CANADIAN SHIELD
A DIVISION OF SIG | SUSTAINABLE INFRASTRUCTURE GROUP

INDUSTRIAL · CS-580

LIFT IT OUT.
LOG IT HOME.

An uncrewed collection craft for the debris and spill material that floats.

SENSE · MARK · COLLECT · OFFLOAD

PATENT PENDING

RADIO AND GNSS PERMITTED — CIVIL WORK MACHINE

1.5 M	~80 L	0.75 M/S	0
COLLECTION FRONT, BOOMS DEPLOYED	CASSETTE CAPACITY — ~60 KG DEWATERED SOLIDS	WORKING SWEEP SPEED	AT-SEA DUMPING MODES — IN ANY STATE, INCLUDING FAULTS

OVERVIEW

THE SKIMMER FINDS IT. THE RECOVERY TAKES IT AWAY.

Part of the **3-system Industrial line** — shares its envelope and doctrine with Skimmer, Dredger.

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Spill response and post-storm cleanup have an information layer and an execution layer. Canadian Shield split them on purpose: the Skimmer CS-520 surveys and marks; the Recovery CS-580 collects, carries and hands over — with a custody log attached to every load.

The craft is a twin-hull catamaran in the 2.4 m class, booms folded to road-trailer width for transit. Deployed, its funnel booms concentrate a 1.5 m collection front into the between-hulls channel; the craft's own motion is the collection energy, and a mesh basket-cassette in the channel is the reservoir — water passes through, solids stay. When the cassette reports full, the craft runs home, the cassette lifts out as one unit, an empty one drops in, and the loop continues. The channel is the machine, and the whole path is passive on the base craft: fewer moving parts in the dirtiest part of the job.

The cassette bay — seat, latches, lift points, load sensing, one data line — is defined once, so a new collection medium is a tooling change, not a redesign. Three fits ride the same bay: an open solid-debris mesh for municipal litter, post-storm debris and weed mats; a sealed, non-draining cassette for oily solids, where the cassette itself is the regulated-waste transfer unit; and a towed collection bag astern in the ~300 kg class that roughly doubles collection in transit-dominated work — a droppable fit that leaves the base craft unchanged.

THE PREMISE

FAIL-SOFT IN THE DIRTY END, ACCOUNTABLE AT THE CLEAN END.

A snagged boom or clogged mesh stops collection, not the craft. And no mode — including fault modes — can dump at sea: a fouled cassette is carried home, never jettisoned. The design's two promises are that it keeps working and that everything it takes is accounted for.

HOW IT WORKS

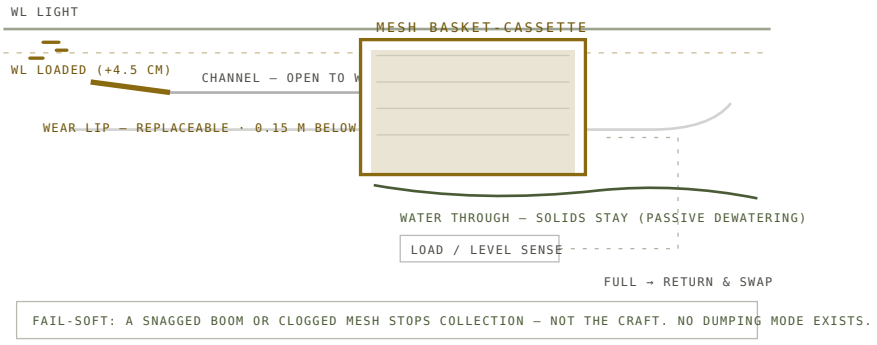
MECHANISM

THE CHANNEL IS THE MACHINE

Mouth → channel → cassette is the entire collection path — and it is passive. The craft sweeps at walking pace, 0.75 m/s; geometry does the concentrating; the mesh does the separating.

The funnel booms shed load before the hull does — snag-release is a requirement, not an accident. The mouth's replaceable wear lip rides 0.15 m below the waterline, and freeboard is drawn against the loaded waterline from the start: at full cassette the craft sinks about 4.5 cm and the lip is still at working depth. Two shrouded thrusters give debris-tolerant differential steering with no rudder to foul; a paddle fallback above the waterline covers the day the water is worse than the survey said. The drives are sized by mouth drag, not cruise — the honest load case.

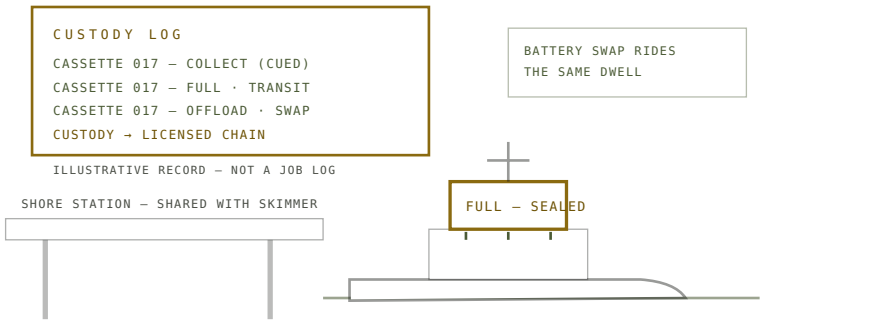
SECTION — MOUTH → CHANNEL → CASSETTE (PASSIVE)



FAIL-SOFT: A SNAGGED BOOM OR CLOGGED MESH STOPS COLLECTION — NOT THE CRAFT. NO DUMPING MODE EXISTS.

CS-580 · COLLECTION TRAIN — CRAFT MOTION IS THE COLLECTION ENERGY

OFFLOAD — THE CUSTODY BOUNDARY (~5 MIN DWELL)



DENSE FIELD ≈ 25 MIN FULL CYCLE — RESERVOIR & OFFLOAD SET THROUGHPUT, NOT THE SWEEP

CS-580 · OFFLOAD — THE CASSETTE IS THE CUSTODY CONTAINER

SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

RECOVERY CS-580

DIMENSIONS & MASS

Configuration	**Twin-hull catamaran collection craft — funnel booms, between-hulls channel, swappable basket-cassette reservoir**
Waterline length, each hull	**2.4 m class**
Beam, booms folded	**Road-trailer width — the transit constraint, carried from the first sheet**
Displacement, light	**150 kg**
Collected-load allowance	**60 kg / ~80 L cassette — ≈40% live-load fraction**

PERFORMANCE

Effective collection front	**1.5 m, booms deployed**
Sweep speed	**0.75 m/s working**
Mouth lip working depth	**0.15 m below the waterline — held at working depth fully loaded (sinkage ≈4.5 cm)**
Cycle, dense field	**≈25 min full cycle — ~35% collecting, transit ~500 m**
Offload / swap dwell	**~5 min — cassette and battery exchanged in the same pause**

DRIVE & CONTROL

Propulsion	**2× shrouded thrusters, differential steering — no rudder to foul**
Fallback drive	**Above-waterline paddle**
Drive sizing	**By mouth drag, not cruise — the working load case**
Command & control	**COTS marine autopilot — commercial RF, telemetry and GNSS, permitted on this line and used openly**
Visibility posture	**High-visibility civil scheme, radar reflector, mast lights**

PAYLOAD & FITS

Cassette bay interface	**Defined once — seat, latches, lift points, load sensing, one data line**
Fit — solid-debris mesh (base)	**Open mesh, passive dewatering — municipal litter, post-storm debris, weed mats**
Fit — oily-solids sealed	**Sealed, non-draining, closing lid — the cassette is the regulated-waste transfer unit**
Fit — towed collection bag	**Offboard mesh bag astern, ~300 kg class — roughly doubles collection in transit-dominated work; droppable, base craft unchanged**
Dumping modes	**None — in any state, including faults; a fouled cassette is carried home**

MATERIALS & CONSTRUCTION

Hull mouldings	**rPET-GF**
Bridge	**GF-nylon**
Consumables	**Neat-rPET mesh cassettes and liners — moulded on the group's own line**
Shared library	**Water-trio shallow-draft hull and station-keeping library — with Skimmer CS-520 and Dredger CS-570**

ENERGY & TURNAROUND

Battery	**~2 kWh swappable pack — ~1.6 kWh usable, ~14 kg**
Exchange	**At the offload dwell — the battery swap rides the same pause as the cassette**
Shore station	**Ramp-side, shared with the Skimmer — cassette and battery exchange, wash-down**

COMPLIANCE

Patent status	**Patent pending**
Line classification	**Civil work platform — Industrial Series charter; radio and GNSS permitted on this line, used openly**
Cargo classification	**Carrier of collected inert material — not a munition; no energetic content of any kind, ever**
Regulatory scope	**Collection, carriage and transfer of spill material are regulated activities — permits and waste-handling approvals belong to each operation**
Survey scope	**Skimmer CS-520 — this craft collects, carries and hands over**

FREEBOARD IS DRAWN AGAINST THE LOADED WATERLINE: AT A FULL CASSETTE THE CRAFT SINKS ABOUT 4.5 CM AND THE MOUTH LIP STAYS AT WORKING DEPTH. DENSE-FIELD CYCLE FIGURES ARE WORKING VALUES — THE RESERVOIR AND THE OFFLOAD TRIP SET THROUGHPUT, NOT THE SWEEP SPEED. COLLECTION, CARRIAGE AND TRANSFER OF SPILL MATERIAL — ESPECIALLY OILED SOLIDS — VARY BY JURISDICTION; PERMITS AND WASTE-HANDLING APPROVALS BELONG TO EACH OPERATION AND ARE NEVER IMPLIED BY THIS PAGE.

THE TRADES, STATED

ONE INCIDENT, ONE FAMILY, ONE CUSTODY CHAIN.

The Industrial line is the civil sibling of the defence fleet — same autonomy stack, same moulded manufacturing, same owned Canadian shop floor — and the CS-580 is where that stack meets the least glamorous, most regulated work on the water.

The doctrine's civil half applies in full: radio and GNSS are permitted on this line — a harbour cleanup is not a jammed battlespace — and the boundary is published in both directions so no buyer has to guess. The manufacturing thesis shows up as the blades: mesh cassettes and liners are moulded consumables off the group's own line, which means every working CS-580 keeps buying from the Canadian floor that built it. And the fleet's sovereignty argument lands here as auditability — a collection machine whose every load is logged is a machine a municipality, an insurer and a regulator can all sign off on.

THE WATER TRIO

SKIMMER FINDS IT. RECOVERY LIFTS IT. DREDGER CUTS IT.

Three craft on one shared shallow-draft hull and station-keeping library: the CS-520 is the information layer, the CS-580 the collection layer, and the CS-570 the excavation layer. One incident, one family, one custody chain — from the spill edge to the licensed transfer.

DEPLOYMENT

A WORKING CYCLE ON THE WATER.

One trailer, one shore station, a loop that closes on the cassette — illustrative of how the craft is used, not a job record.

01 · ARRIVE & CUE

LAUNCH ON THE SURVEY

The craft splashes at the ramp with booms folded and takes its tasking from the information layer: the Skimmer's survey marks where the material is, and the Recovery goes where it is sent. The funnel deploys to its 1.5 m front, the shore station stands up beside the ramp, and the craft works in high-vis posture — lights, reflector and a civil paint scheme. A work boat that wants to be seen.

02 · WORK THE FIELD

SWEEP UNTIL FULL

The craft runs slow lanes through the debris field, and the channel does the work — mouth to channel to cassette, water through, solids stay. Snags shed at the boom, clogs stop collection but never the craft, and nothing ever goes back overboard. Load and level sensing under the seat closes the loop on capacity, not on a timer: full is the trigger.

03 · OFFLOAD & REPEAT

SWAP, LOG, RETURN

The cycle ends at the custody boundary and starts again about five minutes later. The sealed cassette comes out as one lift and enters the licensed chain, logged end to end; an empty cassette and a fresh battery go in on the same dwell. Wash-down stays honest — decon effluent is treated as the regulated waste it is.

THE FAMILY

RELATED SYSTEMS

CS-520 · INFORMATION LAYER

SKIMMER

The survey craft — it finds and marks the material, and its survey is the Recovery's tasking.

CS-570 · EXCAVATION LAYER

DREDGER

The excavation craft on the same hull library — it cuts what sits below the surface the Recovery sweeps.

Recovery CS-580 · patent pending · a civil environmental-cleanup work boat on the Industrial Series charter — commercial radio, telemetry and GNSS permitted on this line. It lifts floating inert material out of the water and carries it to a logged custody point; no at-sea dumping mode exists in any state, including faults. Carriers, not munitions: no warhead, fuzing or energetic content of any kind, in any variant, ever. Collection, carriage and transfer of spill material are regulated activities; permits and waste-handling approvals belong to each operation and are never implied by this page.

LIFT IT OUT.
LOG IT HOME.

RECOVERY · INDUSTRIAL · CS-580

Skimmer finds it. Recovery lifts it. Dredger cuts it.

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 Recovery 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. The civil Industrial line is the surface exception where radio and GNSS are permitted.

Recovery CS-580
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