

2013 Honda Civic Hybrid

Advanced Vehicle Testing – Vehicle Testing Summary



VEHICLE SPECIFICATIONS¹

Vehicle Features

VIN: 19XFB4F27DE00594

Class: Compact

Seatbelt Positions: 5

Type: HEV

CARB²: BIN 3

EPA City/Hwy/Combined:
44/44/44 mpg

Engine

Model: 8 Valve SOHC i-VTEC[®]

Output: 82 kW @ 5500 rpm

Torque: 172 Nm @ 3,500 rpm

Configuration: Inline 4-Cylinder

Displacement: 1.5 L

Fuel Tank Capacity: 13.2 US gal

Fuel Type: Regular Unleaded

Transmission

Continuously Variable
Transmission (CVT)

Motor

Type: Permanent magnet

Max. Power/Torque: 17 kW/106 Nm

Max. Motor Speed: 9500 rpm

Cooling: Active – Liquid Cooled

Battery

Manufacturer: Sanyo Blue Energy

Type: Lithium-ion

Cathode /Anode Material:

LiMn₂O₄/Hard Carbon

Number of Cells: 40

Cell Config.: 10 cells x 4 series
modules

Nominal Cell Voltage: 3.6 V

Nominal System Voltage: 144 V

Rated Pack Capacity: 4.7 Ah

Rated Pack Energy: 0.675 kWh

Weight of Pack: 48 lb

Pack Location: Trunk/Rear Seat

Cooling: Active – Fan Cooled

Weights

Design Curb Weight: 2,855 lb

Delivered Curb Weight: 2,856 lb

Distribution F/R (%): 62/38

GVWR: 3837 lb

GAWR F/R: 2007/1852 lb

Max. Payload: 982 lb

Dimensions

Wheelbase: 105.1 in

Track F/R: 59.0 / 60.0 in

Length/Width: 179.4 in/69.0 in

Height: 56.3 in

Ground Clearance: 5.5 in

Tires

Manufacturer: Bridgestone

Model: Ecopia EP20

Size: P195/65R15 89S

Pressure F/R: 32/32 psi

Spare Installed: Sealant and
inflator

NOTES:

1. Vehicle specifications were supplied by the manufacturer, measured, or derived from a literature review.
2. The vehicle was certified as BIN 3 by the California Air Resources Board (CARB). The 2013 Honda Civic Hybrid is also designated as an Advanced Technology Partial Zero Emission Vehicle by CARB in the states that have adopted the CARB emissions standards.

PERFORMANCE STATISTICS^{1,2}

| BEGINNING OF TEST TRACK TESTING ³ | END OF TEST TRACK TESTING ⁴ | DIFFERENCE |
|---|---|---|
| <p><u>Acceleration 0-60 mph⁵</u> Measured Time: 11.6 s Performance Goal: ≤13.5 s Peak DC Power from Battery: 18.8 kW</p> | <p><u>Acceleration 0-60 mph⁵</u> Measured Time: 11.4 s Performance Goal: ≤13.5 s Peak DC Power from Battery: 19.6 kW</p> | <p>Time: -0.2 s -1.7% Power: +0.8 kW 4.2%</p> |
| <p><u>Maximum Speed</u> At ¼ Mile: 77.6 mph Maximum Speed⁶: 101.6 mph Performance Goal: ≥90 mph at 1-mile mark</p> | <p><u>Maximum Speed</u> At ¼ Mile: 77.6 mph Maximum Speed⁶: 101.8 mph Performance Goal: ≥90 mph at 1-mile mark</p> | <p>¼ Mile: 0.0 s 0% Max Speed: +0.2 mph 0.2%</p> |
| <p><u>Braking from 60-0 mph⁷</u> Measured Time: 3.7 s Distance: 130 ft Peak DC Power into Battery: 8.3 kW</p> | <p><u>Braking from 60-0 mph⁷</u> Measured Time: 2.8 s Distance: 124 ft Peak DC Power into Battery: 8.6 kW</p> | <p>Time: -0.9 s -27.7% Distance: -6 ft -4.7% Power: +0.3 kW 3.6%</p> |
| <p><u>Deceleration 60-10 mph⁸</u> Measured Time: 49.2 s Distance: 2,428 ft Peak DC Power into Battery: 7.4 kW Total DC Energy into Battery: 59 Wh</p> | <p><u>Deceleration 60-10 mph⁸</u> Measured Time: 50.8 s Distance: 2,502 ft Peak DC Power into Battery: 7.7 kW Total DC Energy into Battery: 63 Wh</p> | <p>Time: +0.4 s 3.2% Distance: +74 ft 3.0% Power: +0.3 4.0% Energy: +4 Wh 6.6%</p> |

NOTES:

1. Performance numbers based on "Normal" vehicle mode. Performance numbers are averages from multiple tests. Electricity values are AC values unless otherwise indicated.
2. The assumption was made that all vehicles would perform in a like manner, therefore, performance testing was only performed on one of the 4 vehicles. The Beginning of Test vehicle was VIN 19XFB4F27DE00594. This vehicle was totaled in a fleet accident before achieving End of Test mileage, therefore End of Test track testing was completed using vehicle VIN 19XFB4F25DE001260.
3. Vehicle beginning of test track testing occurs when the vehicle has achieved its "break-in mileage" of between 4,000 to 6,000 miles. The vehicle is tested at the delivered curb weight plus 332 ± 10 lb (including driver and test equipment), distributed in a manner similar to the original curb loading of the vehicle. Track testing began on April 4, 2013 with the vehicle odometer reading 4,028 miles. No accessories were used except for headlights as required by track regulation. The results provided are from multiple runs unless otherwise indicated; if taken from a single run, the result is the maximum value over the set of runs.
4. Vehicle end of test track testing occurs when the vehicle has completed the accelerated mileage fleet testing of at least 3 years and 195,000 miles. Vehicle is tested at the delivered curb weight plus 332 ± 10 lb (including driver and test equipment), distributed in a manner similar to the original curb loading of the vehicle. Track testing began on April 26, 2016 with the vehicle odometer reading 204,653 miles. No accessories were used except for headlights as required by track regulation. The results provided are from multiple runs unless otherwise indicated; if taken from a single run, the result is the maximum value over the set of runs.
5. The acceleration is measured from the point at which the vehicle begins to move. The peak power value was taken from a single run.
6. The maximum speed was reached before the one-mile mark.
7. Controlled braking on dry surface. The peak power into the battery value was taken from a single run.
8. Coasting in drive on dry surface. Test run data were cut off when the vehicle reached 10 mph, as vehicle creep speeds are typically below this threshold. The peak power into the battery value and total energy into the battery results were both taken from a single (but different) run.

Values in red indicate that the Performance Goal was not met.

DYNAMOMETER TESTING¹

Cycle Results²

| | 72 °F | 20 °F | 95 °F + 850 W/m ² |
|-------------------|----------|----------|------------------------------|
| UDDS (Cold Start) | 51.1 mpg | 31.4 mpg | 40.9/42.3 ² mpg |
| UDDS | 57.0 mpg | 42.8 mpg | 41.0/42.5 ² mpg |
| HWFET | 61.4 mpg | 52.2 mpg | 54.6 mpg |
| US06 | 38.9 mpg | 35.4 mpg | 34.0 mpg |
| SC03 | | | 38.1/38.3 mpg ² |

Fuel Economy at Steady-State Speed, 0% Grade

| | |
|--------|----------|
| 15 mph | 56.1 mpg |
| 30 mph | 82.5 mpg |
| 40 mph | 76.9 mpg |
| 50 mph | 65.4 mpg |
| 60 mph | 54.8 mpg |
| 70 mph | 46.3 mpg |

Duration of Passing Maneuver at Grade³

| | 0% Grade | 3% Grade |
|--|----------|----------|
| 35-55 mph | 6.1 s | 7.1 s |
| 55-65 mph | 4.4 s | 5.8 s |
| 35-70 mph | 11.0 s | 14.9 s |
| 55-80 mph | 11.8 s | 19.2 s |
| Maximum Speed at 25% Grade from Stop: 38.8 mph | | |

NOTE: Dynamometer testing was completed with the beginning of test vehicle after track testing concluded. The vehicle used for end of test track testing⁴ did not undergo dynamometer testing.

- Dynamometer testing occurs after the beginning of test track testing is complete. Dynamometer testing began on May 24, 2013, with the vehicle odometer reading 4,444 miles. A comprehensive explanation of the dynamometer facility and methodology can be found at <http://www.transportation.anl.gov/D3/>, titled "Chassis Dynamometer Testing Reference Document". The ABC coefficients derived from track coastdown testing and matched on the dynamometer were A: 30.9400 lb, B: -0.15030 lb/mph, and C: 0.02088 lb/mph².
- The Cycle Results table presents the fuel economy achieved by the vehicle on five EPA drive cycles at three different ambient temperatures: (1) 72 °F with vehicle climate-control off, (2) 20 °F with vehicle climate-control set to 72 °F Auto, and (3) 95 °F with vehicle climate-control set to 72 °F Auto. The vehicle is also subjected to 850 W/m² of solar load at 95 °F to simulate direct sunlight. The drive cycles include a hot start unless otherwise indicated. The conversion for Wh/mi to miles-per-gallon-of-gasoline-equivalent (MPGe) is to divide 33,700 Wh/gallon-of-gasoline-equivalent by the Wh/mi value. The testing was conducted with the ECO feature off, except for the series at 95 °F with 850 W/m² of solar load, where the second fuel economy value is the test result with the ECO feature on.
- The passing maneuver value indicates the amount of time required for the vehicle to transition from the first to the second speed, at the specified grade.
- See Note 2 on Page 2.

As a production vehicle, this vehicle is assumed to meet all Federal Motor Vehicle Safety Standards (FMVSS) for Battery Electric Vehicles.

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