

## TABLE OF CONTENTS

### section one • electronics

Ohm's Law and Standard Units.....	6
Components:	
Resistor & Capacitor ID Codes, Cap Applications, RC Time Constant.....	7
Inductors .....	11
Wire Gages .....	12
Wire Fuses & Max. Current Rating, Low Ohm Resistors, Resistance of Traces .....	13
Rectifiers, Zener Diodes, LEDs and Varactors.....	14
Transistor Operation .....	17
FETs, MOSFETs, Transistor and FET Specs .....	21
RF MMIC's.....	25
Testing Devices and Home-made Test Equipment.....	26
Power Supply Design - linear regulators, switchers, high voltage.....	29
Types of Batteries, Charging Information.....	37
NE555 Timer .....	40
Digital Logic.....	43
Op-Amps, Filters, Comparators .....	48
LM386, Audio Amps and Tone Controls .....	53
Radio:	
• Frequency Allocation - AM Clear Stations, Longwave, Radio, CB, TV .....	56
• Morse Code, Phonetic Alphabet .....	63
• Frequency, Inductance, Capacitance, Reactance, Impedance, Q.....	64
• Analog Oscillators, DDS Oscillators, Buffers .....	69
• Converting Oscilloscope Displays to Frequency.....	74
• Coil Winding - Air Coils, Toroids .....	75
• Antenna Length Formulas, Coax Cable Loss .....	78
• Loop Antennas .....	81
• Mixers, NE602.....	82
• MC1350 IF Amp, AM Detector, Receiver Designs.....	84
• Receiver Types, receiver design.....	85
• Simple Transmitters and QRP Tranceivers.....	92
• Six Transistor Radio, 5 and 2 Tube Radio .....	95
• RF Filters.....	98
Formulas – Electronic .....	100
Decibels, S-Units.....	102
Surface Mount Technology, Production Process, DFM .....	103
Designing and Manufacturing Pcb's .....	108
Famous Kluges, Breadboarding.....	109
Common Terms.....	111

### section two • mechanical

Screw Thread Information.....	114
Standard Drill Sizes, American and Metric.....	117
Mounting Hardware and Metal Plating Information .....	120
Metals - Stock Sizes, Characteristics.....	121
Hardness Scales .....	124
The One Minute Crash Course in Plastic Design.....	125

## ELECTRONICS BENCH REFERENCE

Rapid Prototyping, Galvanic Series.....	126
Formulas - Mechanical and Constants.....	127
Geometric Dimensioning & Tolerancing, Trig Functions, Geometric Constructions .....	128
Conversion Tables .....	130
Temperature - Heat Transfer, Temp. Conversion Table, Melting Points and Scale.....	132

### **section three • computers**

Port Pinouts – Serial/Parallel/VGA, Loopback Conn., Null Modem Cables, RS-232. ...	136
ASCII Table, Decimal-Hex Conversion. ....	141
Computer Power Supply Projects. ....	142

### **section four • miscellaneous**

House Wiring Color Codes and Your Phone Line.....	144
DTMF Tones, Engine Wiring Diagram .....	145
555 High Voltage Generators, Static Listener, EMI Listener.....	146
Tesla Coils .....	147
Making Your Own Batteries and Capacitors .....	149
"H" Motor Drive Circuits.....	150
Driving Hobby Servos, 556 Servo Drive Circuit, Stepper motors .....	151
Microcontrollers – Basic Stamp, Compilers, Assy language, PIC, Atmel.....	154
The Electromagnetic Spectrum.....	160
Frequency of Musical Notes.....	161
Solid State Lasers, P/S, Laser Transmitters, Laser Receivers .....	162
Optics. ....	163
Statistics.....	167
Free Power.....	168
Simple Robotics Circuits .....	169
Mystery Circuits.....	170

### **section five • sources**

Electronic Component Sources.....	172
Electronics Component Manufacturers .....	173
Connector Manufacturers, Bench Equipment .....	174
Hardware Distributors, SLA Services, Component Distributors .....	175
Sources of Information - General and Microcontrollers.....	176