MAINTENANCE GUIDE

Trimble UX5 Aerial Imaging Solution

Revision E
April 2016

Trimble

Legal Information

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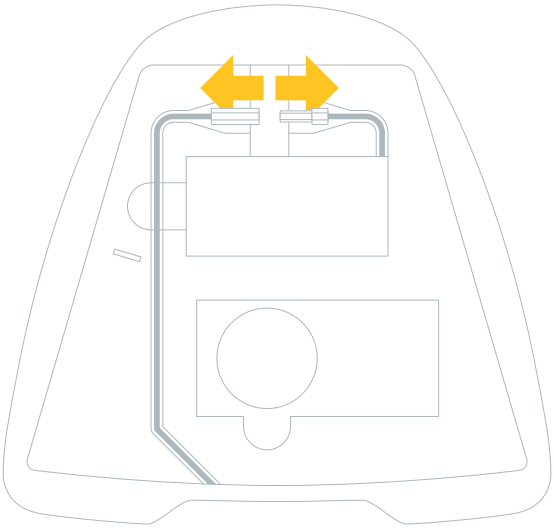
Safety

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



CHAPTER 1

Introduction

- Standard UX5 toolkit
- Orderable parts
- Removing parts from service

The *Trimble UX5 Aerial Imaging Solution Maintenance Guide* provides instructions for customer maintenance of the Trimble UX5 aerial imaging rover and launcher. Customer maintenance is required to keep the UX5 in good working order, and to replace parts that are designed to take the impact of landing, in order to protect the more expensive parts of the UX5.

Check the UX5 rover and launcher after each flight to ensure the equipment is in good working order, referring to the instructions in the *Trimble UX5 Aerial Imaging Solution User Guide*. Perform any maintenance required using the procedures in this maintenance manual. If you note any issues not covered in this guide, contact your Trimble distributor.

All procedures described in this manual apply exclusively to the Trimble UX5 aerial imaging rover and launcher.

Standard UX5 toolkit

The maintenance procedures in this manual refer to tools provided in the standard UX5 toolkit. You received the standard UX5 toolkit as part of the UX5 system components. The standard UX5 toolkit comprises:

- Torx T10 screwdriver
- Torx T6 screwdriver

These tools should be stored in the flight case.

Orderable parts

Each maintenance procedure lists the orderable parts for that procedure. Some procedures provide one or more similar parts that can be ordered. Order the part that meets your requirements. The parts can be ordered from your Trimble distributor.

Removing parts from service

To ensure scrap parts and non-serviceable parts are removed from service, you must do the following:

1. As soon as the part is removed from the UX5 aerial imaging rover or launcher, it must be clearly labeled as a scrap part using the following template:

2. Put the part in quarantine storage until the moment it can be disposed of in a safe and environmentally responsible way.

CHAPTER 2

UX5 body maintenance

- Replacing the servos
- Replacing the drive unit
- Replacing a propeller blade
- Replacing the camera filter
- Replacing a winglet or winglet screw
- Adapting the payload bay for the Sony a5100 camera
- Adapting the payload bay for the Sony NEX-5 camera

Replacing the servos

Note – *Trimble recommends replacing both servos at the same time.*

Orderable parts

Part number (P/N)	This part comprises
UX-S00118-01	• 2 x servo assembly, right • 2 x servo assembly, left • 2 x top servo housing • 2 x bottom servo housing • 8 x Torx T8 self-threading screws
UX-G00190-01	• Torx T8 screwdriver • Calibrated torque (0.55 Nm) Torx T8 screwdriver • Ball link pliers • Spring clamp

Required parts

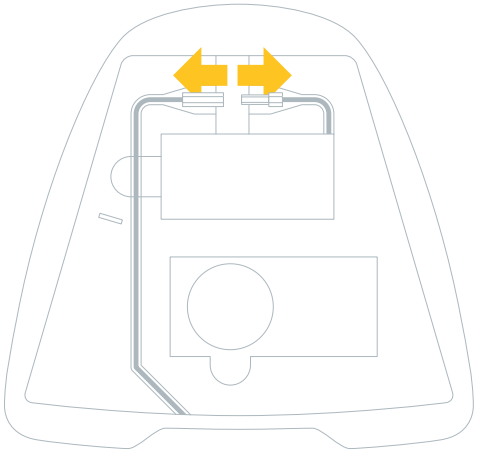
- 1 x servo assembly, right
- 1 x servo assembly, left
- 4 x Torx T8 self-threading screws

Required tools

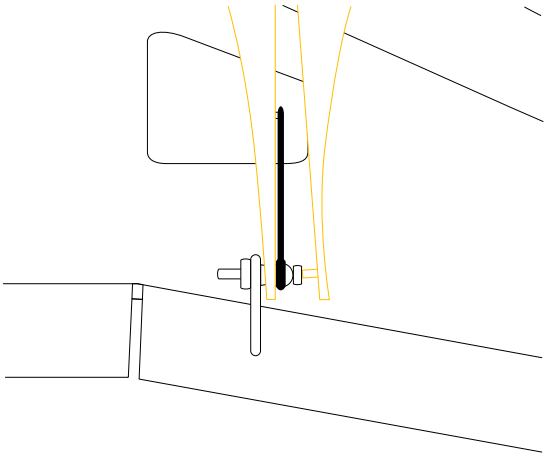
- Torx T8 screwdriver, calibrated torque (0.55 Nm) Torx T8 screwdriver, ball link pliers, and spring clamp (included in P/N UX-G00190-01)
- Torx T6 screwdriver (included in the standard UX5 toolkit)

Steps

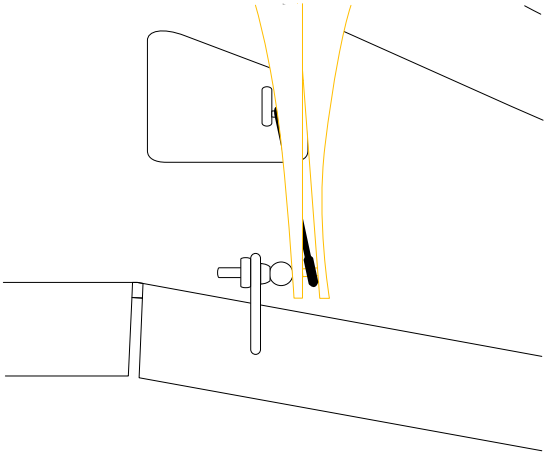
WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



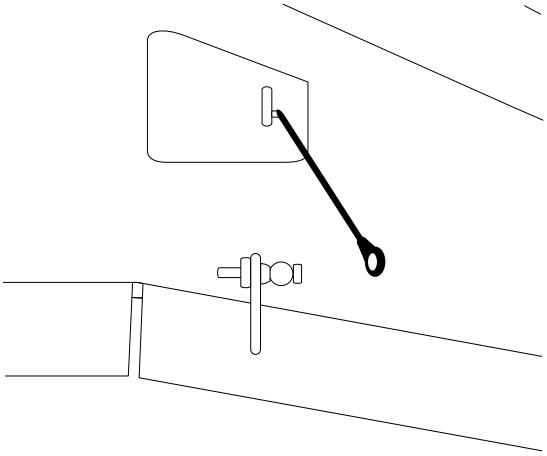
1. To disconnect the push rod from the outboard elevon:
   a. Position the ball link pliers with the large U-shaped side between the elevon horn and the push rod.



b. Close the pliers and align the extrusion on the inside of the pliers with the screw.

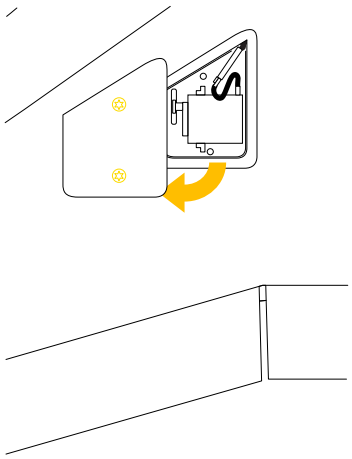


c. Apply force on the pliers until the plastic part of the push rod detaches from the metal ball.

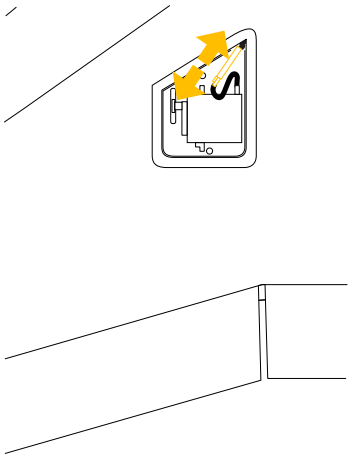


2. To remove the bottom servo housing:
   a. Turn the UX5 body upside down.
   b. Unscrew the two screws from the bottom servo housing using the Torx T8 screwdriver.

c. Remove the bottom servo housing and clearly mark the housing as a scrap item.

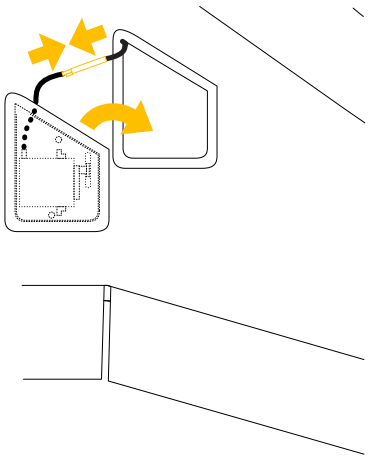


3. To remove the servo assembly from the UX5 body:
   a. Gently push the servo and top housing from the underside of the wing and out on the topside of the wing.
   b. Disconnect the servo connector by pushing down on the locking clip and pulling the two pieces apart.
   c. Clearly mark the removed servo and housing as a scrap item.



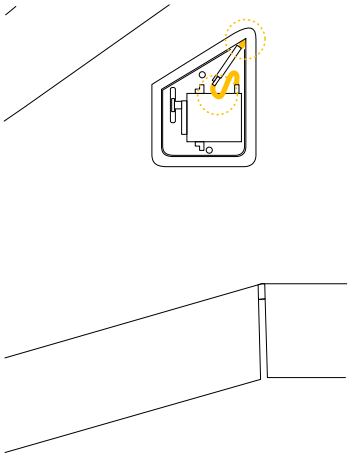
4. To connect and insert the new servo assembly:
   a. Turn over the UX5 body so that it is right-side-up.
   b. Connect the new servo assembly to the electronics of the UX5 body. Make sure the locking clip is secured.

      Note – *Make sure the connector clip has locked correctly in place. The locking clip is essential for safe operation as it prevents the connector from coming apart during flight.*

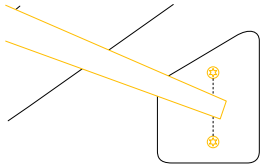


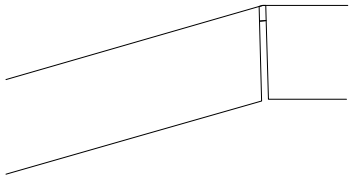
   c. Install the servo and top housing into the UX5 body from the upper side, making sure it sits flush with the wing surface.
5. To position the connector:
   a. Turn over the UX5 body so that it is upside down.
   b. Position the connector so that the wires going into the foam sit tidily inside the opening of the grey plastic and the wires on the servo side are left free.

CAUTION – Poorly inserted wires might cause damage to the wires. This can lead to mid-air failure, resulting in damage to the UX5.

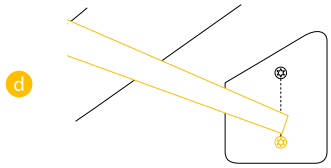


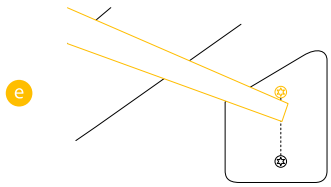
6. To close the bottom servo housing:
   a. Insert the bottom servo housing in the UX5, making sure that the servo wires are not squeezed between the two housing parts.
   b. Hold the servo in place using the spring clamp. Make sure that the clamp is positioned in the middle of the servo housing (the middle of a line between the two screws is a good reference) without obstructing the servo arm.
   c. Use the Torx T8 screwdriver to attach the two screws until they sit flush with the housing (do not tighten them).



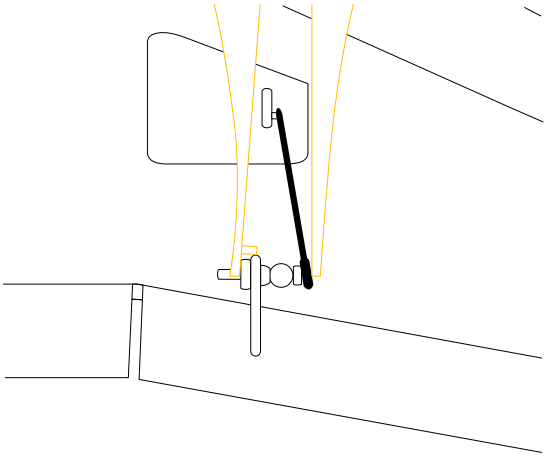


   d. Move the spring clamp as close as possible to the rear screw and tighten the screw using the calibrated (0.55 Nm) Torx T8 screwdriver.
   e. Move the spring clamp as close as possible to the front screw and tighten the screw using the calibrated (0.55 Nm) Torx T8 screwdriver.

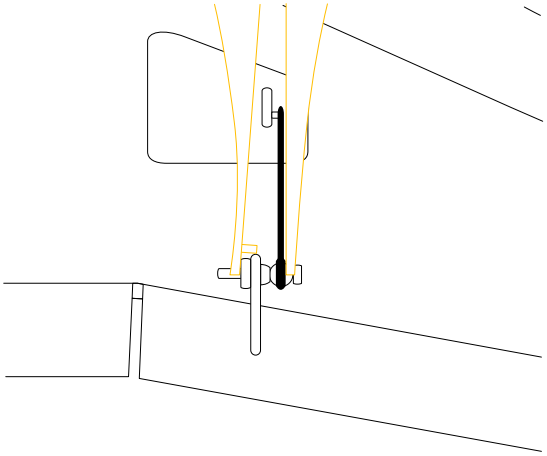




7. To attach the push rod to the outboard elevon:
   a. Position the ball link pliers with the large U-shaped side at the push rod and the small U-shaped side on the other side of the elevon horn.

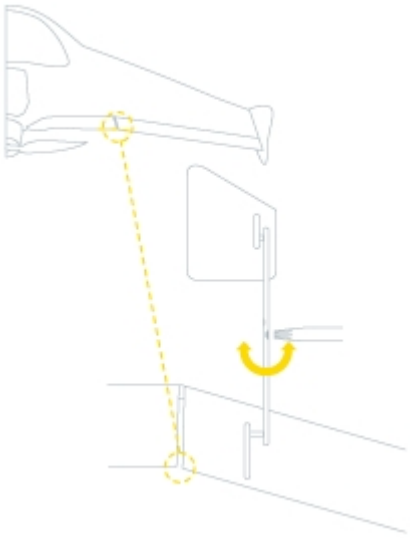


b. Close the pliers and align the large U-shaped side of the pliers over the plastic part of the push rod.
c. Apply force on the pliers until the plastic part of the push rod attaches to the metal ball.



8. Check the elevon trim. To do this, you must run the flight checklist in the Aerial Imaging software and perform the *Check elevon trim* step of the checklist with the new servos.

   Note – *If required, use the Torx T6 screwdriver to adjust the elevons. The outboard elevon should be leveled with the inboard elevon (less than 1 mm of offset).*



Replacing the drive unit

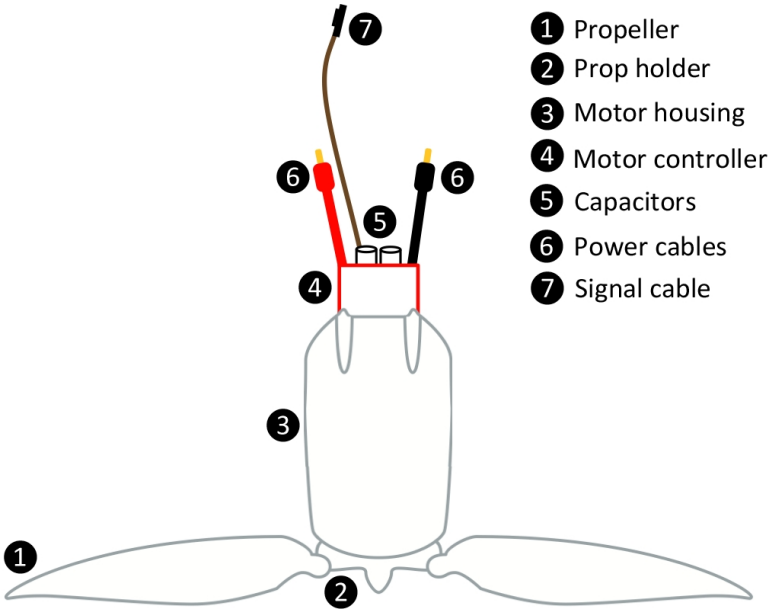
Orderable parts

Part number (P/N)	This part comprises
UX-G00165-01	• 1 x Trimble UX5 drive unit • 10 x Trimble UX5 drive unit screws, M3x10 Torx SS-A2 locking coated • 5 metal washers • 5 plastic washers
UX-G00156-01	• 1 x Trimble UX5 drive unit • 10 x Trimble UX5 drive unit screws, M3x10 Torx SS-A2 locking coated • 5 metal washers • 5 plastic washers • 1 x tool – fixed 1.2 Nm torque screwdriver with T10 bit

Required parts

- 1 x Trimble UX5 drive unit
- 3 x Trimble UX5 drive unit screws, M3x10 Torx SS-A2 locking coated
- 3 x metal washers
- 3 x plastic washers

The parts of the drive unit are shown below:



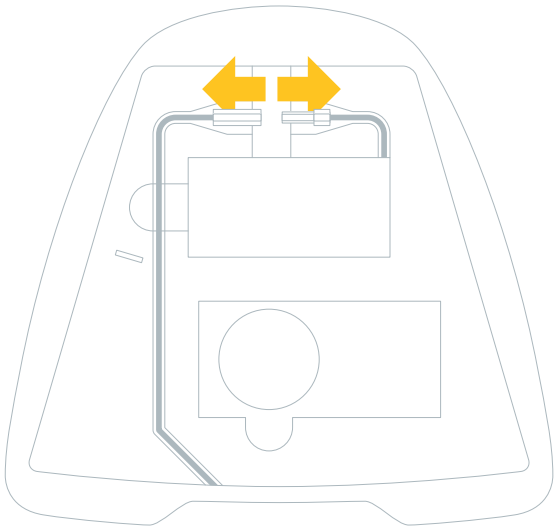
Required tools

- Torx T10 screwdriver (included in the standard UX5 toolkit)
- Fixed 1.2 Nm torque screwdriver with T10 bit

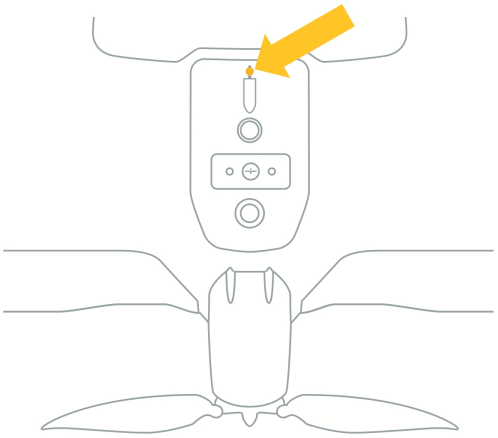
Steps

To watch a video of this procedure, go to http://uas.trimble.com/replace-ux5-drive-unit.

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



1. To remove the eBox from the body of the UX5:
   a. Use the Torx T10 screwdriver to remove the screw of the eBox from the body.

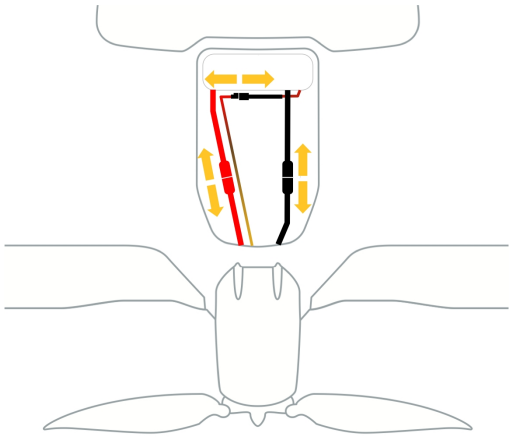


   b. To remove the eBox, pull the pitot tube holder (***do not*** pull the pitot tube) so that the eBox pivots around its back.

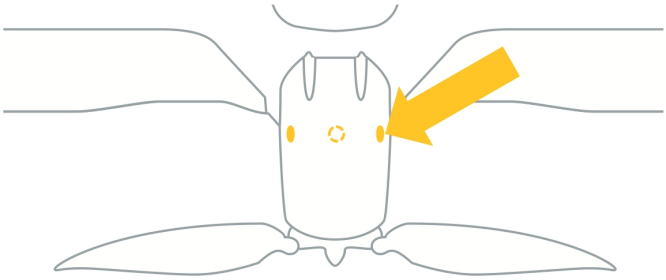
2. To disconnect the three cable connectors running along the bottom of the eBox bay:
   a. Remove the cables from their cable duct.

      Note – *Do not use sharp tools to perform this action.*

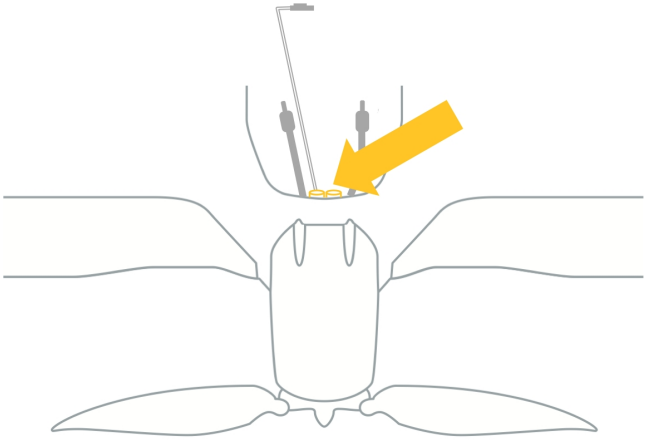
   b. For the power cables, pull the connector parts apart. For the signal cable, push down the clip and then pull the connector parts apart.



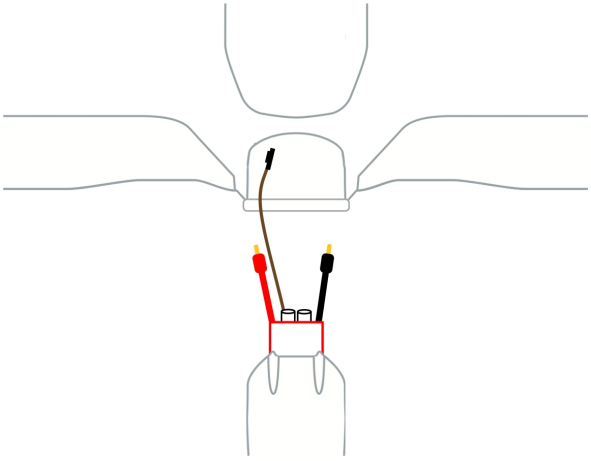
3. To remove the drive unit from the body:
   a. Use the Torx T10 screwdriver to loosen the three screws that attach the motor housing to the body.



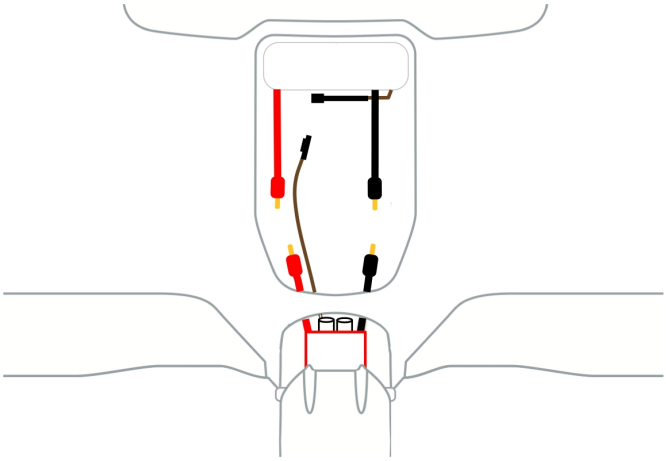
   b. Gently push the two capacitors of the motor controller backward through the tail of the body until the drive unit loosens from the body.



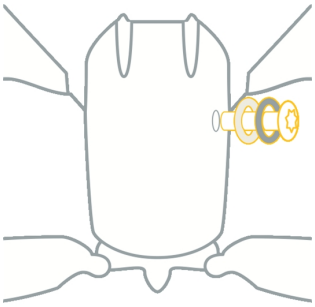
c. Remove the drive unit from the body and then ***mark the drive unit as a scrap part***.



4. To attach the new drive unit to the body:
   a. Insert the three cables from the new motor controller through the tail of the body into the eBox bay.
   b. Gently pull the red and black power cable further into the eBox bay until the motor housing slides over the tail of the body. ***Do not*** pull on the signal cable.

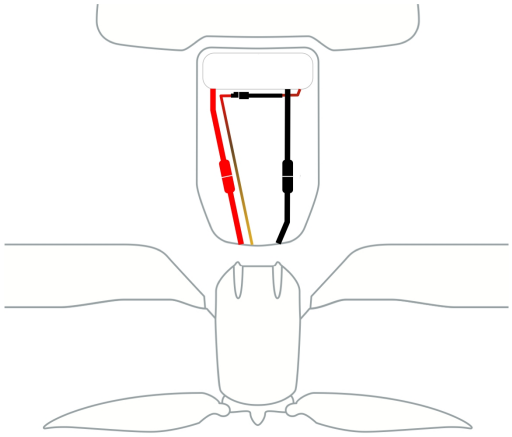


c. Fasten the motor housing onto the body with the new, coated Torx T10 screws and washers using the ***1.2 Nm torque screwdriver***. Make sure that the plastic washer is on the side of the motor housing. You may need to push the drive unit slightly to align it with the screw holes.



Note – *Do not use the old Torx T10 screws and do not use the normal Torx T10 screwdriver. The 1.2 Nm torque screwdrive makes a clicking sound at the moment the screw is tightened to the correct torque setting.*

5. To connect the connectors of the three cables running through the eBox bay:
   a. Connect the connectors. For the power cables, make sure to connect the black wire to the black connector and the red wire to the red connector. For the signal cable, make sure the clip is well secured. If the cables are too long at the rear of the eBox bay, push the motor controller a few millimeters back toward the tail of the body.
   b. Insert the cables into their cable duct. The connector of the signal cable fits into the cavity near the wiring box. Once this is finished the cables in the eBox bay should look like this:



6. Check the following:

The red power cable is connected to the red connector.	☐
The black power cable is connected to the black connector.	☐
The signal cable connector is well-secured.	☐
All cables are inserted into their duct.	☐
All three screws attaching the motor housing to the body have a metal and plastic washer and are tightened to the correct torque.	☐

7. Insert the eBox again and fasten it to the body using the Torx T10 screwdriver.
8. Go through the flight checklist and make sure the motor is emitting a sound after arming the UX5. Disarm the UX5 immediately after this check.

WARNING – Do not leave the system armed. Once the system is armed, the motor can start, causing parts of the UX5 to move. This can cause personal injury and/or damage to objects from moving parts.

9. Scrap the old drive unit and make sure that it does not return to service.

Replacing a propeller blade

Note – *Trimble recommends replacing both propeller blades at the same time.*

Orderable parts

Part number (P/N)	This part comprises
UX-S00102-01	• 30 x Trimble UX5 pair of propeller blades (12 x 11")

Required parts

- 1 x Trimble UX5 pair of propeller blades

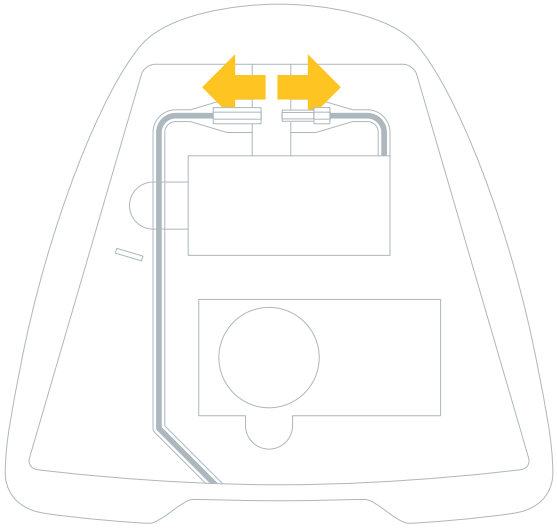
Required tools

- Torx T10 screwdriver (included in the standard UX5 toolkit)

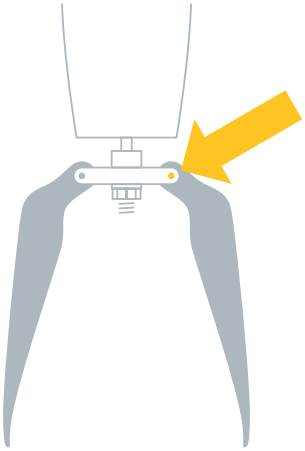
Steps

To watch a video of this procedure, go to http://uas.trimble.com/replace-ux5-propeller.

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:

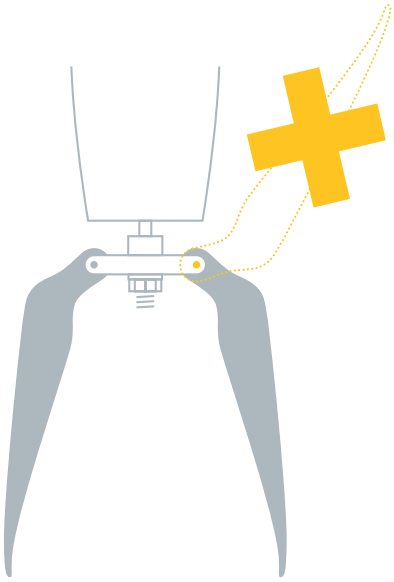


1. Use the Torx T10 screwdriver to remove the screw of the propeller blade that you want to replace.

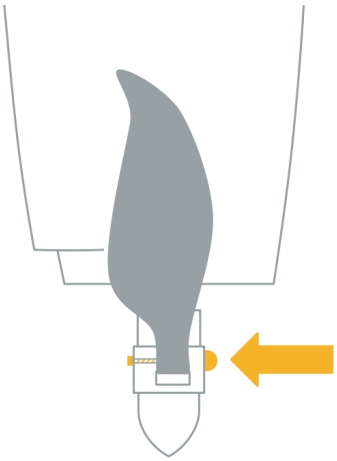


2. To attach the new propeller blade:
   a. Mount the new propeller blade, taking care to correctly position the blade. Confirm that the white text on the propeller is facing toward the wing.

WARNING – Incorrectly positioned propellers can cause personal injury and/or damage to the UX5.



b. Insert the screw into the holder and through the propeller, making sure that the orientation of the screw is correct. The screw should move from the thin part of the motor holder to the thicker part (the thicker part has a slit and tread in it).



c. Tighten the screw until you feel a slight resistance to the propeller movement.

Replacing the camera filter

Orderable parts

Part number (P/N)	This part comprises
UX-S00105-01	• 20 x Trimble UX5 UV filter
UX-S00119-01	• 5 x Trimble UX5 yellow-orange filter

Required parts

You will need ***one*** of the following parts:

- 1 x Trimble UX5 UV filter

  or
- 1 x Trimble UX5 yellow-orange filter

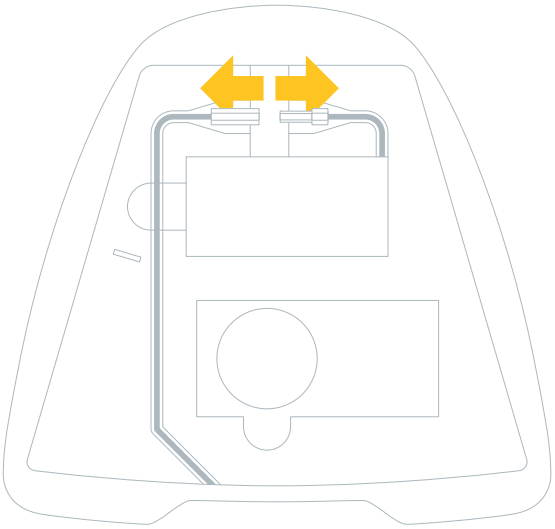
Required tools

No tools are required for this procedure.

Steps

To watch a video of this procedure, go to http://uas.trimble.com/replace-ux5-camera-filter.

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



1. To remove the filter, unscrew it from the UX5 body.

2. To insert a new filter, screw it into the UX5 body, taking care not to damage the filter thread by over-tightening it.

Replacing a winglet or winglet screw

Note – *Trimble recommends replacing both winglet screws at the same time.*

Orderable parts

Part number (P/N)	This part comprises
UX-S00100-01	• 5 x Trimble UX5 winglet pairs
UX-S00101-01	• 1000 x Trimble UX5 spare screws for the winglet

Required parts

- 1 x Trimble UX5 winglet
- 2 x Trimble UX5 spare screws for the winglet

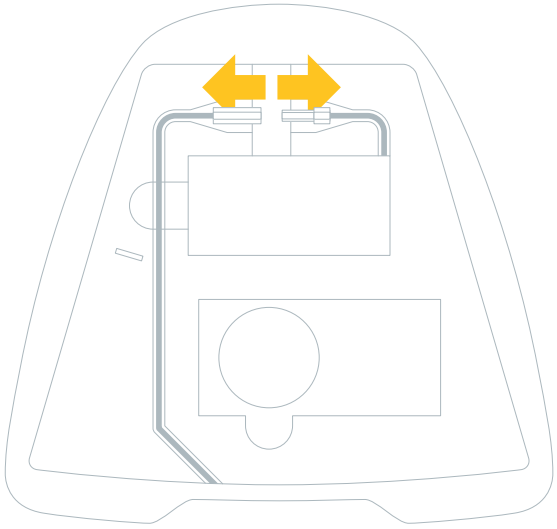
Required tools

- Torx T6 screwdriver (included in the standard UX5 toolkit)

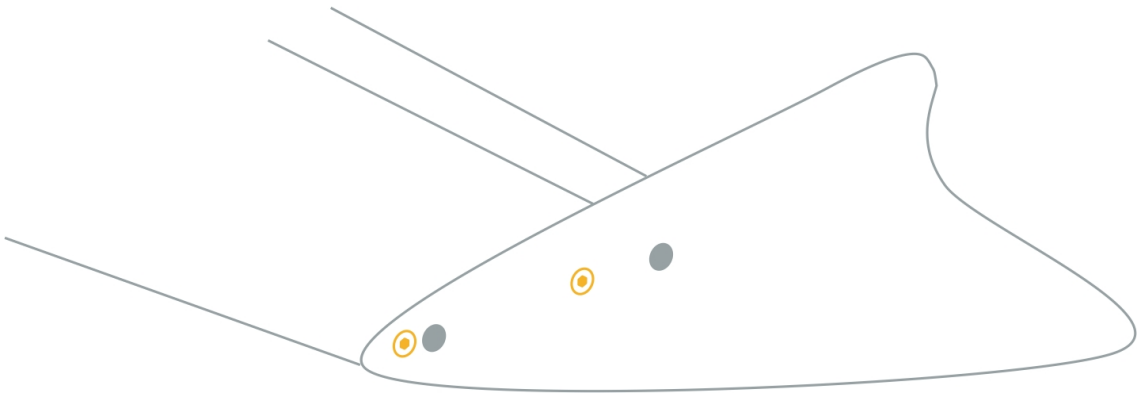
Steps

To watch a video of this procedure, go to http://uas.trimble.com/replace-ux5-winglet.

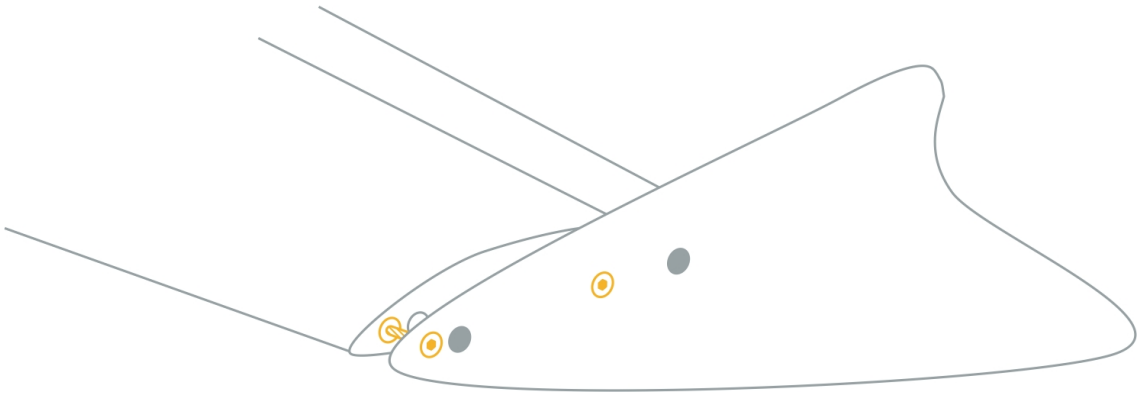
WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



1. Use the Torx T6 screwdriver to remove the screws of the winglet that you want to replace.



2. To mount the winglet, align the rivet pins into the correct position on the winglet and fasten the winglet screws without over-tightening them.



Adapting the payload bay for the Sony a5100 camera

Before you use the UX5 aerial imaging rover with the Sony a5100 camera, make sure that the payload bay is compatible for use with the Sony a5100 camera.

Note – *These instructions apply only to UX5 bodies that have a serial number greater than S/N UX501218.*

Orderable parts

Part number (P/N)	This part comprises
UX-G00191-01	• Sony NEX-5 adapter pieces • IR LED cable • IR LED protection cap • Sony a5100 adapter piece • USB cable

Required parts

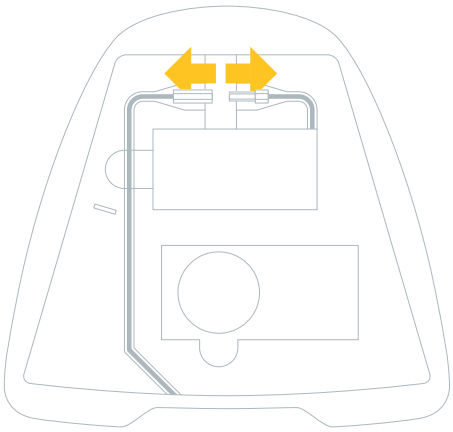
- Sony a5100 adapter piece
- USB cable

Required tools

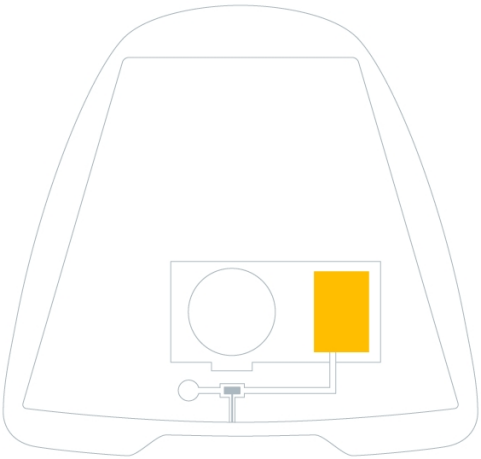
No tools are required for this procedure.

Steps

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



1. Insert the adapter piece into the camera cavity of the payload bay of the UX5 body.
2. Connect the USB cable to the camera and to the connector from the eBox. Insert the eBox connection vertically into the cavity.



Adapting the payload bay for the Sony NEX-5 camera

Before you use the UX5 aerial imaging rover with the Sony NEX-5 camera, make sure that the payload bay is compatible for use with the Sony NEX-5 camera. By default, the UX5 body is tooled for the Sony a5100 camera.

Note – *These instructions apply only to UX5 bodies that have a serial number greater than S/N UX501218.*

Orderable parts

Part number (P/N)	This part comprises
UX-G00191-01	• Sony NEX-5 adapter pieces • IR LED cable • IR LED protection cap • Sony a5100 adapter piece • USB cable

Required parts

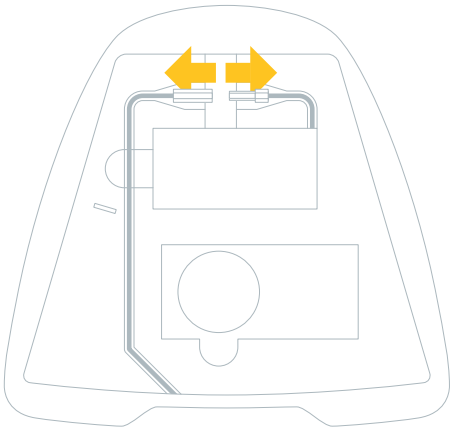
- Sony NEX-5 adapter pieces
- IR LED cable
- IR LED protection cap

Required tools

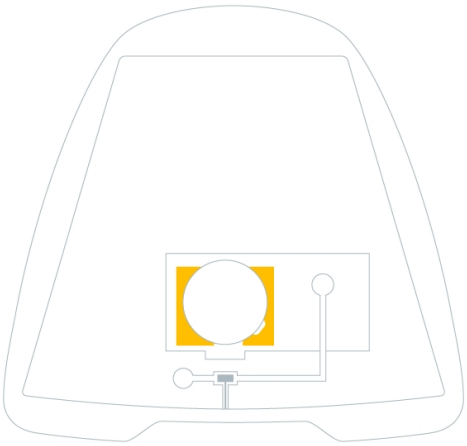
No tools are required for this procedure.

Steps

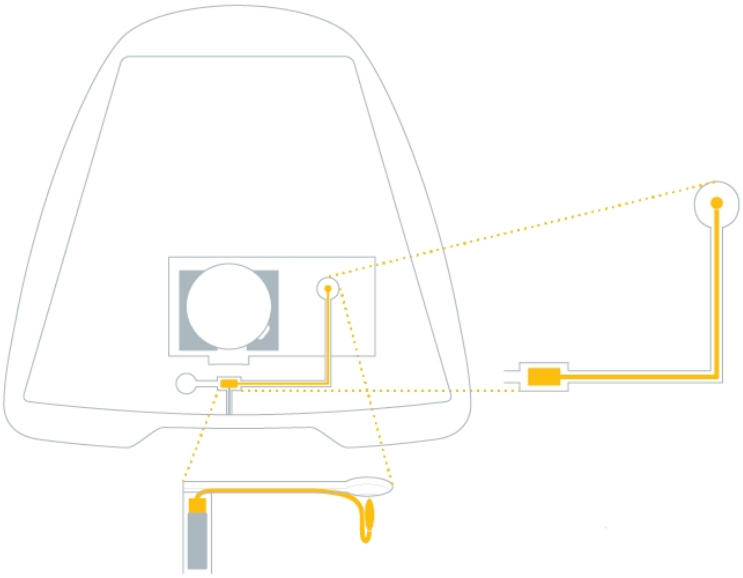
WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



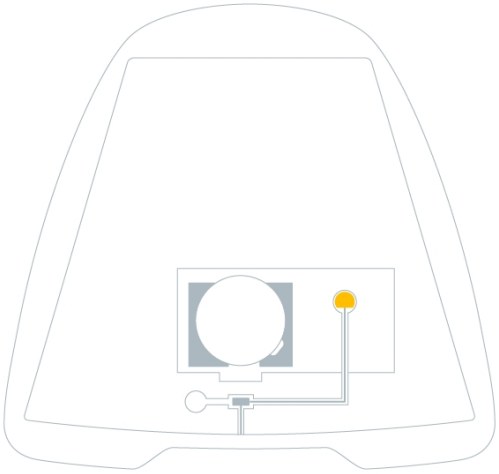
1. Make sure that the Sony a5100 adapter piece and the USB trigger cable are removed from the payload bay. Do not use any sharp tools for this.
2. Insert the two adapter pieces into the camera cavity of the payload bay of the UX5 body.
3. Insert the IR LED cable into the cable duct:
   a. Without using any sharp tools, position the LED vertically in the round opening and gently push the cable into the duct.



   b. Connect the IR LED cable connector to the connector from the eBox and insert the connection vertically into the cavity.



c. Cover the IR LED with the protection cap. The cap should be flush with the surface.



CHAPTER 3

Camera maintenance

- Assembling the camera body and lens (Sony a5100)
- Disassembling the camera body and lens (Sony a5100)
- Adjusting the camera focus (Sony a5100)
- Assembling the camera body and lens (Sony NEX-5)
- Disassembling the camera body and lens (Sony NEX-5)
- Adjusting the camera focus (Sony NEX-5)

Assembling the camera body and lens (Sony a5100)

Orderable parts

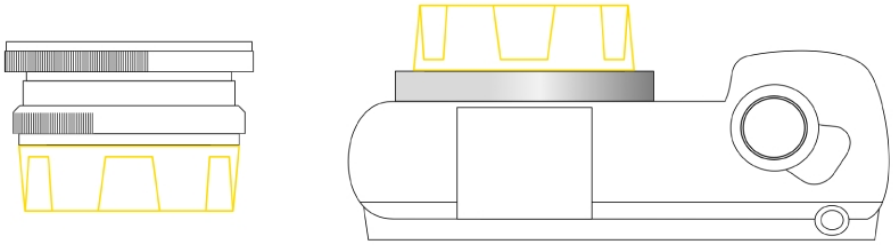
Part number (P/N)	This part comprises
UX-G00208-01 (RGB)	• 1 x camera body, battery, charger
UX-G00209-01 (NIR)	• 1 x camera body, battery, charger
UX-G00204-01	• 1 x 15 mm lens, 0.9 mm Allen key, lens tissues (wet and dry)

Required tools

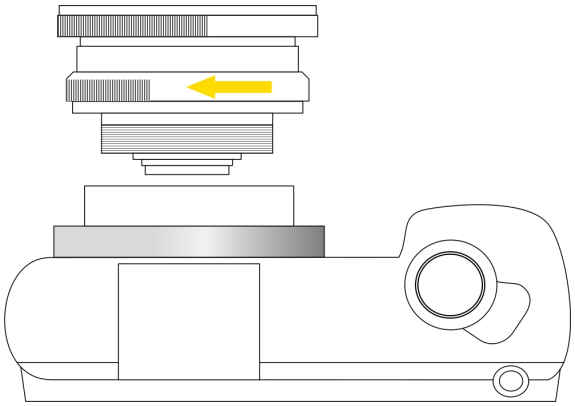
- You need a dust-free environment to complete this procedure

Steps

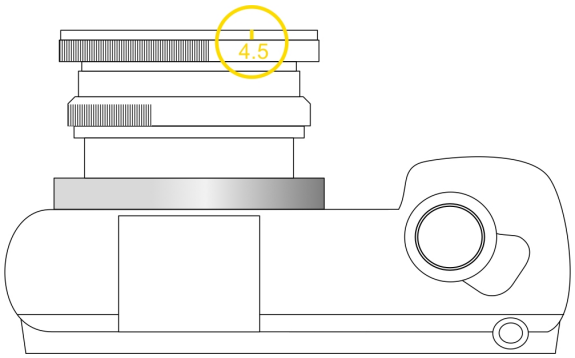
CAUTION – To avoid damage to the lens or optics, make sure you work in a dust-free environment when handling the lens and camera body. Do not touch the internal optics. Always put the dust cap on the internal optics when the lens or camera body is not in use.



1. Mount the lens onto the camera body. Make sure it is tightly screwed.



2. The camera lens comes with the correct aperture setting of 4.5, which is fixed with the aperture stop screw.



Note – *If you need to change the lens aperture, loosen the aperture stop screw using the 0.9 mm Allen key (do not remove the screw). Set the aperture to 4.5 and then tighten the aperture stop screw using the 0.9 mm Allen key.*

Disassembling the camera body and lens (Sony a5100)

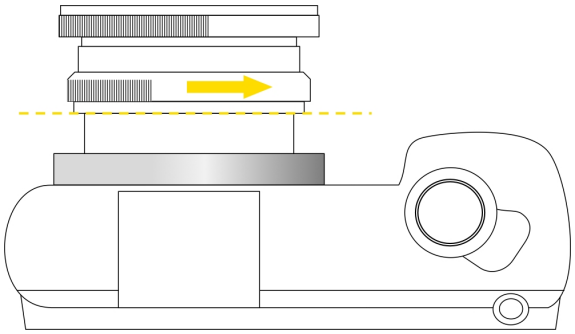
Required tools

- You need a dust-free environment to complete this procedure

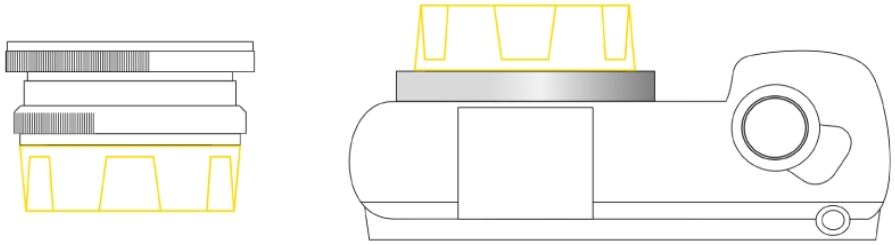
Steps

CAUTION – To avoid damage to the lens or optics, make sure you work in a dust-free environment when handling the lens and camera body. Do not touch the internal optics.

1. Unscrew the lens from the camera body.



2. Put the dust cap on the internal optics when the lens or camera body is not in use.



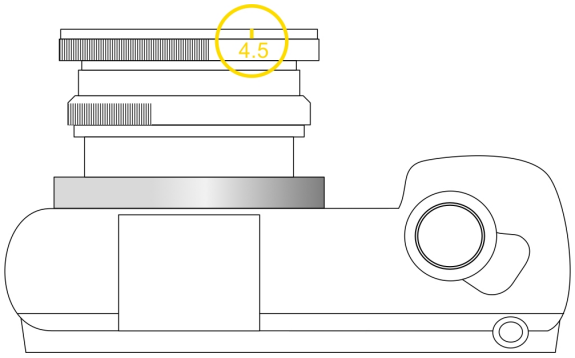
Adjusting the camera focus (Sony a5100)

Required tools

- Allen key 0.9 mm (included in the lens kit – see Assembling the camera body and lens (Sony a5100))
- Target with straight edges (for example, a building) and a stable surface at 100 m (328 ft) from the target
- You need a dust-free environment to complete this procedure

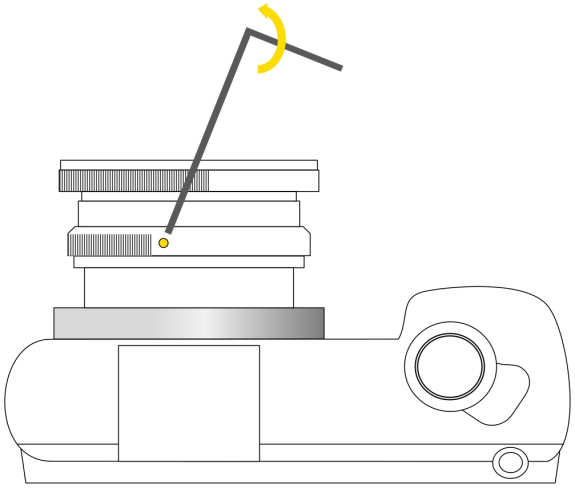
Steps

1. Insert the camera battery.
2. The camera lens comes with the correct aperture setting of 4.5, which is fixed with the aperture stop screw.

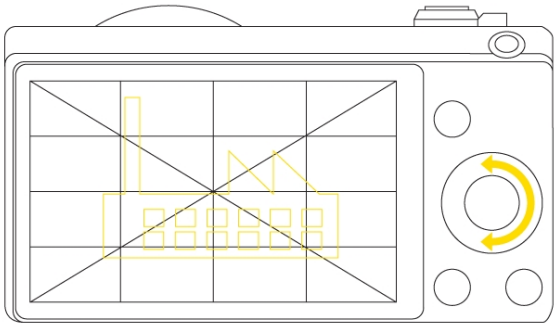


Note – *If you need to change the lens aperture, loosen the aperture stop screw using the 0.9 mm Allen key (do not remove the screw). Set the aperture to 4.5 and then tighten the aperture stop screw using the 0.9 mm Allen key.*

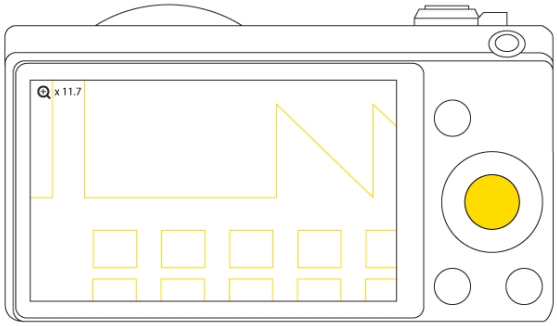
3. Loosen the focus ring stop screw using the 0.9 mm Allen key (do not remove the screw).



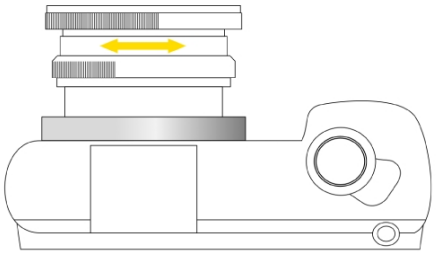
4. Turn on the camera and make sure that the grid lines are displayed. To show the grid, select *Menu* / *Custom setting* / *1* / *Grid Line* and select the *Diag. + Square Grid* option.
5. To adjust the focus:
   a. Place the camera on a stable surface (preferably a tripod), 100 m (328 ft) away from the target. Make sure that the center of the grid on the camera display focuses on the straight edges of the target.
   b. Turn the control button to set the shutter speed so that the lighting is good for the camera.



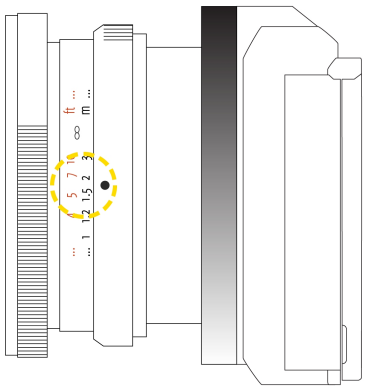
   c. Click the control button once to select the area that you want to piece out. Then click the control button twice to make the area 11.7 times larger.



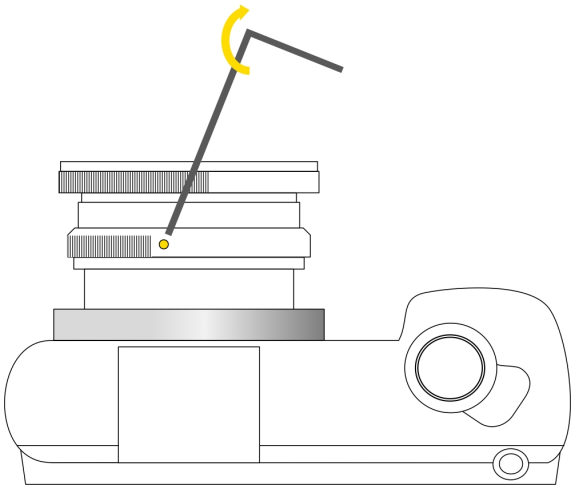
d. Turn the focus ring back and forth until you find the position that provides the largest number of red pixels around the straight lines of the target.



e. Make a note of the focal length value.



f. With this position selected, tighten the focus ring stop screw with the 0.9 mm Allen key. Make sure not to turn the focus ring as you do this.



g. Verify that the focal length still has the value that you noted down in step e. If not, repeat steps d, e, and f.

Assembling the camera body and lens (Sony NEX-5)

Orderable parts

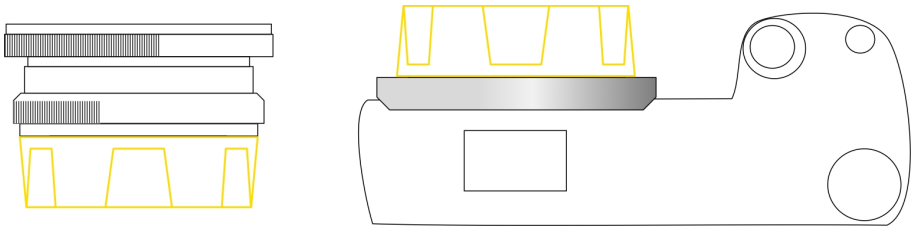
Part number (P/N)	This part comprises
UX-G00204-01	• 1 x 15 mm lens, 0.9 mm Allen key, lens tissues (wet and dry)

Required tools

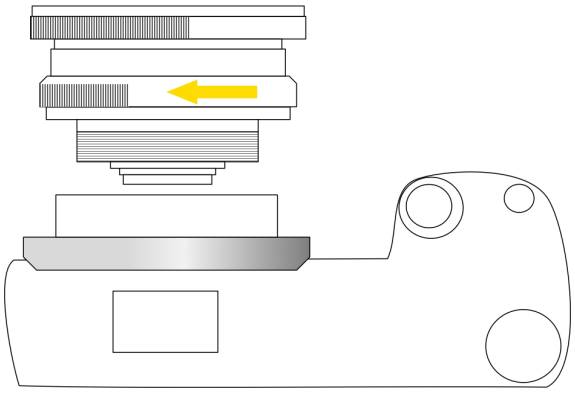
- You need a dust-free environment to complete this procedure

Steps

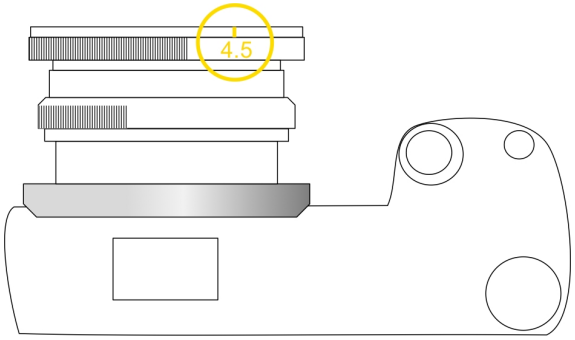
CAUTION – To avoid damage to the lens or optics, make sure you work in a dust-free environment when handling the lens and camera body. Do not touch the internal optics. Always put the dust cap on the internal optics when the lens or camera body is not in use.



1. Mount the lens onto the camera body. Make sure it is tightly screwed.



2. The camera lens comes with the correct aperture setting of 4.5, which is fixed with the aperture stop screw.



Note – *If you need to change the lens aperture, loosen the aperture stop screw using the 0.9 mm Allen key (do not remove the screw). Set the aperture to 4.5 and then tighten the aperture stop screw using the 0.9 mm Allen key.*

Disassembling the camera body and lens (Sony NEX-5)

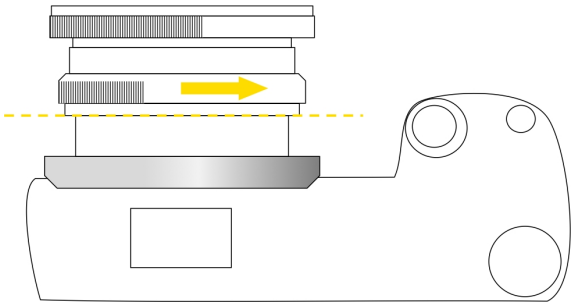
Required tools

- You need a dust-free environment to complete this procedure

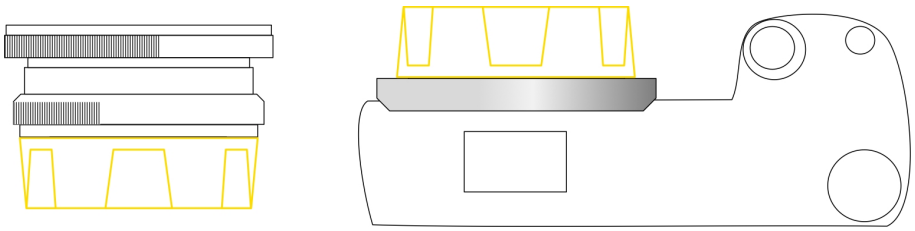
Steps

CAUTION – To avoid damage to the lens or optics, make sure you work in a dust-free environment when handling the lens and camera body. Do not touch the internal optics.

1. Unscrew the lens from the camera body.



2. Put the dust cap on the internal optics when the lens or camera body is not in use.



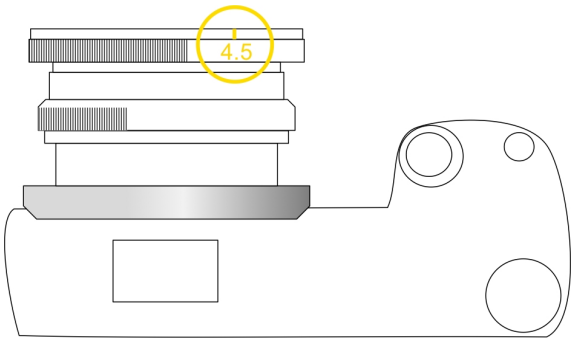
Adjusting the camera focus (Sony NEX-5)

Required tools

- Allen key 0.9 mm (included in the lens kit – see Assembling the camera body and lens (Sony NEX-5))
- Target with straight edges (for example, a building) and a stable surface at 100 m (328 ft) from the target
- You need a dust-free environment to complete this procedure

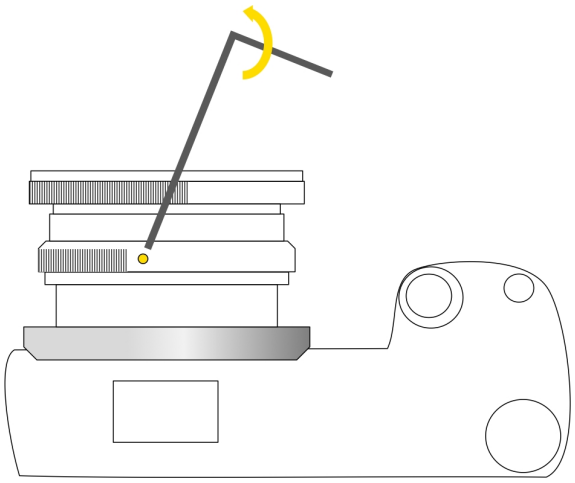
Steps

1. Insert the camera battery.
2. The camera lens comes with the correct aperture setting of 4.5, which is fixed with the aperture stop screw.



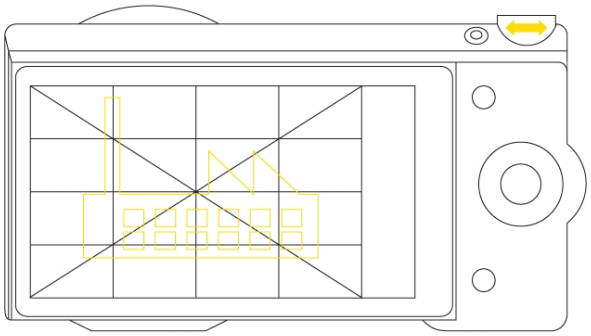
Note – *If you need to change the lens aperture, loosen the aperture stop screw using the 0.9 mm Allen key (do not remove the screw). Set the aperture to 4.5 and then tighten the aperture stop screw using the 0.9 mm Allen key.*

3. Loosen the focus ring stop screw using the 0.9 mm Allen key (do not remove the screw).

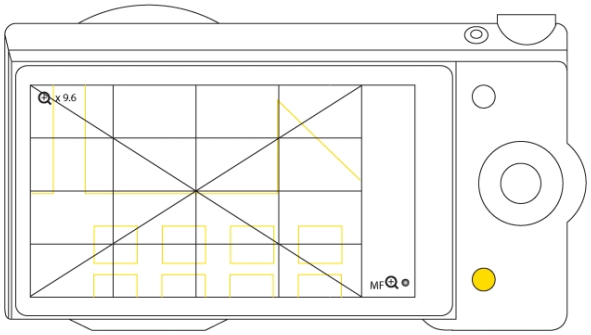


4. Turn on the camera and make sure that the grid lines are displayed. To show the grid, select *Menu* / *Setup* / *Grid Line* and select the *Diag. + Square Grid* option.

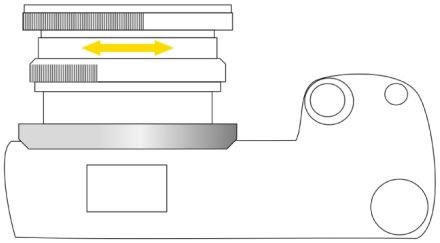
5. To adjust the focus:
   a. Place the camera on a stable surface (preferably a tripod), 100 m (328 ft) away from the target. Make sure that the center of the grid on the camera display focuses on the straight edges of the target.
   b. Turn the control button to set the shutter speed so that the lighting is good for the camera.

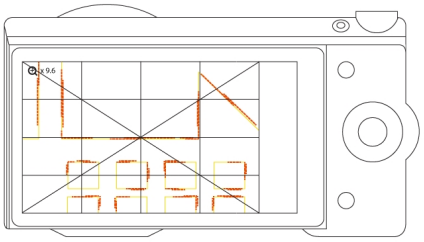


   c. Click the MF twice to make the area 9.6 times larger.

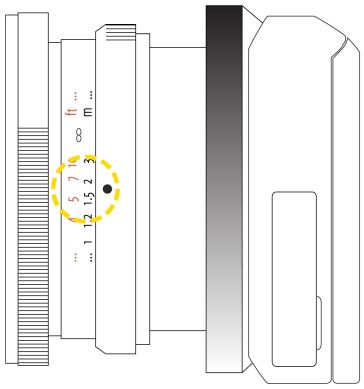


   d. Turn the focus ring back and forth until you find the position that provides the largest number of red pixels around the straight lines of the target.

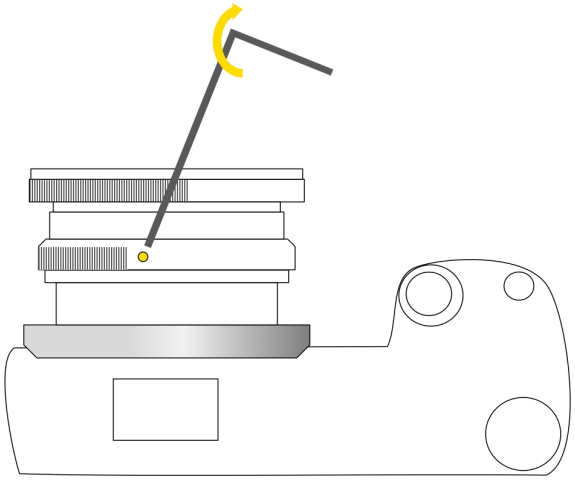




e. Make a note of the focal length value.



f. With this position selected, tighten the focus ring stop screw with the 0.9 mm Allen key. Make sure not to turn the focus ring as you do this.



g. Verify that the focal length still has the value that you noted down in step e. If not, repeat steps d, e, and f.

CHAPTER 4

eBox maintenance

- Checking the pitot tube

Checking the pitot tube

Orderable parts

Part number (P/N)	This part comprises
UX-S00103-01	• 50 x Trimble UX5 spare pitot tubes

Required parts

- 1 x Trimble UX5 spare pitot tube

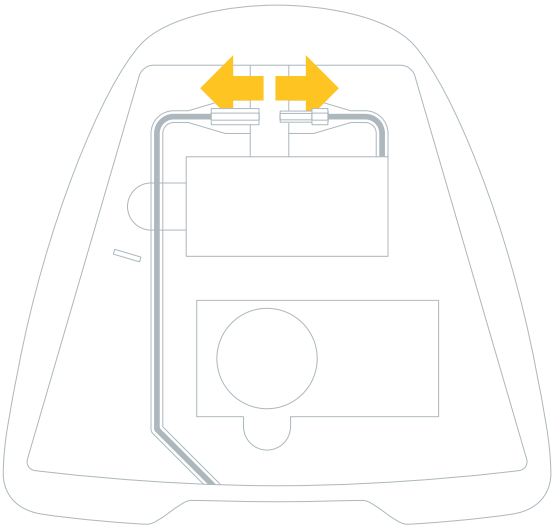
Required tools

No tools are required for this procedure.

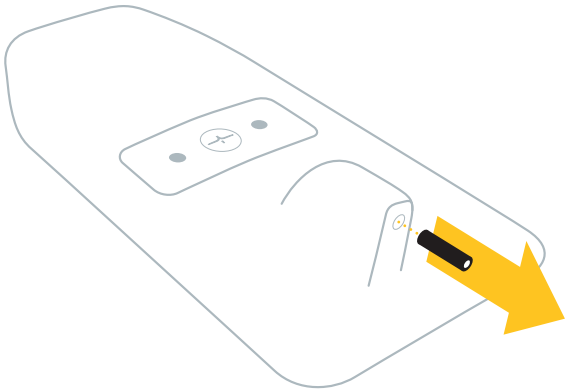
Steps

To watch a video of this procedure, go to http://uas.trimble.com/replace-ux5-pitot-tube.

WARNING – Before performing maintenance on any part of the UX5 aerial imaging rover, always make sure that the UX5 battery is disconnected from the aircraft:



1. To remove the pitot tube, hold the housing and firmly pull the tube straight out of the housing.



2. Make sure the tube is not damaged or bent.
3. Blow into the tube to make sure nothing is blocking it.

CAUTION – Only blow into the pitot tube after you have removed it from the eBox. Do not blow into the pitot tube when it is connected to the eBox because this will damage the barometric sensors.

4. To insert the pitot tube, hold the housing and gently push the pitot tube straight into the housing until it reaches the end of the housing.

CHAPTER 5

Launcher maintenance

- Replacing the launcher cord
- Replacing the wheels of the launcher dock

Replacing the launcher cord

Orderable parts

Part number (P/N)	This part comprises
UX-S00117-01	• 2 x Trimble launcher cord • 2 x Mounting plate • 4 x Torx T10 screws

Required parts

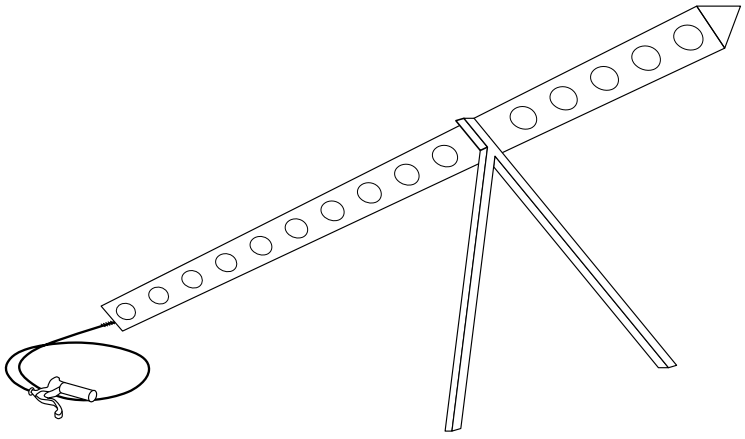
- 1 x Trimble launcher cord
- 1 x mounting plate
- 2 x Torx T10 screws

Required tools

- Torx T10 screwdriver (included in the standard UX5 toolkit)
- Stork pliers (optional tool)

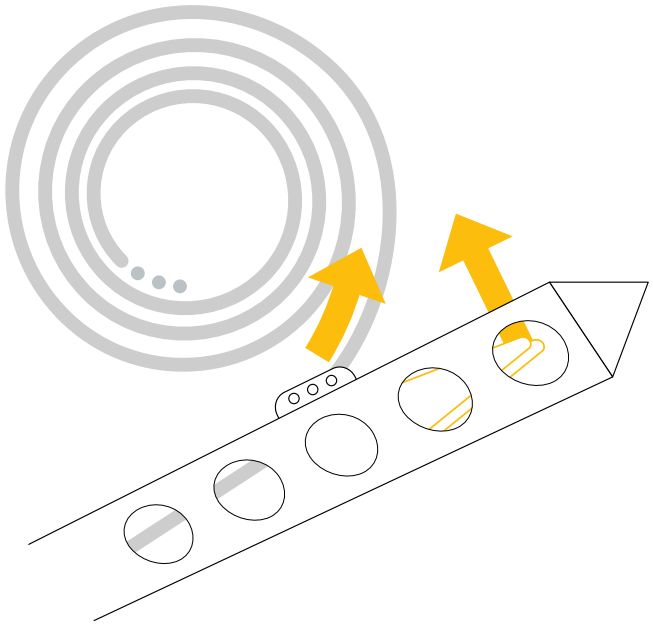
Steps

1. Assemble the launcher, but without installing the launch dock:

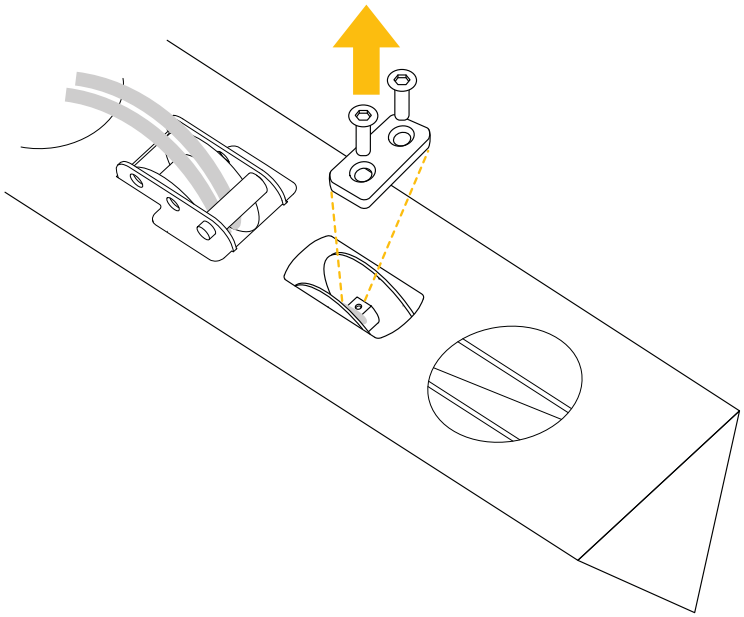


For more information, refer to the *Trimble UX5 Launcher Quick Start Guide*.

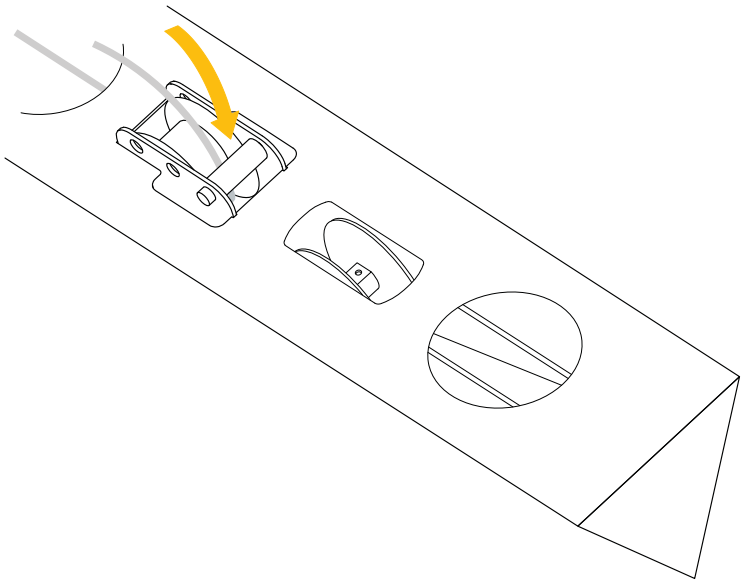
2. To remove the launcher cord (the elastic and rope) from the launch slide:
   a. Lift the release handles in the front of the launcher and then pull the cord out of the launch slide until the end.



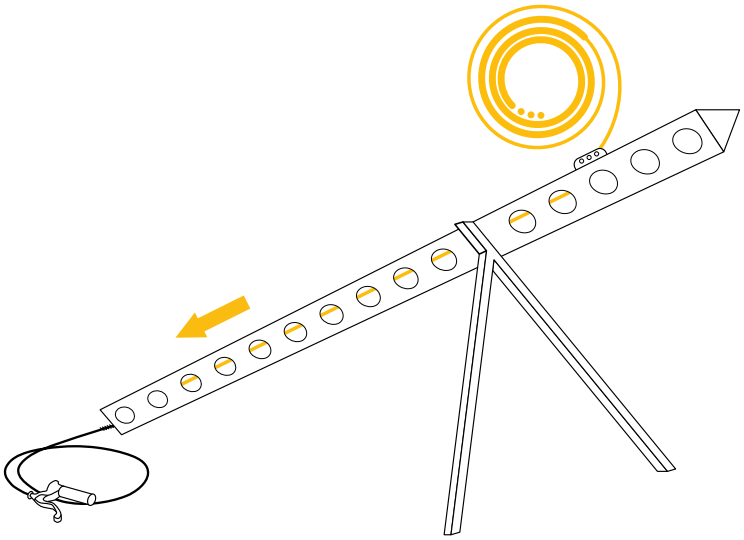
   b. To detach the launcher cord, use the Torx T10 screwdriver to remove the two screws of the mounting plate that holds the end of the rope.



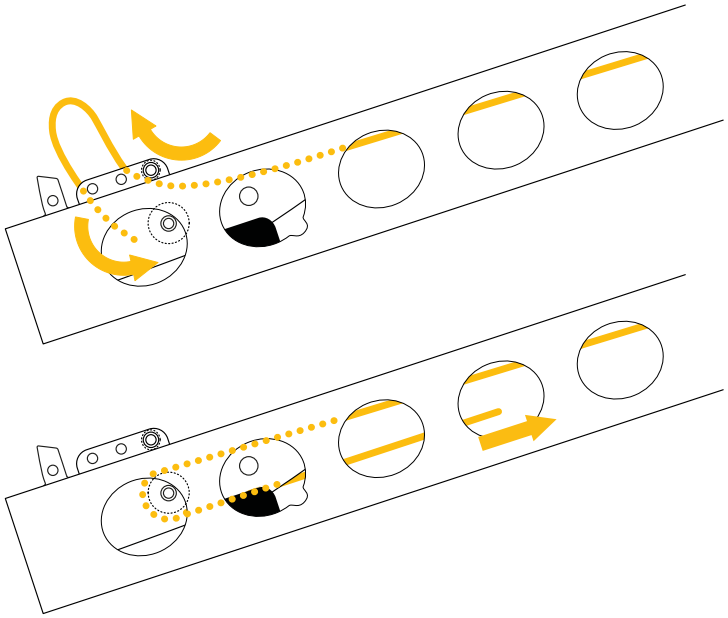
3. To insert a new cord in the launch slide:
   a. Insert the end of the rope in the front of the launcher, as shown:



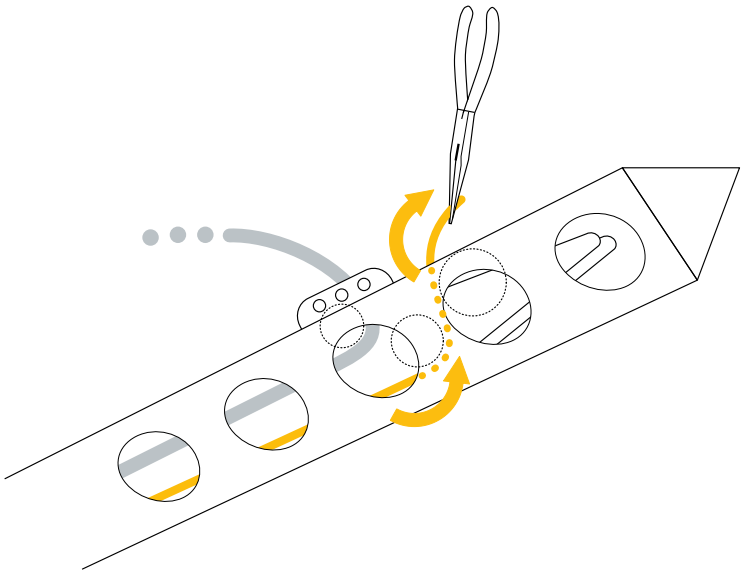
   b. Guide the rope through the launch slide until you reach the launch hook at the bottom end of the launcher.



c. Take the end of the rope out of the launcher, guide it downward around the wheel and then pull it through the launch slide toward the front of the launcher. Make sure the rope forms two parallel lines without any twists.

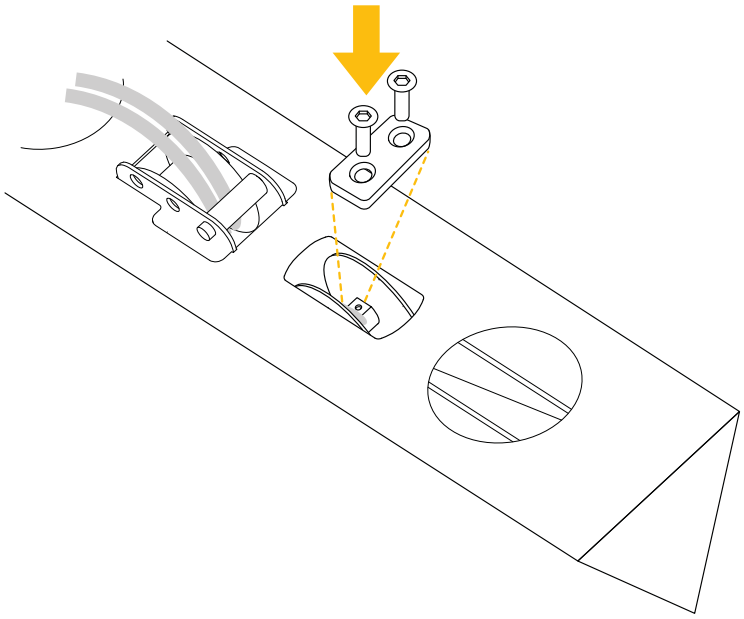


d. Guide the rope through the wheel system using the pliers. Follow the yellow line as shown. Using the pliers, pull the rope out of the launch slide.



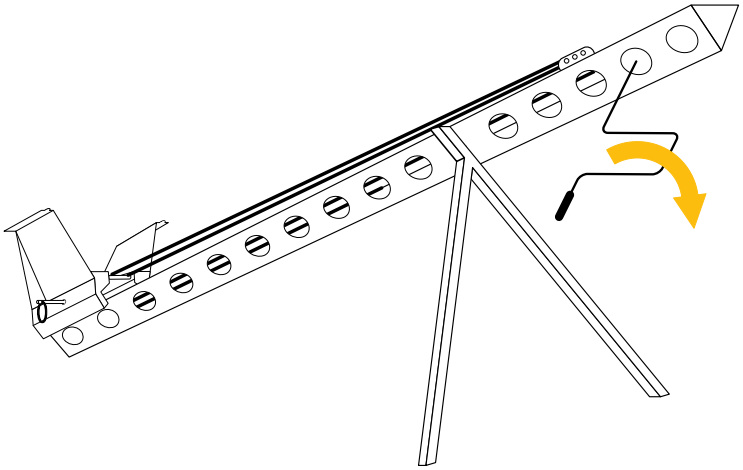
e. Position the rope on the slot located on the axis of the wind-up wheel. Fix the new mounting plate with the two screws using the Torx T10 screwdriver. When both screws are inserted, tighten them firmly.

Note – *Do not to tighten the first screw until you have fixed the second screw. The mounting plate can bend if there is high tension on one side.*

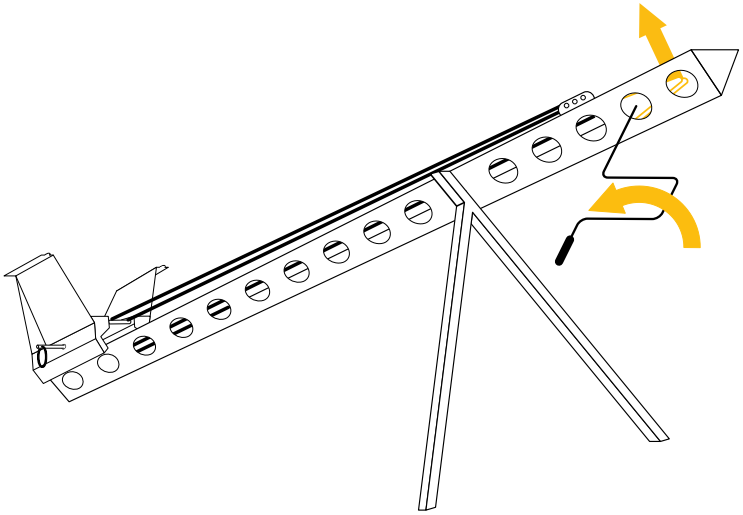


4. To verify everything has been fitted correctly:
   a. Slide the launch dock over the ends of the launcher cord and attach the ends of the launcher cord to the launch dock.
   b. Slide the launch dock over the hook at the beginning of the launch slide. Make sure the launch dock clicks into position.
   c. Insert the safety pin into the launch dock.
   d. Insert the crank in the launch slide and tighten the launch cord (but not as much as when preparing the an actual launch).

CAUTION – Never launch without the UX5 sitting on the dock as it will damage the launch dock. The design of the launcher takes into account the weight of the UX5 sitting on the launch dock.



5. To release the tension, release the force with the crank very gently while pulling the release handles in the front of the launcher upward. This is safest done by two people, with one person carefully winding the crank counter-clockwise to counteract the force on the elastics.



Replacing the wheels of the launcher dock

Note – *Trimble recommends replacing all of the launcher dock wheels at the same time.*

Orderable parts

Part number (P/N)	This part comprises
UX-G00158-01	• 16 x Launcher dock wheels • 1 x Tool – T-30 L-wrench

Required parts

- 8 x Launcher dock wheels

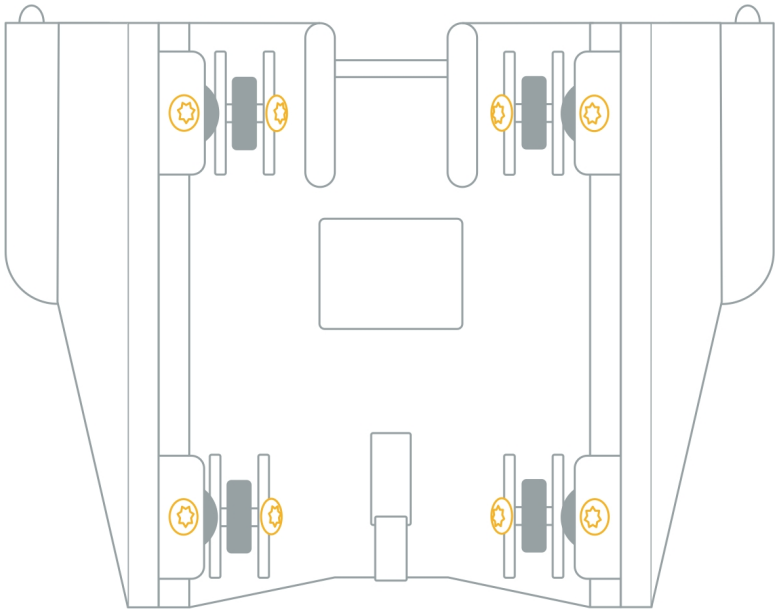
Tools

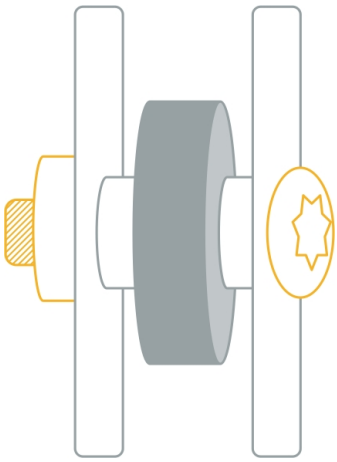
- T30 L-wrench

Steps

For each wheel:

1. Use the Torx T30 L-wrench to remove the screw that runs through the wheel.



2. Remove the wheel.
3. Insert the new wheel, making sure the holes through the wheel and the mounting plates are aligned.

4. Insert the screw and tighten.
   The replaced wheel appears as shown: