Audio Circuits and Projects

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Audio Circuits and Projects

Graham Bishop

Revised Edition

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Preface

This book is one of a series of electronics hobbies books for electronics constructors at all levels. Almost 100 circuits are described with constructional details given where necessary. The circuits range from those with no integrated circuits or transistors to those with over 15 ICs; all are within the capabilities of the beginner to electronics building.

The first two chapters include some theoretical introduction to the world of audio electronics, where the definitions and jargon are explained. Many hints on construction techniques are also given and the reader is well advised to read these two chapters before plunging into the circuits in the rest of the book. Hints on the purchase of hi-fi equipment and components are included. The circuits of chapters 3 to 7 can be considered as individual modules which can be interlinked to form more complex circuits if desired. A preamplifier and three filters from chapter 3, a power amplifier from chapter 4, a phasing circuit and automatic fade circuit from chapter 5, a sound-to-light unit from chapter 6 and a power supply from chapter 4 together produce a fully comprehensive disco unit with far more facilities than many commercial models.

Neatness of construction and observance of safety precautions are essential. Long wires and shoddy workmanship lead to poor per-

formance, impossible fault-finding and a dangerous piece of equipment, particularly if mains voltages are involved. Constructors need very few tools – a good pair of miniature cutters and pliers with a set of various sized screwdrivers are essential. A 15 or 25 W soldering iron with small bit is required and a simple multimeter for the normal ac/dc ranges is all that is necessary. A signal generator and oscilloscope are useful but not essential – these can often be borrowed.

Components come in all sizes and prices. Bulk packs of resistors, capacitors, transistors, diodes and other components are usually a bargain. Some packs are untested but are quite adequate for the circuits in this book. A diode is tested with an ohmmeter reading about 1k in one direction and several 100k in the other direction. A transistor is tested in the same way, treating the base–emitter and base–collector terminals as two diodes.

Electronics construction is an enjoyable hobby and it should always remain so. It will not be frustrating and expensive if the simple instructions are followed. I hope that you will get much enjoyment out of reading this book and carrying out the circuit-building and testing.

GRAHAM BISHOP

Preface to the Revised Edition

To my surprise, since the first edition was published only minor amendments have been necessary, the transistor and IC world of audio electronics having advanced very slowly. One or two interesting chips have appeared, details of which have been inserted into this Revised Edition but the fun of electronics is still working with the basic circuits of the early chapters. Multifunction chips can take the fun away.

1984

GRAHAM BISHOP

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While every effort has been made to ensure the accuracy of the projects and circuits in this book, neither the Publisher nor the author accepts liability for any injury or loss resulting from the construction of any of the designs published herein.

The Publisher will, however, be pleased to hear from readers who have corrections to the text or genuine queries, and will refer any such queries to the author.