**VEHICLE SPECIFICATIONS**

### WEIGHTS
- **Design Curb Weight:** 4617 lbs
- **Delivered Curb Weight:** 5154 lbs
- **Distribution F/R:** 58/42 %
- **GVWR:** 6200 lbs
- **GAWR F/R:** 3600/3686 lbs
- **Payload:** 1046 lbs
- **Performance Goal:** 400 lbs

### DIMENSIONS
- **Wheelbase:** 144.8 inches
- **Track F/R:** 64.2/65.3 inches
- **Length:** 230.5 inches
- **Width:** 78.7 inches
- **Height:** 69.7 inches
- **Ground Clearance:** 6.0 inches
- **Performance Goal:** 5.0 inches

### TIRES
- **Tire Mfg:** Goodyear
- **Tire Model:** Wrangler ST
- **Tire Size:** P235/75R16
- **Tire Pressure F/R:** 35/35 psi
- **Spare Installed:** Yes

### ENGINE
- **Model:** Vortec 5300 V8
- **Output:** 295 hp @ 5200 rpm
- **Configuration:** OHV V8
- **Displacement:** 5.36 L
- **Fuel Tank Capacity:** 26 Gallons
- **Fuel Type:** Unleaded Gasoline

**TEST NOTES:**
1. Nominal cell voltage is 2.0 Volts, the manufacturer lists the pack voltage as 42 Volts
2. Vehicle not equipped with a battery only mode
3. Total battery discharge over SAE J1634 drive cycle
4. Value calculated based on fuel economy and fuel tank size
5. Air Conditioning on maximum with full blower
6. Calculated at half power

**Values in red** indicate the Performance Goal was not met. All Power and Energy Values are DC unless otherwise specified. **Values in blue** indicate values that were estimated due to lack of sufficient data from the OEM.

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**PERFORMANCE STATISTICS**

### Acceleration 0-60 mph
- At 100% SOC: 9.74 seconds
- At 50% SOC: N/A
- **Performance Goal:** 13.5 seconds

### Maximum Speed
- **At 1/4 Mile:** 85.5 mph
- **In 1 Mile:** 100 mph
- **Performance goal:** 70 mph in one mile

### Driving Cycle Range w/o Accessories
- **Amp-Hours Out:** 50.2 Ah
- **Cycle Fuel Economy:** 18.8 mpg
- **Driving Range:** 489 miles

### On-Board Generator Efficiency
- **Energy Efficiency:** 1.91 kWh/gallon
- **Energy Capacity:** 49.67 kWh

### Braking From 60 mph
- **Controlled Dry:** 172.3 feet
- **Controlled Wet:** 202.3 feet
- **Panic Wet:** 199.3 feet

### Gradeability (Calculated)
- **Maximum Speed @ 3%:** 99.5 mph
- **Maximum Speed @ 6%:** 97.2 mph
- **Maximum Grade:** 43.8%
This vehicle meets the requirements of HEVAmerica vehicle Technical Specification (R1) as follows:

(1) Vehicles shall comply with Federal Motor Vehicle Safety Standards applicable on the date of manufacture and such compliance shall be certified by the manufacturer in accordance with 49 CFR 567. Suppliers shall provide a completed copy of Appendix A and Appendix B with their proposal, providing vehicle specifications and the method of compliance with each requirement specified in 49 CFR 571. If certification includes exemption, the exemption number issued by the National Highway Traffic Safety Administration (NHTSA), the date of its publication in the Federal Register and the page number(s) of the Federal Register acknowledging issuance of the exemption shall be provided along with Appendix B. Exemptions for any reason other than non-applicability shall not be applied.

(2) Suppliers shall supply Material Safety Data Sheets (MSDS) for all unique hazardous materials the vehicle is equipped with, including RESS batteries or capacitors, and auxiliary batteries.

(3) Suppliers shall provide recycling plans for batteries and other vehicle hazardous materials including how the plan has been implemented.

(4) All vehicles shall comply with the FCC requirements for unintentional emitted electromagnetic radiation, as identified in 47 CFR 15, Subpart B, “Unintentional Radiators.”

(5) Vehicles shall have a minimum payload of at least 400 pounds.

(6) For conversions, OEM GVWR shall not be increased. For conversion vehicles, Suppliers shall specify the OEMs gross vehicle weight rating (GVWR).

(7) For conversions, OEM Gross Vehicle Axle Weight Ratings (GAWR) shall not be increased. Suppliers shall provide axle weights for the vehicle as delivered, and at full rated payload.

(8) Tires shall be subject to the following requirements:
   • Tires provided with the vehicle shall be the standard tire offered by the HEV Supplier for the vehicle being proposed.
   • Tires shall correspond to the requirements of the placard installed in accordance with 49 CFR 571.109, 110, 119 and 120, as applicable.
   • Suppliers shall specify manufacturer, model and size of the standard tire.
   • Tires sizes and in-attraction pressures shall be in accordance with the requirements of the placard.
   • At no time shall the tire’s in-attraction pressure exceed the maximum pressure imprinted upon that tire’s sidewall.
   • The tire shall be operable across the entire operation/load range of that vehicle.
   • Replacement tires shall be commercially available to the end user in sufficient quantities to support the purchaser’s needs.
   • Tires provided as original equipment by the HEV manufacturer shall not have warranty restrictions in excess of those of the tire’s manufacturer, unless the Supplier is the sole warrantor for the tires.
   • If the vehicle may be equipped with more than one standard tire, this information shall be provided for each type/manufacturer of each standard tire.

(9) Seating capacity shall be a minimum of 1 driver and 1 passenger. Suppliers shall specify seating capacity (available seat belt positions) for their vehicles. For conversion vehicles, if the vehicle’s seating capacity is changed from that specified by the OEM on their FMVSS placard, the seat(s) being added or abandoned shall be modified as required by 49 CFR 571.207, et al., and a new FMVSS placard installed as required by 49 CFR 576, 568 or 571, as applicable.

(10) For vehicles using fuels other than gasoline, the OEM passenger space shall not be intruded upon by the Rechargeable Energy Storage System (RESS) or other conversion materials.

(11) The vehicle may utilize a single speed, multi-speed automatic, manual transmission, or a Continuously Variable Transmission (CVT), and shall have a parking mechanism.

(12) The controller/inverter shall limit the minimum RESS battery discharge voltage to prevent degradation of battery life, and shall limit the maximum voltage recharge to prevent external gassing of the batteries.

(13) Vehicles shall comply with the requirements of 49 CFR 571.105.55.2.1, or alternatively, 49 CFR 571.105.55.2.2 for packaging mechanisms.

(14) If different, customer available and battery available DOD ratings shall both be provided.

(15) Batteries shall comply with the requirements of SAE J1718.

(16) Vehicles shall not auto-start the engine to charge the batteries while the vehicle is parked and the key switch is in the OFF position. For vehicles capable of off-vehicle charging (OVC), RESS batteries shall meet the requirements of NEC 625-290 or (d) for charging in enclosed spaces without a vent fan. The vehicle shall include a charging ventilation system (or have the appropriate classification label from a UL-recognized Testing Laboratory).

(17) For vehicles with RESS system voltages of 40 volts or higher, or batteries and capacitors and their enclosures shall be designed and constructed in a manner that complies with 49 CFR571.305. For vehicles with RESS system voltages below 48VDC, batteries or capacitors, and their enclosures, shall be designed and constructed in accordance with the requirements of SAE J1766. Further, irrespective of RESS system voltage, batteries or capacitors, and electrolyte will not intrude into the passenger compartment during or following FMVSS frontal barrier, rear barrier and side impact collisions, and rollover requirements of 49 CFR 571.301. Suppliers shall provide verification of conformance to this requirement.

(18) Compressed Natural Gas as fuel, manufacturers should indicate compliance with NFPA 52, “Compressed Natural Gas (CNG) Vehicular Fuel Systems Code,” as well as 49 CFR 571.303 and 304."

(19) Rechargeable Energy Storage Systems (RESS) shall be battery, capacitor, or electromechanical yewheel technology-based as defined in SAE J1711.

(20) Vehicles shall not contain exposed conductors, terminals, contact blocks or devices of any type that create the potential for personnel to be exposed to 60 volts or greater (the distinction between low voltage and high voltage is as defined in SAE J1127, S1128, et al.). Access to any high voltage components shall require the removal of at least one bolt, screw, or latch. Devices considered to be high voltage components shall be clearly marked as HIGH VOLTAGE. These markings should be installed at any point the voltage can be accessed by the end user. Additionally, cable and wire marking shall consist of orange wire and/or orange sleeving as identified in SAE-J1673.4.

(21) For propulsion power systems with voltages greater than or equal to 48VDC, the system shall be isolated from the vehicle chassis such that leakage current does not exceed 0.5 MIU. Charging circuits for RESS battery systems with voltages greater than or equal to 48VDC shall be isolated from the vehicle chassis such that ground current from the grounded chassis does not exceed 5 mA at any time the vehicle is connected to an offboard power source.

(22) The automatic disconnect for the RESS batteries shall be capable of interrupting maximum power rated controller/inverter current. The Supplier shall describe the automatic disconnect provided for the main propulsion batteries.

(23) The vehicle shall be prevented from being driven from the key turned on and the drive selector in the drive or reverse position while the vehicle’s charge cord is attached. Additionally, the following interlocks shall be present:
   • The controller shall not initiate energize to move the vehicle with the gear selector in any position other than “PARK” or “NEUTRAL.”
   • The start key shall be removable only when the “ignition switch” is in the “OFF” position, with the drive selector in PARK.
   • When a pre-accellerator input, the controller shall not energize or excite such that the vehicle can move under its own power from this condition.

(24) If the vehicle is capable of off-board recharging of the RESS, the charger shall be capable of charging the RESS to a state of charge from any possible state of discharge in less than 12 hours, at temperatures noted in Section 5.5, as applicable.

(25) The charger shall be fully automatic, determining when “end of charge” conditions are met and transitioning into a mode that maintains the main propulsion battery at a full state of charge while not overcharging it, if continuously left on charge.

(26) If the vehicle is capable of off-board recharging of the RESS using a 208/240V, chargers shall have a true power factor of .95 or greater and a harmonic distortion rated at ≤ 20% (current at rated load).

(27) The vehicle shall be capable of completing all HEV America tests without repairs achieving a cumulative total of 272 hours. This information was provided with the support of the U.S. Department of Energy (DOE) under Award No. DE-FC26-05NT42486. However, any opinions, findings, conclusions or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the DOE.