
CONTENTS

Preface xi

Chapter 1. Audio Basics 1.1

- 1.1. Audio-Amplifier Classifications / 1.1
- 1.2. Audio-Amplification Principle / 1.1
- 1.3. Transistors in Audio Amplifiers / 1.2
- 1.4. Common-Emitter Audio Amplifiers / 1.3
- 1.5. Common-Base Audio Amplifiers / 1.5
- 1.6. Common-Collector Audio Amplifiers / 1.5
- 1.7. Audio Bias Networks / 1.5
- 1.8. Operating Point of Audio Circuits / 1.10
- 1.9. Audio Distortion / 1.14
- 1.10. Decibel Basics / 1.15
- 1.11. Field-Effect Transistors in Audio / 1.17

Chapter 2. Practical Considerations for Audio 2.1

- 2.1. Temperature-Related Problems / 2.1
- 2.2. Heat-Sink and Component Mounting Techniques / 2.4
- 2.3. Power Dissipation Problems in IC Components / 2.8

Chapter 3. Simplified Audio Design 3.1

- 3.1. Frequency Limitations in Audio Circuits / 3.1
- 3.2. Audio Coupling Methods / 3.3
- 3.3. How Transistor Ratings Affect Audio Performance / 3.6
- 3.4. Basic Audio Amplifier Design / 3.10
- 3.5. Emitter Bypass / 3.14
- 3.6. Multistage Audio Circuits / 3.15
- 3.7. Transformer Coupling / 3.24
- 3.8. Audio Phase Inverters / 3.25
- 3.9. IC Audio / 3.26

Chapter 4. Basic Testing and Troubleshooting for Audio Equipment and Circuits 4.1

- 4.1. Typical Audio Test Equipment / 4.1
- 4.2. Tools and Fixtures for Audio Troubleshooting / 4.9
- 4.3. Safety Precautions / 4.9

- 4.4. Cleaning, Lubrication, and General Maintenance / 4.9
- 4.5. Basic Audio Troubleshooting Approaches / 4.10
- 4.6. Basic Audio Tests / 4.11
- 4.7. Feedback Problems in Audio Circuits / 4.20
- 4.8. Troubleshooting Audio Circuits with Feedback / 4.23
- 4.9. Effects of Transistor Leakage on Audio Performance / 4.25
- 4.10. Example of Audio Amplifier Troubleshooting / 4.27

Chapter 5. Audio Amplifiers and Loudspeakers**5.1**

- 5.1. Overall Description / 5.1
- 5.2. Keyboard and Display Circuits / 5.6
- 5.3. Power-Protection Circuits / 5.8
- 5.4. Device-Select Operation / 5.10
- 5.5. Amplifier Operating and Adjustment Controls / 5.12
- 5.6. Amplifier Output Circuits / 5.18
- 5.7. Output Protection Circuits / 5.24
- 5.8. Typical Testing and Adjustments / 5.27
- 5.9. Preliminary Troubleshooting / 5.29

Chapter 6. AM/FM Tuner Audio**6.1**

- 6.1. Overall Descriptions / 6.1
- 6.2. Relationship of Tuner Circuits / 6.2
- 6.3. Keyboard and Display Circuits / 6.6
- 6.4. Frequency Synthesis Tuning / 6.8
- 6.5. Audio Output-Select Circuits / 6.12
- 6.6. Audio Control Circuits / 6.13
- 6.7. Audio-Output and Muting Circuits / 6.15
- 6.8. Front-Panel Display Circuits / 6.18
- 6.9. Typical Testing and Adjustments / 6.19
- 6.10. Preliminary Troubleshooting / 6.27

Chapter 7. Tape Cassete Audio**7.1**

- 7.1. Overall Descriptions / 7.1
- 7.2. Relationship of Deck Circuits / 7.6
- 7.3. Record/Playback Functions / 7.7
- 7.4. Music-Detect Functions / 7.13
- 7.5. Dolby Processing / 7.15
- 7.6. Tape-Transport Functions / 7.17
- 7.7. Tape Stop and Reversal Circuits / 7.20
- 7.8. Front-Panel Display / 7.22
- 7.9. Command Circuits / 7.24
- 7.10. Typical Testing and Adjustments / 7.26
- 7.11. Routine Maintenance / 7.32
- 7.12. Preliminary Troubleshooting / 7.33

Chapter 8. CD Audio**8.1**

- 8.1. Overall Description / 8.1
- 8.2. Relationship of CD Player Circuits / 8.6
- 8.3. Mechanical Functions / 8.7

- 8.4. Laser Optics and Circuits / 8.12
- 8.5. Laser Signal Processing / 8.15
- 8.6. Audio Circuits / 8.18
- 8.7. Autofocus / 8.20
- 8.8. Laser Tracking / 8.23
- 8.9. Turntable Motor Circuits / 8.26
- 8.10. Typical Testing and Adjustments / 8.28
- 8.11. Preliminary Troubleshooting / 8.34

Chapter 9. Graphic Equalizer and LP Turntable Audio **9.1**

- 9.1. Graphic Equalizers / 9.1
- 9.2. LP Turntables / 9.7

Chapter 10. Stereo TV and Surround-Sound Audio **10.1**

- 10.1. Stereo TV Basics / 10.1
- 10.2. Stereo TV Circuits / 10.6
- 10.3. Stereo TV Tests and Adjustments / 10.16
- 10.4. Stereo TV Troubleshooting Approach / 10.20
- 10.5. Surround Sound / 10.23

Chapter 11. HiFi Audio-Tape (VHS, Beta, 8 MM, DAT) Equipment **11.1**

- 11.1. VHS Hifi / 11.1
- 11.2. Basic Hifi VCR Audio Circuits / 11.5
- 11.3. Beta Hifi and Super Beta Audio / 11.7
- 11.4. 8-mm Audio / 11.11
- 11.5. Digital Audio Tape (DAT) / 11.15
- 11.6. Hifi Audio-Tape Troubleshooting / 11.19

Index Follows Chapter 11