Contents

Introduction . . . 1

Part One: Theory of Over Unity Machines

1 Basic Definitions and Common Problems . . . 7
- 1.1 Standard Electromagnetic Machines . . . 7
  - 1.1.1 Quotient of Efficiency . . . 7
  - 1.1.2 Eddy Current Minimization . . . 8
- 1.2 Over Unity Electromagnetic Machines . . . 10
  - 1.2.1 Over Unity Quotient . . . 11
  - 1.2.2 Generator - Motor Functional Exchange . . . 11
- 1.3 Drag Caused by Mutual Attraction of Magnet and Iron . . . 12
- 1.4 Thermodynamics and Over Unity . . . 14
  - 1.4.1 Problems in the First Law of Thermodynamics . . . 14
  - 1.4.2 Problems in the Second Law of Thermodynamics . . . 17
    - *1.4.2.1 The Problem with Gases* . . . 17
    - *1.4.2.2 The Problem with Water* . . . 19

2 Basics of Electromagnetism . . . 21
- 2.1 Electromagnetic Force . . . 21
  - 2.1.1 Vector Product of Two Vectors . . . 22
  - 2.1.2 Lorentz's Force . . . 23
- 2.2 Electromagnetic Induction . . . 23
  - 2.2.1 Magnetic Flux . . . 24
  - 2.2.2 Faraday's Law of Induction . . . 25
  - 2.2.3 Lenz's Law for Induced Current . . . 26
  - 2.2.4 Lorentz Force Law Method . . . 26
- 2.3 Magnetic Field of Electric Current . . . 29
  - 2.3.1 Biot-Savart's Law . . . 29
  - 2.3.2 Ampere's Circuital Law . . . 31
  - 2.3.3 Magnetic Field of Moving Electric Charge . . . 32
- 2.4 Magnetic Force between Two Electric Charges . . . 34

3 General Conditions for Over Unity . . . 37
- 3.1 Asymmetry of Forces . . . 37

3.2 Time Factor for Over Unity . . . 40
3.3 Space Factor for Over Unity . . . 42
3.4 Reactive Power and Over Unity . . . 44
3.4.1 The Origin of Cold Power . . . 45

4 Over Unity Behavior of Electric Charges . . . 51
4.1 Newton's Third Law and Charged Particles . . . 51
4.1.1 Over Unity of Two Perpendicular Currents . . . 53
4.2 Electrostatic Charges and Over Unity . . . 54
4.2.1 Electrostatic Generators and Over Unity . . . 57

5 Faraday's Homopolar Generator . . . 61
5.1 Faraday's Paradox . . . 63
5.1.1 Problems in Science . . . 65
5.1.2 Logic of Cosmic Aether . . . 68
5.1.2.1 The Aspden Effect . . . 69
5.2 Voltage Induced in Homopolar Generator . . . 70
5.3 N Machine of Bruce de Palma . . . 72

Part Two: Over Unity Machines with Permanent Magnets

6 Basic Principles for Over Unity Electric generators . . . 79
6.1 Flux Change by Variation of Magnetic Resistance . . . 79
6.2 Principle of Balancing Reaction Forces . . . 81
6.3 Principle of Avoiding Direct Force of the Reaction . . . 84

7 Techniques of Magnetic Shield . . . 89
7.1 Technique of a Single Magnet . . . 89
7.2 Technique of Two Coupled Magnets . . . 93
7.3 Technique of Two Opposing Magnets . . . 94
7.4 Flux Switch Alternator . . . 96
7.5 Common Remarks . . . 98

8 Miscellaneous Techniques for Electric generators . . . 101
8.1 Technique of Balanced Forces . . . 101
8.2 Technique of Movable Magnets . . . 103
8.3 Technique of Magnetization of Iron . . . 108
8.4 Importance of Mutual Positions of Magnet and Coil . . . 113

9 Basic Principles for Over Unity Electric motors 115
9.1 Technique of Magnetic Shield 115
9.2 Technique of Weak and Switched Reluctance 117
9.3 Technique of Combining Opposing Magnetic Fluxes 120
9.3.1 Hybrid Reluctance Magnet Principle 120
9.4 Techniques of Magnetization of Iron 124

10 Usage of Electromagnets 129
10.1 Minimization of Heat Losses 129
10.2 Inductive Spike 131
10.3 Magnetic Circuit Calculation 133
10.3.1 Calculation for Example without Air Gap 134
10.3.2 Magnetic Circuit with Small Air Gap 136
10.3.3 Pickup Coil Calculation 138
10.4 The Future of Electromagnets 139

Final Words 141

Appendix
US Patent # 190,206 – Electro Magnetic Motor by Wesley W. Gary 145
Canadian Patent # 10239 – Improvement on Magneto Electric Machines by Wesley W. Gary 151
US Patent # 3,879,622 – Permanent Magnet Motion Conversion Device by John W. Ecklin 157
US Patent # 6,392,370 – Device and Method of a Back EMF Permanent Electromagnetic Motor Generator by John C. Bedini 165
US Patent # 2009/0309445 – Low Torque Rotary Electric Generator by Daniel L. Quale 187

Bibliography 199

Index 201

About the Author 203