

عبدالله بن محمد
1394
In the Name of God



IMAM ALI MILITARY ACADEMY

Flight Instruments and Electrical Systems

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2015

سرشناسه	Mehrabi, ali- ۱۳۶۳ علی، مهرابی
عنوان و نام پدیدآور	Flight Instruments and electrical systems/ Ali Mehrabi, Javad Deldar Sheikh.
مشخصات نشر	تهران: دانشگاه افسری امام علی، ۱۳۹۶ = ۲۰۱۵ م.
مشخصات ظاهری	۱۳۳ص: مصور.
شابک	۹۷۸-۶۰۰-۷۹۲۲-۳۰-۹
وضعیت فهرست نویسی	فیا
یادداشت	انگلیسی.
یادداشت	واژه نامه.
آوانویسی عنوان	فلایت...
موضوع	زبان انگلیسی - کتابهای قرائت - هوانوردی
شناسه افزوده	دلداری شیخی، جواد. ۱۳۶۰ -
شناسه افزوده	Deldar Sheikh, Javad
شناسه افزوده	دانشگاه افسری امام علی (ع)
شناسه افزوده	Imam Ali Military University
رده بندی کنگره	/۵۹۳م ۱۳۹۶PE۱۱
شماره کتابشناسی ملی	۴۰۰۰۷۶۵

عنوان:	Flight Instruments and Electrical Systems
مؤلفان:	علی مهرابی، جواد دلداری شیخی
طراح جلد:	محمدمهدی، که سال
صفحه آرا:	مجید کریمی
مدیر مسئول انتشارات:	حمیدرضا بیار
ناشر:	دانشگاه افسری امام علی (ع)
نوبت چاپ:	اول، ۱۳۹۴
شمارگان:	۱۰۰۰
قیمت:	۱۰۰۰۰۰ ریال
شابک:	۹۷۸-۶۰۰-۷۹۲۲-۳۰-۹
صندوق پستی:	۱۳۱۷۸۹۳۴۷۱
تلفن:	۶۶۴۶۷۴۴۴

نشانی: تهران، خیابان امام خمینی، نرسیده به میدان حر، دانشگاه افسری امام علی (ع)، معاونت پژوهشی

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از این‌رو از تمامی منتقدان، استادان و هیئت‌های علمی تمامی دانشگاه‌های کشور یاری و مدد می‌جوییم تا آنکه هر گونه کاستی و نقص‌های احتمالی را در حد امکان و ناچیز باشند، متذکر گردند.

ان شاء...

Preface

This book is specifically prepared for pilots, flight and maintenance engineers and students in Army aviation. This book presents the fundamental and operation of the flight instruments and provides knowledge and guidance for standard Army instrument flying in fixed and rotary wing aircraft. When used with related flight directives and publications, this publication provides adequate guidance for instrument flight under most circumstances.

For detailed instructions required for particular aircraft instrumentation or characteristics you should use that aircraft operator's manual.

Much of the information contained in this book is reproduced from various aviation handbooks and adapted for Army use. If a subject is not covered in this book or other Army regulations, follow related references at the end of the book.

This book contains 5 chapters.

Chapter 1 provides general information pertaining to the general electrical and flight instruments. This chapter is of maximum benefit to the maintenance personnel who desire to get information about electric shop operations, electrical maintenance practices, and instrument shop operations.

Chapter 2 addresses the pitot-static system and associated instruments, the vacuum system and related instruments. The instruments are: Altimeter, airspeed indicator (ASI) and Vertical Speed Indicator (VSI).

Chapter 3 is about several flight instruments that utilize the properties of a gyroscope for their operation. The most common instruments containing gyroscopes are the turn indicators, attitude indicator, and the heading indicator.

Engine instruments that indicate oil pressure, oil temperature, engine r.p.m., exhaust gas temperature, and fuel flow are addressed in chapter 4. These instruments are common to both turbine and reciprocating engines. However, there are some instruments that are unique to turbine engines. These instruments provide indications of engine pressure ratio, turbine discharge pressure, and torque.

Chapter 5 discusses about direction indicators installed on aircraft that make use of magnetic compass and their related errors.

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