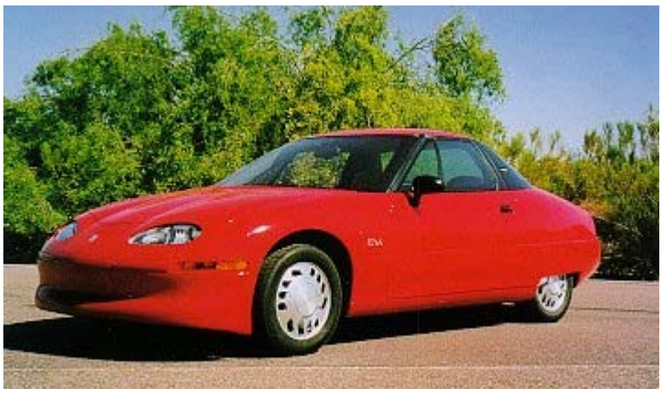
EVAMERICA

USDOE

PERFORMANCE STATISTICS



GENERAL MOTORS EV1

VEHICLE SPECIFICATIONS

PURPOSE-BUILT VEHICLE
Base Vehicle: 1997 EV1
VIN: 4g5px2250t0100009
Seatbelt Positions: Two
Standard Features:

- Heat Pump Climate
- Control System
- Cruise Control
- Power Door Locks
- Dual Air Bags
- Power Windows
- Front Disc Brakes
- Power Steering
- Anti-Lock Brakes
- Front Wheel Drive
- Regenerative Braking
- Daytime Running Lights
- AM/FM Stereo w/Cassette and CD Player w/4 Speaker System
- ElectiClear Windshield
- Check Tire Pressure System
- High Voltage Isolation Assurance
- Welded & Bonded Aluminum Alloy Body
- Electronic Key Pad Entry/Vehicle Activation System
- 110V 1.2 kW Convenience Charger

BATTERY
Manufacturer: Delphi
Type: Valve Regulated Lead Acid
Number of Modules: 26
Weight of Module: 18.8 kg
Weight of Pack(s): 1175 kg
Pack Locations: T-Pack Integral
Nominal Module Voltage: 12 V
Nominal System Voltage: 312 V
Nominal Capacity (1C): 53 Ah

WEIGHTS
Design Curb Weight: 2970 lbs
Delivered Curb Weight: 2922 lbs
Distribution F/R: 53/47 %
GVWR: 3410 lbs
GAWR F/R: 1705/1705 lbs
Payload: 440 lbs
Performance Goal: 400 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: 4.2 inches at GVWR
Performance Goal: 5.0 inches at GVWR

CHARGER
Location: Off-Board
Type: Delco Electronics Inductive 6.6 kW
Input Voltages: 156 to 260 VAC

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

TEST NOTES:

1. At various during these range test the Battery Life, Reduced Performance, Service Soon, and Service Now telltales illuminated.
2. Charging time was extended due to high temperature conditions.
3. Specific Energy values were calculated using the number of modules times the module weight.
4. The battery pack data collection voltage signal was reduced 100:1 through a voltage divider installed by General Motors. This was for personnel protection.
5. The Standing Water Test was conducted with a water depth of six inches versus eight inches.

This Vehicle meets all EV America Minimum Requirements listed on back.
Values in **red** indicate the Performance Goal was not met.
All Power and Energy values are DC unless otherwise specified.

ACCELERATION 0-50 mph
At 100% SOC: 6.3 sec
At 50% SOC: 6.7 sec
Max. Power: 116.4 kW
Performance Goal: 13.5 sec at 50% SOC

MAXIMUM SPEED @ 50% SOC
At 1/4 Mile: 78.9 mph
At 1 Mile: 80.4 mph
Performance Goal: 70 mph in one mile

CONSTANT SPEED RANGE @ 45 mph
Range: 135.2 miles
Energy Used: 15.58 kWh
Average Power: 5.19 kW
Efficiency: 115 Wh/mile
Specific Energy: 31.9 Wh/kg

CONSTANT SPEED RANGE @ 60 mph
Range: 89.1 miles
Energy Used: 14.58 kWh
Average Power: 9.79 kW
Efficiency: 164 Wh/mile
Specific Energy: 29.8 Wh/kg

DRIVING CYCLE RANGE
Range per SAE J1634: 78.2 miles
Energy Used: 12.84 kWh
Average Power: 4.06 kW
Efficiency: 164 Wh/mile
Specific Energy: 26.3 Wh/kg
Performance Goal: 60 miles

BRAKING FROM 60 mph
Controlled Dry: 171.0 feet
Controlled Wet: 214.8 feet
Panic Wet: 211.9 feet
Course Deviation: 0.0 feet

HANDLING
Avg Time @ 90% SOC: 55.8 sec
Avg Time @ 50% SOC: 55.4 sec
Avg Time @ 20% SOC: 55.4 sec
Avg ICE Full Size Time: 54.62 sec

GRADEABILITY (Calculated)
Maximum Speed @ 3%: 79.0 mph
Maximum Speed @ 6%: 78.2 mph
Maximum Grade: 53.2%
Time on 3% Grade: 28 min 57 sec
Performance Goal: 15 Min

CHARGING EFFICIENCY
Efficiency: 248 Wh-AC/mile
Energy Cost @ 10 ¢/kWh: 2.48 ¢/mile

CHARGER
Max Charger Ground Current: &lt0.01 mA
Max Battery Leakage Current: &lt0.01 mA mA
Max DC Charge Current: 16.83 Amps
Max AC Charge Current: 28.96 Amps
Pwr Factor @ Max Current: 1.00
THD(V)/(I) @ Max Current: 2.78/4.80 %
Peak Demand: 5.93 kW
Time to Recharge: 5 Hrs 18 min
Performance Goal: 8 hours

This vehicle meets the following EV America Minimum Requirements:

1. The vehicle has a payload of at least 400 pounds.
2. The vehicle does not have a GVWR greater than the OEM GVWR.
3. The OEM GAWRs have not been increased.
4. Seating capacity is a minimum of 2 passengers.
5. A battery recycling plan has been provided.
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's proposal states that batteries and/or battery enclosures do not intrude into the passenger compartment during or following a frontal barrier, rear barrier and side impact collision and roll-over.
11. Batteries are an advanced design, specifically Nickel-Metal-Hydride (NiMH).
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 battery in less than 12 hours when recharging at 208V single phase 40A maximum.
14. The vehicle manufacturer has certified the charger is capable of accepting input voltages of 208VAC and 240VAC single phase 60 Hertz, with a tolerance of -13% +6% of rated voltage. On-board personnel protection systems are compatible with utility service GFCI protected circuits.
15. The charger has a true power factor of .95 or greater and a harmonic distortion of less than 5% (voltage and 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 when continuously left on charge.
17. Vehicles do 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. Vehicles are accompanied with 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.
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21. The vehicle has a power or current indicator.
22. Under static conditions, leakage current from propulsion system to vehicle chassis is less than 1 mA.
23. Ground currents from a grounded chassis during charging does not exceed 5 mA.
24. Replacement tires are commercially available to the end user.
25. The vehicle has the following interlocks:
    a). The controller does not energize in any drive selector position other than Park" or "Neutral"
    b). The start key is removable only in the "Off' position, with the drive selector in "Park"
    c). The controller does not initially energize or excite with a preexisting accelerator input.
26. The vehicle manufacturer has certified this vehicle complies with FCC requirements for unintentional emitted electromagnetic radiation, as identified in 47 CFR 15, Subpart B, "Unintentional Radiators."
27. The vehicle manufacturer has certified failure of a battery or battery pack is deemed to have occurred if the actual battery capacity is not at least 80% of the nominal ampere hour capacity.
28. The vehicle is equipped with an automatic disconnect and a manual service disconnect for the main propulsion batteries which are clearly labeled.
29. The charging system is compatible with circuit breaker type GFCI systems.
30. Material Safety Data Sheets (MSDS) for all on-board batteries have been supplied.
31. 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.

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