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Nota di contenuto	<p>""Dedication""; ""Contents""; ""Preface to the Fourth Edition""; ""Preface to the Third Edition (1991)""; ""Preface to the Second Edition (1985)""; ""Preface to the First Edition (1980)""; ""Introduction""; ""Crude Distillation""; ""Delayed Coking Cycles""; ""Delayed Coking Process""; ""Amine Regeneration and Scrubbing""; ""Sulfur Recovery""; ""Alkylation""; ""Fluid Catalytic Cracking Units""; ""FCCU Product Fractionation""; ""Saving Energy at Reduced Feed Rates""; ""Refrigeration Systems""; ""Centrifugal Pumps""; ""Distillation Towers""; ""Vacuum Towers""; ""Treating Liquid Hydrocarbons""</p> <p>""Process Heaters""; ""Water Coolers""; ""Alarms and Trips""; ""Additional Distillation Problems""; ""Fouled Trays""; ""Dehydrating Light-Ends Towers""; ""Vapor-Liquid Separation""; ""Refinery Metallurgy for Novices""; ""Unusual Noises and Vibrations""; ""Natural Gas Drying""; ""Gas Compressiona€?Centrifugal and Reciprocating""; ""Suggestions for New Process Operating Engineers""; ""Planning a Performance Test""; ""Understanding Control Board Instruments""; ""How to Make Field Measurements""; ""Turbines, Expanders, and Variable Speed Motors""; ""Forced Draft Air Coolers""</p> <p>""Advances in Heat -Exchanger Design""; ""Positive Feedback Loops""; ""Troubleshooting Control Loops""; ""Texas Citya€? B. P. Refinery Fire""; ""Environmentally Friendly Process Concepts""; ""The People Problem""; ""Appendix""; ""Index""</p>
Sommario/riassunto	Drawing on his passion, training, and experience, Lieberman presents problems and troubleshooting techniques that are associated with specific processes, systems, and equipment, leading novice and

practiced troubleshooters alike to the crux of malfunctions and failures. The fourth edition updates troubleshooting and design techniques, and adds seven new chapters with information on turbines, motors, heat exchangers, and environmentally friendly operations. Norm Lieberman sprinkles his troubleshooting guide with insightful and humorous anecdotes from 45 years in the petrochemical and refining industry. Features: * Nitty-gritty descriptions of common refinery and chemical plant problems and the diagnostic field observations, experiments, and calculations that reveal their origin * Troubleshooting checklists and references following each chapter * Practical advice for optimizing interactions with key plant operations personnel
