

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

CHINESE AIRBORNE C4ISR – KJ 2000

1. **Chinese Airborne C4ISR Capability Updates.** In March 2001, China faced a major hurdle for development of its airborne C4ISR capability when Israel cancelled AEW&C aircraft sale to China due to pressure from Clinton Administration. Development of its indigenous KJ-200 aircraft began the following year 2002 and it entered service in 2007.

2. China's aerospace forces, which include: the People's Liberation Army Air Force (PLAAF), PLA Naval (PLAN Aviation), PLA Rocket Force (PLARF), PLA Army Aviation (PLAA), and the PLA Strategic Support Force (PLASSF) all make use of the C4ISR infrastructure. China Aerospace Studies Institute (CASI) published a detailed report on this subject covering wide range of airborne sensors and command and control aircraft along with constellations of satellites¹. These include early warning aircraft, specialized electronic intelligence (ELINT) aircraft, and maritime patrol aircraft, both manned and unmanned, as well as communications, radar, optical, and signals-collecting satellites. These platforms are essential enablers of the new combat aircraft and precision weapons that China's aerospace forces have been acquiring and are vital to China's ability to conduct long-range precision missions as well as pre-strike reconnaissance and post-strike damage assessment. The report brings out that the PLA's known inventory of fighter aircraft between 2015-2019 indicates that China is phasing out older fighters (J-7s, J-8s, J-10s) in favour of long-range fighters equipped with advanced sensors and long-range weaponry (J-10C, J-15, J-16, J-20). When paired with larger numbers of early warning aircraft, particularly the more capable KJ-2000s (and its future Y-20-based version), China will have a much more robust air defence and be capable of

¹Dr. Brendan S. Mulvaney, China Aerospace Studies Institute, *Chinese Airborne C4ISR*, November 2020. https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Infrastructure/2020-12-17%20PRC%20Airborne%20C4ISR_eBook.pdf?ver=pRjVmXMh1zcNZ5mhNwEdLA%3d%3d. 18 August 2021.

more effectively intercepting enemy aircraft, particularly low-flying aircraft and cruise missiles².

3. Four future developments may be particularly significant: the acquisition of AEW&C capabilities that extend well beyond China's borders, the deployment of robust space-based C4ISR capabilities, the creation of redundant command and control networks, and the employment of artificial intelligence to process the data collected by China's new C4ISR capabilities.

4. China appears to be poised to field larger numbers of AEW&C aircraft. With the apparent success of the KJ-200, KJ-500 and KJ-2000, more are being built, and upgraded variants of the KJ-200 appear to be in development. Additionally, test models of a carrier-based early warning aircraft, the KJ-600, appear to indicate that China's growing carrier force, currently at two carriers but projected to grow to a total of six, will also field AEW&C aircraft, further pushing the airborne detection range away from China's shores.



(Source:<https://www.airforce-technology.com/projects/kj-2000-awec-aircraft/>)

5. Greater numbers of satellites will improve the PLA's ability to carry out a full range of optical, radar and signals intelligence collection, more accurately monitor troop movements, and prepare for precision strikes or defensive operations. An area that may see growth in the coming years is "responsive space reconnaissance" in urgent situations, rapid assembly and launch of space reconnaissance platforms or use of an existing platform after a change of orbit. Rocket systems such as the Kuaizhou provide a "space rapid-reaction" capability by offering the ability to quickly replace destroyed satellites. The Kuaizhou system was first tested in 2017, and subsequent launches have been used to put small satellites in LEO. The Kuaizhou uses an adapted transporter erector launcher (TEL) similar to that used by ballistic missiles. These systems could give the PLA the ability to either conduct contingency reconnaissance ahead of conflict or replace satellite ISR and communication assets lost in conflict. Furthermore, the development of reusable rocket launch vehicle technology, in which China is also investing, could drive down the cost of space launches. These vehicles, combined with

² *ibid*

shrinking satellite sizes and development of effective sensors for small satellites, could allow China to field capable and redundant constellations of satellites for a variety of missions. China's apparent development and testing of early warning satellites indicates the possibility of a deployment of a space-based network of infrared-sensing early warning satellites which, combined with its existing network of ground-based large phased array radars (LPARs), could provide China with a robust nuclear early warning capability. Similarly, space-based ELINT satellites, combined with China's ground-based over-the-horizon (OTH) radars, can be used to detect aircraft or ships operating outside of the coverage area of China's airborne AEW&C capabilities³.

6. The PLA has made significant investments in underground fiber optic communication links, meant to make command and control nodes more resilient. Airborne networks combining manned aircraft, UAVs, and aerostats could offer another layer of redundancy and are clearly an area of research and development. CETC has displayed such a tactical datalink system, called the DT-03, which is depicted as connecting KJ-500s to fighters, UAVs, and ground stations. KJ-500 was officially shown for the first time at military parade in 2019, commemorating 70th anniversary of founding of PRC. China has also developed a Joint Integrated Datalink System similar to the U.S. Link-16 system. China claimed that this system was rolled out across the PLA's fleets and was capable of connecting to airborne early warning aircraft like the KJ-2000.

7. As China's aerospace industry produces increasing numbers of C4ISR platforms, the PLA will seek to enhance its capability to exploit the vast amount of data they collect through use of artificial intelligence. Chinese government departments have even sponsored public competitions to improve satellite sensor identification and tracking. The deployments of the platforms indicate that China has made significant progress in developing and fielding real C4ISR capabilities. These ongoing developments point toward a much more capable PLA, able to carry out modern informationized campaigns.

³ *ibid*