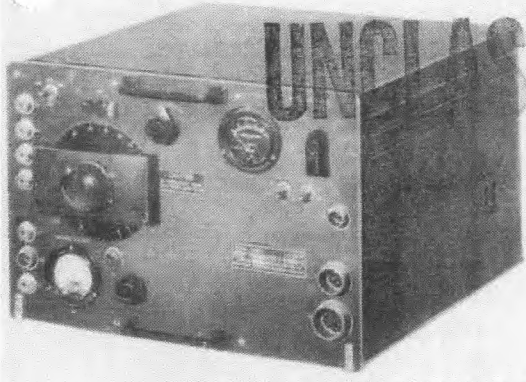


AN/ARQ-9 provides visible indication of victim signal and of the jamming signal and permits changing the jamming signal to any frequency within its range when the enemy signal is changed.

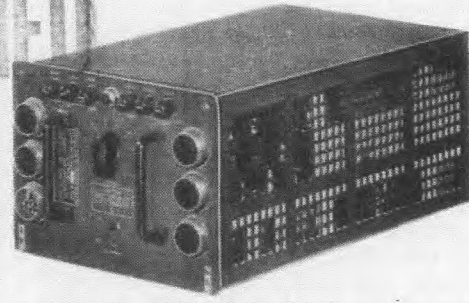
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AN/ARQ-9

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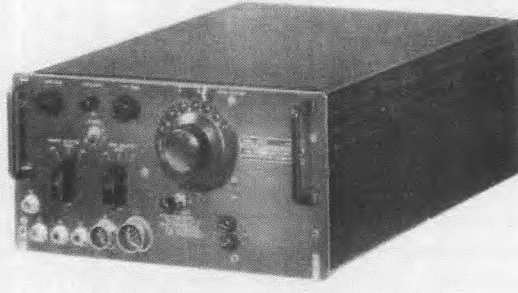
Radio Transmitter T-44/ARQ-9,
T-45/ARQ-9, or T-46/ARQ-9



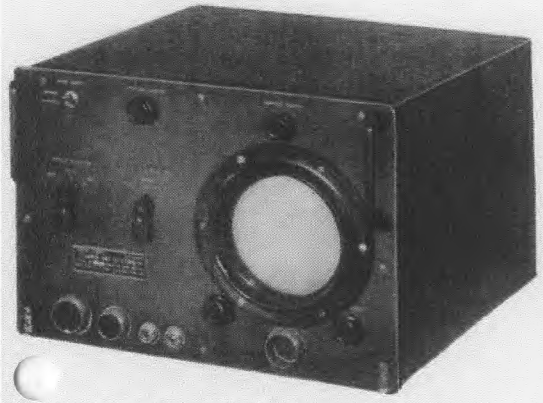
Rectifier Power Unit PP-55/ARQ-9



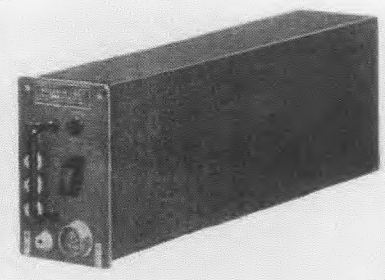
Radio Receiver R-55/ARQ-9



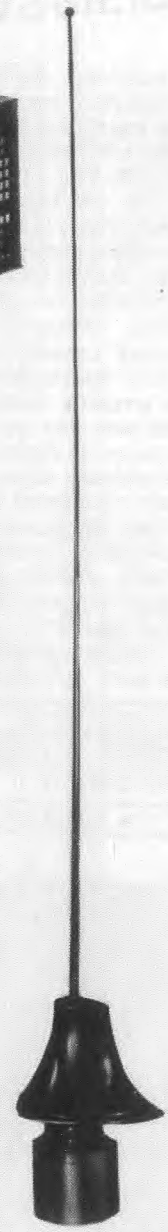
Receiver-Indicator R-102/ARQ-9



Scanner Unit ID-47/ARQ-9



Modulator MD-15/ARQ-9



Antenna System AS-97/ART,
AS-89/ART and AS-161/ART

RADIO SET AN/ARQ-9

TOTAL WEIGHT 280 LBS.

Component	Nomenclature	Size	Weight
Modulator	MD-15/ARQ-9	8" x 5" x 22"	18 Lbs.
Radio Receiver	R-55/ARQ-9	8" x 5" x 22"	15 Lbs.
Rectifier Power Unit	PP-55/ARQ-9	8" x 11" x 22"	35 Lbs.
*Radio Transmitter	T-46/ARQ-9	8" x 11" x 22"	60 Lbs.
*Radio Transmitter	T-45/ARQ-9	8" x 11" x 22"	60 Lbs.
*Radio Transmitter	T-44/ARQ-9	8" x 11" x 22"	60 Lbs.
Scanner Unit	ID-47/ARQ-9	11" x 16" x 22"	60 Lbs.
Receiver Indicator	R-102/ARQ-9	8" x 16" x 22"	60 Lbs.
*Antenna System	AS-97/ART	54" x 1/2" diameter	4 Lbs.
*Antenna System	AS-89/ART	72" x 1/2" diameter	4 Lbs.
*Antenna System	AS-161/ART	40" x 1/2" diameter	3 Lbs.
Mounting Base	MT-167/U(2 each)	3" x 6" x 22"	4 Lbs.
Mounting Base	MT-171/U	3" x 11" x 22"	5 Lbs.
Mounting Base	MT-173/U(2 each)	3" x 16" x 22"	5 Lbs.

* Includes cables, plugs, adapters, antenna matching sections and etc.
* One used per installation.

Radio Receiving Equipment AN/ARR-5 is an airborne search receiver covering the frequency band 27.8 to 143 mc. This set has been adapted from Hallicrafter S-27 receiver for aircraft use and for operation in conjunction with Radar Indicator Assembly AN/APA-6 or AN/APA-11, Photographic Adapter AN/APA-7 and Panoramic Adapter AN/APA-10 or BC-1032. Provision has been made for an automatic scanning unit that can sweep through the whole frequency band or a sector of it. In addition a separate rectifier unit, Rectifier Power Unit PP-32/AR, has been developed to provide the power supply for two other receivers in addition to the AN/ARR-5.

A number of features make AN/ARR-5 extremely useful. It has an output of 50 milliwatts and a sensitivity of less than 10 microvolts at 30% modulation, 400 c.p.s. when delivering into an 8000 ohm load. There are three frequency bands, one from 27.8 to 48 mc., a second from 46 to 83 mc. and a third from 82 to 143 mc. AM, FM and CW reception are provided and provision is made for both broad and sharp tuning. Automatic volume control and noise limiting circuits are also incorporated.

To adapt the equipment for use with panoramic adapters, a lead is brought out from the plate circuit of the mixer stage to the proper receptacle. Video output is obtained by a lead through a cathode follower resistor from the cathode circuit of the power output tube.

The sector sweep or scanning mechanism consists of a motor assembly, a magnetic clutch, a gear train and a sector selecting mechanism. When the motor is operating the magnetic clutch locks the gear to the tuning dial shaft. When the motor is switched off,

the magnetic clutch is not energized and the tuning dial shaft is free of gears, making manual tuning possible.

Power requirements of the receiver are two d.c. sources of 270 and 28 volts and an a.c. source of 6.3 volts. Power input to power supply with one receiver is 175 watts. The receiver is capable of receiving three types of signals, namely, FM, AM and CW.

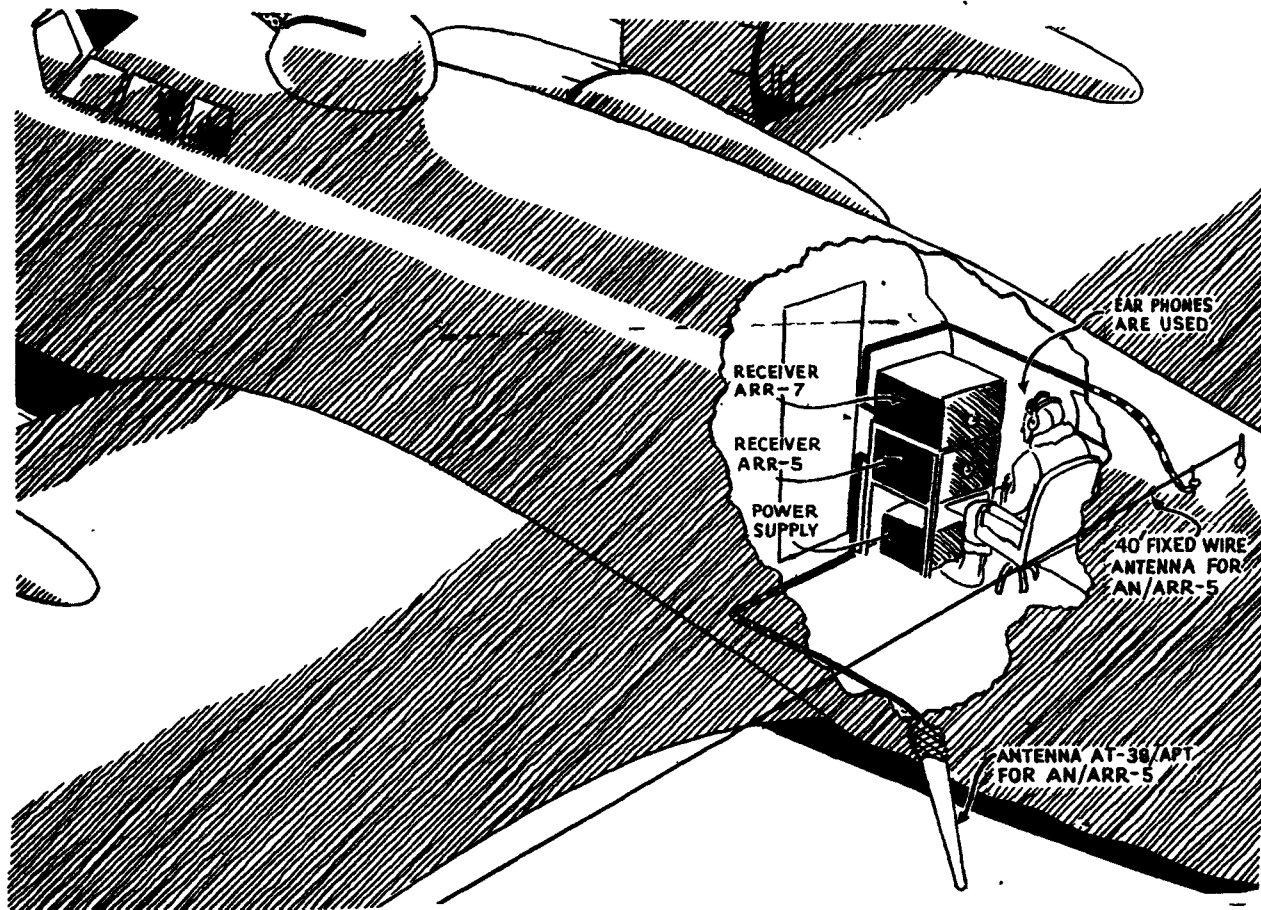
Army Supply Program requirements as of 14 June 1944 were 2080 equipments for the calendar year 1944, and 4051 for 1945.

Test Equipment used in maintenance of the Receiver includes Test Oscillator TS-47/APR, General Radio Signed Generator type 804-C, Signal Generator I-72, Hickok Voltmeter type 110 and Frequency Meter TS-213/U.

POWER INPUT	175 WATTS (INPUT TO POWER SUPPLY WITH ONE RECEIVER)
FREQUENCY RANGE	28-143 MC.
TYPE OF SIGNALS	FM AND AM, CW, RADAR.
SENSITIVITY	LESS THAN 10 MICROVOLTS

TUBE COMPLEMENT			
NO	TYPE	NO.	TYPE
2	956	2	6V6GT
1	954	1	VR/150/30
1	955	1	6SQ7
2	6AC7	1	6H6
1	6AB7	1	6J5
1	6SK7	* 3	5U4G OR 5R4GY

*TUBE COMPLEMENT FOR POWER SUPPLY



Installation of Radio Set AN/ARR-5, and Radio Set AN/ARR-7, in the radio compartment, B-17 airplane.

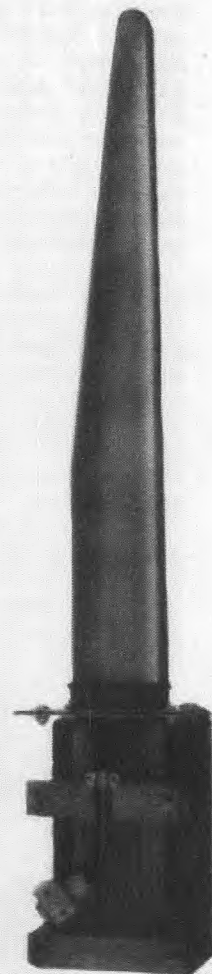
1 Dec. 1944

AN/ARR-5

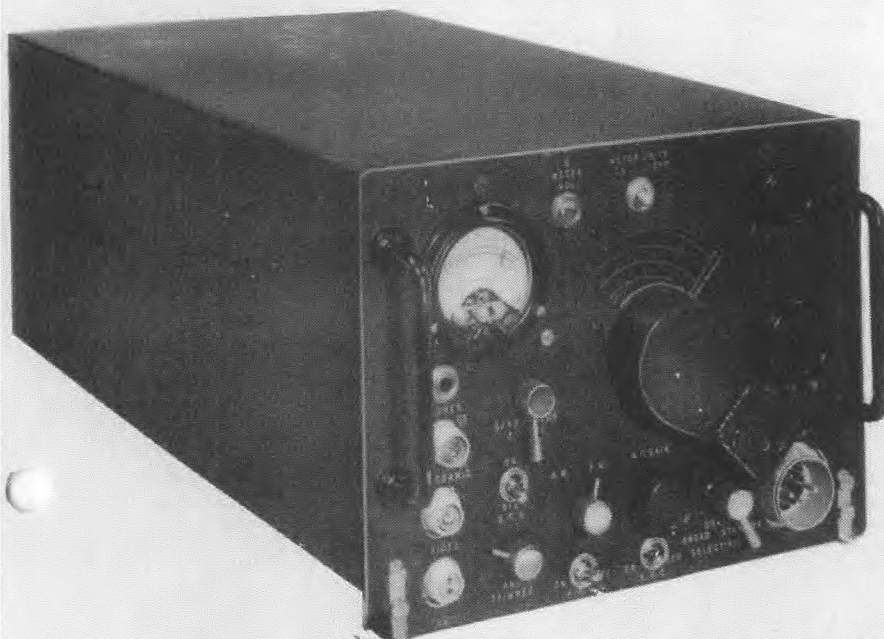
UNCLASSIFIED



Rectifier Power
Unit PP-32/AR



Antenna Stub
AT-38/APT



Radio Receiver R-44/ARR-5

RADIO RECEIVING EQUIPMENT AN/ARR-5 TOTAL WEIGHT 85 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-44/ARR-5	7 5/8" x 10 1/8" x 21 3/4"	40 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 1/4" x 22"	3 1/4 Lb.
Rectifier Power Unit	PP-32/AR	7 5/8" x 4 7/8" x 21 3/4"	25 Lb.
Mounting Base	MT-167/u	2 1/4" x 5 1/8" x 22"	2 3/4 Lb.
Antenna Stub	AT-38/APT	29" Long	6 1/2 Lb.
Antenna	AT-40/ARR-5	29" Long	6 1/2 Lb.

and includes plugs, adapters, misc., cables.

UNCLASSIFIED

1 Dec. 1944

Radio Receiving Set AN/ARR-7 is an airborne intercept receiver covering the frequency band 550 kc. to 28 mc. The set has been adapted from a Hallicrafters SX-28 receiver omitting the band switching units used in the commercial receiver for reception above 28 mc. repackaged in a Standard Aircraft Radio Case B1-D. It is used in conjunction with Radar Indicator Assembly AN/APA-6 or AN/APA-11 and Panoramic Adaptor AN/APA-10. Provision is made for an automatic scanning unit that can sweep through the whole frequency band. Power is obtained from Rectifier Power Unit PP-33/AR for 110 volt, 60 c.p.s. operation or from PP-32/AR for 85-100 volt, 400 to 2600 c.p.s. operation.

The receiver has an output of greater than 50 milliwatts for 10 microvolts impressed on the input terminals of the receiver. It is extremely sensitive for continuous-wave and amplitude modulated signals. It operates on AM, FM and CW, and provision is made for broad or sharp tuning. Automatic volume control and noise limiting circuits are incorporated in the set.

To adapt the equipment for use with panoramic adaptors a lead is brought out from the plate circuit of the mixer stage to the proper receptacle. Video output is obtained by a lead through a cathode follower resistor from the cathode circuit of the power output tube.

The sector sweep or scanning mechanism consists of a motor assembly, a magnetic clutch, a gear train and a sector selecting mechanism. When the motor is operating the magnetic clutch locks the gear to the tuning

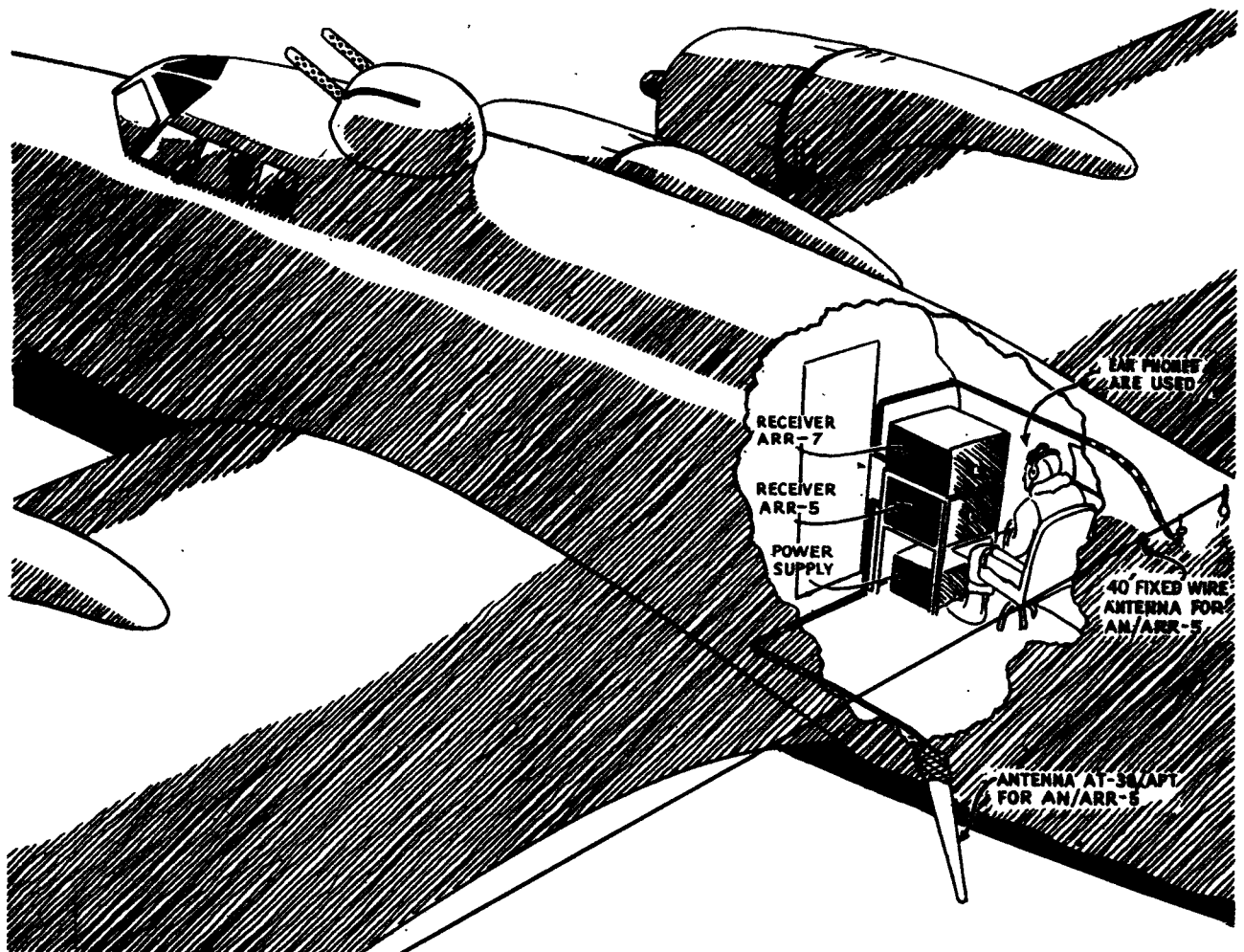
dial shaft. When the motor is switched off, the magnetic clutch is not energized and the tuning shaft is free of gears, making manual tuning possible.

Army Supply Program requirements as of 31 July 1944 were 2,060 equipments for the calendar year 1944 and 2,163 for 1945.

Test equipment required for the maintenance and tuning of the equipment includes Signal Generator TS-47/APR, General Radio Signal Generator Type 804C, Signal Generator I-72 and Hickok Voltmeter Type 110.

FREQUENCY	550 KC. to 28 Mc.
POWER INPUT	175 WATTS
TYPE OF SIGNAL	AM, CW, Pulse
SENSITIVITY	5 MICROVOLTS

TENTATIVE TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6AB7	1	6J5
4	6SK7	1	6V6GT/G
2	6SA7	1	VR/150/30
1	6SQ7	3	5U4G or 5R4GY
1	6H6		(for power supply)



Installation of Radio Set AN/ARR-5 and Radio Set AN/ARR-7 in the Radio Compartment -- B-17.

1 Dec. 1944

UNCLASSIFIED



Rectifier Power Unit PP-32/AR



Receiver R-45/ARR-7

RADIO RECEIVING SET AN / ARR - 7

TOTAL WEIGHT 75 LBS.

Component	Nomenclature	Size	Weight
Receiver	R-45/ARR-7	7 5/8" x 10 1/8" x 21 3/4"	40 Lbs.
Rectifier Power Unit	PP-32/AR	7 5/8" x 4 7/8" x 21 3/4"	25 Lbs.
Antenna Support	AB-27/A	3" Diameter x 2 1/2"	2 Lb.
Mounting Base	MT-167/U	2 1/4" x 5 1/8" x 22"	2 3/4 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.

and includes plugs, adapters, cables, tension unit, wire thimble.

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Radio Set AN/ARR-8(XA-1) is an airborne broad band panoramic receiver to cover the over all tuning range of 70 to 210 mc. All signals are presented at one time as "pips" on the calibrated base line of a five inch cathode ray oscilloscope. The receiver offers a rapid means of locating and measuring of the frequency of enemy signals which are on for a very short interval of time.

POWER INPUT	100 WATTS
FREQUENCY RANGE	70-210 MC.
SENSITIVITY	50 MICRO-VOLTS
SELECTIVITY	.5%

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3 ea.	9002	1 ea.	2050
1 ea.	2X2	1 ea.	6SN7
6 ea.	6AC7	1 ea.	5Y3GT
4 ea.	6J5	3 ea.	6AG5

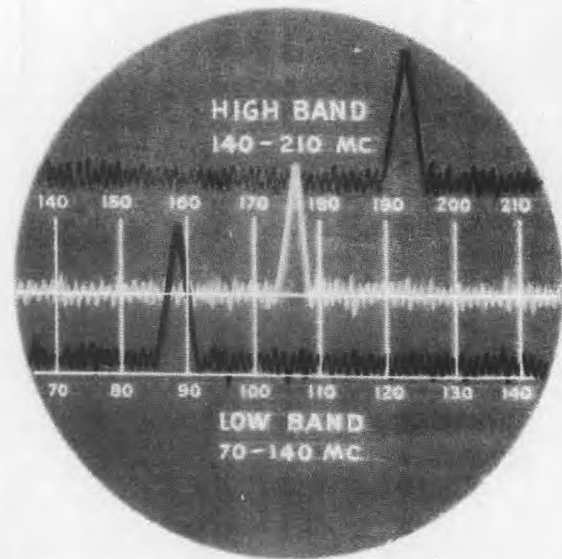
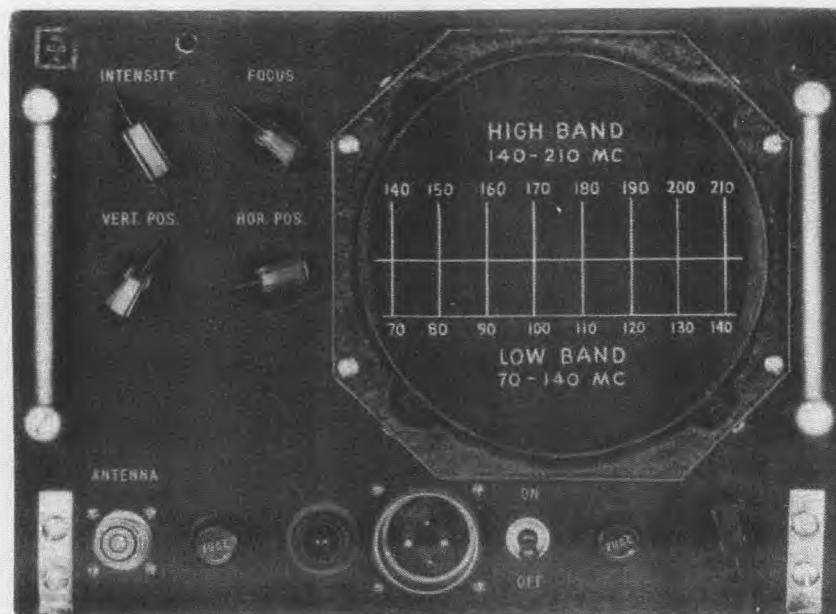


Diagram showing indication of Medium Band - and Relative position (black lines) when tuned to high or low frequencies.



RADIO SET AN/ARR-8

TOTAL WEIGHT 40 LBS.

Components

Nomenclature

Weight

Panoramic Receiver

Mounting Base

and includes plugs, mountings, and cables.

MT-167/U

Size
7 5/8" x 4 7/8" x 21 3/4"
2 1/4" x 5 1/8" x 22"

30 Lbs.

3 1/4 Lbs.

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AN/ART-3

Radio Transmitting Equipment AN/ART-3 is an airborne high powered Jackal type barrage jammer for use against communications in the frequency range of 27 to 57 mc. This frequency range is covered by a series of tuning units provided with the equipment.

The transmitter has a tank coil with a motor driven short circuited turn (ring) to vary the frequency of the oscillator over the frequency range of the transmitter. The push-pull oscillator has two each type 304 TL tubes. The power supply consists of two full wave rectifiers using 371-B type tubes the D-C outputs of which are connected in parallel. Two inverter units type PE-218-B or C are connected to separate input terminals. No tuning or operating controls other than an "On-Off" switch are required while in flight. The present AN/ART-3 equipment will operate up to approximately 30,000 feet in altitude.

Power is obtained from a 80-100-115 volt, 400-2600 c.p.s. a.c. source and a 28 volt d.c. source. Power Input of 2.8 kw. a.c. and 130 watts d.c. produces an output of 1000 watts. The two inverters provided with the equipment are rated at 1300 and 1500 v.a. respectively.

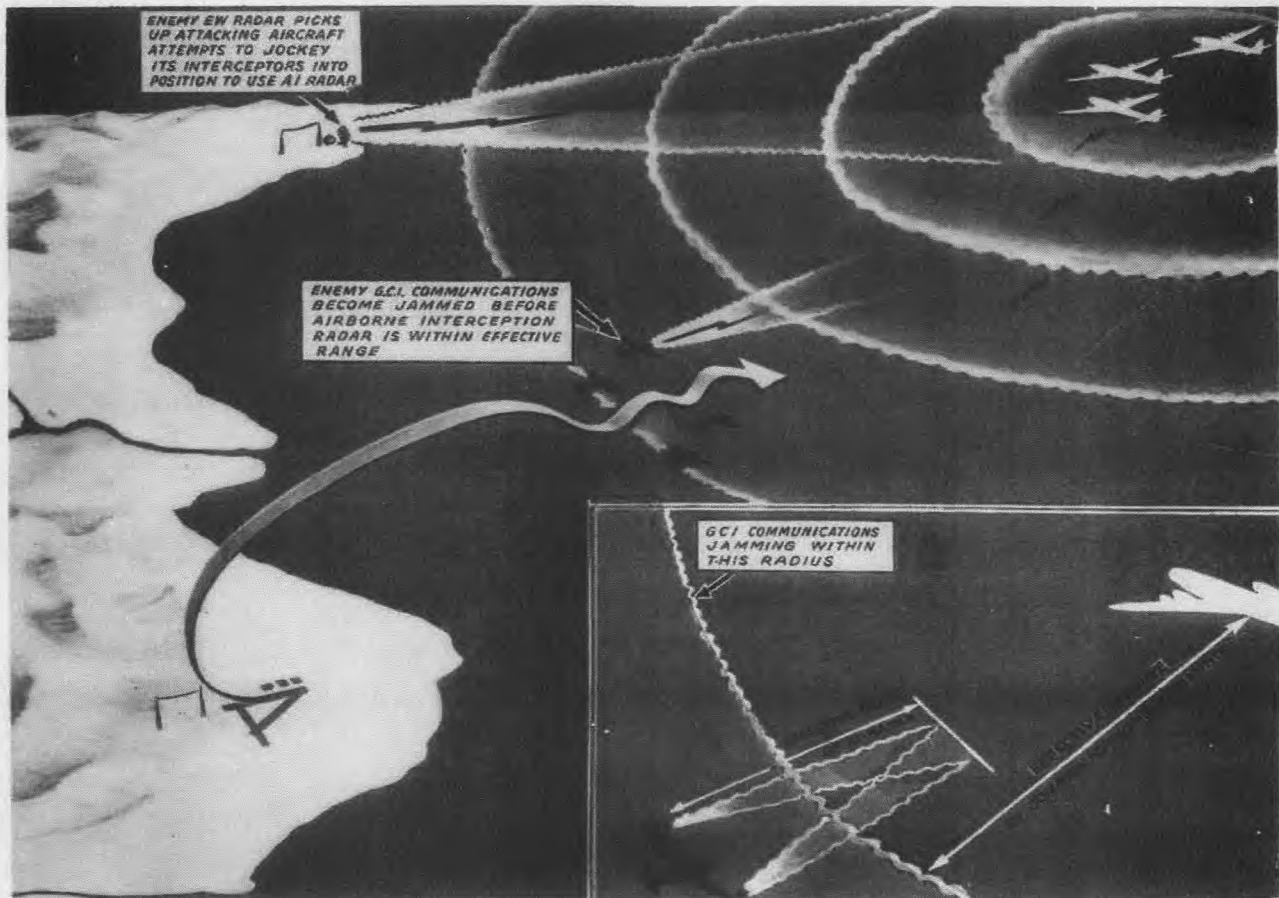
Test Equipment for the maintenance of the transmitter includes a Radio Frequency Wattmeter TS-209/AR.



Fan Antenna for Radio Transmitting Equipment AN/ART-3 on B-17.

POWER INPUT	2.8 KW. A.C.; 130 WATTS D.C.
POWER OUTPUT	1000 WATTS
FREQUENCY RANGE	27-57 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	371B	2	304TL



Radio Transmitting Equipment AN/ART-3 output is sufficient to prevent GCI communications well beyond effective range of enemy AI Radar.

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AN / ART-3

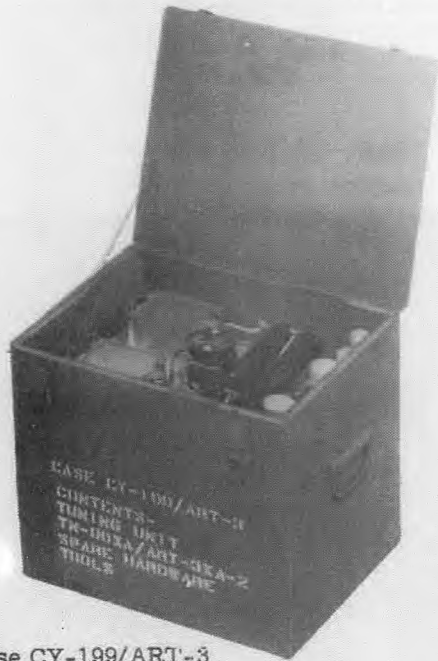
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UNCLASSIFIED



Transmitter Unit T-43(XA)/ART-3(XA-2)
Mounting Base MT-253/U

Power Supply PP-22/ART-3
on Mounting Base MT-253/U

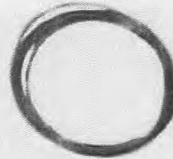


Case CY-199/ART-3

Spring Assembly



Insulators for
Fan Antenna



Wire for Fan Antenna



Antenna Base
AB-45/ART



Antenna Base
AB-29/ART



Antenna System
AS-139/ART

RADIO TRANSMITTING EQUIP. AN / ART-3 TOTAL WEIGHT 195 LBS.

Component	Nomenclature	Size	Weight
Power Supply	PP-22/ART-3	10 5/8" x 10 1/8" x 21 3/4"	86 Lbs.
Transmitter Unit	T-43(XA)/ART-3(XA-2)	10 5/8" x 10 1/8" x 21 3/4"	25 Lbs.
Tuning Unit	TN-XA-9/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-10/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-11/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-12/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-13/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-14/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Tuning Unit	TN-XA-15/ART-3	9 3/4" x 10" x 8 1/2"	8 1/2 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.
Antenna Assembly	AS-139/ART	72" long	8 Lbs.
Antenna Base	AB-29/ART	5 1/2" x 7" Dia.	3 Lbs.

and includes plugs, adapters, tension unit, wire, insulator and misc. cables.

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AN/ART-7

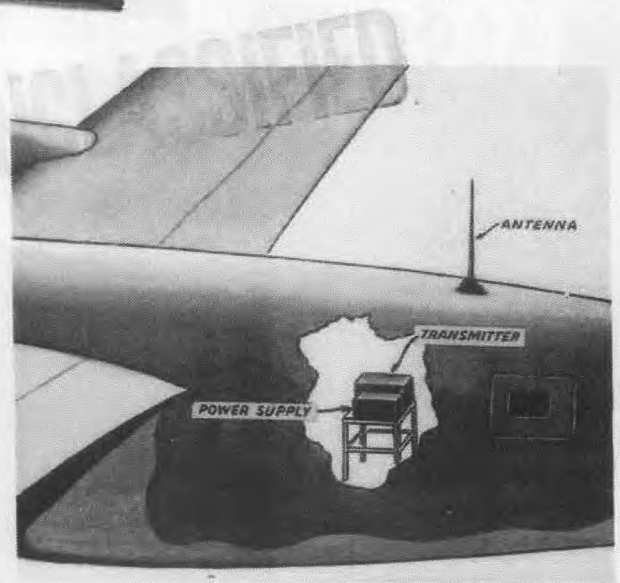
Radio Transmitting Set AN/ART-7 is an airborne barrage jammer that will operate unattended during flight and produce interference over the frequency range of 27 to 34 mc. employed by German tanks, battalion links and armored command in general. The transmitter consists of a push-pull oscillator using two each type 35TG tubes and a motor driven rotating condenser which sweeps the frequency over the tuning range at a rate of 300 to 500 c.p.s.

While this equipment has been found to be efficient in jamming AM signals, such as are emitted from German tank sets, it has practically no effect on FM equipment operating in the same frequency range. This equipment was formerly known as AN/ARQ-2.

Power is obtained from a 80/105/115 volt, d.c. 400-2600 c.p.s., a.c. and 28 volt source. Power input of 700 watts produces an output of 150 watts.

Army Supply Program Requirements as of 14 June 1944 were 600 for the calendar year 1944 and 1360 for 1945.

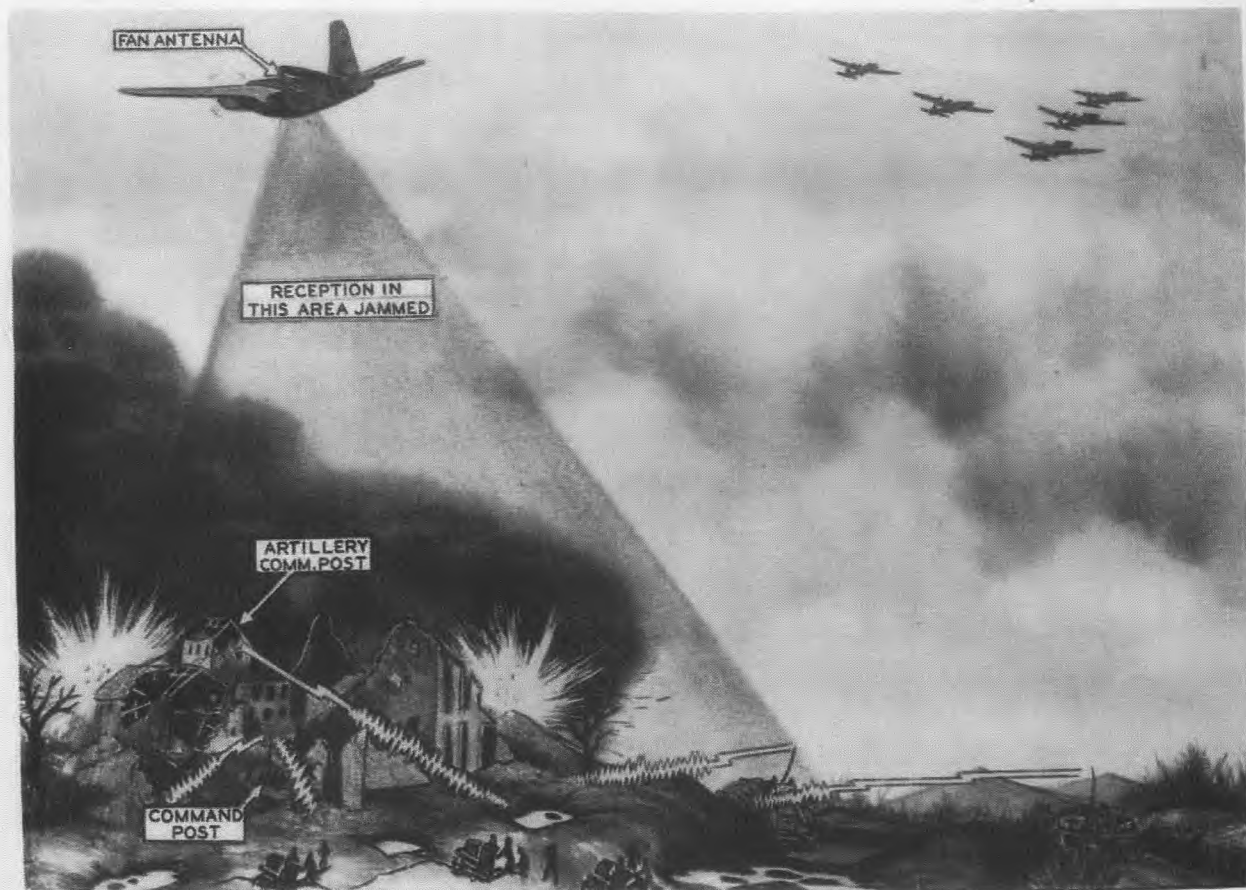
Test Equipment used in maintenance of Radio Transmitting Equipment AN/ART-7 includes Test Set I-139-A, Pickup Assembly TS-131/AP, Test Set I-56J, K or L and Hickok Voltmeter type 110.



Installation of Radio Transmitting Equipment AN/ART-7 aft bombay port side, B-24 airplane.

POWER INPUT	700 WATTS
POWER OUTPUT	150 WATTS
FREQUENCY RANGE	27-34 MC.

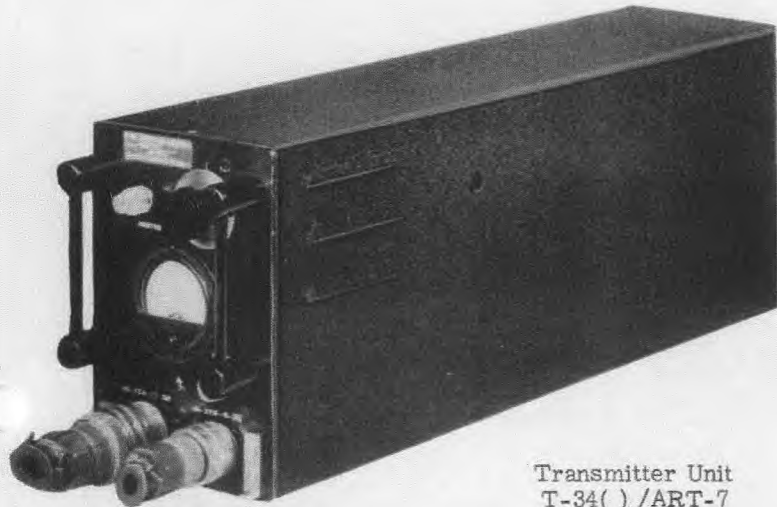
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	35TG	2	836



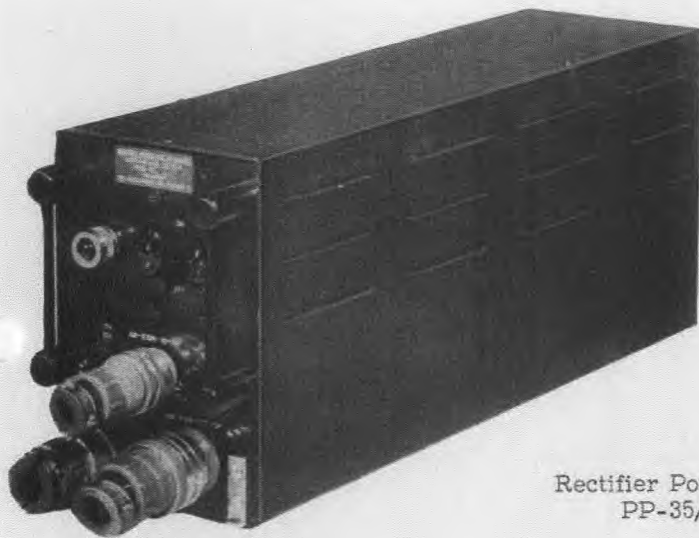
Radio Transmitting Set AN/ART-7 is an airborne jammer used to disrupt enemy ground radio communications operating with-in its frequency range.

AN/ART-7

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Transmitter Unit
T-34()/ART-7



Rectifier Power Unit
PP-35/ART



Antenna System
AS-89/ART



Antenna Base
AB-29/ART

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RADIO TRANSMITTING SET AN/ART-7

TOTAL WEIGHT 74 LBS.

Component	Nomenclature	Size	Weight
Transmitter Unit	T-34()/ART-7	7 5/8" x 4 7/8" x 21 3/4"	23 Lb.
Rectifier Power Unit	PP-35/ART	7 5/8" x 4 7/8" x 21 3/4"	37 Lb.
Mounting Base	MT-167/U (2 each)	2 1/4" x 5 1/4" x 22"	5 1/2 Lb.
Matching Section	CU-51/ART	5 1/2" x 5" Dia.	2 Lb.
Antenna Base	AB-47/ART	4" x 5" Dia.	1 Lb.
Filter	F-15/U	5" x 6" x 9"	2 Lb.

includes adapters, cable adapters, plugs, insulator, wire and misc. cables.

Radio Transmitting Set AN/ART-9 is an airborne barrage jammer, capable of operating unattended during flight, and which will produce interference over a frequency range of 37 to 43 mc. employed by German fighters and GCI communication links.

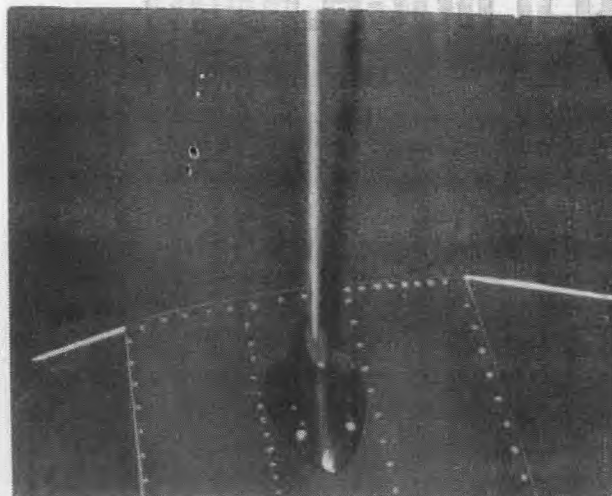
The transmitter, Radio Transmitter T-36/ART-9 consists of a push-pull oscillator using two each type 35 TG tubes and a motor-driven, rotating condenser which sweeps the frequency over the tuning range at a rate of 300 to 500 c.p.s.

This equipment has been found to be highly efficient in jamming AM signals, such as are emitted from German tank sets. It has practically no effect, however, on FM equipment operating in the same frequency range.

Power requirements for the equipment are 80-115 volts, 400-2600 c.p.s. a.c. and 28 volts d.c. These requirements include Rectifier Power Unit PP-35/ART.

Test equipments required for maintenance are: Test Set I-139-A, Pick-Up Assembly TS-131/AP, Test Set I-56, and Voltmeter, Hickok Type 110.

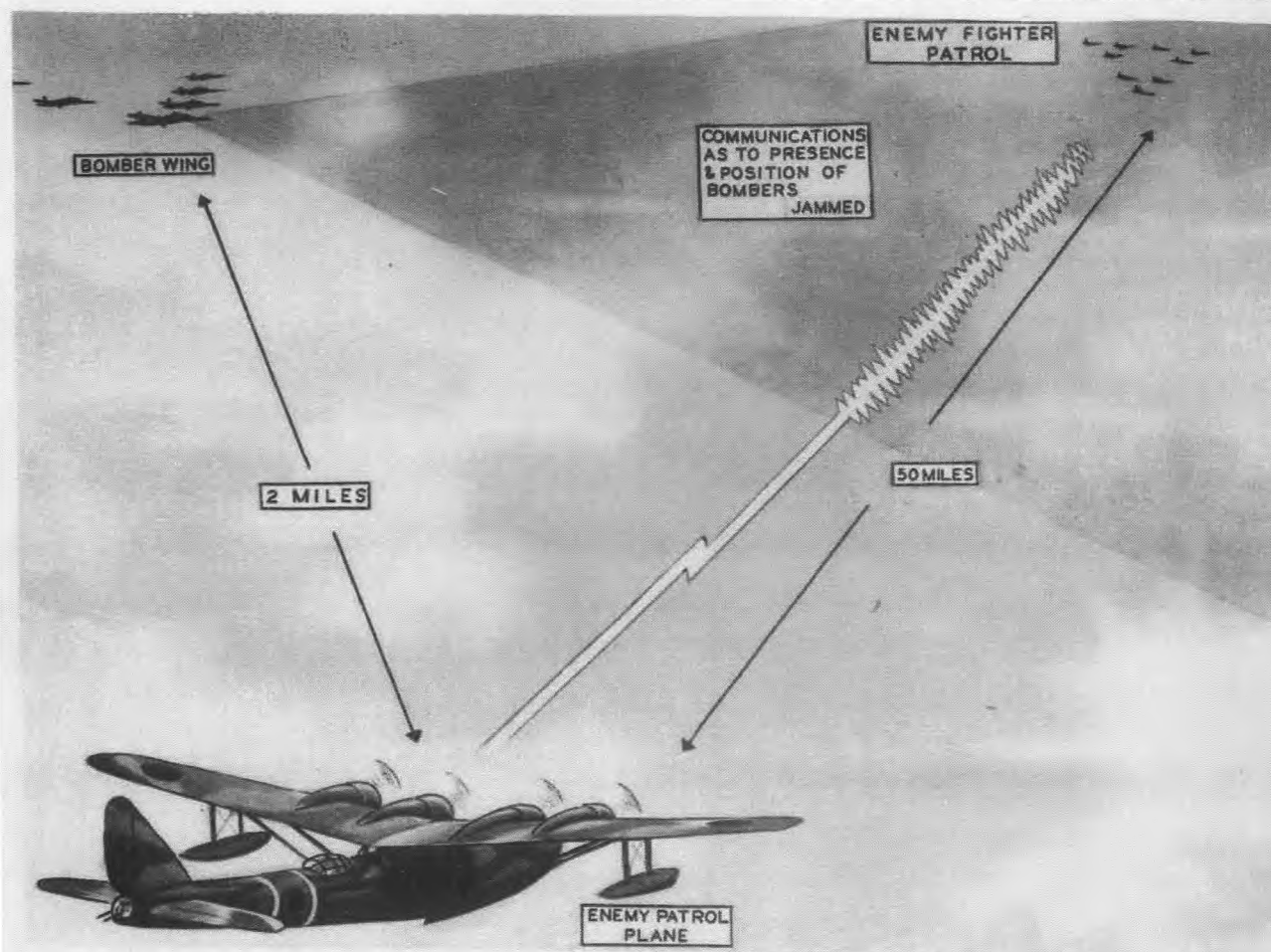
Army Supply Program requirements for Radio Transmitting Set AN/ART-9 as of 14 June 1944 were 8,802 for the calendar year 1944.



Antenna System AS-89/ART for Radio Transmitting Set AN/ART-9 as installed on B-24.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	35TG	2	836

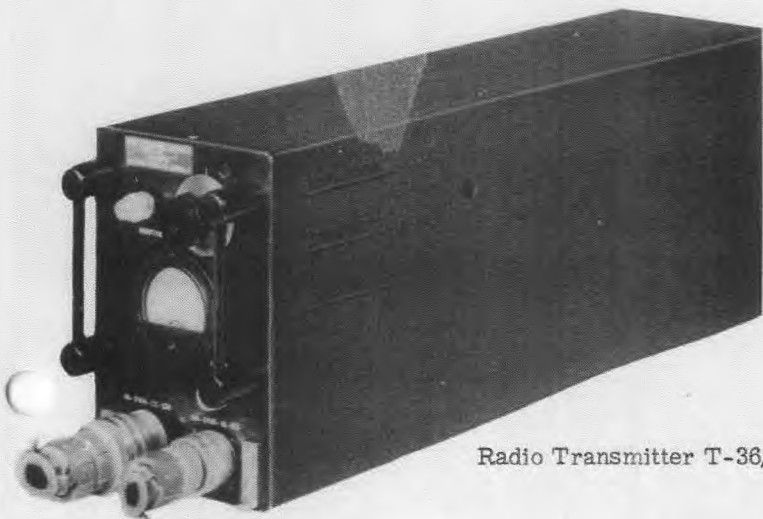
POWER INPUT	550 WATTS
POWER OUTPUT	115 WATTS
FREQUENCY RANGE	37-43 MC.
TYPE OF SIGNAL	FM 300 C.P.S. STEADY TONE



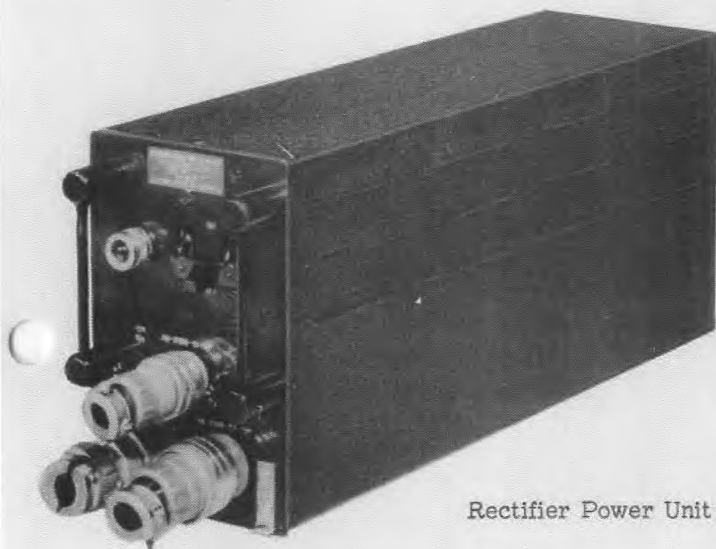
The above diagram shows the application of jamming as applied by attacking bombers to communications between enemy reconnaissance and interceptor planes.

1 Dec. 1944

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Radio Transmitter T-36/ART-9



Rectifier Power Unit PP-35/ART

Antenna System AS-89/ART



RADIO TRANSMITTING SET AN / ART-9

TOTAL WEIGHT 75 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-36/ART-9	7 5/8" x 4 7/8" x 21 3/4"	23 Lb
Rectifier Power Unit	PP-35/ART	7 5/8" x 4 7/8" x 21 3/4"	37 Lb.
Mounting Base	MT-167/U (2 each)	2 1/4" x 5 1/4" x 22"	5 1/2 Lb
Antenna System	AS-89/ART	3 1/2" Dia x 5" Long	5 Lb.

and includes plugs, adapters and misc. cables

SECRET

AN / ART - 10

Radio Transmitting Set AN/ART-10 is an airborne barrage jammer capable of operating unattended during flight, and of producing interference over a frequency range of 42 to 48 mc., employed by the Japanese for communication with fighter aircraft and by the Germans for communication with bomber aircraft. It has been found to be efficient in jamming AM signals, such as are emitted from German tank sets, but it has practically no effect on FM equipment operating in the same frequency range.

The transmitter, Radio Transmitter T-37/ART-10, consists of a push-pull oscillator using two each type 35TG tubes and a motor-driven, rotating condenser which sweeps the frequency over the tuning range at a rate of 300 c.p.s.

Power requirements, which include Rectifier Power Unit PP-35/ART, are 80-115 volts, 400-2600 c.p.s. a.c. and 28 volts d.c.

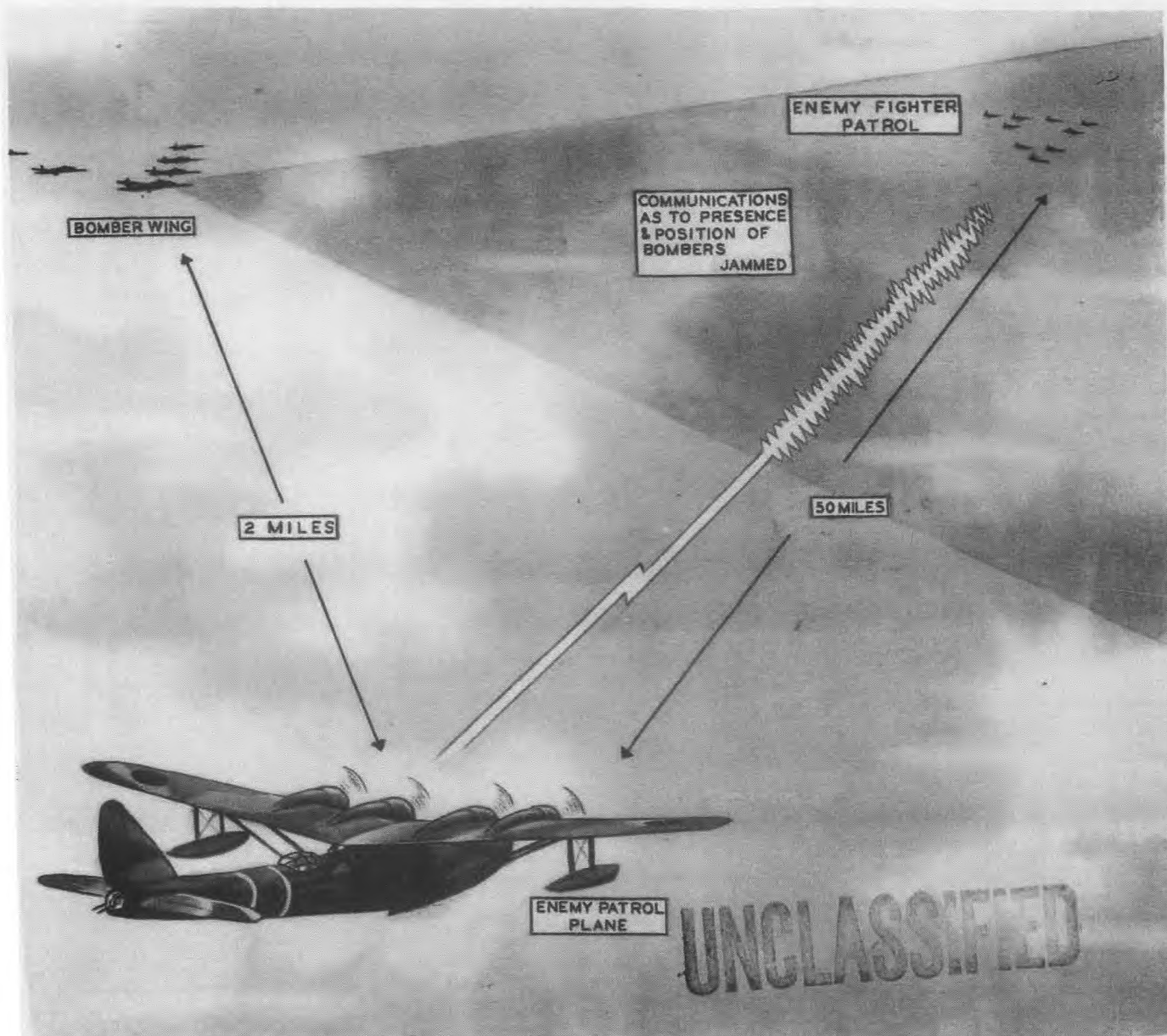
Test equipments required in maintenance are: Test

Set I-139-A, Pick-Up Assembly TS-131/AP, Test Set I-56-J,K & L, and Voltmeter, Hickok Type No. 110

Army Supply Program Requirements for this equipment as of 1 September 1944 were 1,000 sets for the calendar year 1944.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	35TG	2	836

POWER INPUT	550 WATTS
POWER OUTPUT	105 WATTS
FREQUENCY RANGE	42-48 MC
TYPE OF SIGNAL	FM 300 CPS STEADY TONE



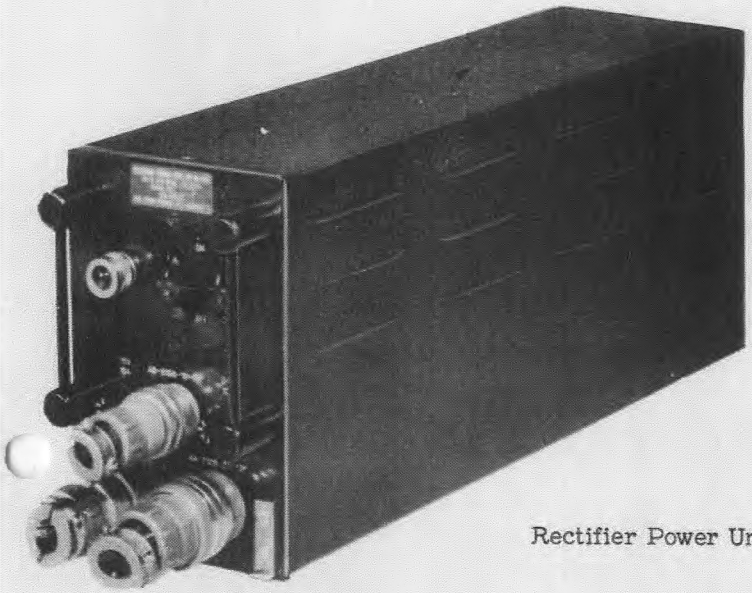
The above diagram shows the application of jamming as applied by attaching bombers to communications between enemy reconnaissance and interceptor planes.

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Radio Transmitter T-37/ART-10



Rectifier Power Unit PP-35/ART



AS-89/ART



AB-29/ART

RADIO TRANSMITTING SET AN/ART-10 TOTAL WEIGHT 75 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-37/ART-10	7 5/8" x 4 7/8" x 21 3/4"	23 Lb.
Rectifier Power Unit	PP-35/ART	7 5/8" x 4 7/8" x 21 3/4"	37 Lb.
Antenna System	AS-89/ART	72" x 3 1/2" Dia.	5 Lb.
Mounting Base	MT-167/U (2 each)	2 1/4" x 5 1/4" x 22"	5 1/2 Lb.
Antenna Base	AB-29/ART	5 1/2" x 3 1/2" Dia.	3 Lb.
Low Pass Filter		5" x 6" x 9"	2 Lb.

and includes plugs, adaptor, cable adapters, and misc. cables.

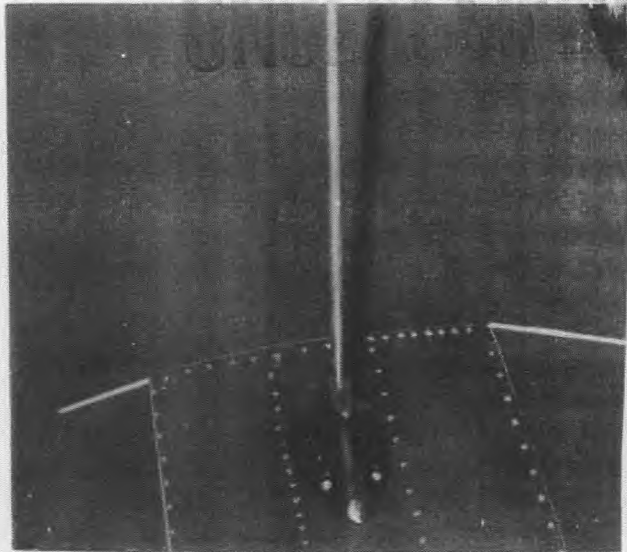
Radio Transmitting Set AN/ART-11 (Jackal) is an airborne barrage jammer that will operate unattended during flight and produce interference over the frequency range of 48 to 57mc. employed by German tanks, battalion links and armored command in general. The transmitter consists of a variable condenser which is controlled by a knob that can set it at any frequency within the range of the equipment. The motor driven condenser creates a barrage signal over the pre-selected section of the tuning range.

While this equipment has been found to be efficient in jamming AM signals such as are emitted from German tank sets, it has practically no effect on FM equipment operating in the same frequency range.

Power input is 600 watts with an a.c. power source of 80-115 volts, 400-2600 c.p.s. and d.c. power source of 28 volts. Power output is 150 watts.

Army Supply Program Requirements as of the 30 April 1944 were 600 for the calendar year 1944.

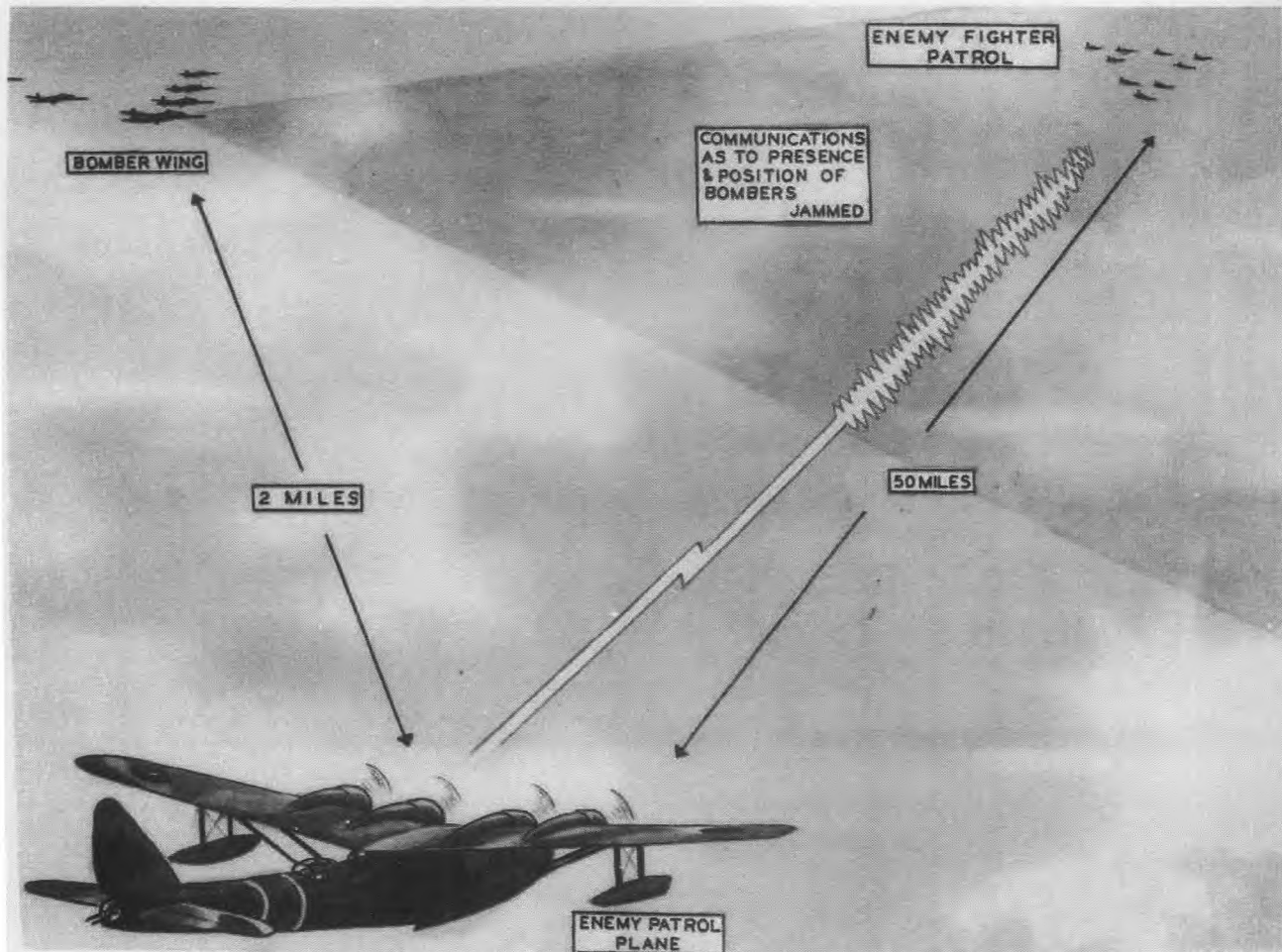
Test Equipment used in maintenance of Radio Transmitting Set AN/ART-11 includes Test Set I-139A Pickup Assembly TS-131/AP, Test Set I-56-J, K or L and Hickok Voltmeter type 110.



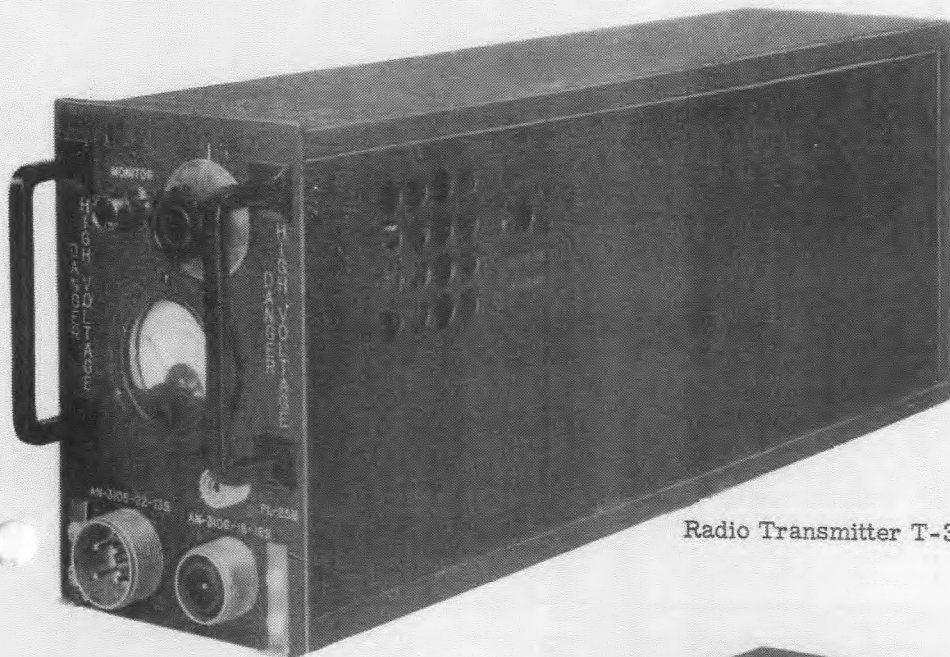
Antenna System AS-89/ART for Radio Transmitting Set AN/ART-11 as installed on B-24.

POWER INPUT	600 WATTS
POWER OUTPUT	150 WATTS
FREQUENCY RANGE	48-57Mc.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	35TG	2	836



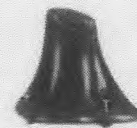
The above diagram shows the application of jamming as applied by attaching bombers to communications between enemy reconnaissance and interceptor planes.



Radio Transmitter T-38/ART-11



Power Unit PP-35/ART



Antenna Base
AB-29/ART



Antenna System
AS-97/ART

RADIO TRANSMITTING SET AN/ART-11

TOTAL WEIGHT 74 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-38/ART-11	7 5/8" x 4 7/8" x 21 3/4"	23 Lbs.
Rectifier Power Unit	PP-35/ART	7 5/8" x 4 7/8" x 21 3/4"	37 Lbs.
Antenna System	AS-97/ART	54" x 1/2" Dia.	3 3/4 Lbs.
Antenna Base	AB-29/ART	6" x 7" Dia.	3 Lbs.
Mounting Base and includes plugs, adapters and misc. cables.	MT-167/U (2 Each)	2 1/4" x 5 1/4" x 22"	5 1/2 Lbs.

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AN/TPQ-T1

RESTRICTED
UNCLASSIFIED

Army Supply Program requirements as of 31 July 1944 were 20 sets for the calendar year 1944.

Training Set AN/TPQ-T1 is a jamming transmitter designed to train operators in the use of anti-jamming equipment. It covers the frequency range 100 to 230 mc. The equipment provides sine-wave amplitude-modulated and frequency modulated signals. The equipment is set up close to the equipment to be jammed and has a low power output.

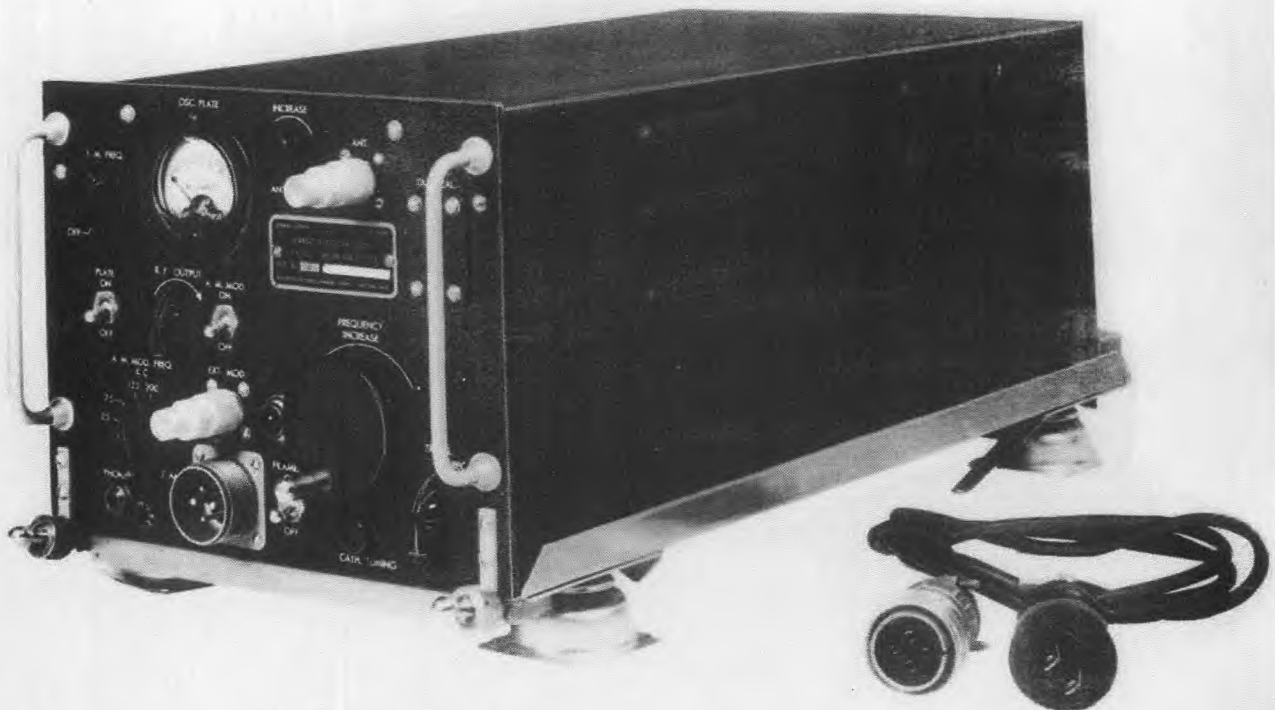
An operator is required to tune the set to the radar signal to be jammed and to select the type of jamming to be used. A trained instructor is necessary to observe and correct the reactions of the radar personnel against which the equipment is used and to outline the proper procedures to be followed in the presence of jamming signals.

The equipment is transportable and may be set up in the vicinity of the radar against which it is to be used. Any convenient simple antenna may be used with it. A 115 volt, 80-400 c.p.s., a.c. power source is required for the operation of the set.

No special test equipment is required for maintenance.

POWER INPUT	75 WATTS
POWER OUTPUT	3 WATTS
FREQUENCY RANGE	100 TO 230 MC.
TYPE OF SIGNAL	A.M. AT 25, 75, 125, 200, 500, and 1000 KC. F.M. - 1MC. VARIABLE FROM 1000 C.P.S. DOWN
RECEIVER SENSITIVITY	75 MICROVOLTS PER METER

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	7193	1	8J5GT
1	6F6GT	1	5U4G



Transceiver RT-54/TPQ-T1

TRAINING SET AN/TPQ-T1

TOTAL WEIGHT 45 LBS.

Component
Transceiver
Mounting Base

Nomenclature
RT-54/TPQ-T1
MT-171/U

UNCLASSIFIED

7 3/4" x 10 1/4" x 21 3/4"
2 1/4" x 10 5/8" x 22"

Weight
41 Lbs.
3 Lbs.

UNCLASSIFIED

Chaff, known to the British as "Window," is a deception device employed by the Army Air Forces to create spurious responses on the oscilloscopes of enemy radar devices. (Official nomenclature of future developments of this device will be "Reflector.") It consists of aluminum foil cut into various length strips depending on operating frequency of enemy equipment to be jammed. Chaff is light in weight and when dropped from aircraft falls at a rate of about 260 feet per minute. Its effect depends directly on the slow rate of fall, slow rate of dispersal, and its response qualities which are determined by its dimensions and the conductivity of the metal foil. It is packaged in packets 10" x 3" x 1/2", containing approximately 2,000 strips of foil each. Each packet contains a number of different length strips to afford coverage of a wide frequency range.

Chaff, or Window, is dispersed by the bombardier or radio operator through special shuttes placed at a 40 degree angle in the side or belly of the plane. Usually only the lead plane disperses the chaff since this provides sufficient coverage to mask the entire flight. Its use has the effect of disrupting automatic gun laying or automatic search light control and early warning equipment by introducing spurious responses in radar equipment causing the oscilloscopes to cloud over. Thus signals caused by the actual planes approaching or passing the enemy radar are lost in the echoes from the chaff.

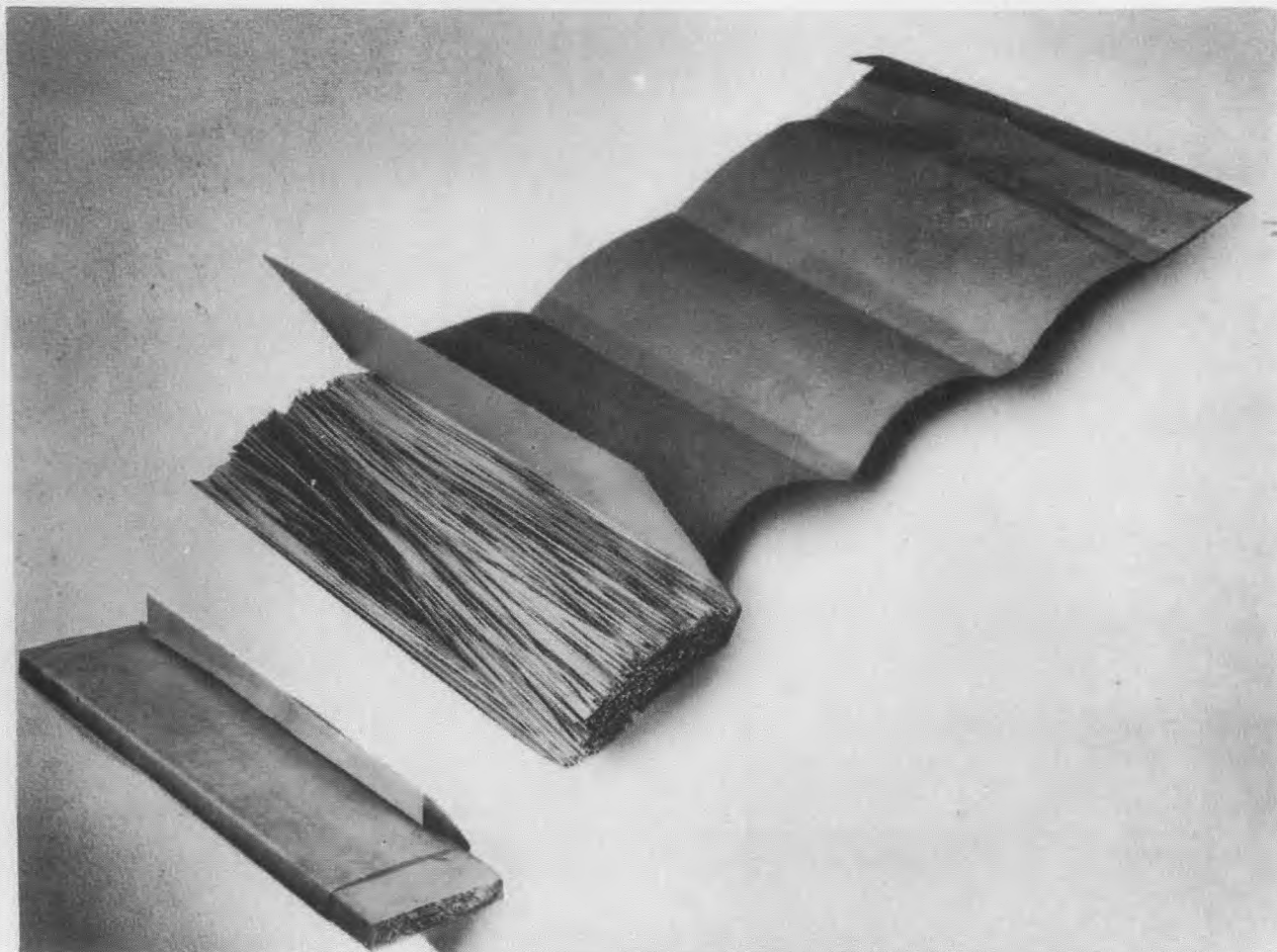
Its advantageous use overseas has been proven by comparison of the number of ships lost on missions run without Chaff against the number of ships lost on those missions during which Chaff or Window was used.

No test equipment or power supply is required for the maintenance of this equipment.

In use Chaff is packaged in cardboard containers each packed with sufficient strips of Chaff to make up three units. A unit is defined as the number of strips of foil that will produce a pattern on a radar oscilloscope equivalent to that produced by a four motor bomber. The quantity of strips per unit varies from about 1000 at 400 mc. to 500,000 at 10,000 mc. and weight per unit from about 3 ounces at 400 mc. to 2 pounds at 10,000 mc.

Army Supply Program requirements as of 13 October 1944 were 97,936,000 units for the calendar year 1944 and 98,124,000 for 1945.

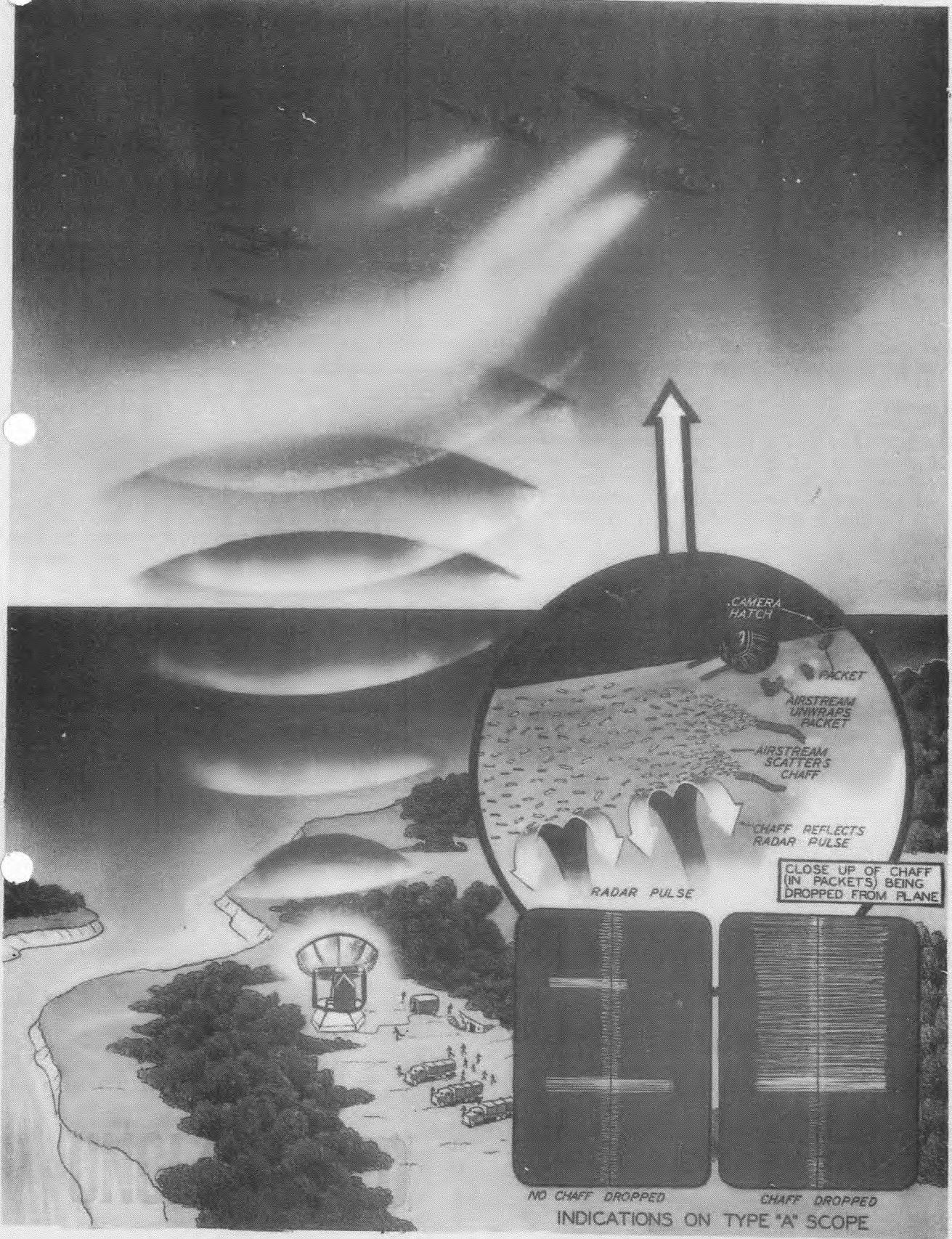
TYPE	FREQUENCY	TYPE	FREQUENCY
CHA -2	347- 404 mc.	CHA-35	800- 875 mc.
CHA-3	520- 600 mc.	CHA-45	860- 3,000 mc.
CHA-4	660- 770 mc.	CHB-0	100- 116 mc.
CHA-5	2,700- 3,400 mc.	CHB-1	193- 224 mc.
CHA-6	8,100-10,600 mc.	CHK-1	10,000 mc. & up.
CHA-25	320- 600 mc.	CHR-1	50- 200 mc.
CHA-28	450- 600 mc.	CHR-2	50- 200 mc.



Strips of chaff are packaged in units to simulate one four motor airplane. Photograph shows one unit packaged and one open.

UNCLASSIFIED

~~SECRET~~



When dropped from aircraft, "CHAFF" or "REFLECTOR" (aluminum foil) produces spurious echoes in enemy radar equipment as graphically illustrated in the oscilloscope sketch above. Oscilloscope indication on right is the ideal condition with scope saturated with reflections.

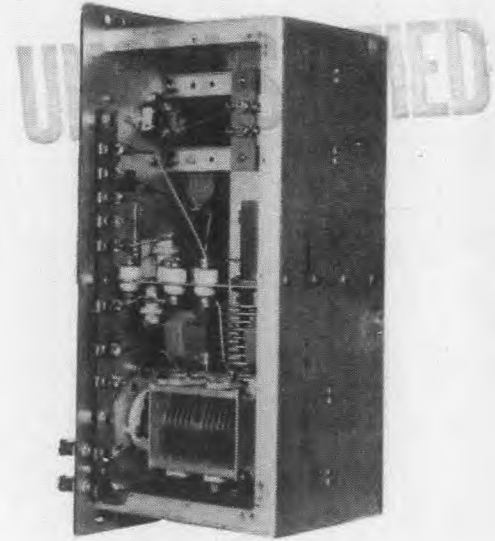
Tuning Unit TU-60 is a modification of a transmitter tuning unit, Tuning Unit TU-10-B, which converts Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications. In Radio Transmitter BC-375, it converts the oscillator and amplifier into a Hartley push-pull oscillator, which is frequency-modulated by a motor driven condenser.

The unit operates over a frequency range of 15 to 22 mc., with input power derived from Radio Transmitter BC-375. The power output of the transmitter with Tuning Unit TU-60 is 100 watts. There is mechanical frequency modulation over a band of 3 mc. average width at a frequency rate of 200 c.p.s.

Size of the unit is that of a standard tuning unit for Radio Transmitter BC-375.

No tube complement is required.

POWER OUTPUT	100 WATTS
FREQUENCY RANGE	15-22 MC.
MODULATION	MECHANICAL NOISE



Tuning Unit TU-60



Transmitter Tuning Unit TU-60.

TRANSMITTER TUNING UNIT TU-60

Component

Tuning Unit

1 Dec. 1944

Nomenclature

TU-60

TOTAL WEIGHT 15 LBS

UNCLASSIFIED

Size

7 3/4" x 8 1/2" x 17"

Weight

15 Lb.

TU-63-T1

Transmitter Tuning Unit TU-63-T1 is a modification of Transmitter Tuning Unit TU-6, used to convert Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications and radio-controlled missiles.

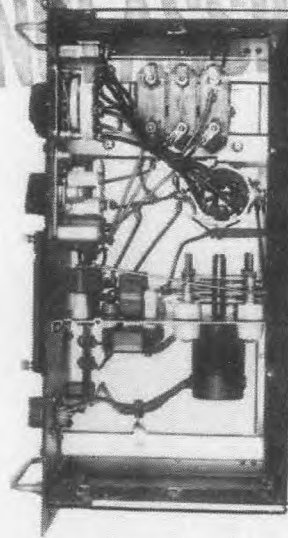
The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 2-3.85 mc.

Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of difference in frequency, it is the same as Transmitter Tuning Unit TU-60-().

Power requirements are 1 ampere at 24 volts.

No tube complement is used, and no test equipment is required.

UNCLASSIFIED



Transmitter Tuning Unit TU-63-T1 (Bottom View, dust cover removed);

POWER OUTPUT	100 WATTS
FREQUENCY RANGE	2-3.85 MC.
TYPE OF SIGNAL	AUDIO FREQUENCY WOBBULATED
TRANSPORTATION	AIRBORNE



Tuning Unit TU-63-T1

TRANSMITTER TUNING UNIT TU-63-T1

TOTAL WEIGHT 15 LBS.

Component

Nomenclature

Size

Weight

Tuning Unit

TU-63-T1

7 3/4" x 8 1/2" x 17"

15 Lbs.

1 Dec. 1944

UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~

TU-64-T1

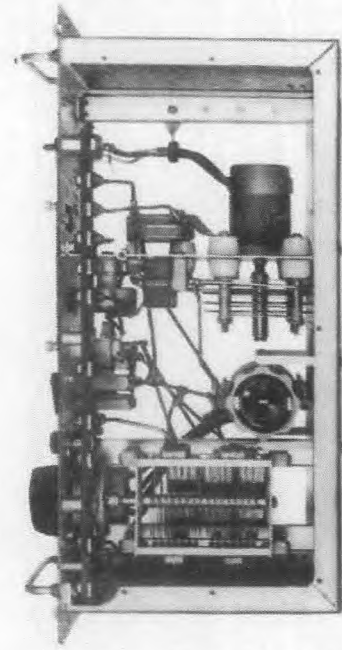
Transmitter Tuning Unit TU-64-() is a modification of Transmitter Tuning Unit TU-7, used to convert Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications and radio-controlled missiles.

The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 3.85-6.31 mc.

Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of the difference in frequency, it is the same as Transmitter Tuning Unit TU-60-().

Power requirements are 1 ampere at 24 volts.

No tube complement is used, and no test equipment has been assigned.



Transmitter Tuning Unit TU-64-T1 (Top View, cover removed);

POWER OUTPUT	100 WATTS
FREQUENCY RANGE	3.85-6.31 MC.
TYPE OF SIGNAL	AUDIO FREQUENCY WOBBULATED
TRANSPORTATION	AIRBORNE



Tuning Unit TU-64-T1.

TRANSMITTER TUNING UNIT TU-64-T1

TOTAL WEIGHT 15 LBS.

Component

Nomenclature

Size

Weight

Tuning Unit

TU-64-T1

UNCLASSIFIED
7 3/4" x 8 1/2" x 17"

15 Lbs.

CLASSIFIED

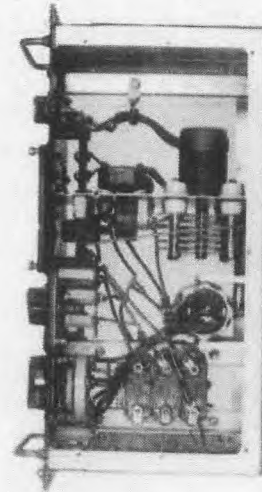
TU-65-T1

Transmitter Tuning Unit TU-65-T1 is a modification of Transmitter Tuning Unit TU-8, used to convert Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications and radio-controlled missiles.

The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 8.31-10.2 mc.

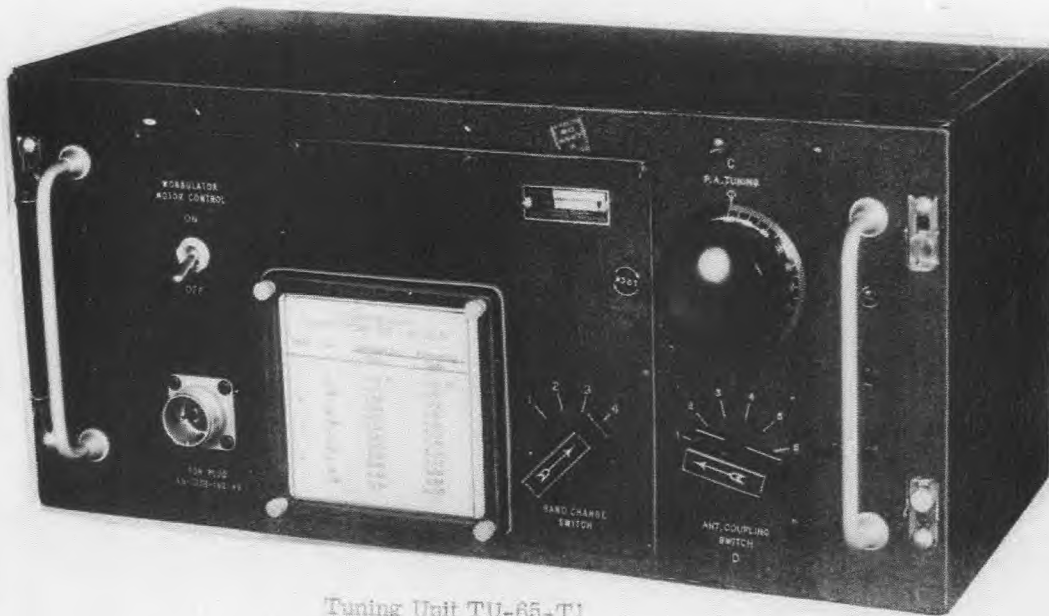
Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of difference in frequency, it is the same as Transmitter Tuning Unit TU-60-().

Power requirements are 1 ampere at 24 volts. No tube complement is used, and no test equipment has been assigned.



Transmitter Tuning Unit TU-65-T1 (Bottom View, dust cover removed);

POWER OUTPUT	100 WATTS
FREQUENCY RANGE	6.31-10.2 MC.
TYPE OF SIGNAL	AUDIO FREQUENCY WOBBULATED



Tuning Unit TU-65-T1

TRANSMITTER TUNING UNIT TU-65-T1

TOTAL WEIGHT 15 LBS.

Component
Tuning Unit
1 Dec. 1944

Nomenclature
TU-65-T1

UNCLASSIFIED
Size
7 3/4" x 8 1/2" x 17"

Weight
15 Lbs.

UNCLASSIFIED

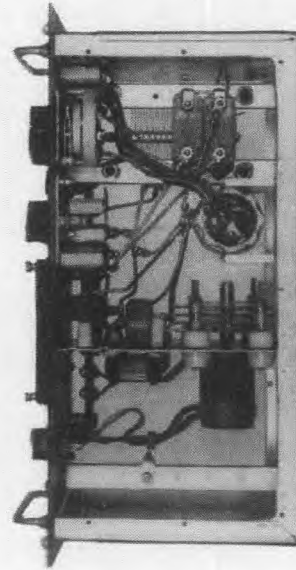
TU-66-T1

Transmitter Tuning Unit TU-66-T1 is a modification of Transmitter Tuning Unit TU-9, used to convert Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications and radio-controlled missiles.

The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 10.2-15.8 mc.

Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of the difference in frequency, it is the same as Transmitter Tuning Unit TU-60-(). Power requirements are 1 ampere at 24 volts.

No tube complement is used, and no test equipment has been assigned.



Transmitter Tuning Unit TU-66-T1 (Bottom View, dust cover removed);

POWER OUTPUT	100 WATTS
FREQUENCY RANGE	10.2-15.8 MC
TYPE OF SIGNAL	AUDIO FREQUENCY WOBBULATED



Transmitter Tuning Unit TU-66-T1

TRANSMITTER TUNING UNIT TU-66-T1

TOTAL WEIGHT 15 LBS.

Component

Nomenclature

Size

Weight

Tuning Unit

TU-66-T1

7 3/4" x 8 1/2" x 17"

15 Lbs.

1 Dec. 1944

UNCLASSIFIED

UNCLASSIFIED

TEST
Equipment

UNCLASSIFIED

~~RESTRICTED~~

BC-1255

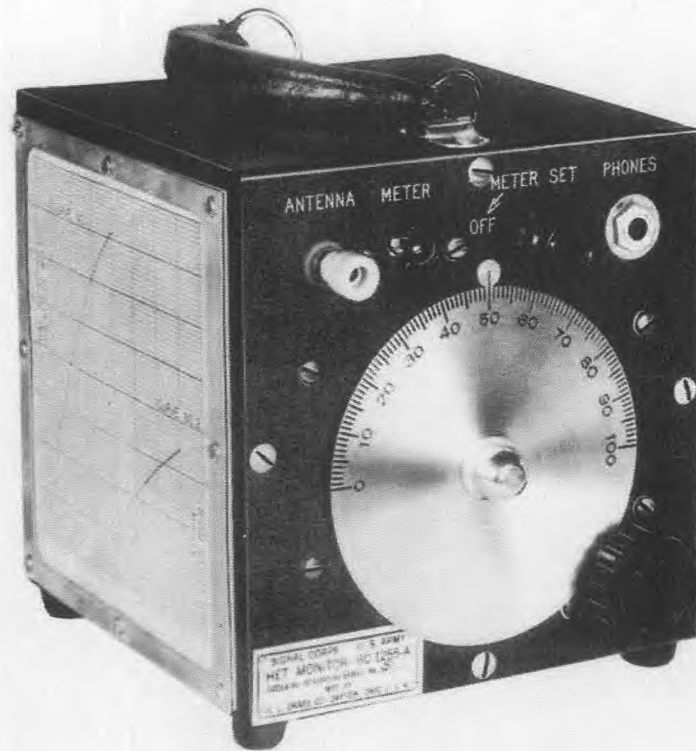
UNCLASSIFIED

Monitor BC-1255 is a portable, battery operated, heterodyne frequency meter designed to check and adjust the frequencies of transmitters such as Transmitting Equipment AN/APT-3 and Radar Set AN/APT-1. The monitor is designed to cover the frequency range 75 to 150 mc. on fundamental frequencies and the range 150 to 300 mc. on the second harmonic. The frequency of its oscillator is adjustable over the frequency range to zero beat with the signal of the transmitter being checked. Audible indication is provided for the determination of zero beat, or visible indication may be obtained by connecting Test Set I-139 to the meter connection of the set.

Power is supplied by Batteries BA-15A and BA-56. Army Supply Program requirements as of 30 April 1944 were 800 equipments for the calendar year 1944.

FREQUENCY RANGE	75 TO 150 MC. (Fundamental)
SENSITIVITY	20 MILLIVOLTS AT 75 MC. 5 MILLIVOLTS AT 150 MC.
POWER SOURCE	1 BATTERY BA-15A 2 BATTERIES BA-56
ACCURACY	± 1 %

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	958A	2	1S5



Heterodyne Monitor BC-1255-A

MONITOR BC-1255

TOTAL WEIGHT 6 LBS.

Component	Nomenclature	Size	Weight
Monitor	BC-1255	6" x 6" x 6"	6 Lbs.

Test Oscillator TS-47/APR is a portable signal generator used for checking the operation and calibration of Radio Set SCR-587, Radio Receiving Equipment AN/APR-4 and Radio Receiving Equipment AN/APR-5A. It covers the frequency range 40 to 500 mc. on fundamental frequencies over two bands and with harmonic output is useable up to 3000 mc. The oscillator output, controlled by a three way switch, may be unmodulated, or modulated by pulses or 1000 cycle audio frequency to simulate signals of enemy radar and communication systems.

TS-47/APR complete with shock mounts is housed in a waterproof wooden case. Power may be supplied from either 80, 115 or 230 volt, 60-2600 c.p.s., a.c. source or from dry batteries.

Army Supply Program requirements as of 31 July 1944 were 2,141 for the calendar year 1944 and 1,030

for 1945. As of 2 August 1944, procurement was limited to 660 equipments for 1944.

POWER INPUT	12 WATTS
POWER OUTPUT	3 MILLI-WATTS
FREQUENCY RANGE	40 TO 500 MC.(fundamental) 500 TO 2000 MC.(harmonics)
TYPE OF SIGNAL	500 P.R.F., 70 U SEC WIDE 1000 C.P.S.
ACCURACY	$\pm 1\%$

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6X5GT	2	9002



Test Oscillator TS-47/APR

Cord CX-153/U

TEST OSCILLATOR TS-47/APR

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Test Oscillator	TS-47/APR	6 1/2" x 10" x 5 1/2"	15 LBS.
Cord	CX-153/U	5 ft. long	

~~RESTRICTED~~

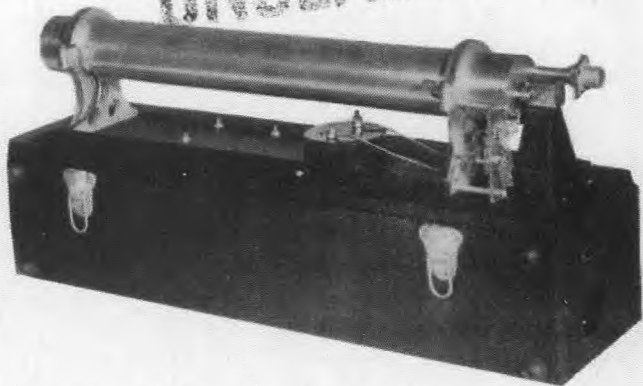
TS-69/AP

UNCLASSIFIED

Frequency Meter TS-69/AP is a Class A test equipment for use with radiotransmitters such as Radar Set AN/APT-2, Radar Set AN/APT-4, Radio Set AN/APQ-9 and others in the frequency range 350 to 1000 mc. It is an absorption type frequency meter containing a co-axial tuned cavity circuit with a crystal rectifier output circuit. It is designed to permit accurate adjustment of the frequency of the transmitters being tuned prior to take-off for barrage jamming operations. By means of the frequency meter the various transmitters in the flight may be tuned to overlap in frequency and cover the band of frequencies used by the enemy radars that may be encountered during the mission.

The frequency of any desired signal being examined is indicated on a calibration chart. The equipment, intended principally for squadron use, is hand transportable and is housed in a 7" x 7" x 24" box.

Army Supply Program requirements as of 1 September 1944 were 3,179 equipments for the calendar year 1944.



Frequency Meter TS-69/AP (Cavity removed from case)

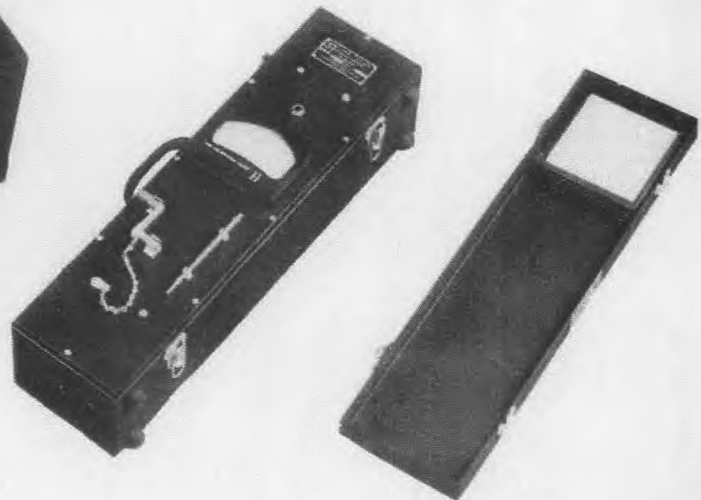
POWER INPUT	25 MICRO-VOLTS. MINIMUM
FREQUENCY	350 TO 1000 MC.
ACCURACY	0.10% AT 350 MC. TO 0.25% AT 1000 MC.
INPUT IMPEDANCE	50 OHMS



Case CY-149/AP



Probe Antenna AS-122/AP



Frequency Meter TS-69/AP (Dust cover removed)

FREQUENCY METER TS-69/AP

TOTAL WEIGHT 20 LBS.

Components	Nomenclature	Size	Weight
Frequency Meter	TS-69/AP	6" x 6" x 22"	13 Lbs.
Case	CY-149/AP	7" x 7" x 24"	5 Lbs.
Probe Antenna	AS-122/AP	10" Long	1/4 Lb.

1 Dec. 1944

UNCLASSIFIED

Radio Frequency Wattmeter TS-87/AP is a class B general test equipment designed to measure the power output of relatively low power transmitters such as Radar Set AN/APT-3 and Transmitting Equipment AN/APT-1. A d-c milliammeter is employed for direct reading and the power in watts is interpolated from an attached calibration chart. The wattmeter has a range of 2 to 30 watts over a frequency range of 85 to 220 mc. It is capable of measuring the power output of transmitters operating on CW and MCW modulated by noise, voice or tone. The accuracy of the instrument in measuring radio frequency power is ± 10 percent within its

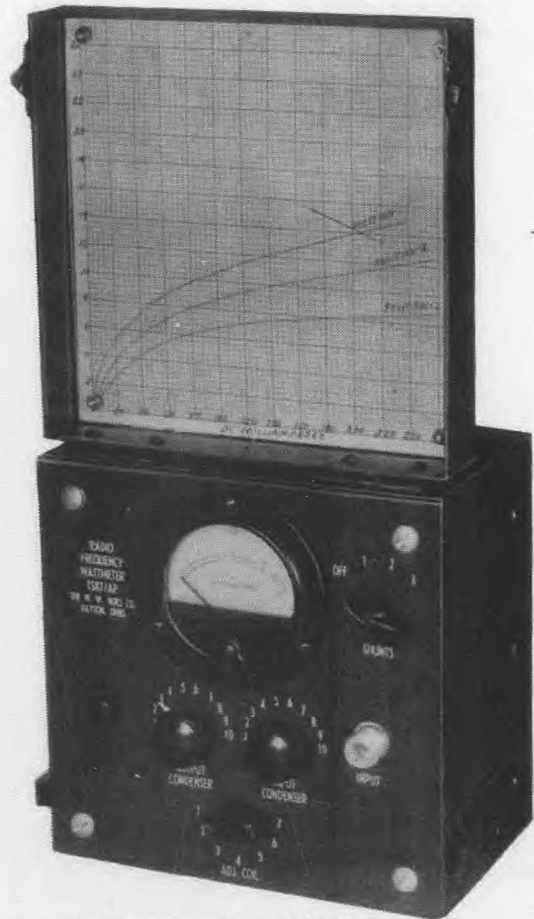
frequency range.

The equipment is being procured on an interim basis pending the quantity procurement of Radio Frequency Wattmeter TS-118/AP. Army Supply Program requirements as of 31 July 1944 were 375 equipments for the calendar year 1944.

POWER RANGE	2 TO 30 WATTS
FREQUENCY RANGE	85 TO 220 MC.
SELECTIVITY	10 MC. PASS BAND
ACCURACY	$\pm 10\%$



Case
CY-82/AP



Radio Frequency Wattmeter TS-87/AP



Cord CG-56/U



Cord CG-55/U

RADIO FREQUENCY WATTMETER TS-87/AP TOTAL WEIGHT 26 LBS.

Component	Nomenclature	Size	Weight
Power Meter	TS-87/AP	8" x 8" x 6"	18 Lbs.
Case	CY-82/AP	10" x 9 1/2" x 10 1/2"	6 Lbs.
Cord	CG-55/U	6" Long	3/4 Lbs.
Cord	CG-56/U	60" Long	3/4 Lbs.

1 Dec. 1944

Amplifier Alignment Unit TS-92/AP is a class A special test equipment used in aligning the amplifier stages of radar jamming transmitters. It can be used with Transmitting Equipment AN/APT-1, Radio Set AN/ARQ-8. Using the TS-92/AP the amplifier of the transmitter may be adjusted to give optimum performance at any band width between 0.5 to 7 mc. for any carrier frequency in the range from 15-250 mc. This simple device is intended for use in the field where more elaborate equipment, such as oscilloscope and sweep oscillator, is not available. It consists essentially of a radio receiver designed in such a way that the two peaks in the amplifier response curve may be maximized to give optimum adjustment of the amplifier.

Power is obtained from a 115 volt 60-2600 c.p.s., a.c. power source. A one-tenth volt input gives full scale meter indication.

Army Supply Program requirements as of 10 November 1944 were 660 equipments for the calendar year 1944 and 1,667 for 1945.

POWER INPUT	35 WATTS @ 110 VOLTS 60-2600 c.p.s.
FREQUENCY	15-250 MC
OUTPUT BANDWIDTH	0.5-7 MC
SENSITIVITY	0.1 VOLT FOR FULL SCALE DEFLECTION
SELECTIVITY	3DB ATTENUATION 50 KC FROM RESONANT FREQUENCY
INPUT IMPEDANCE	100 OHMS
ACCURACY	DIAL CALIBRATION $\pm 5\%$

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6SA7	1	6J5
2	6AC7	1	5Y3GT
1	6H6		



AMPLIFIER ALIGNMENT UNIT TS-92/AP

TOTAL WEIGHT 22 LBS.

Component	Nomenclature	Size	Weight
Tuning Indicator	TS-92/AP	16" x 8" x 6"	20 Lbs
Loop Probe	AS-142/AP		
Antenna Probe	AS-122/AP	8" Long.	
Cord	CG-89/AP	8' Long	
Cord	CG-153/AP	6' Long	

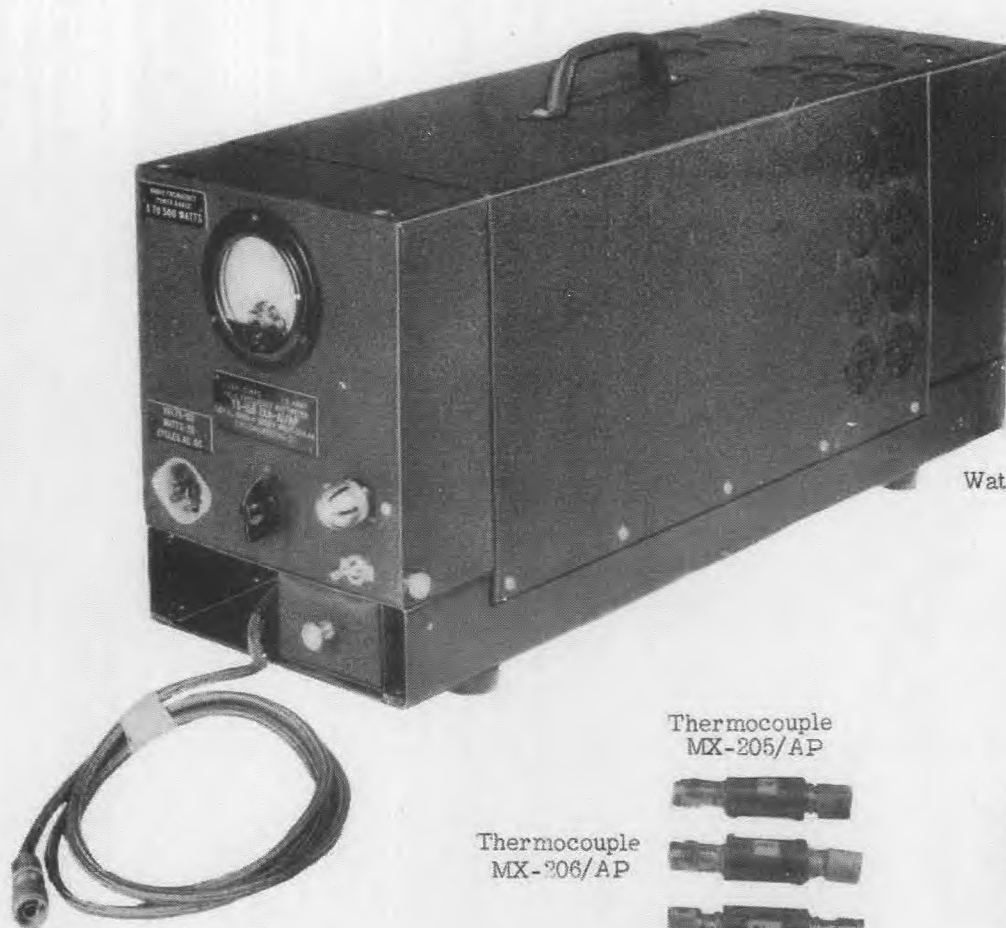
Feb. 1945 Y-100820

Radio Frequency Wattmeter TS-118/AP is a class B general test set. It is a portable untuned wattmeter of the thermo-couple type designed to measure the power output of radio transmitters such as Transmitting Equipment AN/APT-1, Radar Set AN/APT-4, Radio Equipment AN/APQ-9, Radio Frequency Amplifier AM-14/APT and Radio Frequency Amplifier AM-18/APT. The equipment operates over a frequency range from 20 to 750 mc. and is capable of measuring power from 2 to 500 watts.

Army Supply Program requirements as of 31 July 1944 were 310 equipments for the calendar year 1944 and 210 equipments for the calendar year 1945.

FREQUENCY RANGE	20 TO 750 MC.
POWER RANGE	2 TO 500 WATTS
ACCURACY	± 10%

TS-118/AP will supersede Radio Frequency Wattmeters TS-70/AP and TS-87/AP.



Wattmeter TS-118(XA-A)/AP

Thermocouple
MX-205/AP



Thermocouple
MX-206/AP



Thermocouple
MX-207/AP



Cord CX-237/U

RADIO FREQUENCY WATTMETER TS-118/AP TOTAL WEIGHT 66 LBS.

Component	Nomenclature	Size	Weight
Power Meter	TS-118/AP	12" x 10" x 26"	50 Lbs.
Case	CY-174/AP	12 1/2" x 14" x 31"	12 Lbs.
Thermo-Couple	MX-205/AP	4" Long	3/4 Lbs.
Thermo-Couple	MX-206/AP	4" Long	3/4 Lbs.
Thermo-Couple	MX-207/AP	4" Long	3/4 Lbs.
Cord	CX-237/U	10" Long	1/2 Lbs.
Cord	CG-122/U	9" Long	1/4 Lbs.
Cord	CG-123/U	8" Long	1/2 Lbs.
Cord	CG-58/U	9" Long	1/4 Lbs.

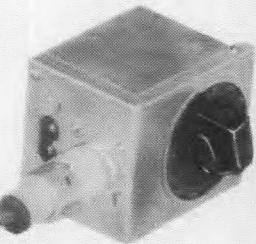
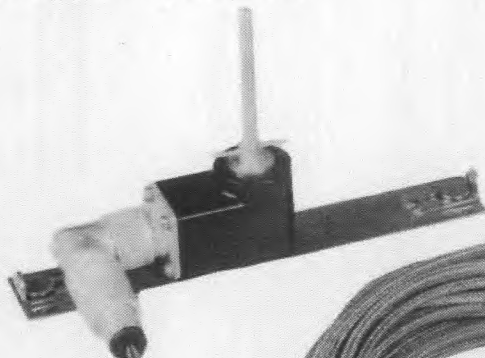
Pickup Assembly TS-131/AP is a simple testing device designed to indicate the relative output at the antenna during the pre-flight tuning of high frequency transmitters such as Transmitting Equipment AN/APT-1, Transmitting Equipment AN/APQ-2 and Radar Set AN/APT-5. The equipment consists of a pickup unit to be mounted near the antenna assembly to pick up and rectify the output and a meter control box to provide indication near the transmitter being tuned. A test meter such as Test Meter I-139-A attached to the control box provides visual indication of maximum current output at the antenna.

Army Supply Program requirements as of 31 July 1944 were 4,900 equipments for the calendar year 1944 and 4,416 equipments for 1945.

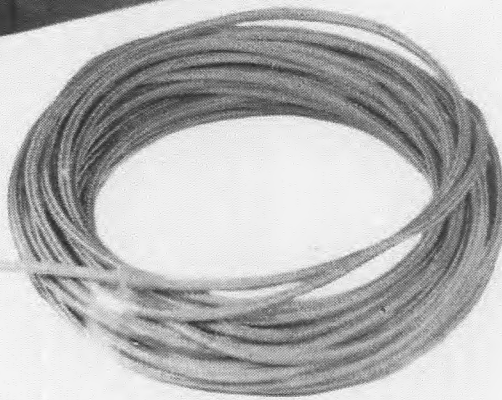


Components of Pickup Assembly TS-131/AP packed in Case CY-108/AP.

Pickup Assembly TS-131/AP



Control Box C-111/AP



Cord CX-149/AP

PICKUP ASSEMBLY TS 131/ AP

TOTAL WEIGHT 8 LBS.

Component	Nomenclature	Size	Weight
Pickup Assembly	TS-131/AP	5 1/2" x 1" x 4"	
Control Box	C-111/AP	2" x 3 1/4" x 1 1/2"	
Case	CY-108/AP	10" x 6" x 6"	
Cord	CX-149/AP	35 feet long	
Adapter	M-359	1 1/2" x 1 1/4" x 3/4"	

1 Dec. 1944

~~RESTRICTED~~

TS-174/U

UNCLASSIFIED

Frequency Meter TS-174/U is a general purpose Class A heterodyne frequency meter used to check frequencies in the 20 to 280 mc. range. It is of the heterodyne type operating on fundamental frequencies in the range 20 to 40 mc. and on harmonics in the range 40 to 280 mc. Accuracy of the instrument for measuring radio frequencies is $\pm .05$ percent throughout its frequency range. Crystal check points are provided for checking meter accuracy. It is used to check and set frequencies for such transmitters as Radar Set AN/APT-1, Radar Set AN/APT-3 and Radar Set AN/ARQ-8.

Frequency Meter TS-174/U can replace in part Frequency Meter TS-99/AP, General Radio Heterodyne Frequency Meter type 720-A and Monitor BC-1255.

The equipment is designed to determine or set the frequency of transmitters operating on CW or MCW, with noise, voice or tone modulation, and is suitable for checking frequencies of pulse type transmitters and CW type receivers.

The case, chassis, dial mechanism and battery complement are the same as for Frequency Meter BC-221, the major component of SCR-211.

Army Supply Program requirements as of 11 August 1944 were 1,070 equipments for the calendar year 1945.

FREQUENCY RANGE	20 TO 280 MC.
POWER SOURCE	4 BATTERIES BA-23 2 BATTERIES BA-2
ACCURACY	$\pm .05$ %

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6SJ7Y	1	6SJ7
1	6K8		



Frequency Meter TS-174/U

FREQUENCY METER TS-174/U

TOTAL WEIGHT 42 LBS.

Components	Nomenclature	Size	Weight
Frequency Meter	TS-174/U	14 1/4" x 10 1/4" x 9 3/4"	42 Lbs. (incl. batteries)

1. Dec. 1944

UNCLASSIFIED

TS-213/U

UNCLASSIFIED

Frequency Meter TS-213/U is a heterodyne frequency meter designed for use in setting or determining the frequency of transmitters operating within its frequency range. The meter consists of a cavity tuned oscillator, a mixer, a crystal oscillator-doubler and a video amplifier. Resonance will be indicated visually on a meter or audibly through a headset.

The equipment is being designed for general squadron use and is to operate from the aircraft's power supply.

No requirements had been established on the Army Supply Program as of 1 October 1944.

POWER INPUT	150 WATTS @ 115 VOLTS
FREQUENCY	500-1000 MCS. (FUNDAMENTAL) 1000-5000 MCS. (HARMONICS)
ACCURACY	+ 0.05%
CRYSTAL CHECK POINTS	EVERY 20 MCS.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6L446	2	6J5
1	9006	1	IN-21
1	6SJ7		



Frequency Meter TS-213(XA)/U

FREQUENCY METER TS-213/U

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Frequency Meter	TS-213/U	10" x 12" x 10"	
Carrying Case	CY-216/U		
Cord	CG-55/U		
Cord	CG-56/U		
Antenna	AT-66/U		

Feb. 1945 Y-100820

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N-12836-B-2

SECTION TWC

UNCLASIFIED

GRAPHIC 12836-B of 2

Radio and Radar Equipment

Used by the Army Air Forces

Instructors Reading this

Communications Equipment

COPY NO. 256

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Army Air Forces Air Technical Service Command
Wright Field Dayton, Ohio

GRAPHIC SURVEY of Radio and Radar Equipment Used by the Army Air Forces

Classification Cancelled
OR Changed to ~~CONFIDENTIAL~~

Auth: 6 June 1946

CG, AFAC

By *J. J. Strzemecki*
Capt. ac

BY AUTHORITY OF DIRECTOR, ATSC

1 March 1945

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Hobart R. Yeager
Colonel, Air Co

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Present
Security
Classification

<u>Nomenclature</u>	<u>Description</u>	<u>Classification</u>
AN/AIA-1A	Glider Interphone Equipment	Unclassified
AN/AIC-1	Interphone Equipment	Unclassified
AN/AIC-2	Interphone Equipment	Unclassified
AN/AIC-3	Interphone Equipment	Unclassified
AN/ANQ-2	Recorder	Unclassified
AN/ARA-10	Control Assembly	Unclassified
AN/ARC-3	VHF Command Set (8 channel)	Unclassified
AN/ARC-6	Protected Communications Set	Unclassified
AN/ARC-7	VHF Glider Equipment	Unclassified
AN/ARC-9	Communications Receiver	Unclassified
AN/ARC-10	Radio Relay Equipment	Unclassified
AN/ARR-11	Radio Receiving Set	Unclassified
AN/ARR-13	Radio Receiver	Unclassified
AN/ART-13A	Auto-tune Transmitter	Unclassified
AN/ASA-3	Static Discharger	Unclassified
AN/CRC-1	Ground-Air Communications Set	Unclassified
AN/CRR-1	Radio Receiving Equipment	Unclassified
AN/GNQ-2	Recorder-Reproducer	Unclassified
HS-33	Headset	Unclassified
HS-38	Headset	Unclassified
ANB-M-C1	Microphone	Unclassified
M-1/A	Face Microphone	Unclassified
M-3/A	Lip Microphone	Unclassified
T-7	Hand Microphone	Unclassified
T-30	Throat Microphone	Unclassified
T-14	Magnetic Microphone	Unclassified
RC-26	Interphone Equipment	Unclassified
RC-27	Interphone Equipment	Unclassified
RC-35	Interphone Equipment	Unclassified
RC-36	Interphone Equipment	Unclassified
RC-45	Interphone Equipment	Unclassified
SCR-27/LN	Command Set	Unclassified
SCR-283	Command Set	Unclassified
SCR-287	Liaison Set	Unclassified
SCR-522	VHF Command Set	Unclassified
SCR-585	Glider Receiver-Transmitter	Unclassified
SCR-624	Air Transportable Command Set	Unclassified

Test Equipment

AN/AIM-1	Test Equipment	Unclassified
AN/ARM-1	Test Equipment (8 channels)	Unclassified
I-56	Tube Tester (Ground)	Unclassified
I-72	Signal Generator	Unclassified
I-77	Test Set	Unclassified
I-83	Dynamotor Test Set	Unclassified
I-139	Test Set	Unclassified
IE-12	Test Set (for SCR-522)	Unclassified
IE-19	Test Set (for SCR-522)	Unclassified
IE-36	Test Set	Unclassified
SCR-211	Frequency	Unclassified
SCR-161/AR	Frequency	Unclassified

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GRAPHIC SURVEY Foreword

Purpose : This Graphic Survey of Radio and Radar Equipment used by the Army Air Forces is intended to furnish authorized personnel with graphic and narrative data relative to description, electrical and physical characteristics, purpose, and tactical employment of the radio and radar equipment used by the Army Air Forces.

Restriction : The Graphic Survey is not authorized as a basis for procurement storage, or issue, but is prepared only for information and guidance of research, development, procurement; storage, issue, and staff and planning activities.

Scope : This publication is intended to cover all active equipment, both in use and in development. Publication is accomplished in a series of separate sections in order that reproduction and dissemination may be effected economically and expeditiously.

Format : Permanent binder covers are not furnished with the various sections of the Graphic Survey; but the pages of each section are printed on 8 1/2 x 11 inch paper and punched for the standard AAF three-hole binder, (binder, loose-leaf, 3 post, stock number 8700-043800), commonly known within the AAF as "Technical Order Binder". With a few exceptions, data concerning each equipment is presented on two pages. The first page contains a description and information relative to use, installation, and electrical characteristics; the second page, photographs of the various components and physical weights and dimensions. Within each section, the equipments are arranged alphabetically by official nomenclature and type designation.

Suggestions : Suggestions are invited for improvement of form, content, or to otherwise increase the ultimate utility to the user within the scope and purpose of this publication. Comments should be addressed to the Commanding General, Air Technical Service Command, Wright Field, Ohio, Attention: TSERR1B for consideration.

Security : The Graphic Survey is classified "Secret" because of the broad scope of the equipment covered in each volume and the high classification of many of the equipments. Each addressee will be responsible for maintaining the security of his copies in accordance with the provisions of AR 380-5. Security classification of each individual equipment at the time of publication will be indicated on the pages relative to that equipment.

Distribution : Requests relative to distribution of this publication should be addressed to Commanding General, Air Technical Service Command, Attention: TSERR1B. Revisions and additions are forwarded periodically to original addressees in order that all copies may be kept up to date. Each copy has a serial number which is recorded on a master distribution file index.

Authority : Preparation, publication and distribution of the Graphic Survey is accomplished in accordance with letter, Headquarters, AAF(AFDMA-2F), dated 5 April 1945, subject "Graphic Survey of Radio and Radar Equipment Used by the AAF". AAF report clearance number AAF-MD-E89 has been assigned.

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INDEX

1 March 1945

Section 2 Radio and Radar Communications Equipment

NOMENCLATURE	DESCRIPTION	TYPE	STATUS*
AN/AIA-1A	Glider Interphone Equipment	Standard	P
AN/AIC-1	Interphone Equipment		D
AN/AIC-2	Interphone Equipment	Standard	P
AN/AIC-3	Interphone Equipment	Limited Procurement	D
AN/ANQ-2	Recorder	Sub/Standard	P
AN/ARA-10	Control Assembly	Standard	P
AN/ARC-3	VHF Command Set(8 channel)	Standard	P
AN/ARC-6	Protected Communications Set		D
AN/ARC-7	VHF Glider Equipment		P
AN/ARC-9	Communications Receiver	Sub/Standard	P
AN/ARC-10	Radio Relay Equipment		D
AN/ARR-11	Radio Receiving Set	Standard	P
AN/ARR-13	Radio Receiver	Standard	P
AN/ART-13A	Auto-tune Transmitter	Standard	P
AN/ASA-3	Static Discharger	Standard	P
AN/CRC-1	Ground-Air Communications Set	Limited Standard	P
AN/CRR-1	Radio Receiving Equipment		P
AN/GNQ-2	Recorder-Reproducer	Standard	P
Headsets			
HS-33	Headset	Standard	P
HS-38	Headset	Standard	P
Microphones			
ANB-M-C1	Microphone	Standard	P
M-1/A	Face Microphone	Standard	P
M-3/A	Lip Microphone		D
T-17	Hand Microphone	Standard	P
T-30	Throat Microphone	Standard	P
T-44	Magnetic Microphone	Standard	P
RC-26	Interphone Equipment		P
RC-27	Interphone Equipment	Standard	P
RC-35	Interphone Equipment	Standard	P
RC-36	Interphone Equipment	Standard	P
RC-45	Interphone Equipment	Standard	P

X-49881

~~RT-XA-17/AP Microwave Receiver-Transmitter~~ *Snapped* D 2

SCR-274N	Command Set	Standard	P
SCR-283	Command Set	Limited Standard	P
SCR-287	Liaison Set	Limited Standard	P
SCR-522	VHF Command Set	Sub/Standard	P
SCR-585	Glider Receiver-Transmitter	Limited Standard	P
SCR-624	Air Transportable Command Set	Standard	P

AN/AIM-1	Test Equipment	Standard	P
AN/ARM-1	Test Equipment(8 channels)	Standard	P

I-56	Tube Tester (Ground)	Standard	P
I-72	Signal Generator	Standard	P
I-77	Test Set	Standard	P
I-83	Dynamotor Test Set	Standard	P
I-139	Test Set	Standard	P

IE-12	Test Set (for SCR-522)	Standard	P
IE-19	Test Set (for SCR-522)	Standard	P
IE-36	Test Set	Standard	P

SCR-211	Frequency Meter	Standard	P
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TS-164/AR	Frequency Meter	Standard	P
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***Status Defined:**

D - (DEVELOPMENT): Initial pilot run has not yet been completed.

P - (PRODUCTION): Initial pilot run has been completed, and quantity production is underway or has been completed.

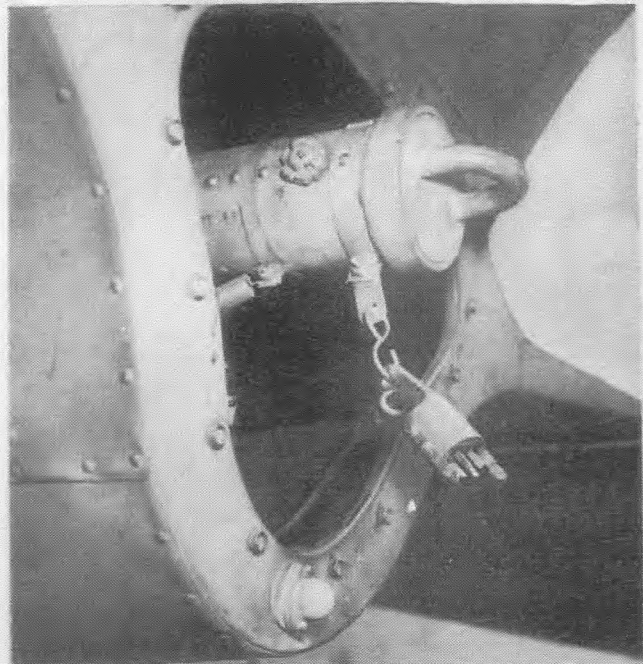
Interphone Equipment AN/AIA-1A is accessory to the tow plane interphone system which provides interphone communication between a glider and tow plane. This equipment includes three major groups of components: Tow plane components; tow cable components, and glider components.

It is designed to work from tow plane interphone equipment of the type such as RC-36 and RC-45. The components used in the glider provide one outlet position for headset and microphone connection and includes one microphone and a maximum of three headsets, together with required extension cords.

Components used on the tow rope provide the necessary electrical conductors for the microphone and circuits. Components used in the tow plane provide a multi-circuit to a corresponding socket on the tow rope conductors and the interphone equipment wiring.

Test equipment required for maintenance includes AN/AIM-1.

Army Supply Program requirements as of 1 December 1944 were 7,978 glider components, 11,182 tow cable components and 10,536 tow plane components for the calendar year 1944.

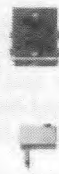
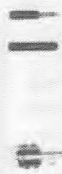


Installation photo showing tow plane connections for AIA-1A.

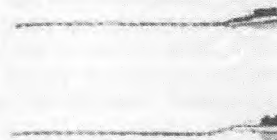
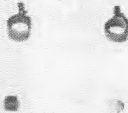
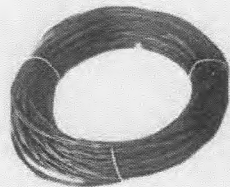
POWER INPUT	GETS POWER FROM TOW PLANE
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE



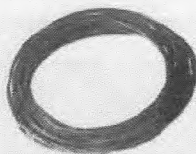
Installed in gliders, Interphone Equipment AN/AIA-1 enables personnel within the glider to communicate with the tow plane through the cord attached to that tow rope. Power is derived from the radio equipment of the tow plane. In newer tow ropes, the interphone cord is interwoven into the rope.



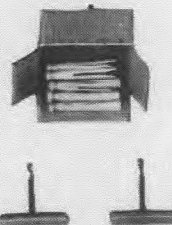
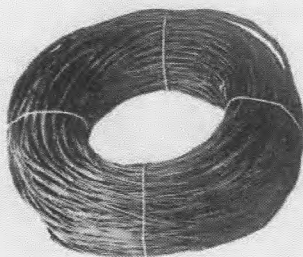
Glider Components



Components of 75 ft. Tow Rope Kit.



Components of 15 ft. Tow Rope Kit.



Components of 350 ft. Tow Rope Kit and Tool Kit.

INTERPHONE EQUIPMENT AN/AIA-1A

TOTAL WEIGHT 85 LBS.

Component	Nomenclature	Size	Weight
Kit for 350 feet tow rope			27 Lbs.
Kit for 75 feet tow rope			7 Lbs.
Kit for 15 feet tow rope			3 Lbs.
Glider components			3 Lbs.
Tow plane components			1 Lb.

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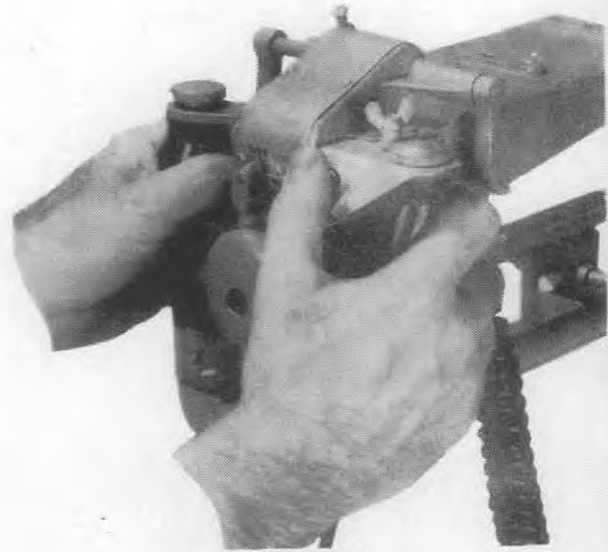
Interphone Equipment AN/AIC-1 is a multi-place interphone system, under development, in which will be incorporated the following facilities in addition to those available on standard interphone systems: More selector switch positions for the additional radio equipment; positive interphone channel operated by a single control, including all member of the crew, without interference from any other equipment; uninterrupted operation of certain radio equipment by certain members of the crew; positive separation of radio and interphone controls to reduce the possibility of inadvertent radio transmissions by pilots and gunners.

Selection of the following "A" box communications channels will permit transmitting and receiving on the channel selected: Interphone; Command; Radio Compass Special 1; Special 2. A special thru-position selector switch on the "B" box may be locked on any one of three Interphone position as, Interphone, Interphone--Radio 1; and Interphone--Radio 2.

The "B" box circuits are to be so designed that when the selector switch is locked in position, interphone signals may be received without passing through relay contacts within the box. To facilitate interphone operation, a push-to-talk switch may be mounted on the gun control handle at each gun position, and conveniently located at the engineer's station.

The interphone amplifier will provide satisfactory operation for as many as 15 headsets HS-33 at altitudes up to 40,000 feet. The speech input will be through one microphone, ANB-M-C1, or equivalent.

Test equipment required for maintenance will include general purpose test equipment, such as multimeters and tube testers.



Mounted conveniently on the gun Microphone Switch (press to talk) SA-26/U can be operated without interfering with gunner's other duties.

There were no Army Supply Program requirements for this equipment as of November 30, 1944.

FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE



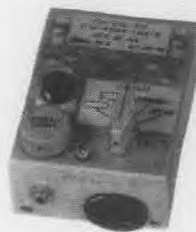
Interphone Amplifier
AM-26/AIC



Switch Box
SA-XA-3/AIC-1



Remote Gain Control
C-97/AIC-2



Control Box
C-XA-40/AIC-1



Microphone Switch
SA-26/U



Control Box
C-XA-41/AIC-1

INTERPHONE EQUIPMENT AN/AIC-1

TOTAL WEIGHT 15 LBS

Component	Nomenclature	Size	Weight
Interphone Amplifier	AM-26/AIC	5" x 5" x 10"	8 Lbs.
Control Box	C-XA-40/AIC-1(XA-3)	3" x 4" x 5"	1 Lb.
Control Box	C-XA-41/AIC-1(XA-3)	2" x 4" x 5"	1 Lb.
Switch Box	SA-XA-3/AIC-1(XA-3)	2" x 4" x 5"	1 Lb.
Remote Gain Control	C-97/AIC-2	3" x 3" x 2"	1 Lb.

Interphone Equipment AN/AIC-2, an airborne multiplace interphone system operating on 24 volts d.c., is designed for use in medium and heavy bombardment aircraft. It provides for interphone communication between crew positions and switching facilities for partial control of three radio sets and one additional radio receiver. Interphone Amplifier AM-26/AIC provides adjustable gain control and power output levels adequate for operation of as many as 15 headsets at altitudes up to 40,000 feet.

Based on extensive laboratory and flight tests, it was determined that for an interphone amplifier to be used at 35,000 feet in conjunction with a carbon oxygen mask Microphone ANB-M-C1 and a low impedance Headset HS-38, the over-all voltage gain should be approximately 30 db for the best articulation results. Furthermore, with this gain provided, it was found that the amplifier should have a power output capability of at least 200 milliwatts per headset to prevent distortion of speech peaks.

As a result of these tests, AM-26/AIC was designed to provide sufficient gain and power output to compensate for these natural losses in the levels of speech, thereby increasing the ease and intelligibility of interphone communications at high altitudes. The new amplifier has a power output up to 4 watts and an increase in voltage gain of 16 db over that of Interphone Amplifier BC-347-C. It is provided with an initial gain of approximately 16 db, and provision for obtaining 16 db. additional gain in three steps, each step corresponding roughly to the gain required for the different altitudes. The settings on the gain control is left to the discretion of the crew but the suggested settings of the gain control switch for various altitudes are given on the amplifier.

AM-26/AIC is being introduced in medium and heavy bombardment type aircraft as part of Interphone Equipment AN/AIC-2 to replace Interphone Equipment RC-36. In addition to the new amplifier, the AN/AIC-2 equipment includes Microphone Switch SA-26/U, which mounts on machine guns and other convenient parts of equipment that are used by the navigator, radio operator, etc.

Interphone Amplifier AM-26A/AIC is the same as AM-26/AIC except that it contains Automatic Gain Control C-158/AIC and incorporates several minor mechanical and electrical changes.

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

Army Supply Program requirements as of 26 December 1944 were for 39,567 for the calendar year 1944, and 20,306 for 1945.

POWER INPUT	30 WATTS @ 28 VOLTS D.C.
POWER OUTPUT	AM-26/AIC 4 WATTS MAX.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	12J5GT	2	12A6



INTERPHONE EQUIPMENT AN/AIC-2

TOTAL WEIGHT 22 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	AM-26/AIC	5" x 5" x 10"	8 Lbs.
Mounting	MT-28/ARN-5	2" x 5" x 10"	2 Lbs.
Remote Gain Control	C-97/AIC-2	3" x 3" x 2"	1 Lb.
Jack Box	BC-1366 (10 each)	5" x 4" x 3"	1 Lb.
Microphone Switch	SA-26/U (5 each)	3" x 1" diam.	1 Lb.
Dynamotor	DM-32-A	5" x 3" x 3" (mounted on AM-26/AIC)	3 Lbs.

and includes plugs, cordage and jacks.
March 1945

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AN/AIC-3

Interphone Equipment AN/AIC-3 is an inter-communication system designed to be used in transport Army Aircraft. This equipment provides intercommunication between any number of positions up to a maximum of five, and permits the mixing of the audio output of any combination of several facilities including HF and VHF command receivers, liaison receiver, automatic radio compass receiver, auxiliary radio compass receiver and marker beacon receiver.

Test equipment required for the maintenance of the set includes Tube Tester I-177 and a Voltohmmeter such as Multimeter TS-297/U.

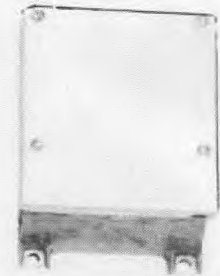
Army Supply Program requirements as of 26 December 1944 were 3,530 for the calendar year 1944 and 3,828 for 1945.

POWER INPUT	28 VOLT D.C.
TYPE OF SIGNAL	AUDIO

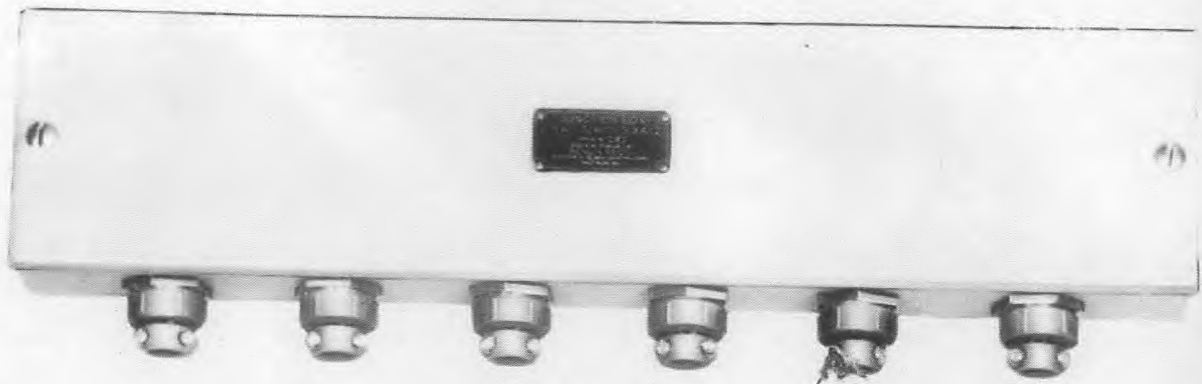
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	28D7		



Control Box C-166/AIC-3



Filter F-21/ARA-9



Junction Box J-XA-17/AIC-3

INTERPHONE EQUIPMENT AN/AIC-3

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Control Box	C-166/AIC-3	9" x 6" x 3"	4 Lbs.
Junction Box	J-90/AIC-3	21" x 5" x 3"	3 Lbs.
Filter	F-21/ARA-9	3" x 3" x 3"	2 Lbs.

and includes plugs, cordage, and jacks.

March 1945

Recorder AN/ANQ-2 is an airborne recorder which records voice and radio signals by embossing on a plastic disk. Its associated ground equipment, Recorder-Reproducer AN/GNQ-2, records in a similar manner and provides playback by means of a pickup, amplifier and loud speaker.

Recordings are made by embossing on a cellulose acetate disk with a special wax surface treatment. The disk is 0.010 inches thick by 7 inches in diameter. The disk is driven by an off-center pin which engages a hole in the disk and one of a series of corresponding off-center holes in the turntable. The drive pin is mounted on a spring-loaded record clamp which holds the disk on the turntable. The embossing stylus consists of a sapphire point (tip radius 0.0015") on an aluminum alloy shank 3/4 inch long by 0.063 inch in diameter. Turntable speed is 11.75 r.p.m., line spacing 210 lines per inch, and recording time 30 minutes on each side of the disk. The outer and inner groove radii are 3.38 and 1.70 inches, respectively, and the corresponding groove speeds are 4.2 inches/second and 2.1 inches/second.

The magnetic recording head is mounted on a short counterbalanced arm which is pivoted at its center of gravity. The recording head arm is spring-loaded, and the vertical force at the stylus is approximately 5 ounces. The recording head carriage is driven by an overhead feed mechanism of conventional design.

The turntable is driven by a rubber-rimmed idler which engages the bottom surface of the turntable. The idler is driven by a knurled drive wheel which is driven through a flexible coupling, by a gear reduction box built into the motor. The motor is a 28 volt series motor (shaft speed 4100 r.p.m.) with a Lee governor mounted directly on the shaft.

The turntable consists of two halves joined by a sponge rubber pad. The upper half is supported on a stainless steel shaft which rests in a journal assembly consisting

of two oilite sleeve bearings and a single ball bearing at the bottom.

The control box provides remote operation for the recorder. The operator's microphone and headset are plugged into the control box, and the control box is wired to the operator's interphone jack box and to Recorder Unit RD-6/ANQ-2. Terminals are also available in the control box for connection to the output of a radio receiver not wired into the airplane interphone system.

A five position switch allows the operator to select one of the following types of recorder operation: Interphone; Microphone; Off; Record Radio; Monitor Radio.

For all ordinary uses of AN/ANQ-2, only the first three positions (i.e., Interphone, Microphone, and off) are needed, and that the operator is connected to the interphone system in each of these positions. The last two positions (i.e., Record Radio and Monitor Radio) are intended for certain specialized applications, and the operator is completely disconnected from the airplane interphone system in these two positions.

The equipment operates at a nominal voltage of 115 volts, 60 cycles per second and draws 0.5 ampere when the motor is running. Standby current is 0.2 ampere.

Army Supply Program requirements as of 31 July 1944 were for 270 equipments for the calendar year 1944.

POWER INPUT	28 VOLTS D.C.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE
RECORDING TIME	30 MINUTES(One side)
TURNTABLE SPEED	11.75 R.P.M.
FREQUENCY RESPONSE	400 TO 2500 CYCLES PER SECOND WITHIN +3 DB and -6 DB
SIGNAL TO NOISE RATIO	40 DB at 1000 C.P.S.
LINE SPACING	210 LINES PER INCH



Recorder Unit RD-6/ANQ-2

RECORDER AN/ANQ-2

TOTAL WEIGHT 27 LBS.

Component	Nomenclature	Size	Weight
Recorder Unit	RD-6/ANQ-2		20 Lbs.
Mounting	MT-199/ANQ-2		5 Lbs.
Control Box	C-99/ANQ-2		2 Lbs.
Mounting	MT-200/ANQ-2		

and includes plugs and adapters.

March 1945

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AN/ARA-10

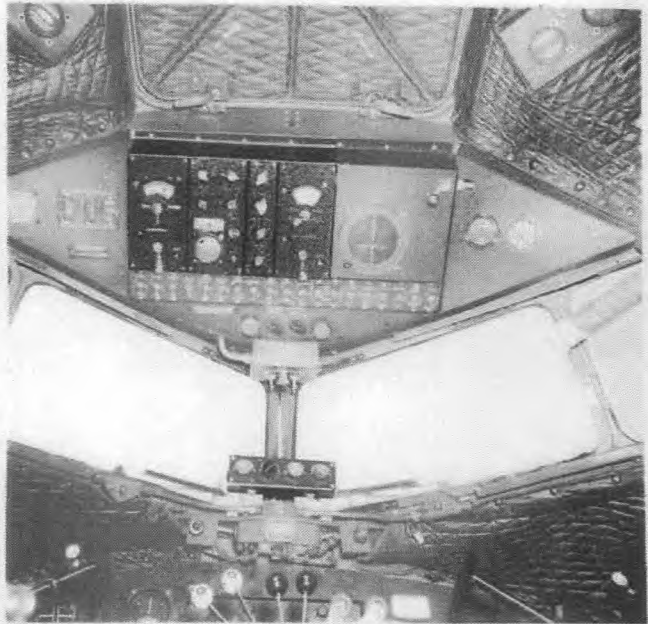
Control Assembly AN/ARA-10 is an airborne auxiliary assembly combining all radio communications and navigation control functions of the pilot-operated radio equipment in ATC airplanes. These functions are performed by five control panels (Control Panels C-177/ARA-10, C-178/ARA-10, C-179/ARA-10, C-180/ARA-10, and C-181/ARA-10) and the associated junction box (Junction Box J-89/ARA-10).

With the increasing number of aircraft being assigned to Air Transport Command and the increasing variety of radio and radio-navigational equipment becoming available for installation in aircraft, a standard complement of radio equipment for heavy transports became necessary.

Present standard equipment complement for heavy transports is: Transmitting Set AN/ART-13, Radio Set AN/ARC-9, Radio Compass AN/ARN-11, AN/ARN-7, Radio Receiving Equipment RC-103, AN/ARN-5, AN/ARN-8, Radio Set AN/APN-1, Static Discharger Assembly AN/ASA-1, Radio Set AN/APN-4, and Interphone Equipment AN/AIC-3.

A consolidated radio control panel was developed to meet the requirements, incorporating in one unit all of the radio controls which must be available to the pilot and co-pilot of heavy transports. In the C-46 and C-87 aircraft it is mounted overhead on the ceiling of the cockpit; and separate small panels are provided, one containing the sensitivity controls for the AN/ARN-7 and AN/ARN-11, the other containing the meter sensitivity control for the AN/ARN-11 and the volume control for the AN/ARC-9. These small panels are mounted on the pedestal for maximum accessibility.

The main panel is constructed in four sections of identical dimensions, connected to the aircraft wiring by means of locknut terminal strips. It is thus possible to arrange the four sections in any manner best suited to the particular aircraft installation. Approximate dimensions of the main panel are 17 inches long by 8 inches wide by 4 inches deep, and the small panels are 4 inches long by 2 inches wide by 3 inches deep.



Installation of Control Assembly AN/ARA - 10 Pilot's Position C-48-A.

Present estimates indicate that aircraft produced during February 1945 should contain this installation.

No special test equipment is required for maintenance.

Army Supply Program requirements as of 26 December 1944 were 2,000 for the calendar year 1944 and 2,334 for 1945.

Control Assembly AN/ARA-10(KA-1)



CONTROL ASSEMBLY AN/ARA-10

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Control Panel	C-177/ARA-10	8" x 5" x 4"	4 Lbs.
Control Panel	C-178/ARA-10	8" x 5" x 4"	4 Lbs.
Control Panel	C-179/ARA-10	8" x 3" x 4"	2 Lbs.
Control Panel	C-180/ARA-10	8" x 3" x 4"	2 Lbs.
Control Panel	C-181/ARA-10	8" x 5" x 4"	4 Lbs.
Junction Box	J-89/ARA-10	53" x 5" x 1"	27 Lbs.

and includes set of installation components

March 1945

RadioSet AN/ARC-3 is an eight channel, crystal-controlled, command set operating over the frequency range of 100 to 156 mc. Major components are a transmitter, receiver, control box and power junction box. Components have form of factors comparable to twice the size of similar components of RadioSet SCR-274-N and are capable of being installed on the mountings of the SCR-274-N.

All of the operating functions of the set are remotely controlled. The only operation required to change the frequency of a particular channel is to insert the crystal units in the transmitter and receiver and roughly setting a dial on the receiver to the carrier frequency. Crystal units and their harmonic relations are identical with those used in RadioSet SCR-522. Access is provided to a terminal in the receiver socket so that a localizer may be used as an auxiliary piece of equipment. Access is also provided to the terminals in the receiver socket that the audio output of an auxiliary receiver or any other equipment may be fed through the fixed audio amplifier stage.

Operating from a 28 volt d.c. nominal primary power source, the equipment transmits voice amplitude modulated signals with tone transmission on any channel.

Designed to receive amplitude modulated signals only because of its low frequency response, the receiver is satisfactory for use in flying CAA localizer courses and ranges, if the receiver is provided with the proper crystals and external filters and indicators.

This set is intended for use on all initial installations in place of SCR-522 in heavy, very heavy, medium, and light bombers, one and two-engine fighters, photographic airplanes, heavy and medium transports.

AN/ARC-3 presents advantages over VHF components of the SCR-274-N in that high altitude limit is increased from 30,000 feet to 50,000 feet and production is simplified.

Include more simple design, saving of weight,

increase to eight channels, simplification of setting-up channels, and automatic modulation control.

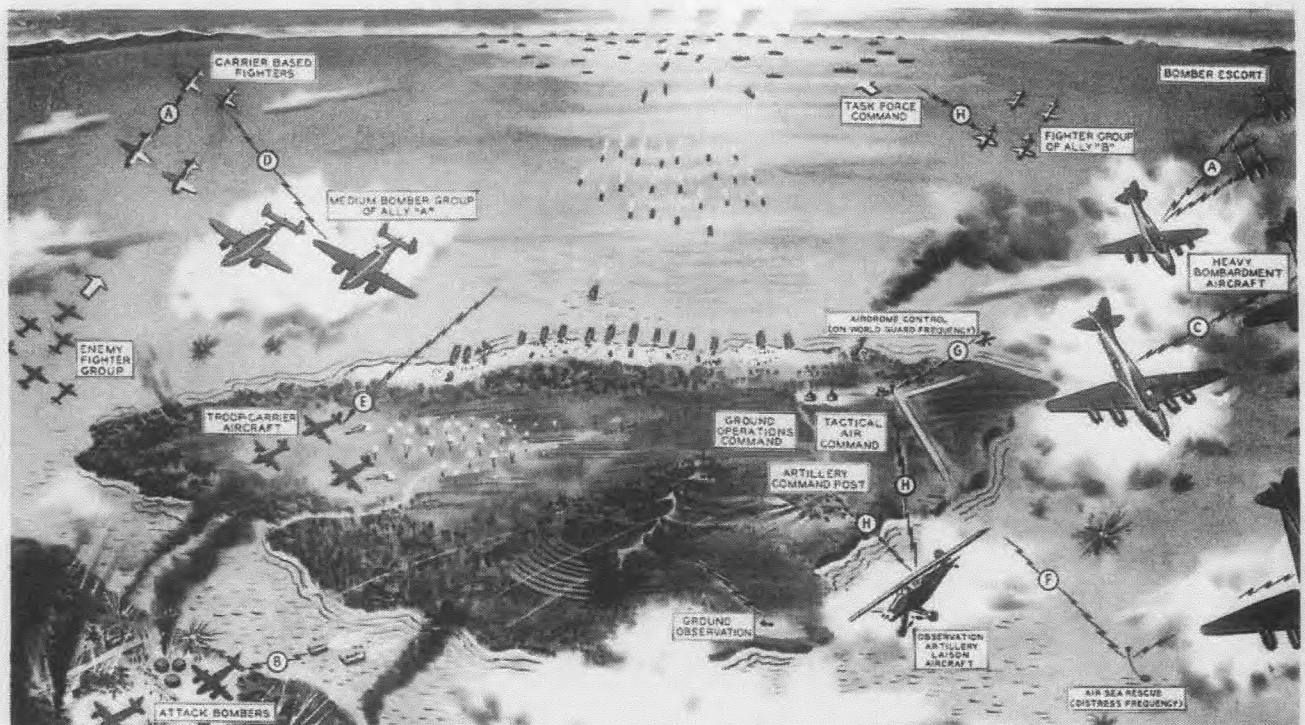
Because the AN/ARC-3 has eight channels available, this equipment has a superior anti-jamming feature when compared to the SCR-522 with its four channels. Quantity production of this equipment started in December 1944.

Test equipment required for the maintenance and tuning of the set includes; Test Set AN/ARM-1 and Phantom Transmitter Antenna TS-78.

Army Supply Program requirements as of 1 December 1944 were 50,000 for the calendar year 1945.

POWER INPUT	28 VOLTS DC
POWER OUTPUT	1 WATT (peak) RECEIVER 15 WATTS (peak) TRANSMITTER
FREQUENCY	100-156 MC
TYPE OF SIGNAL	RECEIVER TRANSMITTER AM: MCW
SENSITIVITY	5 MICROVOLTS
SELECTIVITY	100 KC AT 2X INPUT
RANGE	100 MILES AT 10,000 FT. ALTITUDE 200 MILES AT 25,000 FT. ALTITUDE

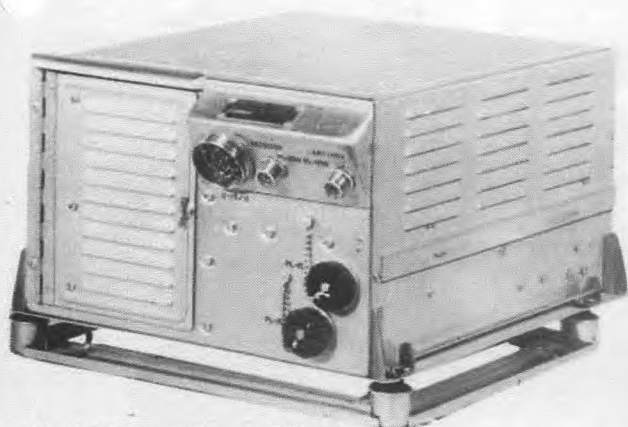
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6L6	1	9002
3	6V8/GT	3	12SG7
2	832A	2	12SN7GT
2	12SH7	1	12SN7GT
1	6J5	1	12H6
6	6AK5	1	12A6GT
1	9001		



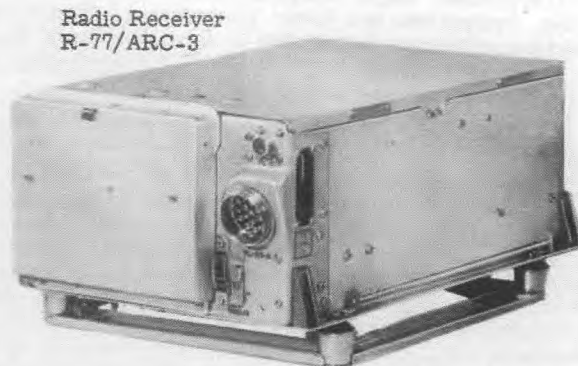
With eight remotely controlled channels, Radio Set AN/ARC-3 permits intercommunication between all elements of a tactical air force, definite assignment of a channel to each element and effective coordination of ground and air forces. Separate operating channels may be assigned to each element or function, as illustrated: (A) Fighters; (B) Fighter-Bombers; (C) Heavy Bombers; (D) Medium Bombers; (E) Troop Carriers; (F) Air-Sea Rescue; (G) "World Guard"; (H) Observation and other aircraft.

AN/ARC-3

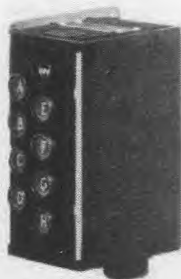
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Radio Transmitter T-67/ARC-3

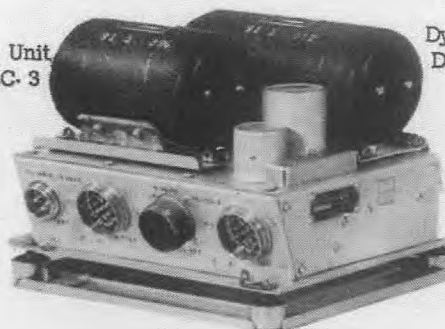


Radio Receiver
R-77/ARC-3



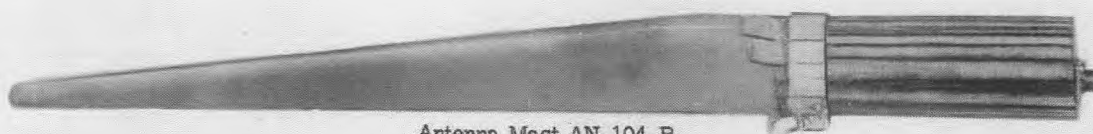
Control Box
C-118/ARC-3

Dynamotor Unit
DY-22/ARC-3



Dynamotor Unit
DY-21/ARC-3

Power Junction Box
J-68/ARC-3



Antenna Mast AN-104-B

RADIO SET AN/ARC-3

TOTAL WEIGHT 85 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-67/ARC-3	8" x 13" x 15"	19 Lbs.
Mounting Base	MT-238/ARC-3		
Radio Receiver	R-77/ARC-3	6" x 1" x 16"	18 Lbs.
Mounting Base	MT-237/ARC-3		
Power Junction Box	J-68/ARC-3	4" x 9" x 10"	7 Lbs.
Dynamotor Unit	DY-21/ARC-3	4" x 4" x 8"	9 Lbs.
Dynamotor Unit	DY-22/ARC-3	4" x 4" x 8"	5 Lbs.
Mounting Base	MT-236/ARC-3		
Control Box	C-118/ARC-3	6" x 2 1/2" x 6 1/2"	2 Lbs.
Mounting	FT-240-A		
Antenna Mast	AN-104-A		3 Lbs.
Control Unit	C-197/ARC-3		

includes plugs, adapter and RF cable.

~~SECRET~~

AN/ARC-6

Radio Set AN/ARC-6 (PREP) is an Ultra High Frequency Command Set now under development, providing line-of-sight communication of voice only, by means of pulse-modulated waves between aircraft and between aircraft and ground stations. The set consists of a combined U.H.F. Transmitter-Receiver with dynamotor mounted in a single standard shock absorbing ANB mounting, and a control box which enables push button selection of eight preset channels which may be any of 33 channels within its frequency range of 225-285 megacycles. Switches for manual control of the set are located on the control box, which is mounted on Mounting FT-240-A.

The equipment operates on an input voltage of 28 volt D.C. and has an average power output of 4 to 6 watts into a 50 ohm resistance load. Side-tone feature is available.

Anti-jamming feature of the set is highly developed. The equipment is a narrow band systems necessitating the use of relatively slow speeds of transmission. It utilizes a printer mechanism in conjunction with other apparatus.

This equipment was designed, not to replace existing communication equipment in the aircraft, but merely

to supplement the present equipment.

Test equipment required for maintenance includes Oscilloscope Unit TS-XA-49/ARC-6(XA-1) and Oscilloscope Unit TS-XA-23/ARC-6(XA-1).

There were no Army Supply Program requirements as of 30 November 1944.

POWER SOURCE	28 VOLTS D.C.
POWER OUTPUT	4 TO 6 WATTS AVERAGE
FREQUENCY	225 - 285 MC
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6AC7	1	12SJ7
2	6AG5	2	12SL7GT
1	6J8	2	829B
5	12A6	2	832A
2	12H6	1	OC3/VR-105
10	12SH7		



Radio Set AN/ARC-6 is a ultra high frequency command set which provides push button selection of 8 preset channels which may be any of 33 channels within its frequency range of 255-285 Mc.

March 1945

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AN/ARC-7

Radio Set AN/ARC-7 is a single channel VHF receiver and transmitter to be installed in gliders for communication with tow planes and with ground stations. It is designed to be operable on any frequency in the frequency range of Radio Set SCR-522 (100 to 156 Mc.). It is capable of five hours continuous operation, assuming 5 per cent transmitting time, without recharging the glider battery, and it is also capable of operation over a distance of 30 miles, air-ground, from an altitude of 1,000 feet, when used in conjunction with Radio Set SCR-824.

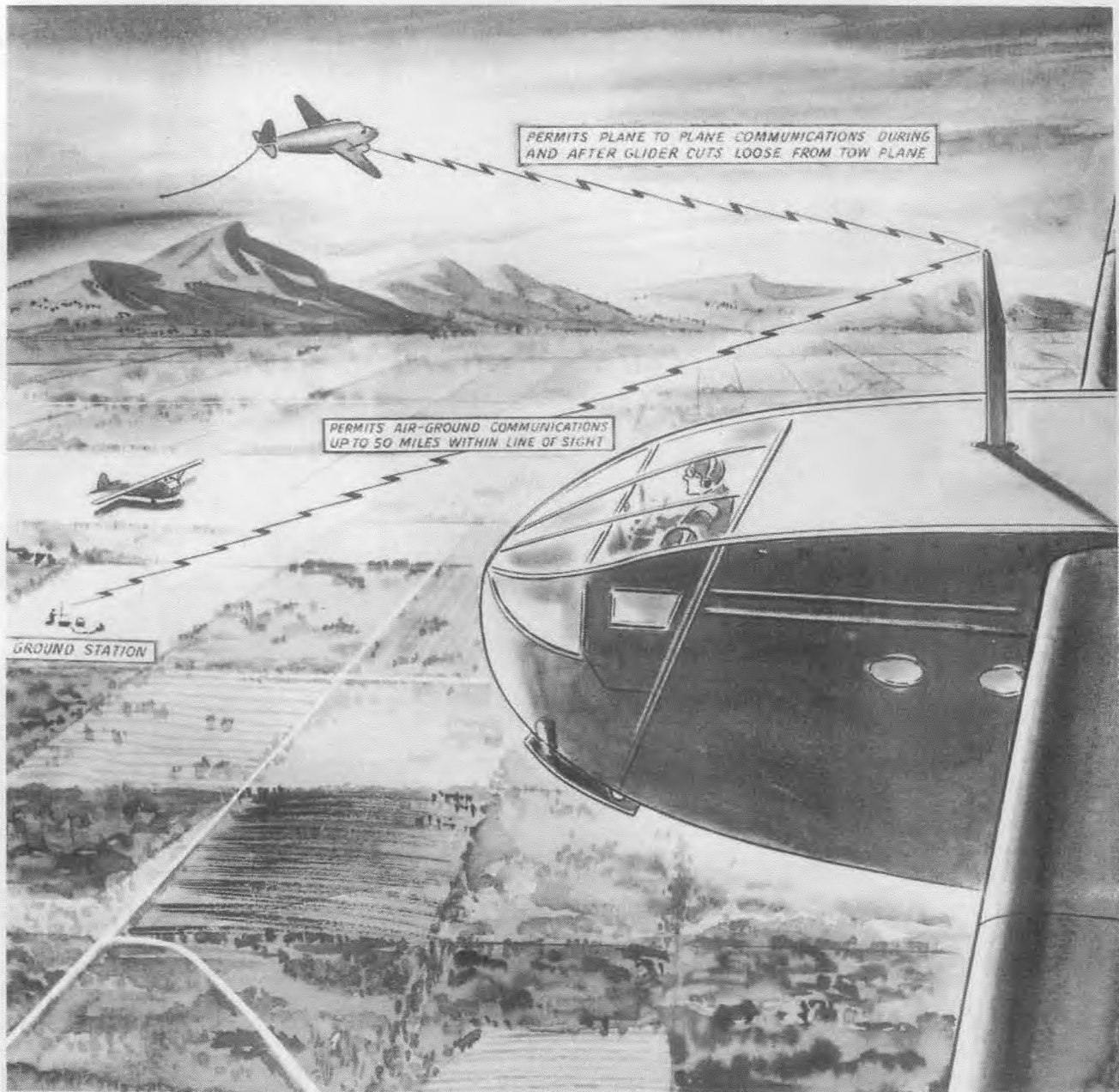
As a possibility exists that the receiver component of the set, if it is proved satisfactory, may be used separately as a ground receiver with Radio Set SCR-522, the receiver is built as a separate unit, containing its own power supply.

Test equipment for the maintenance and tuning of the radio set includes Test Equipment IE-19, Test Equipment IE-36 and Phantom Antenna TS-273/U.

There were no Army Supply Program requirements as of 1-December 1944.

POWER INPUT	24 VOLTS D.C.
POWER OUTPUT	0.5 WATTS
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	AIR TO GROUND- 120 MILES AT 10,000 FEET

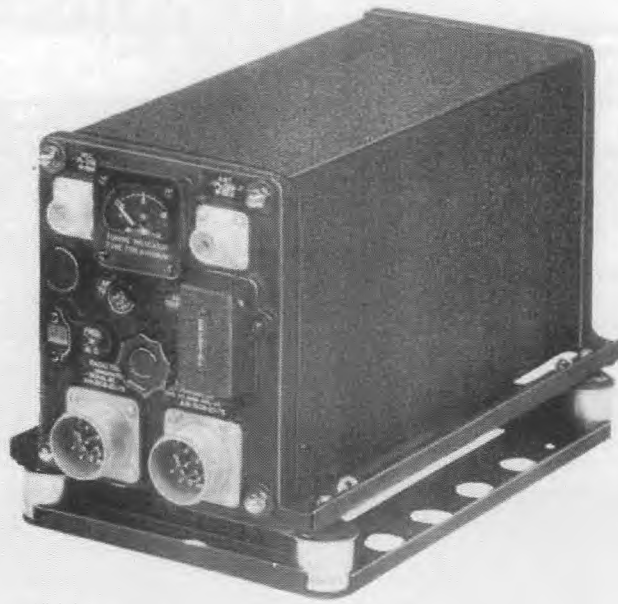
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	9003	5	6AQ6
9	6AK5	4	6AK6
1	12H6	1	1629



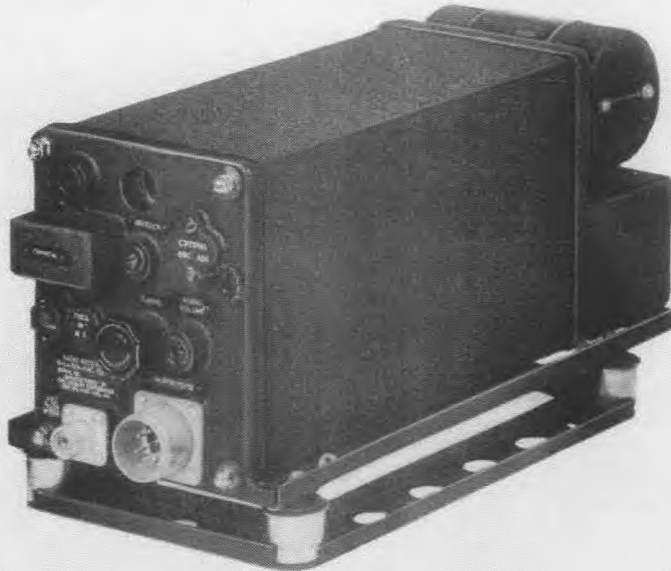
Installed in gliders, Radio Set AN/ARC-7 enables the glider pilot to communicate with tow planes other gliders and temporary ground stations.

March 1945

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Radio Transmitter



Radio Receiver



Antenna Mast



Control Box

RADIO SET AN/ARC-7

TOTAL WEIGHT 25 LBS.

Component	Nomenclature	Size	Weight
Antenna Mast	AN-104	32" x 3" x 1"	3 Lbs.
Radio Transmitter	T-XA-28A/ARC-7(XA-2)	7" x 12" x 7"	15 Lbs.
Radio Receiver	R-XA-30A/ARC-7(XA-2)	14" x 7" x 7"	5 Lbs.
Control Box	C-XA-48A/ARC-7(XA-2)	3" x 3" x 2"	1 Lbs.

and includes cables, plugs and adapters.

Radio Set AN/ARC-9 is a high power, multi-channel, quick shift pilot operated transmitter-receiver for installation in aircraft operating under Air Transport Command on regular route. It makes possible elimination of the liaison set and the radio operator on some routes and will permit the pilot to establish voice contact over long ranges on all routes. This combines transmitter-receiver operation on any ten pre-determined crystal controlled channels within the frequency range of 2500-13000 kilocycles.

Radio Set AN/ARC-9X is similar to AN/ARC-9 except for input voltage. The former operates from a 12/24 volts D.C. and the latter from a 24 volt D.C. source.

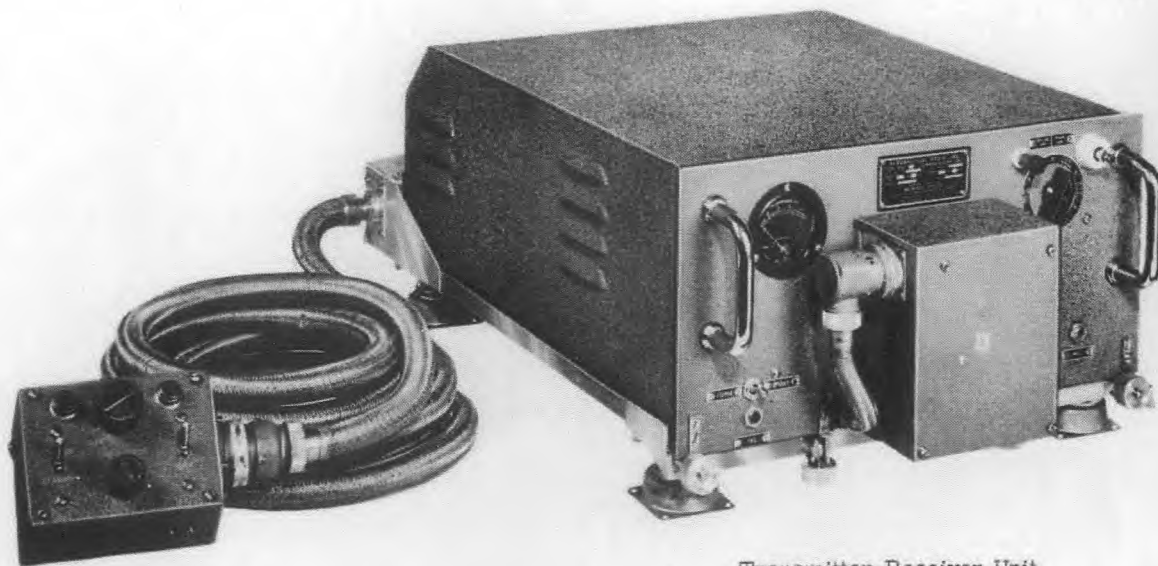
This equipment is primarily intended for transport aircraft where pilot operation is a major requirement. It is designed for installation in C-47A, C-46, C-54, C-87 and C-93 type aircraft.

Radio Set AN/ARC-9 is an interim equipment that will be used until such time as a suitable complementary receiver is developed for use with Radio Transmitting Set AN/ART-13.

Army Supply Program requirements as of 1 December 1944 were 3,530 for the calendar year 1944 and 305 for 1945.

POWER INPUT	50 WATTS @ 25 VOLTS D.C.
FREQUENCY	2.5 TO 13 MEGACYCLES: 10 FIXED CHANNELS WITHIN THIS RANGE, CRYSTAL CONTROLLED
TYPE OF SIGNAL	VOICE
RANGE	300 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	807	3	12SK7
1	6L6	1	12SA7
1	6V6	2	12A6
2	12C8		



Remote Control Box MS-44-F

Transmitter-Receiver Unit
RTA-1B

RADIO SET AN/ARC-9

TOTAL WEIGHT 93 LBS.

Component	Nomenclature	Size	Weight
Communication Unit	Bendix Type RTA-1B	10" x 16" x 26"	
Mounting Base	Bendix Type MT-68E	2" x 16" x 26"	
Remote Control Unit	Bendix Type MS-44F	2" x 4" x 5"	
Interconnecting Cable			

and includes right-angle plug

March 1945

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Radio Set AN/ARC-10 is an airborne radio relay which uses a VHF transmitter and receiver assembly similar to that of Radio Set SCR-522. It will simultaneously receive signals from one station and retransmit them without mutual interference, on suitable combinations of receiving and transmitting carrier frequencies, and will maintain communication with VHF equipped aircraft beyond line of sight distances when tactical or terrain conditions prohibit the establishment of an effective fixed relay station. Audio circuits of the receiver are electrically connected to the speech input circuit of the transmitter through a limiting amplifier which maintains a substantially constant modulating voltage independent of variations in received signal strength.

The equipment provides four crystal-controlled channels for reception and transmission, with simultaneous mechanical shifting of transmitter and receiver frequencies by the monitor. The "break-in" as required is provided by the monitoring operator who can modulate the relay transmitter at any time. The "break-in" transmission will be received by all stations served by the relay station if they are not transmitting.

When used as a normal transmitter-receiver, it permits two-way communication with Radio Set SCR-522 over a distance of 135 miles from 12,000 feet altitude. Power is obtained from a 24 volt d.c. primary power source.

AN/ARC-10 is not duplicated by or similar to any existing standard equipment in use by the Army Air

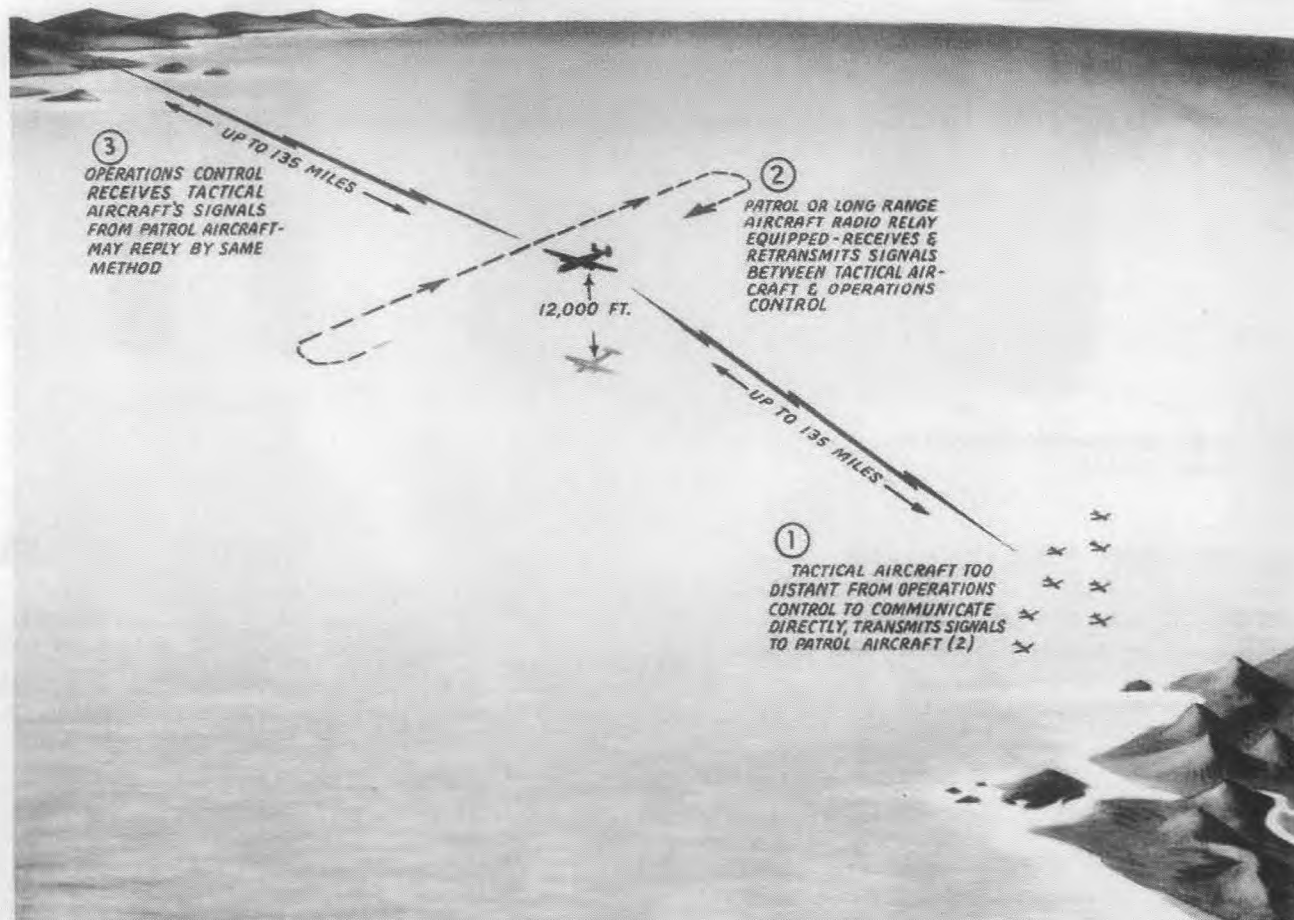
Forces. Its development was required by a tactical need for the extension of the reliable range between VHF ground stations and aircraft equipped with VHF radio. It is expected that the equipment will greatly aid the operations of the AAF by extending the range of such communication systems.

Test equipment required for the maintenance and tuning of AN/ARC-10 has not been determined.

There were no Army Supply Program requirements as of 1 December 1944.

POWER INPUT	24 VOLTS D.C.
FREQUENCY	100-156 M.C.
TYPE OF SIGNAL	VOICE
RANGE	135 MILES AT 12,000 FEET.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6G6G	1	12H6
1	6SS7	3	12SG7
3	12A6	1	9002
2	832	3	9003
3	12AH7GT	2	12J5GT
1	12G8		



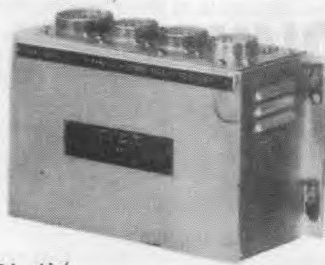
Radio Set AN/ARC-10 is an airborne radio relay which will simultaneously receive and retransmit signals (on frequencies 100 to 156 Mc.) up to a range of 135 miles, providing extended range for VHF command radio sets.

March 1945

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AN/ARC-10

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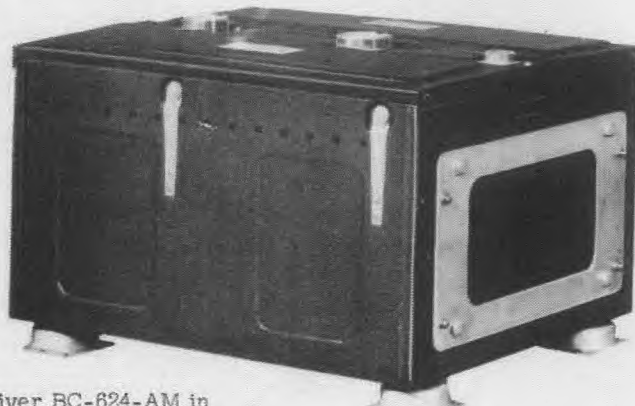
Junction Box J-75(XA-A)/
ARC-10(XA-2)



Control Box
C-132(XA)/ARC-10(XA-1)



Radio Transmitter BC-625 -A
in Case CS-80-A



Radio Receiver BC-624-AM in
Case CS-80-A



Antenna AN-104

RADIO SET AN/ARC-10

WEIGHT 120 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-624-AM	10" x 17" x 16"	32 Lbs.
Radio Transmitter	BC-625-A	10" x 17" x 16"	34 Lbs.
Rack	FT-244-A	16" x 12" x 2"	
Case	CS-80-A	1" x 17" x 13"	
Junction Box	J-75/ARC-10	3" x 6" x 9"	7 Lbs.
Mounting Plate	MT-256/ARC-10	2" x 6" x 1"	
Cord	CX-233/ARC-10	15" long	1 Lb.
Cord	CX-230/ARC-10	21" long	1 Lb.
Control Box	C-132/ARC-10	2" x 4" x 6"	3 Lbs.
Dynamotor	PE-94	13" x 9" x 6"	38 Lbs.
Antenna	AN-104 (2 each)		

and includes cords, plugs, etc.

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AN/ARR-11

Radio Receiving Set AN/ARR-11 is an airborne set which receives MCW or voice modulated signals within the 200 to 500 kilocycle band and the 1.5 to 18 megacycle band. It operates from a 24-volt power supply and comprises certain of the radio receiving components of the present Radio Set SCR-287-A, the principal component of which is Radio Receiver BC-348-(). Any production type of this receiver may be used except production type BC-348-B, BC-348-C or BC-348-D. Any mounting FT-154-() for this receiver may be used except FT-154-A.

Radio Receiver BC-348 is capable of receiving voice, MCW, or CW signals in the frequency range of 1.5 to 18.0 mc.

It is now being used as the companion receiver to the AN/ART-13A transmitter. The receiver and transmitter operate from a common liaison antenna AN/ARA-4. The three units together are known as Radio Set AN/ARC-8.

Test equipment required for maintenance includes general purpose testing equipment only.

Army Supply Program requirements as of 11 December 1944 were 19,401 equipments for the calendar year 1944 and 18,443 for 1945.

POWER INPUT	65 WATTS @ 28 VOLTS
POWER OUTPUT	400 MILLIWATTS
FREQUENCY	200-500 KC. 1.5-18 MC. (5 bands)
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	800 MILES (Approx.)
SENSITIVITY	LESS THAN 5 MICRO-VOLTS 1.5-18.0 MC. LESS THAN 8 MICRO-VOLTS 200-500 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6K7	4	6SK7
1	6J7	1	6SA7
1	6C5	1	6SJ7
1	41	1	6SR7
1	6B8	1	6K6GT
1	6F7		
1	RCA-991 neon bulb		



Radio Receiver BC-348-R

RADIO RECEIVING SET AN/ARR-11

TOTAL WEIGHT 42 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-348-()	10" x 18" x 11"	35 Lbs.
Mounting	FT-154-()	2" x 9" x 18"	4 Lbs.

and includes plugs, cable, and adapters.

March 1945

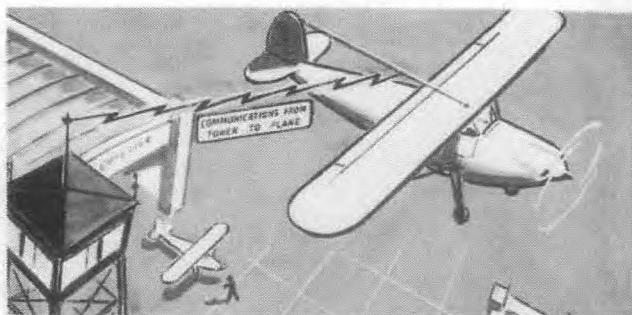
Radio Receiving Set AN/ARR-13 is a small, light weight airborne radio range receiver providing ranges and tower reception.

The receiver operates from 12-14 volts d.c. with plate power supplied from RCA model AVA-126 power supply. This receiver operates in conjunction with radio installation in type L-5 observation planes, when RCA model AVR-20 radio receiver and model AVT-112 transmitter is installed. This receiver covers 195 to 405 kc. with a pre-set 278 kc. channel for airport tower reception. The equipment includes cables for interconnection with above components.

Radio Receiver R-76/ARR-13 is the commercial Satchell Type 512 Radio Receiver.

No special test equipment is required for maintenance and tuning.

Army Supply Program requirements as of 1 December 1944 were 3,850 for the calendar year 1944.



Installed in light aircraft, Radio Set AN/ARR-13 provides facilities for the reception of range signals and tower control communications.

POWER SUPPLY	12-14 VOLTS D.C.
FREQUENCY	195-405 KC
TYPE OF SIGNAL	MCW

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	14A4	1	14B6
2	14A7	1	14J7



Interconnecting Cable



Radio Receiving Set AN/ARR-13

RADIO RECEIVING SET AN/ARR-13

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-76/ARR-13	4" x 4" x 7"	3 Lbs.
Cord	CX-180/ARR-13		

and includes 20,000 ohm resistor for power supply modification.

March 1945

Radio Transmitting Set AN/ART-13A, an improved version of the Navy type ATC transmitter, is a long range liaison transmitter of 100 watts nominal power output, providing CW, MCW or voice emission, and using either fixed or trailing wire aircraft antennas. The set is designed to provide a multi-channel airborne liaison transmitter for use by the Army and Navy, and is intended to replace Radio Transmitter BC-375 in Army bombardment and transport aircraft.

Of the master oscillator type, the transmitter incorporates an automatic tuning system which permits transmission on any of 11 pre-set frequencies. Frequency selection is obtained automatically by use of a rotary switch operated either locally at the transmitter or by means of a remote control box. The transmitter provides CW, MCW and voice modulated types of emission. The audio system is capable of modulating the carrier (100 watts normal) at least 90 percent for MCW or voice emission.

Provision is made for the use of either a standard carbon microphone or magnetic microphone. Power output varies from 5.5 watts at 200 kc. to 30 watts at 600 kc. and approximately 90 watts in the range 200 to 18,100 kc. The equipment is designed to operate from the 28-volt d.c. power supply used in the aircraft.

AN/ART-13A has several outstanding features not provided by the BC-375. These include units covering 11 pre-set channels, one in the 200 to 600 kc. band and 10 in the 2 to 18 mc. band, any one of which may be placed in operation in 20 seconds, with provision for remote position channel selection. No plug-in units are required. The transmitter also contains a calibrated frequency indicator (CFI unit) which eliminates the need of a frequency meter for setting up the transmitting channels.

Operation is provided for altitudes up to 40,000 feet and is accomplished by means of an automatic pressure switch which reduces the transmitter to about half power at altitudes above 15,000 feet.

The low frequency oscillator has been designed as a separate unit, since in operations not requiring low frequencies, the oscillator and antenna loading coils may

be removed, thus saving space and weight. Oscillator 0-17/ART-13A covering the 200 to 600 kc. band is an insertion unit to provide an additional channel for low frequency operation. Panel MX-128/ART-13 is inserted in place of the oscillator when low frequency operation is not to be used.

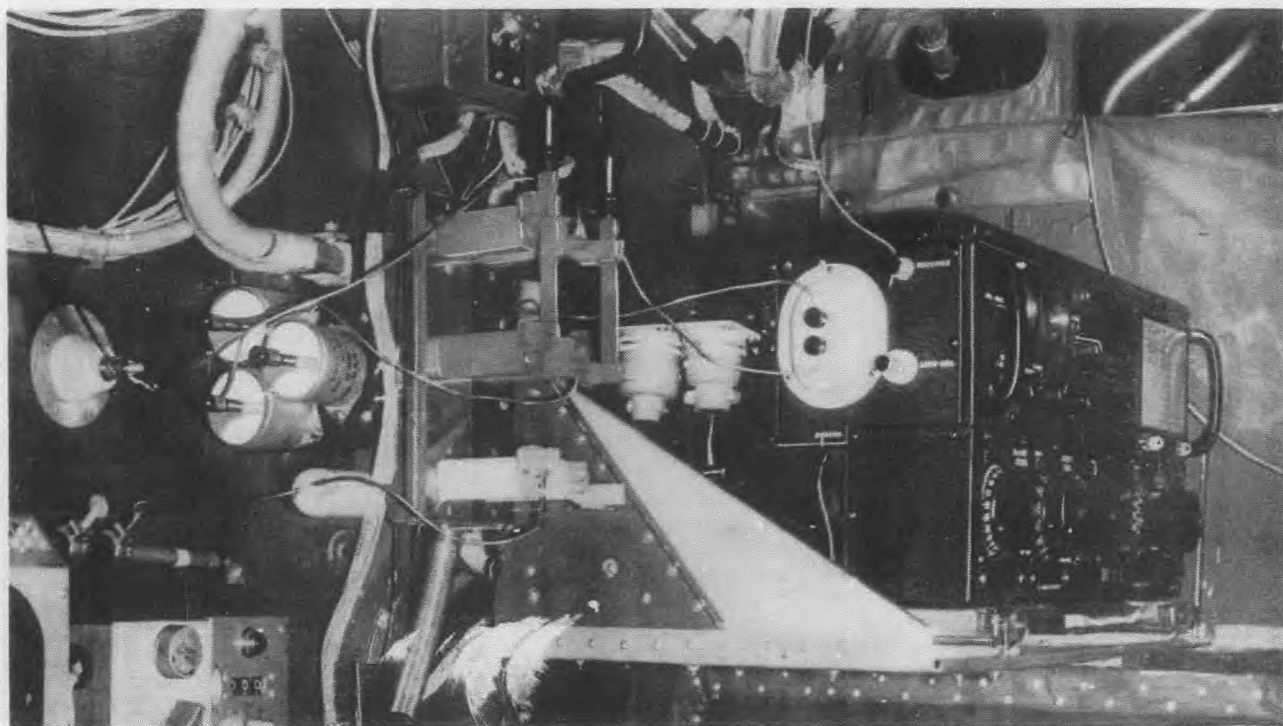
Further improvements include a combined antenna loading coil and switching unit, Antenna Loading Unit CU-32/ART-13A. This loading unit is replaced by Switch SA-13/U when low frequency operation is not required. An improved CFI unit provides a more accurate and uniform signal for lining up the channels of the transmitter over the entire frequency range.

Standard, general purpose test equipment, available in the services, and a few special tools provided with the transmitter, are all the test equipment needed for servicing this set.

Army Supply Program requirements as of 30 November 1944 were 11,251 for the calendar year 1944, and 21,119 for 1945.

POWER INPUT	1100 WATTS @ 28 VOLTS D.C.
POWER OUTPUT	10 WATTS 200 TO 600 KC. 90 WATTS
FREQUENCY	200-600 KC. AND 2-18 MC.
TYPE OF SIGNAL	CW, MCW, VOICE
RANGE	CW-750 MILES, MCW-500 MILES, VOICE-250 MILES
FREQUENCY SHIFT TIME	25 SEC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	837	1	12SJ7
2	1625	2	6V6GT
1	813	1	12SA7
2	811	2	12SL7



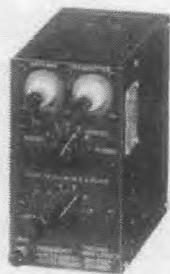
Radio Set AN/ART-13, installed aft of bomb bay in B-25J. This equipment serves as a long range transmitter and supercedes Transmitter BC-375.



Radio Transmitter
T-47/ART-13



Control Unit
C-87/ART-13



Antenna Loading Coil
CU-26/ART-13



Antenna Loading Coil
CU-25/ART-13



Dynamotor Unit
DY-11/ART-13



Antenna Shunt Capacitor
CU-24/ART-13

RADIO TRANSMITTING SET AN/ART-13 A

TOTAL WEIGHT 150 LBS.

Component	Nomenclature	Size	Weight
Switch	SA-46/ART-13A	4" x 2" x 5"	1 Lbs
Radio Transmitter	T-47A/ART-13	11" x 13" x 24"	66 Lbs.
Mounting Plate	MT-283/ART-13	21" x 14" x 2"	2 Lbs.
Mounting Base	MT-284/ART-13	20" x 15" x 3"	3 Lbs.
Dynamotor Unit	DY-17/ART-13A	7" x 12" x 9"	28 Lbs.
Mounting Plate	MT-164/ART-13	7" x 1" x 2"	1 Lb.
Control Unit	C-87/ART-13	4" x 4" x 7"	2 Lbs.
Antenna Shunt Capacitor	CU-24/ART-13	5" x 5" x 4"	2 Lbs.
Antenna Loading Unit	CR-32/ART-13A	12" x 23" x 13"	26 Lbs.
Oscillator	O-17/ART-13A	10" x 6" x 5"	5 Lbs.

1 includes plugs, wire, casing, shafting, sleeves, etc.

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AN/ASA-3

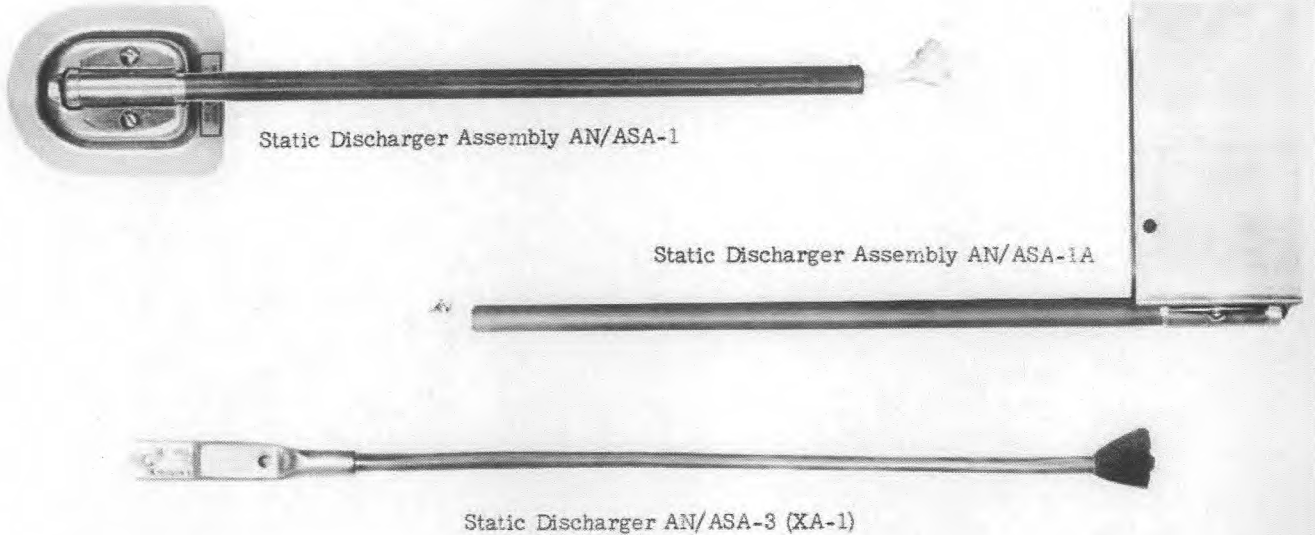
(AND AN/ASA-1; AN/ASA-1A)

Static Discharger Assembly AN/ASA-1 is a wick type discharger for discharging of accumulated precipitation static on aircraft while in flight. It consists of an aluminum tube containing an ethylene glycol saturated wick and is mounted on the wings tips and tail assembly of medium and heavy bombers and transports. Six to ten Static Discharger Assemblies AN/ASA-1 and/or AN/ASA-1A are required per airplane.

This assembly was procured as an interim measure for the purpose of alleviating extreme static conditions encountered in aircraft until a final solution on this problem could be obtained. Static Discharger Assembly AN/ASA-1A differs from AN/ASA-1 only in the mounting bracket used. This equipment is now substitute standard. Static Discharger AN/ASA-3 has replaced Static

Discharger AN/ASA-1 as standard equipment. It consists of a cotton wick made conducting by chemical precipitation of silver into the wick fiber. The wick is enclosed in a 10 1/2 inch length of vinylite tubing which is secured in a 3 inch length of aluminum tubing. This equipment is somewhat more effective as a discharger than Static Dischargers AN/ASA-1 and AN/ASA-1A and requires much less maintenance. Ten to twelve Static Dischargers AN/ASA-3 are required for an airplane installation.

No test equipment is required for maintenance. Army Supply Program requirements as of 30 November 1944 were 196,250 AN/ASA-1 assemblies, and 328,860 AN/ASA-3 assemblies for the calendar year 1944, and 129,264 AN/ASA-3 assemblies for 1945.



AN/ASA-1

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	MX-43/ASA-1	Length 12" x diam. 1/2"	
Mounting Bracket	MT-133/ASA-1	3" x 4" x 1"	

AN/ASA-1A

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	MX-43/ASA-1	Length 12" x diam. 1/2"	*
Mounting Bracket	MT-134/ASA-1A	4" x 2" x 3"	*

AN/ASA-3

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	AN/ASA-3	Length 14" x 9/32" diam.	*

*
March 1945



AN/CRC-1

Radio Set AN/CRC-1 is a VHF communication equipment for ground-to-air communication. It is designed to be dropped by parachute from an aircraft and is packaged to permit subsequent man-drawn mobility on the ground. It was improvised for use as interim equipment until a lighter and more compact parachute-dropped VHF equipment could be developed.

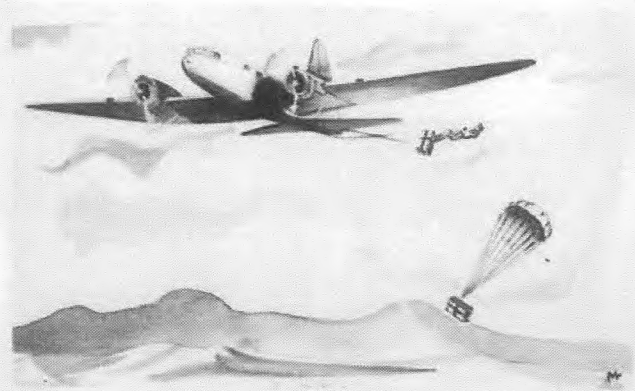
It consists mainly of the transmitter-receiver components of Radio Set SCR-522, Power Unit PE-214-A, Rectifier RA-62 and the necessary containers, parachutes and accessories. It is similar to Radio Set SCR-624 except for the elimination of remote control features, changes in power unit, packaging containers and parachutes arranged to minimize landing shock.

The set used a crystal controlled voice transmitter and a superheterodyne receiver. It operates over a frequency range of a 100-156 mc. Power is supplied from a 115/230 volt, 50-60 cycle a.c. power source.

Test equipment required for the maintenance and tuning of AN/CRC-1 includes Test Set I-139-A and Test Equipment 1E-36 for class A maintenance and Test Equipment 1E-19 for class B maintenance.

Army Supply Program requirements as of 1 December 1944 were 140 for the calendar year 1944.

POWER INPUT	325 WATTS
POWER OUTPUT	6 WATTS (peak)
FREQUENCY	100-156 MC. (4 preset crystals)
TYPE OF SIGNAL	VOICE
RANGES	LINE OF SIGHT TO 130 MILES (max.)



Radio Set AN/CRC-1 may be dropped (in two chests) from aircraft to provide forward ground troops or paratroops with means of transmitting information on which air support or relief may be organized.

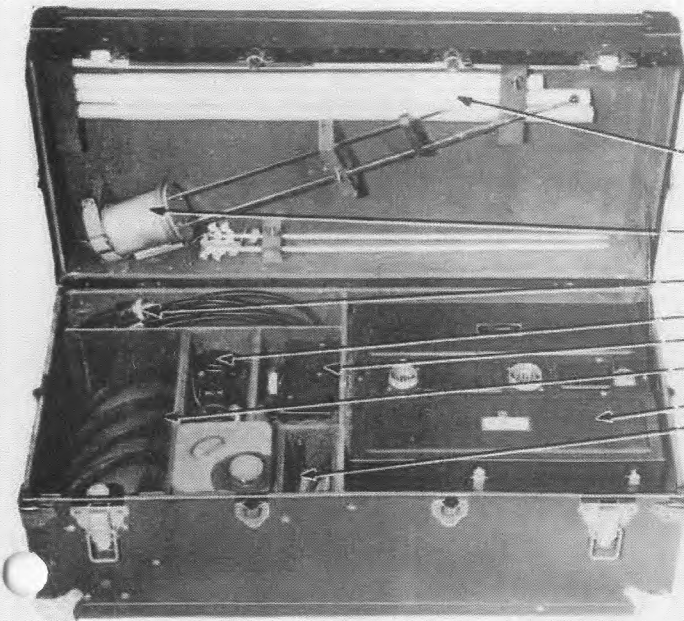
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	1	9002
3	12A6	3	9003
1	6G6G	1	12AH7GT
2	6SS7	3	12SG7
1	12J5GT	2	6X5GT/G
1	12C8	1	12A6GT
		2	5U4G



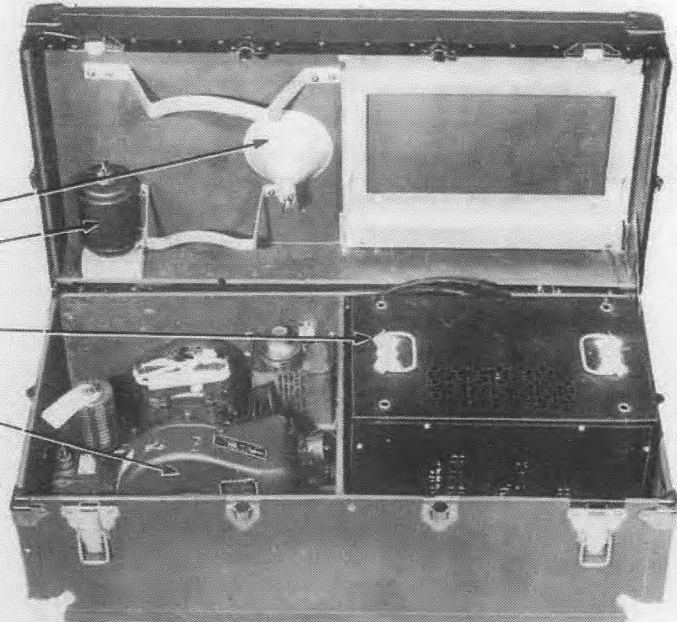
When assembled for operation, Radio Set AN/CRC-1 may be used as a ground-to-air command set to transmit information from ground troops to combat aircraft relative to strategic ground targets against which strafing or bombing action is desired.

AN/CRC-1

~~RESTRICTED~~



- Antenna Mast
- Antenna
- Antenna Cable
- Microphone
- Control Box
- Wheels
- Radio Set
- Head Set



- Funnel
- Muffler
- Rectifier
- Power Unit

RADIO SET AN/CRC-1

TOTAL WEIGHT 275 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-874		
Radio Transmitter	BC-825		
Rack	FT-244		
Case	CS-80		
Rectifier	RA-62		
Power Unit	PE-214-A		
Control Box	C-50/CRC-1		
Antenna	AT-18/CRC-1		
Chest	CY-26/CRC-1	34" x 17" x 15"	159 Lbs. *
Chest	CY-27/CRC-1	34" x 17" x 15"	116 Lbs. *

also earphones, headsets, cords, plug, etc.

weights of chests includes components packed in each.

Radio Receiving Equipment AN/CRR-1 is a light-weight assembly of equipment including a battery operated radio receiver (Setchell Carlson Model #591) providing voice and modulated continuous wave reception over the frequency range of 195 to 405 kilocycles. The equipment also includes a headset, a disconnect cord, a length of antenna wire and a set of batteries. The assembly, weighing less than 15 pounds, is packaged in a water repellent container suitable for hand carrying. The use of a superheterodyne circuit with a stage of RF provides good sensitivity with ample selectivity.

Reception is provided over a range of 150 miles. This equipment, when used in conjunction with the sea rescue transmitter BC-778, which is a part of Radio Set SCR-578, will provide for two-way radio communication between aircraft forced down on the Arctic ferry routes and rescue agencies.

No special test equipment is required for maintenance.

Army Supply Program requirements as of 1 December 1944 were 420 for the calendar year 1944.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	1LN5	1	1LH4
1	1LA6	1	1LB4



Radio Set AN/CRR-1 may also be dropped by parachute to isolated air-crews.

POWER INPUT	25 WATTS @ 24/28 VOLTS DC
FREQUENCY	195-405 KC.
TYPE OF SIGNAL	VOICE; MCW
RANGE	150 MILES

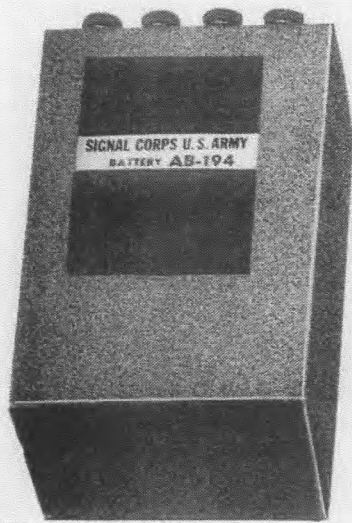


Developed for emergency rescue work along the northern ferry routes, Radio Set AN/CRR-1 is used by stranded air crews to receive communications transmitted by rescue parties in the 195-405 kc. band, either voice or MCW. Transmission facilities for stranded parties is provided by SCR-578.

March 1945

AN/CRR-1

UNCLASSIFIED



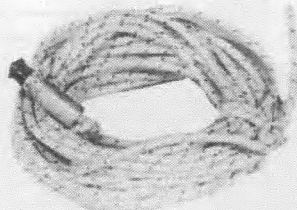
Battery AB-194



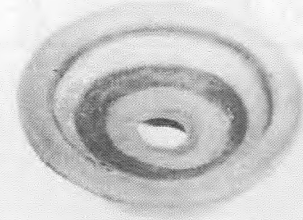
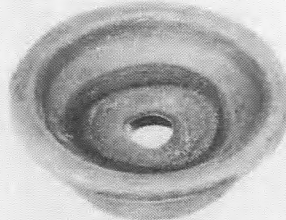
Receiver Model 591



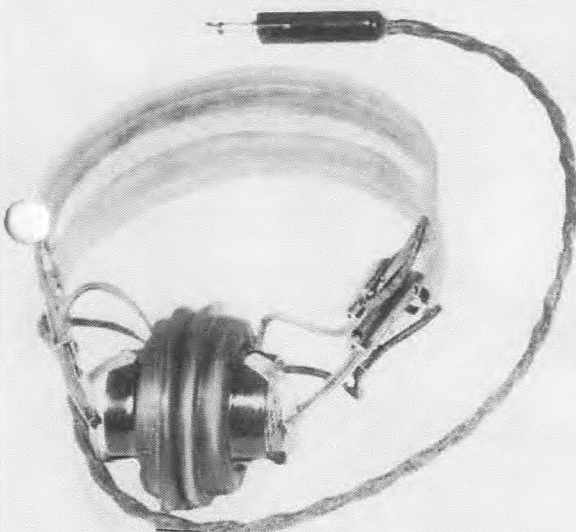
Battery AB-194



Antenna Wire



Ear Cushions



Headset HS-23



Disconnect Cord CD-198

RADIO RECEIVING EQUIPMENT AN/CRR-1

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Radio Range Receiver	Setchell-Carlson Model 591	4" x 4" x 7"	4 Lbs.
Battery, Ray-O-Vac No.	AB-194 (2 each)		
Headset	HS-23		
Cord	CD-307-A		
Antenna Assembly			

Recorder-Reproducer AN/GNQ-2 is ground equipment which records in a similar manner as associated airborne recorder AN/ANQ-2. In addition, it provides playback by means of a pickup, amplifier and loudspeaker.

Recordings are made by embossing on a cellulose acetate disk with a special wax surface treatment. The disk is 0.010 inch thick by 7 inches in diameter. The disk is driven by an off-center pin which engages a hole in the disk and one of a series of corresponding off-center holes in the turn-table. The drive pin is mounted on a spring-loaded record clamp which holds the disk on the turn-table. The embossing stylus consists of a sapphire point (tip radius 0.0015") on an aluminum alloy shank 3/4 inch long by 0.063 inch diameter. Turntable speed is 11.75 r.p.m., line spacing 210 lines per inch, and recording time 30 minutes on each side of the disk. The outer and inner groove speeds are 4.2 inches second and 2.1 inches second, respectively.

The magnetic recording head is mounted on a short counter-balanced arm which is pivoted at its center of gravity. The recording head arm is spring-loaded, and the vertical force at the stylus is approximately 5 ounces. The recording head carriage is driven by an overhead feed mechanism of conventional design.

The turntable is driven by a rubber-rimmed idler which engages the bottom surface of the turntable. The idler is driven by knurled drive wheel which is driven, through a flexible coupling, by a gear reduction box built into the motor. The motor is a 115 volt induction motor with a rotor speed of 1700 r.p.m.

The turntable consists of two halves joined by a sponge rubber pad. The upper half is supported on a stainless steel shaft which rests in a journal assembly consisting of two Oilite sleeve bearings and a single ball bearing at the bottom.

The pickup is a crystal type cartridge and is mounted on ball pivots on a carriage which is moved by a feed screw which is out on the same shaft as the recorder feed screw. The cartridge mounting is pivoted at its cen-

ter of gravity and spring loaded, with vertical force at the stylus approximately 3/4 oz.

The equipment operates at a nominal voltage of 115 volts, 60 cycles per second and draws approximately 0.6 ampere when the motor is running. Standby current is 0.3 ampere.

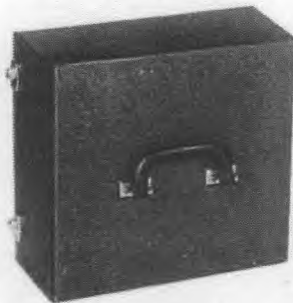
AN/GNQ-2A differs slightly from GNQ-2 in that a 6V6GT tube replaces on 6SJ7GT, the radio switch is removed, and includes microphone M-9/V, mounting MT-335/V, cord CV-583/GNQ-2A and case CY-87/GNQ-2.

Test equipment require for maintenance includes general purpose testing equipment, such as multi-meters and tube testers.

Army Supply Program requirements as of 30 November 1944 were for 96 AN/GNQ-2 for the calendar year 1945; and 270 AN/GNQ-2A for 1944 and 100 for 1945.

POWER INPUT	115 VOLTS A.C.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE
RECORDING TIME	30 MINUTES (ONE SIDE).
TURNTABLE SPEED	11.75 R.P.M.
FREQUENCY RESPONSE	WITHIN 3 DB & 12 DB
SIGNAL TO NOISE RATIO	32 DB AT 1000 C.P.S.
LINE SPACING	210 LINES PER INCH

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	1	6X5
1	6V6GT/G	1	NE-45 NEON



Recorder-Reproducer Lid



Dynamic Microphone



Recorder-Reproducer

RECORDER-REPRODUCER AN/GNQ-2

TOTAL WEIGHT 79 LBS

Component	Nomenclature	Size	Weight
Recorder-Reproducer Unit	RD-5/GNQ-2	10" x 12" x 11"	27 lbs.
Case	CY-87/GNQ-2	12" x 12" x 13"	18 lbs.
Recording Disc.	MX-119/GNQ-2	0.010" by 7" Diam.	
Loudspeaker	LS-107/GNQ-2	3" x 6" x 9"	3 lb
Mounting	MT-279/GNQ-2		
Microphone	T-17		
Headset	HS-33		

and includes a set of operating accessories

March 1945

HS-33

Headset HS-33 is a low impedance (600 ohms), flat-response headset of the headband type primarily intended for use in cabin type aircraft in conjunction with various radio and interphone systems. It consists of two Receivers, ANB-H-1, Cushion M-162-A or Headset Cushion MX-41/AR, Headband HB-7 and Plug PL-354.

Headset HS-33 and Headset HS-38 are the new standard headsets developed for use with aircraft radio and interphone equipment. These headsets replace Headsets HS-23 and HS-18. Headset HS-33 is used with Headband HB-7, while Headset HS-38 is for use with the Air Corps helmet.

Superiority of the new headsets from the viewpoint of speech intelligibility is especially evident under high noise level conditions and at high altitudes. Carefully controlled tests, both in flight and in the laboratory, in which the more severe service conditions were simulated, show increases of approximately 20 percent in the intelligibility of speech heard through the equalized high-fidelity headsets as compared to Headsets HS-23 and HS-18.

Army Supply Program requirements as of 15 December 1944 were for 247,424 HS-33 for the calendar year 1944 and 302,451 for 1945.



Headset HS-33

HS-38

Headset HS-38 is a low impedance (600 ohms), flat response headset of the helmet type primarily intended for use in a flyer's helmet and used in conjunction with radio and interphone systems installed in aircraft. The assembly consists of two Receivers ANB-H-1, two chamois cap covers, two chamois grid covers, Plug PL-354 and and Cap CO-328 with identification tag attached.

Headset HS-38 is the same as Headset HS-33 except for the chamois cap covers and the grid covers which are securely cemented to the receivers as an aid in preventing the ears from becoming frost bitten.

Headset HS-38-A is installed in Helmet A-11 and is used with various airborne radio sets. The headset is provided with a disconnecter in the cord so that in case of a forced jump, the cord will automatically be disconnected.

Army Supply Program requirements as of 30 November 1944 were for 427,704 HS-38 for the calendar year 1944 and 212,997 for 1945.



Headset HS-38

ANB-M-C1

Microphone ANB-M-C1 is a carbon microphone designed for use in A-9, A-10 or A-10-A oxygen mask. It has a response that compensates for low frequency within the mask giving essentially a flat characteristic. It is used with various radio sets and interphone equipment.

Microphone ANB-M-C1 will provide considerably better performance than any throat type microphone. It is designed to obtain performance when used in an oxygen mask. Its electrical response efficiently compensates for the acoustical defects of the oxygen mask. Any oxygen mask provides an acoustical chamber for the voice, having distinct resonance at the lower frequencies. This must be offset by increased electrical response in the higher voice frequencies, if maximum fidelity in the reproduction of speech is to be obtained.

Army Supply Program requirements as of 30 November 1944 were for 342,705 ANB-M-C1 microphones for the calendar year 1944, and 203,797 for 1945.



Microphone ANB-M-C1

M-1/A

Microphone M-1/A is a face type, noise shielding, carbon microphone developed to provide a face microphone with good intelligibility in high ambient noise levels. It is electrically interchangeable with Microphone T-30 and ANB-M-C1 and uses Microphone ANB-M-C1 as a component mounted in a noise shield, specially designed for attachment to an Army Air Force helmet in the same manner as the oxygen mask.

It is suitable for use in an open cockpit type where the microphone is subjected to extremely high ambient noise levels and high wind velocities and is intended for use by personnel in airborne operations which do not require oxygen masks and which do not permit the use of hand-held microphones.

Army Supply Program requirements as of 30 November 1944 were 9,180 M-1/A microphones for the calendar year 1944.



Microphone M-1/A

M-3/A

Microphone M-3/A is a lip microphone for use in aircraft and includes suspension harness for properly attaching the microphone to the head of wearer or to a flyer's helmet. It includes a short cord terminating in Plug PL-291. This microphone is used in conjunction with equipment using Microphones ANB-M-C1 or T-30.

There were no Army Supply Program requirements as of 30 November, 1944.



Lip Microphone M-3/A



Microphone T-17

T-17

Microphone T-17 is a hand, carbon microphone with switch for changing from transmitting to receiving. It is a rugged, sturdy instrument, and when used with the moisture-proof Microphone Cover M-367, it will perform satisfactorily under the most severe service conditions.

It has, however, the two inherent disadvantages of hand-held microphones: It picks up and transmits the engine and propeller noise of the aircraft about as efficiently as it does the voice; and aircraft crew members have too many duties requiring the use of both hands, and the handling of a microphone at a critical moment during a mission is undesirable.

There were no Army Supply Program requirements for T-17 as of 28 December 1944.



Microphone T-30-P

T-30

Microphone T-30 is a carbon throat microphone which is actuated by mechanical vibrations of speech present at the throat of the speaker. It is generally used in conjunction with a radio transmitter and is controlled by a push-to-talk switch. It can be used as a part of an interphone system or with a chest unit for a telephone.

Because the microphone is excited chiefly by contact, it is performed well with respect to masking airplane and other noises, but because of its reliance upon contact excitation, rather than varying impact velocities of sound waves, it is not uniformly a good reproducer of speech. It is deficient in transmitting the higher frequency components of speech. The intelligibility of its output varies widely according to the shape of the throat, voice, and accent of the individual speaker. Its important practical advantage is that it leaves the hands free and may be worn with or without the oxygen mask.

Output of Microphone T-30 is comparable to Microphone T-17. It does not require a pre-amplifier and is a part of various interphone equipment, aircraft and vehicular radiosets. It is also used as an auxiliary to Microphone T-17.

Army Supply Program requirements as of 30 November 1944 were for 328,647 T-30 microphones for the calendar year 1944, and 249,531 for 1945.



Microphone T-44-A

T-44

Microphone T-44 is a magnetic type microphone for use in A-9, A-10 or A-10-A oxygen mask. It has the same performance characteristics as Microphone ANB-M-C1. It is used rather generally by the British in their aircraft command sets and was adapted to accomplish complete interchangeability in the operation of command equipment.

Not electrically interchangeable with a carbon microphone, T-44 operates at voltage levels considerably lower than the carbon microphones.

Army Supply Program requirements as of 30 November 1944 were for 9,838 T-44 microphones for the calendar year 1944.

Interphone Equipment RC-26 is a two-place interphone equipment for tactical use. Interphone Box BC-334 (master) is installed in the pilot's cockpit. Interphone Box BC-335 (remote) is for installation in the cockpit remote from the pilot. Interphone Amplifier BC-212 is so located that the leads connecting it to the control boxes and to the radio set junction box are as short as it is convenient to make them.

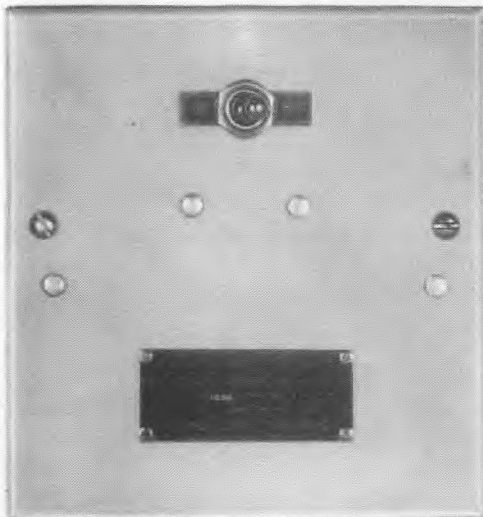
Electrically, it is identical with Interphone Equipment RC-27. The two differ mechanically, in that Interphone Equipment RC-27 has a remote-control switch which allows the occupant of the cockpit, in which Interphone Box BC-335 (remote) is installed, to mechanically operate the switch on Interphone Control Box BC-334 (master) mounted in the other cockpit.

Normally, power for the equipment is obtained from Radio Set SCR-()-183 or SCR-240. Power to operate the equipment can also be obtained from any other adequate d.c. power source (200-350 volts, 16 ma; 12 volts, 0.42 amps).

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE



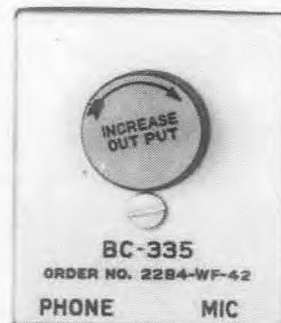
Interphone Amplifier
BC-212-D



Control Box
BC-327



Interphone Control Box
BC-334



Interphone Box
BC-335

INTERPHONE EQUIPMENT RC-26

TOTAL WEIGHT 4 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-212	6" x 6" x 3"	2 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Interphone Box	BC-335	4" x 3" x 2"	*
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft and includes cords, plugs connectors etc.	MC-166	6 feet long	*

*Less than one lb.

March 1945

Interphone Equipment RC-27 is a two-place interphone equipment for basic training aircraft. Electrically, it is identical with Interphone Equipment RC-26. The two differ mechanically in that Interphone Equipment RC-27 has a remote-control switch which allows the occupant of the cockpit in which Interphone Box BC-335 (remote) is installed to mechanically operate the switch on Interphone Control Box BC-334 (master), mounted in the other cockpit.

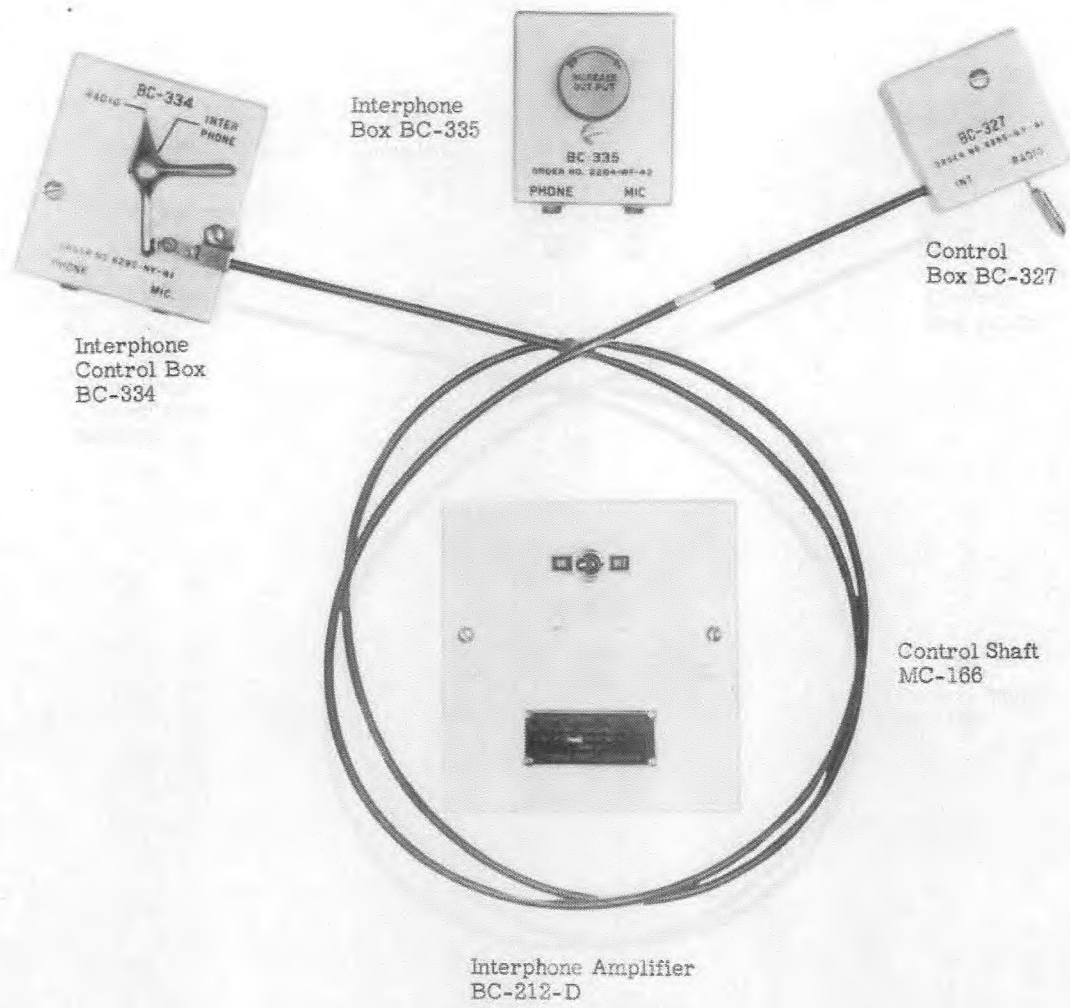
Normally, power for the equipment is obtained from Radio Set SCR-()-183 or SCR-240.

Test equipment required for maintenance includes general purpose testing equipment, such as multi-meters and tube testers.

There were no Army Supply Program requirements as of 30 November 1944

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6C5		



INTERPHONE EQUIPMENT RC-27

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft	MC-166	6 feet long	*
Jack	JK-26		
Interphone Amplifier	BC-212-D	6" x 5" x 3"	2 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Interphone Box	BC-335	4" x 3" x 2"	*

*Less than one lb.

and includes lever assembly, bearing, cordage and plug.

March 1945

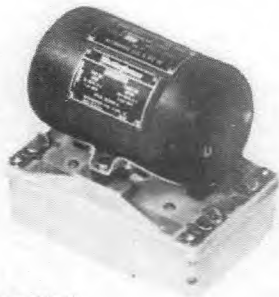
Interphone Equipment RC-35 is a high impedance two-place interphone equipment used in basic training aircraft. A remote control switch is provided which permits the occupant of the cockpit in which Interphone Box BC-335 (Remote) is installed to mechanically operate the switch on Interphone Control Box BC-334 (master), mounted in the other cockpit. RC-35-A is identical to RC-35 except it is a low impedance set using BC-335.

General purpose test equipment only is required for maintenance.

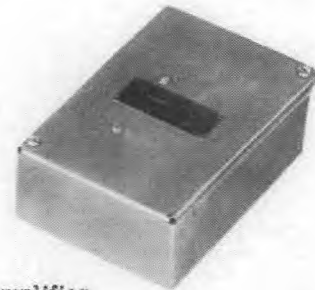
Army Supply Program requirements as of 30 November, 1944 were for 3,494 the calendar year 1944, and 3,55 and 1945

POWER INPUT	24 WATTS @ 28 VOLTS
POWER OUTPUT	7 WATTS
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE

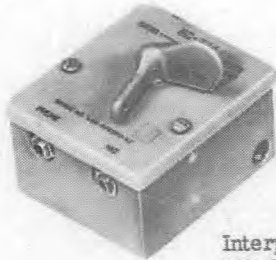
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6F8G		



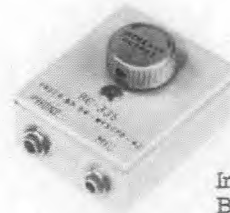
Dynamotor Unit
PE-86-A



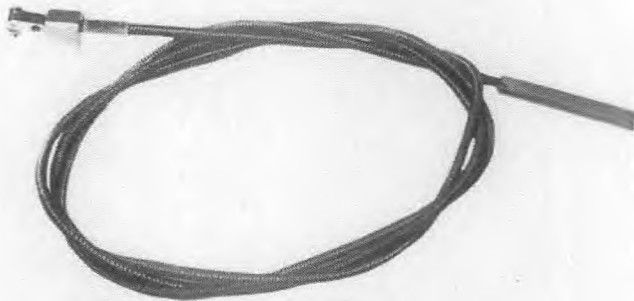
Interphone Amplifier
BC-347-C



Interphone Control Box
BC-334 (Master)



Interphone Box
BC-335 (Remote)



Control Shaft
MC-166-A



Control Box
BC-327 (Remote)

INTERPHONE EQUIPMENT RC-35

TOTAL WEIGHT 10 LBS.

Component	Nomenclature	Size	Weight
Interphone Box	BC-335	4" x 3" x 2"	*
Interphone Amplifier	BC-347-C	6" x 4" x 3"	2 Lbs.
Dynamotor Unit	PE-86- ()	5" x 1" x 5"	4 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft	MC-166-A	6 feet long	*

* Less than one pound

and includes cords, plugs, and adapters.

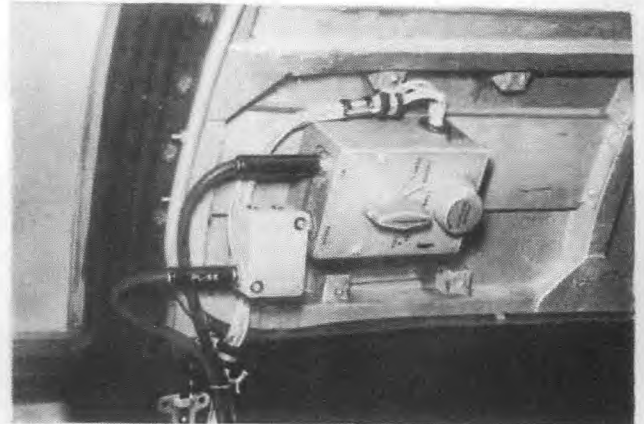
March 1945

Interphone Equipment RC-36 is designed for multiple airplanes and provides intraplane communication between the various interphone stations. Switching facilities whereby the operation of two complete radio sets and one additional radio receiver can be partially controlled are also provided.

Normally, plate voltage (250 volts nominal) for operation of the interphone amplifier will be obtained from the dynamotor which is supplied from a 24 volt d.c. primary source. D.C. power to operate the equipment can be also obtained from any other source capable of furnishing 200 to 300 volts at 18 ma, such as a Dynamotor Unit PE-86-A, and 24 volts at 0.72 amperes, direct current.

Test equipment required for maintenance includes general purpose test equipment, such as multi-meter and tube testers.

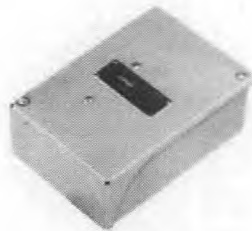
Army Supply Program requirements as of 30 November were for 31,771 equipments for the calendar year 1944 and 13,227 for 1945.



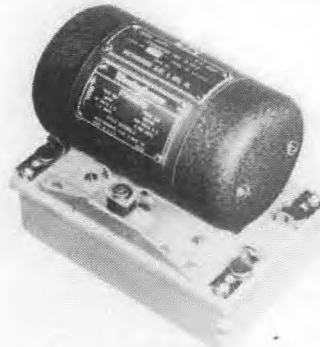
Installation Photo of Jack Box BC-366, Waist Gunner's Position B-17

POWER INPUT	24 WATTS @ 28 Volts
POWER OUTPUT	7 WATT
FREQUENCY	AUDIO
TYPE OF SIGNAL	AUDIO

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6F8G		



Interphone Amplifier BC-212-D



Dynamotor Unit PE-86-B



Jack Box BC-366



Headset Adapter MC-385-C

Plug PL-55



Cord CD-307-A

Jack JK-26

Jack JK-48



Cord CD-508

Switch SW-191-()

Plug PL-68

INTERPHONE EQUIPMENT RC-36

TOTAL WEIGHT 11 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-347-M	6" x 4" x 3"	2 Lbs.
Dynamotor Unit	PE-86-()	5" x 1" x 5"	4 Lbs.
Jack Box	BC-366	5" x 1" x 3"	1 Lb.
Mounting	FT-486	4" x 0" x 1"	2 Lbs.
Headset Adapter	MC-385-C	2" x 1" x 2"	1 Lb.
Cord	CD-307-A	1 to 10 feet	
Cord	CD-508-A	3 feet.	1 Lb.

and includes microphone extension cord.

March 1945

Interphone Equipment RC-45 is designed for multi-place aircraft provided with a 12-volt direct-current primary source. It provides intra-plane communications between the various interphone stations and switching facilities whereby the operation of two complete radio sets and one additional radio receiver can be partially controlled.

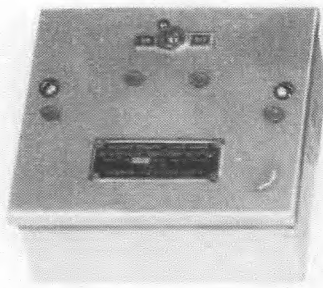
Normally, plate voltage for the interphone amplifier is obtained from the command set dynamotor, which is supplied from the 12 volt d.c. primary power source.

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

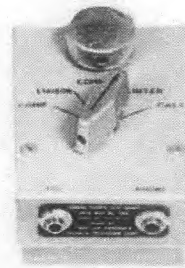
There were no Army Supply Program requirements as of 30 November 1944

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6C5		

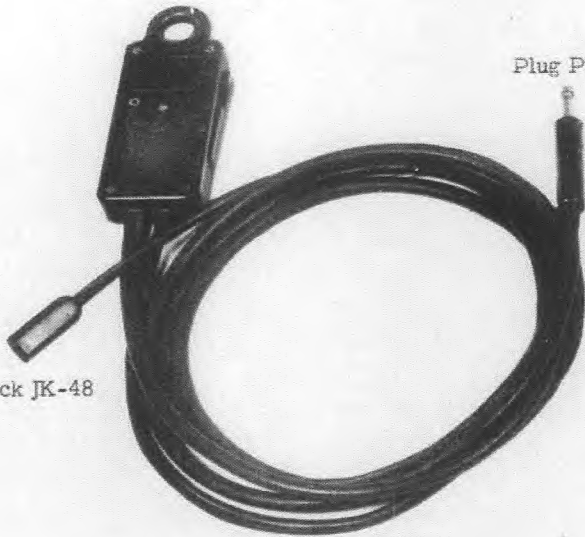


Interphone Amplifier
BC-212-D



Jack Box BC-366

Switch SW-191-()



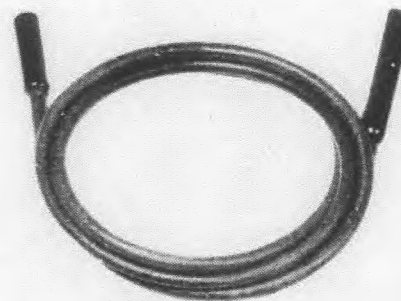
Jack JK-48

Plug PL-88

Cord CD-508

Jack JK-26

Plug PL-55



Cord CD-307-A

INTERPHONE EQUIPMENT RC-45

TOTAL WEIGHT 7 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-212	8" x 5" x 3"	2 Lbs.
Jack box	BC-366	5" x 4" x 3"	1 Lb.

including cords, plugs and 3 additional jack boxes.

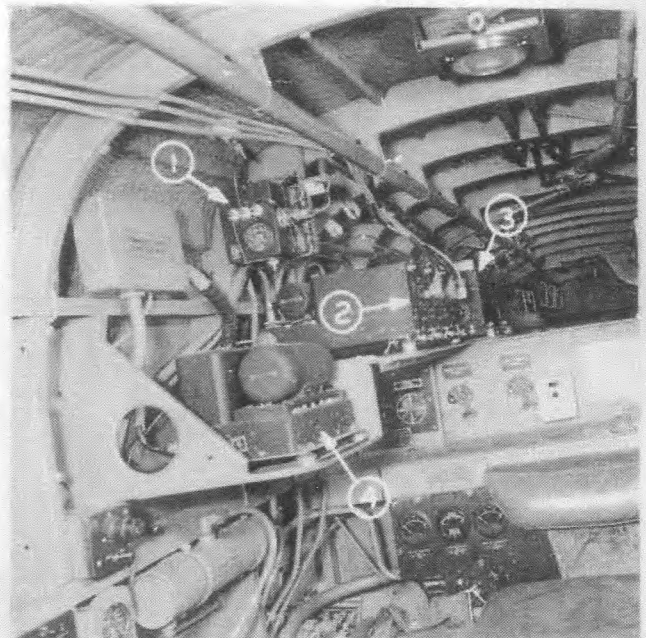
Radio Set SCR-274-N is an airborne command set designed with multiple units to provide a light weight installation for command communications. The receivers and transmitters are each interchangeable as a unit to cover the various frequency bands between 3.0 to 9.1 mc and 100 to 156 mc. Reception on the 90-550 kc band is provided by one receiver.

Various combinations of receivers and transmitters are used in installations in all types of aircraft. Five transmitters and four receivers are provided.

Radio Set SCR-274-N has replaced Radio Sets SCR-()-183, SCR-()-283, and SCR-262-(), and is similar to Navy models ANB-5 and AN/ARC-4, and AN/ARC-5. It is being replaced, in turn, by a lighter, more efficient, eight-channel, crystal-controlled set, AN/ARC-3.

Test equipment required for maintenance includes Test Set RC-54-A and Test Set RC-55-A.

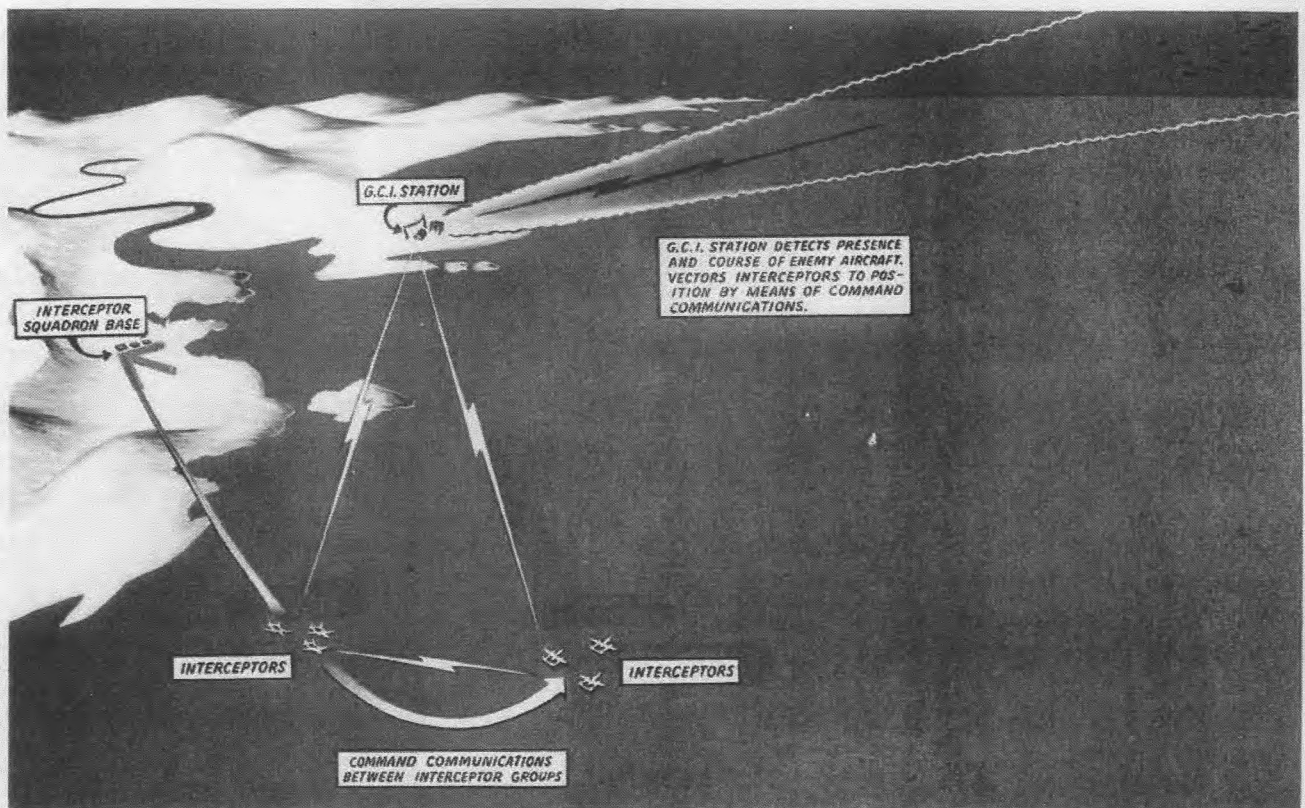
Army Supply Program requirements for this equipment are based on individual components.



Installation of SCR-274 N in B-25 aircraft. (1)Antenna Relay (2)Receivers (3)Transmitter (4)Modulator Unit

POWER INPUT	350 WATTS @ 28 VOLTS DC. (trans)
POWER OUTPUT	VOICE: 5-10 WATTS PEAK CW: 40 WATTS PEAK
RANGE	CW or TONE: 150 MILES VOICE: 75 MILES
TRANS. FREQ.	3-4 MC. (BC-696) 4-5.3 MC. (BC-457) 5.3-7 MC. (BC-458) 7.9.1 MC. (BC-459) 100-156 MC. (BC-950) CW, TONE, VOICE
REC. FREQ.	190-550 KC. (BC-453) 3-6 MC. (BC-454) 6-9.1 MC. (BC-455) 100-156 MC. (BC-942)

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
9	12SK7	9	1625
3	12K8	1	VR-150-30
3	12SR7	4	1626
3	12A6	4	1629
1	12J5GT		



Installed in many types of tactical aircraft to provide medium frequency command communication facilities, SCR-274N is a manually-operated equipment, which transmits in fivebands and receives in four.

SCR-274 N

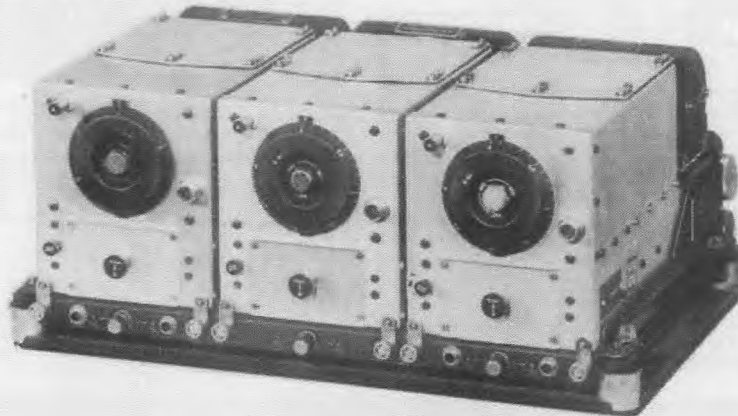
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Radio Transmitters BC-457, BC-458



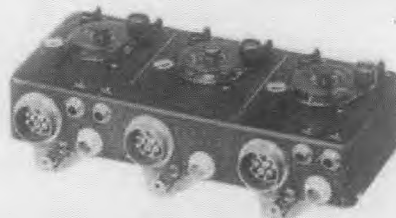
Modulator Unit BC-456



Radio Receivers BC-453, BC-454, BC-455



Antenna Relay Unit BC-442



Radio Control Box BC-450



Radio Control Box BC-451

RADIO SET SCR-274 N

TOTAL WEIGHT 79 LBS.

Component	Nomenclature	Size	Weight
Antenna Relay Unit	BC-442	7" x 6" x 7"	2 Lbs.
Modulator Unit	BC-456	8" x 9" x 10"	9 Lbs.
Radio Control Box	BC-451	3" x 4" x 5"	1 Lb.
Radio Transmitters	BC-696	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-457	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-458	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-459	9" x 5" x 12"	9 Lbs.
Radio Receivers	BC-454	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-453	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-455	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-946	8" x 6" x 12"	10 Lbs.
Radio Control Box	BC-450	5" x 9" x 6"	3 Lbs.

plus cords, cables, plugs, etc.

Radio Set SCR-()-283 is intended for installation and operation in aircraft having 24-28 volt d-c power supply systems.

The frequency range of the receiver is 201-398 kc. and 2.5-7.7 mc. (Although it is technically possible to extend the ranges beyond these bands by the use of additional coil sets, the extension of the frequencies is not authorized for this radio set. Such additional coil sets have not been procured and cannot be furnished.)

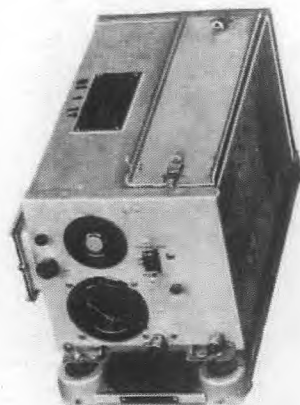
The radio receiver may be used to receive modulated or damped-wave signals at any frequency within these ranges. Frequency range of the transmitter is 2,500 to 7,700 kilocycles, and it may be used to transmit unmodulated, tone-modulated, or voice-modulated signals.

Test equipment required for maintenance and tuning of the set includes Test Set I-56-K.

Army Supply Program requirements as of 1 December 1944 were 680 for the calendar year 1944.

POWER INPUT	300 WATTS @ 28 VOLTS
POWER OUTPUT	3 WATTS (peak)
FREQUENCY	201-398 KC 2500-7700 MC
TYPE OF SIGNAL	CW-MCW VOICE
RANGE	15 MILES

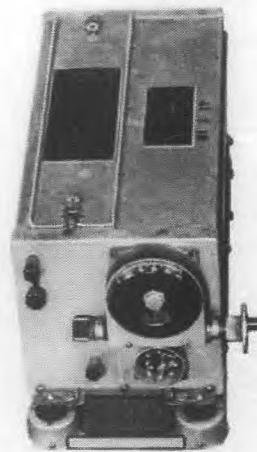
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	45 Special	1	37
2	10 Special	1	38
4	39/44		



Radio Transmitter
BC-AR-430



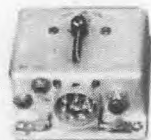
Dynamotor Unit
BD-AR-93



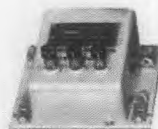
Radio Receiver
BC-AR-429



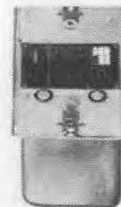
Coil Unit C-379



Radio Control Box
BC-AR-231



Antenna Switching Relay
BC-AR-408



Coil Set C-381



Radio Control Box
BC-AR-232

RADIO SET SCR-()-283

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Dynamotor Unit	BD-()-93	5" x 8" x 8"	10 Lbs.
Radio Transmitter	BC-()-430	7" x 14" x 8"	11 Lbs.
Radio Receiver	BC-()-429	9" x 16" x 8"	12 Lbs.
Mounting	FT-100		2 Lbs.
Mounting	FT-99		2 Lbs.
Coil Unit	C-400	12" x 6" x 7"	3 Lbs.
Coil Set	C-398	7" x 4" x 4"	1 Lb.
Mounting	FT-141		
Coil Sets	C-401 to C-405	12" x 6" x 7" (each)	1 Lb. (each)
Radio Control Box	BC-()-232	4" x 5" x 3"	1 Lb.
Radio Control Box	PC-()-231	4" x 5" x 3"	1 Lb.
Mounting	FT-118		2 Lbs.
Antenna Switching Relay	BC-()-408	5" x 5" x 3"	2 Lbs.
Mounting	FT-118		2 Lbs.
Junction box	FM-()-172	6" x 3" x 8"	3 Lbs.

and includes cables, plugs, and adapters.

March 1945

RadioSet SCR-287 is an airborne liaison set used for plane-to-ground communication over ranges extending from 50 to several hundred miles. The set is similar to RadioSet SCR-187 with the exception of the 24-volt primary power supply employed in SCR-287.

Radio Transmitter BC-375 is designed for use in aircraft and other applications requiring a medium-power equipment having strength, light weight, flexibility, and portability. The equipment is designed to provide communication by voice; tone or continuous wave telegraphy over a frequency range of 150 to 12,500 kc. Suitable tuning equipment is provided in the radio transmitter to permit satisfactory operation over most of the frequency range when connected to the available airplane antenna. Antenna Tuning Unit BC-306 may be used to extend the range of antenna tuning for frequencies between 150 to 800 kc.

The transmitter and its associated equipment may be expected to give satisfactory service on CW at all altitudes up to 27,000 feet. On tone and voice, however, insulation breakdown may occur in Transmitter Tuning Unit TU-8-B above 25,000 feet and in Transmitter Tuning Unit TU-9-B above 19,000 feet. These altitude limitations may be exceeded slightly with the exercise of extreme caution in tuning and keeping the equipment clean. Satisfactory operation between 6,200 and 10,000 kc. may be obtained on CW alone at altitudes between 19,000 and 27,000 feet, and Transmitter Tuning Unit TU-26-B may be expected to give satisfactory performance at all altitudes up to 15,000 feet.

Radio Receiver BC-348 and Radio Receiver BC-224 are locally controlled, eight-tube, six-band superheterodyne receivers which cover the frequency ranges of 200-500 kc. and 1.5 to 18 mc. All receivers in the BC-348 series are interchangeable, as are all receivers in the BC-224 series. Each Radio Receiver BC-348 and Radio Receiver BC-224 are capable of voice, tone, or c-w reception with manual or automatic volume control. The total power consumed by these receivers is 56 watts from either a 28-volt or 14-volt d.c. source.

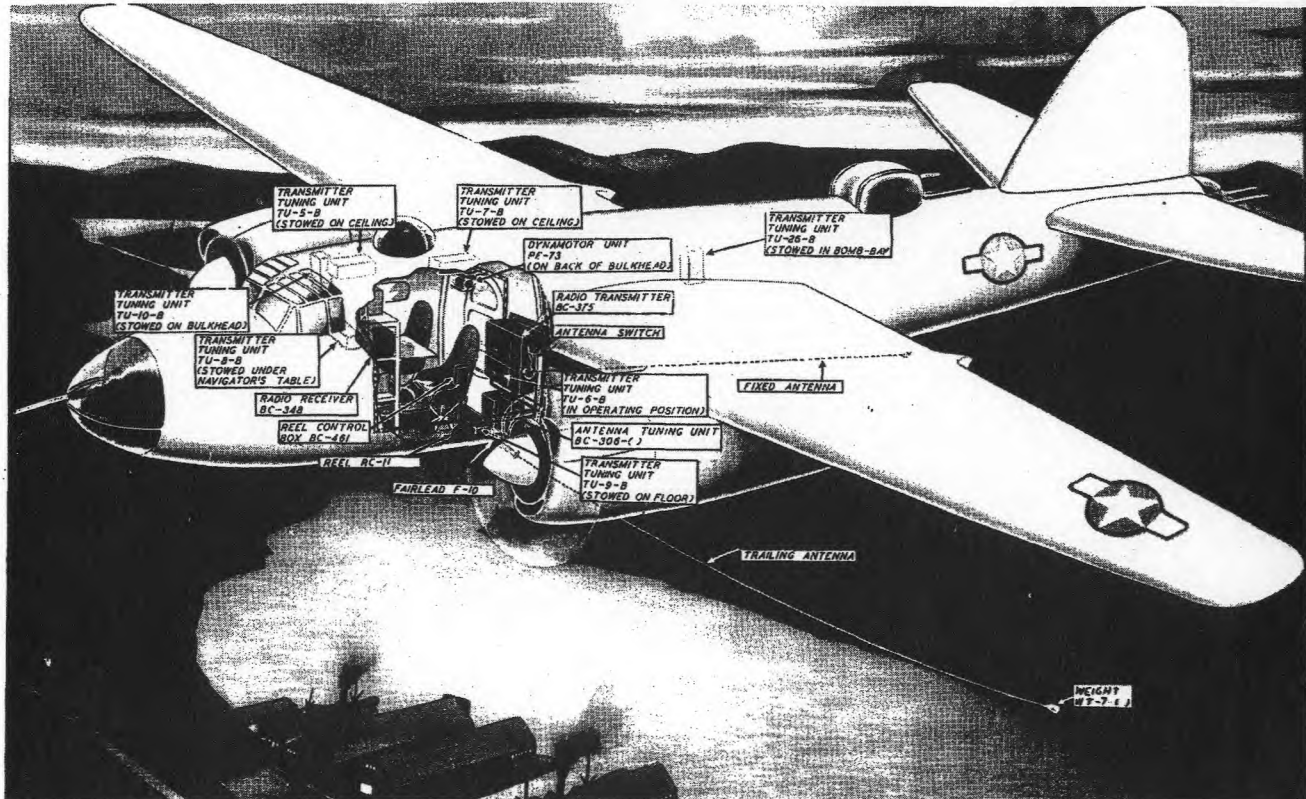
Electrically, the receiver comprises two stages of tuned radio frequency amplification preceding the first detector, a temperature-compensated heterodyne oscillator, three intermediate-frequency amplifier stages, a second detector and one stage of audio-frequency amplification with a transformer output circuit. A crystal band-pass filter and beat-frequency oscillator are also included. The former is for increasing selectivity and the latter for receiving c-w signals.

The frequency range of 1.5 to 18 mc. is covered in six bands which are under the control of a band-change switch. These frequency ranges are: 0.2 to 0.5 mc.; 1.5 to 3.5 mc.; 3.5 to 6.0 mc.; 6.0 to 9.5 mc.; 9.5 to 13.5 mc.; 13.5 to 18.0 mc.

General purpose test equipment only is required for maintenance. There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	600-840 WATTS @ 24-28 VOLT D.C.
POWER OUTPUT	80 WATTS PEAK
TYPE OF SIGNAL	CW-TONE - VOICE
RANGE	APPROX. 800 MILES
RECEIVING FREQUENCY	200-500 KC.-18.0 MC. 5 BANDS
TRANSMITTING FREQUENCY	150 KC. TO 12.5 MC.

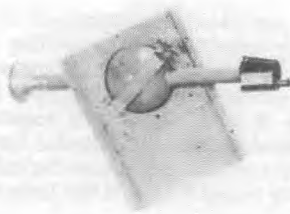
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	211 SPC.	1	6F7
1	10	3	6K7
1	41	1	6J7
1	6C5	1	6B8



With its many components, including the numerous tuning units, Radio Set SCR-287 requires considerable installation space, as shown in above installation of SCR-287 in a B-26.

SCR-287

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Fair Lead F-10



Reel Control Box BC-461



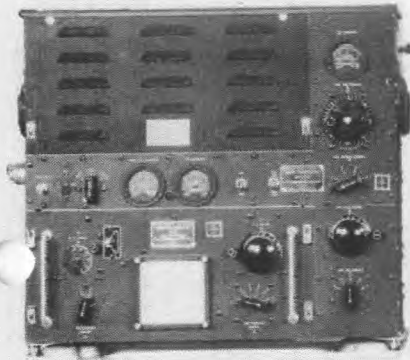
Weight WT-7-A



Reel RL-42-A



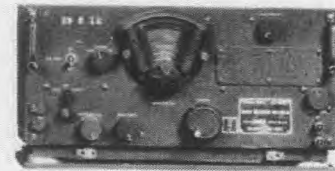
Dynamotor Unit PE-73-B



Radio Transmitter BC-385-C

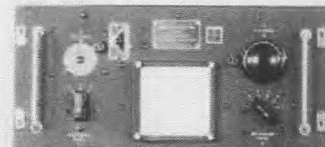


Antenna Tuning Unit

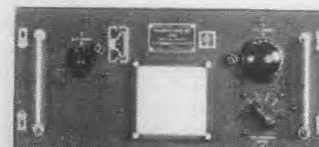


Radio Receiver BC-348-H

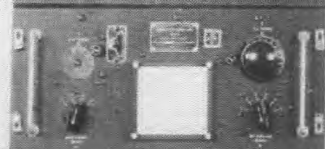
Tuning Unit TU-26-B



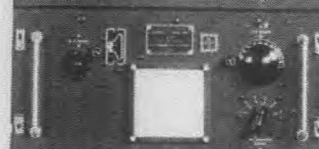
Tuning Unit TU-8-B



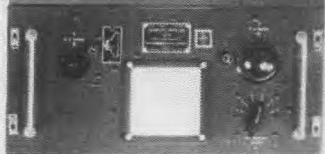
Tuning Unit TU-5-B



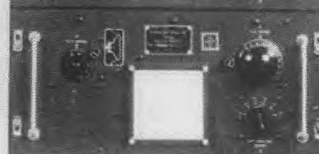
Tuning Unit TU-9-B



Tuning Unit TU-7-B



Tuning Unit TU-10-B



NOT SHOWN: Tuning Units TU-6-A and TU-22-A

RADIO SET SCR-287

TOTAL WEIGHT 275 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-375-()	24" x 22" x 10"	49 Lbs.
Antenna Tuning Unit	BC-306-A, BC-306-B	18" x 10" x 10"	10 Lbs.
Reel	RL-42-A	6" x 9" x 5"	6 Lbs.
Reel Control Box	BC-461	4" x 6" x 3"	2 Lbs.
Radio Receiver	BC-348-()	18" x 10" x 11"	40 Lbs.
Tuning Unit	TU-26-B	17" x 8" x 9"	15 Lbs.
Tuning Unit	TU-5-B	17" x 8" x 9"	15 Lbs.
Tuning Unit	TU-7-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-8-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-9-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-10-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-6-B	17" x 8" x 9"	13 Lbs.
Tuning Unit	TU-22-A	17" x 8" x 9"	13 Lbs.
Dynamotor	PE-73-B	11" x 11" x 8"	39 Lbs.

and includes plugs, cables, adapters etc.

SCR-522-A

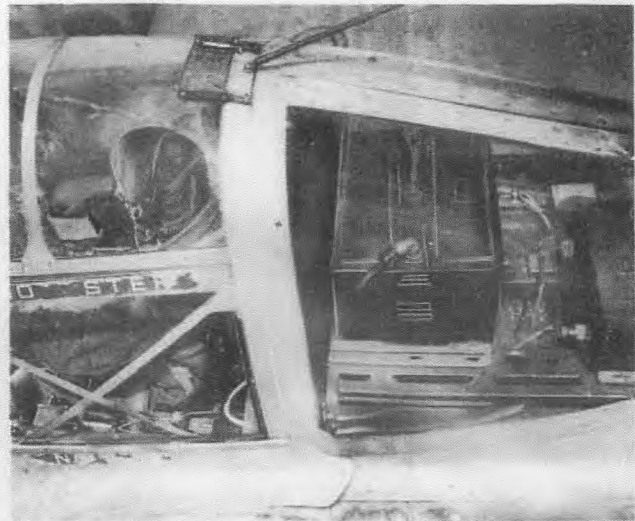
Radio Set SCR-522-A is a VHF, 24-volt command set, identical with SCR-542, with the exception of the latter's 12-volt dynamotor. It is also similar to, and interchangeable with the British VHF Command Equipment, Type TR-1143.

Radio Set SCR-522-A is used in interceptor pursuit planes and provides communication between planes in flight, and between planes and the ground, the latter in conjunction with Ground Control Net System SCS-2 and SCS-3, and Control Net Addition SCS-4. The equipment is also used with bombers and transports for communication with escort fighter planes.

The equipment has four push button operated, crystal-controlled channels within the frequency range of 100 to 156 mc, with voice transmission on three channels and "pip squeak" transmission on the fourth channel. Reception is usually on the same four frequencies, three of which are ordinarily used.

Test equipment required for maintenance includes Test Equipments IE-36, IE-19 and IE-12.

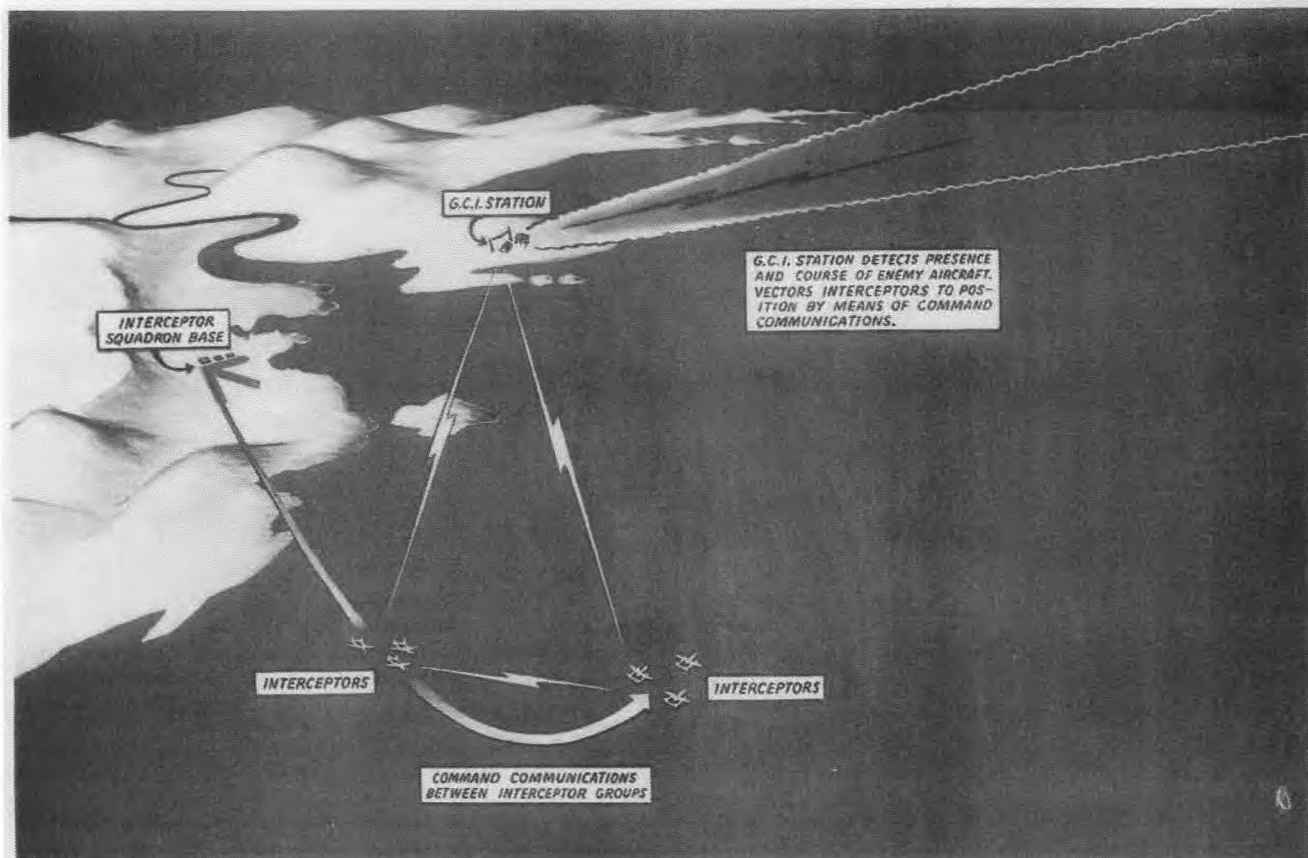
Army Supply Program requirements as of 27 December 1944 were 93,555 for the calendar year 1944, and 21,095 for 1945.



Radio Set SCR-522 installed in P-38E aft of pilot position

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12J5GT	3	12SG7
1	12C8	2	832
1	9002	3	12A6
3	9003	1	6G6G
1	12AH7GT	2	6SS7

POWER INPUT	325 WATTS @ 28 VOLTS
POWER OUTPUT	6 WATTS
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	VOICE
RANGE	130 MILES AT 10,000 FEET (LINE OF SIGHT)



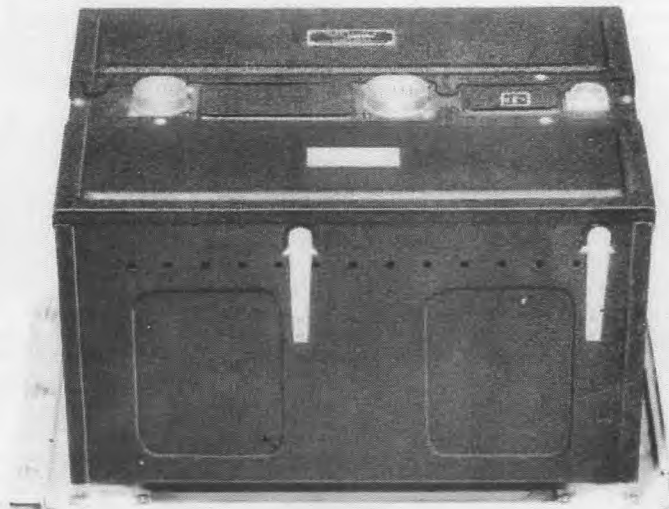
Installed in most types of tactical aircraft for providing command communication facilities, Radio Set SCR-522, capable of being operated on any one of four preset channels in the 100-156 mc. range, may be employed by pilots of fighter aircraft to receive information to aid in the interception of enemy planes.

SCR-522-A

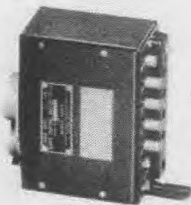
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Antenna Mast AN-104



Radio Receiver BC-624-A
Radio Transmitter BC-625-A
In Case CS-80



Radio Control Box BC-602-A



Dynamotor Unit PE-94-C

RADIO SET SCR-522-A

TOTAL WEIGHT 125 LBS.

Component	Nomenclature	Size	Weight
Case	CS-80	17" x 13" x 11"	29 Lbs. with transmitter and receiver and rack.
Radio Transmitter	BC-625-A		
Radio Receiver	BC-624-A		
Rack	FT-244-A		
Crystal Unit	DC-11-A (8 each)	2" x 2" x 1"	*
Dynamotor Unit	PE-94-A	13" x 9" x 7"	37 Lbs.
Dynamotor Unit	PE-98-A	13" x 9" x 7"	37 Lbs.
Jack Box	BC-629-A (Pilot)	5" x 3" x 2"	*
Jack Box	BC-630-A (Pilot Crew)	5" x 3" x 2"	*
Jack Box	BC-631-A (Other Crew)	5" x 3" x 2"	*
Junction Box	JB-29-A	9" x 5" x 3"	2 Lbs.
Radio Control Box	BC-602-A	6" x 6" x 3"	3 Lbs.

* Includes cables, plugs, connectors, and etc.

* Less than 1 lb.

Radio Set SCR-585 is a dual-purpose radio receiver and transmitter designed for two-way glider communication over distances up to one mile. It is a portable radio telephone, receiving and transmitting on the same frequency.

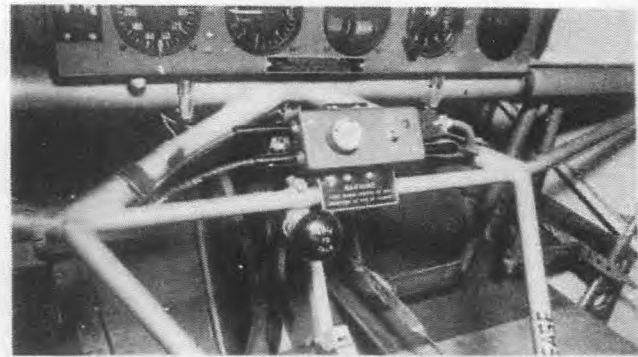
When operated in a glider, headphones and a throat microphone are used. While headphones are available for both pilot and co-pilot, provision is made for only one microphone.

By unbuckling the strap and buckle assembly, and pushing the release lever, Radio Receiver and Transmitter BC-721 is released and becomes a press-to-talk self-contained portable radio telephone resembling an ordinary hand telephone set. When operated in this manner, Radio Receiver and Transmitter BC-721 is automatically turned on by fully extending the self-contained telescopic antenna. No volume control is used with the radio receiver and transmitter when it is being operated as a portable radio telephone.

Radio Set SCR-585 is crystal controlled on both reception and transmission, and will operate over the frequency range of 3500 to 6000 kc. Each unit, however, is adjusted to operate at only one frequency at a time in this band. Reception and transmission are on the same frequency. The set can be made to operate at any frequency in the band by proper choice of crystals and coils. For correct performance, each set must have coils adjusted to the crystals used. The coils and crystal changes and their adjustments cannot be made by the operator, but are set by the manufacturer, or by maintenance men at authorized repair depots.

Test equipment required for maintenance includes test equipment IE-17-B.

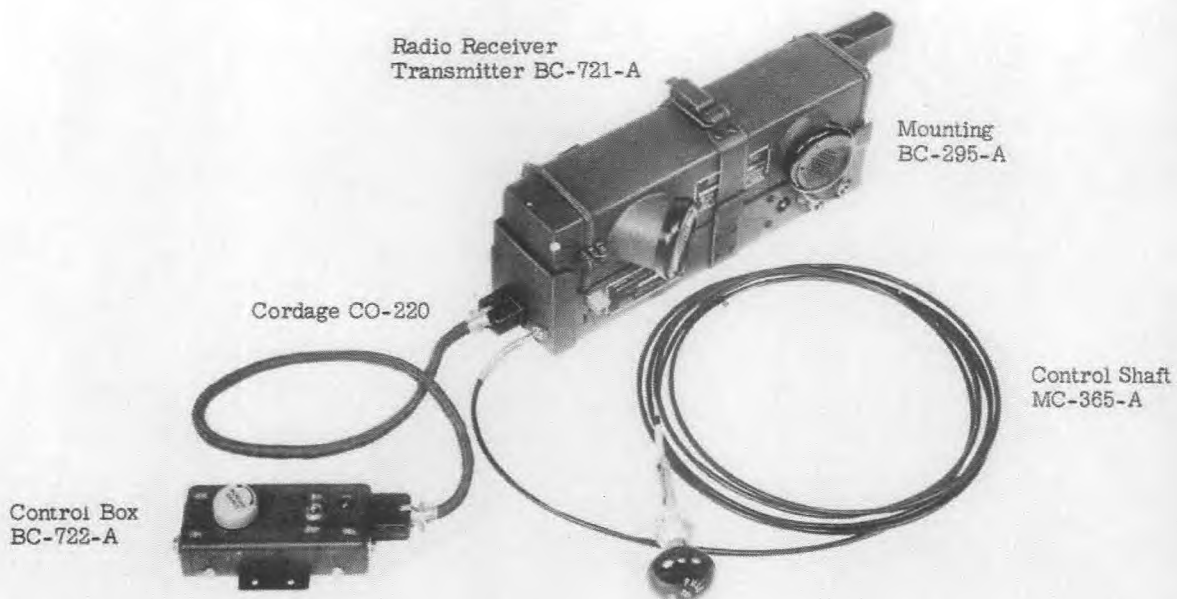
There were no Army Supply Program requirements as of 30 November 1944.



Installation of Control Box and "pull to talk" switch on instrument panel, pilots position in CG-4A glider.

POWER SUPPLY	BA-37 AND BA-38 BATTERIES
POWER OUTPUT	0.25 WATTS PEAK
FREQUENCY	ONE PRETUNED FREQ. IN 3500-6000 KC BAND
TYPE OF SIGNAL	VOICE
RANGE	GLIDER TO GROUND-5 MILES, GROUND TO GROUND . 1 MILE.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	IR5	2	3S4
1	IT4		



RADIO SET SCR-585

TOTAL WEIGHT 10 LBS

Component	Nomenclature	Size	Weight
Mounting	FT-295-()	5" x 5" x 17"	4 Lbs
Radio Receiver & Transmitter	BC-721-()	4" x 6" x 17"	5 Lbs.
Radio Control Box	BC-722-()	2" x 3" x 6"	1 Lb.

March 1945

Radio Set SCR-624 is a VHF ground-air communication set which utilizes components of the SCR-522 airborne VHF command set and necessary auxiliary equipment for use as a ground station. It is especially designed for transportation by air with the major components contained in two foot-locker chests.

It is intended for use at advance landing fields to provide ground-air communications with aircraft equipped with SCR-522; the equipment may also be used to some extent for point-to-point communication on the ground. The SCR-522 four-channel crystal controlled transmitter and receiver is used in this equipment with the d.c. dynamotor unit replaced by a special a.c. rectifier, RA-82-C, operating from the gasoline engine-driven power unit PE-75-D. When available, a commercial 100-130 volt or 230-280 volt, 40 to 60 cycles, single phase power source can be used.

Remote control facilities except "on-off" switching are provided for operation up to a maximum of 500 feet. Remote send-receive operation is possible up to two miles where field or open wire lines are available. Channel selection is accomplished at the transmitter-receiver chest or at the remote control station up to 500 feet away.

Loudspeaker LS-10 is a part of this radio set. While the loudspeaker may not be required under certain conditions, it is particularly useful in tower control work.

Radio Set SCR-624-B is the same as SCR-624-A

except CH-170 has been eliminated, and its contents have been placed in Chest CH-172-B and Chest CH-173-B.

Test Equipment required for the maintenance and tuning of SCR-624 includes Test Equipment IE-19 or Test Set I-139-A.

Army Supply Program requirements as of 1 December 1944 were 5,068 for the calendar year 1944 and 988 for 1945.

POWER INPUT	165 WATTS @ 110 VOLTS
POWER OUTPUT	8 TO 10 WATTS (max.)
FREQUENCY	100-158 MC
TYPE OF SIGNAL	AM-VOICE ON 4 PRE-SET CRYSTAL FREQUENCIES
RANGE	LINE OF SIGHT TO 100

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	2	12AH7GT
4	12A6	3	12SG7
1	6G6G	1	12H6
1	12C8	1	6SS7
1	9002	1	6X5GT/G
3	9003	2	5U4G



Radio Set SCR-624 provides an easily assembled short range ground - to air command communications facility for use at newly established landing strips and on captured enemy air fields.

SCR-624



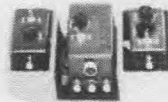
Chest CH-173-B
(Interior View Showing Equipment in Place,
Except Control Boxes).



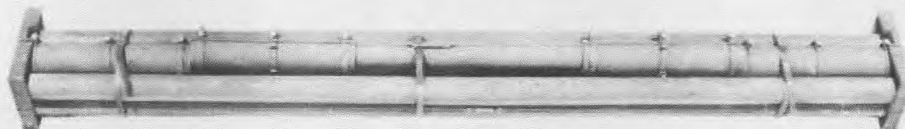
Chest CH-172- A
Completely Packed

Control Box
BC-1313

Control Box
BC-1314



Control Box
BC-1312



Antenna Mast MA-7-A
Crated for Shipment

RADIO SET SCR-624

TOTAL WEIGHT 500 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-625-AM		
Radio Receiver	BC-624-C		
Rack	FT-244-A		
Case	CS-80-C		
Mounting	FT-488		
Control Box	BC-1313		
Control Box	BC-1312		
Chest	CH-172-B	17" x 18" x 35"	205 Lbs.
Chest	CH-183-B	17" x 18" x 35"	124 Lbs.
Antenna	AN/94-C		
Mast	MA-7-A		152 Lbs.
Loudspeaker	LS-10-A		
Power Unit	PE-75-D		
Rectifier	RA-62-C		

includes cords, set of metal stakes, kit of tools and spare tube boxes.
Weight of chests include weight of components packed in each.

T E S T
E q u i p m e n t

Test Equipment AN/AIM-1 is a Class A special test equipment designed to test installations of Interphone Equipment AN/AIA-1 and AN/AIA-1A in glider, tow plane and tow rope. It consists of Test Set TS-161/AI, Test Set TS-162/AI, Test Set TS-163/AI and Carrying Case CY-112/AIM-1.

Test Set TS-161/AI is a portable test set employed as a visual indicating device for checking the continuity of the conductors on a tow rope prior to attachment to glider and tow plane.

Test Set TS-162/AI is a portable test set for checking the wiring and operation of the glider components installed in gliders.

Test Set TS-163/AI is a portable test set for checking the wiring and operation of the two plane com-

ponents installed in a tow plane.

Carrying Case CY-112/AIM-1 has a removable lid with carrying handle, and fasteners on two sides. It is used to carry Test Sets TS-161/AI, TS-162/AI and TS-163/AI.

No test equipment is required for maintenance.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	BATTERIES TS-161/AI-2-BA-30, TS-162/AI-2-BA-30.
FREQUENCY	AUDIO FREQUENCIES
TYPE OF SIGNAL	VOICE



Carrying Case CY-112/AIM-1



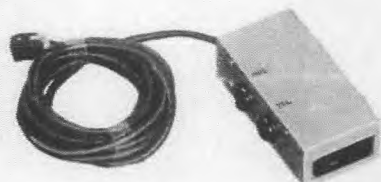
Test Set TS-161/AI



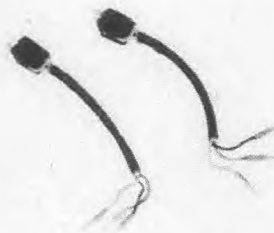
Adapter U-14/AI



Test Rod M-143/AI



Test Set TS-162/AI



Cord CX-151/AI



Test Set TS-163/AI

TEST EQUIPMENT AN/AIM-1

TOTAL WEIGHT 8 LBS.

Component	Nomenclature	Size	Weight
TEST SET TS-161/AI			
Test Set	TS-161/AI	6" x 4" x 2"	1 Lb.
Adapter	U-14/AI		*
Test Rod	MX-143/AI		*
and includes batteries*, pilot light and plug.			
TEST SET TS-162/AI			
Test Set	TS-162/AI	6" x 4" x 2"	1 Lb.
Cord	CX-151/AI	Length 5 inches	*
and includes batteries*, jacks, transformer, cordage and plug.			
TEST SET TS-163/AI			
Test Set	TS-163/AI	3" x 4" x 2"	*
Cord	CX-151/AI	5"	*
and includes jacks, cordage and plug.			
Carrying Case	CY-112/AIM-1	8" x 7" x 6"	4 Lbs.

*Batteries not furnished

*Less than one pound

March 1945

~~RESTRICTED~~

AN/ARM-1

Radio Test Set AN/ARM-1 is Class B special test equipment for Radio Set AN/ARC-3 consisting of Test Unit TS-178/ARM-1, Power Junction Box J-68/ARC-3, Dynamotor Units DY-21/ARC-3 and DY-22/ARC-3, Chest CY-146/ARM-1, Control Box C-118/ARC-3 and associated cords and tools.

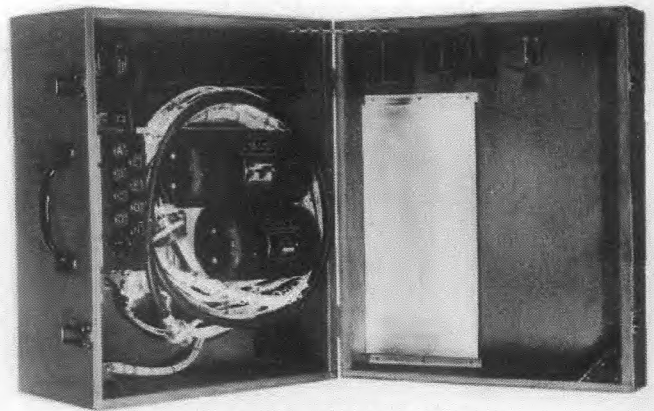
Test Unit TS-178/ARM-1 provides means for measuring the various grid currents and voltages necessary for completely testing and aligning Radio Transmitter T-67/ARC-3 and Radio Receiver R-77/ARC-3. It consists of a case containing a single meter, a rotary selector switch with eight positions and necessary shunt and series resistors. The unit has a permanently attached 5 foot cord with Plug PL-152 on the end for connection to the transmitter or receiver.

Control Box C-118/ARC-3 is a push button control box for remotely controlling the operation of both the receiver and transmitter. It contains eight channel selection push buttons, one "Off" button, on phone jack and one microphone jack. Channel selection buttons have on top letters, A to H inclusive, filled with fluorescent paint.

Adapter MX-293/ARM-1 is a device for connecting a 12 mc. signal generator to the mixer grid of Radio Receiver R-77/ARC-3.

Dynamotors DY-21/ARC-3 and DY-22/ARC-3 are used to supply plate currents to the transmitter and receiver respectively.

Shunting Unit MX-294/ARM-1 is an IFF shunting



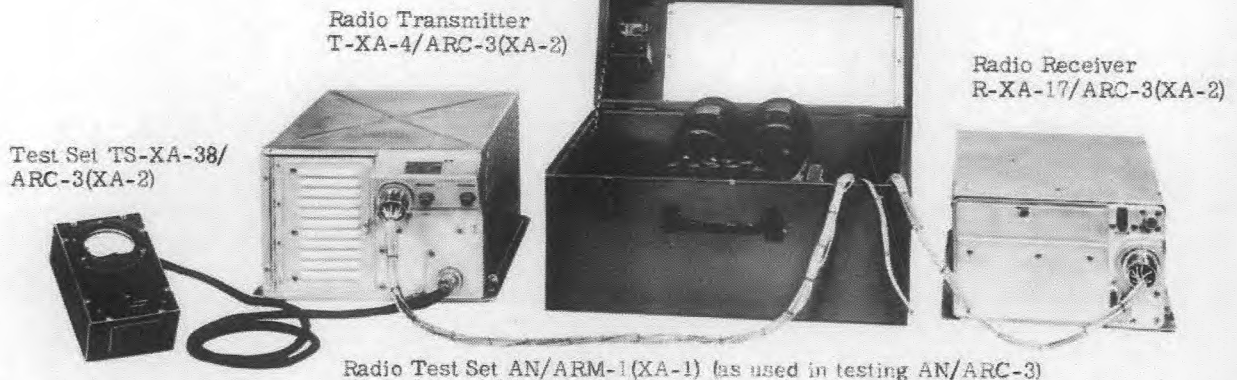
Radio Test Set AN/ARM-1(XA-1)

unit used in the alignment of the IFE stages of Radio Receiver R-77/ARC-3. It consists of a condenser and resistor in series.

No test equipment is required for maintenance.

Development of this equipment has been completed and production is expected to start in February 1945. Army Supply Program requirements for AN/ARM-1 as of 30 November 1944 were 2,500 for the calendar year 1945.

POWER INPUT 28 VOLTS D.C.



Radio Test Set AN/ARM-1(XA-1) (as used in testing AN/ARC-3)

RADIO TEST SET AN/ARM-1

TOTAL WEIGHT 40 LBS.

Component	Nomenclature	Size	Weight
Test Unit	TS-178/ARM-1	2" x 6" x 3"	2 Lbs.
Power Junction	J-68/ARC-3	4" x 10" x 9"	6 Lbs.
Mounting	MT-236/ARC-3	9" x 11" x 2"	1 Lb.
Dynamotor Unit	DY-21/ARC-3	4" x 8" x 4"	9 Lbs.
Dynamotor Unit	DY-22/ARC-3	4" x 8" x 4"	5 Lbs.
Control Box	C-118/ARC-3	6" x 7" x 3"	2 Lbs.
Mounting	FT-240-A	1" x 6" x 7"	1 Lb.
Shunting Unit	MX-294/ARM-1	2" x 1" x 1"	1 Lb.
Adapter	MX-293/ARM-1	1" x 1" x 1"	1 Lb.
Shorting Plug	U-30/ARM-1	2" x 2"	
Alignment Tool	MX-174/ARM-1		
Chest	CY-146/ARM-1	10" x 15" x 17" (filled)	55 Lbs.
Tuning Wand	MX-173/ARM-1		
Cord	CX-214/ARM-1	12 feet long	
Cord	CX-215/ARM-1	5 feet long	
Cord	CX-216/ARM-1	5 feet long	
Cord	CX-217/ARM-1	10 feet long	

and includes adapter and relay forming tools.

March 1945

Test Set I-56 is a universal, general purpose radio test set which consists of a Carrying Case CS-130 containing the following major units: Volt ohmmeter I-166, Test Unit I-176 and Tube Tester I-177.

Volt ohmmeter I-166 is a general utility test instrument and includes the necessary leads. It provides for the measurement of the following:

- AF output voltage 0-1.5-5-15-50-150(4000 ohms)
- AF output voltage 0-5-15-30- (300 ohms)
- AC volts 0-500 (1000 ohms/volts)
- DC volts 0-5-15-50-150-500-1500(1000 ohms/volt)
- Ohms 0-1000-10,000-100,000-1,000,000

Test Unit I-176 is used in free point testing of radio equipment and includes the necessary leads. It provides for the measurement of the following:

- DC volts 0-5-25-100-250-1000-5000(200 ohms/volt)
- AC volts 0-5-25-100-250-1000 (1000 ohms/volt)
- DC current 0-1.5 amperes
- AC current 0-0.5-1-5-10 amperes
- Ohms 0-1000-100,000-10,000,000
- DC volts 0-5-25-100-250-1000(1000 ohms/volt)
- DC milliamperes 0-1-10-100-500 ma
- DC microamperes 0.50

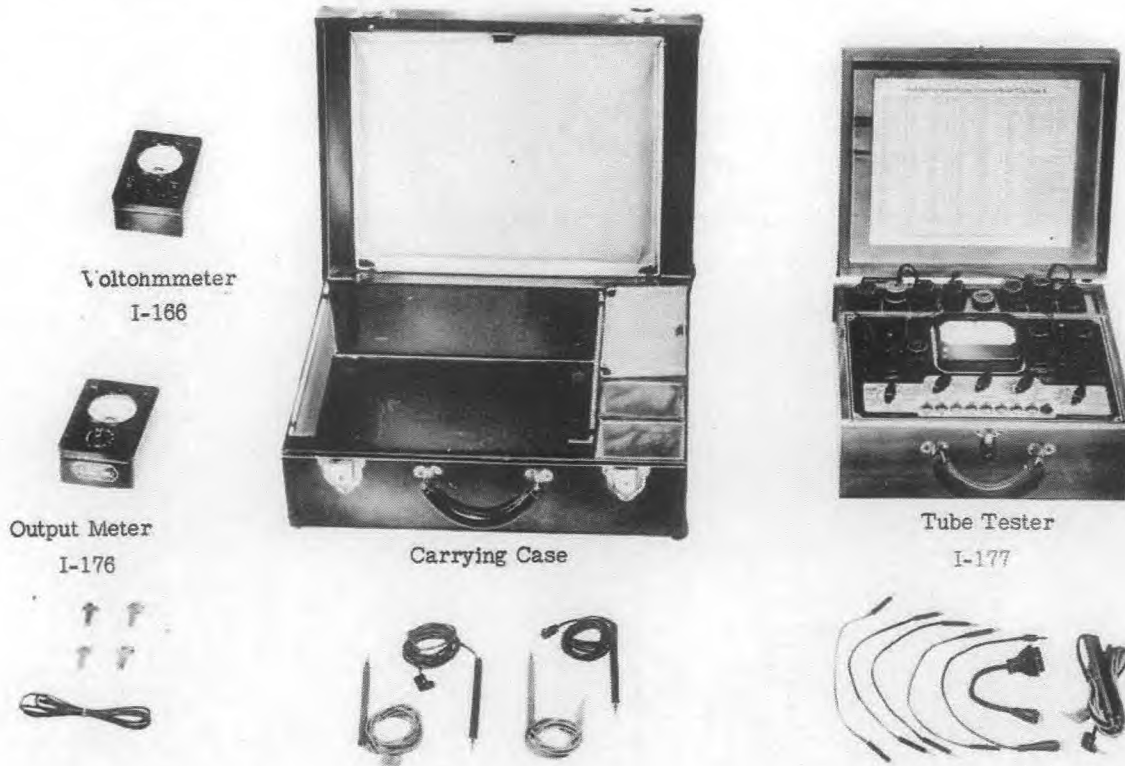
Tube Tester I-177 is a portable tube tester of the dynamic of mutual transconductance type capable of operation on 110 and 220 volts 50-60 cycles a.c. The tester has a three inch circular meter in its own case and will check practically all tubes in current use by the Army under 10 watts plate dissipation.

This test set differs from previous versions of I-56 in that it does not include an analyzer and it has a smaller case. The tube tester is also of the mutual conductance type.

Army Supply Program requirements as of 1 October 1944 were 11,818 for the calendar year 1944 and 6,513 for 1945.

POWER INPUT	I-177: 110 VOLTS, 60 CYCLE AC. I-176; I-166 SELF CONTAINED BATTERIES
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TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	83	1	5Y3GT/G



TEST SET I-56

TOTAL WEIGHT 60 LBS.

Component	Nomenclature	Size	Weight
Volt ohmmeter	I-166	7" x 6" x 8"	5 Lbs.
Test Unit	I-176	12" x 8" x 6"	11 Lbs.
Tube Tester	I-177	16" x 8" x 6"	15 Lbs.
Adapter	M-418	3" x 3" x 2"	1 Lb.
Minature Tube Pin Die.	TL-220	Height 2" x Diam. 2"	1 Lb.
Minature Tube Socket Tool	TL-219	Height 2" x Diam. 1"	1 Lb.
Tube Cap Lead			
1 set Data Card (mounted on inside cover)			

and includes test leads

March 1945

Signal Generator I-72 is a portable test equipment, incorporating a radio frequency oscillator, for use in aligning radio sets. It has a range of 100 kc. to 32 mc. in five bands with 400 cycle modulation. The RF output voltage which is uncalibrated with the attenuator set for maximum is over 30,000 microvolts on all bands except in the region of 10,000 to 20,000 kc. where the maximum obtainable output may be 10,000 microvolts or over. It operates on 110-125 volt, 60 cycle a.c. and is contained in a metal cabinet. A shielded output lead and a spare fuse are mounted on clips attached to the inside of the cover. The generator consists of a tuned plate oscillator, modulator, attenuators, and filament and plate supply.

The following types of signals are available and may be selected by means of a switch on the front panel: Radio frequency, radio frequency 30 percent modulated and 400 cycles audio frequency. Two knobs control the output—one, a four step coarse control; the other, a continuously variable potentiometer.

I-72 is used for the general alignment of RF and

IF stages and for rough frequency checks of various radio sets. It is a part of Maintenance Set RC-30 and Test Equipment IE-26 and IE-27.

No test equipment is required for maintenance.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	115 VOLTS, 60 CPS
FREQUENCY	100 KC TO 32 MC IN 5 BANDS
TYPE OF SIGNAL	CW; MCW; 400 CYCLE AM.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	76	1	6J5GT/G
1	80		



Signal Generator I-72-()

SIGNAL GENERATOR I-72

TOTAL WEIGHT 23 LBS.

Component	Nomenclature	Size	Weight
Signal Generator	I-72-()	10" x 16" x 7"	20 Lbs.

and includes plus cords, plugs, tubes, etc.

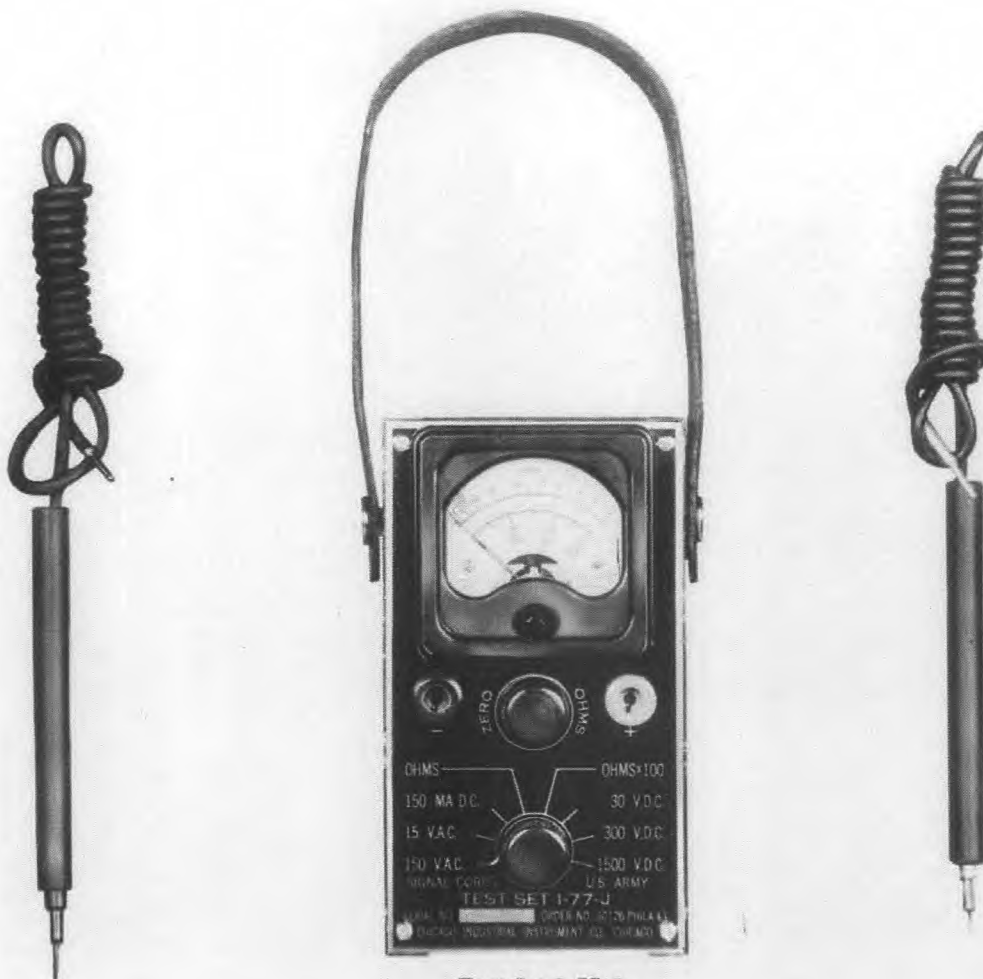
March 1945

Test Set I-77 is a pocket-size, multi-range meter for rapid testing of voltage, current and resistance. It provides for direct reading over all ranges by means of the various scales printed directly on the face of the meter. Selection of the various measurement ranges is made by means of a single knob which operates a two-pole, light-position switch. A second knob is provided for obtaining zero adjustment of the indicating needle when measuring resistance. Red and black test leads and a leather carrying strap are provided.

This test set is a part of Radio Set SCR-277. Multimeter TS-297/U; now under development, is to replace Test Set I-77 for AAF use. It differs from I-77 in that the instrument is hermetically sealed, has greater ranges, and the selector switch is omitted.

No test equipment is required for maintenance. There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	Battery: 1-BA-42, 1.5 volts
RANGE: AC. Voltage	0-150 Volts(1000 ohms per volt) 0-15 Volts (1000 ohms per volt)
DC. Voltage	0-30 Volts (1000 ohms per volt) 0-300 Volts(1000 ohms per volt) 0-1500 Volts(1000 ohms per volt)
Current DC.	0-150 Milliamperes
Resistance	0-3000 ohms (35 ohms 1/2 scale) 0-300,000 ohms(3500 1/2 scale)
SENSITIVITY	1000 Ohms/volt



Test Set I-77-J

TEST SET I-77

TOTAL WEIGHT 2 LBS.

Component	Nomenclature	Size	Weight
Test Set	I-77	5" x 3" x 3"	1 Lb.
1 set test leads			*

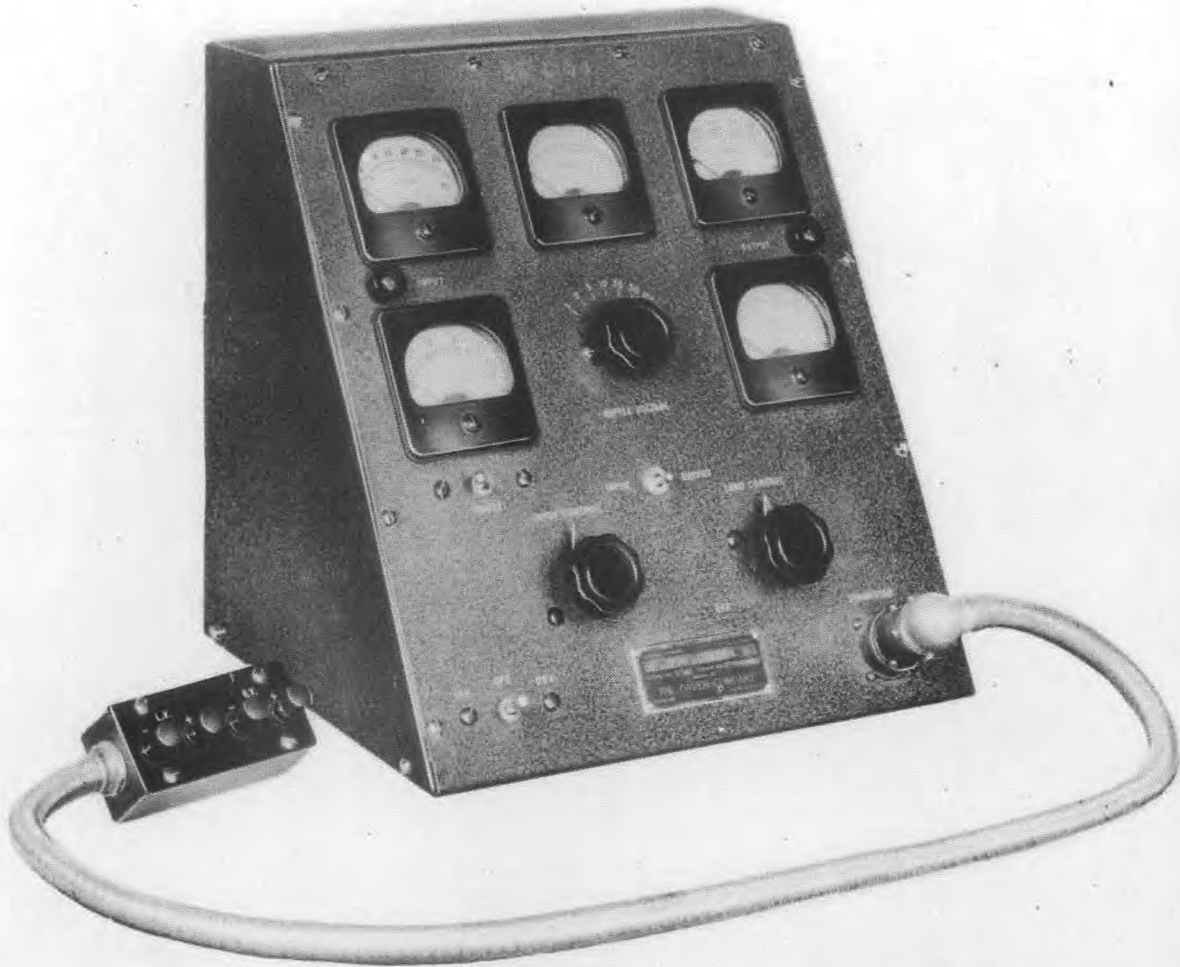
* Less than one pound.

March 1945

Test Set I-83 consists of a primary voltage selector, meters for both input and output current and voltage, selector for input ammeter, input series rheostat and output local rheostat. This test set is used with various radio sets for measuring input currents and voltage, output current voltage and input and output ripple voltage of various 12 and 24 volt dynamotors and dynamotor units.

No test equipment is required for maintenance. Army Supply Program requirements as of 1 October 1944 were 1,370 I-83 for the calendar year 1944.

POWER INPUT	14 AND 28 VOLTS DC
RANGE	CURRENT 0-250-MA DC. VOLTAGE 0-10 AM- PERES DC. 0-2 VOLTS DC. 0-35 VOLTS DC. 0-500 VOLTS DC.



Test Set I-83-()

TEST SET I-83

TOTAL WEIGHT 24 LBS.

Component	Nomenclature	Size	Weight
Test Set	I-83-()	13" x 13" x 11"	23 Lbs.

and includes cords and plugs.
March 1945

Test Set I-139, which has been designated TS-60/U, consists of a 2 1/2 inch diameter 0 to 1 milliampere d.c. meter inclosed in a container to which is attached a 5 foot cable with a special plug. It is capable of measuring current in five positions for radio transmitters, one position for receivers and two positions in Signal Generator I-130. The combined series resistance of the meter and resistor is 75 ohms. It is used for general test purpose and to permit proper tuning of various radio equipments.

This test set is also used to measure RF output when used with Pickup Assembly TS-131/AP for tuning various RCM equipments. By the use of external multi-

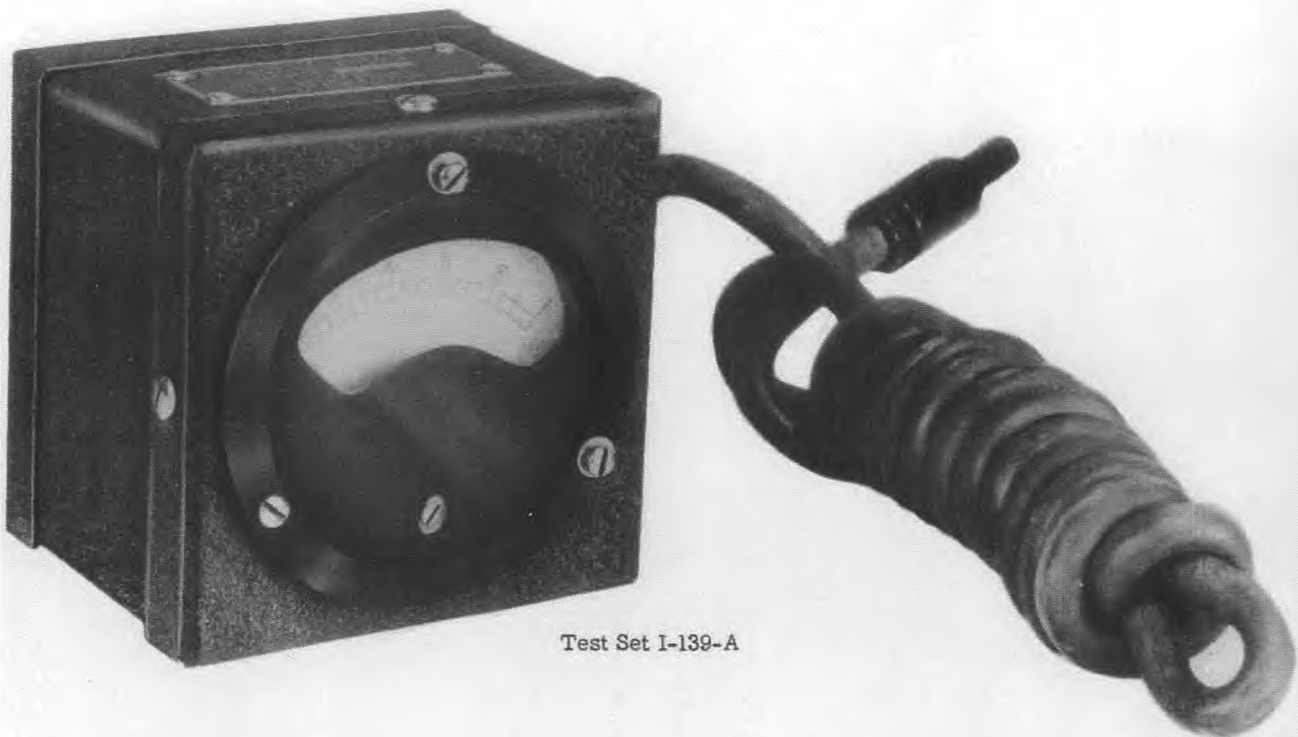
pliers, currents and voltage measurements may be made on various equipments.

No test equipment is required for maintenance.

This test set may be used separately or as a part of Test Equipment IE-19.

Army Supply Program requirements as of 30 November 1944 were for 20,387 for the calendar year 1944, and 2,135 for 1945.

RANGE	0-1 MILLIAMPERE D.C.
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Test Set I-139-A

TEST SET I-139

TOTAL WEIGHT 2 LBS.

Component	Nomenclature	Size	Weight
Test Set March 1945	I-139-A	4" x 4" x 4"	2 Lbs.

Test Equipment IE-12, used in testing, tuning, aligning and servicing Radio Sets SCR-522 and SCR-542, is primarily designed for bench servicing at higher echelon repair sections. When completely assembled, the test equipment simulates the actual installation of the radio set in the airplane. Since the equipment includes a complete SCR-522 with Dynamotor PE-94, a means of checking by comparison is also available for individual assemblies, components and units of SCR-522 or SCR-542 on test. This test set also permits alignment of the IF stages which cannot be accomplished by Test Equipment IE-19.

Signal Generator I-96 is used in tuning and aligning BC-624 and BC-625. The wooden carrying case, which contains all the components of the signal generator, is divided into six compartments, five of which are shielded.

Field Strength Meter I-95 is an uncalibrated vacuum tube voltmeter designed to indicate the relative field strength and frequency of the radiation from the antenna of SCR-522 and SCR-542. The instrument may also be used to indicate modulation of the carrier. The field strength meter consists of a case on which the front panel and rear cover are mounted. A telescopic antenna, a front panel guard and all the electrical components (except the batteries) of the field strength meter are mounted on the front panel.

The transmitter-receiver assembly consists of Case CS-80-A which contains Rack FT-244-A, Radio Transmitter BC-625 and Radio Receiver BC-624. When properly interconnected to the other components of Test Equipment IE-12 this assembly provides transmission or reception of

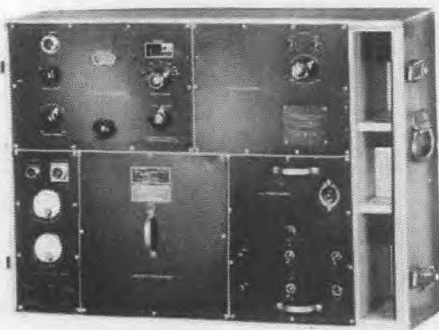
amplitude-modulated RF energy on any one of four crystal-controlled frequencies within the range 100-156 mc. Only voice communication facilities are available, but continuous audio-tone modulation is also provided. The AF amplifier portion of BC-624 is so designed that interphone communication between two or more stations is possible.

Both the transmitter and receiver are simultaneously switched to any one of the four available pre-set crystal-controlled channels whenever the appropriate channel-selector push button is pressed. Remote control only is provided.

Army Supply Program requirements as of 30 November 1944 were 1,711 equipments for the calendar year 1944 and 456 for 1945.

TYPE OF SIGNAL	VOICE; MCW
RANGE	0-1 MA. D.C.

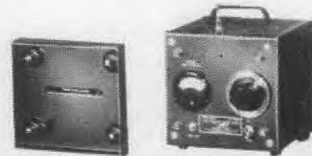
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	7	9003
4	12A6	2	12AH7GT
1	6G6G	3	12SG7
1	6SS7	1	OD3/VR-150
1	12H6	1	5Y3GT
1	12C8	1	1S5
3	9002		



Signal Generator I-96-A



Special Tool Set



Field Strength Meter I-95-BM



Microphone T-17



Microphone Adapter M-299



Headset HS-33

PHOTOGRAPHS OF SCR-522 COMPONENTS LISTED BELOW SHOWN ON PAGE "SCR-522"

TEST EQUIPMENT IE-12,

TOTAL WEIGHT 200 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-625-AM	16" x 9" x 6"	18 Lbs.
Radio Receiver	BC-624-C	16" x 9" x 6"	18 Lbs.
Rack	FT-244-A	17" x 13" x 3"	7 Lbs.
Case	CS-80-C	17" x 13" x 11"	4 Lbs.
Radio Control Box	BC-602-B	6" x 6" x 3"	3 Lbs.
Dynamotor Unit	PE-94-C	13" x 9" x 7"	37 Lbs.
Jack Box	BC-631-B	4" x 3" x 2"	*
Field Strength Meter	I-95-BM	7" x 9" x 7"	11 Lbs.
Signal Generator	I-96-A	27" x 19" x 10"	82 Lbs.
Mounting	FT-488	19" x 13" x 1"	2 Lbs.
Mounting	FT-498	13" x 9" x 1"	*
T Junction Box	JB-29-A	4" x 3" x 3"	3 Lbs.
Special Tool Set		8" x 8"	*
Headset	HS-33		1 Lb.
Microphone Adapter	M-299	4" x 3" x 2"	1 Lb.
Microphone	T-17		*

and includes cords, plugs, and receptacles.
*less than one pound.

Test Equipment IE-19 is a portable test equipment for use by tactical organizations in aligning the channels in Radio Sets SCR-522 and SCR-542. The test equipment is especially designed for use inside or near the aircraft in which the radio sets are installed. It consists of Signal Generator I-130, Test Set I-139, Field Strength Meter I-95 and Chest CH-93-A.

Signal Generator I-130 is used in tuning Radio Transmitter BC-625 and Radio Receiver BC-624 and produces tone-modulated signals in the frequency range 100-156 mc. The modulation frequency is 1000 cycles. The output, which is uncalibrated, is variable from nearly zero to more than 5000 microvolts.

Test Set I-139 is a 0-1 milliampere d.c. meter designed for measuring current in five positions in BC-625, one position in BC-624 and two positions in I-130. The combined series resistance of the meter and resistor is 75 ohms.

Field Strength Meter I-95 is an uncalibrated vacuum-tube voltmeter designed to indicate the relative field strength and frequency of the radiation from the antenna of SCR-522. This instrument may also be used to indicate modulation of the carrier. The field strength meter consists of a metal case on which the front panel and rear

cover are mounted. The total power consumption of I-95 is 0.87 watts.

Chest CH-93-A is designed for use in storing or transporting IE-19. Each component of the test equipment fits into a separate compartment and requires no special packing in the chest.

No test equipment is required for maintenance.

Army Supply Program requirements as of 29 December 1944 were 4,093 for the calendar year 1944, and 1,552 for 1945.

FREQUENCY	100-156 MC.
POWER SOURCE	DRY BATTERIES
METER ACCURACY	± 3%
METER MOVEMENT	0-1 MA.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	I-130-() 9002	1	I-95-() 1S5
3	9003		



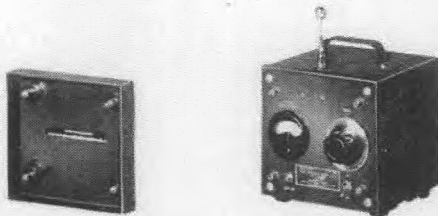
Signal Generator I-130-A



Cord CD-477



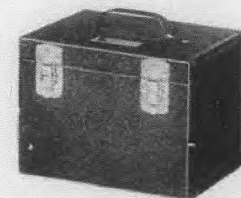
Chest CH-93-A



Field Strength Meter I-95-BM



Test Set I-139-A



Battery Box BX-33-A

TEST EQUIPMENT IE-19

TOTAL WEIGHT 100 LBS.

Component	Nomenclature	Size	Weight
Signal Generator	I-130-A	19" x 10" x 8"	28 Lbs.
Test Set	I-139-A	4" x 4" x 4"	2 Lbs.
Field Strength Meter	I-95-BM	9" x 8" x 8"	11 Lbs.
Chest	CH-93-A	11" x 20" x 23"	49 Lbs.
Cord	CD-477	10 feet long	1 Lb.
Battery Box	BX-33-A	10" x 9" x 9"	10 Lbs.

and includes special tool kit.

March 1945

Test Equipment IE-36 is a portable squadron test equipment designed to make field tests of Radio Sets SCR-522-A and SCR-542-A. It can also be used for Radio Set SCR-624 and Radar Set AN/CRC-1. This item is now in production for the purpose of issue, together with Test Set I-139, as a partial replacement for Test Equipment IE-19.

Particularly designed to fill the need for a small readily portable test unit which can be used at the point of installation, IE-36 provides a means for making troubleshooting tests and tuning adjustments on the above radio equipments. Although it is usually used with and contains mounting space in the chest for Meter I-139, this meter is used as a separate item.

Main application of IE-36 is in airplane squadrons where a check of SCR-522 installation and/or a change in channel frequencies can be made in the airplane quickly and without using large, heavy test equipment.

Control Unit BC-1303 is the major item. It provides a channel selection switch, carbon-magnetic microphone and headset jacks, a buzzer with on-off switch for use in tuning the receiver, a "Contactor on-off" switch, and a "Transmit-Receive-Remote" switch.

Phantom Antenna A-29 consists of 12 resistors,

each 820 ohms, and a pilot lamp, all connected in parallel on a coaxial fitting which plugs into Socket SO-153 of the radio set.

IE-36 provides a means for testing the following: Starting and stopping mechanisms of BC-625 and BC-624; functioning of the channel selection circuits; Receiver-Transmit-Remote switching function; contactor operation in the transmitter; relative signal to microphone and resultant input modulation in the transmitter; relative sensitivity of BC-624.

IE-36 has the following limitations: It will not give an indication of field strength produced by the transmitter; it will give only relative power output as indicated by the brightness of the lamp of Phantom Antenna A-29; it will give only a relative index of modulation, not the actual percentage.

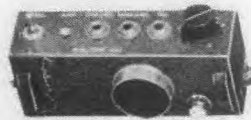
No test equipment is required for maintenance.

Army Supply Program requirements as of 30 November 1944 were 19,487 for the calendar year 1944, and 2,135 for 1945.

POWER INPUT	14 VOLTS D.C.
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	BUZZER



Chest CH-234



Control Unit BC-1303



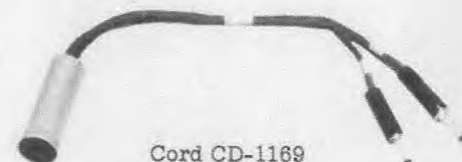
Test Set I-139-A



Phantom Antenna A-29



Lamp extractor



Cord CD-1169



Spanner Wrench



Cord CD-1170

TEST EQUIPMENT IE-36

TOTAL WEIGHT 10 LBS.

Component	Nomenclature	Size	Weight
Chest	CH-234	4" x 10" x 10"	5 Lbs.
Control Unit	BC-1303	3" x 8" x 4"	2 Lbs.
Phantom Antenna	A-29	length 3" x diam. 2"	*
Cord	CD-1169	length 16"	*
Cord	CD-1170	length 39"	*
Adjustable Spanner Wrench			
Lamp Extractor			

and includes maintenance kit and I-139.

*less than one pound.

March 1945

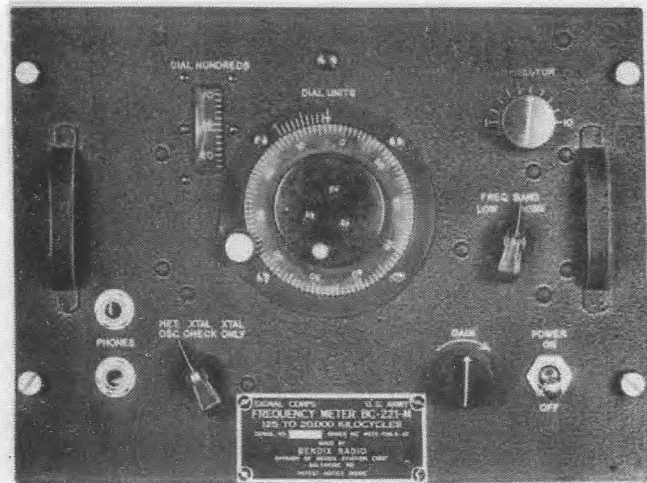
Frequency Meter Set SCR-211 is designed to measure or radiate any frequency between 125 kc. and 20 mc. It is a portable device used to adjust radio receivers and transmitters in the field.

The instrument is completely enclosed in a black wrinkle-finished, aluminum-alloy cabinet. Mounted on the top surface of the cabinet are a carrying handle, the antenna binding post, and a latch. On the sides are mounted two small rings to which the carrying strap is ordinarily hooked.

The cabinet consists of three principal sections: (1) Lower half containing the batteries or power supply, (2) Upper half containing the frequency meter proper, and (3) Small compartment at the front holding the headset when it is not in use.

All power for the equipment is supplied by "A" Batteries BA-23 and "B" Batteries BA-2. They are mounted in a special tray in the lower compartment of the cabinet.

Army Supply Program requirements for all services, as of 15 May 1944, were 25,266 for the calendar year 1944 and 16,748 for 1945



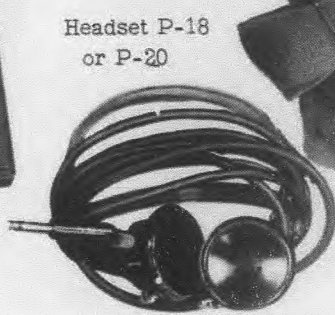
Frequency Meter BC-221-M

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6K8	2	6SJ7

POWER INPUT	POWER SUPPLIED BY BATTERIES
FREQUENCY	125-20,000 KC
CRYSTALS	DC-9-F (2 ea.)



Frequency Meter BC-221-J



Headset P-18 or P-20



Bag BG-81-J

FREQUENCY METER SET SCR-211

TOTAL WEIGHT 39 LBS.

Component	Nomenclature	Size	Weight
Frequency Meter	BC-221	13" x 10" x 9 1/2"	17 Lbs.
Crystal Unit	DC-9-F		
Calibration Book	MC-177		
Bag	BG-81-A		
Battery	BA-2(12 ea., 6 in use, 6 spare)		
Battery	BA-23(8 ea., 4 in use, 4 spare)		
Headset	P-18 or P-20		

Frequency Meter TS-164/AR is a heterodyne frequency meter adaptable for operation in the range from 125 to 20,000 kc. with an error of .01 percent. It includes Frequency Meter BC-221, except the B or Q model, a heterodyne oscillator, a high gain detector and an audio frequency amplifier. Power is obtained from the aircraft 28 volt d. c. supply and from the high voltage dynamotor of Radio Receiver BC-348 in the aircraft.

TS-164/AR is designed for permanent installation in the aircraft, in association with Radio Receiver BC-348.

This equipment is similar to Frequency Meter Set SCR-211 except that it makes provision for operation without dry batteries and is contained in a different case, Case CY-182/AR.

TS-164/AR is used for calibration of medium frequency communication equipment. Principal advantages over the standard Frequency Meter Set SCR-211 are: Elimination of dry batteries; reduction in weight of approximately 20 pounds.

No test equipment is required for maintenance. This equipment had not been placed on the Army Supply Program as of 30 November 1944.

POWER INPUT	200-250 VOLTS FROM BC-348 28 VOLTS DC FROM AIRCRAFT SYSTEM
FREQUENCY	125-20,000 KC
TYPE OF SIGNAL	CW
ACCURACY	.01 PERCENT

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	1	6K8



Frequency Meter TS-164/AR

FREQUENCY METER TS-164/AR

TOTAL WEIGHT 19 LBS

Component	Nomenclature	Size	Weight
Frequency Meter	BC-221-()	10" x 9" x 8"	8 Lbs.
Case	CY-182/AR	8" x 12" x 10"	6 Lbs.
Cord	CX-243/AR	.10 feet long	1 Lb.
Mounting	MT-269/AR	11" x 11"	2 Lbs.

Frequency Meter TS-175/U is a general purpose Class A meter used to check frequencies in the 85 to 1000 mc. range. It is of the heterodyne type, operating on fundamental frequencies through the range 85 to 200 mc. and on harmonics through the range 200 to 1000 mc. Accuracy of the instrument for measuring radio frequencies is $\pm .05$ percent throughout its frequency range. Crystal checkpoints are provided for checking meter accuracy. The equipment is used to check and set frequencies of transmitters, such as Radar Set AN/APT-2. Transmitting Equipment AN/APQ-2, Radio Equipment AN/APQ-9 and others within its frequency range, on the desired frequency. It may also be used in aligning receivers within its frequency range.

Frequency Meter TS-175/U can replace Frequency Meters TS-69/AP and TS-99/AP, Test Set TS-53/AP and General Radio Heterodyne Frequency Meter type 720A.

The case, chassis, dial mechanism and battery complement are the same as for Frequency Meter BC-221, the major component of SCR-211.

Army Supply Program requirements as of 31 July 1944 were 1,500 equipments for the calendar year 1944 and 2,663 equipments for 1945. As of 31 July 1944 the equipment was classified as a Limited Procurement Type with Army procurement limited to 1,500 for the calendar year 1944 and 650 for 1945.

FREQUENCY RANGE	85 to 1000 MC.
POWER SOURCE	4 BATTERIES BA-23 6 BATTERIES BA- 2
ACCURACY	$\pm .05$ %

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	7002	1	6K8
1	6C8G		



Cord CG-55/U



Frequency Meter TS-175/U

Antenna AT-66/U



Cord CG-55/U

FREQUENCY METER TS /175 - U

TOTAL WEIGHT 42 LBS.

Component	Nomenclature	Size	Weight
Frequency Meter	TS-175/U	12 1/4" x 10" x 9 1/4"	40 Lbs. (includes batteries)
Antenna	AT-66/U	8" Long	
Cord	CG-55/U	6" Long	
Cord	CG-56/U	60" Long	

1 Dec. 1944

~~RESTRICTED~~

TS-206/AR

UNCLASSIFIED

Radio Frequency Wattmeter TS-206/AR consists of a heavy duty 50 ohm resistor which dissipates the energy from the transmitter being checked. It is operated as an air-flow calorimeter. The equipment was designed to test Radio Transmitter AN/ART-3 but can be used with any other similar transmitter within that frequency range.

No requirements had been established on the Army Supply Program as of 1 October 1944.

POWER INPUT	100 WATTS AT 28 VOLTS
FREQUENCY	20-60 MC.
POWER RANGE	50-1000 WATTS
INPUT IMPEDANCE	50 OHMS



Radio Frequency Wattmeter TS-206(XA)/AR.

RADIO FREQUENCY WATTMETER TS-206/AR TOTAL WEIGHT 40 LBS.

Component	Nomenclature	Size	Weight
Wattmeter	TS-206/AR	27"x 9" x 12"	
Case	CY-185/AR		
Power Cord	CX-356/U		
Cord	CG-123/U		

Feb. 1945 - Y-109829

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