# SHIPBOARD ELECTRONIC EQUIPMENTS

Prepared by
BUREAU OF NAVAL PERSONNEL

**NAVPERS 10794-C** 

### **PREFACE**

This text has been prepared to furnish naval officers who are not electronic specialists with an overview (1) of the fundamental concepts of major electronic equipments on board ships of the U.S. Navy, and (2) of the capabilities and limitations of the more common equipments installed in the categories of communications, radar, sonar, and navigational aids.

In view of the objectives of the text, technical details of circuits and of components of equipments have been kept to a minimum. Overall technical aspects of the systems have been covered in sufficient detail, however, so that students can acquire familiarity with the purposes, functions, and types of equipment.

This text was prepared by the Training Publications Division, Naval Personnel Program Support Activity, Washington, D.C., for the Bureau of Naval Personnel. Technical assistance was provided by the Fleet Anti-Air Warfare Training Center, San Diego, California; Naval Air Technical Training Center, Glynco, Georgia; Naval Electronic Systems Command, and Naval Ship Systems Command, Washington, DC.

UNITED STATES GOVERNMENT PRINTING OFFICE WASHINGTON: 1969

Stock Ordering No. 0500-212-1100

## THE UNITED STATES NAVY

#### **GUARDIAN OF OUR COUNTRY**

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

#### WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

#### THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

# **CONTENTS**

CHAPTER		Page
1.	Nomenclature and Glossary	1
2.	Radio	17
3.	Radio Equipment	29
4.	Teletype and Facsimile	66
5.	Radar	87
6.	Radar Equipment	105
7.	Sonar	125
8.	Sonar Equipment	136
9.	Electronic Navigational Aids	151
10.	Introduction to Digital Computers	173
11.	Introduction to a Shipboard Weapons Control System	193
12.	Miscellaneous Facilities	207
INDEX		224