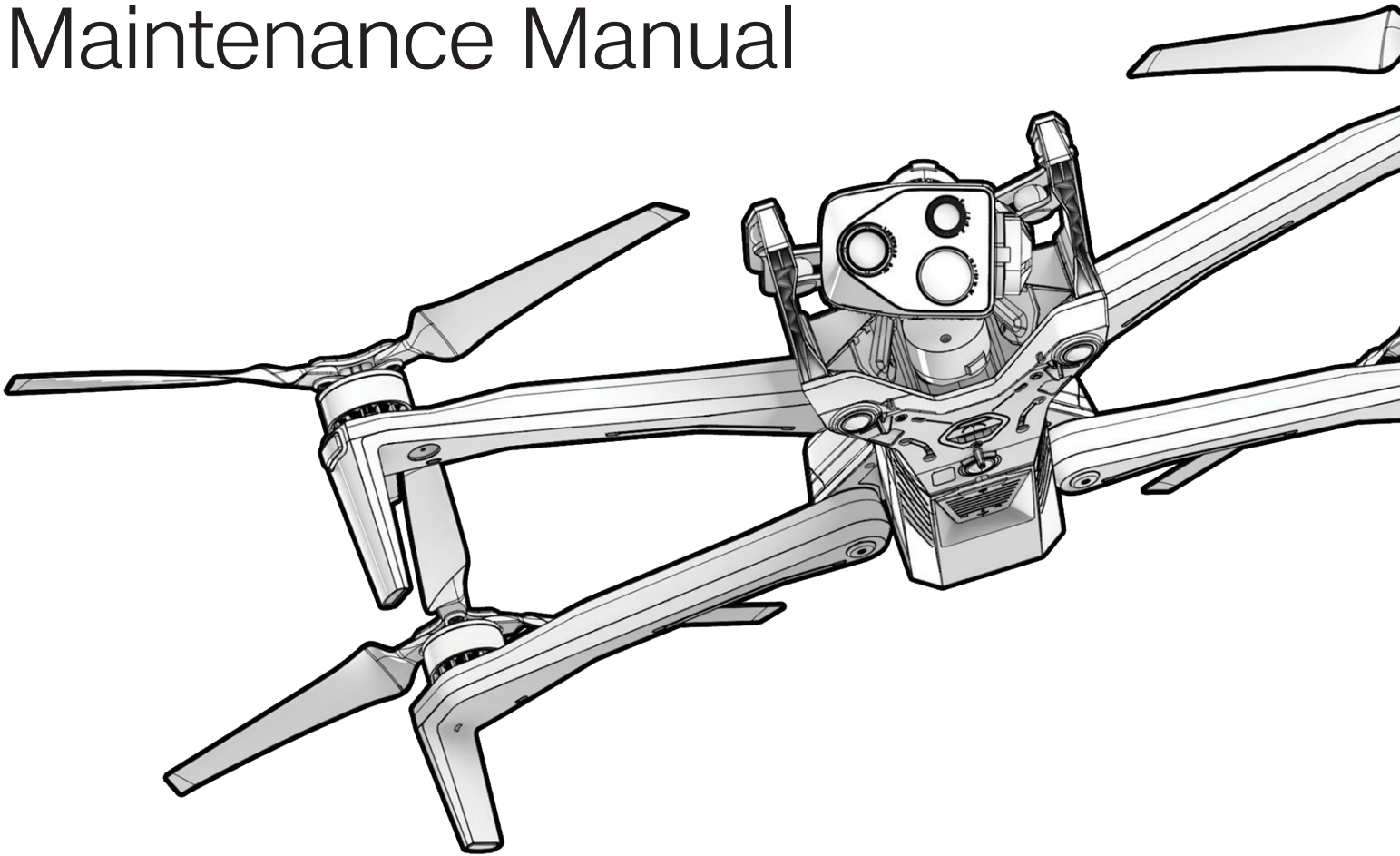


Skydio X10D

Maintenance Manual



Document version: 1.0
Updated: 25 July 2024



WARNING: Please read all documentation provided with your Skydio X10D, including but not limited to the X10 Safety Guidelines in the Safety and Operating Guide: www.skydio.com/safety. Failure to follow any instructions or recommendations in our documentation may void the Skydio Limited Warranty.

Scope

This manual is designed to provide users with maintenance procedures and schedules to ensure optimal flight behavior. A lifecycle table to record and track flight hours is included. Read the Operator Manual for detailed information about flying your Skydio X10D. Sections divide the manual into major categories of information:

- **Equipment**
- **Fleet Management**
- **Maintenance**
- **Inspection**
- **Schedule**
- **Legal**

Regular upkeep is required for safe and optimal drone operation. Maintenance is not the same as a repair service for fixing damage from crashes or other accidents. The responsibility for the maintenance of the Skydio X10D is divided into three tiers:

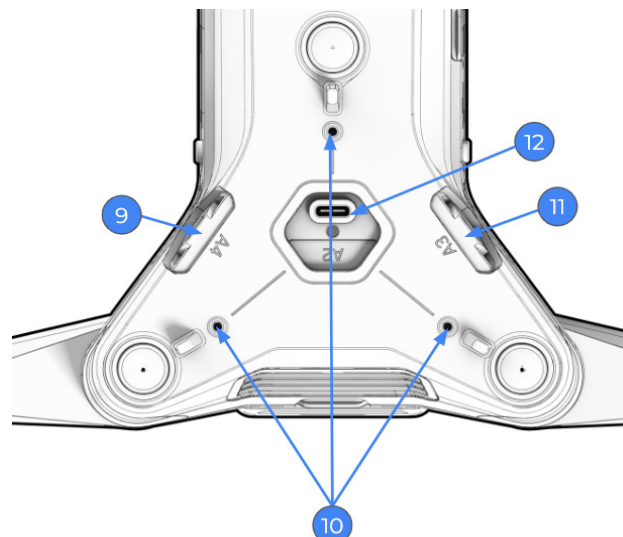
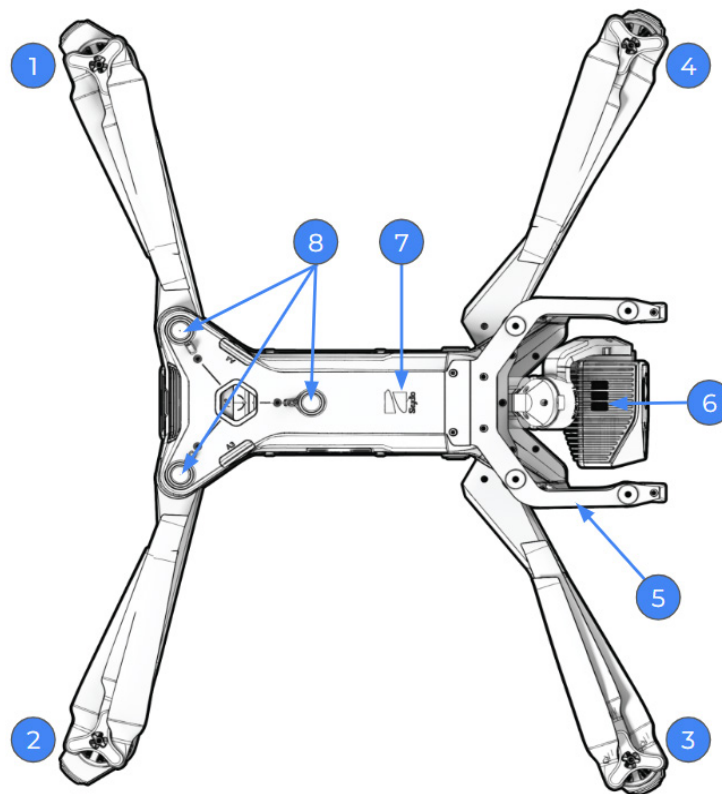
- **Tier 1** - Operator
- **Tier 2** - Skydio Field Service Representative
- **Tier 3** - Skydio RMA



If you need assistance, please reach out to: FedSupport@skydio.us

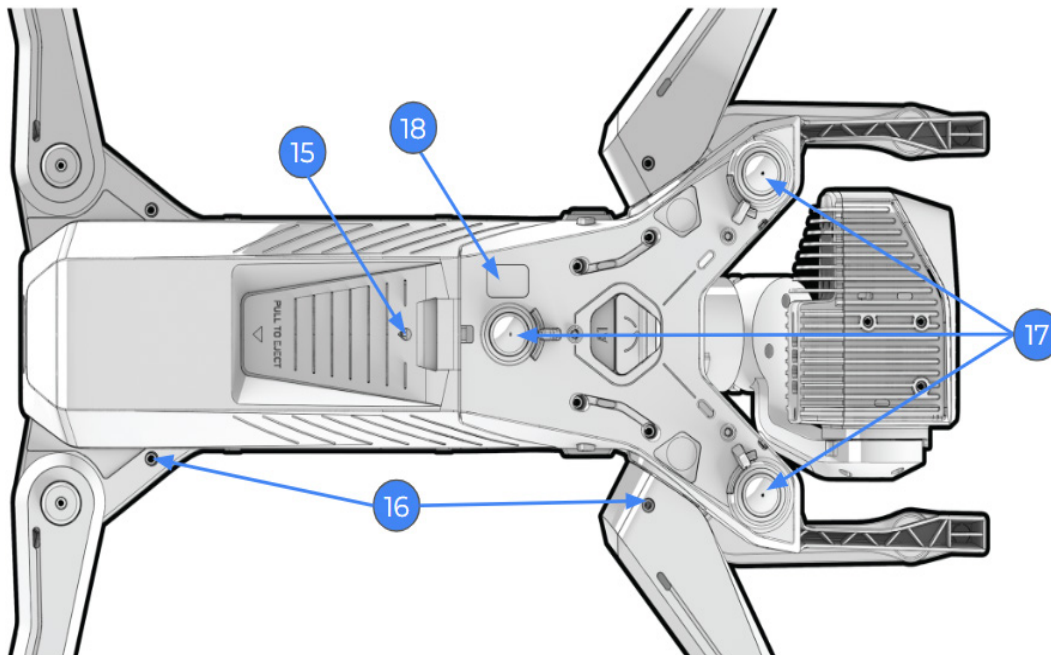
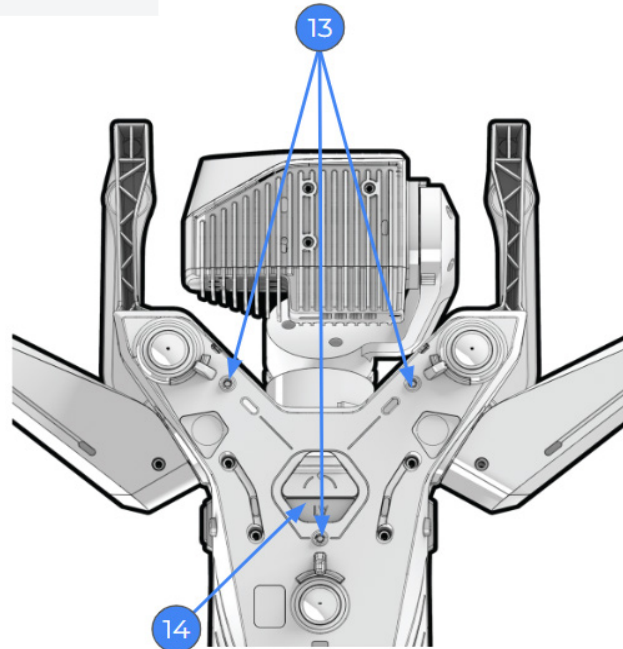
Hardware Overview

1	Rear left Propeller quick-release blue dot	7	GPS antenna
2	Rear right Propeller quick-release gray dot	8	Top navigation cameras (3)
3	Front right Propeller quick-release blue dot	9	A4 Side attachment bay USB-C port and seal
4	Front left Propeller quick-release gray dot	10	Top attachment bay mounting points (3)
5	Gimbal isolation frame	11	A3 Side attachment bay USB-C port and seal
6	Gimbal stabilizer clip	12	Top attachment bay USB-C port and seal



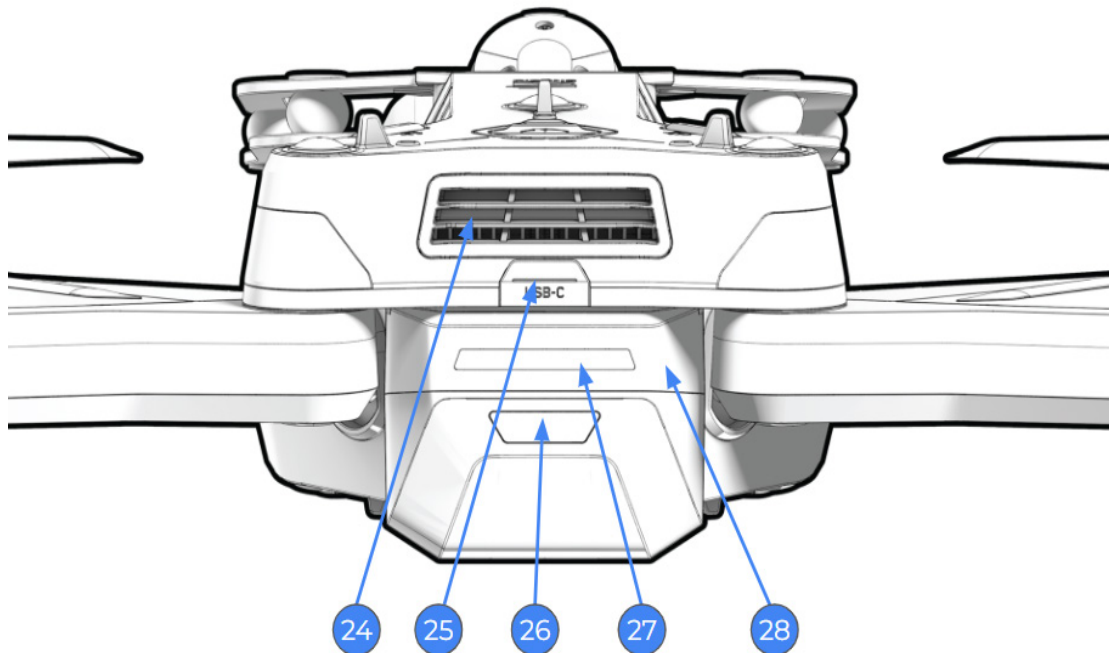
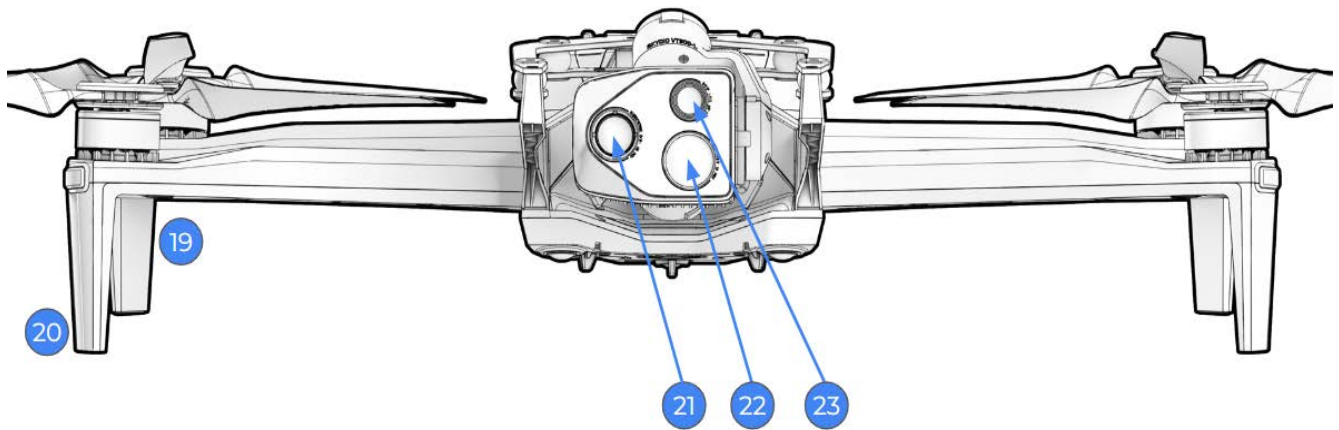
Hardware Overview

13	Bottom attachment bay mounting points (3)
14	Bottom attachment bay 50-Watt USB-C port and seal
15	Parachute strap connector
16	Arm hinges (4)
17	Bottom navigation cameras (3)
18	Time of flight sensor



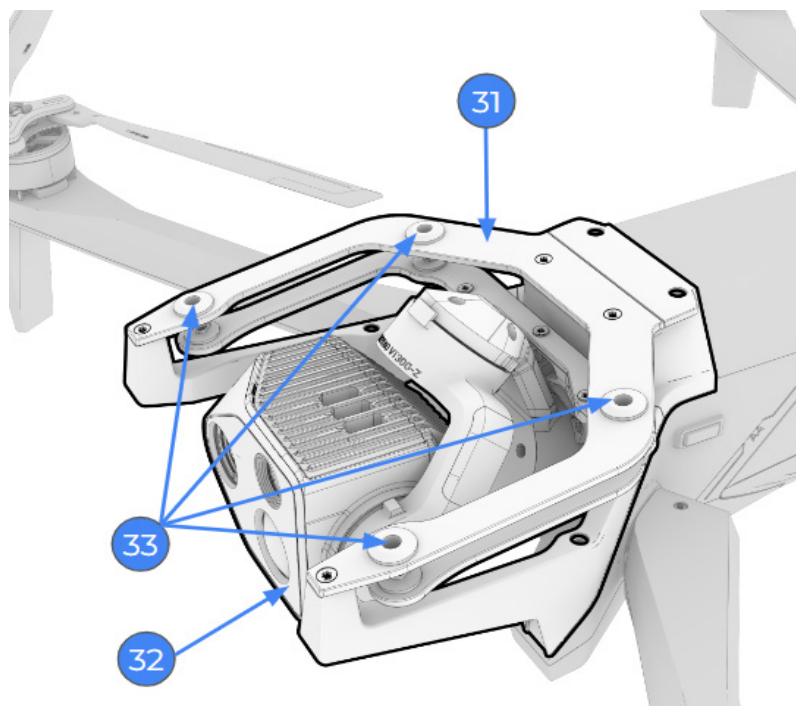
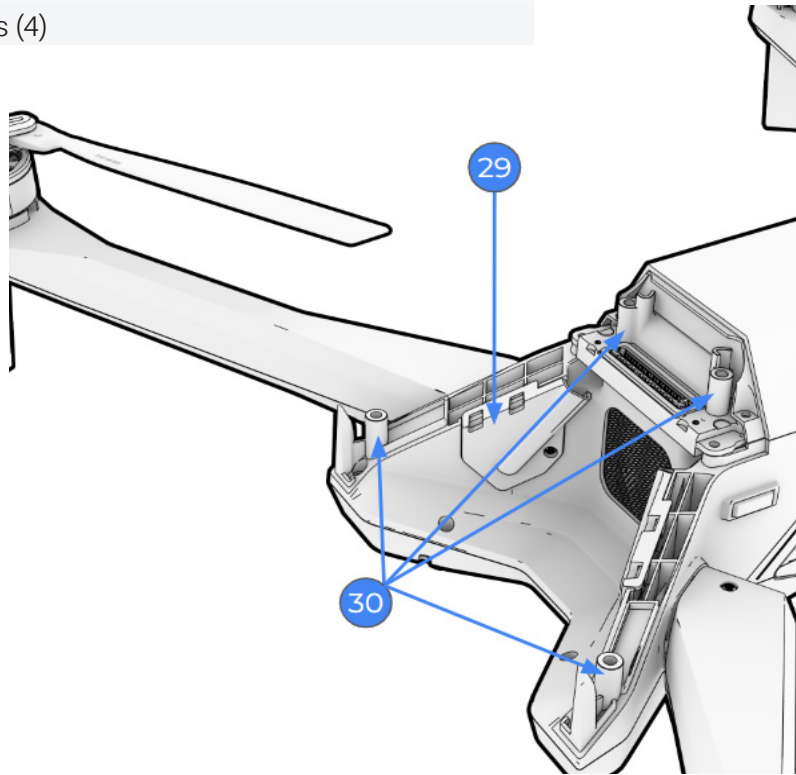
Hardware Overview

19	Antennas and rear landing feet (2)	24	Cooling fan outlet
20	Front landing feet (2)	25	USB-C pairing, updating, and charging port
21	Radiometric thermal camera	26	Power button
22	Narrow color EO camera	27	Battery charge level indicator light
23	Telephoto camera	28	Battery



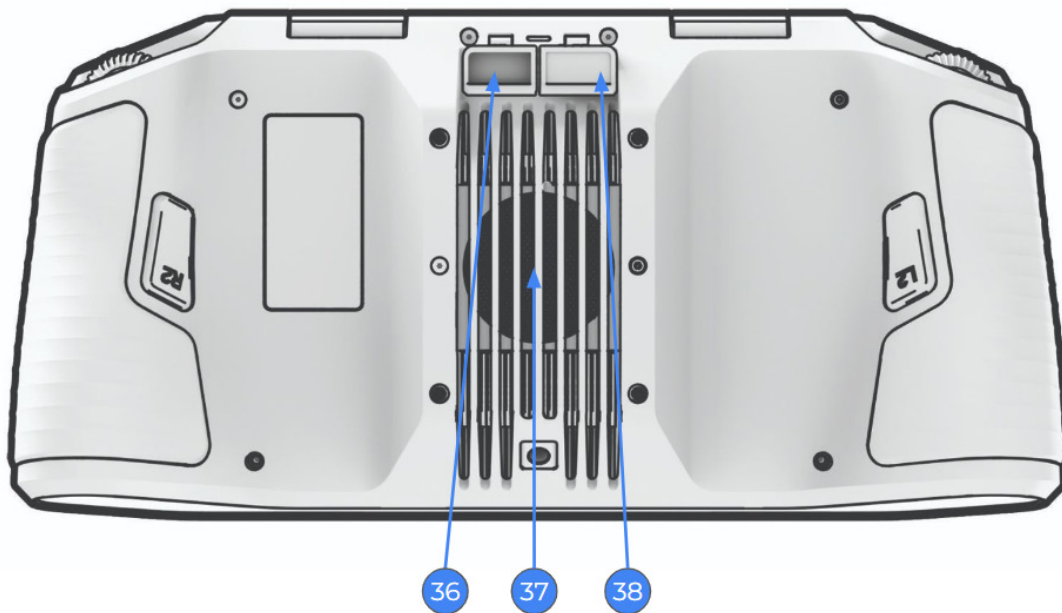
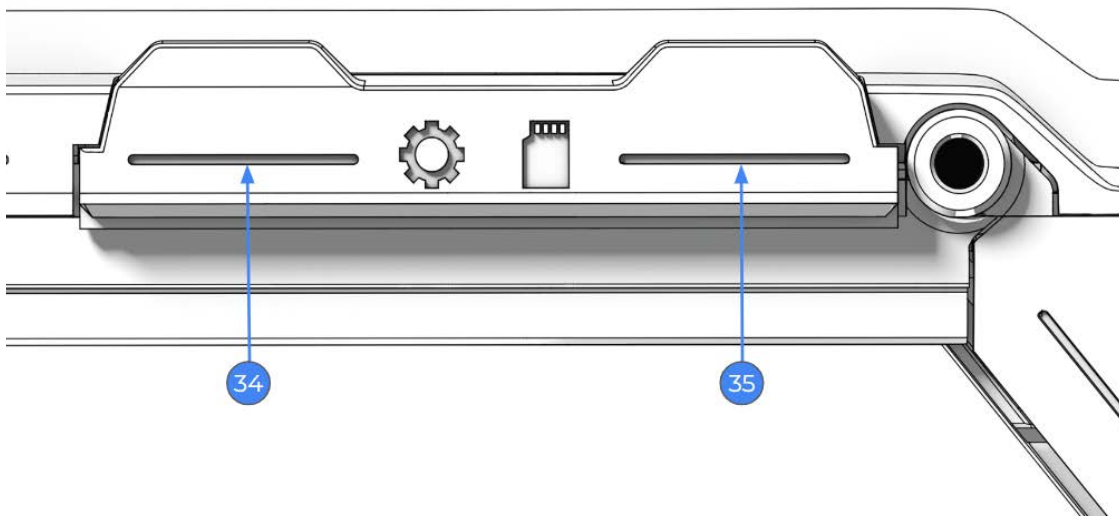
Hardware Overview

29	Sensor bay
30	Mounting posts (4)
31	Sensor frame
32	Camera housing
33	Screw mounts (4)



Hardware Overview

34	Micro SD logs memory card slot
35	Micro SD media memory card slot
36	HDMI port and seal
37	Cooling fan
38	USB-C charge port and seal



Updates

Fleet management of your Skydio drones includes updates, passwords, data storage, and deleting media as needed. Ensure that your batteries have a full charge to complete the update.

Step 1 - Access the files from Skydio Fleet Manager for Offline Drones

- .zip file which is the update for your X10D vehicle
- .tar file which is the update for your Skydio X10D Controller

Step 2 - Generate the .zip file and download the .tar file

- Insert a memory drive into your computer

Step 3 - Copy the offline_ota folder and the .tar file into the root level of your memory drive

- So that they are not contained inside any other folders
- Delete old software updates from the memory drive
- Safely eject the memory drive from your computer

Step 4 - Insert the memory drive into the rear USB-C port on the vehicle

- Power on the vehicle
- The update will begin automatically
- The lights on your drone will begin to display the update status:

Step 5 - Power on your controller

- Select the Information menu
- Select Controller Update

Step 6 - Insert the memory drive into the USB-C port on your controller

- Select Update
- Navigate to the memory drive root folder
- Select the update .tar file
- Select Done
- The update will begin automatically
- Allow up to five minutes for the update to complete
- During this process, your controller may restart multiple times
- Verify that the version numbers matches the version numbers provided by Skydio

Update Status	Light Feedback
Initializing	Solid yellow
0-25%	1 arm flashing yellow light
25-50%	1 arm solid yellow / 1 arm flashing yellow
50-75%	2 arms solid yellow / 1 arm flashing yellow
75-100%	3 arms solid yellow / 1 arm flashing yellow
Complete	4 arms solid yellow light
Error	Flashing red

Data Storage

There are two 256 GB UHS Speed Class 3 (or faster) microSD cards one for storing media and one for recording flight logs. Each card will occasionally need to be cleared of data and reformatted. Reformatting the cards will delete the stored data, ensure that any data is safely transferred.

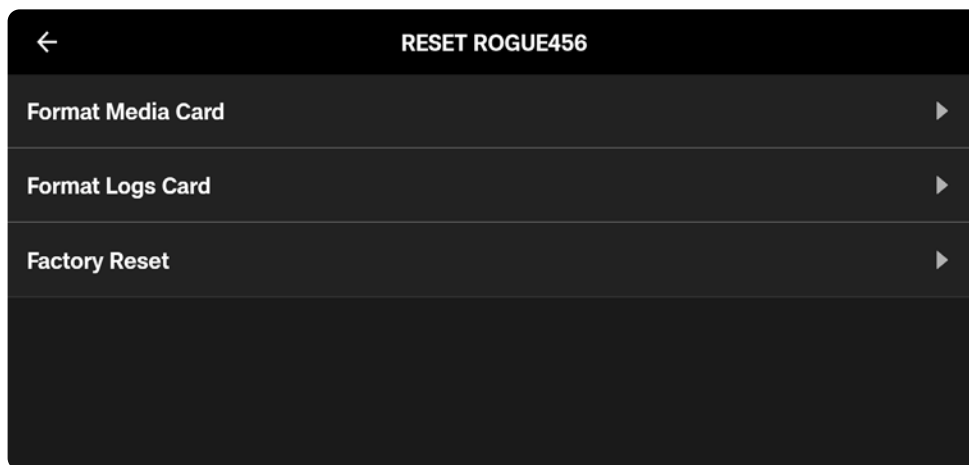
Step 1 - Select the Global Settings menu, Information, and drone name under Devices

Step 2 - Select Manage Data and either

- Format Media Card or
- Format Logs Card

Step 3 - Select Delete when the warning message displays

- Select OK in the confirmation message



The Media menu displays a gallery of unencrypted images and videos and allows you to manage captured images and videos. To access the media viewer:

Step 1 -Select the Global Settings icon and the Media menu

- Individual thumbnails can be selected to view in full screen
- Select single or multiple to export
- Select the trashcan to delete

Passwords



WARNING: The password cannot be recovered or reset. Ensure that your password is entered correctly and is written down and stored in a safe location. If the password is lost, the controller will need to be replaced.

You will be prompted to set a password for your X10D system. It is recommended that you occasionally update your password per your organizations guidelines for length and complexity. To change your original password:

Step 1 - Select the Global Settings menu and Information

Step 2 - Select change password



Cleaning



WARNING: Do not submerge your drone or batteries or place them under running water. Water volumes from flight in precipitation are much lower than those from a faucet or hose. Water may get into areas where the drone is not designed to withstand and you may compromise the sensors.



WARNING: Do not stow Skydio X10D while wet. Skydio X10D is IP55 rated and able to fly in light to moderate precipitation. It is expected for water to enter areas of the drone and draining postflight is normal. Sensitive components are protected.

It is recommended to wipe down your drone after flights in environments with significant dust or debris.

- Wipe down your drone with a dry or water-damp microfiber cleaning cloth
- Only use lens cleaner on cameras
- Do not submerge your drone or batteries
- Do not place your drone or batteries under running water
- Use a compressed air canister to remove any debris in hard to reach areas
- If needed, mild soap and water may be used to remove heavier dirt or debris. Avoid getting any soap near ingress areas on the drone
- Keep all the drain holes on the drone and battery clear. If any debris is blocking a drain hole (e.g., mud), use compressed air or gently scrape with a toothpick to remove

After flight operations in precipitation, follow all postflight steps before stowing your drone to ensure it is properly maintained and does not sustain any water damage.

Step 1 - Power off Skydio X10D and remove the battery

Step 2 - Allow water to drain

- Install the sensor package lock to hold the sensor package in place
- Rotate the drone to allow water to drip out of all egress areas

Step 3 - Dry and clean camera lenses

- Use a microfiber cleaning cloth to wipe the lenses clean and prevent dried water spots from forming

Step 4 - Air dry for a minimum of 12 hours

- Leave the drone to air dry in a ventilated, temp-controlled environment with the arms deployed in an upright position
- Do not open any seals, including the USB-C charge port, until after the drone is dry
- Do not remove the sensor package or any attachments while the drone is wet

Inspect Propeller Hubs

Skydio X10D propellers are designed for up to 250 hours of useful life under normal flight conditions. Useful life may be reduced for vehicles accumulating substantial flight hours in high-stress flight conditions, including:

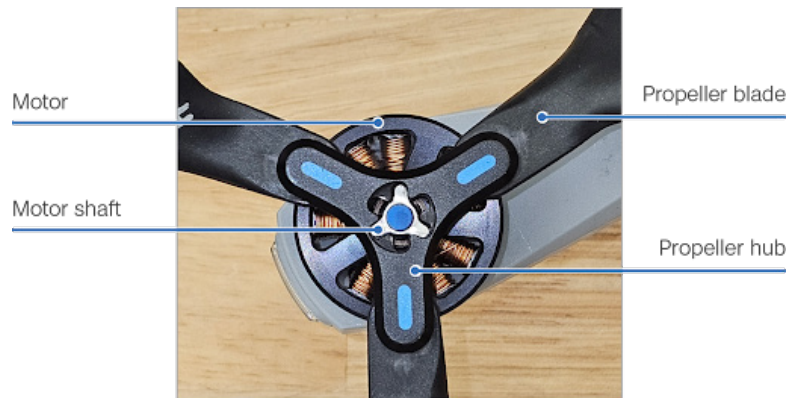
- Sustained flight airspeed above 33 mph (53 km/h)
- Aggressive or max throttle, pitch, and yaw
- Flights conducted in high wind or gust conditions

Skydio recommends vehicles accumulating flight hours primarily via high-stress profile conditions undergo a visual propeller hub inspection every 5 flight hours.

Step 1 - Place Skydio X10D on a stable, flat surface

Step 2 - Grasp the motor between your index finger and thumb with one hand

- Grasp the propeller hub with your other hand



Step 3 - Apply firm opposite torsion between the propeller hub and the motor in both directions without pressing down

Step 4 - Look and feel for movement of the motor shaft compared to the pocket it rests in within the propeller hub

Flight worthy propeller hub:

- Propellers with less than 10 degrees of movement
- The top surface of the motor shaft is not occluded by any portion of the propeller hub
- There is no accumulation of gray dust around the top of the hub



NOTE: You will need to twist either clockwise or counterclockwise depending on the motor.

Replace Propellers

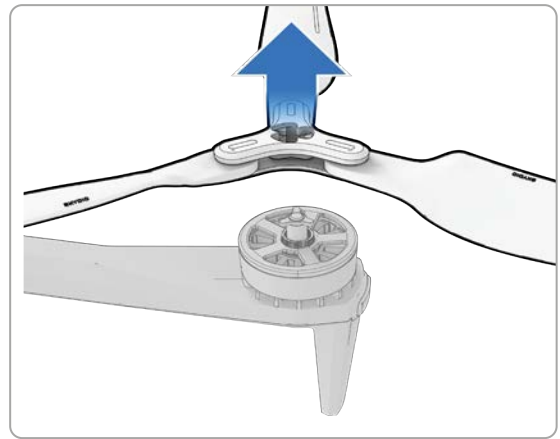
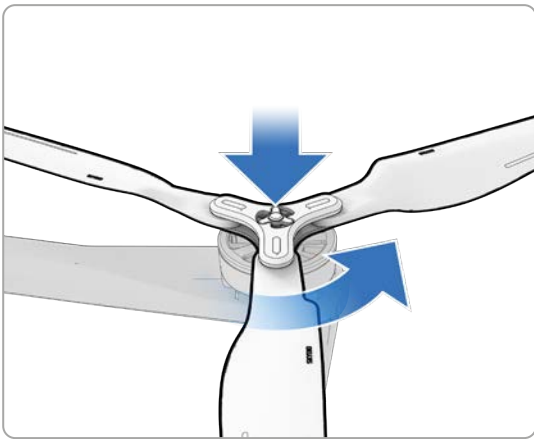


WARNING: The propeller blades are sharp, handle with care.

Skydio recommends replacing your propellers after 250 hours of flight time or whenever you notice any damage.

Step 1 - Remove old or damaged propeller set

- Hold onto the motor with one hand and take the propeller hub in the other
- Press down on the propeller hub and twist to release

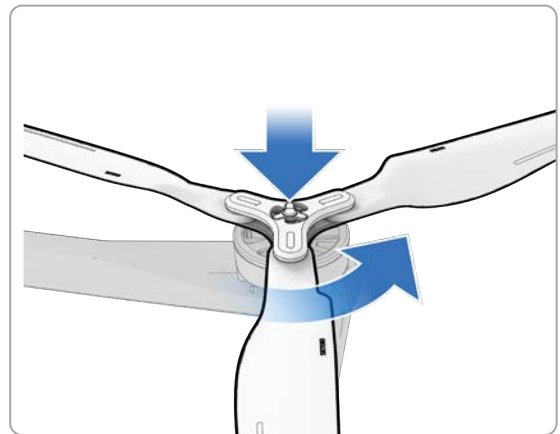
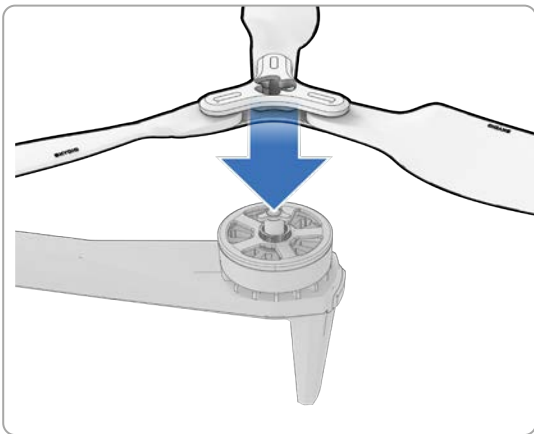


Step 2 - Match propellers to hooks

- Match props to the correct color hook (blue or gray)

Step 3 - Install new propellers

- Hold the motor with one hand
- Push down and twist to install new props



NOTE: You will need to twist either clockwise or counterclockwise depending on the motor.

Remove Sensor Package



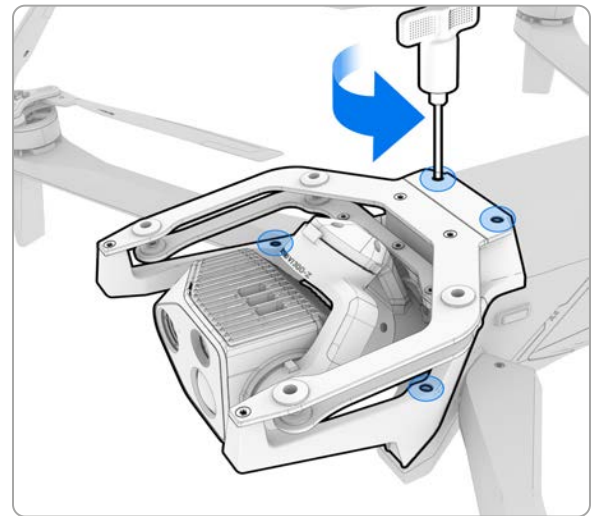
WARNING: Always hold the sensor package by the frame. Do not hold the sensor package camera housing.

Skydio X10D supports replacing the sensor packages.

Step 1 - Remove your sensor package lock and the battery

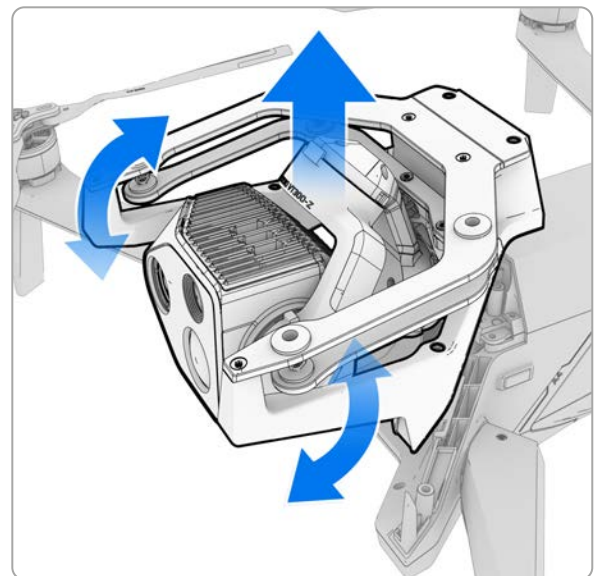
Step 2 - Loosen the 4 sensor package screws

- Using the torque driver provided in your kit
- The 4 screws will remain attached to the sensor package frame



Step 3 - Remove the sensor package

- Hold the edges of the sensor frame
- Gently rock side to side while lifting up to disengage from both connection points on the airframe.
- Do not pull off at an angle, do not use a peeling motion, lift straight up while gently rocking the sensor package until it is completely off the mounting posts.



Step 4 - Reattach the sensor lock and store in the sensor case

Install Sensor Package

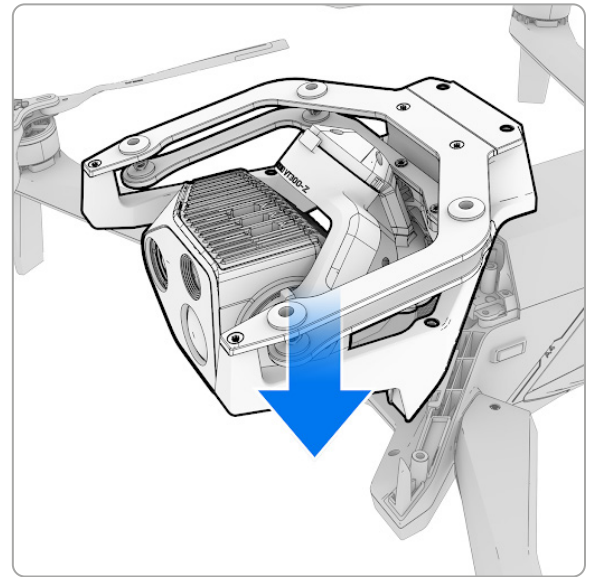
Step 1 - Remove your sensor package lock

Step 2 - Remove the battery from the X10D

Step 3 - Locate the 4 screw holes on the airframe

Step 4 - Install the sensor package

- The mounting posts on the airframe will guide the alignment of the embedded screws on your sensor package
- Insert the sensor package straight down

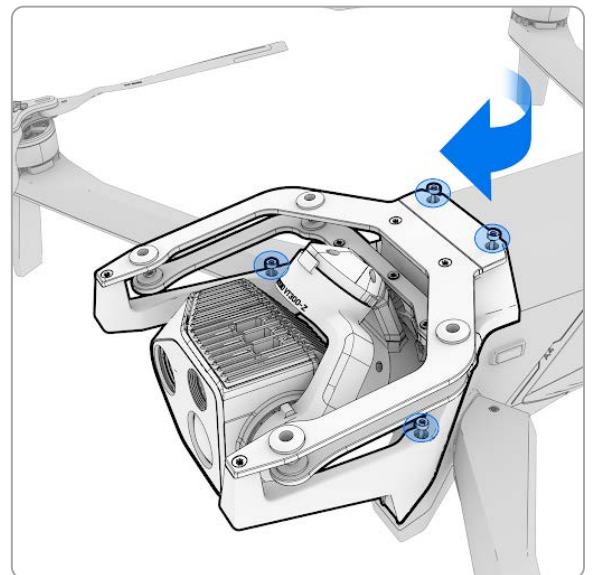


Step 5 - Press sensor package into place

- Firmly press straight down between the two screws on top of the sensor frame until it locks in place

Step 6 - Tighten sensor package screws

- Use the provided torque driver to tighten all four screws
- The torque driver will click when you reach the appropriate torque to prevent over-tightening



Step 7 - Insert the X10 battery and power on your drone

Step 8 - Power on your controller and wait for your devices to pair

- Your drone will boot up and calibrate the new sensor package

Batteries

Skydio X10D uses lightweight, rechargeable lithium polymer batteries (LiPo) that provide higher specific energy than other lithium batteries. Following the guidelines listed below will ensure long battery life and safe operation.

Lifespan

The lifespan of a Skydio X10D battery is 300 battery cycles. A battery cycle is the depletion of at least 80% of the charge. After this point, you may experience a decline in charging and performance. Battery life is highly dependent on your use case, and Skydio recommends replacing your battery when the flight time has degraded below what is acceptable for your use case.

Temperature

- Charging should be completed in an open area
- It is normal for the device to become warm to the touch
- Do not operate Skydio X10D or charge batteries at temperatures below -4°F (-20°C)
- Do not charge your batteries when the ambient temperature is above 113°F (45°C)

Storage

- Fully charge and discharge vehicle and controller batteries every two months
- Store batteries at room temperature 71°F to 82°F (22°C to 28°C)
- Store batteries in a cool, dry area with less than 75% relative humidity
- Batteries in an idle state (14 days of idle time with no flights) will start to self-discharge in an effort to retain capacity. This may take several days to complete and it is normal for the battery to be slightly warm during this discharge process.

Damage

- Do not disassemble the batteries
- Avoid dropping or striking the batteries
- Do not attempt to use batteries that are damaged, dented, or ruptured after a crash or drop
- Do not immerse the batteries in water or other liquids
- Lithium polymer batteries can leak, overheat, melt, release harmful gas, burst or ignite when exposed to heat, water, and other liquids or when pierced, punctured, or ruptured
- If any substances leak from the battery pack and get into your eyes, do not rub them. Seek medical attention immediately!
- Contact your local waste facility to verify if lithium polymer batteries are permitted for disposal
- Do not insert any foreign material into the battery terminals
- Do not disassemble the battery enclosure

Battery Disposal



WARNING: If your battery shows signs of damage (cracks or swelling), place the battery in a non-flammable enclosure away from people and contact your local hazardous waste recycling agency for safe handling and disposal procedures.

Your Skydio X10D batteries are not considered household waste. Properly dispose of e-waste and lithium polymer batteries in accordance with your local laws and regulations. Visit the EPA or your country's environmental regulatory agency website for more information about disposal and recycling options for batteries.

To dispose of your Skydio battery:

Lithium batteries must be disposed of at e-waste collection points or battery-recycling drop-off locations. Take care when disposing of your Skydio battery. Contact your local waste facility to verify if lithium polymer batteries are permitted.

- Do not throw out batteries in your regular household garbage or recycling bin
- Do not burn batteries in a fire; they may explode
- Do not mix damaged, and non-damaged batteries
- Avoid storing batteries in metal containers

Preflight Inspection

	Preflight Inspection Action
<input type="checkbox"/>	Inspect chassis - inspect the vehicle chassis to ensure it is free of damage
<input type="checkbox"/>	Inspect motor arms - verify that they are free of damage and full extended. Viewing the drone head-on, arms should be parallel to the chassis
<input type="checkbox"/>	Inspect battery - visually inspect the battery and connector pins to ensure they are free of debris and damage.
<input type="checkbox"/>	Visually inspect the battery and connector pins to ensure they are free of debris and damage.
<input type="checkbox"/>	Verify the battery is fully seated in the vehicle prior to launch
<input type="checkbox"/>	Inspect propellers - Ensure that the quick release propellers are firmly attached and free of nicks, cracks, and damage. Do not fly with damaged propellers.
<input type="checkbox"/>	Inspect motor hub - Manually spin motors to check for smooth operation
<input type="checkbox"/>	Clean cameras lenses - use a clean microfiber cloth to ensure that all cameras are dust and smudge-free before every flight
<input type="checkbox"/>	Inspect sensor - ensure that the camera lenses and housing are free of damage
<input type="checkbox"/>	Inspect gimbal - ensure that it is free of damage and moving freely
<input type="checkbox"/>	Inspect landing legs - for damage or wear
<input type="checkbox"/>	Inspect cooling fan outlet - for debris or blockage
<input type="checkbox"/>	Check all USB-C port seals for leaks or damage
<input type="checkbox"/>	Ensure that all USB-C port seals are secured
<input type="checkbox"/>	Ensure that the sensor stabilizer clip has been removed

Schedule

Description	Performed By	Action	Frequency
Check for damage, wear, and proper alignment of the blades, propeller hub and interface to motor	Tier 1 - Operator	Inspect	Routinely
Examine motor mounts for stability and damage	Tier 1 - Operator	Inspect	Routinely
Inspect for external signs of wear or damage	Tier 1 - Operator	Inspect	Routinely
Check light cover for damaged	Tier 1 - Operator	Inspect	Routinely
Inspect Time of Flight sensor lenses for damage/Debris	Tier 1 - Operator	Inspect	Routinely
Inspect fan exhausts for obstructions or damage	Tier 1 - Operator	Inspect	Routinely
Ensure arms rotate smoothly without obstruction	Tier 1 - Operator	Inspect	Routinely
Check for damage in the battery connection pins	Tier 1 - Operator	Inspect	Routinely
Check for batteries for swelling	Tier 1 - Operator	Inspect	Routinely
Examine navigation cameras for clarity and damage. Check for lens damage and recessed cameras	Tier 1 - Operator	Inspect	Routinely
Manually spin motors to check for smooth operation	Tier 1 - Operator	Check	10 flight hours
Check arm stops for proper functioning	Tier 1 - Operator	Check	10 flight hours
Inspect for cracks or damage around arm hinge	Tier 1 - Operator	Inspect	10 flight hours
Inspect landing legs for damage or wear	Tier 1 - Operator	Inspect	10 flight hours
Inspect 6 navigation camera protective fins are present and free of damage	Tier 1 - Operator	Inspect	10 flight hours
Check for damage or wear in the battery bay	Tier 1 - Operator	Inspect	10 flight hours
Check fan inlets for blockages or damage	Tier 1 - Operator	Inspect	10 flight hours
Examine sensor cameras for lens clarity	Tier 1 - Operator	Inspect	10 flight hours
Check gimbal motors for movement	Tier 1 - Operator	Inspect	10 flight hours
Inspect gimbal isolators for wear or damage	Tier 1 - Operator	Inspect	10 flight hours

Schedule

Description	Performed By	Action	Frequency
Charge stored vehicle batteries	Tier 1 - Operator	Charge	2 months
Charge stored controller batteries	Tier 1 - Operator	Charge	2 months
Check visible motor wires for fraying or damage	Tier 1 - Operator	Inspect	50 flight hours
Inspect all fasteners for tightness and wear	Tier 1 - Operator	Inspect	50 flight hours
Inspect welds on arms for cracks or weaknesses	Tier 1 - Operator	Inspect	50 flight hours
Inspect for damage on gimbal frame, confirm that screws are secure	Tier 1 - Operator	Inspect	50 flight hours
Check attachment bracket for cracks, confirm C-Clip to bracket is installed tightly	Tier 1 - Operator	Inspect	50 flight hours
Check all USB-C port seals for leaks or damage	Tier 1 - Operator	Inspect	50 flight hours
Test lights for proper operation	Tier 1 - Operator	Inspect	50 flight hours
Confirm attachment connector is free of debris	Tier 1 - Operator	Inspect	On Install
Check cables for damage	Tier 1 - Operator	Inspect	On Install
Confirm attachment are fully seated and torqued	Tier 1 - Operator	Inspect	On Install
Inspect propeller hub for more than 10° of movement	Tier 1 - Operator	Inspect	50 flight hours
Replace damaged or worn propellers	Tier 1 - Operator	Replace	250 flight hours
Replace batteries as needed due to health warnings, visual inspection, or damage	Tier 1 - Operator	Replace	On fault or damage
Replace battery lifecycle	Tier 1 - Operator	Replace	300 cycles
Replace faulty motors or arms	Tier 3 - Skydio	Replace	On fault or damage
Factory service to replace cameras and recalibration and repeat end of line tests	Tier 3 - Skydio	Replace	On fault or damage
Replacement or update sensor	Tier 1 - Operator	Replace	On fault or damage

Spares

Spare Part	SKU
Quick Release Propeller Hub	DR4ACCPRP
Skydio X10D Battery	DR4ACCBAT
Sensor Torque Tool (2mm, 28cNm)	DR4ACCTT
256 GB microSD memory card	
Skydio X10D Dual Charger	DR4ACCCHRG2

Safety

Review the *Skydio Safety and Operating Guide* available at www.skydio.com/safety.

Battery

Handle the battery with extreme care and refer to the Operator Manual and to the *Skydio Safety and Operating Guide* for additional information.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Carefully dispose of batteries according to manufacturer's instructions and to your local environmental laws and guidelines.

Risque d'explosion si la batterie n'est pas correctement remplacée. Remplacer uniquement par un type identique ou équivalent recommandé par le fabricant de l'équipement. Jeter les batteries conformément aux instructions du fabricant et aux lois et directives environnementales locales.

Charging

Do not use the X10D Dual Charger near wet locations. To avoid the risk of electric shock, use only in dry locations. Do not allow anything to rest on the power cord. Do not locate this device where the cord will be abused by persons working on it. Do not overload wall outlets and extension cords as this can result in fire or electric shock.

N'utiliser pas le X10D Dual Charger à proximité d'endroits humides. Pour éviter tout risque de choc électrique, utiliser uniquement dans des endroits secs. Ne laisser rien reposer sur le cordon d'alimentation. Ne placer pas ce moniteur dans un endroit où le cordon pourrait être maltraité par les personnes travaillant dessus. Ne surcharger pas les prises murales et les rallonges car cela pourrait provoquer un incendie ou un choc électrique.

Skydio One (1) Year Limited Warranty

Skydio warrants the included hardware product against defects in materials and workmanship in hardware under normal use in accordance with published guidelines including but not limited to the *Terms of Use, Operator Manual* and the *Skydio Safety and Operating Guide* for one year from the date of delivery (the "Limited Warranty"). The Limited Warranty does not warrant against normal wear and tear or damage caused by accident or abuse and is not applicable to any software provided with the hardware product. The Limited Warranty is subject to the full terms and detailed information about how to obtain service available at www.skydio.com/legal/limited-warranty. If you submit a valid claim under this Limited Warranty, Skydio will either repair, replace, or refund your hardware product at its sole discretion. You may be required to furnish proof of purchase details when making a claim under this Limited Warranty.

Skydio Care

Skydio offers Skydio Care as a subscription service at an additional cost that provides protection from collisions, water damage, or lost drones which are not covered under the Limited Warranty. Skydio Care can be purchased as a one (1) year plan co-extensive with the Limited Warranty, or as a three (3) year plan, which includes a two (2) year extension to the one (1) year term of the Limited Warranty. Skydio Care is subject to the full terms and detailed information about how to obtain service available at <https://www.skydio.com/legal/skydio-care-terms-of-service>. If you submit a valid claim under Skydio Care, you may be eligible to purchase discounted drone replacements for otherwise uncovered damage or losses. The Skydio Care benefits are in addition to the rights provided under the Limited Warranty.

California Prop 65 Warnings

Skydio X10D uses lithium-ion batteries. Exposure to lithium-ion, containing cobalt lithium nickel oxide, and nickel, is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information visit: www.P65Warnings.ca.gov.

Skydio X10D Controller contains chemicals including cadmium, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information visit: www.P65Warnings.ca.gov.

Skydio X10D Dual Charger contains chemicals including BPA and nickel, which are known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information visit: www.P65Warnings.ca.gov.

FCC Compliance Statement

These devices comply with Part 15 of the FCC Rules and with ISED Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

Ces appareils sont conformes aux normes RSS exemptes de licence d'ISDE Canada. Leur fonctionnement est soumis aux deux conditions suivantes: (1) ces appareils ne doivent pas causer d'interférences nuisibles, et (2) ces appareils doivent accepter toutes interférences reçues, y compris les interférences susceptibles d'entraîner un fonctionnement indésirable.

Changes or modifications not expressly approved by Skydio could void the user's authority to operate these devices.

These devices have been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when these devices are operated in a commercial environment. These devices generate, use, and can radiate radio frequency energy and, if not installed and used in accordance with the Operator Manual and Safety and Operating Guide, may cause harmful interference to radio communications. Operation of these devices in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe A est conforme à la norme Canadienne NMB-003.

FAA Compliance Statement

Unless specifically exempt, this product complies with 14 CFR Part 89 regulations on Remote Identification per ASTM F3411-22a-RID-B and ASTM F3586-22.

Software License

The *Skydio Software End-User License Agreement* available at www.skydio.com/legal/eula governs the use of any Skydio software that is pre-installed, downloaded, installed, or otherwise provided in connection with any included hardware.

Additional Resources

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