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Autore	Dranovsky Mark L
Titolo	Combustion instabilities in liquid rocket engines : testing and development practices in Russia / / Mark L. Dranovsky ; edited by Vigor Yang, Fred E.C. Culick, Douglas G. Talley
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Altri autori (Persone)	YangVigor CulickF <1933-> (Fred) TalleyDouglas G
Disciplina	621.43/56
Soggetti	Liquid propellant rockets Rocket engines - Combustion - Russia (Federation) - Testing Liquid fuels - Combustion - Russia (Federation) - Testing Rockets (Aeronautics) - Russia (Federation) - Testing
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Terms and definitions -- Mechanisms of transition from noise to high-frequency oscillations or to noise at a new level -- Uncertainty in conversion of propellant to combustion products -- Studies of operating process stability at various stages of combustor development -- Quantitative characteristics for estimating stability of LRE combustion chambers for gas generators -- Acoustic study of combustion chamber stability characteristics -- Determination of stability of oscillations from natural disturbances -- Evaluation of LRE process stability by use of artificial pressure disturbances -- Model firing tests for selection of injector head elements -- Estimation of operating process stability from pressure oscillation decrements -- Test results for pulsing liquid-liquid chambers -- Stability of gas-liquid combustion chambers -- Gas-liquid combustion-chamber tests for stability to hard excitation -- Injector head for RD-170 engine combustion chamber -- Stability characteristics of engines with

	adjustable injectors -- Control of stability in production of the proton engine.
Sommario/riassunto	This is the first book in the literature to cover the development and testing practices for liquid rocket engines in Russia and the former Soviet Union.Combustion instability represents one of the most challenging probelms in the development of propulsion engines. A famous example is the F-1 engines for the first stage of the Saturn V launch vehicles in the Apollo project. More than 2000 full engine tests and a vast number of design modifications were conducted to cure the instability problem.This book contains first-hand information about the testing and development practices for treating liquid rocket combustion-instability problems in Russia and the former Soviet Union. It covers more than 50 years of research, with an emphasis placed on the advances made since 1970.The book was prepared by a former R&D director of the Research Institute of Chemical Engineering, NIICHIMMASH, the largest liquid rocket testing center in the world, and has been carefully edited by three well-known experts in the field.