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China's choppers fly under the radar

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While much attention has been given to Chinese development of fixed-wing aircraft like the J-20 and J-31, relatively little has been devoted to China's helicopter development. On March 16, 2013, a CCTV television news segment featured a squadron of Z-10 helicopters in Jinan Military Region (MR), marking the fifth squadron of China's primary attack helicopter observed in public and the fourth squadron to appear since October of last year. [1] The other four squadrons are based out of Nanjing, Beijing, Guangdong and Shenyang MRs.

The Z-10 has been flying since at least 2003 and was revealed to the public in 2004. Now being deployed to units, the Z-10 is an indicator that China is making more significant progress in terms of aerospace development than it is generally given credit for.

The arrival of the Z-10 and the smaller Z-19 scout helicopter are important because they represent the culmination of a much longer process of technical and doctrinal development. With a large acquisition project that gained China aircraft from all over the world, including not only Soviet and French designs but also US Blackhawk helicopters, China clearly recognized the benefit of helicopters. This is not surprising given the employment of helicopters in combat was pioneered in both the Korean and Vietnam Wars, two wars in which China participated.

The astounding performance of the Apache attack helicopter during the Persian Gulf War - a conflict intensely studied by China's military - provided further impetus for China's development programs. [2] In fact, helicopters have been compared favorably to tanks in terms of overall speed, mobility over terrain and firepower, strengthening the argument for more investment over tanks, armored vehicles and ground troops. For the ground forces, the next logical step beyond

acquiring modern main battle tanks and mechanized infantry forces is a large contingent of helicopters for transport, scouting and attack.

Though China's helicopters cannot compare to the thousands used by the US military, the PLA now has a not-insignificant force. The 2013 issue of "The Military Balance" gives a total of 914, even though only non-authoritative estimates are available for the total numbers of Z-10 and Z-19 attack helicopters. Still, this suggests, despite the lack of an authoritative number, a significant increase from the 500 helicopters listed during rescue operations in the wake of the 2008 Wenchuan earthquake.

According to data from the Stockholm International Peace Institute, between 1977 and 2012, Chinese imports from the USSR (and later Russia), France and the United States comprised 477 helicopters of various makes. Although China's official media maintains that all of the Z class helicopters are produced indigenously, it has continued to purchase Russian transport helicopters and manufacture Z-8 and Z-9 aircraft based on French designs. At the same time, China's civilian helicopter market also is growing, which, given the dual use capability of several platforms such as the Z-9 and Z-11, would improve China's overall ability to build its own helicopters.

While helicopters were integrated into PLA Air Force (PLAAF) units by the late 1950s, the turmoil of the 1960s and 1970s pushed back China's military development. Even in 1973 during the Cultural Revolution, however, China made deals to begin acquiring Western transport helicopters. [3] Beginning in the mid-1980s, the Chinese military was quick to prioritize helicopters as an area of investment and purchased French Dauphin IIs, Super Frelons and US Blackhawk helicopters.

In 1986, a decision was made to shift most non-transport helicopters from the PLAAF to the ground forces to form a distinct branch (*bing zhong*), Army Aviation (PLAA). By 1999, China had acquired several types of Western-designed helicopters and set up the Army Aviation Academy to train pilots. Especially given that Chinese strategy focuses on deploying internally ("along internal lines") or to border regions, rather than projecting power far afield, helicopters provide key advantages. China's mountainous terrain, sprawling urban areas and undeveloped borderlands are all more easily accessed by helicopters than other platforms. Close Air Support (CAS) is another important area where helicopters could make up for a serious deficiency.

China's military lacks platforms analogous to the A-10 Thunderbolt or AC-130 Specter gunships that have significant loiter capability and can provide timely air support. Attack helicopters are an effective fix for this issue without the need for expensive platforms that would not easily fit into other roles. The Z-10, unlike the civilian-based Z-9, is purpose built for such missions. The Z-19, a scout helicopter, also will serve an important function, moving ahead of mechanized units to provide intelligence about enemy movements.

In the short term while these more specialized roles are tested, transport helicopters provide a tremendous advantage for the rapid deployment of troops to areas far from airfields or which would be dangerous for China's fledgling paratroop force to drop into. As the response to the Sichuan earthquake demonstrated, the Chinese military face challenges deploying large transport

aircraft in areas close to large population centers, such as Chengdu, the center of the Chengdu Military Region.

The PLAA played a crucial role in transporting relief workers to destroyed areas as helicopter units were brought in from far afield. For example, the elite Fourth Aviation Regiment based in Tongzhou, Beijing, was deployed to Sichuan to aid in rescue operations. The same regiment has participated in a wide variety of military exercises and helped provide security for the Olympics.

Though a majority of China's helicopters are concentrated within the PLAA, the PLA Navy (PLAN) has been expanding their use as well. Beyond China's borders and out at sea, helicopters fill a major gap not only in search and rescue (SAR) missions, but also in the area of anti-submarine warfare (ASW) and resupply. Unsurprisingly, China has outfitted several ships with helipads for this purpose, though an increasing number of deployments both abroad in the Gulf of Aden and closer to home are placing strains on current capabilities.

Helicopters provide significant advantages to bolstering China's troop transport capabilities in terms of rapid deployment not only within the mainland, but also for deployment to China's contested border areas and maritime zones. A recent amphibious assault exercise on a small islet in the South China Sea with China's marines was conspicuous for the use of helicopter transport and firepower.

Z-8 transport helicopters augmented assault craft and were accompanied by Z-9s providing support fire. While the PLAN has made use of these Z variants, the Z-8 is too large for most PLAN vessels and the Z-9 too light to be effective for many naval missions, such as ASW. Given the limitations of China's helicopter-capable ships and the Z-8 and Z-9s themselves, observers reasonably can expect new indigenously-produced helicopter variants that better fit the PLAN's needs.

Helicopter roles and missions

Official documents show a rapid expansion in the set of roles designated for helicopters. First mentioned in the Chinese Defense White Paper series in 2002, helicopters were noted in conjunction with an explanation of the Army Aviation Corps, with a passing reference to support for ground operations.

In 2006, about the time that the Z-9 was coming to the end of its development in a light attack role, helicopters were described in having a much more expanded role: "Equipped mainly with armed helicopters, transport helicopters and service helicopters, [the Army aviation arm] carries out air strike, air landing, airlifting and battlefield service support operations. The Army aviation arm works to strengthen its capabilities of rapid power projection, precision strike, long-range assault and support" (*China's National Defense in 2006*).

In the same paper, the PLA Navy for the first time emphasized integrated maritime support. The two most recent papers denote significant changes in tone. The white paper in 2008 marked a decisive shift from a transportation focus to close air support and air mobility:

In recent years it has been working to shift from being a support force focusing on transportation missions to being an integrated combat force focusing on air assault missions; it has stepped up training in fire assault, aircraft-borne operations, air mobility and air service support; and actively participated in counter-terrorism, stability maintenance, border closure and control, emergency rescue, disaster relief and joint exercises. (*China's National Defense in 2008*)

By 2010, with the development of the Z-10 well known and a degree of operational capability already reached, the defense paper of that year took a much more assertive tone in describing the role of the Army's Aviation branch:

The PLA aviation wing has worked to move from being a support force to being a main-battle assault force, further optimized its combat force structure, and conducted modularized grouping according to different tasks. It has upgraded armed helicopters, transport and service helicopters, and significantly improved its capabilities in air strike, force projection, and support. (*China's National Defense in 2010*)

The Science of Campaigns, an important expression of China's attitude toward a number of strategic and tactical situations, emphasizes the utility of helicopters in providing accurate fire and high-speed mobility (page 174). In several ways, helicopters represent the next step in the development process already begun in the 1990s, with official emphasis on mechanization (*jixiehua*) and informatization (*xinxihua*). Networked helicopters acting as scouts are an area in which helicopters are able to help Army units achieve their goal of informatization. The Z-10 in particular has advanced capabilities and sensors that required the development of an entire new set of controls and helmets.

While still lagging behind the United States in terms of targeting-information sharing and networking, the PLA has made important advances in systems integration and has developed the necessary framework for additional advancement. It has and continues to expand its logistical capability with more transport helicopters. Attack, ASW, scout and other specialized units represent the next step in capabilities building.

Acquisition and development

In a country that has largely relied on Soviet/Russian technology for its weapons systems, the development of China's helicopters raises the question of why China bought predominantly French designs and moved towards a more Western-style employment of transport, scout and attack aircrafts rather than the previous Soviet doctrine of relying on one or two designs such as the Mi-24 Hind. The Mi-24 Hind was a heavily-armored and -armed helicopter that also could hold up to eight soldiers in addition to a crew of two pilots and an engineer. Mi-24 airframes can be found scattered all over China, so the issue is preference rather than access.

China, however, has not given up on Russian designs entirely. Demand for transport helicopters has outstripped supply and since the 1990s China has purchased over 240 Russian Mi-171 series transport helicopters. In the mid-2000s, it bought several Russian specialty helicopters, like the Ka-27 export variants for electronic warfare and ASW, where domestically-produced helicopters proved inadequate.

Beginning in the late 1970s and early 1980s, China chose to purchase helicopters directly from France, later licensing the Z-8 and Z-9 for production in China. From there, China has developed

a whole constellation of new airframes, including the Z-10 attack helicopter and Z-19 light escort attack helicopter. Certain design features of the Z-10 and Z-19, such as a tandem cockpit configuration, have led some analysts to conclude that China is copying an Apache AH-64A/D attack helicopter.

Certainly, the AH-64 has captured the imagination of the PLA and is mentioned in almost every article relating to helicopters in Chinese media. While the Z-10 (and, if true, presumably the Z-19) reportedly received design assistance from Russia, the PLA's efforts to developing a wide range of helicopters via indigenous designs and expertise have produced significant results so far. The Z-10 and Z-19 show a clear progression from the Z-9, a repurposed civilian craft, to purpose-built helicopters for military use.

This points to a Chinese helicopter doctrine that promotes a more specialized approach, where several types of airframes each have a specific task and work in conjunction with other airframes. Choosing this development path also indicates that helicopters are an area that has been singled out for expansion and thus do not have to cut corners by only concentrating on one or two airframes. Importantly, this shows a willingness to take on the added risk of more complicated logistical chains associated with adopting a variety of equipment that does not share parts.

Specialization also follows a general trend within the PLA. The Chinese military prefers to delineate employment of military equipment on the basis of service. With few exceptions, rockets belong to the 2nd Artillery, aircraft to the PLA Air Force and tanks to the land forces. Helicopters cut across this segregation by provided needed transport, scouting and attack capabilities to the navy, army and air force. Reflecting their specialized roles, it seems clear that the Z-10 and Z-19 will be the sole province of the ground force's aviation arm.

Conclusion

China continues to progress through a systematic development strategy for its helicopter force. Practical demands have dictated that transport helicopters remain a focus of acquisition and building programs involving foreign sources. Concurrently, however, these platforms are used to experiment with light support and non-traditional roles such as ASW, in turn paving the way for more specialized attack and scout helicopters produced almost entirely themselves.

Reflecting this seemingly turgid pace of development, US official documents have thus far mostly focused on China's helicopters as a sub-component of China's carrier operations rather than viewing them as a potentially independent threat or force multiplier. The PLA's four decades of investment in building its transport and attack forces as well as its consistent and assertive procurement strategy have resulted in a broader, stronger and more nuanced range of capabilities. While not attracting as much attention as programs like China's aircraft carrier or stealth fighters, in terms of firepower and capabilities, China's helicopters already are augmenting the PLA's warfighting capabilities.

Notes:

1. WZ stands for "wuzhuang" or armed, while Z stands for "zhi" or "zhishengji," helicopter. In

Chinese usage both appear, but the Z designation is more common as some airframes are not armed and will be used here.

2. Roger Cliff, John F Fei, Jeff Hagen, Elizabeth Hague, Eric Heginbotham and John Stillion, "Shaking the Heavens and Splitting the Earth: Chinese Air Force Employment Concepts in the 21st Century," Santa Monica, CA: RAND Corporation, 2011, p. 40, available online.
3. Stockholm International Peace Research Institute Arms Transfer Database, available online.