

UNMANNED UNITED INC.

Common Airframe Doctrine — Sustainment Cost Across Mission Profiles

A public position paper from an American autonomous-systems company

The United States cannot afford to treat every unmanned mission as a separate air-vehicle program. Persistent ISR, logistics, communications relay, search-and-rescue, and specialized payload missions may require different equipment and workflows, but they often share the same underlying needs: reliable lift, trusted autonomy, power, communications, training, maintenance, and field support. A common-airframe doctrine seeks to concentrate investment in those shared foundations while preserving mission flexibility at the payload and software layer.

UNMANNED UNITED POSITIONA modular common-airframe approach can reduce sustainment burden, shorten training pipelines, simplify spares planning, and accelerate adaptation across mission profiles—provided configuration control and mission-specific verification are treated as first-class requirements.

The Cost of Fragmentation

FRAGMENTED APPROACH	COMMON-AIRFRAME ALTERNATIVE
Distinct airframe, tools, training, spares, software, and support chain for each mission.	Shared air vehicle, ground support, core avionics, and sustainment framework with mission-specific kits.
Separate qualification and acceptance logic repeated across largely similar functions.	Common baseline qualification plus disciplined delta assessment for mission changes.
Operators and maintainers move between unfamiliar systems as missions shift.	Common crew interfaces, maintenance concepts, documentation, and data workflows.
Small fleets struggle to retain spares and specialized expertise for every variant.	Pooled spares, repair knowledge, and production learning across a family of configurations.

Where Commonality Creates Value

- Training: recurring crew and maintainer skills can be preserved across multiple mission roles.

- Spares and repair: common mechanical, electrical, and avionics components reduce inventory fragmentation and improve repair responsiveness.
- Production: a stable baseline enables learning curves, supplier management, configuration traceability, and repeatable acceptance testing.
- Software: shared autonomy and ground-system frameworks reduce duplicated integration effort while preserving controlled mission applications.
- Operational adaptability: mission kits can change without discarding the platform foundation that has already been trained, sustained, and verified.

Common Does Not Mean Uncontrolled

A common airframe is not permission to treat every mission variant as identical. A payload, communications, energy, structural, or software change can alter mass properties, electromagnetic behavior, cyber exposure, crew workload, safety, and mission performance. The doctrine works only when each change is subjected to configuration management, an impact assessment, and targeted verification or re-qualification where warranted.

USA-First Sustainment

Commonality is especially valuable when it is paired with American-controlled engineering and sustainment. Domestic design authority allows a customer to understand the configuration it operates, obtain repair and modification support, manage supply-chain risk, and evolve systems without becoming dependent on opaque foreign software or components. This is a practical industrial-base argument as much as an operational one.

A Path for Government and Industry

Government customers should identify the missions that genuinely require a new airframe and the missions that can be supported by a modular platform family. Industry should respond with transparent interface definitions, honest qualification boundaries, predictable sustainment packages, and a disciplined way to manage mission deltas. Unmanned United's Overwatch family is being developed around this logic: a resilient platform foundation with mission-configurable capability and an emphasis on lifecycle support.

Questions for Program Managers

- Which components must be common to reduce the training and sustainment burden?
- Which mission changes materially alter safety, performance, cyber exposure, or qualification requirements?
- How will the program maintain serial-level configuration traceability across variants?
- What domestic repair, spares, software, and engineering authority must exist throughout the system lifecycle?

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