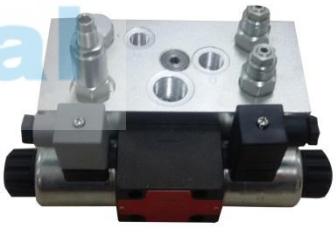
NX200 Precision AG Navigation System User Manual

June, 2017

Geodesical

CHC- Shanghai HuaCe Navigation Technology Ltd.

1 Introduction

Name	Picture	Name	picture
Monitor		Controller	
Satellite Antennas		Radio Antennas	
Control switch		Hydraulic Valve	

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2 Quick use

The right switch button on the display is 1 seconds short to open the display

The NX200 host can be opened by pressing the switch light on.

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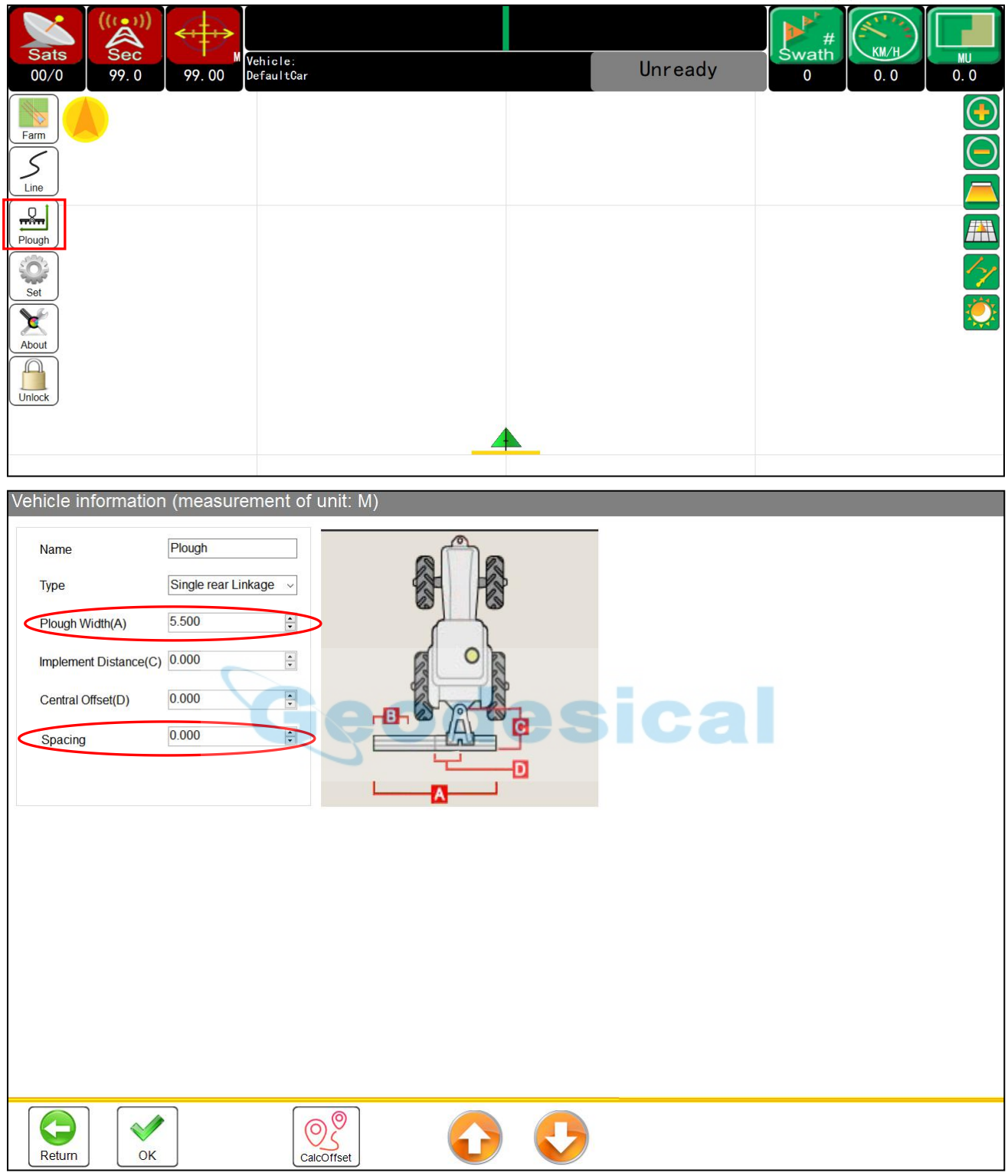
A.Setting tools and widths

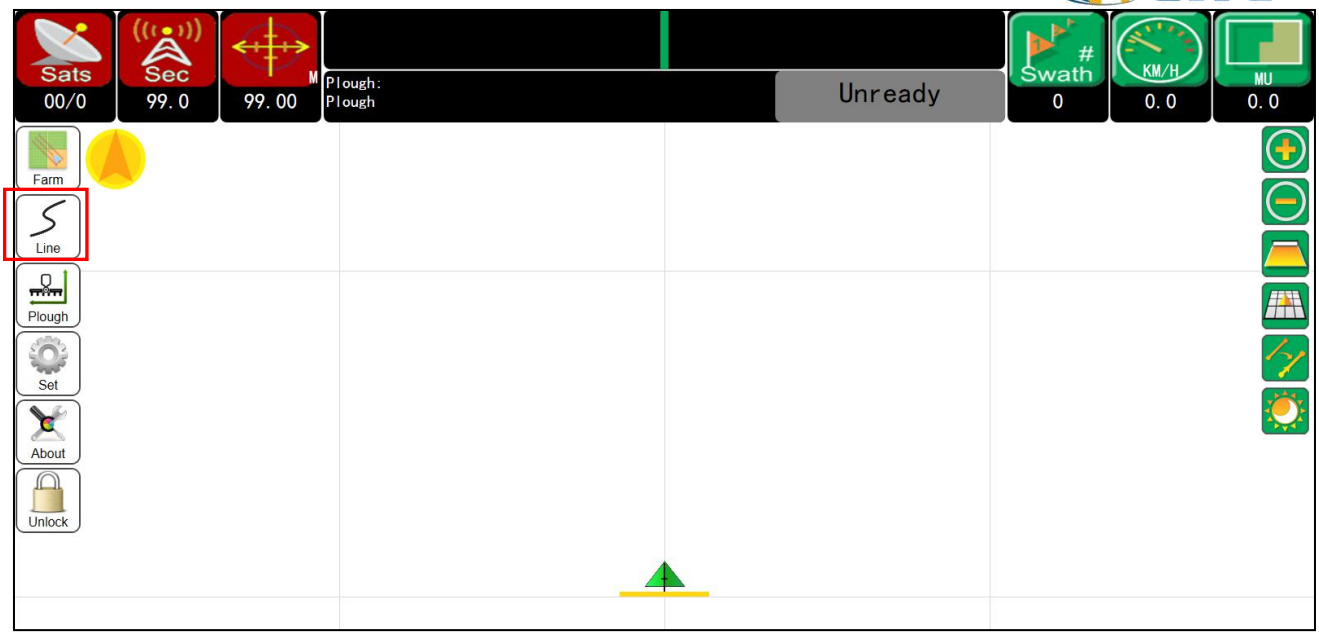
Opening mode: The main interface-plough with-modification, in the plough width (a) to enter the effective working width of farm tools (ditching work tools width of 0);



Plow with parameter Input interface

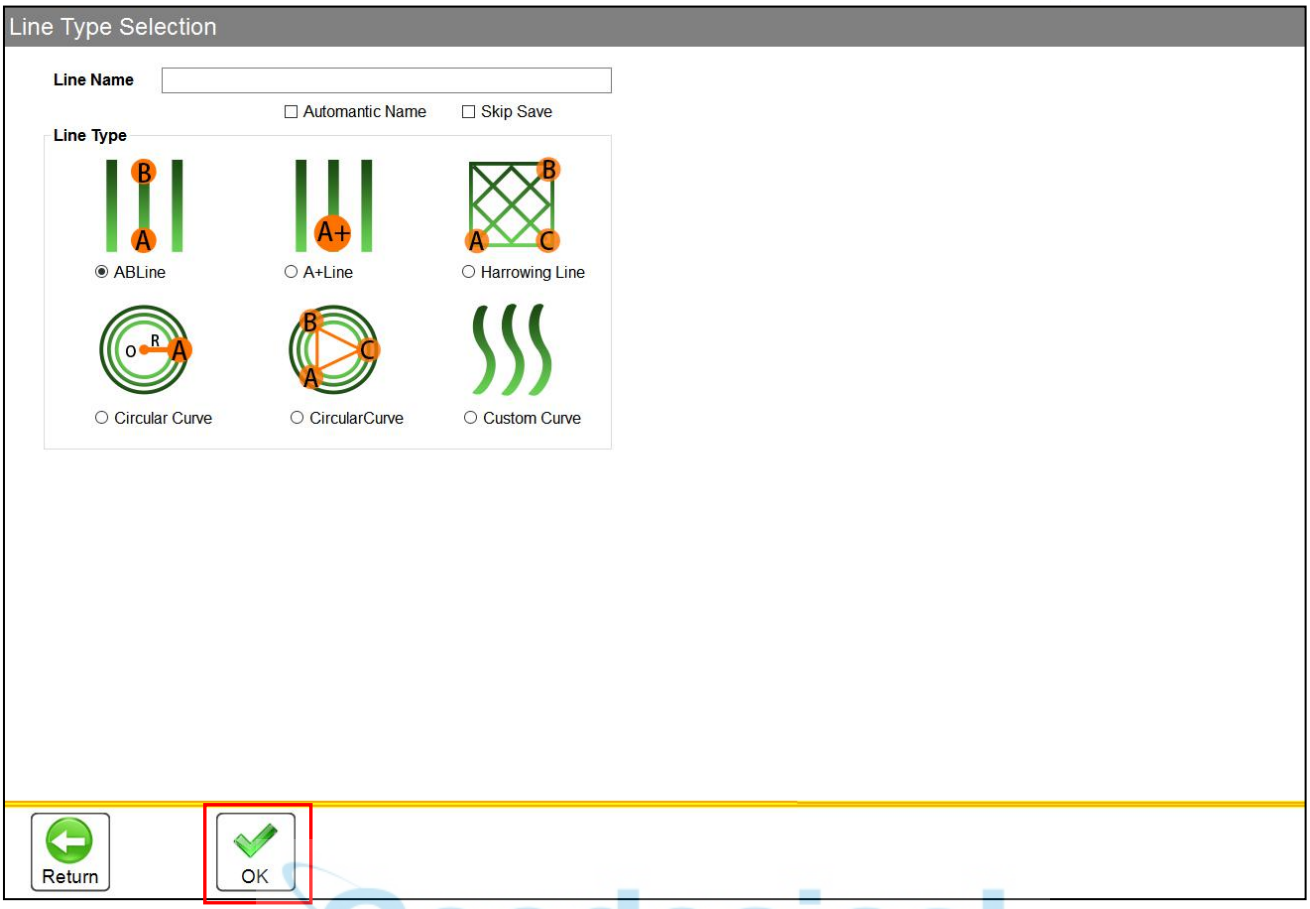
B. Fixed AB line

Click "Navigation Line"-"Add"-"OK", then click "Point A" and "point B" to make the line.

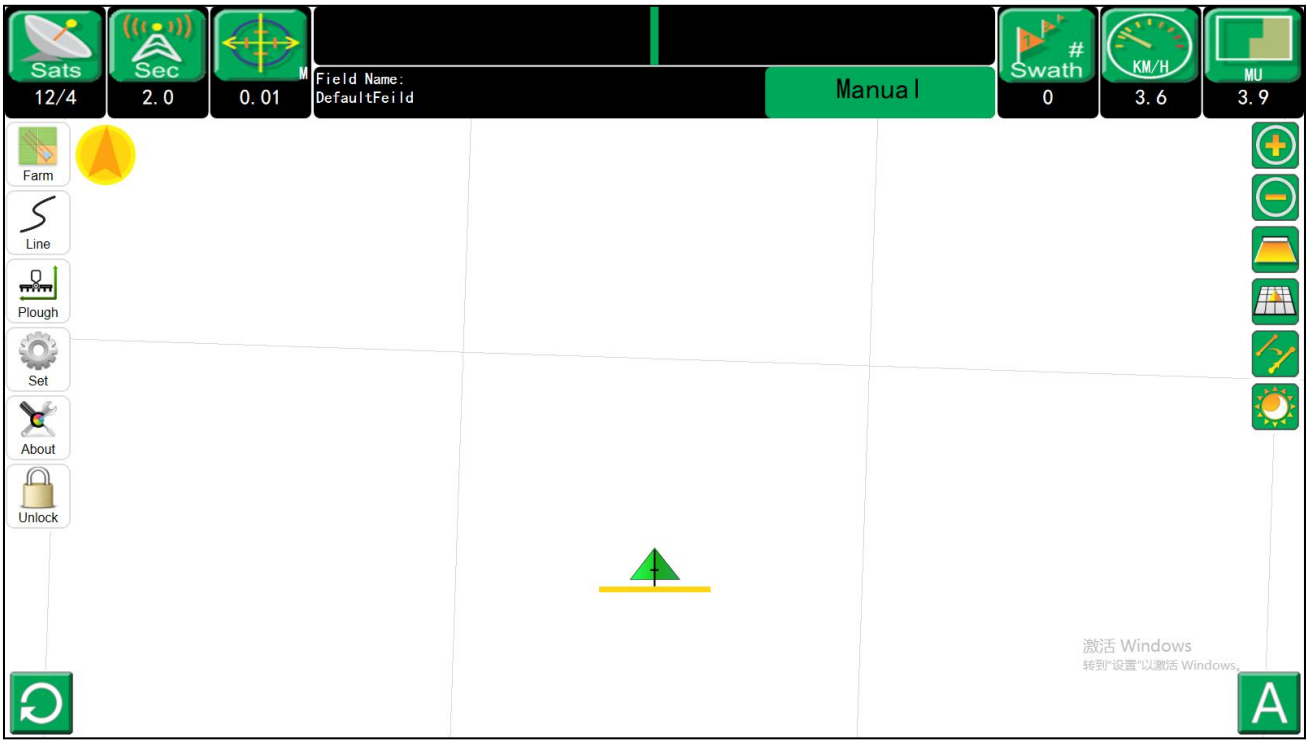


Main interface, click on the Navigation line button

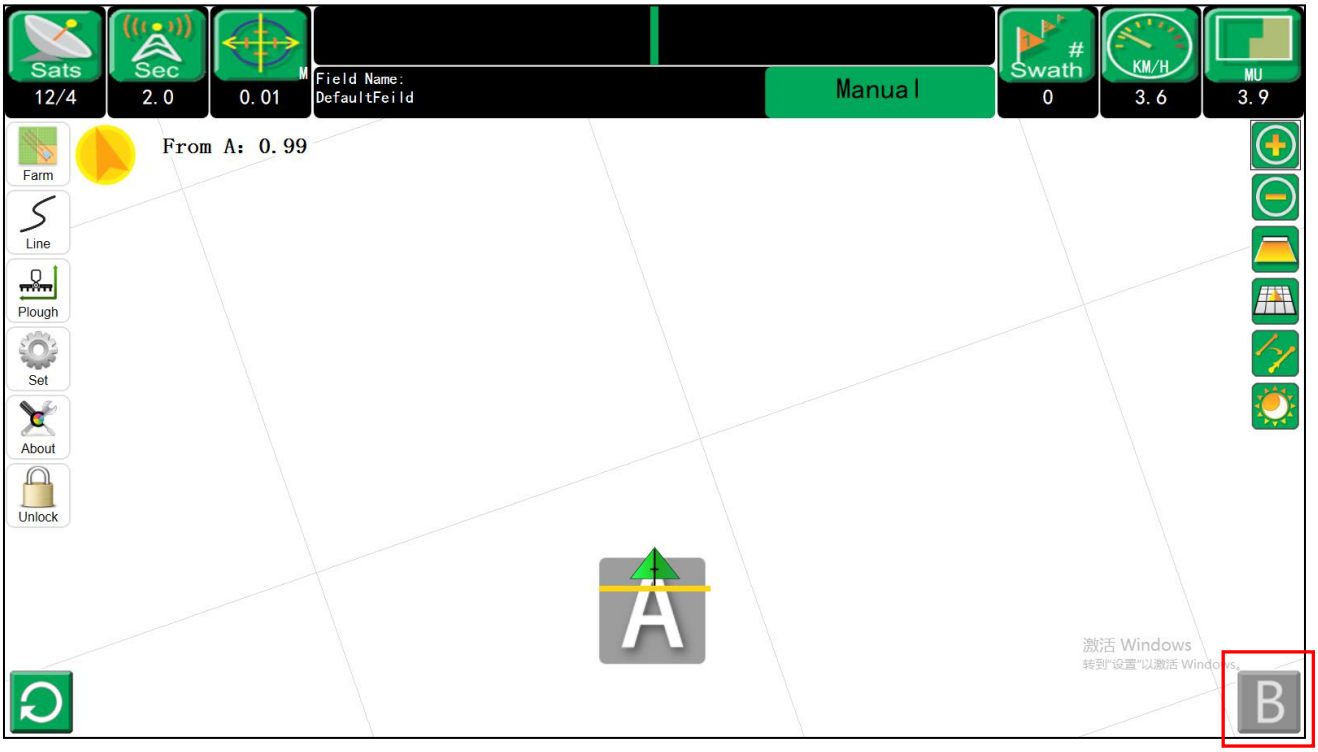
Add a line



OK (note that the Blue box position two options tick)



Set fixed point A



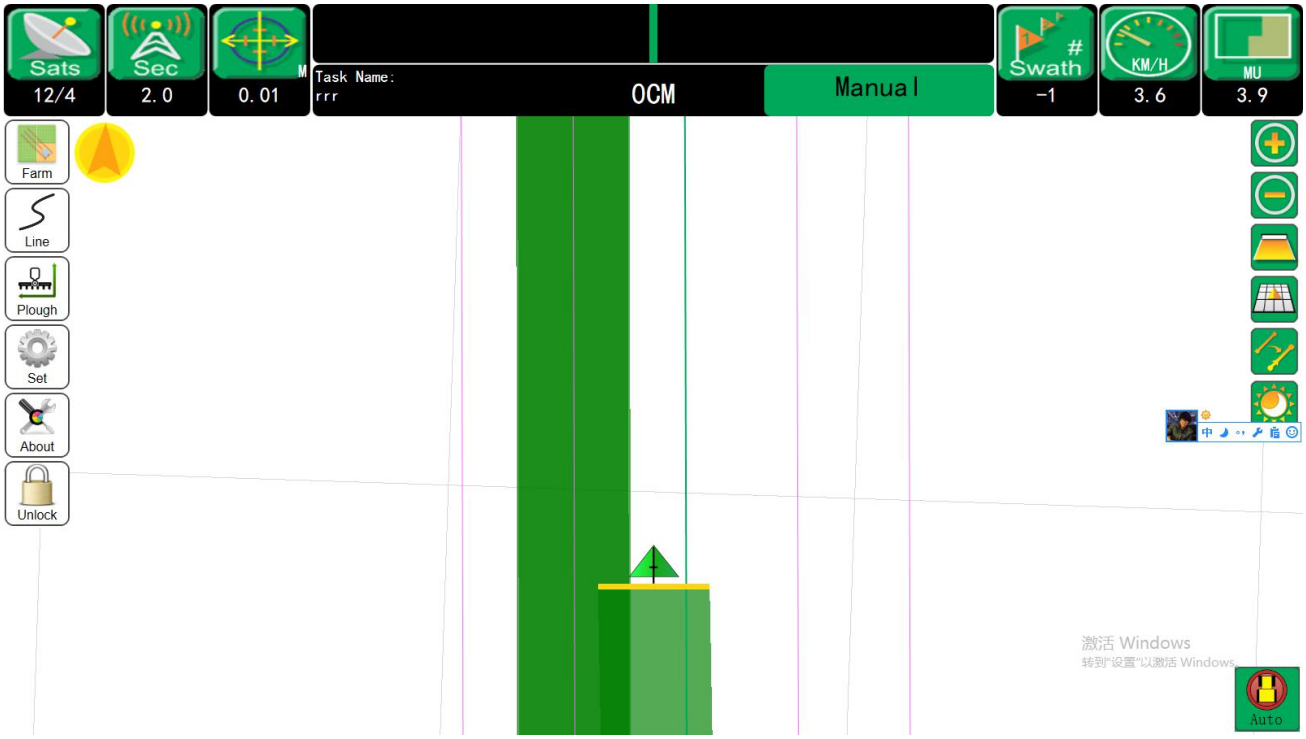
Set fixed point B

C. Automatic driving

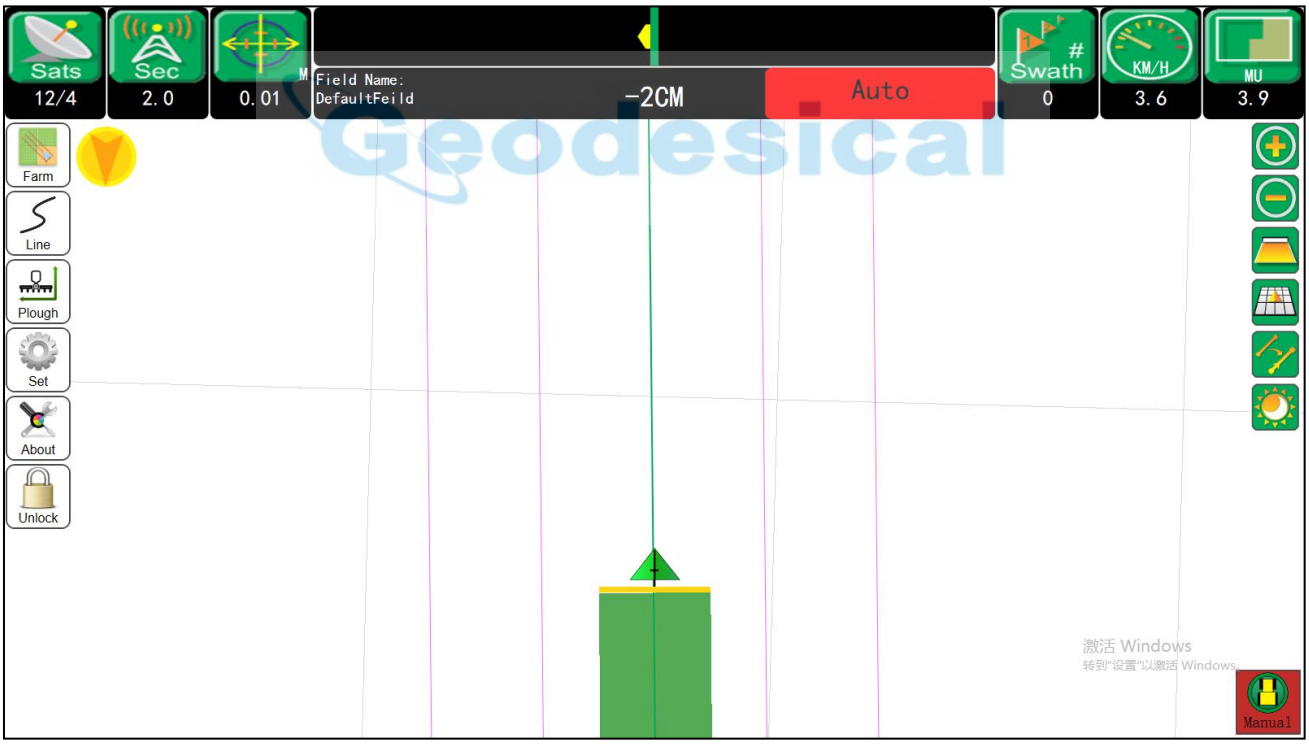
Display on the display "ready" can automatically drive, click on the lower right corner of the green vehicle icon 

or press the switch to light the lights can be driving automatically. When driving automatically, the vehicle icon in the lower right corner turns red 

.



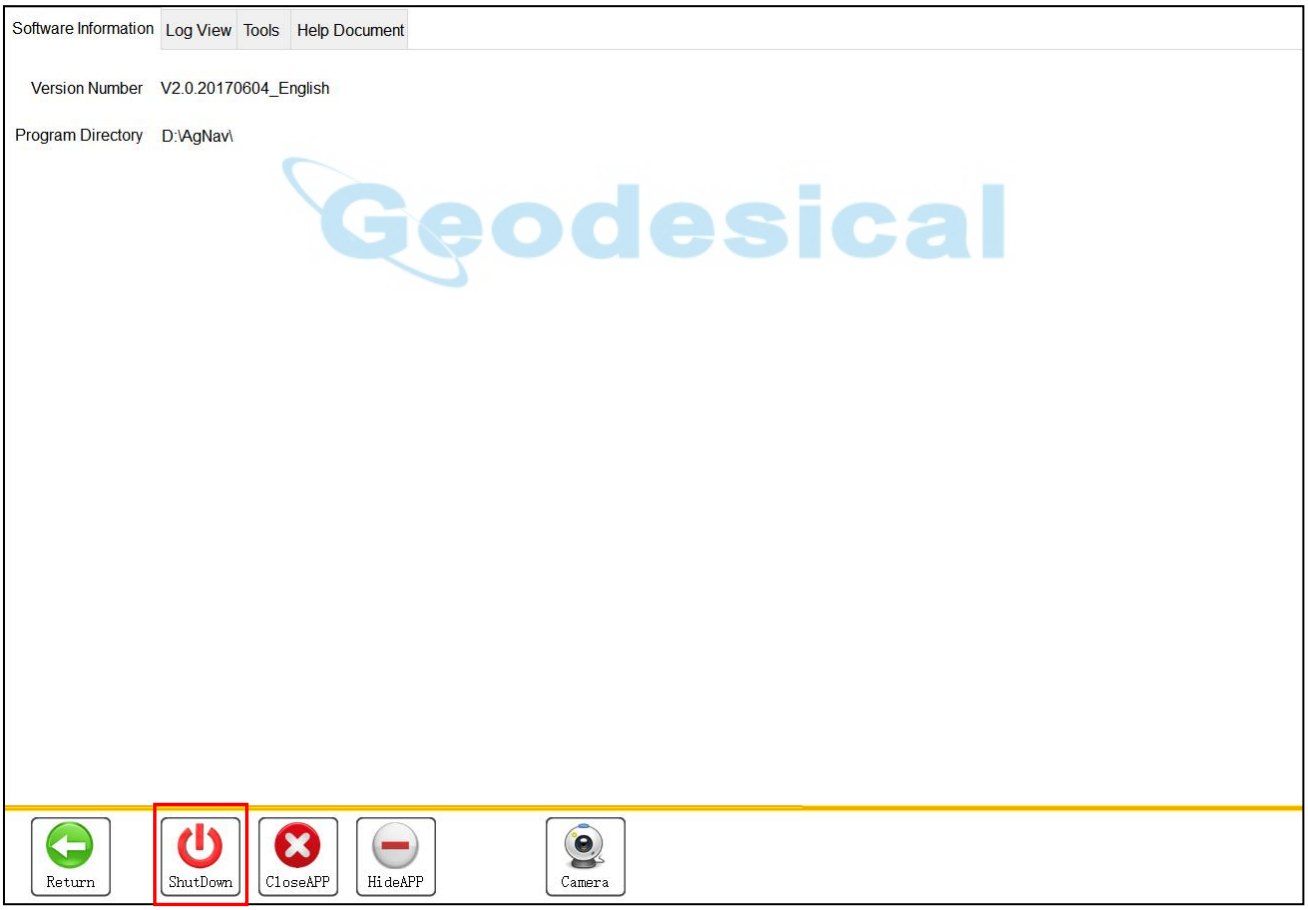
Manual Driving Status



Autopilot status

D. Shutdown

Click on "About"-"shutdown" to turn off the monitor.



The reverse direction of the switch light is pressed, you can turn off the NX200 host (note that some of the warping switch related to the machine protection device).

2 Common functions

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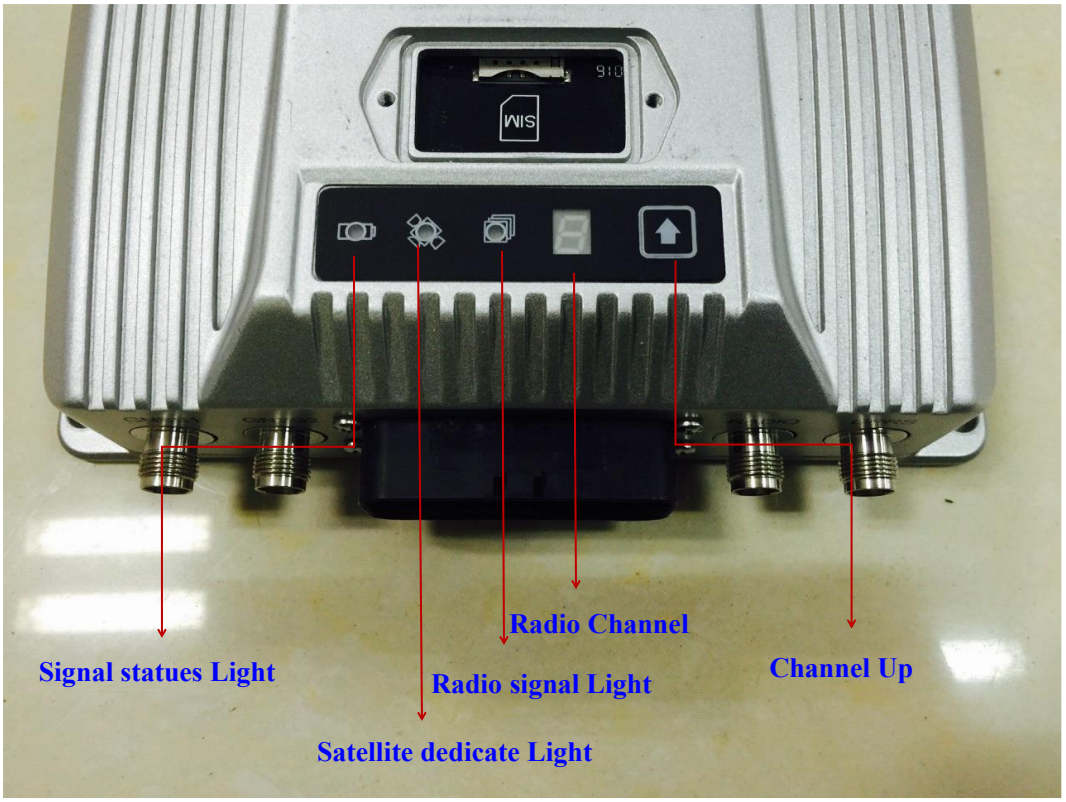
2.1 radio frequency

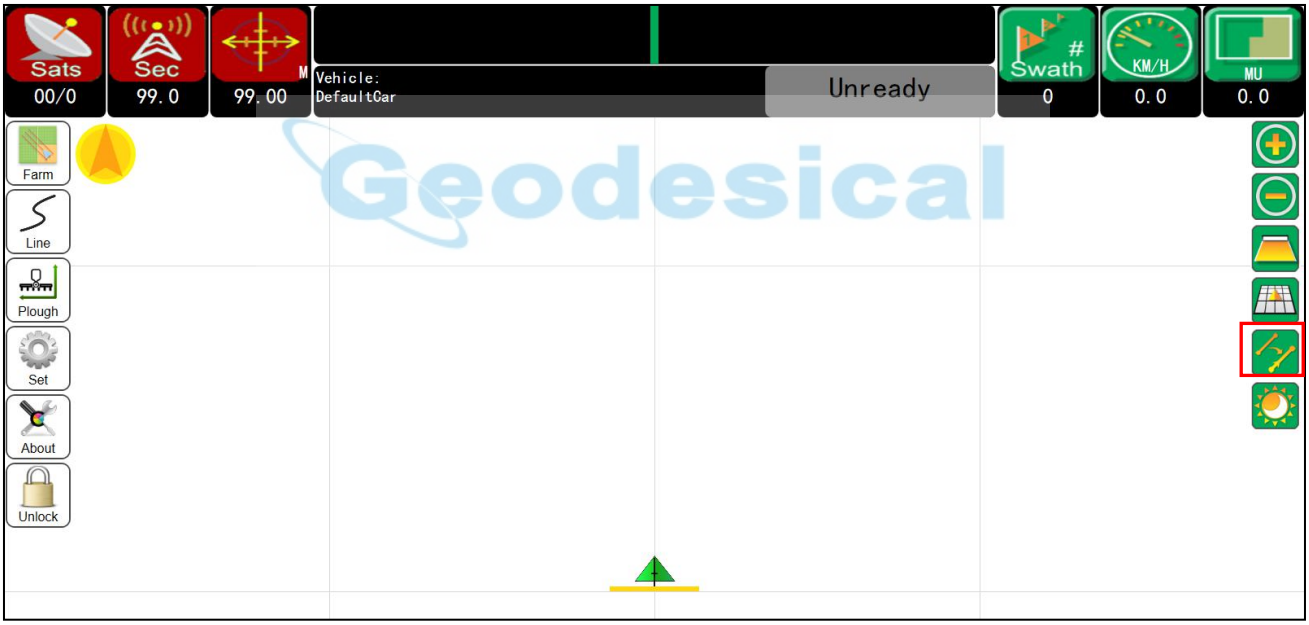


The right button is the FM button, from left to right fourth yellow (the power after the color) light for the radio signal, the yellow lantern flashes several times continuously, then flashes the same number of times every other time, the yellow light flashes several times for several channel base station signal continuously, for example: yellow lamp each paragraph is continuously blinks 5 times, namely is 5 channel base station signal. The right  button is the FM button, each a Times the channel plus 1, for example: Now is the Channel 5, click the FM button, will be changed to channel 6, and then click will be converted to Channel 7, a total of 1-9 of these 9 channels, if the current Channel 9, and then click the FM button, then will jump to the 1 channel, so cycle.

Determine if the channel has been modified correctly by observing the number of consecutive blinking yellow LEDs.

2.2 Line zeroing

Click the button in the red circle below to return the AB line to zero. The AB line will be translated to the current location of the vehicle.



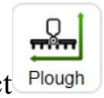
2.3 Transfer Line

Automatic calculation method：

First of all, it is necessary to confirm whether the width of the plow and the width of the combination of the plow and the intersection, that is to enter the plow set the interface (see Use B. Set the farm tools and width to see if the line spacing setting is not 0. If the line spacing is set to 0, use the manual calculation.

The adjustment of the handover line is performed in a non job state. Note that the sampling amount should avoid the beginning of the intersection, and take more than 6 points to take the average, to avoid accidental error.

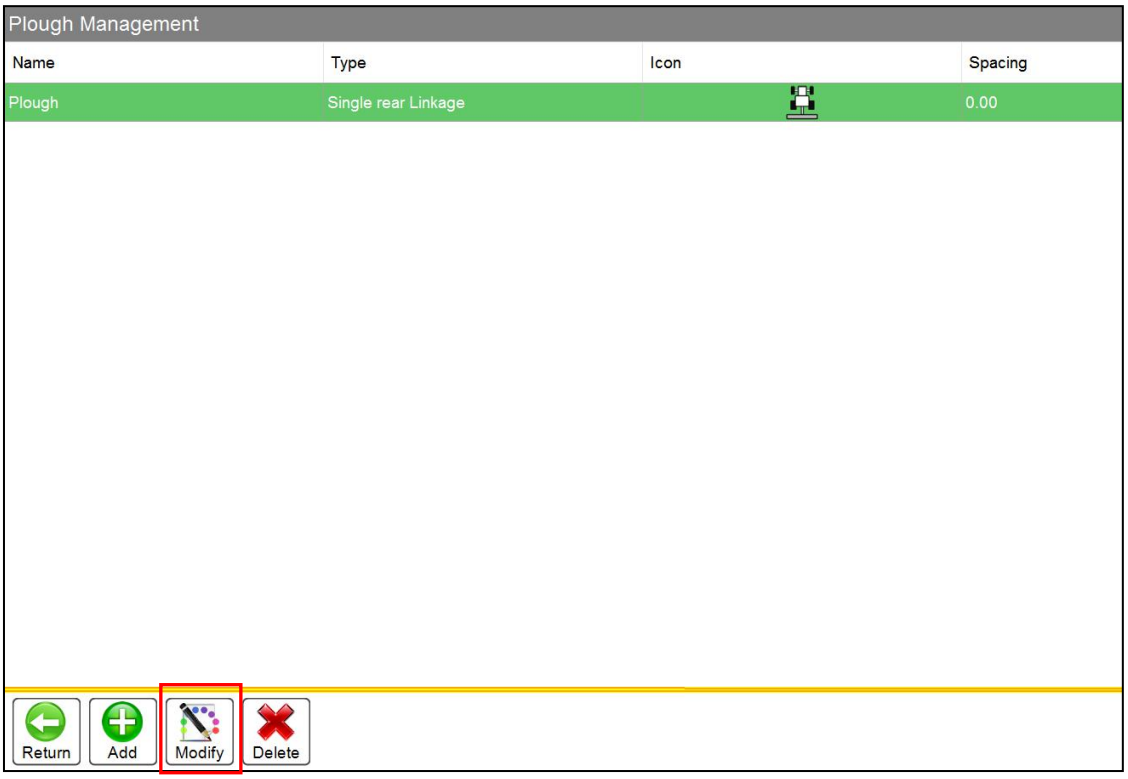
Moving the car forward and the plow to draw the mark, driving around 100 meters, turn and drive forward 100 meters, and then reverse-turn and drive forward 100 meters, straight-line driving process all use automatic driving. Measuring two handover lines, successively for the handover line 1 and Handover line 2, select the first left or right according to the software diagram, and enter the relevant value, click OK after the software can calculate the handover line.

1. Enter the main interface, select 

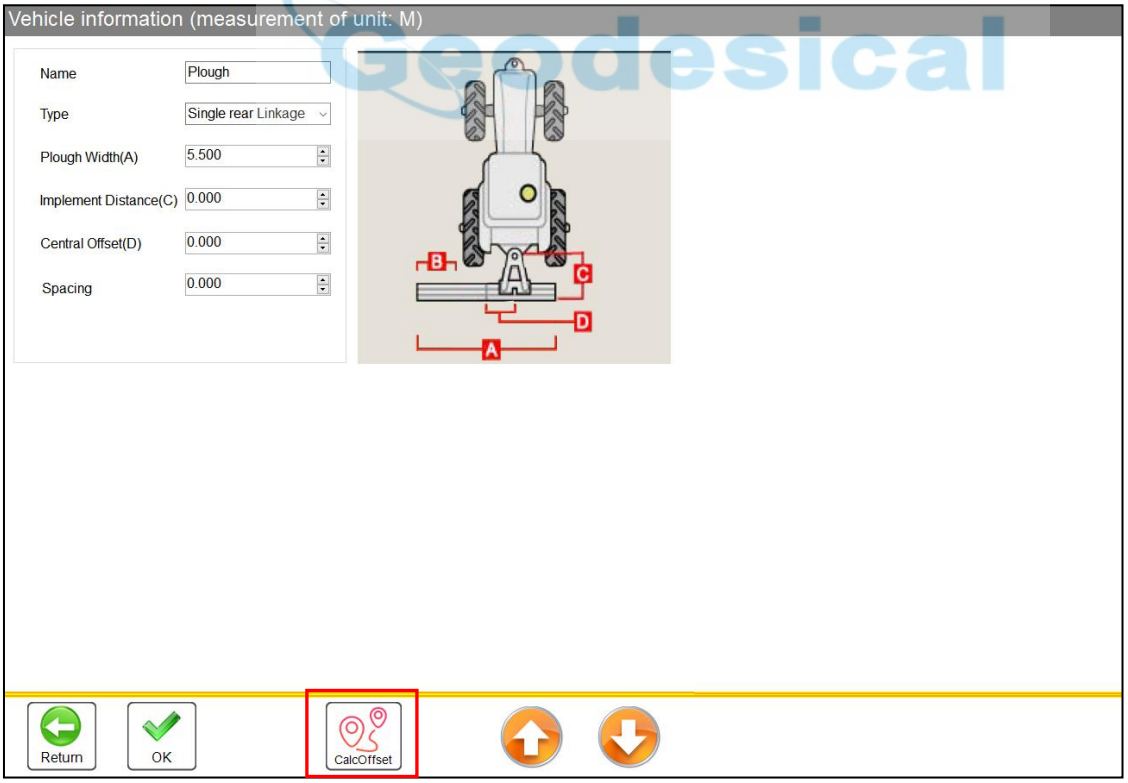
the icon, can enter the management interface of farm tools

2. Click 

, can enter the agricultural tools editing interface



3. Click the calculation offset to enter the automatic computing interface



4. Select the first left or right in the diagram, and enter the relevant value, click OK to complete the automatic calculation.

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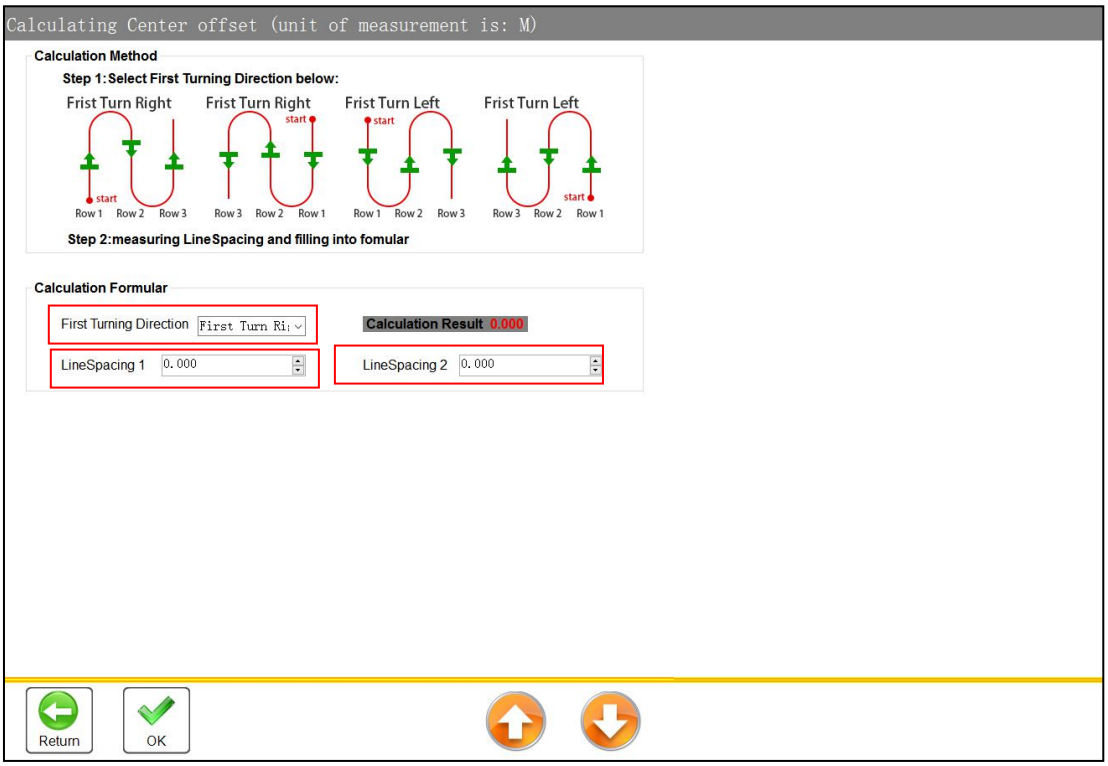


Artificial Computing method:

The adjustment of the handover line is performed in a non job state. Note that the sampling amount should avoid the beginning of the intersection, and take more than 6 points to take the average, to avoid accidental error.

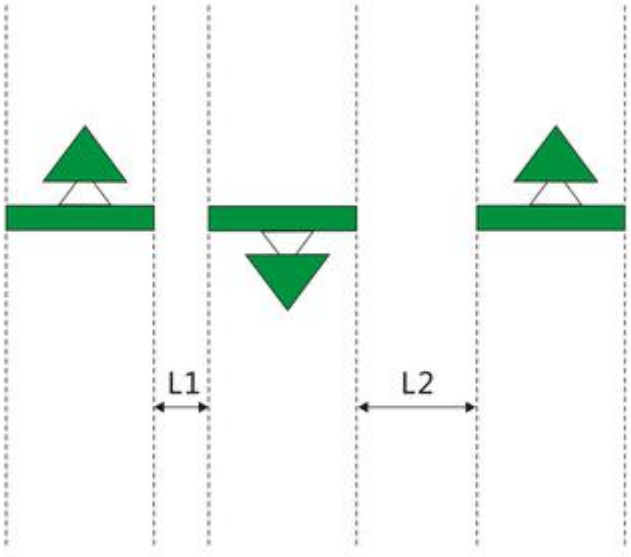
First, measure the width of the farm implements using a tape measure. And according to the actual work needs to carry out the corresponding calculation (such as: seeding work, the width of the work is the actual width of the farm tools plus a ridge of breadth; Ridge work, the working width is the actual breadth of the farm tools), and the width of the actual operating width of the farm tools (see width

Note: Measuring the width of the farm implements a suggestion to measure the marks on the ground.

Second, calculate the farm tool offset value. This value calculation can be calculated using either standard or fast calculation.

Note: The fast calculation method can not correct the effect due to the error caused by the width setting, so it is required to measure the breadth of the farm tools accurately. The standard method of calculation is recommended.

Standard calculation method: The car forward and the plow to draw the mark, driving about 100 meters, right turn around and forward 100 meters, then turn left and drive forward 100 meters, straight-line driving process all use automatic driving. Measurement of two handover lines, respectively, L1 and L2. Subtract the difference between the first junction line (L2) and divide by 4 by using the second junction line (L1), which is the calculated offset (in meters), and retains the positive and negative numbers during the calculation.

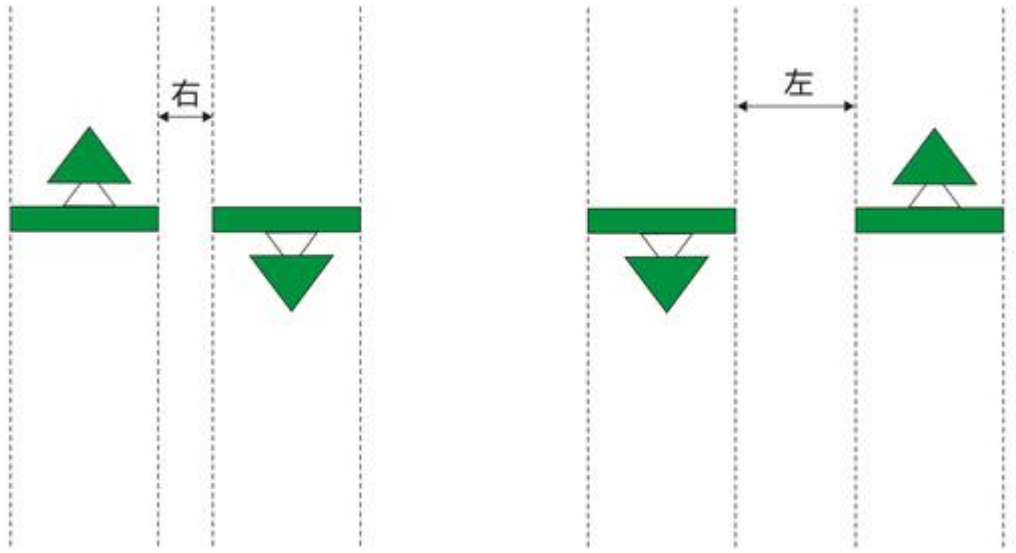


Calculate offset values=（**L2-L1**）÷**4**　　Unit: M

Quick calculation method:

First judge the positive and negative value of the calculation. To the direction of the vehicle forward, if the handover line on the left side of the vehicle, left-hand junction line small for the left side of the farm tools, far right side; if the handover line in the vehicle right, right hand side of the transfer line small for the right side, the left side is negative, the right side Do not use the naked eye to observe farm tools bias! Summary can be summed up as follows: Left small right big negative, left large right small is positive. The current width is measured, and half of the difference between the current handover line and the software required is calculated as the offset value.

Calculates the offset value = ｜ Current width-input width ｜ ÷ 2



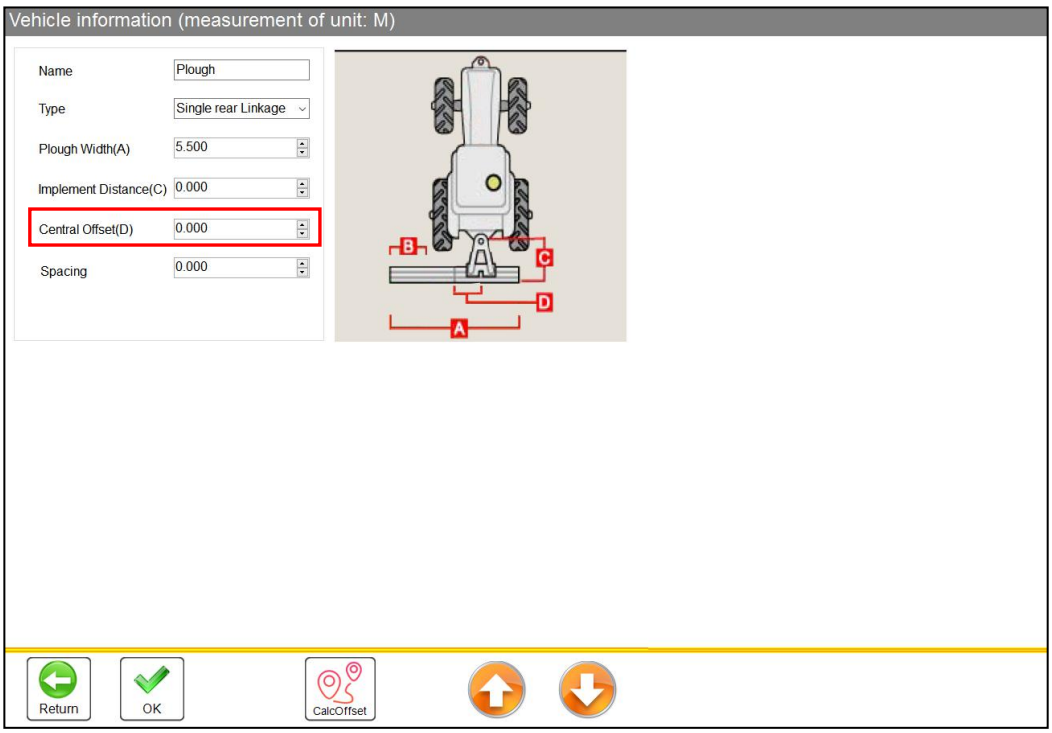
Third, adjust the offset value：

1. Enter the main interface, select 

the icon, can enter the agricultural tools editing interface

1. In the center offset, enter the sum of the current value and the previous calculation offset, and note the positive and negative numbers in the calculation. (that is, the left side of the farm tools is positive, the right side of the farm tools are negative)

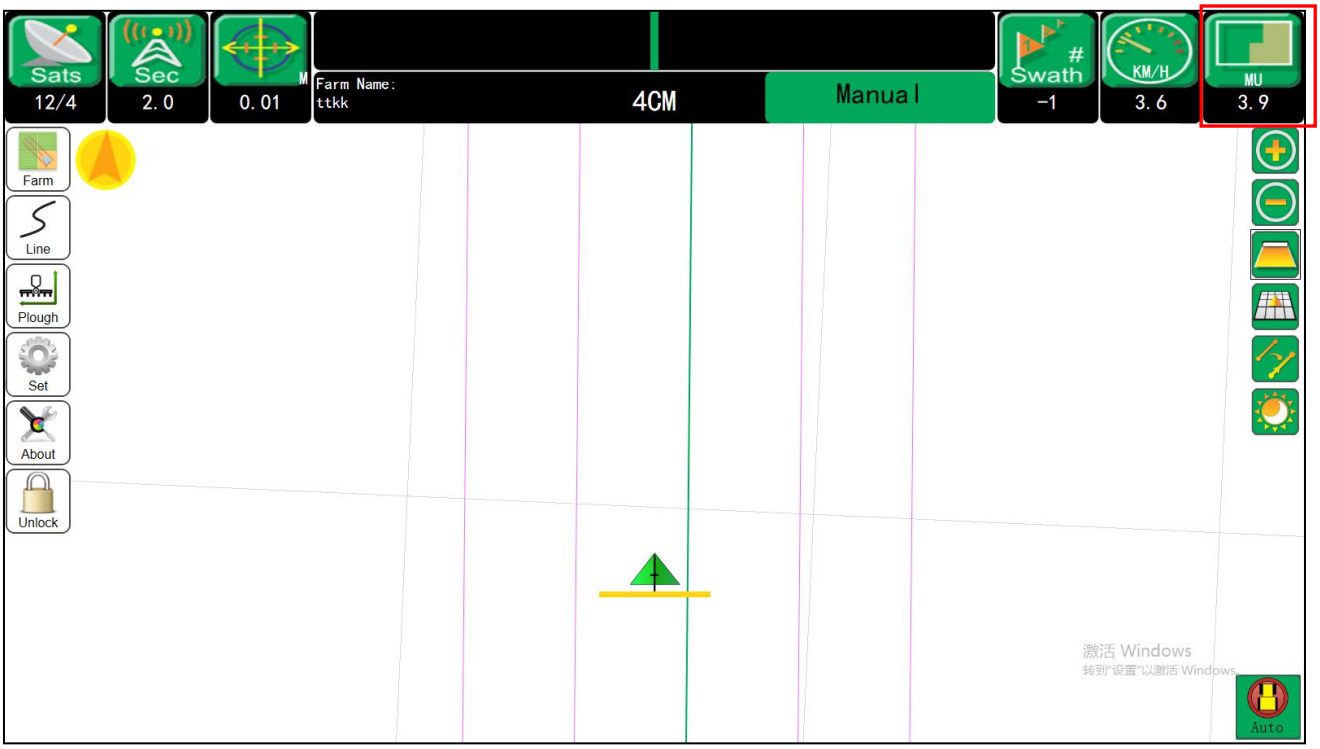
Example: The offset value of the software is 0.02 and the offset value is-0.03, the input value = 0.02 + (-0.03) =-0.01



2.4. Area calculation function

When entering the navigation state, the software automatically begins to calculate the area, stopping the software to calculate the area when the navigation is stopped.

The area is displayed in the upper-right corner of the main interface, and the units are hectares. The following figure:



As shown in the figure 

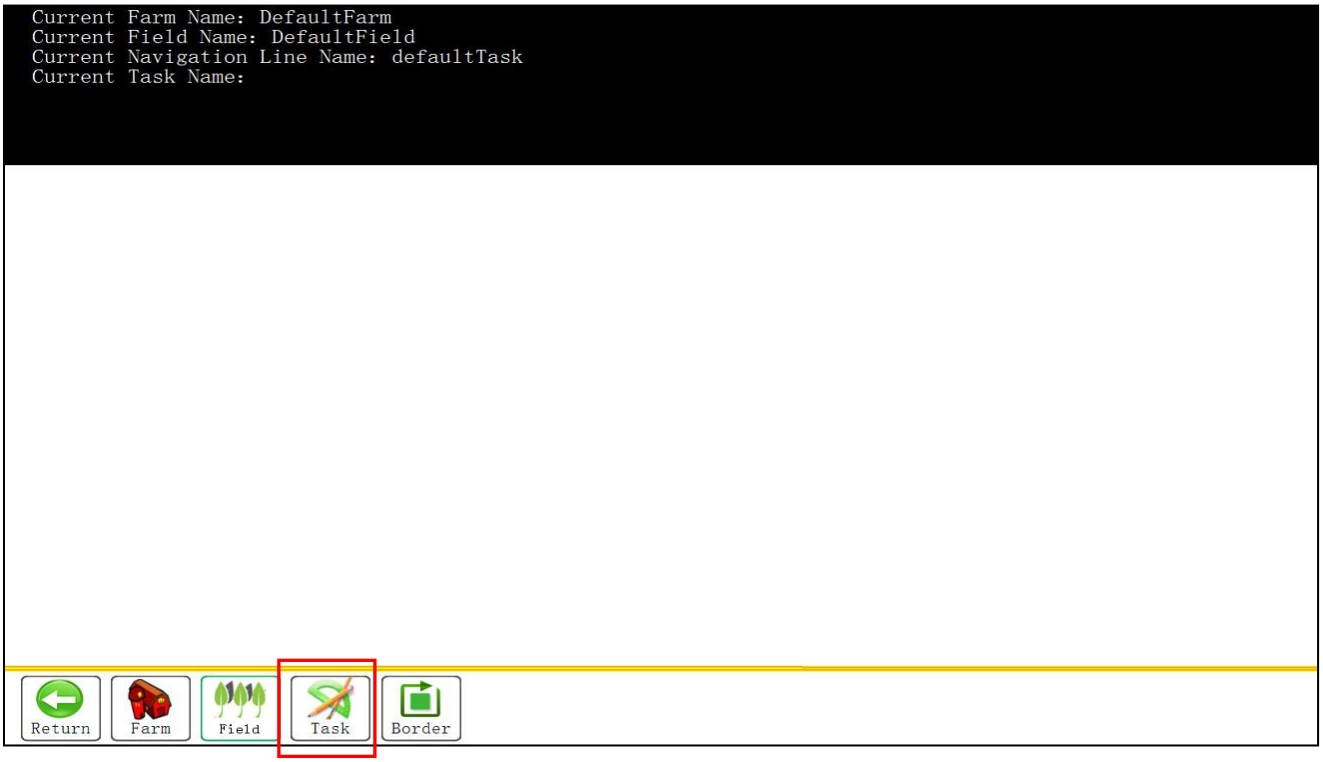
, the area of operation is 3.9hectares.

The area is cumulative, if the change of land after the need to start from scratch to calculate the number of acres, you need to create a new task, the specific steps are as follows：

1. Main interface Click 

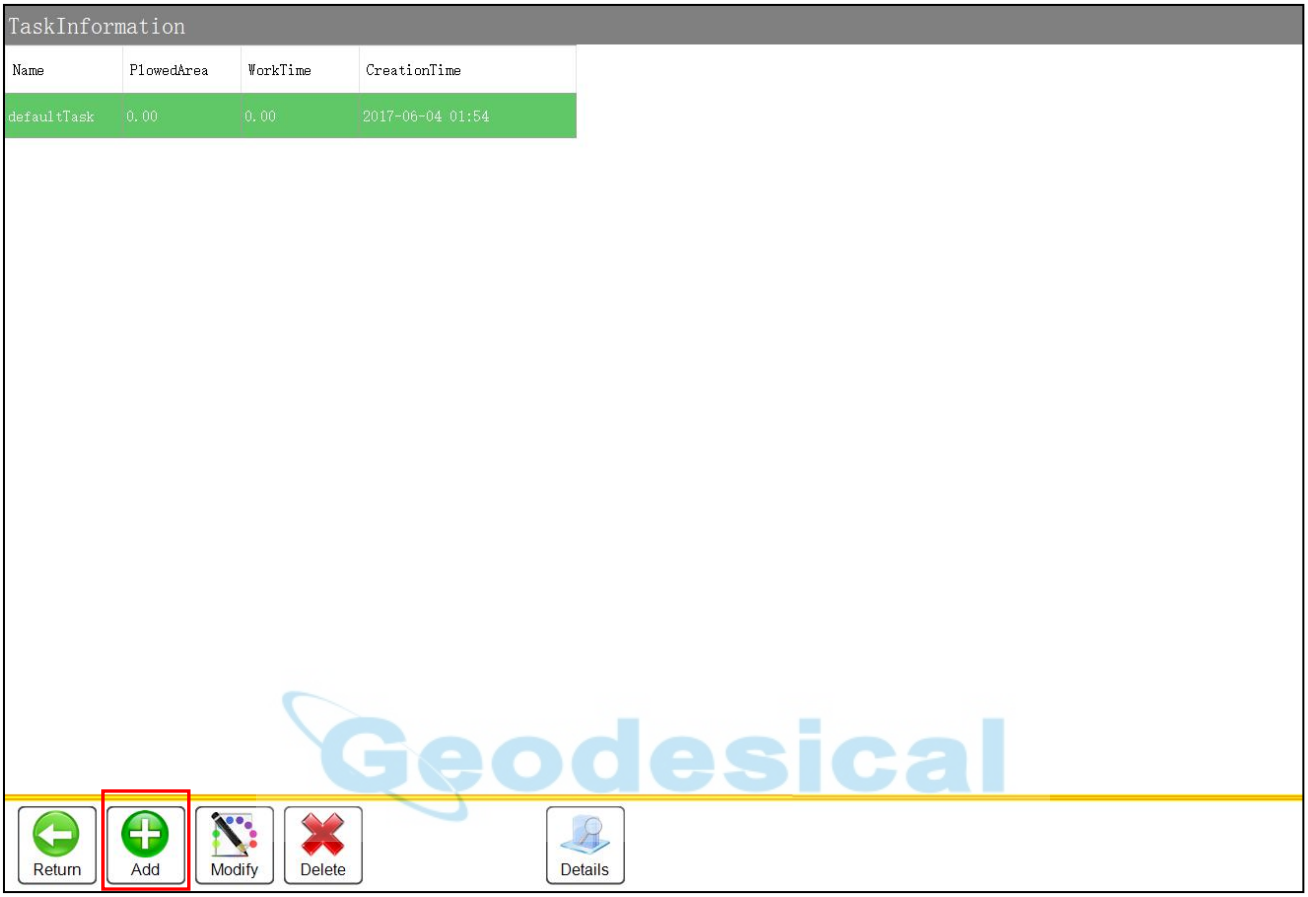
, the following graphic interface

2.click 

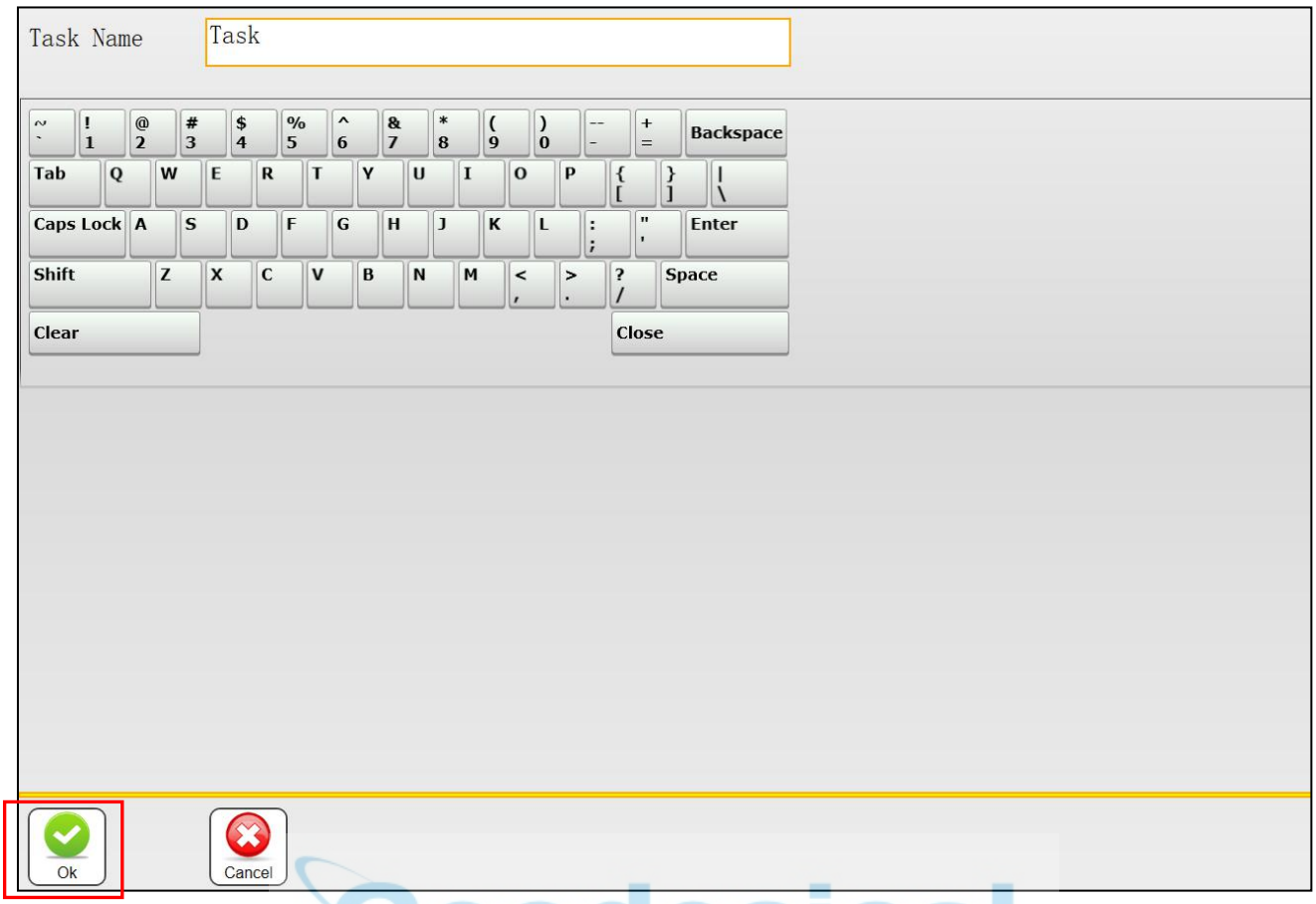


3. Click 

(This interface to see the history of all plots of the area of work)



4. Click OK, the new task is built.



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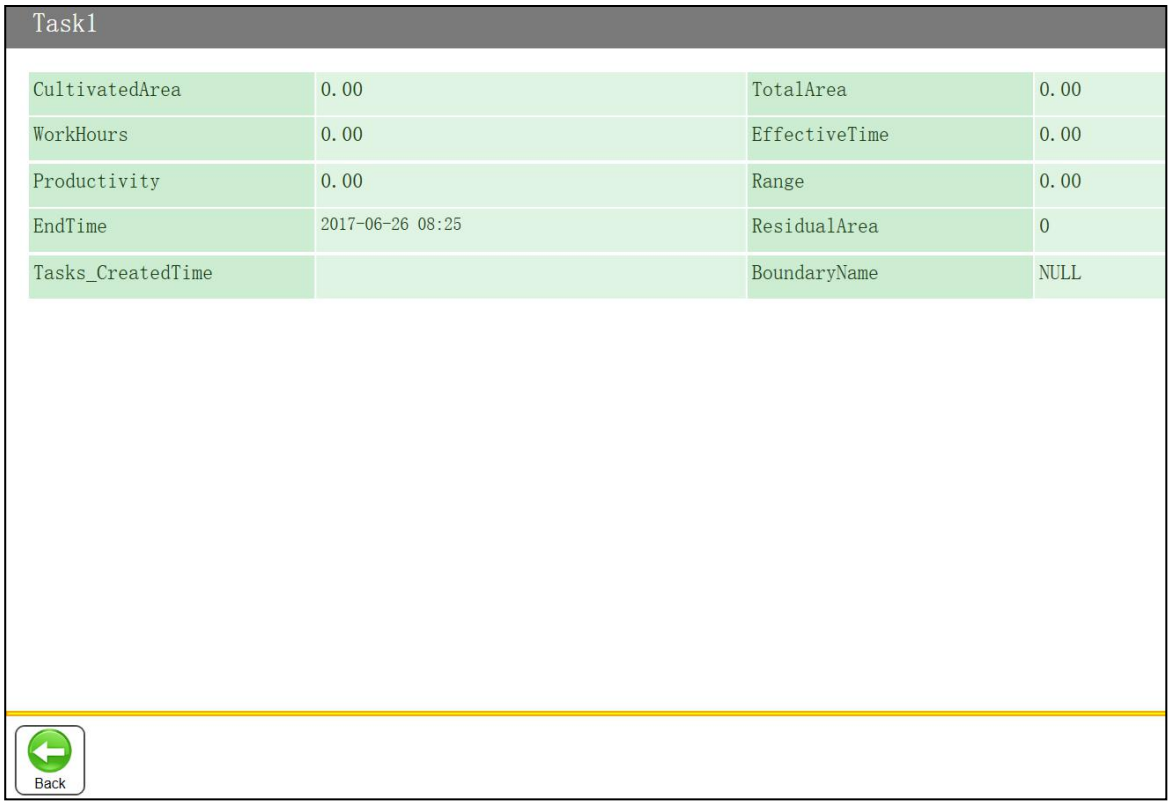
5. Click 

, back to the main interface, the number of acres will be calculated from zero



3. Note

1. According to the different installation mode, the roof mounted antenna will be higher than the original car 11 14cm. Vehicles entering or leaving the garage or driving at a height of 1. Depending on the installation method, the top mounted antenna will be higher than the original car 11 14cm. Vehicles in and out of the garage or at the height of the driving, need to pay attention to the roof equipment safety, to prevent the antenna, cable damage.
2. When the equipment is not used for a long time, disconnect the power cord to prevent battery loss.
3. The use of automatic driving systems is prohibited in non-working hours and in non-operating areas.
4. When the equipment turns on autopilot, the driver is strictly prohibited from leaving the cockpit.
5. In the absence of information input, automatic driving equipment can not detect the path of obstacles or other external conditions, please pay attention to safety and avoid external damage.
6. Equipment in use, the need to pay attention to the cockpit equipment waterproof. The equipment should be protected in the process of vehicle cleaning.
7. No unauthorized disassembly of equipment, in addition to normal operation of the behavior is required to communicate with the company's technical personnel.
8. In strict accordance with the instructions used to prohibit the arbitrary change of software parameters. , should pay attention to the roof equipment safety, to prevent the antenna, cable damage.

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4. Maintenance

In order to ensure the normal operation of equipment and service life, please in strict accordance with the requirements of equipment maintenance and maintenance.
1. Replace the filter cartridge every two years. Regular replacement of filter cartridge can ensure the normal operation of the hydraulic system. Specific filter model please consult the after-sales service personnel.
2. Replace the hydraulic oil after the end of each operating season. The hydraulic oil in the original steering system should be completely eliminated before replacing the hydraulic oil, and the normal brand's steering hydraulic oil should be added again. Pay attention to cleaning during replacement. After the replacement is completed, the front wheel must be rotated many times, the gas in the hydraulic circuit will be discharged.
3. Regular weekly inspection system screws, wiring harness, connectors, such as controller fixed screws, angle sensor fixed screws, data cable connectors, etc., if found loose, fall off, breakage, etc., please fix and deal with in time.
4. Check the tubing and joints regularly every week, if found loose, rupture, leakage, aging and other conditions, please fix or replace in time.

5. No unauthorized dis-assembly system master parts, if necessary, please contact after-sales service personnel in a timely manner.
Please use the instructions strictly.

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Appendix: Mobile Base Station connection schematic

If the fixed base station is used, the Mobile Datum station will not be erected. The diagram below is the schematic of the flow base station.

There are three kinds of work mode for base station: Radio mode, CORS mode and GPRS mode. We suggest you choose our RTK as base such as:

① i80, X91, i70C
② P3E
③ N72

i80 GNSS Receiver

X91+ GNSS Receiver

i70 GNSS Receiver

X900

P3E

N72

Note:

1. When connecting the wiring harness, please note that the red dots on the wiring harness are inserted vertically and not rotated.
2. When disconnecting the wiring harness, clamp the metal part of the joint, gently pull out vertically, do not rotate

When attaching to the battery notice red and positive for avoiding reverse.

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