



INDUSTRIAL · CS-630

PICK IT UP. LEAVE EVERYTHING ELSE.

An uncrewed multirotor built to find litter, take only litter, and prove it did.

SEARCH · GATE · APPROACH · GRASP · VERIFY · STOW

- PATENT PENDING
- CIVIL MUNICIPAL PLATFORM — RADIO & GNSS PERMITTED ON THIS LINE
- WASTE CARRIER ONLY — NO ENERGETIC MATERIAL, EVER

0 ENERGETIC MATERIALS ANYWHERE ON THE PLATFORM	1 VERIFIED GRASP PER ITEM — CONFIRMED BEFORE ANYTHING COUNTS	4 MOVERS ON THE CS-6XX BLOCK, ONE SHARED SAFETY CHAIN	6 BEATS IN THE COLLECTION LOOP, EVERY TIME
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OVERVIEW

A MASS CARRIER THAT HAPPENS TO FLY OVER A PARK.

Part of the **4-system Industrial line** — shares its envelope and doctrine with Cargo Mover, Personnel Mover, Heavy-Lift Logger.

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The Litter Collector is an uncrewed multirotor that runs a closed autonomous loop over municipal streets, parks and public spaces: identify litter, approach it, attempt collection, verify the item is actually in the hopper, and repeat until the hopper is full — then return to a Self-Charging Dock to discharge, recharge, take updated tasking and depart again.

It sits in the CS-6xx Movers block alongside the Cargo Mover, Personnel Mover and Heavy-Lift Logger — grouped there because, like them, it flies and functions as a mass carrier, moving material into the hopper the way its siblings move freight or people. It shares the Industrial line's civil doctrine in full: radio and GNSS permitted, sovereign Canadian manufacturing behind it, a work machine bought to do a job, not a weapon.

What sets it apart on this line is the problem it accepts. A sprayer or seeder works against a bounded target class over a consistent background. Litter has no finite class: arbitrary shape, color, material and state of decay, scattered through cluttered urban scenes that are also full of things that must never be touched — a bench, a sign, a memorial, someone's dropped property, a resting animal. A miss costs nothing; a wrong take costs the public's trust. So the design leans conservative everywhere it can: a default-decline gate, a verified grasp before any item counts as collected, and a machine built to fail toward inaction.

THE DISCIPLINE

EVERY OTHER INDUSTRIAL PLATFORM SORTS A BOUNDED CLASS. THIS ONE REFUSES EVERYTHING IT ISN'T SURE OF.

The engineering honesty runs both directions: the perception and grasp problem here is harder than its Industrial-line siblings, and the design does not pretend otherwise. The end-effector stays an open trade rather than a rushed pick, and the gate is built to say no by default — because on a public street, refusing to act is always the safe failure.

HOW IT WORKS

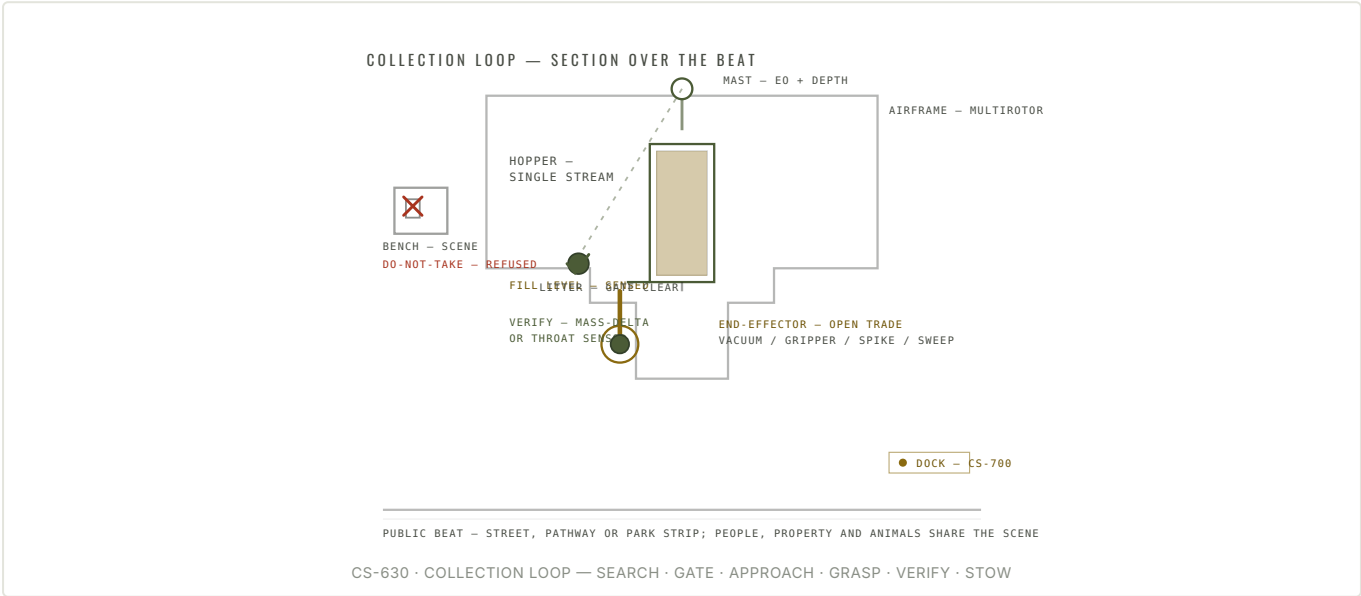
MECHANISM

SEARCH, GATE, GRASP, VERIFY — IN THAT ORDER

A mast-mounted EO-plus-depth sensor scans the beat as the aircraft holds a low-altitude search pattern. Detections split into two streams before anything else happens: litter candidates, and the do-not-take set — benches, signage, personal property, memorials, anything animal or in motion. Only a candidate that clears the gate gets an approach.

The end-effector then makes the pickup attempt. Which mechanism does that job is a live trade rather than a settled part: a vacuum head, a compliant gripper, a spike, and a sweep-and-scoop are the candidates on the table today, each suited to a different litter class, and no winner has been declared. Whichever one flies, the same rule governs it — a mass-delta or throat sensor confirms the item actually left the ground and entered the hopper before the machine logs a success, because an effector can report a clean grasp while holding nothing at all.

A refused or failed attempt is logged, not forced. The machine does not escalate grip force chasing a catch, and any motion or animal-class detection aborts the approach outright. The governing figure of merit is not speed — it is the gate's discipline: refusing correctly, every time, on a scene that is never the same scene twice.



1 · SEARCH	2 · GATE	3 · APPROACH	4 · GRASP	5 · VERIFY	6 · STOW
The mast scans the beat with EO plus depth.	Candidates are checked against the do-not-take set.	A cleared item gets a descent and a standoff.	The end-effector makes one attempt — no forced retries.	A mass-delta or throat sensor confirms the item is in.	Logged, hopper updated, the beat continues.

SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

LITTER COLLECTOR CS-630

Dimensions & Mass	
Configuration	Multicopter carrier
Rotor count & diameter	Under trade study — park noise vs. motor-out margin over people

Performance	
Role	Municipal waste retrieval — streetside litter & park scatter
Mission loop	Identify · approach · verify · stow · discharge · depart
Collection rate, hopper capacity, endurance	Not published as fixed figures — see Governing Variables below

Perception & Guidance	
Perception	EO + depth sensing on a mast/gimbal, on-board detection & gate compute — privacy-preferred on-board-only processing
Flight control & nav	Dual flight controllers, independent IMU, cross-checked; 3× GNSS receivers, 2-of-3 vote
Control & comms	Dual radio C2 — permitted on this civil Industrial line

Payload & Effect	
Do-not-take gate	Default-decline — refuses on ambiguity; any motion or animal-class detection aborts the approach
End-effector	Open trade — candidates: vacuum head, compliant gripper, spike, sweep-and-scoop
Grasp verification	Mass-delta or throat sensor confirms the item is in the hopper — a reported grasp is not a verified one
Hopper	Single-stream, bottom discharge door; capacity, fill sensing and wet-waste liner under study
Cargo only	Waste carrier only — no warhead, fuzing, energetic or terminal-effect content, ever

Materials & Construction	
Structure	Consistent with the fleet materials canon — moulded structure, non-structural articles in recycled PET
Dock interface	Precision-capture + discharge alignment to the Self-Charging Dock (CS-700)

Signature & Power	
Power	Dual independent battery packs and buses — either pack alone sized to land the aircraft
Safety chain	Whole-airframe ballistic parachute + SIG AT polyfoam encapsulation, standard fit; deployment envelope tuned for low-altitude, occupied-space work
Mission tasking	Beat coverage & hot-spot tasking refresh at the dock — changes ratified by a person before the next sortie

Compliance	
Patent status	Patent pending
Civil line	A work machine on the surface civil line — radio and GNSS are permitted here and used openly
Munitions classification	Waste carrier only — no warhead, no fuze, no energetic material, in any variant, ever

COLLECTION RATE — THE GOVERNING RULE

WE DO NOT PUBLISH A HEADLINE FIGURE BECAUSE NONE OF THEM IS FIXED YET.

Items-per-hour, hopper capacity and endurance are governed by variables the test program exists to close, and a number stated without them attached would be a guess dressed as a spec. What we will state is the shape of the answer: the bounded-target-class decision — which litter classes the product actually takes first — is the viability hinge everything else is measured against.

- ✓ Litter density on the beat — site & season
- ✓ Grasp attempts per item — litter class is unbounded
- ✓ Effector energy per attempt — mechanism-dependent
- ✓ Hopper capacity & wet-waste behavior
- ✓ Dock turnaround & discharge time
- ✓ Bounded target-class decision — the product scope call

THE TRADES, STATED

THE MACHINE THAT WOULD RATHER MISS THAN TAKE.

Canadian Shield's thesis is that manufacturing is the decisive capability, and that a civil work fleet should share tooling, avionics doctrine and safety chain with the defence fleet rather than reinvent them per product. The Litter Collector carries that thesis into the hardest civil-line case: public space, with people, animals and property sharing the scene.

The overlap is physical, not rhetorical. Its dual-battery power architecture, dual flight controllers, 2-of-3 GNSS vote and dual radio links are fleet property, inherited whole from the same doctrine that governs the Cargo Mover and Personnel Mover beside it in the CS-6xx Movers block. Its whole-airframe parachute and SIG AT polyfoam are standard fit, the same safety chain the rest of the estate carries — engineered here for a low-altitude, occupied-space profile rather than the open ground its siblings usually work.

And up here, the estate's radio boundary runs the civil way. The no-radio rule governs the defence, underground and tethered platforms without exception — but the Industrial line is the surface civil exception where radio and GNSS are permitted, and the Litter Collector uses both openly: conventional radio for command and telemetry, GNSS for beat navigation and for the tasking record that keeps a person in the loop on every change. A city park is not a jammed battlefield, and we do not build for it like one.

FAMILY CONTEXT

ONE BLOCK, FOUR MOVERS. ONE SAFETY CHAIN ACROSS ALL OF THEM.

The CS-6xx Movers block carries the Cargo Mover (CS-600) and Personnel Mover (CS-610) freight and crew, the Heavy-Lift Logger (CS-620) beyond the freight ladder's ceiling, and the Litter Collector working the smallest, most public payload of the four — a single item at a time, verified before it counts. Every one of them turns around at the same Self-Charging Dock (CS-700) doctrine.

DEPLOYMENT

TASKING IN. VERIFIED RECORD OUT.

A Litter Collector shift is a loop, not a flight: a municipal tasking beat compiles at the dock, the machine works it item by item, and what comes home is a verified log — not a guess at how tidy the park looks. Here is the shift, end to end.

01 · ARRIVE

THE BEAT COMPILES AT THE DOCK

The machine departs the Self-Charging Dock already carrying its beat: the streets, pathways or park strips the municipal operator tasked at the last turnaround, with the do-not-take set — known fixtures, sensitive sites — flagged before the first metre of search. A person ratifies any change before the machine departs.

02 · WORK

SEARCH, GATE, GRASP, VERIFY, REPEAT

The machine works the beat low and slow, cycling the six-beat loop on every candidate: search, gate, approach, grasp, verify, stow. Anything ambiguous, anything in the do-not-take set, or anything that moves gets a refusal, not a forced attempt — and the refusal is logged as carefully as a collection.

03 · RECOVER

DISCHARGE, RECHARGE, UPDATE, DEPART

On hopper limit or beat end, the machine returns to the Self-Charging Dock, discharges through the hopper's bottom door, recharges, and picks up refreshed tasking — hot spots the municipal operator flags, beats reordered by need — before departing again. Nothing is collected without a verified record attached to it.

THE FAMILY

RELATED SYSTEMS

CS-600 · MOVERS BLOCK

CARGO MOVER

Freight, moved — the block's baseline mass carrier.

CS-610 · MOVERS BLOCK

PERSONNEL MOVER

Crew, moved — the same safety chain, rated for people aboard.

CS-620 · MOVERS BLOCK

HEAVY-LIFT LOGGER

Beyond the freight ladder's ceiling — the block's heaviest lift.

Litter Collector CS-630 · patent pending · a civil municipal work platform on the surface Industrial line, where radio and GNSS are permitted. Waste carrier only — no warhead, no fuze, no energetic material and no terminal-effect system, in any variant, ever. Which litter classes the product takes first is a product decision, not an engineering one, and remains open.



PICK IT UP. LEAVE EVERYTHING ELSE.

LITTER COLLECTOR · INDUSTRIAL · CS-630

One block, four movers. One safety chain across all of them.

01

REQUEST A TECHNICAL EXCHANGE

A working session with engineering, not sales — bring your engagement problem, we bring the mechanism.

02

REQUEST THE INDUSTRIAL FAMILY DATA PACK

Drawings, tolerances and test basis for Litter Collector and its siblings, gated behind export screening.

03

DISCUSS A TRIAL QUANTITY

Tell us end-user, jurisdiction, quantity band and timeline — we respond against your program, not a price list.

SALES

sales@cdnshield.ca

GENERAL

info@cdnshield.ca

WEB

cdnshield.ca

Direct lines, named points of contact and facility details are shared with qualified programs following screening — not withheld, sequenced.

Canadian Shield is a defence and industrial drone company, backed by SIG: four-domain uncrewed systems built for jammed, GPS-denied environments — no-radio by design, manufactured for cost and salvo depth.

Litter Collector CS-630

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Product specification R1.0 · 2026-08-15 · © Canadian Shield, a division of SIG (Sustainable Infrastructure Group).