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China's GJ-11 Stealth UCAV

Low-Observable Design, Strike Integration and the Evolution of Uncrewed Airpower

An assessment of the GJ-11's observable design features, internal weapons integration, sensor and command architecture, strike role and potential contribution to China's future manned-unmanned air combat system.

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Executive Assessment

The GJ-11 is best assessed as a maturing low-observable uncrewed combat air vehicle whose public profile has moved beyond prototype imagery, but whose operational depth remains only partially visible.

Official PLAAF and CCTV imagery released in November 2025 and November 2026 provides the clearest open-source basis yet for assessing the GJ-11. The aircraft is a tailless flying-wing design with a dorsal intake, a flattened and shielded exhaust arrangement, internal ventral weapons bays and an apparent electro-optical aperture beneath the forward fuselage. These features are consistent with a design priority on reduced radar and infrared signatures. They do not establish the aircraft's measured radar cross-section, infrared signature, survivability against modern integrated air-defence systems or actual combat radius.

The 9 November 2026 footage is operationally more important than earlier parade and display imagery because it shows the aircraft from multiple angles, including the underside, bay-door geometry, landing gear, rear exhaust treatment and flight configuration. CCTV also stated that the GJ-11 completed a first live-fire strike mission after reacquiring a target obscured by cloud. No date, location, weapon, target type or independent verification was provided. The event therefore supports a judgement of advancing strike integration, but not a claim of validated combat effectiveness.

The PLAAF has also presented the GJ-11 in formation with a J-20 and J-16D and described cooperation with both crewed aircraft and other UAVs. This supports an emerging manned-unmanned concept in which the GJ-11 could extend sensing, deception or strike capacity ahead of crewed fighters. Public evidence does not establish the quality of data links, level of autonomy, delegated weapons authority or resilience of the command network under jamming.

The strongest open-source judgement is therefore structural rather than quantitative: China has developed a stealth-oriented UCAV with observable internal carriage, sensor integration and a stated strike role, and is increasingly presenting it as part of a wider air-combat architecture. The principal uncertainty is whether this public configuration corresponds to a deployable force with sufficient airframes, trained operators, mission systems, weapons, communications and maintenance support to generate sustained operations.

Scope of the Dossier

This dossier assesses the observable GJ-11 configuration and publicly reported operational development through 10 November 2026. It distinguishes direct visual evidence from Chinese official claims and secondary technical interpretation. It does not assign unverified performance figures, weapons loads, radar cross-section values, production totals or operational unit strength.

Airframe and Low-Observable Design

The aircraft's geometry is coherent with a penetration-oriented UCAV, but low-observable shaping is only one element of survivability.

The flying-wing planform removes vertical tails and reduces prominent reflecting surfaces. The upper and lower surfaces are comparatively clean, with the intake positioned dorsally and the principal weapon volume enclosed internally. The November 2026 imagery also shows extensive edge alignment and serrated treatment around selected doors and apertures. Together, these features are consistent with signature-management practice used on other low-observable aircraft.

GJ-11 | AIRFRAME AND LOW-OBSERVABLE SHAPING



Top-down view of the GJ-11 leaving a hangar, highlighting the tailless flying-wing planform and blended airframe geometry. Photo: PLA Air Force.



GJ-11 in flight viewed from below and forward quarter, showing the blended flying-wing planform and lower-fuselage shaping. Photo: PLA Air Force.

The imagery does not reveal inlet duct geometry, internal treatments, material composition or the effectiveness of radar-absorbent coatings. It also does not establish whether low observability is optimized primarily against frontal, side or multi-aspect threats. The aircraft should therefore be described as stealth-oriented rather than assigned a specific signature performance.

Internal Weapons Integration

The new footage confirms internal carriage geometry more clearly than previous public imagery, but not the operational loadout.

The GJ-11 appears to have two internal weapons bays positioned between the main landing gear, with separate door sets and serrated edges. Internal carriage is important because it preserves the external shaping of the aircraft and reduces the signature penalty associated with exposed stores. Chinese reporting states that the aircraft can carry precision-guided air-to-surface weapons, but the November footage does not provide a verifiable weapons load or confirm compatibility with specific missile or bomb types.

GJ-11 | INTERNAL BAY AND FORWARD SENSOR DETAIL



Front-lower view showing the apparent EO/IR sensor area, landing gear and serrated belly bay-door geometry. Photo: Screenshot from CCTV military channel.



Underside view showing the ventral panel geometry and internal-carriage area between the main landing gear. Photo: PLA Air Force.

The bays are operationally relevant because they allow the GJ-11 to combine low-observable shaping with a genuine strike function. However, bay volume, weapon-release envelope, carriage limits and the degree of software integration remain unknown. Display models shown at earlier Chinese exhibitions are useful for understanding design intent but cannot be treated as evidence of the current operational loadout.

Propulsion and Exhaust Signature Management

The rear configuration suggests deliberate treatment of both radar and infrared observability, but the propulsion solution remains opaque.

The aft section uses a flattened, shielded exhaust arrangement integrated into the upper rear surface rather than a conventional exposed circular nozzle. This geometry may reduce direct line-of-sight to hotter engine components from some aspects and may help lower infrared and radar signature. The actual thermal-management measures, engine type, thrust level and loss of performance associated with the exhaust design have not been disclosed.

GJ-11 | AFT SHAPING AND EXHAUST TREATMENT



Close-up view of the GJ-11's aft upper fuselage and exhaust area, showing the integrated and shielded nozzle treatment. Photo: Screenshot from CCTV military channel.

The visible configuration supports a judgement that signature management extends beyond planform shaping. It does not support claims about the aircraft's measured infrared signature, engine efficiency or ability to remain undetected by infrared search-and-track systems.

Sensors and Electro-Optical Architecture

A trapezoidal fairing beneath the forward fuselage appears to house an electro-optical or infrared sensor. Its location is consistent with a forward-looking targeting or navigation role, but public imagery is insufficient to determine whether the system combines EOTS, IRST or other functions. The sensor could support target acquisition, navigation and strike employment; its field of regard, resolution, passive-detection performance and integration with offboard sensors are unknown.

Command, Control and Data Links

The GJ-11's combat value will depend as much on communications and mission control as on airframe stealth.

CCTV has described the aircraft as capable of operating with other UAVs and with crewed fighters, and has stated that its control station and operators can be transported by military airlift. These claims imply a deployable ground-control architecture and some form of networked mission management. Public material does not disclose bandwidth, line-of-sight or beyond-line-of-sight arrangements, satellite dependence, encryption, anti-jam performance, latency or the degree to which the aircraft can continue a mission after loss of communication.

For a penetration UCAV, data-link discipline creates a central trade-off. Persistent transmission can improve situational awareness and enable retasking, but emissions may increase detectability or dependence on vulnerable network nodes. A more autonomous mission profile can reduce communications demand but requires reliable onboard navigation, target discrimination and rules for weapons release. The available evidence does not establish where the GJ-11 sits on this spectrum.

Strike Employment

The reported live-fire mission is a maturity indicator, not proof of a mature combat system.

According to CCTV reporting summarized by multiple outlets, the GJ-11 initially failed to locate a target through thick cloud, then circled for another pass, reacquired the target and completed a strike. The account suggests an operational test involving sensor-to-weapon coordination and a degree of mission persistence. Because the date, target, weapon and range were not disclosed, the event cannot be used to infer accuracy, weapon type, all-weather performance or survivability.

A plausible strike role would exploit low observability to approach defended areas, use onboard or offboard targeting, release precision-guided weapons from internal bays and exit without exposing a crewed aircraft. The degree to which the platform can attack mobile targets, operate in adverse weather or conduct dynamic retasking remains unverified.

Manned-Unmanned Teaming

Formation imagery supports operational association; it does not yet demonstrate a fully integrated collaborative-combat architecture.

GJ-11 | MANNED-UNMANNED TEAMING



GJ-11 flying in formation with J-20 and J-16D aircraft, illustrating the PLAAF's presentation of the UCAV within a broader manned-unmanned concept. Photo: CCTV / PLA Air Force.



GJ-11 in flight with landing gear extended, showing overall planform and airframe proportions in a real flight configuration. Photo: PLA Air Force.

Potential roles include forward reconnaissance, electronic-support cueing, decoy activity, weapons carriage and attack under direction from a crewed platform. The J-20S is frequently discussed as a potential command node for collaborative aircraft, but public evidence does not show the specific control relationship used with GJ-11. Cooperative flight therefore demonstrates compatibility and concept development, not verified sensor fusion or delegated weapons control.

SEAD / Penetration Role

Chinese reporting has associated the GJ-11 with penetrating air-defence networks, scouting targets, drawing defensive fire and delivering guided weapons. These tasks are consistent with the aircraft's configuration, but the available evidence does not show a complete suppression-of-enemy-air-defences chain. Effective SEAD would require threat detection, emitter identification, geolocation, mission planning, weapon compatibility, electronic support and resilient communications.

The GJ-11 could create value even without destroying air defences directly. A low-observable unmanned platform can force defenders to search, radiate, reposition or expend interceptors; it can also cue other shooters or complicate the defender's identification problem. The operational effect would depend on how the platform is integrated with J-16D electronic warfare aircraft, fighters, ground-based sensors, satellites and long-range fires.

Operational Status and Force Integration

The public record now supports the judgement that the GJ-11 has progressed beyond a purely demonstrator role. Official flight imagery, formation activity, detailed aircraft footage and the reported live-fire mission indicate a programme in advanced test,

training or early operational integration. They do not disclose a formal initial operational capability date, assigned units, deployable aircraft numbers, sortie rates or wartime readiness.

The distinction matters. A small number of aircraft can support doctrine development, operator training and demonstrations without providing a persistent operational force. Sustained combat employment would require repeatable maintenance, mission planning, secure control links, weapons support, trained operators and enough airframes to absorb downtime and attrition.

Industrial Maturity and Production Indicators

Open imagery does not provide a reliable production count. The appearance of more than one similar airframe in selected imagery has generated speculation, but available frames do not permit confident identification of each aircraft or its configuration. Public displays and repeated official releases show institutional confidence in the programme; they do not establish serial-production scale.

Meaningful indicators of industrial maturity would include recurring sightings of multiple uniquely identifiable airframes, standardized markings, evidence of unit-level basing, dedicated maintenance infrastructure, repeated weapons-loading activity and consistent operator training. A naval derivative or related carrier-capable design may indicate broader technology transfer across programmes, but should not be used to infer GJ-11 production totals.

Constraints and Information Gaps

The central limitation of open-source assessment is the gap between visible configuration and operational performance.

- Low observability: shaping is visible; measured radar and infrared signatures are not.
- Weapons: internal bays are visible; operational weapon types, carriage limits and release envelopes are not.
- Sensors: an EO/IR aperture is apparent; sensor modes, resolution and field of regard remain undisclosed.
- C2: cooperative operations are claimed; data-link architecture, autonomy and anti-jam performance remain unknown.
- Readiness: flight and live-fire activity are reported; unit strength, serviceability and sortie generation are not public.
- Production: imagery may suggest more than one airframe, but no reliable serial-production total is available.

Implications for Taiwan and the Western Pacific

For Taiwan and regional forces, the GJ-11's significance lies less in a single platform's payload than in the possibility of adding a survivable unmanned layer to China's wider reconnaissance-strike system. A low-observable UCAV could be used to approach air-defence coverage, search for emitters or fixed targets, support deception and carry weapons without exposing a pilot. This could complicate defensive sensor allocation and increase the number of tracks that must be classified under compressed timelines.

Its operational effect would be strongest if integrated with the PLA's existing advantages in land-based airpower, long-range missiles, electronic warfare, space-based ISR and ground-based air defence. In a Taiwan scenario, such an aircraft could contribute to opening phases focused on surveillance, air-defence pressure and attacks on selected fixed nodes. This remains a capability assessment, not evidence of a declared GJ-11 wartime plan.

Beyond Taiwan, the platform could support area-denial operations in the Western Pacific by extending sensing or strike options beyond the mainland's immediate air-defence umbrella. Distance would increase dependence on mission autonomy, communications and tanker or basing solutions. The aircraft's real combat radius, persistence and network architecture are therefore as important as its stealth shaping.

Outlook and Indicators

The next qualitative step will be demonstrated integration, not another airframe reveal.

Trajectory	Leading indicators	Assessment
Incremental operational integration	More routine formation flying; repeated live-fire events; visible unit training; clearer evidence of weapons loading and ground-control deployment.	Most likely. Consistent with gradual transition from advanced testing toward repeatable service employment.
Networked collaborative role	Documented control from crewed aircraft; cooperative targeting; cross-platform sensor sharing; evidence of resilient multi-node C2.	Possible. Would mark a more significant change than additional airframe sightings.
Scaled production and wider basing	Multiple identifiable airframes at operational bases; dedicated shelters and maintenance; standardized markings; recurring deployment activity.	Unconfirmed. Public evidence is presently insufficient to assess production scale.

Indicators to Monitor

- Official confirmation of an operational unit, base assignment or formal readiness milestone.
- Repeated imagery of multiple uniquely identifiable GJ-11 airframes in the same operational context.
- Evidence of actual weapon carriage, release and reload cycles using internal bays.
- Demonstrated data exchange or control relationship with J-20/J-20S, J-16D or other uncrewed systems.
- Public evidence of operations under electronic attack, degraded navigation or beyond-line-of-sight control.
- New imagery revealing inlet geometry, additional apertures, antennas or mission-system changes.
- Recurring deployments beyond test ranges or appearances at operational PLAAF bases.

Final Assessment

The GJ-11 should be assessed as a credible and increasingly mature Chinese stealth-UCAV programme, but not yet as a fully characterized operational system. The November 2026 imagery materially improves understanding of the airframe: internal weapons bays, an apparent EO/IR aperture, a shielded exhaust arrangement and a clean flying-wing configuration are now observable. The reported live-fire event and formation activity provide additional evidence of strike and integration work.

The most consequential uncertainty is not whether the aircraft exists or can fly and release weapons; those questions are increasingly answered. The key unknown is whether China can generate a resilient, repeatable system combining multiple serviceable airframes, secure command links, onboard autonomy, target-quality ISR, internal weapons and trained operators under contested conditions.

If future evidence demonstrates routine cooperative targeting, crewed-aircraft control and operational basing of multiple aircraft, the GJ-11 would represent a qualitative addition to China's penetration and suppression architecture. Until then, its strategic significance is best understood as a maturing capability with clear design intent, growing evidence of integration and still substantial information gaps regarding scale, readiness and combat performance.

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