
GROUP 54B

SMART WIRING SYSTEM (SWS)

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GENERAL INFORMATION

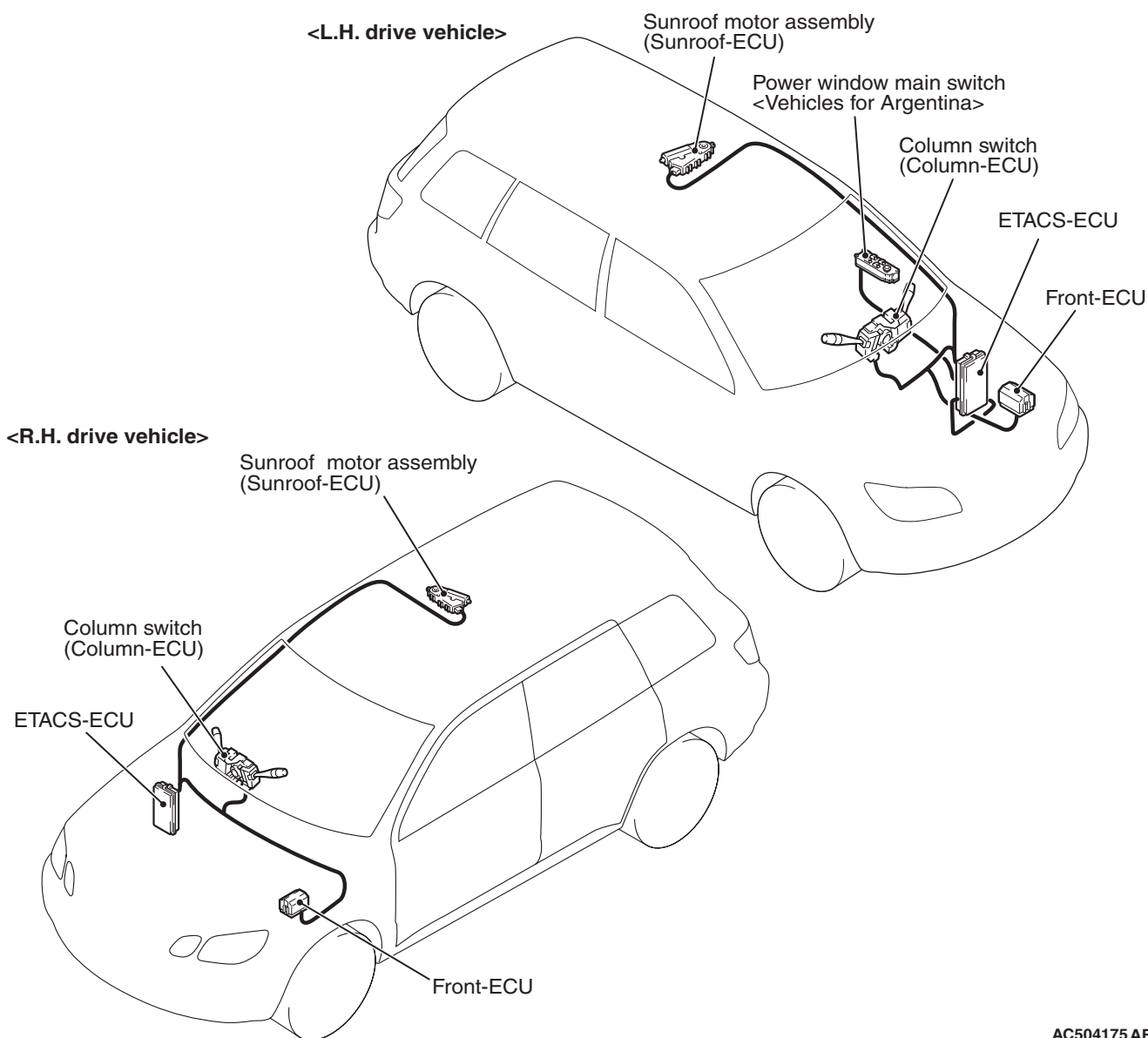
M2541000100576

SWS is a minimal line system which transmits numerous signals using one wiring to control against increased weight and complication of harnesses which result from the increase in electronic accessories.

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) <Vehicles for Argentina> incorporate multi-distribution circuits to carry out communication between control units.

NOTE: ^{*}: ETACS (Electronic Time and Alarm Control System)

CONSTRUCTION DIAGRAM



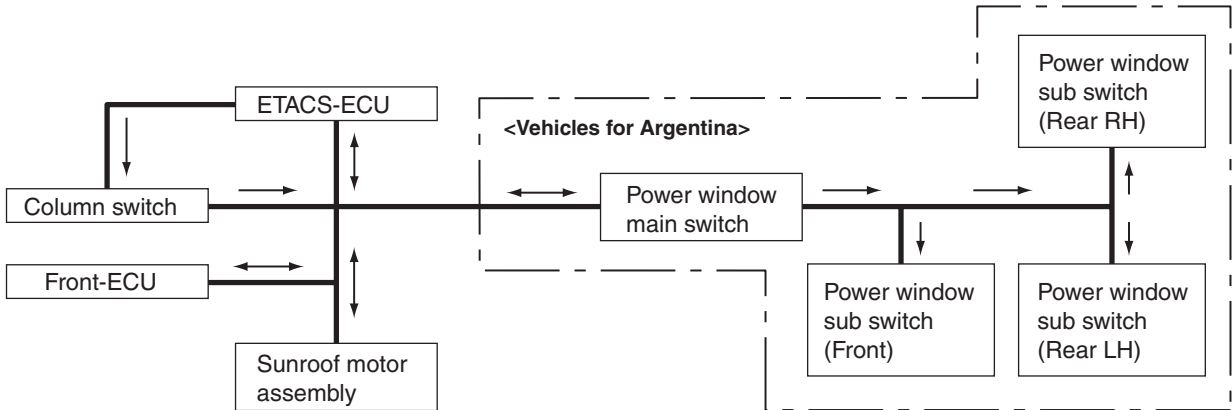
AC504175 AB

COMMUNICATION METHOD

M2541001000464

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, sunroof motor assembly (incorporated inside the sun-

roof-ECU), power window main switch (incorporated inside the power window-ECU), and power window sub switches (incorporated inside the power window-ECU) <Vehicles for Argentina> for internal communication.



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MULTI-DISTRIBUTION INPUT/OUTPUT BY CIRCUIT

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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

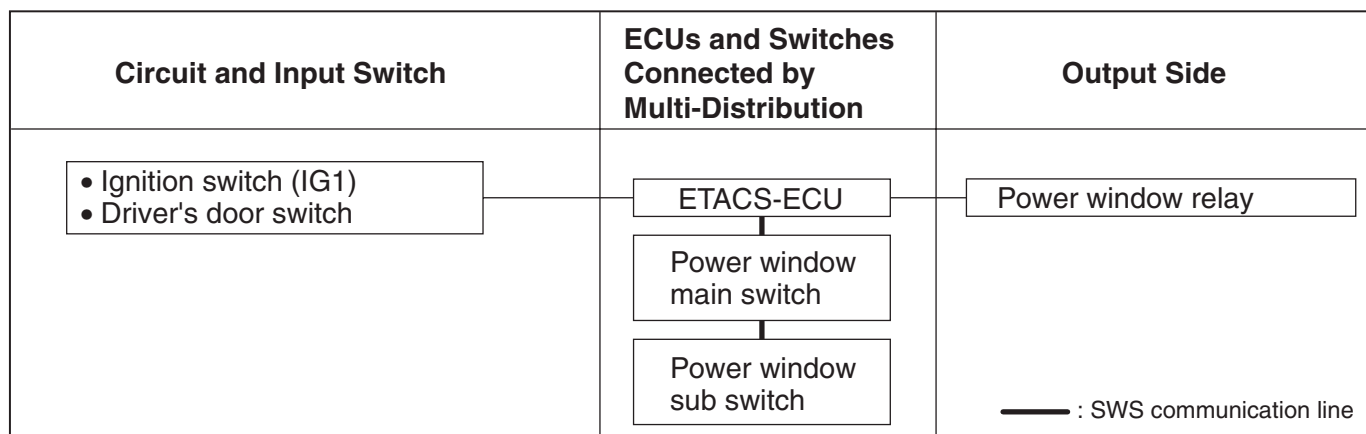
- Ignition key reminder buzzer function
- Lamp reminder buzzer function

Circuit and Input Switch	ECUs and Switches Connected by Multi-Distribution	Output Side
<div>• Ignition switch (IG1)</div> <div>• Driver's door switch</div> <div>• Key reminder switch</div>	<div>Column switch (Lighting switch)</div> <div>ETACS-ECU</div>	<div>Buzzer (built-in ETACS-ECU)</div> <div>— : SWS communication line</div>

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Power window <Vehicles for Argentina>

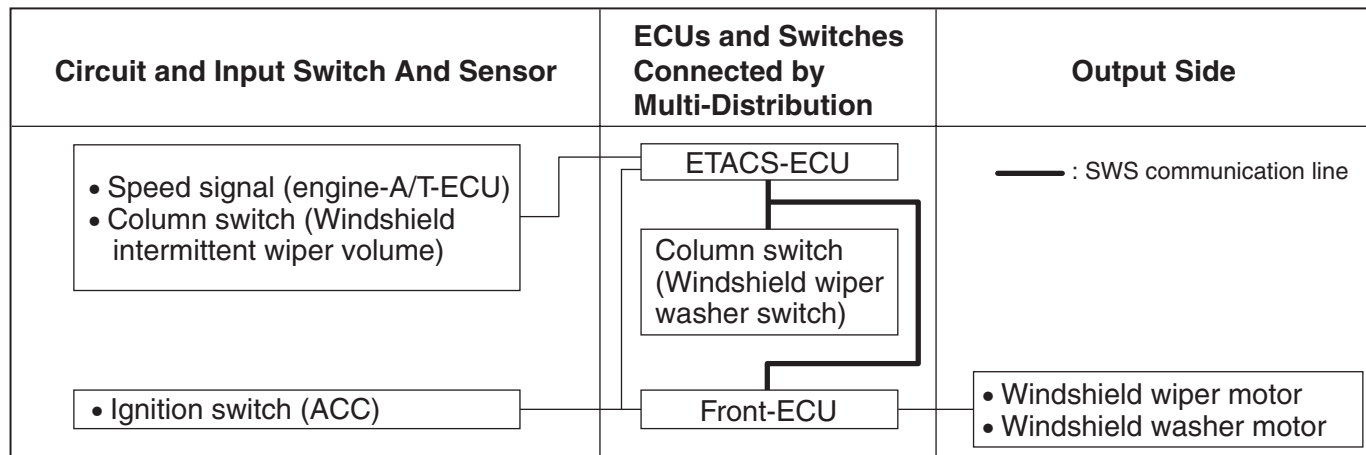
- Power window timer function



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Windshield wiper washer

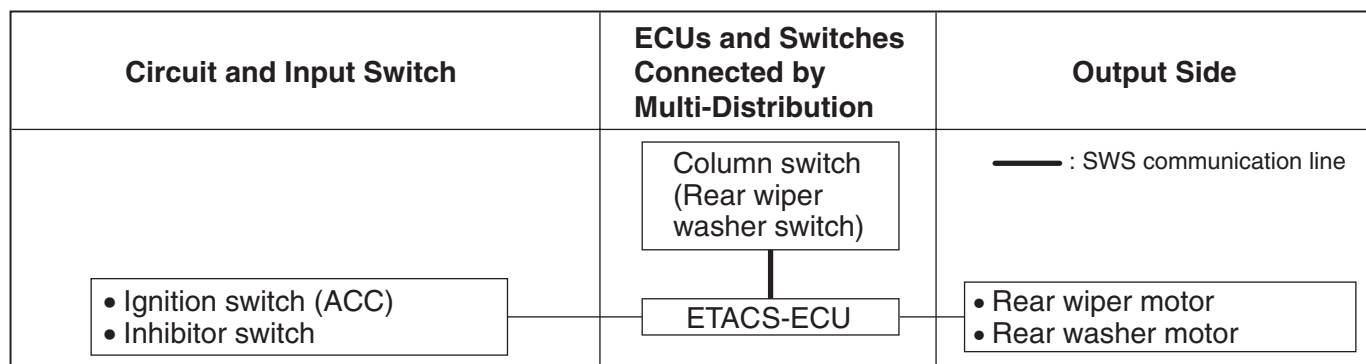
- Windshield mist wiper
- Vehicle speed-dependent variable windshield intermittent wiper
- Windshield low speed wiper
- Windshield high speed wiper
- Windshield washer



AC212521AB

Rear wiper washer

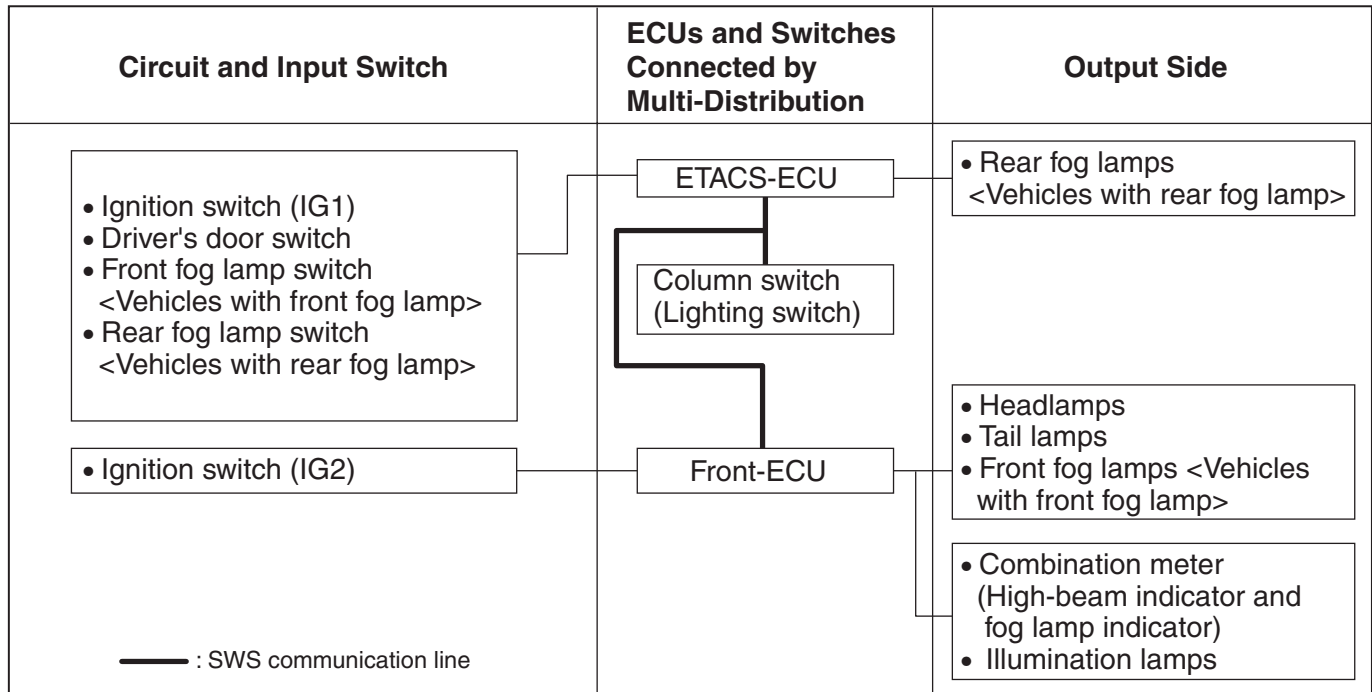
- Rear wiper
- Rear washer



AC212522

Lighting

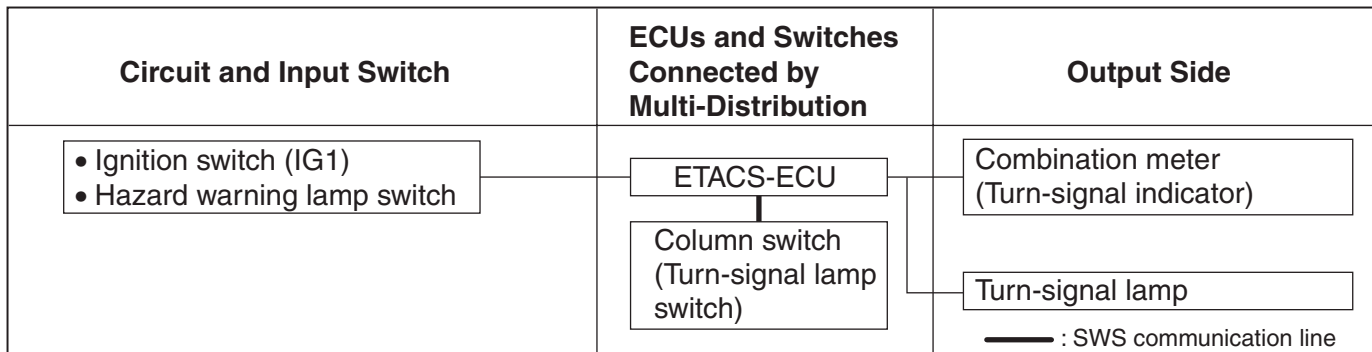
- Headlamp and tail lamp
- Headlamp automatic-shutdown function <Except vehicles for Australia and New Zealand>
- Front and rear fog lamp



AC401191AC

Flasher

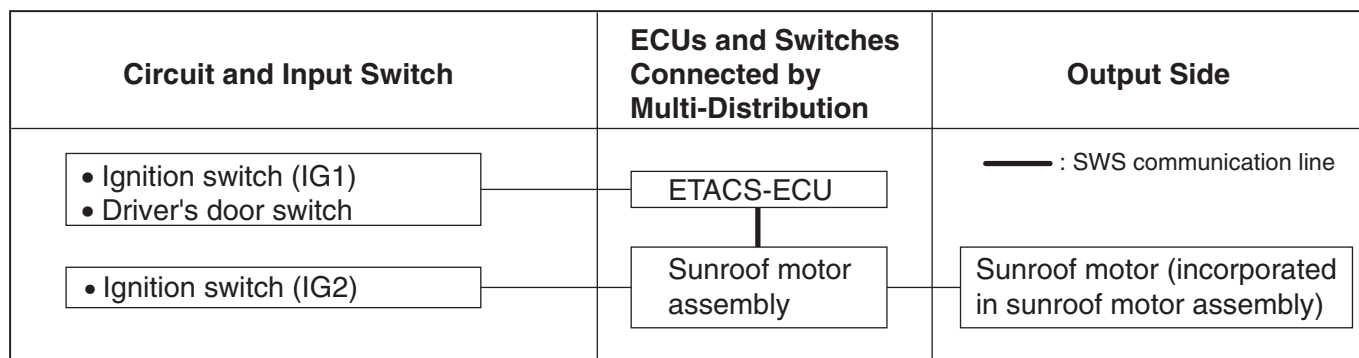
- Turn-signal lamp
- Hazard warning lamp



AC212524AB

Sunroof <Vehicles with sunroof>

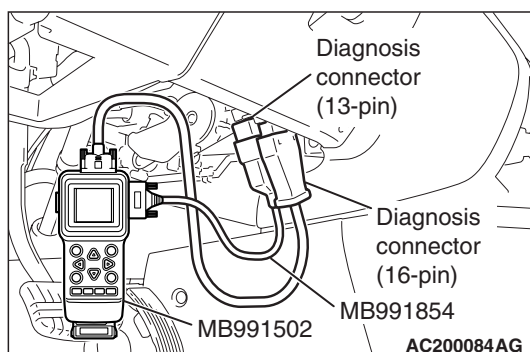
- Sunroof timer function



AC212525AB

DIAGNOSTIC FUNCTION

M2541003000534

DIAGNOSIS CODE SET

The ETACS-ECU sends diagnosis codes if the communication line is faulty when the M.U.T.-II/III is connected.

Code number	Trouble content
11	Trouble related to the ETACS-ECU
12	Trouble related to the column switch or improper communication with the ETACS-ECU
13	Trouble related to the front-ECU or improper communication with the ETACS-ECU
21	Short circuit in SWS communication line
31	Open circuit in the signal line between the SRS-ECU and the ETACS-ECU (impact detection signal)
32	Short circuit in the signal line between the SRS-ECU and the ETACS-ECU (impact detection signal)

SWS INPUT SIGNAL CHECK BY M.U.T.-II/III**<USING THE M.U.T.-II>**

When the M.U.T.-II is connected to the diagnosis connector, and switches input for the SWS are operated, the buzzer in the M.U.T.-II sounds, indicating whether the operations of the switches are satisfactory or not.

<USING THE 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 will show whether the switch is normal or not. For the details of the input signal check, refer to the Workshop Manual.

<SWS INPUT SIGNAL CHECK AND ECU CHECK BY USING SWS MONITOR>

The switch signals sent by ECUs and the operations of these ECUs can be confirmed by using the SWS monitor and the M.U.T.-II/III.

INPUT SIGNALS THAT CAN BE CHECKED

Input signal	Conditions for sounding tone alarm
Ignition switch (ACC)	Turn from "LOCK" (OFF) to "ACC" position
Ignition switch (IG1)	Turn from "ACC" to "ON" position
Key reminder switch <Vehicles with keyless entry system>	Remove the ignition key from ignition key cylinder (from inserted position)
Hazard lamp switch	Turn from OFF to ON
Front fog lamp switch <Vehicles with front fog lamp>	
Rear fog lamp switch <Vehicles with rear fog lamp>	
Driver's door switch	Open the driver's door
Passenger's door switch <Vehicles for Brunei, Singapore, New Zealand, Malaysia and Australia>	Open the passenger's door
All door switch	Open any door when all the doors are closed.
Passenger's door lock key cylinder switch	Turn the key to the lock or unlock position
Driver's door lock actuator switch	Move the door lock knob from lock position to unlock position or vice versa
Power window main switch <Vehicles for Brunei, Singapore, New Zealand, Malaysia and Argentina>	Operate each power window switch on the power window main switch.
Inhibitor switch	The selector lever to the "R" position
Speed signal (engine-A/T-ECU)	When the speed changes from less than 10 km/h to more than 10 km/h
Keyless entry transmitter <Vehicles with keyless entry system>	When each switch is pressed

Input signal		Conditions for sounding tone alarm
Column switch	Tail lamp switch	When the lighting switch is turned from one position to the tail lamp position
	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	
	Windshield mist wiper switch	
	Windshield intermittent wiper switch	
	Windshield low speed wiper switch	
	Windshield high speed wiper switch	
	Windshield intermittent wiper interval adjusting knob	When the interval adjusting knob is turned from "FAST" to "SLOW" while the ignition switch is ON. (A pulse is output around the center.)
	Windshield washer switch	When the switch is turned from the OFF to the ON position
	Rear wiper switch	
	Rear washer switch	
Sunroof switch <Vehicles with sunroof>		When the switch is turned from the OFF to the ON position
Interior lamp loaded signal		Illuminates the interior lamps

ECU FUNCTIONS AND CONTROLS IN THE SWS

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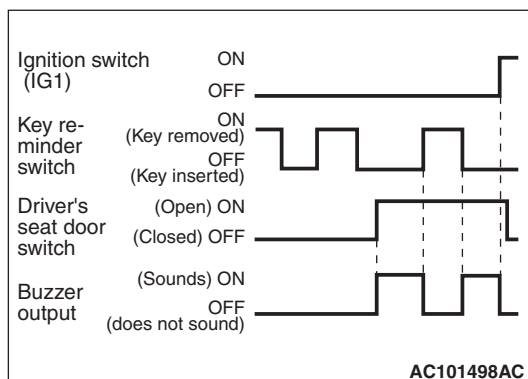
Following functions are controlled by ECUs of SWS.

Function		Control ECU	Explanation of function
Buzzer	Ignition key reminder buzzer function <Vehicles for GCC>	ETACS-ECU	P.54B-10
	Lamp reminder buzzer function	ETACS-ECU, column switch	P.54B-10
	Speed alarm function <Vehicles for GCC>	ETACS-ECU	P.54B-10
Central door locking system	Central door locking control function		P.54B-10
	Key reminder function		P.54B-11
	Door unlock function with the impact detection		P.54B-11
Power windows	Power window timer function <Vehicles for Argentina>	ETACS-ECU, power window main switch	P.54B-12
	Power window timer function <Except for Argentina, Australia and New Zealand>		P.54B-12
	Power window timer function <Vehicles for Australia and New Zealand>		P.54B-13
Sunroof	Sunroof timer function <Except for Argentina>	ETACS-ECU, sunroof motor assembly	P.54B-13
Keyless entry system	Keyless entry hazard lamp answerback function	ETACS-ECU	P.54B-14
	Timed locking mechanism		P.54B-14
Windshield wiper and washer	Intermittent control	ETACS-ECU, column switch	P.54B-15
	Mist wiper control		P.54B-15
	Low speed wiper and high speed wiper control		P.54B-16
Rear wiper and washer	Rear wiper control		P.54B-16
Headlamp	Headlamp automatic shutdown function <Except for Australia and New Zealand>	ETACS-ECU, column switch	P.54B-17
Flasher timer function	Turn-signal lamp		P.54B-17
	Hazard warning lamp		P.54B-18
Fog lamp	Front fog lamp control function <Vehicles with front fog lamp>		P.54B-18
	Rear fog lamp control function <Vehicles with rear fog lamp>		P.54B-19

Function		Control ECU	Explanation of function
Interior lamp	Dimmer interior lamp control function	ETACS-ECU	P.54B-20
	Interior lamp automatic shutoff function <Vehicles with keyless entry system>		P.54B-21
	Ignition key cylinder illumination lamp control function		P.54B-21
Seat belt warning lamp	Seat belt warning lamp function <Vehicles for Australia and New Zealand>		P.54B-22
Adjusting function		ETACS-ECU, column switch	—

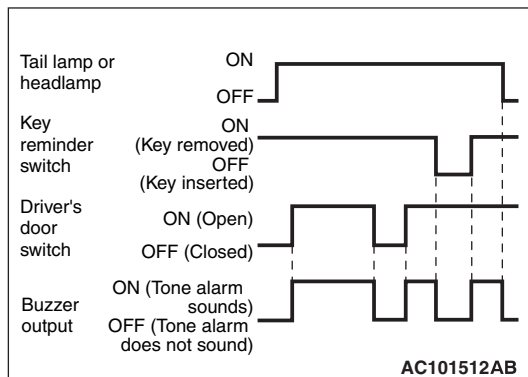
BUZZER

IGNITION KEY REMINDER TONE ALARM FUNCTION <VEHICLES FOR GCC>



When the driver's door is opened with the ignition key inserted in the ignition key cylinder (with the ignition switch OFF), the buzzer sounds intermittently (ping sound) to alert the driver that the key is not removed.

LAMP REMINDER BUZZER FUNCTION



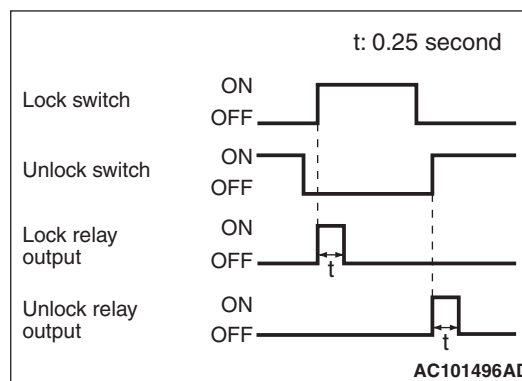
When the ignition key is removed and then the driver's door is opened with turning ON the tail lamp or the headlamp, the buzzer sounds continuously to alert the driver that the lamp is still ON.

However, if the tail lamp or the headlamp is turned off by the headlamp automatic shutdown function <except vehicles for Australia and New Zealand>, the buzzer does not sound.

SPEED ALARM FUNCTION <VEHICLES FOR GCC>

If the vehicle speed exceeds 123 km/h, the buzzer sounds intermittently to warn the driver that the speed is too high.

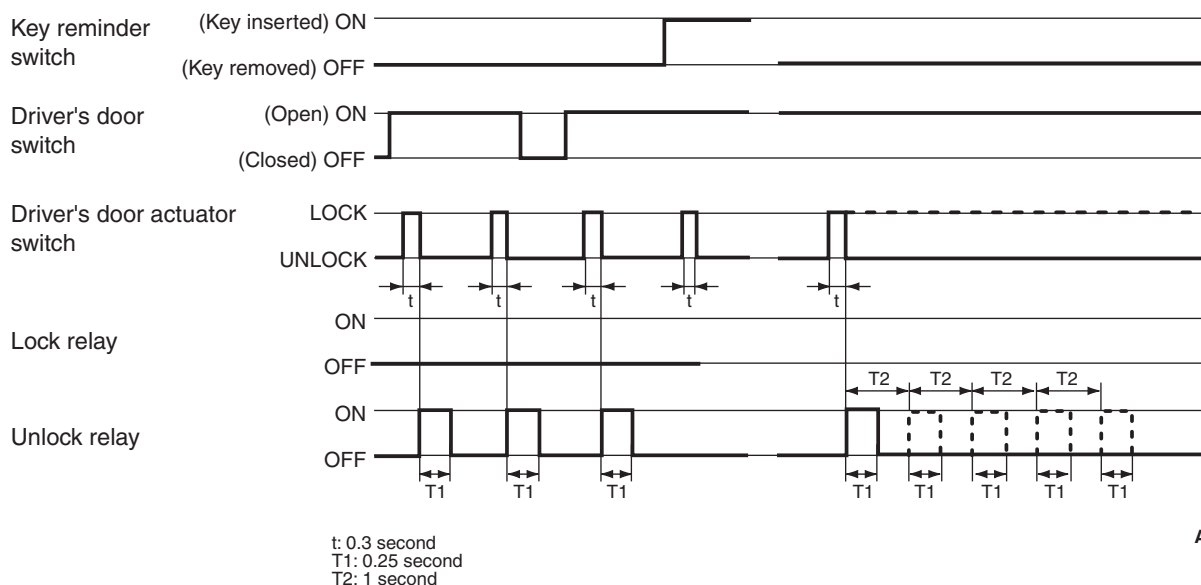
CENTRAL DOOR LOCKING SYSTEM CENTRAL DOOR LOCKING CONTROL FUNCTION



When the driver's door is 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 driver's door 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).

KEY REMINDER FUNCTION



AC101499 AB

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.)

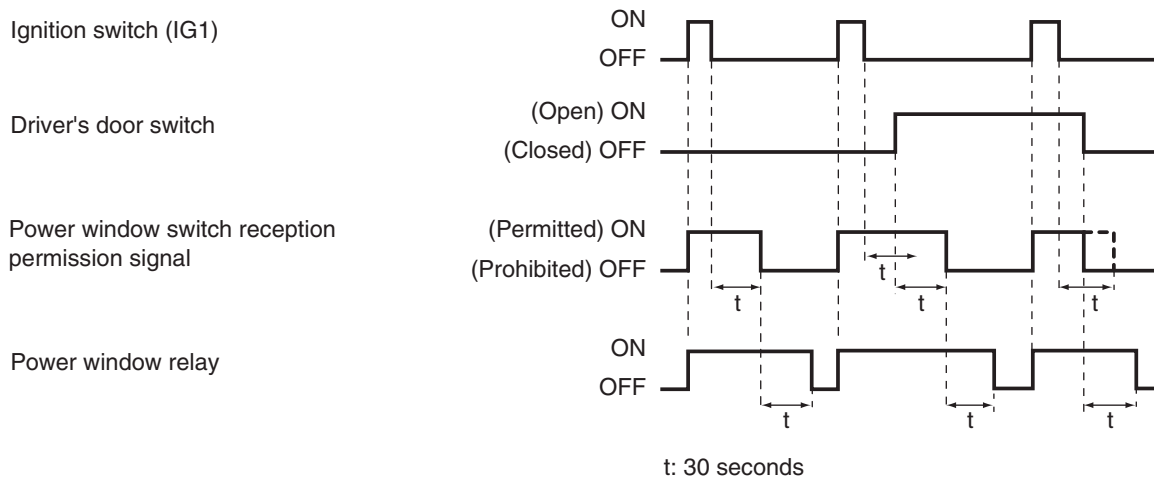
NOTE: The broken line in the graph indicates the current supply retry state if the discouraging door lock operation fails.

DOOR UNLOCK FUNCTION WITH THE IMPACT DETECTION

If the vehicle crashed with the ignition switch ON or 30 seconds after turning the ignition switch to LOCK (OFF), and the impact sensor detects an impact greater than the specified value, the impact sensor sends the signal to ETACS-ECU. Then, within the 0.1 second, ETACS-ECU energizes the unlock relay for one second for releasing the door lock to prevent passengers to kept inside the vehicle after the crash.

NOTE: The fail safe disables the operation under the following conditions. (Diagnosis code No. 31 or 32 is output at this time.) Turn ON the ignition switch again after turning the ignition switch to LOCK (OFF) to return from the fail safe state.

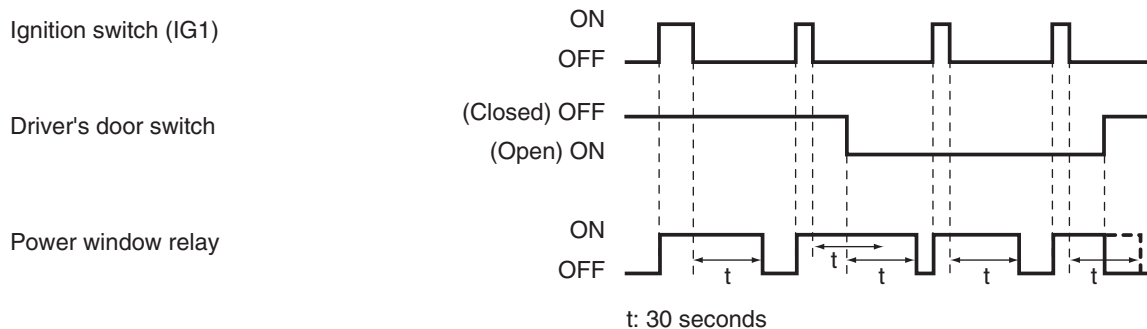
- No. 31: When the ignition switch is ON, and the sensor shows under the short circuit detect voltage for 2.5 second
- No. 32: When the ignition switch is ON, and the sensor shows over the closed circuit detect voltage for 0.4 second

POWER WINDOWS**POWER WINDOW TIMER FUNCTION <VEHICLES FOR ARGENTINA> (THE INITIAL CONDITION: WITH FUNCTION)**

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: The power window timer function can be disabled or enabled by the adjusting function. (Refer to P.54B-22.)

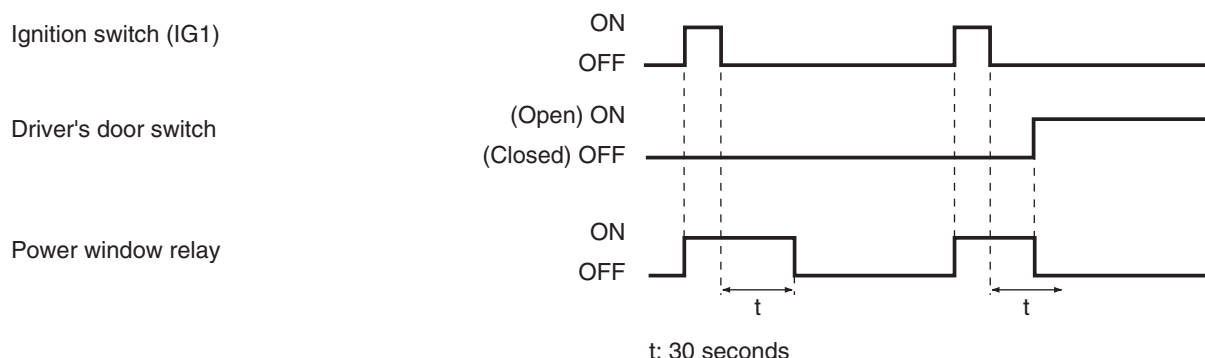
POWER WINDOW TIMER FUNCTION <EXCEPT FOR ARGENTINA, AUSTRALIA AND NEW ZEALAND> (THE INITIAL CONDITION: WITH FUNCTION)

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.

NOTE: The power window timer function can be disabled or enabled by the adjusting function. (Refer to P.54B-22.)

POWER WINDOW TIMER FUNCTION <VEHICLES FOR AUSTRALIA AND NEW ZEALAND> (THE INITIAL CONDITION: WITH FUNCTION)



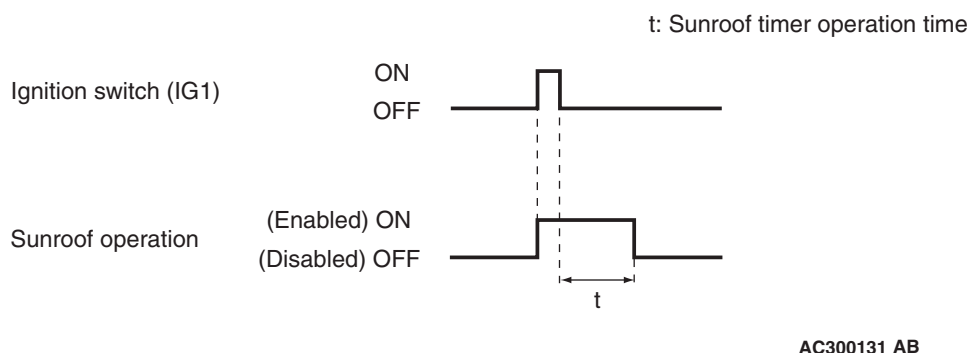
When the power window relay is turned ON with the ignition switch ON, the power window relay is kept ON for 30 seconds even after the ignition switch is turned OFF, enabling the door window to be opened and closed with the power window switch.

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.

NOTE: The power window timer function can be disabled or enabled by the adjusting function. (Refer to P.54B-22.)

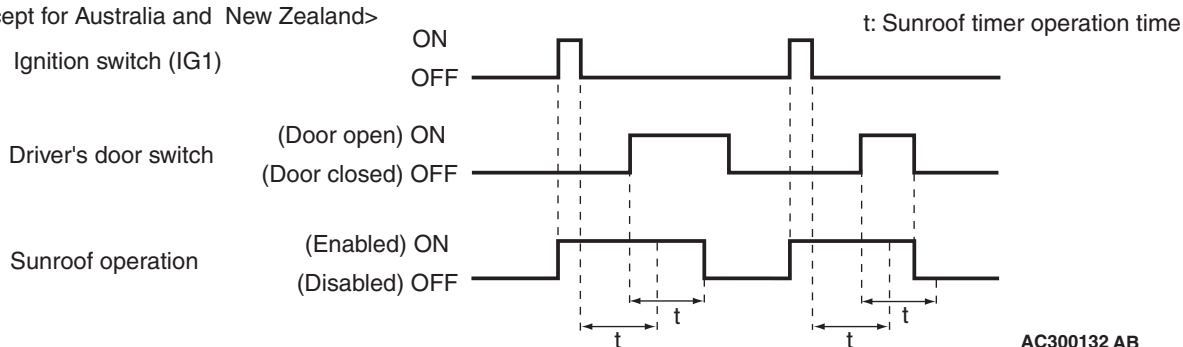
SUNROOF

SUNROOF TIMER FUNCTION <EXCEPT FOR ARGENTINA> (THE INITIAL CONDITION: 30 SECONDS)



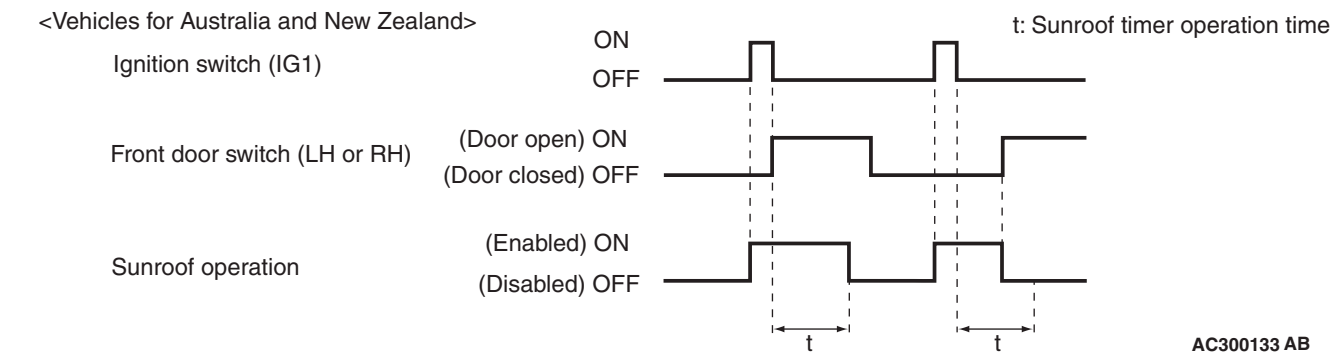
After turning OFF the ignition switch, the sunroof can be operated by the sunroof switch for approximately 30 seconds.

<Vehicles except for Australia and New Zealand>



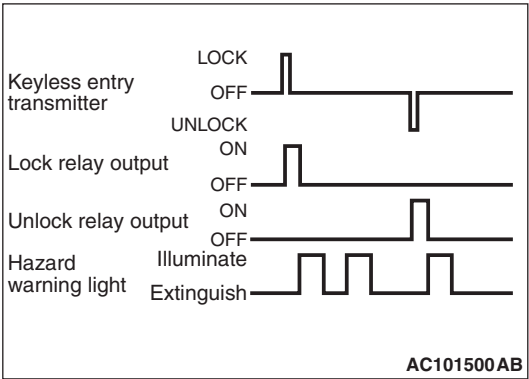
When the driver's door is opened during the sunroof timer operation, the sunroof timer operation will be extended for sunroof timer operation time at that time. <Except for Australia and New Zealand>

If the driver's door is closed during sunroof timer operation, the sunroof operation is canceled at the same time. <Except for Australia and New Zealand>



Opening the front door (LH or RH) during the sunroof timer operation cancels the sunroof operation.<Vehicles for Australia and New Zealand>

KEYLESS ENTRY SYSTEM
KEYLESS ENTRY HAZARD LAMP
ANSWER BACK FUNCTION (THE INITIAL
CONDITION: WITH FUNCTION OF
LOCK/UNLOCK)



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 closed, and the turn-signal lamp blinks twice. When the unlock signal is received, all doors (including the tailgate) are closed, and the turn-signal lamp blinks once.

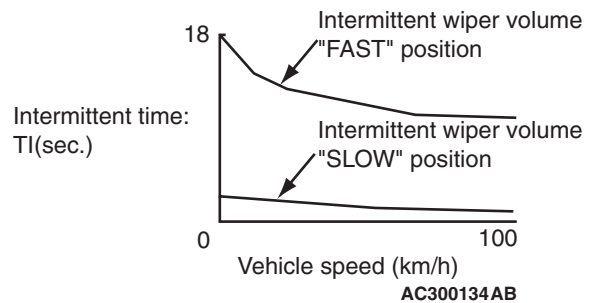
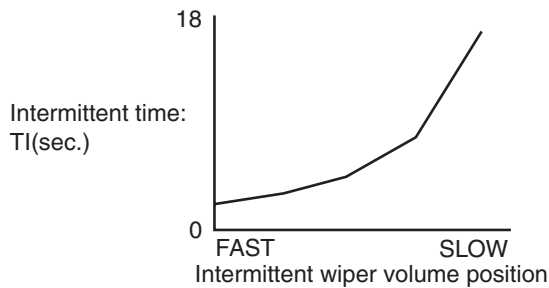
NOTE: The answer back blink time can be adjusted by the adjusting function. (Refer to [P.54B-22](#).)

TIMED LOCKING MECHANISM)

After unlocking the doors with the keyless entry transmitter, if no doors are opened, 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.

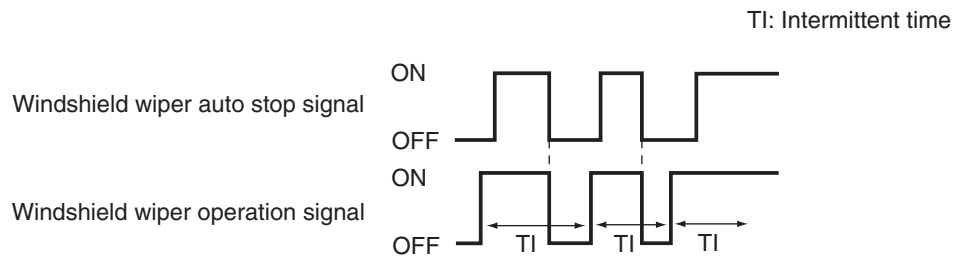
WINDSHIELD WIPER AND WASHER

INTERMITTENT CONTROL [VEHICLE SPEED SENSING DURATION ADJUSTABLE TYPE (THE INITIAL CONDITION: WITH FUNCTION)]



ETACS-ECU calculates the intermittent time TI from the vehicle speed calculated from the windshield intermittent wiper volume of the column switch and the vehicle signals (engine-A/T-ECU), and sends it to the front ECU as SWS data.

NOTE: The vehicle speed sensing function can be invalidated by the adjusting function. (Refer to P.54B-22.)

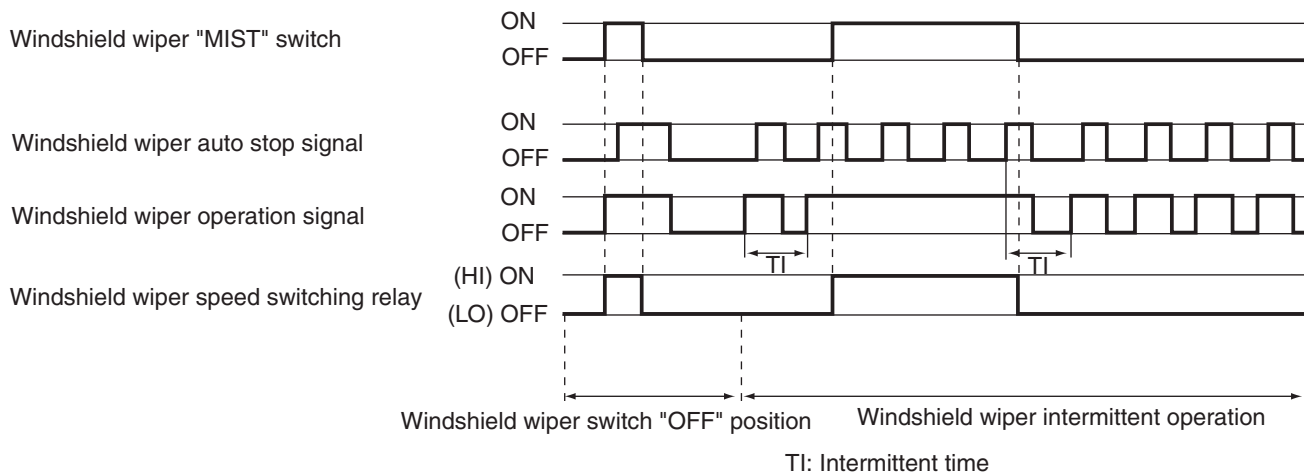


AC300135 AB

The front ECU determines the intermittent time TI from the input SWS data, and turns ON the windshield wiper drive signal. When the wiper comes to the stop position, the windshield wiper auto-stop signal is turned OFF, and the windshield wiper drive signal turns OFF.

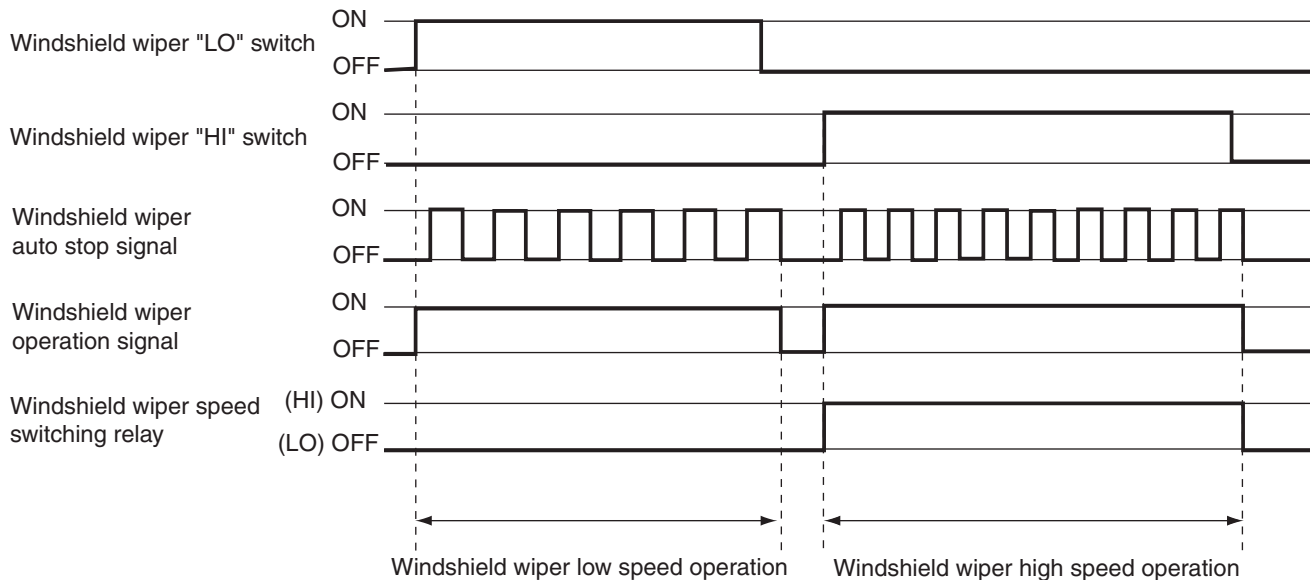
When the intermittent time TI is elapsed after being turned ON the windshield wiper drive signal, the windshield wiper drive signal is turned ON again, and the above-mentioned operation is repeated.

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.

LOW SPEED WIPER AND HIGH SPEED WIPER CONTROL



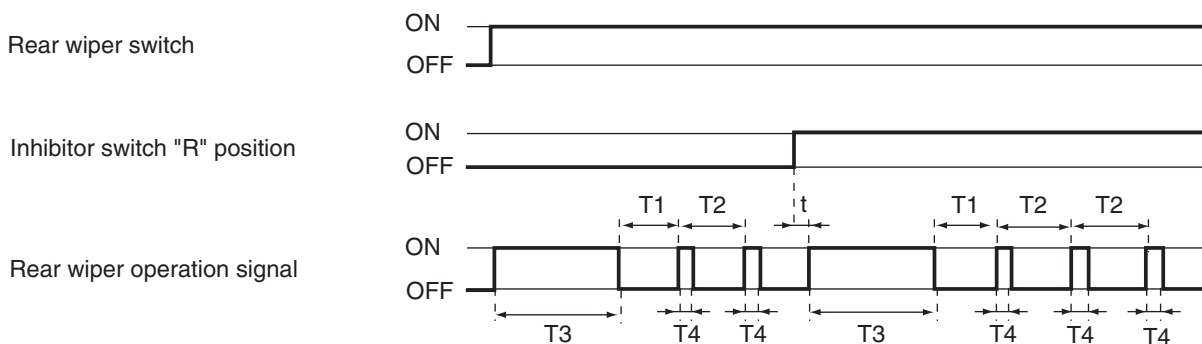
AC300284 AB

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 switch 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 switch relay turns ON (HI), and the windshield wiper operates at the high speed.

REAR WIPER AND WASHER

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



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

AC300286 AB

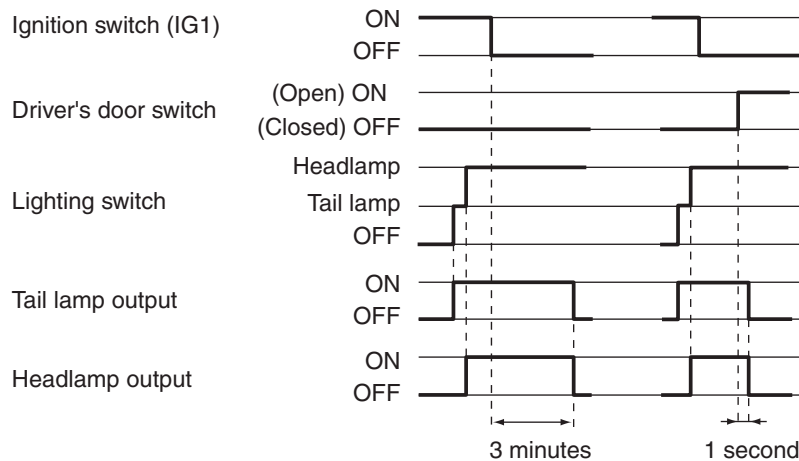
1. When the rear wiper switch on the column switch is turned ON with the ignition switch at the ACC or ON position, ETACS-ECU turns ON the rear wiper drive signal for 3 seconds (approximately 2 operations) and performs the intermittent action at 8-second intervals.

When the selector lever is moved to R (reverse) position during the rear wiper operation, the inhibitor switch R (reverse) 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.

HEADLAMP

HEADLAMP AUTOMATIC SHUTDOWN FUNCTION <EXCEPT FOR AUSTRALIA AND NEW ZEALAND> (THE INITIAL CONDITION: WITH FUNCTION)



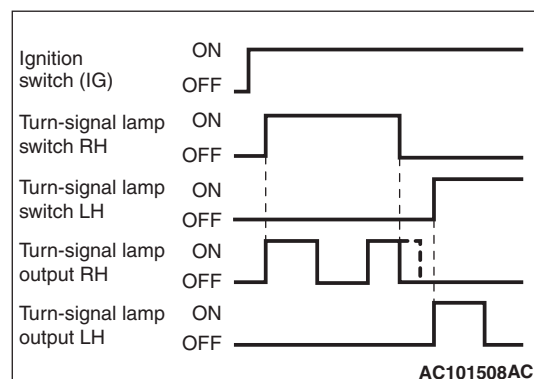
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Even when the lighting switch (tail lamp switch or headlamp) is ON, the headlamp (including the tail lamps) turns off automatically with any of the following conditions to prevent the battery discharge caused by unattended operation.

1. If the ignition switch is turned OFF with the ignition 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.)

NOTE: For vehicles with the keyless entry system, this function can be invalidated by the adjusting function. (Refer to [P.54B-22.](#))

FLASHER TIMER FUNCTION TURN-SIGNAL LAMP

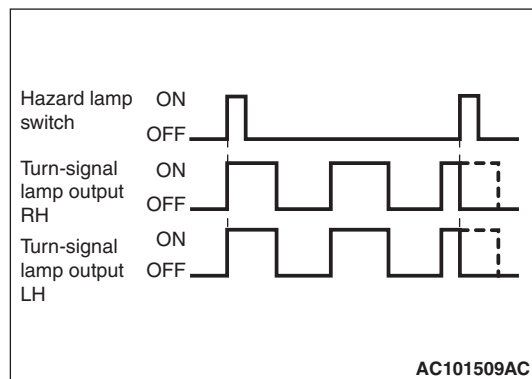


AC101508AC

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.

HAZARD WARNING LAMP



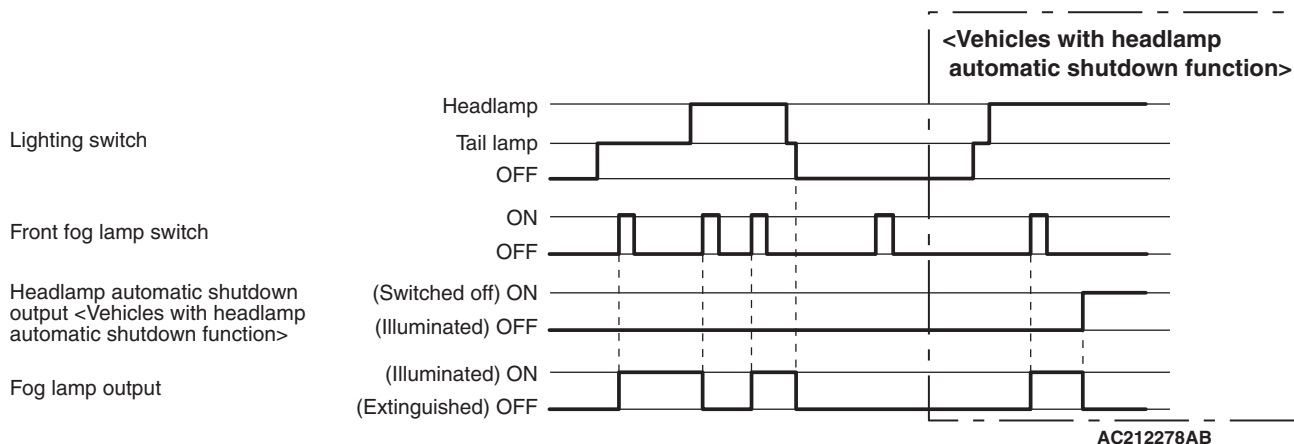
When the hazard lamp switch input signal turning from OFF to ON is detected, the flashing states turns over by the signal. (When the hazard lamp is not blinking, it blinks. If it is blinking, it turns off.)

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.

FOG LAMP

FRONT FOG LAMP CONTROL FUNCTION <VEHICLES WITH FRONT FOG LAMP>

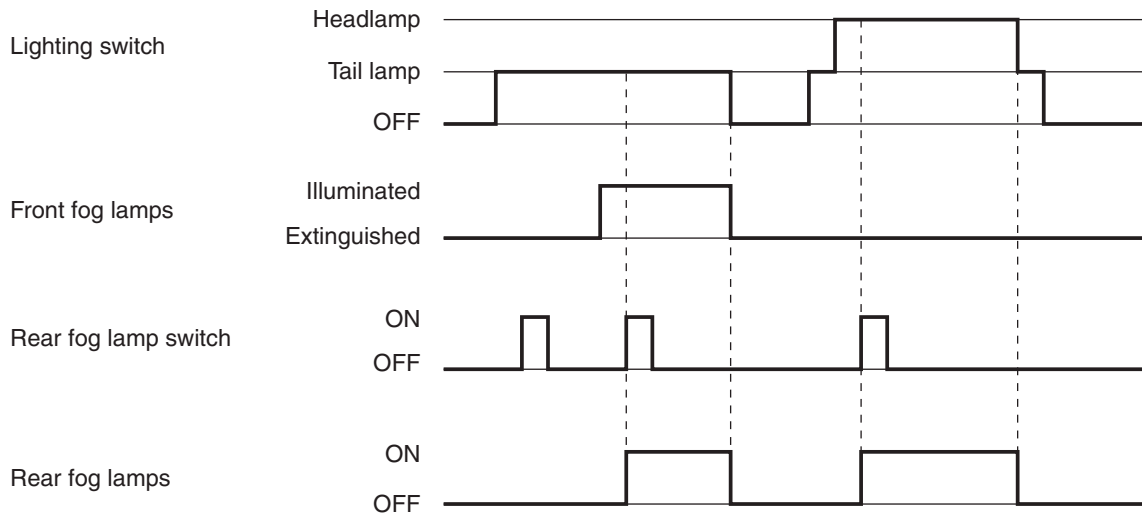


When the fog lamp switch is turned to ON with the tail lamp or the headlamp lit (the tail lamp switch or the headlamp switch is ON), the fog lamp relay turns ON, and the fog lamps light.

If the tail lamp or the headlamp is turned off with the lighting switch OFF while the fog lamps lit, the fog lamps turn off the same time to prevent unattended operation.

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

REAR FOG LAMP CONTROL FUNCTION <VEHICLES WITH REAR FOG LAMP>



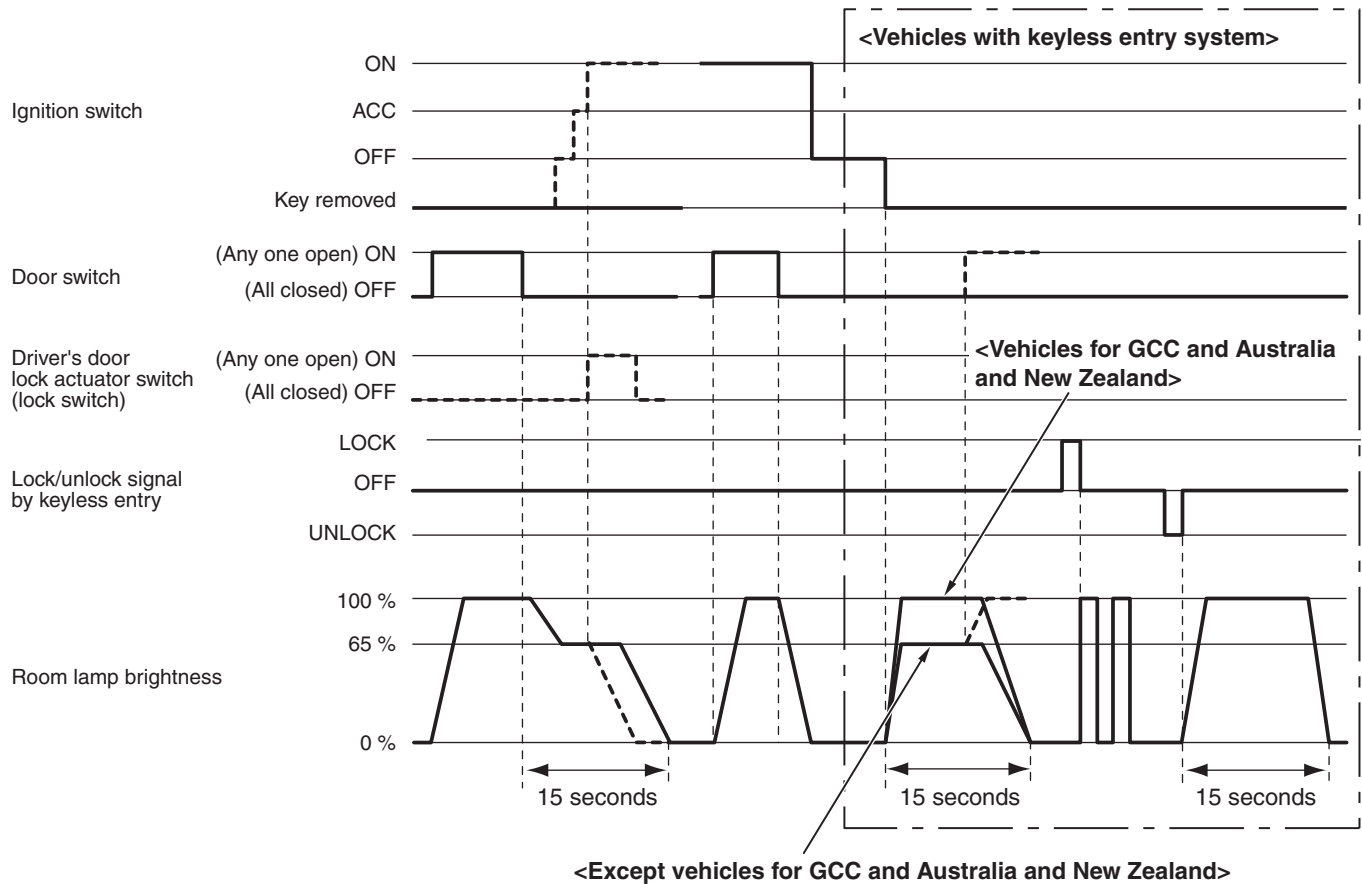
AC212279AB

If the rear fog lamp switch is turned ON when the headlamp or the front fog lamp is turned ON, the rear fog lamp is switched ON and OFF alternatively.

If the headlamp and the front fog lamp, the rear fog lamp is turned OFF at the same time.

INTERIOR LAMP

DIMMER INTERIOR LAMP CONTROL FUNCTION (THE INITIAL CONDITION: 15 SECONDS)



AC212382AB

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

1. When the ignition switch is OFF:

By opening any door or tailgate lamps, the lamp turns ON (100%), and dims (65%) 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 during the timer operation, the lamps turn off at that time.

2. When the ignition switch is ON:

By opening any door or tailgate lamps, 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 100% <vehicles for GCC and Australia> or 65% <except vehicles for GCC and Australia>, and turns off after 15 seconds.

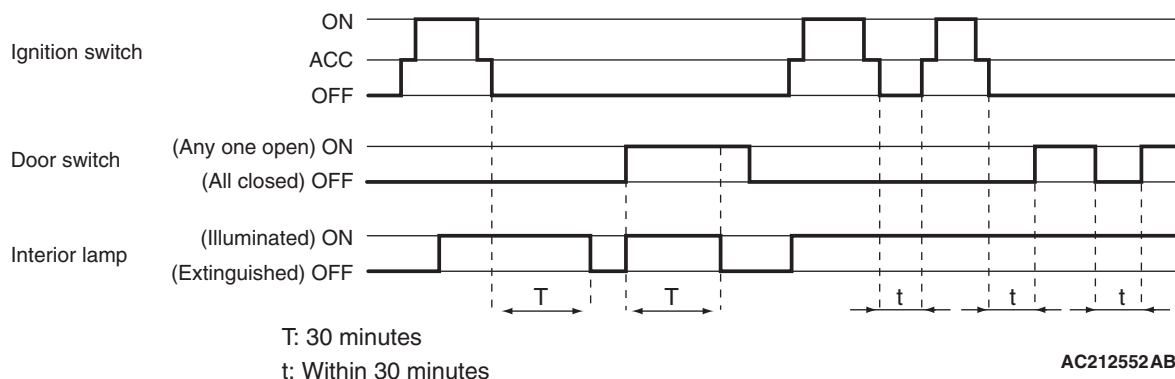
By inserting the ignition key again or operating the door lock with the lamp lit, the lamps turn off.

4. Keyless entry room lamp answer back <Vehicles with keyless entry system>

The room lamp blinks two times while locking the door for easy checking the keyless entry function. When the door is unlocked, the lamp lights on for 15 seconds (100%), and turns off.

NOTE: For the vehicles with the keyless entry system, the delayed interior lamp turning off duration and the operation times of the keyless entry interior lamp answer back can be changed by the adjusting function. (Refer to [P.54B-22](#).)

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 out 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 switches opened while the ignition switch is OFF, the lamp turns off automatically.

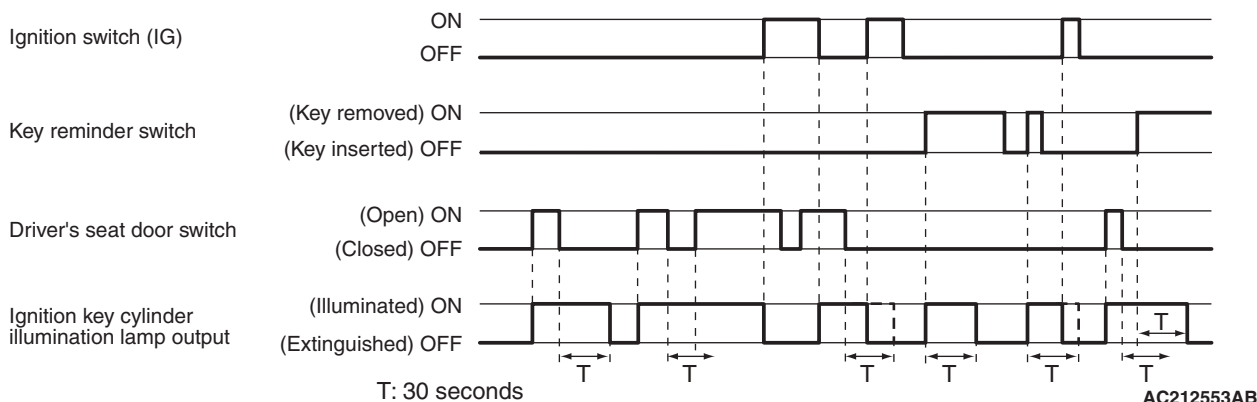
After auto-turn off function, the interior lamp turns ON when any of the following condition is met.

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

NOTE:

1. The interior automatic shutdown function can be disabled or enabled by the adjusting function. (Refer to [P.54B-22](#).)
2. After returning, the lamp turns off after 30 minutes, when the interior auto turn off function is met.

IGNITION KEY CYLINDER ILLUMINATION LAMP CONTROL FUNCTION

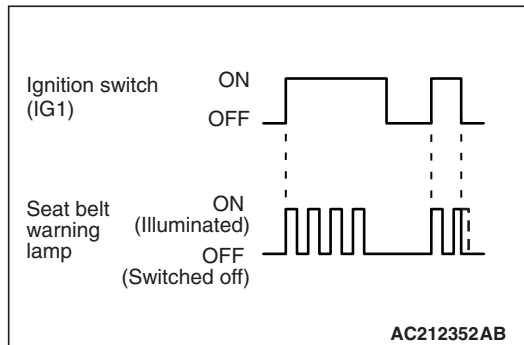


The ignition key cylinder illumination lamp lights for 30 seconds when the driver's door is opened/closed with the ignition switch OFF. Also when the ignition key is removed from the ignition key cylinder, the lamp lights for 30 seconds. In any cases, the ignition key cylinder illumination lamp turns ON when the ignition switch is turned to ON.

SEAT BELT WARNING LAMP

SEAT BELT WARNING LAMP FUNCTION <VEHICLES FOR AUSTRALIA AND NEW ZEALAND>

When the ignition switch is turned to ON, the seat belt warning lamp flashes 4 times (over 6 seconds).



ADJUSTMENT FUNCTION <VEHICLES WITH KEYLESS ENTRY SYSTEM>

M2541000400287

According to the configuration mode entry conditions of the input switch, the following functions can be adjusted. The data on configuration will be memo-rized even if the battery is removed.

- Keyless entry system hazard answerback function
- Power window timer function
- Vehicle speed-dependent wiper function
- Headlamp automatic-shutdown function
- Delayed lamp-off time of the room lamp
- Interior lamp automatic-shutoff function
- Initialization of all functions (Returns to initial settings)

1. Conditions for entering the configuration mode

1. Set each switch to the following state.

- Hazard lamp switch: OFF
- Diagnosis control: ON (Connect the M.U.T.-II/III or earth pin one of the diagnosis connector.)
- Key reminder switch: OFF (Insert the ignition key)
- Ignition switch: "LOCK" (OFF) position

- Driver's door switch: OFF (driver's door closed)
- #### 2. Conditions for exiting the configuration mode
- Diagnosis control: OFF (Disconnect the M.U.T.-II/III or the earth of Pin one of the diagnosis connector.)
 - Key reminder switch: ON (Remove the ignition key)
 - Ignition switch: Turning to any position other than "LOCK" (OFF) position
 - Driver's door switch: ON (driver's door opened)
 - When three minutes pass without configurations performed
 - When the other warning tone alarm output is generated
- #### 3. Configurations of various functions

Function	Configuration procedure
Keyless entry system hazard answerback function	<p>When the lock button of the transmitter is pressed twice continuously within two seconds, the hazard answerback function during the lock state will be switched between available or unavailable.</p> <ul style="list-style-type: none"> • Function available: Tone alarm sounds once. (Initial state) • Function not available: Tone alarm sounds twice. <p>When the unlock button of the transmitter is pressed twice continuously within two seconds, the hazard answerback function during the unlock state will be switched between available or unavailable.</p> <ul style="list-style-type: none"> • Function available: Tone alarm sounds once. (Initial state) • Function not available: Tone alarm sounds twice.
Power window timer function	<p>When one of the power window main switch turns ON twice within two seconds (however there must be an interval of more than 0.3 seconds,) the power window timer function will be switched between available or unavailable.</p> <ul style="list-style-type: none"> • Function available: Tone alarm sounds twice. (Initial state) • Function not available: Tone alarm sounds five times.
Vehicle speed-dependent wiper function	<p>When the windshield wiper mist switch is turned ON for more than two seconds, the vehicle speed-dependent wiper function is switched between available or unavailable.</p> <ul style="list-style-type: none"> • Function available: Tone alarm sounds once. (Initial state) • Function not available: Tone alarm sounds twice.
Headlamp automatic-shutdown function	<p>When the passing switch is turned ON for more than two seconds with the headlamp switch ON and the turn-signal lamp switch turned to RH, the headlamp automatic-shutdown function is switched between available or unavailable.</p> <ul style="list-style-type: none"> • Function not available: Tone alarm sounds twice. • Function available: (when the tail lamp illuminates with the ignition switch turned to the "LOCK" (OFF) position, it is not automatically turned off): Tone alarm sounds once. (Initial state)
Delayed lamp-off time of the room lamp	<p>When the turn-signal lamp switch is set in the order of RH to LH to RH to LH within three seconds from the LH position, the delayed lamp-off time switches (Returns to a after e, and repeats from a in order.)</p> <ol style="list-style-type: none"> 30 seconds: Tone alarm sounds once. (Initial state) 10 seconds: Tone alarm sounds twice. 0 seconds (No delay time): Tone alarm sounds three times. 15 seconds: Tone alarm sounds four times. 7.5 seconds: Tone alarm sounds five times.
Interior lamp automatic-shutoff function	<p>When the hazard lamp switch is turned ON for more than two seconds, the interior lamp automatic-shutoff function switches in the following order. (a and b switches alternately)</p> <ol style="list-style-type: none"> Function available: Tone alarm sounds once. (Initial state) Function not available: Tone alarm sounds twice.
Initialization of all functions	<p>When the windshield washer switch is ON for more than 20 seconds continuously, the tone alarm sounds twice, and all functions will be initialized. (Settings are returned to their initial states.) The configuration mode entry tone alarm sounds after 10 seconds, however to initialize all functions, the ON state will continue for 20 seconds. When the windshield washer switch is ON for more than 20 seconds continuously without the configuration mode set, the configuration mode will be set after 10 seconds without the initialization of all functions.</p>

NOTES