

■ FUNCTION

The cruise control has the following functions.

Function	Outline	
Constant Speed Control	1GR-FE Engine	The engine ECU compares the actual vehicle speed and the set speed and if the vehicle speed is higher than the set speed, it activates the throttle control motor in the throttle closing direction. If the vehicle speed is lower than the set speed, it activates the throttle motor in the throttle opening direction.
	1KD-FTV Engine	The engine ECU compares the actual vehicle speed and the set speed. If the vehicle speed is higher than the set speed, the engine ECU decreases the injection volume by regulating the EDU. If the vehicle speed is lower than the set speed, the engine ECU increases the injection volume by regulating the EDU.
Set Control	When the cruise control switch is pressed to the SET/ – side and released while the vehicle is running within a cruising speed control range [approx. 40 km/h (25 mph) or more] with the MAIN switch turned on, the engine ECU stores the vehicle speed and controls it at that speed constantly.	
Low Speed Limit Control	The low speed limit is the lowest speed that cruise control can be set and is designed at approx. 40 km/h (25 mph). The cruise control cannot be set below that speed. If the vehicle speed drops below that speed while running in cruise control mode, the cruise control is cancelled automatically. At this time, the set speed is held in the memory on the 1GR-FE engine model, and deleted on the 1KD-FTV engine model.	
Accelerator Control	When the driver keeps the cruise control switch pushed to the SET/ + side while the vehicle is running in cruise control mode, the system accelerates the engine in the following manner: on the 1GR-FE engine model, the system actuates the throttle control motor in the direction to open the throttle; and on the 1KD-FTV engine model, the system controls the EDU to increase the injection volume. As the vehicle continues to accelerate, the engine ECU stores the vehicle speed at time the driver's hand is released from the cruise control switch. From then on, the engine ECU controls the vehicle at that speed.	
Tap-Up Control	When the difference between the actual vehicle speed and the set speed is less than 5 km/h (3 mph), the set speed can be increased approx. 1.6 km/h (1 mph) each time by operating the RES/+ switch quickly within approx. 0.6 seconds.	
Coast Control	1GR-FE Engine	When the cruise control switch is kept pushed to the SET/ – side while running in cruise control mode, the throttle control motor is energized in the throttle closing direction. The vehicle keeps decelerating the engine ECU stores the vehicle speed when the hand is released from the cruise control switch. From then on, the engine ECU controls the vehicle speed at that speed constantly
	1KD-FTV Engine	When the cruise control switch is kept pushed to the SET/ – side while the vehicle is running in cruise control mode, the engine ECU decreases the injection volume by regulating the EDU. As the vehicle continues to decelerate, the engine ECU stores the vehicle speed at the time the driver's hand is released from the cruise control switch. From then on, the engine ECU continues to control the vehicle at that speed.
Tap-Down	When the difference between the actual vehicle speed and the set speed is less than 5 km/h (3 mph), the set speed can be lowered approx. 1.6 km/h (1 mph) each time by operating the SET/ – switch quickly within approx. 0.6 seconds	
Resume Control	After cruise control mode is cancelled by any of the cancel switches, that mode can be resumed and controlled at the set speed by operating the cruise control switch in the RES/ + direction providing that the vehicle speed has not dropped below the low speed limit [approx. 40 km/h (25 mph)]. ● On the 1GR-FE engine model, if the vehicle speed is below the low speed limit, the system will not delete the speed in the memory, allowing cruise control mode to be resumed once the vehicle speed reaches above the low speed limit. ● On the 1KD-FTV engine model, if the vehicle speed has dropped below the low speed limit, the system will delete the speed in the memory. Therefore, cruise control mode cannot be resumed until the cruise control is set to a vehicle speed that is higher than the low speed limit.	

(Continued)

Function	Outline	
Manual Cancel Control	If any of the following signals is sent to the engine ECU while the vehicle is running in cruise control mode, cruise control mode is cancelled accordingly. ● Stop light switch ON signal (Depress the brake pedal) ● D position circuit in neutral start switch OFF signal (Shift the transmission shift lever from D to N, 2, or L) ● CANCEL switch ON signal ● MAIN switch OFF signal	
Automatic Cancel Control	When any of the following conditions occur during cruise control driving, the speed that is set in the memory is cleared to cancel cruise control mode. Furthermore, the cruise main indicator light blinks until the MAIN switch is turned OFF, and the operation of the cruise control is disabled until the MAIN switch is turned ON again. ● Stop light switch open or short circuit ● The vehicle speed signal abnormal ● ETCS-i malfunction*¹ ● Common-rail fuel injection system abnormal*²	
	When the following condition occur during the cruise control driving, the speed that is set in the memory is cleared to cancel cruise control mode. Furthermore, the cruise main indicator light blinks until the MAIN switch is turned OFF, and the operation of the cruise control is disabled until the ignition switch is turned OFF again. ● Stop light switch input signal abnormal ● Cancel circuit abnormal	
	1GR-FE Engine	When any of the following conditions occurs during the cruise control driving, cruise control is cancelled. (Cruise control can be restarted) ● The vehicle speed falls below the low speed limit [approx. 40 km/h (25 mph)] (The set speed remains stored in the memory so that cruise control can be resumed at the set speed by operating the RESUME switch.) ● The vehicle speed falls by 16 km/h (25 mph) or more from the set speed (The set speed is cleared from the memory. The cruise control driving speed is needed to be set again.)
	1KD-FTV Engine	When any of the following conditions occurs during the cruise control driving, the set speed in the memory is cleared to cancel cruise control mode. Cruise control can be resumed at the set speed by operating the SET or RESUME switch providing that the vehicle speed is above the lower speed limit [approx. 40 km/h (25 mph)]. ● The vehicle speed falls below the low speed limit [approx. 40 km/h (25 mph)] ● The vehicle speed drops more than 16 km/h (10 mph) below the set speed as in uphill driving.
Automatic Transmission Control	When the vehicle is cruising uphill, there is a case where the overdrive turns off depending on the ECT control. After that, when the engine ECU judges the end of cruising up from the throttle valve opening angle, the overdrive will turn on again after about 3 seconds. Also, in case that the overdrive turns off during accelerator or resume control, it will turn on after finishing accelerator or resume control.	
Diagnosis	When the engine ECU does not receive a vehicle speed signal for a predetermined period of time during cruising, or when cruise control is cancelled (automatic cancel) by a malfunction in the cruise control switch, stop light switch or vehicle speed signal, the engine immediately blinks the cruise main indicator light on the combination meter on and off five times to alert the driver of the system malfunction. The contents of malfunctions are coded and stored in the engine ECU.	

*1: Only for Models with 1GR-FE Engine

*2: Only for Models with 1KD-FTV Engine