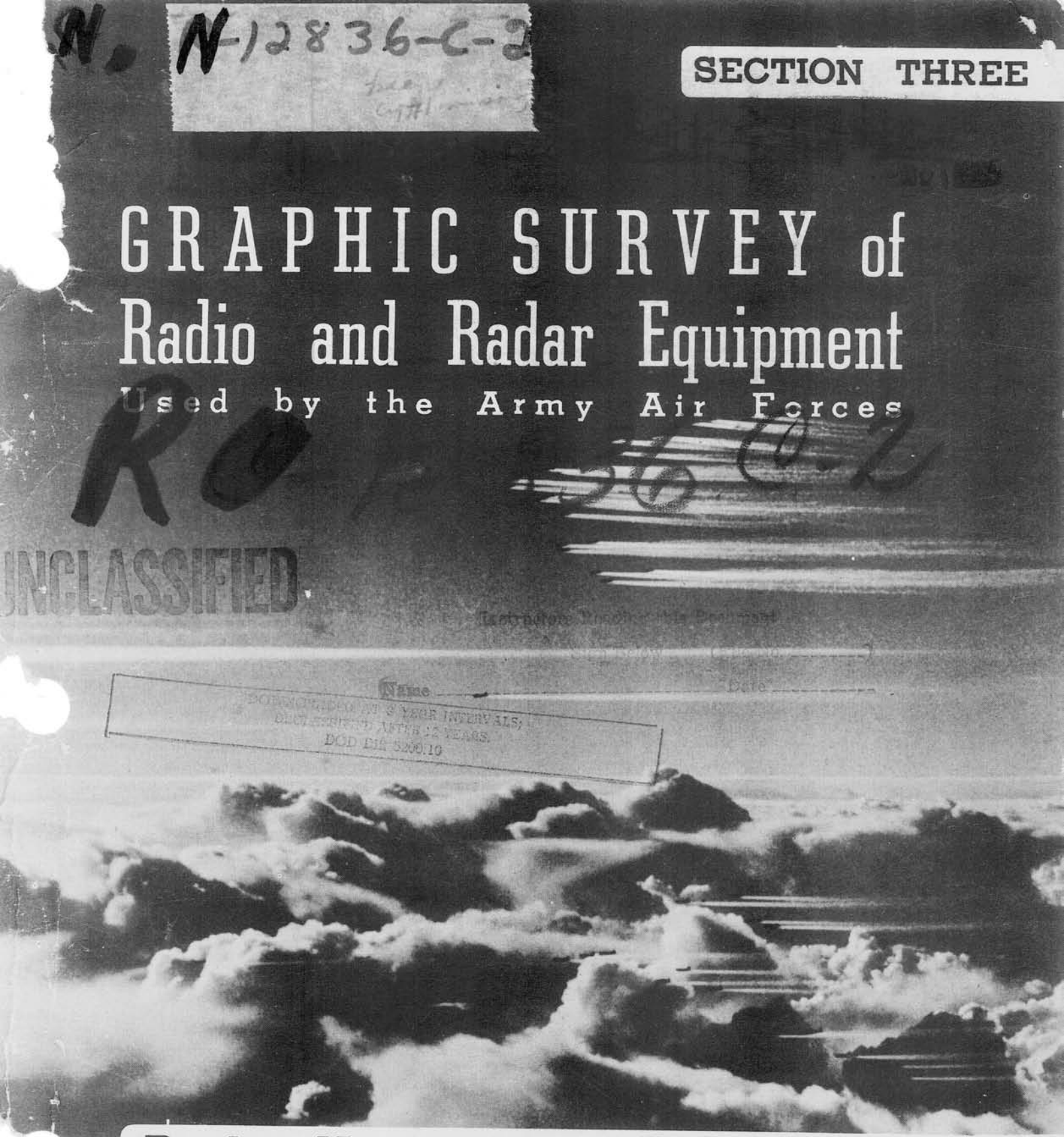
SECTION THREE

GRAPHIC SURVEY of Radio and Radar Equipment

Used by the Army Air Forces



Radio Navigation Equipment

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

GRAPHIC SURVEY of Radio and Radar Equipment

Used by the Army Air Forces

[redacted]

BY AUTHORITY OF DIRECTOR, ATSC — 1 May 1945

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[redacted]

Hobart R. Yeager
Colonel, Air Corps

[redacted]

SECTION 3 - "RADIO NAVIGATION EQUIPMENT"

[boilerplate] GRAPHIC SURVEY

Nomenclature	Description	Present Security Classification
AN/ARA-8	VHF Homing Adapter	Unclassified
AN/ARA-9	Filter Equipment	Restricted
AN/ARN-5	Glide Path Receiver	Unclassified
AN/ARN-6	Radio Compass	Unclassified
AN/ARN-7	Radio Compass	Unclassified
AN/ARN-11	Radio Compass	Unclassified
AN/ARN-12	Marker Beacon Receiver	Unclassified
AN/ARR-1	Compass Adapter	Restricted
AN/ARR-2	Radio Receiving Equipment	Restricted
AN/ARR-6	Automatic Alarm Receiver	Restricted
AN/CRM-3	Radio Monitoring Set	Unclassified
AN/CRN-1	Buoy Transmitter	Unclassified
AN/CRN-2	Glide Path Transmitter	Unclassified
AN/CRN-4	Paratroop Beacon	Unclassified
AN/CRN-10	Air-Transportable Localizer	Unclassified
AN/CRT-3	Sea Rescue Transmitter	Unclassified
AN/MRN-1	Localizer Transmitter	Unclassified
AN/MRN-2	Radio Range Transmitter	Unclassified
AN/MRN-3	Marker Beacon Transmitter	Unclassified
BC-1206	Radio Receiver	Unclassified
RC-43A	Marker Beacon Receiver	Unclassified
RC-103A	Localizer Receiver	Unclassified
RC-115A	Marker Beacon Transmitter	Unclassified
RC-193A	Marker Beacon	Unclassified
RC-198	Filter Equipment	Unclassified
RC-210	Filter Equipment	Unclassified
SCR-269G	Radio Compass	Unclassified
SCR-277	Radio Range Transmitter	Unclassified
SCR-~~278~~ 578	Sea Rescue Transmitter	Unclassified
SCR-610	FM Receiver-Transmitter	Unclassified
SCR-629	Radio Range Transmitter	Restricted
	Test Equipment	
I-76	Test Set	Unclassified
I-100	Test Set	Unclassified
I-173	Test Set	Unclassified
TS-1/ARR-1	Test Set	Restricted
TS-41/CRN-1	Test Set	Restricted
TS-67/ARN-5	Test Set	Restricted
TS-170/ARN-5	Test Oscillator	Unclassified

[redacted]

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Foreword

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

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

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

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

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

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

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

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

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Section 3 Radio Navigation Equipment

NOMENCLATURE	DESCRIPTION	TYPE	STATUS*
AN/ARA-8	VHF Homing Adapter	Limited Procurement	P
AN/ARA-9	Filter Equipment		D
AN/ARN-5	Glide Path Receiver	Standard	P
AN/ARN-6	Radio Compass	Service Test	D
AN/ARN-7	Radio Compass	Standard	P
AN/ARN-11	Radio Compass	Standard	P
AN/ARN-12	Marker Beacon Receiver		D
AN/ARR-1	Compass Adapter	Standard	P
AN/ARR-2	Radio Receiving Equipment	Standard	P
AN/ARR-6	Automatic Alarm Receiver		D
AN/CRM-3	Radio Monitoring Set		D
AN/CRN-1	Buoy Transmitter	Standard	P
AN/CRN-2	Glide Path Transmitter	Standard	P
AN/CRN-4	Paratroop Beacon	Standard	P
AN/CRN-10	Air-transportable Localizer	Standard	P
AN/CRT-3	Sea Rescue Transmitter	Standard	P
AN/MRN-1	Localizer Transmitter	Standard	P
AN/MRN-2	Radio Range Transmitter		P
AN/MRN-3	Marker Beacon Transmitter	Standard	P
BC-1206	Radio Receiver		P
RC-43A	Marker Beacon Receiver	Standard	P
RC-103A	Localizer Receiver	Standard	P
RC-115A	Marker Beacon Transmitter		D
RC-193A	Marker Beacon		P
RC-198	Filter Equipment	Limited Standard	P
RC-210	Filter Equipment	Standard	P
SCR-269G	Radio Compass	Standard	P
SCR-277	Radio Range Transmitter	Standard	P
SCR-578	Sea Rescue Transmitter	Sub-Standard	P
SCR-610	FM Receiver-Transmitter		P
SCR-629	Radio Range Transmitter		D

Radio Navigation Test Equipment			
I-76	Test Set	Standard	P
I-100	Test Set	Standard	P
I-173	Test Set	Standard	P
TS-1/ARR-1	Test Set		P
TS-41/CRN-1	Test Set	Standard	P
TS-67/ARN-5	Test Set	Limited Standard	D
TS-170/ARN-5	Test Oscillator	Standard	D

*Status Defined:

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

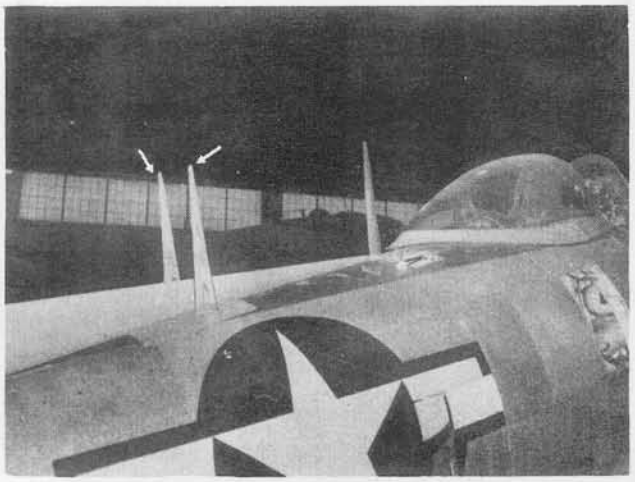
P - (PRODUCTION): Initial pilot run has been completed, and quantity production is underway or has been completed.

Homing Adapter AN/ARA-8 is an adapter unit for use with VHF receivers, such as those used in Radio Sets SCR-522 or AN/ARC-3, to provide the pilot with means of homing on any transmitted carrier wave within the frequency range of 120 to 140 mc. This adapter gives a dot-dot-dash or dash-dot-dot signal when the aircraft is off the course to the left or right. While on course, a continuous tone is heard. When off course, the pilot turns right if a dot-dot-dash signal is heard and left if he hears the dash-dot-dot signal.

Principal application of AN/ARA-8 is in fighter aircraft equipped with VHF command sets. This equipment can be used for air-to-air homing for purposes of rendezvous and the gathering in of scattered combat planes. Homing can be accomplished on either CW, MCW or audio pulse signals.

Chief limiting factor in the operation of AN/ARA-8 is that the distance range is limited to line of sight. Reliable frequency range of this adapter is not the full range of VHF communication equipment but is limited to a range of approximately 20 mc. between 120 and 140 mc. While this 20 mc. range can be shifted up or down slightly in the frequency band of the communication equipment, the cable lengths furnished with the adapter required frequencies between 120 and 140 mc. for proper operation.

Army Supply Program requirements as of 31 January 1945 were 3,500 for the calendar year of 1945.



AN/ARA-8 Antenna Installation, AFT Fuselage of P-51 Airplane

POWER INPUT	36 WATTS
FREQUENCY	120-140 MC.
TYPE OF SIGNAL	CW OR MCW OR AUDIO PULSE

Homing Adapter AN/ARA-8 is used with VHF receivers to provide aircraft with means of homing on any transmitted carrier wave within the frequency range of 120 to 140 mc.

AN/ARA-8

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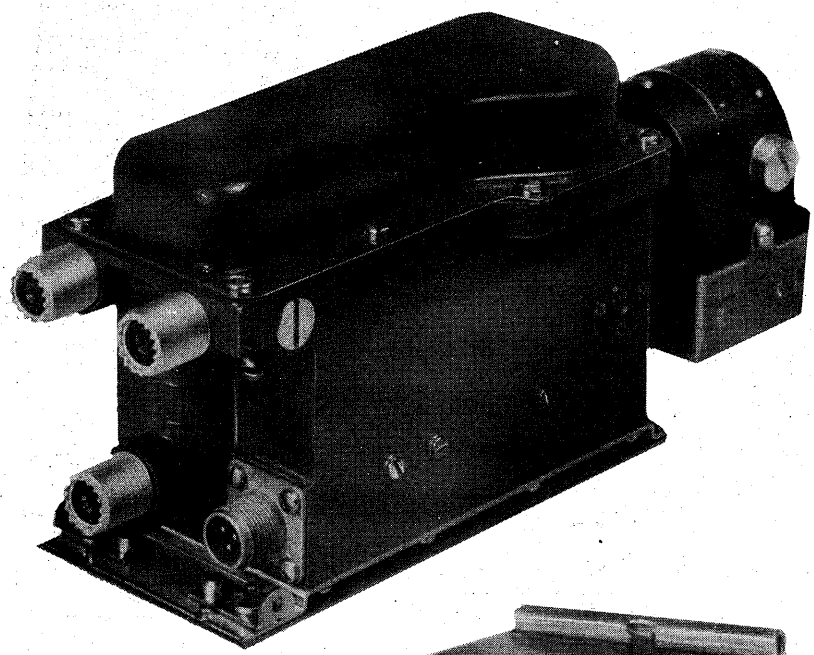
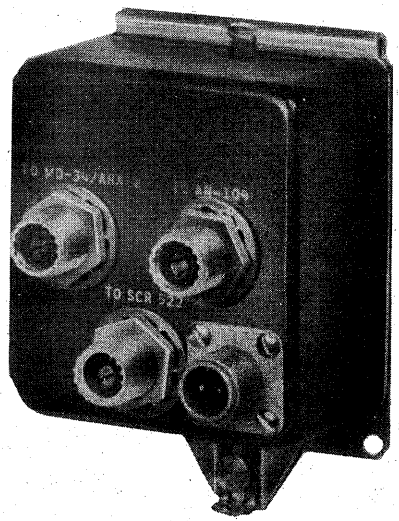
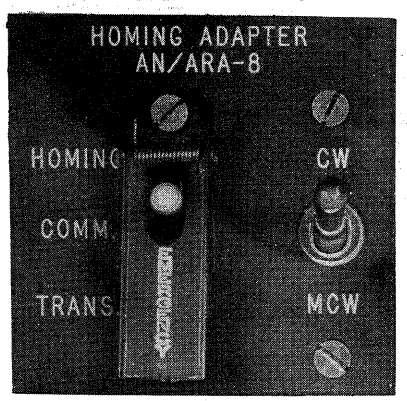


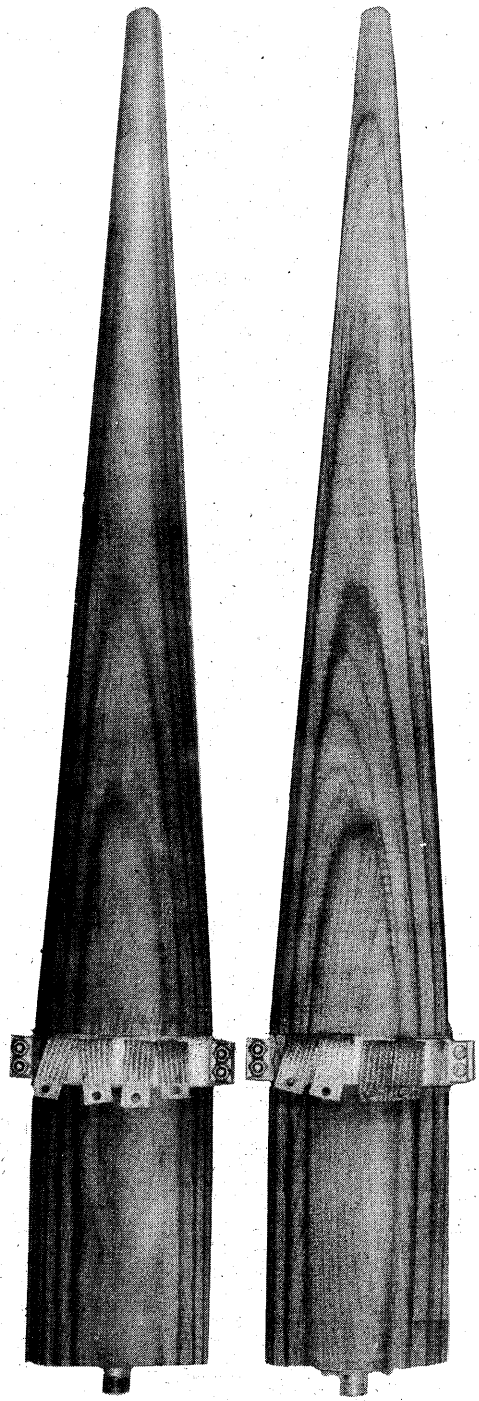
Modulator Keying Unit
MD-34/ARA-8



Antenna Relay
RE-12/ARA-8



Escutcheon
MX-359/ARA-8



Antenna Assembly AS-148/ARA-8

HOMING ADAPTER AN/ARA-8

TOTAL WEIGHT 12 LBS.

Component	Nomenclature	Size	Weight
Modulator Keying Unit	MD-34/ARA-8	9'' x 3 ' x 5''	5 Lbs.
Mounting Bracket	MT-282/ARA-8	9'' x 4''	*
Antenna Assembly	AS-148/ARA-8	27'' x 3'' x 2''	5 Lbs.
Antenna Relay	RE-13/ARA-8	1'' x 2'' x 4''	1 Lb.
Mounting Bracket	MT-288/ARA-8	5'' x 3''	*
Escutcheon	MX-369/ARA-8		

Includes plugs, adapters, cord, switch, etc.
* Less than one Pound.

May 1945

Filter Equipment AN/ARA-9 is a radio range filter equipment consisting of a low impedance filter which has a 1020-cycle band pass section and 1020-cycle band reject section; and a switch for selecting either of the above filter sections or a filter-out position.

The primary purpose of this equipment is to permit the user (normally pilot or co-pilot) to isolate either the voice or the range signal during periods of reception of simultaneous transmissions of these signals. The equipment provides by means of a switch, facilities for voice reception only, range reception only, or normal use (no filter in circuit). The switch, separate from the filter unit, is used to provide the selection of the desired facility. AN/ARA-9 is used in low impedance installations in which the output circuits of all of the radio equipments are connected for low impedance operation.

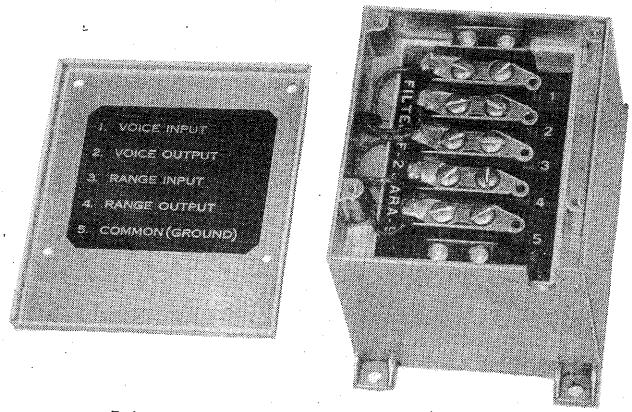
The switch is designed in such a way that it can be used either mounted on the lid of the Filter F-21/ARA-9 or mounted as a separate unit.

The filter is now being delivered as part of Interphone Equipment AN/AIC-3.

Filter Equipment AN/ARA-9 is designed for use with low impedance interphone and radio equipments in U. S. Army Aircraft.

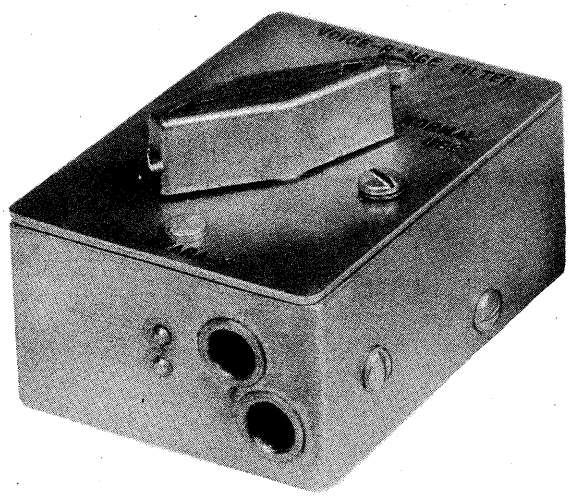
There is no special test equipment required for the maintenance of the AN/ARA-9.

There were no Army Supply Program requirements as 1 February 1945.

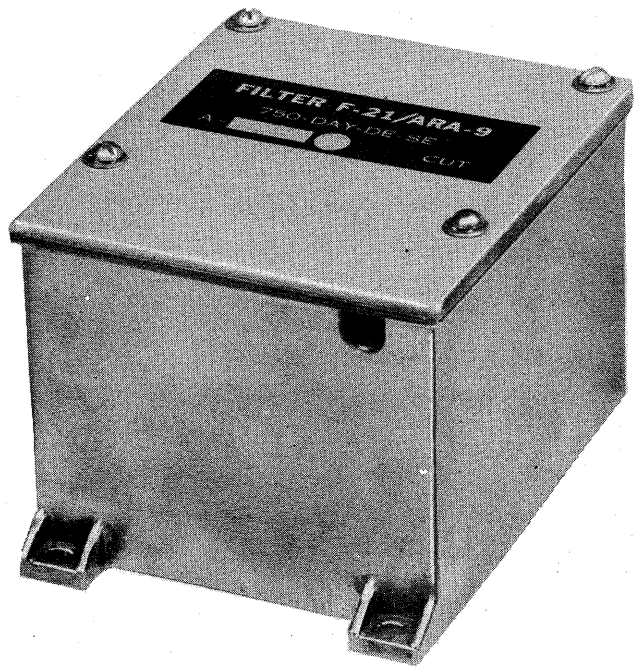


Interior view of Filter F-21/ARA-9

POWER INPUT	4-6 V.
TYPE OF SIGNAL	AUDIO
BAND PASS SECTION	1020 CYCLE
BAND REJECT SECTION	1020 CYCLE



Switchbox SA-58/ARA-9



Filter F-21/ARA-9

FILTER EQUIPMENT AN/ARA-9

TOTAL WEIGHT 2 LBS.

Component	Nomenclature	Size	Weight
Filter	F-21/ARA-9	2" x 3" x 4"	2 Lbs.
Switchbox	SA-58/ARA-9	3" x 2" x 2"	

Radio Receiving Equipment AN/ARN-5 is an airborne radio receiving equipment used in conjunction with the glide path transmitter of the AAF Instrument Approach System to provide a visual indication of the glide path course to be followed by the pilot of the aircraft during instrument landing operation.

Output of the receiver is fed into a cross-pointer indicator, and the position of the meter's horizontal pointer with respect to the center of the face gives the pilot an indication of whether to fly up or down to remain on a predetermined descent path to ground.

The receiving equipment operates on one of three frequencies 332.6 mc, 333.8 mc, or 335 mc. In the event of receiver failure, or the absence of a signal from the glide path system for any reason, a "fly up" indication is obtained.

Antenna System AS-27/ARN-5 is used with the dual installation of the glide path and localizer receivers. Antenna System AS-61-( )/ARN-5 is used when the glide path receiver is installed without the localizer receiver.

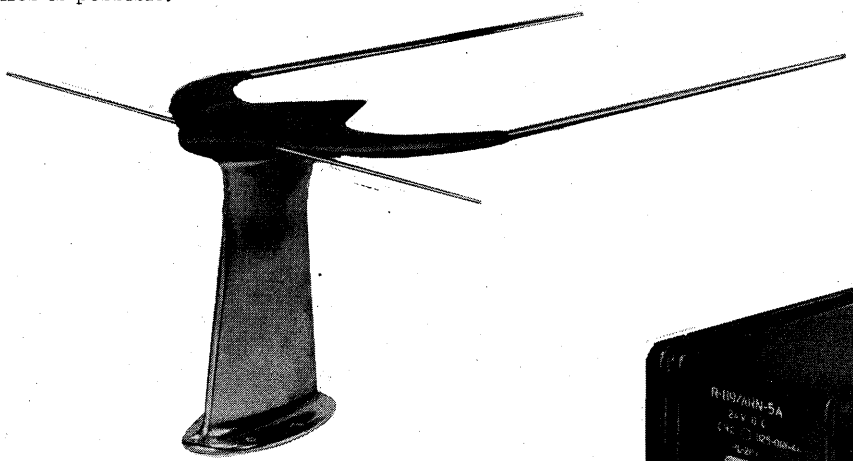
Power input of the receiver is 1.35 amperes at 28 volts d.c. Reception of a 90 and 150 cycle modulated signal from the glide path transmitter over a range of 15 miles is possible.

Test equipment required for maintenance includes TS-170/ARN-5 and TS-67/ARN-5.

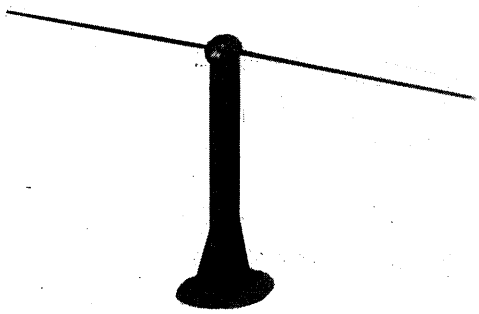
Army Supply Program requirements as of 1 February 1945 were 33,718 equipments for the calendar year 1945 and 19,630 for 1946.

POWER INPUT	37 WATTS @ 28 VOLTS DC.
FREQUENCY	332.6, 333.8 MC, 335 MC
TYPE OF SIGNAL	CW
RANGE	15 MILES
SENSITIVITY	AVERAGE 50 MICRO-VOLTS
SELECTIVITY	6DB DOWN AT 400 KC OFF RESONANCE 60 DB DOWN AT 2000 KC OFF RESONANCE

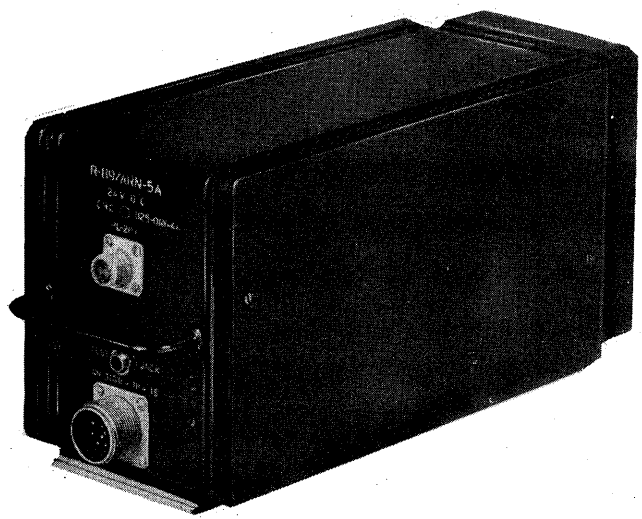
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
7	6AK5	1	125R7
2	12SN7GT	1	28D7



Antenna System AS-27A/ARN-5



Antenna Assembly AS-61/ARN-5



Radio Receiver R-89/ARN-5A

RADIO RECEIVING EQUIPMENT AN/ARN-5 TOTAL WEIGHT 20 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-89/ARN-5	6" x 12" x 7"	11 Lbs.
or Radio Receiver	R-57/ARN-5	6" x 12" x 7"	11 Lbs.
Mounting	MT-28/ARN-5	6" x 12" x 3 '	3 Lbs.
Antenna Assembly	AS-61/ARN-5	Width 15 inches	8 Lbs.
or Antenna System	AS-27/ARN-5	10" x 20" x 15"	2 Lbs.

and includes plugs, adapters, resistor, capacitor and rf cable.

May 1945

AN/ARN-6

Radio Compass AN/ARN-6 is an automatic radio compass which will provide either aural reception of modulated radio signals in the frequency range of 100-1750 kilocycles, aural-null directional indications of the arrival of signals using a loop antenna, or automatic loop orientation and loop azimuth indication in degrees.

In addition to the four band frequency coverage from 100 to 1750 kilocycles, a 2800 to 5900 kilocycle high frequency band has been added for emergency communication use. The set will not function as an automatic compass on this band.

Two loops are being developed: Loop AS-141/ARN-6 having the electrical characteristics of the LP-21 and Loop AS-140/ARN-6 having the characteristics equal to a 12 inch air core loop. Both loops contain an iron core type of loop in order to decrease overall size. These loops have the best possible anti-precipitation static characteristic and are of the blister type to reduce drag to a minimum. The smaller Loop AS-141/ARN-6 is to be used on fighters and the larger Loop AS-140/ARN-6 is to be used on bomber and cargo planes.

The equipment operates from a 24 volt d.c. power source.

Test equipment for maintenance will consist of a test set incorporating I-100 and a special adaptor.

Army Supply Program requirements as of 8 February 1945 were 2,000 equipments for the calendar year 1945.

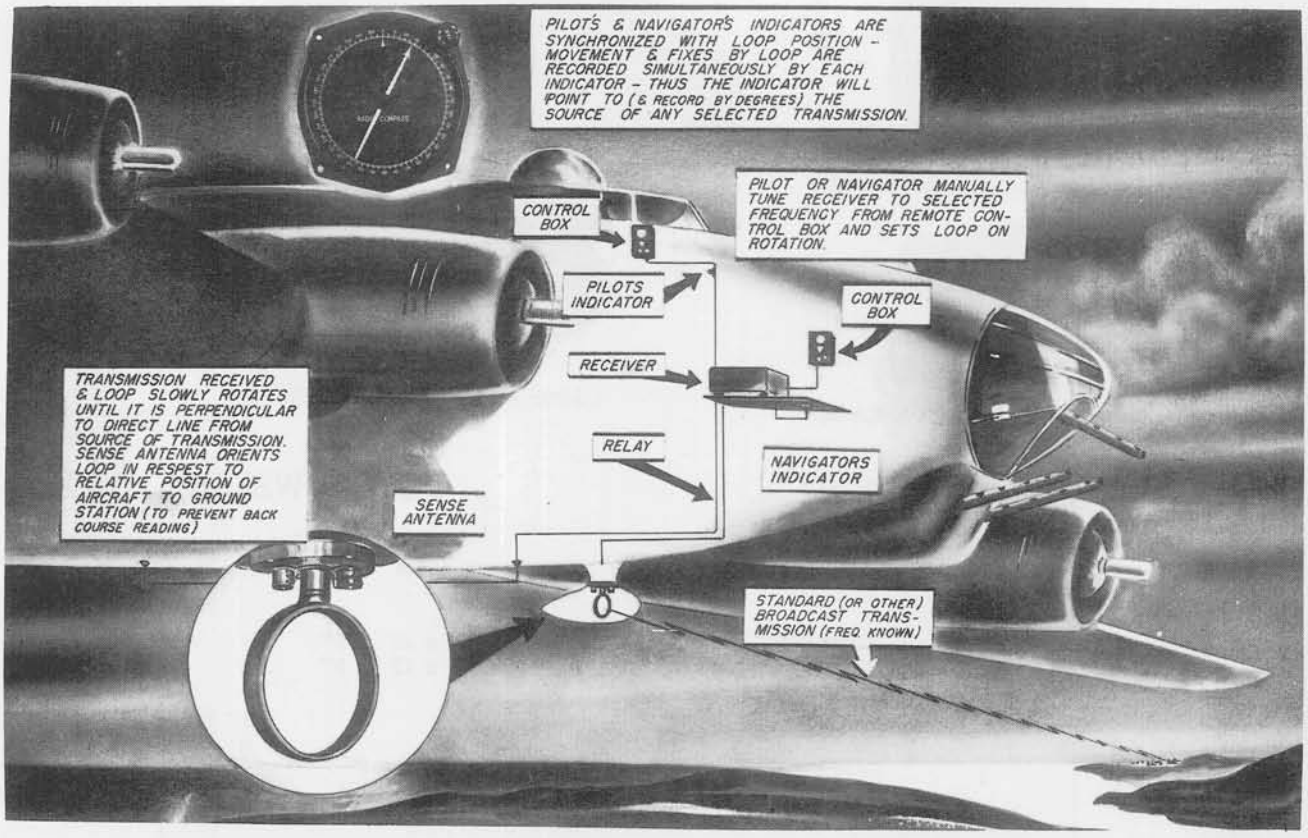
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
5	12SK7	4	12SX7GT
1	12SY7	2	6A7GT
1	12SW7	2	2050

Indicator ID-XA-6/ARN-6

Indicator ID-XA-7/ARN-6

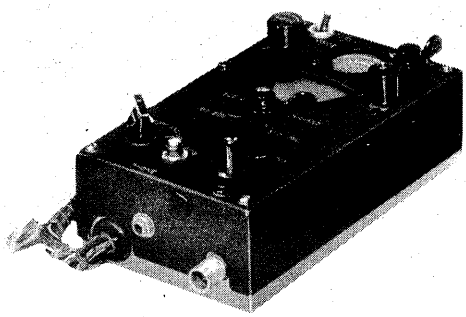
Indicators of AN/ARN-6 record simultaneously transmission bearing in respect to flight course.

POWER INPUT	130 WATTS @ 26.5 VOLTS D.C.
POWER OUTPUT	700 MILLIWATTS PEAK
FREQUENCY	100-1750 KC AND 2800-5900 KC.
TYPE OF SIGNAL	CW; MCW/VOICE
SENSITIVITY	5 MICROVOLTS/METER
SELECTIVITY	
ANTENNA	LOOP FIXED OR ROTATABLE, WITH REMOTE INDICATION OF LOOP POSITION. (DUAL-REMOTE CONTROL AND ONE SET OF LOCAL CONTROLS.)

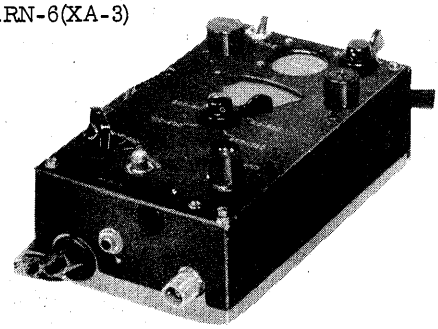


Radio Compass AN/ARN-6, intended for installation in all types of aircraft, provides visual indication of the direction from any equipped aircraft to any broadcast band transmitter operating on the 100-1750 kc band.

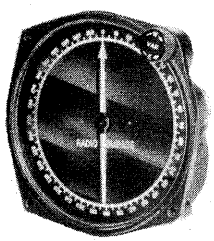
AN/ARN-6



Radio Control Boxes
C-149/ARN-6(XA-3)

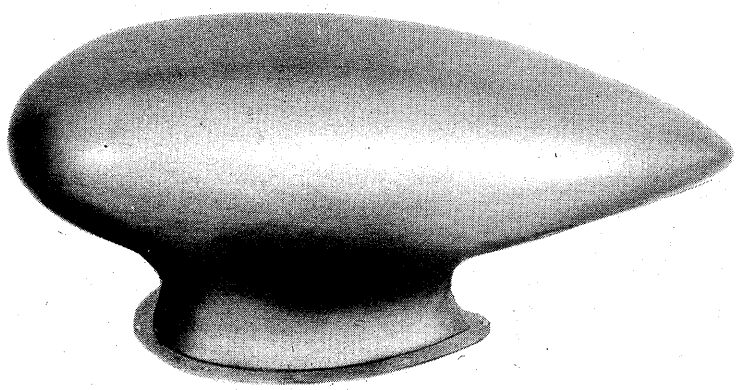


Radio Compass Unit
R-101/ARN-6(XA-3)



Indicator ID-92/ARN-6(XA-3)

Indicator ID-91/ARN-6(XA-3)



Loop AS-141/ARN-6(XA-3)

RADIO COMPASS AN/ARN-6

TOTAL WEIGHT 55 LBS.

Component	Nomenclature	Size	Weight
Radio Compass Unit	R-101/ARN-6	16" x 12' x 8"	32 Lbs.
Mounting	MT-274/ARN-6	16" x 12" x 3"	7 Lbs.
Indicator	ID-91/ARN-6		*
Indicator	ID-92/ARN-6		*
Coupling Unit	CU-65/ARN-6		
Control Box	C-149/ARN-6	5" x 8' x 4"	3 Lbs.
Loop	AS-141/ARN-6	7" x 6" x 17"	10 Lbs.

* less than one pound
and includes cables, cords, connectors, etc.

AN/ARN-7

Radio Compass AN/ARN-7 is an automatic bearing-indicating radio compass operating from a 400-cycle, 115-volt power supply. It provides aural reception of modulated radio signals as an ordinary 100 to 1750 kc. radio receiver and automatic loop orientation and loop azimuth indication in degrees. It is similar to Radio Compass SCR-269-G and employs all its components with the exception of Radio Compass Unit BC-433-G and Radio Control Box BC-434-A.

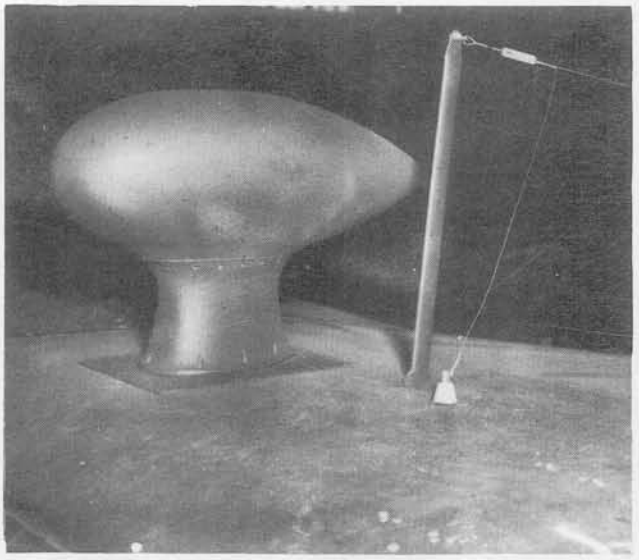
Frequency range of the AN/ARN-7 is divided into four bands covering 100 to 1750 kc. It is manually tuned from either of two remote positions, with bands switched electrically from the position having control. When installations are made which use only one remote control, no switching of control is necessary and the one radio control box used has control at all times.

The new receiver, Radio Compass R-5/ARN-7, is a 15-tube superheterodyne capable of C.W., tone and voice reception. The addition of the 100-200 kc. band makes possible long range operation in connection with established low frequency transmitters in many parts of the world.

AN/ARN-7 was designed originally as an interim compass, capable of low frequency reception, pending completion of the development of Radio Compass AN/ARN-6.

Test equipment for AN/ARN-7 includes Test Set I-100-A.

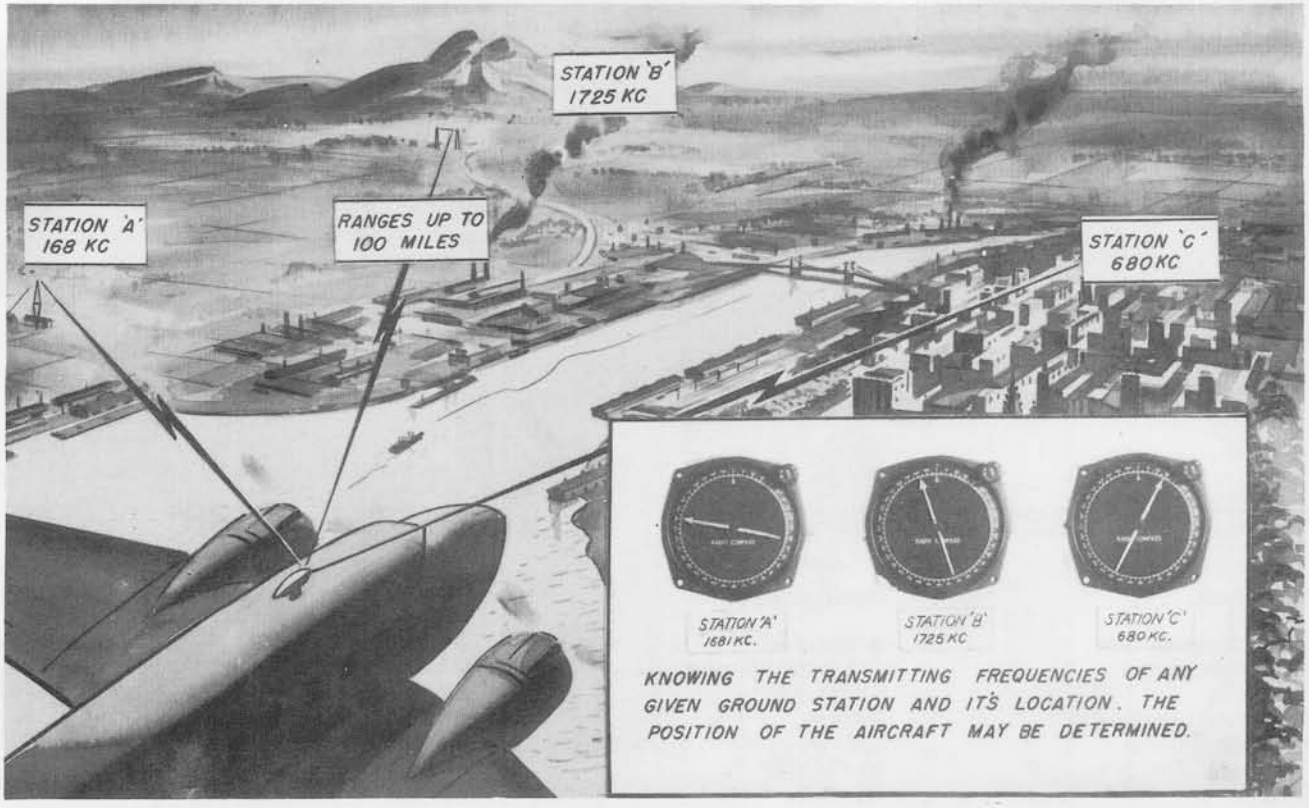
Army Supply Program requirements as of 19 October 1944 were 25,394 for the calendar year 1945.



Loop and Loop Housing for AN/ARN-7 installed in fuselage above pilot and co-pilot on C-64 aircraft.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	6K7	1	6L7
2	6F6	1	6J5
2	6B8	1	6N7
2	2051	1	6SC7
1	5Z4		

POWER INPUT	115 VOLTS, 400 CYCLES
FREQUENCY	100 KC TO 1750 KC
TYPE OF SIGNAL	CW, TONE, VOICE
RANGE	100 MILES
SENSITIVITY	40 MV/METER
SELECTIVITY	10 TIMES RESONANT INPUT FOR 6.3 KC.
ANTENNA	LOOP



In addition to its high frequency band of 2800 to 5900 kc., Radio Compass AN/ARN-7 provides facilities for homing and plotting of aircraft positions similar to those of other Automatic Radio Compasses.

May 1945

AN/ARN-7

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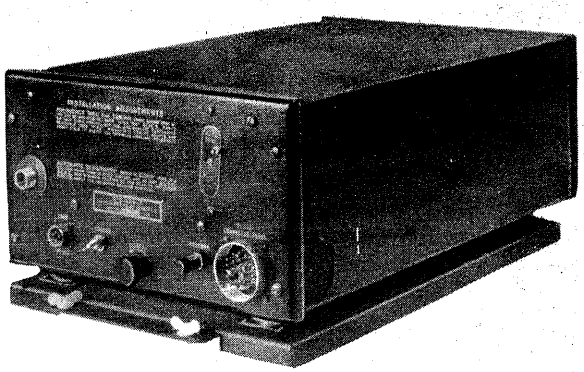
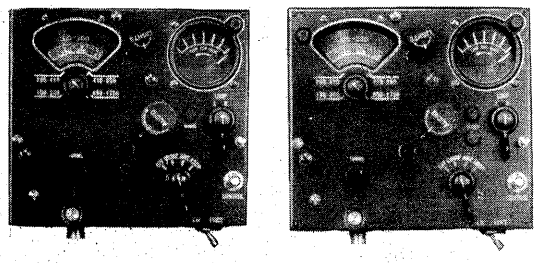
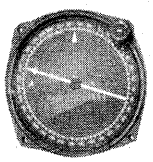


Radio Compass Unit
R-5/ARN-7



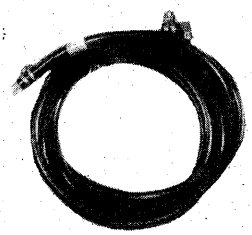
Radio Control Boxes C-4/ARN-7



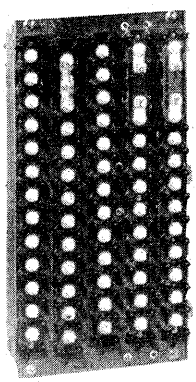
Indicator I-82-A

Indicator I-81-A

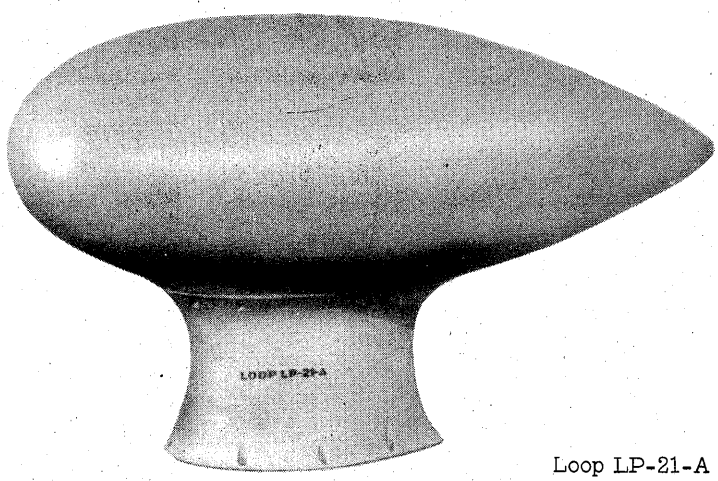
Dehydrator



Dehydrator Hose



Relay BK-22-E



Loop LP-21-A

RADIO COMPASS AN/ARN-7

TOTAL WEIGHT 98 LBS.

Component	Nomenclature	Size	Weight
Radio Compass Unit	R-5/ARN-7	8" x 12" x 20"	47 Lbs.
Radio Control Box	C-4/ARN-7(2 each)	8" x 8" x 4"	4 Lbs.
Loop	LP-21-AM	26" x 15" x 9"	10 Lbs.
Indicator (Navigator's)	I-82-A	4" x 4" x 4"	1 Lb.
Indicator (Pilot's)	I-81-A	5" x 5" x 4"	1 Lb.
Indicator	ID-65/ARN		
Relay	BK-22-K	12" x 7" x 3"	7 Lbs.

and includes plugs, adapters, cords, insulators, operating chart, shaft and casing, tag, wire and set of fittings.

May 1945

AN/ARN-11

Radio Compass AN/ARN-11 is an aircraft navigational equipment which indicates the direction of a selected transmitting station and also functions as a general radio receiver.

Loop reception on two of the three bands, that is, on the 200-400 kc. and 550-1200 kc. bands, provides left-right compass coverage, while a non-directional antenna offers reception on the 2900-6000 kc. band.

Visible indication by means of a left-right indicator gives the general direction from which the received signal is transmitted, and visible indication of relative bearing between the aircraft and the transmitting station by means of an azimuth dial.

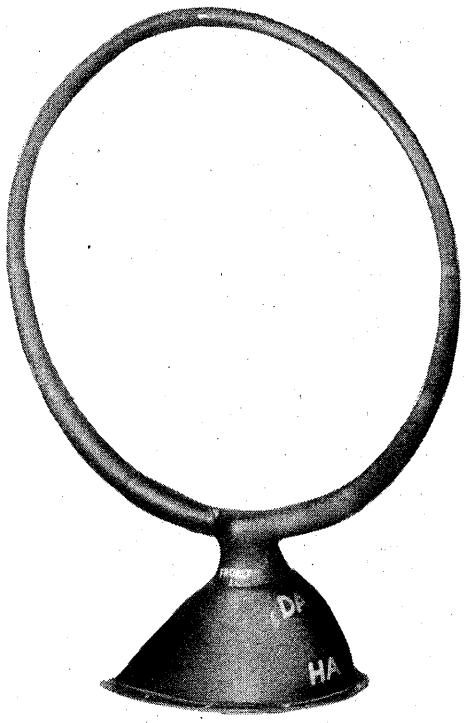
Generally, a 9-inch rotatable loop, such as the MN-20, is used with this equipment, but on slower aircraft, such as cargo aircraft, an 18-inch loop is often used. The 18 inch MN-24 is a preferred loop for use with this equipment when installed on low-speed airplanes because of its excellent anti-precipitation-static qualities.

Any of the MN-28 series remote control boxes may be used to provide band switching.

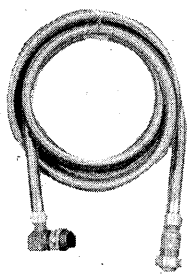
Army Supply Program requirements as of 1 February 1945 were 2,921 for the calendar year 1945 and 2,390 for 1946.

POWER INPUT	84-126 W
FREQUENCY	COMPASS RECEPTION 200-400, 550-1200 KC COMMUNICATION RECEPTION 200-400, 500-1200, 2900-6000 KC
TYPE OF SIGNAL	VOICE, MCW
RANGE	100-150 MILES

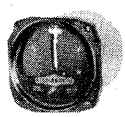
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
5	6K7	2	6J5
2	6N7	1	6F6
1	6L7	1	6B8



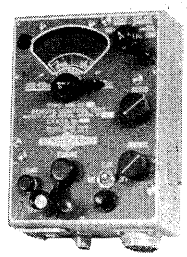
Loop MN-24C



Loop Transmission Cable



Indicator IN-4D



Remote Control Unit MN-28LB

Meter Field Load Assembly

Radio Compass Receiver MN-26LB

RADIO COMPASS AN/ARN-11 — TOTAL WEIGHT 60 LBS.

Component	Nomenclature	Size	Weight
Radio Compass Unit	MN-26LB	8" x 12" x 18"	37 Lbs.
Remote Control Unit	MN-28LB	4" x 5" x 8"	3 Lbs.
Azimuth Control Unit	MN-40D		
Left-Right Indicator	IN-4D	3" x 3" x 3"	2 Lbs.
Meter Field Load Assembly	Bendix No. AA18824-1		
Rotatable Loop	MN-24C	18" diam.	5 Lbs.
Loop	AS-138/ARN	14" x 11" x 10"	4 Lbs.
Loop Transmission Cable	Bendix No. AC55966-1	42" and 168" long	*
Control Unit	MC-204-A		
Control Panel	C-135/AR	17" x 8" x 5"	
Control Panel	C-136/AR	5" x 3" x 2"	

and includes plugs, set of fittings, shaft and casing and tag.

* Less than one pound.

May 1945

AN/ARN-12

Marker Beacon Receiving Set AN/ARN-12 is a lightweight airborne marker beacon receiver utilizing a superheterodyne type circuit with a crystal controlled oscillator. It is designed to give aural and visual indications when flying over any army marker beacon transmitter at altitudes between 10 and 4,000 feet, and over CAA marker beacon transmitters at altitudes between 100 and 35,000 feet. Reception is on the standard marker beacon channel of 75 mc. The equipment responds to a 75 mc. signal which is modulated by 400, 1,300 and 3,000 cycles. The receiving set is designed for operation from the aircraft 24 volt dc. system.

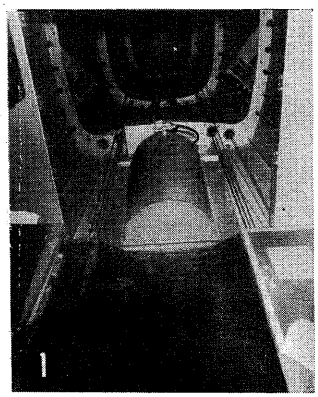
A filter is required for selection of indication of 400, 1,300 and 3,000 cycle modulation. This is provided in a separate unit which may be installed or omitted depending upon the mission of the aircraft.

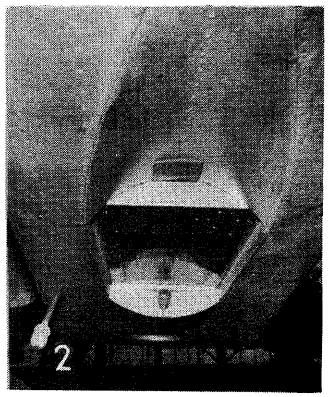
This equipment will replace Marker Beacon Receivers RC-193, RC-39, and RC-43.

Test Equipment required for maintenance includes Test Set I-76.

Army Supply Program requirements as of 1 February 1945 were 11,860 sets for the calendar year 1945, and 23,599 sets for 1946.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2 5	28D7 6AJ5	2	6AL5

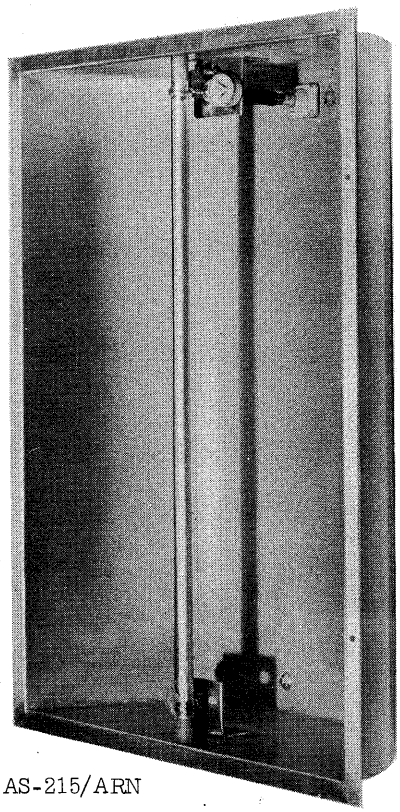




Antenna Assembly AS-215(XA)/ARN installed bottom mid-fuselage AT-11 airplane. 1-Interior 2-Exterior

POWER INPUT	72 WATTS @ 24 VOLTS DC.
FREQUENCY	75 MC
TYPE OF SIGNAL	MCW
RANGE	ARMY BEACONS 10 TO 400 FEET CAA BEACONS 100 TO 35,000 FT.
SENSITIVITY	500 - 1500 MICROVOLTS
SELECTIVITY	600 at 700 KC.

Radio Receiver R-122/ARN-12



Antenna Assembly AS-215/ARN

MARKER BEACON RECEIVING SET AN/ARN-12 TOTAL WEIGHT 25 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-122/ARN-12	6" x 10" x 6"	9 Lbs.
Applique Unit			7 Lbs.
Mounting	MT-28/ARN	10" x 2" x 6"	1 Lb.
Antenna Assembly	AS-215/ARN	Length 19" x Diam. 12"	5 Lbs.

and includes cords, plugs, cables, etc.

May 1945

Radio Receiving Equipment AN/ARR-1 (Navy ZB Adapter) is an airborne compass adapter used for reception of signals covering the range 234 to 258 mc, amplitude modulated by a keyed rf signal in the 540 to 830 kc. range.

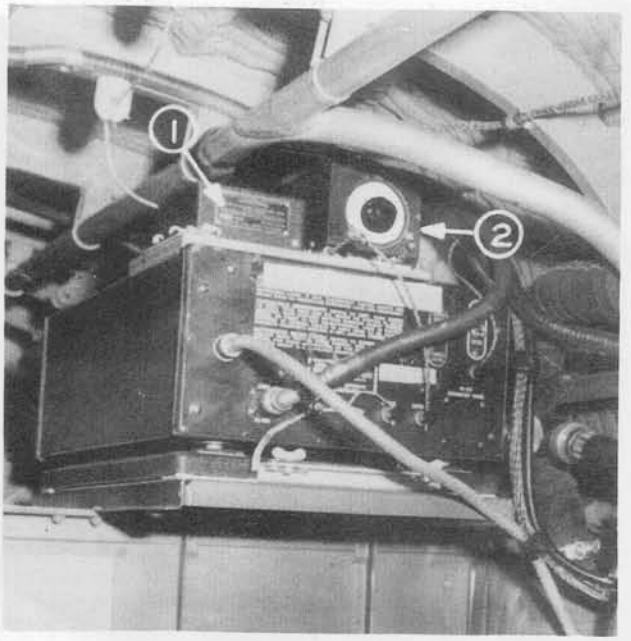
When the pilot is provided with a decode card, he is able to use this equipment to interpret the directional signals transmitted by the Navy Model YG Homing Beacon, or other homing beacons operating a rotating, directional antenna and transmitting within the frequency range of the receiver. In addition to the 12 30-degree direction sectors which are separately identified by code letter, a true north position relative to the transmitter is indicated by the code letter to assist the pilot in compass orientation.

Effective range of this equipment is 40 to 70 miles at 10,000 feet, with greater range possible at higher altitudes.

Test equipment required for maintenance includes Test Set TS-1/ARR-1 and Test Oscillator TS-24/ARR-2.

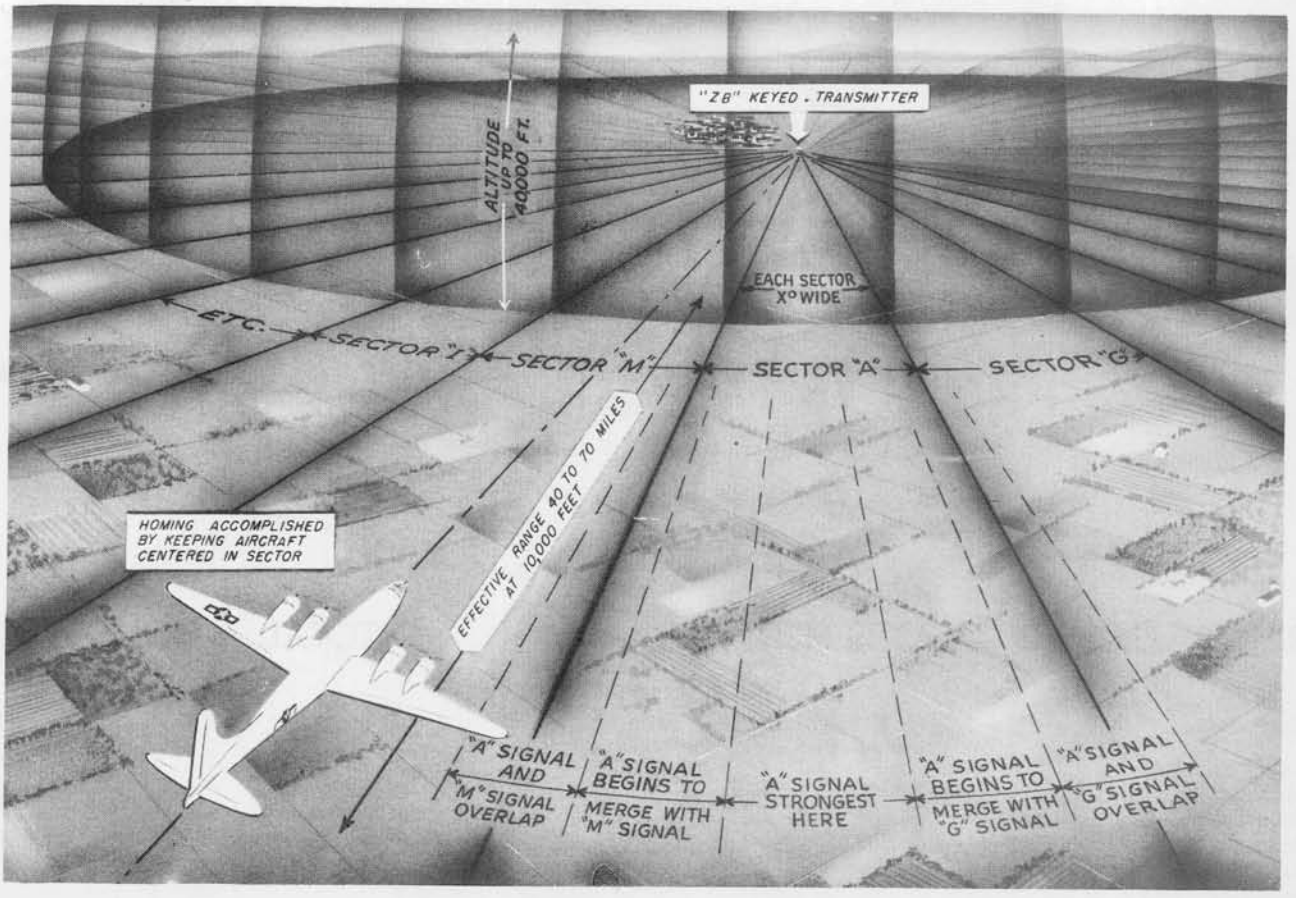
There were no Army Supply Program requirements as of 1 February 1945.

POWER INPUT	6 WATTS @ 28 VOLTS 3 WATTS @ 250 VOLTS
FREQUENCY	234-258 MC
TYPE OF SIGNAL	CW; MCW; VOICE
SENSITIVITY	40 MICROVOLTS
SELECTIVITY	20 DB. DOWN AT 1.5% OFF RESONANCE
RANGE	40-70 MILES AT 10.000 FEET



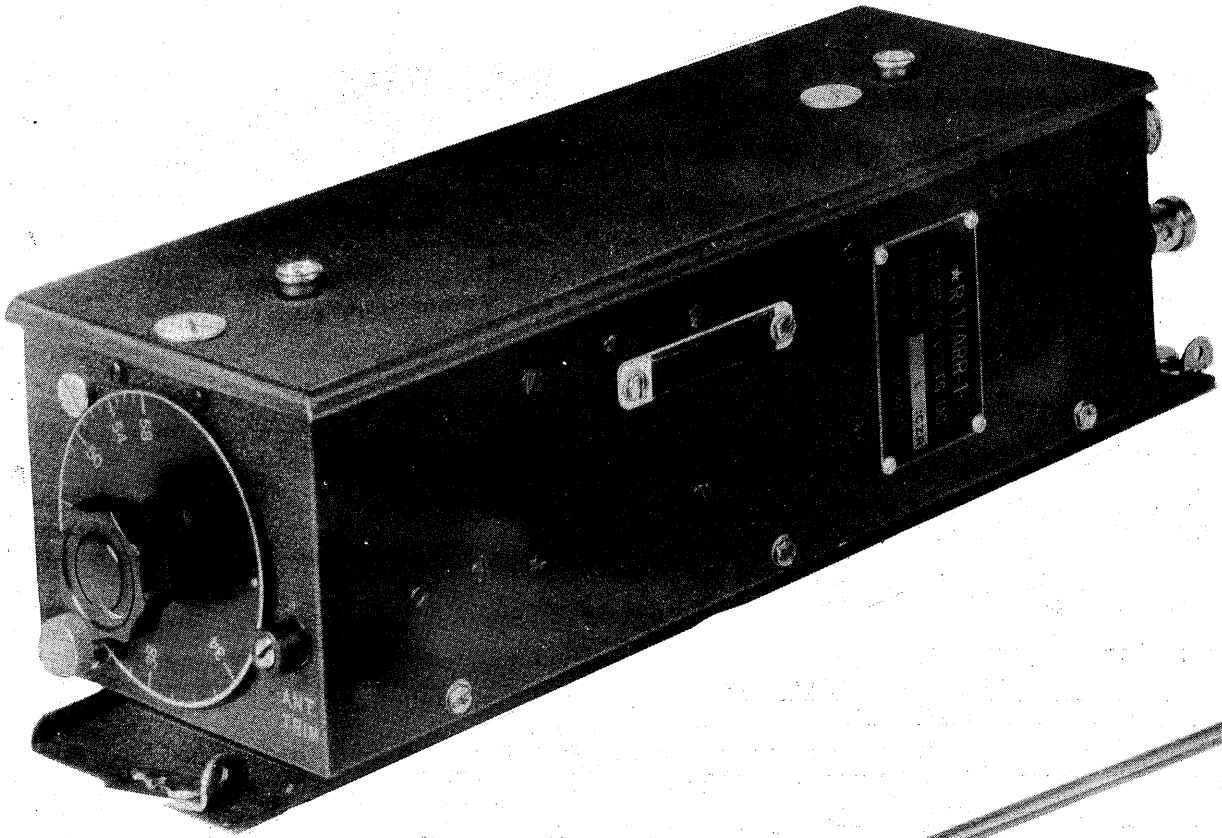
Installation photograph indicates (1) Relay RE-1/ARR-1, and (2) Radio Receiver R-1/ARR-1

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	954		

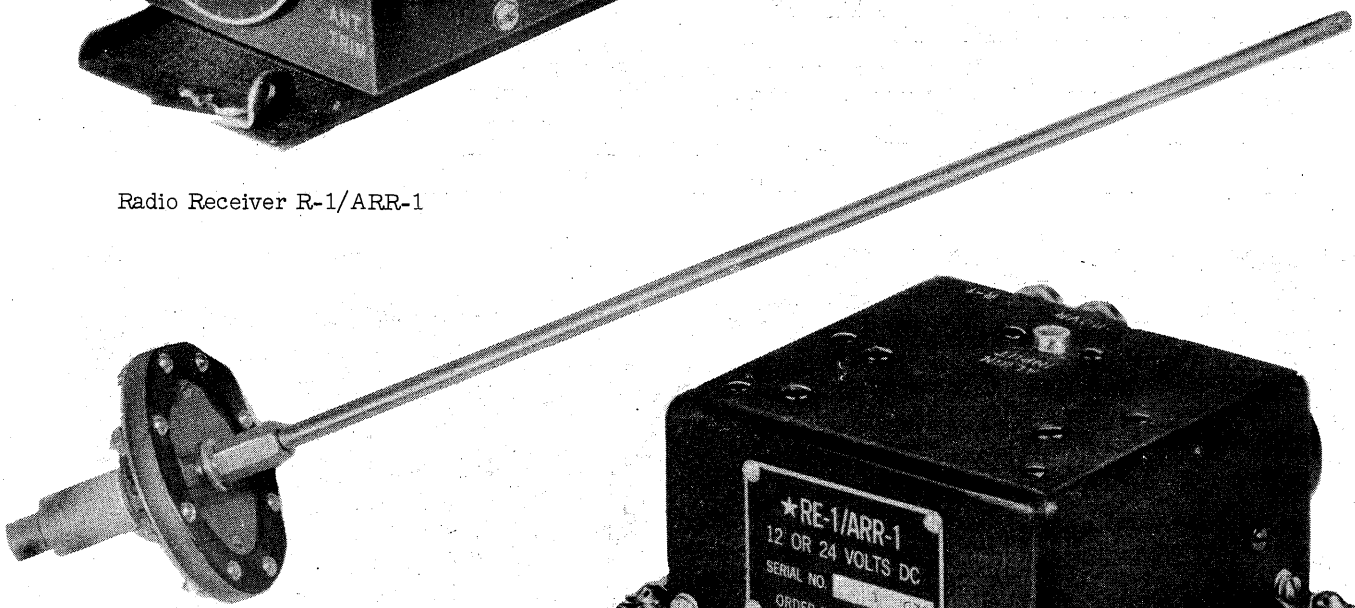


Used with a suitable receiver, Radio Receiving Equipment AN/ARR-1 permits aircraft to home on a ZB keyed transmitter which sends out coded signals to each 30°of 360°

AN/ARR-1



Radio Receiver R-1/ARR-1



Antenna AT-5/ARR-1

Relay RE-1/ARR-1

RADIO RECEIVING EQUIPMENT AN/ARR-1 TOTAL WEIGHT 11 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-1/ARR-1	4" x 4" x 13"	4 Lbs.
Mounting	MT-2/ARR-1	12" x 4" x 1/8"	*
Relay	RE-1/ARR-1	3" x 4" x 5"	2 Lbs.
Antenna	AT-5/ARR-1	12" long	1 Lb.
Adapter	M-359	1" x 1" x 1"	*
Mounting Plate	MT-3/ARR-1	5" x 4" 1"	*

*Less than one pound.
and includes slip cover, plugs, and radio frequency cable.

May 1945

AN/ARR-2

Radio Receiving Equipment AN/ARR-2 is a self-contained high frequency radio receiving and homing equipment capable of providing the pilot with directional orientation within 15 degrees when used with the YG Beacon Transmitter which operates at a carrier frequency of 234 to 258 mc modulated at a frequency of 540 to 830 kc.

The receiver, may be mounted on its own rack or installed in the racks of the SCR-274-N. It employs two separate circuits, one to amplify and detect the UHF signal the other to produce an output at the modulated frequency. Output from the high frequency circuit is fed to a superheterodyne receiver incorporated within the receiver. A beat-frequency oscillator is used in the i-f circuit of the superheterodyne portion of the receiver to provide a CW beat note for aural reception of the keyed modulation frequency of the transmitter.

The UHF carrier frequency is turned by means of a calibrated dial located on the front panel. Coverage of the 540 to 830 kc modulation frequencies is accomplished by using six channels, each capable of being tuned and preset anywhere within the modulation frequency range.

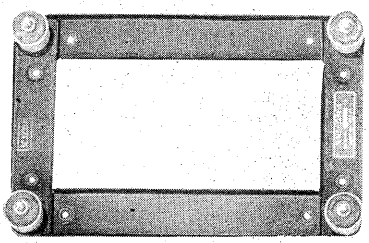
A switching arrangement allows any one of these six preset channels to be selected by means of a rotating switch in the control box, and a beat note is provided in the remote control box for adjustment of the audio pitch. A volume control for adjustment of the output to the desired level is also provided.

Test Oscillator TS-24/ARR-2 is used to check operation of this equipment.

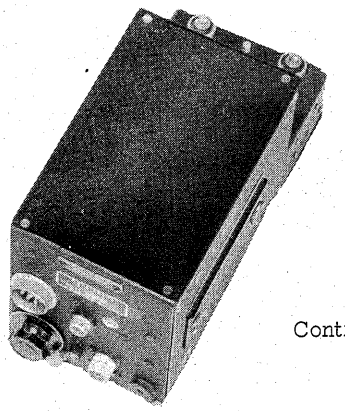
There were no Army Supply Program requirements of 1 February 1945.

POWER INPUT	45 WATTS @28 VOLTS D-C
FREQUENCY	234-258 MC CARRIER SIGNAL 540-830 KC (6 CHANNEL) MODULATED BY CW;MCW VOICE
TYPE OF SIGNAL	CW, MCW, VOICE
RANGE	40-70 MILES AT 10,000'
SENSITIVITY	10 MICROVOLTS
ACCURACY	PLUS OR MINUS 15 DEGREES

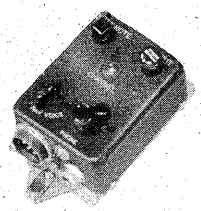
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6AK5	7	9001
1	12A6		



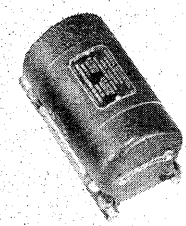
Mounting Base MT-5/ARR-2



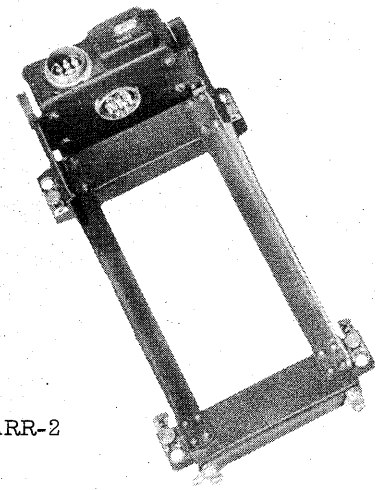
Radio Receiver R-4/ARR-2



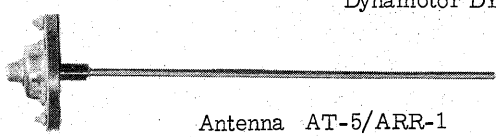
Control Box C-2/ARR-2



Dynamotor DY-2/ARR-2



Mounting Rack MT-7/ARR-2



Antenna AT-5/ARR-1

RADIO RECEIVING EQUIPMENT AN/ARR-2 TOTAL WEIGHT 19 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-4/ARR-2	12" x 5" x 6"	7 Lbs.
Mounting Rack	MT-7/ARR-2	14" x 6" x 5"	2 Lbs.
Control Unit	C-2/ARR-2	4" x 6" x 3"	1 Lb.
Mounting Plate	MT-4/ARR-2	6" x 4"	*
Mounting Base	MT-5/ARR-2	11" x 7" x 2"	1 Lb.
Dynamotor Unit	DY-2/ARR-2	5" x 3" x 3"	3 Lbs.
Adapter	MX-2/ARR-2	1-1/4" dia.	1 Lb.
Right Angle Coupling	MX-22/ARR-2	1-1/4" dia,	1 Lb.
Antenna	AT-5/ARR-1	length 12"	1 Lb.

and includes plugs, tuning shaft and radio frequency cable.

*Less than one pound.

May 1945

AN/ARR-6

Radio Receiving Set AN/ARR-6 is an airborne automatic receiver designed to receive a fixed 500 kc, signal. It provides for automatic reception of signals in international distress frequency, and upon receipt of a signal a light is automatically flashed on at the receiver and on a jack box at some remote point.

The radio receiver is tuned to the international distress frequency. Sufficient band width is provided to compensate for small frequency variation between transmitters used and to guarantee reception of signals within the greater portion of the guard band on either side of the international distress band.

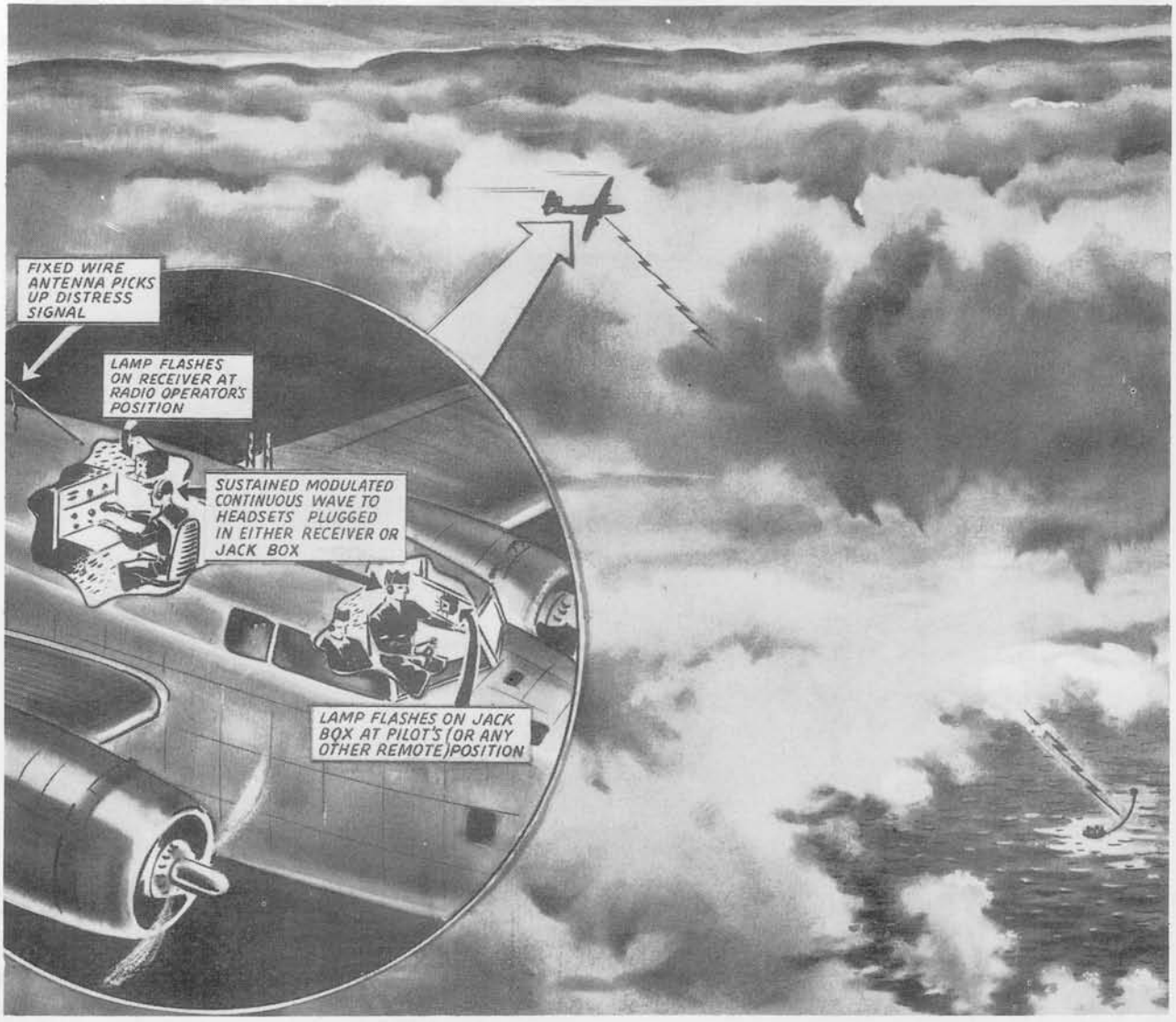
The receiver is so designed that the indicating device is not activated under the influence of atmospheric discharges. Sensitivity is such as to assure the reception of a distress signal from Radio Set SCR-578 at a distance of at least 150 miles over water. Power is supplied directly from the 28-volt source in the aircraft. The equipment operates at altitudes up to 50,000 feet and utilizes the fixed antenna on the aircraft.

No special test equipment is required for maintenance.

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

POWER INPUT	28 VOLTS D.C.
POWER OUTPUT	10 MILLIWATTS
FREQUENCY	500 KC. FIXED TUNED
TYPE OF SIGNAL	SUSTAINED MCW
RANGE	150 MILES OVER WATER
SENSITIVITY	3 MICROVOLTS
SIGNAL ACCEPT. KEYING RATE	20 WORDS PER MINUTE
TIME DELAY	50 TO 15 SECONDS

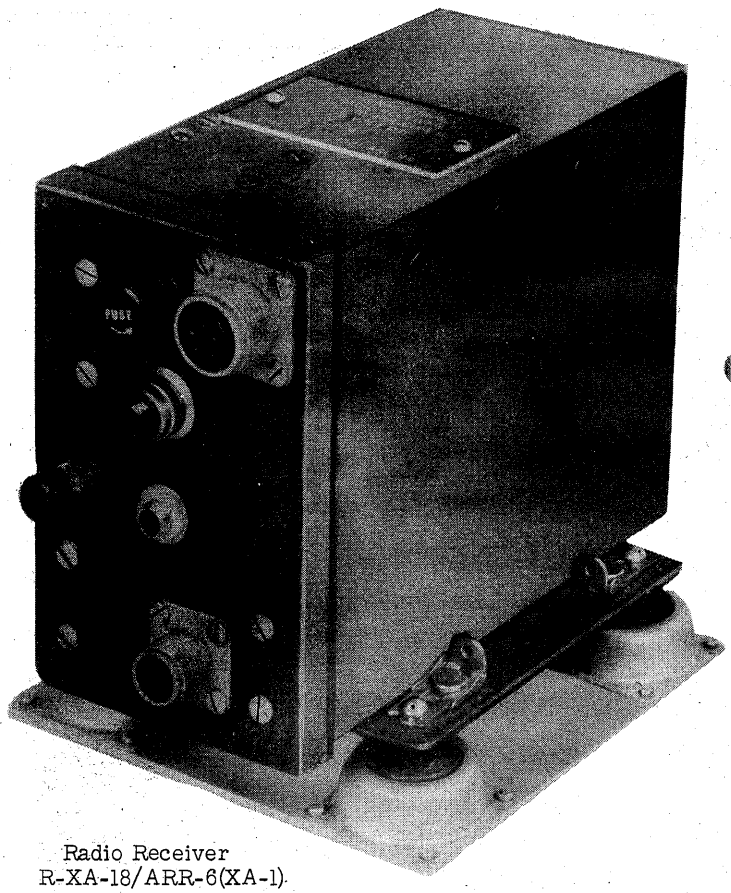
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6AK5	1	6H6
1	12C8	3	65G7
1	28D7	1	25L6



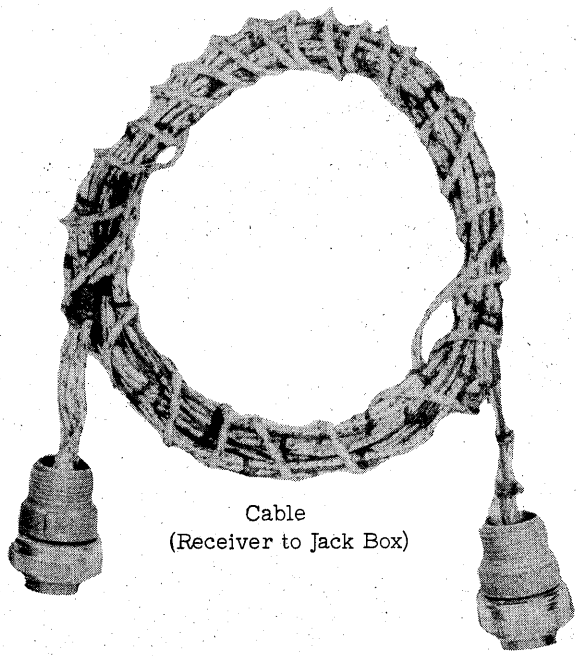
Relieving radio operators from manually monitoring the international distress frequency, Radio Set AN/ARR-6 provides an automatic alarm in the equipped aircraft, bringing to the attention of the pilot and/or radio operator that a distress signal is being transmitted in the vicinity.

May 1945

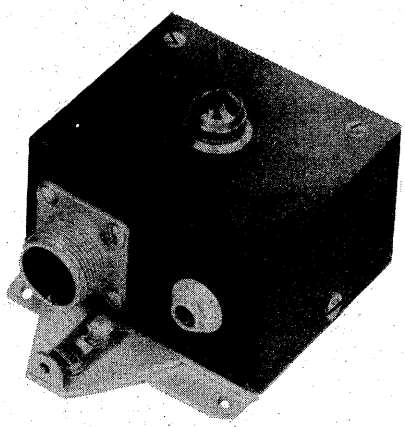
AN/ARR-6



Radio Receiver
R-XA-18/ARR-6(XA-1)



Cable
(Receiver to Jack Box)



Jack Box
J-XA-10/ARR-6(XA-1)

RADIO RECEIVING SET AN/ARR-6

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver		7'' x 6'' x 8''	4 Lbs.
Jack Box		2'' x 3'' x 4''	1 Lb.

and includes cables, adapters, plugs, etc.

May 1945

AN/CRM-3

Radio Monitoring Set AN/CRM-3 is a radio receiving equipment mounted in a plywood cabinet provided with an external antenna mounted on the top of a 15-foot mast. Power to operate the receiver is supplied from a voltage regulated power supply mounted in the same plywood cabinet. This equipment is used with Transmitting Equipments AN/MRN-1, AN/CRN-3 and AN/CRN-10.

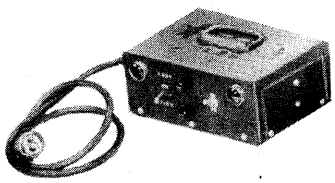
AN/CRM-3 provides means of locating the course with respect to the runway, checks the course width and transmitter radiation pattern and can also be used at any point within two miles of the transmitter to give an on-off indication of signal. A green pilot lamp indicates the localizer signal is being received by the radio monitoring set, and a red pilot lamp and a continuous buzz indicates the absence of a localizer signal.

No test equipment is required.

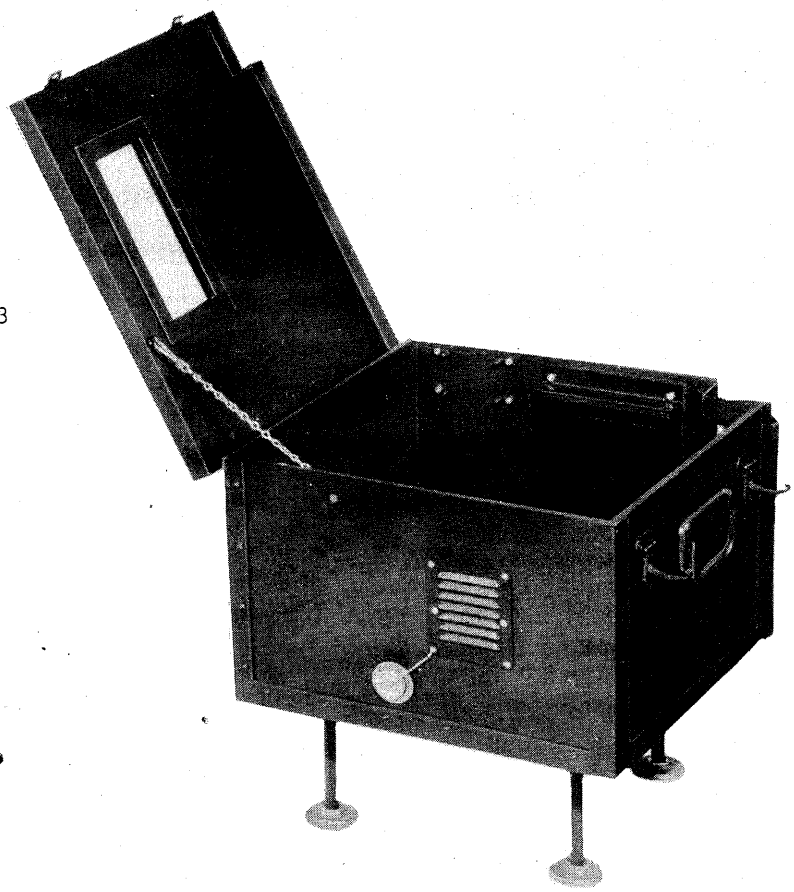
There were no Army Supply Program requirements as of 1 February 1945.

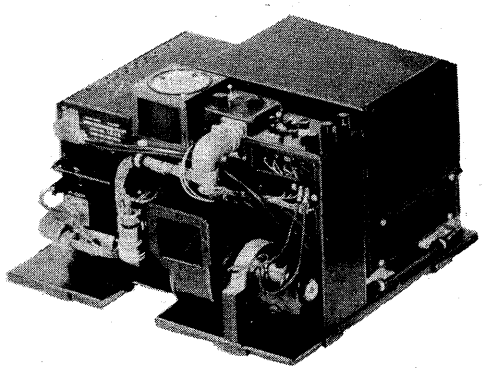
POWER INPUT	115/230 VOLTS AC: 12 VOLTS DC.
FREQUENCY	50-65 CYCLES PER SECOND
RANGE	2 MILES WHEN USED AS MONITOR 1000 FT. WHEN CHECKING COURSE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12A6	3	717A
1	12AK7GT	1	5U4 G
2	12SG7	1	6SJ 7
2	12SQ7	1	VR-105
2	12SR7	2	6Y6



Alarm Assembly ID-85/CRM-3





Radio Monitoring Set AN/CRM-3

Indicator Power Supply Console CY-151/CRM-3

RADIO MONITORING SET AN/CRM-3 TOTAL WEIGHT 150 LBS.

Component	Nomenclature	Size	Weight
Antenna Assembly	AS-111/CRM-3	15 foot mast	10 Lbs.
Indicator Power Supply Console	CY-151/CRM-3	15" x 20" x 13"	70 Lbs.
Alarm Assembly	ID-85/CRM-3	8" x 4" x 6"	5 Lbs.
Radio Control Box	BC-732-A	3" x 3" x 4"	1 Lb.
Radio Receiver	BC-733-D	7" x 5" x 13"	21 Lbs.
Indicator	I-101-C or D	3" x 3" x 4"	2 Lbs.
Dynamotor	DM-53-AZ	3" x 3" x 5"	3 Lbs.

Includes mooring anchor, mountings, cords and adapter.

May 1945

AN/CRN-1

Radio Transmitting Equipment AN/CRN-1 is a single-tube, battery-powered, low frequency buoy transmitter, normally launched into the water from the bottom hatch of bombardment-type aircraft to mark the location of a life raft or other object. It is housed in a cylindrical case and consists of a radio transmitter, set of tubes, batteries, and a ballistic telescopic antenna. A base-ball type parachute is used to lower the equipment safely from the aircraft to the water.

This equipment covers the frequency range of 1400 to 1750 kilocycles and provides for automatic transmission of a predetermined signal on which aircraft equipped with standard radio compasses may home. The transmitted signal consists of a CW signal keyed 180 times per minute and interrupted every 30 seconds by a single code letter. Signals may normally be picked up over at least 50 miles of open sea.

The equipment is battery-operated and has a useful life of 12 hours. A timer is provided so the transmitter will automatically turn on at any predetermined time up to 12 hours after which the transmitter will still operate for 12 hours. The buoy has a soluble plug which will cause it to sink after 50 to 60 hours in the water.

This equipment is used to provide a reference point for search patterns in sea rescue work and in anti-submarine activity. No special training or instructions are necessary for its use.

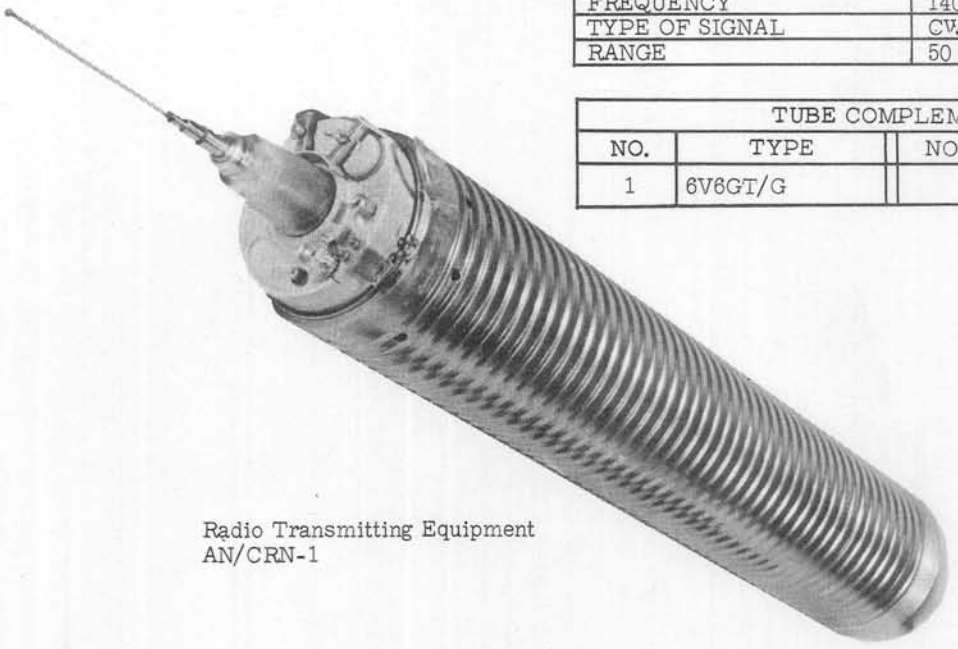
Test equipment required for maintenance includes Test Equipment TS-41/CRN-1.

Army Supply Program requirements as of 30 November 1944 were 1,050 equipments for the calendar year 1944 and 1,500 equipments for 1945.

In releasing this bouy the crew member must be securely lashed.

POWER INPUT	BATTERY PACK
POWER OUTPUT	8 WATTS
FREQUENCY	1400-1750 KC.
TYPE OF SIGNAL	CW
RANGE	50 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6V6GT/G		



Radio Transmitting Equipment
AN/CRN-1

RADIO TRANSMITTING EQUIPMENT AN/CRN-1 TOTAL WEIGHT 52 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-2/CRN-1	49" high x 8" diam.	34 Lbs.
Parachute	MX-91/CRN-1	12" high x 7" diam.	4 Lbs.
Battery	BA-201/CRN	14" long x 6" diam.	14 Lbs.

May 1945

AN/CRN-2

Radio Set AN/CRN-2, an air transportable glide-path transmitter, is a component of the AAF Instrument Approach System. Signals from the transmitter are received by the pilot of the aircraft to be landed over Receiving Equipment AN/ARN-5, providing visual indication of the proper course of descent in the vertical plane during instrument landing operation. At an altitude of 3,000 feet it provides a straight-line glide path course with good definition from a minimum distance of 15 miles from the point of landing contact with the ground. The angle indicated between the horizontal and the glide path is readily adjustable between 2 and 5 degrees.

The equipment operates in the frequency range of 329 to 335 mc. At present, crystals are supplied to operate at 332.6, 333.8 and 335 mc.

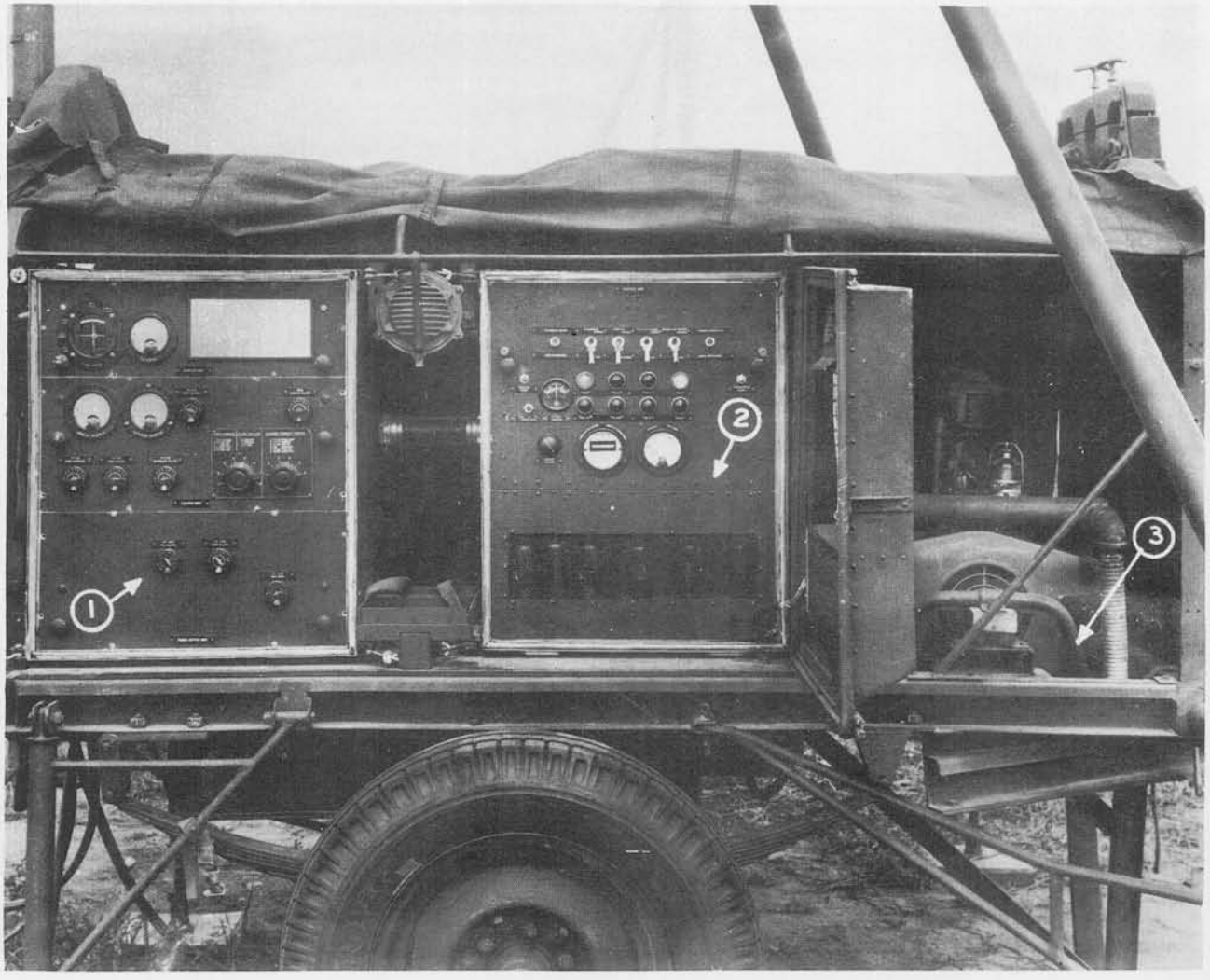
Transmitting components are installed in an air transportable trailer which is a part of the equipment. The antenna system consists of a 30-foot mast which supports the folded dipole antennas. A monitor is included in the equipment to provide automatic cut-off of the glide path carrier in the event of change in path positions, modulation frequency, field strength and/or failure of the monitor. Two-way communication between the set and the control center of the instrument approach system is provided by Radio Set SCR-610.

Test equipment required for maintenance is furnished with the basic equipment. Power for operation is obtained from a 115 volt, 60-cycle power source.

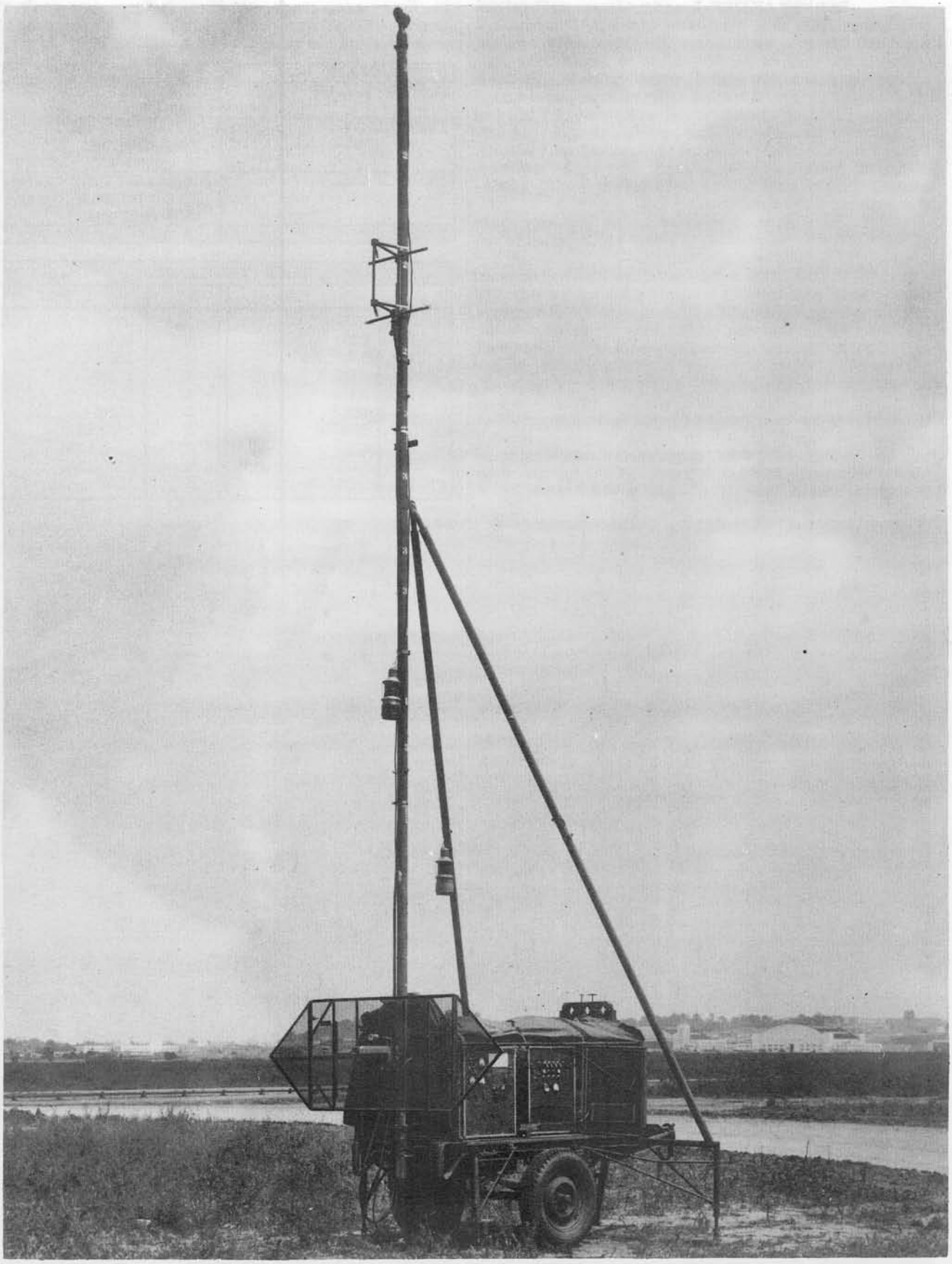
Army Supply Program requirements as of 27 December 1944 were for 450 equipments for the calendar year 1944 and 145 equipments for 1945.

POWER INPUT	115 WATTS@115 VOLTS
POWER OUTPUT	25 WATTS OF CW POWER
FREQUENCY	329-335 MC. CRYSTAL FREQUENCIES 332.6 MC. 333.8 MC. 335 MC.
TYPE OF SIGNAL	STRAIGHT LINE GLIDE PATH-DOUBLE BEAM MCW SYSTEM
RANGE	15 MILES AT 3000 FEET.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	3	5U4G
1	832	2	836
1	829B	1	957
4	8025	1	1LH4
1	9002	1	1LC6
1	6SK7	5	1LN5
3	6SN7GT	2	3B7/1291
1	6J5	1	1B4/1294
2	OB3/VR-90	4	3D6/1299
1	OD3/VR-150	1	1005



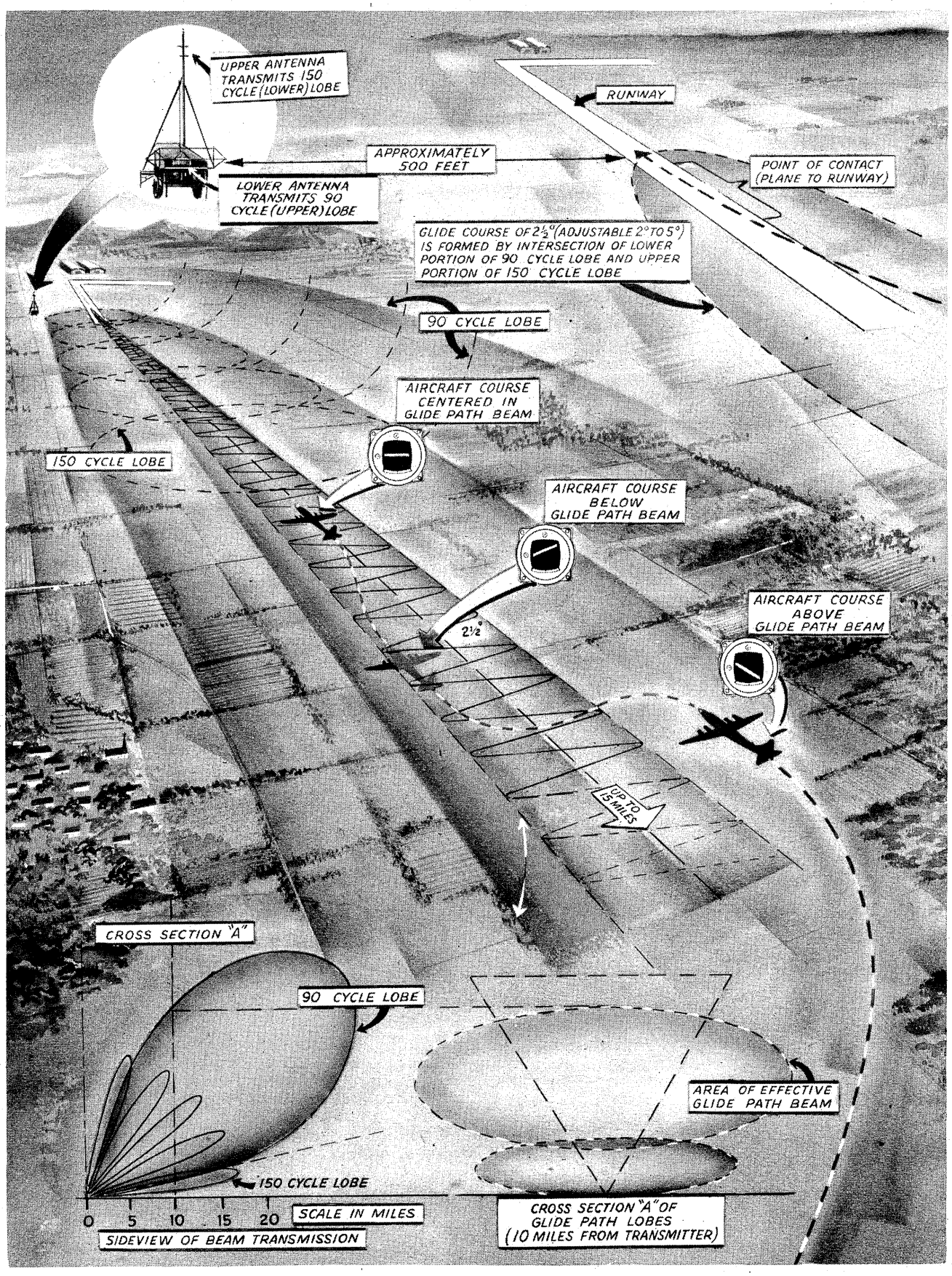
Close up of Radio Set AN/CRN-2 showing 1.Transmitter 2.Power Supply 3.Power Unit



In operation Radio Set AN/CRN-2 is located approximately 750 feet from the approach end of the runway and 400 feet to one side (or the other) of the runway's center line.

May 1945

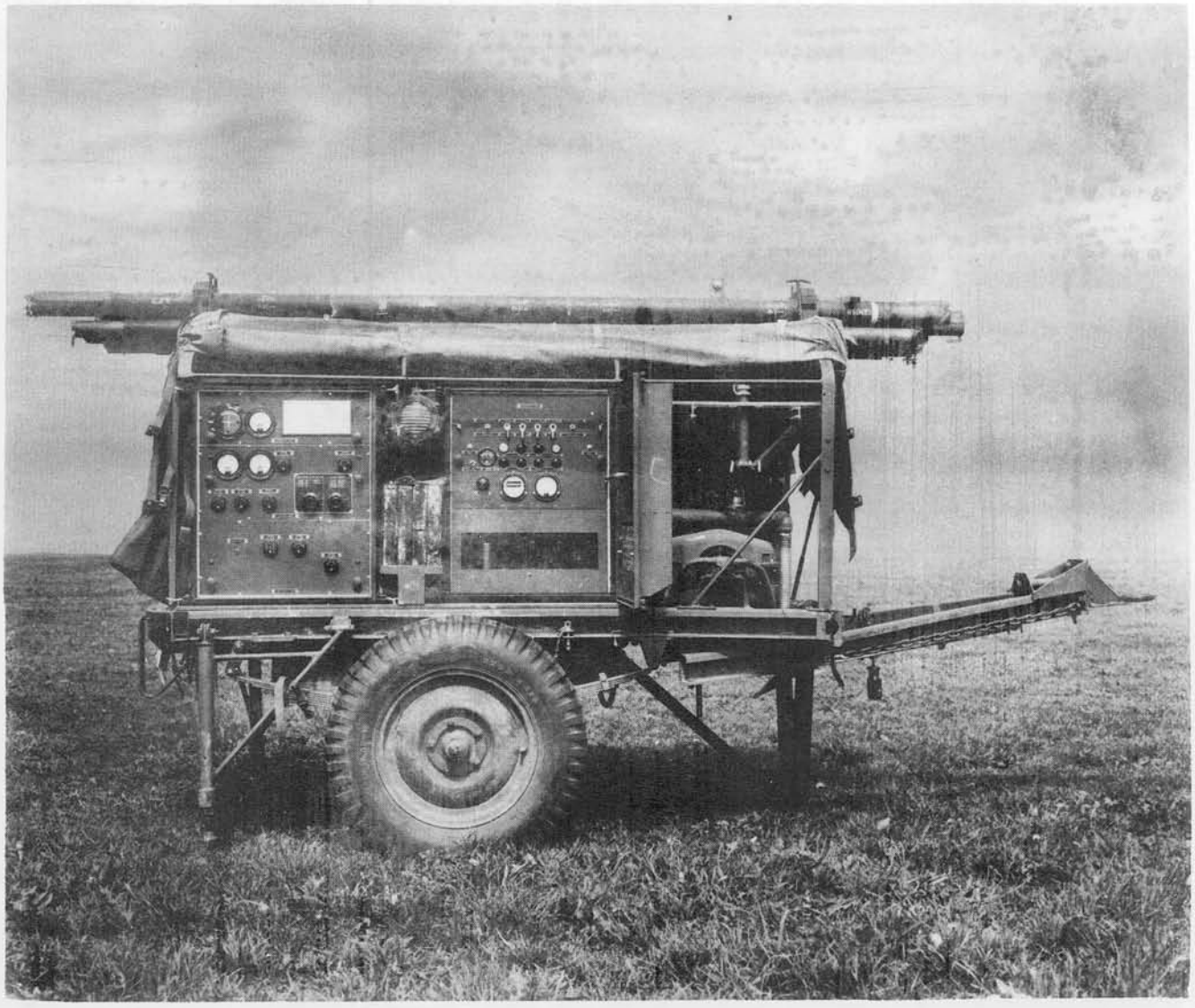
AN/CRN 2



Radio Set AN/CRN-2 is a self contained glide path transmitter, part of the AAF instrument approach system. The glide path beam is obtained by two lobes which intersect and project outward from the runway at an angle of 2½° for a distance of approximately 15 miles.

May 1945

AN/CRN-2



Radio Set AN/CRN-2 packs into a simple trailer which permits rapid transport by air or ground.

RADIO SET AN/CRN-2

TOTAL WEIGHT 1800 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-3/CRN-2	39" x 25" x 24"	227 Lbs.
Rectifier Power Unit	PP-29/ARN-2	24" x 21" x 25"	254 Lbs.
Auto Transformer	MX-95/CRN-2	8" x 8" x 12"	48 Lbs.
Antenna System	AS-2/CRN-2		
Trailer	C-1/CRN-2	5' x 10' x 5'	1033 Lbs.
Power Unit	PU-1/CRN-2	20" x 32" x 16"	226 Lbs.
Chest	CY-63/CRN-2	16" x 16" x 17"	77 Lbs.
Kerosene Obstruction Light		15" x 6" diam.	7 Lbs.
Battery	BA-57 (2 each)	16" x 7" x 10"	62 Lbs.
Voltmeter	TS-40/CRN-2	12" x 5" x 4"	23 Lbs.
Radio Receiver-Transmitter	BC-659-( )	7" x 14" x 15"	25 Lbs.
Power Unit	PE-120-( )	7" x 14" x 15"	25 Lbs.
Vibrator	VB-12 (2 each)	2" x 3" x 2"	1 Lb.
Antenna	AN-29-C	154" long extended	1 Lb.
Handset	TS-13-( )	10" x 3" x 3"	1 Lb.
Vibrator	VB-13 (2 each)	2" x 3" x 2"	1 Lb.

and includes mountings, tools, cables, crystals, and other accessories.

May 1945

AN/CRN-4

Radio Transmitting Equipment AN/CRN-4 is an air transportable, low-powered radio homing equipment for ground use in troop carrier operations. The equipment is packaged in such a manner as to allow it to be carried to the ground by either one or two paratroopers and set up for operation in approximately 30 minutes. It is capable of providing a signal for the homing of aircraft equipped with radio compasses of the type SCR-269 or the AN/ARN-7 over a range of 30 miles.

The tuning range is 1400 to 1750 kc. The set is designed to permit simultaneous operation of eight beacons within a 10-mile radius without interference between beacons. Power is supplied by a special dry battery pack.

Radio Transmitting Equipment AN/CRN-4-A is a modification of AN/CRN-4 in that a vibrator power supply has been substituted for the dry battery pack, and a vertical antenna mast which acts as an antenna, replacing the two supporting masts and antenna assembly formerly used.

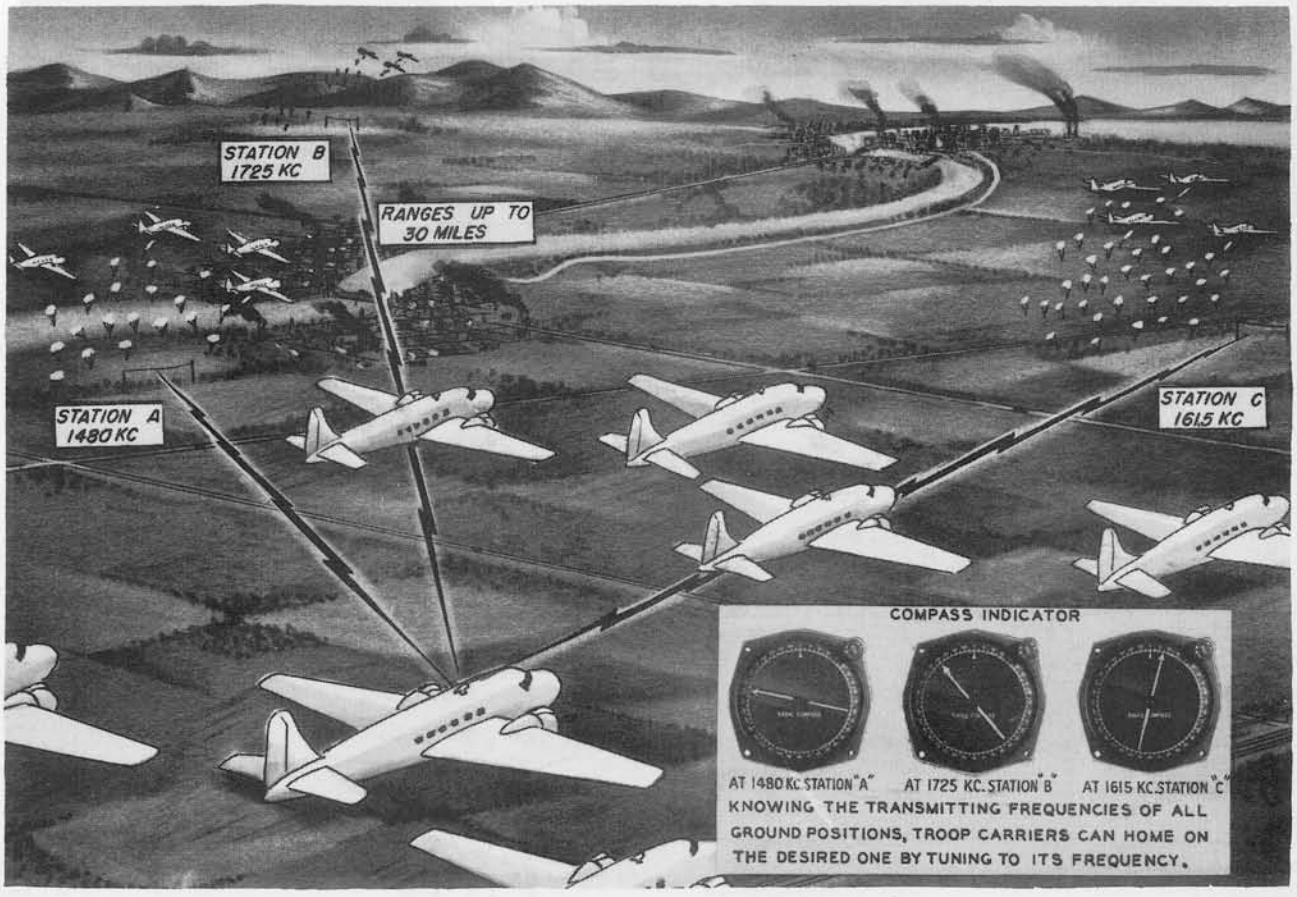
Standard test equipment, including a frequency meter, SCR-211, and a multimeter, TS-297/U, are the only test equipments required for maintenance.

Army Supply Program requirements as of 30 November 1944 were 450 equipments for the calendar year 1944.

Radio Set AN/CRN-4 dropped with pathfinder troops may be set up in 30 minutes.

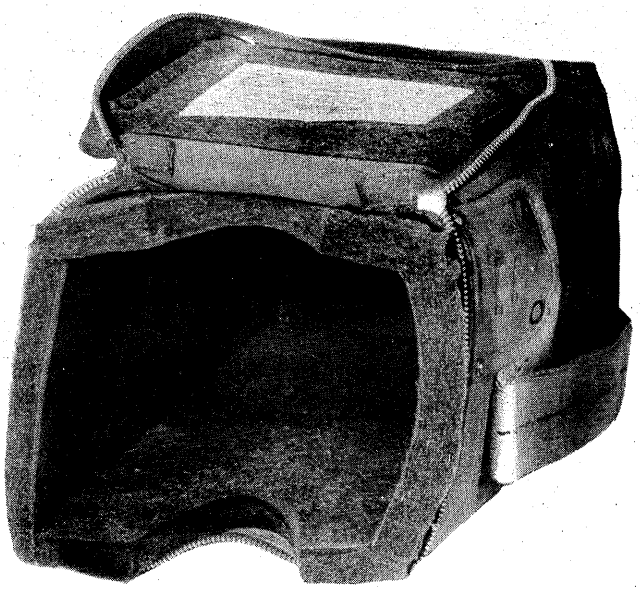
POWER INPUT	SPECIAL DRY BATTERY PACK
FREQUENCY	1400 TO 1750 KC.
TYPE OF SIGNAL	AUTOMATICALLY KEYED CW TONE MODULATED
RANGE	30 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6V6GT/G		

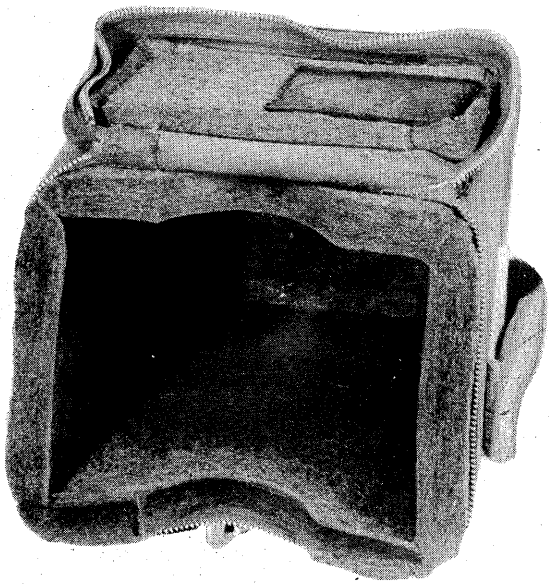


Radio Transmitting Equipment AN/CRN-4 was designed primarily to provide homing facilities for troop carrying aircraft operating behind enemy lines or under conditions of poor visibility.

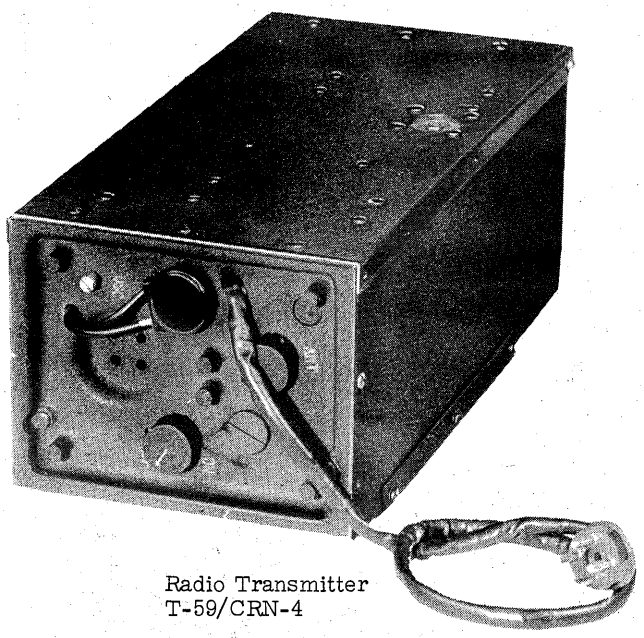
AN/CRN-4



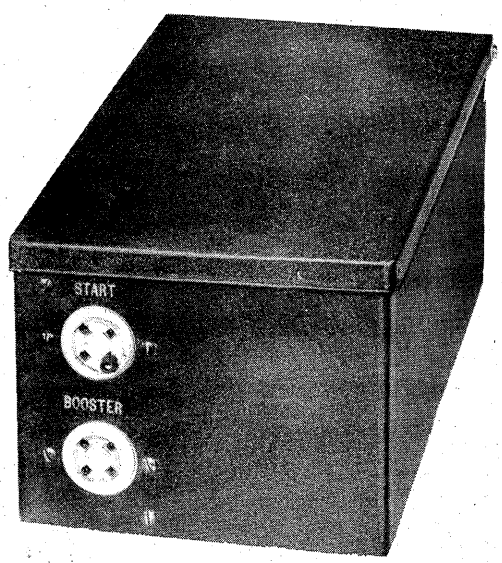
Bag CW-25/CRN-4
(For Transmitter)



Bag CW-26/CRN-4
(For Battery)



Radio Transmitter
T-59/CRN-4



Battery Box
CY-83/CRN-4

RADIO TRANSMITTING EQUIPMENT AN/CRN-4 TOTAL WEIGHT 55 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-59/CRN-4	7" x 6" x 13"	10 Lbs.
Antenna Assembly	AS-85/CRN-4	33" x 12" x 5"	16 Lbs.
Battery Box	CY-83/CRN-4	13" x 6" x 7"	17 Lbs.
Bag	CW-25/CRN-4	9" x 8" x 14"	4 Lbs
Bag	CW-26/CRN-4	9" x 8" x 14"	4 Lbs.
Antenna Assembly	AS-243/CRN-4A	13" x 6" x 7"	5 Lbs.
Vibrator Power Unit	PP-161-()-CRN-4A	6" x 5" x 13"	5 Lbs.
Bag	CW-125/CRN-4A	4" diam. x 36" long	1 Lb.

and includes operating spare parts kit.

May 1945

AN/CRN-10

Radio Set AN/CRN-10 is an air transportable trailer mounted localizer equipment used in the AAF Instrument Approach System. Function of this equipment is to provide a signal to guide an RC-103 equipped aircraft to the line of a runway. This equipment is lighter in weight but functionally similar to Radio Set AN/MRN-1. It is intended for use where air transportable localizer equipment is desirable and is expected ultimately to replace Radio Set AN/MRN-1.

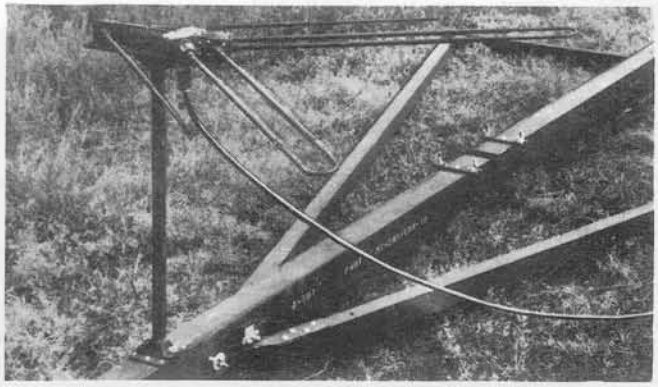
Mounted on a trailer similar to that utilized for Radio Set AN/CRN-2 (glide path transmitter), the equipment is suitable for transportation in cargo type aircraft. Care must be taken when installing the equipment and its radiation system to insure a minimum hazard to aircraft. The power unit is mounted on wheels rather than in the trailer and is also air transportable.

Provision is made for remote start-stop control and also for two-way communications between the monitor location, the localizer equipment, and the control center of the instrument landing system.

The equipment is operable from a 115-230 volt, 50-60 cycle power source and includes a standard auxiliary gasoline engine power unit which is capable of continuous operation. A course monitor provides visual and aural alarm in the event of change in course positions, modulation frequencies, field strength, or failure of the monitor. Accuracy of the course definition and the straightness or stability of the defined course permits the landing of military aircraft on a runway 100 feet wide at a minimum distance of 6,000 feet from the localizer equipment. This equipment represents considerable improvement over Radio Set AN/MRN-1 in its reduced size and weight and improved antenna pattern.

Test equipment required for maintenance is included in parts for the set.

Army Supply Program requirements as of 1 February 1945 were 146 sets for the calendar year 1945.



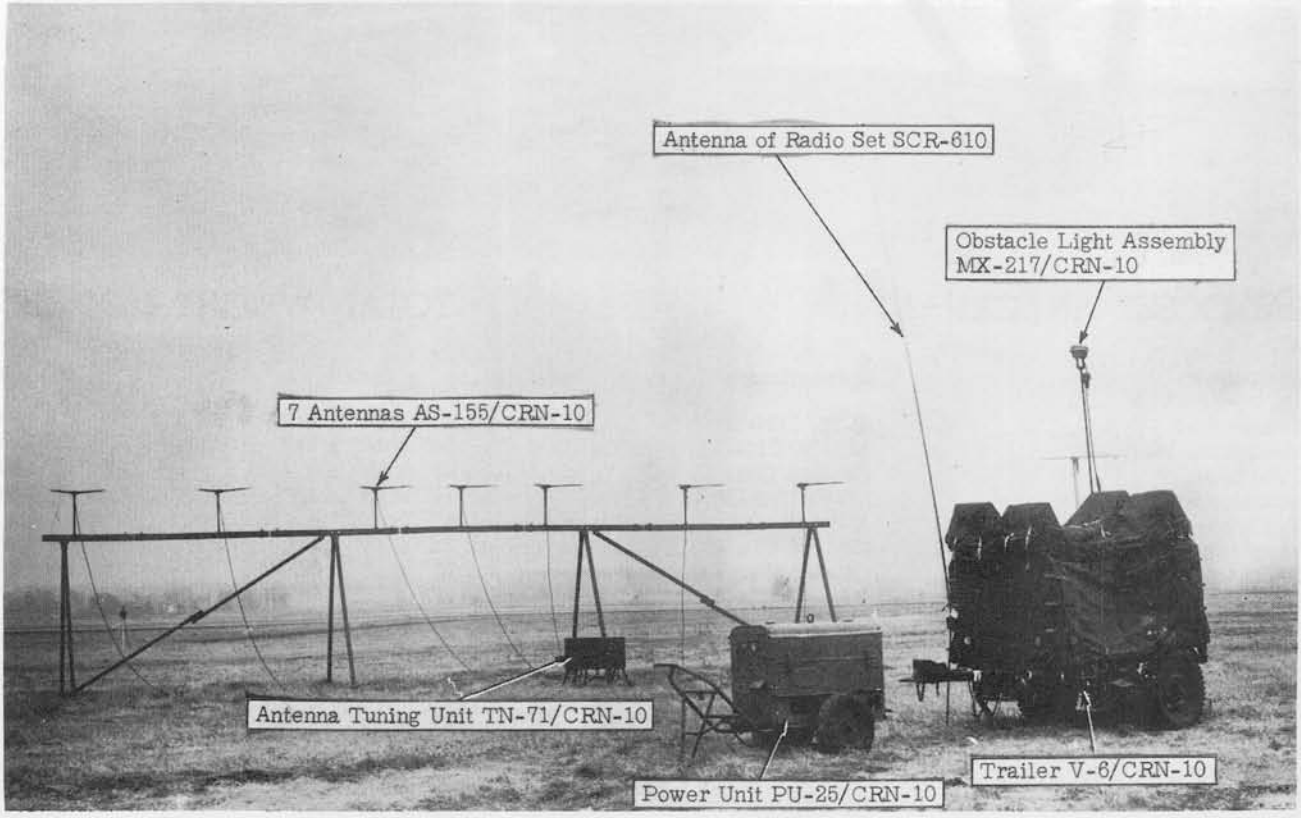
One of seven antenna arrays require to produce field pattern.

POWER INPUT	1 KW @ 115 VOLTS
POWER OUTPUT	35 WATTS
FREQUENCY	108.3-110.3 MC
TYPE OF SIGNAL	MCW
RANGE	40 MILES AT 2500 FEET ALTITUDE

* TUBE COMPLEMENT

NO.	TYPE	NO.	TYPE
1	1R5	2	6H6
1	957	2	2051
2	1LN-5	1	6K6GT/G
1	1S5	2	807
1	3S4	3	4E27
1	9002	1	5V4G
1	6X5GT/G	4	836

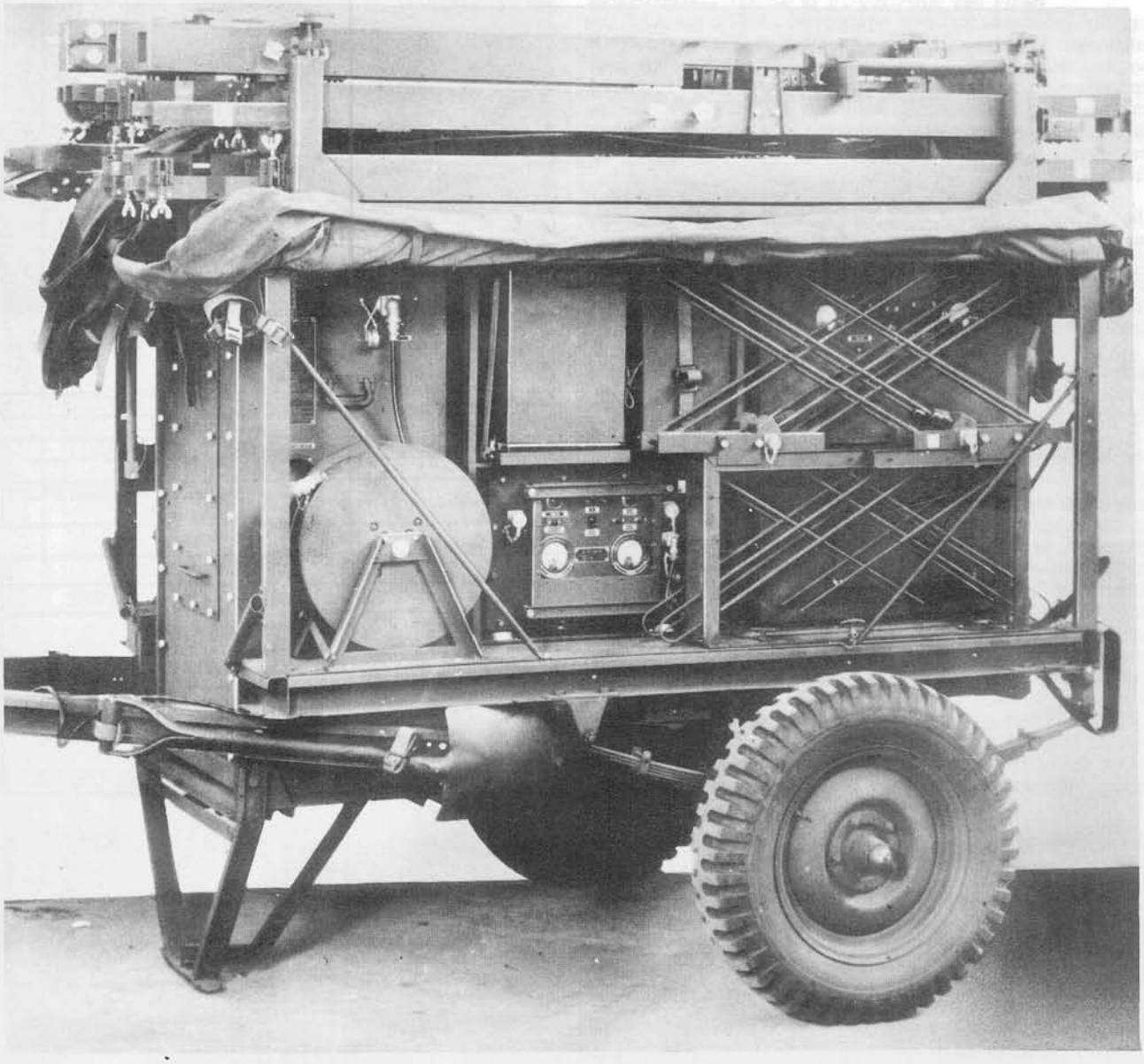
* Does not include tubes for SCR-610 and AN/CRM-3.



Radio Set AN/CRN-10 set up for operation provides landing aircraft with alignment of runway in instrument approaches.

May 1945

AN/CRN-10



RADIO SET AN/CRN-10

TOTAL WEIGHT 4000 LBS.

Component	Nomenclature	Size	Weight
Transmitter	T-66/CRN-10	26" x 26" x 31"	412 Lbs.
Mechanical Modulator	MD-24/CRN-10	24" x 44" x 21"	153 Lbs.
Tube Case	CY-242/CRN-10	25" x 12" x 7"	10 Lbs.
Indicator Box	ID-70/CRN-10	19" x 13" x 13"	77 Lbs.
Trailer	V-6/CRN-10	6'7" x 5'2" x 5'3"	
Chest	CY-184/CRN-10	12" x 16" x 8"	100 Lbs.
Cable Case	CY-241/CRN-10	55" x 23" x 5"	87 Lbs.
Reel Assembly	RL-107/CRN-10	17" x 16" x 9"	9 Lbs.
Obstacle Light Assembly	MX-217/CRN-10	8" x 14" x 6"	8 Lbs.
Radio Monitoring Set	AN/CRN-3	20" x 20" x 17"	75 Lbs.
Power Unit	PU-25/CRN-10	28" x 48" x 20"	685 Lbs.
Frequency Converter	PU-15/CRN-10		300 Lbs.
Radio Set	SCR-610	16" x 14" x 51"	137 Lbs.
Antenna System	AS-156/CRN-10	492" x 119" x 85"	
Antenna Tuning Unit	TN-71/CRN-10	33" x 18" x 12"	39 Lbs.
8 Antennas	AS-155/CRN-10	37" x 30" x 3"	5 Lbs.
Course Detector	TS-179/CRN-10	12" x 9" x 31"	26 Lbs.

and includes cords, plugs, mountings, etc.

May 1945

AN/CRT-3

Radio Set AN/CRT-3 is an air-transportable, hand-powered emergency transmitting system designed for operation from a rubber life raft and to serve as an aid to sea rescue. It consists of a modified SCR-578-A and operates on the international distress frequency of 500 kc.

AN/CRT-3 also operates on a frequency of 8280 kc. with a 1000 cycle MCW note on 500 kc. and CW emission only on 8280 kc. Transmission is automatically shifted every 40 seconds from one frequency to the other. Operational manual keying on the international distress frequency is provided. When manually keyed, the transmitter operates only on the international distress frequency. The frequency shifting mechanism is then inoperative.

Use of 8280 kc. provides a means of obtaining long range bearing from landbased direction finding stations so that ships or aircraft can be dispatched to the general location, and the 500 kc. transmitter is used by the rescue craft to home on the life raft. On test using the 8280 kc. frequency, satisfactory bearings have been obtained up to 1,600 miles. Included in the equipment is a parachute to permit dropping of the set into the sea without damage.

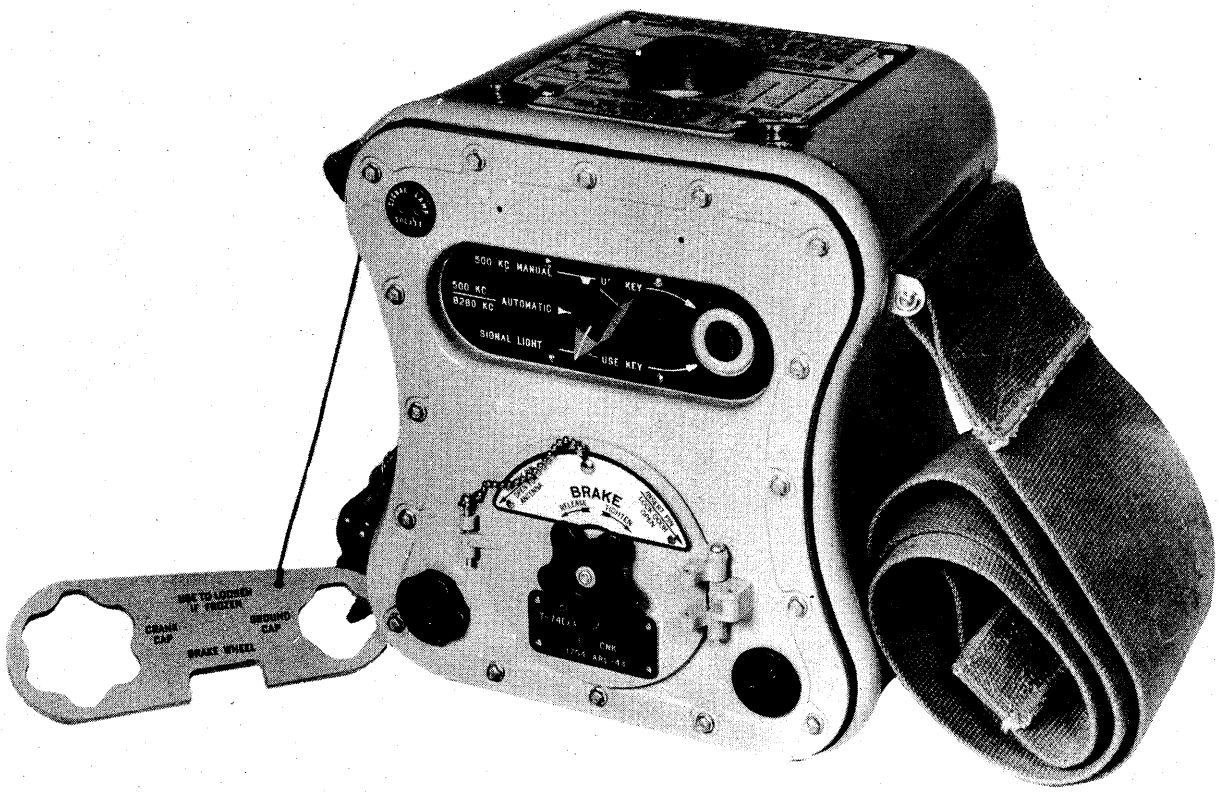
Test equipment for maintenance is under development.

Army Supply Program requirements for AN/CRT-3 and/or SCR-578 as of 31 October 1944 were 40,742 equipments for the calendar year 1944 and 43,023 for 1945.

POWER INPUT	HAND CRANKED
FREQUENCY	500 KC. & 8280 KC.
TYPE OF SIGNAL	MCW FOR 500 KC. CW FOR 8280 KC.
RANGE	200 MILES AT 500 KC. 1600 MILES AT 8280 KC.
DUAL FREQUENCY	40 SECONDS

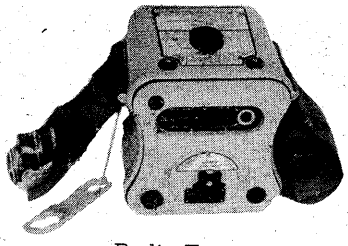
Radio Set AN/CRT-3 packed with parachute M-340-A attached.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12A6	1	12SC7



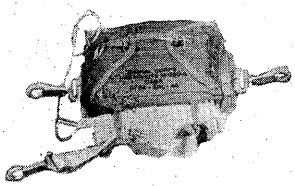
Front View of Radio Transmitter T-74(XA-A)/CRT-3(XA-2)

AN/CRT-3



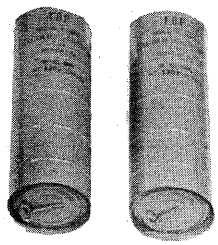
Radio Transmitter
T-74(XA-A)/CRT-3(XA-2)

Bag BG-155-A

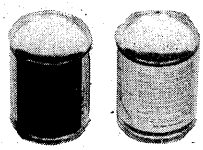


Parachute
M-390-A

Signal Lamp
M-308-B

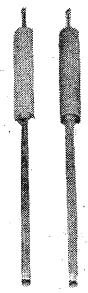


Generators
M-315-B



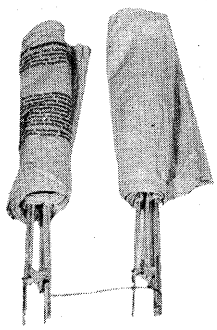
Balloons
M-278-A

Antenna Reels



Inflating Tubes

Inner Bag



Kite
M-357-A

RADIO SET AN/CRT-3

TOTAL WEIGHT 32 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-74/CRT-3	10" x 14" x 9"	16 Lbs.
Antenna Assembly	AS-207/CRT-3 (2 each)	3" x 3" Diam.	*
Signal Lamp	M-308-B	2" x 3" Diam.	*
Kite	M-357-A	18" x 4" Diam.	1 Lb.
Balloon	M-278-A	5" x 4" Diam.	1 Lb.
Generator	M-315-B	12" x 4" Diam.	3 Lbs.
Parachute	M-390-A	9" x 9" x 5"	3 Lbs.
Bag	BG-155-A	20" x 17" x 14"	7 Lbs.
Lamp	LM-58-A		

*less than one pound.

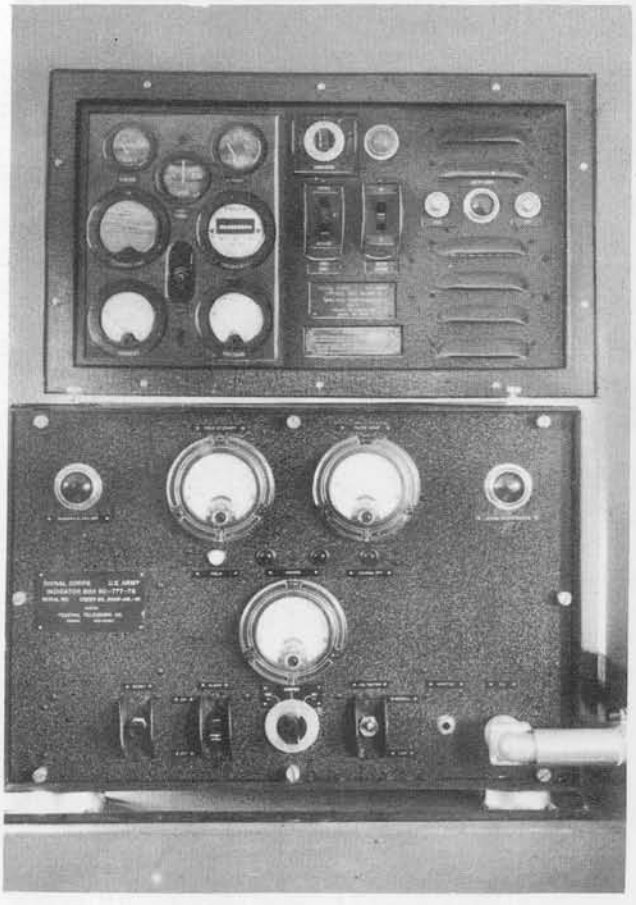
March 1945

Radio Set AN/MRN-1 is a portable multi-frequency instrument approach localizer, a part of the AAF Instrument Approach System. The function of the equipment is to provide a signal to guide an RC-103 equipped airplane to the line of a runway. It furnishes signals for orienting an airplane in the horizontal plane to provide positioning along the centerline of the landing runway. Other components of the Army Air Force Instrument Approach System furnish signals for orienting an airplane in the vertical plane (glide path) to provide a path for descent, and marker beacon signals to indicate the position of an airplane with relation to the location of the landing strip. The equipment is installed in a K-53-D truck.

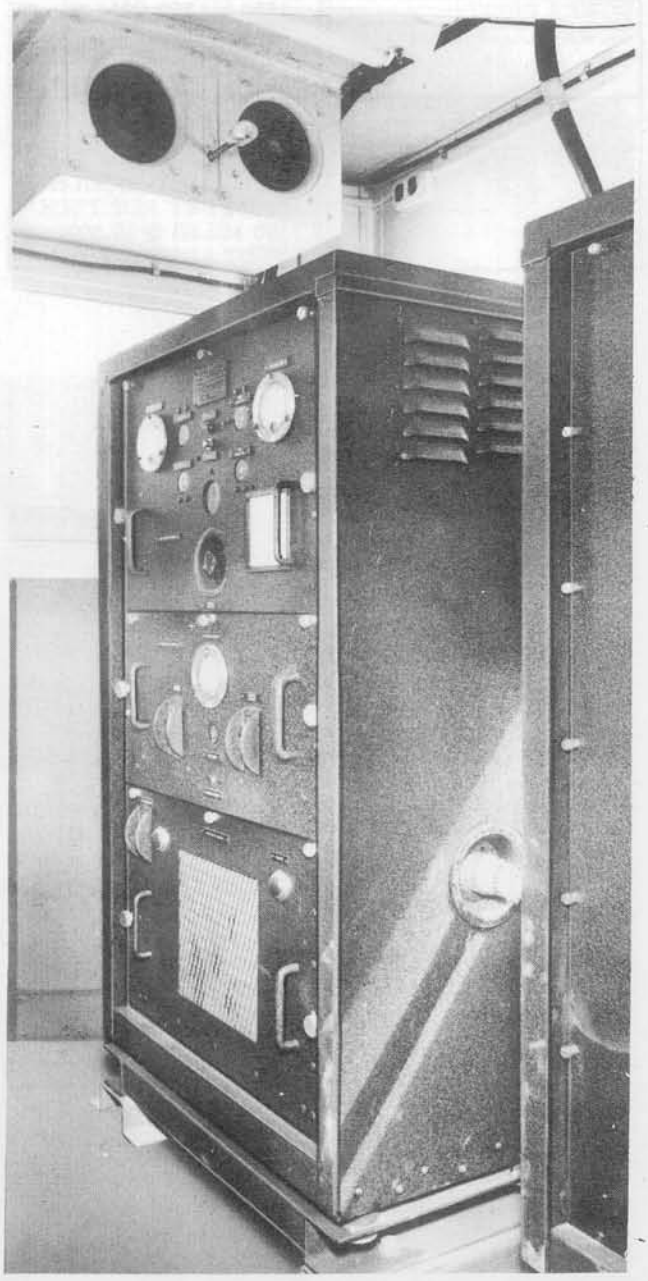
The set radiates two intersecting field patterns, one of which is modulated at an audio frequency of 90 cycles per second and the other at an audio frequency of 150 cyles per second. The shape of the radiated patterns is such that they intersect in a vertical plane, called the "Course", which can be oriented (by positioning the truck) to intersect the ground in a line which coincides with the center line of a landing runway. A localizer receiver-equipped airplane is thereby provided a course to be flown to a predetermined runway under conditions of poor visibility.

The range of the equipment is a function of the elevation of the receiving antenna; approximately 40 miles at an elevation of 2,500 feet; 70 miles at 6,000 feet; and 100 miles at 10.000 feet.

Radio Set AN/MRN-1 has a frequency range from 108.3 to 110.3 mc., and may be operated on any frequency within that range by merely inserting the proper crystal unit and properly tuning Radio Transmitter BC-751-A. Six Crystal Units DC-17-A are provided for operation on 108.3, 108.7, 109.1, 109.5, 109.9 and 110.3 mc. Although the equipment is designed for operation on six frequencies, the frequencies assigned for instrument approach use are 108.7, 109.5 and 109.9 mc. Power is furnished from a 115 volt, 60 cycle source.



Indicator BC-777 installed in truck.



Radio Transmitter BC-751 installed in truck.

As used by the 13th and 14th Air Forces in the CBI theater, with the upper antenna array mounted on a 70-foot support to project the beam over mountainous terrain, its range is 100 miles at 10,000 feet altitude. It is used as a navigational aid for cargo airplanes flying over the "hump."

Radio Set AN/CRN-10, a portable localizer transmitter will ultimately replace the AN/MRN-1 since it provides the same type of signals, is of reduced size and weight, and has improved antenna pattern which reduces the energy in reflecting objects to the rear of the localizer.

Test equipment required for maintenance and tuning is contained in the parts list for the equipment.

As of 1 February 1945 there were no requirements on the Army Supply Program.

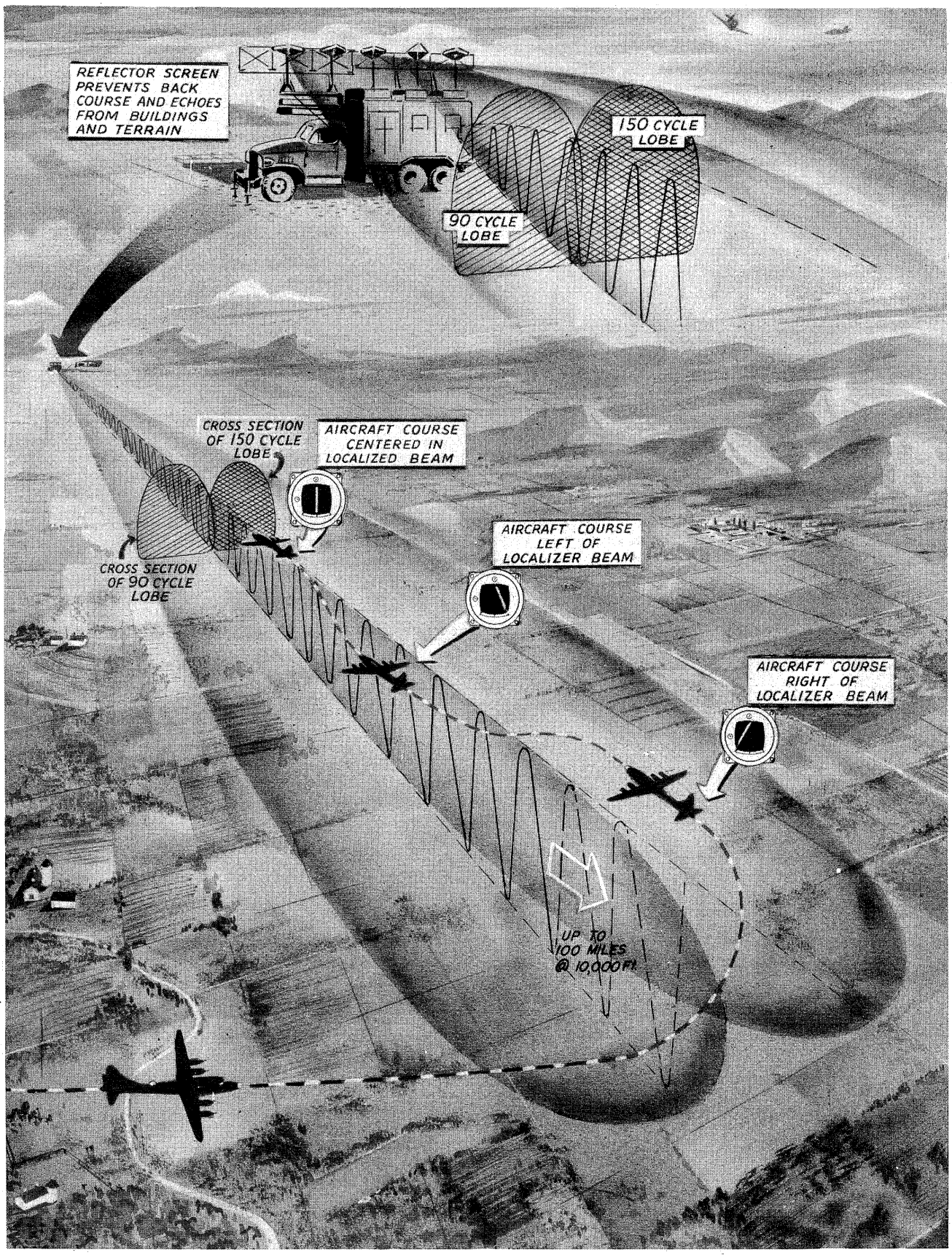
AN/MRN-1

POWER INPUT	1250 WATTS@115 VOLTS
POWER OUTPUT	CW & VOICE-100 WATTS PEAK MCW-25 WATTS PEAK
FREQUENCY	108.3-110.3 MC.
TYPE OF SIGNAL	CW, MCW & VOICE
RANGE	40 MILES @ 2500 FEET ALTITUDE--70 MILES@ 6000 FEET ALTITUDE 100 MILES @ 10,000 FEET ALTITUDE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	9002	2	6H6
1	6SF5	2	2051
1	6K6GT/G	4	807
1	6X5GT/G	3	4E27
1	1R5	1	6F6
1	957	1	6SN7GT
2	1LN5	1	5V4G
1	1S5	4	836
1	3S4	2	VR-150-30

Course Detector BC-753 is generally placed well away from and parallel to antenna equipment RC-109.

AN/MRN-1



Radio Set AN/MRN-1 is a portable multi-frequency instrument landing localizer used in conjunction with Airborne Radio Receiving Equipment RC-103-A,-AZ. It transmits a forward course beam which enables approaching aircraft to establish lateral alignment with the runway.

May 1945

AN/MRN-1

RADIO SET AN/MRN-1

TOTAL WEIGHT 16,900 LBS.

Component	Nomenclature	Size	Weight
Control Box	BC-915-A	24'' x 14'' x 8''	49 Lbs.
Course Detector	BC-753-A	20'' x 13'' x 22''	65 Lbs.
Course Detector	BC-754-A	32'' x 10'' x 8''	24 Lbs.
Fuel Pump		22'' x 6'' diam.	13 Lbs.
Heater	M-321-A	69'' x 13'' x 14''	120 Lbs.
Indicator Box	BC-777-A	19'' x 14'' x 13''	60 Lbs.
Junction Box	JB-58-A	15'' x 10'' x 4''	8 Lbs.
Junction Box	J-7/MRN-1	7'' x 6'' x 3''	3 Lbs.
Modulator & Bridge	BC-752-A	47'' x 33'' x 23''	330 Lbs.
Power Unit	PE-141-A	49'' x 37'' x 21''	804 Lbs.
Radio Transmitter	BC-751-A	47'' x 31'' x 28''	549 Lbs.
Range Poles	M-382-A	72'' long	4 Lbs.
Maintenance Parts in Chest	CH-181	65'' x 37'' x 22''	851 Lbs.
Tool Equipment		17'' x 11'' x 6''	24 Lbs.
Truck	K-53-D	252' x 116' x 93'	11,700 Lbs.
Radio Set	SCR-610		137 Lbs.
Radio Monitoring Set	AN/CRM-3		
Antenna Equipment	RC-109	226'' x 48'' x 34''	564 Lbs.

and includes cables, mountings, batteries, cords, etc.

May 1945

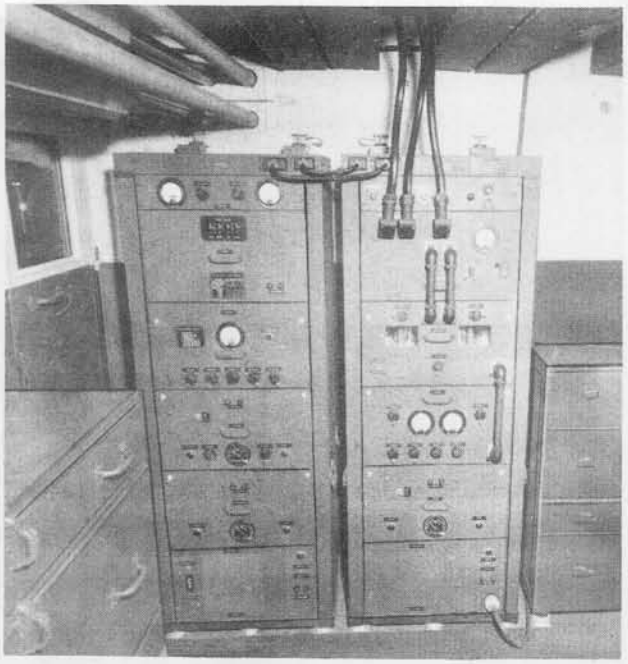
AN/MRN-2

Radio Set AN/MRN-2 is a ground, mobile, two-course VHF aural radio range with station identification, periodic sector identification and simultaneous voice transmission. It is a crystal controlled set and operates in the frequency range of 100 to 156 mc. for use in guiding aircraft equipped with VHF communications receivers, such as Radio Set SCR-522, to landing field, or for use in flying ferry routes.

Adjustable over the frequency band of 100 to 156 mc., operation without readjustment is limited to a band of 5 mc. The equipment, including the antenna, can be readjusted to any frequency within one-half to one hour provided the necessary crystals are available. The selection of operating frequency depends on the proposed use of the equipment.

Considerable attention to siting the VHF radio range equipment is required. The use of vertical polarization gives rise to some reflection from trees within 500 feet of the radio range site. Thus it must be located in a cleared space of 500 feet radius. To obtain nearly perfect courses a cleared space of 1,000 feet radius is recommended.

Extensive flight tests indicate that course bends produced by the location of Radio Set AN/MRN-2 in mountainous terrain are not too severe to make its operation unsatisfactory; bends produced by location of the transmitter in a valley are more severe than those produced by its location on top of a mountain; location on top of a mountain greatly increases distance range obtained; and operation of the voice modulation channel is very satisfactory. Power for operation is furnished by a 2 KVA gasoline driven power unit.



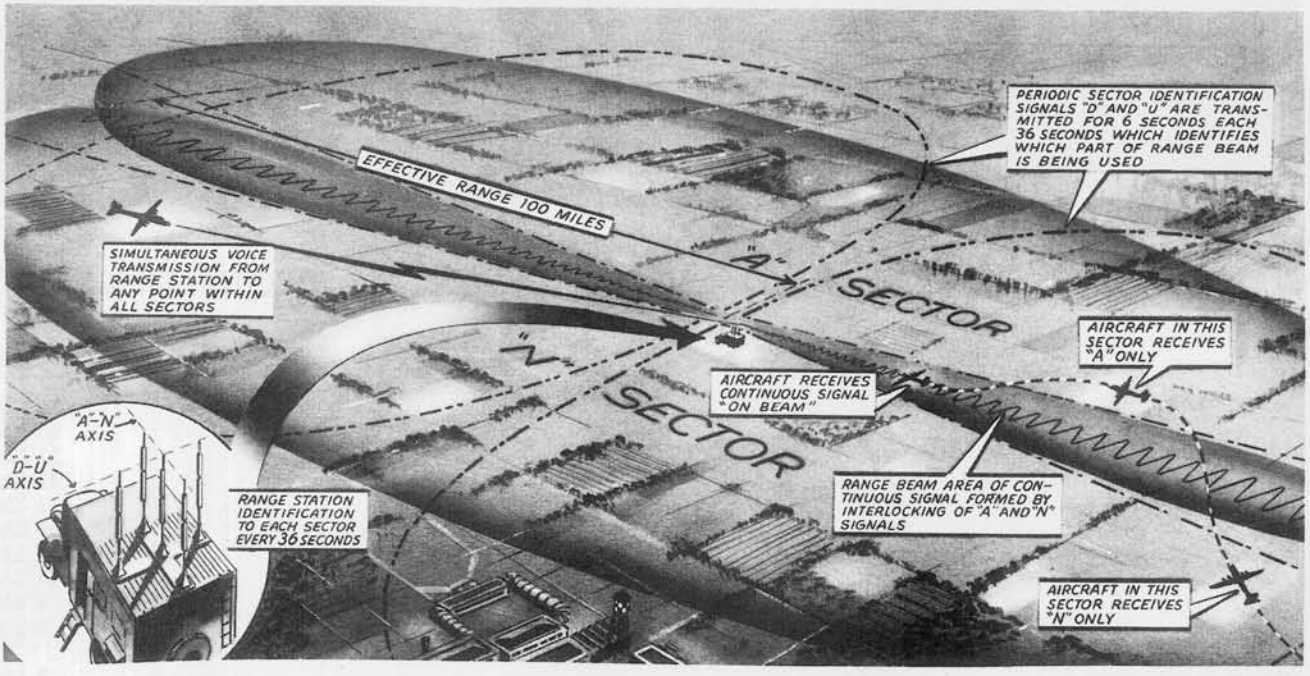
Range Transmitters installed in forward part of truck.

Test equipment required for maintenance and tuning is furnished with the basic equipment.

There were no Army Supply Program requirements as of 1 February 1945.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6B8	4	807
3	6H6	2	829
2	6J5	2	832
2	6SJ7	6	836
3	6SN7GT	1	2050
3	6V6GT	1	OD3/VR-150
2	6X5GT	1	6SK7GT/G

POWER INPUT	200 WATTS@ 115 VOLTS 60 CYCLES
POWER OUTPUT	CONE OF SILENCE-25 WATTS; TRANSMITTER CARRIER - 100 WATTS SIDE BAND -50 WATTS
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	100 MILES
ANTENNA POLARIZATION	VERTICAL



Radio Set AN/MRN-2, a ground, mobile two course VHF aural radio range, provides station identification, periodic sector identification and simultaneous voice transmission.

AN/MRN-2

~~RESTRICTED~~
UNCLASSIFIED

RADIO SET AN/MRN-2

TOTAL WEIGHT 13,500 LBS.

Component	Nomenclature	Size	Weight
Amplifier	AM-11/CRN-5	10" x 6" x 4"	14 Lbs.
Antenna	AT-7/CRN-5	135" x 6" diam.	46 Lbs.
Monitor	TS-22/URN	8" x 6" x 29"	11 Lbs.
Phaser	CU-3/CRN-5	5" x 13" x 44"	41 Lbs.
Power Control Unit	C-49/CRN-5	30" x 14"	41 Lbs.
Power Unit	PU-3/CRN-5	18" x 36" x 31"	460 Lbs.
Radio Transmitter	T-10/CRN-5	62" x 23" x 18"	384 Lbs.
Rectifier Modulator	MD-3/CRN-5	62" x 23" x 18"	561 Lbs.
Test Set	I-77-A	4" x 3" x 7"	2 Lbs.
Voltmeter	TS-21/CRN-5	4" x 5" x 12"	3 Lbs.
Antenna Base	AB-1/CRN-5	8" x 10" x 24"	
Compass Assembly	B-16		2 Lbs.
Truck	K-53-D		11,700 Lbs.

May 1945

Marker Beacon Set AN/MRN-3 is a jeep-mounted transmitter providing a vertical fan-shaped pattern for boundary marking and a channel for communication with the airport control tower.

AN/MRN-3 replaces the Instrument Landing Equipment SCR-241 in the AAF Instrument Approach System. Each system requires three marker beacon sets, one to be located in the airport runway boundary, one at approximately one mile from the approach end of the runway and one 4 1/2 miles from the approach end of the runway all on the center line of the runway to be used.

The equipment transmits a vertical pattern to be received by Marker Beacon Receiving Equipments RC-39, RC-43, RC-193-( ), AN/ARN-8 or AN/ARN-12, marking reference points in the instrument landing system. A signal amplitude modulated at 1300 cycles per second, may be keyed at two dashes per second, six dots per second or may be unkeyed. A power input of 125 watts from a power source of 115 volts 60 cycles per second is required for operation.

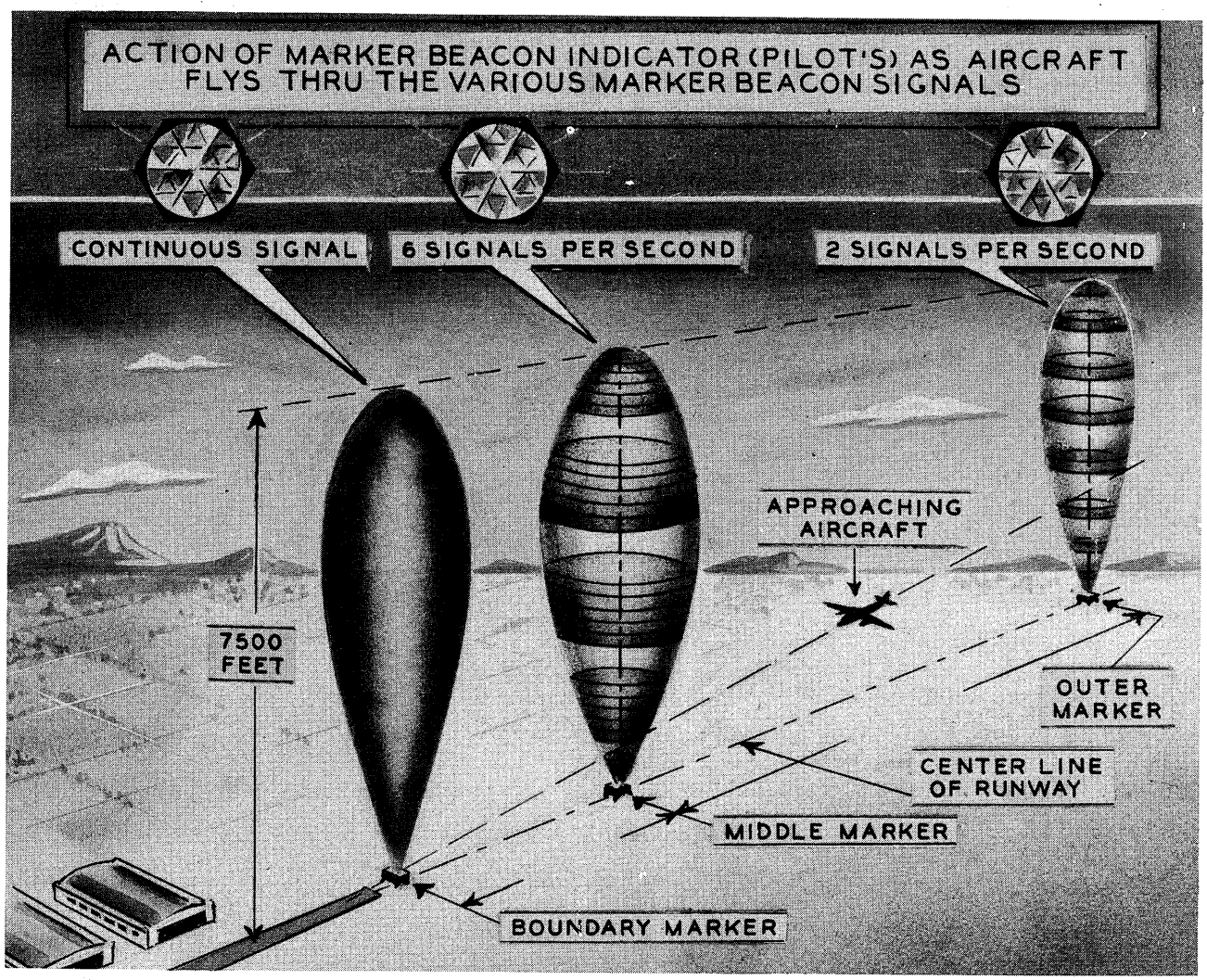
The marker beacon transmitter projects a vertical fan-shaped pattern to a height of approximately 3,000 feet. The transmitter is placed so that the longer horizontal axis of the beam is perpendicular to the line of approach. A pilot flying through the marker signal at an altitude of 900 feet and a speed of 120 miles per hour will receive an indication from his marker beacon receiver for approximately 12 seconds. Flying through the same pattern at 200 feet (speed 120 miles per hour), he will receive an indication for approximately 6 seconds.

Test equipment required for maintenance includes Maintenance Equipment ME-13.

Army Supply Program requirements as of 1 February 1945 were 497 equipments for the calendar year 1945.

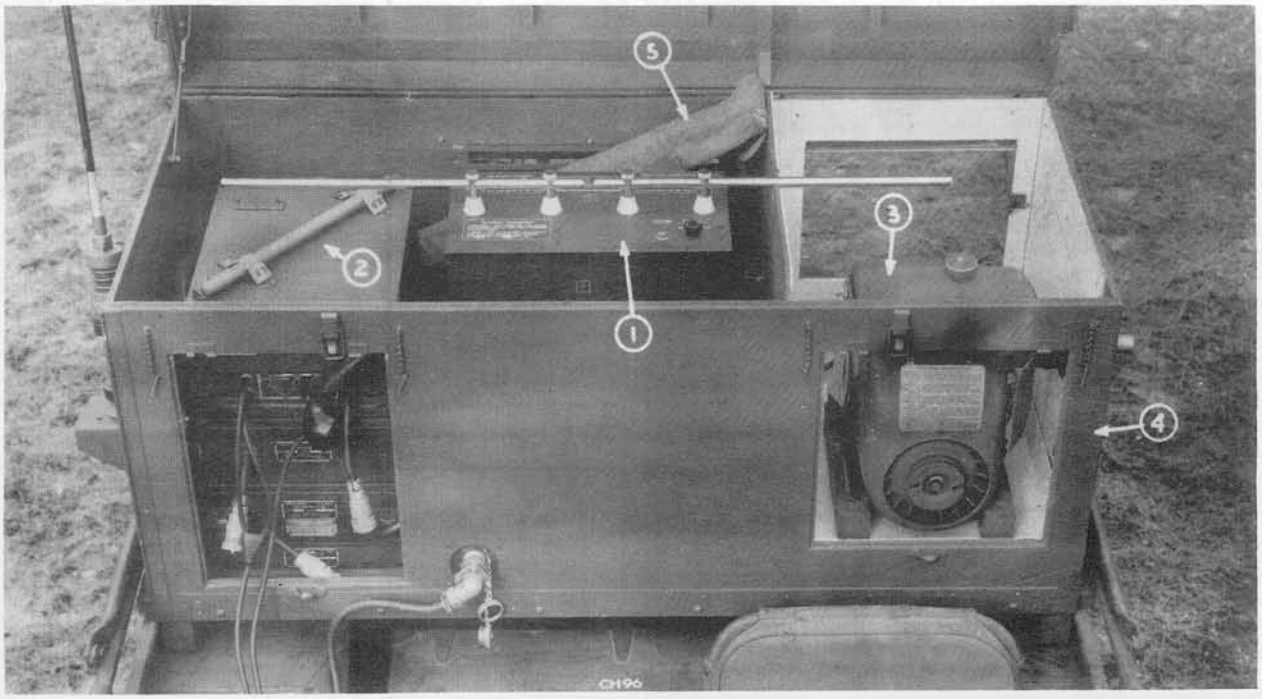
POWER INPUT	125 WATTS@115 VOLTS A.C.
POWER OUTPUT	1 WATT
FREQUENCY	75 MEGACYCLES
TYPE OF SIGNAL	MCW
RANGE	3,000 FEET(VERTICAL)

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	5Z4	2	1291
2	VR-150-30	4	1299
1	7E6	1	1LH4
2	7E7	1	1294
1	7N7	1	1LC6
5	7C5	1	1005
5	1LN5		



The Airborne Marker Beacon receiver picks up and records on an indicator lamp (pilots position) the transmissions of the respective marker beacons. Thus orienting the approaching aircraft (in distance) to the runway

AN/MRN-3 UNCLASSIFIED



1. Radio Transmitter BC-902-B 2. Radio Set SCR-610-A 3. Power Unit PE-88 4. Shelter S-2/MRN-3 5. Roll BG-56

MARKER BEACON SET AN/MRN-3 TOTAL WEIGHT 2600 LBS.

Component	Nomenclature	Size	Weight
Shelter	S-2/MRN-3	56'' x 24'' x 28''	
Power Unit	PE-88-A	20'' x 10'' x 16''	85 Lbs.
Radio Transmitting Equipment	RC-115-A	43'' x 18'' x 23''	60 Lbs.
Radio Set	SCR-610		140 Lbs.
Truck		1/4 ton 4' x 4'(jeep)	

and includes maintenance kit for power unit PE-88-A.

May 1945

Beacon Receiver BC-1206 is a small, airborne, light weight superheterodyne receiver having a frequency coverage of 200 to 400 kc. for use in connection with radio beacon transmitters.

By receiving a signal from the beacon transmitters on the ground, BC-1206 indicates by aural signal the aircraft's position in relation to right or left bearing of the transmitter. Installed in fighter aircraft, the equipments are intended for use in this country and are removed from the aircraft prior to entering combat overseas.

Beacon Receivers BC-1206-A, B, C and D are essentially the same with the exception of minor electrical differences.

No special test equipment is required for maintenance.

Army Supply Program requirements as of 1 February were 11,860 receivers for the calendar year 1945, and 23,599 for 1946.

POWER INPUT	24 WATTS @ 28 VOLTS
FREQUENCY	195-405 KC
TYPE OF SIGNAL	VOICE & MCW
RANGE	150 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	14A7/12B7	1	14R7
1	14J7	1	28D7

Receiver

BEACON RECEIVER BC-1206

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Detrola Receiver	Model 438	5" x 5" x 8"	4 Lbs.

and includes cable and connectors.

May 1945

Marker Beacon Receiving Equipment RC-43-A, an ultra-high frequency receiving equipment used in aircraft as an aid to navigation and landing, provides visual indication when flying over a 75 mc. marker beacon.

Operating in the frequency range of 67-80 mc., RC-43-A is designed to receive the 75 mc. marker beacon signals used in the AAF Instrument Approach System and the cone of silence and fan marker beacons of the Civil Aeronautics Administration, and other facilities employing modulated 75 mc. horizontally polarized transmission.

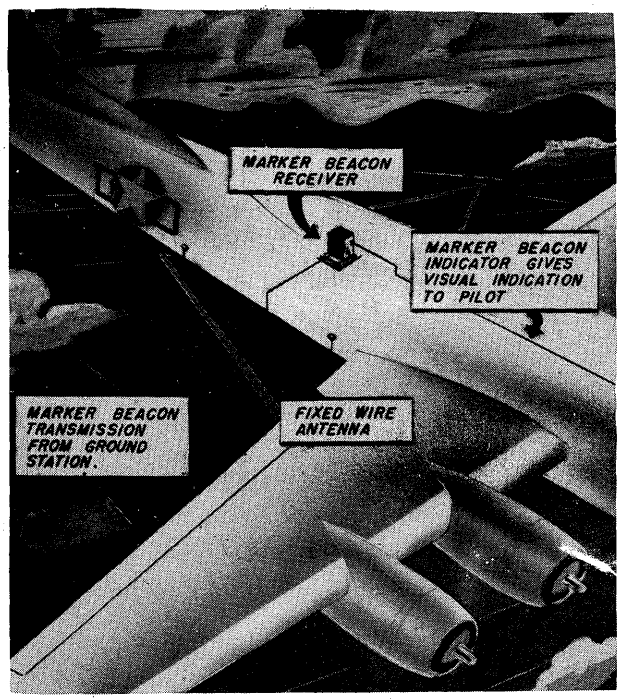
When the receiver is over a transmitter operating on a frequency within the receiver's limits, an indicator lamp on the instrument panel of the aircraft gives visual signal to the pilot in accordance with the output of the receiver. When over a "keyed" transmitter, such as a CAA marker, or certain types of army transmitters, the indicator lamp flashes in definite sequence, identifying the transmitter.

Plate voltage supply is obtained from the radio compass power supply, and is controlled simultaneously with the power to the compass.

Marker Beacon Receiving Equipment RC-39-A consists of equipment similar to RC-43-A with the exception of the filament voltage which, in the RC-39-A is 12 volts, instead of 24 volts as in RC-43-A.

There were no Army Supply Program requirements as of 31 January 1945.

POWER INPUT	24 VOLTS
FREQUENCY	67 TO 80 MC.
TYPE OF SIGNAL	75 MC. CARRIER MODULATED WITH 400. 1300 or 3000 CYCLES
RANGE	12,000 FT. OVER CONE MARKER 16,000 FT. OVER FAN MARKER



As Aircraft passes through area of Marker Beacon Transmission the Impulse is received and recorded by Indicator Lamp on Instrument Panel, Pilot's Position.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12SQ7	1	12C8 Special

Radio Receiver BC-357-M

MARKER BEACON RECEIVING EQUIPMENT RC-43-A

TOTAL WEIGHT 7 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-357-( )U/WRC-43-A	6' x 6" x 4"	3 Lbs.
Mounting	FT-161	6" x 6" x 2"	*
Insulator (2 ea.)	IN-88	3" x 1"	*

*Less than one pound.
and includes plugs, terminals, couplings, cables, antenna wire, etc.

May 1945

RC-103-A

Radio Receiving Equipment RC-103-A is an airborne localizer receiver used to indicate a landing course in conjunction with the AAF Instrument Approach System. Signals received from a transmitter, located at one end of the runway to be used, are fed into the cross-pointer indicator to indicate "on course", "fly right" or "fly left." Audio indication is also provided.

The equipment operates from a 28 volt d.c. power source. RC-103-AZ is similar to RC-103-A except that it operates from a 14 volt d.c. power source.

Crystal control is provided for operation on six fixed frequencies between 108.3 and 110.3 mc.

Antenna System AS-27/ARN-5 is used with the dual installation of the localizer and glide path receivers. Antenna AN-100 is used when only the localizer receiver is installed in the aircraft.

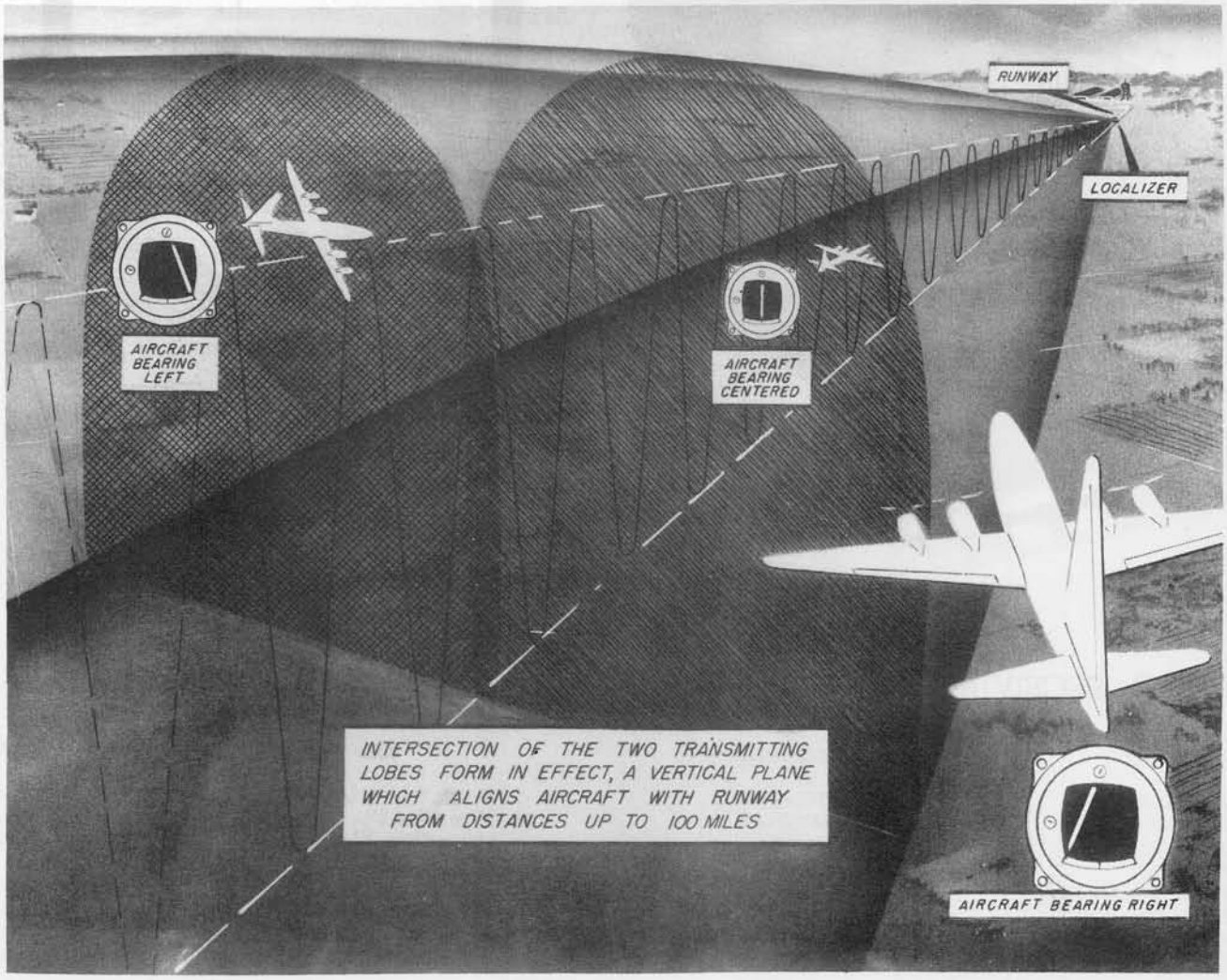
Test equipment used in maintenance and tuning includes Test Set I-173 and Test Set TS-67/ARN-5.

Army Supply Program requirements as of 1 February 1945 were 33,856 equipments for the calendar year 1945 and 19,730 for 1946.

The Vertical Pointer of Indicator I-101 records position o aircraft with regard to alignment to runway.

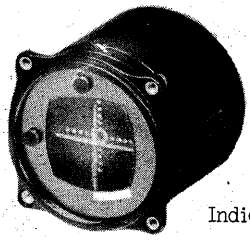
POWER INPUT	65 WATTS @ 28 VOLTS D.C.
POWER OUTPUT	500 MILLIWATTS
FREQUENCY	108.3 - 110.3 MC
RANGE	95 MILES AT 5000 FEET

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12A6	1	12SQ7
1	12AH7GT	2	12SR7
2	12SG7	3	717A

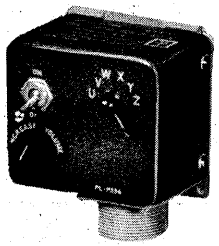


Radio Receiving Equipment RC-103 is an Airborne Receiver used in conjunction with a Ground Localizer Transmitter to align incoming aircraft with landing strips.

RC-103-A

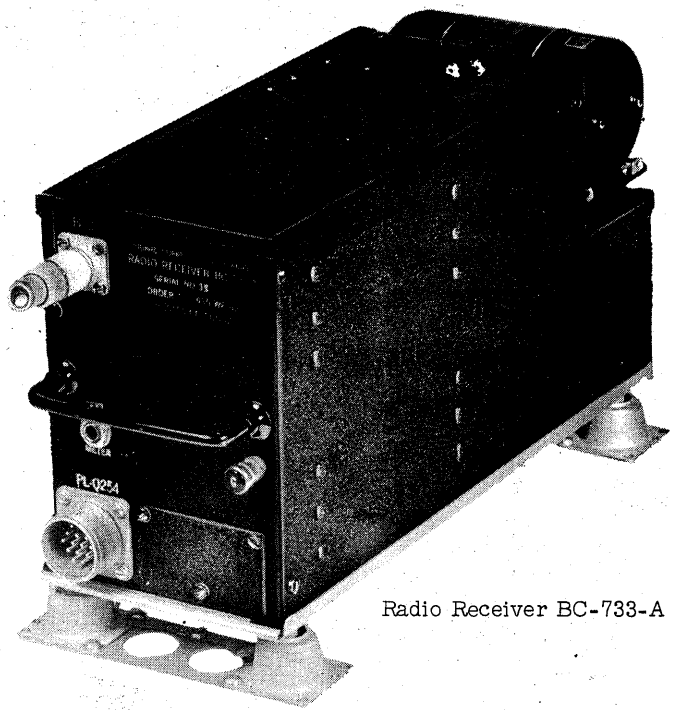


Indicator I-101-C

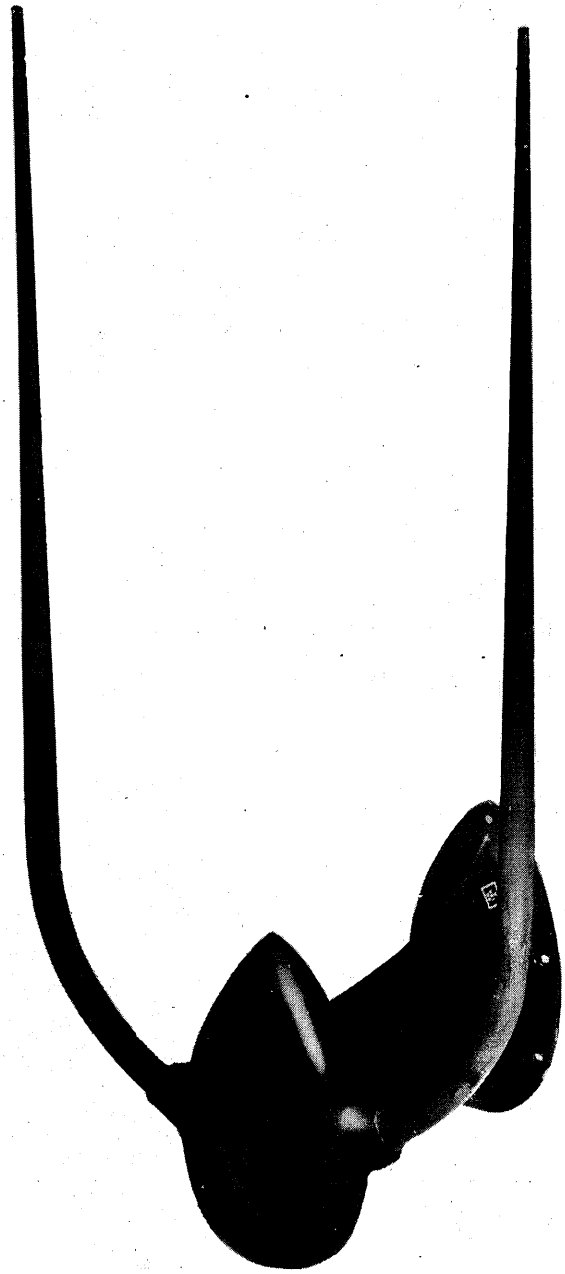


Radio Control Box BC-732-A

Dynamotor DM-53-A



Radio Receiver BC-733-A



Antenna AN-100

RADIO RECEIVING SET RC-103-A

TOTAL WEIGHT 36 LBS.

Component	Nomenclature	Size	Weight
Indicator	I-101-( )	Diam. 3 1/4 Depth 3 1/4	3 Lbs.
Dynamotor	DM-53-AZ	5" x 3" x 3"	3 Lbs.
Mounting	FT-293-A	13" x 6" x 2"	2 Lbs.
Mounting	FT-292-A	4" x 3" x 1"	*
Radio Control Box	BC-732-A	3" x 4" x 3"	1 Lbs.
Radio Receiver	BC-733-D	13" x 5" x 7"	21 Lbs.
Antenna	AN-100-( )		4 Lbs.
Antenna System	AS-27/ARN-5	10" x 20" x 15"	2 Lbs.

and includes adapter, set of crystals and spare vacuum tube set.
*Less than one pound.

May 1945

Marker Beacon Transmitting Equipment RC-115, when used with Marker Beacon Receiving Equipments RC-39, RC-43, RC-193, AN/ARN-12 or AN/ARN-8 constitutes complete marker beacon transmitting facility for any one ground position in connection with the AAF Instrument Approach System. This equipment generates and radiates vertically a keyed, or continuous, modulated signal in a fan shaped pattern. The signal thus transmitted is effective only when the receiving antenna is directly above and approximately parallel to that of the transmitter. It is, therefore, possible for the pilot to obtain visual and aural indication of his approximate horizontal position along his line of flight with respect to the landing field.

The transmitter is a rugged, portable, weatherproof unit, complete with radiating antenna and power cord. The controls accessible to field personnel are the minimum number possible. The antenna is a removable half-wave dipole mounted with stand-off insulators from the top of the transmitter, and is so constructed that it may be used as a carrying handle.

The equipment is designed to operate from a power source of 105 to 135 volts, 50 to 70 cycles, a.c.

Marker Beacon Transmitting Equipment RC-115-B is the same as RC-115-A except that it uses a crystal-controlled transmitter with increased power output.

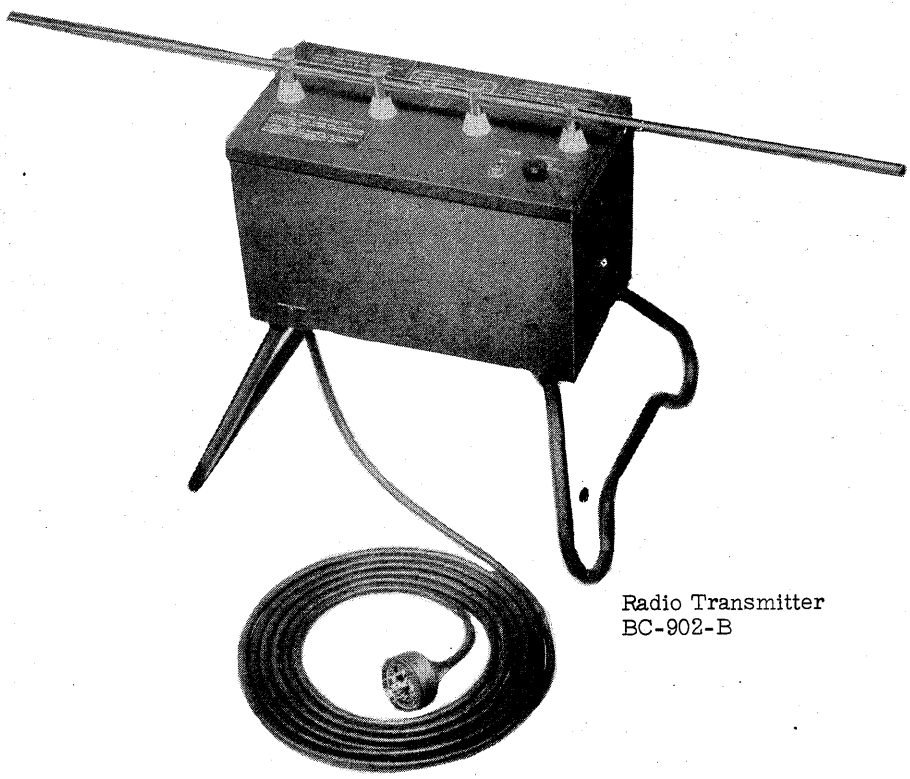
This equipment is part of the AAF Instrument Approach System. The transmitted operates at 75 mc and emits a horizontally polarized fan-shaped to a height of approximately 7,500 feet. The signal is modulated at 1,300 cycles and may be keyed at two dashes per second, six dots per second, or unkeyed. Three equipments are used for marking each landing strip; the outer marker located approximately 4 1/2 miles from the approach end of the runway is keyed at two dashes per second; the middle marker located approximately one mile from the approach end of the runway is keyed at six dots per second; and the boundary marker, located near the end of the runway, is unkeyed.

Test equipment required for maintenance includes Test Set I-56, Test Set I-76 and Indicator ID-101/MRN-3

Army Supply program requirements as of 1 February 1945 were 200 equipments for the calendar year 1945.

POWER INPUT	112 WATTS: 115 VOLTS AC.
POWER OUTPUT	1 WATT
FREQUENCY	75 MEGACYCLES
TYPE OF SIGNAL	MCW
RANGE	7500 FEET VERTICAL

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	5Z4	2	OD3/VR-150
1	7E6	1	7N7
2	7F7	5	7C5



Radio Transmitter
BC-902-B

MARKER BEACON TRANSMITTING EQUIPMENT RC-115-A

TOTAL WEIGHT 60 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-902-B	22" x 43 " x 18"	51 Lbs.
Adapter	M-268-A	20" overall length	2 Lbs.
Maintenance Spare Parts Kit		5" x 11" x 5"	5 Lbs.

and includes cables, plugs etc.

May 1945

RC-193-A

Marker Beacon Receiving Equipment RC-193-A is an ultra-high frequency airborne equipment used as an aid to navigation and landing.

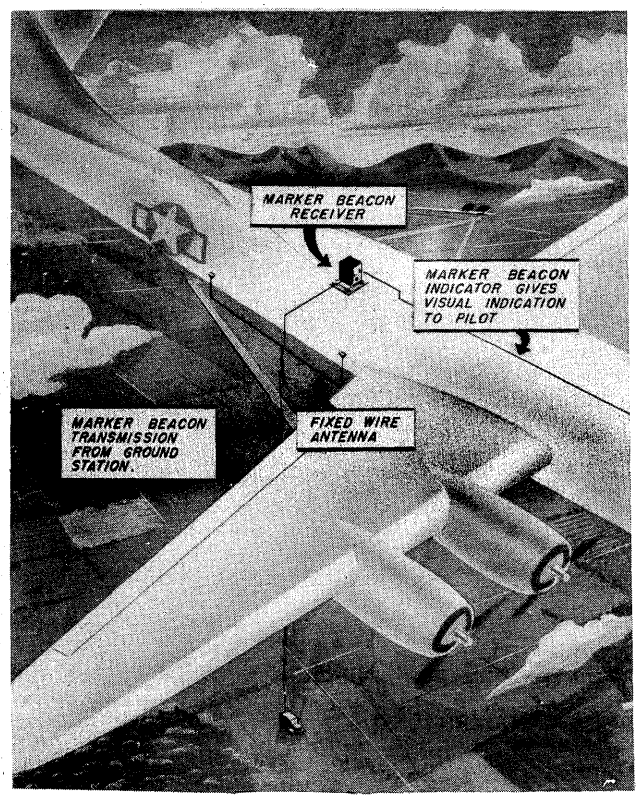
Operating in the 68-80 mc. range, visual indication of the proximity of an AAF Instrument Approach System transmitter or other transmitter producing horizontally polarized and modulated 75 mc. signals is given the pilot by means of an indicator lamp mounted on the instrument panel. "Keyed" signals, such as those produced by CAA markers or certain army transmitters, cause the indicator lamp to flash in a definite identifying sequence.

RC-193-A operates directly from 24 volt d.c. electrical system of the aircraft and does not require a source of high voltage for the tube plate supply. Signals are received by a half-wave antenna and conducted to the receiver by a coaxial transmission line. RC-193-AZ is a similar equipment designed for 12 volt d.c. operation.

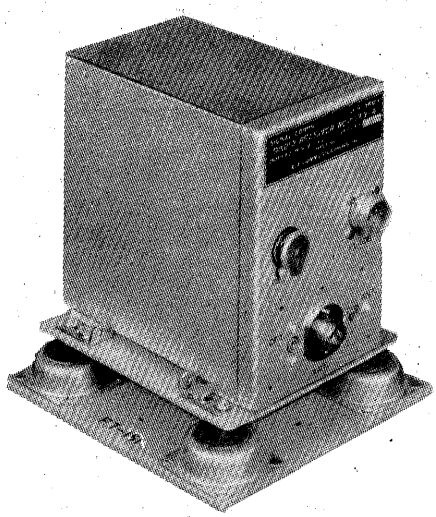
Army Supply Program requirements as of 30 November 1944 were 0 for 1944, and 27,196 for 1945.

POWER INPUT	24 VOLTS DC. .31 AMP
FREQUENCY	68-80 MC.
TYPE OF SIGNAL	R.F. CARRIER OF 75 MC. MODULATED WITH 400-3000 CYCLES
RANGE	3 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
	RC-193-A		RC-193-AZ
1	6SL7-GT	1	6SQ7
1	12SN7-GT	1	6SC7
1	6SH7	1	12SH7
		1	6U6-GT



As aircraft passes through area of Marker Beacon Transmission the impulse is received and recorded by Indicator Lamp on instrument panel pilot's position.



Radio Receiver BC-1033-A

MARKER BEACON RECEIVING EQUIPMENT RC-193-A

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-1033-( )	6" x 4" x 6"	3 Lbs.
Insulator (2)	IN-88	3" x 1"	*
Mounting	FT-161	6" x 6" x 2"	1 Lb.

and includes plugs, cable, terminal, etc.
* Weight less than 1 pound.

May 1945

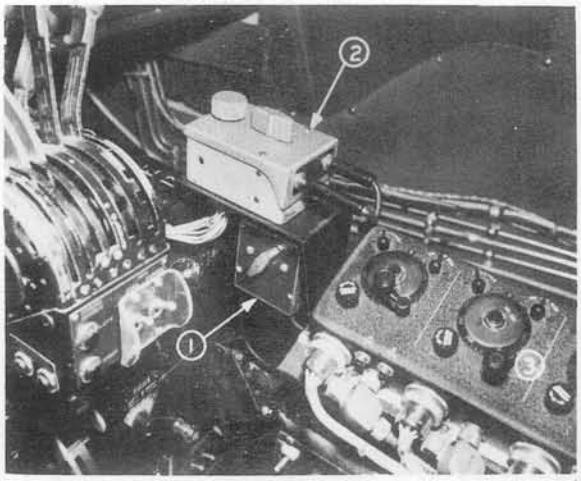
Filter Equipment RC-198 is an airborne audio filter for use in reception of radio range signals.

This equipment replaces Filter Equipment RC-32 and is used by pilots and co-pilots in conjunction with compass and command radio sets. It provides filter action to the interphone system to suppress either voice or range signals as required.

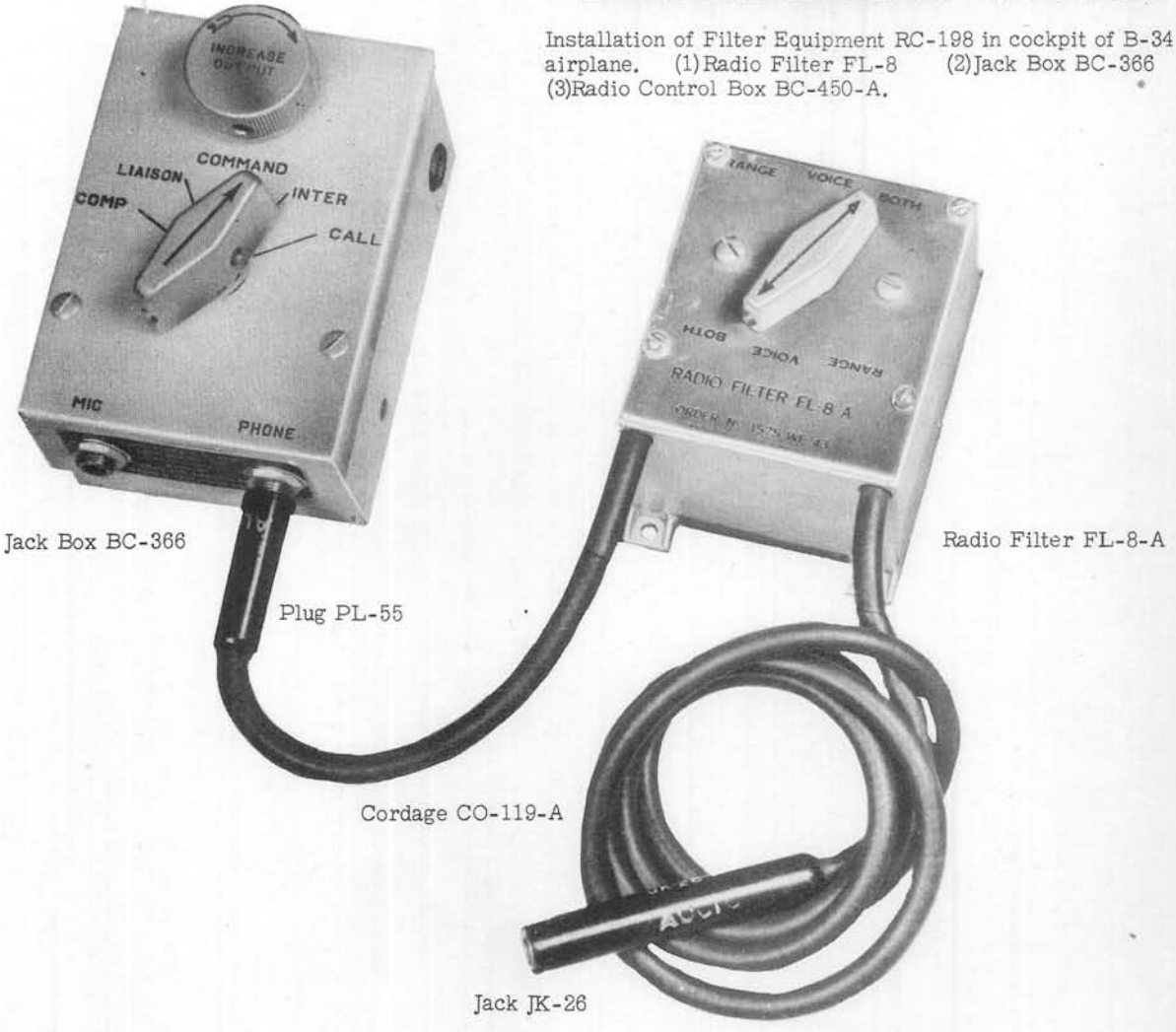
General purpose test equipment only is required for maintenance.

There were no Army Supply Program requirements as of 1 February 1945.

FREQUENCY	AUDIO FREQUENCIES



Installation of Filter Equipment RC-198 in cockpit of B-34 airplane. (1) Radio Filter FL-8 (2) Jack Box BC-366 (3) Radio Control Box BC-450-A.



Jack Box BC-366

Radio Filter FL-8-A

Plug PL-55

Cordage CO-119-A

Jack JK-26

FILTER EQUIPMENT RC-198 TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Filter	FL-8-( )	3" x 3" x 4"	2 Lbs.
Plug	PL-55		*
Cord	CO-119-B (2 each)		*
Jack	JK-26		*

* Less than one lb.

May 1945

RC-210

Filter Equipment RC-210 is an airborne audio filter designed to isolate either voice or range signal during periods of simultaneous reception of these signals.

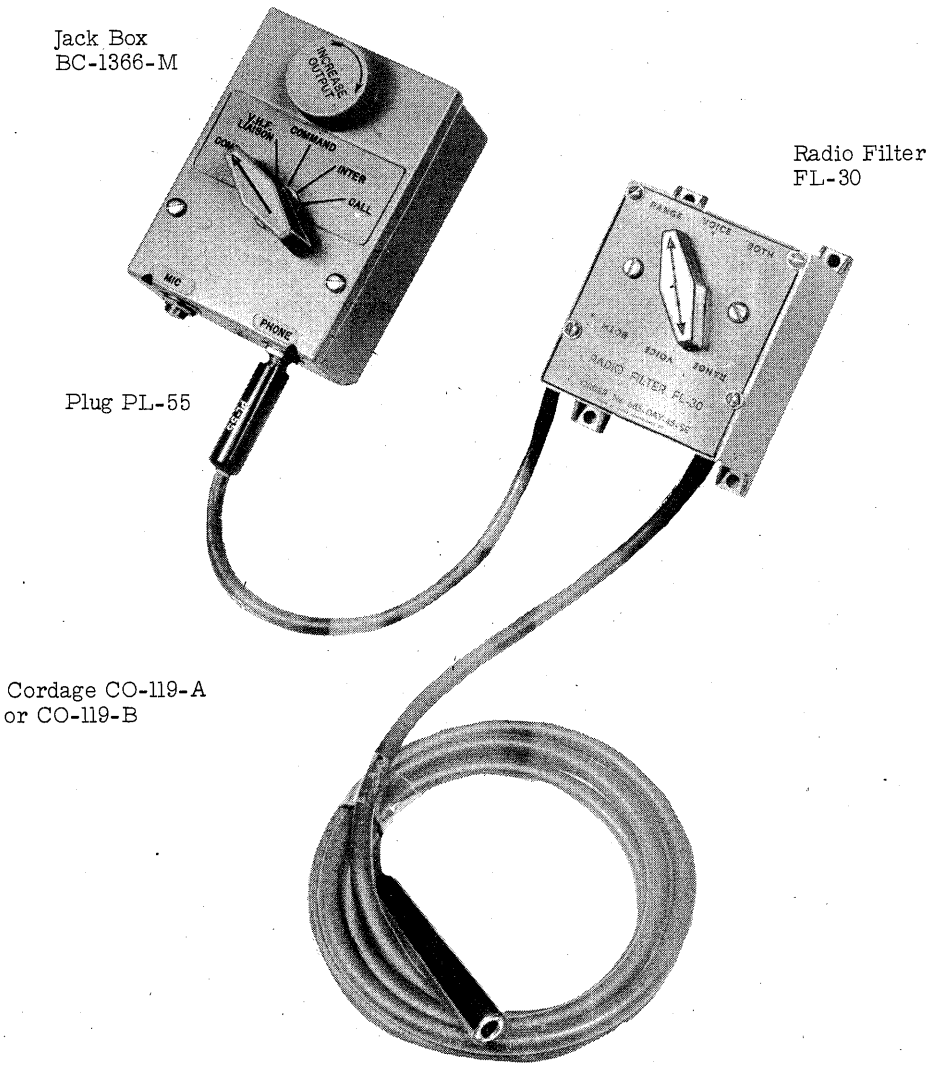
This equipment is used by pilots and co-pilots in conjunction with compass and command radio sets. It is not a part of any radio set but may be used with any standard radio receiver connected for low impedance operation.

A three position switch on top of this filter box marked VOICE-RANGE-BOTH provides selection. When the selector switch is in the VOICE position, a 1020 c.p.s. band reject filter is placed in the circuit. This filter greatly attenuates the 1020 cycle range tone, and passes the voice frequencies, other than those in the 800-1200 c.p.s. band, with only a slight amount of attenuation. When the switch is in the RANGE position, a 1020 band pass filter is placed in the circuit, and rejects practically all the voice frequencies. In the BOTH position, both the band pass end and band reject filters are disconnected from the circuit. Therefore, the signals are not affected by the filter.

Filter Equipment RC-210 is designed to operate with a 600 ohm load. Headsets HS-33 or HS-38 offer impedance of 600 ohms.

Army Supply Program requirements as of 31 January 1945 were 69,628 equipments for the calendar year 1945 and 48,866 for 1946.

FREQUENCY	AUDIO FREQUENCIES



FILTER EQUIPMENT RC-210

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Filter	FL-30-( )	3" x 3" x 4 '	2 Lbs.
Jack	JK-26		*
Plug	PL-55		*
Cordage	CO-119-A(-B)		*

*Less than one pound.

May 1945

Radio Compass SCR-269-G was primarily designed to be used as a navigational instrument in army aircraft. Basically, the equipment is a radio receiver employing a superheterodyne circuit and certain additional essential circuits necessary for radio compass operation. Two remote controls are provided, and, although only one control functions at a time, control may be readily switched from one to the other.

The equipment has a frequency range of 200 kc to 1750 kc, covered in three bands, and calibrated in kilocycles. Only the frequency band in use is visible on the tuning scale. Radio Compass SCR-269-G is manually tuned from either of two remote positions, with the bands switched electrically from the position having control. When installations are made which use only one remote control, no switching of control is necessary and the one radio control box used has control at all times.

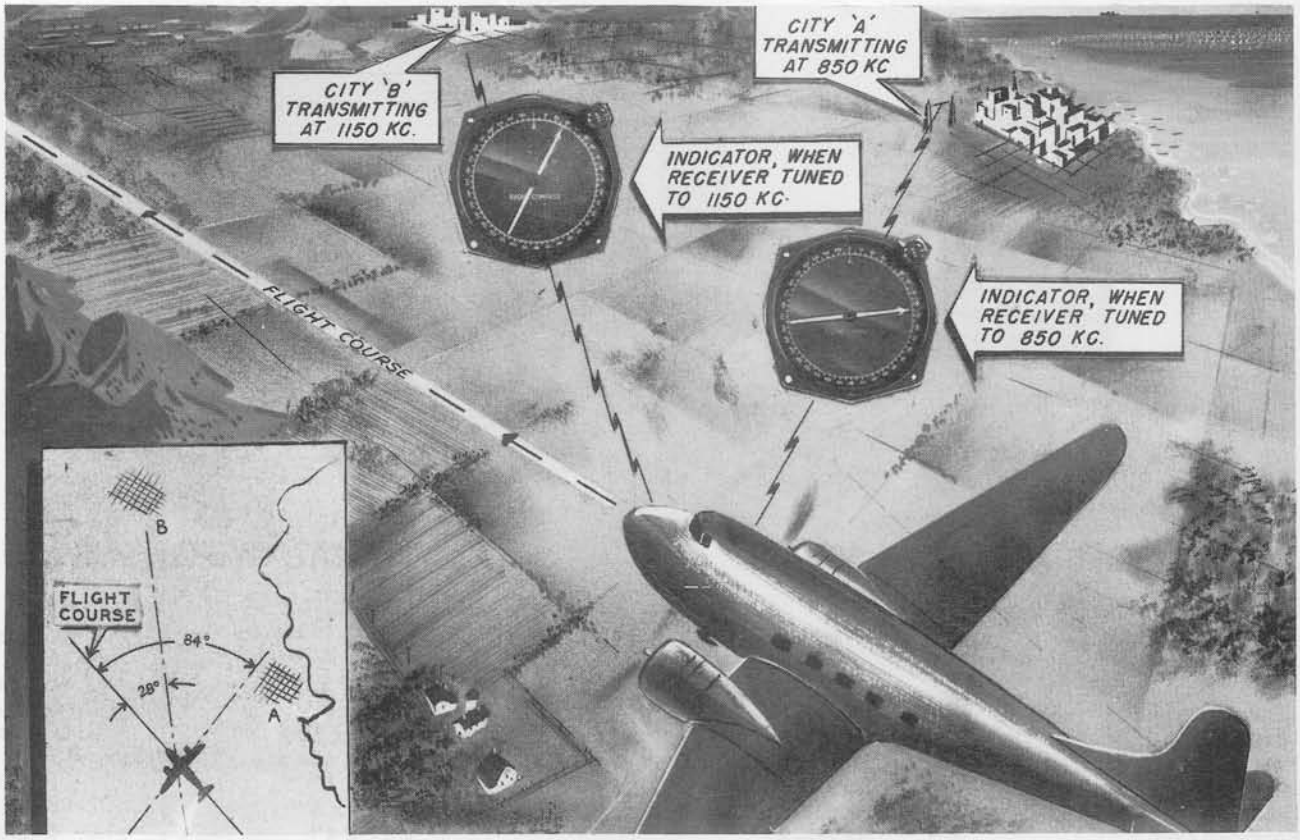
When used in conjunction with a suitable nondirectional (vertical) antenna, a 14 or 28 volt dc supply, one or two headsets, and necessary interconnecting wiring, Radio Compass SCR-269-G is a complete operable unit capable of providing the pilot with automatic bearing indication of the direction, relative to the line of flight, of the transmitter creating the received signal. Also, by use of a loop antenna, aural-null directional indications of a transmitted signal may be obtained. Aural reception of modulated radio frequency signals is possible with either the vertical or loop antenna, and aural reception of unmodulated signals is possible in each of the four cases. Selection of either type of reception is made by use of a C.W.-VOICE switch.

There were no Army Supply Program requirements as of 31 January 1945, since Radio Compass AN/ARN-7, covering the 100-200 kc band in addition to the 200-1750 kc coverage of SCR-269-G, more nearly meets a military requirement for a compass adaptable for long range operation in connection with established low frequency transmitters in many parts of the world. Radio Compass AN/ARN-6, in development, is intended as the eventual replacement of both SCR-269-G and AN/ARN-7 in army aircraft.

Test equipment for SCR-269-G includes Test Set I-56-A and Test Set I-100.

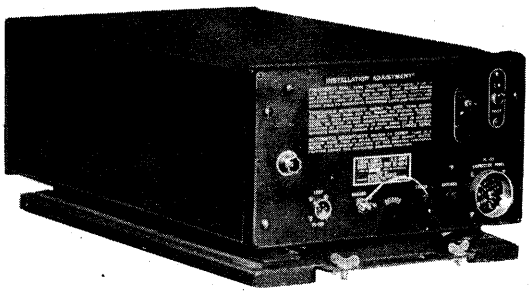
POWER INPUT	0.5 AMPERES @ 28 VOLTS DC 115-140 VOLTS, 400 CPS; AC
POWER OUTPUT	600 MILLIWATTS PEAK
FREQUENCY	200-1750 KC IN 3 BANDS
TYPE OF SIGNAL	CW; MCW; VOICE
SIGNAL STRENGTH	40-50 MICROVOLTS PER METER
ANTENNA	8" LOOP AND FIXED VERTICAL MAST WITH ONE OR TWO REMOTE CONTROL POSITIONS AND AUTOMATIC ROTATION
SENSITIVITY	3.5 MICROVOLTS
SELECTIVITY	4.5-13 KC

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6F6	1	6J5
1	5Z4	1	6N7
4	6K7	1	6SC7
1	6L7	2	2051
2	6B8		

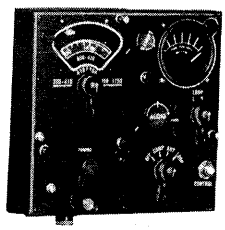


In addition to its high frequency band of 2800 to 5900 kc., Radio Compass SCR-269-G provides facilities for homing and plotting of aircraft positions similar to those of other Automatic Radio Compasses.

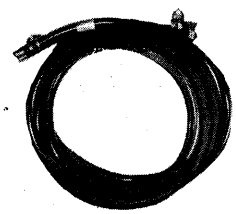
SCR-269-G UNCLASSIFIED



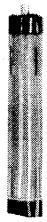
Radio Compass Unit BG-433-G



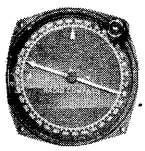
Radio Control Box BC-434-A



Dehydrator Hose

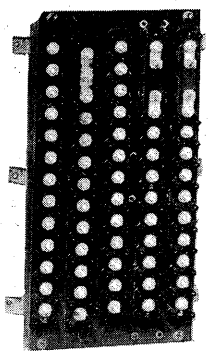


Dehydrator

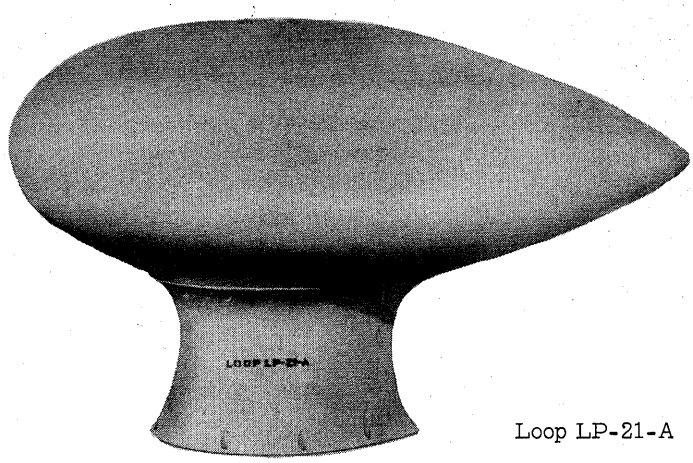


Indicator I-81-A

Indicator I-82-A



Relay BK-22-E



Loop LP-21-A

RADIO COMPASS SCR-269-G

TOTAL WEIGHT 98 LBS.

Component	Nomenclature	Size	Weight
Radio Compass Unit	BC-433-G	20" x 12" x 8"	46 Lbs.
Radio Control Box	BC-434-A	8" x 8" x 4"	4 Lbs.
Loop	LP-21-A	25" x 9" x 15"	10 Lbs.
Indicator	I-81-A (Pilot's)	4" x 4" x 4"	1 Lb.
Indicator	I-82-A (Navigator's)	5" x 5" x 5"	2 Lbs.
Relay	BK-22-A or E	12" x 7" x 3"	6 Lbs.
Rectifier Unit	RA-59-A	7" x 5" x 4"	6 Lbs.

and includes cords, conduits, etc.

May 1945

SCR-277

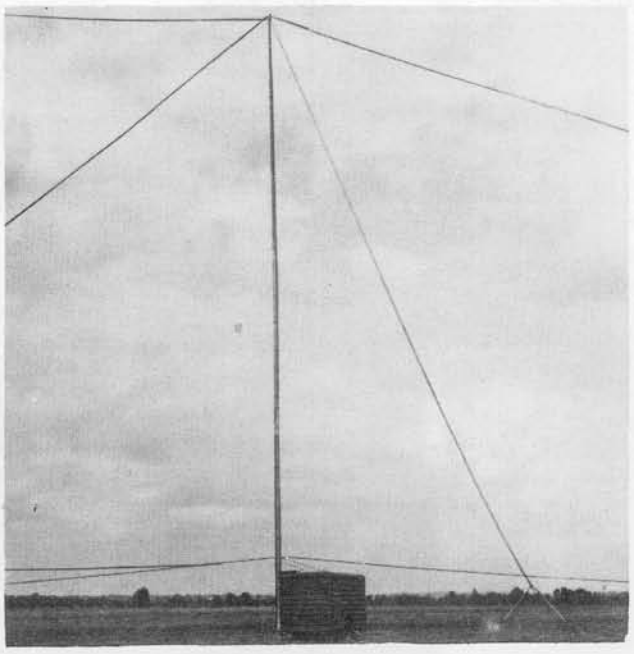
Radio Set SCR-277 is a mobile ground radio range transmitter used to set up ranges at regular intervals along air routes to provide beacon facilities for navigation of aircraft from point to point. The equipment is mounted in a trailer type K-29-C, to provide portability.

In operation the transmitter sends out signals coded "A" or "N" in each of the four quadrants around the beacon. The signals overlap on the range, providing the pilot of the aircraft an indication of his position in relation to location of the beacon. Thus, if he is heading toward the beacon he will receive an aural signal coded "A" or "N" if he is between the beam, and when he is on the beam he will receive an "AN" signal. Over land areas the beacon has a range of about 300 miles, while over water areas the range is extended to about 1,000 miles. Charts prepared for air navigation show the position and the orientation of the various beacons.

Power for operation of the equipment is furnished by a gasoline driven power unit that provides 7.5 kilowatts at 115 volts and 500 cycles per second, and two six volt storage batteries.

Test equipment required for maintenance includes Tool Equipment TE-60 and Test Set I-77.

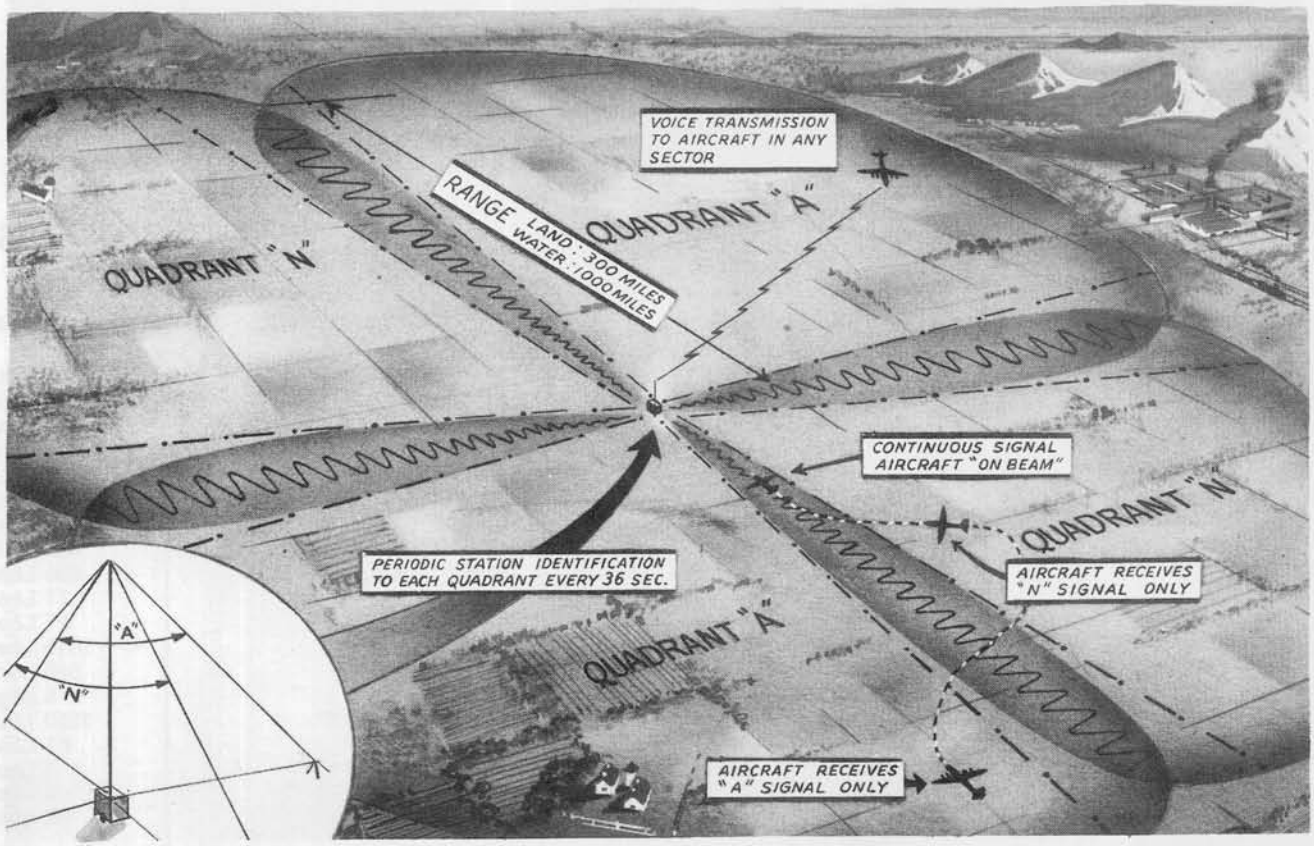
Army Supply Program requirements as of 1 February 1945 were 11 equipments for the calendar year 1945.



Radio Range SCR-277 set up for operation.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6C5	2	807
1	6F6	1	814
4	6K7	1	F-128-A
1	6L7	1	5A3
1	6R7	2	866/866A
1	5W4	2	872-A

POWER INPUT	7.5 KW@110 VOLTS
POWER OUTPUT	810 WATTS
FREQUENCY	200-400 KC.
TYPE OF SIGNAL	CW; MCW
RANGE	LAND-300 MILES; WATER-1000 MILES
ANTENNA	CROSSED LOOPS 70 FEET HIGH

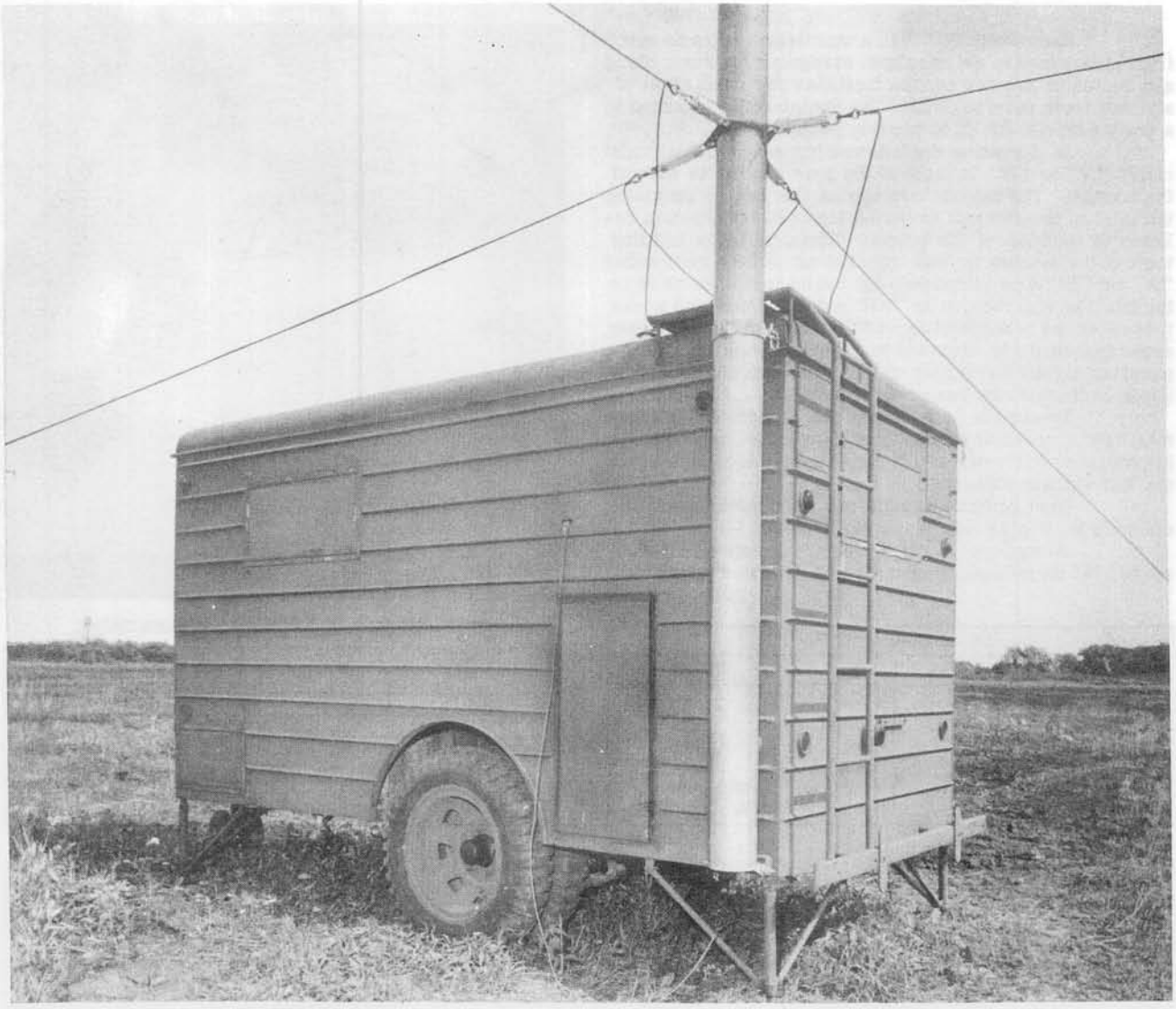


Radio Set SCR-277 is a portable low frequency loop radio range - providing a 4 course range with facilities for voice transmission and periodic station identification.

May 1945

SCR-277

UNCLASSIFIED
RESTRICTED



RADIO SET SCR-277

TOTAL WEIGHT 7000 LBS.

Component	Nomenclature	Size	Weight
Antenna	AN-33(horizontal)4 each	148' long	58 Lbs.
Antenna	AN-34(sloping)4 each	164' long	60 Lbs.
Antenna Tuning Unit	BC-469-C	33" x 24" x 16"	141 Lbs.
Auxiliary Control Box		9" x 5" x 3"	4 Lbs.
Batteries, storage	(2 each)	16" x 8" x 10"	158 Lbs.
Control Box	BC-466-C	10" x 9" x 7"	19 Lbs.
Fire Extinguisher		23" x 8" x 7"	35 Lbs.
Goniometer Unit	BC-468-C	44" x 22" x 29"	235 Lbs.
Mast	MA-4-C	76' x 7" diam.	250 Lbs.
Pole	MS-75 (3 each)	144" x 4" x 2"	17 Lbs.
Pole Extension	MS-90 (3 each)	44 ' long x 2" diam.	17 Lbs.
Power Unit	PE-90-C	51" x 36" x 35"	1075 Lbs.
Radio Transmitter	RC-467-C	49" x 54" x 22"	555 Lbs.
Reel	RL-40	13" x 9" x 10"	5 Lbs.
Trailer	K-29-C	200" x 76" x 107"	3359 Lbs.
Radio Receiver	BC-342-( )	19" x 10" x 10"	61 Lbs.
Antenna	AN-19	62' long	2 Lbs.
Headset	P-19		2 Lbs.
Test Set	I-77	6" x 4" x 3"	2 Lbs.
Tool Equipment	TE-60		

and includes cords, cables, clamps, accessories, spare parts, etc.

May 1945

SCR-578

Radio Set SCR-578 is a simple, rugged emergency transmitting system designed for operation from a life raft. No receiving equipment is incorporated in the set. The set provides automatic code transmission of predetermined signals so that any operator, with or without training, can send distress signals which, when received by rescue parties, will permit bearings to be taken. The set operates on the international distress frequency of 500 kc. with a 1000-cycle tone modulation.

It may be used as a hand-powered signal light with manual keying to transmit instruction, or as a constant signal light. If the signal light is used, no radio transmission takes place.

Various models of the transmitter differ only in details of electrical or mechanical design. A Kite M-357-A and two Balloons M-278-A are provided to raise the antenna. The kite is a collapsible box kite measuring 17"x17"x36" inches assembled. It will fly in wind of 7 to 40 miles per hour velocity. The balloon is used when lack of wind does not permit the use of the kite. It is inflated by means of a hydrogen generator to approximately four feet diameter.

Power for the operation of the equipment is obtained from a hand generator, which is a part of the equipment.

This equipment is to be superseded by a dual frequency radio set AN/CRT-3. Army Supply Program requirements for the two equipments as of 1 December 1944 were 40,742 equipments for the calendar year 1944 and 55,025 for 1945.

Radio Transmitter 778-E

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12SC7	1	12A6

POWER SUPPLY	HAND GENERATOR
POWER OUTPUT	2.5 WATTS (PEAK)
FREQUENCY	500 KC
TYPE OF SIGNAL	TONE
RANGE	200 MILES, RAFT TO AIRPLANE

Principal use of Radio Set SCR-578 is to provide air crews forced down over water with a means of transmitting an international distress signal from life rafts. It is automatically keyed to transmit the signal and is powered by a hand-driven generator.

May 1945

SCR-578

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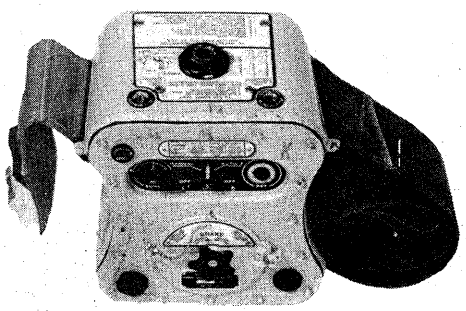
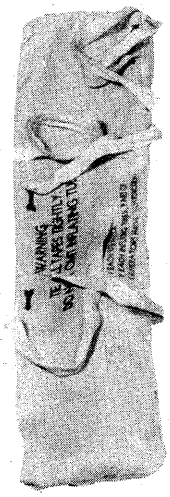
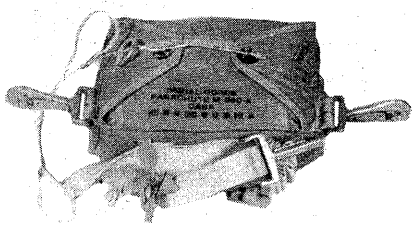


Radio Transmitter BC-778-D



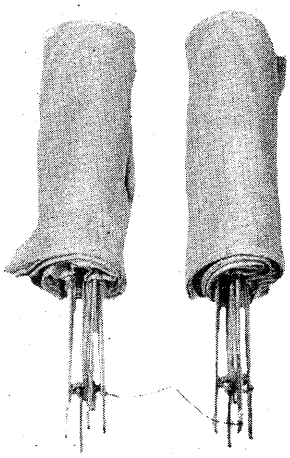
Inner Bag

Bag BG-155-A

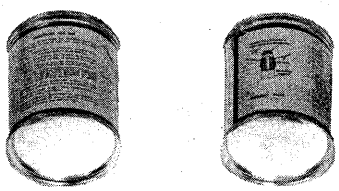


Parachute M-390-A

Signal Lamp M-308-B

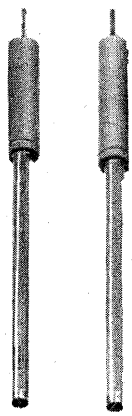


Kite M-357-A

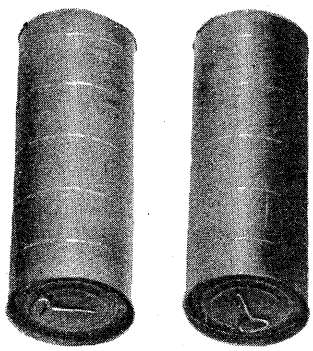


Balloon M-278-A

Wire W-147



Inflating Tubes



Canisters

RADIO SET SCR-578

TOTAL WEIGHT 42 LBS.

Component	Nomenclature	Size	Weight
Antenna Wire	W-147 or W-148	3" x 3" diam.	1 Lb.
Bag	BG-155-A	21"x 17" x 15"	7 Lbs.
Balloon (2 each)	M-278-A	6" x 5" diam.	2 Lbs.
Hydrogen Generator (2 each)	M-315-B	12 " x 5" diam.	10 Lbs.
Kite	M-357-A	18" x 4"	2 Lbs.
Parachute	M-390-A		3 Lbs.
Radio Transmitter	BC-778-D	13" x 10" x 9"	16 Lbs.
Signal Lamp	M-308-B	3" x 3" diam.	

May 1945

Radio Set SCR-610 is a short range ground communication equipment used with the AAF Instrument Approach System. It is a portable, low-powered FM transmitter and receiver, forming part of Instrument Landing Equipment SCR-241-A, AN/MRN-1, AN/MRN-2, AN/MRN-3 and AN/CRN-7. It was developed for use in ground communications and has been adapted for use in communicating with control towers in connection with airport control. A further application is being made in installations in aircraft in which electrical power supplies preclude the use of a.c. operated equipment.

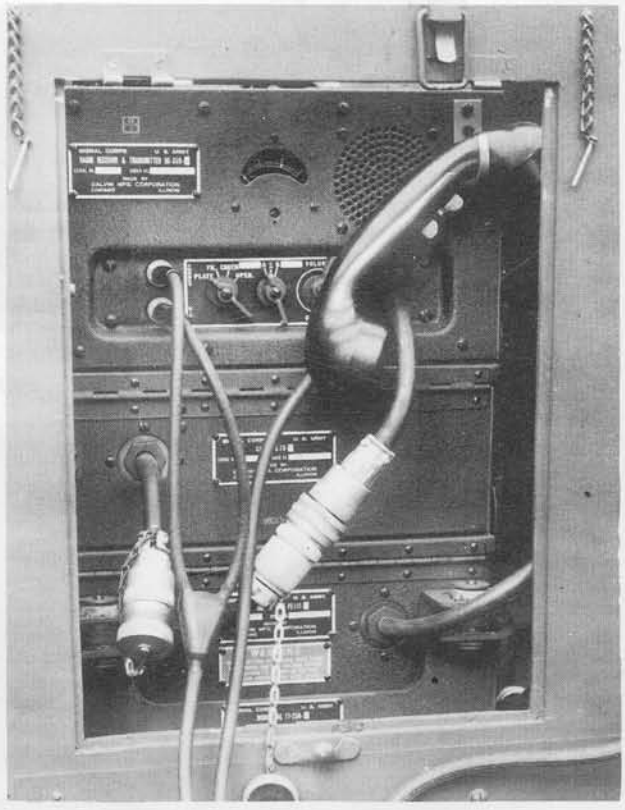
It is a battery operated low-powered FM transmitter-receiver equipment operating over the frequency range 27-38.9 MC.

The equipment is furnished to the AAF by ASF and AAF requirements are included in the requirements for the various equipments with which it is used.

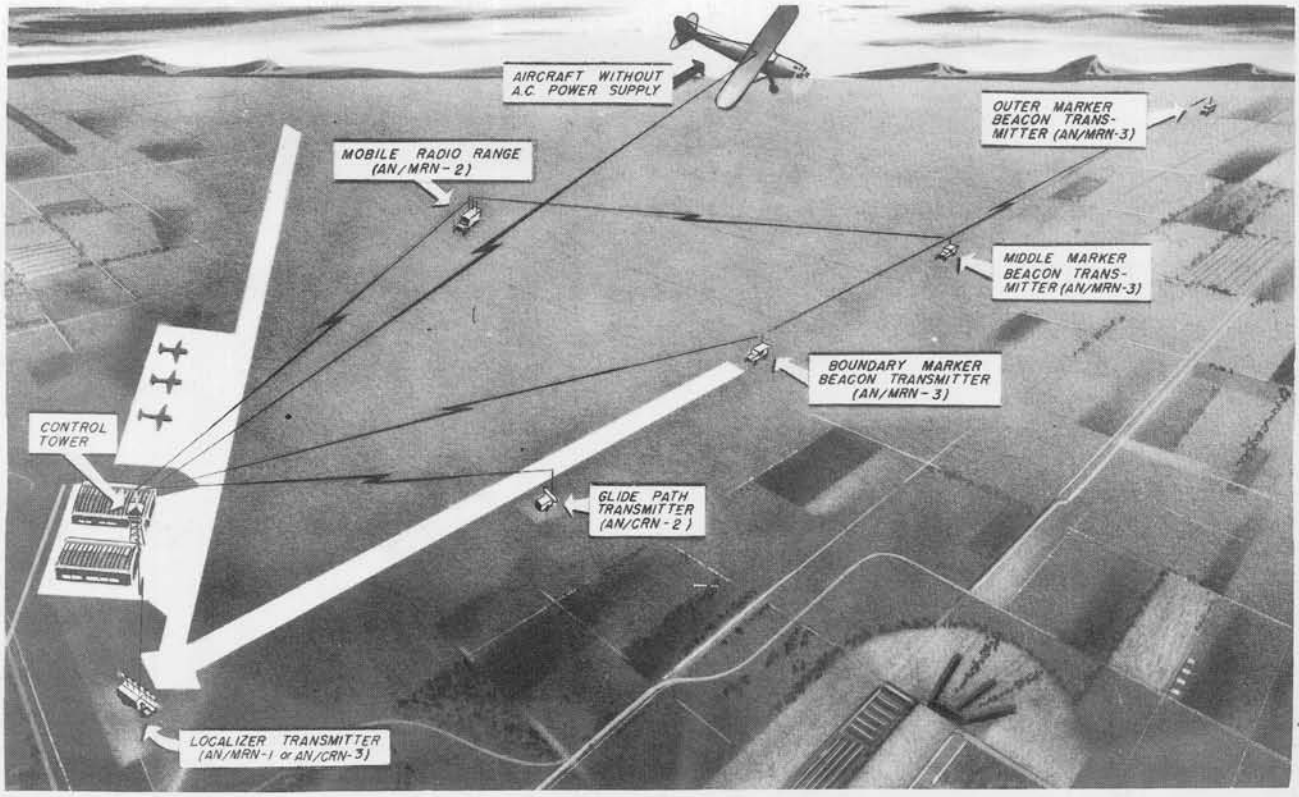
Maintenance Equipment ME-13 is required for maintenance and tuning of the set.

POWER INPUT	20 WATTS AT 6.2 VOLTS 32 WATTS AT 12.4 VOLTS
POWER OUTPUT	2 WATTS AVERAGE
FREQUENCY	27-38.9 MC
TYPE OF SIGNAL	FM
RANGE	5 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	1LH4	1	1R4/1294
1	1LC6	1	VR-90-30
5	1LN5	4	3D6/1299
2	3B7/1291	1	CK-1005

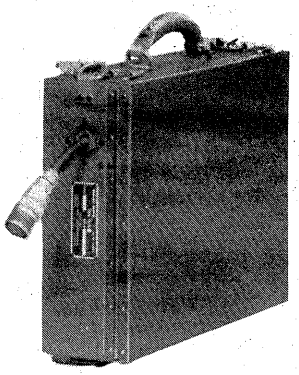


Radio Set SCR610- Installed in AN/MRN-3 Marker-Beacon Transmitter Truck

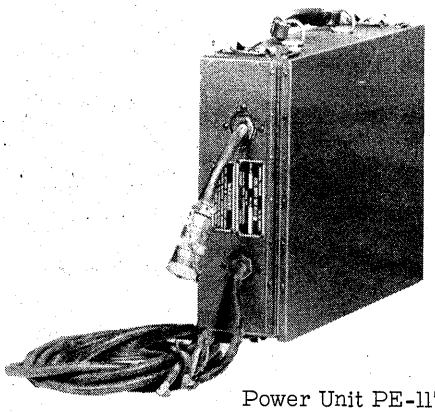


Radio Set SCR-610 is a short range communications equipment used principally for communication between the various transmitters of the AAF Instrument Approach System and the airport control tower.

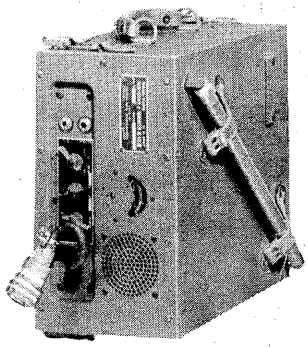
SCR-610



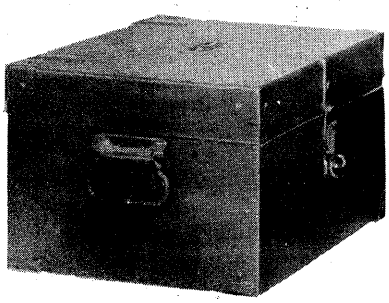
Case CS-79-A



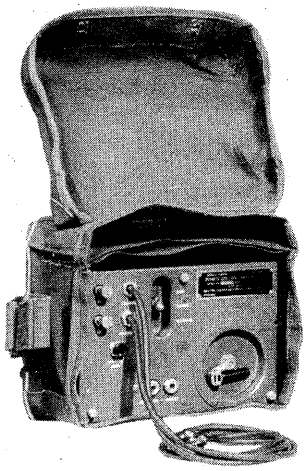
Power Unit PE-117-C



Radio Receiver and Transmitter BC-659-A



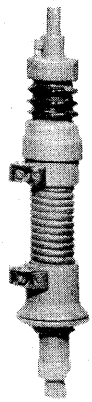
Chest CH-96-( )



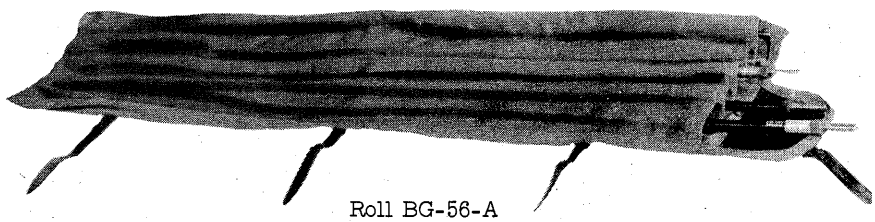
Remote Control Unit RM-29-( )

Hand Set TS-13-( )

Antenna AN-29-C



Mast Base MB-48



Roll BG-56-A

RADIO SET SCR-610

TOTAL WEIGHT 135 LBS.

Component	Nomenclature	Size	Weight
Alignment Tool	TL-150		*
Antenna	AN-29-C	12' 6" extended	2 Lbs.
Box	BX-32-B	2" x 8" x 11"	2 Lbs.
Case	CS-79-C	14" x 17" x 8"	9 Lbs.
Chest	CH-72-B	9" x 13" x 20"	17 Lbs.
Handset	TS-13-( )	6" long x 3" diam.	2 Lbs.
Mast Base	MP-48	16" high 4" diam.	11 Lbs.
Mast Bracket	MP-50		4 Lbs.
Mast Section	MS-50	35" long	*
Mast Section	MS-51	35" long	*
Mast Section	MS-52	35" long	*
Mounting	FT-250-C	5" x 12" x 20"	12 Lbs.
Power Unit	PE-117-C	5" x 14" x 17"	29 Lbs.
Radio Receiver & Transmitter	BC-659-B	8" x 14" x 18"	26 Lbs.
Roll	BG-56-A	1/4" x 36" x 10"	2 Lbs.
Strap	ST-19-A	7" x 3" x 3"	*

and includes wire, tools, etc.
* Less than one pound.

May 1945

SCR-629

Radio Set SCR-629 (modified) is a VHF, omni-directional radio range which enables aircraft to determine relative position with respect to the station location.

The equipment is built into two cabinets and is mounted in a small weapons carrier truck to facilitate transportation in a rapidly changing theater of operations, and may be used in conjunction with the airborne Radio Set SCR-522, or an equivalent, to provide aircraft so equipped, with a homing signal. The operating frequencies provided cover a continuous range from 100 to 156 mc.

When operating as a radio range, an interlocked course is produced, simliar to that made by the conventional low frequency radio ranges except that the keyed letters "A' and "N" are replaced by the letters "E" and "T." These letters are sent from the transmitter and radiated from its antenna which rotates at a constant speed, producing a pre-determined pattern. Thus, there would be received with Radio Set SCR-522, or its equivalent, a series of dots at any one point over 180 degrees rotation of the antenna, followed by any "on course" signal, then a series of dashes would be heard over another 180-degree arc, followed by a second "on course" signal.

Course produced during the change from dots to dashes is arbitrarily considered as the main course, and the one produced during the change from dashes to dots is regarded as the back course. The time interval between the sound of an indexing signal as the course passes through north and when the course passes through the aircraft's position, is a function of the heading from the station to the aircraft. If, however, an indexing signal is used when the course passes through south, the reciprocal (or opposite) of the above heading, or the one needed for homing, will be obtained. This indexing signal consists of a 3000-cycle note to clearly differentiate it from the 1020-cycle modulation of the interlocked course.

Time interval noted above may be measured by a stop watch held by the radio operator, and the speed of the rotating elements of the antenna set in such a manner that a multiplication factor of 10 may be used so that 6 seconds will equal 60 degrees. A scale calibrated in degrees may be fitted to the dial of the stop watch, and bearings accurate to ±5 degrees may be obtained. An indicator attachment for VHF receivers to provide direct reading of bearings is now under development. Characteristic distance range is approximately 125 miles at 10,000 feet over level ground.

The equipment has a crystal-controlled transmitter and provides periodic station identification and simultaneous voice transmission in addition to the range signals.

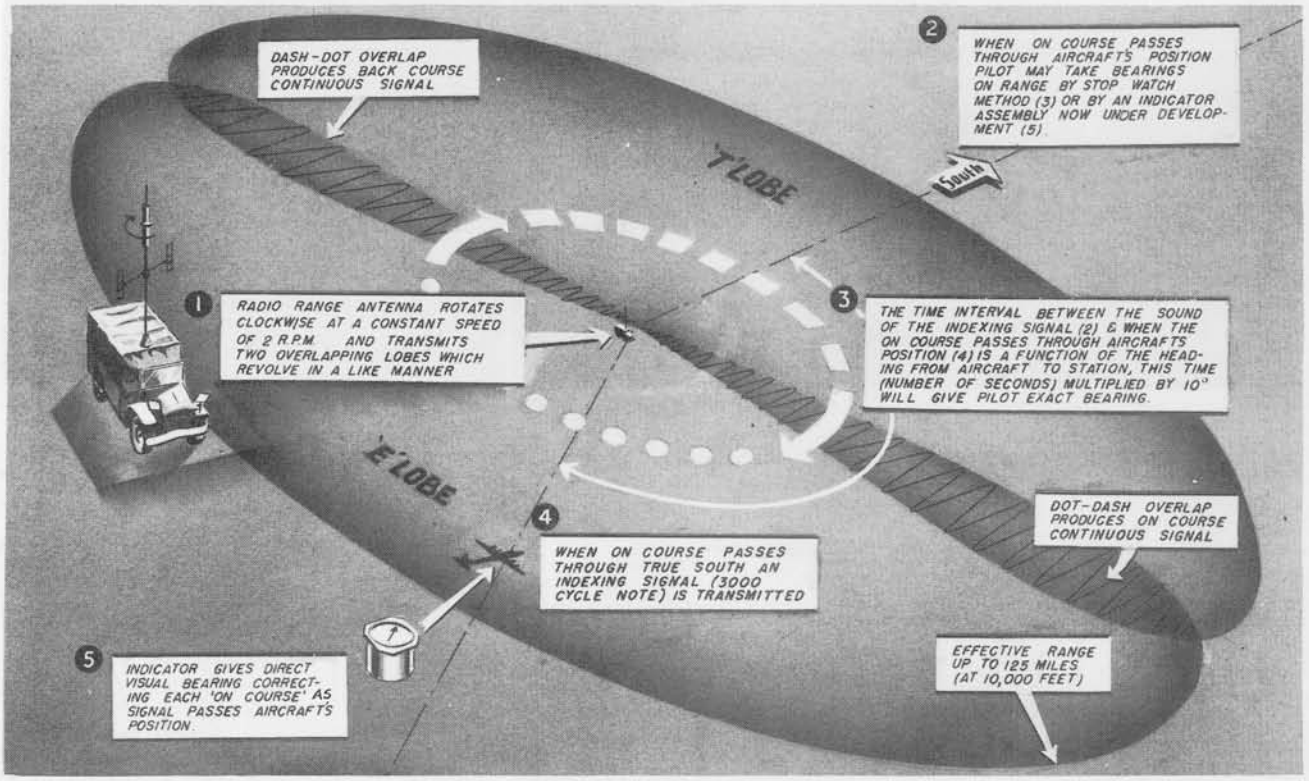
The antenna system consists of a centrally-located vertical antenna and two other vertical antennas. The carrier, plus half of the sideband energy is fed to the center antenna, and the other half of the sideband energy is fed to the sideband antennas. The phasing of the radio frequency energy fed to the antennas is such that a cardioid pattern is produced, and the overlapping portions of the transmissions produces the course. The south indicating signal, station identification and voice are all fed to the center antenna and are radiated nondirectionally.

Primary power is supplied by a 2 1/2 kw gasoline-driven power unit.

Test equipment required for maintenance has not been determined.

There were no Army Supply Program requirements for this equipment as of 1 April 1945. Development of this equipment was nearly complete as of 1 April 1945.

POWER INPUT	60 AMPERES @ 110 VOLTS AC.
POWER OUTPUT	50 WATTS
FREQUENCY	100-156 MC
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	100 MILES AT 10,000 FEET



Radio Set SCR-629 (modified) is a mobile VHF omni-directional radio range which enables aircraft to determine relative position with respect to station location and provides periodic station identification and simultaneous voice transmission.

SCR-629

~~CONFIDENTIAL~~

RADIO SET SCR-629

TOTAL WEIGHT 21,000 LBS.

Component	Nomenclature	Size	Weight
Transmitter			
Modulator			
Power Supply			
Keyer and Rotator			
Antenna System			
Gas Engine Generator	ARL-116		
Course Monitor and Field Detector			
Probe Detector	TS-21		
Preamplifier			

and includes cord and radio frequency cable.

May 1945

TEST Equipment

Test Set I-76 is used for pre-flight tuning of marker beacon receivers, and consists of Test Indicator BE-67 and Test Oscillator BC-376.

Test Indicator BE-67 is a 0-1 milliammeter designed for adjusting and tuning of marker beacon receivers. It acts as an output meter for tuning marker beacon receivers and also supplies direct current to the relay of the marker beacon receiver for proper relay adjustment. This equipment consists of a meter, variable resistor, phone jack and switch all self-contained in a wood carrying case.

Test Oscillator BC-376 is used for tuning and adjusting marker beacon receivers and transmitters and furnishes a fixed 75 megacycle signal for aligning marker beacon receivers. This oscillator is self-contained in a portable metal case with a compartment for self-contained batteries.

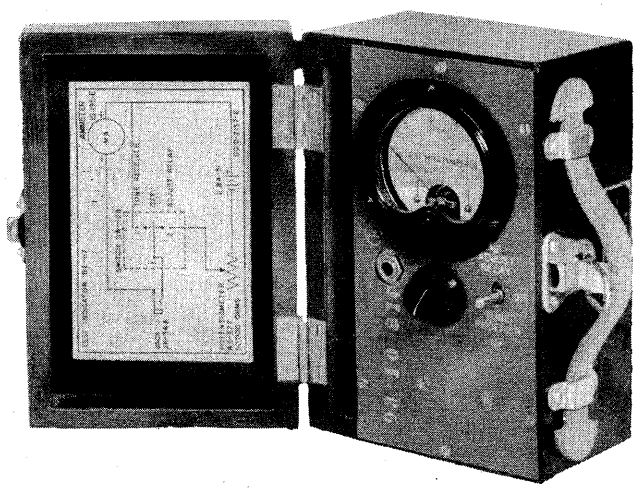
It is essentially a low power crystal controlled transmitter with a fixed signal output which may be internally modulated at 400, 1300 or 3000 cycles per second. A 12.5 megacycle crystal output is tripled and then doubled to provide a 75 megacycle output. A horizontal telescoping antenna is used for radiation and 0-1 milliampere d.c. meter is provided on the front panel to measure the battery voltage and plate current of tubes and for use as a visual check in tuning of the receivers and transmitters.

Army Supply Program requirements as of 1 February 1945 were 2,523 test sets for the calendar year 1945.

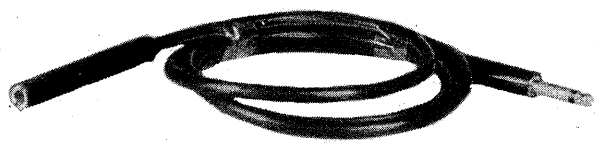
POWER SOURCE	BATTERIES
FREQUENCY	75 MC
TYPE OF SIGNAL	AUDIO MODULATED AT 400, 1300 or 3000 CPS.
METER RANGE	0-1 MA.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	1A5	1	1C5

Test Oscillator
BC-376-H



Test Indicator
BE-67



Cord CD-307-A

TEST SET I-76

TOTAL WEIGHT 33 LBS.

Component	Nomenclature	Size	Weight
Test Oscillator	BC-376	9" x 13" x 8"	25 Lbs.
Test Indicator	BE-67	8" x 6" x 5"	8 Lbs.
Headset	HS-23		
Cord	CD-316		
Cord	CD-307		
Battery	BA-31		
Battery	BA-35		
Battery	BA-36		

May 1945

Test Set I-100 is a compass test set designed to test the operation and performance of Radio Compass SCR-269-G and Radio Compass *AN/ARN-7. It consists of a vacuum tube voltmeter with push button selection of voltage measurements of principal points in loop orientation circuits and four milliammeters for measuring currents of the loop motor and indicator circuits.

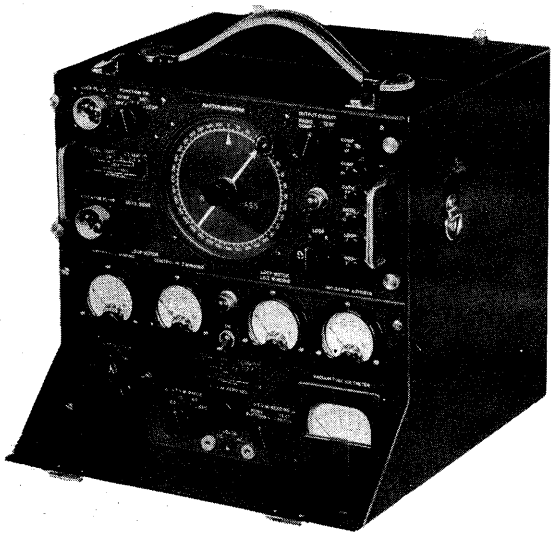
The voltmeter covers 0-2.5, 0-10, 0-50, and 0-250 volts a.c. and d.c. The milliammeter ranges are 0-500 ma. d.c. and 0-250, 0-500 and 0 750 ma. ac. The components are packed in single cabinet.

Power is obtained from a 115 volt 400 cycle a.c. source.

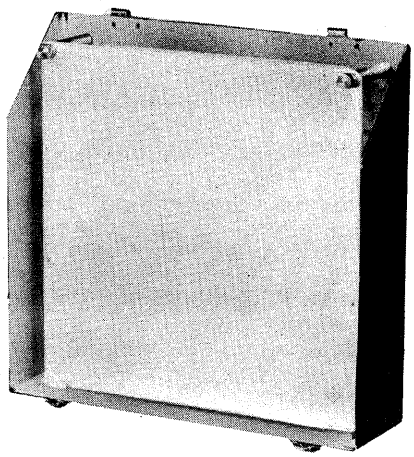
Army Supply Program requirements as of 1 February 1945 were 448 for the calendar year 1945.

POWER SUPPLY	115 VOLT 400 CYCLE AC

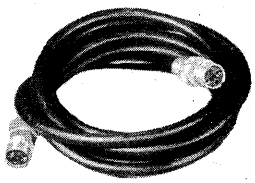
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	5Z4	2	6B8
1	6H6	2	2051
1	6J5	2	6F8G
3	150-30	1	6SQ7
1	6F6	1	6SC7



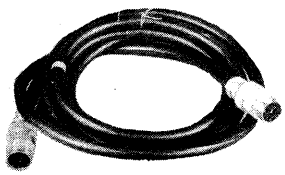
Cabinet, (Cover Removed, Showing Front Panels of Test Units BC-713-A and BC-714-A)



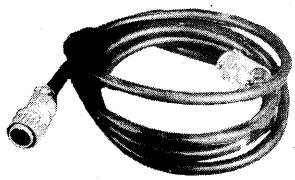
Front Cover



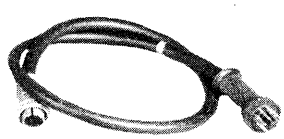
Cord CD-548-A



Cord CD-549-A



Cord CD-550-A



Cord CD-551-A

Cord CD-552-A

Test Prod

Test Prod

TEST SET I-100

TOTAL WEIGHT 55 LBS.

Component	Nomenclature	Size	Weight
Test Unit	BC-713-A	14" x 13" x 15"	21 Lbs.
Test Unit	BC-714-A	13" x 6" x 11"	18 Lbs.
Cord	CD-548-A	120" long	2 Lbs.
Cord	CD-549-A	120" long	2 Lbs.
Cord	CD-550-A	120" long	2 Lbs.
Power Cord	CD-551-A	36" long	1 Lb.
Cord	CD-552-A	36" long	1 Lb.

May 1945

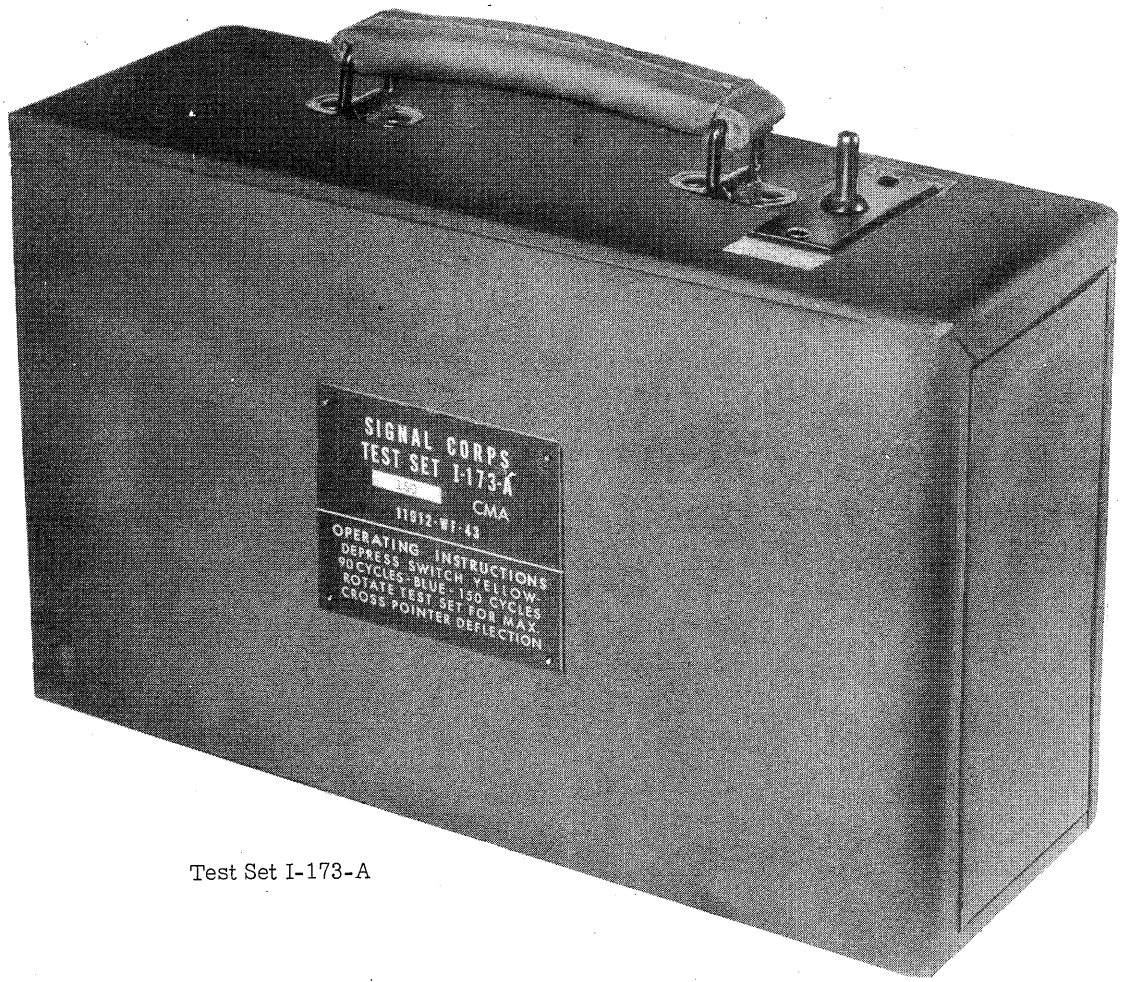
I-173

Test Oscillator I-173, specifically designed for pre-flight checking of localizer receivers, provides radio frequency oscillation modulated by 90 and 150 cycle spark gap and radiates a signal for checking the receiver under test. Indicator I-101, a component of the localizer receiver installation, indicates operation by right or left movement of the vertical needle.

This oscillator is mounted within a wooden carrying case which also provides space for the two Batteries BA-35 required to power it, and a two position toggle switch on the top of the case provides a choice of the 90 or 150 cycle modulation.

Army Supply Program requirements as of 22 January 1945 were 4576 for the calendar year 1944 and 253 for 1945.

POWER SOURCE	2 BATTERIES BA-35 (1.5 VOLTS)
POWER OUTPUT	RF CARRIER UNCALIBRATED AND MODULATED AT 90 OR 150 CYCLES
FREQUENCY RANGE	108.3-110.3 MC
TYPE OF SIGNAL	MODULATED



Test Set I-173-A

TEST OSCILLATOR I-173

TOTAL WEIGHT 9 LBS.

Component	Nomenclature	Size	Weight
Test Set	I-173	12" x 4" x 7"	9 Lbs.

May 1945

TS-1/ARR-1

Test Set TS-1/ARR-1 is a test oscillator used for the alignment of Radio Receiving Equipment AN/ARR-1.

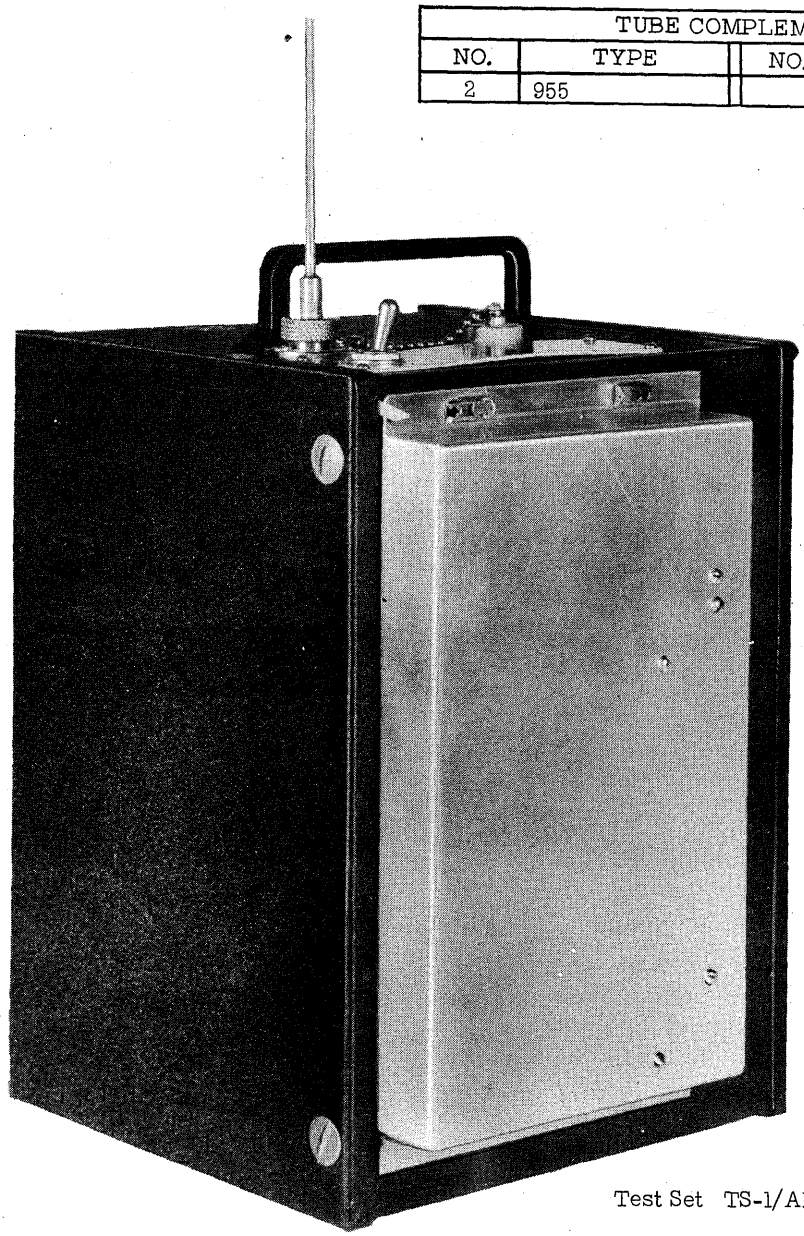
A type 955 tube in a tuned grid tuned plate circuit provides a 246 mc. signal which is modulated at 710 kc. by a circuit employing a second 955 tube. About 70% modulation is obtained.

This portable test oscillator is housed in a sturdy weather proof metal case provided with a metal carrying handle. It contains a compartment for batteries necessary for operation. A weather proof canvas duck cover is provided for the protection of the test set.

There were no Army Supply Program requirements as of 1 February 1945.

POWER SUPPLY	2 BATTERIES BA-59 (45 VOLTS) 2 BATTERIES BA-203/U (6 VOLTS)
FREQUENCY	246 MC
TYPE OF SIGNAL	CW
MODULATION FREQUENCY	710 KC
FREQUENCY ACCURACY	± 3MC
MOD. ACCURACY	± 1KC
OUTPUT CHARACTERISTICS	MODULATED CARRIER UNCALIBRATED

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	955		



Test Set TS-1/ARR-1

TEST SET TS-1/ARR-1

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Test Set	TS-1/ARR-1	7" x 7" x 11"	15 Lbs.
Cover	CW-1/ARR-1		*
Wrench			

*Weight less than 1 pound.

May 1945

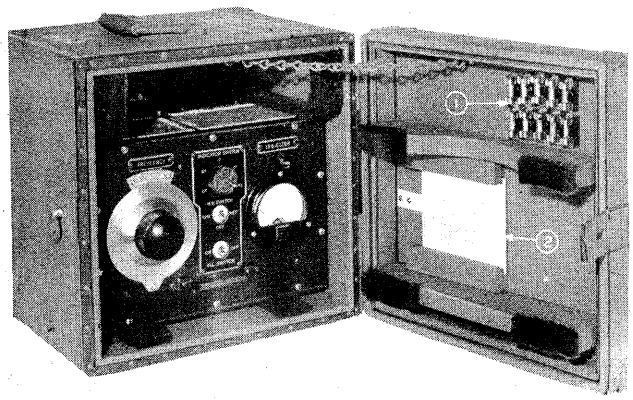
TS-41/CRN-1

Test Set TS-41/CRN-1 consists of a meter 0-1.0 milliamperes which by means of a five position "Indicator Switch" is connected to various circuits in Radio Transmitter T-2/CRN-1. A copper oxide rectifier bridge circuit is included in Test Set TS-41/CRN-1 to convert a.c. antenna currents to d.c. for measurements and an absorption wavemeter is included for measurement of frequency. Finally, a motor and keying switch are included in the test set so that operating tests can be made without using the equivalent circuits in Radio Transmitter T-2/CRN-1.

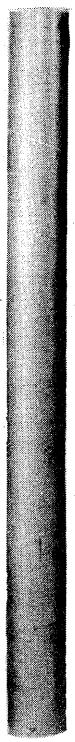
This set is contained in a metal box which is mounted when in use on the Stand MX-176/CRN-1. This stand is designed specifically for holding Radio Transmitting Equipment AN/CRN-1 when being tested. The stand is collapsible and all components of Test Set TS-41/CRN-1 are carried in two wood cases.

Army Supply Program requirements as of 30 November were 100 for 1944 and 100 for 1945.

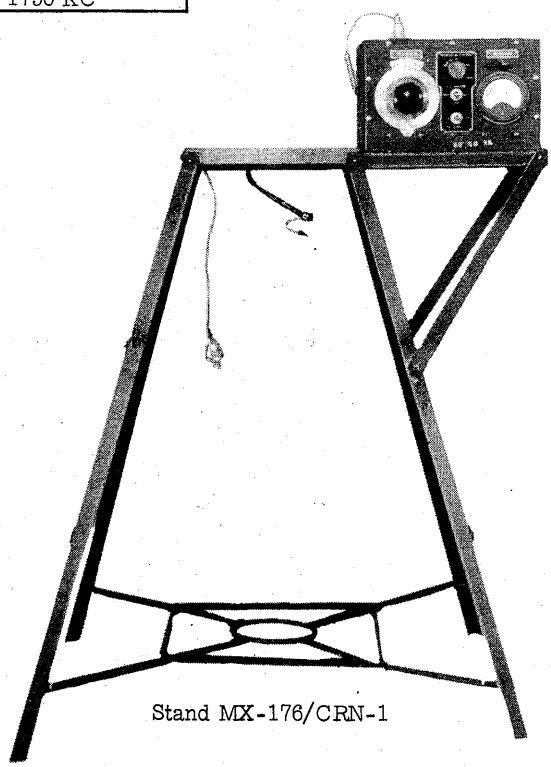
POWER INPUT	OBTAINED FROM EQUIPMENT UNDER TEST
FREQUENCY	1400 TO 1750 KC



Test Set TS-41/CRN-1 in case CY-147/CRN-1 (1) Spare Fuses (2) Spare Calibration Charts.



Dummy Antenna TS-181/CRN-1



Test Set TS-41/CRN-1

Stand MX-176/CRN-1

TEST SET TS-41/CRN-1 TOTAL WEIGHT 150 LBS.

Component	Nomenclature	Size	Weight
Test Set	TS-41/CRN-1	11" x 10" x 9"	13 Lbs.
Stand	MX-176/CRN-1	30" x 30" x 38"	27 Lbs.
Assembly Tool	MX-201/CRN-1	20" x 8"	3 Lbs.
Assembly Tool	MX-179/CRN-1	20" x 8"	3 Lbs.
Code Assembly Tool	MX-178/CRN-1	25"	1 Lb.
Dummy Antenna	TS-181/CRN-1	44" x 3"	4 Lbs.
Socket Wrench		6"	*
Screw Driver			*
10 Fuses (spares)			
Case (for accessories CY-148/CRN-1)		49" x 7" x 34"	80 Lbs.
Case (for metering equipment CY-147/CRN-1)		13" x 14" x 14"	18 Lbs.

* Less than one pound.

May 1945

TS-67/ARN-5

Test Set TS-67/ARN-5, designed to simulate frequency and radiation characteristics of the glide path transmitter and localizer associated with the AAF Instrument Approach System, consists essentially of three radio frequency oscillators and one audio oscillator combined with a signal generator unit for aligning and testing localizer and glide path receivers.

In addition, the following assemblies are built into this test set: Calibrated audio radio DB control which provides fixed differentials between the 90 and 150 cycle modulating voltages when used simultaneously; monitor circuit to indicate correct balance when 90 and 150 cycle modulating voltages are applied together; three calibrated attenuators of the variable mutual inductance type in the output circuits of the three RF oscillators. A jack is available on this front panel of Test Set TS-67/ARN-5 which supplies 150 volts d.c. to the junction box for the purpose of testing early type marker beacon receivers. A marker beacon indicating lamp is located in the junction box case. No source of rf is furnished for operation of marker beacon receivers.

The equipment is used for bench testing, adjustment and alignment of receivers in Radio Receiving Equipment RC-103-A, RC-103-AZ, AN/ARN-5 and AN/ARN-5A.

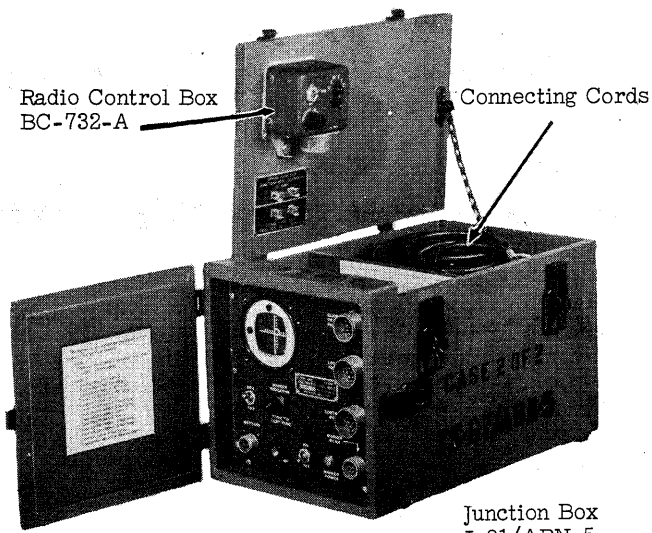
Two units, Test Set TS-67/ARN-5 and Junction Box J-81/ARN-5 comprise this equipment and both are contained in plywood carrying cases.

Army Supply Program requirements as of 31 January 1945 were 309 for the calendar year 1945.

POWER INPUT	105-130 VOLTS AC 50 OR 60 CYCLES
POWER OUTPUT	1 TO 100,000 MICRO-VOLTS
FREQUENCY	6.9-20.7 MC. 106-114 MC. 327-339 MC
TYPE OF SIGNAL	RF MODULATED
MODULATION FREQUENCY	1000 CYCLES. 90 CYCLES, 150 CYCLES OR COMBINED 90 AND 150 CYCLES
OUTPUT IMPEDANCE	95 OHMS
TEMPERATURE RANGE	OPERATING -10° TO + 60° C NON-OPERATING -55°C TO + 71°C

TUBE COMPLEMENT

NO.	TYPE	NO.	TYPE
1	6X5	2	6SQ7
1	5Y3	1	6SJ7
2	OD3-VR-150	2	6SN7
1	OA3-VR-75	2	955
5	6G6	3	6AK5



Test Set TS-67/ARN-5

TEST SET TS-67/ARN-5

TOTAL WEIGHT 107 LBS.

Component	Nomenclature	Size	Weight
Test Set	TS-67/ARN-5	21" x 11" x 15"	50 Lbs.
Indicator	I-101-( )	3" x 3" x 4"	2 Lbs.
Junction Box	J-81/ARN-5	16" x 11" x 10"	20 Lbs.
Radio Control Box	BC-732-A	4" x 3" x 3"	*
Tuning Shunt	MX-234/ARN-5	2" long	*
Cord	CG-59/ARN-5	3 1/2'	
Cord	CG-142/ARN-5	3 1/2'	
Cord	CX-237/U	10'	
Cord	CX-277/ARN-5	3'	
Cord	CX-278/ARN-5	3'	
Cord	CX-279/ARN-5	1'	
Cord	CX-279/ARN-5	3'	
Cord	CX-280/ARN-5	3'	
Cord	CX-281/ARN-5	6'	
Cord	CD-316-A	3'	

*Less than one pound.

May 1945

TS-170/ARN 5

Test Oscillator TS-170/ARN-5, a special purpose, portable, high frequency test oscillator, for preflight checking of Radio Receiving Equipment AN/ARN-5 and AN/ARN-5A, will check receiver sensitivity and the audio channels within the receiver.

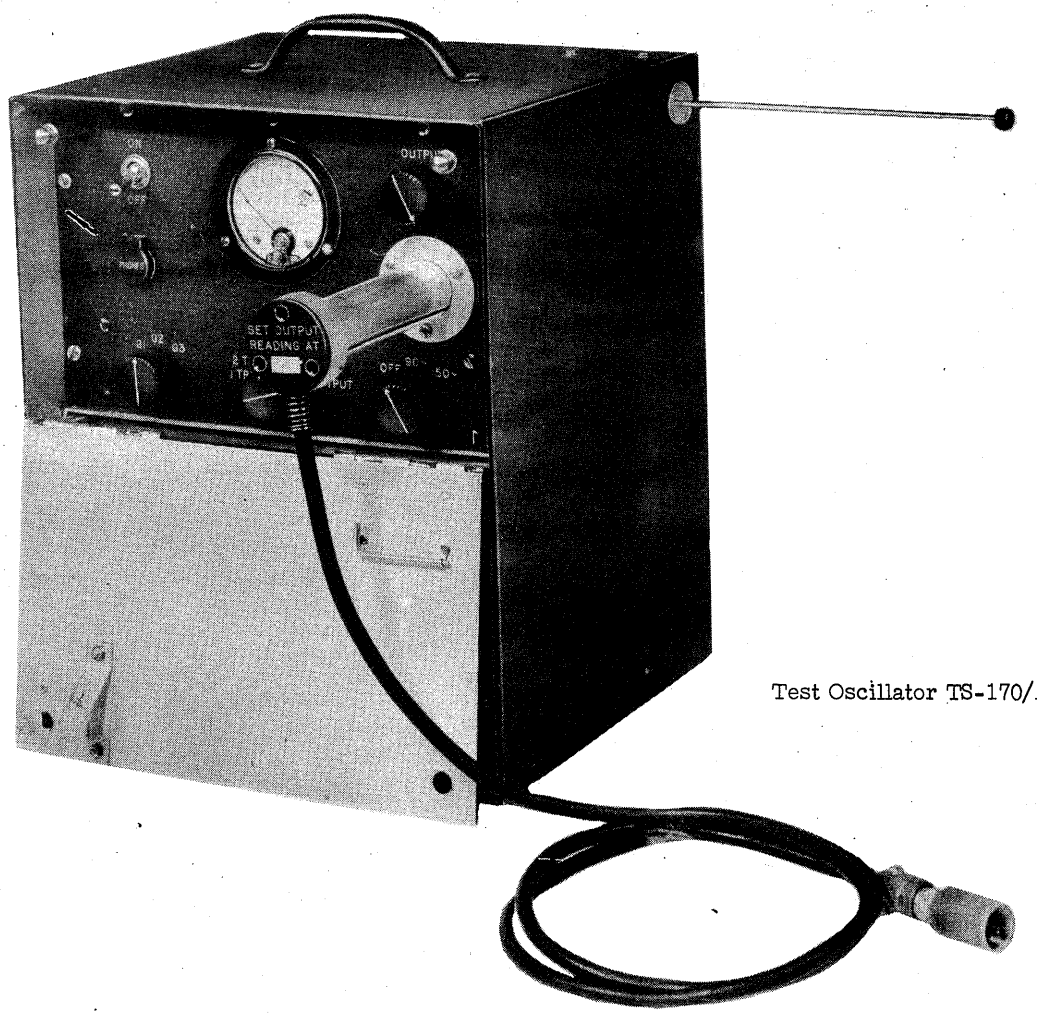
Three frequencies are provided capable of being modulated with either 90 or 150 cycles and are crystal controlled. Modulation is provided by a self-contained audio oscillator. The output available at the end of the transmission line can be attenuated approximately within the limits of 10 to 1,000 microvolts.

This equipment is contained in a metal case, with controls and attenuator located on the front panel, protected by a cover when not in use. A collapsible antenna is mounted on the side of the test set.

Army Supply Program requirements as of 20 January 1945 were 5,000 for the calendar year 1944 and 600 for 1945.

POWER SOURCE	2 BATTERIES BA-35 1.5 VOLT 2 BATTERIES BA-36 45 VOLT
POWER OUTPUT	10 TO 1000 MICROVOLT
FREQUENCY	332.6 MC. 333.8 MC. 335.0 MC.
TYPE OF SIGNAL	CW
IMPEDANCE	APPROX. 50 OHMS
AUDIO MODULATION	90 AND 150 CYCLES
TEMPERATURE RANGES	OPERATING- -10°C TO+60°C NON-OPERATING - -55°C TO +71°C

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	959	1	IN21A
4	3Q4		



Test Oscillator TS-170/ARN-5

TEST OSCILLATOR TS-170/ARN-5

TOTAL WEIGHT 25 LBS.

Component	Nomenclature	Size	Weight
Test Oscillator Tube 959 (Supplied as spare) and includes batteries.	TS-170/ARN-5	13" x 8" x 9"	21 Lbs.

May 1945