

Contents

	PAGE
PREFACE	v
ABBREVIATIONS USED IN THE TEXT	ix
CHAPTER I	
HYDROCARBON CHEMISTRY	1
Structure, nomenclature, and summary of properties of paraffins, olefins, aromatics, and naphthenes	
CHAPTER II	
MANUFACTURE OF FUELS AND LUBRICANTS FROM PETROLEUM	23
Crude petroleum, distillation, modern synthetic processes	
CHAPTER III	
COMBUSTION	44
Air/fuel ratio, mixture strengths, engine efficiency, detonation, engine and chemical factors affecting detonation, pre-ignition, octane and cetane numbers	
CHAPTER IV	
THE ANTI-KNOCK RATING OF FUELS	72
Highest useful compression ratio, octane-number determination, rich-mixture rating, performance number, tetra-ethyl lead	
CHAPTER V	
CHEMICAL AND PHYSICAL PROPERTIES OF FUELS AND THEIR SIGNIFICANCE	88
Distillation, vapour-pressure, lead-content, sulphur-content, aromatic-content, bromine number, cloud-point	

Contents

	PAGE
CHAPTER VI	
GENERAL ELEMENTARY PRINCIPLES OF ENGINE LUBRICATION	102
Brief elementary treatment of theory of lubrication, systems of engine-lubrication, oil-consumption control, piston-rings, lubricating-oil deterioration, piston-ring gumming	
CHAPTER VII	
MEANING AND SIGNIFICANCE OF LUBRICATING-OIL TESTS	116
Viscosity index, theory of viscosity determination, flash-point, oxidization test, etc., engine tests on lubricating oils	
APPENDIX	135
Some details of C.F.R. Motor Test, cetane-number determination and lubricating-oil specification tests. Typical specifications	
INDEX	167