



# Operating Instructions

for Model B Golf Cart



## **Preface**

**Thank you for purchasing our products. In order to use them better, please read the Operating Instructions thoroughly. After reading, please keep it properly for future reference.**

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# **I. Product introduction**

## **1. Use and scope of application**

Electric golf cart is an environment-friendly passenger vehicle specially developed by our company for golf courses, and can also be used in resorts, villa areas, garden hotels, tourist attractions and other places. With excellent performance, novel appearance design, luxurious and exquisite interior decoration, comfortable and safe driving, the complete vehicle is an ideal electric vehicle for golf courses in China at present.

## **2. Executive standards**

Q-321088TDC 05 2023



## II. Technical parameters of complete vehicle

Model Parameter	DC-G-B2/ DC-H-B2	DC-G-B2+2/ DC-H-B2+2	DC-G-B4/ DC-H-B4	DC-G-B4+2/ DC-H-B4+2	DC-G-B6	DC-G-B6+2
Number of seats (individual)	2 seats	4 seats		6 seats		8 seats
Overall dimension (mm)(Length × Width × Height)	2450×1200 ×1850/2505 ×1350×2000	2910×1200 ×1850/3000 ×1350×2000	3115×1250 ×1940/3205 ×1350×2080	3610×1250× 1940/3700× 1350×2080	3875×1200× 1930	4370×1200× 1930
Whole machine mass (kg)	540/590	590/620	610/680	660/710	700	730
Endurance mileage (km)(straight pavement,20km/h )	90-110	80-100	80-100	60-80	60-80	50-70
Maximum speed (km/h)	25/32	25/32	25/32	25/32	25	25
Minimum turning radius of outer wheels (mm)	3100/3500	3100/3500	4500/4700	4500/4700	5500	5500
Maximum gradeability	30%	25%	25%	20%	20%	20%
Minimum ground clearance (mm)	120/200	120/180	120/200	120/180	120	120

Other non-standard vehicle models are partially cited. See executive standards for test methods.

### III. Control mechanism

#### 1. Schematic diagram of control mechanism



## 2. Functions of control mechanism

### Turn on the power switch



1. Pull up the power switch lever to the “RUN” position to turn on the power supply of the complete vehicle;

2. Pull the power switch lever to the middle position to turn off the power supply of the complete vehicle;

3. Pull down the power switch lever to the “EMB” position to release electromagnetism, and push the complete vehicle;

### Power Lock :

1. Turn the key forward to start the vehicle (please turn the front and rear gear switch to the middle before opening the power lock) after inserting the power lock key vertically into the power lock hole

2. Turn the power lock key backward to shut down the vehicle, and only at this time can the key be removed.

### Front and rear gear switch

Operate the front and rear gear switch according to the forward or backward need of electric vehicle, the upward toggle switch is the forward gear, the downward toggle switch is the reverse gear, and the middle is the parking gear; when the reverse gear is selected, a buzzer alarm will be sent.



***When switching the front and rear gears of the gear switch, the vehicle must be stopped before switching the gears. During switching, turn the gear switch to the middle parking gear, and then select the forward or backward gear switch after staying for 2 seconds. Do not shift the gear switch too quickly, so as not to affect life safety and cause vehicle damage.***

### Accelerator pedal

Select the gear, release the brake pedal at this time, put your right foot on the accelerator pedal, and slowly press the accelerator pedal to start the vehicle after opening the power lock to start the vehicle.

Note: Do not slam on the accelerator pedal!

### Brake pedal

When the complete vehicle needs to slow down during driving, move your right foot to the brake pedal and gently press the brake pedal to slow down the vehicle until it stops.

Note: Emergency brake should be avoided!

**Magnetic brake** - Used for parking brake.

**Steering wheel** - Control the driving direction of the vehicle.



### Combination instrument

Display current vehicle status information, capacity, speed, mileage, light signals, etc. During driving, you can know whether the operation is correct according to the lighting of the indicator light in the dashboard.



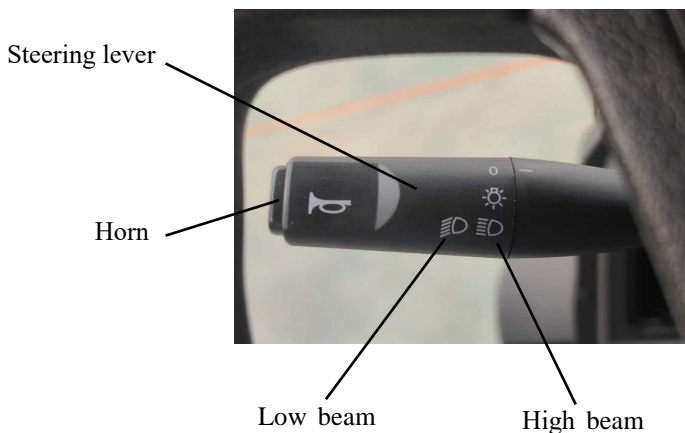
## Combination switch

1. Steering lever: When turning the lever forward, the left turn signal lamp flickers, and the left turn signal indicator lamp lights up on the dashboard at this time. When turning the lever backward, the right turn signal indicator lamp lights up.

2. Low beam: The front half end of the lever can be turned. After the vehicle starts, turn the lever forward for two gears to turn on the low beam. Turn the lever backward to turn off the low beam.

3. High beam: Lift the lever (steering wheel surface) to turn on the high beam. After releasing the lever, the lever will be automatically reset, and the high beam turns off at this time. Turn on the low beam first, and then lift the lever. At this time, the lever will not be automatically reset, thus realizing the permanent lighting of the high beam.

4. Horn: The head end of the lever is a horn button, which can be pressed lightly.



***Please be familiar with all operations before driving, strictly abide by the operation process and avoid illegal operation!***

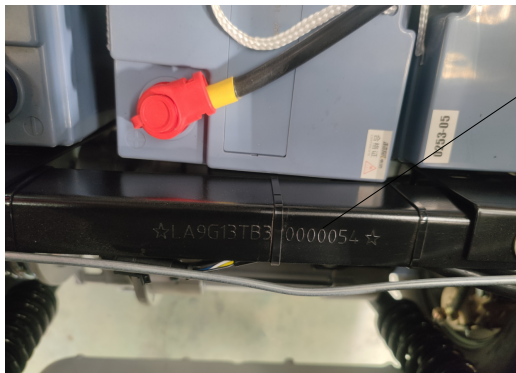
### 3. Nameplate position



**Nameplate**

The nameplate is located next to the charging port below the front seat.

### 4. Vehicle identification number position



**Vin**

The vin is located on the cross beam of the battery frame.

## IV. Operating procedures

1. Switch on the power lock;
2. Press the forward and backward rocker switch, lock it in forward or backward state, and check whether it is in place;
3. Release the parking brake;
4. Press the accelerator pedal at a constant speed and the vehicle starts.



***When opening the power lock, the forward and backward switch must be in neutral position, otherwise the vehicle will not be driven; if you step on the accelerator pedal first and then open the power lock, the vehicle will not be driven. At this time, you must release the pedal and then step on the pedal again before the vehicle is driven.***

## V. Codes of safety practice

The driver must fully understand the technical performance, control mechanism and operating procedures of the vehicle, and abide by the following codes of safety practice:



**The vehicle is off-road vehicle, please don't drive on the highway!**



**Do not overload while driving, so as to avoid potential safety hazards like reduced brake performance.**



**Unqualified personnel are not allowed to drive the vehicle.**



**Please drive within the approved slope range.**

## VI. Maintenance and repair

Maintenance of electric vehicles is very important, which is directly related to the driving performance and service life of electric vehicles. Therefore, users have to abide by the following maintenance rules.

### 6.1 Maintenance and repair of battery



(Assembly diagram of a lead-acid battery)

Batteries are very important, because they provide the overall power source for the complete vehicle, just like the heart of electric vehicles.

**Note:** The followings are applicable to lead-acid batteries. For lithium battery electric vehicles, please refer to the Operating Instructions for Lithium Batteries.

1. The battery surface, connecting wires and bolts should be kept clean and dry for a long time. If there is electrolyte, it should be wiped off with a clean rag, then rinsed with clear water and dried. During cleaning, tap water is prohibited from entering the battery, so as to avoid electric leakage and increasing self-discharge, causing vehicle operation failure.

2. The battery must be well connected. Frequently check whether the connecting end face of the battery wiring is rusty and whether the clamp nut is loose, so as to avoid heating, sparking and burning the pole due to poor contact.



Note: The other end of the wrench used for the clamp nut should be wrapped with tape to prevent short circuit caused by improper operation.

3. It is forbidden to place any object on the battery, and it is strictly forbidden to connect the anode and cathode of the battery directly, so as to avoid short circuit and damaging the battery.

4. After the battery is discharged, it must be charged in time to achieve slow discharge and frequent charge. The battery should be charged on the day of use. It is not allowed to charge on the next day of use or after more than 24 hours. Otherwise, the battery service life will be shortened.

**Note:** If the vehicle is driven in summer, and the battery temperature is high, it is improper to charge immediately. It should wait for a while.

Recharge the battery after it cools down, and do not charge it in the sun. As the temperature is very low in winter, and the battery is in low temperature, its charging and discharging performance will decline, so the battery should be charged indoor.

5. Use the special charger for the vehicle to charge the battery. Other chargers may damage the battery.

6. During the use of the battery, due to the electrolysis and volatile consumption of water in the electrolyte, the liquid level will drop (especially in summer). Therefore, the liquid level should be checked frequently, and it is recommended to check once a week, and add appropriate amount of distilled water as appropriate.

7. Keep the battery clean without any foreign matters, and the appliances for adding water should be clean, so as not to bring impurities into the battery and affect the battery performance.

8. During driving, the driver should observe the indication of voltmeter/voltmeter on the instrument desk at any time. When it drops to the red area, it indicates that the battery capacity has run out, so the vehicle must be stopped and charged in time.

9. If the vehicle is not used for a long time, the battery should be fully charged and stored, and the electricity should be replenished once every half month.

10. Ensure ventilation in the charging place. During charging, the battery cover should be tightly covered and not close to the open flame.

11. The service life of lead-acid batteries is generally more than one year. At that time, the battery capacity will drop sharply, and new batteries must be replaced at this time. When replacing new batteries, batteries of the same brand,

specification and model, capacity and voltage (difference not more than 0.02V) should be used as a pack. The new battery pack should be charged evenly before use.

12. During use, batteries should be charged evenly once a month.

***For details, please refer to the Operating and Maintenance Manual for Batteries of the vehicle.***

## **6.2 Use method and precautions of charger**

fully automatic design and easy to operate

1. The standard configuration of the vehicle is an on-board charger.
2. Connect 220V input power supply, and pay attention to check whether the input line model matches the input current to avoid overload of the input line.
3. Connect the output plug to the vehicle.
4. After connecting the input and output lines, the red indicator lamp flickers, and the charger conducts self-inspection. After the self-inspection is completed, the green indicator lamp flickers and charging starts.
5. During charging, the green lamp flickers slowly when the battery capacity is less than 80%, and the green lamp flickers quickly when the battery capacity is greater than 80%. When the battery capacity reaches 100%, the green lamp will always turn on, and stop automatically after being fully charged.
6. The charger has its own discharge protection function. When the discharge termination point is reached, the vehicle will first limit the speed to reduce the battery discharge current. If the vehicle is not charged in time, it will further protect and stop the vehicle from operation. Non-electrical workers should not dismantle the charger and replace with chargers of other brands and models.
7. During charging, if the grid voltage is too high or too low, i.e. the voltage range is beyond 90-260V, the charger will automatically protect it, and the fault lamp will turn on at the same time to remind the user. When the voltage returns to normal, the charger will automatically resume charging.



### ***Important notes***

**! Hydrogen will be released from the battery during charging, so it is necessary to keep the charging place ventilated and avoid open flames and sparks.**

**! It is forbidden to use the charger after accidental water inflow.**

The charger should be used in the environment at -10°C - + 45°C.



***After the charger breaks down, non-professional personnel should not disassemble it by themselves. Please contact the After-sales Service Department of our company.***

***For details, please refer to the Operating Instructions for Charger of the vehicle.***

### **6.3 Maintenance and repair of traction motor**

1. The motor of the vehicle can work normally within the nominal working voltage range of the battery pack.
2. The motor is not allowed to idle, and the terminals cannot be short-circuited externally.
3. The air should not contain explosive gas.
4. Frequently remove the sediment and other adhesions on the motor shell so as not to affect the heat dissipation.

#### **Common faults and causes of AC motor**

S/N	Fault	Cause
1	Abnormal noise of motor	Motor bearing damage
2	The motor vibrates greatly	The bearing gap is too large
3	The motor cannot turn but it rings	Power supply failure
4	No rotation and abnormal sound	Excessive load or stuck bearing
5	The motor overheating	High voltage or motor overload
6	The motor bearing is overheated	Motor shaft bending

## 6.4 Maintenance and repair of electronic control gear

The electronic control gear used in the vehicle is an original imported product, and high-frequency MOS technology is adopted to realize smooth, silent, efficient and energy-saving vehicle speed, torque and brake control.

- To prevent runaway upon starting, when the vehicle starts, if the controller detects that the pedal input signal is greater than 20%, it will trigger the controller protection function (HPD) and the controller will prohibit the output.
- The microprocessor is powered on for self-inspection and subject to continuous diagnosis during operation. In case of any fault, the controller will stop output immediately, thus protecting the operator and the vehicle comprehensively.
- The AC controller also has temperature monitoring and protection functions to effectively prevent the motor from high temperature and avoid damaging the motor.

### 1. Regular maintenance

a. Check whether the contact between contactor contacts is good, whether there is adhesion or open circuit, whether there are sundries and ablation between contacts, and whether the moving contact is mechanically stuck.

b. Check whether the microswitch in the accelerator has good on-off performance.

c. Check whether the on-off performance of the direction switch is good. (CVT vehicle).

d. Check whether the connection between the motor, battery pack and controller unit is good. Note: Check in case of power failure.

e. Check and keep the electric control, motor and battery pack clean.



*The above checks shall be conducted at least once every three months. After turning off the power, the filter capacitor in the controller unit should be kept discharging for several minutes. Do not flush the electrical components with water! Clean brush or high-pressure gas can be used to remove dust.*

### 2. Fault characteristics and possible causes:

Fault characteristic	Possible cause
The vehicle cannot start	(1) The controller has no power supply (2) The signal is not transmitted to the controller (3) fuse damaged. (4) The motor or controller is damaged. (5) The phase sequence of the motor encoder is wrong or damaged (6) The motor or controller is in temperature protection state (7) The electromagnetic brake is locked
The vehicle can only move forward or backward	(1) The direction switch is damaged or the line is disconnected (2) The controller pins are damaged (3) Controller failure
The maximum speed slows down	(1) The battery is about to run out (2) The brake shoes are not reset (3) The accelerator pedal is faulty (4) The controller is faulty (5) Excessive load (6) The motor or controller is in temperature protection state (7) Abnormal motor encoder

### 6.5 Brake part

1. Press the brake pedal with a force of about 30kgf, and the pedal stroke shall not exceed 2/3 of the total stroke.

2. The brake pad clearance is automatically adjusted. Under the action of 20kgf pull, parking brake handle should be stuck in certain tooth between 5-10 ratchets, and the wheel should be effectively locked. When the handle is fully released and reset, the parking brake is released.

3. Regularly check and replace brake shoes and fill lubricating oil in brake hub bearing.

### 6.6 Lubrication and maintenance of complete vehicle

1. The brake fluid used for ex-factory is Like 901 automobile brake fluid, and it is forbidden to mix and use different brands of brake fluid.

2. 85W/90GL hypoid gear oil is used for gearbox and rear axle, and the filling amount is 0.8L.

3. Main lubricating points: Fill butter in steering gear box, tie rod, steering knuckle and bearing parts.

### **6.7 Running-in of new vehicle**

To ensure the use performance of the vehicle, improve the reliability of the complete vehicle and prolong the service life of the complete vehicle, the parts should be subject to running-in before the vehicle works at the maximum load. It is stipulated that the running-in period of new vehicle is one month or 1000 kilometers, which should be carried out according to the following specifications:

1. Before the running-in of new vehicle, it is required to carefully check the capacity of oil, electrolyte and brake fluid. If it is insufficient, it should be filled according to regulations; tyres should meet 205/50-10, and the air pressure should be 200-250kPa.

2. Try not to drive on the ring road.

3. Always check the fastening of connecting parts, and tighten them if they are loose.

4. During the running-in period of new vehicle, the speed is controlled within 15km/h.



### ***Precautions:***

1. Check the rear powertrain every three months and fill or replace grease.  
2. Check the wear of brake shoes every three months, and adjust and replace them in time in case of any problem.

3. Check the fastening of electrical system once a month, especially the connection between large current circuits, such as battery, motor and electric control, and keep it in good condition. At the same time, the contact state of the contact parts should be checked, any defect found should be corrected in time, and deposited dust should be removed in time.

4. As the electrical contact is not in good contact, it will heat up, so we should usually pay attention to the heating state at the contact point.

5. When changing the fuse, check whether the rated current of the new fuse is correct.

6. During maintenance and repair of the vehicle, in order to ensure safety, the positive and negative power cables of the battery pack should be removed.

7. It is strictly forbidden to slam on the accelerator or inching the accelerator frequently, so as not to damage the accelerator and shorten the service life of the electronic control gear.

8. It is strictly forbidden to add other liquids to the battery, such as battery additives, mineral water, tap water, etc., and distilled water must be added.

9. Drive safely. It is forbidden to drive at high speed when going downhill. Slow down when turning, and remind passengers to pull handrails when turning and going downhill to avoid safety accidents.

10. Children are strictly forbidden to play in the vehicle. Children should sit in the middle position and be cared for by adults to avoid children falling from the vehicle.

11. Please conduct regular maintenance according to the table below:

Item	Maintenance content	Daily inspection	Weekly inspection	Monthly inspection	Quarterly inspection	Semiannual inspection
Battery maintenance	1. Check the liquid level. If it is lower than the specified value, add distilled water.		√			
	2. Charge (daily).	√				
	3. Cover the battery cover tightly during charging.	√				
	4. Fasten the battery pole nut.		√			
	5.Prevent the battery from over-discharging (the voltmeter is still on when it indicates the red area).	√				
	6. Check whether the battery is fully charged. Method: a. Look at the charger indicator; b. Measure specific gravity; c. Look at the voltmeter.	√				
	7.Measure the specific gravity of electrolyte. The normal specific gravity of full charge should be $1.277 \pm 0.007 \text{g/cm}^3$ (80°F).		√			
	8. Wipe the battery surface to remove the dirt on the surface.		√			
Charger	9.Observe the working condition of the charger and check the heating condition of the charger socket.	√				
	10. Remove dust from the shell. No water is allowed to enter.		√			

Electronic control gear motor	11.Fastening of each connection point (note: it should be carried out in power-off state).			√		
	12. Clean up external dust.				√	
	13. Whether the plug pin is loose.					√
Electronic control gear motor	14. Check whether there is water entering and check the heating condition.	√				
	15. The electromagnetic brake fails to lock.					√
	16. Whether the accelerator pedal is flexible and reliable and reset.	√				
	17. Wear of brake drum and friction plate, and adjustment of hand brake.				√	
	18. Brake hoses and pipes (oil leakage and damage).			√		
	19. Brake fluid (liquid level, with or without leakage).			√		
	20. Tyres and clamp nuts (tread wear, air pressure, tightness of nuts).		√			
	21. Shock absorber (oil leakage, inelasticity and abnormal noise).			√		
	22. Drive shaft bolts (fastening).			√		
	23. Change the oil of the rear axle gear.		Change the oil of a new vehicle once a month or per 1000 kilometers, change the oil for the second time after two months, and then change the oil every six months.			
	24. Add lubricating oil to steering gear box and hub bearings.				√	
	25. Front and rear suspension (tightness, abnormal noise, rupture) and toe-in adjustment.				√	
	26. Clean the surfaces of vehicle body, seat, motor and controller.	√				
	27. Road test.	Road test must be carried out after each maintenance operation to observe the condition of each part.				



## 12. Fuse location:

Plug-in accessory fuses (six fuses for DC system and six fuses for AC system) are centrally installed in the fuse box on the left side of the car.

One bayonet main fuse is installed on the lower controller mounting plate the rear seat.

## VII. Storage

When electric vehicles are not used for a long time, they should be stored in a cool, dry and ventilated environment according to the requirements of electrical products to prevent sun, rain, dust, etc.

## VIII. After-sales service

Thank you for choosing our products. In addition to products, you will also receive technical support and services provided by our company. Our service tenet is to provide you with fast and professional technical services.

**After-sales service center telephone:** 0514-80915501 (24-hour service hotline)

### **Warranty provisions**

#### **1. Warranty definition**

It refers to that for non-human (use or improper operation and maintenance) failure or damage of parts (loss of use function) within the specified use conditions and time limit, our company will repair or replace the corresponding parts for users free of charge to ensure the normal operation of the vehicle. Please understand that the parts replaced within warranty period will not be returned to the users.

#### **2. Warranty period**

The complete vehicle is guaranteed for one year (except quick-wear parts).

#### **3. Warranty conditions**

- All parts must be original parts of our company and within the warranty period.
- There is no warranty under the following circumstances:
  - Damage is caused by the users' failure to use according to the instructions or improper storage.

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Parts damage is caused by disassembly and maintenance of users.

Parts damage, parts theft or loss is caused by natural disasters and accidents.

Quick-wear parts are not covered by the warranty, such as bulbs, fuses, brake pads, glass products, connectors, etc.

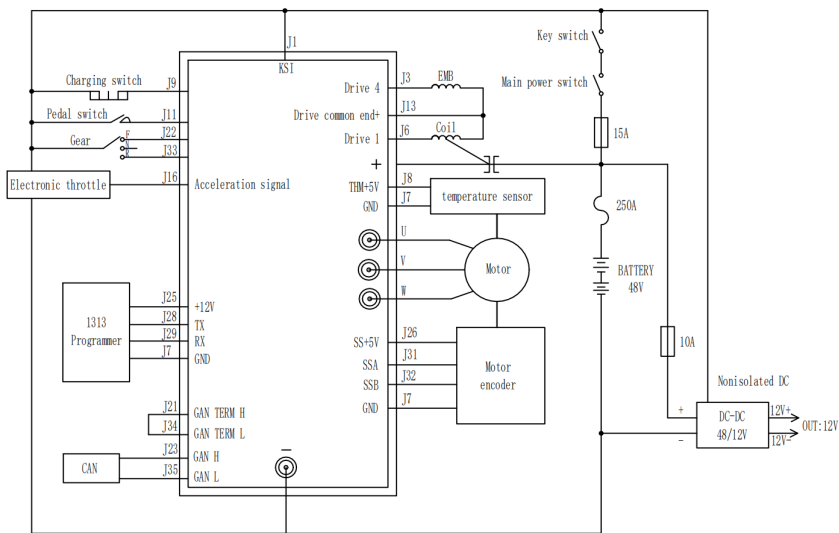
#### **4. Determination of warranty period**

Valid user warranty card and copy of purchase invoice are used as vouchers. If the above vouchers cannot be provided, the Company will calculate the date with the product ex-factory number.

IX. Line assembly drawing

Line Assembly Drawing

Curtis AC controller

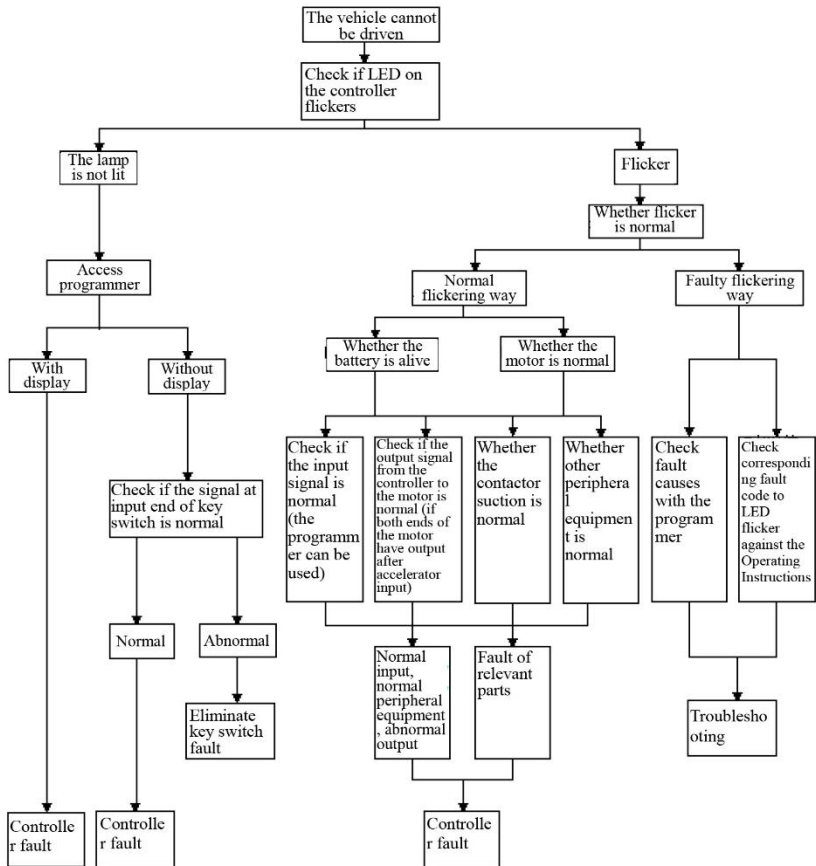


Standard wiring diagram for the Curtis 1232 SER controller

## IX. Controller assembly drawing

### Controller Maintenance Process

#### Curtis AC controller



## Controller Maintenance Process

### Curtis AC controller

LED Display Information Description	
Two LED indicator lamps are not on	The controller power is not connected or the vehicle battery runs out or other major faults
The yellow LED flickers	The controller works normally
The yellow and red LEDs are normally on	The controller is in program load status
The red LED is normally on	Check whether it is invalid or the software is not installed with restart key switch; if restart is required, the software should be reinstalled.
The red and yellow LEDs flicker alternatively	<p>If the controller is faulty, reading is required according to lamp flicker at this time; fault code value needs to be read.</p> <p>The fault code consists of two digits.</p> <p>The permanent order is: Red first and yellow later.</p> <p>Red lamp flicker indicates digit position.</p> <p>Yellow lamp flicker indicates specific value of corresponding digit.</p> <p>If the red lamp flickers once, it indicates that the corresponding code digit is the tens place of digit and if the red lamp flickers twice, it indicates the ones place of digit.</p> <p>For example, if the red lamp flickers once and the yellow lamp flickers three times, it indicates that the value of tens place of digit is 3.</p> <p>Then, if the red lamp flickers twice and the yellow lamp flickers once, it indicates that the value of ones place of digit is 1.</p> <p>Therefore, the complete fault code is 31.</p> <p>The signal lamp can display multiple faults. The code value can be read successively with this method.</p>

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**Without the written consent of the Company, the Operating Instructions shall not be duplicated, translated or extracted.**

**The Operating Instructions are as comprehensive and detailed as possible in texts, pictures and parameters on the basis of existing data; however, the actual configuration and function of users' vehicles are subject to the specific delivery. The Company will continue to change various models, and may change at any time, so the Company has the right to modify and supplement the relevant versions of the Operating Instructions. If users have any doubt about this, please call the customer service hotline in time for consultation.**

**All rights reserved. Any infringement shall be investigated.**

**Printing and issuing date:**