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| 1. Record Nr.           | UNINA9910786639603321                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Autore                  | Arnold Ronald N.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Titolo                  | Gyrodynamics and its engineering applications / / Ronald N. Arnold, Leonard Maunder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Pubbl/distr/stampa      | New York ; ; London : , : Academic Press, , 1961<br>©1961                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ISBN                    | 1-4832-1614-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Descrizione fisica      | 1 online resource (495 pages) : illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Disciplina              | 531.34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Soggetti                | Gyroscopes<br>Gyroscopic instruments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Lingua di pubblicazione | Inglese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Formato                 | Materiale a stampa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Livello bibliografico   | Monografia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Note generali           | Includes index.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Nota di contenuto       | Front Cover; Gyrodynamics and Its Engineering Applications; Copyright Page; PREFACE; Table of Contents; CHAPTER 1. GENERAL INTRODUCTION; 1.1 History; 1.2 Introduction to Vectors; 1.3 Kinematics of a Particle; 1.4 Newton's Laws; 1.5 Rotating Systems; 1.6 Illustrative Examples; CHAPTER 2. KINEMATICS OF RIGID BODIES; 2.1 Products of Vectors; 2.2 Translation and Rotation; 2.3 Instantaneous Axis of Rotation; 2.4 Finite and Infinitesimal Rotations; 2.5 General Motion; CHAPTER 3. FRAMES OF REFERENCE; 3.1 Transformation of Vector Components; 3.2 Eulerian Angles; 3.3 Moving Axes; 3.4 Relative Motion<br>3.5 Illustrative Examples; CHAPTER 4. MOMENTS AND PRODUCTS OF INERTIA; 4.1 Definitions; 4.2 Transformation Theorems and Principal Axes; 4.3 Mohr's Circle; 4.4 Symmetric Bodies; 4.5 Experimental Measurements; CHAPTER 5. DYNAMICAL THEOREMS; 5.1 Linear and Angular Momentum; 5.2 General Equations of Motion; 5.3 Equations of Motion for Rigid Bodies; 5.4 Kinetic Energy; 5.5 Lagrange's Equations; 5.6 D'Alembert's Principle; CHAPTER 6. MOTION OF A FREE BODY; 6.1 Introduction; 6.3 Polhodes and Herpolhodes; 6.4 General Solution; 6.5 Axially-symmetric Bodies; CHAPTER 7. SYMMETRICAL GYROSCOPE UNDER GRAVITY<br>7.1 Introduction; 7.2 Equations of Motion; 7.3 Uniform Precession; 7.4 Nutation; 7.5 General Solution; CHAPTER 8. GYRODYNAMICS OF |

MACHINES; 8.1 Effects of Coriolis Forces; 8.2 Spinning Discs and Rotors; 8.3 Rolling Wheels and Discs; 8.4 Grinding Mills; CHAPTER 9. GYROSCOPIC VIBRATION ABSORBERS AND STABILIZERS; 9.1 Introduction; 9.2 Historical Note; 9.3 Gyroscopic Control of Forced Vibration; 9.4 Gyroscopic Control of Self-excited and Free Vibration; 9.5 Stabilization of Ships; 9.6 The Monorail; CHAPTER 10. THE GYRO-COMPASS; 10.1 Introduction; 10.2 Foucault's Directional Gyroscope 10.3 Principle of Action of the Gyro -compass; 10.4 Mechanical Arrangement; 10.5 General Motion with Pendular Control; 10.6 The Mercury Ballistic; 10.7 General Motion with Mercury Ballistic; 10.8 Errors; 10.9 Effects at High Latitudes; CHAPTER 11. SUSPENSIONS FOR GYROSCOPES; 11.1 Introduction; 11.2 Rotor Drives and Bearings; 11.3 Single and Double Suspensions; 11.4 The Cardan Suspension and Hooke's Joint; 11.5 Gimbal Errors; 11.6 Dynamics of Gimbals; 11.7 Effect of Flexibility of Rotor Shaft; 11.8 Dynamics of a Platform supported in Gimbals; 11.9 Dynamics of a Rotor driven by a Hooke's Joint  
CHAPTER 12. GYRO-VERTICALS; 12.1 Introduction; 12.2 The Gyro- pendulum; 12.3 Response to Vehicle Acceleration; 12.4 Effect of Gimbal Bearing Friction; 12.5 Response to Forced Vibration; 12.6 Practical Gyro-verticals; 12.7 Response to Vehicle Acceleration; 12.8 The Tilted-axis Gyro-vertical; 12.9 Mechanical Design; 12.10 Schuler Tuning of a Gyro-pendulum; CHAPTER 13. RATE AND INTEGRATING GYROSCOPES; 13.1 Introduction; 13.2 Single-axis Rate Gyroscopes; 13.3 Aircraft Turn-and-slip Indicator; 13.4 Floated Single-axis Gyroscopes; 13.5 A Two-axis Rate Gyroscope; 13.6 An Integrating Gyro-accelerometer; 13.7 A Vibratory Rate Gyroscope

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