

## 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