

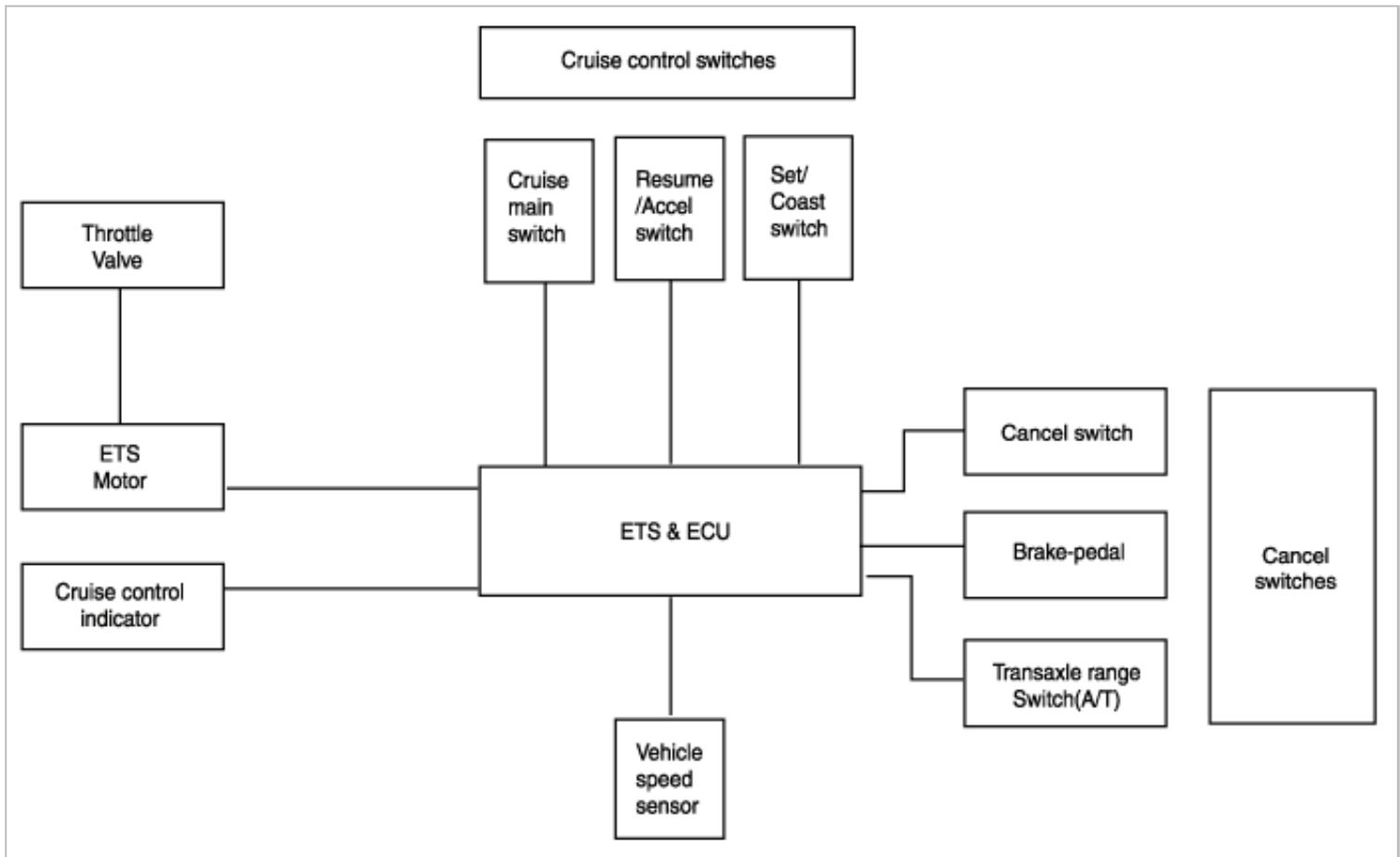


Engine Electrical System

Cruise Control System



SYSTEM BLOCK DIAGRAM



COMPONENT PARTS AND FUNCTION OUTLINE

Component part		Function
Vehicle-speed sensor		Converts vehicle speed to pulse.
Engine control module (ECM)		Receives signals from sensor and control switches;
Cruise control indicator		Illuminate when CRUISE main switch is ON (Built into cluster)
Cruise Control switches	CRUISE main switch	Switch for automatic speed control power supply.
	Resume/Accel switch	Controls automatic speed control functions by Resume/Accel switch (Set/Coast switch)
	Set/Coast switch	
Cancel switch	Cancel switch	Sends cancel signals to ECM
	Brake-pedal switch	
	Transaxle range switch (A/T)	
	Clutch switch (M/T)	
ETS motor		Regulates the throttle valve to the set opening by ECM.

* ETS : Electronic Throttle System

CRUISE CONTROL

Cruise control system is engaged by "ON/OFF" main switch located on right of steering wheel column. System has the capability to cruise, coast, resume speed, and accelerate, and raise "tab-up" or lower "tab-down" set speed.

It also has a safety interrupt, engaged upon depressing brake or shifting select lever.

ECM is a speed control system that maintains a required vehicle speed at normal driving conditions.

The main components of cruise control system are mode control switches, transaxle range switch, brake switch,

vehicle speed sensor, ECM and ETS motor that connect throttle body.

ECM contains a low speed limit which will prevent system engagement below a minimum speed of 40km/h (25mph).

The operation of the controller is controlled by mode control switches located on steering wheel.

Transaxle range switch and brake switch are provided to disengage the cruise control system. The switches are on brake pedal bracket and transaxle. When the brake pedal is depressed or select lever shifted, the cruise control system is electrically disengaged and the throttle is returned to the idle position.

Cruise main switch

Cruise control system is engaged by pressing "ON/OFF" push button. Releasing "ON/OFF" push button release throttle, clears cruise memory speed, and puts vehicle in a non-cruise mode.

Coast/Set switch

COAST/SET switch located on right of steering wheel column has two positions - "Normal" and "Depressed". The set position - With COAST/SET switch depressed and then released the cruise speed will be set at the speed the vehicle was going when COAST/SET switch was released. The coast position - With COAST/SET switch fully depressed, driver can lower cruise speed. To decrease cruise speed, COAST/SET switch is held in, disengaging cruise control system. When vehicle has slowed to required cruise speed, releasing COAST/SET switch will re-engage speed at new selected speed.

The tab down - To lower vehicle speed, cruise must be engaged and operating. Tab down is done by quickly pressing and releasing COAST/SET switch. Do not hold COAST/SET switch in depressed position.

Tab down is a function which will cause the cruise control 's speed of vehicle to decrease by 1 mph (1.6km/h)

Resume/Accel switch

RES/ACCEL switch located on right of steering wheel column has two positions - "Normal" and "Depressed".

The resume position - With RES/ACCEL switch depressed and then release, this switch also returns cruise control operation to last speed (Which is temporarily disengaged by Cancel switch or Brake pedal), setting when momentarily operating RES/ACCEL switch by constant acceleration.

The accel position - With RES/ACCEL switch depressed and held in, disengaging cruise control system, when vehicle has accelerated to required cruise speed, releasing RES/ACCEL switch will re-engage speed at new selected speed.

The tab up - To increase vehicle speed, the cruise must be engaged and operating.

Tab up is done by quickly pressing and releasing RES/ACCEL switch less than 0.5 second. Do not hold RES/ACCEL switch in depressed position. Tab up is a function in which cruise speed can be increased by 1mph (1.6km/h).

Cancel switch

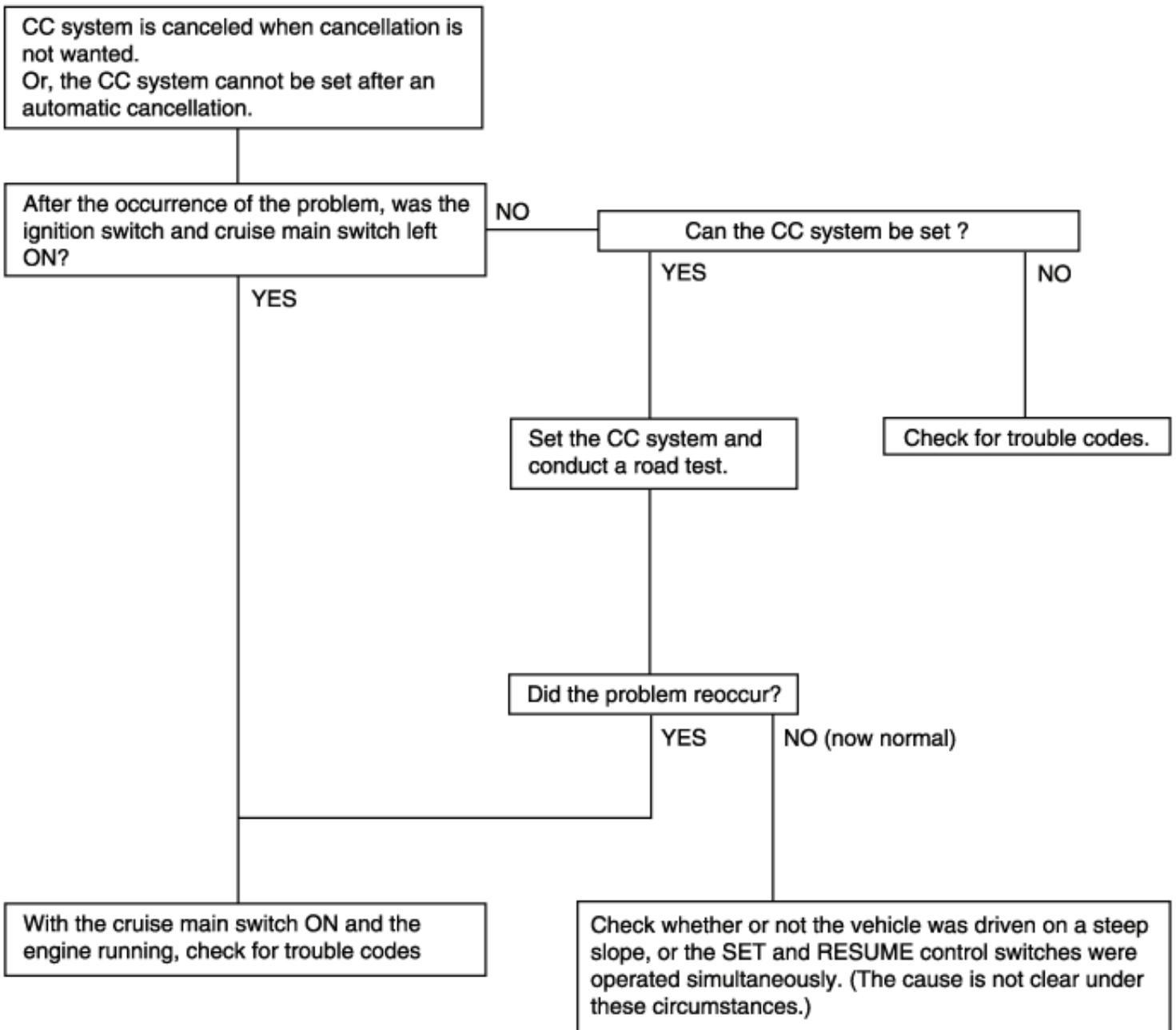
Cruise control system is temporarily disengaged by pressing "CANCEL" switch.

Cruise speed canceled by this switch will be recovered by RES/ACCEL switch



TROUBLE SYMPTOM CHARTS

TROUBLE SYMPTOM 1



CC : Cruise Control
ECU : Engine Control Unit

TROUBLE SYMPTOM 2

Trouble symptom	Probable cause	Remedy
The set vehicle speed varies greatly upward or downward "Surging" (repeated alternating acceleration and deceleration) occurs after setting	Malfunction of the vehicle speed sensor circuit	Repair the vehicle speed sensor system, or replace the part
	Malfunction of ECM	Check input and output signals at ECM

TROUBLE SYMPTOM 3

Trouble symptom	Probable cause	Remedy
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The CC system is not canceled when the brake pedal is depressed	Damaged or disconnected wiring of the brake pedal switch	Repair the harness or replace the brake pedal switch
	Malfunction of the ECM signals	Check input and output signals at ECM

TROUBLE SYMPTOM 4

Trouble symptom	Probable cause	Remedy
The CC system is not canceled when the shift lever is moved to the "N" position (It is canceled, however, when the brake pedal is depressed)	Damaged or disconnected wiring of inhibitor switch input circuit	Repair the harness or repair or replace the inhibitor switch
	Improper adjustment of inhibitor switch	
	Malfunction of the ECM signals	Check input and output signals at ECM

TROUBLE SYMPTOM 5

Trouble symptom	Probable cause	Remedy
Cannot decelerate (coast) by using the SET switch	Temporary damaged or disconnected wiring of SET switch input circuit	Repair the harness or replace the SET switch
	Malfunction of the ECM signals	Check input and output signals at ECM

TROUBLE SYMPTOM 6

Trouble symptom	Probable cause	Remedy
Cannot accelerate or resume speed by using the RESUME switch	Damaged or disconnected wiring, or short circuit, or RESUME switch input circuit	Repair the harness or replace the RESUME switch
	Malfunction of the ECM signals	Check input and output signals at ECM

TROUBLE SYMPTOM 7

Trouble symptom	Probable cause	Remedy
CC system can be set while driving at a vehicle speed of less than 40km/h (25mph), or there is no automatic cancellation at that speed	Malfunction of the vehicle-speed sensor circuit	Repair the vehicle speed sensor system, or replace the part
	Malfunction of the ECM signals	Check input and output signals at ECM

TROUBLE SYMPTOM 8

Trouble symptom	Probable cause	Remedy
The cruise main switch indicator lamp does not illuminate (But CC system is normal)	Damaged or disconnected bulb of cruise main switch indicator lamp	Repair the harness or replace the part.
	Harness damaged or disconnected	

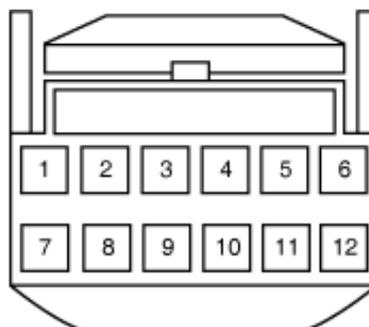
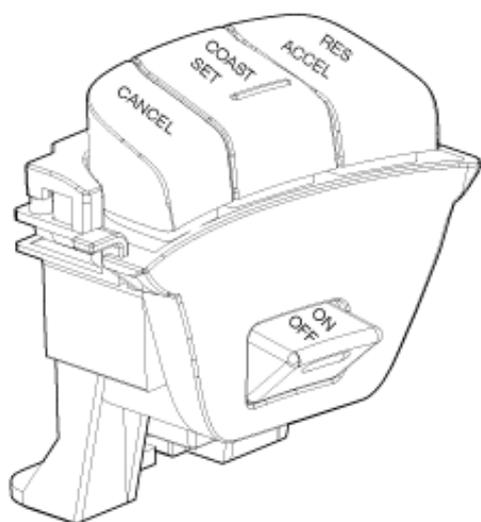


Engine Electrical System

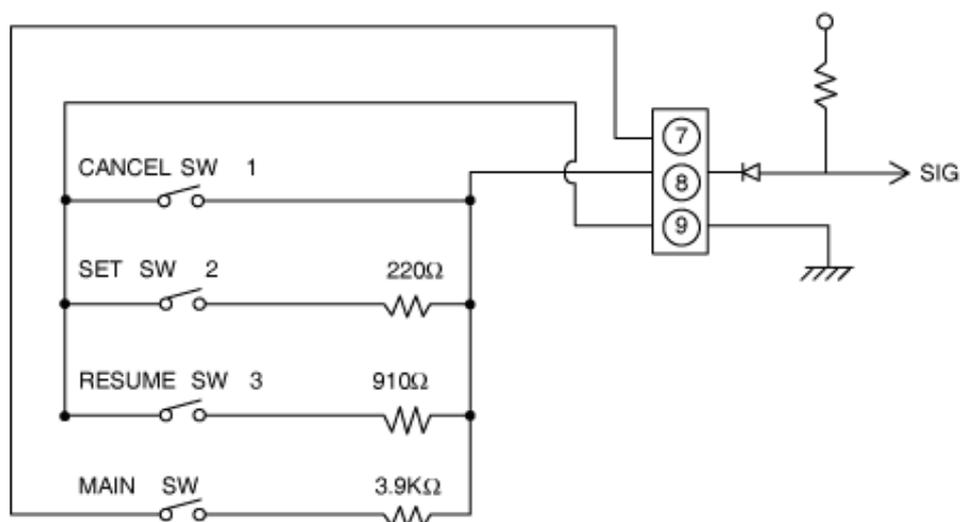
Cruise Control System - Cruise Control
Switch



CIRCUIT DIAGRAM



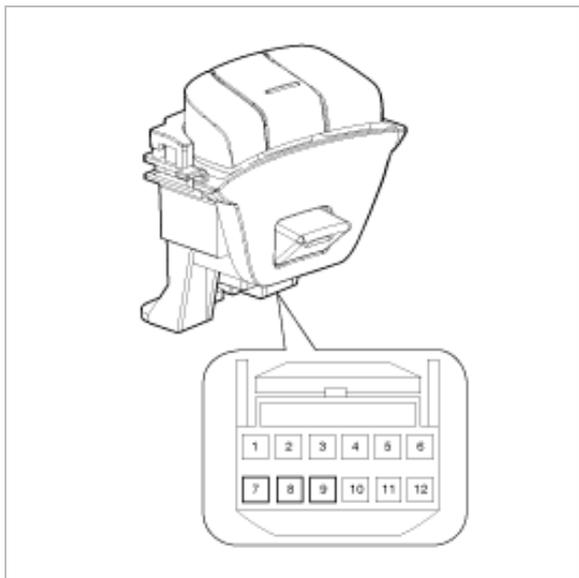
SW	T	FUNCTION	OHM	OUT PUT VOLTAGE
1		CRUISE MAIN	3.9kΩ ±%	-
2		CANCEL	0 Ω ±%	0V ±0.25V
3		SET/COAST	220 Ω ±1%	1.5V ±0.25V
4		RESUME/ACCEL	910 Ω ±1%	3.0V ±0.25V





MEASURING RESISTANCE

1. Disconnect the cruise control switch connector from the control switch.



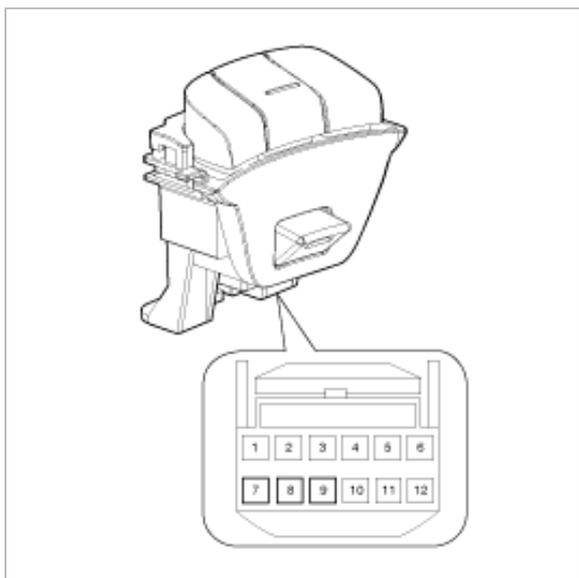
2. Measure resistance between terminals on the control switch when each function switch is ON (switch is depressed).

Function switch	Terminal	Resistance
Cruise Main	7-9	3.9k Ω \pm 1%
Cancel	8-9	0 Ω \pm 1%
Set/Coast	8-9	220 Ω \pm 1%
Resume/Accel	8-9	910 Ω \pm 1%

3. If not within specification, replace switch.

MEASURING VOLTAGE

1. Connect the cruise control switch connector to the control switch.



2. Measure voltage between terminals on the harness side connector when each function switch is ON (switch is depressed).

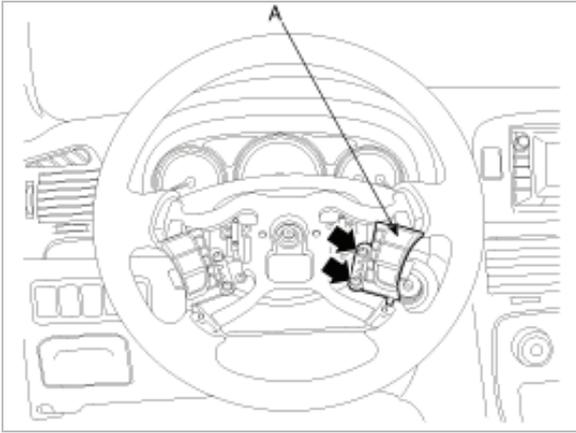
Function switch	Terminal	Voltage
Cruise Main	7-9	-

Cancel	8-9	0.0V ± 0.25V
Set/Coast	8-9	1.5V ± 0.25V
Resume/Accel	8-9	3.0V ± 0.25V

3. If not within specification, replace switch.

REMOVAL

1. Disconnect the battery (-) terminal.
2. Remove the driver side air bag module. (Refer to RT GR.)
3. Disconnect the cruise control switch connector and then remove the cruise control switch(A) with two screws.



4. Installation is the reverse of removal.