

## HEATER SYSTEM

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

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### 1. Heater System

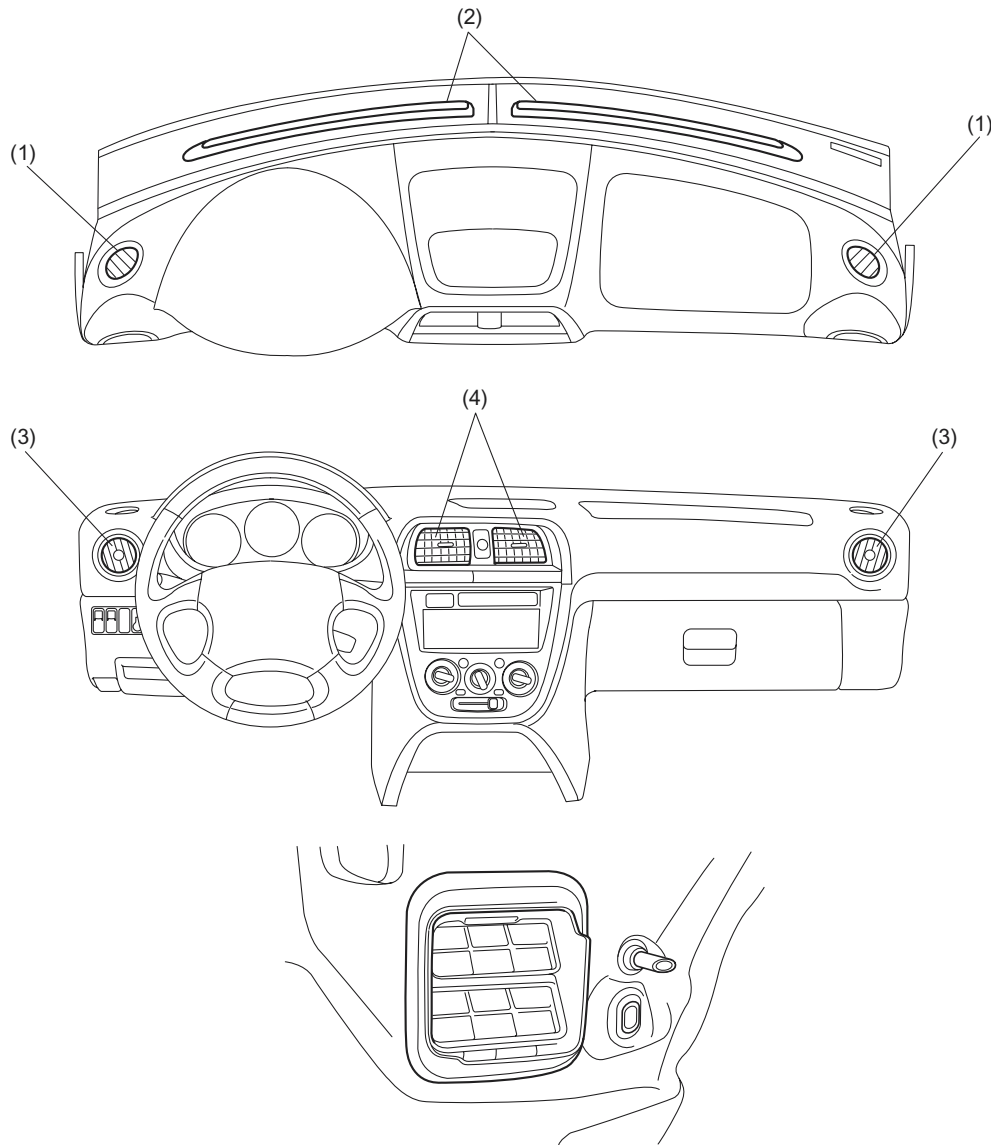
#### A: GENERAL

- The Impreza's HVAC system uses a semi-central control type integral air conditioning unit consisting of a thin-wall, high-performance heater core at the front and evaporator core at the rear. Being compact in size, this unit enables providing sufficient front passenger's legroom while ensuring a high air-distribution efficiency by minimizing air flow resistance in all air passages. Overall, the system can create comfortable interior air conditions quietly and in all seasons by its excellent heating, cooling, ventilating, and defrosting performances.
- There are four ventilation grilles in the dashboard; two trapezoidal grilles at the center and round grilles at both sides. The side grilles are rotatable for air flow direction adjustments.
- To ensure adequate ventilation, large-size air outlets are provided behind the side portions of the rear bumper where high-level vacuums are generated during driving.
- A clean air filter is placed at upstream of the blower fan.

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- (1) Side defroster
- (2) Front defroster
- (3) Side ventilation grille
- (4) Center ventilation grille

## 1. SPECIFICATIONS

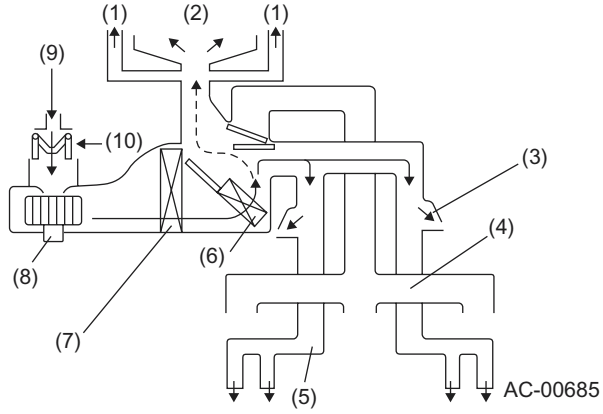





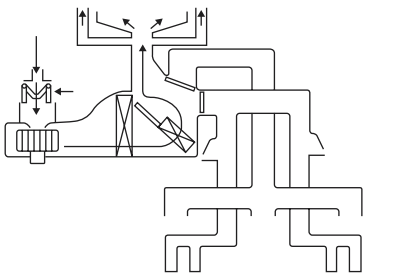
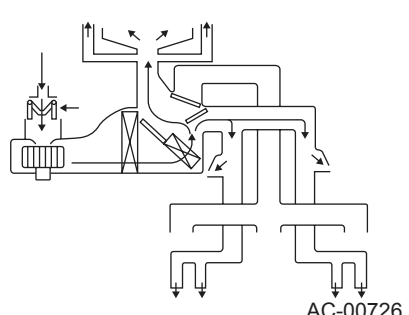
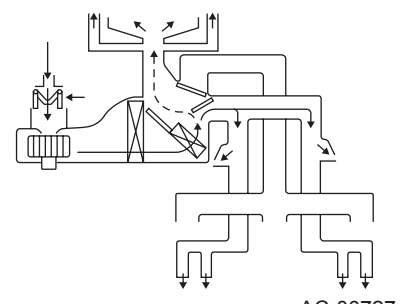
Heating type	Heating performance (W)	Blower power consumption (W)	Maximum blower capacity (m <sup>3</sup> /h)		
			VENT	HEAT	DEF
Outside air mixing type (full-air-mix type)	5000	200	450	280	300

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#### B: AIR FLOW MODES

		<p>(1) Side defroster                  (2) Front defroster                  (3) Foot duct                  (4) Vent duct                  (5) Rear heater duct                  (6) Heater core                  (7) Evaporator                  (8) Blower motor                  (9) Outside air                  (10) Cabin air</p>	
<p>Switch position</p>		<p>Heater unit door operation</p>	
<p>Air flow control</p>	 <p><b>DEF</b> AC-00119</p>	 <p><b>DEF/HEAT</b> AC-00120</p>	 <p><b>HEAT</b> AC-00121</p>
	 <p><b>BILEVEL</b> AC-00122</p>	 <p><b>VENT</b> AC-00123</p>	<p><b>FRESH/RECIRC switching</b> AC-00124</p> <p>This switch/lever allows selecting either cabin-air-recirculation or fresh-air-introduction mode.</p> <p><b>Models with automatic air conditioning</b>                  FRESH/RECIRC is changed each time the switch is pressed.                  Indicator ON: cabin air recirculation                  Indicator OFF: fresh air introduction</p> <p><b>Models with manual air conditioning</b>                  Switched by operating the lever.</p>
	 <p>AC-00725</p>	 <p>AC-00726</p>	 <p>AC-00727</p>

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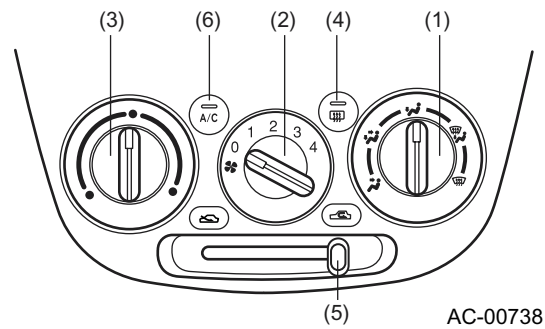
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### C: CONTROL PANEL

- The HVAC control panel is incorporated into the center panel.
- A rear window defogger switch is located in the control panel.

#### 1. MODELS WITH MANUAL AIR CONDITIONING

- The control panel uses three large-diameter, dial type switches for easy operation and good visual recognition.



- (1) Air flow control dial:  
This switch allows selecting any of the five air flow modes.



AC-00127

- (2) Fan speed control dial:  
This switch allows turning on/off the blower and selecting any of the four blower speeds.

0 1 2 3 4

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- (3) Temperature control dial:  
This switch allows stepless adjusting of the temperature of air delivered through ventilators.
- (4) Rear window defogger switch:  
This switch activates the rear defogger. When the switch is left on, a timer keeps the defogger activated for 15 minutes and then turns it off automatically.
- (5) FRESH/RECIRC lever:  
This lever allows selecting either cabin-air-recirculation or fresh-air-introduction.

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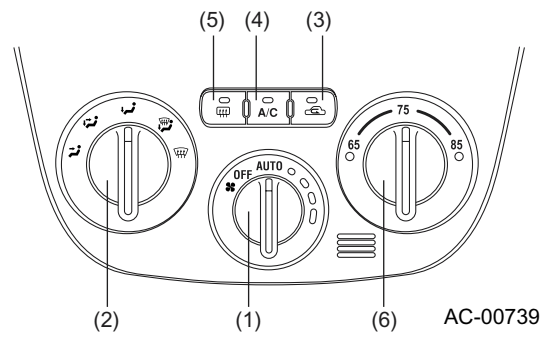
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- (6) Air conditioning switch:  
This switch turns on or off the air conditioning compressor.

## 2. MODELS WITH AUTOMATIC AIR CONDITIONING

- The system changes air flow, adjusts temperature and makes switching between the cabin-air recirculation and outside-air-introduction using servo motors.



- (1) Fan speed control dial:  
In automatic air conditioning mode, the system controls the blower speed automatically in accordance with sensor signals.  
In manual air conditioning mode, this switch allows selecting any of the four blower speeds.
- (2) Air flow control dial:  
This switch allows selecting any of the five air flow modes.



AC-00127

- (3) FRESH/RECIRC switch:  
This switch allows selecting either cabin-air-recirculation or fresh-air-introduction.
- (4) A/C switch:  
This switch turns on or off the air conditioning compressor.
- (5) Rear window defogger switch:  
This switch activates the rear defogger. When the switch is left on, a timer keeps the defogger activated for 15 minutes and then turns it off automatically.
- (6) Temperature control dial:  
This switch allows adjusting the temperature of air delivered through ventilators.  
There are 11 steps available for selection between positions 65 and 85 (vehicles for US) or between positions 20 and 30 (vehicles for Canada). The counterclockwise and clockwise extreme ends are the positions to keep the system in the maximum cooling and maximum heating operations, respectively.

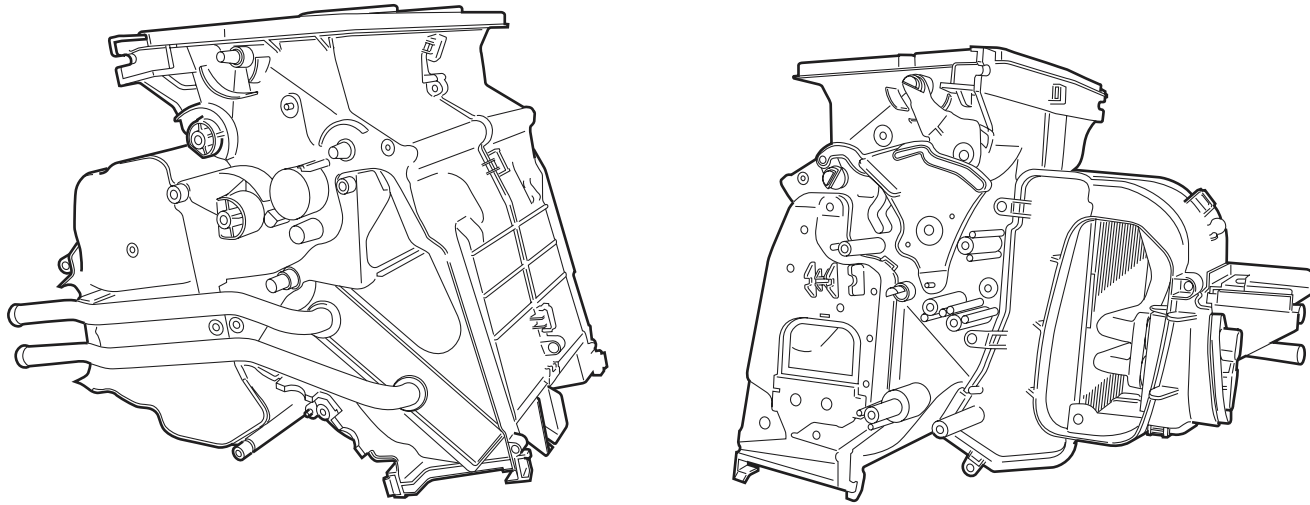
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### D: HEATER AND COOLING UNIT

- Having an evaporator core at the front and a heater core at the rear, this single unit combines both heating and cooling functions.
- The heater and cooling unit incorporates doors for creating different air flow modes and a door for mixing heated air and outside air.
- In the models with an automatic air conditioner, the air flow mode switching doors and air mixing door are moved by electric-motor-driven actuators. The actuators are centrally controlled using a local area network (LAN) system. In the models without an air conditioner, the air flow mode switching doors and air mixing door are moved by cables through corresponding linkages.



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### 1. SPECIFICATIONS

Heater core size	Heat output
163.9 × 200 × 25	5000W

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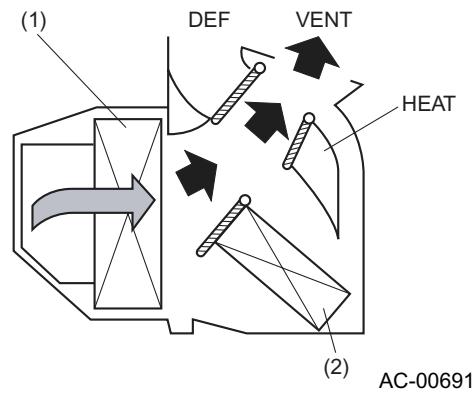
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### 2. DESIGN FEATURES FOR EACH AIR FLOW MODE

#### 1) Ventilation (VENT) mode

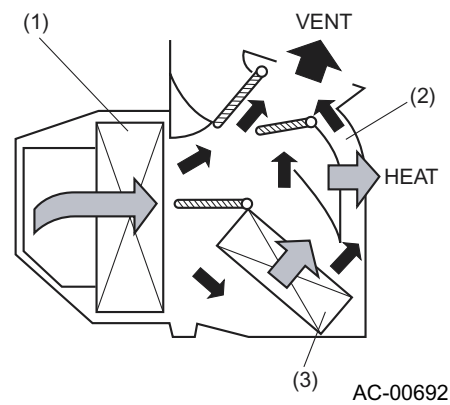
- The passage leading air from the evaporator to the ventilation outlet (VENT) is made straight to reduce air flow resistance.
- When the air temperature is necessary to be adjusted, heated air is blown at right angles against the flow of cool air from the evaporator. This allows the airs to mix thoroughly.



- (1) Evaporator
- (2) Heater core

#### 2) Foot/face (BILEVEL) mode

- Warm and cool air flows are created by structural means, namely, by forming sealing surface for air toward leg area on the heated air passage side and that for air toward the ventilation outlet (VENT) on the cooled air passage side. To prevent an excessive difference in the temperature between the two air flows, a bypass passage is provided to allow part of heated air to flow toward the ventilation (VENT) outlet.



- (1) Evaporator
- (2) Bypass passage
- (3) Heater core

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## HEATER SYSTEM

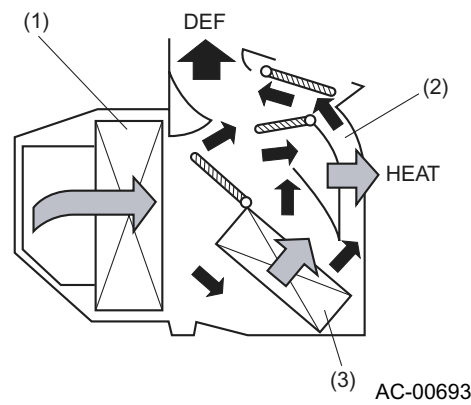
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### 3) Heating (HEAT) mode

- Warm and cool air flows are created by structural means, namely, by forming sealing surface for air toward leg area on the heated air passage side and that for air toward the defroster (DEF) outlet on the cooled air passage side.

To prevent an excessive difference in the temperature between the two air flows, a bypass passage is provided to allow part of heated air to flow toward the ventilation (VENT) outlet.

- To maintain the passage toward the defroster (DEF) outlet even during the heating mode operation, the door of the passage toward leg area is fully opened to the make the passage also serve as a passage toward the defroster (DEF) outlet.

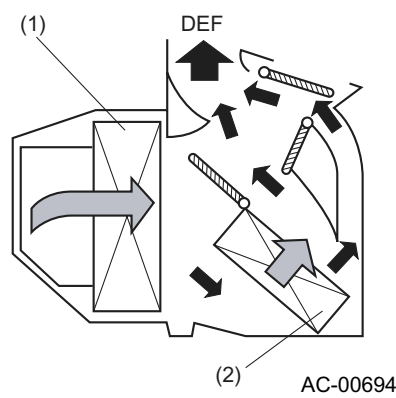


- (1) Evaporator
- (2) Bypass passage
- (3) Heater core

### 4) Defroster (DEF) mode

- Air passages are designed in such a way that air flow resistance is minimized and defrosting performance is maximized.

- The air passages toward the defroster (DEF) outlet is long enough to ensure a same airflow rate at all defroster outlets.



- (1) Evaporator
- (2) Heater core

## AC-9



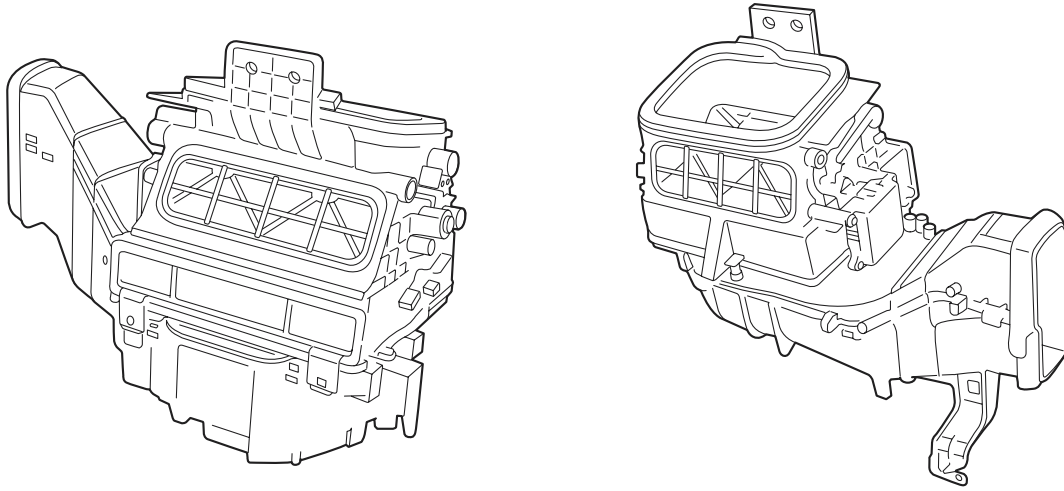
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### E: BLOWER UNIT

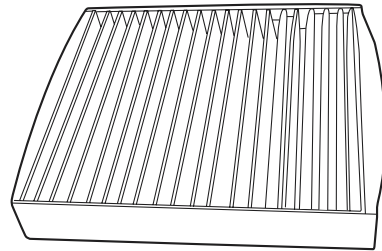
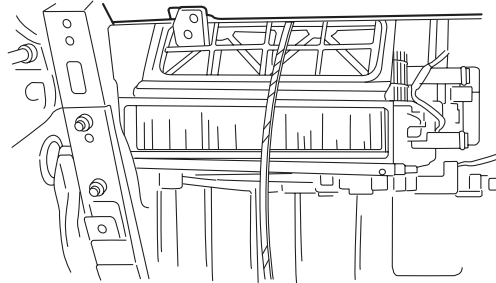
- The blower unit uses a low-noise-type motor.



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### F: FILTER

- Clean air filters are installed in models with automatic air conditioning. They can remove dust, cigarette smoke particles and other similar impurities in the air.



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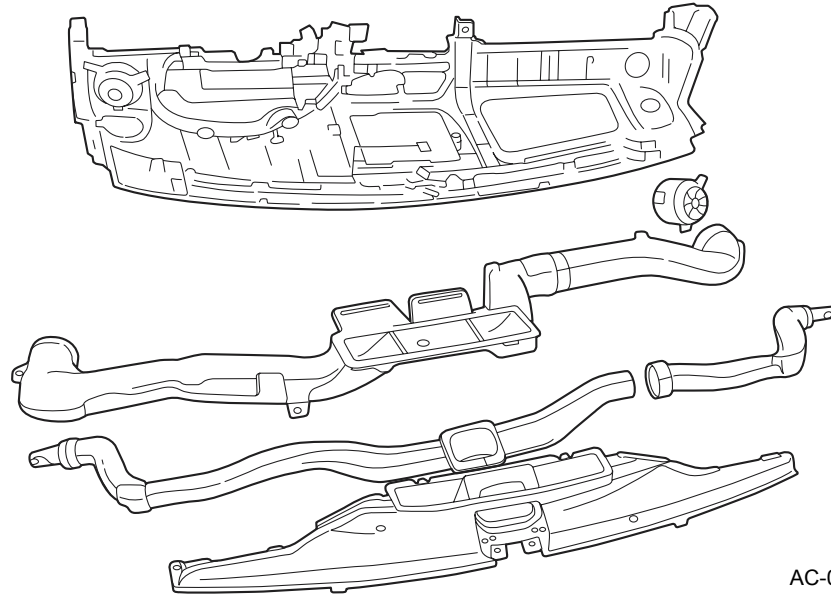
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### G: DUCT

- The ventilation duct and defroster duct are located behind the instrument panel. Both the ducts have been modified in the shape to reduce air flow resistance.
- Defrosting air flow is divided at the center, so that air can flow out evenly through a wide center defroster as well as right and left side defrosters.



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