

1. Record Nr.	UNINA9910972341903321
Autore	Currey Norman S
Titolo	Aircraft landing gear design : principles and practices / / Norman S. Currey
Pubbl/distr/stampa	Washington, D.C., : American Institute of Aeronautics and Astronautics, c1988
ISBN	1-60086-018-4 1-60119-210-X
Edizione	[1st ed.]
Descrizione fisica	x, 373 p. : ill
Collana	AIAA education series
Disciplina	629.134/381
Soggetti	Airplanes - Landing gear - Design and construction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from title screen.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title -- Copyright -- Forword -- Table of Contents -- Preface -- Chapter 1. Introduction -- 1.1 Purpose of This Book -- 1.2 Background and History -- 1.3 Landing Gear Types -- 1.4 Data Sources -- Chapter 2. The Design Process -- 2.1 Components of Landing Gear Design -- 2.2 Development of First Concepts -- 2.3 Preliminary Design -- 2.4 Postcontractual Design -- 2.5 Air Vehicle Test -- Chapter 3. Initial Layout -- 3.1 Conceptual Design Phase -- 3.2 Project Definition Phase -- Chapter 4. Requirements -- 4.1 Abbreviations -- 4.2 Terminology -- 4.3 Operating Conditions -- 4.4 Layout -- 4.5 Gas/Oil Shock Absorbers -- 4.6 Tires -- 4.7 Wheels -- 4.8 Brakes -- 4.9 Skid Control -- 4.10 Steering Systems -- 4.11 Locks -- 4.12 Retraction/Extension Mechanisms -- 4.13 Cockpit Requirements -- 4.14 Protection -- 4.15 Doors and Fairings -- 4.16 Maintenance -- 4.17 Strength -- 4.18 Tail Bumpers -- 4.19 Arresting Hooks -- Chapter 5. Shock Absorber Design -- 5.1 Shock Absorber Types -- 5.2 Some Basic Considerations and Tradeoffs -- 5.3 Stroke Calculation -- 5.4 Rubber Shock Absorber Design -- 5.5 Leaf Spring Shock Absorber Design -- 5.6 Liquid Spring Design -- 5.7 Oleo-Pneumatic Shock Absorber Design -- 5.8 Detail Design of a Single-Acting Oleo-Pneumatic Strut -- 5.9 Piston Valves Used for Load/Stroke Modification -- 5.10 Contracting Shock Struts -- 5.11 Orifice Design -- Chapter 6. Tires -- 6.1 Tire Construction -- 6.2 Design Considerations and

Requirements -- 6.3 Rolling Radius -- 6.4 Radius of Gyration -- 6.5
Crush Load -- 6.6 Temperature Effects -- 6.7 Tire Rolling Resistance
-- 6.8 Tire Friction -- 6.9 Side Forces and Slip Angles -- 6.10
Hydroplaning -- Chapter 7. Brakes, Wheels, and Skid Control -- 7.1
Requirements -- 7.2 Brake Sizing -- 7.3 Brake Material -- 7.4 Brake
Design -- 7.5 Wheel Design -- 7.6 Brake Heat -- 7.7 Skid Control --
7.8 Autobrakes.
7.9 Hydraulic Brake Systems -- 7.10 Emergency Brake Systems -- 7.11
Brake Control Pedal -- 7.12 Advanced Brake Control System (ABCS) --
Chapter 8. Kinematics -- 8.1 General Guidelines -- 8.2 Kinematic
Concepts -- 8.3 Kinematic Detail -- 8.4 Mathematical Kinematic
Analysis -- Chapter 9. Steering Systems -- 9.1 Design Considerations
and Requirements -- 9.2 Actuation -- 9.3 Hand-Wheel Installations --
9.4 Shimmy Damping -- 9.5 Castering Nose Wheels -- Chapter 10.
Detail Design -- 10.1 Materials -- 10.2 Lugs and Pins -- 10.3 Bushings
-- 10.4 Lubrication -- 10.5 Finishes -- 10.6 Seals -- 10.7 Jack Pads
and Tow Fittings -- 10.8 Locks -- Chapter 11. Weight -- 11.1 Weight
Estimation: Method 1 -- 11.2 Weight Estimation: Method 2 -- 11.3
Method Comparison -- 11.4 Preliminary Component Weight Estimate
-- 11.5 Analytical Weight Estimate -- Chapter 12. Airfield
Considerations -- 12.1 Background -- 12.2 Definitions and Parameters
-- 12.3 Airfield Surface Types -- 12.4 Flotation -- 12.5 Flotation on
Paved Airfields -- 12.6 Flotation on Unpaved Airfields -- 12.7 Limited
Operation -- 12.8 Aircraft Classification Number-Pavement
Classification Number (ACN-PCN) -- 12.9 Roughness -- Chapter 13.
Unorthodox Landing Gears -- 13.1 Overall Review -- 13.2 Skids --
13.3 Skis -- 13.4 Tracks -- 13.5 Air-Cushion Landing System (ACLS)
-- Chapter 14. Design Data -- Chapter 15. Specifications -- Subject
Index -- A -- B -- C -- D -- E -- F -- G -- H -- I -- J -- K -- L -- M
-- N -- O -- P -- Q -- R -- S -- T -- U -- V -- W -- X.

Sommario/riassunto

This text aims to lead students and engineers from the initial concepts of landing gear design through to the final detail design. It provides a link in landing gear technology from historical practices to modern design trends, also considering the necessary airfield interface with gear design.
