

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

PLA NAVY – TURBO GENERATORS AND CARRIER BASED AEW AIRCRAFT KJ-600

1. **China Adds Turbo Generators to Warships to Power High-Energy Weapons.** China has reportedly equipped one of its warships with advanced generators to power high-energy weapons like lasers and rail guns. While the institute which developed the power system did not say which ships had the generators installed, but it is likely that they will be used to power the navy's most advanced Type 055 heavy destroyers. With three or four new turbo generators installed, it will quadruple the power-generating capacity on the warship, making full electric propulsion possible. The Type 055 destroyer would be also be able to go up to a top speed of over 30 knots, in addition to powering weapons like rail guns and laser weapons.

2. **Comments.** Work on the 20-megawatt turbo generators was finished in 2018, and they went into service recently, according to their developer, the 704 research institute of the China State Shipbuilding Corporation. Compared to diesel or combustion turbine engines, or a hybrid system, full electric propulsion can save on fuel, increase response time and improve maneuverability. Also, with the integration of high-energy weapon systems, it will strengthen the ship's combat capability. The turbo generator could also be used for powering electromagnetic aircraft launch system China's future aircraft carriers.

3. At present, only the US Navy and Britain's Royal Navy have destroyers that are fully powered, or close to fully powered, by electricity. The US Zumwalt-class destroyers have two 36MW generators, while Britain's Type 45 destroyers are powered by two 21.5MW generators.

Source: <https://www.scmp.com/news/china/military/article/3095390/china-adds-turbo-generators-warships-power-high-energy-weapons>

4. **China's New KJ-500 AWACS Equipped with Aerial Fuelling Probe.** A latest variation of China's KJ-500 airborne early warning and control system (AWACS), equipped with a probe that can allow it to receive aerial refueling and greatly extend its range and endurance, was spotted at a naval aviation regiment base under the PLA Southern Theater Command. The plane was identified in a photo recently published by English website of China Military Online. Unlike previous KJ-500s, an aerial refueling probe can be seen above the new aircraft's nose.

5. **Comments.** The plane spotted at the naval base was painted yellow instead of naval gray, which is usually a sign that the new aircraft is still undergoing tests. The new KJ-500, when operational, will enable the PLA to maintain extended range early warning missions and enhance its capability to safeguard China's territorial waters and airspace, amid frequent US naval activities, including close-up reconnaissance operations by intelligence gathering aircraft in the South China Sea.

6. The KJ-500 is based on the Y-9 medium-sized tactical transport aircraft, and is equipped with early warning radar systems. The new variation, combined with aerial tankers will become a "capability amplifier", because it can cover hundreds of kilometers, and control other friendly aircraft in the region.

Source: <https://www.globaltimes.cn/content/1200151.shtml>

7. **China's First Carrier-based, Fixed-wing AEW Aircraft KJ-600 Makes Maiden Flight.** China's first aircraft carrier-based, fixed-wing early warning aircraft, called KJ-600, successfully made its maiden flight in late August 2020. An aircraft identified as the KJ-600 was recently spotted in Xi'an, capital of Northwest China's Shaanxi Province, in a commercial satellite image. The Chinese military or the aircraft's manufacturers have not yet announced the maiden flight of the aircraft.



8. Judging from the images, the KJ-600 has a very tight fuselage design, making it almost as long as the J-15 aircraft carrier-based fighter jet, and the Z-18 early warning helicopter. The aircraft carries a radar on the top of its fuselage, similar to China's previous early warning aircraft KJ-2000 and KJ-500. It uses two WJ-6C turboprop engines, but could switch to the newer WJ-10s in the future.

9. **Comments.** This type of plane will become far-reaching eyes and significantly boost the comprehensive combat capability of Chinese aircraft carriers, which currently only have helicopters for early warning purposes. When China's aircraft carriers sail far into the sea, they would lose their full combat potential without a carrier-based fixed-wing early warning aircraft. China's aircraft carriers currently rely on early warning helicopters to do the job, but they can only carry smaller radars, have limited speed, and only cover a radius of about 200 km, while a fixed-wing early warning aircraft can cover about 400 to 500 km.

10. There is however, no evidence yet if the KJ-600 can operate on China's current two aircraft carriers, the Liaoning and the Shandong, which use ski-jump flight decks without catapults. China's third aircraft carrier is expected to use a flat flight deck with electromagnetic catapults, which will be compatible with the KJ-600.

Source: <https://www.globaltimes.cn/content/1199585.shtml>