# 2004 Toyota Prius Hybrid Electric Vehicle

## VEHICLE SPECIFICATIONS

### VEHICLE FEATURES
- **Base Vehicle:** 2004 Toyota Prius
- **VIN:** JTDKBB20U740012721
- **Seatbelt Positions:** Five
- **Standard Features:**
  - CARB Certified as a PZEV
  - AM/FM Stereo with CD
  - Front Wheel Drive
  - CVT Transmission
  - Front Disc/Rear Drum Brakes
  - Regenerative Braking
  - Air Bags
  - Anti-lock Brakes
  - Power Windows
  - Power Locks
  - Keyless Entry
  - Air Conditioning
  - Heater/Windshield Defroster
  - Rear Window Defroster
  - Rear Windshield Wiper
  - State-Of-Charge Meter

### BATTERY
- **Manufacturer:** Panasonic EV Energy
- **Type:** Nickel Metal Hydride (NiMH)
- **Number of Modules:** 28
- **Module Weight:** 1.05 kg
- **Weight of Pack(s):** 29.4 kg
- **Pack(s) Location:** Rear
- **Nominal Module Voltage:** 7.2 VDC
- **Nominal System Voltage:** 201.6 VDC
- **Nominal Pack Capacity (C/2):** 6.5 Ah
- **Electric Motor:** 50 kW

### WEIGHTS
- **Design Curb Weight:** 2890 lbs
- **Delivered Curb Weight:** 2936 lbs
- **Distribution F/R:** 59/41 %
- **GVWR:** 3795 lbs
- **GAWR F/R:** 2335/2250 lbs
- **Payload:** 905 lbs

### DIMENSIONS
- **Wheelbase:** 106 inches
- **Track F/R:** 59/58 inches
- **Length:** 175 inches
- **Width:** 67 inches
- **Height:** 57.8 inches
- **Ground Clearance:** 4.3 inches

### TIRES
- **Tire Mfg:** Goodyear
- **Tire Model:** Integrity
- **Tire Size:** P185/65R15
- **Tire Pressure F/R:** 35/33 psi
- **Spare Installed:** Yes

### ENGINE
- **Model:** 1NZ-FXE
- **Output:** 76 hp @ 5000 rpm
- **Configuration:** In-Line 4-Cylinder
- **Displacement:** 1.5 L
- **Fuel Tank Capacity:** 11.9 Gallons
- **Fuel Type:** Unleaded Gasoline

### TEST NOTES:
1. Energy transfer display
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

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## PERFORMANCE STATISTICS

<table>
<thead>
<tr>
<th>Acceleration 0-60 mph</th>
<th>At 100% SOC: 12.04 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 50% SOC: N/A²</td>
<td>Performance Goal: 13.5 seconds</td>
</tr>
</tbody>
</table>

### Maximum Speed
- At 1/4 Mile: 77.0 mph
- In 1 Mile: 104.2 mph
- Performance goal: 70 mph in one mile

### Driving Cycle Range w/o Accessories
- Amp-Hours Out: 14.3 Ah³
- Cycle Fuel Economy: 52.7 mpg
- Driving Range: 628 miles⁴

### Driving Cycle Range w/Accessories⁵
- Amp-Hours Out: 22.0 Ah³
- Cycle Fuel Economy: 41.3 mpg
- Driving Range: 491 miles⁴

### Braking From 60 mph
- Controlled Dry: 137.6 feet
- Controlled Wet: 248.6 feet
- Panic Wet: 234.7 feet

### Gradeability (Calculated)
- Maximum Speed @ 3%: 95.6 mph
- Maximum Speed @ 6%: 86.2 mph
- Maximum Grade: 42.2%

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This vehicle meets all HEV America Minimum Requirements listed on back of this sheet.

Values in red indicate the Performance Goal was not met. All Power and Energy Values are DC unless otherwise specified.
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 verified 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 required section of 49 CFR 571. If certification includes exemption, the exemption number issued by the National Highway Traffic Safety Administration (NHTSA), the date of it’s publication in the Federal Register and the page number(s) of the Federal Register acknowledgment of issuance of the exemption shall be provided along with Appendix B. Exemptions for any reason other than non-applicability shall not be allowed.

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 (GAVR) 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 meet 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 aton pressures shall be in accordance with the requirements of the placard.
   - At no time shall the tire’s in aton pressure exceed the maximum pressure imprinted upon that tire’s sidewall.
   - The tires shall be designed and constructed so that the entire operational load range of that vehicle shall be capable of being crossed over the entire operational 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 tire.
   - 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 vehicle. 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 567, 568 or 571, as applicable.

10. For conversion vehicles, 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 maximum RESS battery discharge voltage to prevent degradation of battery life, and should limit the maximum regeneration voltage to prevent external gassing of the batteries.

13. Vehicles shall comply with the requirements of 49 CFR 571.105.5.5.2.1, or alternatively, 49 CFR 571.105 5.5.2.2 for parking 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.

   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 not get so warm that it requires ventilation for charging (or have the appropriate classification label from a UL-recognized Testing Laboratory).

   For vehicles with RESS system voltages of 48 volts and higher, batteries or 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.

   Concentrations of explosive gases in the battery box shall not be allowed to exceed 5% of the LEL (Lower Explosive Limit). Suppliers shall describe how battery boxes will be vented, allowing any battery gases to escape safely to atmosphere during and following normal or abnormal charging and operation of the vehicle. Battery gases shall not be allowed to enter the occupant compartment.

   Batteries shall comply with the requirements of SAE J1718. and at a minimum shall meet the requirements of NEC 625-290 or (d) for charging in enclosed spaces without a vent fan.

16. If a vehicle with identical dimensions with a parallel battery packs, the Supplier shall provide detailed information on the equipment and charging algorithms required to prevent the parallel strings from becoming unbalanced.

17. Flywheels and their enclosures shall be designed and constructed such that there is complete containment of the flywheel energy storage system during all modes of operation. Additionally, the flywheels and their enclosures shall be designed and constructed such that there is complete containment of the flywheel energy storage system during or following 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. For vehicles using fuels other than gasoline, manufacturers shall indicate compliance with appropriate and applicable standards from SAE, NFPA, etc. [e.g., for vehicles using 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.]  

19. The controller/inverter shall not initially energize to move the vehicle with the gear selector in any position other than “PARK” or “NEUTRAL.”

20. The start key shall be removable only when the “ignition switch” is in the “OFF” position, with the driver separator in “PARK.”

21. With a pre-existing accelerator input, the controller shall not energize or excite such that the vehicle can move under its own power from this condition.

22. Whether the vehicle is capable of off-board recharging of the RESS, the charger shall be capable of recharging the RESS to a state of full charge from any possible state of discharge in less than 10% of rated voltage. Input current for chargers operating at 208V and 240V shall be compatible with 40-ampere circuit breakers.

23. 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.

24. 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 off-board power supply.

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

26. The vehicle shall be prevented from being driven with 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 initially energize to move the vehicle with the gear selector in any position other than “PARK” or “NEUTRAL.”

   • With a pre-existing accelerator input, the controller shall not energize or excite such that the vehicle can move under its own power from this condition.

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

27. The vehicle shall comply with the requirements of 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 required section of 49 CFR 571. If certification includes exemption, the exemption number issued by the National Highway Traffic Safety Administration (NHTSA), the date of it’s publication in the Federal Register and the page number(s) of the Federal Register acknowledgment of issuance of the exemption shall be provided along with Appendix B. Exemptions for any reason other than non-applicability shall not be allowed.

28. 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.

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

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

31. Vehicles shall be capable of completing the HEVAmerica Rough Road Test (ETA-HTP-005) including (1) driving through standing water without damage and without battery to chassis leakage current exceeding 0.5 MIU per UL Standard 2202, and (2) standing for extended periods in extreme temperatures without damage to or failure of the vehicle or its systems.

Vehicles shall be capable of completing the HEV America Rough Road Test (ETA-HTP-005) including (1) driving through standing water without damage and without battery to chassis leakage current exceeding 0.5 MIU per UL Standard 2202, and (2) standing for extended periods in extreme temperatures without damage to or failure of the vehicle or its systems. Vehicle shall be capable of completing all HEV America tests without repairs exceeding a cumulative total of 72 hours.

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