

Chapter 14

NAME _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1. What occurs when the driver first releases the accelerator pedal and starts to brake on a hybrid electric vehicle equipped with regenerative braking?

2. What is inertia?

3. What happens in the regenerative braking system when the high-voltage batteries are fully charged?

4. What is the difference between series and parallel regenerative braking systems?

5. What is meant by "one-pedal driving"?

Answer Key

Testname: EV1SHORT14

1. A typical hybrid using regenerative braking will normally indicate a 0.1 g (about 3 ft/sec²) deceleration rate when the throttle is released and the brake pedal has not been applied. This rate is what a driver would normally expect to occur when the accelerator pedal is released.
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2. Inertia is the resistance of an object to change its state of motion. In other words, an object in motion tends to stay in motion, and an object at rest tends to stay at rest unless acted on by an outside force.
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3. If the batteries were allowed to be fully charged, there would be no place for the electrical current to be stored and the conventional friction brakes alone have to be used to slow and stop the vehicle. Charging the batteries over 80% would also overheat the batteries.
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4. In series regenerative braking systems, the amount of regeneration is proportional to the brake pedal position. As the brake pedal is depressed further, the controller that regulates the regenerative braking system computes the torque needed to slow the vehicle, as would occur in normal braking.
Parallel regenerative braking system is less complex because the base (friction) brakes are used along with energy recovery by the motors, becoming generators. The controller for the regenerative braking system determines the amount of regeneration that can be achieved based on the vehicle speed.
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5. One pedal driving means that for normal driving, the driver only needs to use the accelerator pedal to accelerate and decelerate.
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