

Index

| | |
|--|-----|
| Piston Engines General | 1 |
| Types of internal combustion engine | 1 |
| Design and operation of a piston engine | 11 |
| Fuel | 20 |
| Types of fuel | 20 |
| Fuel Pumps | 28 |
| Carburettor and Injection Systems | 29 |
| Design and operation of a carburettor | 29 |
| Injection: design, operation, reduced operating modes, displays and warnings | 38 |
| Icing | 47 |
| Cooling Systems | 51 |
| Design and operation | 51 |
| Lubrication Systems | 56 |
| Characteristics of lubricants | 56 |
| Design and operating principle | 57 |
| Ignition System | 65 |
| Design and operating principle | 65 |
| Fuel Mixture | 74 |
| Carburetion system | 74 |
| Propellers | 81 |
| Basic principles | 81 |
| Constant-speed propeller (variable-pitch propeller) | 88 |
| Reduction gears | 99 |
| Control of the propeller(s) | 101 |
| Power and Engine Control | 107 |
| Power | 107 |
| Power controls | 117 |
| Turbine Engine Basic Principles | 121 |
| Basic principle of thrust generation and thrust formula | 121 |
| Design, types of turbine engine, components | 124 |
| Coupled turbine engine: design, operation, components and materials | 141 |
| Free turbine engine: design, components and materials | 147 |
| Main Engine Components | 150 |
| Aircraft: air inlet | 150 |
| Compressor and diffuser | 153 |
| Combustion chamber | 168 |
| Turbine | 178 |
| Aircraft: air outlet | 192 |
| Helicopter: Air Intake | 197 |
| Helicopter: Exhaust | 201 |

| | |
|---|-----|
| Additional Components and Systems | 202 |
| Fuel system | 202 |
| Engine control unit | 207 |
| Engine lubrication | 210 |
| Equipment carrier | 220 |
| Ignition system | 222 |
| Starter | 225 |
| Reverse thrust | 228 |
| Helicopter: Additional components and systems | 232 |
| Engine Operation and Monitoring | 245 |
| General | 245 |
| Malfunctions during engine start-up | 257 |
| Restart display | 261 |
| Power Aspects | 263 |
| Thrust, power aspects and limitations | 263 |
| Helicopter: Torque, performance aspects, engine handling and limitations: Engine ratings, Engine performance and limitations, Engine handling | 269 |
| Auxiliary Power Unit (APU) | 274 |
| Design, operation, functions and operating limits | 274 |
| Keyword Index | 279 |