

UNCLASSIFIED

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

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

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

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

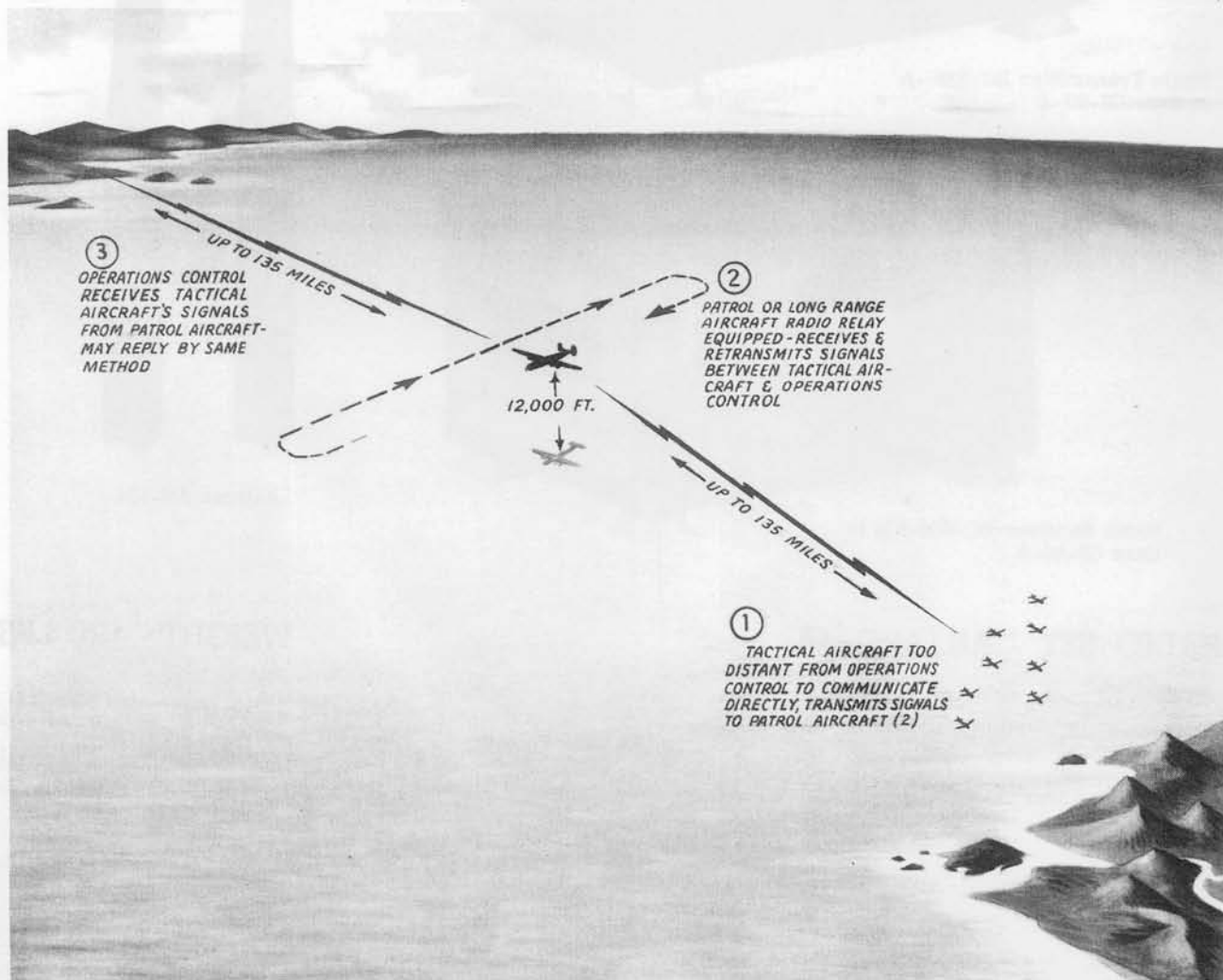
Forces. Its development was required by a tactical need for the extension of the reliable range between VHF ground stations and aircraft equipped with VHF radio. It is expected that the equipment will greatly aid the operations of the AAF by extending the range of such communication systems.

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

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

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

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



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

March 1945

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# AN/ARC - 10

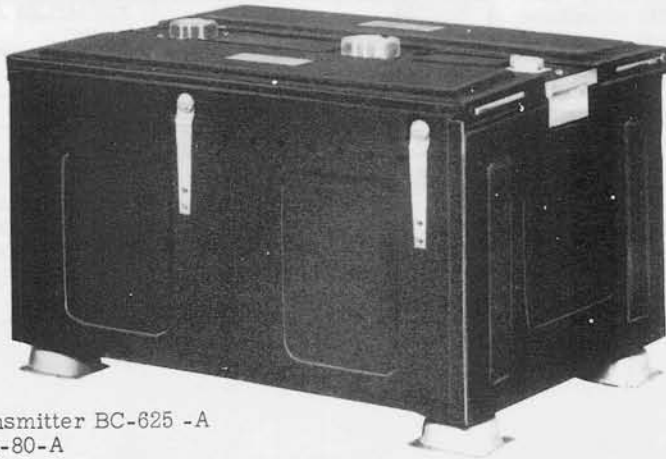
**CONFIDENTIAL**



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



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



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



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



Antenna AN-104

## RADIO SET AN/ARC-10

**WEIGHT 120 LBS.**

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

and includes cords, plugs, etc.