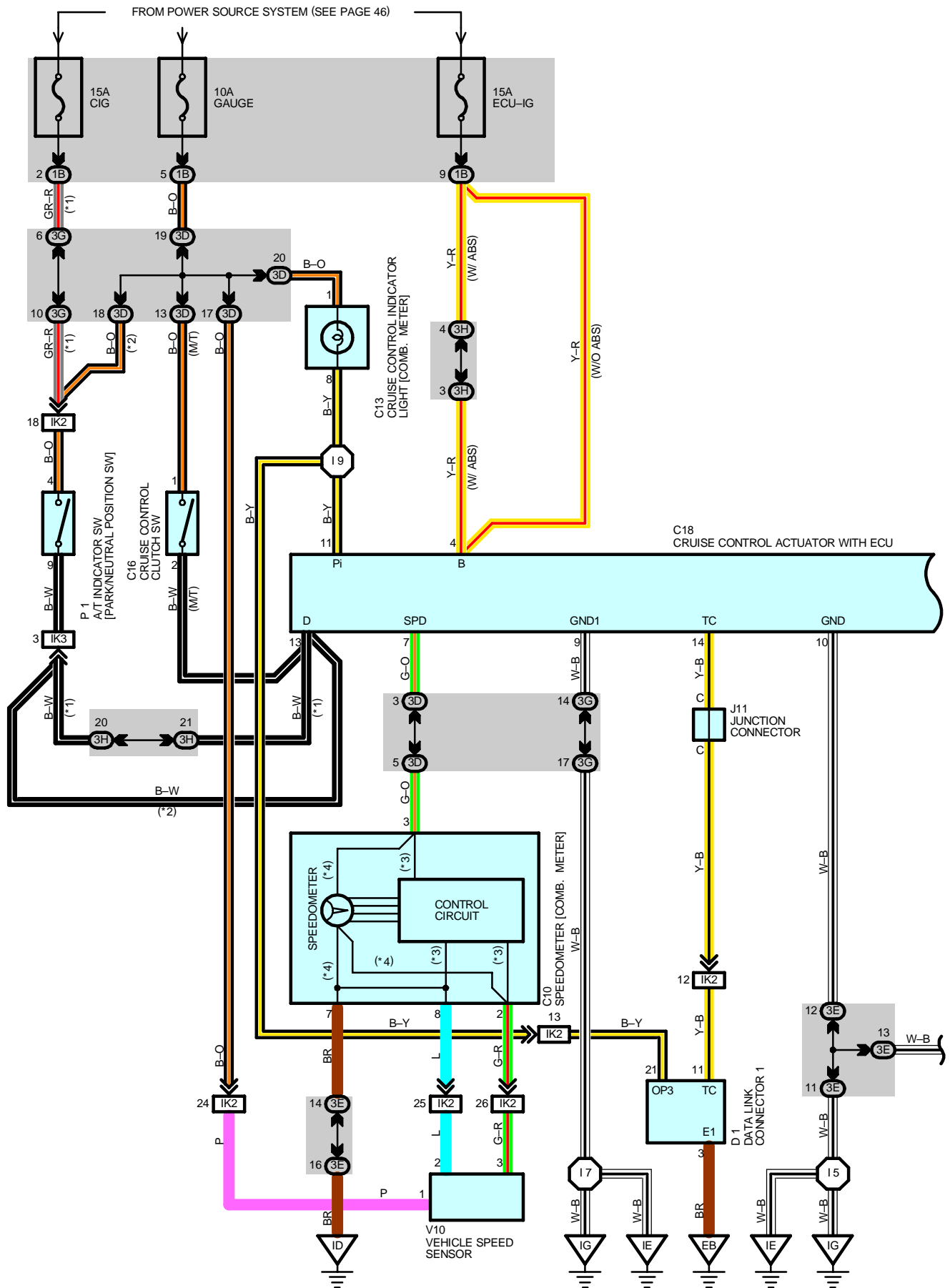


# CRUISE CONTROL (5VZ-FE)





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## SYSTEM OUTLINE

The current from the STOP fuse to TERMINAL 3 of the stop light SW to TERMINAL 4 to TERMINAL L of the cruise control actuator with ECU and to TERMINAL 2 of the stop light SW.

Turning the ignition SW on, current flows through the GAUGE fuse to TERMINAL 1 of the cruise control indicator light. The current flowing through the ECU-IG fuse flows to TERMINAL B of the cruise control actuator with ECU.

When turning the ignition SW and cruise control main SW on, a signal will be input from TERMINAL 5 of the cruise control SW to TERMINAL CMS of the cruise control actuator with ECU. With this operation, the cruise control actuator with ECU will operate and the current loaded on TERMINAL B of the cruise control actuator with ECU flows through TERMINAL GND of the cruise control actuator with ECU to GROUND and the cruise control system will become ready to operate. Simultaneously, the current flowing through the GAUGE fuse flows through TERMINAL 1 of the cruise control indicator light to TERMINAL 8 to TERMINAL Pi of the cruise control actuator with ECU to TERMINAL GND to GROUND, and cruise control indicator light comes on and indicate that the cruise control is ready to operate.

Cruise control actuator with ECU will input the signals from the vehicle speed sensor and each switch and process them according to the program memorized advance and output the control signal to the magnet clutch and motor of the actuator in the cruise control actuator with ECU and the engine control module.

### 1. SET CONTROL

When running vehicle speed is within the set rate (About 40 km/h, 25 mph 200 km/h, 124 mph), turning the cruise control main SW on and pressing the set SW, the signal will be input to the TERMINAL CCS of the cruise control actuator with ECU, and the cruise control actuator with ECU will memorize the vehicle speed as the set vehicle speed at the time of releasing hands from set SW.

### 2. SET SPEED CONTROL

During cruise control driving, the cruise control actuator with ECU compares this memorized vehicle speed with running vehicle speed input from the speedometer to TERMINAL SPD of the cruise control actuator with ECU, and in order to hold the set vehicle speed, it controls the actuator inside the cruise control actuator with ECU.

Comparing the memorized vehicle speed with running vehicle speed, in case that the running vehicle speed is higher than the memorized vehicle speed, the cruise control actuator with ECU turns the throttle valve to close.

Turning the actuator motor, in the case that the running vehicle speed is lower than the memorized vehicle speed, the cruise control actuator with ECU turns the throttle valve to open and outputs the signal to turn the actuator motor.

### 3. COAST CONTROL

During cruise control driving, while the coast SW is on, the cruise control actuator returns the throttle cable to close the throttle valve and decrease the driving speed. The vehicle speed when the coast SW is turned off is memorized and the vehicle continues at the new set speed.

### 4. ACCEL CONTROL

During cruise control driving, while the accel SW is turned on, the cruise control actuator pulls the throttle cable to open the throttle valve and increase the driving speed.

The vehicle speed when the accel SW is turned off is memorized and the vehicle continues at the new set speed.

### 5. RESUME CONTROL

After canceling with the cancel SW during the normal speed driving, if the vehicle speed is less than the low speed limit (40 km/h, 25 mph), by turning the resume SW on, it causes to return to the set vehicle speed before canceling.

### 6. MANUAL CANCEL CONTROL

If any of the following operation during cruise control driving, the motor safety magnet clutch of the actuator will turn off and the motor will turn to the direction to close the throttle valve and the cruise control will be canceled.

- \* Move the shift lever except to D range. (Park/Neutral position SW is off.)(A/T) "A signal is not input to TERMINAL D of the cruise control actuator with ECU."
- \* Pressing the clutch pedal. (Cruise control clutch SW is off.)(M/T) "A signal is not input to TERMINAL D of the cruise control actuator with ECU."
- \* Pressing the brake pedal. (Stop light SW is on.) "A signal is input to TERMINAL STP- of the cruise control actuator with ECU."
- \* Pressing cancel SW. (Cancel SW is on.) "A signal is input to TERMINAL CCS of the cruise control actuator with ECU."

## 7. AUTO CANCEL AND CUTTING OFF THE POWER OF THE ACTUATOR

A) During cruise control driving, in the case that the vehicle has become the following condition, delete the memorized vehicle speed and cancel the cruise control. At the same time, until turning the main SW on next time, the cruise control indicator light is flashing and will inhibit committing the main SW until turning the ignition SW on again.

- \* When the motor inside the cruise control actuator with ECU does not operate.
- \* When the driving circuit of the motor inside the cruise control actuator with ECU is short or open

B) During cruise control driving, in the case that the vehicle has become the following condition, delete the memorized vehicle speed and cancel the control. At the same time, until turning the main SW on next time, the cruise control indicator light is flashing and will inhibit the control until turning the main SW on again.

- \* When the magnet clutch system (Safety magnetic clutch) is short.
- \* When the magnet clutch system (Safety magnetic clutch) has a wire break, (including the wire break of STOP fuse)
- \* When the vehicle speed signal will not be input.
- \* When each signal inside the cruise control SW has grounding short.

C) During cruise control driving, in case that the vehicle comes into the following condition, delete the memorized vehicle speed and cancel the control reset is possible.

- \* When running speed has become less than the lowest limit (approx. 40 km/h, 25 mph) of the possible range of the speed setting.

## 8. AUTOMATIC TRANSMISSION CONTROL FUNCTION

\* During cruise control driving and when running speed has become the overdrive cut vehicle speed or less (Memorized vehicle speed 4 km/h, 2.5 mph) on a climbing lane and the likes, overdrive will be canceled promptly. This function works to increase the driving ability of the vehicle and makes the drop of vehicle speed small.

\* After canceling the overdrive, in case that driving speed has become the overdrive returning speed (Memorized vehicle speed 2 km/h, 1.2 mph) or more and also judges that climbing was over, return it to the overdrive condition after the overdrive return timer has been through.

### SERVICE HINTS

#### C18 CRUISE CONTROL ACTUATOR WITH ECU

- 7-GROUND : 4 pulse with 1 rotation of the rotor shaft
- 6-GROUND : Approx. 12 volts with brake pedal depressed
- 4-GROUND : Approx. 12 volts with ignition SW at **ON** position
- 10-GROUND : Always continuity
- 9-GROUND : Always continuity

#### C19 CRUISE CONTROL SW [COMB. SW]

- 5-3 : Closed with MAIN SW on
- 4-3 : Approx. 68 Ω with RESUME/ACCEL SW on  
Approx. 198 Ω with SET/COAST SW on  
Approx. 418 Ω with CANCEL SW on

### : PARTS LOCATION

Code	See Page	Code	See Page	Code	See Page
C10	32	C19	32	J11	33
C13	32	D1	28 (5VZ-FE)	P1	29 (5VZ-FE)
C16	32	E5	A 33	S5	33
C18	28 (5VZ-FE)	E8	D 33	V10	29 (5VZ-FE)

### : RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
2	21	R/B No.2 (Engine Compartment Left)

## CRUISE CONTROL (5VZ-FE)



### : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1B	22	Cowl Wire and J/B No.1 (Lower Finish Panel)
3C	24	Cowl Wire and J/B No.3 (Behind the Instrument Panel Left)
3D		
3E		
3F		
3G	26	Cowl Wire and J/B No.3 (Behind the Instrument Panel Center)
3H		



### : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IF1	40	Engine Room Main Wire and Cowl Wire (Left Kick Panel)
IK2	40	Engine Wire and Cowl Wire (Right Kick Panel)
IK3		



### : GROUND POINTS

Code	See Page	Ground Points Location
EB	36 (5VZ-FE)	Under the Data Link Connector 1
ID	40	Left Kick Panel
IE	40	Around the Right Edge of the Reinforcement
IG	40	Around the Left Edge of the Reinforcement



### : SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
I5	40	Cowl Wire	I9	40	Cowl Wire
I7					

