

Dear User,

Thank you for choosing the pure electric bus manufactured by Nanjing Hengtian Lingrui Automobile Co., Ltd.

The HTK6780YBEV is a pure electric bus newly designed and developed by our company. It features energy saving, environmental protection, zero pollution emissions, low noise and low operating costs, and is suitable for commuter, airport shuttle and commercial line operations.

This manual covers the vehicle equipment systems, operation, common emergency handling, maintenance and servicing, and main technical specifications. Please follow the instructions carefully in order to achieve safe driving, extend the service life of the vehicle and improve economic benefits.

As technology continues to advance, the pure electric series city bus will also be continuously improved and perfected. We will supplement and adjust the relevant contents of this manual in a timely manner according to the actual condition of the vehicle. If you discover any problems or have any questions, please contact us promptly and we will provide explanations and improvements. Service hotline: 025-56225815.

Thank you for your support and patronage of Lingrui Automobile. We wish you pleasant driving!

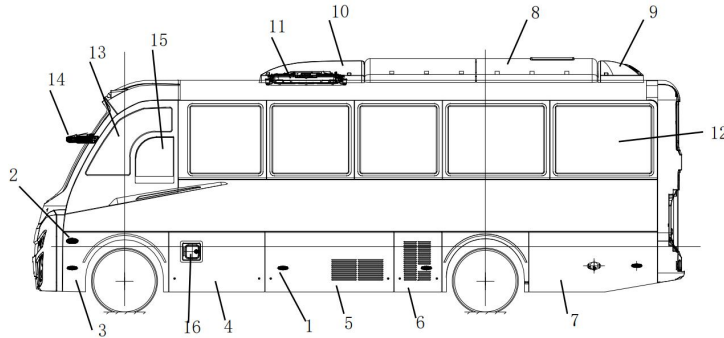


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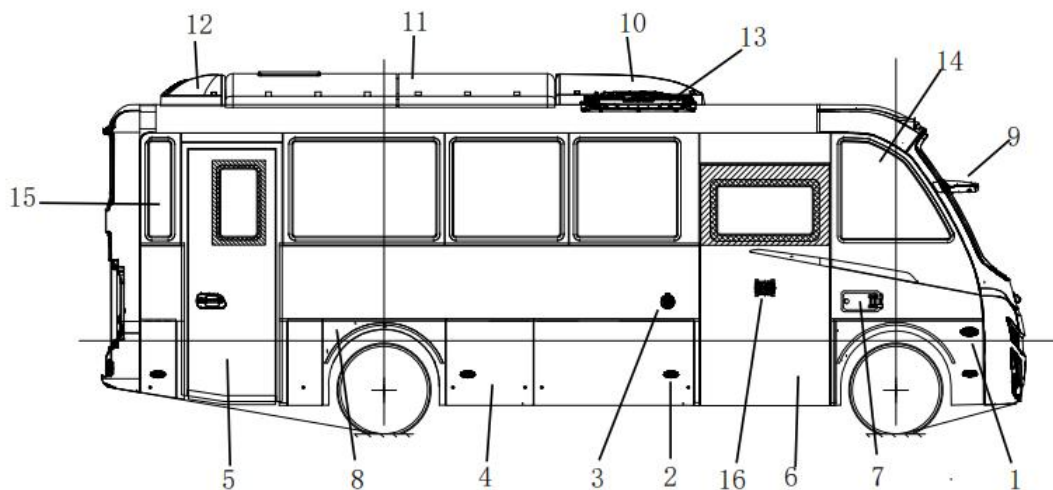


Exterior Description

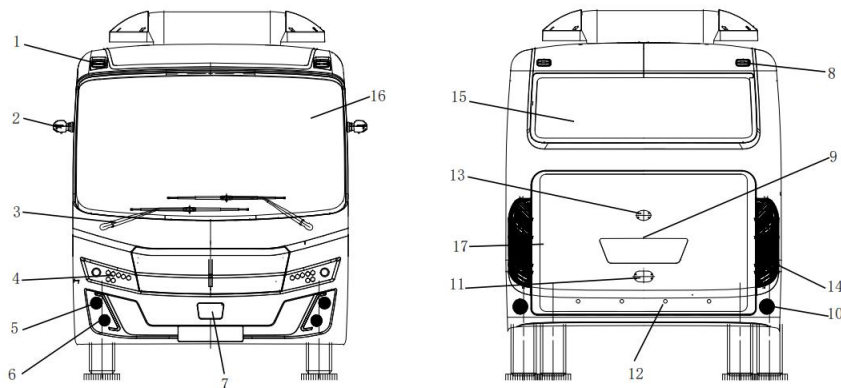
The following vehicle exterior illustrations are schematic diagrams and may differ slightly from the actual vehicle. The actual vehicle shall prevail.



1. Side marker lamp 2. Turn signal lamp 3. Wheel arch panel 4. Low-voltage battery compartment door 5. Traction battery compartment door 6. Radiator compartment door 7. Rear side compartment door 8. Air conditioner 9. Rear air-conditioner trim cover 10. Front air-conditioner trim cover 11. Safety skylight 12. Side window 13. Driver's window 14. Electronic exterior mirror 15. Power-operated window 16. Low-voltage power switch small door



1. Side turn signal lamp 2. Side marker lamp 3. Emergency valve 4. High-voltage compartment door 5. Emergency door 6. Passenger door 7. Charging small door 8. Wheel arch door 9. Electronic exterior mirror 10. Front air-conditioner trim cover 11. Air conditioner 12. Rear air-conditioner trim cover 13. Safety skylight 14. Front-passenger side window 15. Side window 16. Passenger door lock



Vehicle Exterior — Front and Rear

1. Front clearance lamp 2. Electronic exterior mirror 3. Wiper arm 4. Daytime running lamp 5. Front high/low beam lamp 6. Front fog lamp 7. Front radar cover plate 8. Rear clearance lamp 9. Rear license plate lamp 10. Rear fog lamp 11. Rear compartment door handle 12. Reversing radar 13. Rear compartment door pull handle 14. Rear combination lamp 15. Rear windshield 16. Front windshield 17. Rear compartment door

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Important Information Related to This Manual

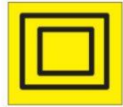
Instructions for Use

Important Notes

High-voltage components are affixed with high-voltage safety warning labels and secondary insulation labels.



高压电安全警示标贴



二级绝缘标贴

These are used to warn you that there is high voltage inside the component. It is forbidden to disassemble, repair or replace it without authorization. Please pay attention to the relevant warnings, otherwise there may be a risk of electric shock.

Non-professionals are strictly forbidden to open any high-voltage compartment door by themselves.

Environmental Protection and Energy Conservation

When using, maintaining, parking, consuming energy or scrapping the bus (including abandoned or discarded parts and consumables), the user shall strictly abide by and implement the laws, regulations, rules and standards and technical specifications concerning environmental protection and energy conservation issued by the State and relevant authorities, make every effort to protect the environment, avoid and prevent environmental pollution, properly handle pollution accidents, and adopt effective measures to reduce energy consumption.

When the new energy vehicle reaches the scrapping requirements, it is recommended that you operate according to the following process:

1. Deliver the vehicle to a Hengtian Lingrui recycling service outlet, where Hengtian Lingrui will assess the residual value of the traction battery.

battery.

2. Send the assessed vehicle to an end-of-life vehicle recycling and dismantling enterprise to dismantle the traction battery.
3. Hand over the used traction battery dismantled by the vehicle recycling and dismantling organization to the recycling service outlet, which will buy back the traction battery.



Environmental Protection

The owner of a new energy vehicle has the responsibility and obligation to hand over the used traction battery to a recycling service outlet.

Those who privately hand over used traction batteries to other units or individuals, or privately disassemble or dismantle traction batteries, and thereby cause environmental pollution or safety accidents, shall bear corresponding responsibility.

Referenced Standards

GB 9969.1-1998 "General Principles for Industrial Product Instruction Manuals"

Nanjing Hengtian Lingrui Automobile Co., Ltd. Enterprise

Standard Q/HYK C011-2017 "Technical Requirements for Pure Electric City Buses"

Validity of the Manual

As Lingrui Automobile continuously improves and upgrades its products, the contents and illustrations contained in this manual may be updated from time to time without further notice. Please refer to the actual condition of the vehicle.

Reading This Manual

About Symbols

WARNING

- Tells you what you must do or must not do to reduce the risk of serious injury or death to you and others. Failure to follow this warning may cause personal injury or life-threatening danger to you or others.

CAUTION

- Tells you what you must do or must not do to avoid or reduce vehicle damage. Failure to follow this caution may cause damage to the vehicle.

NOTE

- The note contains auxiliary information that may be helpful to you.

About Icons and Illustrations

The illustrations in this manual are generic images (for reference only) used to show certain features or functions of the vehicle for supplementary explanation and to help you understand the specific situation.

Markings in the Illustrations



This marking indicates the part currently being described.



This marking is used to indicate an operation action.



This marking is used to indicate the direction of an action.

Vehicle Orientation in the Illustrations

Unless otherwise specified, all statements in this manual concerning vehicle orientation (front, rear, left, right) are based on the direction of vehicle travel.

Introduction to the Electric Bus

Overview

A pure electric vehicle is composed of an electric drive system, chassis, body, electrical equipment and so on. Compared with conventional vehicles, the main difference of a pure electric vehicle lies in the drive system. The drive system of a pure electric vehicle consists of an electric motor, a motor speed-regulating control device and a power supply, where the energy of the motor comes from the battery. In

NOTE

Regenerative braking:

- When the SOC is 100%, regenerative braking is not engaged;
- When the SOC is 99%, regenerative braking is engaged, but the regenerative force is weak and the driver can hardly feel obvious braking force.

In addition, the drive system of a pure electric vehicle can also have a braking energy recovery function as actually required.

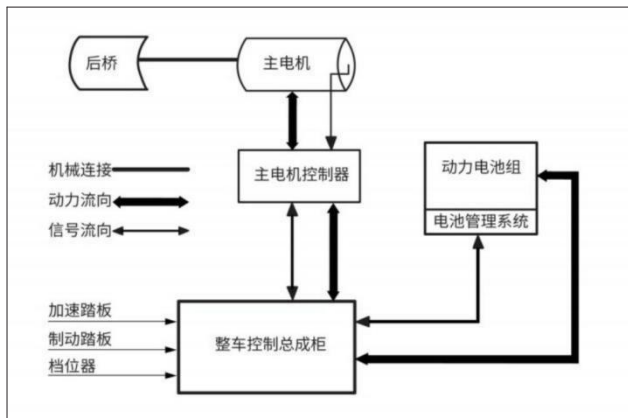
Because of the difference in the drive system, the other systems of the vehicle also change accordingly.

Vehicle Control Software

The driving process of a pure electric city bus is managed and controlled by the vehicle management system, which consists of two parts: the vehicle control unit and the vehicle control software. The vehicle control software is divided into six parts: the initialization module, power-on logic control module, motor drive/brake control module, auxiliary system management module, network communication module and fault diagnosis module.

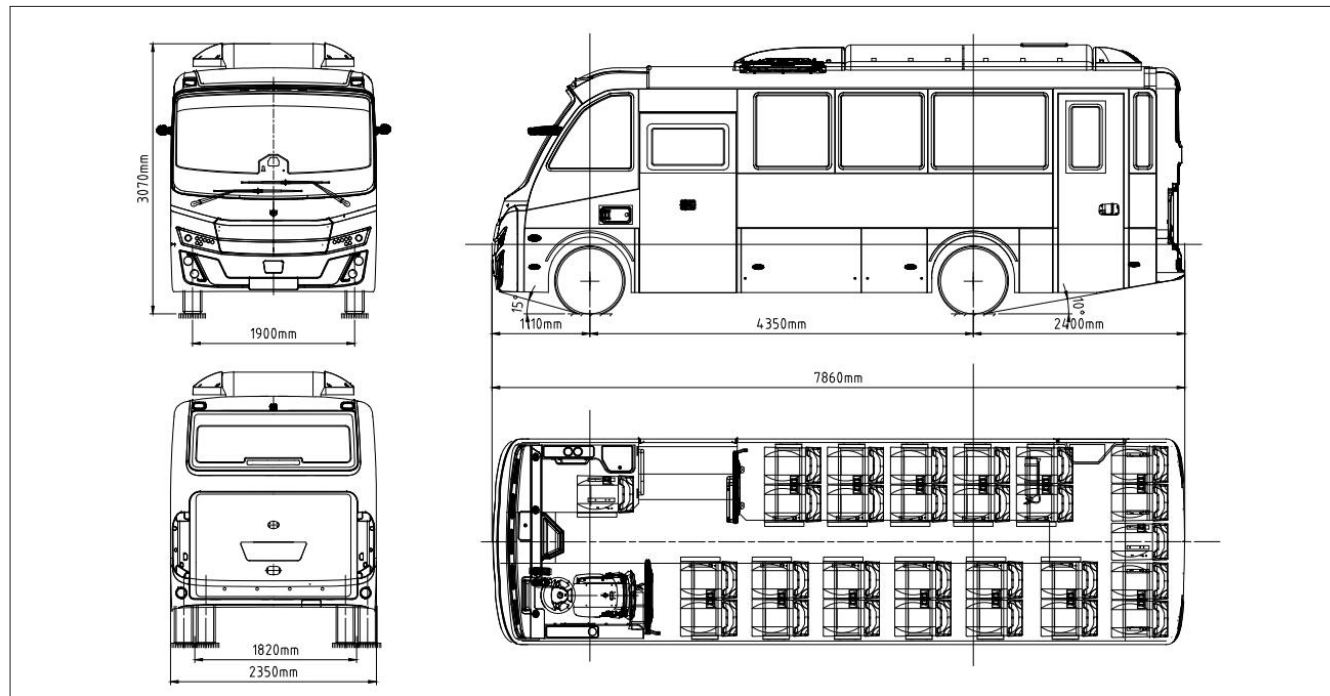
Operating Principle

In the structure of a pure electric vehicle, the drive control system is the core. The electric motor is an important component of the drive control system; its function is to convert electrical energy into mechanical energy, and this motor can be used to directly drive the vehicle and improve driving efficiency. The assembly structure of the pure electric bus power system is shown in the figure. The energy flow between the main drive motor and the battery is regulated by the controller, and the motor is connected to devices such as the transmission and rear axle through mechanical transmission devices.



Technical Specifications

Overall Vehicle Dimension Drawing



Note: The vehicle width and length do not include the exterior mirrors.

Overall Vehicle Technical Specifications

Vehicle model		HTK6780YBEV
Type		Pure electric
Drive form		2×4
Length × Width × Height (mm)		7860×2350×3070
Wheelbase (mm)		4350
Front overhang / Rear overhang (mm)		1110/2400
Track width (mm)	Front wheels	1900
	Rear wheels	1820
Minimum ground clearance (empty load) (mm)		160
Passenger seats (seats)		28
Rated occupancy (persons)		28
Mass parameters		
Curb weight (kg)		8100
Axle load (curb weight) (kg)	Front	3200
	Rear	4900

Axle load (maximum allowable total mass) (kg)	Front	4000
	Rear	7500
Performance parameters		
Maximum speed (km/h)		100
Braking distance (full load 30 km/h, air pressure 0.6 MPa) (m)		≤10
Approach angle (°)		15
Departure angle (°)		10
Minimum turning diameter (m)		16
Maximum gradient (%)		≥16

Maximum allowable total mass (kg)	11000
--------------------------------------	-------

Motor Technical Specifications

Model	TZ220XSF60H
Type	Permanent magnet synchronous motor
Voltage (V)	650
Rated power / Speed (kW/r/min)	105/5417
Maximum torque / Maximum speed (N.m/r/min)	600/3000
Peak power (kW)	188
Rated torque (N.m)	335
Mass (kg)	70
Insulation class	H
Cooling method	Water cooling

Output current (A)	260/520
Cooling method	Water cooling

Motor Controller Technical Specifications

Control method	Torque control
Input voltage (V)	666.5

Traction Battery Technical Specifications

Model	CATL
Type	Lithium iron phosphate
Voltage / Capacity (V/Ah)	656.88/268 579.6/200
Mass specific energy (kWh/kg)	≥155
Number of battery modules (pcs)	6
Total battery pack voltage (V)	656.88/579.6
Total battery pack voltage (V)	656.88/579.6
Auxiliary power supply voltage (V)	24
Operating temperature °C	-40~65
Storage temperature °C	-45~80

Electrical System Technical Specifications

Low-voltage battery voltage (V)	24
Low-voltage line voltage (V)	24
High-voltage line (V)	656.88/579.6

Introduction to the Electric Bus

Chassis Assembly Technical Specifications

Drive shaft		
Model		/
Type		/
Maximum transmitted torque (N.m)		/
Front axle		
Type		Independent air suspension
Front wheel alignment	Front wheel camber angle (°)	$0.5^{\circ} \pm 20'$
	Kingpin inclination angle (°)	$8.5^{\circ} \pm 30'$
	Kingpin caster angle (°)	$3.5^{\circ} \pm 30'$
	Toe-in (mm)	$2 \pm 2\text{mm}$
Rear axle		

Steering system	
Steering gear type	EPS
Steering wheel diameter (mm)	$\Phi 410$
Suspension	
Type	Air suspension
Front suspension	Front independent suspension
Front air spring design height (mm)	240
Rear suspension	Axle-type air-spring suspension

Introduction to the Electric Bus

Type	Electric drive
Gear ratio	12.68

Introduction to the Electric Bus

Brake friction pair Reasonable service range	Total lining thickness (mm)	26
	Allowable lining wear thickness (mm)	17
	Total brake disc thickness (mm)	34

Vehicle Fluid Types and Quantities

Item	Specification	Quantity	Remark
Rear axle final drive	GL-5 grade 85W/90 gear oil	10.5L	When the ambient temperature in winter is below -10, use GL-5 grade 80W/90
Steering system	/	/	/
Cooling system	-45 automotive-grade antifreeze	30L	Battery water cooling system and motor/electrical

Introduction to the Electric Bus

REPORT FOR BUSSES, TRUCKS AND TRAM

			ctric control cooling system
Chassis lubrication points	No. 1 lithium- based grease	1.5L	/

Vehicle Identification Information

Vehicle Identification Number (VIN) Photo



battery compartment on the right side of the vehicle.

The Vehicle Identification Number (VIN) is stamped on the frame side member inside the first traction

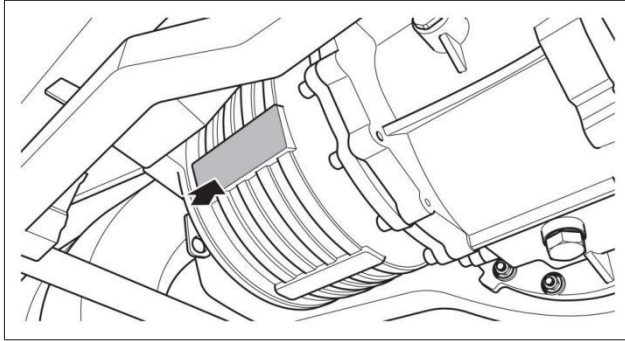
Manufacturer Nameplate Photo

Type-approval No.	
VIN	
GVW	
Combination	
Axle	
1	
2	
3	
Brand	
Model	
Date	
Made in	
Dipode beam initial set	

The manufacturer nameplate is riveted to the side wall of the front passenger door step inside the passenger compartment. The nameplate is stamped with the vehicle model, chassis model, motor model, motor rated power, maximum design total mass, number of occupants, factory serial number, manufacturing date, Vehicle Identification Number (VIN) and manufacturer, etc.

Introduction to the Electric Bus

Motor Model and Serial Number Photo



The motor model and serial number are stamped on the body of the drive motor.

Introduction to the Electric Bus

SHENZHEN HUIYUAN ELECTRIC BUS CO., LTD.

ChargingEmergency Handling Methods During Use

The vehicle power battery system consists of 6

System voltage (V)	656.88	Remark
System capacity (AH)	268	
System energy (KWH)	176.04	
System weight	1052	

When charging, use a dedicated charger for the lithium-ion power battery pack to charge the battery pack system. During charging, if any of the following

> Abnormal cell voltage difference; > Abnormal cell temperature; > Charger fault.



Condition	Handling steps	Emergency Handling
Fire	Step 1	Turn off the key first, then disconnect the 24 V power manual main switch.
	Step 2	Then pull out the manual service switch
	Step 3	Recommended method: use a carbon dioxide or dry powder fire extinguisher to extinguish the fire.
		Alternative method: use a high-pressure water gun to extinguish the fire from a distance. Inhaling the dense smoke caused by battery fire can cause difficulty in breathing. Evacuate to a safe area as soon as possible and seek medical attention promptly.
Flooding	Step 1	Turn off the key first, then disconnect the 24 V power main switch. Then pull out the manual service switch
	Step 2	Tow the vehicle out of the water and drain it.
	Step 3	If high-voltage wiring harnesses or high-voltage components must be handled, wear high-voltage insulating gloves.

 **WARNING**

Introduction to the Electric Bus

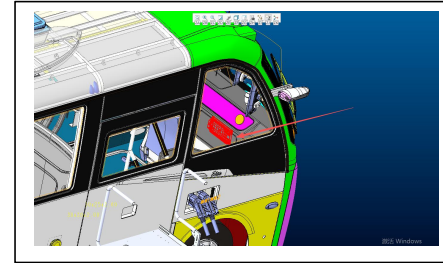
Plugging and unplugging the battery power connecting cables must be done by professionally trained personnel, and must be done by two persons at the same time, wearing insulating gloves.

WARNING

Using water to extinguish a fire may cause electric shock to people due to the high-voltage components. Under normal circumstances, only carbon dioxide or dry powder fire extinguishers should be used to extinguish the fire.

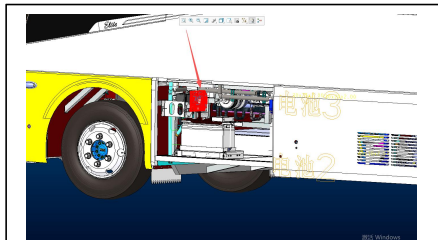
Front and Rear Domain Controllers Location of the Front Domain Controller

The front and rear domain controllers are located respectively in the front auxiliary instrument console and the right rear compartment of the vehicle. They contain fuses, main power relays and other electrical components, and distribute power to the low-voltage part of the vehicle.

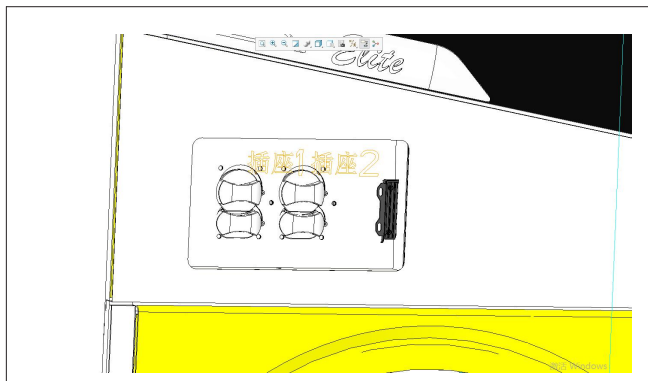


Location of the Rear Domain Controller

Open the auxiliary instrument console inspection cover (as shown in the figure above)



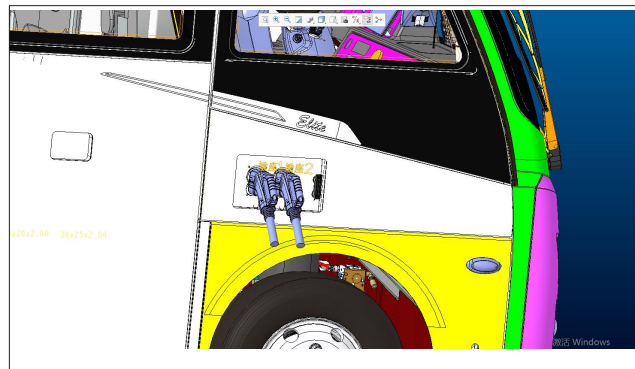
the left front compartment (as shown in the figure above)



The charging inlet is located in the small door on the right side of the rear compartment door of the vehicle. It can be opened using the mechanical key (see "Vehicle Equipment - Keys" for details).

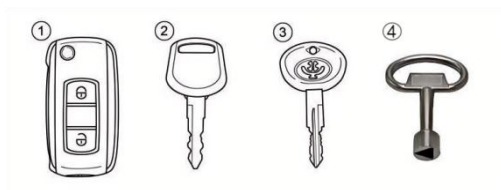
Charging Method

1. Turn on the low-voltage main power switch. (See the "Driving Control Devices - Power Status" section for details.)



2. Open the charging inlet cover, pull out the charging inlet protective cap, and insert the charging gun into the charging socket, ensuring that the charging gun is properly connected to the charging socket.
 › After proper connection, the charging gun connected indicator lamp on the instrument panel illuminates. 
3. Swipe the card to start charging. (It is recommended to select automatic full charge, i.e. 100% SOC.)

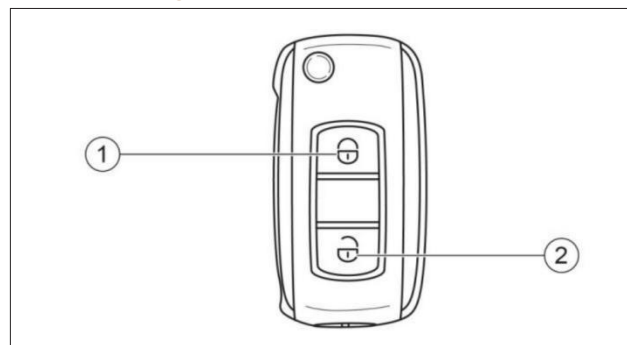
Keys



- ① Smart key
- ② Door mechanical key
- ③ Compartment door mechanical key
- ④ Triangular key

The vehicle is equipped with four keys. The smart key can be used to open/close the front door; the door mechanical key can be used to unlock/lock the front and rear doors; the compartment door mechanical key can be used to unlock/lock the compartments on the left and right sides of the vehicle. The triangular key can be used to unlock/lock the left and right rear side compartment doors (the radiator water tank compartment door and the air pump compartment door).

Smart Key



- ① "Close Door" button
- ② "Open Door" button

When the front door is closed, pressing the "Open Door" button opens the door.

When the front door is open, pressing the "Close Door" button closes the door.

When the vehicle power is in the driving-ready (READY) indicator illuminated state, operating the smart key buttons is ineffective.

If the smart key cannot be used, please refer to the following measures:

The smart key relies on battery power. It is recommended to proactively replace the button cell every 1-2 years.

Judging the Battery Level Status of the Smart Key

The battery level status of the smart key can be judged by the key indicator lamp and the responsiveness. The following conditions indicate that the key battery is running low and needs to be replaced as soon as possible:

1. The brightness of the key indicator lamp becomes dim
2. The remote control distance is shortened (remote control distance without interference/signal shielding: 5 m)
3. Delayed response of the buttons

If the indicator lamp of the electronic smart key does not flash and the vehicle cannot be started using the start function, the battery may be exhausted. Please replace the battery promptly to avoid temporary failure.

***Note:** When replacing the battery, keep your hands dry and avoid the positive and negative terminals of the battery contacting metal objects. You may also go to a service shop to have it handled by professionals.

The smart key communicates with the vehicle via wireless signals and may malfunction when it encounters electromagnetic interference;

For example, in areas such as mobile phones, high-voltage equipment, charging piles, parking lot toll gates and elevator rooms, signals are easily shielded or interfered with.

Countermeasures: You may try approaching the vehicle and pressing the button repeatedly, or temporarily move away from the source of interference.

***If the smart key is subjected to magnetic field or signal interference for a long time, the key battery will be consumed faster.**

Three Key Points for Daily Protection:

- ① Waterproof, drop-resistant, and avoid long-term magnetic field interference.
- ② Avoid putting the key in the same pocket or drawer as strong-signal devices such as mobile phones and routers.

③ Avoid the key rubbing and being scratched by hard objects (such as coins and key chains).

Emergency Start:

When the smart key has no or low battery (operate in the OFF position), bring the smart key close to the controller emergency start key sensing area. You will hear a beep, and the controller indicator lamp and start button indicator lamp will flash. At this time, one normal start operation can be completed (the key is considered valid at this time). One normal start operation refers to the following operations:
Operating steps: Press the start button once to enter the ACC state; press the start button once more to enter the ON state; then press the brake pedal and press the start button to enter the ready state;

Sensing phenomenon: After the beep, the controller indicator lamp and the start button indicator lamp flash. Note: The one-touch start ECU is located in the instrument console assembly.

i CAUTION

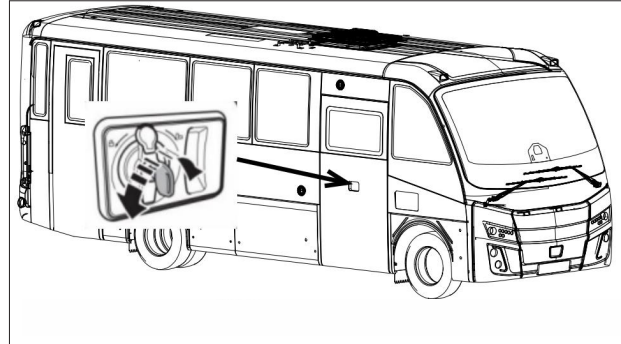
- Do not place the smart key in direct sunlight, high temperature or humid places for a long time.
- Avoid dropping the smart key from a height.
- Do not place heavy objects on the smart key.
- Do not disassemble the smart key unless replacing the battery.
- Avoid placing the smart key together with sharp objects, otherwise the smart key may be scratched.

N i

Under the following conditions, the functions related to the smart key may be unstable or fail:

- The smart key battery is exhausted; replace the smart key battery promptly;
- Nearby facilities such as TV towers, charging piles, power plants and airports are emitting strong radio waves;
- Carrying a portable radio, mobile phone or other wireless communication device.
- Metal objects are in contact with or covering the smart key;

Unlocking/Locking the

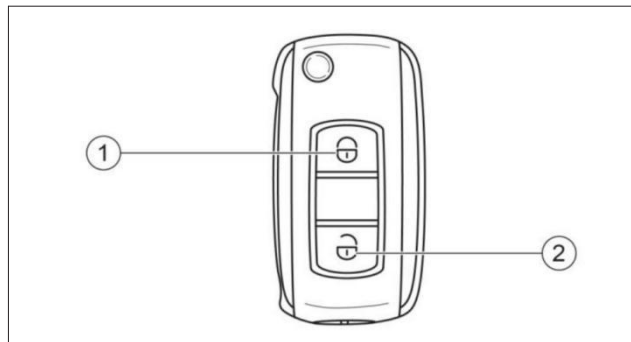


- Other smart keys (emitting radio waves) nearby are in use.

When the door is closed, rotate the keyhole cover, insert the mechanical key (see "Vehicle Equipment - Keys"), and turn the mechanical key to unlock or lock the corresponding door.

Vehicle Equipment

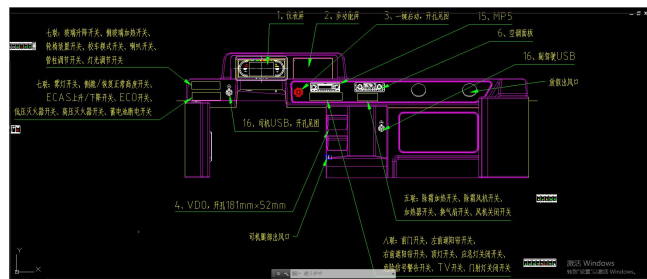
Opening the Door from Outside the Vehicle



Using the smart key switch button to open/close the front door

Press smart key button 1 to close the front door;
press smart key button 2 again to open the door.

Instrument Console



An integral independent instrument console is installed from the front of the steering wheel to the lower edge of the front windshield in the passenger compartment. The console is equipped with all kinds of instrument switches needed for driving.

> For the introduction of the instrument switches, see the "Driving Control Devices - Instrument Console Rocker Switch Group" section for details.

Steering Wheel

Adjusting the Steering Wheel

The steering wheel is adjusted pneumatically and must be operated by pressing the button on the instrument panel. For the forward/backward adjustment of the steering wheel, press the button again after adjusting to the desired position.

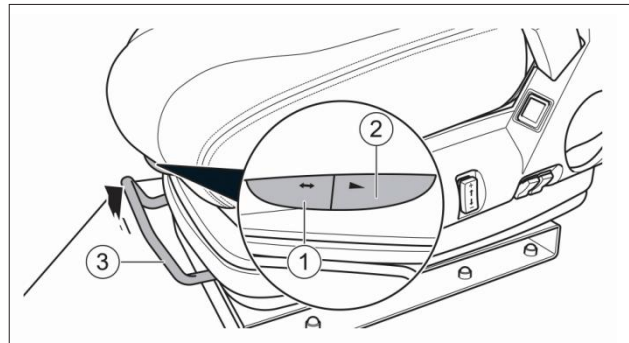
Δ WARNING

● Do not adjust the steering wheel while driving otherwise the driver may misoperate the vehicle and cause an accident resulting in serious injury or even life-threatening danger.

Driver's Seat

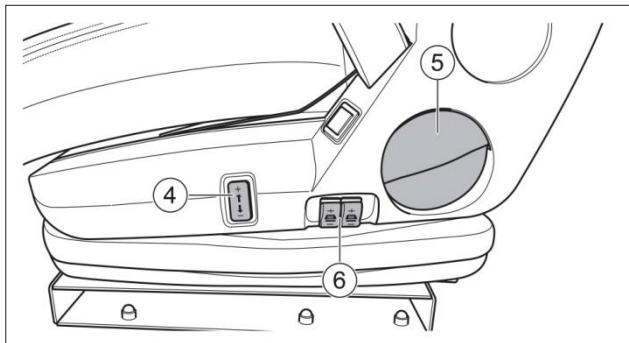
The driver's seat has multiple adjustment functions, allowing adjustment of the seat position, height and angle. Please adjust the seat properly before driving.

Seat Adjustment



Adjusting the Seat Forward/Backward Position

- > Pull up the seat forward/backward position adjustment lever 3, slide the seat forward or backward to the desired position, and release the lever. Adjust the seat depth.
- > Toggle the seat adjustment lever 1 up or down to adjust the seat depth to a suitable position, and release the lever.



Adjusting the Seat Height

- > Adjust lever 4 up or down to adjust the seat cushion to the desired position, and release the lever.

Adjusting the Seat Backrest Reclining Angle

- > Pull up the seat reclining angle adjustment lever 5, adjust the seat backrest angle to a suitable position, and release the lever.

Adjusting the Seat Cushion Tilt Angle

- > Pull up the seat cushion adjustment lever 2 to adjust the seat cushion tilt angle to a suitable position.

⚠ WARNING

- Do not adjust the seat while driving, so as to avoid accidents caused by loss of control of seat movement, which may result in serious injury or even life-threatening danger.
- When adjusting the seat, do not put your hands near the moving parts to avoid injury.

i CAUTION

- After adjustment, the handle returns to position and the adjusting mechanism is in a normal engaged state. Ensure that the parts are reliably locked to avoid damaging the locking parts.

i NOTE

- When measuring the driver's seat cushion depth as defined by the factory, the seat fore/aft position and backrest angle are as follows:
 - Seat fore/aft adjustment range: currently at the rearmost, adjustable forward by 200 mm
 - Initial seat height 316 mm, with 25 mm downward floating travel, and 100 mm upward height adjustment plus 40 mm floating travel
 - Initial backrest angle 103°, adjustable backward by 28°

Vehicle Equipment



KINWIN AUTO
恒 天 领 锐

Adjusting the Pneumatic Lumbar Support

- > Adjust lever 6 up or down to support the driver's lumbar region and relieve lumbar fatigue.

Electronic Rear-view Mirror

The vehicle is equipped with an electronic exterior mirror system that provides real-time video display of the front and rear sides on both sides of the vehicle.

It is equipped with 3 electronic displays respectively on the left and right sides, installed on the left and right A-pillars, and the cameras are integrated and installed on the upper left and right sides of the front of the vehicle.



Rear-view Mirror

Manually adjust the interior rear-view mirror up/down and left

△ WARNING



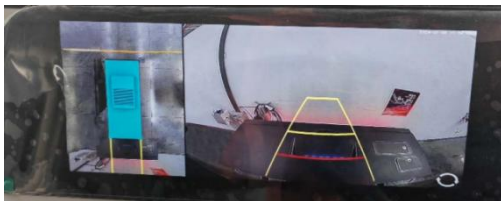


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恒 天 领 锐

Vehicle Equipment

- Adjust the mirrors to the appropriate positions before driving. Do not adjust the interior rear-view mirror while driving.

Reversing Monitor



> The reversing monitor on the vehicle is integrated into the instrument console central screen; when the vehicle reverses, the central display automatically switches to the view of the rear area of the vehicle.

⚠ WARNING

- The radar sensor has blind areas when detecting obstacles. When reversing, the driver must observe carefully to avoid scratches or collisions.
- Control the vehicle speed when reversing to avoid danger. When the reversing radar system continuously emits an alarm sound, the vehicle is already very close to the obstacle; reverse must be stopped immediately to prevent an accident.

USB Interface

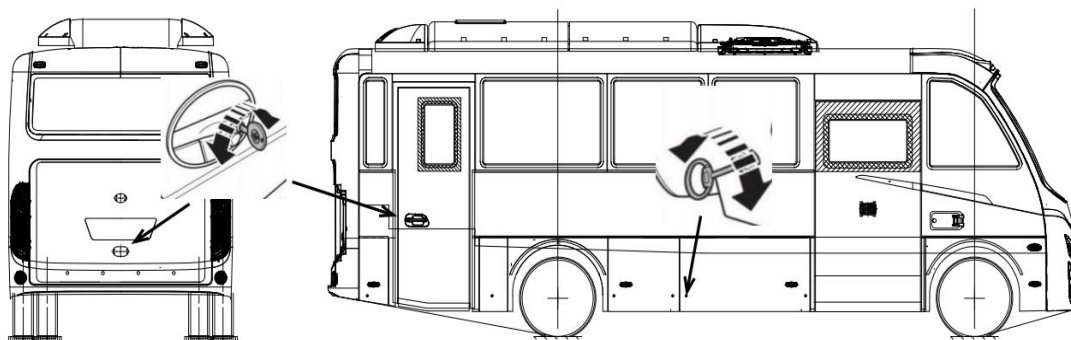


When the vehicle power status is in the "ACC" or "ON" state, the driver can use the USB port for charging.

The USB ports are located on the left side of the driver's position and on the left side of the front passenger position.

Compartment Doors and Inspection Openings

Compartment Doors



Open the keyhole cover, insert the mechanical key, and turn the mechanical key to unlock/lock the corresponding compartment doors. Rotate along the arrow direction to open/lock them; when the corresponding compartment doors are open, pull up the rear compartment door handle to open the rear compartment door. Use the triangular key

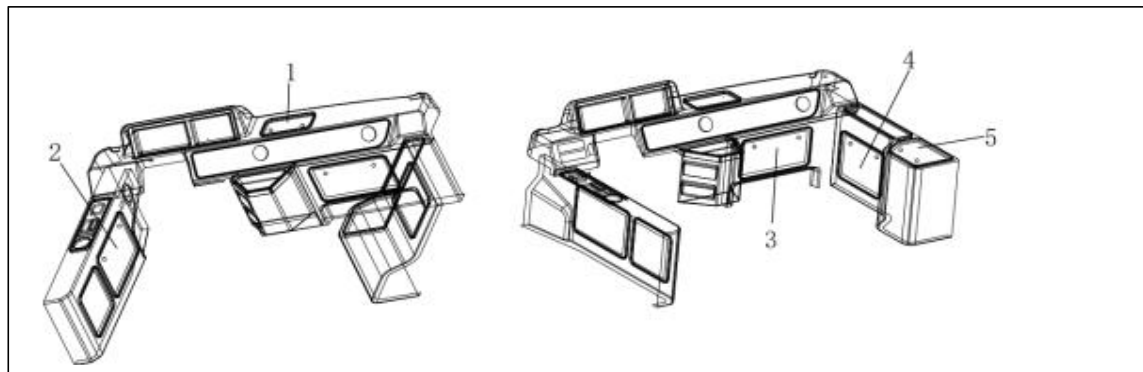


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Vehicle Equipment

to rotate along the arrow direction to open/lock the rear side compartment doors; when the corresponding compartment door is open, the corresponding rear side compartment door can be opened.

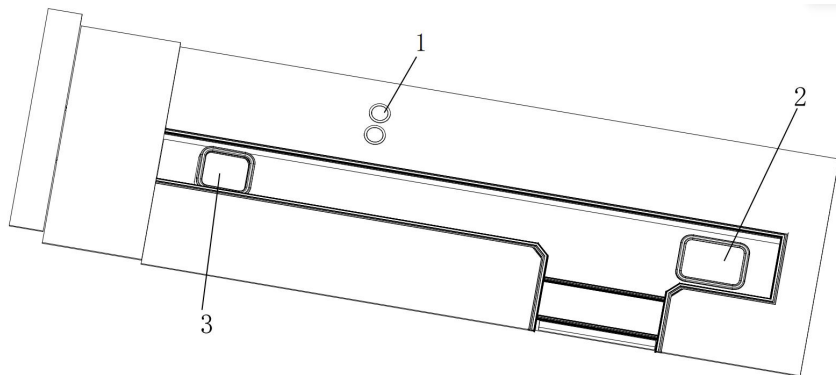
Instrument Console Inspection Openings



1. Inspection opening on the main instrument console 2. Inspection opening on the driver-side auxiliary console 3. Inspection opening under the main instrument console 4. Inspection opening under the front-passenger auxiliary console 5. Inspection opening on the front-passenger auxiliary console

There are 5 inspection openings on the instrument console in total. The small doors on each inspection sealing plate are opened with the triangular key. After opening the inspection door, the instrument console air piping, electrical wiring harnesses and other serviceable devices can be arranged.

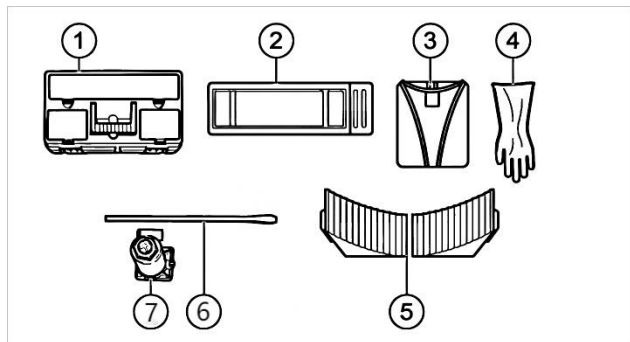
Floor Inspection Openings



1. Coolant filling inlet 2. Air reservoir inspection opening 3. Motor inspection opening

Before removing the inspection opening cover plate, first remove the bolts on the floor inspection opening cover and open the inspection opening. Mainly inspect the air reservoirs and high/low-voltage wiring harnesses, oil pipes, air pipes and the motor three-phase lines, etc.

On-board Tools



- ① Toolbox
- ② Triangular warning sign
- ③ Reflective vest
- ④ Insulating gloves
- ⑤ Wheel chock
- ⑥ Pry bar
- ⑦ Hydraulic jack

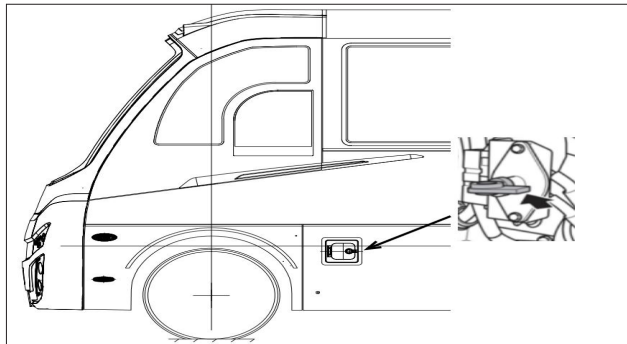
i NOTE

- In order to deal with various emergencies, you should be familiar with the storage locations and usage methods of the various on-board tools.



Power Status

Low-voltage Main Power Switch



The low-voltage main power switch is installed inside the compartment door on the left side of the vehicle. It can control the battery switch, and when turned on, it supplies power to the vehicle's electrical equipment.

Power Status Switch

The one-touch start button can effectively switch the vehicle power status only when the following conditions are met:

- > The low-voltage main power switch is turned on;



- > The smart key is inside the vehicle and detected as valid;
- > The brake pedal is not depressed.

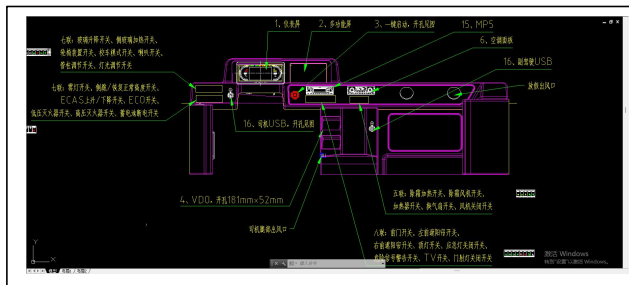


Switching method:

After the power status switching conditions are met, press the one-touch start button continuously and the power status will cycle among "OFF" → "ACC" → "ON" → "OFF".

- > OFF: In this state, the vehicle power is turned off.
- > ACC: In this state, power is supplied to part of the vehicle's electrical equipment.
- > ON: In this state, power is supplied to all the vehicle's electrical equipment.

Instrument Console Switches



Multi-function Steering Wheel Button Description Functions and Operation of the Switches



Rocker switch	Function
	Wheelchair device switch When the key is in the ACC/ON position, press the switch to lower the front door wheelchair ramp.
	School bus mode switch When the key is in the ACC/ON position, press the rocker switch to turn on the school bus mode.
	Horn switch When the key is in the ACC/ON position, the horn switch can be pressed.



Steering column adjustment switch

When the key is in the ACC/ON position, the steering column adjustment switch can be pressed.

Driving Control Devices

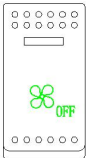


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	Fog lamp switch When the key is in the ACC/ON position, the fog lamp can be turned on.
	Kneeling switch When the key is in the ACC/ON position, press this switch and the vehicle kneels; press it again to return to normal.
	ECAS raise/lower switch When the key is in the ACC/ON position, press the switch and the vehicle suspension raises/lowers.
	Battery power-off switch When the key is in the ACC/ON position, press this switch to cut off the low voltage.

	Driver's cab ceiling lamp switch When the key is in the ACC/ON position, the driver's cab ceiling lamp vehicle switch button.
	Emergency lamp off switch When the key is in the ACC/ON position, press the switch to turn off all the interior lights.
	TV switch When the key is in the ACC/ON position, press this switch to lower the TV.
	Door courtesy lamp off switch When the key is in the ACC/ON position, press this switch.

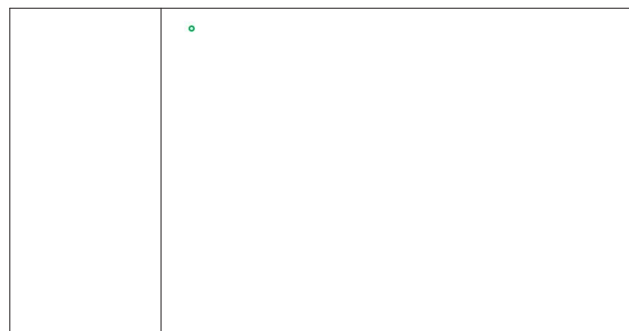


	Ventilation fan off switch When the key is in the ACC/ON position, press this button to turn off the ventilation fan.
	One-touch start switch By pressing the button a certain number of times, the ACC, ON and START positions can be entered respectively to start the vehicle. Press the button once to enter the ACC position, press it once more to enter the ON position, and press the button a third time while depressing the brake pedal to enter the START position, and the vehicle enters the READY state.

Driving Control Devices



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	Defrosting heating switch When the key is in the ACC/ON position, press this button to turn on the driver's window heating function, and the instrument indicator lamp illuminates.
	Defrosting blower switch When the key is in the ACC/ON position, press this button to turn on the driver's window defrosting, and the instrument indicator lamp illuminates.
	Ventilation fan switch When the key is in the ACC/ON position, press this button to turn on the ventilation fan.



Driving Control Devices

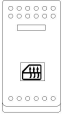
Rocker switch	Function
	Turning On the Hazard Warning Lamps Press this switch and all the turn signal lamps of the vehicle illuminate and flash. Press the other end of the switch and the turn signal lamps go out. (Non-auto-reset switch)
	ECS OFF When the key is in the ACC/ON position, press this switch to cancel the ECS function. (Auto-reset switch)
	Window raising/lowering switch When the key is in the ACC/ON position, press this switch to raise/lower the windows. (Non-auto-reset switch)

	Headlamp height adjustment switch When the key is in the ACC/ON position, adjust the low beam height with the headlamp height adjustment knob.
	Fire extinguisher switch Open the cover and press this switch to activate the fire extinguisher.
	Front door switch When the key is in the ACC/ON position, press this switch downward to open the passenger door and upward to close it. (Auto-reset switch)
	USB socket The USB socket can be used by the driver.
	Driver's sun visor raising/lowering switch When the key is in the ACC/ON position, press this switch downward to lower the driver's sun visor, and press the other end to raise it.
	Front-passenger sun visor switch



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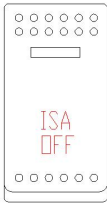
Driving Control Devices

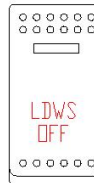
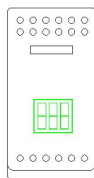
	Side window heating switch When the vehicle is in the started state, press this switch and the vehicle can heat the side windows.
	ECO mode When the key is in the ACC/ON position, press this switch to turn on the ECO mode. (Non-auto-reset switch)





Driving Control Devices

	BSIS OFF switch When the key is in the ACC/ON position, press this switch to turn off the blind spot information system.
	ISA OFF switch When the key is in the ACC/ON position, press this switch to turn off the intelligent speed assist system.
	MOIS OFF switch When the key is in the ACC/ON position, press this switch to turn off the pre-start blind spot detection system.
	ADDW OFF switch When the key is in the ACC/ON position, press this switch to turn off the driver fatigue detection system.

	AEBS OFF switch When the key is in the ACC/ON position, press this switch to turn off the automatic emergency braking system.
	LDWS OFF switch When the key is in the ACC/ON position, press this switch to turn off the lane departure warning system.
	AUTO OFF switch When the key is in the ACC/ON position, press this switch to turn off the automatic engine start-stop.
	Front destination sign switch When the key is in the ACC/ON position, press this switch to control the front destination sign.

ECAS (Electronically Controlled Air Suspension System) is an electronic suspension control system applied to commercial vehicles such as buses and trucks. Its core is to precisely adjust the body height and suspension state through electronic signals; compared with traditional mechanical suspension, it is more intelligent, efficient and energy-saving. Its functions revolve around vehicle height control, driving performance optimization and operation convenience, as follows:

Precise Body Height Adjustment

Constant Height Maintenance	The height sensors monitor the gap between the frame and the axle in real time, and the ECU controls the solenoid valves to inflate or deflate the air springs, keeping the preset chassis height under both empty and heavy load conditions, avoiding body tilting or abnormal height.
Active Lifting/Lowering Control	The driver can manually raise or lower the chassis through the control switch to suit scenarios such as ferry and tunnel passage;

Driving Control Devices

Door-side Kneeling Adjustment	For city buses, when the vehicle arrives at a stop, the door-side air springs deflate to lower the step height, making it convenient for the elderly, children and disabled people to get on and off.
Safety and Protection Functions	
Height Limit Protection	Preset the maximum and minimum chassis height thresholds. When the limit is reached, the ECU automatically stops inflating/deflating the air springs, avoiding excessive stretching or compression of the suspension.

Optional Functions

Optional Functions



	When the key is in the ACC/ON position, press this body-raising switch, to control the air springs to inflate and raise the body chassis height.
	When the key is in the ACC/ON position, press this body-lowering switch, to control the air springs to deflate and lower the body chassis height.
	When the key is in the ACC/ON position, press this door-side kneeling switch to control only the door-side suspension to deflate and lower the door step height.
	When the key is in the ACC/ON position, press this kneeling/normal (mode) switch to switch between the kneeling mode (for convenient boarding/alighting) and the normal driving suspension mode.

Driving Control Devices

Electronic Instrument Panel

Electronic Instrument Panel Interface



⚠ WARNING

Note: When important alarms occur such as insulation, excessive battery temperature, excessive motor or motor controller temperature, or when the motor tachometer, speedometer or air pressure gauge jumps abnormally, the driver should pull the vehicle over as soon as possible, stop driving and let the passengers get off in an orderly manner. Before the cause of the alarm is ruled out,

the driver must not forcibly start the vehicle and continue driving.

Pointer Gauges

No.	Name
1	Tachometer
2	Speedometer
3	SOC gauge
4	Air pressure indicator 1 ()
5	Air pressure indicator 2 ()



Instrument Indicator Lamps

Name	Icon	Color	Description
Main power indicator lamp		Green	When this indicator lamp illuminates, it indicates that the vehicle high voltage is powered on and the DCDC is working.
Volume off indicator lamp		/	Illuminates when the instrument panel has no alarm sound
Volume on indicator lamp		/	Displays the volume level in the non-muted state
Accelerator interlock release alarm indicator lamp		Green	When this indicator lamp illuminates, it indicates that the accelerator interlock release function is turned on.
DC/AC multi-combined minor fault	DCDC ! DCAC !	Yellow	When this indicator lamp illuminates, it indicates a minor fault in the DC/AC multi-combined unit.

DC/AC multi- combined serious fault		Red	When this indicator lamp illuminates, it indicates a serious fault in the DC/AC multi-combined unit.
Cell insulation alarm		Yellow	When this indicator lamp illuminates, it indicates a level-1 cell insulation alarm.
		Orange	When this indicator lamp illuminates, it indicates a level-2 cell insulation alarm.
		Red	When this indicator lamp illuminates, it indicates a level-3 cell insulation alarm.

Driving Control Devices

Name	Icon	Color	Description
Left turn signal indicator lamp		Green	When the left turn signal lamp is turned on, this indicator lamp illuminates.
Right turn signal indicator lamp		Green	When the right turn signal lamp is turned on, this indicator lamp illuminates.
Position lamp indicator lamp		Green	When the position lamp is turned on, this indicator lamp illuminates.
High beam indicator lamp		Blue	When the high beam is turned on, this indicator lamp illuminates.
Low beam indicator lamp		Green	When the low beam is turned on, this indicator lamp illuminates.
Front fog lamp indicator lamp		Yellow	When the front fog lamp is turned on, this indicator lamp illuminates.
Rear fog lamp indicator lamp		Yellow	When the rear fog lamp is turned on, this indicator lamp illuminates.

Driving Control Devices

Name	Icon	Color	Description
Charging gun connected indicator lamp		Red	When this indicator lamp illuminates, it indicates that the charging gun is successfully connected to the vehicle charging inlet.
Charging indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that charging is in progress.
Parking status indicator lamp		Red	When this indicator lamp illuminates, it indicates that the electronic parking brake or the automatic parking brake has been applied to the vehicle.
Driving-ready (READY) indicator lamp		Green	When this indicator lamp illuminates, it indicates that the vehicle has been started and can be shifted into gear and driven.
		Yellow	When this indicator lamp illuminates, it indicates that the vehicle power status is in a fault state (the instrument flashes at 2 Hz); please stop and check.
Brake indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the brake pedal is in use.

Level-3 fault indicator lamp		Red	When this indicator lamp illuminates, it indicates a serious fault alarm of the vehicle.
V2H indicator lamp	V2H	Green	When this indicator lamp illuminates, it indicates that the V2H function has been turned on.

Name	Icon	Color	Description
Front door open indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the front door is open.
Minor fault alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a short circuit of the instrument module pins.
Hill-start assist indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the hill-start assist is turned on.
Trip odometer reset indicator lamp	Clear trip	Green	Illuminates when the trip mileage is not 0.
Neutral indicator lamp	N	Green	When this indicator lamp illuminates, it indicates that the vehicle is in the neutral state.
Drive gear indicator lamp	D	Green	When this indicator lamp illuminates, it indicates that the vehicle is in the drive gear state.
Reverse gear indicator lamp	R	Red	When this indicator lamp illuminates, it indicates that the vehicle is in the reverse gear state.
ASR indicator lamp		Yellow	When this indicator lamp flashes, it indicates that the vehicle anti-slip regulation system is turned on.

ESC alarm indicator lamp		Yellow	This function is turned on by default and is not shown on the instrument panel. When this indicator lamp flashes and then goes out automatically, it indicates that the electronic stability control system is in the working state.
ESC alarm indicator lamp		Yellow	When there is a risk of vehicle sideslip/tail-swing or the ESC-related functions are manually operated, the working status indicator lamp flashes and goes out automatically, indicating that the ESC system is intervening to stabilize the vehicle (normal protection); no operation is needed and driving can continue normally.
ESC alarm indicator lamp		Yellow	When the system hardware fails, the sensors are abnormal, or ESC is manually turned off, the indicator lamp stays on and does not go out automatically, indicating that ESC has failed or is not activated and cannot provide stability protection. If it should be turned off manually, press the switch to restart; if the indicator lamp stays on after pressing the switch, timely inspection and repair are needed.

Name	Icon	Color	Description
Rain/snow mode indicator lamp		Green	When this indicator lamp illuminates, it indicates that the rain/snow mode is turned on and the vehicle has no energy recovery.
ECO indicator lamp	ECO	Green	When this indicator lamp illuminates, it indicates that the energy-saving mode has been turned on.
AUTO HOLD status indicator lamp		Red	When this indicator lamp illuminates, it indicates that the automatic parking function has been turned on.
Brake system fault indicator lamp		Red	When this indicator lamp illuminates, it indicates that the front or rear air reservoir pressure is too low.
Electronic parking brake fault indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a minor fault in the electronic parking brake.
		Red	When this indicator lamp illuminates, it indicates a serious fault in the electronic parking brake.

Stop and check indicator lamp	STOP	Red	When this indicator lamp illuminates: It indicates that the front or rear air reservoir pressure is too low in the READY state; it indicates that the coolant level is low (a few seconds after the coolant low-level alarm indicator lamp illuminates); it indicates that the BMS fault code is ≥ 101 and ≤ 200; It indicates that the high voltage is turned off.
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Emergency valve open alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the emergency valve is open.
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Name	Icon	Color	Description
Seat belt not fastened alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates that the driver's seat belt is not fastened; please put on and fasten the seat belt.
High-voltage battery fault alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a level-1 fault alarm.
		Orange	When this indicator lamp illuminates, it indicates a level-2 fault alarm.
		Red	When this indicator lamp illuminates, it indicates a level-3 fault alarm.
Motor over-temperature alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates that the motor temperature is too high.
Driver off-seat alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates that the driver has left the seat for 2 seconds, the vehicle power is in the driving-ready (READY) indicator illuminated state, and the parking brake signal is OFF.
Motor power limiting indicator		Yellow	When this indicator lamp illuminates, it indicates that the vehicle is in the fault mode.

lamp			
Battery pack fire alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates a fire alarm prompt from the battery pack.
MCU fault alarm indicator lamp	MCU	Yellow	When this indicator lamp illuminates, it indicates that the MCU is in a level-1 fault state.
		Orange	When this indicator lamp illuminates, it indicates that the MCU is in a level-2 fault state.
		Red	When this indicator lamp illuminates, it indicates that the MCU is in a level-3 fault state.

Name	Icon	Color	Description
Tire pressure alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a level-1 tire pressure alarm.
		Red	When this indicator lamp illuminates, it indicates a level-2 tire pressure alarm.
Left front lining alarm indicator lamp		Yellow	When this indicator lamp illuminates, please promptly replace the left front brake lining.
Right front lining alarm indicator lamp			When this indicator lamp illuminates, please promptly replace the right front brake lining.
Right rear lining alarm indicator lamp			When this indicator lamp illuminates, please promptly replace the left rear brake lining.
Right rear lining alarm indicator lamp			When this indicator lamp illuminates, please promptly replace the right rear brake lining.
EBS alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that EBS is performing self-check or is in the working state.
		Red	When this indicator lamp illuminates, it indicates an EBS system fault.



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Front-passenger window heating indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the front-passenger side window heating function is turned on.
Driver's window heating indicator lamp		Yellow	When this indicator lamp illuminates, it indicates that the driver's side window heating function is turned on.



Name	Icon	Color	Description
Door opening brake alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates that the door opening brake function is turned on.
Low battery level-1 indicator lamp		Orange	When this indicator lamp illuminates, it indicates that the battery power is less than SOC 20%.
Low battery level-2 indicator lamp		Red	When this indicator lamp illuminates, it indicates that the battery power is less than SOC 15%.
Steering pump level-1 fault indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a level-1 fault of the steering pump.
Steering pump level-2 fault indicator lamp		Orange	When this indicator lamp illuminates, it indicates a level-2 fault of the steering pump.
Steering pump level-3 fault indicator lamp		Red	When this indicator lamp illuminates, it indicates a level-3 fault of the steering pump.
Cell over-temperature level-1 alarm indicator lamp		Yellow	When this indicator lamp illuminates, it indicates a level-1 cell temperature fault.



Cell over-temperature level-2 alarm indicator lamp		Orange	When this indicator lamp illuminates, it indicates a level-2 cell temperature fault.
Cell over-temperature level-3 alarm indicator lamp		Red	When this indicator lamp illuminates, it indicates a level-3 cell temperature fault.



Light Combination Switch



This vehicle controls the position lamp, low beam, high beam and turn signal lamps through the combination switch handle,

>OFF Indicates that the headlamps and position lamps are off.

> Position lamp indication: rotate the handle clockwise to this marking, and the position lamps, instrument panel lamps and  clearance lamps will illuminate.

> Headlamp indication: continue to rotate the handle clockwise to this marking; at this time the front headlamps, position lamps, instrument panel lamps and clearance lamps illuminate; 



> Turn signal indication: moving the handle forward and backward controls the left and right turn signal lamps and the turn signal indicator lamps on the instrument panel.



Gently lift the handle upward to flash the headlamps for overtaking; press the handle upward to switch between high and low beams;

> After turning the light switch knob to the position lamp position, tap the front fog lamp switch on the central screen to turn on the front fog lamp;



> turning the light switch knob to the position lamp position, tap the

front fog lamp switch on the central screen, then turn on the rear fog lamp switch to turn on the rear fog lamp;

Driving Control Devices

Wiper Switch

When the vehicle power status is in the "ACC" or "ON" state: push and pull the wiper control lever forward and backward along the arrow direction to switch on/off in sequence:

Wiper Switch (Push-pull Type)

- > OFF Not working
- > INT Intermittent wiper working position
- > LO Low-speed wiper working position
- > HI High-speed wiper working position

Front Windshield Washing

WARNING

- Check the condition of the wiper blades regularly and inspect whether the rubber has cracks or local hardening. If these phenomena are found, the wiper blades should be replaced; otherwise they will leave streaks or fail to wipe cleanly, affecting the driver's view.

CAUTION

- When using, first press the washer to spray the washer fluid, and then turn on the wipers to wipe; do not wipe dry. Check the washer fluid level regularly and keep the washer fluid sufficient.

Lift the handle toward yourself and the front windshield washer sprays out washer fluid,
and the wipers also wipe at the same time.

Electric Power Steering Device (X-EPS) — X-EPS Fault Troubleshooting and Handling

If a fault occurs during use, please troubleshoot and handle it according to the following methods:

Fault description	Troubleshooting and handling method
Power supply signal problem	Unplug the vehicle power and ignition signal plugs on the X-EPS motor controller, turn the vehicle key to the ON position, and use a multimeter to measure whether the voltage between the positive and negative terminals on the power plug and the voltage of the ignition terminal to ground are 12 V (9 V-16 V)/24 V (18 V-32 V). If correct, the power supply and ignition are fine; otherwise, check for problems in the vehicle power supply and power lines (such as power supply voltage drop, open circuit, or plugs not inserted tightly).
Vehicle CAN communication problem	Re-insert the vehicle power and ignition signal plugs into the motor controller, connect a computer to the vehicle OBD port via a CAN card, turn the key to the ON position, and read the vehicle messages to see whether the vehicle speed/speed/ready-enable related messages sent by the vehicle can be read. If normal, the messages sent by the vehicle are fine; otherwise, check for problems in the vehicle CAN network and CAN lines.
X-EPS sensor problem	Re-insert the vehicle power and ignition signal plugs, connect a computer to the vehicle OBD port via a CAN card, turn the key to the ON position, and look for the sensor-related messages fed back by the X-EPS controller (such as angle and torque). If the feedback is normal, the sensor lines and the sensors themselves are normal; then check the relevant

	contents of the information feedback and find the fault cause by referring to the fault code table.
X-EPS motor controller problem	Re-insert the vehicle power and ignition signal plugs, connect a computer to the vehicle OBD port via a CAN card, turn the key to the ON position, look for the motor current related messages fed back by the X-EPS controller, and find the fault cause by referring to the fault code table.

X-EPS Fault Codes

X-EPS fault codes can be read through the diagnostic instrument as a basis for fault

No.	Fault Codes	Fault description
0	11	Main torque signal lost
1	13	Large difference between main and auxiliary torque signals
2	14	Torque sensor power supply fault
3	15	Auxiliary torque signal lost
4	16	Main torque signal abnormal
5	17	Auxiliary torque signal abnormal
6	18	P signal lost

No.	Fault Codes	Fault description
12	21	READY signal not received for a long time
13	22	READY signal invalid
14	23	Vehicle speed signal not received for a long time
15	24	Vehicle speed signal invalid
16	42	Motor current too high
17	43	Poor motor current tracking
18	45	Motor current too low
19	46	Motor position signal fault
20	47	MCU ROM data fault
21	51	System pre-drive fault
22	52	Motor current sampling

Driving Control Devices

		fault
23	53	Battery voltage below 9 V/18 V
24	54	Battery voltage above 16 V/32 V
25	32	CAN bus off fault
26	31	NTC sampling fault\PCB over-temperature fault

Driving Control Devices

Air Conditioner

Air Conditioner Interface

The air conditioner control functions are on an independent air conditioner panel, allowing the driver to operate the air conditioner by pressing buttons and control the air conditioner temperature, airflow and operating mode. (For detailed operation, see the Central Screen Display System.)



Precautions for Using the Air Conditioning System

1. If the air conditioner gives a fault alarm, immediately turn off the air conditioner power switch.

2. When the air conditioning unit is on the roof and personnel need to go onto the roof, proper safety protection must be carried out: wear seat belts, safety helmets, insulating shoes and insulating gloves, and only work after finding a site where the safety belt can be fastened.

3. When the air conditioner is running, the system carries high voltage. It is strictly forbidden to open the air conditioner cover or touch the various components of the system, including the pipes and parts at the return air inlet.

4. It is strictly forbidden to operate the electrical part of the air conditioner with water. Tools with well-insulated handles must be used, and insulating gloves must be worn when making live measurements.
Wearing jewelry, watches, etc. is strictly forbidden.

5. Non-professional maintenance personnel are not allowed to disassemble or assemble air conditioner components without authorization, in order to prevent safety accidents.

6. When working with live parts, ensure that the circuit is not short-circuited and is well insulated; otherwise there is a risk of electric shock. Avoid excessive current (over 30 A) that may cause serious burns and fire.

7. It is strictly forbidden to short-circuit the high/low-pressure switches and various fuses of the system, which may damage the compressor and other electrical appliances.

8. When the air conditioner is running, at least 1/3 of the main air outlets should remain open to avoid icing of the refrigeration system.

9. Before each start and shutdown of the vehicle, the air conditioner switch should be turned off first, and turned on again a moment after the vehicle is started, so as to avoid impact damage to the air conditioning system caused by too small or too large a current. Also, do not frequently turn the
air conditioner on and off to avoid damaging the air conditioning system.

10. When the air conditioner is out of service for a long time (in winter), let the air conditioner run for 5 to 10 minutes every week (this can be done while driving) so that the refrigerant circulates, preventing refrigerant leakage caused by cracking of the compressor bearings and oil seals, and lubricating the compressor components.

Driving Control Devices

Fault Codes

No.	Fault category	Vehicle read code	No.	Fault category	Vehicle read code
1	Air conditioning system low-pressure protection	LPF	13	Evaporator blower inverter overload	EOL
2	Air conditioning system high-pressure protection	HPF	14	Evaporator blower inverter over-temperature	EOH
3	Return air temperature sensor fault	EII1	15	Evaporator blower inverter hardware fault	EHF
4	Evaporator defrosting temperature sensor fault	EII2	16	Condenser blower inverter over-current	LOC
5	Outdoor temperature sensor fault	EII4	17	Condenser blower inverter overload	LOL
6	Condenser coil temperature sensor fault	EII5	18	Condenser blower inverter over-temperature	LOH
7	Communication fault between the roof-mounted controller and the panel	EC1	19	Condenser blower inverter hardware fault	LHF
8	Internal communication fault of the roof-mounted controller	EC2	20	Compressor inverter over-current	COC
9	Air conditioner high-voltage input power outage	HUF	21	Compressor inverter overload	COL

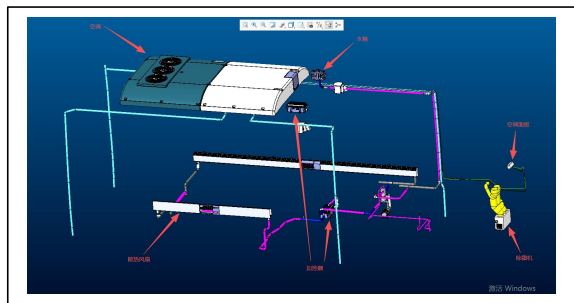
Driving Control Devices

10	Inverter over-voltage	OU	22	Compressor inverter over-temperature	COH
11	Inverter under-voltage	LU	23	Compressor inverter hardware fault	CHF
12	Evaporator blower inverter over-current	EOC	24	PTC temperature protection	POH

NOTE

If a fault is found in the air conditioner, read the fault code from the vehicle control unit to analyze the type of fault.

Built-in Air Conditioner



The vehicle is equipped with an interior roof-mounted air conditioner.

> the roof-mounted air conditioner,

> Condenser and cooling fan, > Electric compressor, > Air conditioner DCDC, >

Defroster, > Air conditioner power distribution box and air outlets...

⚠ WARNING

- Non-professional maintenance personnel are not allowed to disassemble or assemble air conditioner components without authorization, in order to prevent safety accidents.
- When the air conditioner is running, the system carries high voltage. It is strictly forbidden to open the air conditioner cover or touch the various components of the system, including the pipes and parts at the return air inlet.

i NOTE

- When using the air conditioner, it is recommended to keep at least 1/3 of the main air outlets open to prevent the cooling system from icing.

i CAUTION

- If the air conditioner gives a fault alarm, turn off the air conditioner immediately.
- Before each start and shutdown of the vehicle, the air conditioner switch should be turned off first, and turned on again a moment after the vehicle is started, so as to avoid impact damage to the air conditioning system caused by too small or too large a voltage/current at the moment of starting. Also, do not frequently turn the air conditioner on and off to avoid damaging the air conditioning system.
- In cold weather, to prevent refrigerant leakage caused by cracking of the compressor bearings and oil seals, it is recommended to turn on the air conditioner cooling function for 5-10 minutes every week.



Vehicle Inspection

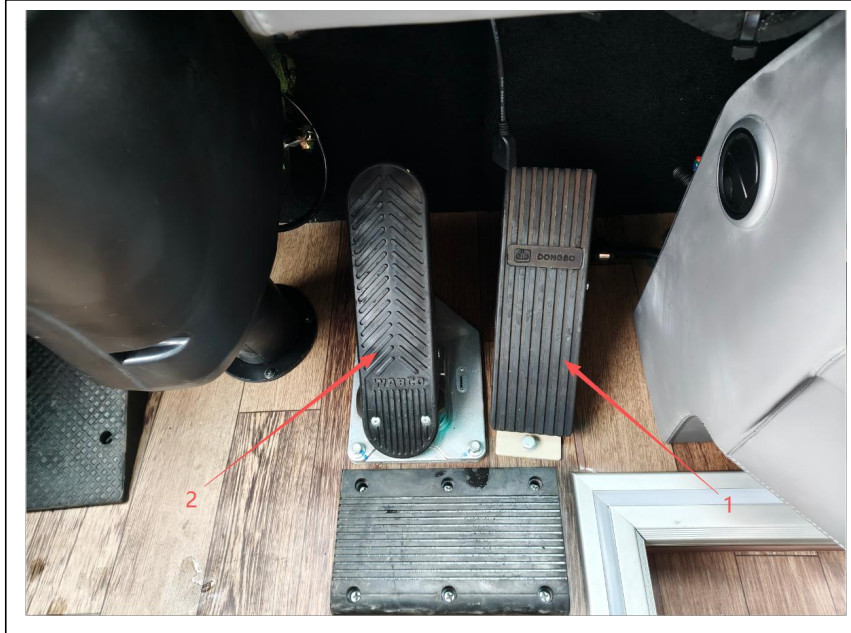
The vehicle should be inspected before driving every day to prevent problems before they occur. Inspection requirements:

- › Check the battery power (fully charged state: SOC 100%);
- › Fully release the brake pedal and check the brake pedal clearance;
- › Check the steering wheel play;
- › Check the horn;
- › Check whether the tires are damaged and whether there are foreign objects between the two rear tires; the standard tire inflation pressure is 700 kPa; the tire and axle shaft bolts are complete and secure;
- › Adjust the interior and exterior mirrors and the driver's seat;
- › Check the coolant level of the cooling system: the coolant level must be between the upper and lower standard markings;
- › Check the body exterior: all side doors are intact, the body has no scratches or collisions, and the window glass and lamp covers are complete;
- › Check whether the chassis oil lines leak: there is no oil trace on the ground under the vehicle;
- › Check the air compressor;
- › Check that the free travel of the steering mechanism is not greater than 15° and whether the steering mechanism works with any jamming or the like;
- › The low-voltage lead-acid battery voltage should be (27 ± 0.5) V;
- › Check whether the switches, instruments or indicator lamps in the instruments work normally;
- › Check the air system reserve pressure: check the working condition of the air compressor unit. Start the air compressor; it should reach a low working pressure of 0.65 MPa within 4 minutes, and when the air pressure reaches 1 MPa, the air dryer should unload. When the air pressure falls below 0.5 MPa, the low-pressure alarm should sound.
- › Check the normal height, lowest position and highest position of the air spring shock absorber, and ensure that lifting and lowering are normal with no air leakage.
- › Check the correctness of the vehicle doors, windows, lamps and audio signals (including control and operating signals), and the interior and exterior mirrors;
- › Check the working condition of the door mechanism and whether the opening/closing actions are correct. Check the correctness of the positions and actions of the various switches, handles and pedals in the driver's cab;
- › Check that the electronic equipment is intact and the information is accurate;
- › Check the interior facilities: seats and handrails are complete and firmly installed; interior lighting and monitoring devices are intact; windows and skylights open flexibly;
- › Check the emergency devices: whether the low-pressure alarm (alarms when the air pressure is below 0.55 MPa) and the emergency valve switch operate normally. The fire extinguisher should be within its validity period and its pressure should meet the requirements;
- › Check the working condition of the coolant pump, which should run smoothly without abnormal noise or fluid leakage;
- › Check whether the electric brake, air brake and parking brake work normally and whether the pipelines have any air leakage;

⚠ WARNING

- When inspecting the vehicle, confirm that the parking brake is in the braking state and the gear shift switch is in the neutral position before connecting the high and low voltage.

Pedals



1 Accelerator pedal

2 Brake pedal

Starting the Vehicle

One-touch Start

Under normal conditions, the vehicle can be started with

1. Check and confirm that the gear position is in "N" and the elec
2. Check and confirm that the smart key is inside the vehicle.
3. Press the start button once, and the button indicator lar
4. Press the start button once more, and the instrument di
5. Depress and hold the brake pedal.
6. Press the one-touch start button, and the working indicator lamp on the button changes from red to green.
7. Release the brake pedal and check whether the driving-ready (READY) indicator lamp in the instrument panel illuminates. If it illuminates, the vehicle has been started successfully and is in a drivable state.





Gear Shifting



R:
Reverse
gear N:
Neutral
D: Drive gear

In the started state, depress the brake pedal and press the corresponding gear button. The backlight of the corresponding gear illuminates, and the current gear information is displayed in the instrument panel.

Select D or R gear, release the parking brake, and then slowly depress the accelerator pedal to drive the vehicle.

> When switching between D and R gears, you must first rotate to N gear, and then press R or D gear.

△ WARNING

- Do not press the D or R gear switch while the vehicle is in motion. Do not touch it while driving, to avoid accidents caused by misoperation.

Precautions While Driving

When starting on a slope, press the accelerator pedal first and then release the parking brake to prevent the vehicle from rolling back.

Use the brake pedal for braking while driving, use the electronic parking brake device when parking, and use the electric brake when driving on long slopes. When the STOP (parking check) indicator lamp on the instrument panel remains on (air pressure below 0.5 MPa), it is strictly forbidden to start and drive the vehicle.

After the vehicle starts, when the vehicle speed is below 10 km/h, check the braking on a dry and non-slippery road surface, checking both the brake pedal braking and the electronic parking brake. If the wheels can brake evenly with sufficient braking deceleration, the braking is considered normal and can meet the actual use requirements.

When deceleration is needed during high-speed driving, lightly depress the brake pedal to use the electric brake for deceleration (the total current shown

on the instrument panel is negative). If the vehicle needs to stop, continue to depress the pedal to use combined electric and air braking to stop the vehicle.

When stopping and waiting at a red light, use the electronic parking brake to park.

When the vehicle turns, the vehicle speed should be limited to within 20 km/h.

When the electric vehicle turns, after the steering wheel is turned to the limit position, do not continue to force the steering wheel. Do not keep the steering wheel at the turning limit position for a long time.

When starting the vehicle, do not press the accelerator pedal first and then apply the high voltage.



When driving, do not accelerate or decelerate sharply; maintain smooth driving or intermittent coasting as much as possible.

When driving on roads with complex conditions, slow down and drive cautiously, and do not exceed 20 km/h.

Do not overload the vehicle, so as to avoid accidents caused by loss of vehicle load control, which may result in serious injury or even life-threatening situations.

Electronic Parking



The driver applies or releases the parking brake by operating the EPB electronic parking button.

- > When the vehicle stops, pull up the EPB electronic parking button; the parking status indicator lamp in the instrument panel illuminates, indicating that the electronic parking brake has been applied.
- > When the vehicle power state is "ON", depress the brake pedal and press the EPB electronic parking button; the parking status indicator lamp in the instrument panel goes out, indicating that the electronic parking brake has been released.

When the vehicle power state switches to "OFF" ,

NOTE

Dynamic Emergency Braking

When the vehicle is in motion, pulling up the EPB switch for a certain time executes the emergency braking function.

WARNING

- When driving, do not use the electronic parking brake to reduce vehicle speed, because the parking brake only applies braking force to the rear wheels, which can easily cause traffic accidents.
- The electronic parking brake must be applied when parking. When the driving-ready (READY) indicator lamp in the instrument panel illuminates, applying the electronic parking brake will not allow the vehicle to power off.
- Unless necessary, do not use dynamic emergency braking, otherwise it can easily cause traffic accidents, and the braking distance is longer than braking with the brake pedal, which will also shorten the service life of the parking brake system.



Brake Assist Control System

Compared with conventional braking systems, the greatest advantage of EBS is higher performance and better modularity; by arranging a few system components it can meet the requirements of different vehicle models and different performance levels.

EBS can realize the following functions:

- > Electronic brake force control;
- > Anti-lock braking system (ABS);
- > Automatic traction control (ATC);
- > Drag torque control (DTC);
- > Brake assist function;
- > Lining wear indication and control;
- > Retarder blending braking;
- > Coupling force control;
- > Trailer braking function;
- > Door braking function;
- > Differential lock disable;

- > Hill-start assist function;
- > Software anti-stacking function;
- > Electronic stability program (ESP); > Driving information and diagnostics.



Low-speed Warning Sound System

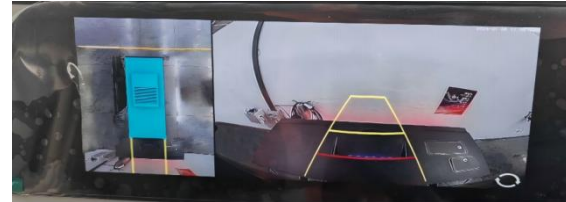
The low-speed warning sound system helps other road users, especially blind and visually impaired people, to detect the approach of the vehicle more easily, so as to avoid accidents.

When the vehicle speed is within the range of 1-20 km/h, the vehicle emits a warning sound, and the warning sound changes with the vehicle speed.

When the vehicle speed exceeds 20 km/h, the vehicle warning sound stops.

Reversing Image

The reversing monitor on the vehicle is integrated into the instrument console central screen; when the vehicle reverses, the central display automatically switches to the view of the rear area of the vehicle.



NOTE

- Clean the dust on the reversing camera promptly to avoid affecting the clarity of the reversing image.
- Control the vehicle speed when reversing; when the reversing speed is high, traffic accidents can easily occur, causing casualties.

Central Screen Display System

System Description

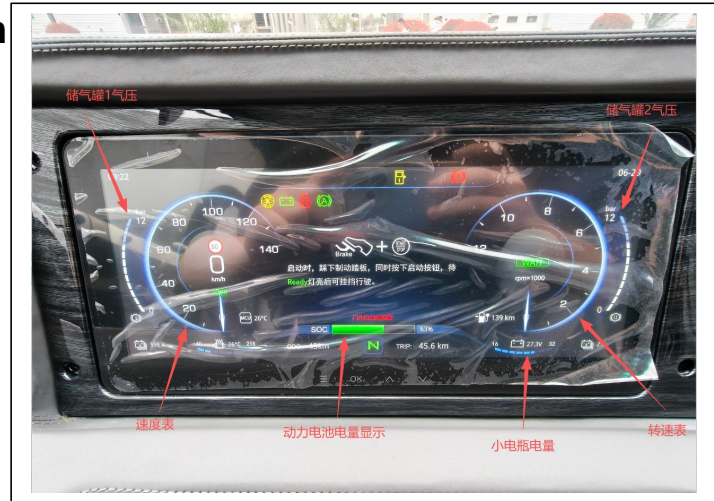
The information display of the instrument panel and the entertainment system are organically integrated, making it more powerful and overall more elegant. Especially at a time when commercial vehicle technology in China is developing and iterating rapidly, and in response to the increasing demand for electric chassis and intelligent cockpits of commercial and special-purpose vehicles, the instrument panel, the original in-vehicle entertainment system and the contents related to vehicle body-up control are deeply integrated based on vehicle control. The all-in-one central screen achieves a new breakthrough in "transmission, display, control and recognition" on the instrument console, operation



panel and other aspects, and provides a digital management solution for bus company operations, from exterior design to human-machine interaction experience.

Instrument Panel Description

The instrument panel can display all kinds of vehicle alarm symbol icons on the display screen. The system can realize a self-diagnosis function, with text and buzzer prompts for key alarm information, and the system can automatically recover when the faulty device returns to normal.



Instrument Panel Display Description

Display screen	Description	Screen state
Instrument main menu display	When the key switch is turned to the ON position, the instrument display screen shows the main interface.	
Instrument main menu display	Shows the instrument menu selection screen	
Software information	Enter this page to view the software information	

Display screen	Description	Screen state
Power system information	Enter this page to view the power system information	 
Battery information	Enter this page to view the vehicle battery information	 
Insulation information	Enter this page to view the insulation information	
Motor controller information	Enter this page to view the motor controller information	

Display screen	Description	Screen state
DCDC information	Enter this page to view the DCDC information	
Air pump information	Enter this page to view the air pump information	
Steering pump information	Enter this page to view the high-voltage steering pump information	
Air conditioning system information	Enter this page to view the low-voltage steering pump information	

Display screen	Description	Screen state
EBS fault query	Enter this page to view the EBS fault information	
ECAS fault query	Enter this page to view the ECAS fault information	
EPB fault codes	Enter this page to view the EPB fault codes	
Tire pressure information	Enter this page to view the tire pressure information	

Display screen	Description	Screen state
Map version number	Enter this page to view the map version number	
Vehicle information	Enter this page to view the vehicle information	
System information display	Enter this page to view the system information	
Overspeed setting	Enter this page to set the overspeed value	

System Self-diagnosis and Fault Detection Description

System Self-diagnosis Function

The CAN system has a self-diagnosis function, which diagnoses and displays faults through the text bar at the bottom of the instrument display screen. Fault detection:

Fault phenomenon	Detection method
Instrument display screen displayed data all abnormal	1. Check whether the PCAN line of the instrument panel and the P CAN connection of the vehicle control unit are normal; 2. Check whether the vehicle control unit is normal; 3. If all the above checks are normal, then it is an instrument fault.

When a certain switch is turned on, the corresponding electrical appliance does not work	1. Enter the instrument diagnostic information sub-screen. When the switch is turned on, if there is a green dot in the corresponding circle on the diagnostic screen, the switch input is normal; if there is no green dot in the circle, check whether the switch connection is connected or whether the switch is normal;   2. If the switch input is normal but the electrical appliance still does not work, turn the diagnostic screen to the module output diagnostic screen. When the switch is turned on, if there is a green dot in the circle of the corresponding output electrical appliance  there is output; then check whether the connection line and the appliance of the faulty electrical appliance are normal; 3. If there are green dots in both the input and output but the electrical
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	appliance still does not work, use a multimeter to measure the output; if there is no output, the module is defective.
--	--

Fault phenomenon	Detection method
Instrument alarm indicator lamp or symbol icon does not illuminate or stays on	1. The display of the symbol icons on the instrument panel is determined by the switch signals, i.e. when the switch is turned on, the corresponding symbol icon lights up. First check whether the input signal is normal according to the interface definition; 2. If the symbol icons on the instrument panel do not light up when the input signal is normal, the indicator symbol icon on the instrument panel is damaged and the instrument panel needs to be replaced.
Speedometer fault (the pointer has no response while driving)	The vehicle speed signal is calculated from the motor speed message sent by the vehicle control unit on the PCAN line. First check whether the speed pointer is normal; if the speed is normal, it is an instrument problem, and check whether the speed ratio and vehicle speed ratio coefficient settings are normal.



Motor tachometer fault (after start, the tachometer pointer has no response)	1. The motor speed signal comes from the sent by the vehicle control unit on the PC/ Connect PCAN communication equipment whether the motor speed message is sent 2. When it is inconvenient to view the speed replace the non-working instrument panel with a known good one. If it still does not work, whether the PCAN line connection or the control unit is normal.
Voltmeter fault (the voltmeter does not change)	The voltmeter signal comes from the instrument working power supply. When the instrument normally but the voltmeter is abnormal, it is an internal circuit problem of the voltmeter and the instrument needs to be replaced.



Central Screen Operation Description

Display screen	Description	Screen state
Function selection screen	According to the vehicle requirements, customize the required function switches, thereby controlling the vehicle lighting, ventilation fans, defrosters and other electrical equipment.	



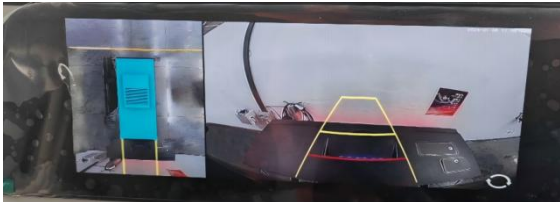
Air Conditioner Interface

The air conditioner control functions are integrated into the central screen, allowing the driver to operate the air conditioner by touching the screen and control the air conditioner temperature, airflow and operating mode.

- Turning on the air conditioner: first press the on control, then press the middle power-on key, and then the air conditioner operating mode can be selected, and the air conditioner can be turned on normally.
- Turning off the air conditioner: first press the middle power-off key, then turn off the on control key, and the air conditioner can be turned off normally; otherwise the air conditioner cannot be turned off.
- Temperature adjustment: tap the "^" and "v" buttons on the left side of the display to adjust the air conditioner temperature.
- Airflow adjustment: tap the "^" and "v" buttons on the right side of the display to adjust the air conditioner airflow.



Video Display Screens

Display screen	Description	Screen state
Central screen 360° surround view interface	The central screen connects the 360° surround view interface. Through distortion restoration, perspective conversion, image stitching and image enhancement of the image processing unit, a seamless 360° panoramic top view around the vehicle is formed. By normal driving operations such as shifting into reverse gear and turning on the turn signal lamps, the image is switched.	
Instrument control interface	Use the confirm key to control the instrument to enter the instrument sub-screen, use the front/back/left/right selection keys to select the corresponding sub-screen of the instrument, and press the return key to exit the current instrument screen.	

Radio interface

The radio supports automatic station search, manual station search and memory play back; by tapping the heart icon on the screen, channels can be favorited.





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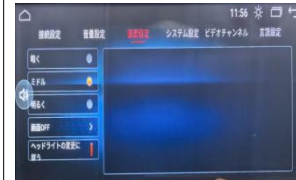
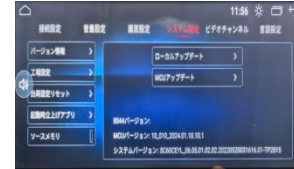
Display screen	Description	Screen state
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Settings
screen

Enter the settings screen to set the display text, screen brightness, video input channel and format of the central screen, to meet the needs of different customers.





Central Screen Installation Safety Notes

Please read all instructions carefully before installation, and it is recommended that this machine be installed by a professional car audio installer.

(1) This unit is applicable to the vehicle 24 V power system (a grounding wire is required).

(2) Without the guidance of a professional, do not replace the power fuse by yourself. Using an improper fuse may damage the machine or cause a fire.

(3) To avoid violating traffic rules, the driver must not watch programs or operate this unit while driving, in order to avoid unnecessary traffic accidents.

(4) For safety and to ensure normal use of the product, have it installed by a professional for this product. Do not disassemble or repair this machine by yourself, so as to avoid machine damage or accidents.

(5) Prevent this product from being placed in a humid environment or in water, so as to avoid

electric shock caused by short circuit, or other unwanted damage or fire.

Note:

To prevent short circuits, remember to turn off the vehicle and disconnect the connections of ACC and B+ before installation.



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Driving Operation

Resetting This Unit

- (1) Before using the unit system for the first time or after replacing the vehicle battery, the unit must be reset.
- (2) When the unit functions abnormally, the unit must be reset.
- (3) Tap "Restore Factory Settings" on the settings screen to restore the unit to its initial factory state.

Note:

Restoring the factory settings will lose the previous time and setting values.



Turning Off the Power



After parking, press the one-touch start button and the vehicle power status switches to the "OFF" state, turning off the vehicle power.

Turning On the Hazard Warning Lamps

When any of the following situations occurs, the hazard warning lamps should be turned on to draw the attention of other people on the road and reduce the risk of traffic accidents:

- > The vehicle breaks down;
- > In traffic congestion, the vehicle is at the end of the traffic flow;
- > When towing a vehicle or being towed.

The hazard warning lamps can be turned on in any state of the vehicle power.



With the hazard warning lamps off, press the hazard warning lamp button (red) to turn on the hazard warning lamps; all the turn signal lamps and the turn signal indicator lamps in the instrument panel flash simultaneously. Press the hazard warning lamp button again to turn off the hazard warning lamps; all the turn signal lamps and the turn signal indicator lamps in the instrument panel go off simultaneously.

**i CAUTION**

- After the vehicle is powered off, turn off the hazard warning lamps unless necessary to prevent the battery from being drained.

i NOTE

- If the hazard warning lamps cannot work normally, other methods must be used to draw the attention of other drivers to your vehicle, and the methods used must comply with the relevant traffic regulations.

Emergency Handling

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Passenger Doors and Operating Mechanism Emergency Valve Door



Locations of the Emergency Valves Inside and

Outside the Vehicle

The passenger doors of the pure electric micro bus are designed as outward-swing doors. The passenger door

In an emergency, the doors can be opened using the emergency valves both inside and outside the vehicle.

Press the switch downward to open the valve cover,

operating mechanism is of an electrically controlled pneumatic type, and a manual opening method is also provided. Before use, ensure that the front and rear door emergency release switches are in the closed state.

When the air pressure in the vehicle air circuit reaches 0.6 MPa, press the passenger door open switch and the front passenger door opens; press the passenger door close switch again and the front passenger door closes.

When the vehicle is in an emergency condition or the front door needs malfunctions, turn the emergency release switch beside the front door. Push the door outward near the door hinge.

• When the vehicle is no longer in use, it is recommended to close the passenger doors for safety. To avoid pinching passengers, a cushioning device is provided in the door panel, and the closing action is fast first and then slow.

	WARNING
• After the door is opened with the emergency valve, the door closes automatically when the emergency valve is closed;	
	CAUTION
• After the door is opened with the emergency valve, the door switches both inside and outside the vehicle do not work. Do not use it except in an	

Fire Extinguisher (The in-vehicle fire extinguisher has been installed)

The vehicle is equipped with fire extinguishers. When a fire occurs inside the vehicle, they can be taken out to extinguish it. Their locations are: one is near the driver's seat, and the other is placed on the rear five-seat platform. These fire extinguishers can be used to extinguish initial fires of oils, flammable gases and electrical equipment.

These fire extinguishers are used to extinguish initial fires of oils, flammable gases and electrical equipment.



NOTE

Check the fire extinguisher every half year. When the fire extinguisher is 10% lighter or the gauge pressure is below the green line, the extinguishing agent and propellant gas must be replenished immediately.

- The fire extinguisher must be renewed every 2 years.

How to use the fire extinguisher:

1. Pull open the latch that fixes the fire extinguisher, and the latch opens automatically.
2. Pull out the safety pin on the fire extinguisher, aim at the fire source and its surroundings and press the switch.
to extinguish the fire.

Ex

After using the fire extinguisher, even if only a small amount of extinguishing agent was discharged, it must be re-filled and checked by the fire extinguisher manufacturer or a professional unit before it can be used again.



Pull out the safety pin on the fire extinguisher

Emergency Handling

Abnormal Phenomena During Driving and Handling

1. If an emergency such as abnormal vehicle speed occurs, first turn off the low-voltage main power switch to cut off the low-voltage power, then pull out the manual maintenance switch in the rear compartment to cut off the high voltage, and then check the cause of the fault.
2. If it is found that the electric brake suddenly fails while the electric vehicle is driving, press the brake pedal deeply and rely on the air brake to control the vehicle. During driving, the electric brake generally returns to normal; if it does not recover or the electric brake fails frequently, the maintenance department must be notified for repair when the vehicle is handed over.

Emergencies and Handling

Emergencies refer to events during driving that cause vehicle facilities or parts to malfunction or that cause a fire, due to mechanical faults and human factors. Handling methods when an emergency occurs:

1. Immediately pull over and stop, open the doors (if the door switches fail, open the emergency valve switches), and evacuate the passengers.
2. Press the one-touch start button to turn off the vehicle power.
3. Open the electrical inspection door of the rear compartment, immediately disconnect the high-voltage maintenance switch (MSD) and turn off the low-voltage main power switch.
4. If it is a fire, take out the fire extinguisher, cool and extinguish the passenger compartment and the burning parts to prevent the fire from spreading. Once the fire is serious or judged to have a tendency to spread, immediately call the fire alarm for help; if there are casualties, call the traffic accident rescue center for assistance. Also inform the rescue personnel of the basic characteristics of this pure electric bus.
5. Report the incident details, location, time and loss situation to the fleet promptly.
6. Protect the scene.
7. Cooperate with the incident investigators to find out the cause of the incident.

High Temperature and Smoke from the Battery During Driving

The driver should pay special attention to high-temperature alarms and the battery compartment during driving. If the temperature of a certain battery is found to exceed 45 °C, check the temperature of the adjacent batteries. If the temperature difference is greater than 5 °C, stop the vehicle and open the battery compartment door to inspect the battery. If there is an unusual smell or smoke coming out of the battery compartment, handle it according to the following sequence:

1. Pull the vehicle over to the roadside;
2. Cut off the vehicle high voltage (pull out the manual maintenance switch); do not turn off the low voltage;
3. Promptly organize the people on board to evacuate in an orderly manner.

Electric Leakage

Because pure electric vehicles are electrically driven and contain high-voltage components, the driver must pay special attention to the insulation alarm system. This vehicle's insulation alarm system alarms in two levels. If an insulation alarm occurs, handle it according to the following steps:

- › When an insulation alarm occurs, the driver should pull the vehicle over as soon as possible, stop driving, and let the passengers get off in an orderly manner. Before the cause of the alarm is ruled out, the driver must not forcibly start the vehicle and continue driving;
- › Judge the insulation alarm level. When the insulation alarm is level 1, the indicator lamp stays on steadily in yellow; when the insulation alarm is level 2, the indicator lamp stays on steadily in red with a voice alarm prompt. Notify the person in charge, who will formulate a handling plan.



WARNING

- If the high temperature, smoke or fire is relatively serious, immediately move away from the vehicle and evacuate the surrounding people, promptly call the local fire alarm for help; if there are casualties, call the local rescue phone for help.



Driving in Rain

When driving in rain, if you encounter a waterlogged area with a visually estimated water depth of 50 mm (water covering the shoe tops), drive at low speed (5 km/h) to prevent vehicle damage caused by rainwater scouring and soaking. After returning to the depot, notify the fleet of the location of the waterlogged area.

When the water depth in a waterlogged area exceeds 100 mm (water covering the ankles), you are not allowed to continue driving. Stop at the highest point of the road section; properly carry out passenger evacuation and explanation to avoid disputes and impacts; notify the fleet promptly.

When parking in rain, all doors and windows must be closed tightly to prevent rainwater from entering the passenger compartment.

•

Handling methods after an electric leakage occurs while driving in rain:

1. Pull the vehicle over to the roadside and apply the electronic parking brake.
2. Press the one-touch start button to turn off the vehicle power.

3. Use the door emergency switch to open the doors, evacuate the passengers urgently, and notify the fleet promptly.

If danger suddenly occurs, the driver should notify the fleet of the incident and its location as soon as possible.

•

Driving on Wet or Icy Roads

When driving on wet or icy roads, the friction coefficient between the tires and the road surface is low, making vehicle control difficult. Improper operation can cause the vehicle to skid or even spin, with very serious consequences. Therefore, when driving on wet or icy roads, pay attention to the following points:

1. When starting or driving, rapid acceleration is prohibited; keep the accelerator steady and drive at a constant speed.
2. Avoid turning the steering wheel sharply.
3. Do not drive too fast. When the vehicle needs to decelerate, lightly press the accelerator and make full use of the motor braking. Use the brake as little as possible and never stamp on the brake.
4. Appropriately increase the safe following distance and also pay attention to the distance from the vehicles on the left and right.
5. When meeting oncoming vehicles on roads without a central divider, keep to the left and drive slowly as much as possible.
6. Install anti-skid chains on the drive wheels when necessary.

Driving in Mountainous Areas

Due to the special and complex conditions of mountain roads, pay attention to the following points when driving on mountain roads:

1. Maintain the following distance and speed, and watch out for animals suddenly running out from the roadside. Do not blindly swerve the steering wheel to avoid them, so as to prevent rollover or falling off a cliff.

2. When encountering a curve, slow down and drive cautiously and do not overtake. At mountain road curves, the view is limited by the mountain body and it is hard to see the road ahead clearly; blind overtaking can easily cause danger.

3. When going uphill, drive at a low and steady speed to prevent danger caused by insufficient power at too high a speed. When going down a long slope, use the motor regenerative braking as much as possible to prevent the brake disc (brake drum) from overheating due to prolonged use, which would cause brake failure.
4. Try to avoid overtaking on mountain roads; mountain roads are generally narrow with many curves, and overtaking in such conditions is dangerous. If overtaking is truly necessary, do so on a straight section.

Maintenance and Servicing

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Routine Maintenance

The following maintenance schedule table shows the inspection, replacement and fluid-filling maintenance items and maintenance intervals for the first year. For each subsequent year, except for the run-in maintenance inspection items, maintenance is carried out according to the items listed in the first-year maintenance schedule.

	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12		20	24			36	40	44	48
		-		2	3	4	5	6	7	8	9	10	11	12
Check the acceleration and deceleration performance	☆			★	★	★	★	★	★	★	★	★	★	★
Check and clean the air filter element				★		★		★		★		★		★
Replace the inner and outer air filter elements														★
Tighten all kinds of bolts (including the suspension)	☆													★

Check the compressor pressure													★
Check the cleanliness and remaining amount of the lubricating oil		★	★	★	★	★	★	★	★	★	★	★	★
Check the tightening condition of the various bolts and nuts in the steering system	☆	★	★	★	★	★	★	★	★	★	★	★	★

Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Check the rotation of the steering wheel for looseness or vibration			★	★	★	★	★	★	★	★	★	★	★	★
Check whether the steering gear and hydraulic pipelines leak oil	☆		★	★	★	★	★	★	★	★	★	★	★	★
Check whether the steering gear installation is loose	☆		★	★	★	★	★	★	★	★	★	★	★	★
Check whether the steering gear bearings are loose														★
Check the steering gear gear clearance														★
Check the internal leakage of the steering gear														★

Check whether the steering gear connection parts have looseness, vibration or damage	☆			★			★			★			★
Check whether the connection parts between the tie rods and the steering arms have wear or damage													★



Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Check whether the steering knuckle arms and their connection parts with the steering knuckles have cracks														★
Check whether the steering knuckle connection parts are loose								★						★
Check the clearance between the steering knuckles and the front axle														★
Check whether the steering knuckles have cracks														★



Check the front wheel alignment													★
Check the front wheel steering angle													★
Check the fluid level of the power steering hydraulic system	☆	★	★	★	★	★	★	★	★	★	★	★	★
Replace the hydraulic oil and oil tank filter of the power steering hydraulic system	☆						★						

Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Check whether the hydraulic oil pump works normally														★
Check the installation and tightening condition of the various parts of the hydraulic system	☆			★				★			★			★
Check the free travel of the brake pedal	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Check the braking effectiveness	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Check the effectiveness of the energy-storage spring parking brake	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Check whether the air pipes leak, are damaged, and are properly installed and fixed	☆	★	★	★	★	★	★	★	★	★	★	★	★	★

Check whether the brake flexible and rigid pipes are damaged and properly connected	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check the sealing effectiveness of the brake valves and other valves													★

Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Check whether the brake clearance automatic adjusting arm works normally		☆						★						★
Check the wear and damage of the brake drums (discs) and brake shoe linings				★		★		★		★		★		★
Check whether the wheel brake chambers work normally and are not damaged														★
Check whether the air compressor works normally														★

Check whether the transmission leaks oil	☆	★	★	★	★	★	★	★	★	★	★	★	★
Replace the transmission lubricating oil	☆						★						★
Check whether the transmission control mechanism malfunctions or is damaged													★
Check whether the drive shaft connection parts are loose	☆			★			★			★			★

Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Check whether the drive shaft is out of alignment														★
Check whether the drive shaft splines are loose														★
Check whether the drive shaft universal joint bearings are loose														★
Check the electrolyte level of the battery	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Check the specific gravity of the battery electrolyte	☆			★			★			★				★
Check whether the electrical wiring connection parts are loose or damaged	☆	★	★	★	★	★	★	★	★	★	★	★	★	★

Grease the steering column universal joint bearings and sliding yoke	☆	★	★	★	★	★	★	★	★	★	★	★	★
Grease the ball studs of the steering tie rods and drag link	☆	★	★	★	★	★	★	★	★	★	★	★	★



Inspection/maintenance item	Maintain according to the specified mileage or time interval (whichever comes first)													
	km ×1000	1	4	8	12	16	20	24	28	32	36	40	44	48
	Month	-	1	2	3	4	5	6	7	8	9	10	11	12
Grease the steering knuckle king pins	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Grease the front and rear brake camshafts	☆	★	★	★	★	★	★	★	★	★	★	★	★	★
Grease the universal joints of the transmission control mechanism				★				★			★			★
Grease the front bearing of the transmission first shaft	☆		★		★			★		★		★		★
Grease the front and rear wheel hub bearings								★						★
Grease the brake shoe support pins of the front								★						★



and rear brakes													
Grease the drive shaft sliding yoke and universal joints	☆	★	★	★	★	★	★	★	★	★	★	★	★

Replacement item	Replace according to the specified time interval												
	Year	1	2	3	4	5	6	7	8	9	10	11	12
Replace the fuel hose			★		★		★		★		★		★
Replace the rubber hoses of the power steering hydraulic system			★		★		★		★		★		★
Replace the rubber parts of the brake valves		★	★	★	☆	★	★	★	☆		★	★	☆
Replace the brake hoses		★	★	★	★	★	★	★	★		★	★	★
Replace the cups and seals of the wheel brake chambers		★	★	★	★	★	★	★	★		★	★	★

Note:

★ Indicates an inspection/maintenance item that is required

☆ Indicates a run-in maintenance inspection item

Under normal use conditions, the vehicle should be lubricated with grease at regular intervals to improve the lubrication conditions. Before applying the grease, first wipe off the dirt on the grease nipples or the parts to be lubricated with a cloth, and then apply the grease. After applying the grease, wipe off the excess part; if grease

nipple caps are installed, cover them. The grease used for lubrication maintenance should be No. 2 lithium-based grease. Do not use calcium- or sodium-based grease, otherwise the specified effect cannot be achieved.

The parts that must be replaced at regular intervals refer to those whose performance inevitably degrades over time, mainly including rubber and plastic parts such as brake hoses and fuel hoses. These parts must be replaced at regular intervals regardless of whether their appearance is damaged.

Maintenance Information

The maintenance information includes routine maintenance, first-level maintenance, second-level maintenance, third-level maintenance, seasonal maintenance and special maintenance. In order to keep the vehicle in good use condition and extend its service life, please maintain the vehicle according to the maintenance at each level.

Mileage Intervals for Maintenance at Each Level

- > Routine maintenance: after daily operation
- > First-level maintenance: 2000-3000 km (for vehicles with short daily mileage where the maintenance cycle cannot be determined by mileage, no more than one month)
- > Second-level maintenance: 6000-8000 km (for vehicles with short daily mileage where the maintenance cycle cannot be determined by mileage, no more than three months)
- > Third-level maintenance: 30000-35000 km (for vehicles with short daily mileage where the maintenance cycle cannot be determined by mileage, no more than one year)
- > Seasonal maintenance: carried out in winter and summer
- > Special maintenance: carried out together with seasonal maintenance

Routine Maintenance

Routine maintenance mainly involves cleaning, observation and inspection. The main work is as follows:

- > Check the coolant level in the expansion tank and add coolant when it is insufficient.
- > Check the oil level of the air compressor and add oil when necessary;
- > Check whether the sealing devices of the various oil pipes, water pipes and air pipes leak; > Check whether the components of the steering and braking systems are flexible and reliable;
- > Check whether the battery connections are firm and reliable, and whether the various instruments, lamps, signals and wipers work normally;
- > After the drive motor starts, listen to whether the various parts of the motor operate normally;
- > Check whether the air spring height is normal and whether its control air piping leaks; check whether the air springs have wear, damage or improper bulging; check whether there is enough clearance around the air springs; check and remove foreign objects such as sand, gravel and glass debris adhering to the piston at the air spring base; check all the fastening connectors of the air suspension;
- > Check whether the tires are damaged and whether the air pressure is normal;
- > Drain the water accumulated in the wet air reservoir;
- > Eliminate the faults occurring during the day's operation;



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> Check whether the electrical connections in the rear compartment are loose.

First-level Maintenance

First-level maintenance mainly involves tightening, lubrication and cleaning of the various filters. The main work is as follows:

- > Complete all the routine maintenance items;
- > Check and add the lubricating oil of the transmission and rear axle, and the hydraulic oil of the steering gear and steering assist system;
- > Check and clean the air filter of the air compressor and remove the dirt from the air reservoir;
- > Check and tighten the drive shaft bolts, the bolts and nuts at the joints of the steering mechanism, all the fastening connectors of the front and rear air suspension (such as the thrust rod connecting bolts, the bolts connecting the front suspension air spring supports to the axle, the U-bolts of the rear suspension, the adjusting rod clamping nuts of the height control valve), the motor mounting bolts and the bolts and nuts of the other parts;
- > Clean the outside of the battery and check and add distilled water;
- > Check whether the tire air pressure is within the specified range and check the tread condition;
- > Start the drive motor, steering pump motor and electric air compressor, listen for any abnormal noise during operation, and observe whether any part leaks;
- > Remove the dust, fibers and other foreign objects from the surface of the drive motor and the fan air inlet and outlet;
- > Degrease and descale the motor controller, promptly remove the dust and oil stains from the surface of the motor controller, the cooling fan and the fan blades, and

ensure that the cooling system of the motor controller works normally;



- > When replacing the traction battery modules, check whether the connecting plugs have faults such as wear, looseness or burning; at the same time clean the battery box once and check whether the inner and outer boxes and all the components are intact;
- > Lubricate according to the time specified in the routine maintenance schedule.



Second-level Maintenance

Second-level maintenance mainly involves inspection and adjustment. The main work is as follows:

- > Complete all the first-level maintenance items;
- > Check the specific gravity of the battery electrolyte and charge when necessary;
- > Check the free turning play of the steering wheel and adjust when necessary;
- > Check and adjust the toe-in;
- > Check the tires and inflate and rotate them as specified;
- > Disassemble and inspect the wheel brakes. Lubricate the brake shoe support pins, clean and lubricate the hub bearings, and adjust the clearance between the brake shoe linings and the brake drum;
- > Check whether the electric motor is firmly installed and check whether the brushes and commutator are worn;
- > Check the fastening condition of the front and rear shock absorbers and the tightening torques of all the fastening connectors of the air suspension (such as the thrust rod connecting bolts, the bolts connecting the front suspension air spring supports to the axle, and the U-bolts of the rear suspension); check whether the air spring height meets the design value, with an error of less than 6 mm; inspect and maintain the height control valve and its adjusting arm and the tightening and installation of the adjusting rod;
- > Check whether the frame has cracks and whether the bolts, nuts and rivets are loose;
- > Lubricate according to the time specified in the routine maintenance schedule.

Third-level Maintenance

Third-level maintenance mainly involves disassembling or replacing assemblies and eliminating hidden dangers.

The main work is as follows: > Complete all the second-level maintenance items;

- > For the third-level maintenance of the drive motor, see the special maintenance;
- > Disassemble, inspect and adjust the transmission, front axle, rear axle and steering mechanism, and replace the lubricating oil;
- > Disassemble, inspect and clean the shock absorbers and replace the shock absorber fluid; check whether the air springs are worn or cracked and replace them when necessary; check whether the rubber bushings of the thrust rods are worn and replace the rubber bushings or the thrust rod assembly when necessary;
- > Check the various instrument sensors and adjust them when necessary;
- > Check whether the brackets and suspension devices at the various connections of the frame are firmly fixed, and if necessary, carry out repair,

rust removal and touch-up

painting; > Check the battery;

- > Lubricate according to the time specified in the routine maintenance schedule.



Seasonal Maintenance

Clean the transmission, rear axle and steering gear, and replace with the lubricating oil of the seasonal grade.

Clean the steering assist system and replace with the hydraulic oil of the seasonal grade.

Clean the battery, adjust the electrolyte specific gravity, and charge it outside the vehicle.



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Special Maintenance

Special Maintenance of the Drive Motor

- › The cables and the fastening condition of the drive motor fasteners must be checked regularly.
- › For the heat dissipation of the drive motor, regularly remove the dust, fibers and other foreign objects from its surface and the fan air inlet and outlet.
- › Add grease, about 20 g, to the shaft-extending-end bearing of the drive motor.
- › After about two years of use, check the bearing condition and replace the bearing if necessary.
- › When the drive motor has been idle for a long time, it is recommended to measure the insulation resistance of the drive motor. Use a 1000 V megohmmeter for the insulation resistance check; the value should not be lower than 5 MΩ, otherwise the windings should be dried to remove moisture.

Special Maintenance of the Motor Controller

- › Degrease and descale the motor controller, promptly remove the dust and oil stains from the surface of the motor controller, the cooling fan and the fan blades, and ensure that the cooling system of the motor controller works normally.

- › Check the fixing bolts of the motor controller and tighten them promptly if they are loose.
- › Check the input/output high-voltage wires, plugs and related control wiring harnesses.
- › Check whether the surface of the wires is damaged. If damage exists and is slight, protect it with insulating tape. If the damage is serious, replace the entire wire.

- › Check whether the high-voltage plugs are loose or detached; if so, promptly re-insert or replace the plugs.
- › Insulation resistance test: use a megohmmeter to measure the insulation resistance and confirm that the insulation resistance between the live parts and the non-live parts is above 2 MΩ; if it is below 2 MΩ, check the insulation aging of each part and repair promptly. Insulation withstand voltage: apply a 1-minute sinusoidal voltage between the live parts and the non-live parts and confirm whether any abnormal phenomenon occurs (withstand voltage 1500 V).
- › Maintenance of the internal components of the controller: after opening the controller cover, use compressed air to blow the surfaces of the components to remove dust. Check the fixing of each component and tighten promptly if loose. Check whether the plug connections on the internal connecting wires are loose.

Special Maintenance of the Traction Battery

- › When replacing the traction battery modules, check whether the connecting plugs have faults such as wear, looseness or burning. Every 1000 km of operation, the battery box should be cleaned once and the inner and outer boxes and all the components should be checked for integrity; in particular, the 6 contacts at the rear should be wiped clean and free of dust and debris.
- › When replacing the battery inner frame, always carry out a simple visual inspection of the high-voltage terminal sockets to check whether their surfaces are worn or burnt. If there is a black oxide layer on the contact surface caused by arcing, gently rub off the oxide layer with 1500-grit sandpaper. If the arcing is serious or the yellow base copper is exposed on the contacts, the contacts must be replaced.

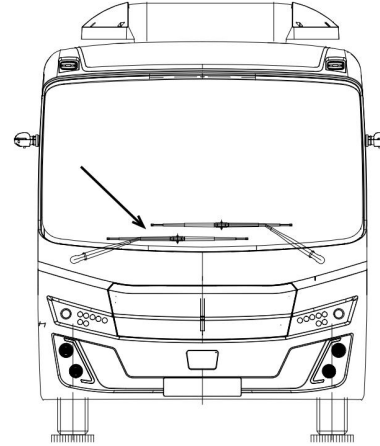


Wiper Maintenance

After the wipers have operated for 150,000 km (or two years), the motor should be disassembled for maintenance. After half a year of use, the various rotating parts in the mechanism should be lubricated with oil.

Check every three months whether the motor and the screws at the various mounting parts are loose. (Focus on checking the connecting rod, the nut and the wiper arm joint.)

Replace the wiper blades at regular intervals (it is recommended to replace them every half year).



Air Conditioner Maintenance

When parking in summer, try to avoid the air-conditioned vehicle being exposed directly to sunlight. Under direct sunlight, the heat load of the vehicle increases sharply, causing the air conditioner operating load to increase and the cooling effect and cooling speed to slow down.

Check the cleanliness of the return air grille filter and the evaporator filter and clean the filters on time (there are three filters at each return air inlet):

- › Generally, the vehicle should be flushed once or twice a week. For areas with a lot of dust, the cleaning interval can be shortened according to the actual situation;
- › In the season when the air conditioner is out of service, the filters should be cleaned at least once a month.

CAUTION

- If the air conditioner filters are not cleaned as specified, once a large amount of dust and oil stains enter the evaporator core, the heat exchange efficiency of the evaporator will be seriously affected and the cooling effect will drop noticeably.

Check the roof-mounted air conditioner housing: the fixing bolts are intact and the installation is reliable.

Check whether there is water leakage or water accumulation at the return air inlet.

Under cooling conditions, check the amount of refrigerant and the condition of the dryer. No bubbles or a small number of bubbles is normal; a large number of bubbles indicates insufficient refrigerant.



Check the cleanliness of the heat exchange fins of the evaporator and condenser cores: the cores of both units should be cleaned at least once a year, and the cleaning can be carried out in the following two ways:

- › Clean the outer surfaces of the condenser and evaporator cores with a high-pressure water gun and dishwashing detergent.
- › Blow the outer surfaces of the evaporator and condenser cores with high-pressure air.

CAUTION

- The high-pressure water gun or high-pressure air gun must be adjusted to an appropriate pressure before washing/blowing, and do not wash the fins flat.
- For particularly dirty cores, especially the evaporator core that has not been cleaned for a long time with the filter screen, when the fins are covered with a large amount of dust and dirt, use an air-conditioner-specific fin cleaning solution diluted with water for washing.

Check the wiring harness condition:

- › Check the high- and low-voltage cable connectors: whether they are connected reliably, and whether the conductive copper cores and pins are free of burning, pitting, oxidation and deformation;
- › Check the high-voltage power plugs; if dust has accumulated, clean them with compressed air and a dry cloth, and washing with water is strictly forbidden;
- › The high-voltage cable insulators are complete, firmly and reliably fixed, and show no signs of looseness;
- › Check that the fuse assembly bolts, roof-mounted power supply bolts, high-voltage terminal block bolts, roof return air inlet grounding bolts, generator

grounding post and power post show no looseness or blackening/discoloration.

Expansion Tank

Check the coolant level in the expansion tank in the framed area shown in the figure. If it is below the "MIN" marking, promptly add coolant until the level is between the "MIN" and "MAX" markings.

WARNING

- When the vehicle is hot, do not remove the filler cap to avoid burns.
- If coolant splashes onto your hands or eyes, immediately rinse the contacted area with clean water.

CAUTION

- Use the same coolant as the original factory specification, and do not mix coolants of different types.

NOTE

- When adding coolant, ensure that the level in all expansion tanks after filling is between the "MIN" and "MAX" markings.



Tightening Torques for Main Fastened Parts

Fastened part	Tightening torque, N.m
Front wheel nut	570~600
Steering upper arm to steering knuckle connecting stud bolt	216
Steering lower arm clamping nut	274~343
Steering upper arm clamping nut	274~343
Steering lower arm to ball stud connecting nut	245~340
Steering pitman arm to pitman shaft locking nut	407~434
Steering drag link ball nut	200~240
Steering drag link clamp nut	70~100
U-bolt clamping nut (leaf spring) - front suspension	410~490
U-bolt clamping nut (leaf spring) - rear suspension	670~750
Drive shaft universal joint flange yoke connecting nut	211~240
Final drive drive gear flange yoke locking nut	392~539
Ring gear to differential housing fastening bolt	588~686
Differential bearing cap fastening bolt	441~490
Differential housing fastening bolt	220~280
Axle shaft fastening bolt	137~176
Rear brake backing plate fastening bolt	200~250
Rear wheel fixing bolt clamping nut	350~421



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Rear wheel nut	570~600
Rear suspension bracket fixing bolt	250~300
Steering gear fixing bolt nut	360~420
Steering wheel locking nut	70~80
Front brake backing plate fixing nut	157~206



Tightening Torques for Main Fastened Parts

Shock absorber lower pin to bracket fixing nut	134~167
Axle shaft fastening bolt	137~176
Rear brake chamber fixing nut	167~186