The Technique of Sound Reproduction

Theory and Practice

AMPLIFIERS
The Technique of Sound Reproduction
Edited by John Borwick

ACOUSTICS
G. W. Mackenzie

AMPLIFIERS
H. Lewis York

DRC RECORDING AND REPRODUCTION
P. J. Guy

TAPE RECORDING AND REPRODUCTION
A. A. McWilliams

RADIO RECEIPTION
M. Henderson

LOUDSPEAKERS
E. J. Jordan
AMPLIFIERS

H. Lewis York

Focal Press
London & New York
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EDITOR'S INTRODUCTION

High Fidelity—by which we mean the recording and reproduction of sound with maximum faithfulness to the original—has been in existence for only a decade or two. Yet in that time it has become an absorbing hobby for thousands of technical and musical enthusiasts. In countless homes it provides the key to unlimited musical enjoyment in the form of today's high quality gramophone records, tape records and the VHF/FM broadcasts.

During the same period, high fidelity has risen in importance as a subject of study at Technical Colleges where it is variously listed under Audio, Electronic, Broadcast and Telecommunication Engineering.

The decision to produce this series of books on the Technique of Sound Reproduction in such a way as to make them add up to a comprehensive Manual of High Fidelity in six volumes arose from the following considerations:

1. To treat this wide subject adequately in a single book and at a level suited to the needs of both the technical student and the keen amateur would require a work of unmanageable proportions.

2. The practice of assembling high fidelity equipment in separate competences conveniently allows the student and the amateur to study or work separately at these six aspects—Acoustics, Amplifiers, Loudspeakers, Disc, Tape and Radio.

3. In this age of specialization, we were presented with the seeming paradox that the expert specialist authors were easier to find and brief than a single polymath of high fidelity techniques. Accordingly, and before one word was written, the Editor was able to hold a series of meetings with the author, each of whom is an expert in his particular field. This procedure has ensured that the technical level is uniform throughout the series, and that the volume dovetails together to provide complete coverage while nevertheless taking their place in the literature as individual works in their own right.

Special attention has been given to terminology. Each book includes a Glossary of Terms so that anyone possessing the complete series has access to a sectionalized dictionary and reference in the whole subject of the Technique of Sound Recording and Reproduction.

JOHN BORWICK
PREFACE

In this book I have attempted to describe, in simple terms, the 
theory and practise of the audio frequency amplifier of the type 
comprised under the popular description 'high fidelity amplifier'.

The aim has been to deal with the subject from simple theory up 
to the development of the circuits most often encountered in an 
understandable, concise and practical way. The work is not intended 
to be comprehensive nor a text-book and is directed to the user of 
this type of equipment who wishes to have some understanding of 
its construction, the enthusiast and the amateur designer.

At the date of publication, the vast majority of audio amplifiers 
use the thermionic valve although a few transistorised amplifiers 
are making their appearance. At present the main advantage 
accruing from the use of transistors in this field is that amplifiers 
can be made smaller and lighter, not a matter of great significance 
in fixed sound reproducing equipment. One considerable advantage 
of a transistor output stage, however, is that it can be designed so 
that a loudspeaker can be connected without the necessity of using 
a matching transformer. Further development in the manufacture 
of transistors and the reduction in their cost during the next few 
years, will doubtless make available low priced audio amplifiers 
with a standard of performance superior to that of the valve ampli-
 fier. At that time, the chapter on transistors may require expansion 
in the form of a second volume.

Valve application reports for some of the most popular valve types 
have been gathered together in Appendix I and I believe that these 
will be found to be a useful source of information on amplifier 
performance and design. All illustrations are based on current valve 
types and data sheets from the appropriate application reports have 
been used for this purpose by courtesy of Mullard Ltd.
The author wishes to thank Mullard Ltd. and The General Electric 
Co. Ltd. of England for permission to reproduce application reports.

H. LEWIS YORK

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