**1999 GENERAL MOTORS EV1 w/NiMH**

**VEHICLE SPECIFICATIONS**

**PURPOSE-BUILT VEHICLE**
- Base Vehicle: 1999 EV1 NiMH
- VIN: 4G5PX2256X00076
- Seatbelt Positions: Two

**Standard Features:**
- Cruise Control
- Dual Airbags
- Power Steering
- Traction Control
- Daytime Running Lamps
- Power Windows, Mirrors & Door Locks
- AM/FM Stereo w/Cassette and CD Player
- Regenerative Braking with Countdown
- Electro-Hydraulic Braking with ABS
- Electro Windshield Defogger & De-Icer
- Lightweight Bonded Aluminum Structure
- Check Tire Pressure System
- High Voltage Isolation Assurance
- Heat Pump Climate Control System
- w/Pre-Conditioning Feature

**BATTERY**
- Manufacturer: Ovonic Energy Products
- Type: Nickel Metal Hydride
- Number of Modules: 26
- Weight of Module: 18.3 kg
- Weight of Pack(s): 481 kg
- Pack Locations: Integral T-Pack
- Nominal Module Voltage: 13.2 V
- Nominal System Voltage: 343 V
- Nominal Capacity (C/2): 85 A/H
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**TEST NOTES:**
1. At test termination vehicle was still able to maintain required drive schedule.
2. Testing was terminated upon illumination of the Service Now TellTale.
3. As detailed in the Owners Manual, the Battery Life, Reduced Performance, Service Soon and Service Now telltale illuminated during the drive schedules.
4. On 3% Grade, this vehicle completed 67 minutes 9 seconds from 100% SOC.
5. Standing water test was conducted in 6" versus 8" identified in procedure.
6. Vehicle was removed from Test Program for one 24-hour repair period to replace a battery module.

**TEST PROGRAM**
- This Vehicle meets all EV America Minimum Requirements listed on back.

**VEHICLE SPECIFICATIONS**

**WEIGHTS**
- Design Carb Weight: 2970 lbs
- Delivered Carb Weight: 2848 lbs
- Distribution F/R: 53/47 %
- GVWR: 3410 lbs
- Payload: 440 lbs

**DIMENSIONS**
- Wheelbase: 98.9 inches
- Track F/R: 57.9/49.0 inches
- Length: 169.7 inches
- Width: 69.5 inches
- Height: 50.5 inches
- Ground Clearance: 4.3 inches at GVWR

**TIRES**
- Tire Mfg: Michelin
- Tire Model: Proxima RR™ Radial
- Tire Size: P175/65R14
- Tire Pressure F/R: 50/50 psi
- Spare Installed: No; Self Sealing Tires

**CHARGER**
- Location: Off-Board
- Type: Magne Charge Inductive 6.6 kW
- Input Voltages: 191 - 256 VAC
- Efficiency: 373 Wh-AC/mile
- Energy Cost: 3.73 ¢/mile

**ACCELERATION 0-50 mph**
- Max. Power: 104.0 kW
- Performance Goal: 13.5 sec

**MAXIMUM SPEED @ 50% SOC**
- Range: 220.7 miles
- Energy Used: 28.15 kWh
- Average Power: 5.81 kW
- Efficiency: 127 Wh/mile
- Specific Energy: 58.5 Wh/kg

**CONSTANT SPEED RANGE @ 45 mph**
- Range: 160.6 miles
- Energy Used: 27.04 kWh
- Average Power: 10.28 kW
- Efficiency: 168 Wh/mile
- Specific Energy: 52.3 Wh/kg

**CONSTANT SPEED RANGE @ 60 mph**
- Range: 101.5 miles
- Energy Used: 24.62 kWh
- Average Power: 12.45 kW
- Efficiency: 200 Wh/mile
- Specific Energy: 51.3 Wh/kg

**DRIVING CYCLE RANGE**
- Range per SAE J1634: 140.3 miles
- Energy Used: 25.14 kWh
- Average Power: 5.28 kW
- Efficiency: 179 Wh/mile
- Specific Energy: 58.6 Wh/kg

**BRAKING FROM 60 mph**
- Controlled Dry: 160.0 feet
- Controlled Wet: 158.4 feet
- Panic Wet: 172.4 feet

**HANDLING**
- Avg Time @ 90% SOC: 55.1 sec
- Avg Time @ 50% SOC: 54.4 sec
- Avg Time @ 20% SOC: 54.3 sec
- Avg Dodge Neon Time: 54.6 sec

**GRADEABILITY (Calculated)**
- Maximum Speed @ 3%: 78.8 mph
- Maximum Speed @ 6%: 78.3 mph
- Maximum Grade: 56.9%
- Time on 3% Grade: 32 min 25 sec
  - Performance Goal: 15 min from 50% SOC

**CHARGING EFFICIENCY**
- Efficiency: 373 Wh-AC/mile
- Energy Cost: 3.73 ¢/mile

**CHARGER**
- Max Charger Ground Current: <0.01 mA
- Max Battery Leakage Current: <0.01 MA
- Max DC Charge Current: 13.75 Amperes
- Max AC Charge Current: 31.86 Amperes
- Pwr Factor @ Max Current: 0.998
- THD(I) @ Max Current: 5.32%
- Peak Demand: 6.7 kW
- Time to Recharge: 6 Hrs 58 min
  - Performance Goal: 8 hours

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**This vehicle meets the following EV America Minimum Requirements:**

1. Vehicle has a payload of at least 400 pounds.
2. The OEM GVWR has not been increased.
3. The OEM GAWRs have not been increased.
4. Seating capacity is a minimum of (2) occupants.
5. A battery recycling plan has been submitted.
6. The OEM passenger space has not been intruded upon by the electrical conversion materials.
7. The vehicle has a parking mechanism or parking brake as required by 49 CFR 571.105.
8. The vehicle has a minimum range between charges of at least 50 miles when loaded with two 166-pound occupants and operated at a constant 45 mph.
9. The vehicle manufacturer has certified that this vehicle complies with the Federal Motor Vehicle Safety Standards (FMVSS) applicable on the date of manufacture.
10. The vehicle manufacturer has certified the batteries and battery enclosures comply with SAE J1766 and 49 CFR 571.301.
11. Batteries comply with requirements of SAE J1718 and NEC 625 for charging in enclosed spaces without vent fans.
12. The vehicle manufacturer has certified concentrations of explosive gases in the battery box do not exceed 25% of the Lower Explosive Limit (LEL) during and following normal or abnormal charging and operation of the vehicle.
13. The battery charger is capable of recharging the main propulsion batteries to a state of full charge from any state of discharge in less than 12 hours.
14. The vehicle manufacturer has certified the charger is capable of accepting input voltages of 208V and 240V single phase 60 Hertz alternating current service, with a tolerance of 10% of rated voltage. Charger input current is compatible with the requirements for Level II chargers and complies with the requirements of SAE J1772. Personnel protection systems are in accordance with UL Proposed Standards 2231-1 and 2231-2.
15. The charger has a true power factor of .95 or greater and a harmonic distortion rated at <= 20% (current at rated load).
16. The charger is 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.
17. The vehicle does not contain exposed conductors, terminals, contact blocks or devices of any type that create the potential for personnel to be exposed to 50 volts or greater.
18. The vehicle is accompanied by non-proprietary manuals for parts, service, operation and maintenance, interconnection wiring diagrams and schematics.
19. The vehicle has a state of charge indicator for the main propulsion batteries.
20. Propulsion power is isolated from the vehicle chassis and battery leakage current is less than 0.5 MIU under static conditions.
21. Charging circuits are isolated from the vehicle chassis such that ground current from the grounded chassis any time the vehicle is connected to a charger does not exceed 5 mA in accordance with UL Proposed Standards 2231-1 and 2231-2.
22. Replacement tires are commercially available to the end user.
23. The vehicle is interlocked such that:
   - The controller does not energize to move the vehicle with the gear selector in any position other than Park" or "Neutral"
   - The start key is removable only when the "ignition key" is in the "Off" position, with the drive selector in "Park"
   - The controller does not initially energize or excite with a pre-existing accelerator input, such that the vehicle can be moved under its own power from this condition.
24. The vehicle manufacturer has certified that the vehicle complies with the FCC requirements for unintentional emitted electromagnetic radiation, as identified in 47 CFR 15, Subpart B, "Unintentional Radiators."
25. The vehicle manufacturer has certified failure of a battery or battery pack has deemed to have occurred if the actual battery capacity is not at least 80% of the nominal ampere hour capacity.
26. The vehicle is equipped with an automatic disconnect and a manual service disconnect.
27. The charging system is compatible with the Personnel Protection requirements of SAE J1772.
28. Material Safety Data Sheets (MSDS) have been supplied for all on-board batteries.
29. The level of charge below which the batteries should not be discharged and how the controller automatically limits battery discharge below this level have been identified by the manufacturer.
30. The vehicle manufacturer has verified that the methods(s) of charging the propulsion batteries and the charging algorithm have been reviewed and approved by the battery manufacturer.
31. The charger is capable of meeting the requirements of Section 625 of the National Electric Code(NEC).
32. The vehicle complies with the requirements of 49 CFR 571.301 for fuel fired heaters.
33. The vehicle has an on-board Battery Energy Management System(BMS).

This information was prepared with the support of the U.S. Department of Energy (DOE) Award No. DE-FC07-96ID 13475. However, any opinions, findings, conclusions or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of DOE.