HEXTRONICS

Atlas Quick Start Guide

Guide Compatible with M300 / M350

Table of Contents

Tools Needed

Unboxing Tools

1. Power Drill / ¼” Bit Driver
2. T-25 Torx bit

Propeller Adjustment Tools

1. 7mm Socket / 7mm wrench
2. Ratchet (If using a 7mm socket)
3. 2.5mm Allen wrench

RC Plus Installation Tools

1. Phillips head screwdriver size PH0
2. Phillips head screwdriver size PH2

Unboxing and Placement

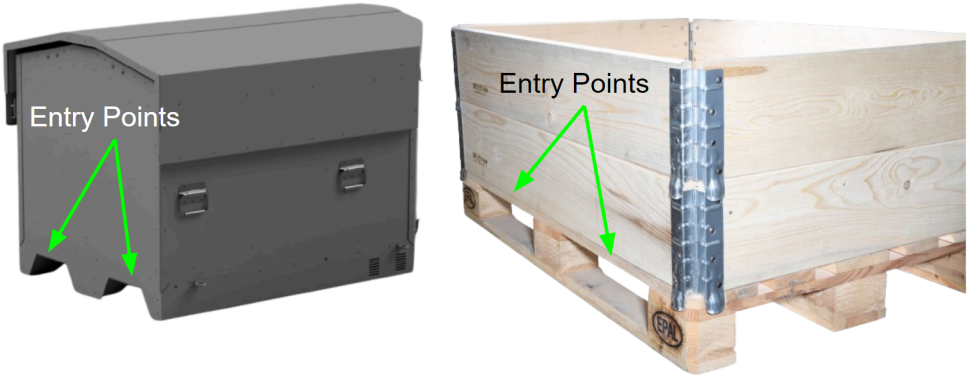
Unboxing

(Video link: https://youtu.be/JFCHyWiN8Y8?feature=shared)
Inspect that the shipment is in good condition and that the pallet is intact for initial movement. Strapping the station is advised for every moving method.
Tools needed – Power Drill / ¼" Bit Driver and a T-25 Torx bit

1. Move the crate to an open area to ensure safe disassembly of the crate.
2. Unscrew the fasteners securing the top plywood with a T-25 torx bit and carefully remove the plywood sheet.
3. Remove the external box, external pole, stand, and any additional items inside the crate.
4. Proceed to remove each layer of the crate by unscrewing the construction screws with a T-25 Torx bit. Once the screws are removed, carefully lift the crate layer and set it aside then proceed to remove the remaining layers.
5. Remove the wooden blocks around the corners of the Atlas.
6. Lift the Atlas and remove the pallet, then proceed to place the Atlas at your desired location.

Inspect the shipment to ensure it is in good condition and that the pallet is intact for movement. Move the shipment using one of the following methods:

- A pallet jack *(See image below for entry point)*
- Multiple healthy able-bodied individuals via lifting handles. This method is recommended for short distances only.
- Mechanical lifting machinery via the lifting ports or the pallet entry points.



Placement

Place the station on a flat-level surface with clean and open airspace. The Atlas can be mounted on trailers and dollies, please abide by the weight capacity of third-party rolling platforms to avoid injury and damage to the station. Once you have placed the Atlas station at your desired location, please continue to the next steps for the initial setup of the station.

The rolling platform depicted above is not a Hextronics product. Contact Support@hextronics.tech if further assistance is required with mounting your station to custom platforms.

Site Inspection

The purpose of this site inspection is to assess the suitability and readiness of the location for the installation and operation of the Atlas system. The inspection will focus on ensuring that the site meets all necessary requirements to support your flight operations, connectivity to satellite systems, and integration of Real-Time Kinematic (RTK) positioning technology.

Key factors to be evaluated during the inspection include:

1. Site Accessibility and Space Requirements
    - Adequate space for the Atlas station, safe landing zones, and any required safety perimeters.
    - Safe access for installation, maintenance, and drone operations.
2. Satellite Connectivity
    - Unobstructed line of sight to the sky for reliable satellite communication, ensuring the drone can establish and maintain GPS connectivity.
    - Minimal electromagnetic interference from nearby structures or equipment that may hinder satellite signal acquisition.
3. RTK System Integration
    - Availability and suitability of local reference stations for RTK support, ensuring high-precision positioning for your drone operations.
    - Clear, unblocked view of the sky for RTK base stations or network RTK corrections to improve drone positioning accuracy.
4. Safety and Security
    - Compliance with local regulations for unmanned aerial systems, including required airspace clearances and hazard assessments.
    - Security measures for both the Atlas station and the drone itself, preventing unauthorized access or interference.
5. Environmental Considerations
    - Evaluation of potential environmental impacts, including wind conditions, weather patterns, and any local factors that may affect drone operations.
    - Consideration of power supply requirements, including backup power options, to ensure continuous operation of the Atlas system.
6. Infrastructure and Connectivity
    - Inspection of the electrical supply, internet connectivity, and network infrastructure to support remote monitoring, control, and data transfer for the drone system.

Upon completion of the inspection, a detailed report will outline any necessary adjustments or improvements required to ensure the site is fully operational for the setup of the Atlas. This report will also provide recommendations to optimize drone performance and ensure long-term reliability and safety. Should any questions or concerns arise, please contact us at Support@hextronics.com.

Power and Auxiliary Connections

RC Plus Configuration

Insert assorted cables into the correct slots.
Note: Atlas I/O panels may come in different variations depending on customer requirements. If you need help with custom panel configurations please contact us at Support@hextronics.com

RTK _____ port 1

Externals Box _____ port 2

Roof Key _____ port 3 ⚠

Ethernet Cable _____ ports 4 & 6

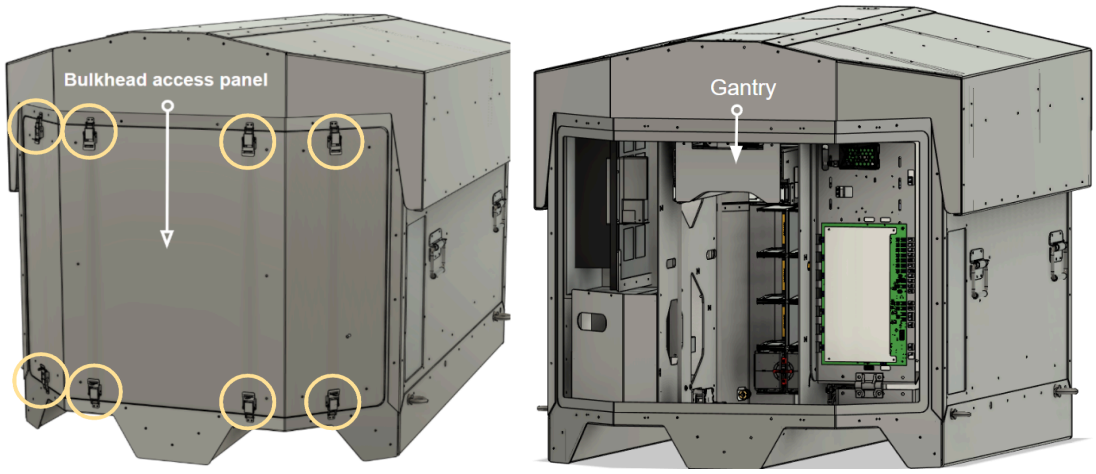
Main Power _____ port 5

⚠ TURNING KEY WILL ACTIVATE ROOF

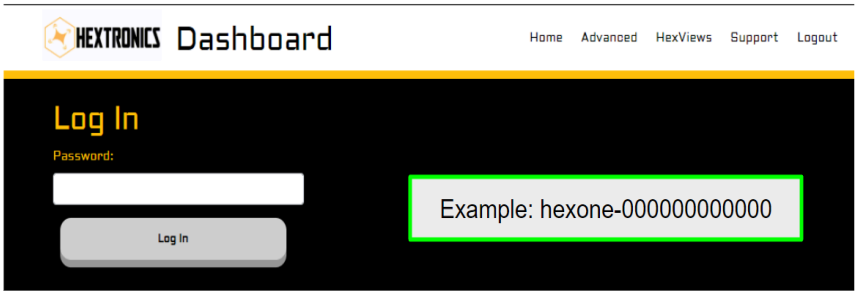
Accessing Hextronics Dashboard

Dashboard QR Code

Remove the bulkhead access panel by unlatching each bulkhead latch to gain access to the Atlas interior.



Scan the QR code located on the Gantry. The default password for the dashboard is set to your unique Hexone ID. Your Hexone ID is embedded in the URL



Network and connectivity

Whitelisting

In order for the Atlas to reliably connect to your network it may be necessary to whitelist specific applications and sources used in the Atlas system. This process should only be done by an official administrator of the network you wish to connect the Atlas to.

Domain	Port
hextronics.cloud	[HTTPS 443/TCP]
*.us-east-2.amazonaws.com	[HTTPS 443/TCP]
*.tailscale.com	[HTTPS 443/TCP]
*.relay.metered.ca	[HTTP 80/TCP, HTTPS 443/TCP]
logs3.papertrailapp.com	[10760/UDP]
api.openweathermap.org	[HTTPS 443/TCP]
pro.openweathermap.org	[HTTPS 443/TCP]

Drone and Station Preparation

Drone Preparation

Remove the four rubber end caps from the drone feet

a. These pieces **must** be removed so that once the drone is on the landing pad it can slide freely during pad adjustment
b. Remove the rubber pieces and place the drone to the side on standby for the meantime

Propeller Adjustment

This method reduces vibration on take-off, reduces take-off time, reduces stress crack failures, and improves drone positioning after landing.

Tools needed – 7mm socket or wrench and a 2.5mm Allen key.

1. Remove the two rubber bumpers from each end of the landing feet.
2. Remove the two 2.5 mm socket screws securing one of the propeller pair brackets from the drone motor.
3. Sand the sharp edges of the leading and trailing edges of the propeller blades by lightly sanding back and forth along the entire edge 10 times. Do this evenly for all propeller edges.
4. Orient the propeller pair so the propellers are straight out horizontally. Holding the bracket only, slowly loosen one of the 7mm lock nuts until the corresponding blade drops.(less than ¼ turn) Do the same for the other nut and blade.

5. Tighten and loosen the nuts so the blades drop by their weight from a horizontal position.
6. Resecure the bracket to the drone motor with the 2.5mm hex socket screws. Snugly, but not too tight to strip the hex screw head.
7. Repeat steps 1-6 for the other propeller pairs.

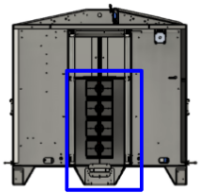
Battery Latch Adjustment

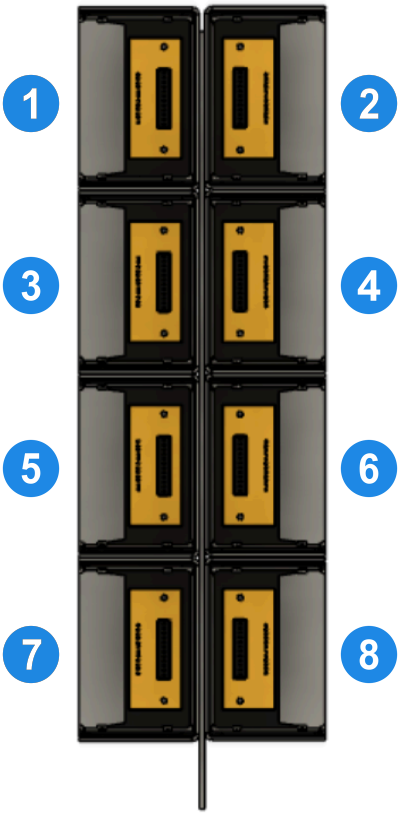
1. Adjust the tightness of the latch on the drone via the Allen-screw in the middle to ensure it is tight enough to retain its position when rotated, but loose enough to twist without significant effort.

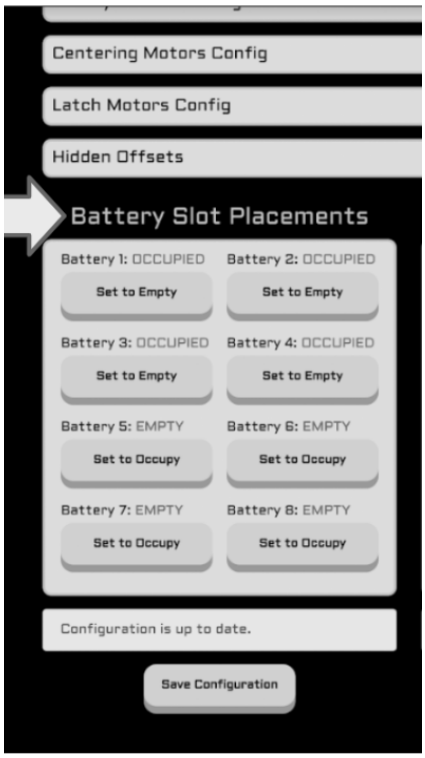
Battery Placement

Insert batteries into desired slots 1- 8. Match the battery slot status to the physical batteries (1-8) within the station.

1. Enter the **Hextronics Control Panel** and select **Advanced Menu** on the top right of the screen.
2. Scroll down to locate the **Battery Slot Placement** tab.
3. Set to **Occupy** if there is a battery in the slot.
4. Set to **Empty** if the slot is empty.
5. Select **Save Configuration** when you have finished adjusting all the settings for each battery slot.







RC Plus Installations

Tools needed – Phillips head screwdriver size PH0 and a Phillips head screwdriver size PH2

Disassembly

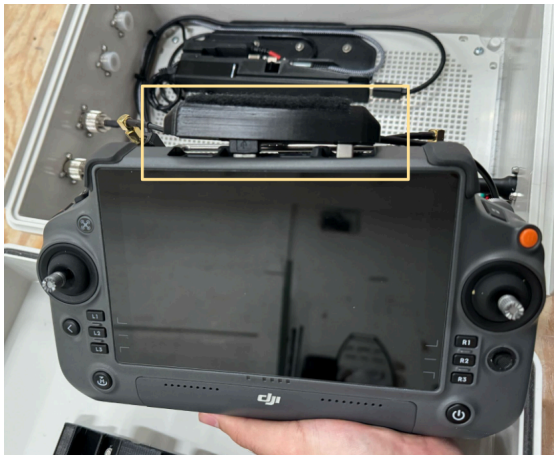
1. Remove both antennas by unscrewing the base.

2. Remove the 4 port covers on top of the RC by unscrewing the Phillips head screws securing each port cover.

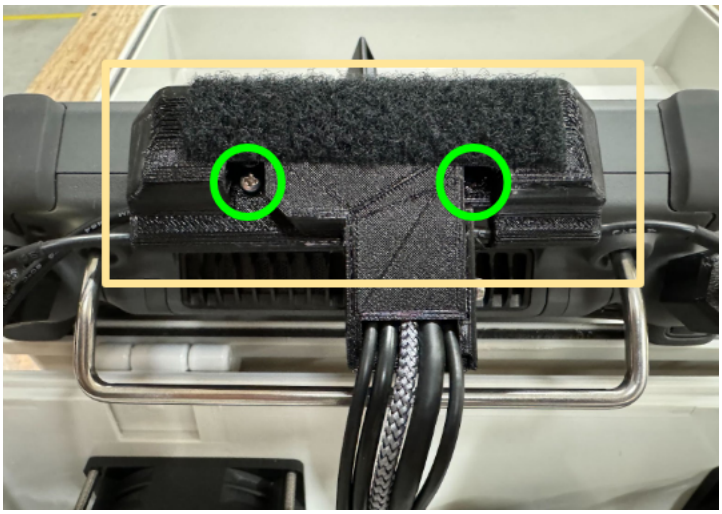
Note: Lift the cover to expose the screws.

Assembly

Step 1: Install top port assembly
Align the USB-A and USB-C connectors with the USB-A and USB-C ports, then press the assembly down ensuring the connectors are firmly inserted into the ports.



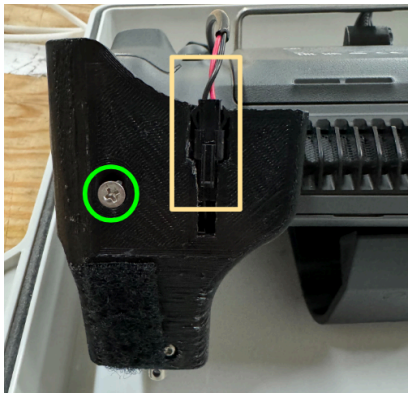
Insert the mounting hardware through the two holes on top of the assembly and firmly tighten them to secure the assembly to the RC.



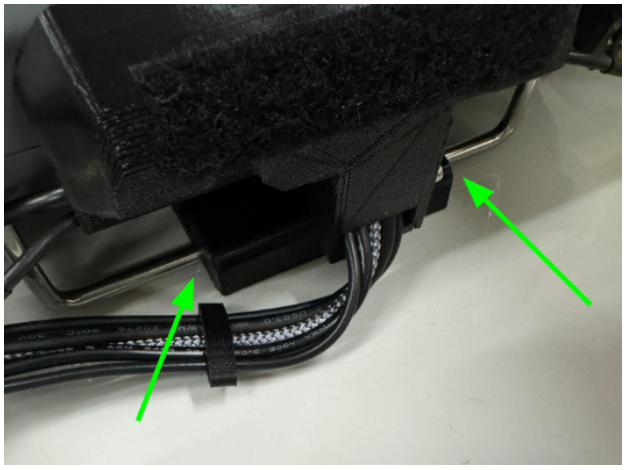
Step 2: Screw on the antenna extenders
Insert the antenna connector over the antenna port and firmly press down until fully secured, Then screw on the plastic nut onto the outer threads of the antenna port. Repeat for the opposite side.

Step 3: Install power toggle solenoid assembly
Align and insert the solenoid assembly as shown in the images below.

Insert the 2-pin connector into the solenoid port located on the underside of the solenoid assembly, Then insert and fasten the mounting hardware to secure the assembly to the RC.

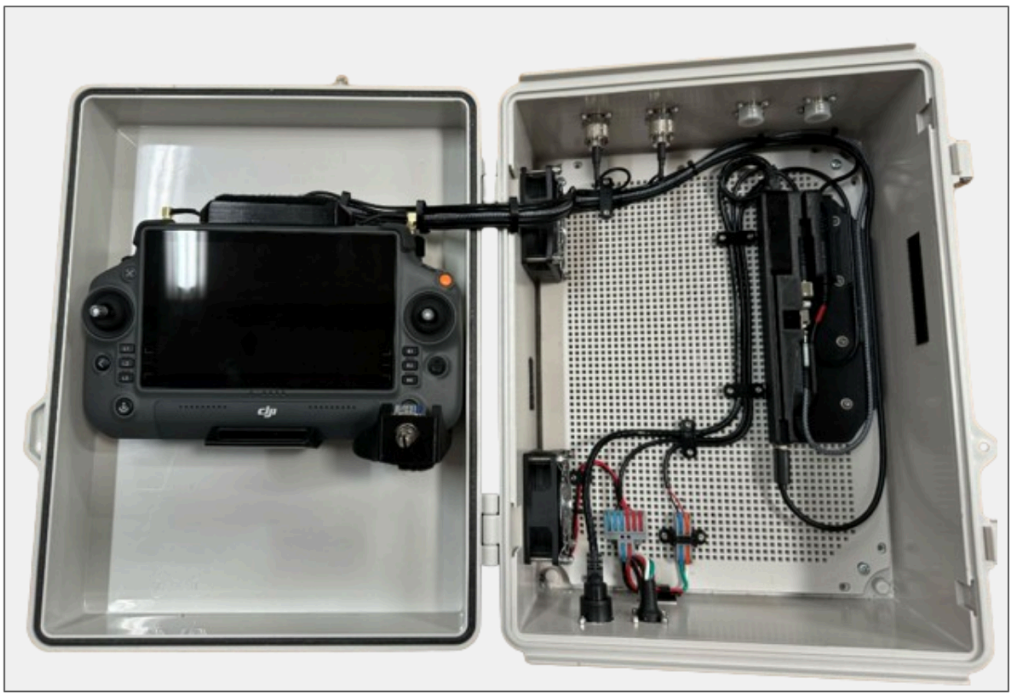


Step 4: Locking the RC plus to the RC mount
Insert the top metal bar into the hook on the RC mount.

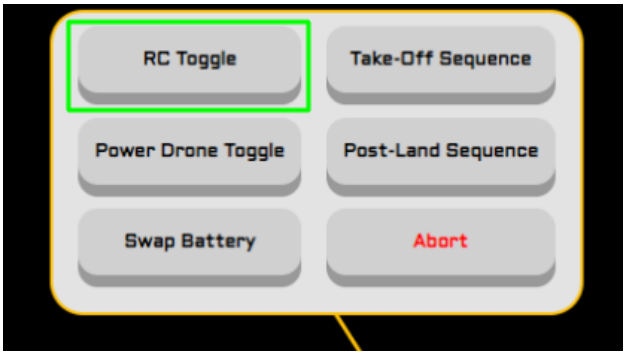


Softly pull the bottom tab of the RC mount until the RC Plus falls and locks into place.

Step 5: Final inspection and solenoid test
Inspect the RC Plus and ensure all connections are secure and the RC Plus is fully seated. Add RC toggle On/Off instructions from the Hexone dashboard to check if the servo is correctly placed.



Trigger the “RC Toggle” command located on the dashboard to ensure the power solenoid is working properly and the RC power button is being pressed/



Maintenance

Recommended routine maintenance and inspection checks on the Atlas

Note: A Cycle is the terminology used to define the completion of a successful pre/post takeoff routine and pre/post landing routine.
Inspections and maintenance should only be conducted by a certified technician.

	Part	Maintenance Description	Maintenance Frequency (Moderate weather)	Maintenance Frequency (Harsh weather)
0	Aircraft	Monitor propeller and battery latch condition and tightness. Adjust if needed.	Every 3 months Or every 400 cycles	Every 3 months Or every 400 cycles
1	Landing pad centering mechanisms	Add a very light layer of all-purpose grease to the centering mechanisms rods, lead screws and bearings. Verify smooth translation of the centering mechanisms.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
2	Landing pad Z Axis	Add a very light layer of all-purpose grease to the Z-axis vertical rails and bearings.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
3	Battery rack boards	Confirm that the battery rack boards on both sides have a secure connection. Confirm that batteries charge in all 8 slots. Confirm that the connection is secured in the rear of the battery boards.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
4	Landing platform	Confirm that the landing platform is parallel to the ground and level. Clean the top of the landing pad from dirt and debris. Inspect the landing pad for scuffs and scrapes. Confirm the landing pad clarity to observe the Aruco tag. Replace plastic on top of the pad if sufficiently damaged.	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.
5	Power cable	Confirm that the power cable is free of rust, debris, and damage at both ends.	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.

6	USB and ethernet ports	Confirm that both the USB and ethernet ports are free of rust, debris and damage and the ends are in good condition.	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.
7	HVAC coils	1. Unscrew HVAC panel screw. 2. Remove panel. 3. Use compressed air to blow out debris and clean HVAC coils.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
8	External Box	Confirm that all interior components of the External Box are in good condition. Inspect the exterior ports and connection for rust or wear.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
9	Gantry Z-axis belts and Y-axis lead screws.	Confirm that the belt is not loose, that the belt is in the correct orientation with the teeth facing inward towards the pulleys, and that there are no missing teeth or ribs. Lubricate all Y-axis lead screws and bearings.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
10	Landing pad Z-axis belts	Confirm that the belt is not loose, that the belt is in the correct orientation with the teeth facing inward towards the pulleys, and that there are no missing teeth or ribs.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
11	Gripper Motors	Confirm that the gripper is opening and closing correctly when prompted to.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
12	Internal battery slots	Confirm that the battery slots are in good condition with no damage, and that the internal charging connector is straight and not missing any prongs and that the connector housing is not bent. Confirm that the battery indicators are illuminated when the batteries are inserted. Ensure proper connection of the battery cables to the boards in the battery rack.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
13	Internal battery charger	Inspect that all connections on the internal battery pack are secure and not deformed in any way. Confirm that the battery indicators are illuminated when the batteries are inserted. Ensure proper connection of the battery cables to the battery charger.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.

14	HVAC fan	Carefully place your hand over the internal fan and confirm that the fan is blowing air, and cold air when the cooler is enabled.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
15	Stepper motors	Confirm that all stepper motors are in good condition and without rust, and that the motor is powering on when prompted.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
16	DC motors	Confirm that all DC motors are in good condition and without rust, and that the motor is powering on when prompted.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
17	Gantry and Landing pad Z-axis motor	Confirm that the Z-axis motor is in good condition and without rust, and that the motor is powering on when prompted.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
18	Aruco marker	Confirm that the Aruco marker is in good condition without any damage to the design of the tag.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
19	Weather station seal	Confirm that the weather seals are in good condition and seal the station when closed. This includes the front station seal and the back panel access seals.	Every 3 months Or every 400 cycles.	Every 1 months Or every 200 cycles.
20	Roof	Confirm smooth operation of the roof and inspect roof drive belt for wear.	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.
21	Roof	Manually pull the roof outwards to compensate for bearing drift.	Every 3 months Or every 400 cycles	Every 3 months Or every 400 cycles
21	Electronics	Inspect the electronics inside of the atlas and confirm all systems are working properly. (CPU'S, Hexboard, climate control board, netgear switch, cameras, converters and power supply)	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.
22	Wiring and limit switches	Confirm all cable, wires and limit switches are in good condition, connectors fully seated and functioning properly.	Every 6 months Or every 600 cycles.	Every 3 months Or every 400 cycles.
23	Hardware	Confirm all fasteners, rivets, and other hardware are free from rust and damage.	Every 1 year Or every 1200 cycles.	Every 6 months Or every 600 cycles.