



Ming Ao Technology

for your independence

MA-RL-MRS

Mechanical lift and swivel seat

(Ultimate Design)



Instructions

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Company Profile

Thank you for choosing our products produced by Shandong Mingao Automobile Technology Co., Ltd. In the daily life travel, we Hope that the company's products will bring you extraordinary freedom, comfort and ease!

The company was established in 2015 and has passed the EU CE quality system certification. It won the Excellent Modification Scheme Award in the Grand Prix Competition in 2020, won the Most Influential Channel Brand of Yasen Exhibition in 2021, and won the eighth in June 2021. Honorary certificate of the Golden Horse Award, won the utility model patent certificate in August 2021, won the AAA level of EU credibility in December 2021, became a member of the Automobile Dealers Chamber of Commerce of the All-China Federation of Industry and Commerce in January 2022, and was elected in June 2022 It is an excellent supplier for government procurement and a leader in China's automotive barrier-free products. It can provide customers with product research and development, production, system debugging and on-site services.

The company has hundreds of well being products serving the 2021 Xi'an Games. During this period, it was recognized by the industry and received much appreciation.

Main products: swivel seats, Wheelchair lifts, passenger seat lift-up model, wheelchair boarding guides, swivel seats, separate electric wheelchairs, assisted driving devices for disabled people, wheelchair fixing devices, seat quick release & fixing devices, wheelchair storage devices, accessible products and etc.

Products are exported to more than 10 countries and regions including Russia, the United States, Turkey, Saudi Arabia, India, Malaysia, Indonesia, Singapore, the Philippines, Thailand, Vietnam, and South Africa.

This manual can guide you how to install and debug the product. During your installation, if you have any questions, please contact us, we will provide you satisfactory solutions on time.

The description in this manual is for reference only. If there is any discrepancy with the product status, please refer to the actual product. If you have any questions about the manual or would like a copy, please contact our company.

Thank you again for choosing us and wish you a happy life!

Version number of this manual: V2.1.

Shandong Mingao Automobile Technology Co., Ltd.

 Company Phone: 400-833-6602  After-sales phone: 18364060737
 Website: www.mingao.top  E-mail: Jonfeng@mingao.top

Address: Zhuoda Industrial Park, Changjiang East Road, Dingtao District, Heze City, Shandong Province

1、 product statement

Mingao Technology guarantees to the original purchaser of the product that it will repair or replace any faulty parts due to material defects or process problems free of charge during the product warranty period, as follows:

1.1 warranty period

- Warranty period: 12 months from the date of delivery by the supplier;
- Repair or replace any faulty parts due to defects in materials or process problem during the warranty period;
- The parts that need to be replaced can be obtained by contacting our company;

1.2 After-sales service

- If there is a problem with the product, please contact our company in time (after-sales phone: 18364060737, 15701182765). Our company will analyze the cause within 24 hours and provide a solution. If the problem is caused by material defects or design, our company will Free parts replacement;
- If you need to repair product parts, please notify in advance and wait patiently. The cost of returning the product must be bear by the customer, Mingao Technology does not accept cash on delivery. Mingao Technology will bear the transportation costs of new maintenance parts or products;
- This warranty does not apply to the following situations: failure damage of product parts due to accident, misuse, lack of proper maintenance, negligence, wrong adjustment, alteration, modification of vehicle mechanical condition, road hazard, overloading, failure to follow operating instructions or natural causes (such as weather, lightning, flood);
- The responsibility of Mingao Technology's guarantee is limited to the repair and replacement of faulty parts during the guarantee period:

Mingao Technology shall not be responsible for the accompanying or consequential expenses or losses.

1.3 Precautions

- Mingao Technology recommends that the product be inspected at least once every six months, and necessary maintenance should be done. For detailed maintenance steps, please refer to the maintenance instructions;
- There are strict specifications for product design and manufacture. Modifications to any aspect of the product are dangerous;
- The warranty will be void if: any changes are made to the original design of the product without the written authorization of Mingao Welfare Technology;
- Mingao Technology is not responsible for any personal injury or property loss caused by the use of modified Mingao Technology products. Without the written authorization of Mingao Technology, no individual or company can change the design of the product.

Notice

Please do not change the design of the product without authorization, otherwise it will directly affect your after-sales service!

2、Product Structure and Labeling

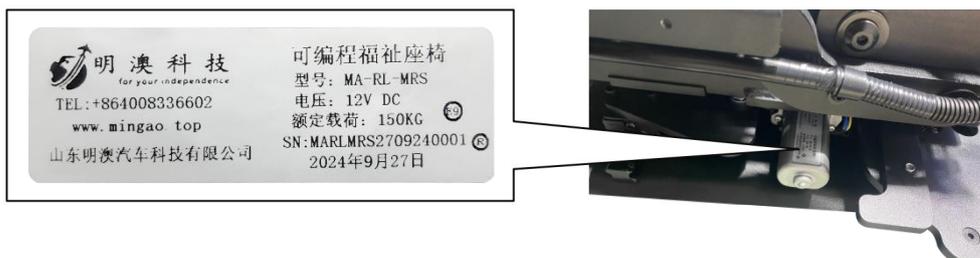


2.1. Product Structure Introduction

Serial number	Name	Describe
1	Mechanism body	Welfare seat mechanism body, can be moved, rotated, and raised and lowered
2	Remote	Can be used for programming, operation, transmission and backup between program and controller
3	Foot Rest	Foldable, for placing the feet

2.2. Product Identification Description

When the product release from the factory, it will have a unique number for identification, and the label will be attached to the top of the rotating motor. As shown in the figure :



3、 Normal operating mode

Notice

In normal operation mode, after the seat is installed, it is rotated in and out and the backrest is adjusted according to the programmed route set by the user; if the product seat selected by the customer does not have the electric backrest adjustment function, the seat back needs to be adjusted manually; be careful not to use the seat on a slope.

3.4. Remote Screen Icons Overview

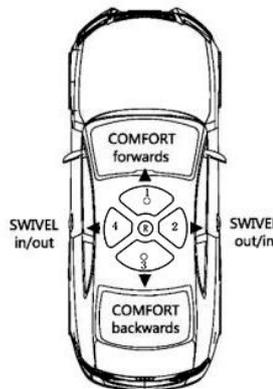
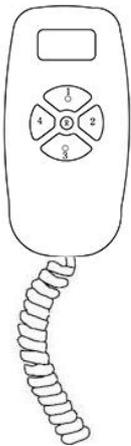


Door control indicator icon: when the door is open, this icon will be displayed and can be operated normally. When this icon disappears, it means that the door has been closed and the seat cannot be rotated out.

3.4. Description of Remote Buttons

Notice

The button have the operation mode of pressing and stopping; When the button is operable, the corresponding button indicator light will be green; In this manual, the right-handed seat is used as a reference for description, and the actions of keys 2 and 4 of the left-handed mechanism are reversed.



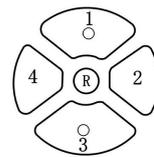
When the door is opened:

2: Swivel out the seat 4: Screw in the seat

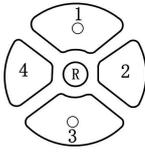
When the doors are closed:

1: Move the seat forward 2: Inoperable

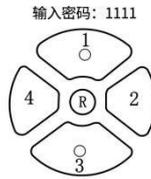
3: Move the seat back 4: Inoperate



3.3. Switch Chinese and English



Hold down the "R" key for 5 seconds

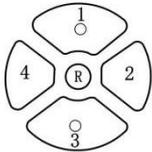


After jumping out of the input password interface, enter: 1111

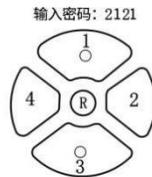


It will automatically jump into the English interface as shown in the figure

3.4. Switch to one-button automatic rising and falling mode



Hold down the "R" key for 5 seconds



After jumping out of the input password interface, enter: 2121

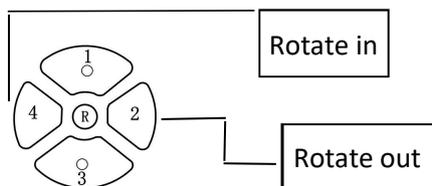


Switch successfully, return to the main interface

- Click the "2" button once, and the mechanism will automatically rotate and descend to the outside of the vehicle according to the programmed steps;
- Click the "4" button once, and the mechanism will automatically rise and retract to the inside of the vehicle according to the programmed steps;

3.4. Screwing in and out

- When the wheelchair is rotated out, the wheelchair will run according to the preset programming route, and the wheelchair forward and backward movement and backrest functions can be used at this time;
- When the wheelchair is rotated in, it will execute the reverse procedure to rotate in. When the wheelchair is fully rotated in, it will automatically restore the backrest position and front and back position before the last rotation out procedure (i.e. automatically return to the user-defined "comfort position").



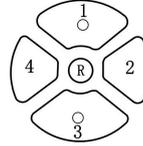
Notice

This function requires the door to be open, otherwise the swing-out and swing-in functions can not be use.

3.6. Adjusting the seat forward and backward

- This function will be disabled when the seat starts the rotation in and out procedure;
- The user can only adjust the front and rear position of the seat after the seat is fully rotated in:

Button 1 moves the seat forward;
Button 3 moves the seat backwards.



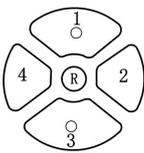
3.7. Manual operation mode

The user can use the remote to enter the manual operation mode.

The manual operation mode has two main functions:

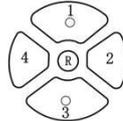
- In an emergency, you can manually operate every movement of the seat, and the seat will no longer run along the designated route;
- In an emergency, when the seat program is effected, manually operating the seat to return to the programming position can re-correct the seat program;
- If the user needs to reprogram the seat path, the manual mode must also be used to return the seat to the programming position.

3.7.1 How to enter manual mode

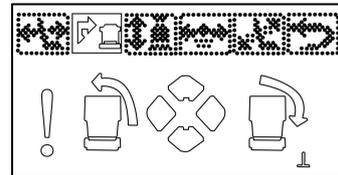


Hold down the "R" key
for 5 seconds

输入密码: 1112

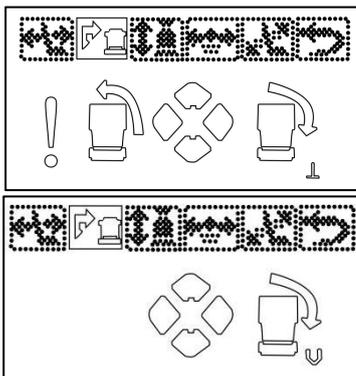


After jumping out of the input
password interface, enter: 1112



Manual mode main interface

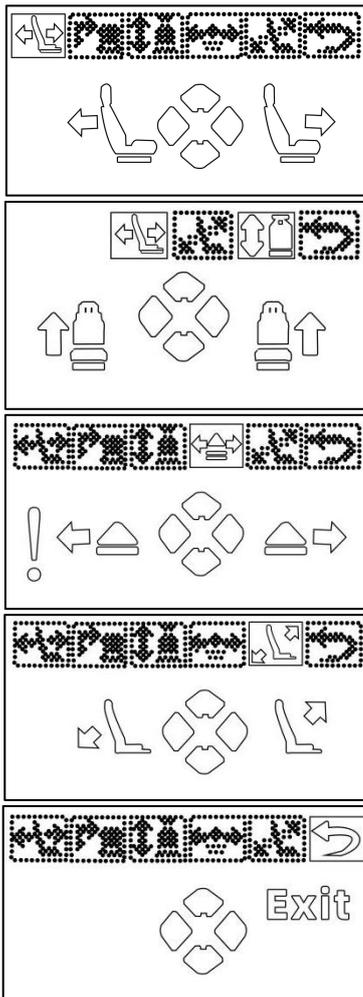
3.7.2 Menu in manual mode



6 menu interfaces, buttons 1 and 3 can switch menu

Seat rotation

"2" key, the seat rotates out; "4" key, the seat rotates in;



Seat front and rear adjustment

"2" key, the seat moves forward; "4" key, the seat moves backward;

Seat lift motor extension and retraction

"2" key, seat extension; "4" key, seat retraction; note that in this mode, when extending, the translation motor should be extended first, and then the lift motor; when retracting, the lift motor should be retracted first, and then the translation motor;

(This operation process should be strictly performed in the above order, otherwise it will affect the normal use of the mechanism)

Upper translation motor extension and retraction

Press the "2" key to extend; press "4" to retract. The icon will turn gray when the program completes;

Seat back adjustment

"2" button, backrest tilts forward; "4" button, backrest tilts backward;

Exit directly

Operate each movement of the seat independently, and return the seat to the programmed position in manual mode and calibrate it before exiting;

3.7.3 Use manual mode in emergency

For example, when using the manual mode to operate the seat by itself, the seat will deviate from the original programmed route. The important thing to do is to return the seat to the programmed position and calibrate in manual mode.

3.7.4 Use manual mode to calibrate the seat

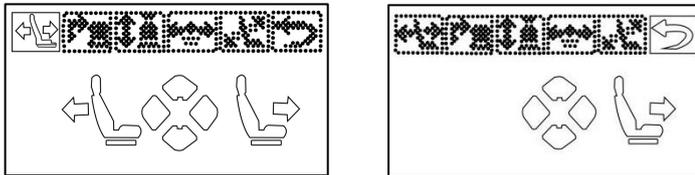
If the following situations occur, the user needs to use manual mode to calibrate the seat:

- Motor replacement or other parts replacement;
- Route confusion caused by motor encoder failure;

To calibrate the seat in manual mode, follow these steps:

- First, make sure the seat is fully retracted and fixed into the vehicle (refer to Chapter 3.7.2 to manually fixed the seat back into the vehicle)

- Next, move the seat backward until the backward movement motor overcurrent protection appears on the interface (refer to Chapter 3.7.2):
- Finally, exit the manual mode directly (at this time, the Remote button lights are all off and the backrest automatically tilts forward for corrected)
- If the programming position mark ← appears in the lower left corner of the screen, it means the calibration is successful.

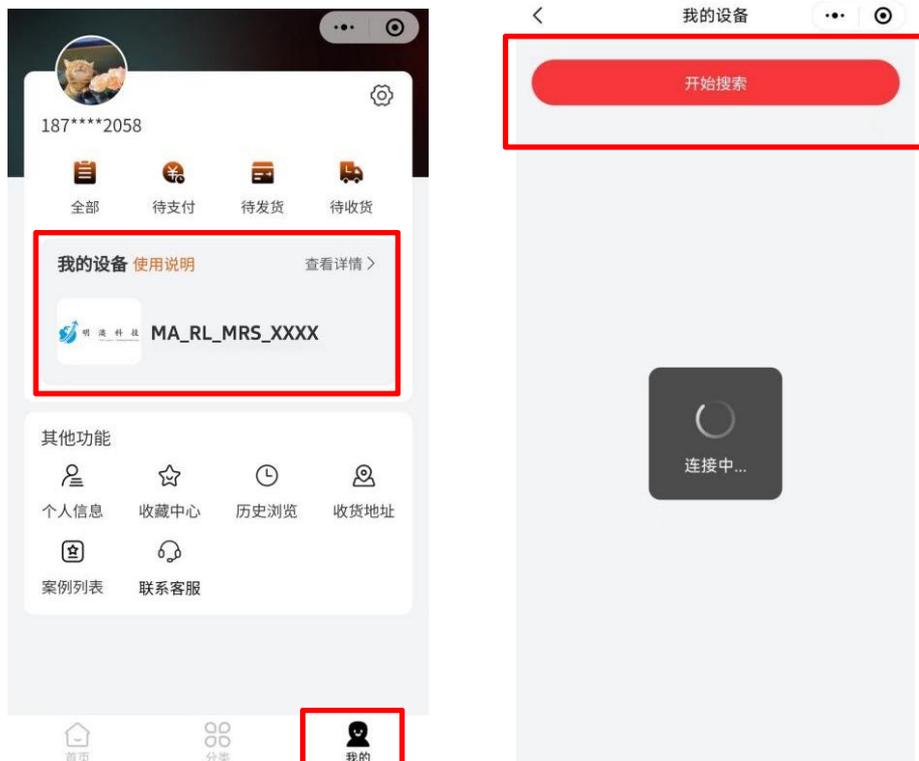


3.8. How to operate the wireless remote control via mobile phone

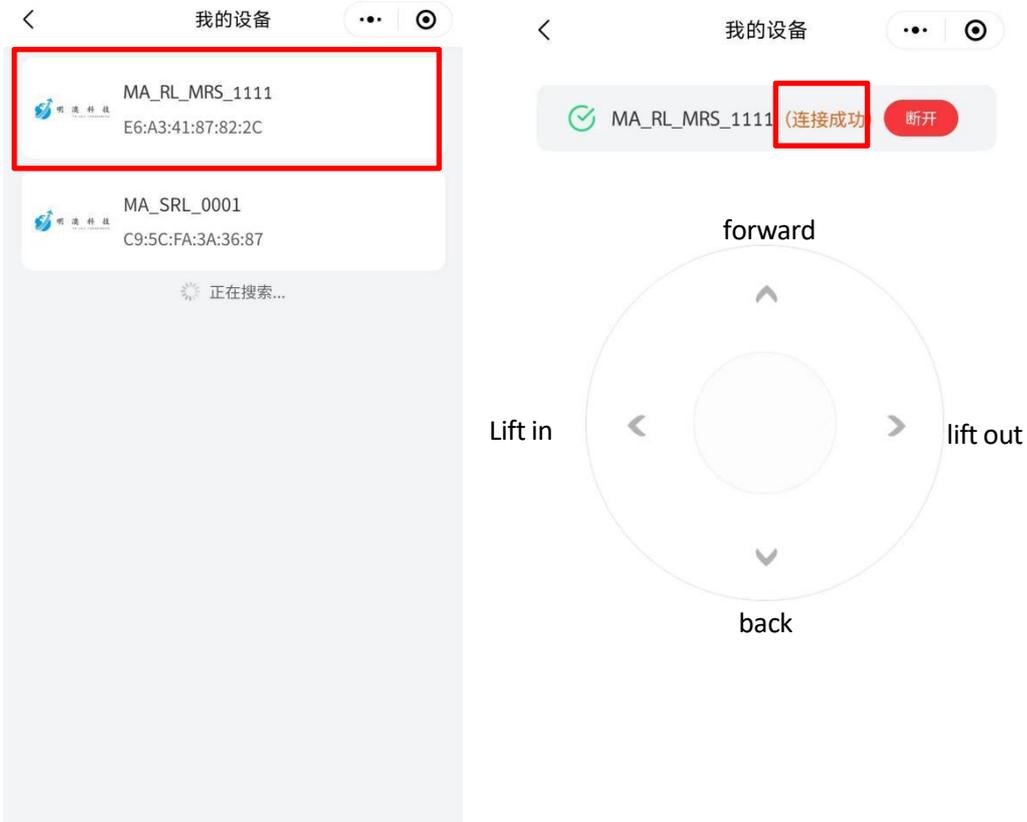
- Enter the WeChat app and search for "Ming Ao Welfare Technology";



- First turn on the Bluetooth of your phone, then click "My" - "My Device" – "Search"



- In the "My Devices" list, click "MA_RL_MRS_XXXX" ("XXXX" is the last 6 digits of the SN code of the Mingao device). If the connection is successful, press the button on the display to use the mobile phone to wirelessly control the seat:



4、Hibernation mode

- Door control icon on the remote screen when car door is closed  will disappear;
- When the door is closed and the seat is not adjusted, the seat will automatically enter sleep mode and maintain low power consumption after 30 seconds;
- Pressing the buttons on both sides of the seat will immediately starts the seat system. If there is no action within 30 seconds, it will enter low power sleep mode again.

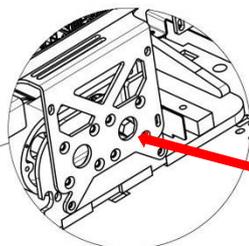
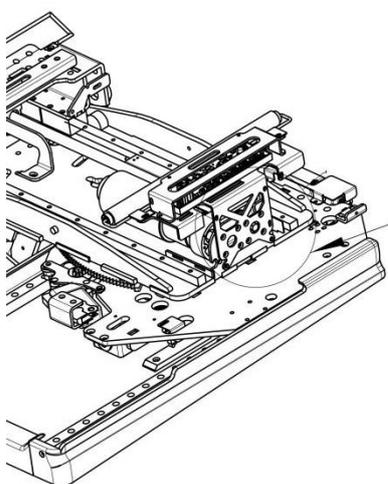
5、 Manual emergency operation

Notice

When the seat is unscrewed out of the vehicle, if the vehicle or the electrical Components of the seat fail suddenly, the seat can be retracted into the vehicle through manual emergency operation; When this happens, the vehicle need to be under maintenance to avoid further serious incidents.

When this product provides temporary manual emergency operation, it needs to operate 4 mechanisms to achieve:

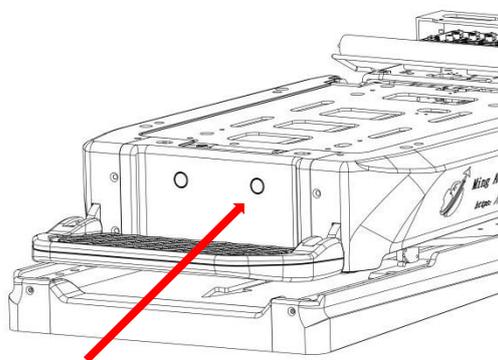
5.1. Lowering and lifting of the mechanism



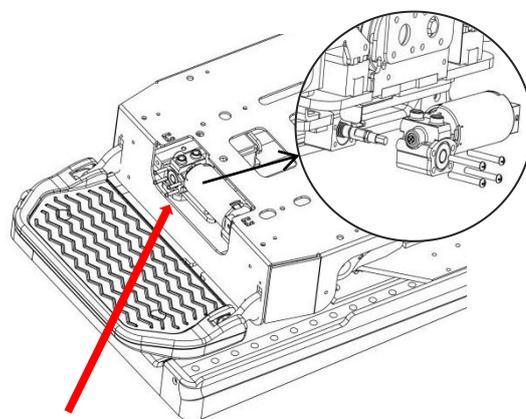
Install a 17mm socket on the quick wrench and insert it into the rotating shaft at the tail of the lifting motor:

Rotate clockwise, the mechanism moves backward and lifts; Rotate counterclockwise, the mechanism moves forward and lowers.

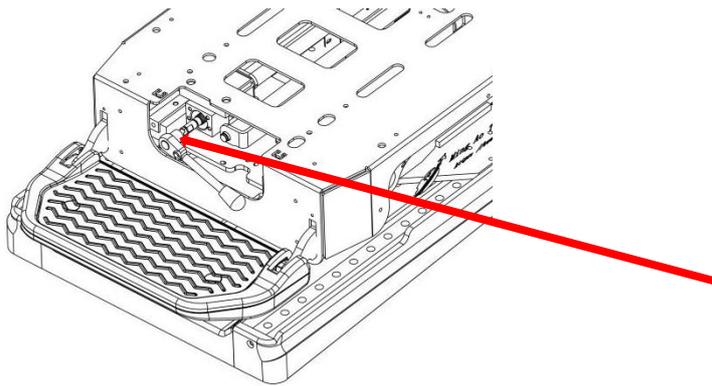
5.2. The upper layer moves forward and backward



Step 1: Remove the front motor cover before adjustment



Step 2: Remove the 4 screws on the motor and remove the motor

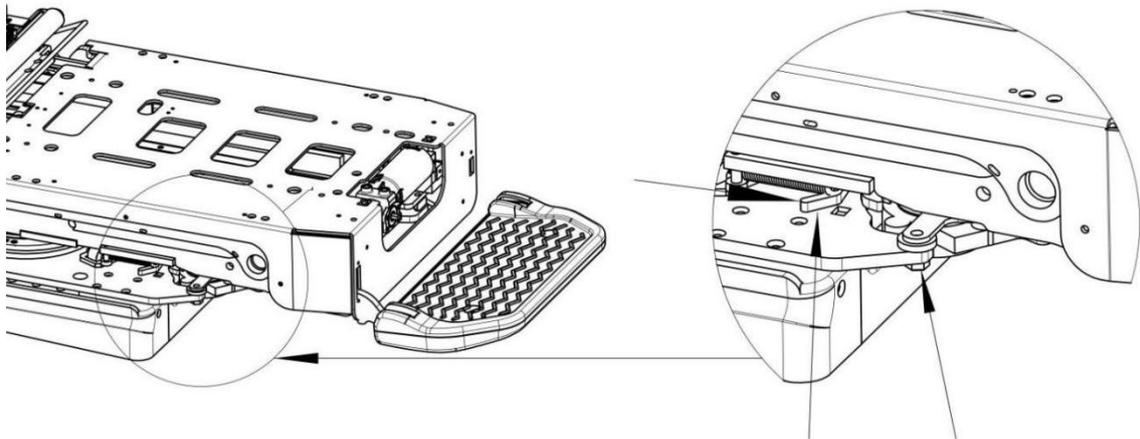


⚠ Note: Manual emergency adjustment, when this layer is shifted, be sure to take out the motor first, otherwise direct rotation will damage the internal parts of the motor.

Step 3, install the 6mm sleeve on the quick wrench and insert the rotating shaft at the tail of the translation motor:

Rotate clockwise, the upper structure moves backward; rotate counterclockwise, the upper structure moves forward

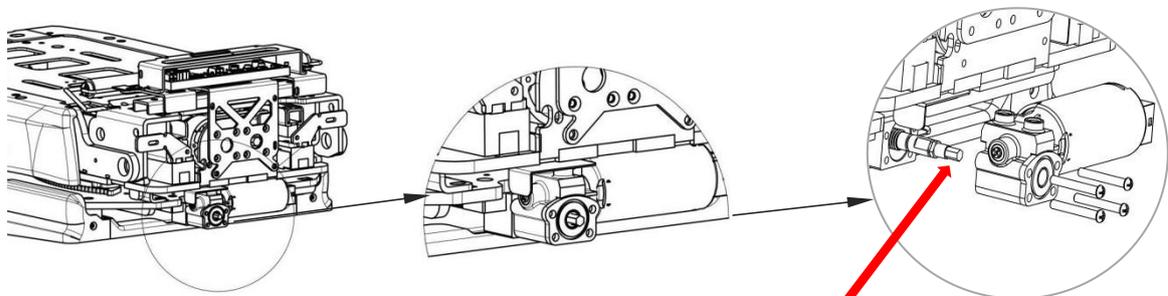
5.3. Rotation of the mechanism



Step 1: Move vertically to the front end, then remove the bottom screw with a 12mm wrench, and then rotate the motor to disengage the rotating motor gear.

Step 2: Push the unlocking handle (built-in rotating lock device) forward in the direction of the arrow and rotate it manually to unlock

5.4. The bottom mechanism moves forward and backward



Before adjustment, you need to remove the 4 M5 screws on the motor. After removing the motor, install the 6 mm socket on the quick wrench and insert it into the rotating shaft at the tail of the motor: rotate clockwise to move the mechanism forward; rotate counterclockwise to move the mechanism backward.

⚠ Note: Manual emergency adjustment, when this layer is shifted, be sure to take out the motor first, otherwise direct rotation will damage the internal parts of the motor.

6、 Daily maintenance

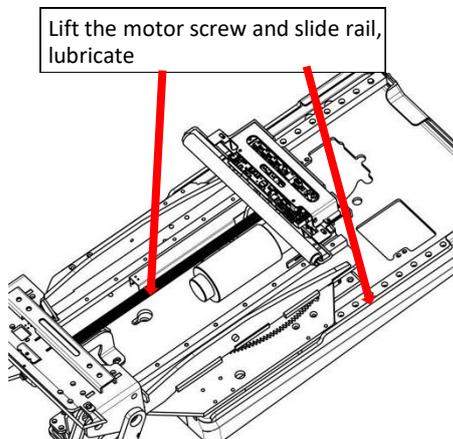
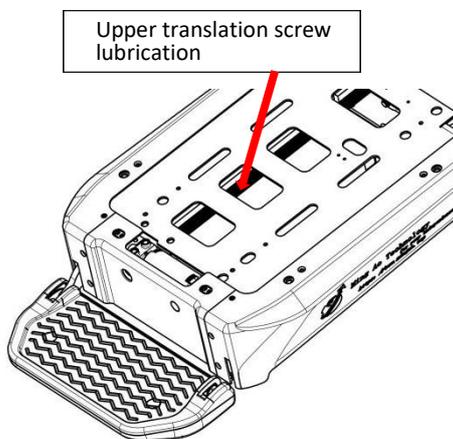
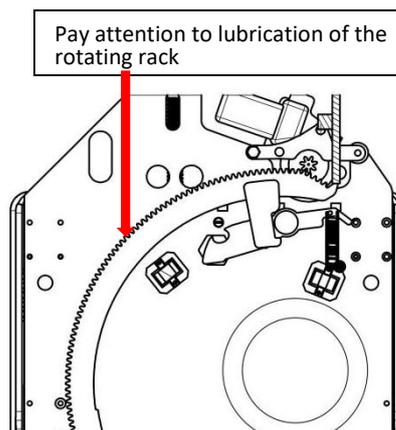
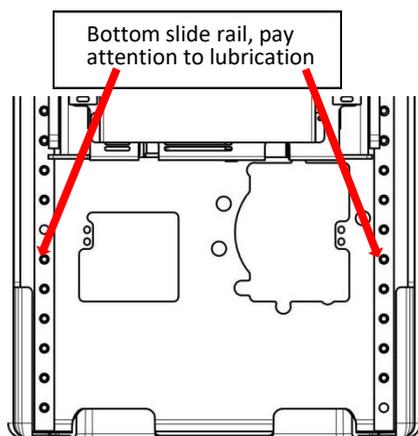
Notice

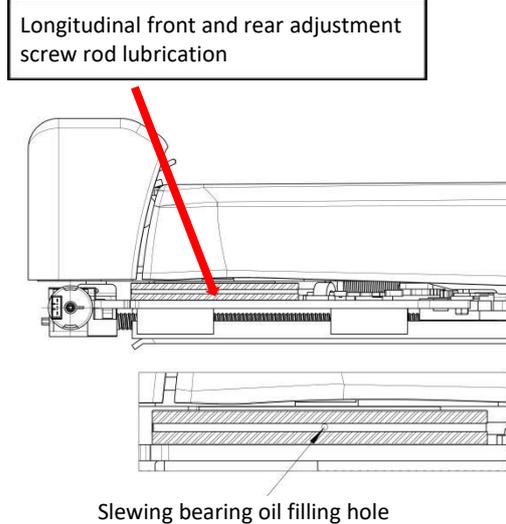
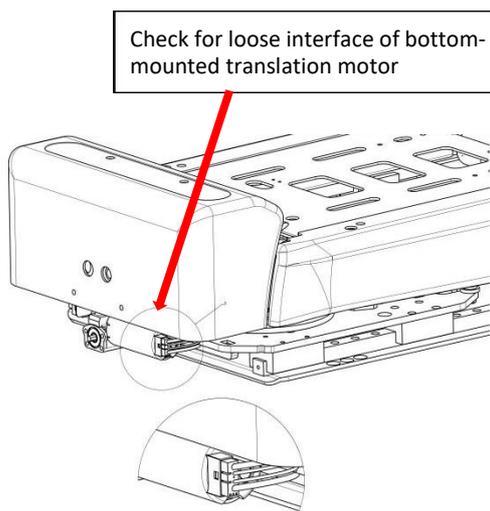
Regular maintenance of the seat will maximize the performance of the product and reduce unnecessary repairs.

The seat products should be cleaned and maintained regularly to prevent the dirt in the car from falling into the seat mechanism, causing jamming and damage to the mechanism. It is recommended to clean and maintain at least once a month.

6.1. Wheelchair maintenance

The daily maintenance of the seat mechanism is mainly reflected in the lubrication of the mechanism, and checking whether each connection point and harness interface is loose or falling off. It is recommended to lubricate and inspect at least once every 6 months. The lubrication and inspection points include the following:





7、Fault diagnosis and troubleshooting

Notice

When the wheelchair fails, the fault code will be displayed on the screen of the remote. Technical service or users can diagnose and repair the fault point based on the information.

7. 1. Transmission error

This message indicates a loss of connection between the remote and the seating system.

Possible cause: The wiring between the mechanism and the remote is disconnected, and the controller is faulty.

How to repair: Check whether the wiring is damaged, or try to replace the controller. After repairing, this fault message will disappear automatically.



7. 2. Motor current protect

This message indicates that the running current of the motor exceeds the set limit. The interface will display the current running motor and running direction

➤ Rotating motor overcurrent protection (including get in and get off)



➤ Rising and falling motor overcurrent protection (including rising and falling)



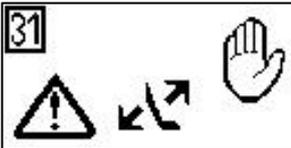
Possible reasons: The motor is blocked by an obstacle, the seat is locked, or the motor is short-circuited, or the encoder is wrong.

How to fix it: Remove obstacles check the seat lock status, re-enter manual mode for correction (refer to Chapter 3.7), and check if the motor wire is damaged.

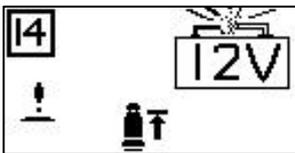
- Longitudinal motor overcurrent protection (including forward and backward)



- Backrest motor overcurrent protection (including backward and forward tilt)



- Hoist motor overload



Possible reasons: The motor is blocked by an obstacle, the seat is locked, or the motor is short-circuited, or the encoder is wrong
How to fix it: Remove obstacles, check seat lock status, re-enter manual mode for calibration (refer to chapter 3.7), check motor wires for damage.

How to fix it: Make sure there are no obstructions and try again with an empty seat. If the fault persists, please contact the installation technician

7. 3. Motor wire short circuit to ground

Possible reasons: The motor wire is damaged or the motor body is faulty.
How to fix it: Check the motor wires, replace the motor.

7. 4. Motor coding error

Motor encoding error means that the controller cannot receive the pulse feedback from the motor. This information will indicate the current moving motor and direction of movement.

- Rotating motor coding error (including rotation in and out)

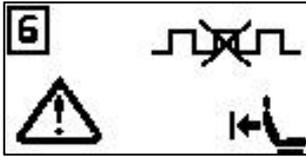


- Lifting motor coding error (including extension and retraction)



Possible reasons: The motor wire is disconnected, and the motor encoder wire is disconnected.
How to fix it: Check the motor wires and motor encoder wiring.

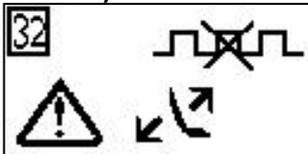
- Longitudinal motor coding error (including forward movement and backward movement)



- Translation motor coding error (including forward movement and backward movement)



- Wrong encoding of backrest motor (including backward and forward tilt)



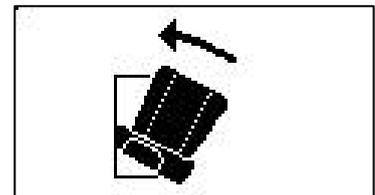
Possible reasons: The motor wire is disconnected, and the motor encoder wire is disconnected.

How to fix it: Check the motor wires and motor encoder wiring.

7. 5. Seat does not return to original position

Possible reasons: When the seat is rotated out or after it is rotated out, the door control line is disconnected or has poor contact.

How to fix it: Check whether the door control line is disconnected or poorly connected



7. 6. Very low voltage error

When the voltage of the car battery is lower than 10.5V, this error will be displayed. At this time, the seat will prohibit all actions until the detected battery voltage exceeds 10.5V. The current actual voltage of the battery will be displayed on the screen (such as " 9.4V")

Possible reasons:The battery voltage is too low

How to fix it: Re-enter manual mode for calibration. Check position sensor.



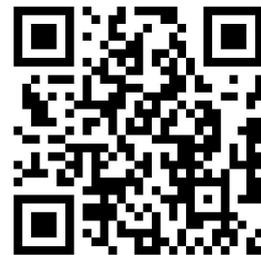
Affix: After-sales service card

Customer Profile			
Client's name		Client address	
Phone number		Facsimile	
Zip code		E-mail	
product data			
Purchased product		Purchased model	
Quantity		Product serial	
Place of purchase		Purchase time	

Client Signature:

Note:

- All customers must fill in the above information according to the requirements after purchasing the company's products. After completing the "After-sales Service Card", hand it over to the dealer or send it directly to the company;
- After the company or designated dealer receives the "After-sales Service Card" filled in by the customer, it will be responsible for tracking and investigating the use of the company's products purchased by the customer and providing guarantees on time;
- After the customer purchases the company's products, he fails to fill in the "After-sales Service Card" and submit it to Mingao Technology or the designated dealer. As a result, Mingao Technology fails to provide services in time and causes unnecessary losses to customers, and Mingao Technology is not responsible;
- If you want to know more about Mingao Technology's products, please scan the QR code below.



Scan to see more details