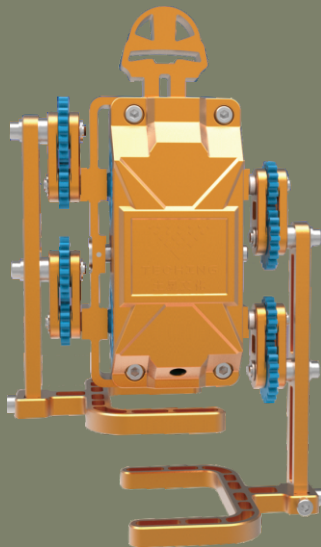




Metal Machinery

Assembly Model



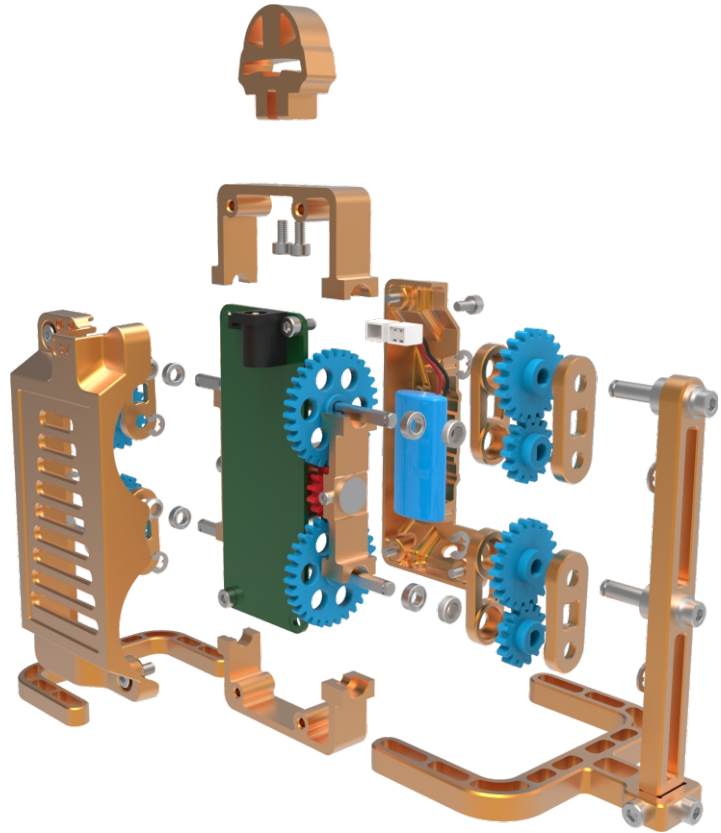
Walker robot 1
MODEL:DM20



Assembly Difficulty ★★★★★

Structural features:

1. Double reduction motor drive structure
2. Step gear driven structure
3. Four bar linkage transmission system
4. More than 70 parts



I–Make • Real Model • Real World

General information about product

I. Product Data

Product name: Walker Robot 1

Product model: DM20

Main materials: anodic aluminum oxide + stainless steel

Charging voltage: DC 5V

Battery capacity: 500mAh

Product standards: GB/T9254–2008

GB/T17626.2–2006

II. Product description

- ◆ Teaching Craftsman series of products are metal structure assembly models. Its primary material is aluminum alloy with anodized surface, and the product structure is a real industrial structure;
- ◆ Assemble parts using various tools with the installation procedures and methods substantially compliant with practical industrial requirements;
- ◆ This series of products are principally designed to improve users' hands-on ability and concentration, and to develop habits of "preciseness and stress on discipline";
- ◆ Learn about various industrial machines, and study various industrial structures to improve user's capability of research and innovation.

III. Assembly Requirements

- ◆ Be sure to read the Basics of Standard Parts Assembly carefully to master basic standard parts assembly procedure and the usage of tools before assembly;
- ◆ The table shall be kept tidy and clean during assembly to prevent parts being lost or incorrectly assembled. Assemble parts in a rigorous and orderly fashion, view the diagrams carefully, and avoid incorrect assembly;
- ◆ Pay attention to the prompt text in instruction manual, carefully view the part installation orientation, and avoid incorrect comprehension. Pay attention to the requirements on testing;
- ◆ Lubricating oil shall be applied to friction areas to the greatest extent to prevent jamming during operation. Fastening screws must be thoroughly mounted to prevent looseness of parts;
- ◆ If you have any doubt when adjusting any assembly clearance or tightness after the completion of assembly, please refer to our website or WeChat public account;
- ◆ Users are encouraged to optimize the parts using material removing tools like files and sand paper with adult care where the personal safety is guaranteed;

- ◆ Users are encouraged to perform part modification or overall modification of model without potential safety hazard so as to develop modification capability as soon as possible;
- ◆ The user may disassemble this model and put it in the package again according to the parts list attached hereto;
- ◆ If any part is lost, please inquire of or purchase it from us (Teching official online store);
- ◆ The model structure is subject to continual improvement. If the real object differs from the instruction manual, please refer to our latest assembly information.
- ◆ Once the product fails to function due to battery failure, lubricating oil shortage or dust accumulation in product gaps because it is left unused for long, it's advisable to change the battery or disassemble and clean its parts.

Precautions

I. Safety Instruction

- ◆ Please read this manual carefully so that you are in a position to use this product correctly and safely;
- ◆ This series of products are industrial-level metal models, so its assembly and use requires certain safety awareness; improvement of safety awareness is also a function of the model;
- ◆ This model is suitable for users aged 14 and over. Please read this manual carefully for relevant safety information;
- ◆ Strictly prohibit children or pets swallowing or biting this product or its spare parts, since this may cause injury/damage;
- ◆ Use assembly tools rationally, assemble the parts in strict conformity with the instruction manual, and avoid forcible handling to avoid scratches; keep sharp points of tools or parts away from the eyes to avoid contusions;

- ◆ This model is made up of metallic parts mainly, and has a certain level of hardness and a certain weight; please place it properly to avoid bodily injuries; Protect the products and accessories against intense shock and vibration so as to avoid personal injury and product damage;
- ◆ During mechanical movement, do not put a finger or any other part of the body within the movement range to avoid contusions;
- ◆ Wire connectors must be connected according to the marks specified in the instruction manual to avoid short-circuit or failure arising from wrong connection;
- ◆ Charge, discharge and place the battery as required; it is advised to replace the battery when it has not been used for 3 months or more;
- ◆ Do not prevent any part from running forcibly in any form; to do this, turn off the power directly;
- ◆ To refit this model, please pay attention to the relevant part parameters, and avoid using any high-power electric part or device that may result in an accident.
- ◆ Please use parts of this product properly as per instruction manual. Don't use them for other purposes.

II. Battery and charging precautions

- ◆ This product is delivered with dedicated charging cable. Users shall use their own power adapters; output DC voltage: 5V; output DC current $\geq 1000\text{mA}$;
- ◆ Please make sure the contact is dry and free of dirt before charging. Please don't charge the battery if the product is not in use or is in repair;
- ◆ Don't put the battery in fire or have it exposed to sunlight, fire or similar excessively hot environment, since this may lead to leakage, excessively high temperature, bursting or ignition of battery;
- ◆ If improper change of battery may cause explosion, the battery must be replaced with one of identical or equivalent type;

- ◆ Never disassemble, squeeze, heat and set fire to the lithium battery delivered with this product, and never touch and pry the battery using any sharp object or screwdriver, etc., since this may cause the battery to ignite or burn;
- ◆ In the case of excessively high temperature, discoloration, bulging, leakage and other anomalies during the use, charging or keeping of battery, please take it out of service and change it with a new one to avoid safety problem;
- ◆ Since the battery temperature rises when it's being charged, please don't have the battery to come into contact with inflammables (e.g. bedside, clothing and books, etc.) since this may result in a fire;
- ◆ Please don't charge the battery in a moist space with high temperature; the temperature is recommended to be 0~35° C, and the humidity shall not exceed 65%; the design max. ambient temperature for using the product is 45° C;
- ◆ To alleviate the risk of electric shock, children are not allowed to use the product without the help of their parents or other custodians.

III. Product Declaration

- ◆ Please carefully read and observe various instructions and warnings in this manual before using this product. Our company shall not be held responsible for any consequence of failure to properly use this product or observe related operating instructions;
- ◆ This product is suitable for users aged 14 and over. Our company shall not be held responsible for any safety problem arising from the use of this product by too young users or users who are not familiar with relevant safety requirements;
- ◆ As a model in industrial structure, this product is designed exclusively for learning and experience. Do not use this product for other purposes; otherwise, we will assume no responsibility for any consequence thereof;

- ◆ We have been improving the design and operation features of our product, so separate notice will not be given for slight difference between instruction manual and actual product. Hence, any claim for compensation filed based on the data, pictures or text of this instruction manual will be rejected;
- ◆ For constant improvement and sustainable development, our company reserves the right to modify and improve any product detail given in this manual without prior notice;
- ◆ The pictures in instruction manual guide users for operation, and are thus for indication only; the real product shall prevail;
- ◆ Our company and its suppliers shall not be held responsible for any special, incidental, collateral or indirect loss in any case to the greatest extent the law permits, regardless of its cause;
- ◆ Please keep this manual properly since it contains important information.

Contents

1

Walker robot assembly instruction

P3

2

Troubleshooting and analysis

P10

3

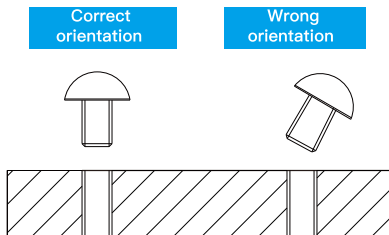
Parts list of the Walker robot

P14

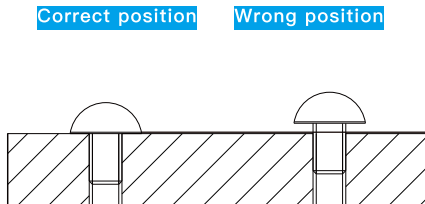
Basic knowledge on standard parts assembly

1.Installation of screws

(1) Installation of screws

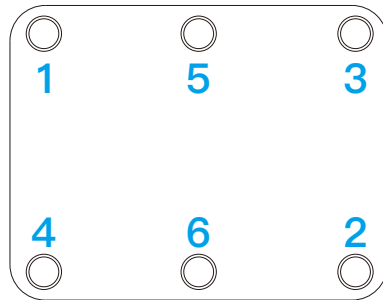


(2)Degree of screw tightening

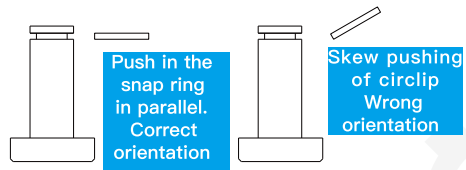


(3)Screw installation order

Mount the screws diagonally
in order of number

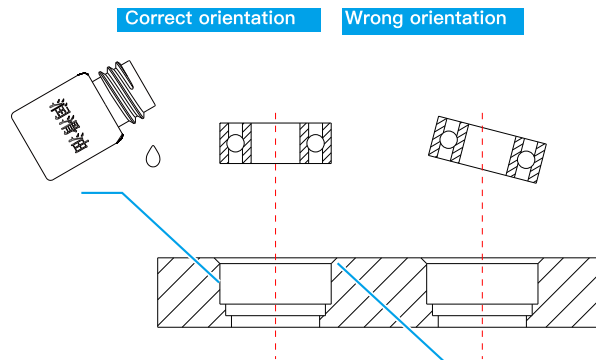


2.Installation of snap ring



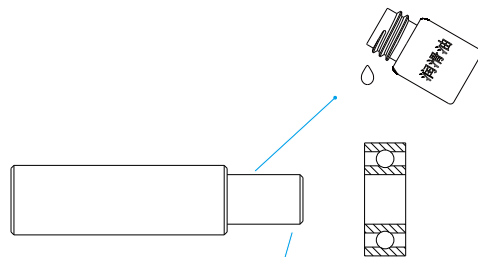
3.Installation of Bearing

(1)Install the bearing into the bearing seat hole



Check the orifice of bearing block for chamfer and burr; apply a little lubricating oil onto side face of shaft installation point; align the bearing and mount it to the final position; pressure is applied to the outer race of bearing.

(2) Install the bearing onto the shaft



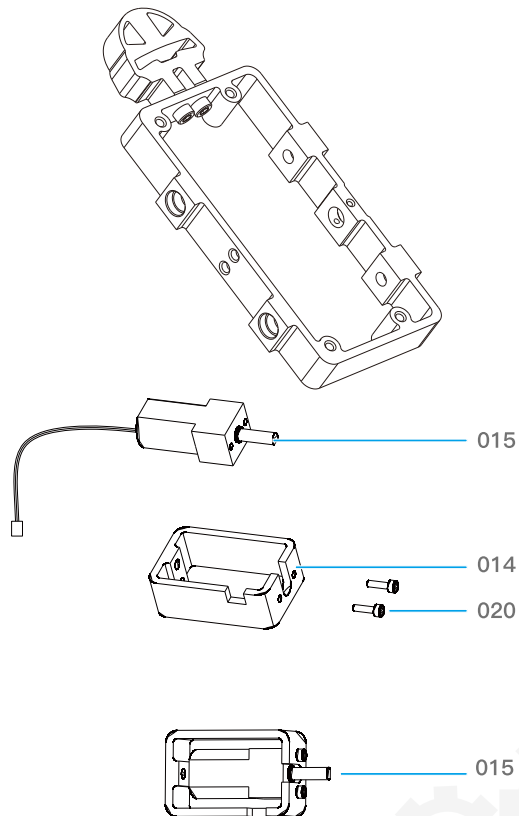
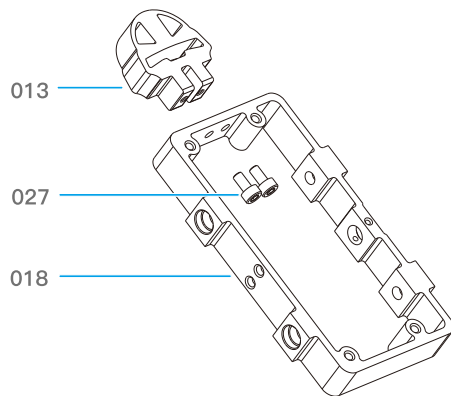
Check the shaft end for chamfer and burr; apply a little lubricating oil onto side face of shaft installation point; align the bearing and mount it to the final position; pressure is applied to the inner race of bearing.

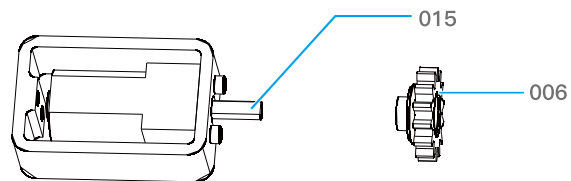
Important note: before assembly, find the bottled lubricating oil, be sure to put enough oil in all the places that need to be lubricated, otherwise the machine is easy to get stuck



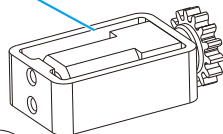
Position indicator
for lubricating oil

P Walker robot assembly procedure

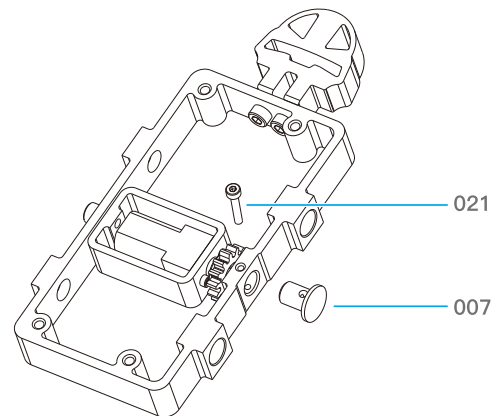
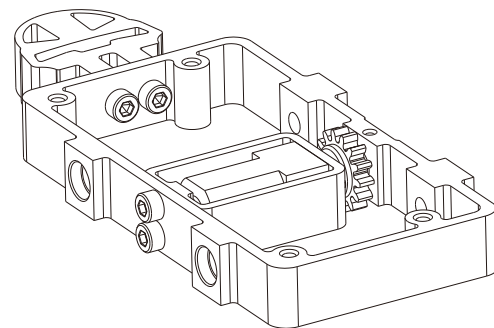
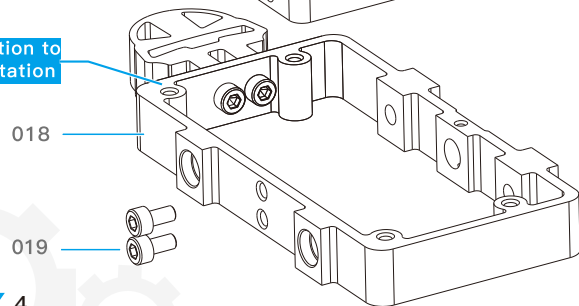


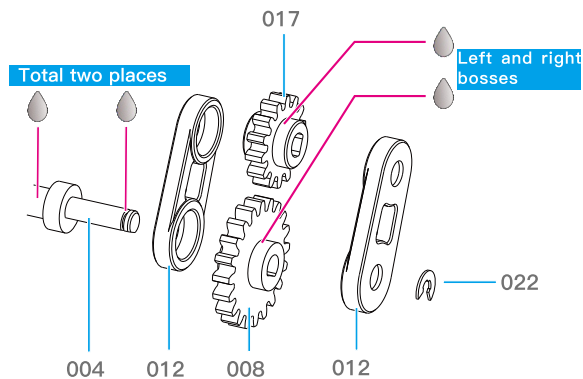
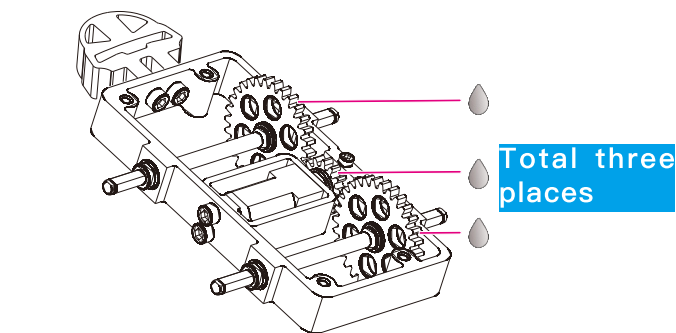
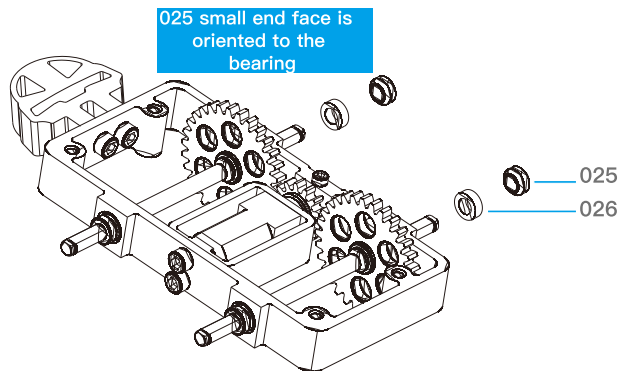
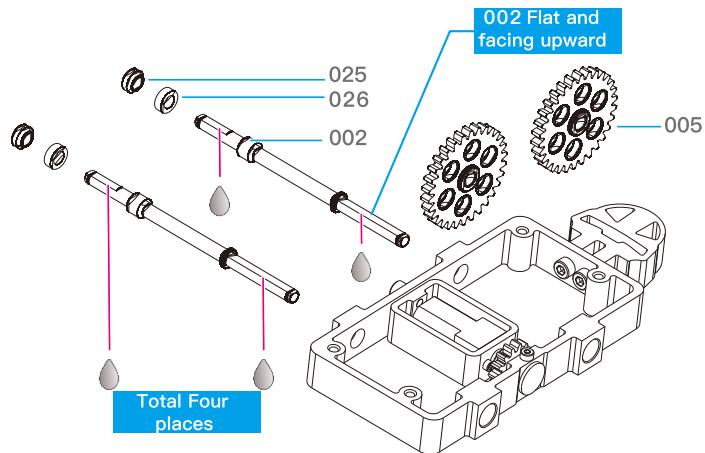


The flat surface of
entire plane faces up

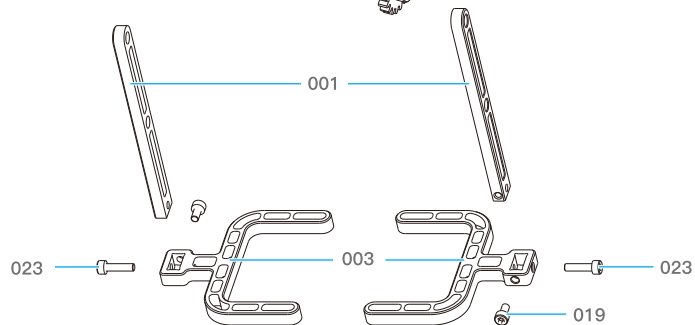
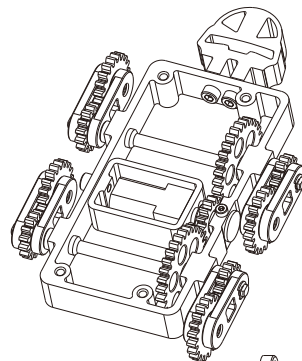
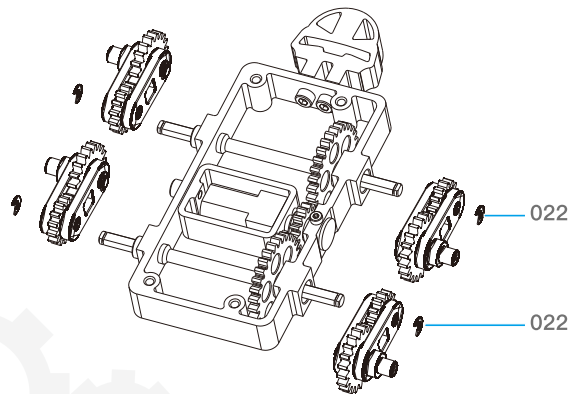
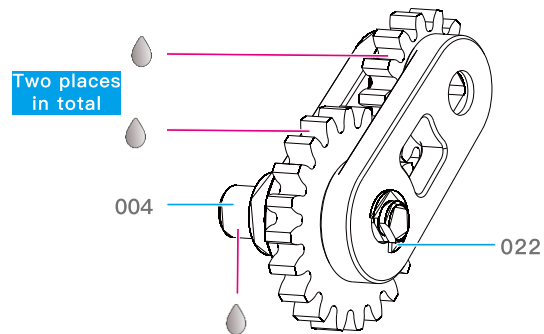


Pay attention to
the orientation

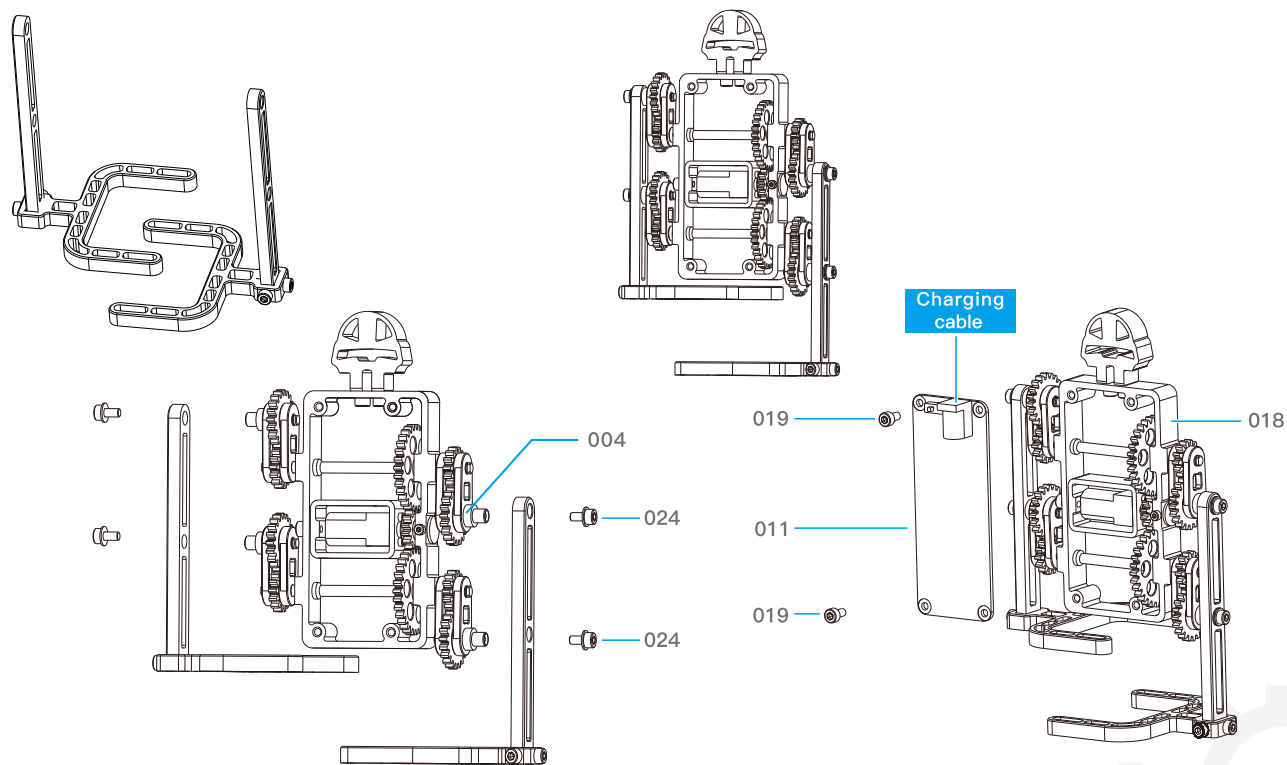


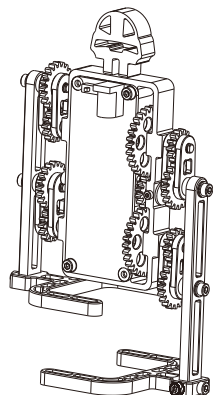


Note : that the 004 shaft must pass through the 008 gear center hole



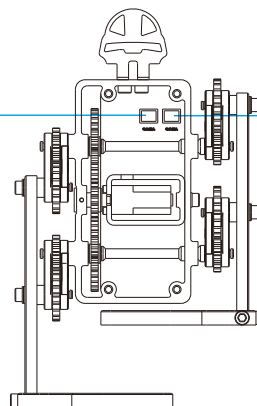
Total two sets





Battery socket

Motor socket



When closing, the motor and battery cables should be left on the right side. Be careful not to touch the gear

Battery plug

Battery socket

Motor socket

016

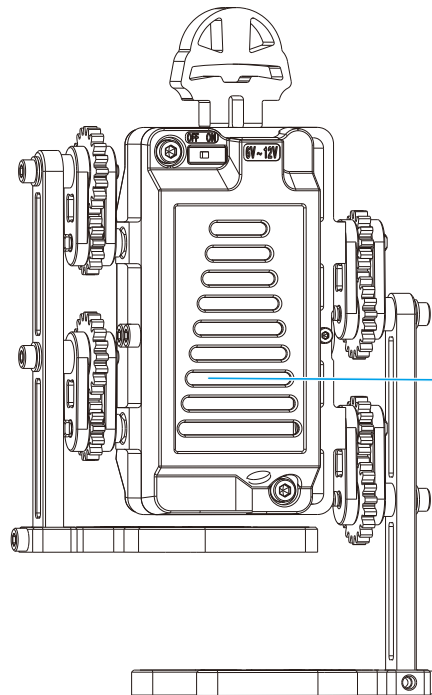
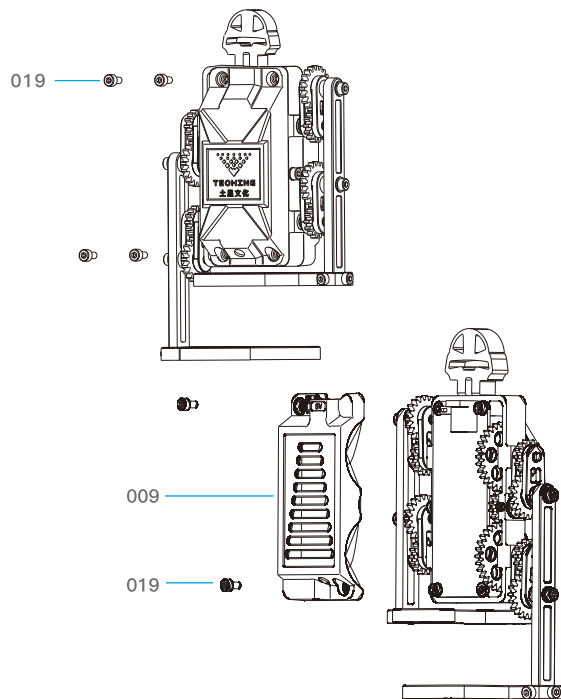
Place the battery in slot 010 after the connection of battery plug, and assemble 010/009 together.

010

Note: The battery plug and the motor plug must be connected at the designated position!

Charging state

Note: Charge before use upon completion of assembly.

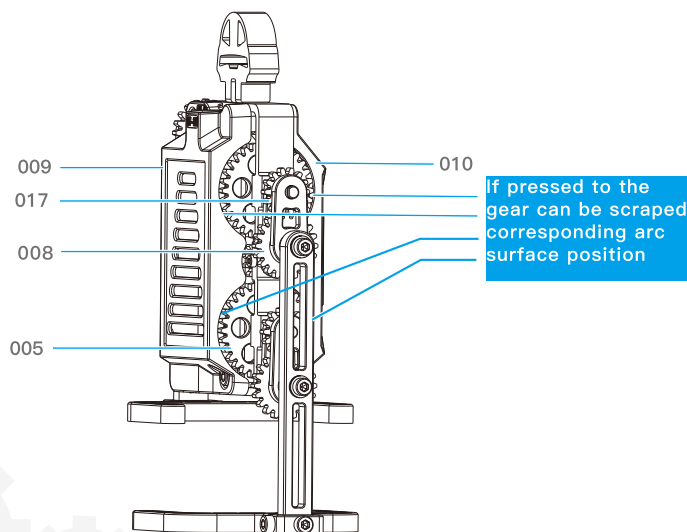


1 > This product is equipped with a dedicated charging cable. User-supplied power adapter, Its output DC voltage needs 5V, and its output DC current is not less than 1000mA. Do not use an adapter higher than 6V to charge the product;
 2 > For other precautions, please refer to the second item in the "Notes" section of this manual;
 3>Normal charging state:
 ◇ the red lamp is ON during charging;
 ◇ the blue lamp is ON when fully charged;
 ◇ the max. charging time is 2h.

Q Troubleshooting

> Mechanical troubleshooting

After assembly, if the motion is abnormal when turn on the switch, first check whether the relevant moving parts are coated with lubricating oil as shown in the figure, and then check the assembly sequence one by one according to the instructions, if no problem is detected, please follow the steps below to perform troubleshooting



1. whether the installation direction of the parts is correct.
2. Whether the screw is tightened or not, is it loose?
3. check similar parts for reverse assembly

4. Check whether the driven gear 005 and the main front cover 009 or the main back cover 010 are stuck with wires or gear transmission scraping to the arc surface. If there is a gear scraping to the arc surface, use a knife to scrape the arc surface of the front cover or the back cover.

5. Check whether pinion 017 and pinion 008 are mounted in reverse S

二 > Electronic troubleshooting

1 Charging failure

① Charger does not match

Solution:

Charge the product with a standard USB charger. The charger requires an output of 5V 1A (inclusive) or more. Use the USB head of TECHING's dedicated charging cable to plug into the USB port of the phone charger. Plug the round plug into the charging port of the product and charge it. As shown in Figure 1-1.

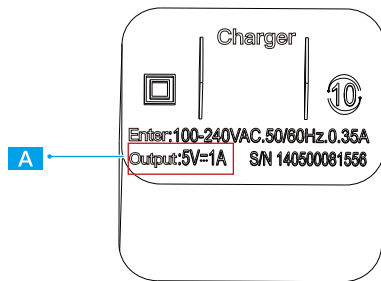


Figure1-1

Output: 5V=1A

A

② Whether the Charging cable round plug is inserted in the end.

Solutions:

Check if the round plug of Teching's special charging cable and the charging plug of the product are inserted into the end; as shown in Figure 1-2. The red light is on when charging, and the blue light is on when fully charged

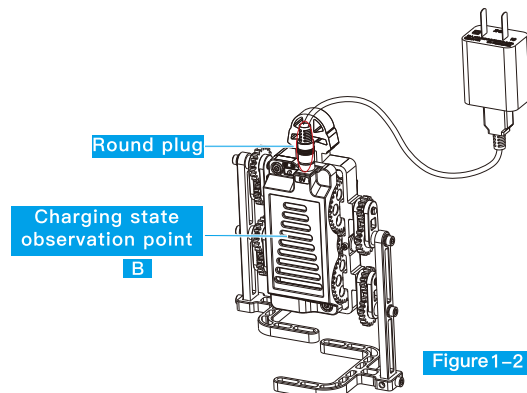


Figure1-2

Charging state observation point

B

2.The motor does not turn

①The battery is dead

Solutions:

Charging the product with TECHING's dedicated cable. The red lamp is ON during charging; the blue lamp is ON when fully charged. Turn on the power switch after fully charging to see if the motor can run normally. Turn on the power switch after fully charging to see if the motor can run normally Figure 2-1.

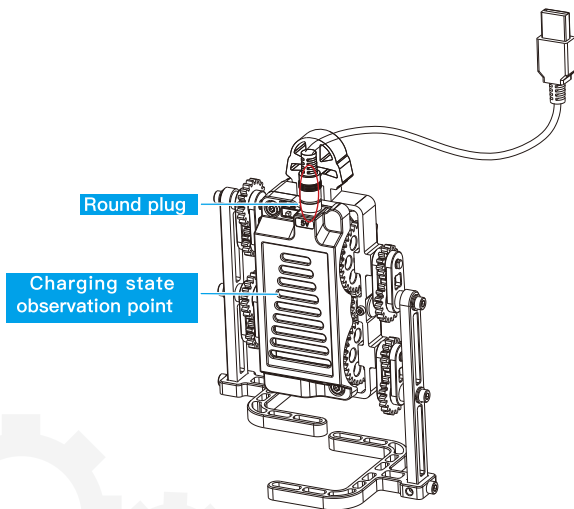


Figure 2-1

②Motor (serial number 015) plug is inserted in the wrong position

Solutions:

Check if the motor (No. 015) is in the correct position (see page 8 of the manual); as shown in Figure 2-2

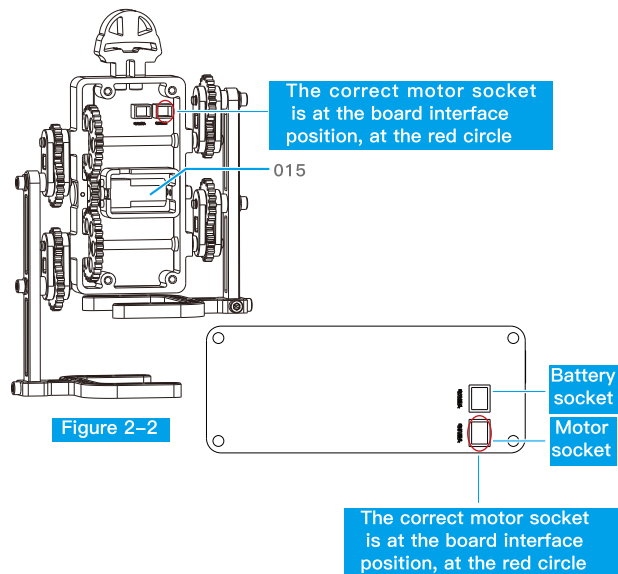


Figure 2-2

③The motor does not turn due to mechanical reasons.

Solutions:

Remove the motor from the mount to test whether the motor can run smoothly. As shown in Figure 2-3. Note: If it can run smoothly, check the mechanical part according to the mechanical troubleshooting method. If it still does not work, please consult our after-sales support or return to factory for repair.

3 other

If the above solutions can not solve the problem, please consult Our after-sales support or return to factory for repair.

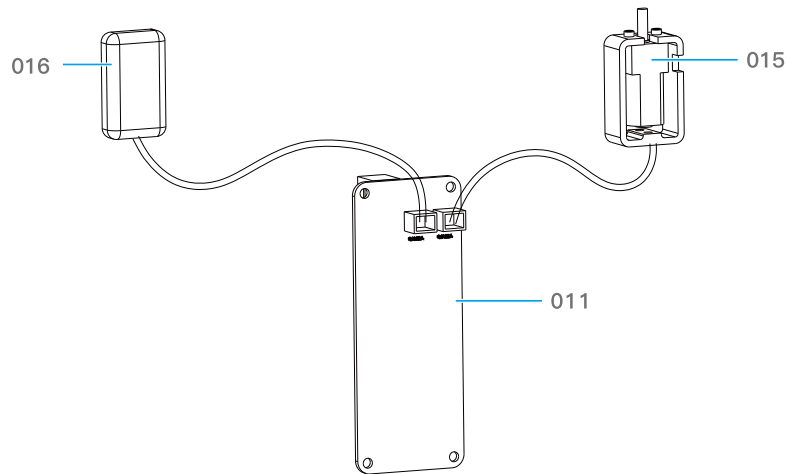
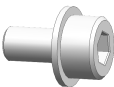


Figure 2-3

No.	Product picture	Product name	Qty.
001		Baseboard support	2
002		Driven shaft	2
003		Baseboard	2
004		Connecting shaft of baseboard	4
005		Driven gear	2
006		Gear of starting motor	1
007		Locating shaft	1
008		Bull gear of baseboard	4

No.	Product picture	Product name	Qty.
009		Front cover of body	1
010		Rear cover of body	1
011		Circuit board	1
012		Gear fixing block	8
013		Head	1
014		Motor holder	1
015		Starting motor	1
016		Battery	1

No.	Product picture	Product name	Qty.
017		Pinion of baseboard	4
018		Body	1
019		M3X6 screw	14
020		M1.6X4 screw	2
021		M2X12 screw	1
022		M3.0 Snap spring	8
023		M3X12 screw	2
024		With gasket M3*6	4

No.	Product picture	Product name	Qty.
025		Driven bushing	4
026		Shaftφ7*φ4*2.5	4
027		M2.5X6 screw	2

Warranty instruction

I. Warranty Instruction

Please carefully read the following warranty terms when purchasing this product so as to assure effective warranty for the product:

1. Since this product is for assembly experience, "7-day no-hassle return/change policy" is not available if no quality defect is found after unpacking. "7-day no-hassle return policy" is available if the package is not removed;
2. When this product is purchased, your dealer will assist you to write down your complete real information on the warranty card, when you should ask the dealer for effective invoice or purchase voucher; then, the invoice and voucher shall be properly kept;
3. Users who apply for warranty have to show their purchase invoices or effective "three guarantees" certificate. For users who lost their effective voices or "three guarantees" certificate and fail to provide their copies, the warranty period is one year from the 60th day after the manufacturing of machine;
4. The warranty object is the parts that are found with defects after purchase and before use. We provide paid services for parts damaged by improper use by users;
5. We reserve the right to interpret and modify the terms & conditions of after-sales service.

II. Items of After-sales Service and Warranty

1. The warranty period for motor, battery and circuit board is three months from the day on which they are received and accepted; the warranty period for other parts is one year from the day on which they are received and accepted;
2. The user who finds some part missed when purchasing a new machine could request the manufacturer to supply the missed part within 30 days after the purchase date on warranty card; the user has to purchase that

part at Teching's official website after the said 30 days;

3. If the assembled product fails to run or run properly, the user could either consult the manufacturer for possible causes, or send the product back to the manufacturer for free testing or debugging;
4. We and our authorized agencies provide free technical advice or instruction for users who encounter any product problem;
5. All parts and accessories replaced within the scope of the warranty belong to our company. Users have to provide defective parts so that we can exchange them with new ones.

III. Items outside Scope of Warranty

1. Beyond the "three guarantees" period;
2. Damage is caused by failure to use, maintain and keep the product as per instruction manual;
3. Products that are not sold by us or our authorized sales outlets;
4. Those who hold no valid invoice or "three guarantees" certificate, or those who modify the after-sales service card without permission (except the case where the product is confirmed to be within the "three guarantees" period);
5. The product model or serial number on after-sales service card fail to match the commodity;
6. Damage caused by force majeure (e.g. flood, fire, earthquake, lightning strike, etc.);
7. Natural wear during the use of product, e.g. the problems arising from product gaps expansion, lubricating oil shortage, and battery aging, etc.;
8. For the faults (e.g. moisture invasion, dampness, breakage, external force extrusion, deformation and improper use, etc.) caused by other factors than product quality;
9. Dealers shall make agreement on warranty coverage; the situations outside this warranty agreement are not covered by the warranty.

Sales Service

1. Scan the Teching Assistant QR code for technical consultation;
2. Relevant technical information is available at Teching's official account;
3. You can call our hotline directly and consult our technician;
4. Technical consultation can be sent to us by mail;
5. Technical advice can be obtained from nearby authorized agencies;
6. You are encouraged to bring forward your comments and suggestions on our products and your expectations for new products in various manners.



Sales service card

Account name: _____ Tel: _____

Product name: _____ Product No.: _____

Serial number of product: _____

Problem description: _____

Service content:

- ☐ Part replenishment ☐ Testing service
☐ Part replacement ☐ Return and change of goods needed

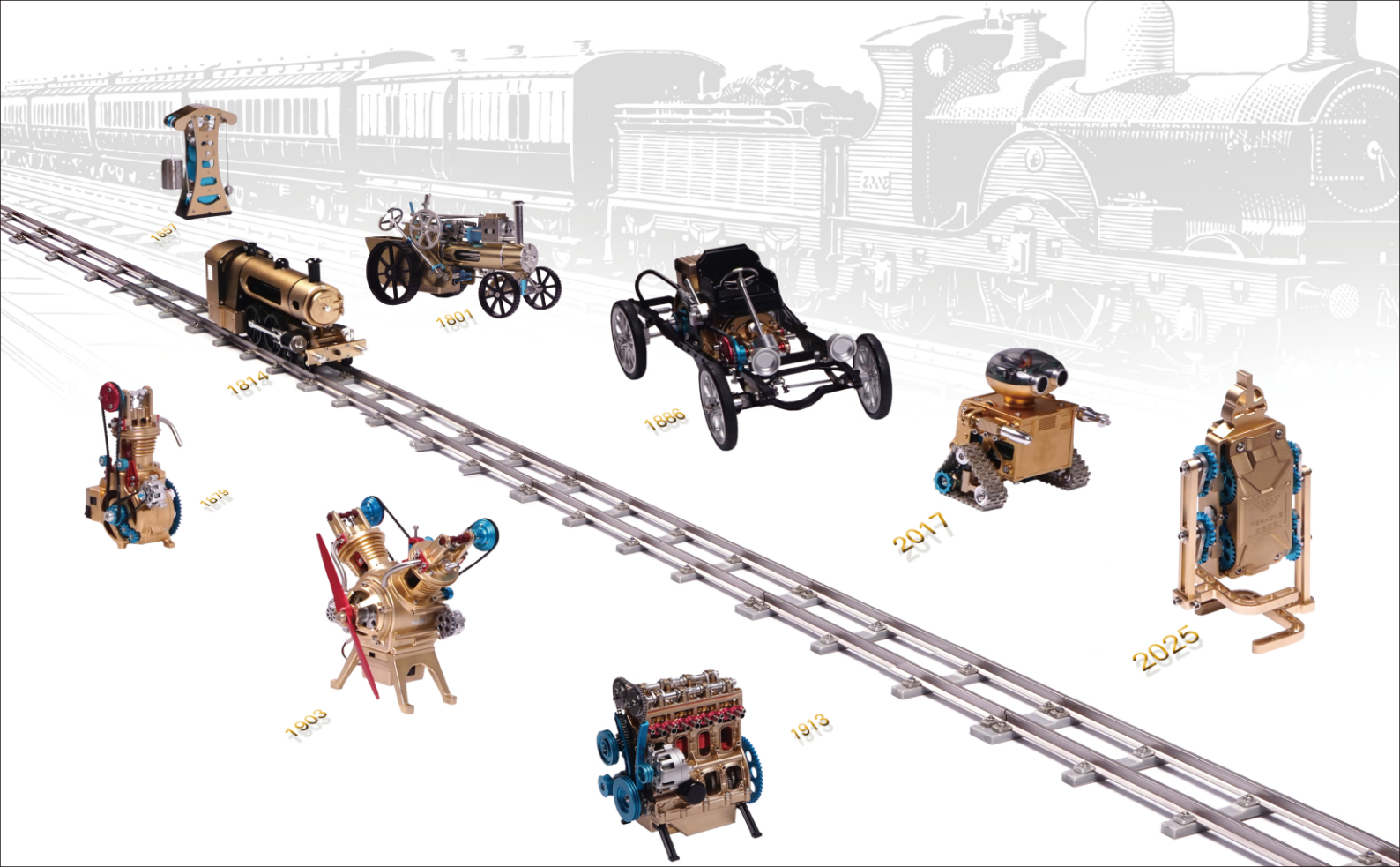
Sales unit: _____

Place of sale: _____

Operator: _____ After-sales completion time: _____

Company:
Guangzhou Teching Cultural Development Co., Ltd.
Address:
Baosheng Building, Hongming Road,
Huangpu District, Guangzhou City, China
After-sales email: sales@techingedu.com.cn
Hotline: 0086-13924277386 4001-020-019





1637

1814

1801

1886

1876

2017

2025

1903

1913

Educational • Original design • Patented



Company: Guangzhou Teching Cultural
Development Co.Ltd

Address: Bao sheng Building, Hong ming Road,
Huangpu District, Guangzhou City, China.

Service Tel: 0086-13924277386 4001-020-019

After-sales email: sales@techingedu.com.cn

<http://www.techingedu.com>



Official Website