

# **Radio Receivers**

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DEPARTMENT OF THE AIR FORCE

**FOREWORD**

This Manual is published to serve as a training text and guide for repairmen and technicians. It covers the field of radio receivers, in sufficient detail, to enable the student to understand the operation, repair, and adjustment of basic communications receivers. The information contained in the Manual also gives the student an adequate background for studying specific Air Force receivers.

There is a general discussion of the fundamentals of radio reception followed by explanations of tuned-radio-frequency and superheterodyne receivers. Descriptions of ordinary communications receivers, and very-high-frequency and ultra-high-frequency receivers are discussed in detail. The latest techniques in receiver design, such as the use of subminiature tubes and plug-in units, are incorporated in the next chapters, followed by explanations of frequency modulation and special purpose receivers. The Manual ends with discussions of performance tests and troubleshooting techniques.

We invite you to send recommendations and or comments for the improvement of this Manual to the Director of Personnel Procurement and Training, Headquarters USAF, Washington 25, D. C.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

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\*This Manual supersedes Air Training Command Manual 52-9, December 1953.

\*\*Commanders may requisition additional copies for issue to individuals possessing primary AFSC's in the 30- career fields whose duties require knowledge of receiver principles and circuits.

# *introduction*

A radio receiver is the other half of a communications network—the first half, so to speak, is the radio transmitter. The two halves are linked by radio waves that are radiated from the transmitting antenna and intercepted by the receiving antenna.

Like transmitters, receivers are usually classified and taught as a part of either airborne or ground equipment. In the airborne field, you will become either an Electronic Communications Equipment Repairman or an Electronic Navigation Equipment Repairman. In ground equipment maintenance, you will become either a Radio Repairman or a Radio Technician.

This manual is designed to serve as a basic text in both fields, since basic receiver theory applies equally well to both airborne and ground receivers.

Once you have mastered the operation of the basic receiver circuits presented in this manual, you will have little difficulty understanding the operation of any receiver that you will be required to maintain and service. Actually the only differences between receivers are frequency range, arrangement of stages, types of tubes used in the various stages, and the physical location of the various controls.

# **contents**

CHAPTER

**1**

**Fundamentals of Radio Reception . . Page 1**

**2**

**TRF Receiver . . . . . 7**

**3**

**Superheterodyne Receiver . . . . . 29**

**4**

**Communications Receiver . . . . . 41**

**5**

**VHF and UHF Receivers . . . . . 85**

**6**

**Frequency Modulation . . . . . 105**

**7**

**Special Purpose Receivers . . . . . 129**

**8**

**Performance Tests and  
Troubleshooting Techniques . . . . . 157**

**Index . . . . . 174**