

MT50e Walk-Around



FRONT BOX COMPARTMENT

High Voltage Junction Box (HVJB)	Controls the connections between the HV batteries, charging input, drivetrain/inverter, ancillary HV loads, DC/DC and DC/AC converter, and AC Variable Frequency Drive (VFD). Includes a HV Cut-Off Switch located on the front end with Lock Out - Tag Out Tab
Power Steering Pump & Motor	Baldor Reliance High Voltage Motor with Eaton Power Steering Pump 3 Phase 5 HP (3.7kw – 208-230v) electric motor Activated when: Vehicle Speed Detected / Parking Brake is Released / Drive Mode is Selected Same steering gear as on other MT products
Variable Frequency Drive (VFD)	2 VFD's that acts like an alternator Upper VFD controls current for AC Compressor and Power Steering Pump Lower VFD Controls current for LV (12v) batteries and body accessories
Radiator	Same radiator used in all MT products Uses the same coolant for the batteries and cabin heaters OAT 50/50 Coolant
Telematics –	Vehicle Monitoring – Real-Time information and vehicle performance Remote Diagnostics – Reduce on-site visits and solve problems remotely Preventative Maintenance – Notifications and Recommendations Charger Management – Monitor Charger Status Remotely and Receive Updates
A/C Compressor	A/C compressor provides cooling for batteries through the Battery Thermal System (BTMS) Chassis option for body A/C connection standard on MT50e, driver dash option available from body builder
Electric Vehicle Alert System	Sound Generator are mounted front left side in the bumper and behind rear bumper with the backing alarm. Meets all FMVSS Certifications. J1939 CAN Compliant. Sound will generate from 1mph to 20mph
High Voltage Heaters	2 HV Heaters mounted under the front engine compartment 20kW heater produces heat for the batteries 20kW heater produces heat for the cabin area
Low Voltage Batteries	1 – 12v AGM Low voltages located in the battery box compartment area, under dog house High Density Batteries
Low Voltage Cut-Off Switch	LV Cut-Off switch located in the battery box compartment area, under dog house with lock-out tag-out Switch has to be in the “ON” Position to activate charging of batteries When switch is in the “OFF” Position, High Voltage cannot be activated. Warning: Do not switch to “OFF” when vehicle is in High Voltage

MID-SHIP CHASSIS

Coolant Lines	Stainless steel coolant tubing lines are routed above battery packs Inside of chassis frame rails
High Voltage Cables	ALL HV Cables are Orange with convoluted covering Consist of copper conductor sized for load, braided shield and High Voltage Interlock Loop
Cross Members	Additional cross members added to help support: HV & Coolant Lines. Each cable and hose are tied down individually to eliminate hazards.
High Voltage Proterra Batteries	(2) 123kW Batteries – 246kW Total Capacity –Optional (2) 82kW Batteries – 164 kW Total Capacity - 90% useable capacity. Useable Capacity reduced to manage battery degradation. Packs Protected by 10 mm aluminum ballistic grade material. Each battery has its own (MSD) Manual Safety Disconnect on the street side “identified in orange”
eAxe	Dana eS9000r e-axle all electric drive technology; 318 HP (237 kW)
Motor Controller / Inverter	Power flow through the inverter is bidirectional. When accelerating, DC Power is converted to AC Power to propel the truck forward and reverse. When decelerating, the AC power is converted back to DC Power and recharges the main batteries.
Battery Thermal Management System (BTMS) Coolant	BTMS in electric vehicles is critical for maintaining energy storage capacity, driving range, and cell longevity and system safety. Batteries optimal performance temperature is around 70 degrees.

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AFT OF REAR AXLE

eAxe Inverter	eAxe inverter is located between frame rails for increased safety protection Inverter converts battery, DC power to AC power for eAxe
Charge Port	Standard CP is located curbside behind the rear axle. Red & Green Light Indicators with Stop Charge Button Requires a J1772 CCS Type 1 Connector. DC Charging is standard, Optional DC/AC charging is available.
Optional AC onboard charger (OBC)	AC onboard charging, maximum charging is 19.2kw

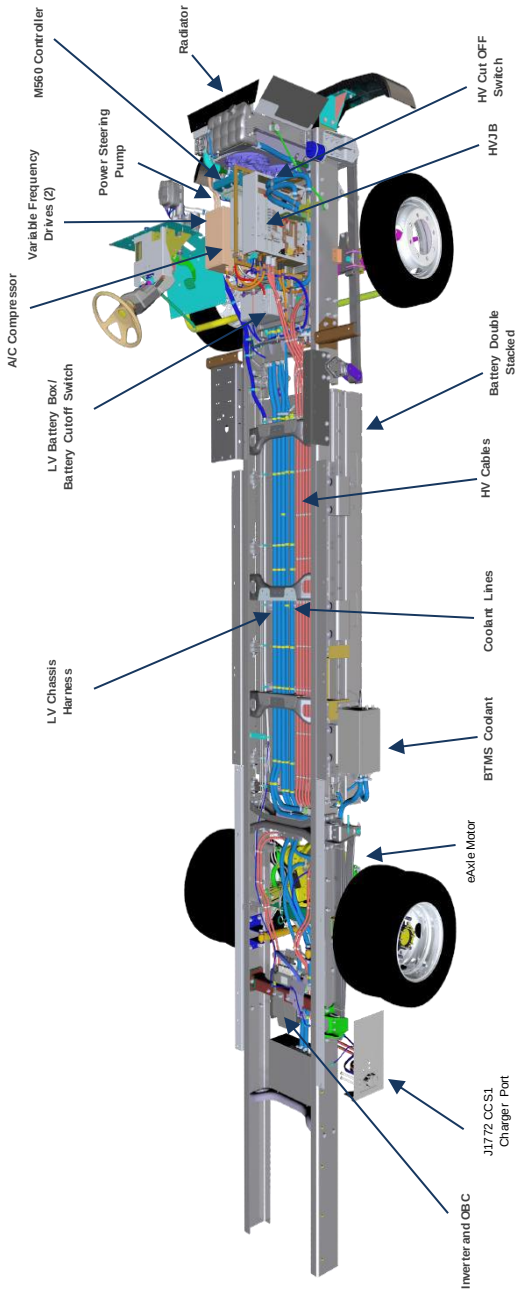
INSIDE CABIN AREA

Drivers Instrument Cluster	Digital Optiview dash interface.
Hydraulic Park Brake	Hydraulic part brake is located left of driver column Park brake must be fully dis-engaged for vehicle to operate Cable tension adjustment knob located on tip of lever
Hill-Start Assist	It is a device that holds the vehicle on any Up or Down Grade for up to 4 seconds. Hill Hold Assist works by holding the service brake while the driver is moving their foot from the service brake pedal to the accelerator pedal to prevent the bus from rolling forward or backwards while on a grade.
Regenerative Braking	Regen works by acting as a brake on the EV Bus as soon as the driver lifts their foot off the accelerator. Allows the electric vehicle to reuse the energy generated by slowing down through battery storage. Regenerative Braking "ON" position is right-hand stalk switch in the "UP" position, regenerative braking "OFF" is right-hand stalk switch in the "DOWN" position Regenerative braking ON/OFF displayed in driver dash Regenerative braking inhibited above 90% SOC

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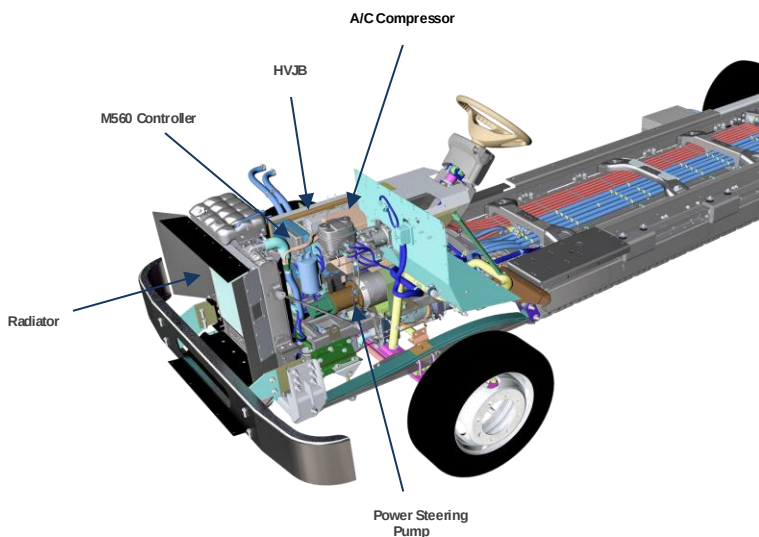


CHASSIS HIGH VOLTAGE COMPONENT LAYOUT



- Very clean design, thoughtful and purposeful
- Containment within frame rails a significant objective, safety focus
- HV cables, coolant tubes, and LV chassis harness systematically installed
- Use of cradles between frame rails to secure cables and tubing, stabilizes components and performance
- Major propulsion components are between the front and rear axles.
- Minimal components installed on the outside of the frame rails.

ENGINE COMPARTMENT HIGH VOLTAGE COMPONENT LAYOUT



- Use of radiator, coolant heaters and dash AC compressor to manage battery temperatures.
- Battery architecture is “liquid cooled” for superior battery performance and longevity of life
- Purposeful design to use as many common parts with other DTNA powertrains, reduces inventory cost for customer
- Standard charger port is rear of drive axle on the curb side, option to have a charge port in rear panel is available. Options limited to only one charge port.
- HV lock out and safety strategy incorporates four power off options; Driver ignition key, LV/HV battery cut off switch in battery box, HV cut off switch on the HVJB in forward compartment and MSD’s located on the rear, street side corner of both battery packs.