

## ■ SYSTEM CONTROL

### 1. General

The cruise control has the following types of controls.

Control	Outline
Constant Speed Control	The ECM compares the actual vehicle speed and the set speed and if the vehicle speed is lower than the set speed, it uses the throttle control motor to increase the throttle opening.
Set Control	While this system fulfils the following conditions, and the cruise control switch is pressed to the SET/- side and released, the ECM stores the vehicle speed and maintains the vehicle constantly at that speed. <ul style="list-style-type: none"> <li>• The cruise control system is on.</li> <li>• The vehicle is running at a vehicle speed of about 40 km/h (25 mph) or more.</li> </ul>
Low Speed Limit Control	The low speed limit is the lowest speed that cruise control can be set at and it is designed to be approx. 40 km/h (25 mph). The cruise control cannot be set below that speed. If the vehicle speed drops below that speed while driving using cruise control, the cruise control will be cancelled automatically. However the set speed is kept in memory.
COAST Switch Control	While the cruise control switch is held to the SET/- side, the vehicle speed and the set vehicle speed will change as follows. <ul style="list-style-type: none"> <li>• The vehicle will decelerate constantly.</li> <li>• The set vehicle speed changes to the speed that the vehicle is traveling at when the COAST switch is released.</li> </ul>
Tap Down Control	When the cruise control switch is pushed momentarily (approx. 0.5 sec.) to the SET/- side, the vehicle speed and the vehicle set speed change as follows. <ul style="list-style-type: none"> <li>• The vehicle will decelerate in increments of approx. 1.6 km/h (1 mph) for each time the switch was pressed.</li> <li>• However, if the difference between the actual vehicle speed and the vehicle set speed is greater than 5 km/h (3.1 mph), the vehicle set speed will change to the speed at which the vehicle was being driven at the time the switch was operated.</li> </ul>
ACC Switch Control	When the cruise control switch is held to the RES/+ side, the vehicle speed and the set vehicle speed will change as follows. <ul style="list-style-type: none"> <li>• The vehicle accelerates constantly.</li> <li>• The vehicle set speed changes to the speed as which the switch is released.</li> </ul>
Tap Up Control	When the cruise control switch is pushed momentarily (approx. 0.5 sec.) to the RES/+ side, the vehicle speed and the vehicle set speed change as follows. <ul style="list-style-type: none"> <li>• The vehicle will accelerate in increments of approx. 1.6 km/h (1 mph) for each time the switch was pressed.</li> <li>• However, if the difference between the actual vehicle speed and the vehicle set speed is greater than 5 km/h (3.1 mph), the set vehicle speed changes to the speed at which the vehicle was being driven at the time the switch was operated.</li> </ul>
RES Switch Control	If cruise control is canceled for any reason other than a malfunction or main switch operation, pressing the cruise control switch to the RES/+ side will return the vehicle to the speed that was set before the cruise operation was canceled. However, the vehicle speed cannot be resumed if the vehicle speed is 40km/h (25mph) or less.

(Continued)

Control	Outline
Shift-down Control	<p>When the vehicle is traveling uphill using cruise control, automatic transmission control may cause the transmission to shift down. During shift-down control, when the end of uphill travel is determined based on the throttle valve angle, the transmission will shift up after a certain period of time. When the transmission shifts down during ACC switch control or RES switch control, the transmission will shift up after ACC switch control or RES switch control ends.</p>
Manual Cancel Control	<p>If any of the following signals is sent to the ECM, the cruise control is cancelled accordingly.</p> <ul style="list-style-type: none"> <li>• Shift lever is shifted from D to N or from D to M.</li> <li>• When 1st, 2nd or 3rd range is selected in D position by shift paddle switch operation.</li> <li>• Stop light switch on signal/Brake pedal is depressed</li> <li>• CANCEL switch on signal (cruise control switch moved to CANCEL side)</li> <li>• Cruise control switch (ON-OFF button) off signal</li> </ul>
Automatic Cancel Control	<p>When any of the following conditions occur during cruise control operation, the speed that is set in the memory is cleared and the cruise control is cancelled.</p> <ul style="list-style-type: none"> <li>• Stop light switch open or short circuit</li> <li>• The vehicle speed signal is not input for a predetermined period of time (approx. 140 ms).</li> <li>• ETCS-i malfunction</li> </ul> <p>Furthermore, the CRUISE main indicator light will blink until the ON-OFF button on the cruise control switch is used to turn the system off, and the operation of the cruise control will be disabled until the ON-OFF button is turned on again.</p>
	<p>When any of the following conditions occur during the cruise control driving, the speed that is set in the memory is cleared and the cruise control is cancelled.</p> <ul style="list-style-type: none"> <li>• Stop light switch input signal is abnormal.</li> <li>• Cruise control switch input signal is abnormal.</li> </ul> <p>Furthermore, the CRUISE main indicator light will blink until the ON-OFF button on the cruise control switch is used to turn the system off, and the operation of the cruise control will be disabled until the engine switch is turned off and back on (IG).</p>
	<p>When any of the following conditions occur while driving using cruise control, the cruise control is cancelled.</p> <ul style="list-style-type: none"> <li>• Vehicle speed is the below the low speed limit [approx. 40 km/h (25 mph)] or less.</li> <li>• Vehicle speed decreases by 16 km/h (10 mph) or more below the speed at which the cruise control was set.</li> </ul>
Diagnosis	<p>When the ECM does not receive a vehicle speed signal for a predetermined period of time during cruising, or when cruise control is cancelled (automatic cancel) due to a malfunction of the cruise control, stop light switch or vehicle speed signal, the ECM immediately blinks the CRUISE main indicator light due to the malfunction. The information relating to the malfunction will be stored in the ECM.</p>

## 2. Diagnosis

If a malfunction occurs in the cruise control system, during cruise control operation, the ECM actuates the automatic cancel control and blinks the CRUISE main indicator light to inform the driver of the malfunction. At this time, the ECM memorizes the malfunction using 5-digit DTCs (Diagnostic Trouble Codes). The 5-digit DTCs can be read by connecting an intelligent tester to the DLC3.