AIR · CS-160

CHEAP ENOUGH TO LOSE. SENT ANYWAY.

The Air family's smallest body — a tube-launched, motor-cruising scout priced to lose, not to last.

FORWARD SCOUTING · ROUTE OVERWATCH · DISPOSABLE ISR · SALVO DEPTH

PATENT PENDING

EXPORT-CONTROLLED — INTERNATIONAL TRANSFER SUBJECT TO CANADIAN GOVERNMENT PERMITS

PASSIVE-SENSOR CARRIER — NO EFFECTOR, NO WARHEAD, NO ENERGETIC MATERIAL

1.2 KG	~40 M/S	4	0
ALL-UP MASS · DESIGN WORKING POINT	TUBE EXIT · A SCOUT'S DEPARTURE	INTERCHANGEABLE SENSOR NOSES	RADIOS, GPS RECEIVERS OR EFFECTORS ABOARD

OVERVIEW

THE SMALLEST BODY IN THE FLEET. BUILT TO BE SPENT.

> Part of the **5-system Air line** — shares its envelope and doctrine with Goose, Owl, Loon.

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Kestrel CS-160 is a tube-launched, motor-cruising scout, sized and priced to be the cheapest possible way to put a passive eye somewhere and get a look. It is not built to be the best aircraft in the roster. It is built to be the one you can afford to commit without asking for it back.

It takes its place at the cheap end of a family of airframes sharing one launcher-and-doctrine logic. Goose anchors the family, and lends Kestrel its launch tube — throttled down from an interceptor's exit speed to a scout's gentle departure. Owl works the night, orbiting a watch point in near silence; Loon is the long-legged eye, flown for hours and tens of kilometres past where Kestrel's battery gives out; Raven is the family's deliberate radio exception, built to carry the network rather than avoid it. Kestrel does none of that particularly well, and that is the point — it does the cheapest possible version of forward looking, in numbers the others were never built to survive.

The whole engineering argument is restraint. A single-digit part count for the entire airframe — two body-shell mouldings, two wing panels, a tail set, one sensor nose — cut on the same 5-axis dies as the rest of the family. One mechanism has to work every time: the wing-deploy hinge. Everything else is built to be cheap to mould and forgiving of a rough landing, not built to survive one. Kestrel inverts the interceptor's design problem: Goose survives one violent launch and one terminal impact; Kestrel is built to survive many gentle ones, and to be shrugged off on the one it doesn't.

THE CLAIM

SENT. NOT SAVED.

A scout that comes home four times in five is already cheaper than one built to come home every time. Kestrel is moulded, priced and flown on that arithmetic — cost per look, not cost per airframe.

HOW IT WORKS

MECHANISM

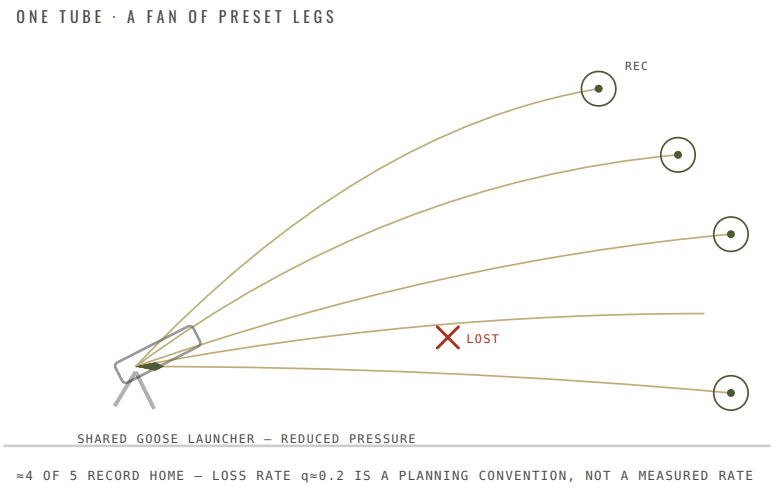
TUBE OUT. PRESET LEG. RECORD — OR DON'T COME BACK.

Kestrel rides out of the same accumulator-valve-tube family Goose uses to throw its interceptor round — just throttled back. Where Goose leaves the tube at ~189 m/s, Kestrel needs only enough push to fly away clean: ~40 m/s, at an average shock of roughly 27 g over the stroke. That is closer to a rough parcel drop than anything the family's interceptors are built to survive, and it is why commodity COTS electronics are credible on this airframe at all.

The wings — folded flat for the tube — snap open on a spring hinge the instant the airframe clears the muzzle. It is the one mechanism on the aircraft that has to work every single time: a scout whose wings don't open is a write-off before it starts, not an attrition statistic. Once open, a small electric motor and folding prop hold a modest cruise, and the airframe flies the leg it was given before launch — a preset route with no live edit, or a visual-only autonomous hold with nothing transmitted in either mode. There is no fibre tier on the base scout, and no radio or GPS in any tier: nothing for a jammer to find, because Kestrel gives it nothing to find.

The nose carries whichever eye the mission calls for. A base EO Scout core records visible imagery to onboard storage; a thermal-biased Night Scout core does the same after dark; a passive Listener nose records acoustic or RF activity without ever transmitting; a stripped Pathfinder nose carries no sensor at all — ballast, and optionally a passive radar reflector, the cheapest body in the whole fleet, flown when the mission is presence rather than picture. Every nose is sensor-only. None of them can act on what they see.

The airframe's own drawing package is honest about what happens next: most legs end in a belly landing on whatever ground is under the aircraft when the battery runs down, and the record comes home with it. Some legs don't end that way. Both outcomes are priced into the same design — which is the whole idea.



CS-160 · ONE TUBE, A FAN OF PRESET LEGS — THE NUMBERS ARGUMENT, DRAWN

SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

KESTREL CS-160

DIMENSIONS & MASS

All-up mass	**1.2 kg — single design working point**
Body / bore diameter	**Ø90 mm — sized to the shared Goose tube envelope**
Wingspan, deployed	**≈0.69 m**
Wing panel length	**≈0.33 m, each of two**
Wing area	**≈0.08 m²**
Mean chord	**≈115 mm**
Wing aspect ratio	**6**
Configuration	**Fixed-wing, tube-launched scout · folding two-panel wing**

PERFORMANCE

Cruise speed	**20 m/s (≈72 km/h)**
Endurance	**≈61 min central case (≈46–76 min across build cases)**
Still-air range	**≈73 km, central case**
Practical radius	**≈24 km — holds reserve for loiter and wind**

LAUNCH & GUIDANCE

Launch method	**Shared Goose accumulator/valve/tube family, at reduced pressure**
Launch-tube stroke	**3.0 m class**
Muzzle exit velocity	**~40 m/s**
Launch shock	**≈27 g at 40 m/s exit, average over stroke**
Wing deploy	**Spring hinge, snaps open at the muzzle — the one mechanism that must work every time**
Guidance	**Tier 1 preset · Tier 3 autonomous visual — no fibre tier on the base scout**
Correction in flight	**None — no radio, no GPS, no live edit**

PAYLOAD & SENSORS

Nose — EO Scout	**Visible-band imagery, recorded to onboard storage**
Nose — Night Scout	**Thermal-biased core for the same job after dark**
Nose — Listener	**Passive acoustic / RF record — never transmits**
Nose — Pathfinder	**Ballast, optional passive radar reflector — presence, not picture**
Effector payload	**None — sensor-only, in every nose variant**

MATERIALS & CONSTRUCTION

Structure	**Moulded GF-nylon body, wing panels and tail**
Part count	**Single-digit structural part count — two body shells, two wing panels, a tail set, one sensor nose**
Recycled material	**rPET in non-structural components only — nothing that flies under load**
Tooling	**Dies cut in Canadian Shield's own 5-axis shop**

SIGNATURE & POWER

Motor / propulsion	**≈100 W-class electric motor, folding prop**
Battery pack	**0.30 kg · ≈60 Wh usable · 18650/21700-class Li-ion, swappable**
Emissions	**None — records onboard, never transmits**
Jamming surface	**None — no link exists to jam, detect or geolocate**

COMPLIANCE	
Patent status	**Patent pending**
Export control	**Export-controlled — international transfer subject to Canadian government permits; export posture is counsel-first**
Classification note	**An ISR-configured small uncrewed aircraft, and any thermal sensor core fitted to it, are plausibly controlled items in their own right; no classification has been obtained — no transfer of any kind without permits in hand**
Munitions classification	**Passive-sensor carrier, not a munition — no warhead, no effector, no energetic material, in every nose variant including the ballast/decoy Pathfinder**
Scope	**Long-endurance flight is Loon CS-150; network carriage is Raven CS-130 — neither is on this airframe**

EVERY FIGURE DESCENDS FROM THE AIRFRAME'S SINGLE 1.2 KG DESIGN WORKING POINT. ENDURANCE, RANGE AND RADIUS ARE CENTRAL-CASE VALUES; THE 1-IN-5 LOSS RATE IS A PLANNING CONVENTION, NOT A MEASURED RATE. NO UNIT COST IS PUBLISHED — COST PER LOOK, NOT COST PER AIRFRAME, IS THE DESIGN METRIC.

THE TRADES, STATED

CHEAP ENOUGH TO LOSE. PRICED THAT WAY ON PURPOSE.

Every Canadian Shield airframe runs on the same magazine-depth argument. Kestrel runs it at the smallest scale in the roster, and states it as arithmetic rather than slogan.

Run the numbers the way the engineering file does: at a 1-in-5 per-sortie loss rate, one airframe delivers roughly five looks before it's gone. At 1-in-3, about 3.3. At coin-flip odds, two. No dollar figure is claimed anywhere in the package — Kestrel has no costed bill of materials, and we say so rather than invent one — but the shape of the argument doesn't need a price tag to hold: every airframe that comes home divides its cost across one more look, and every one that doesn't was already paid for by the ones that did.

The manufacturing thesis carries the same logic into the mould shop. Kestrel's body, wing panels and tail are moulded GF-nylon, on the family's owned 5-axis tooling — the same class of dies that cuts the Goose round, extending the sovereign-manufacturing case the Air family already runs on its lead interceptor and the Forward Manufacturing Cell built around it. Recycled rPET stays exactly where the family's material doctrine puts it — non-structural components only, nothing that flies under load. A single-digit structural part count keeps the mould simple and the unit price down, because a scout that costs too much to lose stops being a scout.

THE TRADE

BUY THE FAN. NOT THE SINGLE TRY.

A Kestrel that doesn't come back isn't a failure in this design — it's a line item. The airframe is built to make that trade make sense, over and over, at a price the roster's other platforms were never meant to hit. Cost per look, not cost per airframe, is the design metric.

DEPLOYMENT

A SCOUTING LEG, WALKED THROUGH.

One leg, walked end to end — illustrative of how the scout is used, not a mission record.

01 · ISSUE

HANDED OFF, PRESET AND PACKED

The leg is loaded before the airframe leaves the case — waypoints locked, no live edit once it's airborne — and the nose is picked for the job: Scout for a daylight look, Night Scout after dark, Listener for a quiet acoustic pass, Pathfinder when the mission is presence rather than picture. The tube is seated, and there is nothing left to configure over a link, because there is no link.

02 · LAUNCH

OUT THE TUBE, WINGS OPEN

A short pulse off the shared Goose launcher family — throttled to a scout's gentle departure, not an interceptor's — clears the tube in well under a second. The wings snap open on the one mechanism that has to work every time, the prop unfolds, and the airframe climbs away on its own preset heading.

03 · WORK

THE LEG, FLOWN BLIND AND QUIET

Preset waypoints or a visual-only autonomous hold — either way, nothing transmits. The nose records what it was sent to find, onboard, for the length of the leg. There is no telemetry to watch and no link to lose, because losing a link that was never opened isn't a failure mode.

04 · RECOVER — OR FORGET

HOME OR GONE — EITHER WAY, THE LOOK WAS BOUGHT

Most legs end in a belly landing wherever the battery runs out, and the record comes home with the airframe for a swap and a re-fly. Some don't come back at all. Neither outcome is chased or mourned — it was priced in before the tube was loaded, and the next airframe is already in the case.

THE FAMILY

RELATED SYSTEMS

CS-110 · LEAD ROUND

GOOSE

The family's anchor — the interceptor round whose launch tube Kestrel borrows, throttled down.

CS-140 · NIGHT WATCH

OWL

Works the night — orbiting a watch point in near silence, where Kestrel just passes through.

CS-150 · LONG ENDURANCE

LOON

The long-legged eye — flown for hours and tens of kilometres past where Kestrel's battery gives out.

CS-130 · RADIO EXCEPTION

RAVEN

The family's deliberate radio exception — built to carry the network rather than avoid it.

Kestrel CS-160 · patent pending · export-controlled — international transfer requires Canadian government permits; export posture is counsel-first. An ISR-configured small uncrewed aircraft, and any thermal sensor core fitted to it, are plausibly controlled items in their own right; no classification has been obtained — no transfer of any kind without permits in hand. A passive-sensor carrier, not a munition: no warhead, no effector, no energetic material in any nose variant, including the ballast/decoy Pathfinder — it records; it does not act. No radio and no GPS in any guidance tier; no fibre tier on the base scout. Every figure on this page is stated at the airframe's single 1.2 kg design working point. Long-endurance flight belongs to Loon CS-150 and network carriage to Raven CS-130, not this airframe.

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Buy the fan. Not the single try.

01

REQUEST A TECHNICAL EXCHANGE

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

02

REQUEST THE AIR FAMILY DATA PACK

Drawings, tolerances and test basis for Kestrel 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.

Kestrel CS-160

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