TABLE OF CONTENTS

Preface: Introduction and Guarante]	Preface:	Introduction	and	Guarante
------------------------------------	---	----------	--------------	-----	----------

- 1. Basic Principles of Lubrication: 1-2
- 2. Hydrodynamic and Boundary Lubrication 3
- 3. Chemical Breakdown and Deterioration of Motor Oil During Use: 4-7
 - Oxidation and Deposits
 - Thermal Degradation
 - Corrosion
 - Shearing
 - What About Engines that "Require" a Straight weight Oil?
 - Contamination
- 4. Oil Additives During the Manufacturing Process: 8-13
 - "Motor Oil Refining" Process
 - Pour Point Depressants
 - Viscosity Improvers
 - Detergents and Dispersants
 - Anti-Foam Agents
 - Corrosion Inhibitors
 - Rust Inhibitors
 - Oxidation Inhibitors
 - Anti-Wear Additives
- 5. Complex Manufacturer Blended Oil Additives vs. Aftermarket Additives: 14-16
- 6. Lubricant Testing: 17-22
 - Pour Point
 - Flash and Fire Point
 - Kinematic Viscosity
 - Viscosity Index
 - High-Temperature High-Shear Viscosity
 - NOACK Volatility
 - Four-Ball Wear Test
 - Cold Crank Simulator Apparent Viscosity
 - Borderline Pumping Temperature
 - Total Base Number
 - Total Acid Number
 - Foaming Tests
- 7. Oil Color, Contamination and Lubrication Ability: 23-24
- 8. SAE Engine Oil Viscosity Classification: 25-26
- 9. API Service Classifications 27-30
- 10. API Licensing: 31
- 11. ILSAC and GF Oils 32-34
- 12. Synthetic Lubricants History- Part 1: 35-36
- 13. Synthetic Lubricants History- Part 2: 37-39
- 14. What Are Synthetic Lubricants: 40-45
 - Definition of a synthetic lubricant
 - Most common synthetic lubricants

- Polyglycols
- Silicones
- Esters: Diesters (dibasic acid esters)
- Esters: Polyoesters (Neopentyl Poly Esters)
- Polymerized Alpha Olefin: Polyalphaolefin, Olefin Polymers, Olefin Oligomers- synthetic hydrocarbons
- Seal Compatability
- Alkylated Aromatics- Dialkylbenzenes- synthetic hydrocarbons
- Phosphate Esters
- Summary and Eight Documented Performance Features of Synthetic Engine Oils
- 15. Base Oil Categories and Definitions: 46
 - Group I- Solvent Freezing
 - Group II- Hydroprocessing and refining
 - Group III- Hydroprocessing and refining
 - Group IV- Chemical Reactions
 - Group V- As indicated
- 16. Oil Air and Fuel Filtration: 47-49
 - Oil Contamination and Engine Wear
 - Effect of Used Oil Contaminants on Engine Wear
- 17. Oil Filters and Oil Filtration Systems: 50-55
 - Surface Type Oil Filter Elements
 - Beta Ratings
 - Depth Type Oil Filter Elements
 - Full Flow Oil Filtration Systems
 - By-Pass Oil Filtration Systems
- 18. Air Filtration: 56-57
- 19. Manufacturers Warranties, Manufacturers Branded Oil and Filters and Extended Drain Intervals: 58-60
- 20. Oil Analysis Testing and 68,611 Miles Without an Oil Change: 61-64
- 21. Gauging Fuel Economy Improvements with Synthetic Oil: 65-68
- 22. Synthetic Oil and Turbochargers: 69
- 23. The Differences Between 0W-30, 5W-30 and 10W-30 Motor Oils: 70-71
- 24. Converting to Synthetic Motor Oil, Break-In and the Myth of Synthetic Motor Oils and Seal Leaks: 72-75
- 25. 5W-20 and 0W-30 Motor Oils: 76-78
- 26. Are 3000 Mile Oil Changes Really Necessary? Synthetic vs. Petroleum Oil: 79-82
- 27. Which Lubricants are Superior. How You Can Perform Your Own Data Analysis and Comparisons: 83-84
- 28. Frequently Asked Questions regarding Synthetic Lubricants: 85-88
- 29. Motorcycle Crankcase Oils: 89-93
 - Technical Issues and Specifications
 - Petroleum or Synthetic?
 - Synthetics & "Slipperiness" in Relation to Roller Rockers & Wet Clutches
 - Which Viscosity and How Long Can You Use it For?
- 30. Automotive Gear Lubricants: 94-97

- Viscosity Grades
- Synthetic Gear Lubes
- Friction Modifiers
- Extreme Pressure Additives and Performance
- GL-Ratings, MT-1 and MIL Ratings
- 31. Automatic Transmission Fluids: 98-100
 - ATF, The Most Complex Automotive Fluid
 - Types of ATF and Specifications
 - Change Intervals and Method
 - Synthetic ATF vs. Petroleum ATF
 - Clutch Packs; Synthetics and "Slipperiness"
- 32. Manual Transmission and 4x4 Transfer Case Lubricants: 101
- 33. Special Bonus Section: 102-109
 - How to understand, eliminate and prevent the most common brake system problem: brake pedal pulsation and vibration. I review proven expert service procedures that you need to know whether you service you vehicles brakes yourself or pay to have them serviced. I completely debunk the common myth that brake rotors "warp" and explain what really happens and how it can be corrected without costly repairs and how to prevent it from occurring in the future. I also provide you with some proven methods in order to increase the longevity and performance of your cars and trucks as well as important information on brake lining material descriptions that manufacturers commonly use to promote their brake linings.

Appendix A: References: 110-111