

FREERIDE E-XC

Art. no. 3214441en



Perform the work described in these setup instructions before the vehicle is delivered to the customer.

Read the setup instructions in their entirety before beginning work.

These setup instructions were written to correspond to the latest state of this series. We reserve the right to make changes in the interest of technical advancement without at the same time updating this manual.

We shall not provide a description of general workshop methods. Likewise, safety rules that apply in a workshop are not specified here. It is assumed that the work will be performed by a fully trained mechanic with the corresponding HV training.

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ISO 9001(12 100 6061)

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Issued by: TÜV Management Service

REG.NO. 12 100 6061

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This document is valid for the following models:

FREERIDE E-XC EU (F3001V1)



1 MEANS OF REPRESENTATION

1.1 Symbols used

The meaning of specific symbols is described below.



Indicates an expected reaction (e.g. of a work step or a function).



Indicates an unexpected reaction (e.g. of a work step or a function).



Identifies work requiring expert knowledge and technical understanding. In the interest of your own safety, only have these jobs performed by correspondingly trained KTM technical personnel.



All work identified by this symbol requires a level 1 qualification for high-voltage systems. Only this qualification authorizes you to perform non-electro-technical work on a vehicle or on units with a high-voltage system.



All work identified by this symbol requires a level 2 qualification for high-voltage systems. Only this qualification authorizes you to de-energize the electrical system and perform electro-technical work in a de-energized state.



All work identified by this symbol requires a level 3 qualification for high-voltage systems. Only this qualification authorizes you to perform electro-technical work under voltage.



Indicates a page reference (more information is provided on the specified page).



Indicates information with more details or tips.



Indicates the result of a testing step.



Indicates a voltage measurement.



Indicates a current measurement.



Indicates a resistance measurement.



Indicates the end of an activity including potential rework.

1.2 Formats used

The typographical formats used in this document are explained below.

Proprietary name	Indicates a proprietary name.
Name®	Indicates a protected name.
Brand™	Indicates a brand available on the open market.
<u>Underlined terms</u>	Refer to technical details of the vehicle or indicate technical terms, which are explained in the glossary.

2.1 Work rules

The Powerpack HV does not contain any parts which require maintenance. Never open the Powerpack HV. Special tools are necessary for certain tasks. The tools are not a component of the vehicle, but can be ordered using the number in parentheses. For example: gear segment (70029032000)

During assembly, non-reusable parts (e.g. self-locking screws and nuts, seals and seal rings, O-rings, pins, lock washers) must be replaced by new parts.

In the case of certain screws, a screw adhesive (e.g. **Loctite**[®]) is required. The manufacturer instructions for use must be followed.

After disassembly, clean the parts that are to be reused and check them for damage and wear. Change damaged or worn parts.

After you complete the repair or service work, check the operating safety of the vehicle.

2.2 Safety advice

A number of safety instructions need to be followed to operate the product described safely. Therefore read this instruction and all further instructions included carefully. The safety instructions are highlighted in the text and are referred to at the relevant passages.



Info

Various information and warning labels are attached in prominent locations on the product described. Do not remove any information or warning labels. If they are missing, you or others may not recognize dangers and may therefore be injured.

2.3 Degrees of risk and symbols



Warning

Identifies a danger that is likely to lead to fatal or serious injury if the appropriate measures are not taken.



Caution

Identifies a danger that may lead to minor injuries if the appropriate measures are not taken.

Note

Identifies a danger that will lead to considerable machine and material damage if the appropriate measures are not taken.



Note

Indicates a danger that will lead to environmental damage if the appropriate measures are not taken.

2.4 Fuel, auxiliary substances

Use the operating and auxiliary substances (such as oils and lubricants) specified in the Owner's Manual.

2.5 Fire hazard



Warning

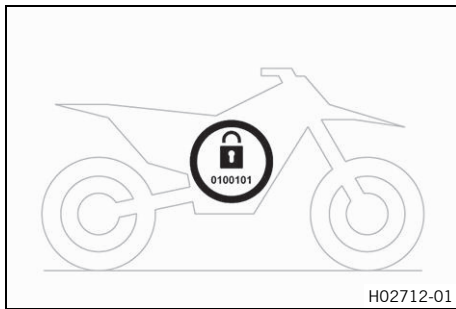
Fire hazard Damaged rechargeable lithium-ion batteries present a fire hazard.

Massive mechanical damage may cause an internal cell short circuit and then cause the battery to self-ignite.

- Contact KTM customer service immediately if major damage to the rechargeable lithium-ion battery has occurred.

There is no particular fire hazard for this vehicle when the rechargeable lithium-ion battery (Powerpack HV) is intact.
However, should the vehicle catch fire, inform the fire department responsible that an electric vehicle with a rechargeable lithium-ion battery is on fire.

3.1 Transport mode



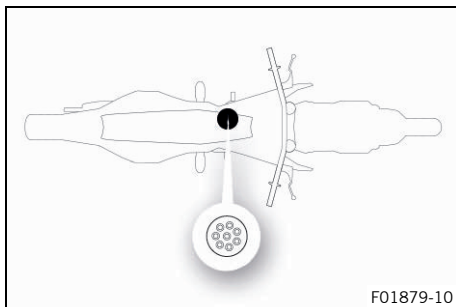
This vehicle was blocked for transport in the software. To operate the vehicle, the vehicle electronics must be enabled. This process is conducted during initial setup in KTM Dealer.net. Enabling ensures that the initial setup in KTM Dealer.net is documented.

Enabling can be performed either temporarily, e.g. for a test ride, or permanently for vehicle handover.

i Info

Make sure that the vehicle is permanently enabled before handing it over to the customer.

3.2 Diagnostic connection

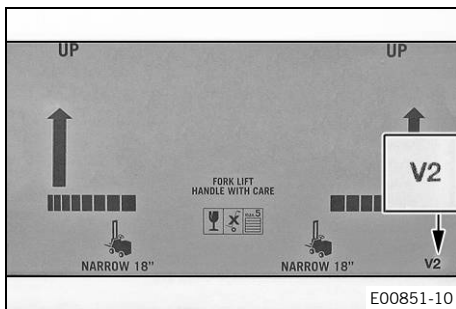


Diagnostic connection **1** is located under the front rider's seat.

i Info

The charging socket is also the diagnostic connection.

3.3 Unpacking and setting up the vehicle



- Remove the box and the plastic packaging.

i Info

An assistant prevents the motorcycle from falling over. To avoid damaging the motorcycle during the setup, leave the protective film on the vehicle until you have finished.

- Remove and unpack the separate enclosure and components. Check that the scope of supply is complete using the enclosed packing list.

i Info

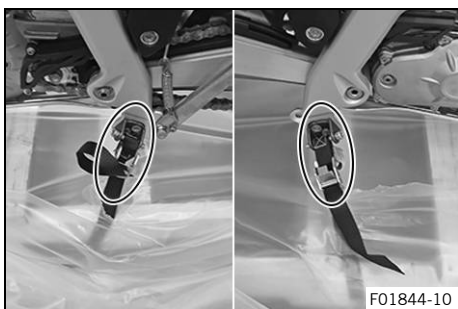
The procedure for missing components is described in the Customer Service Manual.

- To be in compliance with the homologation of the vehicle, mount all of the parts in the separate enclosure when assembling the vehicle.

i Info

It is not necessary to mount all of the parts in the separate enclosure for the vehicle to operate correctly. However, homologation will not apply if not all parts from the separate enclosure are mounted.

- Charge the 12-V battery. (p. 28)
- Remove the Powerpack HV. (p. 29)



F01844-10

- Have a lift stand available.

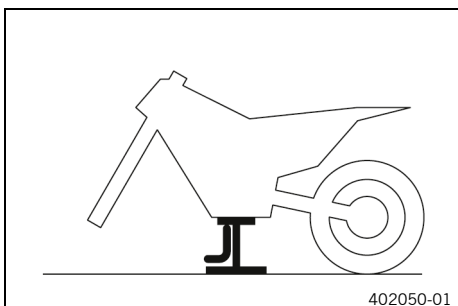
Lift stand (78129955100)

- Carefully loosen and remove the tension belt of the footrest bracket.



Info

An assistant prevents the motorcycle from falling over.



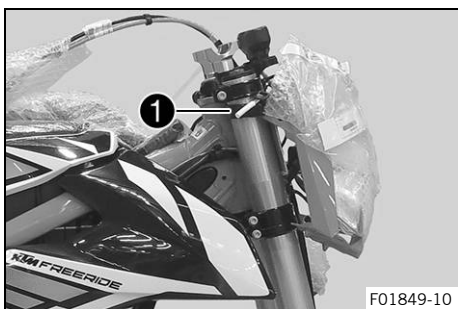
402050-01

- Together with an assistant, take the vehicle off the pallet.
- Position the vehicle on a lift stand.
- Check the vehicle for transport damage.



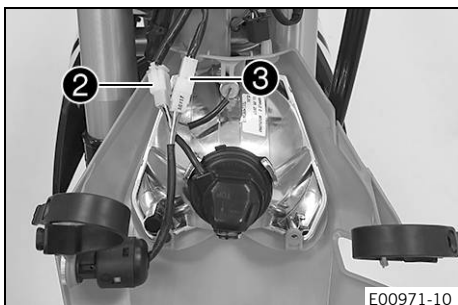
Info

The procedure in the event of transport damage is described in the Customer Service Manual.



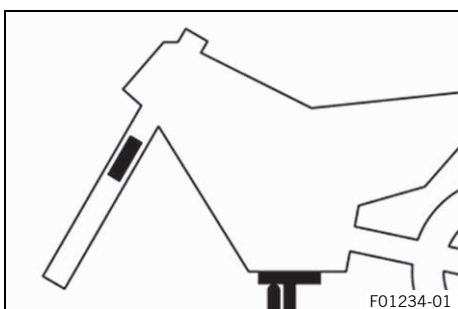
F01849-10

- Remove the spare key and **KEYCODECARD** keep in a safe place for the handover.
- Loosen rubber strap ① and tilt the headlight mask forwards.



E00971-10

- Disconnect the plug-in connector ② of the headlight and the plug-in connector ③ of the ignition lock.
- Lay down the headlight mask carefully to the side and protect from damage.



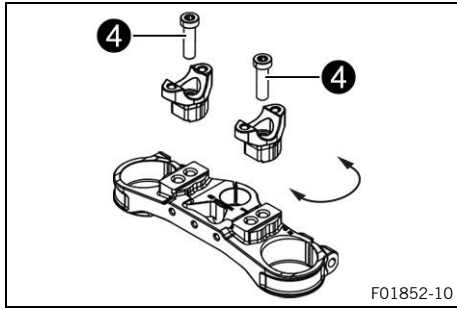
F01234-01

- Make sure that the reflectors are glued on to the left and right fork leg.
 - » If there are no reflectors stuck on:
 - Stick on the reflector.



Info

The reflectors must not be covered by trim parts.



- Remove screws ④. Take off handlebar supports.
- Place handlebar supports in required position. Mount and tighten screws ④.

Guideline

Screw, handlebar support	M10	40 Nm (29.5 lbf ft) Loctite®243™
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Info

The handlebar supports can be mounted in four different positions.
Position the left and right handlebar supports evenly.



Warning

Danger of accidents A repaired handlebar poses a safety risk.

If the handlebar is bent or straightened, the material becomes fatigued. The handlebar may break as a result.

- Change the handlebar if the handlebar is damaged or bent.

- Position the handlebar.



Info

Make sure the cables and wiring are positioned correctly.

- Position the handlebar clamps. Mount and tighten the screws evenly.

Guideline

Screw, handlebar clamp	M8	20 Nm (14.8 lbf ft)
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Info

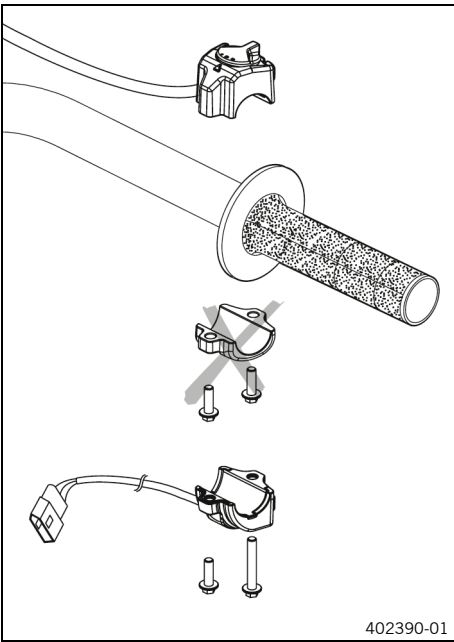
The handlebar clamps and screws are in the accessory pack.
The markings on the handlebar should be at the center of the handlebar clamps.
Keep the installed gap widths equal when tightening.

- Secure the handlebar cushion with two cable ties.





- Position the controls on the right half of the handlebar.
- Route the cable without tension and secure with cable ties and cable holders.

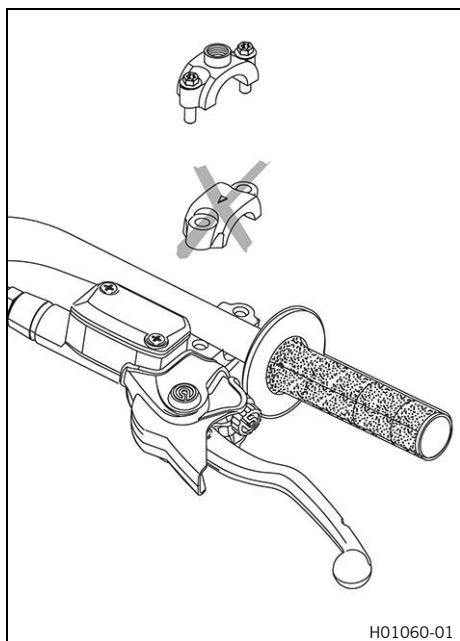


- Mount turn signal switch and route cable to the front.

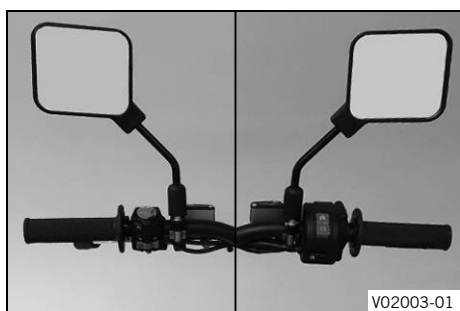


- Position the controls on the left handlebar half.
- Route the cable without tension and secure with cable ties and cable holders.

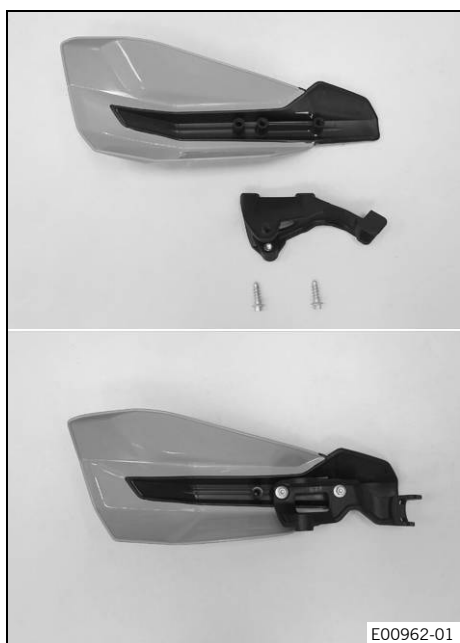
3 SETUP



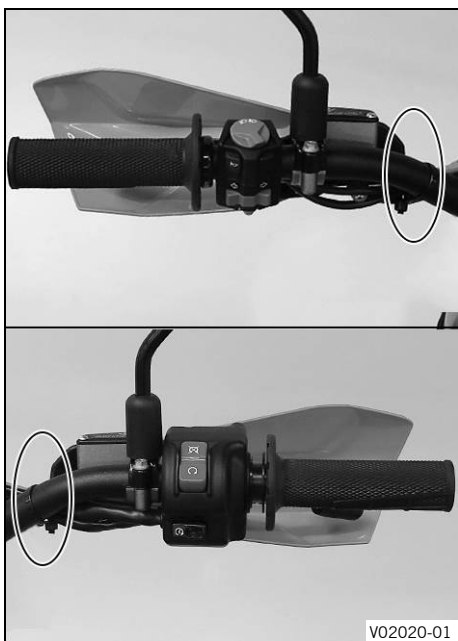
- Mount the mirror clamps on both sides.



- Mount and tighten the rear mirror on both sides.

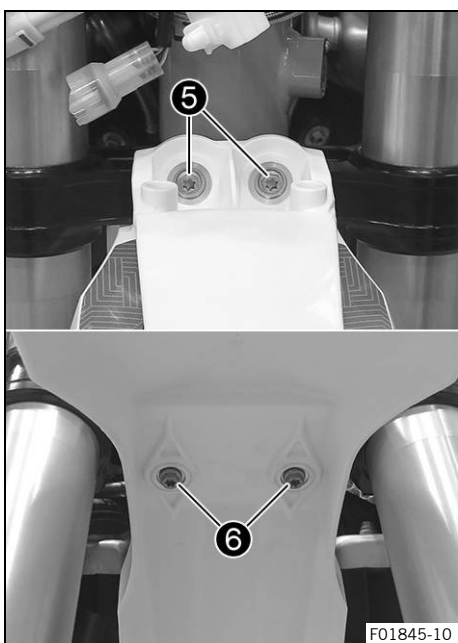


- Preassemble the hand guards on the left and right.



- Mount the left hand guard.
- Mount the right hand guard.

V02020-01



- Position the front fender. Mount and tighten screws **5**.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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- Mount and tighten screws **6**.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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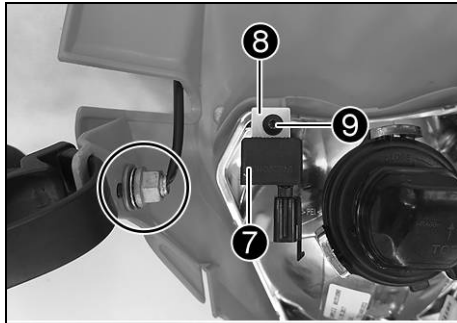
F01845-10



- Release the axle clamp screws and remove the wheel spindle.
- Install the front wheel.  (p. 19)

V02006-01

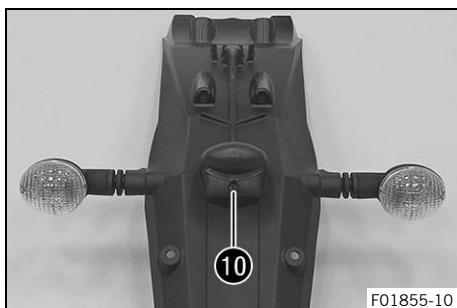
3 SETUP



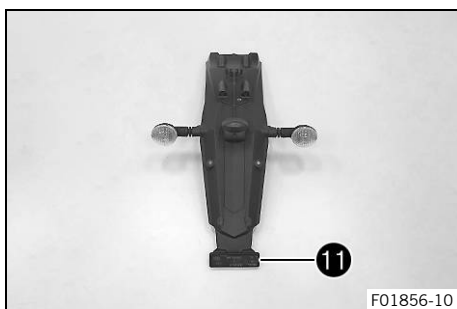
- Position the turn signal on the headlight mask on both sides, mount nuts with washers and tighten.
- Mount turn signal relay 7 with lock washer 8 and screw 9.



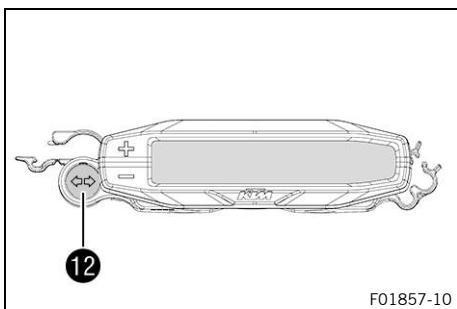
- Position the turn signal on both sides on the license plate holder, mount nuts with washers and tighten.



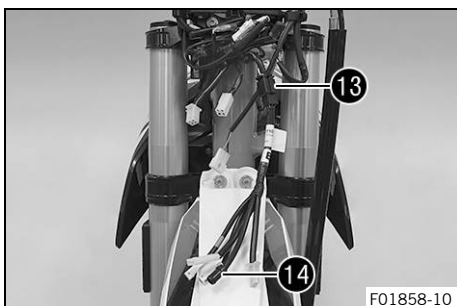
- Position the license plate lamp on the license plate holder extension, and mount and tighten screw 10.



- Mount reflector 11 on the license plate holder with the spring washer.



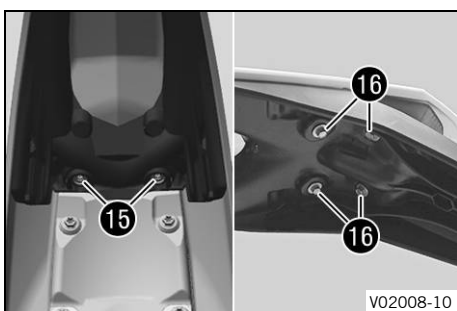
- Position turn signal indicator lamp 12 in the combination instrument rack.



- Join plug-in connector 13 of the turn signal cable.
- Make sure that the bulb is located in socket 14.
 - » If there is no bulb in the socket:
 - Insert the bulb included in the accessory pack in socket 14.

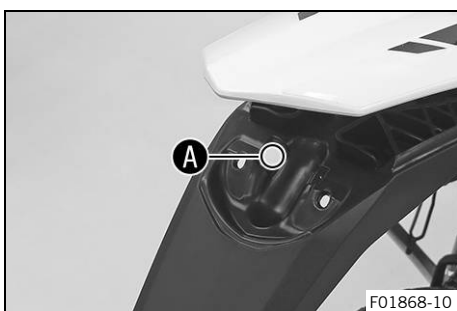
Indicator lamps (W2.3W / socket W2x4.6d)

- Position the cable with socket and bulb in turn signal control lamp 12.
- Install the headlight mask with the headlight. (p. 33)
- Check the headlight setting. (p. 34)



- Remove screws 15.
- Remove screws 16.
- Lower the license plate holder and hang the tail light to the side.

i Info
Pay attention to the cable of the tail light.




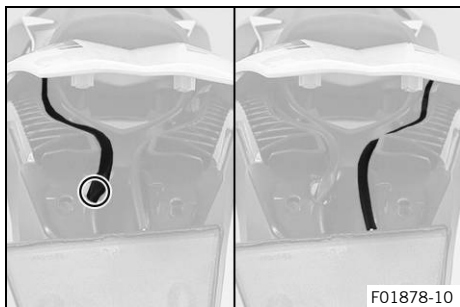
- Drill a hole at marking A to the size of the marking.



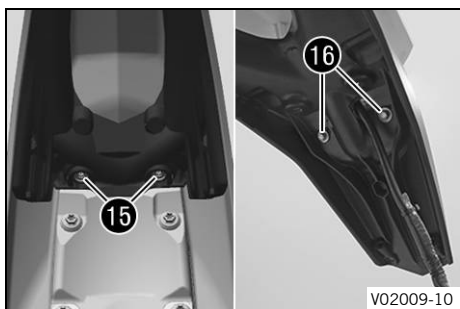
- Fold the seat up. (p. 21)
- Route the turn signal cable harness through the frame from the front to the rear paying attention to the plugs as you do so.



- Join the turn signal cable harness plug-in connector to the wiring harness plug-in connector.
- Lock the seat.  (p. 21)



- Route the turn signal cable on the left side on the license plate holder and feed the turn signal cable through the hole.
- Route the cable of the tail light on the right side on the license plate holder.



- Position the license plate holder on the rear.

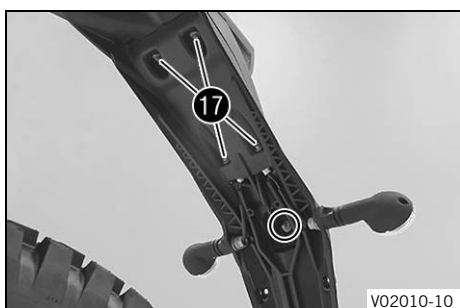
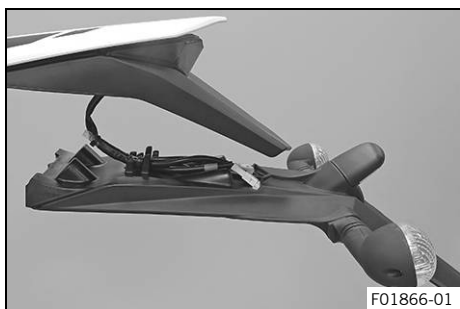
i Info
Ensure that the cable is routed correctly.

- Mount and tighten screws **15**.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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- Position the tail light on the license plate holder.
- Mount and tighten screws **16**.
- Route turn signal cable to the rear through the license plate holder extension.



- Make sure that the bulb is located in the socket.
 - » If there is no bulb in the socket:
 - Insert the bulb included in the accessory pack in the socket.

License plate lamp (W5W/socket W2.1x9.5d)

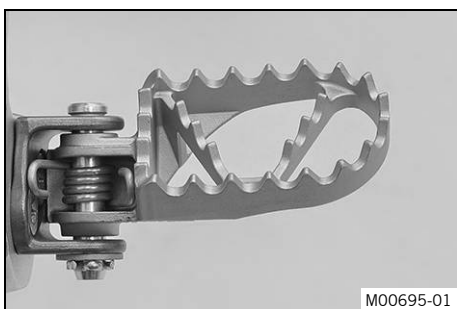
- Insert the cable with the socket and bulb in the license plate lamp.
- Connect the plug-in connector of the left turn signal which is marked red.

- Connect the plug-in connector of the right turn signal which is marked green.
- Position the license plate holder extension on the license plate bracket.

i Info
Make sure the cables and plug-in connections are positioned correctly.

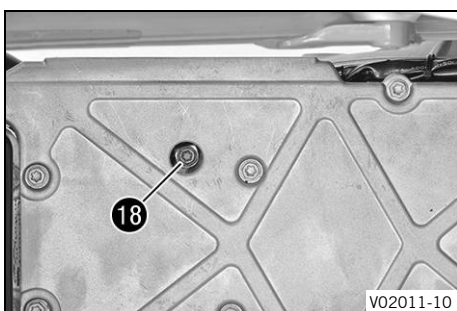
- Mount and tighten screws **17**.
- Mount the footrests with the springs and pins. Secure the pins using the washers and cotter pins.

Footrest spring plier (58429083000)

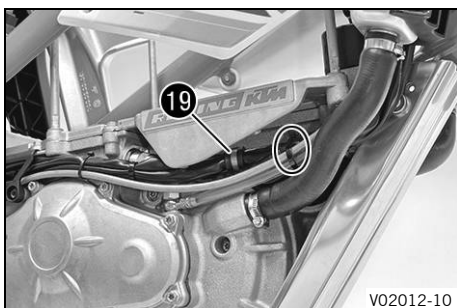


- Remove screw **18**.

i Info
The screw can be reached through a drill hole in the motor cover.



- Remove clamp **19**.
- Remove the cable tie.
- Pull the wiring harness and brake line aside slightly.



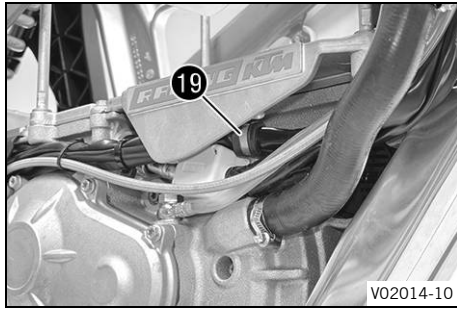
Note

Material damage The ferrite core has a one-way lock. If the locked ferrite core is reopened, the lock is destroyed.

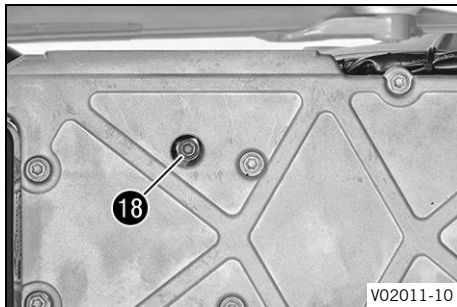
- Before installing the ferrite core, ensure it is properly positioned.
- Position ferrite core **20** around the lighting wiring harness and close it.

✓ The ferrite core is fully closed and locked.





- Position the wiring harnesses, ferrite core, and brake line on the motor.
- Position clamp 19.



- Mount and tighten screw 18.

Guideline

Remaining screws for motor	M6	10 Nm (7.4 lbf ft)
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- ✓ The clamp is fully closed but the cable is not pinched.



- Mount the cable ties.
- Carry out the unlocking procedure for the PowerPack HV. (p. 21)
- Charge the Powerpack HV. (p. 24)
- Set the combination instrument. (p. 35)
- Set kilometers or miles. (p. 36)
- Set the clock. (p. 36)
- Position all controls in their exact positions on the handlebar. Tighten all screws.
- Unpack and mount the **KTM PowerParts** included in the delivery (optional).

Info

Read the accompanying **KTM PowerParts** fitting instructions.

- Remove the remaining film, padding, the corrugated cardboard, and the other packaging material.
- Attach the stickers included in the scope of supply (optional).
- Prepare the vehicle according to the specifications in **KTM Dealer.net** for handover to the customer.

Info

Transport mode must be deactivated to be able to start the motorcycle.

4.1 Raising the motorcycle with a lift stand ^{HV}

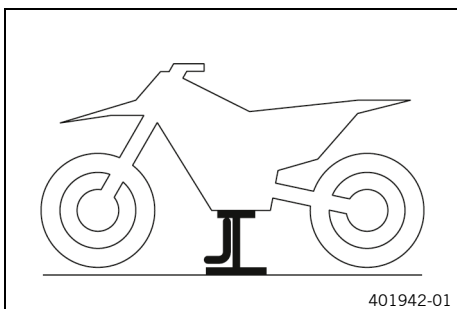
Note

Danger of damage The parked vehicle can roll away or fall over.

- Park the vehicle on a firm and level surface.

Preparatory work

- Deactivate the vehicle. ^{HV} (📖 p. 18)
- Fold the seat up. ^{HV} (📖 p. 21)
- Remove the Powerpack HV. ^{HV} (📖 p. 29)
- Check that the Powerpack HV is voltage-free. ^{HV} (📖 p. 37)
- Ascertain that the discharge plug is at zero potential. ^{HV} (📖 p. 37)
- Mount the protection cap. ^{HV} (📖 p. 18)



Main work

- Use the motor guard underneath the motor to raise the vehicle.

Lift stand (78129955100)

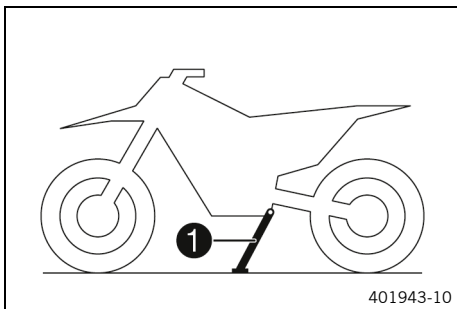
- ✓ Neither wheel is in contact with the ground.
- Secure the motorcycle against falling over.

4.2 Removing the motorcycle from the lift stand ^{HV}

Note

Danger of damage The parked vehicle can roll away or fall over.

- Park the vehicle on a firm and level surface.



Main work

- Remove the motorcycle from the lift stand.
- Remove the lift stand.
- To park the motorcycle, press side stand ① to the ground with your foot and lean the motorcycle on it.

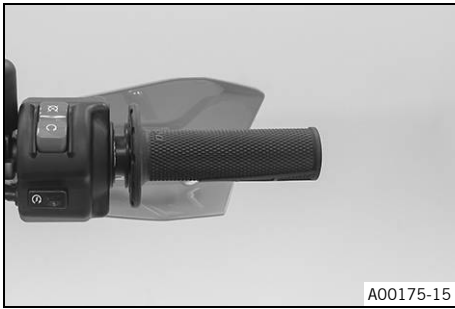
Info

When you are riding, the side stand must be folded up and secured with the rubber strap.

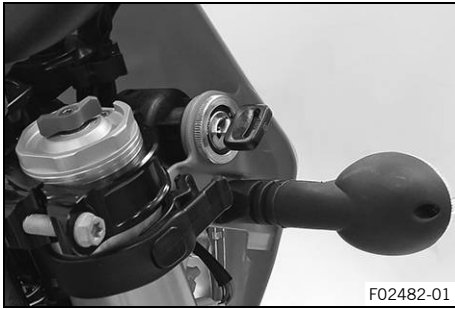
Finishing work

- Install the Powerpack HV. ^{HV} (📖 p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed). ^{HV} (📖 p. 38)
- Lock the seat. ^{HV} (📖 p. 21)

4.3 Deactivating the vehicle ^{HV}



- Push the main switch into position ☒.



- Turn the ignition key in the ignition lock to the position ☒ while the vehicle is deactivated. Remove the ignition key.

4.4 Mounting the protection cap ^{HV}

Note

Material damage Components damaged or destroyed by water or dirt.

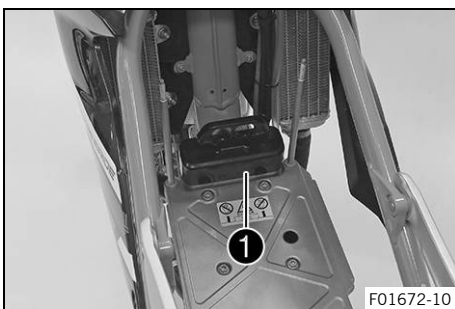
- Mount the protection cap after you have removed the Powerpack HV.

Preparatory work

- Deactivate the vehicle. ^{HV} (📖 p. 18)
- Fold the seat up. ^{HV} (📖 p. 21)
- Remove the Powerpack HV. ^{HV} (📖 p. 29)
- Check that the Powerpack HV is voltage-free. ^{HV} (📖 p. 37)
- Ascertain that the discharge plug is at zero potential. ^{HV} (📖 p. 37)

Main work

- Check the battery discharge plug form ring. ^{HV} (📖 p. 19)
- Mount protection cap ❶ with one hand.

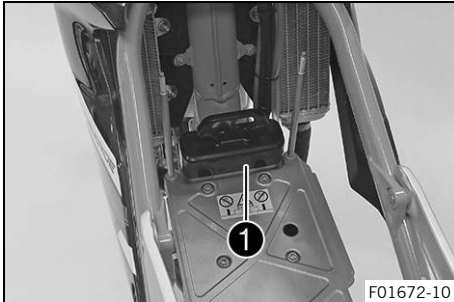


4.5 Removing the protection cap ^{HV}

Note

Material damage Components damaged or destroyed by water or dirt.

- Mount the protection cap after you have removed the Powerpack HV.



F01672-10

Main work

- Remove protection cap **1** with one hand.

Finishing work

- Install the Powerpack HV. ^{HV} (p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed). ^{HV} (p. 38)
- Lock the seat. ^{HV} (p. 21)

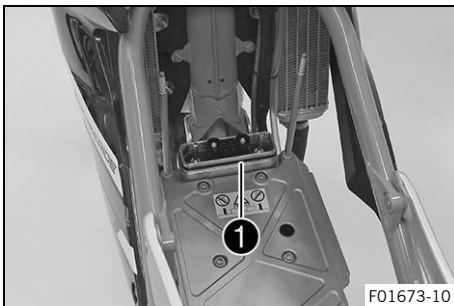


4.6 Checking the battery discharge plug form ring ^{HV}

Condition

The Powerpack HV is removed.

The protection cap has been removed.



F01673-10

- Check battery discharge plug form ring **1** on the electric motor.
 - » If the battery discharge plug form ring is dirty:
 - Ascertain that the discharge plug is at zero potential. ^{HV} (p. 37)
 - Clean the form ring without using water or compressed air.
 - Cover the contacts and spray silicone spray onto the form ring.
 - » If the battery discharge plug form ring is damaged:
 - Change the battery discharge plug form ring. ^{HV} (p. 38)



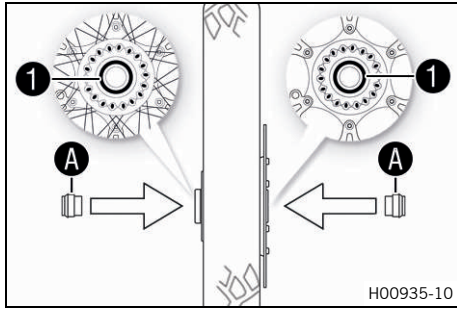
4.7 Installing the front wheel ^{HV}



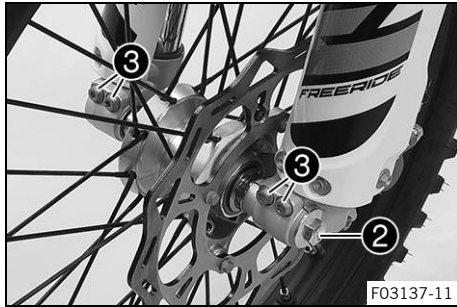
Warning

Danger of accidents Oil or grease on the brake discs reduces the braking effect.

- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.



H00935-10



F03137-11

Main work

- Check the wheel bearing for damage and wear.
 - » If the wheel bearing is damaged or worn:
 - Change front wheel bearing. **HV**
- Clean and grease shaft seal rings **1** and contact surfaces **A** of the spacers.

Long-life grease (📖 p. 42)

- Insert the spacers.

- Clean and grease the wheel spindle.

Long-life grease (📖 p. 42)

- Position the front wheel and insert the wheel spindle.

✓ The brake linings are correctly positioned.

- Mount and tighten screw **2**.

Guideline

Screw, front wheel spindle	M20x1.5	35 Nm (25.8 lbf ft)
----------------------------	---------	---------------------

- Operate the front brake lever several times until the brake linings are in contact with the brake disc.
- Remove the motorcycle from the lift stand. **HV** (📖 p. 17)
- Operate the front brake and compress the fork a few times firmly.

✓ The fork legs straighten.

- Tighten screws **3**.

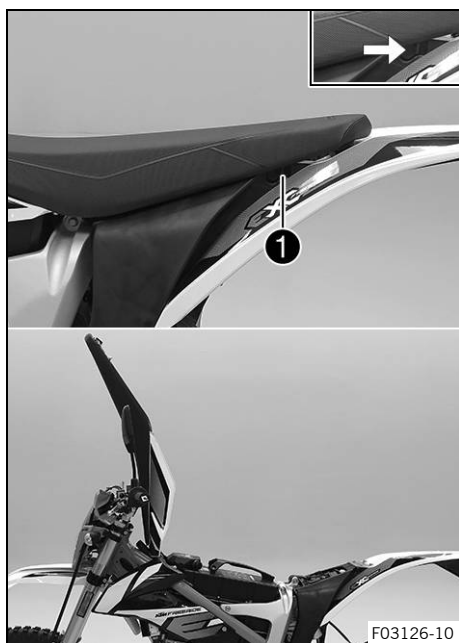
Guideline

Screw, fork stub	M8	15 Nm (11.1 lbf ft)
------------------	----	---------------------

Finishing work

- Install the Powerpack HV. **HV** (📖 p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed). **HV** (📖 p. 38)
- Lock the seat. **HV** (📖 p. 21)

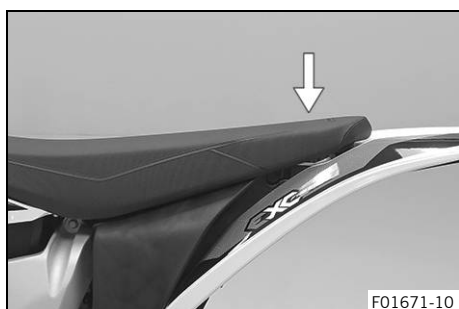
4.8 Folding the seat up ^{HV}



- Push the release lever ❶ in the direction of the arrow.
- Lift the seat and fold it up.



4.9 Locking the seat ^{HV}



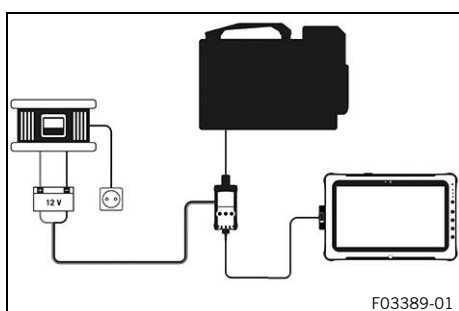
- Fold down the seat and push it down.
- ✓ The seat engages with an audible click.
- Finally, check that the seat is correctly locked.







4.10 Powerpack HV unlocking procedure ^{HV}

Condition

Powerpack HV is removed.



- Connect the diagnostics cable to the Powerpack HV.
- Diagnostics adapter cable (70029069000)
- Connect the diagnostics cable to the VCI.
 - Ensure external power supply for VCI using 12-V battery.
 - ✓ Blue LED on VCI lights up.
 - Connect battery charger to the 12-V battery.
 - Connect the diagnostics tablet to the VCI.
 - Select **"Skip VIN detection and enter VIN manually"**.
 - Enter VIN and confirm.
 - Select **"Control unit diagnostics" > "Functions" > "VCI external power switch"**.
 - Select **"Switch power" > "Power on"**.
 - Select **"Scan again"** to activate battery management system.

- Execute "**Battery management system**" > "**Functions**" > "**Activate/deactivate transport mode**".
- Close the program and unplug the diagnostics tool.
- Install the Powerpack HV.  ( p. 30)
- Connect the diagnostics tool and start it.
- Clear the fault memory using the KTM diagnostics tool. 
- Read out the fault memory using the KTM diagnostics tool. 
 - » When fault memory is empty:
work is complete.

4.11 Positioning the battery charger



Warning

Risk of injury There is a risk of electric shock in a moist environment.
The battery charger is not waterproof.

- Only use the battery charger in dry conditions.
- Ensure that no fluids flow or drip onto the battery charger.



Warning

Risk of injury If the battery charger is used incorrectly, its intrinsic safety cannot be guaranteed.
The battery charger is only suitable for use with a Powerpack.

- Only use the battery charger with a Powerpack.
- Only operate the battery charger using household sockets with a ground conductor.
- Do not use any additional adapters or extensions.
- Follow the applicable safety instructions of the power connection.



Warning

Risk of injury There is a risk of electric shock if the battery charger or the cables have been manipulated or damaged.

The battery charger does not contain any parts which require maintenance.

- Do not modify the battery charger or the cables.
- Only use original cables.
- Never open the battery charger housing.
- Do not insert any objects into the battery charger housing from the outside.
- Do not use the battery charger if cables, plugs, or parts of the battery charger have been damaged or are soiled.



Info

The battery charger contains sensitive electronics and must be handled with appropriate care.
The battery charger may be damaged or destroyed if it is dropped, knocked or otherwise subject to mechanical overload.

When transporting the battery charger, ensure appropriate means of securing the cargo.

Damage caused due to improper handling or improper transport is excluded from the manufacturer warranty.



(Option: Battery charger 1)

- Place the battery charger on a firm, level, and horizontal surface.
- Ensure the battery charger is adequately ventilated.

Guideline

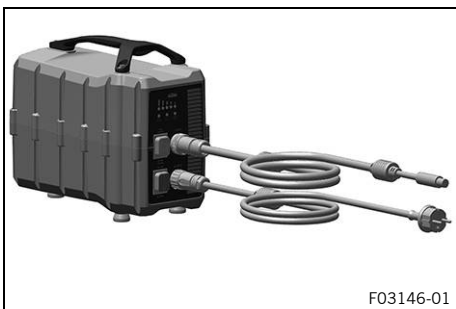
Free space at the front and rear side of the battery charger	≥ 20 cm (≥ 7.9 in)
--	--------------------

- Use the battery charger in the temperature range permitted.

Guideline

Ambient temperature	-15 ... 50 °C (5 ... 122 °F)
---------------------	------------------------------

- Ensure that the power plug for the battery charger always remains easily accessible.



(Option: Battery charger 2)

- Place the battery charger on a firm, level, and horizontal surface.
- Ensure that both the power cord and the charging cable are connected and secured.
 - » If the power cord or the charging cable are not connected and secured:
 - Connect the power cord to the battery charger and screw the lock ring tight clockwise.
 - Connect the charging cable to the battery charger and screw the lock ring tight clockwise.
- Ensure the battery charger is adequately ventilated.

Guideline

Free space at the front and rear side of the battery charger	≥ 20 cm (≥ 7.9 in)
--	--------------------

- Use the battery charger in the temperature range permitted.

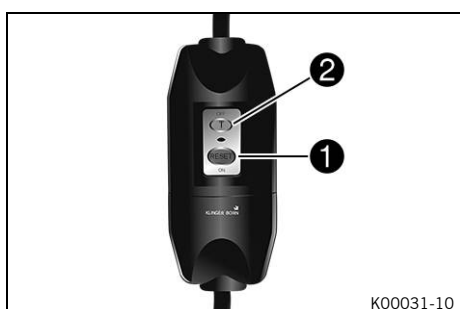
Guideline

Ambient temperature	-15 ... 50 °C (5 ... 122 °F)
---------------------	------------------------------

- Ensure that the power plug for the battery charger always remains easily accessible.



4.12 Checking residual current protection switch ^{HV} (Option: Battery charger 1)



Warning

Risk of injury There is a risk of electric shock with a faulty residual current protection switch.

- Before each use of the charger check the residual current protection switch.
- Do not use the battery charger if the test procedure was not successful.

- Connect the mains plug to the mains connection.
- Press the **1** button.
 - ✓ The operating display lights up red.
- Press the **2** button.
 - ✓ The operating display goes out.
 - ✓ The residual current protection switch can be used.
- Disconnect power plug from mains connection.

4.13 Charging the Powerpack HV ^{HV}

Note

Material damage The power supply will be damaged in the event of an overload.

In charge mode **Fast**, a steady current of at least 13 A is required.

In charge mode **Normal**, a steady current of at least 10 A is required.

- Ensure that the power outlet can supply the steady current required and is protected by a suitable fuse.



Note

Environmental hazard A lithium-ion battery (Powerpack) contains components and elements that are harmful to the environment.

- Never throw a Powerpack into the household trash.
- Dispose of the Powerpack properly and in compliance with the applicable regulations.



Info

The charging procedure is identical regardless of whether the Powerpack HV is charged while installed in the vehicle or having been removed. However, the 12-V battery is only charged if the Powerpack HV is being charged in the vehicle.

Charge the Powerpack HV regularly inside the vehicle in order to charge the 12-V battery as well.

Do not activate the vehicle while the battery charger is connected to the Powerpack HV.

If the vehicle is activated while being charged with the installed Powerpack HV, the vehicle switches to the malfunction state. The Powerpack HV will continue to be recharged; however, the 12-V battery will stop recharging.



Info

When the left LED in the charging level indicator on the battery charger flashes, the PowerPack HV is ready for use. However, full capacity is not yet available.

To guarantee the maximum capacity of the Powerpack HV, discharge the Powerpack HV completely every 20 charging cycles and then recharge it completely. If this process is not carried out, then the vehicle may switch off due to a charging level which is too low without reducing power beforehand.

The Powerpack HV is completely discharged when the vehicle switches off with blink code 11.

i Info

If the temperature of the Powerpack HV exceeds the permissible value while it is being charged, the battery charger stops charging. All LEDs and the LEDs for the current charging level alternately light up every second.

After the temperature of the Powerpack HV returns to the permissible range, charging is resumed automatically.

Preparatory work

- Position the battery charger. **HV** (📖 p. 22)

(Option: Battery charger 1)

- Check residual current protection switch. **HV** (📖 p. 24)
- Push the main switch into position ☒.
- Fold the seat up. **HV** (📖 p. 21)

Main work

- Remove charging socket protection cap **1**.



C00815-10

Warning

Risk of injury The intrinsic safety of the Powerpack HV can only be guaranteed if the original battery charger is used.

The Powerpack HV may only be charged with the original battery charger.

- Only use the original battery charger to charge the Powerpack HV.

- Connect the battery charger to the Powerpack HV. Observe plug marking **A**.

(Option: Battery charger 1)

- Connect the power plug for the battery charger to the mains connection.
- Set the charging mode switch **2** to the **Fast** position or **Normal** position.

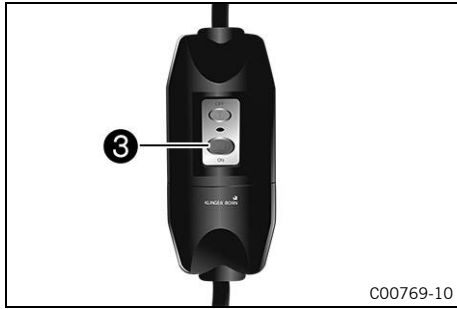


C00768-10

i Info

In charging mode **Fast**, the Powerpack HV is completely charged after approx. 105 minutes. The power consumption is higher than in charging mode **Normal**.

In charging mode **Normal**, the Powerpack HV is completely charged after approx. 135 minutes.



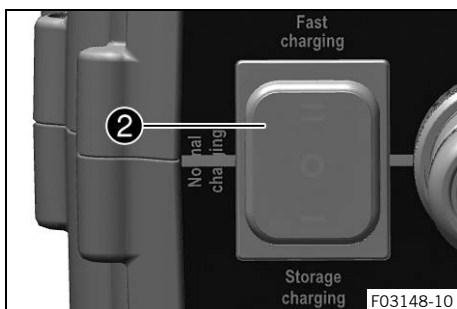
C00769-10



C00770-10



C00769-11



F03148-10

- Switch on the battery charger using switch ③.
- ✓ Charging starts automatically. The status indicator flashes during the charging process.

- Monitor the charging level of the Powerpack HV via the LEDs.
 - LED 1: 20 %
 - LED 2: 40 %
 - LED 3: 60 %
 - LED 4: 80 %
 - LED 5 flashes beginning with approx. 95% until 100% is reached.
- Once the charging process is complete, all five LEDs light up and the status indicator goes out.

- Switch off the battery charger using switch ④.
- ✓ After several seconds, all LEDs on the battery charger go out.
- Disconnect the battery charger power plug from the mains connection.
- Disconnect the charging cable from the Powerpack HV.

Guideline

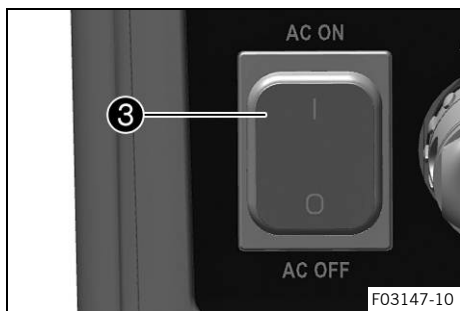
Pull on the structured part of the plug. Do not pull on the cable.

- Check the seal on the charging socket protection cap.
 - » If the seal is dirty:
 - Clean the seal without using water or compressed air.
 - » If the seal is damaged or worn:
 - Change the seal.
- Mount the charging socket protection cap.

(Option: Battery charger 2)

- Connect the power plug for the battery charger to the mains connection.
- Set the charging mode switch ② to the **Fast** position or **Normal** position.

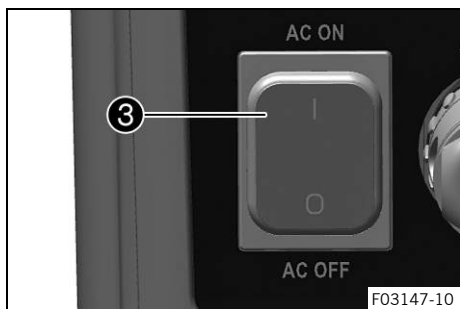
i Info
 In charging mode **Fast**, the Powerpack HV is completely charged after approx. 105 minutes. The power consumption is higher than in charging mode **Normal**.
 In charging mode **Normal**, the Powerpack HV is completely charged after approx. 135 minutes.



F03147-10



F03149-02



F03147-10

- Switch on the battery charger using switch ③.
- ✓ Charging starts automatically. The status indicator flashes during the charging process.

- Monitor the charging level of the Powerpack HV via the LEDs.
- LED 1: 20 %
- LED 2: 40 %
- LED 3: 60 %
- LED 4: 80 %
- LED 5 flashes beginning with approx. 95% until 100% is reached.

Once the charging process is complete, all five LEDs light up and the status indicator goes out.

- Switch off the battery charger using switch ③.
- ✓ After several seconds, all LEDs on the battery charger go out.
- Disconnect the battery charger power plug from the mains connection.
- Disconnect the charging cable from the Powerpack HV.

Guideline

Pull on the structured part of the plug. Do not pull on the cable.

- Check the seal on the charging socket protection cap.
 - » If the seal is dirty:
 - Clean the seal without using water or compressed air.
 - » If the seal is damaged or worn:
 - Change the seal.
- Mount the charging socket protection cap.

Finishing work

- Lock the seat.  (p. 21)

4.14 Charging the 12-V battery ^{HV}**Warning**

Risk of injury Battery gases cause serious chemical burns.

- Keep the 12 V batteries out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Avoid contact with battery gases.
- Keep sparks or open flames away from the 12 V battery.
- Only charge 12 V batteries in well-ventilated rooms.
- In the event of contact with the skin, rinse the affected area with plenty of water.
- Flush eyes with water for at least 15 minutes and consult a physician if battery gases have come into contact with the eyes.

**Note**

Environmental hazard 12 V batteries contain environmentally hazardous materials.

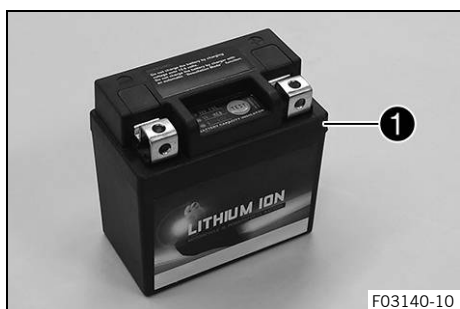
- Do not dispose of 12 V batteries as household waste.
- Dispose of 12 V batteries at a collection point for used batteries.

**Info**

Even when there is no load on the 12-V battery, it discharges steadily each day. The charging level and the method of charging are very important for the service life of the 12-V battery. Rapid recharging with a high charging current shortens the service life of the battery. If the charging current, charging voltage or charging time is exceeded, electrolyte escapes through the safety valves. This reduces the capacity of the 12-V battery. When the 12-V battery has been discharged (blink code 44 on the vehicle), recharge the 12-V battery immediately. If the 12-V battery is left in a discharged state for an extended period, it will become deeply discharged and sulfating occurs, destroying the battery. The 12-V battery is maintenance-free. The acid level does not have to be checked.

**Info**

The 12-V battery is recharged by the Powerpack HV when operating the vehicle. When the Powerpack HV is recharged in the vehicle, then the 12-V battery is also recharged.

**Preparatory work**

- Deactivate the vehicle. ^{HV} (📖 p. 18)
- Fold the seat up. ^{HV} (📖 p. 21)
- Remove the 12-V battery. ^{HV} (📖 p. 31)

Main work

- Connect a battery charger to the 12-V battery. Adjust the battery charger.

EU battery charger XCharge-professional (00029095050)
--

Alternative 1

US battery charger XCharge-professional (00029095051)

Alternative 2

UK battery charger XCharge-professional (00029095052)

i Info
 Never remove cover ❶.
 Follow the instructions of the charger and the manual.

- Disconnect the battery charger after charging the 12-V battery.
- Guideline

The charging current, charging voltage or charging time must not be exceeded.	
Recharge the 12-V battery regularly when the motorcycle is not being used	3 months

- Finishing work**
- Install the 12-V battery. (p. 32)
 - Lock the seat. (p. 21)



4.15 Removing the Powerpack HV

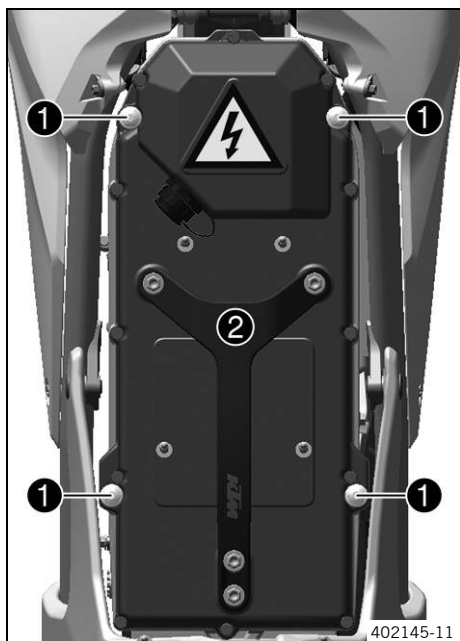
⚠ Warning
Risk of injury There is a risk of electric shock when working on high-voltage components. Work on high-voltage components requires special training, qualifications and tools.

- Work which has not been described and explained may only be performed by appropriately trained KTM specialists.
- Do not open the electric motor or the Powerpack HV.

🌸 Note
Environmental hazard A lithium-ion battery (Powerpack) contains components and elements that are harmful to the environment.

- Never throw a Powerpack into the household trash.
- Dispose of the Powerpack properly and in compliance with the applicable regulations.

- Preparatory work**
- Deactivate the vehicle. (p. 18)
 - Fold the seat up. (p. 21)



Main work

- Loosen screws ①.

Note

Material damage Components damaged or destroyed by water or dirt.

- Mount the protection cap after you have removed the Powerpack HV.
- Place the Powerpack HV on a clean and dry surface.

- Remove Powerpack HV ②.

Lifting strap (70029022000)

Info

The Powerpack HV is very heavy. A second person can help with removal.

- Store the Powerpack HV in the hazardous goods cabinet.

Fire-resistant cabinet for hazardous goods (70029016000)

Finishing work

- Mount the protection cap. HV (📖 p. 18)

4.16 Installing the Powerpack HV HV

Caution

Risk of injury The Powerpack HV is very heavy.

The Powerpack HV must rest flush on the electric motor after installation.

- Only lift the Powerpack HV by the carrying handle.
- Make sure that nobody is pinched when the Powerpack HV is removed or installed.

Note

Material damage Components damaged or destroyed by water or dirt.

- Before installing the Powerpack HV, check the discharge plug on the electric motor and the discharge socket on the Powerpack HV for cleanliness.
- Check the battery discharge plug form ring.
- Clean the battery discharge plug and the battery discharge socket without using water or compressed air if the battery discharge plug or the battery discharge socket is dirty.
- After cleaning, spray silicone spray onto the battery discharge plug form ring.

Preparatory work

- Carry out the equipotential bonding measurement (Powerpack HV removed). HV (📖 p. 38)

Main work

- Remove the protection cap. HV (📖 p. 19)
- Check the battery discharge plug form ring. HV (📖 p. 19)
- Position Powerpack HV ① in the vehicle.

Lifting strap (70029022000)

- ✓ The Powerpack HV rests flush with the electric motor.



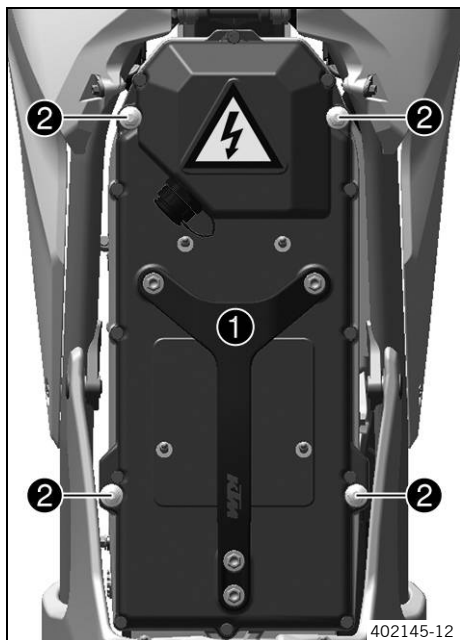
Info

The Powerpack HV is very heavy. A second person can help with installation.

- Tighten screws ②.

Guideline

Attaching Powerpack HV	M6	10 Nm (7.4 lbf ft)
------------------------	----	--------------------



Finishing work

- Carry out the equipotential bonding measurement (Powerpack HV installed). HV (📖 p. 38)
- Lock the seat. HV (📖 p. 21)

4.17 Removing the 12-V battery HV



Warning

Risk of injury Battery gases cause serious chemical burns.

- Keep the 12 V batteries out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Avoid contact with battery gases.
- Keep sparks or open flames away from the 12 V battery.
- Only charge 12 V batteries in well-ventilated rooms.
- In the event of contact with the skin, rinse the affected area with plenty of water.
- Flush eyes with water for at least 15 minutes and consult a physician if battery gases have come into contact with the eyes.





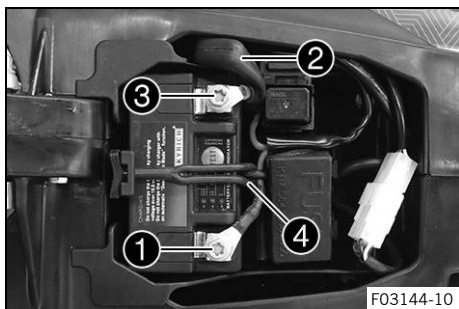
Note

Environmental hazard 12 V batteries contain environmentally hazardous materials.

- Do not dispose of 12 V batteries as household waste.
- Dispose of 12 V batteries at a collection point for used batteries.

Preparatory work

- Deactivate the vehicle.  p. 18)
- Fold the seat up.  p. 21)



Main work

- Disconnect negative cable **1** from the 12-V battery.
- Pull back positive terminal cover **2**.
- Disconnect positive cable **3** from the 12-V battery.
- Detach rubber strap **4**.
- Pull the 12-V battery upwards and out of the battery compartment.

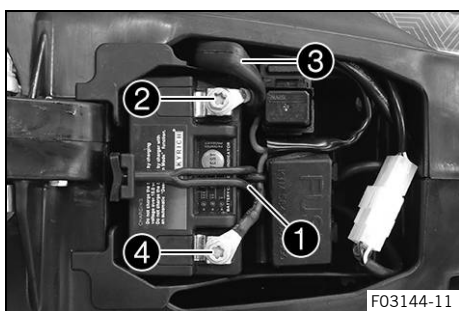
4.18 Installing the 12-V battery



Warning

Risk of injury Battery gases cause serious chemical burns.

- Keep the 12 V batteries out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Avoid contact with battery gases.
- Keep sparks or open flames away from the 12 V battery.
- Only charge 12 V batteries in well-ventilated rooms.
- In the event of contact with the skin, rinse the affected area with plenty of water.
- Flush eyes with water for at least 15 minutes and consult a physician if battery gases have come into contact with the eyes.



Main work

- Position the 12-V battery in the battery compartment.

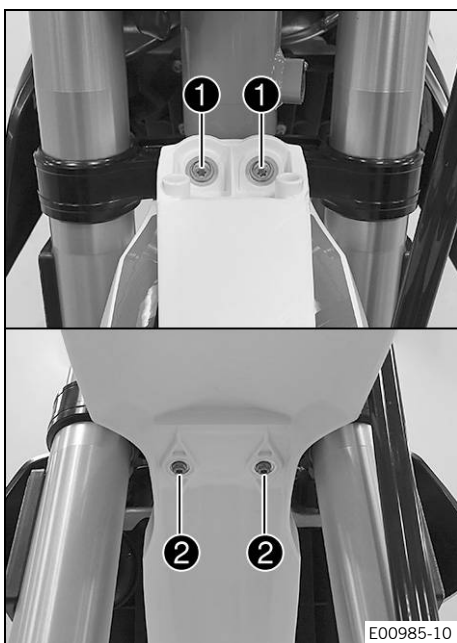
12-V battery (LFP01)

- Attach rubber strap **1**.
- Position positive cable **2** and mount and tighten the screw.
- Position positive terminal cover **3**.
- Position negative cable **4** and mount and tighten the screw.

Finishing work

- Lock the seat.  p. 21)

4.19 Installing front fender HV



Main work

- Position front fender. Mount and tighten screws ①.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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- Mount and tighten screws ②.

Guideline

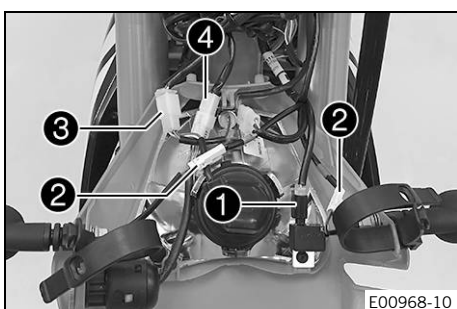
Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
---------------------------	----	--------------------

Finishing work

- Install the headlight mask with the headlight. HV (📖 p. 33)
- Install the Powerpack HV. HV (📖 p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed). HV (📖 p. 38)
- Lock the seat. HV (📖 p. 21)
- Check the headlight setting. HV (📖 p. 34)

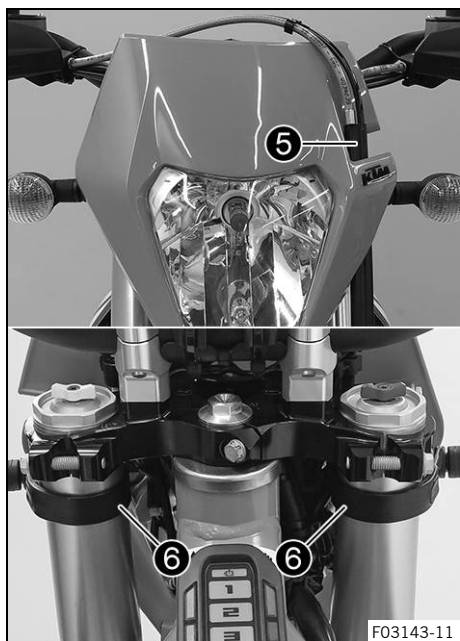


4.20 Installing the headlight mask with the headlight HV



Main work

- Join plug-in connector ① of the turn signal relay, plug-in connectors ② of the turn signals, plug-in connector ③ of the headlight and plug-in connector ④ of the ignition lock.

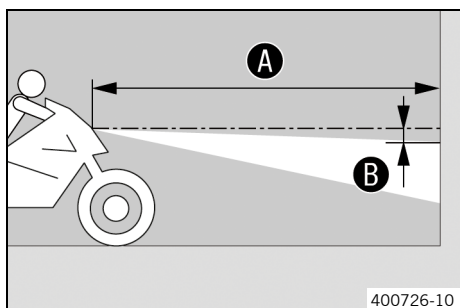


- Attach the brake line and wiring harness **5**.
- Position the headlight mask and secure it with rubber straps **6**.
- ✓ The holding lugs on the headlight mask engage in the fender.

Finishing work

- Install the Powerpack HV. **HV** (p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed). **HV** (p. 38)
- Lock the seat. **HV** (p. 21)
- Check the headlight setting. **HV** (p. 34)

4.21 Checking the headlight setting **HV**



- Position the vehicle upright on a horizontal surface in front of a light wall and make a mark at the height of the center of the low beam headlight.

- Make another mark at a distance **B** under the first marking.

Guideline

Distance B	5 cm (2 in)
-------------------	-------------

- Position the vehicle vertically a distance **A** away from the wall.

Guideline

Distance A	5 m (16 ft)
-------------------	-------------

- The rider now sits down on the motorcycle with a full set of protective clothing.
- Turn the ignition key in the ignition lock to the position \odot .
- Push the main switch into position \odot .
- Switch on the low beam.
- Check the headlight setting.

The boundary between light and dark must be exactly on the lower marking for a motorcycle with rider.

- » If the boundary between light and dark does not meet specifications:

- Adjust the headlight range. (📖 p. 35)



4.22 Adjusting the headlight range



Preparatory work

- Check the headlight setting. (📖 p. 34)

Main work

- Loosen screw **1**.
- Adjust the headlight range by pivoting the headlight.

Guideline

The boundary between light and dark must be exactly on the lower mark for a motorcycle with rider (instructions on how to apply the mark: Checking the headlight setting).

Info

A change in weight on the vehicle may require a correction of the headlight range.

- Tighten screw **1**.



4.23 Setting the combination instrument

Info

When the vehicle is delivered, only the **SPEED/H** and **SPEED/ODO** display modes are activated.

Condition

The motorcycle is stationary.

- Repeatedly press the button briefly until **H** appears at the bottom right of the display.
- Press the button for 2–3 seconds.
- ✓ The Setup menu is displayed and the active functions are shown.

Info

If no button is pressed for 10–12 seconds, the settings are automatically saved.
If no button is pressed for 20 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

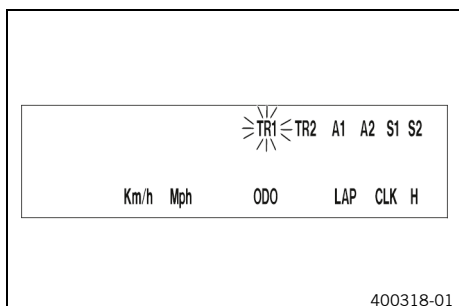
- Repeatedly press the button briefly until the desired function flashes.
- ✓ The selected function flashes.

Activating the function

- Press the button .
- ✓ The symbol continues to appear in the display and the next function appears.

Deactivating a function

- Press the button .

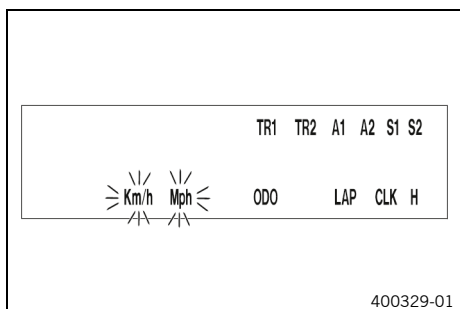


- ✓ The symbol disappears in the display and the next function appears.

4.24 Setting kilometers or miles [Ⓜ]

i Info

If you change the unit, the value **ODO** is retained and converted accordingly.
The values **TR1**, **TR2**, **A1**, **A2** and **S1** are cleared when the unit of measure is changed.



Condition

The motorcycle is stationary.

- Repeatedly press the button **+** briefly until **H** appears at the bottom right of the display.
- Press the button **+** for 2–3 seconds.
 - ✓ The Setup menu is displayed and the active functions are shown.
- Repeatedly press the button **+** briefly until **Km/h / Mph** flashes.

Adjusting the Km/h

- Press the button **+**.

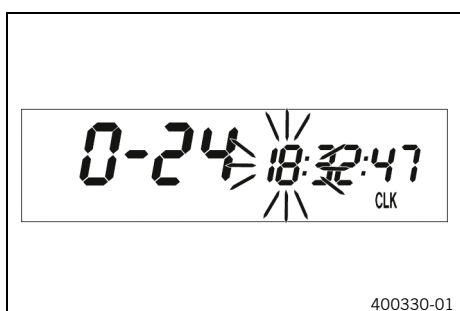
Adjusting the Mph

- Press the button **-**.
- Wait 3 - 5 seconds.
 - ✓ The settings are stored.

i Info

If no button is pressed for 10–12 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

4.25 Setting the clock [Ⓜ]



Condition

The motorcycle is stationary.

- Repeatedly press the button **+** briefly until **CLK** appears at the bottom right of the display.
- Press the button **+** for 2–3 seconds.
 - ✓ The hour display flashes.
- Adjust the hour display with button **+** and/or button **-**.
- Wait 3 - 5 seconds.
 - ✓ The next segment of the display flashes and can be set.
- You can set the following segments in the same way as the hours by pressing the button **+** and the button **-**.

i Info
 The seconds can only be set to zero.
 If no button is pressed for 15–20 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

4.26 Checking that the Powerpack HV is voltage-free ^{HV}₂

Warning
Risk of injury The measuring points could be live.
 – Use personal protective clothing and comply with the safety measures.

Condition
 Powerpack HV is removed.



Main work

- Prepare the special tool for measurement.

AVL DiTEST HV Safety 2000 (70029068000)

- Start software **HV Safety**.
- Select "**Zero-potential**".
- Follow the instructions in the **HV Safety** Owner's Manual.

Finishing work
 – Mount the protection cap. ^{HV} (📖 p. 18)

4.27 Ascertaining that the discharge plug is at zero potential ^{HV}₂

Warning
Risk of injury The measuring points could be live.
 – Use personal protective clothing and comply with the safety measures.

Condition
 Powerpack HV is removed.



Main work

- Prepare the special tool for measurement.

AVL DiTEST HV Safety 2000 (70029068000)

- Start software **HV Safety**.
- Select "**Zero-potential**".
- Follow the instructions in the **HV Safety** Owner's Manual.

Finishing work
 – Mount the protection cap. ^{HV} (📖 p. 18)

4.28 Carrying out the equipotential bonding measurement (Powerpack HV installed) ^{HV}₂



Warning

Risk of injury The measuring points could be live.

- Use personal protective clothing and comply with the safety measures.



Condition

Powerpack HV is installed.

- Prepare the special tool for measurement.

AVL DiTEST HV Safety 2000 (70029068000)

- Start software **HV Safety**.
- Select "**Equipotential bonding check**".
- Follow the instructions in the **HV Safety** Owner's Manual.

4.29 Carrying out the equipotential bonding measurement (Powerpack HV removed) ^{HV}₂



Warning

Risk of injury The measuring points could be live.

- Use personal protective clothing and comply with the safety measures.



Condition

Powerpack HV is removed.

- Prepare the special tool for measurement.

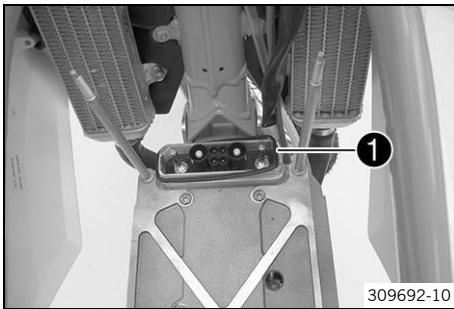
AVL DiTEST HV Safety 2000 (70029068000)

- Start software **HV Safety**.
- Select "**Equipotential bonding check**".
- Follow the instructions in the **HV Safety** Owner's Manual.

4.30 Changing the battery discharge plug form ring ^{HV}

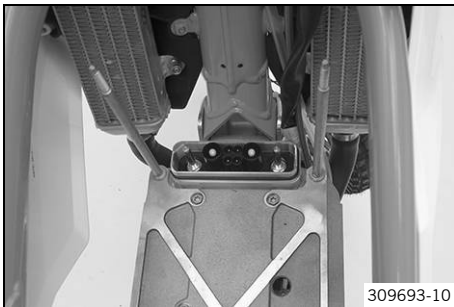
Preparatory work

- Check the battery discharge plug form ring. ^{HV} (📖 p. 19)
- Ascertain that the discharge plug is at zero potential. ^{HV} (📖 p. 37)






Main work

- Remove the form ring ❶.



- Spray silicone spray onto the new form ring.
- Mount the form ring.

Finishing work

- Install the Powerpack HV.  (📖 p. 30)
- Carry out the equipotential bonding measurement (Powerpack HV installed).  (📖 p. 38)
- Lock the seat.  (📖 p. 21)



5.1 Chassis tightening torques

Hose clamp, radiator	-	2.4 Nm (1.77 lbf ft)
Screw, chain guard on chain sliding guard	EJOT PT® K60x20	2 Nm (1.5 lbf ft)
Screw, combination instrument on combination instrument bracket	EJOT DELTA PT® 45x12-Z	1 Nm (0.7 lbf ft)
Screw, side cover	EJOT PT® K60x20	2 Nm (1.5 lbf ft)
Screw, spoiler	EJOT PT® K60x20AL	2 Nm (1.5 lbf ft)
Screw, on and off switch	M3	0.4 Nm (0.3 lbf ft)
Screw, fixed grip	M4	5 Nm (3.7 lbf ft) Loctite®243™
Spoke nipple	M4.5	6 Nm (4.4 lbf ft)
Clamp, wiring harness on engine	M5	6 Nm (4.4 lbf ft)
Remaining nuts, chassis	M5	5 Nm (3.7 lbf ft)
Remaining screws, chassis	M5	5 Nm (3.7 lbf ft)
Screw, battery terminal	M5	2.5 Nm (1.84 lbf ft)
Screw, cable cover on engine	M5	6 Nm (4.4 lbf ft)
Screw, shock absorber adjusting ring	M5	5 Nm (3.7 lbf ft)
Screws, throttle grip	M5	3 Nm (2.2 lbf ft)
Attaching Powerpack HV	M6	10 Nm (7.4 lbf ft)
Remaining nuts, chassis	M6	10 Nm (7.4 lbf ft)
Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
Screw for spoiler attachment	M6	6 Nm (4.4 lbf ft)
Screw, front brake disc	M6	14 Nm (10.3 lbf ft) Loctite®243™
Screw, radiator bracket	M6	6 Nm (4.4 lbf ft)
Screw, rear brake disc	M6	14 Nm (10.3 lbf ft) Loctite®243™
Nut, rear sprocket screw	M8	35 Nm (25.8 lbf ft) Loctite®2701™
Nut, rim lock	M8	10 Nm (7.4 lbf ft)
Remaining nuts, chassis	M8	25 Nm (18.4 lbf ft)
Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)
Screw, bottom triple clamp	M8	18 Nm (13.3 lbf ft)
Screw, chain sliding piece	M8	15 Nm (11.1 lbf ft)
Screw, fork stub	M8	15 Nm (11.1 lbf ft)
Screw, front brake caliper	M8	25 Nm (18.4 lbf ft) Loctite®243™
Screw, handlebar clamp	M8	20 Nm (14.8 lbf ft)
Screw, rear brake caliper	M8	25 Nm (18.4 lbf ft) Loctite®243™
Screw, rear engine sprocket cover	M8	15 Nm (11.1 lbf ft)
Screw, side stand attachment	M8	25 Nm (18.4 lbf ft) Loctite®243™
Screw, subframe	M8	30 Nm (22.1 lbf ft) Loctite®243™

Screw, top steering stem	M8	17 Nm (12.5 lbf ft) Loctite®243™
Screw, top triple clamp	M8	22 Nm (16.2 lbf ft)
Screw, wheel speed sensor	M8	4.5 Nm (3.32 lbf ft)
Shoulder bolt for attaching Powerpack HV	M8	15 Nm (11.1 lbf ft) Loctite®243™
Motor bracket screw	M10	60 Nm (44.3 lbf ft)
Remaining nuts, chassis	M10	45 Nm (33.2 lbf ft)
Remaining screws, chassis	M10	45 Nm (33.2 lbf ft)
Screw, cross bar	M10	45 Nm (33.2 lbf ft)
Screw, footrest bracket	M10	45 Nm (33.2 lbf ft) Loctite®243™
Screw, handlebar support	M10	40 Nm (29.5 lbf ft) Loctite®243™
Screw, motor guard	M10	30 Nm (22.1 lbf ft)
Screw, subframe top	M10	45 Nm (33.2 lbf ft) Loctite®243™
Screw, bottom shock absorber	M12	80 Nm (59 lbf ft) Loctite®2701™
Screw, top shock absorber	M12	80 Nm (59 lbf ft) Loctite®2701™
Nut, swingarm pivot	M14x1.5	75 Nm (55.3 lbf ft)
Nut, rear wheel spindle	M20x1.5	80 Nm (59 lbf ft)
Screw, front wheel spindle	M20x1.5	35 Nm (25.8 lbf ft)
Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)

Long-life grease

Recommended supplier

MOTOREX®

– Bike Grease 2000

**READY TO
RACE**



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03/2021



KTM

KTM Sportmotorcycle GmbH
5230 Mattighofen/Austria
KTM.com



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