# Optimus 3D

# Maintenance Service Manual

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# IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic precautions should always be followed, including the following:
Read all instructions before using (this appliance).

**DANGER** To reduce the risk of electric shock:

- Always unplug this appliance from the electrical outlet immediately after using and before cleaning.
- Never use pins or other metallic fasteners with this appliance.
- Carefully examine the covering before each use. Discard the appliance if the covering shows any sign of deterioration, such as checking, blistering, or cracking.

**WARNING** To reduce the risks of burns, fire, electric shock or injury to persons:

- An appliance should never be left unattended when plugged in. Unplug from outlet when not in use, and before putting on or taking off parts.
- Close supervision is necessary when this appliance is used by, on, or near children, invalids, or disabled persons.
- Use this appliance only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
- Never operate this appliance if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the appliance to a service center for examination and repair.

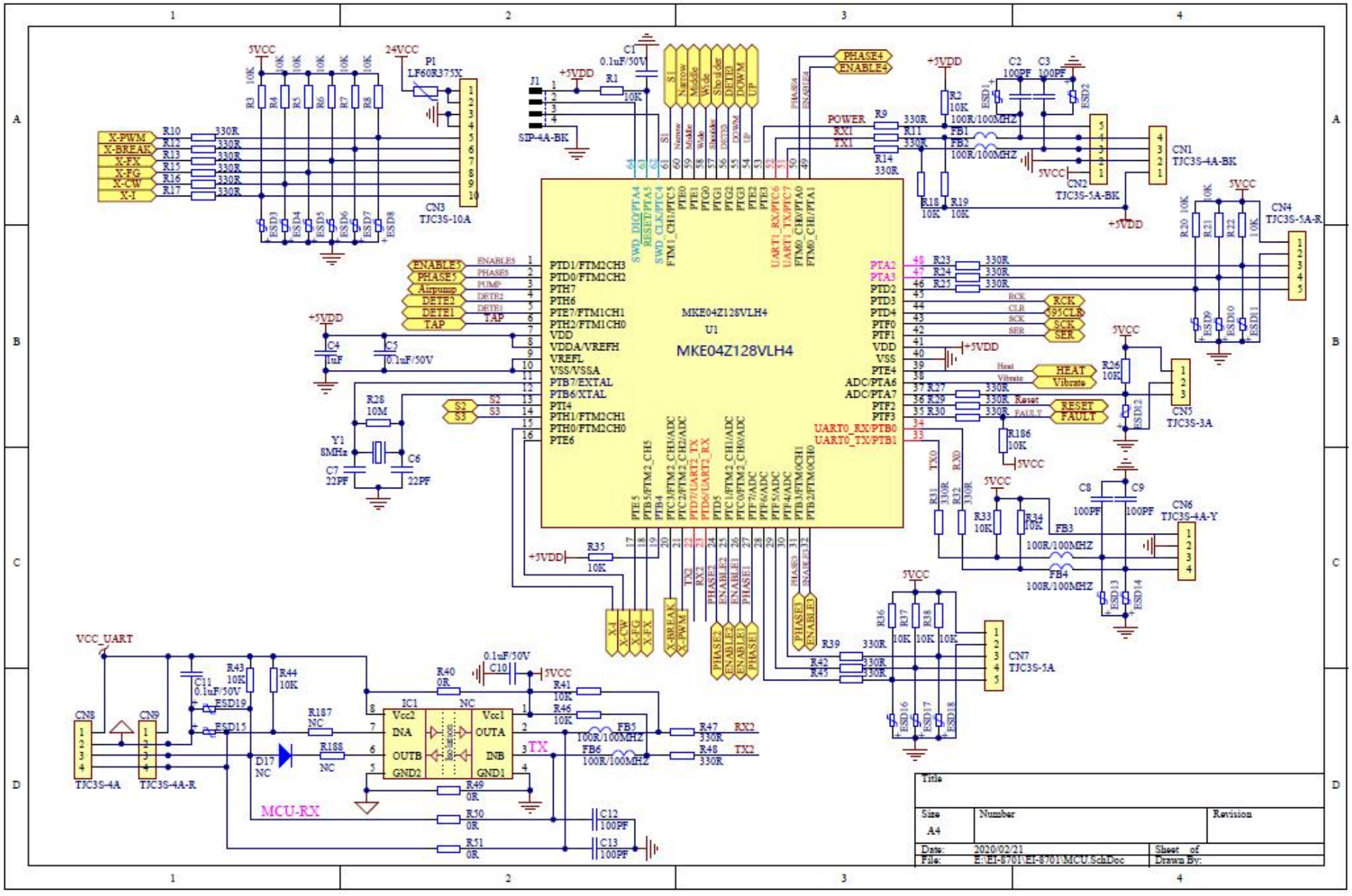
# 2 . Error Code and Error Analysis


| Optimus 3D Error Code Explanation | | | | |
|---|---|---|---|---|
| **Error numbe** | **Error description** | **Possible cause** | **Exclusion method** | **Remarks** |
| 1 | The hand controller button was pressed for more than 45s without letting go | Button stuck | 1.Check the status of each button carefully;<br>2. Replace the hand controlle. | |
| 2 | The hand controller does not communicate with the center board for more than 4s | Bad contact or fracture of inserting wire | 1.Check or replace the plug-in cable;<br>2.Replace the hand controlle<br>3.Replace the center board. | |

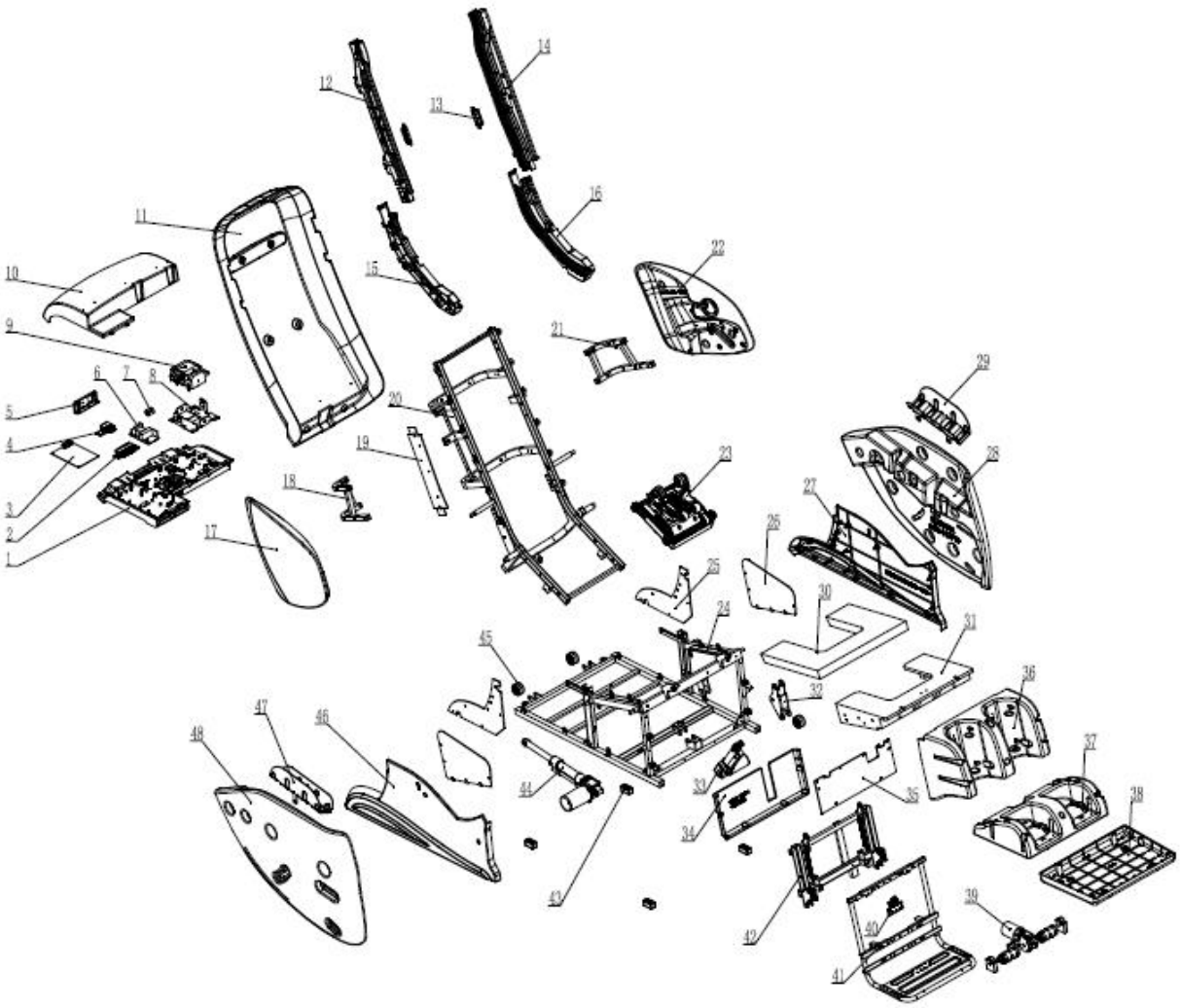
| | | | | |
|---|---|---|---|---|
| 40 | The position sensor is abnormal for up-down motor in the rolling mechanism | 1.position sensor is bad;<br>2.connection is abnormal<br>3.The motor is broken or blocked;<br>4.The driving circuit device is damaged. | 1.Check the connection between the sensor and the rolling mechanism board;<br>2.Check the connection between the main PCBA and the rolling mechanism board<br>3.Replace the sensor;<br>4.Move the rolling mechanism to the initial height position;<br>5.Replace the rolling mechanism board. | 1.Start detection when the function is turned on<br>2.Automatic shutdown in case of failure, and not allowed to start. |
| 41 | Position coding anomaly of the rolling mechanism walking motor. That is ,the code disk is in the incorrect position. | 1. The position sensor is broken;<br>2. rolling mechanism overshoot | 1. Replacement of sensors;<br>2. Move the rolling mechanism to the initial height position;<br>3. Replacement of rolling mechanism board | 1.real-time detection;<br>2.Shut down automatically in the event of failure time. And not allowed to boot. |
| 42 | Abnormal speed senso of the rolling mechanism walking motor.That is ,no change of speed code disk was detected in excess of 6S. | 1. The motor is broken or blocked<br>2. Drive circuit device damage | 1. Check the connection between the motor and the rolling mechanism board;<br>2. Check or replace motor;<br>3. Replacement of rolling mechanism board. | 1.Detection when function is turned on;<br>2.Shut down automatically in the event of failure time, and not allowed to boot. |
| 44 | The position sensor is abnormal of Core motor. That is, no change of position code disk is detected over 10S | 1. The position sensor is broken<br>2. The motor is broken or blocked<br>3. Drive circuit device damage | 1. Check the connection between the sensor and the rolling mechanism board;<br>2. Replace the sensor;<br>3. Check or replace motor;<br>4. Replacement of movemetn board | 1.Detection when function is turned on;<br>2.Shut down automatically in the event of failure time. And not allowed to boot. |

| | | | | |
|---|---|---|---|---|
| 46 | The speed sensor is abnormal for kneading motor in the rolling mechanism .That is, more than 6S did not detect the speed code disk change. | 1. The motor is broken or blocked;<br>2. Drive circuit device damage | 1. Check the connection between the motor and the rolling mechanism PCBA;<br>2. Check or replace motor;<br>3. Replacement of rolling mechanism PCBA | 1.Detection when function is turned on;<br>2.Shut down automatically in the event of failure time. And not allowed to boot. |
| 54 | Kneading motor in the rolling mechanism position wide, medium and narrow are abnormal. | 1.Position sensor is broken;<br>2.The motor is broken or blocked;<br>3.The driving circuit device is damaged | 1.Check the connection between the sensor and the rolling mechanism PCBA;<br>2.Replace the sensor;<br>3.Check or replace the motor;<br>4.Replace the rolling mechanism PCBA;<br>5.Replace the brushless motor drive board. | 1.Detection when function is turned on;<br>2.Shut down automatically in the event of failure time. And not allowed to boot. |
| 55 | Motor drive chip A4459 on the Main is broken. | 1.The motor is blocked;<br>2.The driving circuit device is damaged | 1.Replace the Main PCBA | 1.Detection when function is turned on;<br>2.Shut down automatically in the event of failure time. And not allowed to boot. |

# 3. Electrical Schematic Diagram



# 4． Explosive View



| 序号 | | 品名 | 用量 | 序号 | | 品名 | 用量 |
|---|---|---|---|---|---|---|---|
| 48 | G1.04.01.5501A010-10 | 右侧板 | 1 | 21 | G4.18.25.EI5501C0-00 | 左肩部架总成 | 1 |
| 47 | G1.03.02.8601A006-10 | 右扶手板金 | 1 | 20 | G4.02.03.EI5501C0-00 | 靠背架总成 | 1 |
| 46 | G1.04.01.5501A022-11 | 右下侧板 | 1 | 19 | G1.04.01.5501A023-10 | 靠背架PE板 | 1 |
| 45 | G1.04.01.EC801005-10 | 脚轮 | 1 | 18 | G4.18.25.EI5501C0-01 | 右肩部架总成 | 1 |
| 44 | G4.01.03.K1172560-04 | 小电动推杆(快速带计数) | 1 | 17 | G1.04.01.5501C001-10 | 右肩部 | 1 |
| 43 | G1.04.01.8601A029-10 | 脚垫 | 1 | 16 | G1.04.01.5501A001-10 | 左导轨下 | 1 |
| 42 | G1.03.03.8601A003-10 | 小腿行走架总成 | 1 | 15 | G1.04.01.5501A002-10 | 右导轨下 | 1 |
| 41 | G1.03.03.EC318A03-00 | 小腿固定架总成 | 1 | 14 | G1.04.01.EI8601A0-08 | 左导轨上 | 1 |
| 40 | G1.01.11.PQF02470-01 | 二联气阀 | 1 | 13 | G1.04.01.8601A004-10 | 导轨拆卸挡板 | 1 |
| 39 | G4.20.00.EI8601A0-01 | 小腿脚机后件 | 1 | 12 | G1.04.01.EI8601A0-10 | 右导轨上 | 1 |
| 38 | G1.04.01.EC801016-00 | 小腿底盖 | 1 | 11 | G1.04.01.5501A020-10 | 靠背后罩 | 1 |
| 37 | G1.04.01.EC801015-40 | 下小腿 | 1 | 10 | G1.04.01.8601A041-10 | 中心盒上盖 | 1 |
| 36 | G1.04.01.EC801014-00 | 上小腿 | 1 | 9 | G1.01.11.PUSPU13L0-07 | 充气泵 | 1 |
| 35 | G1.04.01.EC822A28-10 | 上挡板 | 1 | 8 | G1.03.02.8601A007-10 | 气泵固定板 | 1 |
| 34 | G1.04.01.8601A040-10 | 小腿后盖 | 1 | 7 | G1.01.13.M0220025-01 | 磁环 | 1 |
| 33 | G4.01.03.K1503100-02 | T02 EMI电动推杆 | 1 | 6 | G1.01.07.IL022405-00 | 开关电源 | 1 |
| 32 | G1.03.03.5501A002-10 | 小腿连杆总成 | 1 | 5 | G1.04.01.EC617A28-00 | 开关面板 | 1 |
| 31 | G1.08.04.SM650140-01 | 座部板 | 1 | 4 | G1.01.11.PQF02470-02 | 二联保压阀 | 1 |
| 30 | | 座面海绵 | 1 | 3 | G1.01.36.ZX5501A0-12 | 中心板PCBA | 1 |
| 29 | G1.03.02.8601A003-10 | 左扶手板金 | 1 | 2 | G1.01.11.PQF02470-00 | 四联气阀 | 1 |
| 28 | G1.04.01.5501A009-10 | 左侧板 | 1 | 1 | G1.04.01.8601A040-13 | 中心盒底板 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| V1.0 | 2020/04/04 | 量产发行版本 | 胡东明 | | | |
| 版本 | 作成日期 | 更改内容 | 设计 | 审核 | 批准 | 更改文件 |
| 机种 | EI-G501C | | 料号 | G5.01.01.EI550102-01 | | |
| 品名 | EI-G501C 整机爆炸图 | | 图号 | RD-09-EI-G501C-000004-10 | | |
| 材质 | | | 蒙发利酷回健康科技（厦门）有限公司 | | | |
| 视角 | 第一视角 | 比例 1:20 | 共 张 第 张 | | | |

# 5 . Tools List


Diagonal Pliers


Electric Screw Driver


Electric Screw Driver

Nipper Pliers

Cable Tie

Cross Head

Slot Type Screwdriver

Cross Screwdriver


Hexagonal Screwdriver

# 6． Replacement of Accessories

## ①・Replacement of Backrest Pad

1.Use a small cable tie to pass through the zipper and pull open（figure 1）A total of seven（figure 1-2）
2.Take off the backrest pad（figure 3）then put on a new cloak and pull 7 zippers.

figure 1


figure 2


figure 3

## ②・Replacement of Back Cover

1. Take down 3 cloth pins（figure 1）
2. Take down 6 screws（figure 2）

figure 1

figure 3

figure 2

## ③・Replacement of Side Plate

1. Unzip zippers of the side plate（figure 1）
2. Take down 4 screws（figure 2）
3. Remove the side plate，disconnect the gas hose（figure 3）

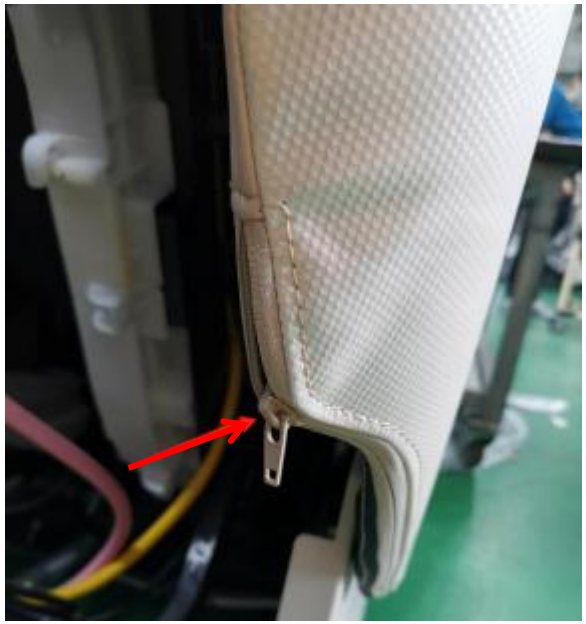


figure 1

figure 2

figure 3

## ④・Replacement of Shoulder

Take down 4 screws and disconnect  the gas hose (figure 1) take down the Shoulder (figure 2)

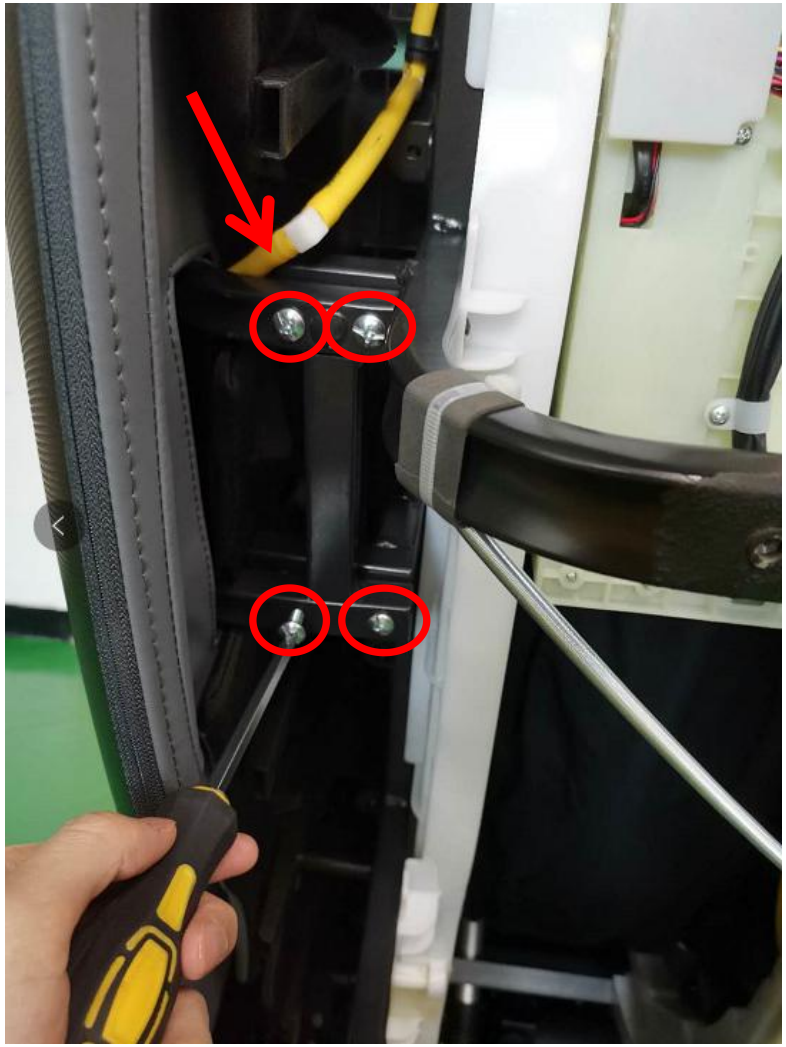


figure 1

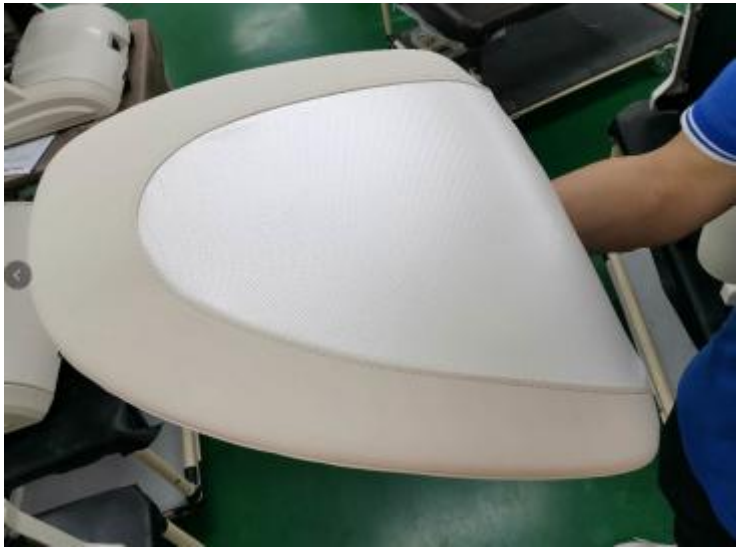


figure 2

# ⑤・Replacement of Leg Rest-1

1. Unzip the zippers (figure 1)
2. Remove 2 DK iron，move out the leg rest（figure 2-3）
3. Disconnect the 2 terminal and 1 air hose（figure 4）

figure 1

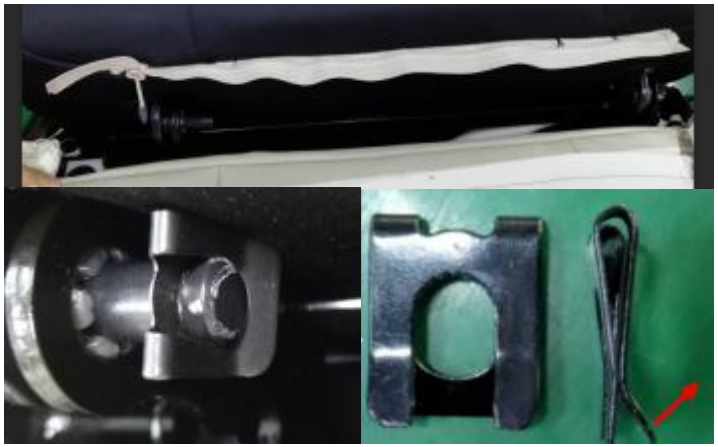


figure 2

figure 3

figure 4

# ⑤・Replacement of Leg Rest-2

1.Connect the 2 terminal and 1 air hose (figure 1-2)

2.Hang up the leg rest，clip into the DK iron（figure 3-4）

3.Attention：the DK iron should snap into place, terminal white dot to white dot.

figure 1

figure 2

figure 3

figure 4

## ⑥・Replacement of Air Pump

1. Take down 5 cloth pins (figure 1)
2. Take down 3 screws (figure 2)
3. Take down 4 screws of air pump，and cut off the cable tie on the air pump and the air hose，unplug the air hose from the air pump (figure 3)
4. Unplug the terminal on the Main PCBA (figure 4)
5. Unplug the 4 rubber feet on the iron frame(figure 5)

figure 1

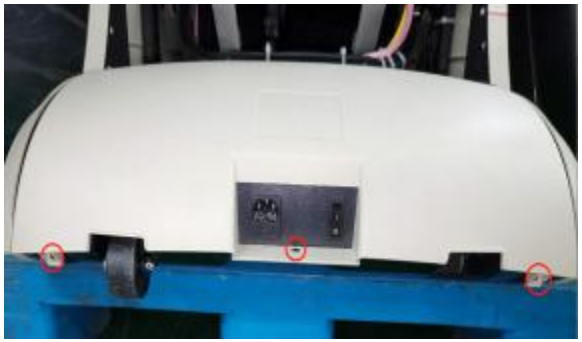


figure 2

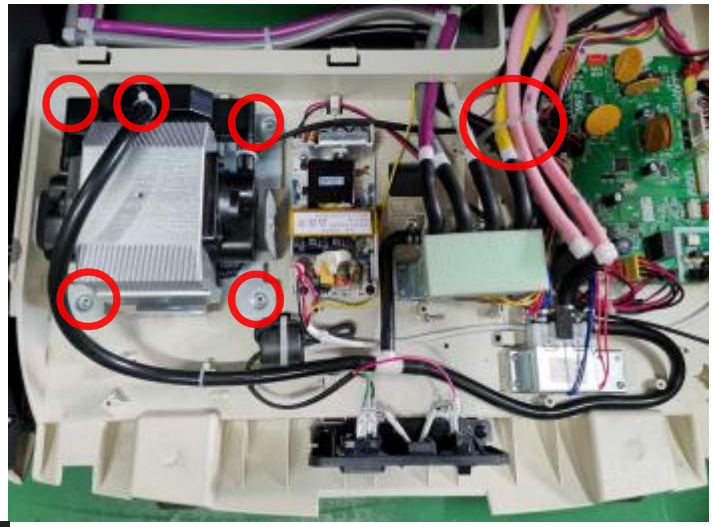


figure 3

figure 4

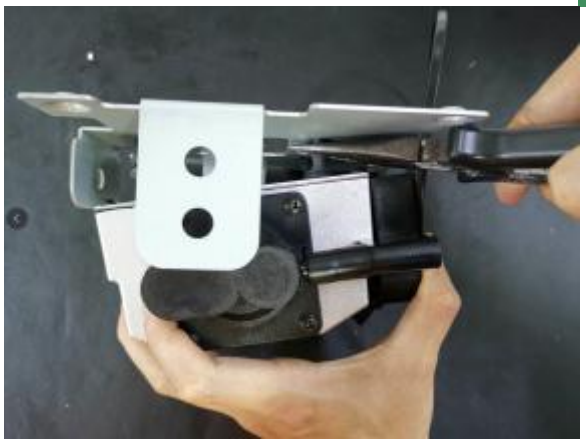


figure 5

## ⑦・Replacement of Switching Power Supply

1. After opening the upper cover, remove 4 screws (figure 1)
2. Unplug the 2 terminals (figure 1)
3. Take down the Switching Power Supply(figure 2)

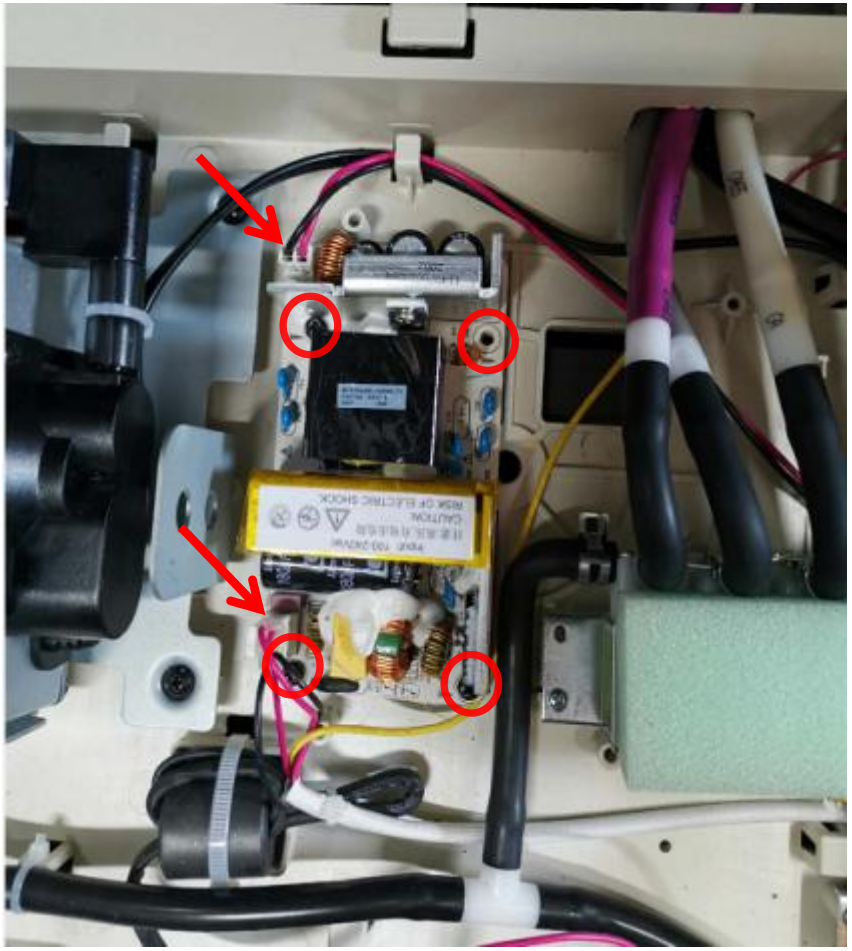


figure 1


figure 2

⑧・Replacement of the Main PCB box of Quadruple Air Valve

1. After opening the upper cover, remove 3 screws (figure 1)
2. Pick up the air valve and  pick up the metal buckles of the 6 air hose(figure 2)
3. Cut off the cable tie, pull out the 8 pins for terminal, then you can remove the quadruple air valve(figure 3-5)

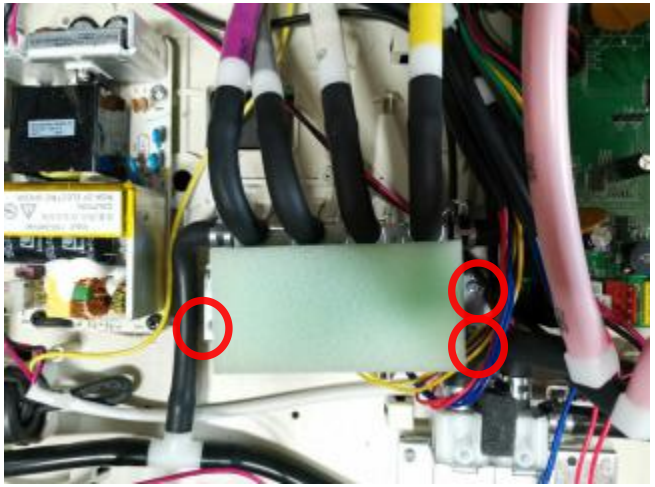


figure 1

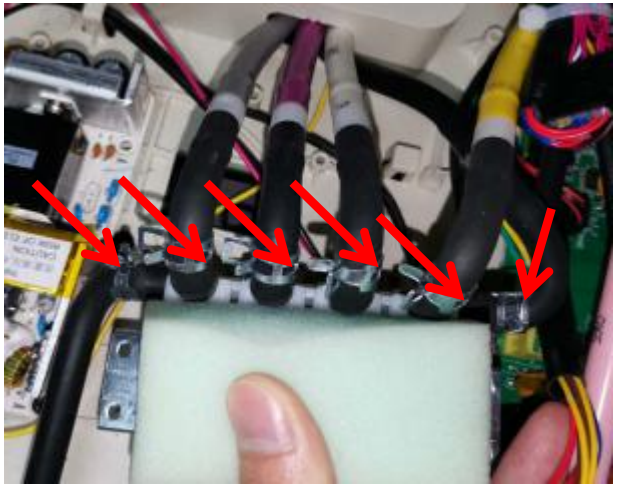


figure 2

figure 3

figure 4

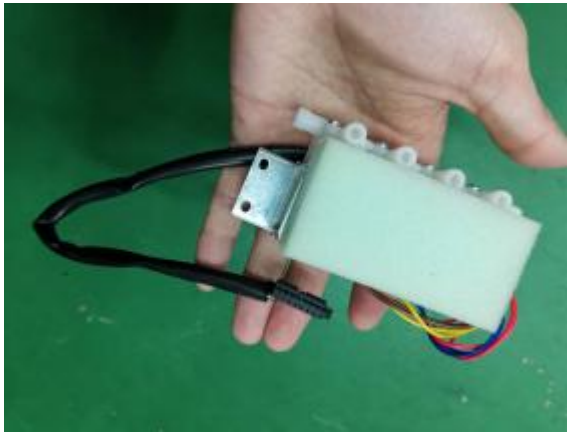


figure 5

⑨・Replacement of the main PCB box of Duplex Air Valve

1. After opening the upper cover, remove 3 screws (figure 1)
2. Pick up the air valve and  pick up the metal buckles of the 3 air hose(figure 2)
3. Cut off the cable tie, pull out the 4 pins for terminal, then you can remove the duplex air valve(figure 3-5)

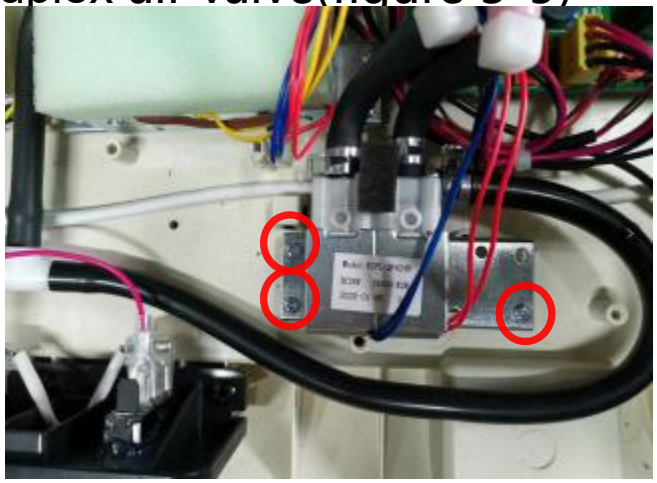


figure 1

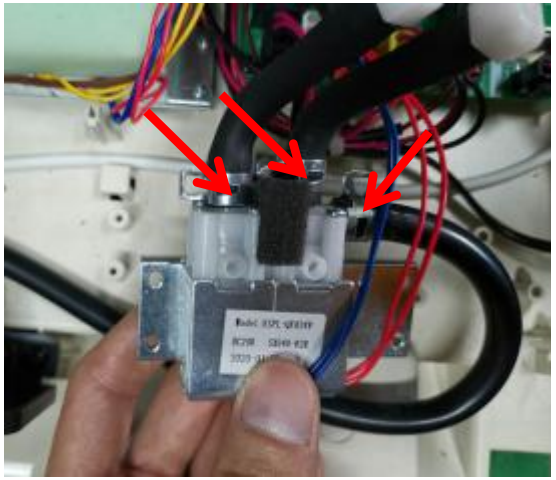


figure 2

figure 3

figure 4

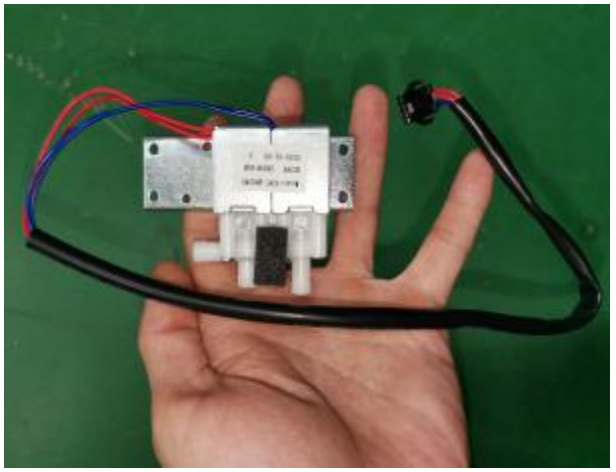


figure 5

## ⑩・Replacement of Remote Control

1.Take down the side plate，you can see the connector of remote control (figure 1)

2.Unscrew the connector，unplug the connector，you can take out the remote control (figure 2)

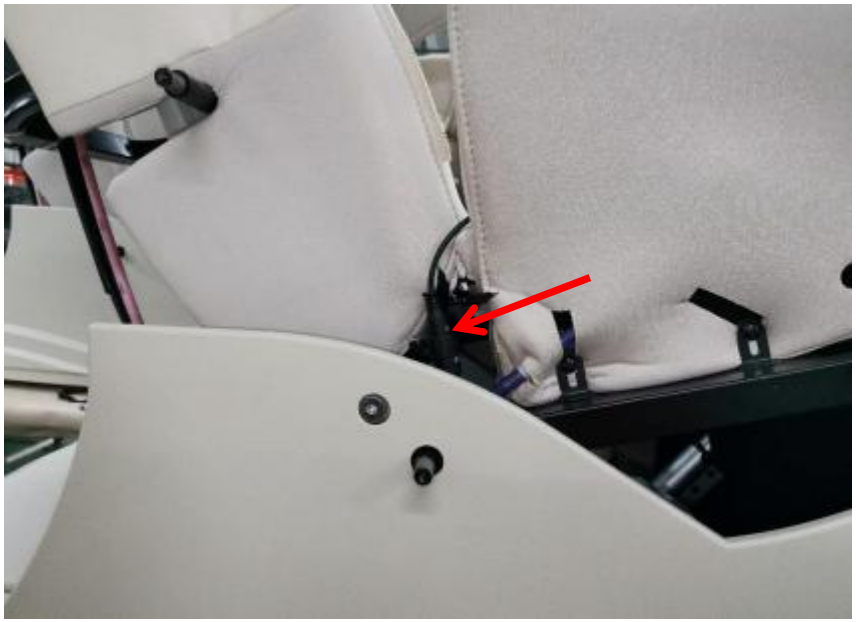


figure 1

figure 1

# ⑪ · Replacement of Main PCBA and Fuse

1.Remove the fuse holder from the power input socket (figure 1), then remove the fuse (figure 2)

2.Unplug all terminals on the Main PCBA (figure 3)， take down 4 screws (figure 4)

figure 1

figure 2

figure 3

figure 4

# ⑫・Replacement of the Rolling Mechanism-1

1.Remove the backrest pad and flannel fabric（figure 1）

2.Remove the left and right baffle on the guideway（figure 2）

3.Remove the back cover, push the rolling mechanism down firmly, push the rolling mechanism to the left and right baffle on the guideway position（figure 3）

figure 1

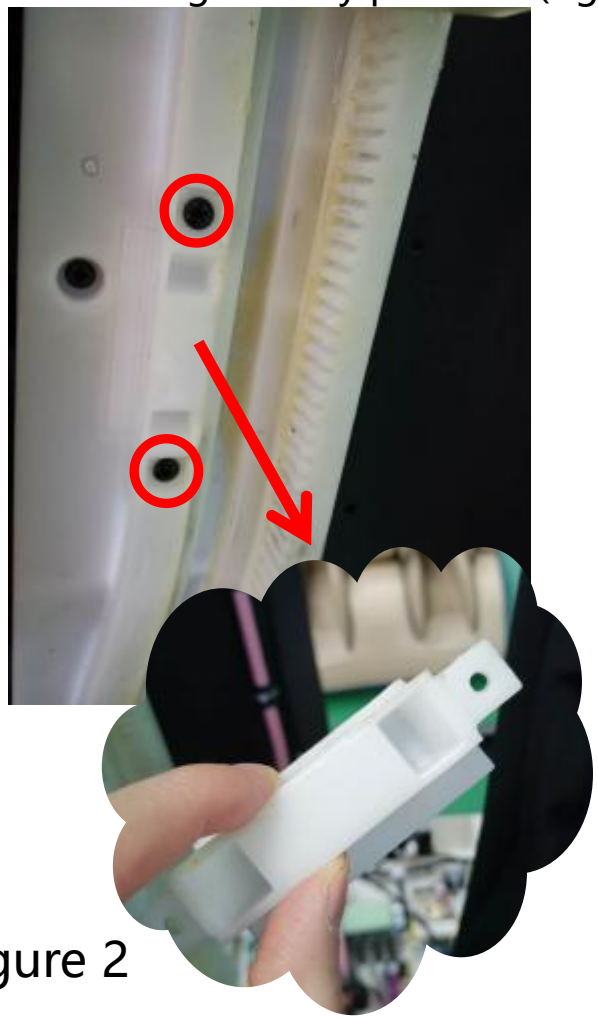


figure 2

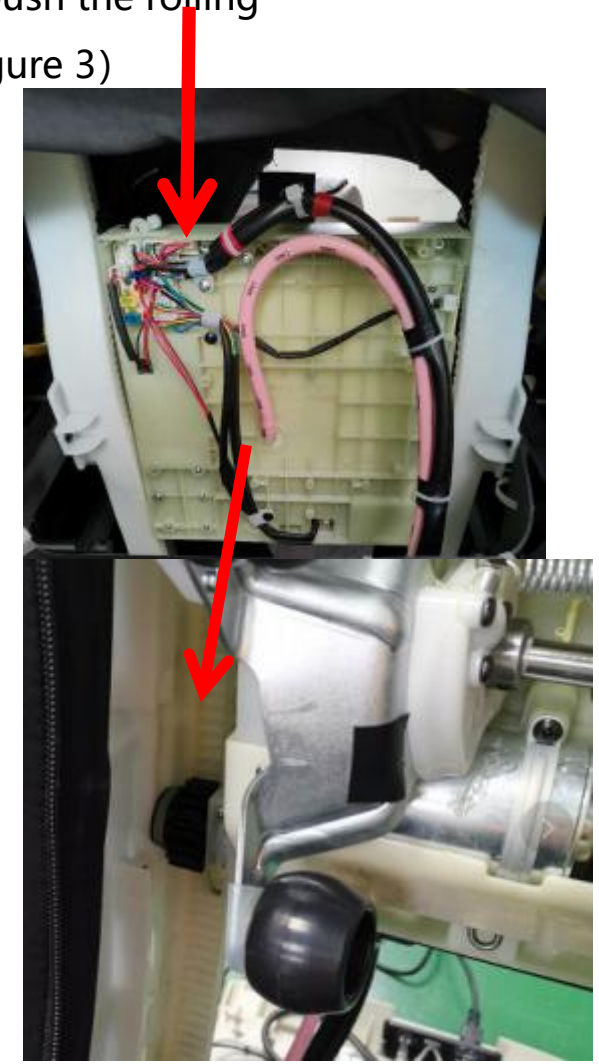


figure 3

## ⑫ · Replacement of the Rolling Mechanism-2

1.Front gear first out, then rear gear out (figure 1-2), you can take out the rolling mechanism from the guideway(figure 3)

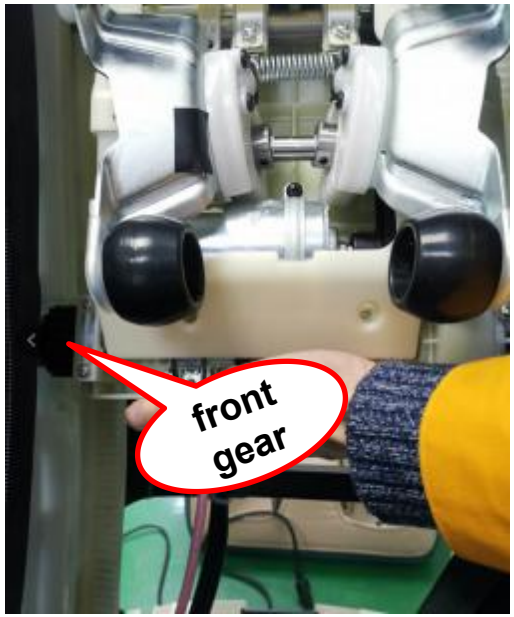



figure 1


figure 2

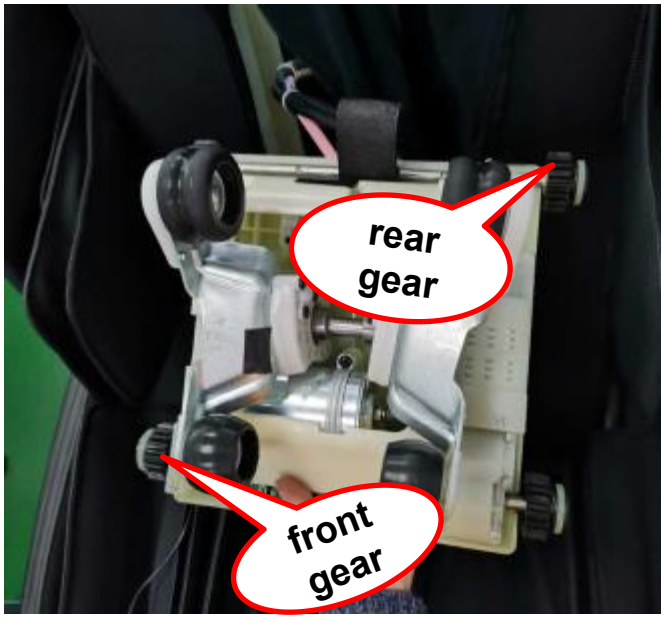
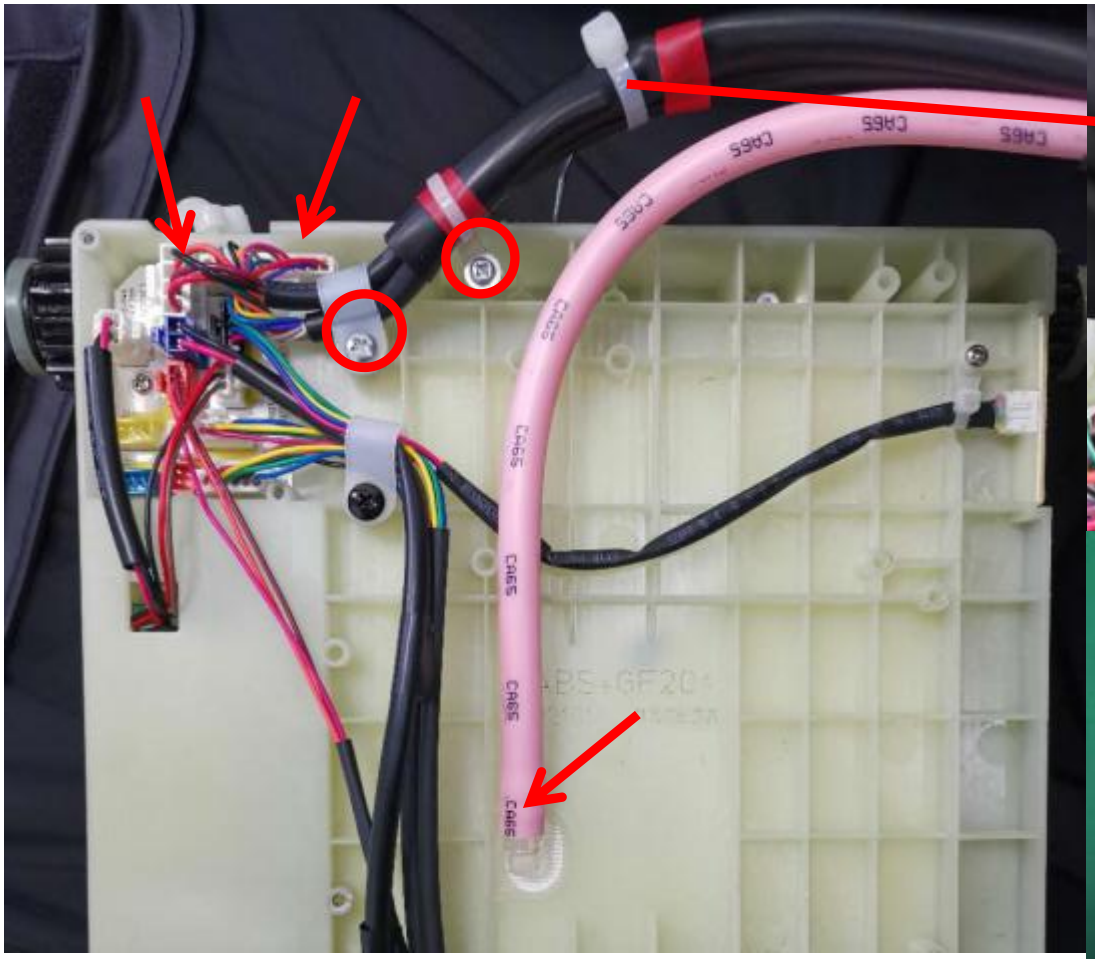
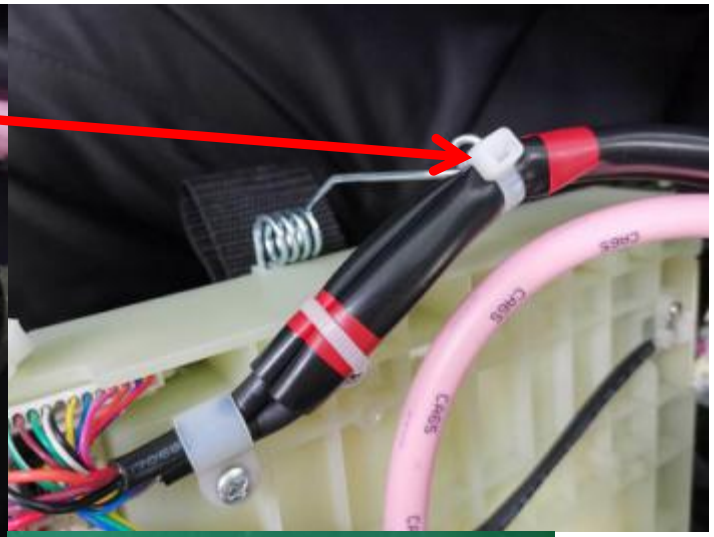


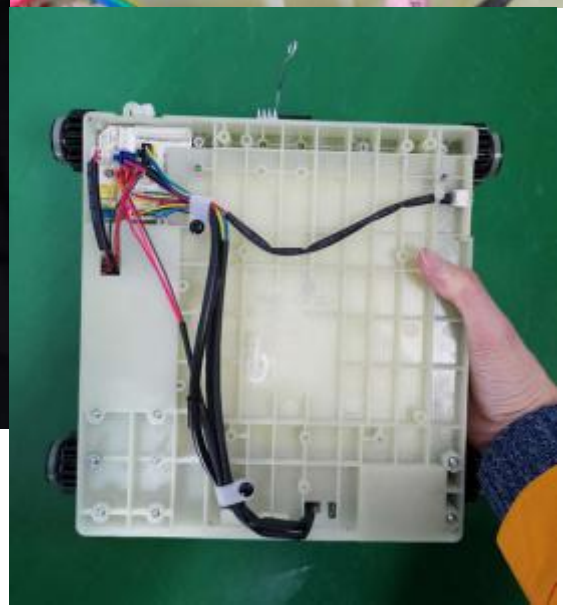

figure 3

# ⑫・Replacement of the Rolling Mechanism-3

Use a screwdriver to remove the 2 screws of the sixteen-core cable, use diagonal pliers to cut off the buckle of the sixteen-core cable, unplug the two terminals on the movement board, and unplug the air pipe on the rolling mechanism, then you can take out rolling mechanism.







## ⑫・Replacement of the Rolling Mechanism-4

1.The rolling mechanism side is stuffed in (figure 1)

2.The rear gear is put into the guide rail from the position where the baffle is removed, and then the front gear is put into the guide rail (figure 2)

3.After putting it in, the movement should be pushed down, and the rear gear should be under the position of the guide rail removal baffle to lock the baffle (figure 3)

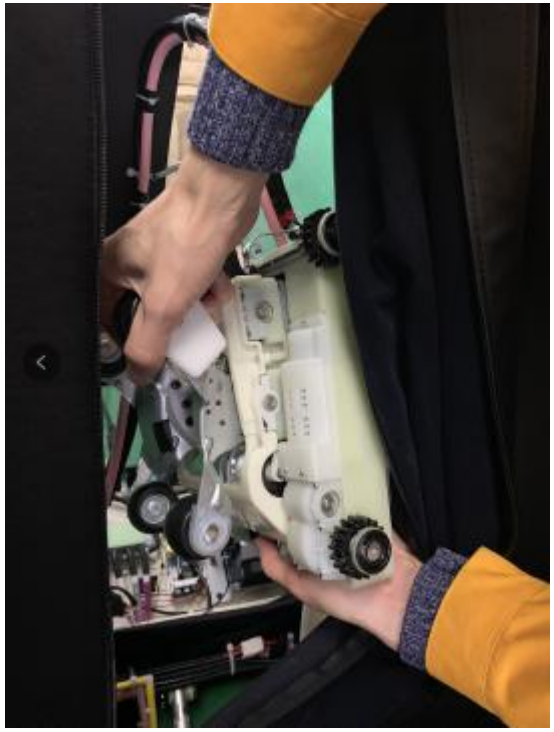


figure 1

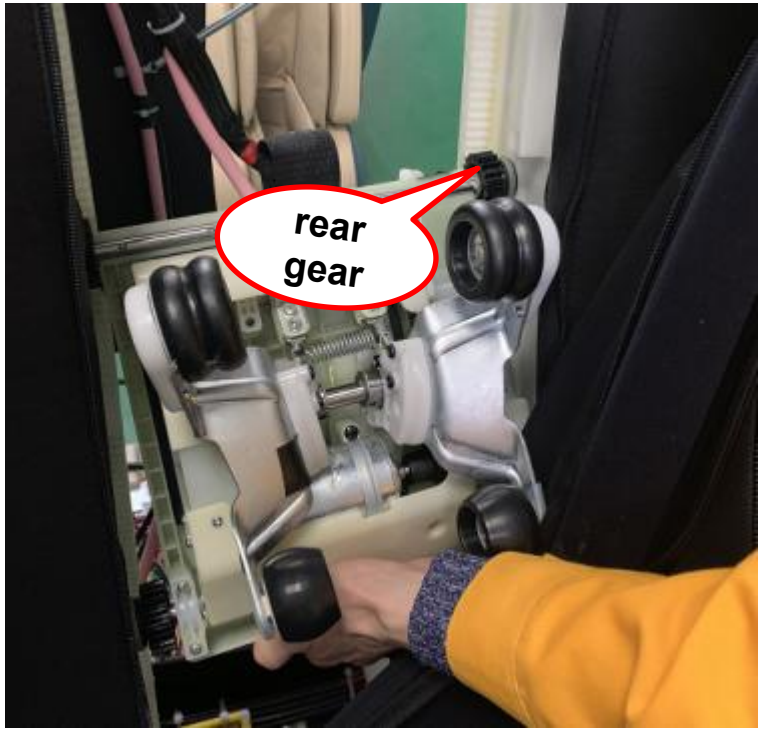



figure 2


figure 3