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CHINA UNVEILS AG600: CAUSES ANOTHER RIPPLE

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China Causes another Ripple

Every time China throws a pebble in the water and causes ripples, the world waits and wonders if or when the ripples would turn into tidal waves. November 2, 2015, saw China's first C919 twin-engine narrow-body passenger jetliner roll out of the production line of the manufacturing plant of the Commercial Aircraft Corporation of China, Ltd (COMAC) at Shanghai. This was one of China's efforts to encroach the commercial jetliner market led by Boeing and Airbus.¹

Then, on July 6, 2016, two Y-20 heavy-lift transport aircraft officially joined the People's Liberation Army Air Force (PLAAF).² While the strategists were still trying to gauge the increment in the military capability of the dragon, China came out with a development to give yet another reason to the *pundits* to speculate. On July 23, 2016, China rolled out its amphibious aircraft AG600, from its production line in Zhuhai in the Guangdong Province. This marks the end of nearly seven years of hard work by a group of 70 aircraft component manufacturers and research teams with over 150 institutes from 20 provinces and municipalities in China. The development and production of the plane had received government approval in 2009.³

According to the Aviation Industry Corporation of China (AVIC), the AG600 will mainly target the domestic market. Seventeen intent orders have been placed so far. As per Geng Ruguang, the deputy general manager of AVIC, "AG600 is the latest breakthrough in China's aviation industry, which demonstrates an overall improvement of China's national strength and research capacity."⁴ Call it reverse engineering or innovation, China is going ahead and achieving its ends.



A Sea Monster of Sorts

In size, an AG600 is comparable to a Boeing 737. According to Geng, with a length of 37 metres and a wingspan of 38.8 metres, AG600 is the world's largest amphibian aircraft. "The AG600 is like a ship that can fly, with advanced gas-water dynamic engineering and underwater corrosion resistance technology," said Huang Lingcai, chief designer of the aircraft. AVIC claims a maximum take-off weight of 53.5 tonnes; maximum cruising speed of 500 km per hour; maximum range of 5,000 km⁵; and maximum endurance of 12 hours.⁶

The AG600 can operate from runways on the ground and it requires a stretch of 1,500 metres (200 m wide and 2.5 m deep) to take off from water bodies. A remarkable feature as per the original design is that it can collect 12 tonnes of water in 20 seconds, and transport up to 370 tonnes of water on a single tank of fuel. With excellent manoeuvrability and a relatively wide range of search, the AG600 is capable of rescuing up to 50 people far offshore. Besides, it is very useful in developing and exploiting marine resources, being adaptable to conduct marine environmental monitoring, resource detection and transportation.⁷

Comparison

Table 1: Comparison – AVIC TA600/AG600 & US-2

	AVIC TA600/ AG600	US-2
Crew	3	11
Length	40 m (131.23 ft)	33.46 m (109 ft 9 in)
Wingspan	40.00 m (131.23 ft)	33.15 m (108 ft 9 in)
Height	10.00 m (32.81 ft)	9.8 m (32 ft 2 in)
Empty weight	32,000 kg (70,548 lb)	25,630 kg (56,504 lb)
Gross weight	53,500 kg (117,947 lb)	43,000 kg (94,799 lb) water take-off
Maximum speed	570 km/h (354 mph)	560 km/h (348 mph)
Range	5,000 km (3,107 miles)	4,700 km (2,920 miles)

Takeoff distance on water at Loaded weight	1500 m (4920 ft)	280 m (920 ft)
<p>Source: <u>For AVIC TA 600/AG 600</u>. Military Factory available at http://www.militaryfactory.com/aircraft/detail.asp?aircraft_id=1252 accessed on July 27, 2016.</p> <p><u>For ShinMaywa US-2</u>. Wikipedia available at https://en.wikipedia.org/wiki/ShinMaywa_US-2 accessed on July 27, 2016.</p>		

There is more to an amphibious aircraft's performance than mere floating and flying. The aircraft's ability to operate in rough sea condition; its water-tightness; its ability to adapt to operations from land and sea--everything matters. Although it is too early, a comparison with other aircraft of this genre that are already soaring the skies and skimming the seas is a natural impulse. Compared with ShinMaywa's US-2, the AG600 requires a longer take-off run. According to some experts, it does not have effective boundary layer control. Although the two aircraft have the same range, the AG600 boasts of higher speeds. Also, AG600 has yet to prove its water tightness and capabilities on the rough seas. All specifications and performance characteristics are not readily available. Table 1 gives a comparison of some of the attributes known in the open domain.

The Timing

The launch came at a time when China had just suffered a setback in the form of an unfavourable decision in its dispute with the Philippines on the South China Sea. China had rebutted the award of July 12, 2016 of the Arbitral Tribunal in the South China Sea Arbitration established at the request of the Republic of the Philippines. China had literally thumbed its nose declaring that the award was null and void and had no binding force; it neither accepted nor recognised it.⁸ This rebuttal had had adverse reactions from all quarters. Most stakeholders, including the US, stressed that China abide by the decision. China--having decided not to accede to the protestations--expects retaliation in different forms, including violation of its declared Air Defense Identification Zone (ADIZ). On that count, China has to be prepared for reactions beyond statements and rhetoric. The launching of AG600 has shown an enhanced Chinese capability to position men and material (read military might) in its area of interest. The message is loud and clear--China will not give in easily.

Capability to Fight 'Fires' of Sorts

A quick re-look at the capabilities of AG600 will be in order: Size comparable to a Boeing 737; cruising speed, 500 km per hour; maximum range, 5,000 km; maximum endurance, 12 hours; ability to lift 12 tonnes of water and the ability to haul up to 370 tonnes of water on a single tank of fuel—all this with amphibious capability are some of the features of the aircraft. That this will bolster China's overall reach and capability in many ways—like fighting forest fires, Humanitarian assistance and Disaster Relief (HADR); Search and Rescue (SAR); development and exploitation of marine resources; marine environmental monitoring; resource detection and transportation—is a given.

As it is, China has a fairly good airlift capability and capacity; its military or disaster relief teams can reach most parts of the country in a reasonable time frame. This airlift capability is hamstrung for want of adequate number of runways.⁹ AG600 will enhance the airlift capacity by enlarging the envelope. China has many water bodies; it should be possible to land troops/supplies on some of them using AG600 in times of need. Positioning military hardware and inducting troops to quell uprising in Xinjiang (or another *Tiananmen Square* for that matter) could be one such occasion in the future. AG600 will provide additional options and thereby improve control of the leadership. So much for the stated and easily evident possibilities.

A word about a bigger spinoff: Taking off from bases on the mainland, China will now be able to reach most locations in the Asia-Pacific region with relative ease whether or not there is a landing strip. If used for airlifting building material and equipment on to small islands in the disputed seas, China will be able to speed up its reclamation effort. At a time when the country stands isolated on the various disputes in the region and, at a time when tensions seem to be soaring, an enhanced capability to intervene militarily is a shot in China's arm. Used imaginatively, AG600 will be a force multiplier enabling more *efficient* management of crisis in the *turbulent* seas washing the shores of China's islands.

Time will show, whether this capability will also strengthen the thread of its *String of Pearls*.

Time for Introspection

Amphibious airlift is a coveted capability, which could have made a positive difference in the conduct and possibly the outcome of operations on several occasions in case of India. Here are three instances for the sake of discussion. One: Perhaps amphibious airlift capability would have enabled

more effective conduct of relief operations during the Bhopal Gas Tragedy (December 1984) by landing relief teams and supplies on the several lakes in the city and evacuating people out of Bhopal.

Two: During Operation Cactus, the Indian task force landed at Hulule, with a lingering fear of the aircraft being fired at by the rebels. An amphibious aircraft would have diminished that threat considerably by landing the force at a place of its choosing.

Three: Time was of essence when terror struck Mumbai (November 2008). It is likely that early arrival of the Special Forces at the TajMahal Palace Hotel could have tilted the balance against the terrorists. The time taken by them to reach the location could have been reduced considerably by landing them off Gateway of India using an amphibious aircraft.

India too realised the importance of an amphibious airlift capability for bolstering the security of its island territories. The idea of procurement of ShinMaywa's US-2 was mooted in May 2013 during the visit of the then Indian Prime Minister, Dr Manmohan Singh to Tokyo. The Japanese manufacturer had initiated talks with multiple Indian firms to set up a joint company in the event Tokyo and New Delhi reached an agreement on joint production.¹⁰ Lately there has been silence on the issue. According to Franz-Stefan Gady of The Diplomat, "Japan has no plan for "selling or delivering" the US-2 maritime surveillance aircraft in the immediate future." This hold up is despite commitment by Japanese Prime Minister Shinzo Abe and Indian Prime Minister Narendra Modi in December 2015 to deepen defence cooperation between the two countries "including through two-way collaboration and technology cooperation, co-development and co-production."¹¹

Not because China has it, but because amphibious airlift capability is a dire necessity, a force multiplier--there is a need to remove hurdles and proceed in the positive direction.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Notes

¹ "China's Long March to the 'Big Jet Club'," *SinoDefence*, December 12, 2015 available at <https://sinodefence.com/2015/12/12/chinas-long-march-to-the-big-jet-club/> accessed on July 27, 2016.

² "Xinhua Insight: Chinese large freighter plane enters military service - Xinhua" *English.news.cn*, July 7, 2016 available at http://news.xinhuanet.com/english/2016-07/07/c_135493762.htm accessed on July 27, 2016.

³ TianShaohui (Editor), "China Focus: World's largest amphibious aircraft made in China," *Xinhua English.news.cn*, July 27, 2016 available at http://news.xinhuanet.com/english/2016-07/23/c_135534988.htm Page 1 of 2 accessed on July 27, 2016.

⁴ Ibid n.3.



⁵ Different sources cite the range differently from 4500 km to 5500 km.

⁶ Ibid n. 3.

⁷ Ibid n. 3.

⁸ "Full text of statement of China Foreign Ministry on award of South China Sea arbitration initiated by Philippines," *Xinhua Report*, July 12, 2016 available at <http://www.security-risks.com/security-trends-south-asia/other-security-trends/full-text-of-statement-of-china-foreign-ministry-on-award-of-south-china-sea-arbitration-initiated-by-philippines-6434.html> accessed on July 28, 2016

⁹ Despite best efforts, runways can be constructed and maintained only in limited number of places.

¹⁰ Vivek Mishra, "The Benefits for India of a US-2 Deal with Japan," *The Diplomat*, October 24, 2013, available <http://thediplomat.com/2013/10/the-benefits-for-india-of-a-us-2-deal-with-japan/> accessed on July 31 2016.

¹¹ Franz-Stefan Gady, "Is the Japan-India Military Aircraft Deal Dead?" *The Diplomat*, March 5, 2016, available at <http://thediplomat.com/2016/03/is-the-japan-india-military-aircraft-deal-dead/> accessed on July 31, 2016.

