

WHO

SYSCOM: MCSC

Sponsoring Program: Marine Corps Systems Command (MCSC) Logistics Combat Element Support (LCES)

Transition Target: US Marine Corp Systems Command (MCSC) / Marine Logistics Group (MLG)

TPOC: sbir.admin@usmc.mil

Other Transition Opportunities: US Air Force Aerial Port of the Future (APoF) Air Mobility Command (AMC) US Army Program Executive Office Combat Support & Combat Service Support (PEO CS & CSS) Fixed Wing Cargo Aircraft Cargo Helicopters

Notes: Image: Stratom's Autonomous Pallet Loader (APL) moving 10,000 pounds of cargo on a standard 463L Pallet.



Image curtesy of Stratom Inc.

WHAT

Operational Need and Improvement: APL can load full 10,000 lb. 463L pallets into heavy lift cargo helicopters, maximizing cargo capacity. APL also provides increased efficiencies and operational effectiveness while reducing human resource requirements for congested logistics operations. Today, Extended Boom Fork Lift (EBFL) and Light Capability Rough Terrain Forklift (LCRTF) are not suited to load aircraft AND fly internally to support expeditionary unload operations at forward operating positions.

Specifications Required: A system that allows for autonomous loading/unloading of cargo palletized on full- or half-size 463L pallets in tactical/austere environments is desired. APL reduces reliance on manpower (including fire teams) for unloading tasks in unsecured locations. Autonomous capability to load and unload cargo would greatly reduce the burden on troops in the field to move supplies out of supplying aircraft. Manual handling of cargo increases time the aircraft is on the ground in the Landing Zone and increases exposure of personnel. The system must be able to load and unload a full 463L pallet autonomously. Once loaded, the system must be able to navigate from the self-loading location to the aircraft, over nominal austere terrain. The system must also operate safely while navigating autonomously in order to mitigate the risks of damage to nearby equipment or injury to humans.

Compatible payloads include: 463L pallets, Standard 48 in. x 40 in. Wooden Pallets, Joint Modular Intermodal Container (JMIC), ISU Series Containers, GMRLS

Technology Developed: APL's lightweight, low profile, and novel forklift architecture powered by Stratom's SUMMIT autonomy software, including internal air transport capability, will be a force multiplier for war fighters across the DoD.

Warfighter Value: APL provides opportunities for broader expeditionary readiness including the ability to provide contested logistics support in the INDO-PACOM theater. Teleoperation and autonomous capabilities will reduce the potential for exposure to warfighters and cargo platforms in contested environments during cargo load/unload operations.

WHEN

Contract Number: M67854-24-C-6521

Ending on: Feb 07, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I SBIR Completion	N/A	Concept Feasibility Report	2	3rd QTR FY20
Phase II SBIR Technology Demonstrator Completed	Low	Prototype testing and demonstration	3	4th QTR FY22
APL Delivered to USMC for Experimentation	Low	Functional Demonstration and Delivery to operational group	6	4th QTR FY24
APL Delivered to USAF APOF for Demonstration and Experimentation	Low	Functional Demonstration and Delivery to operational group	6	4th QTR FY24
If Phase II Seq SBIR Option Awarded, Completed	Medium	ATTLA Flight Certification achieved for enhanced APL with Autonomous functionality	7	2nd QTR FY26
If Phase III Awarded, APL LRIP	High	APL Completes Validation activities and enters LRIP for field qualification	8	4th QTR FY27
If Phase III Awarded, APL Fielding	High	APL Deployed with active logistics squadron	9	4th QTR FY28

HOW

Projected Business Model: Stratom expects to sell directly to the Navy and other Department of Defense or Government agencies but potentially with support of a Prime contractor for manufacturing and sustainment. Stratom is well suited to provide APL as a full platform offering with our fully integrated hardware and software capabilities. We also expect to gain traction with commercial customers requiring similar logistics capabilities, enabling a pallet loader product portfolio with broad addressable market opportunities.

Company Objectives: Stratom aims to successfully field APL to enable autonomous contested logistics operations in austere and expeditionary environments. We are working to identify Phase III funding opportunities as well as partners that are well positioned to help expedite APL's availability to support worldwide logistics operations in austere and dangerous environments.

Possible transition advocates include: PEO CS&CSS; PEO Aviation, PEO Ships, H-53 Heavy Lift Helicopters (PMA-261); Tactical Airlift (PMA-207); Air Force Air Mobility Command (AMC); Marine Corps Logistics Group (MLG)

Potential Commercial Applications: APL is well suited to support operational needs in Mining, Agricultural, Outdoor Distribution Centers, and Commercial Airport Material Handling operations. APL's approach to provide a lightweight, small footprint material handling platform with integrated autonomous capabilities has wide application across a range of commercial industries in addition to the primary defense applications.

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