



# LR50 VEV

Electric All-Terrain Litter Vacuum

## Product Overview



Dec 2022



[www.madvac.com](http://www.madvac.com)

Technical specs are subject to change without prior notice





# Applications

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From concrete to grass, the LR50 **Vocational Electric Vehicle (VEV)** can tackle all types of urban terrain with ease

- Parks and grass areas
- Sidewalks
- Bike and pedestrian lanes
- Parking lots
- Curb side
- Alleys
- Pathways
- Alongside buildings







# Attributes

- LR50 replaces **6 to 8** manual litter pickers (equal quantity of litter removed within same time period)
- Can collect litter that is dry, humid, or wet
- All-terrain vehicle
- Easy to operate, no CDL required
- Street legal lighting package







# Zero Emission

- If used 20 hours per week, (1000 hrs./yr.) each LR50 electric will reduce CO2 emissions by approximately **17 tons / year**







# Customers

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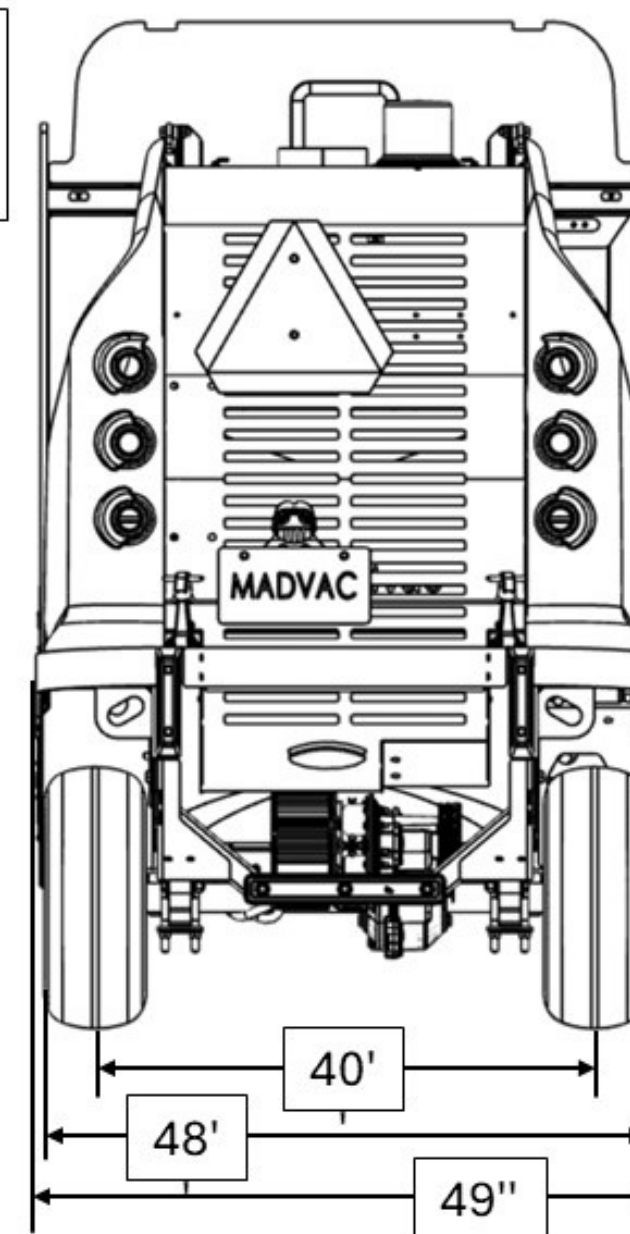
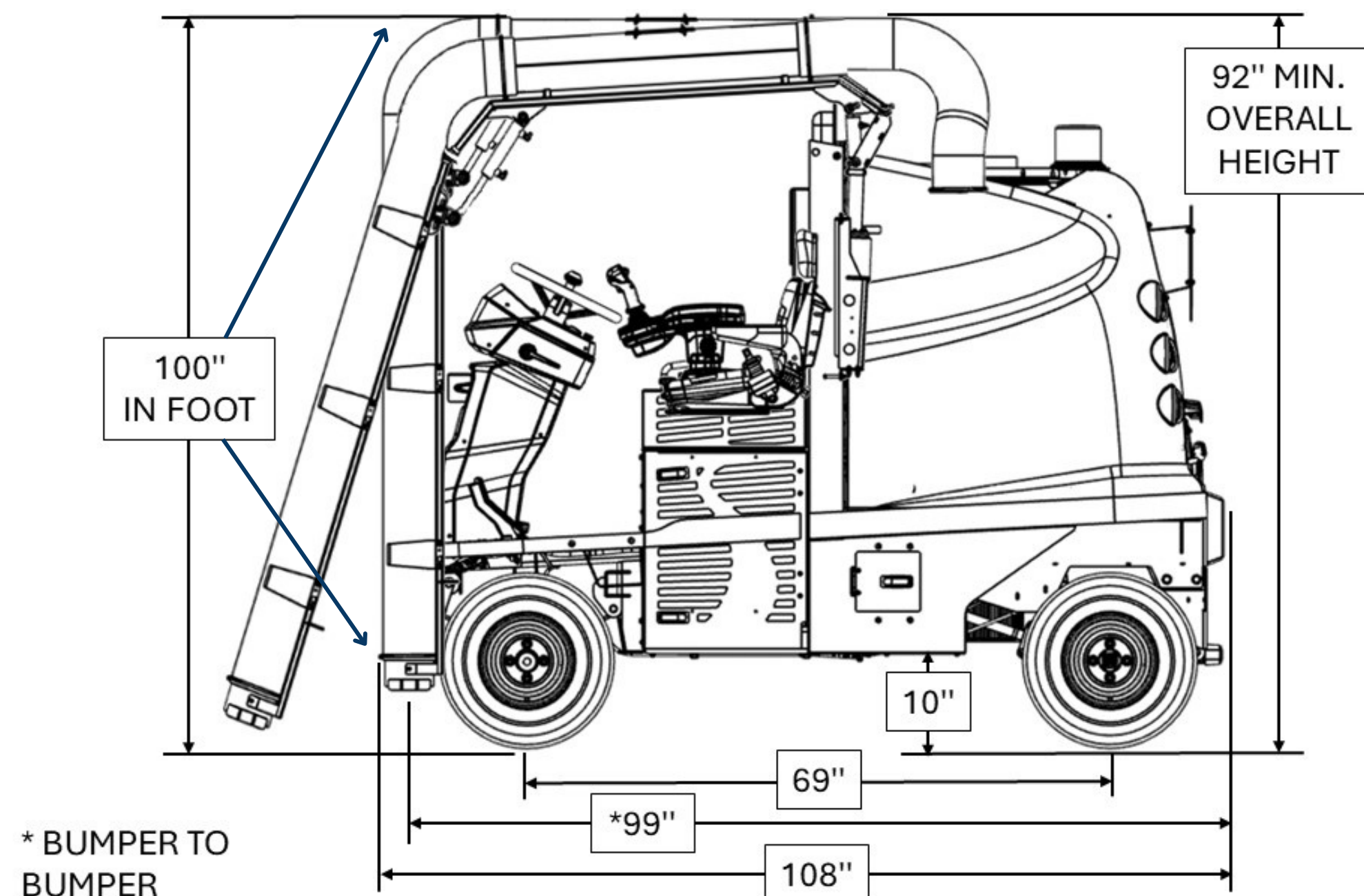


- Cities & municipalities
- Outdoor cleaning contractors
- Airports & seaports
- Transit authorities
- Healthcare services
- Distribution centers
- Shopping malls
- Educational & sports facilities
- Manufacturing facilities
- Amusement parks
- Casinos
- Military
- Correctional facilities





# Dimensions



## Inches to mm

10	254
40	1016
48	1219
49	1245
69	1753
92	2337
99	2515
100	2540
108	2743

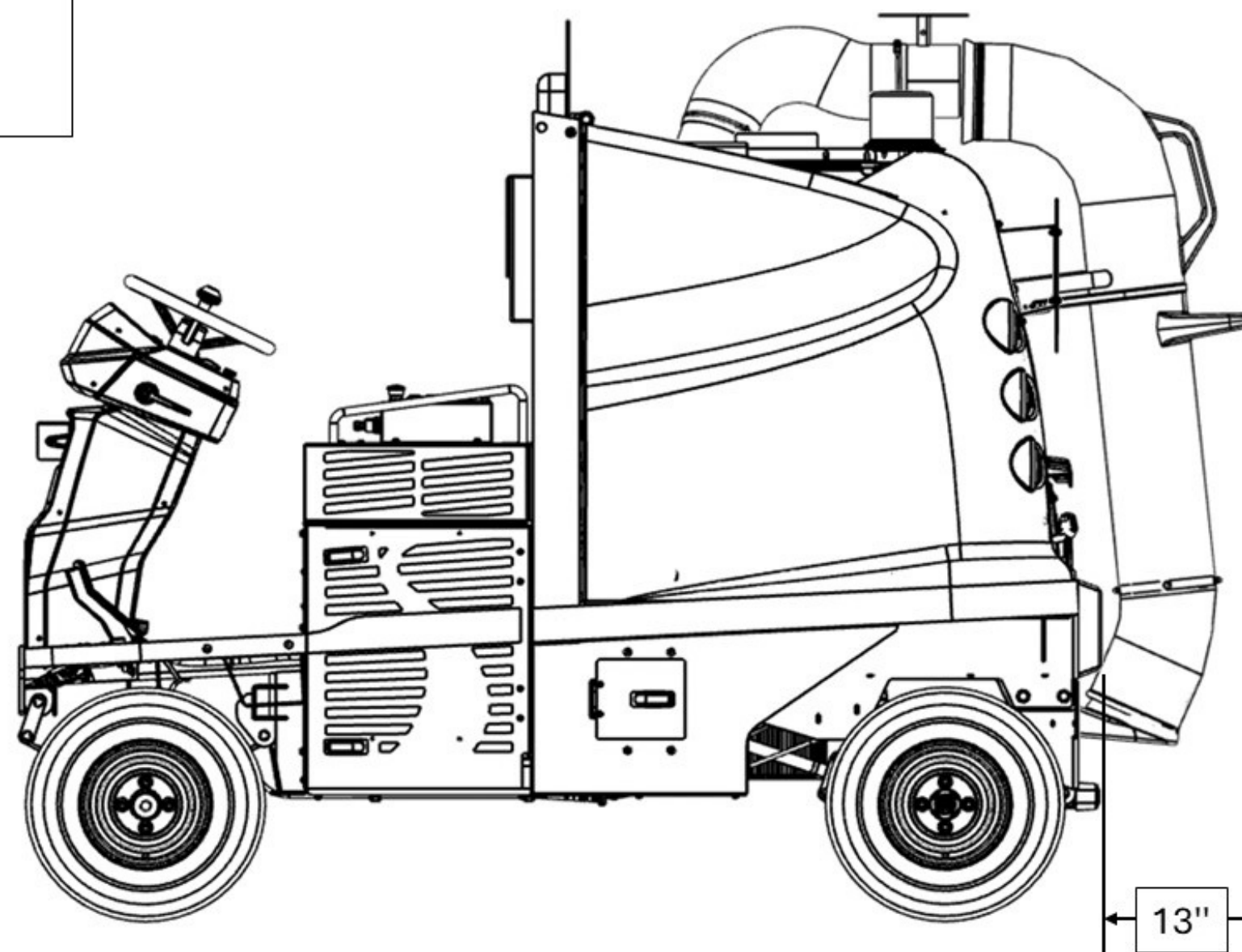


# Dimensions

WANDER  
HOSE

Inches to mm

13 330



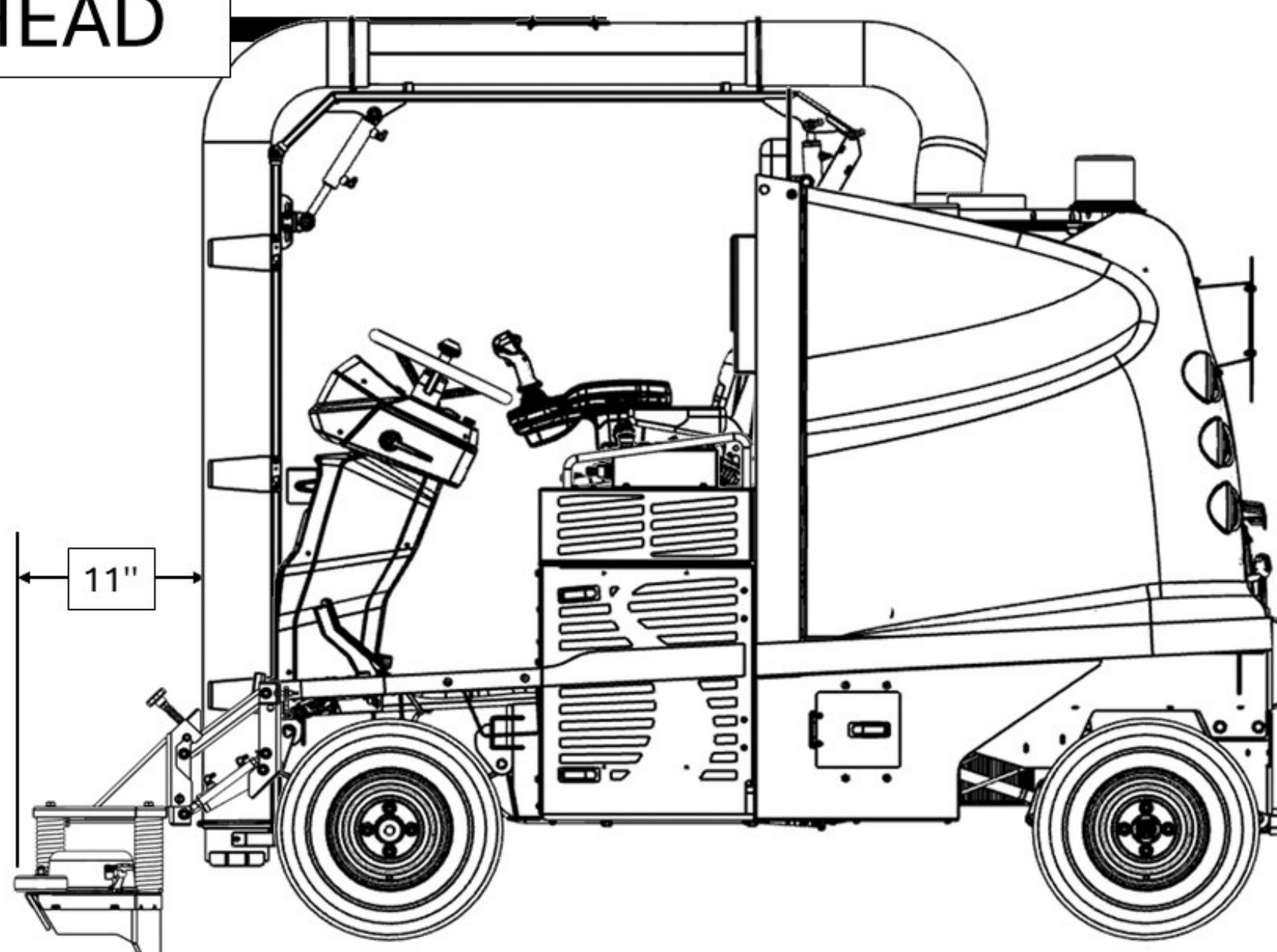


# Dimensions

VAC HEAD

Inches to mm

11 279

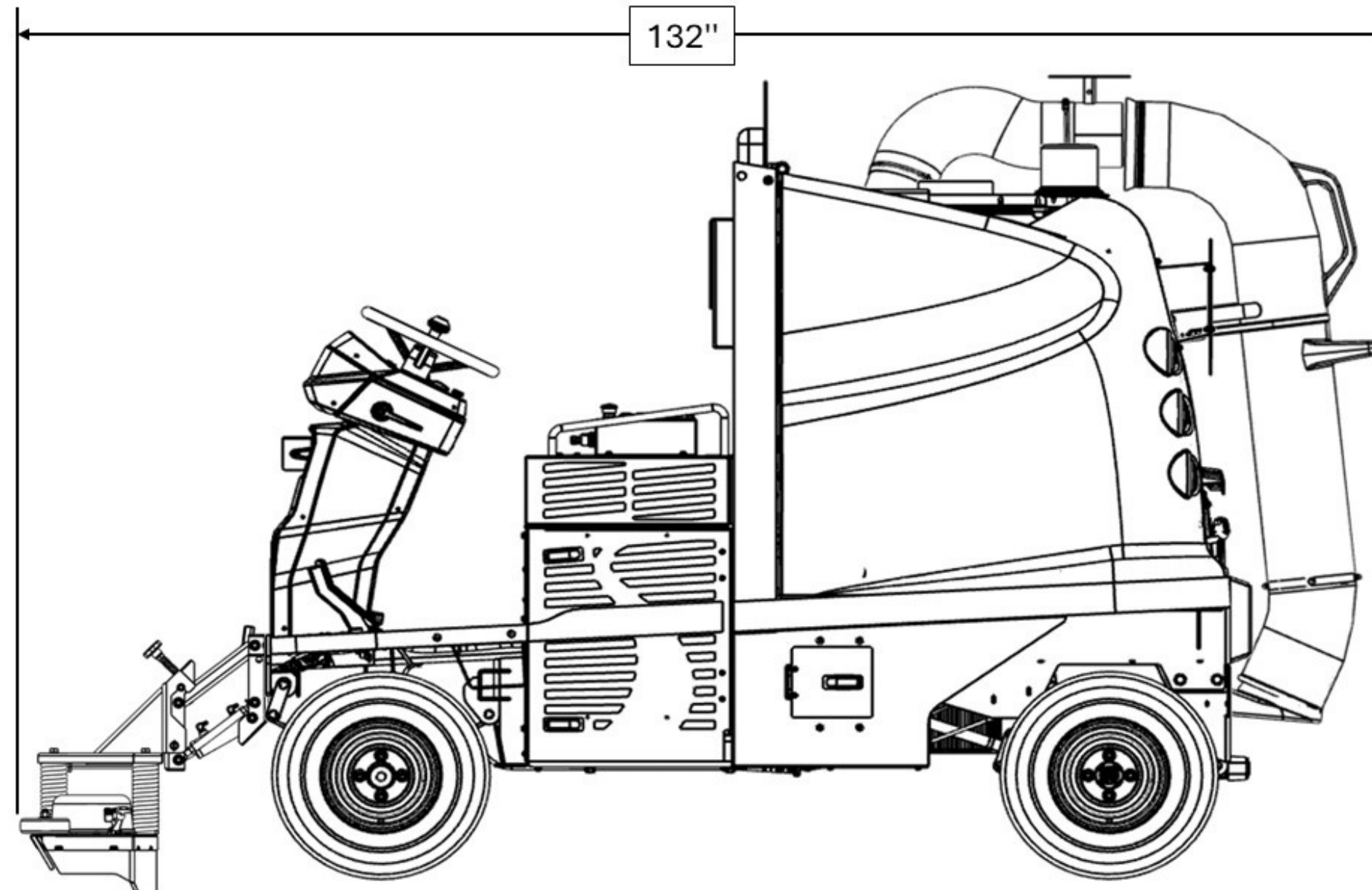






# Dimensions

WANDER  
HOSE  
+  
VAC  
HEAD



Inches to mm  
132 3353





# Weight



- Net/dry weight: 2716 lbs (1232 kg)
- Gross vehicle weight rating: 3292 lbs (1494 kg)
- Axle rating:
  - front 1980 lbs (898 kg)
  - rear 1980 lbs (898 kg)





## Frame and Body



- Heavy gauge steel body on a welded 1/4 in. (6.35 mm) structural steel frame
- Electrostatic powder-coated paint







# Cabin



Enclosed cab with either heated or non-heated windshield, and vinyl doors





# Lighting

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- Strobe beacon
- LED headlight
- LED turn signals
- LED brake lights
- LED flashers
- LED backup lights
- License plate holder with light
- SMV emblem







# Cabin

- Cab size: 48 cu. ft. (1.36 cu. m.)
- Seating: 40.5 in. (1029 mm) above ground
- One adjustable seat with integral armrest, headrest, backrest
- Optional – heated seat for operator comfort
- One safety lap belt
- Grab-handle and cup holder
- Storage compartment







# Steering Wheel



- Automotive-type steering wheel with steering ball for ease of handling
- Rocker switches (from left to right):
  - Heated seat / headlight
  - Washer fluid / hazard
  - Windshield wiper
  - Beacon
  - Parking brake
  - Forward / neutral / reverse
  - Flasher left / right





# Instrument Panel

\* **Metric or Imperial**

- Speed
- Hourmeter
- Energy recuperation
- Battery charge level
- Forward / reverse
- Power consumption and vacuum consumption
- Operator presence indicator
- Parking brake indicator
- Left / right signal indicator
- Hazard light switch
- Key ignition for starting and stopping the vehicle







# Power



- Exprolink is OEM partner with **Zero Motorcycles USA** – the 'Tesla' of the motorcycle industry and offer 3x better 'energy per weight and volume' ratio in the industry
- Zero components in LR50: battery pack, on-board charger, vacuum fan and propulsion motors, DC-DC converter, DC-AC inverter

	Acid	LiFe Po	Li NMC*
Energy avail (kwh)	24	24.5	28.8
Weight (lbs)	1620	661	353
Energy (wh/lb)	15	37	82
Energy (wh/cu.in.)	1.31	2.13	5.74

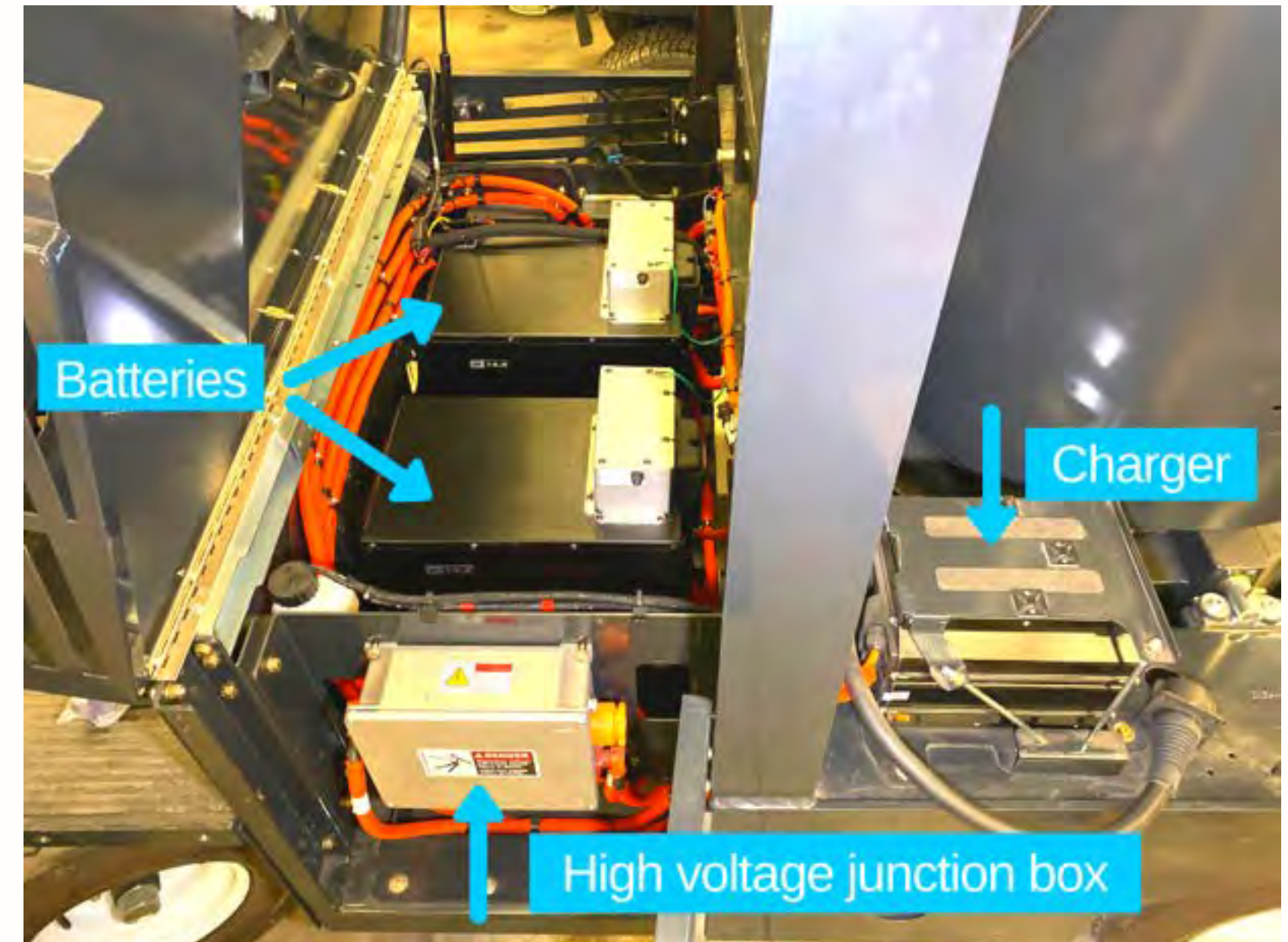




# Power



- Power pack : Lithium-Ion nickel manganese cobalt (Li NMC) high energy capacity, up to 28.8 kW/h (2 batteries)
- Voltage: 104 volts battery pack
- Autonomy : up to **9** hours on a single charge



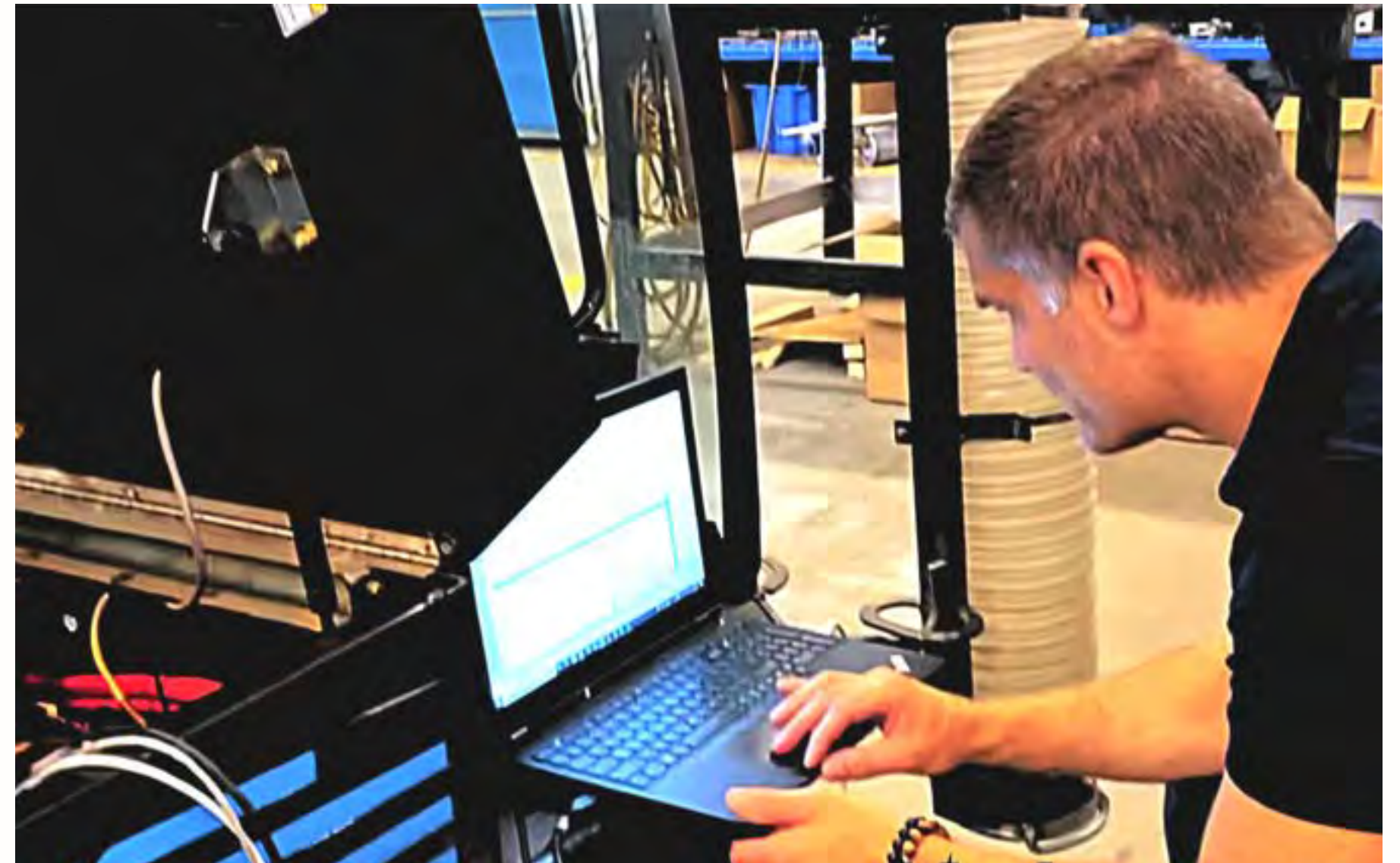




# Power

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- Battery life span **8 to 10 years** under normal operating conditions
- Battery pack powers two 3-phase motors: **vacuum fan** and **propulsion system**
- All other electric components including cabin controls, displacement of vacuum hose, optional front vacuum head, operate on a 12-volt circuit
- Diagnostic cables provided for factory remote access / troubleshooting







# Charger



- Integrated on-board charger 6 kW
- Charger outlet: J1772 level 2, 240V/24A
- Charging time: up to 5 hours (15–18 hours if 120V wall socket is used instead)
- Charging status on diagnostic screen





# Zero ZF75-5 Motor

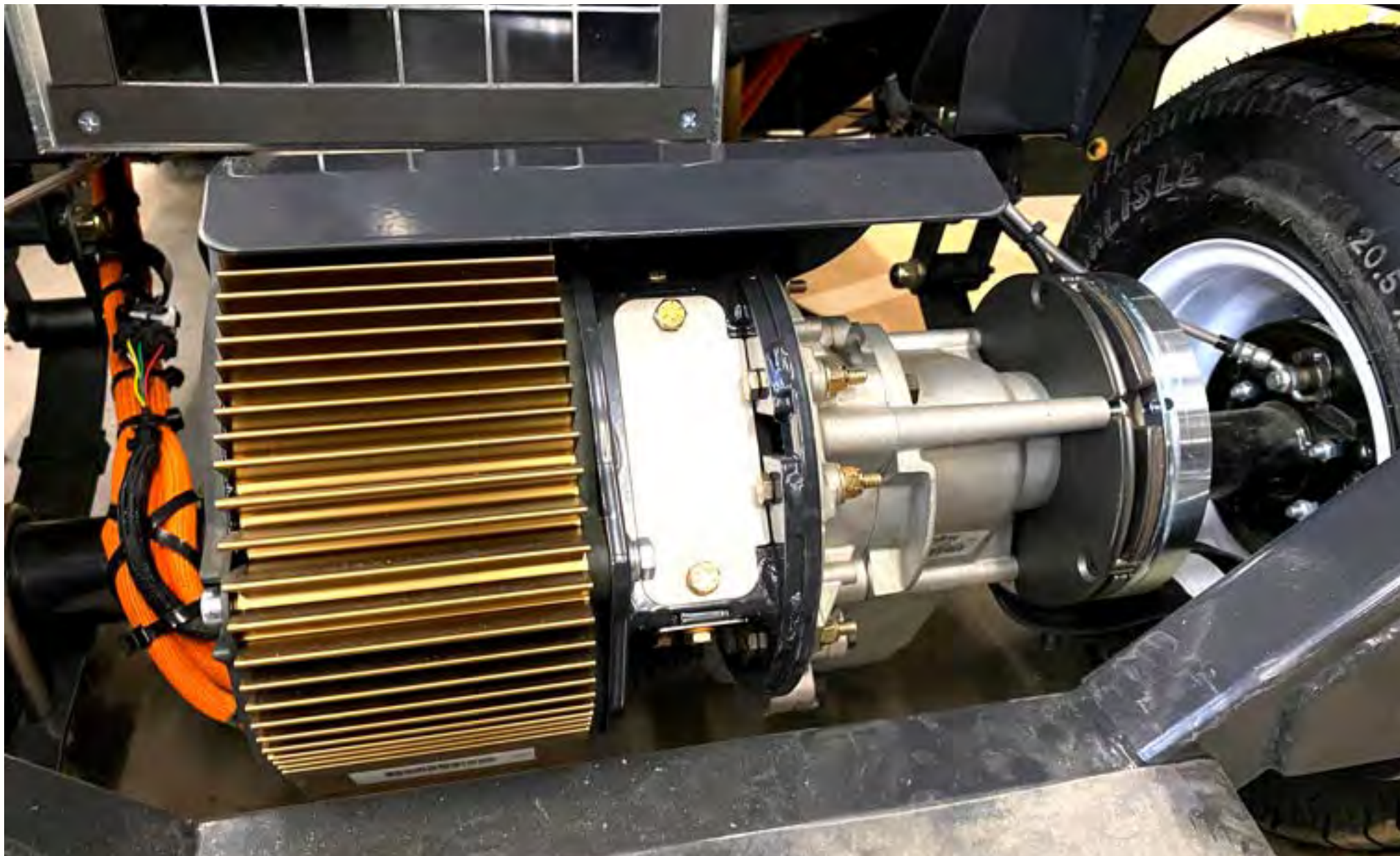
MOTOR:	ZF75-5
PEAK MOTOR TORQUE (FT-LB / N-M)	78 / 106
PEAK MOTOR HORSEPOWER (HP / KW)	46 / 34
PEAK MOTOR HORSEPOWER RPM	4300
PEAK EFFICIENCY	>94
MAX CONTINUOUS-RATED 30-MIN POWER (HP / KW)	21 / 15.4
MAX OPERATING RPM	7500
MAX OPERATING TEMP (DEG C)	150
MIN OPERATING TEMP (DEG C)	-40
WEIGHT (LBS / KG)	33/15







# Traction



- Drive: propulsion with 17 to 1 ratio
- Standard tires: 20.5 x 8 x 10 in. / 520x203x254 mm (205/65-10)
- Turf MV17094: 20 x 8 x 10 in. / 508x203x254 mm (205/60-10)
- Tire load capacity: 1323 lbs / 600 kg per tire
- Brakes: drum service brakes with electromagnetic parking brake
- Suspension: leaf spring front & rear





# General Machine Performance



- Max. forward speed: 12 mph (20 km/h)
- Max. reverse speed: 6 mph (10 km/h)
- Min. aisle turn: 180 in. (4572 mm)
- Internal turning radius: 60 in. (1524 mm)
- External turning radius: 90 in. (2286 mm)
- Cleaning speed:  
up to 84,480 sq. ft. per hour
- Curb climbing: 7 in. (178 mm) tall
- Gradeability: 11.3 deg. (20%) with full & empty hopper





# Drive

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- Steering: power assisted
- Propulsion: forward, neutral, reverse push button shifter

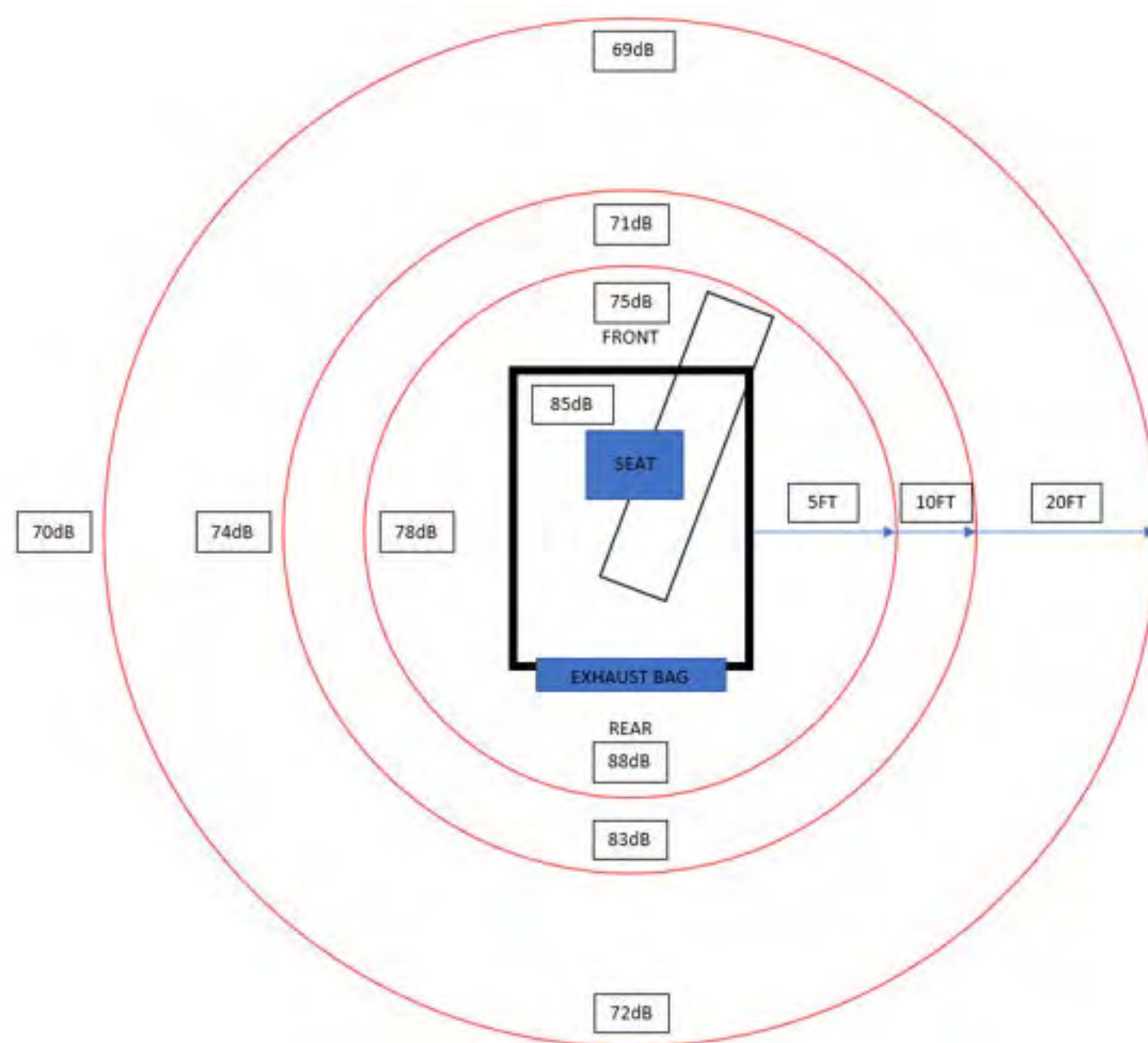


Brake pedal on opposite side of steering column





# Noise Reduction



*dB rating approximately 15%  
lower than LR50 diesel*



Front decibel

- Cabin: 85 dB
- 5 feet away: 75 dB
- 10 feet away: 71 dB





# Vacuum Fan and Suction System

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- Vacuum passes through a fibrous bag and is collected inside the bag
- Vacuum rating: up to 1800 CFM using boost mode (4000 RPM)
- Straight-through suction system compacts litter 2:1 ratio
- Vacuum fan diameter: 14 in. (356 mm)
- Vacuum fan position: bottom mounted
- No litter comes in contact with the fan







## Vacuum Arm

- 170-degree arm movement with 24 sq.ft. (2.2 sq.m.) working area
- Diameter: 7 in. (178 mm)
- Right-side support for hose storage in transport mode







## Vacuum Arm



- Maximum reach away from the machine 72 in. (1829 mm)
- Bottom of suction hose maximum lift above ground surface: 52 in. (1321 mm)







# Vacuum Arm Control



- Robotic arm controlled by hydraulic proportional valves
- Ergonomic 6-position robotic joystick allows effortless displacement of the boom





## Vacuum Hose Support Arm



For operator safety and easy displacement of the boom | removable plate to access top hose





# Vacuum Head



- Optional – for effortless vacuuming
- Width: 48 in. (1219 mm)
- 2 operating positions, one on each side of the vacuum head







# Wander Hose



- Optional – for additional litter removal capability
- Length: 15 ft. (4.57 m)
- Hose diameter: 6 in. (152 mm)







## Rear-View Vision



Two convex mirrors  
mounted on each side of cab





## Rear-View Camera



Optional – in cab 7 in. (178 mm)  
rear-view camera system  
with TFT color monitor







# Litter Container and Bag

- 16-gauge powder-coated steel container
- Air cylinder power-assist tilt container
- Litter capacity
  - Volume: 75 gal. (284 L)
  - Weight: 150 lbs (68 kg)
- Bag size: 42 x 51 in. (1066 x 1295 mm)







## Bagless Debris System: Kevlar Bin



Optional – Kevlar bin can be emptied into off-the-shelf bag, or directly into dumpster





## Dust Control - Exhaust Bag



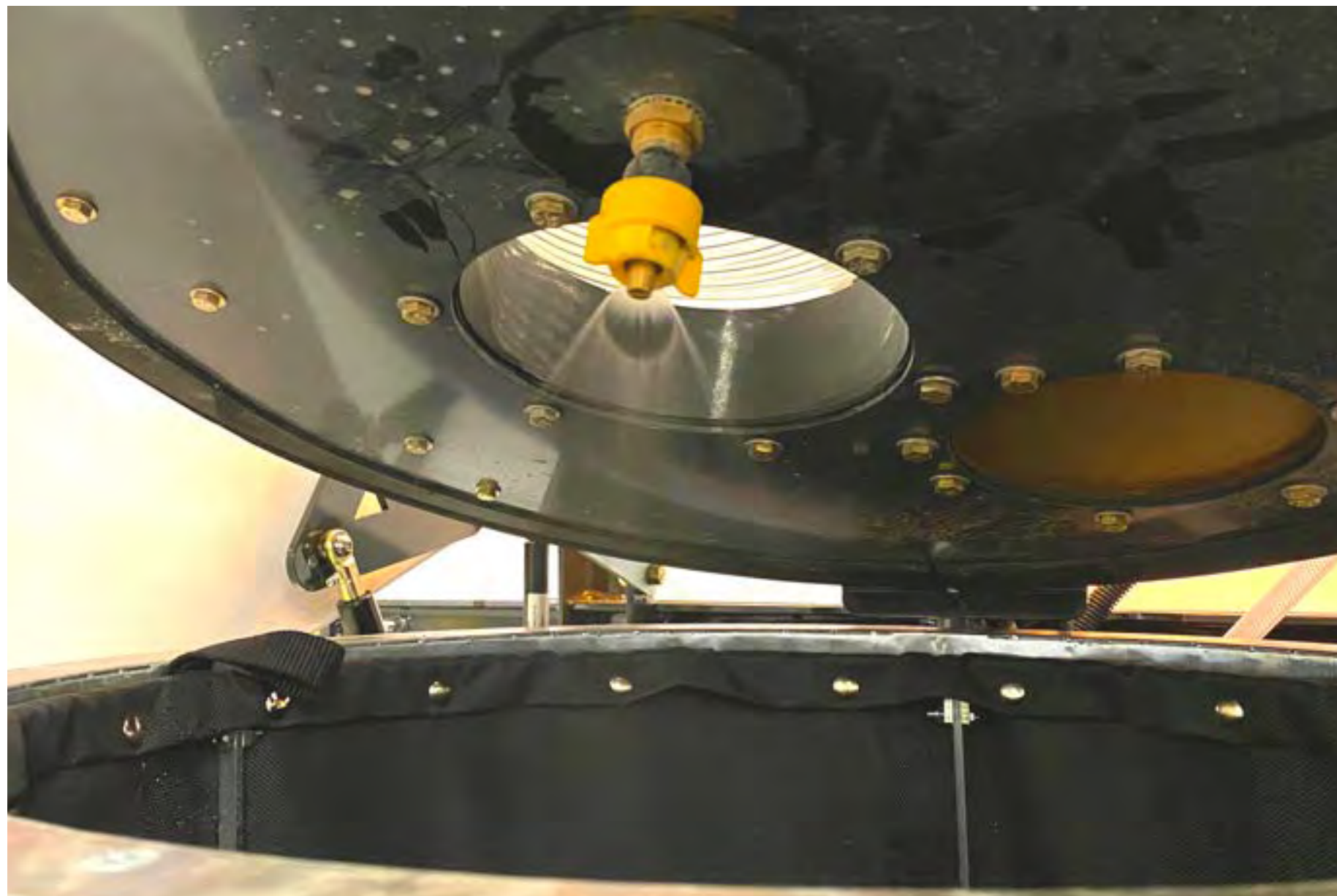
Exhaust bag  
reduces dust  
particles that can  
escape from  
minute holes of  
special Madvac  
collector bags  
(or Kevlar bin)







## Dust Control - Water Mist



Optional – intermittent water mist system with 10.17 gal. (38.5 L) water tank: controls dust and reduces risk of cigarette butt fire inside the container





# Operator safety



R.O.P.S.  
rollover protection system



Optional – fire extinguisher  
2.2 lbs (1 kg) dry powder



Emergency stop button





# Convenience



Foot step helps operator climb on board easily and safely



Foot activated horn gives operator more ease and convenience than pressing the turn signal lever



Optional – fan for operator comfort

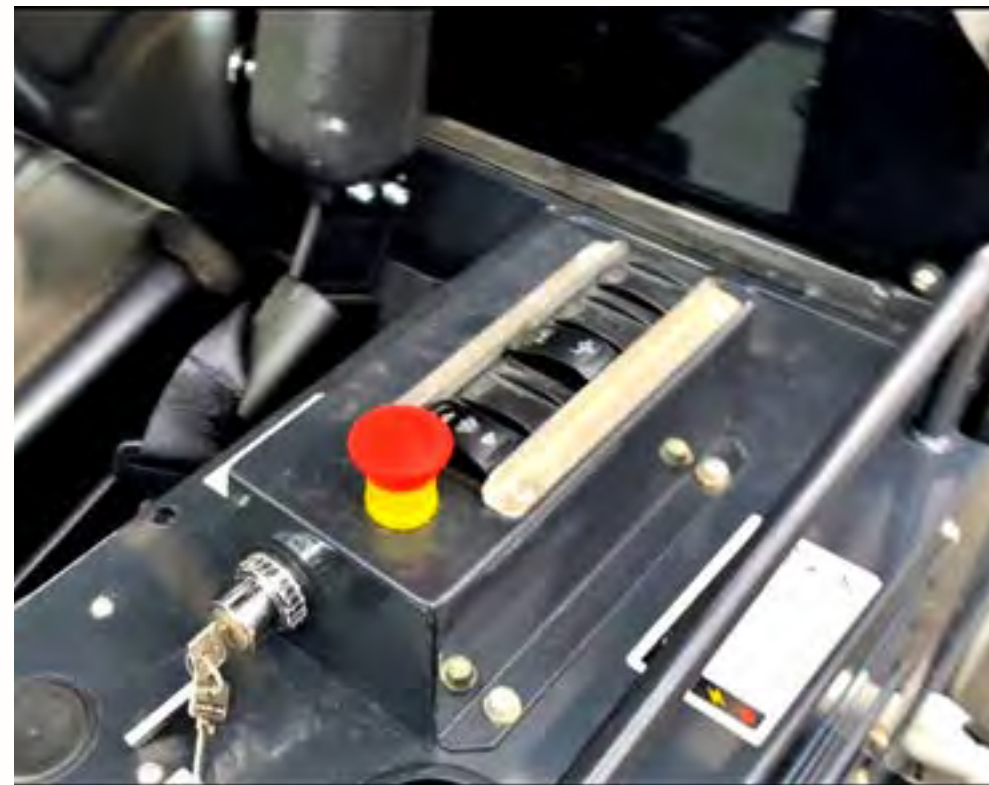




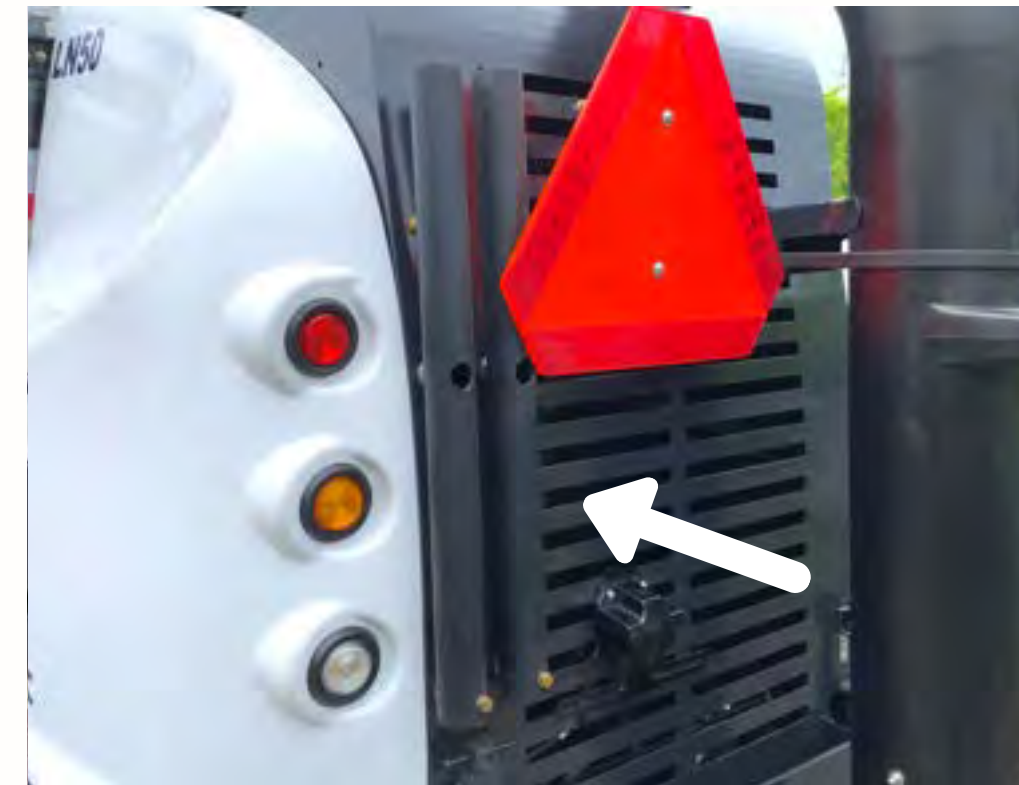
## Convenience



Optional -tire flat proofing  
(liquid sealant)



Console accessory box with USB /  
12V aux outlet and rocker switch  
for optional water mist system  
and 48" wide vacuum head



Broom and rake holder





# Convenience

Easy access to critical components of the machine

- Hinged power-assisted air cylinder tilt seat for access to battery compartment
- Hinged side door for HVJB (high voltage junction box) access







## Contact

To schedule a demo, request a quote, or for more information on the MADVAC LR50 electric all-terrain litter vacuum:

 **Excelway**®

 **Madvac**®

*2 Brands, ONE Great Company*

 **exprolink**

**Sourcewell**   
Formerly NJPA

 **canoe**  
procurement group of canada

awarded contract vendor **#093021-EXP**



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