



Australia's Next Generation Uncrewed Aerial System
Supporting Whole of Government Capability

V-BAT UAS

Trusted Australian prime teamed with US technology company
Delivering accelerated capability for Australia

Toll Aviation



Shield AI





Toll Aviation & Shield AI

An Innovative and Assured Partnership

The Team and the Capability

Toll Aviation and Shield AI have partnered to bring the next generation of UAS to Australia.

V-BAT is approved to operate across a wide spectrum of environments and mission profiles, to meet unique customer requirements. In current operations with multiple coalition partners, including the US Marine Corp and US Coast Guard, this partnering approach brings this technology and experience to Australia.

Toll Aviation and Shield AI are committed to integration of Australian sovereign technology on V-BAT, to foster domestic technological growth, achieve greater investment in and export opportunities for Australian technology companies, collectively building national resilience. Shield AI is currently demonstrating this commitment through development and integration of a Wide Area Motion Imagery (WAMI) capability in partnership with Sentient Vision, and with support of this teaming agreement will collaboratively integrate the AVT-Australia CM234 gimbal.

Toll Aviation will provide customised domestic training and operations in Australia, with civilian or military accreditation at customer preference. This Team and this UAS platform will normalise seamless Group 3 UAS operations across civil and military airspace in Australia and the Region.

Toll Aviation



About Toll Aviation

Toll Aviation is a leader in Australian and Regional aviation operations, including uncrewed system training and operations. With a pedigree in Defence, para-public and civilian operations, spanning aeromedical, SAR, policing, fire-fighting and utility operations, we appreciate the needs of first responders and the war-fighter alike. Toll Aviation is committed to leveraging our expanding UAS capability and emerging technologies to actively protect our unique Australian environment, while reducing our carbon footprint.

Why V-BAT UAS?

The V-BAT is a long endurance, Group 3, true vertical take-off and landing (VTOL) UAS supporting operations across land and maritime environments. Whilst V-BAT's DNA is defence-oriented, the capability is equally adept across law enforcement, border security, environmental protection and bio-security roles. The V-BAT has an open architecture framework for mission specific modularity, and integrates the latest technologies, including several key Australian OEM-designed payloads in configuration approval.



Seamless Land & Maritime Operations

- Best in class for embarked operations, minimising footprint and crewing requirements
- Ongoing proven capability operating in maritime environment, seamless ship to shore capability
- Heavy Fuel Engine to be released in 2024
- Aligned with Australian Defence Strategic Review focus on increasing littoral presence, with more smaller vessels, protecting Australia's northern approaches (L8710)
- Excellent capability to support Pacific Island nations, embarked or ashore.

Operational Safety

- Meets existing requirements to operate in civilian and military restricted airspace
- CASA and DASA engagement and enduring planning
- CASA Type Certification available through Toll Aviation
- No exposed rotors, no requirement for operator safety zones, broad ship / air vehicle operating parameters
- ADSB / IFF available.

Payloads

- 11kg payload, for range of interchangeable effects
- Full suite of capabilities expected for Group 3 UAS
- Multi-role ISR (EO/IR/RADAR), SAR, EW
- Payloads proven in combat environments, with an array of proven effects, kinetic and non-kinetic
- Capability for alternate AI-enhanced payloads in support of emerging civil applications, including fire-fighting, bio-security and climate protection.

Dual Use Civil and Military

- Immediate capability solution in military, para-public and civil applications
- Aligned with Whole of Government model, sharing of system across agencies and roles
- Acquisition and leasing options available
- Commercial or Government owned
- Commercial or Government operated.

Local Defence SME Partner for Support & Training

- Toll Aviation is approved training and operations delivery partner for V-BAT
- First Australian V-BAT type endorsement course commences in February 2024 at Toll's ACE Training Centre in Sydney
- Three month flight demonstration campaign across Australia from February through April 2024
- Ongoing training and support from Toll Uncrewed Systems Head Office and Training Base in Queensland.

Transportability / Footprint

- True VTOL capability - no additional launch or recovery system
- 4m x 4m TUAS launch and recovery site
- Launch from confined environment; land or maritime
- Deployable 2-person team, fits in the back of a pick up truck or uH-60 Blackhawk.

Features & Specs

Performance

Max Recommended Payload Capacity	11.3 kg* (not including fuel)
Speed	Cruise: 97 kph Dash: 158 kph
Endurance	10 hours with 4.54 kg payload (weight of recommended EO/IR payloads)
Ceiling	20,000 ft**
Range	130 km
Landing Radius	4 m
Maritime Limits	+/- 3° pitch*** +/- 5° roll***

* Tested and demonstrated up to 18.1 kg of payload but endurance negatively impacted with increased payload weight. Shield AI will only demonstrate to new customers up to 11.3 kg.

** Tested and demonstrated up to 20,000 ft. Max recommended ceiling for flight operations is 18,000 ft. Shield AI will only demonstrate to new customers up to 18,000 ft.

*** Shield AI has operated at higher limits however specific limits depend on ship type and weather conditions.



System

Wing Span	2.96 m
Length	2.74 m
Weight	57 kg
Propulsion	288 cc 2-stroke EFI Engine Heavy Fuel Engine 2024
Electrical Power	Air Vehicle Generator 500 watts
Fuel	91 Octane Fuel / Heavy Fuel
Aircraft Radio Range	130 km



**BORDER PROTECTION | FORCE PROJECTION | CLIMATE SURVEILLANCE | ISR/EW
BIOSECURITY | POLICING EFFECTS | FIRE DETECTION | INFORMATION GATHERING**



- Trusted
- Multi-domain (maritime & land)
- Multi-mission
- Proven
- Australian SME Delivery
- VTOL

Toll Aviation's teaming with Shield AI provides a leap-step in TUAS, MUAS, Group 3 UAS capability, with a considerable reduction in logistical footprint, and increase in capability through a modular approach.

- 3 month capability demonstration campaign commencing early 2024 across Australia
- Interested parties have, on a no commitment basis, the opportunity to qualify senior UAS pilot on type to best understand the capability and its suitability
- Multiple integration programs underway utilising Australian payloads & technology
- Local support and training from an authorised and trusted Australian aviation provider
- First Australian type endorsement course, with CASA certification commences February 2024 at Toll's ACE Training Centre in Sydney
- Accelerated capability model through training and demonstration campaign.



Launch & Recover Anywhere

Land and Maritime Domain

Out of the box, into the air in less than 15 minutes with a three-person team.



Maintenance

Operator maintained

Two-person movement

Engine overhaul 500 hrs TBO

Minimal specialised tooling for field maintenance

Cross-trained personnel




Interested?

Contact Toll Aviation Uncrewed System Team

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All specifications are subject to change at any time. Equipment described may be subject to United States export regulations and may require US authorisation prior to export, re-export, or transfer to non-US persons or parties. All flight operations are subject to approval by the Civil Aviation Safety Authority and/or the Defence Aviation Safety Authority. Participation and attendance at demonstrations and training courses are at the discretion of Toll Aviation.