Component Procedures: Accessories and Optional Equipment

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Component Procedures: Accessories and Optional Equipment

Wireless Power Charger System - Description and Operating Principle (Article 44713)

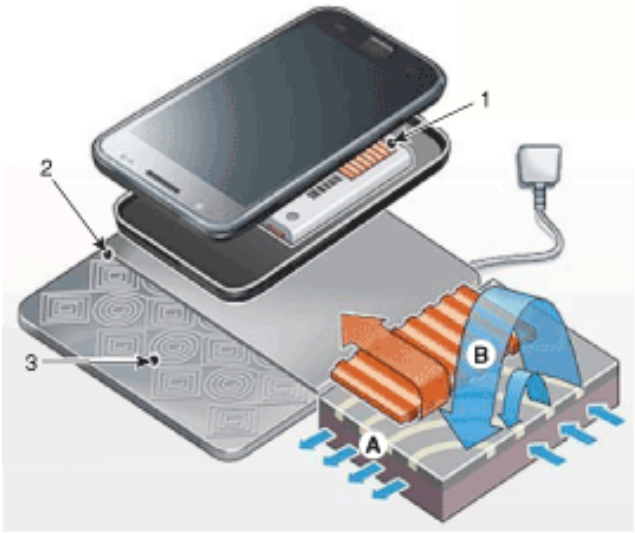
- Description and Operation

Wireless Power Charger System

WPC : Wireless Power Consortium Qi 1.1.2 : refers to certified product with the capability to transmit power of up to 5 W and detect metal and other impurities to prevent heating.

Information

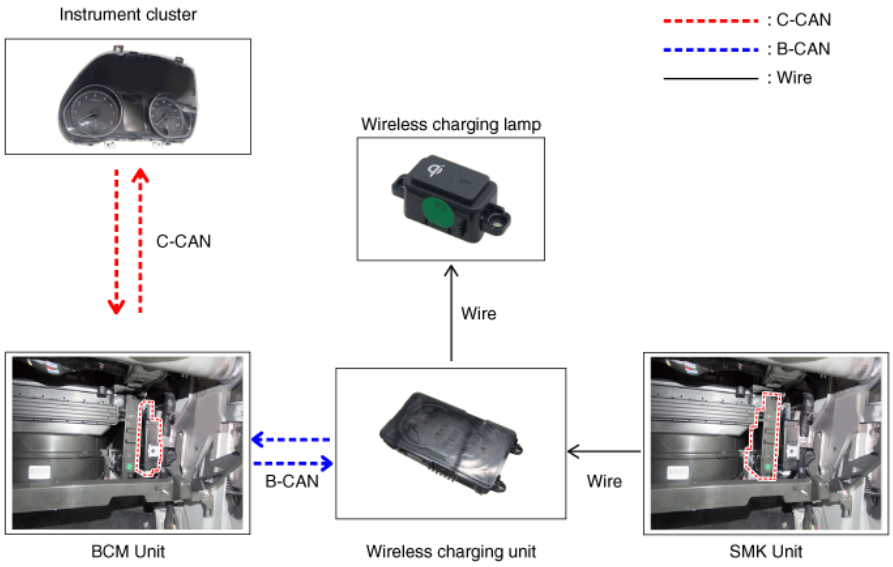
- WPC : Wireless Power Consortium
- Qi 1.1.2 : refers to certified product with the capability to transmit power of up to 5 W and detect metal and other impurities to prevent heating.



1. Power receiver
2. Charging pad
3. Coil

- Power receiver : embedded with the secondary coil designed to receive the induced current from the charging pad.
- Charging pad : electrical coils wound inside the plastic cover.
- Coil : Rectangular and circular coils generate diverse electromagnetic fields. Connect power to the charging pad to generate electromagnetic fields in the coil. Current induced from electromagnetic induction phenomenon is sent to the power receiver to charge the battery.
- Connect power to the charging pad to generate electromagnetic fields in the coil.
- Current induced from electromagnetic induction phenomenon is sent to the power receiver to charge the battery.

System Configuration Diagram



- Instrument cluster : Alerts about contact with mobile phone
- BCM unit : Determines contact with mobile phone
- Wireless charging lamp : Displays the charging status
- SMK unit : Stops charging during the activation of LF

Major Functions of Wireless Power Charger System

- Charging Function Activation method Close all doors of the car. Switch vehicle power to ACC or IG ON. Place the wireless charging-enabled mobile phone on the tray. Charging status display Mode Charging LED display Remarks Stand by for charging LED turned OFF Charging in process Amber LED turned ON Charging completed Green LED turned ON Charging error Amber LED blinks Blinks 10 times for 10 seconds, then LED is turned off for 50 seconds (total 60 seconds)
- Activation method Close all doors of the car. Switch vehicle power to ACC or IG ON. Place the wireless charging-enabled mobile phone on the tray.
- Close all doors of the car.
- Switch vehicle power to ACC or IG ON.
- Place the wireless charging-enabled mobile phone on the tray.
- Charging status display Mode Charging LED display Remarks Stand by for charging LED turned OFF Charging in process Amber LED turned ON Charging completed Green LED turned ON Charging error Amber LED blinks Blinks 10 times for 10 seconds, then LED is turned off for 50 seconds (total 60 seconds)

Mode Charging LED display Remarks

Stand by for charging LED turned OFF

Charging in process Amber LED turned ON

Charging completed Green LED turned ON

Charging error Amber LED blinks Blinks 10 times for 10 seconds, then LED is turned off for 50 seconds (total 60 seconds)

- Blinks 10 times for 10 seconds, then LED is turned off for 50 seconds (total 60 seconds)
- Alert for contact with mobile phone Activation method Key OFF while the mobile phone is being charged. Checks if the mobile phone is placed on the wireless charging unit. Alert message for contact with mobile phone is displayed on the instrument panel (for about 4 - 5 seconds).
- Activation method Key OFF while the mobile phone is being charged. Checks if the mobile phone is placed on the wireless charging unit. Alert message for contact with mobile phone is displayed on the instrument panel (for about 4 - 5 seconds).
- Key OFF while the mobile phone is being charged.
- Checks if the mobile phone is placed on the wireless charging unit.
- Alert message for contact with mobile phone is displayed on the instrument panel (for about 4 - 5 seconds).

- Overheating prevention Activation method If the thermistor temperature inside the wireless charging module rises above a certain level (158°F (70°C)), charging will stop to protect the mobile phone battery. The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. If the thermistor temperature falls below a certain level (149°F (65°C)), charging will restart. When the charging function is restarted, the amber LED of the charging display lamp will be turned on.
- Activation method If the thermistor temperature inside the wireless charging module rises above a certain level (158°F (70°C)), charging will stop to protect the mobile phone battery. The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. If the thermistor temperature falls below a certain level (149°F (65°C)), charging will restart. When the charging function is restarted, the amber LED of the charging display lamp will be turned on.
- If the thermistor temperature inside the wireless charging module rises above a certain level (158°F (70°C)), charging will stop to protect the mobile phone battery. The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds.

The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds.

- The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds).
- The process is repeated for every 60 seconds.
- If the thermistor temperature falls below a certain level (149°F (65°C)), charging will restart. When the charging function is restarted, the amber LED of the charging display lamp will be turned on.

When the charging function is restarted, the amber LED of the charging display lamp will be turned on.

- Foreign matter detection Charging will be stopped if there is a coin or other metallic object between the wireless charging unit and the mobile phone. [Foreign matter] Foreign matter : All metallic objects such as coins, clips, and precious metals The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. Be careful as touching the foreign matter by hand may cause burns. After the system has detected foreign matter and stopped charging the mobile phone, the charging will resume in about 60 seconds once the foreign matter has been removed. When the charging function is restarted, the amber LED of the charging display lamp will be turned on.
- Charging will be stopped if there is a coin or other metallic object between the wireless charging unit and the mobile phone. [Foreign matter] Foreign matter : All metallic objects such as coins, clips, and precious metals The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. Be careful as touching the foreign matter by hand may cause burns.

[Foreign matter]

Foreign matter : All metallic objects such as coins, clips, and precious metals The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds.

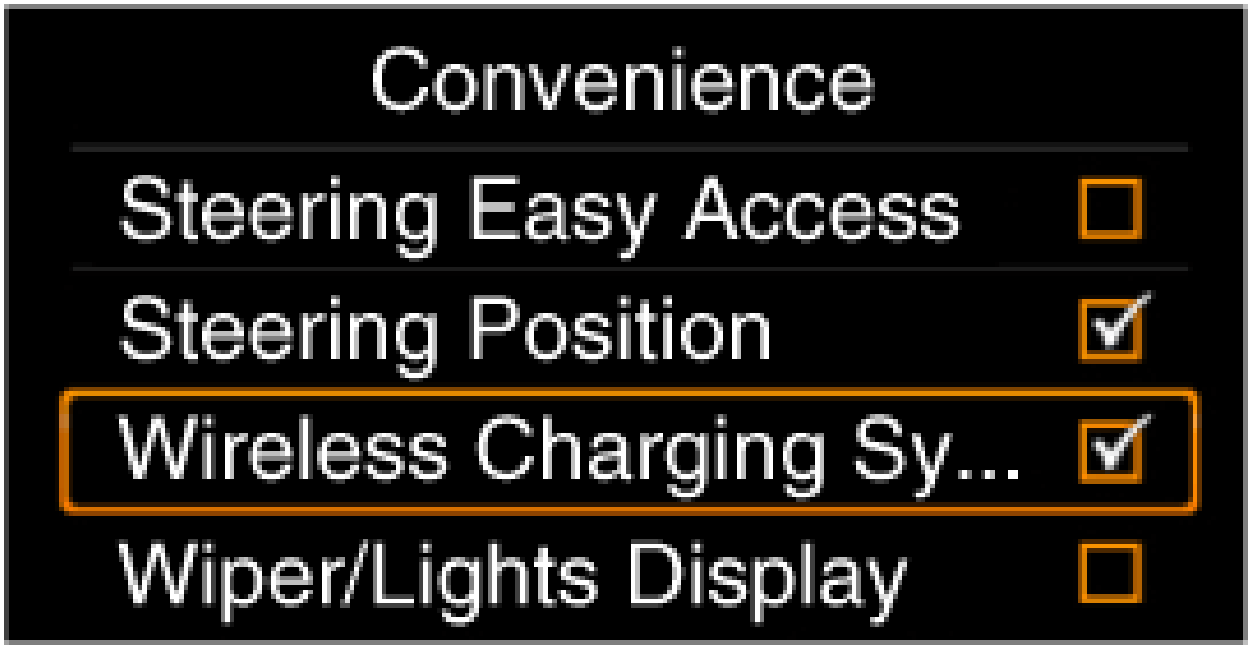
- Foreign matter : All metallic objects such as coins, clips, and precious metals

Be careful as touching the foreign matter by hand may cause burns.

CAUTION

- After the system has detected foreign matter and stopped charging the mobile phone, the charging will resume in about 60 seconds once the foreign matter has been removed. When the charging function is restarted, the amber LED of the charging display lamp will be turned on.
- SMK unit LF frequency interference prevention This function prevents interference between the wireless charging frequency and smart key unit frequency band. Wireless charging is stopped when the door is open or the SMK unit is in LF mode (searching for smart key). e.g. Wireless charging function is stopped if the driver carries the smart key out of the vehicle during IG ON. Charging will stop and the amber LED of the charging display lamp will turn off. It will return to normal operating status when the LF mode of the SMK unit is completed.
- Wireless charging is stopped when the door is open or the SMK unit is in LF mode (searching for smart key). e.g. Wireless charging function is stopped if the driver carries the smart key out of the vehicle during IG ON. Charging will stop and the amber LED of the charging display lamp will turn off.

Charging will stop and the amber LED of the charging display lamp will turn off.
- It will return to normal operating status when the LF mode of the SMK unit is completed.
- Turn the wireless charging function ON/OFF with USM. ■ Tailgate applies to RV vehicle models.



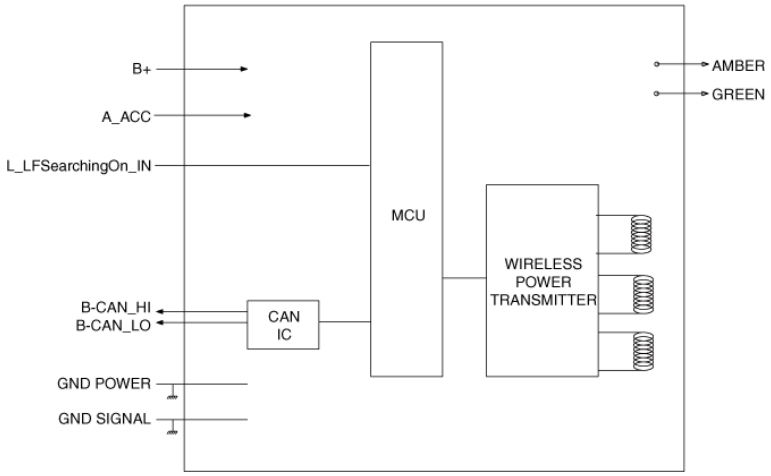
Protection of Wireless Power Charger System

Item	Condition	Status
Protects against low/high voltage	Protects and stops charging under 7.0V and over 16.5V	LED OFF (Stops operation)
	Charges over 7.5 V and under 16.0V	
Protects against reverse voltage	Protects and stops charging in case of reverse voltage	LED OFF (Stops operation)
Protects against overcurrent	Protects and stops charging in case of detecting 4.5A	Amber LED blinks
Protects against overheating	Protects and stops charging in case of detecting 158°F (70°C) by internal temperature sensor of wireless charging module	Amber LED blinks
	Resumes under 149°F (65°C)	
Foreign matter (Coins, clips, precious metals, etc.)	Protects and stops charging in case of detecting foreign matter (overheating prevention)	Amber LED blinks
Prevents frequency interference	Protects and stops charging by activating SMK in case door or tailgate is open	LED OFF (Stops operation)

Resumes in 3.5 seconds after all doors and tailgate are closed and SMK operation is completed
Alert for contact with mobile phone During key-off with contact with mobile phone Displays warning message on the instrument panel (for about 4-5 seconds)

Wireless Power Charging Unit - Circuit Diagram (Article 44715)

- Circuit Diagram



Component Location and Function (Wireless Power Charger) (Article 41609)

- Wireless Power Charger

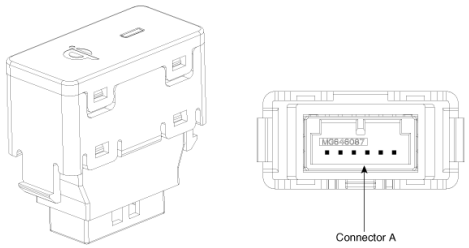
Wireless Power Charger

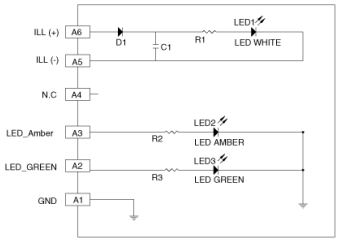
Image not available at the time of publish.

1. Wireless Power Charger (WPC)

Wireless Charging Lamp - Components and Positions (Article 44717)

- Components

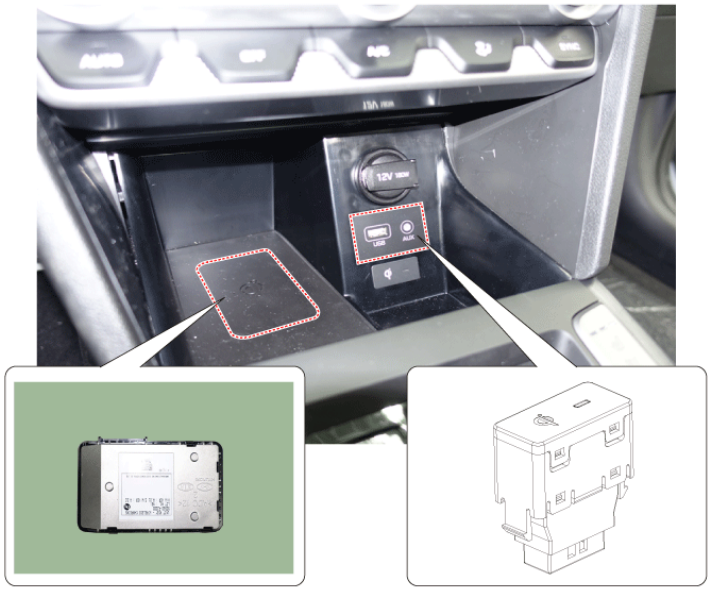




Connector A	No	Description	No	Description
	1	Ground	4	-
	2	Indicator (Green)	5	Illumination (-)
	3	Indicator (Amber)	6	Illumination (+)

Wireless Power Charger System - Components and Positions (Article 44712)

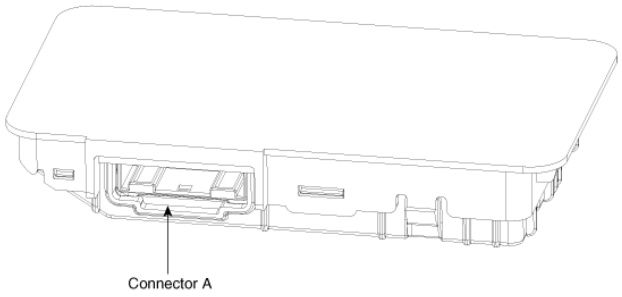
- Components



1. Wireless power charging unit 2. Wireless power charging lamp

Wireless Power Charging Unit - Components and Positions (Article 44714)

- Components

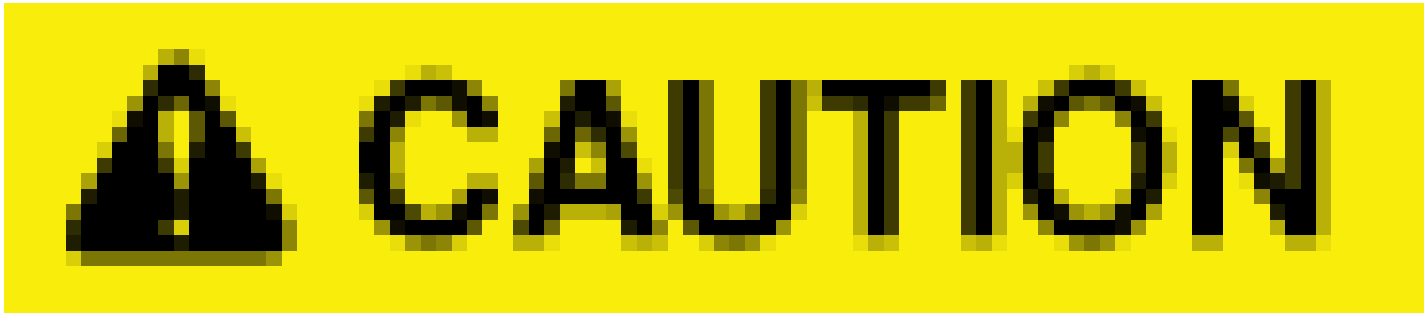


Connector A	No	Description	No	Description
	1	B-CAN HIGH	7	LF ON Input
	2	B-CAN LOW	8	-
	3	-	9	LED GND
	4	LED (Amber_	10	-
	5	LED (Green)	11	ACC
	6	GND	12	Battery

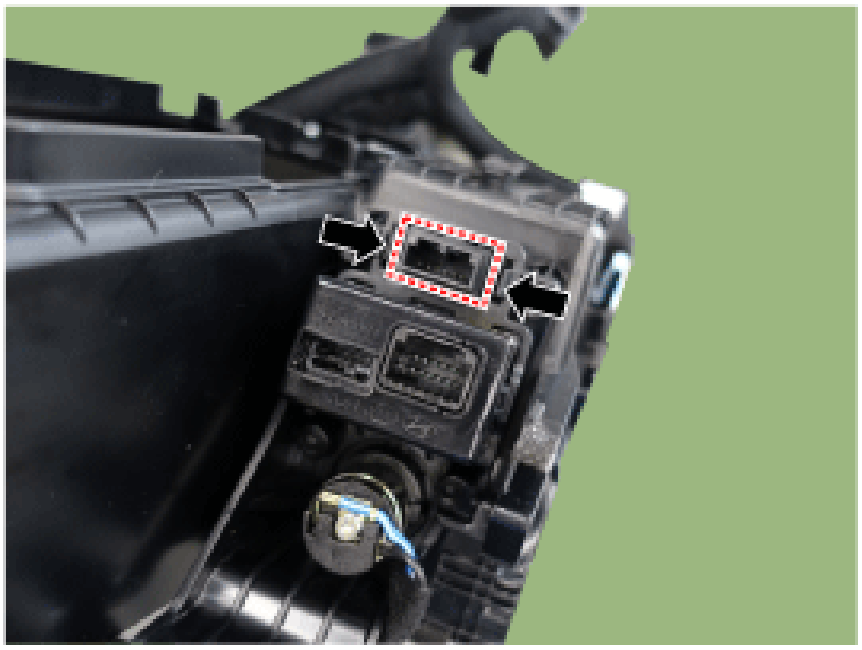
Wireless Charging Lamp - Repair Procedures (Article 44718)

- Removal

Handling wireless charging system parts by wet hands may cause electric shock.



- Disconnect the negative (-) battery terminal.
- Remove the floor console upper cover assembly. (Refer to Body - "Floor Console Assembly")
- Remove the wireless charging lamp after disconnecting the lamp connector.



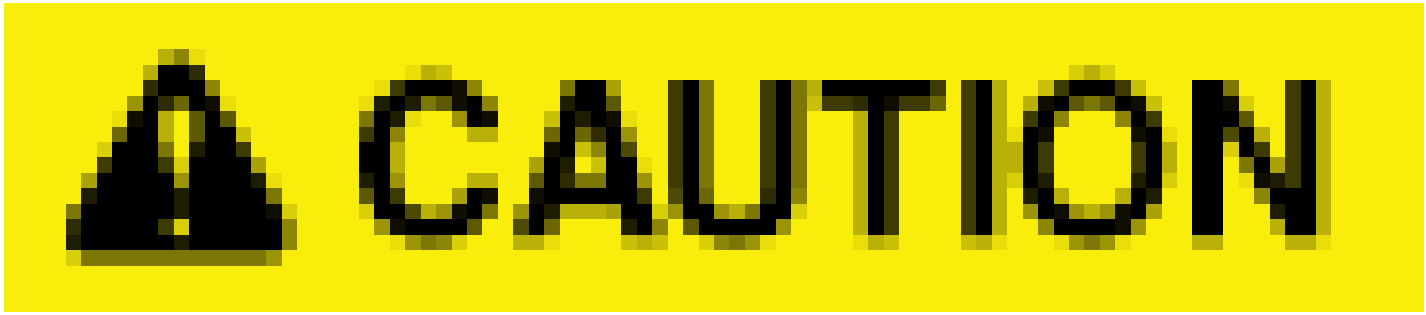
- Installation

- Install the wireless charging lamp.
- Connect the wireless charging lamp connector.
- Install the floor console upper cover assembly.
- Connect the negative (-) battery terminal.

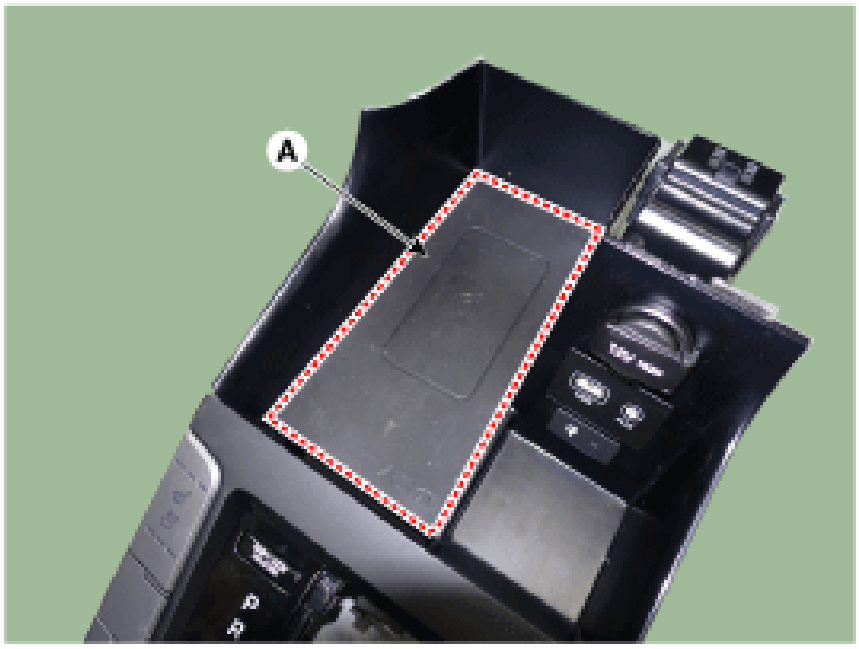
Wireless Power Charging Unit - Repair Procedures (Article 44716)

- Removal

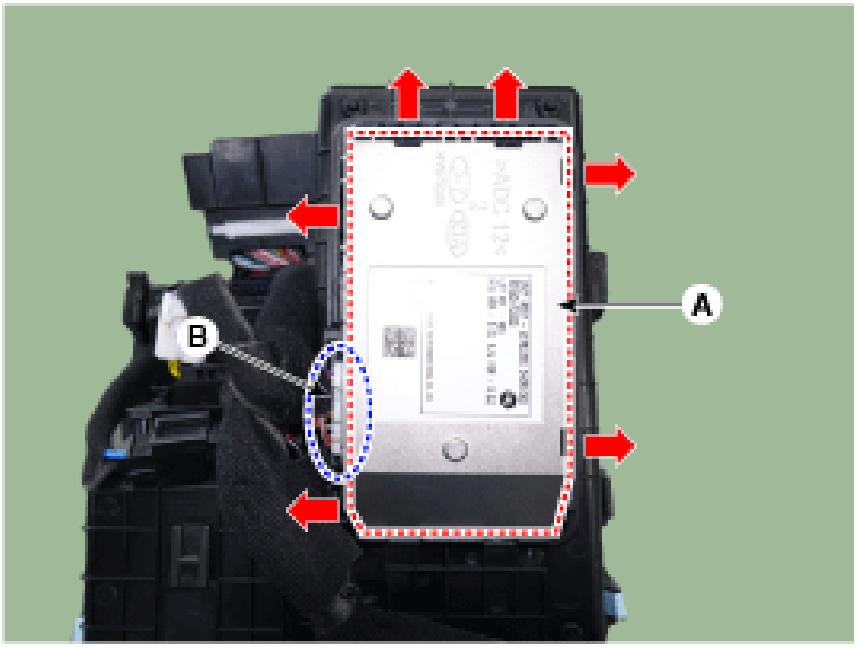
Handling wireless charging system parts by wet hands may cause electric shock.



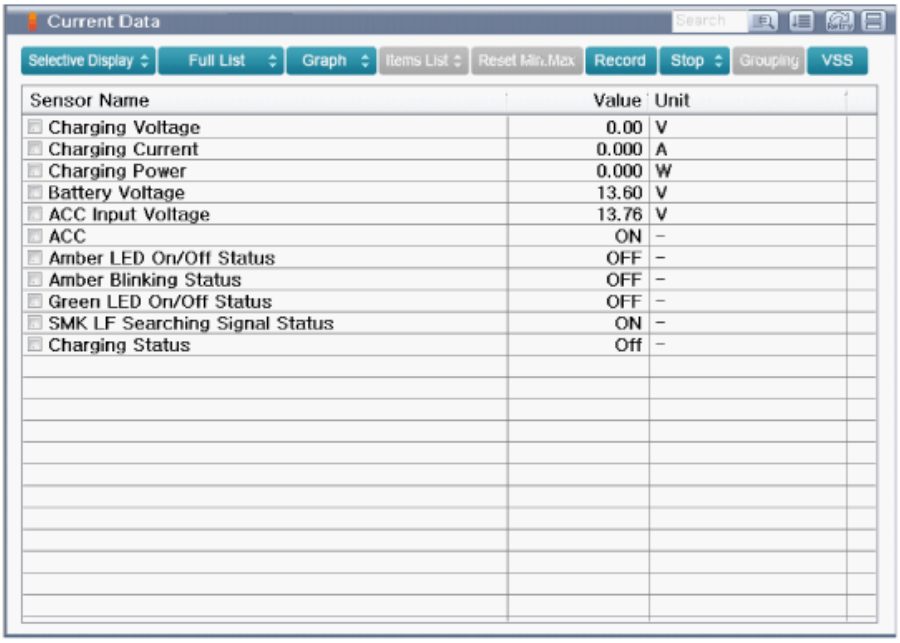
- Disconnect the negative (-) battery terminal.
- Remove the floor console upper cover assembly. (Refer to Body - "Floor Console Upper Cover")
- Disconnect the rubber pad (A).



- Remove the wireless power charger unit (A) after mounting screws and disconnecting the connector (B).

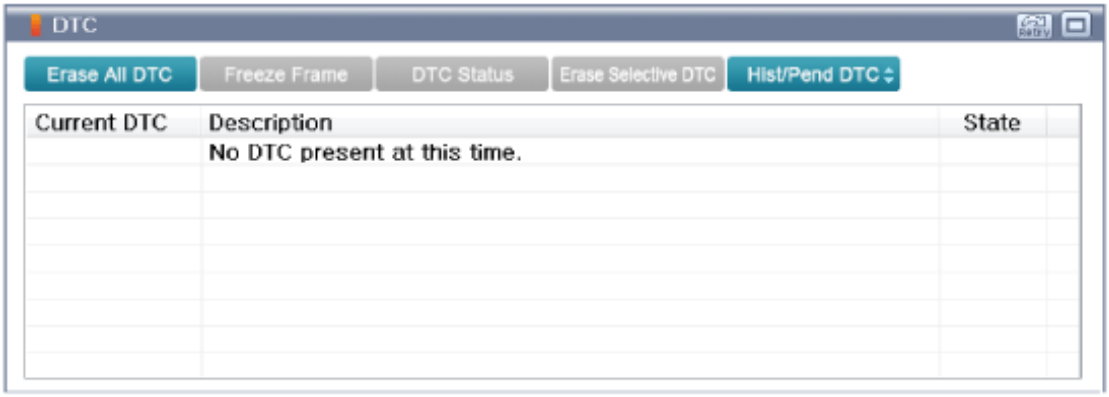


- Installation
- Install the wireless power charging unit.
- Connect the wireless power charging unit connectors.
- Install the floor console upper cover.
- Connect the negative (-) battery terminal.
- [Diagnosis With GDS]
- The body electrical system can be more quickly diagnosed for troubles by using the vehicle diagnostic system (KDS/GDS). KDS/GDS provides the following information. Self diagnosis : Inspects and displays diagnostic trouble code (DTC) Sensor data : Checks the system input/output value status Forced operation : Checks the system operating status Additional function : Controls system options, zero point adjustment and other functions
- Self diagnosis : Inspects and displays diagnostic trouble code (DTC)
- Sensor data : Checks the system input/output value status
- Forced operation : Checks the system operating status
- Additional function : Controls system options, zero point adjustment and other functions
- To diagnose the vehicle by using the diagnostic equipment, select "vehicle model" and "wireless power charger system" to be inspected.
- To inquire the current status of input/output values, select the "Sensor Data" menu The input/output values of the sensors corresponding to the selected module can be checked.



- To perform forced operation of the selected module input, select "Actuation Test".

- To inquire the cause of trouble for each module by self diagnosis, select 'Diagnostic Trouble Code'.



Wireless Power Charger System - Specification (Article 44711)

- Specifications

Item Specification
Rated voltage DC 12V
Operating voltage DC 9.0 - 16.0V
Operating temperature -86 to 167°F (-30 to 75°C)
Dark current MAX 1mA
Output power 5 W
Output frequency 110 ± 5 kHz

All New Technical Service Bulletins (itype_432)

Tsbs
- AVN PINHOLE RESET FOR BLUELINK SERVICES (SERVICE CAMPAIGN 9C1) (25-01-024H-1, 2025/05/12)
- REAR-VIEW MONITOR INSPECTION GUIDE (25-BE-024H, 2025/12/16)
- ANTI-THEFT IGNITION CYLINDER PROTECTOR & DECAL INSTALLATION (CUSTOMER SATISFACTION CAMPAIGN P33) (25-01-089H, 2025/12/16)
- IBU/BCM ANTI-THEFT SOFTWARE UPGRADE AND DECAL APPLICATION (SERVICE CAMPAIGN 993) (24-01-009H-1, 2024/05/09)
- SERVICE GUIDE FOR USB MULTI-TERMINAL DIAGNOSIS (24-BE-006H, 2024/06/13)

All Technical Service Bulletins (itype_100)

Tsbs
- AVN PINHOLE RESET FOR BLUELINK SERVICES (SERVICE CAMPAIGN 9C1) (25-01-024H-1, 2025/05/12)
- Blind-Spot Collision Warning (BCW) Parts Information (21-BE-011H, 2021/08/16)
- IAU/IBU/BLE LEARNING AFTER PARTS REPLACEMENT (22-BE-004H, 2022/07/08)
- BLIND-SPOT COLLISION WARNING (BCW/BSD) MODULE TROUBLESHOOTING INFORMATION (22-BE-003H, 2022/07/08)
- ANTI-THEFT IGNITION CYLINDER PROTECTOR & DECAL INSTALLATION (CUSTOMER SATISFACTION CAMPAIGN P33) (25-01-089H, 2025/12/16)
- BLUELINK, MULTIMEDIA AND NAVIGATION UPDATE FOR 3G SUNSET (22-GI-008H, 2022/12/14)
- IBU/BCM ANTI-THEFT SOFTWARE UPGRADE AND DECAL APPLICATION (SERVICE CAMPAIGN 993) (24-01-009H-1, 2024/05/09)
- SERVICE GUIDE FOR USB MULTI-TERMINAL DIAGNOSIS (24-BE-006H, 2024/06/13)
- OEM GENUINE HYUNDAI REMOTE START MODULE SOFTWARE UPDATE (23-BE-010H, 2023/08/17)
- HOMELINK INFORMATION (19-BE-013H, 2019/09/11)
- PARKING ASSIST SYSTEM (PAS) DIAGNOSTIC GUIDE (19-BE-005H, 2019/03/15)
- BLIND-SPOT RADAR REPLACEMENT, AND MOUNTING ANGLE VALIDATION (19-BE-016H, 2019/10/14)
- BLIND SPOT DETECTION (BSD) OR BLIND-SPOT COLLISION WARNING (BCW) (19-BE-011H-1, 2019/11/04)
- REAR-VIEW MONITOR INSPECTION GUIDE (25-BE-024H, 2025/12/16)
- BLIND SPOT DETECTION (BSD) OR BLIND-SPOT COLLISION WARNING (BCW) (19-BE-011H, 2019/05/20)
- MAPNSOFT WEBSITE MAP UPDATE OVERVIEW AND TROUBLESHOOTING (20-BE-010H, 2020/09/15)
- KEY FOB CODE SAVING/PROGRAMMING INFORMATION (19-BE-006H, 2019/03/25)
- HYUNDAI OVER-THE-AIR (OTA) SOFTWARE UPDATE INTRODUCTION AND CUSTOMER COMMUNICATION INFORMATION (23-GI-012H, 2023/12/19)
- USB MULTI-BOX DIAGNOSTIC GUIDELINES (20-BE-001H, 2020/01/15)
- BACKUP AND/OR AROUND VIEW CAMERA CARE AND CLEANING (20-BE-012H, 2020/12/01)
- FRONT VIEW CAMERA REPLACEMENT (21-BE-006H, 2021/03/15)
- BLIND-SPOT COLLISION WARNING (BCW) MODULE REPLACEMENT INFORMATION (19-BE-008H, 2019/05/01)

Software Update Bulletins (itype_434)

Tsbs
- MAPNSOFT WEBSITE MAP UPDATE OVERVIEW AND TROUBLESHOOTING (20-BE-010H, 2020/09/15)
- HYUNDAI OVER-THE-AIR (OTA) SOFTWARE UPDATE INTRODUCTION AND CUSTOMER COMMUNICATION INFORMATION (23-GI-012H, 2023/12/19)

Wireless Power Charger System - Troubleshooting (Article 44719)

- Troubleshooting
Wireless Power Charger System Troubleshooting
Trouble status Inspection item Inspection
Not charged Check the mobile phone status R-1
Amber LED blinks Overcurrent R-2
Overheating R-2
Foreign matter R-2
R-1. Check the wireless power charger system operation
- If the placement of a mobile phone is not detected If the internal temperature of the mobile phone battery is high, the mobile phone itself turns "OFF" the power. The temperature at which the power is automatically turned "OFF" differs by mobile phone model. If the mobile phone was placed outside the charging range If the mobile phone was placed by its LCD side on the charging pad surface (if the phone was placed upside down) If the mobile phone was turned 180■
- If the internal temperature of the mobile phone battery is high, the mobile phone itself turns "OFF" the

power. The temperature at which the power is automatically turned "OFF" differs by mobile phone model.
The temperature at which the power is automatically turned "OFF" differs by mobile phone model.

- If the mobile phone was placed outside the charging range
- If the mobile phone was placed by its LCD side on the charging pad surface (if the phone was placed upside down)
- If the mobile phone was turned 180■
- Check that the amber LED of the wireless charging lamp turns on when the mobile phone is in normal condition and is correctly placed.

R-2. Check for overcurrent, overheating and foreign matter
- Overcurrent : Charging stops in overcurrent of over 4.5 A The overcurrent error status will be reset when the current falls under 4.5 A or when ACC is turned off and on.
- The overcurrent error status will be reset when the current falls under 4.5 A or when ACC is turned off and on.
- Overheating : The unit will be automatically turned "OFF" when the internal temperature of the wireless charging unit is over 158°F (70■C). The error status will be reset when the internal temperature of the wirelss charging unit falls under 149°F (65°C).
- The error status will be reset when the internal temperature of the wirelss charging unit falls under 149°F (65°C).
- Foreign matter : When metallic objects such as coins, clips and precious metals are detected, charging will be stopped to prevent overheating. Error status will be reset when foreign matter is removed. The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. Turning ACC OFF/ON resets the error status and returns to normal operation.
- Error status will be reset when foreign matter is removed.

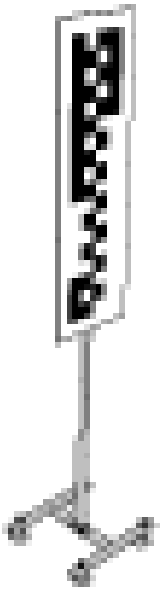
The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds). The process is repeated for every 60 seconds. Turning ACC OFF/ON resets the error status and returns to normal operation.
- The amber LED of the charging display lamp blinks 10 times for 10 seconds, and then it is turned off for 50 seconds (total 60 seconds).
- The process is repeated for every 60 seconds.
- Turning ACC OFF/ON resets the error status and returns to normal operation.

Body Electrical System - Special Service Tools (Article 44632)

- Special Service Tools

Tool (Number and Name) Illustration Application
RKE Battery Checker (09954-2P100) Measuring the RKE battery voltage.

Correction jig for LDWS or LKAS (09890-3V100) Correction of LDWS (Lane Departure Warning System) or LKAS (Lane keeping assist system)

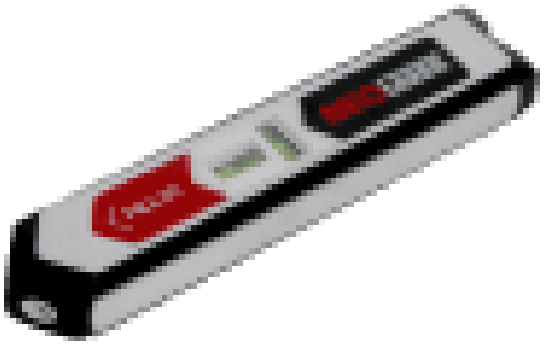


Vertical Measuring Device (09964-C1200) Correction front view camera

BSD Unit Correction Tool Set (09958-3T500) Used to correct the BSD unit.

Vertical Plumb (09958-3T010) Used to correct the BSD unit.Used to create a center line. (Use with 09958-3T020, 09958-3T030, 09958-3T040, 09958-3T060)

Spirit Level (09958-3T070) Used to correct the BSD unit.Used to measure the horizontal angle. (Use with 09958-3T080, 09958-3T090, 09958-3T120)



BSD Unit Fixing Adaptor (09958-3T080) Used to correct the BSD unit.Used to measure the horizontal angle. (Use with 09958-3T070, 09958-3T090, 09958-3T120)

Digital Protractor (09958-3T090) Used to correct the BSD unit.Used to measure the horizontal angle. (Use with 09958-3T070, 09958-3T080, 09958-3T120)

Digital Inclinometer (09958-3T100) Used to correct the BSD unit.Used to measure the vertical angle.

Case & Manual & String (09958-3T120) Used to correct the BSD unit to measure the horizontal angle.

Erratic Operation (itype_132)

Tsbs
- BLIND SPOT DETECTION (BSD) OR BLIND-SPOT COLLISION WARNING (BCW) (19-BE-011H, 2019/05/20)

Poor performance (itype_162)

Tsbs
- HOMELINK INFORMATION (19-BE-013H, 2019/09/11)
- BLIND-SPOT RADAR REPLACEMENT, AND MOUNTING ANGLE VALIDATION (19-BE-016H, 2019/10/14)
- BLIND SPOT DETECTION (BSD) OR BLIND-SPOT COLLISION WARNING (BCW) (19-BE-011H, 2019/05/20)

OEM Policies and Procedures (itype_120)

Tsbs
- IAU/IBU/BLE LEARNING AFTER PARTS REPLACEMENT (22-BE-004H, 2022/07/08)
- BLIND SPOT DETECTION (BSD) OR BLIND-SPOT COLLISION WARNING (BCW) (19-BE-011H-1, 2019/11/04)
- KEY FOB CODE SAVING/PROGRAMMING INFORMATION (19-BE-006H, 2019/03/25)
- USB MULTI-BOX DIAGNOSTIC GUIDELINES (20-BE-001H, 2020/01/15)

- BACKUP AND/OR AROUND VIEW CAMERA CARE AND CLEANING (20-BE-012H, 2020/12/01)
- FRONT VIEW CAMERA REPLACEMENT (21-BE-006H, 2021/03/15)
- BLIND-SPOT COLLISION WARNING (BCW) MODULE REPLACEMENT INFORMATION (19-BE-008H, 2019/05/01)

Service Campaigns (itype_108)

Tsbs
- AVN PINHOLE RESET FOR BLUELINK SERVICES (SERVICE CAMPAIGN 9C1) (25-01-024H-1, 2025/05/12)