

THE
CATHODE-RAY TUBE
AT WORK

by

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Perpetual Trouble Shooter's Manual, Servicing
Superheterodynes, Automatic Frequency Control
Systems, and other Radio Texts

PUBLISHED BY

JOHN F. RIDER PUBLISHER, INC.

404 Fourth Avenue

New York City

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FIRST PRINTING, AUGUST, 1935
SECOND PRINTING, OCTOBER, 1935
THIRD PRINTING, JUNE, 1936
FOURTH PRINTING, APRIL, 1937
FIFTH PRINTING, DECEMBER, 1937
SIXTH PRINTING, APRIL, 1939
SEVENTH PRINTING, JULY, 1940
EIGHTH PRINTING, MAY, 1941
NINTH PRINTING, NOVEMBER, 1941
TENTH PRINTING, MARCH, 1942
ELEVENTH PRINTING, MARCH, 1942
TWELFTH PRINTING, MAY 1942
THIRTEENTH PRINTING, AUGUST, 1942
FOURTEENTH PRINTING, DECEMBER, 1942
FIFTEENTH PRINTING, FEBRUARY, 1943
SIXTEENTH PRINTING, APRIL, 1943

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INTRODUCTION

The cathode-ray oscillograph is not a new device. It is years old. In fact the writer employed the instrument almost a decade ago and there were very many who employed it many years before then. However, its exploitation during the past six months removed it from the laboratory class and made it an instrument of general practical utility to an extent far greater than that which was accomplished during the past ten years. . . Radio service technicians—design engineers—college laboratory technicians—amateur transmitter operators—have become cathode-ray oscillograph conscious. This is by no means strange, for no piece of equipment possesses the versatility and utility equal to that of this device.

While it is true that "The Cathode-Ray Tube At Work" is intended primarily for the radio servicing industry as a reference text covering the operating principles and practical applications, it is felt that the contents will be of value to the design engineer as well, for he, too, has in very many cases searched in the dark for the conclusions he hoped to reach.

This volume is not intended as an engineering text. It is intended as a practical book and should be viewed from that angle. The theory covers the principles underlying the operation of the cathode-ray tube as used in oscillographs of the type intended for general use in the radio and allied fields in connection with servicing, design research and "ham" transmitter operation and adjustment. The practical applications covered herein relate to the servicing of radio receivers and the observation of electrical phenomena associated with receiver, amplifier and transmitter components.

The subject of television has been omitted entirely, because we felt that it did not belong in this volume. However, the theory given in this text should be of some value in the effort to comprehend the operation of the cathode-ray tube in television systems. We have omitted discussion of the application of the cathode-ray tube to fields associated with radio, but far removed from receivers, amplifiers and transmitters as we consider them. We are referring to the application of the cathode-ray tube for direction finding, study of static, prevention of collision, blind flying, etc. . . .

We made brief reference to the application of the cathode-ray oscillograph to the industrial field. But as far as radio servicing is concerned, we feel that we have covered the subject as fully as it will permit, without making the text an involved engineering discussion. No doubt, revisions of this volume will take place in years to come. Changes will take place. The servicing field in particular is fast approaching an engineering status and as such will use more and more equipment originally native to the laboratory only. When that time arrives, such a volume will of necessity become more of an engineering text.

The engineer responsible for the design of cathode-ray equipment will not find much of value in this volume. This is not an apology, but a statement of fact. However, the man who is going to apply the cathode-ray oscillograph, it is hoped, will find a great deal of value.

It is our sincere wish that students will find material of value in these pages and that more and more educational institutions will find the cathode-ray oscillograph to be of value during instruction.

It may be of interest to note that all the oscillograms in this book were reproduced from unretouched photographs made in the author's Successful Servicing Laboratory.

We desire to extend our thanks for the wholehearted cooperation extended by Mr. G. C. B. Rowe and Mr. J. Avins, during the preparation of this volume.
August 13, 1935.

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