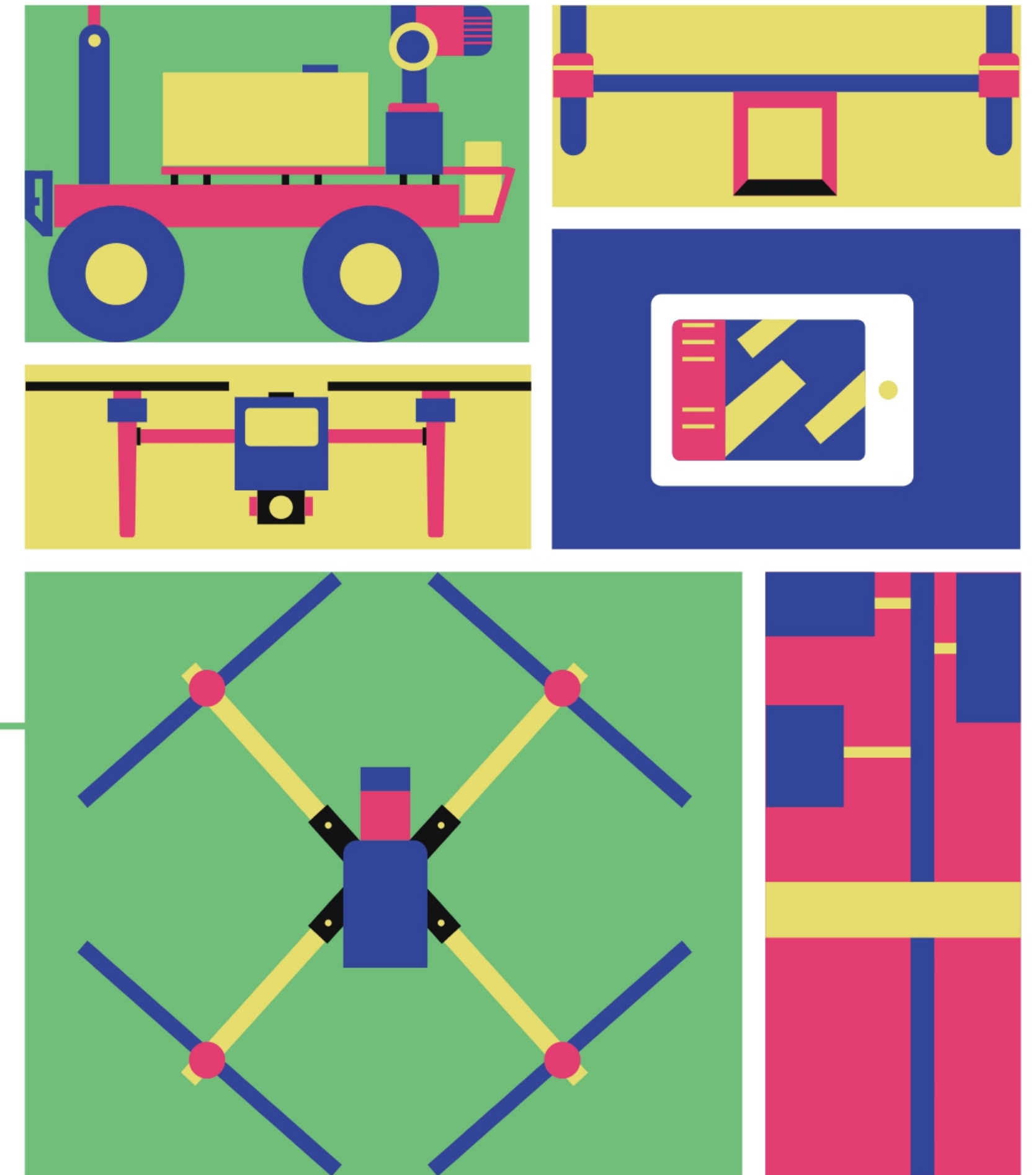


Maintenance of XAG P150 Agricultural Drone and Peripheral Products



Maintenance

Definition of Maintenance

- Maintenance refers to care drones and peripheral products by wiping, cleaning, lubricating, adjusting and other conventional methods to maintain and protect the performance and technical conditions of the devices.

Significance of Maintenance

- A drone is a complex device involving multiple systems and parts. It requires various degrees of maintenance before and after flight operations or after a certain period of use. Otherwise, operational failures or damage to the airframe may occur.
- Proper maintenance is crucial for extending the service life of the device and parts, and is also a prerequisite for the safe operation of the drone.

A man wearing a blue vest with "AGRICULTURE" and "ADVANCING AGRICULTURE" text, a black cap, and a black long-sleeved shirt is working on the engine of a white truck. The truck's hood is open, and the man is holding a black handle. The background shows a dry, hilly landscape under a clear sky.

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01 | Drone Maintenance

02 | Maintenance of
Peripheral Products

A man wearing a blue vest with 'AGRICULTURE' written on it and a black cap is working on a red drone mounted in the back of a white truck. The truck's rear hatch is open, and the drone is secured with red straps. The man is holding a black handle. The background shows a dry, grassy field and hills under a clear sky.

01 | Regular Maintenance of Drone for Early Detection of Safety Hazards

Stage 1: Maintenance Items after Each Operation

1. Clean and Check Airframe and Application System



Cleaning and checking the airframe is to enable the drone to maintain the optimal condition during daily operation, thus reducing vibrations and indirectly protecting other components of the drone. The parts needing check, maintenance and upkeep are as follows:

Step 1: Check the propeller blades to ensure surface is clean, free of adhered substances, and there is not any crack or notch; replace the blades if any crack or notch is found;



Step 2: Check propeller clamps for deformation and bearings for backlash; wobble the propeller clamps up and down, and if any shaking is found, tighten the screws or replace the damaged propeller clamps or propeller clamp mount; after tightening the screws, check again, and if backlash still exists, re-check propeller clamps for deformation and bearings for backlash.

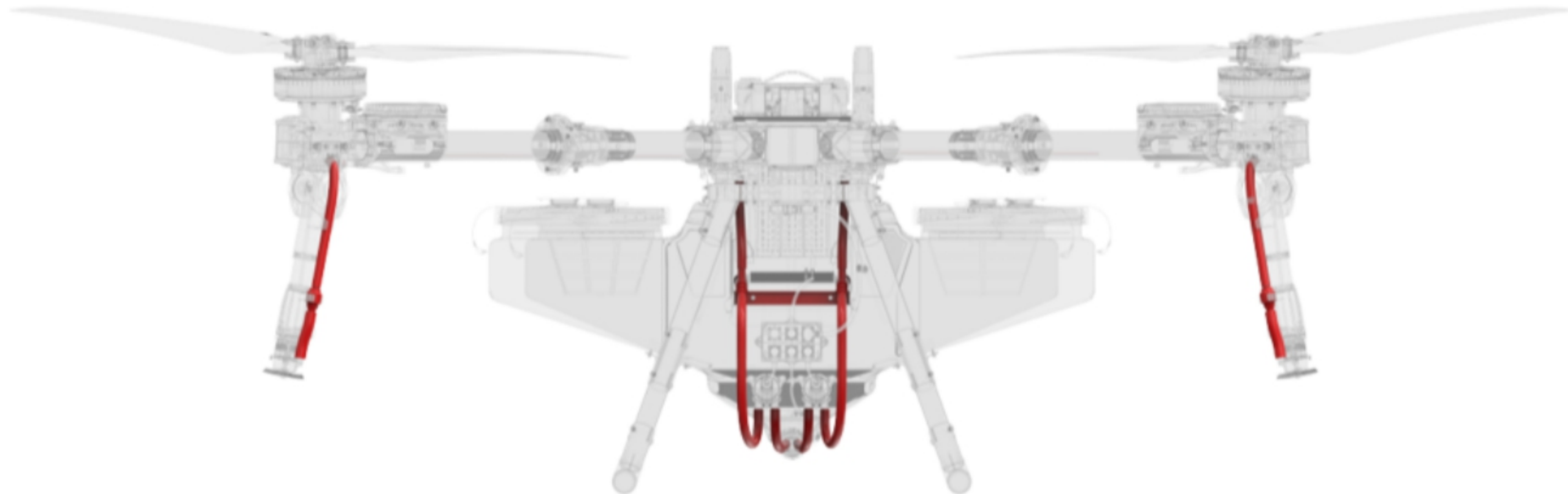


Step 3: Check ESC surface and arm for adhered substances, and remove the chemicals and stains on the surface with a soft-bristled brush;
Step 4: Rinse the airframe with a high-pressure spray gun to ensure cleanliness and no stains, and air dry the drone.



Cleaning and Check of RevoSpray System

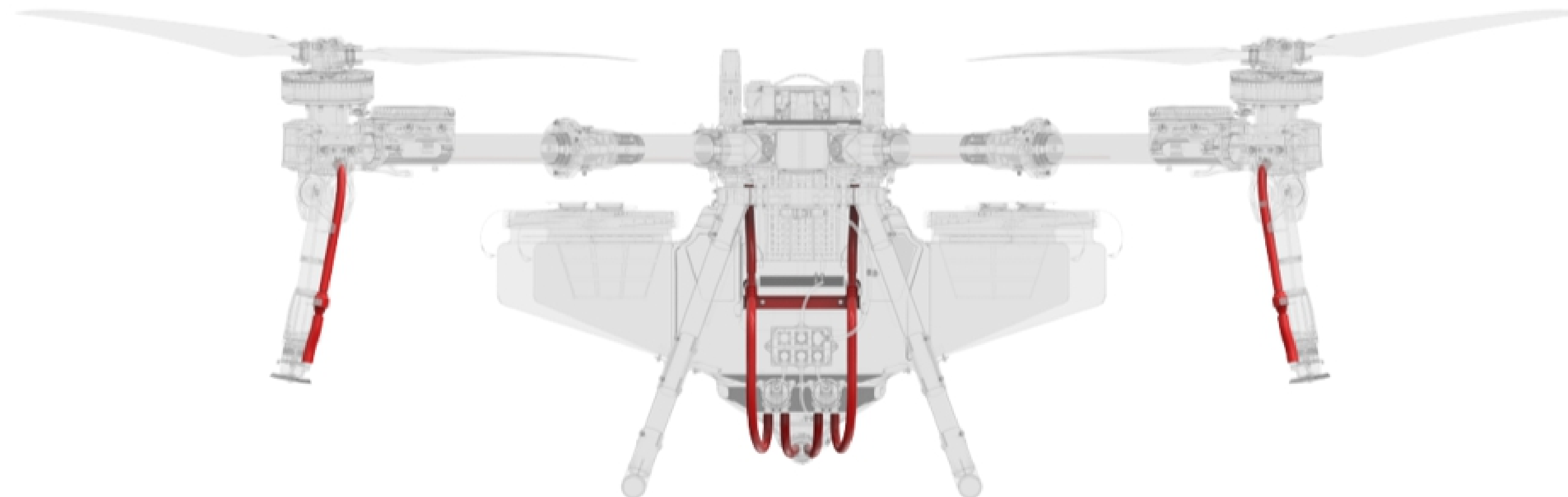
Timely cleaning of liquid tank can make the liquid tank tubes less prone to wear and corrosion



Drone Maintenance - Overall Airframe Cleaning

Steps:

- Step 1: Launch the "XAG One" App; enter the spraying system; tap "**Discharge remaining chemicals**" to drain the remaining chemicals in the liquid tank and tube;
- Step 2: Add **soapy water or powdered soap** solution to neutralize residual pesticides, and empty the liquid tank again;
- Step 3: Pour clean water into the liquid tank, and then tap "**Discharge remaining chemicals**" to empty the liquid tank and tube;
- Step 4: **Rinse the airframe** with a high-pressure spray gun to ensure cleanliness and no stains, and air dry the drone. Clean the interior of the liquid tank and wipe the surface.



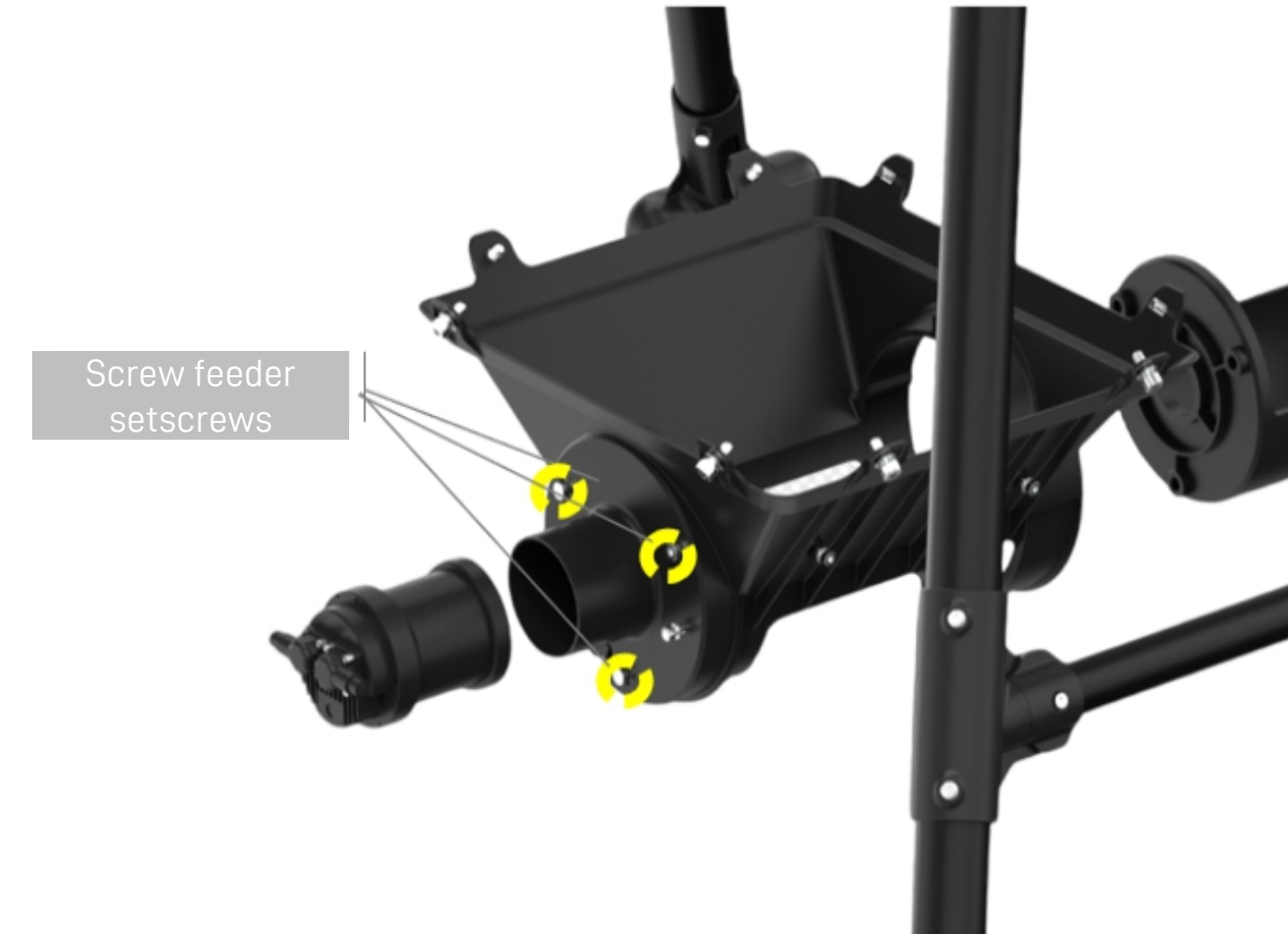
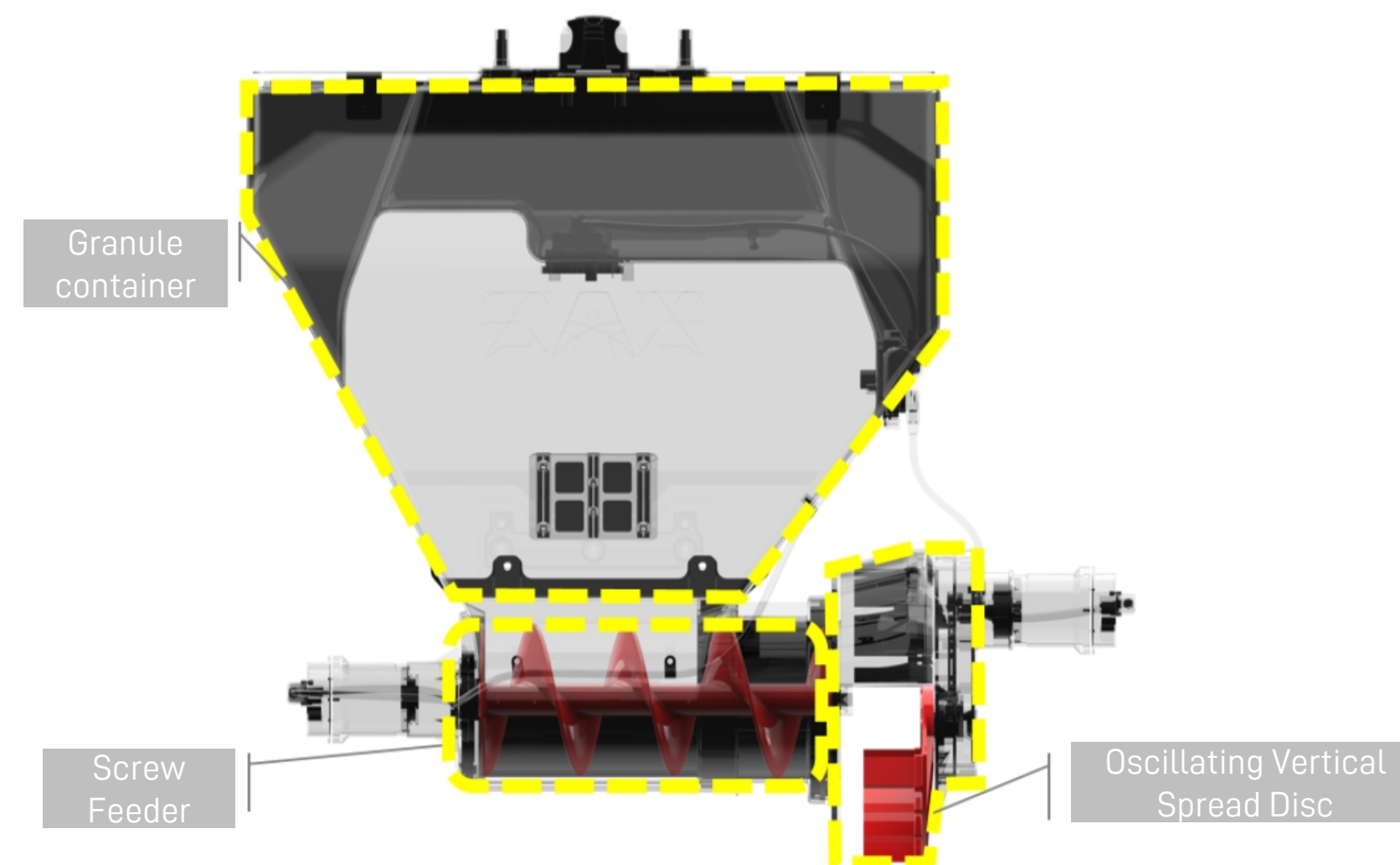
Cleaning and Check of RevoCast System

Long term neglect of maintenance and upkeep of the spreader can cause corrosion and wear, which can easily result in jamming and screw feeder damage. To reduce fertilizer corrosion, prevent fertilizer compaction, and ensure the smooth progress of later spreading operation, it is necessary to clean the residual fertilizer on the granule container, screw feeder, and spread disc after operation every day, which can effectively prevent fertilizer corrosion on parts and extend the service life of RevoCast system.

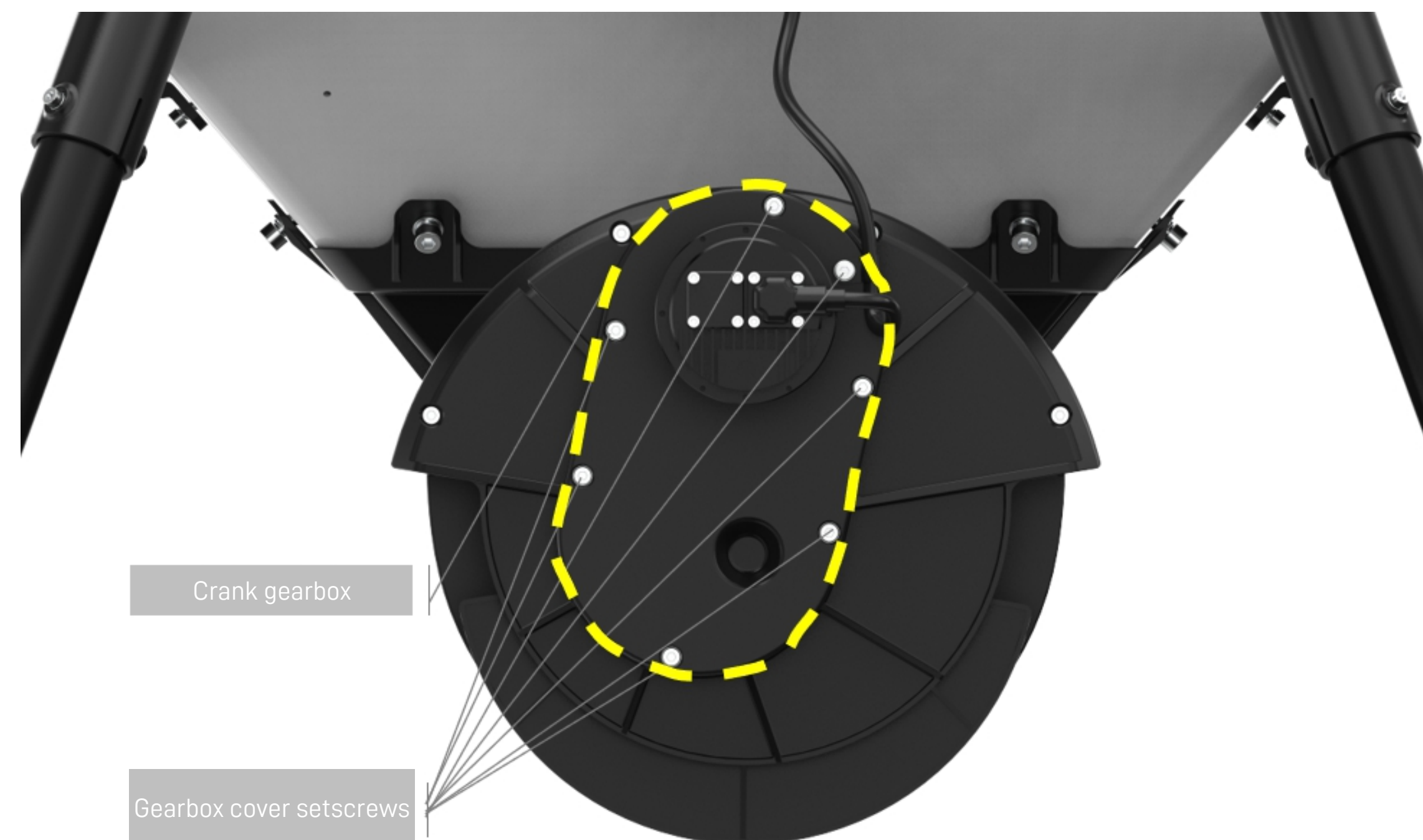


Steps:

- Step 1: Shut down and power off the drone; remove the spread disc cable, remove the screw feeder setscrews; and then soak the screw feeder in soapy water;
- Step 2: Clean the granule container with clean water;
- Step 3: After soaking, rinse the screw feeder with clean water and finally wipe it dry;
- Step 4: Finally fit the screw feeder again, tighten the setscrews, and connect the spread disc cable.

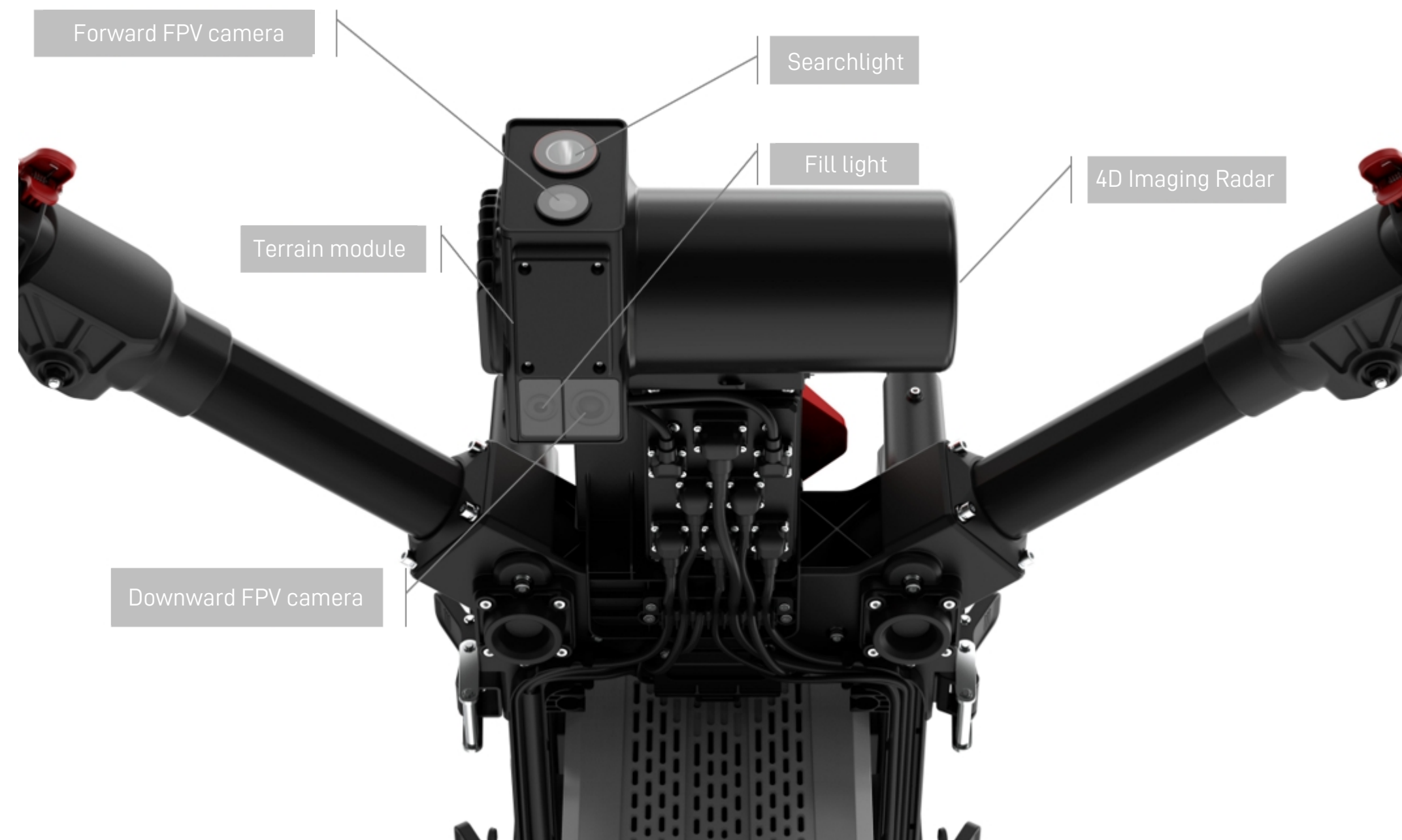


Note: The parts inside the RevoCast crank gearbox will experience certain wear and tear during long-term mechanical action. It is recommended to apply gear grease onto the parts inside the gearbox every 15 days of operation. When removing the gearbox cover setscrews, observe whether any small parts accidentally fall off.



2. Clean and Check Sensor System

The sensor system is like the human eyes, which can ensure flight safety in ultra-long distance operations or uneven terrain operations at the fastest operational speed; any foreign objects on 4D Imaging Radar may cause radar misjudgment and affect operation efficiency; lens cloth can be used to wipe the radar and FPV lens to ensure cleanliness and absence of foreign objects.



1. Check Airframe

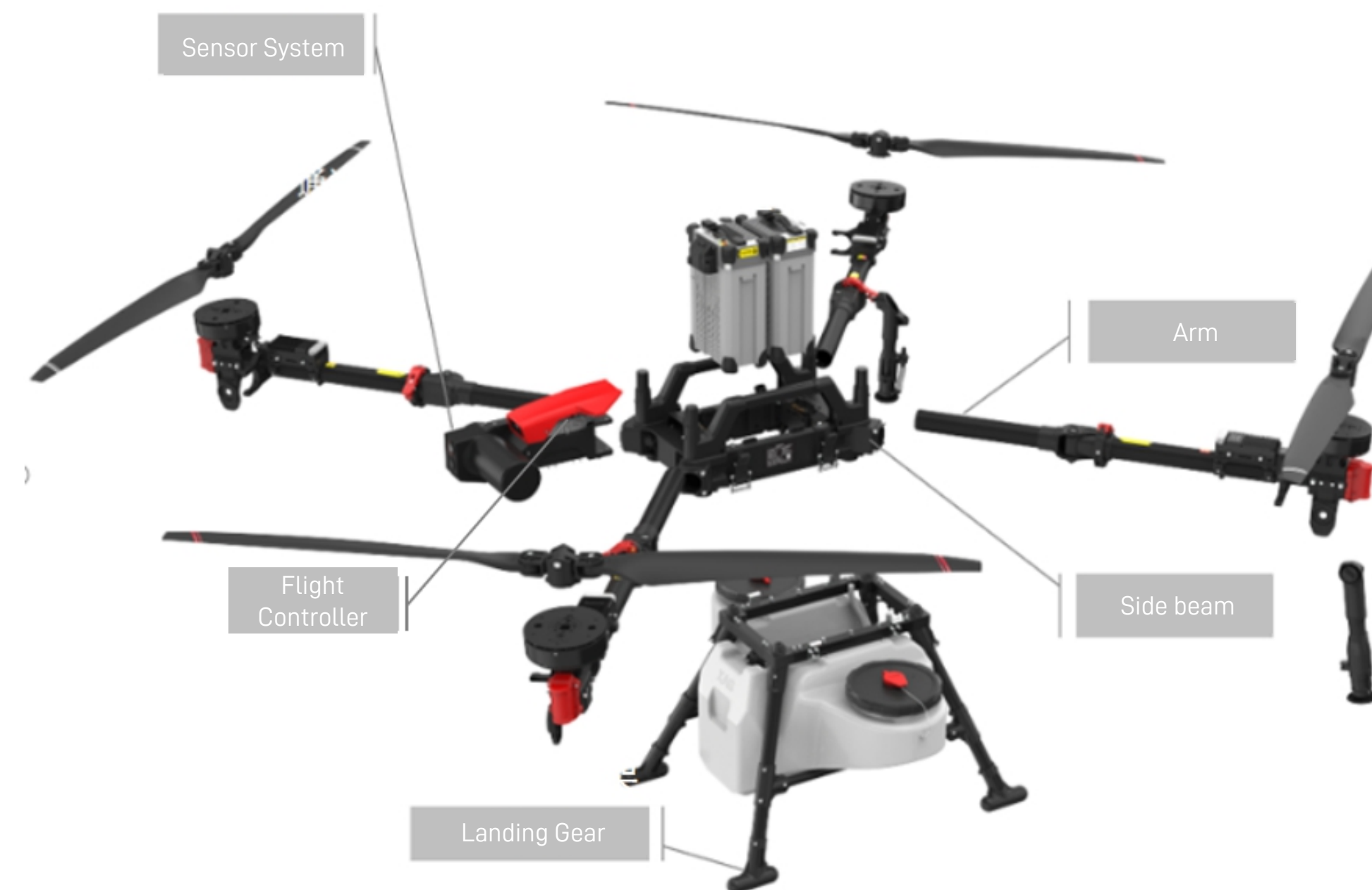
Stage 2: Maintenance Items after Operation Covering an Area of 200 Hectares

In the long-term operation process, slight vibration of airframe can cause the screw looseness, thus, during transportation, it often collides against other objects or presses airframe, which can cause deformation or damage to airframe structure. Flying again after an abnormality occurs will increase the safety risk of operation. Therefore, in this case, prompt maintenance and upkeep are required.



Steps:

- Step 1: Visually check the arms and side beams for deformation; if any deformation or breakage is found, replace in time.
- Step 2: Check whether any setscrews of airframe are loose, slid, rusted or broken; if so, replace the screws.
- Step 3: Remove the hood and check one by one whether the cables at the flight controller are worn or broken, and whether the port has faults; if so, replace the cables.
- Step 4: Check whether any setscrews of the application system, the granule container and the landing gears are loose, slid, rusted, or broken; if so, replace the screws.



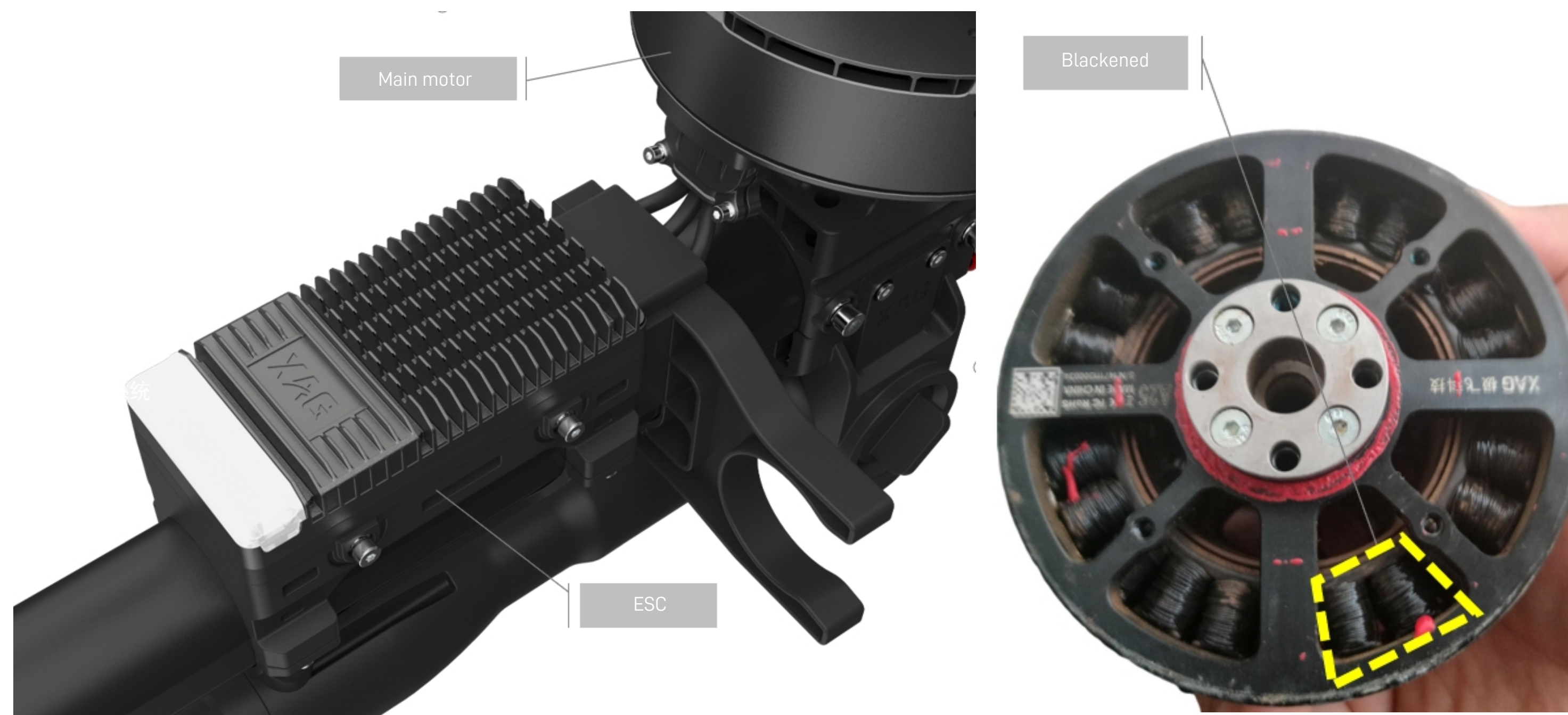
2. Check the propulsion system

The motor is the most critical part of the entire propulsion system, and the degree of wear and tear of the motor directly determines the power output and load capacity. In the case of lack of maintenance and upkeep, the motor may stop rotating during high-speed flight, resulting in crash of the drone directly; generally, the degree of damage is severe in such case; to avoid this phenomenon, maintenance must be performed appropriately.



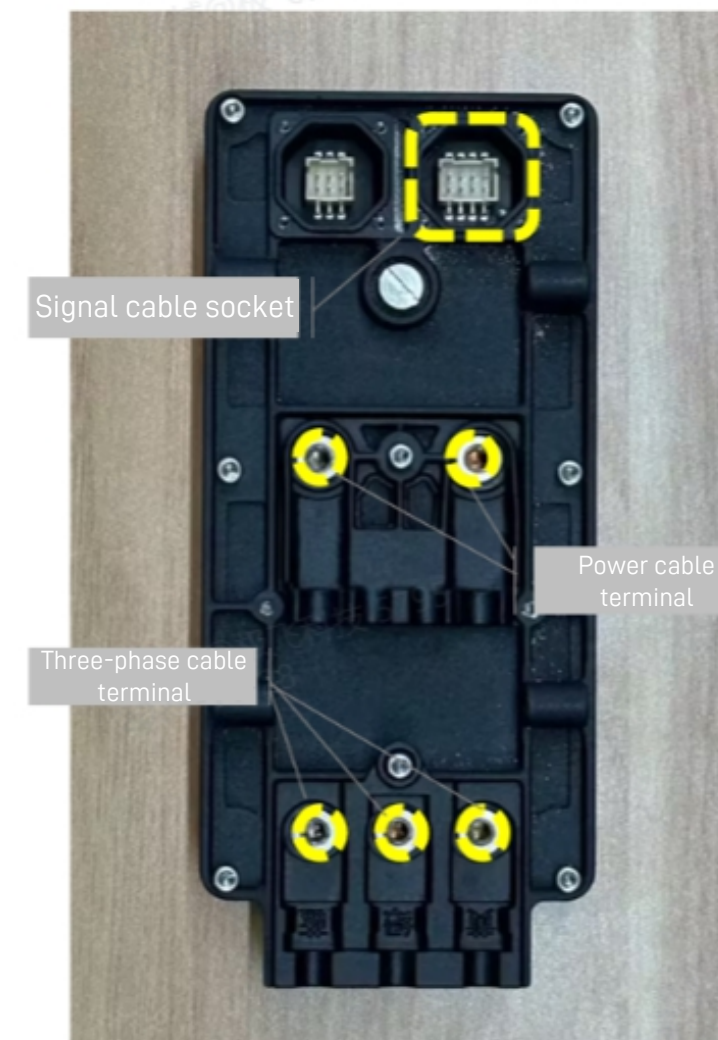
Steps:

- Step 1: Rotate the motor; if any abnormal noise or jamming is found, remove foreign objects or dust remaining on the motor enamel wire (the lower retaining ring of main motor can be removed) by a soft-bristled brush; visually check the motor enamel wire, and if it turns black, replace the motor.
- Step 2: Check whether motor three-phase cable and 3 screws at connection between ESC and terminal are tightened; if there is wear, wrap the motor three-phase cable with two layers of "acetic acid cloth tape" to ensure that the cable skin is not exposed; if there is breakage, the motor with damaged cable or terminals needs to be replaced.



Whether ESC receives adequate maintenance directly determines whether the propulsion system can perform its optimal work efficiency. In daily operation, wear and tear can lead to ESC undercurrent, low motor speed, low payload capacity, and low operational efficiency.

Remove the 4 screws that fix ESC; check the screws at the three-phase cable port of ESC, and tighten them in time if looseness is found; check ESC signal cable and power cable socket screws, and tighten them in time if looseness is found.

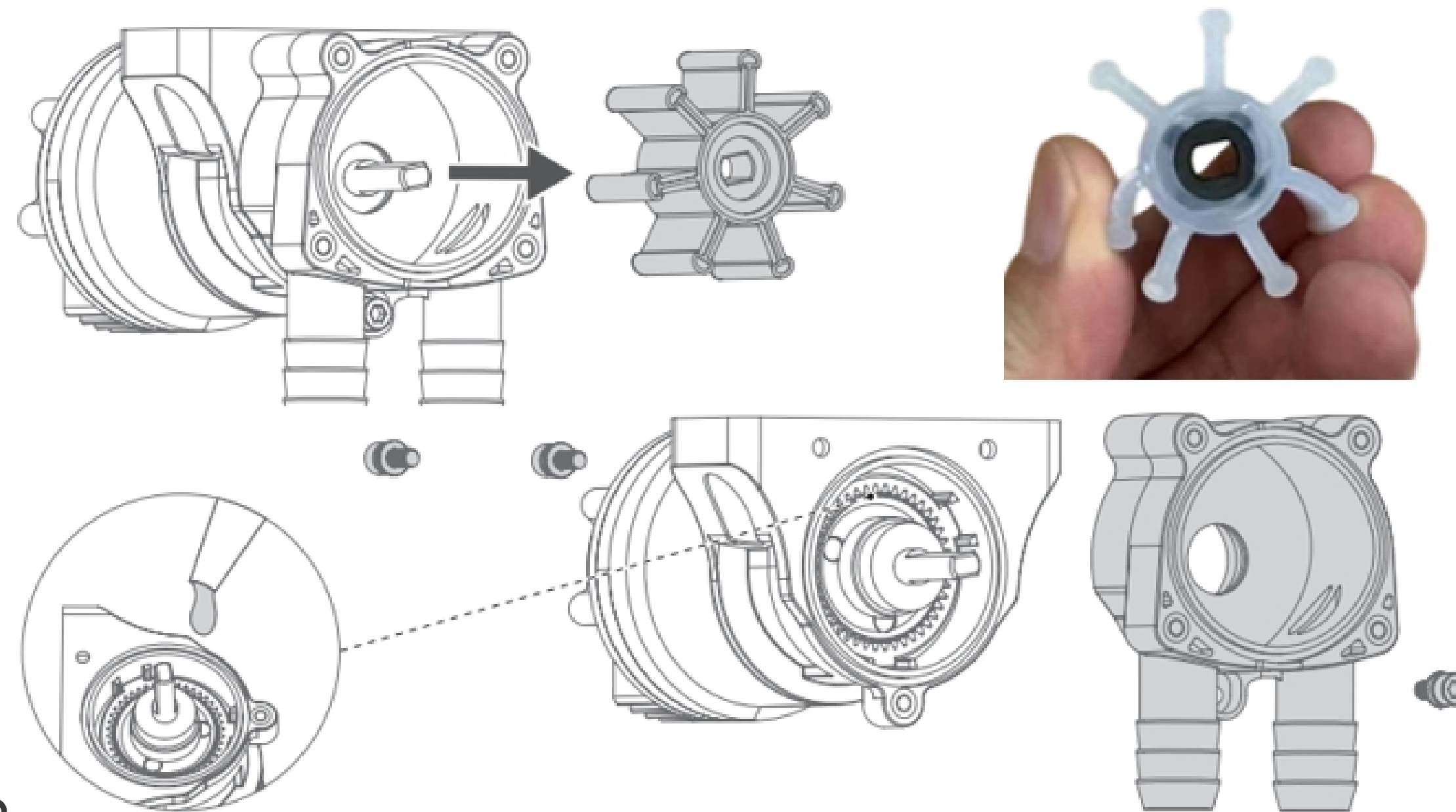


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3. Check Impeller Pump of RevoSpray System

Steps:

- Step 1: Disassemble the impeller pump and observe the flexible impeller; if adhered chemical is found, disassemble and clean in time; if corrosion or cracking is found, replace in time.
- Step 2: Observe inner wall of pump casing; if any deposition of chemical is found, clean as soon as possible and rinse with soapy water, for which attention should be paid to outside cleanliness of pump to prevent failure of electrical parts in case of agricultural chemical corrosion.
- Step 3: Disassemble pump casing and add grease to planetary gears.



Stage 3: Maintenance Items after Operation Covering an Area of 333.33 Hectares

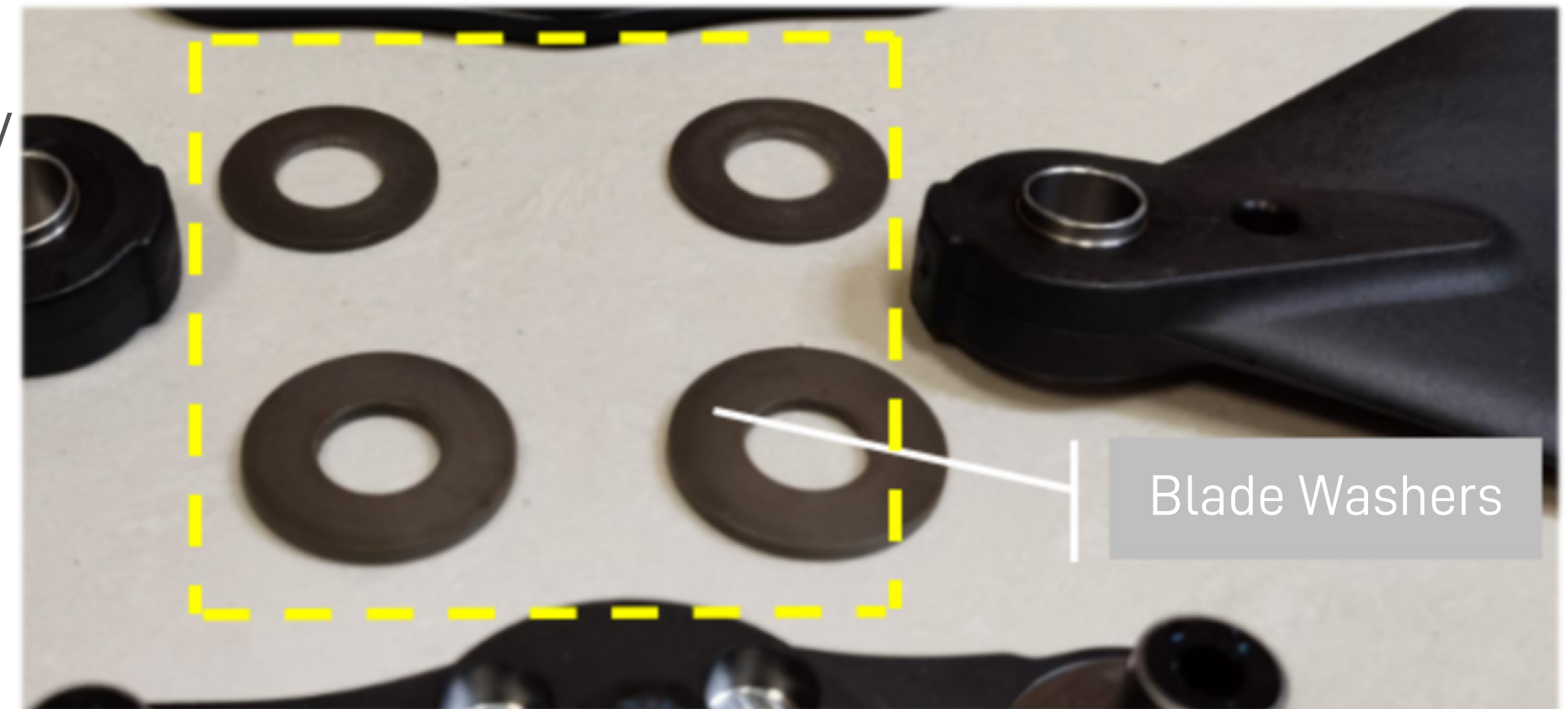
1. Check the propulsion system

Propeller Washers

The condition of the propeller washers is critical. Any wear or damage may cause significant vibrations during high-speed rotation. If the washers are excessively worn, this may cause severe vibrations during flight, which in extreme cases, may result in a crash.

Steps:

- Check the blade washers, and replace them promptly crushing or wear.

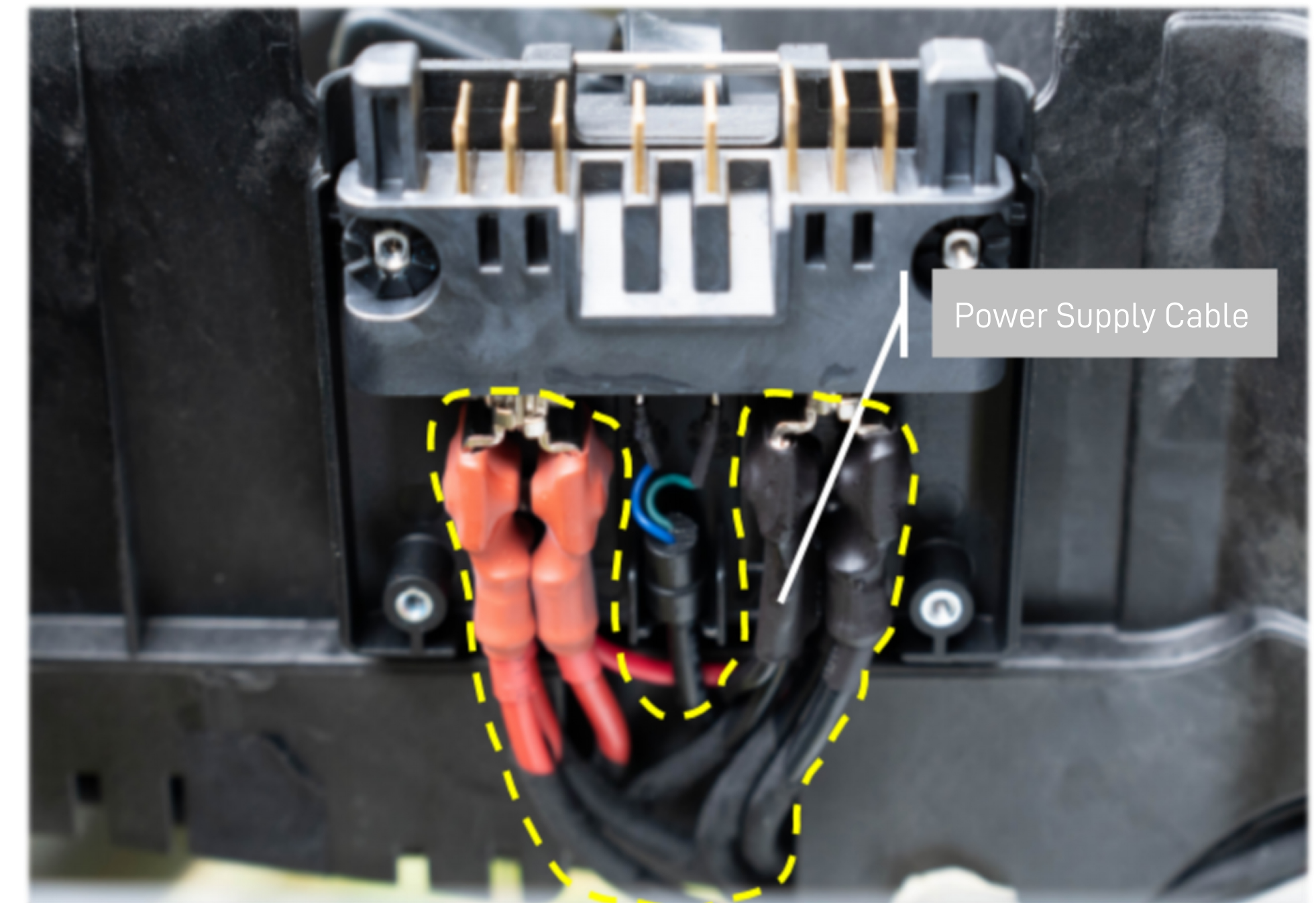


2. Check Power System

- The operation environment is complex, and prolonged contact with the battery may cause foreign objects to increase resistance during battery discharge, burning the plug. If not cleaned for a long time, the plug may fail to connect properly with the battery, **resulting in unstable discharge current and potentially causing a crash.**

Steps:

- Step 1: **Clean the metal tabs of the plug** with a cotton swab dipped in 75% alcohol, and replace the plug in case of any spark marks;
- Step 2: **Shake the plug** by hand, and remove it for reassembly in case of no movement margin;
- Step 3: Remove the plug shell, **check the power cable**, and replace the plug in case of any damage, burnout, or fracture.



Stage 3: Maintenance Items after Operation Covering an Area of 333.33 Hectares

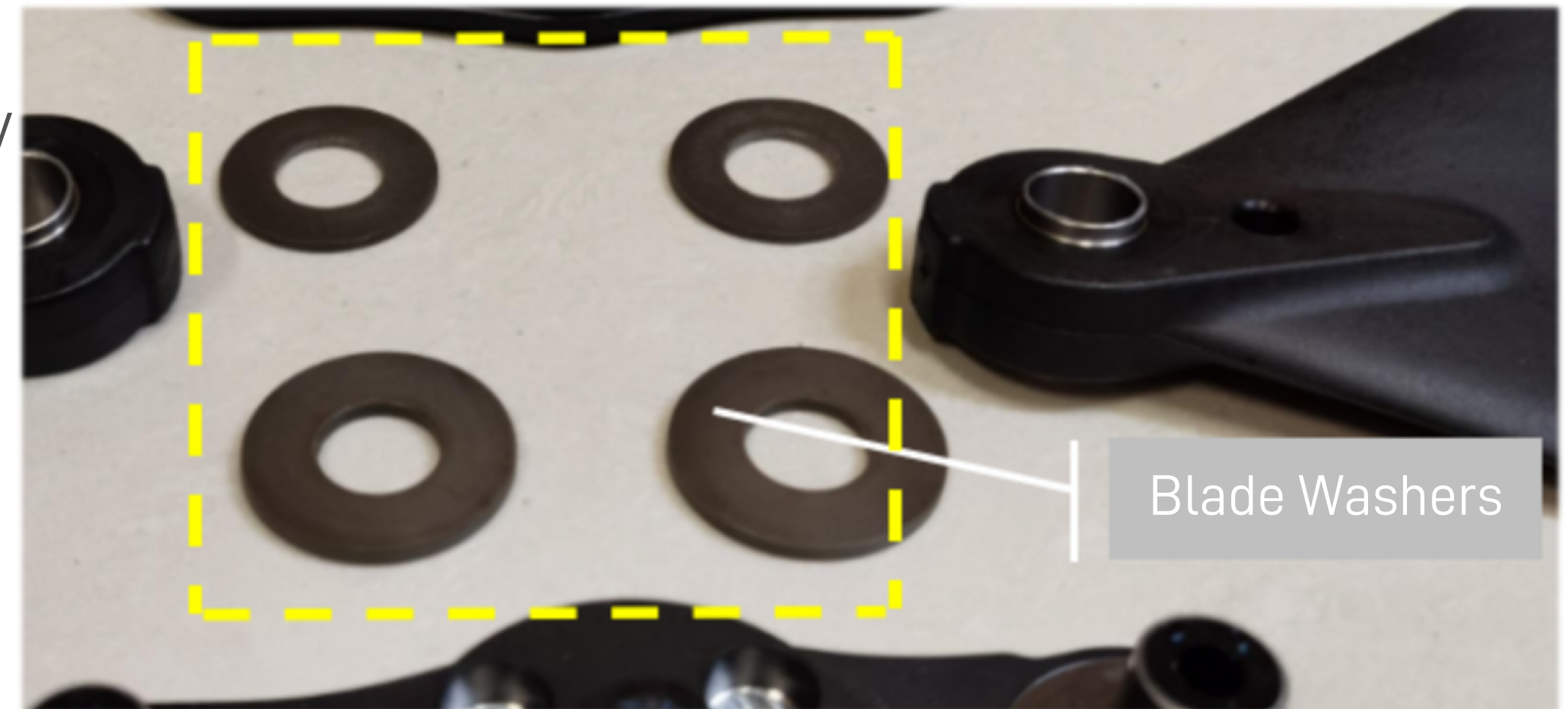
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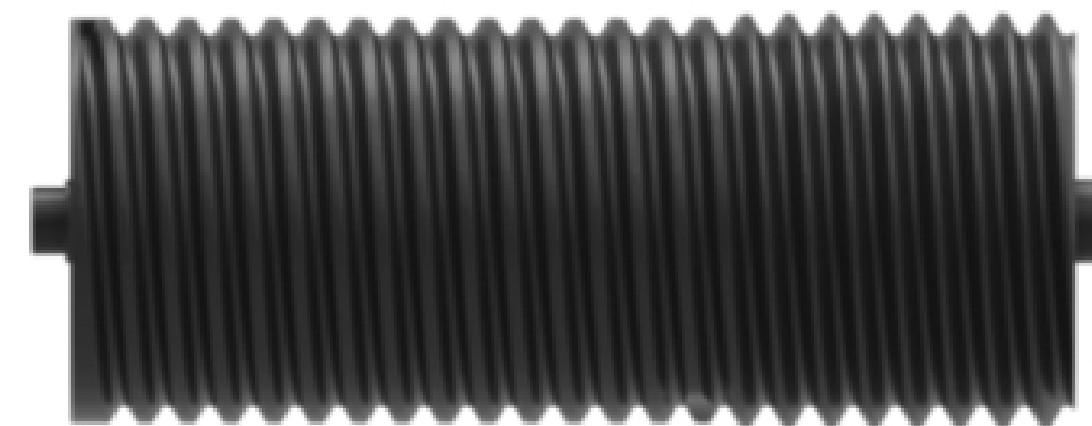


3. Check RevoCast System

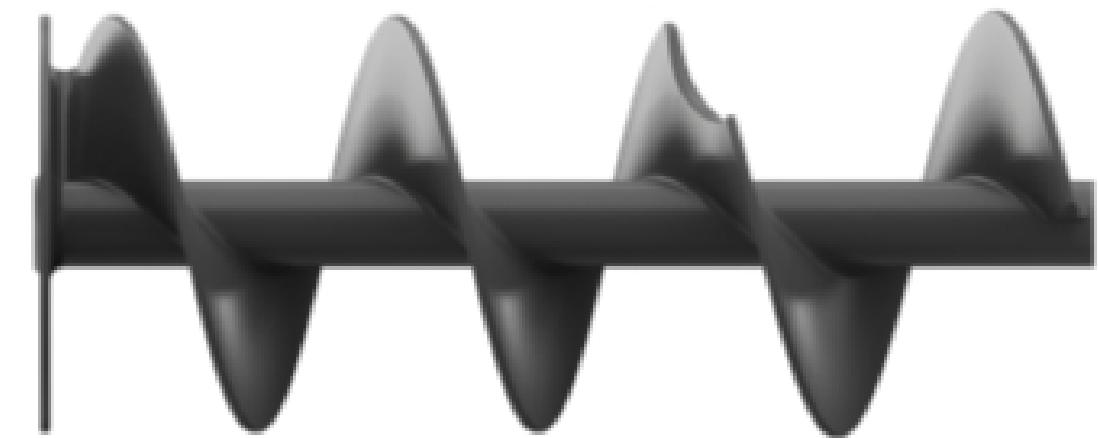
- Long term spreading operation and use of irregular hard fertilizers can cause wear and tear on the screw feeder; common abnormalities after occurrence of wear and tear include "screw feeder jamming, screw feeder leakage, and screw feeder excessive residue"; to avoid such situation, regular maintenance and upkeep are required.

Steps:

- Remove and clean the spread disc and screw feeder to check for wear, and replace them if any wear exceeds 2mm.



Small-sized Screw Feeder



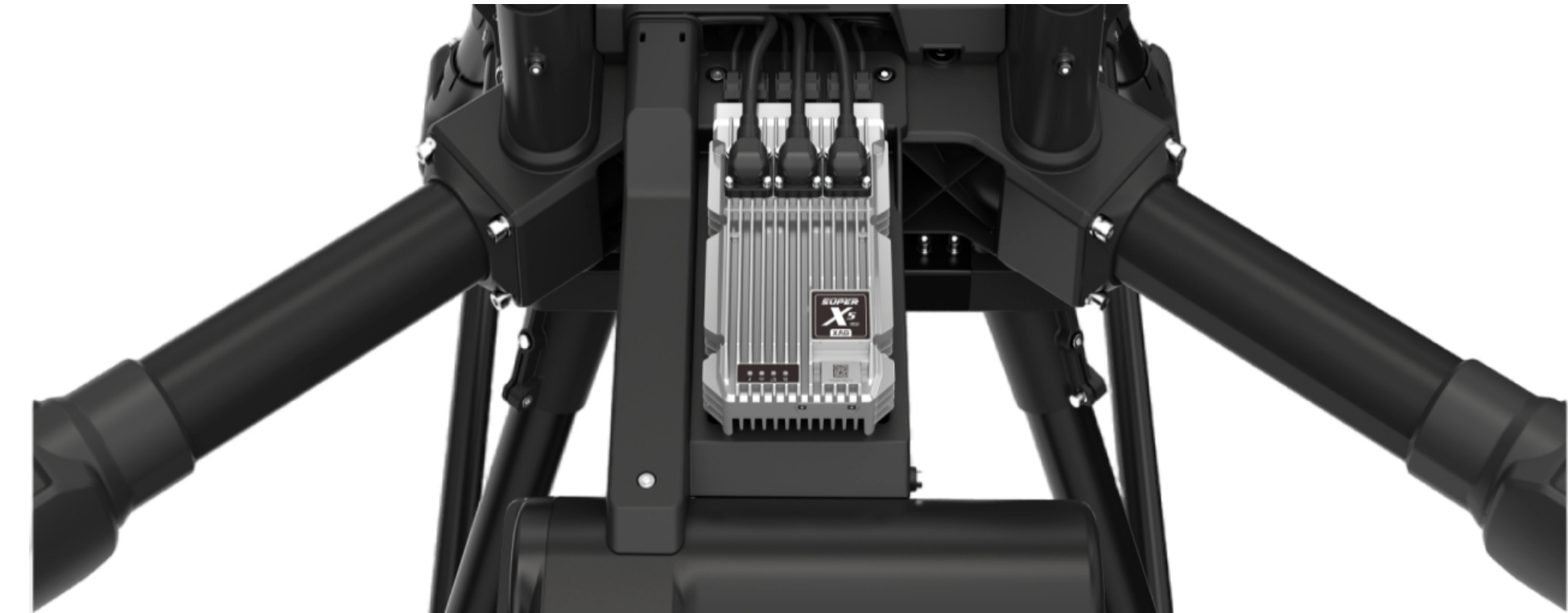
Large-sized Screw Feeder

4. Check sensor system

- The drone's flight controller converts all drone commands, including those from the positioning system and terrain radar. If the flight controller setscrews are loose, the drone may exhibit erratic behavior during flight, with sudden altitude changes, possibly due to looseness of setscrews of the flight controller.

Steps:

- Step 1: Check the flight controller mount, and tighten the setscrews if it is not secure; replace it in case of any deformation;
- Step 2: Check the holder of sensor system and replace it immediately if any deformation is found.



A man wearing a blue vest with 'AGRICULTURE' written on the back, a black cap, and a black long-sleeved shirt is working on the engine of a white truck. The truck's hood is open, and the engine compartment is visible, showing various components like the battery and hoses. The man is holding a black tool or handle. The background shows a dirt road and some greenery under a clear sky.

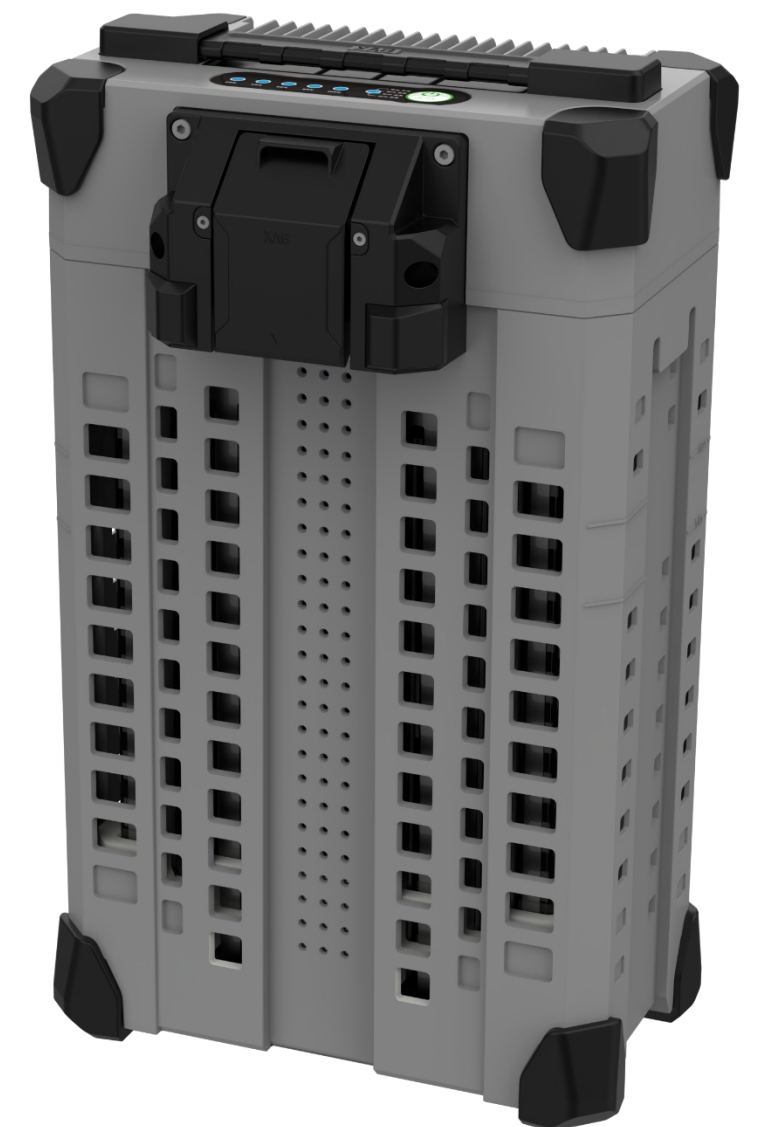
02 | Maintenance of Peripheral Products

Maintenance of smart battery

- To ensure stable discharge current and high charging efficiency, please follow the maintenance process below.

Steps:

- Step 1: **Check the battery plug**, and clean it with a cotton swab dipped in alcohol in case of any foreign objects or impurities;
- Step 2: **Check the battery shell and the plug snap fit**, and replace them at a service station in case of any damage or deformation;
- Step 3: **Check the battery heat dissipation holes**, and promptly clean out foreign matters such as sand and stones to prevent wear of the battery cells;
- Step 4: **Check the battery cells**, and send them to a service station promptly for repair in case of any swelling or leakage;
- Step 5: If not in use for a long time, the **battery should be charged in time to reach battery level of 50%~60%**, and charged and discharged **every 3 months**.



Maintenance of Supercharge Station

- The Supercharge Station plays a crucial role as the energy supply device for drones. Since **the environment where it works is often harsh**, maintenance must be carried out at regular intervals to guarantee normal operation of the device. Maintenance can be performed according to the following five items.



Maintenance of Supercharge Station - 01 Regularly Cleaning the Air Filter

- Normally, the filter net needs to be cleaned every 50 hours of operation, but in regions with heavy sand dust, this should be shortened to every 20 hours. It is recommended to use a blower or other tools for cleaning.



Maintenance of Supercharge Station - 02 Regularly Replacing the Engine Oil

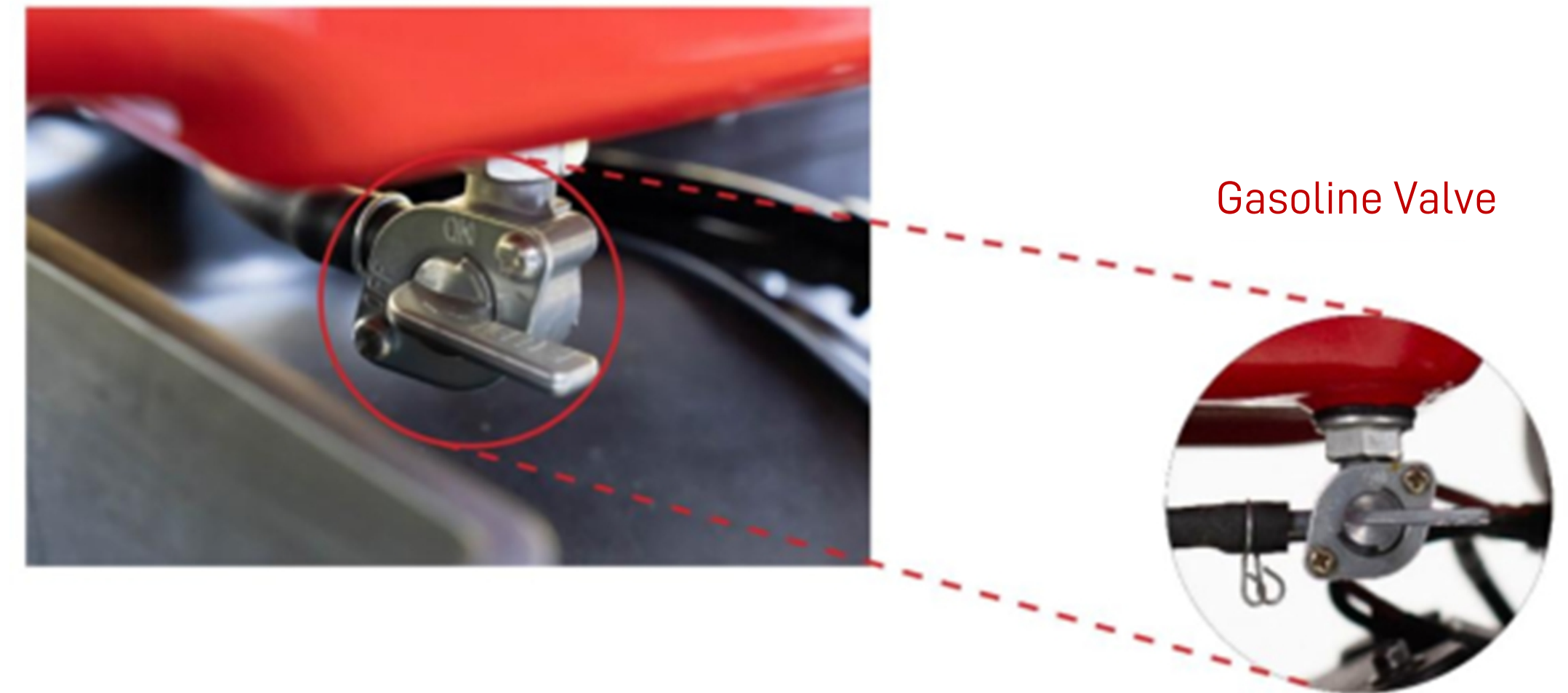
For the initial operation, the engine oil needs to be **replaced for 20 hours** of operation; in following operations, the engine oil should be replaced **every 50 hours**:

- Step 1: Unscrew the oil drain screw, drain the waste oil, and then tighten the oil drain screw;
- Step 2: Unscrew the oil dipstick and add 600ml 10W-40 engine oil; after filling, tighten the oil dipstick.



Maintenance of Supercharge Station - 03 Checking the Fuel System

- Step 1: Check the fuel pipes, and replace them promptly in case of any aging or cracking.
- Step 2: If the operation period is over or if the device will not be used for an extended time, drain the fuel from the tank and tubes.
- Step 3: Turn off the gasoline valve and check the fuel tank, tank cap, carburetor, fuel cock, etc. They should be replaced promptly in case of any damage or leakage.



Maintenance of Supercharge Station - 04 Checking the Spark Plug

- The spark plug should be checked **every 500 hours of operation**. Remove the high-voltage cap, unscrew and check the spark plug with a sleeve. In case of any burnout or other abnormal conditions, it should be replaced by a professional.



Maintenance of Supercharge Station - 05 Checking the Valve Lash

- The valve lash should be adjusted by a professional every 500 hours of operation.



Summary of the Course

- This course introduces the maintenance requirements for **agricultural drones, smart batteries, and Supercharge Stations** at different intervals.
- Attach importance to maintenance so that drones will operate **in a safer and more efficient manner**.
- Proper maintenance will **extend the service life of drones, reduce repair costs**, and truly make them a valuable tool for improving agricultural productivity.



THE END

