NTEA UPFITTING SUMMIT · OCTOBER 2026

BUILT FOR THE BODY YOU PUT ON IT

FAMILIAR FORM.
REVOLUTIONARY FOUNDATION.

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HARBINGER

WHERE WE'RE HEADED

AGENDA

Mechanical, electrical, thermal and HV interface requirements for the HS- and HC-Series electric chassis.

01 THE PLATFORM

Architecture · Configurations · Model Specification

02 CHASSIS SYSTEMS

Frame · Drive Unit · HV Battery · Charging · Thermal · Cold Weather · Range Extender

03 UPFIT INTERFACES

Body Attachment · Packaging · Fluids · LV Circuits · Connectors · HV Safety

04 INTEGRATION REFERENCE

Turning · Cab-Chassis Dimensions · Warranty · Checklist

COMPANY & PLATFORM

WHO IS HARBINGER

A team of OEM veterans building the medium-duty electric platform from the ground up — in-house, in the United States.

U.S. Manufacturing

The only OEM in medium-duty electric building chassis in the U.S. while integrating domestically produced battery modules at scale.

Engineered In-House

Telematics, battery and drive unit designed in-house — one controls architecture and one diagnostic stack.

Domestic Batteries

U.S.-produced battery modules through a manufacturing partnership with Panasonic Energy North America.

450K
mile EDU service life

20 yr
designed platform life

800V
Modular HV architecture

1
shared chassis platform

CONFIGURATION MATRIX

HOW THE CHASSIS IS SPECIFIED

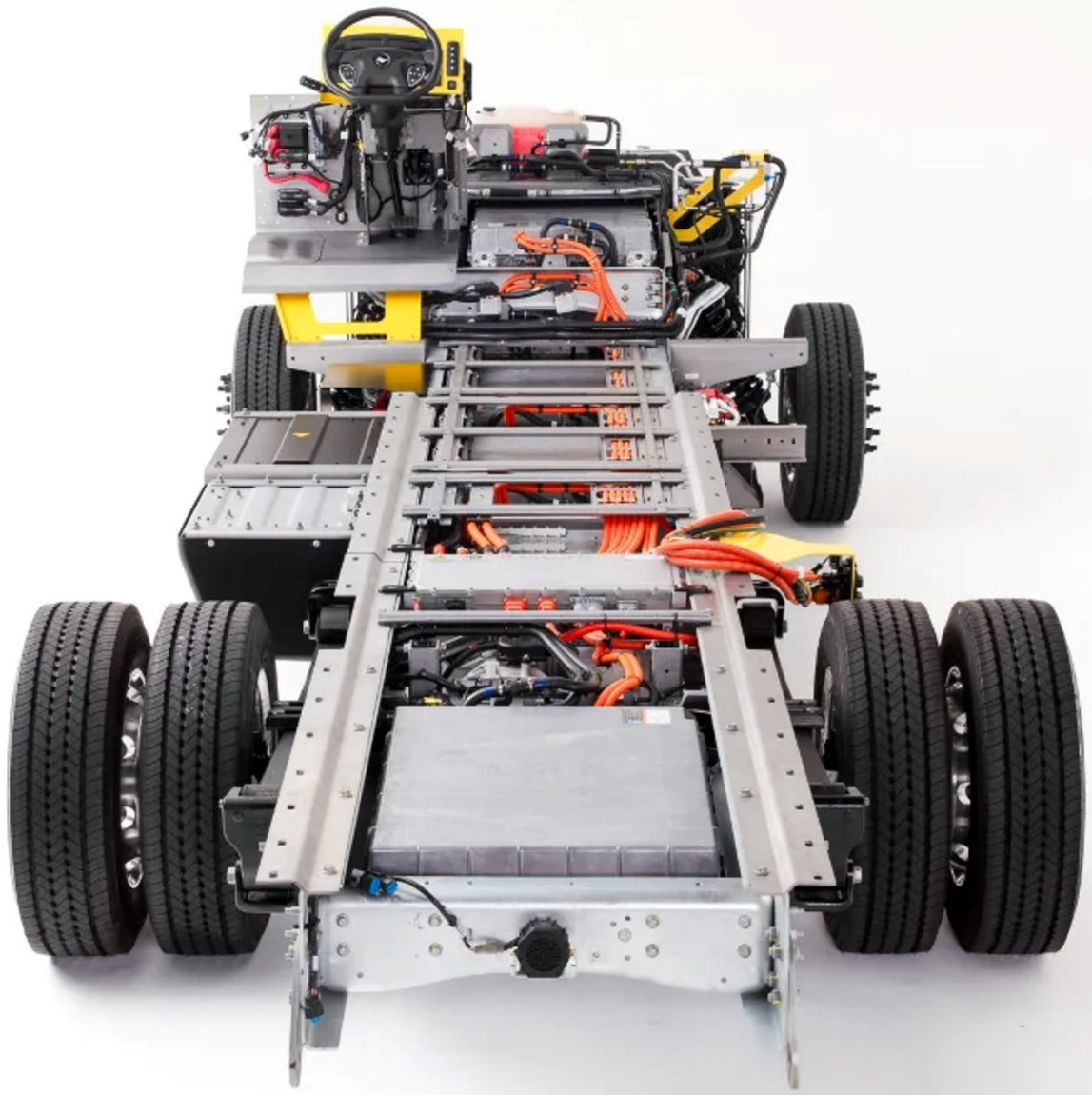
WHEELBASE	GVWR / CLASS	BATTERY PACKS · 35 KWH EACH	RANGE
158"	16,000–22,000 lb Class 4, 5, 6	4 standard + 1 optional — 140–175 kWh	~175 mi
178"	19,500–26,000 lb Class 5, 6	4 standard + 1 optional — 140–175 kWh	~175 mi
208"	19,500–26,000 lb Class 5, 6	4 standard + 2 optional — 140–210 kWh	~210 mi
235"	26,000 lb Class 6	4 standard + 2 optional — 140–210 kWh	~210 mi
178"	19,500–26,000 lb Class 5, 6 · hybrid	4 standard + RANGE EXTENDER	Up to 500 mi
208"	19,500–26,000 lb Class 5, 6 · hybrid	4 standard + 1 optional + RANGE EXTENDER	Up to 500 mi
235"	26,000 lb Class 6 · hybrid	4 standard + 1 optional + RANGE EXTENDER	Up to 500 mi

Standard pack Optional pack Hybrid range extender: 1.4L gasoline, 48 kW in motion / 20 kW stationary, 47.5-gal tank

SECTION 02

CHASSIS SYSTEMS

Frame, drive unit, HV battery, charging, thermal, cold-weather validation and range extender.



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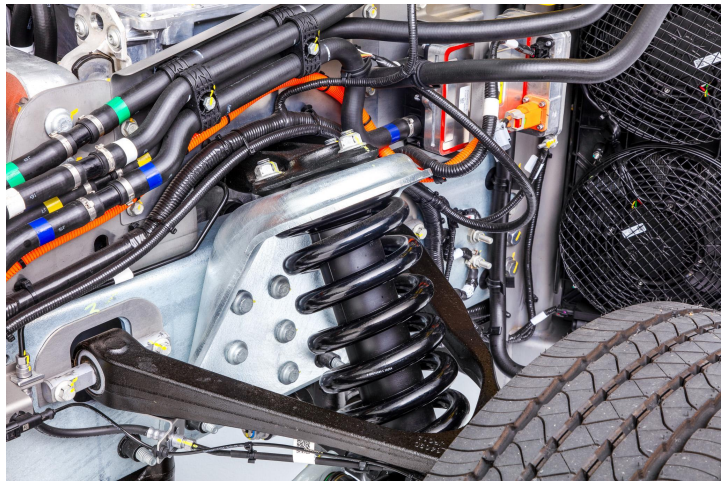
CHASSIS & FRAME

FRAME & RUNNING GEAR



Frame	Hot-dip galvanized 80 ksi (550 MPa) steel ladder frame — 10-year / unlimited-mile rail warranty
Front Suspension	Fully independent double-wishbone, coil-over damper, variable-rate jounce bumper; 300 mm travel
Rear Suspension	Full-float de Dion beam axle, forged integrated spindle, parabolic leaf springs; 200 mm travel
Steering	Fully redundant electric power-assist recirculating ball, 50° wheel cut
Frame Section	¼" (6.35 mm) wall, 3.06" flange; 10.5" front / 10.0" rear section height

34.0"

Frame width, all wheelbases — matches standard body and subframe mounting.

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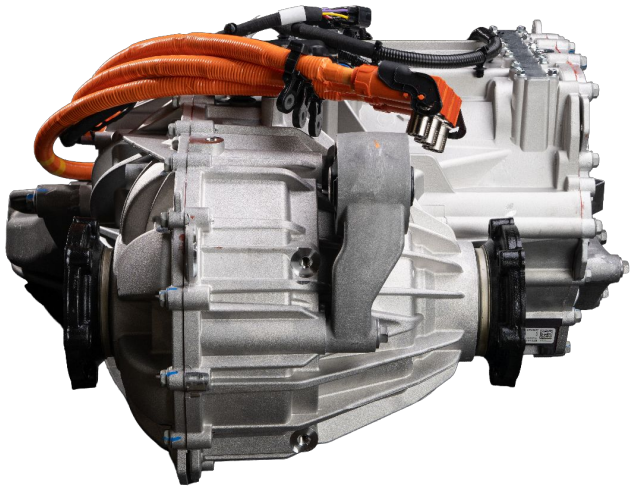




POWERTRAIN

THE ELECTRIC DRIVE UNIT

Motor, transmission and differential integrated into a single, compact, serviceable unit.

440 hp
peak / 280 hp continuous

94%
system efficiency

1,140 lb-ft
peak torque at motor

13,360 lb-ft
peak torque at wheel

450,000 mi
service life; rotor tested to 1M mi

IP67
ingress protection, −30°C to 55°C

> Packaging: 32.7 × 33.2 × 16.8 in with mounts, 569 lb with oil · 12.07:1 two-stage single-speed · up to 800 V three-phase input.

POWERTRAIN

BATTERY ARCHITECTURE

Packs connect in parallel — add energy in 35 kWh increments without changing voltage range, charge architecture or mounting.

35 kWh	35 kWh	35 kWh	35 kWh	35 optional	35 optional

140–210 kWh per vehicle

SYSTEM VOLTAGE

800V architecture

CELLS

NCMA chemistry, 2170N Panasonic cells



DENSITY & MASS

36.2 × 27.6 × 10.2 in · 462 lb
169 Wh/kg per pack

OUTPUT

110 kW peak / 40 kW continuous per pack

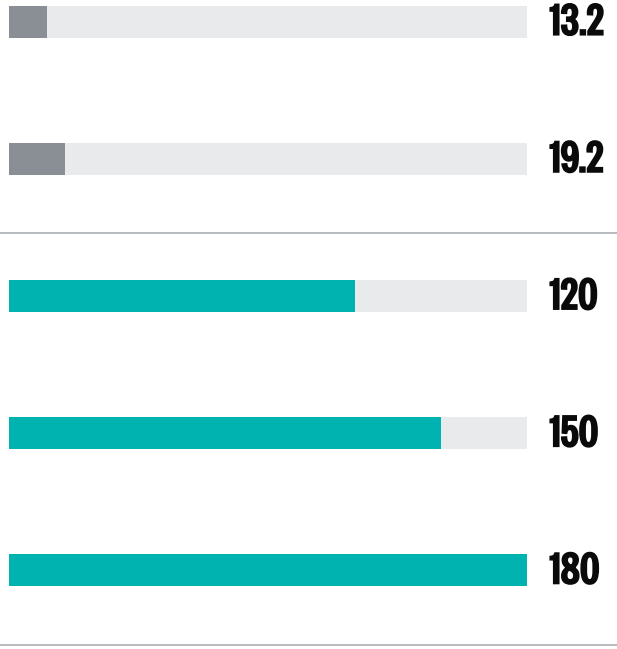
Warranty — 10 yr / 2,000 cycles / 60% capacity retention / unlimited miles

Safety — IP6k9k, tested to UN 38.3 and UN ECE R100

CHARGING & RANGE

CHARGING INTERFACE & RATES

MODE	MAX CHARGE POWER, kW	CHARGE TIME
Level 2 AC 2 PCU (standard) · 55 A	13.2	**10.2 h** to 90% SOC
Level 2 AC 3 PCU (option) · 80 A	19.2	**7.5 h** to 90% SOC
DC fast · CCS1 4 packs · 140 kWh	120	**≤ 1 h** 20 → 80% SOC
DC fast · CCS1 5 packs · 175 kWh	150	**≤ 1 h** 20 → 80% SOC
DC fast · CCS1 6 packs · 210 kWh	180	**≤ 1 h** 20 → 80% SOC



Longer bar = faster charging. DC power scales at 30 kW per pack because packs connect in parallel. Times use different SOC windows, so compare power, not hours.

CONNECTORS

J1772 · CCS1

Standard SAE inlets.

EFFICIENCY

~1.0 mi/kWh

Typical mixed duty. Varies with payload, upfit aero and duty cycle.

PORT LOCATION

Driver or passenger side, forward of the rear axle — selected at order. Mounting and door details in Section 03.

THERMAL SYSTEM

THERMAL SYSTEM ARCHITECTURE

Heat pump + resistive	High-COP heat pump plus electric resistive heaters for extra low-temp performance
Three independent loops	High, medium and low-temperature circuits balance battery, drive unit and cabin loads
Side-mounted thermal box	Quick removal and servicing — minimizes vehicle downtime
Dual radiators, 6-way valve	Efficient underhood packaging with front-end flexibility for body and bumper work

	BATTERY	CABIN
Cooling	10 kW	7 kW
Heating	8 kW	8 kW

Total radiator rejection **30 kW**



VALIDATION

COLD-WEATHER VALIDATION

–30°C

–22°F validated cold limit in the climate chamber

1,000+

miles on ice and snow across three full winters

10 min

to full-speed L2 charging after a cold soak

0.5 sec

motor torque response to detected wheel slip









Full cabin heat all day on a single 35 kWh pack — cold-weather range stays predictable.

TCS, ESC and ABS validated on snow-covered grades up to 30%.

Traction calibration validated in the lightly loaded condition.

POWERTRAIN

THE RANGE EXTENDER, EXPLAINED

An onboard gas generator charges the same batteries that feeds the drive unit. Electric driveline, extended mission length.

48 kW
generating in motion

20 kW
generating stationary

47.5 gal
onboard fuel capacity

500 mi
combined range

Generator	Inline-four 1.4L gasoline engine, driving a generator — never the wheels
Battery	4 to 5 packs, 140–175 kWh — the same modular system as the battery-electric chassis
Availability	178", 208" and 235" wheelbases, Class 5 and 6 — model suffix R

WHAT CHANGES FOR YOUR BUILD

Unchanged: 34" frame, mounting points, charge architecture and diagnostics. Added: fuel tank, generator and exhaust packaging — see the REX supplement to the body builder guide.

SECTION 03

UPFIT INTERFACES

Body attachment, packaging limits, fluid and charge connections, LV circuits, connectors and HV safety.

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FRAME RULES & BODY ATTACHMENT

The rails are not a weld or drill surface. Attach the body through the cabin rails, stringers and step mounts inside the published drill zones.

Frame rails	No drilling, welding, cutting or modification. Never weld brackets to the driveline, steering or suspension.
Drill zones	Cabin rails, stringers and step mounts only, per the BBG zone map for each wheelbase. Limit hole count, size and edge proximity.
Fasteners	Any disassembled joint gets new bolts. Re-check torque after 500–1,000 km (310–621 mi).
Seat supports	2× ½-13 Grade 8 weld nuts provided. Bolt protrusion ≤ 20 mm (0.8 in) past the nut.
Corrosion	Deburr, solvent-clean, self-etching primer, base and clear coat on every hole. Cavity wax in closed sections.
Grounding	Firewall exterior, front-left and rear-left frame rail. Bond all metallic body components to chassis.

FRAME DATA · ALL WHEELBASES

34.0"
Frame width (864 mm)

¼" · 80 ksi
6.35 mm wall · 550 MPa · galvanized

3.06"
Flange width (77.8 mm)

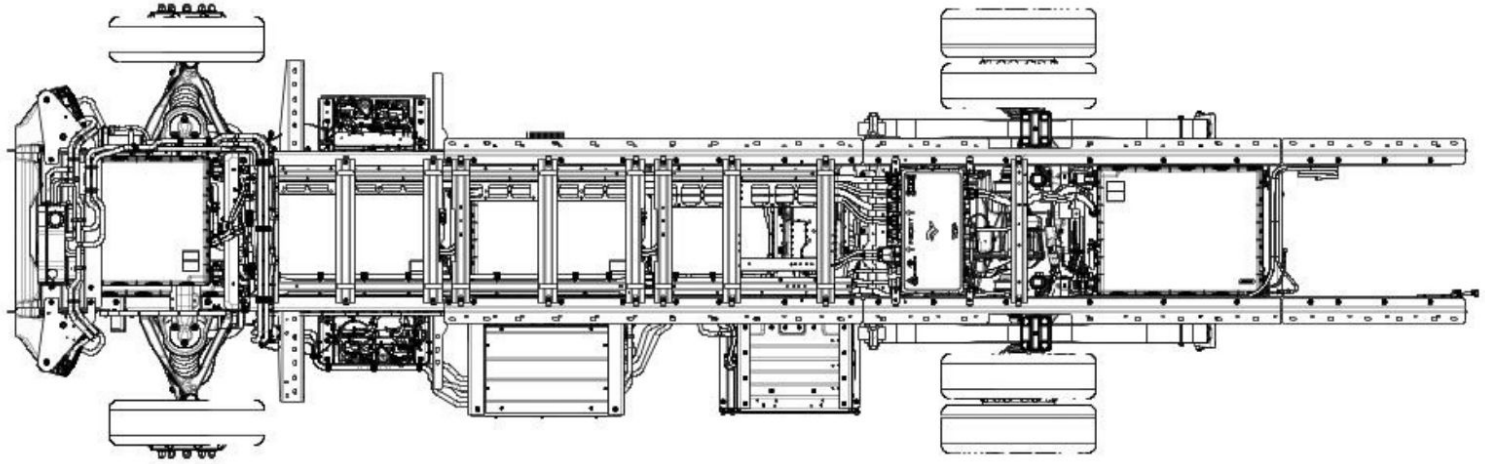
30.7" / 31.2"
Top of frame at front wheel / rear axle

10.5" / 10.0"
Rail section height, front / rear

CABIN RAIL INTERFACE · HS-SERIES STRIPPED CHASSIS

THE CABIN RAIL INTERFACE

Cabin rails, sub-frames and step mounts are the body's attachment structure. They may be drilled for mounting inside the permitted zones — never removed.



Representative HS-Series top view, front at left. Station and pitch dimensions on the next two slides.

29.53"
Top of cabin-rail plane above ground, unladen (750 mm)

28.19"
Same plane at full load (716 mm)

34.0"
Frame width under the rails (864 mm)

RULES AT THE RAIL

May modify

Drill cabin rails, sub-frame rails and step mounts for body mounting, inside the permitted zones.

Must not

Remove rail parts, or drill or weld the frame rails.

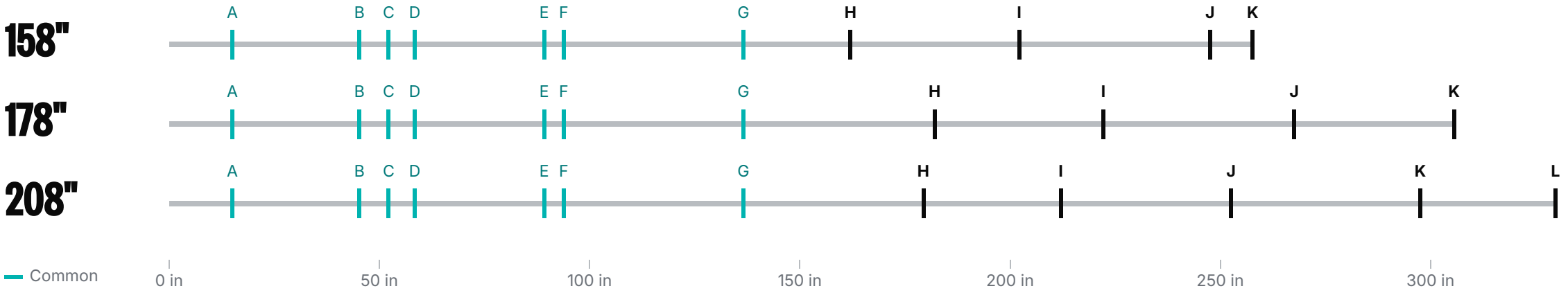
Every hole

Minimum count and size, clear of edges. Deburr, prime and paint.

CABIN RAIL INTERFACE · LONGITUDINAL LAYOUT

CROSS-MEMBER STATIONS BY WHEELBASE

Stations A–G are identical on every wheelbase, so the front of the body carries over. H onward move with wheelbase.



STATION	A	B	C	D	E	F	G	H	I	J	K	L
158" WB	15.01	45.27	52.20	58.42	89.19	93.83	136.61	162.04	202.17	247.57	257.70	—
178" WB	15.01	45.27	52.20	58.42	89.19	93.83	136.61	182.04	222.18	267.59	305.60	—
208" WB	15.01	45.27	52.20	58.42	89.19	93.83	136.61	179.39	212.07	252.57	297.56	329.71

Inches from the BBG frame-mounting datum. Metric values and datum figure: body builder guide, Exterior Dimensions → Frame Mounting Measurements.

PACKAGING LIMITS

BODY ENVELOPE & WEIGHT DISTRIBUTION

Completed-vehicle limits at GVWR. Always verify body CoG with the weight-transfer formulas in the body builder guide before the first build.

96"
maximum body width

136"
maximum height above ground

≤ 50"
vertical CoG above ground at GVWR

≥ 30%
load on front axle, curb to GVWR

DIMENSION	158" WB	178" WB	208" WB
Front of frame to axle	35.2"	35.2"	35.2"
Axle to end of frame	68.0"	96.0"	90.0"
Overall length	257.7"	305.7"	329.7"
HC cab-to-axle	129.6"	149.6"	179.6"
HC cab to end of frame	194.1"	242.1"	266.1"

INTEGRATION NOTES

Each added battery pack: +462 lb (210 kg).

Weigh the chassis before body fit (±5% variation).

Accessories > 1.5% GVWR or 100 lb: reduced-capacity label.

Realign front wheels after body install; rear is fixed.

PACKAGING LIMITS

SERVICE ACCESS & KEEP-OUT ZONES

These areas must stay reachable once the body is installed. Access panels are hinged and latched or fastened — never glued.

01
HV battery service area

Clear for pack removal from beneath vehicle. Pack swap time is approximately 15 minutes for a trained technician.

02
Range Extender

Access hatch at least 235 × 500 × 720 mm (9.25 × 19.69 × 28.35 in), all wheelbases. Keep the REx removal path clear.

03
LV batteries & fuse boxes

Clearance around both LV battery boxes and the fuse boxes. 24V jump post at the passenger-side step.

04
Diagnostics & cut loops

Diagnostic connector and first-responder cut-loop connectors stay reachable — the cut loop is the HV lockout point.

05
Cooling airflow

Nothing in front of the radiator; keep 80 mm (3.1 in) behind the fan open.

06
No-drill zones

Do not drill, cut or modify HV or LV components or harnesses. Zone maps for each wheelbase are in the body builder guide.

THERMAL · HVAC

FLUID CONNECTIONS

Only connections the body builder completes. No other modification to the drive-unit or battery cooling system is permitted.

CABIN HEATER - COOLANT

HOSE
19.05 mm ID / 26.05 mm OD

ROUTING
CAB IN (white tape) → inlet; CAB OUT (blue tape) → outlet

JOINT
Discard in-line fitting and temp clamps; crimp Oetiker clamps

FLUID
Valvoline HTF · 40–52 L by wheelbase and pack count

FILL
Vacuum fill, then CID → Service Routines → Debubble

CABIN HVAC - R134a

INTERFACE
Block fittings with factory face seals

FASTENERS
M8×1.25 class 10.9 studs, class 10 nuts · 22 N·m (+3/−2)

EXPANSION VALVE
Upfitter TXV, normally closed with shut-off; mates TE 1-967644-1

CHARGE
1.77 ± 0.02 kg R134a

LEAK BUDGET
SAE J2727: ≤ 11 g/yr or 1.5%/yr; minimize non-metallic hose



POWER ARCHITECTURE

LOW-VOLTAGE UPFIT CIRCUITS

A 12V/24V bus with dedicated accessory circuits and ground points — no HV contact requi

24V

Rear accessory power	Rear accessory ignition	Rear busbar (liftgate)
30A · always-on	20A · switched	225A · always-on
384 W	**384 W**	**4,200 W**

12V

Cabin body power	Body ignition	Body accessory
30A · always-on	10A · switched	25A · switched
300 W	**240 W**	**240 W**

Ground points: firewall, both left frame rails

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LOW-VOLTAGE INTERFACE

UPFIT CIRCUIT FUSE MAP & WIRING RULES

Where each upfitter circuit is protected and how to tie in. Pin-outs: Upfitter Interface Specification HBG-REQ-006.

CIRCUIT	BUS	PROTECTION	FUSE	WIRE ID
Rear accessory power	24V	Hood box F18	30A ATO	LV24A_RACC
Rear accessory ignition	24V sw	Hood box F2	20A ATO	LV24ASW_RACC_EN
Rear busbar (liftgate)	24V	PWRDSTA 24V F9	225A	LV24A_DCDC_OUT
Cabin body power	12V	Cabin box F20	30A ATO	LV12A_BDYPWR
Body ignition	12V sw	Cabin box F3	10A ATO	RLYHSD_BDYIGN
Body accessory	12V sw	Cabin box F1	25A ATO	RLYHSD_BDYACC

Fuse positions per BBG Fuse & Relay Information. Spare positions exist in the hood (24V) and cabin (12V) boxes — confirm allocation with Harbinger before use.

WIRING RULES

Tie in only at identified upfitter points; size wire, switches and fusing for the load.

Retain at ≤ 300 mm. No ties to orange HV cables or coolant hoses; no edge clips.

Liftgate prep: 24V jumper W-00251215 to busbar, control harness W-00268814.

Data-logger option: J1962, J1939 and RP1226 breakouts in 12V and 24V.

After install: confirm zero DTCs.

LOW-VOLTAGE INTERFACE

LOW VOLTAGE MAINTENANCE

Standard on every chassis: the vehicle monitors 12V/24V battery state and tops it up from the HV pack automatically — including whilst parked and unplugged.

HV battery
800 V · 140–210 kWh modular capacity

→

DC-DC converters
12V and 24V outputs, 225A-fused at PWRDSTA

→

LV batteries
Four 12V batteries, A- and B-side, split 12V/24V bus

→

Body & chassis loads
Perm and switched upfit circuits, vehicle controllers

Monitor	Battery sensors on the A- and B-side 24V strings report state over LIN.
Top up	When LV state drops, the HV pack recharges the 12V and 24V buses through the DC-DC converters.
Parked	Runs with the truck keyed off and unplugged, with no external battery tender required.
Limits	Needs HV available: not with the cut loop open, LV connectors unplugged or the pack at minimum SOC.
Recovery	Depleted LV requires 24V jump at the passenger-side.

DESIGNING TO IT

Parked loads

Perm circuits stay live keyed-off: cabin body power 25 A, rear accessory 16 A continuous.

HV service

Unplugging the four LV connectors stops maintenance until reconnected.

FIELD-KIT INSTALLATION · HS SERIES

CAB, TELEMATICS & ADAS CONNECTORS

Parts ship in the field tote or on the temporary dash.

COMPONENT	MATING CONNECTOR	MOUNTING
Center display, 8"	Molex 33472-1201 · MX150 2×6 sealed	3× M6 class 10.9 · 6–15.9 N·m
Hazard switch	JST AIT2PB-06-1AK · 6-pin	Panel cut-out per BBG
Keypad	Amphenol ATO6-6S-RD01 · 6-pin	2× 10-32, nuts supplied
TCU antenna	Tyco 4-1437290-0 · Rosenberger D4K10A-1D5A5-C	Ø22.5 mm roof hole, roof ≤ 5 mm · 5–6 N·m
Cameras	Supplied harness, 90° end at camera	4× M6 rivet nut (Ø9 mm) · Ø20 mm cable hole · 6 ± 1 N·m
Ultrasonic (12)	Hood and rear-bumper harnesses	Ø4.8 mm mount, Ø19.5 mm opening · M4 at 1 N·m



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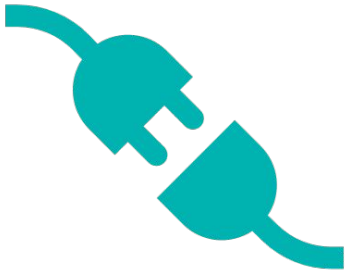
POWER ARCHITECTURE

AC POWER: HARBINGER POWER SYSTEM

Factory-fit inverter option: traction-pack energy converted to AC at the upfitter load panel.



High-voltage pack
140–210 kWh of onboard energy

Power System inverter
Factory-fit, HV to AC conversion

Upfitter AC load panel
Your panel, your circuit layout

Body equipment
Tools, refrigeration, lighting, lifts

ORDERED WITH THE CHASSIS

Specified and installed as a chassis option, so the HV interface, mounting and harness routing arrive done rather than being cut in at the body shop.

ALONGSIDE THE LV BUS

The 12V/24V accessory circuits and ground points stay exactly as specified — the Power System adds AC without changing that wiring.

14 kW
peak output

10 kW
continuous output

60 A
peak current

WHAT IT REPLACES

A mounted generator or an idling engine — no second fuel system to package, service or maintain.

Load-panel interface details are published in the body builder guide.

HARBINGER

DIAGNOSTIC PROTOCOLS & ADAS SUITE

DIAGNOSTICS & TELEMATICS

UDS / ISO 14229 — compatible with any standard scan tool

SAE J1939/1979 via OBD-II — works with existing fleet telematics

Actia ACU6 hardware with Sibros cloud (Deep Logger, Deep Updater) and OTA updates

Electronic Data Logger Connector option for third-party telematics

DO NOT ALTER VEHICLE CAN.
ALWAYS USE BREAKOUT OPTION PROVIDED.

ADAS SUITE	Standard	360
Acoustic Vehicle Alerting (AVAS)	✓	✓
Backup camera, dynamic trajectory	✓	✓
Virtual bumper	✓	✓
Blind spot camera view	—	✓
Bird's-eye view	—	✓

HV SAFETY & FINAL-STAGE CERTIFICATION

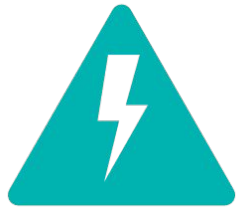
Harbinger certifies the incomplete vehicle. The final-stage manufacturer certifies the completed vehicle and owns every modification made to it.

HIGH-VOLTAGE RULES

Prohibited	Accessories on HV; relocating HV components; drilling or cutting in HV zones.
Power-down	Tool HV shutdown → link < 60 V → cut loop open + LOTO → unplug 4 LV connectors.
Welding	Body only, after power-down; modules unplugged; never ground to suspension.
Personnel	HV-qualified technicians only: rated rubber gloves with protectors, 1,000 V insulated tools.

CERTIFICATION

49 CFR 567/568	Complete the incomplete-vehicle document; certify conformance of the completed vehicle.
Labels	Field tote ships 567, EPA noise, Prop 65, VECI and ZEP labels — install at BBG locations.
Altered vehicle	Changed weight ratings require a 49 CFR 567.7 label beside the FMVSS label.
Headlamps	LED headlamp required: 7" heated LED round, Truck-Lite 37275C or equivalent.



SECTION 04

INTEGRATION REFERENCE

Turning diameter, cab-chassis dimensions, warranty coverage and an integration checklist.



HARBINGER

MANEUVERABILITY

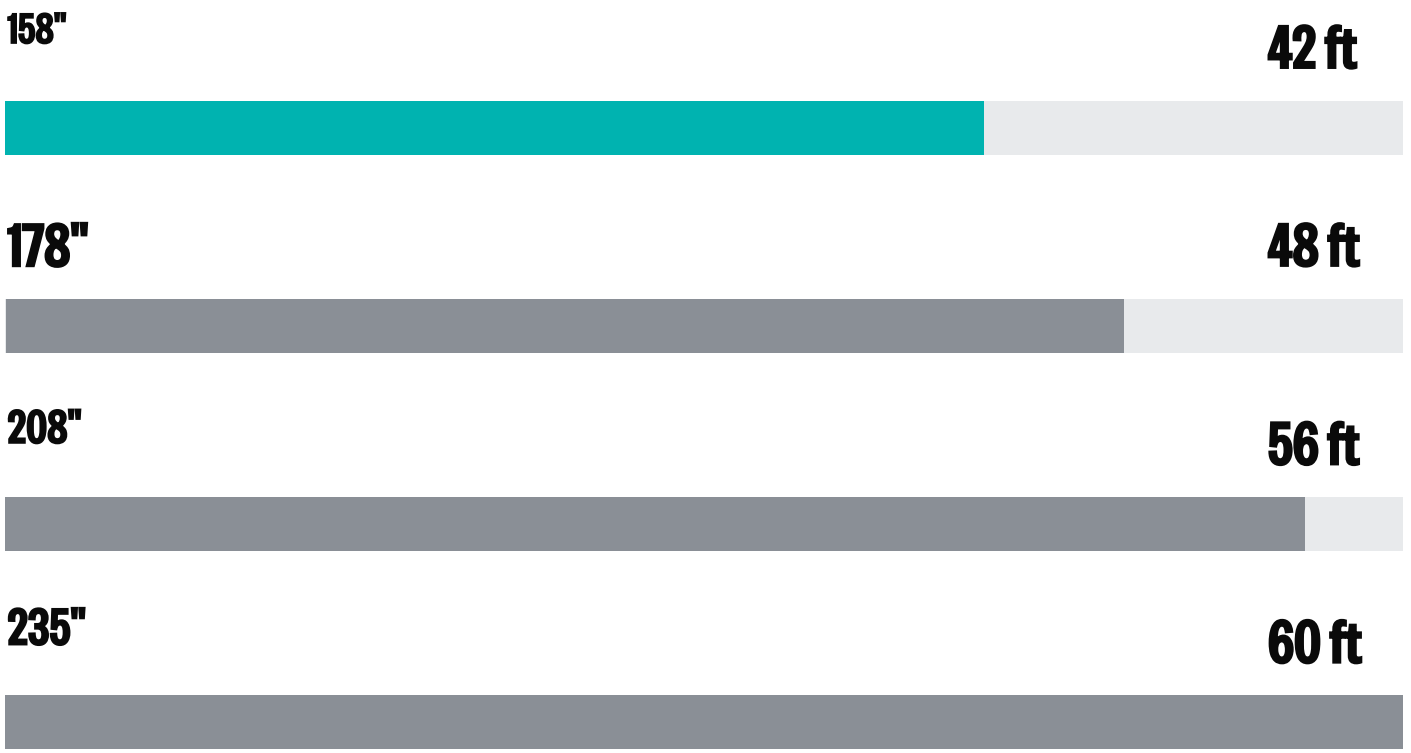
TURNING DIAMETER

42.0 ft

Curb-to-curb, 158" wheelbase.

- Fully independent front suspension
- 50° wheel cut
- Fully redundant electric steering, tilt/telescope column

CURB-TO-CURB TURNING DIAMETER BY WHEELBASE



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HC-SERIES CAB-CHASSIS DIMENSIONS

Tilt cab, cab-forward. 96" box width on every wheelbase; box lengths are guidance — always confirm against CA, CoG and GAWR.

	158"	178"	208"	235"
Cab-to-axle	129.6"	149.6"	179.6"	206.6"
GVWR / class	16,000–22,000 lb · Cl. 4,5,6	19,500–26,000 lb · Cl. 5,6	19,500–26,000 lb · Cl. 5,6	26,000 lb · Cl. 6
Overall length*	25 ft	29 ft	31 ft	33 ft
Cargo volume	Up to 990 ft³	Up to 1,200 ft³	Up to 1,500 ft³	Up to 1,800 ft³
Turning diameter	42 ft	48 ft	56 ft	60 ft
Box size	16–18 ft	20–22 ft	22–24 ft	24–26 ft

Tilt cab, 75° door opening

Modular bumper simplifies repairs

Body + payload to 15,860 lb (178" HD)

WARRANTY COVERAGE BY SYSTEM

Time or distance, whichever comes first. Excludes upfitter-installed parts and anything altered by the body builder.

Frame rails	**10 yr / unlimited mi**
Drive unit	**10 yr / 200,000 mi**
HV batteries	**10 yr / 2,000 cycles / 60% capacity**
Wheels [1]	**5 yr / 100,000 mi**
TPMS [2]	**5 yr / 100,000 mi**
HV electronics	**5 yr / 60,000 mi**
LV system components	**5 yr / 60,000 mi**
Crossmembers	**5 yr / 60,000 mi**
Drive unit mounts	**5 yr / 60,000 mi**
Halfshafts [3]	**5 yr / 60,000 mi**
Suspension non-wear items	**5 yr / 60,000 mi**
Towing / roadside assistance	**3 yr / 50,000 mi**
Tires	**2 yr / 24,000 mi**
LV batteries	**1 yr / 60,000 mi**

Bar length represents term in years (10 yr full scale). [1] Wheel damage excluded. [2] Original wheels only. [3] Halfshafts are a 150,000-mi service replacement item.

BEFORE YOU BUILD

INTEGRATION CHECKLIST

01 GET THE DOCUMENTS

Body builder guide, Upfitter Interface Spec HBG-REQ-006 and the incomplete-vehicle document — via service@harbingermotors.com.

02 SPEC OPTIONS AT ORDER

Upfitter, liftgate prep, Power System, data logger, ADAS 360, charge-port side and PCU count are selected with the chassis.

03 HOLD THE ENVELOPE

No frame drilling or welding; drill zones only; CoG ≤ 50", ≥ 30% on the front axle; service access and keep-outs preserved.

04 VERIFY AT HANDOFF

Front alignment, coolant debubble, refrigerant charge, zero DTCs, labels installed — then certify the completed vehicle.

QUESTIONS?

Lydia Hewitt
Manager, Product Engineering

Deb Bourke
Senior Director, Upfitter Management

Steven Montevideo
Manager, Electrical Systems

Derek Sampson
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HARBINGER



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