CDNS KAOS · GROUND

KAOS

THE DIESEL-ELECTRIC TRACKED WORK PLATFORM, BUILT TO BE AUTONOMOUS

A tracked carrier whose engine charges one bus, whose running gear and power module bolt off, and whose operator commands it from off the machine.

180 kWe	160 kWh	190 kW	160 L/min	20 km/h	225 kN
GENERATOR, NET AT THE DC BUS	BATTERY INSTALLED, FOUR PACKS	CONTINUOUS TRACTION, BOTH TRACKS	TOOL HYDRAULICS AT 300 BAR	TOP SPEED	RECOVERY PROOF CASE

AT A GLANCE

A GENERATOR ON TRACKS. A DECK THAT HANDS THE POWER ON.

KAOS is one architecture in three sizes. The figures here are KAOS Core's, the size the engineering is drawn to.

BUILT IN, NOT FITTED

AUTONOMOUS FROM THE FRAME UP

The structure, the energy path, the command path and the safety chain are laid out for a machine worked from off board, not adapted to it afterwards.

ONE BUS

THE ENGINE CHARGES, THE MOTORS DRIVE

A 180 kWe generator and a 160 kWh battery share one high-voltage bus, and the tracks, the tool circuit and the deck all draw on it.

BOLTED

THE WEARING PARTS CHANGE ON THE GROUND

Each track cartridge lands on a machined face and is held in friction, and the power module lifts out as one unit. The same assemblies serve KAOS Light, Core and Heavy.

THE DECK

A STANDARD CONNECTION FOR A CUSTOM MODULE

Nine services cross the deck interface, and a module the machine cannot identify gets no energy and no hydraulics. The standardization is in the connection, so the module can be built for one job.

IN THIS SHEET

01 · SPECIFICATION

KAOS CORE, FIGURE BY FIGURE. EACH BESIDE THE BASIS IT RESTS ON.

Grouped the way an integration engineer reads a work platform: the machine, its envelope, how it moves and stops, where its power comes from, what it hands the deck, and how it is kept safe and kept working.

01 THE PLATFORM

PARAMETER	VALUE	BASIS
Sizes	KAOS Light · KAOS Core · KAOS Heavy	three sizes of one architecture; track frames, power module, cab and deck interface interchange across all three
Size drawn to figures	KAOS Core CS-270	every figure on this sheet is Core's
Drivetrain	Series diesel-electric, battery-buffered	no mechanical path from the engine to the tracks
Command path	Optical fibre tether from a stand-off station	nothing on the command path goes over the air
Deck arrangement	Power pack above the deck behind the cab, or between the track frames	chosen per configuration
Control type	Driving controls, or a seat and no driving controls	chosen per configuration

02 DIMENSIONS, MASS AND FOOTPRINT

PARAMETER	VALUE	BASIS
Overall length	5.40 m	design value, the CAD control envelope
Gross vehicle mass, design maximum	15,000 kg	design value; the mass the structural load cases and the brake are calculated at
Track gauge	1.95 m	design value
Shoe width	550 mm standard; ≥650 mm low-ground-pressure option	design value, the envelopes the running gear is packaged to
Track contact length	3.1 m per side	design value
Track footprint	3.41 m²	calculated: two 550 mm shoes over 3.1 m of contact
Ground pressure	43.15 kPa	calculated nominal static average at 15,000 kg on 550 mm shoes; the pressure under each roller is higher

03 MOBILITY AND BRAKING

PARAMETER	VALUE	BASIS
Top speed	20 km/h	design value

PARAMETER	VALUE	BASIS
Working speed	12 km/h	design value
Traction power, both tracks	190 kW continuous · 300 kW peak	design value
Traction power, each track	~95 kW continuous · ~150 kW peak	design value, one motor and one inverter per side
Steering	Each track driven and commanded on its own	no differential and no cross-shaft; the machine turns on the difference in track speed
Brakes	Spring-applied at each final drive, held off by power	fail-safe; brake state monitored against brake command
Braking deceleration	0.35 g	design value, the stop the brake is sized for
Stop from 20 km/h	~4.50 m in ~1.62 s	calculated at 0.35 g, ideal, without reaction or lag
Regenerative braking	The motors slow the machine as generators	not counted as a brake; the spring brake is sized for the full mechanical stop

04 POWER AND ENERGY

PARAMETER	VALUE	BASIS
Generator output	180 kWe net at the DC bus	design value, a diesel prime mover at generator duty
Battery	160 kWh installed, four packs	design value, low-mounted in the tub
High-voltage bus	800 V class; 740 V nominal	design value; 740 V is the nominal point the bus is modelled at
Bus voltage window	666–814 V	calculated: two packs in series
Fuel	320 L	design value
Engine-off operation	Standby and a short creep on the battery	the engine stops while the machine watches or moves a short distance
High-voltage protection	Interlock loop, insulation monitoring, contactor weld detection, verified discharge	on every build

05 TOOL HYDRAULICS AND COOLING

PARAMETER	VALUE	BASIS
Tool hydraulics	160 L/min at 300 bar	design value
Hydraulic power	80 kW	calculated: 160 L/min at 300 bar
Pump drive	An electric motor of its own on the bus	tool flow follows the tool, with the tracks stopped or the engine off
Hydraulic reservoir	120 L	design value
Cooling	Separate loops for the battery, the drive and generator, the hydraulic oil, and the engine and charge air	each held at its own temperature

06 STRUCTURE, HANDLING AND RECOVERY

PARAMETER	VALUE	BASIS
Centre tub	Fabricated HSLA steel box, 350 MPa yield class	design value, the primary structure
Running gear	Two bolted track cartridges on machined faces	each comes off as one assembly
Cartridge joint	Preloaded friction joint	friction across the clamped faces carries the load; the bolts do not work in shear
Power module	Bolt-in unit, lifted out upward or rearward on defined points	changed on the ground
Recovery load	150 kN	design value, front and rear recovery points
Recovery proof case	225 kN	design value: 150 kN × 1.5 dynamic factor
Lifting and transport	2.0 g vertical	design value, the lift and tie-down case
Load paths	Recovery, lifting and tie-down loads end in the longitudinal structure	never in panels, guards or bodywork

07 COMMAND, SAFETY AND SENSING

PARAMETER	VALUE	BASIS
Authority	Operator command · independent safety · vehicle control · planning and perception	planning reaches neither the torque nor the brakes
Stop stations	Front and rear on the machine, and a stop at the operator's station	torque inhibited and brakes applied; a person clears a stop at the machine
Safety functions	Brake-state agreement, safe torque enable, overspeed, roll and pitch, isolation fault, contactor weld, module interlock, protective zones, watchdog	held by an independent safety controller; protective zones where a safety scanner is fitted
Loss of control power	Brakes close and the safe outputs de-energize	the safe state needs no message to arrive
Loss of command	The machine goes to a state defined before the work starts	set per authority mode
Perception	A 360° lidar and eight cameras	design value; every module is checked against the field of view
Software and records	Secure boot, signed software and configuration, role-based service access, protected event logs	required on every machine

08 MISSION DECK INTERFACE

PARAMETER	VALUE	BASIS
Services across the interface	Nine: structure, high voltage, low voltage, export, hydraulics, Ethernet, CAN, cooling, safety handshake	the interface is standardized so the module need not be
Module power path	The carrier's generator, or the module's own source	specified per job
Deck hydraulics	Pressure, return and case drain on flat-face couplers	a contamination-controlled coupler family
Module restraint	0.8 g longitudinal · 0.8 g lateral	design value, through the hard-point grid
Module identity	Type, serial, hardware revision, mass and centre of gravity, speed cap, hydraulic and electrical limits	an unknown or invalid identity disables the mission outputs
Payload isolation	A module cannot enable torque, release a brake or reach the safety network	enforced in the wiring and at the network boundary

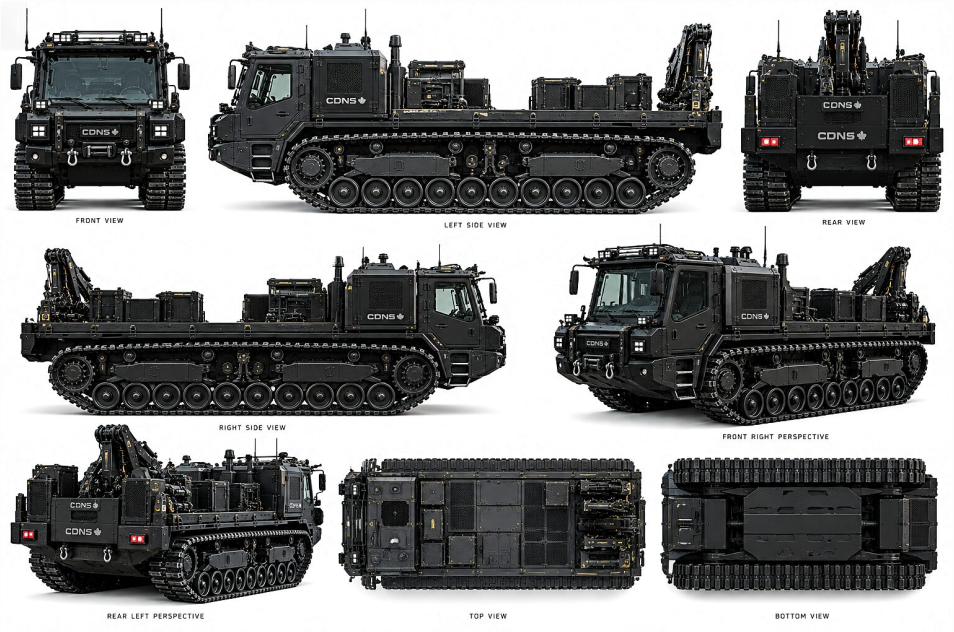
09 SUSTAINMENT AND ENVIRONMENT

PARAMETER	VALUE	BASIS
Field-changed assemblies	Track cartridge, power module, battery packs on trays	each on a designed removal path with its own fixture
Service state	Keyed disconnect; traction inhibited	zero-energy state confirmed at the points to be touched
Diagnostics	Identity, software version and health from every major unit; coded faults, with a frozen frame on motion-critical faults	some safety faults clear only at the machine
Cold operation	Battery preheated, heaters in the loops, heated fuel filtration	designed in at component level
Daily checks	Filters and fill and bleed points grouped, reachable from the ground	cooling cores swing or slide out for cleaning

02 · THE PLATFORM

ONE ARCHITECTURE, DRAWN AROUND ITS DECK. FIVE CHOICES SPECIFY A MACHINE.

KAOS is a carrier drawn around a deck, built in three sizes from the same assemblies, and specified on five axes rather than chosen from a list.



KAOS is Canadian Shield's heavy tracked work platform. It takes standardized mission modules, goes onto ground a person should be kept off, and lifts, carries, tows, recovers and powers what is bolted to its deck.

The line comes in three sizes, KAOS Light, KAOS Core and KAOS Heavy, and they are one architecture at three scales rather than three designs. Track frames, power module, cab and deck interface interchange across all three, so a fleet holds one set of assemblies instead of three. Core carries the designation CS-270 and is the size the engineering is drawn to; every figure on this sheet is Core's.

THE AXIS	THE CHOICE	WHAT IT SETTLES
Transport	How the machine reaches the job, is carried, set down and set up	Lifting and tie-down points, and what comes off for the move
Work	What it does once there, from the four kinds it recognizes	The module on the deck, and the limits the machine adopts with it
Power path	Whether the module draws its auxiliaries from the carrier or brings its own	What the module carries, and what its builder can leave out
Deck arrangement	Whether the power pack stands above the deck or sits between the track frames	Where the heavy mass sits, and how much of the deck is clear
Control type	Whether the cab has driving controls or a seat and none	Who drives it, and what it does under command

03 · HYBRID DIESEL-ELECTRIC

THE ENGINE MAKES ELECTRICITY. THE BATTERY ANSWERS THE PEAKS.

A diesel engine turns a generator onto one high-voltage bus, a battery on the same bus takes the surges, and a motor at each track draws what it needs from the pair.

180 kWe	160 kWh	190 kW	300 kW
GENERATOR, NET AT THE DC BUS	BATTERY, FOUR PACKS	CONTINUOUS TRACTION	PEAK TRACTION

Nothing mechanical runs from the engine to the ground. The engine's one job is to turn a generator delivering 180 kWe net at the DC bus, so it can be held where it burns fuel best while the load moves. The battery, 160 kWh in four low-mounted packs on the same 800 V class bus, covers a track biting or a tool stalling, takes back the surplus when the load falls away, and lets the machine stand by or creep a short distance with the engine off.

The generator is sized for what an hour of work asks rather than for the hardest second inside it. Off the road that earns more than it does on it: the duty is peaky, the ambient is cold, and much of a work platform's life is spent with the tracks stopped while a tool runs or power goes to the deck.

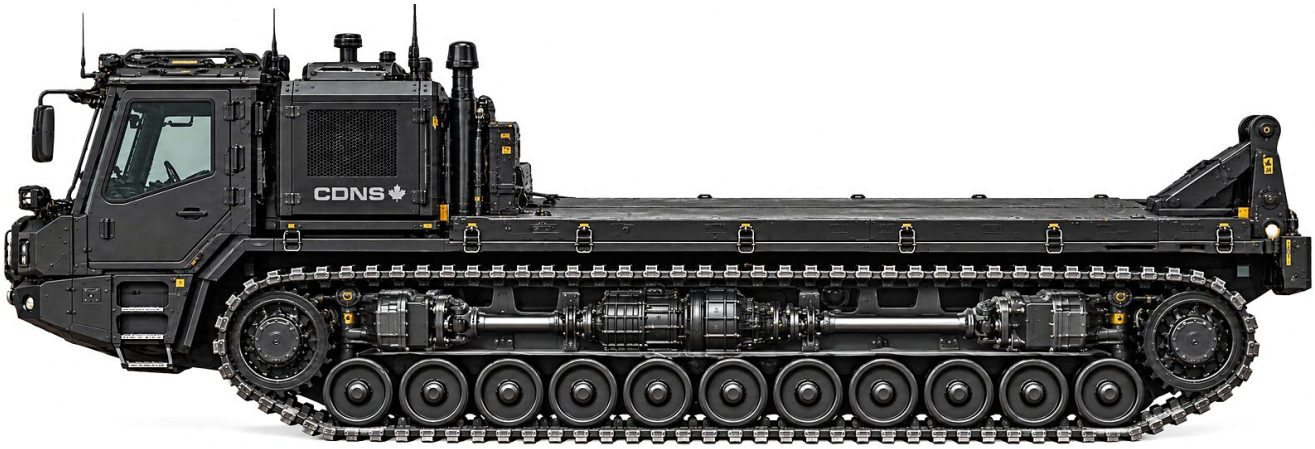
WAY OF WORKING	THE ENGINE	THE BATTERY
Standby	Off	Runs the sensing and the controllers on a protected reserve
Quiet creep	Off	Moves the machine a short distance on its own
Normal transit	Follows the average load	Absorbs and returns the difference
Heavy mobility	Runs	Adds the peaks on top
Engineering work	Runs	Backs the hydraulics; traction holds a reserve
Stationary export	Runs	Takes up the slack in the load
Recovery	Runs	Pull is limited and speed is cut
Battery recovery	Unavailable	Moves the machine clear on its own

The same bus feeds the electric motor that turns the tool pump and the branch that reaches the deck, so power off the deck is part of the architecture rather than an accessory added to it.

04 · TRACTION AND BRAKING

A MOTOR AT EACH TRACK. A SPRING THAT HOLDS THE MACHINE STILL.

Each side is a complete drive of its own, and stopping is given to a mechanical brake that power holds off and a spring applies.



Each track has its own motor, inverter, reduction and brake, rated at ~95 kW continuous and ~150 kW peak, for 190 kW continuous and 300 kW peak across the machine. There is no differential and no cross-shaft: the machine turns by driving one track faster than the other, and each side's torque is a value a controller sets. Top speed is 20 km/h and the working speed 12 km/h.

In normal driving the motors slow the machine as generators and return the energy to the battery. That is not counted as braking, because it works only while the electronics are alive and the battery can take the charge. The brake at each final drive is spring-applied and held off by power, and it is sized for the full mechanical stop at 0.35 g, an ideal stop from 20 km/h of ~4.50 m in ~1.62 s.

- ✓ **Brake state is monitored apart from brake command.** The machine knows the difference between telling a brake to release and its having released.
- ✓ **No traction against a disagreement.** A mismatch between command and feedback inhibits drive.
- ✓ **Losing control power is a braked state.** The brakes close on their own springs and the machine does not coast.
- ✓ **Holding and stopping are separate questions.** The brake answers a moving stop, a hold at rest with no power, and the heat of repeated stops.

05 · THE STRUCTURE

ONE FABRICATED STEEL TUB. EVERY HEAVY LOAD ENDS INSIDE IT.

The centre tub is the machine: a fabricated high-strength low-alloy steel box between the tracks that carries the deck, the running gear and every recovery, lifting and tie-down load.

The tub ties the two track cartridges together against the twist between them, carries the deck and whatever the customer puts on it, and takes recovery loads into its own longitudinal members. The battery bays sit in its low centre, so the heaviest single mass is carried inside the structure rather than hung beneath it, behind guards that unbolt and are thrown away.

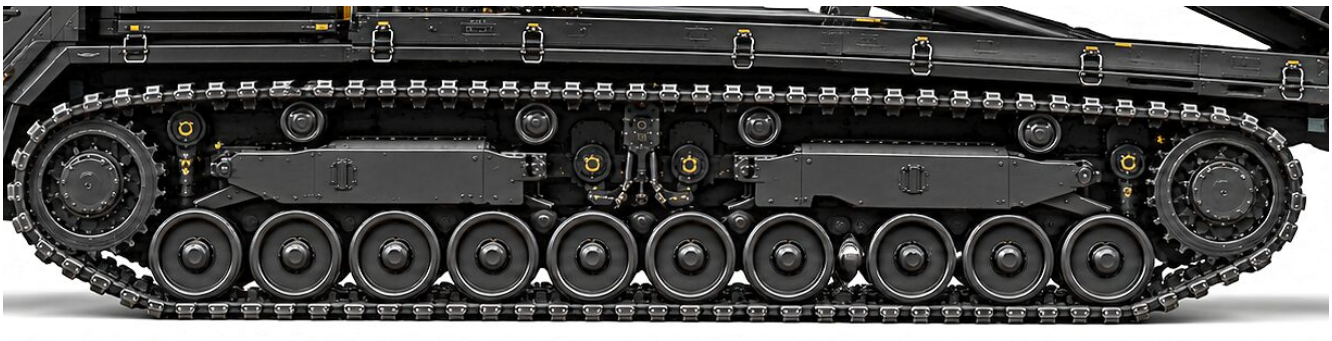
150 kN	225 kN	2.0 g	0.8 g
RECOVERY LOAD, FRONT AND REAR	RECOVERY PROOF CASE	LIFT AND TIE-DOWN CASE	MODULE RESTRAINT, BOTH AXES

- ✓ Recovery, lifting and tie-down loads terminate in the longitudinal structure, never in bodywork.
- ✓ A service door is not structure, and no removable panel joins a critical load path unless it has been engineered and inspected as one.
- ✓ Abrasion-resistant plate is sacrificial and is never credited as primary structure.
- ✓ The faces the cartridges land on are machined after welding, because welding moves steel.

06 · THE RUNNING GEAR

TWO CARTRIDGES, CLAMPED RATHER THAN HUNG. EACH ONE COMES OFF WHOLE.

Each side's running gear is one complete cartridge bolted to a machined face on the tub, exchanged as an assembly rather than rebuilt where the machine stands.



1.95 m	3.1 m	3.41 m²	43.15 kPa
TRACK GAUGE	CONTACT LENGTH PER SIDE	FOOTPRINT ON 550 MM SHOES	NOMINAL STATIC AVERAGE

A cartridge is the frame, rollers, idler, tensioner and recoil, chain, shoes and final drive, landing on a machined, indexed face under a ring of large structural bolts. The bolts clamp the faces together so friction carries the load across the joint; a bolt working in shear against track shock frets and loosens, and a clamped joint does not move.

Flotation is a specification. Two 550 mm shoes over 3.1 m of contact give a 3.41 m² footprint and a nominal static average of 43.15 kPa at 15,000 kg. The ground under each roller carries more than that average, and a module moves the load fore and aft, so the shoe is chosen against the highest pressure under the machine.

STEEL GROUSER

WHERE GRIP DECIDES THE DAY

The shoe for work that asks the tracks for traction on broken ground.

RUBBER OR ROAD PADS

SURFACES THAT MUST NOT BE MARKED

For pavement and finished ground, where the machine drives to the job before it leaves the road.

LOW GROUND PRESSURE

≥650 MM FOR SNOW AND SOFT GOING

A wider shoe floats better, turns harder and widens the machine, so a change of shoe re-checks turning effort and transport width.

07 · TOOL HYDRAULICS AND HEAT

THE PUMP HAS A MOTOR OF ITS OWN. FOUR LOOPS KEEP FOUR TEMPERATURES.

The tool circuit is fed by a pump turned by its own electric motor on the bus, so full flow is there with the machine standing still, and the machine's heat is carried in separate loops.

160 L/min	300 bar	80 kW	120 L
TOOL FLOW	TOOL PRESSURE	HYDRAULIC POWER	RESERVOIR

Tools stay hydraulic, because hydraulics remain the right answer for a digging, lifting or cutting implement working into an unpredictable load. What changes is what turns the pump: an electric motor of its own on the bus, so tool flow follows the tool rather than the engine. Full flow is available with the tracks stopped, and on the battery with the engine off. Pressure, return and case drain reach the deck through a valved panel and flat-face couplers, and cleanliness is held as a controlled characteristic.

Cooling is several problems held apart rather than one system. The battery wants a narrow band well below everything else, the drive and generator electronics another, the hydraulic oil its own, and the engine and charge air the hottest. The hard case is working slowly or standing still, with none of the airflow motion would give, so the fans vary in speed and reverse, the cores swing or slide out to be cleaned where the machine stands, and cold is designed in: the battery preheated before power is drawn, heaters in the loops and heated fuel filtration.

08 · COMMAND AND SAFETY

A PERSON AT THE END OF A FIBRE. AN INDEPENDENT CONTROLLER HOLDS THE VETO.

A person commands the machine from a stand-off station over an optical fibre, and a safety controller that does nothing else holds the final say over hazardous motion.

Four things have a say in what the machine does, and they are built apart. The operator at the station is the command source. Independent safety holds the veto over hazardous motion and can only take authority away. Vehicle control runs torque, energy and the working hydraulics inside the permission safety grants. Planning and perception reach neither the torque nor the brakes, and a machine handed a bounded task carries it out while the operator watches.

DOCTRINE

AI PLANS. RULES GOVERN. HUMANS AUTHORIZE. SAFETY HAS VETO.

Independent safety takes authority away without consulting anything that thinks, and loss of command sends the machine to a state settled before the work began.

SAFETY FUNCTION	WHAT TRIGGERS IT	WHAT THE MACHINE DOES
Stop	A stop pressed at the front or rear of the machine, or at the operator's station	Traction torque inhibited and the brakes applied
Brake safe state	Control power lost, or the safety controller no longer executing	The safe outputs de-energize and the brakes close
Permission for traction	Brake state, contactor feedback or the interlock loop disagreeing with the command	Torque is not permitted
Overspeed	Speed past the envelope for the work, checked against an independent estimate	Traction inhibited and the brakes applied
Tilt	Roll or pitch outside the envelope set for the ground and the module	Hazardous motion removed and the machine held

SAFETY FUNCTION	WHAT TRIGGERS IT	WHAT THE MACHINE DOES
High-voltage fault	An insulation fault, or a main contactor detected welded	Energization blocked or isolated; a welded contactor blocks re-enable
Protective zones	A person inside a protective field around the machine, where a safety scanner is fitted	The machine holds, then goes to a safe stop
Module interlock	A fitted module's interlock open, or its identity unknown	Mission outputs disabled

- ✓ **Secure boot.** Signed software and a checked configuration before the machine may move.
- ✓ **Access by role.** Engineering and calibration rights sit apart from operating rights, and a changed safety limit is logged against the machine.
- ✓ **Protected records.** Event logs are timestamped together and protected against alteration.

09 · THE MISSION DECK

WHAT THE DECK HANDS A MODULE. WHAT IT ASKS BACK BEFORE IT DOES.

The deck is a keyed grid of hard points with one controlled connection, and a module declares what it is before the machine gives it energy, oil or a working mode.

SERVICE	WHAT THE INTERFACE CONTROLS	WHAT THE MODULE BRINGS
Structure	A keyed hard-point grid, each point with a drawn coordinate and a load envelope	A mounting that lands on the grid, with no cutting into the chassis
High voltage	A dedicated protected branch; module connectors join the interlock loop	Its own contactor and fuse ahead of all it powers
Low voltage	A fused branch sized to the module	A declared running load and its start-up surge
Export	An alternating-current package specific to the module, earthed to the jurisdiction's scheme	Distribution and protection on its own side of the outlet
Hydraulics	Pressure, return and case drain through flat-face couplers	Couplers of that family, and a circuit taken to zero before it is broken
Ethernet	A managed connection through the machine's own switch, segmented from the safety network	Traffic that stays inside the class it was given
CAN	A controlled connection, with ownership defined message by message	Only the messages it owns
Cooling	A low-temperature loop for module electronics, where one is needed	Its own heat path if it does not take the loop
Safety	A safe-state handshake: interlock, stop path, enable and fault	A wired answer on all four, and a defined state when it stops

A module is restrained through the hard points against 0.8 g forward and 0.8 g sideways, and it is released against a mass and centre-of-gravity envelope rather than a tonnage painted on the deck. Its identity carries its type, serial, hardware revision, mass and centre of gravity, the speed cap it imposes, and its hydraulic and electrical limits; an

unknown or invalid identity disables the mission outputs. Every module is checked against the machine's sensor field of view before its configuration is released.

A module can draw its auxiliaries from the carrier's generator or carry its own source. Either way the standard sits in the connection rather than the box, so a shop can build the working end of a job without building a powertrain under it.

- ✓ A mission device cannot enable torque or release a brake.
- ✓ The autonomy compute has no uncontrolled path to inverter torque.
- ✓ CAN reaches the machine only through a controlled connection, and payload traffic never reaches the safety network.
- ✓ No mission load is carried through the battery enclosures.

10 · SUSTAINMENT

ASSEMBLIES CHANGE WHERE THE MACHINE STANDS. FAULTS REPORT IN A FORM A CREW CAN ACT ON.

The parts that wear or fail come off as assemblies on their own fixtures, and the machine is treated as energized until a person has proved otherwise.

THE RUNNING GEAR

A CARTRIDGE OFF, A CARTRIDGE ON

Each side leaves as one assembly on its own fixture and lands back on a machined face, so an exchange carries no uncontrolled alignment drift.

THE POWER MODULE

OUT AS ONE UNIT

Engine, generator and their cooling lift out upward or rearward on defined points behind service doors.

THE BATTERY

PACKS ON TRAYS

The packs come out on trays with a fixture, and nothing is cut to replace one.

- ✓ **Keyed service state.** Traction is inhibited, so a machine being worked on cannot drive away.
- ✓ **Zero energy, proved.** The service disconnect is keyed, and a zero-energy state is confirmed at the points to be touched rather than read from a switch.
- ✓ **Daily checks from the ground.** Filters and fill and bleed points are grouped, and the final drive on each side comes off from outside the hull.
- ✓ **Faults that name themselves.** Every major unit reports its identity, software version and health, and a motion-critical fault freezes a frame of speed, torque, brake state and authority.
- ✓ **Some faults need a person.** A safety fault that calls for local inspection does not clear from the station.

11 · CONFIGURATIONS

FIVE AXES AND THREE SIZES. CORE IS THE SIZE DRAWN TO FIGURES.

A KAOS is specified rather than picked from a shelf. These are the choices that name one, and none of them is a number.

KAOS CORE

THE DESIGNATION CS-270

The hull, the track cartridges, the power module and the deck interface are engineered at this size.

KAOS LIGHT AND HEAVY

THE SAME ARCHITECTURE AT TWO FURTHER SCALES

Track frames, power module, cab and deck interface interchange across the three sizes. Light and Heavy carry no figures of their own on this sheet.

DECK ARRANGEMENT

PACK BEHIND THE CAB, OR IN THE TUB

Above the deck behind the cab, for service at standing height; or between the track frames at or below axle height, where only the cab stands above the frame line and the whole deck is payload.

CONTROL TYPE

A WHEEL, OR A SEAT AND NO CONTROLS

One cab has driving controls for transit, yard work and any job a person drives. The other has a seat and none, for work the machine does under command while a person rides.

POWER PATH

CARRIER-FED, OR SELF-POWERED

A module draws its auxiliaries from the carrier's generator, or carries a source of its own and takes only structure, data, cooling and the safety handshake across the deck.

WORK

LOGISTICS, POWER, RECOVERY, ENGINEERING

Four kinds of work, read from a module's electronic identity before the machine feeds it energy or oil.

TRANSPORT

A FIFTH WHEEL, AND TWO TRACKED TRAILERS

A KAOS carrying a fifth wheel pulls a standard road semi-trailer untouched; a tracked drawbar trailer and a tracked lowbed follow onto ground a wheel cannot cross.

TRACK SHOES

550 MM STANDARD, ≥650 MM FOR SOFT GOING

Steel grouser where grip decides the day, rubber or road pads on surfaces that must not be marked, and a wide low-ground-pressure shoe for snow and soft ground. A wider shoe floats better, turns harder and widens the machine.

12 · DOCTRINE AND SAFETY

A WORK PLATFORM ON A FIBRE. HUMAN SAFETY AHEAD OF EVERY TASK.

The lines that hold on every KAOS configuration, for every customer.

- ✓ Carriers, not munitions: KAOS is a work platform, its deck takes work modules, and nothing on it operates a weapon.

- ✓ No radio and no GPS aboard: the operator commands the machine down an optical fibre from a stand-off station, and nothing on the command path goes over the air.
- ✓ Human safety comes first, on every line: the stop stations are wired with no software in the path, the brakes close on their own springs when power goes, and a person clears a stop at the machine.
- ✓ Independent safety holds the veto: the part that plans the work reaches neither the torque nor the brakes, and a fitted module can ask for work but never take authority.

THE CONVERSATION

DESCRIBE THE GROUND AND THE MODULE. THE CONFIGURATION FOLLOWS FROM BOTH.

A first conversation needs the ground the machine must cross and work, the job the module does, how the machine reaches the site, and the module's mass and centre of gravity in every state it will carry.

Start a screened enquiry at cdnshield.ca/enquiries.

DOCUMENT	CDN-PROD-SPC-005 · KAOS · Specification sheet
REVISION	R1.0 · issued 2026-09-10
WEB VERSION	cdnshield.ca/cdns-ground-engagement/spec-sheets/kaos · carries the current revision
RELATED SHEETS	KAOS-MC Land
ISSUED BY	Canadian Shield · cdnshield.ca

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