

CHAPTER 9

RIGHT-SIZING THE PLA AIR FORCE: NEW OPERATIONAL CONCEPTS DEFINE A SMALLER, MORE CAPABLE FORCE

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The People's Liberation Army (PLA) is stepping up preparations for military struggle. To meet the requirements of informationalized air operations, the Air Force has gradually shifted from the mission of territorial air defense to that of both offensive and defensive operations. Emphasis is placed on the development of new fighters, air defense, and antimissile weapons, and the means of information operations and automated command systems. Combined arms and multirole air combat training is intensified to improve the capabilities in operations such as air strikes, air defense, information countermeasures, early warning and reconnaissance, strategic mobility, and integrated support. Efforts are being made to build a defensive Air Force, which is appropriate in size, sound in organization and structure, advanced in weaponry and equipment, and possessed of integrated systems and a complete array of information support and operational means.

*China's National Defense: 2004*¹

Introduction.

The PLA Air Force (PLAAF) is in the midst of a dramatic transformation aimed at transitioning from a benign defensive force to one that incorporates modern

defenses and robust offensive strike capabilities. During the next decade, China's Air Force will gain significant additional capabilities in a number of important mission areas.² These will come as a result of several programs which are already in, or soon will be, an advanced state of development. In fact, the introduction of new air- and ground-based weapons has already led to major advances in all-weather defensive and, for the first time, offensive operations.

Anticipated future enhancements in command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) will enable China to significantly improve its ability to perform long-range strikes using stand-off, precision-guided munitions. The emerging capacity of indigenous Chinese defense plants to design and build their own complex weapons can be expected to further accelerate deliveries of high-tech hardware into operational units and wean the PLAAF from its dependence on Russian systems.

In charting the PLAAF's progress, it is tempting to focus on the hardware. However, this would be a mistake since the PLAAF's further advancement will hinge on a broad range of long overdue doctrinal and institutional changes that are now underway. Beginning in the 1990s, the PLAAF embarked on an expansive program of reforms that targeted doctrine, leadership, force structure, organizational structure, and officer and enlisted education, and training.³ New mission requirements and an emphasis on joint operations are forcing military strategists to rethink old concepts of air doctrine. Force modernization and the drive for joint capabilities have imposed new challenges on Air Force leaders and led to substantial restructuring of command elements. Additionally, the introduction

of highly advanced weapons has created the need for the PLAAF to revamp its education and training programs. These and other “software” developments will play a key role in determining the pace and scope of the PLAAF’s further modernization and provide important clues about how the force is being “right-sized” for its new missions.

Evolving PLAAF Mission Requirements.

China’s National Defense in 2006 states, “The Air Force aims to speed up its transition from territorial air defense to simultaneous offensive and defensive operations. It also aims to increase its capabilities in the areas of air strike, air and missile defense, early warning and reconnaissance, and strategic projection.”⁴ To “meet the requirements of informationalized air operations,” the PLAAF is in the process of a long-term transformation from a territorial air defense force to a modern force capable of conducting short-duration, high-intensity offensive operations against high-tech adversaries.⁵ This new orientation for the Air Force is part of a broader Chinese military doctrine that emphasizes mobility, speed, and long-range attack, plus synchronized combined arms and joint operations through the full spectrum of air, land, sea, space, and electromagnetic battlespace, all while relying heavily upon extremely lethal, high-technology weapons.

What is new and strikingly different is the PLAAF’s focus on its offensive capacity. The pursuit of a robust set of offensive capabilities became an imperative for the PLA after the 1995-96 Taiwan Strait crisis exposed operational deficiencies and the limited range of military options that could be executed against Taiwan. Since that time, the PLA has striven to develop the

capability to carry out a variety of military operations against Taiwan—air and missile attacks, a naval blockade, or even an outright invasion of the island—to block a move towards independence by Taiwan. These capabilities are also intended to deter, delay, and complicate U.S. efforts to intervene on behalf of Taiwan. The successful execution of such military actions will depend upon a broad range of advanced air operations—both offensive and defensive.

Modernization Leads To a Smaller, More Capable Force.

Following a worldwide trend toward smaller, more capable air forces, the PLAAF is downsizing and reshaping the force structure to perform a variety of new support tasks that are required to conduct both defensive and offensive air operations. Since the PLAAF was founded, territorial air defense has remained the highest mission priority for China's Air Force, with successive commanders allocating force structure accordingly. To detect an air attack and direct air defense operations, the PLAAF developed an extensive network of ground-based air warning radars and air defense operations centers. To ward off and defend against attacks, the PLAAF deployed and has maintained fixed antiaircraft artillery (AAA) and surface-to-air missile (SAM) batteries in the vicinity of most major population centers and key installations. Ground-based point defense weapons were augmented by a vast fleet of air interceptors to rove the skies and fill the voids between potential targets and the relatively short-ranged, ground-based weapons.

For PLAAF commanders, the challenge of defending China's airspace became increasingly complex

through the 1970s and 1980s as China continued to lose ground to the technologically advanced weapon systems that were entering service in the air forces on its periphery. With their attention concentrated on the air defense mission, PLAAF leaders allocated far less attention and far fewer resources to secondary mission responsibilities, including medium-range nuclear weapons delivery, battle area interdiction, and airborne and airdrop operations.

Throughout its history, the PLAAF's growth and development have experienced challenges from a ground force-dominated PLA opposed to a more independent Air Force. A statement by Liu Yalou, the PLAAF's first commander, aptly makes this point. In 1951, Liu wrote, "The PLAAF must oppose two erroneous tendencies. The first tendency is to believe that the PLAAF is a new service that can disregard the legacy of the Army. The second tendency is to be [cognizant of only] some of the Army's experience. Both of these tendencies are wrong and will impede the PLAAF's development."⁶ These points were reiterated in February 1951, when at the first expanded meeting of the PLAAF Party Committee, it was formally affirmed that "the Air Force will be developed [as a part] of the Army."

In the early 1980s, when the PLA began reorganizing the ground forces into group armies, the PLAAF was tasked only to provide defense for group army positions. Specific guidance was given that "each branch and unit of the PLAAF must establish the philosophy that they support the needs of the ground forces and that the victory is a ground force victory."⁷ Thus, the PLAAF was still effectively tied to supporting the ground forces rather than acting in its own right as a service with a unique and valuable role. This mindset

began to slowly change in the mid-1980s when, almost 40 years after the PLAAF's founding, General Wang Hai became the first aviator to be appointed as the commander.

Changing Capabilities to Meet Mission Requirements.

The Air Force is now attempting to develop the capability to conduct all-weather, day-night, high-intensity simultaneous defensive and offensive operations, while extending its ability to operate beyond the periphery of China's coastline. This major shift in mission orientation has forced the PLAAF to embark on a broad range of new weapons and ancillary programs – air refueling, air defenses, airborne warning and control – required to support offensive operations. Integration of these new weapons and capabilities will require substantial readjustments in the size and composition of the Air Force. In addition to obvious realignments at the tactical level, operational command and control elements will require fundamental restructuring to facilitate the planning and execution of offensive air operations beyond China's borders.

Establishing Acquisition Priorities.

In recent years, the PLAAF has employed a number of approaches to acquiring new platforms. Historically, political, economic, and security considerations have caused the PLAAF to rely on domestic producers for new equipment. Although Chinese defense industries successfully introduced a number of incremental improvements to legacy fighters and air defense systems, it was not until recently that they were able

to design and develop new weapons incorporating advanced technologies. As a result, the PLAAF entered the 1990s with a weapons inventory that was more representative of the technology of the 1960s and 1970s.

In May 1990, just prior to Central Military Commission (CMC) Vice Chairman Liu Huaqing's visit to Moscow to negotiate the first SU-27 contract, the PLAAF issued an internal document that laid out a weapons procurement plan addressing doctrinal needs and budgetary constraints.⁸ This document argued that it would take many years to attain its needs if China relied solely on indigenous efforts to develop new capabilities. Although self-reliance in designing and developing new equipment remained a strategic goal for the aviation industry, this left the PLAAF with few alternatives for fleet modernization and often led to unmet requirements. The PLAAF adopted four criteria—New, Quality, Modify, and Introduce—to address its modernization challenges:

- *New* – Use the newest weapons and equipment already in the inventory.
- *Quality* – Focus on acquiring and employing weapons and equipment that provide meaningful military capability and possess high operational capability. Maintain aircraft and engines to extend their service lives.
- *Modify* – Use new technology and materials to upgrade existing equipment, thus giving it new life. Designing and developing a new aircraft from the ground up is not considered a feasible option and would consume vast amounts of capital.
- *Introduce* – Acquire and integrate advanced weapons and equipment from abroad.

The PLAAF also announced that it would deploy modern equipment based on the threat facing each war zone. This would ensure rapid mobilization for battle and facilitate training. Finally, the 1990 guidelines argued against spreading new equipment evenly among every unit, on the grounds that this would dissipate strength where it was needed most.

In deciding which weapons and equipment to modernize, the PLAAF determined that it must focus on six combat and combat support capabilities:

- Air superiority,
- Ground attack,
- Transporting troops and supplies,
- Airborne early warning and reconnaissance,
- Electronic countermeasures, and
- Maintenance and logistics.⁹

The 1990 plan also laid out the following general guidelines for proportionally developing its force, although no precise percentages or numbers were specified:

- Fighter aircraft must have the highest priority.
- The proportion allocated for ground attack aircraft must be larger than the portion for bombers, since ground attack aircraft with a refueling capability could be used against rear-echelon targets.
- There must be a certain proportion of bombers, especially strategic bombers.
- Reconnaissance aircraft, jamming aircraft, and airborne early warning aircraft must be supplied in relevant proportions.

- Development of transport aircraft, which have a strategic capability of moving troops and supplies, cannot be slowed.
- Aerial refueling must constitute a certain proportion of combat aircraft as a force multiplier.
- China must pay attention to developing helicopters, especially armed helicopters, for the Army and Navy.
- The Air Force must develop ground-based weapon systems, particularly air defense missiles, radar, and communication systems.¹⁰

During the past 15 years, the PLAAF has largely achieved the goals established under the 1990 guidelines through the implementation of an equipment modernization strategy that relied heavily on access to Russian military equipment.¹¹ Major acquisitions of aircraft and air defense systems from Russia include Su-27¹² and Su-30 fighters, Il-76 transports, S-300 SAMs, and Mi-17, Ka-28, and Mi-8 helicopters. The PLAAF has also deployed its first B-6 aerial refueling tankers for J-8II fighters, and is trying to acquire the Il-76 refueling variant for its *Sukhoi* aircraft. Since 2003, the PLAAF has taken delivery on as many as 60 new J-10 fighters, a highly evolved derivative of the Israeli Lavi program, developed in Chengdu, China. Significantly, the PLAAF has not yet achieved its goals in the development of strategic bombers or airborne early warning and control (AEW&C) aircraft.

Force Restructuring.

The PLAAF, along with other branches of China's military, has steadily reduced force structure through the retirement and replacement of outmoded weapons

systems with smaller numbers of advanced weapons. In this process, the PLAAF has trimmed personnel and equipment and deactivated units, while adding new capabilities and combat power to its forces. Recapitalization and realignments within the PLAAF follow the global trend toward smaller, more capable air forces. Since the early 1990s, the PLAAF has completed the following force reductions and realignments:

- Decreased total personnel strength from 490,000 to less than 400,000;
- Reduced combat aircraft from more than 5,000 to about 2,000 (and the number is continuing to decrease annually);
- Reduced combat air divisions from 50 to 28;
- Decreased the average number of regiments per air division from three to two; and
- Decreased the number of aircraft per regiment.¹³

As shown in Table 1, the PLAAF, despite a concerted effort to modernize its forces, continues to operate a large fleet of legacy aircraft that are variants of Soviet designs—MiG, *Tupolev*, *Antonov*—originating from the 1950s. These aircraft slow modernization efforts by consuming operational and maintenance funds while contributing little to China's defense. During the past two decades, the PLAAF has retired nearly 3,000 aircraft, shrinking its combat inventory from roughly 5,000 to approximately 2,000 combat aircraft. This has removed many, but not all, of the vintage airframes from the fleet. Yet, further reductions may prove more difficult to justify and execute because many of the remaining legacy airframes were manufactured as recently as 10 years ago. This creates a number of

PLAAF Combat Aircraft	Numbers
Advanced Fighters	
All Flankers*	240
J-10	50
Other Fighters	
J-6, J-7, J-8	1,200
Attack	
JH-7, Q-5	420
Bombers	
H-5, H-6	100
Reconnaissance	180
Total Combat Aircraft	1,800

Table 1. PLAAF Combat Aircraft.¹⁴

programmatic challenges for PLAAF leaders as they contemplate modernization schedules in the years ahead. With at least two stealth programs under development, China may elect to restrain near-term acquisitions of nonstealth aircraft in anticipation of more capable airframes becoming available in the near future.

Aircraft replacement rates over the course of the next several years will determine the pace of transition to a truly modern force. At present, the PLAAF's inventory of advanced fighters—300 *Flanker* and J-10 aircraft—remains modest. The newest and most formidable additions to the *Flanker* line-up are the 76 multirole Su-30MKKs stationed in the Guangzhou and Nanjing military regions (MRs) where they are poised to conduct precision strikes against Taiwan and U.S. military bases in Okinawa. Each of these aircraft is currently equipped with an aerial refueling probe.

Once the PLAAF receives the first batch of Russian Il-76 tankers to air refuel the *Flankers*, their range and loiter capability will be further improved.

By many measures China's Air Force remains relatively small. China's size—along with its growing power and influence—dominates the Asian landmass. Yet it borders 15 other nations, thus creating unique challenges for an Air Force tasked to maintain air sovereignty along 22,000 kilometers of national boundary. Although PLAAF basing has been concentrated along the eastern seaboard, China has not neglected other security concerns and vulnerabilities to the northeast and northwest. This can be evidenced in the basing of *Flankers*, which are spread among each of the seven MRs.

DOCTRINAL REFORMS

China's military modernization is underpinned by a new PLA operational doctrine, still evolving, that emphasizes preemption, surprise, and shock based on the concept that the early stages of conflict are crucial to the final outcome. To implement this doctrine, the PLA has assigned priority to modernizing naval, air, and strategic missile forces.¹⁵ This new doctrine reflects China's shift away from its historical predominant reliance on ground forces toward a more balanced defense posture incorporating the full panoply of PLAAF capabilities.

As Table 2 shows, the PLAAF began developing its current doctrine in the mid-1980s, starting with campaigns, then tactics, and, finally, strategy. Note that the doctrine on PLAAF strategy was published in 1995; however, the culmination of the PLAAF's efforts in behalf of its own strategic doctrine did not truly come

to fruition until 2004, when the CMC incorporated a PLAAF component into the National Military Strategic Guidelines.

Doctrinal Title	Preliminary Approval	Publication Date
Science of PLA Air Force Campaigns	1984	1988
Science of Air Force Tactics	1989	1994
Science of Air Force Strategy	1992	1995
Introduction to Air Force Military Thought	1998	2006
Science of Integrated Air and Space Operations	2003	2006

Table 2. Chronology of PLAAF Doctrinal Development.

DEVELOPMENT OF THE PLAAF’S STRATEGIC DOCTRINE

The PLA’s collective National Military Strategic Guidelines (*guojia junshi zhanlue fangzhen*) have three major components. The first is a strategic assessment of the international environment. The second is the operational component, known as the “Active Defense” (*jiji fangyu*) strategy. The third is “Army Building.”

From its founding in 1949 and until 2004, while lacking its own strategy component to establish a broad direction for air operations, the PLAAF relied almost solely on the PLA ground force’s “Active Defense” operational component as its strategic-level doctrinal guidance. Chinese military literature indicates that initial discussions on the development of a PLAAF strategic theory may have begun in the mid-1980s. In 1987, PLAAF commander General Wang Hai proposed that the PLAAF be accorded its own operational component in the PLA’s “Active Defense” strategy. General Wang introduced “the goal of transforming

from defending the country's airspace to building an Air Force capable of simultaneous offensive and defensive operations (*gong fang jian bei*)."²¹ Wang emphasized that the combined arms combat environment of the 1980s required a force that could:

- Move quickly over long distances;
- Fight in an electronic environment;
- Have the capability to attack an enemy; and
- Protect the PLAAF from sustaining catastrophic damage from an enemy air attack.

The *China Air Force Encyclopedia* declares that the capability to conduct simultaneous offensive and defensive operations is the "guiding concept for Air Force building."²² The capacity for simultaneous offensive and defensive operations is closely linked to the PLAAF's organizational structure, weapon systems and equipment, education and training, C4I system, and logistics support system.

Concurrent with General Wang's proposals, National Defense University (NDU) commandant General Zhang Zhen broached the idea of establishing Air Force strategic theory as a specialty within the university.²³ Although this suggestion did not take hold, it apparently led to further discussions on the need to develop strategic guidelines for air operations. In fact, the PLA debated this issue vigorously during the mid-1980s in what could best be described as "turf wars" or "internal politics" within the PLA. According to *Science of Air Force Strategy*, Chinese military theorists of a ground-dominance bent put forward several arguments countering the alleged need for Air Force strategic guidelines:

- China can have only one national military strategy, and that is “Active Defense”;
- The PLAAF does not have strategic weapons, so it is not qualified to have an Air Force strategy;
- The PLAAF already has half of an Air Force strategy in that it has the strategic mission of air defense of the nation, but supporting the ground forces does not qualify as a strategic mission;
- Because the PLAAF’s command personnel can implement directive guidance only from above, lacking command and decision authority in its own right, there is no Air Force strategy; and
- The PLAAF is a multifaceted service with many missions; therefore, it already has a strategy.²⁴

As we saw in Table 2, beginning in 1992 the PLA established a committee of NDU and PLAAF officers to initiate research on Air Force strategy, culminating in the publication of *Science of Air Force Strategy* in 1995. This book laid out an argument, based on international air power doctrine, for the PLAAF to be an “independent” service and to be assigned its own operational component in the PLA’s National Military Strategic Guidelines.

The Gulf War and the 1995-96 Taiwan Strait crisis provided additional ammunition for the PLAAF to seek its own strategic doctrine. For example, statements by Chinese Communist Party (CCP) Central Military Commission (CMC) Chairman Jiang Zemin and recently installed PLAAF commander Liu Shun Yao emphasized the PLAAF’s requirement to fight offensive battles. In 1997, General Liu stressed this new strategic direction in the following words:

The Chinese Air Force plans to build up state-of-the-art weapon systems by early next century, including early warning aircraft, electronic warfare warplanes, and surface-to-air missiles. The PLA Air Force is now able to fight both defensive and offensive battles under high-tech conditions. The Air Force is now capable of waging high-level long-distance combat, rapid maneuverability, and air defense, and is able to provide assistance to Navy and ground forces. The Air Force now sources most of its equipment domestically, fielding a large number of Chinese-designed and produced high-quality fighters, attackers, bombers, reconnaissance aircraft, and special purpose aircraft. Over the next few years, the Chinese Air Force will enhance its deterrent force in the air, its ability to impose air blockades, and its ability to launch air strikes, as well as its ability to conduct joint operations with the ground forces and Navy.²⁵

The CMC Approves the PLAAF's Strategy.

In 2004, the CMC approved the PLAAF's "Active Defense" strategy as a component of the National Military Strategic Guidelines for air operations.²⁶ The PLAAF's strategic component was designated as *"Integrated Air and Space, Simultaneous Offensive and Defensive Operations"* (*kong tian yiti, gong fang jian bei*).²⁷ According to Hong Kong press reports, the CMC's approval was timed to coincide with the PLAAF's 10th Party Congress in May 2004 and represented a major milestone in China's efforts to build a strategic Air Force.²⁸ The approval also signaled a fundamental shift in how the PLAAF was to be viewed. The article states that this change is encapsulated in three bold new assertions on the strategic positioning of the PLAAF:

- First, the PLAAF is a national Air Force led by the CCP.

- Second, a modern Air Force must be built to unify aviation and spaceflight, combine defense and offense, and unify information and firepower.
- Third, the PLAAF should be a strategic Air Force standing side by side with the Army and Navy to achieve command of the air, ground, and sea.

Integrated Air and Space.

China's 2004 and 2006 *Defense White Papers* clearly show the growing importance of the PLAAF and its missions. However, although both white papers describe the PLAAF's transition to simultaneous offensive and defensive operations, neither paper references integrated air and space.

Even though the two white papers did not refer to this component, however, the PLAAF has apparently thrown its hat into the air/space ring, having indicated its desire to become actively involved in managing China's military space program with an emphasis on the informationalization aspects. Specifically, in March 2004, the PLAAF published *Air and Space Battlefield and China's Air Force*, following in August 2006 with *The Science of Integrated Air and Space Operations*.²⁹ Although the first doctrinal book did not provide linkage between space and the PLAAF, the last chapter of the second book, which contains forewords by PLAAF commander General Qiao Qingchen and political commissar General Deng Changyou, lays out six steps for China in establishing a model in which "the PLAAF is the leading organization for 'integrated air and space', the PLAAF is . . . the leading organization to manage China's military space force, and the PLAAF is the primary force for [air and space]

combat.”³⁰ However, the book focuses on managing the “informationalization” aspects of the space program, and does not indicate that the PLAAF wants to manage the launch sites, satellite development, and missile program. The six proposed steps are as follows:

- Determine a sound scientific development model for creating a process for the employment of air and space power.
- Establish an Air Force Space organization (*kongjun hangtian jigou*) to use as the base for organizing integrated air and space operations.
- Establish PLAAF space units (*kongjun hangtian budui*).
- Establish information links that provide technology for integrated air and space operations.
- Nurture Air Force space personnel possessing a knowledge of space.
- Expand the PLAAF's overall scope of warfighting power, increasing the PLAAF's air offense capabilities, air defense countermissile capabilities, and airborne troop combat capabilities.

In the introduction to *The Science of Integrated Air and Space Operations*, General Qiao states that under the Party Central Committee's and CMC's leadership, the PLAAF is implementing the transformation from mechanization to informationalization, from a force based on national air defense to one based on simultaneous offensive and defensive operations, from a force based on aviation to one based on integrated air and space, and from a force based on quantity to one based on quality.³¹

In 2006, the PLAAF published *An Introduction to Air Force Military Thought* with opening remarks

by PLAAF commander Qiao.³² The inaugural edition of this new Air Force primer argues that the PLAAF should use informationalization to control the land and sea, and should move toward developing integrated air and space operations.³³ These declarations may be just the beginning of a long turf war within the PLA over managing and employing China's military space assets.

CAMPAIGN THEORY (OPERATIONAL DOCTRINE)³⁴

The PLA's *Science of Campaigns* categorizes military operations into 22 distinct types of campaigns. Three among these—air offensive, air defense, and air blockade—are specifically designated as Air Force campaigns.³⁵ Moreover, PLAAF airborne forces and aircraft are key elements of the joint airborne campaign, and PLAAF AAA and SAM forces can be expected to play a major role in the PLA's joint anti-air strike campaign.

PLAAF Campaign Theory.

Historically, the PLAAF has conducted operations as a series of air campaigns in support of the PLA's overall campaign objectives. In the early days, the PLAAF had little choice but to adopt operational concepts and tactics of foreign air forces. By the mid-1950s, however, the PLAAF was able to apply operational experiences obtained during both its civil war and the Korean War to create its own adaptations of air campaign theory and tactics.³⁶ During the mid-1960s, the PLAAF codified its rules and regulations, courses of study, and teaching materials, demonstrating "use

the PLAAF as the primary force [during a conflict]" (*yi wo wei zhu*) doctrine.³⁷

Beginning in the early 1980s, the PLAAF's research on military theory focused even greater attention on air campaign theory. In 1988, the PLAAF formally published *Science of PLA Air Force Campaigns*, which described the characteristics of operational art, the development of campaign theory, and the mission of the PLAAF's campaign headquarters, and then discussed how these three elements pertain to a unified command organization.³⁸ Thereafter, the PLAAF published various teaching materials, such as the *Course Material for the Science of Air Force Campaigns* [*Kongjun Zhanyi Xue Jiaocheng*], to guide campaign training.³⁹ In 1999, the PLAAF revised its *Campaign Gangyao*, which provides the doctrinal basis and general guidance for how the PLAAF will fight future campaigns.⁴⁰

PLAAF Campaign Terminology.

Before we discuss PLAAF campaigns, a brief discussion of key terms is necessary. The term "Air Force campaign" applies to all types of Air Force campaign operations.⁴¹ The PLAAF describes an Air Force campaign as the use of "from one to several campaign *juntuan* (*zhanyi juntuan*) or campaign and tactical *bingtuan* (*zhanyi zhanshu bingtuan*) to carry out the integration of a series of battles according to a unified intention and plan to achieve a specific strategic or campaign objective in a specified time. An Air Force campaign is implemented under the guidance of the national military strategy and the PLAAF's strategy."⁴² For the PLAAF, a *juntuan*-level organization refers to the seven MR Air Force (MRAF) headquarters, and a *bingtuan*-level organization refers to division, brigade, or regiment headquarters.

An Air Force campaign is also described as “a campaign conducted independently by an Air Force campaign *juntuan* or with the coordination of other services and branches. An Air Force campaign is guided by the national military strategy and is limited by the PLAAF’s strategy. An Air Force campaign involves various air-to-air, air-to-ground, and surface-to-air battles to achieve specific military objectives. The campaign determines the battle’s character, goals, missions, and actions, and directly supports the local and overall war.”⁴³

PLAAF Campaign Categories.

In this regard, the PLAAF has been methodical in the way it has defined its campaign theory and used the theory to provide operational guidance for its forces. PLAAF campaign theory can be categorized into that for aviation (aircraft), for air defense (SAM, AAA, and radar troops), and for airborne troops.⁴⁴ Not surprisingly, these three categories reflect the way the PLAAF is organized administratively and operationally.

Characteristics and Objectives. Based on campaign characteristics and objectives, the publication *Science of PLA Air Force Campaigns* identifies three specific types of PLAAF campaigns:⁴⁵

- Offensive air campaigns (*kongzhong jingong zhanyi*);
- Air-defense campaigns (*fangkong zhanyi*); and
- Air-blockade campaigns (*kongzhong fengsuo zhanyi*).

Also based on their characteristics and objectives, *Science of PLA Air Force Campaigns* identifies the following two types of joint-service campaigns where the PLAAF plays a major part:

- Joint anti-air strike campaigns (*lianhe fankongxi zhanyi*); and
- Airborne campaigns (*kongjiang zhanyi*).⁴⁶

Operational Scale. Based on a campaign's operational scale, *Science of PLA Air Force Campaigns* divides PLAAF campaigns into the following three types:

- Multiple war zone (*duo zhanqu*) Air Force campaigns, such as an air defense campaign of the capital (*shoudu fangkong zhanyi*), and Air Force offensive campaigns to destroy the enemy's potential power (*quanli*);
- War zone (*zhanqu*) Air Force campaigns; and
- War zone direction (*zhanqu fangxiang*) Air Force campaigns.

Command Relationships between Services and Branches.

Based on the command relationships and the services and branches participating in the war, PLAAF campaigns can be divided into the following three types:

- Independent (*duli*) Air Force campaigns;
- Combined arms (*hetong*) Air Force campaigns; and
- Jointly executed (*lianhe shishi de*) Air Force campaigns.

THE PLAAF'S TACTICAL DOCTRINE

On its 45th anniversary in November 1994, the PLAAF published *The Science of Air Force Tactics*, an internal military tactics manual which has not been made publicly available. According to a brief explanation provided in the *China Air Force Encyclopedia*, the manual discusses both basic theory (*tactics*) and practical application theory (*techniques and procedures*).⁴⁷ The manual identifies weapons and equipment, combat personnel, the battlefield environment, combat command, and combat support as the principal factors influencing the tactical level of conflict. The tactics manual also includes practical application theory (*techniques and procedures*) for aerial combat, air-to-ground combat, and surface-to-air combat.

Training Guidance Concepts.

Instructions titled “military training guidance concepts” (*junshi xunlian zhidao sixiang*) issued by the PLAAF in 2001 downplay safety considerations, focusing rather on realistic and demanding training. Training guidance concepts are issued by the PLAAF Party Committee to unify training ideology, address major challenges, identify training restrictions, and establish overall training objectives.⁴⁸ The concepts are reviewed and modified when “situations and mission development change, weapons and equipment are replaced, and new regulations and outlines are implemented.”⁴⁹ The first set of PLAAF training guidance concepts was published in 1951. Revisions have been issued only seven times—1952, 1954, 1958, 1965, 1974, 1987, and 2001. A comparison of the two most recent sets of concepts, shown in Figure 1, clearly demonstrates the shift in training philosophy that

occurred between 1987 and 2001. In 1987, “safety” was the watchword, with little focus on training per se. In 2001, every line points to practical, realistic training.

Concepts issued in 1987 Adhere to reform (jianchi gaige) Enhance effectiveness (tigao xiaoyi) Improve steadily (wenbu qianjin) Ensure safety (baozheng anquan)
Concepts issued in 2001 Closely adhere to actual combat situations (jintie shizhan) Stress training against opposing forces (tuchu duikang) Be strict during training (cong nan cong yan) Apply science and technology during training (keji xingxun)

**Figure 1. Comparison of 1987
and 2001 Training Concepts.**

The Dagang (military training and evaluation outline or program). The PLA published its first training guidance in 1955 under the title *PLA Combat Training Dagang* (*Zhongguo Renmin Jiefangjun Zhandou Xunlian Dagang*), usually denominated simply as the “*dagang*”). The *dagang* established the military training plan for all services and branches of the PLA. Between 1957 and 1980, the PLA revised the basic *dagang* three times. When the *dagang* was revised again in 1989, the General Staff Department (GSD) became responsible for issuing the Army *dagang*, with the PLA Navy, the PLA Air Force, and the Second Artillery each responsible for issuing its own.

The *dagang* provides the general plan for military training. It establishes the “laws governing military training” and the “foundation for organizing and implementing military training.”⁵¹ It includes training goals, principles, content, implementation phases and

procedures, timing, methods, and quality-control inspection procedures.⁵² Each *dagang* is divided into separate volumes according to different objectives and levels, with each volume then further divided into subsections by organization or specialty. For example, in 1997, the Army *dagang* had a total of five volumes comprising 35 subsections.

In 2001, the GSD revised the *dagang* for the ground forces yet again. The English version of the 2002 *Defense White Paper* translated this *dagang's* title as *Outline of Military Training and Evaluation* (*junshi xunlian yu kaohe dagang*).⁵³ It appears this was the first time the word evaluation (*kaohe*) was included.

In April 2002, the PLAAF published its own revised *Air Force New Generation Outline of Military Training and Evaluation* (*kongjun xinyidai junshi xunlian yu kaohe dagang*).⁵⁴ The PLAAF's *dagang* was divided into several sections, addressing command personnel, headquarters department, branches (aviation, AAA, SAM, airborne, and radar), and all support elements such as the communications troops.

A GROWING LEADERSHIP ROLE FOR THE PLAAF

Historically, Army officers have held all key leadership positions in the four General Departments, the National Defense University, the Academy of Military Science (AMS), and the seven MR headquarters. In recent years, however, this has begun to change slowly. Since 2000, the CMC has steadily assigned PLAAF officers to an increasing number of pivotal leadership positions in Beijing and MR headquarters. These steps indicate a gradual but more concerted effort to implement joint reforms at the highest levels within the PLA.

Over the years, general officer realignments have been observed within the headquarters at the seven MRs. The first changes occurred in the late 1980s, when the seven Military Region Air Force (MRAF) commanders were concurrently appointed as deputy commanders of MR headquarters. Today, some, and possibly all, of the MRAF political commissars are also concurrently appointed as MR deputy political commissars. In 2002, the first PLAAF general officer was appointed to serve as deputy director of the Nanjing MR Operations Department. In late 2003, the PLAAF began to augment each of the seven MR headquarters by appointing a major general to serve as a deputy chief of staff in the Headquarters Department.

In August 2003, Lieutenant General Zheng Shenxia was elevated from the position of Chief of Staff of the PLAAF to the commandantship of the PLA's Academy of Military Science.⁵⁵ As the first Air Force officer to hold this post, General Zheng has already brought new emphasis to the integration of air operations into PLA strategic doctrine.

In 2004, the CMC made several significant decisions and appointments affecting the Air Force. During a May meeting, the CMC approved a PLAAF component as part of the National Military Strategic Guidelines and elevated PLAAF Commander General Qiao Qingchen to be a member of the CMC.⁵⁶ Although the PLAAF remained subordinate to the four General Departments, the placement of an Air Force commander on the CMC demonstrated a remarkable change in the PLA protocol.⁵⁷ Also in 2004, the CMC selected Shenyang MRAF Commander Lieutenant General Xu Qiliang to serve as a Deputy Chief of the General Staff, making him only the second officer in the history of the PLAAF to hold this position.⁵⁸ In late 2004, two

more PLAAF generals were named as deputies of a General Department.⁵⁹ PLAAF Deputy Commander Lieutenant General Li Maifu was appointed as the first Air Force deputy director of the General Logistics Department, and Lieutenant General Liu Zhenqi was named as the first PLAAF officer to hold the position of deputy director of the General Political Department. Another significant appointment occurred in August 2006, when Lieutenant General Ma Xiaotian was appointed as the first PLAAF commandant of the National Defense University,⁶⁰ but, surprisingly, no PLAAF officer has as yet been assigned as a deputy in the General Equipment Department.

As a whole, these appointments and the CMC's approval of an Air Force component to the National Military Strategic Guidelines represent a significant break with a past in which the Army retained a stranglehold on senior leadership positions, enabling them to subordinate Air Force interests and potential contributions. These changes in senior officer appointments reflect a significant change in the PLA culture that can be observed in other more subtle ways. For example, up until the late 1990s, irrespective of service or branch, all military personnel assigned to duty within the PLA General Departments, NDU, AMS, or an MR headquarters were required to wear a PLA uniform. Today, personnel assigned to "joint" positions are allowed to wear the uniform of their own service. In 2006, the PLAAF introduced new military uniforms, which, for the first time, were not of the basic Army uniform pattern.

The PLA is at an early stage of transition toward improved joint operational capabilities. The appointment of several Air Force officers to national-level positions is a clear signal of intent and purpose.

However, it remains unclear whether power and authority have shifted in any substantial way to senior PLAAF leaders. Greater PLAAF authority might manifest itself in more Air Force discretion over the direction and management of Air Force weapons development and acquisition programs. It might also be anticipated that the PLAAF will enjoy a larger role in planning and execution of operations. Future advancement along this path toward greater jointness might be evinced by the appointment of Air Force officers to key director or deputy director billets in the MR first-level departments (i.e., Headquarters, Political, Joint Logistics, and Equipment Departments), or the second-level departments such as the Operations Department.

ORGANIZATIONAL REFORMS

The PLAAF has been engaged in a PLA-wide restructuring aimed at achieving “optimal force structures, smoother internal relations, and better quality.”⁶¹ Ten rounds of PLA force reductions since 1985 have trimmed nearly 2 million uniformed personnel from the PLA active duty ranks. Under the most recent order, the PLA was directed to eliminate 200,000 active duty positions between September 2003 and the end of 2005, cutting the size of the PLA to 2.3 million. Previous cuts fell on enlisted ranks, resulting in mass demobilizations and unit deactivations. This round targeted the PLA’s bloated officer rosters.⁶² Approximately 170,000 officers—85 percent of the announced reduction in force—were pared from the top-heavy personnel rosters.⁶³ Based on a proportional slice, the PLAAF was forced to cut 30,000 officer billets.

Two specific goals of this latest force reduction were to replace junior officers with noncommissioned officers (NCOs) and reduce the number of general officers. For reducing the number of staff officers assigned to headquarters, the solution was to downgrade by two echelons all five air armies (*kongjun jun*) and the five army-level bases to division-level command posts.⁶⁴ As a result, the PLAAF currently has a total of 13 command posts, with two in each of five military regions, three in the Lanzhou MR, and none in the Jinan MR.

These structural changes were necessary to reshape the PLAAF's operational command structure, but the changes have also adversely affected morale among officers at all levels whose jobs were eliminated or who have been denied an eventual promotion to the next level to secure their retirement benefits.

The possibility exists for yet another major PLA force reduction by the end of the decade, which could further restructure headquarters staffs. In addition, the PLAAF can be expected to continue the restructuring of air divisions and air regiments. As the PLAAF continues to introduce the Su-30, J-11, J-10, FC-1, and JH-7 into the inventory as replacements for the vintage Q-5, J-6, and J-7, some units will transition to new weapon systems; others will be deactivated.⁶⁵ The final restructuring by the end of the decade could leave the PLAAF with just under 30 operational divisions, most of which will have only two regiments each.

PLAAF logistics and maintenance units have experienced significant reorganization and restructuring since the 1990s. Major changes were necessary to accommodate new operational mission requirements as the PLAAF transitioned from a force confined to employing single branches (aviation, surface-to-air missiles, antiaircraft artillery, radar, and airborne troops) and single aircraft types in positional defensive

campaigns, to a force capable of combined arms operations in mobile, offensive campaigns.⁶⁶ Ultimately, the PLA is striving to conduct joint service operations supported by joint logistics. To achieve these goals, the PLAAF has reconfigured logistics and maintenance systems, which traditionally have not been structured to support mobile, offensive operations. While many of the changes are still underway, some are still only aspirational.

Historically, a single airfield has hosted one regiment fitted to a single type of aircraft. The logistics and maintenance structure was organized to support only that type of aircraft. When aircraft deployed, they flew to a base with the same type of aircraft. Today, however, that situation is changing as a result of the PLAAF's emphasis on achieving new mobility goals. Now, small logistics and maintenance teams deploy, usually by rail or road, along with the deploying aircraft to any type of airfield. Furthermore, efforts are underway at PLAAF airfields to instruct specialized maintenance teams in the cross-servicing of multiple aircraft types.

NEW PERSONNEL PROGRAMS

Significant changes in the PLAAF's recruiting and training of conscripts, NCOs, and officers (cadre) have taken place since the late 1990s and will continue through the end of the decade.

Enlisted Force.

Prior to 1999, the PLAAF's enlisted conscripts served for 4 years. At the end of that period, they could remain on active duty as a "volunteer" for an additional 12 years. In 1999, China revised its Military

Service Regulations, which reduced the conscription period for all of the PLA's services and branches to 2 years.⁶⁷ All conscripts report for duty on November 1 and are demobilized 2 years later on October 31. During the early 2000s, the PLAAF began recruiting civilian college students who had not yet completed their studies to join as enlisted troops. The goal is to have them remain on active duty as NCOs at the end of their initial 2-year service.

The revised service regulations also established a formal NCO corps, whose members can now serve until they have 30 years of service or until they reach age 50. The PLAAF must now provide housing for them and their families as well. In terms of education, some PLAAF NCOs can attend an officer academy to receive a technical degree before returning to their unit as an NCO.

Although the PLA does not announce specific figures for the number of troops by rank and specialty, it appears that the number of conscripts has gradually been reduced, while the number of NCOs has increased accordingly to provide greater experience and stability to the overall enlisted force.

Officer Corps.

The PLAAF has also begun to reform the way it recruits officers. Historically, most officers were recruited from high school graduates or the enlisted force. Once they join the PLAAF, they attend a PLAAF academy, where they receive a 3- or 4-year degree and are commissioned as an officer. Today, the PLAAF is recruiting civilian college graduates and providing them with 3 months of basic training before they are commissioned as officers.

The most significant changes have taken place in recruiting pilots, which historically relied on high school graduates and enlisted personnel selected for officer pilot training. In 2000, the PLAAF began to recruit its pilots from graduates who have a 4-year bachelor's degree in specific areas from one of the PLA's academies, including the Army, Navy, and Second Artillery.⁶⁸ In 2003, the PLAAF extended the program to civilian college graduates with specific bachelor's degrees.⁶⁹ These graduates receive 2 years of flight training at a PLAAF flight academy and 1 year of transition training before being assigned to an operational unit. As a result, the first group of pilots selected from PLA college graduate began entering the operational force in 2003. The first group of pilots selected from civilian college graduates entered the operational force in mid-2006.

ENHANCEMENTS TO EDUCATION PROGRAMS

The total number of PLAAF schools and academies has expanded and contracted over the years in response to policy changes regarding training objectives or war preparations. At one point, the PLAAF had over 30 academies, including as many as 17 flying schools during the Cultural Revolution. Today, the PLAAF has less than 20 academies, including eight flying academies and one NCO school.

In 1986 the PLAAF upgraded its officer schools to academies and began offering master's degrees in certain subjects. In 1999, three schools in the Xian area were combined administratively to become the PLAAF Engineering University, so that the first 2 years of basic training could be conducted in a single location, and doctorate degrees could be offered. The PLAAF's Antiaircraft Artillery Academy also expanded its

curriculum to include training airborne officers for the first time. In 2004, three additional academies in the Changchun area were combined into the Air Force Aviation University. The trend of consolidating academies into universities and expanding the curriculum will most likely continue through the end of this decade.

The PLAAF has always placed great emphasis on training officers to be proficient in tactics and technical skills, but did not begin focusing on officer education until the mid-1980s. Whereas the schools before the 1980s taught officers to fly, maintain, and support aircraft, these technically oriented schools did not spend much time on the theory of warfighting at the campaign and strategic levels.

In 1996, the PLAAF's official magazine, *China Air Force*, carried an article written by the PLAAF's Command College that discussed the lack of adequate combined arms and joint training characterizing the PLAAF officer corps in the early 1990s.⁷⁰ The article described the PLAAF's commanders at the regimental to MRAF headquarters levels as "lacking knowledge, having poor concepts, and being incompetent in joint operations." As part of the reforms to produce trans-century commanders, the Command College began focusing on theories such as joint combat operations, mobile warfare, information warfare, and electronic warfare, and updated its combat theory.

Not only was the PLAAF concerned about its commanders being unable to command combined arms and joint forces, it was also concerned about their inability to use high-tech systems effectively. According to a *People's Daily* article in May 2000, the PLAAF began requiring all of its officers at and above the regimental commander level to receive high-tech training within

1 year.⁷¹ The new course includes modern air combat theory, development trends in modern fighter aircraft, weaponry for modern combat, equipment for high-tech warfare, and command automation devices.

On the occasion of the PLAAF's 56th anniversary in 2005, commander Qiao Qingchen and political commissar Deng Changyou stated, "We should continue to step up the training of Air Force pilots, new equipment operators, combined arms force commanders, and high-level scientists, technicians, and experts, and gradually create a sufficient number of outstanding young and middle-aged qualified personnel."⁷²

By the end of this decade, the PLAAF will most likely still be concerned about its officers having the ability to command at the combined arms and joint level due to the dearth of PLAAF officers assigned to joint positions in the seven MR Headquarters and four General Department headquarters. However, the computer skills of its officer corps should be much better as younger officers who have grown up with computers move into command and staff positions at the regiment and division level.

SUMMARY

While the PLAAF has made impressive progress towards comprehensive force modernization, most Western observers have concluded that it will require an additional 10-15 years before the process is complete. Several obstacles stand in the way. The most visible impediments are the lingering hardware deficiencies. China's Air Force continues to face significant shortfalls in key weapon systems and other hardware—advanced fighters, airborne warning

and control (AWACS), aerial tankers, and C4ISR infrastructure—that are essential for the conduct of high-intensity, offensive air operations. Chief among the PLAAF's challenges is a large inventory of obsolete aircraft that contribute little to capabilities and will require substantial additional time and resources to maintain and replace. Modernization has also been hampered by lengthy delays in fielding command and control and air surveillance aircraft, two systems that are essential for the Air Force to extend its reach beyond the shoreline.⁷³

PLAAF modernization also rests on its ability to introduce the full measure of reforms that are currently underway within the ranks. The force structure is being radically reshaped to accommodate the introduction of advanced new weapons and the logistics support required to sustain these systems. In addition, Air Force strategists are actively engaged in the development of new operational concepts and doctrine, tasks made doubly difficult by the PLAAF's lack of recent combat experience. Significant changes are also underway in the training and educational programs to ensure that Chinese airmen have the skills and knowledge required to operate advanced weapons in a complex operational environment. Many of these changes are just now taking shape, and another dozen years will be needed before today's lieutenants mature into seasoned mid-grade professionals.

ENDNOTES - CHAPTER 9

1. *China's National Defense in 2004*, Beijing, State Council Information Office, December 27, 2004, www.china.org.cn/english/MATERIAL/116010.htm.

2. China's air forces include the PLA Air Force, PLA Navy Air Force and PLA Aviation (helicopter) units. The focus of this chapter is on the PLA Air Force.

3. For the PLA, reforms (*gaige*) encompass three components: modernization (*xiandaihua*), regularization (*zhengguihua*), and revolutionization (*geminghua*). Within the PLA's context, modernization refers primarily to equipment and weapon systems, or what can be considered the PLA's hardware; regularization is the software component, which includes leadership, personnel, education, training, organizational structure, housing, and funding, etc.; and revolutionization is the political component.

4. See *China's National Defense in 2006*, December 29, 2006, www.china.org.cn/e-white/.

5. Hua Renjie, Cao Yifeng, and Chen Huixiu, eds., *History of Air Force Theory (Kongjun Xueshu Sixiang Shi)*, Jiefangjun Publishers, Beijing, 1991, pp. 294-331.

6. *Ibid.*

7. Chengdu Military Region Campaign Training Office, *Air Force Utilization During the Campaign to Defend Group Army Field Positions (Jituanjun Yezhan Zhendi Fangyu Zhanyi Kongjun de Yunyong)*, February 1982, p. 1. This ground force domination is not surprising, since every PLAAF commander and deputy commander until the late 1980s had their roots in the ground forces. It was not until 1973 that the PLAAF even had its first aviator as a deputy commander and 1985 as the commander. Even now, the Army still selects the PLAAF senior officers.

8. Teng Lianfu and Jiang Fusheng, ed., *Air Force Operations Research (Kongjun Zuo-zhan Yanjiu)*, Beijing: National Defense University Publishers, May 1990, pp. 276-282.

9. Teng and Jiang, pp. 296-298.

10. *Ibid.*

11. Richard Fisher has written extensively on the PLAAF's acquisition of Russian weapon systems.

12. The PLAAF operates three separate versions of the SU-27 *Flanker* aircraft, including the Russian-built single-seat SU-27SK and tandem-seat SU-27UBK, and a domestically-produced single-seat model that has been designated the J-11.

13. The information for this comparison comes from the International Institute for Strategic Studies (IISS), *Military Balance* for 1990 and 2005, plus data from the U.S. Department of Defense, Annual Report to Congress on the Chinese military.

14. See www.sinodefence.com/airforce/fighter/default.asp. Estimates vary for exact numbers of operational combat aircraft in the PLAAF. This list appears reasonably accurate, although lower than the numbers found in the DoD Report which credits China with a combined total of 2,300 PLAAF and PLAN combat aircraft, including 1,525 fighters and 775 attack/bombers.

15. *China's National Defense*, 2004.

16. *Science of PLAAF Campaigns* (*Zhongguo Renmin Jiefangjun Kongjun Zhanyi Xue*), Beijing: Liberation Army Publishers, November 1988. Approval for research to begin on this publication occurred in June 1984.

17. *Science of Air Force Tactics* (*Kongjun Zhanshu Xue*), Beijing: PLA Press, November 1994.

18. Dai Jinyu, ed., *Science of Air Force Strategy* (*Kongjun Zhanlue Xue*), Beijing, Guofang Daxue Publishers, July 1995. According to the book's introduction, General Zhang Zhen broached the idea of establishing Air Force strategic theory as a specialty within the university in 1986, but no action was taken until the early 1990s.

19. Min Zengfu, ed., *An Introduction to Air Force Military Thought* (*Kongjun Junshi Sixiang Gailun*), Beijing: PLA Press, January 2006, p. 42. This book was published as part of the PLAAF's Military Theory Research 10th Five-Year Plan. In 1998, PLAAF Headquarters approved the basic concept of the book so that research could begin.

20. Cai Fengzhen and Tian Anping, eds., *Kong Tian Yiti Zuozhan Xue* (*The Science of Integrated Air and Space Operations*), PLA Press, August 2006.

21. Hua Renjie, Cao Yifeng, and Chen Huixiu, eds., *History of Air Force Theory*, pp. 294-331; Gao Rui, ed., *Zhanlue Xue* (*Science of Strategy*), Academy of Military Science, October 15, 1987, p. 114. Since its inception in 1987, the concept of simultaneous offensive and defensive operations has gradually evolved from a "goal" (*mubiao*) or "model" (*moshi*), indicating the aspirational nature of this desired capability.

22. Yao Wei, ed., *China Air Force Encyclopedia* (*Zhongguo Kongjun Baike Quanshu*), Beijing: Aviation Industry Press, November 2005, p. 39.

23. Dai Jinyu, ed., *Kongjun Zhanlue Xue* (*Science of Air Force Strategy*), Beijing, Guofang Daxue Publishers, July 1995.

24. *Ibid.*

25. Hua Renjie, Cao Yifeng, and Chen Huixiu, eds., *History of Air Force Theory*, p. 312; Oliver Chou, "President Calls for Hi-Tech Push by Air Force," *South China Morning Post*, March 3, 1999; Sun Maoqing, "PLA Commander on Modernizing Air Force," *Liaowang*, April 14, 1997, No. 15, *Foreign Broadcast Information Service (FBIS)*, pp. 20-21; Hua Chun, Chang Tun-Hua, and Kuo Kai, "Air Force Trains Crack Units Troops for Offensive, Defensive Operations, Interview, Lieutenant General Liu Shun Yao, PLA Air Force Commander," *Hong Kong Ming Pao*, August 2, 1997, *FBIS-CHI-97-226*, August 2, 1997. See also speech by Liu Shun Yao, "Comprehensively Push Forward PLA Modernization Building," *Jiefangjun Bao*, December 24, 1998 (*FBIS*). The timing of the first comments on an offensive capability came from Liu Shun Yao as he took over the commander's position in December 1996 and as Taiwan began final preparations to receive the first squadron of 150 F-16s in April 1997.

26. David M. Finkelstein, "China's National Military Strategy," Chapter 2 in this volume. In 1985, the CMC approved "Offshore Defense" as the PLA Navy's component of the "Active Defense" strategy within the National Military Strategic Guidelines.

27. Yao Wei, ed., *China Air Force Encyclopedia*, p. 57. At the same meeting, Jiang Zemin stepped down as the Chairman and the CMC approved elevating the commanders of the PLA Navy, Air Force, and Second Artillery as CMC members, but it was the second time a PLAAF commander was a member of the CMC. Zhang Tingfa, who was the PLAAF commander from 1977 to 1985, served on the CMC from August 1977 to September 1982. Zhang was also a member of the Chinese Communist Party Central Committee Politburo from August 1978 until September 1985.

28. "China Plans To Build Strategic Air Force, Acquire Long-Range Bombers," *Hong Kong Feng Huang Wang*, June 28, 2004.

29. Cai Fengzhen and Tian Anping, eds., *Air and Space Battlefield and China's Air Force (Kong Tian Zhanchang Yu Zhongguo Kongjun)*, PLA Press, March 2004; Cai Fengzhen and Tian Anping, eds., *The Science of Integrated Air and Space Operations (Kong Tian Yiti Zuozhan Xue)*, PLA Press, August 2006. At the time of the first book (2004), Cai was the commandant of the PLAAF Engineering University in Xian. At the time of the second book (2006), he had moved

up to be one of the deputy chiefs of staff in the Headquarters Department at PLAAF Headquarters. Tian is an instructor at the PLAAF Engineering University.

30. Cai Fengzhen and Tian Anping, eds., *The Science of Integrated Air and Space Operations (Kong Tian Yiti Zuozhan Xue)*, PLA Press, August 2006, pp. 299-301.

31. *Ibid.*, p. 2.

32. Min Zengfu, ed., *An Introduction to Air Force Military Thought*, pp. 1-3.

33. *Ibid.*, p. 42.

34. An imperfect fit exists between the lexicons of Western and Chinese military planners and theorists. Western planners refer to “strategies,” “doctrine,” and “tactics, techniques, and procedures (TTP)” to address the concepts at the strategic, operational, and tactical levels of military operations, respectively. Chinese military planners are in agreement with Western counterparts at the strategic level, but prefer to use the term “theory” to describe operational and tactical level concepts.

35. The remaining 19 campaigns are as follows: ground force campaigns—mobile warfare, positional offensive, urban offensive, positional defensive, and urban defensive; naval forces campaigns—sea blockade, sea lines of communications (SLOC) destruction, coastal raid, antiship, SLOC defense, naval base defense; Second Artillery campaigns—nuclear counterattack, conventional ballistic missile campaigns; and joint service campaigns—blockade, landing, antiair raid, airborne, and antilanding. Wang Houqing and Zhang Xingye, eds., *Zhanyi Xue (Science of Campaigns)*, Beijing: National Defense University Publishers, May 2000, Chapter 13, pp. 350-351.

36. Hua Renjie, Cao Yifeng, and Chen Huixiu, eds., *History of Air Force Theory*, pp. 294-331.

37. *Ibid.*

38. *Zhongguo Renmin Jiefangjun Kongjun Zhanyi Xue (Science of PLAAF Campaigns)*, Beijing: Liberation Army Publishers, November 1988. Approval for research to begin on this publication occurred in June 1984.

39. Hua Renjie, Cao Yifeng, and Chen Huixiu, eds., pp. 294-331.

40. See big5.xinhuanet.com/gate/big5/news.xinhuanet.com/zilian/2004-07/26/content_1649800.htm.

41. Teng Lianfu and Jiang Fusheng, eds., *Air Force Operations Research*, May 1990, p. 157.

42. *Ibid.*, p. 152; Wang Houqing and Zhang Xingye, eds., *Science of Campaigns*, p. 346.

43. Wang Houqing and Zhang Xingye, eds., *Science of Campaigns*, p. 346.

44. Teng Lianfu and Jiang Fusheng, eds., *Air Force Operations Research*, p. 155.

45. This is in contrast to the 1988 version of *Science of PLAAF Campaigns*, which discusses air defense, air offensive, and combined arms campaigns, but does not mention air blockade, airborne, or joint service campaigns. The 1988 book also devotes separate chapters to air campaigns relative to command of the air, electronic countermeasures, and operations under chemical, biological, and nuclear conditions.

46. Of note, the 2000 *Science of Campaigns* book lists airborne campaigns as a joint campaign. However, a new PLA book published in 2006 has shifted airborne campaigns from joint status to being an Air Force campaign. See Zhang Yuliang, ed., *Zhanyi Xue (Science of Campaigns)*, Beijing, National Defense University Press, September 2006.

47. Yao Wei, ed., *China Air Force Encyclopedia*, pp. 108-110.

48. Zhu Rongchang, ed., *Kongjun Da Cidian (Air Force Dictionary)*, Shanghai: Shanghai Dictionary Publishing House, September 1996, p. 779, under the heading, *Principles of Flying Training of Air Force*, and p. 180, under the heading, *Guide Thought for Air Force Military Training*.

49. Ken Allen in discussions with senior PLAAF officers.

50. See web.wenxuecity.com/BBSView.php?SubID=military_best&MsgID=1661.

51. Yang Changlin, ed., *Dangdai Junguan Baike Cidian (Contemporary Military Officer Encyclopedia-Dictionary)*, Beijing: PLA Publishers, July 1997, p. 92. The term “dagang” can be translated in different ways. Various PLA dictionaries and encyclopedias published during the 1990s have an entry for the *dagang*, translating it as the Training Outline (*xunlian dagang*) or Programme of Military Training (*junshi xunlian dagang*). For

example, the PLA's *Air Force Dictionary*, which was published in 1996, translates *dagang* as the Programme for Military Training. See Zhu Rongchang, ed., *Kongjun Da Cidian (Air Force Dictionary)*, Shanghai: Shanghai Dictionary Publishing House, September 1996, p. 180; Zhang Xusan, ed., *Haijun Da Cidian (Navy Dictionary)*, Shanghai: Shanghai Dictionary Publishing House, October 1993, p. 236.

52. Zhu Rongchang, ed., *Air Force Dictionary*, p. 180.

53. *China's National Defense in 2002*, English Version, Beijing: Information Office of the State Council of the People's Republic of China, December 2002.

54. Based on multiple sources. The PLAAF's *dagang* consists of at least 15 chapters, each of which is divided into multiple sections.

55. Zheng Shenxia was one of 15 officers elevated to the rank of general or admiral in June 2004. See english.peopledaily.com.cn/200406/20/eng20040620_146943.html.

56. The only other PLAAF commander to serve on the CMC was Zhang Tingfa (from 1977 to 1982). Zhang was also a member of the Party's Politburo from 1977 until 1985, when he retired. For information on the PLA's grade structure and how it fits into the promotion system, see Kenneth Allen and John Corbett, "Predicting PLA Leader Promotions," in *Civil-Military Change in China: Elites, Institutes, and Ideas After the 16th Party Congress*, U.S. Army War College, Carlisle, PA, October 2004, pp. 257-278. Qiao is only the ninth commander since the PLAAF was established in 1949. It is highly likely that Qiao will be replaced at the 17th Party Congress in 2007, at which time he will be 68 years old.

57. Interviews.

58. The first PLAAF officer to be appointed to the position of Deputy Chief of General Staff was former PLAAF commander Wu Faxian in the 1960s.

59. "Four General Departments of the PLA Announce Personnel Changes," *Hong Kong Wen Wei Po*, January 12, 2005.

60. "Ma Xiaotian Promoted to Office of the President of Defense University," *Hong Kong Ta Kung Pao*, August 18, 2006. Prior to his appointment to NDU, Ma was one of the PLAAF's four deputy commanders.

61. *China's National Defense in 2004*.

62. Officers reportedly comprise over 30 percent of the PLA; officer ratios are even higher in the PLAAF, the PLA Navy, and 2nd Artillery. See Cheng Ying, Li Xuanliang, and Liu Fengang, "Transformation of PLA's Military Training Strategy: An Exclusive Interview with Zhang Baoshu, Director of the Military Training and Arms Department of the PLA General Staff Headquarters," *Shanghai Liaowang Dongfang Zhoukan*, No. 32, August 10, 2006, pp. 28-29.

63. Chiang Hsin-hsien, "China to Complete Force Reduction of 200,000 Troops in 2005," *Hong Kong Wen Wei Po*, October 6, 2005.

64. *Ibid.* In addition, see www.chinamil.com.cn/site1/ztpd/2004-09/09/content_11222.htm. Some of the command posts, such as the Wulumuqi Command Post, may have been downgraded by only one grade to a deputy army/corps-leader grade organization.

65. The last F-6 was produced in 1979. See www.china-military.org/units/divisions.htm for information on each division.

66. This description is a composite of information taken from Hong Heping and Tian Xia, "Head to the New Century," *Zhongguo Kongjun (China's Air Force)* 1996-95; and Wen Guangchun, ed., *Jidong Zuozhan Houqin Baozhang (Logistics Support for Mobile Operations)*, PLA General Logistics Department Headquarters Department, PLA Press, January 1997. This is one of six books under the title *Gaojishu Tiaojian Xia Jubu Zhanzheng Houqin Baozhang (Logistics Support for Local Wars under High-Tech Conditions)* that the General Logistics Department commissioned the National Defense University and all logistics organizations to compile in 1995.

67. PRC 2004 *Defense White Paper*.

68. See www.pladaily.com.cn/item/flying/content/1620.htm.

69. See www.pladaily.com.cn/item/flying/content/1634.htm.

70. Hong Heping and Tian Xia, "Head to the New Century," *Zhongguo Kongjun (China Air Force)*, October 1, 1996.

71. *People's Daily Online*, english.people.com.cn/english/20005/16/print20000516_40895.html.

72. Sun Maoqing and Ren Bo, "PLA Air Force Commander and Political Commissar Discuss Air Force Development," *Xinhua*, November 11, 2005.

73. These and other hardware issues have been documented extensively in *Jane's Defence Information* and other aviation journals and publications.