



CENJOWS

CHINA'S AIR TO AIR MISSILE DEVELOPMENTS

Air-To-Air Missile Developments in China.

1. The sight of four long-range air-to-air missiles in the weapons bay of China's Chengdu J-20 low-observable fighter aircraft at the Zhuhai Airshow two years ago rang alarm bells among officials throughout the world¹.



(The PL-15 is equipping China's high-end fighter aircraft, including the J-10, J-16 and the stealthy J-20 platforms. Credit: Turbo Squid)

2. Rapid technological progress in China's aerospace industry, particularly air-to-air missile systems fired from an aircraft, is changing the game for Western air forces and the global arms trade. It is also altering the picture for China's neighbours such as India.

¹Aviation Week, 03 June 2020; <https://aviationweek.com/defense-space/missile-defense-weapons/beijing-taking-air-air-missile-lead-russia>

3. Some of China's biggest strides are coming in air-to-air missiles, the weapons that for one or two million dollars can destroy a \$150 million aircraft. That's a cost efficient way of trying to level the playing field with the US. China's defence budget is well over three times as big as Russia's or India's, but still much lower than the \$610 billion the US spends, according to SIPRI. Recently, the US Air Force awarded a half-billion-dollar contract to supply close allies with Raytheon Inc.'s latest long range air-to-air missile, capable of hitting enemy aircraft from 160 km away. The Meteor, a new European equivalent, may be even more deadly. But China's latest missile, the PL-15, has a greater range than either². The PL-15 also supports active electronically-scanned array radar that makes evasion difficult for the most agile of fighter aircraft. Russia reportedly has yet to succeed in equipping its own missiles with the technology. Another Chinese air-to-air weapon in development, provisionally known as PL-XX, would strike slow-moving airborne warning and control systems, the flying neural centers of US air warfare, from as far away as 480 km. Combat modelling by think tank Rand Corp. found that China last year, for the first time, had achieved parity with the US in air superiority for any conflict close to its mainland, including over Taiwan.

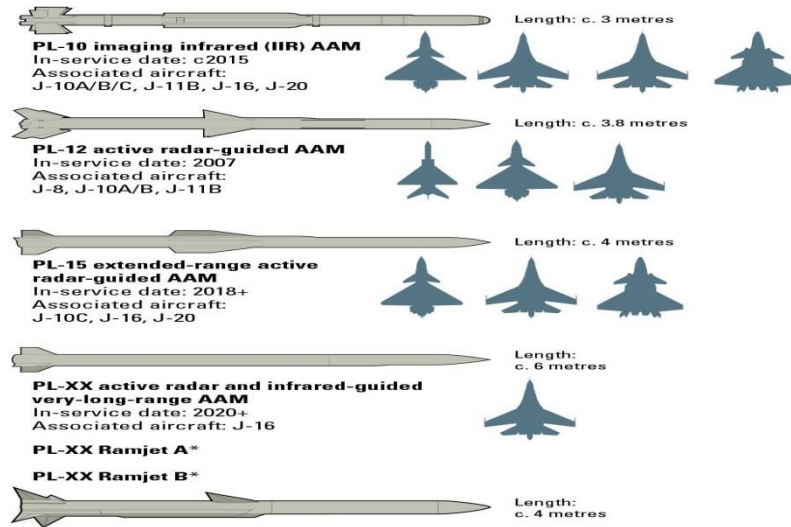
4. China's Air to Air Missile inventory has grown over the years. The extent of Chinese progress in the air-to-air guided-weapons arena was apparent with the introduction of the PL-10 AAM. This weapon provided a marked improvement in performance over the previous generation of short-range missiles operated by the People's Liberation Army Air Force (PLAAF), and its development has placed China among the handful of nations with a defence-industrial base capable of producing such a weapon. The PL-10 uses aerodynamic and thrust-vector control, but the PLAAF will require an advanced helmet-mounted cueing system in order to exploit the maneuverability the weapon offers. During 2018, a missile designated PL-15 may also have entered front-line service. The PL-15 is an extended-range active radar-guided AAM and, would be the most capable AAM in the PLAAF inventory³.

5. However, the PL-10 and the PL-15 are not the only systems with which the US and its allies are required to come to terms. China is also developing a very-long-range AAM intended to be used to attack high-value targets such as tanker, airborne early-warning, and intelligence, surveillance and reconnaissance (ISR) aircraft. Furthermore, Beijing appears to be pursuing two or more configurations of rocket-ramjet AAMs. By the early twenties, China will clearly have a broader – and far more capable – range of air-to-air weapons to complement the combat aircraft that are now in development. These will likely force the US and its regional allies to re-examine not only their tactics, techniques and procedures, but also the direction of their own combat-aerospace development programmes⁴.

²Livemint dated 04 June 2020, <https://www.livemint.com/Politics/9UtKiySJfZYIm0t3y4vDIO/Chinese-airtoair-missiles-are-transforming-balance-of-powe.html>

³ <https://www.iiss.org/publications/the-military-balance/the-military-balance-2018/mb2018-01-essays-1>

⁴ibid



* Under development

(China's air-to-air missile inventory; credit-<https://www.iiss.org/publications/the-military-balance/the-military-balance-2018/mb2018-01-essays-1>)

6. China's very-long-range weapon will, when it begins to enter service in the next few years, provide the PLAAF with the ability to threaten high-value air targets at extended ranges. This will likely influence how potential opponents consider their own future operations. Coupling the J-16's operational radius with a 400km-range AAM would, for instance, be a forcing factor for an opponent's planning of its tanker-refuelling tracks or large-platform ISR missions. It is perhaps no coincidence that the USAF is increasingly interested in a low-observable tanker-aircraft design. Yet more concerning from a US perspective is the fact that this development is only one aspect of the PLAAF's effort to recapitalise its AAM inventory with more capable systems, including the PL-10, PL-15 and the rocket-ramjet-powered AAMs that offer far greater engagement options. These developments are themselves associated within a combat-aircraft upgrade and re-equipment programme⁵.

7. China is likely to develop export version of some of its AAMs for which there may be many buyers. Pakistan is sure to show keen interest to equip its aircraft with more capable AAMs and China is likely to find ways to oblige its close friend with these advanced weapons.

⁵ ibid