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# **how to service TAPE RECORDERS**

by C. A. TUTHILL



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SIXTH PRINTING

*Library of Congress Catalog Card No. 54-11620*

**Printed in the United States of America**

## PREFACE

In recent years, magnetic tape recorders have grown into highly developed, versatile instruments which are used on a very wide scale. A great variety of models are available at the present time, from the small portable machines to professional broadcast-station equipment and multichannel special-purpose recorders. Tape recorders have not only found acceptance in business, scientific laboratories, the professions, military services, and recording studios, but have also become increasingly popular with experimenters and audiophiles, who have come to use tape machines as an integral part of high-fidelity sound recording and reproducing equipment. Because of this widespread use, radio and television servicemen are frequently being asked to repair and maintain these complex electromechanical devices, on which little information is generally available.

This book was written with the requirements of these widely divergent users in mind. It presents, in a balanced manner, an introduction to the basic principles of magnetic recording as well as practical service information on many popular tape machines. The theoretical discussion in the first three chapters has been kept free of involved mathematics, in an attempt to present a simple but adequate account of magnetic recording principles and applications, making free use of graphical analysis and simplified illustrations. Tape recording mechanisms are discussed in Chapter 4, while the electronic requirements of tape recorders and their accessories are described in Chapter 5. In both chapters a number of widely differing commercial recorders are analyzed in detail. The practical mechanical and electronic information, presented in Chapters 4 and 5, is supplemented in Chapter 6 by detailed maintenance and repair data on a number of popular tape-recording machines. Chapter 6 also gives a logical step-by-step procedure for systematic troubleshooting and repair of tape recorders, by a detailed analysis of representative models, covering frequently occurring troubles and preventive maintenance requirements.

While thus being a convenient reference manual for servicemen, the book will also prove useful to the layman interested in the principles, operation, and maintenance of magnetic tape-recording machines. Experimenters and high-fidelity enthusiasts will find many suggestions on improving their own tape equipment and expanding its capabilities. They will also find the most important technical characteristics and prices of a wide cross-section of commercially available recorders and

tapes in the Appendix of the book. The material in this Appendix has been reproduced from an issue of *Audio Record* magazine by the permission of Audio Devices, Inc., New York City.

Grateful acknowledgement is also made to the following concerns for so generously making available information and illustrations on tape recorders of their manufacture. Specific credit is given in the text for service data and illustrations reproduced.

Armour Research Foundation  
Ampex Electric Corp.  
Audio Devices, Inc.  
Bell Sound Systems, Inc.  
Bell Laboratories, Inc.  
Berlant Associates  
Brush Development Co.  
Fairchild Recording Equipment Corp.  
General Industries Co.  
Magnecord, Inc.  
Masco Electronic Sales Corp.  
Presto Recording Corp.  
Prestoseal Mfg. Corp.  
RCA Victor  
Stancil-Hoffman Corp.  
Webster Electric Co.

The author also wishes to express his gratitude to Seymour Uslan for his help in preparing this book, and to Henry Jacobowitz for his technical editing and cooperation in preparing the manuscript.

New York, N. Y.  
July, 1954

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