

高等学校通用教材

# 民航英语核心读本

袁亦宁 主编



MINHANG YINGYU HEXIN DUBEN



 北京航空航天大学出版社

# 民航英语核心读本

An Essential Reader in Civil Aviation English

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北京航空航天大学出版社

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## 前 言

英语是国际民航业通用的工作语言。中国加入 WTO 以后,英语对中国民航系统的广大从业人员来说显得更为重要。

我们编写的《民航英语核心读本》(An Essential Reader in Civil Aviation English)是一本供航空航天类高等院校的大学生学习民航专业英语的教材。同时,本书亦可作为民航系统各下属单位的员工,如飞行员、空乘人员、空管人员、基地维修保养人员、行政管理人员,学习和提高民航专业英语的教材和读物,以及广大航空爱好者学习民航英语的自学材料。

本书的题材涵盖了与民航业务相关的基本内容,包括:飞行原理、飞机的结构、机场和机场设施、航空导航、航管、飞行、航班服务、航空法等。英语语言难度相当于大学英语四级水平。本书的内容和语言新颖,主要资料来源是近年来国外出版的英语百科全书、专业书籍和期刊。

本书共计 18 单元,每个单元课文由 Aviation Terms, Text, Exercises 和 Supplementary Reading 组成。民航英语隶属“特殊用途英语(ESP, English for Specific Purposes)”,即人们通常所说的“专业英语”,的范畴。对于广大英语学习者来说,学习专业英语的拦路虎之一是对专业的术语概念和专业背景知识的了解和掌握。为此,我们在本书的每个单元的第一部分设计了 Aviation Terms 栏目,对与课文相关的专业术语提供了中文对应术语和英文释义。每个单元有一篇 900—1 200 字左右的课文,每篇课文附有注解、生词表以及相关的练习。课文练习的主要目的是帮助学生巩固对已学的术语和课文理解,提高对民航英语的术语(包括词和短语)乃至句、段的翻译能力。另外,每个单元均附有一篇 Supplementary Reading,旨在扩大和课文相关题材的文本的阅读量,巩固和提高阅读理解能力。为了方便读者自学,本书对每个单元的练习提供了参考答案。在本书的末尾,本书将全书各个单元中出现了 Aviation Terms 按照字母的顺序汇总为 Glossary of Aviation Terms,以方便读者学习和检索。

袁亦宁负责全书的构思、选材,以及对术语、生词表、练习、部分课文的注解和练习答案的编写工作。蔡忠元和张毅完成了本书部分课文的注解和练习的答案编写工作,同时他们还对原书稿中的部分内容提出了修改建议。

本书的编写和出版得到了南京航空航天大学人文学院和英语系的有关领导吴鼎民教授、何江胜教授、石云龙教授等的关心和指导。南京航空航天大学教务处副处长吴晓琳教授对本书的出版给予了积极地支持和帮助。在此我们深表谢忱。同时,我们也感谢北京航空航天大学出版社教材编辑室蔡喆主任的支持。最后,感谢南京航空航天大学“十五”专业建设(英语专业)项目为本书的出版提供的资助。

由于编者水平有限,书中欠妥和谬误之处在所难免,敬请读者指正。

编者

2004 年于南京

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# UNIT ONE

## *Aviation Terms*

**aviation** 航空;航空学 The art or practice of designing, developing, manufacturing, or operating heavier-than-air craft.

**aircraft** 飞行器, 飞机 A machine or device, such as an airplane, a helicopter, a glider, or a dirigible(飞船), that is capable of atmospheric flight.

**airship** 飞船, 飞艇 A self-propelled lighter-than-air craft with directional control surfaces. Also called *dirigible*.

**dirigible** = airship

**propulsion** 推进;推进力 1. The process of driving or propelling. 2. A driving or propelling force.

**axis** 轴线 A line passing through an airplane about which it may revolve. An airplane has three mutually perpendicular(垂直的,呈直角的)axes, each passing through the center of gravity — longitudinal(纵向的) from nose to tail, measuring roll(横滚); lateral(横向的), from wing tip to wing tip, measuring pitch(俯仰); and vertical(垂直的,直立的), from back to belly, measuring yaw(偏航).

**roll** 横滚 Rotation of an airplane about its longitudinal axis.

**pitch** 俯仰 The up-and-down, or vertical, movement of an aircraft about its lateral axis.

**yaw** 偏航 Movement about vertical axis.

**craft** 飞行器 An aircraft.

**thrust** 推进力 The forward-directed force developed in a jet or rocket engine as a reaction to the high-velocity rearward ejection of exhaust gases.

**lift** 升力 Aerodynamic(空气动力的) force which acts on an airfoil(翼型,翼剖面) perpendicular to the relative wind and is usually exerted upward, opposing force of gravity.



- drone** 遥控无人驾驶飞机 A pilotless aircraft operated by remote control.
- glider** 滑翔机 A light, engineless aircraft designed to glide after being towed aloft or launched from a catapult(弹射器).
- altitude** 高度; 海拔高度 The height of a thing above a reference level, especially above sea level or above the earth's surface.
- wing** 机翼 An airfoil whose principal function is providing lift, especially either of two such airfoils symmetrically (对称性地) positioned on each side of the fuselage of an aircraft.
- sailplane** 翱翔机 A light glider used especially for soaring(滑翔).
- ultralight** 超轻型飞机 A recreational aircraft that is constructed of lightweight materials such as aluminum(铝), graphite(石墨)compositions, or high-strength plastics, having an engine of 15 to 40 horsepower and resembling a motorized hang glider with wings.
- monoplane** 单翼机 An airplane with only one pair of wings.
- landing gear** 起落架, 着陆装置 The components of an aircraft that support the weight of the craft and its load and give it mobility on ground or water.
- trainer** 教练机 An aircraft used in training.
- bomber** 轰炸机 A combat aircraft designed to carry and drop bombs.
- airliner** 班机, 客机 An airplane operated by an airline and adapted for carrying passengers.
- aerobatic** 特技飞行的 Spectacular stunts (特技), such as rolls(滚动飞行) and loops (翻圈飞行), performed in an airplane or glider.
- airline** 航空公司 An organization providing a regular public service of air transport on one or more routes.
- airport** 机场; 航空港 A tract of leveled land where aircraft can take off and land, usually equipped with hard-surfaced landing strips (跑道; 简易机场), a control tower, hangars (飞机库), aircraft maintenance and refueling facilities, and accommodations (设备) for passengers and cargo.
- supersonic** 超声速的 Having, caused by, or relating to a speed greater than the speed of sound in a given medium, especially air.

## Text

### *Types of Aircraft*

There are a number of ways to identify aircraft by type. The primary distinction is between those that are lighter than air and those that are heavier than air.<sup>①</sup>

Lighter-than-air aircraft such as balloons, nonrigid airships, and dirigibles are designed to contain within their structure a sufficient volume that, when filled with a gas lighter than air (heated air, hydrogen, or helium), displaces the surrounding ambient air and floats, just as a cork does on the water. Balloons are not steerable and drift with the wind. Nonrigid airships, which have enjoyed a rebirth of use and interest,<sup>②</sup> do not have a rigid structure but have a defined aerodynamic shape, which contains cells filled with the lifting agent. They have a source of propulsion and can be controlled in all three axes of flight.<sup>③</sup> Dirigibles are no longer in use, but they were lighter-than-air craft with a rigid internal structure, which was usually very large, and they were capable of relatively high speeds. It proved impossible to construct dirigibles of sufficient strength to withstand routine operation under all weather conditions, and most suffered disaster, either breaking up in a storm or through ignition of the hydrogen.

Heavier-than-air aircraft must have a power source to provide the thrust necessary to obtain lift.<sup>④</sup> Simple heavier-than-air craft include kites. These are usually a flat-surfaced structure, often with a stabilizing "tail," attached by a bridle to a

---

① aircraft 单复数拼写相同,句中 those 指代前句的 aircraft.

② which have enjoyed a rebirth of use and interest: 人们重新对它(软式飞船)产生了兴趣,并重新开始使用它。which 此处引导了一个非限定性定语从句。

③ axes 是 axis 的复数形式。关于 all three of axes of flight “飞行的三根轴线”,请参见本课 Aviation Terms 中 axis 的定义。

④ the thrust necessary to obtain lift = the thrust which is necessary to obtain lift

string that is held in place on the ground.<sup>①</sup> Lift is provided by the reaction of the string-restrained surface to the wind. Another type of unmanned aircraft is the remotely piloted vehicle. Sometimes called drones, these aircraft are radio-controlled from the air or the ground and are used for scientific and military purposes. Unpowered manned heavier-than-air vehicles must be launched to obtain lift. These include hang gliders, gliders, and sailplanes.

Hang gliders are aircraft of various configurations in which the pilot is suspended beneath the wing to provide stability and control.<sup>②</sup> They are normally launched from a high point. In the hands of an experienced pilot,<sup>③</sup> hang gliders are capable of soaring.

Gliders are usually used for flight training and have the capability to fly reasonable distances when they are catapulted or towed into the air. Most sailplanes are towed to launch altitude,<sup>④</sup> although some employ small, retractable auxiliary engines. They are able to use thermals and orographic lift to climb to higher altitude and to glide for great distances. Orographic lift results from the mechanical effect of wind blowing against a terrain feature such as a cliff. The force of the wind is deflected upward by the face of the terrain, resulting in a rising current of air.<sup>⑤</sup>

Ultralights, which were originally merely hang gliders adapted for power by the installation of small engines similar to those used in chain saws, have matured

- 
- ① attached by a bridle to a string that is held in place on the ground; 此处为一个过去分词短语做后置定语。为了使行文简练紧凑, 科技英语大量使用分词、不定式和动名词短语。
- ② Hang gliders are aircraft of various configurations in which the pilot is suspended beneath the wing to provide stability and control. 悬挂式滑翔机有多种结构形式, 飞行员悬挂在机翼下面以稳定飞行并进行操纵。
- ③ in the hands of 此处意为 under the control of.
- ④ launch altitude; 发射高度。此处 launch 为名词。
- ⑤ resulting in a rising current of air; 产生上升的气流。现在分词短语用做状语, 表示结果。

into specially designed aircraft of very low weight and power but with flying qualities similar to conventional light aircraft. They are intended primarily for pleasure flying, although advanced models are now used for training, police patrol, and other work, including a proposed use in combat. Experimental craft have been designed to make use of human and solar power. These are very lightweight, sophisticated aircraft, designed with heavy reliance on computers and using the most modern materials.

Aircraft may also be categorized according to function and field of operation into two main types: (1) civil aircraft; (2) military aircraft. Civil aircraft include private and business planes and commercial airliners.

Private aircraft are personal planes used for pleasure flying, often single-engine monoplanes with nonretractable landing gear. They can be very sophisticated, however, and may include such variants as: "warbirds," ex-military planes flown for reasons of nostalgia, ranging from primary trainers to large bombers; "homebuilts," aircraft built from scratch by the owner; antiques and classics, restored older aircraft flown, like the warbirds, for reasons of affection and nostalgia; and aerobatic planes, designed to be highly maneuverable and to perform in air shows.

Business aircraft are used to generate revenues for their owners and include everything from small single-engine aircraft used for pilot training or to transport small packages over short distances to four-engine executive jets that can span continents and oceans. Business planes are used by salespeople, prospectors, farmers, doctors, missionaries, and many others. Their primary purpose is to make the best use of top executives' time by freeing them from airline schedules and airport operations.<sup>①</sup> They also serve as an executive perquisite and as a sophisticated inducement for potential customers. Other business aircraft include

---

① 请注意区别 airliner 和 airline, 前者指“班机, 客机”, 后者指“航空公司”。

those used for agricultural operations, traffic reporting, forest-fire fighting, medical evacuation, pipeline surveillance, freight hauling, and many other applications. One unfortunate but rapidly expanding segment of the business aircraft population is that which employs aircraft illegally for transporting narcotics and other illicit drugs. A wide variety of similar aircraft are used for specialized purposes,<sup>①</sup> like the investigation of thunderstorms, hurricane tracking, aerodynamic research and development, engine testing, high-altitude surveillance, advertising, and police work.

Commercial airliners are used to haul passengers and freight on a scheduled basis between selected airports. They range in size from single-engine freight carriers to the Boeing 747 and in speed from below 200 miles per hour to supersonic, in the case of the Anglo-French Concorde.<sup>②</sup>

### ***Words and Expressions***

|                              |                  |
|------------------------------|------------------|
| identify /aɪdɪntɪfaɪ/        | vt. 识别, 鉴别, 视为同一 |
| nonrigid /nɒn'riːdʒɪd/       | adj. 软式的         |
| volume /'vɒljʊm/             | n. 容积, 体积        |
| hydrogen /'haɪdrədʒən/       | n. 氢, 氢气         |
| helium /'hiːliəm/            | n. 氦             |
| displace /dɪs'pleɪs/         | vt. 取代, 置换       |
| ambient /'æmbiənt/           | adj. 周围的         |
| cork /kɔːk/                  | n. 软木塞, 软木       |
| steerable /'stiərəbl/        | adj. 可驾驶, 可操纵的   |
| drift /drɪft/                | vi. 漂流           |
| rebirth /'rɪːbɜːθ/           | n. 再生, 复活, 更新    |
| defined /dɪ'faɪnd/           | adj. 明确的, 确定的    |
| aerodynamic /ˌɛərədaɪ'næmɪk/ | adj. 空气动力学的      |

① a wide variety of = various kinds of

② Concorde: 协和式飞机 (Concorde is trademark for a supersonic commercial passenger aircraft developed jointly by the British and French governments.)

|                                  |                                |
|----------------------------------|--------------------------------|
| cell /sel/                       | <i>n.</i> 隔间, 小室               |
| agent /'eidʒənt/                 | <i>n.</i> 剂, 媒介物               |
| withstand /wið'stænd/            | <i>vt.</i> 抵挡, 经受住             |
| routine /ru:'ti:n/               | <i>adj.</i> 常规的, 日常的           |
| ignition /ignifən/               | <i>n.</i> 点火, 引燃               |
| attach /ə'tætʃ/                  | <i>vt.</i> 缚上, 系上              |
| bridle /braidl/                  | <i>n.</i> 束带; 限动器              |
| hold in place                    | 把……固定就位                        |
| pilot /'pailət/                  | <i>vt.</i> 驾驶(飞机等); 领航         |
| hang /hæŋ/                       | <i>adj.</i> 悬挂的                |
| configuration /kən'figjʊ'reifən/ | <i>n.</i> 构型, 造形, 外形           |
| fabric /'fæbrik/                 | <i>n.</i> 布, 蒙布, 织物            |
| soar /sɔ:/                       | <i>v.</i> 高飞; 滑翔               |
| reasonable /'ri:znəbl/           | <i>adj.</i> 合理的, 适当的           |
| catapult /'kætəpʌlt/             | <i>vt.</i> 弹射                  |
| tow /təu/                        | <i>vt.</i> 拖, 曳, 牵引            |
| launch /lɔ:ntʃ/                  | <i>vt.</i> 发射(导弹、火箭等); 发动; 发起  |
| employ /im'plɔi/                 | <i>vt.</i> 使用                  |
| retractable /ri'træktəbl/        | <i>adj.</i> 可缩进的; 可缩回的         |
| auxiliary /ɔ:gziljəri/           | <i>adj.</i> 辅助的, 备用的           |
| thermal /'θə:məl/                | <i>n.</i> 上升的热气流               |
| orographic /ɔ're'græfik/         | <i>adj.</i> 山岳的, 山形的           |
| terrain /te'rein/                | <i>n.</i> 地形, 地势               |
| feature /'fi:tʃə/                | <i>n.</i> 特点, 特征               |
| cliff /klif/                     | <i>n.</i> 悬崖, 绝壁               |
| deflect /di'flekt/               | <i>vt.</i> 使……偏转, 使……转向        |
| installation /instə'leifən/      | <i>n.</i> 安装, 装备               |
| chain saw                        | <i>n.</i> 链锯                   |
| mature /mə'tjuə/                 | <i>vi.</i> 成熟                  |
| conventional /kən'venʃənəl/      | <i>adj.</i> 惯例的, 常规的, 习俗的, 传统的 |
| sophisticated /sə'fistikeitid/   | <i>adj.</i> 复杂的, 高级的, 尖端的      |

|                                |                                 |
|--------------------------------|---------------------------------|
| reliance /ri'laɪəns/           | <i>n.</i> 依靠                    |
| civil /'sɪvl/                  | <i>adj.</i> 民用的                 |
| variant /'vɛəriənt/            | <i>n.</i> 变体(型), 变种             |
| primary /'praɪməri/            | <i>adj.</i> 最初的, 主要的, 第一位的, 初级的 |
| from scratch                   | 从零做起; 白手起家                      |
| antique /æn'tɪk/               | <i>n.</i> 古物, 古董                |
| classic /'klæsɪk/              | <i>n.</i> 经典, 经典的事物             |
| restore /rɪ'stɔ:/              | <i>vt.</i> 恢复, 修复, 还原           |
| affection /ə'fekʃən/           | <i>n.</i> 爱, 爱情                 |
| nostalgia /nɒ'stældʒiə/        | <i>n.</i> 怀旧之情                  |
| maneuverable /mə'nʊ:vərəbl/    | <i>adj.</i> 容易操作的, 机动的          |
| generate /'dʒenəreɪt/          | <i>vt.</i> 产生, 发生               |
| revenue /'revənju:/            | <i>n.</i> 收入, 收益                |
| executive /ɪg'zekjʊtɪv/        | <i>n.</i> 行政官, 总经理, 主管人员        |
| span /spæn/                    | <i>v.</i> 横越                    |
| prospector /prɒs'pektə/        | <i>n.</i> 探矿者, 勘探工作者            |
| missionary /'mɪʃənəri/         | <i>n.</i> 传教士                   |
| perquisite /'pɜ:kwɪzɪt/        | <i>n.</i> 特殊待遇, 津贴, 附加福利        |
| inducement /ɪn'dju:smənt/      | <i>n.</i> 诱导, 诱因, 动机, 刺激物       |
| evacuation /ɪ,vækju'eɪʃən/     | <i>n.</i> 撤离, 疏散                |
| surveillance /sə'veɪləns/      | <i>n.</i> 监视, 监测                |
| freight /freɪt/                | <i>n.</i> 货物, 货运                |
| haul /hɔ:l/                    | <i>v.</i> 拖, 运, 运输              |
| segment /'segmənt/             | <i>n.</i> 部分; 片段; 节             |
| narcotic /nɑ:'kɒtɪk/           | <i>n.</i> 麻醉药, 致幻毒品             |
| illicit /ɪ'lɪsɪt/              | <i>adj.</i> 非法的, 禁止的            |
| high-altitude                  | <i>adj.</i> 高空的                 |
| scheduled /'ʃedju:ld/          | <i>adj.</i> 定期的                 |
| Anglo-French /'æŋgləu-'frentʃ/ | <i>adj.</i> 英法的                 |
| Concorde /kɒn'kɔ:d/            | <i>n.</i> 协和式飞机                 |

### Exercises

**I. Mark each of the following statements true or false:**

1. \_\_\_\_\_ Lighter-than-air aircraft include balloons, nonrigid airships, dirigibles and kites.
2. \_\_\_\_\_ Lighter-than-air aircraft contain within their structure a sufficient volume that, when filled with a gas lighter than air, displaces the surrounding ambient air and floats.
3. \_\_\_\_\_ Nonrigid airships have a source of propulsion and can be controlled in all three axes of flight.
4. \_\_\_\_\_ To provide the thrust necessary to obtain lift, heavier-than-air aircraft must have a power source.
5. \_\_\_\_\_ Hang gliders, gliders, and sailplanes must be launched to obtain lift.
6. \_\_\_\_\_ Hang gliders are aircraft of various configurations in which the pilot is suspended beneath the wing to provide power and control.
7. \_\_\_\_\_ Gliders are usually used for flight training and have the capability to fly great distances when they are catapulted or towed into the air.
8. \_\_\_\_\_ Most sailplanes are towed to launch altitude while some employ small, retractable auxiliary engines.
9. \_\_\_\_\_ Ultralights are intended primarily for training, police patrol, and other work, including a proposed use in combat.
10. \_\_\_\_\_ Private and business planes and commercial airliners belong to civil aircraft.
11. \_\_\_\_\_ Private aircraft are often single-engine monoplanes with retractable landing gear.
12. \_\_\_\_\_ Business aircraft range from small single-engine aircraft used for pilot training or to transport small packages over short distances to four-engine executive jets that can cross continents and oceans.
13. \_\_\_\_\_ Business aircraft are run in order to make profits for their manufacturers.
14. \_\_\_\_\_ The Boeing 747 and the Anglo-French Concorde are commercial airliners.



**II. Translate the following into Chinese:**

1. the Anglo-French supersonic Concorde \_\_\_\_\_
2. three axes of flight \_\_\_\_\_
3. under all weather conditions \_\_\_\_\_
4. unmanned aircraft \_\_\_\_\_
5. aircraft of various configurations \_\_\_\_\_
6. retractable auxiliary engines \_\_\_\_\_
7. conventional light aircraft \_\_\_\_\_
8. civil aircraft \_\_\_\_\_
9. commercial airliners \_\_\_\_\_
10. single-engine monoplanes \_\_\_\_\_
11. nonretractable landing gear \_\_\_\_\_
12. airline schedules \_\_\_\_\_
13. high-altitude surveillance \_\_\_\_\_

**III. Complete the following sentences with appropriate words or phrases:**

1. An airplane with only one pair of wings is called a \_\_\_\_\_.
2. An airliner is an airplane operated by an \_\_\_\_\_ and adapted for carrying \_\_\_\_\_.
3. Lift refers to the aerodynamic force that acts on an airfoil perpendicular to the relative wind and is usually exerted upward, opposing force of \_\_\_\_\_.
4. A machine or device, such as an airplane, a helicopter, a glider, or a dirigible, that is capable of atmospheric flight is called \_\_\_\_\_.
5. Heavier-than-air aircraft must have a \_\_\_\_\_ source to provide the \_\_\_\_\_ necessary to obtain lift.
6. Unpowered manned heavier-than-air vehicles like hang gliders, gliders, and sailplanes must be launched to obtain \_\_\_\_\_.
7. Private and business planes and commercial airliners are categorized as \_\_\_\_\_.
8. Aerobatic planes are, designed to be highly maneuverable and to perform in \_\_\_\_\_.
9. Their primary purpose of business planes is to make the best use of top