



Sichuan Tengden Technology Develops UAVs for Possible ASW Mission and Expands Production

By Eli Tirk

Over the past two years, Sichuan Tengden Technology Co., Ltd. (四川腾盾科技有限公司) has continued to develop and expand its uncrewed aerial vehicles (UAVs) platforms for use in a variety of roles, from strike capable platforms to larger logistics support platforms. Prior CASI research on this company has shown its links to the People's Republic of China (PRC) state and the ability of private companies to support People's Liberation Army (PLA) requirements, augmenting the traditional defense sector which is dominated by state owned enterprises.¹ Recent coverage of the company and satellite imagery shows a significant expansion of Sichuan Tengden Technology's construction facilities, likely indicating expanded procurement of its platforms. This article seeks to provide broader context to the expansion of this facility by focusing on an expanding mission set for the TB-001, a UAV made at this facility which is already in service with the PLA, and how this new capability fits into broader PLA modernization trends.

Sichuan Tengden Technology was founded in 2016 and its first facility at the Zigong Aviation Industry Park (自贡航空产业园) was completed in 2022. The facilities operated by Sichuan Tengden Technology upon the completion of its original facilities in 2022 primarily consisted of an expanded runway and the hangar and adjacent buildings in the top left compound (featured in green) in figure 1. Further construction efforts were initiated sometime in 2022.

According to local coverage of this second phase, the construction spans approximately 45,000 square meters across five buildings for assembly facilities, warehouses, laboratories, and testing facilities.² The same coverage indicates that the company produces approximately 200 “large” UAVs per year at this facility.³ The project likely began in 2022, and was completed or near completion in late spring 2024, as shown by the areas in highlighted in yellow in figure 1.

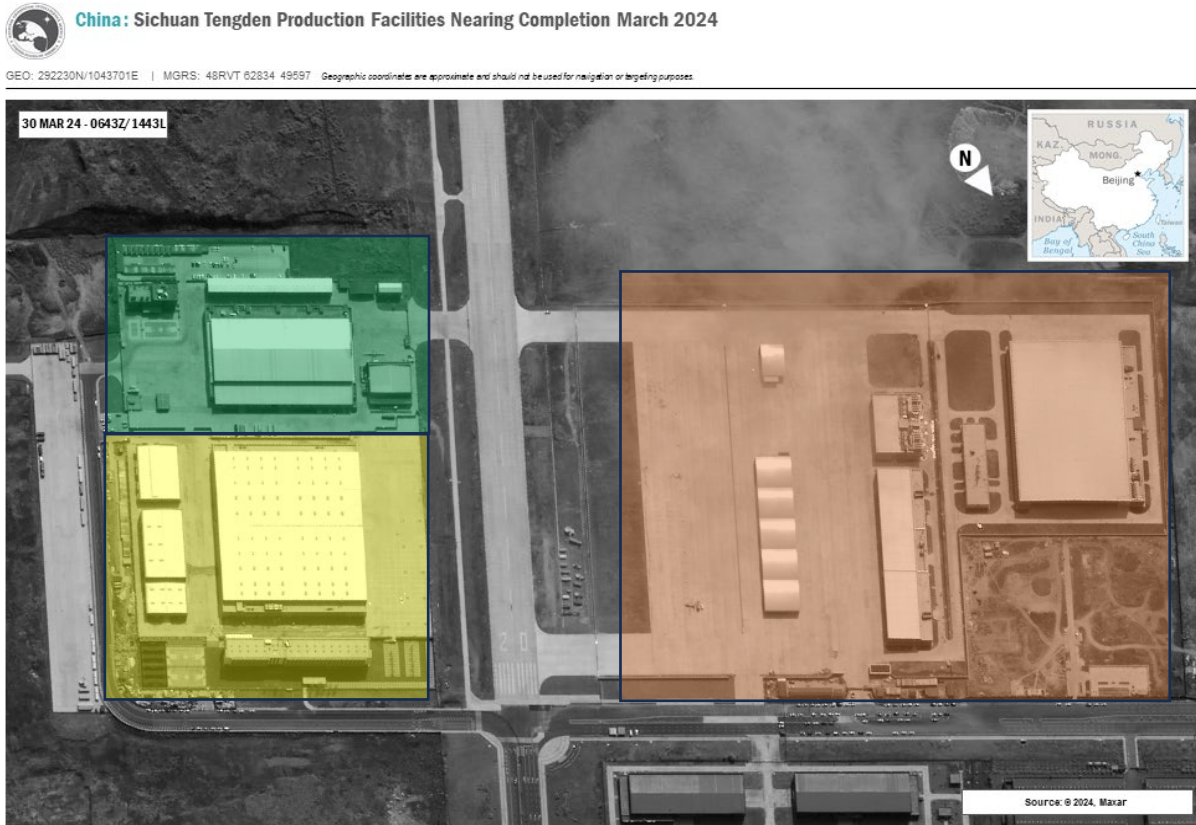


Figure 1: Green areas are original buildings belonging to Sichuan Tengden Technology, yellow areas are recently finished construction affiliated with Sichuan Tengden Technology, and orange areas are new construction, but are not confirmed to be affiliated with Sichuan Tengden Technology



Figure 2: Rendering of Construction⁴

The large expansion of the company's facilities is likely due to increased demand for its products by the PLA, or, less likely, components of the PRC state. The TB-001 has entered service with the PLA Rocket Force (PLARF) to conduct ISR for ballistic missile strikes, as shown by TB-001 operations around Taiwan since 2022 and the system's operation from a PLARF Base 61 subordinate airfield. As that unit is relatively small, it is likely that other elements of the PLA have also been involved in some sort of operational testing and evaluation or procurement activity that would indicate further PLA interest in the company's products. The TB-001 has been demonstrated to be employed in a variety of roles from communications relay support to offensive strike. The platform's apparent heavy payload has demonstrated that it can be easily configured to provide ISR support or conduct strike operations across a variety of domains.

Satellite imagery of PLA airfields that host UAV operations corroborates this suspicion. Since at least July 2022, a TB-001 variant with what appears to be a magnetic anomaly detector (MAD) attached to the rear of its fuselage was observed at PLA Navy (PLAN) airfields in the Eastern and Southern Theater Commands. Additional imagery of the PLAN's UAV airfield on Daishan Island from May 2024 shows a similar TB-001 also possibly equipped with a MAD sensor. However, due to the quality of the image of Daishan Airfield, it is impossible to make a definitive interpretation. The airframe appears to have a shadow beneath a protrusion at the aft of the airframe, which is the strongest indicator in the image.

If this variant is not equipped with a MAD sensor, given the aircraft's presence at other PLAN airfields and configuration to support a PLAN specific mission set, it is possible that the airframe in the image from Daishan Airfield could also be a maritime surveillance configuration that can provide complementary sensors or potentially weapons to support the variant imaged on Hainan. The PLAN has long written on the importance of a combined arms approach to ASW and how uncrewed systems across all domains can contribute to this approach, but this appears to be the first concrete indicator of PLAN testing of a UAV platform in a real world environment

for these purposes. In addition, pairing aircraft with complementary load outs would not be out of line with current PLAN practice and operational thought. The PLAN currently employs Ka-28 helicopters in pairs with complementary sensors. For example, one aircraft may carry a dipping sonar while the other is equipped with sonobuoys or a MAD sensor. Academic texts published by PLAN affiliated authors indicates that teaming aircraft with complementary sensors strengthens their abilities to detect and track undersea contacts and discuss utilizing one aircraft to provide enough tracking data on an undersea target for its wingman to engage with a weapon.⁵



Figure 3: note the possible MAD sensor circled in red

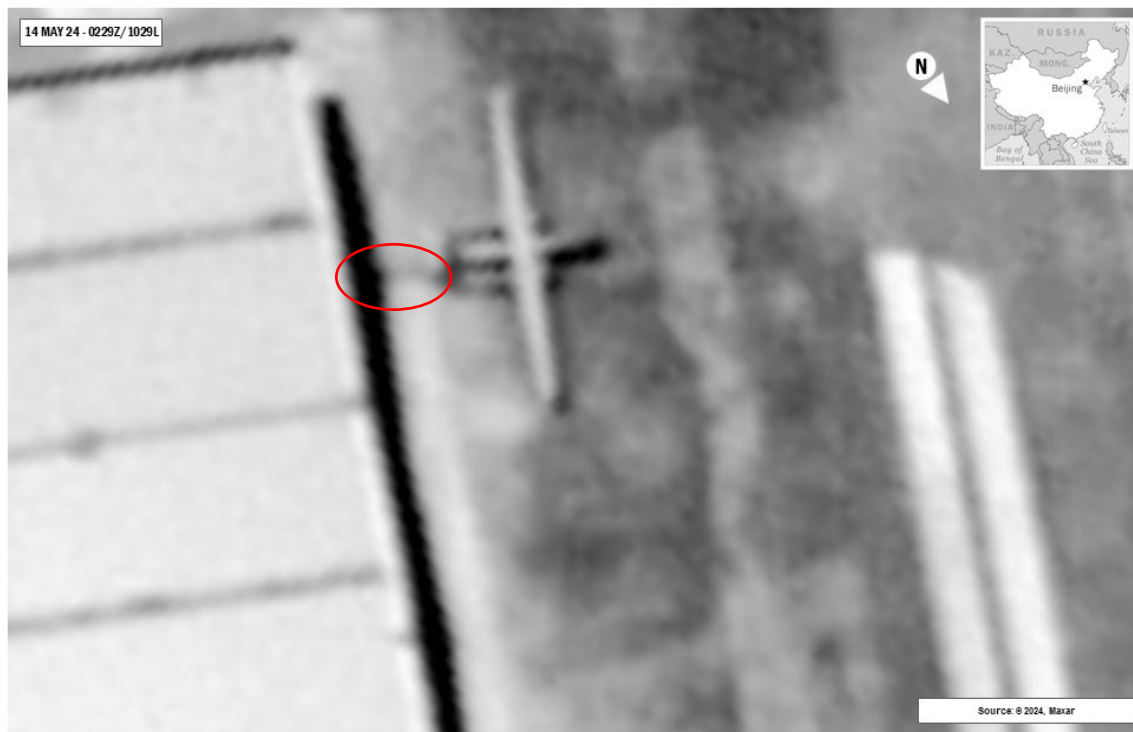


Figure 4: note the shadow of a possible MAD Sensor circled in red

Despite being present at a PLA facility just one month prior to the August 2022 PLA exercises around Taiwan, this particular TB-001 variant's operation from Hainan would be incongruous with the images released of TB-001 variants operating around Taiwan and the Ryukyu Islands since 2021, including the most recent images released of the variants operating around Okinawa in 2024—none of the photographs of TB-001s released by the Japanese Joint Staff showed the aircraft with a MAD stinger.⁶

Given the system's appearance at PLAN and PLARF facilities and the apparent testing of its performance to conduct missions associated with the two services, it is likely that Sichuan Tengdun is expanding its production facilities to support PLA procurement of TB-001 variants. It is likely that the TB-001 is being procured at least by the PLARF and the PLAN. Other than the 2018 image of the TB-001 appearing at an un-publicized UAS focused event held at the PLA Air Force's Malan Airfield, the TB-001 or its variants have yet to be recorded at a PAAAF facility or be publicly observed to be employed, even in a testing environment, in a ground attack role by the PAAAF or PLA Army. This is despite being marketed by Sichuan Tengden as being capable of fulfilling this mission set.

While the evidence presented here is not conclusive proof of the operational fielding of this system by the PLAN, it does demonstrate an apparent follow-through on bringing the

concept of unmanned antisubmarine warfare (ASW) aviation from PLA academic texts to an operational testing environment. The PLAN has long viewed its lack of proficiency in ASW operations as an impediment to countering the US Navy's asymmetric undersea advantages. Fielding its first operational unmanned ASW platform would enable the PLA to refine the information systems needed to support collaboration between unmanned platforms and manned platforms and develop the concepts of operations needed to integrate these systems into ASW operations. The successful integration of ASW concept of operations and platforms will help the PLAN utilize different sensor types to more readily conduct ASW by providing additional sensor data to tackle a difficult mission and work to erode the US Navy's advantage.

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Endnotes

¹ Eli Tirk, "Sichuan Tengden Technology: Privately Owned, State Sponsored," China Aerospace Studies Institute, November 2022, https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Infrastructure/2022-11-07%20Sichuan%20Tengden%20Technology%20Privately%20Owned%20State%20Sponsored.pdf?ver=KmKkt3H7pt1Xm_XbyjZtwQ%3D%3D.

² "Zigong: Boosting the Development of the Drone Industry, Tengdun Science and Technology Innovation Phase II Project is About to be Put into Use (自贡: 助力无人机产业发展 腾盾科创二期项目即将投用)" China.com (中国网), Liao Junlin (廖俊霖), <http://sc.china.com.cn/2023/difang/1336/0225/483674.html>.

³ "Annual production reaches 200! It is expected to be completed and put into use by the end of the year (年产达200架! 预计年底建成投用)," Zigong Releases (自贡发布), <https://mp.weixin.qq.com/s/4RuvQtcKe4pstx7-XSOi6A>.

⁴ "Annual production reaches 200! It is expected to be completed and put into use by the end of the year (年产达200架! 预计年底建成投用)," Zigong Releases (自贡发布), <https://mp.weixin.qq.com/s/4RuvQtcKe4pstx7-XSOi6A>.

⁵ Eli Tirk and Daniel Salisbury "China Maritime Report No. 38: PLAN Anti-Submarine Warfare Aircraft - Sensors, Weapons, and Operational Concepts" (2024). CMSI China Maritime Reports. 38. <https://digital-commons.usnwc.edu/cmsi-maritime-reports/38>. P 15-16.

⁶ "Joint Staff Press Release 25 August 2021," Japanese Ministry of Defense https://www.mod.go.jp/js/pdf/2021/p20210825_02.pdf; Joint Staff Press Release 24 July 2022, Japanese Ministry of Defense, https://www.mod.go.jp/js/pdf/2022/p20220725_01.pdf; "Joint Staff Press Release 5 August 2022," Japanese Ministry of Defense, https://www.mod.go.jp/js/pdf/2021/p20210825_02.pdf and Joint Staff Press Release July 8 2024, Japanese Ministry of Defense https://www.mod.go.jp/js/pdf/2024/p20240708_04.pdf and Joint Staff Press Release July 12 2024, Japanese Ministry of Defense https://www.mod.go.jp/js/pdf/2024/p20240712_06.pdf.