

Navimow Service App User Guide

Table of Contents

1. Safety Precautions	1
2. Service App Download & Account	2
3. Main Functions	3
4. Troubleshooting & Vehicle Test	4
4.1 Navimow H1 Series Test Items	8
4.2 Navimow H2 Series Test Items	10
4.3 Navimow i1 Series Test Items	12
4.4 Navimow i2 AWD Series Test Items	14
4.5 Navimow i2 LiDAR Series Test Items	16
4.6 Navimow X3 Series Test Items	18
4.7 Test Report and Repair Advice	20
5. RMA Repair	22
5.1 Navimow H1 Series RMA Change Parts	23
5.2 Navimow H2 Series RMA Change Parts	28
5.3 Navimow i2 AWD Series RMA Change Parts	41
5.4 Navimow i2 LiDAR Series RMA Change Parts	49
5.5 Navimow X3 Series RMA Change Parts	58
6. Vehicle Field Test	67
6.1 Navimow H1/i1/i2 AWD Series Vehicle Field Test	67
6.2 Navimow H2/i2 LiDAR Series Vehicle Field Test	69
6.3 Navimow X3 Series Vehicle Field Test	72
7. OTA Management	76
8. Toolbox	77

1. Safety Precautions

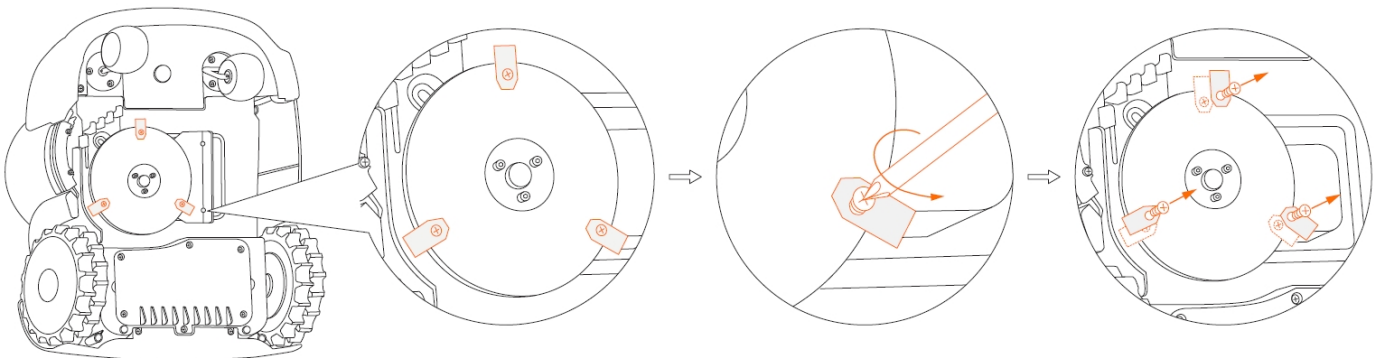


⚠ WARNING-Read instruction manual before operating the machine.



⚠ WARNING-Do not touch rotating blade.

- Operators bear responsibility for any accidents or damage impacting others or their property.
- It's crucial to adhere to the instructions and heed warnings in this manual to safely use and maintain the Navimow mower and its charging station.
- The Navimow Tool, henceforth 'the service app', should only be operated by trained individuals.
- Prior to initiating any Return Merchandise Authorization (RMA) repair, the mower's blades must be removed and kept detached throughout the repair and testing phases. Blades should be reattached only after concluding all vehicle tests.



Steps to Removing Blades

WARNING: Do not use electric or pneumatic screwdrivers for blade removal. Only manual screwdrivers should be used to avoid the significant risk of injury from high-speed rotating blades.

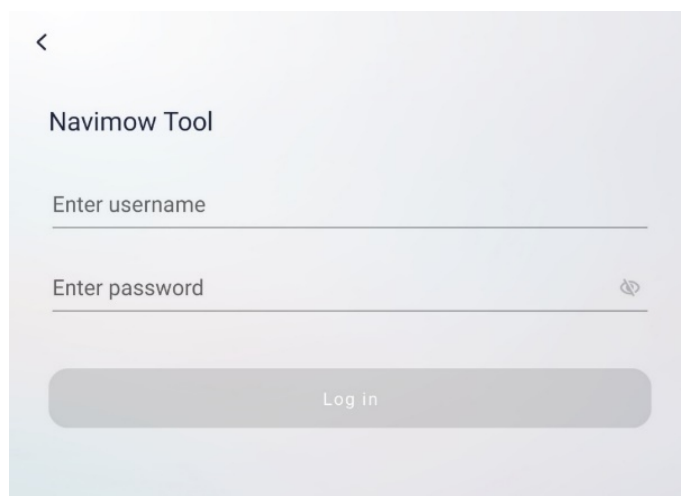
2. Service App Download & Account

The Navimow Service App is now available for both **Android** and **iOS**.

You can install it by searching for "**Navimow Service**" in the Google Play Store or the Apple App Store.

Please contact Navimow after-sales service to complete the required form for activating your service app account.

Log in to the service app using the provided account and password. Please note that a single service account can be accessed on up to five Android devices. If you need access on more than five devices, please contact the Navimow After-sales Team to request additional accounts.



Service App Log In

Customers should be advised to always send both the mower and the charging station together for repairs. This ensures that both components are properly serviced and maintained.

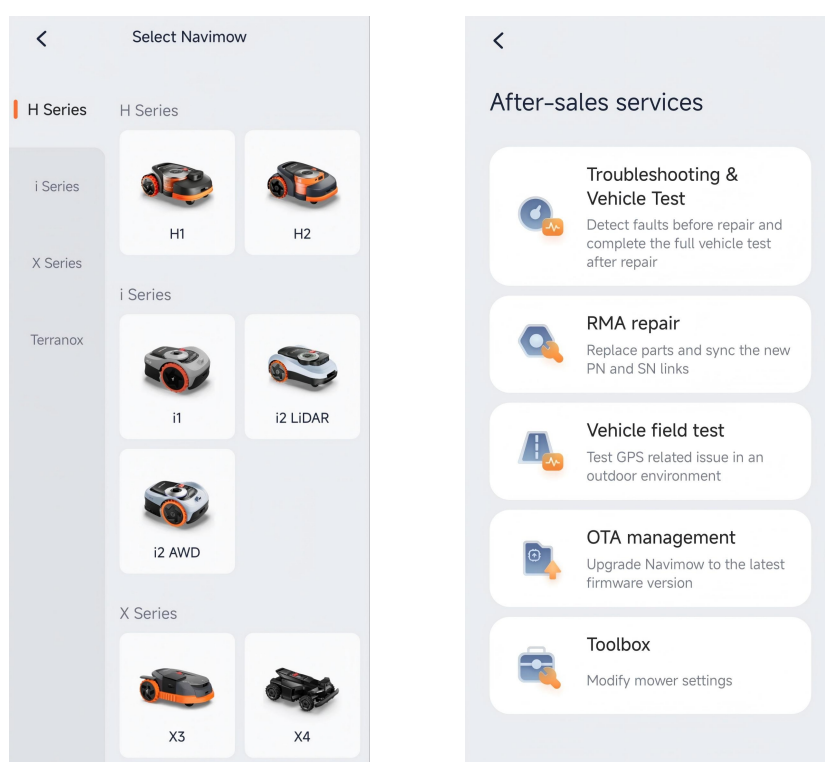
- Keep in mind that a single account can only be logged in on one device at a time. Attempting to log in on a new device will automatically log out the previous device.

3. Main Functions

When you first access the service app, you will be prompted to choose the Navimow model you wish to service. After making your selection, the app will exclusively search for and display mowers that correspond to the chosen model.

The service app includes five main functions, which remain consistent across the Navimow H Series, i Series and X Series. Differences primarily occur in specific functions or workflows unique to each series.

If you need to switch to a different model, simply return to the 'Select Navimow' section.



Select Series and Main Functions

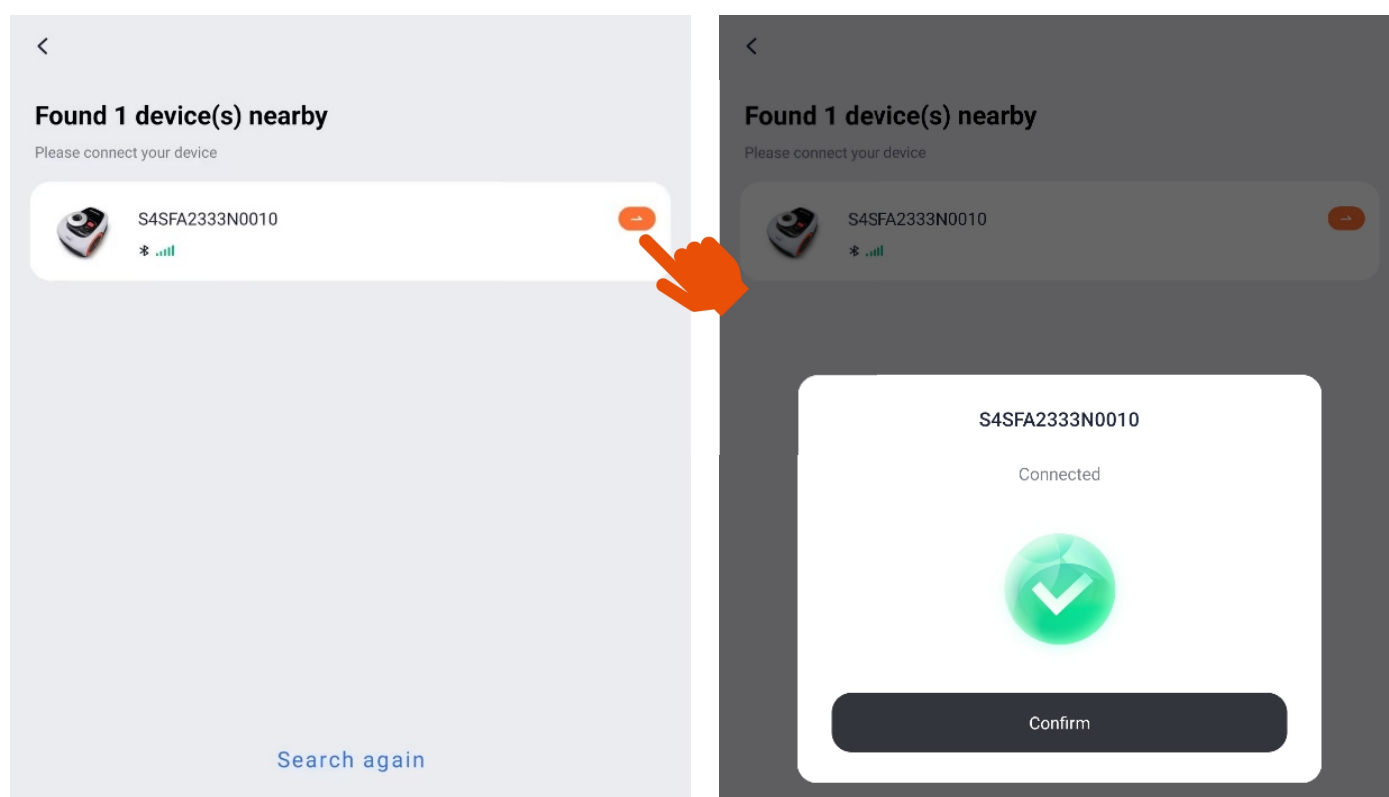
Troubleshooting & Vehicle Test	Identify faults before initiating repairs and conduct a comprehensive vehicle test post-repair to ensure full functionality.
RMA repair	Replace faulty components and synchronize the new Product Number (PN) and Serial Number (SN) links.
Vehicle field test	Examine GNSS-related issues in an outdoor environment through rigorous testing.
OTA management	Upgrade Navimow to the latest firmware version via Over-The-Air (OTA) updates.
Toolbox	Adjust and customize mower settings using the Toolbox feature.

4. Troubleshooting & Vehicle Test

The 'Troubleshooting & Vehicle Test' function is designed to assess the normal functioning of mower parts through a series of comprehensive tests.

Before proceeding with the test, please ensure that the mower is updated to the latest firmware version.

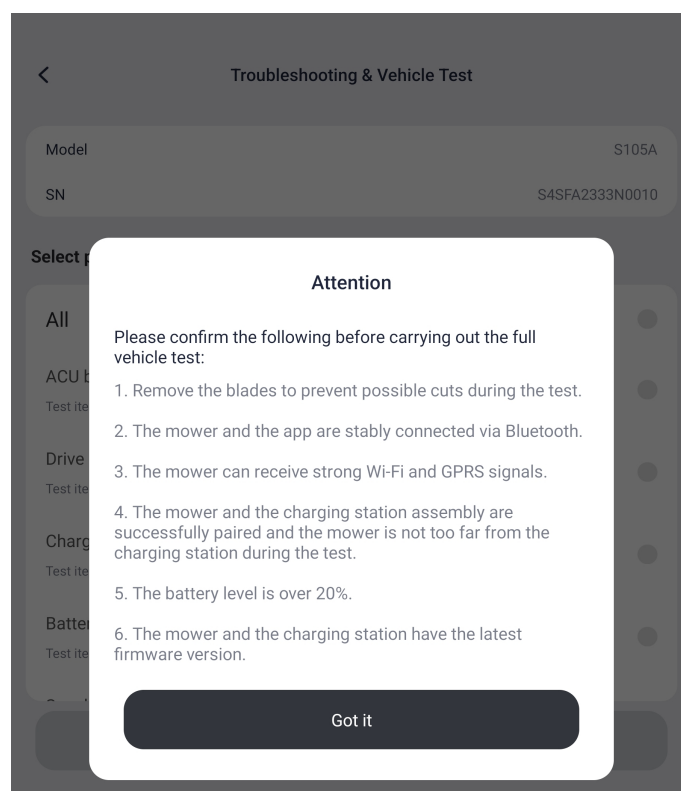
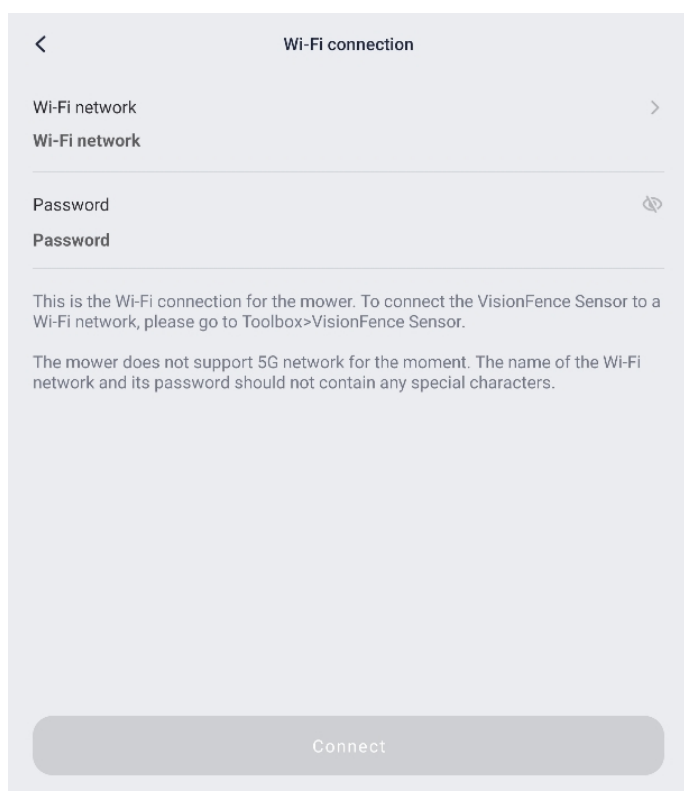
Upon entering the 'Troubleshooting & Vehicle Test' function, the service app will search for nearby mowers and display a list. To connect to the mower to be serviced, simply tap the orange button located on the right side.



Select the Mower to Connect

If the mower is not currently connected to a Wi-Fi network, the service app will prompt you to establish the connection. It is essential to connect to a Wi-Fi network with internet access, as this is required for certain test items later in the process.

For the Navimow H1 Series, if the mower is connected to a 4G network, the service app will not prompt you to switch to a Wi-Fi network due to hardware limitations. If a Wi-Fi test is required, please manually switch the mower to a Wi-Fi network before continuing with the vehicle test by navigating to the '**Toolbox**' function and selecting '**Network Management**'.



Wi-Fi Connection Set Up and Attentions Before Testing

Before conducting the full vehicle test, ensure the following:

- The blades are removed to prevent potential injuries during the test.
- A stable Bluetooth connection exists between the mower and the app.
- The mower receives strong Wi-Fi and 4G signals.
- The mower's battery level is above 20%.
- Both the mower and the charging station are updated to the latest firmware version.
- The mower and charging station are properly paired, and the mower remains close to the charging station during the test (For H1/i1/i2 AWD Series).
- If the Navimow Trimmer is installed, remove the cables to avoid possible cuts during the test (for X3 Series).
- The mower and the antenna(s) are successfully paired and the mower is within range of the antenna(s) during the test (for X3 Series).
- The mower and antenna(s) are running the latest firmware version (for X3 Series).

Unlike the H1, and i1/i2 AWD Series, the H2, i2 Lidar/i2 Lidar Pro, X3 Series mower supports both 2.4GHz and 5GHz Wi-Fi.

The 2.4GHz band must be tested.

In specific working areas, if a 5GHz Wi-Fi connection is available, it is recommended to test the 5GHz connection. If the 5GHz Wi-Fi connection is not available, you may skip the 5GHz Wi-Fi test steps to avoid unnecessary errors in the report. Before starting the full vehicle test, you will be prompted to either skip or establish a connection, as shown below.

Wi-Fi connection (2.4 GHz)

Wi-Fi network >
Segway-Ninebot-Guest

Password >
• • • • •

Connect the mower to a 2.4 GHz network.
The name of the Wi-Fi network and its
password should not contain any special
characters.

Connect

2.4GHz Wi-Fi Connection Set Up

Wi-Fi connection (5 GHz)

Wi-Fi network >
Wi-Fi network

Password >
Password

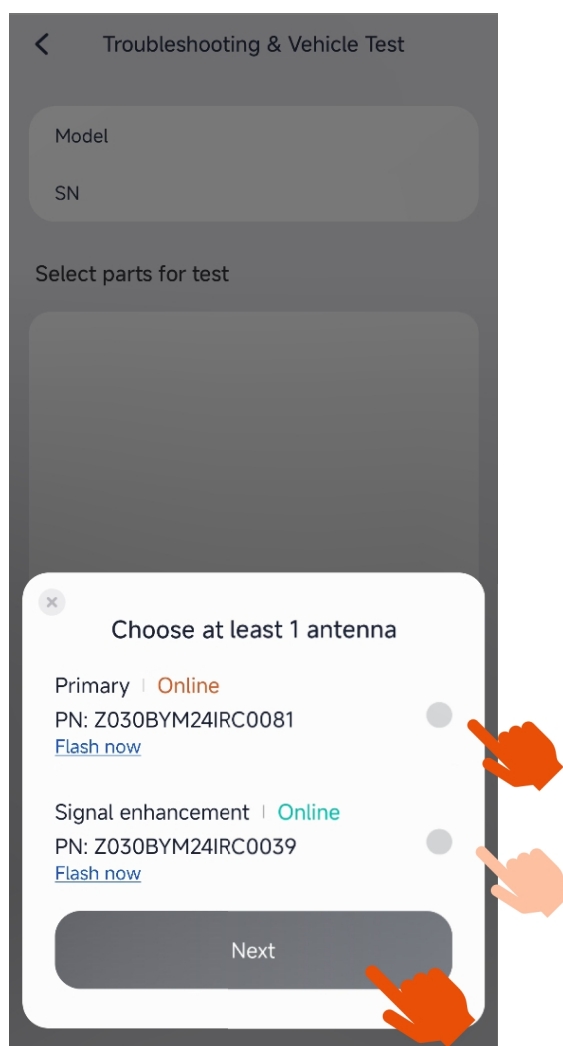
1. Connect the mower to a 5 GHz network.
The name of the Wi-Fi network and its
password should not contain any special
characters.
2. If the local area is not in the coverage
of 5 GHz networks, tap 'Skip'. If a 5
GHz network is available, to test it, tap
'Connect'.

Skip

Connect

5GHz Wi-Fi Connection Set Up (Optional)

Unlike the H and i Series, the X Series mower supports a maximum of two antennas. Therefore, before initiating the full vehicle test, at least one antenna must be selected for testing. As shown in the figure below.



X Series antenna(s) selection before test

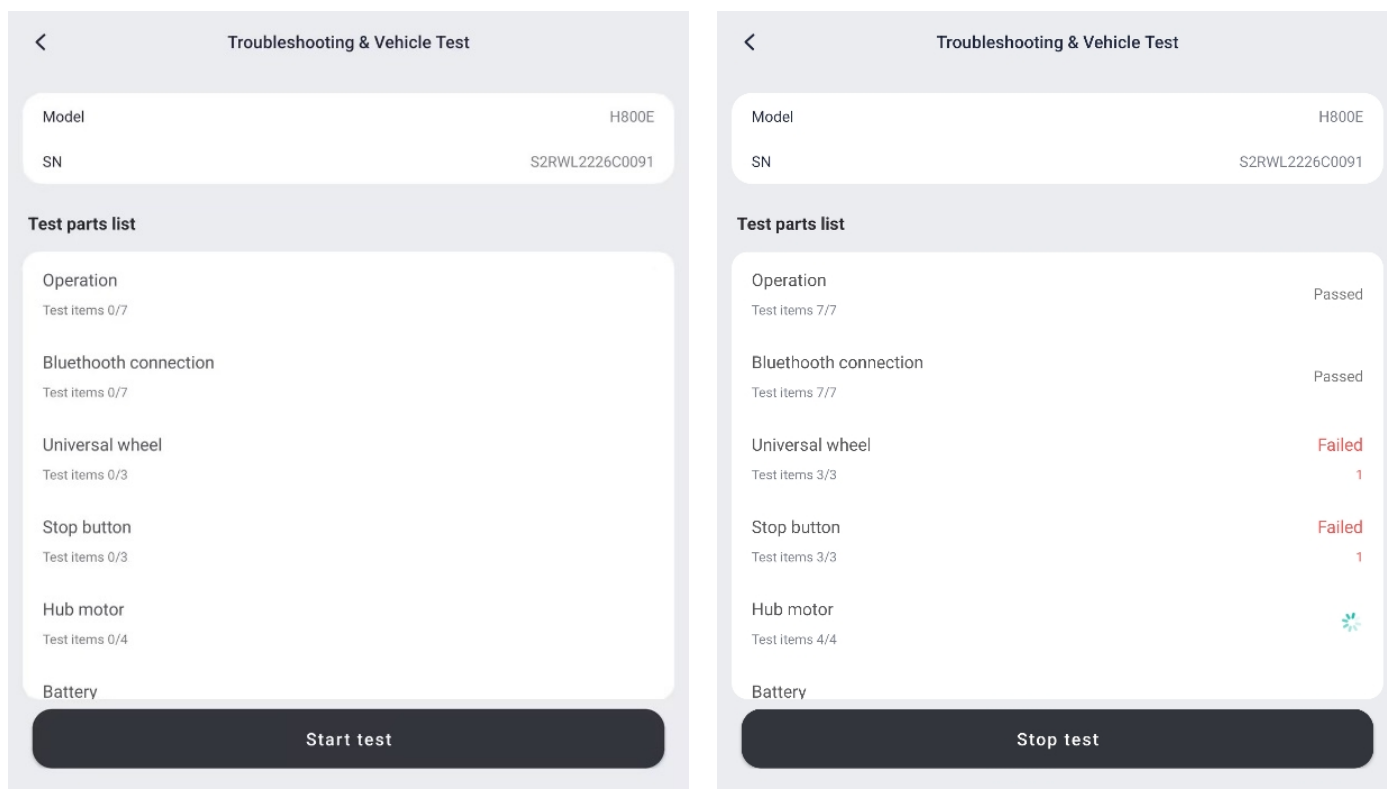
It indicates that two antennas are currently paired with the mower. "Online" signifies that communication is detected between the antenna and the mower, whereas "Offline" indicates the absence of communication. Offline status may result from the antenna not being powered, not being paired with the mower, or being positioned too far from the mower, among other reasons.

By tapping "Flash Now," an indicator light beneath the corresponding antenna will flash, helping to locate it.

- To ensure the accuracy of the test results, please confirm that the selected antenna(s) are online and positioned within 1 meter of the mower.

4.1 Navimow H1 Series Test Items

Operation	7	test items
Bluetooth connection	7	test items
Universal wheel	3	test items
Stop button	3	test items
Hub motor	4	test items
Battery	2	test items
Mowing module	7	test items
Charging station assembly	13	test items
Drive board assembly	28	test items
Bumper assembly	23	test items
Top shell assembly	51	test items
Back end	9	test items



Navimow H Series Test Items

When working with the Navimow H1 Series, initiating the test is a straightforward process. Simply tap the 'Start Test' button, and the service app will begin the test, systematically covering all test items. It is essential to follow the provided instructions to ensure a successful test.

Please note that once the test has started, it cannot be paused. If you need to conclude the test prematurely, tapping the 'Stop Test' button will immediately halt the test.

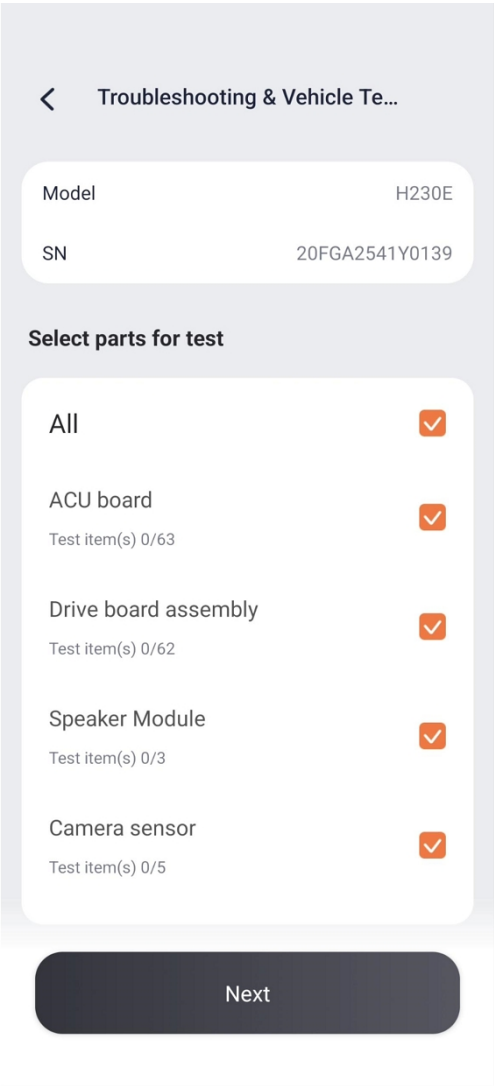
4.2 Navimow H2 Series Test Items

All	219	Test items
ACU board	63	test items
Drive board assembly	62	test items
Speaker Module	3	test items
Camera sensor	5	test items
Headlight	3	test items
Ambient light	3	test items
IOT module	9	test items
Lidar module	6	test items
Find My Battery	1	test item
Buzzer	3	test items
STOP button assembly	3	test items
Control panel assembly	15	test items
Mowing motor	6	test items
Height Adjustment motor/Cutting Height sensor	4	test items
Traction motor module	8	test items

Battery pack	6	test items
Charging station	5	test items
Bumper module	6	test items
Universal Wheel Module/Lift Sensor Press Plate	5	test items
Rain sensor	3	test items

The service app supports both comprehensive testing of all parts and targeted testing of specific parts, providing users with the flexibility to test as needed.

After selecting the desired test parts, the test can be initiated.



4.3 Navimow i1 Series Test Items

All 95 Test items

ACU board 31 test items

Drive board assembly 52 test items

Charging station 12 test items

Individual test

Battery pack 2 test items

Speaker module 2 test items

Camera light 3 test items

Display PCB board 3 test items

Display button sticker 9 test items

STOP button assembly 3 test items

Ambient light assembly 3 test items

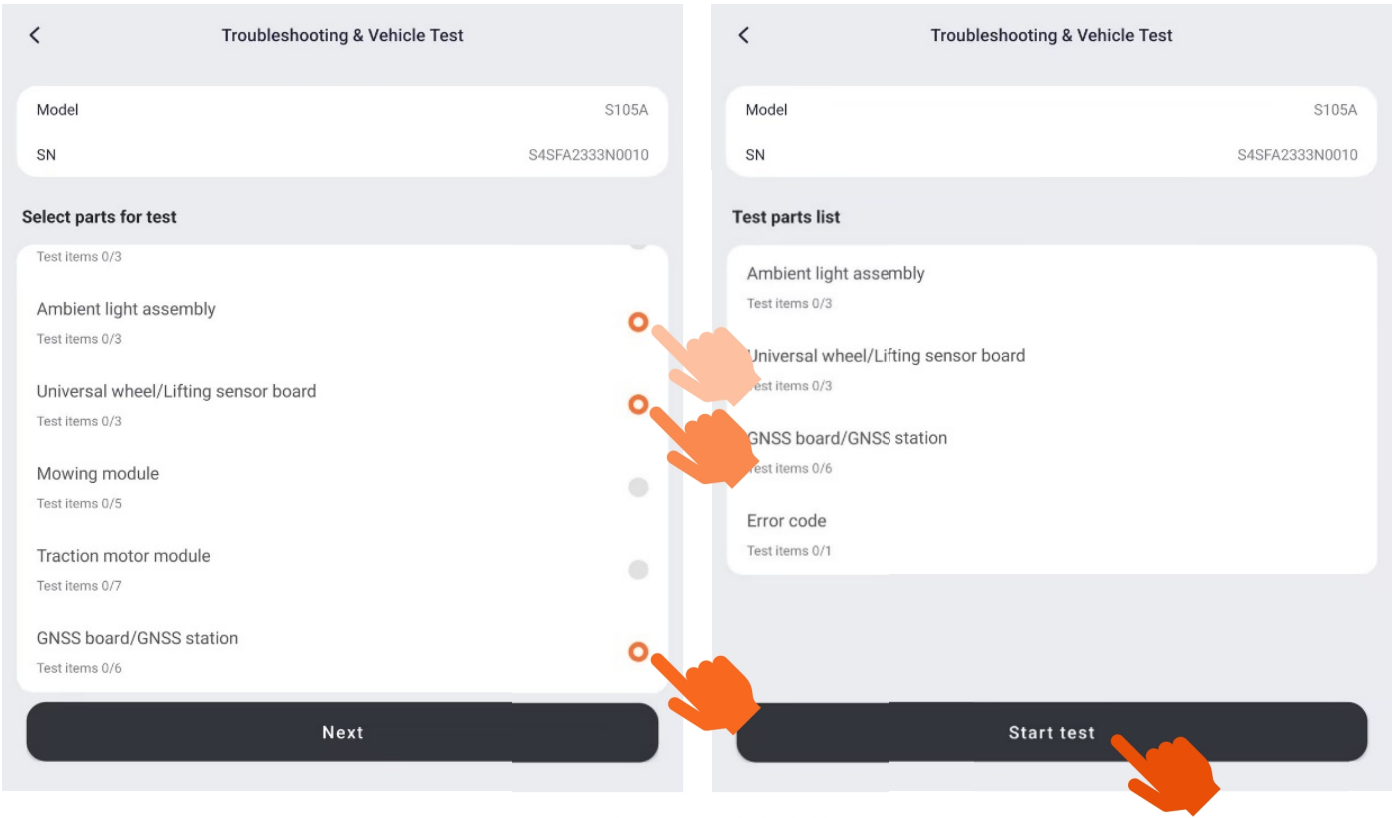
Universal wheel/Lifting sensor board 3 test items

Mowing module 5 test items

Traction motor module 7 test items

GNSS board/GNSS station 6 test items

With the Navimow i1 Series, a more flexible approach is offered. Within the 'Troubleshooting & Vehicle Test' function, you have the option to selectively choose one or more items to initiate the test, providing a tailored and adaptable testing process based on specific needs or requirements.



Select Test Items and Start the Test

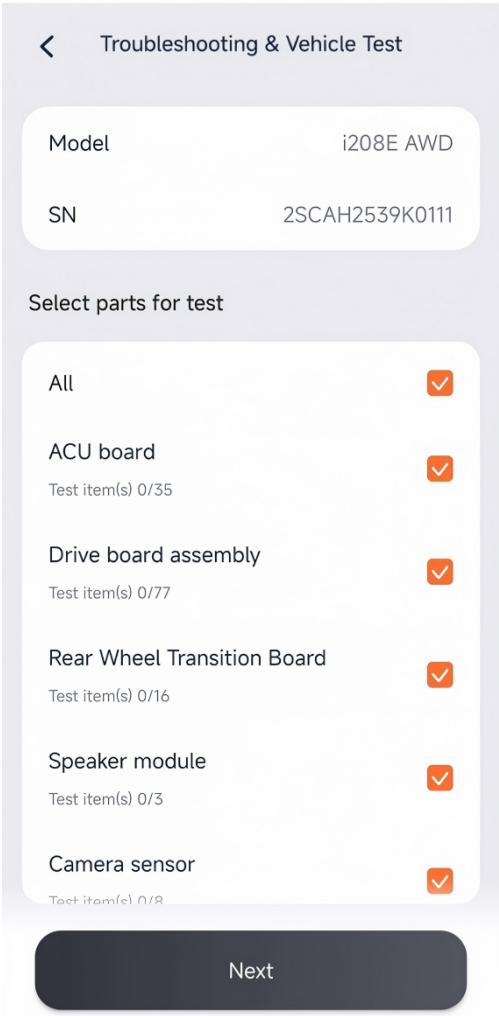
You can select specific test items by tapping on them. The selected items will be highlighted, and the service app will display a list of your chosen test items in the next section. Tap the 'Start Test' button, and the service app will begin the test.

4.4 Navimow i2 AWD Series Test Items

All	207	Test items
ACU board	35	test items
Drive board assembly	77	test items
Rear Wheel Transition Board	16	test items
Speaker module	3	test items
Camera sensor	8	test items
Display PCB board	3	test items
Display button sticker	7	test items
STOP button assembly	3	test items
Ambient light assembly	3	test item
Battery pack	6	test items
Charging station	12	test items
Mowing motor	6	test items
Traction motor module	7	test items
Rear Wheel Drive Motor Assembly / Lifting sensor board	15	test items
Rear Wheel Steering Motor / Magnetic Encoder Board	6	test items

The service app supports both comprehensive testing of all parts and targeted testing of specific parts, providing users with the flexibility to test as needed.

After selecting the desired test parts, the test can be initiated.



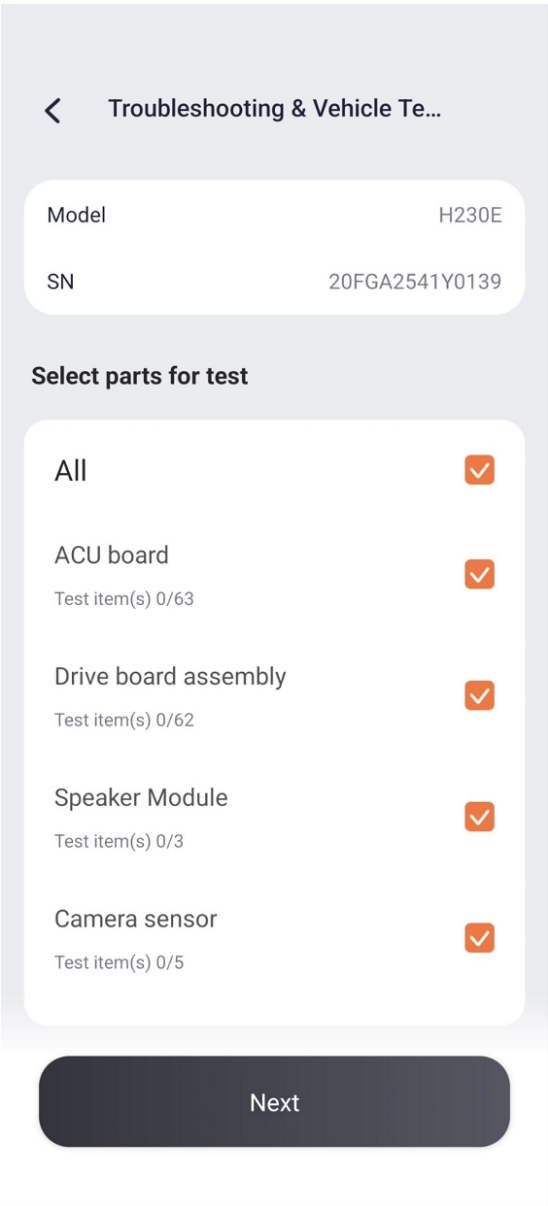
4.5 Navimow i2 LiDAR Series Test Items

All	198	Test items
ACU board	63	test items
Drive board assembly	53	test items
Speaker Module	3	test items
Camera sensor	5	test items
Headlight	3	test items
Ambient light	3	test items
IOT module	9	test items
LiDAR module	6	test items
Find My Battery	1	test item
Buzzer	3	test items
STOP button assembly	3	test items
Control panel assembly	15	test items
Mowing motor	6	test items
Height Adjustment motor/Cutting Height sensor	4	test items
Traction motor module	8	test items

Battery pack	6	test items
Charging station	2	test items
Universal Wheel Module/Lift Sensor Press Plate	5	test items

The service app supports both comprehensive testing of all parts and targeted testing of specific parts, providing users with the flexibility to test as needed.

After selecting the desired test parts, the test can be initiated.



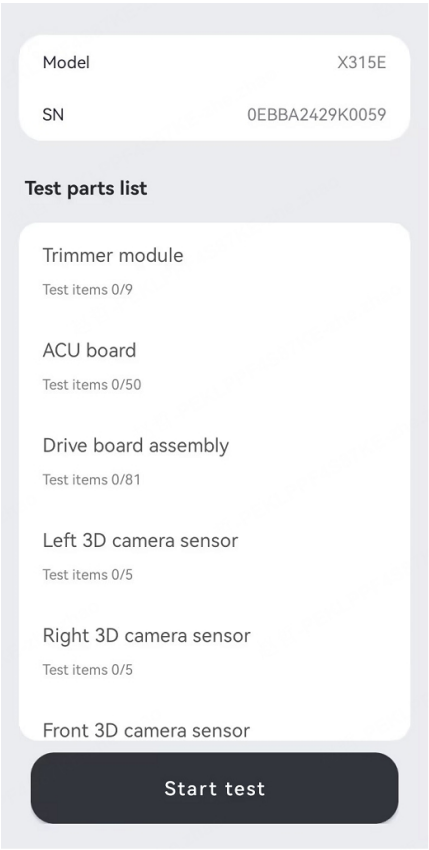
4.6 Navimow X3 Series Test Items

All	232	Test items
Trimmer module	9	test items
ACU board	50	test items
Drive board assembly	81	test items
Left 3D camera sensor	5	test items
Right 3D camera sensor	5	test items
Front 3D camera sensor	5	test items
Charging station	2	test items
Antenna (PN Number)	8	test items
Speaker module	2	test items
LED Display Screen	7	test items
Headlight	3	test items
Universal wheel / Lifting sensor board	5	test items
Bumper assembly/Bumper sensor-PCB	6	test items
Stop button assembly	3	test items
Height Adjustment motor/Cutting Height sensor	4	test items

Mowing motor	6	test items
Traction motor module	7	test items
Key-PCB	7	test items
Battery pack	6	Test items
Transition-PCB	11	test items

The service app supports both comprehensive testing of all parts and targeted testing of specific parts, providing users with the flexibility to test as needed.

After selecting the desired test parts, the test can be initiated.



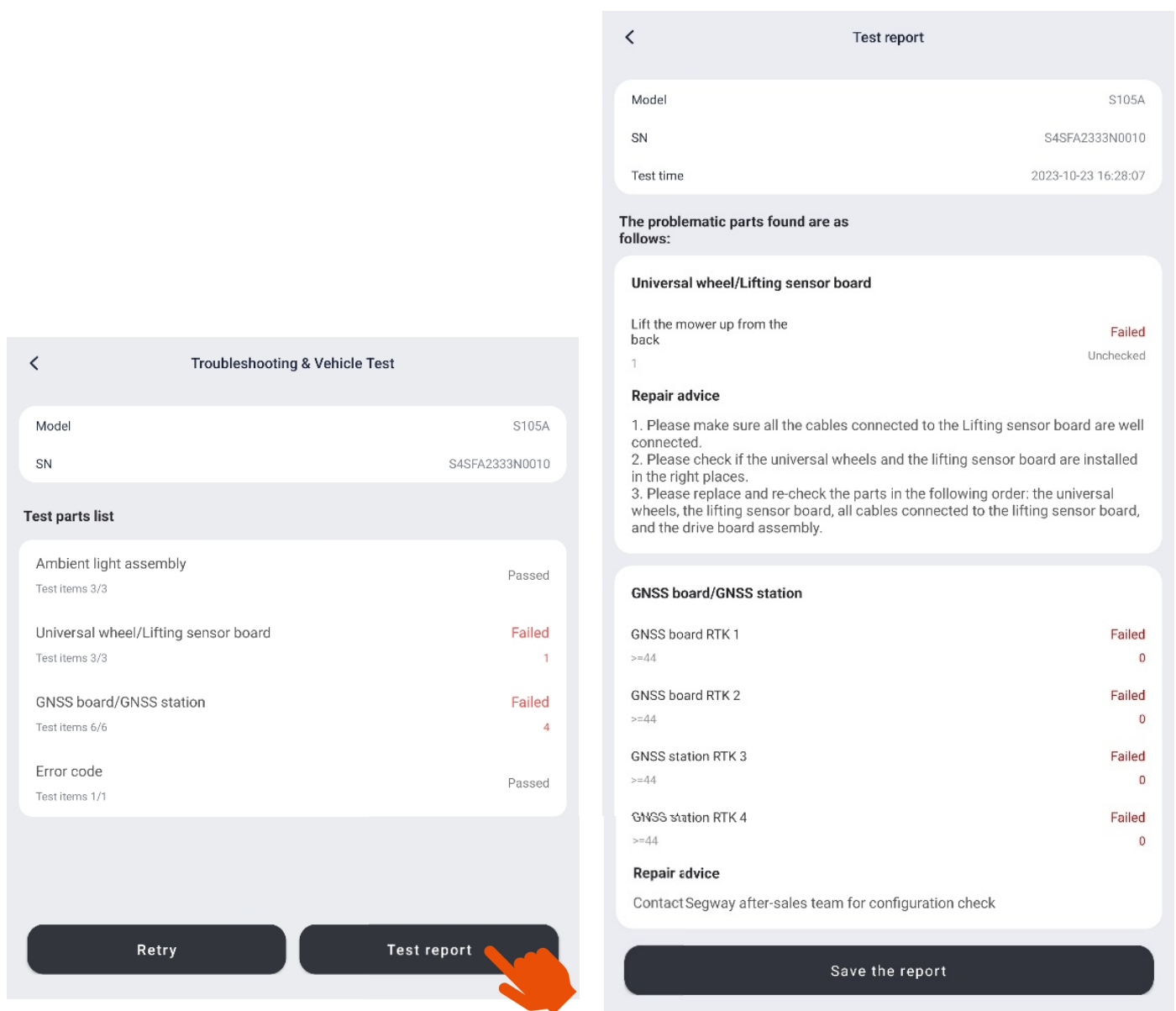
Test Items for X Series

4.7 Test Report and Repair Advice

The test report will be generated and made available immediately after the test concludes.

If a test item fails during testing for the Navimow H, i, or X Series, a comprehensive test report will be provided. This report includes detailed information about the failed test item along with recommended repair advice. If necessary, you may tap 'Retry' to repeat all test items.

Additionally, the test report can be saved directly to your smartphone for future reference or communication with the service team. This ensures easy access to relevant details and facilitates a more streamlined repair process.



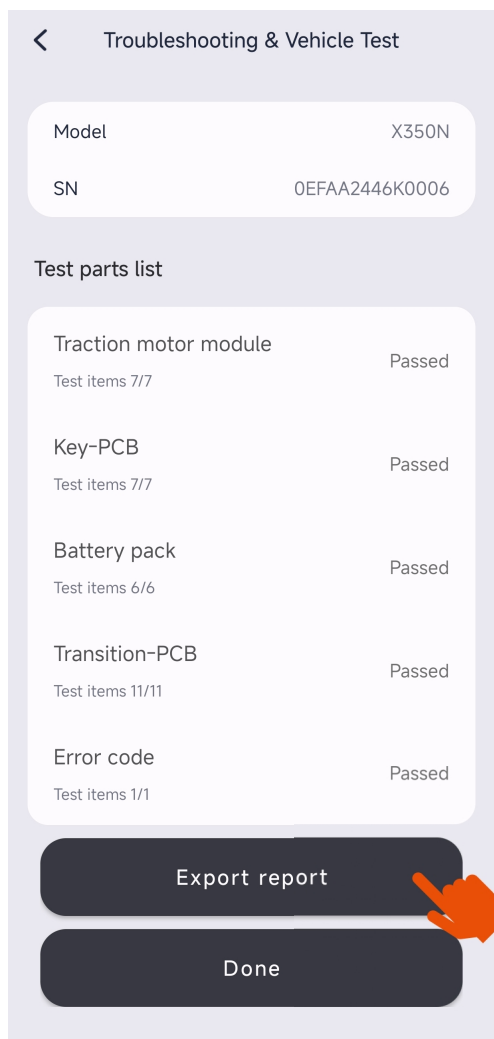
Test Result and Test Report

The test report can be exported and is saved in **Systems > Files > Download**.

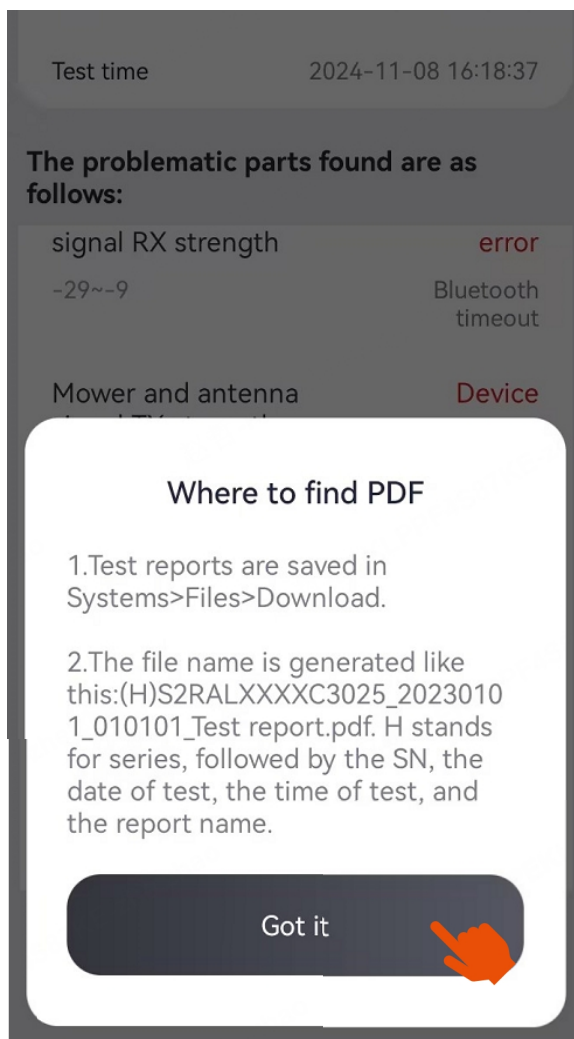
The file name is generated in the following format:

(H)S2RALXXXC3025_20230101_010101_Test report.pdf.

Here, "H" represents the series, followed by the Serial Number (SN), the date of the test, the time of the test, and the report name.



Export report



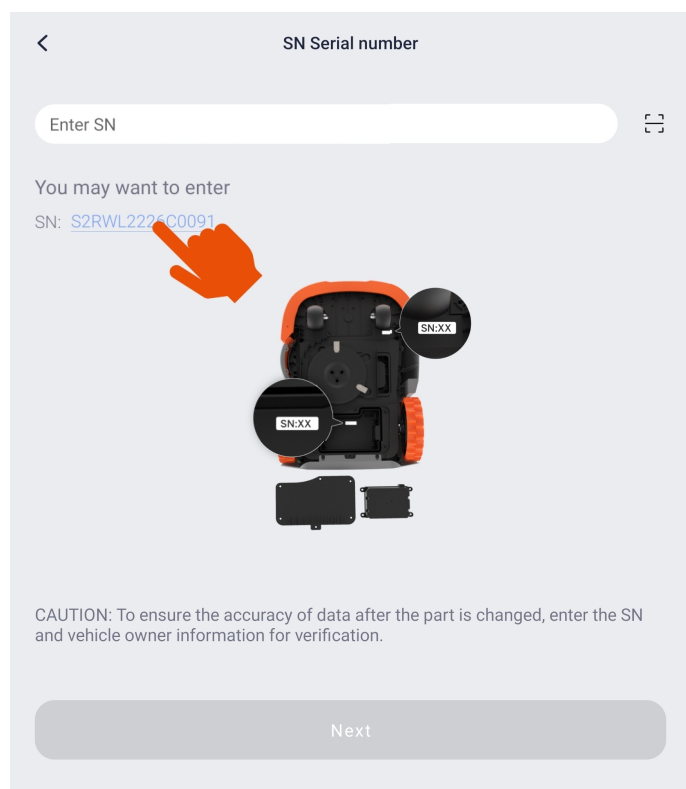
Where to find report PDF file

5. RMA Repair

The 'RMA Repair' function is designed to synchronize the links between the Product Number (PN) of newly replaced major components and the mower's Serial Number (SN). This process ensures the accurate association of SN-PN links and includes the calibration or adjustment of necessary new components. It is important to note that certain components may not function optimally without calibration, potentially affecting the mower's normal operation.

To utilize the RMA Repair function, select the mower designated for service. The service app will prompt you to enter the mower's serial number. For your convenience, a suggested SN will be displayed below the input box. Alternatively, you may use the barcode scanner by tapping the button located to the right of the input box, allowing you to scan the SN barcode instead of entering it manually.

Please exercise caution, as entering an incorrect serial number may result in errors. Ensuring the accuracy of the serial number is essential.



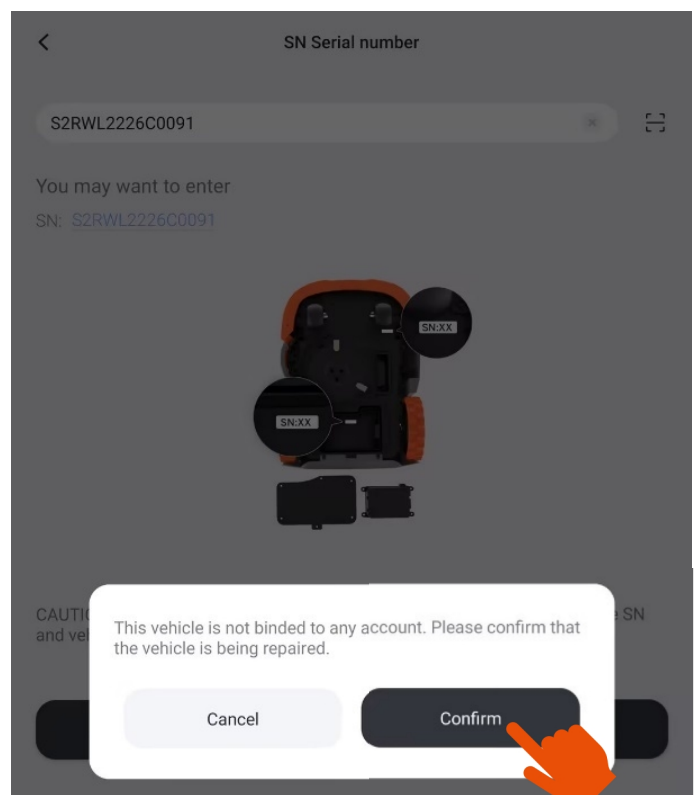
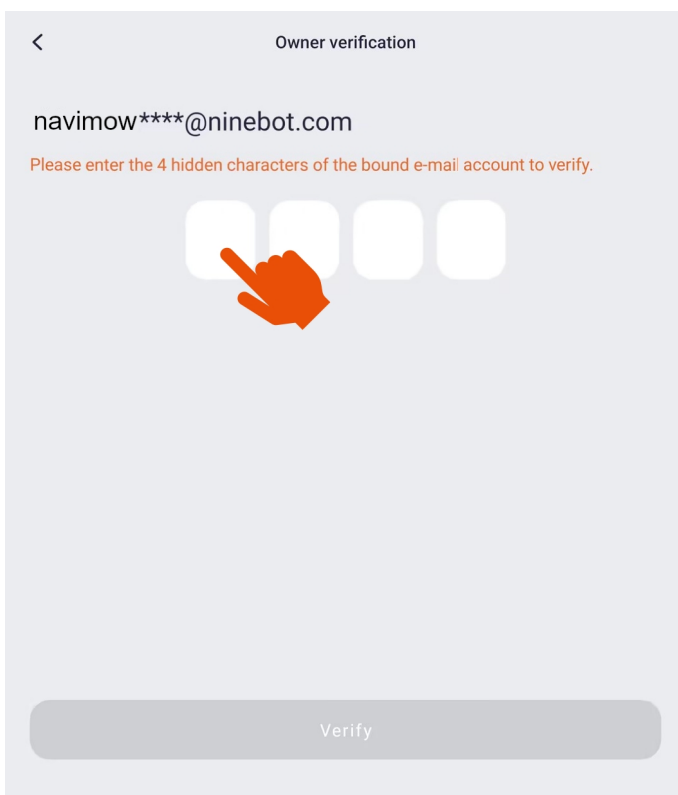
Enter the Serial Number

5.1 Navimow H1 Series RMA Change Parts

After entering the Serial Number (SN), the service app will prompt you to verify the owner's information. This verification process requires completing either the 4 hidden characters of the owner's email address or the 4 hidden digits of their phone number.

If the mower is not currently linked to any account, the confirmation will simply acknowledge that the vehicle is undergoing repair.

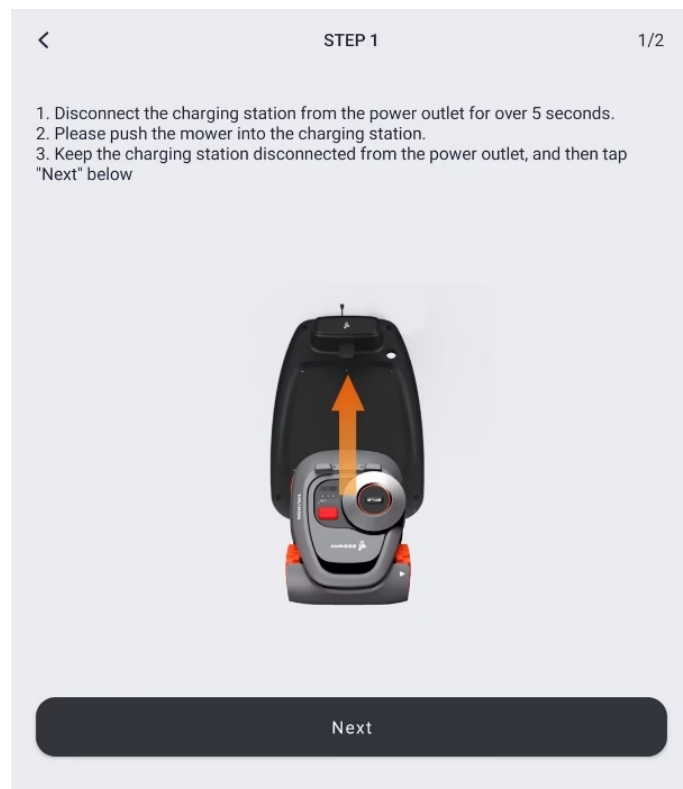
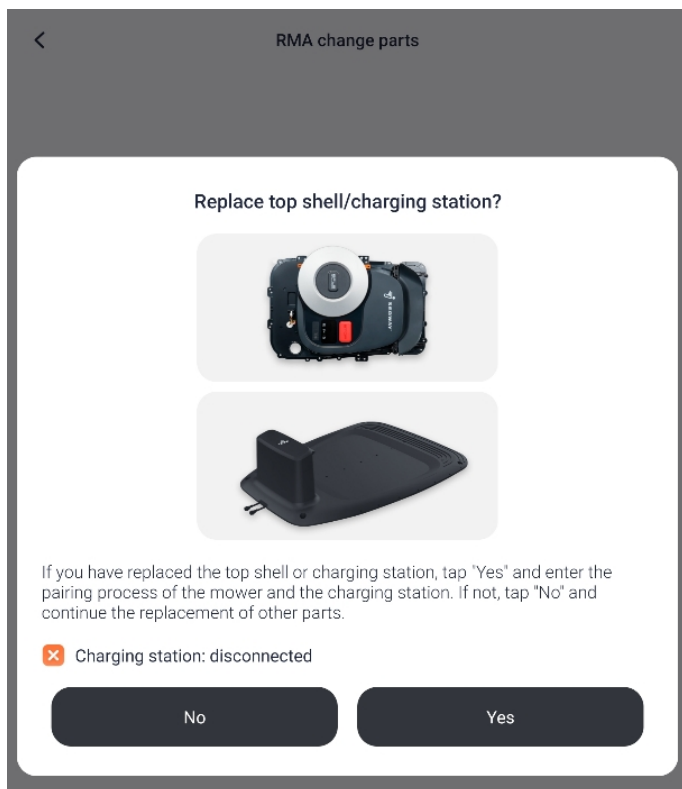
This step ensures a secure and accurate association between the mower, its owner, and the repair process.



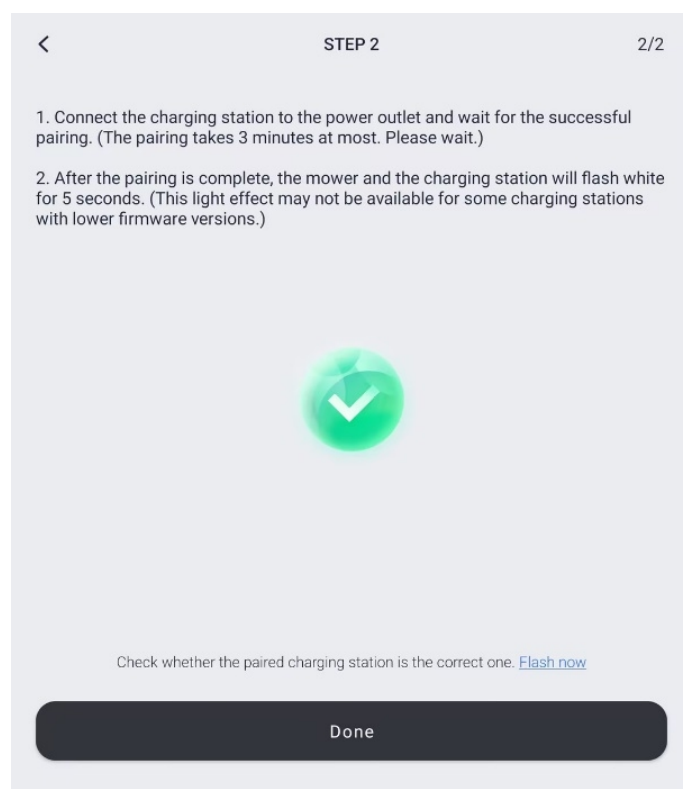
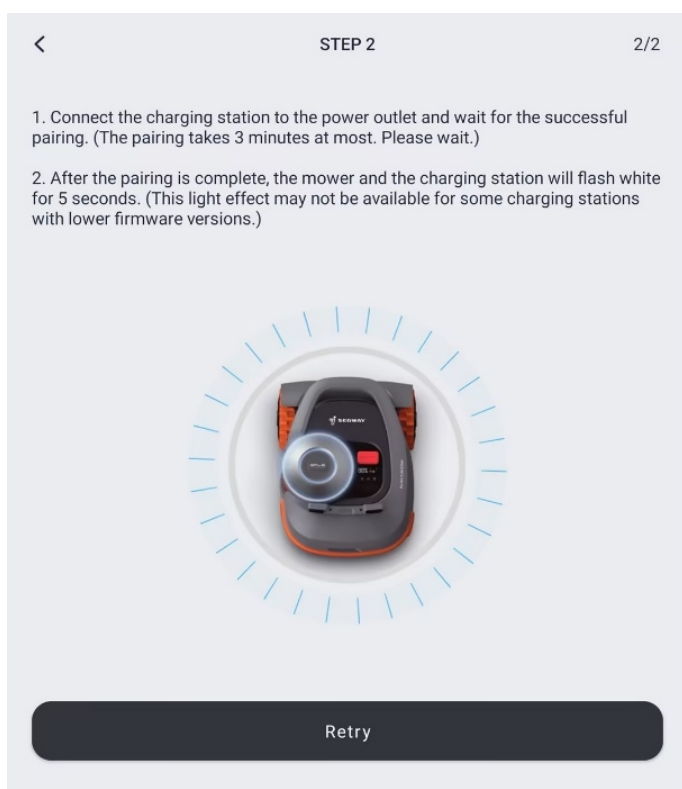
Owner Verification

Upon successfully verifying the owner's information, the service app will automatically initiate the synchronization of data for the newly replaced parts.

The RMA repair process begins by confirming whether any major components have been replaced. This step ensures that the service app accurately records and updates the relevant information associated with the replaced components.



Pairing Top Shell and Charging Station

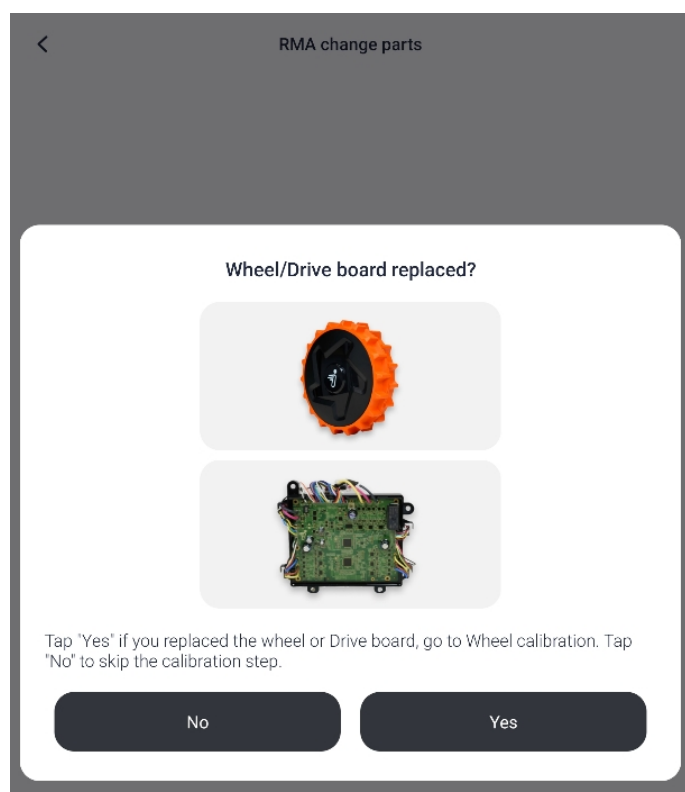


Pairing Top Shell and Charging Station

If either the top shell or the charging station is replaced, it is essential to re-establish their pairing to ensure proper functionality.

To begin this process, tap "Yes" and follow the provided instructions to pair the mower with the charging station.

If neither part has been replaced, you may proceed by tapping "No" to skip this step and continue with the replacement of other parts. This flexibility simplifies the process, accommodating specific maintenance requirements.

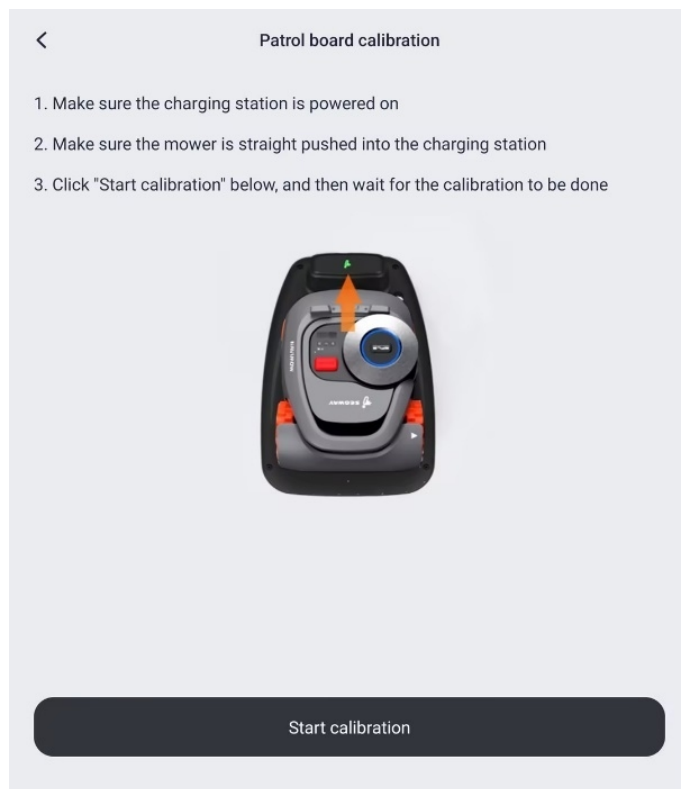
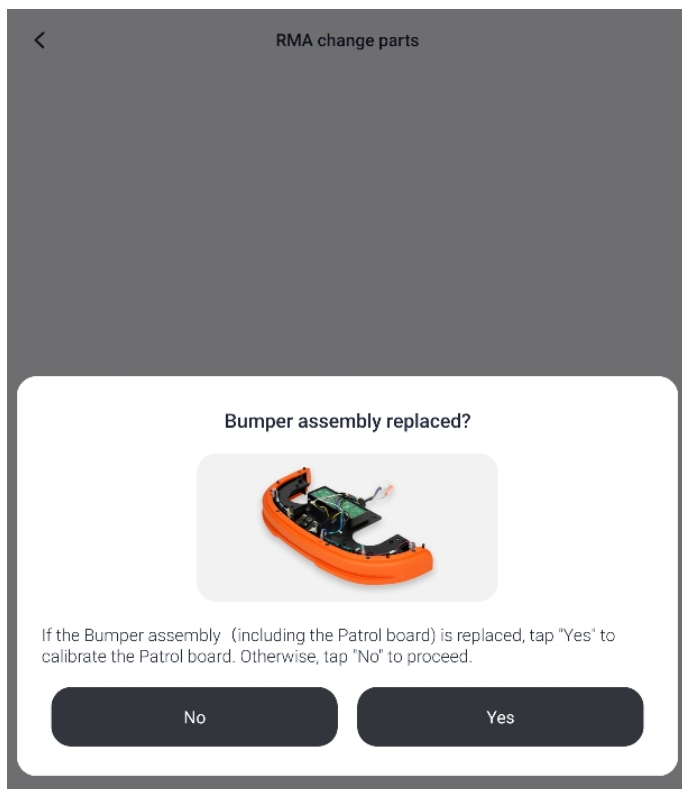


Calibrating Hub Motor and Drive Board

If either the rear wheel (hub motor) or the drive board is replaced, it is necessary to calibrate them together to ensure proper functionality.

To begin the wheel calibration process, tap "Yes" and follow the provided instructions.

If neither component has been replaced, you may skip the calibration step by tapping "No" and proceed with the replacement of other parts.

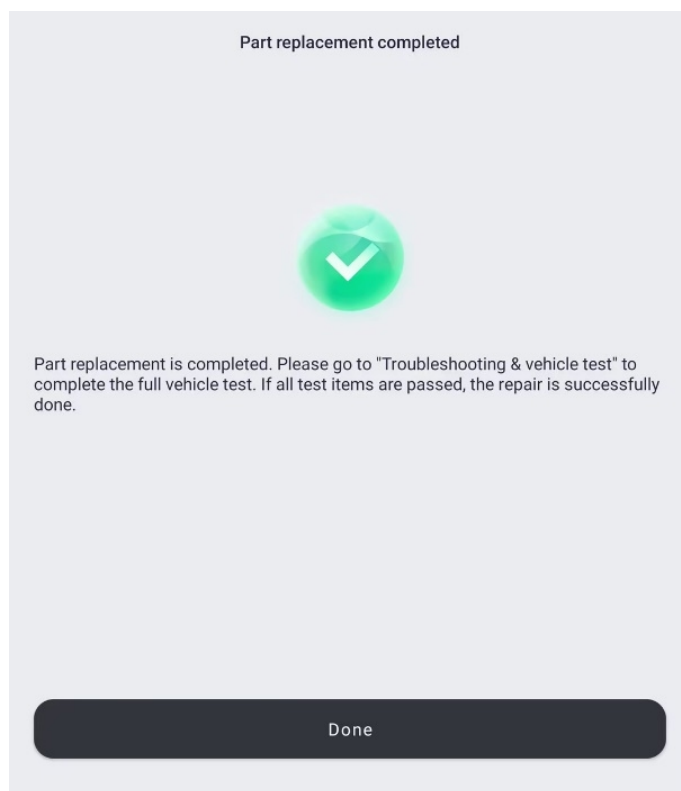


Pairing Bumper Assembly

If either the bumper assembly or the patrol board is replaced, it is essential to calibrate them together to ensure the mower can properly return to the charging station.

To begin the calibration process, tap "Yes" and follow the provided instructions.

If neither component has been replaced, you may skip the calibration step by tapping "No." This flexibility streamlines the maintenance process, adapting to the specific components being addressed.



RMA Change Parts Finished

If other parts are replaced, the service application will automatically identify the new part numbers. The new part number (PN) and its corresponding serial number (SN) will then be seamlessly paired and linked. Synchronizing the new PN and SN linkage is essential for effective mower maintenance.

For parts that lack a designated part number (PN), they can be directly replaced, and subsequent steps can proceed without linking or synchronization.

Parts with PN

VCU Hub motor driver (Located on the driver board)

NCU Blade motor driver (Located on the driver board)

CGS Charging station

SESR Sensor board (in the bumper assembly)

T-box Remote data processor

ECU Electronic control unit

BLE Bluetooth

5.2 Navimow H2 Series RMA Change Parts

The H2 Series follows the same principles as the X Series. Instead of verifying the owner account, the SN-PN relationship is validated when initializing an RMA Repair. Similar to the X Series, there are three methods to input the mower's SN: manually key it in, select the system-suggested SN, or scan the serial number barcode on the mower label.

<

SN Serial number

20FGA2541Y0139

×

You may want to enter

SN: [20FGA2541Y0139](#)



Please scan the SN at the bottom of the mower or inside the battery slot. Double check if the SN is correct so it doesn't get mixed up with a different mower.

Next

Restore ACU data

After replacing the ACU board, follow the app's prompt to scan the QR code of the PN on the replaced ACU board or enter it manually. This step verifies the SN by confirming its bond with the ACU board's PN.

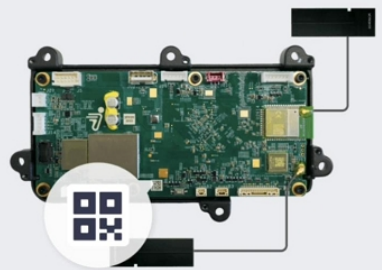
<

PN Serial number

Enter PN



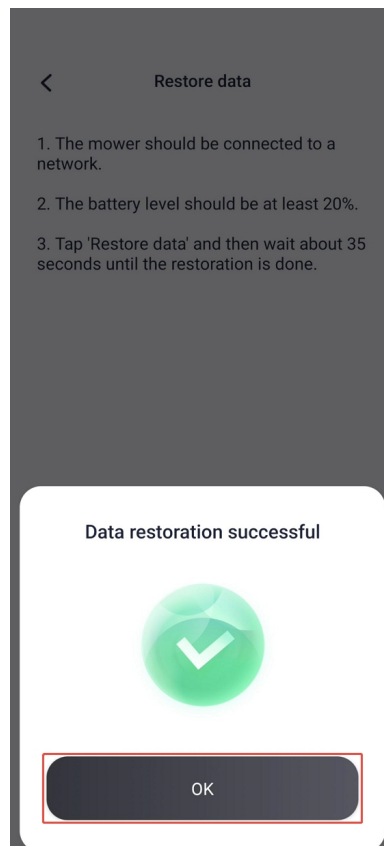
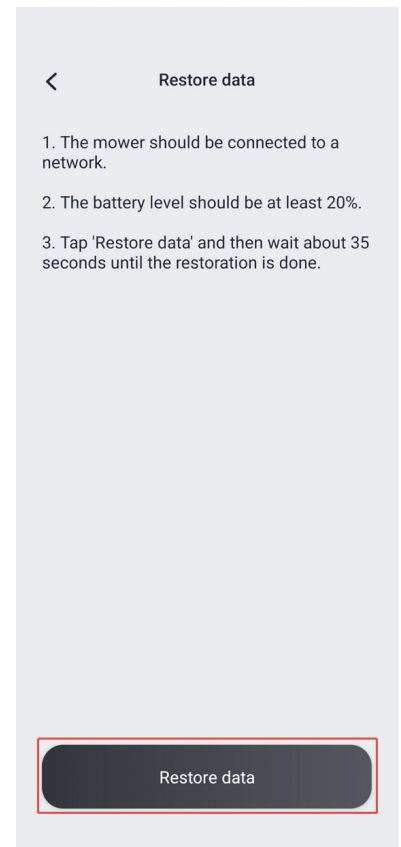
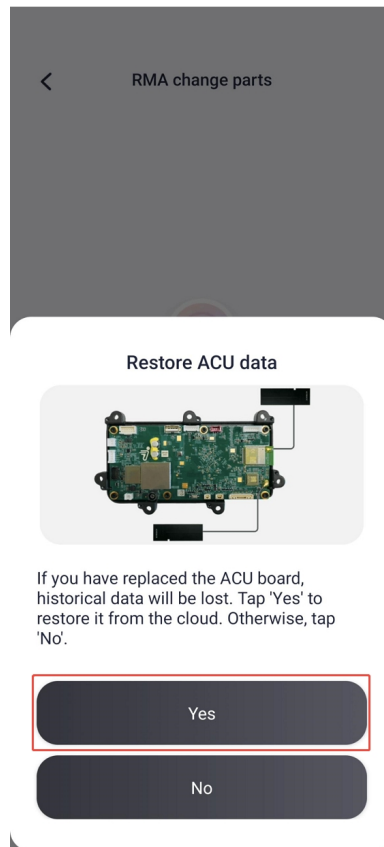
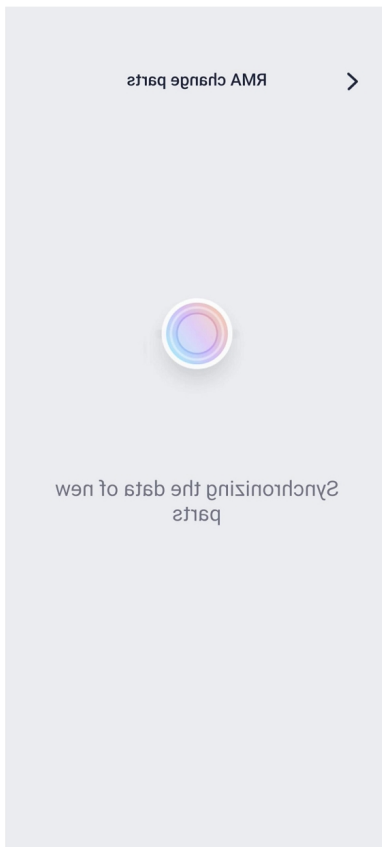
ACU board:



Please scan the QR code of the PN on the replaced ACU board or fill it in manually. This step is to check if the SN is correct by verifying the bond between the SN and the PN.

Next

H2 series models support restoring cloud data to the newly ACU board after the ACU board is replaced. Tap Restore data and wait for the process to complete successfully.



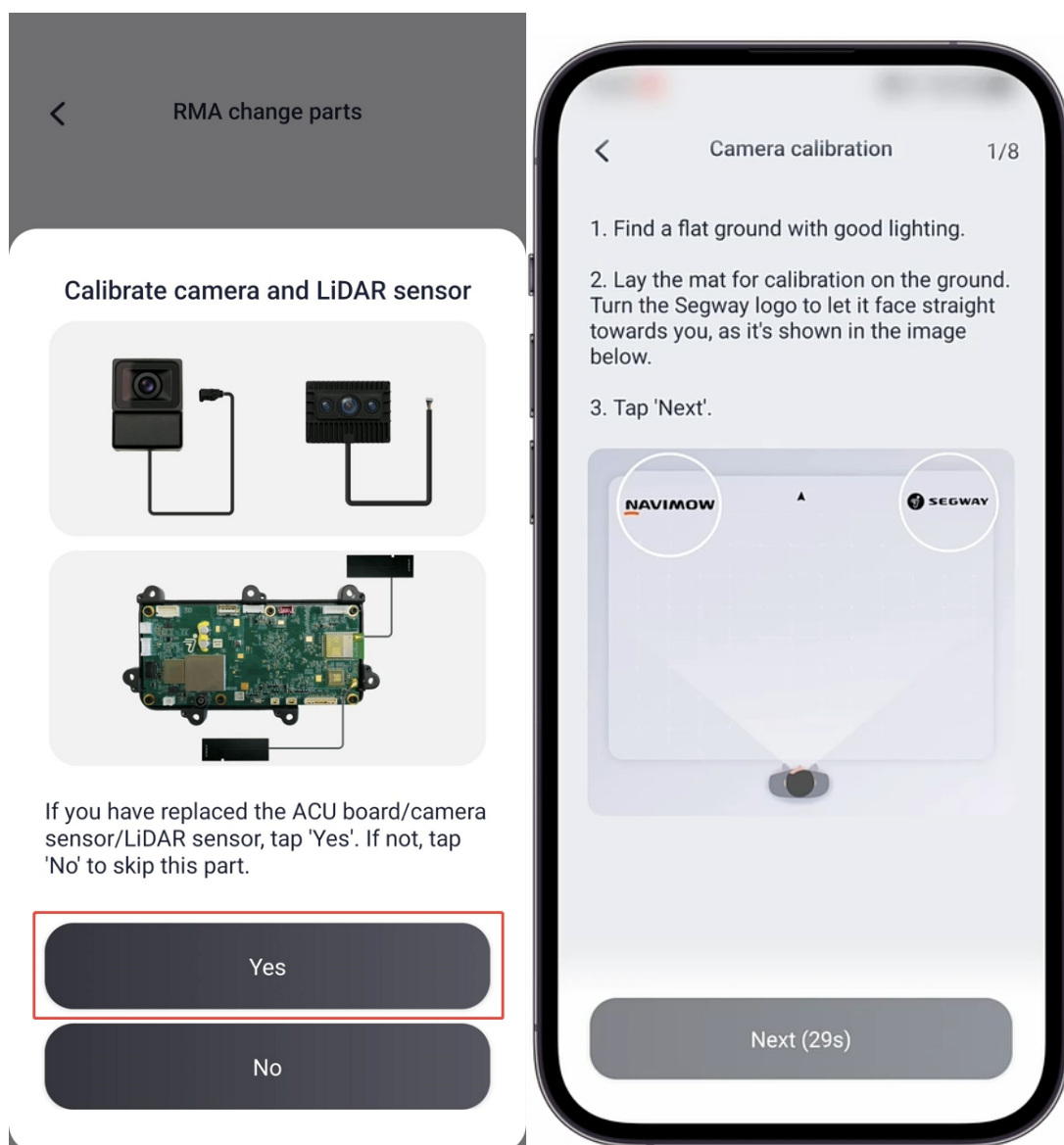
Notes: The mower should be connected to a network; The battery level should be at least 20%; Tap "Restore Data", then wait about 35 seconds until the restoration is complete.

Camera and LiDAR Sensor Calibration

If you replace any or all of the following components: the ACU board, camera module, or LiDAR module, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the camera calibration process:

1. Find a flat ground with good lighting.
2. Lay the mat for calibration on the ground. Turn the Segway logo to let it face straight towards you, as it's shown in the image below.
3. Tap 'Next'



1. Set the tri-fold calibration board upright with its back facing the Segway logo. Align the middle panel with Line 150 horizontally and place the lower right corner on the mark (BG,150).

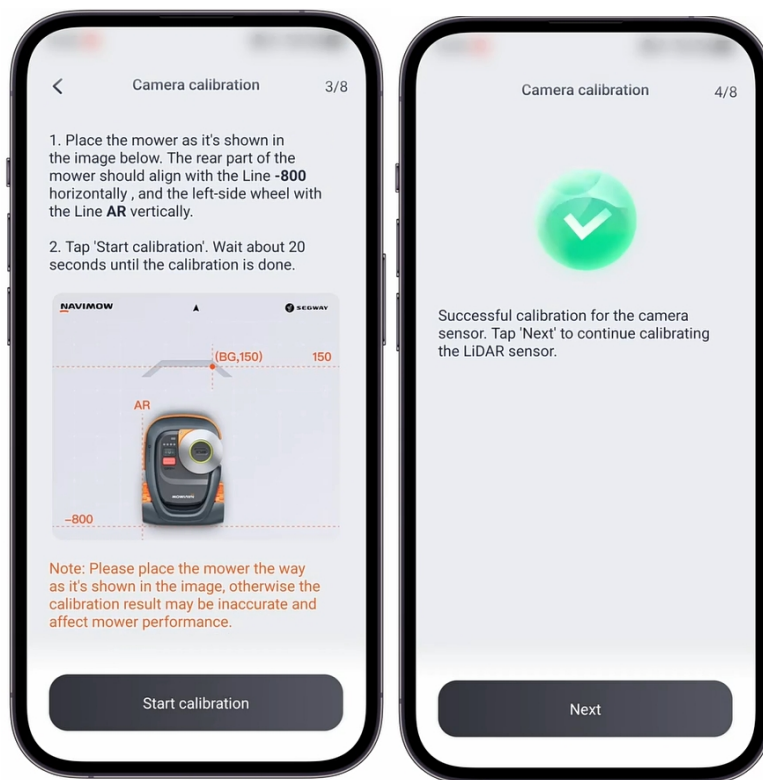
2. Turn on a white light, and put it over the card board. Make sure the light shines evenly on the card board.

3. Tap 'Next'



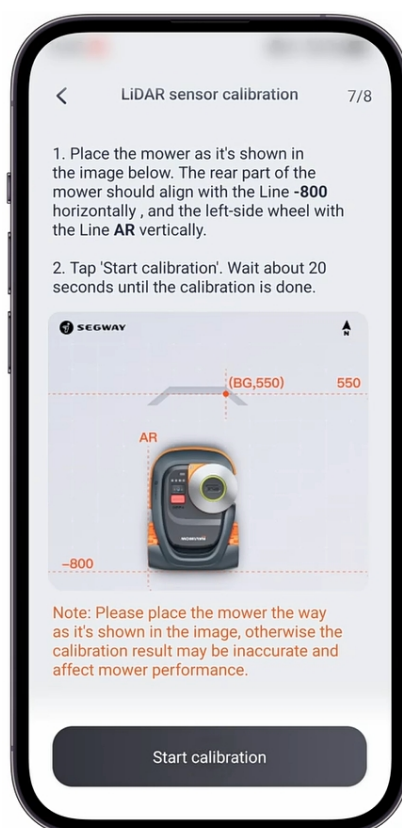
1. Place the mower as it's shown in the image below. The rear part of the mower should align with the Line -800 horizontally, and the left-side wheel with the Line AR vertically.

2. Tap 'Start calibration'. Wait about 20 seconds until the calibration is done.



Tap "Next" and follow the app prompts to begin the LiDAR calibration process:

The procedure is essentially the same as the camera calibration process, except that the position of the calibration target on the ground mat needs to be adjusted to the coordinates shown in the illustration.



IMU calibration and Drive board matching.

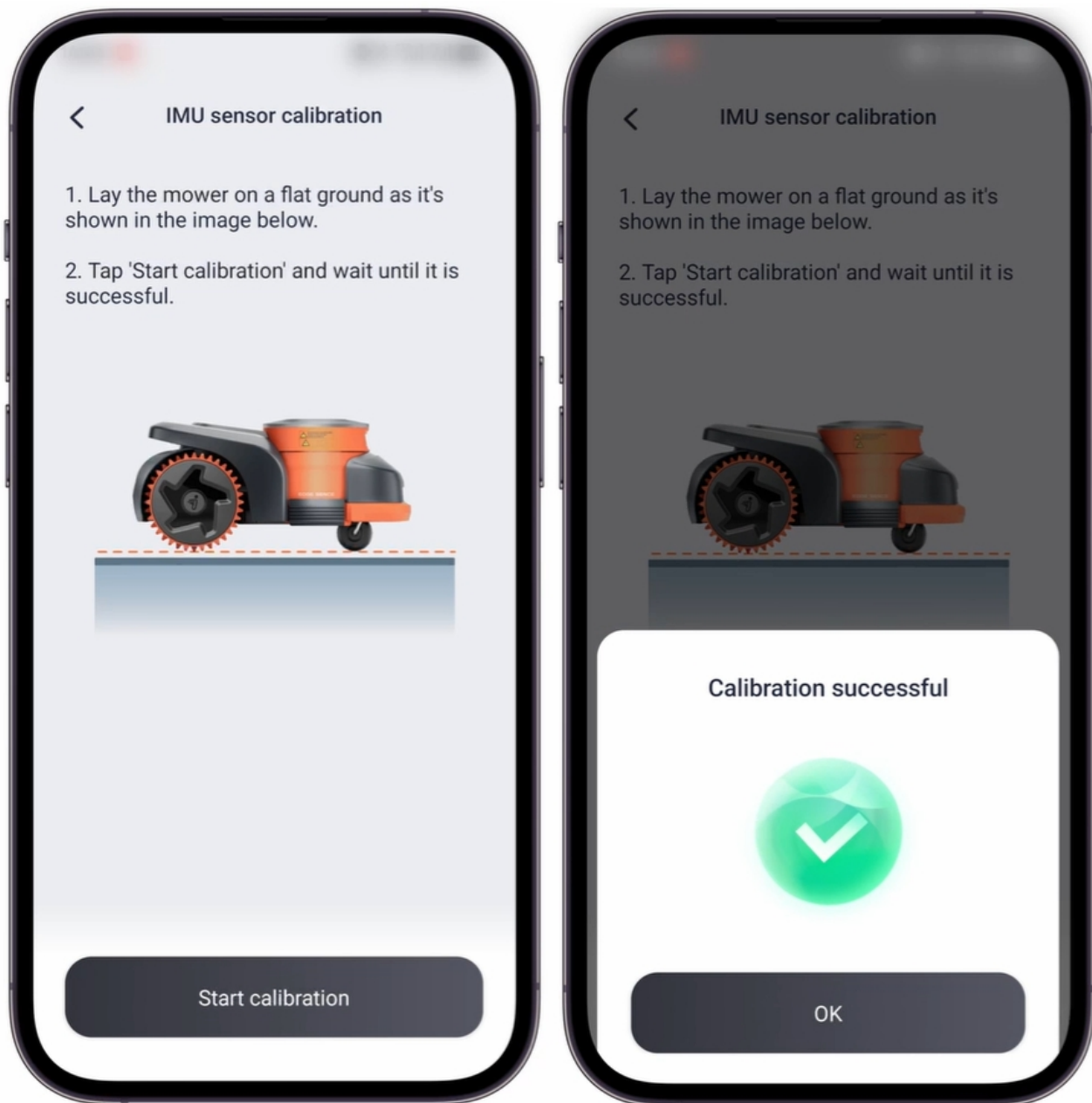
-IMU calibration

If you replace the ACU board, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the IMU calibration:



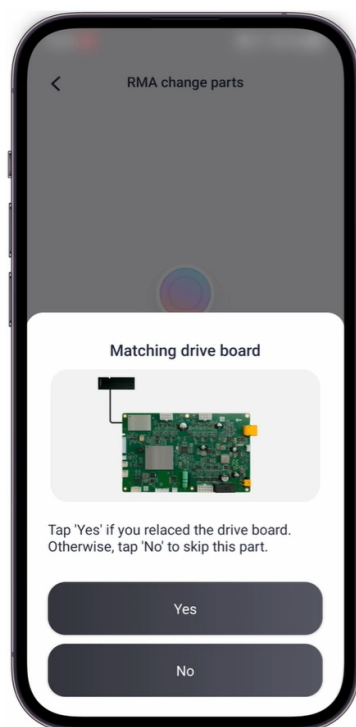
1. Lay the mower on a flat ground as it's shown in the image below.
2. Tap 'Start calibration' and wait until it is successful.



-Drive board matching

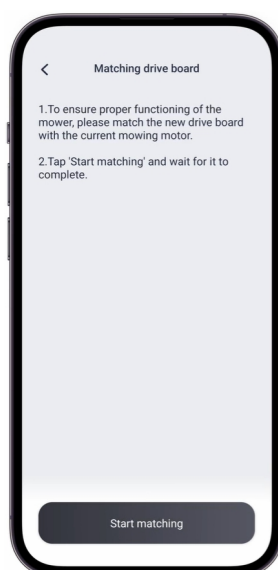
If you replace the Drive board, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the Drive board matching:



1.To ensure proper functioning of the mower, please match the new drive board with the current mowing motor.

2.Tap 'Start matching' and wait for it to complete.



Navimow i1 Series RMA Change Parts

For the Navimow i1 Series, the service app verifies the validity of the PN-SN links rather than validating owner information. This verification occurs when the service app connects to the mower during the RMA Repair process, which begins after the serial number is entered.

SN Serial number

Enter SN

You may want to enter

SN:XX

SN:XX

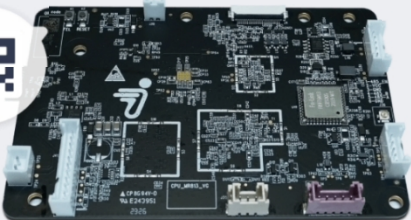
Please scan the SN at the bottom of the mower or inside the slot where the Navimow Access+ is installed. Please double-check the SN in case of mower malfunction caused by the wrong SN.

Next

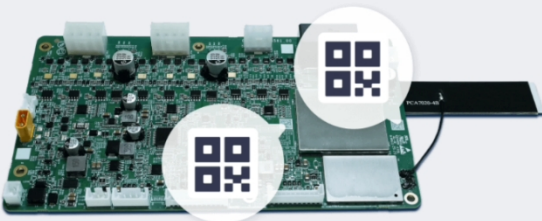
PN Serial number

Enter PN

ACU board:



Drive board assembly:



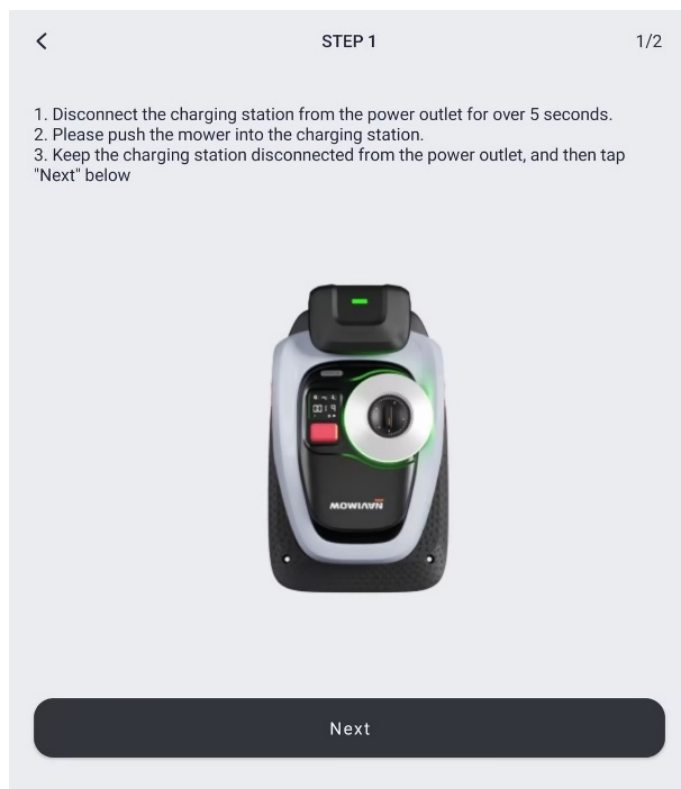
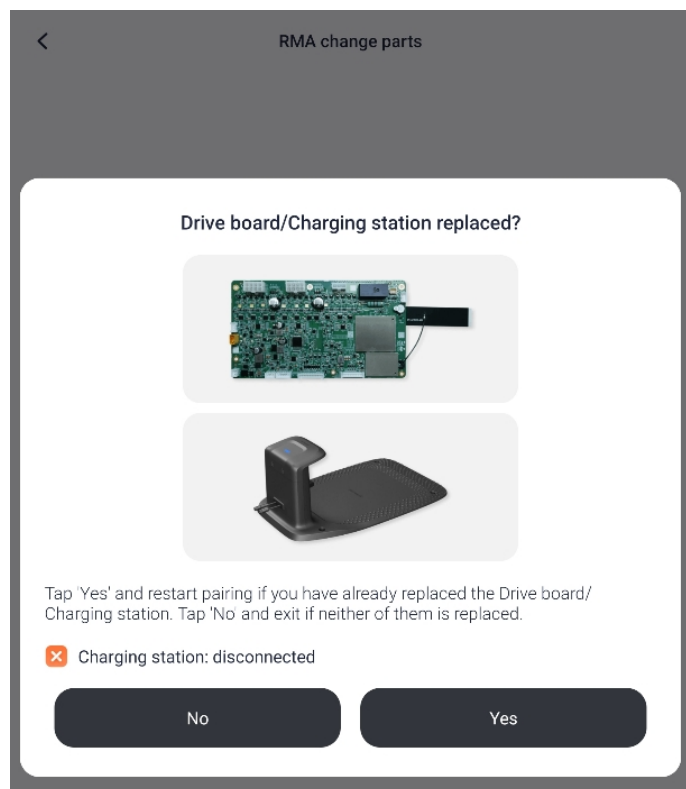
Please scan one of the QR codes of the PN on the replaced ACU board or the Drive Board Assembly. This step is to check if the SN is correct by verifying the bound between the SN and the PN.

Next

PN Verification

The PN verification is performed by scanning the QR codes on the replaced ACU board or drive board assembly. For easier QR code scanning, you can use the scanner's zoom-in feature by pinching out.

The service app will extract the serial number (SN) information from the old boards and write it into the new boards. This method ensures the accuracy of the PN-SN links and enhances the overall integrity of the RMA Repair process.

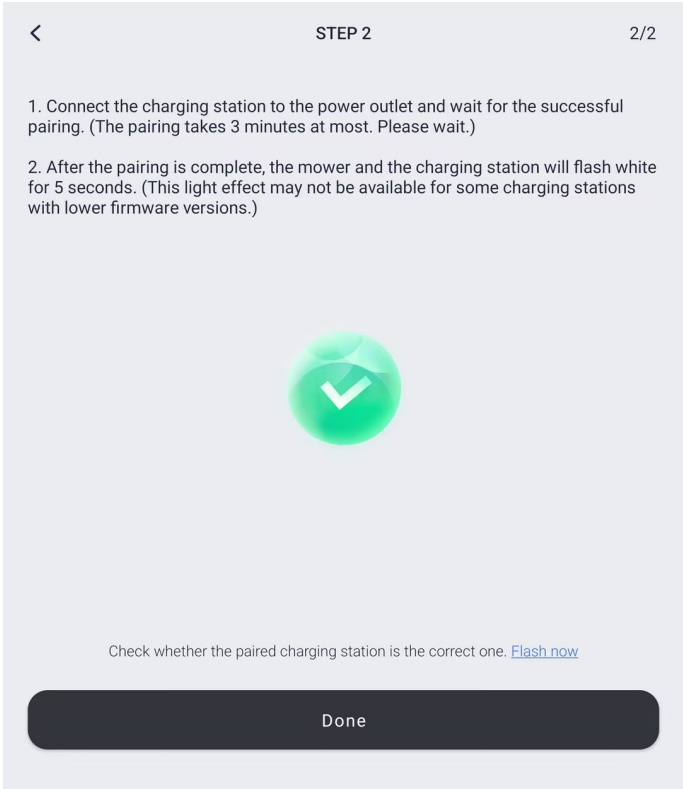
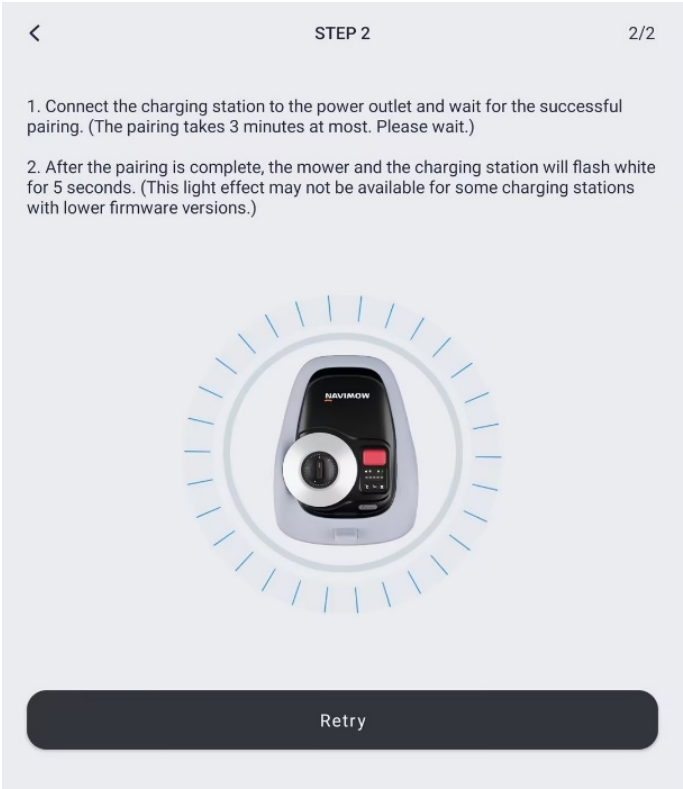


Pairing the Drive Board and the Charging Station

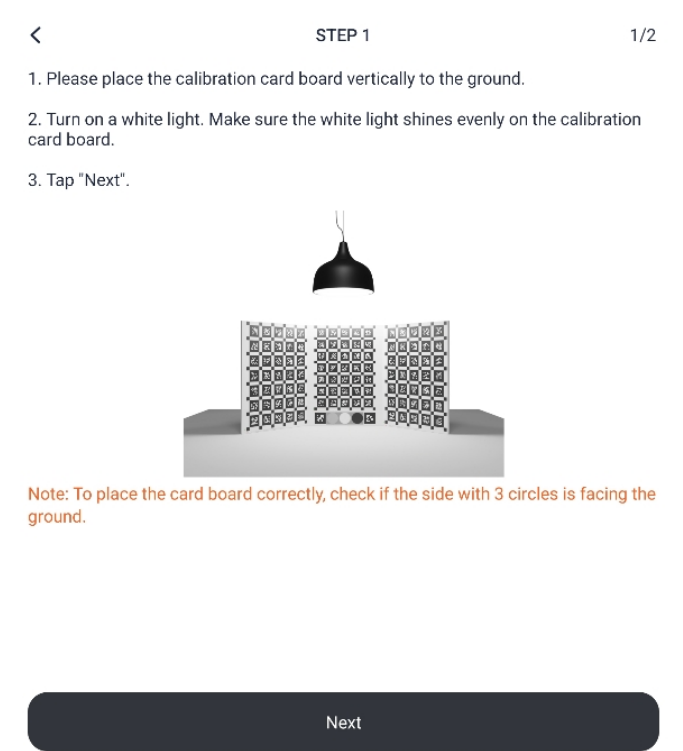
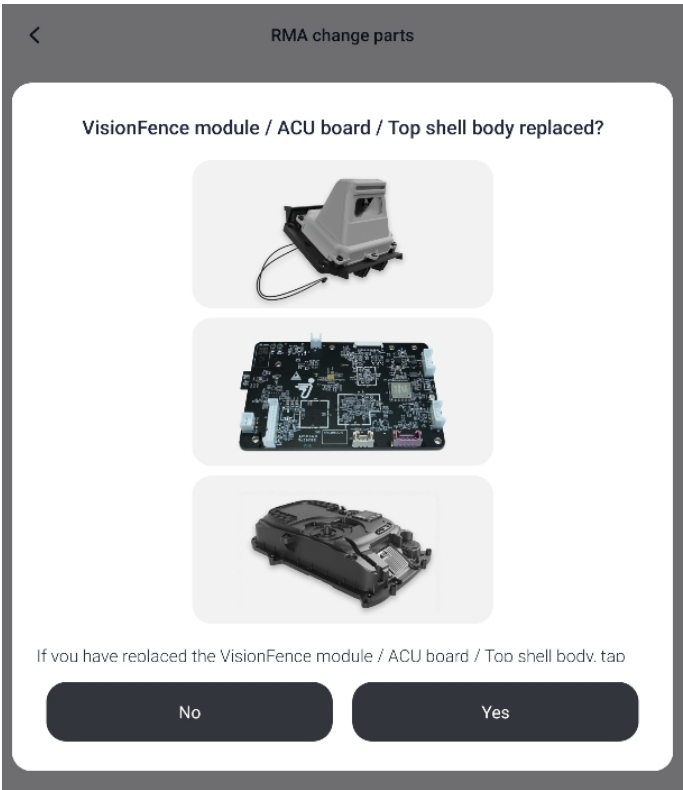
If either the drive board or the charging station has been replaced, re-establishing their pairing is essential to ensure proper functionality.

To begin this process, tap "Yes" and follow the provided instructions to pair the mower with the charging station.

If neither component has been replaced, you may skip this step by tapping "No" and proceed with the replacement of other parts. This flexibility simplifies the process to accommodate specific maintenance requirements.



Pairing the Drive Board and the Charging Station

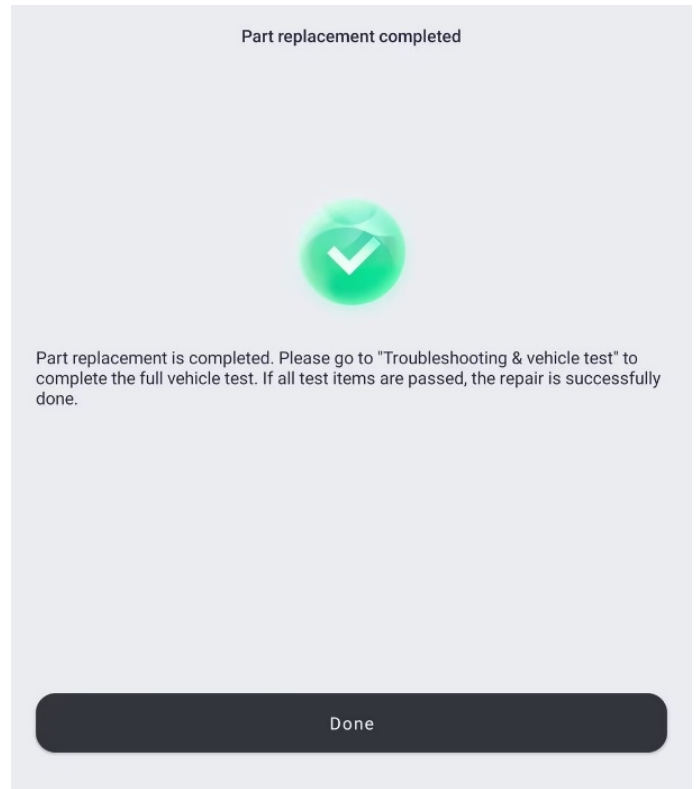
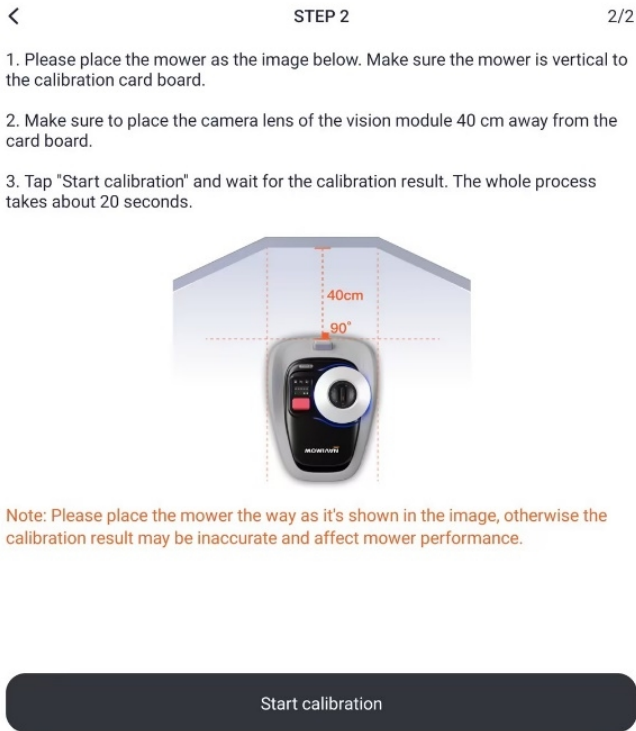


Pairing the VisionFence Module and the ACU Board

If any component, be it one or multiple parts of the VisionFence module, the ACU board, or the top shell body, has been replaced, calibrating the camera is essential to ensure optimal

functionality. To begin the pairing process, tap "Yes." Alternatively, you may tap "No" to skip this step.

If you reuse the complete top shell body, incorporating the original paired VisionFence module and ACU board from a previous mower, you may skip this step.

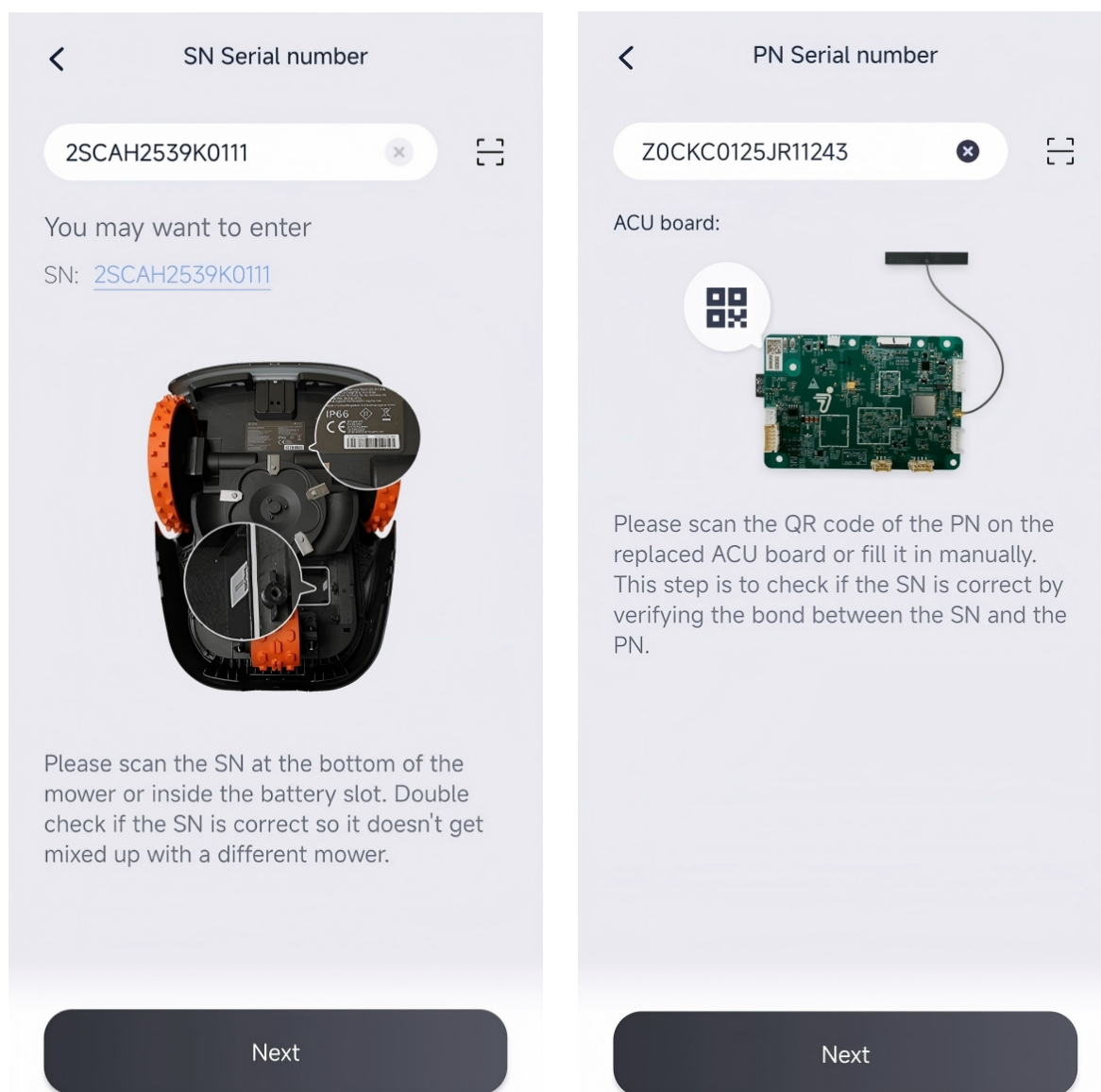


RMA Change Parts Finished

Follow the provided instructions to pair the VisionFence module with the ACU board. Note that calibrating the VisionFence module requires a well-lit environment. The RMA Change Parts process will be completed after this step.

5.3 Navimow i2 AWD Series RMA Change Parts

For the Navimow i2 AWD Series, the service app verifies the validity of the PN-SN links rather than validating owner information. This verification occurs when the service app connects to the mower during the RMA Repair process, which begins after the serial number is entered.

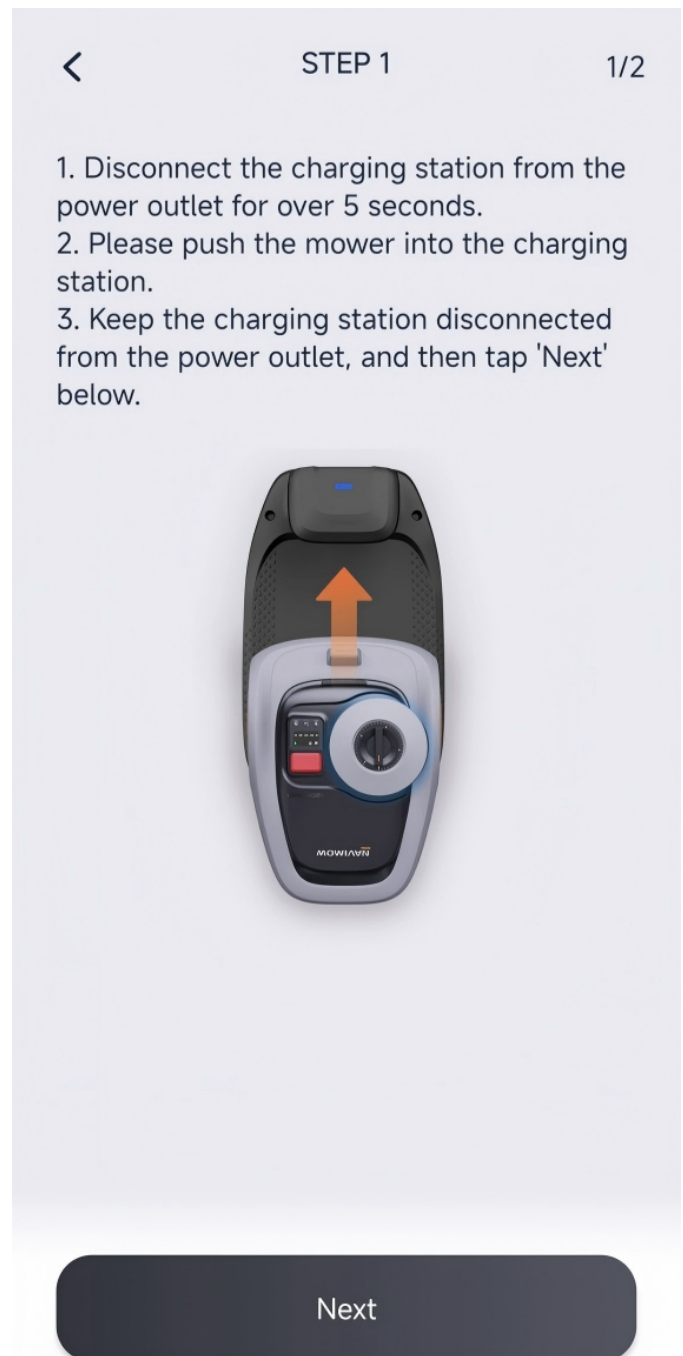
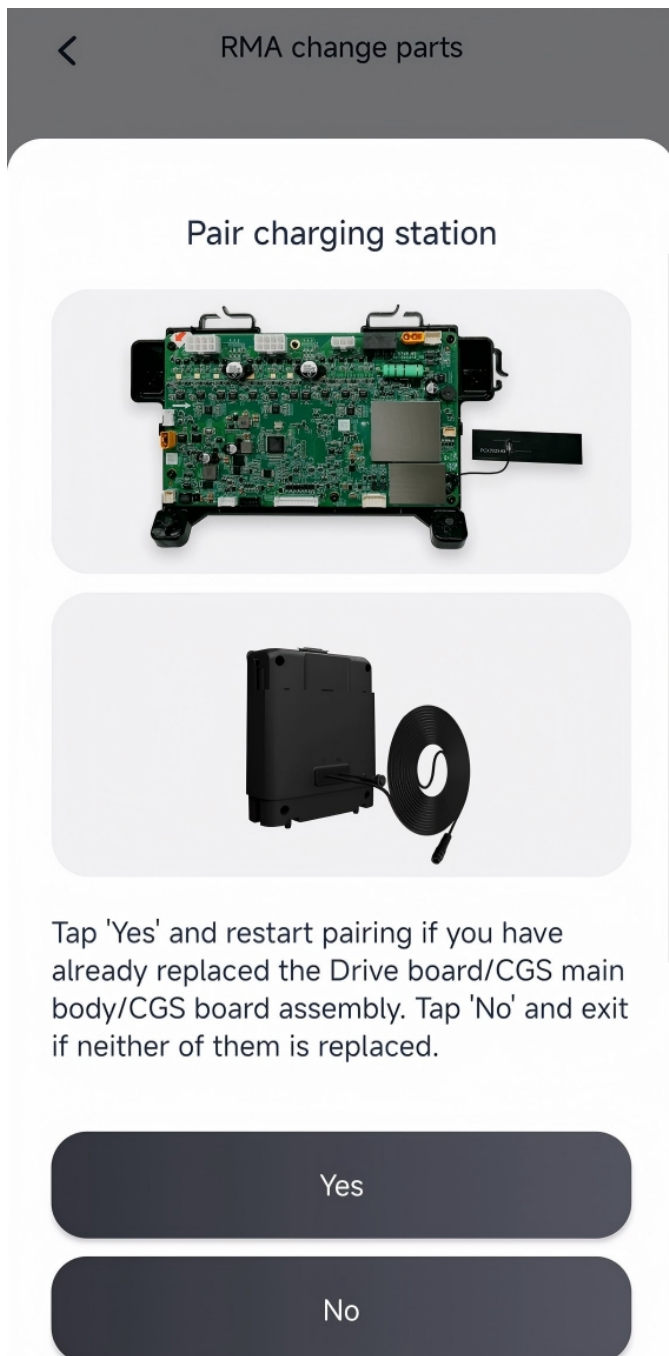


PN Verification

After replacing the ACU board, the PN verification is performed by scanning the QR codes on the replaced ACU board. For easier QR code scanning, you can use the scanner's zoom-in feature by pinching out.

The service app will extract the serial number (SN) information from the old boards and write it into the new boards. This method ensures the accuracy of the PN-SN links and enhances the overall integrity of the RMA Repair process.

Pair Charging Station

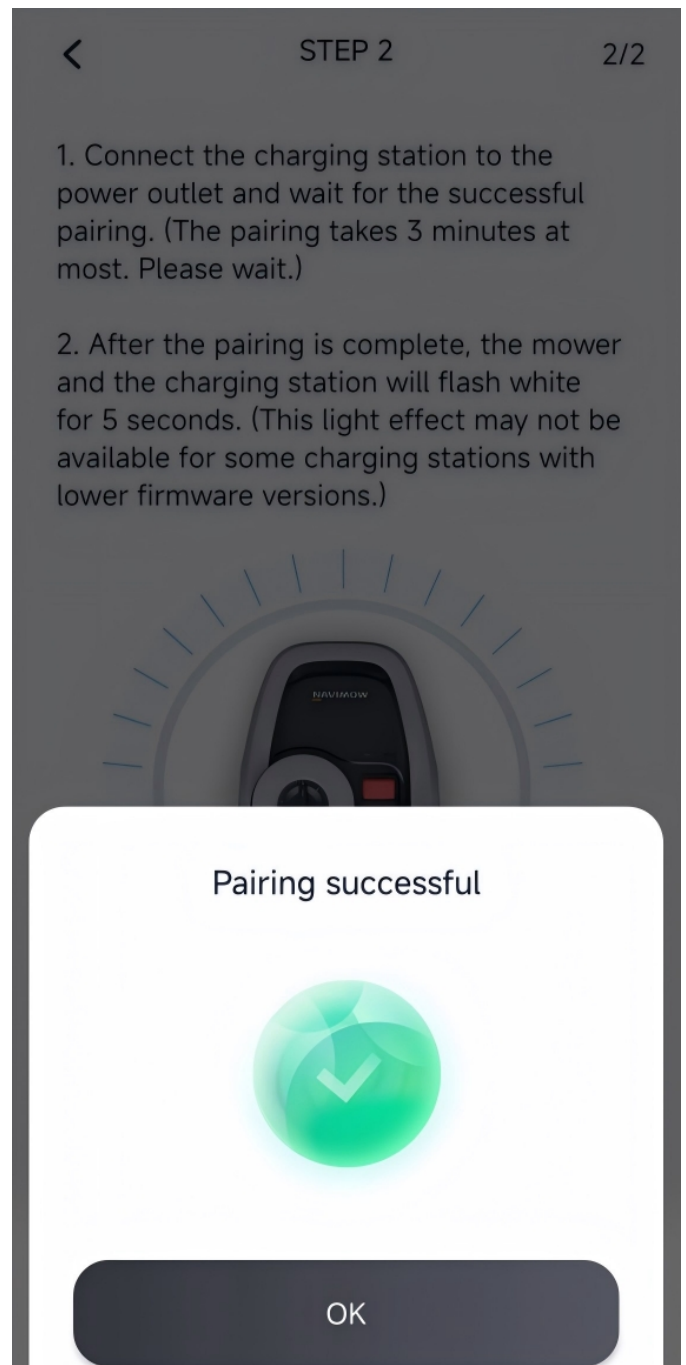
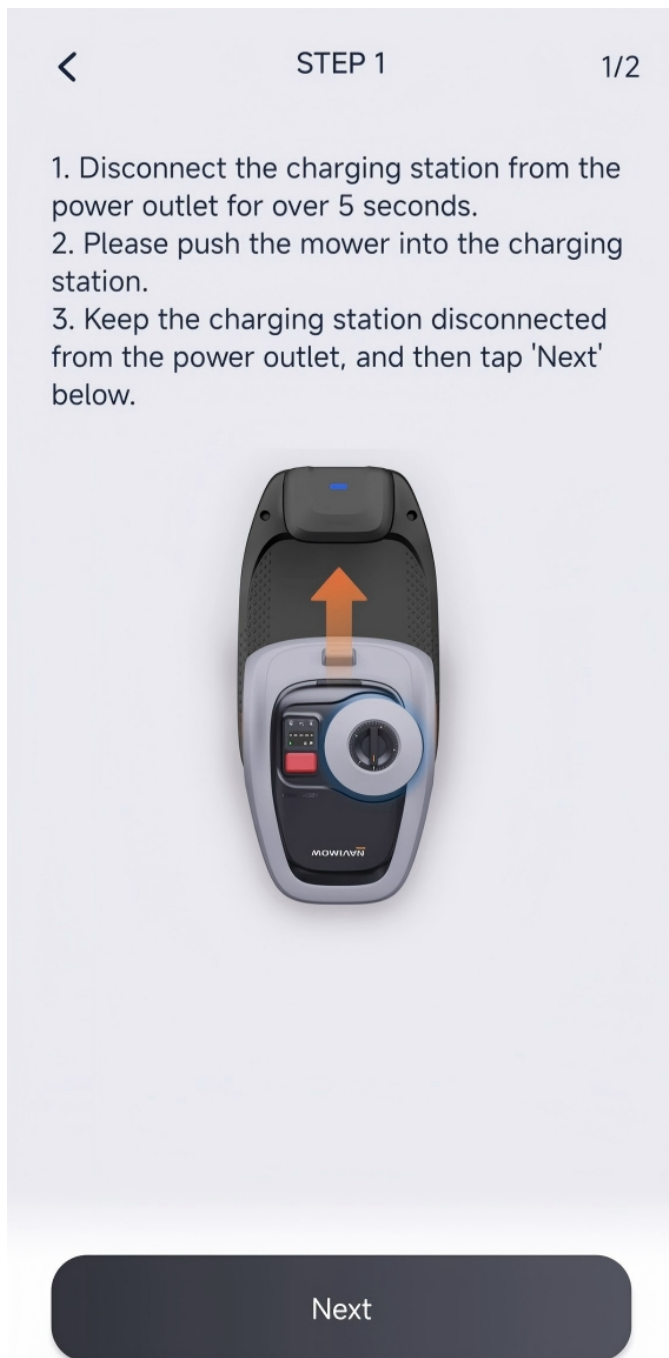


Pairing the Drive Board and the Charging Station

If either the drive board or the charging station has been replaced, re-establishing their pairing is essential to ensure proper functionality.

To begin this process, tap "Yes" and follow the provided instructions to pair the mower with the charging station.

If neither component has been replaced, you may skip this step by tapping "No" and proceed with the replacement of other parts. This flexibility simplifies the process to accommodate specific maintenance requirements.



Pairing the Drive Board and the Charging Station

Rear Wheel Steering Calibration

If either the rear wheel transition board/steering motor/drive motor/steering detection board, or wheel frame drive gear/steering detection gear has been replaced, rear wheel steering calibration is essential to ensure proper functionality.

 RMA change parts

Rear-wheel steering calibration







Yes

No

To begin the pairing process, tap "Yes."

Follow the provided instructions calibrate the rear wheel steering function.

<

STEP 1

1/3

1. Tip the mower over with the rear wheel up.

2. Rotate the rear wheel fully counterclockwise.

3. Choose 'Next'.



Note: Before starting the steps above, make sure the wheel is clear of debris, such as mud, grass clippings, or other obstructions.

Next

<

STEP 2

2/3

1. Tip the mower over with the rear wheel up.

2. Rotate the rear wheel fully clockwise.

3. Choose 'Next'.



Note: Before starting the steps above, make sure the wheel is clear of debris, such as mud, grass clippings, or other obstructions.

Next

<

STEP 3

3/3

1. Tip the mower over with the rear wheel up.

2. Clear any debris or objects from the rear wheel.

3. Tap 'Start Calibration' and wait for about 20 seconds to see the result.



Note: Ensure no debris or objects are around the rear wheel to avoid inaccurate calibration and poor mowing performance.

Start calibration

<

STEP 3

3/3

1. Tip the mower over with the rear wheel up.

2. Clear any debris or objects from the rear wheel.

3. Tap 'Start Calibration' and wait for about 20 seconds to see the result.



Calibration successful



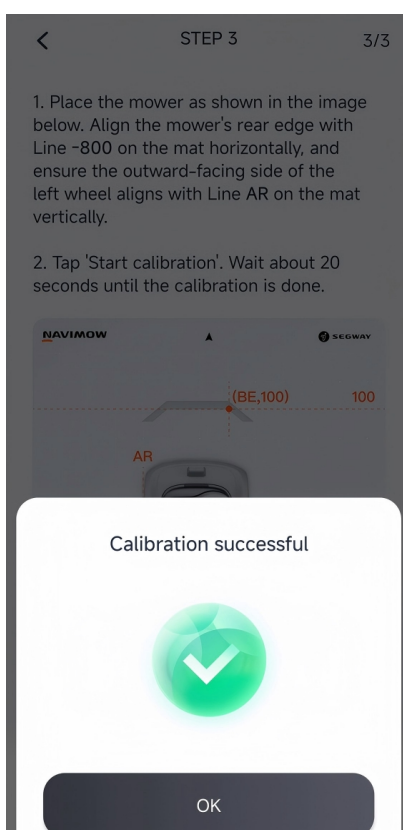
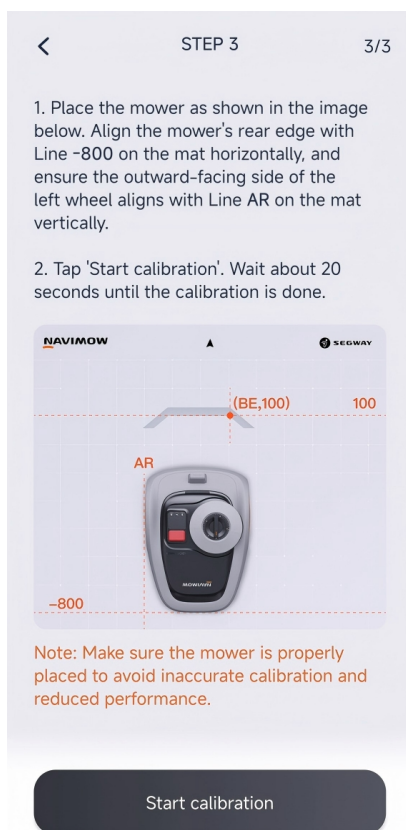
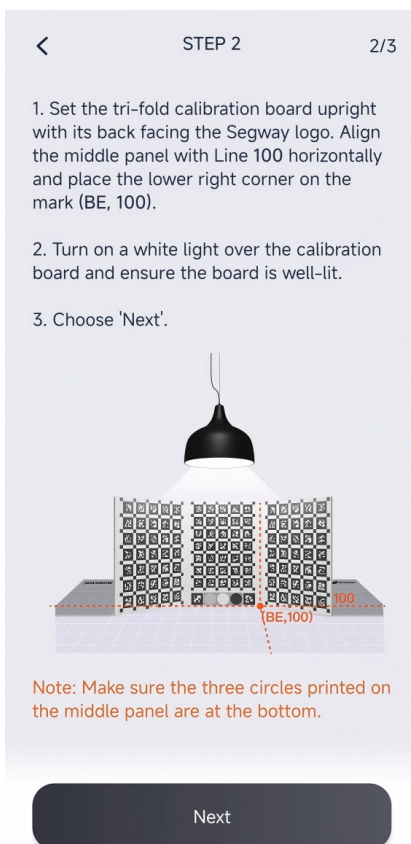
OK

Camera Calibration

If any component, be it one or multiple parts of the VisionFence module, the ACU board, or the top shell body, has been replaced, calibrating the camera is essential to ensure optimal functionality. To begin the pairing process, tap "Yes." Alternatively, you may tap "No" to skip this step.



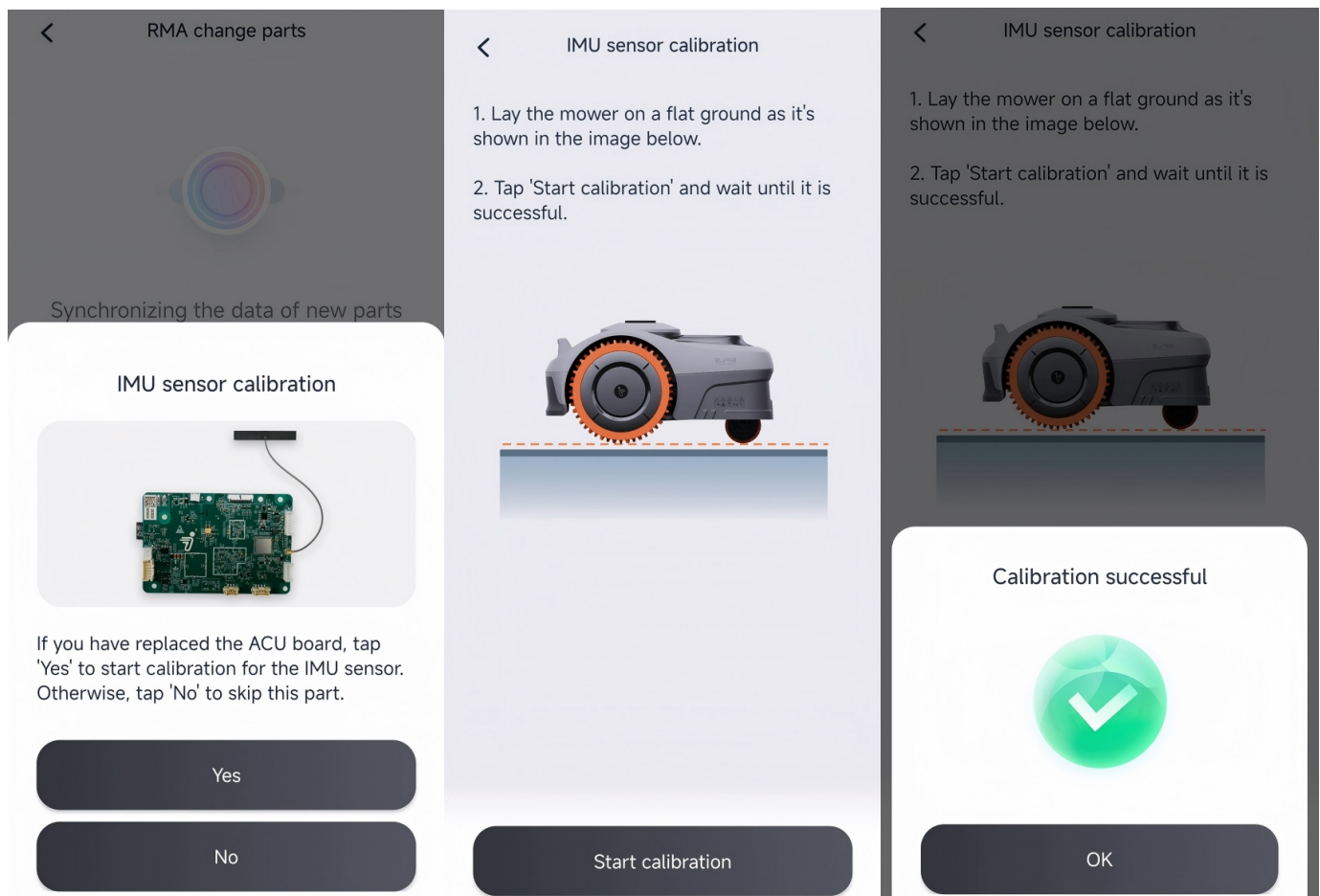
Follow the provided instructions to pair the VisionFence module with the ACU board. Note that calibrating the VisionFence module requires a well-lit environment. The RMA Change Parts process will be completed after this step.



IMU sensor calibration

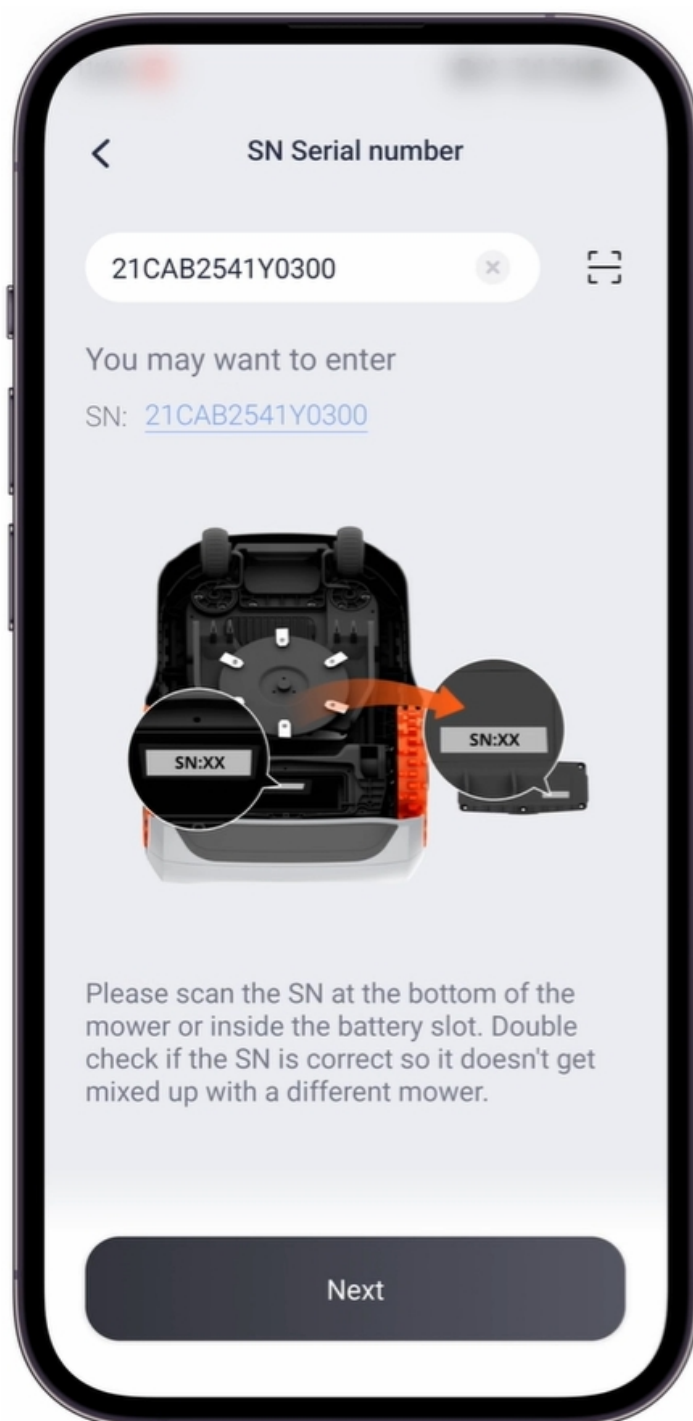
After replacing the ACU board, IMU sensor calibration is needed.

1. Lay the mower on a flat ground as it's shown in the image below.
2. Tap 'Start calibration' and wait until it is successful.



5.4 Navimow i2 LiDAR Series RMA Change Parts

The i2 LiDAR Series follows the same principles as the H2 Series. Instead of verifying the owner account, the SN-PN relationship is validated when initializing an RMA Repair. Similar to the H2 Series, there are three methods to input the mower's SN: manually key it in, select the system-suggested SN, or scan the serial number barcode on the mower label.



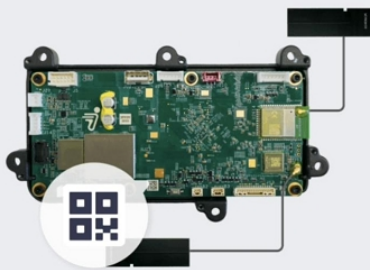
Restore ACU data

After replacing the ACU board, follow the app's prompt to scan the QR code of the PN on the replaced ACU board or enter it manually. This step verifies the SN by confirming its bond with the ACU board's PN.

PN Serial number

Enter PN

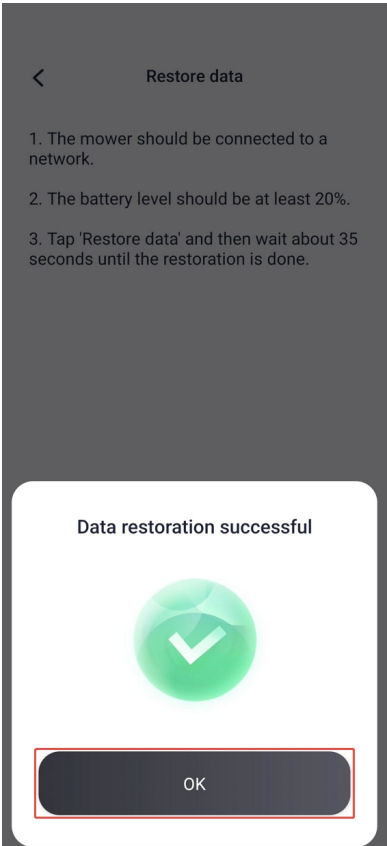
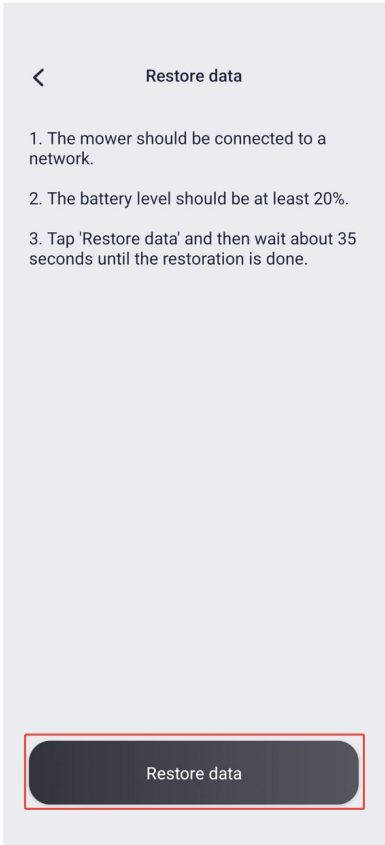
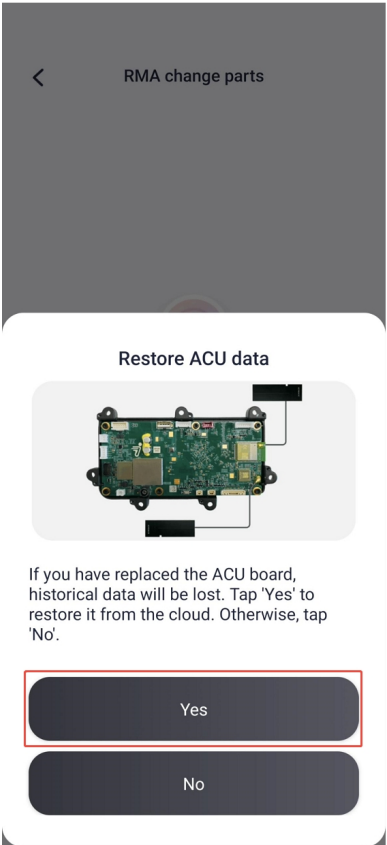
ACU board:



Please scan the QR code of the PN on the replaced ACU board or fill it in manually. This step is to check if the SN is correct by verifying the bond between the SN and the PN.

Next

i2 LiDAR series models support restoring cloud data to the newly ACU board after the ACU board is replaced. Tap Restore data and wait for the process to complete successfully.



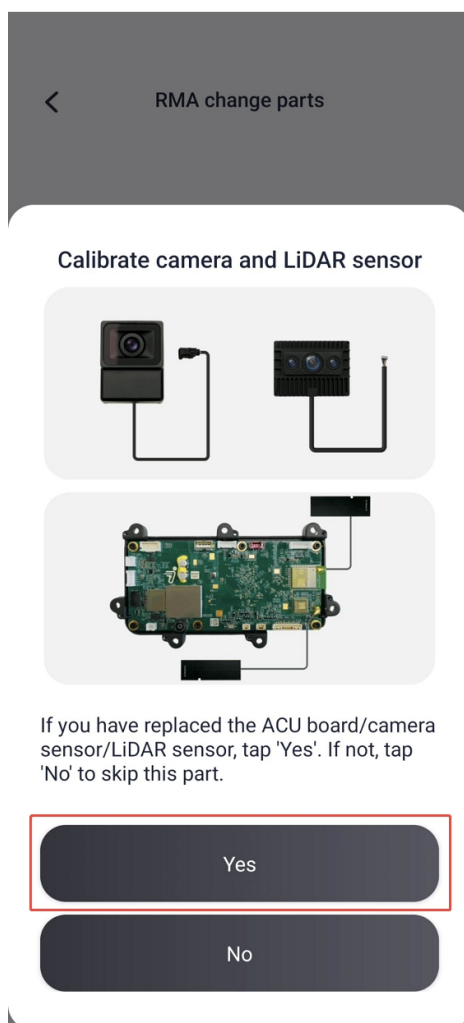
Notes: The mower should be connected to a network;The battery level should be at least 20%;Tap“Restore Data”, then wait about 35 seconds until the restoration is complete.

Camera and LiDAR Sensor Calibration

If you replace any or all of the following components: the ACU board, camera module, or LiDAR module, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the camera calibration process:

1. Find a flat ground with good lighting.
2. Lay the mat for calibration on the ground. Turn the Segway logo to let it face straight towards you, as it's shown in the image below.
3. Tap 'Next'



1. Set the tri-fold calibration board upright with its back facing the Segway logo. Align the middle panel with Line 150 horizontally and place the lower right corner on the mark (BG.150).

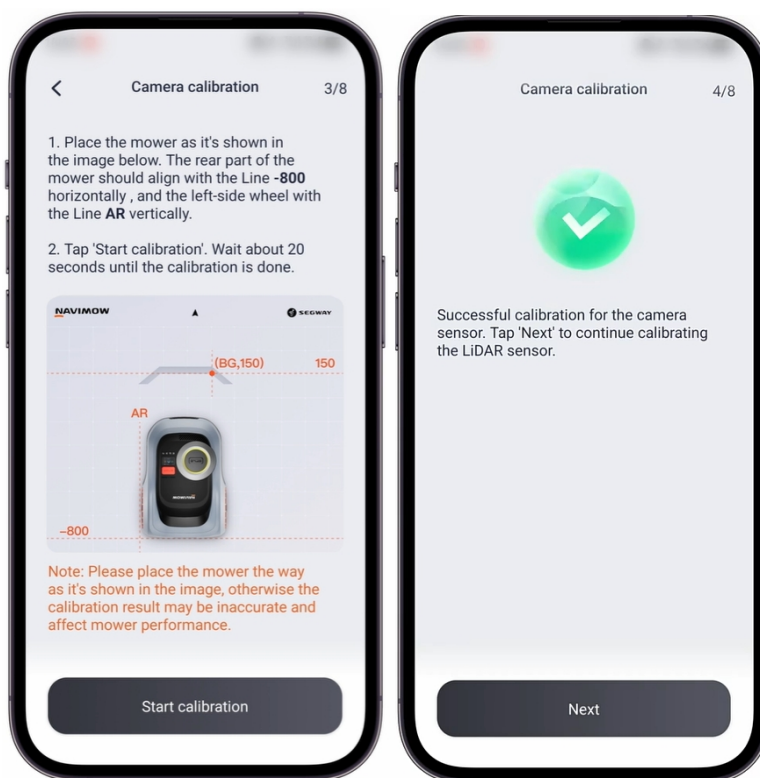
2. Turn on a white light, and put it over the card board. Make sure the light shines evenly on the card board.

3. Tap 'Next'



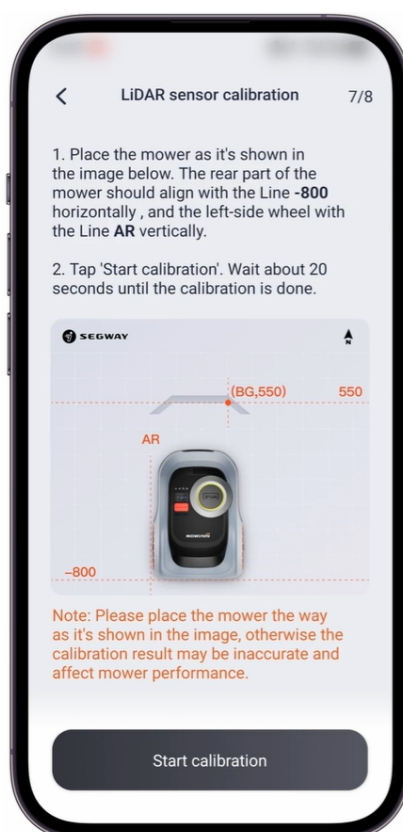
1. Place the mower as it's shown in the image below. The rear part of the mower should align with the Line -800 horizontally, and the left-side wheel with the Line AR vertically.

2. Tap 'Start calibration'. Wait about 20 seconds until the calibration is done.



Tap "Next" and follow the app prompts to begin the LiDAR calibration process:

The procedure is essentially the same as the camera calibration process, except that the position of the calibration target on the ground mat needs to be adjusted to the coordinates shown in the illustration.

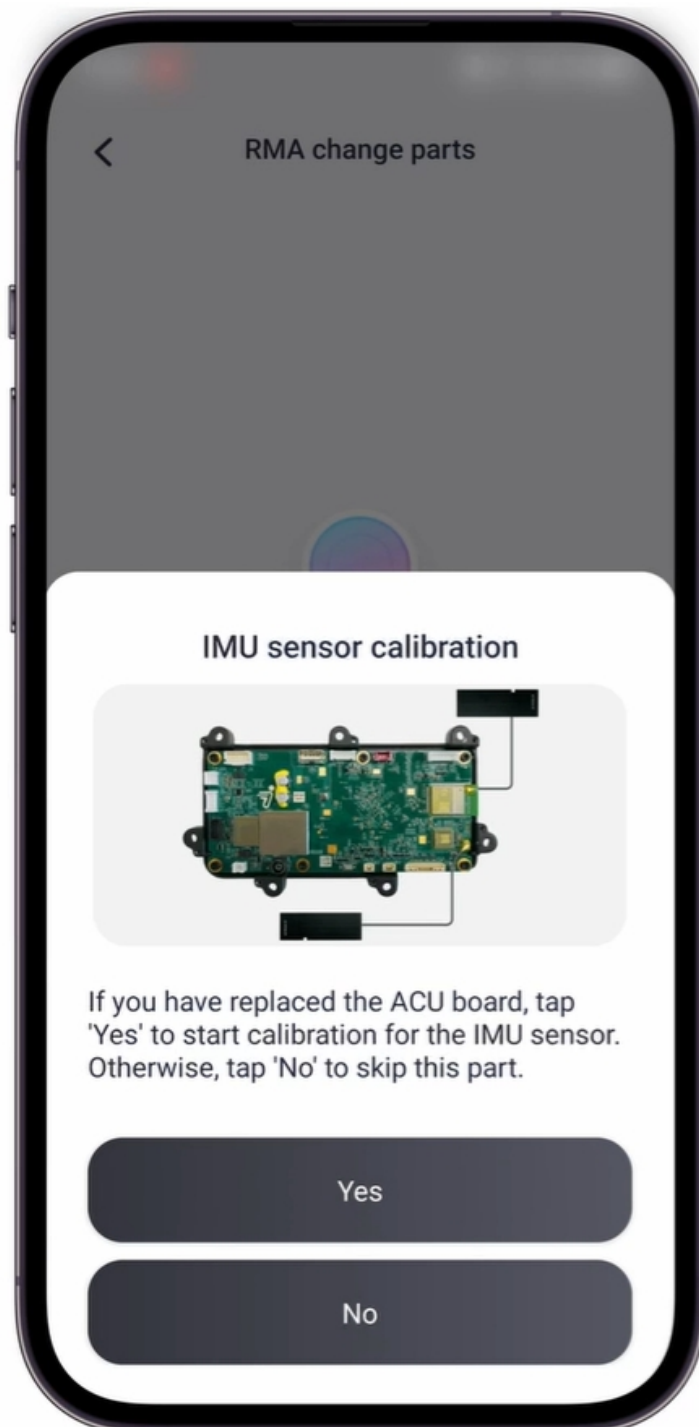


IMU calibration and Drive board matching.

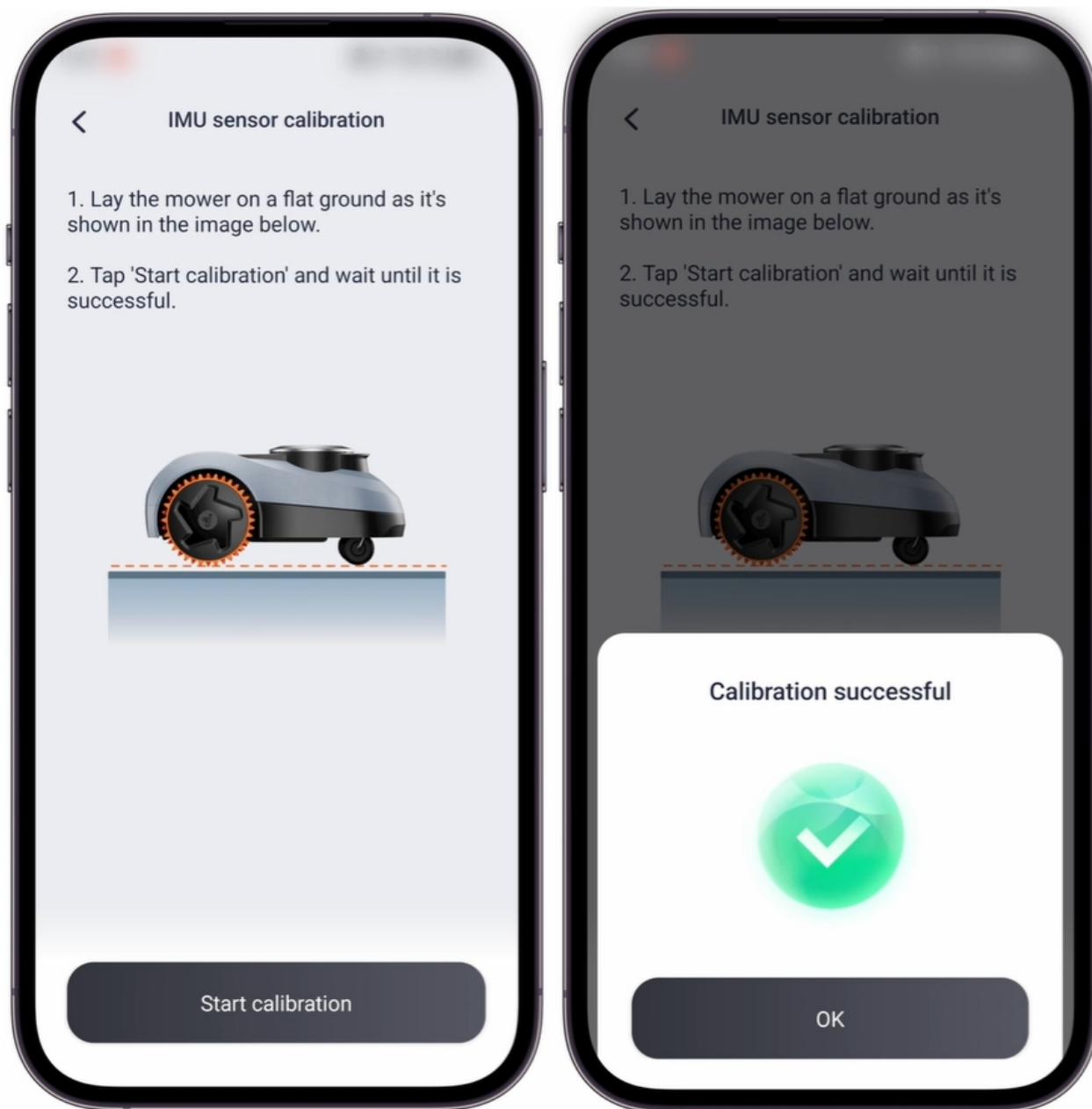
-IMU calibration

If you replace the ACU board, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the IMU calibration:



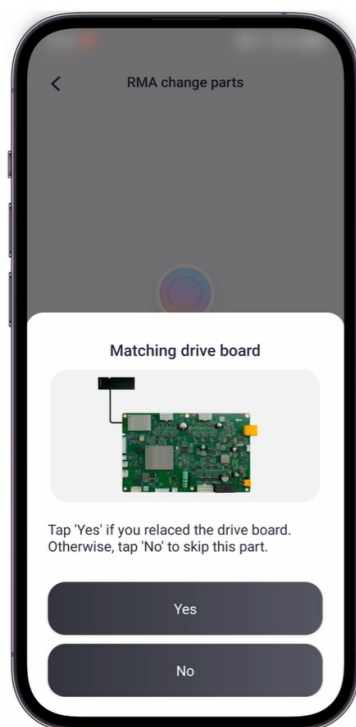
1. Lay the mower on a flat ground as it's shown in the image below.
2. Tap 'Start calibration' and wait until it is successful.



-Drive board matching

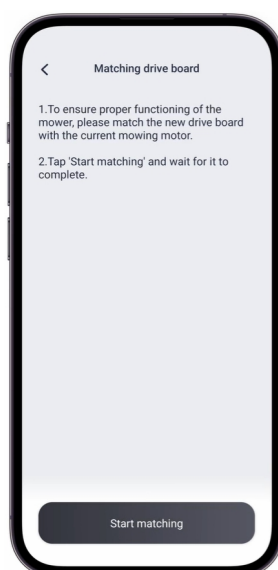
If you replace the Drive board, you need to perform this calibration step.

Tap "Yes" and follow the app prompts to begin the Drive board matching:



1.To ensure proper functioning of the mower, please match the new drive board with the current mowing motor.

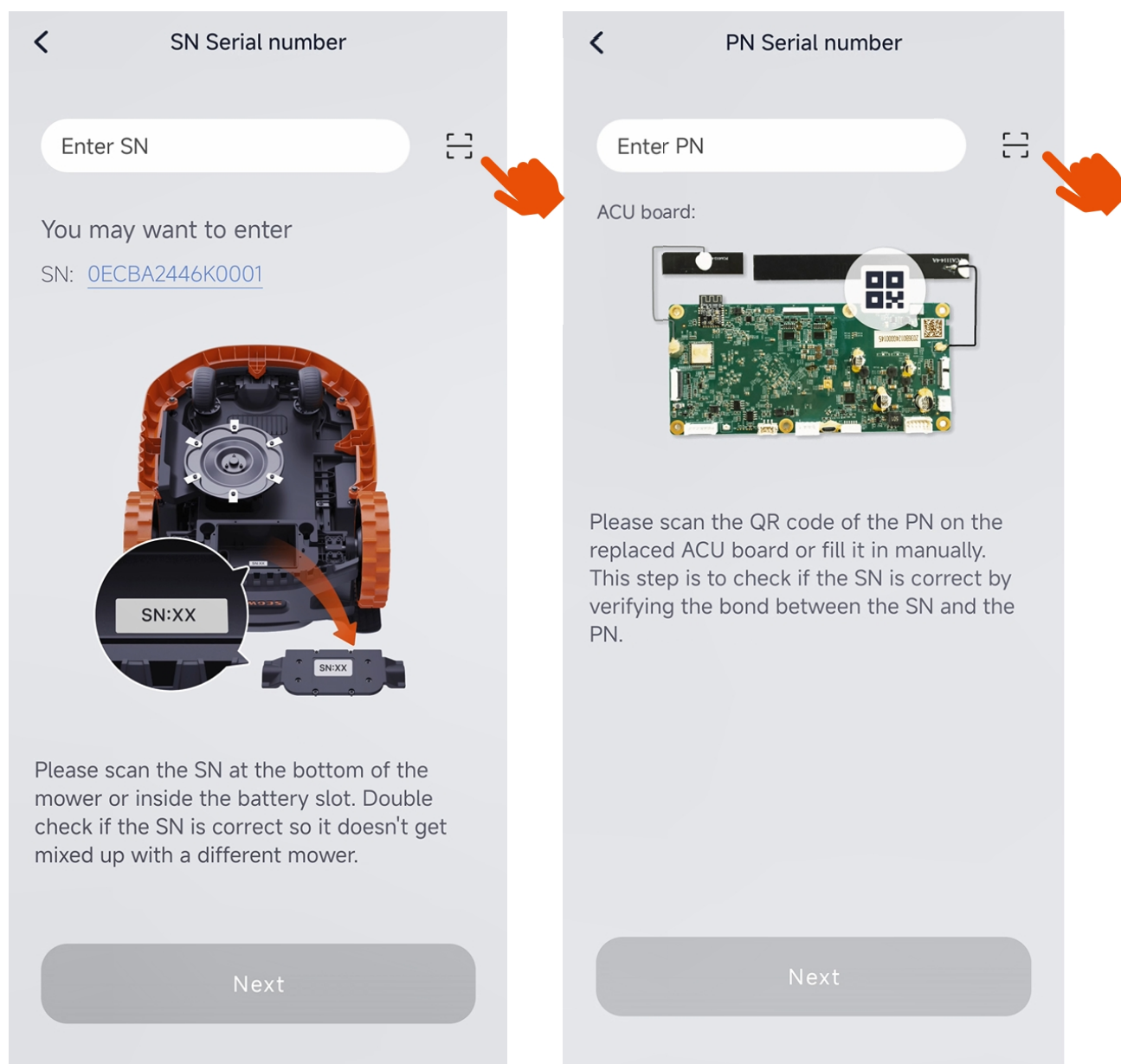
2.Tap 'Start matching' and wait for it to complete.



5.5 Navimow X3 Series RMA Change Parts

The X Series follows the same principles as the i Series. Instead of verifying the owner account, the SN-PN relationship is validated when initializing an RMA Repair. Similar to the i Series, there are three methods to input the mower's SN: manually key it in, select the system-suggested SN, or scan the serial number barcode on the mower label.

After replacing the ACU board, follow the app's prompt to scan the QR code of the PN on the replaced ACU board or enter it manually. This step verifies the SN by confirming its bond with the ACU board's PN.



SN-PN Verification

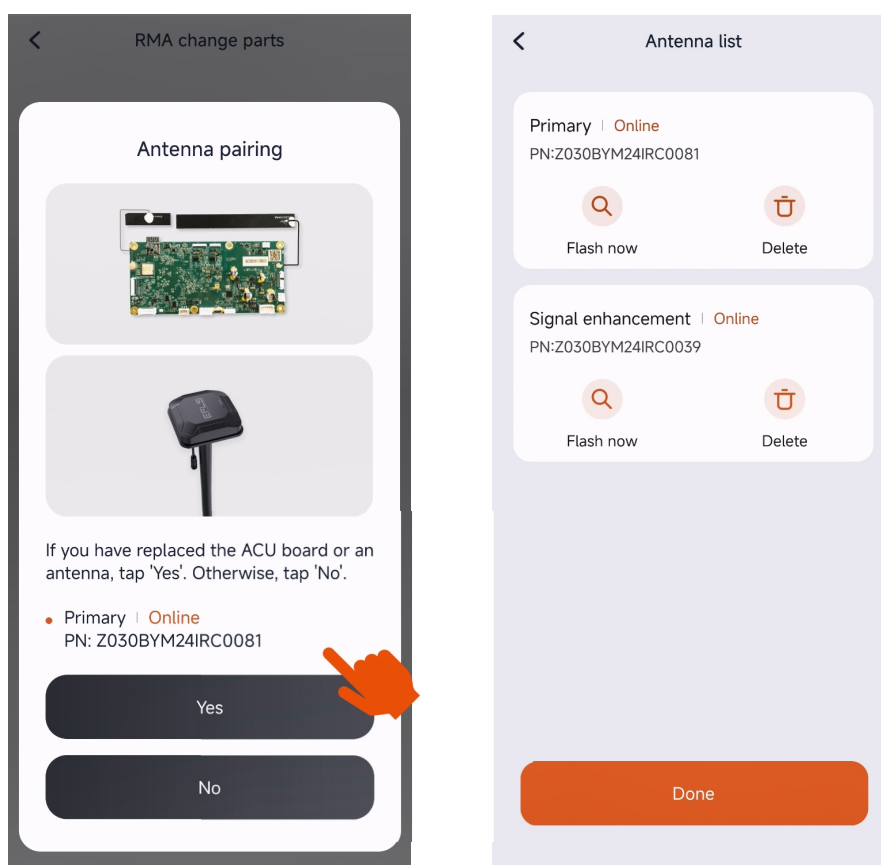
Antenna Pairing

The X Series mower antenna(s) communicate wirelessly with the mower, and the antenna(s) are paired with it.

The X Series mower supports up to two antennas, which are divided into two roles: Primary and Signal Enhancement. The antenna type can be identified by the label on the bottom of the antenna.

When operating with a single antenna, it must be a Primary antenna. When operating with two antennas, there must be one Primary antenna and one Signal Enhancement antenna.

If the ACU board or antenna(s) are replaced, the antenna(s) must be re-paired with the mower.



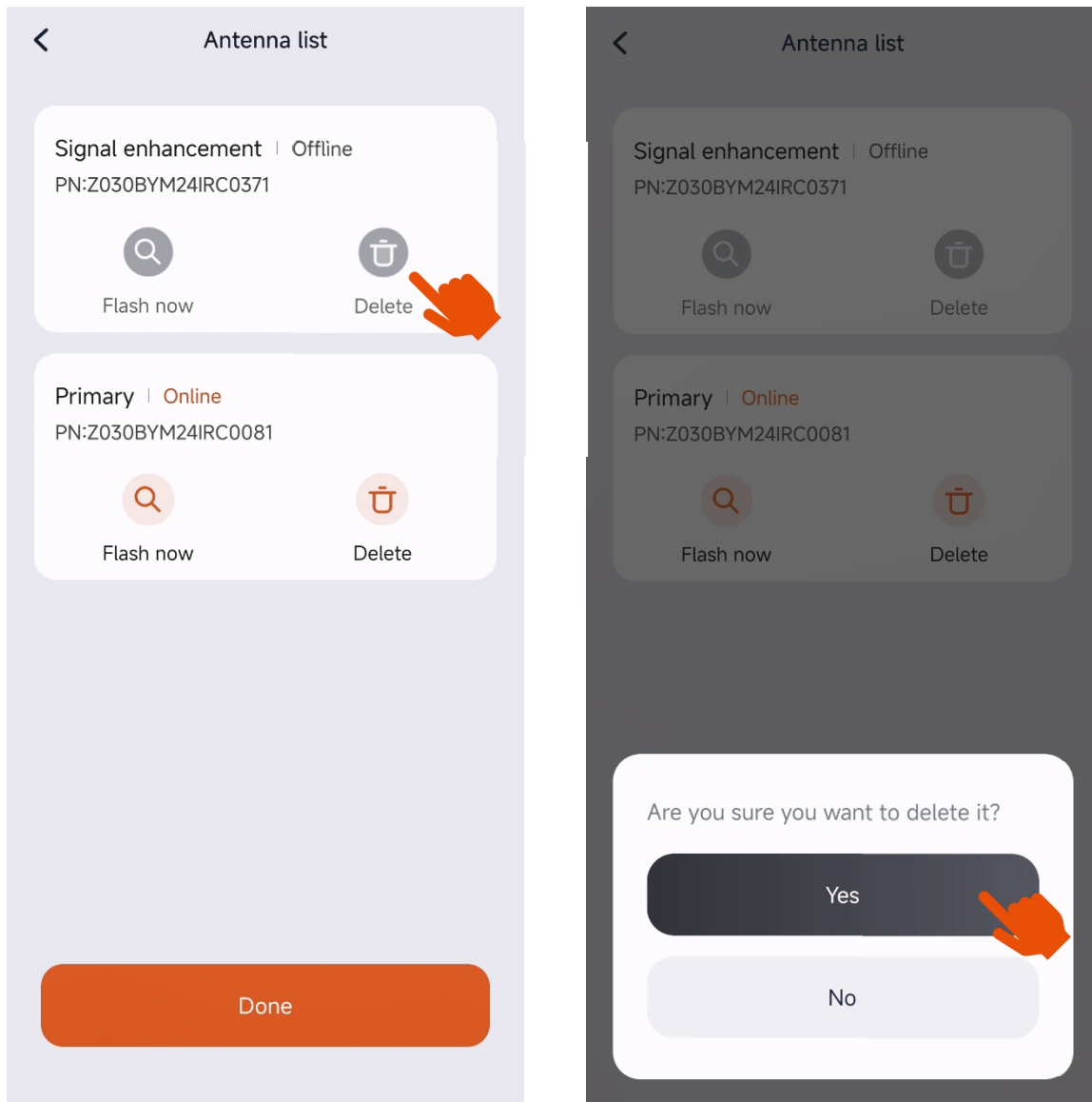
Antenna Pairing

The Antenna list displays the role type and online status of the antenna(s). "Online" indicates that communication is detected between the antenna and the mower, while "Offline" means no communication is established. An offline status may result from the antenna not being powered, not being paired with the mower, or being too far from the mower, among other reasons.

If the antenna(s) are replaced, you must delete the corresponding old antenna, pair the new antenna with the mower, and assign the appropriate role type to the new antenna.

If the ACU board is replaced, it is only necessary to reassign the antenna role type.

Tap the “Delete” button to remove the corresponding old antenna.



Delete the Corresponding Old Antenna

Tap the “Add” button and follow the app prompts to pair the new Antenna:

1. Check if the antenna is plugged in from the light at the bottom of the antenna.

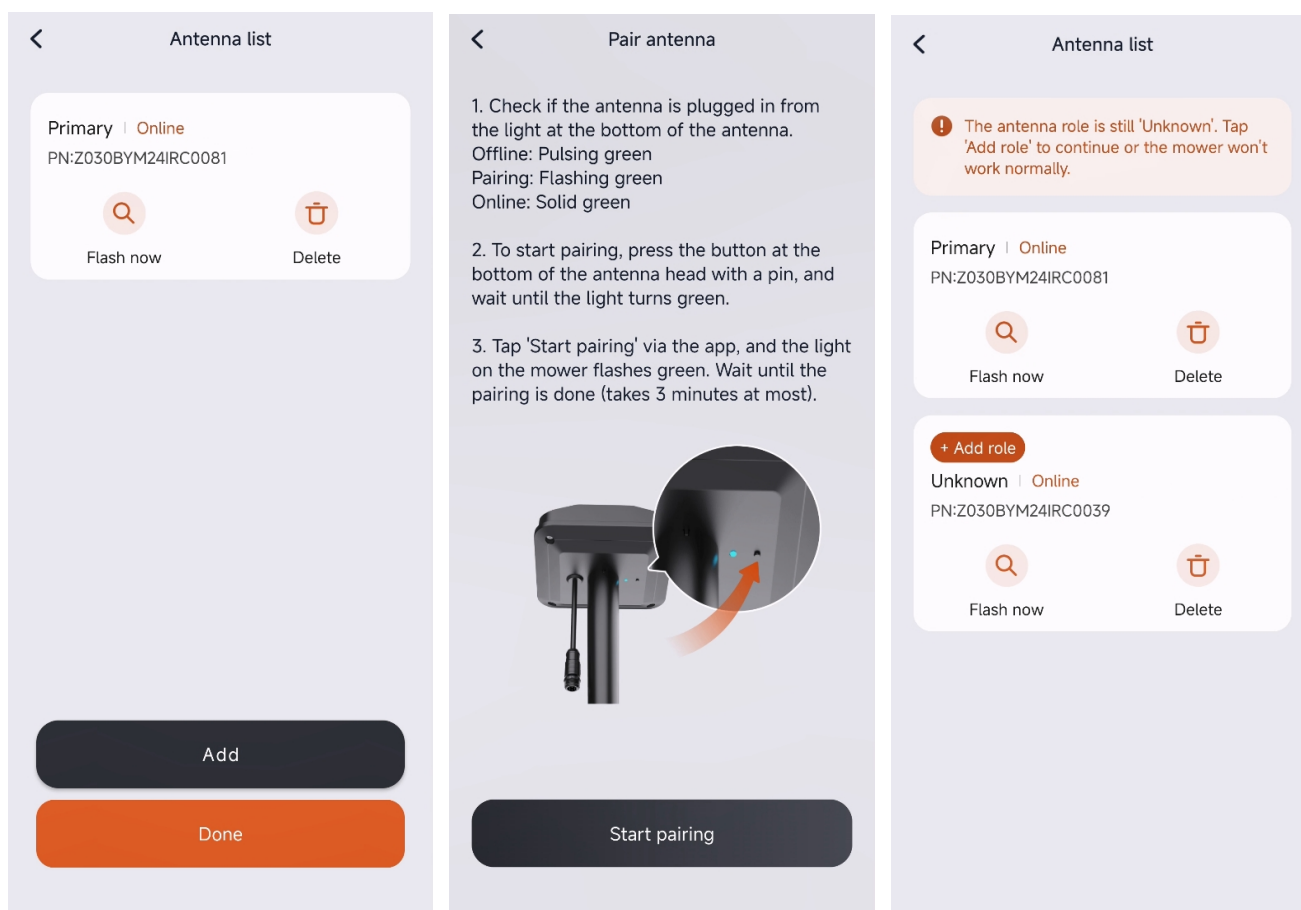
Offline: Pulsing green

Pairing: Flashing green

Online: Solid green

2. To start pairing, press the button at the bottom of the antenna head with a pin, and wait until the light turns green.

3. Tap 'Start pairing' via the app, and the light on the mower flashes green. Wait until the pairing is done (takes 3 minutes at most).

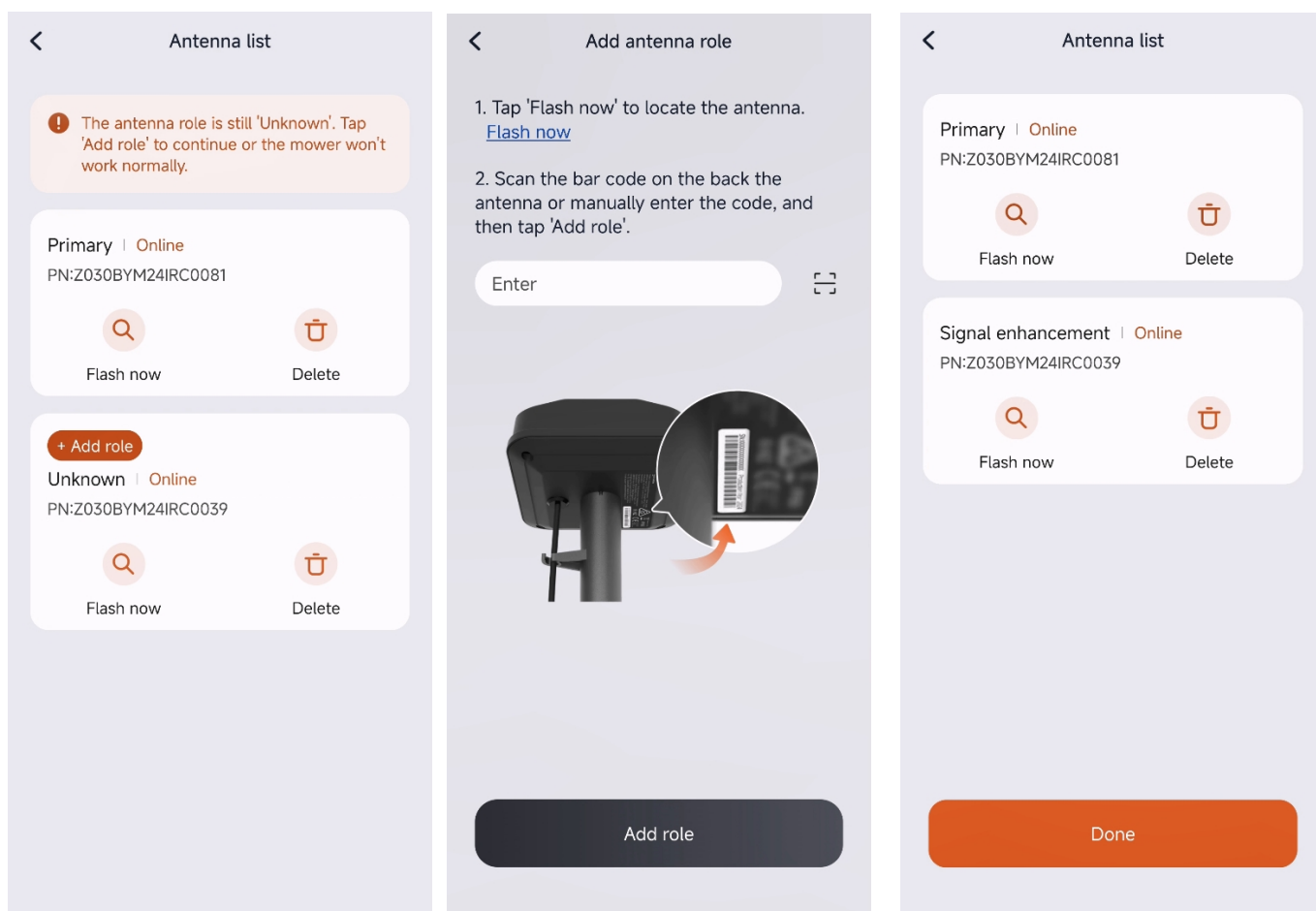


Pair the New Antenna

After pairing the new antenna, its role will still be listed as "Unknown." Therefore, it is necessary to assign a role to the antenna.

Tap the "+Add role" button and follow the App prompts to add a role for the new antenna:

1. Tap the 'Flash Now' button to activate the indicator light beneath the corresponding antenna, making it easier to locate.
2. Scan the bar code on the bottom of the antenna or manually enter the serial number of the antenna, and then tap 'Add role'.



Add Role of the Antenna

Finally, confirm that the antenna(s) are online and that their roles have been properly assigned. Once confirmed, the antenna pairing procedure is complete.

If multiple antennas need to be replaced simultaneously, repeat the steps outlined above for each antenna.

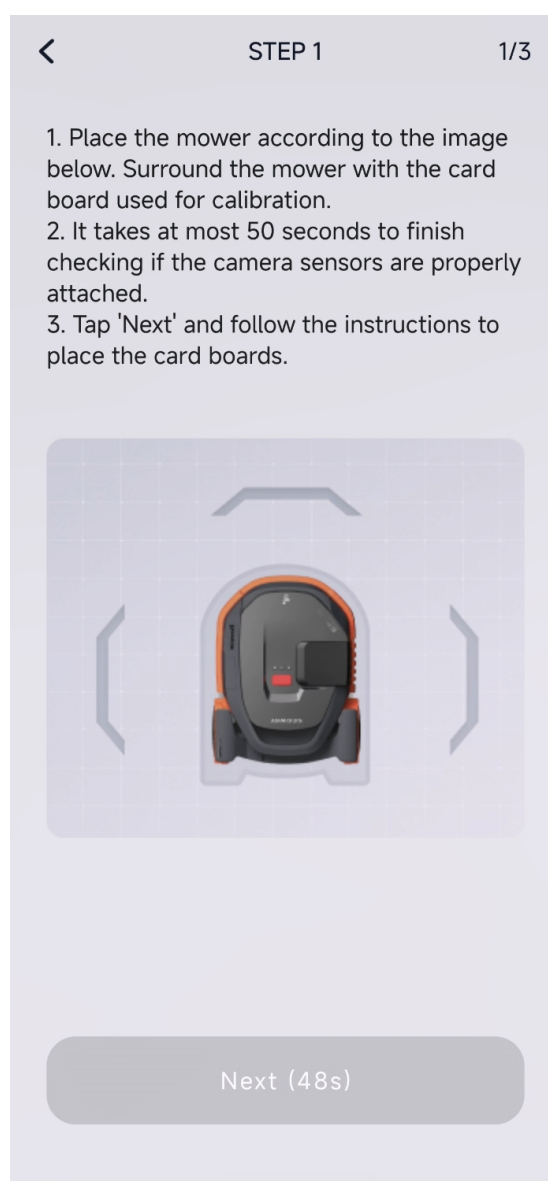
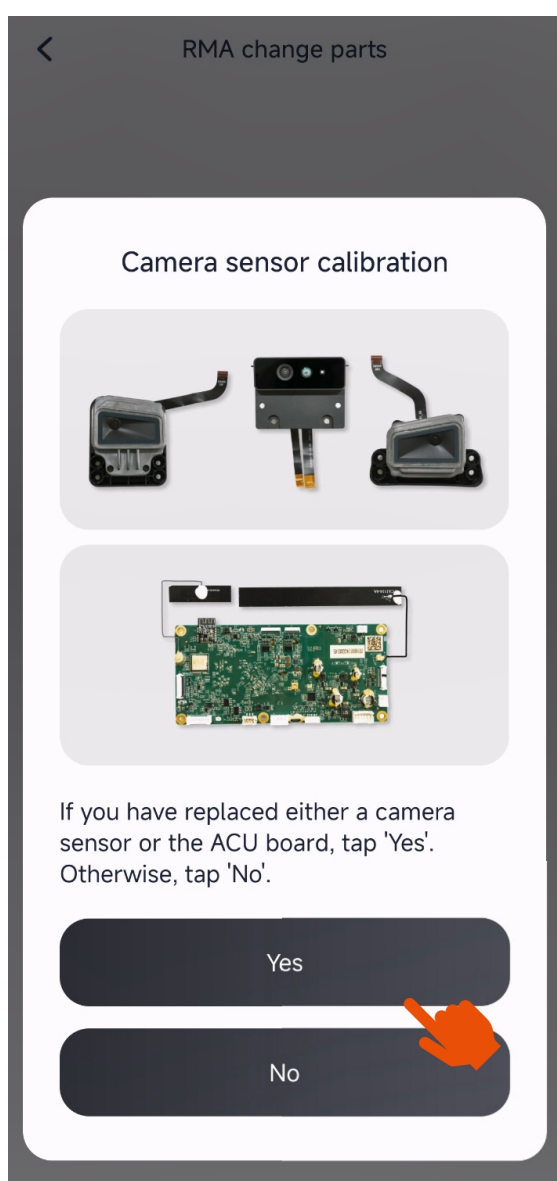
If both the ACU board and antenna(s) are replaced together, follow the same pairing procedure as when replacing the antenna(s) alone.

Camera Sensor Calibration

If either a camera sensor or the ACU board has been replaced, the camera must be calibrated.

Tap "Yes" and follow the app prompts to begin the camera calibration process:

1. Place the mower according to the image below. Surround the mower with the card board used for calibration.
2. It takes at most 50 seconds to finish checking if the camera sensors are properly attached.
3. Tap 'Next' and follow the instructions to place the card boards.

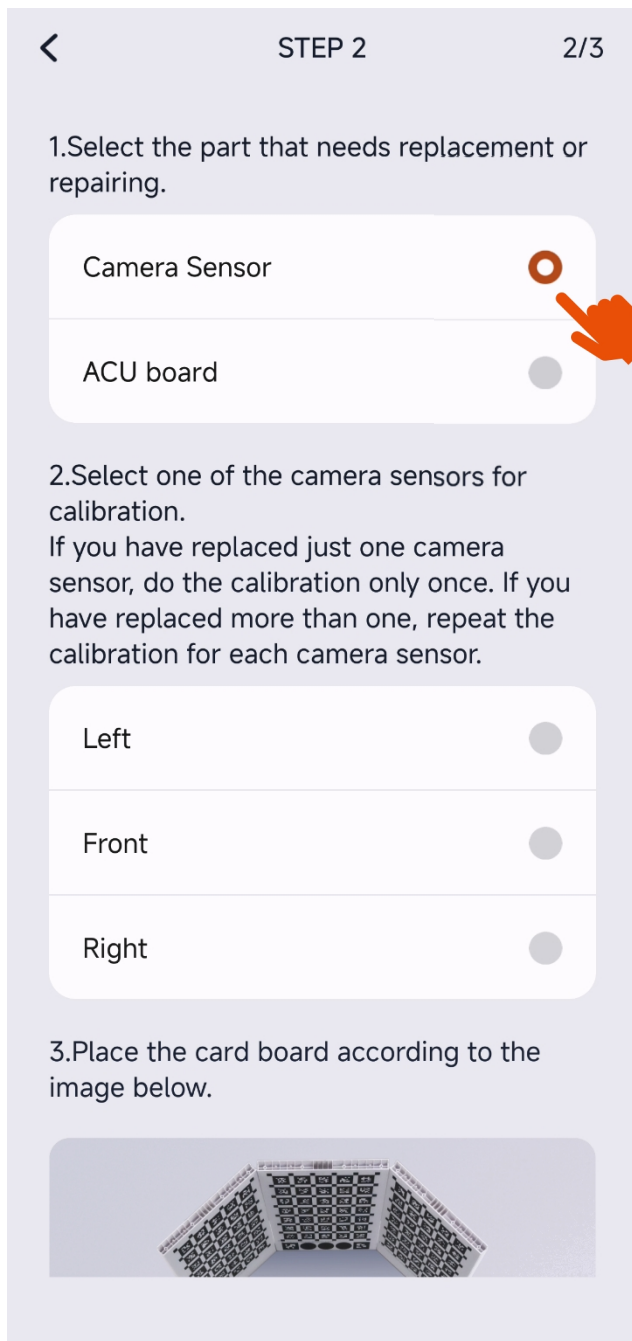


Camera Sensor Calibration

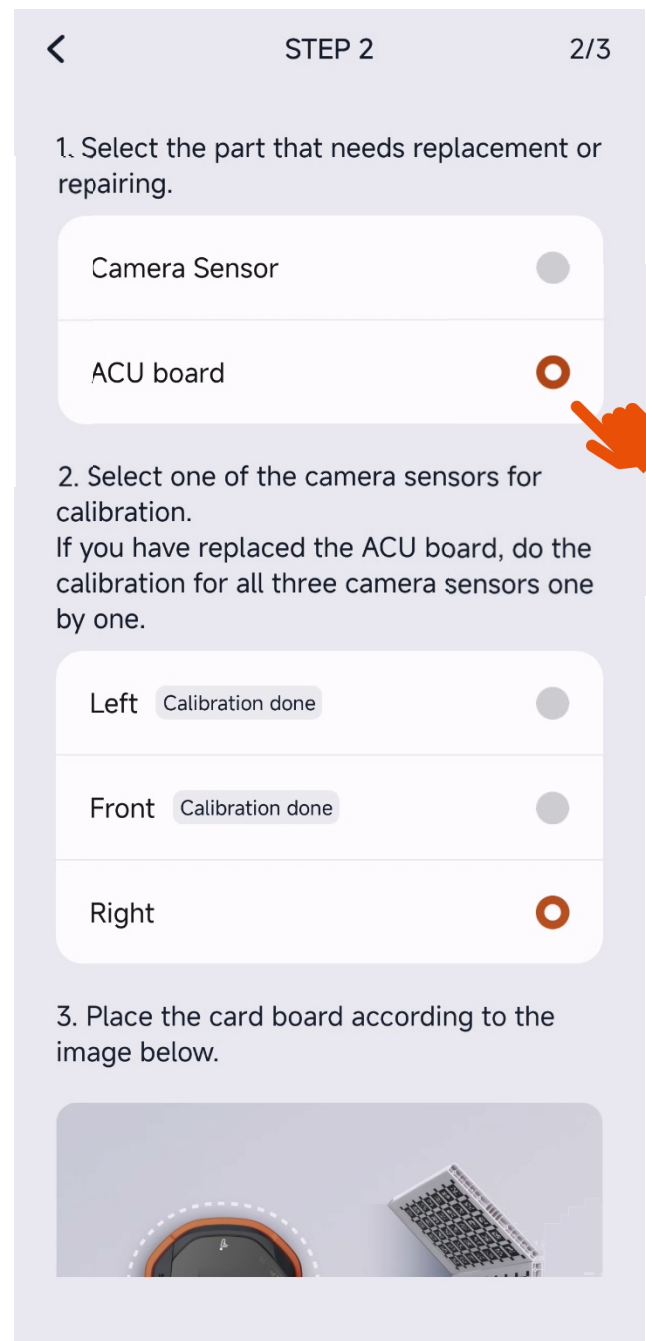
If only the camera is replaced, it is necessary to calibrate the corresponding camera.

If the ACU board is replaced, all three cameras must be calibrated.

If both the ACU board and the camera are replaced, follow the same camera calibration procedure as for the ACU board replacement.



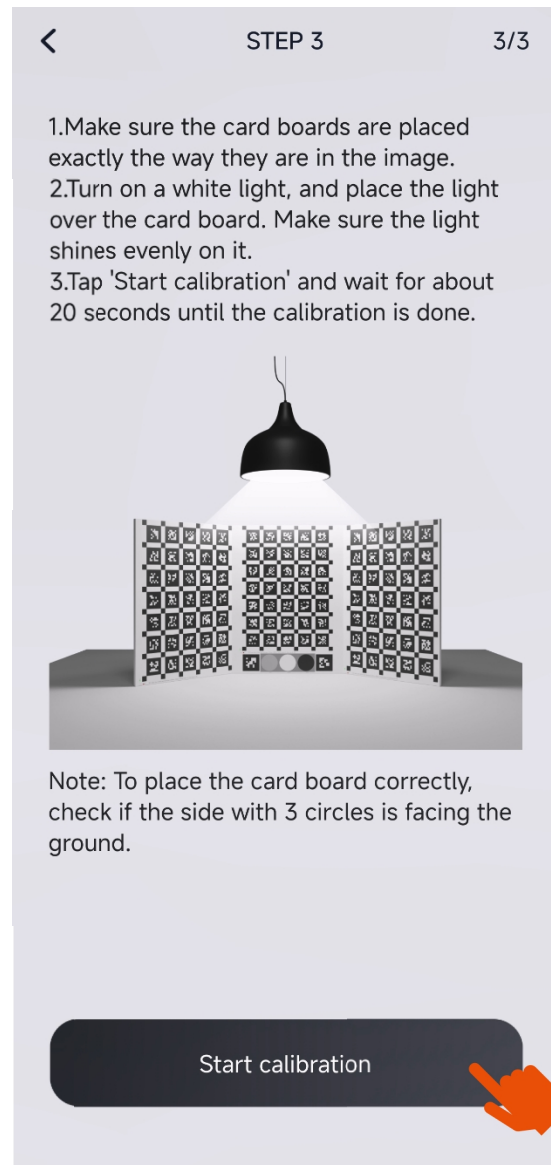
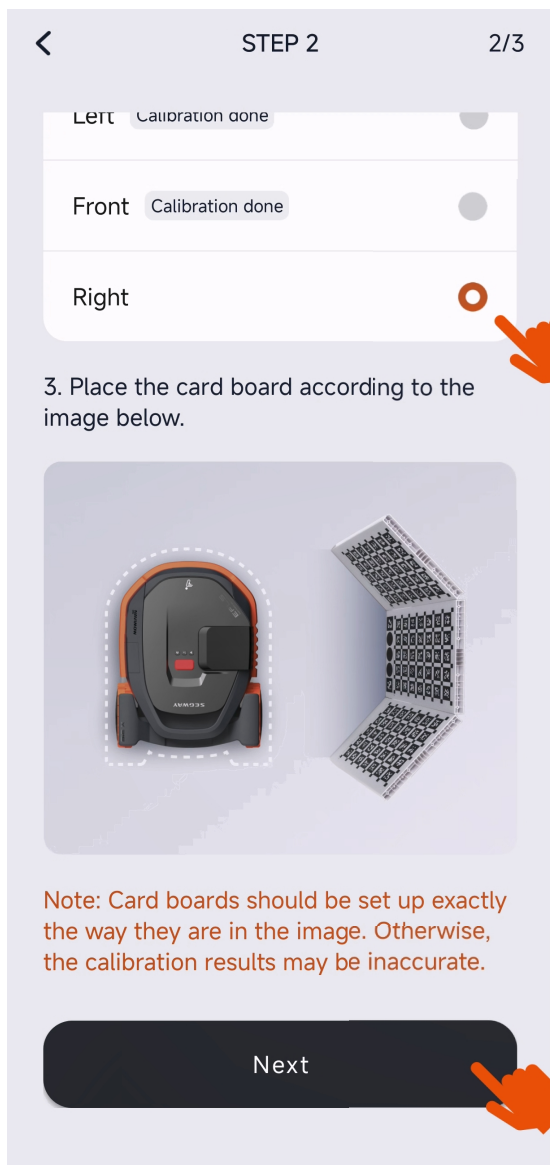
Calibration Option When Replace Camera Only



Calibration Option When Replace ACU Board

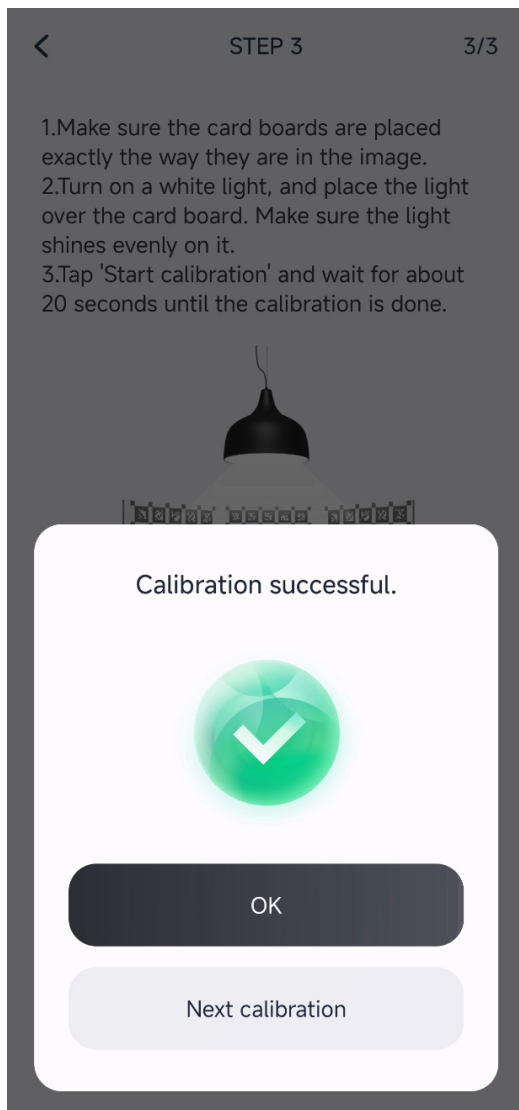
After selecting one of the cameras that needs to be calibrated, tap the "Next" button and follow the app prompts to begin the calibration process:

1. Make sure the card boards are placed exactly the way they are in the image.
2. Turn on a white light, and place the light over the card board. Make sure the light shines evenly on it.
3. Tap 'Start calibration' and wait for about 20 seconds until the calibration is done.

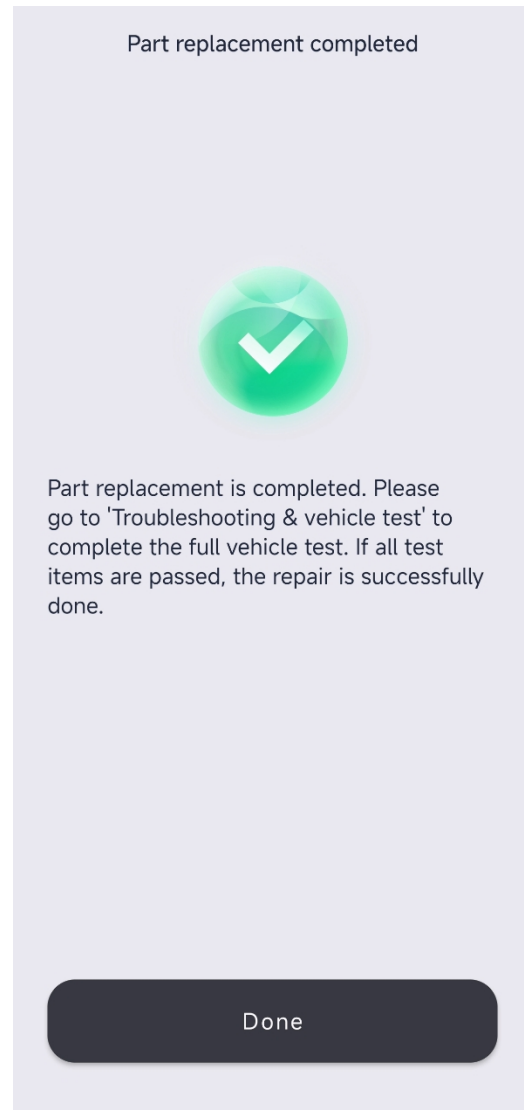


Camera Calibration Step

If additional cameras require calibration, tap the "Next Calibration" button to proceed with the next camera. If no further calibration is needed, tap the "OK" button to complete the camera calibration step.



Camera Calibration Successful



RMA Change Parts Finished

6. Vehicle Field Test

The vehicle field test is designed to evaluate the GNSS functionality. During this test, position the mower in an open area with strong GNSS signal coverage.

It is essential to complete the "Troubleshooting & Vehicle Test" section beforehand, ensuring all test items are successfully passed, before proceeding to the vehicle field test.

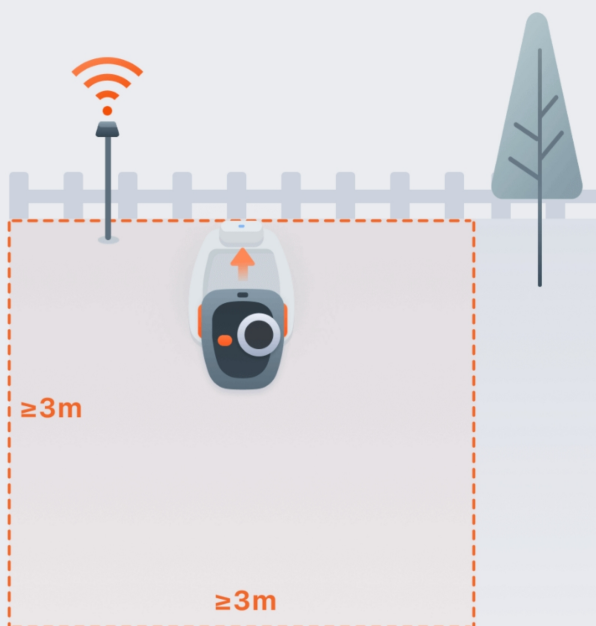
6.1 Navimow H1/i1/i2 AWD Series Vehicle Field Test

To prepare for field testing, please follow these guidelines:

1. Find a flat surface with the size of 3m*3m. Make sure the place is within the coverage of a strong GPS signal.
2. Place the mower and antenna(s) as they are shown in the image below. Make sure the antenna(s) has already paired with mower and all firmware are up-to-date.

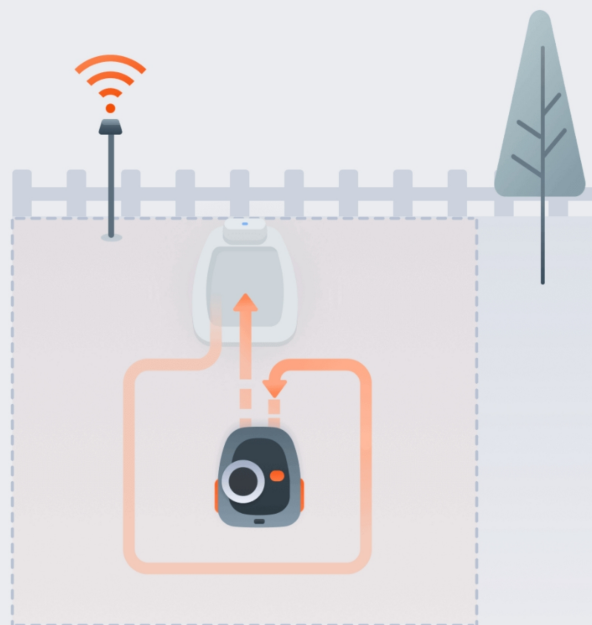
STEP 1

1. Find a flat surface with the size of 3m*3m. Make sure the place is within the coverage of a strong GPS signal.
2. Place the mower as shown in the image below. Make sure the mower has paired with the charging station (no red lights are shown) and all firmwares are updated.
3. Tap 'Start test'.



STEP 2

Check if the mower follows the same route as shown in the image below. When the mower stops and faces backwards to the charging station, check if the mower can automatically return to the charging station after stopping for 3 seconds. Please wait while the whole process takes about 2 minutes.



Review the pre-test checklist, ensuring successful completion of all listed items before initiating the vehicle field test. Tap the 'Start test' button when prepared.

Vehicle field test

SN S4SFA2333N0010	Passed S4SFA2333N 0010
Main control PN	Passed Z00DG0123G V00062
Charging station PN	Passed Z00JEY823G SC1489
mower and CGS signal RX strength > -55	Passed -24
GPS signal strength == 100	Passed 100
mower and CGS signal TX strength > -55	Passed -22

Note: Please make sure the list of pre-tests above are 'Passed' before the vehicle field test.

[How to do a vehicle field test?](#)

Start test

Test passed and power off

SN Confirm the mower's Serial Number.

Main control PN Confirm the Main control board Part Number.

Charging station PN Confirm the Part Number associated with the Charging Station.

Mower and CGS signal RX strength Verify the RF signal reception strength between the charging station and the mower is above -55 dBm.

GPS signal strength Verify the GNSS signal strength, expecting the value of 100.

Mower and CGS signal TX strength Verify the RF transmission signal strength between the charging station and the mower, ensuring it is above -55 dBm.

Vehicle Field Test Pre-test Items for H1/i1 Series

6.2 Navimow H2/i2 LiDAR Series Vehicle Field Test

The vehicle field test is designed to evaluate the GNSS functionality. During this test, position the mower in an open area with strong GNSS signal coverage.

It is essential to complete the "Troubleshooting & Vehicle Test" section beforehand, ensuring all test items are successfully passed, before proceeding to the vehicle field test.

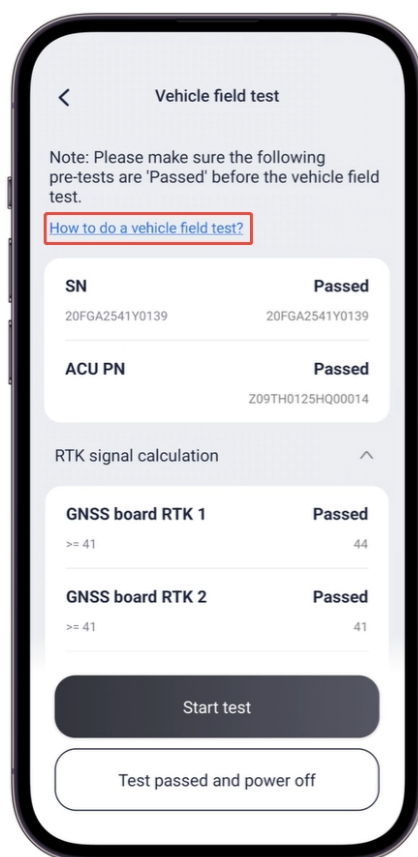
To prepare for field testing, please follow these guidelines:

STEP 1

Place the mower as shown in the image below. Check if all firmware is up to date.

STEP 2

Check if the mower follows the same route as shown in the image below. When the mower stops and faces backwards to the charging station, check if the mower can automatically return to the charging station after stopping for 3 seconds. Please wait while the whole process takes about 2 minutes.

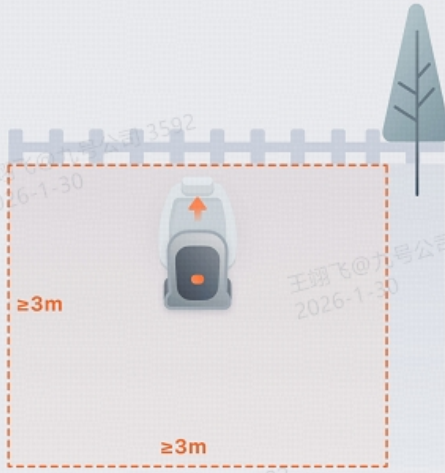


Click "How to do a vehicle field test?" to open the operation guide page.

Instructions

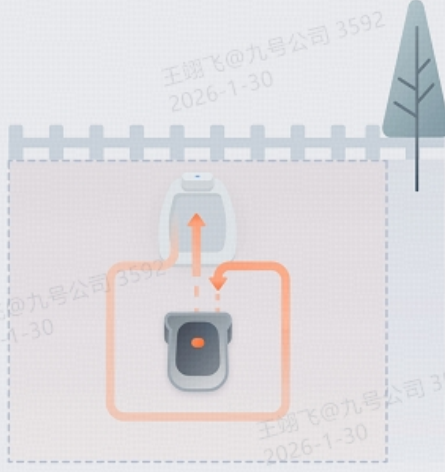
STEP 1

Place the mower as shown in the image below. Check if all firmware is up to date.



STEP 2

Check if the mower follows the same route as shown in the image below. When the mower stops and faces backwards to the charging station, check if the mower can automatically return to the charging station after stopping for 3 seconds. Please wait while the whole process takes about 2 minutes.

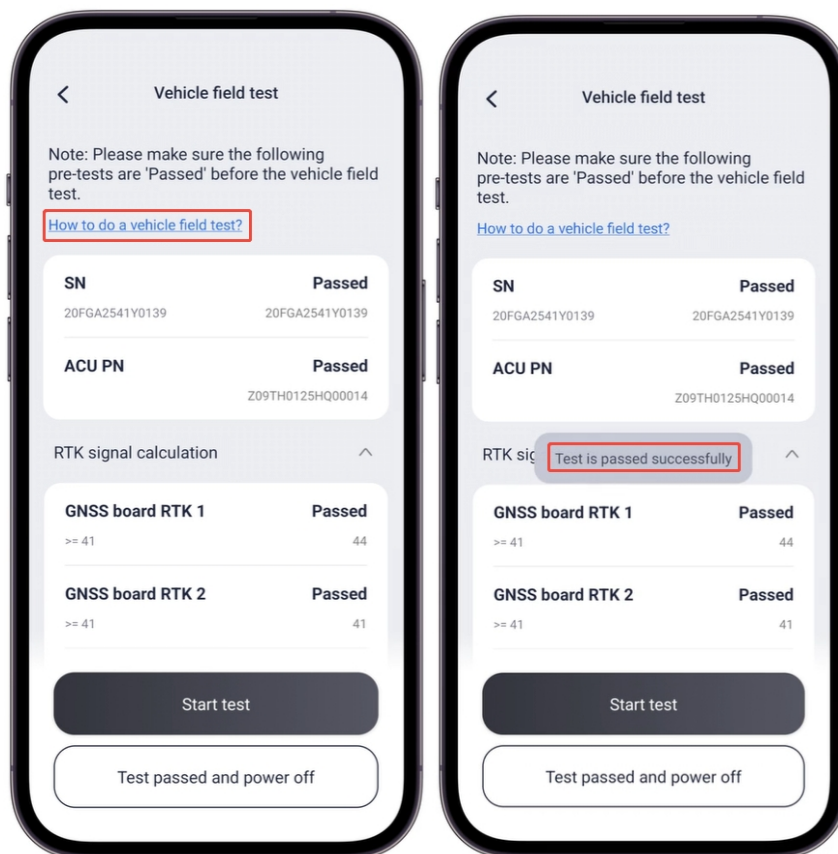


1. Passed: The mower acts as expected. Please pull the mower off the charging station, or power off the charging station and tap 'Test passed and power off'. The mower will end the test by automatically shutting down.

2. Failed: The mower fails to act as expected. Please do the 'Troubleshooting & Vehicle Test', and diagnose problems according to the Troubleshooting Guide. Contact the after-sales service if you encounter any problem.

Please make sure the following pre-tests are 'Passed' before the vehicle field test.

Click "Start test" to begin the vehicle field test. After the test is successfully completed, the page will display "Test is passed successfully."



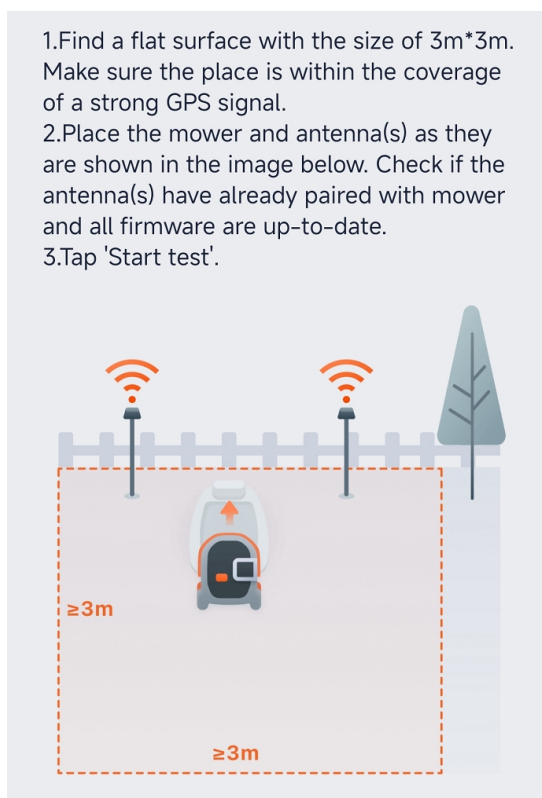
Test result:

1.Passed: The mower acts as expected. Please pull the mower off the charging station, or power off the charging station and tap "Test passed and power off". The mower will end the test by automatically shutting down.

2.Failed: The mower fails to act as expected. Please do the 'Troubleshooting & Vehicle Test', and diagnose problems according to the Troubleshooting Guide. Contact the after-sales service if you encounter any problem.

6.3 Navimow X3 Series Vehicle Field Test

1. Find a flat surface with the size of 3m*3m. Make sure the place is within the coverage of a strong GPS signal.
2. Place the mower and antenna(s) as they are shown in the image below. Make sure the antenna(s) has already paired with mower and all firmware are up-to-date.



For the X3 Series, one or two antennas may be used.

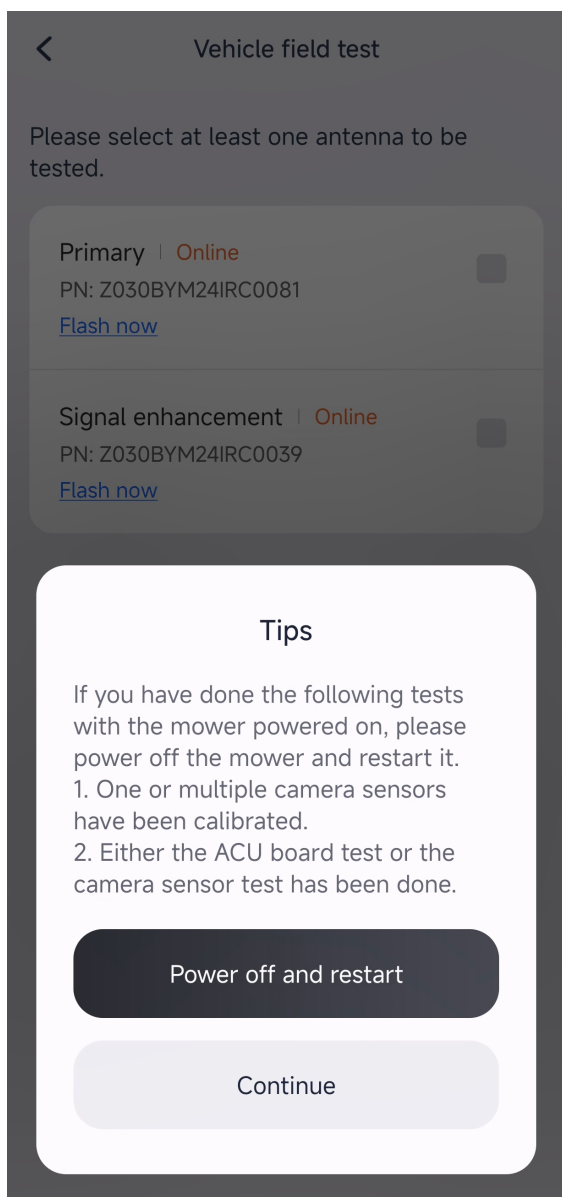
- For X3 Series, to ensure accurate test results, verify that the antenna is positioned within 1 meter of the charging station.

Power off the mower and restart it if any of the following tests have been performed with the mower powered on:

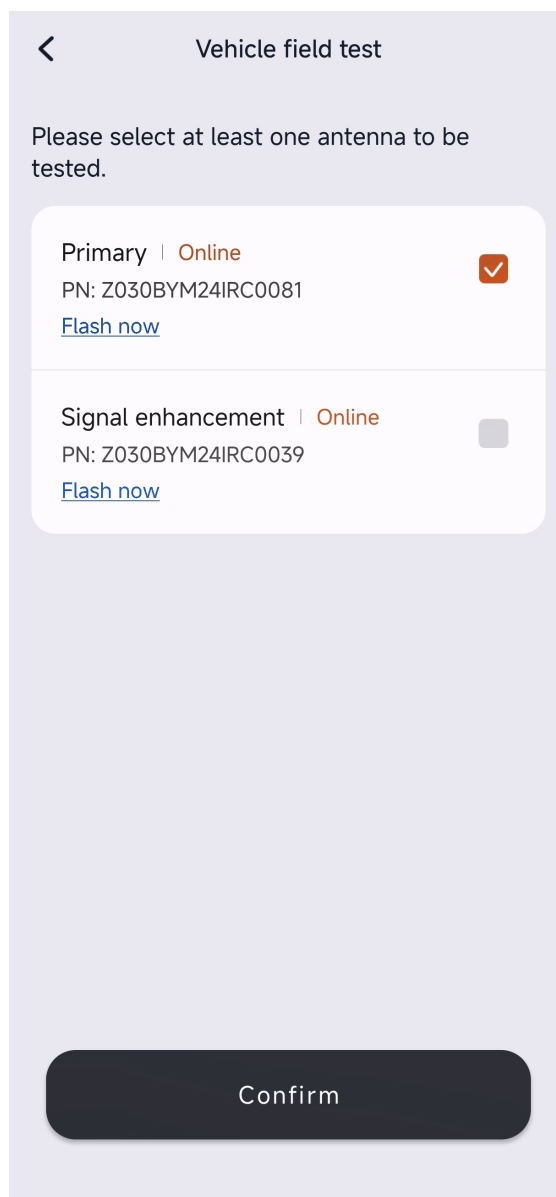
1. One or multiple camera sensors have been calibrated.
2. Either the ACU board test or the camera sensor test has been done.

After the mower restarts, tap "Continue" to proceed to the next step.

Select at least one antenna and ensure the selected antenna(s) are online. Then tap "Confirm" to move to the next step.



Mower Restart for X Series



Test Antenna(s) Selection for X Series

Ensure that all the pre-test items listed below are marked as 'Passed' before initiating the vehicle field test.

Tap "Start Test" and observe whether the mower follows the same route as shown in the image below. When the mower stops and faces backward toward the charging station, verify if it can automatically return to the charging station after pausing for 3 seconds. The entire process will take approximately 2 minutes.

< Vehicle field test

Note: Please make sure the list of pre-tests above are 'Passed' before the vehicle field test.

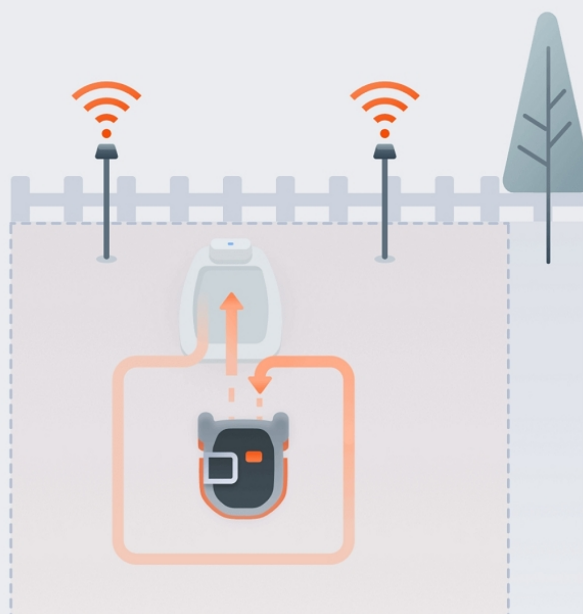
[How to do a vehicle field test?](#)

SN	Passed
OEFAA2446K0006	OEFAA2446K0006
ACU PN	Passed
	Z037C0124K900103
Primary antenna PN	Passed
	Z030BYM24IRC0081
RX signal strength sent from the primary antenna	Passed
> -55	-33
TX signal strength sent by the mower to the primary antenna	Passed

Start test

Test passed and power off

Check if the mower follows the same route as shown in the image below. When the mower stops and faces backwards to the charging station, check if the mower can automatically return to the charging station after stopping for 3 seconds. Please wait while the whole process takes about 2 minutes.



Vehicle Field Test Instruction

Test result:

Passed: The mower operates as expected. Remove the mower from the charging station or power off the charging station, then tap "Test Passed and Power Off." The mower will automatically shut down to conclude the test.

Failed: The mower does not operate as expected. Perform the "Troubleshooting & Vehicle Test" and diagnose issues using the Troubleshooting Guide. If problems persist, contact after-sales service for further assistance.

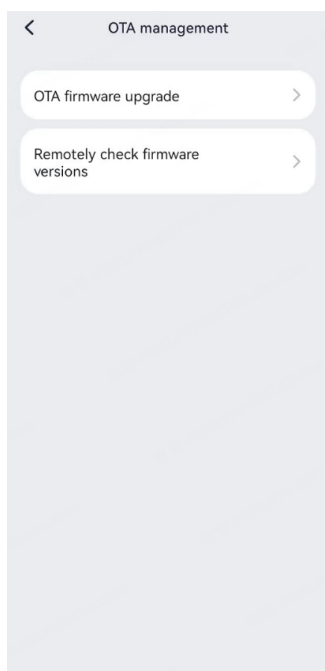
SN	Confirm the mower's Serial Number.
ACU PN	Confirm the ACU board Part Number.
Primary antenna PN	Confirm the Primary antenna Part Number.
RX signal strength sent from the primary antenna	Verify the RF signal reception strength between the primary antenna and the mower is above -55 dBm.
TX signal strength sent by the mower to the primary antenna	Verify the RF transmission signal strength between the primary antenna and the mower, ensuring it is above -55 dBm.
Signal enhancement antenna PN	Confirm the Signal enhancement antenna Part Number.
RX signal strength sent from the signal enhancement antenna	Verify the RF signal reception strength between the signal enhancement and the mower is above -55 dBm.
TX signal strength sent by the mower to the signal enhancement antenna	Verify the RF transmission signal strength between the signal enhancement antenna and the mower, ensuring it is above -55 dBm.
GNSS board RTK 1	Verify the mower GNSS L1 signal strength, ensuring it is above 42.
GNSS board RTK 2	Verify the mower GNSS L2 signal strength, ensuring it is above 42.
GNSS board RTK 3	Verify the mower GNSS L5 signal strength, ensuring it is above 42.
Primary antenna RTK 1	Verify the Primary antenna GNSS L1 band signal strength, ensuring it is above 42.
Primary antenna RTK 2	Verify the Primary antenna GNSS L2 band signal strength, ensuring it is above 42.
Primary antenna RTK 3	Verify the Primary antenna GNSS L5 band signal strength, ensuring it is above 42.
Signal enhancement antenna RTK 1	Verify the Signal enhancement antenna GNSS L1 band signal strength, ensuring it is above 42.
Signal enhancement antenna RTK 2	Verify the Signal enhancement antenna GNSS L2 band signal strength, ensuring it is above 42.
Signal enhancement antenna RTK 3	Verify the Signal enhancement antenna GNSS L5 band signal strength, ensuring it is above 42.

Vehicle Field Test Pre-test Items for X3 Series

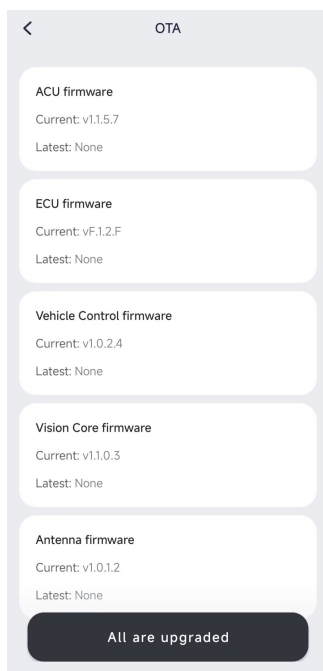
7. OTA Management

If the mower firmware is outdated, use the Over-the-Air (OTA) management function to verify the availability of the latest firmware update.

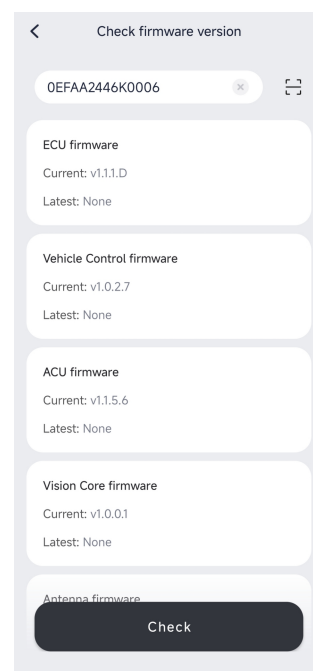
If the OTA management indicates that the firmware is up-to-date but issues persist, contact Navimow's after-sales service. A firmware OTA update can be initiated from the cloud upon request.



OTA management



Firmware upgrade



Remote check firmware versions

You may navigate to the "Toolbox" function and select "Check Firmware Version" to verify the current firmware version. Remote firmware version checks are also supported.

8. Toolbox

The "Toolbox" function allows you to access and modify settings of the mower, including:

Network management	Access and modify 4G (if available) and Wi-Fi settings, mirroring the functionality available in the Navimow app.
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VisionFence sensor (Navimow H Series only)	Enable or disable the VisionFence sensor, view Part Number (PN), firmware version, and edit network configurations.
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Account unbinding	Unbind the mower from the current account. Users in the Navimow app have a limit of five unbinds per day, while service providers in the service app face no such restrictions.
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Reset PIN code	Reset the mower's PIN code to 0000.
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Inspect IoT	Examine the status of the 4G (if available) and Wi-Fi network modules. In cases where the mower faces connectivity issues, utilize this function to assess network status and send screenshots to Navimow after-sales service for assistance.
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Check firmware version	View the current firmware version of all components and verify the availability of the latest firmware updates.
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Error code list	Access information on error codes recorded in the mower for the past 15 days.
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