

# **Component Procedures: Seat Temperature Element**

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# Component Procedures: Seat Temperature Element

## Parts and Labor (itype\_189)

### Parts

Qualifier	Part #	Name	Price	Note
Heated Seats > Element	88391F3000	Seat Back	96.89	
Heated Seats > Element > Sea?	88190F3000	Front	164.31	
Heated Seats > Element > Sea?	89190F3000	Rear	263.08	

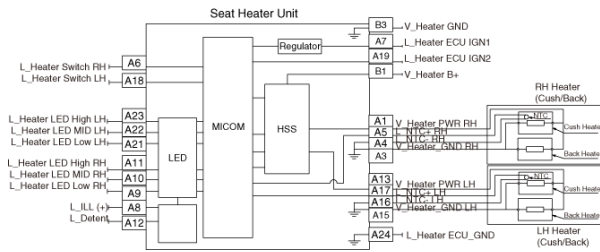
### Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Heated Seats > Element, R&R > Seat Back > One?	B	1.8	0.0

## Seat Heater - Schematic Diagrams (Article 44558)

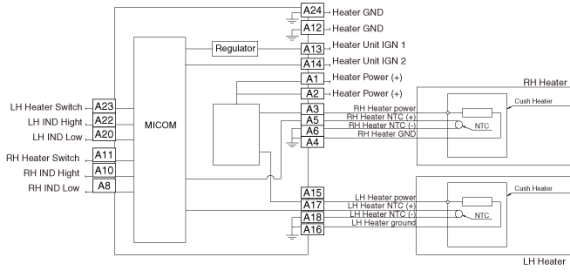
- Circuit Diagram

[Front Seat Heater (Non-Air Ventilation)]



Seat Heater Unit (A)				Seat Heater Unit (B)		Heater Pad Connector	
No	Description	No	Description	No	Description	No	Description
A1	RH Seat heater (+)	A13	LH Seat heater (+)	B1	BATT (+)	C1	-
A2	-	A14	-	B2	-	C2	-
A3	RH Seat heater (-)	A15	LH Seat heater (-)	B3	GND	C3	Heater (+)
A4	RH NTC (-)	A16	LH NTC (-), LH			C4	NTC (+)
A5	RH NTC (+)	A17	LH NTC (+), LH			C5	NTC (-)
A6	RH Seat heater switch	A18	LH Seat heater switch			C6	Heater (-)
A7	IGN 1	A19	IGN 2				
A8	-	A20	-				
A9	RH LED Low indicator	A21	LH LED Low indicator				
A10	RH LED Mid indicator	A22	LH LED Mid indicator				
A11	RH LED High indicator	A23	LH LED High indicator				
A12	-	A24	GND				

[Rear Seat Heater (Bench Type)]



Seat Heater Unit (A)		Heater Pad Connector	
No	Description	No	Description
A1	BATT (+)	A13	IGN 1
A2	BATT (+)	A14	IGN 2
A3	Passenger Seat heater (+)	A15	Driver Seat heater (+)
A4	Passenger Seat heater (-)	A16	Driver Seat heater (-)
A5	Passenger NTC (+)	A17	Driver NTC (+)
A6	Passenger NTC (-)	A18	Driver NTC (-)
A7	Tail lamp	A19	Detent
A8	Passenger LED Low indicator	A20	Driver LED Low indicator
A9	-	A21	-
A10	Passenger LED High indicator	A22	Driver LED High indicator
A11	Passenger Heater switch	A23	Driver Heater switch
A12	GND	A24	GND

No	Description
B1	Heater (+)
B2	NTC (+)
B3	NTC (-)
B4	Heater (-)

## Seat Heater - Components and Components Location (Article 44557)

- Component Location

[Front Seat Heater (Non-Air ventilation)]



[Front Seat Heater (Air ventilation)]



[Rear Seat Heater]

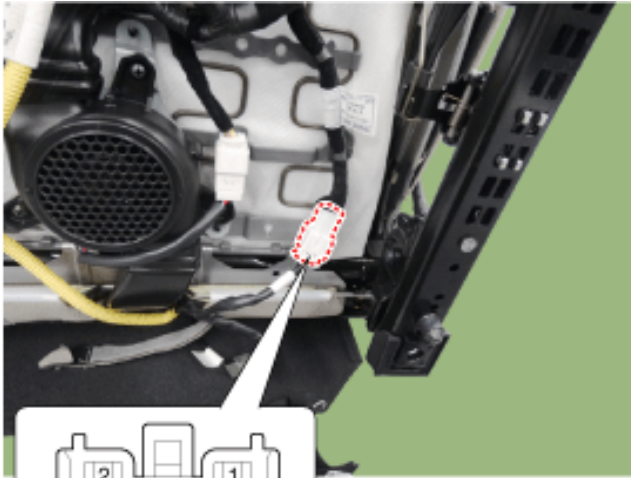


### Seat Heater - Repair Procedures (Article 44560)

- Inspection

Front Seat Heater

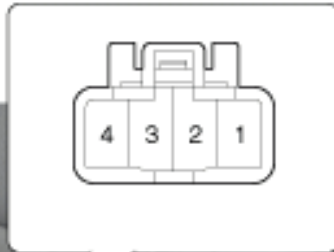
- Check for continuity and measure the resistance between terminals No 3 and No 6. Standard value Driver / Assists (cushion + back) :  $1.65\Omega \pm 10\%/23^{\circ}\text{C}$



- Operate the seat heater after connecting the connector, and then check the thermostat by measuring the temperature of seat surface. Standard value 1st : cushion :  $36 \pm 2^{\circ}\text{C}$ , back :  $40 \pm 2^{\circ}\text{C}$  2st : cushion :  $39 \pm 2^{\circ}\text{C}$ , back :  $45 \pm 2^{\circ}\text{C}$  3st : cushion :  $42 \pm 2^{\circ}\text{C}$ , back :  $50 \pm 2^{\circ}\text{C}$

#### Rear Seat Heater

- Check for continuity and measure the resistance between terminals No 1 and No 4. Standard value Rear seat :  $1.67\Omega \pm 10\%/20^{\circ}\text{C}$



- Operate the seat heater after connecting the connector, and then check the thermostat by measuring the temperature of seat surface. Standard value High (Cushion) :  $38 \pm 2^{\circ}\text{C}$  Low (Cushion) :  $42 \pm 2^{\circ}\text{C}$

#### Seat Heater Unit Diagnosis Mode

- You can enter the diagnosis mode by turning the seat heater button on.
- You can enter the diagnosis mode by referring to following description. Push IGN ON while pressing the seat heater button from IGN OFF. Keep pressing IGN ON for more than three seconds before pressing it once again for more than three seconds within 2 seconds. All LED indicators on the driver and passenger seat button will blink 1 times.
- Push IGN ON while pressing the seat heater button from IGN OFF.
- Keep pressing IGN ON for more than three seconds before pressing it once again for more than three seconds within 2 seconds.
- All LED indicators on the driver and passenger seat button will blink 1 times.

- After entering the diagnosis mode, you can check what failed by checking the blinking LED. [Driver / Passenger Seat Heater] Failure Indicator Inspection Items Detailed Inspections Low : OFF Mid : OFF High : FLASHING Low voltage detection IGN1 voltage of 8.5 V or lower Over voltage detection IGN1 voltage of 16.5 V or lower Low : FLASHING Mid : FLASHING High : FLASHING Fuse (Short) Disconnection or missing connector of heating seat B(+) line Low : OFF Mid : ON High : FLASHING NTC (Short / Disconnecter) NTC element failure Short-circuit between NTC connector terminals Disconnection in the NTC (+) wiring Disconnection in the NTC (-) wiring Low : FLASHING Mid : FLASHING High : FLASHING Heater (Short / Disconnecter) Heating wire element failure Short-circuit between heating wire connector terminals Disconnection in the heating wire (+) Disconnection in the heating wire (-) Low : ON Mid : ON High : FLASHING Loss of temperature feedback Target temperature not reached within 40 minutes [Rear Seat Heater] Failure Indicator Inspection Items Detailed Inspections Low : OFF High : OFF Low voltage detection IGN1 voltage of 8.5 V or lower Over voltage detection IGN1 voltage of 16.5 V or lower Low : FLASHING High : FLASHING Fuse (Short) Disconnection or missing connector of heating seat B(+) line Low : OFF High : FLASHING NTC (Short / Disconnecter) NTC element failure Short-circuit between NTC connector terminals Disconnection in the NTC (+) wiring Disconnection in the NTC (-) wiring Low : FLASHING High : FLASHING Heater (Short / Disconnecter) Heating wire element failure Short-circuit between heating wire connector terminals Disconnection in the heating wire (+) Disconnection in the heating wire (-) Low : ON High : FLASHING Loss of temperature feedback Target temperature not reached within 40 minutes [Driver / Passenger Seat Heater]



#### Failure Indicator Inspection Items Detailed Inspections

Low : OFF Mid : OFF High : FLASHING Low voltage detection IGN1 voltage of 8.5 V or lower

- IGN1 voltage of 8.5 V or lower

Over voltage detection IGN1 voltage of 16.5 V or lower

- IGN1 voltage of 16.5 V or lower

Low : FLASHING Mid : FLASHING High : FLASHING Fuse (Short) Disconnection or missing connector of heating seat B(+) line

- Disconnection or missing connector of heating seat B(+) line

Low : OFF Mid : ON High : FLASHING NTC (Short / Disconnecter) NTC element failure Short-circuit between NTC connector terminals Disconnection in the NTC (+) wiring Disconnection in the NTC (-) wiring

- NTC element failure

- Short-circuit between NTC connector terminals

- Disconnection in the NTC (+) wiring

- Disconnection in the NTC (-) wiring

Low : FLASHING Mid : FLASHING High : FLASHING Heater (Short / Disconnecter) Heating wire element failure Short-circuit between heating wire connector terminals Disconnection in the heating wire (+) Disconnection in the heating wire (-)

- Heating wire element failure

- Short-circuit between heating wire connector terminals

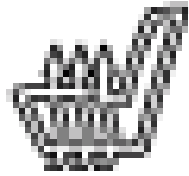
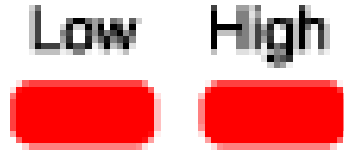
- Disconnection in the heating wire (+)

- Disconnection in the heating wire (-)

Low : ON Mid : ON High : FLASHING Loss of temperature feedback Target temperature not reached within 40 minutes

- Target temperature not reached within 40 minutes

[Rear Seat Heater]



Low : OFF High : OFF Low voltage detection IGN1 voltage of 8.5 V or lower

Low : FLASHING High : FLASHING Fuse (Short) Disconnection or missing connector of heating seat B(+) line

Low : OFF High : FLASHING NTC (Short / Disconnector) NTC element failure Short-circuit between NTC connector terminals Disconnection in the NTC (+) wiring Disconnection in the NTC (-) wiring

Low : FLASHING High : FLASHING Heater (Short / Disconnector) Heating wire element failure Short-circuit between heating wire connector terminals Disconnection in the heating wire (+) Disconnection in the heating wire (-)

Low : ON High : FLASHING Loss of temperature feedback Target temperature not reached within 40 minutes

- You can check the malfunctioning by checking the blinking LED.

- Pressing the IGN OFF button will end the diagnosis mode for the heater seat.

- You can check whether the heating seat system works properly after turning the IGN ON. If you want to check the error code, you can refer to the procedure of 2 above.