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# Specification for after-sales service of electric bicycles

# 电动自行车售后服务规范

*（English Translation）*

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# Content

# Foreword

SAC/TC 155 is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

This standard is drafted in accordance with rules given in GB/T 1.1-2020 *Directives for standardization—Part 1: Rules for the structure and drafting of standardizing documents.*

This standard was proposed by China National Light Industry Council.

This standard was prepared by SAC/TC 155 (Technical Committee 155 on Bicycle of Standardization Administration of China).

# Specification for after-sales service of electric bicycles

## 1 Scope

This document specifies the relevant requirements for the manufacturer, service provider, after-sales service points,after-sales service personnel, after-sales service process, after-sales service quality, consumer follow-up and complaint handling for after-sales service of electric bicycles.

This document is applicable to the after-sales service of electric bicycles (as specified in GB 17761) by the manufacturer, service provider, and after-sales service point.

This document is not applicable to after-sales service of electric bicycles for special purposes such as delivery, express, and leasing.

## 2 Normative references

The following referenced documents contain provisions which, through normative reference in this text, constitute indispensable provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 17761 *Safety technical specification for electric bicycle*
GB/T 22199.1—2017 *Valve-regulated lead-acid batteries for moped—Part 1:Technical conditions*
GB/T 27922 *Evaluation system for after-sales service of commodity*
GB/T 36972—2018 *Lithium-ion battery for electric bicycle*
GB/T 37281 *Technical specification for recycling waste lead acid battery*
GB/T 39224 *Technical specification for used batteries take-back*

## 3 Terms and definitions

For the purpose of this document,the terms and definitions given in GB 17761 and the following apply.

3.1
consumer

organization or individual who purchases, uses goods or receives services

3.2
manufacturer

business that creates products

3.3
service provider

organization authorized by the manufacturer(3.2) for the management of regional after-sales service points

3.4
after-sales service

a series of activities and measures provided after the goods are sold to meet the needs of consumer(3.1)

3.5
after-sales service point

service organization authorized by the manufacturer (3.2) to provide relevant after-sales service (3.4) directly to the consumer (3.1)

## 4 Manufacturer

4.1 The manufacturer shall reasonably arrange service providers and after-sales service points according to the product sales regions and sales volume.

4.2 The manufacturer shall define after-sales service philosophy and service commitment fitting to its characteristics, strictly review and authorize the service provider's access qualifications, and achieve effective control of the service provider, after-sales service points, service quality tracking and feedback, and service provider's qualification renewal or cancellation.

4.3 The manufacturer shall provide service assurances, including:

a) supervising service providers or after-sales service points to conduct regular or random service professional technical and skills training for the technical and service personnel, to ensure that they can have good quality and technical service capability.
b) conducting regular inspections of the service quality of service providers and after-sales service points;
c) conducting the regular evaluation of the after-sales service points directly managed by the manufacturer according to GB/T 27922, collecting the evaluation information of the after-sales service points under the service provider, and proposing the goal of service improvement and implementing the improvement;
d) ensuring a proper and adequate supply of parts for the sold vehicle within 3 years from the date of purchase of the electric bicycle by the consumer;
e) being responsible for the recycling of used parts and relevant management of the service providers and after-sales service points;
f) having the obligation to assist the service providers to establish the service systems;
g) publishing the warranty provisions and complaint channel on the company’s website, service platform, or user manual.

## 5 Service provider

5.1 The service provider shall define the after-sales service concept and commitment according to its characteristics.

5.2 For the activities and processes of after-sales service, the service provider shall formulate corresponding systems and obtain standardized service management capabilities, such as the establishment of after-sales service points, electric bicycle maintenance, after-sales service dispute resolution, and other procedures.

5.3 The service provider shall provide internal assurances, including at least the following:

a) having the service qualification authorized by the manufacturer, basic site conditions, business license, tax qualification, service telephone, etc.;
b) maintaining professional technical and skills training for the technical and service personnel;
c) conducting regular inspections of the service quality of after-sales service points;
d) conducting regular evaluations of the service quality of after-sales service points according to GB/T 27922, and addressing the issues identified;
e) implementing effective evaluation, reward, promotion, and employee care mechanisms;
f) ensuring consumers' after-sales service demands can be resolved after the cancellation of any after-sales service point.

5.4 After-sales service points shall be set up reasonably according to the distribution of sales regions to ensure full coverage of after-sales services in such sales regions.

## 6 After-sales service point

6.1 The after-sales service point shall meet the management and fire protection requirements of the national and local government and fire department.

6.2 In principle, the after-sales service point shall have at least 2 service personnel, and the number can be increased according to the actual business situation.

6.3 The after-sales service point shall meet the following requirements:

a) service area, storage area, charging area, etc., shall be divided by function;
b) the after-sales service point shall not be used for the accommodation purpose;
c) the after-sales service point shall not be unattended when charging, and shall carry out charging in a special and properly marked area with relevant fire protection facilities in place;
d) when an electric bicycle is stored, the circuit breaker shall be turned off or the battery connection line shall be disconnected;
e) flame-retardant materials shall be used for night storage of the electric bicycle; if there is no flame-retardant material, the battery shall be removed and placed separately;
f) the battery storage area shall be kept away from heat sources, flammable, explosive, and other substances.

6.4 The electric bicycle shall not be modified without permission in violation of relevant national regulations, and the original performance shall not be changed.

6.5 The after-sales service point shall have capabilities to provide spare parts, technical consultation, repair or maintenance, etc.

6.6 The service site shall clearly show valid after-sales service contact information, commitment, cost rates, etc.

6.7 Effective supervision shall be conducted on the quality of service.

6.8 Customer satisfaction of service providers should be evaluated regularly.

6.9 The provision of equipment shall meet the following requirements:

a) equipped with tools corresponding to the maintenance service, Tools list see Annex A;
b) equipped with safety protection facilities, for example, lithium-ion batteries shall be stored in explosion-proof boxes, cabinets and other similar devices, where the used and new lithium-ion batteries shall be stored separately.

6.10 Cancellation of after-sales service point

In the following circumstances, service provider shall cancel the after-sales service point:
a) the after-sales service point is not well managed and is incapable of actual operation;
b) occurrence of closure, suspension, changing of business, etc.;
c) poor service quality, which has a negative impact on brand reputation and serious consequences;
d) the qualification is revoked as a result of fraudulent practices, and serious violations of regulations and contracts;
e) there are major safety hazards.

6.11 The after-sales service point shall provide 24-hour telephone and maintenance and rescue services, and inform the rescue telephone and cost rates in advance.

## 7 After-sales service personnel

7.1 After-sales service personnel shall undergo professional and systematic training and professional technical theoretical guidance, have the professional skills required for the job, and obtain the qualifications for the job.

7.2 After-sales service personnel shall be familiar with laws and regulations on product quality and consumer rights protection, and have basic technical knowledge in the field of after-sales service.

7.3 Establish service personnel level file management according to the service skills.

## 8 After-sales service process

### 8.1 After-sales service process requirement

A complete, scientific, reasonable after-sales service process shall be established, and the after-sales service process shall include the following contents:

a) consumer appointment;
b) user reception;
c) test and diagnosis;
d) confirmation of service items;
e) confirmation of service quotation;
f) implementation of service items;
g) notification of maintenance items;
h) overall inspection upon completion;
i) cost settlement and electric bicycle handover;
j) consumer evaluation.

8.2 Service provided within the warranty scope

8.2.1 The after-sales service point shall provide standardized services to consumers in accordance with relevant laws and regulations, relevant product repair, replacement and return liability regulations, product instructions for use or other commitments. Paid services shall not be disguised under the warranty services. Within 7 days from the date of purchase of the product, the user can choose to repair, replace or return the product, if the performance fault of the main parts caused by non-human damage affects the use. Within 15 days from the date of purchase, the user can choose replacement or repair, if the performance fault of the main parts caused by non-human damage affects the use.

8.2.2 If a main part of electric bicycle has performance faults within the warranty period, it shall be repaired or replaced in accordance with the principle of minimum unit maintenance.

8.2.3 Within the scope of warranty service for electric bicycle products, the free warranty period shall comply with Annex B.

8.3 Service provided beyond the warranty scope

8.3.1 For a product within the warranty period, paid service can be provided under the following circumstances:

——damage caused by force majeure;
——damage caused by responsibility other than the manufacturer and seller, such as unauthorized modification of the electric bicycle;
——the after-sales warranty certificate/invoice does not match the electric bicycle;
——the battery disassembled by an unauthorized third party;
——damage caused by the consumer not correctly using, maintaining, or repairing the product in accordance with the user manual;
——unable to show after-sales warranty certificate or valid invoice and unable to prove that the product purchased is within the valid warranty period.

8.3.2 For a product beyond the warranty period, the after-sales service point can provide

paid services to consumers.

## 9 After-sales service quality

### 9.1 Maintenance service

9.1.1 Before maintenance service, the after-sales service personnel shall conduct an initial inspection of the electric bicycle that needs to be repaired, see Annex C, and see Annex D for the main parts and performance faults.

9.1.2 After the initial inspection, follow the relevant provisions of 8.2 and 8.3.

9.1.3 Upon completion of the after-sales service, an overall inspection of operation shall be conducted, see Annex C. Only after passing the inspection can it be delivered to the user.

9.1.4 After the repair of the electric bicycle, the after-sales service personnel shall ask the consumer for in person acceptance. Upon the acceptance, it shall be confirmed by the consumer on record of after-sale service.

9.1.5 After-sales service information shall be recorded completely and comply with the requirements of 9.5.

9.1.6 The after-sales service point shall bear the responsibility and losses caused by its own fault of maintenance.

### 9.2 Provision of after-sales service part

9.2.1 The after-sales service point shall use the same specification parts which are provided or approved by the original factory and meet the standards. Corresponding spare parts reserves are also needed.

9.2.2 If the after-sales service point cannot provide the parts specified in 9.2.1 due to product upgrades or other reason, one or more parts with similar performance can be used instead, provided that the safety performance and environmental protection characteristics shall meet the national standards and the details shall be recorded in the after-sales service record.

9.2.3 The after-sales service point shall clearly show the warranty period and other information on the paid service of main parts.

### 9.3 Disposal of replacement part

9.3.1 Within the warranty period, replaced part shall be recovered by the after-sales service point. Beyond the warranty period, the replaced part shall be returned to the consumer. In some special cases, it can be recovered by the after-sales service point after obtaining the consent of the consumer.

9.3.2 The after-sales service point shall replace the decommissioned battery in the way of "replace one, recovery one", and verify the information of the electric bicycle owner and record the replacement information of the battery. Recovered waste lead acid batteries

shall be disposed according to GB/T 37281, and recovered lithium-ion batteries shall be disposed according to GB/T 39224.

9.4 Safety specification

9.4.1 During the after-sales service activities, the fixing, insulation, isolation, shielding devices, etc., might be disassembled for the following work. After completing the after-sales service, the devices shall be restored to their original state.

9.4.2 During the after-sales service activities, the parts irrelevant to the service shall not be disassembled or replaced.

9.4.3 During the after-sales service activities, repair and replacement of parts shall not reduce the original safety performance of electric bicycles.

9.4.4 In case of any breakage or damage from the electric wiring harness, supply cord and conductors, plugs and socket-outlets, switches, or other electrical devices, the user shall be notified in time and the repair shall be conducted by after-sales service personnel.

9.5 After-sales service record

9.5.1 After-sales service records including information on consumers, products, services, etc., shall be legible, clear, and neatly written.

9.5.2 Customer information shall include the user's name and contact number.

9.5.3 Product information shall include brand, name, model and the vehicle identification number.

9.5.4 Service information shall include service provision date, service location, service provider, fault description, parts list, cost charging information and user confirmation.

9.5.5 The after-sales service point has the obligation to keep consumer information confidential, and shall not disclose consumer service information without the consent of consumer. Service information shall be kept for at least one year and may be kept in electronic form.

10 Consumer follow-up and complaint handling

10.1 Consumer follow-up and information feedback system

The after-sales service point shall establish a consumer follow-up and information feedback system, including:

a) establishing after-sales service records and service technical file management;
b) establishing procedures for consumer telephone follow-up and satisfaction surveys after maintenance;
c) establishing procedures for consumer review, complaint handling and feedback;
d) establishing procedures for communication with the manufacturer;

e) the manufacturer shall provide the official hotline, official website complaint window, etc., and the service provider and after-sales service point shall establish clear service consultation and complaint feedback.

10.2 The after-sales service point shall set up a dedicated organization and personnel to conduct follow-up visits by telephone, WeChat, and so on after maintenance. Moreover, the consumer reviews shall be handled on time, the original record of follow-up visits shall be properly kept, and the information shall be fed back to the service provider.

10.3 When consumers give their reviews on the improvement of the after-sales service point, they shall be informed of the improvement results at an appropriate time and in an appropriate way.

10.4 The after-sales service point shall ensure timely and effective handling of consumer complaints to improve consumer satisfaction with products and services.

10.5 When consumers cannot reach a consensus on complaint matters with the after-sales service point and service provider, they shall be informed of other legal channels and relevant institutions for complaint handling.

10.6 The remedial measures and handling results of consumer complaints shall be fed back to consumers within the agreed time.

10.7 Major complaints and quality disputes shall be resolved reasonably through legal channels.

10.8 Scope of complaint handling

The manufacturer and service provider shall define the scope and specific content of complaints to be handled, to lay groundwork for all aspects of complaint handling.

Scope of complaints to be handled:

——includes complaints about the quality problems of the products they sold;
——excludes product quality complaints caused by force majeure;
——excludes other complaints that may not be handled, e.g., complaints beyond the specified time limit will not be handled.

# Annex A
# (Informative)
# Tools list for after-sales service points of electric bicycles

A.1 For the list of tools equipped in after-sales service points of electric bicycles, see Table A.1.

Table A.1—Tools list for after-sales service points of electric bicycles

| NO. | Tool name |
|---|---|
| 1 | Multimeter |
| 2 | Megohmmeter |
| 3 | Battery capacity tester |
| 4 | Charger tester |
| 5 | Common disassembly tools, such as wrench, crimping pliers, etc. |
| 6 | Inflation tools |

Note Tools equipped in the after-sales service point include but are not limited to the above-listed.

# Annex B
# (Normative)
# Warranty period and scope for electric bicycle products

B.1 The warranty period and scope for electric bicycle products, provided that it is not caused by force majeure or human error, are shown in Table B.1.

Table B.1—Warranty period and scope for electric bicycle Products

| Description | Warranty Period (Year) | Remark |
|---|---|---|
| Motor | 2 | Unable to function normally, and the efficiency is below the specification in the user manual. |
| Front fork, frame, handlebar, rear fork | 1 | Breakage or weld crack within the warranty period, other than those caused by force majeure. |
| Rims | 1 | Breakage or weld crack within the warranty period, other than those caused by force majeure. |
| Controller | 1 | Unable to function normally within the warranty period. |
| Charger | 1 | Unable to function normally within the warranty period. |
| Meter | 1 | Unable to function normally within the warranty period. |
| Plastic parts | 0.5 | Discoloration or paint peel-off within the warranty period. |
| Shock absorber | 1 | Breakage or weld crack, shock absorber leakage or loss of shock absorption within the warranty period, other than those caused by force majeure. |
| Lead acid battery | 1 | Unable to function normally within the warranty period;<br><br>Replacement with new batteries (within the replacement period): within 6 months from the date of purchase by the user, and when the capacity is under 85% of the rated capacity;<br><br>Replacement with special batteries for after-sales service (within the warranty period): from the 7th month to the 12th month after the date of purchase by the user, and when the capacity is under 70% of the rated capacity;<br><br>Note The battery capacity shall be tested according to the capacity test method specified in GB/T 22199.1-2017. |

| | | |
|---|---|---|
| Lithium-ion battery | 2 | Unable to function normally within the warranty period;<br><br>Replacement with new batteries (within the replacement period): within 12 months from the date of purchase by the user, and when the capacity is under 80% of the rated capacity;<br><br>Replacement with special batteries for after-sales service (within the warranty period): from the 13th month to the 24th month after the date of purchase by the user, and when the capacity is under 70% of the rated capacity;<br><br>Note The battery capacity shall be tested according to the capacity test method specified in GB/T 36972—2018. |

# Annex C
# (Informative)
# Inspection requirements

## C.1 Maintenance point inspection

### C.1.1 Inspection of structural parts

Frames, front forks, rear forks, wheels, and rear rack shall not bear visible cracks, and each part of the frame shall not be damaged, deformed or loose.

### C.1.2 Inspection of electrical system

1) Braking performance: Brake is sensitive and effective;
2) Braking Power-off function: Automatically disconnect the power supply by using brakes so that the motor does not work.
3) Motor: When riding with a load, the motor works properly without abnormal noise;
4) Switch and throttle: The switch can be toggled flexibly, related functions operate normally, and the throttle can rotate easily;
5) Lamps: Head lamp, rear lamp and direction indicators work properly;
6) Meter: Voltage displays properly, driving speed displays properly and all indicators work normally;
7) Horn: The sound is normal;
8) Charger: Verify the consistency between the current charger model and the model specified in the user manual, and then check the changing state, while the red light means charging and the green light means fully charged and stopped;
9) Wiring harness: There is no damage on the surface, and the wires are well connected;
10) Short-circuit protection: Check the presence of short-circuit protection within the charging circuit and battery output circuit, and the specifications meet the requirements as specified in the user manual or other expressly stated regulations;
11) Insulation resistance: The insulation resistance value shall be greater than 1MΩ.

### C.1.3 Inspection of control system

1) Wheel: Free rotation, no binding, and no jerking when riding;
2) Front fork: Free rotation, no binding, and no jerking when riding;
3) Rear fork: Free rotation, no binding, and no jerking when riding;
4) Handlebar: Installed firmly, without shaking, and the handlebar stem is inserted to a depth within the range of the safety line;
5) Saddle: The saddle is installed firmly without looseness, and the inserted depth of the seat-post is within the range of the safety line;
6) Pedal riding: The pedal riding function works well, no abnormal noise or looseness occurs, the bottom-bracket spindle rotates flexibly, and the pedals do not follow the rotation under electric drive.

C.1.4 Inspection of anti-theft device

1) Power lock: Can effectively lock the steering mechanism (if any);
2) Anti-theft device: Can lock the motor so that it cannot rotate.

C.1.5 Consumer feedback

Test according to any faults reported by consumers.

C.2 Troubleshooting items

Table C.1—Troubleshooting items

| No. | Fault | Pre-repair inspection | Inspection after replacing parts |
|---|---|---|---|
| 1 | Motor | ①Whether the motor bears any visible cracks;<br>② Whether the motor works normally without shaking, whether the speed is stable and any abnormal noise occurs during operation;<br>③Whether the motor is overheated abnormally;<br>④Whether the motor wire is aged or damaged. | ①Whether the specification and model of the replaced motor are consistent with the electric bicycle certificate;<br>②Whether the motor fastening is reliable;<br>③Whether the motor wire is provided with a sleeve;<br>④Whether the phase wire of the motor is fixed with the fixing point of the frame and is not squeezed;<br>⑤Whether the working state of the throttle control motor is effective;<br>⑥Whether the motor operates smoothly, and the sound is uniform without noise;<br>⑦Whether the brake matched with the motor is effective. |
| 2 | Controller | ①Whether the motor is rotating without abnormal noise;<br>②Whether the connector of the controller has fallen off or broken. | ①Whether the replaced controller matches the specifications of the motor and the electric bicycle certificate;<br>②Whether the connector of the controller is firmly plugged without faulty joints, and whether the connector includes waterproof rubber sleeves;<br>③The motor can rotate normally;<br>④The meters display properly;<br>⑤The controller should be able to stop output while receiving the braking power off command;<br>⑥Ride to confirm whether it is normal. |

| | | | |
|---|---|---|---|
| 3 | Battery | ①Battery voltage test;<br>② Capacity and temperature test;<br>③Whether the label on the battery is intact and clear;<br>④Whether the battery wire is damaged or exposed;<br>⑤ Whether there is any corrosion on the positive and negative electrodes of the battery;<br>⑥Whether the battery bears visible damage, swelling or leaking;<br>⑦ Charging and discharging test. | ①Whether the specification and model of the replaced battery are consistent with the electric bicycle certificate;<br>② The battery bears no visible damage, swelling or leaking;<br>③ The battery is firmly fixed without looseness;<br>④The battery wire is firmly connected, the length is appropriate, there is no mechanical squeeze, and the wire core is not exposed;<br>⑤ The voltage value meets the standard value. |

# Annex D
# (Informative)
# Main performance faults of the key parts and systems of electric bicycles

D.1 Main performance faults of the key parts and systems of electric bicycles are shown in Table D.1.

Table D.1—Main performance faults of the key parts and systems of electric bicycles

| No. | Part and System | Main performance fault |
|---|---|---|
| 1 | Motor | Coil fractured, hall damaged, short circuit, open circuit, carbon brushes fault, incorrect phase line connection, shell cracking, magnetic steel demagnetization, hub fractured, bearing broken, binding, and any other faults that affects normal operation. |
| 2 | Battery | Short circuit, open circuit, swelling, liquid leakage, shell damaged or burnout, terminal burnout, unable to charge and discharge normally, etc. |
| 3 | Controller | Burnout, runaway, short circuit or open circuit, fault of relevant protection functions, etc. |
| 4 | Charger | Short circuit or open circuit, abnormal sound, insufficient charging or no charging, fuse fracture, indicator light not switching, light off, serious parameter drift, heat deformation, burnout, etc. |
| 5 | Voltage converter | Short circuit, open circuit. |
| 6 | Hydraulic brake | Cracking, abnormal noise, oil leakage, brake fault and other quality causes. |
| 7 | Meters | No display, short circuit, pointer cannot be reset, black screen, full screen and other quality causes. |
| 8 | Switches/Assemblies | Malfunction, unable to switch, buttons falling off, short circuit, rupture and other quality causes. |
| 9 | Transmission system | Chain breakage, flywheel jamming or sliding, electric aid sensor fault, bottom-bracket spindle breakage, abrasion of the bottom-bracket cups, etc. |
| 10 | Braking system | Brake shoes cannot return, brake failure, brake lever breakage, sudden braking without buffering, braking power-off function cannot work, etc. |
| 11 | Front wheel | Fracture, bearing damaged. |

| | | |
|---|---|---|
| 12 | Frame, handlebar, front fork, rear fork | Weld crack, missing welds, fracture, front fork spring broken, bending deformation that affects performance, porosity, paint peeled. |
| 13 | Throttle | Short circuit or open circuit, speed stalling, non-return, cannot adjust speed, etc. |
| 14 | Wiring harness | Short circuit, broken, wire or connectors damaged, poor contact, etc. |