

SEAT WARMER SYSTEM

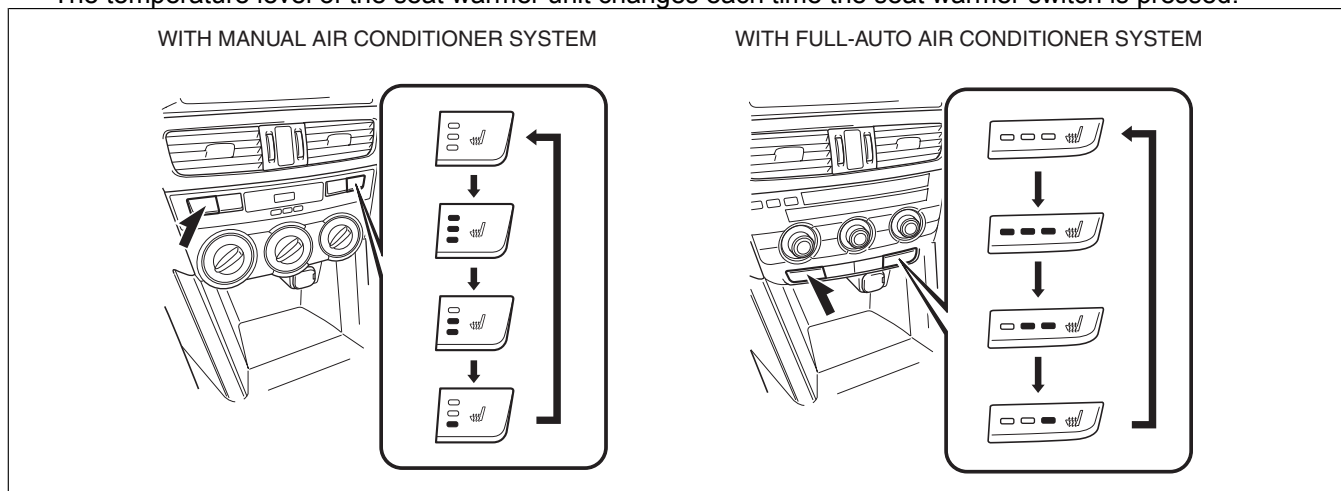
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Purpose

- The seat warmer system warms the front seat cushion and front seat back using the seat warmer unit.

Function

- The seat warmer unit warms the seat cushion and seat back by supplying power to the built-in filaments.
- The seat warmer unit can adjust the temperature between 3 levels.
- The temperature level of the seat warmer unit changes each time the seat warmer switch is pressed.



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- The seat warmer control unit supplies power to the seat warmer unit and increases the temperature around the seat back and seat cushion up to the average temperature which is applied to the temperature level.

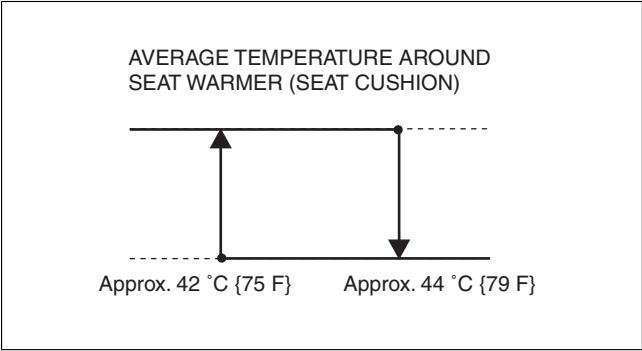
Switch display		Temperature level	Average temperature around seat warmer unit	
With manual air conditioner system	With full-auto air conditioner system		Seat cushion side	Seat back side
		0	—	
		1	Approx. 37°C {67 F}	
		2	Approx. 40°C {72 F}	Approx. 42°C {75 F}
		3	Approx. 42°C {75 F}	Approx. 47°C {85 F}

- The seat warmer control unit detects the average temperature around the seat warmer unit (seat cushion side) based on a signal from thermostat (seat cushion side) to prevent overheating, cuts off the power supply to the seat warmer unit when the temperature reaches the specification, and decreases the average temperature below the specified temperature.
- When the seat warmer control unit detects that the average temperature around the seat warmer unit (seat cushion side) decreases below the specified temperature based on a signal from the thermostat, power is supplied to the seat warmer unit again to increase the temperature up to the specified temperature.

Temperature level	Average temperature around seat warmer unit (seat cushion side)			
	Rag type		Leather type	
	Increase start temperature	Decrease start temperature	Increase start temperature	Decrease start temperature
0	—			
1	Approx. 23°C {42 F}	Approx. 25°C {45 F}	Approx. 23°C {42 F}	Approx. 25°C {45 F}
2	Approx. 23°C {58 F}	Approx. 34°C {61 F}	Approx. 30°C {54 F}	Approx. 32°C {58 F}
3	Approx. 42°C {75 F}	Approx. 44°C {79 F}	Approx. 38°C {68 F}	Approx. 40°C {72 F}

- The seat warmer control unit maintains a constant average temperature around the seat warmer unit by continuing to supply power to the seat warmer unit.

Ex.) Cloth-type temperature level is 3:

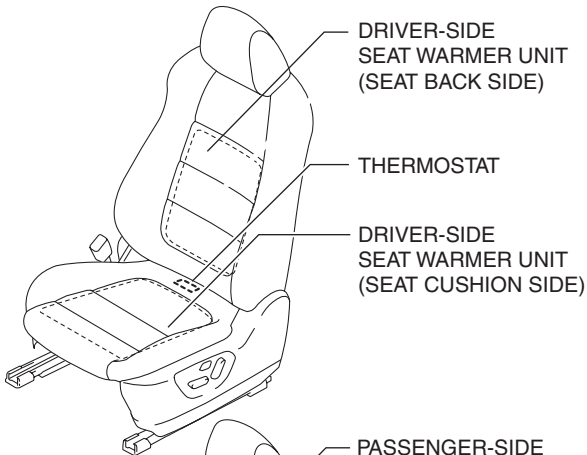
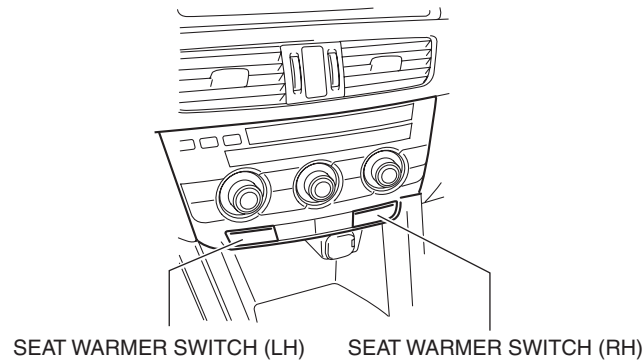


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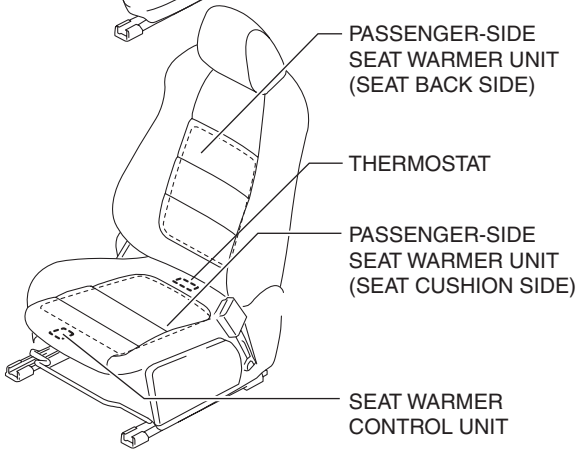
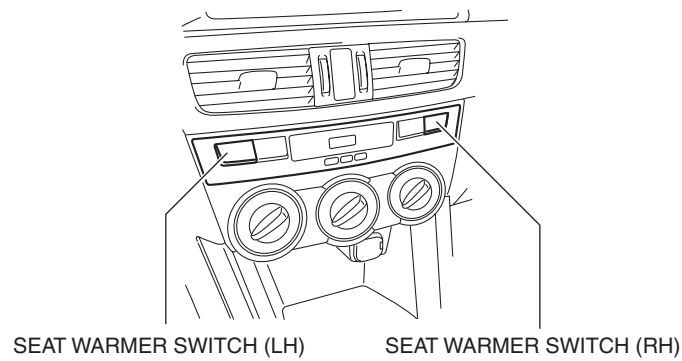
Structural view

- The seat warmer switch is built into the climate control unit.
- The seat warmer unit is adhered to the front seat cushion and front seat back.
- The seat warmer control unit is located on the bottom of the passenger-side front seat.

• WITH FULL-AUTO AIR CONDITIONER SYSTEM

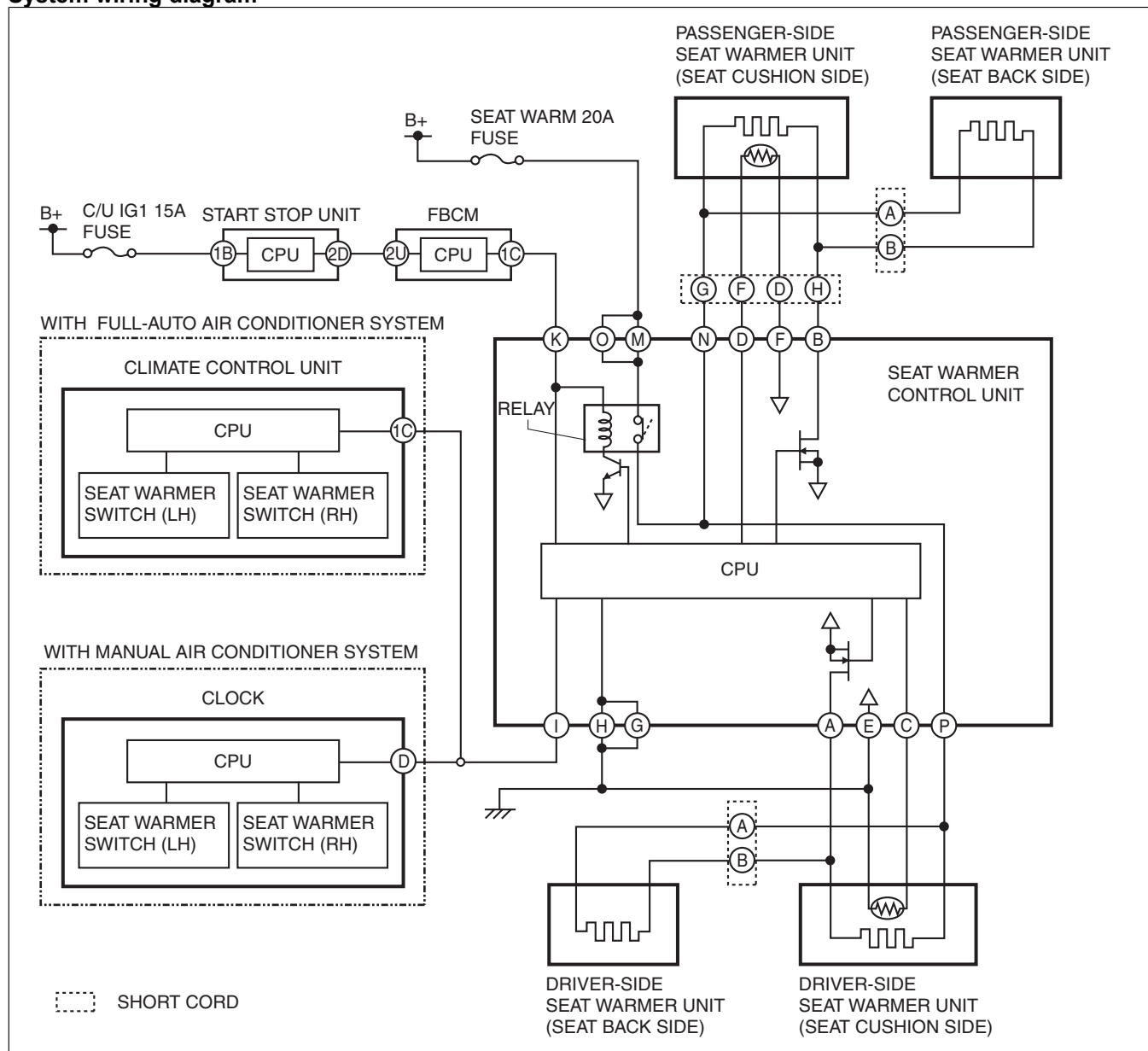


WITH MANUAL AIR CONDITIONER SYSTEM



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System wiring diagram

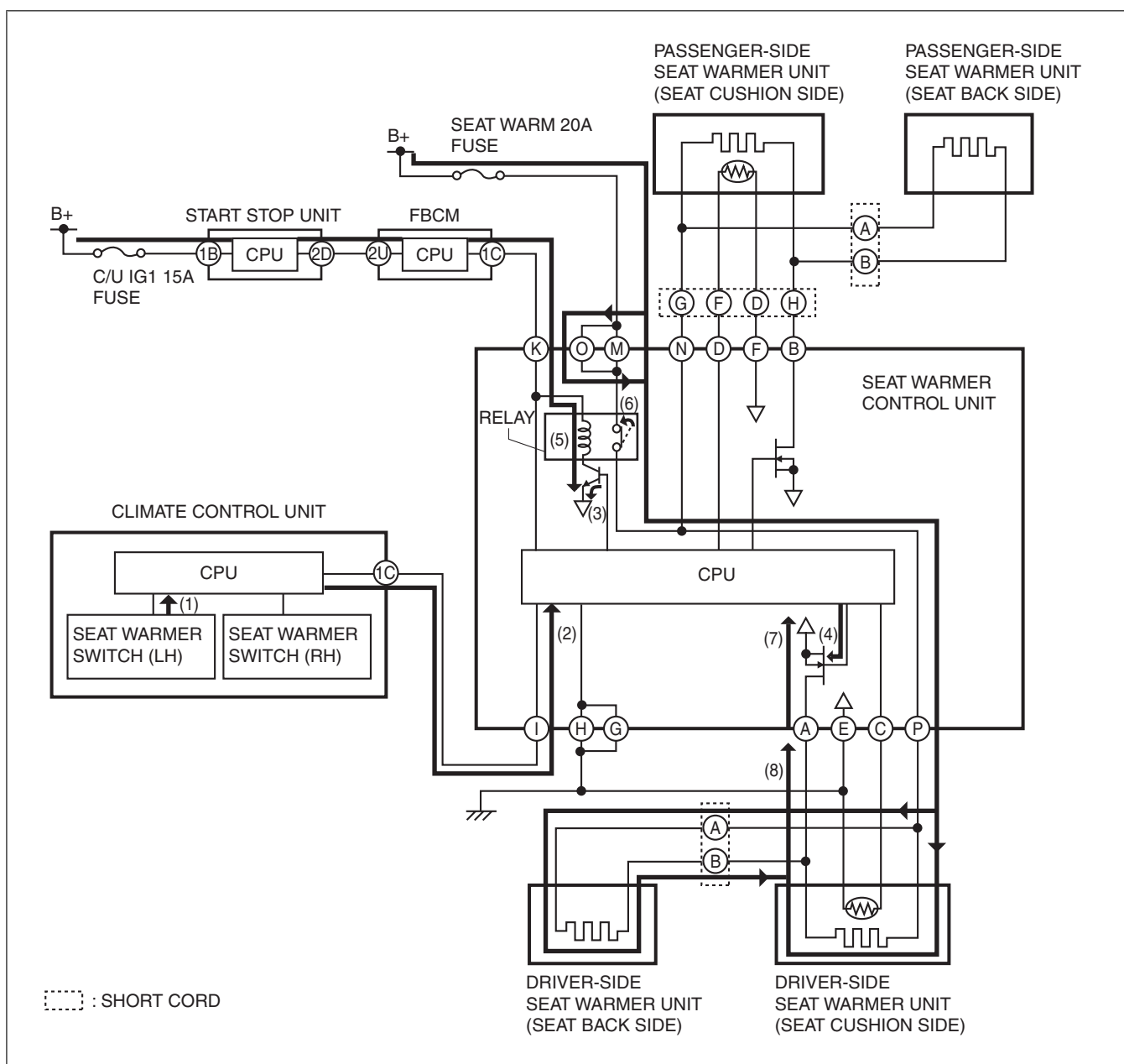


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Operation

Ex.) Seat warmer temperature level on cloth-type driver's side is set at 3 (with full-auto air conditioner system):

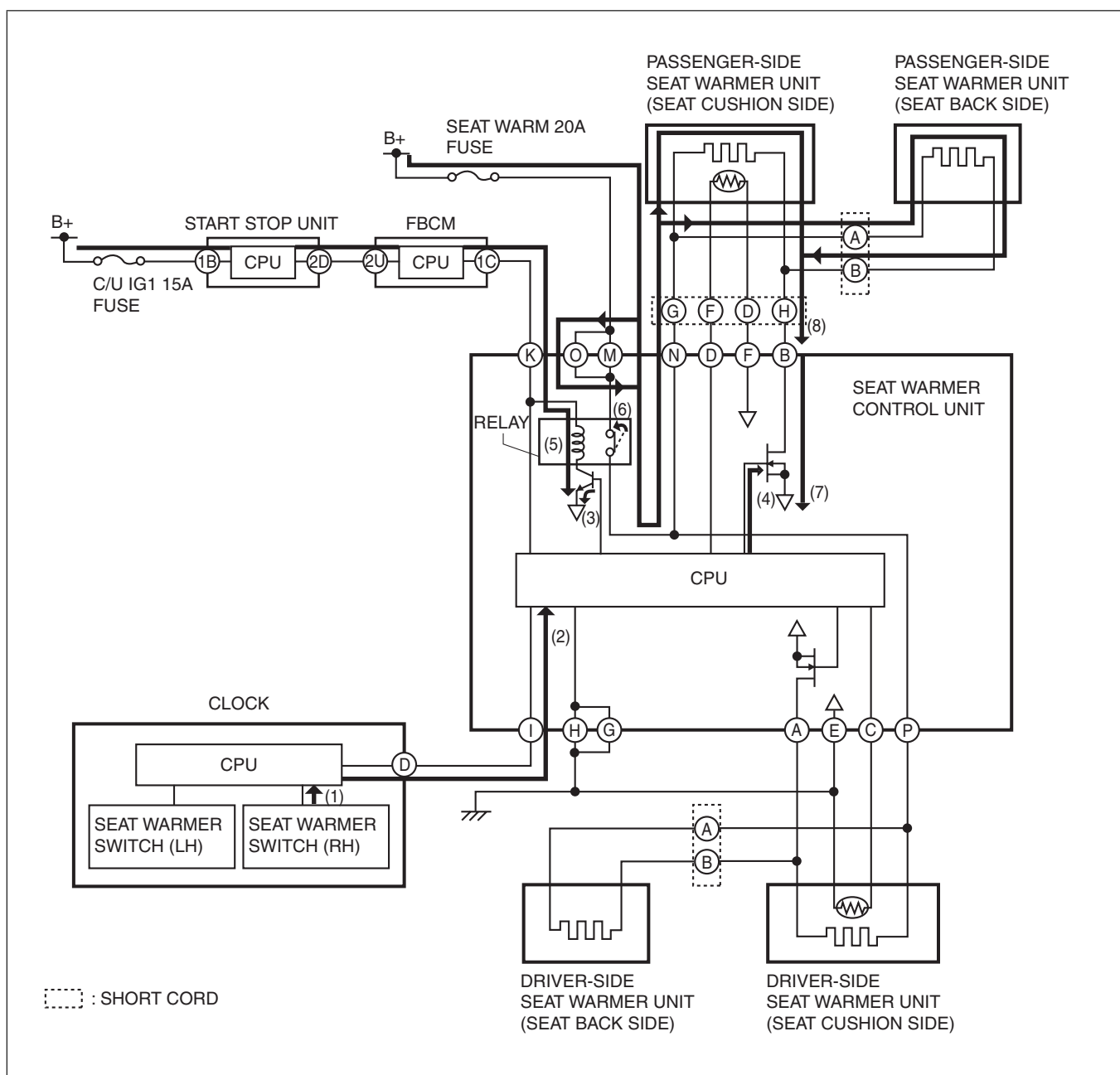
1. The climate control unit determines (1) the average increase temperature of the seat warmer unit by operating the seat warmer switch (driver-side).
2. The climate control unit sends (2) the temperature level "3" signal for the seat warmer unit to the CPU of the seat warmer control unit.
3. When the CPU of the seat warmer control unit receives the operation level "3" signal from the climate control unit, it supplies the base current to the transistor built into the seat warmer control unit (3), and the gate voltage is applied to the FET simultaneously (4).
4. If the base current is supplied, the transistor supplies collector current to the relay coil (5).
5. If collector current is supplied, the relay coil energizes and turns on the relay switch (6).
6. When the gate voltage is applied, the FET completes the circuit between seat warmer control unit terminal A and ground (7).
7. When the relay switch built into the seat warmer control unit turns on and the FET circuit is completed, the driver-side seat warmer unit circuit is completed (8) and the driver-side front seat cushion and front seat back warm.
 - When the climate control unit detects that the temperature around the seat reaches **approx. 44°C {79 F}**, the power supply is cut off.



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Ex.) Seat warmer temperature level on cloth-type passenger-side is set at 3 (with manual air conditioner system):

1. The climate control unit determines (1) the average increase temperature of the seat warmer unit by operating the seat warmer switch (passenger-side).
2. The climate control unit sends (2) the temperature level "3" signal for the seat warmer unit to the CPU of the seat warmer control unit.
3. When the CPU of the seat warmer control unit receives the operation level "3" signal from the climate control unit, it supplies the base current to the transistor built into the seat warmer control unit (3), and the gate voltage is applied to the FET simultaneously (4).
4. If the base current is supplied, the transistor supplies collector current to the relay coil (5).
5. If collector current is supplied, the relay coil energizes and turns on the relay switch (6).
6. When the gate voltage is applied, the FET completes the circuit between seat warmer control unit terminal B and ground (7).
7. When the relay switch built into the seat warmer control unit turns on and the FET circuit is completed, the driver-side seat warmer unit circuit is completed (8) and the driver-side front seat cushion and front seat back warms.
 - When the clock detects that the temperature around the seat reaches **approx. 44°C {79 F}**, the power supply is cut off.



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Fail-safe

- Function not equipped.