■ FUNCTION

The cruise control system has the following functions.

Function	Outline
Constant Speed Control	The ECM compares the actual vehicle speed with the set speed. • On the models with the 1KD-FTV engine, if the vehicle speed is higher than the set speed, the ECM decreases the injection volume by regulating the EDU. If the vehicle speed is lower than the set speed, the ECM increases the injection volume by regulating the EDU. • On the models with 1GR-FE engine, if the vehicle speed is higher than the set speed, the ECM activates the throttle control motor in the throttle closing direction. If the vehicle speed is lower than the set speed, the ECM activates the throttle motor in the throttle opening direction.
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 or more) with the main switch turned on, the ECM 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. 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. However, the set speed in the memory is kept.
Accelerator Control	• On the models with the 1KD-FTV engine, when the cruise control switch is kept pushed to the RES/+ side while the vehicle is running in the cruise control mode, the ECM increases the injection volume by regulating the EDU. As the vehicle continues to accelerate, the ECM stores the vehicle speed at the time the driver's hand is released from the cruise control switch. From then on, the ECM continues to control the vehicle at that speed. • On the models with 1GR-FE engine, when the driver keeps the cruise control switch pushed to the RES/+ side while the vehicle is running in cruise control mode, the system accelerates the engine in the following manner: The system actuates the throttle control motor in the direction to open the throttle. As the vehicle continues to accelerate, the ECM stores the vehicle speed at the time the driver's hand is released from the cruise control switch. From then on, the ECM 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, the set speed can be increased approx. 1.6 km/h each time by operating the cruise control switch to the RES/+ side quickly within approx. 0.6 seconds.
Coast Control	When the cruise control switch is kept pushed to the SET/- side while running in the cruise control mode, the ECM decreases the injection volume by regulating the EDU on the models with the 1KD-FTV engine, or by energizing the throttle control motor in the throttle closing direction on the models with 1GR-FE engine. As the vehicle keeps decelerating, the ECM stores the vehicle speed at the time the hand is released from the cruise control switch. From then on, the ECM controls the vehicle speed at that speed constantly.
Tap-down Control	When the difference between the actual vehicle speed and the set speed is less than 5 km/h, the set speed can be lowered approx. 1.6 km/h each time by operating the cruise control switch to the SET/- side quickly within approx. 0.6 seconds.

(Continued)

Function	Outline
Resume Control	If cruise control mode is cancelled for any reason other than a malfunction or main switch operation and vehicle speed is more than the low speed limit, the vehicle speed is returned to the speed before the cancellation of cruise operation by setting the cruise control switch to the RES/+ side. The cruise control mode can be resumed even if the vehicle speed drops the low speed limit, because the speed in the memory is not cleared.
Manual Cancel Control	If any of the following signals is sent to the ECM while the vehicle is running in cruise control mode, cruise control mode is cancelled accordingly. • Stop light switch ON signal (Depress the brake pedal) • Clutch start switch OFF signal (Depress the clutch pedal/for manual transmission models) • D position circuit in neutral start switch OFF signal (for automatic transmission Models) The shift lever is moved from D or 4 to N, 3, 2, or L*1 The shift lever is moved from D or 3 to N, 2, or L*2 • CANCEL switch ON signal • Main switch OFF signal
Automatic Cancel Control	When any of the following conditions occurs 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
	When any of the following conditions occurs 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 is turned OFF, and the operation of the cruise control is restricted until these malfunctions are resolved. • ETCS-i malfunction*1 • Common-rail fuel injection system abnormal*2
	When any of the following conditions occurs 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 • Microcomputer in ECM abnormal*2
	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) .The set speed in the memory is maintained. • The vehicle speed drops more than 16 km/h below the set speed as uphill driving. The set speed in the memory is cleared.

(Continued)

*1: Models with 1GR-FE engine

*2: Models with 1KD-FTV engine

Function	Outline
Shift-down Control	When the vehicle is cruising uphill, shift-down control may be performed by the ECT (Electronic Control Transmission). The ECM permits the ECT ECU to shift up when the ECM judges the end of cruising uphill based on the throttle valve angle. If shift-down control is performed during accelerator or resume control, the ECM permits the ECT ECU to shift up after accelerator or resume control is completed.
Diagnosis	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) by a malfunction in the cruise control switch, stop light switch or vehicle speed signal, the ECM immediately blinks the CRUISE main indicator light on the combination meter on and off to alert the driver of the system malfunction. The contents of malfunctions are coded and stored in the ECM.

■ DIAGNOSIS

- 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) by a malfunction in the cruise control switch, stop light switch or vehicle speed signal, the ECM 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 ECM.
- An intelligent tester II can be used to read 5-digit codes. For details, see the Fortuner/Hilux SW4 Repair Manual.

*: Models with 1KD-FTV engine