



**PLA Air Force,  
Naval Aviation,  
and Army  
Aviation  
Aviator  
Recruitment,  
Education, and  
Training**

**Kenneth W. Allen**

**The JAMESTOWN  
FOUNDATION**

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The China Aerospace Studies Initiative (CASI) was created in 2014 at the initiative of the Headquarters, United States Air Force (USAF). CASI is part of the RAND Corporation's Project AIR FORCE (PAF); Air University (AU) and Headquarters Pacific Air Forces (PACAF) are key stakeholders. The purpose of CASI is to advance understanding of the capabilities, operating concepts, and limitations of China's aerospace forces. Its research focuses on the PLA Air Force (PLAAF), Naval Aviation, Second Artillery, and Chinese military's use of space. CASI aims to fill a niche in the China research community by providing high quality, unclassified research on Chinese aerospace developments in the context of U.S. strategic imperatives in the Asia-Pacific region.

The theme for CASI's research in Fiscal Year 2015 was *Assessing Chinese Aerospace Training and Operational Competence*. This report, one of eight which were presented at the first CASI conference in June 2015, examined pilot training at all levels, from entry-level through large integrated exercises, as well as related topics, such as the reform of the basing structure, pilot recruitment, trends in PLAAF SAM training, and leadership dynamics shaping the future of the PLAAF.

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## About the Author

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## Introduction

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This report provides an overview of the People's Liberation Army Air Force (PLAAF) aviation branch's aviator recruitment, education, and training. Although the focus of the report is on the PLAAF, it also briefly addresses PLA Navy's (PLAN) Naval Aviation branch and PLA ground force's (PLAA) Army Aviation branch. It does not address training after they assume their permanent billet at an operational unit; however, it does discuss their post-assignment professional military education (PME) and career path.

In order to assess the current situation, the report provides a brief historical look at how the PLAAF's, Naval Aviation's, and Army Aviation's aviator recruitment, education, and training have progressed since the People's Republic of China (PRC) was created in 1949. Whereas the report focuses on male aviators, information is also provided about PLAAF and Army Aviation female aviators. The report is organized into the following five sections and four appendices:

- Section 1: Key Findings
- Section 2: Air Force Aviation Branch
- Section 3: Naval Aviation
- Section 4: Army Aviation
- Section 5: Conclusions
- Appendix A: Acronyms
- Appendix B: Key Source Material
- Appendix C: Key Terminology
- Appendix D: PLA 15-grade and 10-rank System

## Key Findings

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**Key Finding 1:** Understanding basic PLA terminology is important. For example, depending on the airframe being discussed, the PLA uses the term “aviator” and “pilot” to refer to all crew members, including pilots, navigators, communicators, gunners, and mechanics.

**Key Finding 2:** The amount of open-source material from the Internet, books, and periodicals on PLAAF, Naval Aviation, and Army Aviation aviator recruitment, education, and training has grown significantly over the past decade. For example, over the past year alone, the PLAAF has consistently identified itself as an “open and confident” air force.

**Key Finding 3:** PLAAF Headquarters has an Aviator Recruiting Bureau and subordinate organizations in each of the seven Military Region Air Forces (MRAF) Headquarters, which also helps Army Aviation recruits its aviators. PLAN Headquarters has a Naval Aviation Cadet Recruitment Office. Whereas PLAAF and PLAN have individual aviator recruitment websites, Army Aviation does not.

**Key Finding 4:** Each component has recruitment quotas organized by municipalities, provinces, and autonomous regions. Whereas the PLAAF recruits from almost all of them, Naval Aviation recruits from only Beijing plus six provinces. Army Aviation appears to recruit from only some of them.

**Key Finding 5:** The PLAAF averages about 1,100 to 1,300 new male cadets per year. The tenth group of female cadets began in 2013 and will not complete their education and training until 2018 or 2019, at which time the eleventh group will be selected. Naval Aviation averages about 150-170 cadets per year. It is not clear how many cadets Army Aviation averages per year, but the number appears to be small. The majority of cadets in each group continue to come from high school graduates. [Note: In China, students receive their junior secondary education at a junior middle school (7th to 9th grade) for three years (age 12–14) before attending high school (middle school) for three years (age 15–17) for their secondary education.<sup>1]</sup>

**Key Finding 6:** The PLAAF is still searching for the best way to recruit, educate, and train its aviators. Prior to 2000, almost all new aviators were recruited from high school graduates and outstanding enlisted personnel. Since then, all three aviation components have been experimenting with various types of programs for recruiting, educating, and training new aviators to include second- and third-year students and graduates with a science, technology, and engineering background in both civilian universities and military academic institutions, as well as students enrolled in the National Defense Student Program at Tsinghua University, Peking University, and Beijing Aeronautics and Astronautics University.

**Key Finding 7:** In 2011, the PLAAF began to create what it calls “Junior Military Academies of Aviation” at the high school level for “Little Eagles” in 11 cities that are linked with the Air Force Aviation University and Air Force Early Warning College. The purpose was to select outstanding junior middle school graduates to be trained for three years in the academies, so they could then graduate and become a PLAAF aviation cadet at the Air Force Aviation University. From 2011 through 2014, a total of 293 students had been accepted into the academies, of whom 130 became

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<sup>1</sup> “Education in China,” Wikipedia, found at [http://en.wikipedia.org/wiki/Education\\_in\\_China](http://en.wikipedia.org/wiki/Education_in_China).

aviation cadets. In 2015, the program will admit 1,000 students into the different academies with the goal of selecting 400 as aviation cadets when they graduate in 2018.

**Key Finding 8:** Depending on the aviation component and program, a growing number of aviators are receiving two bachelor's degrees (engineering and military science) in what is called a "3+2" or "4+2" program before they are assigned to their permanent unit. It is rare, however, for them to receive a master's degree as they move up their career ladder and attend relevant professional military education courses.

**Key Finding 9:** The three aviation components have been adjusting where and how long cadets receive their basic aeronautics theory education and basic, intermediate, and advanced training flight training, along with their parachute and survival training.

**Key Finding 10:** It appears that the washout rate for each component is around 50 percent between the time they begin their first year as a cadet and when they are assigned to their permanent unit.

**Key Finding 11:** Whereas the PLAAF began recruiting the first of its ten groups of female aviators in the 1950s, Army Aviation did not have any female aviators until 2013, when they were transferred from the PLAAF. Naval Aviation has not had any female aviators. Historically female aviators have served primarily as transport crew members and were separated at all phases from their male counterparts. Since 2008, the PLAAF's female aviators have now become fighter, ground attack, and helicopter aviators, as well as astronauts and members of the PLAAF's J-10 August 1st (Bayi) Aerobatics Team. Beginning in 2013, male and female cadets are now mixed throughout their education and training.

**Key Finding 12:** The PLAAF's primary cadet organization is the Air Force Aviation University, which was created in 2004. It provides basic education for PLAAF and Army Aviation cadets before they begin their intermediate and advanced trainer flight training at their respective flight colleges. Prior to 2006, the PLAAF provided basic education and flight training for Naval Aviation fighter and attack aviators; however, in 2006, Naval Aviation took over full responsibility for all of its aviators, which begins at the Naval Aviation Engineering Academy. Upon completing their basic education and basic trainer flight training, they are assigned to their respective flight college(s). Today, the PLAAF has three flight colleges (re-organized in 2011), Naval Aviation has one flight college (re-organized in 2011), and Army Aviation has one flight college (established in 1999).

**Key Finding 13:** As a general rule, most new aviators arrive at their operational unit with the grade of company deputy leader and the rank for first lieutenant (Navy lieutenant JG). Outstanding cadets and students in flight colleges can receive the grade of company leader and rank of first lieutenant (Navy lieutenant JG).

**Key Finding 14:** Aviators in all three components move up their career ladder in three-year grade and four-year rank increments as either a "commanding officer" or "non-commanding officer". Whereas "commanding officers" can move up to become a flight squadron, flight group, air regiment, air brigade, or air division deputy commander and commander, "non-commanding officers" remain flying under a junior officer throughout their career.

**Key Finding 15:** As aviators in all three components move up their career ladder, they must fill certain requirements to become a third-, second-, first-, and special-grade aviator. These requirements include

being a lead pilot and instructor pilot, flying in different weather conditions under instrument flight rules and visual flight rules, and serving in the control tower as a “flight commander” for a specified number of “flying periods.”

## Air Force Aviation Branch

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Today, the PLAAF has five branches—aviation, surface-to-air missiles, antiaircraft artillery, airborne, and radar—and five types of specialty units—technical reconnaissance, electronic countermeasures, communications, chemical defense (actually nuclear, biological, and chemical), and radar. This section provides a detailed overview of the PLAAF aviation branch’s recruitment for male and female aviators. It identifies who is responsible for recruiting aviators, outlines the annual recruitment cycle, and explains requirements for male and female aviators. To better understand the current recruitment situation, which is still evolving, this section briefly discusses the PLAAF’s aviator recruiting history. In the past the PLAAF primarily recruited high school graduates and outstanding enlisted members, but in an effort to recruit more technically qualified individuals, the PLAAF has implemented a number of recruitment programs since 2000 that have gradually increased the number of civilian and military college and university students and graduates.

### Chinese Views of the PLAAF

Before examining the PLAAF’s aviator recruitment program, it is important to understand how the Chinese public views the PLAAF. According to General Stilwell, “The PLAAF has made several attempts to make a military career glamorous and attractive to the Chinese public in general. The 2011 movie *Lock Destination* (“jian shi chu ji” / 歼十出击) was a *Top Gun* knock off clearly intended, at least in part, as a recruiting tool.<sup>2</sup> One scene in the movie showed the hero addressing civilian students explaining how attractive a military career can be. However, personal encounters with PLA members with knowledge of the movie generated very poor reviews, which were on par with USAF members’ review of the *Top Gun* knock-off “Iron Eagle”. In the West, flying jets is a desirable career option. In China, however, most people still believe ‘you don’t make nails out of good iron (and you don’t make soldiers out of good men).’<sup>3</sup> Now that the economy is slowing, however, the PLAAF may begin to see increases in the quality of recruits, which is similar to the West.”<sup>3</sup>

### Aviation Cadet Recruitment Organizations and Website

The PLAAF Headquarters Department’s Aviator Recruiting Bureau (空军招飞局), which was created in 1987, is responsible for all aviation cadet recruiting activities.<sup>4</sup> In addition, each of the seven Military Region Air Force (MRAF/军区空军) Headquarters Departments has its own regional selection center (选拔中心) and multiple subordinate selection sites. Since 2007, the PLAAF Headquarters Department’s Aviator Recruiting Bureau has had its own aviator recruitment website



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<sup>2</sup> The movie’s English name has been identified as *Lock Destination*, *J10 Attack*, and *J10 Mission*, and the Chinese name is in Pinyin (*jian shi chu ji*) and in characters is 歼十出击. In the movie, Yue Tianlong and Yin Shuanghu are top J-10 pilots and rivals. They have to reconcile their differences in order to successfully perform a training exercise and secure China's precious airspace. The information was accessed at [www.imdb.com/title/tt1896767/](http://www.imdb.com/title/tt1896767/) and [www.sinodefenceforum.com/j-10-thread-iii-closed-to-posting.t4290/page-87](http://www.sinodefenceforum.com/j-10-thread-iii-closed-to-posting.t4290/page-87).

<sup>3</sup> Written comments from General David Stilwell on September 18, 2015.

<sup>4</sup> *Xinhua*, June 4, 2006. “2014 Air Force Aviator Recruitment Brochure” (2014年空军招飞简章), October 30, 2013, accessed at <http://www.kjzfw.net/Item/88.aspx>.

shown at the top right.<sup>5</sup> Whereas the PLAAF Headquarters' Headquarters Department's second-level Military Training Department manages the overall aviator education and training program, the Shenyang, Beijing, and Lanzhou MRAF Headquarters each manage the flight college (飞行学院) in their respective area of responsibility.<sup>6</sup> As part of the recruitment process, the PLAAF deploys recruiters across China. For example, in early 2010, the PLAAF dispatched about 400 recruiters to 170 locations in 30 of China's 22 provinces, five autonomous regions, and four municipalities.<sup>7</sup>

## Annual Aviator Recruitment Cycle

The PLAAF aviation cadet selection process is organized into three periods as shown below:

- From August to December, the PLAAF provides information concerning the schedule and quotas for the next year's recruitment process
- In February to April, the PLAAF Aviator Recruiting Bureau and its subordinate MRAF organizations set up testing stations and begin the physical, cultural, and political examination process
- From April to July, the PLAAF narrows down the selection pool and conducts further reviews and examinations, including evaluating their overall psychological scores and college entrance examination scores, before announcing the final list of selectees in July.

## Male Aviation Cadets

The PLAAF is still searching for the best way to recruit, educate, and provide initial flight training for its male aviation cadets.<sup>8</sup> After being assigned to their operational unit billets, they serve as aviators, which include fighter, attack, helicopter, bomber, and transport pilots, as well as bomber and transport navigation, maintenance, and communications crew members.<sup>9</sup> Historically, the PLAAF recruited high school graduates (高中毕业生) and outstanding enlisted members (优秀士兵), but it has gradually increased the recruitment of civilian and military college and university students and graduates (大学生) to about 20 percent.<sup>10</sup> This percentage is not expected to increase, however, since the PLAAF wants to have the majority of its new aviators begin flying their operational aircraft by

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<sup>5</sup> Note: The website has two separate URLs: <http://www.kjzfw.net/> and <http://www.kjzfw.mil.cn/>.

<sup>6</sup> Shen Xiaoqing and Yan Gonghe, "Work of Air Force Staff Command," in *China Air Force Encyclopedia*, p. 173–174. See also Tan Guolin and Jiang Yi, "China and Foreign Military Aviation Education System Comparison and Enlightenment," in *Research on New Century New Period Air Force Academic Institution Transformation Building and Personnel Education and Culture*, Beijing: Lantian Press, July 2009, p. 117–124.

<sup>7</sup> "Air Force Recruits 836 High School Graduates as Aviation Cadets in 2010" (2010 年空军招收 836 名高中生飞行学员), August 30, 2010, accessed at [www.edu.cn.net/Educational/gk/gk\\_news/gk\\_news\\_zh/20100830/102601.htm](http://www.edu.cn.net/Educational/gk/gk_news/gk_news_zh/20100830/102601.htm).

"The PLAAF Plans to Recruit about 1,100 Aviator Cadets This Year" (空军今年计划招飞 1100 余名飞行学员), *China Air Force*, April 2010, p. 6.

<sup>8</sup> The base for this section is Kenneth Allen, "PLA Air Force Male Aviation Cadet Recruitment, Education and Training," *China Brief*, Vol.12, No. 5, March 2, 2012; and NASIC's *People's Liberation Army Air Force 2010*, Chapter 8, accessed at [http://www.au.af.mil/au/awc/awcgate/nasic/pla\\_af\\_2010.pdf](http://www.au.af.mil/au/awc/awcgate/nasic/pla_af_2010.pdf). All updated material has the appropriate footnotes.

<sup>9</sup> Zhu Rongchang, ed., *Air Force Dictionary* (空军大辞典), Shanghai: Shanghai Dictionary Publishing House, September 1996, p. 168–168. *PLA Air Force Officer Handbook* (中国人民解放军空军军官手册), Beijing: Blue Sky Press, November 2006, p. 338.

<sup>10</sup> Liu Yazhou and Yao Jun, eds., *The History of China's Aviation* (中国航空史) (*Second Edition*), Changsha: Hunan Science and Technology Press, August 2007, p. 602.

around the age of 23 or 24. For example, from 1987 to 2007, the PLAAF selected a total of 25,000 high school graduates and only 800 college graduates as aviation cadets.<sup>11</sup> From 1987 through July 2013, the PLAAF had recruited a total of 32,000 cadets, which appears to include all categories.<sup>12</sup> In terms of academic degrees, the PLAAF did not begin granting bachelor's degrees to non-aviation cadets until 1982 and to aviation cadets in 1987.<sup>13</sup>

In addition, the PLAAF has selectively recruited aviation cadets from specific provinces and municipalities. For example, in 1989, cadets were chosen from only 14 provinces and municipalities.<sup>14</sup> In 2006, the recruiting notice was issued to 29 of China's 31 provinces, autonomous regions, and municipalities, but cadets were chosen from only 16 of them.<sup>15</sup> One of the problems the PLAAF has faced in recruiting from across China is that rural areas only require a ninth grade education.<sup>16</sup> Furthermore, for educational and political reliability reasons, recruiting has targeted Han Chinese from specific provinces and municipalities.<sup>17</sup> However, in recent years the PLAAF has expanded its recruiting of non-Han Chinese by including a small number of cadets from minorities in Xinjiang, Inner Mongolia, Yunnan, and Qinghai, but it still does not recruit from Tibet.<sup>18</sup> It only began recruiting a small number of high school graduate cadets from Hainan Island around 2013.<sup>19</sup>

## Adjustments since the Early 2000s

Although the core of new aviators will continue to come from high school graduates who become cadets at the AFAU, since the early 2000s the PLAAF has progressively introduced different programs to recruit personnel who it believes will be more technically qualified to become aviators. However, the PLAAF continues to face challenges throughout the process. Specifically, about 80 percent of high school students are nearsighted, which excludes them from applying as an aviation cadet.<sup>20</sup> In addition, China's booming civil aviation industry needs about 60,000 pilots by 2020 and will thus compete with the PLAAF for aviators. Some of the PLAAF's recruitment programs are discussed below.<sup>21</sup>

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<sup>11</sup> Li Hongchun, "Air Force in 2007 Selects 1,400 Aviator Cadets" (空军 2007 年录取 1400 余飞行学员), *China Air Force*, 2007-5, p. 6.

<sup>12</sup> "2014 Air Force Aviator Recruitment Brochure" (2014 年空军招飞简章), October 30, 2013, accessed at <http://www.kjzfw.net/Item/88.aspx>.

<sup>13</sup> Chen Daojin and Liu Yuan, "Flight Academic Institutions Leap Ahead in Developing the Strategic Position and High Quality of Educating and Training Aviation Cadets" (飞行学院跨越式发展的战略定位与高素质飞行学员培养) in *Research on New Century New Period Air Force Academic Institution Transformation Building and Personnel Education and Culture* (新世纪阶段空军院校转型建设与人才培养研究) p. 55–66. As a benchmark, USAF undergraduate pilot training is accomplished in 12 months with approximately 85 hours in the T-6 primary trainer and 95 hours in the advanced T-38 trainer. Fighter pilots subsequently receive 20 T-38 hours in fighter fundamentals prior to attending a fighter transition course that runs four to seven months with 40–60 flight hours.

<sup>14</sup> "1989 Pilot Recruitment Requirements" (1989 年招收飞行员条件), *China Air Force*, 1989-3, p. 48.

<sup>15</sup> "PLAAF Pilot Recruitment Reaches a New High" (我军招飞人数创历史新高), *China Air Force*, 2006-5, p. 6.

<sup>16</sup> Teng Margaret Fu, "Unequal Primary Education Opportunities in Rural and Urban China," *China Perspectives*, June 2008, accessed at <http://chinaperspectives.revues.org/500>.

<sup>17</sup> In 2010, Han Chinese comprised 91.5 percent of the population, while the officially recognized 54 ethnic minorities totaled 8.5 percent. Information was accessed at [https://en.wikipedia.org/wiki/Ethnic\\_minorities\\_in\\_China](https://en.wikipedia.org/wiki/Ethnic_minorities_in_China).

<sup>18</sup> "PLAAF Pilot Recruitment Reaches a New High" (我军招飞人数创历史新高), *China Air Force*, 2006-5, p. 6. *PLA Air Force Officer Handbook*, p. 217.

<sup>19</sup> "6 Hainan Candidates Were Selected as Air Force Aviation Cadets" (海南 6 名高中生被录取为空军飞行学员), 11 July 2013, accessed at [http://gaozhong.eol.cn/bao\\_kao\\_zhi\\_nan\\_9195/20130711/t20130711\\_985885.shtml](http://gaozhong.eol.cn/bao_kao_zhi_nan_9195/20130711/t20130711_985885.shtml).

<sup>20</sup> Dong Zhaohui, ed., "Little Eagles' Earn Their Wings," *China Daily* in English, April 6, 2015.

<sup>21</sup> *People's Liberation Army Air Force*, 2010.

- In 2000, the PLAAF began recruiting PLA college graduates with a three-year senior technical (e.g., associate's degree) or four-year bachelor's degree in missiles or telecommunications. Once selected, they received a second (two-year) bachelor's degree in military science at one of the PLAAF's seven flight colleges plus one year of pilot transition training. In February 2014, the PLAAF ended this program in favor of the National Defense Student Program (国防生) discussed below.<sup>22</sup>
- In 2003, the PLAAF began recruiting civilian college graduates with a three-year senior technical or four-year bachelor's degree in science or engineering.<sup>23</sup> In February 2014, the PLAAF likewise ended this program in favor of the National Defense Student Program.<sup>24</sup>
- In 2005, the PLAAF determined that the civilian college graduates' academic foundation and ability to reason far exceeded that of high school graduate pilot cadets, and that they were even quicker at learning capabilities than pilot cadets who had graduated from military academic institutions; however, their drawbacks included their age, lack of physical fitness, and lesser quality of military discipline.<sup>25</sup> As a result, in 2006, the PLAAF began recruiting civilian college students in their second or third year who were majoring in science or engineering. These students then spent their third and fourth years at AFAU, where they received two years of basic aviation theory along with basic and advanced flight training. Upon graduation, they received a bachelor's degree in military science followed by one year of pilot transition training. In February 2014, the PLAAF also ended this program in favor of the National Defense Student Program.<sup>26</sup>
- In 2010, the PLAAF selected 31 new outstanding enlisted members (24 years old or younger) out of over 3,000 applicants from PLAAF units and a Beijing Military Region (MR) group army who already had a college degree. The goal was to assign them to PLAAF, naval aviation, and army aviation units and treat them as equals to officers. They spent two years receiving their basic aviation education at the AFAU as well as flight training in a CJ-6 and K-8. In June 2012, only two of them completed the training and received a bachelor's degree in military science.<sup>27</sup> In February 2014, the PLAAF also ended this program.<sup>28</sup>

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<sup>22</sup> Fang Xiaoyang and Li Hong, "2014 Air Force Pilot Recruitment Selection Work in Full Swing" (2014年度空军招飞复选工作全面展开), *Kongjun Bao*, February 26, 2014, p. 1.

<sup>23</sup> "Air Force's First Civilian College Graduate Aviator Cadets Begin Training" (空军首批地方大学毕业生开始飞行学员训练), *Kongjun Bao*, June 28, 2003, p. 2

<sup>24</sup> Fang Xiaoyang and Li Hong, "2014 Air Force Pilot Recruitment Selection Work in Full Swing" (2014年度空军招飞复选工作全面展开), *Kongjun Bao*, February 26, 2014, p. 1.

<sup>25</sup> "Civilian College Graduate Aviator Cadets Conducted Their First Solo Instrument Flight" (地方大学生飞行学员首次方了仪表单飞), *Kongjun Bao*, April 5, 2005, p. 3.

<sup>26</sup> Fang Xiaoyang and Li Hong, "2014 Air Force Pilot Recruitment Selection Work in Full Swing" (2014年度空军招飞复选工作全面展开), *Kongjun Bao*, February 26, 2014, p. 1.

<sup>27</sup> "Air Force First Group of Civilian College Graduate Enlisted Aviator Cadets Enter the Blue Sky" (空军首批大学生士兵飞行学员上蓝天), *China Air Force*, 2011-4, p. 8; and Li Hui, "Air Force First Group of Civilian College Graduate Enlisted Aviator Cadets Successfully Complete First Flight" (空军首批大学生士兵飞行学员首飞成功), *Kongjun Bao*, March 10, 2011, p. 1; "Air Force First Group of Civilian College Graduate Enlisted Aviator Cadets Transition to Basic Trainer for Training" (空军首批 31 名大学生士兵飞行学员转入初教机训练), *Kongjun Bao*, January 5, 2012, p. 1.

<sup>28</sup> Fang Xiaoyang and Li Hong, "2014 Air Force Pilot Recruitment Selection Work in Full Swing" (2014年度空军招飞复选工作全面展开), *Kongjun Bao*, February 26, 2014, p. 1.

- In 2011, the PLAAF's Political Department launched a new aviation cadet program by assigning 32 out of the 800 high school students selected as cadets at the AFAU to spend their first three years as part of Tsinghua University's (清华大学) National Defense Student Program. Of the original 32 cadets, 29 returned to the AFAU for their fourth year, where they received their CJ-6 basic trainer training and flew their first solo flight in April 2015.<sup>29</sup> In July 2015, a total of 28 of the cadets graduated with two bachelor's degrees and were assigned to a flight college for their intermediate and advanced fighter flight training.<sup>30</sup> In 2012, the PLAAF initiated similar programs for National Defense Students at Peking University (Beida/北京大学) and Beijing University of Aeronautics and Astronautics (Beihang/BUAA/北京航空航天大学).
- In 2011, the PLAAF also began to create what it calls "Junior Military Academies of Aviation" (空军青少年航空学校) for "Little Eagles" (雏鹰) in four test cities, including Changchun (Jilin Province) and Wuhan (Hubei Province), which were linked with the AFAU in Changchun and the Air Force Early Warning College (空军预警学院) in Wuhan, respectively.<sup>31</sup> The number has now expanded to 16 cities. The purpose of these "junior academies" is to select outstanding junior middle school (7<sup>th</sup>-9<sup>th</sup> grade) graduates to be trained in the academies for three years and then become aviation cadets at the AFAU when they graduate at age 17-18. In 2015, the program will admit 1,000 students into the 16 academies with the goal of selecting 400 as aviation cadets at the AFAU when they graduate in 2018.

## Recruitment Numbers Since 2006

Although comprehensive information was not found on the total number of personnel selected each year and how the numbers were broken down by categories, the following information provides

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<sup>29</sup> "First Group of Pilot Cadets Enter Joint Cultivation in the Air Force and Tsinghua University" ("时间毯"上的进行时—走近首批空军与清华大学联合培养飞行学员), *China Air Force*, 2011-10, p. 20–21. Dong Zhaohui, ed., "Feature: Pilots of New Generation in PLA Air Force," China Military Online, December 29, 2014, accessed at [http://english.chinamil.com.cn/news-channels/2014-12/29/content\\_6289444.htm](http://english.chinamil.com.cn/news-channels/2014-12/29/content_6289444.htm). Zhang Hongwei, "Air Force First Group of 'Tsinghua Class' Flight Cadets Conduct Their First Solo Flight" (空军首批"清华班"飞行学员首次单独驾机拥抱蓝天), Air Force Net, 14 April 2015, accessed at [http://kj.81.cn/content/2015-04/14/content\\_6442458.htm](http://kj.81.cn/content/2015-04/14/content_6442458.htm).

<sup>30</sup> Dong Zhaohui, ed., "Feature: Pilots of New Generation in PLA Air Force," China Military Online, December 29, 2014, accessed at [http://english.chinamil.com.cn/news-channels/2014-12/29/content\\_6289444.htm](http://english.chinamil.com.cn/news-channels/2014-12/29/content_6289444.htm). Liu Chu and Shan Shaozhong, "First 'Tsinghua Class' of Pilot Cadet Graduates" (首批"清华班"飞行学员毕业), China Air Force, August 2015, p. 8. Together, the 28 graduates achieved a 93 percent solo flight rating, which was the best ever for any group of graduates.

<sup>31</sup> Liu Yiwei and Qi Bingxin, "Air Force Organizes First Real-Equipment Flying Training for Junior Academy Students" (空军首次大规模组织少年军校学员实装飞行训练), December 3, 2014, accessed at [www.81.cn/kj/2014-12/03/content\\_6252498.htm](http://www.81.cn/kj/2014-12/03/content_6252498.htm). Dong Zhihua, ed., "PLAAF Organizes Real-Equipment Flying Training for Junior Academy Students," China Military Online, December 3, 2014, accessed at [http://english.chinamil.com.cn/news-channels/2014-12/03/content\\_6253742.htm](http://english.chinamil.com.cn/news-channels/2014-12/03/content_6253742.htm). Dong Zhaohui, ed., "Little Eagles' Earn Their Wings," *China Daily*, 6 April 2015. Li Mingfang, "Students at the Junior Military Academy of Aviation Conduct Their First Flight" (空军飞行少年军校学员首次体验飞行剪影), Xinhuanet, March 13, 2015, accessed at [http://news.xinhuanet.com/mil/2015-03/13/c\\_127563365.htm](http://news.xinhuanet.com/mil/2015-03/13/c_127563365.htm). Wang Peilian, "Air Force Junior Military Academy of Aviation: Middle School Graduates Can Test to Become an Aviator" (空军飞行少年军校: 初中毕业就可考虑当飞行员了), *China Youth Daily*, January 16, 2015, accessed at <http://military.people.com.cn/n/2015/0116/c1011-26396984.html>. Fang Chuanhong and Li Jianwen, "16 Provincial-level Teaching High Schools Identified as Air Force Junior Academies of Aviation (16 所省级示范高中确定为空军青少年航空学院), Air Force Net, March 16, 2015, accessed at [http://kj.81.cn/content/2015-03/16/content\\_6398817.htm](http://kj.81.cn/content/2015-03/16/content_6398817.htm).

representative data concerning the number of personnel recruited for certain years starting in 2006. Each province apparently has a quota for high school graduates but not for college students and graduates. For example, Henan Province had a quota of 55 high school graduates for the 2012 class but no quota for college students and graduates.<sup>32</sup> In 2014, Nantong City in Jiangsu Province selected 21 high school graduates. In total, it selected 457 high school graduates between 1989 and 2014 (an average of 18 per year).<sup>33</sup> A review of available data from 2006 to 2015 is shown below:<sup>34</sup>

- About 70,000 to 100,000 high school graduates apply each year from 30 of China's 31 provinces, autonomous regions, and municipalities
- The number of high school graduates selected per year has ranged from 836 to 1,400
- About 65 outstanding enlisted personnel under the age of 21 are selected each year as a cadet
- About 4,000 students and graduates from a range of 340 to 505 civilian colleges and universities apply each year, and the number of students accepted has ranged from 118 to a high of 154

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<sup>32</sup> Li Yanfeng, "Air Force Begins 2012 Aviator Recruitment: Three Categories of Male Students Can Register" (2012 年空军招飞开始: 三类男生可报名), Phoenix Online, September 29, 2011, accessed at [http://edu.ifeng.com/gaokao/detail\\_2011\\_09/29/9563412\\_0.shtml](http://edu.ifeng.com/gaokao/detail_2011_09/29/9563412_0.shtml).

<sup>33</sup> He Jiayu, "21 Nantong Candidates Were Selected as Air Force Aviation cadets" (南通 21 名考生被录为空军飞行学员), *Nantong Network*, July 12, 2014, accessed at [www.zgnt.net/content/2014-07/12/content\\_2325155.htm](http://www.zgnt.net/content/2014-07/12/content_2325155.htm).

<sup>34</sup> "1,400 Candidates Were Selected as Air Force Aviation Cadets from Throughout China" (全国有 1400 余名考生被录取为空军飞行学员), July 24, 2006, accessed at [http://xh.xhby.net/mp1/html/2006-07/24/content\\_4781699.htm](http://xh.xhby.net/mp1/html/2006-07/24/content_4781699.htm). "18 People Selected as Air Force Aviation Cadets from an Expanded Test Area" (18 名延考区考生被录取为空军飞行学员), July 24, 2008, accessed at [www.51test.net/show/190093.html](http://www.51test.net/show/190093.html). "2013 Recruitment Plan Includes 40 Females for the Air Force's 10<sup>th</sup> Group of Female Pilots" (2013 年空军第十批女飞行员计划招收 40 名), 15 December 2012, accessed at [www.liuxue86.com/a/738709.html](http://www.liuxue86.com/a/738709.html). "2014 PLA Air Force Pilot Recruitment in Full Swing," *Jiefangjun Bao* in English, 23 June 2014, accessed at [http://english.chinamil.com.cn/news-channels/china-military-news/2014-06/23/content\\_5996653.htm](http://english.chinamil.com.cn/news-channels/china-military-news/2014-06/23/content_5996653.htm). "2015 Air Force Pilot Cadet Recruitment Brochure" (二〇一五年度空军招收飞行学员简章), Air Force Recruitment website, 9 January 2015, accessed at <http://sy.kjzfw.org/Item/829.aspx>. "Air Force Newly Selects 154 College Students as Aviation Cadets" (空军新招收 154 名大学生飞行学员), *Jiefangjun Bao*, June 7, 2008. "Air Force Pilot Recruitment Bureau: This Year Selected 1,166 Graduates as Aviation Cadets," (空军招飞局: 今年将从毕业生中录取 1166 名飞行学员), July 23, 2011, accessed at [www.066266.com/zx/plus/view-47830-1.html](http://www.066266.com/zx/plus/view-47830-1.html). "It Is Evident That the Requirements for Air Force's Pilot Recruitment for 2012 Exceeded the First Line by 50 Percent" (2012 年空军招飞要求明显提高 一本线比例须超 50%), May 23, 2012, accessed at [www.chinanews.com/gn/2012/05-23/3909376.shtml](http://www.chinanews.com/gn/2012/05-23/3909376.shtml). "What Is the Vision for Air Force Pilot Recruitment Requirements for 2013?" (2013 年空军招飞的视力要求是多少?), October 24, 2012, accessed at [www.tesoon.com/ask/htm/22/105924.htm](http://www.tesoon.com/ask/htm/22/105924.htm). Li Hongchun and Cheng Yusheng, "The Air Force Selected 118 College Students as Aviation Cadets This Year" (今年空军新招 118 名大学生飞行学员), *Jiefangjun Bao*, June 16, 2007. Li Hongchun and Wei Changcheng, "The PLAAF Finishes the Final Review Process for Selecting High School Graduate Aviation Cadets for 2011" (空军 2011 年招收高中生飞行学员录取前复查工作开始), June 22, 2011, accessed at [http://news.mod.gov.cn/headlines/2011-06/22/content\\_4247782.htm](http://news.mod.gov.cn/headlines/2011-06/22/content_4247782.htm). Lu Zhima, "Little Eagle Class Preparing to Become PLAAF Commanders in 30 Years" (空军司令预期空军雏鹰班:30 年后可成长为司令员), March 24, 2015, accessed at <http://0739i.com.cn/portal.php?mod=view&aid=8572>. "Air Force Recruits 836 High School Graduates as Aviation Cadets in 2010" (2010 年空军招收 836 名高中生飞行学员), August 30, 2010, accessed at [www.educhn.net/Educational/gk/gk\\_news/gk\\_news\\_zh/20100830/102601.htm](http://www.educhn.net/Educational/gk/gk_news/gk_news_zh/20100830/102601.htm); "The PLAAF Plans to Recruit about 1,100 Aviator Cadets This Year" (空军今年计划招飞 1100 余名飞行学员), *China Air Force*, April 2010, p. 6. Zhang Huiya, "Gansu Has 30 Candidates Selected as Air Force Aviation Cadets for 2014" (甘肃今年有 32 名高中生被录取为空军飞行学员), July 24, 2014, accessed at <http://gansu.gscn.com.cn/system/2014/07/24/010765755.shtml>.

- About 65 students from a range of 29 to 40 military academic institutions have been selected per year
- The numbers above include a small percentage of personnel who are recruited by the PLAAF for army aviation and transition to that program after their second year.

To summarize the data, the PLAAF has a very active aviator recruiting system that draws up to 100,000 Han Chinese high school seniors per year into the screening process from almost all of the provinces and autonomous regions. The PLAAF has also reached out to civilian and military college students and graduates as well, but the final percentage of those selected for aviator training is still comparatively small (about 20 percent). For comparison purposes, the U.S. Air Force (USAF) trains an average of 800-1,000 new pilots each year.<sup>35</sup> For example, the Air Force Academy (USAF) Class of 2013 graduated 1,035 new second lieutenants, of which 432 went to specialized undergraduate pilot training (SUPT). The balance of those 800-1,000 SUPT slots were filled with graduates from Air Force Reserve Officer Training Corps (AFROTC), Officer Training School (OTS), officers “cross commissioning” from other service academies, and the Air National Guard (ANG) and Air Force Reserves (AFR).

## Female Aviation Cadets

In March 2012, the PLAAF celebrated the 60th anniversary of the first female aviators joining an operational unit, thus becoming one of 16 countries with female air force pilots today.<sup>36</sup> Through 2012, about 200 graduates have been assigned to the 13<sup>th</sup> Air Transport Division in the Guangzhou MRAF and 100 to the 34<sup>th</sup> Air Transport Division in Beijing. Although their numbers have been small, the role of female aviators has expanded over the past few years. For example, female aviators have served as the commander of the 4th Transport Air Division in the Chengdu MRAF, as an astronaut aboard the Shenzhou-9 space capsule, flying J-10 and JH-7 combat aircraft, and a member of the PLAAF’s Bayi Aerobatic Team, which has now performed at the Zhuhai Air Show and in Malaysia. To date, nine groups of female aviators, including pilots, navigators, and communicators, have entered the force. The tenth group began its education and training in 2013, will graduate from the AFAU in 2017, and will complete flight training in 2018 or 2019 before being assigned to its operational units. Altogether 240 female pilots, 93 navigators, and 50 communicators have graduated from AFAU. The

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<sup>35</sup> “The Road to Wings: How to Become a U.S. Air Force Pilot,” accessed at <http://fightersweep.com/262/how-to-become-a-us-air-force-pilot/>.

<sup>36</sup> The primary source of information on female aviators comes from Kenneth Allen and Emma Kelly, “China’s Air Force Female Aviators: Sixty Years of Excellence (1952–2012),” *China Brief*, Vol. 12, No. 12, June 22, 2012. Liu Xiaolian and Wang Qingliang, ed., *PLAAF Female Aviators* (中国人民解放军空军女飞行员), Blue Sky Press, September 2012. According to one article, the women in the JH-7 are assigned as weapon systems officers (WSOs); however, the available photos of them standing near a JH-7 show only women, which implies they are both pilots and WSOs. Xie Hong, “Training and Education of PLA Air Force Pilots in Reform,” *Trainer* (教练机), 2012, No 3 (19 September 2012), p. 3–6. Rob Coppinger, “China’s First Woman in Space: Q&A with Astronaut Liu Yang,” SPACE.com, October 4, 2012, accessed at [www.space.com/17887-china-first-female-astronaut-liu-yang-interview.htm](http://www.space.com/17887-china-first-female-astronaut-liu-yang-interview.htm). “China’s First Female Aerobatic Fighter Pilots Take Flight,” Agence France-Presse, November 11, 2014, accessed at [www.defensenews.com/article/20141111/DEFREG03/311110036/China-s-First-Female-Aerobatic-Fighter-Pilots-Take-Flight](http://www.defensenews.com/article/20141111/DEFREG03/311110036/China-s-First-Female-Aerobatic-Fighter-Pilots-Take-Flight). See “China’s First Group of Female Fighter Pilots Fly the J-10 and an Overseas Debut” (中国首批歼击机女飞行员驾歼-10海外首秀), March 17, 2015, accessed at [http://fj.ifeng.com/news/photo/detail\\_2015\\_03/19/3679219\\_0.shtml](http://fj.ifeng.com/news/photo/detail_2015_03/19/3679219_0.shtml). “PLAAF aerobatic team arrives in Malaysia for stunt shows,” China Military Online, March 12, 2015, accessed at [http://eng.mod.gov.cn/DefenseNews/2015-03/12/content\\_4574587.htm](http://eng.mod.gov.cn/DefenseNews/2015-03/12/content_4574587.htm).

PLAAF ceased training communicators starting with the fifth group (1981–1984) and with navigators starting with the seventh group (1997–2001). The washout rate has been around 50 percent.

Historically, female aviators, including pilots, navigators, and communicators, have been separated from their male counterparts throughout their cadet education and training, as well as in their operational units. The majority have been assigned to all-female crews in a single flight group. However, this pattern has been changing since 2000, including mixed IL-76 crews, one air transport division commander (2004), and a new group of J-10 pilots, JH-7 pilots and weapon systems officers (WSOs), and MI-17 helicopter pilots. [Note: The PLAAF calls WSOs “rear seat weapons control officers” (后舱武器控制军官).]

The female cadets from the first group (April–November 1951) through the seventh group (1997–2001) were not integrated with male cadets at any time during their education and training. In contrast, the eighth group (2005–2009), which was designated as the first group of fighter pilots, was separated from its male counterparts during its 30 months of basic education at the AFAU, but was then integrated with male cadets during the 18 months of intermediate and advanced fighter training held in the relevant flight colleges. This group of 16 graduates also flew over Tiananmen Square to celebrate the PRC’s 60th anniversary in October 2009.

Similarly, the 16 graduating members of the ninth group (2008–2013) were integrated with their male counterparts after they graduated from the AFAU and began their flight training at a flight college. In July 2015, they completed their two years of transition training at one of the three flight colleges and began their transition training in JH-7s at an operational unit.<sup>37</sup> Like their male counterparts, they were part of the “4+1” program and received two bachelor’s degrees.<sup>38</sup> In addition, like their male counterparts, upon completing their final year at the AFAU, they received the rank of first lieutenant (中尉) and the grade of company deputy leader (副连职) before transitioning to one of the three flight colleges.<sup>39</sup> (See Appendix A for information about the PLA’s grade and rank system.)

The 40 female cadets in the tenth group (2013–2018) were not only recruited along with their male counterparts, but they have been integrated with them at the AFAU.<sup>40</sup> It remains to be seen if this will become the new normal for female aviator cadets, as the 11th group cadets will not be recruited and begin their education and training until 2018.

Finally, although female pilots are now flying J-10s and JH-7s, it is not clear if they are flying in mixed crews. For example, are there mixed male and female JH-7 crews? Are there mixed male and female flight squadrons (e.g., 2–4 aircraft), where females fly one or two aircraft and males fly the other aircraft together? Based on photos in multiple PLA publications, however, it does not appear that

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<sup>37</sup> Liu Hanbao and Yang Fen, “Troops” (点兵) photo and caption only, *China Air Force*, August 2015, p. 8.

<sup>38</sup> “China’s Air Force Will Recruit 30 Female Pilots This Year” (中国空军今年将招收第九批 30 名女飞行员), April 1, 2008, accessed at <http://mil.huanqiu.com/china/2008-04/82840.html>.

<sup>39</sup> “Air Force Recruitment for the Ninth Group of Female Pilots Occurs Only Three Years After the Eighth Group” (空军开招第九批女飞行员 与第八批仅相隔三年), February 19, 2008, accessed at [http://news.xinhuanet.com/mil/2008-02/19/content\\_7625251.htm](http://news.xinhuanet.com/mil/2008-02/19/content_7625251.htm).

<sup>40</sup> “The Tenth Group of Female Pilots March 50 Kilometers through the Wild” (我军第十批女飞行员亮相 野外求生 徒步近百里), September 15, 2014, accessed at <http://mil.chinaiss.com/html/20149/15/peb6e.html>. “2013 Recruitment Plan Includes 40 Females for the Air Force’s 10th Group of Female Pilots” (2013 年空军第十批女飞行员计划招收 40 名), December 15, 2012, accessed at [www.liuxue86.com/a/738709.html](http://www.liuxue86.com/a/738709.html).

there are any mixed squadrons. Several photos were found of female pilots with male flight instructors. For example, a photo in November 2012 shows four male and one female pilot standing in front of several two-seat J-10 trainers.<sup>41</sup>

## Male and Female Aviator Recruitment Age and Physical Requirements

For comparison purposes, Table 1 provides information concerning the age, height, and weight requirements for male and female aviator recruitment in 2014.<sup>42</sup>

**Table 1: Male and Female Recruitment Physical Recruitments**

	Maximum Age for High School Graduates	Maximum Age for College Graduates	Minimum Height	Maximum Height	Minimum Weight
Male <sup>43</sup>	19	24	165 cm (5'4")	185 cm (6'1")	50 kg (110 lb)
Female <sup>44</sup>	19	N/A	165 cm	175 cm (5'9")	46 kg (101 lb)

In addition to the above requirements for males, their blood pressure must be between 138 and 88 millimeters of mercury, their eyesight must be normal without any color blindness or color weakness, and they are not allowed to have any tattoos.<sup>45</sup>

For comparison purposes, although the USAF does not have an official website with pilot recruitment requirements, multiple authoritative blogs provide relevant information. Specifically, to begin training, a candidate must be 18 to 34 years old, be a U.S. citizen and have a bachelor's degree.<sup>46</sup> To become a pilot, a candidate must make it through tests, selection and officer school, including the Air Force Academy, a Reserve Officer Training Course program, or Officer Training School. Candidates who pass the Air Force Officer Qualifying Test go to a Military Entrance Processing Station for health screening. Pilots need normal color vision, and they must meet eyesight refraction and astigmatism requirements. Distant vision must be at least 20/70 uncorrected, and near vision must be 20/30 uncorrected, but both distant and near vision must be corrected to 20/20. Corrective eye surgery could disqualify a candidate from flying. Pilots also cannot have a history of hay fever, asthma or allergies after age 12. Pilots have to meet the Air Force's height, weight and physical conditioning requirements. They must be 64 to 77 inches tall when standing, and 34 to 40 inches tall when sitting. They must

<sup>41</sup> Mei Huabo, "Watching over the Air Force Personnel's 'Spiritual House'" (守望空军人的'精神的家园'), *Kongjun Bao*, November 27, 2012, p. 4.

<sup>42</sup> "2014 Air Force Aviator Recruitment Brochure" (2014 年空军招飞简章), October 30, 2013, accessed at <http://www.kjzfw.net/Item/88.aspx>. "China's Air Force Recruiting 40 Female Pilot Cadets from 20 Provinces Including Liaoning" (中国空军招收第十批女飞行员 在辽宁等 20 省份招 40 人), April 13, 2013, accessed at [http://news.china.com.cn/2013-04/13/content\\_28531765.htm](http://news.china.com.cn/2013-04/13/content_28531765.htm).

<sup>43</sup> Of note, in October 2005, the maximum height was raised from 178 centimeters (5 feet 10 inches) to 185 centimeters, which most likely was a result of having larger cockpits in the new aircraft. "Pilot Recruitment" (招收飞行员), *Kongjun Bao*, November 1, 2005, p. 1.

<sup>44</sup> Of note, in October 2005, the minimum height was raised from 160 centimeters (5 feet 5 inches) to 165 centimeters, and the maximum height was raised from 175 to 178 centimeters (5 feet 10 inches), which means the maximum height was again lowered to 175 centimeters. "Pilot Recruitment" (招收飞行员), *Kongjun Bao*, November 1, 2005, p. 1.

<sup>45</sup> "2014 Air Force Aviator Recruitment Brochure" (2014 年空军招飞简章), October 30, 2013, accessed at <http://www.kjzfw.net/Item/88.aspx>.

<sup>46</sup> Jennifer Alyson, *Demand Media*, "Air Force Fighter Pilot Qualifications," accessed at <http://work.chron.com/air-force-fighter-pilot-qualifications-8456.html>.

weigh 160 to 231 pounds, depending on height. Depending on age, men cannot have more than 20 to 24 percent body fat, while women cannot have more than 28 to 32 percent body fat. Pilots also must be able to complete a minimum number of push-ups and sit-ups and finish a timed 1.5 mile run.

## Aviator Education and Training

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This section discusses the PLAAF's education and training for cadets at the AFAU, their follow-up flight training as a student at one of the PLAAF's three flight colleges, and their transition training at their operational unit. The section begins by providing a brief overview of the five periods of the aviator education and training system since 1949. It then discusses the training system from 2004 to around 2012 and the changes to the flight college organizational structure that began in 2011. The section then discusses the reforms that have occurred starting in 2011, including the ongoing shift from what the PLAAF calls the "Three Levels and Five Phases" training program to the "Four Phase" system.

Together, these organizational changes to the PLAAF aviator training institutions represent the most significant reforms of the PLAAF's aviator system in decades. As a result of these changes, the PLAAF has been gradually adjusting its pilot training pipeline, with the ultimate goal of reducing the total time it takes for a new cadet to become a seasoned pilot from ten years to only seven years. The section concludes by discussing the instructor-to-student ratio and aviator cadet and student washout rate, as well as the post-assignment promotion path and professional military education for PLAAF pilots.

### **The Five Periods of Aviator Education and Training since 1949**

The PLAAF aviator education and training system has progressed through a number of modifications since 1949. In general, the PLAAF separates its aviator education and training history into the following five periods (阶段):<sup>47</sup>

- Period 1: 1949–1958, which included the "two levels" (二级) of flight schools and aviation units
- Period 2: 1958–1967, which included the "three levels" of flight schools, training bases, and aviation units
- Period 3: 1967–1986, which included the "two levels" of flight schools and aviation units
- Period 4: 1986–2004, which included "three levels and five phases" (三级, 五阶段). The "three levels" were: (1) education and training at aviation academic institutions, after which cadets received a bachelor's degree, (2) one year of transition training at a transition training base, and (3) training at an operational unit in the unit's aircraft. The "five phases" included (1) basic education, (2) 110 hours of flight training in a basic trainer, (3) advanced trainer training, (4) combat aircraft transition training, and (5) combat application training.
- Period 5: 2004–Present, which has been identified as both the "three levels" system, including (1) bachelor's degree education, (2) basic professional education, and (3) continuing education, and the "four levels" (四级) system, including (1) academic education, (2) professional education, (3) combat aircraft transition training, and (4) combat application training.

Understanding the general evolution of the PLAAF's aviator and education training system, particularly its progression over the past decade, is important when assessing the system as it stands today.

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<sup>47</sup> Fu Guoqiang, *Comparison of Chinese and Foreign Military Flight Education*, p. 55–57.

## Aviator Cadet Education and Training System, 2004–2012

When the PLAAF created the AFAU in 2004, it continued what it called the “Three Levels and Five Phases” training program, but several adjustments were made, including introducing two new training programs, known as the “2.5 + 1.5” model and the “4+1” model.

As explained above, the “Three Levels and Five Phases” training program referred to the training pipeline for high school graduate and outstanding enlisted aviation cadets.<sup>48</sup> The three levels included: (1) education and training at aviation academic institutions, after which cadets received a bachelor’s degree, (2) one year of transition training at a transition training base, and (3) training at an operational unit in the unit’s aircraft. The five phases included: (1) basic education, (2) 110 hours of flight training in a basic trainer, (3) advanced trainer training, (4) combat aircraft transition training, and (5) combat application training.

The “2.5+1.5” model referred to receiving 30 months (two and a half years, or the “2.5” component) of basic education and aviation theory at the AFAU.<sup>49</sup> Some cadets also received six months of follow-on training in a basic trainer (CJ-6) at the university’s Flight Basic Training Base. During those six months—much of which occurred on sod runways—cadets conducted cockpit familiarization and simulator training as well as takeoffs, landings, navigation, aerobatics, and instrument flying before and after they flew their first solo. At the end of 30 months, aviators were assigned to one of the existing flight colleges for 18 months (one and a half years, or the “1.5” component), where they spent the first half in a basic trainer regiment and then shifted to an advanced trainer regiment. Although not stated, the cadets were most likely assigned to a fighter/attack or bomber/transport flight college based on their academic rating. The percentage of cadets assigned for each aircraft was also most likely based on the percentage of each aircraft in the overall PLAAF order of battle.

Once cadets moved to a basic trainer regiment and then to an advanced trainer regiment in one of the flight colleges, fighter and attack cadets conducted the same type of skills training as in the CJ-6. After conducting their first solo, they flew two-ship formations, barrel rolls, diving, loops, Immelmans, and high- and low-altitude flights plus flying at night and in inclement weather. Of note, even after they flew their first solo, instructors continued to fly with the cadets. Fighter and attack cadets only recently began conducting any type of tactics training in the K-8 trainer, such as four-ship formations and dropping bombs and firing guns at ground targets. Bomber cadets conducted training in night optical bombing, radar bombing, and deploying to other airfields.

During the 18 months of flight training under this model, cadets flew approximately 200 to 220 hours. Cadets were allowed to fly multiple sorties per day for a maximum of five hours. Inclement weather affects how often the cadets can fly.

In 2004, the PLAAF introduced a “4+1” test program, which was officially implemented in 2009 and initially overlapped the “2.5+1.5” program. The “4+1” program refers to increasing the basic education to three and one-half years plus six months of basic trainer (CJ-6) education and training at

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<sup>48</sup> Unless noted, the information in this subsection came from Xie Hong, “Training and Education of PLA Air Force Pilots in Reform,” p. 3–6. “The PLAAF Reforms Its Aviator Education and Training Model,” November 13, 2012, accessed at [news.xinhuanet.com/mrdx/2012-11/13/c\\_131970220.htm](http://news.xinhuanet.com/mrdx/2012-11/13/c_131970220.htm).

<sup>49</sup> Kenneth Allen, “PLA Air Force Male Aviation Cadet Recruitment, Education and Training,” *China Brief*, Volume 12, Issue 5, March 2, 2012.

the AFAU (a total of four years), which is followed by one year of intermediate (K-8) and advanced flight training at one of the PLAAF's flight colleges.

As discussed earlier, in 2011, the PLAAF instituted a program to provide some cadets with the first three years of education at three PLAAF National Defense Student programs in three Beijing universities. It is not clear what their requirements are after returning to the AFAU for their fourth year, but they most likely receive their basic flight training (CJ-6) along with parachute and survival training. They are most likely separated from the high school graduate cadets during this period. In addition, on completing their final year at the AFAU, they receive the rank of first lieutenant and the grade of company leader (正连职) before transitioning to one of the three flight colleges.<sup>50</sup>

## Flight College Organizational Reforms

Historically, the PLAAF began with over 15 flight schools that were reduced to seven division leader-grade flight colleges in the 1990s, which were the primary institutions for training new PLAAF aviators. In May 2004, the PLAAF created the AFAU in Changchun, Jilin Province, as a corps leader-grade organization to replace the 7th Flight College.<sup>51</sup> The AFAU is composed of two division leader-grade bases, the Flight Basic Training Base (previously the 7th Flight College) and the Flight Training Base. It is not clear, however, what the division of labor is between the two bases. Of note, during the 11th Five-Year Plan (2006–2010), the Central Military Commission (CMC) approved the university as one of the PLA's "2110 Project" universities.<sup>52</sup> Although the university does not have its own official website, the tab below is part of the PLAAF's pilot recruitment website and appears to have been created around 2014.<sup>53</sup>



In the fall of 2011 the PLAAF implemented additional organizational reforms of its aviator training units. Beginning in August 2011, the PLAAF merged the remaining six division leader-grade flight colleges into three corps deputy-leader grade flight colleges, which were further consolidated with at

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<sup>50</sup> "2014 Air Force Pilot Recruitment: Introduction to the PLA Air Force Aviation University" (2014 空军招飞:中国人民解放军空军航空大学简介), August 22, 2014, accessed at [www.mingshiedu.com/gaokao/yssc/20130822/10670.html](http://www.mingshiedu.com/gaokao/yssc/20130822/10670.html).

<sup>51</sup> The *China Air Force Encyclopedia* and several *Jiefangjun Bao* articles online translate *kongjun hangkong daxue* as Air Force Aviation University. Other English translations have used Air Force Aeronautics University. See *China Air Force Encyclopedia*, p. 1248.

<sup>52</sup> "2015 Air Force Pilot Cadet Recruitment Brochure" (二〇一五年度空军招收飞行学员简章), Air Force Recruitment website, January 9, 2015, accessed at <http://sy.kjzfw.org/Item/829.aspx>. The CMC initiated the 2110 Project during the 10th Five-Year Plan (2001-2005), which currently includes 21 PLA academic institutions. See "2110 Project" (2110 工程), aka "21100 Program", which was accessed at [http://baike.baidu.com/link?url=93aA5BK2yBrmCbXyaUyxHiokq38UzbDlo4eKDglYPJ\\_fzNZ91NopoRLZ-cFUjPEBuvUUI05eWIsUx0hvFmenFK](http://baike.baidu.com/link?url=93aA5BK2yBrmCbXyaUyxHiokq38UzbDlo4eKDglYPJ_fzNZ91NopoRLZ-cFUjPEBuvUUI05eWIsUx0hvFmenFK). The term *2110* stands for the first ten years (two five-year plans) in the 21<sup>st</sup> century.

<sup>53</sup> The official website is <http://hkdx.kjzfw.org/>; however, very little information is available.

least four of the seven MRAF flight transition training bases. One reason for these mergers was likely to streamline training and conserve resources, which were relatively decentralized, with an overlap of functions and designs.<sup>54</sup> The remaining transition training bases were merged with the PLAAF's new air brigades.

The resulting new structure consists of three flight colleges in Harbin, Shijiazhuang, and Xi'an, each of which includes two of the previous flight colleges and has several different types of trainer aircraft rather than a single type of basic and intermediate trainer.<sup>55</sup> For example, the former 1<sup>st</sup> Flight College in Harbin was equipped with transport aircraft to help train transport and bomber aviators, while the 3<sup>rd</sup> Flight College in Jinzhou, Liaoning Province, was equipped with K-8 trainers to help train fighter and attack aviators. Today, the Harbin Flight College has merged all of these aircraft into a single organization, even though they remain at their original airfield, and it has also brought in bombers as well. The pilots in training occasionally fly to the other base and fly in formation with those different types of aircraft.

Whereas the original flight colleges were division leader-grade organizations subordinate to their respective MRAF, the three new colleges are corps deputy leader-grade organizations directly subordinate to their respective MRAF Headquarters.<sup>56</sup> One of the reasons they cannot be subordinate to the AFAU is that the university is also a corps deputy leader-grade organization and is, in turn, directly subordinate to PLAAF Headquarters. Each flight college has also upgraded its subordinate air regiments to air brigades. Each college now has four to five brigades. The following bullets provide a summary of the information available about how each of the new flight colleges was formed:

- Air Force Harbin Flight College<sup>57</sup>
  - Established in August 2011
  - Headquartered at the former 1st Flight College in Harbin, Heilongjiang Province
- Air Force Shijiazhuang Flight College<sup>58</sup>
  - Established in August 2011
  - Headquartered at the former 4th Flight College in Shijiazhuang, Hebei Province
- Air Force Xi'an Flight College<sup>59</sup>

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<sup>54</sup> Ni Eryan, "PLA Quietly Advances Reforms in Organizations and Structures," Hong Kong *Wen Wei Po Online* in Chinese, December 31, 2011. The Chinese version of the article used the grade of "corps level" (军级), which refers to both corps leader and corps deputy leader. Ni Eryan, "Adequate Preparations against War Is the Best Means of Preventing It: Trend of Development of the PLA Air Force's Transformation," Hong Kong *Wen Wei Po* in Chinese, January 21, 2012.

<sup>55</sup> Ni Eryan, "Adequate Preparations against War Is the Best Means of Preventing It: Trend of Development of the PLA Air Force's Transformation."

<sup>56</sup> Fu Guoqiang, ed., *Comparison of Chinese and Foreign Military Flight Education* (中外军事飞行教育比较研究), Beijing: Military Science Press, January 2013. Bai Chongming and Ji Changguo, eds., *Air Force Strategy Transformation and Flight Personnel Education Innovation* (空军战略转型与飞行人才教育创新) Beijing: Blue Sky Press, May 2010. Xie Hong, "Training and Education of PLA Air Force Pilots in Reform", p. 3-6. This periodical is published by the Aviation Industry of China (AVIC). Huang Shubo and Zhang Mimi, "Air Force Reforms Aviator Cultivation Model" (空军改革飞行员培养模式), Xinhuanet, November 13, 2012, accessed at [http://news.xinhuanet.com/mrdx/2012-11/13/c\\_131970220.htm](http://news.xinhuanet.com/mrdx/2012-11/13/c_131970220.htm). These articles provide a detailed discussion of the types of aircraft and number of hours flown during the PLAAF's "Three Levels and Five Phases" system prior to 2013, and then discusses the reforms that were implemented in 2013 for the new "Four Phase" system.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

- Established in August 2011
- The headquarters is most likely located at the previous 2nd Flight College's campus in Huxian, Shaanxi Province, which is located just west of Xi'an.

In addition, in April 2012, the former 13th Flight College in Bengbu, Anhui Province, was transformed into a Flight Instructor Training Base for flight instructors in the three flight colleges and at operational units, and was subordinated to the AFAU.

## Reforms of the Aviator Cadet Education and Training System in 2012

In 2012, the PLAAF implemented a new “four-phase” system, which is called the “4+1+1 model” and the “4+1 model,” where each number refers to the number of years it takes to complete the program.<sup>60</sup> The “four phases” are: academic education (学历教育), professional education (任职教育), combat aircraft transition training (作战飞机改装训练), and combat application training (作战应用训练).<sup>61</sup>

Of particular note, historically, it has taken new pilots a total of ten years, including basic education, flight college training, transition training, and unit training, to become an experienced pilot with the ability to independently carry out every type of combat mission. The goal of implementing the revised four-phase education and training cycle is to cut the total time down to seven years, so that new pilots are better prepared once they enter their operational aircraft.<sup>62</sup> The four phases are discussed in more detail as follows:

### *Phase 1*

Phase 1, which is identified as the academic education phase, is organized into two categories. The first category, which is organized separately into education and training, includes male and female high school graduates and outstanding male enlisted personnel. The second category includes male cadets who spend their first three years in one of the PLAAF's National Defense Student Programs and their fourth year at the AFAU. Upon graduation from the university, the National Defense students receive two bachelor's degrees (双学)—one from the National Defense Student Program university and one from AFAU—and then begin their flight training at one of the three flight colleges. There is little information concerning the National Defense students; however, it appears that they are separated from the high school graduate cadets once they return to the AFAU for their final year and, most likely, during their flight training at one of the flight colleges.

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<sup>60</sup> Unless noted, the information in this subsection came from Xie Hong, “Training and Education of PLA Air Force Pilots in Reform,” p. 3–6. “The PLAAF Reforms Its Aviator Education and Training Model,” November 13, 2012, accessed at [news.xinhuanet.com/mrdx/2012-11/13/c\\_131970220.htm](http://news.xinhuanet.com/mrdx/2012-11/13/c_131970220.htm). Liu Xiaolian and Wang Qingliang, ed., *PLAAF Female Aviators* (中国人民解放军空军女飞行员), Blue Sky Press, September 2012. “2015 Air Force Pilot Cadet Recruitment Brochure” (二〇一五年度空军招收飞行学员简章), Air Force Recruitment website, January 9, 2015, accessed at <http://sy.kjzfw.org/Item/829.aspx>. Fu Guoqiang, *Comparison of Chinese and Foreign Military Flight Education*, Beijing: Military Science Press.

<sup>61</sup> Even though the model has been identified as 4+1+1 and 4+1, since 2012 the second phase can last from one to two years depending on the type of unit and aircraft.

<sup>62</sup> “CPC Air Force Pilot Recruitment and Training Work (中共空军飞行员的招训工作), Academic Research (學術研究), not dated, Taipei, Taiwan.

Education and training for the first category consist of academic education and basic flight training, which all male and female aviation cadets receive for four years at the AFAU. The goal is to have “high school graduates transition to military cadets, who then transition to aviator cadets.” The first three and one-half years of education and training is divided into two types. The first type includes basic training, drill training, small arms training, chemical defense training, and physical training. Cadets also receive parachute training and survival training during their first year. The second type consists of political education, cultural education, military theory, and, most important, aviation basic theory. Cultural education includes physics, English, computer programming, and cultural knowledge. Aviation theory and military theory education includes aerodynamics, aircraft flight mechanics, airborne navigation, air force weather, aircraft structure and systems, aircraft power plants, aircraft instruments, electronics, communications, and navigation instruments, flight rules, flight training psychology, flight safety, and aviation electronic countermeasures.

The last six months includes 70 flight hours in the CJ-6 basic trainer at the university’s Flight Basic Training Base. It is not clear when the decision is made for certain cadets to transition from the pilot cadet track to crew member cadet track to become navigators, communicators, aircrew mechanics, or gunners on transports/bombers. Any cadets who wash out for either physical or technical reasons are offered the opportunity to transition to one of the PLAAF’s other academic institutions. During this phase, cadets receive special treatment compared to other academic institution cadets, including aviation specialty billet allowance (航空飞行专业岗位津贴), aircrew meal (空勤伙食), and special equipment (特种装具).<sup>63</sup> The graduates from category one receive a bachelor’s degree in engineering.<sup>64</sup> Upon graduation, cadets from both categories are assigned the grade of company deputy leader (副连长) with the rank of first lieutenant before transitioning to one of the three flight colleges.

## ***Phase 2***

Since 2012, Phase 2, which is identified as the professional education phase, takes place for one to two years at one of the PLAAF’s three flight colleges and is organized based on the final operational aircraft the new pilots will fly—fighter, ground attack, multirole, bomber, transport, or helicopter. (Note: They are still called *xueyuan* (学员), but the translation for this phase is “student” versus “cadet”.)

After the students arrive at the flight college, they spend two to three months receiving transition aviation theory education before they begin their flight technique training in intermediate and advanced trainers. Flight technique training, which is normally the last step and the most important, is divided into the following three phases: (1) ground-based training, including sitting in a cockpit and simulator training; (2) flying with a flight instructor, and (3) solo flight training. Each phase is implemented according to the flight training subjects (飞行课目) and quality requirements within the necessary *Outline of Military Training and Evaluation* (OMTE/军事训练与考核大纲). In order to move

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<sup>63</sup> “2014 Air Force Pilot Recruitment: Introduction to the PLA Air Force Aviation University” (2014 空军招飞:中国人民解放军空军航空大学简介), August 22, 2014, accessed at [www.mingshiedu.com/gaokao/yjsc/20130822/10670.html](http://www.mingshiedu.com/gaokao/yjsc/20130822/10670.html).

<sup>64</sup> “2014 Air Force Pilot Recruitment: Introduction to the PLA Air Force Aviation University” (2014 空军招飞:中国人民解放军空军航空大学简介), August 22, 2014, accessed at [www.mingshiedu.com/gaokao/yjsc/20130822/10670.html](http://www.mingshiedu.com/gaokao/yjsc/20130822/10670.html).

to the next phase, the students must pass the necessary examination(s). Flight training subjects normally consist of the following components: takeoff and landing routes, airspace, instruments, formation flying, simple aerobatics, and navigation.

Each student averages 150 to 200 flight hours (飞行小时). The hours are organized as shown below:

- Fighter pilots fly 150 hours in a K-8 intermediate trainer, which is broken down into 112.3 hours with a flight instructor (74.9 percent) and 37.7 solo hours (25.1 percent); and 103 hours in a JJ-7 advanced trainer. (Note: Prior to the 2011 restructuring, the K-8 was identified as an advanced trainer.) The PLAAF's goal is to incorporate the L-15 trainer into this phase.
- Ground attack pilots fly 150 hours in a K-8 and 103 hours in a Q-5 trainer.
- Bomber and transport pilots fly 140 hours in a Y-7 trainer. In April 2015, the PLAAF assigned bombers to the Harbin Flight College for the first time since they were removed in 2007, which indicates that bomber aviator students will begin training in the bombers as well as in the Y-7.<sup>65</sup>
- Bomber and transport navigation crew members spend one year receiving theory education and training, after which they then train with bomber and transport pilots in a Y-7 trainer.
- Helicopter pilots receive training in a Z-9 helicopter.

Upon completion of the program, each pilot receives a bachelor's degree in military science and is called a "double bachelor's" (双学) officer.

### ***Phase 3***

During Phase 3, which is identified as the combat aircraft transition training phase, the new graduates are deployed to their operational unit, where they are assigned to a transition training flight group and receive combat aircraft transition training in an advanced trainer for six months. They are no longer called students.

During this phase, the pilots receive flight technique training, "four-weather" training (e.g., day and night in different weather conditions), instrument flight regulations (IFR) and visual flight regulations (VFR), instruction in combat basic training subjects, special situation training, and campaign and tactics flight training.

In addition, some pilots are selected for training as a WSO, where they receive five months of theory education and training, which is followed by transitioning into the unit's aircraft. Of note, the PLAAF did not begin specialized training for WSOs in two-seat multirole aircraft (JH-7) at operational units until early 2011.<sup>66</sup> Previously, and in many cases today, pilots merely switch between the front and rear seats without specialized training as a WSO. It is not clear how far this program has progressed, but

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<sup>65</sup> Zhang Tao, ed., "Active Jet Bombers Become Training Aircraft Again for Cadet Pilots," *China Military Online*, April 21, 2015, accessed at [http://eng.mod.gov.cn/DefenseNews/2015-04/21/content\\_4581110.htm](http://eng.mod.gov.cn/DefenseNews/2015-04/21/content_4581110.htm). Li Kaiqiang and Li Tianxia, "Active Jet Bombers Become Training Aircraft Again for Cadet Pilots" (喷气式轰炸机重返空军飞行院校), *Jiefangjun Bao*, 19 April 2015, accessed at [http://news.mod.gov.cn/headlines/2015-04/19/content\\_4580771.htm](http://news.mod.gov.cn/headlines/2015-04/19/content_4580771.htm).

<sup>66</sup> "Air Force First Group of Rear Seat Weapons Control Officers Successfully Complete First Flight" (空军首批后舱武器控制军官顺利完成首飞), *Kongjun Bao*, March 2, 2011, p. 1.

it appears that not all aircraft have designated WSOs who do not also fly the aircraft, and that some pilots who have not received dedicated WSO training still shift between the front and back seats.

#### ***Phase 4***

Phase 4, which is identified as the combat application training phase, occurs in the transition training flight group and consists of combat application training, which takes an additional six months. This phase includes basic tactics, tactics application, combined-arms combat, and joint combat training in the unit's operational aircraft. Upon completion of this phase, the pilots are assigned to their permanent flight squadrons, where they finally transition into their operational aircraft.

Once they complete this phase, they are then allowed to become part of the unit's combat Table of Organization (战斗序列) and begin to train for the unit's missions.

### **Comparison with the USAF Pilot Training Program**

According to General Stilwell, "Unlike the USAF, where prospective pilots arrive for Undergraduate Pilot Training (UPT) with academic degrees not specific to aviation, in the PLAAF, potential pilots are primarily selected from high school seniors and receive a four-to-seven year specialized program of pilot training/undergraduate education. Even US military academies have potential pilots major in hard or soft sciences. There are aviation-related courses at the USAF Academy, but they are not the focus of the four-year degree. USAF's one-year UPT program is a specialized course of study focused entirely on learning the basics of aviation. Also of note, each U.S. Service has only one Academy, while the PLA has over 60 cadet academic institutions of varying quality and prestige. This helps explain the difficulty of establishing an ROTC-like system in the PLA, where PLAAF academies would look more like a four-year pilot training course, not a liberal arts education. In the United States, flight training and undergraduate training are distinct."<sup>67</sup>

For comparison purposes, once selected, USAF student pilots attend Specialized Undergraduate Pilot Training (SUPT) at one of five pilot training bases: Columbus Air Force Base (AFB), Missouri; Laughlin AFB, Texas; Vance AFB, Oklahoma; Sheppard AFB, Texas; and NAS Whiting Field, Florida.<sup>68</sup> SUPT is approximately 12 months long and consists of three phases:

- Phase 1: Academics
- Phase 2: Primary Aircraft Training
- Phase 3: Advanced Aircraft Training.

Phase 1 Academics is six weeks of classroom study covering everything from aircraft systems to basic instrument flying procedures. Following Academics, student pilots move to the flight line and start Phase 2. Over the next 22 weeks, student pilots fly a total of 90 hours in a Beechcraft T-6 Texan II while learning basic flight maneuvers/aerobatics (contact), basic instrument flying, and basic two-ship formation flying.

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<sup>67</sup> Written comments from General David Stilwell on September 18, 2015

<sup>68</sup> All information in this section was accessed at "The Road to Wings: How to Become a U.S. Air Force Pilot," accessed at <http://fightersweep.com/262/how-to-become-a-us-air-force-pilot/>.

At the completion of Phase 2, student pilots select one of four different Phase 3 training tracks. Those selecting the fighter/bomber track go on to fly the Northrop T-38 Talon, the airlift/tanker track, the Raytheon T-1A Jayhawk; the multiengine turbo prop track, the Beechcraft TC-12B Huron/T-44 Pegasus; and the helicopter track, the Bell UH-1H Huey. Selection is again based on merit and the needs of the Air Force. In the simplest terms, the student pilots in a SUPT class are ranked base on academic, flight, and military performance. The number one student pilot gets his or her first choice of the available tracks, then the number two student chooses, and so on.

Phase 3 is approximately 24–28 weeks long, during which student pilots log 100-plus hours learning more advanced formation and instrument flying skills in addition to more mission-specific aircraft maneuvers. Just prior to the completion of Phase 3, students receive their operational aircraft or Major Weapons System (MWS) assignment. Once again, these assignments are based on merit and the needs of the Air Force. Upon finishing Phase 3, students are awarded the official Air Force Aeronautical Rating of “Pilot” and receive their silver pilot wings. The cost of SUPT is close to \$1,000,000 per student, and pilots incur a ten-year Active Duty Service Commitment effective the day they finish training and pin on their wings.

Brand new pilots then move on to complete additional training, such as Survival Evasion Resistance and Escape (SERE) training, water survival, and, in the case of those going on to fly fighters, Introduction to Fighter Fundamentals (IFF). With that training complete, pilots go to their MWS Replacement Training Unit (RTU) for an additional three to six months of training, where they learn to fly their assigned aircraft before moving on to their permanent duty station.

### **Different Programs for PLAAF Cadets**

The PLAAF has different education and training programs for high school graduates, college students, and college graduates. Until 2013, new high school graduate cadets were selected from candidates whose test scores qualified them for either level 1 (sciences and engineering) or level 2 (humanities) schools.<sup>69</sup> This indicates that the PLAAF was not necessarily recruiting the most highly qualified personnel to become aviator cadets. However, for the new class that began in 2013, all new cadets must meet level-1 requirements.<sup>70</sup>

There is a lack of information regarding exactly how the PLAAF managed programs for PLA college graduates and civilian college students and graduates before those programs were abolished in 2014. However, it appears that, prior to the recent organizational reforms, they received 24 to 28 months of basic aviation theory as well as basic and advanced trainer training at one of the flight colleges. Upon graduation, they received a bachelor’s degree in military science followed by one year of transition training before being assigned to their permanent unit. It does not appear that cadets who already had a bachelor’s degree were intermingled with the high school graduate and civilian college student aviation cadets during their training.

### **Cadet-to-Instructor Ratio**

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<sup>69</sup> Sun Maoqing, “Air Force Starts Recruitment Work for about 1,000 Aviator Cadets for 2007” (07 年空军招飞工作启动 招收千余名飞行学员), Xinhua, November 16, 2006, accessed at <http://gaokao.tl100.com/200611/17379.shtml>.

<sup>70</sup> *China Air Force*, April 2013, p. 6. This was one of ten highlights during the early part of 2013 that were identified at the beginning of the magazine. The section did not have a title.

Based on the author's analysis of PLAAF aviation cadet/student activity, there appears to be about one instructor for every one to three cadets/students. According to one article, flight instructors assigned to the flight colleges reportedly make up more than one-third of all PLAAF pilots.<sup>71</sup> Furthermore, the majority of the flight instructors are selected from among the best graduating cadets, and they will continue to serve as flight instructors throughout their careers. Under recent reforms, the PLAAF has begun to reassign small numbers of operational pilots to serve as instructors at the flight colleges, as well as send career flight instructors to observe operational unit training.<sup>72</sup>

## Cadet Washout Rate

Normally, the PLAAF has not published information about the washout rate for its male aviation cadets, which includes pilots and crew members; however, it has recently published a few data points that help enlighten the situation. One of the problems in analyzing the available data is determining the time frame involved. Specifically, whether the washout rate covers the entire period from when cadets begin their education and training until they are assigned to their operational aircraft, or whether it covers only particular periods within the overall time frame. The situation is further complicated by the changes in the PLAAF aviator education and training model since 2004. Some key data points are discussed below.

According to a December 29, 2014 *China Military Online* article, more than 60 percent of the approximately 1,000 new cadets per year at the AFAU are eliminated during their four year course.<sup>73</sup> From the day pilot cadets arrive, they are faced with a relentless elimination system that lasts through every phase of the university's four-year process. For example, 80 out of 402 sophomore trainees (about 20 percent) were eliminated from the program during the screening in July 2013. Even if cadets successfully graduate from the university, they can be washed out in one of the flight colleges or during the final transition year at their operational unit. Although no specifics are given, the most likely reason for their washout concerns their health, which includes eyesight and physical fitness, as well as not passing their written examinations covering aeronautical theory or being able to fly the aircraft properly.

According to a 2010 PLAAF book, the washout rate for male cadets has been more than 50 percent and is growing.<sup>74</sup> Although the book does not specify the time frame, it most likely covers the entire cadet and student education and training process from beginning to end. In addition, according to an October 2012 article in the PLAAF's newspaper, *Kongjun Bao* (*Air Force News*), an unidentified Lanzhou MRAF Flight College (e.g., the 2nd or 5th Flight College) had a total of 31 students graduate in 2002 out of 49 who started in 2000 (63 percent).<sup>75</sup> By comparison, in 2010, a total of 70 of the initial 84 students (81 percent) graduated. Since the PLAAF began training female pilots, their washout rate has

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<sup>71</sup> Wang Zhansheng, "Exploring the Reform of the Training System for Flight Academic Institutions" (改革飞行院校训练体制编制的实践探索), *Research on New Century New Period Air Force Academic Institution Transformation Building and Personnel Education and Culture* (军校学员核心价值观培训研究), 2010, p. 310–314.

<sup>72</sup> Li Yue, "A Regiment in the Air Force Flight Instructor Training Base Speeds up Cultivation of a New Type of Officer Instructors" (空军飞行教官训练基地某团加速培养新型教官队伍), *Chinanews.com*, September 25, 2013, accessed at [www.chinanews.com/mil/2013/09-25/5321140.shtml](http://www.chinanews.com/mil/2013/09-25/5321140.shtml).

<sup>73</sup> Dong Zhaohui, ed., "Feature: Pilots of New Generation in PLA Air Force," *China Military Online*, December 29, 2014, accessed at [http://english.chinamil.com.cn/news-channels/2014-12/29/content\\_6289444.htm](http://english.chinamil.com.cn/news-channels/2014-12/29/content_6289444.htm).

<sup>74</sup> Bai Chongming and Ji Changguo, eds., *Air Force Strategy Transformation and Flight Personnel Education Innovation*, p. 70.

<sup>75</sup> Li Guan and Hou Cheng, "Scientific Training Wing: Helping Young Eagles Soar" (科学练翅:助力雏鹰高飞), *Kongjun Bao*, October 31, 2012, p. 3.

averaged about 50 percent.<sup>76</sup> Based on available information, the flight colleges do everything possible to have cadets graduate. Those who do not graduate have the option to attend another PLAAF academic institution of their choice to finish their education and training in a ground-based specialty before assuming their relevant assignment.<sup>77</sup> It is not clear, however, if they have the option to leave the Air Force.

Finally, given the number of new male cadets per year (about 1,000 to 1,200) and the 50 percent washout rate before they finally enter their operational aircraft, it appears that each of the PLAAF's approximately 70 air regiments and brigades could receive about seven to eight new pilots at the same time each year to replace officers who are being promoted or retire. Of those aviators, only a handful will become commanding officers.

It is difficult to make a direct comparison between the PLAAF and USAF concerning the pilot training washout rate. Specifically, the PLAAF washout figures of about 50 percent noted above cover the 6-7 year process from the time a new cadet begins his/her education at the Air Force Aviation University until he/she is assigned to their permanent billet at an operational unit. The figures for each phase are not available. On the other hand, available figures for the USAF washout (attrition) rate, discussed below, cover only the time during Initial Flight Screening (IFS) and SUPT.

Although no official USAF website was found describing the USAF's pilot washout rate, several authoritative blogs and news articles provide a fairly good overview of the situation. Depending on the source, the USAF pilot washout rate during IFS and SUPT ranges between 5–16 percent. For example, according to one blog, "The attrition from UPT is pretty low (maybe 5 percent) on purpose. If you get a pilot slot, the Air Force has already put a lot of money into you just to make you an officer and once you start flying that cost continues to skyrocket. It does the Air Force no good to spend all that money just to wash people out. There is a program called IFS where everyone who got a pilot slot goes and does some flying with civilian instructors in a much less expensive DA-20. This program is designed to get rid of anyone who doesn't have what it takes before the real pilot training and costs begin. Even once in pilot training it isn't exactly easy to wash out. If you are not ready for a checkride, they will give you an extra ride or two until they feel you are ready. If you still fail your check then you go to an 88 flight, which is basically just a checkride again to see if you can fix what you messed up. If you still mess up then you go to an 89, which is pretty much the same thing but now at a higher level. If you still cannot figure it out, you then go to a board and the board will decide if there is some reason to let you have another shot or if they should get rid of you. It is a pretty long process and most people can correct a problem before it gets too far along."<sup>78</sup> Meanwhile, a September 2013 article from *Air Force Times* noted that the attrition rate for manned aircraft pilots was about 16 percent.<sup>79</sup>

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<sup>76</sup> Kenneth Allen and Emma Kelly, "China's Air Force Female Aviators: Sixty Years of Excellence (1952–2012)," *China Brief*, Vol. 12, No. 12, June 22, 2012.

<sup>77</sup> The same information has been posted online every year since at least 2003. See Li Hongchun and Jing Qiu, "Director of the Air Force Aviator Recruitment Work Bureau Senior Colonel Sui Guosheng Discusses Aviator Recruitment Relevant Questions" (空军招飞工作局局长隋国胜大校谈招飞有关问题), *PLA Daily in Chinese*, 2003, accessed at [www.pladaily.com.cn/item/flying/content/32.htm](http://www.pladaily.com.cn/item/flying/content/32.htm), and "Will Cadets Who Are Recruited and Receive Education and Training in 2013 Become Aviators?" (2013 年报考空军招飞经过培训就能做飞行员吗?), accessed at [www.edu-hb.com/Html/201305/26/20130526190805.htm](http://www.edu-hb.com/Html/201305/26/20130526190805.htm).

<sup>78</sup> This information was accessed on September 19, 2015 at <https://answers.yahoo.com/question/index?qid=20110430102240AAZN363>

<sup>79</sup> Jeff Schogol, "Attrition rate down for unmanned aircraft pilots," accessed on September 19, 2015 at <http://archive.airforcetimes.com/article/20130909/NEWS/309090021/Attrition-rate-down-unmanned-aircraft-pilots>.

## Pilot Professional Military Education and Graduate Degrees

All aviators are considered military-track officers and move up the promotion ladder in this career field.<sup>80</sup> It appears that only a few pilots, who are “commanding officers” (指挥官), receive any basic-level professional military education (PME) after they are assigned to their permanent unit.<sup>81</sup> The PLAAF has apparently created three successive courses for flight squadron and flight group commanding officers.<sup>82</sup> These include a flight squadron course (飞行中队长班), mid-level course (中培班), and a small campaign course (小战役班); however, it is not known how long each of these courses is, but are most likely only a few weeks at the most. The primary reason the PLAAF does not have longer courses or courses for all of its pilots is that it is concerned that any lengthy absence from their unit will adversely impact their flying capabilities.<sup>83</sup>

It appears that the next time pilots who serve as commanding officers in a regiment, brigade, or division headquarters receive any PME is when they attend their intermediate (battalion/major and regiment/colonel) and advanced (division/senior colonel) PME at the Air Force Command College in Beijing, where they only receive a certificate not a master’s degree.<sup>84</sup> Until 2009, all students in the Command College were separated by their career track and branch and even by their airframe during the entire course; however, in 2009 the college began to experiment with combining aviation branch commanding officers and political officers for the first (basic) part, splitting them for their specialty part, and combining them for the third and final (command) part.<sup>85</sup> Commanding officers from the other branches also began testing the same program; however, each branch was still separated from the other branches.

Although no specific examples were found concerning PLAAF pilot commanding officer PME, information concerning Naval Aviation commanding officers most likely mirrors the PLAAF. Specifically, the 2012 *Handbook for Officers and Enlisted of the Chinese PLA Navy* has a diagram showing the career path, including PME and billets, for Naval Aviation commanding officers.<sup>86</sup> According to the diagram, the first time Naval Aviation commanding officers receive any PME is when they become

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<sup>80</sup> The PLAAF does not have Air Force Specialty Codes (AFSCs) like the USAF. Officers are assigned to one of five career tracks: military (e.g., operational units or Headquarters Department), political, logistics, equipment, or special technical.

<sup>81</sup> By definition, a “commanding officer” is anyone who holds a leadership position in any organization. At the flight group (battalion) and flight squadron (company) levels, this includes only the commander, political officer, and their deputies. At the regiment and above level, which all have functional and administrative departments, this includes not only the commander and political officer, but their deputies and the leader and deputy leader of all administrative and functional departments, such as the deputy director of the radar division in the PLAAF Headquarters Department’s Operations Department. “Commanding Officer” in Xu Yaoyuan, ed., *Military Cadre Work* (军队干部工作), *China Military Encyclopedia, Second Edition*, (中国军事百科全书(第二版)), December 2012, Volume 39, p. 85–86.

<sup>82</sup> Fu Guoqiang, *Comparison of Chinese and Foreign Military Flight Education*, p. 64.

<sup>83</sup> *Ibid.*, p. 61.

<sup>84</sup> *Ibid.* Bai Chongming and Ji Changguo, eds., *Air Force Strategy Transformation and Flight Personnel Education Innovation*.

<sup>85</sup> “System of Cadre Training at Different Levels,” in Xu Yaoyuan, ed., *Military Cadre Work* (军队干部工作), 119, in *China Military Encyclopedia* (Second Edition), (Beijing: China Encyclopedia Press, November 2006). Hu Yun and Yang Chunyuan, “Basic Combined Training, Separated Specialized Training, and Combined Command Training: The PLAAF Command College Innovates Ways to Cultivate Command Personnel” (基础合训,专业分训,指挥合训:空军指挥学院创新新指挥人才培养模式), *Kongjun Bao*, March 7, 2009, p. 1.

<sup>86</sup> Du Jingchen, ed., *Handbook for Officers and Enlisted of the Chinese PLA Navy* (国海军军人手册), Beijing: Haichao Press, February 2012, p. 146.

regiment deputy leader-grade officers (primary rank of commander), at which time they attend a five-month course at the Naval Command College, which is equivalent to the PLAAF Command College. The next time they receive any PME is when they become a regiment leader-grade officer (primary rank of captain), at which time they attend the Naval Command College for five more months. Each time, they receive only a certificate.

With only a very few exceptions, PLAAF and Naval Aviation officers do not participate in any joint PME until they are corps level (1-star/major general/rear admiral) flag officers, at which time they attend a 10-month course at the National Defense University (NDU), where they again receive only a certificate.

During the 2000s, however, the PLAAF began providing the opportunity for certain pilots to receive a master's degree, which is a two- to three-year program. For example, in October 2009, eight test pilots at the PLAAF's Xi'an Yanliang Flight Test and Training Group were the first pilots in the unit to receive their two-year's master's degree at Northwestern Polytechnical University.<sup>87</sup> In January 2003, Jin Wenya, who was a member of the sixth female pilot class, became the first female aviator in the PLAAF to receive a master's degree, which she began in 2000.<sup>88</sup>

### **Flight Instructor Training**

Historically, some of the best graduating cadets remained at their flight college as flight instructors for the rest of their careers. At operational units, every pilot has to be qualified as a flight instructor and, until now, have received their training from other pilots. On April 28, 2012, a ceremony was held in Bengbu, Anhui Province, to celebrate the creation of the AFAU's subordinate Flight Instructor Training Base (飞行教官训练基地) from the former 13th Flight College.<sup>89</sup> In early 2014, the base assumed responsibility for training flight instructors for operational units as well as for the flight colleges, when 31 pilots from operational units completed two months of instructor training.<sup>90</sup> Whereas the base was originally equipped with the K-8 trainer, it began using an unidentified supersonic fighter in February 2015.<sup>91</sup>

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<sup>87</sup> [http://blog.sina.com.cn/s/blog\\_4dacb4240100g2is.html](http://blog.sina.com.cn/s/blog_4dacb4240100g2is.html).

<sup>88</sup> *Kongjun Bao*, January 28, 2003, p. 1.

<sup>89</sup> Information accessed at <http://baike.baidu.com/view/743305.htm>. Jin Zheng and Zhou Chao, "Air Force Aviation University Flight Instructor Training Base 4th Regiment Training," *Kongjun Bao*, June 6, 2012, p. 3.

<sup>90</sup> Cha Liangshuai and Li Kaiqiang, "Flight Instructor Training Bids Farewell to 'Inbreeding'" (飞行教官培养告别“近亲繁殖”), April 7, 2014, accessed at [www.gywb.cn/content/2014-04/07/content\\_578987.htm](http://www.gywb.cn/content/2014-04/07/content_578987.htm).

<sup>91</sup> Guo Renjie, ed., "Aviation academies use supersonic fighter in pilot training," China Military Online, February 28, 2015, accessed at [http://english.chinamil.com.cn/news-channels/2015-02/28/content\\_6372467.htm](http://english.chinamil.com.cn/news-channels/2015-02/28/content_6372467.htm). Although the file photo attached to the article showed a J-10, it is not clear if this is, in fact, the type of aircraft assigned to the base. Li Kaiqiang, "Aviation Academies Use Supersonic Fighter in Pilot Training" (超音速歼击机首次进入空军飞行院校), Air Force Net, February 27, 2015, accessed at [http://kj.81.cn/content/2015-02/27/content\\_6370438.htm](http://kj.81.cn/content/2015-02/27/content_6370438.htm). This article did not have any photos.

## Pilot Promotion Ladder

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Once cadets graduate from the AFAU, they begin to move up the promotion ladder through the 15-grade and 10-rank system. In this system, each grade has two ranks (a primary and secondary) and some ranks (e.g., major general) can be assigned to four different grades. (See Appendix A for information on the grade and rank system.) As a general rule, officers serve in the platoon leader grade for two years and are then promoted in grade every three years up to the grade of regiment leader. In terms of rank, they begin as a second lieutenant and are then promoted in rank every four years up to the rank of colonel. However, this pattern is different for PLAAF aviators as discussed below.<sup>92</sup>

High school graduate cadets who graduate from the AFAU after four years receive the grade of company deputy commander and the rank of first lieutenant. Cadets who spent their first three years at one of the PLAAF's National Defense Student Program universities and their fourth year at the AFAU graduate with the grade of company leader and the rank of first lieutenant. Both groups then spend one to two years at a flight college and graduate as either company deputy leader- or company leader-grade officers with the appropriate rank. What this means is that, based on their grade, they are already either flight squadron deputy commanders or flight squadron commanders with virtually no experience in their units' operational aircraft.

In 2006, the PLAAF provided the information in Table 2 explaining the grade promotion cycle. The situation is somewhat complicated, because some pilots become “commanding officers” (指挥官) and move up through the command path, while other pilots do not become commanding officers and, as they move up the grade ladder, can be subordinate to a junior commanding officer for the rest of their careers. In addition, the table does not take into account the PLAAF's shift to a brigade structure for certain units starting in 2012. Note that the table identifies only the grade and not their ranks, which, in the PLA, are not as important as grades. The primary reason for this is that promotions up the career ladder are based on the 15-grade system not the rank system. In addition, although the table identifies only active-duty time, the time-in-service normally identified in biographies for PLAAF officers includes their time as a cadet, not just their active-duty time following graduation.

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<sup>92</sup> *PLA Air Force Officer Handbook*, p. 222–223.

**Table 2: Commanding Officer Pilot Grade Promotion Ladder**

Grade (职务等级)	Promotion Year Limit (晋升年限)	Explanation
Company Deputy Leader to Company Leader (正连)	2 Years	1. Graduates with a bachelor's degree are promoted directly to company deputy leader 2. Battalion Deputy Leader-grade pilots must serve a total of 9 years on active duty 3. Battalion Leader-grade pilots must serve a total of 13 years on active duty 4. Regiment Deputy Leader-grade pilots must serve a total of 17 years on active duty
Company Leader to Battalion Deputy Leader (副营)	3 Years	
Battalion Deputy Leader to Battalion Leader (正营)	3 years	
Battalion Leader to Regiment Deputy Leader (副团长)	4 Years	
Regiment Deputy Leader to Regiment Leader (政团) (aka Brigade Deputy Leader)	4 Years	
Regiment Leader to Division Deputy Leader (副师) (aka Brigade Leader)	5 Years for fighter and attack pilots	Pilots must continue to meet all requirements in order to get promoted.
	8 Years for bombers, transports, basic trainers, and helicopters	

As with everything in the PLA, however, there are exceptions to every rule as shown in the following four examples, where senior colonels (division-grade officers) are commanding battalion-grade flight groups, which normally is commanded by a major or lieutenant colonel, and one flight group commander who had served in his billet for at least six years instead of the normal three to four years. Of note, some aviation units with only a few specialized aircraft or missions are designated as flight groups, but, because of their importance, are organized and treated as a regiment, which accounts for having commanders at a higher grade than that of a battalion leader. It is not clear why some officers of a higher grade are commanding lower grade flight squadrons or groups, but it may be because of their unique expertise and the inability to find an adequate replacement or there is no higher level billet for them to assume within their chain of command.

- In July 2012, Senior Colonel Chen Xiaoping (陈小平), who joined the PLAAF in 1991 and had flown 1,850 hours, was identified as the commander of the 3rd Flight Group and one of the first members of the PLAAF's "Blue Force" *fendui* at the Cangzhou Test and Training Base.<sup>93</sup> In 2013, he was selected as one of the PLAAF's nine Golden Helmet winners, and he was one of six Su-30 pilots who participated in the Russian Aviadart-2014 competition.<sup>94</sup>
- In December 2012, Nie Xiaofan (聂晓帆), who joined the PLAAF in 2001 and had flown about 1,100 hours, was identified as a battalion leader-grade officer and the commander of a Jinan MRAF company leader-grade flight squadron.<sup>95</sup>

<sup>93</sup> "Respectable Opponents" (可敬的对手), *Kongjun Bao*, July 20, 2012, p. 1.

<sup>94</sup> Si Bian (思辨), "Air Force Organizes Three Consecutive Years of Fighter Aviation Unit Aerial Opposition Force Competition and Evaluation" (空军连续3年组织歼击航空兵部队空战对抗竞赛性考核), January 2, 2014, accessed at [http://kj.81.cn/content/2014-01/02/content\\_5715896.htm](http://kj.81.cn/content/2014-01/02/content_5715896.htm). Yang Zhen (杨振), "Chinese Pilot Training High-level Techniques Receive Russian General's Praise" (中国飞行员训练水平高技术过硬获俄军大将点赞), 27 July 2014, accessed at <http://mil.news.sina.com.cn/2014-07-27/1357792382.html>.

<sup>95</sup> "Show Pride in the Windy Sky" (笑傲苍穹展豪情), *Kongjun Bao*, December 25, 2012, p. 1.

- In June 2013, Senior Colonel Dong Baiting (董柏亭), who joined the PLAAF in 1981, was identified as the commander of a Shenyang MRAF transport search and rescue flight group.<sup>96</sup>
- In January 2015, Chen Zhijie (陈志杰) had been the commander for about six years of a Nanjing MRAF flight group composed of an unidentified type of fighter.<sup>97</sup>

### Pilot Age Limits

In 1986, the PLAAF also established age limits for its pilots based on the type of airframe plus additional factors; however, as shown in Table 3, some of the ages were adjusted by 2006.<sup>98</sup> When a pilot is no longer allowed to fly, due to age, incompetency, or ill health, he/she is grounded (停飞).

**Table 3: Pilot Age Limits**

Aircraft/Aviator Type	Maximum Age (1986)	Maximum Age (2006)
Fighter and ground attack	43-45	43-48
Bomber	48-50	48-50
Transport	55	55-57
Helicopter	47-50	47-52
Female aviators	48	47-50
Basic trainer (e.g., flight instructor)	47-50	47-50
Corps-leader grade and above aviators		50

### Pilot Ratings and Qualifications

In 1986, the PLAAF began awarding one of four aeronautical ratings to all aircraft crew members, including pilots, navigators, communications personnel, gunnery personnel, and instructor pilots.<sup>99</sup> The PLAAF has not published figures on the number of pilots in each grade. The four grades are as follows:

- Special grade (特级)
- First grade (一级)
- Second grade (二级)
- Third grade (三级).



The wings have a T, 1, 2, or 3 at the bottom to represent the grade level

The criteria for acquiring these grades include time on station, flying hours, special missions, and ability to fly in what it calls the “four-weather conditions” (四种气象), which refer to day and night training in different types of weather conditions, as well as IFR and VFR.

<sup>96</sup> “Merit” (值得), *Kongjun Bao*, June 7, 2013, p. 1.

<sup>97</sup> Li Fei, “A Flight Group Commander’s Acceleration” (一个飞行大队长的加速度”, *China Air Force*, January 2015, p. 45–47.

<sup>98</sup> *China Today: Air Force* (当代中国空军), Beijing: China Social Sciences Press, 1989, p. 507. *PLA Air Force Officer Handbook*, p. 230.

<sup>99</sup> *China Today: Air Force*, p. 507. Of the 10,000 pilots in the entire PLAAF in 1989, seven percent of the total and 15 to 20 percent of the fighter pilots were special grade.

After graduating from a flight college, pilots can be awarded a third-grade rating if they have achieved the required technical level. Two to three years after being assigned to an operational unit, they can be awarded a second-grade rating by flying under day and night IFR conditions, maintaining flight safety standards, and reaching a certain proficiency level. Next, they can become first-grade pilots if they have conducted combat and training missions under day and night IFR conditions; flown a certain number of hours; reached the levels of instructor pilot, flight leader, and flight commander in the tower; and maintained flight safety standards. Finally, they can become special-grade pilots if they have already been approved as first-grade pilots; made special achievements in combat, training, and test flights; and maintained flight safety standards.

## Naval Aviation

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Section 3 provides a fairly detailed overview of Naval Aviation recruitment, education, and training for male aviators. Like the PLAAF, Naval Aviation is still adjusting its programs. As a result, the section provides some historical information about Naval Aviation and its relevant programs.

### Naval Aviation Headquarters and Fleet Aviation Headquarters History

In 1952, PLAN Headquarters established Naval Aviation as one of its five branches and created the *Haijun Hangkong Bu* (海军航空部), which is translated as Department of Naval Aviation but was treated as and served as the Naval Aviation Headquarters.<sup>100</sup> It was located at Liangxiang airfield near Beijing. At that time, it was one of six separate administrative departments within PLAN Headquarters and consisted of 318 personnel.<sup>101</sup> Because it was treated as a headquarters, it had six subordinate administrative and functional departments, including the Headquarters Department, Political Department, Cadre/Personnel Department, Logistics Department, Engineering (aircraft maintenance) Department, and Flying Techniques Inspection Section. In October 1955, the PLAN changed the Chinese name to *Haijun Hangkongbing Bu* (海军航空兵部) and assigned it the same grade as the three fleets, which, until 1988, was a *bingtuan* leader grade (正兵团职) between the corps and military region grades. Over the next five decades, its status changed three times. As a result of the Cultural Revolution, the department was abolished in November 1969 and its air divisions were subordinated to the three fleets. In May 1978, the department was reestablished and was directly responsible for commanding nine air divisions. In October 2003, it was abolished again and its components were re-subordinated under the PLAN Headquarters' Headquarters Department as the Naval Aviation Department (海司航空兵部), which is a second-level department with several subordinate third-level divisions/bureaus. As such, it no longer serves the function of being the Naval Aviation Headquarters. Those responsibilities were pushed down to each of the three fleets—North Sea Fleet (NSF), East Sea Fleet (ESF), and South Sea Fleet (SSF).

Today, each of the three fleets has its own Naval Aviation Headquarters, which is identified simply as *Hangkongbing* (航空兵) or *Jiandui Hangkongbing* (舰队航空兵), and is treated as the fleet Naval Aviation Headquarters with the grade of corps leader. Each of the three fleet Naval Aviation commanders serves as a concurrent fleet deputy commander.

### Naval Aviation Cadet Recruitment Organizations and Website

The Naval Aviation Cadet Recruitment Office (海军招收飞行学员工作办公室/海军招飞办) is a third-level functional and administrative department subordinate to the PLAN Headquarters'

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<sup>100</sup> Yuan Hongchao, "Department of Naval Aviation" in Zhang Fujiang and Zhang Hui, eds., *China Navy Encyclopedia* (中国海军百科全书), Beijing: Haichao Publishing House, December 1998, p. 431. "China's People's Liberation Army Naval Aviation" (中国人民解放军海军航空兵), accessed at [http://baike.baidu.com/link?url=q8xjTnF7wBdKS-z31jrZn8h3xcTQmT6x08r1hk5uZR\\_-d71M47lYZkYMPBhHsfpFfD2VwKTcfkDHnYIMvZLVNK](http://baike.baidu.com/link?url=q8xjTnF7wBdKS-z31jrZn8h3xcTQmT6x08r1hk5uZR_-d71M47lYZkYMPBhHsfpFfD2VwKTcfkDHnYIMvZLVNK).

<sup>101</sup> Yao Jun, editor, *A History of China's Aviation Zhongguo Hangkong Shi* (中国航空史), Zhengzhou, China, Dajia Publishers, September 1998, 183-189. The five other first level departments (*yijibu*) included the headquarters department, political department, logistics department, equipment and technical department, and equipment repair department. Each of these departments has numerous subordinate departments, bureaus, divisions, and offices.

Headquarters Departments Military Affairs Department (海司军务部).<sup>102</sup> The director of the office, who has the rank of Navy captain and the grade of division deputy leader, serves concurrently as one of the deputy directors in the Military Affairs Department. The Recruitment Office has its own website, which and is shown below; however, there is little information available prior to 2013.<sup>103</sup>



Unlike the PLAAF's Aviator Recruitment Bureau, which has subordinate offices in each of the seven MRAFs, the Naval Aviation Recruitment Office does not appear to have subordinate offices in any fleets or provinces; however, the website has links to the following seven organizations, which serve as a window for the recruitment process:

- Higher Education Admission Office of Henan Province (河南省招生办公室)<sup>104</sup>
- Hubei Education Examinations Authority (湖北省教育考试院)<sup>105</sup>
- Hebei Education Examinations Authority (河北省教育考试院)<sup>106</sup>
- Anhui Education Examinations Authority (安徽省教育招生考试院)<sup>107</sup>
- Liaoning Admission Window (辽宁招生考试之窗)<sup>108</sup>
- Shandong Provincial Academy of Education Recruitment and Examination (山东省教育招生考试院)<sup>109</sup>
- Beijing Education Examinations Authority (北京教育考试院)<sup>110</sup>

## Naval Aviation Annual Recruitment Cycle

Although its recruitment organization is now separated, Naval Aviation's cadet recruitment cycle is organized into the same three periods as the PLAAF discussed in Section 3.

## Naval Aviation Cadet Overview

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<sup>102</sup> "2014 Pilot Recruitment Successfully Launched at the Three Universities" (2014 三大招飞陆续启动), 17 October 2014, accessed at <http://gaokao.chsi.com.cn/gkxx/ss/201310/20131017/534827789.html>.

<sup>103</sup> The official website is located at [www.hjzf.mil.cn/index.aspx](http://www.hjzf.mil.cn/index.aspx).

<sup>104</sup> Information accessed at <http://www.heao.gov.cn/>.

<sup>105</sup> Information accessed at <http://www.hbea.edu.cn/>.

<sup>106</sup> Information accessed at <http://www.hebeea.edu.cn/>.

<sup>107</sup> Information accessed at <http://www.ahzsks.cn/>.

<sup>108</sup> Information accessed at <http://www.lnzsks.com/>.

<sup>109</sup> Information accessed at <http://www.sdzs.gov.cn/>.

<sup>110</sup> Information accessed at <http://www.bjeea.cn/>.

Unlike the PLAAF, Naval Aviation does not appear to have published any literature on its history that includes a good overview of its aviator recruitment, education, and training. As a result, this section includes bits and pieces from multiple sources.

First of all, it is important to note that, unlike the PLAAF and Army Aviation, Naval Aviation does not have any female aviators. Therefore, all of the following information is about male aviators.

Like the PLAAF, Naval Aviation is still searching for the best way to recruit, educate, and provide initial flight training for its male aviation cadets. Whereas the PLAAF recruits about 1,000-1,300 new cadets each year, Naval Aviation averages only about 150-170. Although no information was found about Naval Aviation washout rates, it is most likely similar to the PLAAF, which has about a 50 percent washout rate.

In 1988, Naval Aviation began to conduct its own recruiting instead of having the PLAAF recruit its cadets.<sup>111</sup> Since then, it has recruited and provided education and training for several thousand aviators.

Historically, Naval Aviation recruited its aviators from high school graduates, but began to recruit second-year students and graduating seniors from three PLAN academic institutions in late 2011.<sup>112</sup> In addition, in September 2013, Naval Aviation enrolled 10 outstanding cadets from the Naval Aviation Engineering Academy in programs at Tsinghua University, Peking University, and Beijing University of Aeronautics and Astronautics for what it calls the “double enrollment” (双学籍) program.<sup>113</sup>

Until 2006, Naval Aviation educated and trained its transport, bomber, and helicopter pilots, while the PLAAF trained Naval Aviation’s fighter and attack pilots. Beginning in 2006, however, Naval Aviation took over full responsibilities for educating and training all of its aviators.

### ***Recruitment Requirements***

Naval Aviation high school graduate cadet recruits have the same age and physical requirements as those for the PLAAF noted earlier.<sup>114</sup> In addition, each recruit must have a residency card from the city in which he is applying. They must also pass an English language test.

Naval academic institution second-year students who are being recruited as aviators cannot be older than 22.<sup>115</sup> In addition, naval academic institution seniors who are being recruited as aviators cannot be older than 24, and they cannot be married. Cadets in both groups must have studied either English or Russian.

### ***Recruitment Sources, Quotas, and Screening Locations***

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<sup>111</sup> “Naval Aviator Recruitment Selection Work Begins for 2014” (2014 年度海军招飞定选录取工作启动), June 27, 2014, accessed at <http://world.kankanews.com/military/2014-06-27/4849843.shtml>.

<sup>112</sup> “Navy Aviator Cadet Recruitment Work for 2013 Has Begun” (2013 年海军招收飞行学员工作全面启动), September 13, 2012, accessed at [www.hjzf.mil.cn/Html\\_Brochure/cb540.html](http://www.hjzf.mil.cn/Html_Brochure/cb540.html).

<sup>113</sup> “Navy’s First 10 ‘Double Enrollment’ Aviator Cadets” (海军首批十名“双学籍”飞行学员), September 25, 2013, accessed at [http://news.xinhuanet.com/mil/2013-09/25/c\\_125447371.htm](http://news.xinhuanet.com/mil/2013-09/25/c_125447371.htm).

<sup>114</sup> “2015 Naval Aviation Cadet Recruitment Brochure” (2015 年度海军招收飞行学员简章), October 1, 2014, accessed at [http://navy.81.cn/content/2014-10/01/content\\_6163733.htm](http://navy.81.cn/content/2014-10/01/content_6163733.htm).

<sup>115</sup> “Shandong College Entrance Examination: Opinion on Shandong Province’s Military Aviator Recruitment Work for 2011” (2011 年度山东省军队招收飞行学员工作意见山东高考), December 2, 2011, accessed at [www.ieduw.com/dongtai/201012/0242625.html](http://www.ieduw.com/dongtai/201012/0242625.html).

Historically, Naval Aviation has selectively recruited aviation cadets from only a few provinces and cities. Prior to 2006, Naval Aviation only recruited from four provinces—Liaoning, Hebei, Shandong, and Henan. At the end of 2005 and 2013, Naval Aviation began recruiting from Anhui and Hubei, respectively, for the next year.<sup>116</sup> In late 2013, Naval Aviation began recruiting from Beijing, which is one of four municipalities, for the 2014 cycle.<sup>117</sup> As a result, today, Naval Aviation recruits high school graduates from Beijing, six provinces, and 40 cities within the six provinces.<sup>118</sup>

In 2011, Naval Aviation also began to recruit some of its aviators for 2012 from second-year cadets and graduating seniors from three PLAN academic institutions—Naval Engineering University (海军工程大学), Naval Aviation Engineering Academy (海军航空工程学院), and Dalian Naval Ship Academy (大连舰艇学院).<sup>119</sup>

Beijing and each province has its own annual quota. For example, Shandong Province's quota for 2011 was 45, and Beijing's quota for 2014 was five recruits, which was increased to seven for 2015.<sup>120</sup> While each province has an overall quota, there are no individual quotas for each city within the province. For example, Henan Province's quota for 2013 was 43, but there were no individual quotas for the cities.<sup>121</sup>

For the initial phase, the Naval Aviation Recruitment Office, along with the PLAN's General Hospital, has established multiple screening stations (监测站) in each province.<sup>122</sup> During the final phase in

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<sup>116</sup> "PLA Navy Begins Online Aviator Recruitment to Create an Aircraft Carrier Aviation Corps" (中国海军开始网上招飞 组建航母舰载机兵团), January 12, 2013, accessed at [www.jtj.org/a/shishijujiao/2013/0112/881\\_2.html](http://www.jtj.org/a/shishijujiao/2013/0112/881_2.html).

<sup>117</sup> "In 2014 the Navy Begins Aviator Recruitment in Beijing for the First Time" (海军 2014 年首次在北京招飞), 26 September 2013, accessed at [www.unjs.com/gaokao/news/20130926000000\\_994915.html](http://www.unjs.com/gaokao/news/20130926000000_994915.html). The three other municipalities are Tianjin, Shanghai, and Chongqing.

<sup>118</sup> "This Year's Aviation Cadet Recruitment Screening Ended with the PLA Navy Selecting about 800 Personnel for the Next Round" (今年海军招飞全面检测工作结束选拔 880 余人), April 4, 2014, accessed at <http://mil.sohu.com/20140404/n397782909.shtml>. For example, Anhui Province recruits from eight cities, which includes Suzhou (宿州), Bengbu (蚌埠), Chaochu (巢湖), Hefei (合肥), Anqing (安庆), Liuan (六安), Bozhou (亳州), and Fuyang (阜阳), which was accessed at [www.edu-010.com/25/2010-06-03/92786.html](http://www.edu-010.com/25/2010-06-03/92786.html). The seven cities in Henan include Xuchang (许昌), Zhoukou (周口), Shangqiu (商丘), Jiaozuo (焦作), Pingdingshan (平顶山), Xiangcheng (项城), and Yongcheng (永城), which was accessed at <http://www.3773.com.cn/gaokao/hjzf/675917.shtml>.

<sup>119</sup> "Navy Aviator Cadet Recruitment Work for 2013 Has Begun" (2013 年海军招收飞行学员工作全面启动), 13 September 2012, accessed at [www.hjzf.mil.cn/Html\\_Brochure/cb540.html](http://www.hjzf.mil.cn/Html_Brochure/cb540.html).

<sup>120</sup> "Shandong College Entrance Examination: Opinion on Shandong Province's Military Aviator Recruitment Work for 2011" (2011 年度山东省军队招收飞行学员工作意见山东高考), December 2, 2011, accessed at [www.ieduw.com/dongtai/201012/0242625.html](http://www.ieduw.com/dongtai/201012/0242625.html). "In 2014 the Navy Begins Aviator Recruitment in Beijing for the First Time" (海军 2014 年首次在北京招飞), September 26, 2013, accessed at [www.unjs.com/gaokao/news/20130926000000\\_994915.html](http://www.unjs.com/gaokao/news/20130926000000_994915.html). The three other municipalities are Tianjin, Shanghai, and Chongqing. "Navy Recruits Seven Aviator Cadets from Beijing in 2015" (海军 2015 年拟在北京招收飞行学员 7 名), September 18, 2014, accessed at [http://gaokao.eol.cn/zui\\_xin\\_dong\\_tai\\_2933/20140918/t20140918\\_1177223.shtml](http://gaokao.eol.cn/zui_xin_dong_tai_2933/20140918/t20140918_1177223.shtml).

<sup>121</sup> "Candidates Begin Signing Up for the Navy's 2013 Aviator Recruitment Program" (2013 年海军招飞已开始报名), October 27, 2012, accessed at [www.zhld.com/zkrb/html/2012-10/27/content\\_231652.htm](http://www.zhld.com/zkrb/html/2012-10/27/content_231652.htm).

<sup>122</sup> "The Navy Completed the Initial Selection and Pre-Screening for the 2014 Aviator Selection Program" (2014 年度海军招飞初检预选工作日前圆满结束), November 28, 2013, accessed at [http://navy.81.cn/content/2013-11/28/content\\_5668069.htm](http://navy.81.cn/content/2013-11/28/content_5668069.htm).

April, the remaining recruits receive a final evaluation in one of only four screening stations (检测站)—Weifang (Shandong), Bengbu (Anhui), Zhengzhou (Henan), and Beijing.<sup>123</sup>

### **Naval Aviation Education and Training Institutions**

Naval Aviation has three types of education and training institutions for its new aviators, including the Navy Aviation Engineering Academy (海军航空兵工程学院) in Yantai, Shandong Province, the Naval Aviation Academy (海军航空兵学院) in Huludao, Liaoning Province, and several flight training bases (飞行训练基地). Each of these is discussed separately below.

#### ***Navy Aviation Engineering Academy***

The Navy Aviation Engineering Academy began in 1950 in Qingdao, Shandong Province, as the Navy Coastal Artillery School.<sup>124</sup> From then until it assumed its current name in 1986, it moved to Yantai and changed its name and missions several times. In 1999, it incorporated the Naval Aviation Technical Academy (海军航空技术学院), which became a branch campus in Qingdao. Today, it is a corps deputy leader-grade organization that is directly subordinate to PLAN Headquarters.

Today, the academy is primarily responsible for Naval Aviation cadet and post-graduate education and training for naval aviation equipment and weapon systems commanding officers and technical officers involved with all aspects of aircraft maintenance, tactical missiles, and land-based radar and communications systems. It offers both three-year senior technical (associates) degrees and four-year bachelor's degrees.

As noted below, it is also responsible for the basic education for high school graduates who become aviator cadets.

#### ***Naval Aviation Academy (Formerly the Navy Flight Academy)***

The Naval Aviation Academy began in November 1951 Qingdao as the Navy First Aviation School (海军第一航空学校).<sup>125</sup> In 1952, it merged with the Navy Second Aviation School (海军第二航空学校) and changed its name to the Naval Aviation School (海军航空学校). During the 1960s through the 1990s, it changed names and moved several more times, including being identified in 1986 as the Navy Flight Academy (海军飞行学院). In mid-2011, the name was changed to the Naval Aviation

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<sup>123</sup> “This Year’s Naval Aviation Aviator Recruitment Comprehensive Testing Work is Completed and 880 People Were Selected” (今年海军招飞全面检测工作结束 选拔 880 余人), April 4, 2014, accessed at <http://mil.sohu.com/20140404/n397782909.shtml>.

<sup>124</sup> Zhao Yiping, ed., *People’s Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 740–741. “Naval Aviation Engineering Academy,” accessed at <http://baike.baidu.com/link?url=9HMTeUOCsjFvFJxrx-fVGno-KN39-YgkmaZdsq6gstjWto-sVWcktGKPyj-EwTw1>.

<sup>125</sup> Zhao Yiping, ed., *People’s Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 745–746. “Naval Aviation Engineering Academy,” accessed at <http://baike.baidu.com/link?url=9HMTeUOCsjFvFJxrx-fVGno-KN39-YgkmaZdsq6gstjWto-sVWcktGKPyj-EwTw1>.

Academy (海军航空兵学院).<sup>126</sup> Like the PLAAF's new flight colleges that were created at the same time, it was also upgraded from division leader grade to corps deputy leader grade and is directly subordinate to PLAN Headquarters.<sup>127</sup> The academy is responsible for training aviation and command specialties, including fighter, bomber, helicopter, transport, and fighter-bomber pilots and airborne navigators.<sup>128</sup> It has the following subordinate organizations, which are located in two provinces and three cities:<sup>129</sup>

- First training regiment (第一训练团/第一团) in Huludao equipped with the CJ-6 and Y-5
- Second training regiment (第二训练团/第二训练团) in Changzhi, Shanxi Province, equipped with the HYJ-7 bomber-transport trainer and the Z-9C helicopter
- Third training regiment (第三训练团/第三训练团) in Xingcheng, Liaoning Province, equipped with the HJ-5 bomber trainer
- Fourth training regiment (第四训练团/第四训练团) in Changzhi equipped with the K-8 trainer

### ***Flight Transition Training Units***

In addition to the academy's four pilot training regiments above, Naval Aviation also has at least one transition training base (海军飞行训练基地/飞行改装训练基地) with the following three subordinate regiments located in two provinces; however, it is not clear how they fit into the initial pilot training program.<sup>130</sup>

- First regiment (第 1 团) in Shanhaiguan, Hebei Province, equipped with the JL-9
- Second regiment (第 2 团) in Suizhong, Liaoning Province, equipped with J-7G
- Third regiment (第 3 团) in Shanhaiguan equipped with the JH-7A

## **Naval Aviation Education and Training Programs**

Like the PLAAF, Naval Aviation has been adjusting its aviator education and training program. However, whereas the PLAAF has expanded its program from five years to seven years, Naval Aviation has reduced its program from six years down to five.

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<sup>126</sup> "The Strategic Direction Following China's Military Academic Institution Reforms" (中国军校改革背后的战略指向), January 9, 2012, accessed at [http://chn.chinamil.com.cn/ll/2012-01/09/content\\_4763254.htm](http://chn.chinamil.com.cn/ll/2012-01/09/content_4763254.htm).

<sup>127</sup> "Naval Aviation Academy," accessed at

[http://baike.baidu.com/link?url=ocJq7eeAyiOemzQNCx2G0HtkCWGzJ9OWQNh6ht\\_kWZ86FQQyZxh863laWcKde7mt307dxT3zXW5xt8eZ5cBDV](http://baike.baidu.com/link?url=ocJq7eeAyiOemzQNCx2G0HtkCWGzJ9OWQNh6ht_kWZ86FQQyZxh863laWcKde7mt307dxT3zXW5xt8eZ5cBDV). Note that this Chinese profile uses the English translation Naval Fly Academy.

<sup>128</sup> Zhao Yiping, ed., *People's Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 745-746. "China Naval Aviation Units" (中国海军航空兵部队), January 22, 2011, accessed at

<http://home.51.com/zw23825625/diary/item/10049663.html>.

<sup>129</sup> Zhao Yiping, ed., *People's Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 745-746. "Naval Aviation Engineering Academy," accessed at <http://baike.baidu.com/link?url=9HMTeUOCsjFvFJjrx-fVGno-KN39-YgkmaZdsq6gstJWto-sVWcktGKPyJ-EwTw1>. "China Naval Aviation Units" (中国海军航空兵部队), January 22, 2011, accessed at <http://home.51.com/zw23825625/diary/item/10049663.html>.

<sup>130</sup> "China Naval Aviation Units" (中国海军航空兵部队), January 22, 2011, accessed at <http://home.51.com/zw23825625/diary/item/10049663.html>.

### ***Shared Responsibility between the PLAAF and Naval Aviation***

Prior to 2006, the PLAAF and Naval Aviation shared responsibility for educating and training Naval Aviation aviators before they were assigned to their permanent units. While the PLAAF integrated education and training for Naval Aviation and PLAAF fighter and attack pilot cadets, Naval Aviation was responsible for educating and training all of its own bomber, transport, and helicopter aviators.<sup>131</sup>

Although there is conflicting information, according to the 1998 *China Navy Encyclopedia*, Naval Aviation aviator training was organized into three phases.<sup>132</sup> Phase 1 consisted of four years at academic institutions (e.g., a PLAAF flight college or the Naval Aviation Engineering Academy and Navy Flight Academy), where cadets flew about 250 hours. Phase 2 consisted of one year at a flight training base, where the students flew about 100 hours. Phase 3 began when they were deployed to their operational unit and flew about 100 hours per year.

Naval Aviation fighter and attack cadets received their first two years of education and training at the PLAAF's 7th Flight College in Changchun. At the beginning of their third year, they were transferred to one of the PLAAF's other flight colleges, including the 3rd Flight College and the 6<sup>th</sup> Flight College, for two years. Upon graduation, they were deployed to their operational unit, where they transitioned into their operational aircraft. Naval Aviation bomber, transport, and helicopter aviator cadets began their education and training at the Naval Aviation Engineering Academy before transitioning to the Navy Flight Academy and then to their operational unit.

### ***First “Double-bachelor’s Degree” Naval Aviation Pilots***

In 2001, Naval Aviation began recruiting its first group of four “double-bachelor’s” pilots.<sup>133</sup> They received their original four-year engineering bachelor’s or military science degree in 2001 from one of three PLAN academic institutions—the Guangzhou Naval Vessel Academy, Submarine Academy, or Aviation Engineering Academy. Upon graduation, they were brought together and completed two additional years of training at a PLAAF flight college, where they received an aviation Bachelor’s of Military Science degree. In early June 2003, they were transferred to a Naval Aviation training base, where they received fighter transition training for one year before being assigned to their permanent unit in August 2004.

### ***“4+2” Double Bachelor’s Degree Program***

In April 2006, the Navy Flight Academy started classes for more than 50 “4+2” double bachelor’s degree aviator cadets (双学士飞行学员), which was the first time for this program.<sup>134</sup> This was the

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<sup>131</sup> Information was found in the early 2000s at [www.cycnet.com/army/source/college/000830044.htm](http://www.cycnet.com/army/source/college/000830044.htm), which is no longer accessible.

<sup>132</sup> Yuan Hongchao, “Department of Naval Aviation” in Zhang Fujiang and Zhang Hui, eds., *China Navy Encyclopedia* (中国海军百科全书), Beijing: Haichao Publishing House, December 1998, p. 431. “China’s People’s Liberation Army Naval Aviation” (中国人民解放军海军航空兵), accessed at <http://baike.baidu.com/link?url=q8xjTnF7wBdKS-z31jrZn8h3xcTQmT6x08r1hk5uZR-d71M47YzkYMPBhHsfpFfD2VwKTcfkDHnYIMvZLVNK>.

<sup>133</sup> *Renmin Haijun*, July 8, 2003, p. 1. *Renmin Haijun*, 8 November 2003, Special Edition. *Renmin Haijun*, 29 July 2003, p. 1. *Renmin Haijun*, September 28, 2003, p. 1. *Renmin Haijun*, October 23, 2004, p. 1.

<sup>134</sup> *Renmin Haijun*, April 26, 2006, p. 1.

first time Naval Aviation took full responsibility for educating and training all of its own aviators instead of allowing the PLAAF to provide education and training for its fighter and attack pilots.

Under this program, all Naval Aviation aviators who were beginning their flight training at the flight academy had already completed a four-year bachelor's degree at the Naval Aviation Engineering Academy (2002–2006) in navigation engineering and flight equipment engineering. Upon graduation, they transferred to the Navy Flight Academy, where they spent two years receiving their aviation theory and basic flight training and finish with a second bachelor's degree. For the first five months, they studied flight and air command theory and knowledge.<sup>135</sup> At the end of August 2006, they relocated to a newly formed flight training group at the academy, where they received basic military education and training and deployment airfield flight training. With that training, the training group set two records: organizing training within six months of establishment and taking to the skies two weeks after receiving aircraft.

During the next phase, they transitioned to their operational unit's fighter, bomber, transport, and helicopter aircraft.

### ***“3+2” Double Bachelor's Program***

Beginning with the new cadet class of 2013, Naval Aviation began shifting from a “4+2” program to a “3+2” program.<sup>136</sup> Three months after they begin their education, their time-in-service begins, which is then included in their post-graduation active-duty time.

In this new model, high school graduate cadets spend their first three years at the Naval Aviation Engineering Academy, where they receive their basic education, aviation specialty foundation, and military-political foundation. This education includes mathematics, physics, mechanical drawing, theoretical mechanics, materials, electronics, engineering, automatic control theory, engineering thermodynamics, C language, computer theory and English, as well as physical education.

During their fourth and fifth years, they transfer to the Naval Aviation Academy, where they receive flight training and aviation theory education in a basic trainer and advanced trainer. During this training, they also take courses on flight mechanics, aerodynamics, aircraft structure, aircraft engines, special equipment, air navigation, aeronautical meteorology, electronic technology, automatic control theory, principles of Marxism, Mao Zedong Thought, Deng Xiaoping Theory, Army grassroots cultural work, Introduction to Law, economics, politics, international relations, and military psychology.

Certain outstanding cadets are selected early as part of the “double enrollment” program to attend Tsinghua, Peking University, and BUAA, where they receive the first three years of their undergraduate education. At the beginning of their fourth year, they are transferred to the Naval Aviation Academy for two years of flight training. It is not clear if they are mixed with or separated from the high school graduates during these two years.

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<sup>135</sup> *Renmin Haijun*, September 27, 2006, p. 1.

<sup>136</sup> “2014 Naval Aviator Recruitment Brochure (High School Students)” (2014 年度海军招收飞行学员简章(高中生), September 13, 2013, accessed at [www.hjzf.mil.cn/Html\\_Introduce/hid3460.html](http://www.hjzf.mil.cn/Html_Introduce/hid3460.html)).

At the end of their first year at the Naval Aviation Academy, they receive a bachelor's degree in engineering and the grade of company deputy leader. After completing their advanced trainer training in the fifth year, they receive a second bachelor's degree in military studies and are deployed to their operational unit. Outstanding graduates can also be promoted to the grade of company leader.

### ***Recruitment Numbers Starting in 2012***

Only a little information was found about recruitment numbers prior to 2012. For example, in 2009, 25 cadets were selected from eight cities in Anhui Province.<sup>137</sup> As a result, the following bullets provide information starting in 2012:

- 2012: Altogether, 150 cadets were selected out of 8,451 who passed their first screening.<sup>138</sup> Of the 150 cadets, 32 were selected from Anhui Province to attend the Naval Aviation Academy.<sup>139</sup>
- 2013: Altogether, 169 personnel were selected as cadets for the class starting in 2013. About 100,000 high school students initially applied for the program.<sup>140</sup> Out of these, the initial quota was for 11,250 people to be selected for their initial screening.<sup>141</sup> Out of this number, a total of 2,098 high school graduates and 78 students/graduates from three naval academic institutions passed the first screening.<sup>142</sup> Of these, 800 passed the second screening at the end of April.
- 2014: Although no figures are available, the number of cadets was most likely around 160-175. The initial quota was for 8,000 people to be selected for their initial screening, which equated to 32.6 percent of those who applied.<sup>143</sup> The naval cadets enrolled this year are likely to be selected as pilots of carrier-borne aircraft.<sup>144</sup>
- 2015: Although no numbers are available, one article noted that the total number for 2015 will be five percent greater than for 2014 and will focus on more high school graduates.<sup>145</sup>

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<sup>137</sup> "Navy Flight Academy Selects Hefei University of Technology's Nearby Hujingbin Middle School" (合肥工大附中胡静滨被海军飞行学院录取), June 22, 2009, accessed at <http://www.ahedu.gov.cn/29/view/85138>.

<sup>138</sup> "PLA Navy Begins Online Aviator Recruitment to Create an Aircraft Carrier Aviation Corps" (中国海军开始网上招飞 组建航母舰载机兵团), January 12, 2013, accessed at [www.jtj.org/a/shishijujiao/2013/0112/881\\_2.html](http://www.jtj.org/a/shishijujiao/2013/0112/881_2.html).

<sup>139</sup> "Navy Flight Academy Plans to Recruit 32 Aviation Cadets out of 94 People Who Passed the Initial Screening" (海军飞行学院计划在皖招 32 名飞行学员 合肥 94 人初检合格), November 8, 2011, accessed at <http://365jia.cn/news/2011-11-08/6925735879D9A610.html>.

<sup>140</sup> "2014 Pilot Recruitment Successfully Launched at the Three Universities" (2014 三大招飞陆续启动), October 17, 2014, accessed at <http://gaokao.chsi.com.cn/gkxx/ss/201310/20131017/534827789.html>.

<sup>141</sup> "PLA Navy Begins Online Aviator Recruitment to Create an Aircraft Carrier Aviation Corps" (中国海军开始网上招飞 组建航母舰载机兵团), January 12, 2013, accessed at [www.jtj.org/a/shishijujiao/2013/0112/881\\_2.html](http://www.jtj.org/a/shishijujiao/2013/0112/881_2.html).

<sup>142</sup> "The 2013 Naval Aviator Recruitment Progresses: 800 Students Passed Their Screening" (2013 海军招飞新进展: 800 学子通过检测), April 26, 2013, accessed at [http://navy.81.cn/content/2013-04/26/content\\_5317542.htm](http://navy.81.cn/content/2013-04/26/content_5317542.htm).

<sup>143</sup> "The Navy Completed the Initial Selection and Pre-Screening for the 2014 Aviator Selection Program" (2014 年度海军招飞初检预选工作日前圆满结束), November 28, 2013, accessed at [http://navy.81.cn/content/2013-11/28/content\\_5668069.htm](http://navy.81.cn/content/2013-11/28/content_5668069.htm).

<sup>144</sup> Zhang Tao, ed., "PLA Navy concludes 2014 pilot-cadet selection," China Military Online, July 16, 2014, accessed at [http://eng.mod.gov.cn/DefenseNews/2014-07/16/content\\_4522543.htm](http://eng.mod.gov.cn/DefenseNews/2014-07/16/content_4522543.htm).

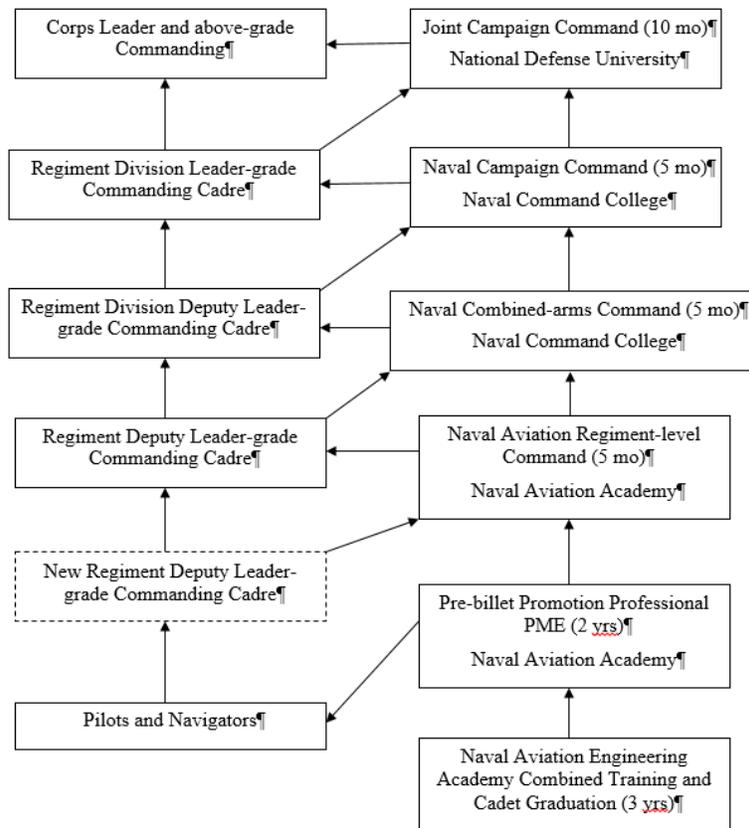
<sup>145</sup> "The Number of Navy Aviator Recruits for this Year Will Increase and Will Focus on Creating Seeds for the Aircraft Carrier(s)" (海军今年招飞人数增加 注重选舰载机飞行员苗子), October 20, 2014, accessed at [http://mil.gmw.cn/2014-10/20/content\\_13586658.htm](http://mil.gmw.cn/2014-10/20/content_13586658.htm).

## Naval Aviation Commanding Officer PME and Graduate Degrees

The 2012 *Handbook for Officers and Enlisted of the Chinese PLA Navy* has individual diagrams showing the career path, including PME and billets, for “commanding officers” in nine branches and specialties, including Naval Aviation.<sup>146</sup> It appears that “commanding officers” for each career track are selected while they are still a cadet. Upon graduation, they begin assuming leadership position billets as they move up the career ladder.

It is clear from the information in Chart 1 and the career paths for the other branches and specialties that the PLAN has placed a greater emphasis on its officers receiving continuing PME as they move up the career ladder based on their grades (not ranks). However, it is unclear to what extent this system has been implemented, and the information in the handbook still seems to be aspirational. It will most likely take another ten years to fully implement the system. It is unclear whether or not officers must first complete a correspondence course and what proportion of officers has the opportunity to attend PME in residence. Of note, officers attending the intermediate and advanced PME courses receive only a certificate not a master’s degree. With only a very few exceptions, PLAN officers do not participate in any joint PME until they are corps level (1-star/rear admiral) flag officers, at which time they attend a course at the National Defense University (NDU).

**Chart 1: Naval Aviation Branch Officer Career Track**



<sup>146</sup> Wang Bin, ed., *Chinese Naval Personnel Handbook* (国海军军人手册), Beijing: Haichao Press, 2012, p. 146.

## Army Aviation

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Section 4 provides a brief overview of Army Aviation recruitment, education, and training for male aviators. It also identifies Army Aviation's female aviator program, which began in 2013. Like the PLAAF and Naval Aviation, Army Aviation is still adjusting its programs. As a result, the section provides some historical information about Army Aviation and its relevant programs.

### Brief History

In October 1986, the CMC created the Army Aviation Bureau (陆军航空兵局) as a second-level department under the General Staff Department along with a separate Army Aviation (陆军航空兵) branch.<sup>147</sup> At that time, most of the PLAAF's helicopters were turned over to Army Aviation. In 1993, the Army Aviation Bureau was incorporated under the General Staff Department's (GSD) Service Arms Department (兵种部) as a third-level department; however, in 1995, it was separated and became a second-level Army Aviation Department (海军航空兵部) under the GSD.

In June 1999, Army Aviation created the Army Aviation College (陆军航空兵学院), which is a corps deputy leader-grade organization directly subordinate to GSD and is located in Beijing's Tongzhou District.<sup>148</sup> The college has three subordinate flight training bases, which are located in Beijing, Sichuan Province, and Shanxi Province. Each base, in turn, has one subordinate training regiment. In addition to educating and training helicopter aviators, the college also has specialties in maintenance for every component of the airframes, including engines, radars, communications equipment, etc.

Besides Army Aviation helicopter aviators, the college also trains People's Armed Police (PAP) and at least some PLAAF helicopter aviators.<sup>149</sup> In 2009, the PLAAF began training its first male helicopter aviators at the Second Flight College, which is now part of the Air Force Xi'an Flight College and has a helicopter training brigade.<sup>150</sup>

As noted in Section 2, the PLAAF began training its first female helicopter aviators at the Second Flight College in 2010 and assigned them to their operational unit in the 4<sup>th</sup> Air Division (Chengdu

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<sup>147</sup> "Army Aviation" (陆军航空兵) in Hu Guangzheng, ed., *Military Organization* (军制) volume in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 201–203. "Army Aviation" (陆军航空兵) accessed at [http://baike.baidu.com/link?url=gzlocRXmSB4HJWaPK0323qMYqK14dbwHRBn22IUSowrzPP8L109aOF\\_p9-KTPY9m4sKSHBYjJwqRlyMqDQFmhq](http://baike.baidu.com/link?url=gzlocRXmSB4HJWaPK0323qMYqK14dbwHRBn22IUSowrzPP8L109aOF_p9-KTPY9m4sKSHBYjJwqRlyMqDQFmhq).

<sup>148</sup> "Army Aviation College of the CPLA" (中国人民解放军陆军航空兵学院) in Zhao Yiping, ed., *People's Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007, p. 701.

<sup>149</sup> "2013 PLA Army Aviation College Entrance Exam Cadet Recruitment Brochure" (2013年解放军陆军航空兵学院高考招生简章), accessed at [http://joey1937.lofter.com/post/1954b9\\_4e9d07](http://joey1937.lofter.com/post/1954b9_4e9d07).

<sup>150</sup> "China's Air force Flight College Training Regiment Is Equipped with a New Type of Helicopter" (我国空军飞行学院训练团配备新型直升机), March 16, 2010, accessed at <http://mil.eastday.com/m/20100316/u1a5088834.html>. "China Air Force Helicopter Brigade Training Photos" (中国空军直升机旅训练照曝光), November 25, 2013, accessed at [http://mil.huanqiu.com/photo\\_china/2013-11/2718483.html](http://mil.huanqiu.com/photo_china/2013-11/2718483.html).

MRAF) in November 2011, where they transitioned into the MI-17 helicopter.<sup>151</sup> In mid-2013, they were transferred to the Army Aviation helicopter brigade in the Chengdu Military Region's 13<sup>th</sup> Group Army, where they became the first Army Aviation helicopter aviators.<sup>152</sup>

## Recruitment Organizations and Methods

It appears that Army Aviation does not have its own recruitment organization; however, all announcements concerning recruitment numbers are linked to the Army Aviation College.<sup>153</sup> Apparently, the PLAAF Recruitment Bureau is also responsible for recruiting Army Aviation aviator cadets. It recruits its cadets from two separate groups.<sup>154</sup> The first group includes high school graduates, and, since 2002, the second group includes cadets in military academic institutions who have already received a three-year senior technical (associates) degree.

Concerning the high school graduate cadets, the PLAAF recruits them as part of its overall recruitment program. Although the PLAAF clearly has specific recruitment quotas from Army Aviation, it is not clear what the total number is or exactly what municipalities and provinces they are selected from. For example, in 2009 Army Aviation had a quota of nine for Shaanxi Province, and in 2013, it had a quota of seven for Sichuan Province.<sup>155</sup> In 2012, the college recruited high school graduates from one municipality (Beijing), seven provinces (Hebei, Shanxi, Liaoning, Anhui, Fujian, and Shandong), and one AR (Xinjiang); however, the article did not specify the breakout for aviators and maintenance personnel or the numbers for each group.<sup>156</sup>

In addition, although no information was found concerning the cadet washout rate, it is most likely the same as for the PLAAF, which is around 50 percent.

## Cadet Education and Training

Cadet education and training appears to be separated for cadets who are high school graduates and cadets who have graduated from another military academic institution with a three-year senior technical (associates) degree (应届大专毕业生).

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<sup>151</sup> Photo caption, *Kongjun Bao*, March 21, 2011, p. 1. "Chengdu Air Force First Helicopter Female Aviators Successfully Complete Transition Training" (成都空军首批直升机女飞行员顺利完成改装训练), 5 November 2012, accessed at <http://www.chinanews.com/tp/hd2011/2012/11-05/145243.shtml>.

<sup>152</sup> China's Army Aviation's First Armed Helicopter Female Aviators Make an Appearance" (中国陆航首批武装直升机女飞行员亮相), October 30, 2014, accessed at [http://usa.fjsen.com/2014-10/30/content\\_15129991\\_all.htm](http://usa.fjsen.com/2014-10/30/content_15129991_all.htm). "What Questions Are There Concerning China's General Aviation Helicopter Rescue?" (中国通航直升机救援问题有哪些?), August 9, 2014, accessed at [www.lyunx.com/yunshi/question/3276](http://www.lyunx.com/yunshi/question/3276).

<sup>153</sup> "Army Aviation College 2013 Sichuan Cadet Recruitment Plan" (陆军航空兵学院 2013 四川招生计划), June 5, 2013, accessed at [www.3773.com.cn/gaokao/SICHUAN/845805.shtml](http://www.3773.com.cn/gaokao/SICHUAN/845805.shtml). "2009 Military Academic Institution Cadet Recruitment Plan for Shaanxi Province" (2009 年军队院校在陕招生计划), accessed at [www.doc88.com/p-8991600463479.html](http://www.doc88.com/p-8991600463479.html).

<sup>154</sup> "Military Aviators" (军事飞行人员), accessed at <http://baike.baidu.com/view/4473750.htm?fromTaglist>.

<sup>155</sup> "Army Aviation College 2013 Sichuan Cadet Recruitment Plan" (陆军航空兵学院 2013 四川招生计划), June 5, 2013, accessed at [www.3773.com.cn/gaokao/SICHUAN/845805.shtml](http://www.3773.com.cn/gaokao/SICHUAN/845805.shtml). "2009 Military Academic Institution Cadet Recruitment Plan for Shaanxi Province" (2009 年军队院校在陕招生计划), accessed at [www.doc88.com/p-8991600463479.html](http://www.doc88.com/p-8991600463479.html).

<sup>156</sup> "People's Liberation Army Aviation College 2012 Admission Score Requirements" (中国人民解放军陆军航空兵学院 2012 年录取分数线), accessed at [www.gxeduw.com/gaokao/201380894.html](http://www.gxeduw.com/gaokao/201380894.html).

### ***High School Graduate Cadets***

All new Army Aviation high school graduate cadets receive their initial two years of education and training at the Air Force Aviation University.<sup>157</sup> They then spend their third year at the Army Aviation College, where they receive their theory education and simulator training. Next, they spend their fourth year in a training regiment in one of the subordinate flight training bases, where they receive their flight techniques training in a training helicopter. Upon completion of their fourth year, they graduate with a Bachelor's Degree in Military Science, receive the grade of company deputy leader and the rank of first lieutenant, and are then assigned to their permanent unit, where they transition into their operational helicopter. Outstanding graduates can receive the grade of company leader.

### ***Cadets from Other Military Academic Institutions***

In 2002, Army Aviation began to directly recruit cadets who were graduating with a three-year senior technical (associates) degree from certain military science and technology academic institutions.<sup>158</sup> Cadets who had previously served as enlisted personnel cannot be older than 24, and other cadets cannot be older than 23. They cannot be married.

Upon graduation, they enter the Army Aviation College with the grade of platoon leader (正排职) or company deputy leader. After completing two year's of education and training, they receive a Bachelor's Degree in Military Science and receive a promotion in grade to company deputy leader or company leader, respectively, along with the rank of first lieutenant.

Concerning their career ladder, these graduates can eventually move up to become a division deputy leader-grade officer. Once they are assigned to their operational unit and get married, their family can immediately live with them. [Note: Non-aviator officers must wait until they have served 12 years before their family can live with them on base.]

After arriving at the Army Aviation College, these cadets receive two year of education and training, which is divided into two phases. The first phase consists of eight month's of aviation theory education, parachuting, survival training, simulator training, and the study of basic flight techniques. The second phase consists of 16 months of actual flight technique training. Upon completion, they are assigned to their operational unit, where they transition into the unit's helicopter.

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<sup>157</sup> "2013 PLA Army Aviation College Entrance Exam Cadet Recruitment Brochure" (2013 年解放军陆军航空兵学院高考招生简章), accessed at [http://joey1937.lofter.com/post/1954b9\\_4e9d07](http://joey1937.lofter.com/post/1954b9_4e9d07). "How to Be Recruited as a PLA Army Aviation College Aviation Cadet" (中国人民解放军陆军航空兵学院如何招收飞行员), accessed at <http://topic.yingjiesheng.com/zhishi/103114100312013.html>. "Army Aviation College" (陆军航空兵学院), accessed at <http://baike.zidiantong.com/l/liujunhangkongbingxu95222.htm>.

<sup>158</sup> "Army Aviation College Recruitment from Military Academic Institutions: Graduate Student Aviator Questions" (陆军航空兵招收军队院校:毕业生飞行学员问答), accessed at [www.chinamil.com.cn/item/flying/huabei/gx/8.ht](http://www.chinamil.com.cn/item/flying/huabei/gx/8.ht).

## Conclusions

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Although the PLAAF has clearly upgraded its aircraft as a means to achieve its strategy of “integrated air and space, conduct simultaneous offensive and defensive operations” that was implemented in 2004, it is still searching for the best way to recruit, educate, and train its aviators before they are assigned to operational units. Since 2011, it has completely revised its aviator cadet program at the AFAU and the flight college student structure, such that fighter pilots now spend a total of seven years before they enter their operational aircraft instead of the previous five years. The goal, however, is to actually reduce the total time it takes for a new cadet to become a seasoned pilot from the previous ten years to seven years.

Although the PLAAF will continue to draw the majority of its new aviator cadets from high school graduates, one of the key components of recent restructuring has been to initiate a three-year program for providing basic technical education in three Beijing-based universities with PLAAF National Defense Student programs. These programs will eventually result in about 100 students each year completing their fourth year at the AFAU before beginning their intermediate and advanced flight training at one of three flight colleges before spending yet one more year at their operational base transitioning into their operational aircraft. Although the number of personnel in this program is still small, more students could apply for the program if the economy takes a turn for the worse.

At the other end of the spectrum, the PLAAF has set a goal of recruiting 400 new cadets from the high school-level Junior Military Academies of Aviation in 2018; however, as with other programs concerning the recruitment of civilian college graduates as enlisted personnel and increasing the percentage of new officers from the National Defense Student Program, this goal might not be met. The changes in recruiting at both ends of the spectrum have revolved around age, educational capabilities, and, equally important, physical limitations including an increasing number of students who do not have 20-20 vision, as well as competition from civilian airlines. Although the PLAAF has been recruiting, educating, and training female aviators since the 1950s, it was not until 2013 that it began integrating male and female cadets for the first time. Currently, the PLAAF has female combat aircraft pilots in mixed operational units. Although the PLAAF appears to have made significant progress through organizational reform of its aviator training institutions and new recruitment programs designed to attract more educated and technically qualified individuals, there is a high probability that the PLAAF will continue to adjust existing programs and search for new ones to meet its goals over the next decade. Finally, General David Stilwell summarized key information concerning the PLAAF in this report as follows:<sup>159</sup>

“The changes described in this report demonstrate an understanding by the PLAAF that generational changes, societal demands, economic realities, and perceived external threats demand PLAAF aviator recruiting and training must adapt. Increasingly complex aircraft, weapons systems and missions will only increase the pressures for an ‘open and confident’ approach to the fluid nature of tactical aviation. However, experience shows that cultural impediments matter far more than top-down driven change; that old pilots resist changing the way ‘we’ve always done things’ and young pilots perpetuate that attitude no matter how much they are pressured; and the very structured nature of PLAAF training will likely drive compliance, not innovation. Culturally, the PLAAF is doubly hindered by Communist/ authoritarian government and Confucian hierarchical norms (shared by

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<sup>159</sup> The following quotations came from General David Stilwell.

neighboring countries) that make truly open assessment and learning extremely difficult. 'Saving Face' does not make for steep learning curves. This is not to say that change/improvement is impossible, but it is ponderous. In addition, the PLAAF will increasingly have to compete with civil aviation for high-quality recruits. Just as in the West, airline jobs promise the glamour of flight as well as high pay, without the stress of military training and the potential to die for one's country. The latter factor may be gaining popularity as Chinese nationalism grows, but the bottom line in China is still the bottom line and to get rich is still glorious.

“Finally, as noted in the Summary section, PLAAF commander, General Ma Xiaotian stated that the PLAAF needs to ‘energetically solve the problem of pilots being weak in theory and skill foundation.’ At the same time, the USAF has similar complaints, which generally surround basic aircraft systems knowledge. Specifically, high-energy young fighter pilots want to study weapons and tactics and have to be encouraged to study the more mundane aspects of combat aviation (emergency procedures, basic airmanship guidance, etc.). In the case of the PLAAF, however, several personal encounters indicate that the opposite may be the case. The PLA culture is a risk averse, zero defects system where failure is dealt with severely. Western militaries allow experimentation and a certain amount of failure which is what helps tactics to evolve, meaning that they come from the grass roots level. As a result, Ma’s encouragement to ‘upgrade from merely flying the jet to fighting battles. . .’ is telling.”

Until the late 1990s, when the PLAAF flew its first routine missions to the center line of the Taiwan Strait, Naval Aviation had the primary responsibility for maritime missions. In addition, until the late 2000s, the PLAAF was responsible for educating and training Naval Aviation fighter pilots until they were assigned to their operational unit. Today, however, the PLAAF and Naval Aviation share a maritime responsibility and Naval Aviation has taken over full responsibility for recruiting, educating, and training all of its aviators.

During the late-1980s, virtually all PLAAF helicopters were turned over to the Army, which created the Army Aviation Branch. However, over the years, the PLAAF has gradually taken back some helicopters, including creating a single helicopter regiment subordinate to the PLAAF’s airborne troop branch. In addition, Naval Aviation and the PLAN’s Marine Corps Branch each have their own helicopter units. Although the PLAAF recruits Army Aviation aviators and provides their initial education, cadets transfer to the Army Aviation College at the beginning of their third year, where they receive their theory education and simulator training. They then spend their fourth year in a training regiment in one of the subordinate flight training bases, where they receive their flight techniques training in a training helicopter. Meanwhile, the PLAAF and Naval Aviation continue to educate and train their own helicopter aviators.

## Appendix A: Acronyms

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<b>Acronym</b>	<b>Term</b>	<b>Chinese Term</b>
ATC	Air traffic control	航空管理控制; 空管; 航空管制
BUAA	Beijing University of Aeronautics and Astronautics; Beihang	北京航空航天大学 / 北航
CEME	Complex electromagnetic environment	复杂电磁环境
CMC	Central Military Commission	中央军事委员会; 中央军委
GCI	Ground controlled intercept	地面控制截击
GSD	General Staff Department	总参谋部; 总参
IFR	Instrument flight rules	仪表飞行规则
MRAF	Military Region Air Force	军区空军
NCO	Noncommissioned officer	士官
NDU	National Defense University	国防大学
OMTE	Outline of Military Training and Evaluation	军事训练与考核大纲
PLA	People's Liberation Army	人民解放军
PLAAF	PLA Air Force	人民解放军空军
PLAN	PLA Navy	人民解放军海军
PME	Professional military education	培训
PRC	People's Republic of China	中华人民共和国
RMB	Renminbi	人民币; 元
U.S.	United States	美国
USAF	U.S. Air Force	美国空军
USD	U.S. dollars	美元
VFR	Visual flight rules	目力飞行规则
WSO	Weapon systems officer	后舱武器控制军官

## Appendix B: Key Source Material

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The primary source material for this report and briefing came from the four Chinese language sources discussed below: the Internet, newspapers, periodicals, and books.

### The Internet

Material concerning the PLAAF, Naval Aviation, and Army Aviation aviators that is available on the Chinese Internet has grown considerably over the past few years. For example, the PLAAF has two official websites ([www.plaaf.net/](http://www.plaaf.net/) and <http://kj.81.cn/>) as well as its own dedicated aviator recruitment website ([www.kjzfw.mil.cn/](http://www.kjzfw.mil.cn/)). The Internet also has multiple media and blog reports on each of the aviation organizations.

### Newspapers

The two key newspapers for this report are the PLAAF's official newspaper (*Air Force News / Kongjun Bao / 空军报*), which is published five times a week, and the PLA Navy's official newspaper (No English Name / *Renmin Haijun / 人民海军*), which is published four times a week.

### Periodicals

The three key periodicals include the PLAAF's monthly magazine, *China Air Force (Zhongguo Kongjun / 中国空军)*, Xinhua's *China Armed Forces (Zhongguo Jundui)* bi-monthly periodical, which has every article in Chinese and English, and *PLA Pictorial (Jiefangjun Huabao / 解放军画报)*, which is published twice a month.

### Books

The following Chinese books are relevant to the topic of this report.

- Bai Chongming and Ji Changguo, eds., *Air Force Strategy Transformation and Flight Personnel Education Innovation (空军战略转型与飞行人才教育创新)* Beijing: Blue Sky Press, May 2010
- *Dictionary of Modern Military Education (现代军校教育词典)*, Beijing: National Defense University Press, 2009
- *Dictionary of Modern Military Education (Second Edition) (现代军校教育词典)*, Beijing: National Defense University Press, August 2011
- Fu Guoqiang, ed., *Comparison of Chinese and Foreign Military Flight Education (中外军事飞行教育比较研究)* Beijing: Military Science Press, January 2013
- Liu Xiaolian and Yu Qingliang, *PLA Air Force Female Pilots (中国人民解放军空军女飞行员)*, Beijing: Blue Sky Press, August 2012
- Liu Yazhou and Yao Jun, eds., *A History of China's Aviation: Second Edition (中国航空史 [第二版])*, Hunan: Hunan Science and Technology Press, August 2007
- Lu Xiaoping, *The PLA Air Force (中国人民解放军空军)* Series of China Army, Beijing: China Intercontinental Press, January 2012 (English and Chinese)

- *Military Terminology of the Chinese People's Liberation Army* (中国人民解放军军语), Beijing: Academy of Military Science Press, September 2011
- *People's Liberation Army Air Force Officer's Handbook* (中国人民解放军空军军官手册), Beijing: Blue Sky Press, November 2006
- Su Shubo, Yu Zhiyong, Tang Qi, and Lin Cheng, eds., *Military Cadre Work Handbook* (军队干部工作手册), Beijing: National Defense University Press, May 2011
- Yao Wei, ed., *China Air Force Encyclopedia* (中国空军百科全书), Beijing: Aviation Industry Press, November 2005
- Yu Daqing, ed., *PLA Officer Handbook* (中国人民解放军军官手册), Beijing: PLA General Political Department Cadre Department, December 2011
- Zhang Dehe, *The PLA Army Aviation Corps* (中国人民解放军陆军航空兵) Series of China Army, Beijing: China Intercontinental Press, July 2013 (English and Chinese)
- Zhao Yiping, ed., *People's Liberation Army Military History* (中国人民解放军军史) Volume III in *China Military Encyclopedia* Second Edition (中国军事百科全书第二版), Beijing: Encyclopedia of China Publishing House, 2007
- Zhu Rongchang, ed. *Air Force Dictionary* (空军大辞典), Shanghai: Shanghai Dictionary Press, September 1996.

## Appendix C: Key Terminology

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Appendix C provides a list of key terminology for the PLAAF, Naval Aviation, and Army Aviation organizational structure, personnel, education, and training in order to understand how they are similar to and differ from the U.S. Air Force (USAF).

### Organizational Structure

This subsection provides key organizational structure terms.

- **Grassroots** (基层) refers to grassroots organizations, which include *fendui*, battalions, companies, and platoons, and sometimes include squads.
- **Group** (大队): For purposes of the PLAAF and Naval Aviation, this study translates the term *dadui* as group. The PLAAF and Naval Aviation have three types of groups: flight groups (飞行大队), maintenance groups (机务大队), and training groups (训练大队). Each of these groups is a battalion leader-grade organization.
- **Headquarters**: The PLA does not have a specific term for headquarters at any level, such as PLAAF Headquarters. The PLA uses the term *kongjun* (空军) to refer to the PLAAF as a whole and, based on the context, to PLAAF Headquarters. However, the PLA sometimes translates the term *zhibui bu* (指挥部) as headquarters. It also translates *zongcanmou bu* (总参谋部) as General Staff Headquarters rather than General Staff Department.
- **Military Region Air Force Headquarters** (军区空军) refers to the PLAAF headquarters in each of the seven military regions.
- **Squadron** (中队): For purposes of the PLAAF and Naval Aviation, this report translates the term *zhongdui* as squadron. The PLAAF and Naval Aviation have two types of squadrons: flight groups (飞行中队) and maintenance squadrons (机务中队). Each of these squadrons is a company leader-grade organization.
- **Subunit** (分队): Different Chinese and English dictionaries translate *fendui* as subunit, detachment, element, battery (SAM or AAA), or flight (maintenance). For the purpose of this report, the term *fendui* is translated as subunit.<sup>160</sup> Although the term *fendui* refers specifically to battalions (营), companies (连), platoons (排), and sometimes squads (班), which together comprise the grassroots level (*jieng* 基层), a *fendui* can also refer to an ad hoc grouping of personnel, usually at the platoon or company level, organized for a particular function. For example, a logistics support *fendui* can consist of personnel from several different specialties.
- **Unit** (部队) is a general term for an organization at the regiment level or above including four specific organizations: corps (军), division (师), brigade (旅), and regiment (团).

### Personnel

This subsection provides key aviation personnel terminology.

- **Aviator recruitment**: The PLA uses the term *zhaoshou feixingyuan* (招收飞行员), which is usually shortened to *zhaofei* (招飞), to refer to aviator recruitment.

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<sup>160</sup> The one exception is an aircraft maintenance *fendui*, which is translated as “maintenance flight.”

- **Aircrew member:** The PLA uses the term *kongqin* (空勤) for aircrew member, which includes pilots, navigators, communicators, gunners, and maintenance personnel.
- **Airman:** The PLAAF does not have a corresponding word for the USAF's "airman". Instead, it refers to officers (军官) or cadre (干部), which are synonymous, and refers to enlisted personnel as soldiers (士兵; 战士). In the PLAN, the term "sailor" (水兵) refers to enlisted personnel only.
- **Aviator** (飞行人员 and 航空员) is the generic term that includes fighter, attack, helicopter, bomber and transport pilots, as well as bomber and transport crew members, including navigators, communicators, gunners, and maintenance personnel.<sup>161</sup>
- **Cadet:** The PLA uses the Chinese term *xueyuan* (学员) and translates it as cadet for any officer at an undergraduate in a PLA academic institution or in one of the PLA's National Defense Student Programs.
- **Cadre and officer:** The PLA terms cadre (干部) and officer (军官) are synonymous.
- **Communicator:** The term *tongxinyuan* (通信员) refers to communications personnel on various airframes.
- **Flight commander** (飞行指挥员) refers to the three senior officers in the control tower who serve as air traffic controllers (ATC) and ground controlled intercept (GCI) controllers.
- **Lead Pilot:** The term *zhangji* (长机) refers to the lead pilot of a flight formation (飞行编队).
- **Navigator:** The term *linghangyuan* (领航员) refers to navigation officers on various airframes.
- **Pilot** (飞行员) refers specifically to someone who flies the aircraft; however, the term is also used as a generic term to refer to all crew members.
- **Student:** The PLA also uses the same term *xueyuan* (学员) and translates it as student for any officers who have graduated and are receiving any type of technical training or education at a military institution. The PLA uses the term *xuebing* (学兵) and translates it as student for enlisted person who is receiving specialty training at a training institution.
- **Wingman:** The term *liaoji* (僚机) refers to the wingman in a flight formation.
- **Weapon control officer:** The PLAAF uses the term *houcang wuqi kongzhi junguan* (后舱武器控制军官), literally rear cockpit weapons control officer, in the same sense as a USAF weapon systems officer (WSO). With only a few exceptions since 2011, pilots generally switch between the front and rear seats without specialized training as a WSO.

## Education

This Subsection provides key PLA academic institution terminology.

- **Generic civilian and military academic institutions:** China has several terms for civilian academic institutions as shown below:
  - **Civilian schools:** *Difang xuexiao* (地方学校) is the generic term for civilian academic institutions at all levels.
  - **Graduates:** The term *biyesheng* (毕业生) refers to someone who has graduated from high school or college.

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<sup>161</sup> *Air Force Dictionary*, 1996, p. 168–168. *PLA Air Force Officer Handbook*, 2006, p. 338. Liu Xiaolian and Wang Qingliang, ed., *PLAAF Female Aviators*, September 2012.

- **High schools [senior middle schools]:** The terms *gaozhong* (高中) and *putong gaozhong* (普通高中) refer to high schools [grades 10-12]
  - **Junior middle school:** The term *chuzhong* (初中) refers to junior middle schools [grades 7-9]
  - **Institutes of higher learning:** The term *gaodeng xuexiao* (高等学校) refers to civilian and military colleges and universities. The terms *putong gaodeng xuexiao* (普通高等学校) and *difang daxue* (地方大学) refer only to civilian colleges and universities.
  - **Soon-to-graduate students:** The term *yingjie biyesheng* (应届毕业生) refers to high school and college students who are in their last year and preparing to graduate.
- **Professional Military Education:** The PLA does not have a term that translates to the U.S. military’s “professional military education” (PME). For purposes of this report, the term *peixun* (培训), which is the closest approximation and refers to both officer cadets and active duty officers who return to an academic institution as a student, will be referred to as PME. The PLA’s official dictionary translates the term *peixun* as “development and training”.<sup>162</sup> *Peixun* is a combination of *peiyang* (培养), which means “cultivate” or “develop”, and *xunlian* (训练), which means “training”. The term is defined as “Systematic cultivation and training that is provided by academic institutions or training organizations to students.”
  - **Military schools:** Most of the PLA’s academic institutions through the mid-1980s, including the flight cadet academic institutions, were schools (学校). Around 1986, the PLA began upgrading all of its schools, except NCO schools, to *xueyuan*. Today, the only PLA schools are NCO schools.
  - **Senior technical degree:** The PLA uses the term *dazhuan* (大专) to refer to a three-year associate’s degree.
  - **Military universities:** In the PLA, the highest academic tier consists of universities (大学), including the Air Force Aviation University (空军航空大学).
  - **Military xueyuan:** The second tier of academic institutions consists of *xueyuan* (学院), which the PLA translates as academy and college.<sup>163</sup> This includes the PLAAF’s three flight colleges (飞行学院).

## Training

This Subsection provides information for various PLA terms and concepts noted throughout this report.

- **Altitude levels:** The PLA defines minimum altitude (also identified as extreme low or very low altitude) (超低空) as less than 100 meters, low altitude (低空) as 100 to 1,000 meters, medium altitude (中空) as 1,000 to 7,000 meters, and high altitude (高空) as 7,000 to 10,000

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<sup>162</sup> *Military Terminology of the Chinese People’s Liberation Army* (中国人民解放军军语), Beijing: Academy of Military Science Press, September 2011, p. 323.

<sup>163</sup> Civilian academic institutions, as well as the PLA, also translate *xueyuan* as school and institute. The translation is not always consistent, even in the organization’s official website that has an English tab, which often causes confusion in English-language articles, whereby one article will use academy and another will use college or school.

meters, and ultra-high altitude (also identified as very high altitude) (超高空) as 15,000 meters and above.<sup>164</sup>

- **Composite training** (综合训练) refers to more than one flying subject in a single sortie.
- **Flight subject** (飞行科目) refers to a training subject during a flight.<sup>165</sup> Normally, a flight subject, or simply called a subject, includes night and day flying, flying in simple and difficult weather conditions, flight techniques and combat techniques, basic tactics and applied tactics, and different combinations of them.
- **Flying period** (场次) refers to a single combat, training, alternate landing, transit flight, test flight, special flight, or cargo flight mission.<sup>166</sup> The PLA's *Military Dictionary* states "a flying day is divided into three *changci*, including day, night, and crossing from day into night."<sup>167</sup>
- **Foundation training** (基础训练) is the prerequisite for applied training. It includes basic military knowledge, basic maneuvers, and basic skills.
- **Sortie** (架次) refers to a single aircraft taking off a single time. If four aircraft take off two times each, this counts for eight sorties."<sup>168</sup> The PLAAF appears to define sortie as a single takeoff, landing, and the activity that occurs between them.
- **Training** (训练) refers to training that occurs on a daily basis for individual training subjects.
- **Drill** (演练) refers to a drill by a unit that takes place during one or more days and incorporates several training subjects but is not at the scope of an exercise.
- **Training subjects:** The PLAAF has two separate sets of characters for *kemu* (课目 和 科目)—both of which are translated as "training subject." Based on a review of PLAAF and Naval Aviation reporting, it clearly appears that only PLAAF aviation and Naval Aviation branches use the first term *kemu* (课目). Meanwhile, all PLAAF and PLAN branches, including aviation, use the other *kemu* (科目). Together, *kemu* are the basic training items required for all officers and enlisted personnel to understand how a particular weapon system works. Furthermore, each individual and operational unit must pass through a set of *kemu* in a specific order before the individuals and unit pass their training certification.<sup>169</sup> Each *kemu* is composed of multiple items (*xiangmu* 项目). The PLA has three basic types of *kemu*:<sup>170</sup>
  - Common training subjects (共同科目), which are sometimes referred to as basic training subjects (基础科目)
  - Skills training subjects (技术科目)
  - Tactical training subjects (战术科目)

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<sup>164</sup> Zhu Rongchang, ed., *Kongjun Da Cidian [Air Force Dictionary]*, Shanghai: Shanghai Dictionary Publishing House, September 1996, page 728. Yao Wei, ed., *China Air Force Encyclopedia (zhongguo kongjun baike quanshu, 中国空军百科全书)*; Beijing, Aviation Industry Press, November 2005, Vol 2, p. 800.

<sup>165</sup> Zhu Rongchang, 1996, p. 183.

<sup>166</sup> Zhu Rongchang, p. 277.

<sup>167</sup> *Military Terminology of the Chinese People's Liberation Army (Complete Volume)* (中国人民解放军军语 [全本]), (Beijing: Academy of Military Science Publishing House, September 1997, p. 476.

<sup>168</sup> *Military Terminology of the Chinese People's Liberation Army (Complete Volume)* (中国人民解放军军语 [全本]), (Beijing: Academy of Military Science Publishing House, September 1997, p. 452.

<sup>169</sup> Zhou Keyu, ed. *China Today: Navy, (Dangdai Zhongguo Haijun 当代中国海军)*, Beijing: China Social Sciences Press, 1987, p. 99.

<sup>170</sup> Wu Quanshu, ed., *The Study of Military Training (Junsbi Xunlian Xue 军事训练学)*, Beijing: Academy of Military Science Publishers, January 2003, p. 203.

- **Training topics** (课题) comprise specific components of a training subject.<sup>171</sup> Aviation *keti* are training topics that can be at the tactical (战术), campaign (战役), and strategic (战略) levels of conflict. For example, training over water for penetration of defenses at minimum-altitude, attack formations, and air defense suppression formations, airborne early warning and monitoring, avoiding electronic countermeasures (ECM), conducting counter-fighter intercepts, construction of a marine landing corridor with air support, direct-fire preparations toward island reefs, and joint assault on an enemy to guide and protect at-sea formations are considered various types of training topics.
- **Weather conditions:** The PLAAF uses the term “four-weather conditions” (四种气象) to mean flying during night and day under different weather conditions. It also uses the term all-weather

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<sup>171</sup> *Military Terminology of the Chinese People's Liberation Army (Complete Volume)* (中国人民解放军军语 [全本]), Beijing: Academy of Military Science Publishers, September 1997, p. 171. This publication is “For Internal Distribution Only”.

## Appendix D: PLA Grade and Rank Structure

This appendix discusses the PLA's officer 15-grade and 10-rank system. Since 1988, *all* PLA officers and organizations have been assigned one of 15 grades. Table 5 shows the current grade and rank system as it applies to the PLA. This book uses the word “leader” rather than “commander” because, in the PLA, the commander and political officer are co-equals and have the same grade.<sup>172</sup> Note that each grade from Military Region (MR) leader down to platoon has a primary and secondary rank (一职两衔).<sup>173</sup> The ranks in the left column are the most common. The reason why each grade has two possible ranks is because rank and grade promotions rarely occur at the same time. Specifically, company and field grade officers receive their next higher rank about every three years and receive a promotion in grade every four years. In addition, only the uniformed, not civilian, Central Military Commission (CMC) vice chairmen are assigned grades.

**Table 5: Officer Grades and Assigned Ranks**

Grade	Primary Rank	Secondary Rank
CMC Chairman (军委主席) Vice Chairmen (军委副主席)*		None General
CMC Member (军委委员)		General
MR Leader (正大军区职)	GEN/ADM	LTG/VADM
MR Deputy Leader (副大军区职)	LTG/VADM	MG/RADM
Corps Leader (正军职)	MG/RADM	LTG/VADM
Corps Deputy Leader (副军职)	MG/RADM	SCOL/SCPT
Division Leader (正师职)	SCOL/SCPT	MG/RADM
Division Deputy Leader (副师职)	COL/CPT	SCOL/SCPT
Regiment Leader (正团职)	COL/CPT	LTC/CDR
Regiment Deputy Leader (副团职)	LTC/CDR	MAJ/LCDR
Battalion Leader (正营职)	MAJ/LCDR	LTC/LCDR
Battalion Deputy Leader (副营职)	CPT/LT	MAJ/LCDR
Company Leader (正连职)	CPT/LT	1LT/LTJG
Company Deputy Leader (副连职)	1LT/LTJG	CPT/LT
Platoon (排职)	2 LT/ENS	1LT/ENS

\*Note: the chairman and civilian vice chairman are not assigned ranks.

<sup>172</sup> Some USG organizations use “principal” rather than “leader”. The acronyms equivalent to the U.S. Army come from [www.defense.gov/about/insignias/officer.aspx](http://www.defense.gov/about/insignias/officer.aspx), which also has the acronyms for equivalent U.S. Air Force, Navy, and Marine ranks.

<sup>173</sup> From 1988 to 1994, each grade had three assigned ranks (一职三衔).