

US PHOENIX GHOST DRONES: A MYSTERY UNLOCKED

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(Views expressed in the brief are those of the author, and do not represent those of ISSI)



Recently, the Biden administration announced the new US\$800 million military aid package for Ukraine. According to the Pentagon's official statement,¹ this aid includes 72 155mm Howitzers and an equal number of tactical vehicles along with the 144,000 ammunition, field equipment and spare parts. These components of military aid are well known and much anticipated. However, the surprising and never seen before component is the mysterious unmanned aerial weapon system or drone – the Phoenix Ghost.

What is Phoenix Ghost?

Phoenix Ghost is a one-way single-use unmanned aerial weapon system that falls under the category of loitering munition, famously known as the suicide drones or kamikaze drones. With the six-plus hour's flight time, this potentially dangerous machine can also search or track the target even without any specific order or command from the operator.² Without getting into any technical specification, the Pentagon's spokesperson, John F Kirby, reiterated in his press briefing that "Phoenix is designed primarily - but not exclusively to attack. It can also be used to give you a sight

1 The US Department of Defence, *Statement on \$800 Million in Additional Security Assistance for Ukraine*, April 21, 2022, <https://www.defense.gov/News/Releases/Release/Article/3006230/statement-on-800-million-in-additional-security-assistance-for-ukraine/>.

2 Lee Hudson and Paul Mcleary, "Mystery Drone: How the Air Force Fast-tracked a New Weapon for Ukraine," *Politico*, accessed on June 12, 2022, <https://www.politico.com/news/2022/04/21/mystery-drone-air-force-new-weapon-ukraine-00026970>.

picture of what it's seeing, of course.”³ The longer loitering capability gives it an edge over the existing “Switchblade” – a US kamikaze drone with a flight duration of approximately an hour. Its larger size as compared to the small version of Switchblade makes it difficult to be carried by the soldier on the ground. However, with the capability of vertical take-off and infrared sensors for night vision, Phoenix is highly effective against the medium armoured ground targets, especially main battle tanks and armoured personnel carriers. These lightweight, disposable and uncomplicated drones are easy to use and do not require specialised and extensive training. Delivered in a case, Phoenix will be ready for use immediately after unpacking. Despite its large size, it does not leave any logistic footprint and does not require maintenance services. The Pentagon has not yet disclosed further technical specifications like range and destructive capability.⁴

New Brainchild of the Big Safari Project?

Various unofficial sources claim that the 645th Aeronautical Systems Group, also known as the “Big Safari,” oversees the research and development of the Phoenix Ghost. The Big Safari is a classified programme of the United States Air Force (USAF), operational since the 1950s. It is referred to as the “rapid procurement force” or “alternate source,” responsible for the management, direction and control of the development, testing, acquisition and modification of new platforms, weapon systems, sensors, etc. for high-priority and rapid action special operations. It has a small and integrated team, working under a single office, making its chain of command narrow and short. Basic rules for tasking, streamlined practices, policies and directives are mainly responsible for its high industrial precedence rating.⁵

The Lockheed Martin Skunk Works or Lockheed Martin's Advanced Development Programmes (ADP) has been a major partner and primary contributor to the Big Safari. However, a California-based company named “Aevex Aerospace” manufactured the Phoenix Drone. Aevex is a combination of three well-established defence sector companies namely Merlin Global Services, CSG Solutions and Special Operations Solutions.⁶ Aevex provides customised or tailored full-spectrum airborne

3 “What is in the Latest US Military Aid Package for Ukraine?,” *Al Jazeera*, accessed on June 12, 2022, <https://www.aljazeera.com/news/2022/4/21/whats-in-the-latest-us-military-aid-package-for-ukraine>.

4 Gernot Kramper, “Phoenix Ghost - that's what the New Kamikaze Drone can do,” *Stern*, accessed on June 13, 2022, <https://www.stern.de/digital/technik/phoenix-ghost---das-kann-die-neuartige-kamikaze-drohne-31804252.html>.

5 Colonel Bill Grimes, *The History of Big Safari* (Bloomington: Archway Publishing, 2014): xiii - 4; US Air Force, Air Force Life Cycle Management Center, “Big Safari for NDIA,” last modified October 16, 2012, http://www.ndiagulfcoast.com/events/archive/38th_symposium/RutledgeSymp12.pdf.

6 Lee Hudson and Paul Mcleary, “Mystery Drone: How the Air Force Fast-tracked a New Weapon for Ukraine,” *Politico*, accessed on June 12, 2022, <https://www.politico.com/news/2022/04/21/mystery-drone-air-force-new-weapon-ukraine-00026970>.

intelligence solutions like new aircraft, high-priority unmanned aerial vehicles, flight training and maintenance, ISR assets and collection management, data fusion, intelligence analysis and training and specialised post-mission analysis.⁷

Course Ahead?

Is the deployment of these loitering munitions a sign of fundamental transformation in the character of upcoming wars and conflicts or merely an exaggeration? Those who consider them as a “game-changer” hold a view that this new breed of loitering munitions can destroy the target in a way that was not even imagined before. Their portability, small size, low cost and expandability make them ideal for low-profile missions with small to zero footprints. However, the key issue with these kamikaze drones is the small range, which makes them practically useless for complex operations across great distances. The military commanders have come up with various creative yet destructive solutions. Among them, the most effective is an air launching from land or aircraft carrier where these drones could be attached to a fighter aircraft that can enter inside the enemy’s territory and launch a single or large number of these drones to create a “kamikaze swarm.” Unlike big combat drones, the low-speed movement at a low altitude with low “thermal, visual and acoustic signatures” make these kamikazes extremely difficult to be detected, classified and destroyed by even an advanced air defence system, further enhancing their combat effectiveness.⁸

The major complexity is the level of autonomy these kamikaze drones would have. According to various unofficial sources, no existing variant of kamikaze is truly autonomous from a technical aspect. Whether it is a switchblade or phoenix, they are pre-programmed before the flight to search and attack specific coordinates. However, the rapid development of artificial intelligence, swift availability of data and fast computing speed could potentially make these drones fully autonomous in a few years time. What if these fully autonomous and lethal kamikazes lock the wrong target or select the wrong weapon? What if they are operating in a degraded or information deficient environment? Things could go in a different direction on a battlefield resulting in conflict escalation.⁹

To conclude, the loitering munition or kamikaze drone is a game-changer at a tactical level and for operational logistics but its role at the strategic level or in an overall conflict appears to be a little exaggerated. Their recent deployment has provided critical war-fighting lessons for militaries across

7 “Capabilities,” Aevex, accessed on June 20, 2022, <https://aevex.com/capabilities/>.

8 Brennan Deveraux, “Loitering Munitions In Ukraine And Beyond,” *War on the Rocks*, April 22, 2022, <https://warontherocks.com/2022/04/loitering-munitions-in-ukraine-and-beyond/>; Christopher Bronk and Gabriel B Collins, “Ukraine Needs a Whole Lot of Deadly Drones,” *Foreign Policy*, April 13, 2022, <https://foreignpolicy.com/2022/04/13/ukraine-drone-warfare-armaments-russia/>.

9 Ibid.

the globe yet there is a lot more to learn. It is modern weaponry that is currently at the forefront of ongoing conflicts and they are here to stay. With the democratisation of loitering munition technology at the global level, they are expected to appear in future conflicts in other regions of the world.