



PEOPLE'S LIBERATION ARMY AIR FORCE (PLAAF)



Prelude

1. PLAAF is the aviation branch of the People's Liberation Army (PLA). This paper attempts to trace the transformational changes underway to make the PLAAF into a formidable modern force by 2020-25.

2. Interestingly, the markings of the PLAAF are similar to the insignia of the Russian Air Force. The Red star contains Chinese characters for eight and one, representing August 1, 1927, the date of formation of the PLA.

Preview

3. The paper is laid out in the following parts :-
- Part I - History.
 - Part II - Organisation and Order of Battle.
 - Part III - Modernisation.
 - Part IV - Equipment Profile.

Part I - History

4. The historical rise of the PLAAF can be categorised into five distinct periods from its origin in 1927 to the present times which is covered in subsequent paragraphs.

5. **Early Years (1929-1949).** Shortly after formation of the PRC, Nanyang Flying Group -1st organised air unit was formed in summer 1949 from about 40 ex-Nationalist aircraft and was tasked to defend Beijing, the nation's new capital.

6. **Founding Period: January 1949 to December 1953.** The Korean war saw considerable consolidation of organisation, personnel, equipment, logistics and training. PLAAF units that participated in the war were called the 'Chinese People's Volunteer AF'. They fought the War in Soviet MiG-15 (J-2) with requisite training from Soviet Instructors. During this period the Shenyang Aircraft Factory built two-seat MiG-15 UTI trainer as JJ-2 and its spares. Valuable experience gained during this period enabled the PLAAF to mass produce derivatives of Soviet aircraft under license subsequently i.e J-5 (MiG-17) in 1956, J-6 (MiG-19) in 1959 and J-7 (MiG-21) in 1967. By 1953, the PLAAF established 13 aviation schools and had 28 air divisions with about 3,000 aircraft. PLAAF created its first airborne unit in 1950 which grew and was designated as an "Airborne Corps" in 1960.

7. **Overall Devp Period (1954-1966).** The PLA Air Defence Force was merged into the Air Force in 1957 and forces moved into Fujian Province and subsequent combat with Nationalist forces in the Taiwan Strait in 1958. PLAAF's SAM forces were raised in 1958 and the PLAAF Headquarters was expanded in structure. This period also saw the establishing of regional headquarters and air corps in various areas throughout China. The PLAAF schools increased to 29, the PLAAF began writing regulations based on its own experience which indicated its transformation as an matured AF.

8. **Cultural Revolution Period (1966-1976).** Although, the force increased in size during the Cultural Revolution, its overall development suffered (training and education). Of the 29 PLAAF schools, 12 of them were shut down in 1969 and flight training and exercises were greatly reduced on account of lack of fuel and spare parts. As against required 123 flight hours annually, the actual number flown in 1970 was down to 30 to 40 hours. During the 1960s, the PLAAF added new AAA, SAM, and radar units to its air defence force. In late 1965, it began deploying AAA units to North Vietnam. From January 1954 to 1971, the PLAAF created an additional 22 air divisions throughout China, for a total of 50.

9. **Modernization Period (1976-Present).** In 1977, CMC commenced overhauling the PLAAF in areas of leadership, training, combat readiness, discipline, aircraft maintenance, logistics and staff work. It prioritised re-

establishing its training and education systems. By 1982, PLAAF awarded its first 4-year bachelor's degrees for officers and followed this by awarding its first master's and doctoral degrees in 1988 and 1990, respectively. By 1986, PLAAF re-designated all its officer schools as colleges and also created the PLAAF Dalian Communications NCO School. In the late 1980s, as the PLAAF's operational doctrine began shifting toward the goal of being prepared for simultaneous offensive and defensive operations, it sought to acquire specific weapons to meet these new requirements. Therefore, when Russian arms market opened up in early 1990s, PLAAF began to purchase systems such as the Su-27, Su-30, S-300 SAM and modern technology for China's defence industry to develop weapon systems.

10. **The Four Periods of Combat History.** The history of PLAAF can also be categorised by the four distinct periods of its combat history :-

- (a) Korean War (December 1950 to July 1953).
- (b) Territorial Air Defense of China (1954 to 1969) against American and Chinese Nationalist manned and unmanned aircraft.
- (c) Air Defence in Vietnam (August 1965 to March 1969).
- (d) Air Defence in Laos (1970 to November 1973).

11. However, the last time PLAAF aircraft, SAMs, or AAA shot down an enemy aircraft was over two decades ago.

- (a) **PLAAF Aircraft** - Shot down a manned aircraft was in April 1967, which involved a U.S. Navy F-4 near Guangxi Province in southern China.
- (b) **PLAAF AAA** - Unit stationed inside China shot down a manned aircraft was May 1967, which involved a U.S. Navy A-4 near Guangxi Province.
- (c) **PLAAF SAM** - Shot down an aircraft was on 5 October 1987, when a Vietnamese MiG-21 crossed the border of Guangxi Province.

Part II - Organisation and Order of Battle

Order of Battle

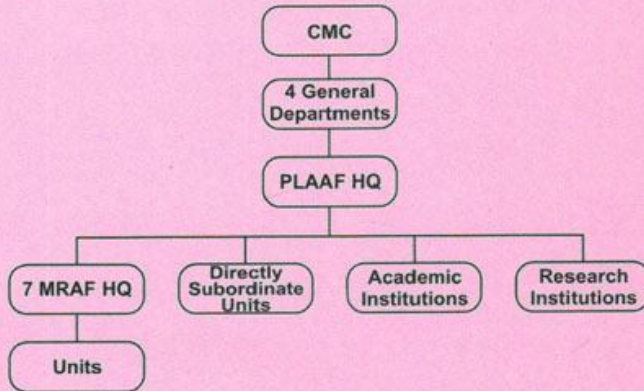
12. **PLAAF Branches.** The PLAAF is broadly organized into four branches as under :-

- (a) Aviation.
- (b) Surface-to-Air Missile (SAM).
- (c) Antiaircraft Artillery (AAA).
- (d) Airborne.

13. **Specialized Units.** PLAAF comprises five types of specialised units i.e communications, radar, electronic countermeasures, chemical defence and technical recce.

PLAAF Org

14. It is organized into three tiers from the CMC to the operational units/sub units.



15. **First Tier : PLAAF HQ & CMC.** PLAAF HQ is under the leadership of the CMC and four General Departments viz-General Staff Department, General Political Department, General Logistics Department and General Armament Department.

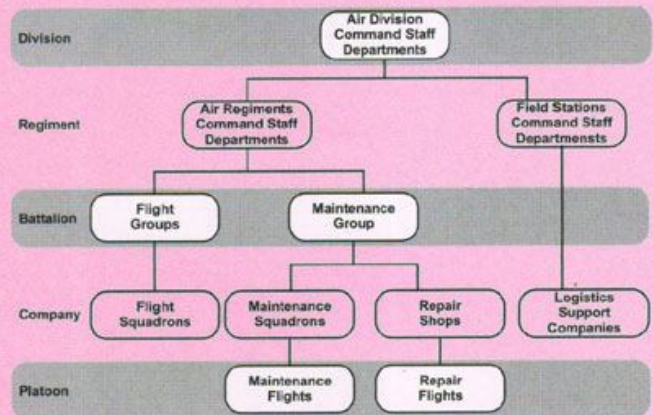
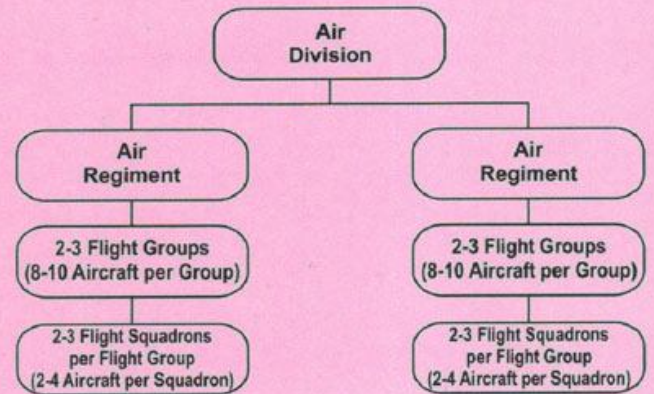
(a) **Primary Missions during Peacetime.** To manage and oversee Air Force reform and modernization and to execute direct operational command authority over key PLAAF units, such as the 15th Airborne Corps and the 26th Air Transport Division in Beijing.

(b) **Wartime Missions.** Providing personnel to staff the Air Operations Groups (AOG) at the national-level and theater headquarters. AOG would serve as a rough equivalent to the staff supporting a USAF's Joint Forces Air Component Commander (JFACC) for the Theater Command.

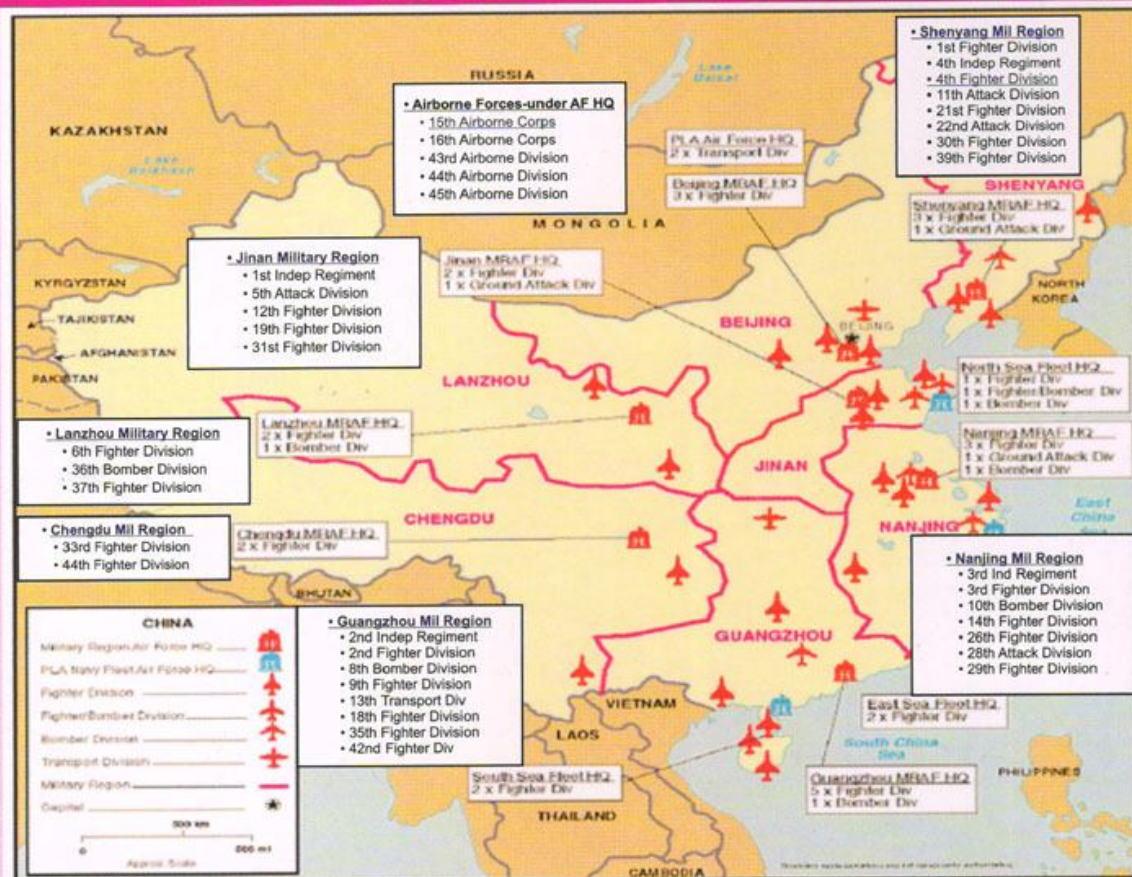
16. **Sec Tier : MRAF Headquarters.** The seven MRAF Headquarters make up the second tier. PLAAF organizes each MRAF according to its missions and battlefield environment. Each MRAF has subordinate air divisions, SAM brigades or regiments, and AAA regiments, as well as radar, communications, and support units and subunits.

17. **Air Corps Tier.** With the exception of the 15th Airborne Corps, which is directly subordinate to PLAAF Headquarters, PLAAF abolished the air corps tier during the PLA's 2003-2004 force reduction (2 lac pers) and redesignated them as Comd Posts (CP). There are 7 MRAF & 14 CPs.

18. **Third Tier : Unit and Subunit Tiers.** Organised on 'System of threes' - at Div level and below i.e 3 Regiments per Division, 3 Squadrons per Regiment & 3 Platoons per Squadron. The next tier consists of PLAAF units which the PLA defines as organizations at the corps, division, brigade, and regiment level. For example, air divisions and regiments, SAM brigades, and communications regiments are units. The final tier includes subunits, which the PLA defines as organizations at the battalion, company, and platoon level. The PLA identifies this tier as the "grassroots" level.



19. **MRAF Dply and Organisation.** PLAAF is organised into 7 MRAFs that roughly coincide with the military regions. The locations are as depicted on the map :-



Part III - Modernisation

Drivers of PLAAF Modernisation

20. It is imperative to study the imperatives for PLAAF modernisation from various perspectives to develop a better understanding of an air force that is poised to make the transitional change from a predominantly 'Territorial Force' to a 'Strategic' one.

21. **Capability Based Modernisation.** This focused on the principal requirement of fighting and winning High-Tech Wars.

(a) Modernization focused on catching up with advanced foreign militaries to be able to credibly engage in high-tech 21st century combat.

(b) PRC military leaders were greatly influenced by US ops in the first Gulf War, Op Desert Storm (1991) and the PLA shifted focus to high-tech, info-age Warfare.

(c) CMC promulgated new national military strategy in 1993 called "The Military Strategic Guidelines for the New Period".

(d) NATO operations in Balkans (1999) and U.S./ coalition operations in Afghanistan (2001) & Iraq (2003) greatly influenced PLA thinking.

22. PLA appears to be currently focusing on equipping and training to wage wars that are :-

(a) Fought for limited political objectives and localized in geographic scope.

(b) Short in duration but decisive in strategic (political) outcome. A single campaign may decide the entire war.

(c) Predicated upon mobility, speed, deep reach & highly intense tempo of operations characterized by high-lethality, high-tech "smart" munitions causing high levels of destruction.

(d) Critically dependent upon information, C4ISR, and demanding near-total battle space awareness.

(e) Fought simultaneously in all of the battle space dimensions to include outer space, cyber space, and the electromagnetic spectrum.

23. **Contingency Based Modernization.** Contingency based drivers for PLAAF modernisation are primarily aerospace and maritime intensive.

(a) These are driven by op requirements of Taiwan, relations with Japan & India as well as dispute in the South China Sea.

(b) Beijing's economic centre of gravity has shifted from deep interior (protected from potential Soviet land invasion during 1960s &

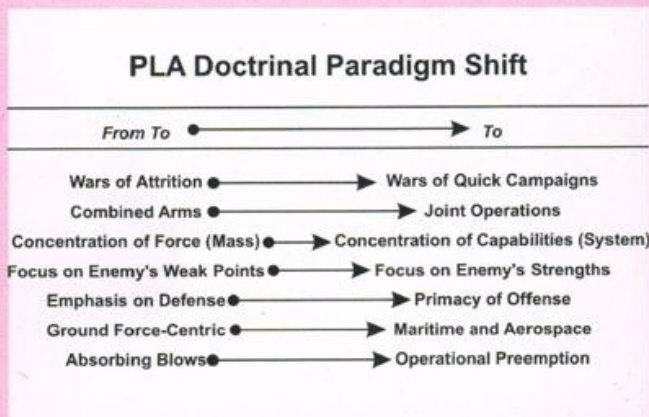
1970s) to the eastern seaboard from Dalian (North) to Hainan (South) presenting maritime & aerospace defence challenge.

(c) Hu Jintao's promulgation of "The Historic Missions of Our Military in the New Period of the New Century" in 2004, linked China's growing global economic interests with increasingly global political as well as global security interests.

(d) In addition to PLA's traditional missions (defence of the CCP/Chinese territory) - "The Historic Missions" have an unprecedented external focus.

(e) Includes protection of Chinese nationals overseas and Beijing's overseas investments, securing resources, protection of SLOCs vital to PRC trade and energy imports, defending Chinese equities in cyber space and outer space.

24. **PLA Doctrinal Paradigm Shift.** The PLA doctrinal paradigm shift can be summarised by the figure given below :-



Part IV - Equipment Profile

25. **General.** The PLAAF has approximately 330,000 personnel and 2,500+ aircraft, of which approx 1700 are combat aircraft. It is the largest air force in Asia, and the third largest in the world behind the United States Air Force and the Russian Air Force. PLAAF has a large mix of vintage aircraft which it attempts to rapidly replace with latest new generation combat aircraft produced by its aircraft industries amidst allegations of reverse engineering Western/Russian technology.

26. **Aircraft Acquisition.** PLAAF divides its aircraft acquisition into five periods.

(a) **First Period.** This period revolved around relationship with Soviet Union (1949-1960) and had a lasting impact on the develop of China's aviation industry and PLAAF force composition. In this period, China acquired 3,000 Soviet aircraft and received production rights to various models.

(b) **Second Period.** July 1960, Soviet Union withdrew specialist/cancelled all contracts. China then spent several years attempting to modify/reverse engineer some of the aircraft and missiles furnished by the Soviet Union. After 1965, the Cultural revolution severely disrupted PLAAF efforts. Between 1969 and 1971, continued disruptions led to profound quality-control problems.

(c) **Third Period.** Following the 1979 border conflict with Vietnam, PLAAF realized that the F-6 could no longer meet its long-term requirements. As a result, PLAAF terminated the F-6 program and infused money into the faltering F-7 and F-8 programs. This led China/PLAAF to begin negotiations with the US, resulting in foreign military sales contract (known as Peace Pearl Program) in the late 1980s to upgrade the fire control system on the F-8II with F-16 class avionics.

(d) **Fourth Period.** Occurred during the 1990s, when China turned back to Russia for weapon systems and technology. During this period, the PLAAF purchased Su-27s, Su-30s, and Il-76s from Moscow. The Shenyang Aircraft Corporation also began assembling and producing the Chinese-licensed copy of the Su-27, known as the F-11. The PLAAF deployed its first F-11s to an operational unit in the year 2000.

(e) **Fifth Period.** Covers the 2000s. During this period, PLAAF deployed Chinese-produced FB-7s, F-10s, and K-8s, as well as modified B-6 bombers capable of carrying air-launched cruise missiles. Although China produces all of these aircraft, most of them either are based on foreign aircraft and technology or include key foreign components, such as the engines.

27. **Aircraft Bases and Deployment Locations.** During 1950s, most of the PLAAF's units were concentrated in the northeast and major cities -Beijing, Shanghai, Nanjing & Tianjin to protect them from nationalist Air Force raids.

During 1958 Taiwan Strait Crisis -PLAAF established presence in Fujian & Guangdong provinces. PLAAF moved forces into western regions following "liberation" of Tibet and China's 1962 border war with India. PLAAF deployed more units to the southern region during Vietnam War and near the Soviet border after a 1969 border incident. By the mid 1970s, the PLAAF had units permanently assigned throughout China.

28. **Equipment Profile.** A brief snapshot of PLAAF equipment profile is summarised below :-

(a) **Combat Aircraft.** It comprises mainly of vintage aircraft (1960s 80s) i.e Xian H-6/JH-7 (Strategic Bomber) developed from Russian Tupolev TU-16, Nanchang Q-6 (Fantan) Ground Attack Fighter developed from MIG-19, Chengdu J-7 Fighter Interceptor based on MIG-21 and Shenyang J-8 (Finback) Fighter Interceptor based on Sukhoi Su-15. The newer aircraft in its inventory are the Chengdu J-10 Multi role combat aircraft and Shenyang J-11 Air Superiority Fighter based on Sukhoi-27. PLAAF also has Russian origin Sukhoi Su-27 and Su-30 aircraft in its inventory.

(b) **Transport/Support Aircraft.** Comprises a mix of vintage Russian aircraft to include AN-12, AN-26, AN-30, TU-154 and IL-76. China is keen to procure tankers from Russia (IL-78)/US to enhance its aerial refuelling capability so far dependent on vintage modified IL series of aircraft. It is also trying to procure AWACS to augment its current AEW capability based on modified 737 and IL-76 aircraft. Rotary wing support is predominantly based on the Russian origin MI-8/17 helicopters as also vintage Z-8 & Z-9 series of aircraft.

(c) **Aircraft Being Developed.** The Chengdu J-20 (Jian-20) is a purported fifth-generation, stealth, twin-engine fighter aircraft prototype developed by Chengdu Aircraft Industry Group for the PLAAF. The J-20 made its first flight on 11 January 2011 and is expected to be operational by 2018-20.

29. **Limitations PLAAF.** The PLAAF is trying to address its limitations but is likely to take some more time before the same are comprehensively resolved :-

- (a) Tankers for Aerial Refuelling.
- (b) Intelligence collection and denial aircraft (AEW & EW).
- (c) Transports (to develop a rapid-response capability for contingencies).
- (d) Strategic bombers incorporating stealth technology.
- (e) Heavy reliance on imports for engines, avionics, radars, critical components and composites.

Conclusion

30. Much like PLA as a whole, the PLAAF has been undergoing transformational changes over the past decade, transforming itself from a poorly equipped and trained organization into an increasingly capable fighting force. This transformation commenced with change in mission from 'territorial air defence' to 'regional strike mission' capabilities and long-term expectations of performing extra-regional missions supporting PRCs national objectives. PLAAF still possesses some identifiable shortcomings and weaknesses. However, all indicators point to continued improvement of PLAAF over the next decade, to the point where China is expected to have one of the world's foremost air forces by 2025.

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