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SECTION ONE

[redacted] 12836-A

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

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Countermeasures Equipment

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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 _____
Auth: _____
By C M Ludwig Capt AC

[redacted]

BY AUTHORITY OF DIRECTOR, ATSC 1 February 1945

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Hobart R. Yeager
Colonel, Air Corps

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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: [redacted] 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 Amplffier	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
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AN/APA-23	Recording Unit	Limited Procurement	P
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AN/APT-1	Radar Jamming Transmitter	Standard	P
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AN/APT-3	Radar Jamming Transmitter	Standard	D
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AN/APT-8	Radar Communication Jammer		D
AN/ARA-3	Modulator Assembly	Standard	D
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AN/ARQ-6	Direction Finding Receiver		D
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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-69/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 aritcles, 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.

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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	MT-171/U	2 1/4" x 10 5/8" x 22"	3 Lbs.

and includes plugs, adapters and cables.

1 Dec. 1944

AM-18/APT

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, 400-2600 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, 400-2600 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	MT-171/U	2 1/4" x 10 5/8" x 22"	3 1/4 Lbs.

and includes plugs, adaptors and cables.

1 Dec. 1944

AM-33 /ART

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 105/8" x 22"	3 1/4 Lbs.
Control Unit		2" x 2 3/4" x 3"	

1 Dec. 1944

AN/APA-6

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.

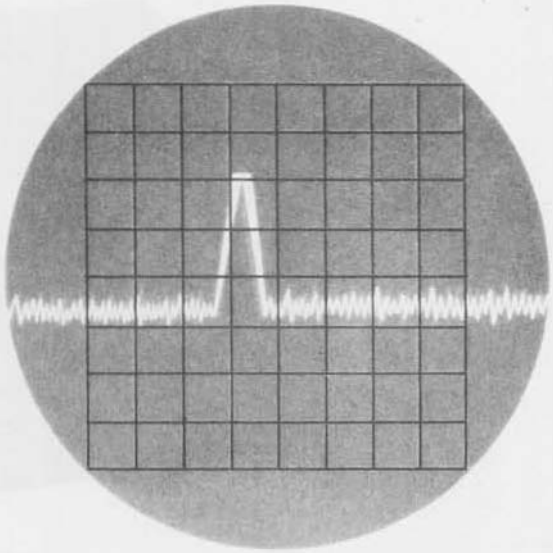
In operation the equipment is linked with the associated receiver by means of a special cable designed to prevent pulse distortion. A pattern of the received radar pulse is presented on the scope mounted on the panel of the set. The pattern can be analyzed for shape, pulse duration and amplitude. In 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, 400-2600 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.

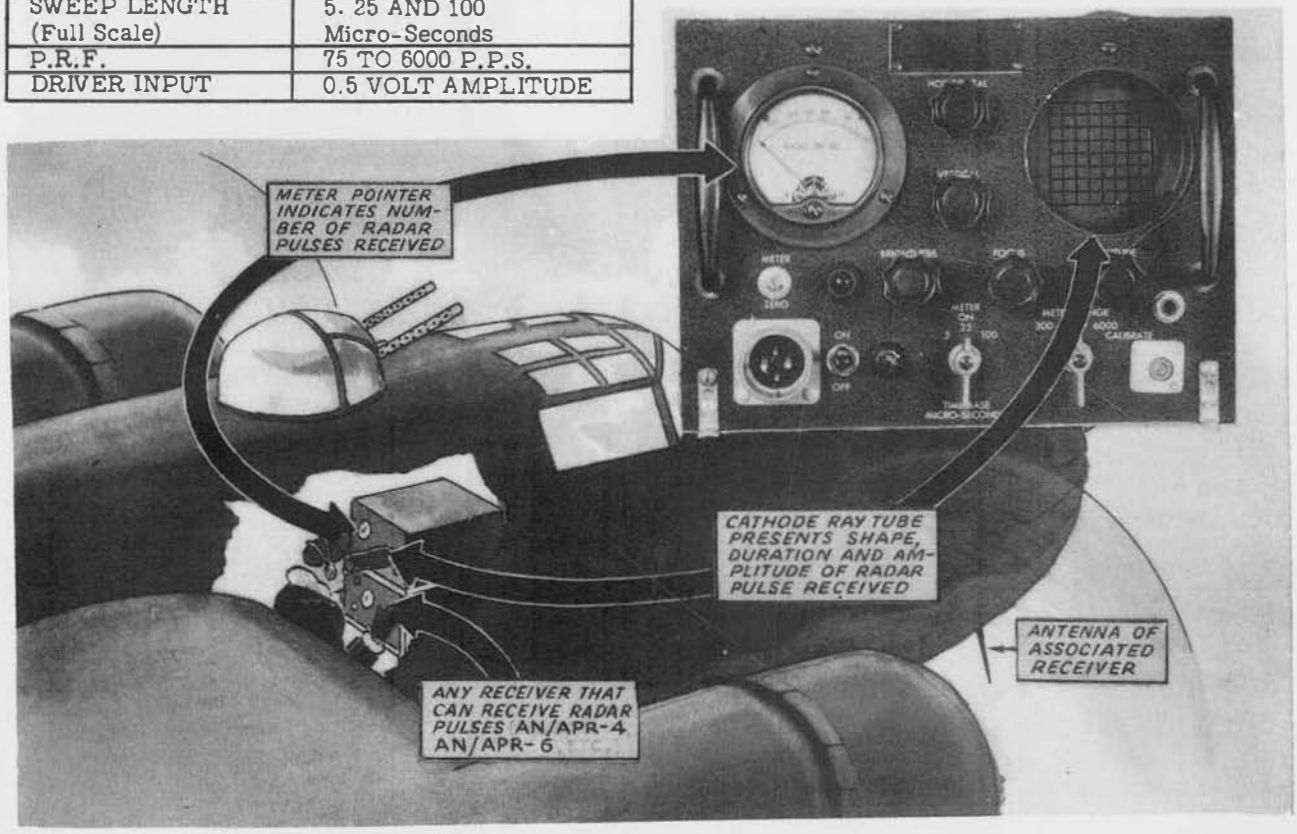
Army Supply Program requirements as of 18 August 1944 were 100 equipments for the calendar year 1944. This equipment is to be superceded by Radar Indicator Assembly AN/APA-11.

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.

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AN/APA-6

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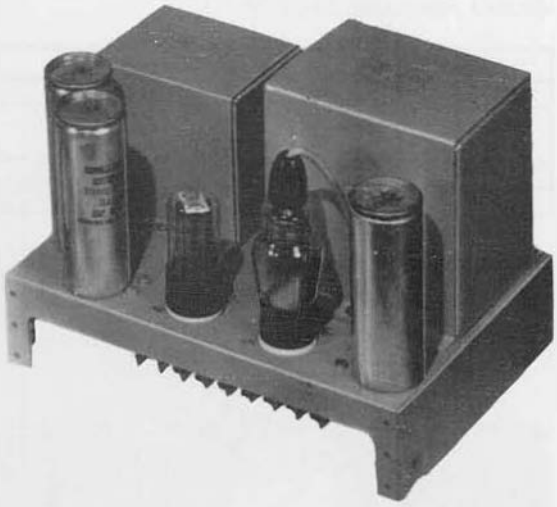
Oscillator 0-10/APA-6X

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

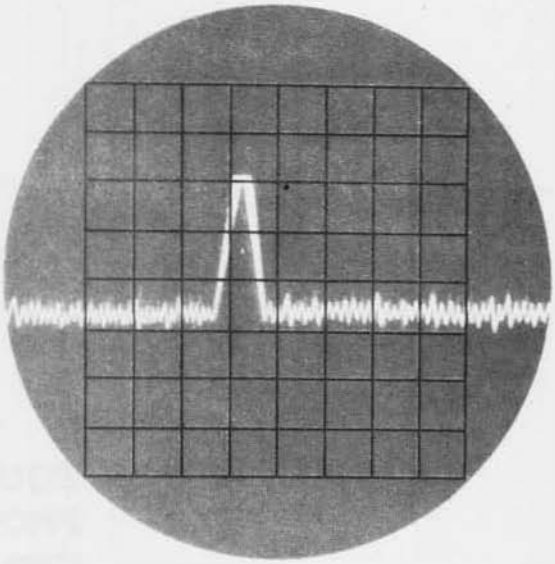
In use, the equipment is so arranged that when a record is required, a photograph may be taken by pressing a button on the panel of the equipment. Remote control is effected by pressing a button at the end of a length of cable.

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.

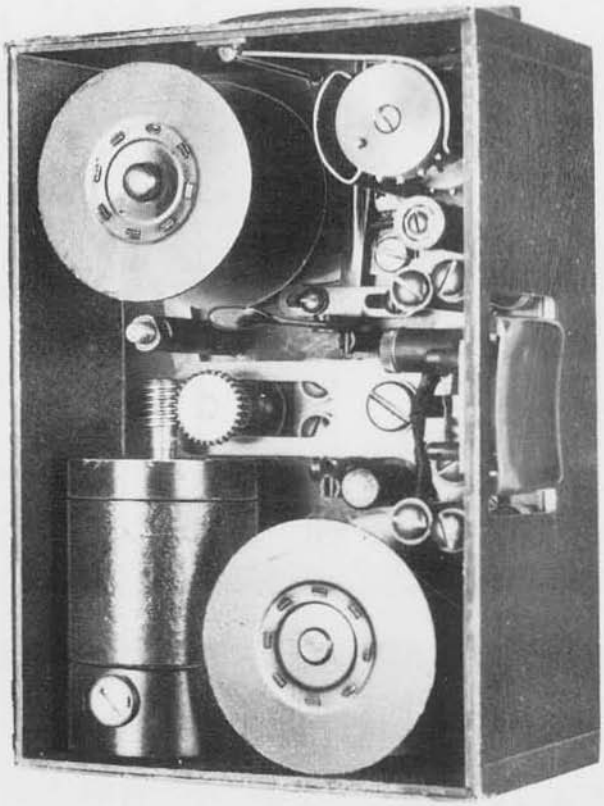
The equipment was deleted from the Army Supply Program requirements as of 22 June 1944.

POWER INPUT	80 WATTS



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

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6AC7	1	5Y3GT
1	6AG7	2	2AP1
1	2X2		



Photographic Adaptor AN/APA-7 With Cover Removed.

UNCLASSIFIED

AN/APA-7

[redacted]

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EQUIPMENT
PHOTOGRAPHS
UNAVAILABLE

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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 21 3/4"	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.

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AN/APA-10

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.

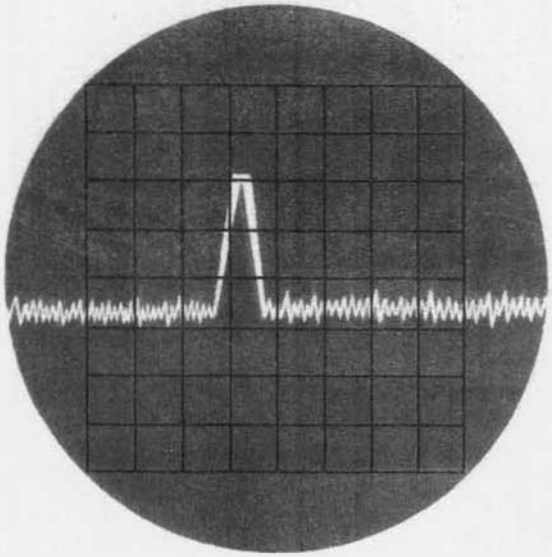
In operation, each receiver is connected to Panoramic Adapter AN/APA-10 by a cable. Switching one receiver to another is effected by a switch on the panel which may also be used to switch to the "oscillograph" mode of operation.

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 "barrage" 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

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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.

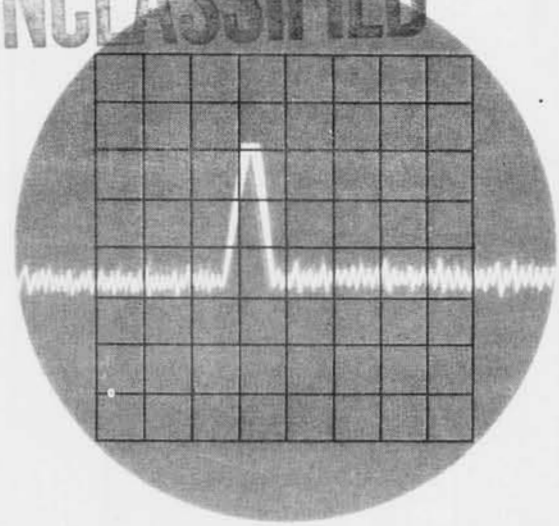
The set provides a calibrated sine wave oscillator. The operator varies the oscillator frequency until a complete sine wave trace appears on the CR screen; the sawtooth swept frequency and the oscillator frequency are then identical.

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.

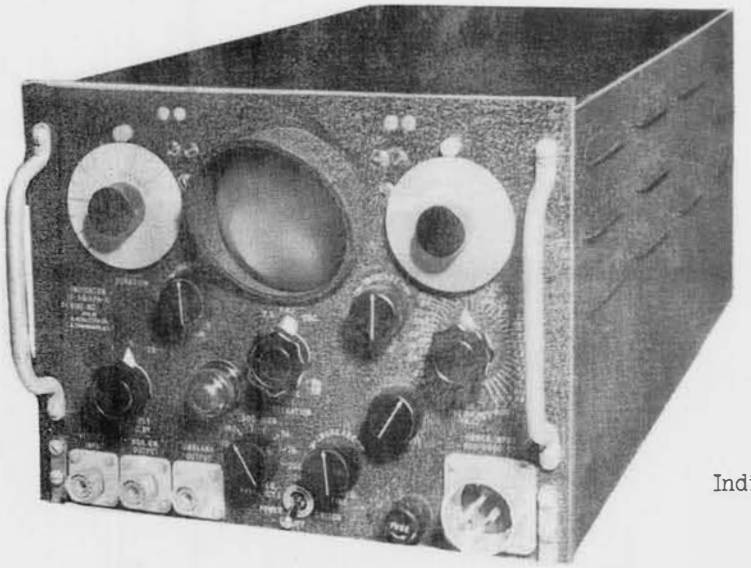
Production of the equipments was begun during May 1944. Army Supply Program requirements as of 30 April 1944 were 1995 for the calendar year 1944.



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

POWER INPUT	150 WATTS

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.

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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

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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.

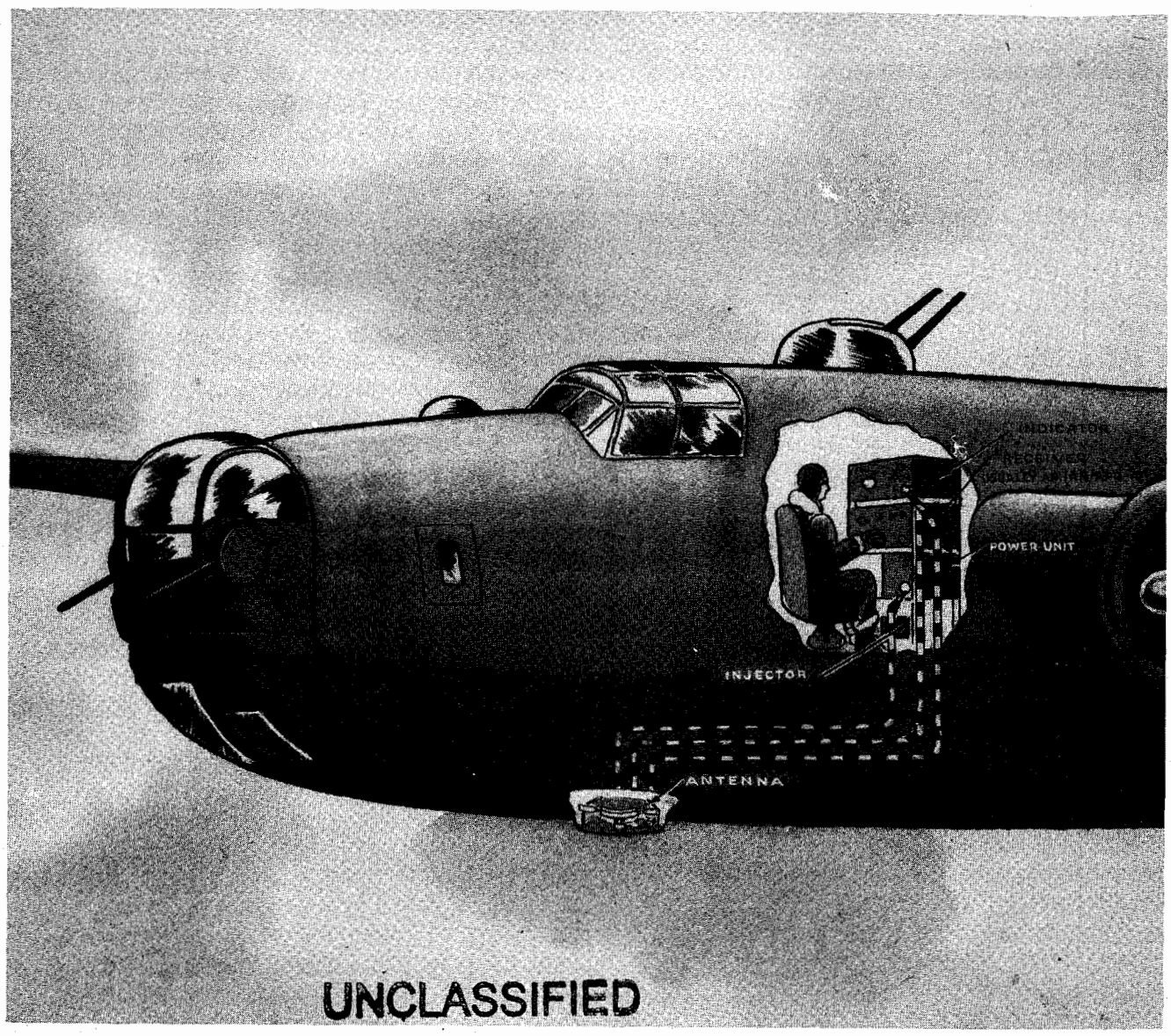
Test Equipment required for maintenance is Test Set TS-189/U.

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

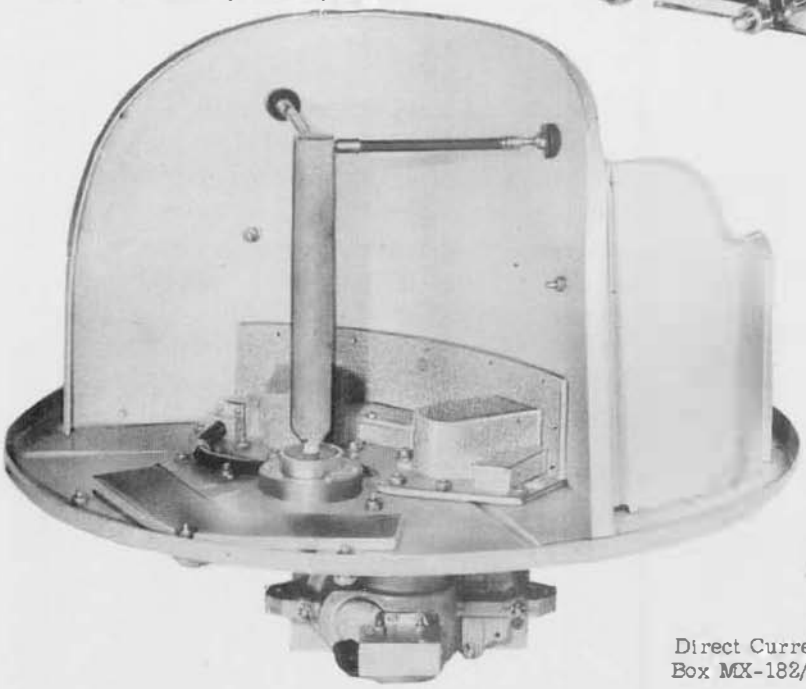
AN/APA-17

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.

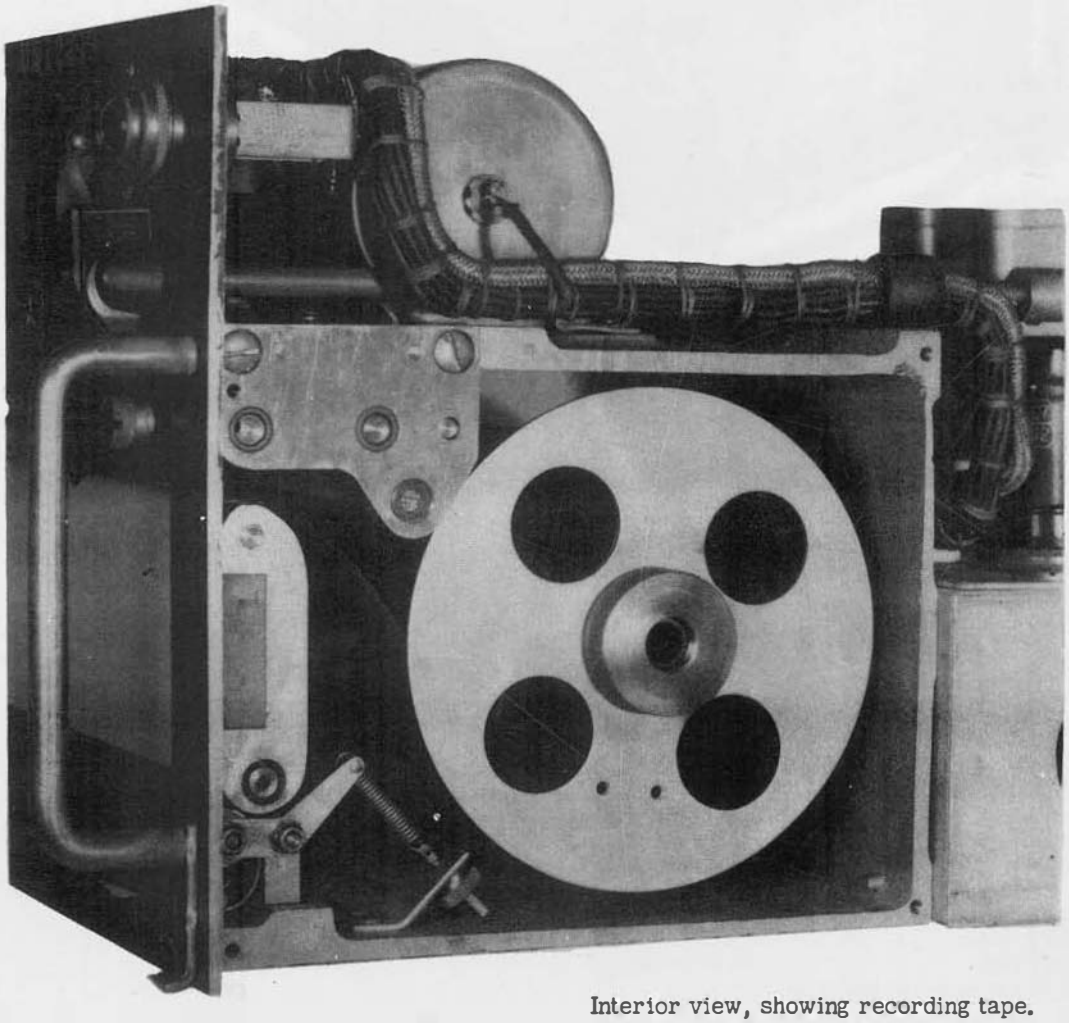
In operation the stylus on the recorder makes an impression on the tape only when a signal is picked up in the accompanying receiver. The time is indicated on the tape by marks at one minute intervals by means of a timing mechanism. The stylus is synchronized with the tuning dial and sweeps back and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

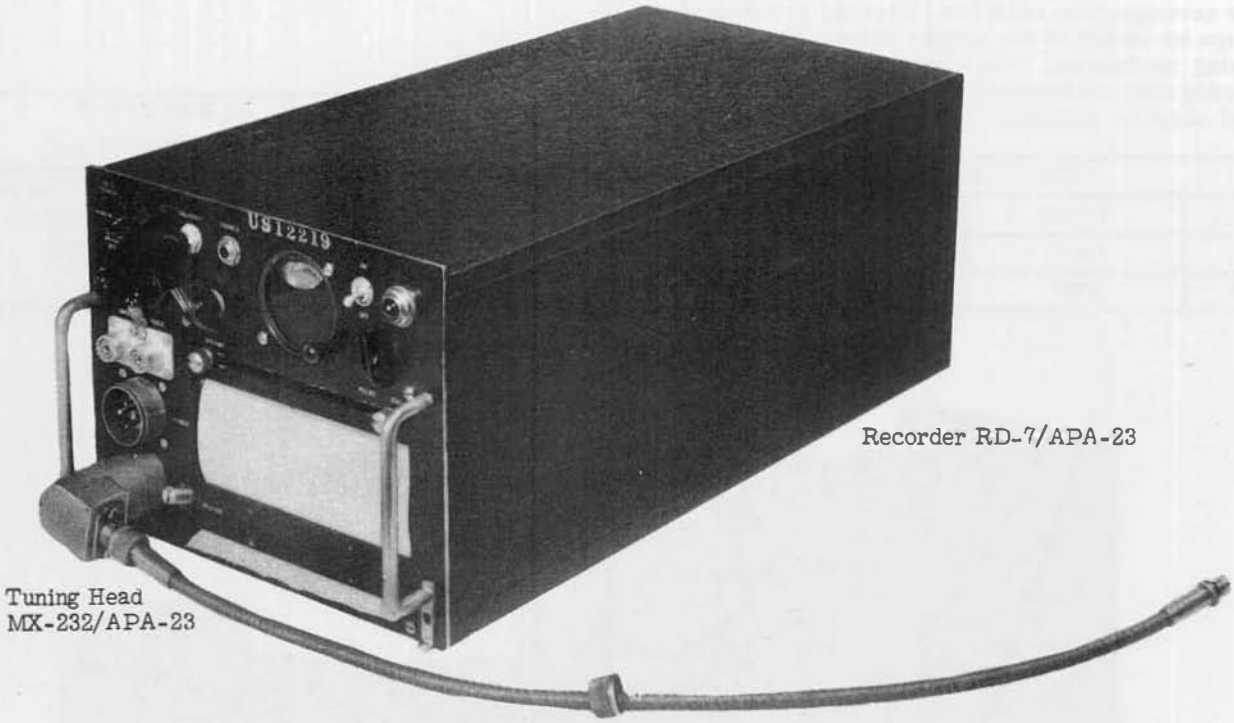
Army Supply Program requirements as of 24 August 1944 were 450 equipments for the calendar year 1944 and 2,078 for 1945. Procurement for the army is limited to 450 for the calendar year 1944 and 575 for 1945.

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.



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)			

1 Dec. 1944

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 effecitively 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.

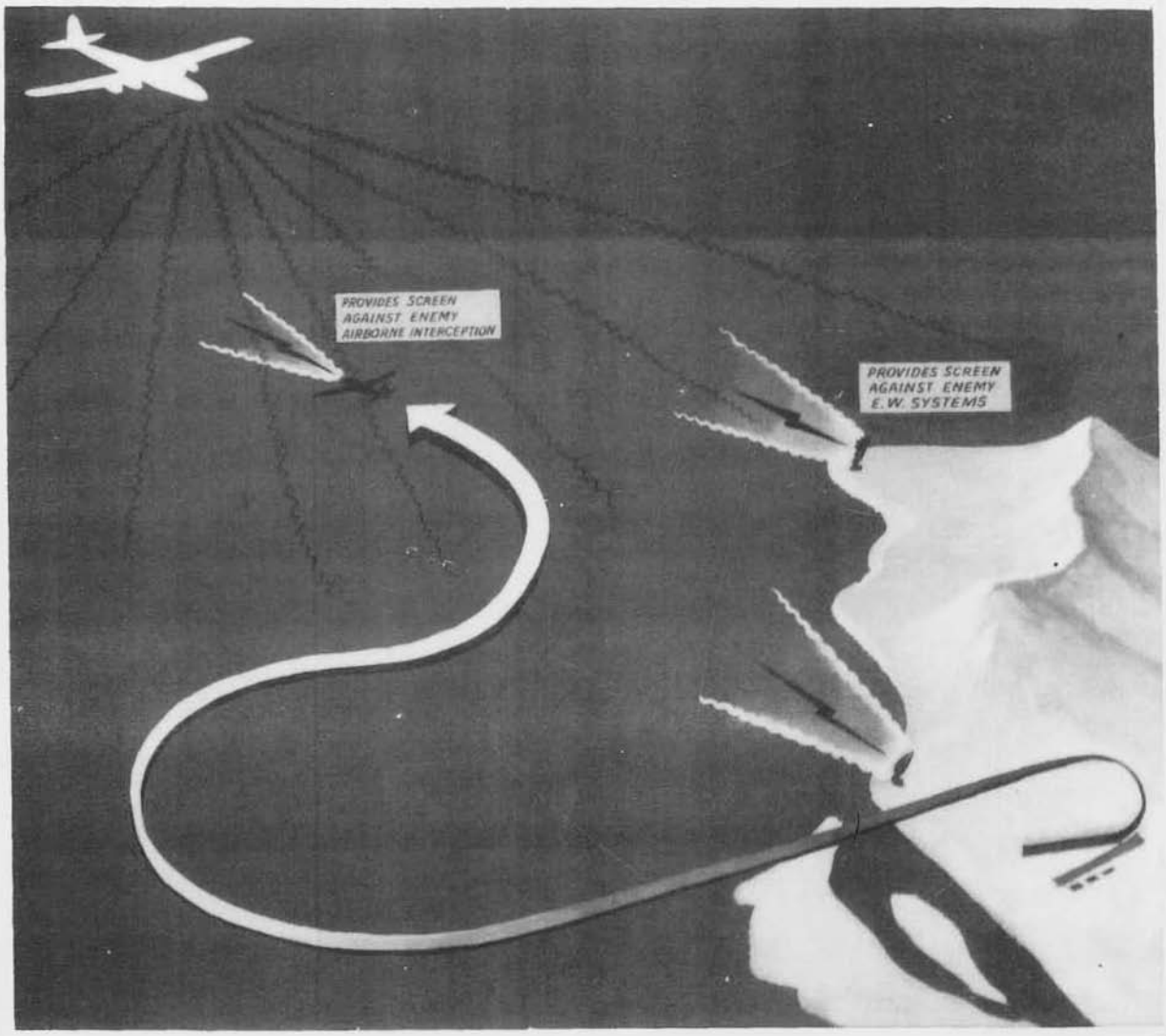
Power is obtained from an 80-115 volt, 400-2600 c.p.s., a.c. source.

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. 36 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.

AN/APQ-2

UNCLASSIFIED

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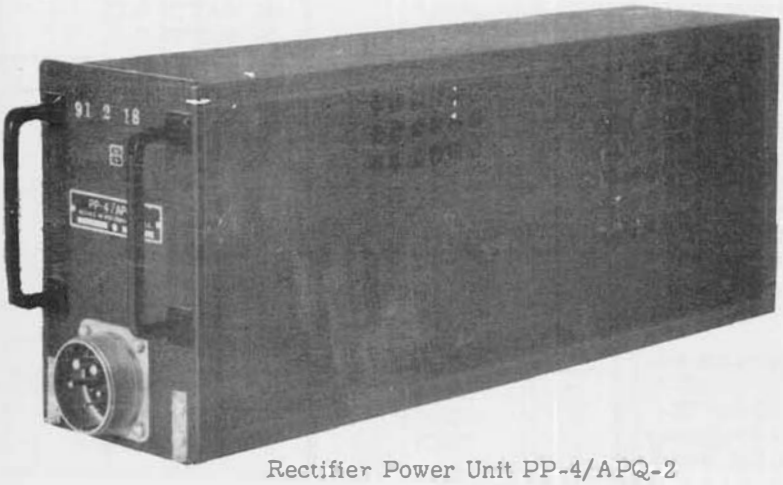
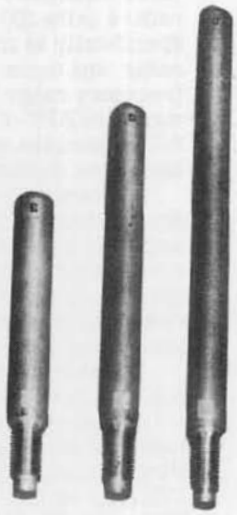
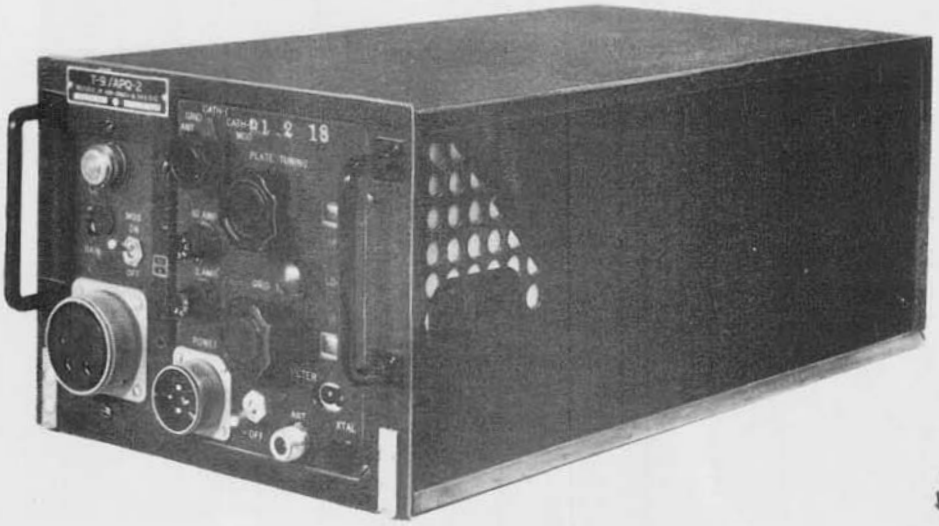
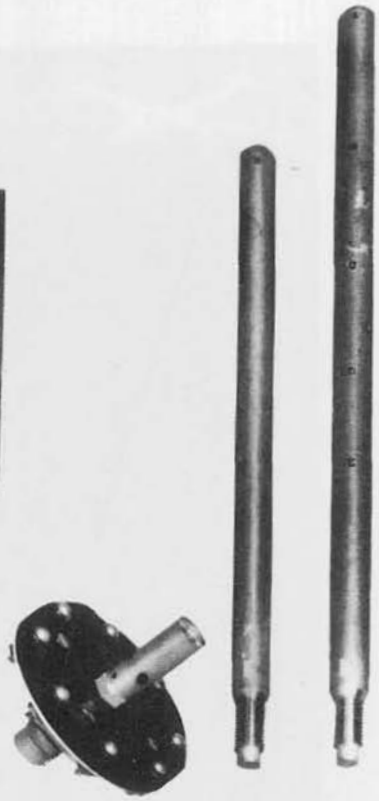


Rectifier Power Unit PP-4/APQ-2





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.

UNCLASSIFIED

1 Dec. 1944

AN/APQ-9

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.

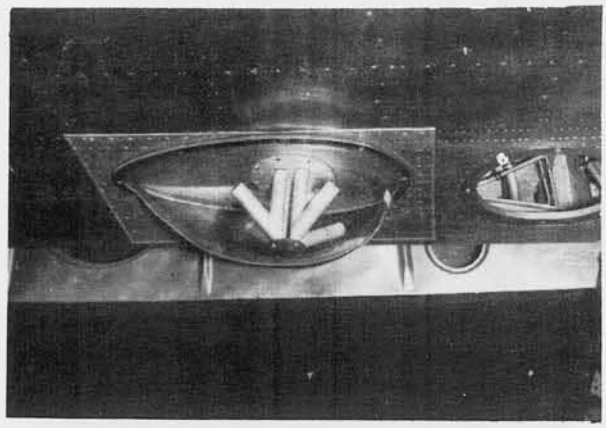
The set is designed primarily as a barrage jammer and when used for that purpose the frequency band to be covered during a mission is preset prior to take-off, after which no further tuning is required in flight. The set has sufficient power to screen a heavy bomber to within six miles of a Giant Wurzburg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

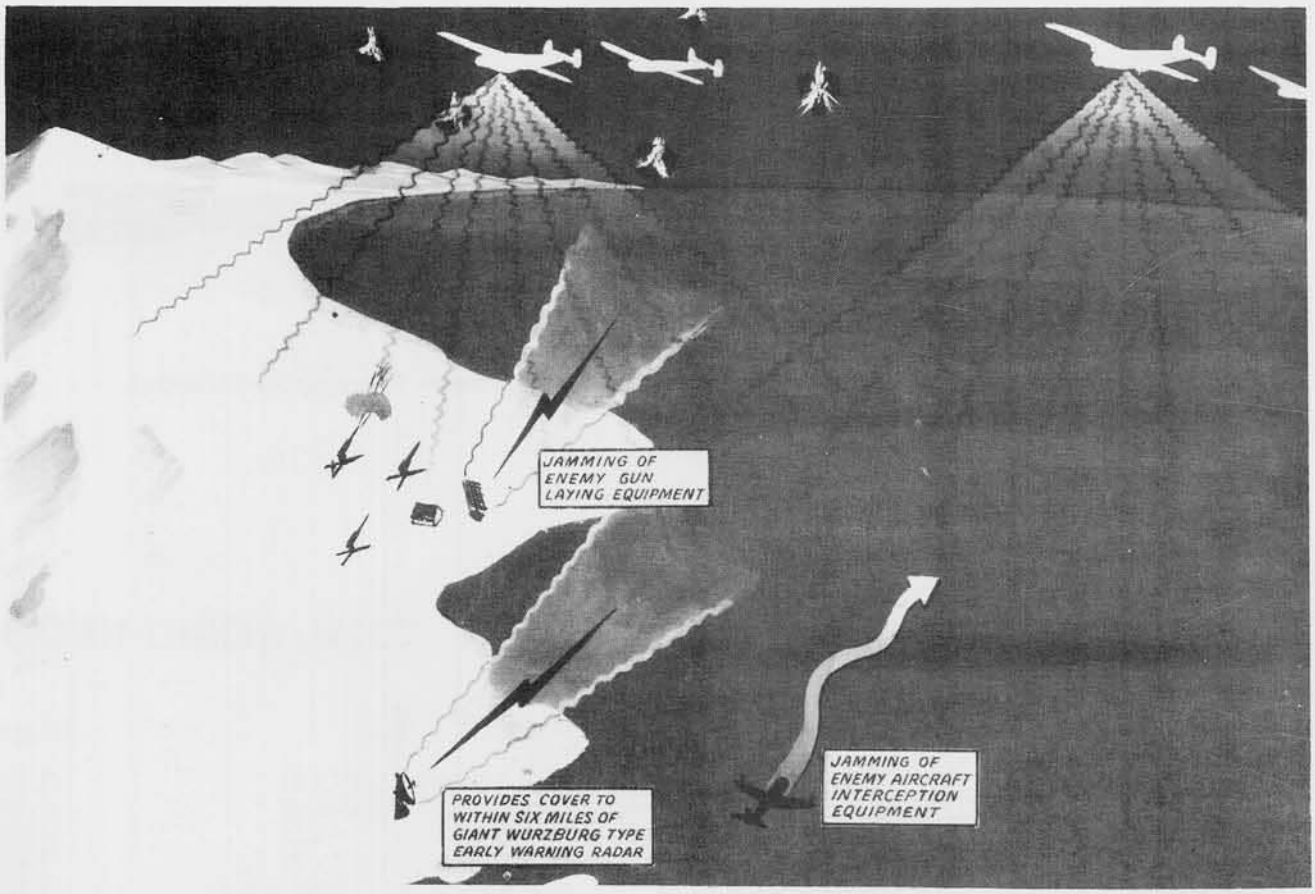
Test equipment used in the maintenance and tuning of the equipment includes, Test Set I-139-A, Pickup Assembly TS-131/AP, Test Set I-56-K, Hickok Voltmeter type 110, Frequency Meter TS-175/U and Radio Frequency Wattmeter TS-118/AP or TS-70/AP.



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

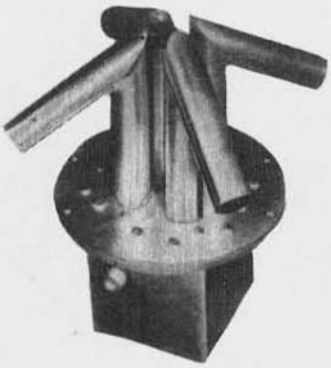


Radio Set AN/APQ-9 may be used for jamming any enemy radar search or ranging equipment operating in the frequency range from 475 to 585 mc.

CONFIDENTIAL

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.

1 Dec. 1944

UNCLASSIFIED

SECRET

[redacted]

AN/APQ-15

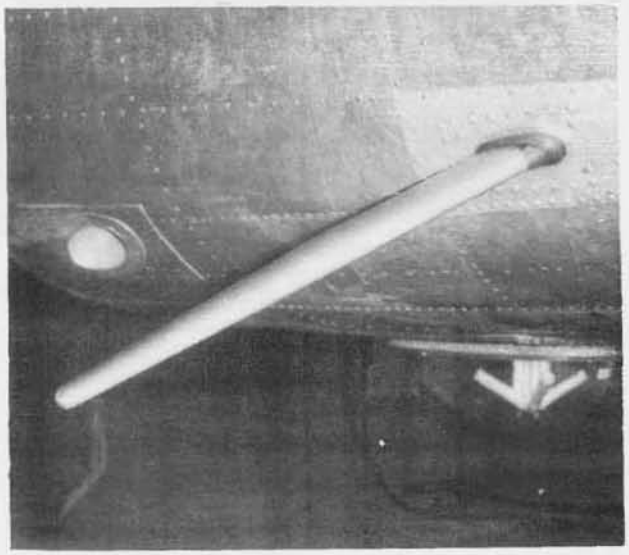
Radar Set AN/APQ-15 is a "spoofer" radar repeating device, designed for use in the Pacific theater. The equipment is a deception device, used to simulate a flight of planes. It picks up radar signals within its frequency range and retransmits an echo on the accepted frequency. The echo signal is adjustable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

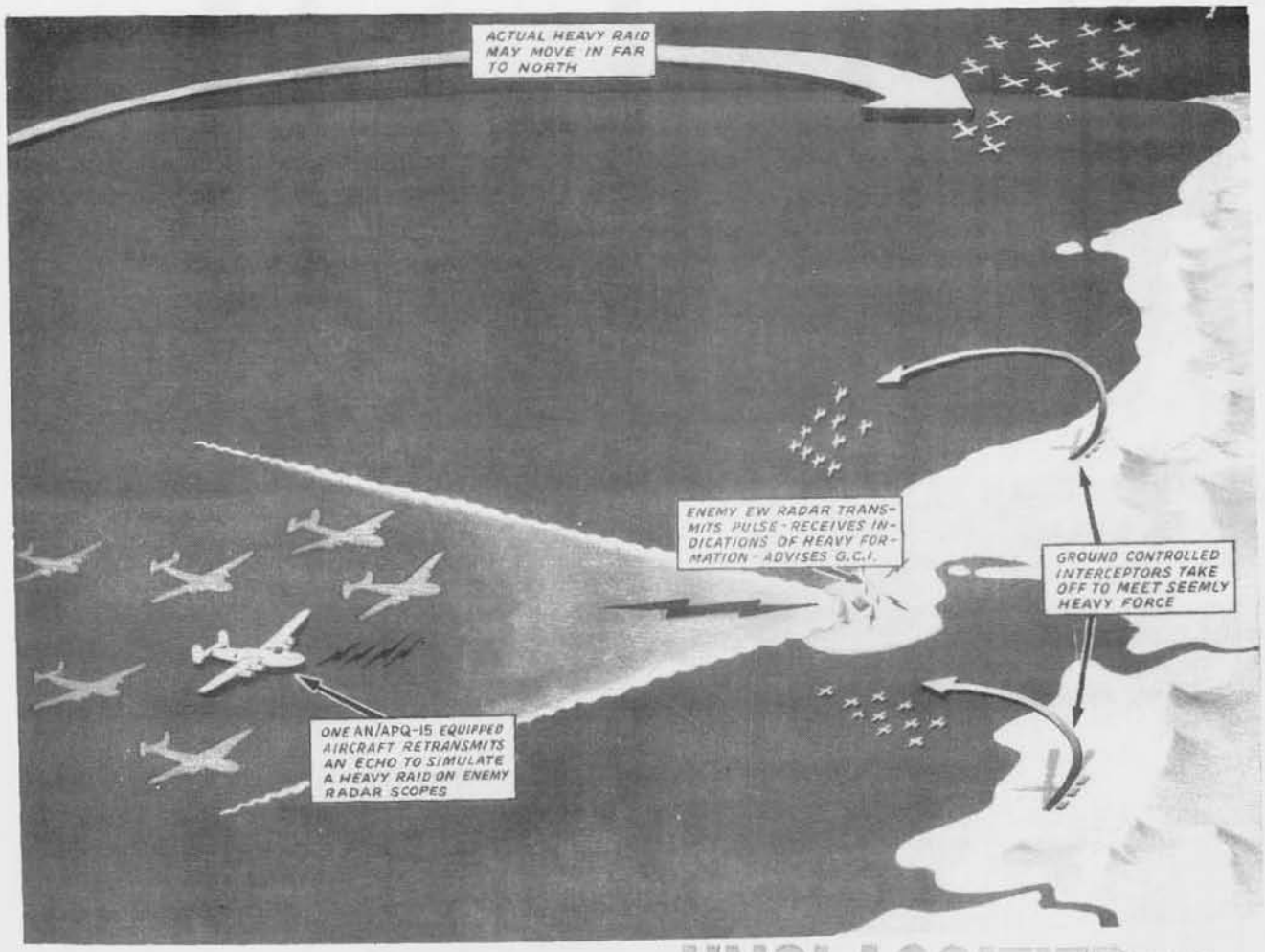
POWER INPUT	230 WATTS A.C.
POWER OUTPUT	5 WATTS, MAX,
SENSITIVITY	0.25 MILLIVOLTS
FREQUENCY RANGE	90-325 MC.
BANDWIDTH	4 MC.
PULSE LENGTH	ACCEPTS 1/3 to 40μsec. RETRANSMITS 20 to 60μsec.
DELAY	3 to 20 sec.

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.

UNCLASSIFIED

AN/APQ-15

RESTRICTED SECRET

UNCLASSIFIED

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.

1 Dec. 1944

UNCLASSIFIED

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.

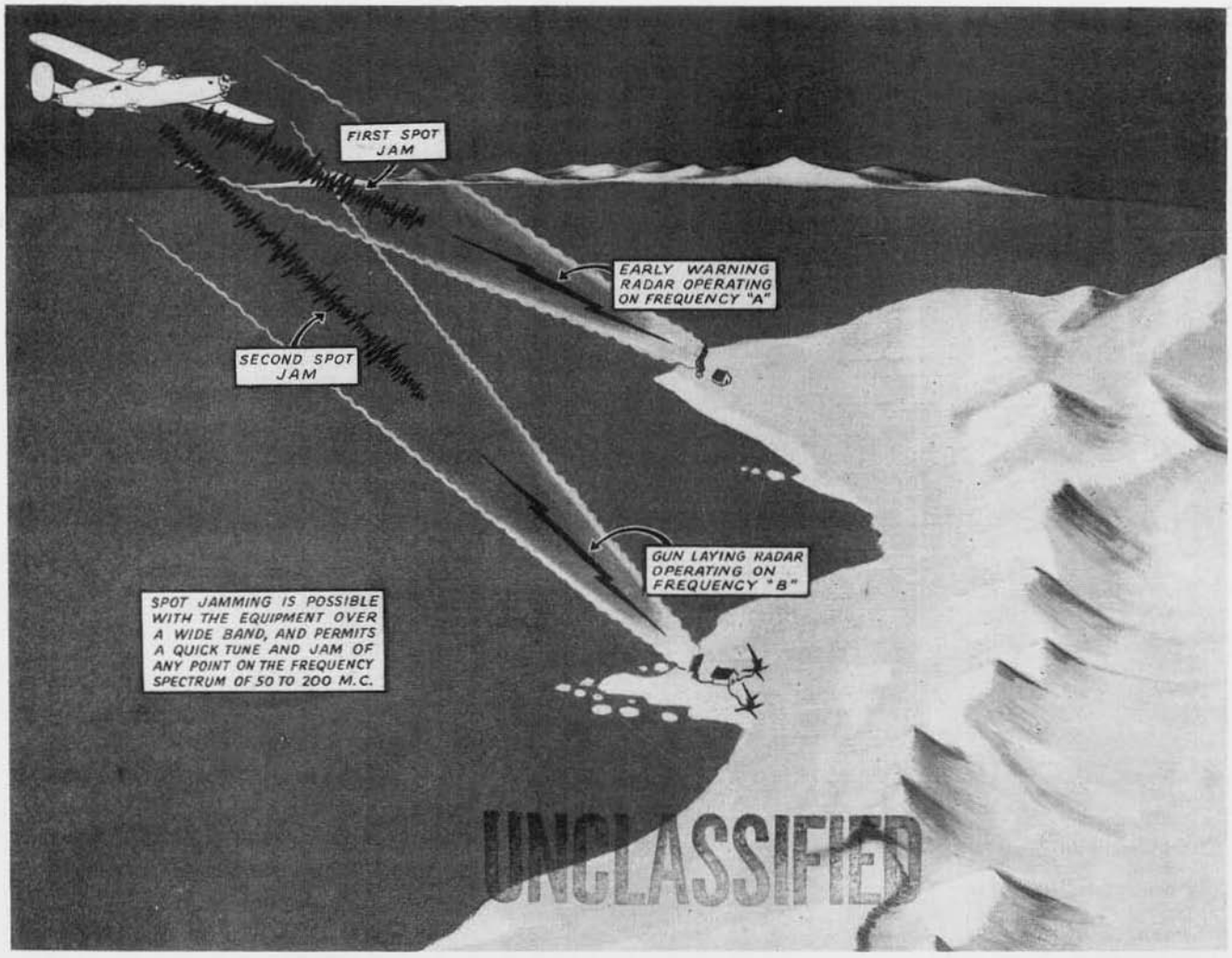
Suitable provision is incorporated in the equipment to prevent corrosion and fungus formation due to tropical climatic conditions.

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

SECRET

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/[illegible]	3" x 8" x 22"	3 Lbs.
Mounting Base	MT-171/[illegible]	3"x 11" x 22"	3 Lbs.

and includes miscellaneous cables, plugs and adapters.

UNCLASSIFIED

Feb. 1945 - Y-109829

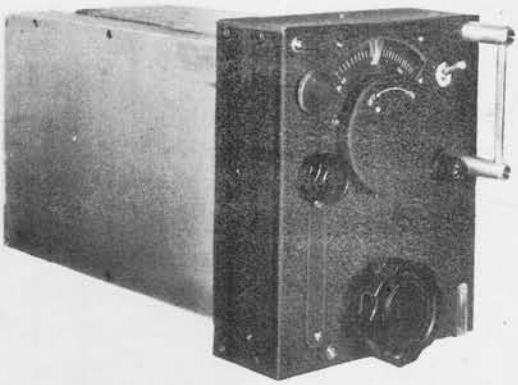
Radio Receiving Equipment AN/APR-4 is an airborne search receiver used to intercept enemy radar and communications signals in the 40 to 4000 mc. range, which includes the frequencies of all of the presently known enemy radar systems and many enemy communications channels. The equipment provides necessary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

The set is an improved version of the SCR-587. comprises an assembly of three replaceable subassemblies; 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.



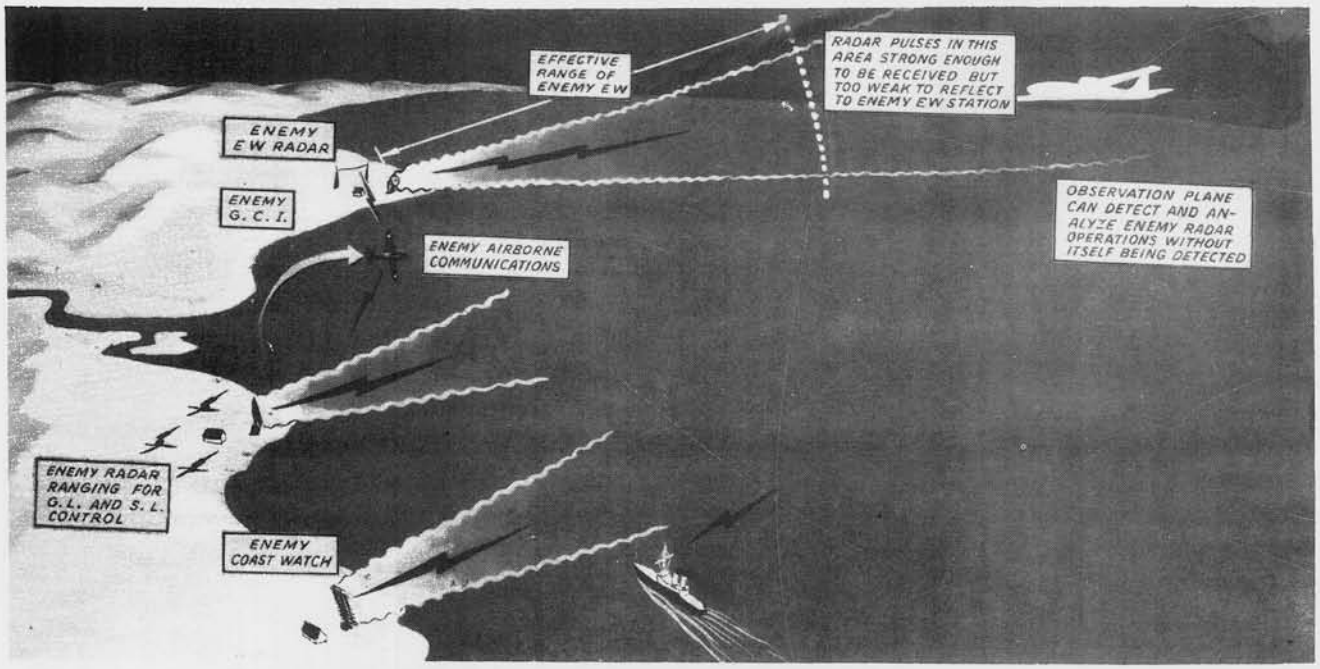
Tuning Unit TN-18/APR-4

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	1	6E5
1	6AK5	f. 1	703A or 446A
		* 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.



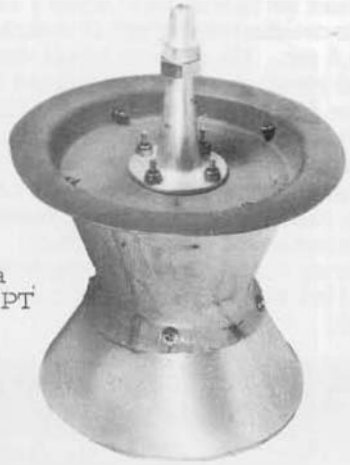
This equipment determines frequency and function of enemy detection and ranging radar over all known and probable enemy frequencies being used.

AN/APR-4

UNCLASSIFIED

UNCLASSIFIED

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	8" 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.

1 Dec. 1944

UNCLASSIFIED

SECRET

AN/APR-7

UNCLASSIFIED

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.

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.

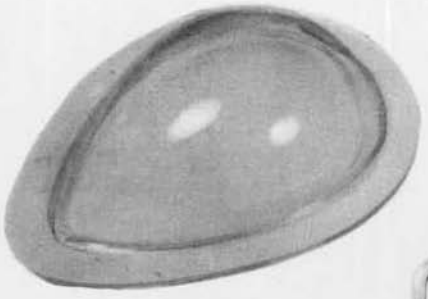
The receiver is mounted in a standard aircraft radio case A1-D. Power is obtained from 115 volts, 60-2600 c.p.s., a.c. source.

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.

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

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.

UNCLASSIFIED

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.

1 Dec. 1944

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.

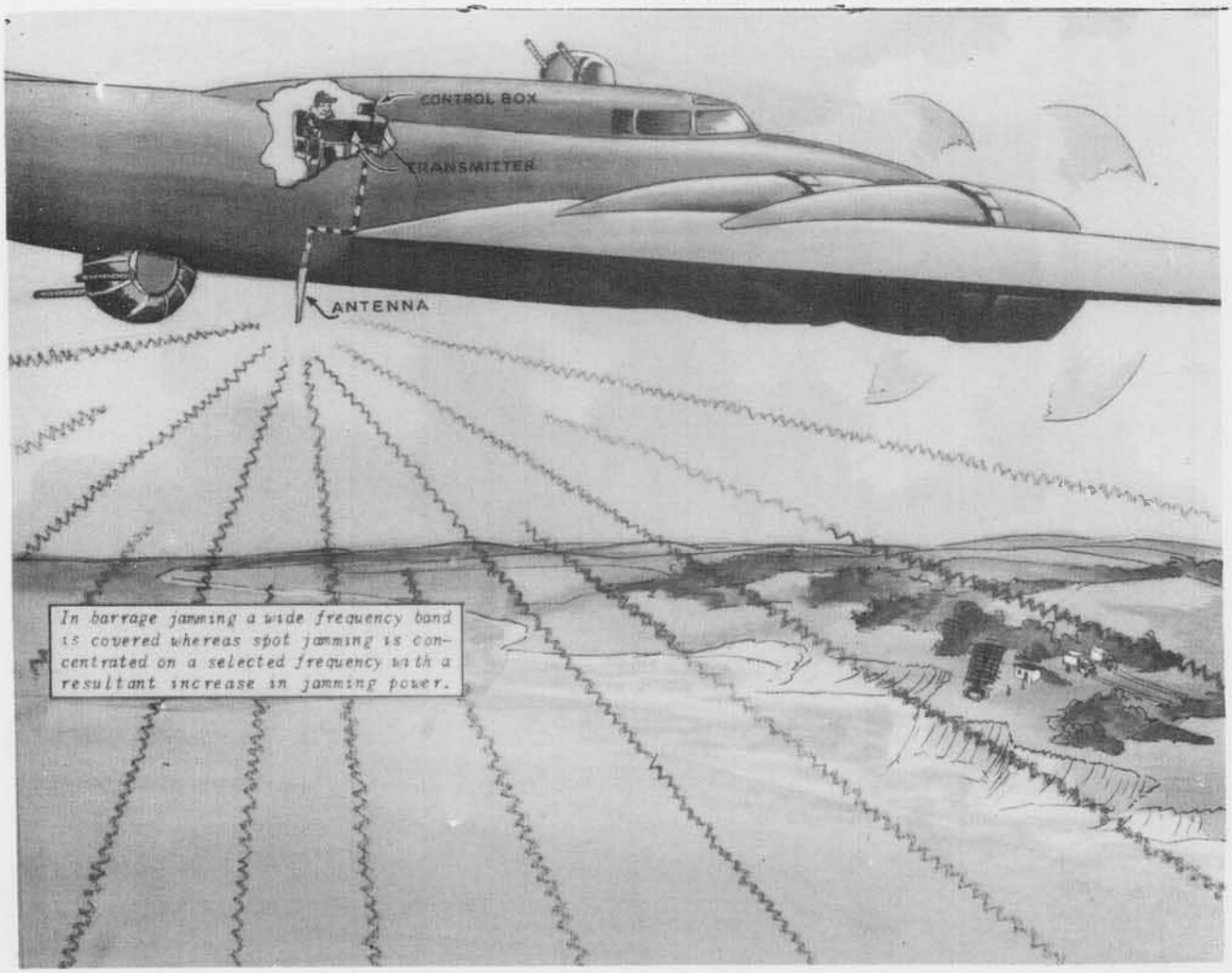
Test equipment required for the maintenance and tuning of the equipment includes Test Set I-139-A, Amplifier Alignment Unit TS-92/AP, Radio Frequency Wattmeter TS-118/AP or TS-92/AP, Picpup Assembly TS-131/AP, Test Set I-56-K and Frequency Meter TS-174/AP.

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.



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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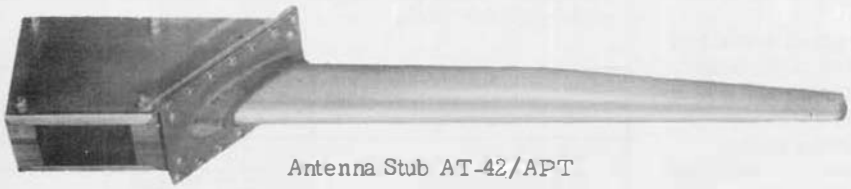
Antenna Stub AT-41/APT

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.

1 Dec. 1944

Radar Set AN/APT-2 (Carpet I), 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 inflight 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.

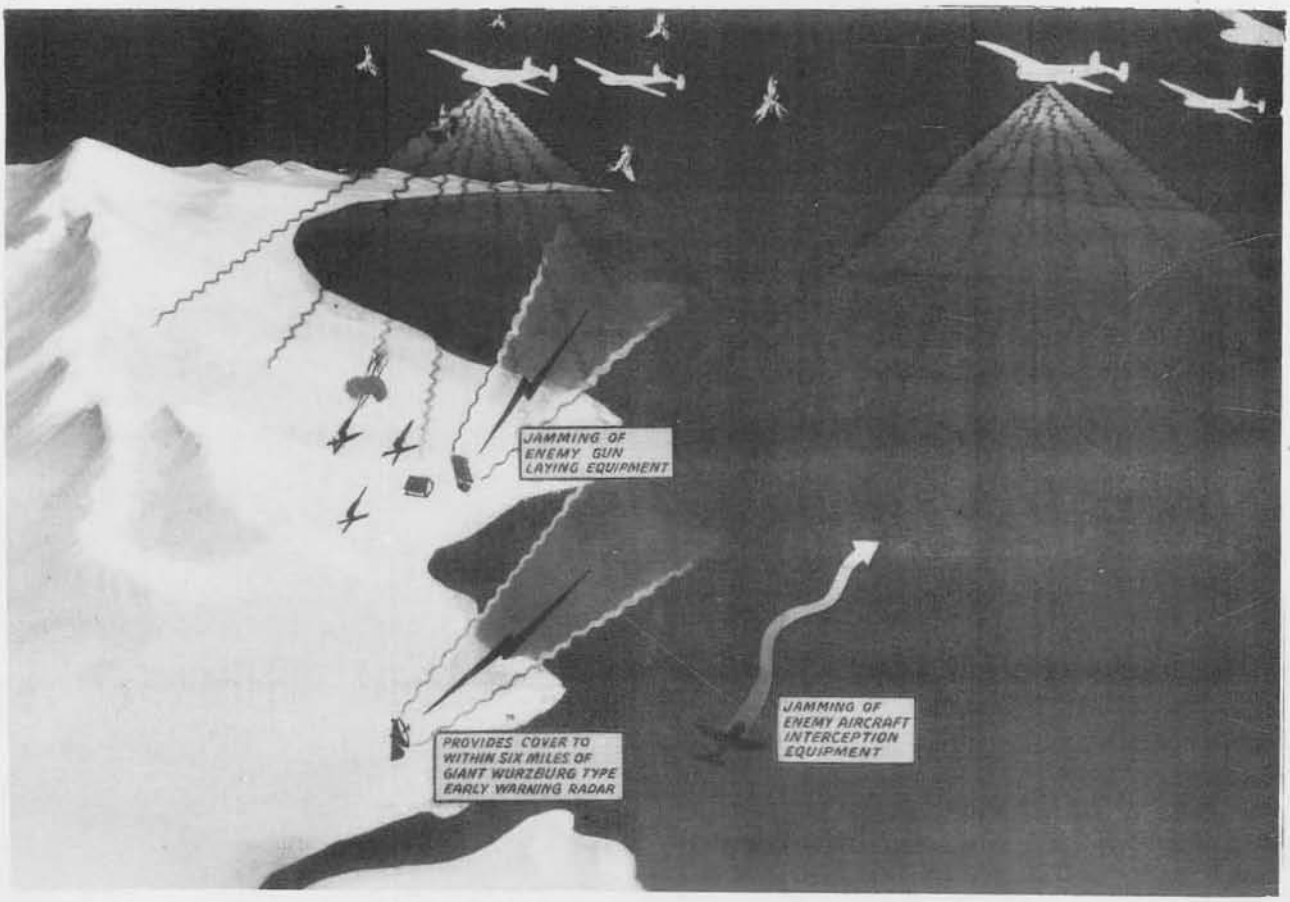
The set consists of a transmitter mounted in an SARC B1-D case and a control box for remote control of the equipment. It emits an A.M. noise signal with an output power of 8 to 4 watts over the frequency range of the set with an output band width of 7 mc. Power is obtained from an 80/115 volt, 400-2600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

CONFIDENTIAL

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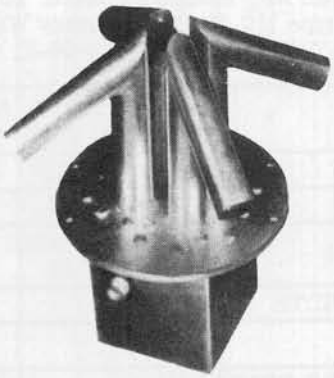
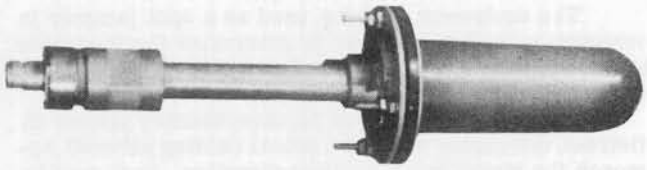


Antenna Assembly AS-69/APT-2



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.

UNCLASSIFIED

and includes adapters, plugs and cable.

1 Dec. 1944

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 pretuned 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.

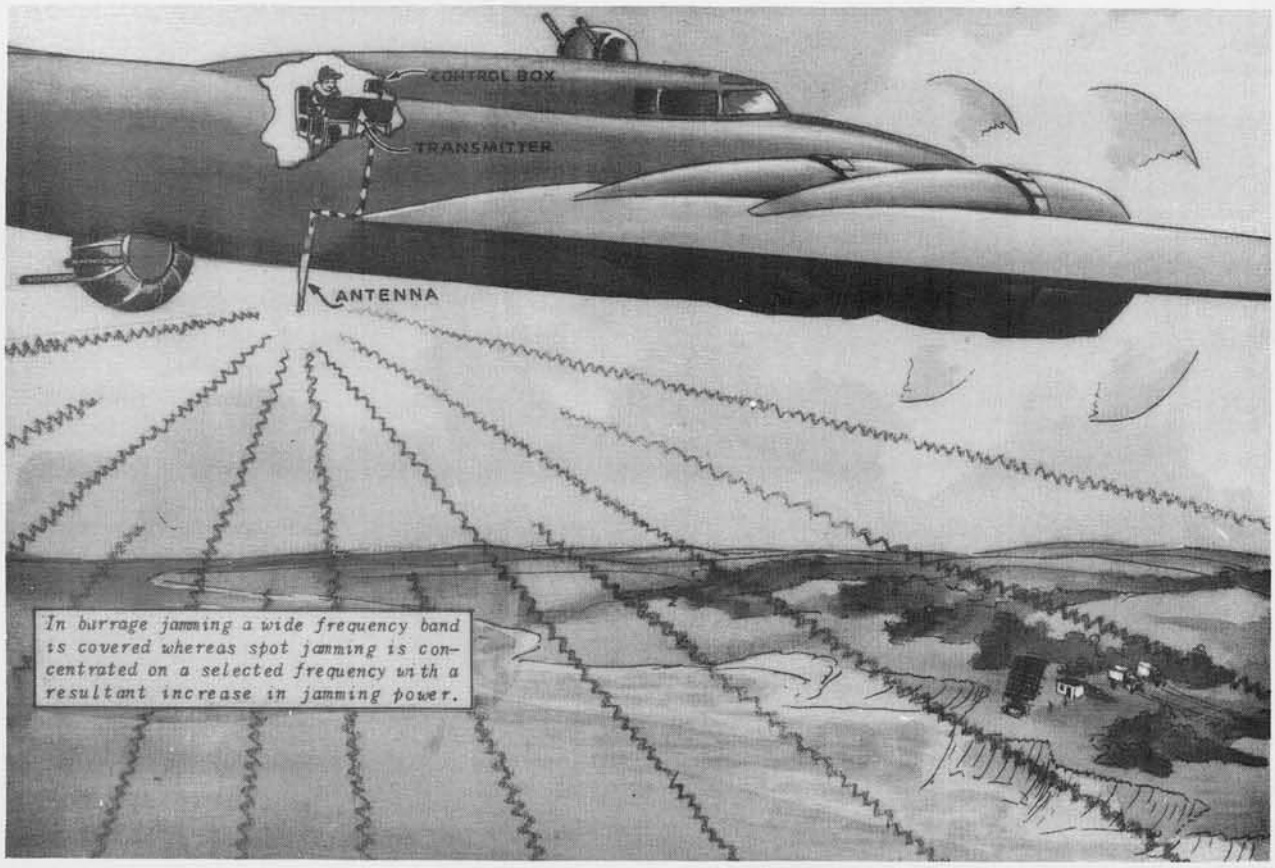
Antennas used with this equipment are quarter-wave stub antennas, AT-37/APT and AT-38/APT, and are mounted 45 degrees from the vertical to jam stations polarized other than vertically. The latter method of mounting results in some loss in jamming efficiency but permits more general use.

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.)

AN/APT-3

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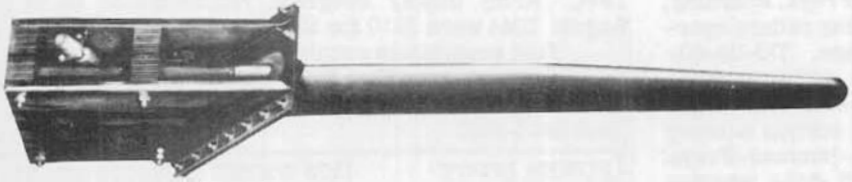
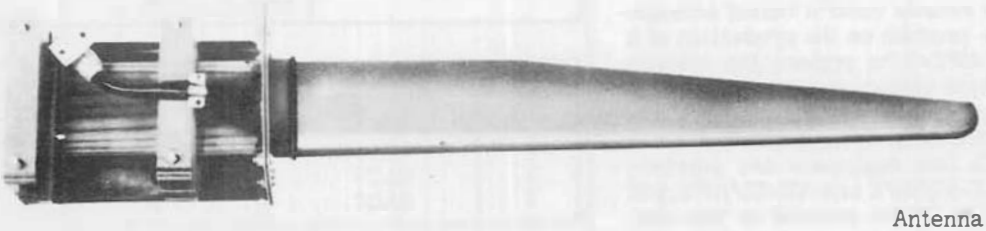


Antenna Stub AT-42/APT



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.

UNCLASSIFIED

1 Dec. 1944

AN/APT-4

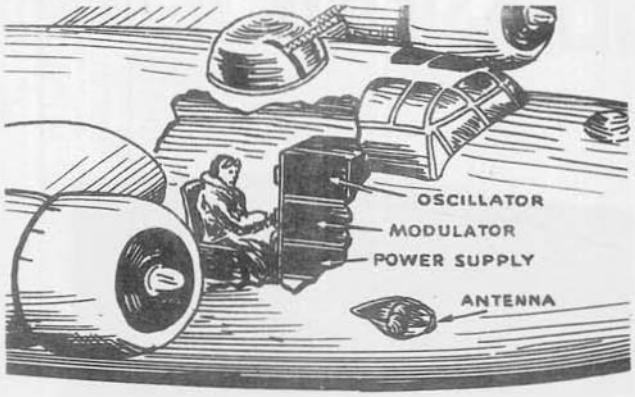
Radar Set AN/APT-4 is an airborne magnetron radar barrage or spot jammer for use against German radar systems such as the Rhubarb, Liechtenstein and Wurzburgs operating in the frequency range of 150 to 770 mc. A liquid cooled magnetron, GL-5J30 or GL-5J29, is used as an oscillator, resulting in simple 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.

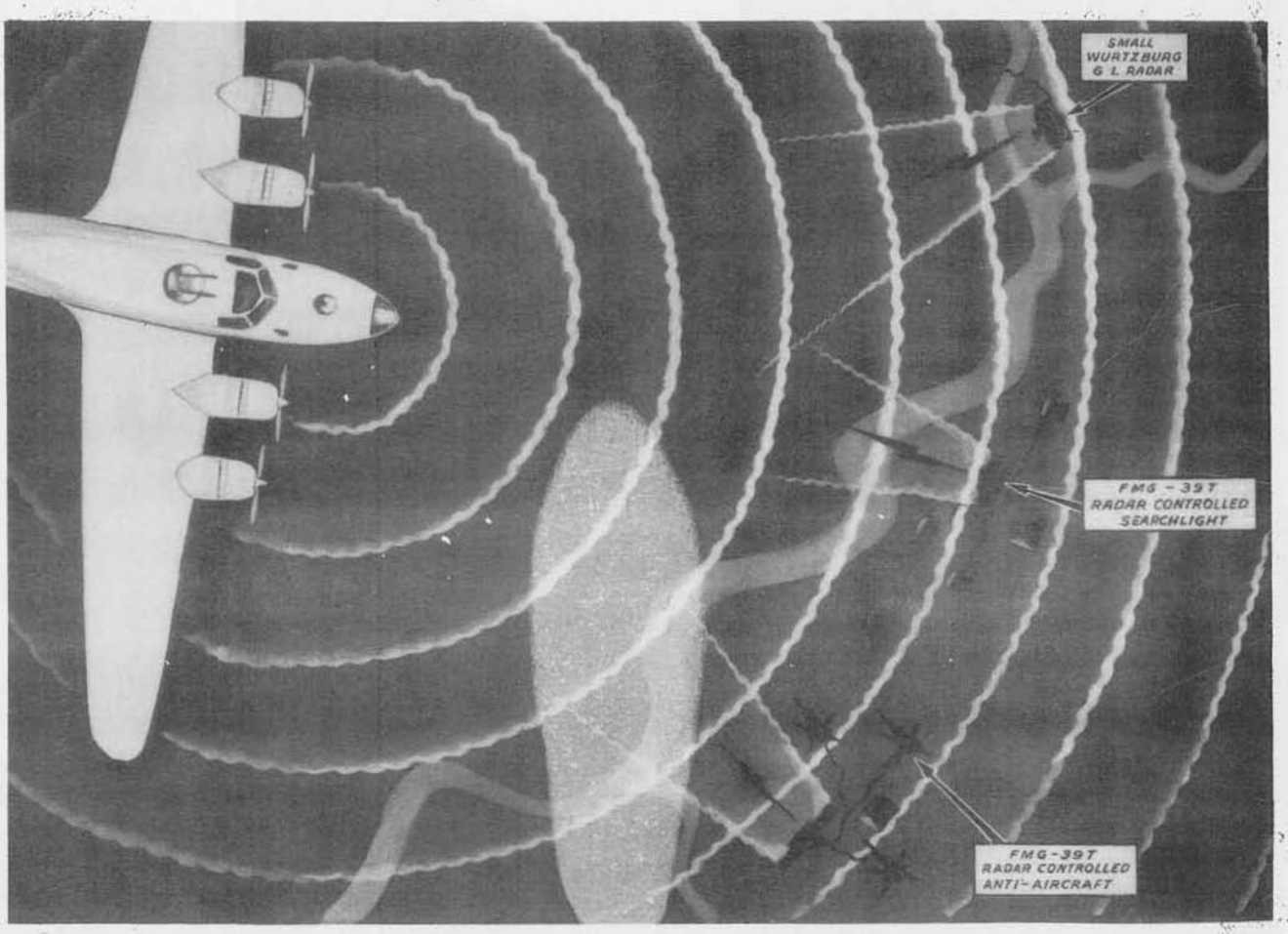
Test Equipment used in maintenance of Radar Set AN/APT-4 includes Test Set I-139-A, Frequency Meter TS-175/U, Analyzer TS-54/AP, Radio Frequency Wattmeter TS-118/AP, Pickup Assembly TS-131/AP, Hickok Voltmeter Type 110 and Fluxmeter TS-15A/AP.



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

AN/APT-4

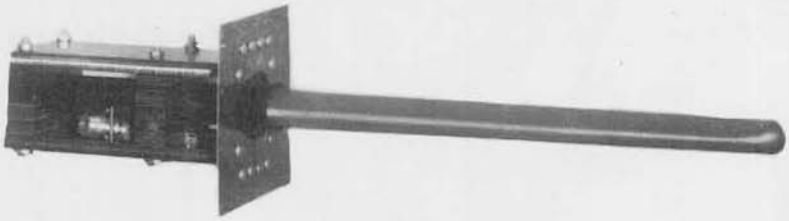
SECRET

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.

and includes plugs, adapters, jacks and cables.

1 Dec. 1944

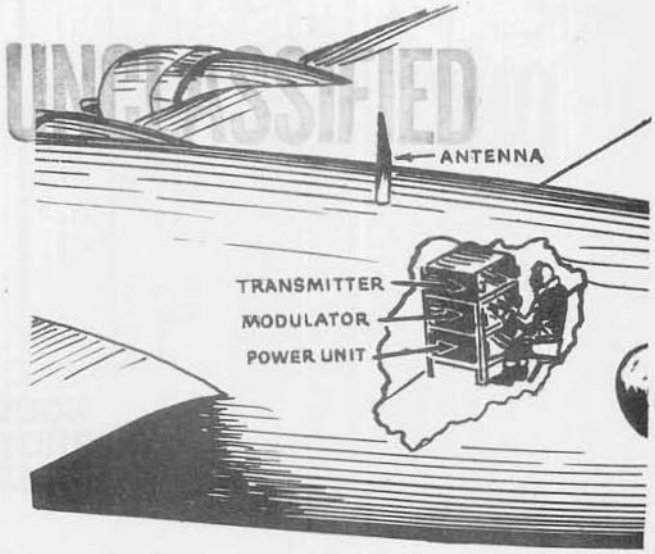
Radar Set AN/APT-6 is an airborne magnetron barrage or spot jammer for use against radar, communication, and the German GM control in the frequency range of 15 to 250 mc. Its advantages over existing communication barrage jammers are in its greater effectiveness for an equivalent amount of power especially 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, 400-2600 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.

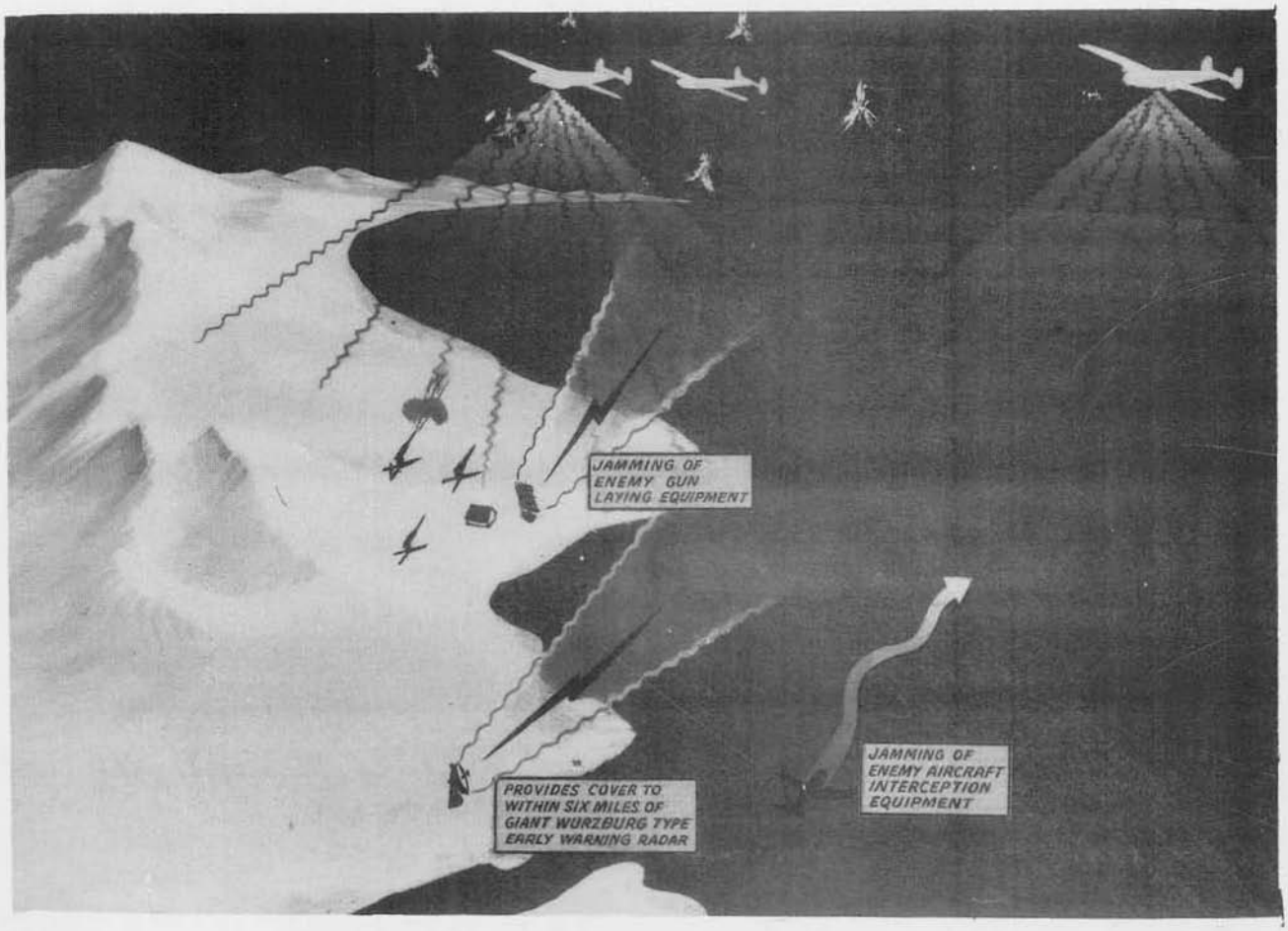
Test Equipment used in maintenance of the set includes Test Set I-139/A, Fluxmeter TS-15A/AP Analyzer TS-54/AP, Radio Frequency Wattmeter TS-131/AP, Frequency Meter TS-174/UP, and Hickok Voltmeter type 110.

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	604
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.

UNCLASSIFIED

AN/APT-6

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UNCLASSIFIED

EQUIPMENT PHOTOGRAPHS UNAVAILABLE

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

UNCLASSIFIED

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

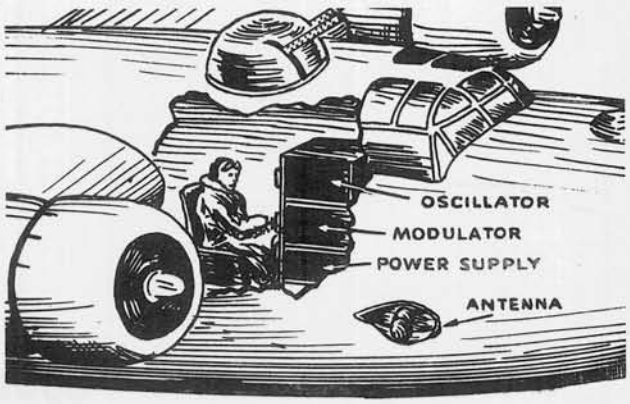
Radar Set AN/APT-8 is an airborne radar barrage jammer to cover the frequency range 700-1100 mc. It is known to the services as Broadloom.

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.

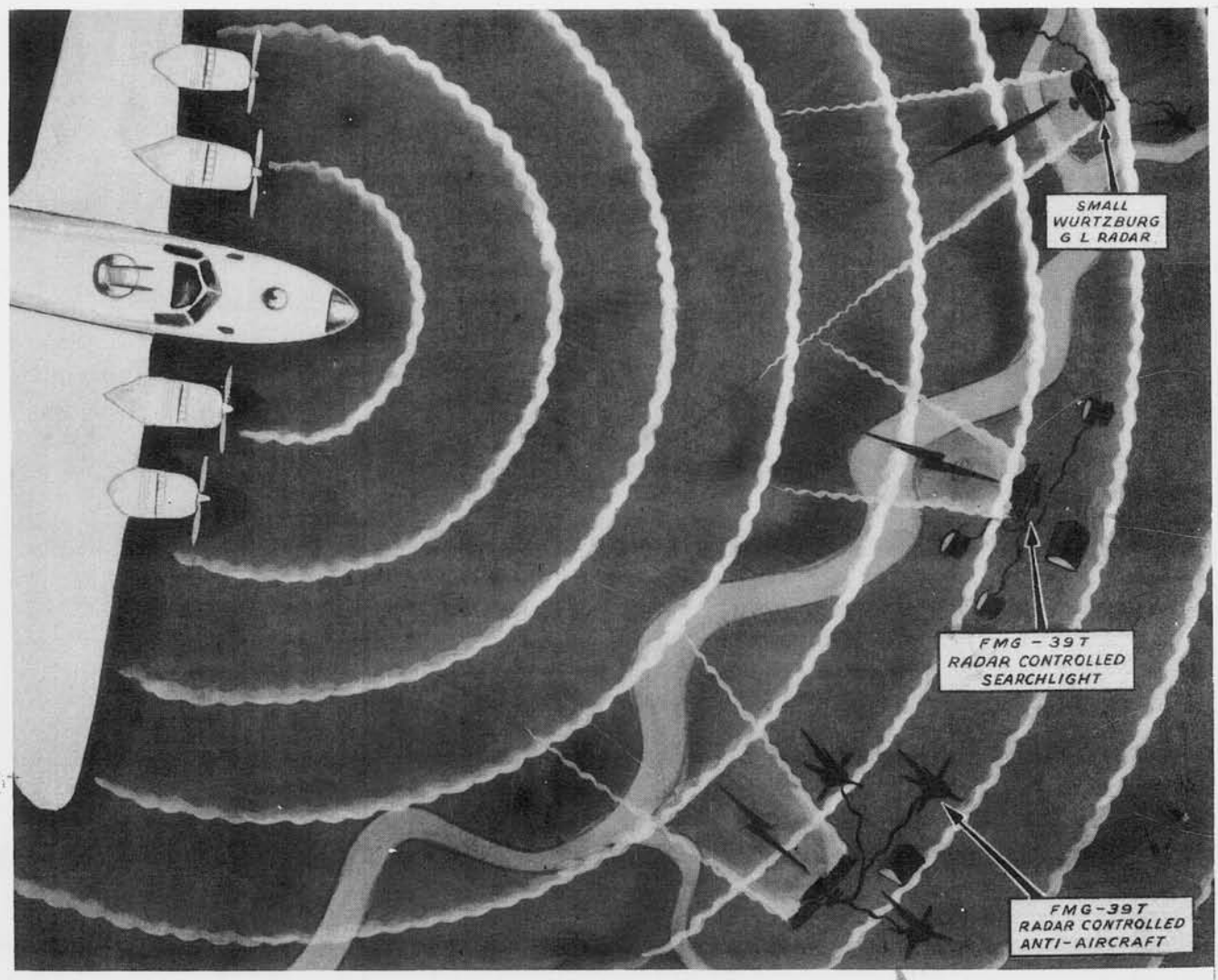
There were no Army Supply Program requirements as of 1 November 1944.



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

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AN/APT-8 [redacted]

EQUIPMENT PHOTOGRAPHS UNAVAILABLE

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RADAR SET AN/APT-8 — TOTAL WEIGHT 220 LBS.

Component	Nomenclature	Size	Weight
Radar Transmitter		7 5/8" x 10 1/8" x 21 3/4"	75 Lbs.
Rectifier Power Unit		7 5/8" x 10 1/8" x 21 3/4"	50 Lbs.
Modulator		7 5/8" x 10 1/8" x 21 3/4"	75 Lbs.

and includes cables, plugs and mountings.

1 Dec. 1944

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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 12SN7GT. The maximum noise output, measured with the unit connected tothe microphone input of RadioTransmitter 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.

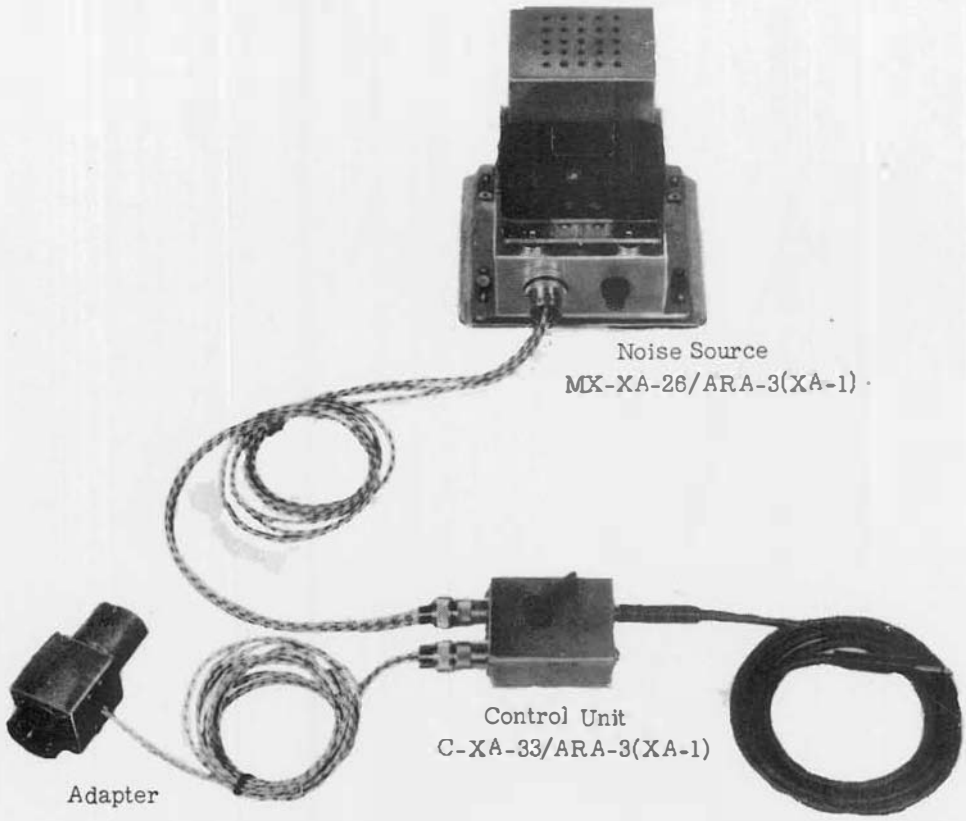
The noise source and four-position control switch are packaged in the same case used for Microphone Amplifier BC-216-A.

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-76/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

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AN/ARQ-1

Radio Set AN/ARQ-1 is an airborne, low frequency, direct-noise-amplified jamming set, operating in the 14 to 50 mc. frequency range, with approximately 20 watts of noise-modulated output.

The band width of the noise signal varies from 200 to 250 kc., depending on the operating frequency. The equipment consists essentially of a band-pass TRF amplification of a noise signal produced by a type 931A photo-multiplier tube. When receiving, the same amplifier is connected to the antenna, and the output fed to a detector and audio amplifier. In this manner, the transmitter is automatically tuned to the same frequency as the receiver.

Radio Set AN/ARQ-1 is smaller, lighter, simpler in operation and extends to a lower minimum frequency than the Dina and Dina Mate. Self-monitoring is provided, permitting search and jamming to be accomplished in a single equipment.

The equipment will have application in both the European and Pacific theaters in coping with airborne VHF, air-to-ground communication, navigation, and possibly ground communication links where desirable.

Power requirements consist of an input of 300 watts from an a.c. power source of 80-115 volts, 400-2600 c.p.s., and an input of 14 watts from a d.c. power source of 28 volts. Sensitivity of the set is 150 microvolts.

Army Supply Program requirements as of 30 April 1944 were 1,000 equipments for the calendar year 1944.

Fan Antenna for Radio Set AN/ARQ-1 is installed on B-17.

POWER INPUT	300 WATTS A.C.; 14 WATTS D.C.
POWER OUTPUT	20 WATTS (All sideband)
FREQUENCY RANGE	14-50 M.C.
SENSITIVITY	150 MICROVOLTS
OUTPUT BAND WIDTH	25 KC AT 14 MC TO 150 KC AT 50 MC

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6SG7	1	931A
1	6AG7	1	2X2
1	807	1	5R4GY
1	6SJ7	1	5Y3GT
1	6J5		

Receiver-Transmitter RT-45/ARQ-1

RADIO SET AN/ARQ-1

TOTAL WEIGHT 55 LBS.

Component	Nomenclature	Size	Weight
Receiver - Transmitter	RT-45()/ARQ-1	7 5/8" x 10 1/8" x 21 3/4"	40 Lb.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22 "	3 1/4 Lb.
Antenna System	AS-89/ART	72" x 1/2" Dia.	3 1/4 Lb.
Antenna Base	AB-29/ART (2 each)	6" x 7" Dia.	6 Lb.
Antenna	AS-97/ART	54" x 1/2" Dia.	3 1/4 Lb.

and includes plugs, adapters and cables

1 Dec. 1944

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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.

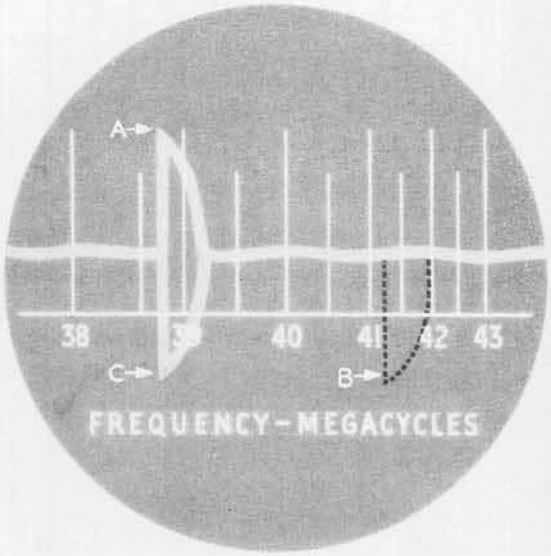
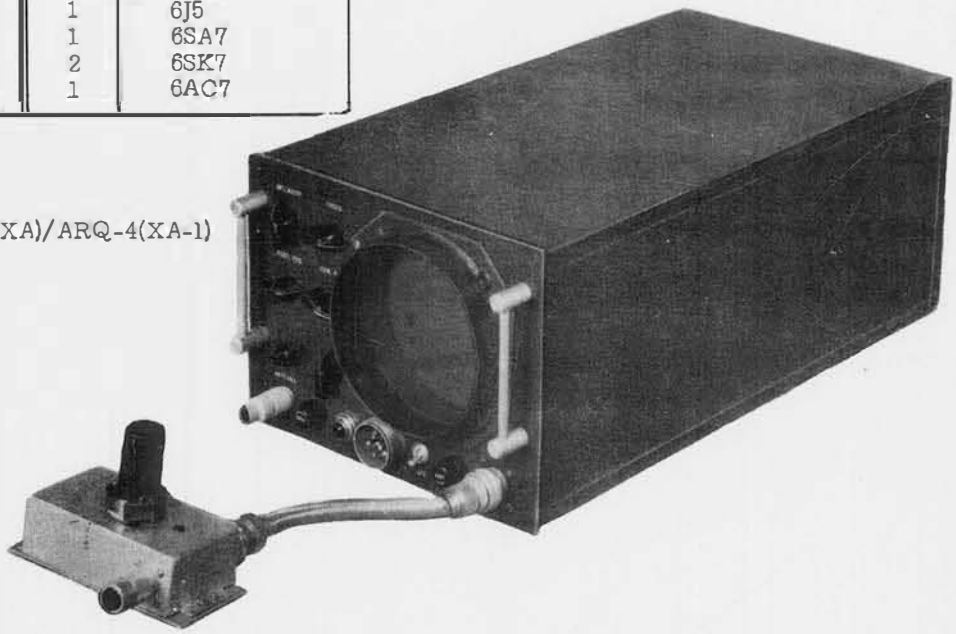


Diagram showing enemy signal (a) and jamming signal's position before (b) and after (c) being tuned to cover enemy transmission.

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	R-63( )/ARQ-4	7 5/8" x 10 1/8" x 21 3/4"	50 Lb
Mounting Base	MT-171/U	2 1/4" x 10 1/4" x 22"	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 is it 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.

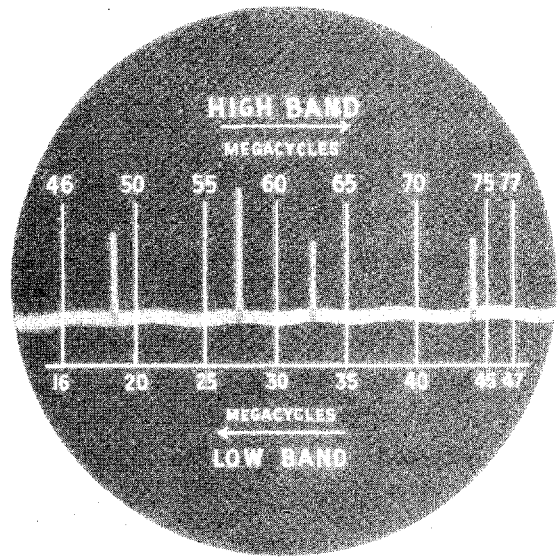
Frequency range of this equipment is from 18 to 80 megacycles. Power is obtained from an 80-115 volt. 400-2600 c.p.s., 24 volt source.

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.

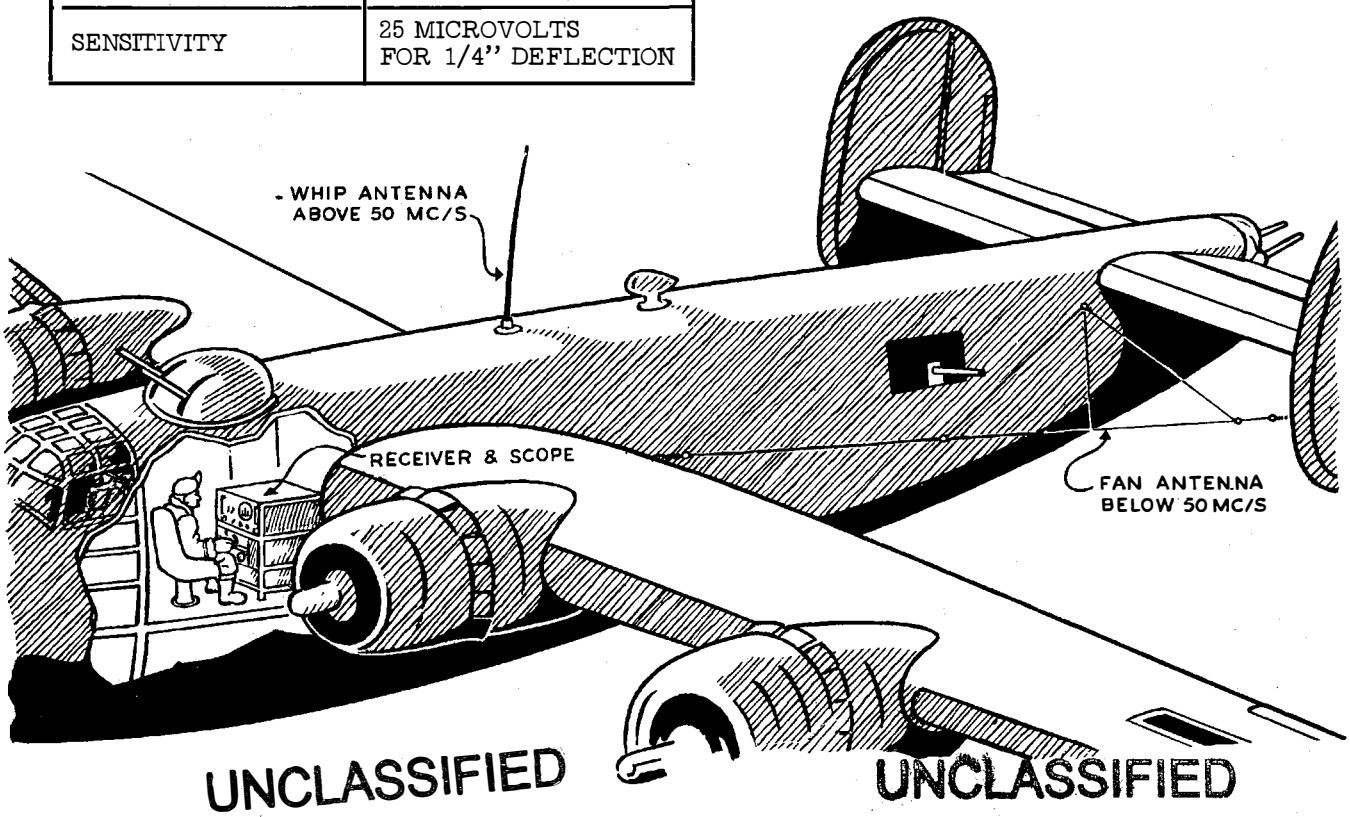
Army Supply Program requirements as of 22 June 1944 were 1020 for the calendar year 1944 and 2028 for 1945.



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



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

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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.

UNCLASSIFIED

1 Dec. 1944

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.

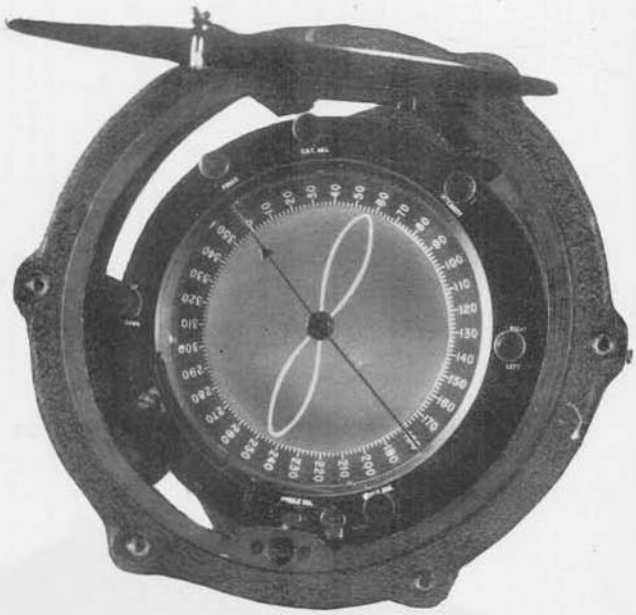
Power is obtained from a 115 volt, 400 to 2600 c.p.s. a.c. source and a 28 volt d.c. source. The equipment covers the frequency range of 100 to 160 mc., and the receiver input is 150 watts with sensitivity of 50 microvolts.

Army Supply Program requirements have not been established as of 30 Aoril 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	6C4	*1	5CPI
2	6AK5	1	Amperite Ballast
2	6N7		

* Crystal



AN/ARQ-6 Indicator, cathode ray tube 5CP1, showing DF on a strong signal with 180° ambiguity. Pressing "Sense" switch removes ambiguity. This is a continuous presentation.

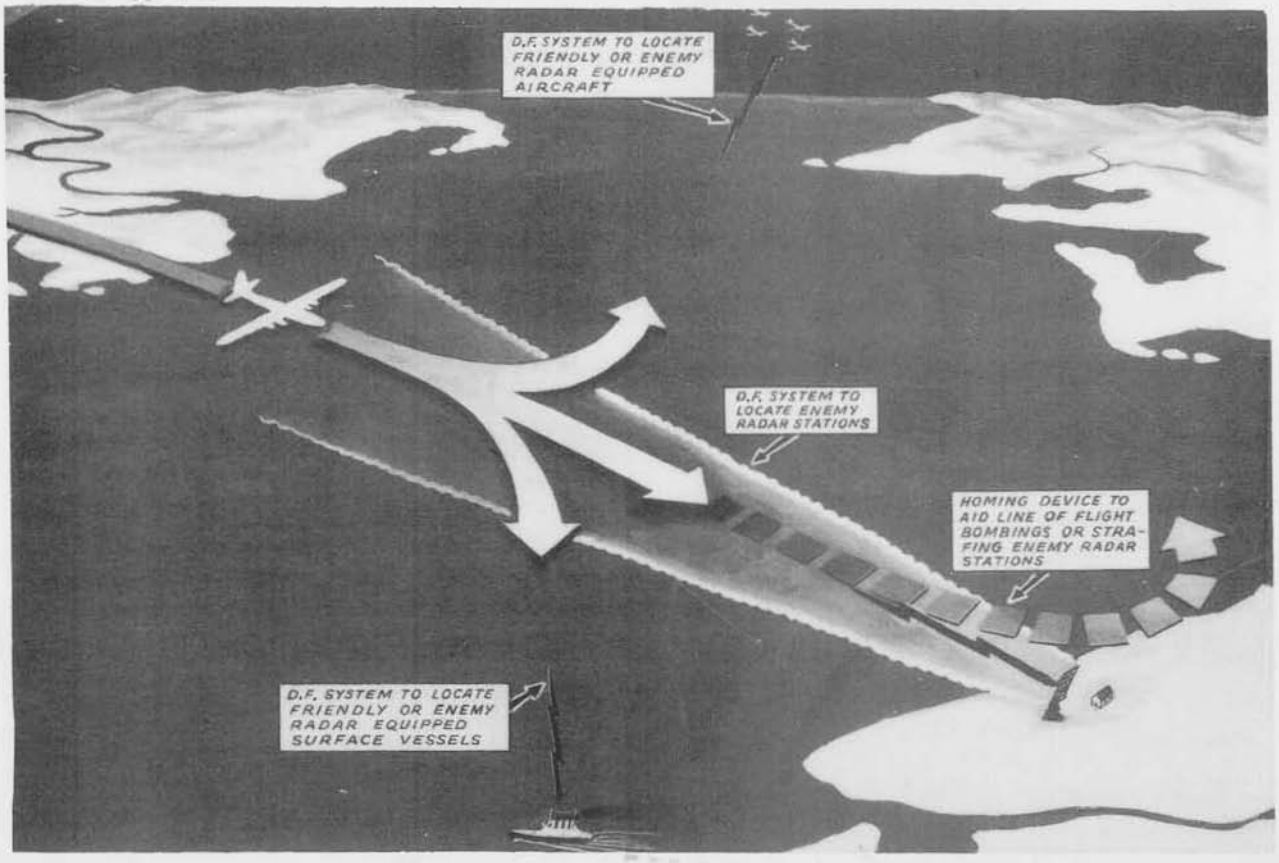


Diagram of Radar Receiving Equipment AN/ARQ-6 and its uses against land, airborne and seaborne targets for purposes of direction finding and homing.

Dec. 1944

UNCLASSIFIED

AN/ARQ-6

SECRET

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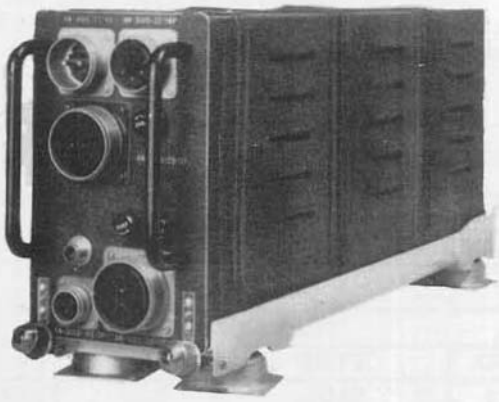
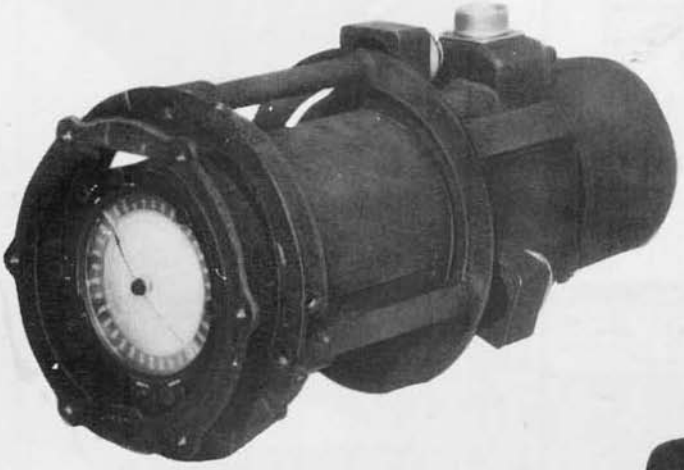
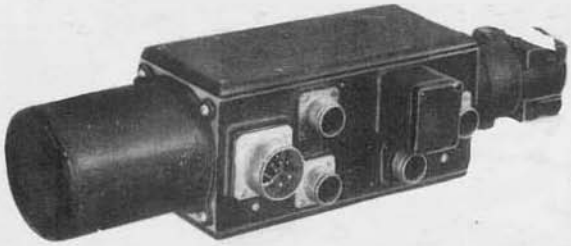
Control Box



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.

UNCLASSIFIED

1 Dec. 1944

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 ca be used to increase the range of this set with some reduced ease of operation.

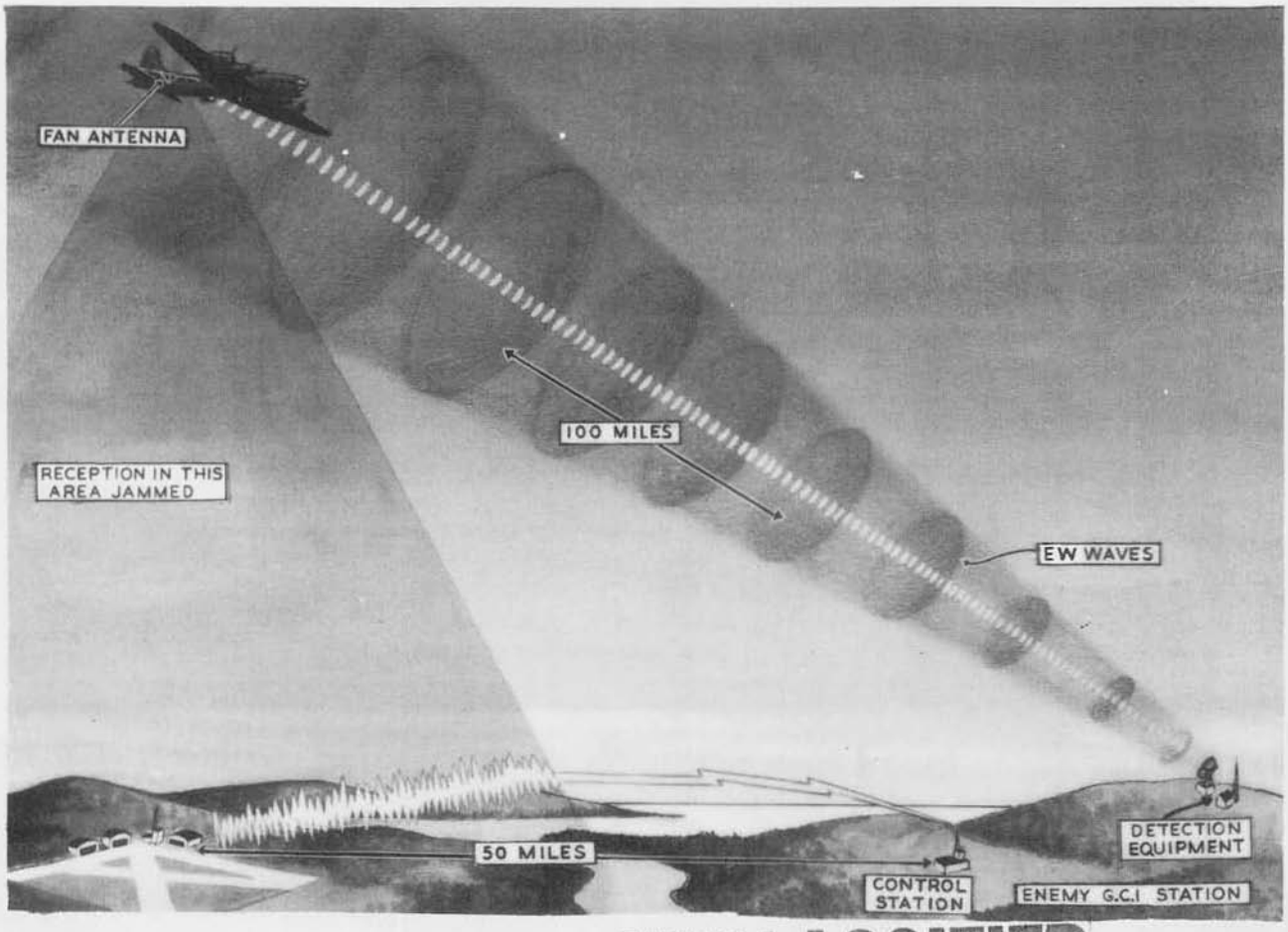
Power is obtained from 80/115 volt, 400 to 2600 c.p.s., a.c. source and a 28 volt d.c. source. The power input of 500 watts produces an output of 50 watts over the frequency range of the set. Random noise modulation with a 10 kc. band width is used to jam enemy signals. Sensitivity of the receiver is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

Army Supply Program requirements as of 1 Sept. 1944 were 360 for the calender 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.

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.

1 Dec. 1944

AN/ARQ-7

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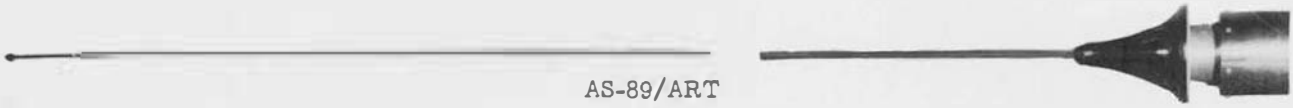
Receiver-Transmitter RT-49/ARQ-7



AS-89/ART

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

1 Dec. 1944

UNCLASSIFIED

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 narrowband pre-amplifier consists of random RF noise voltages. The noise signal is mixed with the signal from a JAN 6V6GT 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.

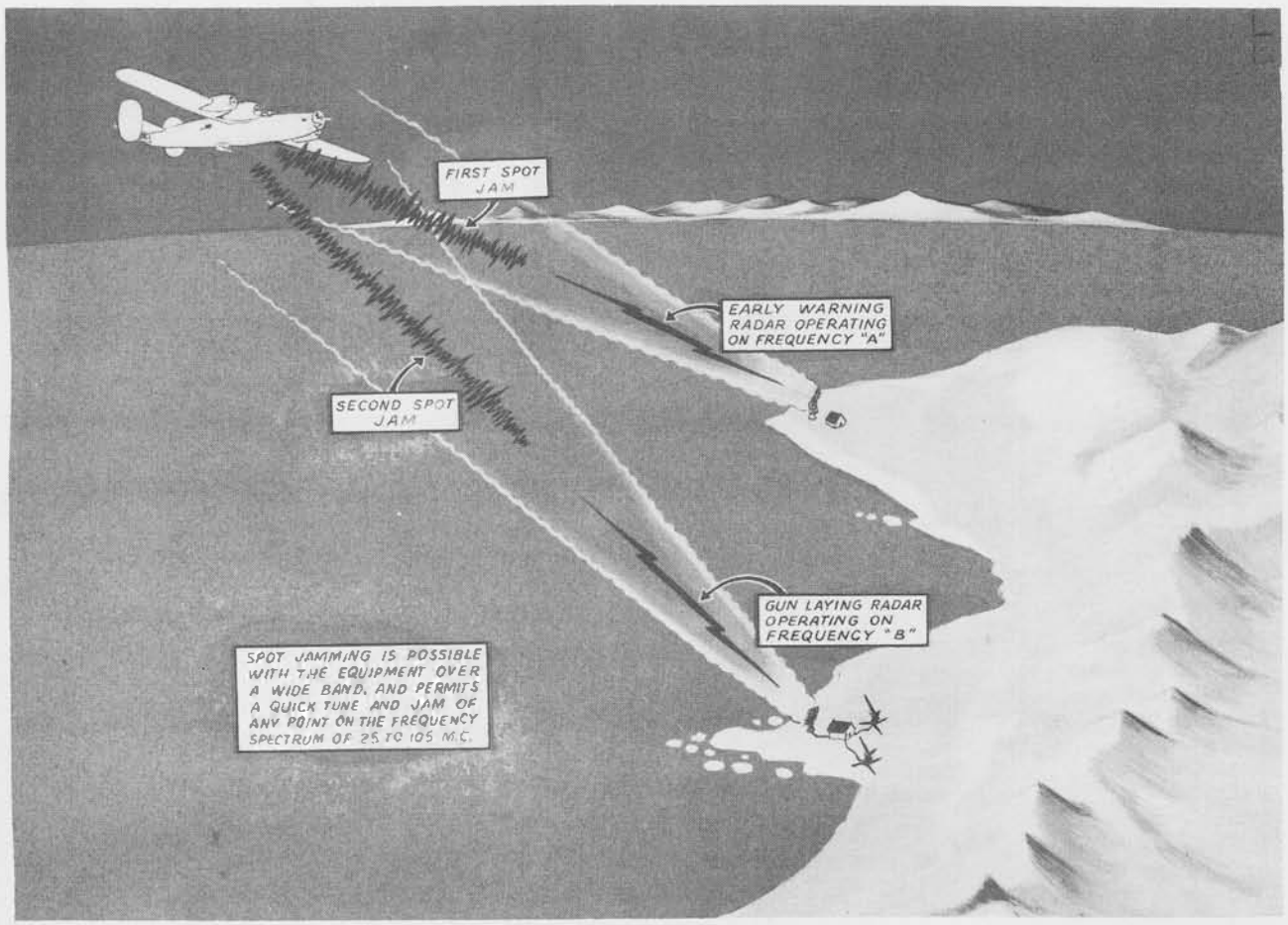
Power is obtained from an 80/115 volt 400-2600 c.p.s., a.c. and a 28 volt d.c. source.

Test equipment required for the maintenance and tuning of the equipment incl des Test Set I-139-A, Signal Generator TS-47/APR, Radio Frequency Wattmeter TS-118/APR, Pickup Assembly TS-131/AP, Test Set 1-56-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 CAR IE
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	6AG7	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.

Feb. 1945 Y-109820

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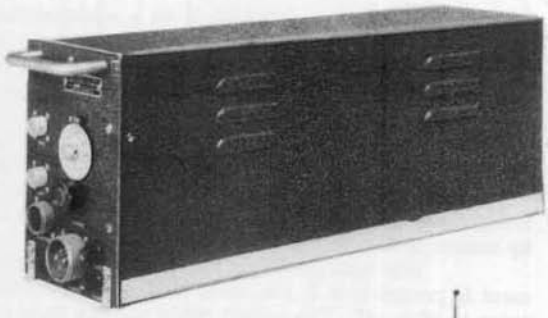
AN/ARQ-8

CONFIDENTIAL

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.

Feb. 1945 Y-109829

UNCLASSIFIED

UNCLASSIFIED [redacted] UNCLASSIFIED

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 RadioSet SCR-596-T2.

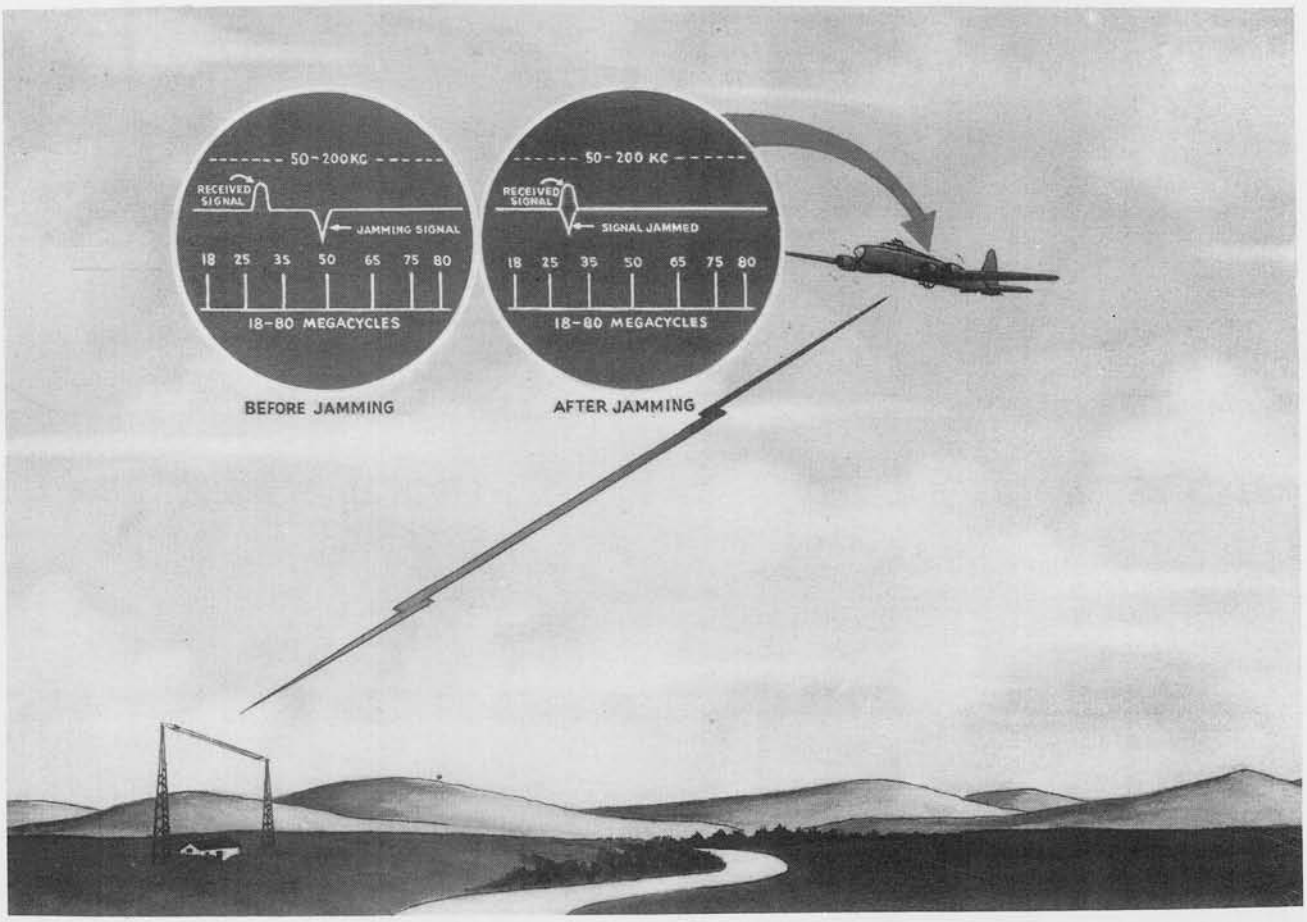
The transmitter and the receiver are gang-tuned to permit rapid frequency shifts such as are required when the victim transmission changes in frequency to avoid jamming. During the jamming operation the transmitter and the receiver are alternately connected to the antenna so that any change in the victim operating frequency maybe 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 isfrequency 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 Programrequirements 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

TUBE COMPLEMENT								
NO.	TYPE	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.

Feb 1945 Y-100829

UNCLASSIFIED

AN/ARQ-9

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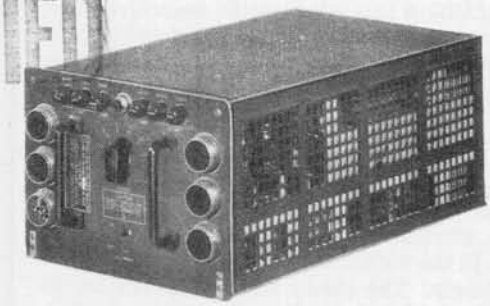
UNCLASSIFIED

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

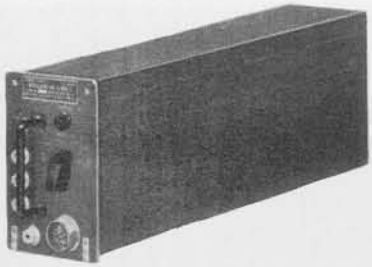


Rectifier Power Unit PP-55/ARQ-9

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.

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

UNCLASSIFIED

Feb. 1945 _ Y-109829

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 resister 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.

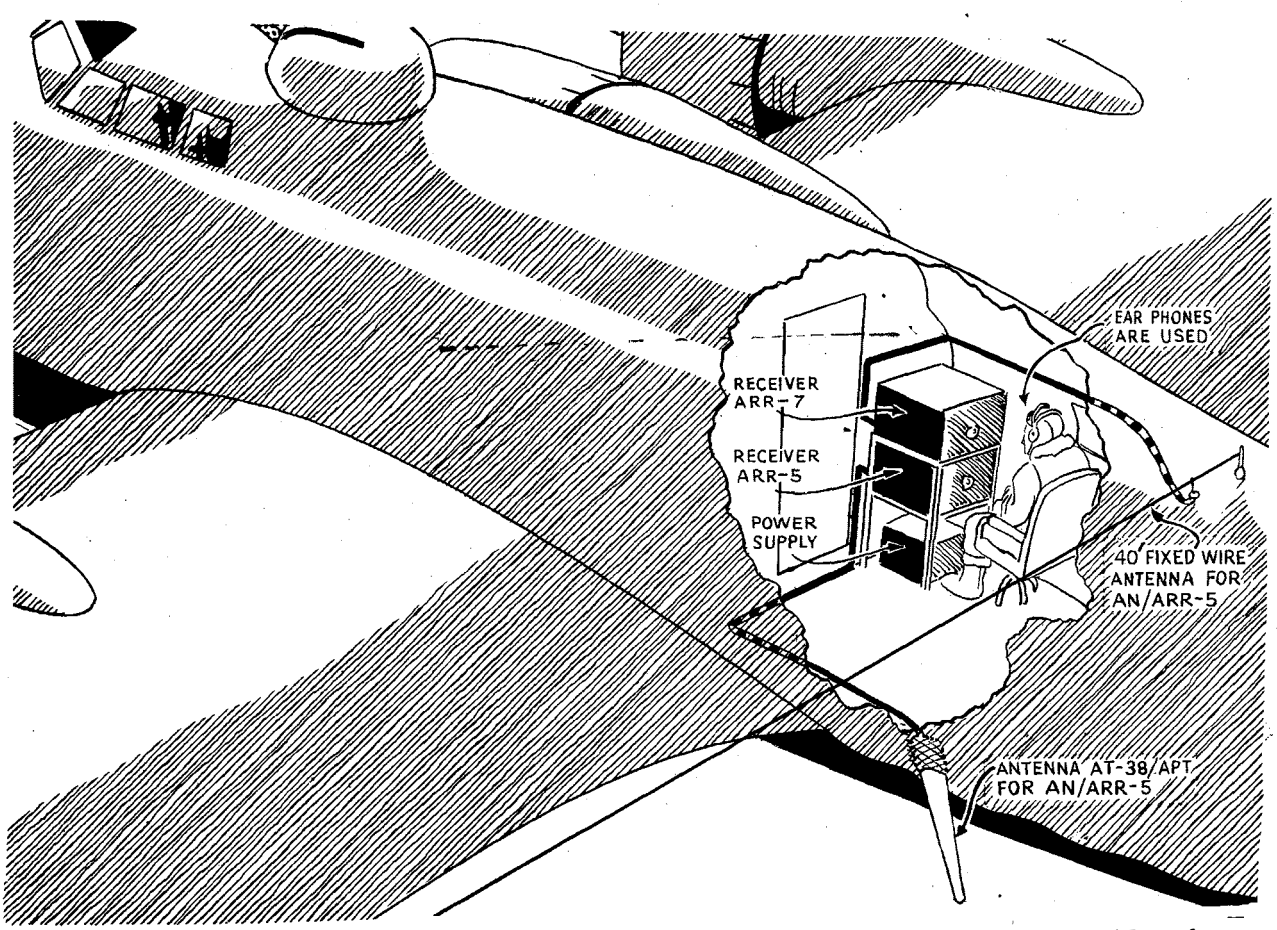
Army Supply Program requirements as of 14 June 1944 were 2,060 equipments for the calendar year 1944. and 4051 for 1945.

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

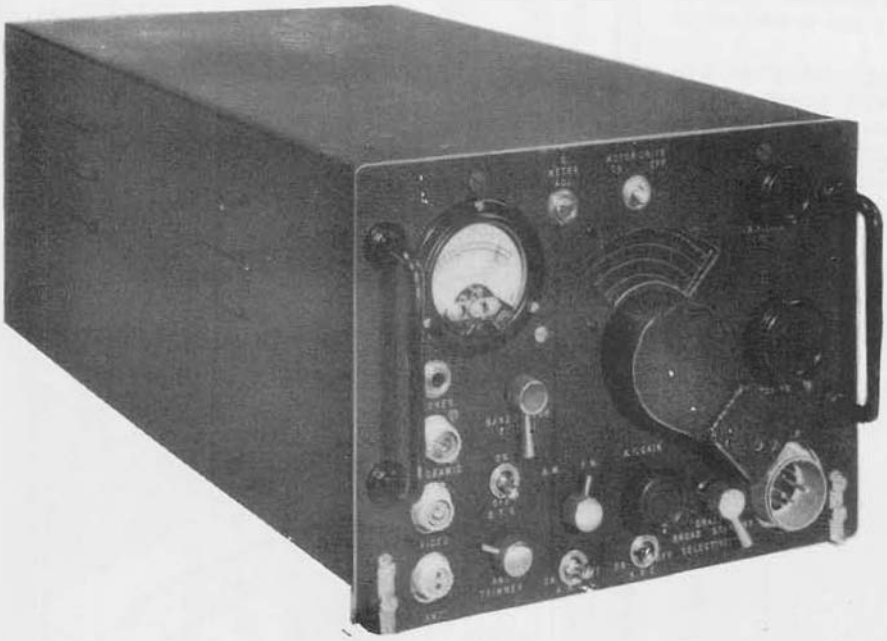


Installation of Radio Set AN/ARR-5, and Radio Set AN/ARR-7, in the radio compartment, B-17 airplane.

1 Dec. 1944

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.

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.

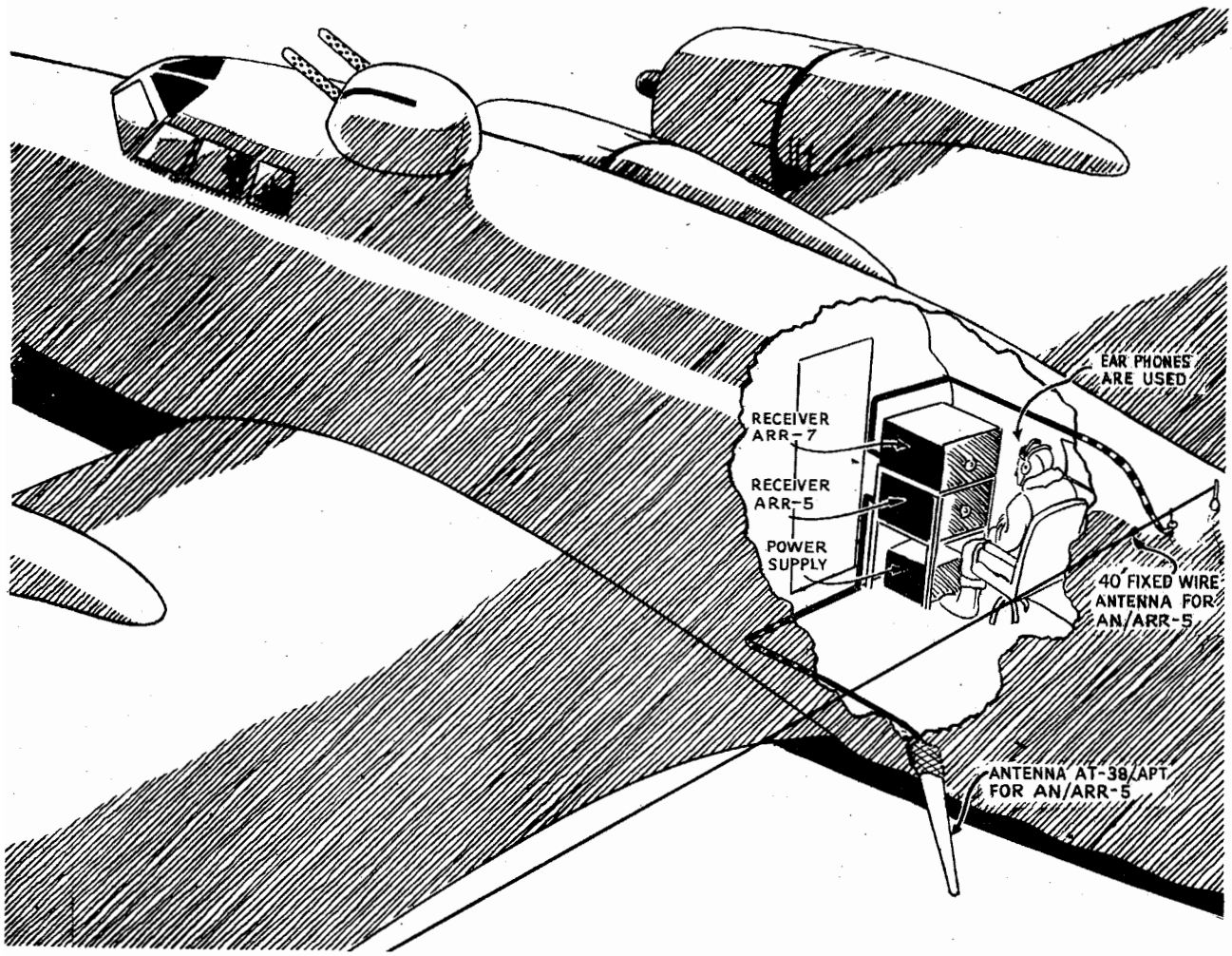
The sector sweep or scanning mechanism consists of a motor assembly, a magnetic clutch, a gear train and a sector selecting mechanism. When the motor is operating the magnetic clutch locks the gear to the tuning dial shaft. When the motor is switched off, the magnetic clutch is not energized and the 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.

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.

UNCLASSIFIED

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

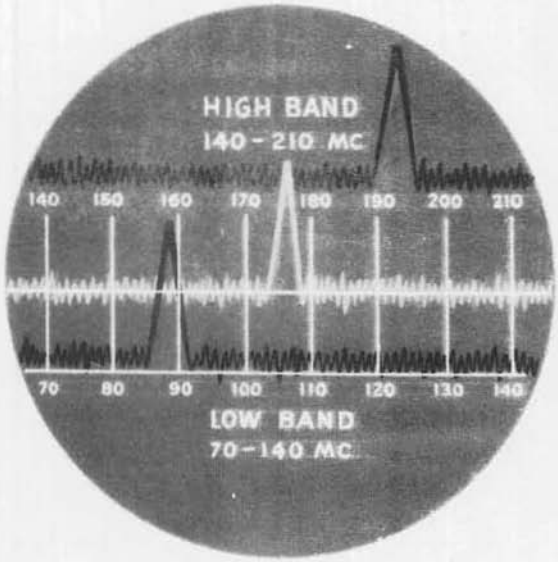
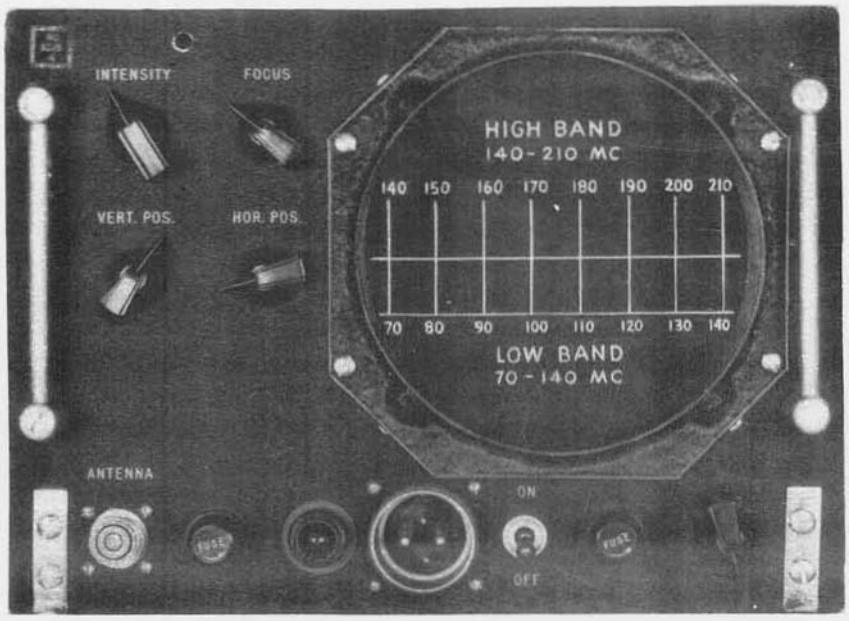


Diagram showing indication of Medium Band - and Relative position (black lines) when tuned to high or low frequencies.



RADIO SET AN/ARR-8 TOTAL WEIGHT 40 LBS.

UNCLASSIFIED

Components	Nomenclature	Size	Weight
Panoramic Receiver		7 5/8" x 4 7/8" x 21 3/4"	30 Lbs.
Mounting Base	MT-167/U	2 1/4" x 5 1/8" x 22"	3 1/4 Lbs.

and includes plugs, mountings, and cables.

1 Dec. 1944

UNCLASSIFIED

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.

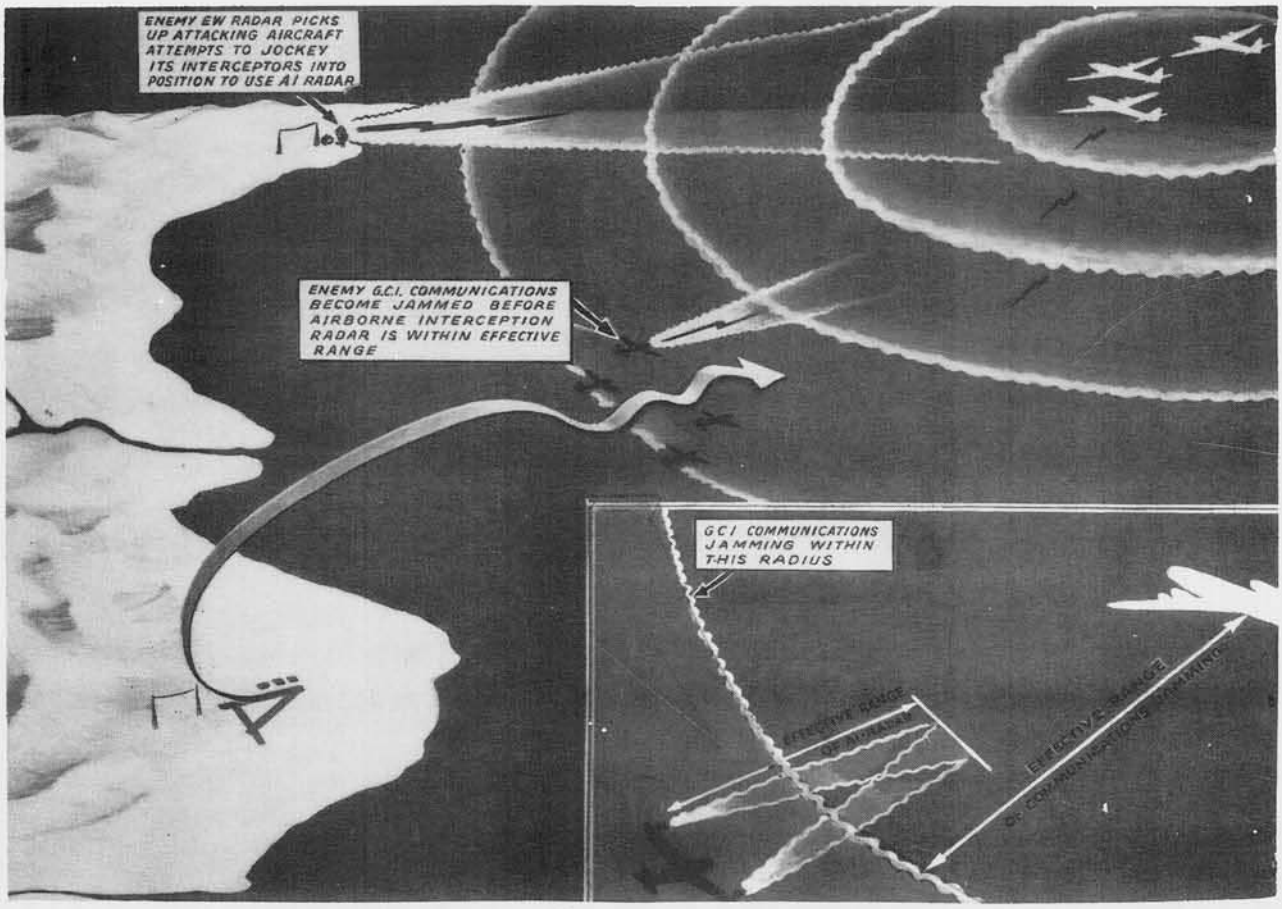
Power is obtained from a 80-100-115 volt, 400-2600 c.p.s. a.c. source and a 28 volt d.c. source. Power Input of 2.8 kw. a.c. and 130watts d.c. produces an output of 1000 watts. The two inverters provided with he equipment are rated at 1300 and 1500 v.a. respectively.

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.

UNCLASSIFIED

AN/ART-3

CONFIDENTIAL

UNCLASSIFIED

Transmitter Unit T-43(XA)/ART-3(XA-2)
on 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.

UNCLASSIFIED

1 Dec. 1944

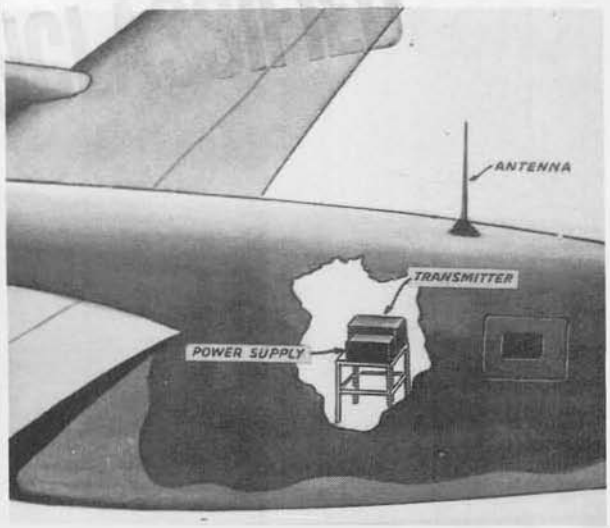
Radio Transmitting Set AN/ART-7 is an airborne barrage jammer that will operate unattended during flight and produce interference over the frequency range of 27 to 34 mc. employed by German tanks, battalion links and armored command in general. The transmitter consists of a push-pull oscillator using 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 calender year 1944 and 1360 for 1945.

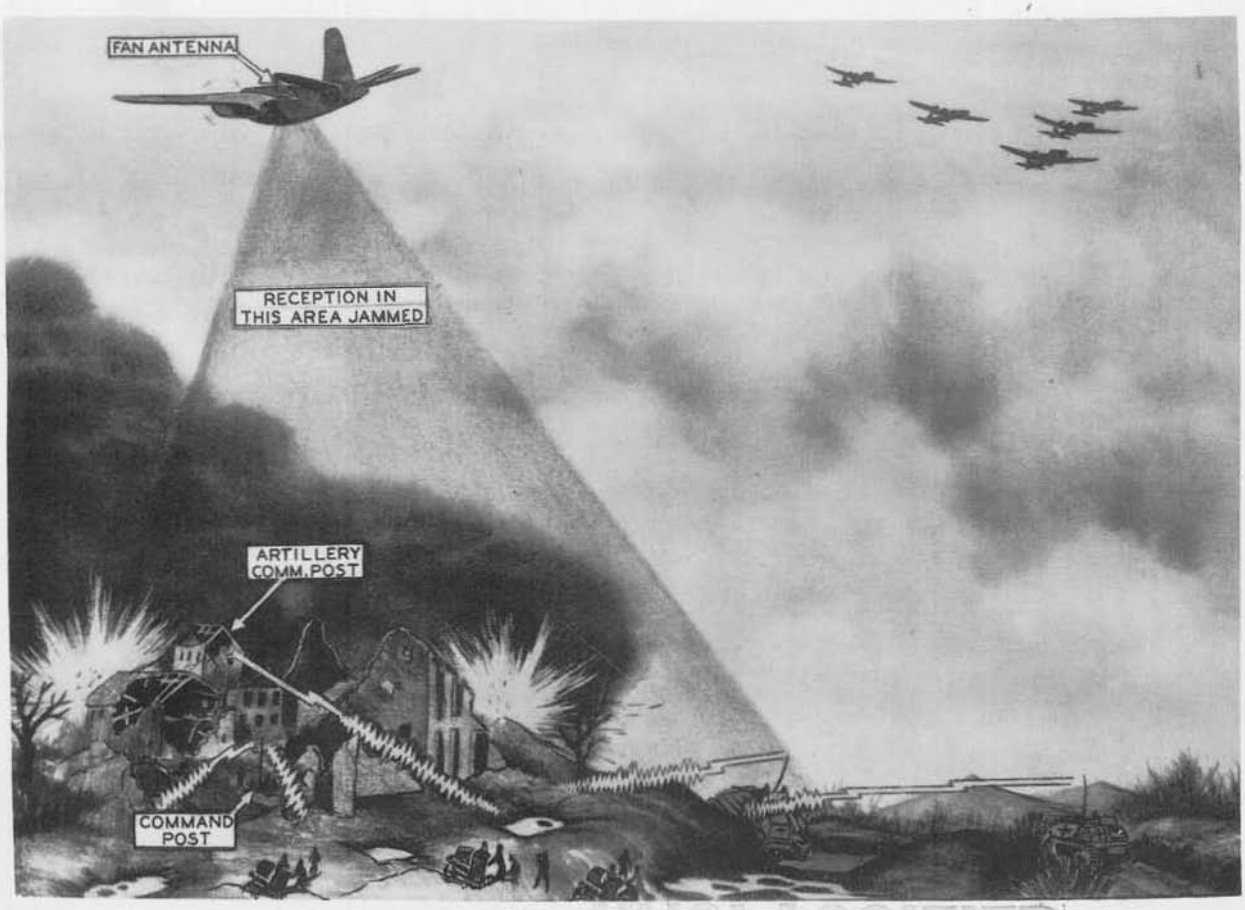
Test Equipment used in maintenance of Radio Transmitting Equipment AN/ART-7 includes Test Set I-139-A, Pickup Assembly TS-131/AP, Test Set I-56J, K or L and Hickok Voltmeter type 110.



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

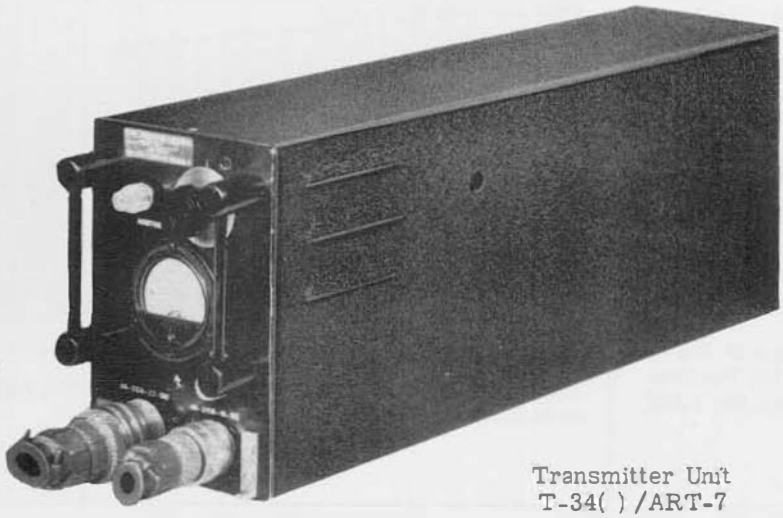


Radio Transmitting Set AN/ART-7 is an airborne jammer used to disrupt enemy ground radio communications operating with-in its frequency range.

AN/ART-7

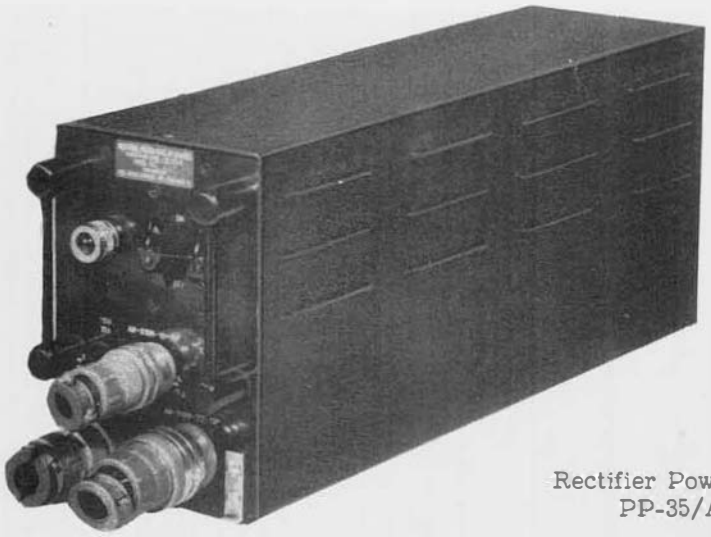
SECRET

UNCLASSIFIED



Transmitter Unit
T-34( )/ART-7

Antenna System
AS-89/ART



Rectifier Power Unit
PP-35/ART

Antenna Base
AB-29/ART

UNCLASSIFIED

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.

1 Dec. 1944

UNCLASSIFIED

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.

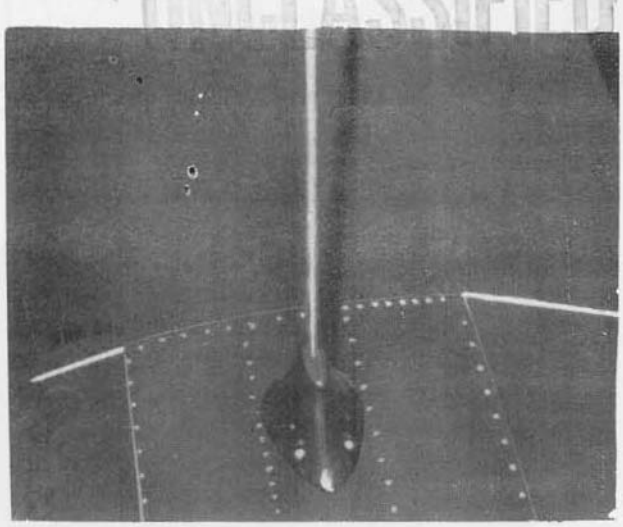
The transmitter, Radio Transmitter T-36/ART-9 consists of a push-pull oscillator using two each type 35 TG tubes and a motor-driven, rotating condenser which sweeps the frequency over the tuning range at a rate of 300 to 500 c.p.s.

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 FMequipment 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.

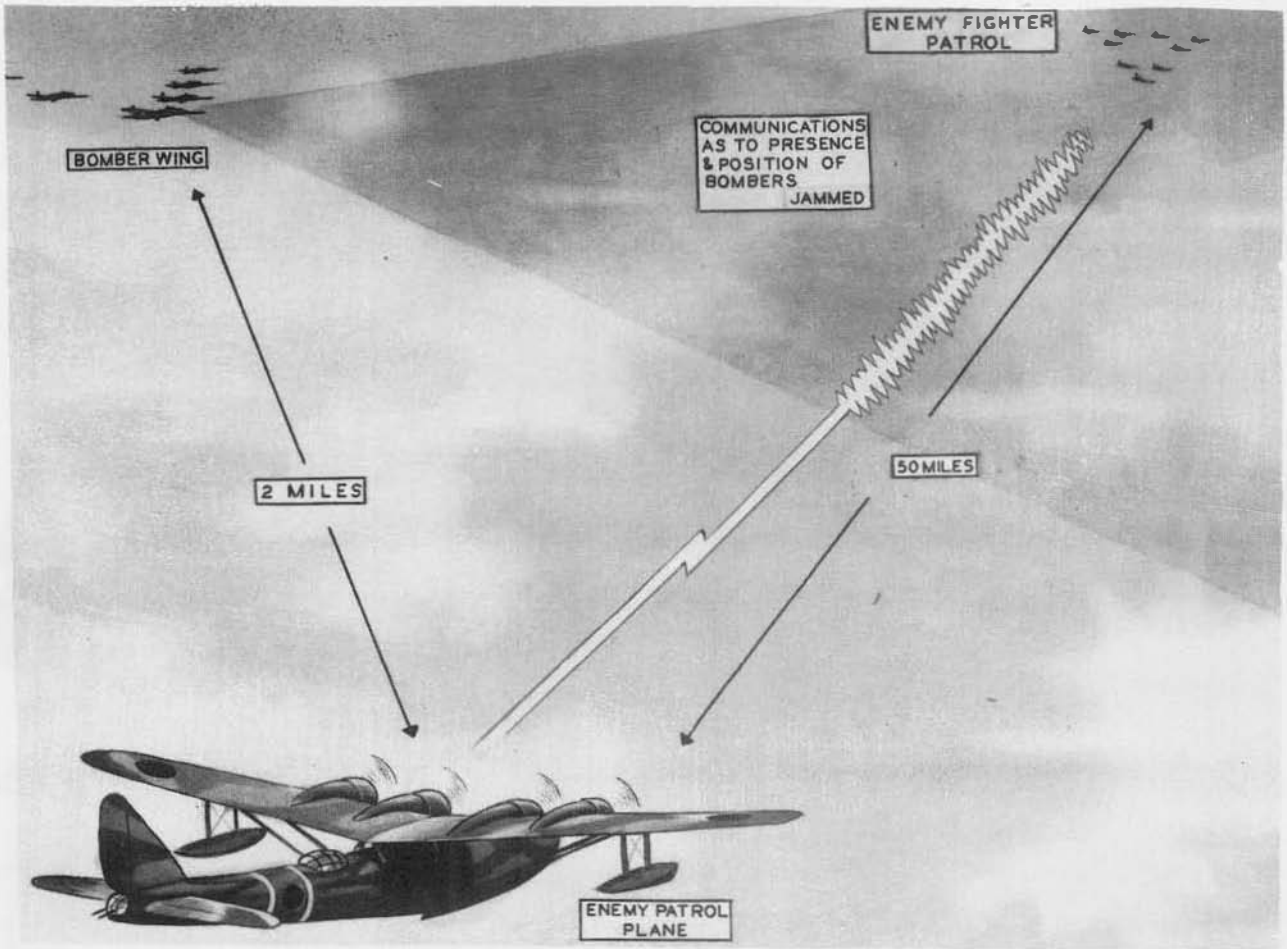
Army Supply Program requirements for Radio Transmitting Set AN/ART-9 as of 14 June 1944 were 8,802 for the calendar year 1944.



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 reconnaisance and interceptor planes.

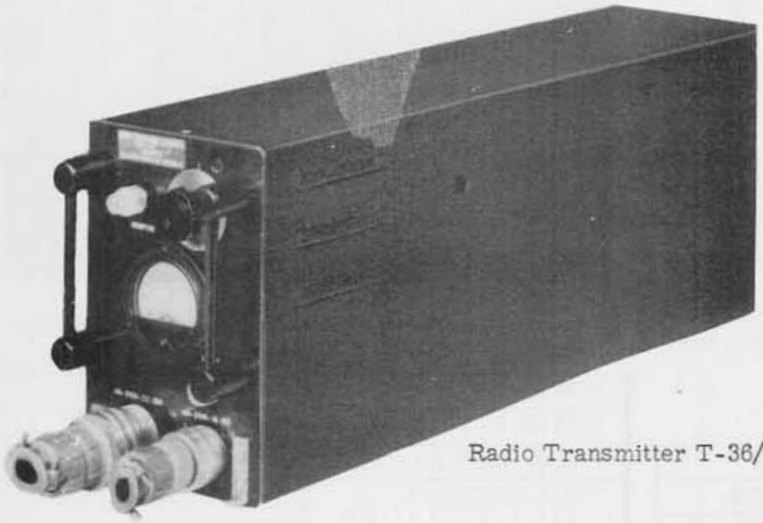
1 Dec. 1944

UNCLASSIFIED

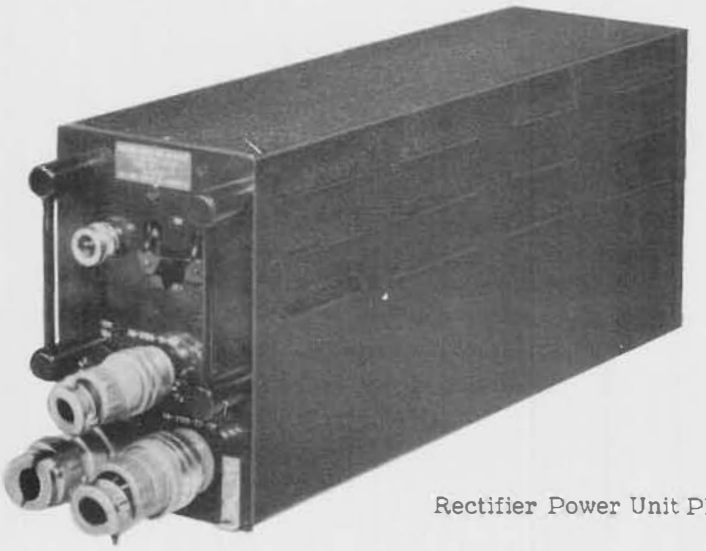
AN/ART-9

SECRET

UNCLASSIFIED



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

1 Dec. 1944

AN/ART-10

UNCLASSIFIED

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.

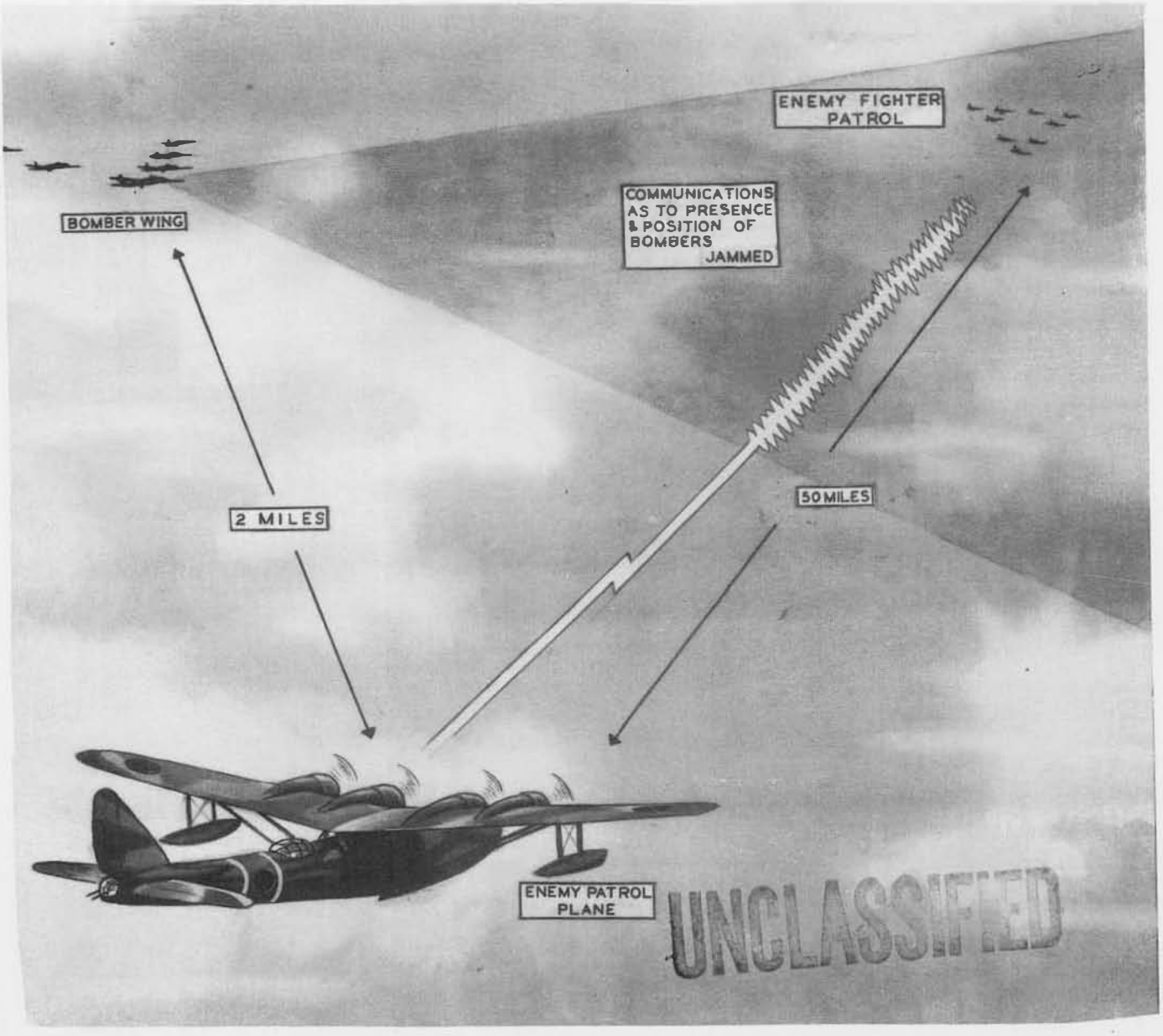
Power requirements, which include Rectifier Power UnitPP-35/ART, are 80-115 volts, 400-2600 c.p.s. a.c. and 28 volts d.c.

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



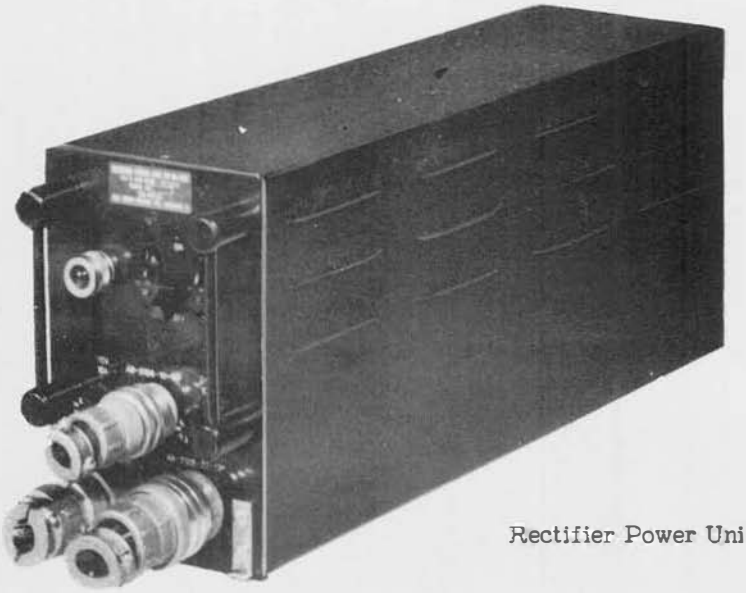
The above diagram shows the application of jamming as applied by attaching bombers to communications between enemy reconnisance and interceptor planes.

AN/ART-10

SECRET

Radio Transmitter T-37/ART-10

AS-89/ART



Rectifier Power Unit PP-35/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, adapter, cable adapters, and misc. cables.

1 Dec. 1944

UNCLASSIFIED

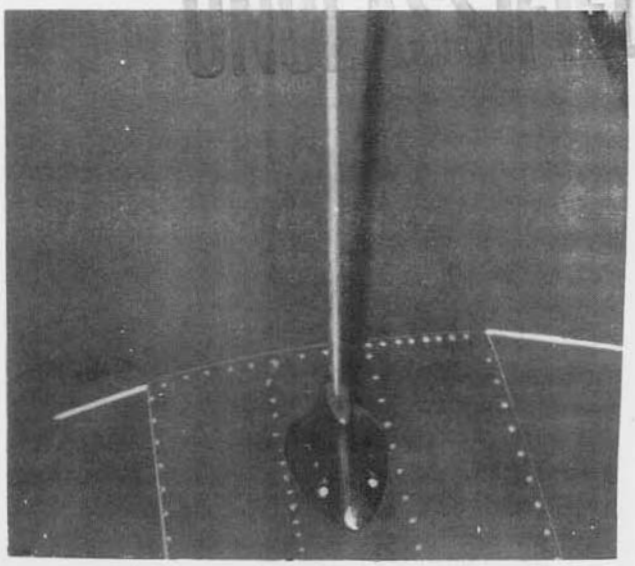
Radio Transmitting Set AN/ART-11 (Jackal) is an airborne barrage jammer that will operate unattended during flight and produce interference ove. the frequency range of 48 to 57mc. employed by German tanks, battalion links and armored command in general. The transmitter consists of a variable condenser 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.

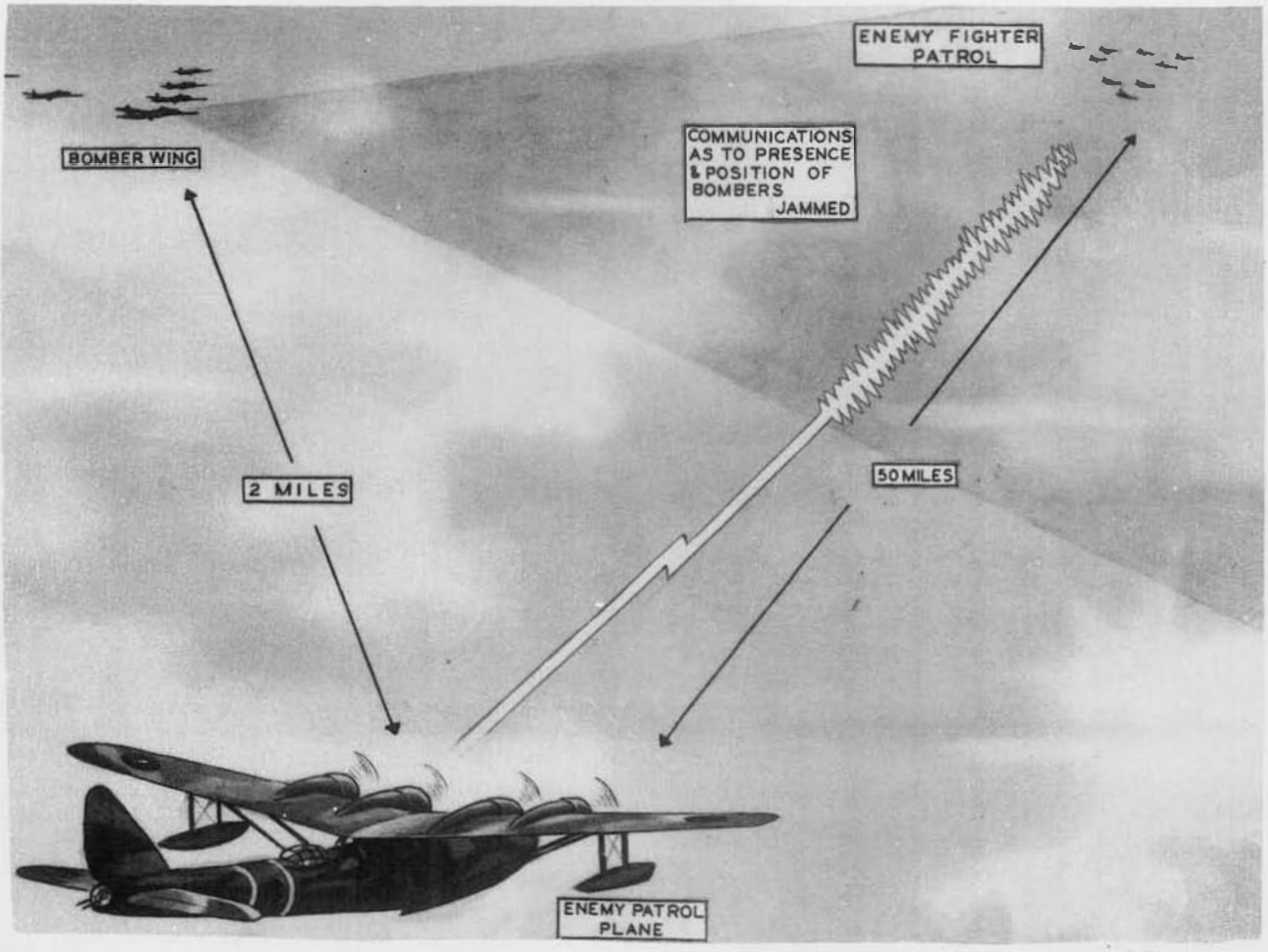
Test Equipment used in maintenance of Radio Transmitting Set AN/ART-11 includes Test Set I-139A Pickup Assembly TS-131/AP, Test Set I-56-J, K or L and Hickok Voltmeter type 110.



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.

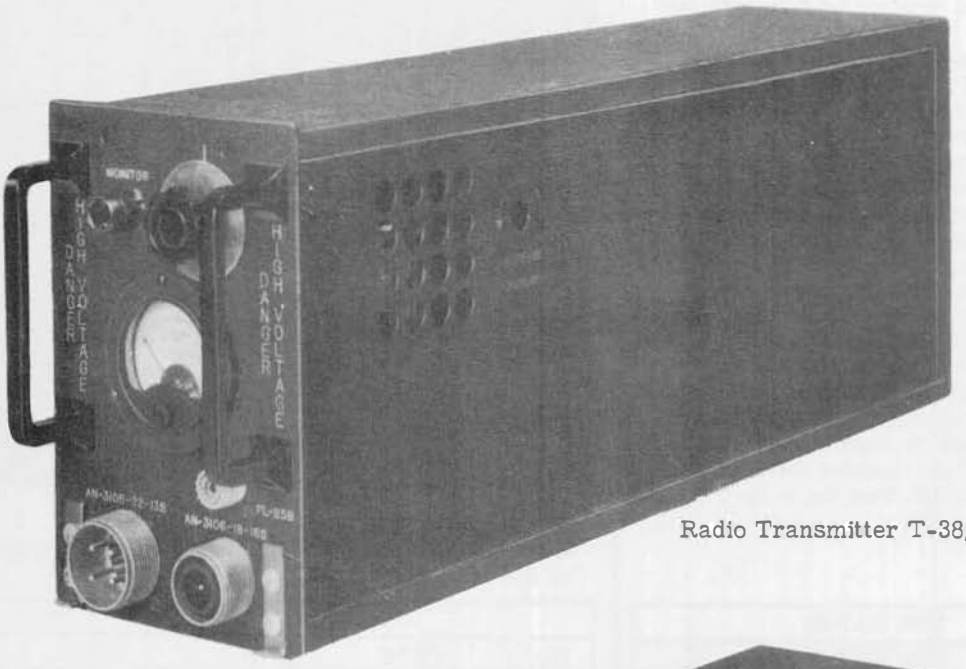
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	35TG	2	836



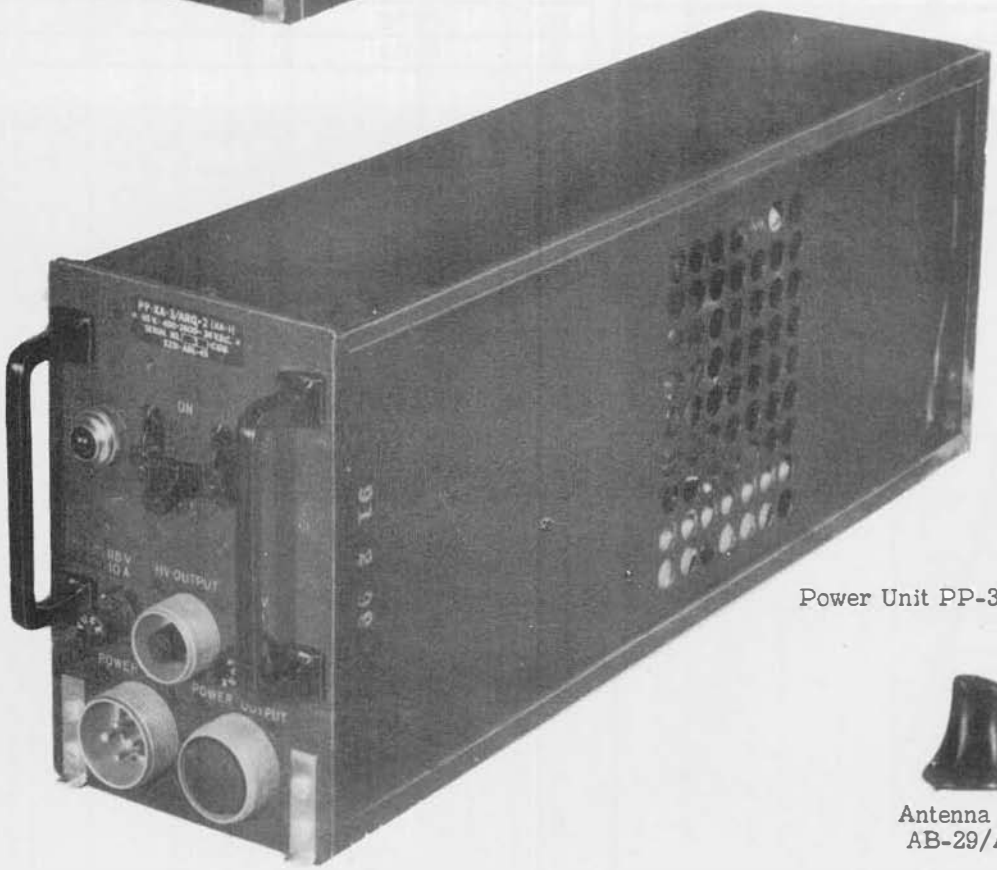
The above diagram shows the application of jamming as applied by attaching bombers to communications between enemy reconnisance and interceptor planes.

UNCLASSIFIED

UNCLASSIFIED



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.

UNCLASSIFIED

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	MT-167/U (2 Each)	2 1/4" x 5 1/4" x 22 "	5 1/2 Lbs.

and includes plugs, adapters and misc. cables.

1 Dec. 1944

AN/TPQ-T1

RESTRICTED

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, 60-400 c.p.s., a.c. power source is required for the operation of the set.

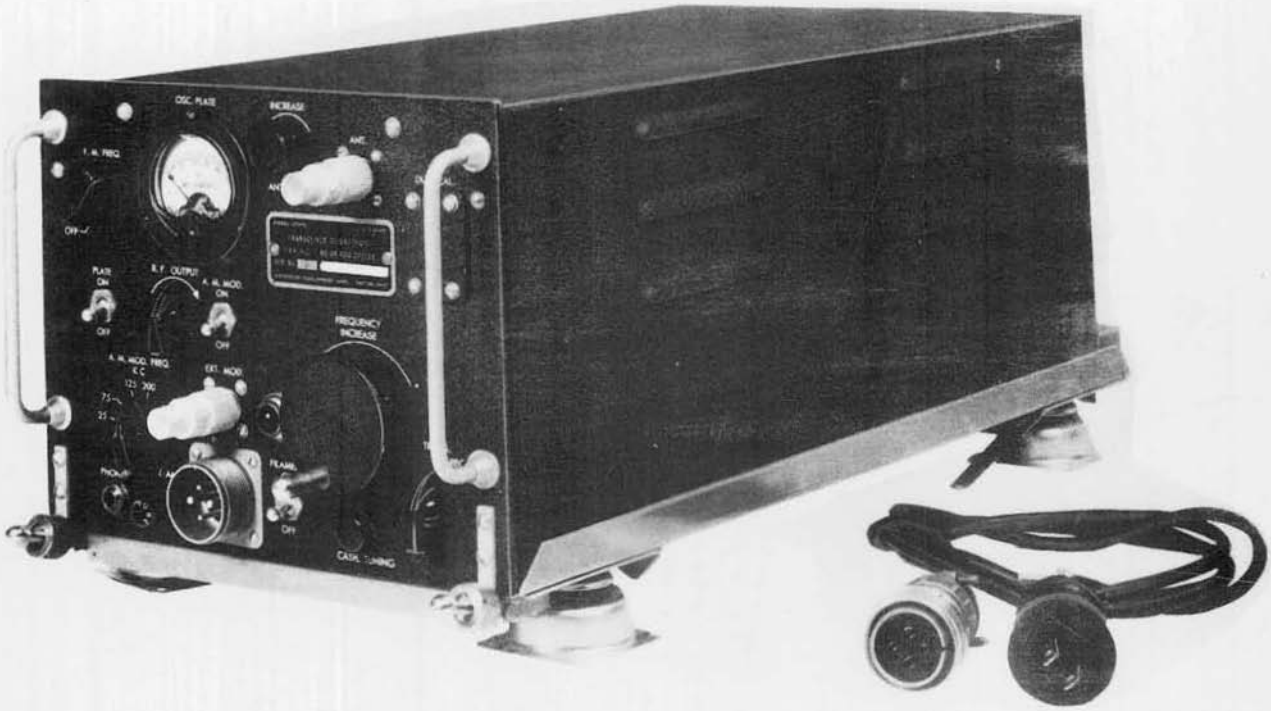
No special test equipment is required for maintenance.

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

UNCLASSIFIED

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	6J5GT
1	6F6GT	1	5U4G



Transceiver RT-54/TPQ-T1

TRAINING SET AN/TPQ-T1

TOTAL WEIGHT 45 LBS.

UNCLASSIFIED

Component	Nomenclature	Size	Weight
Transceiver	RT-54/TPQ-T1	7 3/4" x 10 1/4" x 21 3/4"	41 Lbs.
Mounting Base	MT-171/U	2 1/4" x 10 5/8" x 22"	3 Lbs.

1 Dec. 1944

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 shutes 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.

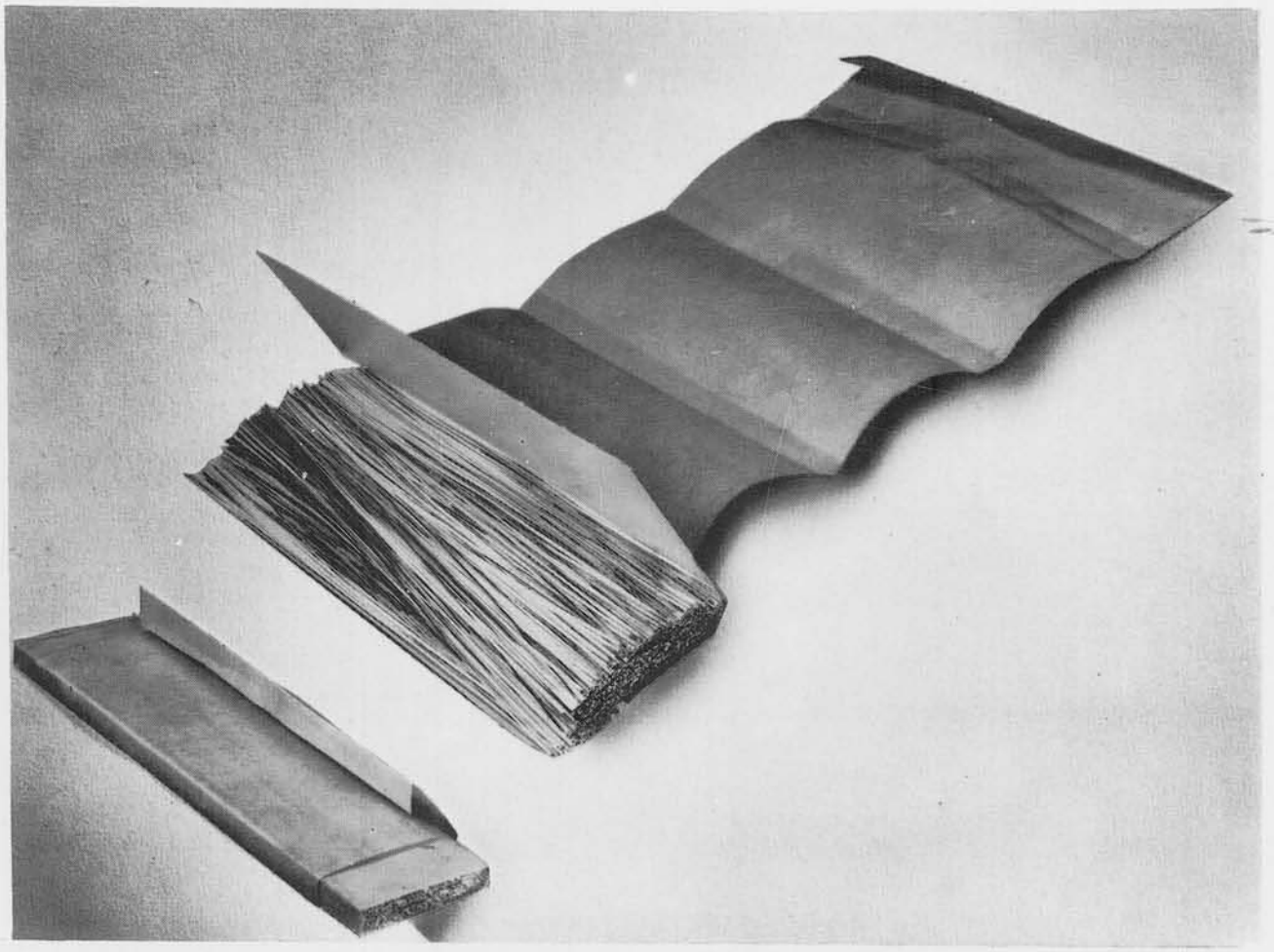
Its advantageous use overseas has been proven by comparison of the number of ships lost on missions run without Chaff against the number of ships lost on those missions during which Chaff or Window was used.

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	600- 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.



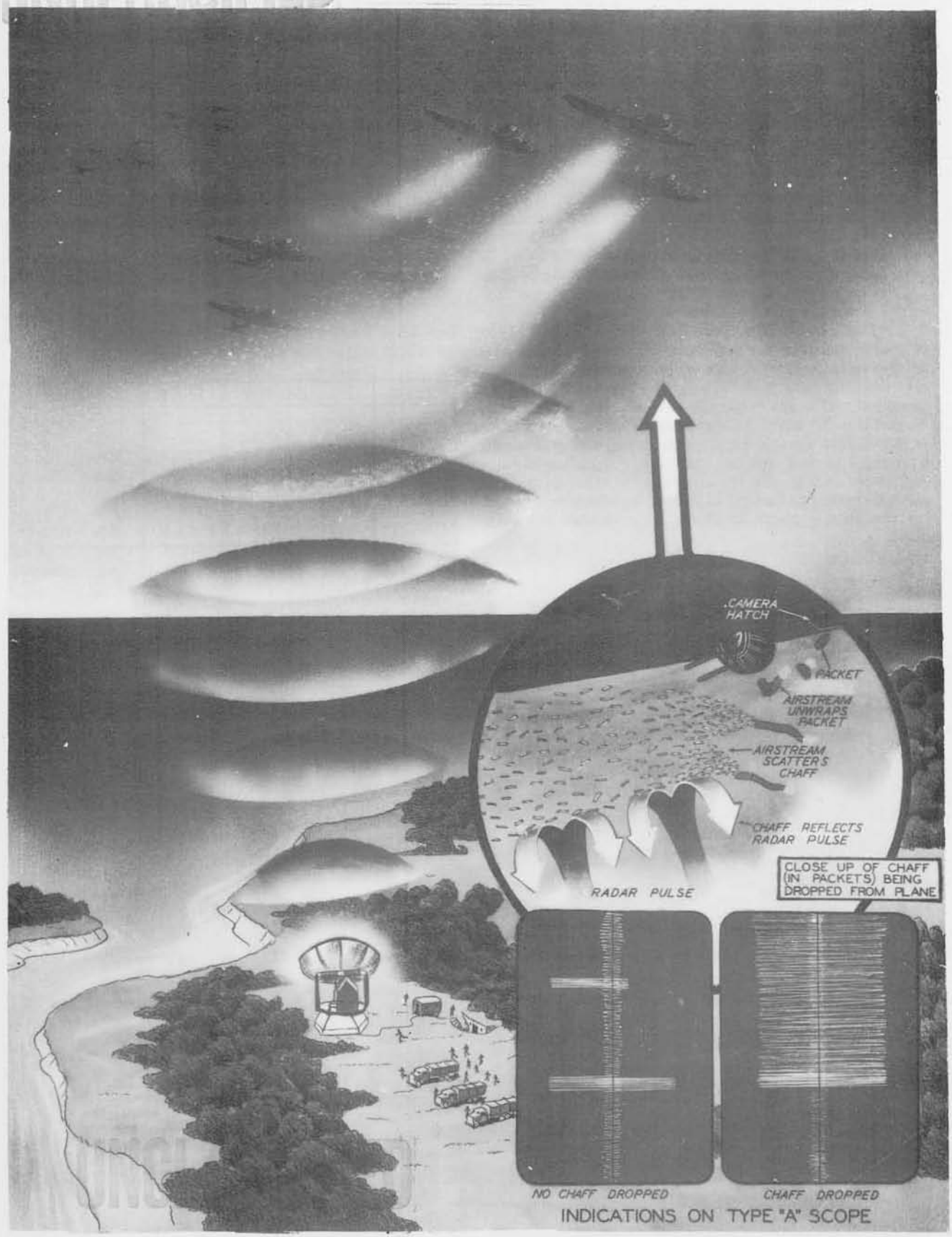
Strips of chaff are packaged in units to simulate one four motor airplane. Photograph shows one unit packaged and one open.

1 Dec. 1944

UNCLASSIFIED

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.

1 Dec. 1944

UNCLASSIFIED

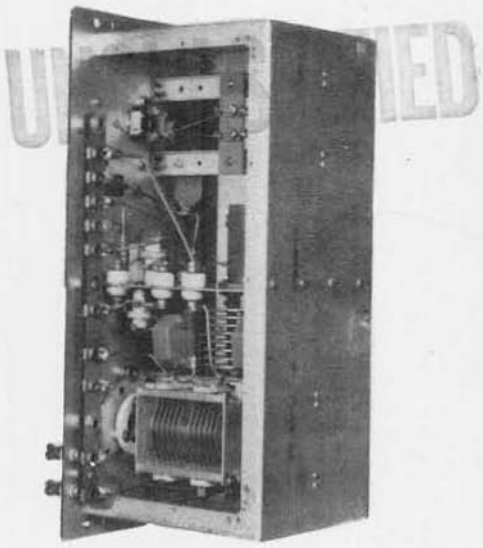
Tuning Unit TU-60 is a modification of a transmitter tuning unit, Tuning Unit TU-10-B, which converts Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications. In Radio Transmitter BC-375, it converts the oscillator and amplifier into a Hartley push-pull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

TOTAL WEIGHT 15 LBS

UNCLASSIFIED

Component	Nomenclature	Size	Weight
Tuning Unit	TU-60	7 3/4'' x 8 1/2'' x 17''	15 Lb.

1 Dec. 1944

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.

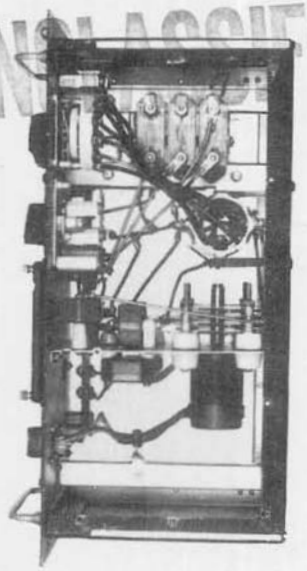
Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of difference in frequency, it is the same as Transmitter Tuning Unit TU-60-( ).

Power requirements are 1 ampere at 24 volts.

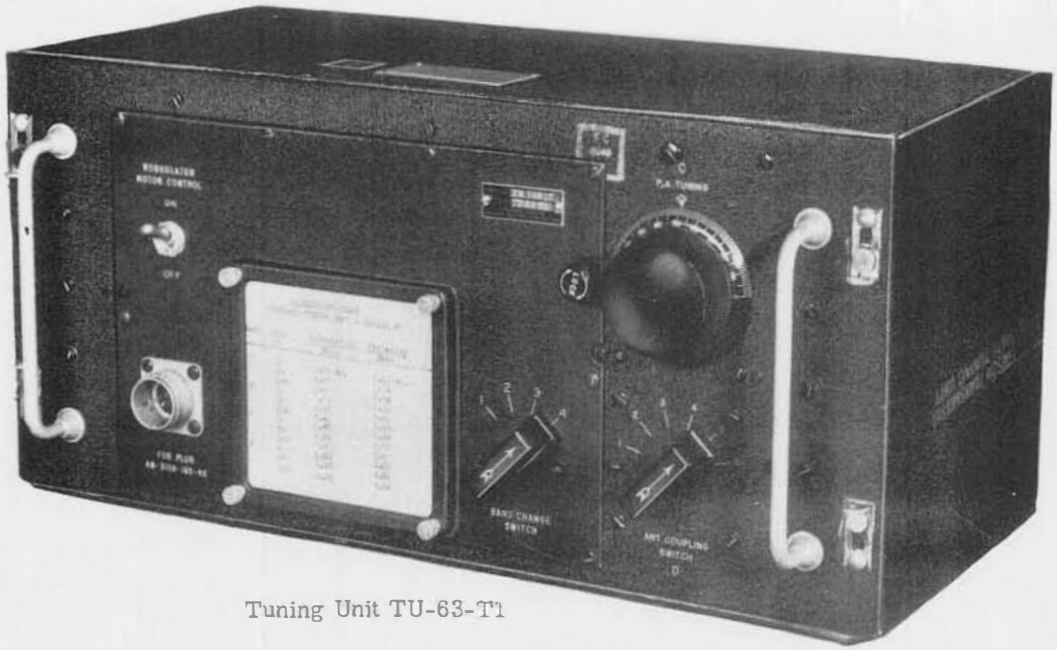
No tube complement is used, and no test equipment is required.

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

UNCLASSIFIED



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



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.

UNCLASSIFIED

1 Dec. 1944

UNCLASSIFIED

CONFIDENTIAL

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.

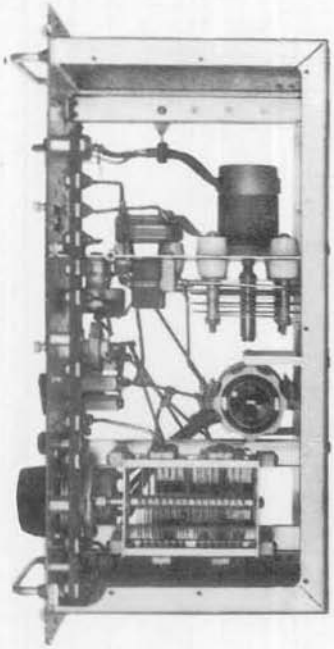
The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 3.85-6.31 mc.

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.

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



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

Tuning Unit TU-64-T1.

TRANSMITTER TUNING UNIT TU-64-T1 TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Tuning Unit	TU-64-T1	7 3/4" x 8 1/2" x 17"	15 Lbs.

UNCLASSIFIED

UNCLASSIFIED

SECRET

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.

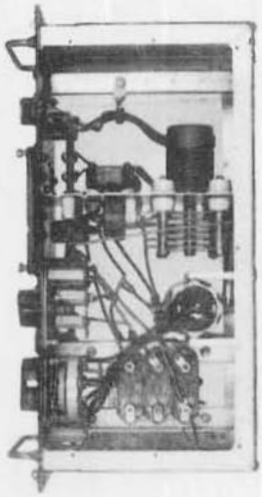
The center frequency of a 5 per cent barrage band can be adjusted to any point within the frequency range, permitting frequency operation of 6.31-10.2 mc.

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.

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



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

Tuning Unit TU-65-T1

TRANSMITTER TUNING UNIT TU-65-T1 TOTAL WEIGHT 15 LBS.

UNCLASSIFIED

Component	Nomenclature	Size	Weight
Tuning Unit	TU-65-T1	7 3/4" x 8 1/2" x 17"	15 Lbs.

1 Dec. 1944

UNCLASSIFIED SECRET

TU-66-T1

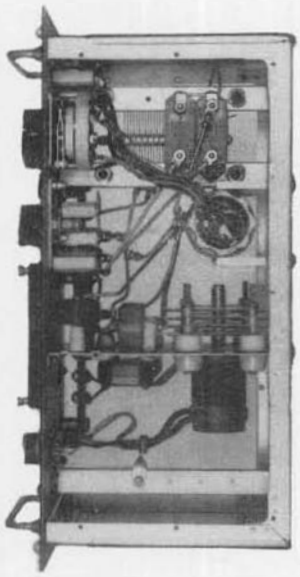
Transmitter Tuning Unit TU-66-T1 is a modification of Transmitter Tuning Unit TU-9, used to convert Radio Transmitter BC-375 or Radio Transmitter BC-191 into a barrage jammer for use against enemy communications and radio-controlled missiles.

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.

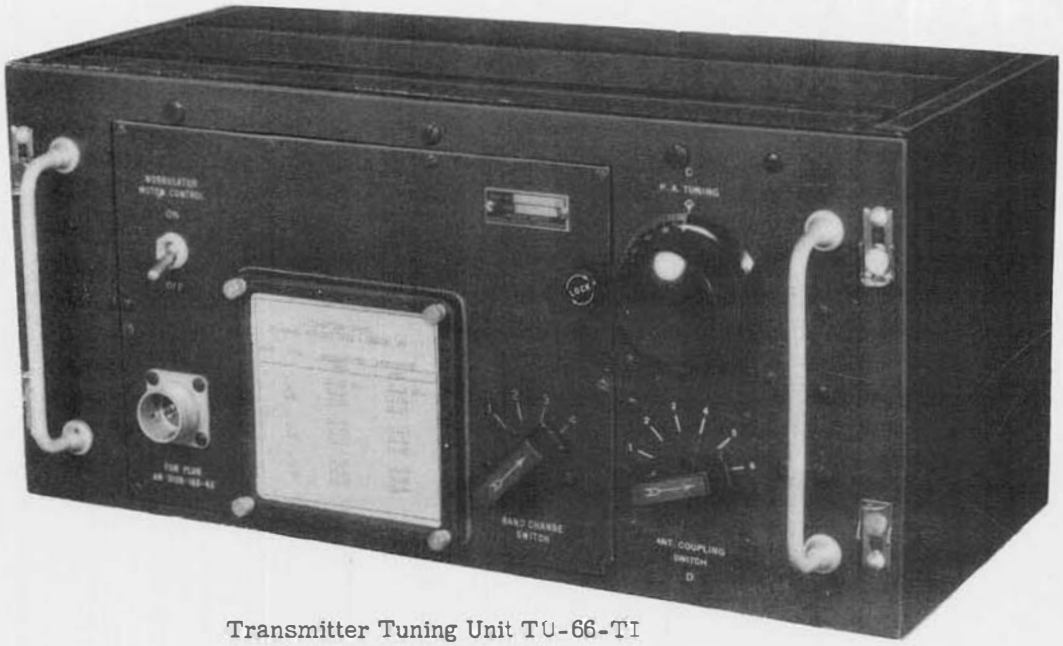
Use of this unit does not require any modification of Radio Transmitter BC-375. With the exception of the difference in frequency, it is the same as Transmitter Tuning Unit TU-60-( ). Power requirements are 1 ampere at 24 volts.

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

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



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



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 6 1/2" x 17"	15 Lbs.

1 Dec. 1944

UNCLASSIFIED

UNCLASSIFIED

TEST
Equipment

UNCLASSIFIED

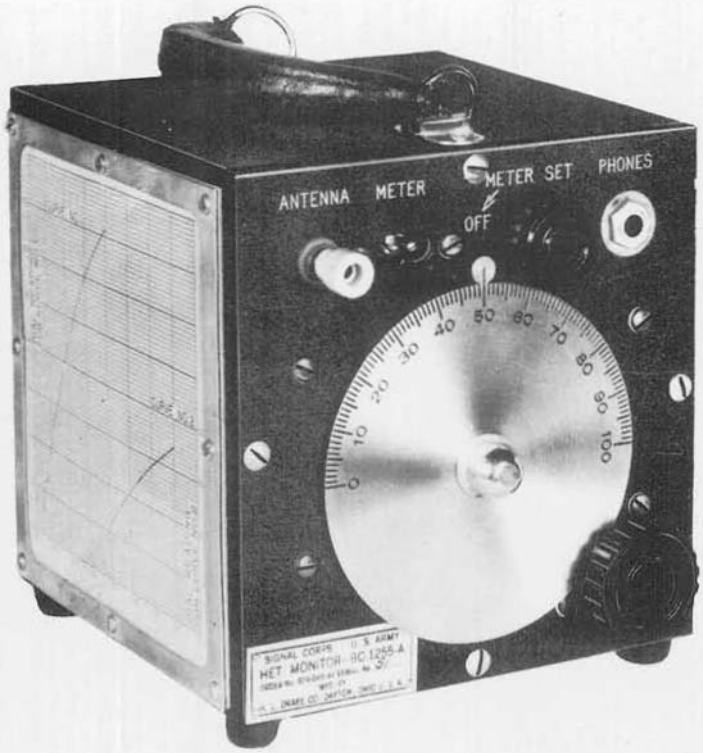
Monitor BC-1255 is a portable, battery operated, heterodyne frequency meter designed to check and adjust the frequencies of transmitters such as Transmitting Equipment AN/APT-3 and Radar Set AN/APT-1. The monitor is designed to cover the frequency range 75 to 150 mc. on fundamental frequencies and the 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.

1 Dec. 1944

UNCLASSIFIED [redacted]

TS-47/APR

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	± 1%

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

Test Oscillator TS-47/APR

TEST OSCILLATOR TS-47/APR

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Test Oscillator	TS-47/APR	6 1/2" x 10" x 9 1/2"	15 LBS.
Cord	CX-153/U	8 ft. long	

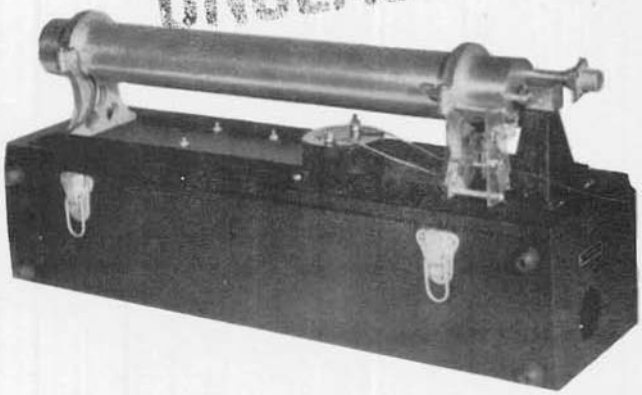
1 Dec. 1944

UNCLASSIFIED

Frequency Meter TS-69/AP is a Class A test equipment for use with radio transmitters 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.

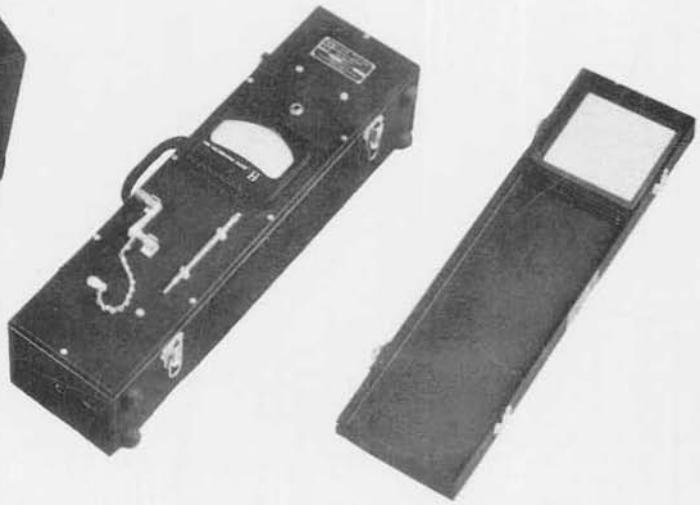


Frequency Meter TS-69/AP(Cavity removed from case)

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

Probe Antenna AS-122/AP

Case CY-149/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

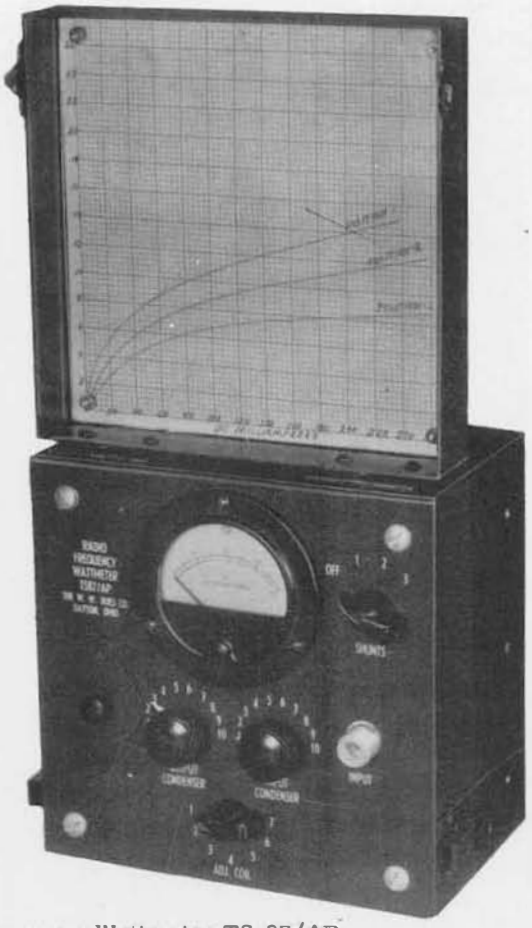
UNCLASSIFIED

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 milliameter 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	± 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

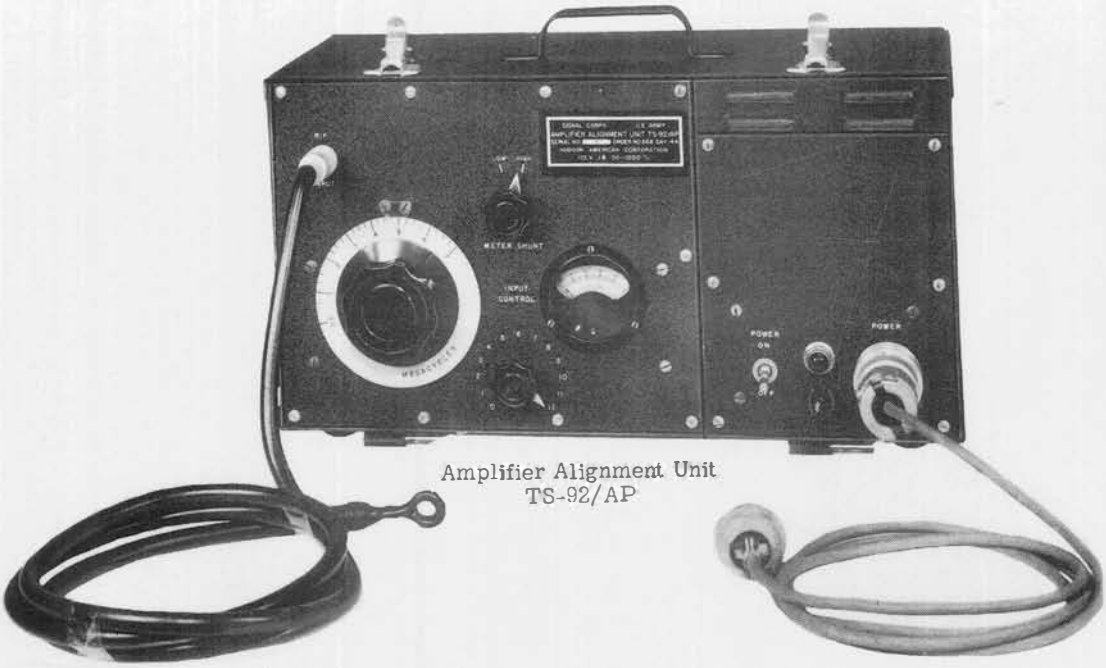
Amplifier Alignment Unit TS-92/AP is a class A special test equipment used in aligning the amplifier stages of radar jamming transmitters. It can be used with Transmitting Equipment AN/APT-1, Radio Set AN/ARQ-8. Using the TS-92/AP the amplifier of the transmitter may be adjusted to give optimum performance 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 ±5%

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



Amplifier Alignment Unit TS-92/AP

Loop Probe AS-142/AP

Cord CX-153/U

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	6" Long.	
Cord	CG-69/AP	6' Long	
Cord	CG-153/AP	6' Long	

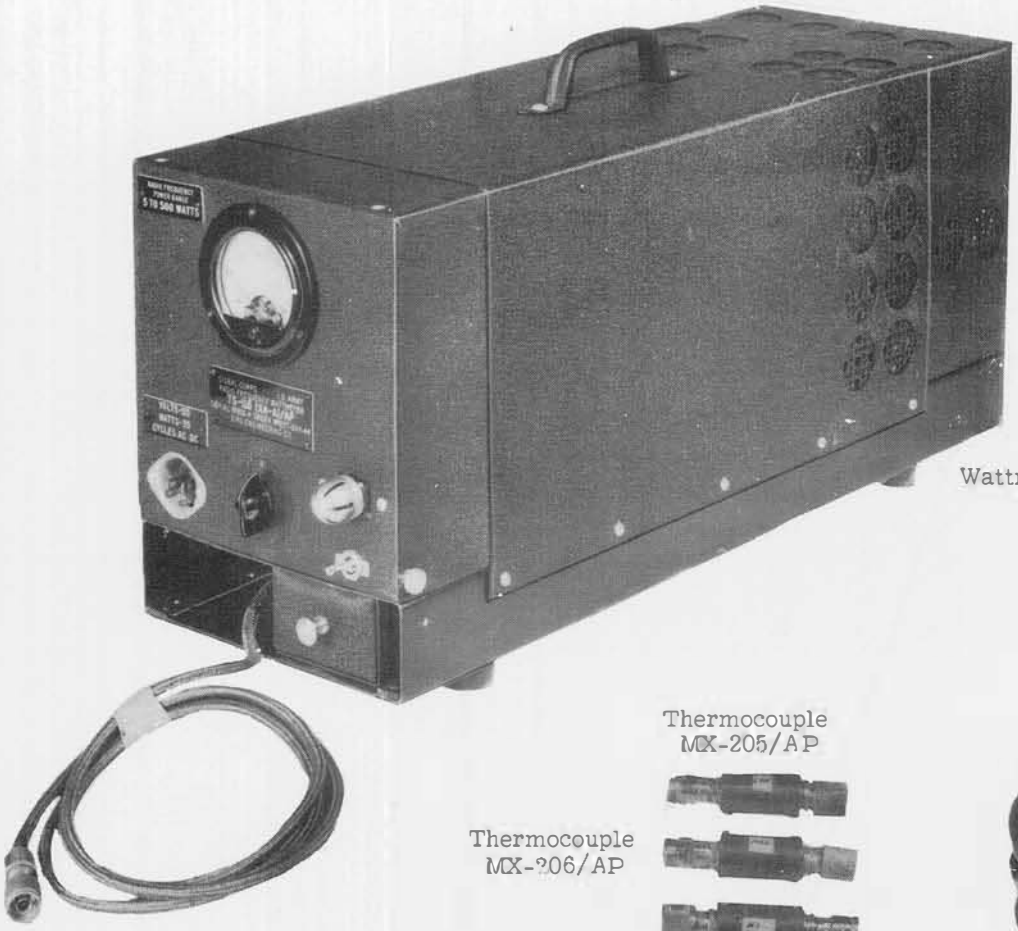
Feb. 1945 Y-100829

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.

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

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%



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-60/U	9" Long	1/4 Lbs.

1 Dec. 1944

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

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 ± .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	± .05 %

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

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

TS-175/U

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 ± .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, onthe desired frequency. It may also be used in aligning receivers within its frequency range.

Frequency Meter TS-175/Ucan replace Frequency Meters TS-69/AP and TS-99/AP, Test Set TS-53/AP and General Radio Heterodyne Frequency Meter type 720A.

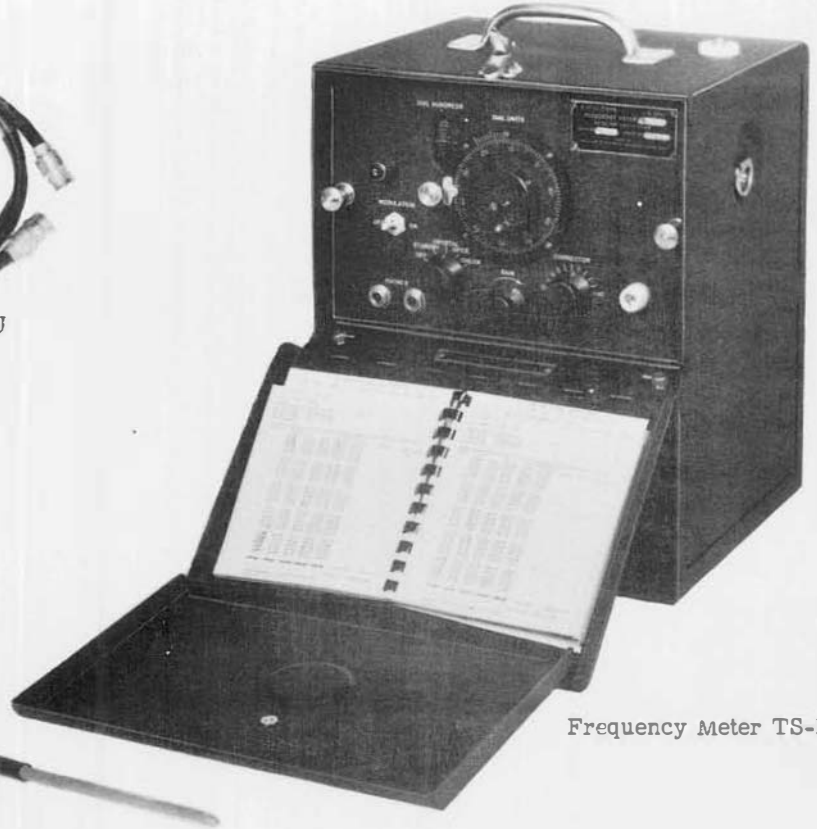
The case, chassis, dial mechanism and battery complement are the same as for Frequency Meter BC-221. the major component of SCR-211.

Army Supply Program requirements as of 31 July 1944 were 1,500 equipmentsfor 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	± .05 %

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1 1	7002 6C8G	1	6K8

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

Radio Frequency Wattmeter TS-206/AR consists of a heavy duty 50 ohm resistor whichdissipates 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

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	GL446	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		

UNCLASSIFIED

Feb. 1945 Y-109829