GENERAL INFORMATION

1. SPECIFICATIONS OF RK - STICS

1) Electrical Performance

Item	Requirement	Remark
Rated voltage	DC 12 V	
Operating voltage	DC 9 to 16 V	Should operate normally within this range.
Operating temperature	-30℃ ~ +80℃	
Reserved temperature	-40°C ~ +85°C	
Max. operating humidity	95%	
Resistible voltage	24 V	
Insulating resistance	No heat and fire due to the current leaks.	Confined with PCB, waterproof and coating that requires the insulation.
Parasitic current	below 4.0 mA (below 6.0 mA)	IGN = OFF, Full output load = OFF, 90 seconds (after received the signals), No input changes for 2 seconds
Voltage drop	below 1.2 V below 2.0 V	Pin no. 8 and 2, 3, 5, 7, 10, 12, 13, 15, 19, 20, 23, 40, 47, 51, 53, 54 Pin no. 8 and 1, 14

2) Chattering of Input Signals

1. Vehicle speed input:

The vehicle speed calculating time is 1.0 seconds. The elapsed time of 1.5 seconds after IGN 1 switch :ON" is not included.

2. 20 ms target input:

Wiper motor A/S (parking) terminal

3. 100 ms target input switch

All switches except wiper motor A/S (parking) terminal

3) Time Tolerance

1. If not indicated, time tolerance will be \pm 10%. However, if less than 500 ms, time tolerance will be \pm 50 ms.

2. The time indicated in each function does not include chattering processing time from switch input changing point.

Modification basis	
Application basis	
Affected VIN	

4) Input Signals Of Rk Stics

1	IGN 1	ON = BAT (IGN "ON" or "START")	BAT = Battery
2	IGN 2	ON = BAT (IGN "ON")	
3	ALT_D	ON = BAT equivalent (engine running)	
4	Key reminder (door ajar warning switch)	IGN = BAT (Key in)	
5	Driver's door switch	OPEN = GND	
6	Passenger's door switch	OPEN = GND	
7	Rear door switch	OPEN (one of rear seat) = GND	
		CLOSE (one of rear seat) = OPEN	
8	Tailgate switch	OPEN = GND	
9	Central door lock switch	ON = GND	
10	Central door unlock switch	ON = GND	
11	Driver's door lock/unlock switch	LOCK = OPEN, UNLOCK = GND	
	Passenger's door lock/unlock switch	LOCK = OPEN, UNLOCK = GND	
12	Rear door lock/unlock switch	UNLOCK (one of rear seat) = GND	
		LOCK (one of rear seat) = OPEN	
13	Tailgate lock/unlock switch	LOCK = OPEN, UNLOCK = GND	
-	-	-	
-	-	-	
16	Hood switch	OPEN = GND	
17	Tailgate switch	ON = GND	
18	Defogger switch	ON = GND	
19	Seat belt switch	Fastened = OPEN, Unfastened = GND	
20	Parking brake switch	ON = GND (applied)	
21	Washer switch	ON = GND	
22	Intermittent switch	ON = GND	
23	Intermittent volume	$0 \Omega \sim 50 k\Omega$ (for intermittent wiper)	
24	Wiper motor (parking)	ON = GND	
25	Rain sensor unit input	ON = GND (during sending from rain sensor)	
26	Rain sensor unit output	ON = GND (during sending from RK STICS)	
27	Hazard warning flasher selection switch	ON = GND	
28	Collision sensor	ON = 200 ms output (LOW)	
29	Speed sensor	Vehicle speed signal (OPEN COLLECTOR)	
30	Coding	ON = BAT	
31	SCAN	ON = BAT (during Installation or communication)	

STICS **RODIUS 2013.02**

Modification basis	
Application basis	
Affected VIN	

OVERVIEW AND OPERATION PROCESS

The remote engine control function has been deleted in this model.

1. COMPONENTS



STICS / ICM module

RK STICS



ICM module



This module contains various relays, chime and buzzer controlled by STICS

Theft deterrent horn



Installed under the battery. This horn works only for the theft deterrent function, panic function, and remote starting.

Air bag ECU

8710-01



Sends the vehicle collision signals to STICS.

SCAN-tool



SIW is used for REKES key coding and trouble diagnosis.

REKES



Added the escort and panic function

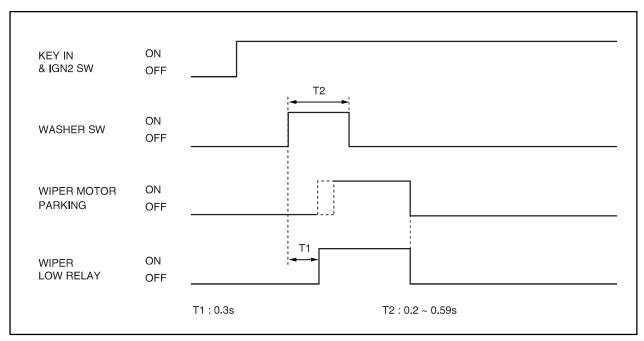
Modification basis	
Application basis	
Affected VIN	

2. FUNCTIONS OF RK STICS

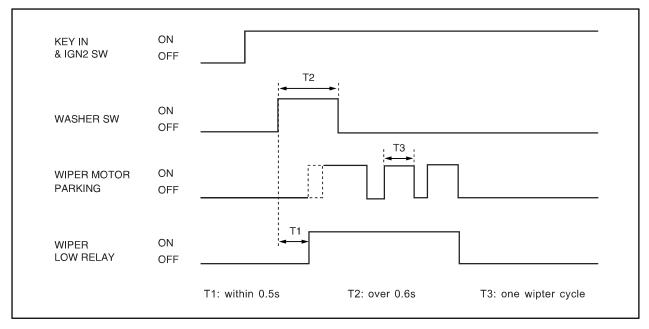
1) Wiper Control

(1) Wiper MIST and Washer Coupled Wiper

1. The wiper relay is turned on 0.3 seconds (T1) after turning "ON" the washer switch for 0.2 ~ 0.59 seconds (T2) with the ignition key "ON", and it is turned off when the parking terminal is turned off.



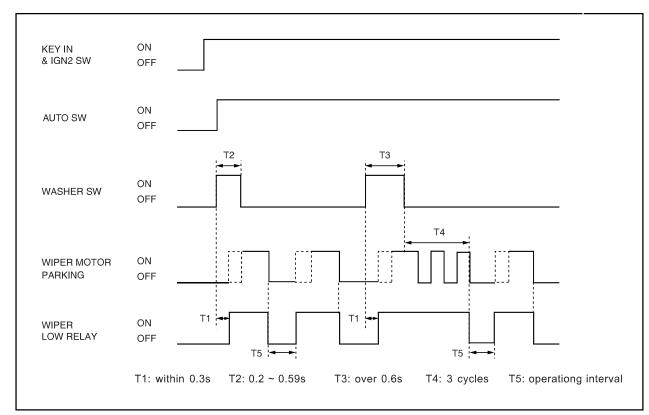
2. The wiper relay is turned on 0.3 seconds (T1) after turning "ON" the washer switch over 0.6 seconds (T2) with the ignition key "ON", and it is turned on three times immediately after turning off the washer switch.



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Application basis	
Affected VIN	

3. If the washer operating signal is inputted while the wipers are operating in intermittent or AUTO mode, the system stores the previous intermittent interval and operates the washer coupled wiper. After then, the wiper operation returns back to intermittent or AUTO mode with the stored operating interval.



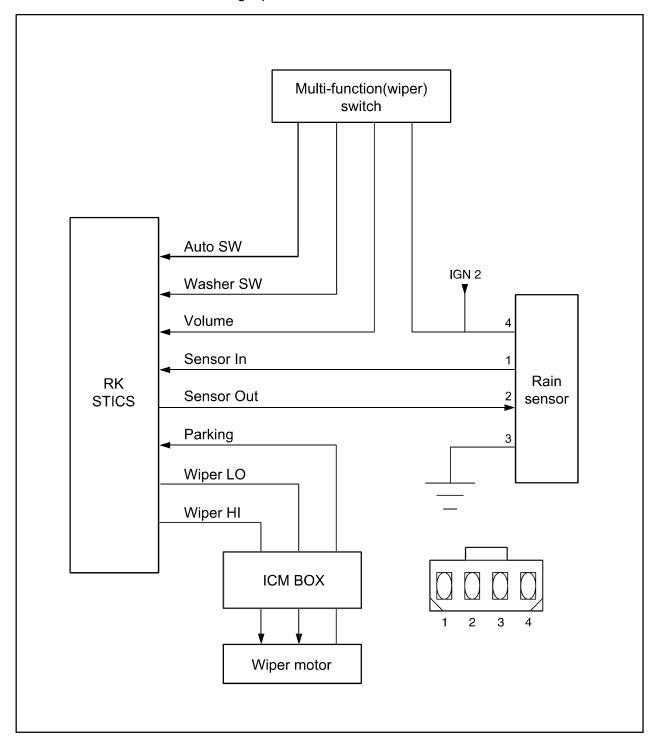
RODIUS 2013.02

(2) Rain Sensor Coupled Wiper

► System layout

This vehicle has a different wiper control logic compared to other models. As shown in the system diagram, the rain sensor unit does not control wiper directly. The rain sensor unit sends infrared rays signal through LED and then receives it with photo diode and then sends the returned signal to STICS and the STICS controls the wipers directly.

For more details, refer to rain sensing wiper section in this manual.



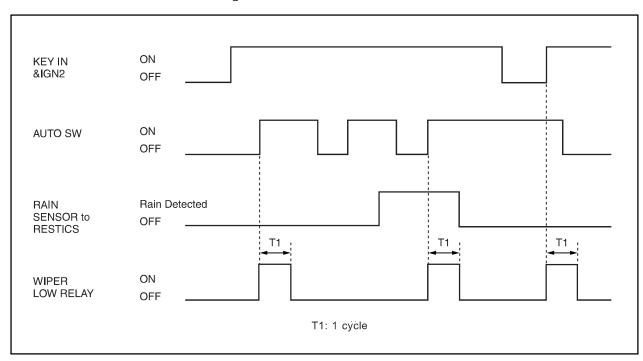
STICS

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Modification basis	
Application basis	
Affected VIN	

► Rain sensing operation point

- 1) The wiper relay is turned on and the wiper motor runs one cycle when the ignition key is turned to "ON" position (while the wiper switch is in "AUTO" position).
- 2) The wiper relay (LO) is turned on and the wiper motor runs one cycle when changing the wiper switch to "AUTO" position from any other positions (while the ignition key is in "ON" position). When the wiper switch is turned to "AUTO" position again from other positions, the system drives the wiper relay (LO) to run the wiper motor one cycle only when the rain sensor detects the "Rain Detected" signal.

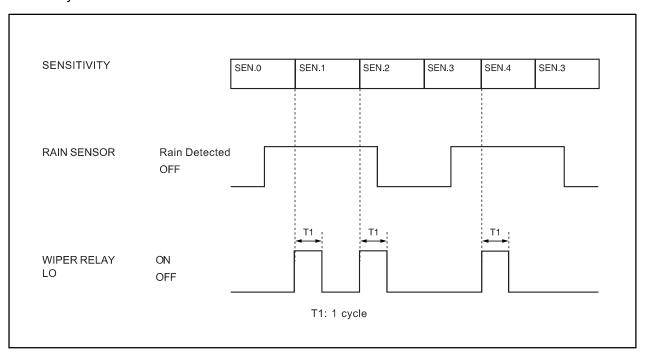


Modification basis	
Application basis	
Affected VIN	

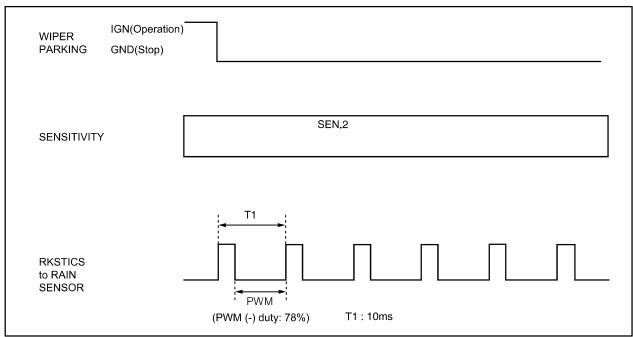
► Rain sensing sensitivity control

The wiper relay is turned on and the wiper motor runs one cycle when the volume sensitivity is increased (ex: from 0 to 1) (while the ignition key is in "ON" position, the wiper switch is in "AUTO" position, and the wiper motor is in "Parked" position). However, the wiper motor can be operated only when the rain sensor detects the "Rain Detected" signal.

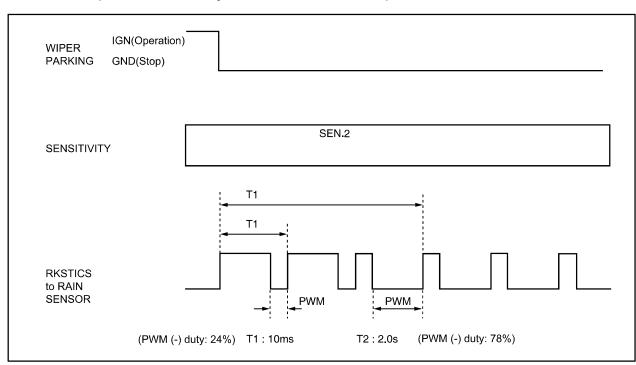
* If the volume sensitivity is changed more than 2 stages within 2 seconds, the wiper motor runs only one cycle.



- ▶ Wiper operation when the wiper parking terminal is grounded
- 1) The wiper system continuously outputs the parking signal of current sensitivity when the parking terminal is grounded (while the ignition key is in "ON" position and the wiper switch is in "AUTO" position).
 - * The wiper motor runs only when the rain sensor requires.



- 2) When the parking terminal is fixed to IGN (HIGH), the wiper system outputs the operating signal of current sensitivity for 2 seconds, then continuously outputs the parking signal of current sensitivity.
 - * The wiper motor runs only when the rain sensor requires.



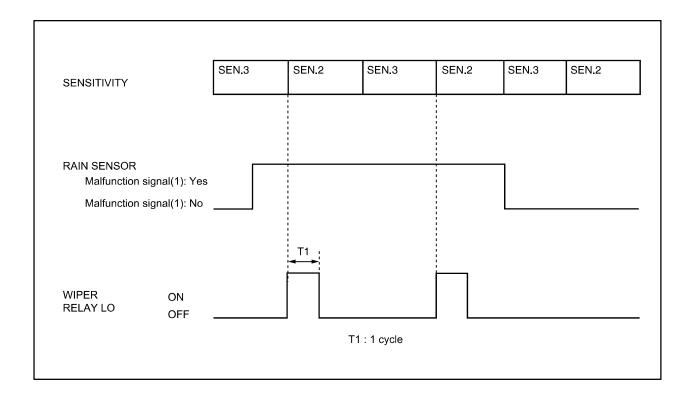
Modification basis	
Application basis	
Affected VIN	

▶ Defective rain sensor

1) The wiper relay (LO) is turned on and the wiper motor runs one cycle when the wiper sensitivity is changed to 2 from 3 during receiving the malfunction signal (1) from the rain sensor. However, the wiper motor can be operated only when the rain sensor detects the "Rain Detected" signal.

🕹 NOTE

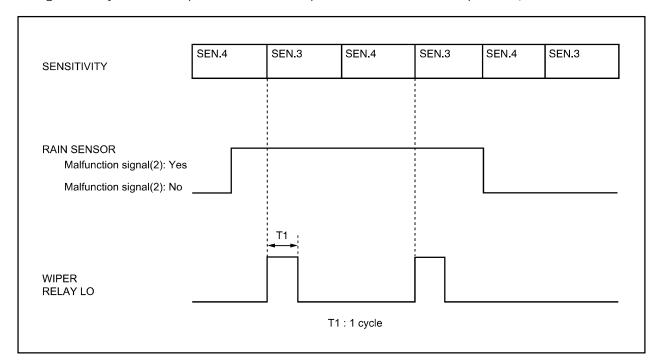
If the volume sensitivity is changed more than 2 stages within 2 seconds, the wiper motor runs only one cycle.



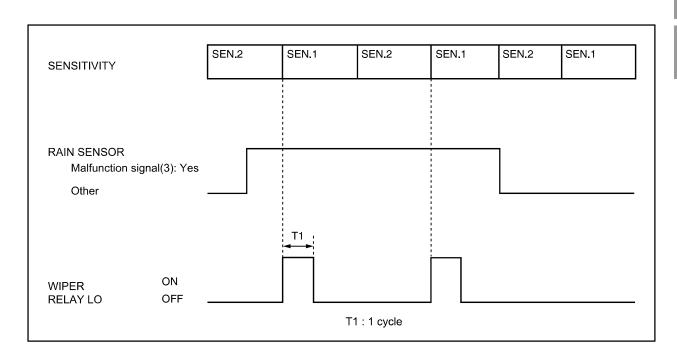
Modification basis	
Application basis	
Affected VIN	

FUSE

2) The wiper relay (LO) is turned on and the wiper motor runs one cycle when the wiper sensitivity is changed to 3 from 4 during receiving the malfunction signal (2) from the rain sensor (while the ignition key is in "ON" position and the wiper switch is in "AUTO" position).



3) The wiper relay (LO) is turned on and the wiper motor runs one cycle when the wiper sensitivity is changed to 2 from 1 during receiving the malfunction signal (3) from the rain sensor (while the ignition key is in "ON" position and the wiper switch is in "AUTO" position). Also, the wiper relay (LO) is turned on and the wiper motor runs one cycle when the wiper sensitivity is changed to 2 from 1 during receiving the ground fixed or IGN fixed signal from the rain sensor.



Modification basis	
Application basis	
Affected VIN	

► Speed Sensitive INT (Intermittent) Wiper

For STICS without rain sensor, perform the following operation:

- 1. Controls the wiper intermittent operation by the values from vehicle speed and volume.
 - Calculates and converts the Intermittent interval automatically by using the vehicle speed and INT VOLUME when the ignition switch is in "ON" position and the INT switch is in "ON" position (the engine is running).
 - The wipers are operated in vehicle speed sensitive mode when turning the INT switch to "ON" position with the engine running or starting the engine with the INT switch positioned "ON".
 - Intermittent interval (at 0 km/h): 3 \pm 0.5 \sim 19 \pm 2 seconds

2. Vehicle speed calculation

[Input the vehicle speed]

It is calculated by the numbers of input pulses for one second.

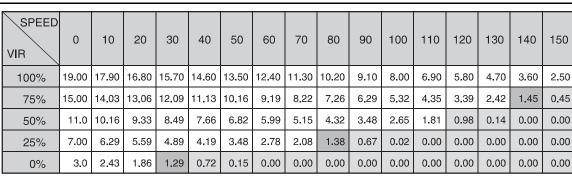
1 [pulses/sec] = $60 \text{ [km/h] } \times 60 \text{ [sec]} / 637 \text{ pulses} = 1.41 \text{ [km/h]}$

3. VOLUME calculation

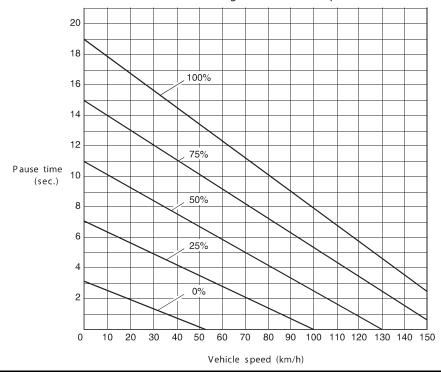
- Calculates the INT VOLUME with 5 grades as shown in the table in next page.

4. Pause time calculation

- Pause time: the duration that wipers are stopped at parking position
- Elapsed time: the duration after the wiper motor started to operate from parking position
- The pause time is calculated by the vehicle speed and VOLUME value as shown in the table in next page.
 - · If the pause time is below 1.0 second, the wipers operate without pause.
 - · If the pause time is over 1.5 seconds, the wipers operate intermittently.



Pause time against vehicle speed



A CAUTION

(1) Wiper MIST and washer coupled wiper

- 1) When turning on the washer switch while the wiper relay is operating.
 - If the wiper relay "ON" request time is shorter than the remained "ON" time, it is disregarded.

(2) Speed sensitive INT (intermittent) wiper

- 1) The wiper relay continues to output for remaining "ON" time even when the INT switch is turned off.
- 2) IGN 2 switch "ON", INT switch "OFF": resume the intermittent time when turning "ON
- 3) IGN 2 switch "OFF", INT switch "ON": resume the intermittent time when turning "ON

(3) Controls when the wiper motor parking is defective

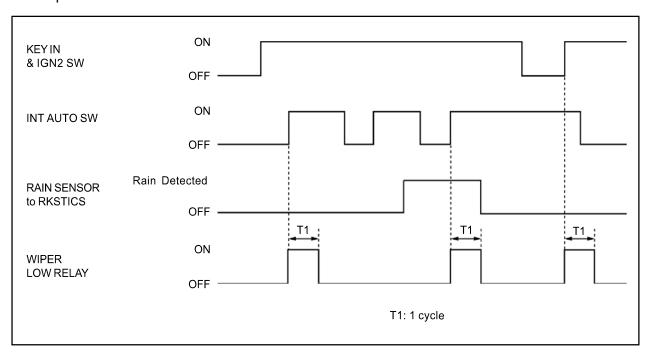
- The wiper relay continues to output when the parking terminal is fixed at the ground or IGN while the wiper relay is "ON" (INT switch = ON or Washer switch = ON) (The output stops immediately after turning off the switch)

Modification basis	
Application basis	
Affected VIN	

▶INT Switch Auto Position Reminder (Power-Up Reminder Wiper)

- 1. When turning off and on the auto INT switch, the system drives the wiper motor through LOW relay regardless of communication with rain sensor.
- 2. When turning the INT-AUTO switch from the "OFF" to "ON" position with the ignition switch in the "ON" mode, the LOW relay operates to drive the wiper motor for 1 cycle, regardless of the rain sensor communication.

After that, when turning the INT-AUTO switch from the "OFF" to "ON" position, the LOW relay operates to drive the wiper motor for 1 cycle only if data from the rain sensor indicates rain drops.

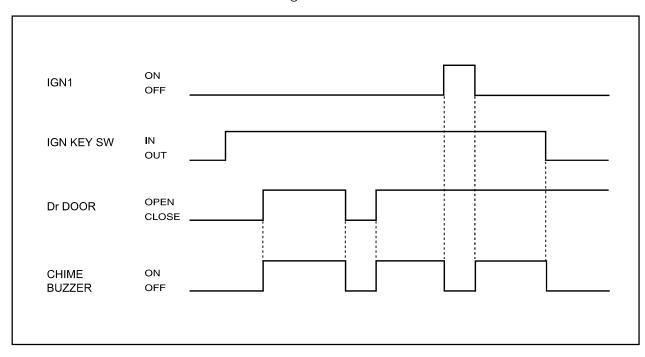


Modification basis	
Application basis	
Affected VIN	

2) Ignition Key Reminder

► Key Reminder Warning

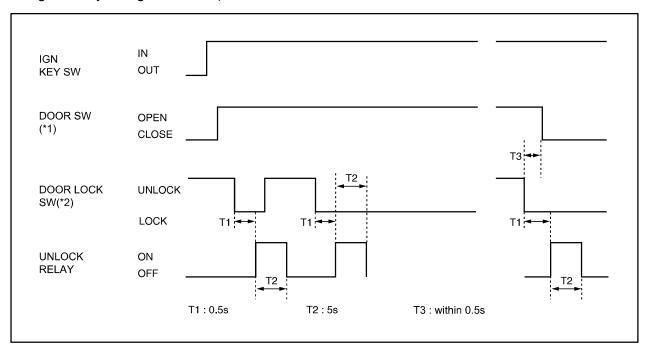
- 1. The chime buzzer output in the ICM box continues when opening the driver's door while the ignition key is inserted into ignition switch.
- 2. When removing the ignition key or closing the driver's door during chime buzzer output, the output turns off.
- 3. This function is not available when the ignition switch is "ON".



Modification basis	
Application basis	
Affected VIN	

► Key Reminder

- 1. This function does not work if the vehicle speed is over 3 km/h.
- 2. The system outputs "UNLOCK" for 5 seconds (T2) from 0.5 seconds after the driver's door is opened and the door lock switch is changed to "LOCK" (while the ignition key is in ignition switch).
- 3. The system outputs "UNLOCK" for 5 seconds (T2) when the door lock switch is changed to "LOCK" from "UNLOCK" and the driver's door is closed within 0.5 seconds (T1) (while the ignition key is in ignition switch).



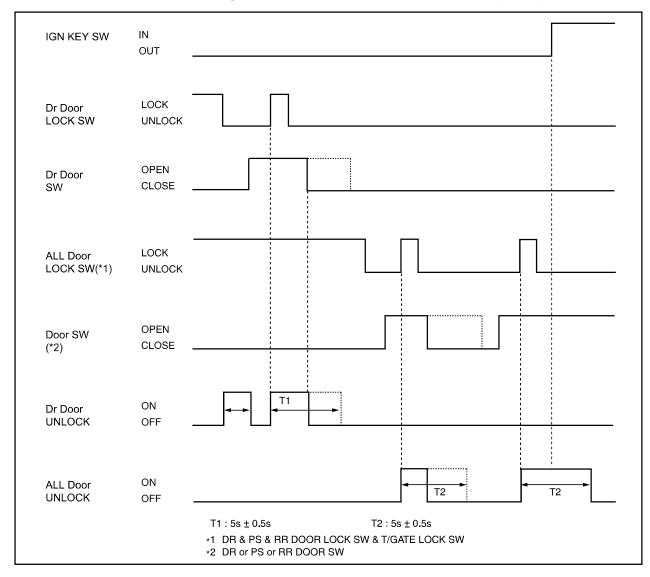


A CAUTION

- Operating conditions for (*1) and (*2)
 - (*1): Driver's door is opened and driver's door lock switch is turned to LOCK
 - (*2): Passenger's door is opened and passenger's door lock switch is turned to LOCK

Modification basis	
Application basis	
Affected VIN	

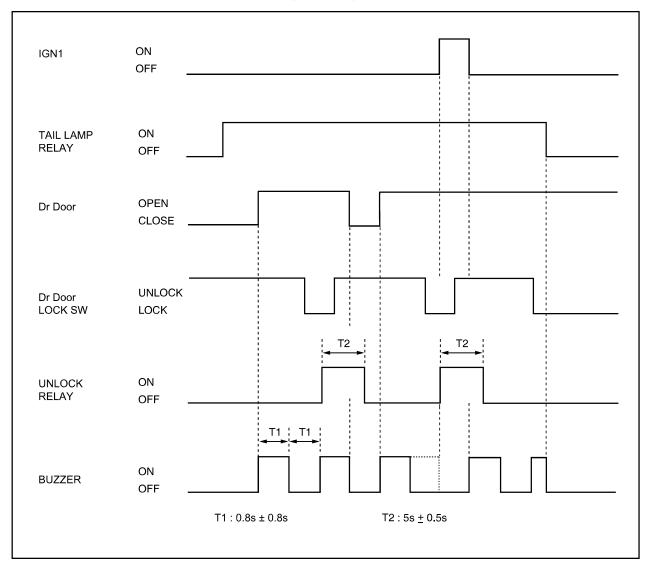
- ▶ All Door Lock Prevention Function when a Door is Opened
- 1. When a door is opened, all doors should be unlocked for 5 seconds if inputs LOCK signal.
 - The LOCK signal means the central door locking (REKES, central door lock switch, knob switch) except LOCK input by rear door knob.
 - After unlocking and opening only the driver's door with remote control key under armed mode (driver's door is unlocked but passenger's and rear doors are locked), only the driver's door generates unlock signal when trying to lock the driver's door with the driver's door opened.
 - Above operations is regardless of key positions and have priority over the ignition key reminder function.
- 2. When the door is closed during unlock output for 5 seconds under item 1 condition, the unlock output stops.
 - All doors except tailgate and hood output "UNLOCK" for 5 seconds (T1) when the "LOCK" signal is inputted (while the ignition key is removed and a of door is opened).
 - When the door is closed during unlock output for 5 seconds, the unlock output stops.



Modification basis	
Application basis	
Affected VIN	

3) Mark Lamp Left on Warning

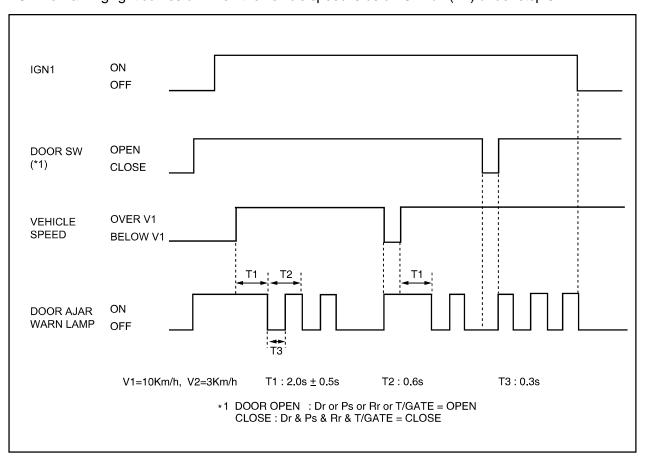
- 1. The chime buzzer in the ICM box sounds with the interval of 0.8 second when opening the driver's door while the tail lamp is turned on and the ignition key is removed.
- 2. The buzzer output stops when turning off the tail lamp and closing the driver's door.
- 3. The system outputs "UNLOCK" for 5 seconds when the driver's and passenger's door lock switch is locked (while the tail lamp is turned on and the driver's door is opened).
- 4. This function is not available when the ignition key is in "ON" position.



Modification basis	
Application basis	
Affected VIN	

4) Door Ajar Warning

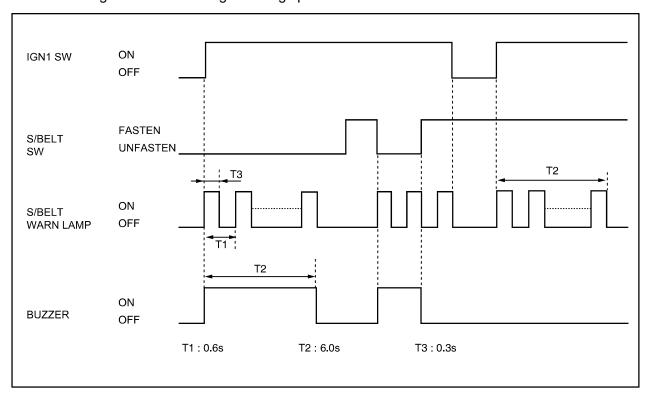
- 1. The warning light in indicator display comes on when opening any of driver's door, passenger's door, rear door or tailgate while the vehicle speed is below 6 km/h (V1).
- 2. The warning light goes off when closing the door under step 1.
- 3. The warning light blinks when the vehicle speed is over 10 km/h (V1) for more than 2 seconds while the warning light is turned on.
- 4. The warning light blinks when a door is opened while the vehicle speed is over 10 km/h (V1) (while the warning light is turned off).
- 5. The warning light goes off when closing the door under step 3.
- 6. The warning light comes on when the vehicle speed is below 3 km/h (V2) under step 3.



Modification basis	
Application basis	
Affected VIN	

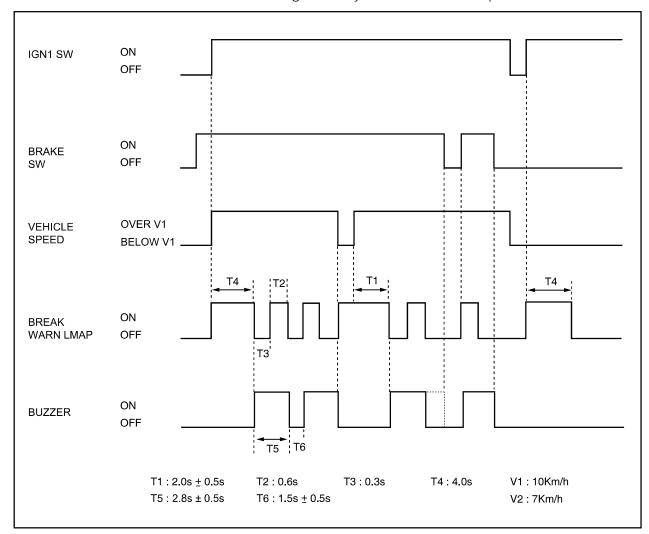
5) Seat Belt Warning

- 1. The seat belt warning light comes on and the chime buzzer in the ICM box sounds for 6 seconds when turning the ignition key to "ON" from "OFF". If the seat belt is fastened before turning the ignition key to "ON" position, the warning light in the indicator display blinks for 6 seconds, however, the chime buzzer does not sound.
- 2. The seat belt warning light goes off and the chime buzzer in the ICM box stops when turning the ignition switch to "OFF" position.
- 3. The chime buzzer stops and the seat belt warning light stays on for the specified duration (6 seconds) when fastening the seat belt during the warning operation.
- 4. The seat belt warning light comes on and the chime buzzer sounds for 6 seconds again when unfastening the seat belt during fastening operation.



6) Parking Brake Warning

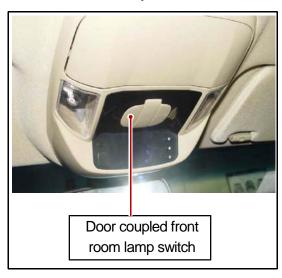
- 1. The parking brake warning light comes on for approx. 4 seconds (T4) when turning the ignition key from "OFF" to "ON" position regardless of the vehicle speed and parking brake switch position.
- 2. The warning light comes on when the parking brake switch is turned on while the vehicle speed is below 10 km/h (V1).
- 3. The warning light goes off when turning off the parking brake switch under step 2.
- 4. The warning light blinks and the chime buzzer in the ICM box sounds for 2.85 seconds and stops for 1.5 seconds when the vehicle speed is over 10 km/h (V1) for more than 2 seconds while the parking brake switch is turned on.
- 5. The warning light goes off and the chime buzzer stops when turning off the parking brake switch under step 4.
- 6. The warning light comes on and the chime buzzer stops when the vehicle speed goes down below 7 km/h (V2) under step 4.
- 7. This function is not available when the ignition key is turned to "OFF" position.



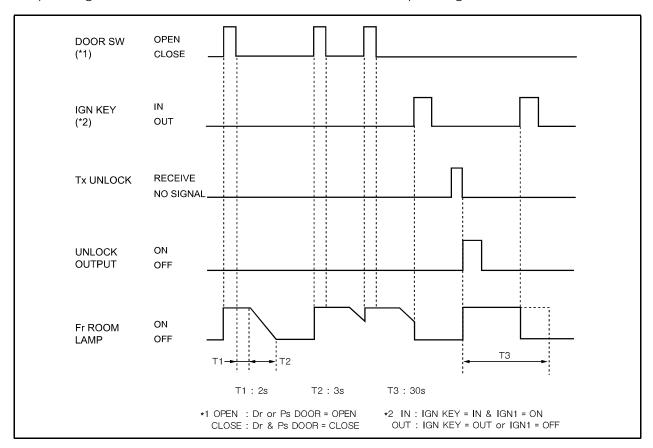
Modification basis	
Application basis	
Affected VIN	

7) Room Lamp Control

► Front Room Lamp



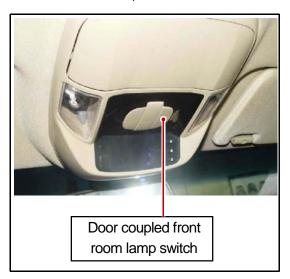
- The front room lamp comes on when opening the driver's door or passenger's door while the front room lamp switch is at door coupled position and the key reminder switch is turned off.
- 2. The room lamp stays on for 2 seconds (T1) and then decays through 3 seconds (T2) when closing the driver's door or passenger's door.
- The room lamp output should stop immediately after turning on the ignition key during decaying operation.
 The front room lamp comes on for 30 seconds (T3)
- 4. when receiving the unlock signal from the remote control key while the door is closed.
- 5. The front room lamp output period is extended by 30 seconds (T3) when receiving the unlock signal from the remote control key again during output.
- 6. When a door is opened during its extended period, the lamp stays on. If closed, operates as in step 2.
- 7. The room lamp output stops immediately after receiving the lock signal from driver's door and passenger's door lock switch while the driver's door and passenger's door are closed.



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Modification basis	
Application basis	
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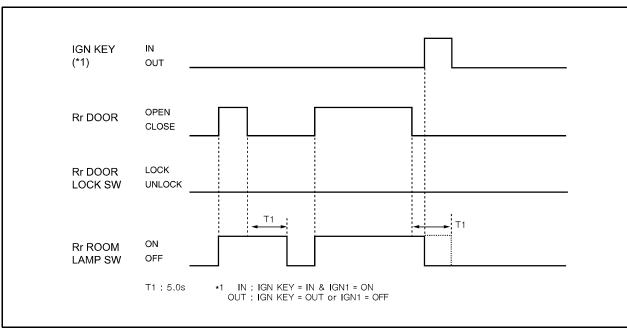
▶ Rear Room Lamp



- 1. The rear room lamp comes on when opening the rear door while the door coupled rear room lamp switch is pressed (except for luggage room lamp). The rear room lamp extends its lighting period by 5
- 2. seconds when closing the rear door. The room lamp output stops immediately after
- 3. turning the ignition key to "ON" position during the extended period.

The room lamp output stops immediately after

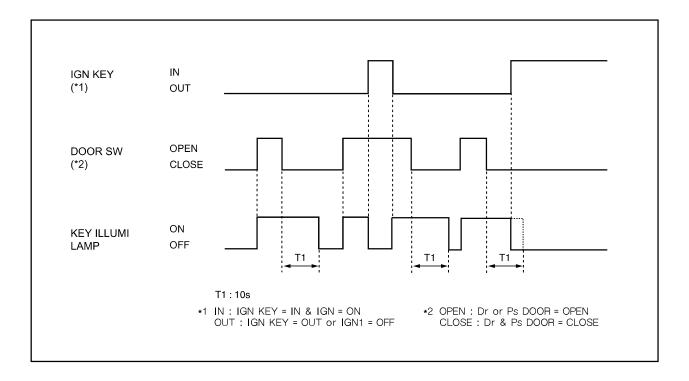
4. receiving the lock signal from the rear door lock switch or the remote control key while the rear door is closed.



Modification basis	
Application basis	
Affected VIN	

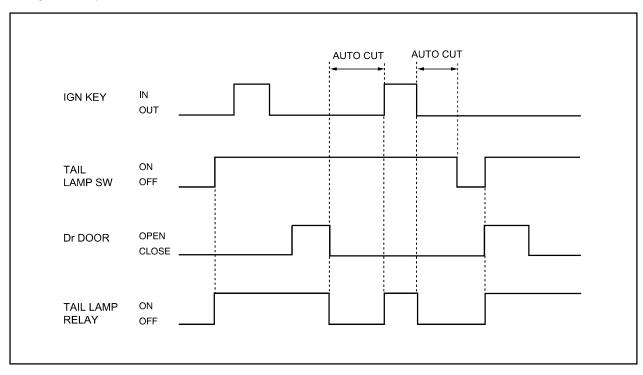
8) Ignition Key Hole Illumination

- 1. The ignition key hole illumination comes on when opening the driver's door or passenger's door while the ignition key is removed.
- 2. The ignition key hole illumination stays on for 10 seconds when closing the door after step 1.
- 3. The output stops when the ignition key is turned to "ON" position.
- 4. The output stops when receiving the lock signal from the remote control key (under armed mode).



9) Battery Saver (Tail Lamp Auto Cut)

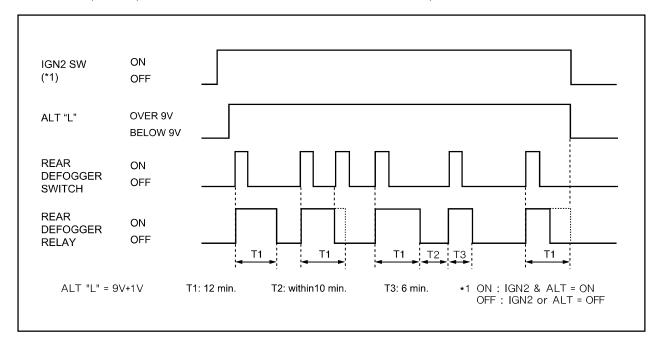
- 1. The tail lamp is turn on or off according to the operations of the multifunction tail lamp switch.
- 2. The tail lamp relay is turned off (auto cut) when opening and closing the driver's door after removing the ignition key without turning off the tail lamp.
- 3. Tail lamp relay is turned on when inserting the ignition key into ignition switch again after step 2 operation.
- 4. The tail lamp relay is turned off (auto cut) when opening and closing the driver's door while the ignition key is removed and the tail lamp is turned on.



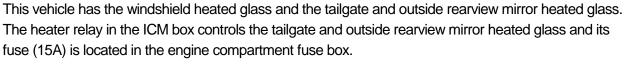
10) Defogger Timer

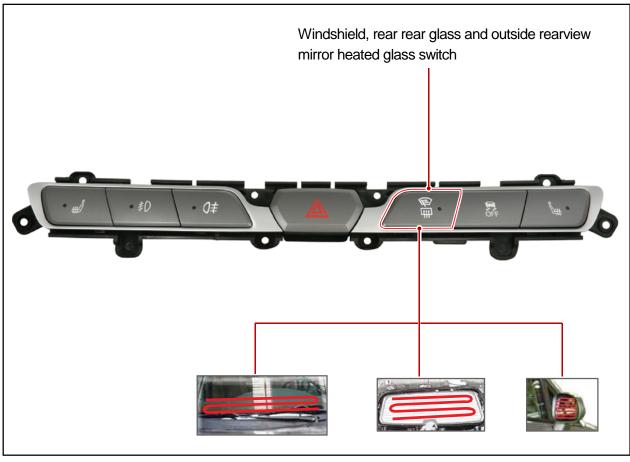
- 1. The system outputs the tailgate, windshield and outside rearview mirror heated glass "ON" signal when turning on the defogger switch (while the engine is running).
- 2. The output stops when turning on the defogger switch again during its operation.
- 3. The output is "ON" only for 6 minutes (T3) when turning "ON" the rear defogger switch within 10 minutes (T2) after completion of output.
- 4. When turning on the defogger switch again within 10 minutes (T2) after completion of initial 12 minutes (T1) of output, the output comes on for 6 minutes (T3) again once only.

The output stops when the IGN 2 switch is turned to "OFF" position or the ALT is "OFF".



Modification basis	
Application basis	
Affected VIN	







Modification basis	
Application basis	
Affected VIN	

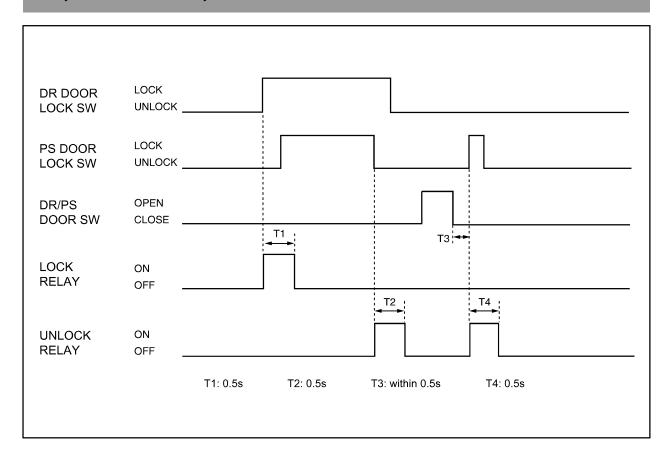
11) Door LOCK/UNLOCK Control

▶ Door Lock/Unlock by Door Lock Switch

- 1. The door lock system outputs "LOCK" for 0.5 seconds (T1) when positioning the driver's or passenger's door lock switch to lock position (while the driver's and passenger's door lock switch is in "UNLOCK" position).
- 2. The door lock system outputs "UNLOCK" for 0.5 seconds (T2) when positioning the driver's or passenger's door lock switch to unlock position.
- 3. LOCK" or "UNLOCK" by the door lock switch is ignored when outputting the "LOCK" or "UNLOCK" by other functions.
- 4. The door lock/unlock system is not working regardless of the door lock switch positions when connecting the battery.
- 5. All door lock signals are "UNLOCK" for 0.5 seconds (T4) just for once when receiving the "LOCK" signal within 0.5 seconds (T3) after closing the driver's or passenger's door. However, this operation is regardless of the ignition key positions.

₿ NOTE

- This function prevents the door from locking by shock when slamming a door while the ignition key is inserted into the key switch hole.



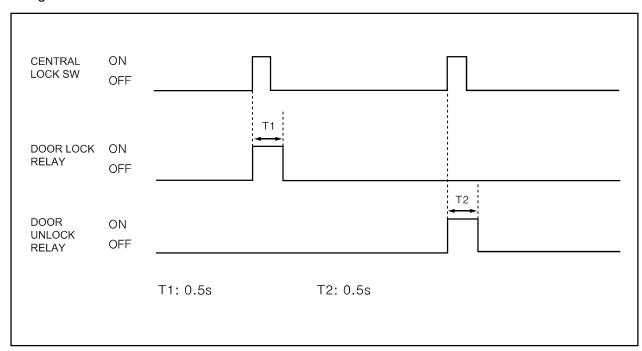
STICS

RODIUS 2013.02

Modification basis	
Application basis	
Affected VIN	

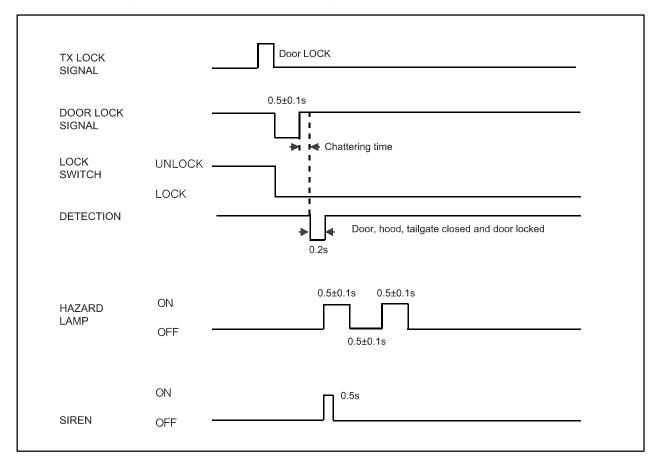
▶ Door Lock/Unlock by Central Door Lock Switch

- 1. The door lock system outputs "LOCK" for 0.5 seconds (T1) when pressing "LOCK" button on the central door lock switch.
- 2. The door lock system outputs "UNLOCK" for 0.5 seconds (T2) when pressing "UNLOCK" button on the central door lock switch.
- 3. The "LOCK" or "UNLOCK" inputs from the central door lock switch in armed mode are ignored.



▶ Door LOCK/UNLOCK by Remote Control Key

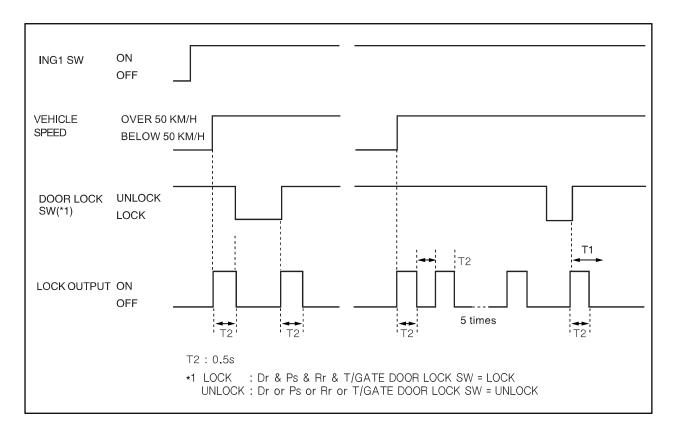
- 1. The door lock system outputs "LOCK" for 0.5 seconds (T2) when receiving "LOCK" signal from the remote control key.
- 2. The door lock system outputs "UNLOCK" signal for 0.5 seconds (T3) when receiving "UNLOCK" signal from the remote control key.



TX UNLOCK SIGNAL	Door UNLOCK
DOOR UNLOCK SIGNAL	0.5±0.1s Chattering time
DOOR LOCK SWITCH	UNLOCK LOCK
DETECTION	ON 0.5±0.1s 0.5±0.1s OFF 0.5±0.1s
HAZARD LAMP	ON 1±0.1s 1±0.1s OFF

▶ Auto Door Lock

- 1. The door lock system outputs "LOCK" when the vehicle speed maintains over 50 km/h. However, it doesn't output "LOCK" when all doors are locked or failed.
- 2. If any of doors is unlocked after outputting "LOCK" in step 1, outputs "LOCK" up to 5 times (except step (1)) at the interval of one second.
- If any of doors is unlocked after 5 times of "LOCK" outputs, the door(driver's/passenger's/rear) is regarded as "FAIL".
- If the door that was regarded as fail is changed(UNLOCK to LOCK), it will be recognized as a normal one.
- 5. If any door is regarded as FAIL, the auto door lock function does not work. (if it is occurred when the vehicle speed is over 50 km/h, the auto door lock output does not occur even if the vehicle speed falls below 50 km/h and accelerates again to over 50 km/h.) Nonetheless, the central door lock function works properly.
- 6. When the system receives "UNLOCK" signal from a door switch, it outputs "LOCK" signals 5 times. If additional "LOCK" signal from another door switch is detected during the period, the system outputs five "LOCK" signals 5 times for the switch.
- 7. The door lock system outputs "UNLOCK" automatically if the "LOCK" output conditions are established by this function or the key is cycled(IGN=OFF) (even when there is no "LOCK" output while the vehicle speed maintains over 50 km/h under lock condition). (If the LOCK condition is established with the ignition switch ON, the system outputs UNLOCK signal unconditionally when turning the ignition switch to OFF position.) However, when the ignition key is turned to "OFF" position, the lock output conditions will be cancelled.
- 8. The "FAIL" condition of the door will be erased when the ignition key is turned to "OFF" position.

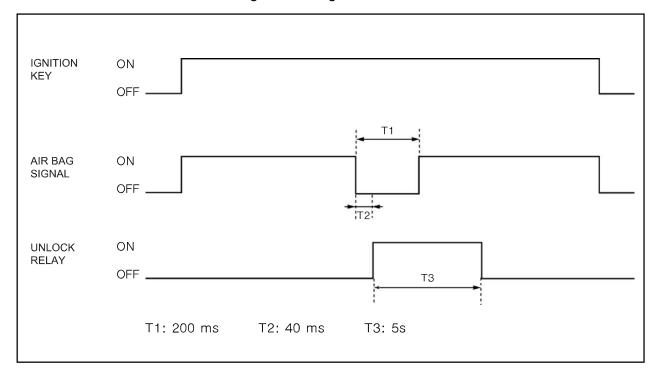


STICS RODIUS 2013.02

Modification basis	
Application basis	
Affected VIN	

► Auto Door Unlock (Crash Unlock)

- 1. The air bag collision signal input cannot be accepted within 7 seconds after turning the ignition key to "ON" position.
- 2. After this period, the door lock system outputs "UNLOCK" for all doors for 5 seconds from 40 ms after receiving the air bag collision signal.
- 3. Even though the key is turned to "OFF" position during the output of "UNLOCK", the output continues on for remaining period.
- 4. The function is erased when turning "OFF" the ignition switch.



CAUTION

- 1. The "Unlock" control by air bag signal prevails over any "LOCK" or "UNLOCK" control by other
- 2. The "LOCK/UNLOCK" request by other functions will be ignored after/during the output of "UNLOCK" by the air bag. However, the door lock is controlled by other functions when the ignition switch is "OFF".
- 3. "LOCK" (or "UNLOCK") output is ignored if "LOCK" (or "UNLOCK") output is required while performing the output of "LOCK" (or "UNLOCK"). (However, UNLOCK by air bag signal and operation by the remote control key are valid.)
- 4. If the door lock system outputs "LOCK" and "UNLOCK" simultaneously, only the "LOCK" output can be activated.

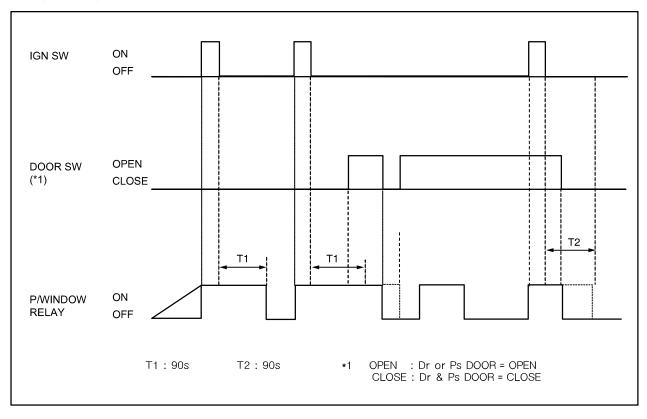
Modification basis	
Application basis	
Affected VIN	

12) Time Lag Power Window Control

- 1. The power window is turned off when turning the ignition key to "ON" position.
- 2. The power window relay is turned "ON" for 90 seconds (T1) when turning the ignition key to "OFF" position.

However, the power window relay stays on for 90 seconds (T2) when the ignition key is turned to "OFF" position while the door is opened.

- 3. The power window relay is turned "ON" again for 90 seconds (T2) just for once when opening the door during its extended operation period of 90 seconds (T1).
- 4. The power window relay is turned "OFF" when closing the door during its extended operation period of 90 seconds (T2).

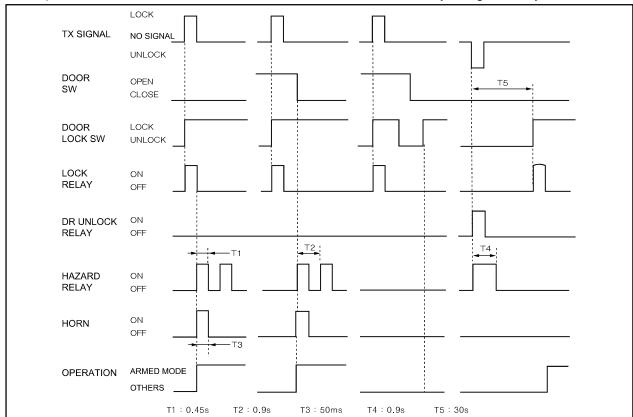


13) Theft Deterrent

(1) Description of Burglar Alarm Function

▶Theft deterrent mode ON conditions

- 1. The "LOCK" output is "ON" when receiving the "LOCK" signal from transmitter while the ignition key is removed and all doors are closed. The armed mode is activated when the door lock switch is locked (theft deterrent horn output: once, hazard relay output: twice).
- 2. The theft deterrent horn and hazard relay outputs are "ON" when receiving the "LOCK" signal from the remote control key again in armed mode (theft deterrent horn output: once, hazard relay output: twice).
- 3. When receiving "LOCK" signal from the remote control key while any of doors is not closed, only the "LOCK" output can be done and then activates the armed ready mode (without theft deterrent horn and hazard warning flasher). At this moment, if the ignition key is in the ignition switch, the door unlock switch is turned "ON" or the door lock switch is unlocked (after 0.6 seconds), cancels the armed mode and activates the normal mode. However, in these cases, if closing the door and locking the door lock switch, the theft deterrent horn outputs once and the hazard warning flasher outputs twice and then activates armed mode.
- 4. When the door is not opened or the ignition key is not inserted into ignition switch for 30 seconds after receiving "UNLOCK" signal, outputs "LOCK" and then activates armed mode (RELOCK operation). Also, at this moment, the system outputs the theft deterrent horn and hazard warning
- 5. The armed mode will not be activated except above conditions.
 - Ex) The armed mode will not be activated when the door is locked by the ignition key.



Modification basis	
Application basis	
Affected VIN	

▶ Armed mode cancellation requirements

1. Unlocking by remote control key or engine starting.

► Warning operation requirements

- 1. When opening the door in armed mode
- 2. When unlocking the door lock switch in armed mode
- 3. When closing and then opening the door after completion of warning (27 seconds)

► Warning operation

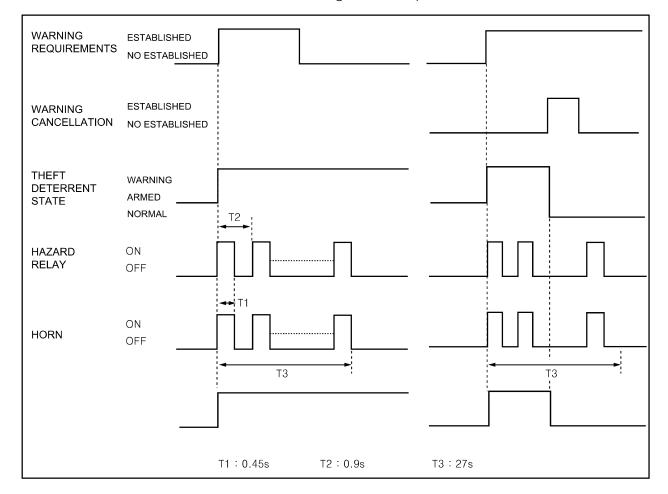
1. The theft deterrent horn and hazard warning flasher output is "ON" for T3 (27 seconds) with the interval of T2 (1second).

► Warning cancellation requirements

- 1. Cancels warning by using any signal from the remote control key (LOCK, UNLOCK, START, STOP, PANIC, CHECK) during warning operation.
- 2. Cancels warning after 27 seconds (remaining period) while the ignition key is turned to "ON" position.

▶ Operation when warning is cancelled

1. The theft deterrent horn and hazard warning flasher outputs are "OFF".



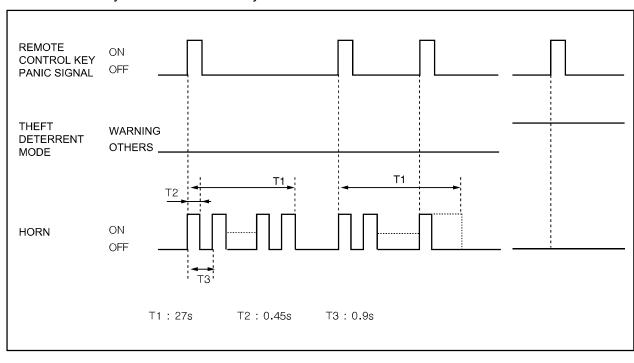
STICS

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Modification basis	
Application basis	
Affected VIN	

(2) PANIC Warning

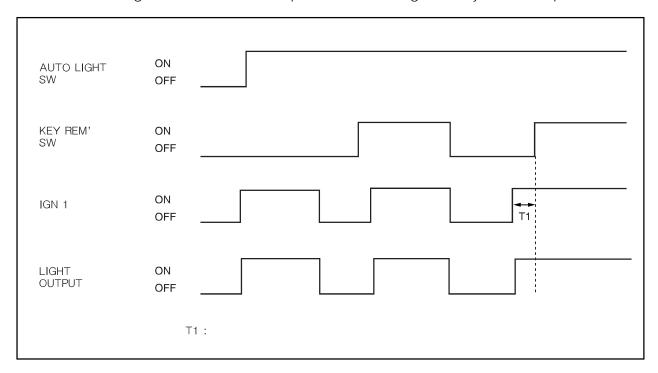
- 1. The PANIC warning output is "ON" (theft deterrent horn) when receiving the PANIC signal from the remote control key (pressing PANIC button for less than 0.5 ~ 1.0 second).
- 2. The PANIC warning output is "OFF" when receiving any signal from the remote control key during PANIC warning.
- 3. Followings are theft deterrent warnings:
 - 1) The theft deterrent warning is canceled when receiving PANIC signal from the remote control key during theft deterrent.
 - 2) The theft deterrent warning output is "ON" when the theft deterrent conditions are established during PANIC warning (PANIC output is "OFF").
 - 3) The PANIC warning output is "ON" when receiving the PANIC signal from the remote control key in Armed Ready / Armed / Warning Completion / Relock Ready mode (maintaining the theft deterrent mode).
- 4. This function operates only in armed mode.
- The system sends the current vehicle conditions (LOCK, engine running) when the PANIC warning is turned off by the remote control key.



Modification basis	
Application basis	
Affected VIN	

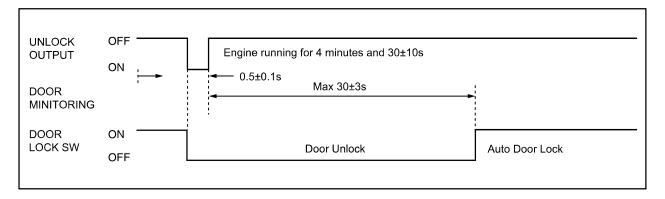
(3) Auto Light Function

1. The lights automatically come on and off according to the ambient brightness when the multifunction light switch is in "AUTO" position while the ignition key is in "ON" position.



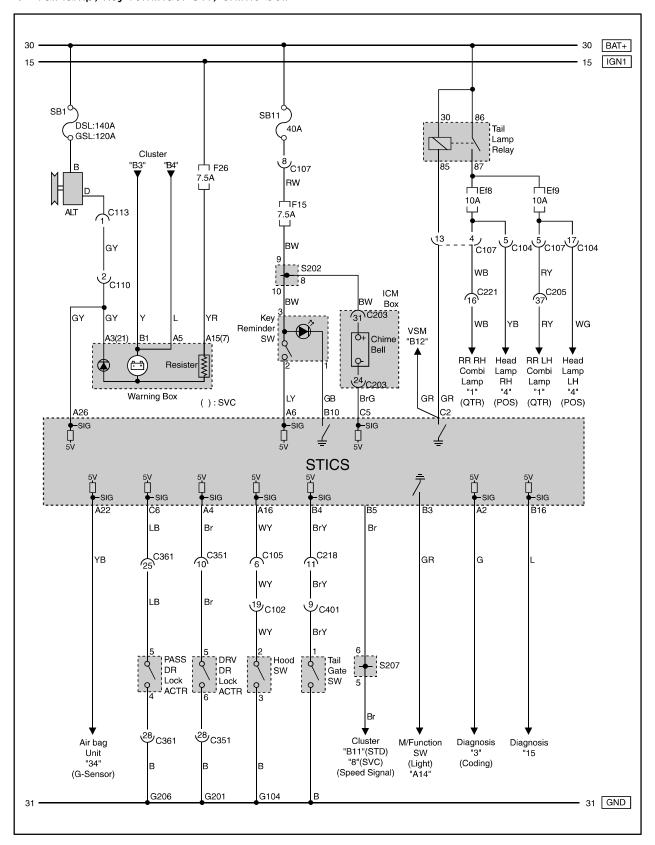
(4) Auto Door Lock

- 1. The doors are locked and the theft deterrent mode is activated again if any of doors is not opened after unlocking them with a REKES key.
- 2. Sends the message in 5 seconds after locking the doors automatically.



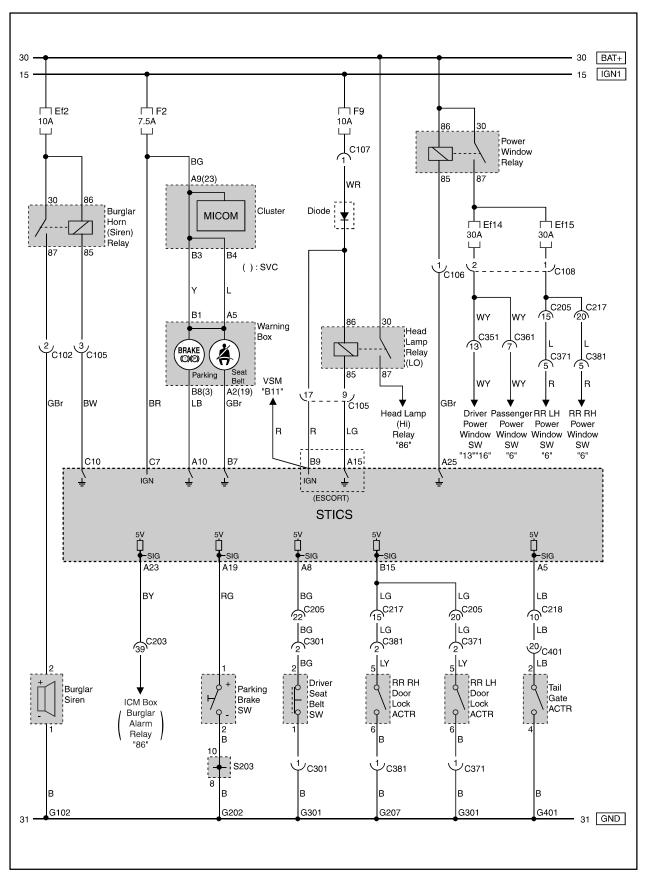
3. CIRCUIT DIAGRAM

► Tail lamp, key reminder SW, chime bell



Modification basis	
Application basis	
Affected VIN	

► Power window, warning lamp(brake, s/belt)



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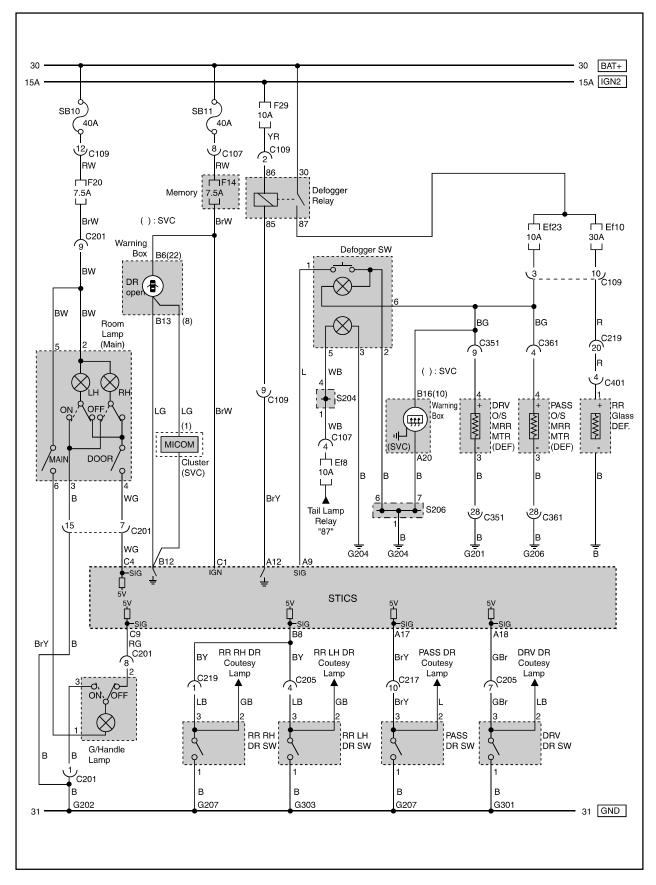
Modification basis	
Application basis	
Affected VIN	

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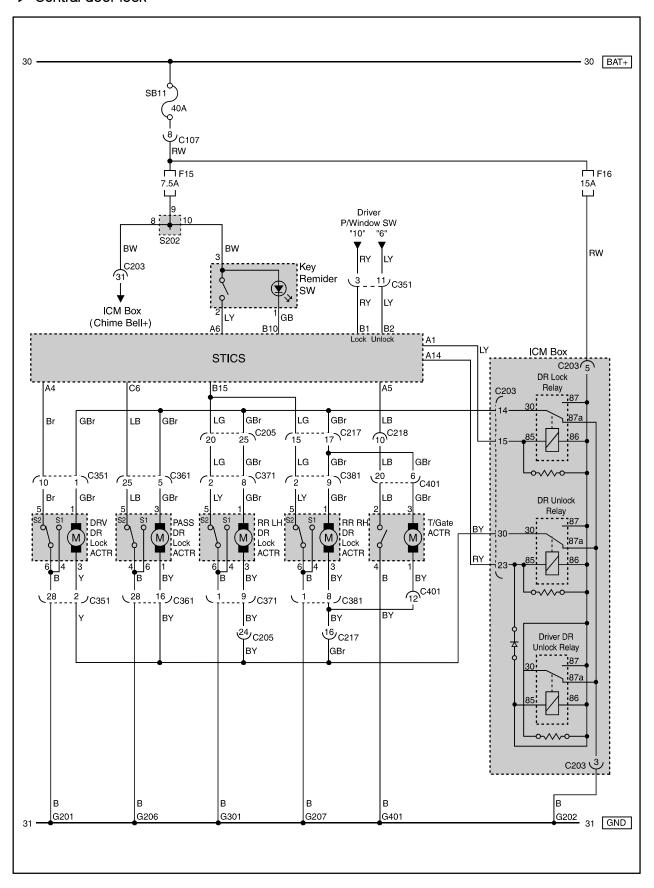
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▶ Door SW, lamp(door courtesy, g/handle), door open warning lamp, defogger



Modification basis	
Application basis	
Affected VIN	

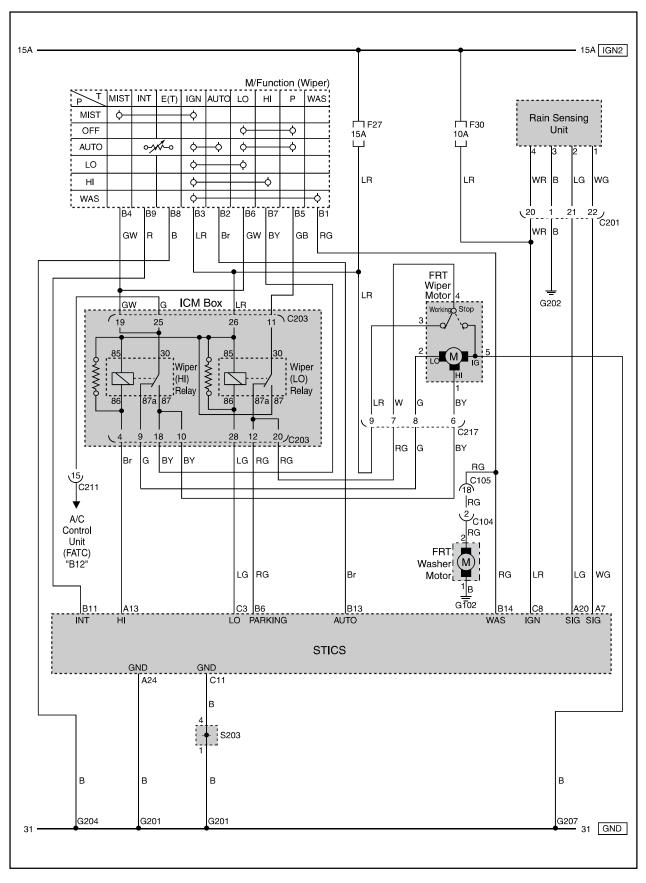
► Central door lock



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Modification basis	
Application basis	
Affected VIN	

► Wiper, rain sensing wiper



Modification basis	
Application basis	
Affected VIN	