CONTENTS

FOREWORD 7

FROM ROGER NICHOLS 9

ROGER'S OBSESSION WITH ALL THINGS SOUND 13

SELF-INSTRUCTION GUIDE FOR THE ROGER NICHOLS RECORDING METHOD 17
- Pro Tools Session Files 17
- System Upgrades 18
- Microphones 18
- Headphone Mix 18
- Analog vs. Digital 18
- Hard Disk Recording 18
- Other Recording Systems 18
- Gain Structure 18

CHAPTER ONE
WHY LEARN THE ART AND SCIENCE OF AUDIO AND RECORDING? 19

CHAPTER TWO
DETERMINE YOUR RECORDING NEEDS 23
- Will I Sequence or Play Parts Live? 23
- Will I Record Everything Directly or with Microphones? 23
- How Many Tracks Do I Need? 23
- How Many Simultaneous Tracks Do I Need? 24
- What's My Budget? 24
- Do I Prefer a PC or a Mac? 24
- Should I Use a Laptop or Desktop? 24
- What Computer Audio Interfaces Do I Need? 25
- What Computer Hard Drives Do I Need? 25
  - *SATA* 25
  - *SSD* 25
  - *FireWire 400/800* 26
  - *USB* 26
  - *Ethernet* 26
  - *Fiber Channel* 26
  - *Thunderbolt* 27
- What Recording Software Will I Use? 27
- Should I Consider a Studio-in-a-Box? 28
- Do I Need a Mixer? 28
- Now What? 28

CHAPTER THREE
PLANNING A RECORDING SESSION 29
- Every Link in the Chain Is as Important as the Ones Before and After It 29
- Recording Session Setup 30
- Cables 30
- Microphones 30
- Speakers and Monitoring 32
- Console/Recording Device 32
- When Recording 33
- Overdubs 33
- Effects: EQ 34
- Effects: Compressors and Limiters 34
- Effects: Noise Gates 34
- Effects: Delays and Echoes 34

Harmonizers: Octave Dividers, Aural Exciters 35
Comping Tracks 35
Mixing 35
Word Clock 37
Mix Processors 37
Mixing Back to Two Tracks of Multitrack or DAW 37
Premastering 37
Keeping Notes 38

CHAPTER FOUR
NOISE FROM YOUR ELECTRICAL CONNECTIONS 39
Power Quality 39
Receptacle Load Centers 39
Lighting Load Centers 39
AC Harmonics 40
Grounding and Noise 40
Balanced Power to the Rescue 41

CHAPTER FIVE
WHAT IS RECORDING? 43
Sound Waves and Pond Ripples 43
Transducers 43

CHAPTER SIX
MY THOUGHTS ON RECORDING FORMATS 45
All Recording Methods Break Down to Two Basic Categories 45
Analog 45
Digital 45
Snap, Crackle, and Pop Music 46
Divine Digital Recording 47

CHAPTER SEVEN
MY DETAILED AUDIO PRODUCTION DEFINITIONS 51

CHAPTER EIGHT
CAVEAT SAMPLER, ILLE NUNQUAM CEDUNT! 61

CHAPTER NINE
MICROPHONES 65
Condenser, Ribbon, and Dynamic Microphones 65
Microphone Patterns 66
Omnidirectional 69
Cardioid 69
Supercardioid 70
Hypercardioid 70
Microphone Pickup Angle 71
Microphone Performance in the Direct Sound Field 72
Microphone Performance in Reverberant Sound Field 73
The 3:1 Rule 73
Rejection Is Good 75
Standard Distance 75
Exercise 9.1: Recording a Microphone Signal 75
Launch Pro Tools 76

CHAPTER TEN
CONNECTING AN AUDIO SOURCE 83
Mbox Features and Connections 83
Set Start Point for Recording 87
Test the Pattern of the Microphone 89
Critical Distance 90
Testing Additional Microphone Types 91
Test the Microphones with Instruments 92
Recording an Acoustic Guitar 92

CHAPTER ELEVEN
RECORDING FORMATS—UNDERSTANDING HOW DIGITAL AUDIO WORKS 93
Digital Audio Formats 94
Sample Rate 94
Bit Depth 95
File Format 96

CHAPTER TWELVE
SIGNAL CHAIN 97
Microphone Level and Instrument Level 98
Amplifiers 98
Speaker 99
Channel Strip 99
Virtual Channel Strip 101
Plug-ins 102

CHAPTER THIRTEEN
RECORDING MULTIPLE TAKES 105
Record the Instrument in Stereo 110

CHAPTER FOURTEEN
NEW CONCEPTS 115
Headphone Mix 115
Gain Structure 117
Recording Alternate Takes 118

CHAPTER FIFTEEN
OVERDUBS 119
Overdubbing Tracks to Existing Material 120

CHAPTER SIXTEEN
PUNCH-IN TECHNIQUES 123
Recording Modes/Recording Regions 123
Pre-Roll and Post-Roll 123
Destructive/Nondestructive Recording 124
Crossfades 124
Quick Punch 124
Loop Record with Overdubs 125
Practicing Punch-ins 125
Without Pre-Roll 125
With Pre-Roll 126
With Quick Punch 127

CHAPTER SEVENTEEN
EDITING IN A DAW 129
Creative Editing 129
Edits to Clean Up Audio 129

CHAPTER EIGHTEEN
MIXING 131
The First Taste of Mixing 131
EQ Balance 131
Compression 132
On the Level 132
Reverb: Hello… Hello… Hello… 133
Your Work Is Never Done 133
Hidden Tracks 133
Inactive Tracks 135
Basic Levels for Your First Mix 136
Panning 136
Reverb Sends and Settings 138
Equalization 138
Compressors in the Mix 139
Spend Time Mixing 139
Listening to Other Mixes 140
Make Notes on Your Mixes 140

CHAPTER NINETEEN
BEGINNING AUTOMATION 143
Recording Fader Moves 143
Automating Vocal Levels 145

CHAPTER TWENTY
YOUR FINAL MIX 147
Clean Up Your Mix 147
Print to External Recorder 147
Bounce to Disk 148
Burn CD of Final Mix 150
In Conclusion 152

EPILOGUE - THIS IS A SERVICE BUSINESS 153

ABOUT ROGER NICHOLS 155
TV and Film Credits 157
Awards 157
Overview of Accomplishments 158

ROGER NICHOLS REMEMBERED 161

ROGER NICHOLS DISCOGRAPHY 169

INDEX 177