



“EYES” IN SOUTHERN ASIAN SKIES

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The much awaited Airborne Warning and Control System (AWACS) for the Indian Air Force flew into the country escorted by fighter aircraft of the IAF. The AWACS aircraft, or ‘Eye in the Sky’, landed in India on 25, May 2009 and was formally inducted by Defence Minister A.K. Antony on 28 May 2009. India had signed a deal worth \$1.1 billion for the supply of the three Phalcon Airborne Early Warning (AEW) systems in April 2004.¹ The Israeli system is mounted on a Russian-built IL-76 transport aircraft as a part of the tripartite agreement between India, Israel and Russia. The delivery of the other two systems is slated to be completed by 2012. With the induction of the AWACS, India has joined a club of only six other nations - the US, Russia, Britain, Japan, Australia and Turkey - that operate such a sophisticated system.²

The IAF’s ambitious project for digitising its command and control system through the Air Force Network (AFNET) has got a boost with the induction of Airborne Warning and Control System (AWACS). The Israeli-built Phalcon system is the air element of the AFNET, which envisages connecting over 250 land assets of the IAF with its airborne platforms, including fighter jets. The integration of the AWACS with other assets of the IAF, including combat jets, will provide a robust decision-making cycle for air force commanders. The AWACS will perform surveillance and reconnaissance roles and provide beyond visual range intelligence on incoming enemy aircraft and missiles well in

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AWACS in the Asian Region

At the induction ceremony, the CAS Air Chief Marshal F.H. Major said: “AWACS will enable the Air Force to project itself as a formidable force. Integration of this sophisticated platform with our Air Defence Network will add a new dimension to the IAF’s capability to guard the Indian skies.” He added that AWACS will be a dynamic asset in the air, which can be mobilised in a quick time to counter

an emerging threat and tilt the balance in India’s favour. It will provide defence in depth and enable the friendly forces to neutralise the adversary before it can pose a serious danger.⁴

The induction of AWACS has bolstered the Indian defence system, and as expected, Pakistan is worried by the Indian ‘eye in the sky’. Pakistan Chief of the Air Staff Air Chief Marshal Rao Qamar Suleman confirmed that Pakistan would also acquire an Air Warning and Control System (AWACS) by October. He

further said that India has created an “imbalance in the power” in the region, so it was important for Pakistan to balance the situation by acquiring its own early warning systems.⁵

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and acquiring different versions of airborne early warning systems to meet their national security requirements. The importance of AWACS for national security stem from its capability to provide strategic, operational, tactical solutions and battlefield intelligence, all from one platform. A decade earlier Russia was the only country operating AWACS in the Asian continent, Japan operationalised four Boeing 767 AWACS in 2000, and South Korea has placed orders with Boeing for four AWACS in Nov 2006. Pakistan attempted to acquire AWACS from the USA in the 1980s though the deal did not materialise for a variety of reasons. Almost three decades later China, India and Pakistan are at different stages of acquiring, indigenous development and joint production of AWACS. Probable acquisitions of airborne warning and control systems in Southern Asia in are listed below:

- KJ-2000 with ESA radar on A-50 (Mainstay) China
- KJ-200 Balanced Bean system on Y-8F 600 China
- Erieye AEW&C on SAAB 2000 Pakistan
- Hawkeye 2000 on P 3C Pakistan
- Phalcon AWACS on A-50 (Mainstay) India
- Erieye AEW&C on EMB-145 India
- Kamov-31 Helix B Indian Navy

Chinese AWACS

A study of the AEW development process discloses very little about the performance of sensors that are likely to be used by Chinese KJ -2000 (AWACS). Four such systems are being developed on IL-76MD, and the electronically steered phased array (ESA) radar is being indigenously developed by Nanjing Research Institute of Electronic Technology unit. It is also reported that Chinese system is based on a combination of IL-76 and Argus AEW mission suite (BAE System avionics). Jane's has reported that China seems to have acquired an unspecified number of Argus systems to be fitted on IL-76. Although a Chinese delegation is reported to have visited UK for discussions on procurement of Argus system, however, the information needs to be treated with caution.⁶ Some internet sources claim that Chinese AWACS would have capabilities similar to the Russian A-50. The Chinese Argus-based AEW&C capability was being developed alongside possible acquisition of up to three Russian A-50Eh AEW&C aircraft.⁷ In addition to KJ-2000, the second AEW&C platform is being developed on a modified airframe of Y-8 aircraft, which is designated as Y8-F-600. The platform has been extensively modified with improved avionics and engines for better performance. This platform would be fitted with a liner shaped electronically steered phased array radar, similar to Swedish Ericsson PS-890 Erieye.⁸ This system

is widely known as "Balanced Beam" project, mainly because of the shape and mounting of antenna in the form of triangular beam mounted on top of the fuselage. The information available in public domain is inclined to compare the system with Erieye, even though it is not clear if it is based on similar technology. The Erieye system has the capability to detect targets in 360 degrees and is expected to have detection ranges in excess of 350 km.⁹

Pakistan's AEW Programme

Pakistan has embarked on a multi pronged approach to acquire AEW&C systems. The first system that is likely to be delivered and made operational in Pakistan is SAAB 2000 turboprop along with Erieye Airborne Early Warning and Control (AEW&C) system. The SAAB 2000 Erieye combines a modern turboprop aircraft with advanced technology sensor. From its standard operational altitude of 6,000 meters (20,000 ft) the radar has a maximum range of 450 km.¹⁰ The Erieye system is also operating on Embraer 145 or P-99 aircraft with Brazilian Air Force and Hellenic Air Force of Greece.

Pakistan has also finalised a deal with US for sale of three P-3 aircraft with Hawkeye 2000 AEW suite and associated equipment at the total cost of \$855 million.¹¹ Variants of Hawkeye are being flown by the Israeli, Egyptian, Japanese, Singapore, Taiwan Air Force and French Navy. Pakistan will acquire Hawkeye 2000 AEW&C suite on refurbished and modified P-3 aircraft with range and endurance.

Pakistan has tried to acquire AEW&C aircraft since 1983 when it negotiated for Boeing 707 based E-3C AWACS from USA, on the pretext that it wanted to bolster its defences against Soviet and Afghan government air attacks across its western borders.¹² However, with an undemarcated and mountainous Pakistan-Afghanistan border, as also the location of Pakistan air bases from the border, the AWACS would not give any actionable early warning for Pakistan fighter aircraft to intercept Afghan intruders. The US-Pakistan deal was seen as a part of a US strategy to have permanent, secure and comprehensive ground facilities in Pakistan for its own AWACS, once Saudi Arabia received AWACS.¹³ Twenty years later, in 2006, the stated purpose had been altered as development of effective air defence network of its naval forces and to provide AEW, surveillance, enhanced command and control and communication capability. The secondary requirement is to assist US forces in Operation Enduring Freedom and provide control capability over land against transnational terrorists and narcotics smugglers. The Hawkeye 2000 variant is considered to have enhanced performance over land and, therefore, even if the projected main purpose of Hawkeye is to augment Pakistan Navy's anti-shipping, anti-submarine warfare capability, it is important for IAF

to note that in addition to its maritime capability, E-2C Hawkeye 2000 AEW suite can be effectively used over land.

Pakistan has also finalised a deal worth \$1.15 billion with Sweden for provisional contract to supply S100 Argus turboprop airborne early warning system. Pakistan is planning to acquire six to seven such AEW systems with a combination of PS-890 Erieye radar and SAAB 2000 aircraft.¹⁴ Pakistan has paid for the Swedish system and the delivery is expected to begin by 2009 at the latest according to, a Pakistan military official.¹⁵ This signifies Pakistan's desperation to bolster its air defence and its air offensive capabilities over land as well as over sea.

In another important development, Pakistan has signed a memorandum of understanding with China on 24 Nov 2006 during the visit of Chinese President Hu Jintao, for a long term collaboration in defence production including development of an airborne early warning surveillance system. Considering the time frame for development of a new project and gestation period, in all probability Pakistan will invest and collaborate in development of the ongoing Chinese AEW programmes KJ-2000 on IL-76 airframe and KJ-200 on modified airframe of Y-8 (the Balanced Beam).

Implications for India

The two striking implications of China and Pakistan acquiring AEW&C systems are, firstly, the acquisition of force multipliers of the magnitude of AEW would neutralise whatever little numerical and qualitative superiority IAF has over PAF; secondly, it demonstrates Pakistan's growing insecurity in this region and over Indian Ocean. Pakistan is developing advance technology based capabilities of its comparatively smaller Air Force through induction of Force Multipliers. The acquisition of AWACS should not be seen in isolation - the entire gamut of weaponry in the form of F-16s, UAVs, Air to Air Missiles (AMRAAM), Guided Bomb Units, Laser Guided Bombs, JDAMS, anti shipping missiles and other combat aircraft from China should be considered in totality to assess the implications for India.

While India's threat perception and defence requirements may be more strategic and continental in nature, nonetheless, Pakistan in its attempt to draw parity with India, projects every move of Indian Armed Forces as anti-Pakistan; hence the military modernisation plan is seen in a limited context. To negate the capabilities of IAF and IN through their modernisation plan, Pakistan seeks advanced

high end technology and long range surveillance systems for greater early warning and attack capability.

Pakistan's acquisition plan for AWACS is to obtain the systems from different sources and diversified sensors to meet different requirements of surveillance and intelligence operations over land and sea. It is also clearly visible that Pakistan does not want its long term plans to suffer from sanctions or denials in future considering the fluctuations in its geo-strategic / geo-economic interests. For India, therefore, it implies it must deal with the reality of Pakistani AWACS and plan its strategy to fight the next battle of air dominance over Pakistani territory in conditions of AWACS symmetry. The diversified and long term plan of acquiring AEW&C indicates that Pakistan wants to cover itself against the possibility of economic or military sanctions and acquire four to six AEW systems in short term (next three to four years). For its long term

requirement, Pakistan will develop AEW&C systems with China. In the long term (2015-2020), Pakistan will have at least six Erieye systems, three Hawkeye systems and at least one or two systems developed in collaboration with China. This may sound alarmist but the fact that Pakistan is making a fast track approach in a diversified manner cannot be ignored. Considering that Pakistan would soon acquire these aircraft, Indian air bases and operational activities of Indian Navy

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Another important implication of China-Pakistan strategic cooperation in development of AWACS is the familiarity of Chinese aviation engineers with capabilities and limitations of IL-76 as a platform and information on Phalcon AEW system. Israel may have backed out from the deal to supply Phalcon AEW system, but in the process of evaluation and negotiation of the deal PLAAF personnel must have studied the Phalcon system in detail. This intimate knowledge of the system could be utilised to develop counter strategy for Indian AWACS and exploit the weaknesses of Phalcon. On the other hand, Pakistan may assist China by supplying critical inputs on sensor technology from Swedish Erieye or Hawkeye 2000 sensors.

Options for India

India needs to consider fast track progress for development and deploying space based capabilities to create a sort of asymmetry and maximise the advantage

of all assets. Meanwhile sensor integration and fusion of data is already being progressed, for example integration of AWACS with Integrated Air Command and Control System (IACCS) through its ground exploitation system (GES). IACCS integrates with ground based / aerostat radars, UAVs, communication links (HF, V/UHF, and SATCOM) and the entire gamut could provide a fused data link to fighters on Operational Data Link (ODL). We need to create a seamless synergistic net centric environment to integrate command and control centres, weapon platforms, ISR data targeting information and data links and precision weapons to create an asymmetry to counter the AWACS symmetry.

India is in the process of modernising its Air Force and developing capabilities to meet the growing challenges to its national security. Indian Air Force has received the first of the three Phalcon AWACS on board IL-76 platform and Defence Research Development Organisation (DRDO) is in the process of developing an indigenous AEW system. At this juncture there are issues that need to be addressed, such as effectiveness of AWACS, how many AWACS would be needed, what is the comparative performance of various AEW systems, etc. Thereafter, we need to consider the implications of Pakistani and Chinese AWACS/AEW for India and try to answer a bigger question, "Do we really need to be concerned" and if "Yes", what do we need to do?

Each AWACS contracted is likely to cost \$366 million which is an expensive proposition for a developing country like India. Perhaps that's the reason that initial acquisition is restricted to three systems. Considering India's security threats and geographical expanse, a large number of AWACS would be required to meet the contingency on two fronts. India needs to acquire a cost effective system that would sustain its long term air defence requirements, maintenance and upgrade for futuristic requirements. From one study, it emerges that 20 aircraft would be required to maintain twenty four hour surveillance by four aircraft on station. Outright acquisition of such large numbers of AWACS is not an option for a developing country like India. Therefore, the initial induction of three AWACS is a stopgap arrangement while the aerostats are being acquired to fill

the gaps. Indigenous development of AWACS technology is the best option to meet our air defence requirements in totality. The Airborne Surveillance Platform (ASP) being developed by DRDO, cost effective platforms like DRDO's Super Vision Maritime Patrol Radar (SV-2000 MPAR) for Advanced Light Helicopter (ALH) and Russian E-801M Oko (Eye) AEW system which is being used on Indian Navy's Ka-31 AEW helicopter,¹⁶ need to be assessed and used wherever possible to augment the available resources till we have the indigenous capability to produce, operationalise and maintain AWACS without external support.

Notes

- ¹ "India and Pakistan AEW options", at, www.spyflight.co.uk/indiapakaew
- ² "Indian Air Force inducts its First AWACS", at, <http://timesofindia.indiatimes.com/India/Indian-Air-Force-inducts-its-first-AWACS/articleshow/4587972.cms>
- ³ <http://www.latestnewsonline.net/india/awacs-gives-a-boost-to-iaf-project-to-digitise-operations/16647.html>
- ⁴ "Indian Air Force inducts its First AWACS", at, <http://timesofindia.indiatimes.com/India/Indian-Air-Force-inducts-its-first-AWACS/articleshow/4587972.cms>
- ⁵ *The Daily Times*, at, http://www.dailytimes.com.pk/default.asp?page=2009%5C05%5C29%5Cstory_29-5-2009_pg1_4
- ⁶ Airborne Early Warning, "IL-76MD AEW variants", *Jane's Electronic Mission Aircraft*, ed., Martin Streetly, Issue-14 December 2004, pp. 45-46.
- ⁷ *Ibid* p.46
- ⁸ "Y-8' Balanced Beam" (KJ-200), *Airborne Early Warning Aircraft*, at, www.sinodefence.com/airforce/specialaircraft.
- ⁹ *Ibid*
- ¹⁰ "Sweden Finalises SAAB 2000 AEW&C Contract with Pakistan", at, <http://www.defenseindustrydaily.com>
- ¹¹ "Pakistan-E2C Hawkeye 2000 Airborne Early Warning Suite for P-3s", News Release, *Defense Security Cooperation Agency*, at, www.dsca.mil
- ¹² Air Commodore Jasjit Singh, *AWACS: The New Destabiliser* (New Delhi: Lancer Press 1987) p. 33
- ¹³ Air Commodore Jasjit Singh, "AWACS for Pakistan-Part of Larger US Strategy" *The Times of India*, 10 November 1986
- ¹⁴ "Sweden Finalises SAAB 2000 AEW&C Contract with Pakistan", at, <http://www.defenseindustrydaily.com,op.cit>
- ¹⁵ Reuters <http://today.reuters.com/news/articleinvesting> and <http://www.tribuneindia.com>
- ¹⁶ Marten Streetly, "Electronic Eyes on Wings and Rotors", *Jane's International Defence Review*, Vol.38, Nov 2005.



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