HIGH SPEED DIESEL ENGINES

With special reference to Automotive, Stationary and Marine Types

AN ELEMENTARY TEXTBOOK FOR ENGINEERS,
DESIGNERS AND STUDENTS

by

ARTHUR W. JUDGE

Associate of the Royal College of Science, London; Diplomate of Imperial College of Science and Technology (Petrol Engine Research); Whitworth Scholar; Tyndall Prizeman; Associate Member of the Institution of Mechanical Engineers; Member, Society of Automotive Engineers (U.S.A.)

SIXTH EDITION

CHAPMAN AND HALL LTD
II NEW FETTER LANE, LONDON, E.C.4

CONTENTS

Preface to Sixth Edition	page vii
List of Symbols	x
I. THE HIGH SPEED COMPRESSION-IGNITION ENGINE	I
2. THEORETICAL AND EXPERIMENTAL CONSIDERATIONS	15
3. THE COMBUSTION PROCESS	59
4. ENGINE PERFORMANCES AND WORKING CONDITIONS	88
5. C.I. AND PETROL ENGINE COMPARISONS	105
6. THE SUPERCHARGING OF C.I. ENGINES	117
7. FUEL INJECTION AND COMBUSTION METHODS	161
8. ROTATIONAL SWIRL ANTE-CHAMBER SYSTEMS	190
9. FUEL INJECTION SYSTEMS	211
IO. FUEL INJECTION PUMPS	244
II. FUEL INJECTION NOZZLES	306
12. THE TWO-CYCLE C.I. ENGINE	334
13. THE AIR-COOLED C.I. ENGINE	377
14. SOME OTHER ENGINE COOLING SYSTEMS	413
15. COMPOUNDING THE C.I. ENGINE	427
16. SOME TYPICAL HIGH SPEED C.I. ENGINES	438
17. FUELS FOR HIGH SPEED C.I. ENGINES	478
18. THE STARTING OF C.I. ENGINES	490
19. FUEL AND AIR FILTERS	507
Appendix: Supercharger Calculations	519
References	521
Index	525