05HHS–01

SYSTEM DESCRIPTION

1. CRUISE CONTROL SYSTEM DESCRIPTION

The cruise control system controls constant speed driving. It enables the driver to adjust vehicle speed by operating the cruise control main switch without using the accelerator pedal.

Receiving signals from each switch and sensor, the hybrid vehicle control ECU controls constant speed driving by optimizing the use of the engine and motor driving force.

2. LIMIT CONTROL

(a) Low speed limit

The lowest possible limit of the speed setting range is set at approximately 40 km/h (25 mph). The cruise control system cannot be set when the driving speed is below the low speed limit. Constant speed control will be automatically cancelled and the stored vehicle speed will be erased when the vehicle speed goes below the low speed limit while the constant speed control is in operation.

(b) High speed limit

The highest possible limit of the speed setting range is set at approximately 180 km/h (112 mph). The cruise control system cannot be set when the driving speed is over the high speed limit. Speed up using RESUME/+ with the cruise control main switch assy also cannot be set beyond the high speed limit.

3. CRUISE CONTROL OPERATION

(a) Cruise control main switch

The cruise control main switch operates seven functions: SET, COAST, TAP–DOWN, RESUME, ACCEL, TAP–UP and CANCEL. The SET, TAP–DOWN and COAST functions, and the RESUME, TAP–UP and ACCEL functions share the same switch. Each function can be controlled by moving the switch in the directions of the arrows on the cruise control main switch assy. The switch will return automatically after being released.

(b) Set control

Vehicle speed is stored and constant speed control is maintained when pushing the switch to –/SET while driving with the cruise control main switch ON–OFF button ”on” (CRUISE main indicator light is on), and the vehicle speed is within the set speed range (between the low and high speed limits).

(c) COAST control

The hybrid vehicle control ECU decreaes the cruise control demand speed and controls the engine and motor driving force to decelerate the vehicle when –/SET on the cruise control main switch is pressed and held while the cruise control system is in operation.

Vehicle speed, when the cruise control main switch is released from –/SET, is stored and constant speed control is maintained.

(d) Tap–down control

When tapping down on the cruise control main switch to –/SET (for approx. 0.5 second) while the cruise control system is in operation, the stored vehicle speed decreases each time by approximately 1.6 km/h (1.0 mph).

However, when the difference between the driving and the stored vehicle speed is more than 5 km/h (approx. 3.1 mph), the vehicle speed, when the cruise control main switch is released from –/SET, will be stored and constant speed control is maintained.

(e) Acceleration control

The hybrid vehicle control ECU increases the cruise control demand speed and controls the engine and motor driving force to accelerate the vehicle when +/RES on the cruise control main switch is pressed and held while the cruise control system is in operation.

Vehicle speed, when the cruise control main switch is released from +/RES, is stored and constant speed control is maintained.

(f) Tap–up control
When tapping up on the cruise control main switch to +/RES (for approx. 0.5 second) while the cruise control system is in operation, the stored vehicle speed increases each time by approximately 1.6 km/h (1.0 mph). However, when the difference between the driving and the stored vehicle speed is more than 5 km/h (approx. 3.1 mph), the stored vehicle speed will not be changed.

(g) Resume control
If constant speed control was cancelled with the stop lamp switch or the CANCEL switch, and if driving speed is within the limit range, pushing the cruise control main switch to –/RES restores vehicle speed memorized at the time of cancellation, and restarts constant speed control.

(h) Manual cancel control
Doing any of the following cancels the cruise control system while in operation. (The stored vehicle speed in the hybrid vehicle ECU is maintained.)

- Depressing the brake pedal
- Shifting into any position except D
- Pushing the cruise control main switch to CANCEL
- Pushing the cruise control main switch ON–OFF button "off". (The stored vehicle speed in the hybrid vehicle control ECU is not maintained.)
- Push the EV button: (EV DRIVE MODE is available when vehicle speed is below approximately 45 km/h (28 mph).)

(i) Auto cancel (fail–safe)
This system has an automatic cancellation function (fail–safe) (for details, see page 05–2456).