GROUP 42

BODY

CONTENTS

GENERAL DESCRIPTION

M2420000100488

FEATURES

HIGH RIGIDITY AND ANTI-CORROSION

- High-tensile steel panels and anti-corrosion steel panels are used more widely.
- A straight frame structure is used to improve rigidity.

REDUCTION OF VIBRATION AND NOISE

- Effective positioning of sound-deadening materials.
- The curved front floor pan reduces vibration.
- Better rigidity of door panel

IMPROVEMENTS IN SAFETY

- An impact safety body is used for the main body.
- A side door beam is used to boost safety upon side impact.
- A strut tower bar is used <3.8L Engine>.
- Direct combination key cylinder and inside lock cables for the front doors improve safety upon impact.

IMPROVEMENTS IN OPERATION QUALITY

- The central door locking system locks/unlocks all the doors and the liftgate.
- When all the doors are locked, the driver's door can be opened using the driver's side inside door handle (Override function).
- A short stroke mechanism is used on the power window regulator.
- An anti-trap liftgate latch mechanism is used on the liftgate latch.
- The liftgate lock release handle is the electronic type, for ease of use.

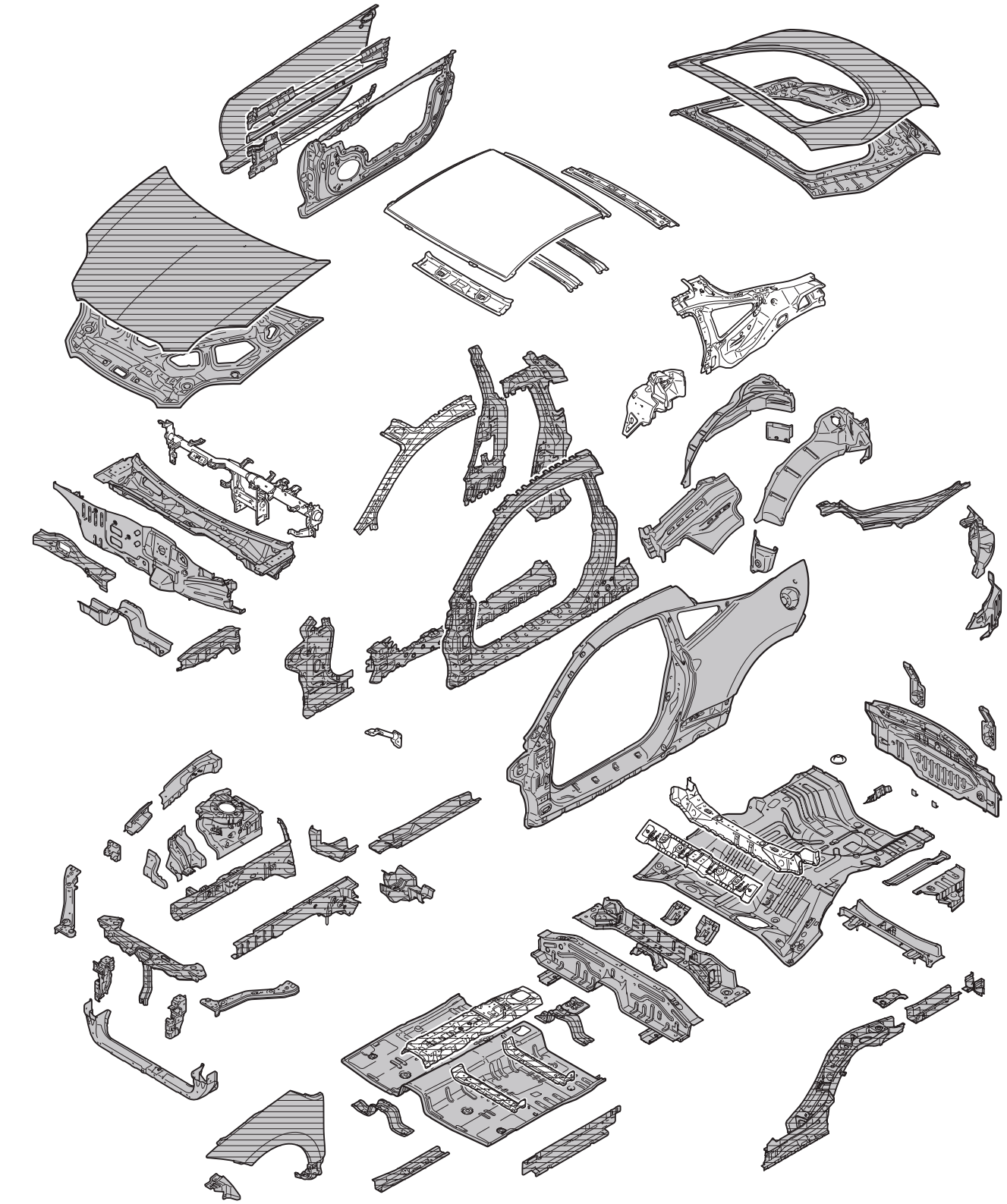
IMPROVEMENTS OF PRODUCT PACKAGE AND APPEARANCE

- A sunshade is on the upper side of the windshield.
- High ray absorption glass is used for the windshield, the front door window glasses, quarter window glasses and liftgate window glass.
- Power window switch with one-touch power windows mechanism and power window lock switch are used.
- A new mechanism regulator is used in the front doors.
- The sunroof has been installed as an option.
- A keyless entry system is equipped as standard.

MAIN BODY

BODY PANELING

M2420002000476



: ANTI-CORROSION STEEL PANELS
: HIGH-TENSILE STEEL PANELS

AB401110AC

High-tensile strength steel panels are used to reduce the vehicle body weight. The electrostatic coating is improved and many corrosion-resistant steel panels are used for a body with high corrosion resistance.

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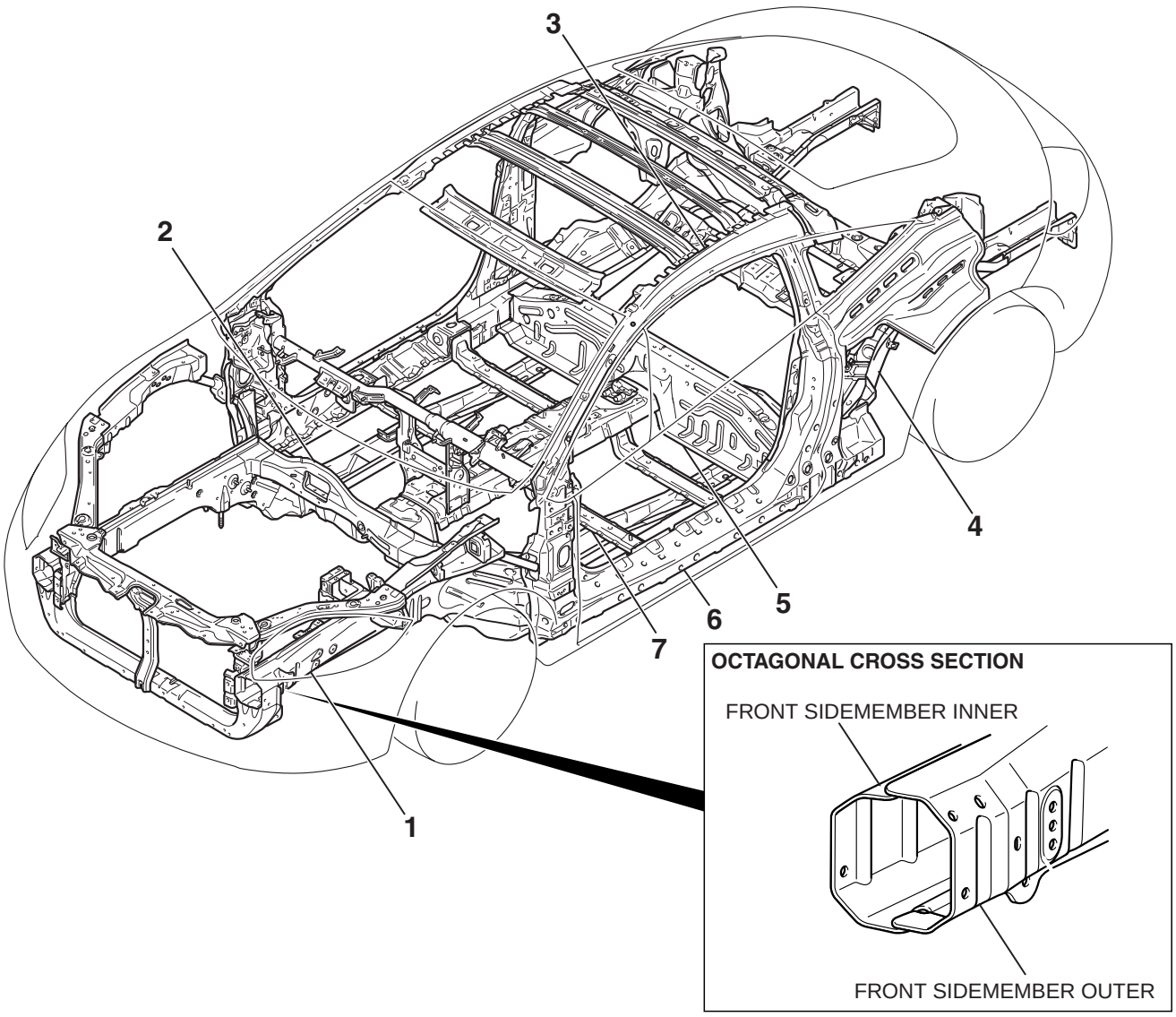
BODY SHELL

M2420003000413

IMPACT SAFETY BODY



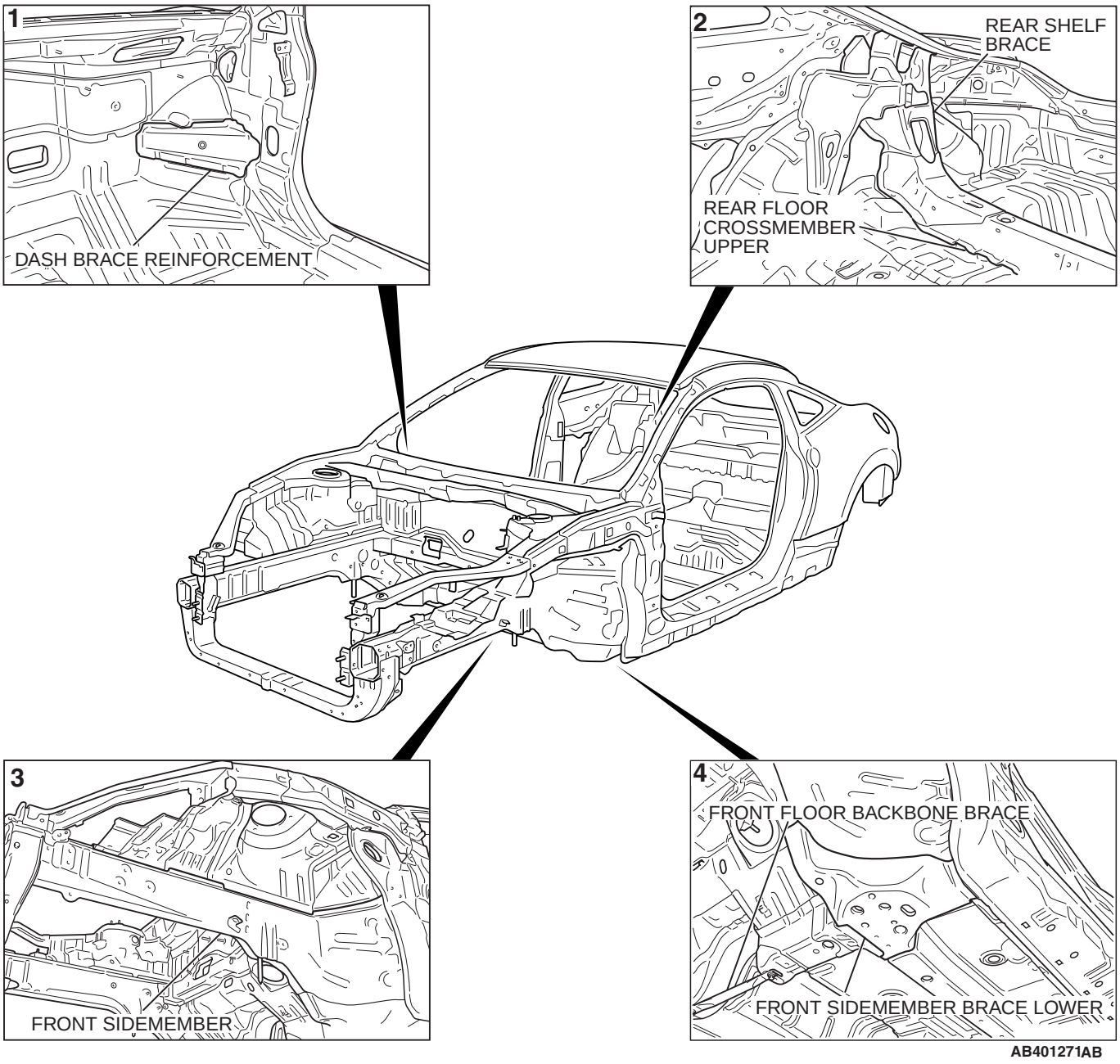
AB401272AB

Due to the following structures, a high-energy absorbing front and rear sidemember structure, and high rigidity cabin structure maintain cabin space and improve the passenger safety upon impact.

1. Front side member is straighter and has octagonal cross sections.
2. Dash crossmember is used.
3. High rigidity side outer reinforcement is used.
4. Rear floor sidemember is straighter and has large cross section.
5. High rigidity rear seat crossmember front is used.
6. High rigidity side sill outer reinforcement inner is used.
7. High rigidity front floor crossmember front is used.

TSB Revision

DRIVING STABILITY



AB401271AB

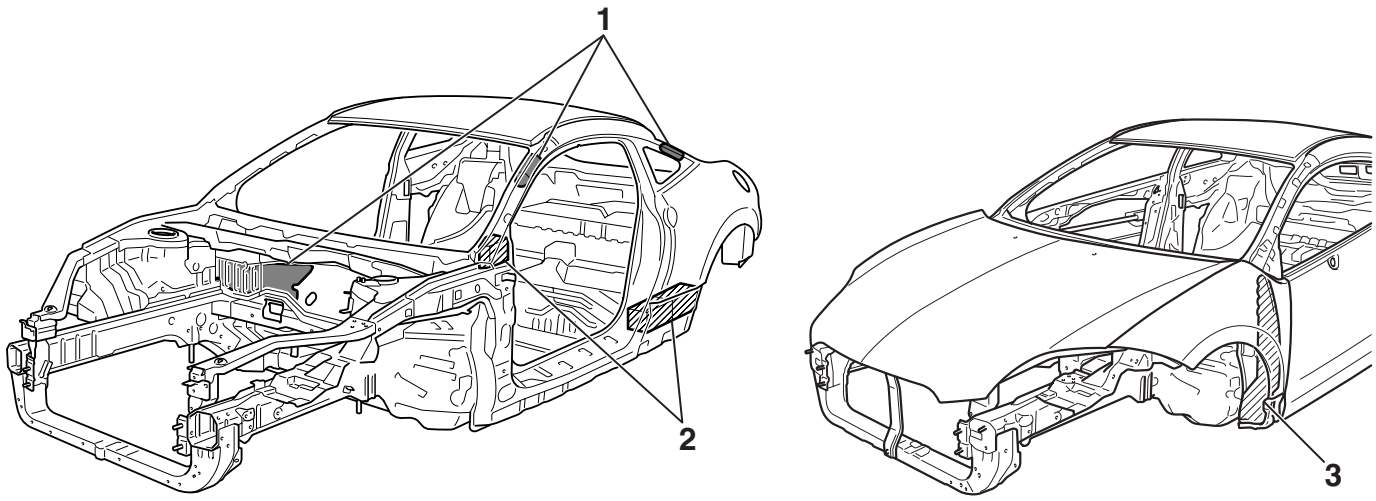
The following structures enhance the body rigidity and improve driving stability:

1. The dash brace reinforcement has been adopted to improve the cabin bending rigidity.
2. The rear shelf brace and rear floor crossmember upper improve the cabin torsional rigidity.
3. The front side member which has a straight-structure improves the cabin bending rigidity.
4. The front sidemember brace lower and the front floor backbone brace improves the cabin bending rigidity.

TSB Revision

QUIETNESS

M2420004000405



AB401339AB

Quietness has been improved with acoustic foam material, urethane foam and front pillar pad.

1. Acoustic foam materials have been filled into the front pillar, the dash panel and inside the quarter panel, to prevent noise inside the vehicle.
2. Urethane foam has been inserted into the front pillar and the center pillar to prevent noise inside the vehicle.
3. Front pillar pad has been inserted into the front fender to prevent noise inside the vehicle.

BODY COLOR CHARTS

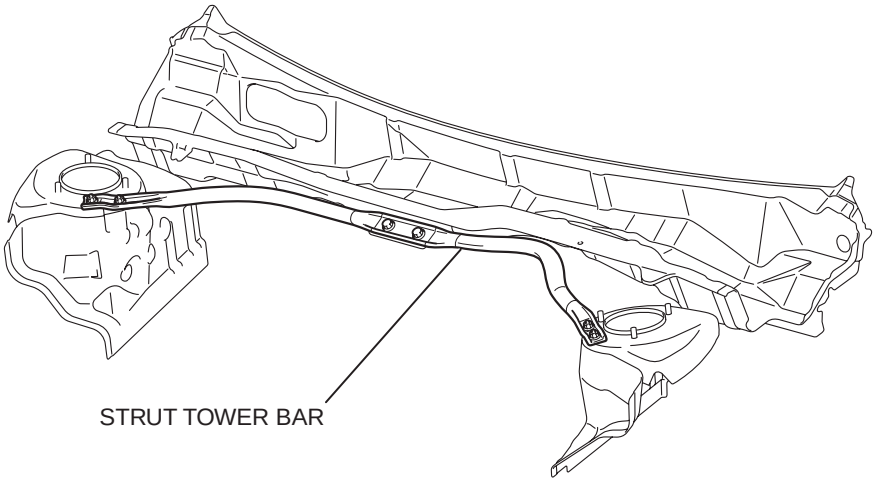
M2420005000710

COLOR	COLOR CODE	COLOR NUMBER	COMPOSITION OF FILM
SILVER	A33	CUA10033	Metallic
BLUE	T60	CUT10060	Pearl
GREEN	F09	CUF10009	Pearl
BLACK	X13	AC10813	Solid
WHITE	W26	CUW10026	Pearl
ORANGE	M03	CUM10003	Pearl
DEEP RED	P06	CUP10006	Pearl
RED	P18	CUP10018	Solid

NOTE: For painting, inner panel colors should be similar to the outer panel colors.

STRUT TOWER BAR <3.8L ENGINE>

M2420001300139



AC404849AB

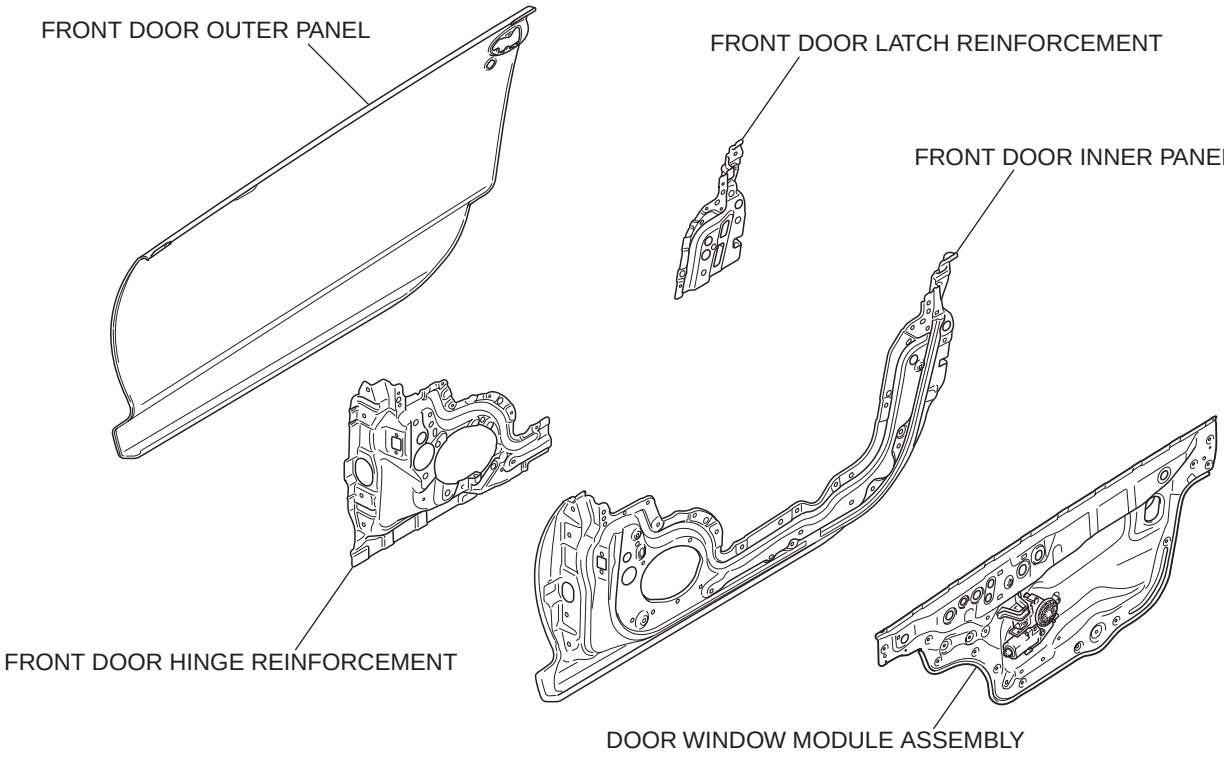
A strut tower bar is used at the strut attachment point, to improve body rigidity.

DOOR AND LIFTGATE

DOOR

M2420006000111

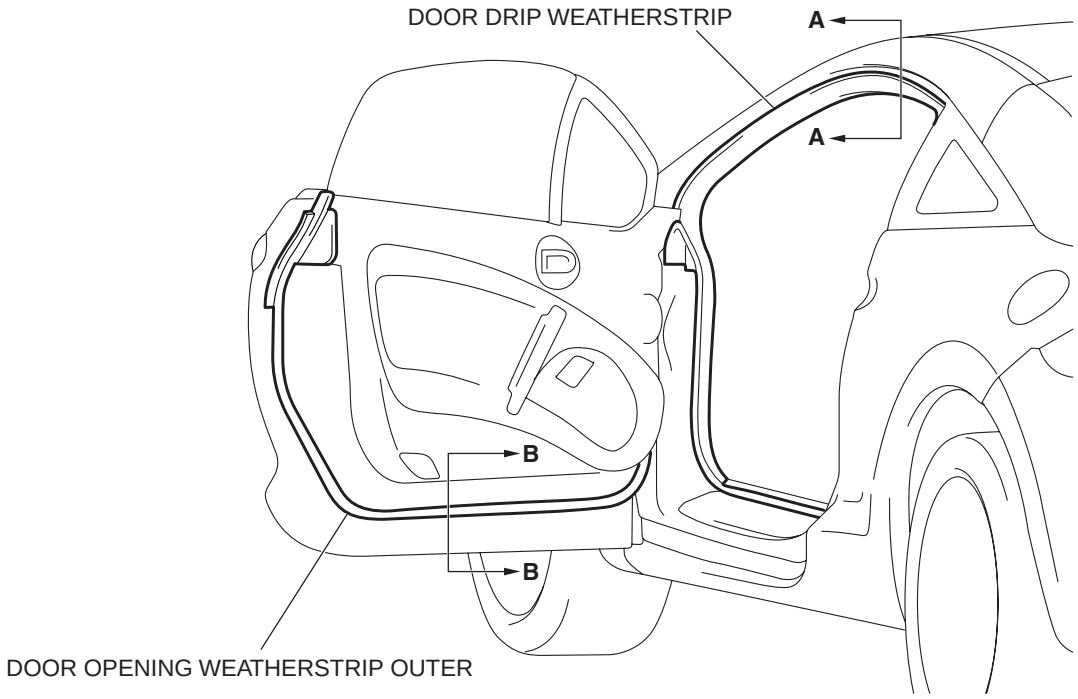
DOOR PANEL



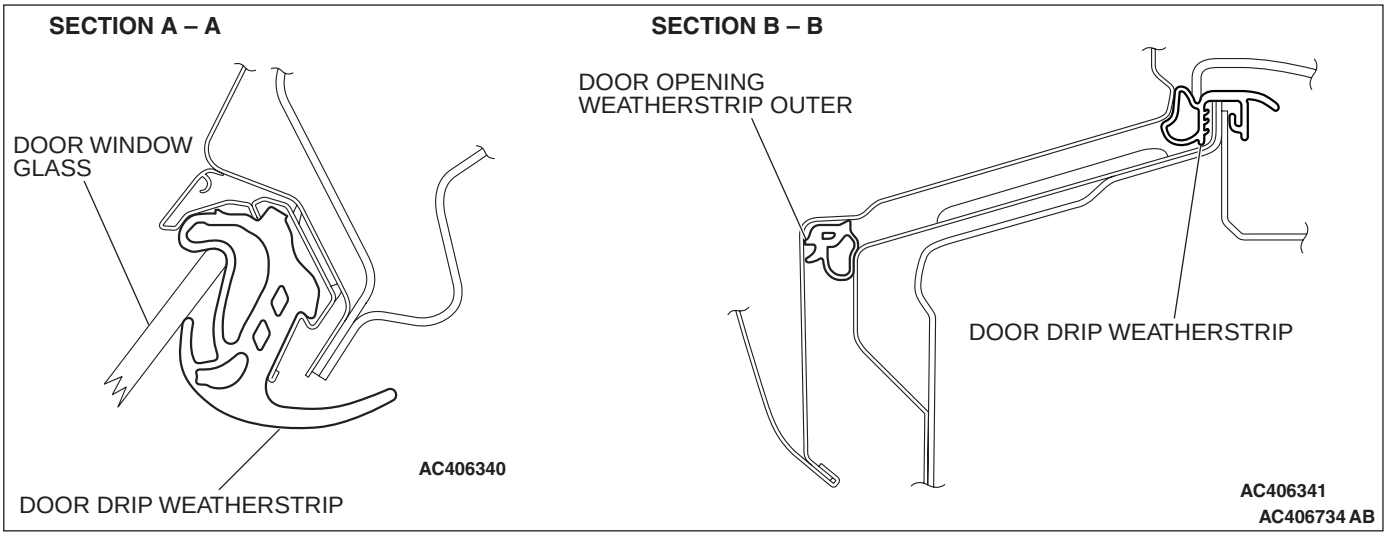
AC406346AB

- Due to larger front door hinge reinforcement and front door latch reinforcement, the mounting surface rigidity of the door windows is secured and the accuracy of positioning the door window glass is stabilized, to improve the sealing performance around the door window glass.
- The high-rigid door panel and module panel which conceal the door panel increase the acoustic performance of the door speaker.

DOOR WEATHERSTRIP



AC406339AB



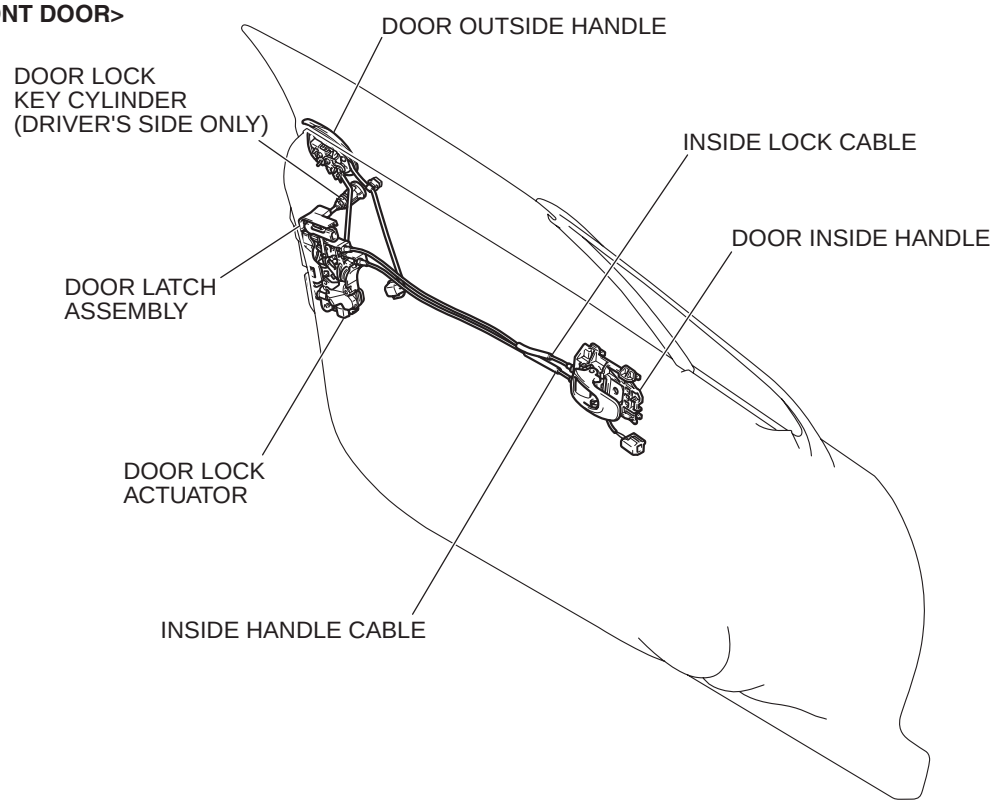
- The door drip weatherstrip is used to seal the end of the door window glass to improve the waterproof and sound-proof performance and to reduce the air-induction noise.
- For an improved sound transmission rating and better soundproofing, two-ply construction is used for the weatherstrip, with opening weatherstrips on the door and body.

DOOR AND LIFTGATE LOCK

M2420001100049

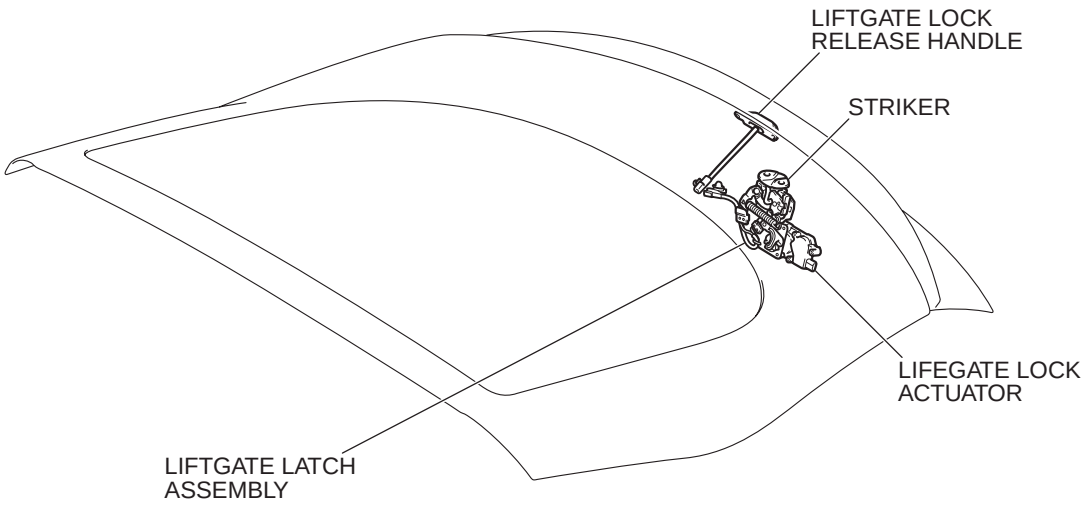
CONSTRUCTION DIAGRAM

<FRONT DOOR>



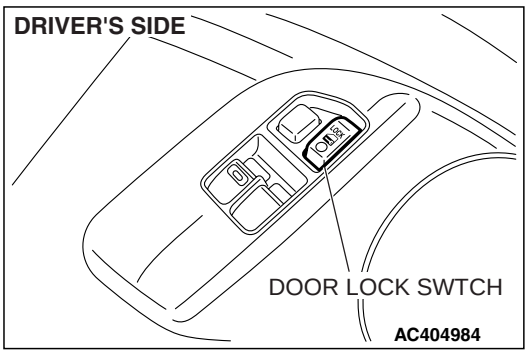
AC405363AB

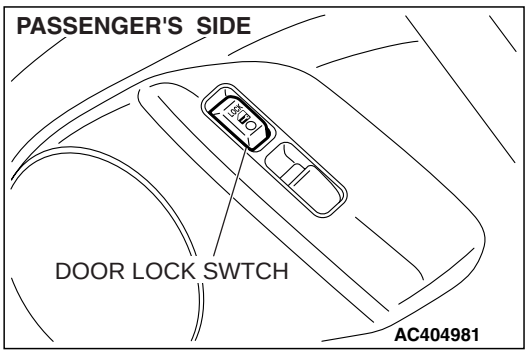
<LIFTGATE>



AC405360AB

LOCATION OF THE DOOR LOCK SWITCHES





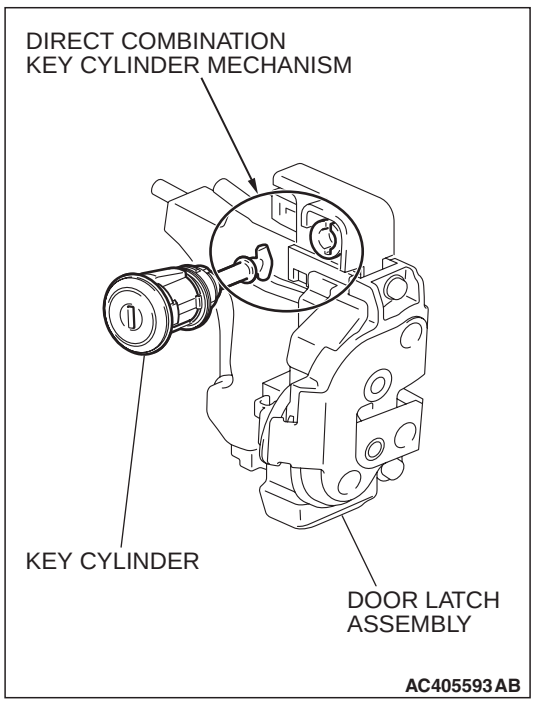
AC404864 AB

- The center door lock enables locking and unlocking of all doors including the liftgate by using the key cylinder at the driver's side door, the door lock switch, or passenger's side door lock switch. Locking and unlocking is controlled by the ETACS-ECU. Refer to GROUP 54B, Simplified Wiring System (SWS) P.54B-10.
- The door lock prevention function by ETACS-ECU control when the ignition key is left in the switch is used. Refer to GROUP 54B, Simplified Wiring System (SWS) P.54B-10.
- As an added safety measure, the front doors have an inside lock cable to prevent the door from locking during an impact.
- The door outside handle and door inside handle appearance is improved.
- The liftgate gas spring layout has been improved for better opening/closing operation of the liftgate.

DESCRIPTION OF STRUCTURE AND OPERATION

OVERRIDE FUNCTION

The driver’s door can be opened by pulling the driver’s door inside handle even though the driver’s door inside lock knob is locked.



DIRECT COMBINATION KEY CYLINDER MECHANISM

- When doors are unlocked, an impact of a side collision is not easily transmitted to the door latch structurally, improving door opening performance.
- Even if a door key cylinder is tampered with, the door latch is not easily affected.

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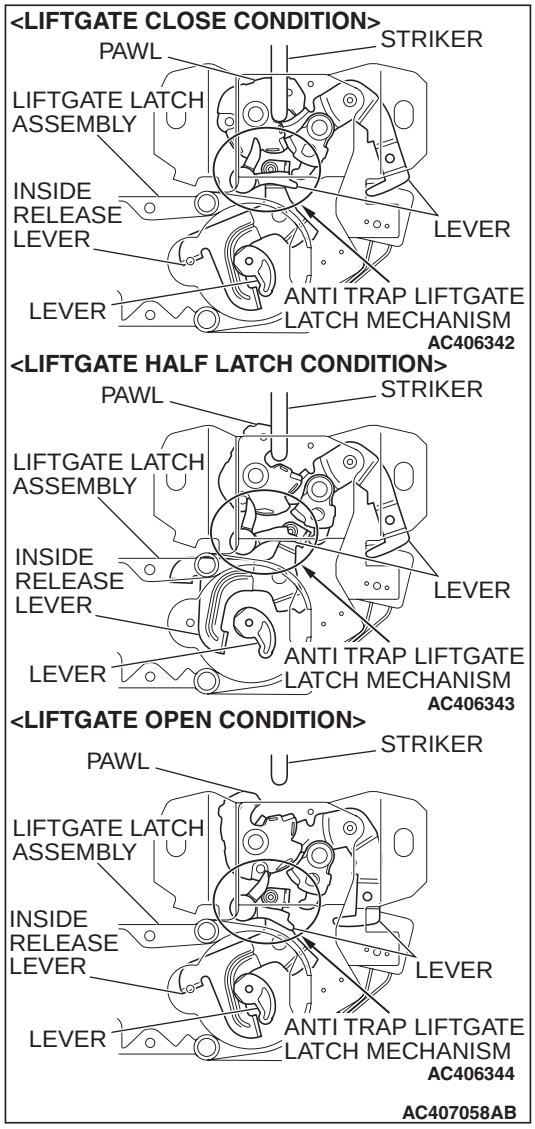
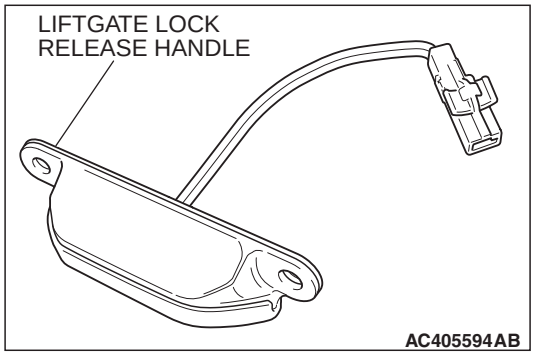


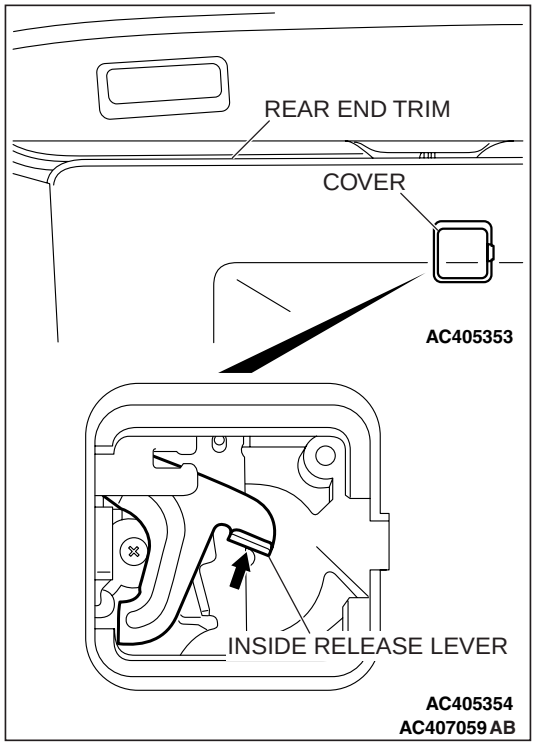
LIFTGATE OPEN FUNCTION

- The liftgate can be opened by operating the liftgate lock release handle and transmitter (Refer to P.42-13).
- An anti-trap liftgate latch mechanism is used. With this mechanism, the liftgate can be raised even if some environmental conditions may limits the liftgate opening only to the door-ajar (half-latch) position, by preventing the latch pawl from engaging with the striker.



LIFTGATE LOCK RELEASE HANDLE

If the liftgate cannot be opened from the outside of the vehicle (with the liftgate lock release handle) due to any malfunction such as discharged battery, it can be opened from the inside of the vehicle using the following procedures.



1. Remove the cover on the rear end trim, working from the inside of the vehicle.
2. While pushing the inside release lever in the direction indicated by the arrow, raise and open the liftgate.

CENTRAL DOOR LOCKING SYSTEM

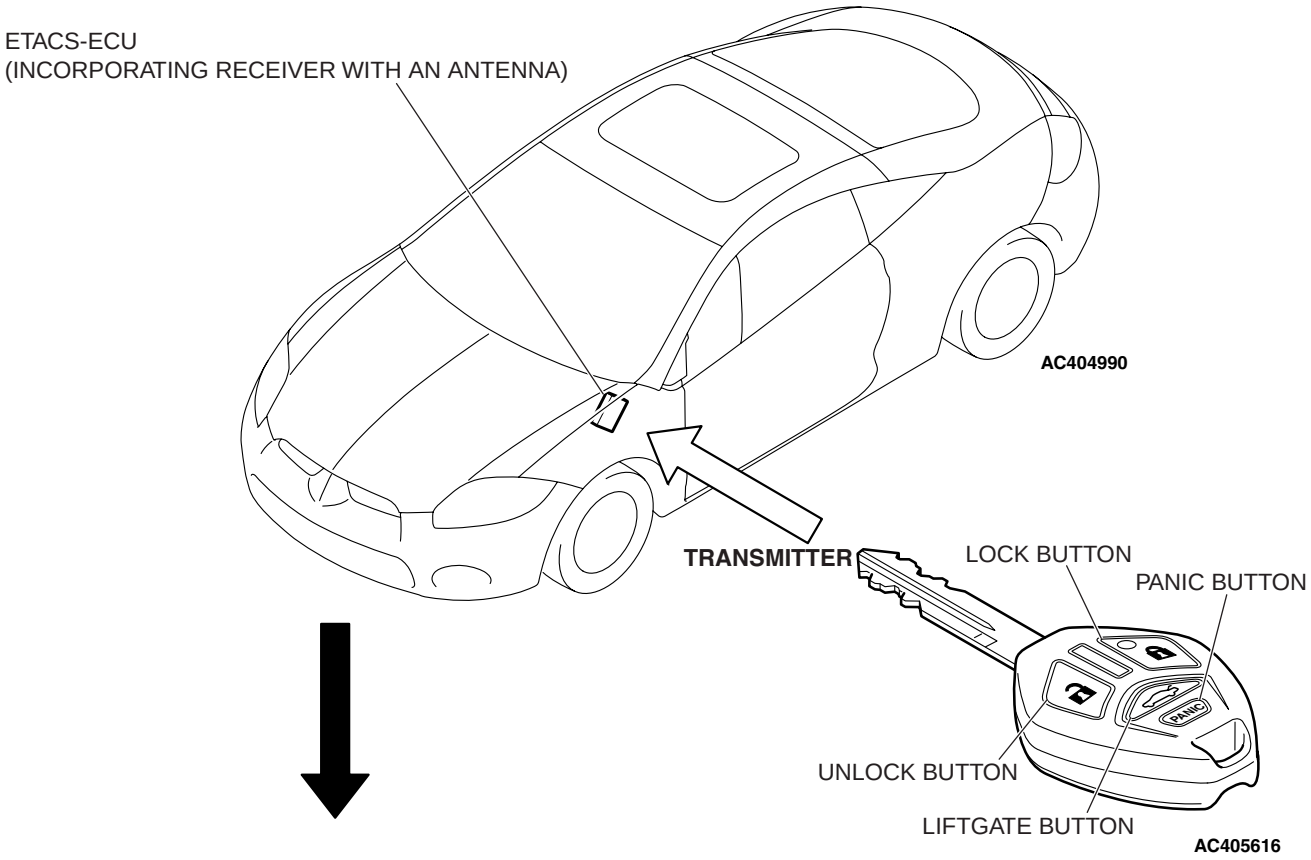
DOOR LOCK OPERATION TABLE

OPERATION			DRIVER'S SIDE DOOR	PASSENGER'S SIDE DOOR	LIFTGATE
Door lock key cylinder		Lock	Lock	Lock	Lock
		Unlock Once	Unlock	Lock	Lock
		Unlock Twice	Unlock	Unlock	Unlock
Door lock switch	Driver's side door	Lock	Lock	Lock	Lock
		Unlock	Unlock	Unlock	Unlock
	Passenger's side door	Lock	Lock	Lock	Lock
		Unlock	Unlock	Unlock	Unlock
Liftgate lock release handle		Push Once	–	–	Open

KEYLESS ENTRY SYSTEM

M2420010000512

CONSTRUCTION DIAGRAM



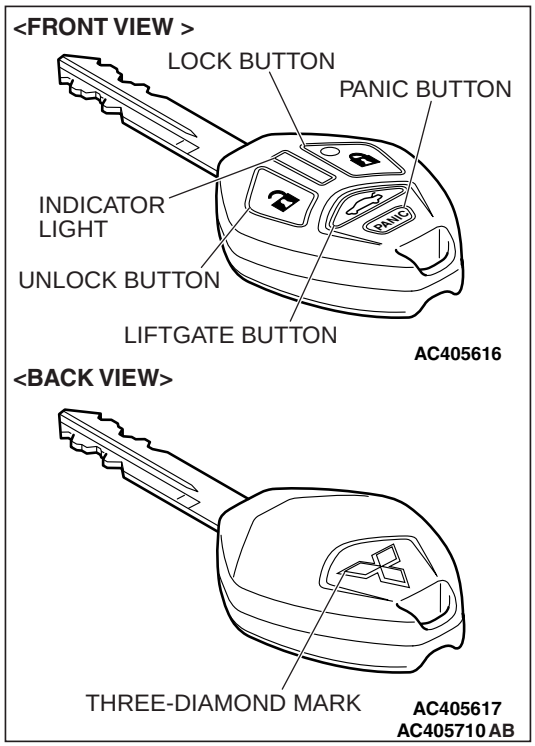
- DOME LIGHT (WHEN LOCKED: FLASHES ONCE, WHEN UNLOCKED: ILLUMINATES FOR 15 SECONDS)
- TURN SIGNAL LIGHTS (WHEN LOCKED: FLASHES ONCE, WHEN UNLOCKED: FLASHES TWICE)
- HORN (WHEN LOCKED WHILE DRIVER'S SIDE DOOR IS LOCKED: SOUNDS ONCE, WHEN UNLOCKED: NO SOUND)
- DOOR LOCK ACTUATOR (WHEN LOCKED: LOCKING, WHEN UNLOCKED: UNLOCKING)
- LIFTGATE ACTUATOR (WHEN OPENED: OPENING)

AC405709AB

A keyless entry system enables locking and unlocking of all doors and the liftgate from 12m (39.4 feet) away from the vehicle. The following features are also available.

- All doors and the liftgate can be locked and unlocked with the transmitter when its electronic signals are received by the receiver and antenna in the ETACS-ECU.
- Locking and unlocking from the transmitter is confirmed using a hazard answerback function (illuminated or flashing turn-signal lights, dome light) or horn answerback function (honking of horn).

DESCRIPTION OF STRUCTURE AND OPERATION

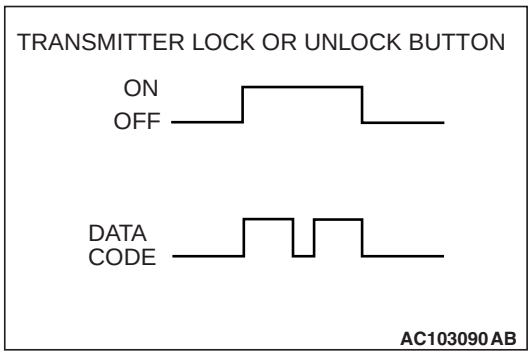


TRANSMITTER

- The transmitter is integrated into the master key. The 4-knob button is used, and the specific secret code is transmitted as a radio wave signal.
- A brilliant silver Three-diamond mark is stamped on the back side of the key grip.
- An indicator light, which illuminates when signals are received, is added on the key grip. This indicator lamp informs you of the signal transmission status and warns you of a flat battery in the transmitter.
- A signal transmission circuit (printed circuit) and a battery are housed in one case. The case is housed in the key grip, thus improving resistance to water intrusion.
- The functions of the immobilizer system are integrated (Refer to GROUP 54A, Immobilizer System P.54A-4).
- The transmitter button operation allows the system to operate as follows:

KEYLESS ENTRY SYSTEM OPERATION TABLE

OPERATION OF TRANSMITTER			OPERATION OF KEYLESS ENTRY SYSTEM
Lock button		Press once	Lock all doors and liftgate
Unlock button		Press once	Unlock the driver's door
		Press twice	Unlock all doors and liftgate
Liftgate button		Press twice (press once, and then press again within 5 seconds)	Open the liftgate
Panic alarm system	Panic button	Press once (press and hold for 1 second).	Starts the panic alarm (headlights flash and horn honks for three minutes)
	Lock button, unlock button, liftgate button or panic button	Press again	Stops the panic alarm in progress



ENCRYPTED CODE

Operating the transmitter once for locking or unlocking will send a data code twice. The encrypted codes that identify users are made up of combinations of 0 and 1. There are over a million combinations. To prevent theft by copying signal codes, the data code includes a rolling code with the encrypted code. The rolling code changes each time a signal is sent.

RECEIVER (PART OF ETACS-ECU)

The ETACS-ECU has a receiver with an antenna. The receiver compares the code sent from the transmitter with the code retained in the receiver through the antenna.

- The ETACS-ECU sends a signal only when those two codes correspond and the rolling code is judged correct.
- All of those output signals are processed internally in the ETACS-ECU.
- A maximum of four encrypted code (4 transmitters) can be registered by connecting the data link connector to scan tool MB991958 (MUT-III sub-assembly).

ANSWERBACK FUNCTIONS

An answerback function is used to notify users after the receiver receives the stored encrypted code signal and the ETACS-ECU sends the lock or unlock signal. The lights flash or the horn honks to confirm the operation. The factory-set default answerback setting is described in the following table. The transmitter can be adjusted to change the response after locking and unlocking. Owners can adjust whether or not the turn-signal lights, dome light, flash or are illuminated, as well as whether or not the horn honks. For further details on using the transmitter to adjust answerback, see the section below.

ITEM	OPERATION		
	DOORS AND LIFTGATE LOCKED	DOORS AND LIFTGATE UNLOCKED	OPEN THE LIFTGATE
ETACS-ECU (receiver)	Sends lock signal	Sends unlock signal	Sends liftgate opener signal
Dome light	Flashes once	Illuminates for 15 seconds	–
Turn-signal lights (RH and LH)	Flashes once	Flashes twice	–
Horn	Sounds once if doors are already locked	–	–

HOW TO USE THE TRANSMITTER TO ADJUST ANSWERBACK

The hazard answerback function can be enabled or disabled by the following procedures:

ANSWERBACK ADJUSTMENT DETAILS

ITEM	ADJUSTMENT ITEM	ADJUSTMENT DETAILS
Keyless entry system confirmation by turn signal lights	Adjustment of hazard answerback when the transmitter is used to lock doors	When adjusting hazard answerback after the doors are locked with the transmitter, the following flashing conditions can be specified. a. Indication (default) b. No indication
	Adjustment of hazard answerback when the transmitter is used to unlock doors	When adjusting hazard answerback after the doors are unlocked with the transmitter, the following flashing conditions can be specified. a. Indication (default) b. No indication
Keyless entry system confirmation by horn	Adjustment of horn answerback when the transmitter is used to lock doors	When adjusting horn answerback after the doors are locked or unlocked with the transmitter, the following honking conditions can be specified. a. Horn sounds b. Horn sounds if doors are already locked (default) c. Horn does not sound

HOW TO ADJUST HAZARD ANSWERBACK WHEN THE TRANSMITTER IS USED TO LOCK DOORS

1. Remove the ignition key.
2. Press the "UNLOCK" button for 4 to 10 seconds and press the "LOCK" button during this time.
3. Release the "LOCK" button and then release the "UNLOCK" button within 10 seconds of pressing the "LOCK" button in Step 2. The ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the doors are locked.
    - **Enable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound once.**
    - **Disable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound twice.**

HOW TO ADJUST HAZARD ANSWERBACK WHEN THE TRANSMITTER IS USED TO UNLOCK DOORS

1. Remove the ignition key.
2. Press the "UNLOCK" button for 4 to 10 seconds and press the "LOCK" button during this time.
3. Release the "UNLOCK" button and then release the "LOCK" button within 10 seconds of pressing the "LOCK" button in Step 2. The ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the doors are unlocked.
    - **Enable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound once.**
    - **Disable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound twice.**

HOW TO ADJUST HORN ANSWERBACK WHEN THE TRANSMITTER IS USED TO LOCK DOORS

1. Remove the ignition key.
2. Press the "LOCK" button for 4 to 10 seconds and press the "UNLOCK" button during this time.
3. Release the "LOCK" and "UNLOCK" buttons within 10 seconds of pressing the "UNLOCK" button in Step 2. The ETACS-ECU tone alarm will sound, indicating that the horn answerback function can be enabled or disabled.

- **Enable the horn answerback function*: The ETACS-ECU tone alarm will sound once.**
- **Disable the horn answerback function: The ETACS-ECU tone alarm will sound twice.**
- **Enable the horn answerback function**: The ETACS-ECU tone alarm will sound three times.**

NOTE:
**: The horn will sound if the doors are locked with the keyless entry system.*
***: The horn will sound if the doors are already locked and the keyless entry lock button is operated.*

TIMER LOCK FUNCTION

After the transmitter is used to unlock the doors (including the liftgate), if no door is opened and the ignition key is not inserted within 30 seconds, the ETACS-ECU automatically sends a door lock signal to lock all doors (including the liftgate). This timer lock function prevents operational error from accidental unlocking of doors and the liftgate.

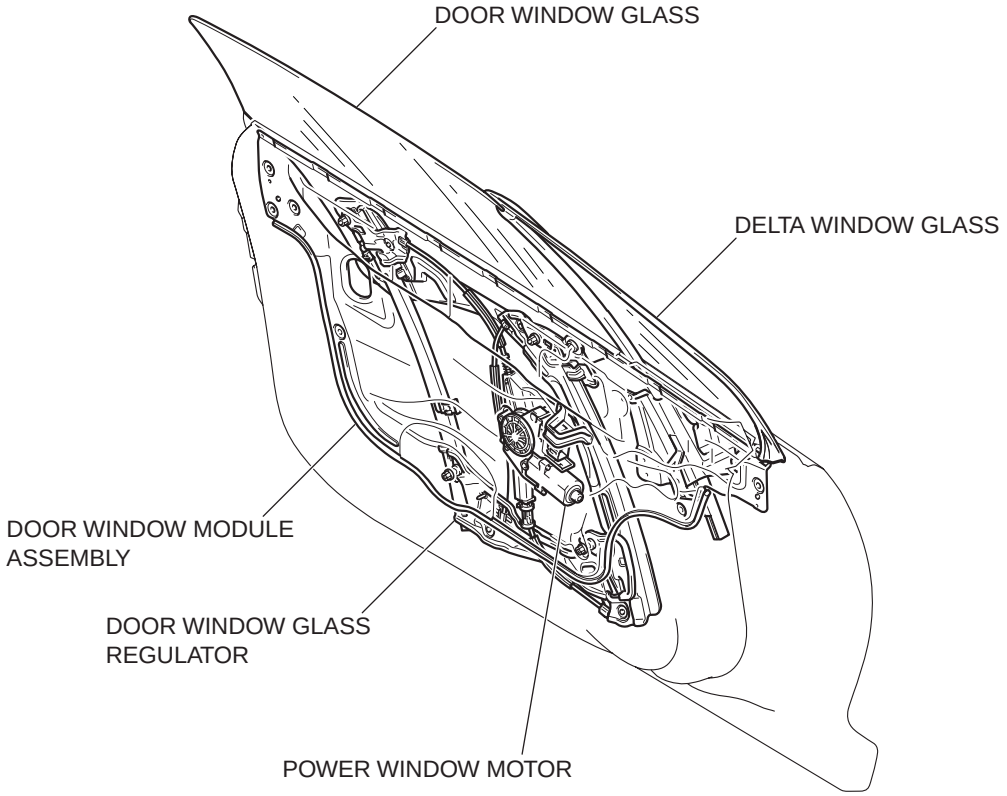
PROHIBITED OPERATING CONDITION FOR THE KEYLESS ENTRY SYSTEM

- When the ignition key is inserted
- When any door (including the liftgate) is opened, even partially (Door switch: ON)

WINDOW GLASS REGULATOR

M2420011000270

CONSTRUCTION DIAGRAM



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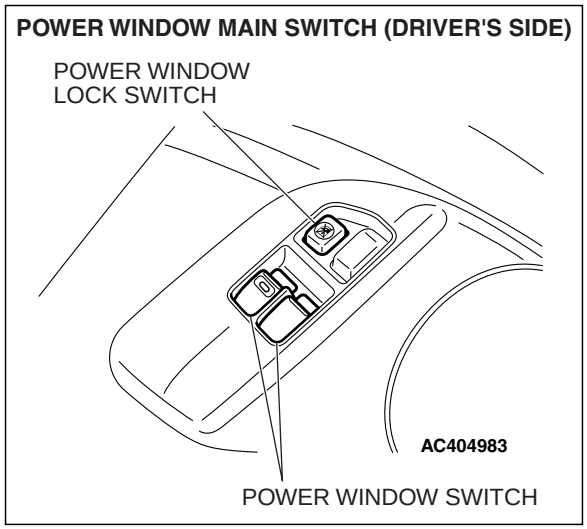
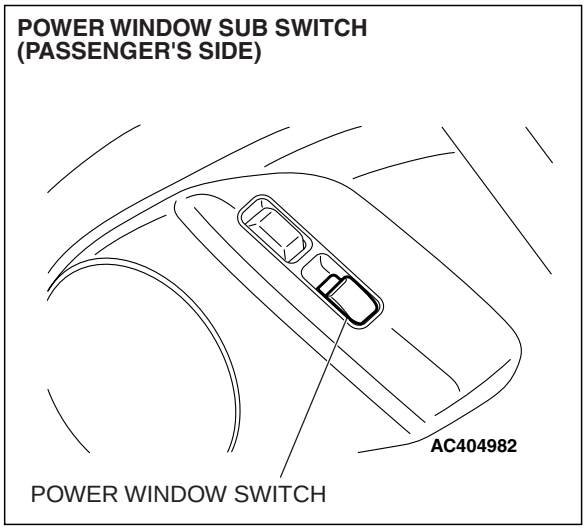




AC404865 AB

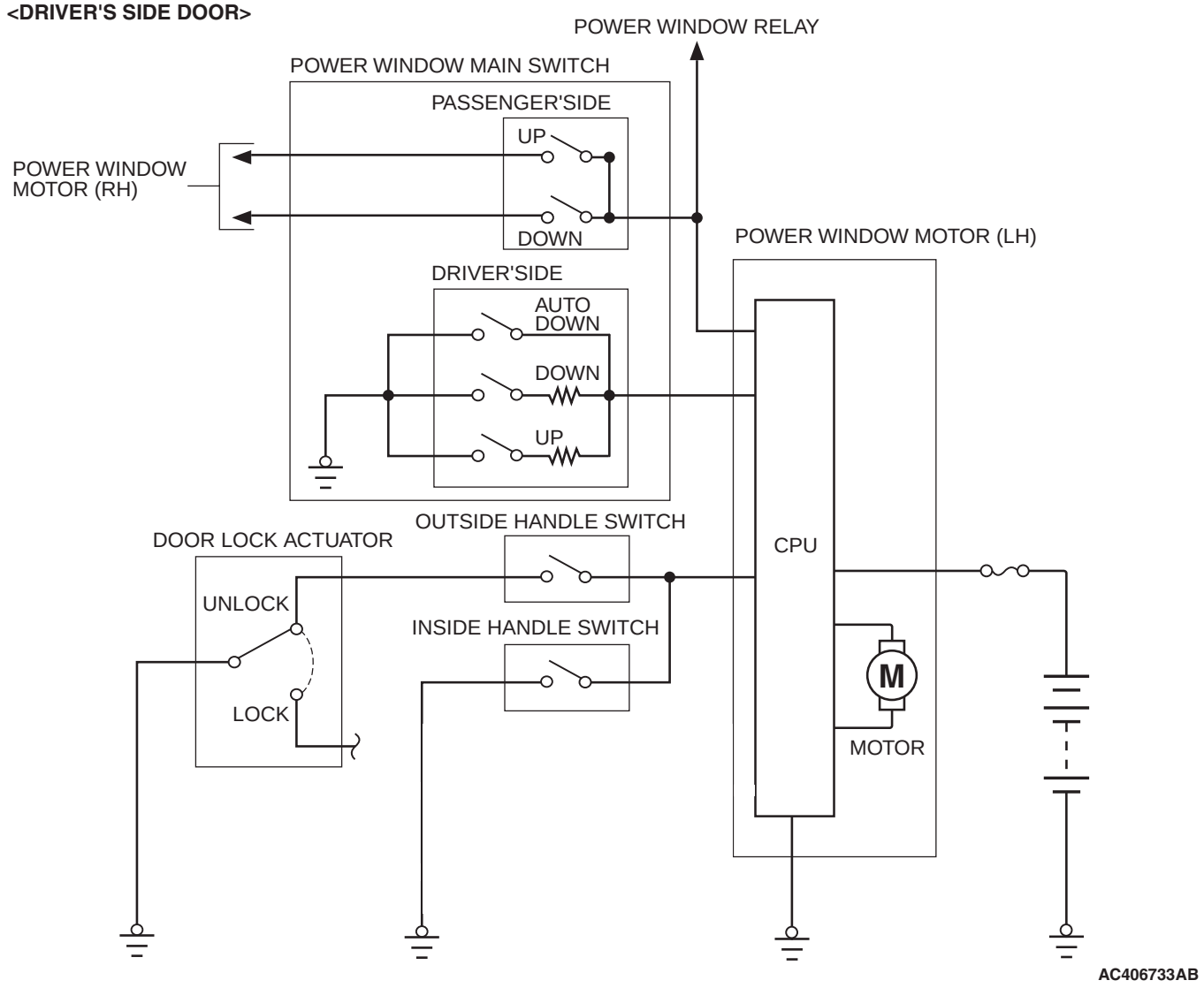
- A short stroke mechanism is used for the door window glass regulator.
- New door window glass regulator is installed to the front doors.
- The power window system incorporates a one-touch-down window opening mechanism which allows all the windows to open completely by fully pressing the main switch without need for keeping it pressed. The driver's power window control also has a lock switch which, when in the ON state, prevents the switches of all other doors from being operated.
- For the control of the power window timer and data transmission of the ETACS-ECU, the Simplified Wiring System (SWS) is used. Refer to GROUP 54B, Simplified Wiring System (SWS) P.54B-10.
- The power window system stays operative for approximately 30 seconds after the ignition switch is turned OFF (The key off function stops when the front door is opened at this time). Refer to GROUP 54B, Simplified Wiring System (SWS) P.54B-10.

DESCRIPTION OF STRUCTURE AND OPERATION

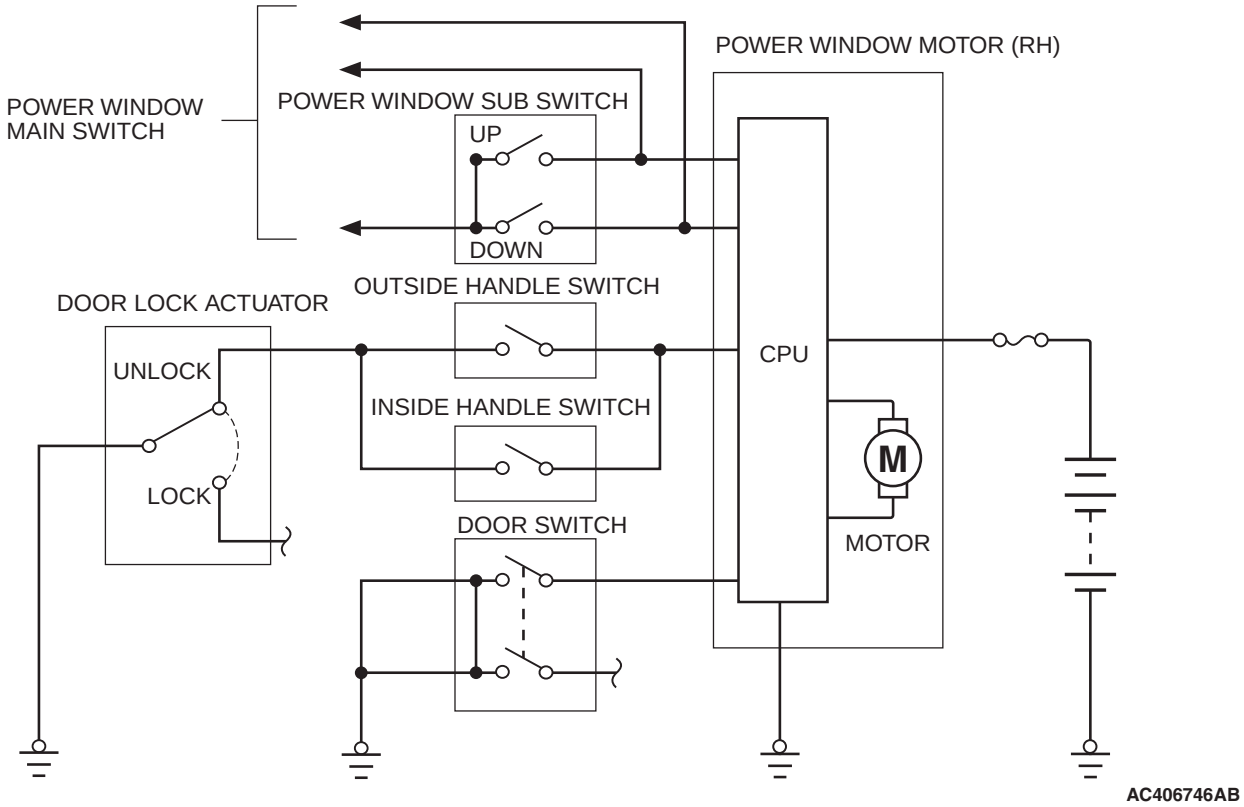
SHORT STROKE MECHANISM

SYSTEM DIAGRAM

<DRIVER'S SIDE DOOR>



<PASSENGER'S SIDE DOOR>



The door regulator with short stroke mechanism provides the following features.

- The sealing performance between the door window glass and drip weatherstrip is improved.
- The pressure buildup in the passenger compartment when a door is closed is reduced for smooth door closing.

Activation of the short stroke mechanism

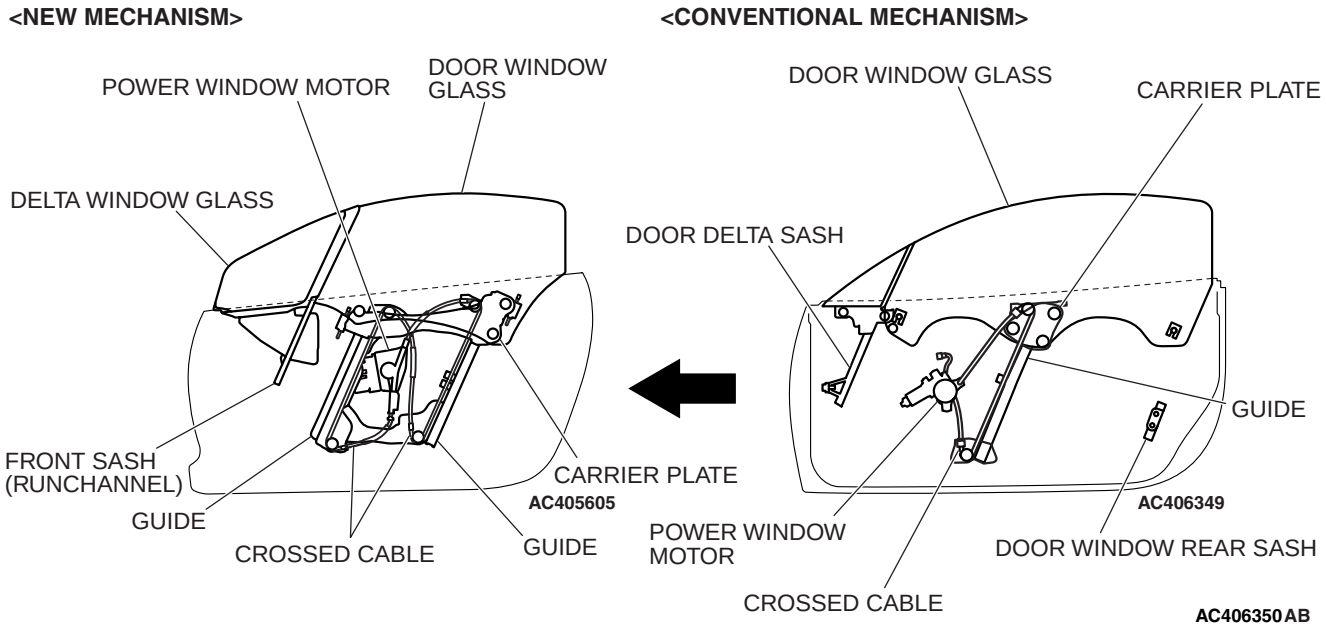
- When the door outside handle or the door inside handle is operated with each door closed and unlocked, the door window glass is lowered by 10 ± 5 mm (0.4 ± 0.2 inch). When the door inside handle on the driver's side is operated, the door window glass is lowered by 10 ± 5 mm (0.4 ± 0.2 inch) even if the door is locked.
- When closing an opened door (with the door switch OFF), the door window glass is fully closed.

NOTE: The short stroke mechanism is activated only with the door window glass fully closed or partly opened by 10 ± 5 mm (0.4 ± 0.2 inch) or less.

NOTE: In order to protect the power window motor and door window regulator, after the door switch is pressed 3 consecutive times with the door open, the short stroke mechanism is deactivated (however, the power window operates normally even if the short stroke mechanism is deactivated). Opening and closing the door resume the normal operation of the short stroke mechanism.

NOTE: The learning procedure of the short stroke mechanism for the power window motor is as follows: Fully close the door window glass with door closed and operate the power window switch for 1 second to close the window.

NEW MECHANISM REGULATOR (DOOR WINDOW REGULATOR ASSEMBLY)

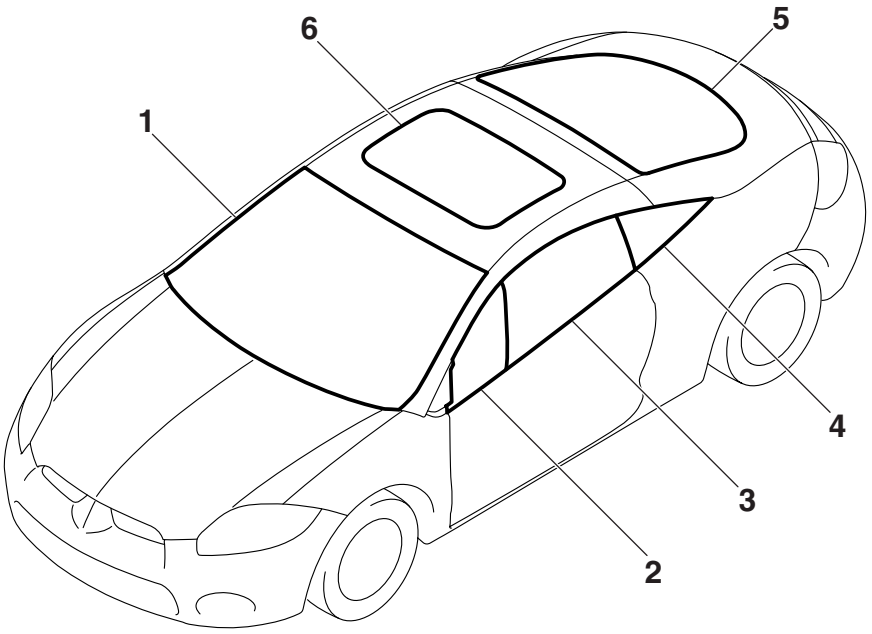


A new mechanism regulator is used in the doors. The following features are also available.

- A structure for raising and lowering the window is installed along the front and back guides to enable the window to be smoothly raised and lowered.
- The vertical rotational rigidity that holds the glass has been improved over conventional systems by incorporating a carrier plate longer than former regulator, eliminating rattling of the glass when it is raised or lowered.
- By eliminating the conventional regulator guide, the noise generated in conventional regulators between the guide rail and carrier plate is also prevented.

WINDOW GLASS

M2420015000517



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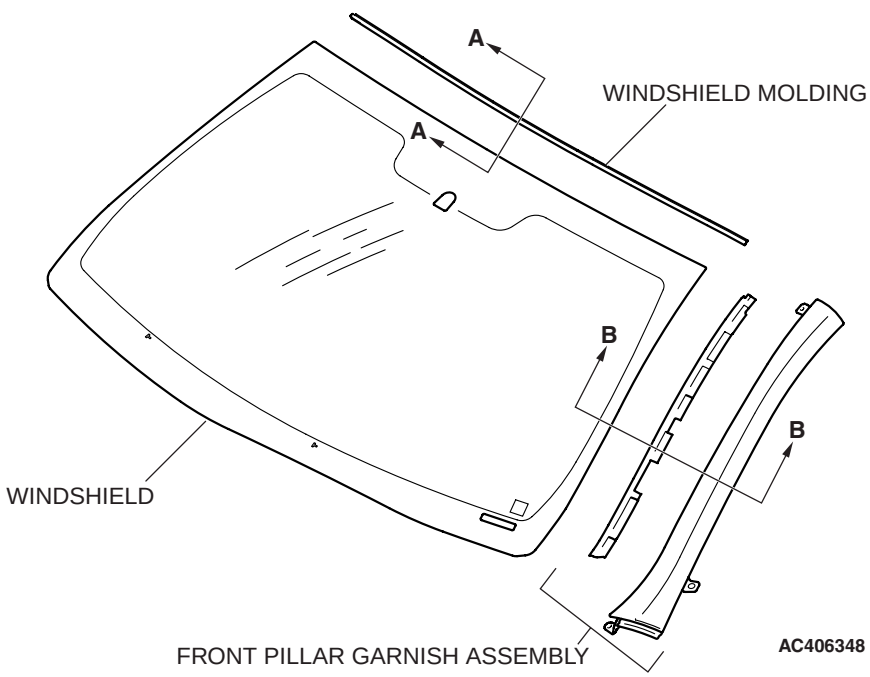
NO.	NAME	TYPE	THICKNESS mm (in)	COLOR	VISIBLE LIGHT TRANSMITTANCE (%)
1	Windshield	Laminated glass	4.7 (0.185)	Green (High ray absorption glass)	77
2	Delta window glass	Tempered glass	4.0 (0.157)		73
3	Front door window glass		5.0 (0.197)		73
4	Quarter window glass		3.5 (0.138)		74
5	Liftgate window glass		3.1 (0.122)		76
6	Roof lid glass		4.0 (0.157)	Dark gray	18

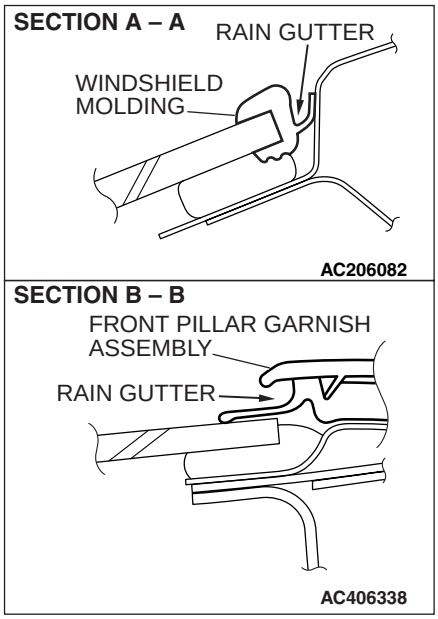
NOTE: The figure at the visible light permeation rate is a reference value. There could be marginal errors.

The window glass has the following features.

- The windshield is laminated glass and the other glass is made of tempered glass.
- A sunshade is on the upper side of the windshield.
- High ray absorption glass is used for the windshield, the front door window glasses, the quarter window glasses and liftgate window glass.

MOLDING AND GARNISH





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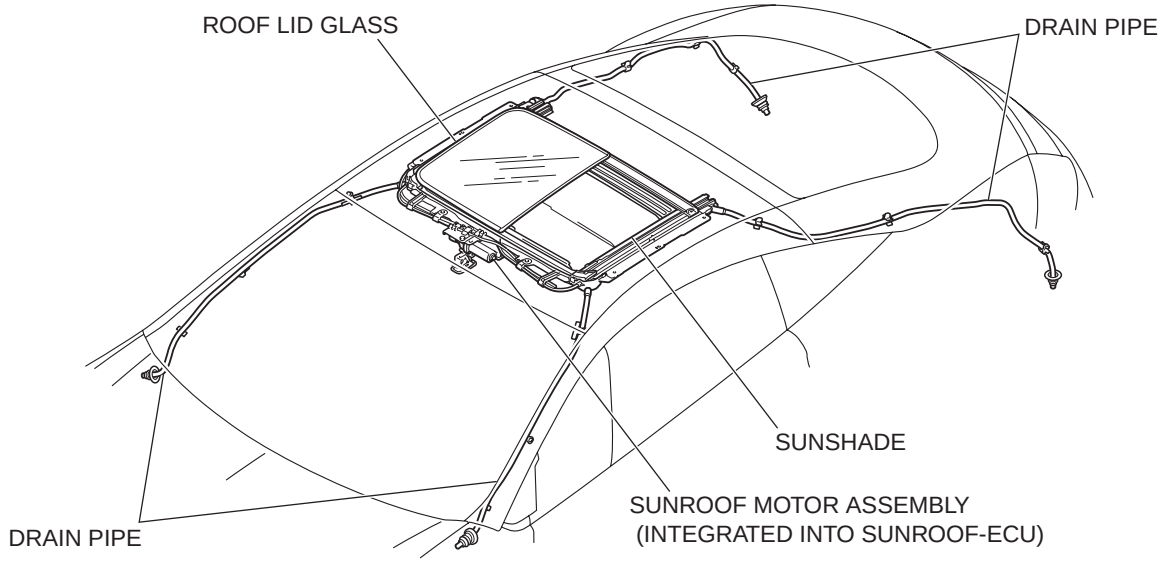
Around the windshield, windshield molding and front pillar garnish assembly with a rain gutter is installed, improving front and side visibility when driving in rainy weather.

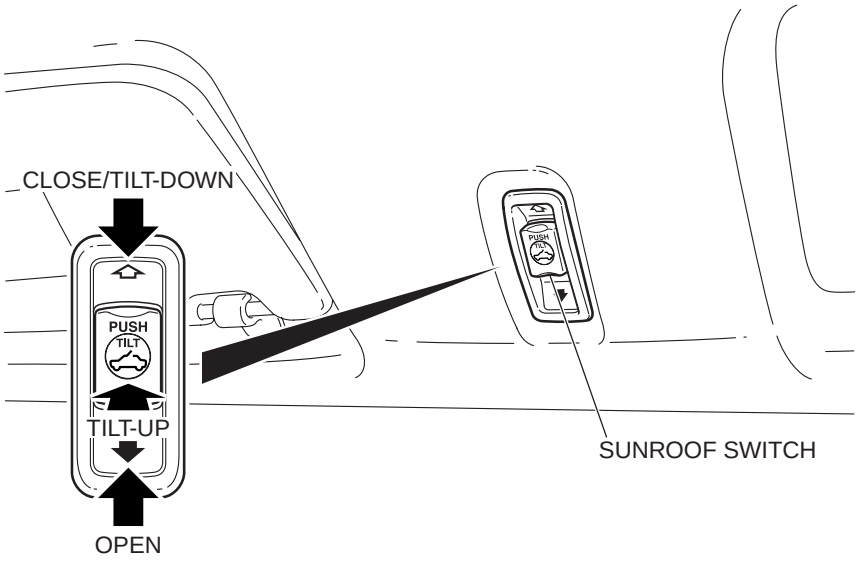
SUNROOF

M2420016000297

CONSTRUCTION DIAGRAM



TSB Revision



AC404868AB

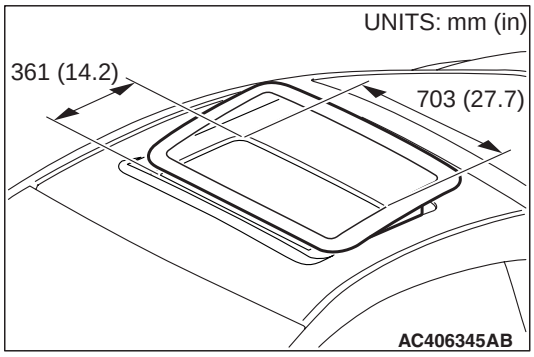
Electric sliding glass sunroof with tilt-up mechanism has been adopted (option). This sunroof features the following characteristics.

- The sunroof opens wide.
- The sunroof tilts up approximately 33 mm (1.30 inches) to improve ventilation.
- The integrated switch allows for all slide open/close, tilt up/down and stop operations. Open/tilt-up operations are available at one touch.
- It is possible to operate the sunroof for 30 seconds even after the ignition switch is turned OFF (The key-off function stops when the front door is opened).

DESCRIPTION OF STRUCTURE AND OPERATION

LARGE SUNROOF

The sunroof opening has been enlarged.



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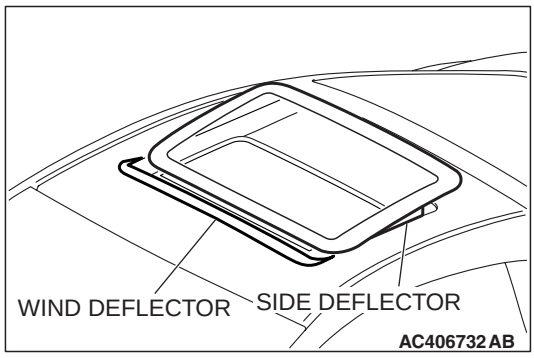
REDUCED WIND NOISE

To reduce wind noise, a wind deflector and two side deflectors are installed on the sunroof.



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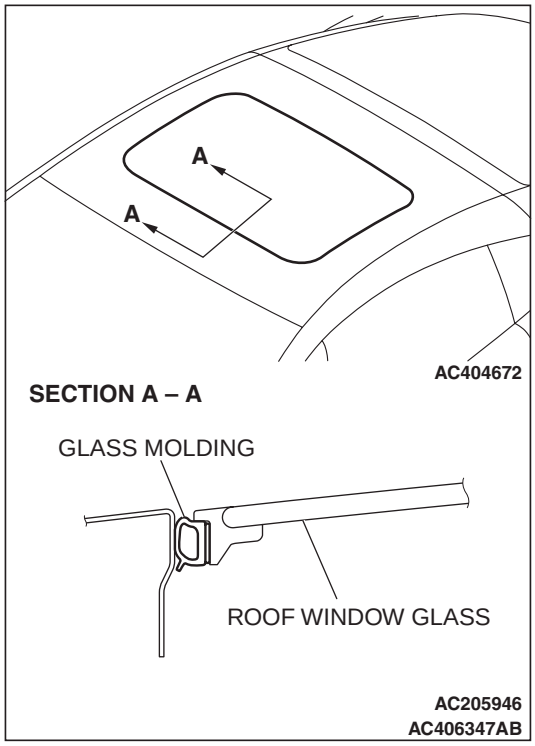
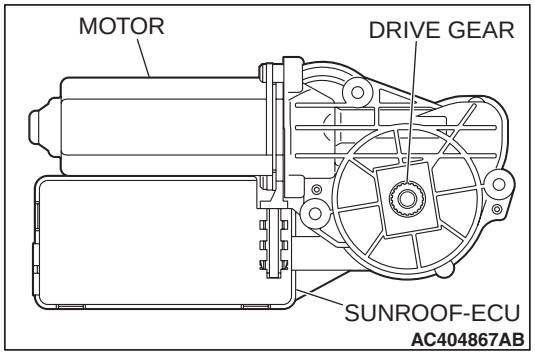


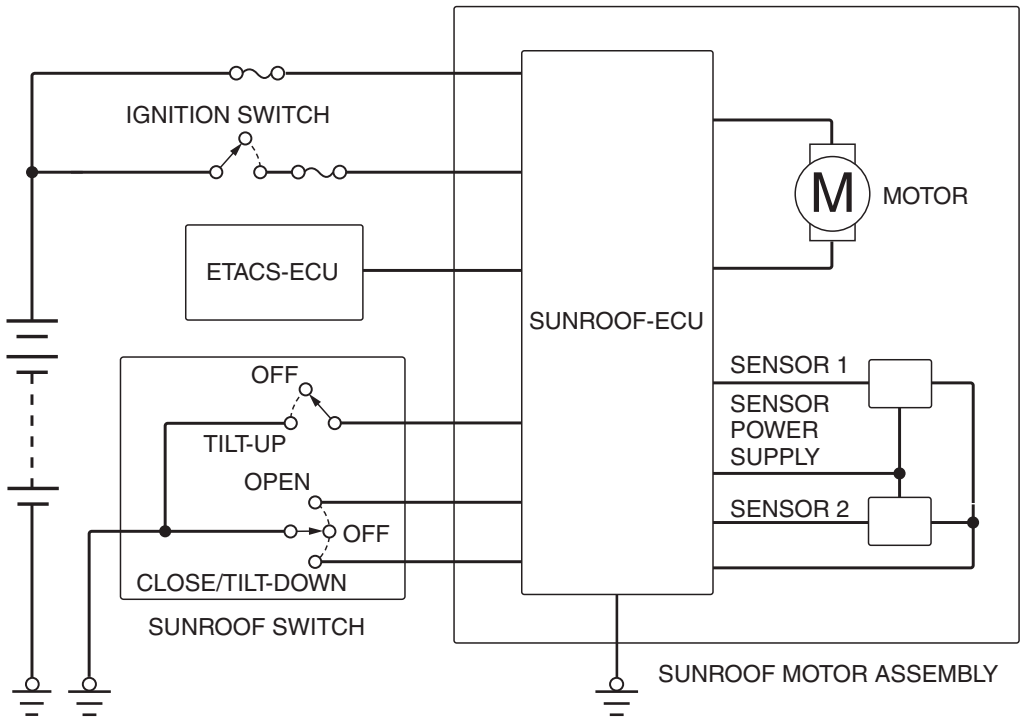
For wind noise reduction and a more attractive appearance, the roof window glass and glass molding are on the same level.



MOTOR

There is sunroof motor assembled on the front-side of the housing and the structure consists of the motor unit, drive gear and sunroof-ECU.

SUNROOF-ECU



The sunroof-ECU incorporates a microcomputer and controls the motor operations according to the sunroof switch signal and ETACS signal state.