



Note, one or more warnings are present in this procedure



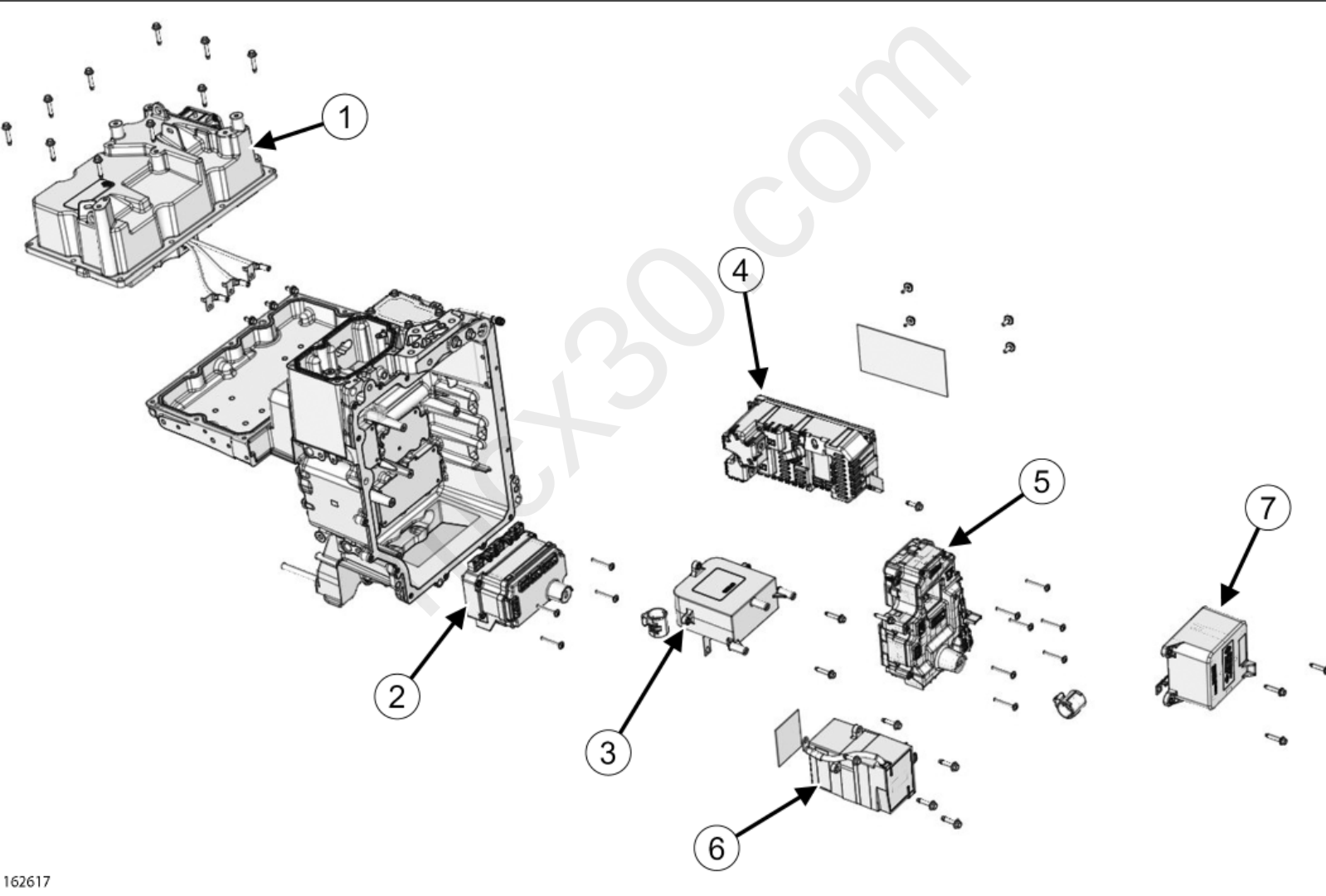
Special tooling required	
Set of trim removal levers.	Car. 1363
Charger housing support	Ms. 2011
Thermal grease application tool	Ms. 2033
Grille and spatula.	Ms. 2034

Locations and specifications (tightening torques, parts always to be replaced, etc.)(see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view) .



CAUTION

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair :
 - (see Electric vehicle power electronics : Precautions for the repair) ,
 - Vehicle: Precautions for the repair .



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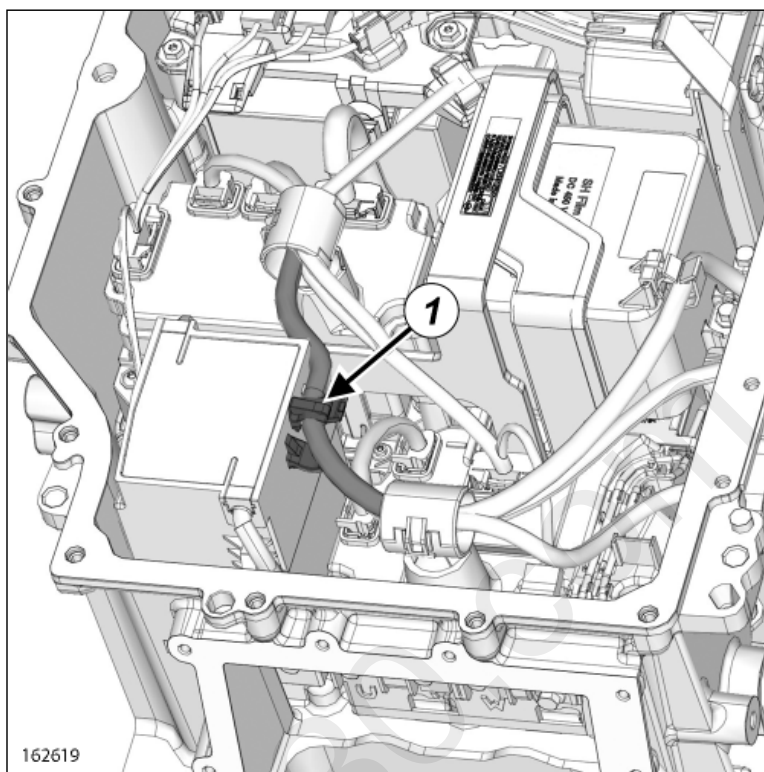
- (1) the electronic filter
- (2) the rectifier module
- (3) the capacitance module
- (4) the direct current converter module
- (5) the inverter module
- (6) the inductance module

REMOVAL

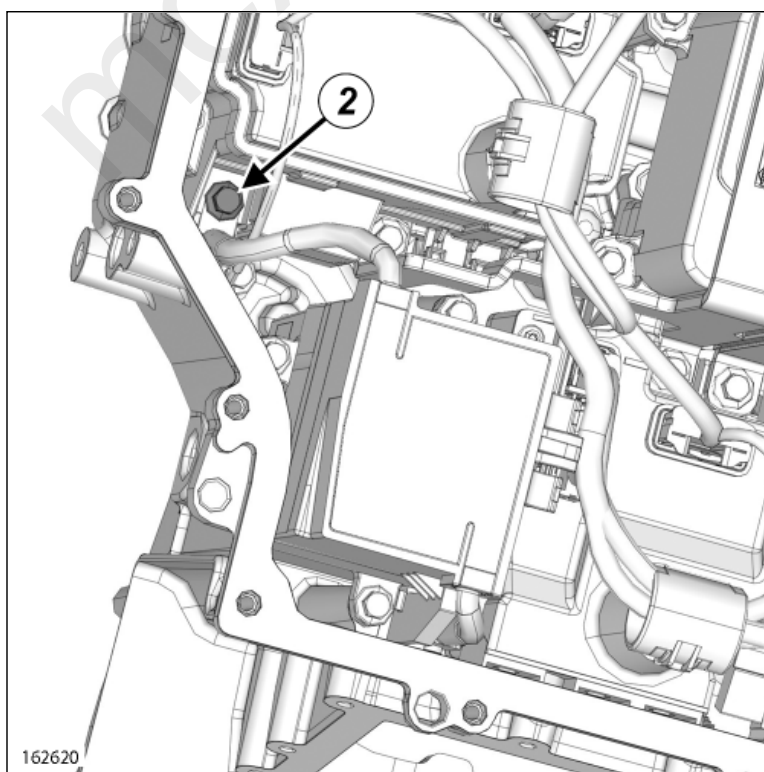
1. REMOVAL PREPARATION OPERATION

- ❑ Remove the electric vehicle charger and converter(see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting) .
- ❑ Remove the housing cover of electric vehicle charger and converter(see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting) .

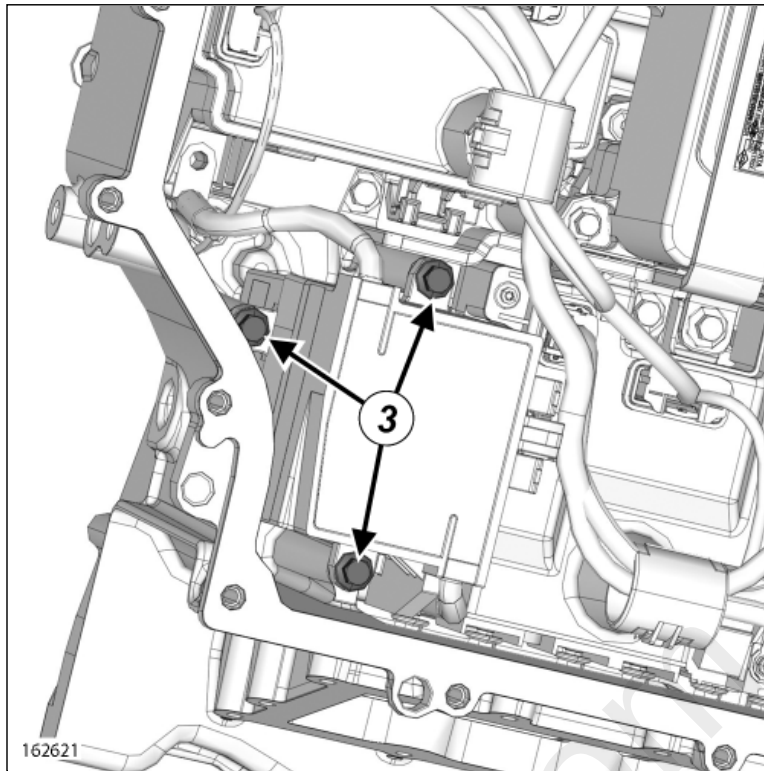
2. REMOVAL OPERATION



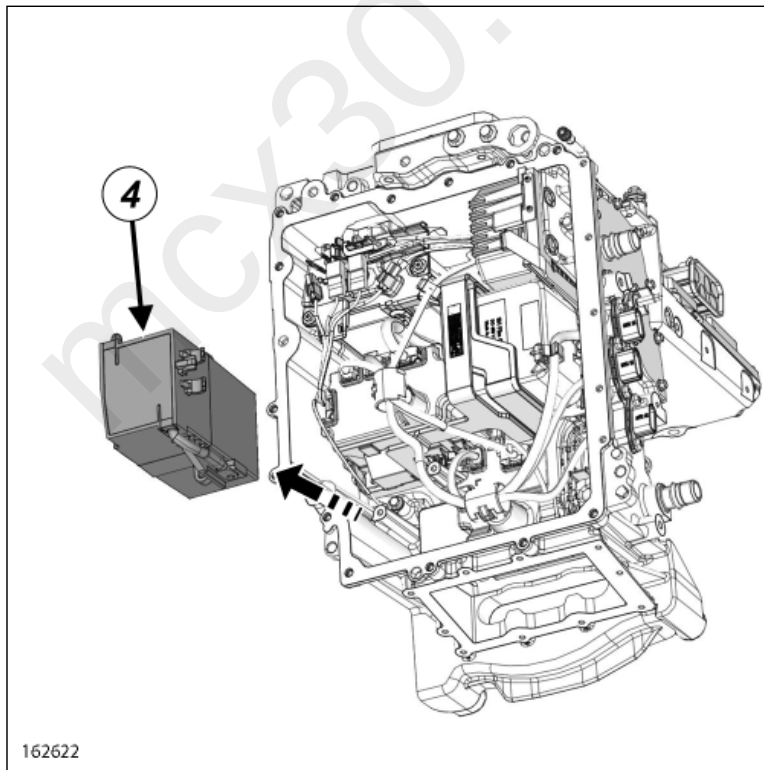
- ❑ Free the wiring of the charging plug signal connector socket from the cable retaining clip(1) of the inductance module.



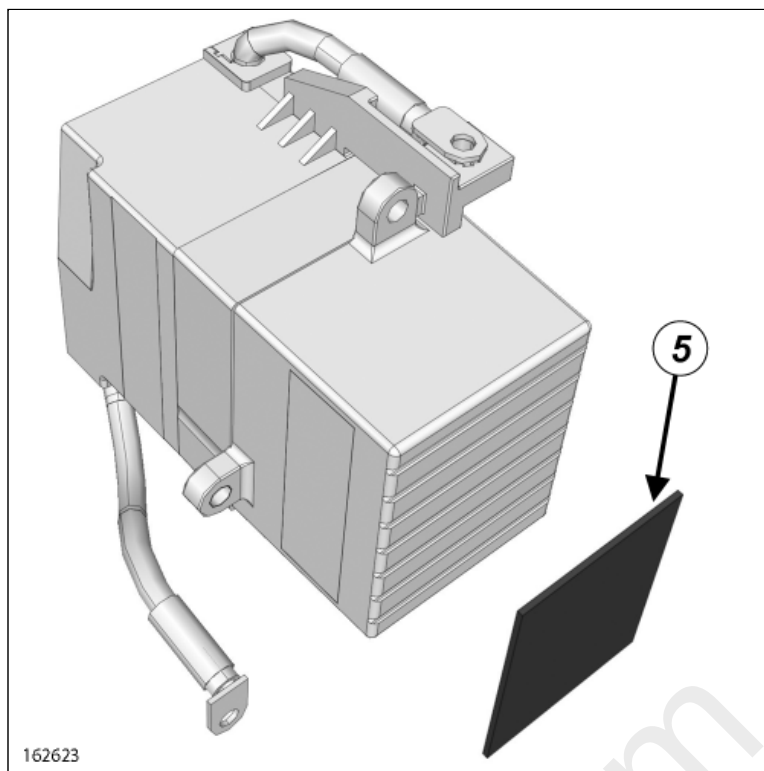
■ Remove the connecting screw(2) of the inductance module from the rectifier module.



■ Remove the three mounting screws(3) of the inductance module.



■ Remove the inductance module(4) .



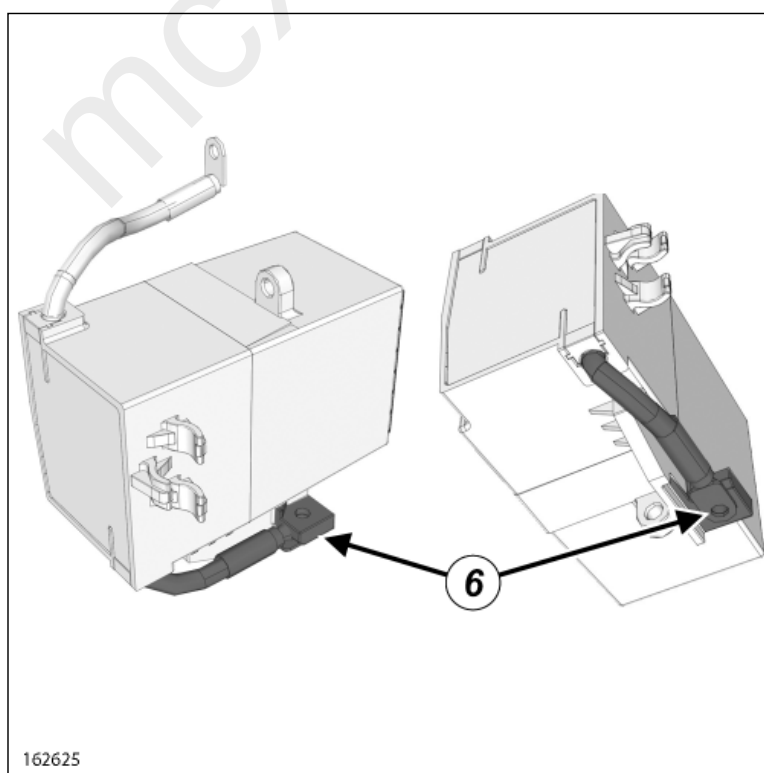
- Remove the thermal exchange sheet(s) under the inductance module.

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean using brake cleaner and a lint-free cloth [Vehicle: Parts and consumables for the repair](#) :
 - the bearing surface of the lower housing of electric vehicle charger and converter,
 - the lower bearing surface of the inductance module.

- Parts always to be replaced : the thermal exchange sheet.





Note:

WARNING : If there are a sealant failure.(6) must be changed the module, there are a risk of electric arc.

2. REFITTING OPERATION

- Put the new thermal exchange sheet by centering on the inductance module.
- Refit ([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) :
 - the inductance module,
 - the three mounting screws of the inductance module.
- Torque tighten the three mounting screws of the inductance module([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .
- Mark always the screws using a paint marker of a color different from the original.
- Refit the connecting screw of the inductance module.
- Torque tighten the connecting screw of the inductance module([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .
- Mark always the screw using a paint marker of a color different from the original.
- Put the wiring of the charging plug signal connector socket in the cable retaining clip of the inductance module.

3. FINAL OPERATION

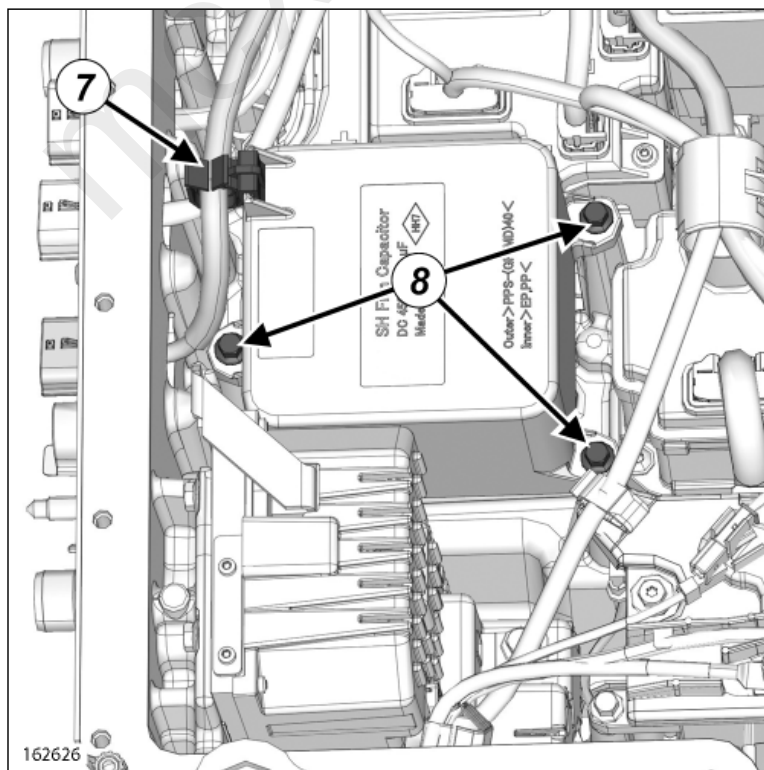
- Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

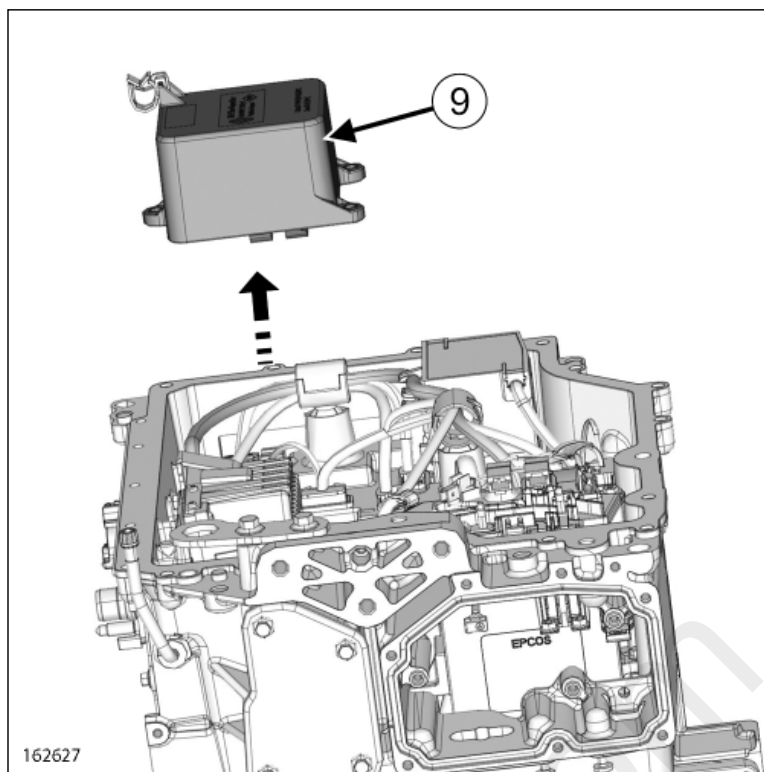
- Remove the electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting](#)) .
- Remove the housing cover of electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting](#)) .
- Remove the upper bus bars([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

2. REMOVAL OPERATION



- Free the wiring of the charging plug signal connector socket from the cable retaining clip(7) of the input engine capacitance module.

- Remove the three mounting screws(8) of the input engine capacitance module.



- Remove the input engine capacitance module(9) .

REFITTING

1. REFITTING OPERATION

- Refit :
 - the input engine capacitance module,
 - the three mounting screws of the input engine capacitance module.

- Torque tighten the three mounting screws of the input engine capacitance module(see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view) .

- Mark always the screws using a paint marker of a color different from the original.

2. FINAL OPERATION

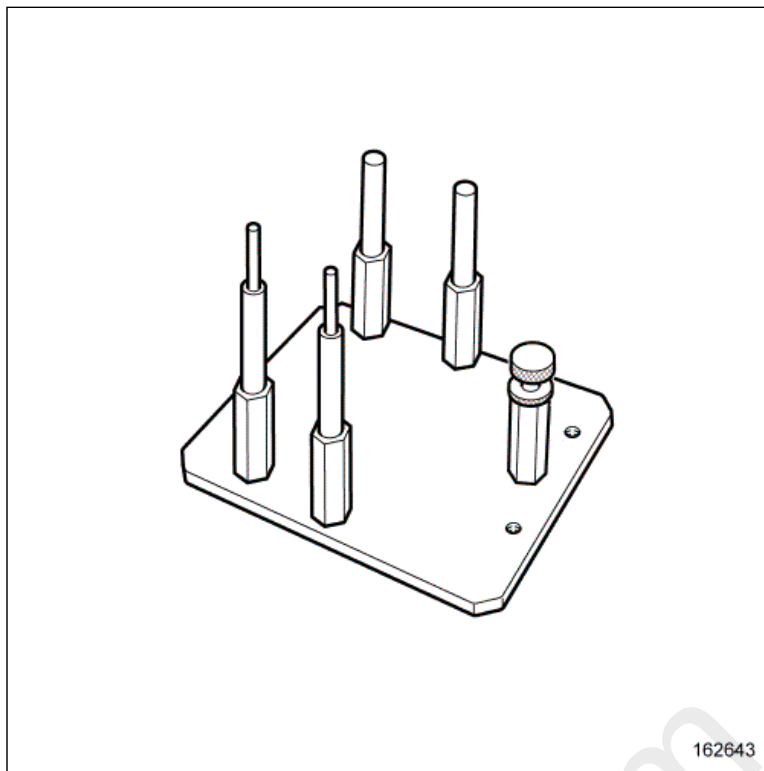
- Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

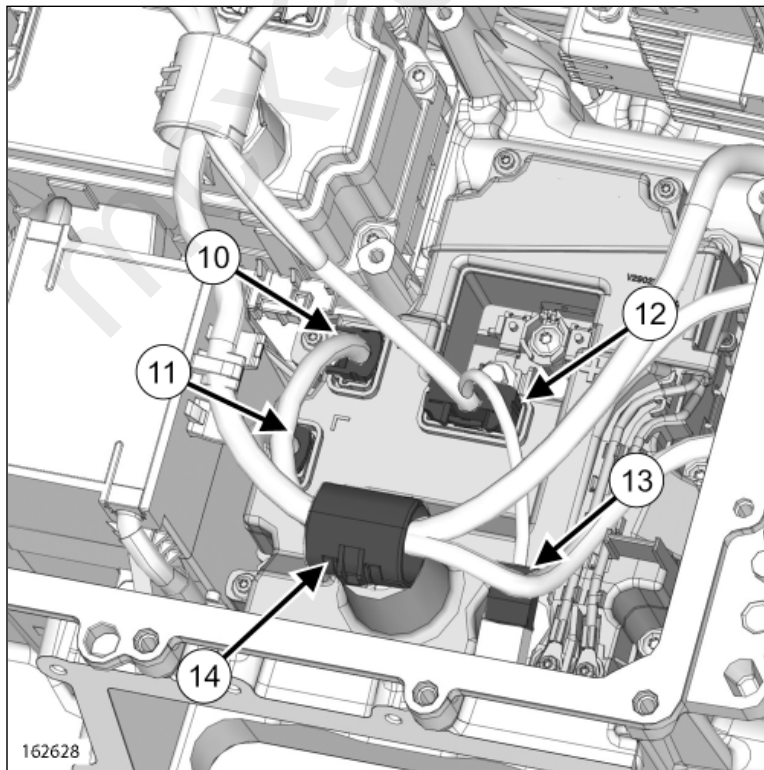
- Remove the electric vehicle charger and converter(see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting) .
- Remove the housing cover of electric vehicle charger and converter(see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting) .
- Remove the upper bus bars(see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting) .
- Remove the input engine capacitance module(see 17E, Power electronics, Electric vehicle charger and converter electronic power modules : Removal - Refitting) .

THERMAL GREASE APPLICATION TOOL MS. 2033



- Assemble the thermal grease application tool Thermal grease application tool (Ms. 2033).
- Put the thermal grease application tool Thermal grease application tool (Ms. 2033) on the antistatic mat Thermal grease application tool (Ms. 2033).
- put on the antistatic wrist strap.

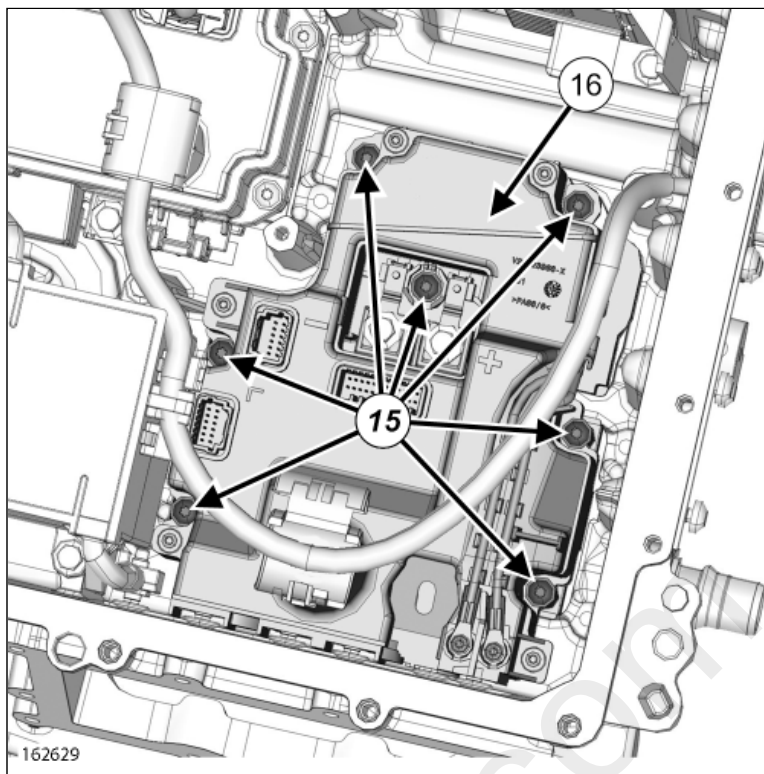
2. REMOVAL OPERATION



- Disconnect the electric vehicle charger and converter signal connector (10) from the inverter module.
- Disconnect the engine signal wiring connector (11) from the inverter module.
- Disconnect the connector (12) between the direct current converter module and the rectifier module and the inverter module.

■ Unclip the low internal wiring connector(13) from the inverter module.

■ Open the cable retaining clip(14) of the inverter module.



■ Remove :

- the seven mounting screws(15) of the inverter module,
- the inverter module(16) by carefully lifting by using the toolSet of trim removal levers.(Car. 1363) .

■ Put the inverter module upside down on the thermal grease application toolThermal grease application tool(Ms. 2033) .

REFITTING

1. REFITTING PREPARATION OPERATION

■ Clean using brake cleanerand a lint-free clothVehicle: Parts and consumables for the repair :

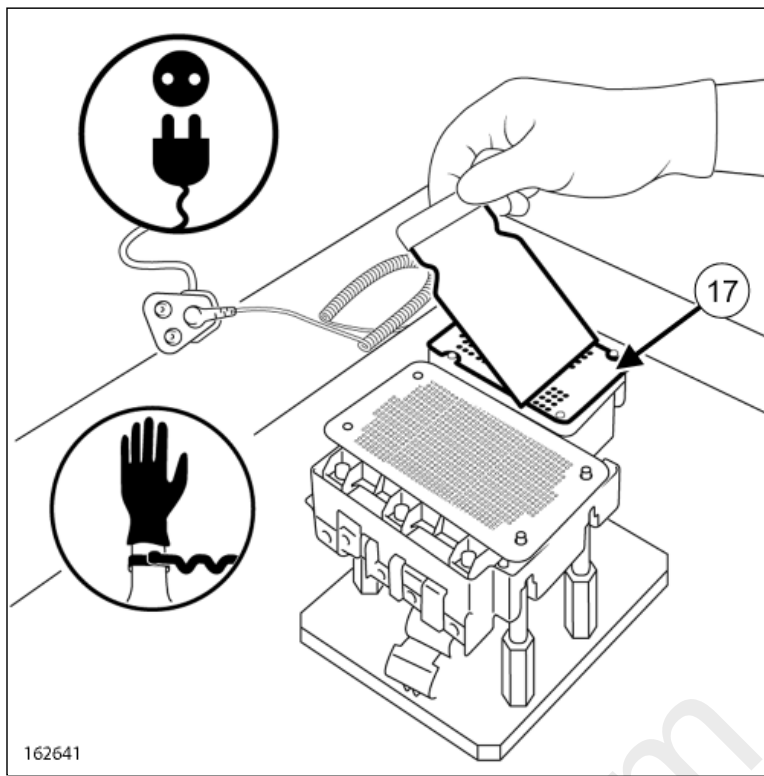
- the remaining thermal grease on the bearing surface of the housing,
- the remaining thermal grease on the bearing surface of the inverter module.



Note:

Check the asence of liquid residue on the inverter module location.

2. REFITTING OPERATION



□ Lay the application grille(17) of the toolThermal grease application tool(Ms. 2033) on the bearing face of the inverter module.

□ Apply a thin layer of thermal grease KP98Vehicle: [Parts and consumables for the repair](#) on the grille using the spatula of the toolThermal grease application tool(Ms. 2033) .



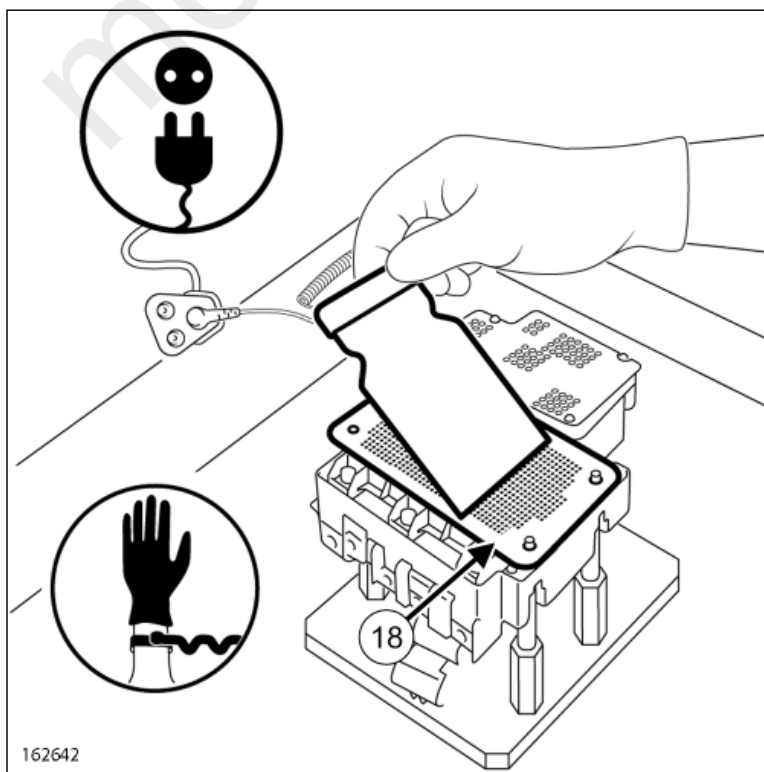
Note:

Make sure to fill every hole of the grille with thermal grease for a correct application.



Note:

Not set the thermal grease of the outline of the module.



- Lay the application grille(18) of the toolGrille and spatula.(Ms. 2034) on the bearing face of the inverter module.
- Apply a thin layer of thermal grease KP98Vehicle: [Parts and consumables for the repair](#) on the grille using the spatula of the toolGrille and spatula.(Ms. 2034) .



Note:

Make sure to fill every hole of the grille with thermal grease for a correct application.



Note:

Not set the thermal grease of the outline of the module.

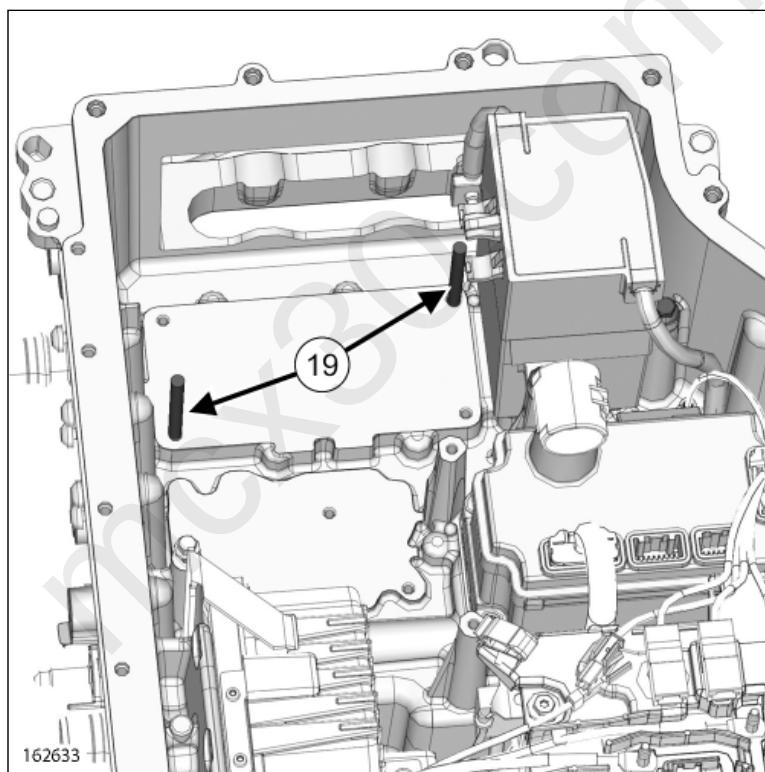
- Remove with precaution the grilles from the inverter module bearing face.



Note:

Check that the pattern of thermal grease on the bearing face of the inverter module matches the pattern of the application grille.

If the pattern of thermal grease doesn't match the pattern of the application grille: start again the cleaning then the application of thermal grease to avoid any future damage to the inverter module.



- Fit in the 2 guiding pins(19) crosswise on the lower housing.
- Remove the inverter module from the thermal grease application toolGrille and spatula.(Ms. 2034) .



Note:

Never touch the thermal grease applied on the inverter module.



Refit the inverter module on the lower housing using the 2 guiding pins.



Note:

Before refitting the inverter module, make sure that its mounting direction matches the image on the exploded view(see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Refit the five mounting screws of the inverter module(see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

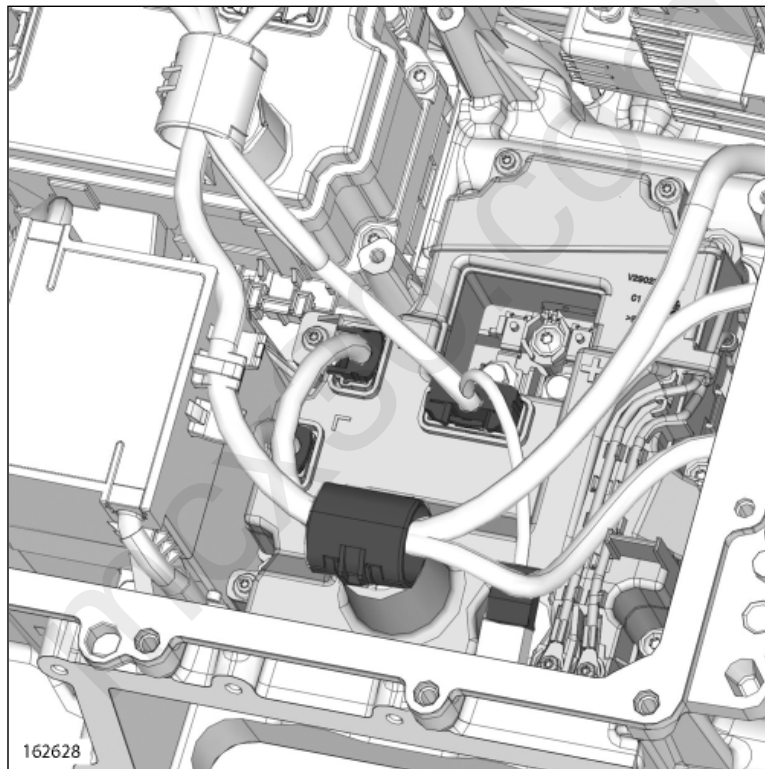
Tighten the 5 mounting screws of the inverter module(see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Remove the guiding pins.

Refit the two remaining mounting screw of the inverter module(see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Torque tighten the seven mounting screw of the inverter module(see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Mark always the screws using a paint marker of a color different from the original.



Connect the electric vehicle charger and converter signal connector on the inverter module.

Check the electrical connection with a push-pull test(see Electric vehicle power electronics : Precautions for the repair).

Connect the engine signal wiring connector on the inverter module.

Check the electrical connection with a push-pull test(see Electric vehicle power electronics : Precautions for the repair).

Connect the connector between the direct current converter module and the rectifier module and the inverter module.

Check the electrical connection with a push-pull test(see Electric vehicle power electronics : Precautions for the repair).

Clip the low internal wiring connector on the inverter module.

Close the cable retaining clip of the inverter module.

Remove on the antistatic wrist strap.

3. FINAL OPERATION

Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Remove the electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting](#)) .

Remove the housing cover of electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting](#)) .

Remove the upper bus bars([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

Remove the input engine capacitance module([see 17E, Power electronics, Electric vehicle charger and converter electronic power modules : Removal - Refitting](#)) .

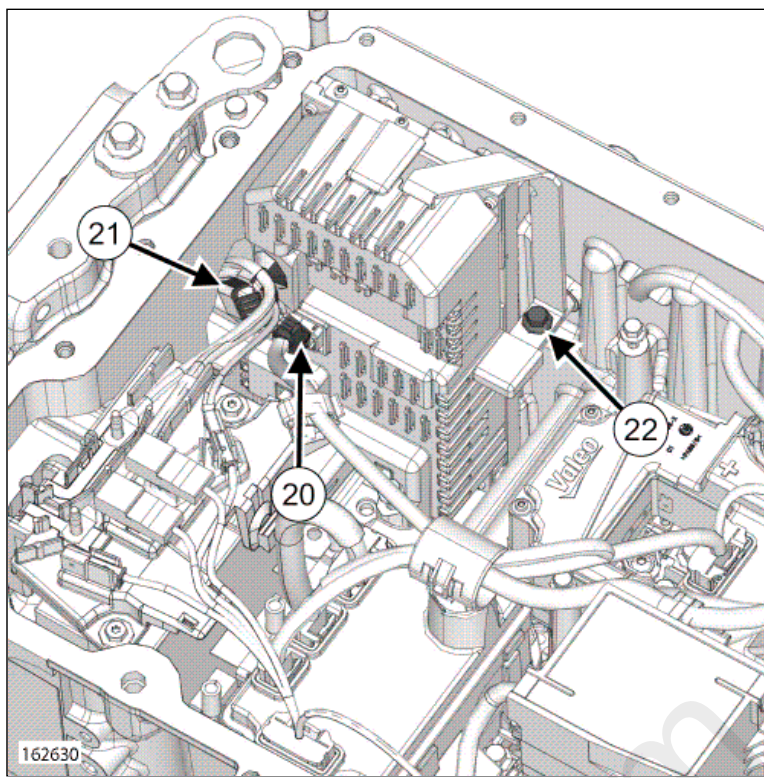
Remove the internal low voltage wiring([see 17E, Power electronics, Electric vehicle charger and converter internal wiring : Removal - Refitting](#)) .

Remove the fuse box([see 17E, Power electronics, Electric vehicle charger and converter fuse box : Removal - Refitting](#)) .

Remove the lower bus bars([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

put on the antistatic wrist strap.

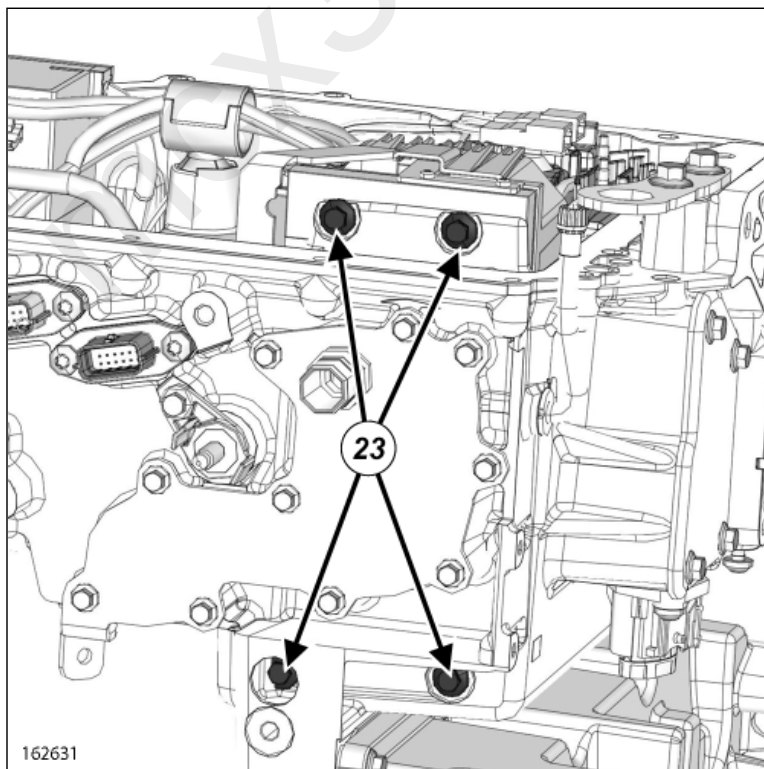
2. REMOVAL OPERATION



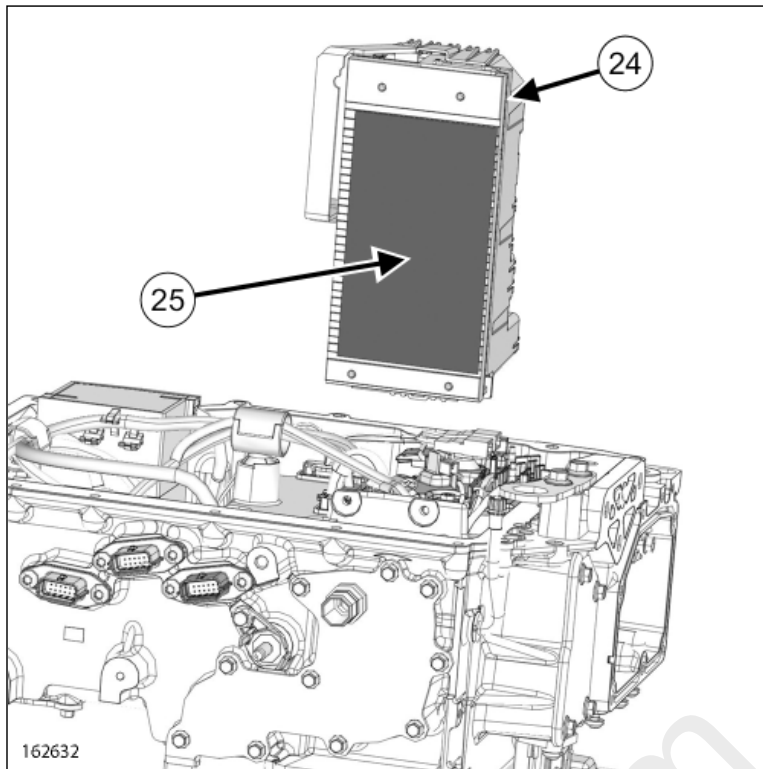
Disconnect the connector(20) of the wiring between the converter module and the rectifier module and the inverter module.

Free the wiring of the air conditioning connector socket from the direct current converter module(21) .

Remove the connection screw of the 12V positive terminal of electric vehicle charger and converter.



Remove the four mounting screws(23) of the direct current converter module.



Remove :

- the direct current converter module(24) ,
- the thermal exchange sheet of the direct current converter module(25) .

REFITTING

1. REFITTING PREPARATION OPERATION

Parts always to be replaced :

- the thermal exchange sheet,
- the mounting screws of the direct current converter module.

Clean using breake cleanerand a lint-free cloth [Vehicle: Parts and consumables for the repair](#) the sealing product of the bearing surface of the mounting screws of the direct current converter module.

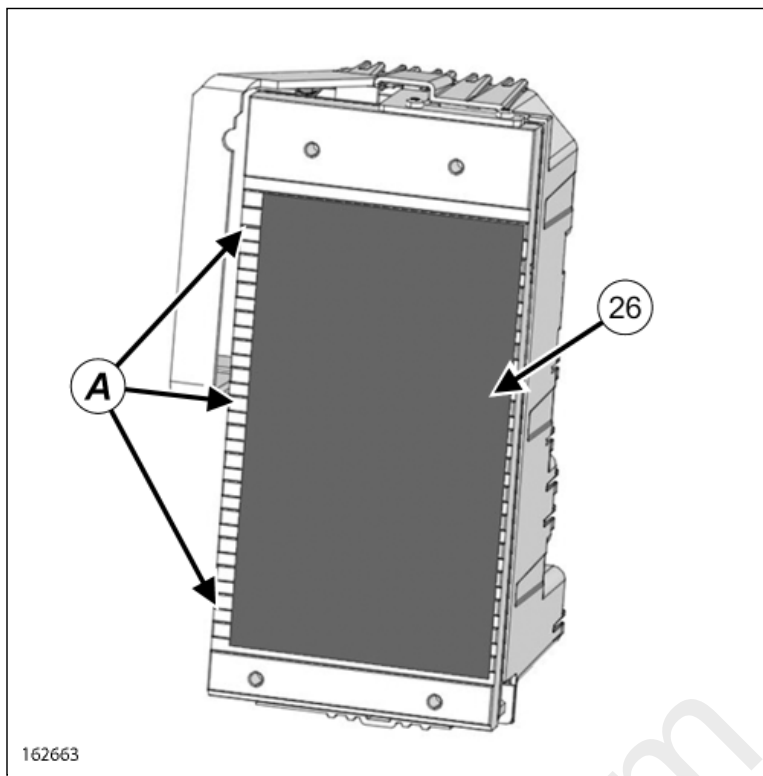
Note:



Check there are not residue on :

- the bearing surface of the lower housing of electric vehicle charger and converter,
- the lower bearing surface of the direct current converter module.

2. REFITTING OPERATION



Put the new thermal exchange sheet(26) by positioning correctly.

You must leave a space as shown(A) to optimize the contact surface with the housing.



Note:

the new thermal exchange sheet must be shifted slightly as the picture.

Refit ([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) :

- the direct current converter module,
- the four mounting screws of the direct current converter module.

Torque tighten the four mounting screws of the direct current converter module([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .

Mark always the screws using a paint marker of a color different from the original.

Refit the connection screw of the 12V positive terminal of electric vehicle charger and converter.

Torque tighten the connection screw of the 12V positive terminal of electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .

Mark always the screw using a paint marker of a color different from the original.

Connect the connector between the direct current converter module and the rectifier module and the inverter module.

Check the electrical connection with a push-pull test([see Electric vehicle power electronics : Precautions for the repair](#)) .

Put the wiring of the air conditioning connector socket on the clip of the direct current converter module.

Remove on the antistatic wrist strap.

3. FINAL OPERATION

Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Remove the electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting](#)) .

Remove the housing cover of electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting](#)) .

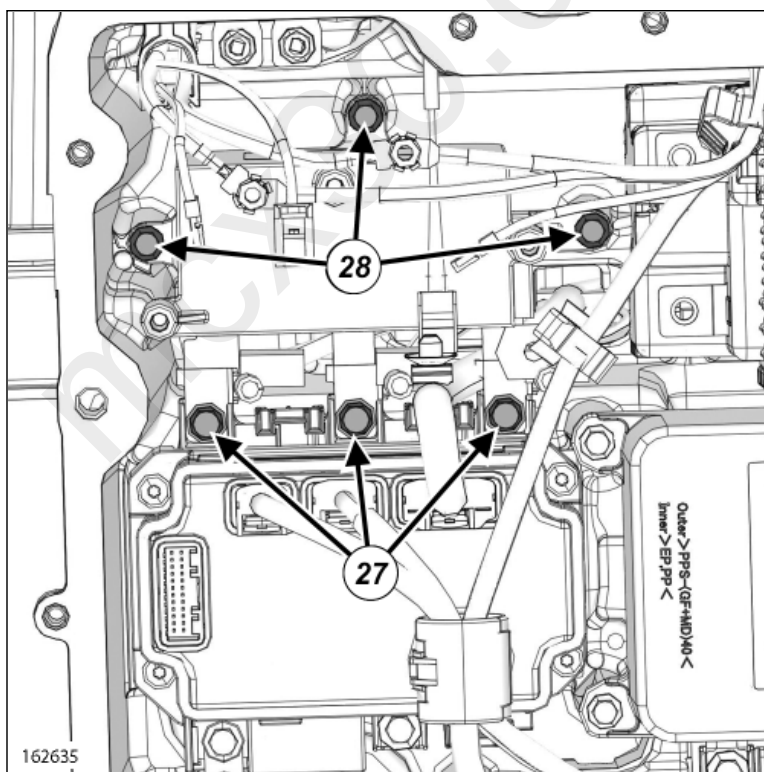
Remove the upper bus bars([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

Remove the internal low voltage wiring([see 17E, Power electronics, Electric vehicle charger and converter internal wiring : Removal - Refitting](#)) .

Remove the fuse box([see 17E, Power electronics, Electric vehicle charger and converter fuse box : Removal - Refitting](#)) .

Remove the lower bus bar([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

2. REMOVAL OPERATION



Remove :

the three connecting screws(27) from the three phases of the rectifier module,

the three mounting screws from the capacitance module(28) ,

the capacitance module([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .

1. REFITTING OPERATION



Note:

Before refitting a new capacitance module, remove if equipped the short-circuit wiring harness from the connecting brackets of the module.

Refit the capacitance module.



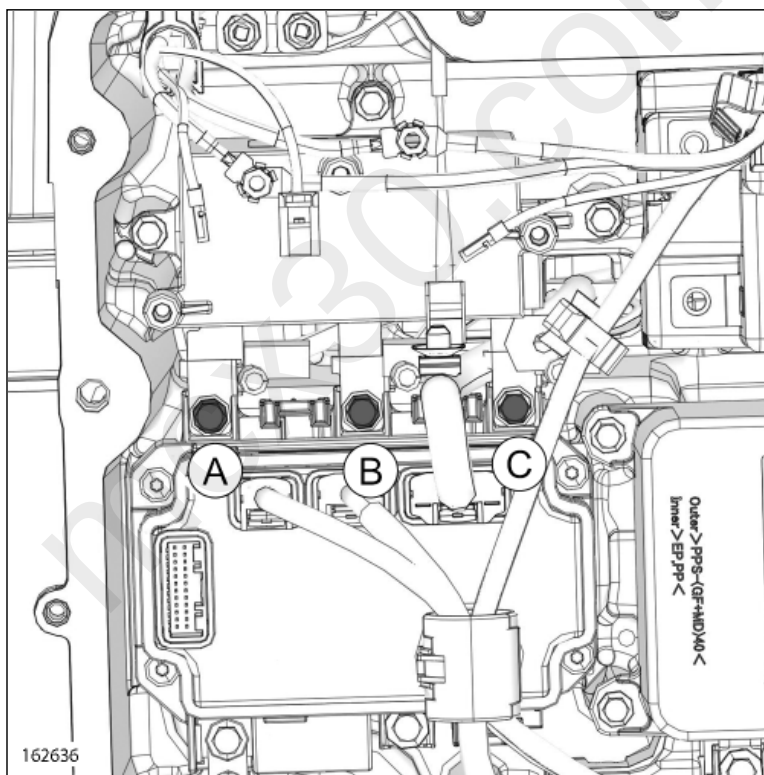
Note:

the electronic filter wiring must be repositioned between the phase 2 and the phase 3.

Refit the three mounting screws of the capacitance module.

Torque tighten the three mounting screws of the capacitance module ([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)).

Mark always the screws using a paint marker of a color different from the original.



Refit the three phases of the electronic filter wiring on the connecting brackets of the capacitance module. Respect the following :

(A) Phase 1 = red cable,

(B) Phase 2 = green cable,

(C) Phase 3 = black cable.

Refit the three connecting screws of the three phases.



Note:

To ensure a good electrical connection, the electric terminals of the electronic filter wiring must be aligned with the terminals of the capacitance module.

Torque tighten the three connecting screws of the three phases([see 17E, Power electronics, Electric vehicle charger and converter assembly : Exploded view](#)) .

Mark always the screws using a paint marker of a color different from the original.

2. FINAL OPERATION

Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Remove the electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter: Removal - Refitting](#)) .

Remove the housing cover of electric vehicle charger and converter([see 17E, Power electronics, Electric vehicle charger and converter housings : Removal - Refitting](#)) .

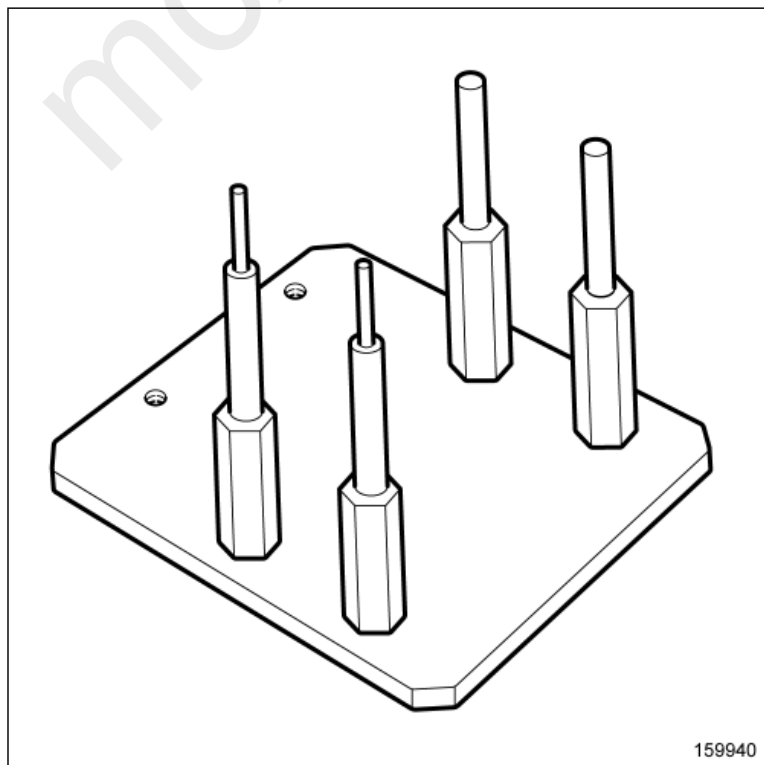
Remove the upper bus bars([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

Remove the internal low voltage wiring([see 17E, Power electronics, Electric vehicle charger and converter internal wiring : Removal - Refitting](#)) .

Remove the fuse box([see 17E, Power electronics, Electric vehicle charger and converter fuse box : Removal - Refitting](#)) .

Remove the lower bus bar([see 17E, Power electronics, Electric vehicle charger and converter high voltage bus bars : Removal - Refitting](#)) .

Remove the capacitance module([see 17E, Power electronics, Electric vehicle charger and converter electronic power modules : Removal - Refitting](#)) .

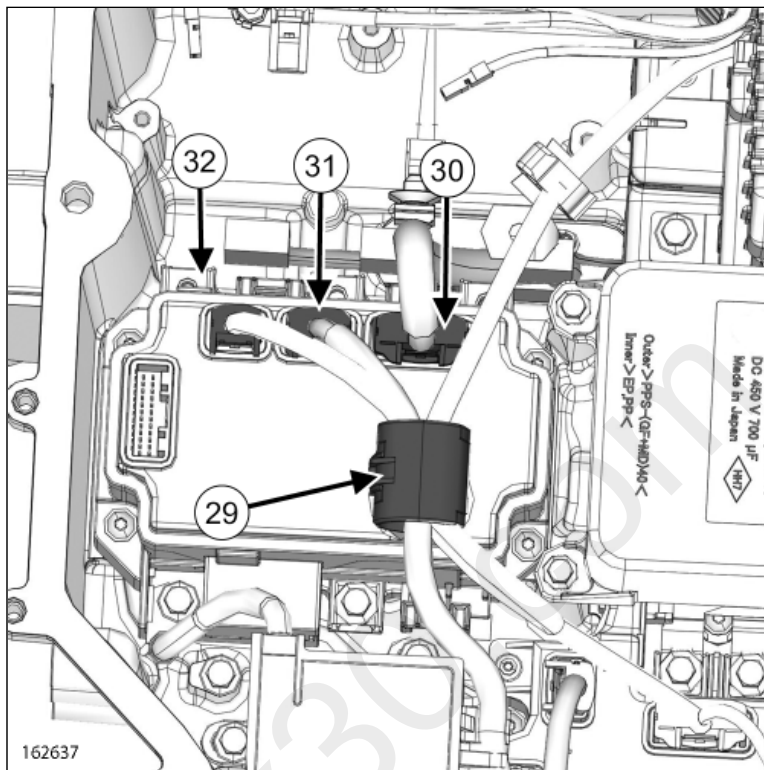


Assemble the thermal grease application tool Thermal grease application tool (Ms. 2033) .

Put the thermal grease application tool Thermal grease application tool (Ms. 2033) on the antistatic mat Charger housing support (Ms. 2011) .

2. REMOVAL OPERATION

put on the antistatic wrist strap.

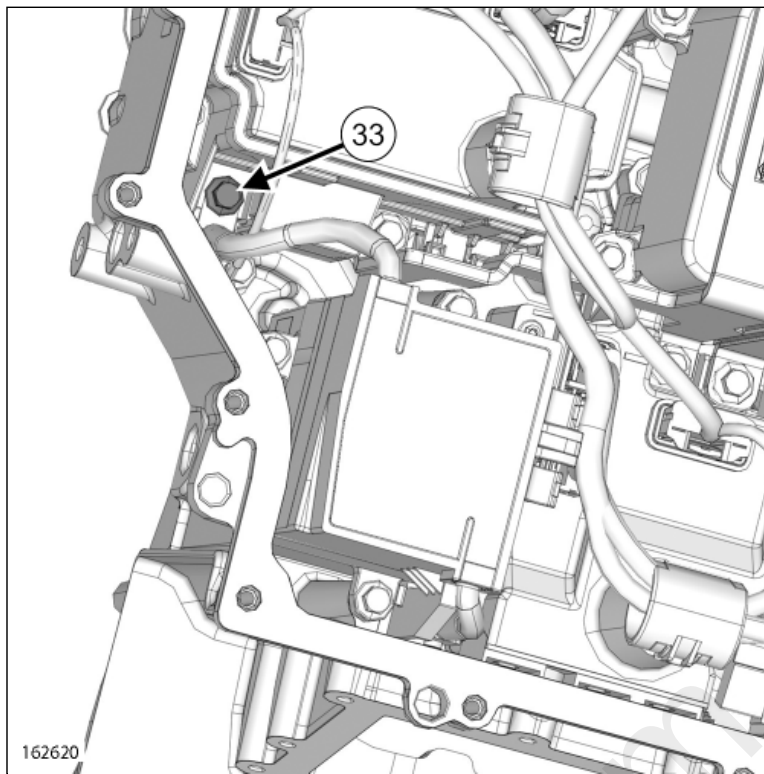


Open the cable retaining clip (29) of the rectifier module.

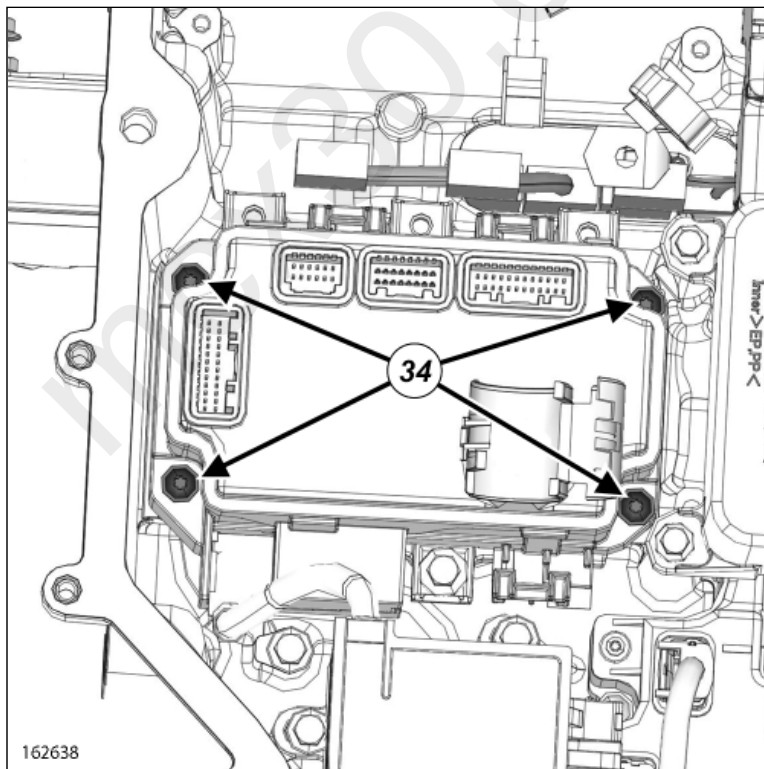
Disconnect the electronic filter wiring connector (30) from the rectifier module.

Disconnect the connector (31) between the direct current converter module and the rectifier module and the rectifier module.

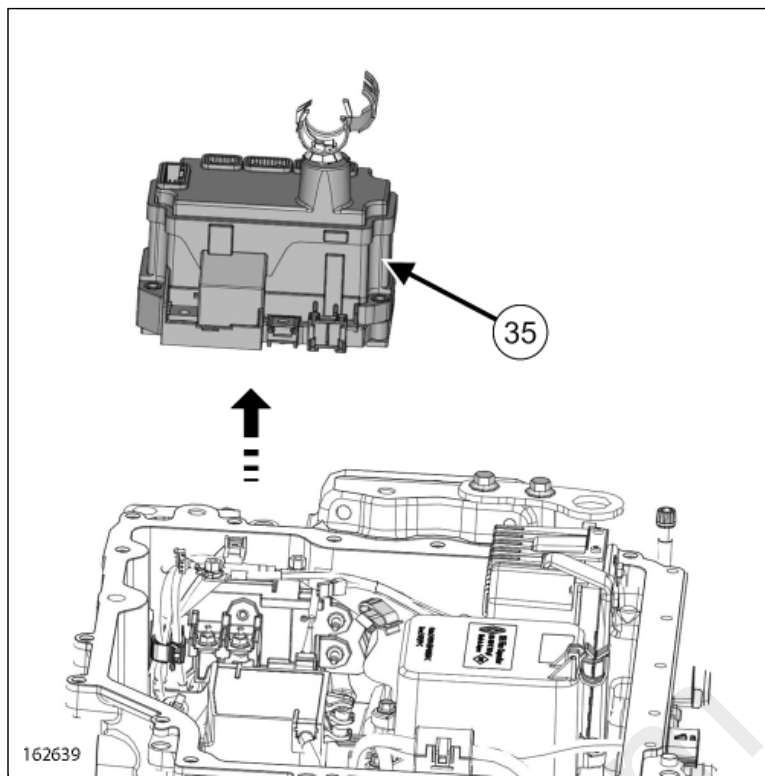
Disconnect the charging plug signal connector (32) from the rectifier module.



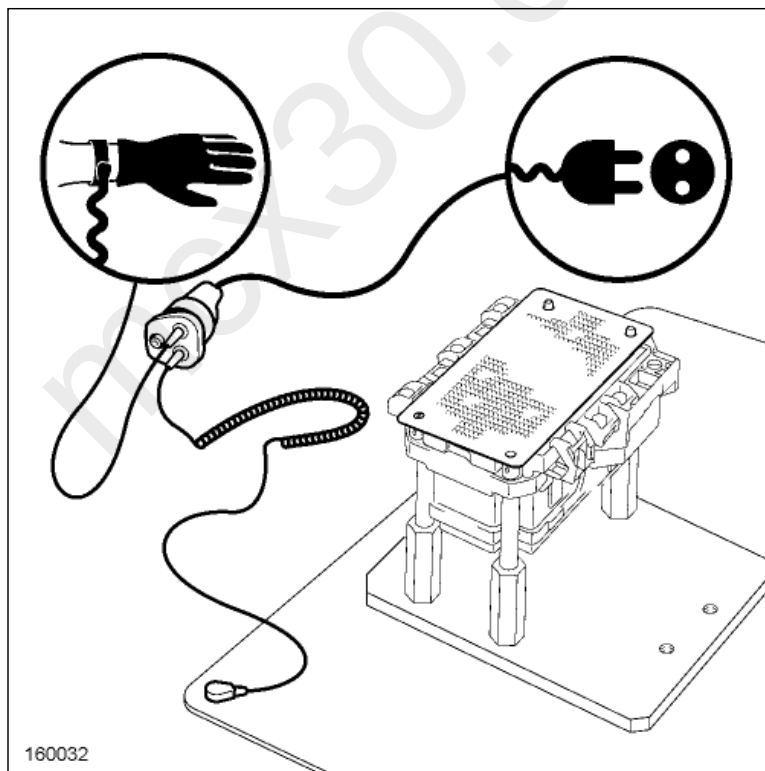
Remove the connecting screw(33) from the rectifier module.



Remove the four mounting screws(34) from the rectifier module.



Remove the rectifier module(35) .



Put the rectifier module upside down on the thermal grease application toolThermal grease application tool(Ms. 2033) .

REFITTING

1. REFITTING PREPARATION OPERATION

Clean using brake cleaner and a lint-free cloth [Vehicle: Parts and consumables for the repair](#) :



the remaining thermal grease on the bearing surface of the housing,

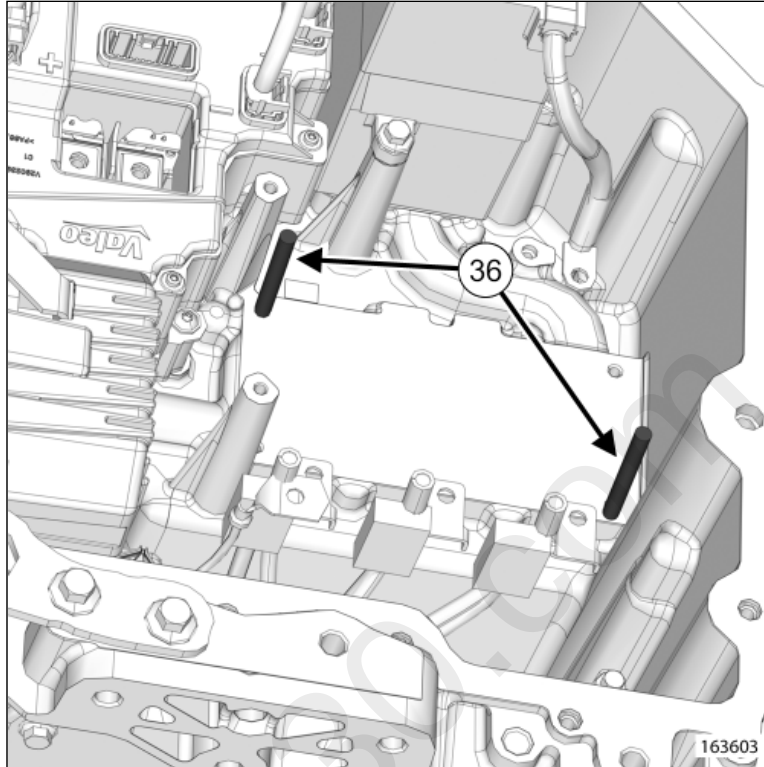


the remaining thermal grease on the bearing surface of the rectifier module.



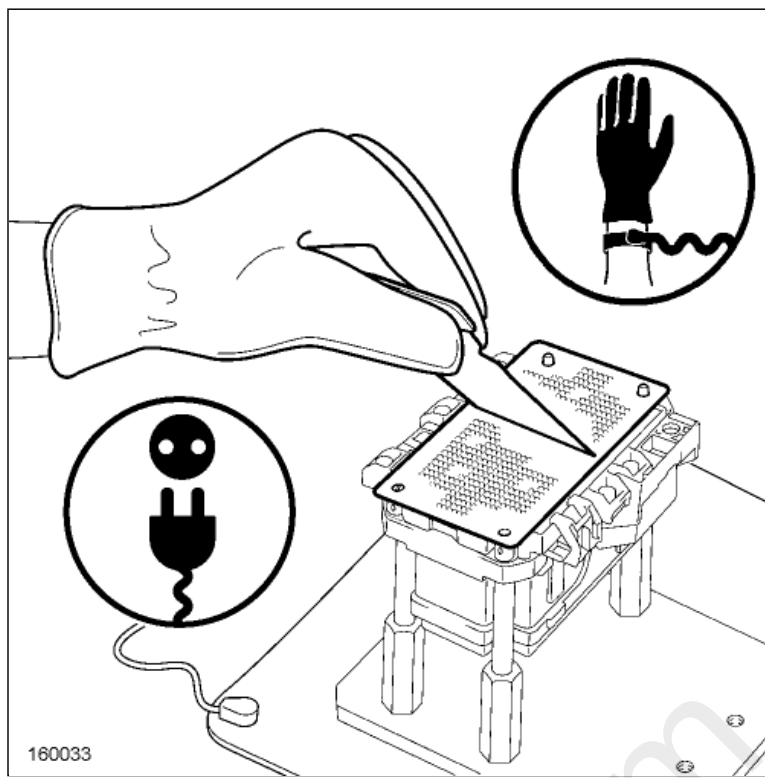
Note:

Check the absence of liquid residue on the inverter module location.



Fit in the 2 guiding pins(36) crosswise on the lower housing.

2. REFITTING OPERATION OF THE RECTIFIER MODULE



Lay the application grille of the toolGrille and spatula.(Ms. 2034) on the bearing face of the rectifier module.

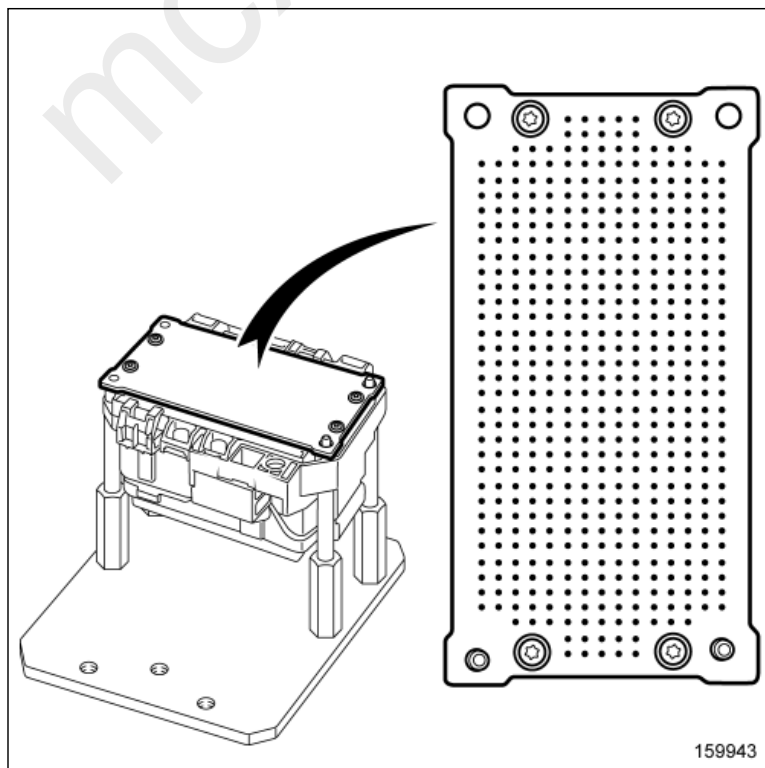
Apply a thin layer of thermal grease KP98Vehicle: Parts and consumables for the repair on the grille using the spatula of the toolGrille and spatula.(Ms. 2034) .

Note:



Make sure to fill every hole of the grille with thermal grease for a correct application.

Not set the thermal grease of the outline of the rectifier module.



Remove with precaution the grille from the rectifier module bearing face.

Note:



Check that the pattern of thermal grease on the bearing face of the rectifier module matches the pattern of the application grille.

If the pattern of thermal grease doesn't match the pattern of the application grille: start again the cleaning then the application of thermal grease to avoid any future damage to the rectifier module.

Remove the rectifier module from the thermal grease application tool Grille and spatula. (Ms. 2034) .

Note:



Never touch the thermal grease applied on the rectifier module.

Refit the rectifier module on the lower housing using the 2 guiding pins number 2.

Note:



Before refitting the rectifier module, make sure that its mounting direction matches the image on the exploded view (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Refit the 2 mounting screws of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Tighten the 2 mounting screws of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Remove one of the guiding pins.

Refit one mounting screw of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Tighten the mounting screw of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Remove the remaining guiding pin.

Refit the remaining mounting screw of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Torque tighten the mounting screws of the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Mark always the screws using a paint marker of a color different from the original.

Refit the connecting screw on the rectifier module.

Torque tighten the connecting screw on the rectifier module (see 17E, Power electronics, Electric vehicle charger casing assembly : Exploded view, page).

Mark always the screw using a paint marker of a color different from the original.

Connect the charging plug signal connector on the rectifier module.

Connect the connector between the direct current converter module and the rectifier module and the rectifier module.

Connect the electronic filter wiring connector on the rectifier module.

Close the cable retaining clip of the rectifier module.

3. FINAL OPERATION

Proceed in the reverse order to removal.



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XSL version : 3.02 du 22/07/11

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