GROUP 51

EXTERIOR

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M2510000102996

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SUPPORT RECYCLING OF RESOURCES

Uses PP (polypropylene) materials that are easy to recycle and easy to recognize material symbols on the plastic (resin) parts.

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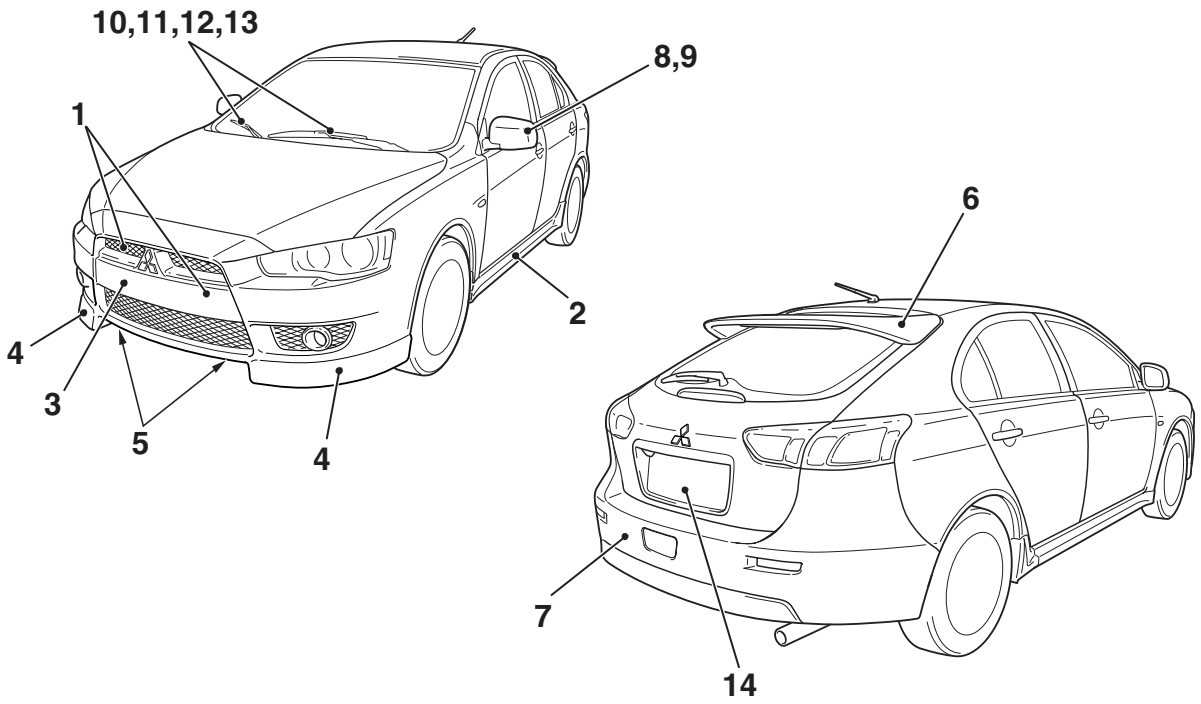
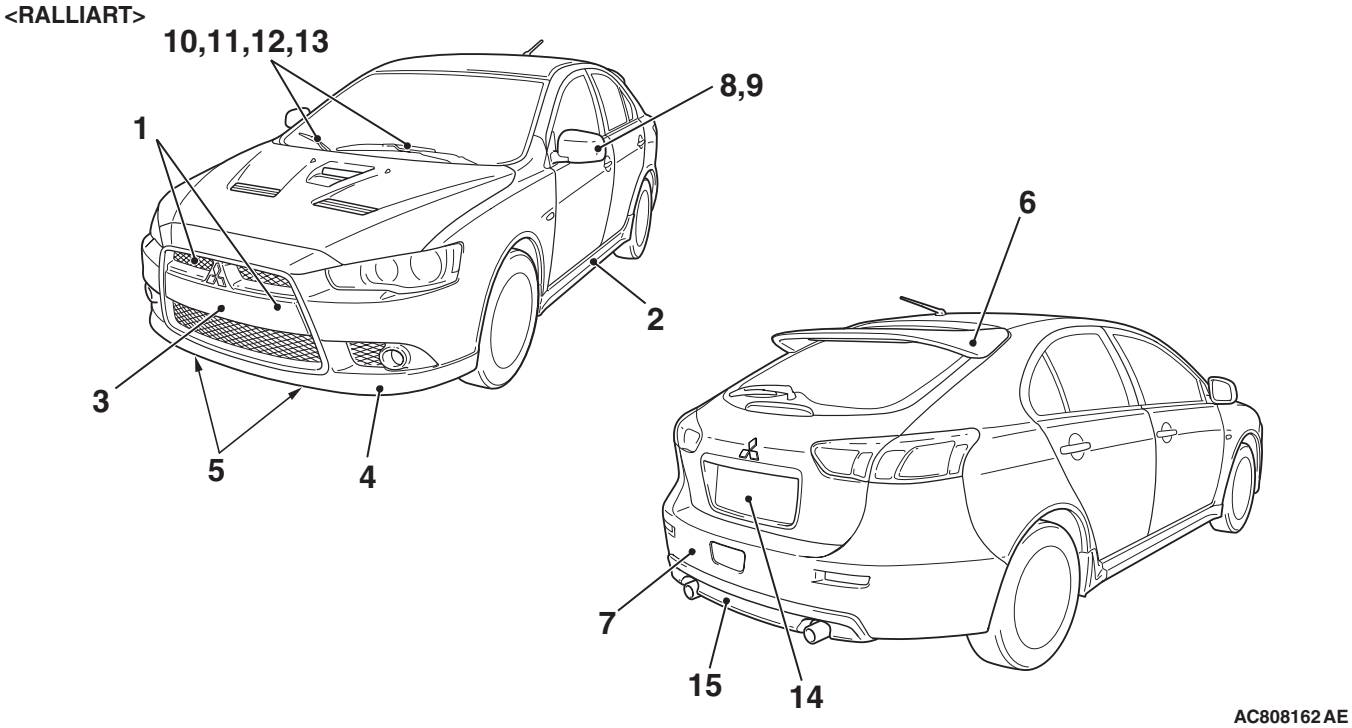
<Except RALLIART>



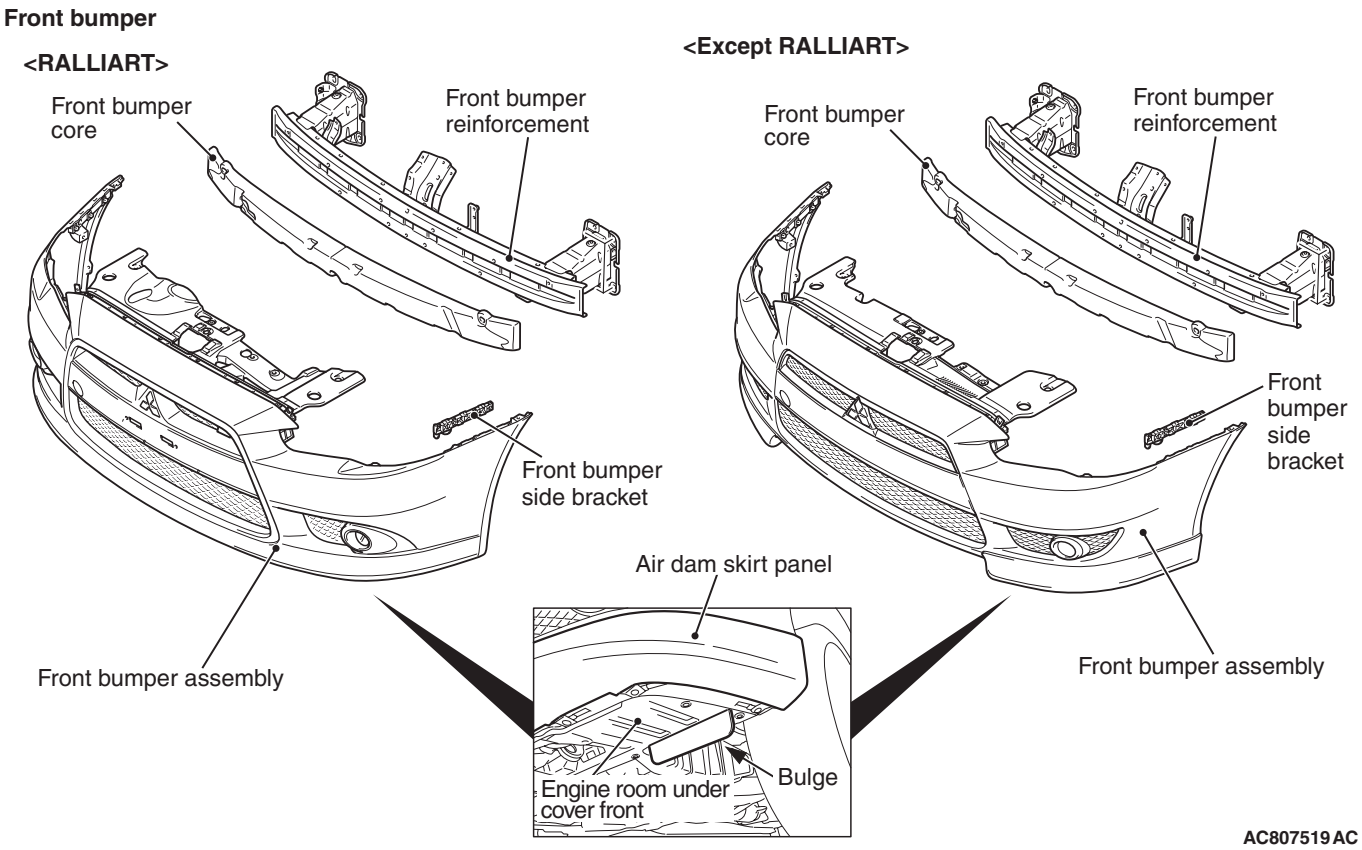
AC808161AD



BUMPER AND RADIATOR GRILLE

M2510001300492

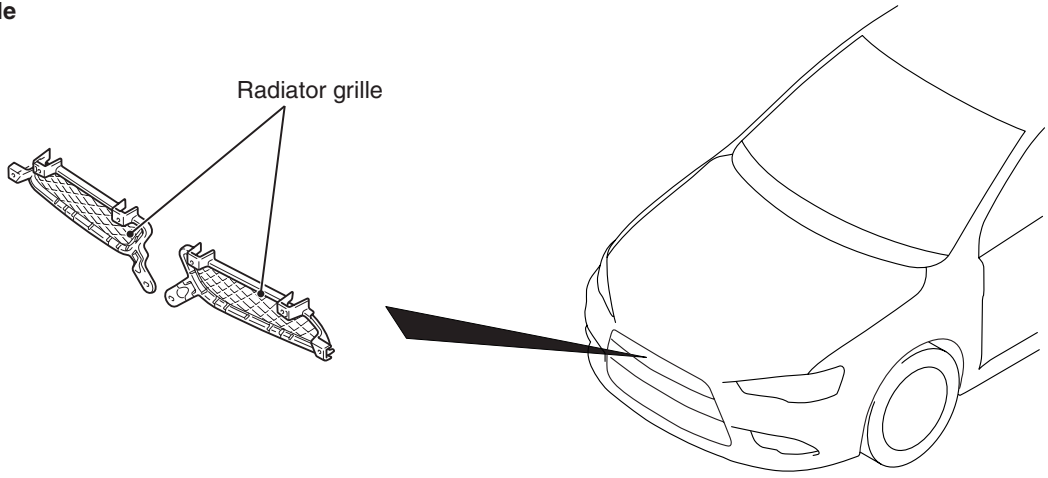
CONSTRUCTION DIAGRAM



- Shock absorbing bumper structure

A shock absorbing bumper structure has been adopted. This structure reduces a risk of injury to a pedestrian upon a collision by adopting the front bumper core between the front bumper assembly and the front bumper reinforcement.
- The front bumper has an opening at the center lower to guide air to the condenser and radiator.
- The front bumper incorporates highly rigid front bumper reinforcement for excellent energy-absorption to reduce chassis deformation upon impact.
- With the front bumper reinforcement remaining on the body, the front bumper can be removed as a unit.
- Resin-made front bumper side brackets have been adopted to improve the alignment with the body.
- Air dam skirt panel and overhung front bumper corners at left and right located in front of tires have been adopted to suppress the airflow against the tires and smoothen the airflow along the bumper sides.
- Rear end of the engine room under cover front at left and right is bulged to the bottom for covering front tires so that it works as the air dam skirt panel. With this, the wind airflow comes in under the bumper to induce negative pressure underneath the body, increasing the down force to the front tires.

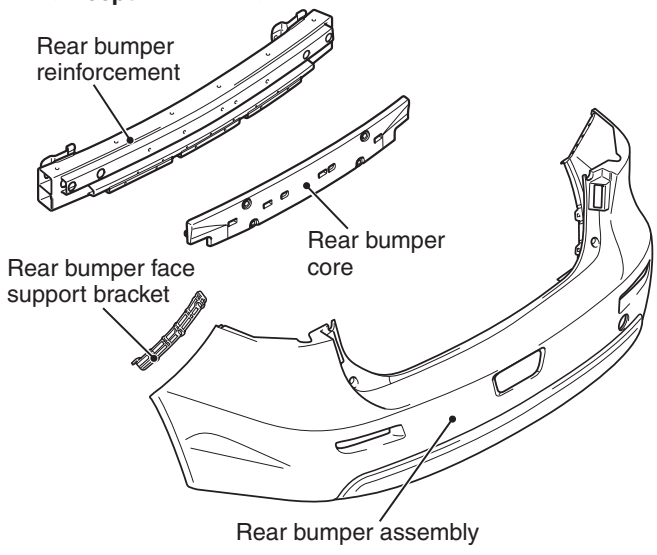
Radiator grille



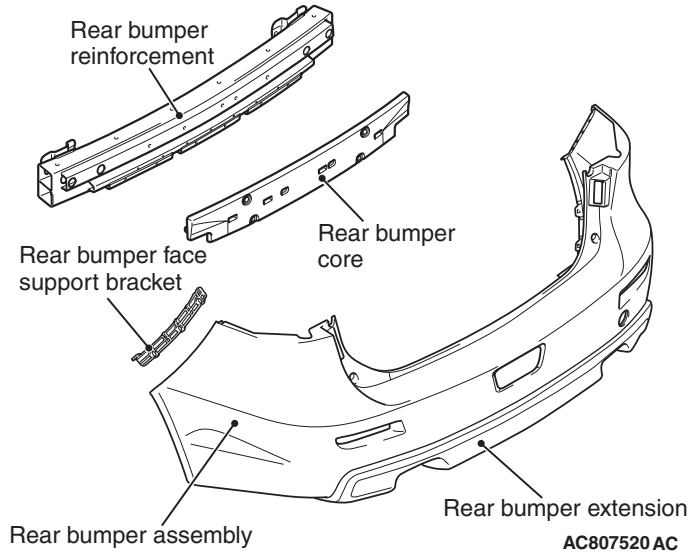
AC801930 AB

- Radiator grille is integrated with the front bumper.
- Mesh type radiator grille gives a sleek front mask and sporty image.

Rear bumper
<Except RALLIART>



<RALLIART>



AC807520 AC

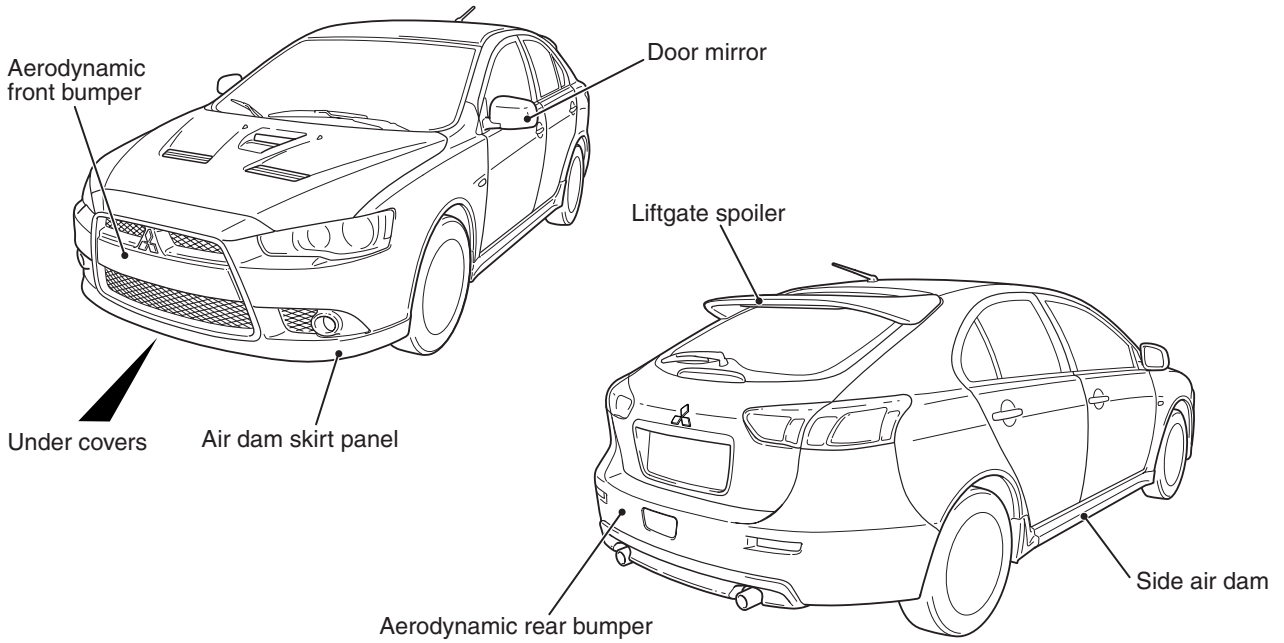
- The rear bumper incorporates highly rigid rear bumper reinforcement for excellent energy-absorption to reduce chassis deformation upon impact.

- With the rear bumper reinforcement remaining on the body, the rear bumper can be removed as a unit.
- Resin-made rear bumper face support brackets have been adopted to improve the alignment with the body.
- Rear bumper extension is added to the rear bumper to guard rear body and to give a sleek rear mask and sporty image. <RALLIART>

AERO PARTS

M2510003001014

CONSTRUCTION DIAGRAM



AC808162 AC

The following aero parts provide better aerodynamic performance and an appealing look.

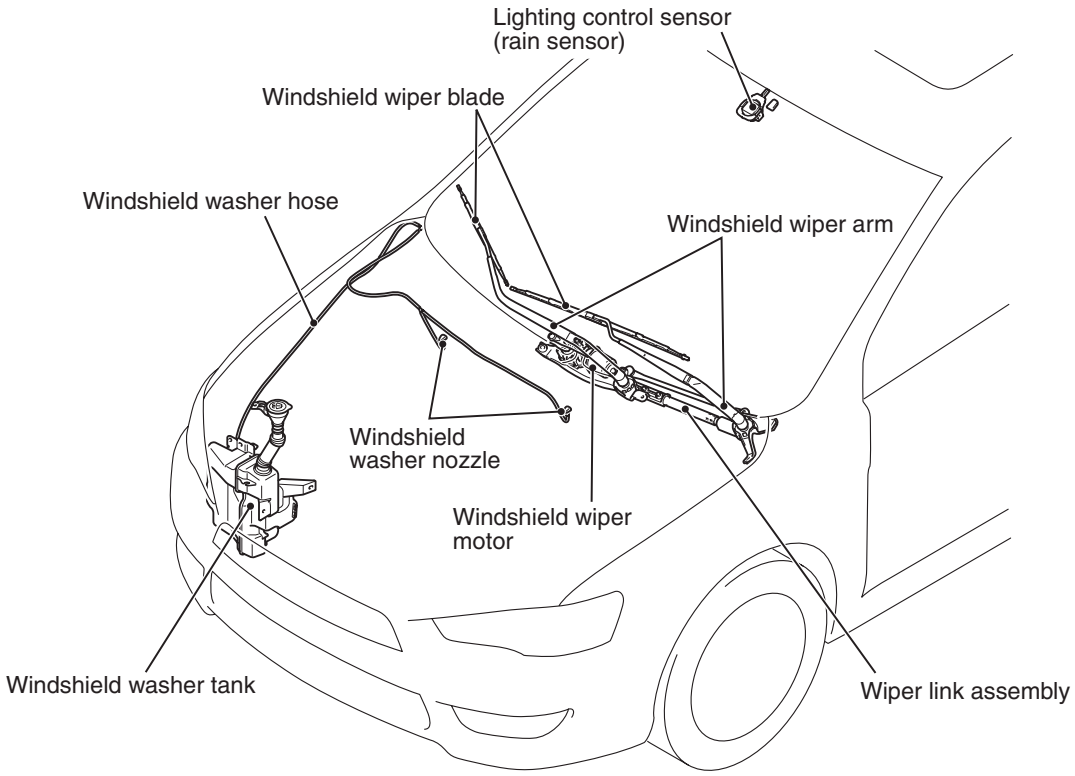
- Body and under floor:
  The body shape has been optimized to improve aerodynamic characteristics, and the under covers have been adopted to achieve the rectification effect, smoothing the under floor airflow. With this, the air resistance has been reduced to improve fuel economy and driving stability while driving at high speed.
- Air dam skirt panel: Refer to BUMPER AND RADIATOR GRILLE P.51-3.
- Bulges set at left and right of the engine room under cover front: Refer to BUMPER AND RADIATOR GRILLE P.51-3.
- Liftgate spoiler
  A large liftgate spoiler that combines design and aerodynamic characteristics has been adopted. It decreases the air resistance and the lifting force of the vehicle by stabilizing the airflow from the roof and the side of the body, and improves driving stability and fuel consumption during high speed traveling.
- Side air dams:
  Smoothens the airflow under the floor and around the wheels to decrease the air resistance and lifting force.
- Aerodynamic front bumper
- Aerodynamic rear bumper
- Door mirror

WIPER AND WASHER

WINDSHIELD WIPER AND WASHER

M2510007001328

CONSTRUCTION DIAGRAM



AC807521AB

- 2-speed (low/high speed) windshield wiper has been adopted.
- The intermittent wiper features a vehicle speed-dependent variable intermittent time system*.
- Rain sensitive AUTO wiper system* <Optional>
- The mist wiper is turned ON by operating the mist switch in the opposite direction of the wiper switch for easy operation. The mist wiper is equipped with the function that quickly wipes raindrops away at high speed when the mist switch is ON, and when the mist switch is OFF, at low speed until the stop position is reached. When the mist switch is briefly turned ON, the wiper operates once at low speed.
- Wiper motor torque has been increased to improve the wiping performance while driving at high speed.
- Mist type 2-nozzle has been adopted for the windshield washer.
- The mist type washer nozzle has been adopted. The washer fluid is injected to a large area, improving the wiping performance.
- Washer-linked wiper function* has been adopted. The washer fluid can be injected without operating the wiper. When the ignition switch is turned ON while the washer switch is ON, the washer motor operates but the wiper does not.
- The intelligent washer function* has been adopted.
- The Delayed finishing wipe function has been adopted for the windshield wiper to improve the wiping performance, preventing the washer fluid from running down.

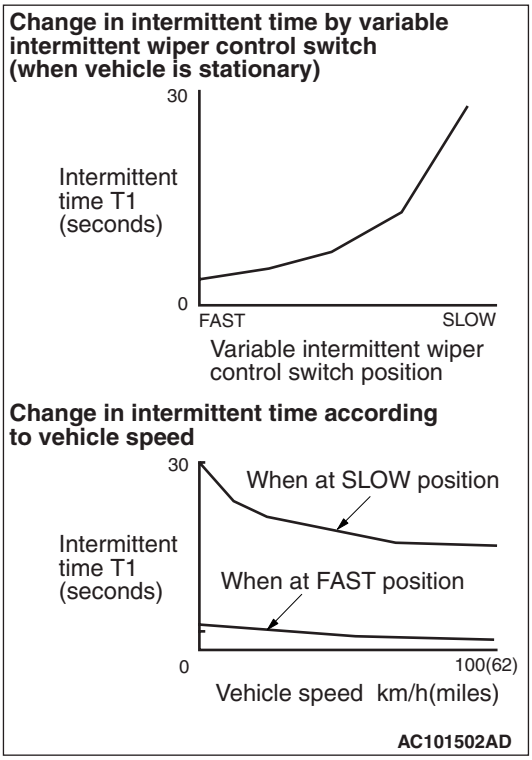
*NOTE: **Using the customization function, the vehicle speed-dependent variable intermittent time system, rain sensitive AUTO wiper system, Delayed finishing wipe function and the washer-linked wiper function can be selected (Refer to P.51-17).*

DESCRIPTION OF CONSTRUCTION AND OPERATION

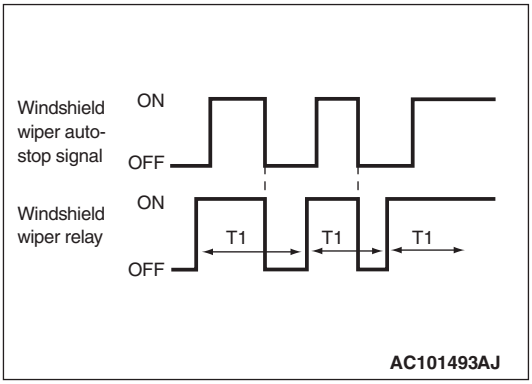
Intermittent control (Vehicle speed-dependent variable type) <Initial condition: with function>

1. ETACS calculates the windshield intermittent wiper interval T1 from the position of the windshield intermittent wiper switch on the column switch and the vehicle speed signal (sent from the combination meter to ETACS via CAN communication).

   NOTE: Using the customization function, the vehicle speed-dependent intermittent function can be invalidated (Refer to P.51-17).

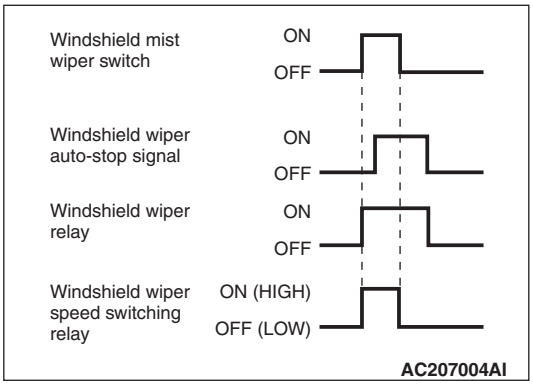


2. When ETACS receives the ON signal of the windshield intermittent wiper switch, it turns the windshield wiper relay ON. When the wiper reaches the stop position, the windshield wiper auto-stop signal turns OFF, and the windshield wiper relay turns OFF.
   When the intermittent time T1 calculated by step 1 has elapsed after the windshield wiper relay ON, the windshield wiper relay turns ON again, and the above-mentioned operation is repeated.

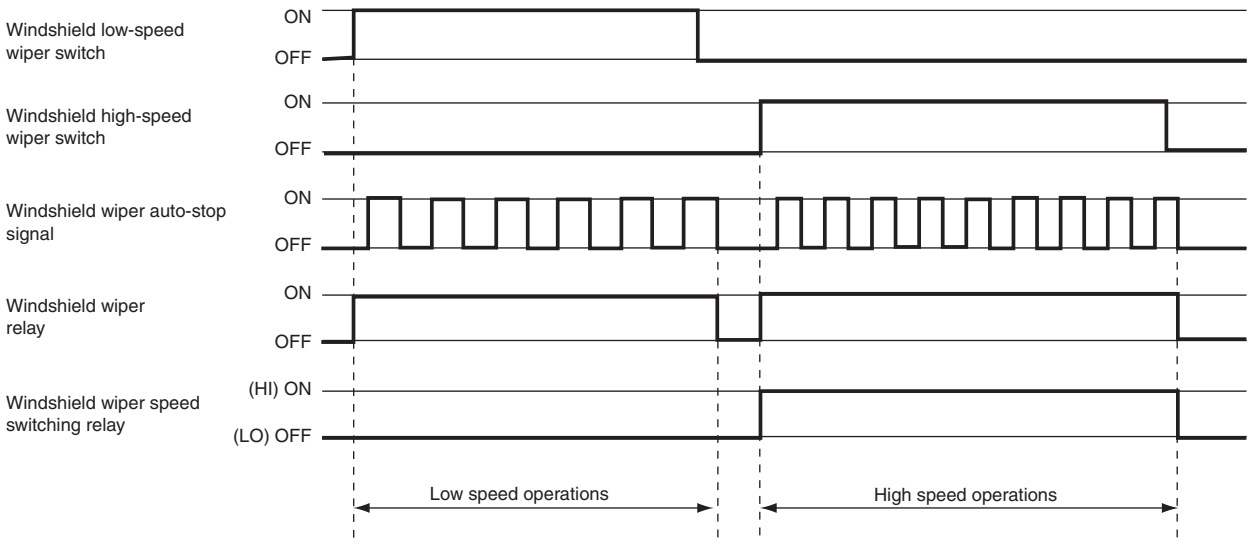


Mist wiper control

When the windshield wiper mist switch on the column switch is turned ON while the ignition switch is in ACC or ON position, the column switch turns the windshield wiper relay ON. At the same time, the wiper speed switching relay turns ON (HI). When the windshield mist wiper switch is ON, the windshield wiper operates at high speed.



Low speed wiper and high speed wiper control

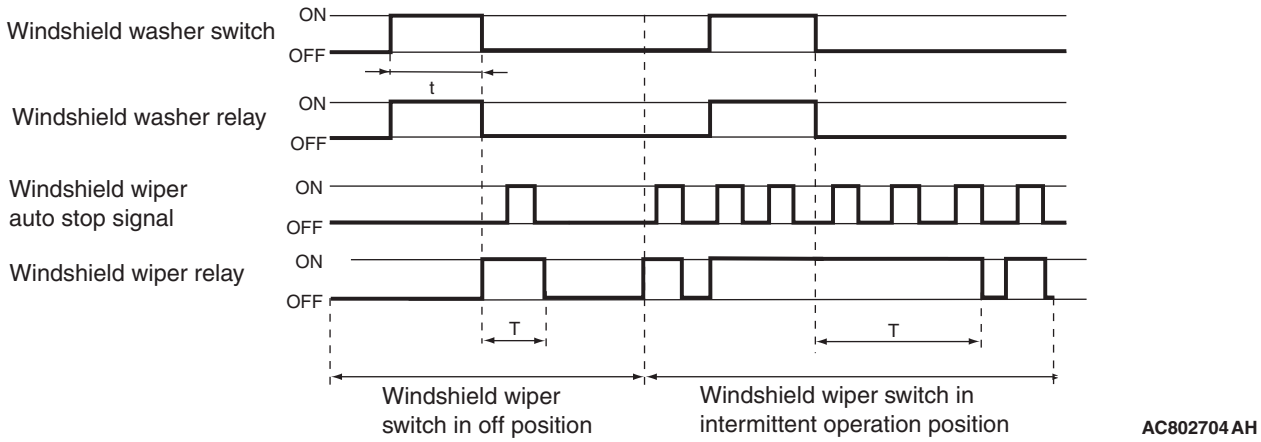


AC506610AH

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

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

Windshield wiper linked with washer function <Initial condition: with function>



t: Less than 0.35 seconds
T: Windshield wiper operation time

Wiper switch	OFF position			INT position			AUTO position				LO, HI, MIST position
Washer switch ON time (t)	Less than 0.35 seconds	0.35 seconds to less than 0.5 seconds	0.5 second or more	Less than 0.35 seconds	0.35 seconds to less than 0.5 seconds	0.5 second or more	Less than 0.35 seconds	0.35 seconds to less than 0.5 seconds	0.5 seconds to less than 0.75 seconds	0.75 second or more	-
Windshield wiper operation time (T)	0 second *	1 seconds	3 seconds	1 seconds*	1 seconds	3 seconds	1 seconds*	0 second	1 seconds	3 seconds	3 seconds

When the windshield washer switch on the column switch is turned ON while the ignition switch is in ACC or ON position, ETACS turns the windshield washer relay ON.
When the windshield washer switch is kept ON for 0.35 second or longer, the windshield wiper relay (the wiper relay output time varies depending on the conditions. For details, see the table.) is turned ON, and the windshield wiper operates at high speed.
The windshield wiper is turned OFF with 3 seconds delay after the windshield washer switch is turned OFF.
Even when the windshield washer switch is turned ON while the windshield wiper is operating intermittently, the intermittent action starts again after the linked operation is finished.

If the ignition switch is turned to ACC position while the windshield washer switch is ON, the windshield washer relay turns ON, but the windshield wiper does not perform the linked operation. When the windshield washer switch is turned OFF and then ON, the windshield wiper starts the linked operation.

NOTE:

- *Using the customization function, the washer linked windshield wiper function can be invalidated (Refer to P.51-17).*
- *Using the customization function, when the washer linked windshield wiper function is invalidated, only the washer operates. It is useful to melt ice from the frozen windshield.*

Intelligent washer function

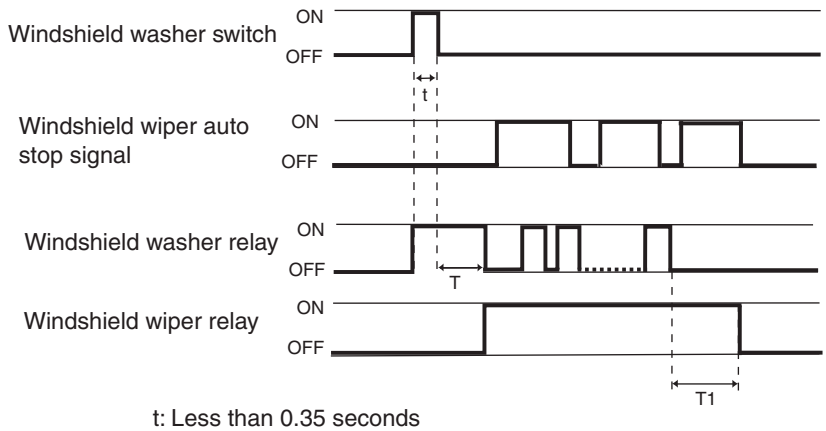
The table below shows the switch operations of the intelligent washer.

Wiper switch	Washer-linked wiper: Enabled		Washer-linked wiper: Disabled	
	Vehicle speed less than 130km/h	Vehicle speed 130km/h or more	Vehicle speed less than 130km/h	Vehicle speed 130km/h or more
OFF	Intermittent washer and wiping	1-second washer and wiping	1-second washer	1-second washer
INT	Intermittent washer and wiping	1-second washer and wiping	1-second washer	1-second washer
AUTO	Intermittent washer and wiping	1-second washer and wiping	Intermittent washer and wiping	1-second washer and wiping
LO	Intermittent washer and wiping	0.5-second washer	Intermittent washer and wiping	0.5-second washer
HI or MIST	1-second washer	1-second washer	1-second washer	1-second washer

NOTE:

- *The intelligent washer function can be disabled by the customize function.(Refer to P.51-17.)*
- *When the windshield wiper switch is operated while the intelligent washer function is activated, the intelligent washer function will be suspended.*

Intermittent washer and wiping



t: Less than 0.35 seconds
T: 1.0 second
T1: 3.0 second

AC802531AE

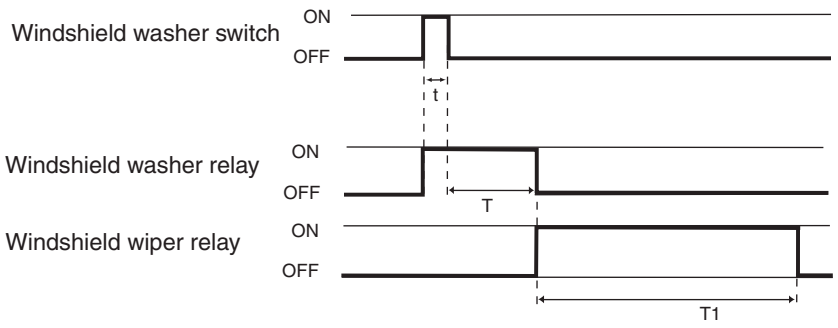
The intermittent washer and wiping operate as follows:

1. Turn on the windshield washer switch for less than 0.35 seconds.
2. The windshield washer operates for 0.5 seconds.
3. The windshield washer operates intermittently 4 to 6 times, and the windshield wipers operate, linked with the windshield washer operation.
4. The windshield wipers operate for 3 seconds.

NOTE:

- *If the windshield washer switch is turned ON for less than 0.35 seconds when the windshield washer is injecting washer fluid for 0.5 seconds and when the windshield washer is injecting washer fluid intermittently 4 to 6 times, the intermittent washer and wiping will stop.*
- *If the windshield washer switch is turned ON for less than 0.35 seconds when the windshield wipers are operating for 3 seconds, the windshield washer operates intermittently 4 to 6 times again.*

1-second washer and wiping



t: Less than 0.35 seconds
T: 1.0 second
T1: 3.0 second

AC802442 AD

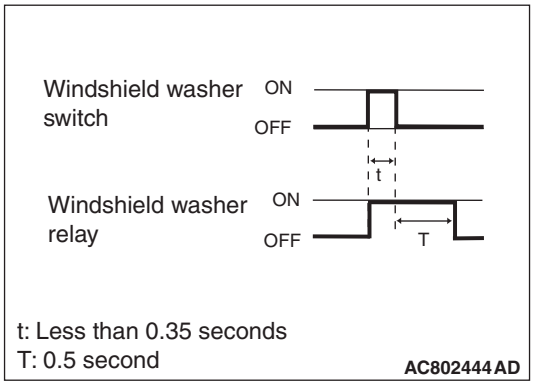
When the windshield washer switch is turned ON for less than 0.35 seconds, the windshield washer operates for 1 second. The windshield washer operates for 1 second, and then the windshield wipers operate for 3 seconds.

NOTE:

- *If the windshield washer switch is turned ON for less than 0.35 seconds when the windshield wipers are operating for 3 seconds, the windshield washer operates for 1 second again.*

0.5-second washer

When the windshield washer switch is turned ON for less than 0.35 seconds, the windshield washer operates for 0.5 second.

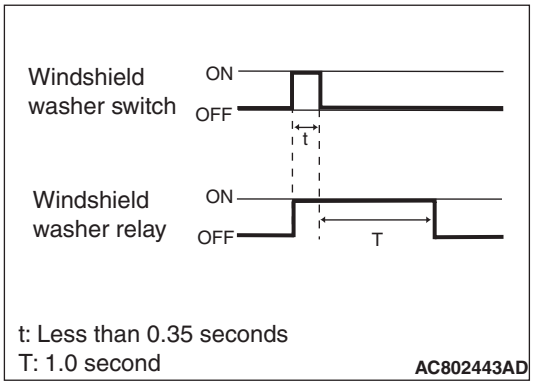


t: Less than 0.35 seconds
T: 0.5 second

AC802444 AD

1-second washer

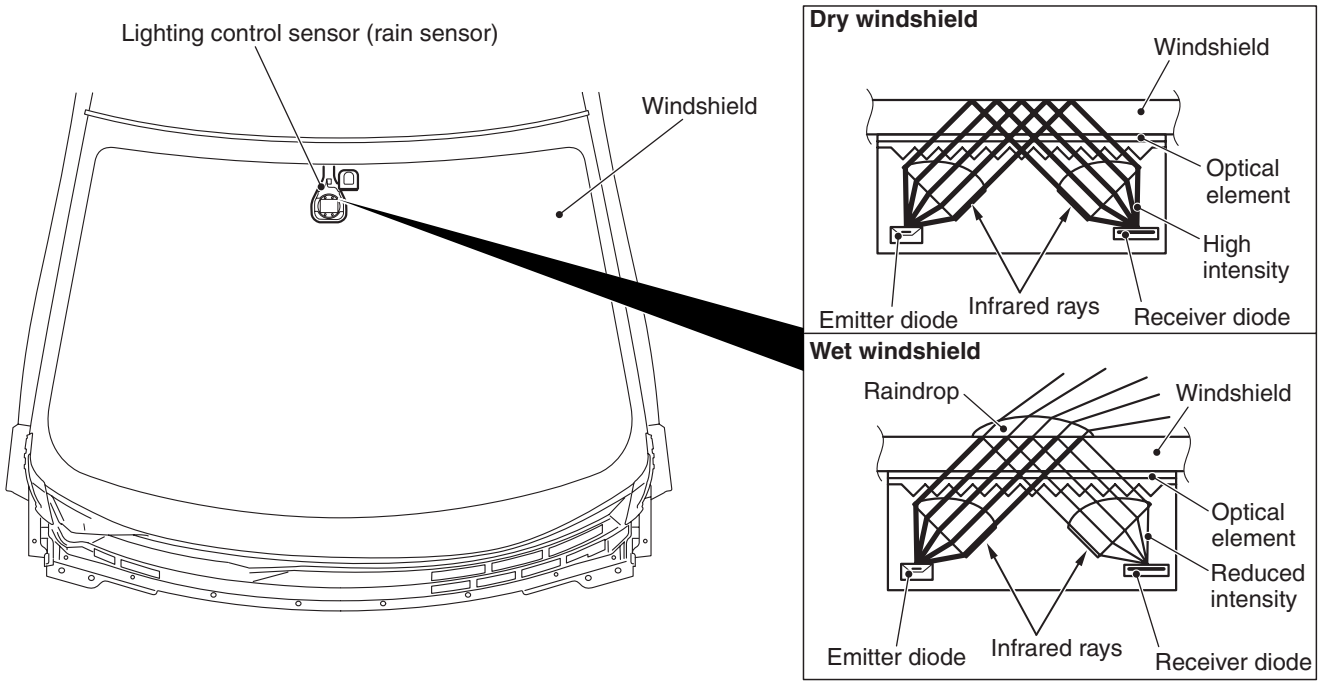
When the windshield washer switch is turned ON for less than 0.35 seconds, the windshield washer operates for 1 second.



t: Less than 0.35 seconds
T: 1.0 second

AC802443AD

Rain sensitive AUTO wiper function <Optional>



Lighting control sensor (rain sensor) has been installed on the upper part of the windshield to sense the raindrops and windshield wiper can be operated automatically when the ignition switch is at ON and wiper switch at AUTO position.

- The amount of rainfall on the windshield surface are detected by using the infrared reflection, and the windshield wiper is controlled by intermittent operation or LO and HI operation automatically depending on the amount of rainfall.
- Dry windshield: All infrared rays emitted from the emitter diode are reflected by the windshield and directed to the receiver diode as they are.
- Wet windshield: Part of the infrared rays emitted from the emitter diode are transmitted to outside of the windshield through the raindrops, and the infrared rays with reduced intensity are directed to the receiver diode.

NOTE: Using the configuration function, the rain sensitive AUTO wiper function can be invalidated (Refer to P.51-17).

Delayed finishing wipe function <Initial setting: enabled>

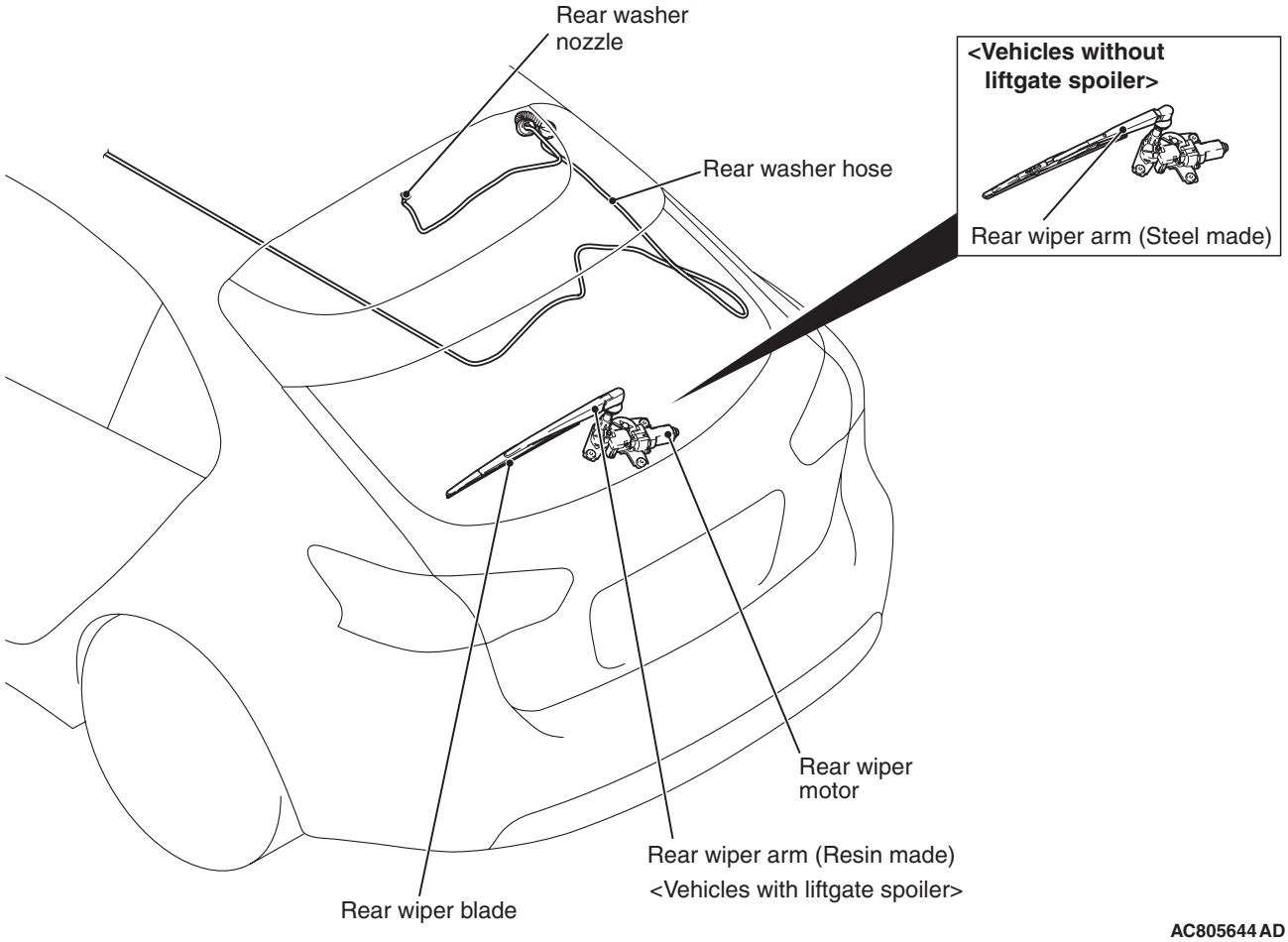
1. With the ignition switch in the ACC or ON position, when the washer lever of the column switch is operated for 0.5 seconds or more, or the comfort washer function is enabled, the washer fluid is injected and the wiper operates. The wiper operates once 6 seconds after the wiper operation is stopped.

NOTE: The Delayed finishing wipe function can be disabled by the customization function. (Refer to P.51-17.)

REAR WIPER AND WASHER

CONSTRUCTION DIAGRAM

M2510008000630



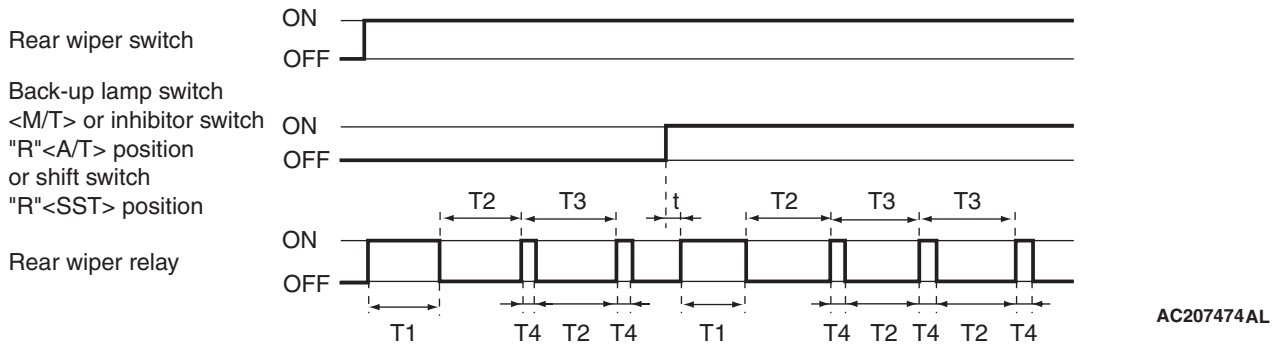
AC805644 AD

- Resin wiper arm has been adopted to achieve weight reduction and integration of the arm and blade.<Vehicles with liftgate spoiler>
- Steel wiper arms, which are heavier than the resin wiper, have been adopted to suppress the lifting of the wipers during high speed traveling. <Vehicles without liftgate spoiler>
- Fixed interval type intermittent wiper* has been adopted to provide a clear rear view in rainy weather.
- The washer tank is shared with the windshield washer.
- The initial continuous operation function has been adopted. In this function, the rear wiper performs continuous low-speed operation for 2 to 3 cycles to sweep the raindrops away from the rear screen after the rear wiper switch is turned on, and then proceeds with the intermittent operation.
- Reverse gear-linked rear wiper function has been adopted. In this function, the rear wiper performs continuous low-speed operation for 2 to 3 cycles approximately 1 second after the selector lever is shifted to "R" position while the rear wiper switch is in the intermittent position, and then proceed with the intermittent operation.
- Washer-linked wiper function* has been adopted. Washer fluid can be optionally injected without operating the wiper optionally. When the ignition switch is turned ON while the washer switch is ON, the washer motor operates but the wiper does not.

*NOTE: *: Using the customization function, the fixed interval type intermittent wiper and the washer-linked wiper function can be adjusted (Refer to P.51-17).*

DESCRIPTION OF CONSTRUCTION AND OPERATION

Rear wiper control [Initial condition: 8 seconds (without successive operations)]



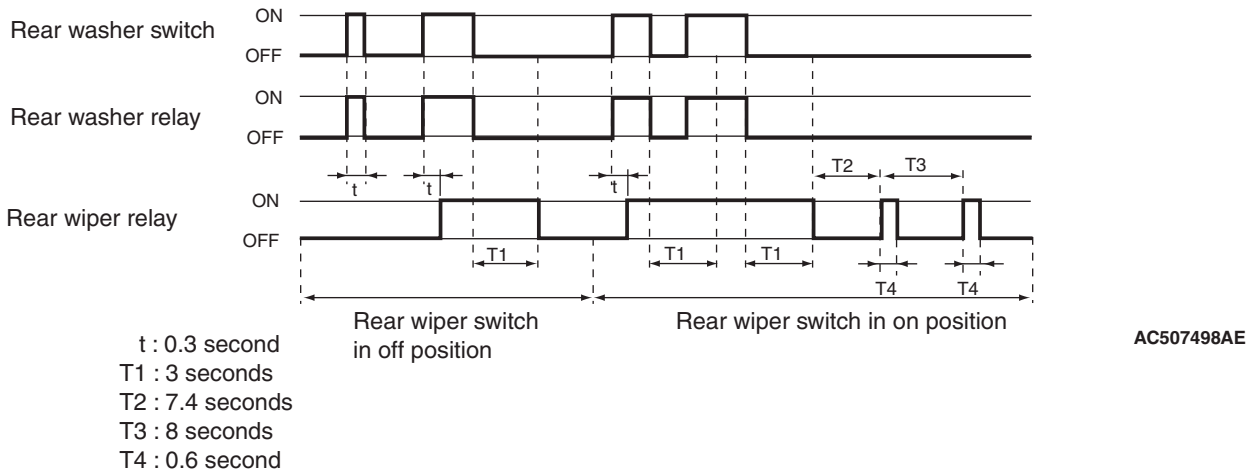
t: 1.0 second
T1: 3.0 seconds
T2: 7.4 seconds
T3: 8.0 seconds
T4: 0.6 second

When the rear wiper switch on the column switch is turned ON while the ignition switch is in ACC or ON position, ETACS turns the rear wiper relay ON for 3 seconds (for approximately 2 cycles) and operates the intermittent action in 8 seconds interval.

When the selector lever is moved to R (reverse) position during the rear wiper operation, the inhibitor switch R (reverse) turns ON, and one second after that, ETACS turns the rear wiper relay ON for 3 seconds (for approximately 2 cycles), and operates the intermittent action in 8 seconds interval again.

NOTE: Using the customization function, the rear wiper intermittent time can be adjusted (Refer to P.51-17).

Rear wiper linked with washer function <Initial condition: with function>



t : 0.3 second
T1 : 3 seconds
T2 : 7.4 seconds
T3 : 8 seconds
T4 : 0.6 second

When the rear washer switch on the column switch is turned ON while the ignition switch is in ACC or ON position, ETACS turns the rear washer relay ON. The rear washer relay turns ON after the rear washer switch has been ON for 0.3 seconds, then turns the rear wiper relay ON to operate the rear wiper simultaneously. When the rear washer switch is turned OFF, after 3 seconds the rear wiper is turned OFF.

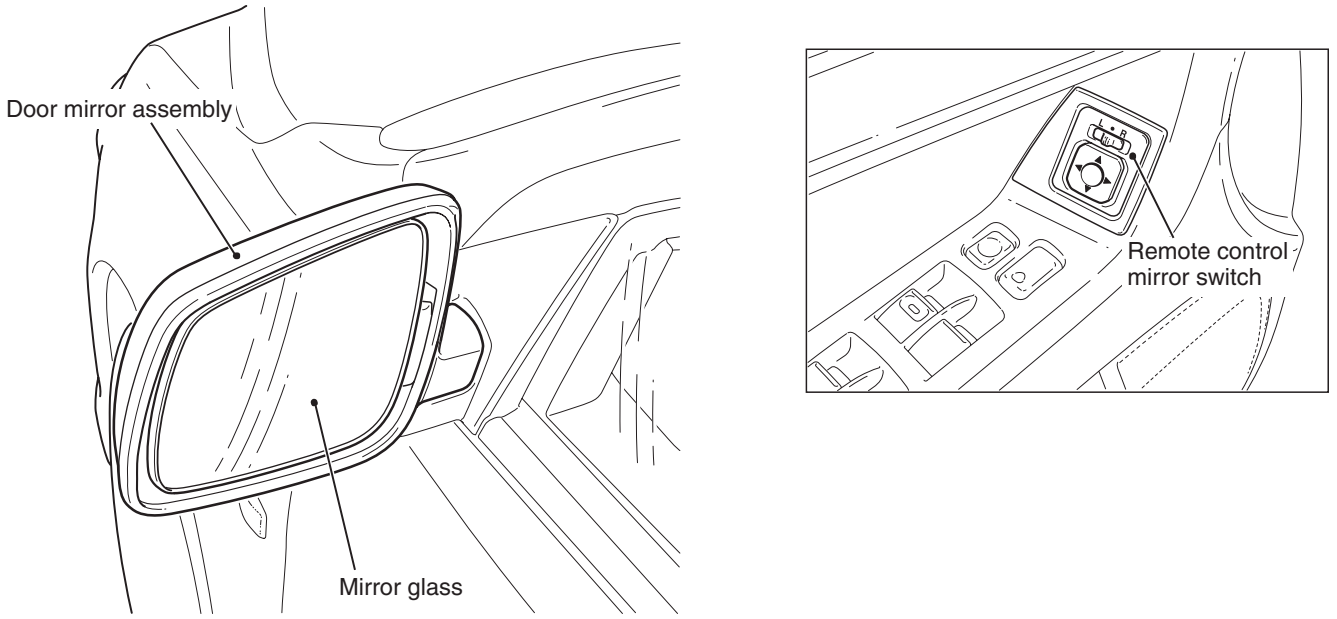
If the rear washer switch is turned ON during the rear wiper operation, 7.4 seconds after turning OFF the rear wiper relay turns OFF, the intermittent action is resumed in 8 seconds interval.

NOTE: Using the customization function, the washer linked rear wiper function can be invalidated (Refer to P.51-17).

DOOR MIRRORS

M2510008100336

CONSTRUCTION DIAGRAM



AC607910AC

The outside mirror (door mirror) is a folded type and has the following characteristics.

- Aerodynamic door mirror shape reduces wind noises, and the door glasses and mirrors do not easily get wet while driving in a rainy day.
- Electric remote-controlled door mirrors
- Heated door mirror (works with the defogger) <Vehicles for Canada>

CUSTOMIZE FUNCTION

M2510001400693

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Front wiper operation	Adjustment of the intermittent windshield wiper operation <vehicles without auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed (initial condition).
	Adjustment of the intermittent windshield wiper operation <vehicles with auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed.
		Rain Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and lighting control sensor (initial condition).
Front wiper washer	Disabling or enabling washer-linked wiper function	Only Washer	No function
		Washer & Wiper	With function: Without delayed finishing wipe function (Initial condition)
		With after wipe	With function: With delayed finishing wipe function
Intelligent washer	With/without intelligent washer function	Disable	No function
		Enable	With function (initial condition)
Intermittent time of rear wiper	Adjustment of rear wiper interval	0 sec	No wiper interval
		4 sec	4 seconds
		8 sec	8 seconds (initial condition)
		16 sec	16 seconds

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Rear wiper low speed mode	Disabling or enabling rear wiper continuous operation	Disabled	No function (initial condition)
		Enabled	With function
Rear wiper (linked activated when in reverse)	Adjustment of automatic rear window wiper operation with reverse gear engaged	Enable(R wip.ON)	Operates only when the rear wiper switch is ON.
		Enable(R/F wip.)	Operates only when the front or rear wiper switch is ON (initial condition).