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## GROUP 54B

# SMART WIRING SYSTEM (SWS)

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## GENERAL INFORMATION

M2541000100543

SWS is a minimal line system which transmits numerous signals using one wiring.

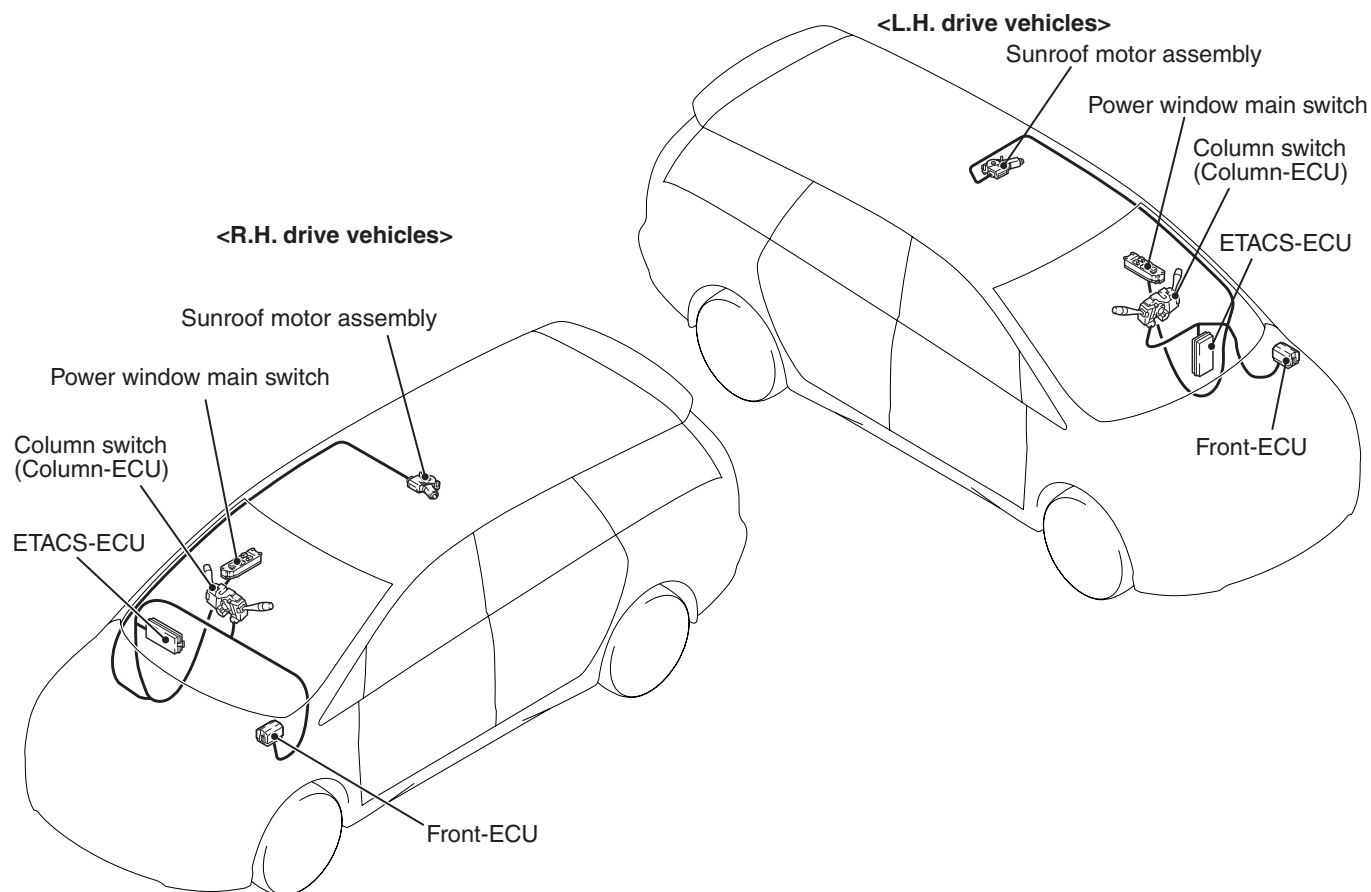
To transmit numerous signals, the ETACS\*-ECU, column switch (incorporating inside the column-ECU), front ECU, sunroof motor assembly (incorporating inside the sunroof-ECU) and power window main switch (power window switch of the driver's side) incorporate multi-distribution circuits to carry out communication between control units. ETACS-ECU can receive some input signals through CAN\*<sup>2</sup> communication, improving the SWS function.

NOTE: \*: ETACS (Electronic Time and Alarm Control System)

NOTE: \*<sup>2</sup>: CAN (Controller Area Network)

For more information, refer to GROUP 54C P.54C-2.

## CONSTRUCTION DIAGRAM

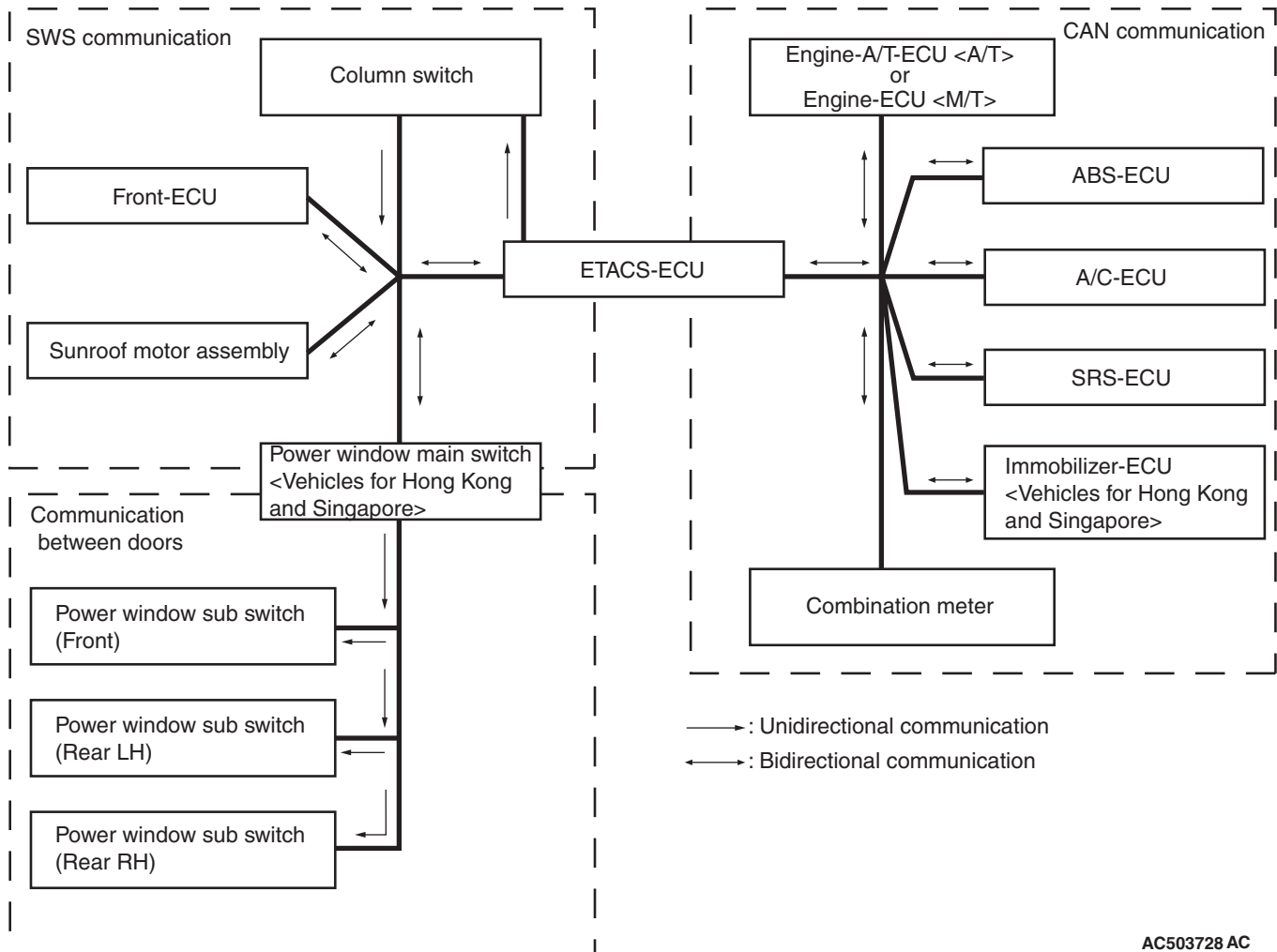


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## COMMUNICATION METHOD

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The exclusive signal lines for transmitting the multi-distribution data are connected as follows between the ETACS-ECU, column switch (incorporated inside the column-ECU), front-ECU, power window main switch (incorporated inside the power window-ECU), and power window sub switches (incorporated inside the power window-ECU) and sunroof motor assembly for internal communication.



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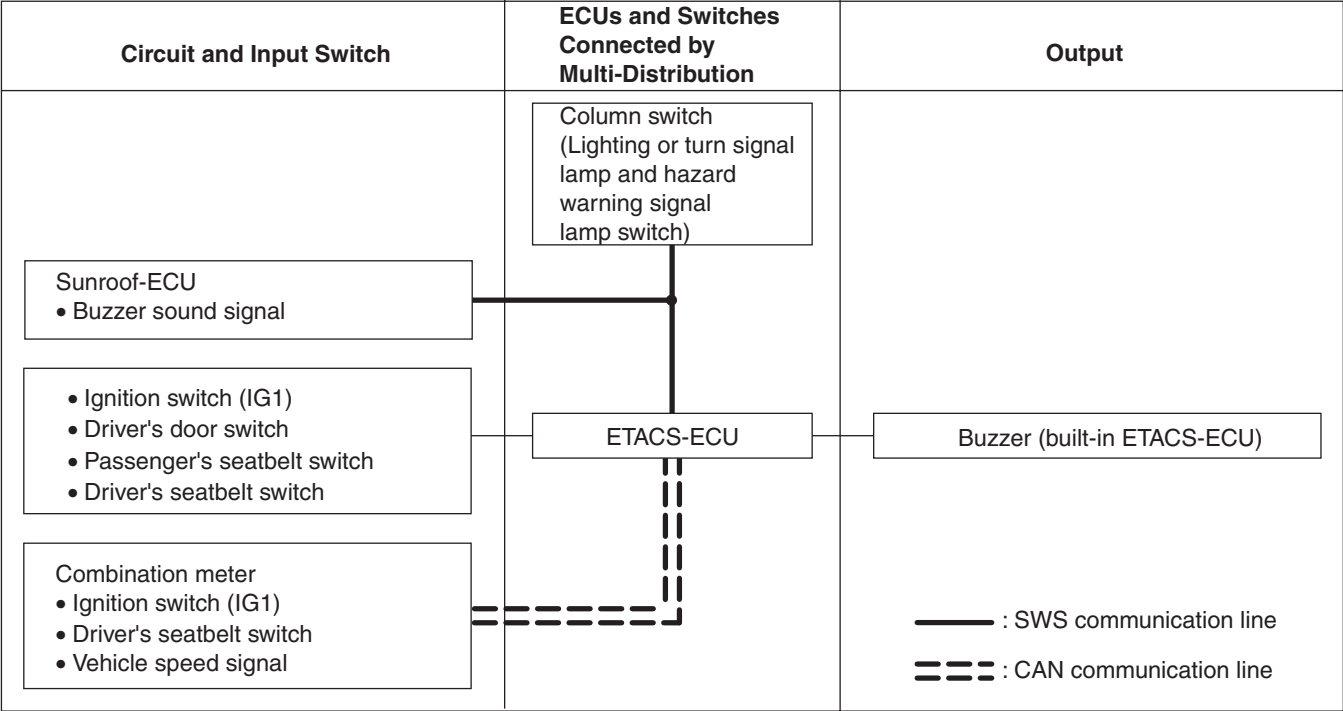
MULTI-DISTRIBUTION INPUT/OUTPUT BY CIRCUIT

M2541002000520

Multi-distribution is employed by the following circuits. The relation of the input switches, sensors, ECUs connected by multi-distribution lines, and outputs are also shown below.

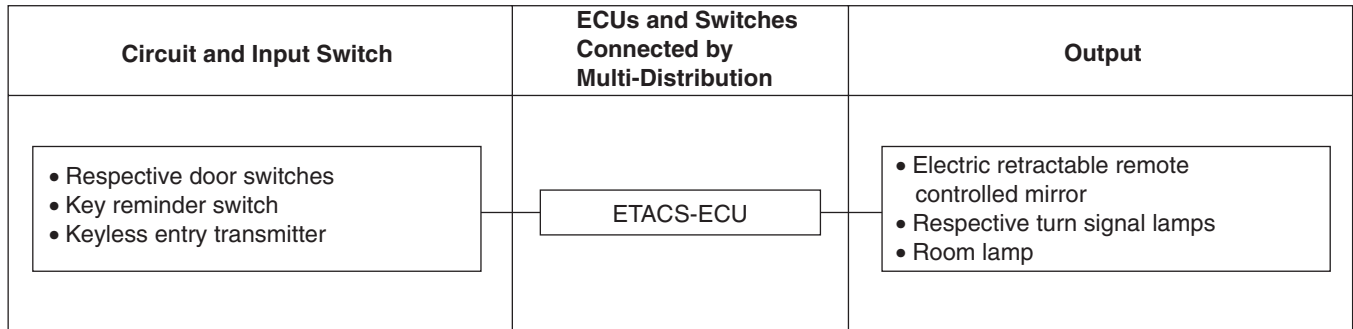
Buzzer

- Ignition key reminder buzzer function <Vehicles for GCC, Hong Kong and Singapore>
  - Lamp reminder buzzer function
  - R (reverse) position reminder function <Vehicles for Hong Kong and Singapore>
  - Speed warning buzzer function <Vehicles for GCC>
- Seat belt buzzer function <Vehicles for GCC, Australia and New Zealand>
  - Door ajar warning buzzer
  - Turn-signal lamp buzzer
  - Rear sunroof buzzer



### Keyless entry

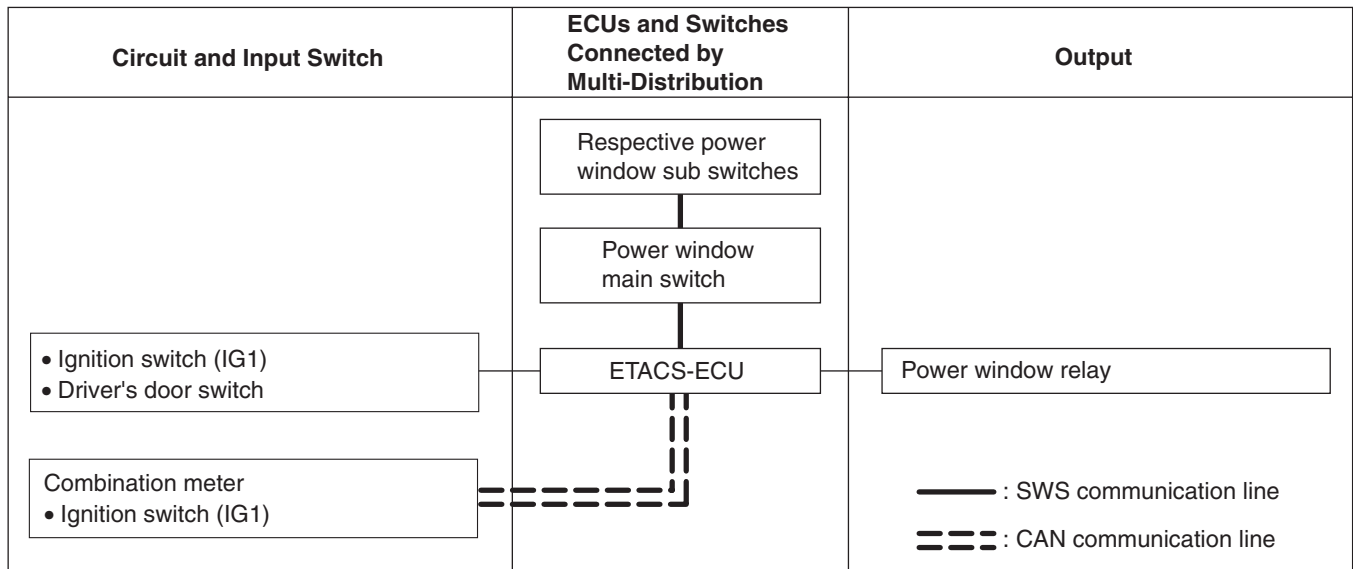
- Multi-mode keyless entry system
- Keyless entry hazard answerback function
- Room lamp answerback function
- Timer lock function



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### Power window

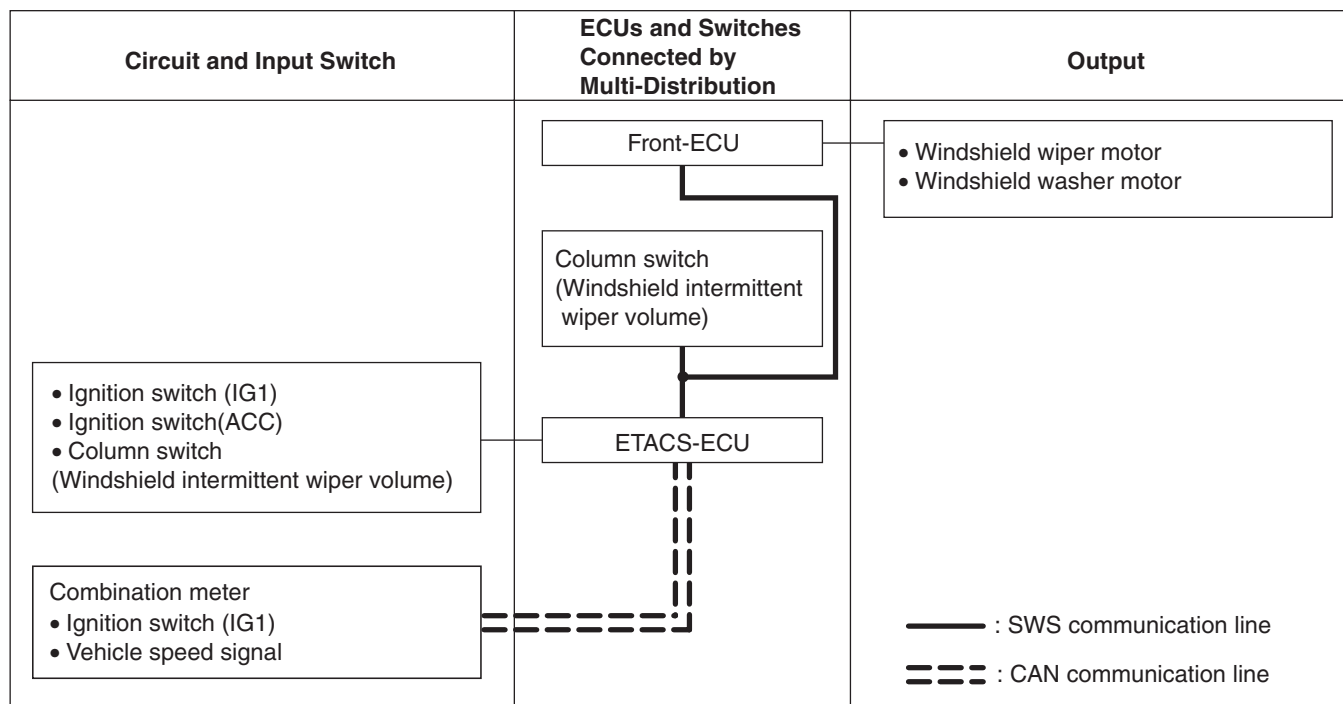
- Power window timer function



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**Windshield wiper and washer**

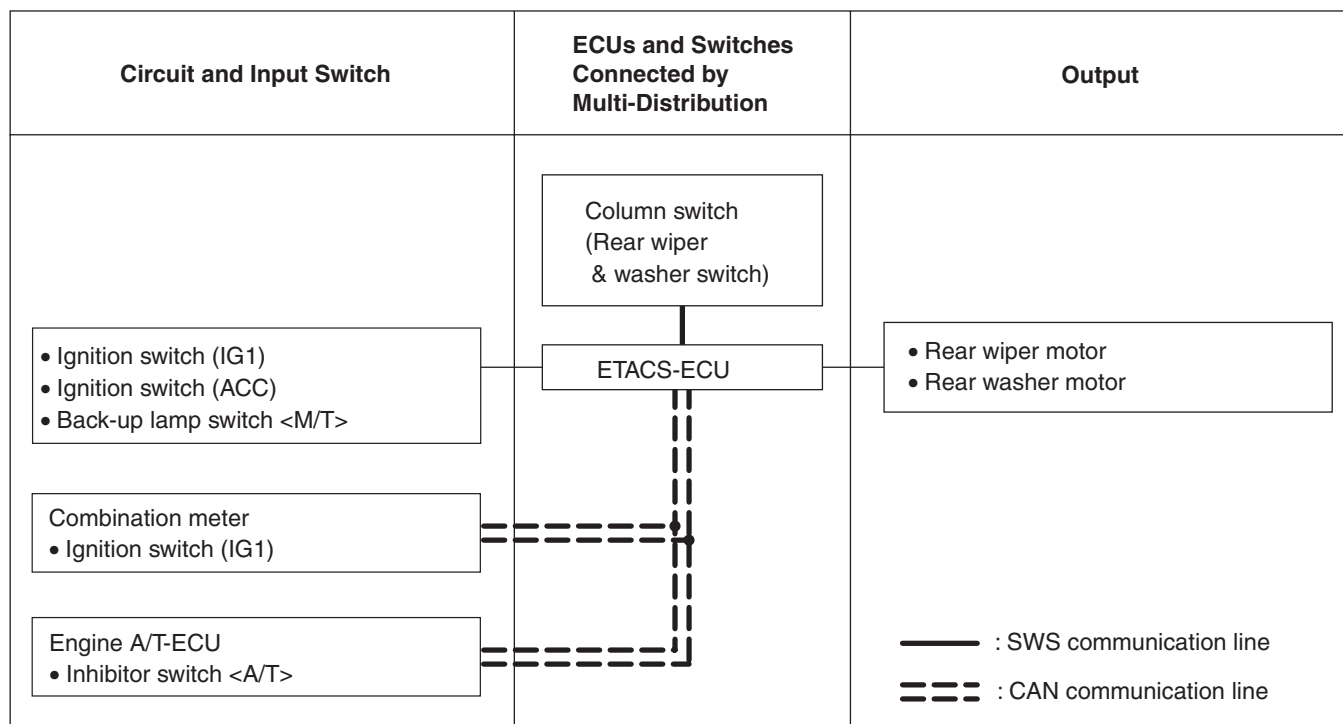
- Windshield mist wiper
- Vehicle speed-dependent variable windshield intermittent wiper
- Windshield low speed wiper
- Windshield high speed wiper
- Windshield washer



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**Rear wiper washer**

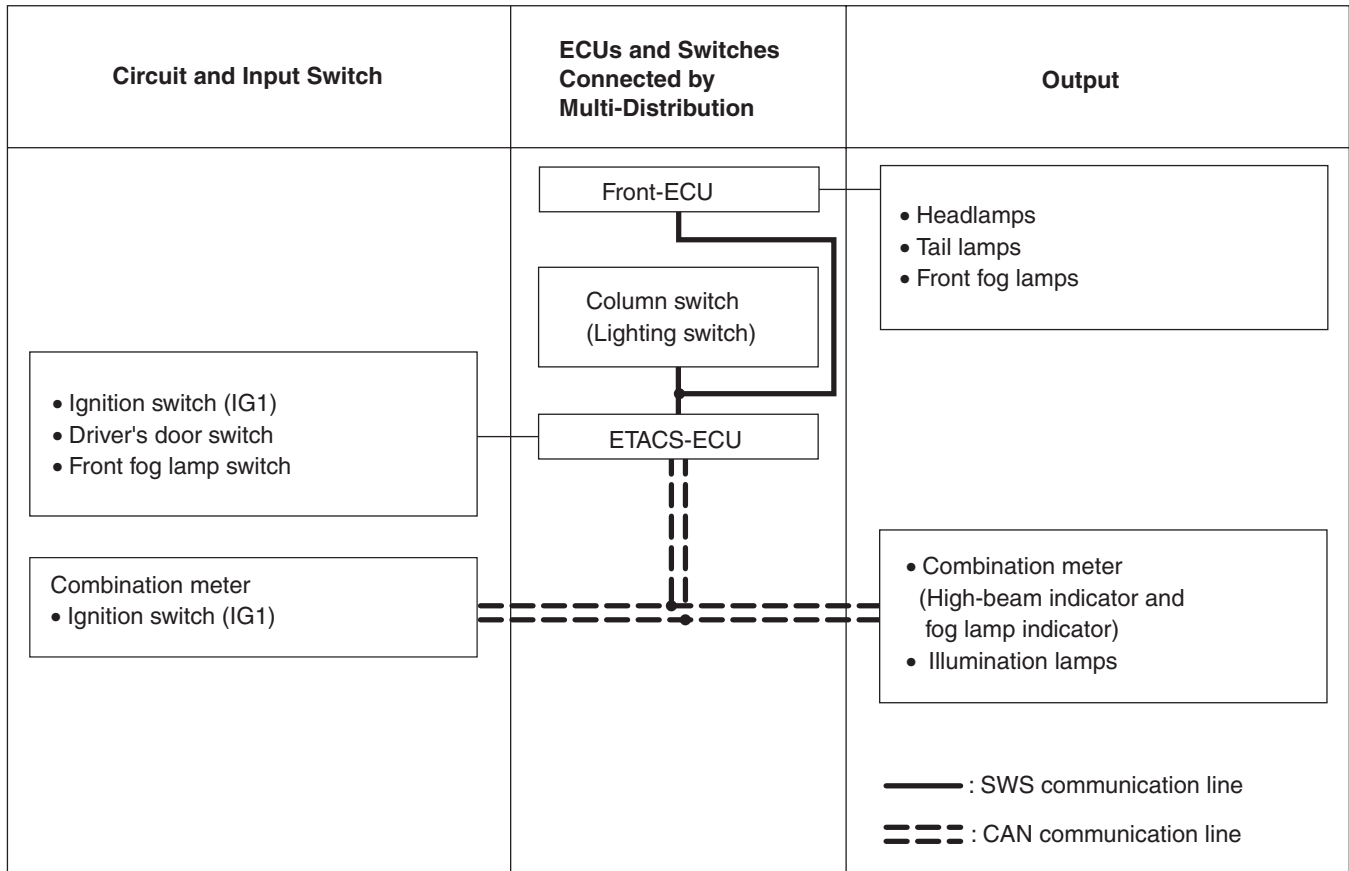
- Rear wiper
- Rear washer



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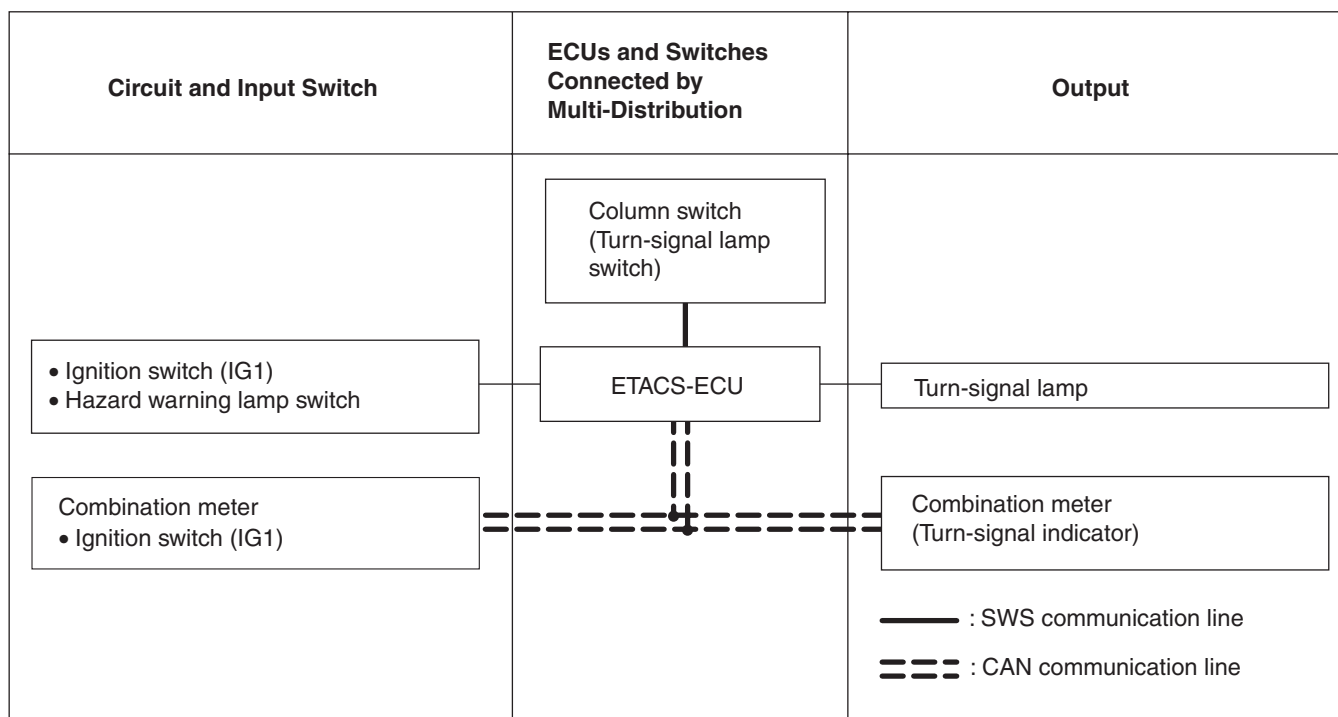
## Lighting

- Headlamp, tail lamp
- Headlamp automatic-shutdown function
- Auto lamp function <Vehicles for Hong Kong and Singapore>
- Wiper-linked auto lamp function <Vehicles for Hong Kong and Singapore>
- Front fog lamp



**Flasher timer**

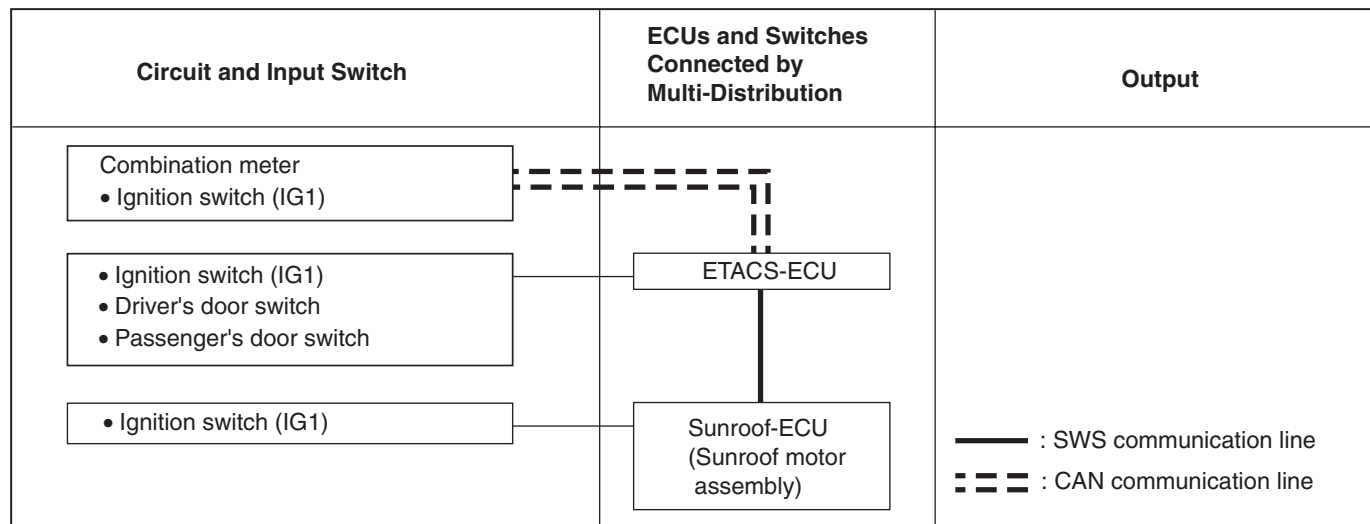
- Turn signal lamp
- Hazard warning lamp



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**Sunroof**

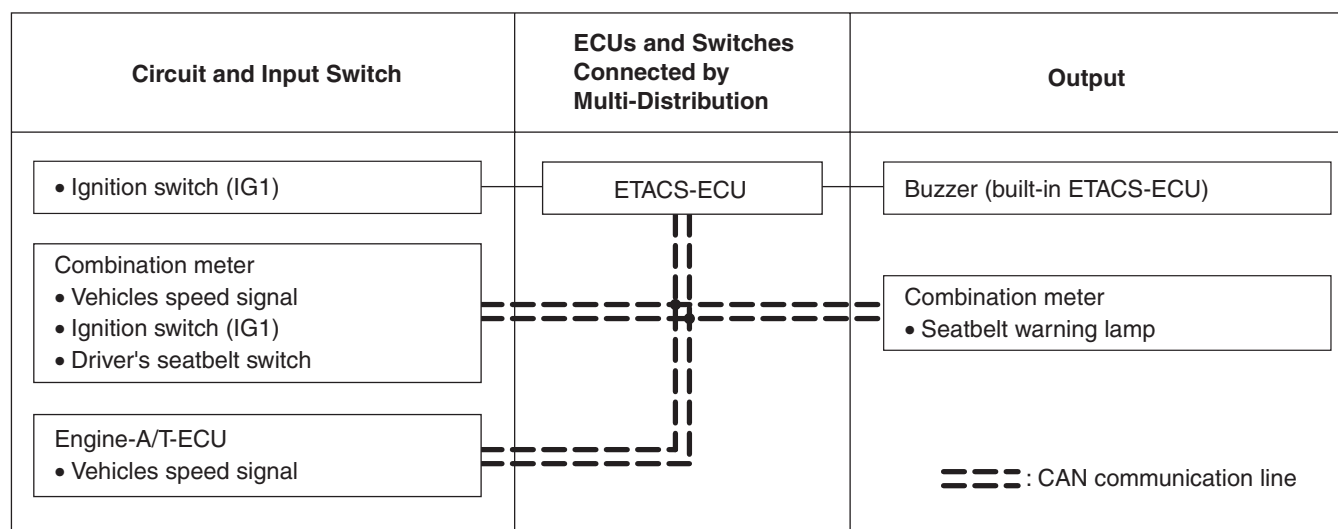
- Sunroof timer function



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Seat belt reminder function <Vehicles for Hong Kong and Singapore>



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## DIAGNOSTIC FUNCTION

M2541003000299

### DIAGNOSIS CODE SET

For more information about diagnosis code output, refer to the Workshop Manual.

### SWS MONITOR

By using the SWS monitor, troubleshooting becomes more efficient than the conventional troubleshooting using diagnosis codes. The Workshop Manual describes the troubleshooting procedure both using the SWS monitor and the diagnosis codes.

### SWS INPUT SIGNAL CHECK USING M.U.T.-III

When the M.U.T.-III is connected to the diagnosis connector and any of the SWS-linked switches is operated, the PC buzzer sounds to evaluate whether the switch is normal or not.

If the SWS monitor is used for the switch check, the M.U.T.-III (PC) screen shows whether the switch is normal or not. For the details of the input signal check, refer to the Workshop Manual.

### INPUT SIGNALS THAT CAN BE CHECKED

Input signal	Conditions for sounding buzzer	Display on M.U.T.-III (when SWS monitor is used)
Ignition switch (ACC)	Turn from "LOCK" (OFF) to "ACC" position	from OFF to ON
Ignition switch (IG1)	Turn from "ACC" to "ON" position	from OFF to ON
Key reminder switch <Vehicles with keyless entry system>	Remove the ignition key from ignition key cylinder (form inserted position)	from OFF to ON
Hazard lamp switch	Turn from OFF to ON	from OFF to ON
Front fog lamp switch		
Remote controlled mirror switch (unfolding/folding switch)		

Input signal		Conditions for sounding buzzer	Display on M.U.T.-III (when SWS monitor is used)
Speed signal		When the speed changes from less than 10 km/h to more than 10 km/h	Displays the vehicle speed
Cranking signal		While the ignition switch is in START position (while cranking the engine)	—
Selector lever P position signal (parking)		When the selector lever is shifted to the "P" position (Ignition switch: ON or START)	—
Selector lever R position signal (reverse)		When the selector lever is shifted to the "R" position (Ignition switch: ON or START)	—
Buzzer triggered by ETACS-ECU*1		When the following conditions are satisfied <ul style="list-style-type: none"><li>• Ignition switch: LOCK (OFF) position</li><li>• Lighting switch: ON</li><li>• Driver's door switch: ON (Driver's door: OPEN)</li></ul>	ON
		When requirements for sounding each warning buzzer are not satisfied	OFF
Door switch	Driver's door	When door(s) or tailgate is opened from the closed position	from OFF to ON
	Passenger's door		
	Rear door		
	Tailgate		
Driver's door lock actuator switch		Move the door lock knob from lock position to unlock position or vice versa	ON→ OFF or OFF→ ON
Driver's door unlock actuator switch			OFF→ ON or ON→ OFF
Power window timer duration*1		When the power window timer is activated	Displays the operation duration
Power window switch acceptance permission signal*2		Turn the ignition switch from ON to LOCK (OFF) or from START to ACC.	PERMIT to SUPPORT (after approx. 30 seconds elapsed)
Power window main switch	Switches	When the switch is turned from OFF to ON	from OFF to ON
	Power window lock switch		
Power window sub switch (front) *1	UP operation	When the switch is turned to UP from another position	from OFF to ON
	DOWN operation	When the switch is turned to DOWN from another position	
	AUTO operation	When the switch is turned to AUTO from another position	

Input signal		Conditions for sounding buzzer	Display on M.U.T.-III (when SWS monitor is used)
Power window sub switch (rear: RH) <sup>*1</sup>	UP operation	When the switch is turned to UP from another position	from OFF to ON
	DOWN operation	When the switch is turned to DOWN from another position	
	AUTO operation	When the switch is turned to AUTO from another position	
Power window sub switch (rear: LH) <sup>*1</sup>	UP operation	When the switch is turned to UP from another position	from OFF to ON
	DOWN operation	When the switch is turned to DOWN from another position	
	AUTO operation	When the switch is turned to AUTO from another position	
AUTO function for each power window <sup>*1</sup>		The display alters according to the presence of the function ("EQUIP" or "NONE").	EQUIP
Column switch	Auto lamp switch	When the lighting switch is turned to the auto lamp position	–
	Tail lamp switch	When the lighting switch is turned from one position to the tail lamp position	from OFF to ON
	Headlamp switch	When the lighting switch is turned from one position to the headlamp position	
	Dimmer switch	When the switch is turned from the OFF to the ON position	
	Passing switch		
	Turn-signal lamp LH switch		
	Turn-signal lamp RH switch		
Headlamp specification <sup>*1</sup>		The display alters according to the headlamp specification ("4 BULBS" or "2 BULBS").	4 BULBS
Headlamp automatic-shutdown timer duration <sup>*1</sup>		When the headlamp automatic-shutdown function is ON	Displays the operation duration

Input signal		Conditions for sounding buzzer	Display on M.U.T.-III (when SWS monitor is used)
Column switch (wiper switch)	Windshield mist wiper switch	When the switch is turned from OFF to ON	from OFF to ON
	Windshield intermittent wiper switch		
	Windshield low speed wiper switch		
	Windshield high speed wiper switch		
	Windshield washer switch		
	Rear wiper switch		
	Rear washer switch		
	Windshield intermittent wiper volume	When the interval adjusting knob is turned from "FAST" to "SLOW" while the ignition switch is ON.	Displays the windshield intermittent wiper volume voltage
Wiper autostop signal	Front	When activated from the stopped condition	from OFF to ON
	Rear		
With or without windshield intermittent wiper control <sup>*1</sup>		The display alters according to the presence of the equipment ("EQUIP" or "NONE").	EQUIP
Specification switching terminal <sup>*1</sup>		The display alters according to the transmission type ("A/T" or "M/T").	A/T or M/T
Diagnosis connector <sup>*1</sup>		Diagnosis control line: Earthed	ON
		Diagnosis control line: Not earthed	OFF
Rear sunroof lock control <sup>*1</sup>		M.U.T.-III display varies according to the presence of rear sunroof lock control.	SUPPORT
Interior lamp load		When the interior lamp is illuminated	—

**NOTE:**

- — shown in the table indicates that the check item for the input of the corresponding signal is not present in M.U.T.-III.
- <sup>\*1</sup>Checking the input signal by the sound of the buzzer is not possible. Input signal must be checked on the M.U.T.-III display.
- <sup>\*2</sup>: Buzzer sound during the check is triggered by the input signal from the ignition switch. It is not to check the presence of the power window switch acceptance permission signal.
- <sup>\*3</sup>: Buzzer sound during the check is triggered by the input signal from the keyless entry transmitter. It is not to check the presence of the multimode keyless entry input signal.

## ECU FUNCTIONS AND CONTROLS IN THE SWS

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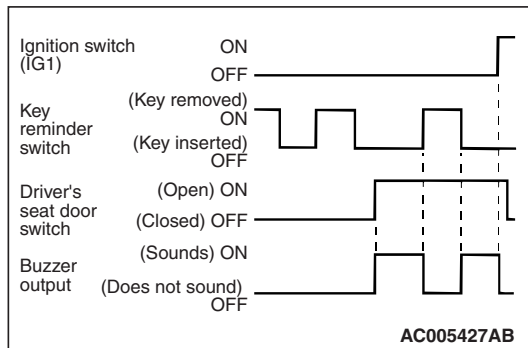
Following functions are controlled by ECUs of SWS.

Function		Control ECU	Function description
Buzzer	Ignition key reminder buzzer function <Vehicles for GCC, Hong Kong and Singapore>	ETACS-ECU	P.54B-15
	Lamp reminder buzzer function	ETACS-ECU, column switch	P.54B-15
	R (reverse) position reminder function <Vehicles for Hong Kong and Singapore>	ETACS-ECU	P.54B-15
	Speed warning buzzer function <Vehicles for GCC>		P.54B-15
	Seat belt warning buzzer function <Vehicles for GCC, Australia and New Zealand>		P.54B-16
	Door-ajar warning buzzer function		P.54B-17
	Turn-signal lamp buzzer function	ETACS-ECU, column switch	P.54B-17
	Rear sunroof buzzer function	ETACS-ECU, sunroof-ECU	P.54B-18
Central door locking system	Central door locking control function	ETACS-ECU	P.54B-18
	Key reminder function <Vehicles with keyless entry system>		P.54B-19
	Shift "P" position linked door unlock function <Vehicles for Hong Kong and Singapore>		P.54B-19
	Tailgate opener control function		P.54B-19
Keyless entry	Multi-mode keyless entry system	ETACS-ECU, power window main switch	P.54B-20
	Keyless entry hazard answerback function		P.54B-20
	Room lamp answerback function		P.54B-20
	Timer lock function		P.54B-21
Power window	Power window timer function <Except vehicles for Hong Kong, Singapore, Australia and New Zealand>	ETACS-ECU, power window main switch	P.54B-21
	Power window timer function <Vehicles for Hong Kong and Singapore>		P.54B-21
	Power window timer function <Vehicles for Australia and New Zealand>		P.54B-22
Sunroof	Sunroof timer function	ETACS-ECU, sunroof-ECU	P.54B-22

Function		Control ECU	Function description
Windshield wiper and washer	Intermittent control (Vehicle speed-dependent variable type)	ETACS-ECU, front-ECU, column switch	<a href="#">P.54B-23</a>
	Mist wiper control		<a href="#">P.54B-23</a>
	Low speed wiper and high speed wiper control		<a href="#">P.54B-24</a>
	Windshield wiper linked with washer function		<a href="#">P.54B-24</a>
Rear wiper and washer	Rear wiper control	ETACS-ECU, column switch	<a href="#">P.54B-25</a>
	Rear wiper linked with washer function		<a href="#">P.54B-26</a>
Electric retractable remote controlled mirror	Electric retractable remote controlled mirror timer function	ETACS-ECU	<a href="#">P.54B-27</a>
	Automatic unfolding function		<a href="#">P.54B-27</a>
Headlamp	Headlamp automatic-shutdown function <Except vehicles for Australia and New Zealand>	ETACS-ECU, front-ECU, column switch	<a href="#">P.54B-28</a>
	Auto lamp function <Vehicles for Hong Kong and Singapore>		<a href="#">P.54B-29</a>
	Wiper-linked auto lamp function <Vehicles for Hong Kong and Singapore>		<a href="#">P.54B-30</a>
	High-beam indicator		<a href="#">P.54B-30</a>
Flasher timer function	Turn-signal lamp	ETACS-ECU, column switch	<a href="#">P.54B-30</a>
	Hazard warning lamp		<a href="#">P.54B-30</a>
	Turn-signal lamp indicator		<a href="#">P.54B-31</a>
Front fog lamp	Front fog lamp control	ETACS-ECU, front-ECU, column switch	<a href="#">P.54B-31</a>
	Front fog lamp indicator		<a href="#">P.54B-31</a>
Interior lamp	Interior lamp dimmer control function	ETACS-ECU	<a href="#">P.54B-32</a>
	Interior lamp automatic-shutoff function <Vehicles with keyless entry system>		<a href="#">P.54B-33</a>
	Ignition key cylinder illumination lamp and foot lamp control function		<a href="#">P.54B-34</a>
	Door-ajar indicator		<a href="#">P.54B-34</a>
	Seat belt warning lamp <Vehicles for GCC, Australia and New Zealand>		<a href="#">P.54B-35</a>
Security alarm	Security alarm function <Vehicles for Hong Kong and Singapore>		<a href="#">P.54B-36</a>
Seat belt reminder function <Vehicles for Hong Kong and Singapore>		ETACS-ECU	<a href="#">P.54B-37</a>
Customize function		ETACS-ECU	<a href="#">P.54B-40</a>

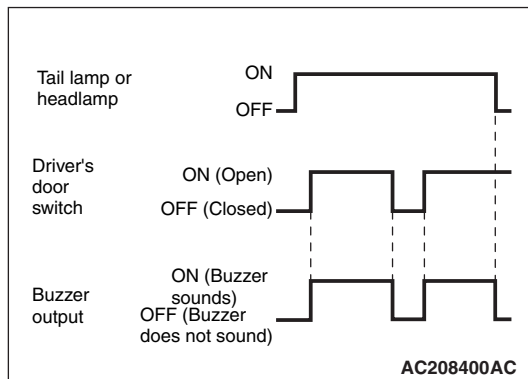
## BUZZER

### IGNITION KEY REMINDER BUZZER FUNCTION <VEHICLES FOR GCC, HONG KONG AND SINGAPORE>



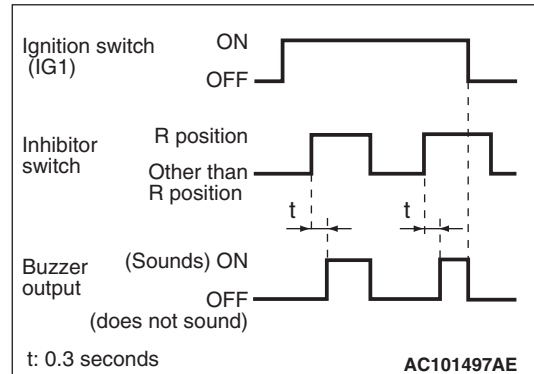
When the driver's door is opened with the ignition key inserted in the ignition key cylinder (ignition switch is in the OFF position,) the buzzer sounds intermittently to indicate that the ignition key has not been removed.

### LAMP REMINDER BUZZER FUNCTION



When the ignition key is removed and then the driver's door is opened with turning ON the tail lamp or the headlamp, the buzzer sounds continuously to alert the driver that the lamp is still ON. However, if the tail lamp or the headlamp is turned off by the headlamp automatic-shutdown function, the buzzer does not sound.

### R (REVERSE) POSITION REMINDER FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE>

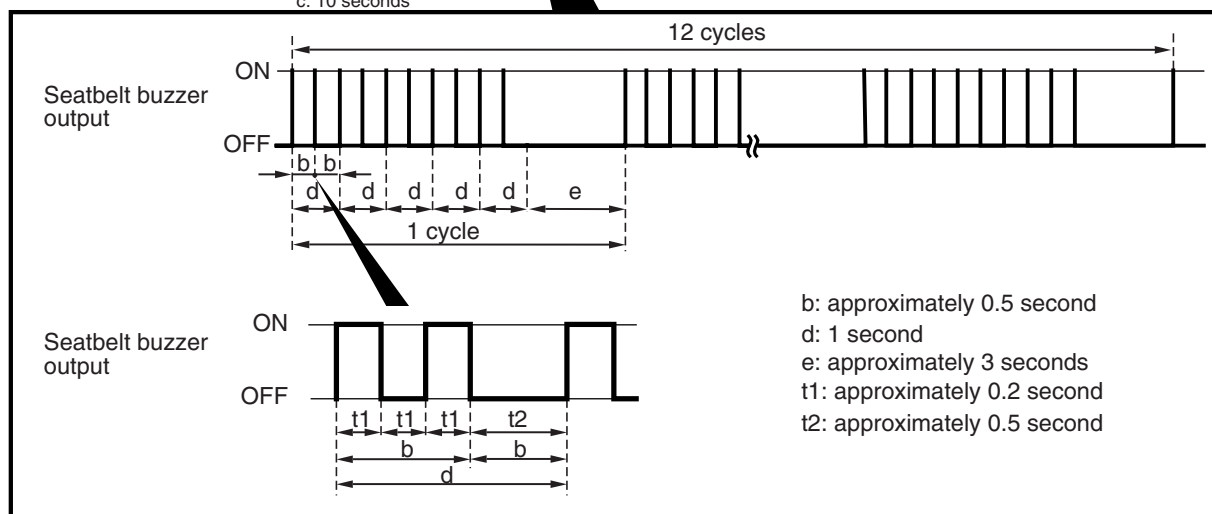
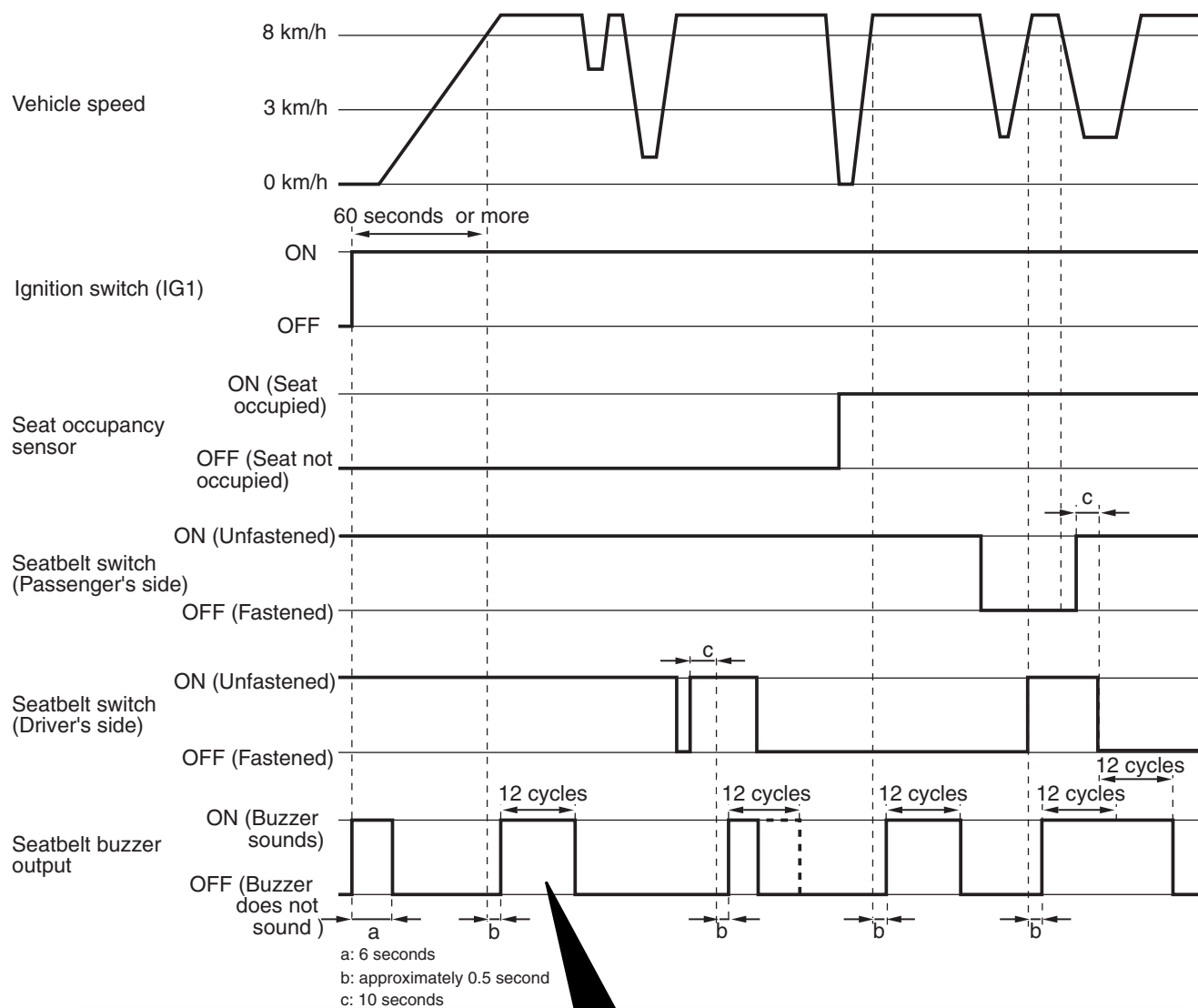


0.3 second after the selector lever (inhibitor switch) is shifted to the R position with the ignition switch ON, the buzzer sounds intermittently (peep sound) to let the driver know that the selector lever is on the R position.

### SPEED WARNING BUZZER FUNCTION <VEHICLES FOR GCC>

If the vehicle speed exceeds 120 km/h, the buzzer sounds intermittently to warn the driver that the speed is too high.

# SEAT BELT WARNING BUZZER FUNCTION <VEHICLES FOR GCC, AUSTRALIA AND NEW ZEALAND>



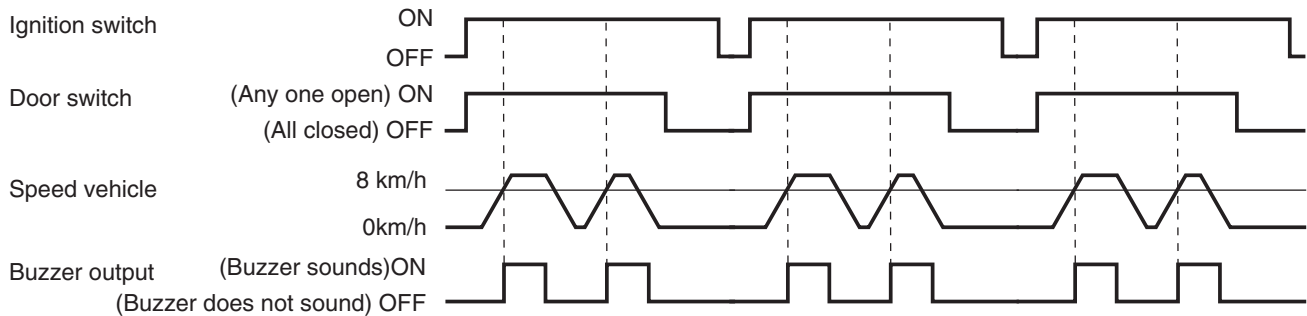


When the ignition switch is turned ON with the driver's seat belt unbuckled, the ETACS-ECU triggers a warning buzzer (repetition of a short beep sound) for 6 seconds to notify the driver that the seat belt is not fastened.

When the ETACS-ECU detects that the vehicle speed signal sent from the combination meter through CAN communication exceeds 8 km/h and the driver's seat belt buckle is not engaged, it will trigger a warning buzzer (repetition of 5-seconds ON and 2.8-seconds OFF for 12 cycles). The

ETACS-ECU stops the buzzer when the driver's seat belt buckle is engaged while the warning cycle is ON. On vehicles except for Australia and New Zealand, the seat belt warning lamp function is only applied to the driver's seat belt.

### DOOR-AJAR WARNING BUZZER FUNCTION (THE INITIAL CONDITION: WITH FUNCTION)

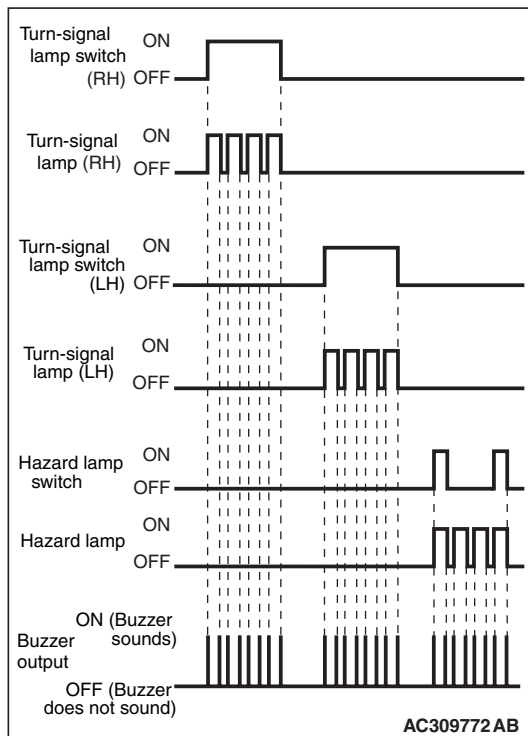


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If the vehicle speed exceeds 8 km/h with the door-ajar, the buzzer sounds (pings eight times) to alert the driver that the door is not properly closed.

**NOTE:** Availability of the door-ajar alarm function can be selected by the customize function (Refer to [P.54B-40](#)).

### TURN-SIGNAL LAMP BUZZER FUNCTION (THE INITIAL CONDITION: WITHOUT FUNCTION)

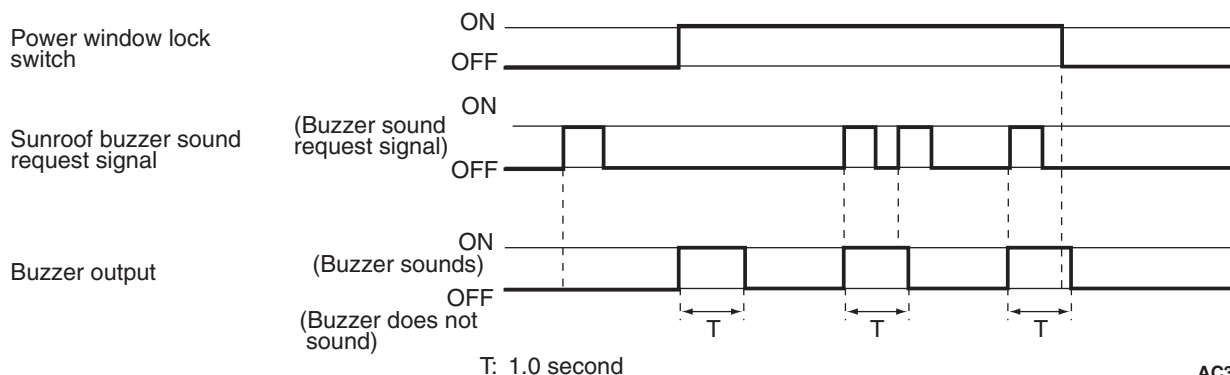


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ETACS-ECU buzzer sounds simultaneously with the blinks of the turn-signal lamp and the hazard lamp.

**NOTE:** Availability of the turn-signal lamp operation tone function can be selected by the customize function (Refer to [P.54B-40](#)).

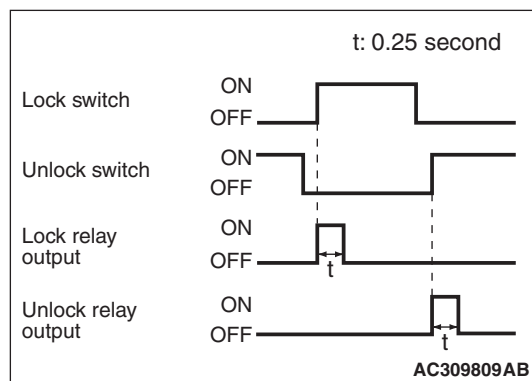
## REAR SUNROOF BUZZER FUNCTION



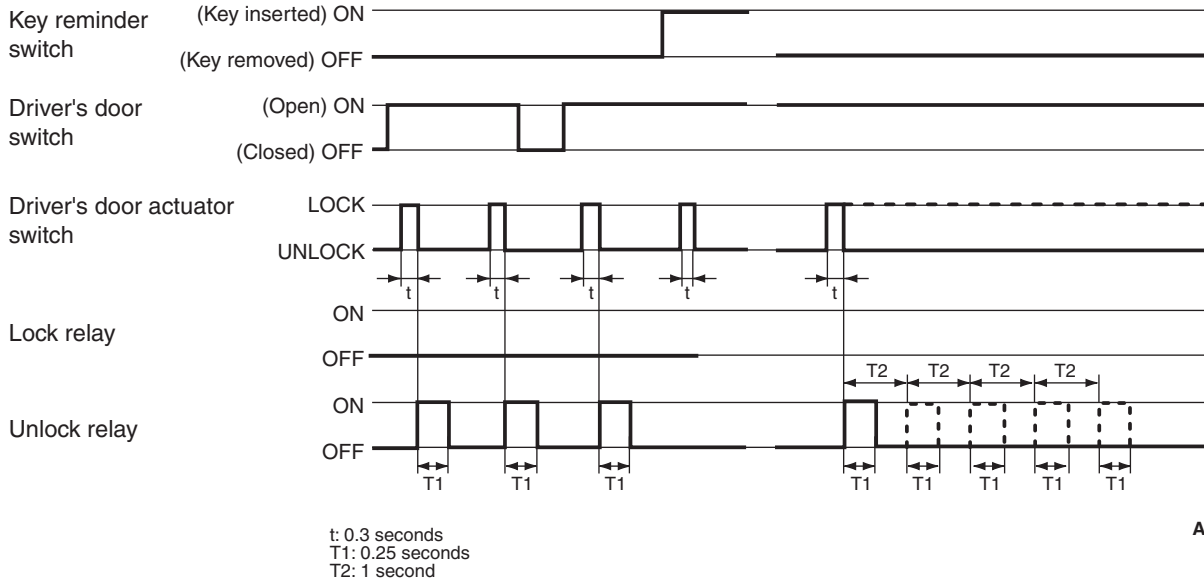
The ETACS-ECU triggers a warning buzzer when it receives a buzzer request signal from the sunroof-ECU. The buzzer keeps sounding for 1 full second if the trigger conditions are eliminated while the buzzer is ON.

When the front doors are locked (when the lock switch turns ON after turning OFF the unlock switch in the driver's door lock actuator), ETACS-ECU turns ON the lock relay output for 0.25 second, and locks all doors (including the tailgate).

When the front doors is unlocked (when the unlock switch turns ON after turning OFF the lock switch on the driver's door lock actuator), ETACS-ECU turns ON the unlock relay output for 0.25 second, and unlocks all doors (including the tailgate).

CENTRAL DOOR LOCKING SYSTEM  
CENTRAL DOOR LOCKING CONTROL  
FUNCTION

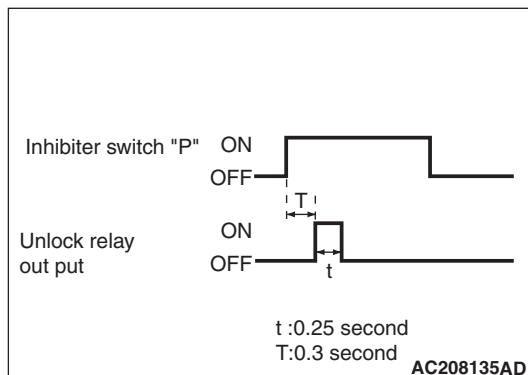
## KEY REMINDER FUNCTION <VEHICLES WITH KEYLESS ENTRY SYSTEM>



When the driver's door is opened with the ignition key inserted to the ignition cylinder and the door is locked (when the lock switch turns ON after turning OFF the unlock switch in the driver's door lock actuator), after approximately 0.3 second, ETACS-ECU turns ON the unlock relay output for 0.25 second to discourage the door lock operation so that the ignition key left in the ignition cylinder is prevented. If the discouraging the door lock operation fails, the current supply will be retried (The unlock relay output is turned ON for 0.25 second up to five times with one second interval).

**NOTE:** The broken line in the graph indicates the current supply retry state if the discouraging door lock operation fails.

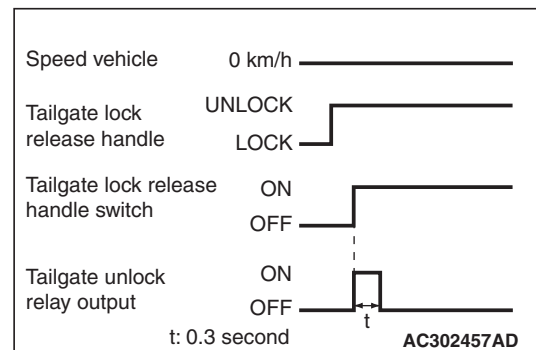
## SHIFT "P" POSITION LINKED DOOR UNLOCK FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE> (THE INITIAL CONDITION: WITH FUNCTION)



When the selector lever is shifted to "P" position (parking) (inhibitor switch "P" is ON) with the ignition switch turned to the ON position, the ETACS-ECU turns on the unlock relay output for 0.25 second (0.3 second after the selector lever operation) and unlocks all the doors (including the tailgate).

**NOTE:** Using a customisation function, this function can be enabled or disabled. For more information about the customisation function, refer to [P.54B-40](#).

## TAILGATE OPENER CONTROL FUNCTION



When the tailgate lock release handle is pulled up (tailgate lock release handle switch turns ON) while the vehicle is parked and the tailgate is unlocked, the ETACS-ECU turns ON the unlock relay output for 0.3 second, thus the tailgate can be opened by the tailgate lock release handle.

**KEYLESS ENTRY SYSTEM****MULTI-MODE KEYLESS ENTRY SYSTEM**

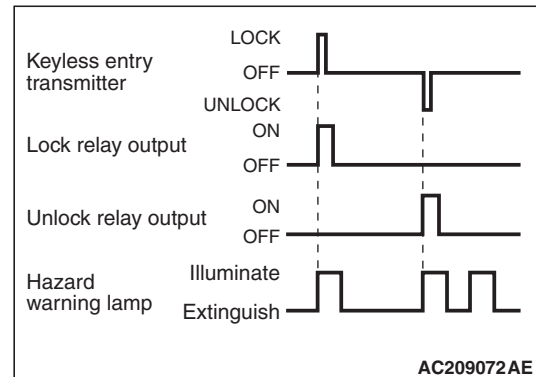
The power window, door mirrors and sunroof can be operated by the keyless entry transmitter operation.

<Vehicles for Hong Kong>

The power door mirrors can be operated by the keyless entry transmitter operation. <Except vehicles for Hong Kong>

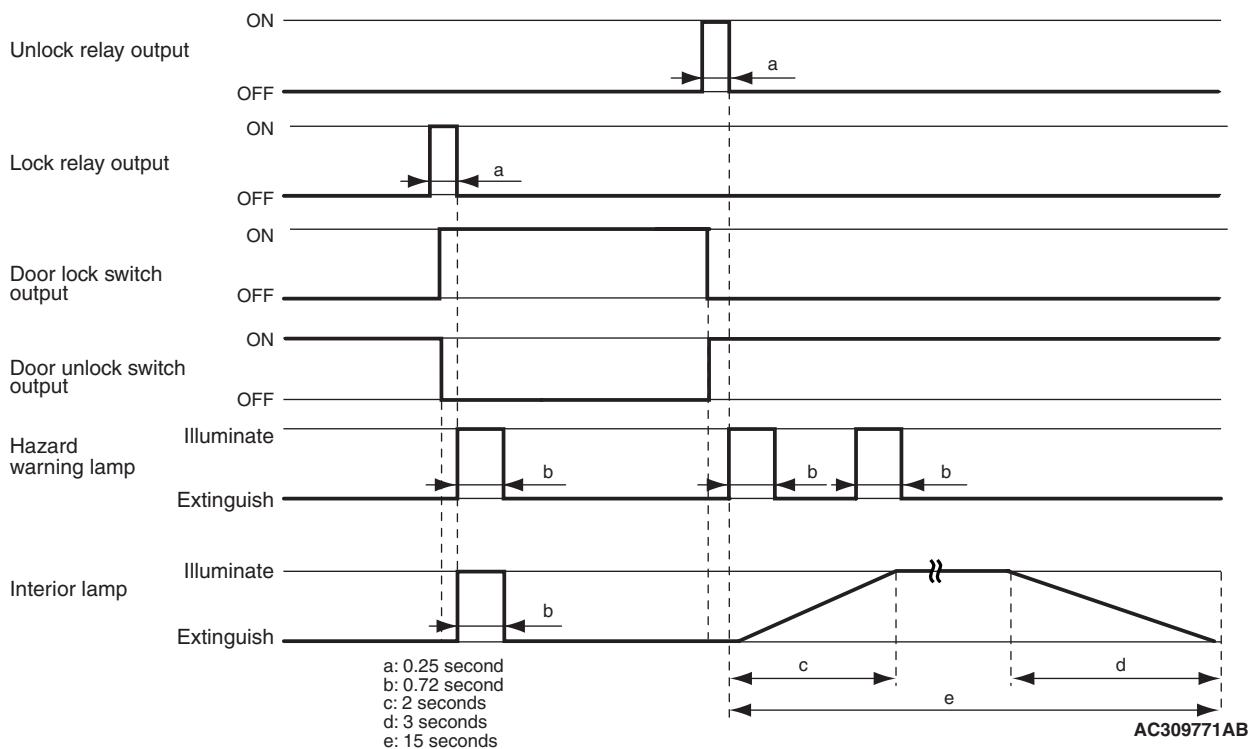
For the operation, refer to Group 42 – Body – keyless entry system [P.42-12](#).

**NOTE:** Availability of the door mirrors operation can be adjusted with the customize function (Refer to [P.54B-40](#)).

**KEYLESS ENTRY HAZARD  
ANSWERBACK FUNCTION (INITIAL  
SETTING: LOCK, FLASH ONCE,  
UNLOCK, FLASH TWICE)**


The hazard answer back function that allows checking the lock/unlock state of the door easily even in the daytime is installed. When the lock signal from the keyless entry transmitter is received into ETACS-ECU, all doors (including the tailgate) are LOCK, and the turn signal lamp blinks once. When the unlock signal is received, all doors (including the tailgate) are UNLOCK, and the turn-signal lamp blinks twice.

**NOTE:** The answer back blink time can be adjusted by the customize function (Refer to [P.54B-40](#)).

**ROOM LAMP ANSWERBACK FUNCTION  
(INITIAL SETTING: LOCK FLASH ONCE,  
UNLOCK ILLUMINATES FOR 15  
SECONDS)**


When the ETACS-ECU receives the lock signal from the keyless entry transmitter, all doors (including tailgate) is locked and the interior lamp flashes once in synchronization with the hazard lamp operation. When the ETACS-ECU receives the unlock signal, all doors (including tailgate) is unlocked. The interior lamp fades in, keeps on, and fades out in 15 seconds after the door unlock relay is operated. (15 seconds including fading period)

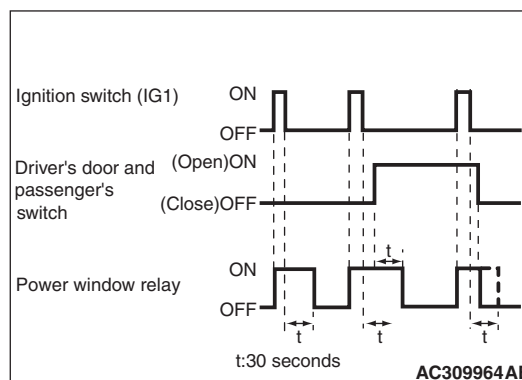
*NOTE: The answerback blink time can be adjusted by the customize function. (Refer to P.54B-40).*

## TIMER LOCK FUNCTION (THE INITIAL CONDITION: 30 SECONDS)

After unlocking the doors with the keyless entry transmitter, if no doors are opened and if the ignition key is not inserted or if the locking function is not operated, the ETACS-ECU automatically locks the doors in 30 seconds.

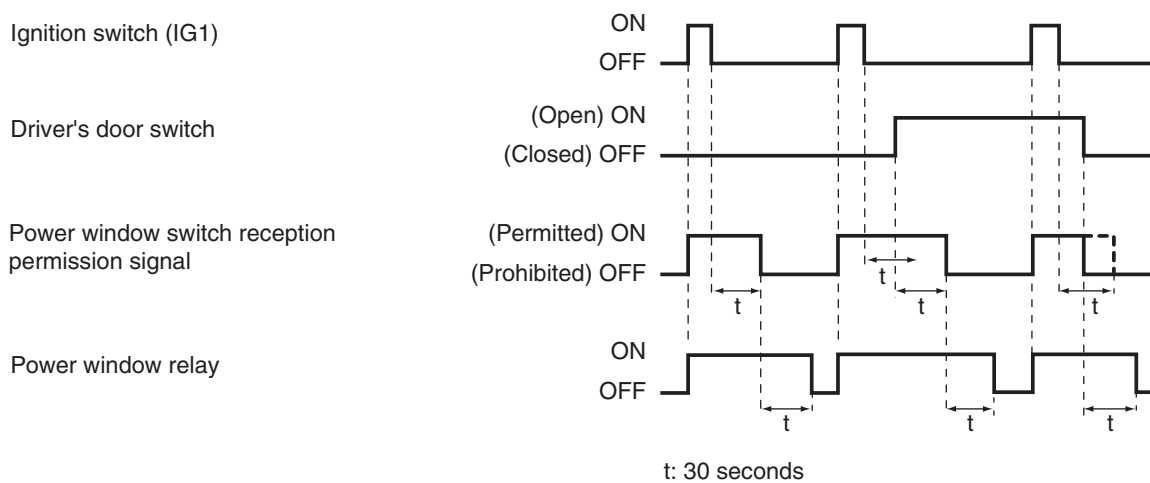
## POWER WINDOW

### POWER WINDOW TIMER FUNCTION <EXCEPT VEHICLES FOR HONG KONG, SINGAPORE, AUSTRALIA AND NEW ZEALAND>



When the power window relay is turned ON with the ignition switch ON, the power window relay is kept ON for 30 seconds even after the ignition switch is turned OFF, enabling the door window to be opened and closed with the power window switch. If the driver's door is opened during the timer operation, the power window relay is kept ON for 30 seconds from that time. However, when the driver's door is closed, the power window relay is turned OFF at the same time.

### POWER WINDOW TIMER FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE> (THE INITIAL CONDITION: 30 SECOND <VEHICLES FOR HONG KONG AND SINGAPORE>)

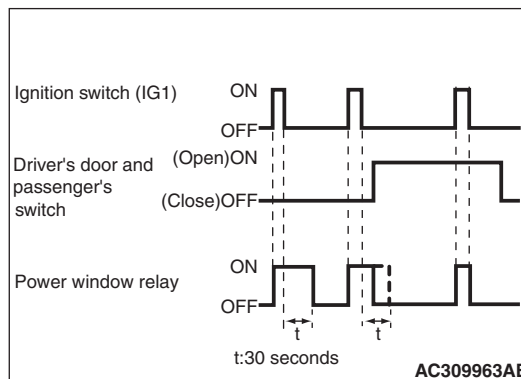


When the power window relay and the power window switch reception permit signal (SWS signals from ETACS) are turned ON with the ignition switch ON and the ignition switch is turned OFF, the power window switch reception permit signal is kept ON for approximately 30 seconds to enable the door window operation by the power window switch. The power window relay will be turned OFF 30 seconds after terminating the reception permit signal.

If the driver's door is opened during the timer operation, the reception permit signal is kept ON for 30 seconds from that time. However, when the driver's door is closed, the reception permit signal is turned OFF at the same time. The power window relay will be turned OFF 30 seconds after terminating the reception permit signal.

**NOTE:** <Vehicles for Hong Kong and Singapore>  
The power window timer function time can be adjusted by the customize function (Refer to [P.54B-40](#)).

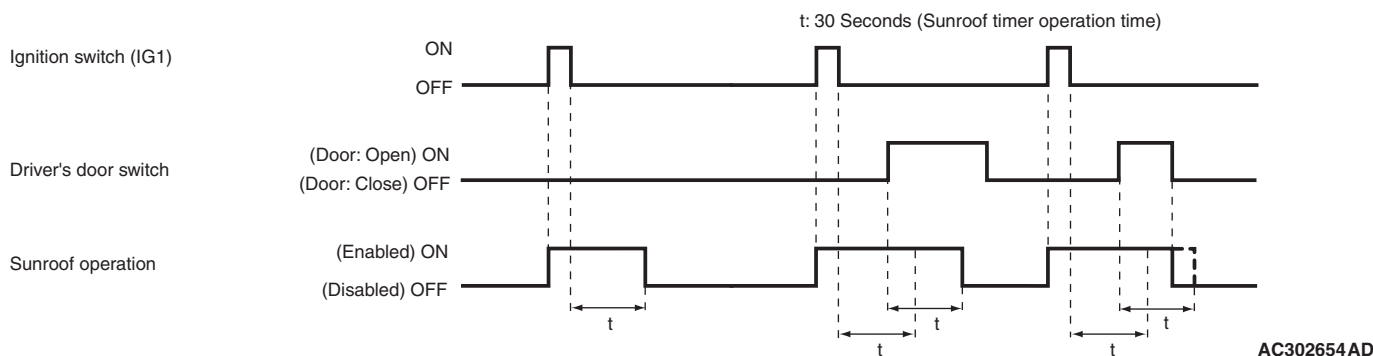
## POWER WINDOW TIMER FUNCTION <VEHICLES FOR AUSTRALIA AND NEW ZEALAND>



When the power window relay is turned ON with the ignition switch ON, the power window relay is kept ON for 30 seconds even after the ignition switch is turned OFF, enabling the door window to be opened and closed with the power window switch. If the driver's or the front passenger door is opened during timer operation, the power window relay is turned OFF at the same time.

## SUNROOF

### SUNROOF TIMER FUNCTION



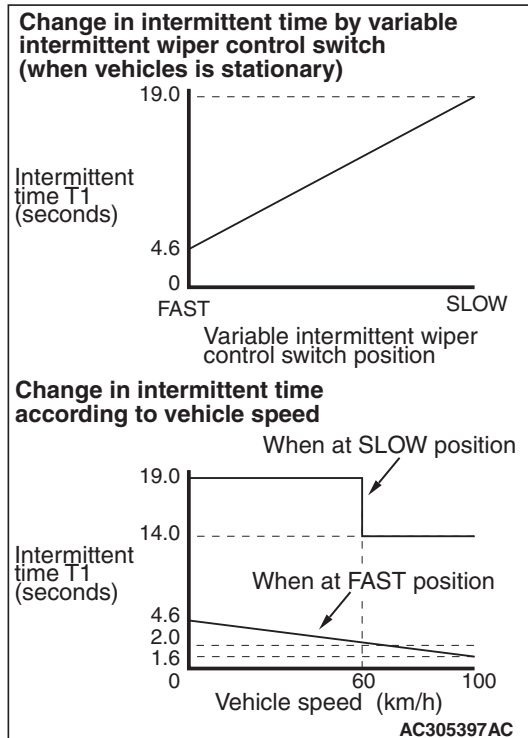
After turning OFF the ignition switch, the sunroof can be operated by the sunroof switch for approximately 30 seconds.

When the driver's door is opened during the sunroof timer operation, the sunroof timer operation will be extended for sunroof timer operation time at that time.

If the driver's door is closed during sunroof timer operation, the sunroof operation is cancelled at the same time.

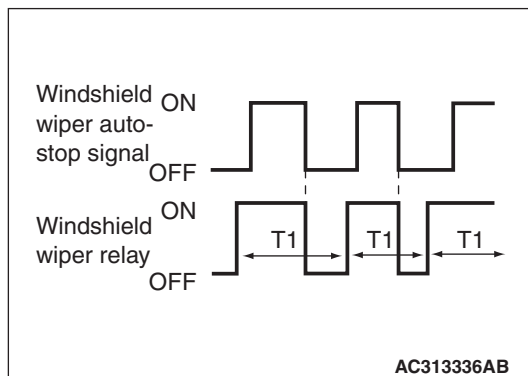
**NOTE:** The sunroof timer operation time can be adjusted by the customize function (Refer to [P.54B-40](#)).

## WINDSHIELD WIPER AND WASHER INTERMITTENT CONTROL <VEHICLE SPEED-DEPENDENT VARIABLE TYPE> (THE INITIAL CONDITION: WITH FUNC- TION)



1. The ETACS-ECU calculates the intermittent time "T1" based on the position of the windshield intermittent wiper control on the column switch and the vehicle speed signal, which is transmitted from the combination meter to the ETACS-ECU through CAN communication, and constantly transmits it to the front ECU.

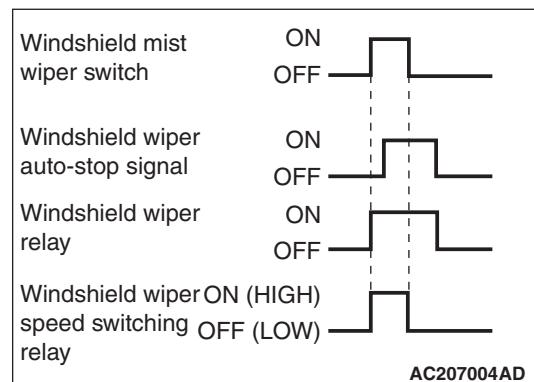
**NOTE:** Using a customisation function, driver can enable or disable the vehicle speed-sensitive function. For more information about the customisation feature, refer to [P.54B-40](#).



2. When the front ECU receives the windshield intermittent wiper switch ON signal from the column switch while the ignition switch is in the ACC or ON position, it turns the windshield wiper relay on to operate the windshield wiper at low speed.
3. When the windshield wiper comes to the stop position, the windshield wiper auto stop signal turns OFF. Then the windshield wiper relay will turn OFF, and the windshield wiper stops operating.
4. After the intermittent time (T1 second) sent from the ETACS-ECU has elapsed after the windshield wiper relay is turned ON, the windshield wiper relay turns ON again, and the above procedure is repeated.

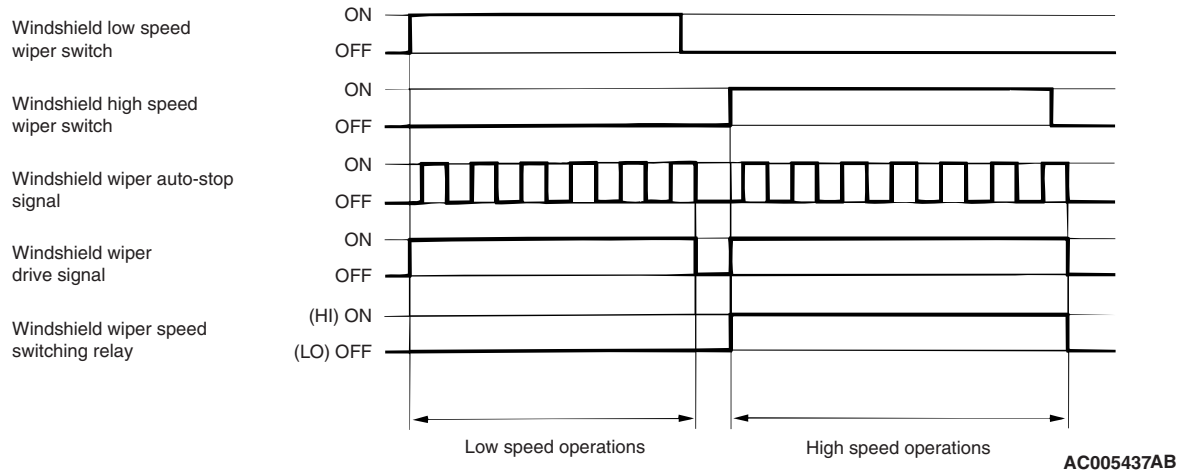
**NOTE:** If the intermittent time "T1" is 2 seconds or longer, the front ECU operates the windshield wiper at low speed.

## MIST WIPER CONTROL



When the windshield wiper mist switch of the column switch is turned ON while the ignition switch is ACC or ON, the column switch turns ON the windshield wiper drive signal. At the same time, the wiper speed switch relay turns to ON (HI). When the windshield mist wiper switch is ON, the windshield wiper operates at the high speed. When the windshield mist wiper switch is turned OFF while the windshield wiper is operating in the mist mode, the windshield wiper operates at low speed and then stops at the auto stop position.

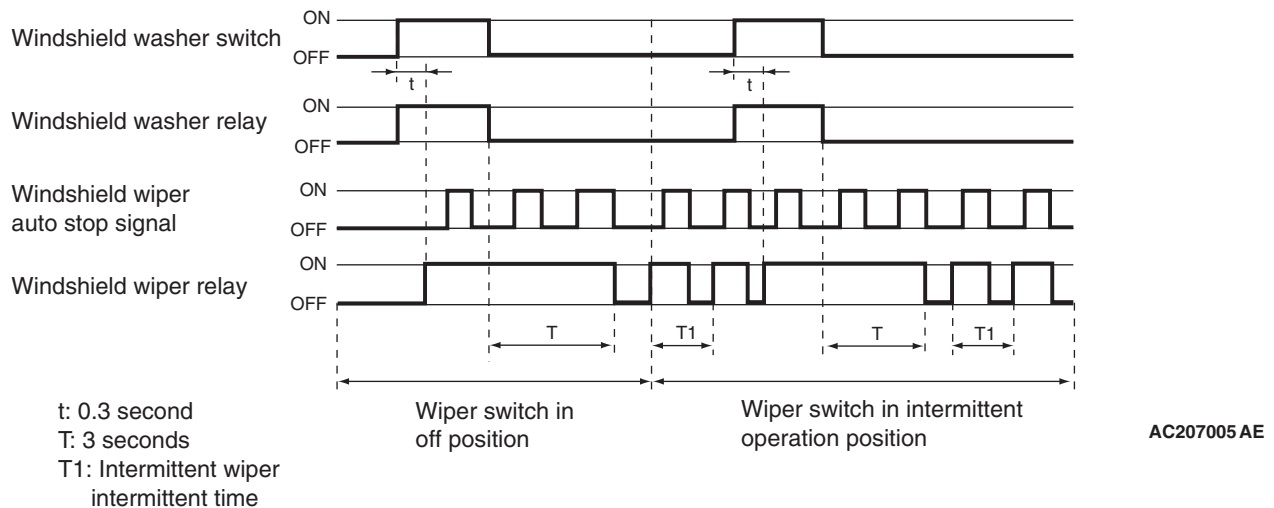
## LOW SPEED WIPER AND HIGH SPEED WIPER CONTROL



When the windshield low speed wiper switch of the column switch is turned ON while the ignition switch is ACC or ON, the column switch turns ON the windshield wiper drive signal. Also, the wiper speed switching relay turns to OFF (LO), and the windshield wiper operates at the low speed.

When the windshield high speed wiper switch is turned ON, the windshield wiper drive signal turns ON. Also, the wiper speed switching relay turns ON (HI), and the windshield wiper operates at the high speed.

## WINDSHIELD WIPER LINKED WITH WASHER FUNCTION (THE INITIAL CONDITION: WITH FUNCTION)





Wiper switch	OFF position				Intermittent operation position				Low-speed or high-speed operation position
Washer switch ON time	0.3 second or less	0.3 to 0.5 second	0.5 to 0.7 second	0.7 second or more	0.2 second or less	0.2 to 0.5 second	0.5 to 0.7 second	0.7 second or more	–
T1	0 second	1 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

- When the front-ECU receives a windshield washer switch signal from the column switch with the ignition switch in the ACC or the ON position, the ECU turns on the windshield washer relay. When the windshield washer relay becomes ON, the windshield washer motor starts to run to spray the washer fluid in the washer tank onto the windshield through the washer nozzles. When the windshield washer switch signal remains on for 0.3 second or more, the signal turns on the windshield wiper relay (The wiper interval depends on the condition. For details, see the list) to operate the windshield wiper at high speed. Turning off the windshield washer switch causes the front-ECU to turn off the windshield wiper relay "T" seconds later, thus operating the wiper to the auto stop position at low speed.
- When the windshield washer switch is turned ON during the intermittent operation of the windshield wiper, the windshield wiper switches to continuous operation and then resumes intermittent operation.

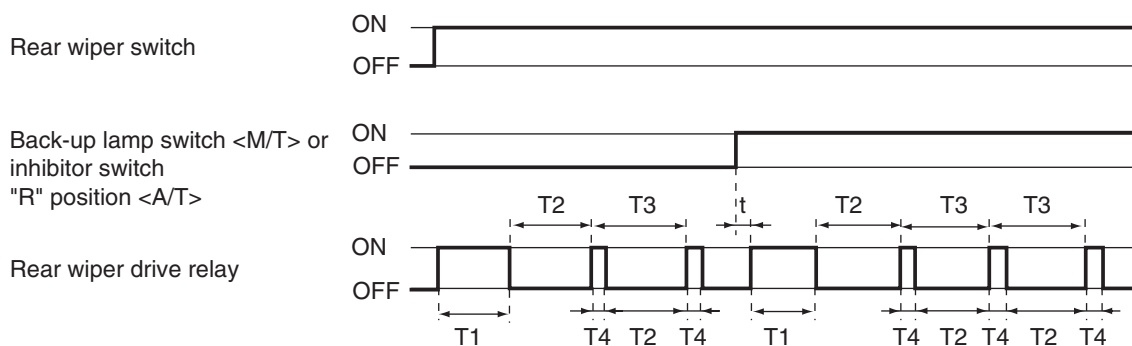
- If the ignition switch is turned to ACC while the windshield washer switch is being turned ON, the windshield washer relay becomes ON, but the windshield wiper does not activate linking with it. When the windshield washer switch is turned OFF and then ON, the windshield wiper makes the linking operation.

**NOTE:**

- Using a customisation function, the driver can enable or disable the windshield wiper linked with washer function. For more information about the customisation feature, refer to [P.54B-40](#).
- When the windshield wiper linked with washer function is disabled by the customisation feature, the windshield wiper does not operate in synchronization with the windshield washer. However, the windshield washer can be activated. It is useful to melt down the ices of the frozen windshield.

## REAR WIPER AND WASHER

### REAR WIPER CONTROL [THE INITIAL CONDITION: 8 SECONDS (WITHOUT SUCCESSIVE OPERATIONS)]



t: 1.0 second  
T1: 3.0 seconds  
T2: 7.4 seconds  
T3: 8.0 seconds  
T4: 0.6 second

AC207474 AD

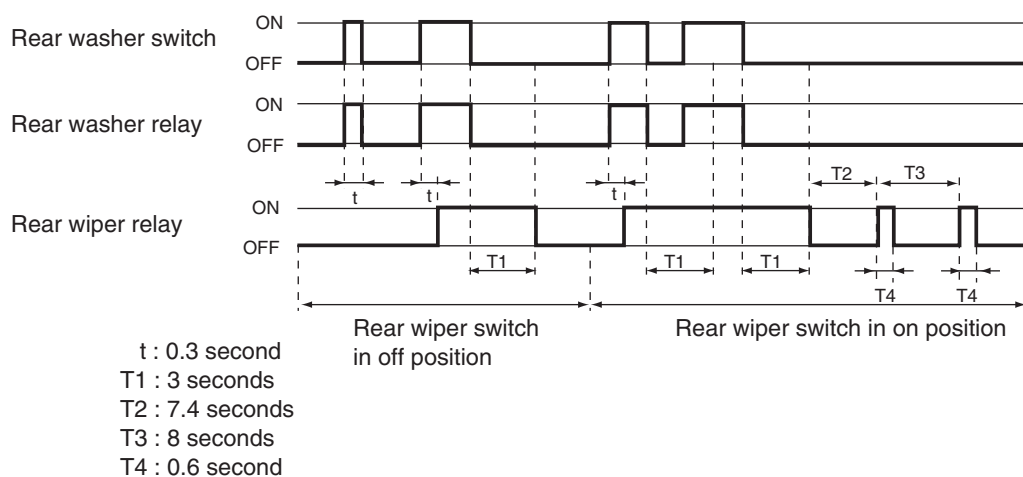
1. When the rear wiper switch on the column switch is turned ON with the ignition switch at the ACC or ON position, ETACS-ECU turns ON the rear wiper drive signal for 3 seconds (approximately 2 operations) and performs the intermittent action at 8-second intervals.

When the shift lever <M/T> or selector lever <A/T> is moved to R position during the rear wiper operation, the back-up lamp switch <M/T> or inhibitor switch R position <A/T> turns ON one second after that, ETACS-ECU sends the rear wiper drive signal for 3 seconds (approximately 2 operations), and operates the intermittent action in 8 seconds interval.

2. By the special operation of the rear wiper switch on the column switch (successive 2-time operations), the rear wiper operates continuously regardless of the set intermittent time.

*NOTE: The rear wiper intermittent time can be adjusted or cancelled for continuous operation by the customize function (Refer to P.54B-40).*

## REAR WIPER LINKED WITH WASHER FUNCTION (THE INITIAL CONDITION: WITH FUNCTION)



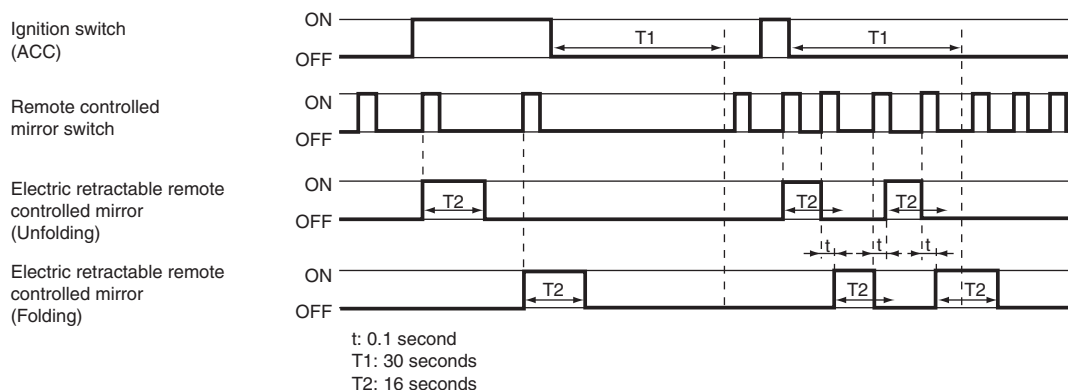
AC207003AE

- When the rear washer switch on the column switch is turned ON with the ignition switch ACC or ON, ETACS-ECU turns ON the rear washer relay. When the rear washer switch signal from the column switch remains ON for 0.3 second or more, ETACS-ECU turns ON the rear wiper relay to operate the rear wiper continuously. When the rear washer switch is turned OFF, the ETACS-ECU turns OFF the rear wiper relay 3 seconds later. Then the rear wiper stops at the auto stop position.
- Even turning ON the rear washer switch during rear wiper operation causes the rear wiper relay to switch the operation to continuous operation, and then the rear wiper resumes intermittent operation at intervals of eight seconds, 7.4 seconds after the completion of the continuous operation.

*NOTE: Using a customisation function, a driver can enable or disable the rear wiper linked with washer function. For more information about the customisation feature, refer to P.54B-40.*

## ELECTRIC RETRACTABLE REMOTE CONTROLLED MIRROR

### ELECTRIC RETRACTABLE REMOTE CONTROLLED MIRROR TIMER FUNCTION



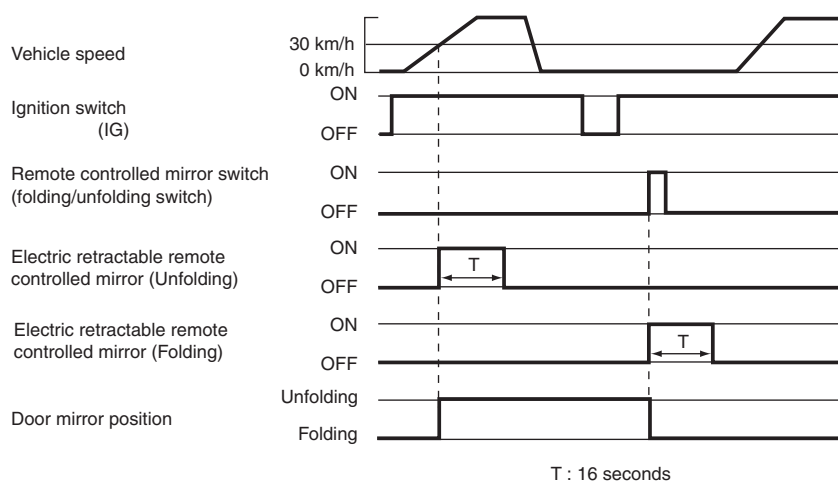
AC309810AB

When the unfolding/folding switch on the electric remote controlled mirror switch is turned ON with the ignition switch at the ACC or ON position, the retraction mirror relay is turned on for 16 seconds (unfolding/folding) to unfold or fold the door mirrors. Even after the ignition switch is turned OFF, the door mirrors can operate for 30 seconds.

If the unfolding/folding switch on the remote controlled mirror switch is turned ON while one of the retraction mirror relay is in operation (unfolding or folding), the other relay for the opposite motion is turned ON after 0.1 second.

**NOTE:** Whether the door mirrors are at the unfolding or folding position is determined according to the memory of the electric folding mirror relay operated previously. For this reason, if the mirrors are manually retracted, they may not move when the unfolding/folding switch is pressed next time.

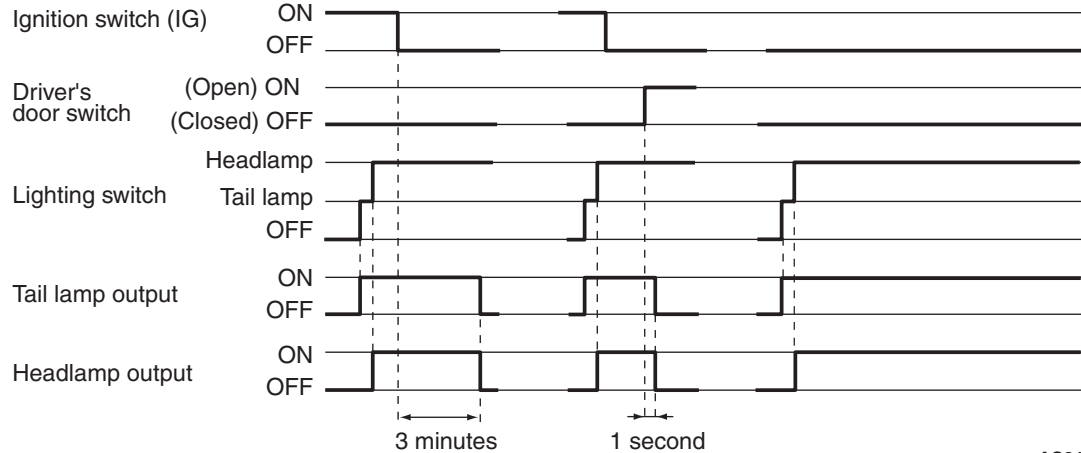
## AUTOMATIC UNFOLDING FUNCTION



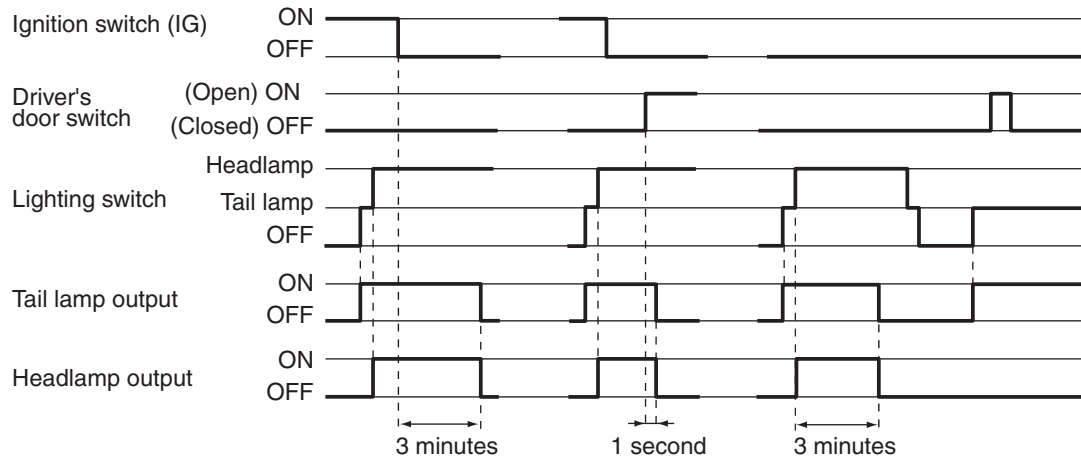
AC207002AC

When the vehicle speed reaches 30 km/h, with the ignition switch ON and the mirrors retracted, ETACS-ECU turns on the retraction mirror relay (unfolding) for 16 seconds to return the door mirrors. However, the door mirrors do not return to their normal positions automatically if the ignition switch is turned from OFF to ON, and then the unfolding/folding switch on the remote controlled mirror switch is operated.

**NOTE:** Whether the door mirrors are at the unfolding or folding position is determined according to the memory of the retraction mirror relay operated previously. For this reason, if the mirrors are manually retracted, they may not move when the unfolding/folding switch is pressed next time.

**HEADLAMP****HEADLAMP AUTOMATIC-SHUTDOWN FUNCTION <EXCEPT VEHICLES FOR AUSTRALIA AND NEW ZEALAND> (THE INITIAL CONDITION: WITH FUNCTION)****<EXCEPT VEHICLES FOR HONG KONG AND SINGAPORE>**

AC313740AB

**<VEHICLES FOR HONG KONG AND SINGAPORE>**

AC208166 AC

Even when the lighting switch (tail lamp switch or headlamp switch) is ON, the headlamp (including the tail lamps) turns off automatically with any of the following conditions to prevent the battery discharge caused by unattended operation.

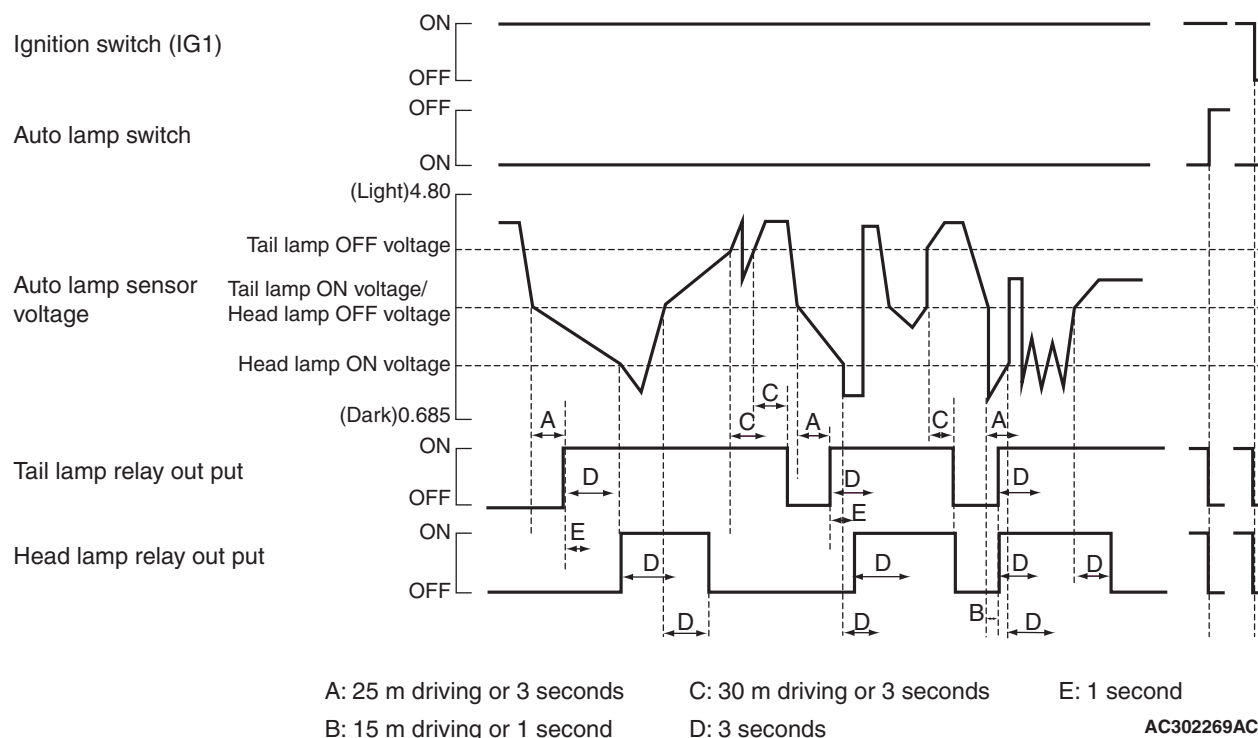
- If the ignition switch is turned OFF with the lighting switch ON, the lamp turns off automatically after 3 minutes. If the driver's door is opened during the 3 minutes, the lamp turns off after one second. (One seconds before turning off, the lamp remainder buzzer sounds. However, if the driver's door is opened with the ignition key inserted, the key remainder alarm buzzer operates in the first priority).

- When the lighting switch is turned to the headlamp position (the headlamp switch is ON) from OFF with the ignition switch OFF, the headlamps and the tail lamps turn off 3 minutes after getting off (open/close of the driver's door).
- If the lighting switch is turned to the tail lamp position from OFF with the ignition switch OFF, the lamps do not turn off automatically.

*NOTE: The auto-turn off can be made by the customize function (Refer to [P.54B-40](#)).*

After the headlamp automatic-shutdown function, when the lighting switch is turned OFF and then ON or, the ignition switch is turned ON, the headlamps turn on again.

## AUTO LAMP FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE> (INITIAL SETTING: ILLUMINATES IN STANDARD AMBIENT BRIGHTNESS)



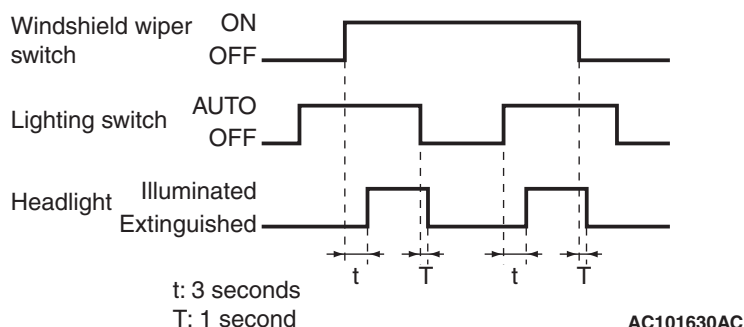
When the lighting switch is turned to the AUTO position with the ignition switch turned to the ON position, the ETACS-ECU controls the tail lamp relay and headlamp relay output depending on the auto lamp sensor voltage (varies with the ambient brightness) and automatically controls ON/OFF operation of the tail lamp and headlamp.

- When the sensor voltage drops below the tail lamp ON voltage, the tail lamp relay turns on after 25m driving or 3 seconds.
- When the sensor voltage drops below the headlamp ON voltage after the tail lamp has been illuminated for 1 second or more, the headlamp relay immediately turns on.
- When the sensor voltage drops below the tail lamp ON voltage, the tail lamp relay and headlamp relay turn on after 15m driving or 1 second.
- When the sensor voltage exceeds the headlamp OFF voltage, the headlamp relay turns off after 3 seconds.
- When the sensor voltage exceeds the tail lamp OFF voltage, the tail lamp relay and headlamp relay turn off after 30m driving or 3 seconds.

- Once turned on, the relay keeps energized for 3 seconds.
- If the sensitivity of the auto lamp sensor is set to "Sensitive", the illumination timing of the tail lamp when the vehicle enters a tunnel will be 9 m.

### NOTE:

1. Using a customisation function auto lamp sensor sensitivity can be set. For more information about the customisation function, refer to [P.54B-40](#).
2. To reduce the electric load during cranking operation, the headlamp illumination will be prohibited for 3 seconds when the ignition switch is turned to the ON position with the engine stopped. (When the cranking duration does not exceed 3 seconds, the headlamp will illuminate after the cranking operation is completed).
3. To let current flow through the auto lamp switch and prevent instantaneous illumination of the headlamps when the tail lamp switch is turned ON, the headlamps do not illuminate for 0.5 seconds after the key is tuned to the auto lamp switch position.

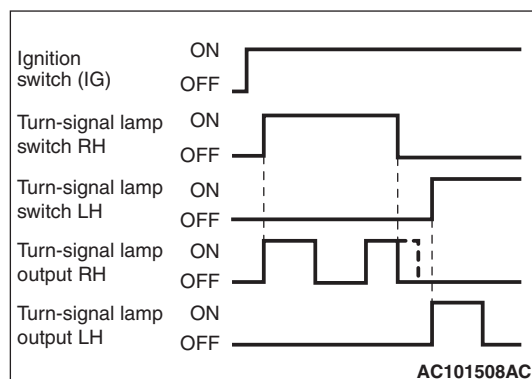
**WIPER-LINKED AUTO LAMP FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE> (INITIAL SETTING: WITHOUT FUNCTION)**

When the lighting switch is in AUTO position, the headlamp will illuminate 3 seconds after the windshield wiper has been turned on, which notifies another drivers of the vehicle's presence and improves forward visibility.

*NOTE: Using a customisation function, this function can be enabled or disabled. For more information about the customisation function, refer to [P.54B-40](#).*

**HIGH-BEAM INDICATOR**

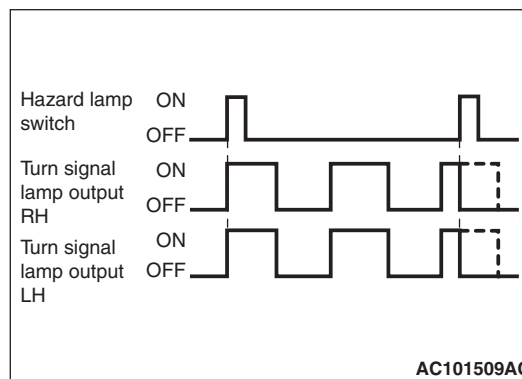
The ETACS-ECU outputs the high beam indicator ON signal to the combination meter through CAN communication in synchronization with the high beam headlamp operation. The combination meter receives the transmitted signal and turns ON or OFF the high beam indicator.

**FLASHER TIMER FUNCTION****TURN-SIGNAL LAMP (INITIAL SETTING: TURN SIGNAL LAMP CAN BE OPERATED WHEN THE IGNITION SWITCH IS IN THE ON POSITION)**

When the turn-signal lamp switch is ON (LH or RH) with the ignition switch is ON, the turn-signal lamp output (flash signal) is turned ON.

If the lamp bulb of the front or rear turn-signal lamp has burned out, the flashing speed becomes faster to alert the driver that the lamp bulb has burned out.

*NOTE: Using a customisation function, this function becomes available even when the ignition switch is in the ACC position. For more information about the customisation feature, refer to [P.54B-40](#).*

**HAZARD WARNING LAMP**

When the hazard lamp switch input signal turning from OFF to ON is detected, the flashing states turns over by the signal (When the hazard lamp is not blinking, it blinks. If it is blinking, it turns off).

*NOTE:*

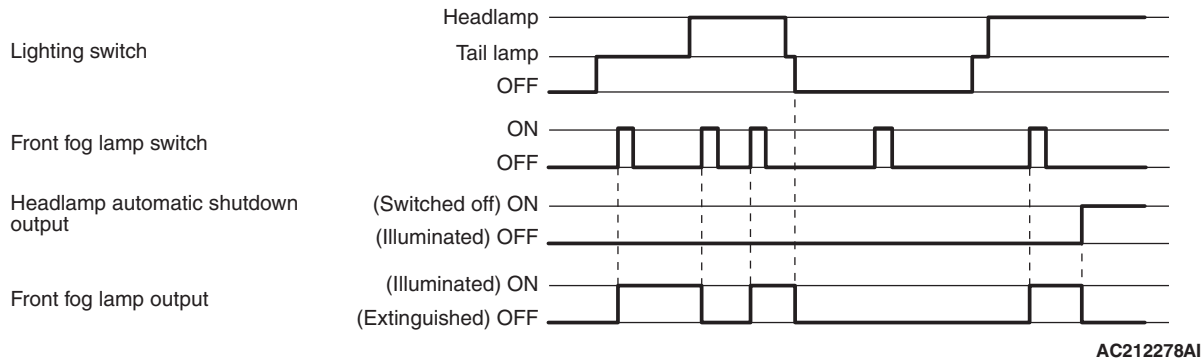
1. The push-return switch is adopted for the hazard lamp switch.
2. Even if the lamp bulb has burned out, the flashing speed of the hazard lamp is not changed.

## TURN-SIGNAL LAMP INDICATOR

The ETACS-ECU outputs the turn signal lamp indicator ON signal to the combination meter through CAN communication in synchronization with the turn signal lamp operation. The combination meter receives the transmitted signal and turns ON or OFF the turn-signal lamp indicator.

## FRONT FOG LAMP

### FRONT FOG LAMP CONTROL



When the front fog lamp switch is turned to ON with the tail lamp or the headlamp lit (the tail lamp switch or the headlamp switch is ON), the front fog lamp relay turns ON, and the front fog lamps turn on. If the tail lamp or the headlamp is turned off with the lighting switch OFF while the front fog lamps lit, the front fog lamps turn off the same time to prevent unattended operation.

If the tail lamp is turned off by the headlamp automatic-shutdown function, the front fog lamps turn off at the same time. However, if the tail lamps turn on again, the front fog lamps do not.

## FRONT FOG LAMP INDICATOR

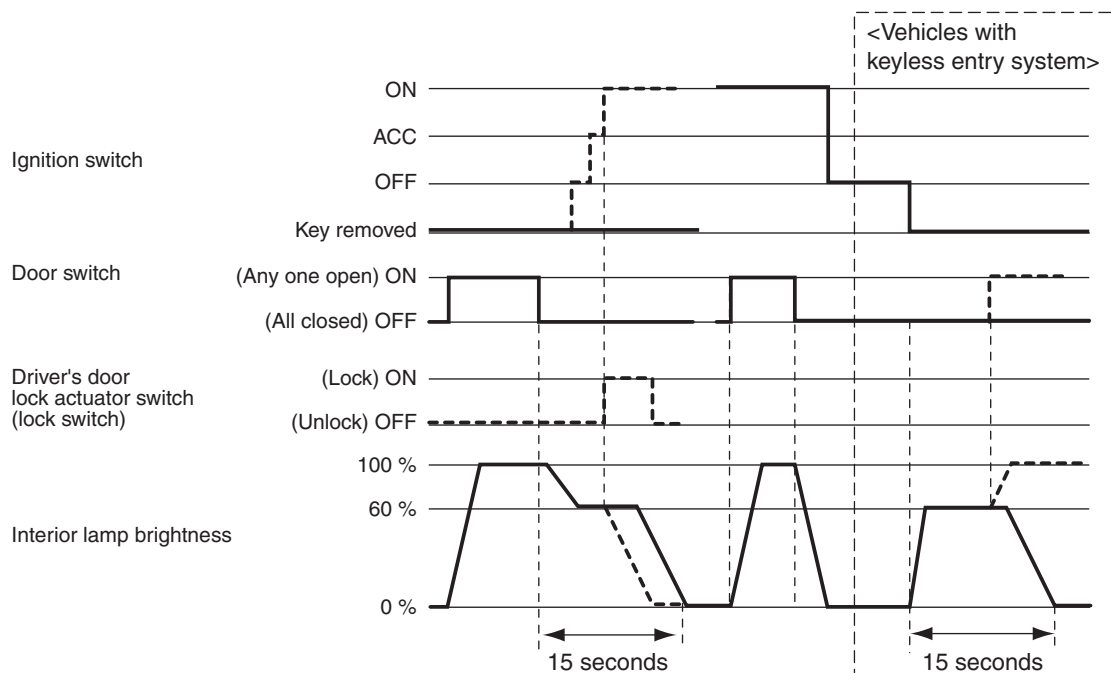
The ETACS-ECU outputs the front fog lamp indicator ON signal to the combination meter through CAN communication in synchronization with the front fog lamp operation. The combination meter receives the transmitted signal and turns ON or OFF the front fog lamp indicator.



## INTERIOR LAMP

## INTERIOR LAMP DIMMER CONTROL

## FUNCTION (THE INITIAL CONDITION: 15 SECONDS)



AC503755AB

When the interior lamp switch is on the door position, ETACS-ECU controls the interior lamp as follows.

1. When the ignition switch is OFF:

By opening any door or tailgate, the lamp turns ON (100%), and dims (60%) when the door or tailgate is closed, then and turns off after 15 seconds.

However, when the ignition switch is turned ON or the door lock is operated, the lamps turn off at that time.

2. When the ignition switch is ON:

By opening any door or tailgate, the lamp (100%) turns ON and OFF when the door or tailgate is closed.

3. When all doors and the tailgate are closed, and the ignition key is removed <Vehicles with keyless entry system>:

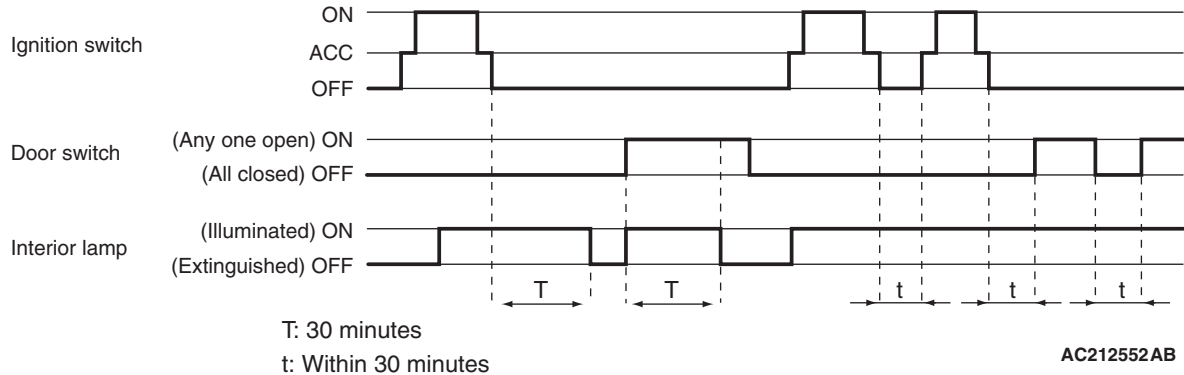
By removing the ignition key with all doors and the tailgate closed, the lamp turns ON 60%, and turns off after 15 seconds.

By inserting the ignition key again or operating the door lock with the lamp lit, the lamps turns off.

**NOTE:** For the vehicles with the keyless entry system, the delayed lamp-off time and the operation times of the keyless entry interior lamp answer back can be changed by the customize function (Refer to P.54B-40).



## INTERIOR LAMP AUTOMATIC-SHUTOFF FUNCTION <VEHICLES WITH KEYLESS ENTRY SYSTEM> (THE INITIAL CONDITION: WITH FUNCTION)



When the interior lamp such as the room lamp [all interior lamps connecting to the room lamp fuse (the front room lamp, the map lamp, the rear room lamp, and the ignition key cylinder illumination lamps)] is lit, but either one of the conditions is met, the interior lamp is turned off automatically for preventing the battery discharge caused by the unattended operation or the door-ajar.

- After 30 minutes with the interior lamp lit while the ignition switch is OFF, the lamp turns off automatically.

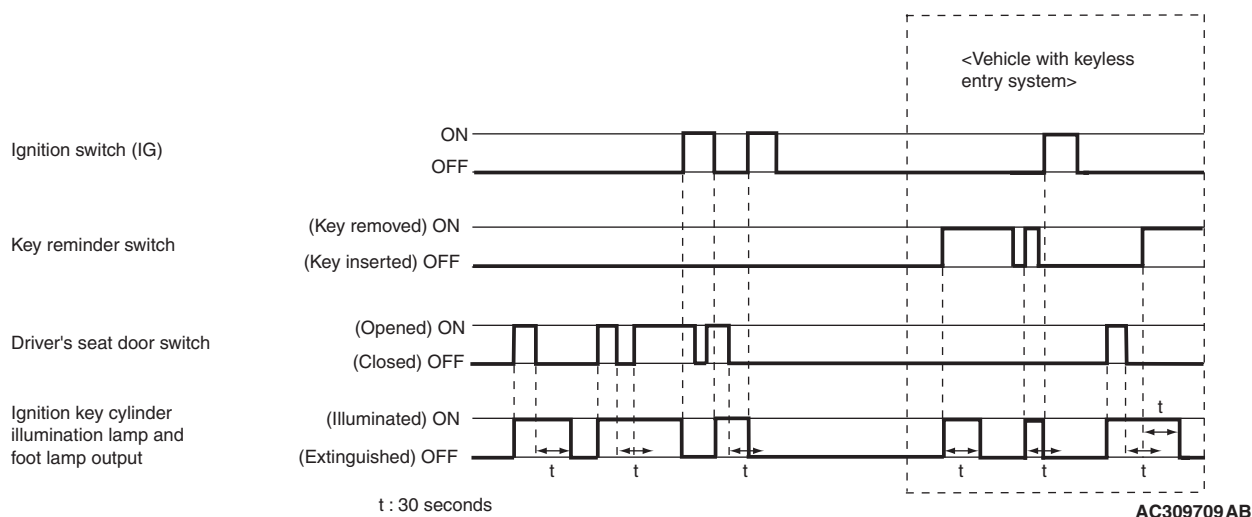
- After 30 minutes with any door opened while the ignition switch is OFF, the lamp turns off automatically.

After automatic shut-off function, the interior lamp turns ON when any of the following condition is met.

- Open and close doors.
- Operate the keyless entry transmitter.
- Turn the ignition switch to ACC or ON.

*NOTE: The interior lamp automatic shut-off time can be adjusted by the customize function (Refer to P.54B-40).*

## IGNITION KEY CYLINDER ILLUMINATION LAMP AND FOOT LAMP CONTROL FUNCTION



The ETACS-ECU controls the ignition key cylinder illumination lamp and foot lamp as described below.

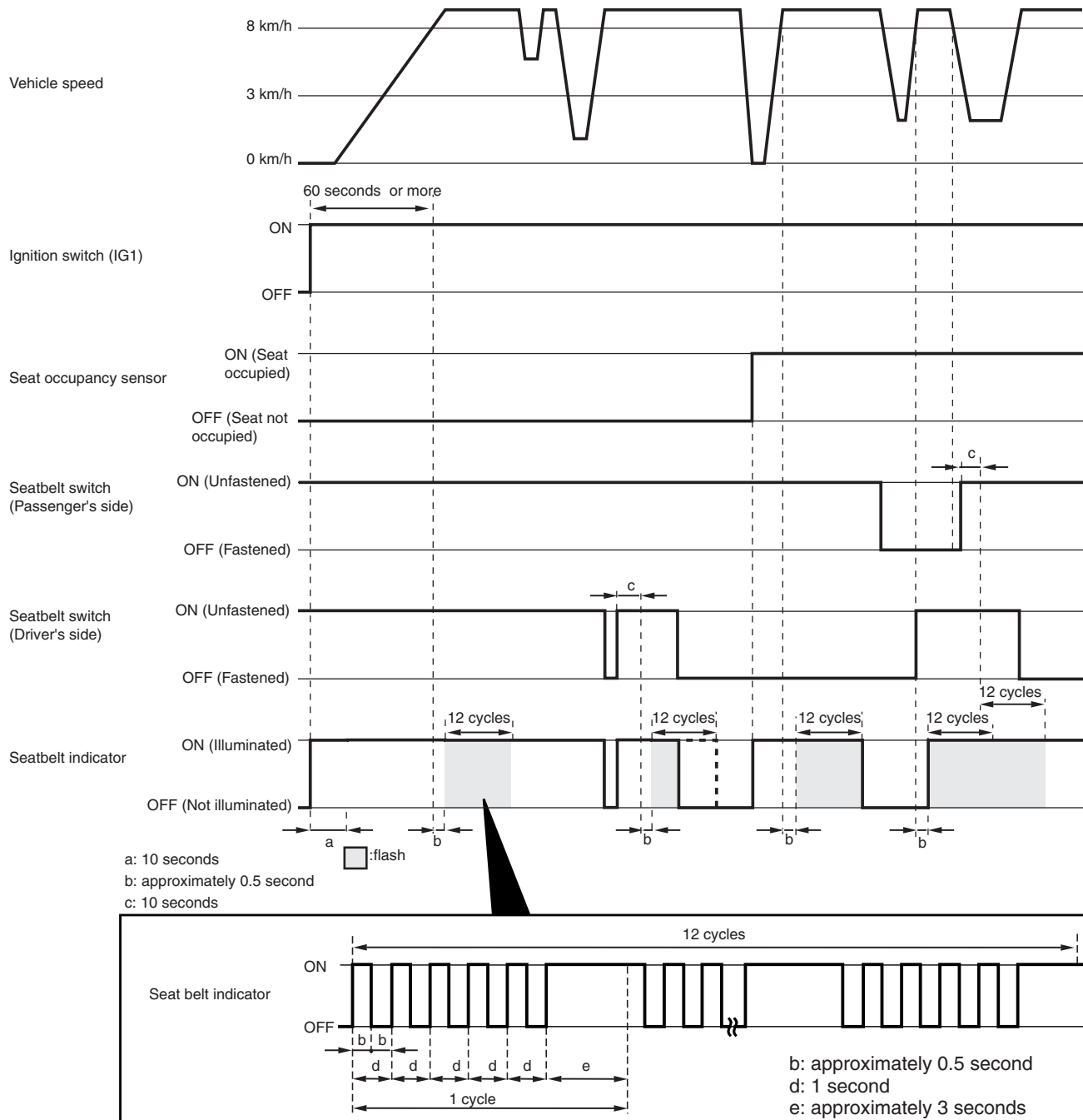
1. The ignition key cylinder illumination lamp and foot lamp light for 30 seconds when the driver's door is opened/closed with the ignition switch OFF.
2. Also when the ignition key is removed from the ignition key cylinder, the lamp illuminates for 30 seconds. (Vehicles with keyless entry system only)
3. When the ignition key cylinder illumination lamp and foot lamp is operating with the doors closed, it goes out if the ignition switch is turned ON.

**NOTE:** Foot lamp control is only applied to the vehicles for Hong Kong and Singapore.

### DOOR-AJAR INDICATOR

The ETACS-ECU outputs the open/close status of each door to the combination meter through CAN communication. The combination meter receives the transmitted signal and turns ON and OFF the door-ajar indicator. The door-ajar indicator flashes when the door-ajar warning function is activated while the door-ajar indicator is ON (For more information about the door-ajar warning function, refer to).

## SEAT BELT INDICATOR <VEHICLES FOR GCC, AUSTRALIA AND NEW ZEALAND>



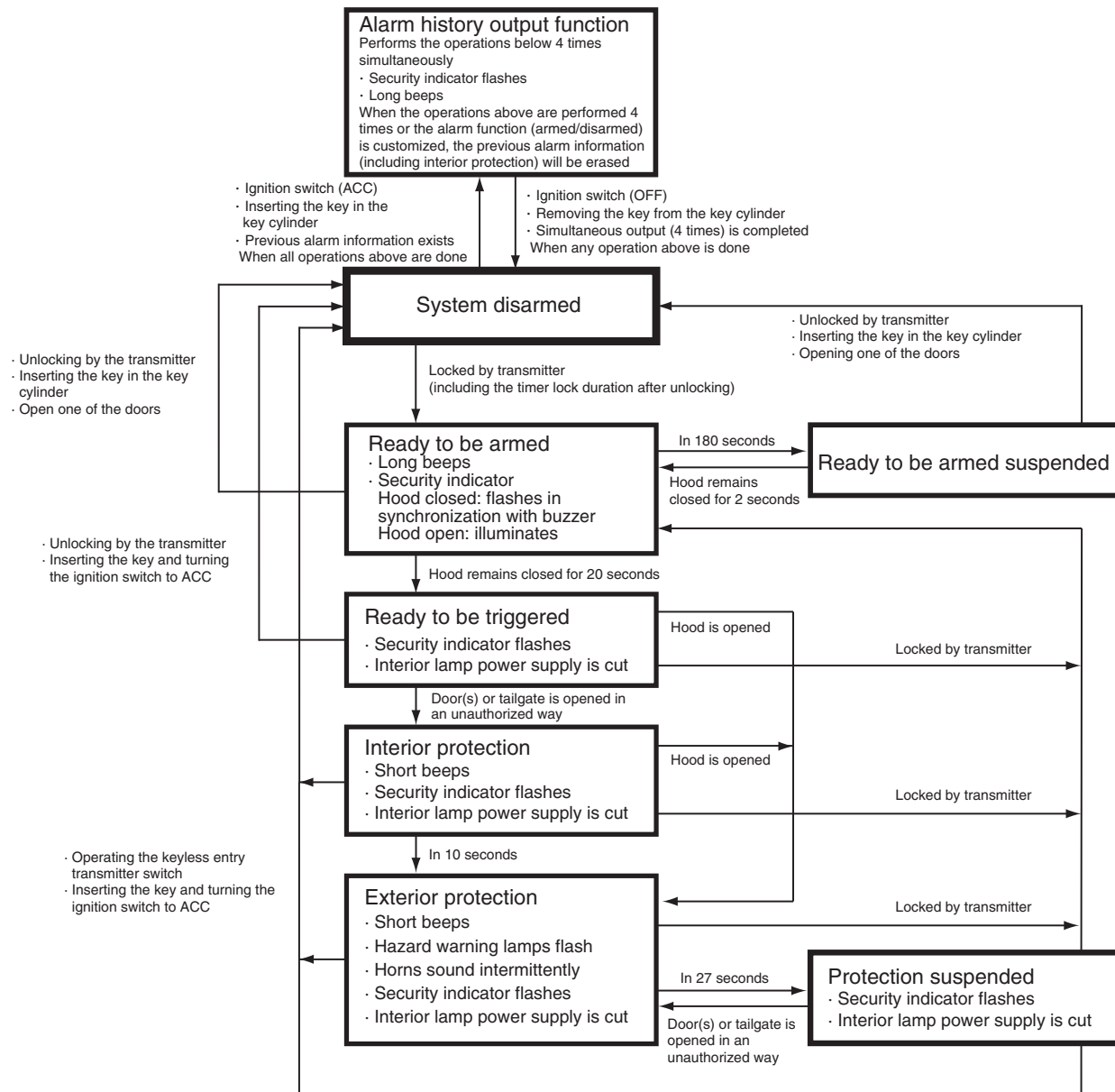
AC309955AB

The ETACS-ECU outputs the driver's seat belt buckle engagement status to the combination meter through CAN communication. The combination meter receives the transmitted signal and turns ON and OFF the seat belt warning lamp. The seat belt warning lamp flashes when the seat belt warning

function is activated while the seat belt warning lamp is ON. On vehicles except for Australia and New Zealand, the seat belt warning lamp function is only applied to the driver's seat belt (For more information about the seat belt warning function, refer to ).

SECURITY ALARM <VEHICLES FOR  
HONG KONG AND SINGAPORE>

## SECURITY ALARM FUNCTION (THE INITIAL CONDITION: WITHOUT FUNCTION)



AC500298AC

Operating the door lock with the keyless entry transmitter (except for operating the door lock with the key cylinder) makes the vehicle ready for the alarm, and "ping" tone starts. After 20 seconds, the incorrect door opening (opening door or tailgate without unlocking by the keyless entry) sounds the room alarm with "Beep" tone under the alarm state. After 10 seconds, in addition to the "Beep" tone, the haz-

ard lamps blink, and the horn sounds intermittently for 27 seconds to execute exterior protection. If the hood is opened while the vehicle is under the alarm state or the interior protection state, the exterior protection will be executed immediately.

**NOTE:** Availability of the security alarm and the warning output can be adjusted by the customize function (Refer to [P.54B-40](#)).

## ETACS-ECU POWER SUPPLY PROTECTION FUNCTION

In order to protect the power supply of the ETACS-ECU, this function prohibits the room lamp illumination to prevent cancellation of the security alarm due to blown fuse while the security alarm is armed.

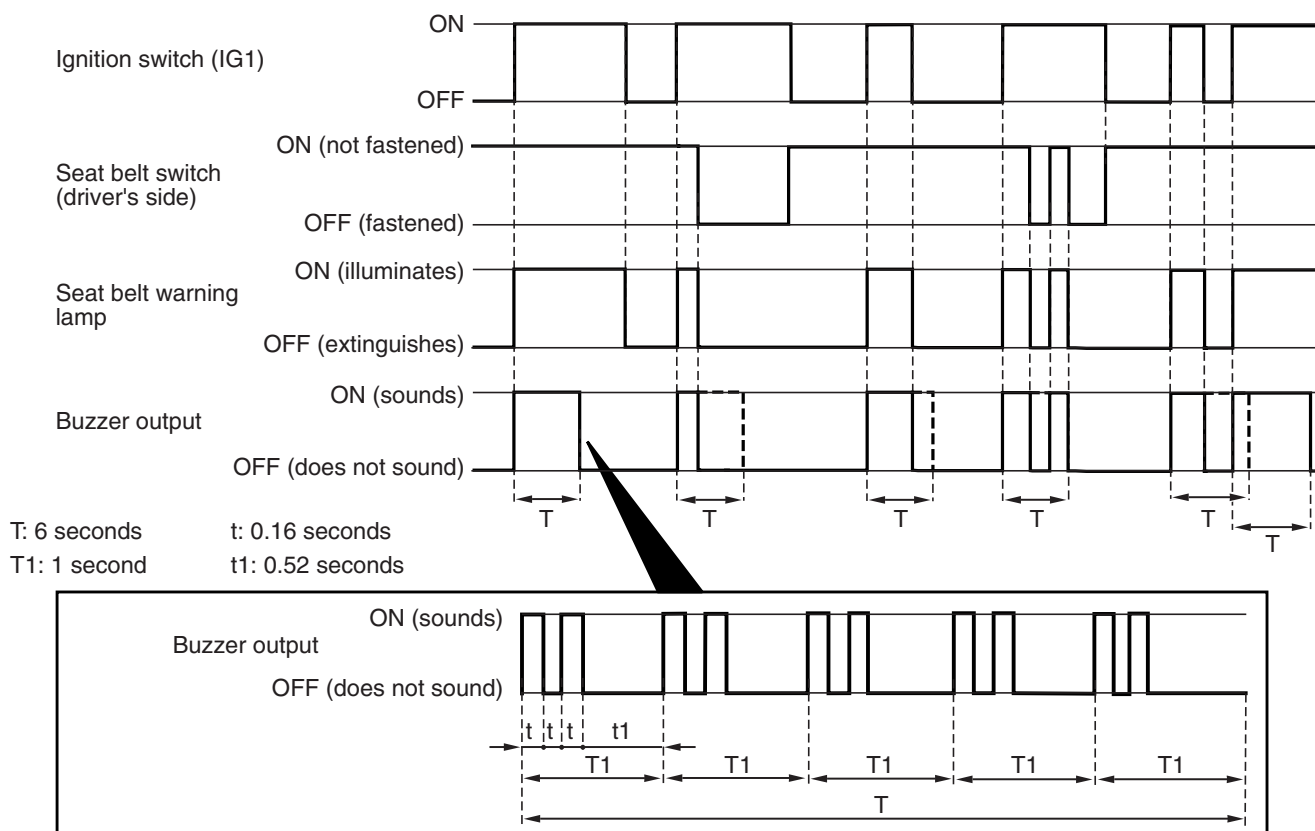
## ALARM HISTORY OUTPUT FUNCTION

If the interior protection or the exterior protection is activated between the last OFF operation and the next ON operation of the ignition switch, this function informs the driver by flashing the security indicator and by the buzzer.

## CONTROL ONLY WHEN THE IGNITION SWITCH IS ON

## SEAT BELT REMINDER FUNCTION <VEHICLES FOR HONG KONG AND SINGAPORE>

With the ignition switch turned to "ON" or "ST" position (IG1: ON), ETACS-ECU uses the seat belt switch signal and the vehicle speed signal sent from the combination meter via CAN communication to sound a buzzer and to turn on and off the seat belt warning lamp when the following conditions are met. (Timer activation)

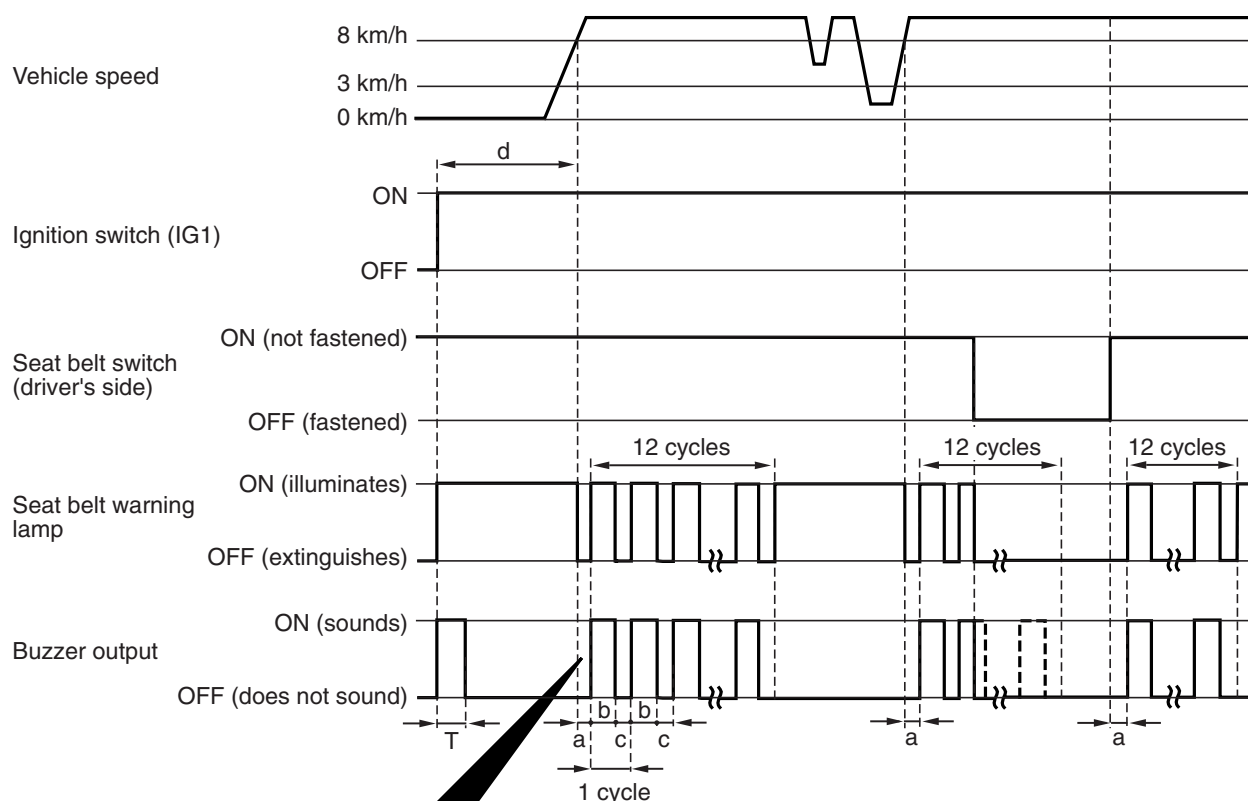


AC500420AC

With the seat belt switch turned ON (the driver's seat belt is not fastened), the buzzer sounds for 6 seconds after IG1 is turned ON (timer activation). The seat belt warning lamp remains illuminated while IG1 is turned ON with the seat belt switch turned ON.

**NOTE:** While the timer is activated, when IG1 is turned OFF or the seat belt switch is turned OFF (the driver's seat belt is fastened), the buzzer stops sounding immediately.

## CONTROL WHILE DRIVING



T: 6 seconds  
T1: 1 second

t: 0.16 seconds  
t1: 0.52 seconds

t2: 0.48 seconds  
a: 0.5 seconds

b: 5 seconds  
c: 3 seconds

d: 60 seconds

AC500421AC

Starting when 60 seconds have elapsed after IG1 is turned ON, if the seat belt switch is turned ON (the driver's seat belt is not fastened) and the vehicle speed is 8 km/h or more, with 0.5-second delay, the cycle of 5-second buzzer sounding with 3-second

interval is repeated for 12 times (timer activation). The seat belt warning lamp remains illuminated while IG1 is turned ON with the seat belt switch turned ON, and it flashes in synchronization with the buzzer sounding.

**NOTE:**

1. While the timer is activated, when IG1 is turned OFF or the seat belt switch is turned OFF (the driver's seat belt is fastened), the buzzer stops sounding immediately.
2. Once 12 times of buzzer soundings are performed, the next sounding of the buzzer is not performed until the vehicle speed becomes 3 km/h or less, even if the conditions are met. If the seat belt switch is turned from OFF to ON after 12 times of buzzer soundings are performed, the buzzer sounding conditions are met and the buzzer sounds.
3. If the buzzer sounding conditions overlap with the R (reverse) position reminder function, whose priority is the highest, the buzzer may not sound in synchronization with the seat belt warning lamp.

## CUSTOMIZE FUNCTION

### <When M.U.T.-III and SWS monitor is not used>

M2541000400232

The security alarm can be enabled/disabled can be changed in accordance with the customize mode entry conditions by operating the switches. The programmed information is held even when the battery is disconnected.

#### ENTRY CONDITIONS OF THE CUSTOMIZE MODE

1. Set switches to the following conditions:
  - Driver's door switch ON (The driver's door is open.)
  - Key reminder switch: ON (Remove the ignition key.)
  - Lighting switch: OFF
2. Turning ON the windshield washer switch for 10 seconds or more (pull the wiper lever toward you) sounds the ETACS-ECU build-in buzzer, and the customize mode is entered. With keeping this state (keeping on pulling the wiper lever toward you), each pressing of the unlock switch on the transmitter switches the settings.

#### ADJUSTING THE SECURITY ALARM FUNCTION

The security alarm function will be enabled/disabled will be changed in the sequence below. (After "b", it goes back to "a" repeating in alphabetical order.)

- a. Security alarm function is disabled. (the initial condition): Buzzer sounds once.
- b. Security alarm function is enabled. (Warning: hazard and horn): The buzzer sounds three times.

#### RELEASE CONDITIONS FOR THE ADJUSTMENT MODE

The customize mode will be cancelled under one of the following conditions:

- Driver's door switch OFF (The driver's door is closed.)
- Key reminder switch: OFF (Insert the ignition key.)
- Lighting switch: ON
- Windshield washer switch: OFF
- When 30 seconds have elapsed without pressing the unlock switch of the keyless entry transmitter

**NOTE:**

1. In order to enter the adjustment mode, the wiper/washer switch and the transmitter must be operated. However, the wipers/washers or the keyless entry system will not work at this time.
2. This customize function is also described in the Owners Handbook so that customers can use it.

## CUSTOMIZE FUNCTION

### <When M.U.T.-III and SWS monitor are used>

M2541000400243

Using M.U.T.-III adjusts the following function. The programmed information is held even when the battery is disconnected.

- Auto lamp function sensor sensitivity (illumination intensity)  
 When the lighting switch is in the AUTO position, the position lamp and headlamp illuminate automatically depending on the ambient brightness level.
- Headlamp automatic-shutdown function  
 To prevent the headlamp from being left illuminated, the headlamp is turned off automatically when opening the driver's door, if the ignition switch is turned to the LOCK (OFF) position with the lighting switch in the TAIL or HEAD position.
- Vehicle speed-dependent wiper function  
 With the windshield wiper switch in the intermittent position, the intermittent duration changes depending on the intermittent adjusting knob position and the vehicle speed.
- Electric retractable remote controlled mirror automatic unfolding function  
 Driving with the door mirror retracted resets the door mirror automatically. Using other methods to retract/reset the door mirror is available.
- Keyless entry horn answerback function  
 When lock/unlock is operated with the keyless entry transmitter, the horn operates, so that the driver can recognize the lock/unlock status of the vehicle even if the driver is away from it.
- Security alarm  
 Operative/inoperative state of the security alarm function is selected.
- Door lock function linked with "P" position shift for central door lock system  
 When the selector lever is shifted to the "P" position, all the doors unlock.
- Turn-signal lamp operation sound function  
 Synchronized with the hazard lamp and the turn signal lamp, the buzzer sounds.
- Dimmer interior lamp control duration  
 When the door is closed with the ignition switch LOCK (OFF), the interior lamp is turned OFF automatically in the specified time.
- Power window timer function duration  
 Even after turning LOCK (OFF) the ignition switch, the power window can be operated for the specified time.
- Power window main switch operation control during power window timer activation  
 During power window timer activation, only the driver's power window can be operated, using the power window main switch.
- Timer lock time after executing the keyless entry unlock  
 If any door including a tailgate is not opened after being unlocked with the keyless transmitter, doors are locked automatically within the specified time.



- Door-ajar warning function  
Driving with any door, including a tailgate, not properly closed sounds the buzzer to let the driver know the door-ajar state.
- Rear wiper intermittent duration  
When the rear wiper switch is turned ON, the rear wiper operates in the intermittent action. When the rear wiper switch is turned from OFF to ON two cycles, the rear wiper makes continuous operation regardless of the intermittent operation duration setting.
- Operation duration of interior lamp automatic-shutdown function  
This function automatically turns OFF the interior lamp after a specified time has elapsed, if the interior lamp is ON with the ignition switch in the LOCK (OFF) position.
- Power window lock operation on the driver's seat  
This function enables the driver to control the power windows other than the driver's door power window with the power window main switch, when the power window lock switch incorporated in the power window main switch is pressed.
- Wiper linked with washer function  
When this function is active, the windshield wiper operates if the washer switch is turned ON.
- Keyless entry system hazard answerback function  
When lock/unlock is operated with the keyless entry transmitter, the hazard lamp flashes, so that the driver can recognize the lock/unlock status of the vehicle even if the driver is away from it.
- initialising all functions (Returning to the initial condition)  
All adjusting functions are returned to the settings at the time of factory shipment.

**ADJUSTMENT POSSIBILITY CHART FOR INDIVIDUAL MARKET**

Item No.	Item	For General Export and GCC	For Hong Kong and Singapore	For Australia and New Zealand
1	Auto lamp function sensor sensitivity (illumination intensity)		×	
2	Headlamp automatic-shutdown function	×	×	
4	Vehicle speed-dependent wiper function	×	×	×
5	Electric retractable remote controlled mirror automatic unfolding function		×	
6*	Keyless entry horn answer-back		×	
8*	Keyless entry horn answer-back disabled at night		×	
11	Security alarm		×	
14	Door unlock function linked with "P" position shift for central door lock system		×	
15	Turn-signal lamp operation sound function	×	×	×
16	The delay-off time of the room lamp	×	×	×
18	Power window (sunroof) timer function duration		×	
19	Power window main switch operation control during power window timer activation		×	
24	Timer lock time after executing the keyless entry unlock	×	×	×
26	Door-ajar warning function	×	×	×
27	Wiper-linked auto lamp function		×	
28	Rear wiper intermittent duration	×	×	×
30	Operation duration of interior lamp automatic-shutdown function	×	×	×
31	Power window lock operation on the driver's seat		×	
37	Wiper-linked washer function	×	×	×
39	Turn signal lamp operation condition adjustment function	×	×	×
40	Flashing pattern adjustment function of keyless entry system hazard answer-back	×	×	×

**NOTE:** If item No.6 and 8 are both shown, they are deleted by initialising all the functions. The adjustment function items are displayed when the smart entry system is reactivated after initialisation of all the functions.

Item No.	Items shown on M.U.T.-III screen	Item	Adjustment items shown on M.U.T.-III screen	Adjusting contents
1	Sensitivity for auto-lamp	Auto lamp function sensor sensitivity (illumination intensity)	Sensitive	High ambient brightness
			Normal	Standard ambient brightness (initial setting)
			Insensitive	Low ambient brightness
			More insensitive	Low-low ambient brightness
2	Headlamp auto-cut	Headlamp automatic-shutdown function	Spec.A(Old)	With function: The automatic tail lamp turn-off function with the ignition switch OFF (LOCK) is available.
			Spec.D(DOM)	With function: The automatic tail lamp turn-off function with the ignition switch OFF (LOCK) is not available. (Initial setting)
			Without function	Without function
4	Wiper speed-sensitive operation	Vehicle speed-dependent wiper function	With function	With function (Initial setting)
			Without function	Without function
5	Door mirror automatic operation	Electric folding door mirror automatic unfolding function	Speed sensitive	Vehicle speed sensing reset (the initial condition)
			IG related	Ignition linked
			Keyless related	Keyless entry linked
			Without function	Without function
6*	Keyless entry horn answer-back	Keyless entry horn answer-back	When locking	Sounds whenever locked
			When lock twice	Sounds in two consecutive lock operations (within 1 second).
			Without function	Without function (initial setting)
8*	Prohibit keyless(horn) at night	Keyless entry horn answer-back disabled at night	Normal operation	Activated according to customisation of the keyless entry horn answer back (initial setting)
			Prohib. A.LP OFF	The keyless entry horn answer back basically operates according to the customised settings when the auto lamp switch is ON. At night, however, the horn answer back is disabled. When the auto lamp switch is OFF, the horn answer back is disabled.
10	Keyless entry related P/W	Keyless entry power window operation	Open/Close	With function of close and open actions (the open action is for the power window only.)
			Close only	With function the close action only (the initial condition)
			Without function	Without activation

Item No.	Items shown on M.U.T.-III screen	Item	Adjustment items shown on M.U.T.-III screen	Adjusting contents
11	Security alarm function	Security alarm	Horn/Hazard	With function: hazard and horn
			Without function	Without function (driver can configure setting): Driver can change the setting in order of "HORN/HAZARD," "W/O FUNCTION."
14	Door unlock ope. synch P range	Door unlock function linked with "P" position shift for centre door lock system	With function	With function
			Synch PW Lock SW	Power window lock switch OFF, with function
			Without function	Without function (the initial condition)
15	Turn-signal buzzer	Turn-signal lamp operation sound function	With function	With function
			Without function	Without function (the initial condition)
16	Room lamp delay timer	Dimmer interior lamp control duration	30sec.	30 seconds
			15sec.	15 seconds (the initial condition)
			7.5sec.	7.5 seconds
			Without function	0 second (no delay action)
18	P/W key off timer	Power window (sunroof) timer function	Without function	Without the timer function
			30sec.	30 seconds (the initial condition)
			3min.	3 minutes
			10min.	10 minutes
19	P/W ope. during key off timer	Main switch operation rules during power window key off timer activation	Normal operation	All power windows can be operated using power window main switch during key-off timer activation. (initial setting)
			Prohibit main SW	Operation of all power windows except driver's window using power window main switch is prohibited during key-off timer activation.
24	Timer relock after unlocking	Timer lock time after executing the keyless entry unlock	30sec.	30 seconds (the initial condition)
			60sec.	1 minute
			120sec.	2 minutes
			180sec.	3 minutes
26	Door ajar buzzer	Door-ajar warning function	With function	With function (Initial setting)
			Without function	Without function
			Sequential ope.	Continuous operation
27	Headlamp synchronized wiper	Wiper-linked auto lamp function	Without function	Without function (the initial condition)
			With function	With function

Item No.	Items shown on M.U.T.-III screen	Item	Adjustment items shown on M.U.T.-III screen	Adjusting contents
28	Rear wiper intermittent time	Rear wiper intermittent duration	8sec.	8 seconds: Without continuous operation (Initial setting)
			4s(Sequential)	4 seconds: With continuous operation
			8s(Sequential)	8 seconds: With continuous operation
			16s(Sequential)	16 seconds: With continuous operation
			Sequential ope.	Continuous operation (without the intermittence)
			4sec.	4 seconds: Without continuous operation
			16sec.	16 seconds: Without continuous operation
30	Room lamp auto-cut	Operation duration of interior lamp automatic-shutdown function	3min.	3 minutes
			30min.	30 minutes (the initial condition)
			60min.	60 minutes
			Without function	Without function
31	P/W lock-mode operation	Power window lock operation on the driver's seat	All SW operation	Driver can operate power windows on all doors even when the power window lock is ON (Initial setting).
			Only main SW	Operating seats other than the driver's seat is prohibited when lock is ON.
37	Wiper synchronized washer	Wiper linked with washer function	With function	With function (Initial setting)
			Without function	Without function
39	Turn-signal operation	Turn-signal lamp operation condition adjustment function	When IG ON	Turn-signal lamp can be operated when the ignition switch is turned ON (Initial setting).
			When IG ACC	Turn-signal lamp can be operated when the ignition switch 1 is in ACC or ON position.

Item No.	Items shown on M.U.T.-III screen	Item	Adjustment items shown on M.U.T.-III screen	Adjusting contents
40	Hazard answer-back operation	Keyless entry hazard answer-back flashing pattern adjustment function	LOCK:1/UNLOCK:2	LOCK: Flash once, UNLOCK: Flash twice (Initial setting)
			LOCK:1/UNLOCK:0	LOCK: Flash once, UNLOCK: No flash
			LOCK:0/UNLOCK:2	LOCK: No flash, UNLOCK: Flash twice
			LOCK:2/UNLOCK:1	LOCK: Flash twice, UNLOCK: Flash once
			LOCK:2/UNLOCK:0	LOCK: Flash twice, UNLOCK: No flash
			LOCK:0/UNLOCK:1	LOCK: No flash, UNLOCK: Flash once
			Without function	No flashing

**NOTE:**

- \* : The hazard answer-back function is available only when the headlamp manner switch is installed optionally. After the headlamp manner switch has been installed, adjustment items will be displayed on the M.U.T.-III by turning on the switch once. If all the functions have been initialised, the related adjustment items will also be cleared. In this case, however, these items can be displayed again on the screen by turning on the headlamp manner switch.
- Adjustment items other than the above will also be shown on M.U.T.-III screen. However, they cannot be reconfigured.